Navy Closure Task Force

Final

Navy Aiea Halawa Shaft Reactivation Pilot Study Technical Memorandum Hawaii State Well Number 3-2252-32 Joint Base Pearl Harbor-Hickam Public Water System (#HI0000360)

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July 2025

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ACRONYMS AND ABBREVIATIONS

µg/L	microgram per liter
AECOM	AECOM Technical Services, Inc.
DoD	Department of Defense
DOH	Department of Health, State of Hawaii
EBCT	empty bed contact time
EDWM	Extended Drinking Water Monitoring
EPA	Environmental Protection Agency, United States
GAC	granular activated carbon
GC	gas chromatograph
HBWC	Health-Based Water Concentration
HI	hazard index
HQ	hazard quotient
IX	ion exchange
JBPHH	Joint Base Pearl Harbor-Hickam
JP-5	Jet Propellant 5
MCL	maximum contaminant level
mg/L	milligram per liter
mgd	million gallons per day
NAHS	Navy's Aiea-Halawa Shaft
Navy	Department of the Navy, United States
NPDWR	National Primary Drinking Water Regulations
NSF	National Sanitation Foundation
PAH	polycyclic aromatic hydrocarbon
PAPAHs	parent and alkylated-polycyclic aromatic hydrocarbons
PFAS	per- and polyfluoroalkyl substances
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOS	perfluorooctanesulfonic acid
PHC	petroleum hydrocarbons
PIANO	paraffins, isoparaffins, aromatics, naphthenes, and olefins
PPT	part per trillion
PWS	public water system
RL	reporting limit
SHC	saturated hydrocarbons
TM	technical memorandum
TPH	total petroleum hydrocarbons
TPH-d	total petroleum hydrocarbons diesel range organics
TPH-g	total petroleum hydrocarbons gasoline range organics
TPH-o	total petroleum hydrocarbons oil range organics
VOC	volatile organic compound

STATEMENT OF LIMITATIONS

This document was prepared in accordance with the customary thoroughness and competence of civil and environmental engineering consulting professionals and in accordance with the standard for professional services for a national consulting firm at the time these services were provided. The analysis and conclusions expressed in this document were developed based on a limited scope of services and the information made available to AECOM Technical Services, Inc. at the time this work was conducted.

The following Technical Memorandum is a summary of the full NAHS pilot study report presented in Appendix A.

1. Introduction

1.1 PURPOSE OF THE PILOT STUDY

This technical memorandum (TM) presents the findings from the pilot study of the granular activated carbon (GAC) and ion exchange (IX) treatment system at the United States Department of the Navy's (Navy's) Aiea-Halawa Shaft (NAHS) in Aiea, Hawaii. As one part of the reactivation plan (DON 2024), the study aims to support the Navy's goal of reactivating the NAHS to enhance the resiliency and redundancy of the Joint Base Pearl Harbor-Hickam (JBPHH) public water system (PWS), which serves approximately 93,000 residents, private consumers, critical Department of Defense (DoD) industrial processes, building heating, ventilation and cooling systems, and critical emergency response and firefighting services in southern Oahu. It is a community water system as defined by Title 40 Code of Federal Regulations, Part 141, Subpart A and, prior to November 2021, was supplied by three groundwater wells, namely the Waiawa, Red Hill, and Navy Aiea-Halawa shafts.

The pilot study was designed to evaluate the effectiveness of the treatment system in removing per- and polyfluoroalkyl substances (PFAS), as well as address other constituents of concern, including total petroleum hydrocarbons (TPH) and polycyclic aromatic hydrocarbons (PAH), from the water supply at the NAHS under conditions representative of standard operation. The study's results will inform the Navy in their request to reactivate the NAHS in compliance with the United States Environmental Protection Agency (EPA) and State of Hawaii Department of Health (DOH) regulations. The Navy was granted approval to reactivate the NAHS on February 7, 2025, under the condition of completion of the pilot study as well as other requirements (DOH 2025).

The pilot study results demonstrate the removal efficiency of PFAS is in compliance with the EPA's future National Primary Drinking Water Regulations (NPDWR) at each post-treatment phase (GAC and IX Resin). Based on data collected throughout the pilot study, neither TPH nor PAHs were detected in the raw water; thus, removal efficiency of these compounds could not be evaluated in this study. GAC treatment is a proven and reliable method that is highly effective at adsorption of organic compounds onto its surface, thereby removing them from water upon contact (EPA 1991; 2000) (supporting studies included in Appendix I). Therefore, it is expected that this treatment system would effectively remove both TPH and PAHs if present in the source water.

The results of the pilot study as presented in this report support the Navy's request to reactivate the NAHS in compliance with EPA and DOH requirements. Additional information regarding the technical aspects of the entire NAHS pilot study is provided in Appendix A.

1.2 BACKGROUND

Although not affected by the Red Hill fuel release, the NAHS was isolated from the JBPHH public water supply on December 3, 2021, after the Red Hill Shaft was disconnected as an additional measure of caution by the Navy. Since then, the Waiawa Shaft remains the sole source of potable water for the entire JBPHH PWS. Since November 2020, analytical results of the NAHS raw source water samples reported several PFAS compounds above the 2024 EPA NPDWR health advisory levels that will become enforceable on April 26, 2029. The source of the PFAS compounds at the NAHS is unknown. Since temporarily removing the NAHS from service, the Navy proactively began pursuing a treatment system for the NAHS water supply to achieve compliance with all State and Federal requirements including evolving PFAS regulations. Reactivating the NAHS is a vital Navy resiliency measure providing an alternative water source to supplement the Waiawa Shaft. In addition, a final pilot study report demonstrating the efficacy of the

treatment system is a requirement imposed by DOH to reactivate the NAHS (DOH 2025). The treatment system is designed to remove potential future impacts from sources including PFAS and other fuel-related compounds like TPH and PAHs. In addition, the treatment system provided an opportunity to evaluate and document the chloride concentrations previously noted in the 2015 *Utility System Assessment of the JBPHH Potable Water System* by Engineering Concepts, Inc. (DON 2015).

1.3 DESCRIPTION OF PFAS, TPH, AND PAHS

PFAS are a collective name for a broad class of man-made chemicals of concern that have recently been in the spotlight due to potential human and environmental health risks. While public attention to PFAS is relatively new, the chemicals have been used globally since the 1940s. PFAS are considered emerging constituents of concern because research is ongoing to better understand the impacts they pose to human health, animal health, and the environment. Previous testing data at the NAHS have shown that several PFAS compounds are present at concentrations above the 2029 NPDWR levels.

TPH is defined as the total amount of petroleum-based hydrocarbons measured in an environmental sample. Petroleum hydrocarbons (PHC) refer to a family of several hundred chemicals made up primarily of carbon and hydrogen atoms that originate from crude oil and are processed (or refined) to create mixtures used for fuel, tar, lubricants, and other substances. TPHs are common environmental contaminants found in soil, water, and air. A detection of TPH does not equate to the presence of fuel. Not all PHC originate from fuel and, as discussed in detail in Section 2.3, the non-specific nature of the analytical method means that the reported concentration may have contributions from chemicals that are not PHC at all. Detections of TPH-d were reported in the NAHS raw water samples collected from various sampling ports in December 2021. There was one additional low-level TPH-d detection reported in an EPA sample collected from the raw water in June 2024. A duplicate sample was collected by EPA and the TPH-d results were non-detect. Navy's split sample results were also non-detect for TPH. **Other than this sample, no TPH has been found in the NAHS raw water since Navy began collecting samples in January 2022.** All historical NAHS sample data are provided in Appendix H.

PAHs are a sub-class of PHC, and 15 of these compounds are analyzed in this study. PAHs are primarily introduced into the environment through two broad pathways: petrogenic and pyrogenic sources.

Petrogenic PAHs originate from geological processes that form fossil fuels and are common in petroleum products. In the environment, they may originate from point sources such as oil spills, petroleum handling facilities and asphalt pavements, or from more dispersed sources such as leaking oils or fuels from individual vehicles.

Pyrogenic PAHs are formed by the incomplete combustion of organic matter, including fossil fuels, wood, and biomass. Typical sources are from vehicle exhaust and wildfires and are often associated with soot and particulate matter.

Three of the PAH compounds (naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene) monitored in this study are identified as primary components of Jet Propellant 5 (JP-5). The remaining 12 compounds are not associated with JP-5 but are associated with petroleum products such as gasoline and diesel fuels. **Testing for PAH at the NAHS began in January 2022, and no PAHs have been detected in the NAHS raw water since this time, or in post-treatment samples during this study.**

1.4 TREATMENT TECHNOLOGY

The treatment system utilizes two technologies, GAC filtration and IX. GAC filtration is commonly used on a range of scales, from large industrial or municipal treatment works to whole-house water filters and is even used in most tabletop water filtration pitchers. The GAC media is made from burned raw organic

materials rich in carbon such as coconut shells, coal, or wood. GAC is a porous material with high internal surface area that filters water by the processes of both absorption (mechanical) and adsorption (chemical) that trap chemicals inside of, or on the surface of the carbon. GAC works well on longer-chain PFAS (six or more carbons) like perfluorooctanoic acid and perfluorooctanesulfonic acid (PFOS), but shorter-chain PFAS (fewer than six carbons) like perfluorobutanesulfonic acid (PFBS) and perfluorobutanoic acid (PFBA) do not adsorb as well. GAC is generally more effective at removing long-chain PFAS because these compounds tend to avoid water and have a stronger attraction to carbon media. IX resin utilizes natural or manufactured resins to selectively remove constituents of concern. Most commonly, the resins are made from polymer beads and remove PFAS through a variety of actions, primarily electrostatic and hydrophobic effects. Depending upon the water chemical components, the IX resin can be more effective at the removal of PFAS than GAC, serving as an additional measure of treatment. Short-chain PFAS are more soluble in water, making them more readily exchanged by the resin. GAC and IX resin are effective for removing all types of PFAS, each in their own way. They are both reliable and economical treatment technologies, which is why they are utilized in this pilot testing treatment system.

The treatment system at the NAHS consists of four individual trains, with each train having two GAC vessels assembled in a lead-lag configuration, followed by a final IX resin vessel. This results in a total of 12 vessels. The system is designed to remove PFAS, TPH, and PAHs. At peak flows (b) (3) (A) [redacted]), the treatment system is designed to operate with three trains running at a time with one redundant train out of service for maintenance. The NAHS Water Use Permit allows for an annual average flow rate of [redacted]. Train IV was utilized for the pilot test with a design flow rate of approximately (b) (3) (A) gallons per minute. The piping to and from the treatment system is National Sanitation Foundation (NSF)-certified, 24-inch Standard Dimension Ratio 11, high-density polyethylene piping. In support of this system, there are the three 9,000-gallon booster tanks and two associated pumps (primary and redundant) which will pump the treated post-GAC water into the JBPHH distribution system after chlorination and fluoridation. (Figure 1). Appendix B presents a process flow diagram of the GAC/IX treatment system and piping.



Figure 1: GAC/IX Treatment System Layout (CUI)

2. Monitoring Pilot Study Overview

2.1 OBJECTIVE

The primary objective of conducting the pilot study was to demonstrate the treatment system's efficacy in reducing PFAS concentrations (under conditions representative of standard operation) below the EPA's April 2024 NPDWR maximum contaminant levels (MCLs), which become enforceable in 2029 (Table 1). Future raw water PFAS concentrations are expected to be similar to those seen historically and during this pilot study. Only two PFAS compounds, PFOA and PFOS, have been detected above their respective MCLs in prior sampling of the NAHS. Demonstration of the efficacy of the treatment system with the pilot study is a requirement of the DOH's conditional approval to reactivate the NAHS (DOH 2025).

Table 1: Comparison of Results with 2029 EPA PFAS Standards

PFAS Constituent	2029 MCL	NAHS Prior to Pilot Study [a]			NAHS Pilot Study Pre-Treatment [b]			NAHS Pilot Study Post-IX Treatment [c]		
		Min.	Avg.[d]	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.
Perfluorooctanoic acid (PFOA)	4 ng/L	ND [e]	3.30	7.50	3.90	5.87	8.60	ND	ND	ND
Perfluorooctanesulfonic acid (PFOS)	4 ng/L	ND	4.30	13.90	6.00	9.16	19.50	ND	ND	ND
Perfluorononanoic acid (PFNA)	10 ng/L	ND	0.03	0.80	ND	ND	ND	ND	ND	ND
Perfluorohexanesulfonic acid (PFHxS)	10 ng/L	ND	2.96	6.30	4.40	5.58	8.10	ND	ND	ND
Hexafluoropropylene oxide dimer acid (HFPO-DA)	10 ng/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mixtures of PFHxS, PFNA, HFPO-DA, and Perfluorobutanesulfonic acid (PFBS)	1 (unitless) [f]	<1			<1			<1		

avg. average [f]
min. minimum
max. maximum
ND non-detect
ng/L nanogram per liter

[a] NAHS Prior to Pilot Study: Data collected from NAHS source (i.e., pre-chlorination) and the entry-point to the distribution system (i.e., post-chlorination) between April 18, 2023, and March 7, 2025.
[b] NAHS Pilot Study Pre-Treatment: Data collected from the raw water (i.e., pre-chlorination) sample location during the pilot study between April 8, 2025, and May 2, 2025.
[c] NAHS Pilot Study Post-IX Treatment: Data collected from the effluent (i.e., post-IX) sample location during the pilot study between April 8, 2025, and May 2, 2025.
[d] For non-detections, a value of zero was used when calculating the average concentration.
[e] ND denotes the analyte was not detected.
[f] The hazard index (HI) represents a running average of the combined concentrations of PFHxS, PFNA, HFPO-DA, and PFBS. For each sampling date and corresponding analysis, an individual HI was calculated, and these values were then averaged to determine the overall HI.

2.2 PILOT STUDY APPROACH AND METHODS OF SAMPLING

The monitoring required AECOM to closely coordinate the sampling schedule with JBPHH Utilities personnel and the treatment system operator to synchronize treatment system operation with the sample collection. Samples were collected during each activation period from NSF 61-certified spigots located prior to the GAC (raw water/influent), between the GAC and IX vessels (post-GAC), and directly after IX treatment (post-IX).

To evaluate each phase of the treatment process, representative samples were collected in the following order during each operational event from the following locations with example photos shown in Appendix A, Figure 3:

1. Prior to the GAC treatment (raw water/influent)
2. Between the GAC lag vessel and IX vessel (post-GAC)
3. After the IX vessel (post-IX)

The planned duration of the pilot study was 30 days. Water was flushed through Train IV of the treatment system for approximately 4 hours every 2 or 3 days. The NAHS was left inactive between flushes. However, on day 24 (May 2, 2025), the State of Hawaii Department of Transportation requested an emergency suspense to the pilot study's discharge operations to facilitate emergency repairs to downgrade infrastructure below the adjacent freeway. Accordingly, the Navy suspended further operations, which prevented the remaining 6 days of the pilot study, including the final two sampling events. After notification to and consultation with DOH, it was determined that sufficient samples had been collected to support the conclusion of the pilot study. Over the 24-day pilot study period, a total of 33 water samples were collected from the three locations (raw water, post-GAC, and post-IX) occurring every 2–3 days with one event per day. An additional three quality control samples were collected during the pilot study totaling 36 sample sets. DOH was invited to oversee sample collection activities and collect split samples for an independent check on accuracy. DOH did not collect any split samples. Email confirmation that DOH did not collect pilot study split samples is provided in Appendix F.

Generally, the startup of the filters is defined in an operations plan which includes disinfection of the treatment vessels, flooding of the GAC/IX tanks, rinsing fines off the media, and letting the tanks settle to remove the air trapped in the filter media. Initial sampling for turbidity, chlorides, sodium, and other parameters indicates that the first two sample collection events were influenced by the startup process and the IX process had not yet reached operational efficiency, meaning that the IX vessel did not reach peak anion removal capability.

Experienced sampling technicians collected raw water samples directly after shaft startup. Samples after GAC/IX treatment (effluent) were collected later in the event's operation cycle. To verify adequate system flushing at the raw water sample site, after the GAC vessels sample collection and the IX treatment sample collection, samplers recorded readings of pH, conductivity, turbidity, and temperature using a field-calibrated water quality meter. Once all four water quality parameters stabilized, the sample was collected for the analytical parameters discussed in Section 2.3. Steady-state water quality conditions were achieved when three consecutive readings collected at 5-minute intervals were within 10 percent of each other. A single free chlorine reading was also recorded prior to sample collection. Per the approved sampling and analysis plan, the analytes that were required to be at steady state were pH, conductivity, and temperature. If turbidity did not stabilize within 30 minutes, a sample was collected to ensure the operation timeframe was not exceeded.

Sampling locations are presented on the flow diagram of the treatment system provided in Appendix B. Collecting samples from these locations enabled calculation of removal efficiency for each phase of treatment and the overall effectiveness of the train at treating the water.

2.3 METHODS OF ANALYSIS

All samples were analyzed for PFAS via EPA Method 533: *Determination of Per- and Polyfluoroalkyl Substances in Drinking Water by Isotope Dilution Anion Exchange Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry* and EPA Method 537.1: *Determination of Selected Per- and Polyfluorinated Alkyl Substances in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)* at (b) (4) [redacted]. A subset of PFAS compounds was analyzed by both methods. See Appendix C for a list of compounds analyzed by both methods.

The remaining analytical parameters measured are a subset of potential constituents of concern identified in the Extended Drinking Water Monitoring (EDWM) plan: TPH, volatile organic compounds (VOCs); semivolatile organic compounds, and PAHs. These analyses were all performed at (b) (4) [redacted]. Selected water quality parameters such as anions, cations, alkalinity, and total suspended solids were analyzed to monitor characteristics of the water as it passed

through various stages of treatment. A complete table of the analytical methods, analytes, detection limits, and reporting limits (RLs) is provided in Appendix D.

As outlined in the methods, the laboratory reports TPH concentrations based on the total combined signal of all chemical compounds that appear within a specific time range during testing, rather than measuring each compound individually. Because of this approach, the reported TPH values may include not only PHC but also other non-petroleum substances that happen to fall within that time range. As a result, additional evaluations and more detailed analyses are needed to accurately determine the actual composition and source of any detected TPH.

TPH was measured in samples using SW-846 Method 8015D, a gas chromatographic method. Chromatography is an analytical technique commonly used for separating a mixture of chemical substances into its individual components, so that concentrations of individual components can be measured. Samples are prepared in such a way that the constituents of concern are extracted from the sample and concentrated into a solvent so that they can be injected into the instrument—in this case, a gas chromatograph (GC). The GC is heated, and different chemicals will pass through the instrument at different times depending on their chemical properties such as boiling point and molecular weight. A chromatogram is the visual output that records the response (peak) as the different chemicals in a sample are separated over time. Each peak on the graph represents a different substance, and the size of the peak is representative of how much of that substance is present.

Because TPH includes hundreds of chemicals, it is impractical to measure each individual component. Therefore, TPH concentrations reported by the laboratory are based on the sum of all peaks falling within a specified period, rather than identifying and quantitating individual peaks. Therefore, results often include non-petroleum compounds. Additional evaluations and analyses are necessary to determine the true nature of any reported detections. In the event that TPH detections were reported in any of the pilot study samples, chromatograms were reviewed by an experienced chemist, (b) (4) performed further diagnostic tests (mass spectral searches), and the sample was submitted to (b) (4) for additional specialized analyses. (b) (4) analyzed the samples for a quantitative evaluation of PHC and potential indicators using the following analytical methods:

- SW-846 8260 D – Paraffins-Isoparaffins-Aromatics-Naphthenes-Olefins (PIANO)
- SW-846 8270E-SIM –Parent and Alkylated-PAHs (PAPAHs)
- SW-846 8015D – Saturated Hydrocarbons (SHCs)

These methods provide additional, more detailed information than is possible with the original analyses. For example, when evaluating TPH detections, the PIANO and SHC methods can identify and quantitate individual hydrocarbon concentrations (with RLs of approximately 1 microgram per liter [µg/L]) rather than reporting one result for an entire carbon range with an RL of 80 µg/L. An extended list of PAHs and their alkylated derivatives can be analyzed using the PAPAHs method, all at very low RLs, providing additional information that is key to determining the potential source of any detected analyte. Alkylated PAHs refers to a group of compounds that have the same base PAH structure but have one or more alkyl groups attached to it. An alkyl group is a molecule fragment consisting only of carbon and hydrogen atoms attached by single bonds.

3. Results

3.1 SUMMARY

Sample results demonstrate the effectiveness of the treatments system at removing PFAS. Results meet the updated 2029 NPDWR for PFAS as shown in Table 2. Eight PFAS compounds were detected in each of the raw water samples, and another six were detected occasionally (Table 2). In those instances where a particular

compound was analyzed by both Method 533 and Method 537.1, concentrations were higher in Method 533 results. Variations between the methods are expected. Method 533 is an isotope dilution method that corrects for extraction efficiency, which tends to lead to higher results.

There were no PFAS compounds detected in the post-GAC samples with the exception of a 1.5 ng/L detection of PFOS via Method 537.1 in the sample collected during the first event (April 8, 2025). PFOS was not detected in this sample via Method 533 and was not detected in any subsequent post-GAC samples. Since this sample was collected on the first day of the pilot study before system efficiency was achieved, it is likely associated with start-up issues or other conditions that would not be expected once the treatment system is fully operational. All post-IX samples were non-detect for all PFAS compounds. There were no PAH compounds detected in any samples collected for the pilot study.

The Navy's Aiea Halawa pilot study sampling included monitoring for chloride. Those results are presented more fully in Appendix C. Chlorides are an indicator of saltwater intrusion. The NAHS pumps from a narrow freshwater lens that floats on top of a saline water table beneath. Over-pumping the NAHS will draw in salt water. Based on the 2015 *Utility System Assessment of the JBPHH Potable Water System* by Engineering Concepts, Inc. (DON 2015), the 30201 Waimalu Aquifer System, from which the NAHS obtains its water, has a high chloride level. At the time of the 2015 report, the pumpage from the aquifer system exceeded the aquifer's sustainable yield by nearly 2 mgd. Due to the over pumpage, the freshwater lens, floating on the saline water, was thinning, exacerbating the issue of rising chloride levels.

In addition, the first two sampling events show lower chloride concentrations in the post-IX than in the raw water or at the post-GAC sampling location. This is attributed to startup issues as the IX process was activated. For the first two sampling events, chlorides are significantly reduced by the IX vessel, which is associated with both the start-up of the IX process and (it is assumed[1]) the resin's ion preferential selectivity. After the first two sampling events, the IX vessel has marginally discharged more chlorides than came into the vessel; this demonstrates that the resin is releasing chloride ions in exchange for a stronger anion in the raw water like bicarbonate, sulfate, PFAS, or nitrate. The anion exchange resin used at the NAHS is designed to remove negatively charged ions (anions) from the water, replacing them with chloride ions.

At the start of each sampling event, the crews monitored the turbidity in nephelometric turbidity units (NTUs) of the water at that sampling location (raw water, post-GAC, and post-IX). Monitoring turbidity using a flow through cell indicated when the turbidity stabilized. The high turbidity readings on the first day of sampling (April 8, 2025) was assumed to be caused by air bubble turbulence and flushing of fines at the startup of each sampling event. However, total suspended solids (TSS) were not detected in any pilot study samples (raw water, Post-GAC, or Post-IX). This demonstrates that fines were not an issue. The results of that monitoring are summarized in Appendix A, Section 5.2. With each sampling event, turbidity was monitored for 30 minutes with measurements recorded every 5 minutes. The program's turbidity limit was 5 nephelometric turbidity units.

On April 8, 2025 (the first day of monitoring), the post-GAC turbidity measurements were significantly above the turbidity limit of 5 NTU. Those values are shown in Appendix A.5, Section 5.2. The startup process was too short and did not allow adequate time for removal of the air from inside the GAC vessels prior to monitoring.

[1] Without detailed information on the resin's manufacture and product information this is an assumption.

Table 2: Summary of Results

Method Group	Analyte	EPA (MCL)	Raw water		Post-GAC [a]		Post-IX [a]	
			Min.	Max.	Min.	Max.	Min.	Max.
2029 Regulated PFAS Constituents	Perfluorooctanoic acid (PFOA) (ng/L)	4 ng/L	3.9	8.6	ND	ND	ND	ND
	Perfluorooctanesulfonic acid (PFOS) (ng/L)	4 ng/L	6.0	19.5	ND	1.5	ND	ND
	Perfluorononanoic acid (PFNA) (ng/L)	10 ng/L	ND	ND	ND	ND	ND	ND
	Perfluorohexanesulfonic acid (PFHxS) (ng/L)	10 ng/L	4.4	8.1	ND	ND	ND	ND
	Hexafluoropropylene oxide dimer acid (HFPO-DA) (ng/L)	10 ng/L	ND	0.9	ND	ND	ND	ND
Unregulated PFAS Constituents	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	—	ND	0.9	ND	ND	ND	ND
	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	—	ND	1.3	ND	ND	ND	ND
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	—	ND	6.2	ND	ND	ND	ND
	Perfluorobutanesulfonic acid (PFBS)	—	3.6	6.9	ND	ND	ND	ND
	Perfluorobutanoic acid (PFBA)	—	2.5	4.1	ND	ND	ND	ND
	Perfluorododecanoic acid (PFDoA)	—	ND	1.2	ND	ND	ND	ND
	Perfluoroheptanoic acid (PFHpA)	—	2.2	4.4	ND	ND	ND	ND
	Perfluorohexanoic acid (PFHxA)	—	4.2	8.1	ND	ND	ND	ND
	Perfluoropentanesulfonic acid (PFPeS)	—	ND	0.9	ND	ND	ND	ND
	Perfluoropentanoic acid (PFPeA)	—	6.4	10.2	ND	ND	ND	ND
	Perfluoroundecanoic acid (PFUnA)	—	ND	1.3	ND	ND	ND	ND
	All other tested PFAS constituents with no MCL and no detections	—	ND	ND	ND	ND	ND	ND
TPH	Diesel Range Organics (µg/L)	—	ND	ND	ND	ND	140	886
	Gasoline Range Organics (µg/L)	—	ND	ND	ND	ND	ND	50.3
	Oil Range Organics (µg/L)	—	ND	ND	ND	ND	ND	ND
SVOC (µg/L)	1-Methylnaphthalene	—	ND	ND	ND	ND	ND	ND
	2-Methylnaphthalene	—	ND	ND	ND	ND	ND	ND
	Acenaphthylene	—	ND	ND	ND	ND	ND	ND
	Anthracene	—	ND	ND	ND	ND	ND	ND
	Benzo(a)pyrene	0.2 µg/L	ND	ND	ND	ND	ND	ND
	Benzo(b)fluoranthene	—	ND	ND	ND	ND	ND	ND
	Benzo(g,h,i)perylene	—	ND	ND	ND	ND	ND	ND
	Benzo(k)fluoranthene	—	ND	ND	ND	ND	ND	ND
	Chrysene	—	ND	ND	ND	ND	ND	ND
	Dibenz(a,h)anthracene	—	ND	ND	ND	ND	ND	ND
	Fluorene	—	ND	ND	ND	ND	ND	ND
	Indeno(1,2,3-c,d)pyrene	—	ND	ND	ND	ND	ND	ND
	Naphthalene	—	ND	ND	ND	ND	ND	ND
	Phenanthrene	—	ND	ND	ND	ND	ND	ND
	Pyrene	—	ND	ND	ND	ND	ND	ND

Method Group	Analyte	EPA (MCL)	Raw water		Post-GAC [a]		Post-IX [a]	
			Min.	Max.	Min.	Max.	Min.	Max.
VOC (µg/L)	1,2,4-Trimethylbenzene	—	ND	ND	ND	ND	ND	ND
	1,3,5-Trimethylbenzene	—	ND	ND	ND	ND	ND	ND
	Benzene	5 µg/L	ND	ND	ND	ND	ND	ND
	Cumene	—	ND	ND	ND	ND	ND	ND
	Ethylbenzene	700 µg/L	ND	ND	ND	ND	ND	ND
	m,p-Xylene	—	ND	ND	ND	ND	ND	ND
	n-Butylbenzene	—	ND	ND	ND	ND	ND	ND
	n-Propylbenzene	—	ND	ND	ND	ND	ND	ND
	o-Xylene	—	ND	ND	ND	ND	ND	ND
	sec-Butylbenzene	—	ND	ND	ND	ND	ND	ND
	tert-Butylbenzene	—	ND	ND	ND	ND	ND	ND
	Toluene	1000 µg/L	ND	ND	ND	ND	ND	ND
	Xylenes, Total	10000 µg/L	ND	ND	ND	ND	ND	ND

— not available
max. maximum
min. minimum
ND non-detect
ng/L nanogram per liter
[a] Due to startup issues, initial sampling for turbidity, chlorides, sodium, and other parameters indicates that the first two sample collection events were influenced by the startup process and the IX process had not yet reached operational efficiency, meaning that IX vessel did not reach peak anion removal capability.

3.1.1 TPH Detections

TPH was not detected in any of the raw water or post-GAC samples during the pilot study. However, (b) (4) reported a TPH diesel range organics (TPH-d) concentration of 886 µg/L in the post-IX sample collected on April 8, 2025. TPH has been detected in all post-IX samples with successively decreasing concentrations through the eighth sampling event on April 25, 2025, after which the concentration began to plateau at approximately 150 µg/L.

When the first TPH detection was noted, information was solicited from the treatment system operator to understand potential causes for the detections. The resin contains polystyrene beads that are held together by divinyl benzene cross-linkers; the TPH-d detections are the result of initial contact of the water with the IX resin. Additional evaluation is warranted, and the Navy has inquired with the manufacturer about the resin and will follow up with DOH once results are obtained.

The chromatogram of the initial post-IX sample contained a series of peaks appearing in approximately the same range where C10-C18 n-alkanes would be seen. The same pattern was seen in all subsequent post-IX samples. Chromatographic overlays (Appendix G) of the first seven sampling events show identical patterns appearing at the same time that are decreasing in size for each successive sample. This demonstrates that the unknown constituents contributing to the TPH detections are consistent. Visual evaluation of the peak pattern, including overlays with chromatograms from JP-5 and diesel fuel, indicates that the detected substance is not fuel-related. Furthermore, a detailed review of laboratory method blanks, chromatograms, and mass spectral confirmation did not detect any of the alkanes expected to be present in petroleum compounds. This evaluation was unable to positively identify any of the compounds responsible for the peaks as there were no strong spectral matches with any of the compounds in the National Institute of Standards and Technology (NIST) library. While the identity remains unknown, the available information rules out a petrogenic source for the detections.

All post-IX samples were sent to (b) (4) for additional specialized analyses (PIANO, PAPAHs, and SHC). The key findings of these analyses are that the same chromatographic patterns are observed, the constituents are non-petrogenic, the identity of the constituents is unknown, and the C9-C44 petroleum hydrocarbon results from each sampling event closely match the total TPH results obtained by (b) (4).

Table 3 presents a summary of the detected results for each of the analyses, summarizing the number of detections of each analyte and providing the maximum and minimum concentrations for each. In addition to the tracking of C9-C44 petroleum hydrocarbon results with the (b) (4) TPH-d results, two additional items are significant. First, petrogenic hydrocarbon mixtures are composed predominantly of saturated hydrocarbons – molecules containing only carbon and hydrogen joined by single bonds. Only eight of the 12 samples contained measurable concentrations of saturated hydrocarbons, and these made up less than five percent of the reported C9-C44 petroleum hydrocarbons.

Second, styrene was detected in the PIANO analysis of the post-IX samples from the first six sampling events at decreasing concentrations, and the IX-resin contains polystyrene beads. Polystyrene is a polymer created from styrene monomers. The finished resin would be expected to contain residual styrene monomer fragments that would be flushed from the system over time. The presence of styrene and its gradual reduction to non-detect levels adds evidence to the assertion that resin components are being flushed from the treatment system and detected in the post-IX water.

Table 3: Summary of Post-IX Tier 2 Detected Results

Tier 2 Method Group	Analyte	MCL	Number of Samples	Number of Detections	Min.	Max.
SHC (mg/L)	C9-C44 Petroleum Hydrocarbons	-	12	12	0.0953	0.803
	Total Saturated Hydrocarbons	-	12	8	ND	0.0284
	2,6,10,14-Tetramethylhexadecane	-	12	1	ND	0.000305
	2,6,10,14-Tetramethylpentadecane	-	12	1	ND	0.000279
	2,6,10-Trimethylpentadecane	-	12	2	ND	0.000699
	2,6,10-Trimethyltridecane	-	12	2	ND	0.00711
	Dotriacontane	-	12	1	ND	0.00022
	Hentriacontane	-	12	1	ND	0.00043
	Heptacosane	-	12	1	ND	0.0013
	Heptadecane	-	12	4	ND	0.0123
	n-Eicosane	-	12	1	ND	0.000206
	n-Hexacosane	-	12	1	ND	0.00136
	n-Hexadecane	-	12	5	ND	0.00589
	n-Octacosane	-	12	1	ND	0.00112
	n-Octadecane	-	12	4	ND	0.00126
	n-Tetracosane	-	12	1	ND	0.000282
	n-Tridecane	-	12	1	ND	0.000516
	Tricosane	—	12	1	ND	0.000212

Tier 2 Method Group	Analyte	MCL	Number of Samples	Number of Detections	Min.	Max.
PAPAH (ng/L)	Biphenyl (Diphenyl)	—	12	2	ND	3.99
	C1-Benzo(b)thiophenes	—	12	4	ND	77.6
	C1-Fluorene	—	12	1	ND	4.93
	C1-Naphthalene	—	12	2	ND	6.07
	C1-Phenanthrene/Anthracene	—	12	2	ND	49.7
	C2-Benzo(b)thiophenes	—	12	8	ND	12.4
	C2-Decalins	—	12	6	ND	27.5
	C2-Dibenzothiophene	—	12	2	ND	13.2
	C2-Fluorene	—	12	11	ND	68.9
	C3-Benzo(b)thiophenes	—	12	8	ND	29.1
	C3-Dibenzothiophene	—	12	1	ND	5.9
	C3-Fluorene	—	12	3	ND	38.8
	C3-Naphthalene	—	12	2	ND	9.94
	C4-Benzo(b)thiophenes	—	12	9	ND	57.7
	Naphthalene	—	12	2	ND	20.9
PIANO (µg/L)	2,3,3-Trimethylpentane	—	12	1	ND	1.05
	2,3,4-Trimethylpentane	—	12	1	ND	0.541
	Styrene	100	12	6	ND	3.73

— not available
min. minimum
max. maximum
mg/L milligram per liter
ND non-detect
ng/L nanogram per liter
µg/L microgram per liter

To summarize, there were no TPH detections in the raw water or post-GAC samples during the pilot study. However, TPH-d was detected in the post-IX samples. The TPH-d detections in the post-IX samples are not fuel-related. Additional evaluations of these results are warranted.

4. Conclusions

4.1 SUMMARY ASSESSMENT

All post-IX samples were non-detect for all PFAS compounds. The results demonstrate that the GAC is successfully removing both long- and short-chain PFAS from the water and the resin is successfully removing any residual. The low-level detection of PFOS from the first day of the sampling at the post-GAC location is due to issues with system startup, which is supported by the chloride and turbidity results discussed in Section 3.1.

There was no TPH present in the raw water at the NAHS for this pilot study nor any raw water sample collected by the Navy since January 2022. Historical NAHS sampling data are provided in Appendix H. There is no compelling evidence to suggest that the NAHS was impacted by the November 2021 JP-5 fuel release at Red Hill. The TPH detections present in the post-IX are not due to the presence of petroleum compounds and did not originate in the water from the NAHS. The most compelling evidence that the post-IX detections are not related to JBPHH activities is that there were no TPH detections in the raw water or post-GAC samples, meaning that they could not have originated in the water from the NAHS. This fact, combined with the information from the resin manufacturer, points to resin artifacts as the source of the TPH detections. Additional evaluation of the post-IX TPH results is recommended. The IX resin manufacturer is currently conducting studies to determine the source and identity of compounds and will provide the results of this study in a supplemental report.

The pilot study results indicate that the removal efficiency of PFAS is in compliance with EPA's future NPDWR at each post-treatment phase. The data support the Navy's request to reactivate the NAHS in compliance with EPA and DOH requirements.

5. References

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Appendix A:
Detailed Discussion of NAHS Reactivation Pilot Study

Appendix A.1

1. Introduction

1.1 PURPOSE OF THE PILOT STUDY

This technical memorandum (TM) presents the findings from the pilot study of the granular activated carbon (GAC) and ion exchange (IX) treatment system at the United States Department of the Navy's (Navy's) Aiea-Halawa Shaft (NAHS) in Aiea, Hawaii. As one part of the reactivation plan (DON 2024), the study aims to support the Navy's goal of reactivating the NAHS to enhance the resiliency and redundancy of the Joint Base Pearl Harbor-Hickam (JBPHH) public water system (PWS), which serves approximately 93,000 residents, private consumers, critical Department of Defense (DoD) industrial processes, building heating, ventilation and cooling systems, and critical emergency response and firefighting services in southern Oahu. It is a community water system as defined by Title 40 Code of Federal Regulations, Part 141, Subpart A and, prior to November 2021, was supplied by three groundwater wells, namely the Waiawa, Red Hill, and Navy Aiea-Halawa shafts.

The pilot study was designed to evaluate the effectiveness of the treatment system in removing per- and polyfluoroalkyl substances (PFAS), as well as address constituents of concern, including total petroleum hydrocarbons (TPH) and polycyclic aromatic hydrocarbons (PAH), from the water supply at NAHS under conditions representative of standard operation. The study's results will inform the Navy in their request to reactivate the NAHS in compliance with the United States Environmental Protection Agency (EPA) and State of Hawaii Department of Health (DOH) regulations. The Navy was granted approval to reactivate the NAHS on February 7, 2025, under the condition of completion of the pilot study as well as other requirements (DOH 2025).

Neither TPH nor PAHs were detected in the raw water for the pilot study; thus, removal efficiency of these compounds could not be evaluated. However, GAC treatment is a proven and reliable method that is well known for its ability to adsorb organic compounds onto its surface, thereby removing them from water upon contact. Therefore, it is expected that this treatment system would effectively remove both TPH and PAHs if present in the source water.

The results of the pilot study as presented in this report support the Navy's request to reactivate NAHS in compliance with EPA and DOH requirements.

1.2 BACKGROUND

Although not affected by the Red Hill fuel release, the NAHS was isolated from the JBPHH public water supply on December 3, 2021, after the Red Hill Shaft was disconnected as an additional measure of caution by the Navy. Since then, the Waiawa Shaft remains the sole source of potable water for the entire JBPHH PWS. Since November 2020, analytical results of NAHS raw source water samples reported several PFAS compounds above the 2024 EPA NPDWR health advisory levels that become enforceable on April 26, 2029. The source of the PFAS compounds at NAHS is unknown. Since temporarily removing NAHS from service, the Navy proactively began pursuing a treatment system for the NAHS water supply to achieve compliance with evolving PFAS regulations. Reactivating NAHS is a vital Navy resiliency measure providing an alternative water source to supplement the Waiawa Shaft. In addition, demonstration of the efficacy of the treatment system with the pilot study is a requirement of the DOH's conditional approval to reactivate the NAHS (DOH 2025). The treatment system is designed to remove potential future impacts from sources including fuel-related compounds like TPH and PAH. In addition, the treatment system provided an opportunity to evaluate and document the chloride concentrations previously noted in the 2015 Utility System Assessment of the JBPHH Potable Water System by Engineering Concepts, Inc. (DON 2015).

1.3 DESCRIPTION OF PFAS, TPH, AND PAHS

PFAS are a collective name for a broad class of man-made chemicals of concern that have recently been in the spotlight due to potential human and environmental health risks. While public attention to PFAS is relatively new, the chemicals have been used globally since the 1940s. PFAS are considered emerging constituents of concern because research is ongoing to better understand the impacts they pose to human health, animal health, and the environment. Previous testing data at the NAHS have shown that several PFAS compounds are present at concentrations above NPDWR levels.

TPH is defined as the total amount of petroleum-based hydrocarbons measured in an environmental sample. Petroleum hydrocarbons (PHC) refer to a family of several hundred chemicals made up primarily of carbon and hydrogen atoms that originate from crude oil and are processed (or refined) to create mixtures used for fuel, tar, lubricants, and other substances. TPHs are common environmental contaminants found in soil, water, and air. A detection of TPH does not equate to the presence of fuel. Not all PHC originate from fuel and as discussed in detail in Section 2.3, the non-specific nature of the analytical method means that the reported concentration may have contributions from chemicals that are not PHC at all. Detections of TPH-d were reported in NAHS raw water samples collected from various sampling ports in December 2021. There was one additional low-level TPH-d detection reported in an EPA sample collected from the raw water in June 2024. A duplicate sample was collected by EPA and the TPH-d results were non-detect. Navy's split sample results were also non-detect for TPH. **Other than this sample, no TPH has been found in the NAHS raw water since Navy began collecting samples in January 2022.** All historical NAHS sample data is provided in Appendix H.

PAHs are a sub-class of PHC, and 15 of these compounds are analyzed in this study. PAHs are primarily introduced into the environment through two broad pathways: petrogenic and pyrogenic sources.

Petrogenic PAHs originate from geological processes that form fossil fuels and are common in petroleum products. In the environment, they may originate from point sources such as oil spills, petroleum handling facilities and asphalt pavements, or from more dispersed sources such as leaking oils or fuels from individual vehicles.

Pyrogenic PAHs are formed by the incomplete combustion of organic matter, including fossil fuels, wood, and biomass. Typical sources are from vehicle exhaust and wildfires and are often associated with soot and particulate matter.

Three of the PAH compounds (naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene) monitored for in this study are identified as primary components of Jet Propellant 5 (JP-5). The remaining 12 compounds are not associated with JP-5 but are associated with petroleum products such as gasoline and diesel fuels. **Testing for PAH at NAHS began in January 2022, and no PAH has been detected in the NAHS raw water since this time, or in post-treatment samples during this study.**

1.4 TREATMENT TECHNOLOGY

The treatment system utilizes two technologies, GAC filtration and IX. GAC filtration is commonly used at a range of scales, from large industrial or municipal treatment works to whole-house water filters and is even used in most tabletop water filtration pitchers. The GAC media is made from burned raw organic materials rich in carbon such as coconut shells, coal, or wood. GAC is a porous material with high internal surface area that filters water by the processes of both absorption (mechanical) and adsorption (chemical) that trap chemicals inside of, or on the surface of the carbon. GAC is highly effective at adsorption of longer-chain PFAS (six or more carbons) like perfluorooctanoic acid and perfluorooctanesulfonic acid (PFOS), but shorter-chain PFAS (fewer than six carbons) like perfluorobutanesulfonic acid (PFBS) and perfluorobutanoic acid (PFBA) do not adsorb as well. GAC is generally more effective at removing long-chain PFAS because these compounds tend to avoid water and have a stronger attraction to carbon media. IX resin utilizes natural or manufactured resins to selectively remove constituents of concern. Most commonly, the resins are made from polymer beads and remove PFAS through a variety of actions, primarily electrostatic and hydrophobic effects. Depending upon the water chemical components, the IX resin can be more effective at the removal of PFAS than GAC, serving as an additional measure of treatment. Short-chain PFAS are more soluble in water, making them more readily exchanged by the resin. GAC and IX resin are effective for removing all types of PFAS, each in their own way. They are both reliable and economical treatment technologies, which is why they are utilized in this pilot testing treatment system.

The treatment system at the NAHS consists of four individual trains (Figure 1), with each train having two GAC vessels assembled in a lead-lag configuration, followed by a final IX resin vessel. This results in a total of 12 contact tanks, eight GAC, and four IX vessels. The system is designed to remove potential TPH, PAHs, and PFAS constituents of concern. At peak flows ((b) (3) (A)), the treatment system is designed to operate with three trains running at a time with one redundant train out of service for maintenance. The NAHS Water Use Permit allows for an annual average flow rate of (b) (3) (A) . Train IV was utilized for the pilot test with a design flow rate of approximately (b) (3) (A) gallons per minute. The piping to and from the treatment system is National Sanitation Foundation (NSF)-certified, 24-inch Standard Dimension Ratio 11, high-density polyethylene piping. In support of this system, there are the three 9,000-gallon booster tanks and two associated pumps (primary and redundant) which will pump the treated water into the JBPHH distribution system after chlorination and fluoridation (Figure 2). Appendix B presents a process flow diagram of the GAC/IX treatment system and piping.

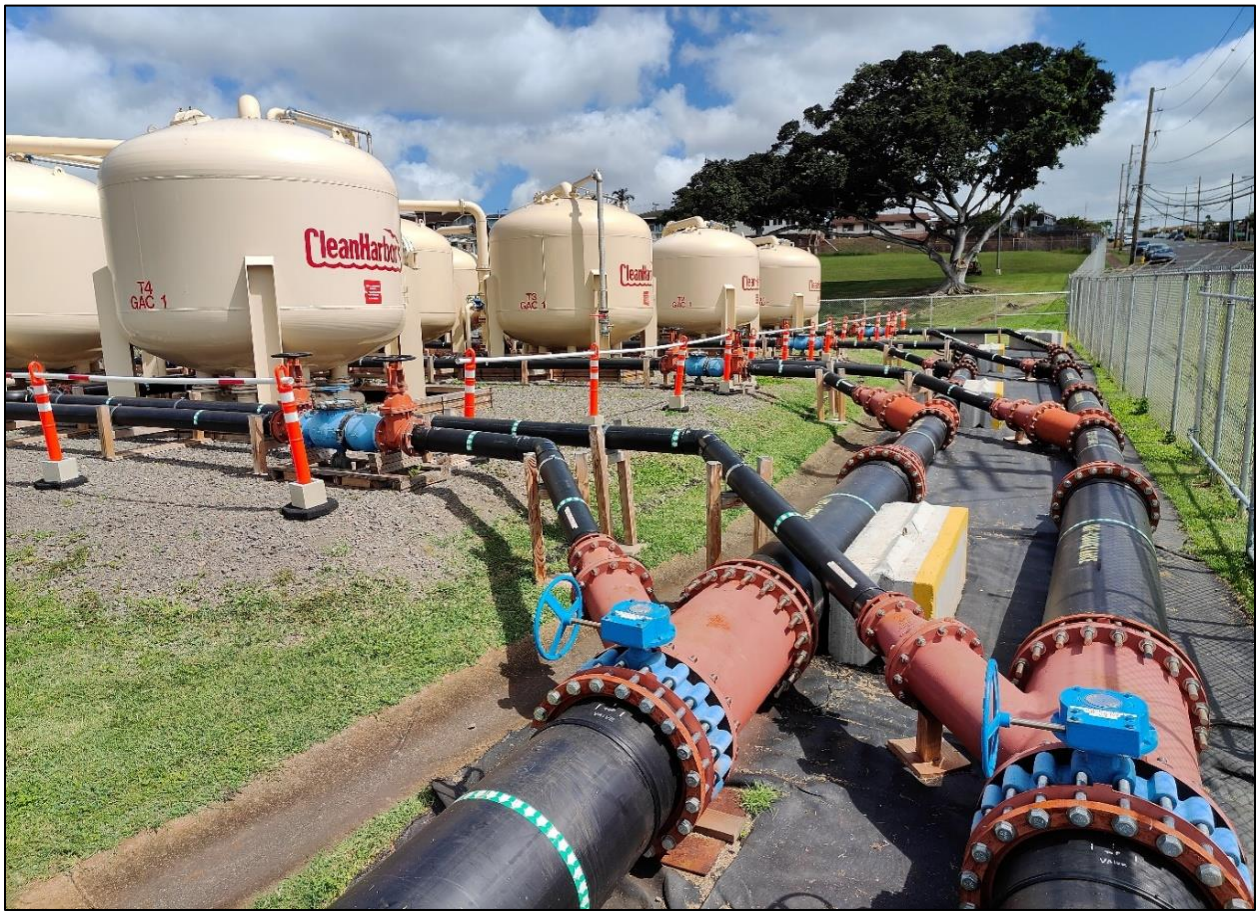

Figure 1: Clean Harbors, Inc. GAC/IX Treatment Trains at NAHS

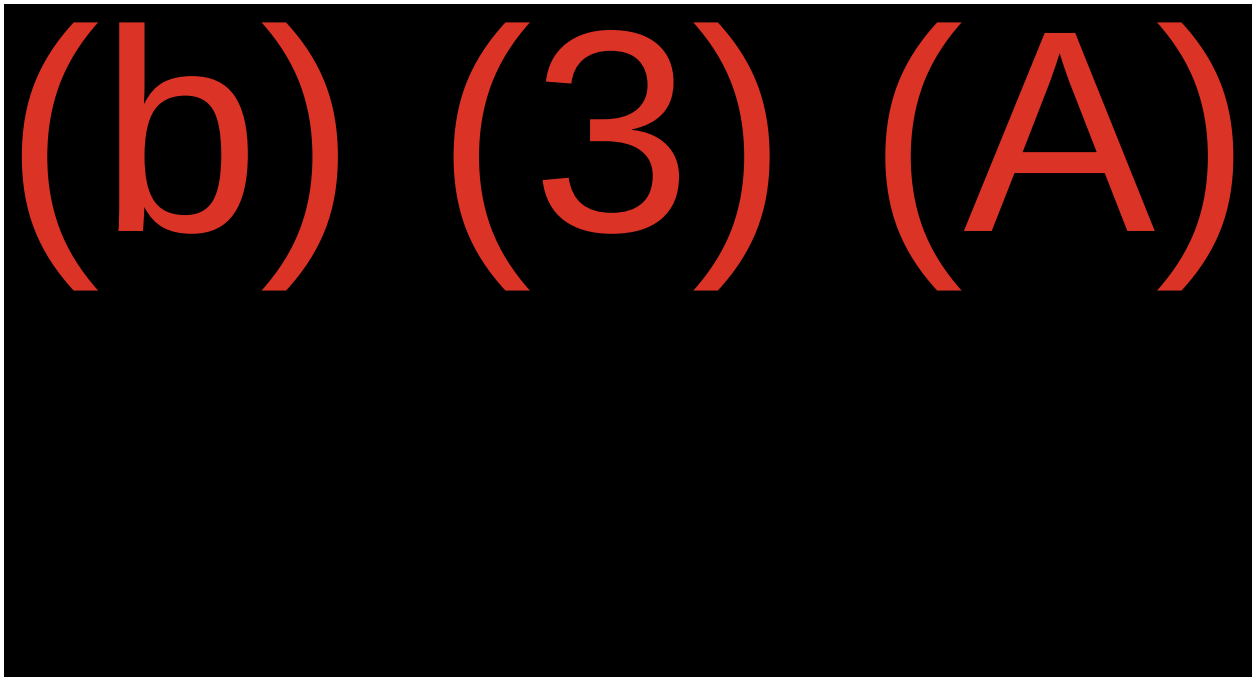

Figure 2: GAC and IX Treatment System Layout (CUI)

1.5 OVERVIEW OF THE GRANULAR ACTIVATED CARBON/ION EXCHANGE TREATMENT SYSTEM

The GAC and IX treatment system is (b) (3) (A) within Navy property on a leveled and accessible area adjacent to the Navy Halawa Housing Area.

Treatment system valving allows one, two, three, or all four trains to be operational, offering flexibility in adjusting the EBCT and servicing the vessels within the trains. The recommended EBCT to treat TPH is approximately 7.5 minutes at a maximum flow of approximately (b) (3) (A) per train. The EBCT for PFAS is 28–30 minutes for the GAC media. However, with the addition of the IX vessel, it reduces the EBCT for PFAS to 14–15 minutes. The combination of GAC media and IX resin will allow sufficient contact time to remove PFAS.

Spent GAC media shall be tested and disposed of at an on-island landfill if testing results comply with landfill disposal criteria. Spent IX resin shall be shipped off-island for proper disposal. Further information regarding the operation and maintenance of the treatment system will be provided in an updated NAHS Preventive Maintenance Plan submitted with the Navy's formal request to reactivate.

Materials, equipment, and configuration of the entire GAC/IX treatment system as well as the pilot study adhere to applicable potable water codes, regulations, and industry standards, which include the following:

- Safe Drinking Water Act of 1974, including its subsequent amendments
- Hawaii Administrative Rules, Title 11, Chapters 20, 25, and 30
- Unified Facilities Criteria 3-230-01 and 3-230-03
- NSF 60 – Drinking Water Treatment Chemicals – Health Effects
- NSF 61 – Drinking Water System Components
- American Water Works Association B604 – Granular Activated Carbon
- American Water Works Association standards

During the pilot study, the treatment system was operated under the supervision of a qualified and certified Grade 1 water treatment plant operator, provided by (b) (4). The treatment system operator coordinated with JBPHH Utilities personnel to synchronize NAHS pump activation with planned treatment system operational periods. During the pilot study, the Navy operated one of four treatment trains. The results of the single train are extrapolated to estimate treatment system efficacy under full operational conditions (i.e., flow through three of the four trains). The planned flow rate through the single train was approximately (b) (3) (A) for 4–6 hours every 2–3 days. The flow meter installed at the 1,654-foot mark on the influent line of the process flow diagram measured flows into the treatment system. Flow rates to the single train were adjusted to align with the planned flow rates under full NAHS and treatment system operation. Pumping frequency and flow rates were optimized to remain within well use extraction permit limits to reduce salinity intrusion concerns, maintain the integrity of the media, and reduce storage time.

To prevent backpressure to the NAHS pump while feeding the treatment system, the Navy released excess untreated groundwater through accessory outlets at the NAHS Pump Station to the grassy areas and the drainage swale that flows to Halawa Stream. After treatment, treated potable water was discharged through the treatment system flushing ports to a nearby drainage swale that connects to a Department of Transportation storm drainage culvert and channel directing flow to Halawa Stream.

The booster tanks/pumps and chlorination/fluoridation systems were not utilized during the pilot study phase and remain physically disconnected from the JBPHH PWS until DOH approves the NAHS reactivation.

Appendix A.2

2. Monitoring Pilot Study Overview

2.1 OBJECTIVES OF THE TECHNICAL MEMORANDUM

The primary objective of conducting the pilot study was to demonstrate the treatment system's efficacy in reducing PFAS concentrations (under conditions representative of standard operation) below the EPA's April 2024 NPDWR maximum contaminant levels (MCLs), which become enforceable in 2029 (Table 1). Future raw water PFAS concentrations are expected to be similar to those seen historically and during this pilot study. Only two PFAS compounds, PFOA and PFOS, have been detected above their respective MCLs in prior sampling of the NAHS. Demonstration of the efficacy of the treatment system with the pilot study is a requirement of the DOH's conditional approval to reactivate the NAHS (DOH 2025).

Table 1: Comparison of Results with 2029 EPA PFAS Standards

PFAS Constituent	2029 MCL	NAHS Prior to Pilot Study [a]			NAHS Pilot Study Pre-Treatment [b]			NAHS Pilot Study Post-IX Treatment [c]		
		Min.	Avg.[d]	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.
Perfluorooctanoic acid (PFOA)	4 ng/L	ND [e]	3.30	7.50	3.90	5.87	8.60	ND	ND	ND
Perfluorooctanesulfonic acid (PFOS)	4 ng/L	ND	4.30	13.90	6.00	9.16	19.50	ND	ND	ND
Perfluorononanoic acid (PFNA)	10 ng/L	ND	0.03	0.80	ND	ND	ND	ND	ND	ND
Perfluorohexanesulfonic acid (PFHxS)	10 ng/L	ND	2.96	6.30	4.40	5.58	8.10	ND	ND	ND
Hexafluoropropylene oxide dimer acid (HFPO-DA)	10 ng/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mixtures of PFHxS, PFNA, HFPO-DA, and Perfluorobutanesulfonic acid (PFBS)	1 (unitless) [f]	<1			<1			<1		

avg. average [f]
min. minimum
max. maximum
ND non-detect
ng/L nanogram per liter

[a] NAHS Prior to Pilot Study: Data collected from NAHS source (i.e., pre-chlorination) and the entry-point to the distribution system (i.e., post-chlorination) between April 18, 2023, and March 7, 2025.
[b] NAHS Pilot Study Pre-Treatment: Data collected from the raw water (i.e., pre-chlorination) sample location during the pilot study between April 8, 2025, and May 2, 2025.
[c] NAHS Pilot Study Post-IX Treatment: Data collected from the effluent (i.e., post-IX) sample location during the pilot study between April 8, 2025, and May 2, 2025.
[d] For non-detections, a value of zero was used when calculating the average concentration.
[e] ND denotes the analyte was not detected.
[f] The hazard index (HI) represents a running average of the combined concentrations of PFHxS, PFNA, HFPO-DA, and PFBS. For each sampling date and corresponding analysis, an individual HI was calculated, and these values were then averaged to determine the overall HI.

This TM provides documentation of the evaluation of analytical results that will be used in a subsequent report on the overall effectiveness of the treatment system on water chemistry and its efficacy at primarily reducing PFAS, TPH, and PAHs.

This TM provides supporting information to permit the Navy to optimize the treatment processes and/or flow rates to improve overall system efficacy.

2.2 PILOT STUDY APPROACH AND METHODS OF SAMPLING

The monitoring required AECOM to closely coordinate the sampling schedule with JBPHH Utilities personnel and the treatment system operator to synchronize treatment system operation with the sample collection. Samples were collected during each activation period from NSF 61-certified spigots located prior to the GAC (raw water/influent), between the GAC and IX vessels (post-GAC), and directly after IX treatment (post-IX).

To evaluate each phase of the treatment process, representative samples were collected in the following order during each operational event from the following locations with example photos shown on Figure 3:

1. Prior to the GAC treatment (raw water/influent)
2. Between the GAC lag vessel and IX vessel (post-GAC)
3. After the IX vessel (post-IX)

The planned duration of the pilot study was 30 days. Water was flushed through Train IV of the treatment system for approximately 4 hours every 2 or 3 days. The NAHS was left inactive between flushes. However, on day 24 (May 2, 2025), the State of Hawaii Department of Transportation requested an emergency suspense to the pilot study's discharge operations to facilitate emergency repairs to downgrade infrastructure below the adjacent freeway. Accordingly, the Navy suspended further operations, which prevented the remaining 6 days of the pilot study, including the final two sampling events. After notification to and consultation with DOH, it was determined that sufficient samples had been collected to support the conclusion of the pilot study. Over the 24-day pilot study period, a total of 33 water samples were collected from the three locations (raw water, post-GAC, and post-IX). These samples were collected over 11 sampling events occurring every 2–3 days with one event per day. An additional three quality control samples were collected during the pilot study totaling 36 sample sets in all. Additional quality control samples were collected, and DOH was invited to oversee sample collection activities and collect split samples for an independent check on accuracy. DOH did not collect any split samples. Email confirmation that DOH did not collect pilot study split samples is provided in Appendix F.

Generally, the startup of the filters is defined in an operations plan which includes disinfection of the treatment vessels, flooding of the GAC/IX tanks, rinsing fines off the media, and letting the tanks settle to remove the air trapped in the filter media. Initial sampling for turbidity, chlorides, sodium, and other parameters indicates that the first two sample collection events were influenced by the startup process and the IX process had not yet reached operational efficiency, meaning that the IX vessel did not reach peak anion removal capability.

Experienced sampling technicians collected raw water samples directly after shaft startup. Samples after GAC/IX treatment (effluent) were collected later in the event's operation cycle. To verify adequate system flushing at the raw water sample site, after the GAC vessels sample collection and the IX treatment sample collection, samplers recorded readings of pH, conductivity, turbidity, and temperature using a field-calibrated water quality meter. Once all four water quality parameters stabilized, the sample was collected for the analytical parameters discussed in Section 2.3. Steady-state water quality conditions were achieved when three consecutive readings collected at 5-minute intervals were within 10 percent of each other. A single free chlorine reading was also recorded prior to sample collection. Per the approved sampling and analysis plan, the analytes that were required to be at steady state were pH, conductivity, and temperature. If turbidity did not stabilize within 30 minutes, a sample was collected to ensure the operation timeframe was not exceeded.

Sampling locations are presented on the flow diagram of the treatment system provided in Appendix B. Collecting samples from these locations enabled calculation of removal efficiency for each phase of treatment and the overall effectiveness of the train at treating the water.



Figure 3: Sampling Location for prior to the GAC (left photo), post-GAC (middle photo) and post-IX (right photo). The red circles show the port used for sample collection.

At each of the three sampling locations, experienced sampling technicians utilized calibrated field instruments to measure and record temperature, pH, free chlorine, conductivity, and turbidity. Samples requiring shipment to a DOH- or EPA-certified laboratory for analyses were collected in appropriately preserved containers and promptly shipped in coolers following chain of custody protocol.

In addition to the field-testing parameters, Appendix C lists the analytes selected for analyses by a certified DOH/EPA laboratory. The certified laboratory provided coolers with the sample containers and preservatives required to collect the samples. Appendix D identifies for each parameter the analytical method, container type, preservation method, and holding times as required by state and federal drinking water regulations. The chain of custody documentation was maintained for samples during all phases of sample collection, transport, receipt, and internal transfer within the laboratory.

Field blank, trip blank, matrix spike/matrix spike duplicate, and field duplicate samples were included for additional quality control purposes during each sampling event. Turnaround time for analytical data from the laboratory occurred within 1 month of sample collection. Validated analytical results are included in Appendix E.

Prior to initiating field work, a pilot study kick-off meeting was held on April 8, 2025, by JBPHH Utilities, AECOM, and (b) (4) personnel to review safety concerns, equipment operation, and worker responsibilities. Field activities took place during normal daylight working hours. No field activities occurred on Saturdays or Sundays. Work was performed in Level D personal protective equipment, consisting of hard hats, safety glasses, safety-toed boots, and hearing protection. Samplers did not don clothing and personal hygiene products that may contain PFAS (e.g., sunblock, lotion, deodorant) to avoid the potential of cross-contamination to samples.

AECOM sampling technicians were trained in the intricacies of collecting samples for PFAS analyses. Field notes captured on notebook paper/forms were transitioned to electronic devices each day. Paper and pens were also PFAS Free, per AECOM's Standard Operating Procedures. Figure 4 shows an example of the field staff collecting the post-GAC and post-IX samples.



Figure 4: Post-GAC and Post-IX Sample Collection

Within one week in advance of testing, the Navy provided DOH with a tentative schedule for the anticipated 30-day pilot study sampling schedule giving DOH an opportunity to be present to observe and collect split samples with the consultant, if desired. DOH did not opt to collect split samples during the pilot study. In addition, due to an unforeseen issue, the pilot study concluded after 24 days.

Minimal investigation-derived waste from the pilot study was generated. The investigation derived waste from sampling was returned to AECOM's operation center for proper disposition.

Injection of chlorine and fluoride was not included in the pilot study.

The piping from the treatment system effluent flushing ports to the booster tanks/pump was not required for the pilot study since the treated water was discharged to a storm drain directly after testing.

2.3 METHODS OF ANALYSIS

All samples were analyzed for PFAS via EPA Method 533: *Determination of Per- and Polyfluoroalkyl Substances in Drinking Water by Isotope Dilution Anion Exchange Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry* and EPA Method 537.1: *Determination of Selected Per- and Polyfluorinated Alkyl Substances in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry* (LC/MS/MS) at (b) (4) [redacted]. A subset of PFAS compounds was analyzed by both methods. See Appendix C for a list of compounds analyzed by both methods.

The remaining analytical parameters measured are a subset of potential constituents of concern identified in the Extended Drinking Water Monitoring (EDWM) plan: TPH, volatile organic compounds (VOCs); semivolatile organic compounds, and PAHs. These analyses were all performed at (b) (4) [redacted]. Selected water quality parameters such as anions, cations, alkalinity, and total suspended solids were analyzed to monitor characteristics of the water as it passed through various stages of treatment. A complete table of the analytical methods, analytes, detection limits, and reporting limits (RLs) is provided in Appendix D.

As outlined in the methods, the laboratory reports TPH concentrations based on the total combined signal of all chemical compounds that appear within a specific time range during testing, rather than measuring each compound individually. Because of this approach, the reported TPH values may include not only PHC but also other non-petroleum substances that happen to fall within that time range. As a result, additional evaluations and more detailed analyses are needed to accurately determine the actual composition and source of any detected TPH.

TPH was measured in samples using SW-846 Method 8015D, a gas chromatographic method. Chromatography is an analytical technique commonly used for separating a mixture of chemical substances into its individual components, so that concentrations of individual components can be measured. Samples are prepared in such a way that the constituents of concern are extracted from the sample and concentrated into a solvent so that they can be injected into the instrument—in this case, a gas chromatograph (GC). The GC is heated, and different chemicals will pass through the instrument at different times depending on their chemical properties such as boiling point and molecular weight. A chromatogram is the visual output that records the response (peak) as the different chemicals in a sample are separated over time. Each peak on the graph represents a different substance, and the size of the peak is representative of how much of that substance is present.

Because TPH includes hundreds of chemicals, it is impractical to measure each individual component. Therefore, as stipulated in the methods, TPH concentrations reported by the laboratory are based on the aggregate integrated area sum of all peaks falling within a specified period, rather than identifying and quantitating individual peaks. Therefore, results often include non-petroleum compounds. Additional evaluations and analyses are necessary to determine the true nature of any reported detections. In the event that TPH detections were reported in any of the pilot study samples, chromatograms were reviewed by an experienced chemist, (b) (4) [redacted] performed further diagnostic tests (mass spectral searches), and the sample was submitted to (b) (4) [redacted] for additional specialized analyses. (b) (4) [redacted] analyzed the samples for a quantitative evaluation of PHC and potential indicators using the following analytical methods:

- SW-846 8260 D – Paraffins-Isoparaffins-Aromatics-Naphthenes-Olefins (PIANO)
- SW-846 8270E-SIM –Parent and Alkylated-PAHs (PAPAHs)
- SW-846 8015D – Saturated Hydrocarbons (SHCs)

These methods provide additional, more detailed information than is possible with the original analyses. For example, when evaluating TPH detections, the PIANO and SHC methods can identify and quantitate individual hydrocarbon concentrations (with RLs of approximately 1 microgram per liter [µg/L]) rather than reporting one result for an entire carbon range with an RL of 80 µg/L. An extended list of PAHs and their alkylated derivatives can be analyzed using the PAPAHs method, all at very low RLs, providing additional information that is key to determining the potential source of any detected analyte. Alkylated PAHs refers to a group of compounds that have the same base PAH structure but have one or more alkyl groups attached to it. An alkyl group is a molecule fragment consisting only of carbon and hydrogen atoms attached by single bonds.

Appendix A.3

3. Results and Interpretation

3.1 SUMMARY ASSESSMENT

All samples were analyzed for per- and polyfluoroalkyl substances via EPA Method 533: *Determination of Per- and Polyfluoroalkyl Substances in Drinking Water by Isotope Dilution Anion Exchange Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry* and EPA Method 537.1: *Determination of Selected Per- and Polyfluorinated Alkyl Substances in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)* at (b) (4) [redacted] A subset of compounds was analyzed by both methods. Table 2 summarizes the PFAS compounds and the methods used to analyze them.

Table 2: PFAS Compounds and Analysis Methods

CAS	Analyte	Method 533	Method 537.1
113507-82-7	Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	X	
13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)	X	X
151772-58-6	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	X	
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	X	X
2058-94-8	Perfluoroundecanoic acid (PFUnA)	X	X
2355-31-9	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)		X
2706-90-3	Perfluoropentanoic acid (PFPeA)	X	
2706-91-4	Perfluoropentanesulfonic acid (PFPeS)	X	
27619-97-2	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	X	
2991-50-6	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)		X
307-24-4	Perfluorohexanoic acid (PFHxA)	X	X
307-55-1	Perfluorododecanoic acid (PFDoA)	X	X
335-67-1	Perfluorooctanoic acid (PFOA)	X	X
335-76-2	Perfluorodecanoic acid (PFDA)	X	X
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	X	X
375-22-4	Perfluorobutanoic acid (PFBA)	X	
375-73-5	Perfluorobutanesulfonic acid (PFBS)	X	X
375-85-9	Perfluoroheptanoic acid (PFHpA)	X	X
375-92-8	Perfluoroheptanesulfonic acid (PFHpS)	X	
375-95-1	Perfluorononanoic acid (PFNA)	X	X
376-06-7	Perfluorotetradecanoic acid (PFTeDA)		X
377-73-1	Perfluoro-3-methoxypropanoic acid (PFMPA)	X	
39108-34-4	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	X	
72629-94-8	Perfluorotridecanoic acid (PFTrDA)		X

CAS	Analyte	Method 533	Method 537.1
756426-58-1	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	X	X
757124-72-4	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	X	
763051-92-9	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	X	X
863090-89-5	Perfluoro-4-methoxybutanoic acid (PFMBA)	X	
919005-14-4	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	X	X

CAS Chemical Abstracts Service

Sample results demonstrate the effectiveness of the treatments system at removing PFAS. Results meet updated 2029 NPDWR for PFAS as shown in Table 2. Eight PFAS compounds were detected in each of the raw water samples, and another six were detected occasionally (Table 3). In those instances where a particular compound was analyzed by both Method 533 and Method 537.1, concentrations were higher in Method 533 results. Variations between the methods are expected. Method 533 is an isotope dilution method that corrects for extraction efficiency, which tends to lead to higher results.

There were no PFAS compounds detected in the post-GAC samples with the exception of a 1.5 ng/L detection of PFOS via Method 537.1 in the first (April 8, 2025) sample. PFOS was not detected in this sample via Method 533 and was not detected in any subsequent post-GAC samples. Since this sample was collected on the first day of the pilot study before system efficiency was achieved, it is likely associated with start-up issues or other conditions that would not be expected once the treatment system is fully operational. All post-IX samples were non-detect for all PFAS compounds. The PFAS results, along with their respective 2029 NPDWR MCLs, are presented on Figure 5 to Figure 13 below. There were no PAH compounds detected in any samples collected for the pilot study.

The use of GAC is recognized as a common and effective method of remediation of contaminated water and soil. It is effective at removing petroleum from water by trapping oil molecules in its porous structure.

The Navy's Aiea Halawa pilot study sampling included monitoring for chloride. Those results are presented more fully in Appendix C. Chlorides are an indicator of saltwater intrusion. The NAHS pumps from a narrow freshwater lens that floats on top of a saline water table beneath. Over pumping the NAHS will draw in salt water. Based on the 2015 Utility System Assessment of the JBPHH Potable Water System by Engineering Concepts, Inc. (DON 2015), the 30201 Waimalu Aquifer System, from which the NAHS obtains its water, has a high chloride level. At the time of the 2015 report, the pumpage from the aquifer system exceeded the aquifer's sustainable yield by nearly 2 mgd. Due to the over pumpage, the freshwater lens, floating on the saline water, was thinning, exacerbating the issue of rising chloride levels.

In addition, the first two sampling events show lower chloride concentrations in the post-IX than in the raw water or at the post-GAC sampling location. This is attributed to startup issues as the IX process was activated. For the first two sampling events, chlorides are significantly reduced by the IX vessel, which is associated with the start-up of the IX process. After the first two sampling events, the IX vessel has marginally discharged more chlorides than came into the vessel; this demonstrates that the resin is releasing chloride ions in exchange for a stronger anion in the raw water like bicarbonate, sulfate, PFAS, or nitrate. The anion exchange resin used at NAHS is designed to remove negatively charged ions (anions) from the water, replacing them with chloride ions.

At the start of each sampling event, the crews monitored the turbidity in nephelometric turbidity units (NTUs)of the water at that sampling location (raw water, post-GAC, and post-IX). Monitoring turbidity using a flow through cell indicated when the turbidity stabilized. The high turbidity readings on the first day of sampling (08 April 2025) was assumed to be caused by air bubble turbulence and flushing of fines

at the startup of each sampling event. However, total suspended solids (TSS) were not detected in any pilot study samples (raw water, Post-GAC, or Post-IX). This demonstrates that fines were not an issue. The results of that monitoring are summarized in Section 5.2. With each sampling event, turbidity was monitored for 30 minutes with measurements recorded every 5 minutes. The program's turbidity limit was 5 nephelometric turbidity units.

On April 8, 2025 (the first day of monitoring), the post-GAC turbidity measurements were significantly above the turbidity limit of 5 NTU. Those values are shown in Section 5.2. The startup process was too short and did not allow adequate time for removal of the air from inside the GAC vessels prior to monitoring.

Table 3: Summary of Results

Method Group	Analyte	EPA (MCL)	Raw water		Post-GAC [a]		Post-IX [a]	
			Min.	Max.	Min.	Max.	Min.	Max.
2029 Regulated PFAS Constituents	Perfluorooctanoic acid (PFOA) (ng/L)	4 ng/L	3.9	8.6	ND	ND	ND	ND
	Perfluorooctanesulfonic acid (PFOS) (ng/L)	4 ng/L	6.0	19.5	ND	1.5	ND	ND
	Perfluorononanoic acid (PFNA) (ng/L)	10 ng/L	ND	ND	ND	ND	ND	ND
	Perfluorohexanesulfonic acid (PFHxS) (ng/L)	10 ng/L	4.4	8.1	ND	ND	ND	ND
	Hexafluoropropylene oxide dimer acid (HFPO-DA) (ng/L)	10 ng/L	ND	0.9	ND	ND	ND	ND
Unregulated PFAS Constituents	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	—	ND	0.9	ND	ND	ND	ND
	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	—	ND	1.3	ND	ND	ND	ND
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	—	ND	6.2	ND	ND	ND	ND
	Perfluorobutanesulfonic acid (PFBS)	—	3.6	6.9	ND	ND	ND	ND
	Perfluorobutanoic acid (PFBA)	—	2.5	4.1	ND	ND	ND	ND
	Perfluorododecanoic acid (PFDoA)	—	ND	1.2	ND	ND	ND	ND
	Perfluoroheptanoic acid (PFHpA)	—	2.2	4.4	ND	ND	ND	ND
	Perfluorohexanoic acid (PFHxA)	—	4.2	8.1	ND	ND	ND	ND
	Perfluoropentanesulfonic acid (PFPeS)	—	ND	0.9	ND	ND	ND	ND
	Perfluoropentanoic acid (PFPeA)	—	6.4	10.2	ND	ND	ND	ND
	Perfluoroundecanoic acid (PFUnA)	—	ND	1.3	ND	ND	ND	ND
	All other tested PFAS constituents with no MCL and no detections	—	ND	ND	ND	ND	ND	ND
TPH	Diesel Range Organics (µg/L)	—	ND	ND	ND	ND	140	886
	Gasoline Range Organics (µg/L)	—	ND	ND	ND	ND	ND	50.3
	Oil Range Organics (µg/L)	—	ND	ND	ND	ND	ND	ND

Method Group	Analyte	EPA (MCL)	Raw water		Post-GAC [a]		Post-IX [a]	
			Min.	Max.	Min.	Max.	Min.	Max.
SVOC (µg/L)	1-Methylnaphthalene	—	ND	ND	ND	ND	ND	ND
	2-Methylnaphthalene	—	ND	ND	ND	ND	ND	ND
	Acenaphthylene	—	ND	ND	ND	ND	ND	ND
	Anthracene	—	ND	ND	ND	ND	ND	ND
	Benzo(a)pyrene	0.2 µg/L	ND	ND	ND	ND	ND	ND
	Benzo(b)fluoranthene	—	ND	ND	ND	ND	ND	ND
	Benzo(g,h,i)perylene	—	ND	ND	ND	ND	ND	ND
	Benzo(k)fluoranthene	—	ND	ND	ND	ND	ND	ND
	Chrysene	—	ND	ND	ND	ND	ND	ND
	Dibenz(a,h)anthracene	—	ND	ND	ND	ND	ND	ND
	Fluorene	—	ND	ND	ND	ND	ND	ND
	Indeno(1,2,3-c,d)pyrene	—	ND	ND	ND	ND	ND	ND
	Naphthalene	—	ND	ND	ND	ND	ND	ND
	Phenanthrene	—	ND	ND	ND	ND	ND	ND
	Pyrene	—	ND	ND	ND	ND	ND	ND
VOC (µg/L)	1,2,4-Trimethylbenzene	—	ND	ND	ND	ND	ND	ND
	1,3,5-Trimethylbenzene	—	ND	ND	ND	ND	ND	ND
	Benzene	5 µg/L	ND	ND	ND	ND	ND	ND
	Cumene	—	ND	ND	ND	ND	ND	ND
	Ethylbenzene	700 µg/L	ND	ND	ND	ND	ND	ND
	m,p-Xylene	—	ND	ND	ND	ND	ND	ND
	n-Butylbenzene	—	ND	ND	ND	ND	ND	ND
	n-Propylbenzene	—	ND	ND	ND	ND	ND	ND
	o-Xylene	—	ND	ND	ND	ND	ND	ND
	sec-Butylbenzene	—	ND	ND	ND	ND	ND	ND
	tert-Butylbenzene	—	ND	ND	ND	ND	ND	ND
	Toluene	1000 µg/L	ND	ND	ND	ND	ND	ND
	Xylenes, Total	10000 µg/L	ND	ND	ND	ND	ND	ND

— not available
min. minimum
max. maximum
ND non-detect
ng/L nanogram per liter

[a] Due to startup issues, initial sampling for turbidity, chlorides, sodium, and other parameters indicates that the first two sample collection events were influenced by the startup process and the IX process had not yet reached operational efficiency, meaning that IX vessel did not reach peak anion removal capability.

3.1.1 TPH DETECTIONS

TPH was not detected in any of the raw water or post-GAC samples for this pilot study. However, (b) (4) reported a TPH diesel range organics (TPH-d) concentration of 886 µg/L in the post-IX sample collected on April 8, 2025. TPH has been detected in all post-IX samples with successively decreasing concentrations through the eighth sampling event on April 25, 2025, after which the concentration began to plateau at approximately 150 µg/L.

When the first TPH detection was noted, information was solicited from the treatment system operator to understand potential causes for the detections. The resin contains polystyrene beads that are held together by divinyl benzene cross-linkers; the TPH-d detections are the result of initial contact of the water with the IX resin. Additional evaluation is warranted, and the Navy has inquired with the manufacturer about the resin and will follow up with DOH once results are obtained.

The chromatogram of the initial post-IX sample contained a series of peaks appearing in approximately the same range where C10-C18 n-alkanes would be seen. The same pattern was seen in all subsequent post-IX samples. Chromatographic overlays (Appendix G) of the first seven sampling events show identical patterns appearing at the same time that are decreasing in size for each successive sample. This demonstrates that the unknown constituents contributing to the TPH detections are consistent. Visual evaluation of the peak pattern, including overlays with chromatograms from JP-5 and diesel fuel, indicates that the detected substance is not fuel-related. Furthermore, a detailed review of laboratory method blanks, chromatograms, and mass spectral confirmation did not detect any of the alkanes expected to be present in petroleum compounds. This evaluation was unable to positively identify any of the compounds responsible for the peaks as there were no strong spectral matches with any of the compounds in the National Institute of Standards and Technology (NIST) library. While the identity remains unknown, the available information rules out a petrogenic source for the detections.

All post-IX samples were sent to (b) (4) for additional specialized analyses (PIANO, PAPAHs, and SHC). The key findings of these analyses are that the same chromatographic patterns are observed, the constituents are non-petrogenic, the identity of the constituents is unknown, and the C9-C44 petroleum hydrocarbon results from each sampling event closely match the total TPH results obtained by (b) (4) .

Table 4 presents a summary of the detected results for each of the analyses, summarizing the number of detections of each analyte and providing the maximum and minimum concentrations for each. In addition to the tracking of C9-C44 petroleum hydrocarbon results with the (b) (4) TPH-d results, two additional items are significant. First, petrogenic hydrocarbon mixtures are composed predominantly of saturated hydrocarbons – molecules containing only carbon and hydrogen joined by single bonds. Only eight of the 12 samples contained measurable concentrations of saturated hydrocarbons, and these made up less than five percent of the reported C9-C44 petroleum hydrocarbons.

Second, styrene was detected in the PIANO analysis of the post-IX samples from the first six sampling events at decreasing concentrations, and the IX-resin contains polystyrene beads. Polystyrene is a polymer created from styrene monomers. The finished resin would be expected to contain residual styrene monomer fragments that would be flushed from the system over time. The presence of styrene and its gradual reduction to non-detect levels adds evidence to the assertion that resin components are being flushed from the treatment system and detected in the post-IX water.

To summarize, there were no TPH detections in the raw water or post-GAC samples for this pilot study. However, TPH-d was detected in the post-IX samples. The TPH-d detections in the post-IX samples are not fuel-related. Additional evaluations of these results are warranted.

Table 4: Summary of Post-IX Tier 2 Detected Results

Tier 2 Method Group	Analyte	MCL	Number of Samples	Number of Detections	Min.	Max.
SHC (mg/L)	C9-C44 Petroleum Hydrocarbons	—	12	12	0.0953	0.803
	Total Saturated Hydrocarbons	—	12	8	ND	0.0284
	2,6,10,14-Tetramethylhexadecane	—	12	1	ND	0.000305
	2,6,10,14-Tetramethylpentadecane	—	12	1	ND	0.000279
	2,6,10-Trimethylpentadecane	—	12	2	ND	0.000699
	2,6,10-Trimethyltridecane	—	12	2	ND	0.00711
	Dotriacontane	—	12	1	ND	0.00022
	Hentriacontane	—	12	1	ND	0.00043
	Heptacosane	—	12	1	ND	0.0013
	Heptadecane	—	12	4	ND	0.0123
	n-Eicosane	—	12	1	ND	0.000206
	n-Hexacosane	—	12	1	ND	0.00136
	n-Hexadecane	—	12	5	ND	0.00589
	n-Octacosane	—	12	1	ND	0.00112
	n-Octadecane	—	12	4	ND	0.00126
	n-Tetracosane	—	12	1	ND	0.000282
	n-Tridecane	—	12	1	ND	0.000516
	Tricosane	—	12	1	ND	0.000212
PAPAH (ng/L)	Biphenyl (Diphenyl)	—	12	2	ND	3.99
	C1-Benzo(b)thiophenes	—	12	4	ND	77.6
	C1-Fluorene	—	12	1	ND	4.93
	C1-Naphthalene	—	12	2	ND	6.07
	C1-Phenanthrene/Anthracene	—	12	2	ND	49.7
	C2-Benzo(b)thiophenes	—	12	8	ND	12.4
	C2-Decalins	—	12	6	ND	27.5
	C2-Dibenzothiophene	—	12	2	ND	13.2
	C2-Fluorene	—	12	11	ND	68.9
	C3-Benzo(b)thiophenes	—	12	8	ND	29.1
	C3-Dibenzothiophene	—	12	1	ND	5.9
	C3-Fluorene	—	12	3	ND	38.8
	C3-Naphthalene	—	12	2	ND	9.94
	C4-Benzo(b)thiophenes	—	12	9	ND	57.7
	Naphthalene	—	12	2	ND	20.9
PIANO (µg/L)	2,3,3-Trimethylpentane	—	12	1	ND	1.05
	2,3,4-Trimethylpentane	—	12	1	ND	0.541
	Styrene	100	12	6	ND	3.73

— not available
min. minimum
max. maximum
mg/L milligram per liter
ND non-detect
ng/L nanogram per liter
µg/L microgram per liter

Table 5: NAHS Raw Water PFAS Results: Method 533 & Method 537.1 Side-by-Side Comparison (ng/L)

Field Sample ID:	SHAFT-HW-0018384-25098-N		SHAFT-HW-0018384-25098-N-R01		SHAFT-HW-0018384-25098-N-R02		SHAFT-HW-0018384-25098-N-R03		SHAFT-HW-0018384-25098-N-R04		SHAFT-HW-0018384-25098-3-N-R04		SHAFT-HW-0018384-25098-N-R05		SHAFT-HW-0018384-25098-N-R06		SHAFT-HW-0018384-25098-N-R07		SHAFT-HW-0018384-25098-N-R08		SHAFT-HW-0018384-25098-N-R09		SHAFT-HW-0018384-25098-N-R10	
Sample Date:	2025-04-08		2025-04-11		2025-04-14		2025-04-16		2025-04-18		2025-04-18		2025-04-21		2025-04-23		2025-04-25		2025-04-28		2025-04-30		2025-05-02	
Sample Type:	N		N		N		N		N		FD		N		N		N		N		N		N	
PFAS Analyte	533	537	533	537	533	537	533	537	533	537	533	537	533	537	533	537	533	537	533	537	533	537	533	537
11Cl-PF3OUdS	ND	ND	ND	ND	0.870 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADONA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9Cl-PF3ONS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HFPO-DA	ND	ND	ND	ND	ND	ND	0.920 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFBS	6.90	3.90	4.50	3.70 J	5.10	4.70 J	5.80 J	4.30	5.00	4.10	4.70	4.30	4.90	3.70	4.20	3.80	4.20	3.90	4.20	3.60	4.00	3.70	3.80	3.60
PFDA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFDoA	ND	ND	ND	ND	1.20 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFHpA	4.40	2.40	3.20	2.20 J	3.50	2.70 J	4.30 J	3.10	3.70	3.10	3.50	3.10	4.00	2.90	3.20	2.70	3.30	2.70	3.40	2.80	3.20	2.80	3.10	2.80
PFHxS	8.10	4.60	6.10	4.40 J	6.70	5.20 J	7.30 J	5.40	6.30	5.20	6.10	5.60	6.10	4.90	5.60	4.80	5.60	5.30	5.60	4.90	5.20	5.00	5.00	4.80
PFHxA	8.10	4.90	6.40	4.60 J	6.70	4.90 J	7.90 J	5.40	6.40	5.00	6.20	5.20	6.70	4.60	5.60	4.50	5.60	4.30	5.40	4.20	5.20	4.50	5.00	4.40
PFNA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFOS	13.7	8.90	10.4	6.00 J	10.7	7.20 J	11.5 J	8.20	9.60	8.10	9.30	8.60	10.0 J	7.70	7.80	7.40	8.60	7.60	8.40	7.50	8.90	7.30	19.5	7.00
PFOA	8.60	5.30	6.10	3.90 J	6.40	4.70 J	7.40 J	6.30 J	6.40	6.00	6.20	6.40	6.80	5.70	5.60	5.50	4.70	5.90	5.70	5.60	5.30	5.60	5.30 J	5.50
PFUnA	ND	ND	ND	ND	1.30 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

11Cl-PF3OUdS	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid
ADONA	4,8-Dioxa-3H-perfluorononanoic acid
9Cl-PF3ONS	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid
HFPO-DA	Hexafluoropropylene oxide dimer acid
J	estimated value
ND	non-detect
ng/L	nanogram per liter
PFBS	Perfluorobutanesulfonic acid
PFDA	Perfluorodecanoic acid
PFDoA	Perfluorododecanoic acid
PFHpA	Perfluoroheptanoic acid
PFHxS	Perfluorohexanesulfonic acid
PFHxA	Perfluorohexanoic acid
PFNA	Perfluorononanoic acid
PFOS	Perfluorooctanesulfonic acid
PFOA	Perfluorooctanoic acid
PFUnA	Perfluoroundecanoic acid

Table 6: NAHS Post-GAC PFAS Results: Method 533 & Method 537.1 Side-by-Side Comparison (ng/L)

Field Sample ID:	SHAFT-HW-0018394-25098-N		SHAFT-HW-0018394-25098-N-R01		SHAFT-HW-0018394-25098-N-R02		SHAFT-HW-0018394-25098-N-R03		SHAFT-HW-0018394-25098-N-R04		SHAFT-HW-0018394-25098-N-R05		SHAFT-HW-0018394-25098-N-R06		SHAFT-HW-0018394-25098-3-N-R06		SHAFT-HW-0018394-25098-N-R07		SHAFT-HW-0018394-25098-N-R08		SHAFT-HW-0018394-25098-N-R09		SHAFT-HW-0018394-25098-N-R10	
Sample Date:	2025-04-08		2025-04-11		2025-04-14		2025-04-16		2025-04-18		2025-04-21		2025-04-23		2025-04-23		2025-04-25		2025-04-28		2025-04-30		2025-05-02	
Sample Type:	N		N		N		N		N		N		N		FD		N		N		N		N	
PFAS Analyte	533	537	533	537	533	537	533	537	533	537	533	537	533	537	533	537	533	537	533	537	533	537	533	537
11Cl-PF3OUdS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADONA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9Cl-PF3ONS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HFPO-DA	ND	ND	ND	ND	ND	ND	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFBS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFDA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFDoA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFHpA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFHxS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFHxA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFNA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFOS	ND	1.50 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFOA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFUnA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

11Cl-PF3OUdS	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid
ADONA	4,8-Dioxa-3H-perfluorononanoic acid
9Cl-PF3ONS	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid
HFPO-DA	Hexafluoropropylene oxide dimer acid
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PFDoA	Perfluorododecanoic acid
PFHpA	Perfluoroheptanoic acid
PFHxS	Perfluorohexanesulfonic acid
PFHxA	Perfluorohexanoic acid
PFNA	Perfluorononanoic acid
PFOS	Perfluorooctanesulfonic acid
PFOA	Perfluorooctanoic acid
PFUnA	Perfluoroundecanoic acid

Table 7: NAHS Post-IX PFAS Results: Method 533 & Method 537.1 Side-by-Side Comparison (ng/L)

Field Sample ID:	SHAFT-HW-0018393-25098-N		SHAFT-HW-0018393-25098-N-R01		SHAFT-HW-0018393-25098-N-R02		SHAFT-HW-0018393-25098-N-R03		SHAFT-HW-0018393-25098-N-R04		SHAFT-HW-0018393-25098-N-R05		SHAFT-HW-0018393-25098-N-R06		SHAFT-HW-0018393-25098-N-R07		SHAFT-HW-0018393-25098-N-R08		SHAFT-HW-0018393-25098-3-N-R08		SHAFT-HW-0018393-25098-N-R09		SHAFT-HW-0018393-25098-N-R10	
Sample Date:	2025-04-08		2025-04-11		2025-04-14		2025-04-16		2025-04-18		2025-04-21		2025-04-23		2025-04-25		2025-04-28		2025-04-28		2025-04-30		2025-05-02	
Sample Type:	N		N		N		N		N		N		N		N		N		FD		N		N	
PFAS Analyte	533	537	533	537	533	537	533	537	533	537	533	537	533	537	533	537	533	537	533	537	533	537	533	537
11Cl-PF3OUdS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADONA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9Cl-PF3ONS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HFPO-DA	ND	ND	ND	ND	ND	ND	—	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFBS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFDA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFDoA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFHpA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFHxS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFHxA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFNA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFOS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFOA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFUnA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

11Cl-PF3OUdS	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid
ADONA	4,8-Dioxa-3H-perfluorononanoic acid
9Cl-PF3ONS	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid
HFPO-DA	Hexafluoropropylene oxide dimer acid
J	estimated value
ND	non-detect
ng/L	nanogram per liter
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PFDoA	Perfluorododecanoic acid
PFHpA	Perfluoroheptanoic acid
PFHxS	Perfluorohexanesulfonic acid
PFHxA	Perfluorohexanoic acid
PFNA	Perfluorononanoic acid
PFOS	Perfluorooctanesulfonic acid
PFOA	Perfluorooctanoic acid
PFUnA	Perfluoroundecanoic acid

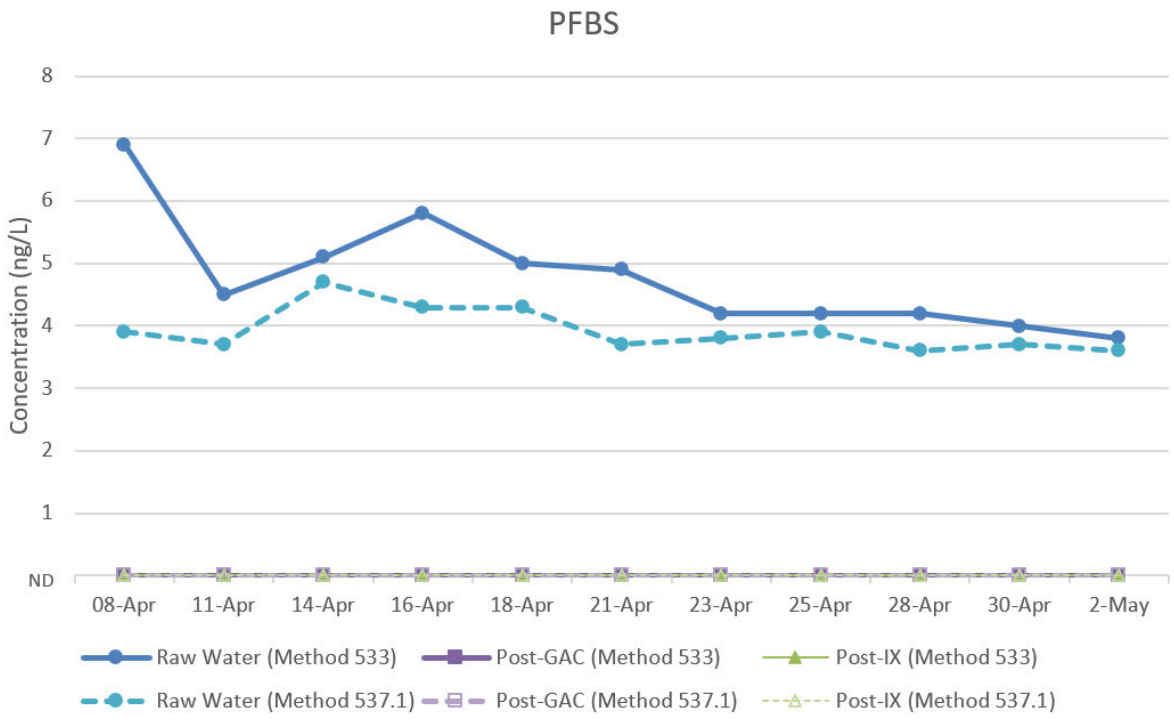

Figure 5: PFBS Concentrations

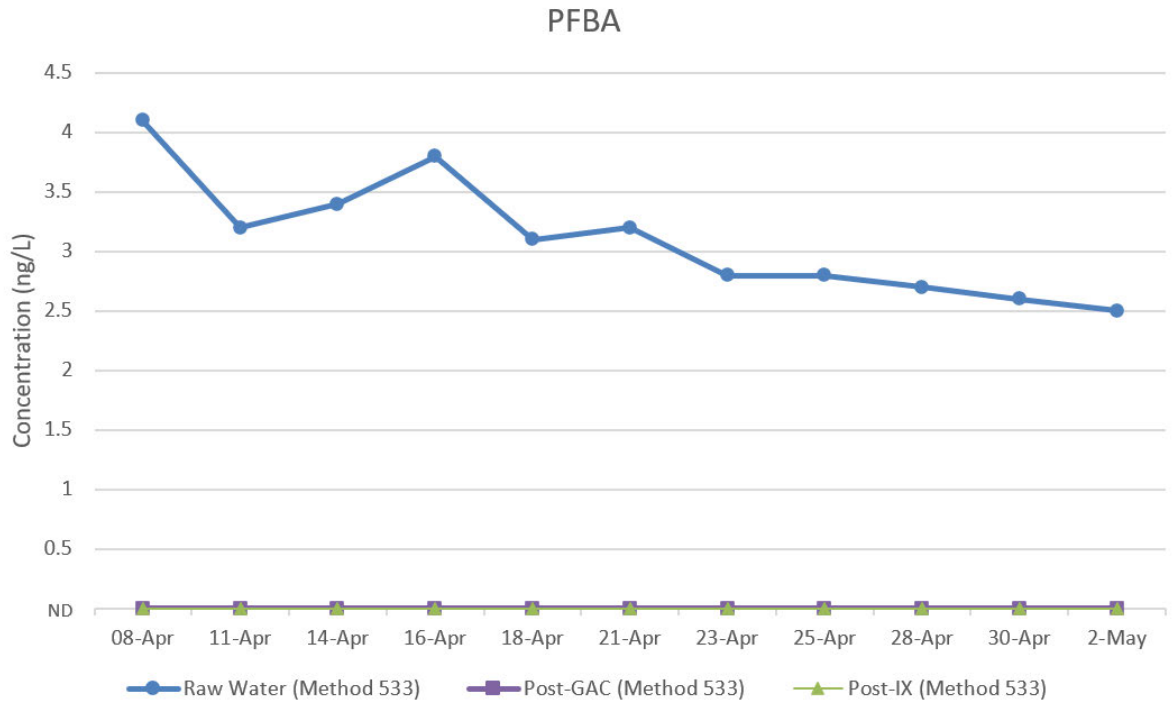

Figure 6: PFBA Concentrations

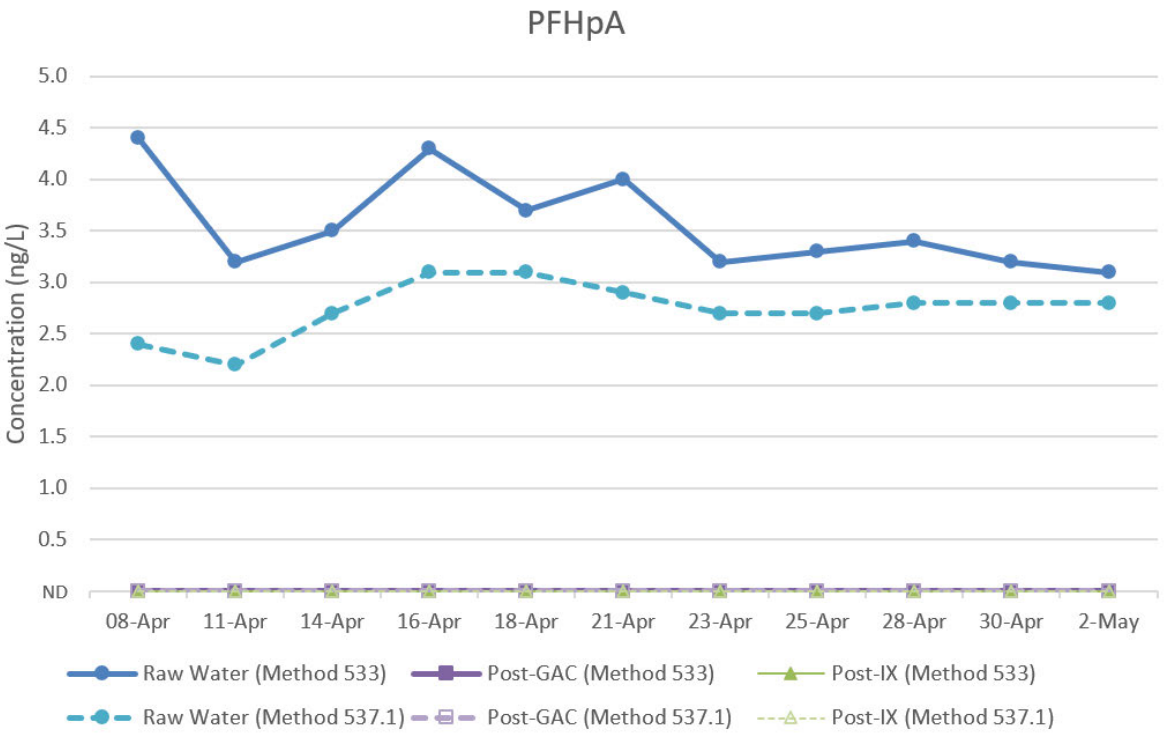

Figure 7: PFHpA Concentrations

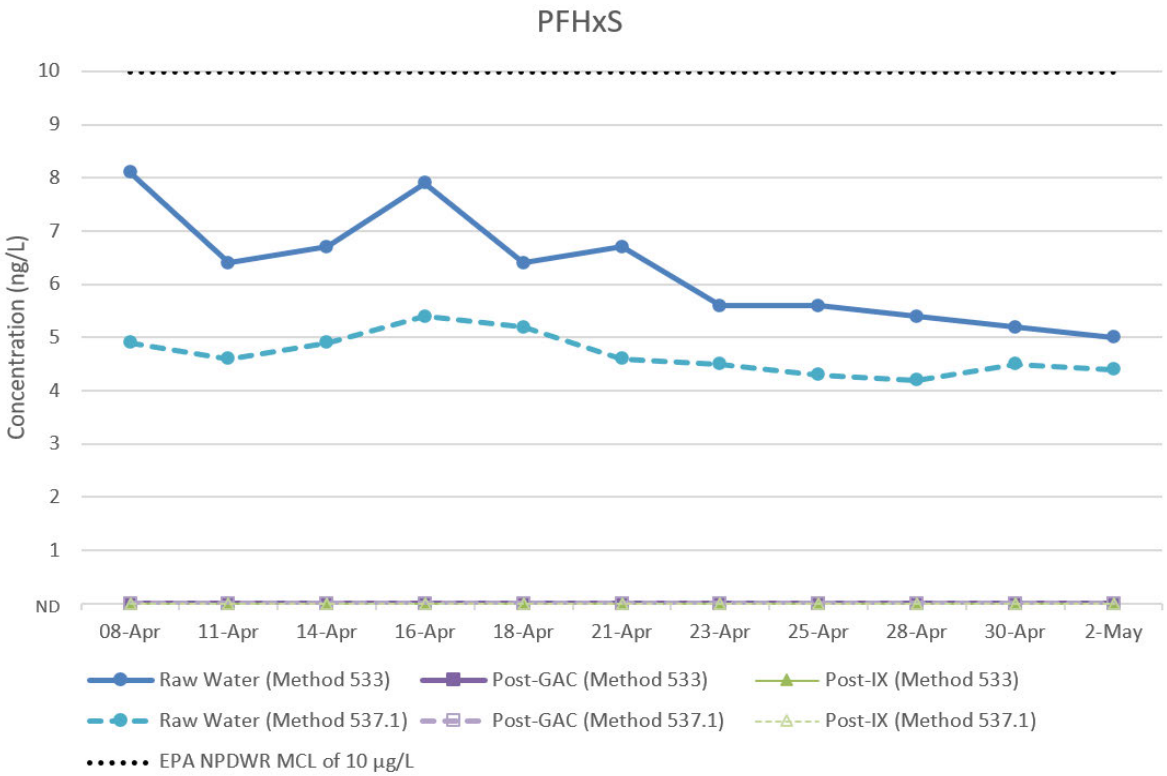

Figure 8: PFHxS Concentrations

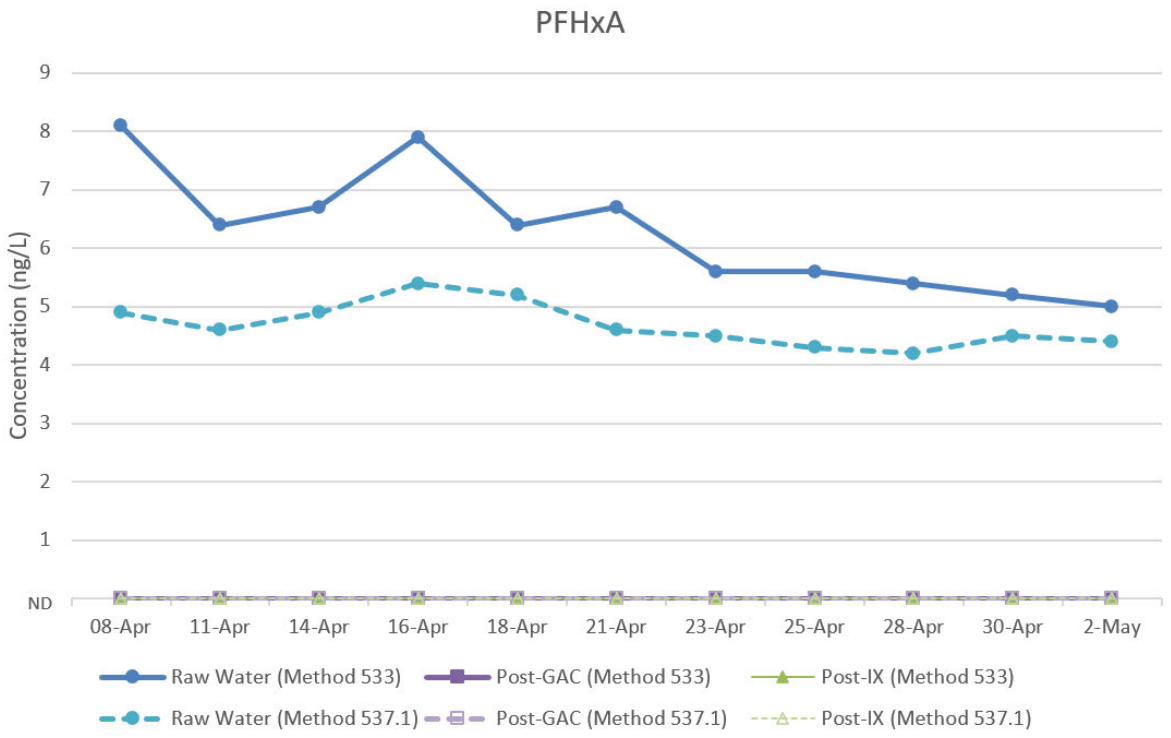

Figure 9: PFHxA Concentrations

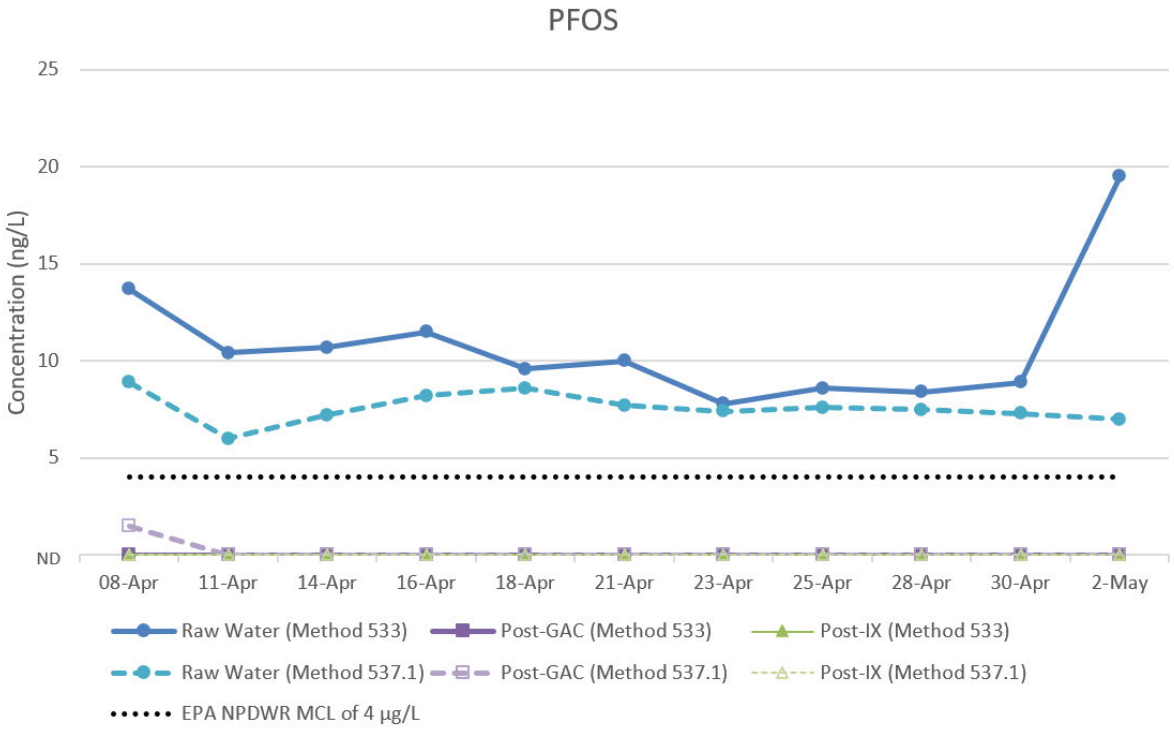

Figure 10: PFOS Concentrations

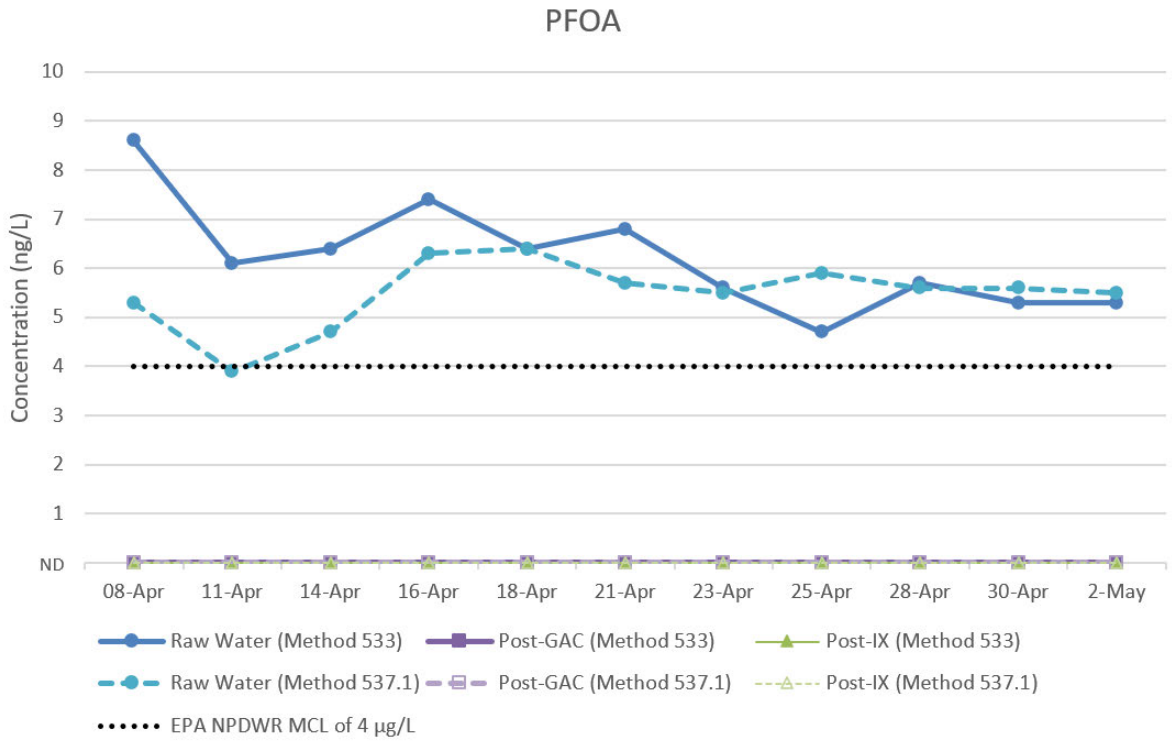

Figure 11: PFOA Concentrations

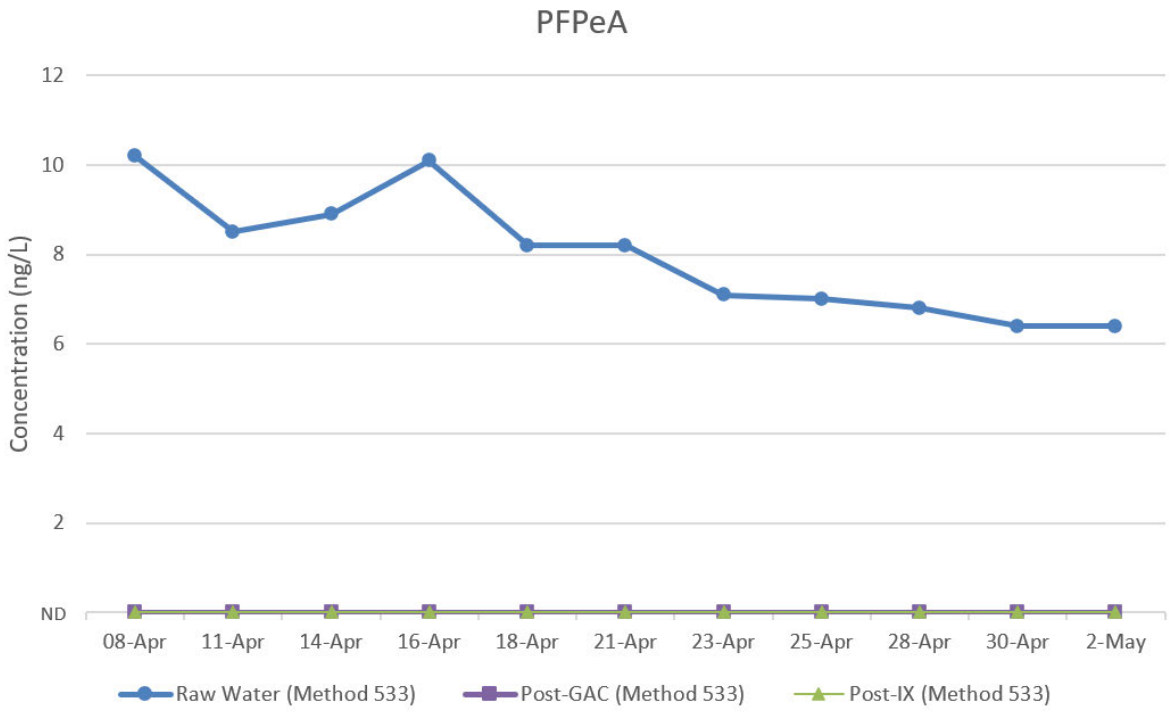

Figure 12: PFPeA Concentrations

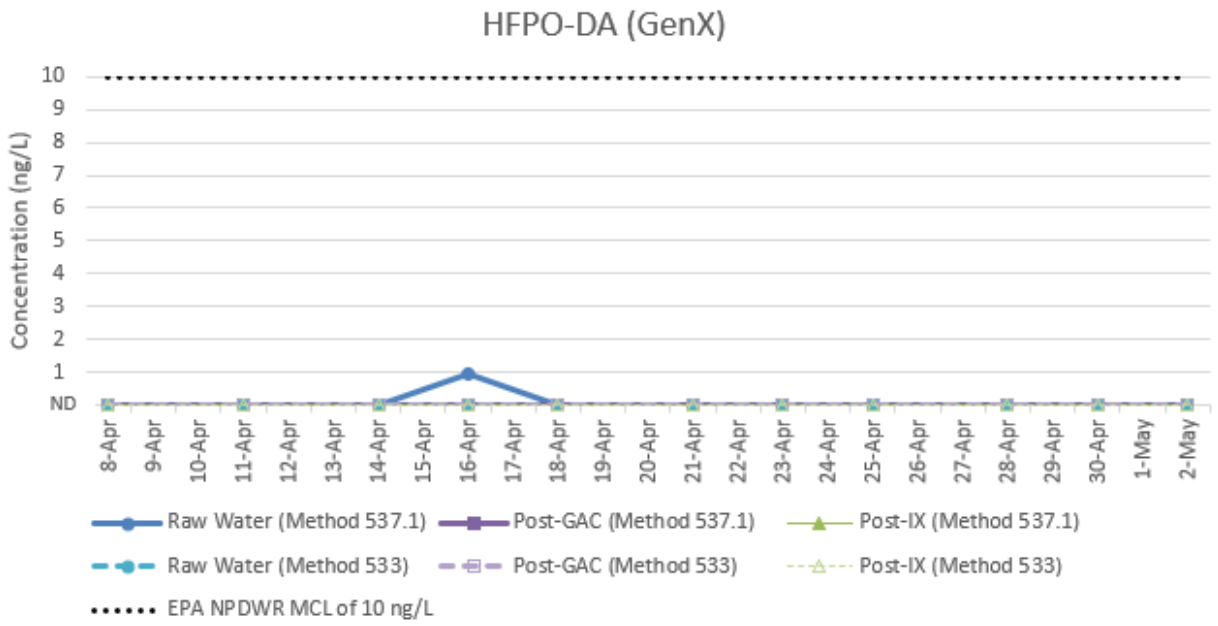

Figure 13: HFPO-DA (GenX) Concentrations

TPH is measured in JBPHH drinking water by integrating the entire area on a chromatogram, including all discrete peaks and the unresolved complex mixtures down to the baseline. The peaks must fall within a specific retention time windows, which is determined by the analysis of individual straight chain hydrocarbons (molecules containing only hydrogen and carbon arranged in a straight line with no double bonds) with a known number of carbon atoms. For example, n-pentane contains five carbon atoms and 12 hydrogen atoms and would be known as a C5 n-alkane. Three categories of TPH are measured in all JBPHH drinking water samples.

- *Gasoline Range Organics (TPH-g):* This measurement is defined as the total area of all peaks and the unresolved complex mixtures that come out (elute) between the observed retention times of C5 and C12 n-alkanes.
  - This range would include lighter fuels such as gasoline and individual chemical compounds such as benzene, toluene, ethyl benzene, and xylenes (BTEX).
- *Diesel Range Organics (TPH-d):* This measurement is defined as the total area of all peaks and the unresolved complex mixtures eluting between the observed retention times of C10 and C24 n-alkanes.
  - This range would include fuels such as diesel fuel and kerosene, and individual components such as naphthalene. JP-5 falls within this category with greater than 99% of its hydrocarbon mass eluting between C9 and C16 n-alkanes. It is important to understand that this range includes many compounds other than JP-5 and the result should not be interpreted as evidence of JP-5 contamination. Additional qualitative and quantitative assessment is required to make that determination.
- *Oil Range Organics (TPH-o):* This measurement is defined as the total area of all peaks and the unresolved complex mixtures eluting between the observed retention times of C24 and C40 n-alkanes.
  - Hydrocarbons eluting in this range are less likely to be fuel related as they have higher boiling points than the other ranges and are more often associated with lubricants and other greases.

All samples were sent to (b) (4) for analysis of TPH via EPA SW-846 Method 8015D for total petroleum hydrocarbons diesel range organics (TPH-d) and total petroleum hydrocarbons oil range organics (TPH-o), and via EPA SW-846 Method 8260 for total petroleum hydrocarbons gasoline range organics (TPH-g). Total TPH is calculated as the sum of TPH-d, TPH-o, and TPH-g. Concentrations for each of these ranges is obtained by integrating the entire area above the baseline between the retention times established by the analysis of straight chain saturated hydrocarbons (SHCs) of known carbon length. The specific ranges are not prescribed by the method but are established by the project. JBPHH drinking water ranges have been defined as C5-C12 for TPH-g, C9-24 for TPH-d, and >C24-C40 for TPH-o.

TPH was not detected in any of the raw water or post-GAC samples but was detected in all post-IX samples for this pilot study. It is well established that TPH detections do not necessarily equate to detections of petroleum compounds. The post-IX sample extracts were further evaluated using a detailed review of laboratory method blanks, chromatograms, and mass spectral confirmation outlined in the extended drinking water monitoring plan (DON et al. 2024). The procedure entails analyzing the sample extracts obtained from the original extraction using full scan gas chromatography-mass spectrometry via Method 8270. The purpose of this analysis is to compare the mass spectra of the individual peaks with the spectra of known petroleum constituents.

In addition, the post-IX samples were sent to (b) (4) and analyzed for additional specialized analyses (PIANO, PAPAHs, and SHC) identified in the extended drinking water monitoring plan (DON et al. 2024), specifically paraffins, isoparaffins, aromatics, naphthenes, and olefins (PIANO) volatile organics by SW-846 Method 8260D, parent and alkylated PAHs by SW-846 Method 8270E with selected ion monitoring, and SHCs by SW-846 Method 8015D (modified). The PIANO analysis yielded detections of styrene that have since fallen below detectable levels. Various aromatic hydrocarbons were detected at concentrations less than 0.1 µg/L in the parent and alkylated PAH analysis. Several straight chain and branched SHCs were detected in the SHC analysis of each of the post-IX samples at low or sub-µg/L concentrations with total saturated hydrocarbon detections ranging from approximately 0.1 µg/L to 28.4 µg/L. The SHC analysis also generates a total hydrocarbon concentration based on integrating the entire area between the retention times for C9 and C44 straight chain alkanes. This is a slightly larger range than the combined TPH-d and TPH-o ranges measured by (b) (4) but is considered useful for comparison of data. Figure 14 below plots the concentrations of TPH reported by (b) (4) and the C9-C44 petroleum concentrations reported by (b) (4). Figure 15 below plots the concentrations of styrene reported by (b) (4).

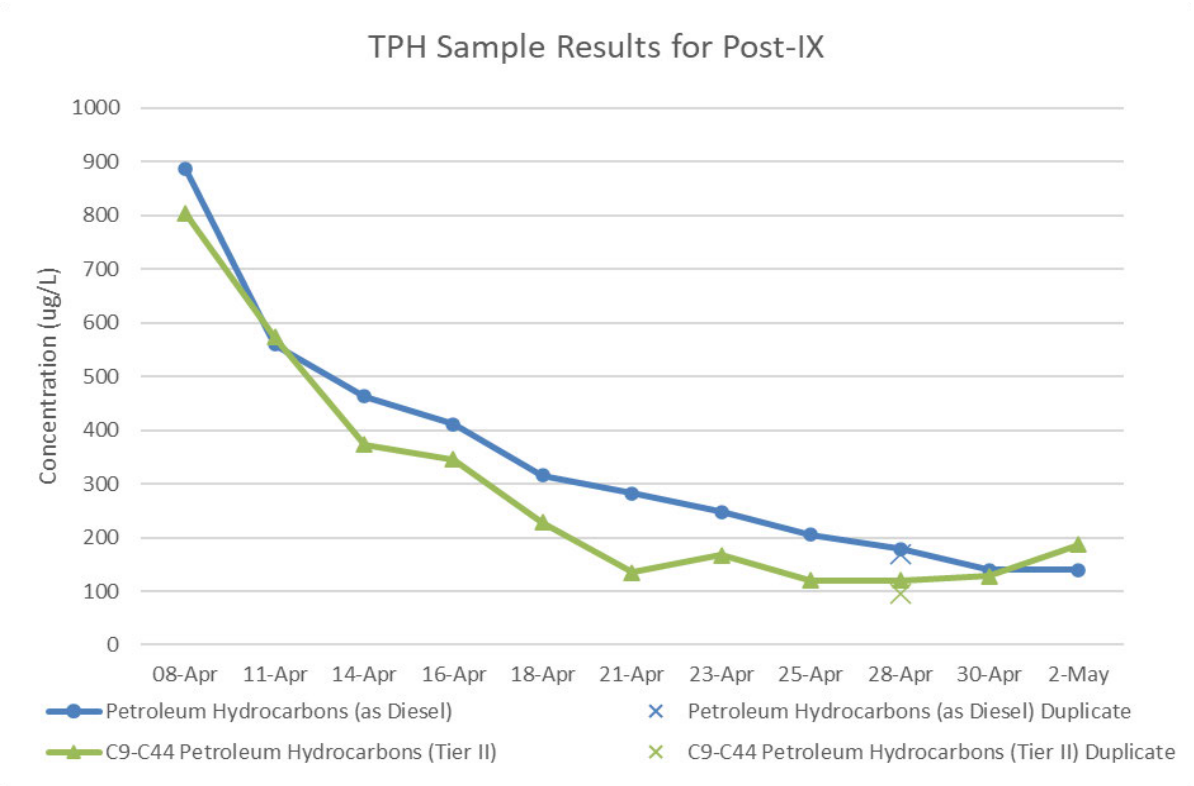

Figure 14: TPH Sample Results for Post-IX

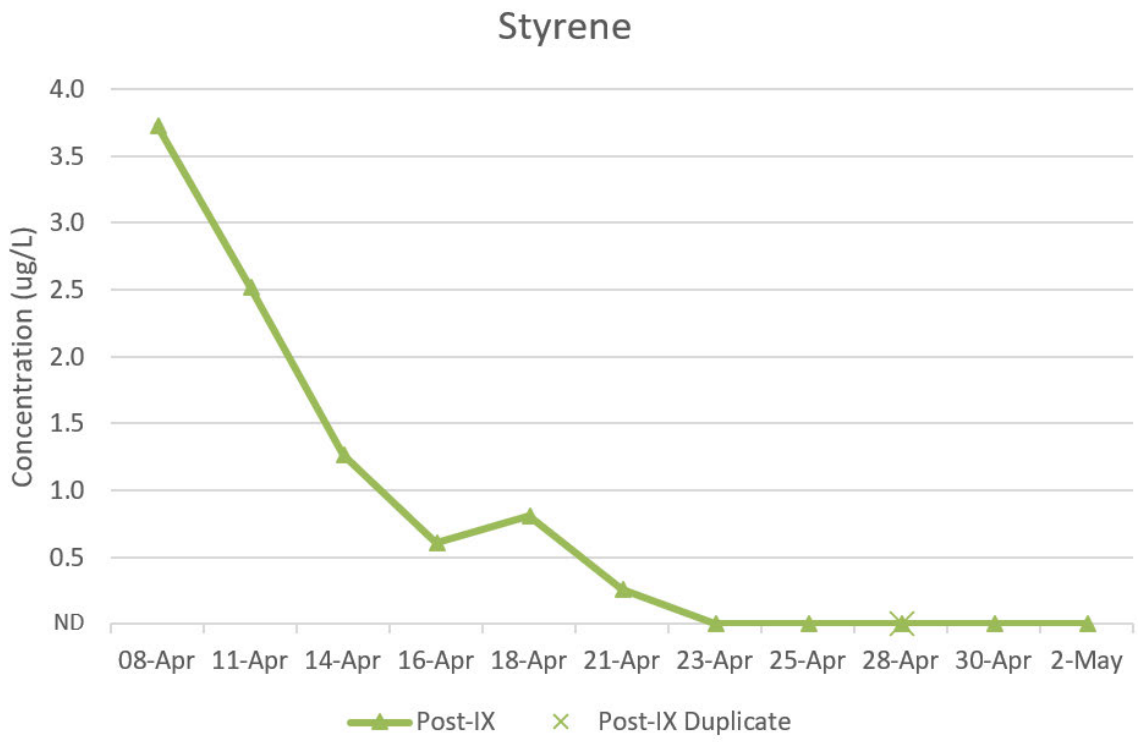

Figure 15: Styrene Sample Results for Post-IX

3.2 INTERPRETATION OF DATA

Eight PFAS compounds were detected in the raw water samples. There was a trace level detection of PFOS via Method 537.1 in the post-GAC sample collected on April 8, but the remaining post-GAC samples and all post-IX samples were non-detect for all PFAS compounds. These results suggest that the GAC is successfully removing PFAS from the water and the resin is successfully removing any residual.

In those instances where a compound was reported by both Methods 533 and 537.1, the results were similar although the Method 537.1 results tended to be slightly lower.

Due to a laboratory QC issue, non-detect results for hexafluoropropylene oxide dimer acid (HFPO-DA) analyzed by Method 533 were rejected in the post-GAC and post-IX samples collected on April 16, 2025. This compound is also analyzed by Method 537.1 and all results were non-detect. There have been no detections of HFPO-DA during the pilot study.

Due to a laboratory QC issue, non-detect results for perfluorotetradecanoic acid (PFTeDA) by Method 537.1 were rejected in the post-GAC sample collected on April 23, 2025. PFTeDA does not have an MCL and there have been no detections of this compound during the pilot study. This does not have an impact on the pilot study results.

TPH was not detected in any of the raw water or post-GAC samples. However, (b) (4) reported a diesel range organics (TPH-d) concentration of 886 µg/L in the post-IX sample collected on April 8, 2025. TPH has been detected in all post-IX samples at successively decreasing concentrations, with the concentration in the May 2, 2025 sample reported as 140 µg/L.

The chromatogram of the initial effluent contained a series of peaks eluting in approximately the C10-C18 n-alkane range. The same pattern was seen in all subsequent post-IX samples. Visual evaluation of the peak pattern, including overlays with chromatograms from Jet Fuel Propellant (JP)-5 and diesel fuel, indicate that the detected substance is not fuel related. Furthermore, a detailed review of laboratory method blanks, chromatograms, and mass spectral confirmation did not detect any of the alkanes expected to be present in petroleum compounds. This evaluation was unable to positively identify any of the compounds responsible for the peaks as there were no strong spectral matches with any of the compounds in the National Institute of Standards and Technology library. Because the resin constituents are proprietary, identification of the unknown compounds contributing to the TPH detections is not possible with the analytical methods utilized in this pilot study. The (b) (4) results from additional specialized analyses (PIANO, PAPAHs, and SHC) of the post-IX samples have not identified a petrogenic source for the detections. The (b) (4) C9-C44 petroleum hydrocarbon results from each sampling event closely match the total TPH results obtained by (b) (4).

Communication with the treatment system operator indicated that the resin contains polystyrene beads that are held together by divinyl benzene cross-linkers. The supplier believes that the detections are the result of initial contact of the water with the resin dissolving the polystyrene substrate and that these artifacts will approach zero over time. It is worth noting that styrene was detected in the PIANO analyses for each of the post-IX samples, which is consistent with contact with polystyrene beads. The styrene concentrations have fallen below detectable levels.

There are detectable concentrations of other unknown chemicals, which have also diminished over the course of the pilot study. Based on discussion with the operations team, it is anticipated that remaining residual compounds will be flushed out over time. However, additional flushing and testing is recommended to identify unidentified compounds and demonstrate all compounds are flushed. Because the resin constituents are proprietary, identification of the unknown compounds contributing to the TPH detections is not possible with the analytical methods utilized in this pilot study. While there are no exceedances of existing or proposed MCLs for the tested analytes, additional evaluation is recommended.

All available evidence indicates that the TPH detections are not due to the presence of petroleum compounds and did not originate in the water from NAHS. The most compelling evidence that these detections are not related to JBPHH activities is that there were no TPH detections in the influent or post GAC- samples, meaning that they could not have originated in the water from NAHS. This fact, combined with the information from the resin manufacturer, points to resin artifacts as the source of the TPH detections.

Appendix A.4

4. Comparison with Standards

4.1 COMPLIANCE WITH 2029 EPA ENFORCEABLE MAXIMUM CONTAMINANT LEVEL CRITERIA FOR PFAS

The EPA has established enforceable MCLs for specific PFAS chemicals in drinking water as part of its NPDWR for PFAS. The enforceable MCL criteria include:

- Individual MCLs
  - *Perfluorooctanoic acid and PFOS:* An enforceable MCL of 4.0 parts per trillion (ppt) has been set individually for each of these PFAS.
  - Perfluorononanoic acid (PFNA), perfluorohexanesulfonic acid (PFHxS), and GenX Chemicals: An enforceable MCL of 10 ppt has been set individually for each of these PFAS.
- MCL for PFAS Mixtures
  - *Hazard Index (HI) of 1:* An HI of 1 has been established as an MCL for mixtures of two or more of the following PFAS: PFNA, PFHxS, GenX chemicals, and PFBS. The HI is calculated by summing the hazard quotients (HQs) of regulated PFAS components. Each HQ is determined by dividing the measured concentration of PFAS in water by its Health-Based Water Concentration (HBWC). This means that when these PFAS are present together, their combined levels must not exceed an HI of 1.
  - HQs are a key part of the EPA's approach to regulating PFAS mixtures in drinking water. An HQ is the ratio of the measured concentration of PFAS in drinking water to its HBWC. The HBWC is the level below which no adverse health effects are expected over a lifetime of exposure. The HI is the sum of the HQs for the regulated PFAS components. If the HI exceeds 1, it indicates an exceedance of the MCL. The EPA's rules specifically target mixtures of PFHxS, PFNA, hexafluoropropylene oxide dimer acid (GenX), and PFBS. Each of these has its own HBWC, and their combined HQs contribute to the overall HI.

    The HQ for each regulated PFAS component is calculated using the formula:

$$HQ = \frac{Measured\ Concentration}{HBWC}$$

    The HBWCs for the regulated PFAS components are as follows:

    - *PFHxS:* 10 ppt
    - *PFNA:* 10 ppt
    - *Hexafluoropropylene Oxide Dimer Acid (GenX):* 10 ppt
    - *PFBS:* 2,000 ppt

    These HBWCs are the levels below which no adverse health effects are expected over a lifetime of exposure.

    For example, if the measured concentration of PFHxS in water is 5 ppt and its HBWC is 10 ppt, the HQ would be 0.512.

In 2025, compliance with the current EPA PFAS rule includes that PWSs are required to monitor for these PFAS. Compliance is determined by calculating a running annual average of PFAS levels at sampling points. If the running annual average exceeds the MCL for any of the listed PFAS or the HI, the system is considered in violation. Public notification will be required for PWSs exceeding MCLs, and the systems must take steps to reduce PFAS levels.

The EPA's MCLs for PFAS in drinking water become fully enforceable for PWSs in April 2029. A breakdown of the key dates is as follows:

- *Initial Monitoring (2024–2027):* PWSs need to complete initial monitoring for the regulated PFAS.
- *Reporting and Ongoing Monitoring (2027–2029):* Water systems will publish initial monitoring results and start regular compliance monitoring, publishing results annually.
- *Full Enforcement (2029):* PFAS MCL compliance becomes fully enforceable. Public notice will be required for any MCL violations, and quarterly monitoring continues.

In summary, while the current EPA PFAS rule itself goes into effect sooner, water systems have until April 2029 to implement any necessary solutions to reduce PFAS levels and achieve compliance with the MCLs.

Appendix A.5

5. Additional Evaluations

5.1 CHLORIDE LEVEL TRENDS AND SALINITY INTRUSION CONCERNS

In November 2013, the Commission on Water Resource Management's Deep Well Program (CWRM 2025) described Hawaii's aquifers by saying:

> *Hawaii's unique volcanic geology provides for large aquifers (water bearing rock) that are able to support the State's population by supplying potable ground water as well as water for agricultural and other purposes. These aquifers are replenished by rainfall. Because fresh ground water is slightly less dense than seawater, it floats on top of the saline water forming what is known as a Ghyben-Herzberg lens, which is referred to as a "basal" aquifer. Theoretically, for every foot of fresh water above sea level, there is 40 feet of fresh water below sea level. Between the freshwater and salt-water portions of the lens is a zone of mixing, known as the "Transition Zone."*
>
> *In Hawaii, the chloride ion concentration (milligrams per liter or mg/L) is used to determine the freshness or saltiness of ground water. It is also listed as a contaminant in the EPA Secondary Drinking Water Regulations. Chloride in small concentrations is not harmful to humans, but in concentrations above 250 mg/L, or 2 percent that of seawater, it imparts a salty taste in water that is objectionable to many people. By definition, the Transition Zone is water greater than 250 mg/L chloride (TTZ) to the mid-point concentration of 9,500 mg/L chloride (MPTZ), which is 50 percent of seawater. Below the mid-point, concentration increases to sea water at 19,000 mg/L chloride. Because the amount of water that can be developed from a freshwater lens for potable use is constrained by the salinity of the water, the altitude of the top of the transition zone (where chloride concentration is 2 percent that of seawater) and the thickness of the transition zone are important. The transition zone is in constant flux, responding to changes caused by variations in pumping and rainfall.*

The 2015 Utility System Assessment of the JBPHH Potable Water System by Engineering Concepts, Inc. (DON 2015), listed findings for the Halawa Water Pumping Station related to condition, reliability, and integrity of the potable water source. It stated that based on discussions with Hawaii Department of Land and Natural Resources, the 30201 Waimalu Aquifer System, from which the NAHS obtains its water, has a high chloride level. At the time of the report, the pumpage from the aquifer system exceeded the aquifer's sustainable yield by nearly 2 mgd. Due to the over pumpage, the freshwater lens, floating on the saline water, was thinning, exacerbating the issue of rising chloride levels.

The 2007 Oceanit Townscape, Inc. *Central Oahu Watershed Study, Final Report* (BWS 2007), for the Honolulu Board of Water Supply, stated that "Drought and increased pumping will increase chloride levels and reduce the thickness of the freshwater lens."

The Commission of Water Resource Management maintains the Halawa Deep Monitoring Well (3-2253-003) and provides details of the fluctuations in the water table, the fresh water lens, the brackish water transition zone, and the sea water in the area (CWRM 2025). This information is shown on Figure 16.

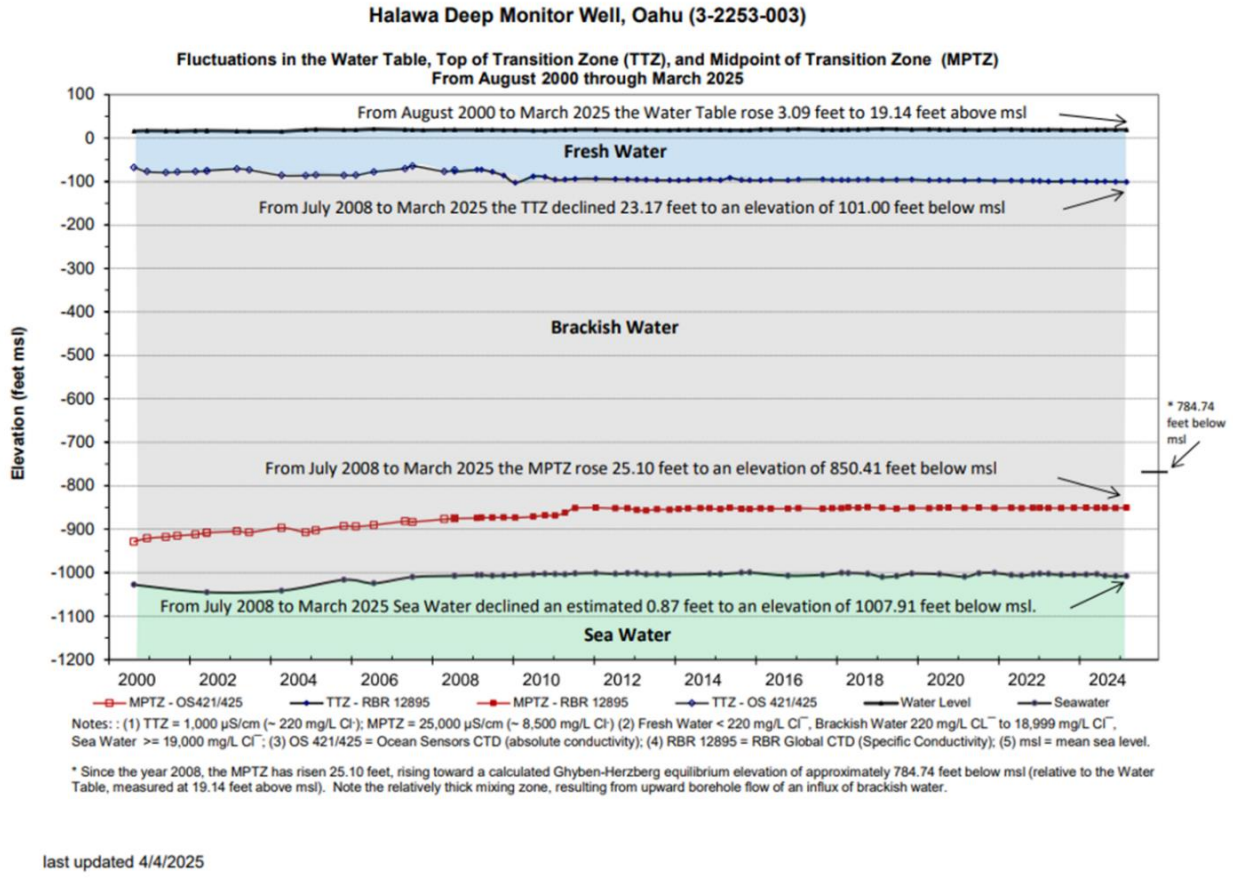

Figure 16: Halawa Deep Monitor Well Fluctuation Data from August 2000 to March 2025

The Navy's Aiea Halawa pilot study sampling included monitoring for chloride. Those results are presented more fully in Appendix E but are summarized below on Figure 17. The first two sample events show lower chloride concentrations in the post-IX samples than in the raw water or at the post-GAC sample location. This could be attributed to startup issues as the IX process was activated. After the first two sample events, the IX vessel has marginally more chlorides coming off than coming into the vessel; this would indicate that the resin is releasing chloride ions in exchange for a stronger anion in the influent water like bicarbonate, sulfate, PFAS, or nitrate. This indicates that the IX process uses an anion exchange resin. Anion exchange resins are designed to remove negatively charged ions (anions) from the water, replacing them with chloride ions.

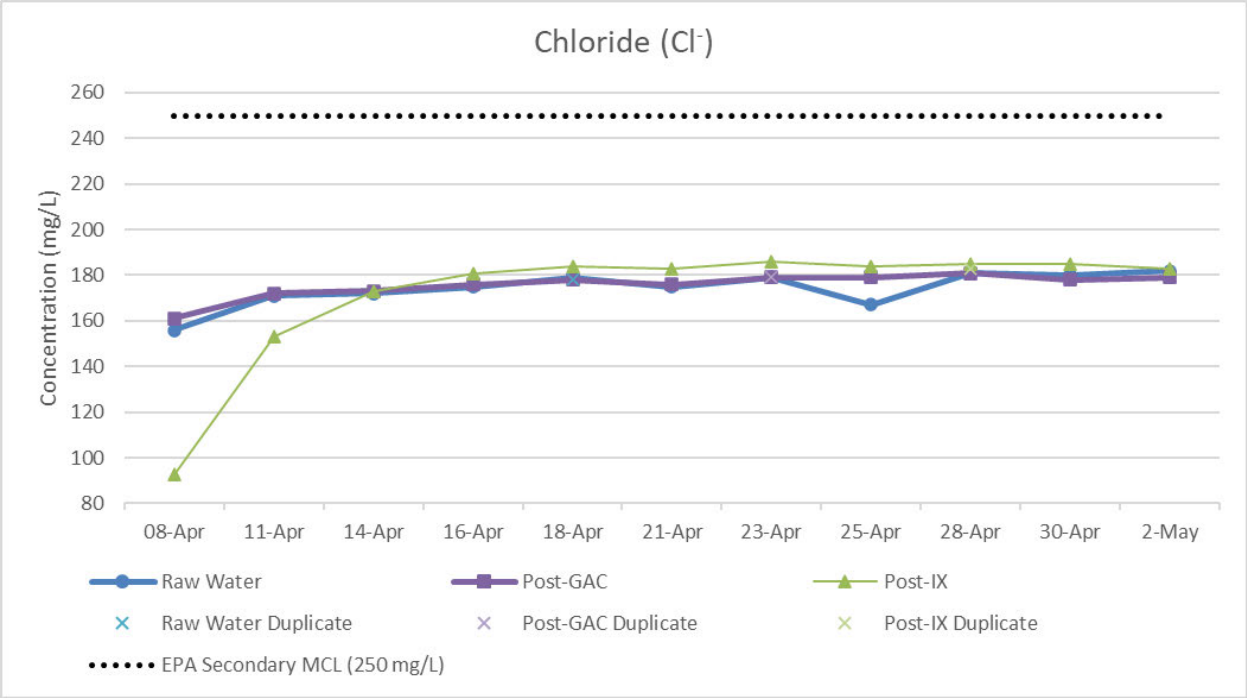

Figure 17: Chloride (Cl^-) Concentrations During Navy's Aiea Halawa Pilot Study

5.2 TURBIDITY

At the start of each sampling event, the crews monitored the turbidity of the water at that sampling location (raw water, post-GAC, and post-IX). Monitoring turbidity using a flow through cell indicated when the turbidity stabilized. The turbidity was assumed to be caused by air bubble turbulence at the startup of each sampling event. The results of that monitoring are summarized on Figure 18 through Figure 23 below. With each sampling event, turbidity was monitored for 30 minutes with measurements recorded every 5 minutes. The program's turbidity limit was 5 nephelometric turbidity units (NTUs).

On April 8, 2025, (the first day of monitoring) the post-GAC turbidity measurements were significantly above the turbidity limit of 5 NTU. The turbidity measurements are shown separately on Figure 19 to avoid scaling issues. The turbidity measurements demonstrate that the startup process was too short and did not allow adequate time for removal of the air and fines from inside of the GAC vessels prior to monitoring. This assertion is supported by the change in chloride concentrations over the first three sampling events.

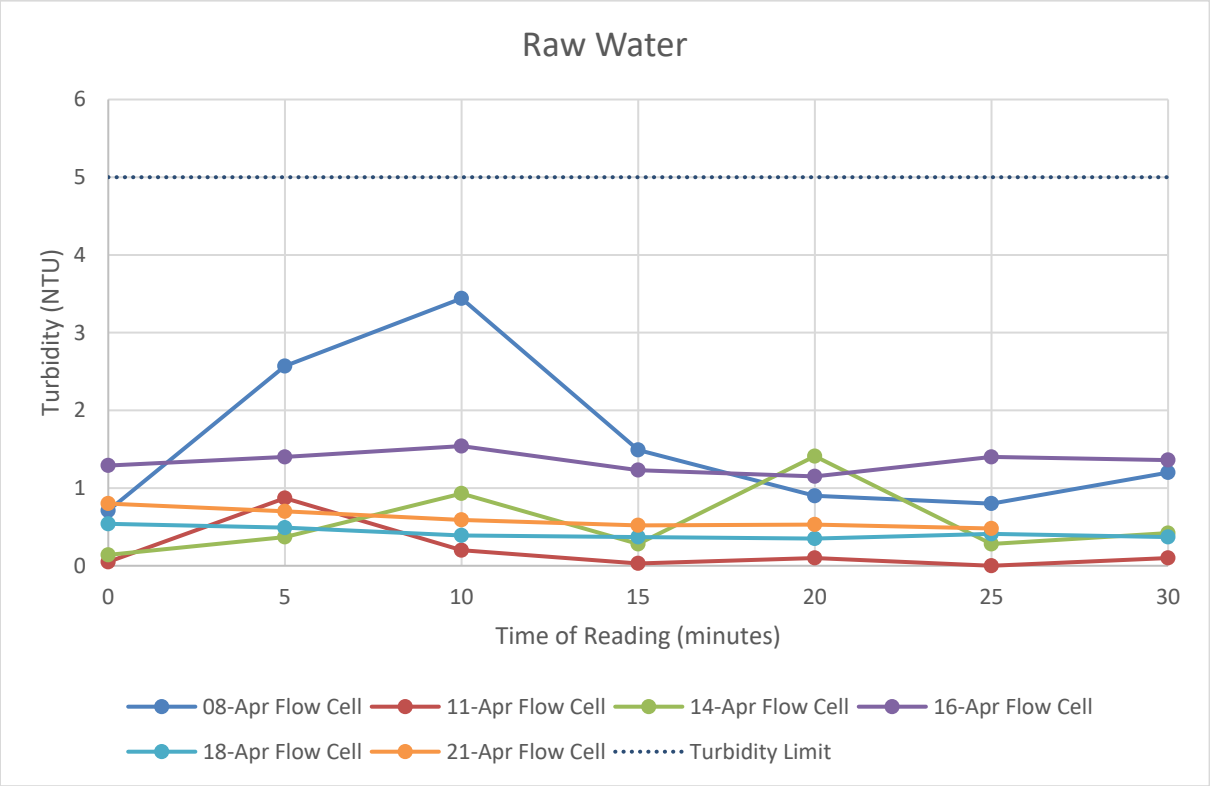

Figure 18: Raw Water Turbidity

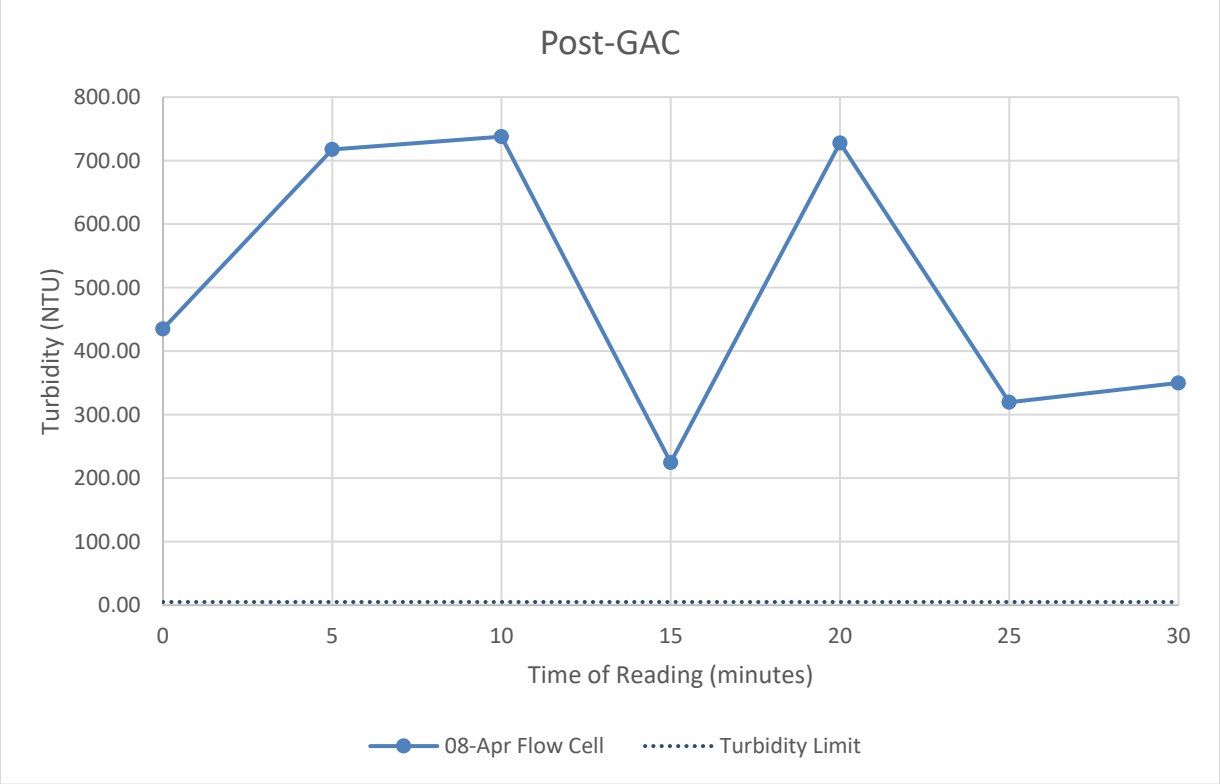

Figure 19: Post-GAC (Larger Scale) Turbidity

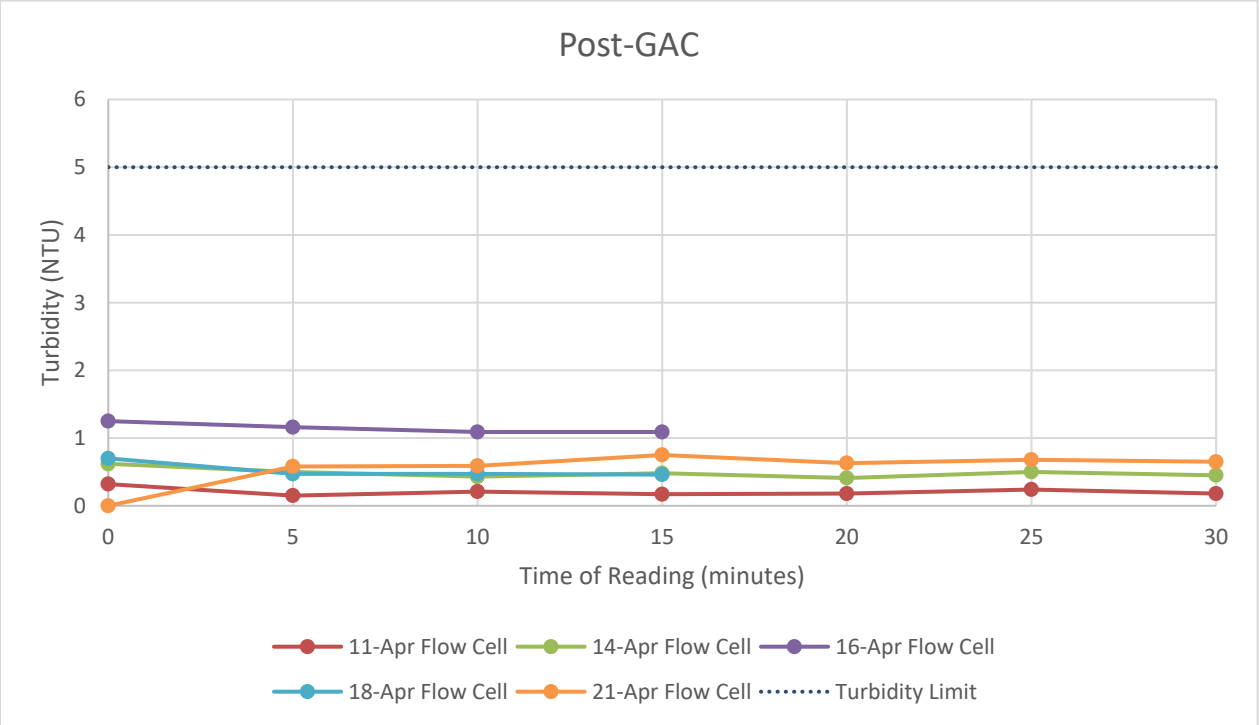

Figure 20: Post-GAC (Smaller Scale) Turbidity

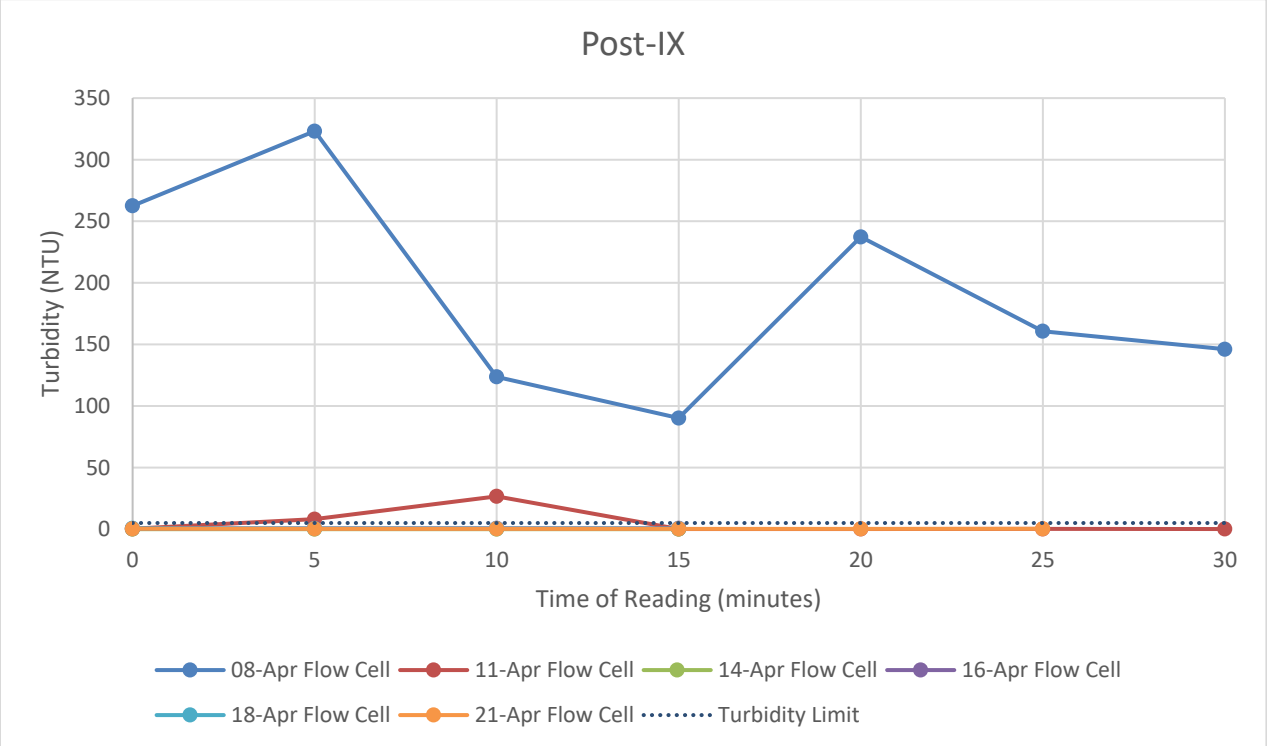

Figure 21: Post-IX (Larger Scale) Turbidity

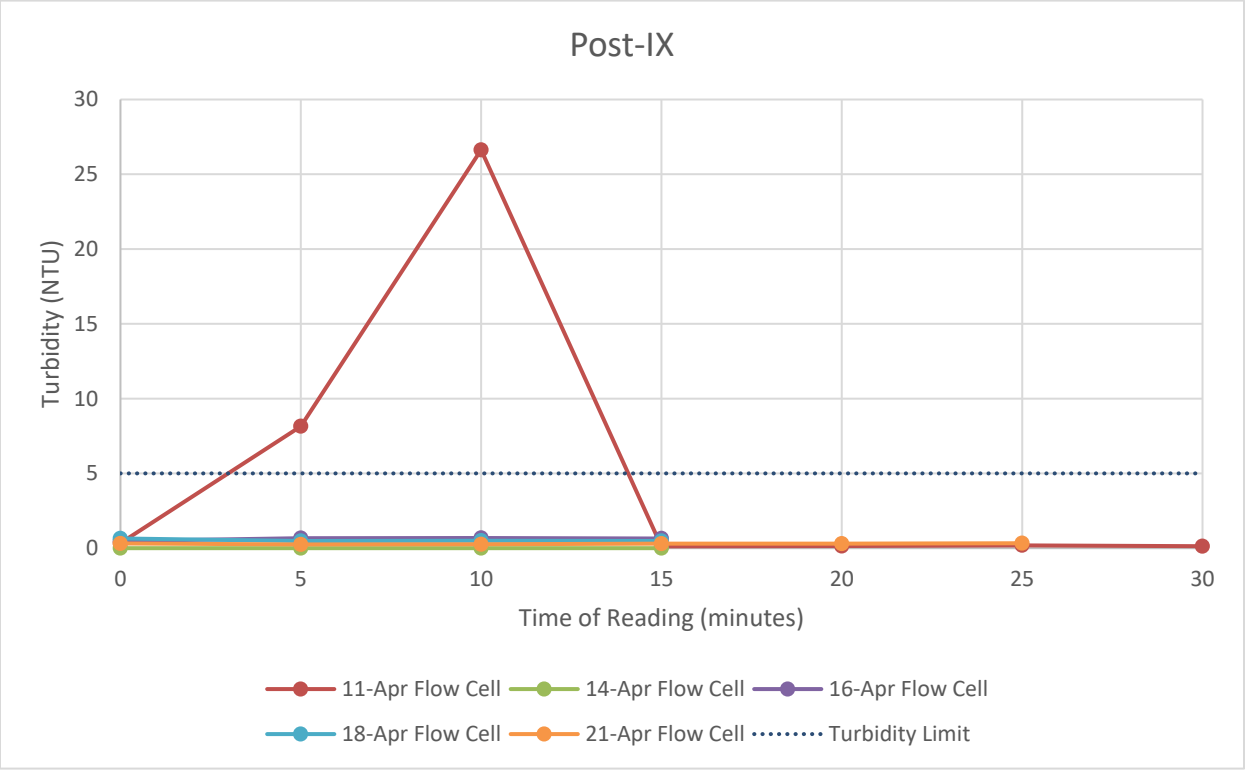

Figure 22: Post-IX (Smaller Scale) Turbidity

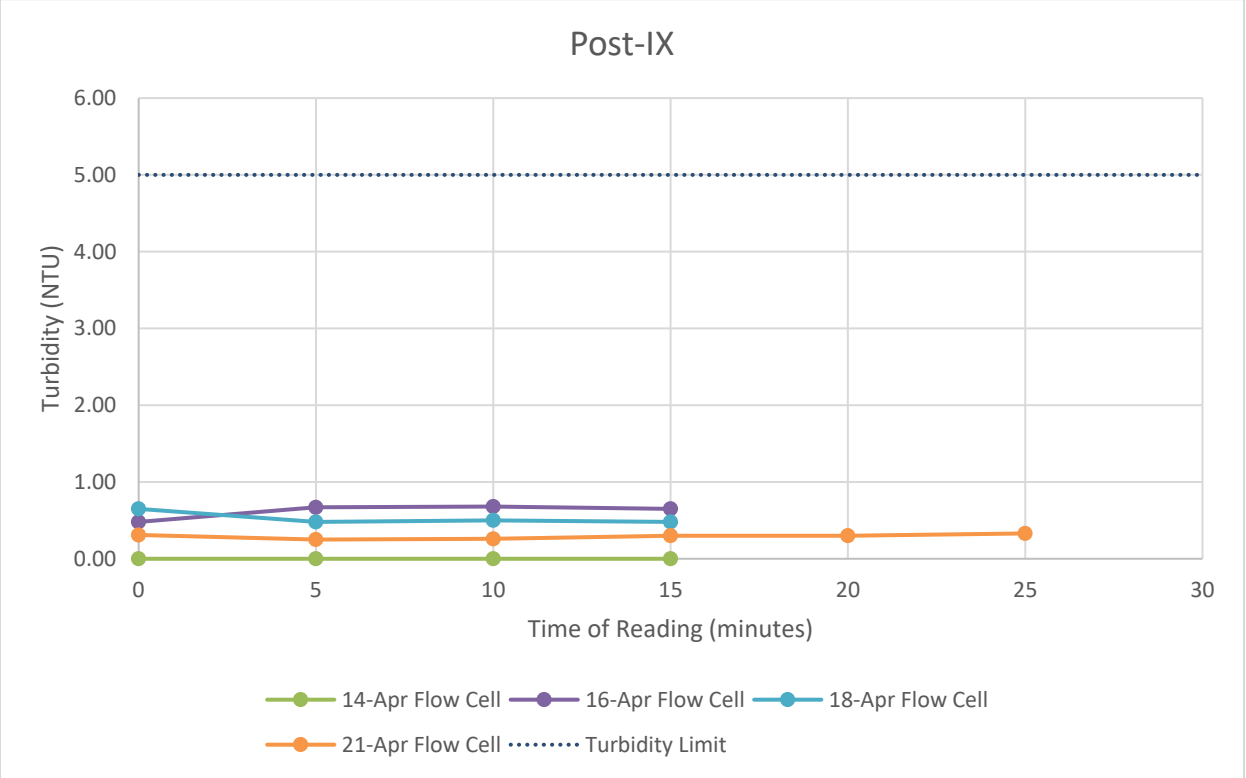

Figure 23: Post-IX (Smallest Scale) Turbidity

5.3 TOTAL SUSPENDED SOLIDS

There were no detections for total suspended solids at any of the sampling points over the sampling period.

5.4 INORGANICS

The sampling results for inorganic analysis are summarized in Figure 24 through Figure 36.

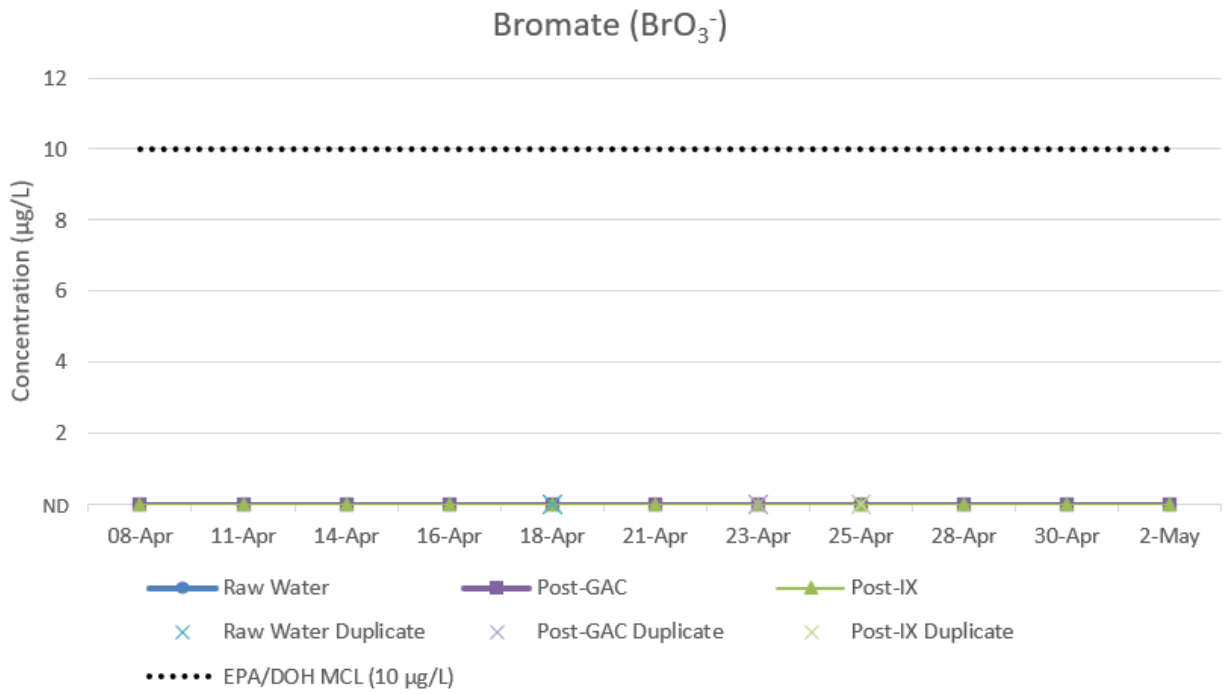

Figure 24: Bromate (BrO_3^-) Concentrations

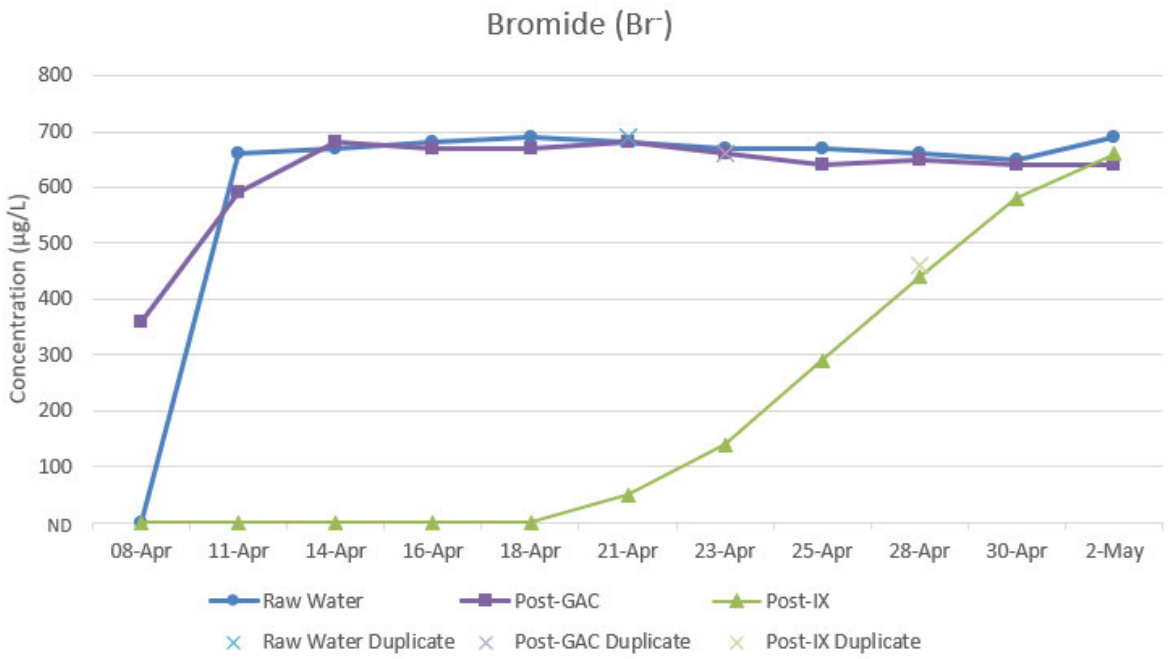

Figure 25: Bromide (Br^-) Concentrations - The removal of bromide decreased over the course of pilot study. Initially bromide was removed to non-detectable levels. Breakthrough began to occur on 18 April 2025. By the end of the pilot study on 02 May 2025, it appears that bromide was no longer being removed. This observation is due to the selective affinity of the resin, which encourages the exchange of targeted anions and diminishes the exchange of non-target anions. The exact selective affinity for specific anions is assumed to be proprietary by the resin manufacturer.

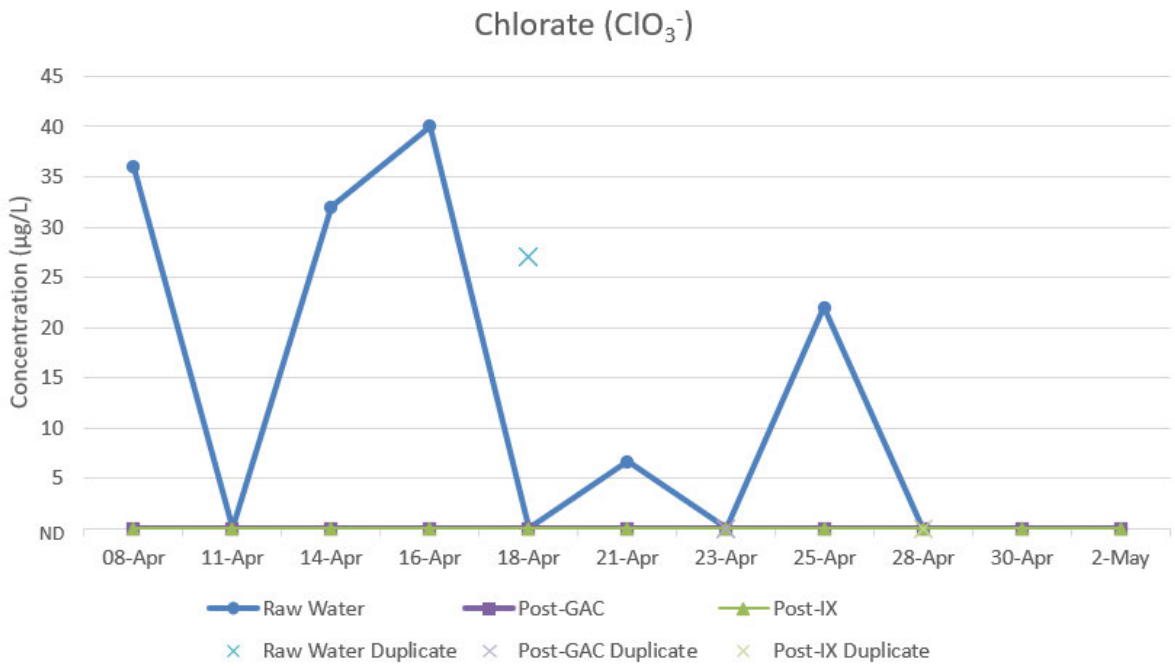

Figure 26: Chlorate (ClO_3^-) Concentrations

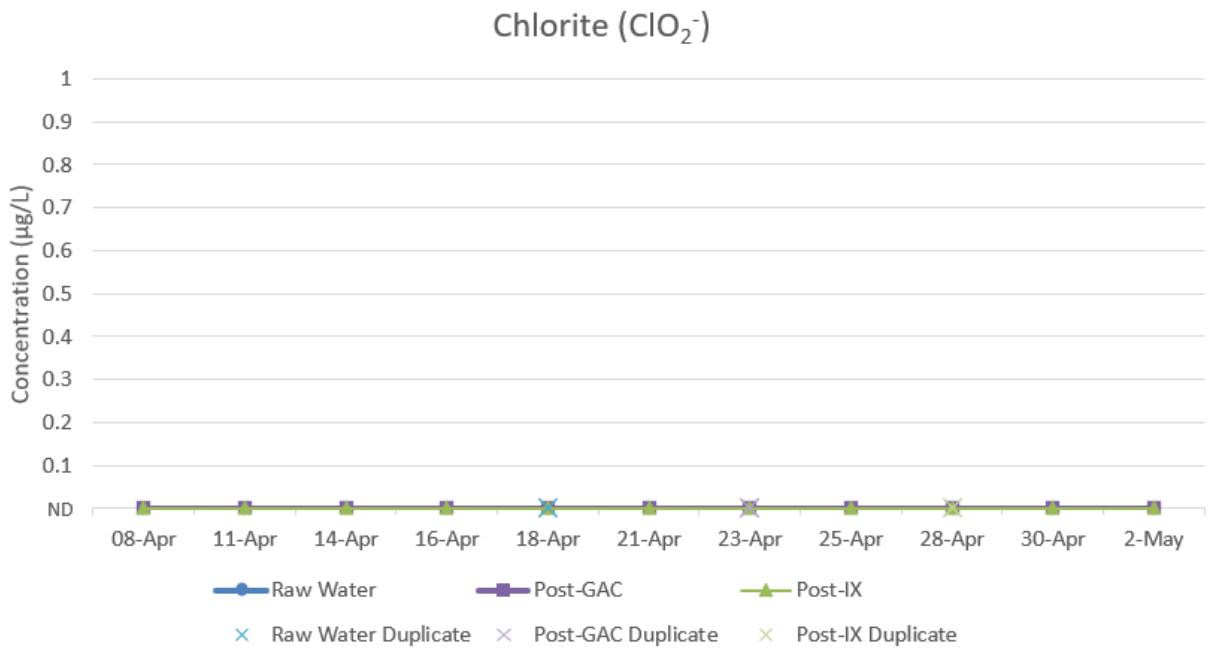

Figure 27: Chlorite (ClO_2^-) Concentrations with an EPA/DOH MCL of 1000 µg/L

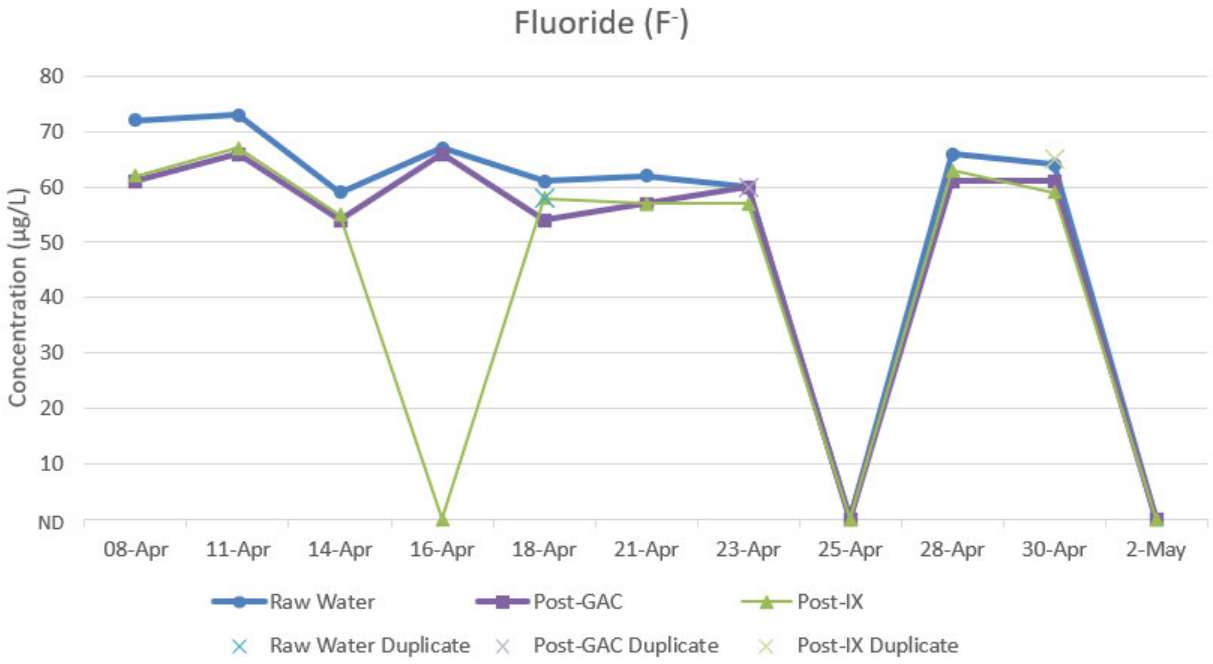

Figure 28: Fluoride (F^-) Concentrations with an EPA/DOH MCL of 2000 µg/L

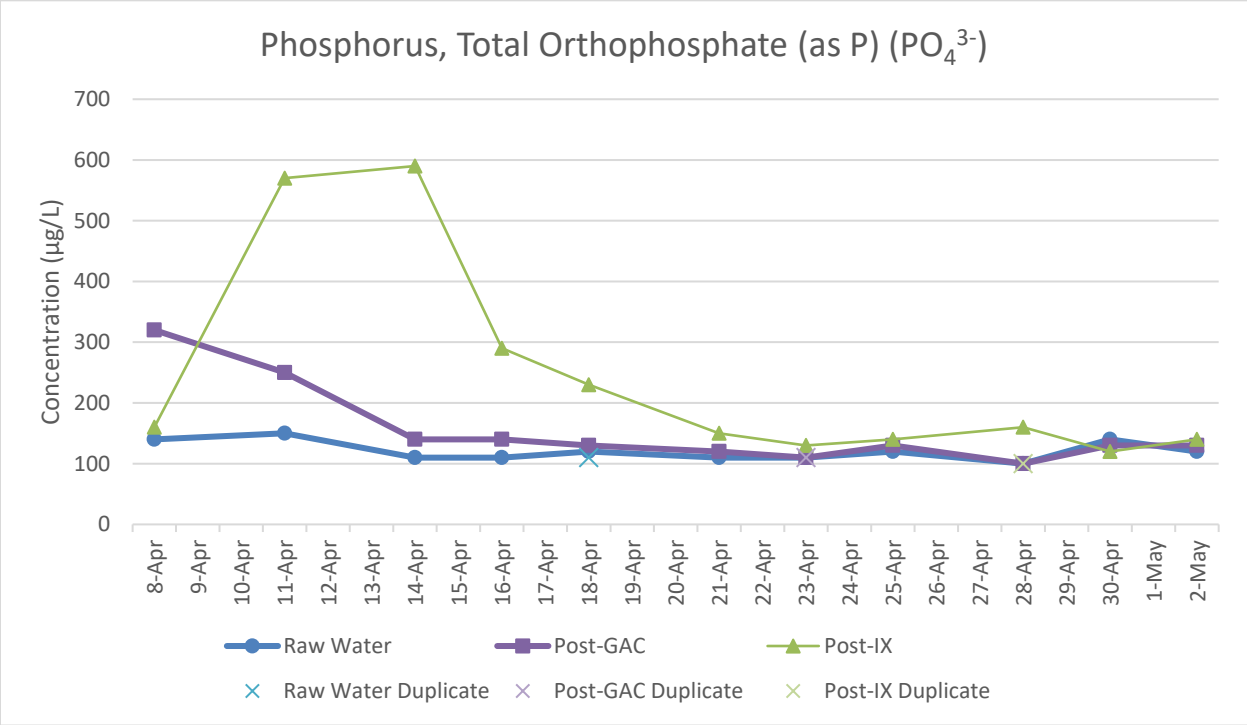

Figure 29: Phosphorus, Total Orthophosphate (as P) (PO_4^{3-}) Concentrations

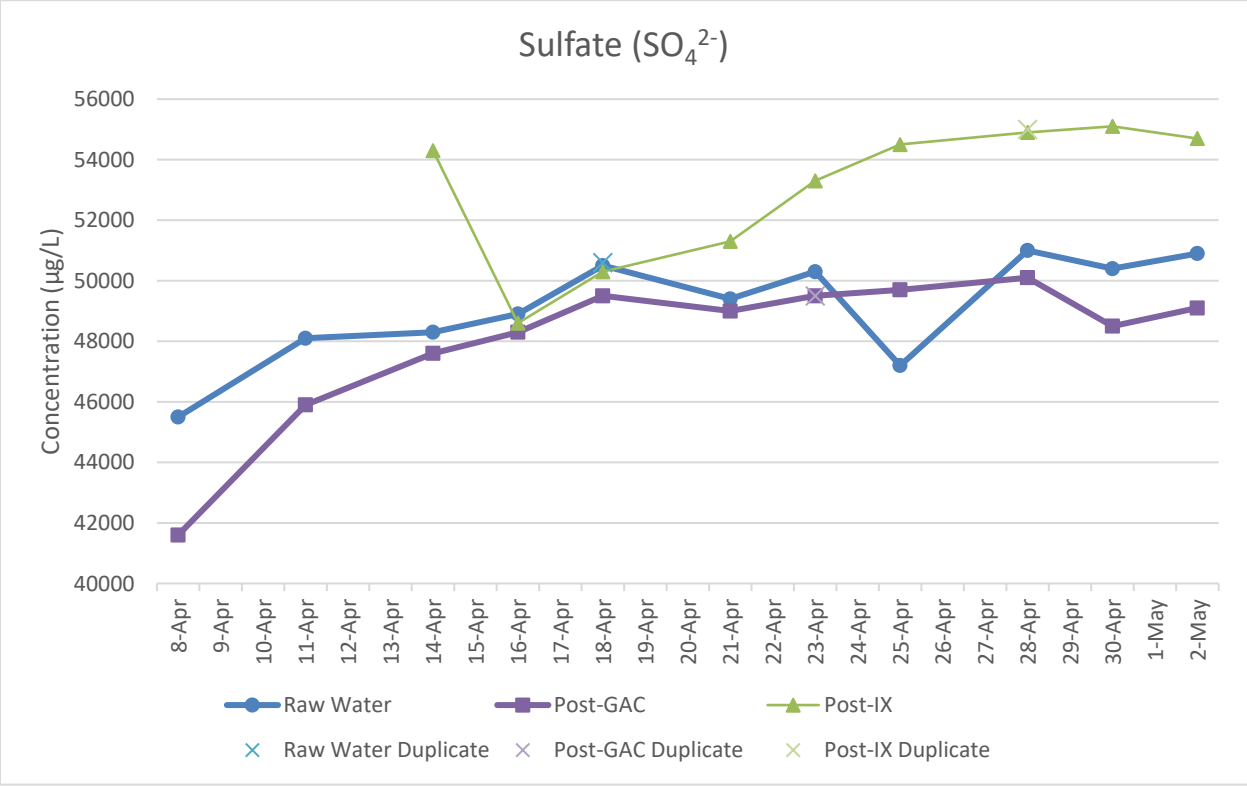

Figure 30: Sulfate (SO_4^{2-}) Concentrations - The first two data points from post-IX are not included due to high readings.

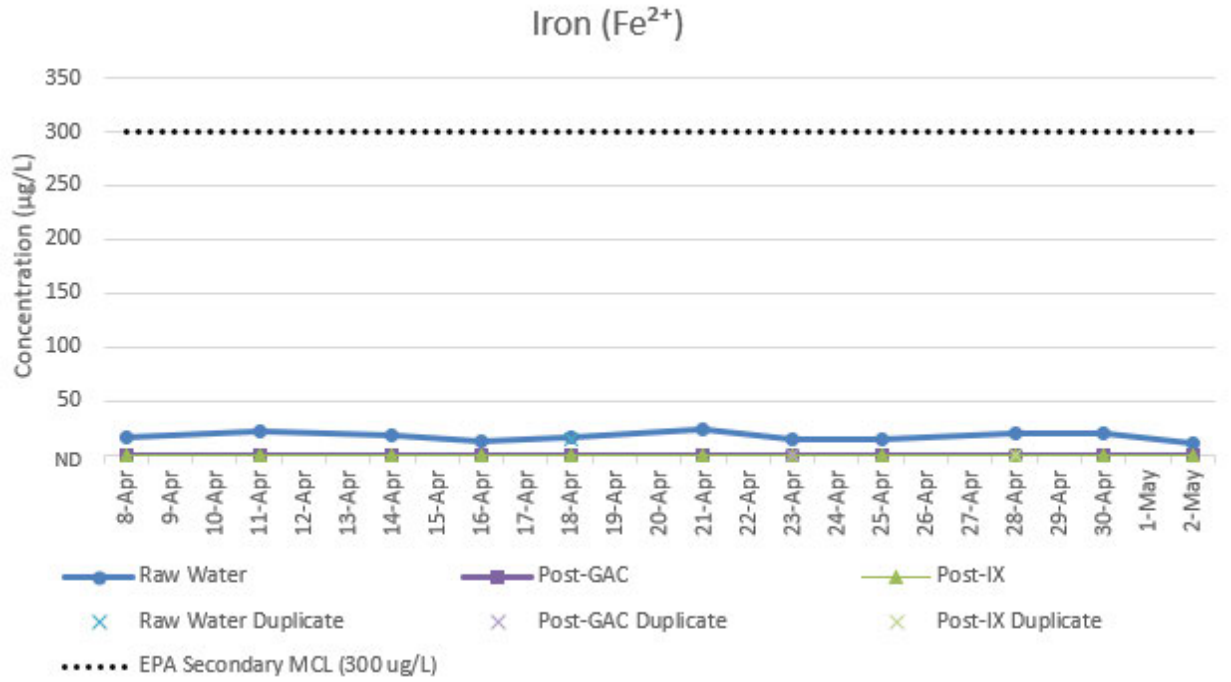

Figure 31: Iron (Fe^{2+}) Concentrations

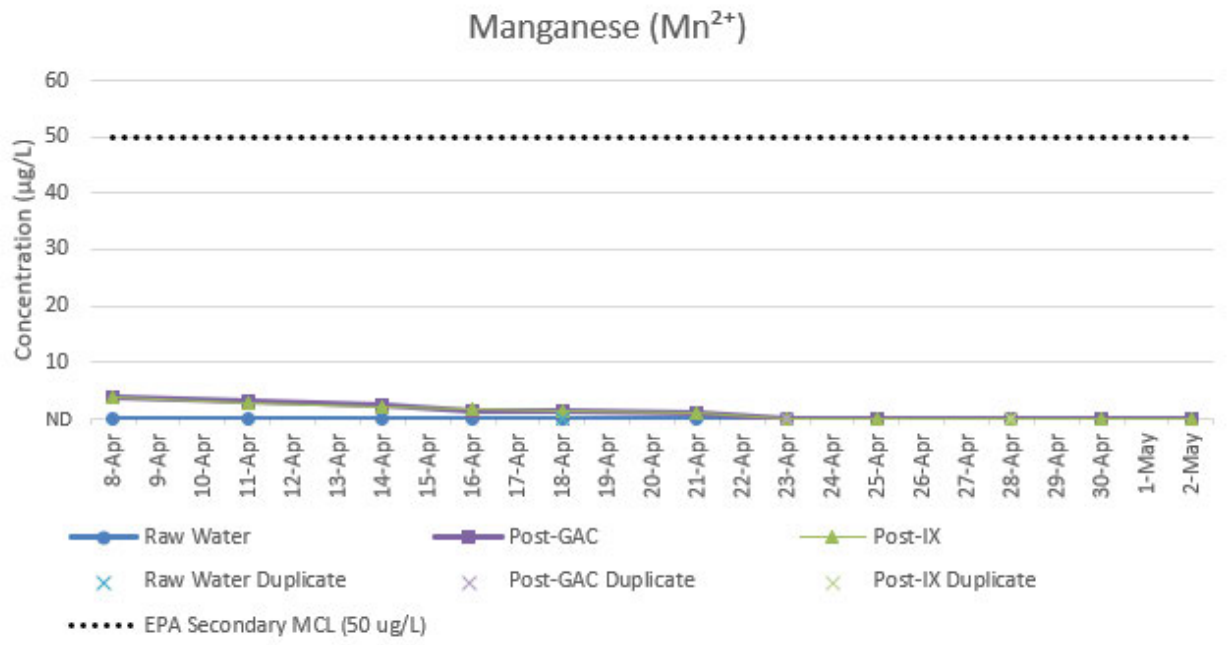

Figure 32: Manganese (Mn^{2+}) Concentrations

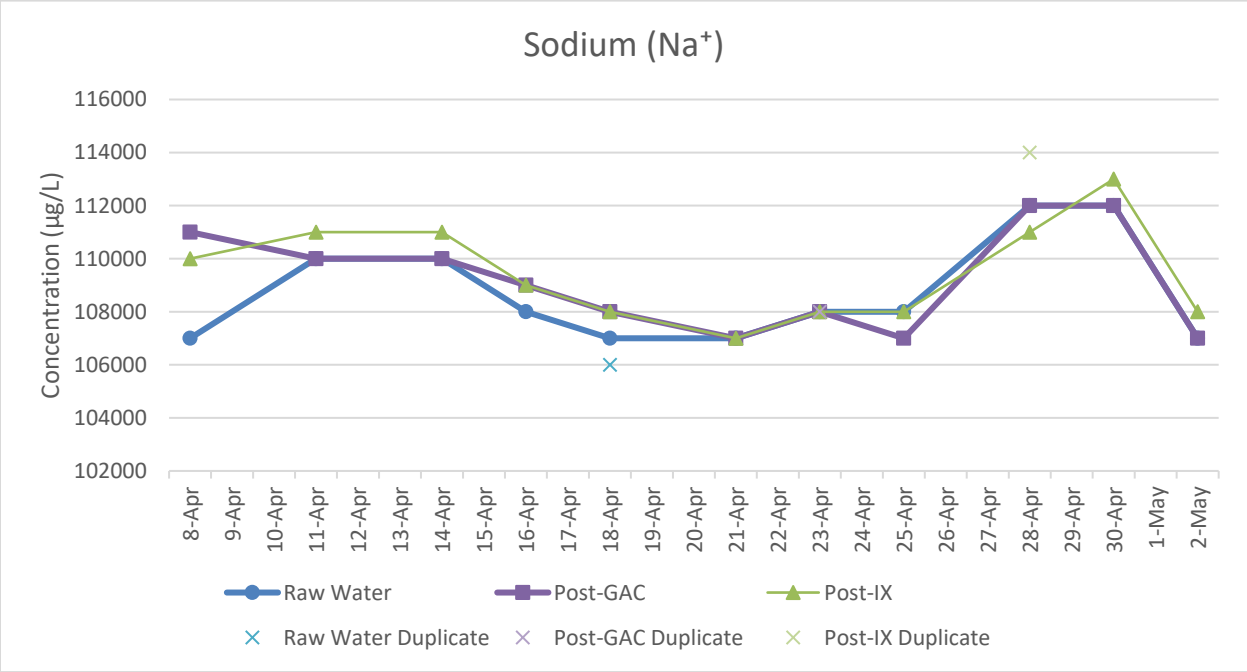

Figure 33: Sodium (Na^+) Concentrations

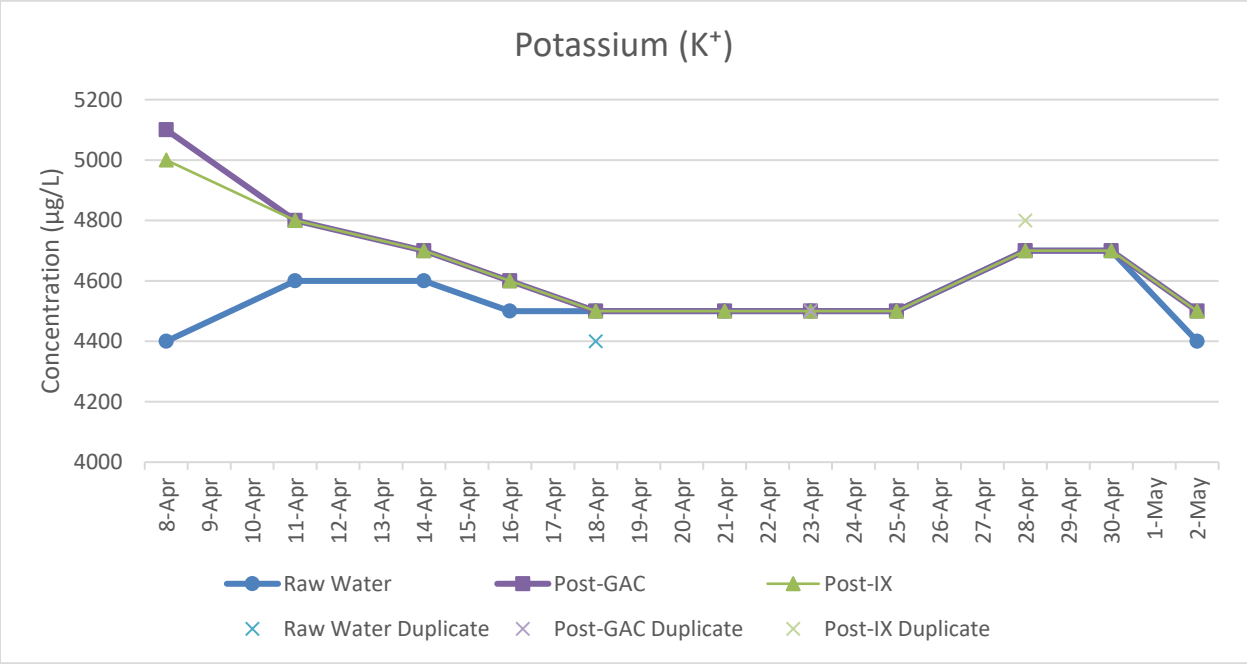

Figure 34: Potassium (K^+) Concentrations

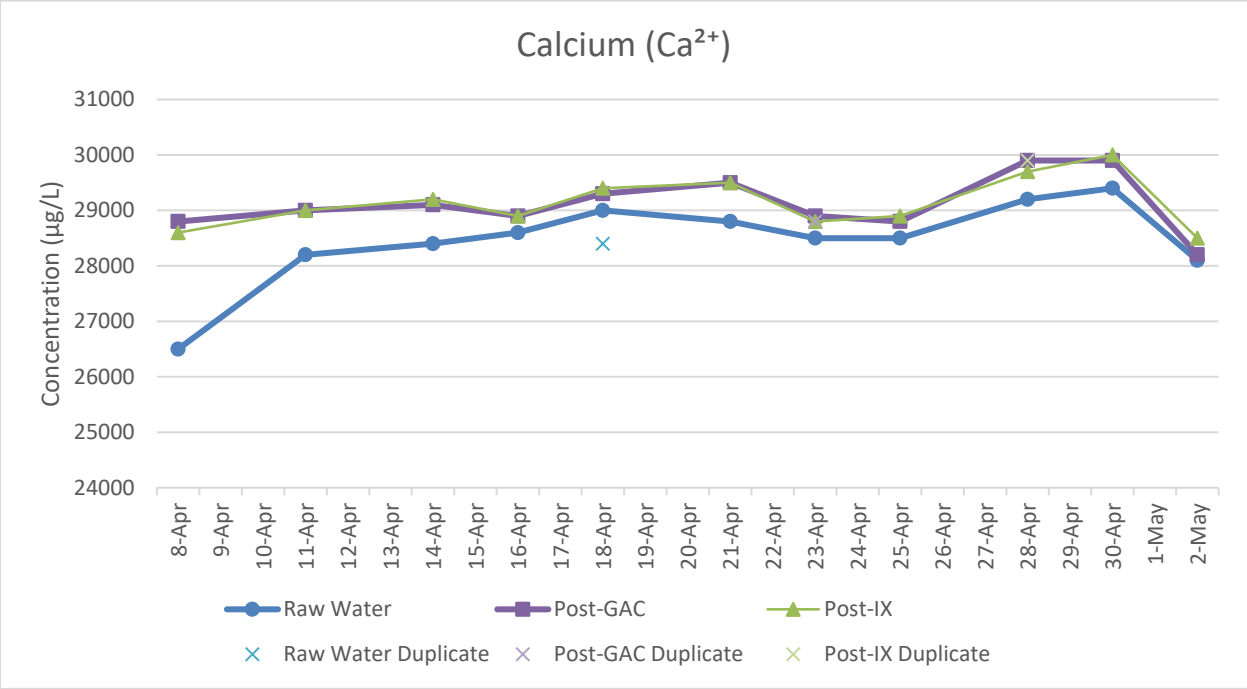

Figure 35: Calcium (Ca^{2+}) Concentrations

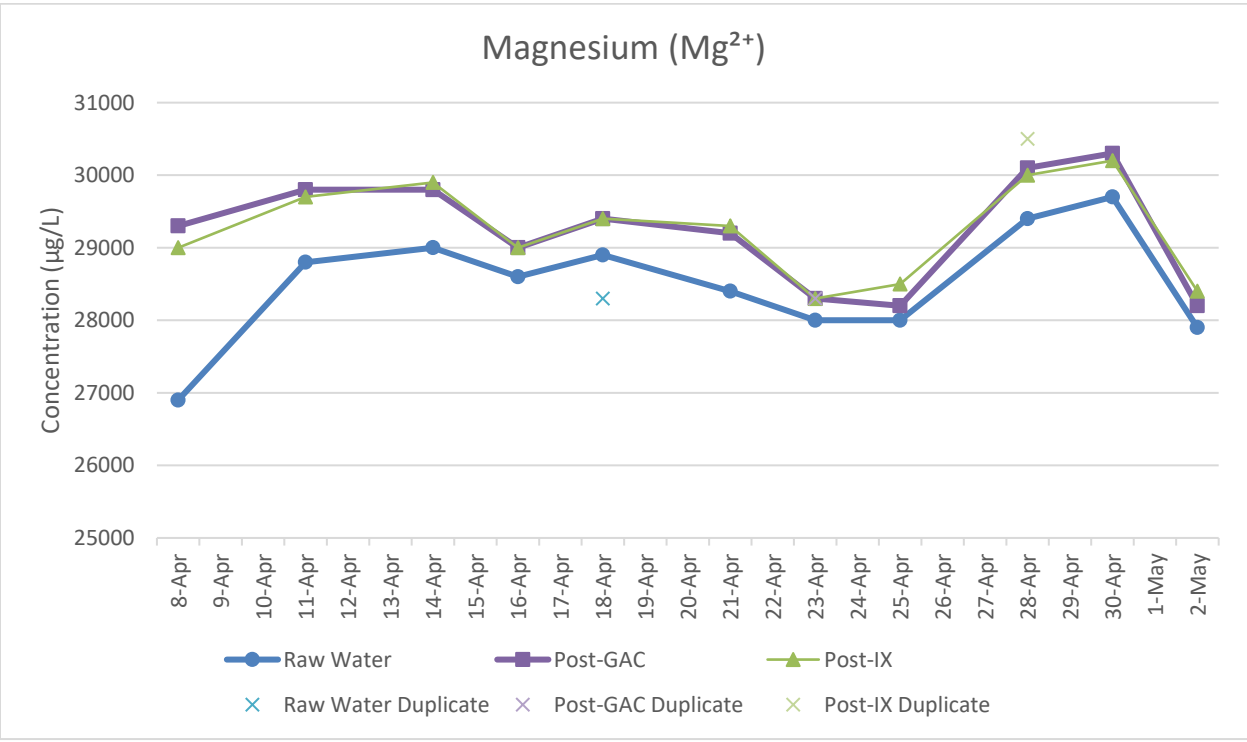

Figure 36: Magnesium (Mg^{2+}) Concentrations

5.5 ALKALINITY

The sampling results for alkalinity are summarized in Figure 37.

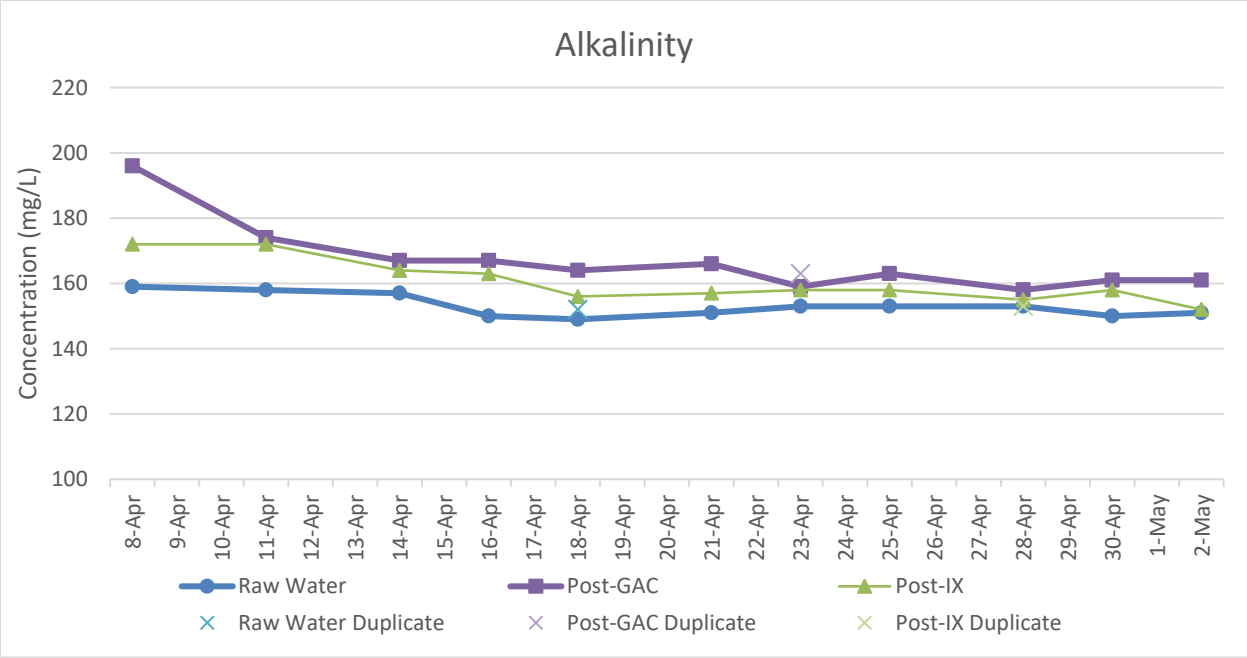

Figure 37: Alkalinity Concentrations

5.6 PH

The sampling results for pH are summarized in Figure 38.

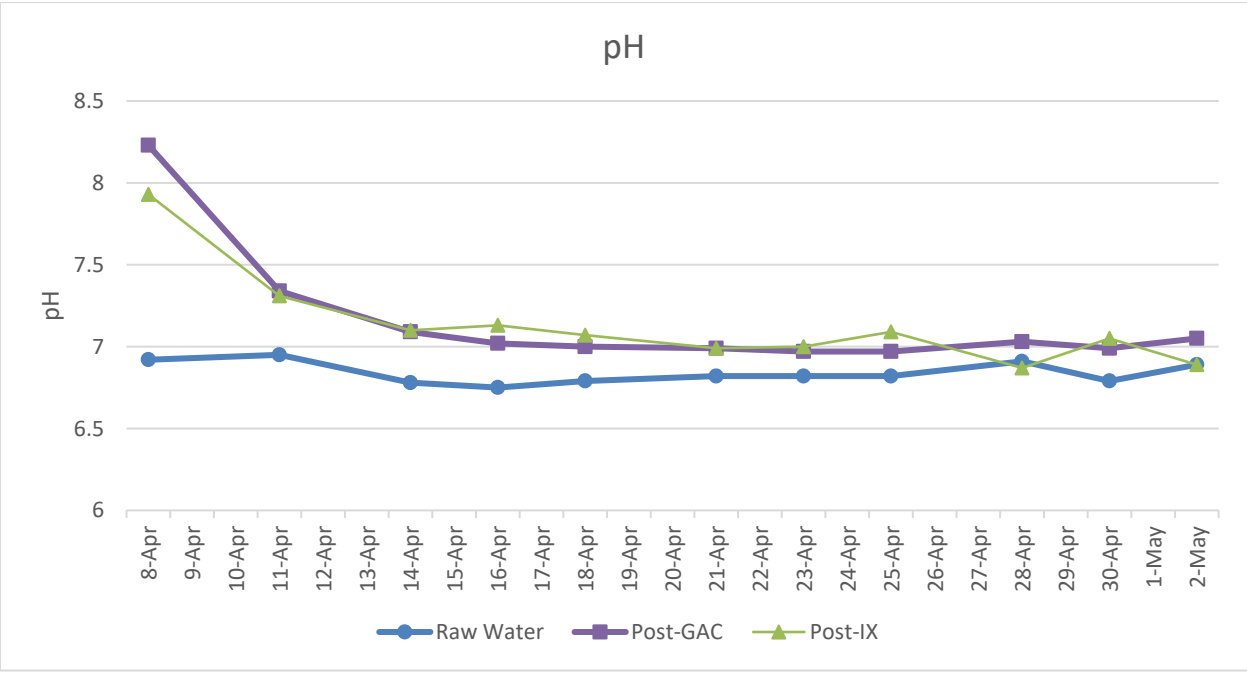

Figure 38: pH Results

5.7 SPECIFIC CONDUCTIVITY

The sampling results for specific conductivity are summarized in Figure 39.

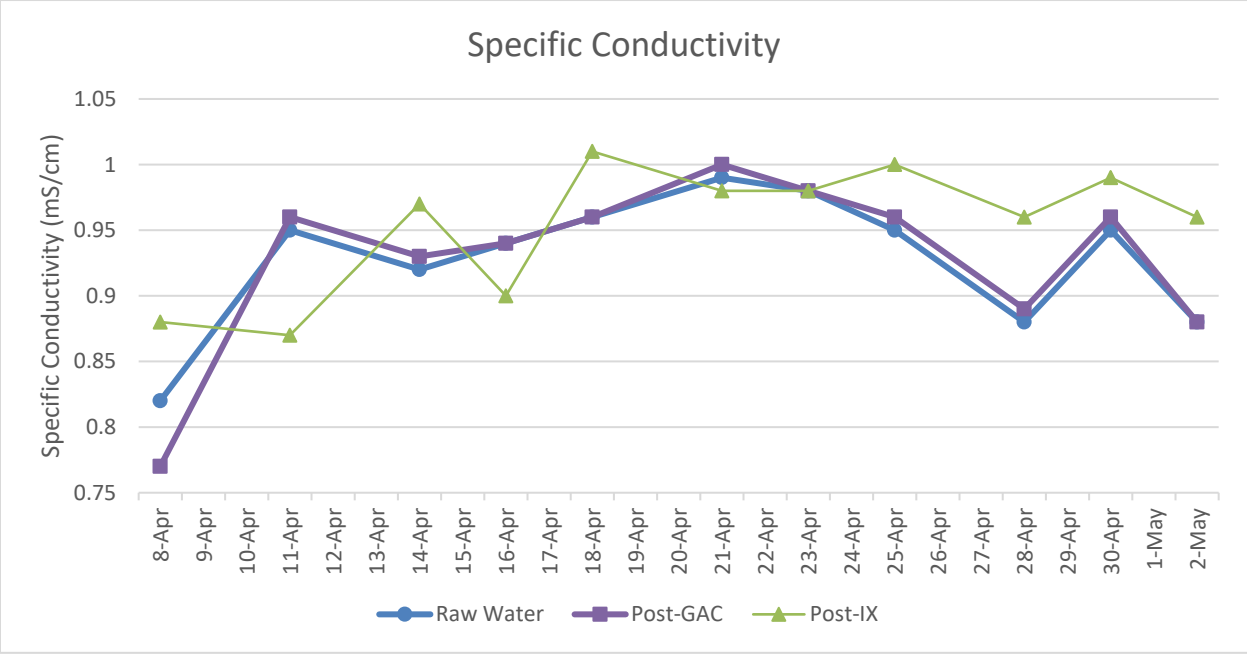

Figure 39: Specific Conductivity Results

5.8 TEMPERATURE

The sampling results for temperature are summarized in Figure 40.

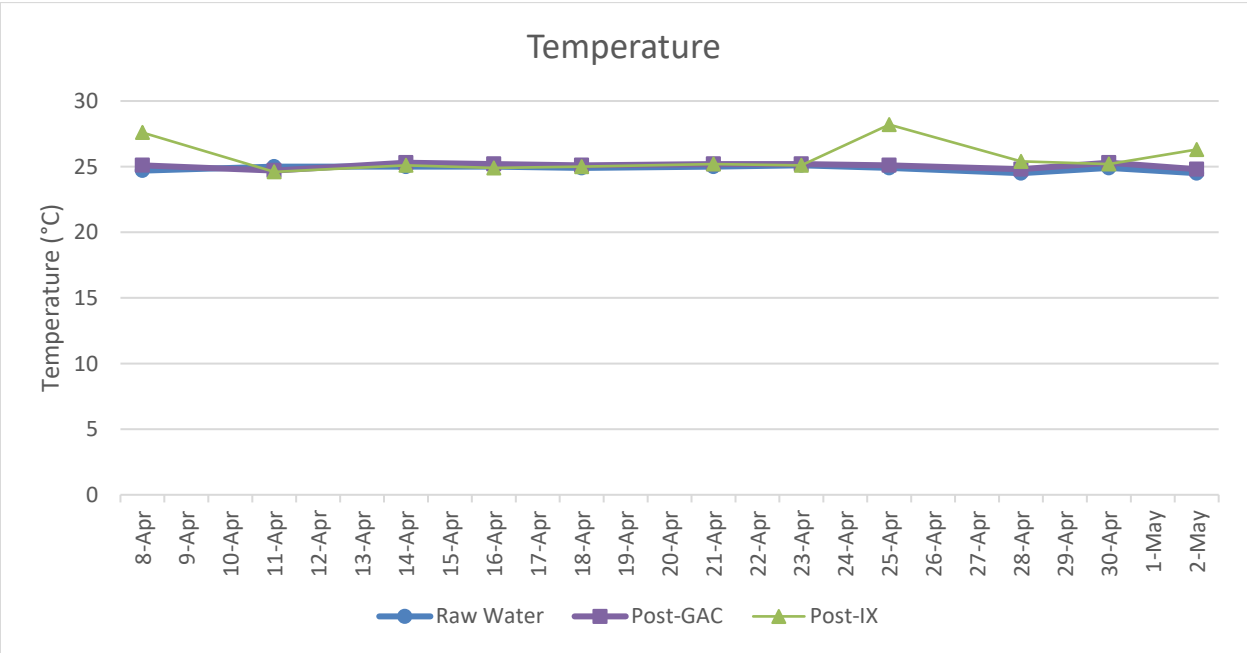

Figure 40: Temperature Readings

5.9 FREE CHLORINE

The sampling results for free chlorine are summarized in Figure 41.

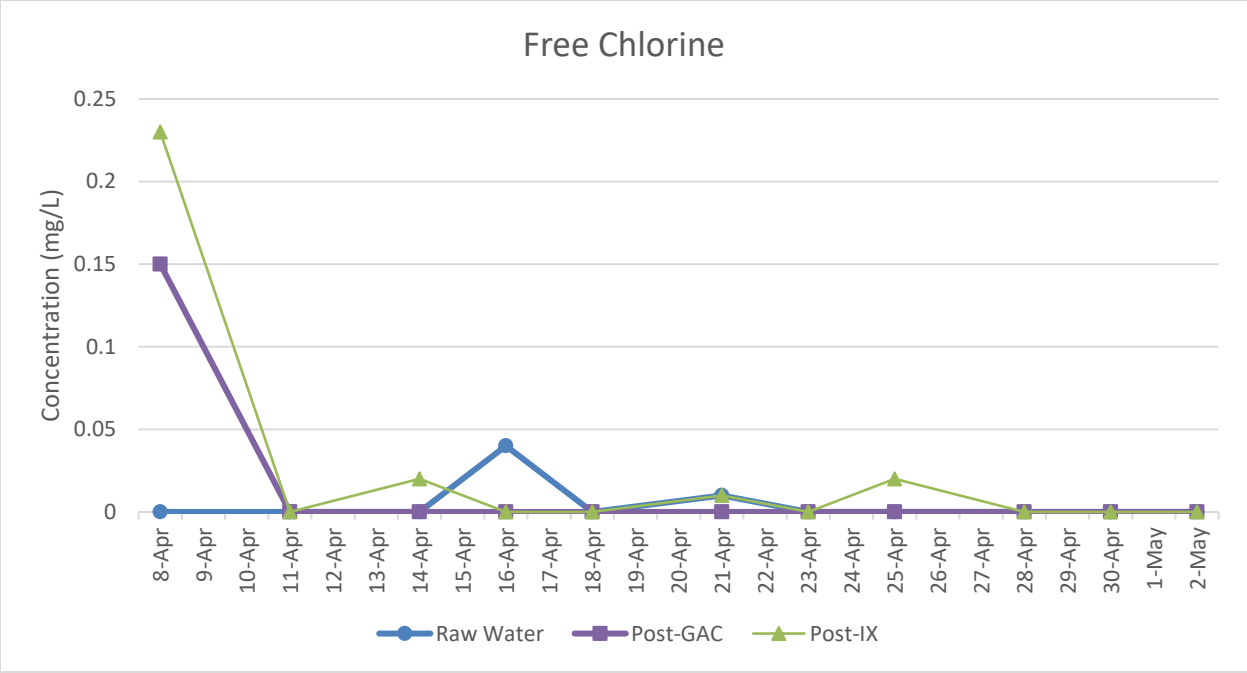

Figure 41: Free Chlorine Readings

5.10 PID

PID readings are summarized in Figure 42.

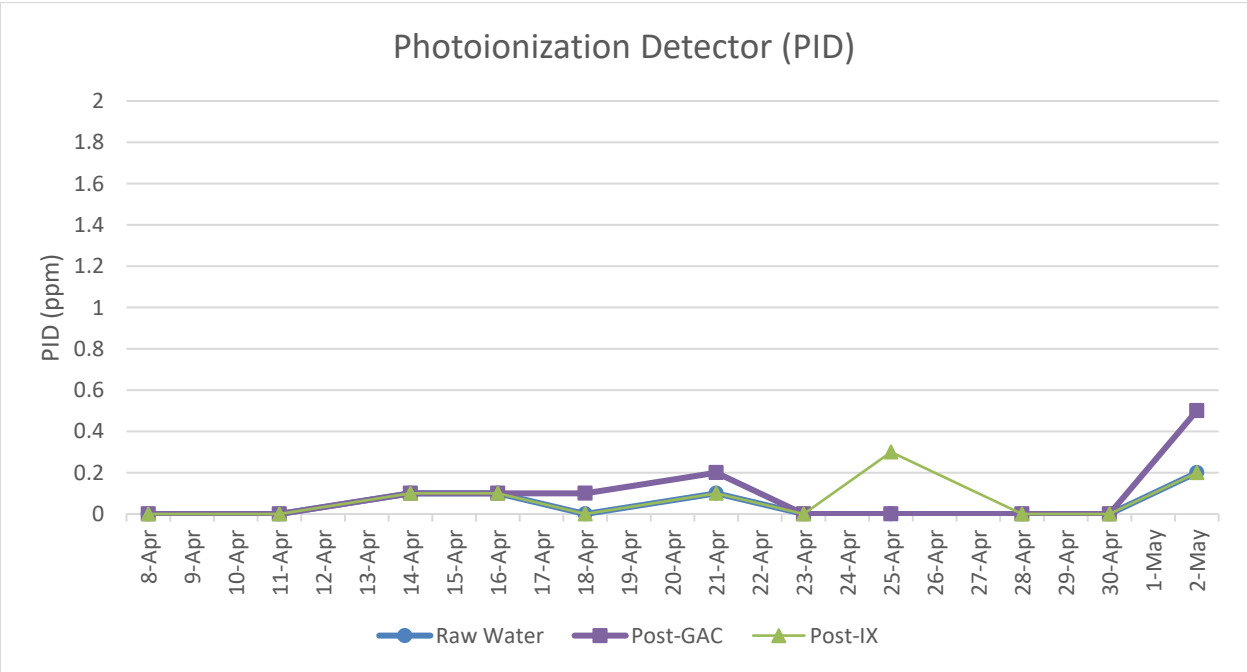

Figure 42: PID Readings

Appendix A.6

6. Conclusion

6.1 SUMMARY OF FINDINGS

All post-IX samples were non-detect for all PFAS compounds. The results demonstrate that the GAC is successfully removing both long and short-chain PFAS from the water and the resin is successfully removing any residual. The low-level detection of PFOS from the first day of the sampling at the post-GAC location is due to issues with system startup, which is supported by the chloride and turbidity results discussed in Section 3.1.

In those instances where a compound was reported by both Methods 533 and 537.1, the results were similar, although the Method 537.1 results tended to be slightly lower. Inherent differences in the quantitation procedures for the two methods account for this tendency.

There have been no TPH detections reported in raw water samples from NAHS collected by the Navy during this study, or since January 2022. Historical NAHS sampling data is provided in Appendix H. There is no compelling evidence to suggest that the NAHS was impacted by the November 2021 JP-5 fuel release at Red Hill. The TPH detections present in the post-IX are not due to the presence of petroleum compounds and did not originate in the water from NAHS. The most compelling evidence that the post-IX detections are not related to JBPHH activities is that there were no TPH detections in the raw water or post-GAC samples, meaning that they could not have originated in the water from NAHS. This fact, combined with the information from the resin manufacturer, points to resin artifacts as the source of the TPH detections. Additional evaluation of the post-IX TPH results is recommended. The IX resin manufacturer is currently conducting studies to determine the source and identity of compounds and will provide the results of this study in a supplemental report.

The pilot study results indicate that the removal efficiency of PFAS is in compliance with EPA's future NPDWR at each post-treatment phase. The data support the Navy's request to reactivate NAHS in compliance with EPA and DOH requirements.

Appendix A.7

7. References

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———. 2025. *Sampling and Analysis Plan for Navy Aiea Halawa Shaft Treatment System Pilot Study Hawaii State Well No. 3-2255-032 Joint Base Pearl Harbor-Hickam Public Water System (#HI0000360)*. Prepared by AECOM Technical Services, Inc. NCTF – Red Hill, Environment & Remediation. March.

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Appendix B:
Process Flow Diagram of the GAC/IX Treatment System and Piping


(b) (4)

(b) (3) (A)

(b) (3) (A)

Appendix C:
NAHS Pilot Study Analyte List

Appendix C.1: NAHS Pilot Study Analyte List

Analytical Method	Analyte	CASRN	EPA/DOH Maximum Contaminant Level (MCL; µg/L)	Method Detection Limit (MDL; µg/L)	Method Reporting Limit (MRL; µg/L)
EPA 524.2	Benzene	71-43-2	5	0.25	0.5
	n-Butylbenzene	104-51-8		0.25	0.5
	sec-Butylbenzene	135-98-8		0.25	0.5
	Tert-Butylbenzene	98-06-6		0.25	0.5
	Ethyl Benzene	100-41-4	700	0.25	0.5
	Isopropylbenzene	98-82-8		0.25	0.5
	n-Propylbenzene	103-65-1		0.25	0.5
	Toluene	108-88-3	1000	0.25	0.5
	1,2,4-Trimethylbenzene	95-63-6	—	0.26	0.5
	1,3,5-Trimethylbenzene	108-67-8	—	0.25	0.5
	Xylenes (Total)	—	10000	0.25	0.5
	m,p-Xylenes	1330-20-7	—	0.25	0.5
	o-Xylenes	95-47-6	—	0.25	0.5
EPA 525.2	1-Methylnaphthalene	90-12-0	—	0.25	0.5
	2-Methylnaphthalene	91-57-6	—	0.25	0.5
	Naphthalene	91-20-3	—	0.25	0.5
	Acenaphthylene	208-96-8		0.25	0.5
	Anthracene	120-12-7		0.25	0.5
	Benzo[a]pyrene	50-32-8	0.2/0.2	0.01	0.02
	Benzo[b]fluoranthene	205-82-3		0.25	0.5
	Benzo[k]fluoranthene	207-08-9		0.25	0.5
	Benzo[g,h,i]perylene	191-24-2		0.25	0.5
	Chrysene	218-01-9		0.25	0.5
	Dibenz[a,h]anthracene	53-70-3		0.25	0.5
	Fluorene	86-73-7		0.25	0.5
	Indeno[1,2,3-cd]pyrene	193-39-5		0.25	0.5
	Phenanthrene	85-01-8		0.25	0.5

Notes: All: The analytical laboratory will report non-detected results to the MDL. Values between the MDL and MRL will be flagged as estimates ('J' flag).

µg/L microgram per liter
DOH Department of Health, State of Hawaii
EPA Environmental Protection Agency, United States
MCL maximum contaminant level
MDL method detection limit

Appendix C.2: NAHS Pilot Study Analyte List

Analytical Method	Analyte	CASRN	EPA/DOH Maximum Contaminant Level (MCL; µg/L)	Method Detection Limit (MDL; µg/L)	Method Reporting Limit (MRL; µg/L)
EPA 525.2	Pyrene	129-00-0	—	0.25	0.5
EPA 8260 EPA 8015 EPA 8015	JP-5 as Combined TPH-Gasoline, Diesel, and Oil Ranges	PCHG PCHD MOIL	—	GRO, DRO, ORO = 50	GRO, DRO, ORO =80
HACH 8021 (Based on SM 4500-Cl G)	Chlorine, Free (Field Test)	7782-50-5	4000	—	—
EPA 170.1	Temperature (Field Test)	TMP	—	—	—
EPA 150.3	pH (Field Test)	pH	—	—	—
SM 2510 B	Conductivity (Field Test)	CONDUCT	—	—	—
SM 2130 B	Turbidity (Field Test)	TURBID	< 5 NTUs	—	—
SM 2320 B	Total Alkalinity	TOTAL_AL K	—	—	—
EPA 200.7	Cations:				
	• Sodium	7440-23-5	—	51	400
	• Potassium	7440-09-7		250	1000
	• Calcium	7440-70-2		53	400
	• Magnesium	7439-95-4		31	200
	• Iron	7439-89-6		10	20
	• Manganese	7439-96-5		1.1	5
EPA Method 160.2	Total Suspended Solids	TSS	500 mg/L	2.5 mg/L	5 mg/L
EPA Method 300.0 Rev. 2.1	Anions				
	• Chloride	16887-00-6	—	400	500
	• Sulfate	14808-79-8	4000	400	500
	• Fluoride	16984-48-8	—	50	100
	• Ortho-Phosphate-P	14265-44-2	—	35	50
	• Bromide	24959-67-9		25	50
EPA method 300.1 Rev. 1.0	Anions:				
	• Chlorite	14998-27-7	1000	5	10
	• Bromate	15541-45-4	10	25	10
	• Chlorate	14866-68-3	—	5	10

Note: All: The analytical laboratory will report non-detected results to the MDL. Values between the MDL and MRL will be flagged as estimates ('J' flag).

Appendix C.3: NAHS Pilot Study PFAS Analyte List

Compound	Abbreviation	CAS Number	Method 533	Method 537.1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	763051-92-9	x	x
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acd	9Cl-PF3ONS	756426-58-1	x	x
4,8-Dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4	x	x
Hexafluoropropylene oxide dimer acid	HFPO-DA	13252-13-6	x	x
Perfluorobutanesulfonic acid	PFBS	375-73-5	x	x
Perfluorodecanoic acid	PFDA	335-76-2	x	x
Perfluorododecanoic acid	PFDoA	307-55-1	x	x
Perfluoroheptanoic acid	PFHpA	375-85-9	x	x
Perfluorohexanoic acid	PFHxA	307-24-4	x	x
Perfluorohexanesulfonic acid	PFHxS	355-46-4	x	x
Perfluorononanoic acid	PFNA	375-95-1	x	x
Perfluorooctanoic acid	PFOA	335-67-1	x	x
Perfluorooctanesulfonic acid	PFOS	1763-23-1	x	x
Perfluoroundecanoic acid	PFUnA	2058-94-8	x	x
1H,1H, 2H, 2H-Perfluorohexane sulfonic acid	4:2FTS	757124-72-4	x	
1H,1H, 2H, 2H-Perfluorooctane sulfonic acid	6:2FTS	27619-97-2	x	
1H,1H, 2H, 2H-Perfluorodecane sulfonic acid	8:2FTS	39108-34-4	x	
Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6	x	
Perfluorobutanoic acid	PFBA	375-22-4	x	
Perfluoro(2-ethoxyethane)sulfonic acid	PFEESA	113507-82-7	x	
Perfluoroheptanesulfonic acid	PFHpS	375-92-8	x	
Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5	x	
Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1	x	
Perfluoropentanoic acid	PFPeA	2706-90-3	x	
Perfluoropentanesulfonic acid	PFPeS	2706-91-4	x	
N-ethyl perfluorooctanesulfonamidoacetic acid	NEtFOSAA	2991-50-6		x
N-methyl perfluorooctanesulfonamidoacetic acid	NMeFOSAA	2355-31-9		x
Perfluorotetradecanoic acid	PFTeDA	376-06-7		x
Perfluorotridecanoic acid	PFTrDA	72629-94-8		x

Note: EPA Analytical Methods for PFAS in Drinking Water; Office of Water (MS-140); EPA 815-B-19-21, December 2019.

Appendix D:
Parameters, Analytical Methods, Container Types, Preservation Methods, and Holding Times

Appendix D: Parameters, Analytical Methods, Container Types, Preservation Methods, and Holding Times

Parameter	Analytical Method	Container	Preservative	Holding Times (Extraction/Analysis)
Volatile Organic Compounds (including TTHMs)	524.2	3 × 40 mL Glass VOA	0.5 mL HCl; (Unchlorinated); 25 mg Ascorbic/ 3 drops HCl (Chlorinated)	14 days
Synthetic Organic Compounds	525.2	2 × 1 L Amber Glass	2 mL HCl; (unchlorinated); 45 mg Sodium Sulfite/ 2 mL HCl (chlorinated)	7 days to extraction/40 days extraction to analysis
Total Petroleum Hydrocarbons (TPH-DRO and TPH-ORO)	3511 (Hexane) with High Volume Injection)/8015 (Micro-Extraction)	3 × 60 mL Glass VOA	0.5 mL HCl (added in the laboratory); quench with sodium thiosulfate (added to sample container prior to sample collection)	7 days
Total Petroleum Hydrocarbons (TPH-GRO)	5030/8260	3 × 40 mL Glass VOA	25 mg Ascorbic/3 drops HCl	14 days
Chlorine, Free (Field Test)	Hach Method 08021	This parameter will be analyzed in the field.		
Temperature (Field Test)	170.1	This parameter will be analyzed in the field.		
pH (Field Test)	150.3	This parameter will be analyzed in the field.		
Conductivity (Field Test)	SM 2510 B	This parameter will be analyzed in the field.		
Turbidity (Field Test)	SM 2130 B	This parameter will be analyzed in the field.		
Total Alkalinity	SM 2320 B	250 mL Poly	Cool to ≤ 4 °C	14 days
Cations	200.7	250 mL Poly	Acidify to pH < 2 with HNO_3	6 months
Anions (bromide, fluoride, chloride, sulfate)	300.0 Rev. 2.1	125 mL Poly	Cool to ≤ 4 °C	28 days
Anions (ortho-Phosphate-P)	300.0 Rev. 2.1	125 mL Poly	Cool to ≤ 4 °C	48 hours
Anions (bromate and chlorate)	300.1 Rev. 1.0	250 mL Amber Poly	50 mg/L EDA and Cool to ≤ 4 °C	28 days
Anions (chlorite)	300.1 Rev. 1.0	250 mL Amber Poly	50 mg/L EDA and Cool to ≤ 4 °C	14 days
PFAS	EPA 533	250 mL Poly	Ammonium Acetate and Cool to ≤ 6 °C	28 days
PFAS	EPA 537.1	250 mL Poly	Trizma and Cool to ≤ 6 °C	14 days
Total Suspended Solids	SM 2540D	1 L Poly	Cool to ≤ 4 °C	7 days

Notes:
All samples will be chilled to < 6°C, unless otherwise noted.
EPA Method 8015 is not a drinking water method and is typically run on unchlorinated water samples. However, the JBPHH drinking water samples are chlorinated. Therefore, samples will be quenched with sodium thiosulfate prior to sample collection to stop reactions from occurring between chlorine, potential analytes, and reagents added to the sample by the laboratory. This is done for drinking water analyses (e.g., drinking water methods 524.2 and 525.2).

Appendix E:
Pilot Study Sampling Data, Lab Reports, and Data Validation

Summary of Chemistry Results
Shaft
Drinking Water Sampling, Joint Base Pearl Harbor - Hickam, Oahu, Hawaii

Notes:
ND = Not Detected
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EPA MCL = EPA Maximum Contaminant Level
All Results shown in Parts per Billion (ppb), with the exception of Field and Bacterial Test results
Parts per Million (ppm)
Parts per Thousand (ppth)
§ - Exceeds Screening Level
-- = No Information Available
N (Normal) = Full compliance sample
FD (Field Duplicate) = Extra sample taken for quality control
N (Grab, Resample) = Additional follow-up sample
MPN/mL = Most probable number per milliliter

			Location ID:	SHFTAIEA-PR-FW2					
			Location Type:	Faucet/Tap					
			Address:	Aiea-Halawa Shaft Pre-Chlorination					
			Field Sample ID:	SHAFT-HW-0018384-25051-N	SHAFT-HW-0018384-25051-3-N	SHAFT-HW-0018384-25051-N-R1	SHAFT-HW-0018384-25051-3-N-R1	SHAFT-HW-0018384-25051-N-R2	SHAFT-HW-0018384-25051-3-N-R2
			Sample Date:	2025-02-20	2025-02-20	2025-03-07	2025-03-07	2025-04-14	2025-04-14
			Sample Type:	N (Normal)	FD (Field Duplicate)	N (Normal)	FD (Field Duplicate)	N (Normal)	FD (Field Duplicate)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**						
Endothall Shaft React (ppb)	Endothal	--	--	ND	ND	--	--	--	--
Field Test (ppb)	Free Chlorine	4000	MCL	--	--	--	--	0.00	--
Field Test (pH)	pH	--	--	7.12	--	7.02	--	6.78	--
Field Test (ms/cm)	Specific Conductivity	--	--	0.859	--	0.940	--	0.920	--
Field Test (degrees Celcuis)	Temperature	--	--	24.8	--	24.9	--	25.0	--
Field Test (nephelometric turbidity unit)	Turbidity	5	MCL	2.15	--	0.300	--	0.420	--
General Chemistry (Fibers/L)	Asbestos	--	--	--	--	--	--	ND	ND
General Chemistry (ppb)	Cyanide	--	--	ND	ND	--	--	--	--
	Nitrate (as N)	--	--	2800	2700	--	--	--	--
	Nitrite (as N)	--	--	ND	ND	--	--	--	--
Glyphosate Shaft React (ppb)	Glyphosate	--	--	ND	ND	--	--	--	--
Metals (ppb)	Antimony	6	MCL	ND	ND	--	--	--	--
	Arsenic	10	MCL	ND	ND	--	--	--	--
	Barium	2000	MCL	14.4	14.4	--	--	--	--
	Cadmium	5	MCL	ND	ND	--	--	--	--
	Chromium	100	MCL	ND	ND	--	--	--	--
	Diquat	--	--	ND	ND	--	--	--	--
	Nickel	--	--	3.00	3.00	--	--	--	--
	Selenium	50	MCL	4.90	4.60	--	--	--	--
	Thallium	2	MCL	ND	ND	--	--	--	--
	Uranium	--	--	0.270	0.450	--	--	--	--

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			Location ID:	SHFTAIEA-PR-FW2					
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			Address:	Aiea-Halawa Shaft Pre-Chlorination					
			Field Sample ID:	SHAFT-HW-0018384-25051-N	SHAFT-HW-0018384-25051-3-N	SHAFT-HW-0018384-25051-N-R1	SHAFT-HW-0018384-25051-3-N-R1	SHAFT-HW-0018384-25051-N-R2	SHAFT-HW-0018384-25051-3-N-R2
			Sample Date:	2025-02-20	2025-02-20	2025-03-07	2025-03-07	2025-04-14	2025-04-14
			Sample Type:	N (Normal)	FD (Field Duplicate)	N (Normal)	FD (Field Duplicate)	N (Normal)	FD (Field Duplicate)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**						
Pace Chlorinated Herbicides Shaft React (ppb)	2,4-D (Dichlorophenoxyacetic acid)	--	--	--	--	ND	ND	--	--
	Dinoseb	--	--	--	--	ND	ND	--	--
	Pentachlorophenol	1	MCL	--	--	ND	ND	--	--
	Picloram	--	--	--	--	ND	ND	--	--
	Silvex (2,4,5-TP)	--	--	--	--	ND	ND	--	--
Rad (PCI/L)	Gross Alpha	--	--	--	--	ND	ND	--	--
	Gross Beta	--	--	--	--	2.87	2.03	--	--
	Radium-226	--	--	--	--	ND	ND	--	--
	Radium-228	--	--	--	--	ND	ND	--	--
Synthetic Organic Compounds (ppb)	Alachlor	--	--	ND	ND	--	--	--	--
	Atrazine	--	--	ND	ND	--	--	--	--
	Bis(2-ethylhexyl)phthalate	6	MCL	ND	ND	--	--	--	--
	Dieldrin	--	--	0.0360	0.0330	--	--	--	--
	Dioctyl adipate	--	--	ND	ND	--	--	--	--
	Endrin	--	--	ND	ND	--	--	--	--
	gamma-BHC (Lindane)	--	--	ND	ND	--	--	--	--
	Heptachlor	--	--	ND	ND	--	--	--	--
	Heptachlor epoxide	--	--	ND	ND	--	--	--	--
	Hexachlorobenzene	--	--	ND	ND	--	--	--	--
	Hexachlorocyclopentadiene	--	--	ND	ND	--	--	--	--
	Methoxychlor	--	--	ND	ND	--	--	--	--
	PCB, Total	--	--	ND	ND	--	--	--	--

Summary of Chemistry Results
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			Sample Type:	N (Normal)	FD (Field Duplicate)	N (Normal)	FD (Field Duplicate)	N (Normal)	FD (Field Duplicate)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**						
Synthetic Organic Compounds (ppb)	PCB-1016 (Aroclor 1016)	--	--	ND	ND	--	--	--	--
	PCB-1221 (Aroclor 1221)	--	--	ND	ND	--	--	--	--
	PCB-1232 (Aroclor 1232)	--	--	ND	ND	--	--	--	--
	PCB-1242 (Aroclor 1242)	--	--	ND	ND	--	--	--	--
	PCB-1248 (Aroclor 1248)	--	--	ND	ND	--	--	--	--
	PCB-1254 (Aroclor 1254)	--	--	ND	ND	--	--	--	--
	PCB-1260 (Aroclor 1260)	--	--	ND	ND	--	--	--	--
	Simazine	--	--	ND	ND	--	--	--	--
	Technical Chlordane	--	--	0.360	0.430	--	--	--	--
	Toxaphene	--	--	ND	ND	--	--	--	--
Volatile Organic Compounds (ppb)	1,1,1-Trichloroethane	--	--	ND	ND	--	--	--	--
	1,1,2-Trichloroethane	5	MCL	ND	ND	--	--	--	--
	1,1-Dichloroethene	7	MCL	ND	ND	--	--	--	--
	1,2,3-Trichloropropane	--	--	ND	ND	--	--	--	--
	1,2,4-Trichlorobenzene	70	MCL	ND	ND	--	--	--	--
	1,2-Dibromo-3-chloropropane	--	--	ND	ND	--	--	--	--
	1,2-Dichlorobenzene	600	MCL	ND	ND	--	--	--	--
	1,2-Dichloroethane	5	MCL	ND	ND	--	--	--	--
	1,2-Dichloroethene (Total)	70	MCL	ND	ND	--	--	--	--
	1,2-Dichloropropane	5	MCL	ND	ND	--	--	--	--
	1,4-Dichlorobenzene	75	MCL	ND	ND	--	--	--	--
	Carbofuran	--	--	ND	ND	--	--	--	--

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			Address:	Aiea-Halawa Shaft Pre-Chlorination					
			Field Sample ID:	SHAFT-HW-0018384-25051-N	SHAFT-HW-0018384-25051-3-N	SHAFT-HW-0018384-25051-N-R1	SHAFT-HW-0018384-25051-3-N-R1	SHAFT-HW-0018384-25051-N-R2	SHAFT-HW-0018384-25051-3-N-R2
			Sample Date:	2025-02-20	2025-02-20	2025-03-07	2025-03-07	2025-04-14	2025-04-14
			Sample Type:	N (Normal)	FD (Field Duplicate)	N (Normal)	FD (Field Duplicate)	N (Normal)	FD (Field Duplicate)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**						
Volatile Organic Compounds (ppb)	Carbon Tetrachloride	5	MCL	ND	ND	--	--	--	--
	Chlorobenzene	100	MCL	ND	ND	--	--	--	--
	cis-1,2-Dichloroethene	70	MCL	ND	ND	--	--	--	--
	Methyl N',N'-dimethyl-N-((methylcarbamoyl)oxy)-1-thiooxamimidate (Oxamyl)	--	--	ND	ND	--	--	--	--
	Methylene chloride	5	MCL	ND	ND	--	--	--	--
	Styrene	100	MCL	ND	ND	--	--	--	--
	Tetrachloroethene (PCE)	5	MCL	ND	ND	--	--	--	--
	trans-1,2-Dichloroethene	100	MCL	ND	ND	--	--	--	--
	Trichloroethene (TCE)	5	MCL	ND	ND	--	--	--	--
	Vinyl chloride	2	MCL	ND	ND	--	--	--	--
Haloacetic Acids (ppb)	Dalapon	--	--	ND	ND	--	--	--	--

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			Location Type:	Faucet/Tap						
			Address:	Aiea-Halawa Shaft Pre-Chlorination						
			Field Sample ID:	SHAFT-HW-0018384-25098-N	SHAFT-HW-0018384-25098-N-R01	SHAFT-HW-0018384-25098-N-R02	SHAFT-HW-0018384-25098-N-R03	SHAFT-HW-0018384-25098-N-R04	SHAFT-HW-0018384-25098-3-N-R04	SHAFT-HW-0018384-25098-N-R05	SHAFT-HW-0018384-25098-N-R06
			Sample Date:	2025-04-08	2025-04-11	2025-04-14	2025-04-16	2025-04-18	2025-04-18	2025-04-21	2025-04-23
			Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
Field Test (ppb)	Free Chlorine	4000	MCL	0.00	0.00	0.00	40.0	0.00	--	10.0	0.00
Field Test (pH)	pH	--	--	6.92	6.95	6.78	6.75	6.79	--	6.82	6.82
Field Test (ms/cm)	Specific Conductivity	--	--	0.820	0.950	0.920	0.940	0.960	--	0.990	0.980
Field Test (degrees Celcuis)	Temperature	--	--	24.7	25.0	25.0	25.0	24.9	--	25.0	25.1
Field Test (nephelometric turbidity unit)	Turbidity	5	MCL	0.480	0.190	0.420	1.36	0.370	--	0.480	0.450
General Chemistry (ppb)	Alkalinity, Total (as CaCO3)	--	--	159000	158000	157000	150000	149000	152000	151000	153000
	Bromate	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Bromide	--	--	ND	660	670	680	690	690	680	670
	Chlorate	--	--	36.0	ND	32.0	40.0	ND	27.0	6.70	ND
	Chloride	--	--	156000	171000	172000	175000	179000	178000	175000	179000
	Chlorite	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Fluoride	--	--	72.0	73.0	59.0	67.0	61.0	58.0	62.0	60.0
	Phosphorus, Total Orthophosphate (as P)	--	--	140	150	110	110	120	110	110	110
	Sulfate	--	--	45500	48100	48300	48900	50500	50600	49400	50300
Hydrocarbons (ppb)	Petroleum Hydrocarbons (as Diesel)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Petroleum Hydrocarbons (as Gasoline)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Petroleum Hydrocarbons (as Oil)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Petroleum Hydrocarbons, Total	--	--	ND	ND	ND	ND	ND	ND	ND	ND
Metals (ppb)	Calcium	--	--	26500	28200	28400	28600	29000	28400	28800	28500
	Iron	--	--	16.0	21.0	18.0	13.0	17.0	15.0	24.0	15.0
	Magnesium	--	--	26900	28800	29000	28600	28900	28300	28400	28000
	Manganese	--	--	ND	ND	ND	ND	ND	ND	ND	ND

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			Field Sample ID:	SHAFT-HW-0018384-25098-N	SHAFT-HW-0018384-25098-N-R01	SHAFT-HW-0018384-25098-N-R02	SHAFT-HW-0018384-25098-N-R03	SHAFT-HW-0018384-25098-N-R04	SHAFT-HW-0018384-25098-3-N-R04	SHAFT-HW-0018384-25098-N-R05	SHAFT-HW-0018384-25098-N-R06
			Sample Date:	2025-04-08	2025-04-11	2025-04-14	2025-04-16	2025-04-18	2025-04-18	2025-04-21	2025-04-23
			Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
Metals (ppb)	Potassium	--	--	4400	4600	4600	4500	4500	4400	4500	4500
	Sodium	--	--	107000	110000	110000	108000	107000	106000	107000	108000
PFAS (EPA Method 533) (ppb)	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--	ND	ND	0.000870	ND	ND	ND	ND	ND
	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	0.01	MCL	ND	ND	ND	0.000920	ND	ND	ND	ND
	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoro-3-methoxypropanoic acid (PFMPA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoro-4-methoxybutanoic acid (PFMBA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorobutanesulfonic acid (PFBS)	--	--	0.00690	0.00450	0.00510	0.00580	0.00500	0.00470	0.00490	0.00420
	Perfluorobutanoic acid (PFBA)	--	--	0.00410	0.00320	0.00340	0.00380	0.00310	0.00300	0.00320	0.00280
	Perfluorodecanoic acid (PFDA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorododecanoic acid (PFDoA)	--	--	ND	ND	0.00120	ND	ND	ND	ND	ND
	Perfluoroheptanesulfonic acid (PFHpS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroheptanoic acid (PFHpA)	--	--	0.00440	0.00320	0.00350	0.00430	0.00370	0.00350	0.00400	0.00320

Summary of Chemistry Results
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			Location ID:	SHFTAIEA-PR-FW2						
			Location Type:	Faucet/Tap						
			Address:	Aiea-Halawa Shaft Pre-Chlorination						
			Field Sample ID:	SHAFT-HW-0018384-25098-N	SHAFT-HW-0018384-25098-N-R01	SHAFT-HW-0018384-25098-N-R02	SHAFT-HW-0018384-25098-N-R03	SHAFT-HW-0018384-25098-N-R04	SHAFT-HW-0018384-25098-3-N-R04	SHAFT-HW-0018384-25098-N-R05	SHAFT-HW-0018384-25098-N-R06
			Sample Date:	2025-04-08	2025-04-11	2025-04-14	2025-04-16	2025-04-18	2025-04-18	2025-04-21	2025-04-23
			Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
PFAS (EPA Method 533) (ppb)	Perfluorohexanesulfonic acid (PFHxS)	0.01	MCL	0.00810	0.00610	0.00670	0.00730	0.00630	0.00610	0.00610	0.00560
	Perfluorohexanoic acid (PFHxA)	--	--	0.00810	0.00640	0.00670	0.00790	0.00640	0.00620	0.00670	0.00560
	Perfluorononanoic acid (PFNA)	0.01	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorooctanesulfonic acid (PFOS)	0.004	MCL	0.0137 §	0.0104 §	0.0107 §	0.0115 §	0.00960 §	0.00930 §	0.0100 §	0.00780 §
	Perfluorooctanoic acid (PFOA)	0.004	MCL	0.00860 §	0.00610 §	0.00640 §	0.00740 §	0.00640 §	0.00620 §	0.00680 §	0.00560 §
	Perfluoropentanesulfonic acid (PFPeS)	--	--	ND	0.000730	0.000720	0.000880	0.000790	0.000740	ND	ND
	Perfluoropentanoic acid (PFPeA)	--	--	0.0102	0.00850	0.00890	0.0101	0.00820	0.00790	0.00820	0.00710
	Perfluoroundecanoic acid (PFUnA)	--	--	ND	ND	0.00130	ND	ND	ND	ND	ND
PFAS (EPA Method 537.1) (ppb)	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	0.01	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorobutanesulfonic acid (PFBS)	--	--	0.00390	0.00370	0.00470	0.00430	0.00410	0.00430	0.00370	0.00380
	Perfluorodecanoic acid (PFDA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorododecanoic acid (PFDoA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroheptanoic acid (PFHpA)	--	--	0.00240	0.00220	0.00270	0.00310	0.00310	0.00310	0.00290	0.00270
	Perfluorohexanesulfonic acid (PFHxS)	0.01	MCL	0.00460	0.00440	0.00520	0.00540	0.00520	0.00560	0.00490	0.00480

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			Location ID:	SHFTAIEA-PR-FW2						
			Location Type:	Faucet/Tap						
			Address:	Aiea-Halawa Shaft Pre-Chlorination						
			Field Sample ID:	SHAFT-HW-0018384-25098-N	SHAFT-HW-0018384-25098-N-R01	SHAFT-HW-0018384-25098-N-R02	SHAFT-HW-0018384-25098-N-R03	SHAFT-HW-0018384-25098-N-R04	SHAFT-HW-0018384-25098-3-N-R04	SHAFT-HW-0018384-25098-N-R05	SHAFT-HW-0018384-25098-N-R06
			Sample Date:	2025-04-08	2025-04-11	2025-04-14	2025-04-16	2025-04-18	2025-04-18	2025-04-21	2025-04-23
			Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
PFAS (EPA Method 537.1) (ppb)	Perfluorohexanoic acid (PFHxA)	--	--	0.00490	0.00460	0.00490	0.00540	0.00500	0.00520	0.00460	0.00450
	Perfluorononanoic acid (PFNA)	0.01	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorooctanesulfonic acid (PFOS)	0.004	MCL	0.00890 §	0.00600 §	0.00720 §	0.00820 §	0.00810 §	0.00860 §	0.00770 §	0.00740 §
	Perfluorooctanoic acid (PFOA)	0.004	MCL	0.00530 §	0.00390	0.00470 §	0.00630 §	0.00600 §	0.00640 §	0.00570 §	0.00550 §
	Perfluorotetradecanoic acid (PFTeDA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorotridecanoic acid (PFTrDA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroundecanoic acid (PFUnA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
Synthetic Organic Compounds (ppb)	1-Methylnaphthalene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2-Methylnaphthalene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Acenaphthylene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Anthracene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(a)pyrene	0.2	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(b)fluoranthene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(g,h,i)perylene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(k)fluoranthene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Chrysene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Dibenz(a,h)anthracene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Fluorene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Indeno(1,2,3-c,d)pyrene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Naphthalene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Phenanthrene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Pyrene	--	--	ND	ND	ND	ND	ND	ND	ND	ND

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			Sample Date:	2025-04-08	2025-04-11	2025-04-14	2025-04-16	2025-04-18	2025-04-18	2025-04-21	2025-04-23
			Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
TSS (ppb)	Suspended Solids (Non-Filterable Residue)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds (ppb)	1,2,4-Trimethylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	1,3,5-Trimethylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Benzene	5	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Cumene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Ethylbenzene	700	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	m,p-Xylene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	n-Butylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	n-Propylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	o-Xylene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	sec-Butylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	tert-Butylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Toluene	1000	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Xylenes, Total	10000	MCL	ND	ND	ND	ND	ND	ND	ND	ND

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			Location ID:	SHFTAIEA-PR-FW2				SHFTAIEA-T4-GAC			
			Location Type:	Faucet/Tap				Well			
			Address:	Aiea-Halawa Shaft Pre-Chlorination				Aiea-Halawa Shaft Train 4 GAC 2 (Midpoint)			
			Field Sample ID:	SHAFT-HW-0018384-25098-N-R07	SHAFT-HW-0018384-25098-N-R08	SHAFT-HW-0018384-25098-N-R09	SHAFT-HW-0018384-25098-N-R10	SHAFT-HW-0018394-25098-N	SHAFT-HW-0018394-25098-N-R01	SHAFT-HW-0018394-25098-N-R02	SHAFT-HW-0018394-25098-N-R03
			Sample Date:	2025-04-25	2025-04-28	2025-04-30	2025-05-02	2025-04-08	2025-04-11	2025-04-14	2025-04-16
			Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
Field Test (ppb)	Free Chlorine	4000	MCL	0.00	0.00	0.00	0.00	150	0.00	0.00	0.00
Field Test (pH)	pH	--	--	6.82	6.91	6.79	6.89	8.23	7.34	7.09	7.02
Field Test (ms/cm)	Specific Conductivity	--	--	0.950	0.880	0.950	0.880	0.770	0.960	0.930	0.940
Field Test (degrees Celcuis)	Temperature	--	--	24.9	24.5	24.9	24.5	25.1	24.7	25.3	25.2
Field Test (nephelometric turbidity unit)	Turbidity	5	MCL	0.600	0.310	0.0680	0.940	350 §	0.00	0.450	1.09
General Chemistry (ppb)	Alkalinity, Total (as CaCO3)	--	--	153000	153000	150000	151000	196000	174000	167000	167000
	Bromate	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Bromide	--	--	670	660	650	690	360	590	680	670
	Chlorate	--	--	22.0	ND	ND	ND	ND	ND	ND	ND
	Chloride	--	--	167000	181000	180000	182000	161000	172000	173000	176000
	Chlorite	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Fluoride	--	--	ND	66.0	64.0	ND	61.0	66.0	54.0	66.0
	Phosphorus, Total Orthophosphate (as P)	--	--	120	100	140	120	320	250	140	140
	Sulfate	--	--	47200	51000	50400	50900	41600	45900	47600	48300
Hydrocarbons (ppb)	Petroleum Hydrocarbons (as Diesel)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Petroleum Hydrocarbons (as Gasoline)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Petroleum Hydrocarbons (as Oil)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Petroleum Hydrocarbons, Total	--	--	ND	ND	ND	ND	ND	ND	ND	ND
Metals (ppb)	Calcium	--	--	28500	29200	29400	28100	28800	29000	29100	28900
	Iron	--	--	14.0	20.0	19.0	11.0	ND	ND	ND	ND
	Magnesium	--	--	28000	29400	29700	27900	29300	29800	29800	29000

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			Address:	Aiea-Halawa Shaft Pre-Chlorination				Aiea-Halawa Shaft Train 4 GAC 2 (Midpoint)			
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Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
Metals (ppb)	Manganese	--	--	ND	ND	ND	ND	3.70	3.00	2.20	1.40
	Potassium	--	--	4500	4700	4700	4400	5100	4800	4700	4600
	Sodium	--	--	108000	112000	112000	107000	111000	110000	110000	109000
PFAS (EPA Method 533) (ppb)	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	--	--	ND	ND	ND	0.00130	ND	ND	ND	ND
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	--	--	ND	ND	ND	0.00620	ND	ND	ND	ND
	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	0.01	MCL	ND	ND	ND	ND	ND	ND	ND	--
	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoro-3-methoxypropanoic acid (PFMPA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoro-4-methoxybutanoic acid (PFMBA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorobutanesulfonic acid (PFBS)	--	--	0.00420	0.00420	0.00400	0.00380	ND	ND	ND	ND
	Perfluorobutanoic acid (PFBA)	--	--	0.00280	0.00270	0.00260	0.00250	ND	ND	ND	ND
	Perfluorodecanoic acid (PFDA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorododecanoic acid (PFDoA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroheptanesulfonic acid (PFHpS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND

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			Sample Date:	2025-04-25	2025-04-28	2025-04-30	2025-05-02	2025-04-08	2025-04-11	2025-04-14	2025-04-16
			Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
PFAS (EPA Method 533) (ppb)	Perfluoroheptanoic acid (PFHpA)	--	--	0.00330	0.00340	0.00320	0.00310	ND	ND	ND	ND
	Perfluorohexanesulfonic acid (PFHxS)	0.01	MCL	0.00560	0.00560	0.00520	0.00500	ND	ND	ND	ND
	Perfluorohexanoic acid (PFHxA)	--	--	0.00560	0.00540	0.00520	0.00500	ND	ND	ND	ND
	Perfluorononanoic acid (PFNA)	0.01	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorooctanesulfonic acid (PFOS)	0.004	MCL	0.00860 §	0.00840 §	0.00890 §	0.0195 §	ND	ND	ND	ND
	Perfluorooctanoic acid (PFOA)	0.004	MCL	0.00470 §	0.00570 §	0.00530 §	0.00530 §	ND	ND	ND	ND
	Perfluoropentanesulfonic acid (PFPeS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoropentanoic acid (PFPeA)	--	--	0.00700	0.00680	0.00640	0.00640	ND	ND	ND	ND
	Perfluoroundecanoic acid (PFUnA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
PFAS (EPA Method 537.1) (ppb)	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	0.01	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorobutanesulfonic acid (PFBS)	--	--	0.00390	0.00360	0.00370	0.00360	ND	ND	ND	ND
	Perfluorodecanoic acid (PFDA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorododecanoic acid (PFDoA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND

Summary of Chemistry Results
Shaft
Drinking Water Sampling, Joint Base Pearl Harbor - Hickam, Oahu, Hawaii

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			Location ID:	SHFTAIEA-PR-FW2				SHFTAIEA-T4-GAC			
			Location Type:	Faucet/Tap				Well			
			Address:	Aiea-Halawa Shaft Pre-Chlorination				Aiea-Halawa Shaft Train 4 GAC 2 (Midpoint)			
			Field Sample ID:	SHAFT-HW-0018384-25098-N-R07	SHAFT-HW-0018384-25098-N-R08	SHAFT-HW-0018384-25098-N-R09	SHAFT-HW-0018384-25098-N-R10	SHAFT-HW-0018394-25098-N	SHAFT-HW-0018394-25098-N-R01	SHAFT-HW-0018394-25098-N-R02	SHAFT-HW-0018394-25098-N-R03
			Sample Date:	2025-04-25	2025-04-28	2025-04-30	2025-05-02	2025-04-08	2025-04-11	2025-04-14	2025-04-16
			Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
PFAS (EPA Method 537.1) (ppb)	Perfluoroheptanoic acid (PFHpA)	--	--	0.00270	0.00280	0.00280	0.00280	ND	ND	ND	ND
	Perfluorohexanesulfonic acid (PFHxS)	0.01	MCL	0.00530	0.00490	0.00500	0.00480	ND	ND	ND	ND
	Perfluorohexanoic acid (PFHxA)	--	--	0.00430	0.00420	0.00450	0.00440	ND	ND	ND	ND
	Perfluorononanoic acid (PFNA)	0.01	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorooctanesulfonic acid (PFOS)	0.004	MCL	0.00760 §	0.00750 §	0.00730 §	0.00700 §	0.00150	ND	ND	ND
	Perfluorooctanoic acid (PFOA)	0.004	MCL	0.00590 §	0.00560 §	0.00560 §	0.00550 §	ND	ND	ND	ND
	Perfluorotetradecanoic acid (PFTeDA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorotridecanoic acid (PFTrDA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroundecanoic acid (PFUnA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
Synthetic Organic Compounds (ppb)	1-Methylnaphthalene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2-Methylnaphthalene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Acenaphthylene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Anthracene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(a)pyrene	0.2	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(b)fluoranthene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(g,h,i)perylene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(k)fluoranthene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Chrysene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Dibenz(a,h)anthracene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Fluorene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Indeno(1,2,3-c,d)pyrene	--	--	ND	ND	ND	ND	ND	ND	ND	ND

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			Location ID:	SHFTAIEA-PR-FW2				SHFTAIEA-T4-GAC			
			Location Type:	Faucet/Tap				Well			
			Address:	Aiea-Halawa Shaft Pre-Chlorination				Aiea-Halawa Shaft Train 4 GAC 2 (Midpoint)			
			Field Sample ID:	SHAFT-HW-0018384-25098-N-R07	SHAFT-HW-0018384-25098-N-R08	SHAFT-HW-0018384-25098-N-R09	SHAFT-HW-0018384-25098-N-R10	SHAFT-HW-0018394-25098-N	SHAFT-HW-0018394-25098-N-R01	SHAFT-HW-0018394-25098-N-R02	SHAFT-HW-0018394-25098-N-R03
			Sample Date:	2025-04-25	2025-04-28	2025-04-30	2025-05-02	2025-04-08	2025-04-11	2025-04-14	2025-04-16
			Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
Synthetic Organic Compounds (ppb)	Naphthalene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Phenanthrene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Pyrene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
TSS (ppb)	Suspended Solids (Non-Filterable Residue)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds (ppb)	1,2,4-Trimethylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	1,3,5-Trimethylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Benzene	5	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Cumene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Ethylbenzene	700	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	m,p-Xylene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	n-Butylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	n-Propylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	o-Xylene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	sec-Butylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	tert-Butylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Toluene	1000	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Xylenes, Total	10000	MCL	ND	ND	ND	ND	ND	ND	ND	ND

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				Location ID:	SHFTAIEA-T4-GAC						
				Location Type:	Well						
				Address:	Aiea-Halawa Shaft Train 4 GAC 2 (Midpoint)						
				Field Sample ID:	SHAFT-HW-0018394-25098-N-R04	SHAFT-HW-0018394-25098-N-R05	SHAFT-HW-0018394-25098-N-R06	SHAFT-HW-0018394-25098-3-N-R06	SHAFT-HW-0018394-25098-N-R07	SHAFT-HW-0018394-25098-N-R08	SHAFT-HW-0018394-25098-N-R09	SHAFT-HW-0018394-25098-N-R10
				Sample Date:	2025-04-18	2025-04-21	2025-04-23	2025-04-23	2025-04-25	2025-04-28	2025-04-30	2025-05-02
				Sample Type:	N (Normal)	N (Normal)	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**									
Field Test (ppb)	Free Chlorine	4000	MCL		0.00	0.00	0.00	--	0.00	0.00	0.00	0.00
Field Test (pH)	pH	--	--		7.00	6.99	6.97	--	6.97	7.03	6.99	7.05
Field Test (ms/cm)	Specific Conductivity	--	--		0.960	1.00	0.980	--	0.960	0.890	0.960	0.880
Field Test (degrees Celcuis)	Temperature	--	--		25.1	25.2	25.2	--	25.1	24.8	25.3	24.8
Field Test (nephelometric turbidity unit)	Turbidity	5	MCL		0.460	0.650	0.640	--	0.830	0.770	0.260	0.300
General Chemistry (ppb)	Alkalinity, Total (as CaCO3)	--	--		164000	166000	159000	163000	163000	158000	161000	161000
	Bromate	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Bromide	--	--		670	680	660	660	640	650	640	640
	Chlorate	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Chloride	--	--		178000	176000	179000	179000	179000	181000	178000	179000
	Chlorite	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Fluoride	--	--		54.0	57.0	60.0	60.0	ND	61.0	61.0	ND
	Phosphorus, Total Orthophosphate (as P)	--	--		130	120	110	110	130	100	130	130
	Sulfate	--	--		49500	49000	49500	49500	49700	50100	48500	49100
Hydrocarbons (ppb)	Petroleum Hydrocarbons (as Diesel)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Petroleum Hydrocarbons (as Gasoline)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Petroleum Hydrocarbons (as Oil)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Petroleum Hydrocarbons, Total	--	--		ND	ND	ND	ND	ND	ND	ND	ND
Metals (ppb)	Calcium	--	--		29300	29500	28900	28800	28800	29900	29900	28200
	Iron	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Magnesium	--	--		29400	29200	28300	28300	28200	30100	30300	28200

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			Location ID:	SHFTAIEA-T4-GAC							
			Location Type:	Well							
			Address:	Aiea-Halawa Shaft Train 4 GAC 2 (Midpoint)							
			Field Sample ID:	SHAFT-HW-0018394-25098-N-R04	SHAFT-HW-0018394-25098-N-R05	SHAFT-HW-0018394-25098-N-R06	SHAFT-HW-0018394-25098-3-N-R06	SHAFT-HW-0018394-25098-N-R07	SHAFT-HW-0018394-25098-N-R08	SHAFT-HW-0018394-25098-N-R09	SHAFT-HW-0018394-25098-N-R10
			Sample Date:	2025-04-18	2025-04-21	2025-04-23	2025-04-23	2025-04-25	2025-04-28	2025-04-30	2025-05-02
			Sample Type:	N (Normal)	N (Normal)	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
Metals (ppb)	Manganese	--	--	1.40	1.10	ND	ND	ND	ND	ND	ND
	Potassium	--	--	4500	4500	4500	4500	4500	4700	4700	4500
	Sodium	--	--	108000	107000	108000	108000	107000	112000	112000	107000
PFAS (EPA Method 533) (ppb)	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	0.01	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoro-3-methoxypropanoic acid (PFMPA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoro-4-methoxybutanoic acid (PFMBA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorobutanesulfonic acid (PFBS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorobutanoic acid (PFBA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorodecanoic acid (PFDA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorododecanoic acid (PFDoA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroheptanesulfonic acid (PFHpS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND

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			Location ID:	SHFTAIEA-T4-GAC							
			Location Type:	Well							
			Address:	Aiea-Halawa Shaft Train 4 GAC 2 (Midpoint)							
			Field Sample ID:	SHAFT-HW-0018394-25098-N-R04	SHAFT-HW-0018394-25098-N-R05	SHAFT-HW-0018394-25098-N-R06	SHAFT-HW-0018394-25098-3-N-R06	SHAFT-HW-0018394-25098-N-R07	SHAFT-HW-0018394-25098-N-R08	SHAFT-HW-0018394-25098-N-R09	SHAFT-HW-0018394-25098-N-R10
			Sample Date:	2025-04-18	2025-04-21	2025-04-23	2025-04-23	2025-04-25	2025-04-28	2025-04-30	2025-05-02
			Sample Type:	N (Normal)	N (Normal)	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
PFAS (EPA Method 533) (ppb)	Perfluoroheptanoic acid (PFHpA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorohexanesulfonic acid (PFHxS)	0.01	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorohexanoic acid (PFHxA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorononanoic acid (PFNA)	0.01	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorooctanesulfonic acid (PFOS)	0.004	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorooctanoic acid (PFOA)	0.004	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoropentanesulfonic acid (PFPeS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoropentanoic acid (PFPeA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroundecanoic acid (PFUnA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
PFAS (EPA Method 537.1) (ppb)	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	0.01	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorobutanesulfonic acid (PFBS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorodecanoic acid (PFDA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorododecanoic acid (PFDoA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND

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			Location ID:	SHFTAIEA-T4-GAC							
			Location Type:	Well							
			Address:	Aiea-Halawa Shaft Train 4 GAC 2 (Midpoint)							
			Field Sample ID:	SHAFT-HW-0018394-25098-N-R04	SHAFT-HW-0018394-25098-N-R05	SHAFT-HW-0018394-25098-N-R06	SHAFT-HW-0018394-25098-3-N-R06	SHAFT-HW-0018394-25098-N-R07	SHAFT-HW-0018394-25098-N-R08	SHAFT-HW-0018394-25098-N-R09	SHAFT-HW-0018394-25098-N-R10
			Sample Date:	2025-04-18	2025-04-21	2025-04-23	2025-04-23	2025-04-25	2025-04-28	2025-04-30	2025-05-02
			Sample Type:	N (Normal)	N (Normal)	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
PFAS (EPA Method 537.1) (ppb)	Perfluoroheptanoic acid (PFHpA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorohexanesulfonic acid (PFHxS)	0.01	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorohexanoic acid (PFHxA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorononanoic acid (PFNA)	0.01	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorooctanesulfonic acid (PFOS)	0.004	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorooctanoic acid (PFOA)	0.004	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorotetradecanoic acid (PFTeDA)	--	--	ND	ND	--	--	ND	ND	ND	ND
	Perfluorotridecanoic acid (PFTrDA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroundecanoic acid (PFUnA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
Synthetic Organic Compounds (ppb)	1-Methylnaphthalene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2-Methylnaphthalene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Acenaphthylene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Anthracene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(a)pyrene	0.2	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(b)fluoranthene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(g,h,i)perylene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(k)fluoranthene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Chrysene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Dibenz(a,h)anthracene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Fluorene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Indeno(1,2,3-c,d)pyrene	--	--	ND	ND	ND	ND	ND	ND	ND	ND

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			Location ID:	SHFTAIEA-T4-GAC							
			Location Type:	Well							
			Address:	Aiea-Halawa Shaft Train 4 GAC 2 (Midpoint)							
			Field Sample ID:	SHAFT-HW-0018394-25098-N-R04	SHAFT-HW-0018394-25098-N-R05	SHAFT-HW-0018394-25098-N-R06	SHAFT-HW-0018394-25098-3-N-R06	SHAFT-HW-0018394-25098-N-R07	SHAFT-HW-0018394-25098-N-R08	SHAFT-HW-0018394-25098-N-R09	SHAFT-HW-0018394-25098-N-R10
			Sample Date:	2025-04-18	2025-04-21	2025-04-23	2025-04-23	2025-04-25	2025-04-28	2025-04-30	2025-05-02
			Sample Type:	N (Normal)	N (Normal)	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
Synthetic Organic Compounds (ppb)	Naphthalene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Phenanthrene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Pyrene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
TSS (ppb)	Suspended Solids (Non-Filterable Residue)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds (ppb)	1,2,4-Trimethylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	1,3,5-Trimethylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Benzene	5	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Cumene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Ethylbenzene	700	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	m,p-Xylene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	n-Butylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	n-Propylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	o-Xylene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	sec-Butylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	tert-Butylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Toluene	1000	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Xylenes, Total	10000	MCL	ND	ND	ND	ND	ND	ND	ND	ND

Summary of Chemistry Results
Shaft
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N (Grab, Resample) = Additional follow-up sample
MPN/mL = Most probable number per milliliter

				Location ID:	SHFTAIEA-T4-EF						
				Location Type:	Well						
				Address:	Aiea-Halawa Shaft Train 4 IX 1 (Effluent)						
				Field Sample ID:	SHAFT-HW-0018393-25098-N	SHAFT-HW-0018393-25098-N-R01	SHAFT-HW-0018393-25098-N-R02	SHAFT-HW-0018393-25098-N-R03	SHAFT-HW-0018393-25098-N-R04	SHAFT-HW-0018393-25098-N-R05	SHAFT-HW-0018393-25098-N-R06	SHAFT-HW-0018393-25098-N-R07
				Sample Date:	2025-04-08	2025-04-11	2025-04-14	2025-04-16	2025-04-18	2025-04-21	2025-04-23	2025-04-25
				Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**									
Field Test (ppb)	Free Chlorine	4000	MCL		230	0.00	20.0	0.00	0.00	10.0	0.00	20.0
Field Test (pH)	pH	--	--		7.93	7.31	7.10	7.13	7.07	6.99	7.00	7.09
Field Test (ms/cm)	Specific Conductivity	--	--		0.880	0.870	0.970	0.900	1.01	0.980	0.980	1.00
Field Test (degrees Celcuis)	Temperature	--	--		27.6	24.6	25.1	24.9	25.0	25.2	25.1	28.2
Field Test (nephelometric turbidity unit)	Turbidity	5	MCL		0.520	0.00	0.00	0.650	0.480	0.330	0.130	1.37
General Chemistry (ppb)	Alkalinity, Total (as CaCO3)	--	--		172000	172000	164000	163000	156000	157000	158000	158000
	Bromate	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Bromide	--	--		ND	ND	ND	ND	ND	50.0	140	290
	Chlorate	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Chloride	--	--		92900	153000	173000	181000	184000	183000	186000	184000
	Chlorite	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Fluoride	--	--		62.0	67.0	55.0	ND	58.0	57.0	57.0	ND
	Phosphorus, Total Orthophosphate (as P)	--	--		160	570	590	290	230	150	130	140
	Sulfate	--	--		153000	74100	54300	48600	50300	51300	53300	54500
Hydrocarbons (ppb)	Petroleum Hydrocarbons (as Diesel)	--	--		886	559	463	411	315	282	248	205
	Petroleum Hydrocarbons (as Gasoline)	--	--		ND	50.3	ND	ND	ND	ND	ND	ND
	Petroleum Hydrocarbons (as Oil)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Petroleum Hydrocarbons, Total	--	--		886	609	463	411	315	282	248	205
Metals (ppb)	Calcium	--	--		28600	29000	29200	28900	29400	29500	28800	28900
	Iron	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Magnesium	--	--		29000	29700	29900	29000	29400	29300	28300	28500
	Manganese	--	--		3.70	2.80	2.10	1.60	1.30	1.10	ND	ND

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			Location ID:	SHFTAIEA-T4-EF						
			Location Type:	Well						
			Address:	Aiea-Halawa Shaft Train 4 IX 1 (Effluent)						
			Field Sample ID:	SHAFT-HW-0018393-25098-N	SHAFT-HW-0018393-25098-N-R01	SHAFT-HW-0018393-25098-N-R02	SHAFT-HW-0018393-25098-N-R03	SHAFT-HW-0018393-25098-N-R04	SHAFT-HW-0018393-25098-N-R05	SHAFT-HW-0018393-25098-N-R06	SHAFT-HW-0018393-25098-N-R07
			Sample Date:	2025-04-08	2025-04-11	2025-04-14	2025-04-16	2025-04-18	2025-04-21	2025-04-23	2025-04-25
			Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
Metals (ppb)	Potassium	--	--	5000	4800	4700	4600	4500	4500	4500	4500
	Sodium	--	--	110000	111000	111000	109000	108000	107000	108000	108000
PFAS (EPA Method 533) (ppb)	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	0.01	MCL	ND	ND	ND	--	ND	ND	ND	ND
	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoro-3-methoxypropanoic acid (PFMPA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoro-4-methoxybutanoic acid (PFMBA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorobutanesulfonic acid (PFBS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorobutanoic acid (PFBA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorodecanoic acid (PFDA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorododecanoic acid (PFDoA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroheptanesulfonic acid (PFHpS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroheptanoic acid (PFHpA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND

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			Location ID:	SHFTAIEA-T4-EF						
			Location Type:	Well						
			Address:	Aiea-Halawa Shaft Train 4 IX 1 (Effluent)						
			Field Sample ID:	SHAFT-HW-0018393-25098-N	SHAFT-HW-0018393-25098-N-R01	SHAFT-HW-0018393-25098-N-R02	SHAFT-HW-0018393-25098-N-R03	SHAFT-HW-0018393-25098-N-R04	SHAFT-HW-0018393-25098-N-R05	SHAFT-HW-0018393-25098-N-R06	SHAFT-HW-0018393-25098-N-R07
			Sample Date:	2025-04-08	2025-04-11	2025-04-14	2025-04-16	2025-04-18	2025-04-21	2025-04-23	2025-04-25
			Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
PFAS (EPA Method 533) (ppb)	Perfluorohexanesulfonic acid (PFHxS)	0.01	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorohexanoic acid (PFHxA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorononanoic acid (PFNA)	0.01	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorooctanesulfonic acid (PFOS)	0.004	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorooctanoic acid (PFOA)	0.004	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoropentanesulfonic acid (PFPeS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoropentanoic acid (PFPeA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroundecanoic acid (PFUnA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
PFAS (EPA Method 537.1) (ppb)	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	0.01	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorobutanesulfonic acid (PFBS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorodecanoic acid (PFDA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorododecanoic acid (PFDoA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroheptanoic acid (PFHpA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorohexanesulfonic acid (PFHxS)	0.01	MCL	ND	ND	ND	ND	ND	ND	ND	ND

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			Location ID:	SHFTAIEA-T4-EF							
			Location Type:	Well							
			Address:	Aiea-Halawa Shaft Train 4 IX 1 (Effluent)							
			Field Sample ID:	SHAFT-HW-0018393-25098-N	SHAFT-HW-0018393-25098-N-R01	SHAFT-HW-0018393-25098-N-R02	SHAFT-HW-0018393-25098-N-R03	SHAFT-HW-0018393-25098-N-R04	SHAFT-HW-0018393-25098-N-R05	SHAFT-HW-0018393-25098-N-R06	SHAFT-HW-0018393-25098-N-R07
			Sample Date:	2025-04-08	2025-04-11	2025-04-14	2025-04-16	2025-04-18	2025-04-21	2025-04-23	2025-04-25
			Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
PFAS (EPA Method 537.1) (ppb)	Perfluorohexanoic acid (PFHxA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorononanoic acid (PFNA)	0.01	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorooctanesulfonic acid (PFOS)	0.004	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorooctanoic acid (PFOA)	0.004	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorotetradecanoic acid (PFTeDA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorotridecanoic acid (PFTrDA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroundecanoic acid (PFUnA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
Synthetic Organic Compounds (ppb)	1-Methylnaphthalene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2-Methylnaphthalene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Acenaphthylene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Anthracene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(a)pyrene	0.2	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(b)fluoranthene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(g,h,i)perylene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(k)fluoranthene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Chrysene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Dibenz(a,h)anthracene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Fluorene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Indeno(1,2,3-c,d)pyrene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Naphthalene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Phenanthrene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Pyrene	--	--	ND	ND	ND	ND	ND	ND	ND	ND

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			Location ID:	SHFTAIEA-T4-EF							
			Location Type:	Well							
			Address:	Aiea-Halawa Shaft Train 4 IX 1 (Effluent)							
			Field Sample ID:	SHAFT-HW-0018393-25098-N	SHAFT-HW-0018393-25098-N-R01	SHAFT-HW-0018393-25098-N-R02	SHAFT-HW-0018393-25098-N-R03	SHAFT-HW-0018393-25098-N-R04	SHAFT-HW-0018393-25098-N-R05	SHAFT-HW-0018393-25098-N-R06	SHAFT-HW-0018393-25098-N-R07
			Sample Date:	2025-04-08	2025-04-11	2025-04-14	2025-04-16	2025-04-18	2025-04-21	2025-04-23	2025-04-25
			Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
TSS (ppb)	Suspended Solids (Non-Filterable Residue)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds (ppb)	1,2,4-Trimethylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	1,3,5-Trimethylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Benzene	5	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Cumene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Ethylbenzene	700	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	m,p-Xylene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	n-Butylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	n-Propylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	o-Xylene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	sec-Butylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	tert-Butylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Toluene	1000	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Xylenes, Total	10000	MCL	ND	ND	ND	ND	ND	ND	ND	ND

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			Location ID:	SHFTAIEA-T4-EF			
			Location Type:	Well			
			Address:	Aiea-Halawa Shaft Train 4 IX 1 (Effluent)			
			Field Sample ID:	SHAFT-HW-0018393-25098-N-R08	SHAFT-HW-0018393-25098-3-N-R08	SHAFT-HW-0018393-25098-N-R09	SHAFT-HW-0018393-25098-N-R10
			Sample Date:	2025-04-28	2025-04-28	2025-04-30	2025-05-02
			Sample Type:	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**				
Field Test (ppb)	Free Chlorine	4000	MCL	0.00	--	0.00	0.00
Field Test (pH)	pH	--	--	6.87	--	7.05	6.89
Field Test (ms/cm)	Specific Conductivity	--	--	0.960	--	0.990	0.960
Field Test (degrees Celcuis)	Temperature	--	--	25.4	--	25.2	26.3
Field Test (nephelometric turbidity unit)	Turbidity	5	MCL	0.890	--	0.290	0.240
General Chemistry (ppb)	Alkalinity, Total (as CaCO3)	--	--	155000	153000	158000	152000
	Bromate	--	--	ND	ND	ND	ND
	Bromide	--	--	440	460	580	660
	Chlorate	--	--	ND	ND	ND	ND
	Chloride	--	--	185000	185000	185000	183000
	Chlorite	--	--	ND	ND	ND	ND
	Fluoride	--	--	63.0	65.0	59.0	ND
	Phosphorus, Total Orthophosphate (as P)	--	--	160	100	120	140
	Sulfate	--	--	54900	55000	55100	54700
Hydrocarbons (ppb)	Petroleum Hydrocarbons (as Diesel)	--	--	179	170	140	140
	Petroleum Hydrocarbons (as Gasoline)	--	--	ND	ND	ND	ND
	Petroleum Hydrocarbons (as Oil)	--	--	ND	ND	ND	ND
	Petroleum Hydrocarbons, Total	--	--	179	170	140	140
Metals (ppb)	Calcium	--	--	29700	29900	30000	28500
	Iron	--	--	ND	ND	ND	ND
	Magnesium	--	--	30000	30500	30200	28400
	Manganese	--	--	ND	ND	ND	ND

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			Location ID:	SHFTAIEA-T4-EF			
			Location Type:	Well			
			Address:	Aiea-Halawa Shaft Train 4 IX 1 (Effluent)			
			Field Sample ID:	SHAFT-HW-0018393-25098-N-R08	SHAFT-HW-0018393-25098-3-N-R08	SHAFT-HW-0018393-25098-N-R09	SHAFT-HW-0018393-25098-N-R10
			Sample Date:	2025-04-28	2025-04-28	2025-04-30	2025-05-02
			Sample Type:	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**				
Metals (ppb)	Potassium	--	--	4700	4800	4700	4500
	Sodium	--	--	111000	114000	113000	108000
PFAS (EPA Method 533) (ppb)	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--	ND	ND	ND	ND
	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	--	--	ND	ND	ND	ND
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	--	--	ND	ND	ND	ND
	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	--	--	ND	ND	ND	ND
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	--	--	ND	ND	ND	ND
	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	--	--	ND	ND	ND	ND
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	0.01	MCL	ND	ND	ND	ND
	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	--	--	ND	ND	ND	ND
	Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	--	--	ND	ND	ND	ND
	Perfluoro-3-methoxypropanoic acid (PFMPA)	--	--	ND	ND	ND	ND
	Perfluoro-4-methoxybutanoic acid (PFMBA)	--	--	ND	ND	ND	ND
	Perfluorobutanesulfonic acid (PFBS)	--	--	ND	ND	ND	ND
	Perfluorobutanoic acid (PFBA)	--	--	ND	ND	ND	ND
	Perfluorodecanoic acid (PFDA)	--	--	ND	ND	ND	ND
	Perfluorododecanoic acid (PFDoA)	--	--	ND	ND	ND	ND
	Perfluoroheptanesulfonic acid (PFHpS)	--	--	ND	ND	ND	ND
	Perfluoroheptanoic acid (PFHpA)	--	--	ND	ND	ND	ND

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			Location ID:	SHFTAIEA-T4-EF			
			Location Type:	Well			
			Address:	Aiea-Halawa Shaft Train 4 IX 1 (Effluent)			
			Field Sample ID:	SHAFT-HW-0018393-25098-N-R08	SHAFT-HW-0018393-25098-3-N-R08	SHAFT-HW-0018393-25098-N-R09	SHAFT-HW-0018393-25098-N-R10
			Sample Date:	2025-04-28	2025-04-28	2025-04-30	2025-05-02
			Sample Type:	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**				
PFAS (EPA Method 533) (ppb)	Perfluorohexanesulfonic acid (PFHxS)	0.01	MCL	ND	ND	ND	ND
	Perfluorohexanoic acid (PFHxA)	--	--	ND	ND	ND	ND
	Perfluorononanoic acid (PFNA)	0.01	MCL	ND	ND	ND	ND
	Perfluorooctanesulfonic acid (PFOS)	0.004	MCL	ND	ND	ND	ND
	Perfluorooctanoic acid (PFOA)	0.004	MCL	ND	ND	ND	ND
	Perfluoropentanesulfonic acid (PFPeS)	--	--	ND	ND	ND	ND
	Perfluoropentanoic acid (PFPeA)	--	--	ND	ND	ND	ND
	Perfluoroundecanoic acid (PFUnA)	--	--	ND	ND	ND	ND
PFAS (EPA Method 537.1) (ppb)	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--	ND	ND	ND	ND
	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	--	--	ND	ND	ND	ND
	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	--	--	ND	ND	ND	ND
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	0.01	MCL	ND	ND	ND	ND
	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	--	--	ND	ND	ND	ND
	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	--	--	ND	ND	ND	ND
	Perfluorobutanesulfonic acid (PFBS)	--	--	ND	ND	ND	ND
	Perfluorodecanoic acid (PFDA)	--	--	ND	ND	ND	ND
	Perfluorododecanoic acid (PFDoA)	--	--	ND	ND	ND	ND
	Perfluoroheptanoic acid (PFHpA)	--	--	ND	ND	ND	ND
	Perfluorohexanesulfonic acid (PFHxS)	0.01	MCL	ND	ND	ND	ND

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			Location Type:	Well			
			Address:	Aiea-Halawa Shaft Train 4 IX 1 (Effluent)			
			Field Sample ID:	SHAFT-HW-0018393-25098-N-R08	SHAFT-HW-0018393-25098-3-N-R08	SHAFT-HW-0018393-25098-N-R09	SHAFT-HW-0018393-25098-N-R10
			Sample Date:	2025-04-28	2025-04-28	2025-04-30	2025-05-02
			Sample Type:	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**				
PFAS (EPA Method 537.1) (ppb)	Perfluorohexanoic acid (PFHxA)	--	--	ND	ND	ND	ND
	Perfluorononanoic acid (PFNA)	0.01	MCL	ND	ND	ND	ND
	Perfluorooctanesulfonic acid (PFOS)	0.004	MCL	ND	ND	ND	ND
	Perfluorooctanoic acid (PFOA)	0.004	MCL	ND	ND	ND	ND
	Perfluorotetradecanoic acid (PFTeDA)	--	--	ND	ND	ND	ND
	Perfluorotridecanoic acid (PFTrDA)	--	--	ND	ND	ND	ND
	Perfluoroundecanoic acid (PFUnA)	--	--	ND	ND	ND	ND
Synthetic Organic Compounds (ppb)	1-Methylnaphthalene	--	--	ND	ND	ND	ND
	2-Methylnaphthalene	--	--	ND	ND	ND	ND
	Acenaphthylene	--	--	ND	ND	ND	ND
	Anthracene	--	--	ND	ND	ND	ND
	Benzo(a)pyrene	0.2	MCL	ND	ND	ND	ND
	Benzo(b)fluoranthene	--	--	ND	ND	ND	ND
	Benzo(g,h,i)perylene	--	--	ND	ND	ND	ND
	Benzo(k)fluoranthene	--	--	ND	ND	ND	ND
	Chrysene	--	--	ND	ND	ND	ND
	Dibenz(a,h)anthracene	--	--	ND	ND	ND	ND
	Fluorene	--	--	ND	ND	ND	ND
	Indeno(1,2,3-c,d)pyrene	--	--	ND	ND	ND	ND
	Naphthalene	--	--	ND	ND	ND	ND
	Phenanthrene	--	--	ND	ND	ND	ND
	Pyrene	--	--	ND	ND	ND	ND

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			Field Sample ID:	SHAFT-HW-0018393-25098-N-R08	SHAFT-HW-0018393-25098-3-N-R08	SHAFT-HW-0018393-25098-N-R09	SHAFT-HW-0018393-25098-N-R10
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			Sample Type:	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**				
TSS (ppb)	Suspended Solids (Non-Filterable Residue)	--	--	ND	ND	ND	ND
Volatile Organic Compounds (ppb)	1,2,4-Trimethylbenzene	--	--	ND	ND	ND	ND
	1,3,5-Trimethylbenzene	--	--	ND	ND	ND	ND
	Benzene	5	MCL	ND	ND	ND	ND
	Cumene	--	--	ND	ND	ND	ND
	Ethylbenzene	700	MCL	ND	ND	ND	ND
	m,p-Xylene	--	--	ND	ND	ND	ND
	n-Butylbenzene	--	--	ND	ND	ND	ND
	n-Propylbenzene	--	--	ND	ND	ND	ND
	o-Xylene	--	--	ND	ND	ND	ND
	sec-Butylbenzene	--	--	ND	ND	ND	ND
	tert-Butylbenzene	--	--	ND	ND	ND	ND
	Toluene	1000	MCL	ND	ND	ND	ND
	Xylenes, Total	10000	MCL	ND	ND	ND	ND

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				Sample Date:	2025-04-08	2025-04-11	2025-04-14	2025-04-16	2025-04-18	2025-04-21	2025-04-23	2025-04-25
				Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**									
Field Test (ppb)	Free Chlorine	4000	MCL		230	0.00	20.0	0.00	0.00	10.0	0.00	20.0
Field Test (pH)	pH	--	--		7.93	7.31	7.10	7.13	7.07	6.99	7.00	7.09
Field Test (ms/cm)	Specific Conductivity	--	--		0.880	0.870	0.970	0.900	1.01	0.980	0.980	1.00
Field Test (degrees Celcuis)	Temperature	--	--		27.6	24.6	25.1	24.9	25.0	25.2	25.1	28.2
Field Test (nephelometric turbidity unit)	Turbidity	5	MCL		0.520	0.00	0.00	0.650	0.480	0.330	0.130	1.37
Parent and Alkylated Polycyclic Aromatic Hydrocarbons (ppb)	11H-Benzo(b)fluorene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	1-Methyl-7-(1-methylethyl)-phenanthrene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	1-Methyldibenzothiophene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	1-Methylnaphthalene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	1-Methylphenanthrene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	2,3,5-Trimethylnaphthalene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	2,6-Dimethylnaphthalene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	2+3-Methyldibenzothiophene Total	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	2-Methylanthracene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	2-Methylnaphthalene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	2-Methylphenanthrene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	2-Methylpyrene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	3-Methylphenanthrene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	4+9-Methylphenanthrene Total	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	4-Methyldibenzothiophene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	4-Methylpyrene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Acenaphthene	--	--		ND	ND	ND	ND	ND	ND	ND	ND

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				Sample Date:	2025-04-08	2025-04-11	2025-04-14	2025-04-16	2025-04-18	2025-04-21	2025-04-23	2025-04-25
				Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**									
Parent and Alkylated Polycyclic Aromatic Hydrocarbons (ppb)	Acenaphthylene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Anthracene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(a)anthracene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(a)fluoranthene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(a)pyrene	0.2	MCL		ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(b)fluoranthene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(b)thiophene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(c)fluorene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(e)pyrene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(g,h,i)perylene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(j+k)fluoranthene Total	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Benzonaphthothiophene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Biphenyl (Diphenyl)	--	--		0.00358	0.00399	ND	ND	ND	ND	ND	ND
	C1-Benzo(b)thiophenes	--	--		0.0776	ND	0.0185	0.0145	0.00960	ND	ND	ND
	C1-Chrysene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	C1-Decalins	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	C1-Dibenzothiophene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	C1-Fluoranthenes/Pyrenes	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	C1-Fluorene	--	--		0.00493	ND	ND	ND	ND	ND	ND	ND
	C1-Naphthalene	--	--		0.00607	0.00325	ND	ND	ND	ND	ND	ND
	C1-Naphthobenzothiophenes	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	C1-Phenanthrene/Anthracene	--	--		0.0497	0.0396	ND	ND	ND	ND	ND	ND

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			Sample Date:	2025-04-08	2025-04-11	2025-04-14	2025-04-16	2025-04-18	2025-04-21	2025-04-23	2025-04-25
			Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
Parent and Alkylated Polycyclic Aromatic Hydrocarbons (ppb)	C2-Benzo(b)thiophenes	--	--	0.0124	0.0103	0.00635	0.00519	0.00428	0.00483	0.00372	0.00295
	C2-Chrysene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	C2-Decalins	--	--	0.0213	0.0275	ND	ND	ND	ND	0.00779	0.0127
	C2-Dibenzothiophene	--	--	0.0132	0.00880	ND	ND	ND	ND	ND	ND
	C2-Fluoranthenes/Pyrenes	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	C2-Fluorene	--	--	0.0689	0.0354	0.0185	0.0189	0.0153	0.0186	0.0144	0.0117
	C2-Naphthalene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	C2-Naphthobenzothiophenes	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	C2-Phenanthrene/Anthracene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	C3-Benzo(b)thiophenes	--	--	ND	ND	0.0291	0.0262	0.0215	ND	0.0199	0.0161
	C3-Chrysene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	C3-Decalins	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	C3-Dibenzothiophene	--	--	ND	ND	ND	ND	ND	0.00590	ND	ND
	C3-Fluoranthenes/Pyrenes	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	C3-Fluorene	--	--	0.0388	0.0336	ND	ND	ND	0.0234	ND	ND
	C3-Naphthalene	--	--	0.00994	0.00886	ND	ND	ND	ND	ND	ND
	C3-Naphthobenzothiophenes	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	C3-Phenanthrene/Anthracene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	C4-Benzo(b)thiophenes	--	--	ND	ND	0.0577	0.0509	0.0407	0.0336	0.0343	0.0267
	C4-Chrysene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	C4-Decalins	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	C4-Dibenzothiophenes	--	--	ND	ND	ND	ND	ND	ND	ND	ND

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			Sample Date:	2025-04-08	2025-04-11	2025-04-14	2025-04-16	2025-04-18	2025-04-21	2025-04-23	2025-04-25
			Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
Parent and Alkylated Polycyclic Aromatic Hydrocarbons (ppb)	C4-Fluoranthenes/Pyrenes	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	C4-Naphthalene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	C4-Naphthobenzothiophenes	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	C4-Phenanthrene/Anthracene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Carbazole	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Chrysene+Triphenylene Total	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	cis+trans-Decahydronaphthalene Total	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Dibenz(a,c)+(a,h)anthracene Total	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Dibenzofuran	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Dibenzothiophene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Fluoranthene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Fluorene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Indeno(1,2,3-c,d)pyrene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Methylpyrene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Naphthalene	--	--	0.00834	0.0209	ND	ND	ND	ND	ND	ND
	Perylene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Phenanthrene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Pyrene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
PIANO Volatile Organic Compounds (ppb)	1,1,4-Trimethylcyclohexane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	1,1-Dimethyl cyclopentane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	1,2,3,4-Tetramethylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	1,2,3,5-Tetramethylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND

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			Location Type:	Well							
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			Sample Date:	2025-04-08	2025-04-11	2025-04-14	2025-04-16	2025-04-18	2025-04-21	2025-04-23	2025-04-25
			Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
PIANO Volatile Organic Compounds (ppb)	1,2,3-Trimethylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	1,2,4,5-Tetramethylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	1,2,4-Triethylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	1,2,4-Trimethylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	1,2-Dibromoethane (EDB)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	1,2-Dichloroethane	5	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	1,2-Diethylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	1,3,5-Triethylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	1,3,5-Trimethylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	1,3-Diethyl benzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	1,3-Dimethyl-5-tert-Butylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	1-Ethyl-2,3-dimethylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	1-Ethyl-2,4-dimethylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	1-ethyl-3,5-Dimethylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	1-Heptene+trans-1,2-Dimethylcyclopentane Total	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	1-Hexene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	1-Methylnaphthalene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	1-Nonene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	1-Pentene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2,2,3-Trimethylbutane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2,2,3-Trimethylpentane	--	--	ND	ND	ND	ND	ND	ND	ND	ND

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Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
PIANO Volatile Organic Compounds (ppb)	2,2,4-Trimethylpentane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2,2-Dimethyl hexane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2,2-Dimethylbutane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2,2-Dimethylpentane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2,3,3-Trimethylpentane	--	--	ND	ND	1.05	ND	ND	ND	ND	ND
	2,3,4-Trimethylpentane	--	--	ND	ND	0.541	ND	ND	ND	ND	ND
	2,3-Dihydro-1H-indene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2,3-Dimethyl hexane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2,3-Dimethylbutane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2,3-Dimethylethylheptane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2,3-Dimethylpentane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2,4-Dimethylhexane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2,4-Dimethylpentane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2,5-Dimethylheptane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2,5-Dimethylhexane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2-Ethyl-1,3-dimethylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2-ethyl-1,4-Dimethylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2-Ethylthiophene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2-Ethyltoluene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2-Methyl butane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2-Methyl hexane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2-Methyl-1,3-butadiene (Isoprene)	--	--	ND	ND	ND	ND	ND	ND	ND	ND

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Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
PIANO Volatile Organic Compounds (ppb)	2-Methyl-1-butene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2-Methyl-2-pentene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2-Methyl-heptane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2-Methylnaphthalene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2-Methylnonane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2-Methyloctane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2-Methyl-pentane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2-Methylthiophene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2-Propyltoluene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	3,3-Diethylpentane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	3,3-Dimethylheptane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	3,3-Dimethyloctane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	3,3-Dimethylpentane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	3,4-Dimethylheptane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	3,5-Dimethylheptane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	3-Ethyl pentane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	3-Ethylhexane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	3-Ethyltoluene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	3-Methyl-1-butene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	3-Methylheptane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	3-Methylhexane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	3-Methylnonane	--	--	ND	ND	ND	ND	ND	ND	ND	ND

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Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
PIANO Volatile Organic Compounds (ppb)	3-Methylpentane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	3-Methylthiophene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	3-Propylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	4-ethyl-1,2-Dimethylbenzene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	4-Ethyltoluene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	4-Methyl-1-pentene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	4-Methylheptane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	4-Methyloctane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	4-Propyltoluene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Benzene	5	MCL	ND	ND	ND	ND	ND	ND	ND	ND
	Benzo(b)thiophene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	cis-1,2-Dimethylcyclohexane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	cis-1,3-Dimethylcyclopentane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	cis-2-Heptene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	cis-2-Hexene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	cis-2-Nonene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	cis-2-Octene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	cis-2-Pentene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	cis-3-Nonene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Cumene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Cyclohexane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Cyclopentane	--	--	ND	ND	ND	ND	ND	ND	ND	ND

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Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**									
PIANO Volatile Organic Compounds (ppb)	Decene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Ethylbenzene	700	MCL		ND	ND	ND	ND	ND	ND	ND	ND
	Ethyl-cyclopentane	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Hexylbenzene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Indene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Isobutylbenzene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Isobutylcyclohexane	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Isopropyl ether	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Isopropylcyclopentane	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	m,p-Xylene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	m-Cymene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Methyl tert-butyl ether (MTBE)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Methylcyclohexane	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Methylcyclopentadienyl Manganese Tricarbonyl	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Methylcyclopentane	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Methylethylcyclohexane	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Naphthalene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	n-Butylbenzene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	n-Decane	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	n-Dodecane	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	n-Heptane	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	n-Hexane	--	--		ND	ND	ND	ND	ND	ND	ND	ND

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Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**									
PIANO Volatile Organic Compounds (ppb)	n-Nonane	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	n-Octane	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	n-Pentane	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	n-Propylbenzene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	n-Tetradecane	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	n-Tridecane	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	n-Undecane	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Octene-1	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	o-Cymene (o-Isopropyltoluene)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	o-Xylene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	p-Cymene (p-Isopropyltoluene)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Pentadecane	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Pentylbenzene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	sec-Butylbenzene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Styrene	100	MCL		3.73	2.52	1.27	0.608	0.808	0.260	ND	ND
	tert-Amyl methyl ether	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	tert-Butyl alcohol	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	tert-Butyl ethyl ether	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	tert-Butylbenzene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Thiophene	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Toluene	1000	MCL		ND	ND	ND	ND	ND	ND	ND	ND
	trans-1,2-Dimethylcyclohexane	--	--		ND	ND	ND	ND	ND	ND	ND	ND

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			Location Type:	Well							
			Address:	Aiea-Halawa Shaft Train 4 IX 1 (Effluent)							
			Field Sample ID:	SHAFT-HW-0018393-25098-N	SHAFT-HW-0018393-25098-N-R01	SHAFT-HW-0018393-25098-N-R02	SHAFT-HW-0018393-25098-N-R03	SHAFT-HW-0018393-25098-N-R04	SHAFT-HW-0018393-25098-N-R05	SHAFT-HW-0018393-25098-N-R06	SHAFT-HW-0018393-25098-N-R07
			Sample Date:	2025-04-08	2025-04-11	2025-04-14	2025-04-16	2025-04-18	2025-04-21	2025-04-23	2025-04-25
			Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
PIANO Volatile Organic Compounds (ppb)	trans-1,4-Dimethylcyclohexane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	trans-2-Heptene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	trans-2-Hexene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	trans-2-Pentene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	trans-3-Heptene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	trans-3-Nonene	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Trimethyl octane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Xylenes, Total	10000	MCL	ND	ND	ND	ND	ND	ND	ND	ND
Saturated Hydrocarbons (ppb)	2,6,10,14-Tetramethylhexadecane	--	--	0.305	ND	ND	ND	ND	ND	ND	ND
	2,6,10,14-Tetramethylpentadecane	--	--	0.279	ND	ND	ND	ND	ND	ND	ND
	2,6,10-Trimethyldodecane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	2,6,10-Trimethylpentadecane	--	--	0.699	0.426	ND	ND	ND	ND	ND	ND
	2,6,10-Trimethyltridecane	--	--	7.11	ND	1.13	ND	ND	ND	ND	ND
	C9-C44 Petroleum Hydrocarbons	--	--	803	573	373	346	228	135	167	120
	Dotriacontane	--	--	ND	ND	ND	0.220	ND	ND	ND	ND
	Henicosane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Hentriacontane	--	--	ND	ND	ND	0.430	ND	ND	ND	ND
	Heptacosane	--	--	ND	ND	ND	1.30	ND	ND	ND	ND
	Heptadecane	--	--	12.3	ND	7.14	ND	ND	4.90	ND	ND
	Heptatriacontane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Hexatriacontane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	n-Decane	--	--	ND	ND	ND	ND	ND	ND	ND	ND

Summary of Chemistry Results
Zone Shaft
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			Location ID:	SHFTAIEA-T4-EF							
			Location Type:	Well							
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			Field Sample ID:	SHAFT-HW-0018393-25098-N	SHAFT-HW-0018393-25098-N-R01	SHAFT-HW-0018393-25098-N-R02	SHAFT-HW-0018393-25098-N-R03	SHAFT-HW-0018393-25098-N-R04	SHAFT-HW-0018393-25098-N-R05	SHAFT-HW-0018393-25098-N-R06	SHAFT-HW-0018393-25098-N-R07
			Sample Date:	2025-04-08	2025-04-11	2025-04-14	2025-04-16	2025-04-18	2025-04-21	2025-04-23	2025-04-25
			Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
Saturated Hydrocarbons (ppb)	n-Docosane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	n-Dodecane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	n-Eicosane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	n-Hexacosane	--	--	ND	ND	ND	1.36	ND	ND	ND	ND
	n-Hexadecane	--	--	5.89	4.02	2.18	2.33	1.50	ND	ND	ND
	n-Nonane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	n-Octacosane	--	--	ND	ND	ND	1.12	ND	ND	ND	ND
	n-Octadecane	--	--	1.26	0.923	ND	ND	ND	0.965	ND	ND
	Nonacosane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Nonadecane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Nonatriacontane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	n-Tetracosane	--	--	ND	0.282	ND	ND	ND	ND	ND	ND
	n-Tetradecane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	n-Triacontane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	n-Tridecane	--	--	0.516	ND	ND	ND	ND	ND	ND	ND
	n-Undecane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Octatriacontane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Pentacosane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Pentadecane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Pentatriacontane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Tetracontane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Tetratriacontane	--	--	ND	ND	ND	ND	ND	ND	ND	ND

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			Location Type:	Well						
			Address:	Aiea-Halawa Shaft Train 4 IX 1 (Effluent)						
			Field Sample ID:	SHAFT-HW-0018393-25098-N	SHAFT-HW-0018393-25098-N-R01	SHAFT-HW-0018393-25098-N-R02	SHAFT-HW-0018393-25098-N-R03	SHAFT-HW-0018393-25098-N-R04	SHAFT-HW-0018393-25098-N-R05	SHAFT-HW-0018393-25098-N-R06	SHAFT-HW-0018393-25098-N-R07
			Sample Date:	2025-04-08	2025-04-11	2025-04-14	2025-04-16	2025-04-18	2025-04-21	2025-04-23	2025-04-25
			Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**								
Saturated Hydrocarbons (ppb)	Total Saturated Hydrocarbons	--	--	28.4	5.65	10.4	2.66	1.50	5.86	ND	ND
	Tricosane	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Tritriacontane	--	--	ND	ND	ND	ND	ND	ND	ND	ND

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			Location Type:	Well			
			Address:	Aiea-Halawa Shaft Train 4 IX 1 (Effluent)			
			Field Sample ID:	SHAFT-HW-0018393-25098-N-R08	SHAFT-HW-0018393-25098-3-N-R08	SHAFT-HW-0018393-25098-N-R09	SHAFT-HW-0018393-25098-N-R10
			Sample Date:	2025-04-28	2025-04-28	2025-04-30	2025-05-02
			Sample Type:	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**				
Field Test (ppb)	Free Chlorine	4000	MCL	0.00	--	0.00	0.00
Field Test (pH)	pH	--	--	6.87	--	7.05	6.89
Field Test (ms/cm)	Specific Conductivity	--	--	0.960	--	0.990	0.960
Field Test (degrees Celcuis)	Temperature	--	--	25.4	--	25.2	26.3
Field Test (nephelometric turbidity unit)	Turbidity	5	MCL	0.890	--	0.290	0.240
Parent and Alkylated Polycyclic Aromatic Hydrocarbons (ppb)	11H-Benzo(b)fluorene	--	--	ND	ND	ND	ND
	1-Methyl-7-(1-methylethyl)-phenanthrene	--	--	ND	ND	ND	ND
	1-Methyldibenzothiophene	--	--	ND	ND	ND	ND
	1-Methylnaphthalene	--	--	ND	ND	ND	ND
	1-Methylphenanthrene	--	--	ND	ND	ND	ND
	2,3,5-Trimethylnaphthalene	--	--	ND	ND	ND	ND
	2,6-Dimethylnaphthalene	--	--	ND	ND	ND	ND
	2+3-Methyldibenzothiophene Total	--	--	ND	ND	ND	ND
	2-Methylanthracene	--	--	ND	ND	ND	ND
	2-Methylnaphthalene	--	--	ND	ND	ND	ND
	2-Methylphenanthrene	--	--	ND	ND	ND	ND
	2-Methylpyrene	--	--	ND	ND	ND	ND
	3-Methylphenanthrene	--	--	ND	ND	ND	ND
	4+9-Methylphenanthrene Total	--	--	ND	ND	ND	ND
	4-Methyldibenzothiophene	--	--	ND	ND	ND	ND
	4-Methylpyrene	--	--	ND	ND	ND	ND
	Acenaphthene	--	--	ND	ND	ND	ND

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			Location ID:	SHFTAIEA-T4-EF			
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			Address:	Aiea-Halawa Shaft Train 4 IX 1 (Effluent)			
			Field Sample ID:	SHAFT-HW-0018393-25098-N-R08	SHAFT-HW-0018393-25098-3-N-R08	SHAFT-HW-0018393-25098-N-R09	SHAFT-HW-0018393-25098-N-R10
			Sample Date:	2025-04-28	2025-04-28	2025-04-30	2025-05-02
			Sample Type:	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**				
Parent and Alkylated Polycyclic Aromatic Hydrocarbons (ppb)	Acenaphthylene	--	--	ND	ND	ND	ND
	Anthracene	--	--	ND	ND	ND	ND
	Benzo(a)anthracene	--	--	ND	ND	ND	ND
	Benzo(a)fluoranthene	--	--	ND	ND	ND	ND
	Benzo(a)pyrene	0.2	MCL	ND	ND	ND	ND
	Benzo(b)fluoranthene	--	--	ND	ND	ND	ND
	Benzo(b)thiophene	--	--	ND	ND	ND	ND
	Benzo(c)fluorene	--	--	ND	ND	ND	ND
	Benzo(e)pyrene	--	--	ND	ND	ND	ND
	Benzo(g,h,i)perylene	--	--	ND	ND	ND	ND
	Benzo(j+k)fluoranthene Total	--	--	ND	ND	ND	ND
	Benzonaphthothiophene	--	--	ND	ND	ND	ND
	Biphenyl (Diphenyl)	--	--	ND	ND	ND	ND
	C1-Benzo(b)thiophenes	--	--	ND	ND	ND	ND
	C1-Chrysene	--	--	ND	ND	ND	ND
	C1-Decalins	--	--	ND	ND	ND	ND
	C1-Dibenzothiophene	--	--	ND	ND	ND	ND
	C1-Fluoranthenes/Pyrenes	--	--	ND	ND	ND	ND
	C1-Fluorene	--	--	ND	ND	ND	ND
	C1-Naphthalene	--	--	ND	ND	ND	ND
	C1-Naphthobenzothiophenes	--	--	ND	ND	ND	ND
	C1-Phenanthrene/Anthracene	--	--	ND	ND	ND	ND

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			Location ID:	SHFTAIEA-T4-EF			
			Location Type:	Well			
			Address:	Aiea-Halawa Shaft Train 4 IX 1 (Effluent)			
			Field Sample ID:	SHAFT-HW-0018393-25098-N-R08	SHAFT-HW-0018393-25098-3-N-R08	SHAFT-HW-0018393-25098-N-R09	SHAFT-HW-0018393-25098-N-R10
			Sample Date:	2025-04-28	2025-04-28	2025-04-30	2025-05-02
			Sample Type:	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**				
Parent and Alkylated Polycyclic Aromatic Hydrocarbons (ppb)	C2-Benzo(b)thiophenes	--	--	ND	ND	ND	ND
	C2-Chrysene	--	--	ND	ND	ND	ND
	C2-Decalins	--	--	0.0146	0.00983	ND	ND
	C2-Dibenzothiophene	--	--	ND	ND	ND	ND
	C2-Fluoranthenes/Pyrenes	--	--	ND	ND	ND	ND
	C2-Fluorene	--	--	0.0119	0.0121	0.0154	ND
	C2-Naphthalene	--	--	ND	ND	ND	ND
	C2-Naphthobenzothiophenes	--	--	ND	ND	ND	ND
	C2-Phenanthrene/Anthracene	--	--	ND	ND	ND	ND
	C3-Benzo(b)thiophenes	--	--	0.0155	0.0155	0.0178	ND
	C3-Chrysene	--	--	ND	ND	ND	ND
	C3-Decalins	--	--	ND	ND	ND	ND
	C3-Dibenzothiophene	--	--	ND	ND	ND	ND
	C3-Fluoranthenes/Pyrenes	--	--	ND	ND	ND	ND
	C3-Fluorene	--	--	ND	ND	ND	ND
	C3-Naphthalene	--	--	ND	ND	ND	ND
	C3-Naphthobenzothiophenes	--	--	ND	ND	ND	ND
	C3-Phenanthrene/Anthracene	--	--	ND	ND	ND	ND
	C4-Benzo(b)thiophenes	--	--	0.0258	0.0265	0.0267	ND
	C4-Chrysene	--	--	ND	ND	ND	ND
	C4-Decalins	--	--	ND	ND	ND	ND
	C4-Dibenzothiophenes	--	--	ND	ND	ND	ND

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			Sample Date:	2025-04-28	2025-04-28	2025-04-30	2025-05-02
			Sample Type:	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**				
Parent and Alkylated Polycyclic Aromatic Hydrocarbons (ppb)	C4-Fluoranthenes/Pyrenes	--	--	ND	ND	ND	ND
	C4-Naphthalene	--	--	ND	ND	ND	ND
	C4-Naphthobenzothiophenes	--	--	ND	ND	ND	ND
	C4-Phenanthrene/Anthracene	--	--	ND	ND	ND	ND
	Carbazole	--	--	ND	ND	ND	ND
	Chrysene+Triphenylene Total	--	--	ND	ND	ND	ND
	cis+trans-Decahydronaphthalene Total	--	--	ND	ND	ND	ND
	Dibenz(a,c)+(a,h)anthracene Total	--	--	ND	ND	ND	ND
	Dibenzofuran	--	--	ND	ND	ND	ND
	Dibenzothiophene	--	--	ND	ND	ND	ND
	Fluoranthene	--	--	ND	ND	ND	ND
	Fluorene	--	--	ND	ND	ND	ND
	Indeno(1,2,3-c,d)pyrene	--	--	ND	ND	ND	ND
	Methylpyrene	--	--	ND	ND	ND	ND
	Naphthalene	--	--	ND	ND	ND	ND
	Perylene	--	--	ND	ND	ND	ND
	Phenanthrene	--	--	ND	ND	ND	ND
	Pyrene	--	--	ND	ND	ND	ND
PIANO Volatile Organic Compounds (ppb)	1,1,4-Trimethylcyclohexane	--	--	ND	ND	ND	ND
	1,1-Dimethyl cyclopentane	--	--	ND	ND	ND	ND
	1,2,3,4-Tetramethylbenzene	--	--	ND	ND	ND	ND
	1,2,3,5-Tetramethylbenzene	--	--	ND	ND	ND	ND

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			Sample Type:	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**				
PIANO Volatile Organic Compounds (ppb)	1,2,3-Trimethylbenzene	--	--	ND	ND	ND	ND
	1,2,4,5-Tetramethylbenzene	--	--	ND	ND	ND	ND
	1,2,4-Triethylbenzene	--	--	ND	ND	ND	ND
	1,2,4-Trimethylbenzene	--	--	ND	ND	ND	ND
	1,2-Dibromoethane (EDB)	--	--	ND	ND	ND	ND
	1,2-Dichloroethane	5	MCL	ND	ND	ND	ND
	1,2-Diethylbenzene	--	--	ND	ND	ND	ND
	1,3,5-Triethylbenzene	--	--	ND	ND	ND	ND
	1,3,5-Trimethylbenzene	--	--	ND	ND	ND	ND
	1,3-Diethyl benzene	--	--	ND	ND	ND	ND
	1,3-Dimethyl-5-tert-Butylbenzene	--	--	ND	ND	ND	ND
	1-Ethyl-2,3-dimethylbenzene	--	--	ND	ND	ND	ND
	1-Ethyl-2,4-dimethylbenzene	--	--	ND	ND	ND	ND
	1-ethyl-3,5-Dimethylbenzene	--	--	ND	ND	ND	ND
	1-Heptene+trans-1,2-Dimethylcyclopentane Total	--	--	ND	ND	ND	ND
	1-Hexene	--	--	ND	ND	ND	ND
	1-Methylnaphthalene	--	--	ND	ND	ND	ND
	1-Nonene	--	--	ND	ND	ND	ND
	1-Pentene	--	--	ND	ND	ND	ND
	2,2,3-Trimethylbutane	--	--	ND	ND	ND	ND
	2,2,3-Trimethylpentane	--	--	ND	ND	ND	ND

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Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**				
PIANO Volatile Organic Compounds (ppb)	2,2,4-Trimethylpentane	--	--	ND	ND	ND	ND
	2,2-Dimethyl hexane	--	--	ND	ND	ND	ND
	2,2-Dimethylbutane	--	--	ND	ND	ND	ND
	2,2-Dimethylpentane	--	--	ND	ND	ND	ND
	2,3,3-Trimethylpentane	--	--	ND	ND	ND	ND
	2,3,4-Trimethylpentane	--	--	ND	ND	ND	ND
	2,3-Dihydro-1H-indene	--	--	ND	ND	ND	ND
	2,3-Dimethyl hexane	--	--	ND	ND	ND	ND
	2,3-Dimethylbutane	--	--	ND	ND	ND	ND
	2,3-Dimethylethylheptane	--	--	ND	ND	ND	ND
	2,3-Dimethylpentane	--	--	ND	ND	ND	ND
	2,4-Dimethylhexane	--	--	ND	ND	ND	ND
	2,4-Dimethylpentane	--	--	ND	ND	ND	ND
	2,5-Dimethylheptane	--	--	ND	ND	ND	ND
	2,5-Dimethylhexane	--	--	ND	ND	ND	ND
	2-Ethyl-1,3-dimethylbenzene	--	--	ND	ND	ND	ND
	2-ethyl-1,4-Dimethylbenzene	--	--	ND	ND	ND	ND
	2-Ethylthiophene	--	--	ND	ND	ND	ND
	2-Ethyltoluene	--	--	ND	ND	ND	ND
	2-Methyl butane	--	--	ND	ND	ND	ND
	2-Methyl hexane	--	--	ND	ND	ND	ND
	2-Methyl-1,3-butadiene (Isoprene)	--	--	ND	ND	ND	ND

Summary of Chemistry Results
Zone Shaft
Drinking Water Sampling, Joint Base Pearl Harbor - Hickam, Oahu, Hawaii

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Parts per Million (ppm)
Parts per Thousand (ppth)
§ - Exceeds Screening Level
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N (Normal) = Full compliance sample
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			Location ID:	SHFTAIEA-T4-EF			
			Location Type:	Well			
			Address:	Aiea-Halawa Shaft Train 4 IX 1 (Effluent)			
			Field Sample ID:	SHAFT-HW-0018393-25098-N-R08	SHAFT-HW-0018393-25098-3-N-R08	SHAFT-HW-0018393-25098-N-R09	SHAFT-HW-0018393-25098-N-R10
			Sample Date:	2025-04-28	2025-04-28	2025-04-30	2025-05-02
			Sample Type:	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**				
PIANO Volatile Organic Compounds (ppb)	2-Methyl-1-butene	--	--	ND	ND	ND	ND
	2-Methyl-2-pentene	--	--	ND	ND	ND	ND
	2-Methyl-heptane	--	--	ND	ND	ND	ND
	2-Methylnaphthalene	--	--	ND	ND	ND	ND
	2-Methylnonane	--	--	ND	ND	ND	ND
	2-Methyloctane	--	--	ND	ND	ND	ND
	2-Methyl-pentane	--	--	ND	ND	ND	ND
	2-Methylthiophene	--	--	ND	ND	ND	ND
	2-Propyltoluene	--	--	ND	ND	ND	ND
	3,3-Diethylpentane	--	--	ND	ND	ND	ND
	3,3-Dimethylheptane	--	--	ND	ND	ND	ND
	3,3-Dimethyloctane	--	--	ND	ND	ND	ND
	3,3-Dimethylpentane	--	--	ND	ND	ND	ND
	3,4-Dimethylheptane	--	--	ND	ND	ND	ND
	3,5-Dimethylheptane	--	--	ND	ND	ND	ND
	3-Ethyl pentane	--	--	ND	ND	ND	ND
	3-Ethylhexane	--	--	ND	ND	ND	ND
	3-Ethyltoluene	--	--	ND	ND	ND	ND
	3-Methyl-1-butene	--	--	ND	ND	ND	ND
	3-Methylheptane	--	--	ND	ND	ND	ND
	3-Methylhexane	--	--	ND	ND	ND	ND
	3-Methylnonane	--	--	ND	ND	ND	ND

Summary of Chemistry Results
Zone Shaft
Drinking Water Sampling, Joint Base Pearl Harbor - Hickam, Oahu, Hawaii

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			Location ID:	SHFTAIEA-T4-EF			
			Location Type:	Well			
			Address:	Aiea-Halawa Shaft Train 4 IX 1 (Effluent)			
			Field Sample ID:	SHAFT-HW-0018393-25098-N-R08	SHAFT-HW-0018393-25098-3-N-R08	SHAFT-HW-0018393-25098-N-R09	SHAFT-HW-0018393-25098-N-R10
			Sample Date:	2025-04-28	2025-04-28	2025-04-30	2025-05-02
			Sample Type:	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**				
PIANO Volatile Organic Compounds (ppb)	3-Methylpentane	--	--	ND	ND	ND	ND
	3-Methylthiophene	--	--	ND	ND	ND	ND
	3-Propylbenzene	--	--	ND	ND	ND	ND
	4-ethyl-1,2-Dimethylbenzene	--	--	ND	ND	ND	ND
	4-Ethyltoluene	--	--	ND	ND	ND	ND
	4-Methyl-1-pentene	--	--	ND	ND	ND	ND
	4-Methylheptane	--	--	ND	ND	ND	ND
	4-Methyloctane	--	--	ND	ND	ND	ND
	4-Propyltoluene	--	--	ND	ND	ND	ND
	Benzene	5	MCL	ND	ND	ND	ND
	Benzo(b)thiophene	--	--	ND	ND	ND	ND
	cis-1,2-Dimethylcyclohexane	--	--	ND	ND	ND	ND
	cis-1,3-Dimethylcyclopentane	--	--	ND	ND	ND	ND
	cis-2-Heptene	--	--	ND	ND	ND	ND
	cis-2-Hexene	--	--	ND	ND	ND	ND
	cis-2-Nonene	--	--	ND	ND	ND	ND
	cis-2-Octene	--	--	ND	ND	ND	ND
	cis-2-Pentene	--	--	ND	ND	ND	ND
	cis-3-Nonene	--	--	ND	ND	ND	ND
	Cumene	--	--	ND	ND	ND	ND
	Cyclohexane	--	--	ND	ND	ND	ND
	Cyclopentane	--	--	ND	ND	ND	ND

Summary of Chemistry Results
Zone Shaft
Drinking Water Sampling, Joint Base Pearl Harbor - Hickam, Oahu, Hawaii

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Parts per Million (ppm)
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			Location ID:	SHFTAIEA-T4-EF			
			Location Type:	Well			
			Address:	Aiea-Halawa Shaft Train 4 IX 1 (Effluent)			
			Field Sample ID:	SHAFT-HW-0018393-25098-N-R08	SHAFT-HW-0018393-25098-3-N-R08	SHAFT-HW-0018393-25098-N-R09	SHAFT-HW-0018393-25098-N-R10
			Sample Date:	2025-04-28	2025-04-28	2025-04-30	2025-05-02
			Sample Type:	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**				
PIANO Volatile Organic Compounds (ppb)	Decene	--	--	ND	ND	ND	ND
	Ethylbenzene	700	MCL	ND	ND	ND	ND
	Ethyl-cyclopentane	--	--	ND	ND	ND	ND
	Hexylbenzene	--	--	ND	ND	ND	ND
	Indene	--	--	ND	ND	ND	ND
	Isobutylbenzene	--	--	ND	ND	ND	ND
	Isobutylcyclohexane	--	--	ND	ND	ND	ND
	Isopropyl ether	--	--	ND	ND	ND	ND
	Isopropylcyclopentane	--	--	ND	ND	ND	ND
	m,p-Xylene	--	--	ND	ND	ND	ND
	m-Cymene	--	--	ND	ND	ND	ND
	Methyl tert-butyl ether (MTBE)	--	--	ND	ND	ND	ND
	Methylcyclohexane	--	--	ND	ND	ND	ND
	Methylcyclopentadienyl Manganese Tricarbonyl	--	--	ND	ND	ND	ND
	Methylcyclopentane	--	--	ND	ND	ND	ND
	Methylethylcyclohexane	--	--	ND	ND	ND	ND
	Naphthalene	--	--	ND	ND	ND	ND
	n-Butylbenzene	--	--	ND	ND	ND	ND
	n-Decane	--	--	ND	ND	ND	ND
	n-Dodecane	--	--	ND	ND	ND	ND
	n-Heptane	--	--	ND	ND	ND	ND
	n-Hexane	--	--	ND	ND	ND	ND

Summary of Chemistry Results
Zone Shaft
Drinking Water Sampling, Joint Base Pearl Harbor - Hickam, Oahu, Hawaii

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Parts per Thousand (ppth)
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			Location ID:	SHFTAIEA-T4-EF			
			Location Type:	Well			
			Address:	Aiea-Halawa Shaft Train 4 IX 1 (Effluent)			
			Field Sample ID:	SHAFT-HW-0018393-25098-N-R08	SHAFT-HW-0018393-25098-3-N-R08	SHAFT-HW-0018393-25098-N-R09	SHAFT-HW-0018393-25098-N-R10
			Sample Date:	2025-04-28	2025-04-28	2025-04-30	2025-05-02
			Sample Type:	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**				
PIANO Volatile Organic Compounds (ppb)	n-Nonane	--	--	ND	ND	ND	ND
	n-Octane	--	--	ND	ND	ND	ND
	n-Pentane	--	--	ND	ND	ND	ND
	n-Propylbenzene	--	--	ND	ND	ND	ND
	n-Tetradecane	--	--	ND	ND	ND	ND
	n-Tridecane	--	--	ND	ND	ND	ND
	n-Undecane	--	--	ND	ND	ND	ND
	Octene-1	--	--	ND	ND	ND	ND
	o-Cymene (o-Isopropyltoluene)	--	--	ND	ND	ND	ND
	o-Xylene	--	--	ND	ND	ND	ND
	p-Cymene (p-Isopropyltoluene)	--	--	ND	ND	ND	ND
	Pentadecane	--	--	ND	ND	ND	ND
	Pentylbenzene	--	--	ND	ND	ND	ND
	sec-Butylbenzene	--	--	ND	ND	ND	ND
	Styrene	100	MCL	ND	ND	ND	ND
	tert-Amyl methyl ether	--	--	ND	ND	ND	ND
	tert-Butyl alcohol	--	--	ND	ND	ND	ND
	tert-Butyl ethyl ether	--	--	ND	ND	ND	ND
	tert-Butylbenzene	--	--	ND	ND	ND	ND
	Thiophene	--	--	ND	ND	ND	ND
	Toluene	1000	MCL	ND	ND	ND	ND
	trans-1,2-Dimethylcyclohexane	--	--	ND	ND	ND	ND

Summary of Chemistry Results
Zone Shaft
Drinking Water Sampling, Joint Base Pearl Harbor - Hickam, Oahu, Hawaii

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			Location ID:	SHFTAIEA-T4-EF			
			Location Type:	Well			
			Address:	Aiea-Halawa Shaft Train 4 IX 1 (Effluent)			
			Field Sample ID:	SHAFT-HW-0018393-25098-N-R08	SHAFT-HW-0018393-25098-3-N-R08	SHAFT-HW-0018393-25098-N-R09	SHAFT-HW-0018393-25098-N-R10
			Sample Date:	2025-04-28	2025-04-28	2025-04-30	2025-05-02
			Sample Type:	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**				
PIANO Volatile Organic Compounds (ppb)	trans-1,4-Dimethylcyclohexane	--	--	ND	ND	ND	ND
	trans-2-Heptene	--	--	ND	ND	ND	ND
	trans-2-Hexene	--	--	ND	ND	ND	ND
	trans-2-Pentene	--	--	ND	ND	ND	ND
	trans-3-Heptene	--	--	ND	ND	ND	ND
	trans-3-Nonene	--	--	ND	ND	ND	ND
	Trimethyl octane	--	--	ND	ND	ND	ND
	Xylenes, Total	10000	MCL	ND	ND	ND	ND
Saturated Hydrocarbons (ppb)	2,6,10,14-Tetramethylhexadecane	--	--	ND	ND	ND	ND
	2,6,10,14-Tetramethylpentadecane	--	--	ND	ND	ND	ND
	2,6,10-Trimethyldodecane	--	--	ND	ND	ND	ND
	2,6,10-Trimethylpentadecane	--	--	ND	ND	ND	ND
	2,6,10-Trimethyltridecane	--	--	ND	ND	ND	ND
	C9-C44 Petroleum Hydrocarbons	--	--	120	95.3	128	187
	Dotriacontane	--	--	ND	ND	ND	ND
	Henicosane	--	--	ND	ND	ND	ND
	Hentriacontane	--	--	ND	ND	ND	ND
	Heptacosane	--	--	ND	ND	ND	ND
	Heptadecane	--	--	ND	ND	ND	4.36
	Heptatriacontane	--	--	ND	ND	ND	ND
	Hexatriacontane	--	--	ND	ND	ND	ND
	n-Decane	--	--	ND	ND	ND	ND

Summary of Chemistry Results
Zone Shaft
Drinking Water Sampling, Joint Base Pearl Harbor - Hickam, Oahu, Hawaii

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			Location ID:	SHFTAIEA-T4-EF			
			Location Type:	Well			
			Address:	Aiea-Halawa Shaft Train 4 IX 1 (Effluent)			
			Field Sample ID:	SHAFT-HW-0018393-25098-N-R08	SHAFT-HW-0018393-25098-3-N-R08	SHAFT-HW-0018393-25098-N-R09	SHAFT-HW-0018393-25098-N-R10
			Sample Date:	2025-04-28	2025-04-28	2025-04-30	2025-05-02
			Sample Type:	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**				
Saturated Hydrocarbons (ppb)	n-Docosane	--	--	ND	ND	ND	ND
	n-Dodecane	--	--	ND	ND	ND	ND
	n-Eicosane	--	--	ND	ND	0.206	ND
	n-Hexacosane	--	--	ND	ND	ND	ND
	n-Hexadecane	--	--	ND	ND	ND	ND
	n-Nonane	--	--	ND	ND	ND	ND
	n-Octacosane	--	--	ND	ND	ND	ND
	n-Octadecane	--	--	ND	ND	ND	1.15
	Nonacosane	--	--	ND	ND	ND	ND
	Nonadecane	--	--	ND	ND	ND	ND
	Nonatriacontane	--	--	ND	ND	ND	ND
	n-Tetracosane	--	--	ND	ND	ND	ND
	n-Tetradecane	--	--	ND	ND	ND	ND
	n-Triacontane	--	--	ND	ND	ND	ND
	n-Tridecane	--	--	ND	ND	ND	ND
	n-Undecane	--	--	ND	ND	ND	ND
	Octatriacontane	--	--	ND	ND	ND	ND
	Pentacosane	--	--	ND	ND	ND	ND
	Pentadecane	--	--	ND	ND	ND	ND
	Pentatriacontane	--	--	ND	ND	ND	ND
	Tetracontane	--	--	ND	ND	ND	ND
	Tetratriacontane	--	--	ND	ND	ND	ND

Summary of Chemistry Results
Zone Shaft
Drinking Water Sampling, Joint Base Pearl Harbor - Hickam, Oahu, Hawaii

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			Location ID:	SHFTAIEA-T4-EF			
			Location Type:	Well			
			Address:	Aiea-Halawa Shaft Train 4 IX 1 (Effluent)			
			Field Sample ID:	SHAFT-HW-0018393-25098-N-R08	SHAFT-HW-0018393-25098-3-N-R08	SHAFT-HW-0018393-25098-N-R09	SHAFT-HW-0018393-25098-N-R10
			Sample Date:	2025-04-28	2025-04-28	2025-04-30	2025-05-02
			Sample Type:	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**DOH Project Screening Level**	**Basis of Project Screening Level**				
Saturated Hydrocarbons (ppb)	Total Saturated Hydrocarbons	--	--	ND	ND	0.206	5.72
	Tricosane	--	--	ND	ND	ND	0.212
	Tritriacontane	--	--	ND	ND	ND	ND

Summary of Chemistry Results
PFAS Sampling, Red Hill, JBPHH

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PPT = Parts per Trillion
PPB = Parts per Billion
PPM = Parts per Million
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				Location ID:	SHFTAIEA-PR-FW2							
				Location Type:	Faucet/Tap							
				Field Sample ID:	SHAFT-HW-0018384-25098-N	SHAFT-HW-0018384-25098-N-R01	SHAFT-HW-0018384-25098-N-R02	SHAFT-HW-0018384-25098-N-R03	SHAFT-HW-0018384-25098-N-R04	SHAFT-HW-0018384-25098-3-N-R04	SHAFT-HW-0018384-25098-N-R05	SHAFT-HW-0018384-25098-N-R06
				Sample Date:	2025-04-08	2025-04-11	2025-04-14	2025-04-16	2025-04-18	2025-04-18	2025-04-21	2025-04-23
				Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**EPA RSL**	**EPA MCL**									
Field Test (ppb)	Free Chlorine	--	--		ND	ND	ND	40.0	ND	--	10.0	ND
Field Test (pH)	pH	--	--		6.92	6.95	6.78	6.75	6.79	--	6.82	6.82
Field Test (ms/cm)	Specific Conductivity	--	--		0.820	0.950	0.920	0.940	0.960	--	0.990	0.980
Field Test (degrees Celcuis)	Temperature	--	--		24.7	25.0	25.0	25.0	24.9	--	25.0	25.1
Field Test (nephelometric turbidity unit)	Turbidity	--	--		0.480	0.190	0.420	1.36	0.370	--	0.480	0.450
Per- and Polyfluoroalkyl Substances (EPA 533) (ppt)	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--		ND	ND	0.870	ND	ND	ND	ND	ND
	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	1.5	10		ND	ND	ND	0.920	ND	ND	ND	ND
	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoro-3-methoxypropanoic acid (PFMPA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoro-4-methoxybutanoic acid (PFMBA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorobutanesulfonic acid (PFBS)	600	--		6.90	4.50	5.10	5.80	5.00	4.70	4.90	4.20
	Perfluorobutanoic acid (PFBA)	1800	--		4.10	3.20	3.40	3.80	3.10	3.00	3.20	2.80
	Perfluorodecanoic acid (PFDA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorododecanoic acid (PFDoA)	--	--		ND	ND	1.20	ND	ND	ND	ND	ND
	Perfluoroheptanesulfonic acid (PFHpS)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroheptanoic acid (PFHpA)	--	--		4.40	3.20	3.50	4.30	3.70	3.50	4.00	3.20
	Perfluorohexanesulfonic acid (PFHxS)	39	10		8.10	6.10	6.70	7.30	6.30	6.10	6.10	5.60

Summary of Chemistry Results
PFAS Sampling, Red Hill, JBPHH

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				Location ID:	SHFTAIEA-PR-FW2							
				Location Type:	Faucet/Tap							
				Field Sample ID:	SHAFT-HW-0018384-25098-N	SHAFT-HW-0018384-25098-N-R01	SHAFT-HW-0018384-25098-N-R02	SHAFT-HW-0018384-25098-N-R03	SHAFT-HW-0018384-25098-N-R04	SHAFT-HW-0018384-25098-3-N-R04	SHAFT-HW-0018384-25098-N-R05	SHAFT-HW-0018384-25098-N-R06
				Sample Date:	2025-04-08	2025-04-11	2025-04-14	2025-04-16	2025-04-18	2025-04-18	2025-04-21	2025-04-23
				Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**EPA RSL**	**EPA MCL**									
Per- and Polyfluoroalkyl Substances (EPA 533) (ppt)	Perfluorohexanoic acid (PFHxA)	990	--	8.10	6.40	6.70	7.90	6.40	6.20	6.70	5.60
	Perfluorononanoic acid (PFNA)	5.9	10	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorooctanesulfonic acid (PFOS)	4	4	13.7 §	10.4 §	10.7 §	11.5 §	9.60 §	9.30 §	10.0 §	7.80 §
	Perfluorooctanoic acid (PFOA)	6	4	8.60 §	6.10 §	6.40 §	7.40 §	6.40 §	6.20 §	6.80 §	5.60 §
	Perfluoropentanesulfonic acid (PFPeS)	--	--	ND	0.730	0.720	0.880	0.790	0.740	ND	ND
	Perfluoropentanoic acid (PFPeA)	--	--	10.2	8.50	8.90	10.1	8.20	7.90	8.20	7.10
	Perfluoroundecanoic acid (PFUnA)	--	--	ND	ND	1.30	ND	ND	ND	ND	ND
Per- and Polyfluoroalkyl Substances (EPA 537.1) (ppt)	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	1.5	10	ND	ND	ND	ND	ND	ND	ND	ND
	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorobutanesulfonic acid (PFBS)	600	--	3.90	3.70	4.70	4.30	4.10	4.30	3.70	3.80
	Perfluorodecanoic acid (PFDA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorododecanoic acid (PFDoA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroheptanoic acid (PFHpA)	--	--	2.40	2.20	2.70	3.10	3.10	3.10	2.90	2.70
	Perfluorohexanesulfonic acid (PFHxS)	39	10	4.60	4.40	5.20	5.40	5.20	5.60	4.90	4.80
	Perfluorohexanoic acid (PFHxA)	990	--	4.90	4.60	4.90	5.40	5.00	5.20	4.60	4.50
	Perfluorononanoic acid (PFNA)	5.9	10	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorooctanesulfonic acid (PFOS)	4	4	8.90 §	6.00 §	7.20 §	8.20 §	8.10 §	8.60 §	7.70 §	7.40 §
	Perfluorooctanoic acid (PFOA)	6	4	5.30 §	3.90	4.70 §	6.30 §	6.00 §	6.40 §	5.70 §	5.50 §

Summary of Chemistry Results
PFAS Sampling, Red Hill, JBPHH

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				Location ID:	SHFTAIEA-PR-FW2							
				Location Type:	Faucet/Tap							
				Field Sample ID:	SHAFT-HW-0018384-25098-N	SHAFT-HW-0018384-25098-N-R01	SHAFT-HW-0018384-25098-N-R02	SHAFT-HW-0018384-25098-N-R03	SHAFT-HW-0018384-25098-N-R04	SHAFT-HW-0018384-25098-3-N-R04	SHAFT-HW-0018384-25098-N-R05	SHAFT-HW-0018384-25098-N-R06
				Sample Date:	2025-04-08	2025-04-11	2025-04-14	2025-04-16	2025-04-18	2025-04-18	2025-04-21	2025-04-23
				Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**EPA RSL**	**EPA MCL**									
Per- and Polyfluoroalkyl Substances (EPA 537.1) (ppt)	Perfluorotetradecanoic acid (PFTeDA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorotridecanoic acid (PFTrDA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroundecanoic acid (PFUnA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND

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				Location ID:	SHFTAIEA-PR-FW2				SHFTAIEA-T4-GAC			
				Location Type:	Faucet/Tap				Well			
				Field Sample ID:	SHAFT-HW-0018384-25098-N-R07	SHAFT-HW-0018384-25098-N-R08	SHAFT-HW-0018384-25098-N-R09	SHAFT-HW-0018384-25098-N-R10	SHAFT-HW-0018394-25098-N	SHAFT-HW-0018394-25098-N-R01	SHAFT-HW-0018394-25098-N-R02	SHAFT-HW-0018394-25098-N-R03
				Sample Date:	2025-04-25	2025-04-28	2025-04-30	2025-05-02	2025-04-08	2025-04-11	2025-04-14	2025-04-16
				Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**EPA RSL**	**EPA MCL**									
Field Test (ppb)	Free Chlorine	--	--		ND	ND	ND	ND	150	ND	ND	ND
Field Test (pH)	pH	--	--		6.82	6.91	6.79	6.89	8.23	7.34	7.09	7.02
Field Test (ms/cm)	Specific Conductivity	--	--		0.950	0.880	0.950	0.880	0.770	0.960	0.930	0.940
Field Test (degrees Celcuis)	Temperature	--	--		24.9	24.5	24.9	24.5	25.1	24.7	25.3	25.2
Field Test (nephelometric turbidity unit)	Turbidity	--	--		0.600	0.310	0.0680	0.940	350	ND	0.450	1.09
Per- and Polyfluoroalkyl Substances (EPA 533) (ppt)	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	--	--		ND	ND	ND	1.30	ND	ND	ND	ND
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	--	--		ND	ND	ND	6.20	ND	ND	ND	ND
	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	1.5	10		ND	ND	ND	ND	ND	ND	ND	--
	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoro-3-methoxypropanoic acid (PFMPA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoro-4-methoxybutanoic acid (PFMBA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorobutanesulfonic acid (PFBS)	600	--		4.20	4.20	4.00	3.80	ND	ND	ND	ND
	Perfluorobutanoic acid (PFBA)	1800	--		2.80	2.70	2.60	2.50	ND	ND	ND	ND
	Perfluorodecanoic acid (PFDA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorododecanoic acid (PFDoA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroheptanesulfonic acid (PFHpS)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroheptanoic acid (PFHpA)	--	--		3.30	3.40	3.20	3.10	ND	ND	ND	ND
	Perfluorohexanesulfonic acid (PFHxS)	39	10		5.60	5.60	5.20	5.00	ND	ND	ND	ND

Summary of Chemistry Results
PFAS Sampling, Red Hill, JBPHH

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				Location ID:	SHFTAIEA-PR-FW2				SHFTAIEA-T4-GAC			
				Location Type:	Faucet/Tap				Well			
				Field Sample ID:	SHAFT-HW-0018384-25098-N-R07	SHAFT-HW-0018384-25098-N-R08	SHAFT-HW-0018384-25098-N-R09	SHAFT-HW-0018384-25098-N-R10	SHAFT-HW-0018394-25098-N	SHAFT-HW-0018394-25098-N-R01	SHAFT-HW-0018394-25098-N-R02	SHAFT-HW-0018394-25098-N-R03
				Sample Date:	2025-04-25	2025-04-28	2025-04-30	2025-05-02	2025-04-08	2025-04-11	2025-04-14	2025-04-16
				Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**EPA RSL**	**EPA MCL**									
Per- and Polyfluoroalkyl Substances (EPA 533) (ppt)	Perfluorohexanoic acid (PFHxA)	990	--	5.60	5.40	5.20	5.00	ND	ND	ND	ND
	Perfluorononanoic acid (PFNA)	5.9	10	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorooctanesulfonic acid (PFOS)	4	4	8.60 §	8.40 §	8.90 §	19.5 §	ND	ND	ND	ND
	Perfluorooctanoic acid (PFOA)	6	4	4.70 §	5.70 §	5.30 §	5.30 §	ND	ND	ND	ND
	Perfluoropentanesulfonic acid (PFPeS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoropentanoic acid (PFPeA)	--	--	7.00	6.80	6.40	6.40	ND	ND	ND	ND
	Perfluoroundecanoic acid (PFUnA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
Per- and Polyfluoroalkyl Substances (EPA 537.1) (ppt)	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	1.5	10	ND	ND	ND	ND	ND	ND	ND	ND
	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorobutanesulfonic acid (PFBS)	600	--	3.90	3.60	3.70	3.60	ND	ND	ND	ND
	Perfluorodecanoic acid (PFDA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorododecanoic acid (PFDoA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroheptanoic acid (PFHpA)	--	--	2.70	2.80	2.80	2.80	ND	ND	ND	ND
	Perfluorohexanesulfonic acid (PFHxS)	39	10	5.30	4.90	5.00	4.80	ND	ND	ND	ND
	Perfluorohexanoic acid (PFHxA)	990	--	4.30	4.20	4.50	4.40	ND	ND	ND	ND
	Perfluorononanoic acid (PFNA)	5.9	10	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorooctanesulfonic acid (PFOS)	4	4	7.60 §	7.50 §	7.30 §	7.00 §	1.50	ND	ND	ND
	Perfluorooctanoic acid (PFOA)	6	4	5.90 §	5.60 §	5.60 §	5.50 §	ND	ND	ND	ND

Summary of Chemistry Results
PFAS Sampling, Red Hill, JBPHH

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				Location ID:	SHFTAIEA-PR-FW2				SHFTAIEA-T4-GAC			
				Location Type:	Faucet/Tap				Well			
				Field Sample ID:	SHAFT-HW-0018384-25098-N-R07	SHAFT-HW-0018384-25098-N-R08	SHAFT-HW-0018384-25098-N-R09	SHAFT-HW-0018384-25098-N-R10	SHAFT-HW-0018394-25098-N	SHAFT-HW-0018394-25098-N-R01	SHAFT-HW-0018394-25098-N-R02	SHAFT-HW-0018394-25098-N-R03
				Sample Date:	2025-04-25	2025-04-28	2025-04-30	2025-05-02	2025-04-08	2025-04-11	2025-04-14	2025-04-16
				Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**EPA RSL**	**EPA MCL**									
Per- and Polyfluoroalkyl Substances (EPA 537.1) (ppt)	Perfluorotetradecanoic acid (PFTeDA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorotridecanoic acid (PFTrDA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroundecanoic acid (PFUnA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND

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				Location ID:	SHFTAIEA-T4-GAC							
				Location Type:	Well							
				Field Sample ID:	SHAFT-HW-0018394-25098-N-R04	SHAFT-HW-0018394-25098-N-R05	SHAFT-HW-0018394-25098-N-R06	SHAFT-HW-0018394-25098-3-N-R06	SHAFT-HW-0018394-25098-N-R07	SHAFT-HW-0018394-25098-N-R08	SHAFT-HW-0018394-25098-N-R09	SHAFT-HW-0018394-25098-N-R10
				Sample Date:	2025-04-18	2025-04-21	2025-04-23	2025-04-23	2025-04-25	2025-04-28	2025-04-30	2025-05-02
				Sample Type:	N (Normal)	N (Normal)	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**EPA RSL**	**EPA MCL**									
Field Test (ppb)	Free Chlorine	--	--		ND	ND	ND	--	ND	ND	ND	ND
Field Test (pH)	pH	--	--		7.00	6.99	6.97	--	6.97	7.03	6.99	7.05
Field Test (ms/cm)	Specific Conductivity	--	--		0.960	1.00	0.980	--	0.960	0.890	0.960	0.880
Field Test (degrees Celcuis)	Temperature	--	--		25.1	25.2	25.2	--	25.1	24.8	25.3	24.8
Field Test (nephelometric turbidity unit)	Turbidity	--	--		0.460	0.650	0.640	--	0.830	0.770	0.260	0.300
Per- and Polyfluoroalkyl Substances (EPA 533) (ppt)	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	1.5	10		ND	ND	ND	ND	ND	ND	ND	ND
	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoro-3-methoxypropanoic acid (PFMPA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoro-4-methoxybutanoic acid (PFMBA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorobutanesulfonic acid (PFBS)	600	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorobutanoic acid (PFBA)	1800	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorodecanoic acid (PFDA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorododecanoic acid (PFDoA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroheptanesulfonic acid (PFHpS)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroheptanoic acid (PFHpA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorohexanesulfonic acid (PFHxS)	39	10		ND	ND	ND	ND	ND	ND	ND	ND

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				Location ID:	SHFTAIEA-T4-GAC						
				Location Type:	Well						
				Field Sample ID:	SHAFT-HW-0018394-25098-N-R04	SHAFT-HW-0018394-25098-N-R05	SHAFT-HW-0018394-25098-N-R06	SHAFT-HW-0018394-25098-3-N-R06	SHAFT-HW-0018394-25098-N-R07	SHAFT-HW-0018394-25098-N-R08	SHAFT-HW-0018394-25098-N-R09	SHAFT-HW-0018394-25098-N-R10
				Sample Date:	2025-04-18	2025-04-21	2025-04-23	2025-04-23	2025-04-25	2025-04-28	2025-04-30	2025-05-02
				Sample Type:	N (Normal)	N (Normal)	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**EPA RSL**	**EPA MCL**									
Per- and Polyfluoroalkyl Substances (EPA 533) (ppt)	Perfluorohexanoic acid (PFHxA)	990	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorononanoic acid (PFNA)	5.9	10	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorooctanesulfonic acid (PFOS)	4	4	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorooctanoic acid (PFOA)	6	4	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoropentanesulfonic acid (PFPeS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoropentanoic acid (PFPeA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroundecanoic acid (PFUnA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
Per- and Polyfluoroalkyl Substances (EPA 537.1) (ppt)	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	1.5	10	ND	ND	ND	ND	ND	ND	ND	ND
	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorobutanesulfonic acid (PFBS)	600	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorodecanoic acid (PFDA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorododecanoic acid (PFDoA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroheptanoic acid (PFHpA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorohexanesulfonic acid (PFHxS)	39	10	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorohexanoic acid (PFHxA)	990	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorononanoic acid (PFNA)	5.9	10	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorooctanesulfonic acid (PFOS)	4	4	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorooctanoic acid (PFOA)	6	4	ND	ND	ND	ND	ND	ND	ND	ND

Summary of Chemistry Results
PFAS Sampling, Red Hill, JBPHH

Notes:
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PPM = Parts per Million
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N (Normal) = Full compliance sample
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N (Grab, Resample) = Additional follow-up sample
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				Location ID:	SHFTAIEA-T4-GAC							
				Location Type:	Well							
				Field Sample ID:	SHAFT-HW-0018394-25098-N-R04	SHAFT-HW-0018394-25098-N-R05	SHAFT-HW-0018394-25098-N-R06	SHAFT-HW-0018394-25098-3-N-R06	SHAFT-HW-0018394-25098-N-R07	SHAFT-HW-0018394-25098-N-R08	SHAFT-HW-0018394-25098-N-R09	SHAFT-HW-0018394-25098-N-R10
				Sample Date:	2025-04-18	2025-04-21	2025-04-23	2025-04-23	2025-04-25	2025-04-28	2025-04-30	2025-05-02
				Sample Type:	N (Normal)	N (Normal)	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**EPA RSL**	**EPA MCL**									
Per- and Polyfluoroalkyl Substances (EPA 537.1) (ppt)	Perfluorotetradecanoic acid (PFTeDA)	--	--		ND	ND	--	--	ND	ND	ND	ND
	Perfluorotridecanoic acid (PFTrDA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroundecanoic acid (PFUnA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND

Summary of Chemistry Results
PFAS Sampling, Red Hill, JBPHH

Notes:
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PPT = Parts per Trillion
PPB = Parts per Billion
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FD (Field Duplicate) = Extra sample taken for quality control
N (Grab, Resample) = Additional follow-up sample
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				Location ID:	SHFTAIEA-T4-EF							
				Location Type:	Well							
				Field Sample ID:	SHAFT-HW-0018393-25098-N	SHAFT-HW-0018393-25098-N-R01	SHAFT-HW-0018393-25098-N-R02	SHAFT-HW-0018393-25098-N-R03	SHAFT-HW-0018393-25098-N-R04	SHAFT-HW-0018393-25098-N-R05	SHAFT-HW-0018393-25098-N-R06	SHAFT-HW-0018393-25098-N-R07
				Sample Date:	2025-04-08	2025-04-11	2025-04-14	2025-04-16	2025-04-18	2025-04-21	2025-04-23	2025-04-25
				Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**EPA RSL**	**EPA MCL**									
Field Test (ppb)	Free Chlorine	--	--		230	ND	20.0	ND	ND	10.0	ND	20.0
Field Test (pH)	pH	--	--		7.93	7.31	7.10	7.13	7.07	6.99	7.00	7.09
Field Test (ms/cm)	Specific Conductivity	--	--		0.880	0.870	0.970	0.900	1.01	0.980	0.980	1.00
Field Test (degrees Celcuis)	Temperature	--	--		27.6	24.6	25.1	24.9	25.0	25.2	25.1	28.2
Field Test (nephelometric turbidity unit)	Turbidity	--	--		0.520	ND	ND	0.650	0.480	0.330	0.130	1.37
Per- and Polyfluoroalkyl Substances (EPA 533) (ppt)	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	1.5	10		ND	ND	ND	--	ND	ND	ND	ND
	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoro-3-methoxypropanoic acid (PFMPA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoro-4-methoxybutanoic acid (PFMBA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorobutanesulfonic acid (PFBS)	600	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorobutanoic acid (PFBA)	1800	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorodecanoic acid (PFDA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorododecanoic acid (PFDoA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroheptanesulfonic acid (PFHpS)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroheptanoic acid (PFHpA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorohexanesulfonic acid (PFHxS)	39	10		ND	ND	ND	ND	ND	ND	ND	ND

Summary of Chemistry Results
PFAS Sampling, Red Hill, JBPHH

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				Location ID:	SHFTAIEA-T4-EF						
				Location Type:	Well						
				Field Sample ID:	SHAFT-HW-0018393-25098-N	SHAFT-HW-0018393-25098-N-R01	SHAFT-HW-0018393-25098-N-R02	SHAFT-HW-0018393-25098-N-R03	SHAFT-HW-0018393-25098-N-R04	SHAFT-HW-0018393-25098-N-R05	SHAFT-HW-0018393-25098-N-R06	SHAFT-HW-0018393-25098-N-R07
				Sample Date:	2025-04-08	2025-04-11	2025-04-14	2025-04-16	2025-04-18	2025-04-21	2025-04-23	2025-04-25
				Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**EPA RSL**	**EPA MCL**									
Per- and Polyfluoroalkyl Substances (EPA 533) (ppt)	Perfluorohexanoic acid (PFHxA)	990	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorononanoic acid (PFNA)	5.9	10	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorooctanesulfonic acid (PFOS)	4	4	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorooctanoic acid (PFOA)	6	4	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoropentanesulfonic acid (PFPeS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoropentanoic acid (PFPeA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroundecanoic acid (PFUnA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
Per- and Polyfluoroalkyl Substances (EPA 537.1) (ppt)	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	1.5	10	ND	ND	ND	ND	ND	ND	ND	ND
	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorobutanesulfonic acid (PFBS)	600	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorodecanoic acid (PFDA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorododecanoic acid (PFDoA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroheptanoic acid (PFHpA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorohexanesulfonic acid (PFHxS)	39	10	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorohexanoic acid (PFHxA)	990	--	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorononanoic acid (PFNA)	5.9	10	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorooctanesulfonic acid (PFOS)	4	4	ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorooctanoic acid (PFOA)	6	4	ND	ND	ND	ND	ND	ND	ND	ND

Summary of Chemistry Results
PFAS Sampling, Red Hill, JBPHH

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				Location ID:	SHFTAIEA-T4-EF							
				Location Type:	Well							
				Field Sample ID:	SHAFT-HW-0018393-25098-N	SHAFT-HW-0018393-25098-N-R01	SHAFT-HW-0018393-25098-N-R02	SHAFT-HW-0018393-25098-N-R03	SHAFT-HW-0018393-25098-N-R04	SHAFT-HW-0018393-25098-N-R05	SHAFT-HW-0018393-25098-N-R06	SHAFT-HW-0018393-25098-N-R07
				Sample Date:	2025-04-08	2025-04-11	2025-04-14	2025-04-16	2025-04-18	2025-04-21	2025-04-23	2025-04-25
				Sample Type:	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)	N (Normal)
Method Group	**Analyte**	**EPA RSL**	**EPA MCL**									
Per- and Polyfluoroalkyl Substances (EPA 537.1) (ppt)	Perfluorotetradecanoic acid (PFTeDA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluorotridecanoic acid (PFTrDA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND
	Perfluoroundecanoic acid (PFUnA)	--	--		ND	ND	ND	ND	ND	ND	ND	ND

Summary of Chemistry Results
PFAS Sampling, Red Hill, JBPHH

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				Location ID:	SHFTAIEA-T4-EF		
				Location Type:	Well		
				Field Sample ID:	SHAFT-HW-0018393-25098-N-R08	SHAFT-HW-0018393-25098-3-N-R08	SHAFT-HW-0018393-25098-N-R09	SHAFT-HW-0018393-25098-N-R10
				Sample Date:	2025-04-28	2025-04-28	2025-04-30	2025-05-02
				Sample Type:	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**EPA RSL**	**EPA MCL**					
Field Test (ppb)	Free Chlorine	--	--		ND	--	ND	ND
Field Test (pH)	pH	--	--		6.87	--	7.05	6.89
Field Test (ms/cm)	Specific Conductivity	--	--		0.960	--	0.990	0.960
Field Test (degrees Celcuis)	Temperature	--	--		25.4	--	25.2	26.3
Field Test (nephelometric turbidity unit)	Turbidity	--	--		0.890	--	0.290	0.240
Per- and Polyfluoroalkyl Substances (EPA 533) (ppt)	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--		ND	ND	ND	ND
	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	--	--		ND	ND	ND	ND
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	--	--		ND	ND	ND	ND
	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	--	--		ND	ND	ND	ND
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	--	--		ND	ND	ND	ND
	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	--	--		ND	ND	ND	ND
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	1.5	10		ND	ND	ND	ND
	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	--	--		ND	ND	ND	ND
	Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	--	--		ND	ND	ND	ND
	Perfluoro-3-methoxypropanoic acid (PFMPA)	--	--		ND	ND	ND	ND
	Perfluoro-4-methoxybutanoic acid (PFMBA)	--	--		ND	ND	ND	ND
	Perfluorobutanesulfonic acid (PFBS)	600	--		ND	ND	ND	ND
	Perfluorobutanoic acid (PFBA)	1800	--		ND	ND	ND	ND
	Perfluorodecanoic acid (PFDA)	--	--		ND	ND	ND	ND
	Perfluorododecanoic acid (PFDoA)	--	--		ND	ND	ND	ND
	Perfluoroheptanesulfonic acid (PFHpS)	--	--		ND	ND	ND	ND
	Perfluoroheptanoic acid (PFHpA)	--	--		ND	ND	ND	ND
	Perfluorohexanesulfonic acid (PFHxS)	39	10		ND	ND	ND	ND

Summary of Chemistry Results
PFAS Sampling, Red Hill, JBPHH

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			Location ID:	SHFTAIEA-T4-EF			
			Location Type:	Well			
			Field Sample ID:	SHAFT-HW-0018393-25098-N-R08	SHAFT-HW-0018393-25098-3-N-R08	SHAFT-HW-0018393-25098-N-R09	SHAFT-HW-0018393-25098-N-R10
			Sample Date:	2025-04-28	2025-04-28	2025-04-30	2025-05-02
			Sample Type:	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**EPA RSL**	**EPA MCL**				
Per- and Polyfluoroalkyl Substances (EPA 533) (ppt)	Perfluorohexanoic acid (PFHxA)	990	--	ND	ND	ND	ND
	Perfluorononanoic acid (PFNA)	5.9	10	ND	ND	ND	ND
	Perfluorooctanesulfonic acid (PFOS)	4	4	ND	ND	ND	ND
	Perfluorooctanoic acid (PFOA)	6	4	ND	ND	ND	ND
	Perfluoropentanesulfonic acid (PFPeS)	--	--	ND	ND	ND	ND
	Perfluoropentanoic acid (PFPeA)	--	--	ND	ND	ND	ND
	Perfluoroundecanoic acid (PFUnA)	--	--	ND	ND	ND	ND
Per- and Polyfluoroalkyl Substances (EPA 537.1) (ppt)	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--	ND	ND	ND	ND
	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	--	--	ND	ND	ND	ND
	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	--	--	ND	ND	ND	ND
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	1.5	10	ND	ND	ND	ND
	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	--	--	ND	ND	ND	ND
	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	--	--	ND	ND	ND	ND
	Perfluorobutanesulfonic acid (PFBS)	600	--	ND	ND	ND	ND
	Perfluorodecanoic acid (PFDA)	--	--	ND	ND	ND	ND
	Perfluorododecanoic acid (PFDoA)	--	--	ND	ND	ND	ND
	Perfluoroheptanoic acid (PFHpA)	--	--	ND	ND	ND	ND
	Perfluorohexanesulfonic acid (PFHxS)	39	10	ND	ND	ND	ND
	Perfluorohexanoic acid (PFHxA)	990	--	ND	ND	ND	ND
	Perfluorononanoic acid (PFNA)	5.9	10	ND	ND	ND	ND
	Perfluorooctanesulfonic acid (PFOS)	4	4	ND	ND	ND	ND
	Perfluorooctanoic acid (PFOA)	6	4	ND	ND	ND	ND

Summary of Chemistry Results
PFAS Sampling, Red Hill, JBPHH

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			Location ID:	SHFTAIEA-T4-EF			
			Location Type:	Well			
			Field Sample ID:	SHAFT-HW-0018393-25098-N-R08	SHAFT-HW-0018393-25098-3-N-R08	SHAFT-HW-0018393-25098-N-R09	SHAFT-HW-0018393-25098-N-R10
			Sample Date:	2025-04-28	2025-04-28	2025-04-30	2025-05-02
			Sample Type:	N (Normal)	FD (Field Duplicate)	N (Normal)	N (Normal)
Method Group	**Analyte**	**EPA RSL**	**EPA MCL**				
Per- and Polyfluoroalkyl Substances (EPA 537.1) (ppt)	Perfluorotetradecanoic acid (PFTeDA)	--	--	ND	ND	ND	ND
	Perfluorotridecanoic acid (PFTrDA)	--	--	ND	ND	ND	ND
	Perfluoroundecanoic acid (PFUnA)	--	--	ND	ND	ND	ND

The results set forth herein are provided by (b) (4)

e-Hardcopy 2.0
Automated Report



Technical Report for

AECOM, INC.

N6274224F0139 Extended Drinking Water

60729369

(b) (4) Job Number: FC23797

Sampling Date: 04/08/25

Report to:

AECOM, Inc
7595 Technology Way
Denver, CO 80237
(b) (6)

Total number of pages in report: 47

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

(b) (6)
Technical Director

Client Service contact: (b) (6)
(b) (4)

Test results relate only to samples analyzed.

(b) (4)

(b) (4) is the sole authority for authorizing edits or modifications to this document.
Unauthorized modification of this report is strictly prohibited.
Review standard terms at: (b) (4)

Please share your ideas about
how we can serve you better at:
(b) (4)

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(b) (4)

Sample Summary

AECOM, INC.

Job No: FC23797

N6274224F0139 Extended Drinking Water
Project No: 60729369

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FC23797-1	04/08/25	11:04	(b) (6)	04/09/25	DW	Drinking Water	SHAFT-HW-0018384-25098-N
FC23797-1A	04/08/25	11:04	(b) (6)	04/09/25	DW	Drinking Water	SHAFT-HW-0018384-25098-N
FC23797-2	04/08/25	15:10	(b) (6)	04/09/25	DW	Drinking Water	SHAFT-HW-0018393-25098-N
FC23797-2A	04/08/25	15:10	(b) (6)	04/09/25	DW	Drinking Water	SHAFT-HW-0018393-25098-N
FC23797-3	04/08/25	15:08	(b) (6)	04/09/25	DW	Drinking Water	SHAFT-HW-0018394-25098-N
FC23797-3A	04/08/25	15:08	(b) (6)	04/09/25	DW	Drinking Water	SHAFT-HW-0018394-25098-N
FC23797-4	04/08/25	10:20	(b) (6)	04/09/25	DW	Drinking Water FB	SHAFT-FB-250408-25098-N
FC23797-4A	04/08/25	10:20	(b) (6)	04/09/25	DW	Drinking Water FB	SHAFT-FB-250408-25098-N

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC. **Job No:** FC23797

Site: N6274224F0139 Extended Drinking Water **Report Date** 4/18/2025 10:20:51 A

On 04/09/2025, 3 Sample(s), 0 Trip Blank(s), 0 Equip. Blank(s) and 1 Field Blank(s) were received at (b) (4) [redacted]. at a maximum corrected temperature of 5 C. Samples were intact and chemically preserved, unless noted below. A (b) (4) [redacted] Job Number of FC23797 was assigned to the project.

Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section. Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Semi-volatiles By Method EPA 533

Matrix: DW **Batch ID:** OP8808

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) FC23797-1MS, FC23797-2DUP were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

MS Semi-volatiles By Method EPA 537.1 REV 2.0

Matrix: DW **Batch ID:** OP8806

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) FC23797-2AMS, FC23797-3ADUP, FC23797-2AMS were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Blank Spike Recovery(s) for Perfluorotridecanoic acid are outside control limits.
- Matrix Spike Recovery(s) for Perfluorotetradecanoic acid are outside control limits. Probable cause is due to matrix interference.
- Matrix Spike Recovery(s) for Perfluorotetradecanoic acid are outside control limits. Probable cause is due to the ratio of spike to sample concentration < 4.
- RPD(s) for Duplicate for Perfluorooctanesulfonic acid are outside control limits for sample OP8806-DUP. Probable cause is due to sample non-homogeneity.
- Sample(s) FC23797-2A, FC23797-3A, FC23797-4A have surrogates outside control limits.
- FC23797-3A: Confirmation run.
- FC23797-2A: Insufficient sample for re-extraction.
- FC23797-2A: Confirmation run.
- FC23797-4A: Confirmation run.
- FC23797-4A: Insufficient sample for re-extraction.
- FC23797-3A: Insufficient sample for re-extraction.
- FC23797-3A for Perfluorododecanoic acid: Associated ICV and CCV outside control limits high, sample was ND.
- FC23797-4A for Perfluorododecanoic acid: Associated ICV and CCV outside control limits high, sample was ND.
- FC23797-2A for Perfluorododecanoic acid: Associated ICV and CCV outside control limits high, sample was ND.
- OP8806-MB for 13C2-PFDA: Outside control limits.
- OP8806-MB for 13C3-HFPO-DA: Outside control limits.
- OP8806-MB for 13C2-PFHxA: Outside control limits.
- OP8806-MB for 13C2-PFDA: Outside control limits.
- OP8806-BS for 13C2-PFHxA: Outside control limits.
- FC23797-1A for Perfluorododecanoic acid: Associated ICV and CCV outside control limits high, sample was ND.
- OP8806-MB for d5-EtFOSAA: Outside control limits.
- OP8806-MB for 13C2-PFHxA: Outside control limits.
- OP8806-BS for d5-EtFOSAA: Outside control limits.
- OP8806-BS for 13C2-PFHxA: Outside control limits.
- OP8806-MB for d5-EtFOSAA: Outside control limits.
- OP8806-MB for 13C3-HFPO-DA: Outside control limits.

Matrix: DW **Batch ID:** OP8904

- Sample(s) FC23797-1A have surrogates outside control limits.
- FC23797-1A: Confirmation run.

(b) (4) certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted. Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria. (b) (4) is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety.

Summary of Hits

Job Number: FC23797
Account: AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Collected: 04/08/25

3

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
FC23797-1	**SHAFT-HW-0018384-25098-N**					
Perfluorobutanoic acid		0.0041	0.0036	0.0014	ug/l	EPA 533
Perfluoropentanoic acid		0.0102	0.0036	0.0014	ug/l	EPA 533
Perfluorohexanoic acid		0.0081	0.0018	0.0014	ug/l	EPA 533
Perfluoroheptanoic acid		0.0044	0.0018	0.0014	ug/l	EPA 533
Perfluorooctanoic acid		0.0086	0.0018	0.0014	ug/l	EPA 533
Perfluorobutanesulfonic acid		0.0069	0.0018	0.0014	ug/l	EPA 533
Perfluorohexanesulfonic acid		0.0081	0.0018	0.0014	ug/l	EPA 533
Perfluorooctanesulfonic acid		0.0137	0.0018	0.0014	ug/l	EPA 533
FC23797-1A	**SHAFT-HW-0018384-25098-N**					
Perfluorohexanoic acid		0.0049	0.0019	0.0015	ug/l	EPA 537.1 REV 2.0
Perfluoroheptanoic acid		0.0024	0.0019	0.0015	ug/l	EPA 537.1 REV 2.0
Perfluorooctanoic acid		0.0053	0.0019	0.0015	ug/l	EPA 537.1 REV 2.0
Perfluorobutanesulfonic acid		0.0039	0.0019	0.0015	ug/l	EPA 537.1 REV 2.0
Perfluorohexanesulfonic acid		0.0046	0.0019	0.0015	ug/l	EPA 537.1 REV 2.0
Perfluorooctanesulfonic acid		0.0089	0.0019	0.0015	ug/l	EPA 537.1 REV 2.0
FC23797-2	**SHAFT-HW-0018393-25098-N**					
No hits reported in this sample.						
FC23797-2A	**SHAFT-HW-0018393-25098-N**					
No hits reported in this sample.						
FC23797-3	**SHAFT-HW-0018394-25098-N**					
No hits reported in this sample.						
FC23797-3A	**SHAFT-HW-0018394-25098-N**					
Perfluorooctanesulfonic acid [a]		0.0015 J	0.0018	0.0015	ug/l	EPA 537.1 REV 2.0
FC23797-4	**SHAFT-FB-250408-25098-N**					
No hits reported in this sample.						
FC23797-4A	**SHAFT-FB-250408-25098-N**					
No hits reported in this sample.						

(a) Insufficient sample for re-extraction.

Sample Results

Report of Analysis

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018384-25098-N		
Lab Sample ID:	FC23797-1	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water	**Date Received:**	04/09/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3Q101445.D	1	04/11/25 19:43	(b) (6)	04/10/25 09:00	OP8808	S3Q1491
Run #2							

	Initial Volume	Final Volume
Run #1	280 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
375-22-4	Perfluorobutanoic acid	0.0041		0.0036	0.0014	0.00054	ug/l	
2706-90-3	Perfluoropentanoic acid	0.0102		0.0036	0.0014	0.00061	ug/l	
307-24-4	Perfluorohexanoic acid	0.0081		0.0018	0.0014	0.00054	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0044		0.0018	0.0014	0.00061	ug/l	
335-67-1	Perfluorooctanoic acid	0.0086		0.0018	0.0014	0.00054	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00057	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0014 U		0.0018	0.0014	0.00058	ug/l	
307-55-1	Perfluorododecanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0069		0.0018	0.0014	0.00054	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	0.0014 U		0.0018	0.0014	0.00069	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0081		0.0018	0.0014	0.00054	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0137		0.0018	0.0014	0.00054	ug/l	
FLUOROTELOMER SULFONATES								
757124-72-4	4:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.00054	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.0010	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.00054	ug/l	
PER and POLYFLUOROETHER CARBOXYLIC and SULFONIC ACIDS								
377-73-1	PFMPA	0.0014 U		0.0036	0.0014	0.00057	ug/l	
863090-89-5	PFMBA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
151772-58-6	NFDHA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
113507-82-7	PFEESA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
13252-13-6	HFPO-DA (GenX)	0.0018 U		0.0036	0.0018	0.00089	ug/l	
919005-14-4	ADONA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0014 U		0.0036	0.0014	0.00054	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0014 U		0.0036	0.0014	0.00061	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 141) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018384-25098-N		
Lab Sample ID:	FC23797-1	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water	**Date Received:**	04/09/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	69%		50-200%
	13C5-PFPeA	71%		50-200%
	13C5-PFHxA	67%		50-200%
	13C4-PFHpA	68%		50-200%
	13C8-PFOA	68%		50-200%
	13C9-PFNA	66%		50-200%
	13C6-PFDA	65%		50-200%
	13C7-PFUnDA	56%		50-200%
	13C2-PFDoDA	51%		50-200%
	13C3-PFBS	68%		50-200%
	13C3-PFHxS	68%		50-200%
	13C8-PFOS	66%		50-200%
	13C2-4:2FTS	62%		50-200%
	13C2-6:2FTS	64%		50-200%
	13C2-8:2FTS	59%		50-200%
	13C3-HFPO-DA	74%		50-200%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

4.2.4

Client Sample ID:	SHAFT-HW-0018384-25098-N		
Lab Sample ID:	FC23797-1A	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water	**Date Received:**	04/09/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5Q31702.D	1	04/11/25 15:17	(b) (4)	04/10/25 09:00	OP8806	S5Q519
Run #2 [a]	5Q31834.D	1	04/17/25 16:29	(b) (4)	04/16/25 08:30	OP8904	S5Q523

	Initial Volume	Final Volume
Run #1	270 ml	1.0 ml
Run #2	280 ml	1.0 ml

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
307-24-4	Perfluorohexanoic acid	0.0049		0.0019	0.0015	0.00074	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0024		0.0019	0.0015	0.00074	ug/l	
335-67-1	Perfluorooctanoic acid	0.0053		0.0019	0.0015	0.00074	ug/l	
375-95-1	Perfluorononanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
335-76-2	Perfluorodecanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
307-55-1	Perfluorododecanoic acid [b]	0.0015 U		0.0019	0.0015	0.00074	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0039		0.0019	0.0015	0.00074	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0046		0.0019	0.0015	0.00074	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0089		0.0019	0.0015	0.00074	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS								
2355-31-9	MeFOSAA	0.0019 U		0.0037	0.0019	0.00093	ug/l	
2991-50-6	EtFOSAA	0.0019 U		0.0037	0.0019	0.00093	ug/l	
NEXT GENERATION PFAS ANALYTES								
13252-13-6	HFPO-DA (GenX)	0.0056 U		0.0074	0.0056	0.0028	ug/l	
919005-14-4	ADONA	0.0037 U		0.0074	0.0037	0.0019	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0037 U		0.0074	0.0037	0.0019	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0037 U		0.0074	0.0037	0.0019	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	128%	139% [c]	70-130%
	13C2-PFDA	124%	132% [c]	70-130%
	d5-EtFOSAA	129%	128%	70-130%
	13C3-HFPO-DA	126%	130%	70-130%

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MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018384-25098-N		
Lab Sample ID:	FC23797-1A	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water	**Date Received:**	04/09/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

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Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q

(a) Confirmation run.
(b) Associated ICV and CCV outside control limits high, sample was ND.
(c) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018393-25098-N		
Lab Sample ID:	FC23797-2	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water	**Date Received:**	04/09/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3Q101447.D	1	04/11/25 20:16	(b) (6)	04/10/25 09:00	OP8808	S3Q1491
Run #2							

	Initial Volume	Final Volume
Run #1	280 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
375-22-4	Perfluorobutanoic acid	0.0014 U		0.0036	0.0014	0.00054	ug/l	
2706-90-3	Perfluoropentanoic acid	0.0014 U		0.0036	0.0014	0.00061	ug/l	
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00061	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00057	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0014 U		0.0018	0.0014	0.00058	ug/l	
307-55-1	Perfluorododecanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	0.0014 U		0.0018	0.0014	0.00069	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
FLUOROTELOMER SULFONATES								
757124-72-4	4:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.00054	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.0010	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.00054	ug/l	
PER and POLYFLUOROETHER CARBOXYLIC and SULFONIC ACIDS								
377-73-1	PFMPA	0.0014 U		0.0036	0.0014	0.00057	ug/l	
863090-89-5	PFMBA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
151772-58-6	NFDHA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
113507-82-7	PFEESA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
13252-13-6	HFPO-DA (GenX)	0.0018 U		0.0036	0.0018	0.00089	ug/l	
919005-14-4	ADONA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0014 U		0.0036	0.0014	0.00054	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0014 U		0.0036	0.0014	0.00061	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 141) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018393-25098-N		
Lab Sample ID:	FC23797-2	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water	**Date Received:**	04/09/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	70%		50-200%
	13C5-PFPeA	71%		50-200%
	13C5-PFHxA	70%		50-200%
	13C4-PFHpA	71%		50-200%
	13C8-PFOA	69%		50-200%
	13C9-PFNA	67%		50-200%
	13C6-PFDA	65%		50-200%
	13C7-PFUnDA	56%		50-200%
	13C2-PFDoDA	51%		50-200%
	13C3-PFBS	70%		50-200%
	13C3-PFHxS	71%		50-200%
	13C8-PFOS	65%		50-200%
	13C2-4:2FTS	65%		50-200%
	13C2-6:2FTS	64%		50-200%
	13C2-8:2FTS	60%		50-200%
	13C3-HFPO-DA	69%		50-200%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018393-25098-N		
Lab Sample ID:	FC23797-2A	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water	**Date Received:**	04/09/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5Q31703.D	1	04/11/25 15:34	(b) (4)	04/10/25 09:00	OP8806	S5Q519
Run #2 [b]	5Q31747.D	1	04/14/25 14:50	(b) (4)	04/10/25 09:00	OP8806	S5Q520

	Initial Volume	Final Volume
Run #1	285 ml	1.0 ml
Run #2	285 ml	1.0 ml

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
307-55-1	Perfluorododecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00070	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS								
2355-31-9	MeFOSAA	0.0018 U		0.0035	0.0018	0.00088	ug/l	
2991-50-6	EtFOSAA	0.0018 U		0.0035	0.0018	0.00088	ug/l	
NEXT GENERATION PFAS ANALYTES								
13252-13-6	HFPO-DA (GenX)	0.0053 U		0.0070	0.0053	0.0026	ug/l	
919005-14-4	ADONA	0.0035 U		0.0070	0.0035	0.0018	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0035 U		0.0070	0.0035	0.0018	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0035 U		0.0070	0.0035	0.0018	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	113%	112%	70-130%
	13C2-PFDA	124%	120%	70-130%
	d5-EtFOSAA	134% [d]	118%	70-130%
	13C3-HFPO-DA	114%	116%	70-130%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018393-25098-N		
Lab Sample ID:	FC23797-2A	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water	**Date Received:**	04/09/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Associated ICV and CCV outside control limits high, sample was ND.
(d) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

4.5
4

Client Sample ID:	SHAFT-HW-0018394-25098-N		
Lab Sample ID:	FC23797-3	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water	**Date Received:**	04/09/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3Q101449.D	1	04/11/25 20:48	(b) (6)	04/10/25 09:00	OP8808	S3Q1491
Run #2							

	Initial Volume	Final Volume
Run #1	265 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
375-22-4	Perfluorobutanoic acid	0.0015 U		0.0038	0.0015	0.00057	ug/l	
2706-90-3	Perfluoropentanoic acid	0.0015 U		0.0038	0.0015	0.00065	ug/l	
307-24-4	Perfluorohexanoic acid	0.0015 U		0.0019	0.0015	0.00057	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0015 U		0.0019	0.0015	0.00064	ug/l	
335-67-1	Perfluorooctanoic acid	0.0015 U		0.0019	0.0015	0.00057	ug/l	
375-95-1	Perfluorononanoic acid	0.0015 U		0.0019	0.0015	0.00057	ug/l	
335-76-2	Perfluorodecanoic acid	0.0015 U		0.0019	0.0015	0.00060	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0015 U		0.0019	0.0015	0.00062	ug/l	
307-55-1	Perfluorododecanoic acid	0.0015 U		0.0019	0.0015	0.00057	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0015 U		0.0019	0.0015	0.00057	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	0.0015 U		0.0019	0.0015	0.00072	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0015 U		0.0019	0.0015	0.00057	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	0.0015 U		0.0019	0.0015	0.00057	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0015 U		0.0019	0.0015	0.00057	ug/l	
FLUOROTELOMER SULFONATES								
757124-72-4	4:2 Fluorotelomer sulfonate	0.0015 U		0.0038	0.0015	0.00057	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0015 U		0.0038	0.0015	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0015 U		0.0038	0.0015	0.00057	ug/l	
PER and POLYFLUOROETHER CARBOXYLIC and SULFONIC ACIDS								
377-73-1	PFMPA	0.0015 U		0.0038	0.0015	0.00060	ug/l	
863090-89-5	PFMBA	0.0015 U		0.0038	0.0015	0.00057	ug/l	
151772-58-6	NFDHA	0.0015 U		0.0038	0.0015	0.00057	ug/l	
113507-82-7	PFEESA	0.0015 U		0.0038	0.0015	0.00057	ug/l	
13252-13-6	HFPO-DA (GenX)	0.0019 U		0.0038	0.0019	0.00094	ug/l	
919005-14-4	ADONA	0.0015 U		0.0038	0.0015	0.00057	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0015 U		0.0038	0.0015	0.00057	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0015 U		0.0038	0.0015	0.00064	ug/l	

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

4.5
4

Client Sample ID:	SHAFT-HW-0018394-25098-N		
Lab Sample ID:	FC23797-3	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water	**Date Received:**	04/09/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	73%		50-200%
	13C5-PFPeA	75%		50-200%
	13C5-PFHxA	73%		50-200%
	13C4-PFHpA	74%		50-200%
	13C8-PFOA	73%		50-200%
	13C9-PFNA	71%		50-200%
	13C6-PFDA	69%		50-200%
	13C7-PFUnDA	61%		50-200%
	13C2-PFDoDA	53%		50-200%
	13C3-PFBS	75%		50-200%
	13C3-PFHxS	76%		50-200%
	13C8-PFOS	69%		50-200%
	13C2-4:2FTS	68%		50-200%
	13C2-6:2FTS	68%		50-200%
	13C2-8:2FTS	63%		50-200%
	13C3-HFPO-DA	74%		50-200%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

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4

Client Sample ID:	SHAFT-HW-0018394-25098-N		
Lab Sample ID:	FC23797-3A	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water	**Date Received:**	04/09/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5Q31705.D	1	04/11/25 16:06	(b) (4)	04/10/25 09:00	OP8806	S5Q519
Run #2 [b]	5Q31749.D	1	04/14/25 15:22	(b) (4)	04/10/25 09:00	OP8806	S5Q520

	Initial Volume	Final Volume
Run #1	275 ml	1.0 ml
Run #2	275 ml	1.0 ml

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
307-24-4	Perfluorohexanoic acid	0.0015 U		0.0018	0.0015	0.00073	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0015 U		0.0018	0.0015	0.00073	ug/l	
335-67-1	Perfluorooctanoic acid	0.0015 U		0.0018	0.0015	0.00073	ug/l	
375-95-1	Perfluorononanoic acid	0.0015 U		0.0018	0.0015	0.00073	ug/l	
335-76-2	Perfluorodecanoic acid	0.0015 U		0.0018	0.0015	0.00073	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0015 U		0.0018	0.0015	0.00073	ug/l	
307-55-1	Perfluorododecanoic acid [c]	0.0015 U		0.0018	0.0015	0.00073	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0015 U		0.0018	0.0015	0.00073	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0015 U		0.0018	0.0015	0.00073	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0015 U		0.0018	0.0015	0.00073	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0015 U		0.0018	0.0015	0.00073	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0015		0.0018	0.0015	0.00073	ug/l	J
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS								
2355-31-9	MeFOSAA	0.0018 U		0.0036	0.0018	0.00091	ug/l	
2991-50-6	EtFOSAA	0.0018 U		0.0036	0.0018	0.00091	ug/l	
NEXT GENERATION PFAS ANALYTES								
13252-13-6	HFPO-DA (GenX)	0.0055 U		0.0073	0.0055	0.0027	ug/l	
919005-14-4	ADONA	0.0036 U		0.0073	0.0036	0.0018	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0036 U		0.0073	0.0036	0.0018	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0036 U		0.0073	0.0036	0.0018	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	133% [d]	131% [d]	70-130%
	13C2-PFDA	128%	124%	70-130%
	d5-EtFOSAA	138% [d]	125%	70-130%
	13C3-HFPO-DA	127%	123%	70-130%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 141) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018394-25098-N		
Lab Sample ID:	FC23797-3A	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water	**Date Received:**	04/09/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

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4

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Associated ICV and CCV outside control limits high, sample was ND.
(d) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-FB-250408-25098-N		
Lab Sample ID:	FC23797-4	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water FB	**Date Received:**	04/09/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3Q101450.D	1	04/11/25 21:04	(b) (6)	04/10/25 09:00	OP8808	S3Q1491
Run #2							

	Initial Volume	Final Volume
Run #1	260 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
375-22-4	Perfluorobutanoic acid	0.0015 U		0.0038	0.0015	0.00058	ug/l	
2706-90-3	Perfluoropentanoic acid	0.0015 U		0.0038	0.0015	0.00066	ug/l	
307-24-4	Perfluorohexanoic acid	0.0015 U		0.0019	0.0015	0.00058	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0015 U		0.0019	0.0015	0.00065	ug/l	
335-67-1	Perfluorooctanoic acid	0.0015 U		0.0019	0.0015	0.00058	ug/l	
375-95-1	Perfluorononanoic acid	0.0015 U		0.0019	0.0015	0.00058	ug/l	
335-76-2	Perfluorodecanoic acid	0.0015 U		0.0019	0.0015	0.00062	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0015 U		0.0019	0.0015	0.00063	ug/l	
307-55-1	Perfluorododecanoic acid	0.0015 U		0.0019	0.0015	0.00058	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0015 U		0.0019	0.0015	0.00058	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0015 U		0.0019	0.0015	0.00058	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	0.0015 U		0.0019	0.0015	0.00058	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0015 U		0.0019	0.0015	0.00058	ug/l	
FLUOROTELOMER SULFONATES								
757124-72-4	4:2 Fluorotelomer sulfonate	0.0015 U		0.0038	0.0015	0.00058	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0015 U		0.0038	0.0015	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0015 U		0.0038	0.0015	0.00058	ug/l	
PER and POLYFLUOROETHER CARBOXYLIC and SULFONIC ACIDS								
377-73-1	PFMPA	0.0015 U		0.0038	0.0015	0.00062	ug/l	
863090-89-5	PFMBA	0.0015 U		0.0038	0.0015	0.00058	ug/l	
151772-58-6	NFDHA	0.0015 U		0.0038	0.0015	0.00058	ug/l	
113507-82-7	PFEESA	0.0015 U		0.0038	0.0015	0.00058	ug/l	
13252-13-6	HFPO-DA (GenX)	0.0019 U		0.0038	0.0019	0.00096	ug/l	
919005-14-4	ADONA	0.0015 U		0.0038	0.0015	0.00058	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0015 U		0.0038	0.0015	0.00058	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0015 U		0.0038	0.0015	0.00065	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value

MCL = Maximum Contamination Level (40 CFR 141) B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

4.7.4

Client Sample ID:	SHAFT-FB-250408-25098-N		
Lab Sample ID:	FC23797-4	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water FB	**Date Received:**	04/09/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	70%		50-200%
	13C5-PFPeA	71%		50-200%
	13C5-PFHxA	69%		50-200%
	13C4-PFHpA	70%		50-200%
	13C8-PFOA	69%		50-200%
	13C9-PFNA	67%		50-200%
	13C6-PFDA	66%		50-200%
	13C7-PFUnDA	54%		50-200%
	13C2-PFDoDA	50%		50-200%
	13C3-PFBS	70%		50-200%
	13C3-PFHxS	71%		50-200%
	13C8-PFOS	63%		50-200%
	13C2-4:2FTS	65%		50-200%
	13C2-6:2FTS	65%		50-200%
	13C2-8:2FTS	58%		50-200%
	13C3-HFPO-DA	72%		50-200%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-FB-250408-25098-N		
Lab Sample ID:	FC23797-4A	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water FB	**Date Received:**	04/09/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5Q31707.D	1	04/11/25 16:38	(b) (4)	04/10/25 09:00	OP8806	S5Q519
Run #2 [b]	5Q31751.D	1	04/14/25 15:54	(b) (4)	04/10/25 09:00	OP8806	S5Q520

	Initial Volume	Final Volume
Run #1	270 ml	1.0 ml
Run #2	270 ml	1.0 ml

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
307-24-4	Perfluorohexanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
335-67-1	Perfluorooctanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
375-95-1	Perfluorononanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
335-76-2	Perfluorodecanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
307-55-1	Perfluorododecanoic acid [c]	0.0015 U		0.0019	0.0015	0.00074	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS								
2355-31-9	MeFOSAA	0.0019 U		0.0037	0.0019	0.00093	ug/l	
2991-50-6	EtFOSAA	0.0019 U		0.0037	0.0019	0.00093	ug/l	
NEXT GENERATION PFAS ANALYTES								
13252-13-6	HFPO-DA (GenX)	0.0056 U		0.0074	0.0056	0.0028	ug/l	
919005-14-4	ADONA	0.0037 U		0.0074	0.0037	0.0019	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0037 U		0.0074	0.0037	0.0019	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0037 U		0.0074	0.0037	0.0019	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	149% [d]	148% [d]	70-130%
	13C2-PFDA	144% [d]	137% [d]	70-130%
	d5-EtFOSAA	153% [d]	130%	70-130%
	13C3-HFPO-DA	143% [d]	136% [d]	70-130%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-FB-250408-25098-N		
Lab Sample ID:	FC23797-4A	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water FB	**Date Received:**	04/09/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Associated ICV and CCV outside control limits high, sample was ND.
(d) Outside control limits.

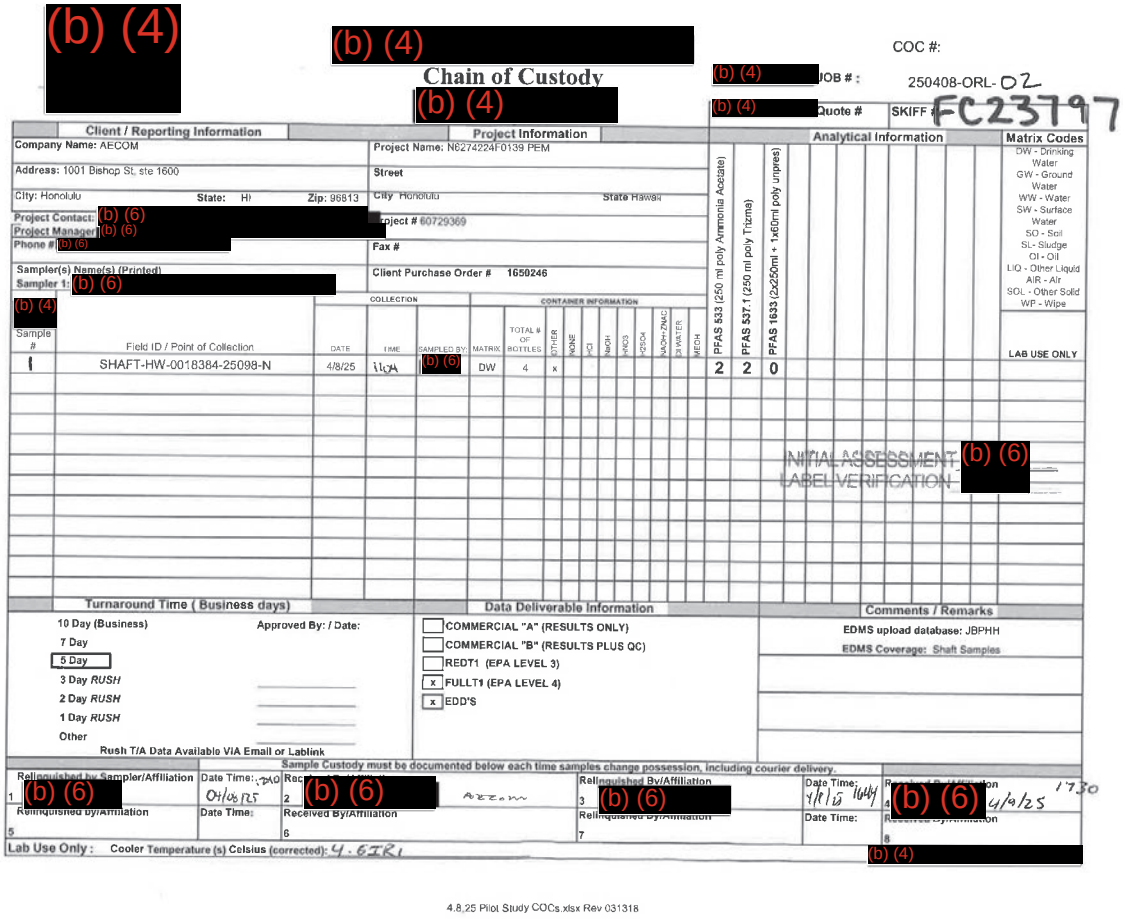
U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5.x Limits



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Chain of Custody

[redacted]

COC #:

[redacted] JOB # : 250408-ORL-02

[redacted] Quote # SKIFF # FC23797

Client / Reporting Information	Project Information
Company Name: AECOM	Project Name: N6274224F0139 PEM
Address: 1001 Bishop St, ste 1600	Street
City: Honolulu State: HI Zip: 96813	City Honolulu State Hawaii
Project Contact: [redacted]	Project # 60729369
Project Manager: [redacted]	
Phone # [redacted]	Fax #
Sampler(s) Name(s) (Printed)	Client Purchase Order # 1650246
Sampler 1: [redacted]	

[redacted]

Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NAOH+ZNAC	DI WATER	MEOH	PFAS 533 (250 ml poly Ammonia Acetate)	PFAS 537.1 (250 ml poly Trizma)	PFAS 1633 (2x250ml + 1x60ml poly unpres)	LAB USE ONLY
1	SHAFT-HW-0018384-25098-N	4/8/25	1104	[redacted]	DW	4	x									2	2	0	

Analytical Information

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL - Sludge; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe

INITIAL ASSESSMENT [redacted]
LABEL VERIFICATION

Turnaround Time (Business days)

10 Day (Business) Approved By: / Date:
7 Day
5 Day
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH*
Other
Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [x] FULLT1 (EPA LEVEL 4)
- [x] EDD'S

Comments / Remarks

EDMS upload database: JBPHH
EDMS Coverage: Shaft Samples

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1 [redacted]	04/08/25 1240	2 [redacted] AECOM	3 [redacted]	4/8/25 1644	4 [redacted] 4/9/25 1730
5		6	7		8

Lab Use Only : Cooler Temperature (s) Celsius (corrected): 4.6IR1

[redacted]

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FC23797: Chain of Custody
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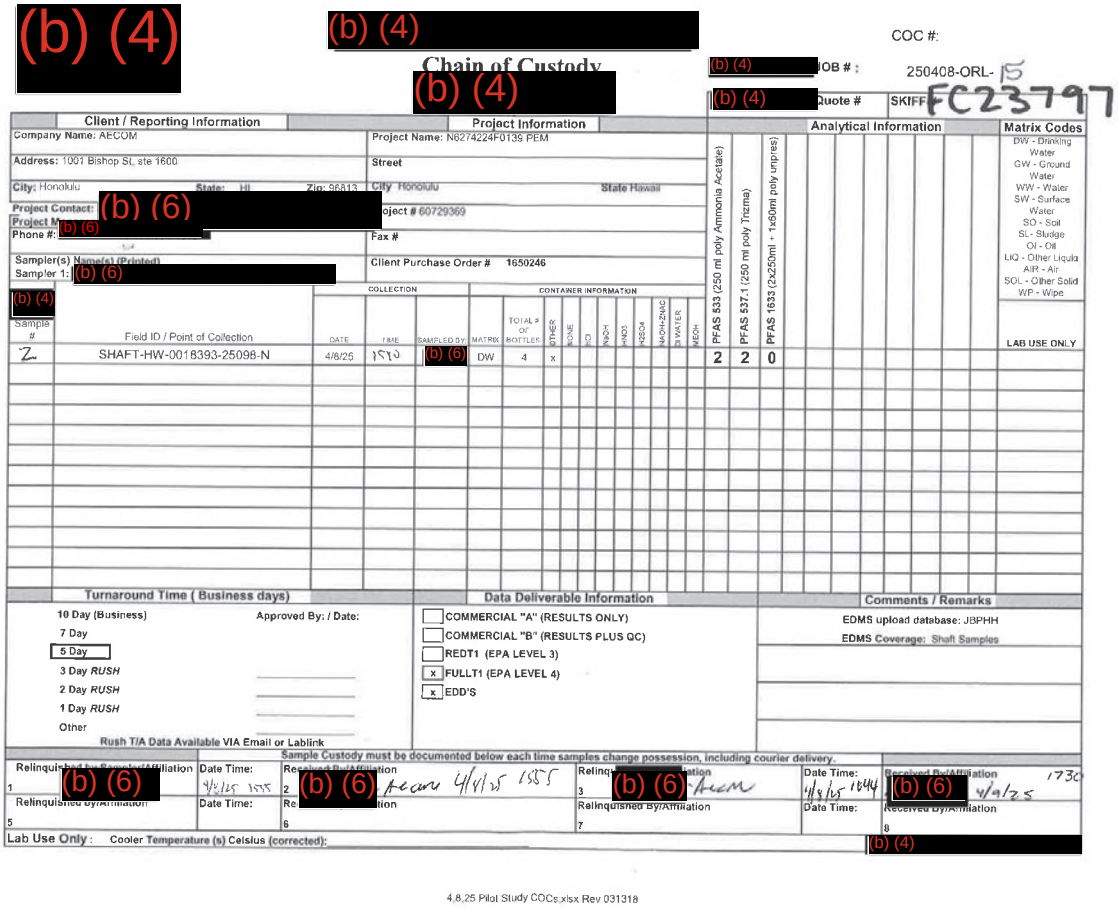

Chain of Custody

COC #:

JOB #: 250408-ORL-15

Quote #: SKIFF FC23797

Client / Reporting Information	Project Information
Company Name: AECOM	Project Name: N6274224F0139 PEM
Address: 1001 Bishop St, ste 1600	Street
City: Honolulu State: HI Zip: 96813	City: Honolulu State: Hawaii
Project Contact: (b) (6)	Project # 60729369
Phone #: (b) (6)	Fax #
Sampler(s) Name(s) (Printed)	Client Purchase Order # 1650246
Sampler 1: (b) (6)	

Sample #	Field ID / Point of Collection	Collection: Date	Collection: Time	Collection: Sampled By	Container Information: Matrix	Container Information: Total # of Bottles	Container Information: Other	Container Information: None	Container Information: HCl	Container Information: HNO3	Container Information: H2SO4	Container Information: NaOH+ZnAc	Container Information: D.I. Water	Container Information: MeOH	PFAS 533 (250 ml poly Ammonia Acetate)	PFAS 537.1 (250 ml poly Trizma)	PFAS 1633 (2x250ml + 1x60ml poly unpres)	Lab Use Only
2	SHAFT-HW-0018393-25098-N	4/8/25	1530	(b) (6)	DW	4	x								2	2	0	

Turnaround Time (Business days)

- 10 Day (Business)
- 7 Day
- 5 Day
- 3 Day *RUSH*
- 2 Day *RUSH*
- 1 Day *RUSH*
- Other

Approved By: / Date:

Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [x] FULLT1 (EPA LEVEL 4)
- [x] EDD'S

Comments / Remarks

EDMS upload database: JBPHH

EDMS Coverage: Shaft Samples

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL - Sludge
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe

LAB USE ONLY

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by/Affiliation	Date Time:	Received By/Affiliation
1	(b) (6)	4/8/25 1535	2 (b) (6) Aecom 4/8/25 1535
3	(b) (6) Aecom	4/8/25 1644	(b) (6) 4/9/25 1730
5	Relinquished by/Affiliation	Date Time:	6 Received By/Affiliation
7	Relinquished By/Affiliation	Date Time:	8 Received By/Affiliation

Lab Use Only: Cooler Temperature (s) Celsius (corrected):

(b) (4)

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FC23797: Chain of Custody
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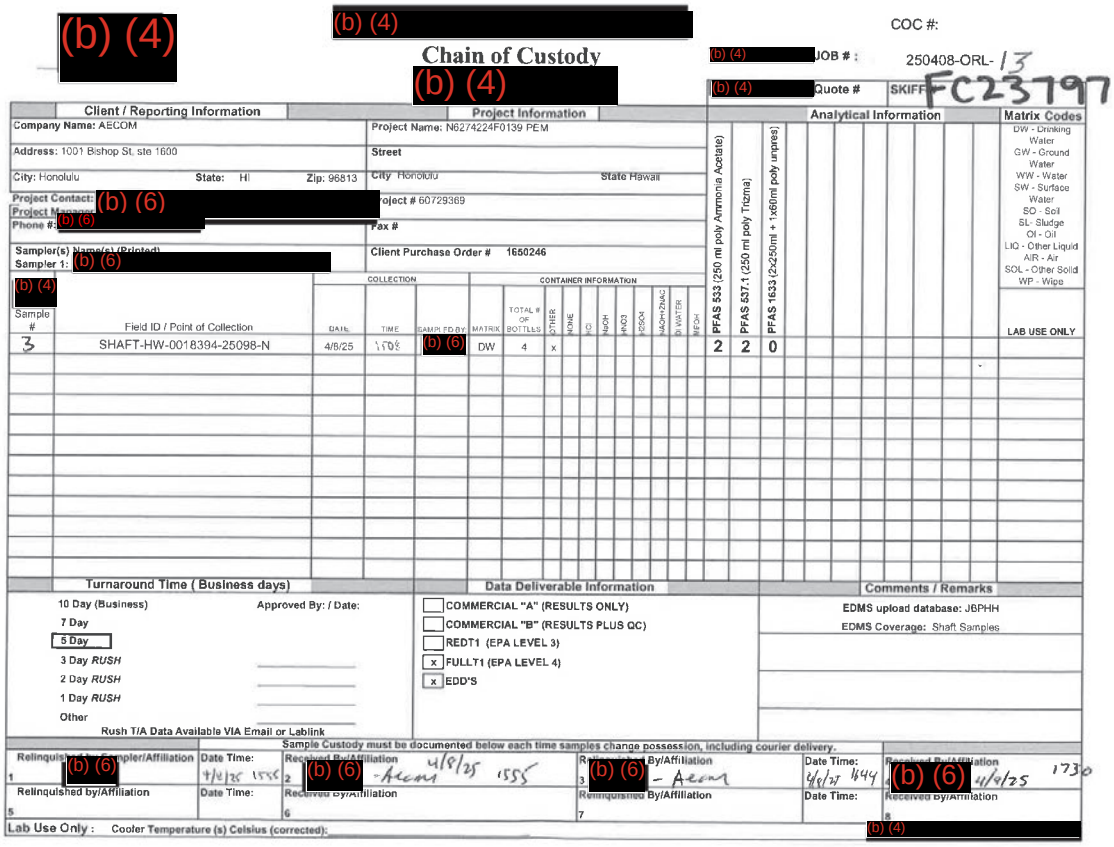

Chain of Custody

COC #:

(b) (4) JOB #: 250408-ORL-13

(b) (4) Quote #: SKIFF FC23797

Client / Reporting Information

Company Name: AECOM
Address: 1001 Bishop St, ste 1600
City: Honolulu State: HI Zip: 96813
Project Contact: (b) (6)
Project Manager: (b) (6)
Phone #: (b) (6)
Sampler(s) Name(s) (Printed)
Sampler 1: (b) (6)

Project Information

Project Name: N6274224F0139 PEM
Street
City: Honolulu State: Hawaii
Project # 60729369
Fax #
Client Purchase Order # 1650246

Analytical Information

Sample #	Field ID / Point of Collection	Collection Date	Collection Time	Sampled By	Matrix	Total # of Bottles	Container Information: Other	None	HCl	NaOH	HNO3	H2SO4	NaOH+ZnAc	DI Water	MeOH	PFAS 533 (250 ml poly Ammonia Acetate)	PFAS 537.1 (250 ml poly Trizma)	PFAS 1633 (2-250ml + 1x60ml poly unpres)	LAB USE ONLY
(b) (4)																			
3	SHAFT-HW-0018394-25098-N	4/8/25	1508	(b) (6)	DW	4		x								2	2	0	

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL - Sludge
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe

Turnaround Time (Business days)

10 Day (Business) Approved By: / Date:
7 Day
5 Day
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH*
Other
Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [x] FULLT1 (EPA LEVEL 4)
- [x] EDD'S

Comments / Remarks

EDMS upload database: JBPHH
EDMS Coverage: Shaft Samples

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by/Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1	(b) (6)	4/8/25 1555	2 (b) (6) - Aecom 4/8/25 1555	3 (b) (6) - Aecom	4/8/25 1644	4 (b) (6) 4/9/25 1730
5	Relinquished by/Affiliation	Date Time:	6 Received By/Affiliation	7 Relinquished By/Affiliation	Date Time:	8 Received By/Affiliation

Lab Use Only : Cooler Temperature (s) Celsius (corrected):

(b) (4)

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FC23797: Chain of Custody
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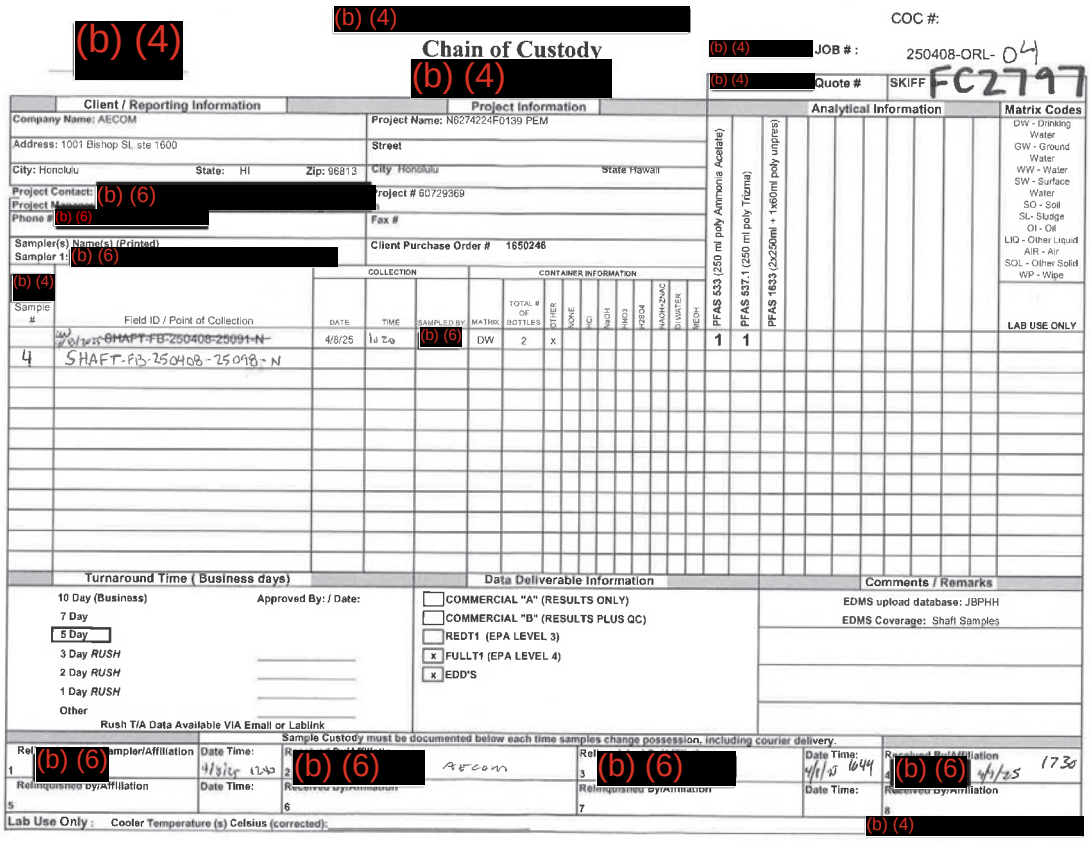

Chain of Custody

COC #:

JOB #: 250408-ORL- 04

Quote # SKIFF FC23797

Client / Reporting Information	Project Information
Company Name: AECOM	Project Name: N6274224F0139 PEM
Address: 1001 Bishop St, ste 1600	Street
City: Honolulu State: HI Zip: 96813	City Honolulu State Hawaii
Project Contact: (b) (6)	Project # 60729369
Project Manager:	
Phone # (b) (6)	Fax #
Sampler(s) Name(s) (Printed):	Client Purchase Order # 1650246
Sampler 1: (b) (6)	

Sample #	Field ID / Point of Collection	Collection: Date	Collection: Time	Collection: Sampled By	Container Information: Matrix	Total # of Bottles	Other	None	HCl	NaOH	HNO3	H2SO4	NaOH+ZnAc	DI Water	MeOH	Analytical Information: PFAS 533 (250 ml poly Ammonia Acetate)	PFAS 537.1 (250 ml poly Trizma)	PFAS 1633 (2x250ml + 1x60ml poly unpres)	Matrix Codes	Lab Use Only
	~~4/8/25 SHAFT-FB-250408-25091-N~~	4/8/25	1020	(b) (6)	DW	2	X									1	1		DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL - Sludge; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe	
4	SHAFT-FB-250408-25098-N																			

Turnaround Time (Business days)	Data Deliverable Information	Comments / Remarks
10 Day (Business) Approved By: / Date:	☐ COMMERCIAL "A" (RESULTS ONLY)	EDMS upload database: JBPHH
7 Day	☐ COMMERCIAL "B" (RESULTS PLUS QC)	EDMS Coverage: Shaft Samples
☐ 5 Day	☐ REDT1 (EPA LEVEL 3)	
3 Day *RUSH*	☒ FULLT1 (EPA LEVEL 4)	
2 Day *RUSH*	☒ EDD'S	
1 Day *RUSH*		
Other		
Rush T/A Data Available VIA Email or Lablink		

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by/Affiliation	Date Time:	Received by/Affiliation	Relinquished by/Affiliation	Date Time:	Received by/Affiliation
1	(b) (6)	4/8/25 1240	2 (b) (6) AECOM	3 (b) (6)	Date Time: 4/11/25 1644	4 (b) (6) 4/11/25 1730
5	Relinquished by/Affiliation	Date Time:	6 Received by/Affiliation	7 Relinquished by/Affiliation	Date Time:	8 Received by/Affiliation

Lab Use Only: Cooler Temperature (s) Celsius (corrected):

(b) (4)

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FC23797: Chain of Custody
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(b) (4) Sample Receipt Summary

Job Number: fc23797 **Client:** AECOM **Project:** N6274224F0139 Extended Drinking Water

Date / Time Received: 4/9/2025 5:30:00 PM **Delivery Method:** United Cargo/Airspace **Airbill #'s:** United Cargo AWB #: 016-66358596

Cooler Temps (Raw Measured) °C: Cooler 1: (4.6);

Cooler Temps (Corrected) °C: Cooler 1: (5.0);

Cooler Informatio	Y	or	N
1. Custody Seals Present:	☑		☐
2. Custody Seals Intact:	☑		☐
3. Temp criteria achieved:	☑		☐
4. Cooler temp verification:	IR Gun		
5. Cooler media:	Ice (Bag)		

Trip Blank Information	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑

	W	or	S	N/A
3. Type of TB Received	☐		☐	☑

Sample Information	Y	or	N	N/A
1. Sample labels present on bottles:	☑		☐	
2. Samples presented properly	☑		☐	
3. Sufficient volume/containers recv'd for analysi	☑		☐	
4. Condition of sample:	Intact			
5. Sample recv'd within HT	☑		☐	
6. Dates/Times/IDs on COC match sample labe	☑		☐	
7. VOCs have headspace	☐		☐	☑
8. Bottles received for unspecified tests	☐		☑	
9. Compositing instructions clear	☐		☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☑
11. % Solids Jar Received?	☐		☐	☑
12. Residual Chlorine Present?	☐		☐	☑

Misc Information

Number of Encores: 25 Gram 5 Gram

Test Strip Lot #s: pH 0-3: 226422 pH 10-12: Number of Lab Filtered Metals Other: (Specify) 0-14 210224

Residual Chlorine Test Strip Lot

Comments

Sample Receipt Summary 112723 EK Technician: (b) (6) Date: 4/9/2025 5:37:41 PM Reviewer: (b) (6) Date: 04/09/25

QC Evaluation: DOD QSM5.x Limits

Job Number: FC23797
Account: AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Collected: 04/08/25

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits

No DOD QSM5.x Limits found for methods in this job.

* Sample used for QC is not from job FC23797

MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Instrument Blank

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q1491-IBLK	3Q101438.D	1	04/11/25	(b) (6)	n/a	n/a	S3Q1491

The QC reported here applies to the following samples: **Method:** EPA 533

FC23797-1, FC23797-2, FC23797-3, FC23797-4

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.00060	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.00068	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00060	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00068	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00060	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00060	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00064	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00065	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00060	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.00077	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00060	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.00060	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00060	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0040	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
377-73-1	PFMPA	ND	0.0040	0.00064	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.00060	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.00060	ug/l	
113507-82-7	PFEESA	ND	0.0040	0.00060	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0040	0.00060	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0040	0.00060	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0040	0.00068	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	102%	50-200%
	13C5-PFPeA	102%	50-200%
	13C5-PFHxA	100%	50-200%
	13C4-PFHpA	101%	50-200%
	13C8-PFOA	102%	50-200%
	13C9-PFNA	102%	50-200%
	13C6-PFDA	102%	50-200%

Instrument Blank

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q1491-IBLK	3Q101438.D	1	04/11/25	(b) (6)	n/a	n/a	S3Q1491

The QC reported here applies to the following samples: **Method:** EPA 533

FC23797-1, FC23797-2, FC23797-3, FC23797-4

CAS No.	ID Standard Recoveries		Limits
	13C7-PFUnDA	102%	50-200%
	13C2-PFDoDA	102%	50-200%
	13C3-PFBS	101%	50-200%
	13C3-PFHxS	102%	50-200%
	13C8-PFOS	102%	50-200%
	13C2-4:2FTS	94%	50-200%
	13C2-6:2FTS	96%	50-200%
	13C2-8:2FTS	95%	50-200%
	13C3-HFPO-DA	92%	50-200%

Method Blank Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8808-MB	3Q101444.D	1	04/11/25	(b) (6)	04/10/25	OP8808	S3Q1491

The QC reported here applies to the following samples: **Method:** EPA 533

FC23797-1, FC23797-2, FC23797-3, FC23797-4

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.00060	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.00068	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00060	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00068	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00060	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00060	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00064	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00065	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00060	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.00077	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00060	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.00060	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00060	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0040	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
377-73-1	PFMPA	ND	0.0040	0.00064	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.00060	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.00060	ug/l	
113507-82-7	PFEESA	ND	0.0040	0.00060	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0040	0.00060	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0040	0.00060	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0040	0.00068	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	79%	50-200%
	13C5-PFPeA	80%	50-200%
	13C5-PFHxA	78%	50-200%
	13C4-PFHpA	79%	50-200%
	13C8-PFOA	79%	50-200%
	13C9-PFNA	77%	50-200%
	13C6-PFDA	77%	50-200%

Method Blank Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8808-MB	3Q101444.D	1	04/11/25	(b) (6)	04/10/25	OP8808	S3Q1491

The QC reported here applies to the following samples: **Method:** EPA 533

FC23797-1, FC23797-2, FC23797-3, FC23797-4

CAS No.	ID Standard Recoveries		Limits
	13C7-PFUnDA	72%	50-200%
	13C2-PFDoDA	67%	50-200%
	13C3-PFBS	79%	50-200%
	13C3-PFHxS	80%	50-200%
	13C8-PFOS	79%	50-200%
	13C2-4:2FTS	71%	50-200%
	13C2-6:2FTS	73%	50-200%
	13C2-8:2FTS	68%	50-200%
	13C3-HFPO-DA	77%	50-200%

Method Blank Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8806-MB	5Q31701.D	1	04/11/25	(b)(4)	04/10/25	OP8806	S5Q519

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23797-1A, FC23797-2A, FC23797-3A, FC23797-4A

CAS No.	Compound	Result	RL	MDL	Units	Q
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00080	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00080	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00080	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00080	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00080	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00080	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00080	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0020	0.00080	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0020	0.00080	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00080	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00080	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00080	ug/l	
2355-31-9	MeFOSAA	ND	0.0040	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0040	0.0010	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0080	0.0030	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

CAS No.	Surrogate Recoveries		Limits
	13C2-PFHxA	140%* [a]	70-130%
	13C2-PFDA	134%* [a]	70-130%
	d5-EtFOSAA	136%* [a]	70-130%
	13C3-HFPO-DA	137%* [a]	70-130%

(a) Outside control limits.

Method Blank Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8806-MB	5Q31745.D	1	04/14/25	[redacted]	04/10/25	OP8806	S5Q520

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23797-1A, FC23797-2A, FC23797-3A, FC23797-4A

CAS No.	Compound	Result	RL	MDL	Units	Q
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00080	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00080	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00080	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00080	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00080	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00080	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00080	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0020	0.00080	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0020	0.00080	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00080	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00080	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00080	ug/l	
2355-31-9	MeFOSAA	ND	0.0040	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0040	0.0010	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0080	0.0030	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

CAS No.	Surrogate Recoveries		Limits
	13C2-PFHxA	143%* [a]	70-130%
	13C2-PFDA	135%* [a]	70-130%
	d5-EtFOSAA	138%* [a]	70-130%
	13C3-HFPO-DA	137%* [a]	70-130%

(a) Outside control limits.

Blank Spike Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8808-BS	3Q101443.D	1	04/11/25	(b) (6)	04/10/25	OP8808	S3Q1491

The QC reported here applies to the following samples: **Method:** EPA 533

FC23797-1, FC23797-2, FC23797-3, FC23797-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.08	0.0931	116	70-130
2706-90-3	Perfluoropentanoic acid	0.08	0.0920	115	70-130
307-24-4	Perfluorohexanoic acid	0.08	0.0918	115	70-130
375-85-9	Perfluoroheptanoic acid	0.08	0.0910	114	70-130
335-67-1	Perfluorooctanoic acid	0.08	0.0925	116	70-130
375-95-1	Perfluorononanoic acid	0.08	0.0939	117	70-130
335-76-2	Perfluorodecanoic acid	0.08	0.0917	115	70-130
2058-94-8	Perfluoroundecanoic acid	0.08	0.0940	118	70-130
307-55-1	Perfluorododecanoic acid	0.08	0.0966	121	70-130
375-73-5	Perfluorobutanesulfonic acid	0.08	0.0911	114	70-130
2706-91-4	Perfluoropentanesulfonic acid	0.08	0.0909	114	70-130
355-46-4	Perfluorohexanesulfonic acid	0.08	0.0914	114	70-130
375-92-8	Perfluoroheptanesulfonic acid	0.08	0.0901	113	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.08	0.0887	111	70-130
757124-72-4	4:2 Fluorotelomer sulfonate	0.08	0.0952	119	70-130
27619-97-2	6:2 Fluorotelomer sulfonate	0.08	0.0946	118	70-130
39108-34-4	8:2 Fluorotelomer sulfonate	0.08	0.0955	119	70-130
377-73-1	PFMPA	0.08	0.0930	116	70-130
863090-89-5	PFMBA	0.08	0.0919	115	70-130
151772-58-6	NFDHA	0.08	0.0913	114	70-130
113507-82-7	PFEESA	0.08	0.0916	115	70-130
13252-13-6	HFPO-DA (GenX)	0.08	0.0797	100	70-130
919005-14-4	ADONA	0.08	0.0909	114	70-130
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.08	0.0890	111	70-130
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.08	0.0838	105	70-130

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	70%	50-200%
	13C5-PFPeA	71%	50-200%
	13C5-PFHxA	71%	50-200%
	13C4-PFHpA	72%	50-200%
	13C8-PFOA	70%	50-200%
	13C9-PFNA	69%	50-200%
	13C6-PFDA	69%	50-200%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8808-BS	3Q101443.D	1	04/11/25	(b) (6)	04/10/25	OP8808	S3Q1491

The QC reported here applies to the following samples: **Method:** EPA 533

FC23797-1, FC23797-2, FC23797-3, FC23797-4

CAS No.	ID Standard Recoveries	BSP	Limits
	13C7-PFUnDA	63%	50-200%
	13C2-PFDoDA	59%	50-200%
	13C3-PFBS	73%	50-200%
	13C3-PFHxS	73%	50-200%
	13C8-PFOS	72%	50-200%
	13C2-4:2FTS	75%	50-200%
	13C2-6:2FTS	73%	50-200%
	13C2-8:2FTS	70%	50-200%
	13C3-HFPO-DA	84%	50-200%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8806-BS	5Q31700.D	1	04/11/25	(b)(4)	04/10/25	OP8806	S5Q519

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23797-1A, FC23797-2A, FC23797-3A, FC23797-4A

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
307-24-4	Perfluorohexanoic acid	0.004	0.0036	90	50-150
375-85-9	Perfluoroheptanoic acid	0.004	0.0035	88	50-150
335-67-1	Perfluorooctanoic acid	0.004	0.0037	93	50-150
375-95-1	Perfluorononanoic acid	0.004	0.0038	95	50-150
335-76-2	Perfluorodecanoic acid	0.004	0.0036	90	50-150
2058-94-8	Perfluoroundecanoic acid	0.004	0.0031	78	50-150
307-55-1	Perfluorododecanoic acid	0.004	0.0023	58	50-150
72629-94-8	Perfluorotridecanoic acid	0.004	0.0030	75	50-150
376-06-7	Perfluorotetradecanoic acid	0.004	0.0023	58	50-150
375-73-5	Perfluorobutanesulfonic acid	0.004	0.0036	90	50-150
355-46-4	Perfluorohexanesulfonic acid	0.004	0.0036	90	50-150
1763-23-1	Perfluorooctanesulfonic acid	0.004	0.0037	93	50-150
2355-31-9	MeFOSAA	0.004	0.0033	83	50-150
2991-50-6	EtFOSAA	0.004	0.0035	88	50-150
13252-13-6	HFPO-DA (GenX)	0.004	0.0037	93	50-150
919005-14-4	ADONA	0.004	0.0035	88	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.004	0.0032	80	50-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.004	0.0028	70	50-150

CAS No.	Surrogate Recoveries	BSP	Limits
	13C2-PFHxA	132%* [a]	70-130%
	13C2-PFDA	126%	70-130%
	d5-EtFOSAA	132%* [a]	70-130%
	13C3-HFPO-DA	127%	70-130%

(a) Outside control limits.

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8806-BS	5Q31744.D	1	04/14/25	(b) (4)	04/10/25	OP8806	S5Q520

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23797-1A, FC23797-2A, FC23797-3A, FC23797-4A

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
307-24-4	Perfluorohexanoic acid	0.004	0.0040	100	50-150
375-85-9	Perfluoroheptanoic acid	0.004	0.0038	95	50-150
335-67-1	Perfluorooctanoic acid	0.004	0.0038	95	50-150
375-95-1	Perfluorononanoic acid	0.004	0.0038	95	50-150
335-76-2	Perfluorodecanoic acid	0.004	0.0030	75	50-150
2058-94-8	Perfluoroundecanoic acid	0.004	0.0028	70	50-150
307-55-1	Perfluorododecanoic acid	0.004	0.0020	50	50-150
72629-94-8	Perfluorotridecanoic acid	0.004	0.0018	45*	50-150
376-06-7	Perfluorotetradecanoic acid	0.004	0.0020	50	50-150
375-73-5	Perfluorobutanesulfonic acid	0.004	0.0039	98	50-150
355-46-4	Perfluorohexanesulfonic acid	0.004	0.0039	98	50-150
1763-23-1	Perfluorooctanesulfonic acid	0.004	0.0040	100	50-150
2355-31-9	MeFOSAA	0.004	0.0049	123	50-150
2991-50-6	EtFOSAA	0.004	0.0046	115	50-150
13252-13-6	HFPO-DA (GenX)	0.004	0.0037	93	50-150
919005-14-4	ADONA	0.004	0.0037	93	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.004	0.0033	83	50-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.004	0.0027	68	50-150

CAS No.	Surrogate Recoveries	BSP	Limits
	13C2-PFHxA	132%* [a]	70-130%
	13C2-PFDA	128%	70-130%
	d5-EtFOSAA	127%	70-130%
	13C3-HFPO-DA	124%	70-130%

(a) Outside control limits.

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8808-MS	3Q101446.D	1	04/11/25	(b) (6)	04/10/25	OP8808	S3Q1491
FC23797-1	3Q101445.D	1	04/11/25	(b) (6)	04/10/25	OP8808	S3Q1491

The QC reported here applies to the following samples: **Method:** EPA 533

FC23797-1, FC23797-2, FC23797-3, FC23797-4

CAS No.	Compound	FC23797-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.0041		0.0714	0.0862	115	70-130
2706-90-3	Perfluoropentanoic acid	0.0102		0.0714	0.0889	110	70-130
307-24-4	Perfluorohexanoic acid	0.0081		0.0714	0.0879	112	70-130
375-85-9	Perfluoroheptanoic acid	0.0044		0.0714	0.0841	112	70-130
335-67-1	Perfluorooctanoic acid	0.0086		0.0714	0.0885	112	70-130
375-95-1	Perfluorononanoic acid	0.0018	U	0.0714	0.0830	116	70-130
335-76-2	Perfluorodecanoic acid	0.0018	U	0.0714	0.0829	116	70-130
2058-94-8	Perfluoroundecanoic acid	0.0018	U	0.0714	0.0853	119	70-130
307-55-1	Perfluorododecanoic acid	0.0018	U	0.0714	0.0857	120	70-130
375-73-5	Perfluorobutanesulfonic acid	0.0069		0.0714	0.0882	114	70-130
2706-91-4	Perfluoropentanesulfonic acid	0.0018	U	0.0714	0.0822	115	70-130
355-46-4	Perfluorohexanesulfonic acid	0.0081		0.0714	0.0863	109	70-130
375-92-8	Perfluoroheptanesulfonic acid	0.0018	U	0.0714	0.0802	112	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.0137		0.0714	0.0906	108	70-130
757124-72-4	4:2 Fluorotelomer sulfonate	0.0036	U	0.0714	0.0843	118	70-130
27619-97-2	6:2 Fluorotelomer sulfonate	0.0036	U	0.0714	0.0844	118	70-130
39108-34-4	8:2 Fluorotelomer sulfonate	0.0036	U	0.0714	0.0851	119	70-130
377-73-1	PFMPA	0.0036	U	0.0714	0.0831	116	70-130
863090-89-5	PFMBA	0.0036	U	0.0714	0.0819	115	70-130
151772-58-6	NFDHA	0.0036	U	0.0714	0.0825	115	70-130
113507-82-7	PFEESA	0.0036	U	0.0714	0.0828	116	70-130
13252-13-6	HFPO-DA (GenX)	0.0036	U	0.0714	0.0709	99	70-130
919005-14-4	ADONA	0.0036	U	0.0714	0.0814	114	70-130
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0036	U	0.0714	0.0800	112	70-130
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0036	U	0.0714	0.0753	105	70-130

CAS No.	ID Standard Recoveries	MS	FC23797-1	Limits
	13C4-PFBA	67%	69%	50-200%
	13C5-PFPeA	68%	71%	50-200%
	13C5-PFHxA	68%	67%	50-200%
	13C4-PFHpA	68%	68%	50-200%
	13C8-PFOA	67%	68%	50-200%
	13C9-PFNA	66%	66%	50-200%
	13C6-PFDA	64%	65%	50-200%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8808-MS	3Q101446.D	1	04/11/25	(b) (6)	04/10/25	OP8808	S3Q1491
FC23797-1	3Q101445.D	1	04/11/25	(b) (6)	04/10/25	OP8808	S3Q1491

The QC reported here applies to the following samples: **Method:** EPA 533

FC23797-1, FC23797-2, FC23797-3, FC23797-4

CAS No.	ID Standard Recoveries	MS	FC23797-1	Limits
	13C7-PFUnDA	57%	56%	50-200%
	13C2-PFDoDA	53%	51%	50-200%
	13C3-PFBS	68%	68%	50-200%
	13C3-PFHxS	69%	68%	50-200%
	13C8-PFOS	65%	66%	50-200%
	13C2-4:2FTS	71%	62%	50-200%
	13C2-6:2FTS	70%	64%	50-200%
	13C2-8:2FTS	65%	59%	50-200%
	13C3-HFPO-DA	82%	74%	50-200%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8806-MS	5Q31704.D	1	04/11/25	(b) (6	04/10/25	OP8806	S5Q519
FC23797-2A [a]	5Q31703.D	1	04/11/25	(b) (6	04/10/25	OP8806	S5Q519
FC23797-2A [b]	5Q31747.D	1	04/14/25	(b) (6	04/10/25	OP8806	S5Q520

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23797-1A, FC23797-2A, FC23797-3A, FC23797-4A

CAS No.	Compound	FC23797-2A ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
307-24-4	Perfluorohexanoic acid	0.0018	U	0.00351	0.0033	94	50-150
375-85-9	Perfluoroheptanoic acid	0.0018	U	0.00351	0.0037	105	50-150
335-67-1	Perfluorooctanoic acid	0.0018	U	0.00351	0.0039	111	50-150
375-95-1	Perfluorononanoic acid	0.0018	U	0.00351	0.0039	111	50-150
335-76-2	Perfluorodecanoic acid	0.0018	U	0.00351	0.0040	114	50-150
2058-94-8	Perfluoroundecanoic acid	0.0018	U	0.00351	0.0035	100	50-150
307-55-1	Perfluorododecanoic acid	0.0018	U	0.00351	0.0024	68	50-150
72629-94-8	Perfluorotridecanoic acid	0.0018	U	0.00351	0.0021	60	50-150
376-06-7	Perfluorotetradecanoic acid	0.0018	U	0.00351	0.0012	34*	50-150
375-73-5	Perfluorobutanesulfonic acid	0.0018	U	0.00351	0.0040	114	50-150
355-46-4	Perfluorohexanesulfonic acid	0.0018	U	0.00351	0.0041	117	50-150
1763-23-1	Perfluorooctanesulfonic acid	0.0018	U	0.00351	0.0041	117	50-150
2355-31-9	MeFOSAA	0.0035	U	0.00351	0.0034	97	50-150
2991-50-6	EtFOSAA	0.0035	U	0.00351	0.0036	103	50-150
13252-13-6	HFPO-DA (GenX)	0.0070	U	0.00351	0.0039	111	50-150
919005-14-4	ADONA	0.0070	U	0.00351	0.0039	111	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0070	U	0.00351	0.0038	108	50-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0070	U	0.00351	0.0026	74	50-150

CAS No.	Surrogate Recoveries	MS	FC23797-2A	FC23797-2A	Limits
	13C2-PFHxA	118%	113%	112%	70-130%
	13C2-PFDA	127%	124%	120%	70-130%
	d5-EtFOSAA	136%* [c]	134%* [c]	118%	70-130%
	13C3-HFPO-DA	123%	114%	116%	70-130%

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Outside control limits.

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8808-DUP	3Q101448.D	1	04/11/25	(b) (6)	04/10/25	OP8808	S3Q1491
FC23797-2	3Q101447.D	1	04/11/25	(b) (6)	04/10/25	OP8808	S3Q1491

The QC reported here applies to the following samples: **Method:** EPA 533

FC23797-1, FC23797-2, FC23797-3, FC23797-4

CAS No.	Compound	FC23797-2 ug/l	Q	DUP ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.0036	U	ND		nc	30
2706-90-3	Perfluoropentanoic acid	0.0036	U	ND		nc	30
307-24-4	Perfluorohexanoic acid	0.0018	U	ND		nc	30
375-85-9	Perfluoroheptanoic acid	0.0018	U	ND		nc	30
335-67-1	Perfluorooctanoic acid	0.0018	U	ND		nc	30
375-95-1	Perfluorononanoic acid	0.0018	U	ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0018	U	ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0018	U	ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0018	U	ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0018	U	ND		nc	30
2706-91-4	Perfluoropentanesulfonic acid	0.0018	U	ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0018	U	ND		nc	30
375-92-8	Perfluoroheptanesulfonic acid	0.0018	U	ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0018	U	ND		nc	30
757124-72-4	4:2 Fluorotelomer sulfonate	0.0036	U	ND		nc	30
27619-97-2	6:2 Fluorotelomer sulfonate	0.0036	U	ND		nc	30
39108-34-4	8:2 Fluorotelomer sulfonate	0.0036	U	ND		nc	30
377-73-1	PFMPA	0.0036	U	ND		nc	30
863090-89-5	PFMBA	0.0036	U	ND		nc	30
151772-58-6	NFDHA	0.0036	U	ND		nc	30
113507-82-7	PFEESA	0.0036	U	ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.0036	U	ND		nc	30
919005-14-4	ADONA	0.0036	U	ND		nc	30
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0036	U	ND		nc	30
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0036	U	ND		nc	30

CAS No.	ID Standard Recoveries	DUP	FC23797-2	Limits
	13C4-PFBA	72%	70%	50-200%
	13C5-PFPeA	75%	71%	50-200%
	13C5-PFHxA	71%	70%	50-200%
	13C4-PFHpA	73%	71%	50-200%
	13C8-PFOA	72%	69%	50-200%
	13C9-PFNA	69%	67%	50-200%
	13C6-PFDA	64%	65%	50-200%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8808-DUP	3Q101448.D	1	04/11/25	(b) (6)	04/10/25	OP8808	S3Q1491
FC23797-2	3Q101447.D	1	04/11/25	(b) (6)	04/10/25	OP8808	S3Q1491

The QC reported here applies to the following samples: **Method:** EPA 533

FC23797-1, FC23797-2, FC23797-3, FC23797-4

CAS No.	ID Standard Recoveries	DUP	FC23797-2	Limits
	13C7-PFUnDA	53%	56%	50-200%
	13C2-PFDoDA	46%* [a]	51%	50-200%
	13C3-PFBS	74%	70%	50-200%
	13C3-PFHxS	75%	71%	50-200%
	13C8-PFOS	65%	65%	50-200%
	13C2-4:2FTS	81%	65%	50-200%
	13C2-6:2FTS	69%	64%	50-200%
	13C2-8:2FTS	62%	60%	50-200%
	13C3-HFPO-DA	78%	69%	50-200%

(a) Outside control limits.

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8806-DUP	5Q31706.D	1	04/11/25	(b) (6	04/10/25	OP8806	S5Q519
FC23797-3A [a]	5Q31705.D	1	04/11/25	(b) (6	04/10/25	OP8806	S5Q519
FC23797-3A [b]	5Q31749.D	1	04/14/25	(b) (6	04/10/25	OP8806	S5Q520

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23797-1A, FC23797-2A, FC23797-3A, FC23797-4A

CAS No.	Compound	FC23797-3A ug/l	Q	DUP ug/l	Q	RPD	Limits
307-24-4	Perfluorohexanoic acid	0.0018	U	ND		nc	30
375-85-9	Perfluoroheptanoic acid	0.0018	U	ND		nc	30
335-67-1	Perfluorooctanoic acid	0.0018	U	ND		nc	30
375-95-1	Perfluorononanoic acid	0.0018	U	ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0018	U	ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0018	U	ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0018	U	ND		nc	30
72629-94-8	Perfluorotridecanoic acid	0.0018	U	ND		nc	30
376-06-7	Perfluorotetradecanoic acid	0.0018	U	ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0018	U	ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0018	U	ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0015	J	ND		200*	30
2355-31-9	MeFOSAA	0.0036	U	ND		nc	30
2991-50-6	EtFOSAA	0.0036	U	ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.0073	U	ND		nc	30
919005-14-4	ADONA	0.0073	U	ND		nc	30
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0073	U	ND		nc	30
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0073	U	ND		nc	30

CAS No.	Surrogate Recoveries	DUP	FC23797-3A	FC23797-3A	Limits
	13C2-PFHxA	135%* [c]	133%* [c]	131%* [c]	70-130%
	13C2-PFDA	127%	128%	124%	70-130%
	d5-EtFOSAA	132%* [c]	138%* [c]	125%	70-130%
	13C3-HFPO-DA	132%* [c]	127%	123%	70-130%

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Outside control limits.

* = Outside of Control Limits.

The results set forth herein are provided by (b) (4)

e-Hardcopy 2.0
Automated Report



Technical Report for

AECOM, INC.

N6274224F0139 Extended Drinking Water

60729369

(b) (4) Job Number: FC23797

Sampling Date: 04/08/25

Report to:

AECOM, Inc
7595 Technology Way
Denver, CO 80237
(b) (6)

Total number of pages in report: 880

NELAP ACCREDITED TNI LABORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

(b) (6)
Technical Director

Client Service contact: (b) (6)
(b) (4)

Test results relate only to samples analyzed.

(b) (4)

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(b) (4)

Sample Summary

AECOM, INC.

Job No: FC23797

N6274224F0139 Extended Drinking Water
Project No: 60729369

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FC23797-1	04/08/25	11:04	(b) (6)	04/09/25	DW	Drinking Water	SHAFT-HW-0018384-25098-N
FC23797-1A	04/08/25	11:04	(b) (6)	04/09/25	DW	Drinking Water	SHAFT-HW-0018384-25098-N
FC23797-2	04/08/25	15:10	(b) (6)	04/09/25	DW	Drinking Water	SHAFT-HW-0018393-25098-N
FC23797-2A	04/08/25	15:10	(b) (6)	04/09/25	DW	Drinking Water	SHAFT-HW-0018393-25098-N
FC23797-3	04/08/25	15:08	(b) (6)	04/09/25	DW	Drinking Water	SHAFT-HW-0018394-25098-N
FC23797-3A	04/08/25	15:08	(b) (6)	04/09/25	DW	Drinking Water	SHAFT-HW-0018394-25098-N
FC23797-4	04/08/25	10:20	(b) (6)	04/09/25	DW	Drinking Water FB	SHAFT-FB-250408-25098-N
FC23797-4A	04/08/25	10:20	(b) (6)	04/09/25	DW	Drinking Water FB	SHAFT-FB-250408-25098-N

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC. **Job No:** FC23797

Site: N6274224F0139 Extended Drinking Water **Report Date** 4/18/2025 10:20:51 A

On 04/09/2025, 3 Sample(s), 0 Trip Blank(s), 0 Equip. Blank(s) and 1 Field Blank(s) were received at (b) (4) [redacted]. at a maximum corrected temperature of 5 C. Samples were intact and chemically preserved, unless noted below. A (b) (4) [redacted] Job Number of FC23797 was assigned to the project.

Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section. Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Semi-volatiles By Method EPA 533

Matrix: DW **Batch ID:** OP8808

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) FC23797-1MS, FC23797-2DUP were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

MS Semi-volatiles By Method EPA 537.1 REV 2.0

Matrix: DW **Batch ID:** OP8806

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) FC23797-2AMS, FC23797-3ADUP, FC23797-2AMS were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Blank Spike Recovery(s) for Perfluorotridecanoic acid are outside control limits.
- Matrix Spike Recovery(s) for Perfluorotetradecanoic acid are outside control limits. Probable cause is due to matrix interference.
- Matrix Spike Recovery(s) for Perfluorotetradecanoic acid are outside control limits. Probable cause is due to the ratio of spike to sample concentration < 4.
- RPD(s) for Duplicate for Perfluorooctanesulfonic acid are outside control limits for sample OP8806-DUP. Probable cause is due to sample non-homogeneity.
- Sample(s) FC23797-2A, FC23797-3A, FC23797-4A have surrogates outside control limits.
- FC23797-3A: Confirmation run.
- FC23797-2A: Insufficient sample for re-extraction.
- FC23797-2A: Confirmation run.
- FC23797-4A: Confirmation run.
- FC23797-4A: Insufficient sample for re-extraction.
- FC23797-3A: Insufficient sample for re-extraction.
- FC23797-3A for Perfluorododecanoic acid: Associated ICV and CCV outside control limits high, sample was ND.
- FC23797-4A for Perfluorododecanoic acid: Associated ICV and CCV outside control limits high, sample was ND.
- FC23797-2A for Perfluorododecanoic acid: Associated ICV and CCV outside control limits high, sample was ND.
- OP8806-MB for 13C2-PFDA: Outside control limits.
- OP8806-MB for 13C3-HFPO-DA: Outside control limits.
- OP8806-MB for 13C2-PFHxA: Outside control limits.
- OP8806-MB for 13C2-PFDA: Outside control limits.
- OP8806-BS for 13C2-PFHxA: Outside control limits.
- FC23797-1A for Perfluorododecanoic acid: Associated ICV and CCV outside control limits high, sample was ND.
- OP8806-MB for d5-EtFOSAA: Outside control limits.
- OP8806-MB for 13C2-PFHxA: Outside control limits.
- OP8806-BS for d5-EtFOSAA: Outside control limits.
- OP8806-BS for 13C2-PFHxA: Outside control limits.
- OP8806-MB for d5-EtFOSAA: Outside control limits.
- OP8806-MB for 13C3-HFPO-DA: Outside control limits.

Matrix: DW **Batch ID:** OP8904

- Sample(s) FC23797-1A have surrogates outside control limits.
- FC23797-1A: Confirmation run.

(b) (4) certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted. Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria. (b) (4) is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety.

Summary of Hits

Job Number: FC23797
Account: AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Collected: 04/08/25

3

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
FC23797-1	**SHAFT-HW-0018384-25098-N**					
Perfluorobutanoic acid		0.0041	0.0036	0.0014	ug/l	EPA 533
Perfluoropentanoic acid		0.0102	0.0036	0.0014	ug/l	EPA 533
Perfluorohexanoic acid		0.0081	0.0018	0.0014	ug/l	EPA 533
Perfluoroheptanoic acid		0.0044	0.0018	0.0014	ug/l	EPA 533
Perfluorooctanoic acid		0.0086	0.0018	0.0014	ug/l	EPA 533
Perfluorobutanesulfonic acid		0.0069	0.0018	0.0014	ug/l	EPA 533
Perfluorohexanesulfonic acid		0.0081	0.0018	0.0014	ug/l	EPA 533
Perfluorooctanesulfonic acid		0.0137	0.0018	0.0014	ug/l	EPA 533
FC23797-1A	**SHAFT-HW-0018384-25098-N**					
Perfluorohexanoic acid		0.0049	0.0019	0.0015	ug/l	EPA 537.1 REV 2.0
Perfluoroheptanoic acid		0.0024	0.0019	0.0015	ug/l	EPA 537.1 REV 2.0
Perfluorooctanoic acid		0.0053	0.0019	0.0015	ug/l	EPA 537.1 REV 2.0
Perfluorobutanesulfonic acid		0.0039	0.0019	0.0015	ug/l	EPA 537.1 REV 2.0
Perfluorohexanesulfonic acid		0.0046	0.0019	0.0015	ug/l	EPA 537.1 REV 2.0
Perfluorooctanesulfonic acid		0.0089	0.0019	0.0015	ug/l	EPA 537.1 REV 2.0
FC23797-2	**SHAFT-HW-0018393-25098-N**					
No hits reported in this sample.						
FC23797-2A	**SHAFT-HW-0018393-25098-N**					
No hits reported in this sample.						
FC23797-3	**SHAFT-HW-0018394-25098-N**					
No hits reported in this sample.						
FC23797-3A	**SHAFT-HW-0018394-25098-N**					
Perfluorooctanesulfonic acid [a]		0.0015 J	0.0018	0.0015	ug/l	EPA 537.1 REV 2.0
FC23797-4	**SHAFT-FB-250408-25098-N**					
No hits reported in this sample.						
FC23797-4A	**SHAFT-FB-250408-25098-N**					
No hits reported in this sample.						

(a) Insufficient sample for re-extraction.

Sample Results

Report of Analysis

Raw Data: 3Q101445.D

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018384-25098-N		
Lab Sample ID:	FC23797-1	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water	**Date Received:**	04/09/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3Q101445.D	1	04/11/25 19:43	(b) (6)	04/10/25 09:00	OP8808	S3Q1491
Run #2							

	Initial Volume	Final Volume
Run #1	280 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
375-22-4	Perfluorobutanoic acid	0.0041		0.0036	0.0014	0.00054	ug/l	
2706-90-3	Perfluoropentanoic acid	0.0102		0.0036	0.0014	0.00061	ug/l	
307-24-4	Perfluorohexanoic acid	0.0081		0.0018	0.0014	0.00054	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0044		0.0018	0.0014	0.00061	ug/l	
335-67-1	Perfluorooctanoic acid	0.0086		0.0018	0.0014	0.00054	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00057	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0014 U		0.0018	0.0014	0.00058	ug/l	
307-55-1	Perfluorododecanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0069		0.0018	0.0014	0.00054	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	0.0014 U		0.0018	0.0014	0.00069	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0081		0.0018	0.0014	0.00054	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0137		0.0018	0.0014	0.00054	ug/l	
FLUOROTELOMER SULFONATES								
757124-72-4	4:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.00054	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.0010	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.00054	ug/l	
PER and POLYFLUOROETHER CARBOXYLIC and SULFONIC ACIDS								
377-73-1	PFMPA	0.0014 U		0.0036	0.0014	0.00057	ug/l	
863090-89-5	PFMBA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
151772-58-6	NFDHA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
113507-82-7	PFEESA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
13252-13-6	HFPO-DA (GenX)	0.0018 U		0.0036	0.0018	0.00089	ug/l	
919005-14-4	ADONA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0014 U		0.0036	0.0014	0.00054	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0014 U		0.0036	0.0014	0.00061	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 141) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018384-25098-N		
Lab Sample ID:	FC23797-1	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water	**Date Received:**	04/09/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	69%		50-200%
	13C5-PFPeA	71%		50-200%
	13C5-PFHxA	67%		50-200%
	13C4-PFHpA	68%		50-200%
	13C8-PFOA	68%		50-200%
	13C9-PFNA	66%		50-200%
	13C6-PFDA	65%		50-200%
	13C7-PFUnDA	56%		50-200%
	13C2-PFDoDA	51%		50-200%
	13C3-PFBS	68%		50-200%
	13C3-PFHxS	68%		50-200%
	13C8-PFOS	66%		50-200%
	13C2-4:2FTS	62%		50-200%
	13C2-6:2FTS	64%		50-200%
	13C2-8:2FTS	59%		50-200%
	13C3-HFPO-DA	74%		50-200%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: 5Q31702.D 5Q31834.D

(b) (4)

Report of Analysis

4.2.4

Client Sample ID:	SHAFT-HW-0018384-25098-N		
Lab Sample ID:	FC23797-1A	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water	**Date Received:**	04/09/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5Q31702.D	1	04/11/25 15:17	(b) (4)	04/10/25 09:00	OP8806	S5Q519
Run #2 [a]	5Q31834.D	1	04/17/25 16:29	(b) (4)	04/16/25 08:30	OP8904	S5Q523

	Initial Volume	Final Volume
Run #1	270 ml	1.0 ml
Run #2	280 ml	1.0 ml

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
307-24-4	Perfluorohexanoic acid	0.0049		0.0019	0.0015	0.00074	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0024		0.0019	0.0015	0.00074	ug/l	
335-67-1	Perfluorooctanoic acid	0.0053		0.0019	0.0015	0.00074	ug/l	
375-95-1	Perfluorononanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
335-76-2	Perfluorodecanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
307-55-1	Perfluorododecanoic acid [b]	0.0015 U		0.0019	0.0015	0.00074	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0039		0.0019	0.0015	0.00074	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0046		0.0019	0.0015	0.00074	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0089		0.0019	0.0015	0.00074	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS								
2355-31-9	MeFOSAA	0.0019 U		0.0037	0.0019	0.00093	ug/l	
2991-50-6	EtFOSAA	0.0019 U		0.0037	0.0019	0.00093	ug/l	
NEXT GENERATION PFAS ANALYTES								
13252-13-6	HFPO-DA (GenX)	0.0056 U		0.0074	0.0056	0.0028	ug/l	
919005-14-4	ADONA	0.0037 U		0.0074	0.0037	0.0019	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0037 U		0.0074	0.0037	0.0019	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0037 U		0.0074	0.0037	0.0019	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	128%	139% [c]	70-130%
	13C2-PFDA	124%	132% [c]	70-130%
	d5-EtFOSAA	129%	128%	70-130%
	13C3-HFPO-DA	126%	130%	70-130%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018384-25098-N		
Lab Sample ID:	FC23797-1A	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water	**Date Received:**	04/09/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

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Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q

(a) Confirmation run.
(b) Associated ICV and CCV outside control limits high, sample was ND.
(c) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: 3Q101447.D

(b) (4)

Report of Analysis

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4

Client Sample ID:	SHAFT-HW-0018393-25098-N		
Lab Sample ID:	FC23797-2	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water	**Date Received:**	04/09/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3Q101447.D	1	04/11/25 20:16	(b) (6)	04/10/25 09:00	OP8808	S3Q1491
Run #2							

	Initial Volume	Final Volume
Run #1	280 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
375-22-4	Perfluorobutanoic acid	0.0014 U		0.0036	0.0014	0.00054	ug/l	
2706-90-3	Perfluoropentanoic acid	0.0014 U		0.0036	0.0014	0.00061	ug/l	
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00061	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00057	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0014 U		0.0018	0.0014	0.00058	ug/l	
307-55-1	Perfluorododecanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	0.0014 U		0.0018	0.0014	0.00069	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
FLUOROTELOMER SULFONATES								
757124-72-4	4:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.00054	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.0010	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.00054	ug/l	
PER and POLYFLUOROETHER CARBOXYLIC and SULFONIC ACIDS								
377-73-1	PFMPA	0.0014 U		0.0036	0.0014	0.00057	ug/l	
863090-89-5	PFMBA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
151772-58-6	NFDHA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
113507-82-7	PFEESA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
13252-13-6	HFPO-DA (GenX)	0.0018 U		0.0036	0.0018	0.00089	ug/l	
919005-14-4	ADONA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0014 U		0.0036	0.0014	0.00054	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0014 U		0.0036	0.0014	0.00061	ug/l	

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018393-25098-N		
Lab Sample ID:	FC23797-2	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water	**Date Received:**	04/09/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	70%		50-200%
	13C5-PFPeA	71%		50-200%
	13C5-PFHxA	70%		50-200%
	13C4-PFHpA	71%		50-200%
	13C8-PFOA	69%		50-200%
	13C9-PFNA	67%		50-200%
	13C6-PFDA	65%		50-200%
	13C7-PFUnDA	56%		50-200%
	13C2-PFDoDA	51%		50-200%
	13C3-PFBS	70%		50-200%
	13C3-PFHxS	71%		50-200%
	13C8-PFOS	65%		50-200%
	13C2-4:2FTS	65%		50-200%
	13C2-6:2FTS	64%		50-200%
	13C2-8:2FTS	60%		50-200%
	13C3-HFPO-DA	69%		50-200%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018393-25098-N		
Lab Sample ID:	FC23797-2A	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water	**Date Received:**	04/09/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5Q31703.D	1	04/11/25 15:34	(b) (4)	04/10/25 09:00	OP8806	S5Q519
Run #2 [b]	5Q31747.D	1	04/14/25 14:50	(b) (4)	04/10/25 09:00	OP8806	S5Q520

	Initial Volume	Final Volume
Run #1	285 ml	1.0 ml
Run #2	285 ml	1.0 ml

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
307-55-1	Perfluorododecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00070	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS								
2355-31-9	MeFOSAA	0.0018 U		0.0035	0.0018	0.00088	ug/l	
2991-50-6	EtFOSAA	0.0018 U		0.0035	0.0018	0.00088	ug/l	
NEXT GENERATION PFAS ANALYTES								
13252-13-6	HFPO-DA (GenX)	0.0053 U		0.0070	0.0053	0.0026	ug/l	
919005-14-4	ADONA	0.0035 U		0.0070	0.0035	0.0018	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0035 U		0.0070	0.0035	0.0018	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0035 U		0.0070	0.0035	0.0018	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	113%	112%	70-130%
	13C2-PFDA	124%	120%	70-130%
	d5-EtFOSAA	134% [d]	118%	70-130%
	13C3-HFPO-DA	114%	116%	70-130%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 141) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018393-25098-N		
Lab Sample ID:	FC23797-2A	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water	**Date Received:**	04/09/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Associated ICV and CCV outside control limits high, sample was ND.
(d) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: 3Q101449.D

(b) (4)

Report of Analysis

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Client Sample ID:	SHAFT-HW-0018394-25098-N		
Lab Sample ID:	FC23797-3	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water	**Date Received:**	04/09/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3Q101449.D	1	04/11/25 20:48	(b) (6)	04/10/25 09:00	OP8808	S3Q1491
Run #2							

	Initial Volume	Final Volume
Run #1	265 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
375-22-4	Perfluorobutanoic acid	0.0015 U		0.0038	0.0015	0.00057	ug/l	
2706-90-3	Perfluoropentanoic acid	0.0015 U		0.0038	0.0015	0.00065	ug/l	
307-24-4	Perfluorohexanoic acid	0.0015 U		0.0019	0.0015	0.00057	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0015 U		0.0019	0.0015	0.00064	ug/l	
335-67-1	Perfluorooctanoic acid	0.0015 U		0.0019	0.0015	0.00057	ug/l	
375-95-1	Perfluorononanoic acid	0.0015 U		0.0019	0.0015	0.00057	ug/l	
335-76-2	Perfluorodecanoic acid	0.0015 U		0.0019	0.0015	0.00060	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0015 U		0.0019	0.0015	0.00062	ug/l	
307-55-1	Perfluorododecanoic acid	0.0015 U		0.0019	0.0015	0.00057	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0015 U		0.0019	0.0015	0.00057	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	0.0015 U		0.0019	0.0015	0.00072	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0015 U		0.0019	0.0015	0.00057	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	0.0015 U		0.0019	0.0015	0.00057	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0015 U		0.0019	0.0015	0.00057	ug/l	
FLUOROTELOMER SULFONATES								
757124-72-4	4:2 Fluorotelomer sulfonate	0.0015 U		0.0038	0.0015	0.00057	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0015 U		0.0038	0.0015	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0015 U		0.0038	0.0015	0.00057	ug/l	
PER and POLYFLUOROETHER CARBOXYLIC and SULFONIC ACIDS								
377-73-1	PFMPA	0.0015 U		0.0038	0.0015	0.00060	ug/l	
863090-89-5	PFMBA	0.0015 U		0.0038	0.0015	0.00057	ug/l	
151772-58-6	NFDHA	0.0015 U		0.0038	0.0015	0.00057	ug/l	
113507-82-7	PFEESA	0.0015 U		0.0038	0.0015	0.00057	ug/l	
13252-13-6	HFPO-DA (GenX)	0.0019 U		0.0038	0.0019	0.00094	ug/l	
919005-14-4	ADONA	0.0015 U		0.0038	0.0015	0.00057	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0015 U		0.0038	0.0015	0.00057	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0015 U		0.0038	0.0015	0.00064	ug/l	

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018394-25098-N		
Lab Sample ID:	FC23797-3	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water	**Date Received:**	04/09/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	73%		50-200%
	13C5-PFPeA	75%		50-200%
	13C5-PFHxA	73%		50-200%
	13C4-PFHpA	74%		50-200%
	13C8-PFOA	73%		50-200%
	13C9-PFNA	71%		50-200%
	13C6-PFDA	69%		50-200%
	13C7-PFUnDA	61%		50-200%
	13C2-PFDoDA	53%		50-200%
	13C3-PFBS	75%		50-200%
	13C3-PFHxS	76%		50-200%
	13C8-PFOS	69%		50-200%
	13C2-4:2FTS	68%		50-200%
	13C2-6:2FTS	68%		50-200%
	13C2-8:2FTS	63%		50-200%
	13C3-HFPO-DA	74%		50-200%

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U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: 5Q31705.D 5Q31749.D

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018394-25098-N		
Lab Sample ID:	FC23797-3A	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water	**Date Received:**	04/09/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5Q31705.D	1	04/11/25 16:06	(b) (4)	04/10/25 09:00	OP8806	S5Q519
Run #2 [b]	5Q31749.D	1	04/14/25 15:22	(b) (4)	04/10/25 09:00	OP8806	S5Q520

	Initial Volume	Final Volume
Run #1	275 ml	1.0 ml
Run #2	275 ml	1.0 ml

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
307-24-4	Perfluorohexanoic acid	0.0015 U		0.0018	0.0015	0.00073	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0015 U		0.0018	0.0015	0.00073	ug/l	
335-67-1	Perfluorooctanoic acid	0.0015 U		0.0018	0.0015	0.00073	ug/l	
375-95-1	Perfluorononanoic acid	0.0015 U		0.0018	0.0015	0.00073	ug/l	
335-76-2	Perfluorodecanoic acid	0.0015 U		0.0018	0.0015	0.00073	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0015 U		0.0018	0.0015	0.00073	ug/l	
307-55-1	Perfluorododecanoic acid [c]	0.0015 U		0.0018	0.0015	0.00073	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0015 U		0.0018	0.0015	0.00073	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0015 U		0.0018	0.0015	0.00073	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0015 U		0.0018	0.0015	0.00073	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0015 U		0.0018	0.0015	0.00073	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0015		0.0018	0.0015	0.00073	ug/l	J
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS								
2355-31-9	MeFOSAA	0.0018 U		0.0036	0.0018	0.00091	ug/l	
2991-50-6	EtFOSAA	0.0018 U		0.0036	0.0018	0.00091	ug/l	
NEXT GENERATION PFAS ANALYTES								
13252-13-6	HFPO-DA (GenX)	0.0055 U		0.0073	0.0055	0.0027	ug/l	
919005-14-4	ADONA	0.0036 U		0.0073	0.0036	0.0018	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0036 U		0.0073	0.0036	0.0018	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0036 U		0.0073	0.0036	0.0018	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	133% [d]	131% [d]	70-130%
	13C2-PFDA	128%	124%	70-130%
	d5-EtFOSAA	138% [d]	125%	70-130%
	13C3-HFPO-DA	127%	123%	70-130%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018394-25098-N		
Lab Sample ID:	FC23797-3A	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water	**Date Received:**	04/09/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

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Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Associated ICV and CCV outside control limits high, sample was ND.
(d) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: 3Q101450.D

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-FB-250408-25098-N		
Lab Sample ID:	FC23797-4	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water FB	**Date Received:**	04/09/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3Q101450.D	1	04/11/25 21:04	(b) (6)	04/10/25 09:00	OP8808	S3Q1491
Run #2							

	Initial Volume	Final Volume
Run #1	260 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
375-22-4	Perfluorobutanoic acid	0.0015 U		0.0038	0.0015	0.00058	ug/l	
2706-90-3	Perfluoropentanoic acid	0.0015 U		0.0038	0.0015	0.00066	ug/l	
307-24-4	Perfluorohexanoic acid	0.0015 U		0.0019	0.0015	0.00058	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0015 U		0.0019	0.0015	0.00065	ug/l	
335-67-1	Perfluorooctanoic acid	0.0015 U		0.0019	0.0015	0.00058	ug/l	
375-95-1	Perfluorononanoic acid	0.0015 U		0.0019	0.0015	0.00058	ug/l	
335-76-2	Perfluorodecanoic acid	0.0015 U		0.0019	0.0015	0.00062	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0015 U		0.0019	0.0015	0.00063	ug/l	
307-55-1	Perfluorododecanoic acid	0.0015 U		0.0019	0.0015	0.00058	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0015 U		0.0019	0.0015	0.00058	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0015 U		0.0019	0.0015	0.00058	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	0.0015 U		0.0019	0.0015	0.00058	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0015 U		0.0019	0.0015	0.00058	ug/l	
FLUOROTELOMER SULFONATES								
757124-72-4	4:2 Fluorotelomer sulfonate	0.0015 U		0.0038	0.0015	0.00058	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0015 U		0.0038	0.0015	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0015 U		0.0038	0.0015	0.00058	ug/l	
PER and POLYFLUOROETHER CARBOXYLIC and SULFONIC ACIDS								
377-73-1	PFMPA	0.0015 U		0.0038	0.0015	0.00062	ug/l	
863090-89-5	PFMBA	0.0015 U		0.0038	0.0015	0.00058	ug/l	
151772-58-6	NFDHA	0.0015 U		0.0038	0.0015	0.00058	ug/l	
113507-82-7	PFEESA	0.0015 U		0.0038	0.0015	0.00058	ug/l	
13252-13-6	HFPO-DA (GenX)	0.0019 U		0.0038	0.0019	0.00096	ug/l	
919005-14-4	ADONA	0.0015 U		0.0038	0.0015	0.00058	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0015 U		0.0038	0.0015	0.00058	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0015 U		0.0038	0.0015	0.00065	ug/l	

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-FB-250408-25098-N		
Lab Sample ID:	FC23797-4	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water FB	**Date Received:**	04/09/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	70%		50-200%
	13C5-PFPeA	71%		50-200%
	13C5-PFHxA	69%		50-200%
	13C4-PFHpA	70%		50-200%
	13C8-PFOA	69%		50-200%
	13C9-PFNA	67%		50-200%
	13C6-PFDA	66%		50-200%
	13C7-PFUnDA	54%		50-200%
	13C2-PFDoDA	50%		50-200%
	13C3-PFBS	70%		50-200%
	13C3-PFHxS	71%		50-200%
	13C8-PFOS	63%		50-200%
	13C2-4:2FTS	65%		50-200%
	13C2-6:2FTS	65%		50-200%
	13C2-8:2FTS	58%		50-200%
	13C3-HFPO-DA	72%		50-200%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: 5Q31707.D 5Q31751.D

(b) (4)

Report of Analysis

4.8 4

Client Sample ID:	SHAFT-FB-250408-25098-N		
Lab Sample ID:	FC23797-4A	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water FB	**Date Received:**	04/09/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5Q31707.D	1	04/11/25 16:38	(b) (4)	04/10/25 09:00	OP8806	S5Q519
Run #2 [b]	5Q31751.D	1	04/14/25 15:54	(b) (4)	04/10/25 09:00	OP8806	S5Q520

	Initial Volume	Final Volume
Run #1	270 ml	1.0 ml
Run #2	270 ml	1.0 ml

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
307-24-4	Perfluorohexanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
335-67-1	Perfluorooctanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
375-95-1	Perfluorononanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
335-76-2	Perfluorodecanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
307-55-1	Perfluorododecanoic acid [c]	0.0015 U		0.0019	0.0015	0.00074	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0015 U		0.0019	0.0015	0.00074	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS								
2355-31-9	MeFOSAA	0.0019 U		0.0037	0.0019	0.00093	ug/l	
2991-50-6	EtFOSAA	0.0019 U		0.0037	0.0019	0.00093	ug/l	
NEXT GENERATION PFAS ANALYTES								
13252-13-6	HFPO-DA (GenX)	0.0056 U		0.0074	0.0056	0.0028	ug/l	
919005-14-4	ADONA	0.0037 U		0.0074	0.0037	0.0019	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0037 U		0.0074	0.0037	0.0019	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0037 U		0.0074	0.0037	0.0019	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	149% [d]	148% [d]	70-130%
	13C2-PFDA	144% [d]	137% [d]	70-130%
	d5-EtFOSAA	153% [d]	130%	70-130%
	13C3-HFPO-DA	143% [d]	136% [d]	70-130%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-FB-250408-25098-N		
Lab Sample ID:	FC23797-4A	**Date Sampled:**	04/08/25
Matrix:	DW - Drinking Water FB	**Date Received:**	04/09/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

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4

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Associated ICV and CCV outside control limits high, sample was ND.
(d) Outside control limits.

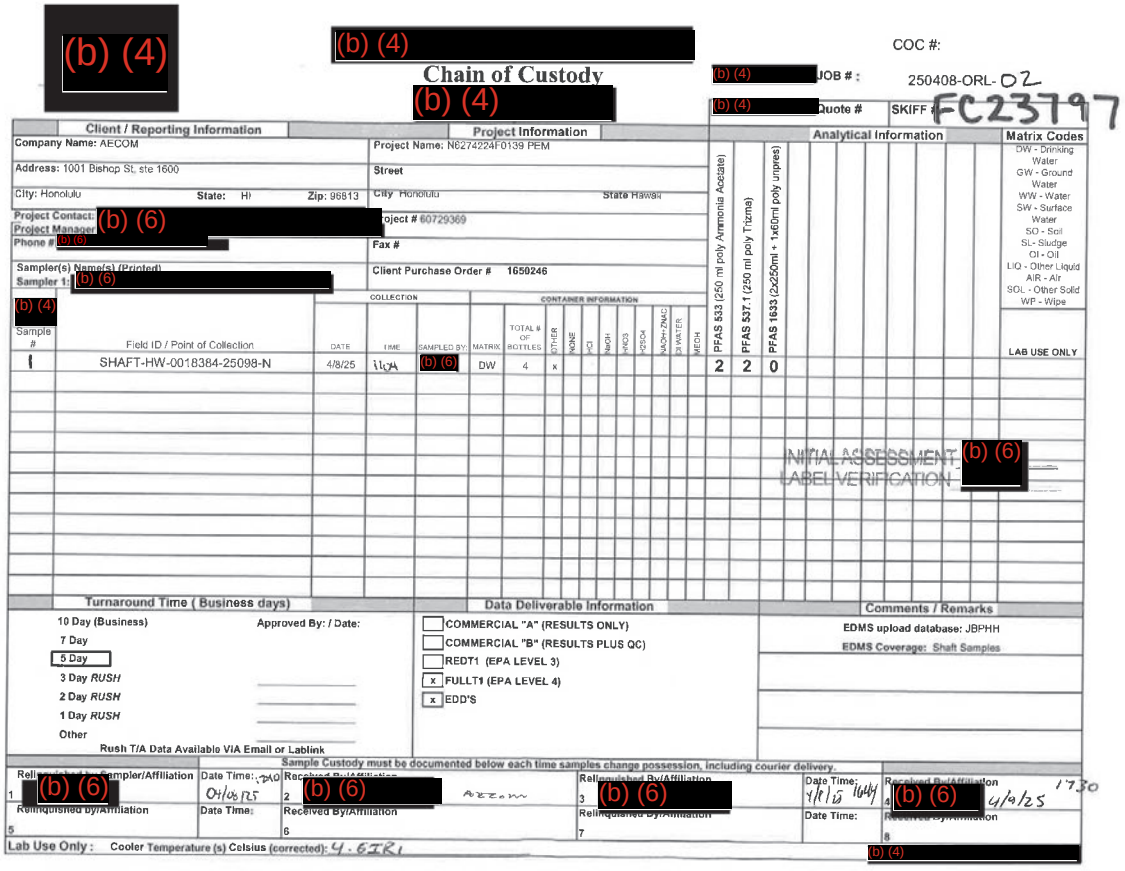
U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5.x Limits



Chain of Custody

COC #:

(b) (4) JOB #: 250408-ORL-02

(b) (4) Quote # SKIFF #: FC23797

Client / Reporting Information

Company Name: AECOM
Address: 1001 Bishop St, ste 1600
City: Honolulu State: HI Zip: 96813
Project Contact: (b) (6)
Project Manager:
Phone #: (b) (6)
Sampler(s) Name(s) (Printed)
Sampler 1: (b) (6)

Project Information

Project Name: N6274224F0139 PEM
Street
City: Honolulu State: Hawaii
Project # 60729369
Fax #
Client Purchase Order # 1650246

Analytical Information

Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZNAC	DI WATER	MEOH	PFAS 533 (250 ml poly Ammonia Acetate)	PFAS 537.1 (250 ml poly Trizma)	PFAS 1633 (2x250ml + 1x60ml poly unpres)
(b) (4)	SHAFT-HW-0018384-25098-N	4/8/25	1104	(b) (6)	DW	4	x									2	2	0

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL - Sludge
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe

LAB USE ONLY

INITIAL ASSESSMENT (b) (6)
LABEL VERIFICATION

Turnaround Time (Business days)

10 Day (Business)
7 Day
5 Day
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH*
Other
Approved By: / Date:
Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [x] FULLT1 (EPA LEVEL 4)
- [x] EDD'S

Comments / Remarks

EDMS upload database: JBPHH
EDMS Coverage: Shaft Samples

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished By/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1	(b) (6)	04/08/25 1240	2 (b) (6) AECOM	3 (b) (6)	4/8/25 1649	4 (b) (6) 4/9/25 1730
5			6	7		8

Lab Use Only: Cooler Temperature (s) Celsius (corrected): 4.6IR1 (b) (4)

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FC23797: Chain of Custody
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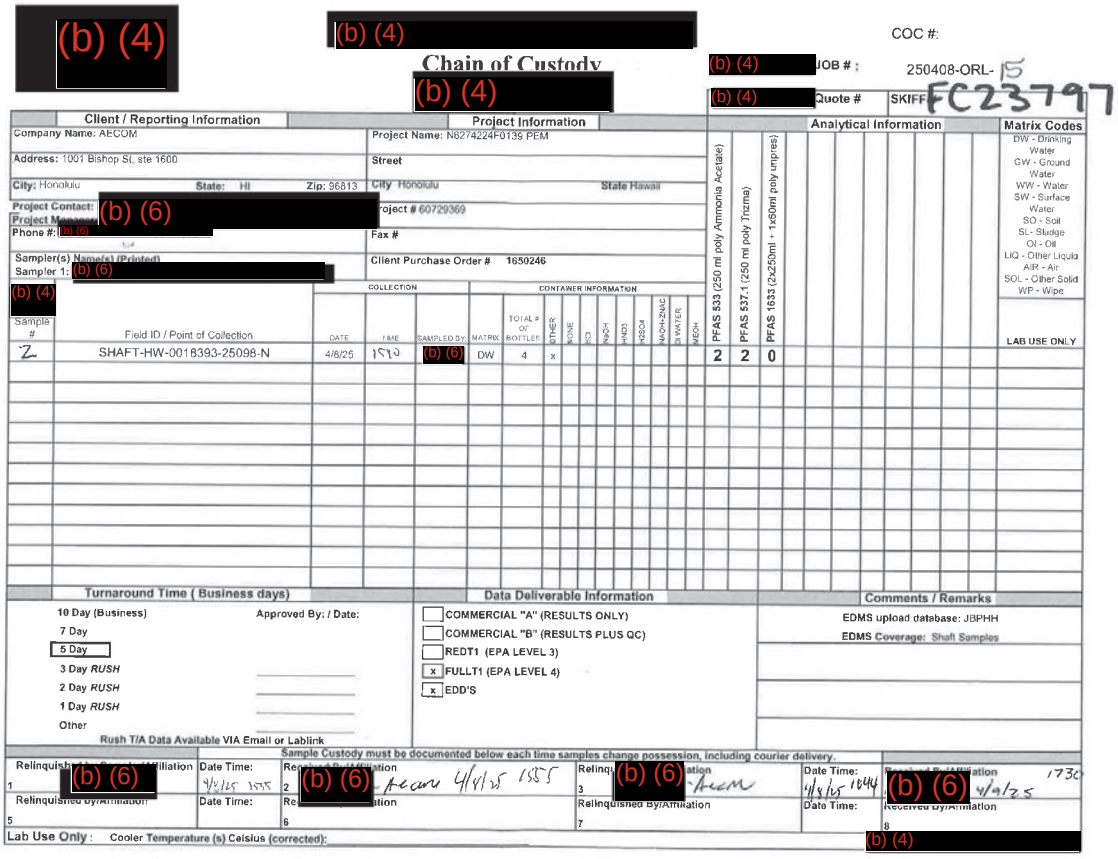

Chain of Custody

COC #:

(b) (4) JOB #: 250408-ORL-15

(b) (4) Quote # SKIFF FC23797

Client / Reporting Information	Project Information
Company Name: AECOM	Project Name: N6274224F0139 PEM
Address: 1001 Bishop St, ste 1600	Street
City: Honolulu State: HI Zip: 96813	City Honolulu State Hawaii
Project Contact: (b) (6)	Project # 60729369
Project Manager:	
Phone #: (b) (6)	Fax #
Sampler(s) Name(s) (Printed)	Client Purchase Order # 1650246
Sampler 1: (b) (6)	

(b) (4)

Sample #	Field ID / Point of Collection	COLLECTION DATE	COLLECTION TIME	SAMPLED BY:	CONTAINER INFORMATION MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	ICE	HNO3	H2SO4	NAOH+ZNAC	DI WATER	MEOH	Analytical Information: PFAS 533 (250 ml poly Ammonia Acetate)	PFAS 537.1 (250 ml poly Trizma)	PFAS 1633 (2x250ml + 1x60ml poly unpres)	Matrix Codes	LAB USE ONLY
2	SHAFT-HW-0018393-25098-N	4/8/25	1519	(b) (6)	DW	4	x								2	2	0		

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL - Sludge; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe

Turnaround Time (Business days)

10 Day (Business) Approved By: / Date:
7 Day
5 Day
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH*
Other

Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [x] FULLT1 (EPA LEVEL 4)
- [x] EDD'S

Comments / Remarks

EDMS upload database: JBPHH
EDMS Coverage: Shaft Samples

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished By/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1 (b) (6)	4/8/25 1555	2 (b) (6) AECOM 4/8/25 1555	3 (b) (6) AECOM	4/8/25 1844	4 (b) (6) 4/9/25 1730
5	Date Time:	6	7	Date Time:	8

Lab Use Only: Cooler Temperature (s) Celsius (corrected):

(b) (4)

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FC23797: Chain of Custody
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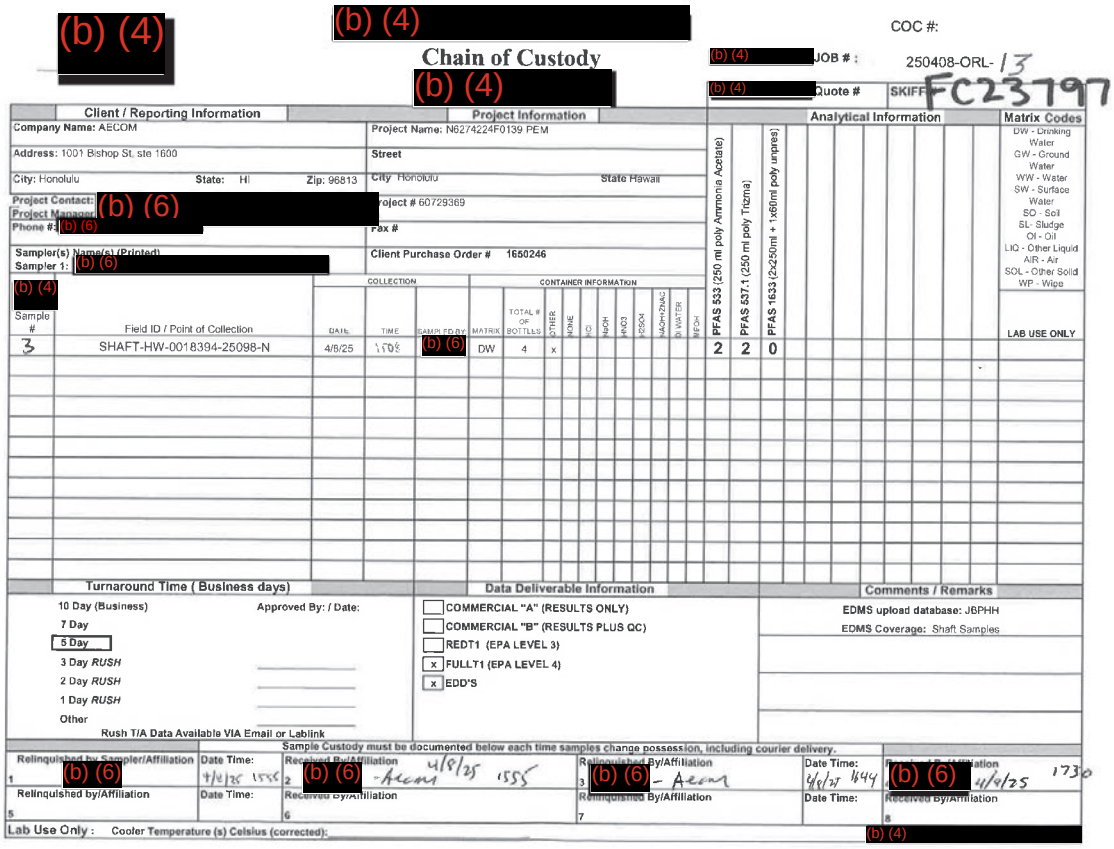

Chain of Custody

COC #:

JOB #: 250408-ORL-13

Quote #: SKIFF FC23797

Client / Reporting Information

Company Name: AECOM
Address: 1001 Bishop St, ste 1600
City: Honolulu State: HI Zip: 96813
Project Contact:
Project Manager: (b) (6)
Phone #: (b) (6)
Sampler(s) Name(s) (Printed)
Sampler 1: (b) (6)

Project Information

Project Name: N6274224F0139 PEM
Street
City Honolulu State Hawaii
Project # 60729369
Fax #
Client Purchase Order # 1650246

Analytical Information

Sample #	Field ID / Point of Collection	Date	Time	Sampled By	Matrix	Total # of Bottles	Other	None	HCl	NaOH	HNO3	H2SO4	NaOH+ZnAc	DI Water	MeOH	PFAS 533 (250 ml poly Ammonia Acetate)	PFAS 537.1 (250 ml poly Trizma)	PFAS 1633 (2-250ml + 1x60ml poly unpres)
3	SHAFT-HW-0018394-25098-N	4/8/25	1508	(b) (6)	DW	4		x								2	2	0

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe

LAB USE ONLY

Turnaround Time (Business days)

10 Day (Business) Approved By: / Date:
7 Day
[5 Day]
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH*
Other
Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

[ ] COMMERCIAL "A" (RESULTS ONLY)
[ ] COMMERCIAL "B" (RESULTS PLUS QC)
[ ] REDT1 (EPA LEVEL 3)
[x] FULLT1 (EPA LEVEL 4)
[x] EDD'S

Comments / Remarks

EDMS upload database: JBPHH
EDMS Coverage: Shaft Samples

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1	(b) (6)	4/8/25 1555	2 (b) (6) - Aecom 4/8/25 1555	3 (b) (6) - Aecom	4/8/25 1644	4 (b) (6) 4/9/25 1730
5	Relinquished by/Affiliation	Date Time:	6 Received By/Affiliation	7 Relinquished By/Affiliation	Date Time:	8 Received By/Affiliation

Lab Use Only : Cooler Temperature (s) Celsius (corrected):

(b) (4)

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FC23797: Chain of Custody
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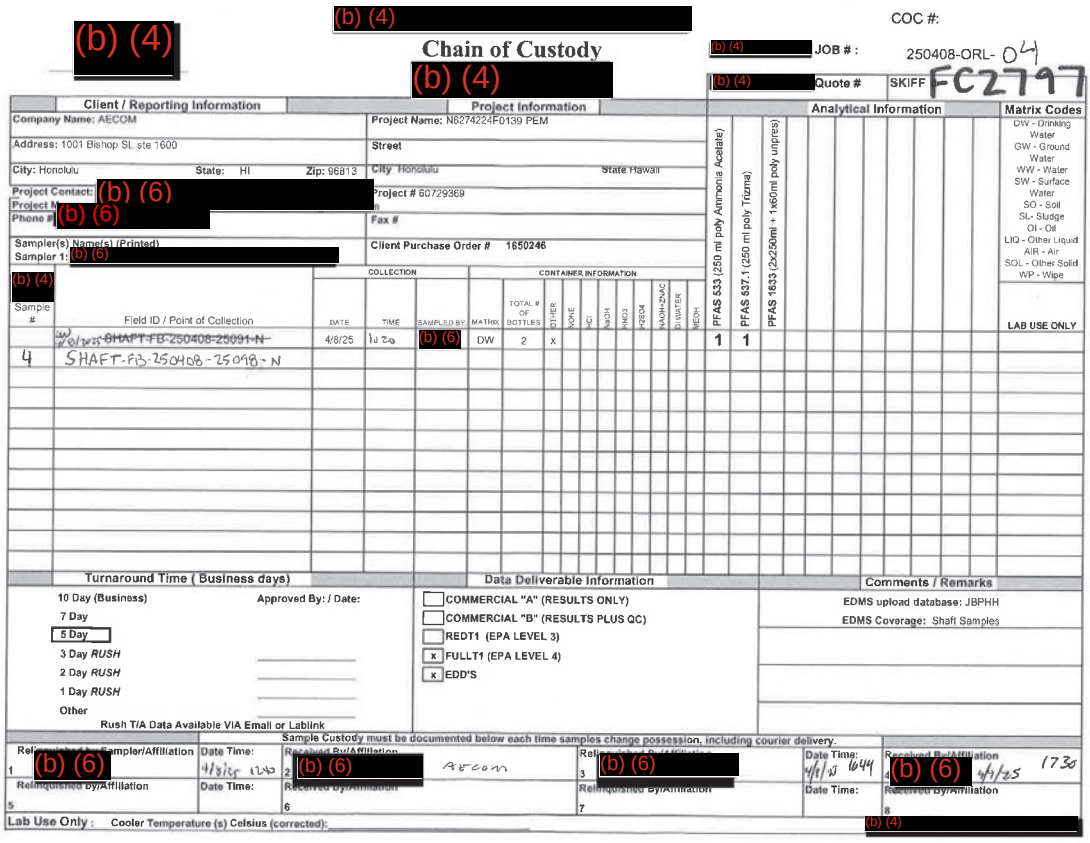

[redacted]

[redacted]

Chain of Custody

[redacted]

COC #:

[redacted] JOB # : 250408-ORL- 04

[redacted] Quote # SKIFF FC2797

Client / Reporting Information	Project Information
Company Name: AECOM	Project Name: N6274224F0139 PEM
Address: 1001 Bishop St, ste 1600	Street
City: Honolulu State: HI Zip: 96813	City Honolulu State Hawaii
Project Contact: [redacted]	Project # 60729369
Project M[redacted]	
Phone # [redacted]	Fax #
Sampler(s) Name(s) (Printed)	Client Purchase Order # 1650246
Sampler 1: [redacted]	

Analytical Information

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe

[redacted] Sample #	Field ID / Point of Collection	COLLECTION DATE	TIME	SAMPLED BY	CONTAINER INFORMATION MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NAOH+ZNAC	DI WATER	MEOH	PFAS 533 (250 ml poly Ammonia Acetate)	PFAS 537.1 (250 ml poly Trizma)	PFAS 1633 (2x250ml + 1x60ml poly unpres)	LAB USE ONLY
	~~SHAFT-FB-250408-25091-N~~	4/8/25	1020	[redacted]	DW	2	x									1	1		
4	SHAFT-FB-250408-25098-N																		

Turnaround Time (Business days)	Data Deliverable Information	Comments / Remarks
10 Day (Business) Approved By: / Date:	COMMERCIAL "A" (RESULTS ONLY)	EDMS upload database: JBPHH
7 Day	COMMERCIAL "B" (RESULTS PLUS QC)	EDMS Coverage: Shaft Samples
5 Day	REDT1 (EPA LEVEL 3)	
3 Day *RUSH*	x FULLT1 (EPA LEVEL 4)	
2 Day *RUSH*	x EDD'S	
1 Day *RUSH*		
Other		
Rush T/A Data Available VIA Email or Lablink		

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by/Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1 [redacted]	4/8/25 1240	2 [redacted] Aecom	3 [redacted]	4/8/25 1644	4 [redacted] 4/8/25 1730
Relinquished By/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
5		6	7		8

Lab Use Only : Cooler Temperature (s) Celsius (corrected): [redacted]

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FC23797: Chain of Custody
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(b) (4) Sample Receipt Summary

Job Number: fc23797 **Client:** AECOM **Project:** N6274224F0139 Extended Drinking Water

Date / Time Received: 4/9/2025 5:30:00 PM **Delivery Method:** United Cargo/Airspace **Airbill #'s:** United Cargo AWB #: 016-66358596

Cooler Temps (Raw Measured) °C: Cooler 1: (4.6);

Cooler Temps (Corrected) °C: Cooler 1: (5.0);

Cooler Informatio	Y	or	N
1. Custody Seals Present:	☑		☐
2. Custody Seals Intact:	☑		☐
3. Temp criteria achieved:	☑		☐
4. Cooler temp verification:	IR Gun		
5. Cooler media:	Ice (Bag)		

Trip Blank Information	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑

	W	or	S	N/A
3. Type of TB Received	☐		☐	☑

Sample Information	Y	or	N	N/A
1. Sample labels present on bottles:	☑		☐	
2. Samples presented properly	☑		☐	
3. Sufficient volume/containers recv'd for analysi	☑		☐	
4. Condition of sample:	Intact			
5. Sample recv'd within HT	☑		☐	
6. Dates/Times/IDs on COC match sample labe	☑		☐	
7. VOCs have headspace	☐		☐	☑
8. Bottles received for unspecified tests	☐		☑	
9. Compositing instructions clear	☐		☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☑
11. % Solids Jar Received?	☐		☐	☑
12. Residual Chlorine Present?	☐		☐	☑

Misc Information

Number of Encores: 25 Gram 5 Gram

Test Strip Lot #s: pH 0-3: 226422 pH 10-12: Number of Lab Filtered Metals

Residual Chlorine Test Strip Lot Other: (Specify) 0-14 210224

Comments

Sample Receipt Summary 112723 EK Technician: (b) (6) Date: 4/9/2025 5:37:41 PM Reviewer: (b) (6) Date: 04/09/25

5.1 5

FC23797: Chain of Custody
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QC Evaluation: DOD QSM5.x Limits

Job Number: FC23797
Account: AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Collected: 04/08/25

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits

No DOD QSM5.x Limits found for methods in this job.

* Sample used for QC is not from job FC23797

MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Injection/Internal Standard Area Summaries
- Isotope Dilution Standard/Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries
- Run Sequence Reports

Raw Data: 3Q101438.D

Instrument Blank

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q1491-IBLK	3Q101438.D	1	04/11/25	(b) (6)	n/a	n/a	S3Q1491

The QC reported here applies to the following samples: **Method:** EPA 533

FC23797-1, FC23797-2, FC23797-3, FC23797-4

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.00060	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.00068	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00060	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00068	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00060	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00060	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00064	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00065	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00060	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.00077	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00060	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.00060	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00060	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0040	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
377-73-1	PFMPA	ND	0.0040	0.00064	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.00060	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.00060	ug/l	
113507-82-7	PFEESA	ND	0.0040	0.00060	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0040	0.00060	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0040	0.00060	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0040	0.00068	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	102%	50-200%
	13C5-PFPeA	102%	50-200%
	13C5-PFHxA	100%	50-200%
	13C4-PFHpA	101%	50-200%
	13C8-PFOA	102%	50-200%
	13C9-PFNA	102%	50-200%
	13C6-PFDA	102%	50-200%

Instrument Blank

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q1491-IBLK	3Q101438.D	1	04/11/25	(b) (6)	n/a	n/a	S3Q1491

The QC reported here applies to the following samples: **Method:** EPA 533

FC23797-1, FC23797-2, FC23797-3, FC23797-4

CAS No.	ID Standard Recoveries		Limits
	13C7-PFUnDA	102%	50-200%
	13C2-PFDoDA	102%	50-200%
	13C3-PFBS	101%	50-200%
	13C3-PFHxS	102%	50-200%
	13C8-PFOS	102%	50-200%
	13C2-4:2FTS	94%	50-200%
	13C2-6:2FTS	96%	50-200%
	13C2-8:2FTS	95%	50-200%
	13C3-HFPO-DA	92%	50-200%

Raw Data: 3Q101444.D

Method Blank Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8808-MB	3Q101444.D	1	04/11/25	(b) (6)	04/10/25	OP8808	S3Q1491

The QC reported here applies to the following samples: **Method:** EPA 533

FC23797-1, FC23797-2, FC23797-3, FC23797-4

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.00060	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.00068	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00060	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00068	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00060	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00060	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00064	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00065	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00060	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.00077	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00060	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.00060	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00060	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0040	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
377-73-1	PFMPA	ND	0.0040	0.00064	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.00060	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.00060	ug/l	
113507-82-7	PFEESA	ND	0.0040	0.00060	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0040	0.00060	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0040	0.00060	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0040	0.00068	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	79%	50-200%
	13C5-PFPeA	80%	50-200%
	13C5-PFHxA	78%	50-200%
	13C4-PFHpA	79%	50-200%
	13C8-PFOA	79%	50-200%
	13C9-PFNA	77%	50-200%
	13C6-PFDA	77%	50-200%

Method Blank Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8808-MB	3Q101444.D	1	04/11/25	(b) (6)	04/10/25	OP8808	S3Q1491

The QC reported here applies to the following samples: **Method:** EPA 533

FC23797-1, FC23797-2, FC23797-3, FC23797-4

CAS No.	ID Standard Recoveries		Limits
	13C7-PFUnDA	72%	50-200%
	13C2-PFDoDA	67%	50-200%
	13C3-PFBS	79%	50-200%
	13C3-PFHxS	80%	50-200%
	13C8-PFOS	79%	50-200%
	13C2-4:2FTS	71%	50-200%
	13C2-6:2FTS	73%	50-200%
	13C2-8:2FTS	68%	50-200%
	13C3-HFPO-DA	77%	50-200%

Raw Data: 5Q31701.D

Method Blank Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8806-MB	5Q31701.D	1	04/11/25	(b)(4)	04/10/25	OP8806	S5Q519

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23797-1A, FC23797-2A, FC23797-3A, FC23797-4A

CAS No.	Compound	Result	RL	MDL	Units	Q
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00080	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00080	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00080	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00080	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00080	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00080	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00080	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0020	0.00080	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0020	0.00080	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00080	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00080	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00080	ug/l	
2355-31-9	MeFOSAA	ND	0.0040	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0040	0.0010	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0080	0.0030	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

CAS No.	Surrogate Recoveries		Limits
	13C2-PFHxA	140%* [a]	70-130%
	13C2-PFDA	134%* [a]	70-130%
	d5-EtFOSAA	136%* [a]	70-130%
	13C3-HFPO-DA	137%* [a]	70-130%

(a) Outside control limits.

Method Blank Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8806-MB	5Q31745.D	1	04/14/25	(b)(6)	04/10/25	OP8806	S5Q520

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23797-1A, FC23797-2A, FC23797-3A, FC23797-4A

CAS No.	Compound	Result	RL	MDL	Units	Q
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00080	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00080	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00080	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00080	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00080	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00080	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00080	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0020	0.00080	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0020	0.00080	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00080	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00080	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00080	ug/l	
2355-31-9	MeFOSAA	ND	0.0040	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0040	0.0010	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0080	0.0030	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

CAS No.	Surrogate Recoveries		Limits
	13C2-PFHxA	143%* [a]	70-130%
	13C2-PFDA	135%* [a]	70-130%
	d5-EtFOSAA	138%* [a]	70-130%
	13C3-HFPO-DA	137%* [a]	70-130%

(a) Outside control limits.

Blank Spike Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8808-BS	3Q101443.D	1	04/11/25	(b) (6)	04/10/25	OP8808	S3Q1491

The QC reported here applies to the following samples: **Method:** EPA 533

FC23797-1, FC23797-2, FC23797-3, FC23797-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.08	0.0931	116	70-130
2706-90-3	Perfluoropentanoic acid	0.08	0.0920	115	70-130
307-24-4	Perfluorohexanoic acid	0.08	0.0918	115	70-130
375-85-9	Perfluoroheptanoic acid	0.08	0.0910	114	70-130
335-67-1	Perfluorooctanoic acid	0.08	0.0925	116	70-130
375-95-1	Perfluorononanoic acid	0.08	0.0939	117	70-130
335-76-2	Perfluorodecanoic acid	0.08	0.0917	115	70-130
2058-94-8	Perfluoroundecanoic acid	0.08	0.0940	118	70-130
307-55-1	Perfluorododecanoic acid	0.08	0.0966	121	70-130
375-73-5	Perfluorobutanesulfonic acid	0.08	0.0911	114	70-130
2706-91-4	Perfluoropentanesulfonic acid	0.08	0.0909	114	70-130
355-46-4	Perfluorohexanesulfonic acid	0.08	0.0914	114	70-130
375-92-8	Perfluoroheptanesulfonic acid	0.08	0.0901	113	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.08	0.0887	111	70-130
757124-72-4	4:2 Fluorotelomer sulfonate	0.08	0.0952	119	70-130
27619-97-2	6:2 Fluorotelomer sulfonate	0.08	0.0946	118	70-130
39108-34-4	8:2 Fluorotelomer sulfonate	0.08	0.0955	119	70-130
377-73-1	PFMPA	0.08	0.0930	116	70-130
863090-89-5	PFMBA	0.08	0.0919	115	70-130
151772-58-6	NFDHA	0.08	0.0913	114	70-130
113507-82-7	PFEESA	0.08	0.0916	115	70-130
13252-13-6	HFPO-DA (GenX)	0.08	0.0797	100	70-130
919005-14-4	ADONA	0.08	0.0909	114	70-130
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.08	0.0890	111	70-130
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.08	0.0838	105	70-130

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	70%	50-200%
	13C5-PFPeA	71%	50-200%
	13C5-PFHxA	71%	50-200%
	13C4-PFHpA	72%	50-200%
	13C8-PFOA	70%	50-200%
	13C9-PFNA	69%	50-200%
	13C6-PFDA	69%	50-200%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8808-BS	3Q101443.D	1	04/11/25	(b) (6)	04/10/25	OP8808	S3Q1491

The QC reported here applies to the following samples: **Method:** EPA 533

FC23797-1, FC23797-2, FC23797-3, FC23797-4

CAS No.	ID Standard Recoveries	BSP	Limits
	13C7-PFUnDA	63%	50-200%
	13C2-PFDoDA	59%	50-200%
	13C3-PFBS	73%	50-200%
	13C3-PFHxS	73%	50-200%
	13C8-PFOS	72%	50-200%
	13C2-4:2FTS	75%	50-200%
	13C2-6:2FTS	73%	50-200%
	13C2-8:2FTS	70%	50-200%
	13C3-HFPO-DA	84%	50-200%

* = Outside of Control Limits.

Raw Data: 5Q31700.D

Blank Spike Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8806-BS	5Q31700.D	1	04/11/25	(b)(6)	04/10/25	OP8806	S5Q519

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23797-1A, FC23797-2A, FC23797-3A, FC23797-4A

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
307-24-4	Perfluorohexanoic acid	0.004	0.0036	90	50-150
375-85-9	Perfluoroheptanoic acid	0.004	0.0035	88	50-150
335-67-1	Perfluorooctanoic acid	0.004	0.0037	93	50-150
375-95-1	Perfluorononanoic acid	0.004	0.0038	95	50-150
335-76-2	Perfluorodecanoic acid	0.004	0.0036	90	50-150
2058-94-8	Perfluoroundecanoic acid	0.004	0.0031	78	50-150
307-55-1	Perfluorododecanoic acid	0.004	0.0023	58	50-150
72629-94-8	Perfluorotridecanoic acid	0.004	0.0030	75	50-150
376-06-7	Perfluorotetradecanoic acid	0.004	0.0023	58	50-150
375-73-5	Perfluorobutanesulfonic acid	0.004	0.0036	90	50-150
355-46-4	Perfluorohexanesulfonic acid	0.004	0.0036	90	50-150
1763-23-1	Perfluorooctanesulfonic acid	0.004	0.0037	93	50-150
2355-31-9	MeFOSAA	0.004	0.0033	83	50-150
2991-50-6	EtFOSAA	0.004	0.0035	88	50-150
13252-13-6	HFPO-DA (GenX)	0.004	0.0037	93	50-150
919005-14-4	ADONA	0.004	0.0035	88	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.004	0.0032	80	50-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.004	0.0028	70	50-150

CAS No.	Surrogate Recoveries	BSP	Limits
	13C2-PFHxA	132%* [a]	70-130%
	13C2-PFDA	126%	70-130%
	d5-EtFOSAA	132%* [a]	70-130%
	13C3-HFPO-DA	127%	70-130%

(a) Outside control limits.

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8806-BS	5Q31744.D	1	04/14/25	(b) (4)	04/10/25	OP8806	S5Q520

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23797-1A, FC23797-2A, FC23797-3A, FC23797-4A

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
307-24-4	Perfluorohexanoic acid	0.004	0.0040	100	50-150
375-85-9	Perfluoroheptanoic acid	0.004	0.0038	95	50-150
335-67-1	Perfluorooctanoic acid	0.004	0.0038	95	50-150
375-95-1	Perfluorononanoic acid	0.004	0.0038	95	50-150
335-76-2	Perfluorodecanoic acid	0.004	0.0030	75	50-150
2058-94-8	Perfluoroundecanoic acid	0.004	0.0028	70	50-150
307-55-1	Perfluorododecanoic acid	0.004	0.0020	50	50-150
72629-94-8	Perfluorotridecanoic acid	0.004	0.0018	45*	50-150
376-06-7	Perfluorotetradecanoic acid	0.004	0.0020	50	50-150
375-73-5	Perfluorobutanesulfonic acid	0.004	0.0039	98	50-150
355-46-4	Perfluorohexanesulfonic acid	0.004	0.0039	98	50-150
1763-23-1	Perfluorooctanesulfonic acid	0.004	0.0040	100	50-150
2355-31-9	MeFOSAA	0.004	0.0049	123	50-150
2991-50-6	EtFOSAA	0.004	0.0046	115	50-150
13252-13-6	HFPO-DA (GenX)	0.004	0.0037	93	50-150
919005-14-4	ADONA	0.004	0.0037	93	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.004	0.0033	83	50-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.004	0.0027	68	50-150

CAS No.	Surrogate Recoveries	BSP	Limits
	13C2-PFHxA	132%* [a]	70-130%
	13C2-PFDA	128%	70-130%
	d5-EtFOSAA	127%	70-130%
	13C3-HFPO-DA	124%	70-130%

(a) Outside control limits.

* = Outside of Control Limits.

Raw Data: 3Q101446.D

Matrix Spike Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8808-MS	3Q101446.D	1	04/11/25	(b) (6)	04/10/25	OP8808	S3Q1491
FC23797-1	3Q101445.D	1	04/11/25	(b) (6)	04/10/25	OP8808	S3Q1491

The QC reported here applies to the following samples: **Method:** EPA 533

FC23797-1, FC23797-2, FC23797-3, FC23797-4

CAS No.	Compound	FC23797-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.0041		0.0714	0.0862	115	70-130
2706-90-3	Perfluoropentanoic acid	0.0102		0.0714	0.0889	110	70-130
307-24-4	Perfluorohexanoic acid	0.0081		0.0714	0.0879	112	70-130
375-85-9	Perfluoroheptanoic acid	0.0044		0.0714	0.0841	112	70-130
335-67-1	Perfluorooctanoic acid	0.0086		0.0714	0.0885	112	70-130
375-95-1	Perfluorononanoic acid	0.0018	U	0.0714	0.0830	116	70-130
335-76-2	Perfluorodecanoic acid	0.0018	U	0.0714	0.0829	116	70-130
2058-94-8	Perfluoroundecanoic acid	0.0018	U	0.0714	0.0853	119	70-130
307-55-1	Perfluorododecanoic acid	0.0018	U	0.0714	0.0857	120	70-130
375-73-5	Perfluorobutanesulfonic acid	0.0069		0.0714	0.0882	114	70-130
2706-91-4	Perfluoropentanesulfonic acid	0.0018	U	0.0714	0.0822	115	70-130
355-46-4	Perfluorohexanesulfonic acid	0.0081		0.0714	0.0863	109	70-130
375-92-8	Perfluoroheptanesulfonic acid	0.0018	U	0.0714	0.0802	112	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.0137		0.0714	0.0906	108	70-130
757124-72-4	4:2 Fluorotelomer sulfonate	0.0036	U	0.0714	0.0843	118	70-130
27619-97-2	6:2 Fluorotelomer sulfonate	0.0036	U	0.0714	0.0844	118	70-130
39108-34-4	8:2 Fluorotelomer sulfonate	0.0036	U	0.0714	0.0851	119	70-130
377-73-1	PFMPA	0.0036	U	0.0714	0.0831	116	70-130
863090-89-5	PFMBA	0.0036	U	0.0714	0.0819	115	70-130
151772-58-6	NFDHA	0.0036	U	0.0714	0.0825	115	70-130
113507-82-7	PFEESA	0.0036	U	0.0714	0.0828	116	70-130
13252-13-6	HFPO-DA (GenX)	0.0036	U	0.0714	0.0709	99	70-130
919005-14-4	ADONA	0.0036	U	0.0714	0.0814	114	70-130
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0036	U	0.0714	0.0800	112	70-130
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0036	U	0.0714	0.0753	105	70-130

CAS No.	ID Standard Recoveries	MS	FC23797-1	Limits
	13C4-PFBA	67%	69%	50-200%
	13C5-PFPeA	68%	71%	50-200%
	13C5-PFHxA	68%	67%	50-200%
	13C4-PFHpA	68%	68%	50-200%
	13C8-PFOA	67%	68%	50-200%
	13C9-PFNA	66%	66%	50-200%
	13C6-PFDA	64%	65%	50-200%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8808-MS	3Q101446.D	1	04/11/25	(b) (6)	04/10/25	OP8808	S3Q1491
FC23797-1	3Q101445.D	1	04/11/25	(b) (6)	04/10/25	OP8808	S3Q1491

The QC reported here applies to the following samples: **Method:** EPA 533

FC23797-1, FC23797-2, FC23797-3, FC23797-4

CAS No.	ID Standard Recoveries	MS	FC23797-1	Limits
	13C7-PFUnDA	57%	56%	50-200%
	13C2-PFDoDA	53%	51%	50-200%
	13C3-PFBS	68%	68%	50-200%
	13C3-PFHxS	69%	68%	50-200%
	13C8-PFOS	65%	66%	50-200%
	13C2-4:2FTS	71%	62%	50-200%
	13C2-6:2FTS	70%	64%	50-200%
	13C2-8:2FTS	65%	59%	50-200%
	13C3-HFPO-DA	82%	74%	50-200%

* = Outside of Control Limits.

Raw Data: 5Q31704.D

Matrix Spike Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8806-MS	5Q31704.D	1	04/11/25	(b) (6	04/10/25	OP8806	S5Q519
FC23797-2A [a]	5Q31703.D	1	04/11/25	(b) (6	04/10/25	OP8806	S5Q519
FC23797-2A [b]	5Q31747.D	1	04/14/25	(b) (6	04/10/25	OP8806	S5Q520

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23797-1A, FC23797-2A, FC23797-3A, FC23797-4A

CAS No.	Compound	FC23797-2A ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
307-24-4	Perfluorohexanoic acid	0.0018	U	0.00351	0.0033	94	50-150
375-85-9	Perfluoroheptanoic acid	0.0018	U	0.00351	0.0037	105	50-150
335-67-1	Perfluorooctanoic acid	0.0018	U	0.00351	0.0039	111	50-150
375-95-1	Perfluorononanoic acid	0.0018	U	0.00351	0.0039	111	50-150
335-76-2	Perfluorodecanoic acid	0.0018	U	0.00351	0.0040	114	50-150
2058-94-8	Perfluoroundecanoic acid	0.0018	U	0.00351	0.0035	100	50-150
307-55-1	Perfluorododecanoic acid	0.0018	U	0.00351	0.0024	68	50-150
72629-94-8	Perfluorotridecanoic acid	0.0018	U	0.00351	0.0021	60	50-150
376-06-7	Perfluorotetradecanoic acid	0.0018	U	0.00351	0.0012	34*	50-150
375-73-5	Perfluorobutanesulfonic acid	0.0018	U	0.00351	0.0040	114	50-150
355-46-4	Perfluorohexanesulfonic acid	0.0018	U	0.00351	0.0041	117	50-150
1763-23-1	Perfluorooctanesulfonic acid	0.0018	U	0.00351	0.0041	117	50-150
2355-31-9	MeFOSAA	0.0035	U	0.00351	0.0034	97	50-150
2991-50-6	EtFOSAA	0.0035	U	0.00351	0.0036	103	50-150
13252-13-6	HFPO-DA (GenX)	0.0070	U	0.00351	0.0039	111	50-150
919005-14-4	ADONA	0.0070	U	0.00351	0.0039	111	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0070	U	0.00351	0.0038	108	50-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0070	U	0.00351	0.0026	74	50-150

CAS No.	Surrogate Recoveries	MS	FC23797-2A	FC23797-2A	Limits
	13C2-PFHxA	118%	113%	112%	70-130%
	13C2-PFDA	127%	124%	120%	70-130%
	d5-EtFOSAA	136%* [c]	134%* [c]	118%	70-130%
	13C3-HFPO-DA	123%	114%	116%	70-130%

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Outside control limits.

* = Outside of Control Limits.

Raw Data: 3Q101448.D

Duplicate Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8808-DUP	3Q101448.D	1	04/11/25	(b) (6)	04/10/25	OP8808	S3Q1491
FC23797-2	3Q101447.D	1	04/11/25	(b) (6)	04/10/25	OP8808	S3Q1491

The QC reported here applies to the following samples: **Method:** EPA 533

FC23797-1, FC23797-2, FC23797-3, FC23797-4

CAS No.	Compound	FC23797-2 ug/l	Q	DUP ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.0036	U	ND		nc	30
2706-90-3	Perfluoropentanoic acid	0.0036	U	ND		nc	30
307-24-4	Perfluorohexanoic acid	0.0018	U	ND		nc	30
375-85-9	Perfluoroheptanoic acid	0.0018	U	ND		nc	30
335-67-1	Perfluorooctanoic acid	0.0018	U	ND		nc	30
375-95-1	Perfluorononanoic acid	0.0018	U	ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0018	U	ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0018	U	ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0018	U	ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0018	U	ND		nc	30
2706-91-4	Perfluoropentanesulfonic acid	0.0018	U	ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0018	U	ND		nc	30
375-92-8	Perfluoroheptanesulfonic acid	0.0018	U	ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0018	U	ND		nc	30
757124-72-4	4:2 Fluorotelomer sulfonate	0.0036	U	ND		nc	30
27619-97-2	6:2 Fluorotelomer sulfonate	0.0036	U	ND		nc	30
39108-34-4	8:2 Fluorotelomer sulfonate	0.0036	U	ND		nc	30
377-73-1	PFMPA	0.0036	U	ND		nc	30
863090-89-5	PFMBA	0.0036	U	ND		nc	30
151772-58-6	NFDHA	0.0036	U	ND		nc	30
113507-82-7	PFEESA	0.0036	U	ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.0036	U	ND		nc	30
919005-14-4	ADONA	0.0036	U	ND		nc	30
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0036	U	ND		nc	30
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0036	U	ND		nc	30

CAS No.	ID Standard Recoveries	DUP	FC23797-2	Limits
	13C4-PFBA	72%	70%	50-200%
	13C5-PFPeA	75%	71%	50-200%
	13C5-PFHxA	71%	70%	50-200%
	13C4-PFHpA	73%	71%	50-200%
	13C8-PFOA	72%	69%	50-200%
	13C9-PFNA	69%	67%	50-200%
	13C6-PFDA	64%	65%	50-200%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8808-DUP	3Q101448.D	1	04/11/25	(b) (6)	04/10/25	OP8808	S3Q1491
FC23797-2	3Q101447.D	1	04/11/25	(b) (6)	04/10/25	OP8808	S3Q1491

The QC reported here applies to the following samples: **Method:** EPA 533

FC23797-1, FC23797-2, FC23797-3, FC23797-4

CAS No.	ID Standard Recoveries	DUP	FC23797-2	Limits
	13C7-PFUnDA	53%	56%	50-200%
	13C2-PFDoDA	46%* [a]	51%	50-200%
	13C3-PFBS	74%	70%	50-200%
	13C3-PFHxS	75%	71%	50-200%
	13C8-PFOS	65%	65%	50-200%
	13C2-4:2FTS	81%	65%	50-200%
	13C2-6:2FTS	69%	64%	50-200%
	13C2-8:2FTS	62%	60%	50-200%
	13C3-HFPO-DA	78%	69%	50-200%

(a) Outside control limits.

* = Outside of Control Limits.

Raw Data: 5Q31706.D

Duplicate Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8806-DUP	5Q31706.D	1	04/11/25	(b) (6	04/10/25	OP8806	S5Q519
FC23797-3A [a]	5Q31705.D	1	04/11/25	(b) (6	04/10/25	OP8806	S5Q519
FC23797-3A [b]	5Q31749.D	1	04/14/25	(b) (6	04/10/25	OP8806	S5Q520

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23797-1A, FC23797-2A, FC23797-3A, FC23797-4A

CAS No.	Compound	FC23797-3A ug/l	Q	DUP ug/l	Q	RPD	Limits
307-24-4	Perfluorohexanoic acid	0.0018	U	ND		nc	30
375-85-9	Perfluoroheptanoic acid	0.0018	U	ND		nc	30
335-67-1	Perfluorooctanoic acid	0.0018	U	ND		nc	30
375-95-1	Perfluorononanoic acid	0.0018	U	ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0018	U	ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0018	U	ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0018	U	ND		nc	30
72629-94-8	Perfluorotridecanoic acid	0.0018	U	ND		nc	30
376-06-7	Perfluorotetradecanoic acid	0.0018	U	ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0018	U	ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0018	U	ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0015	J	ND		200*	30
2355-31-9	MeFOSAA	0.0036	U	ND		nc	30
2991-50-6	EtFOSAA	0.0036	U	ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.0073	U	ND		nc	30
919005-14-4	ADONA	0.0073	U	ND		nc	30
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0073	U	ND		nc	30
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0073	U	ND		nc	30

CAS No.	Surrogate Recoveries	DUP	FC23797-3A	FC23797-3A	Limits
	13C2-PFHxA	135%* [c]	133%* [c]	131%* [c]	70-130%
	13C2-PFDA	127%	128%	124%	70-130%
	d5-EtFOSAA	132%* [c]	138%* [c]	125%	70-130%
	13C3-HFPO-DA	132%* [c]	127%	123%	70-130%

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Outside control limits.

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Check Std:	S3Q1491-ICC1491	**Injection Date:**	04/11/25
Lab File ID:	3Q101435.D	**Injection Time:**	17:03
Instrument ID:	GCMS3Q	**Method:**	EPA 533

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT
Initial Cal [a]	78495	2.33	233495	7.42	33070	7.98
Check Std [b]	78378	2.33	230418	7.42	32850	7.98
Upper Limit [c]	117743	3.33	350243	8.42	49605	8.98
Lower Limit [d]	39248	1.33	116748	6.42	16535	6.98

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT
S3Q1491-IBLK	72545	2.32	219872	7.42	30849	7.97
S3Q1491-RT	78411	2.33	237108	7.42	32851	7.98

IS 1 = 13C3-PFBA
IS 2 = 13C2-PFOA
IS 3 = 13C4-PFOS

(a) Initial Cal is: S3Q1491-ICC1491 3Q101435.D 04/11/25 17:03. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +50% of initial standard area; Retention time +1 minutes of check standard.
(d) Lower Limit = -50% of initial standard area; Retention time -1 minutes of check standard.

Injection Standard Area Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Check Std:	S3Q1491-CC1491	**Injection Date:**	04/11/25
Lab File ID:	3Q101441.D	**Injection Time:**	18:39
Instrument ID:	GCMS3Q	**Method:**	EPA 533

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT
Initial Cal [a]	78495	2.33	233495	7.42	33070	7.98
Check Std [b]	77650	2.33	226004	7.42	32348	7.98
Upper Limit [c]	117743	3.33	350243	8.42	49605	8.98
Lower Limit [d]	39248	1.33	116748	6.42	16535	6.98

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT
OP8808-BS	73375	2.29	216039	7.42	30409	7.98
OP8808-MB	70154	2.31	212930	7.42	29955	7.98
FC23797-1	76190	2.31	236400	7.42	33354	7.97
OP8808-MS	90585	2.31	267238	7.42	38303	7.98
FC23797-2	79150	2.31	244572	7.42	34467	7.97
OP8808-DUP	86904	2.31	274255	7.42	38325	7.98
FC23797-3	86659	2.31	261682	7.42	36228	7.97
FC23797-4	88873	2.31	267897	7.42	37377	7.97
S3Q1491-ECC1491	90078	2.32	255685	7.42	36702	7.98

IS 1 = 13C3-PFBA
IS 2 = 13C2-PFOA
IS 3 = 13C4-PFOS

(a) Initial Cal is: S3Q1491-ICC1491 3Q101435.D 04/11/25 17:03. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +50% of initial standard area; Retention time +1 minutes of check standard.
(d) Lower Limit = -50% of initial standard area; Retention time -1 minutes of check standard.

Internal Standard Area Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Check Std:	S5Q519-ICC519	**Injection Date:**	04/11/25
Lab File ID:	5Q31693.D	**Injection Time:**	12:53
Instrument ID:	GCMS5Q	**Method:**	EPA 537.1 REV 2.0

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal [a]	586960	3.61	151308	6.29	396363	6.29	88063	6.86	26037	7.25
Check Std [b]	592418	3.61	158704	6.29	418343	6.29	91350	6.86	26542	7.25
Upper Limit [c]	829385	4.61	222186	7.29	585680	7.29	127890	7.86	37159	8.25
Lower Limit [d]	414693	2.61	111093	5.29	292840	5.29	63945	5.86	18579	6.25

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
S5Q519-RT	633276	3.59	163355	6.27	464047	6.29	99563	6.86	29535	7.24

IS 1 = 13C3-PFPeA
IS 2 = 13C2-6:2FTS
IS 3 = 13C2-PFOA
IS 4 = 13C4-PFOS
IS 5 = d3-MeFOSAA

(a) Initial Cal is: S5Q519-ICC519 5Q31693.D 04/11/25 12:53. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +40% of check standard area; Retention time +1 minutes.
(d) Lower Limit = -30% of check standard area; Retention time -1 minutes.

Internal Standard Area Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Check Std:	S5Q519-CC519	**Injection Date:**	04/11/25
Lab File ID:	5Q31698.D	**Injection Time:**	14:13
Instrument ID:	GCMS5Q	**Method:**	EPA 537.1 REV 2.0

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal [a]	586960	3.61	151308	6.29	396363	6.29	88063	6.86	26037	7.25
Check Std [b]	623949	3.59	175758	6.27	460891	6.28	102338	6.85	31309	7.24
Upper Limit [c]	873529	4.59	246061	7.27	645247	7.28	143273	7.85	43833	8.24
Lower Limit [d]	436764	2.59	123031	5.27	322624	5.28	71637	5.85	21916	6.24

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
OP8806-BS	649152	3.59	171553	6.27	474314	6.29	105836	6.85	30618	7.24
OP8806-MB	641019	3.59	165164	6.27	462543	6.29	102238	6.85	30528	7.24
FC23797-1A	564033	3.58	154938	6.27	426304	6.28	94937	6.85	27441	7.24
FC23797-2A [e]	613358	3.59	201180	6.27	458682	6.29	101031	6.85	28749	7.24
OP8806-MS	610754	3.59	196828	6.27	465930	6.28	100334	6.85	29162	7.24
FC23797-3A [e]	599270	3.59	155432	6.27	439940	6.29	95995	6.85	27701	7.24
OP8806-DUP	701664	3.59	186164	6.27	515835	6.28	114358	6.85	31027	7.24
FC23797-4A [e]	521273	3.59	138757	6.27	380901	6.28	81758	6.85	24598	7.24
S5Q519-ECC519	639081	3.59	185572	6.27	480190	6.28	106491	6.85	31154	7.24

IS 1 = 13C3-PFPeA
IS 2 = 13C2-6:2FTS
IS 3 = 13C2-PFOA
IS 4 = 13C4-PFOS
IS 5 = d3-MeFOSAA

(a) Initial Cal is: S5Q519-ICC519 5Q31693.D 04/11/25 12:53. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +40% of check standard area; Retention time +1 minutes.
(d) Lower Limit = -30% of check standard area; Retention time -1 minutes.
(e) Insufficient sample for re-extraction.

Internal Standard Area Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Check Std:	S5Q520-ICC520	**Injection Date:**	04/14/25
Lab File ID:	5Q31737.D	**Injection Time:**	12:10
Instrument ID:	GCMS5Q	**Method:**	EPA 537.1 REV 2.0

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal [a]	586102	3.59	190175	6.27	432542	6.29	105328	6.86	29576	7.24
Check Std [b]	585595	3.59	195052	6.27	435034	6.29	104946	6.86	29563	7.24
Upper Limit [c]	819833	4.59	273073	7.27	609048	7.29	146924	7.86	41388	8.24
Lower Limit [d]	409917	2.59	136536	5.27	304524	5.29	73462	5.86	20694	6.24

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
S5Q520-RT	581508	3.59	180824	6.27	439315	6.29	103276	6.85	29086	7.24

IS 1 = 13C3-PFPeA
IS 2 = 13C2-6:2FTS
IS 3 = 13C2-PFOA
IS 4 = 13C4-PFOS
IS 5 = d3-MeFOSAA

(a) Initial Cal is: S5Q520-ICC520 5Q31737.D 04/14/25 12:10. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +40% of check standard area; Retention time +1 minutes.
(d) Lower Limit = -30% of check standard area; Retention time -1 minutes.

Internal Standard Area Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Check Std:	S5Q520-CC520	**Injection Date:**	04/14/25
Lab File ID:	5Q31742.D	**Injection Time:**	13:30
Instrument ID:	GCMS5Q	**Method:**	EPA 537.1 REV 2.0

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal [a]	586102	3.59	190175	6.27	432542	6.29	105328	6.86	29576	7.24
Check Std [b]	573673	3.59	195596	6.27	439923	6.29	102079	6.85	30443	7.24
Upper Limit [c]	803142	4.59	273834	7.27	615892	7.29	142911	7.85	42620	8.24
Lower Limit [d]	401571	2.59	136917	5.27	307946	5.29	71455	5.85	21310	6.24

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
OP8806-BS	593678	3.59	182383	6.27	447880	6.29	103338	6.85	29446	7.24
OP8806-MB	579476	3.59	170499	6.27	427221	6.29	97548	6.85	29607	7.24
FC23797-2A [e]	533196	3.59	213344	6.27	414631	6.29	95389	6.85	28085	7.24
FC23797-3A [e]	564237	3.59	174620	6.27	439648	6.29	100490	6.85	28260	7.24
FC23797-4A [e]	462100	3.59	143571	6.27	351301	6.29	80862	6.85	24098	7.24
S5Q520-ECC520	565797	3.59	191607	6.27	435807	6.28	107945	6.85	30091	7.24

IS 1 = 13C3-PFPeA
IS 2 = 13C2-6:2FTS
IS 3 = 13C2-PFOA
IS 4 = 13C4-PFOS
IS 5 = d3-MeFOSAA

(a) Initial Cal is: S5Q520-ICC520 5Q31737.D 04/14/25 12:10. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +40% of check standard area; Retention time +1 minutes.
(d) Lower Limit = -30% of check standard area; Retention time -1 minutes.
(e) Confirmation run.

Internal Standard Area Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Check Std:	S5Q523-ICC523	**Injection Date:**	04/17/25
Lab File ID:	5Q31825.D	**Injection Time:**	14:01
Instrument ID:	GCMS5Q	**Method:**	EPA 537.1 REV 2.0

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal [a]	509621	3.59	195166	6.29	399788	6.29	99129	6.86	30580	7.25
Check Std [b]	511459	3.59	200480	6.29	416202	6.29	97672	6.86	29996	7.25
Upper Limit [c]	716043	4.59	280672	7.29	582683	7.29	136741	7.86	41994	8.25
Lower Limit [d]	358021	2.59	140336	5.29	291341	5.29	68370	5.86	20997	6.25

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
S5Q523-RT	488219	3.59	176883	6.29	381361	6.29	97082	6.86	32235	7.25

IS 1 = 13C3-PFPeA
IS 2 = 13C2-6:2FTS
IS 3 = 13C2-PFOA
IS 4 = 13C4-PFOS
IS 5 = d3-MeFOSAA

(a) Initial Cal is: S5Q523-ICC523 5Q31825.D 04/17/25 14:01. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +40% of check standard area; Retention time +1 minutes.
(d) Lower Limit = -30% of check standard area; Retention time -1 minutes.

Internal Standard Area Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Check Std:	S5Q523-CC523	**Injection Date:**	04/17/25
Lab File ID:	5Q31830.D	**Injection Time:**	15:23
Instrument ID:	GCMS5Q	**Method:**	EPA 537.1 REV 2.0

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal [a]	509621	3.59	195166	6.29	399788	6.29	99129	6.86	30580	7.25
Check Std [b]	512699	3.59	201547	6.28	421900	6.29	100208	6.86	32420	7.24
Upper Limit [c]	717779	4.59	282166	7.28	590660	7.29	140291	7.86	45388	8.24
Lower Limit [d]	358889	2.59	141083	5.28	295330	5.29	70146	5.86	22694	6.24

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
OP8904-BS	502426	3.59	188431	6.28	395007	6.29	92532	6.86	29322	7.24
OP8904-MB	472936	3.59	168937	6.28	371031	6.29	89729	6.86	28755	7.24
FC23797-1A [e]	431261	3.59	157949	6.28	341170	6.29	85160	6.86	27589	7.24
ZZZZZZ	460853	3.59	167204	6.28	367882	6.29	84634	6.86	26326	7.24
ZZZZZZ	432408	3.59	160632	6.28	353151	6.29	84611	6.86	24398	7.24
FC23948-3A	427851	3.59	179054	6.28	338061	6.29	82874	6.86	25292	7.24
OP8904-MS [f]	489738	3.59	221139	6.28	395329	6.29	98834	6.86	28577	7.24
FC23948-4A	480957	3.59	175185	6.28	391083	6.29	93369	6.86	28966	7.24
OP8904-DUP [f]	454184	3.59	167478	6.28	358687	6.29	83610	6.86	27412	7.24
ZZZZZZ	496577	3.59	178520	6.28	394540	6.29	93746	6.86	27054	7.25
S5Q523-ECC523	497002	3.59	197588	6.28	404862	6.29	97933	6.86	33337	7.24

IS 1 = 13C3-PFPeA
IS 2 = 13C2-6:2FTS
IS 3 = 13C2-PFOA
IS 4 = 13C4-PFOS
IS 5 = d3-MeFOSAA

(a) Initial Cal is: S5Q523-ICC523 5Q31825.D 04/17/25 14:01. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +40% of check standard area; Retention time +1 minutes.
(d) Lower Limit = -30% of check standard area; Retention time -1 minutes.
(e) Confirmation run.
(f) rr1x bs targets low, sample eis high

Isotope Dilution Standard Recovery Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Method: EPA 533 **Matrix:** DW

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6	S7	S8
FC23797-1	3Q101445.D	69	71	67	68	68	66	65	56
FC23797-2	3Q101447.D	70	71	70	71	69	67	65	56
FC23797-3	3Q101449.D	73	75	73	74	73	71	69	61
FC23797-4	3Q101450.D	70	71	69	70	69	67	66	54
OP8808-BS	3Q101443.D	70	71	71	72	70	69	69	63
OP8808-DUP	3Q101448.D	72	75	71	73	72	69	64	53
OP8808-MB	3Q101444.D	79	80	78	79	79	77	77	72
OP8808-MS	3Q101446.D	67	68	68	68	67	66	64	57
S3Q1491-IBLK	3Q101438.D	102	102	100	101	102	102	102	102

Isotope Dilution Standards	Recovery Limits
S1 = 13C4-PFBA	50-200%
S2 = 13C5-PFPeA	50-200%
S3 = 13C5-PFHxA	50-200%
S4 = 13C4-PFHpA	50-200%
S5 = 13C8-PFOA	50-200%
S6 = 13C9-PFNA	50-200%
S7 = 13C6-PFDA	50-200%
S8 = 13C7-PFUnDA	50-200%

Isotope Dilution Standard Recovery Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Method: EPA 533 **Matrix:** DW

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S9	S10	S11	S12	S13	S14	S15	S16
FC23797-1	3Q101445.D	51	68	68	66	62	64	59	74
FC23797-2	3Q101447.D	51	70	71	65	65	64	60	69
FC23797-3	3Q101449.D	53	75	76	69	68	68	63	74
FC23797-4	3Q101450.D	50	70	71	63	65	65	58	72
OP8808-BS	3Q101443.D	59	73	73	72	75	73	70	84
OP8808-DUP	3Q101448.D	46* [a]	74	75	65	81	69	62	78
OP8808-MB	3Q101444.D	67	79	80	79	71	73	68	77
OP8808-MS	3Q101446.D	53	68	69	65	71	70	65	82
S3Q1491-IBLK	3Q101438.D	102	101	102	102	94	96	95	92

Isotope Dilution Standards	Recovery Limits
S9 = 13C2-PFDoDA	50-200%
S10 = 13C3-PFBS	50-200%
S11 = 13C3-PFHxS	50-200%
S12 = 13C8-PFOS	50-200%
S13 = 13C2-4:2FTS	50-200%
S14 = 13C2-6:2FTS	50-200%
S15 = 13C2-8:2FTS	50-200%
S16 = 13C3-HFPO-DA	50-200%

(a) Outside control limits.

Surrogate Recovery Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Method: EPA 537.1 REV 2.0 **Matrix:** DW

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
FC23797-1A	5Q31834.D	139* [a]	132* [a]	128	130
FC23797-1A	5Q31702.D	128	124	129	126
FC23797-2A	5Q31747.D	112	120	118	116
FC23797-2A	5Q31703.D	113	124	134* [a]	114
FC23797-3A	5Q31749.D	131* [a]	124	125	123
FC23797-3A	5Q31705.D	133* [a]	128	138* [a]	127
FC23797-4A	5Q31751.D	148* [a]	137* [a]	130	136* [a]
FC23797-4A	5Q31707.D	149* [a]	144* [a]	153* [a]	143* [a]
OP8806-BS	5Q31700.D	132* [a]	126	132* [a]	127
OP8806-BS	5Q31744.D	132* [a]	128	127	124
OP8806-DUP	5Q31706.D	135* [a]	127	132* [a]	132* [a]
OP8806-MB	5Q31701.D	140* [a]	134* [a]	136* [a]	137* [a]
OP8806-MB	5Q31745.D	143* [a]	135* [a]	138* [a]	137* [a]
OP8806-MS	5Q31704.D	118	127	136* [a]	123

Surrogate Compounds	Recovery Limits
S1 = 13C2-PFHxA	70-130%
S2 = 13C2-PFDA	70-130%
S3 = d5-EtFOSAA	70-130%
S4 = 13C3-HFPO-DA	70-130%

(a) Outside control limits.

Initial Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1491-ICC1491
Lab FileID: 3Q101435.D

Initial Calibration Report

Method Path	D:\MassHunter\Methods
Method File	533_041125_S3Q1491.quantmethod.xml
Batch Name	D:\MassHunter\Data\041125_533_S3Q1491\QuantResults\s3q1491.batch.bin
Last Calib Update	4/14/2025 10:07:23 AM

Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time
1	D:\MassHunter\Data\041125_533_S3Q1491\3q101430.d	4/11/2025 3:42:43 PM	4/14/2025 10:07:23 AM
2	D:\MassHunter\Data\041125_533_S3Q1491\3q101431.d	4/11/2025 3:58:48 PM	4/14/2025 10:07:23 AM
3	D:\MassHunter\Data\041125_533_S3Q1491\3q101432.d	4/11/2025 4:14:52 PM	4/14/2025 10:07:23 AM
4	D:\MassHunter\Data\041125_533_S3Q1491\3q101433.d	4/11/2025 4:30:57 PM	4/14/2025 10:07:23 AM
5	D:\MassHunter\Data\041125_533_S3Q1491\3q101434.d	4/11/2025 4:47:03 PM	4/14/2025 10:07:23 AM
6	D:\MassHunter\Data\041125_533_S3Q1491\3q101435.d	4/11/2025 5:03:08 PM	4/14/2025 10:07:23 AM
7	D:\MassHunter\Data\041125_533_S3Q1491\3q101436.d	4/11/2025 5:19:13 PM	4/14/2025 10:07:23 AM
8	D:\MassHunter\Data\041125_533_S3Q1491\3q101437.d	4/11/2025 5:35:18 PM	4/14/2025 9:18:15 AM

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I 13C2-PFOA						ISTD					
S 13C5-PFHxA	Avg RF	0.9956	0.8837	0.9050	0.8908	0.9910	0.9723	1.0682		0.9581	7.089
S 13C3-HFPO-DA	Avg RF	0.0118	0.0104	0.0106	0.0099	0.0117	0.0119	0.0153		0.0117	15.291
S 13C4-PFHpA	Avg RF	0.8776	0.7754	0.7956	0.7819	0.8595	0.8424	0.9147		0.8353	6.323
S 13C8-PFOA	Avg RF	1.2266	1.0937	1.1007	1.0877	1.1900	1.1617	1.2378		1.1569	5.520
S 13C9-PFNA	Avg RF	1.3304	1.1769	1.1918	1.1817	1.2953	1.2841	1.3835		1.2634	6.433
S 13C6-PFDA	Avg RF	1.9642	1.7377	1.7896	1.7895	1.9366	1.9212	2.0504		1.8842	6.032
S 13C7-PFUnDA	Avg RF	3.5345	3.1044	3.2125	3.1488	3.4713	3.4267	3.7446		3.3775	6.888
S 13C2-PFDoDA	Avg RF	4.6217	4.0354	4.1287	4.0491	4.4707	4.4184	4.9210		4.3779	7.531
I 13C3-PFBA						ISTD					
S 13C4-PFBA	Avg RF	1.7938	1.6183	1.6282	1.6154	1.7630	1.7270	1.8255		1.7102	5.203
S 13C5-PFPeA	Avg RF	2.2077	1.9769	1.9973	1.9964	2.1648	2.1266	2.2257		2.0993	5.097
I 13C4-PFOS						ISTD					
S 13C3-PFBS	Avg RF	0.6268	0.5693	0.5692	0.5727	0.6297	0.6179	0.6583		0.6063	5.901
S 13C2-4:2FTS	Avg RF	2.5017	2.2617	2.2939	2.3000	2.6081	2.6736	3.3065		2.5637	14.272
S 13C3-PFHxS	Avg RF	0.9218	0.8295	0.8261	0.8259	0.9067	0.8716	0.9333		0.8736	5.422
S 13C2-6:2FTS	Avg RF	4.9889	4.4451	4.5099	4.4858	5.1145	5.1176	6.1056		4.9668	11.781
S 13C8-PFOS	Avg RF	1.1745	1.0417	1.0664	1.0535	1.1577	1.1352	1.1922		1.1173	5.568
S 13C2-8:2FTS	Avg RF	8.0039	7.2691	7.0772	7.2403	8.0649	8.2742	10.09		8.0034	12.932
I M4-PFBA						ISTD					
T PFBA	Quadratic	0.2530	0.3189	0.2868	0.3107	0.3123	0.3057	0.3850		0.3103	12.837
T PFMPA	Quadratic	0.2858	0.3587	0.3358	0.3536	0.3581	0.3487	0.4404		0.3545	12.890
I M5-PFPeA						ISTD					
T PFPeA	Quadratic	0.6979	0.8357	0.7822	0.8391	0.8514	0.8268	1.0454		0.8398	12.494
T PFMBA	Quadratic	0.3290	0.4195	0.3888	0.4124	0.4171	0.4040	0.5054		0.4109	12.681
I M5-PFHxA						ISTD					

Generated at 10:07 AM on 4/14/2025

Initial Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1491-ICC1491
Lab FileID: 3Q101435.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T NFDHA	Quadratic	0.2239	0.2723	0.2506	0.2665	0.2658	0.2596	0.3310		0.2671	12.142
T PFHxA	Quadratic	0.7665	0.9799	0.9264	0.9870	1.0041	0.9772	1.2359		0.9824	14.065
I M4-PFHpA						ISTD					
T PFHpA	Quadratic	1.1648	1.4684	1.3479	1.4688	1.5038	1.4668	1.8398		1.4658	13.810
T ADONA	Quadratic	1.7087	2.2304	2.0824	2.2561	2.2997	2.2408	2.8551		2.2390	15.139
I M8-PFOA						ISTD					
T PFOA	Quadratic	0.6700	0.8218	0.7839	0.8098	0.8343	0.8136	1.0205		0.8220	12.599
I M9-PFNA						ISTD					
T PFNA	Quadratic	0.7057	0.8696	0.7940	0.8481	0.8732	0.8404	1.0642		0.8565	12.665
I M6-PFDA						ISTD					
T PFDA	Quadratic	0.4979	0.6133	0.5749	0.6203	0.6318	0.6194	0.7824		0.6200	13.732
I M7-PFUnDA						ISTD					
T PFUnDA	Quadratic	0.5877	0.7203	0.6743	0.7235	0.7390	0.7204	0.9073		0.7247	13.197
I M2-PFDoDA						ISTD					
T PFDoDA	Quadratic	0.6000	0.7317	0.6932	0.7435	0.7567	0.7375	0.9205		0.7404	12.900
I M3-PFBS						ISTD					
T PFBS	Quadratic	1.7157	2.1520	2.0731	2.2056	2.2394	2.2114	2.8169		2.2020	14.777
T PFEESA	Quadratic	8.1505	10.17	9.5380	10.16	10.40	10.05	12.75		10.17	13.424
I M3-PFHxS						ISTD					
T PFPeS	Quadratic	0.9225	1.1794	1.0752	1.1218	1.1354	1.1451	1.4258		1.1436	13.118
T PFHxS	Quadratic	1.6931	2.0649	1.9375	1.9898	2.0682	2.0055	2.5239		2.0404	12.173
T PFHpS	Quadratic	1.6382	2.1188	2.0212	2.1130	2.1480	2.1533	2.6475		2.1200	13.916
I M8-PFOS						ISTD					
T PFOS	Quadratic	1.5504	2.0344	1.7405	1.8249	1.8568	1.7891	2.2760		1.8675	12.357
T 9Cl-PF3ONS	Quadratic	2.3655	3.0172	2.6918	2.9359	2.9611	2.9156	3.6632		2.9358	13.350
T 11Cl-PF3OUdS	Quadratic	6.8925	8.5678	7.9154	8.4898	8.7566	8.5377	10.91		8.5812	14.075
I M2-4:2FTS						ISTD					
T 4:2FTS	Quadratic	1.0202	1.2980	1.1785	1.2649	1.2358	1.1621	1.2686		1.2040	7.873
I M2-6:2FTS						ISTD					
T 6:2FTS	Quadratic	0.7118	0.8951	0.8464	0.8955	0.8864	0.8371	0.9182		0.8558	8.142
I M2-8:2FTS						ISTD					
T 8:2FTS	Quadratic	0.7171	0.8833	0.8270	0.8691	0.8709	0.8240	0.9063		0.8425	7.437
I M3-HFPO-DA						ISTD					
T HFPO-DA	Quadratic	0.2534	0.3309	0.2858	0.2880	0.2757	0.2614	0.2962		0.2845	8.939

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Generated at 10:07 AM on 4/14/2025

Initial Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1491-ICC1491
Lab FileID: 3Q101435.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	Curve Fit R2
T PFBA	Quadratic	y = 0.031942 * x ^ 2 + 0.255957 * x	0.998975
T PFMPA	Quadratic	y = 0.036721 * x ^ 2 + 0.292016 * x	0.998913
T PFPeA	Quadratic	y = 0.087350 * x ^ 2 + 0.692328 * x	0.998887
T PFBS	Quadratic	y = 0.247985 * x ^ 2 + 1.815744 * x	0.999045
T PFMBA	Quadratic	y = 0.040187 * x ^ 2 + 0.342835 * x	0.998907
T PFEESA	Quadratic	y = 1.075023 * x ^ 2 + 8.400883 * x	0.998819
T NFDHA	Quadratic	y = 0.028612 * x ^ 2 + 0.215384 * x	0.998816
T 4:2FTS	Quadratic	y = 0.032108 * x ^ 2 + 1.136598 * x	0.999282
T PFHxA	Quadratic	y = 0.103806 * x ^ 2 + 0.816408 * x	0.998921
T PFPeS	Quadratic	y = 0.118065 * x ^ 2 + 0.949716 * x	0.999378
T HFPO-DA	Quadratic	y = 0.006503 * x ^ 2 + 0.265832 * x	0.997469
T PFHpA	Quadratic	y = 0.150539 * x ^ 2 + 1.231630 * x	0.999033
T PFHxS	Quadratic	y = 0.207884 * x ^ 2 + 1.683790 * x	0.998960
T ADONA	Quadratic	y = 0.247561 * x ^ 2 + 1.854885 * x	0.998898
T PFHpS	Quadratic	y = 0.206852 * x ^ 2 + 1.813325 * x	0.999414
T 6:2FTS	Quadratic	y = 0.025947 * x ^ 2 + 0.811962 * x	0.999356
T PFOA	Quadratic	y = 0.083421 * x ^ 2 + 0.683497 * x	0.999032
T PFOS	Quadratic	y = 0.151376 * x ^ 2 + 1.632453 * x	0.997032
T PFNA	Quadratic	y = 0.088729 * x ^ 2 + 0.705455 * x	0.998805
T 9Cl-PF3ONS	Quadratic	y = 0.304078 * x ^ 2 + 2.435132 * x	0.999078
T PFDA	Quadratic	y = 0.066133 * x ^ 2 + 0.515260 * x	0.999031
T 8:2FTS	Quadratic	y = 0.027217 * x ^ 2 + 0.795134 * x	0.999397
T PFUnDA	Quadratic	y = 0.075232 * x ^ 2 + 0.603280 * x	0.998989
T 11Cl-PF3OUdS	Quadratic	y = 0.959645 * x ^ 2 + 7.032114 * x	0.998922
T PFDoDA	Quadratic	y = 0.073486 * x ^ 2 + 0.623524 * x	0.999034

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Generated at 10:07 AM on 4/14/2025

Initial Calibration Verification

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S3Q1491-ICV1491
Lab FileID: 3Q101439.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041125_533_S3Q1491\s3q1491.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041125_533_S3Q1491\3q101430.d
2:D:\MassHunter\Data\041125_533_S3Q1491\3q101431.d
3:D:\MassHunter\Data\041125_533_S3Q1491\3q101432.d
4:D:\MassHunter\Data\041125_533_S3Q1491\3q101433.d
5:D:\MassHunter\Data\041125_533_S3Q1491\3q101434.d
6:D:\MassHunter\Data\041125_533_S3Q1491\3q101435.d
7:D:\MassHunter\Data\041125_533_S3Q1491\3q101436.d

Data File: 3q101439
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	10.000	9.134	-8.7	91.3
13C2-6:2FTS	10.000	8.904	-11.0	89.0
13C2-8:2FTS	10.000	9.323	-6.8	93.2
13C2-PFDoDA	10.000	8.991	-10.1	89.9
13C2-PFOA	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
13C3-PFBS	10.000	8.857	-11.4	88.6
13C3-PFHxS	10.000	8.763	-12.4	87.6
13C4-PFBA	10.000	8.829	-11.7	88.3
13C4-PFHpA	10.000	8.893	-11.1	88.9
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	10.000	8.890	-11.1	88.9
13C5-PFPeA	10.000	8.770	-12.3	87.7
13C6-PFDA	10.000	8.891	-11.1	88.9
13C7-PFUnDA	10.000	8.995	-10.0	90.0
PFMPA	20.000	20.075	0.4	100.4
13C8-PFOA	10.000	8.878	-11.2	88.8
13C8-PFOS	10.000	8.736	-12.6	87.4
13C9-PFNA	10.000	8.792	-12.1	87.9
4:2FTS	20.000	17.246	-13.8	86.2
6:2FTS	20.000	17.611	-11.9	88.1
8:2FTS	20.000	18.355	-8.2	91.8
PFMBA	20.000	16.677	-16.6	83.4
PFEESA	20.000	16.541	-17.3	82.7
NFDHA	20.000	17.492	-12.5	87.5
PFBA	20.000	18.932	-5.3	94.7
PFBS	20.000	17.045	-14.8	85.2
PFDA	20.000	17.185	-14.1	85.9
PFDoDA	20.000	19.217	-3.9	96.1
PFHpA	20.000	18.323	-8.4	91.6
PFHpS	20.000	16.776	-16.1	83.9
PFHxA	20.000	17.537	-12.3	87.7
PFHxS	20.000	17.921	-10.4	89.6
PFNA	20.000	17.186	-14.1	85.9
PFOA	20.000	18.624	-6.9	93.1
PFOS	20.000	18.298	-8.5	91.5
PFPeA	20.000	17.463	-12.7	87.3
PFPeS	20.000	17.472	-12.6	87.4

Initial Calibration Verification

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1491-ICV1491
Lab FileID: 3Q101439.D

PFUnDA	20.000	19.658	-1.7	98.3
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
11Cl-PF3OUdS	20.000	17.957	-10.2	89.8
13C3-HFPO-DA	10.000	8.623	-13.8	86.2
9Cl-PF3ONS	20.000	18.060	-9.7	90.3
ADONA	20.000	18.363	-8.2	91.8
HFPO-DA	20.000	17.709	-11.5	88.5
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1491-CC1491
Lab FileID: 3Q101441.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041125_533_S3Q1491\s3q1491.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041125_533_S3Q1491\3q101430.d
2:D:\MassHunter\Data\041125_533_S3Q1491\3q101431.d
3:D:\MassHunter\Data\041125_533_S3Q1491\3q101432.d
4:D:\MassHunter\Data\041125_533_S3Q1491\3q101433.d
5:D:\MassHunter\Data\041125_533_S3Q1491\3q101434.d
6:D:\MassHunter\Data\041125_533_S3Q1491\3q101435.d
7:D:\MassHunter\Data\041125_533_S3Q1491\3q101436.d

Data File: 3q101441
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	10.000	10.519	5.2	105.2
13C2-6:2FTS	10.000	10.319	3.2	103.2
13C2-8:2FTS	10.000	10.272	2.7	102.7
13C2-PFDoDA	10.000	10.259	2.6	102.6
13C2-PFOA	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
13C3-PFBS	10.000	10.123	1.2	101.2
13C3-PFHxS	10.000	10.162	1.6	101.6
13C4-PFBA	10.000	10.103	1.0	101.0
13C4-PFHpA	10.000	10.169	1.7	101.7
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	10.000	10.268	2.7	102.7
13C5-PFPeA	10.000	10.052	0.5	100.5
13C6-PFDA	10.000	10.087	0.9	100.9
13C7-PFUnDA	10.000	10.345	3.5	103.5
PFMPA	20.000	19.230	-3.8	96.2
13C8-PFOA	10.000	10.205	2.1	102.1
13C8-PFOS	10.000	9.995	0.0	100.0
13C9-PFNA	10.000	10.234	2.3	102.3
4:2FTS	20.000	19.201	-4.0	96.0
6:2FTS	20.000	19.351	-3.2	96.8
8:2FTS	20.000	19.399	-3.0	97.0
PFMBA	20.000	19.113	-4.4	95.6
PFEESA	20.000	19.329	-3.4	96.6
NFDHA	20.000	19.209	-4.0	96.0
PFBA	20.000	19.258	-3.7	96.3
PFBS	20.000	19.338	-3.3	96.7
PFDA	20.000	19.217	-3.9	96.1
PFDoDA	20.000	19.296	-3.5	96.5
PFHpA	20.000	19.169	-4.2	95.8
PFHpS	20.000	19.195	-4.0	96.0
PFHxA	20.000	19.209	-4.0	96.0
PFHxS	20.000	19.120	-4.4	95.6
PFNA	20.000	19.196	-4.0	96.0
PFOA	20.000	19.085	-4.6	95.4
PFOS	20.000	18.988	-5.1	94.9
PFPeA	20.000	19.308	-3.5	96.5
PFPeS	20.000	18.929	-5.4	94.6

Continuing Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1491-CC1491
Lab FileID: 3Q101441.D

PFUnDA	20.000	19.279	-3.6	96.4
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
11Cl-PF3OUdS	20.000	19.658	-1.7	98.3
13C3-HFPO-DA	10.000	10.837	8.4	108.4
9Cl-PF3ONS	20.000	19.495	-2.5	97.5
ADONA	20.000	19.200	-4.0	96.0
HFPO-DA	20.000	18.548	-7.3	92.7
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S3Q1491-CC1491
Lab FileID: 3Q101442.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041125_533_S3Q1491\s3q1491.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041125_533_S3Q1491\3q101430.d
2:D:\MassHunter\Data\041125_533_S3Q1491\3q101431.d
3:D:\MassHunter\Data\041125_533_S3Q1491\3q101432.d
4:D:\MassHunter\Data\041125_533_S3Q1491\3q101433.d
5:D:\MassHunter\Data\041125_533_S3Q1491\3q101434.d
6:D:\MassHunter\Data\041125_533_S3Q1491\3q101435.d
7:D:\MassHunter\Data\041125_533_S3Q1491\3q101436.d

Data File: 3q101442
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	10.000	9.789	-2.1	97.9
13C2-6:2FTS	10.000	9.978	-0.2	99.8
13C2-8:2FTS	10.000	10.077	0.8	100.8
13C2-PFDoDA	10.000	10.620	6.2	106.2
13C2-PFOA	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
13C3-PFBS	10.000	10.282	2.8	102.8
13C3-PFHxS	10.000	10.480	4.8	104.8
13C4-PFBA	10.000	10.530	5.3	105.3
13C4-PFHpA	10.000	10.569	5.7	105.7
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	10.000	10.563	5.6	105.6
13C5-PFPeA	10.000	10.553	5.5	105.5
13C6-PFDA	10.000	10.526	5.3	105.3
13C7-PFUnDA	10.000	10.585	5.9	105.9
PFMPA	0.500	0.486	-2.9	97.1
13C8-PFOA	10.000	10.607	6.1	106.1
13C8-PFOS	10.000	10.347	3.5	103.5
13C9-PFNA	10.000	10.600	6.0	106.0
4:2FTS	0.500	0.454	-9.2	90.8
6:2FTS	0.500	0.420	-16.0	84.0
8:2FTS	0.500	0.451	-9.8	90.2
PFMBA	0.500	0.479	-4.2	95.8
PFEESA	0.500	0.479	-4.2	95.8
NFDHA	0.500	0.526	5.3	105.3
PFBA	0.500	0.471	-5.8	94.2
PFBS	0.500	0.435	-13.1	86.9
PFDA	0.500	0.490	-2.0	98.0
PFDoDA	0.500	0.493	-1.4	98.6
PFHpA	0.500	0.466	-6.7	93.3
PFHpS	0.500	0.465	-7.0	93.0
PFHxA	0.500	0.462	-7.5	92.5
PFHxS	0.500	0.499	-0.2	99.8
PFNA	0.500	0.479	-4.3	95.7
PFOA	0.500	0.480	-4.0	96.0
PFOS	0.500	0.500	0.1	100.1
PFPeA	0.500	0.488	-2.4	97.6
PFPeS	0.500	0.504	0.7	100.7

Continuing Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1491-CC1491
Lab FileID: 3Q101442.D

PFUnDA	0.500	0.493	-1.4	98.6
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
11Cl-PF3OUdS	0.500	0.501	0.2	100.2
13C3-HFPO-DA	10.000	9.575	-4.2	95.8
9Cl-PF3ONS	0.500	0.517	3.3	103.3
ADONA	0.500	0.477	-4.6	95.4
HFPO-DA	0.500	0.491	-1.8	98.2
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S3Q1491-ECC1491
Lab FileID: 3Q101451.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041125_533_S3Q1491\s3q1491.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041125_533_S3Q1491\3q101430.d
2:D:\MassHunter\Data\041125_533_S3Q1491\3q101431.d
3:D:\MassHunter\Data\041125_533_S3Q1491\3q101432.d
4:D:\MassHunter\Data\041125_533_S3Q1491\3q101433.d
5:D:\MassHunter\Data\041125_533_S3Q1491\3q101434.d
6:D:\MassHunter\Data\041125_533_S3Q1491\3q101435.d
7:D:\MassHunter\Data\041125_533_S3Q1491\3q101436.d

Data File: 3q101451
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	10.000	10.579	5.8	105.8
13C2-6:2FTS	10.000	10.343	3.4	103.4
13C2-8:2FTS	10.000	10.323	3.2	103.2
13C2-PFDoDA	10.000	9.996	0.0	100.0
13C2-PFOA	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
13C3-PFBS	10.000	10.381	3.8	103.8
13C3-PFHxS	10.000	10.180	1.8	101.8
13C4-PFBA	10.000	10.120	1.2	101.2
13C4-PFHpA	10.000	10.261	2.6	102.6
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	10.000	10.454	4.5	104.5
13C5-PFPeA	10.000	10.004	0.0	100.0
13C6-PFDA	10.000	10.438	4.4	104.4
13C7-PFUnDA	10.000	10.216	2.2	102.2
PFMPA	20.000	19.156	-4.2	95.8
13C8-PFOA	10.000	10.166	1.7	101.7
13C8-PFOS	10.000	10.124	1.2	101.2
13C9-PFNA	10.000	10.249	2.5	102.5
4:2FTS	20.000	19.361	-3.2	96.8
6:2FTS	20.000	19.344	-3.3	96.7
8:2FTS	20.000	19.268	-3.7	96.3
PFMBA	20.000	19.107	-4.5	95.5
PFEESA	20.000	19.204	-4.0	96.0
NFDHA	20.000	19.270	-3.7	96.3
PFBA	20.000	19.241	-3.8	96.2
PFBS	20.000	19.244	-3.8	96.2
PFDA	20.000	19.211	-3.9	96.1
PFDoDA	20.000	19.292	-3.5	96.5
PFHpA	20.000	19.264	-3.7	96.3
PFHpS	20.000	19.246	-3.8	96.2
PFHxA	20.000	19.132	-4.3	95.7
PFHxS	20.000	19.406	-3.0	97.0
PFNA	20.000	19.136	-4.3	95.7
PFOA	20.000	19.154	-4.2	95.8
PFOS	20.000	19.066	-4.7	95.3
PFPeA	20.000	19.232	-3.8	96.2
PFPeS	20.000	19.119	-4.4	95.6

Continuing Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1491-ECC1491
Lab FileID: 3Q101451.D

PFUnDA	20.000	19.297	-3.5	96.5
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
11Cl-PF3OUdS	20.000	19.523	-2.4	97.6
13C3-HFPO-DA	10.000	11.450	14.5	114.5
9Cl-PF3ONS	20.000	19.431	-2.8	97.2
ADONA	20.000	19.321	-3.4	96.6
HFPO-DA	20.000	17.102	-14.5	85.5
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Initial Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q519-ICC519
Lab FileID: 5Q31693.D

Initial Calibration Report

Method Path	D:\MassHunter\Methods
Method File	537_041125_S5Q519.quantmethod
Batch Name	D:\MassHunter\Data\041125_DW_S5Q519\QuantResults\s5q519.batch.bin
Last Calib Update	4/14/2025 9:20:53 AM

Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time
1	D:\MassHunter\Data\041125_DW_S5Q519\SQ31688.d	4/11/2025 11:32:48 AM	4/14/2025 9:20:53 AM
2	D:\MassHunter\Data\041125_DW_S5Q519\SQ31689.d	4/11/2025 11:48:48 AM	4/14/2025 9:20:53 AM
3	D:\MassHunter\Data\041125_DW_S5Q519\SQ31690.d	4/11/2025 12:04:50 PM	4/14/2025 9:20:53 AM
4	D:\MassHunter\Data\041125_DW_S5Q519\SQ31691.d	4/11/2025 12:20:51 PM	4/14/2025 9:20:53 AM
5	D:\MassHunter\Data\041125_DW_S5Q519\SQ31692.d	4/11/2025 12:36:53 PM	4/14/2025 9:20:53 AM
6	D:\MassHunter\Data\041125_DW_S5Q519\SQ31693.d	4/11/2025 12:53:46 PM	4/14/2025 9:20:53 AM
7	D:\MassHunter\Data\041125_DW_S5Q519\SQ31694.d	4/11/2025 1:09:48 PM	4/14/2025 9:20:53 AM
8	D:\MassHunter\Data\041125_DW_S5Q519\SQ31695.d	4/11/2025 1:25:52 PM	4/14/2025 9:20:53 AM

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I 13C2-6:2FTS						ISTD					
T 6:2FTS	Linear	1.0371	0.9815	1.0461	1.0478	1.1984	1.1591	1.0711	0.9750	1.0645	7.378
T 8:2FTS	Linear	0.7599	0.7150	0.8194	0.7968	0.8364	0.8450	0.8118	0.7641	0.7936	5.569
I 13C2-PFOA						ISTD					
S 13C2-PFHxA	Quadratic	1.0335	1.1091	1.1523	1.2975	1.4193	1.3512	1.3803	1.4399	1.2729	12.108
T PFHxA	Quadratic	0.6637	0.7882	0.7745	0.8713	0.9749	0.9260	0.9457	0.9751	0.8649	13.043
S 13C3-HFPO-DA	Quadratic	0.0704	0.0703	0.0755	0.0814	0.0868	0.0842	0.0879	0.0932	0.0812	10.376
T HFPO-DA	Quadratic	0.0521	0.0624	0.0744	0.0701	0.0833	0.0775	0.0821	0.0882	0.0737	16.164
T PFHpA	Quadratic	1.3096	1.4371	1.4990	1.6505	1.8603	1.7616	1.8023	1.9305	1.6563	13.349
T ADONA	Quadratic	1.6728	1.8156	1.9959	2.1569	2.3773	2.3477	2.3994	2.6569	2.1778	15.201
T PFOA	Quadratic	0.6553	0.7595	0.7972	0.8593	0.9881	0.9637	0.9797	1.0081	0.8764	14.768
T PFNA	Quadratic	0.4663	0.4792	0.5224	0.5588	0.6166	0.6100	0.6562	0.7173	0.5784	15.148
T 9Cl-PF3ONS	Quadratic	0.1987	0.2396	0.2336	0.2514	0.2689	0.2639	0.2839	0.3150	0.2569	13.607
S 13C2-PFDA	Linear	0.5414	0.5702	0.6212	0.6105	0.7151	0.6938	0.7326	0.7797	0.6581	12.822
T PFDA	Quadratic	0.4258	0.4906	0.5196	0.5886	0.6603	0.6439	0.6704	0.7187	0.5897	17.279
T 11Cl-PF3OUdS	Quadratic	0.1517	0.1721	0.2108	0.2037	0.2265	0.2336	0.2718	0.3143	0.2231	23.389
I 13C3-PFPeA						ISTD					
T PFPeA	Quadratic	0.8503	0.9812	1.0332	1.0886	1.2515	1.2295	1.2427	1.2882	1.1207	14.034
I 13C4-PFOS						ISTD					
T PFBS	Linear	2.3298	2.5567	2.6462	2.8287	3.1952	3.0788	3.0212	3.0291	2.8357	10.579
T PFHxS	Quadratic	1.2665	1.4209	1.4524	1.5573	1.7667	1.7667	1.8046	1.9719	1.6259	14.654
T PFOS	Quadratic	0.9323	1.0022	0.9960	1.1216	1.2306	1.2100	1.2836	1.3804	1.1446	13.797
T PFUnDA	Quadratic	2.0967	2.0905	2.2668	2.3319	2.6084	2.7235	2.9049	3.1314	2.5193	15.259
T PFDoDA	Quadratic	1.0477	1.0257	1.3340	1.2111	1.0778	1.3894	1.7981	2.0385	1.3653	27.192
T PFTrDA	Quadratic	0.4786	0.4886	0.6057	0.5454	0.5890	0.6301	0.7266	0.8404	0.6131	19.846
T PFTeDA	Quadratic	0.4941	0.5121	0.5843	0.5503	0.6148	0.6387	0.7490	0.8970	0.6301	21.342
I d3-MeFOSAA						ISTD					

Generated at 9:21 AM on 4/14/2025

Initial Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q519-ICC519
Lab FileID: 5Q31693.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T MeFOSAA	Linear	0.8388	0.7683	0.7912	0.7864	0.8699	0.8723	0.8767	0.9502	0.8442	7.176
S d5-EtFOSAA	Quadratic	0.5817	0.6923	0.5636	0.6612	0.7554	0.6912	0.6761	0.6995	0.6651	9.539
T EtFOSAA	Quadratic	0.4864	0.4504	0.6043	0.6346	0.7129	0.6229	0.6386	0.6452	0.5994	14.558

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Generated at 9:21 AM on 4/14/2025

Initial Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q519-ICC519
Lab FileID: 5Q31693.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	Curve Fit R2
T PFPeA	Quadratic	y = 0.017145 * x ^ 2 + 1.202279 * x	0.999946
T PFBS	Linear	y = 3.029802 * x	0.999926
S 13C2-PFHxA	Quadratic	y = 0.044017 * x ^ 2 + 1.329388 * x	0.999949
T PFHxA	Quadratic	y = 0.011258 * x ^ 2 + 0.918640 * x	0.999945
S 13C3-HFPO-DA	Quadratic	y = 0.002130 * x ^ 2 + 0.082567 * x	0.999979
T HFPO-DA	Quadratic	y = 0.002557 * x ^ 2 + 0.075451 * x	0.999149
T PFHpA	Quadratic	y = 0.045968 * x ^ 2 + 1.699375 * x	0.999913
T PFHxS	Quadratic	y = 0.061408 * x ^ 2 + 1.663701 * x	0.999931
T ADONA	Quadratic	y = 0.092474 * x ^ 2 + 2.192208 * x	0.999908
T 6:2FTS	Linear	y = 1.000966 * x	0.996041
T PFOA	Quadratic	y = 0.016093 * x ^ 2 + 0.930740 * x	0.999021
T PFOS	Quadratic	y = 0.039950 * x ^ 2 + 1.180960 * x	0.999971
T PFNA	Quadratic	y = 0.025254 * x ^ 2 + 0.591255 * x	0.999974
T 9Cl-PF3ONS	Quadratic	y = 0.012399 * x ^ 2 + 0.252990 * x	0.999984
T MeFOSAA	Linear	y = 0.932745 * x	0.998250
S d5-EtFOSAA	Quadratic	y = 0.010852 * x ^ 2 + 0.671453 * x	0.999759
T EtFOSAA	Quadratic	y = 0.003876 * x ^ 2 + 0.635319 * x	0.999798
S 13C2-PFDA	Linear	y = 0.767151 * x	0.998512
T PFDA	Quadratic	y = 0.021273 * x ^ 2 + 0.613802 * x	0.999143
T 8:2FTS	Linear	y = 0.776360 * x	0.998640
T PFUnDA	Quadratic	y = 0.098558 * x ^ 2 + 2.640595 * x	0.999936
T 11Cl-PF3OUdS	Quadratic	y = 0.020274 * x ^ 2 + 0.214535 * x	0.999477
T PFDoDA	Quadratic	y = 0.127445 * x ^ 2 + 1.408549 * x	0.998919
T PFTrDA	Quadratic	y = 0.048868 * x ^ 2 + 0.596817 * x	0.999922
T PFTeDA	Quadratic	y = 0.061409 * x ^ 2 + 0.590487 * x	0.999967

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Generated at 9:21 AM on 4/14/2025

Initial Calibration Verification

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q519-ICV519
Lab FileID: 5Q31696.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041125_DW_S5Q519\s5q519.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041125_DW_S5Q519\5Q31688.d
2:D:\MassHunter\Data\041125_DW_S5Q519\5Q31689.d
3:D:\MassHunter\Data\041125_DW_S5Q519\5Q31690.d
4:D:\MassHunter\Data\041125_DW_S5Q519\5Q31691.d
5:D:\MassHunter\Data\041125_DW_S5Q519\5Q31692.d
6:D:\MassHunter\Data\041125_DW_S5Q519\5Q31693.d
7:D:\MassHunter\Data\041125_DW_S5Q519\5Q31694.d
8:D:\MassHunter\Data\041125_DW_S5Q519\5Q31695.d

Data File: 5Q31696
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	0.000	# -100.0	0.0
13C2-PFHxA	10.000	0.000	# -100.0	0.0
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	20.383	1.9	101.9
8:2FTS	20.000	19.412	-2.9	97.1
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	0.000	# -100.0	0.0
EtFOSAA	20.000	18.753	-6.2	93.8
MeFOSAA	20.000	17.360	-13.2	86.8
PFBS	20.000	17.490	-12.5	87.5
PFDA	20.000	18.834	-5.8	94.2
PFDoDA	20.000	28.249	# 41.2	141.2
PFHpA	20.000	19.827	-0.9	99.1
PFHxA	20.000	18.208	-9.0	91.0
PFHxS	20.000	16.809	-16.0	84.0
PFNA	20.000	22.876	14.4	114.4
PFOA	20.000	20.471	2.4	102.4
PFOS	20.000	20.030	0.1	100.1
PFPeA	20.000	20.589	2.9	102.9
PFTeDA	20.000	22.455	12.3	112.3
PFTrDA	20.000	25.987	29.9	129.9
PFUnDA	20.000	23.316	16.6	116.6
ADONA	20.000	18.399	-8.0	92.0
9Cl-PF3ONS	20.000	18.576	-7.1	92.9
11Cl-PF3OUdS	20.000	20.518	2.6	102.6
13C3-HFPO-DA	20.000	0.000	# -100.0	0.0
HFPO-DA	20.000	19.786	-1.1	98.9

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q519-CC519
Lab FileID: 5Q31698.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041125_DW_S5Q519\s5q519.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041125_DW_S5Q519\5Q31688.d
2:D:\MassHunter\Data\041125_DW_S5Q519\5Q31689.d
3:D:\MassHunter\Data\041125_DW_S5Q519\5Q31690.d
4:D:\MassHunter\Data\041125_DW_S5Q519\5Q31691.d
5:D:\MassHunter\Data\041125_DW_S5Q519\5Q31692.d
6:D:\MassHunter\Data\041125_DW_S5Q519\5Q31693.d
7:D:\MassHunter\Data\041125_DW_S5Q519\5Q31694.d
8:D:\MassHunter\Data\041125_DW_S5Q519\5Q31695.d

Data File: 5Q31698
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	9.279	-7.2	92.8
13C2-PFHxA	10.000	9.618	-3.8	96.2
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	23.153	15.8	115.8
8:2FTS	20.000	21.924	9.6	109.6
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	20.461	2.3	102.3
EtFOSAA	20.000	19.700	-1.5	98.5
MeFOSAA	20.000	18.587	-7.1	92.9
PFBS	20.000	19.174	-4.1	95.9
PFDA	20.000	20.880	4.4	104.4
PFDoDA	20.000	22.154	10.8	110.8
PFHpA	20.000	19.388	-3.1	96.9
PFHxA	20.000	19.206	-4.0	96.0
PFHxS	20.000	19.333	-3.3	96.7
PFNA	20.000	20.384	1.9	101.9
PFOA	20.000	20.626	3.1	103.1
PFOS	20.000	19.882	-0.6	99.4
PFPeA	20.000	20.036	0.2	100.2
PFTeDA	20.000	21.327	6.6	106.6
PFTrDA	20.000	21.759	8.8	108.8
PFUnDA	20.000	20.642	3.2	103.2
ADONA	20.000	19.559	-2.2	97.8
9Cl-PF3ONS	20.000	20.242	1.2	101.2
11Cl-PF3OUdS	20.000	21.448	7.2	107.2
13C3-HFPO-DA	20.000	19.343	-3.3	96.7
HFPO-DA	20.000	19.304	-3.5	96.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q519-CC519
Lab FileID: 5Q31699.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041125_DW_S5Q519\s5q519.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041125_DW_S5Q519\5Q31688.d
2:D:\MassHunter\Data\041125_DW_S5Q519\5Q31689.d
3:D:\MassHunter\Data\041125_DW_S5Q519\5Q31690.d
4:D:\MassHunter\Data\041125_DW_S5Q519\5Q31691.d
5:D:\MassHunter\Data\041125_DW_S5Q519\5Q31692.d
6:D:\MassHunter\Data\041125_DW_S5Q519\5Q31693.d
7:D:\MassHunter\Data\041125_DW_S5Q519\5Q31694.d
8:D:\MassHunter\Data\041125_DW_S5Q519\5Q31695.d

Data File: 5Q31699
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	0.250	0.182	-27.0	73.0
13C2-PFHxA	0.250	0.186	-25.6	74.4
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	0.500	0.481	-3.8	96.2
8:2FTS	0.500	0.468	-6.4	93.6
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	0.500	0.525	5.1	105.1
EtFOSAA	0.500	0.585	16.9	116.9
MeFOSAA	0.500	0.367	-26.7	73.3
PFBS	0.500	0.374	-25.1	74.9
PFDA	0.500	0.445	-11.1	88.9
PFDoDA	0.500	0.623	24.7	124.7
PFHpA	0.500	0.357	-28.5	71.5
PFHxA	0.500	0.369	-26.2	73.8
PFHxS	0.500	0.352	-29.6	70.4
PFNA	0.500	0.398	-20.5	79.5
PFOA	0.500	0.386	-22.8	77.2
PFOS	0.500	0.403	-19.4	80.6
PFPeA	0.500	0.390	-21.9	78.1
PFTeDA	0.500	0.540	7.9	107.9
PFTrDA	0.500	0.508	1.6	101.6
PFUnDA	0.500	0.441	-11.8	88.2
ADONA	0.500	0.358	-28.4	71.6
9Cl-PF3ONS	0.500	0.396	-20.7	79.3
11Cl-PF3OUdS	0.500	0.464	-7.3	92.7
13C3-HFPO-DA	0.500	0.348	-30.5	69.5
HFPO-DA	0.500	0.403	-19.3	80.7

CC Criteria: +/- 50%

Continuing Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q519-ECC519
Lab FileID: 5Q31708.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041125_DW_S5Q519\s5q519.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041125_DW_S5Q519\5Q31688.d
2:D:\MassHunter\Data\041125_DW_S5Q519\5Q31689.d
3:D:\MassHunter\Data\041125_DW_S5Q519\5Q31690.d
4:D:\MassHunter\Data\041125_DW_S5Q519\5Q31691.d
5:D:\MassHunter\Data\041125_DW_S5Q519\5Q31692.d
6:D:\MassHunter\Data\041125_DW_S5Q519\5Q31693.d
7:D:\MassHunter\Data\041125_DW_S5Q519\5Q31694.d
8:D:\MassHunter\Data\041125_DW_S5Q519\5Q31695.d

Data File: 5Q31708
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	9.703	-3.0	97.0
13C2-PFHxA	10.000	9.658	-3.4	96.6
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	22.248	11.2	111.2
8:2FTS	20.000	22.161	10.8	110.8
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	22.302	11.5	111.5
EtFOSAA	20.000	21.869	9.3	109.3
MeFOSAA	20.000	19.766	-1.2	98.8
PFBS	20.000	19.219	-3.9	96.1
PFDA	20.000	21.709	8.5	108.5
PFDoDA	20.000	27.129	# 35.6	135.6
PFHpA	20.000	19.528	-2.4	97.6
PFHxA	20.000	19.387	-3.1	96.9
PFHxS	20.000	19.865	-0.7	99.3
PFNA	20.000	20.946	4.7	104.7
PFOA	20.000	20.159	0.8	100.8
PFOS	20.000	20.588	2.9	102.9
PFPeA	20.000	19.991	0.0	100.0
PFTeDA	20.000	24.181	20.9	120.9
PFTrDA	20.000	24.900	24.5	124.5
PFUnDA	20.000	22.105	10.5	110.5
ADONA	20.000	19.670	-1.6	98.4
9Cl-PF3ONS	20.000	20.605	3.0	103.0
11Cl-PF3OUdS	20.000	23.332	16.7	116.7
13C3-HFPO-DA	20.000	19.320	-3.4	96.6
HFPO-DA	20.000	18.740	-6.3	93.7

CC Criteria: +/- 30%

Initial Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q520-ICC520
Lab FileID: 5Q31737.D

Initial Calibration Report

Method Path	D:\MassHunter\Methods
Method File	537_041425_S5Q520.quantmethod
Batch Name	D:\MassHunter\Data\041425_DW_S5Q520\QuantResults\s5q520.batch.bin
Last Calib Update	4/15/2025 2:20:27 PM

Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time
1	D:\MassHunter\Data\041425_DW_S5Q520\5Q31732.d	4/14/2025 10:50:29 AM	4/15/2025 2:20:27 PM
2	D:\MassHunter\Data\041425_DW_S5Q520\5Q31733.d	4/14/2025 11:06:30 AM	4/15/2025 2:20:27 PM
3	D:\MassHunter\Data\041425_DW_S5Q520\5Q31734.d	4/14/2025 11:22:31 AM	4/15/2025 2:20:27 PM
4	D:\MassHunter\Data\041425_DW_S5Q520\5Q31735.d	4/14/2025 11:38:31 AM	4/15/2025 2:20:27 PM
5	D:\MassHunter\Data\041425_DW_S5Q520\5Q31736.d	4/14/2025 11:54:33 AM	4/15/2025 2:20:27 PM
6	D:\MassHunter\Data\041425_DW_S5Q520\5Q31737.d	4/14/2025 12:10:34 PM	4/15/2025 2:20:27 PM
7	D:\MassHunter\Data\041425_DW_S5Q520\5Q31738.d	4/14/2025 12:26:35 PM	4/15/2025 2:20:27 PM
8	D:\MassHunter\Data\041425_DW_S5Q520\5Q31739.d	4/14/2025 12:42:39 PM	4/15/2025 2:20:27 PM

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I 13C2-6:2FTS						ISTD					
T 6:2FTS	Linear	0.8930	1.0409	1.0215	1.0671	1.2134	1.1509	1.0736	0.9869	1.0559	9.265
T 8:2FTS	Linear	0.7984	0.8427	0.8482	0.8871	0.9781	0.9210	0.8847	0.8607	0.8776	6.208
I 13C2-PFOA						ISTD					
S 13C2-PFHxA	Linear	0.9744	1.0454	1.0428	1.1263	1.2637	1.2912	1.2670	1.3597	1.1713	12.104
T PFHxA	Quadratic	0.6137	0.7173	0.7313	0.7842	0.8822	0.8814	0.8779	0.9346	0.8028	13.646
T HFPO-DA	Quadratic	0.0594	0.0704	0.0699	0.0738	0.0781	0.0829	0.0829	0.0899	0.0759	12.598
S 13C3-HFPO-DA	Linear	0.0685	0.0733	0.0708	0.0761	0.0813	0.0841	0.0844	0.0923	0.0788	10.259
T PFHpA	Quadratic	1.2204	1.3681	1.4228	1.5271	1.7452	1.7190	1.7209	1.8865	1.5763	14.429
T ADONA	Quadratic	1.5829	1.7791	1.8428	2.0073	2.2682	2.2916	2.3334	2.6249	2.0913	16.560
T PFOA	Quadratic	0.7231	0.8078	0.7963	0.8713	0.9824	0.9690	0.9658	1.0127	0.8910	11.946
T PFNA	Quadratic	0.5085	0.5753	0.5463	0.6109	0.6870	0.6801	0.7084	0.7819	0.6373	14.491
T 9Cl-PF3ONS	Quadratic	0.2274	0.2272	0.2261	0.2458	0.2804	0.2875	0.2920	0.3266	0.2641	14.302
S 13C2-PFDA	Quadratic	0.5766	0.6541	0.6760	0.7378	0.7978	0.8300	0.7995	0.8715	0.7429	13.497
T PFDA	Linear	0.5427	0.5936	0.6095	0.6522	0.7304	0.7349	0.7244	0.7859	0.6717	12.613
T 11Cl-PF3OUdS	Quadratic	0.2263	0.2358	0.2478	0.2541	0.2680	0.3029	0.3214	0.3841	0.2800	18.967
I 13C3-PFPeA						ISTD					
T PFPeA	Quadratic	0.9244	1.0188	1.0672	1.1458	1.2949	1.2767	1.2895	1.3610	1.1723	13.373
I 13C4-PFOS						ISTD					
T PFBS	Linear	2.2020	2.3325	2.4174	2.6319	2.9406	2.8171	2.7190	2.7330	2.5992	9.856
T PFHxS	Quadratic	1.2177	1.3206	1.3263	1.5310	1.6500	1.7065	1.6926	1.8167	1.5327	14.315
T PFOS	Quadratic	0.9937	1.0513	1.0908	1.1583	1.2669	1.2491	1.2773	1.3502	1.1797	10.649
T PFUnDA	Linear	2.4038	2.5106	3.0080	2.9643	3.0389	3.1770	3.2395	3.4453	2.9734	11.918
T PFDoDA	Quadratic	2.2000	2.1070	2.6664	2.4786	1.9461	2.6381	2.9456	3.2642	2.5308	17.503
T PFTrDA	Linear	1.1023	0.9693	1.2710	1.0906	1.0116	1.0899	1.2434	1.4172	1.1494	12.986
T PFTeDA	Quadratic	0.7640	0.7875	0.8989	0.8551	0.9523	0.9849	1.0728	1.2403	0.9445	16.641
I d3-MeFOSAA						ISTD					

Generated at 2:20 PM on 4/15/2025

Initial Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q520-ICC520
Lab FileID: 5Q31737.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T MeFOSAA	Quadratic	0.9772	0.6769	0.9721	0.8498	0.8514	0.8621	0.9281	1.0092	0.8909	11.949
S d5-EtFOSAA	Quadratic	0.7534	0.6400	0.6465	0.6475	0.8088	0.7484	0.7497	0.7918	0.7233	9.466
T EtFOSAA	Quadratic	0.4277	0.7860	0.5573	0.6422	0.7077	0.6981	0.6769	0.6907	0.6483	16.953

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Initial Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q520-ICC520
Lab FileID: 5Q31737.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	Curve Fit R2
T PFPeA	Quadratic	y = 0.025879 * x ^ 2 + 1.231071 * x	0.999943
T PFBS	Linear	y = 2.734174 * x	0.999867
S 13C2-PFHxA	Linear	y = 1.338467 * x	0.998711
T PFHxA	Quadratic	y = 0.019417 * x ^ 2 + 0.836828 * x	0.999909
T HFPO-DA	Quadratic	y = 0.002517 * x ^ 2 + 0.077232 * x	0.999916
S 13C3-HFPO-DA	Linear	y = 0.090426 * x	0.997810
T PFHpA	Quadratic	y = 0.056756 * x ^ 2 + 1.600647 * x	0.999851
T PFHxS	Quadratic	y = 0.042896 * x ^ 2 + 1.600789 * x	0.999898
T ADONA	Quadratic	y = 0.104610 * x ^ 2 + 2.099270 * x	0.999877
T 6:2FTS	Linear	y = 1.010460 * x	0.996755
T PFOA	Quadratic	y = 0.017489 * x ^ 2 + 0.925666 * x	0.999276
T PFOS	Quadratic	y = 0.027546 * x ^ 2 + 1.212107 * x	0.999972
T PFNA	Quadratic	y = 0.027826 * x ^ 2 + 0.642449 * x	0.999952
T 9Cl-PF3ONS	Quadratic	y = 0.012518 * x ^ 2 + 0.263764 * x	0.999885
T MeFOSAA	Quadratic	y = 0.067696 * x ^ 2 + 0.840306 * x	0.999979
S d5-EtFOSAA	Quadratic	y = 0.027442 * x ^ 2 + 0.722450 * x	0.999812
T EtFOSAA	Quadratic	y = 0.005657 * x ^ 2 + 0.675982 * x	0.999890
S 13C2-PFDA	Quadratic	y = 0.045229 * x ^ 2 + 0.757068 * x	0.999739
T PFDA	Linear	y = 0.771736 * x	0.998318
T 8:2FTS	Linear	y = 0.868096 * x	0.999440
T PFUnDA	Linear	y = 3.393288 * x	0.998780
T 11Cl-PF3OUdS	Quadratic	y = 0.023889 * x ^ 2 + 0.264387 * x	0.999903
T PFDoDA	Quadratic	y = 0.151485 * x ^ 2 + 2.512674 * x	0.999457
T PFTrDA	Linear	y = 1.369959 * x	0.993622
T PFTeDA	Quadratic	y = 0.066247 * x ^ 2 + 0.908878 * x	0.999984

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Generated at 2:20 PM on 4/15/2025

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6

Initial Calibration Verification

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q520-ICV520
Lab FileID: 5Q31740.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041425_DW_S5Q520\s5q520.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041425_DW_S5Q520\5Q31732.d
2:D:\MassHunter\Data\041425_DW_S5Q520\5Q31733.d
3:D:\MassHunter\Data\041425_DW_S5Q520\5Q31734.d
4:D:\MassHunter\Data\041425_DW_S5Q520\5Q31735.d
5:D:\MassHunter\Data\041425_DW_S5Q520\5Q31736.d
6:D:\MassHunter\Data\041425_DW_S5Q520\5Q31737.d
7:D:\MassHunter\Data\041425_DW_S5Q520\5Q31738.d
8:D:\MassHunter\Data\041425_DW_S5Q520\5Q31739.d

Data File: 5Q31740
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	0.000	# -100.0	0.0
13C2-PFHxA	10.000	0.000	# -100.0	0.0
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	20.493	2.5	102.5
8:2FTS	20.000	20.559	2.8	102.8
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	0.000	# -100.0	0.0
EtFOSAA	20.000	18.154	-9.2	90.8
MeFOSAA	20.000	20.098	0.5	100.5
PFBS	20.000	17.630	-11.9	88.1
PFDA	20.000	17.346	-13.3	86.7
PFDoDA	20.000	27.839	# 39.2	139.2
PFHpA	20.000	20.269	1.3	101.3
PFHxA	20.000	18.546	-7.3	92.7
PFHxS	20.000	17.392	-13.0	87.0
PFNA	20.000	22.382	11.9	111.9
PFOA	20.000	20.468	2.3	102.3
PFOS	20.000	19.653	-1.7	98.3
PFPeA	20.000	20.577	2.9	102.9
PFTeDA	20.000	20.877	4.4	104.4
PFTrDA	20.000	26.135	# 30.7	130.7
PFUnDA	20.000	22.341	11.7	111.7
ADONA	20.000	18.276	-8.6	91.4
9Cl-PF3ONS	20.000	18.053	-9.7	90.3
11Cl-PF3OUdS	20.000	19.561	-2.2	97.8
13C3-HFPO-DA	20.000	0.000	# -100.0	0.0
HFPO-DA	20.000	19.100	-4.5	95.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q520-CC520
Lab FileID: 5Q31742.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041425_DW_S5Q520\s5q520.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041425_DW_S5Q520\5Q31732.d
2:D:\MassHunter\Data\041425_DW_S5Q520\5Q31733.d
3:D:\MassHunter\Data\041425_DW_S5Q520\5Q31734.d
4:D:\MassHunter\Data\041425_DW_S5Q520\5Q31735.d
5:D:\MassHunter\Data\041425_DW_S5Q520\5Q31736.d
6:D:\MassHunter\Data\041425_DW_S5Q520\5Q31737.d
7:D:\MassHunter\Data\041425_DW_S5Q520\5Q31738.d
8:D:\MassHunter\Data\041425_DW_S5Q520\5Q31739.d

Data File: 5Q31742
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	10.237	2.4	102.4
13C2-PFHxA	10.000	9.419	-5.8	94.2
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	22.769	13.8	113.8
8:2FTS	20.000	20.529	2.6	102.6
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	20.403	2.0	102.0
EtFOSAA	20.000	20.182	0.9	100.9
MeFOSAA	20.000	19.392	-3.0	97.0
PFBS	20.000	21.265	6.3	106.3
PFDA	20.000	18.587	-7.1	92.9
PFDoDA	20.000	20.853	4.3	104.3
PFHpA	20.000	20.369	1.8	101.8
PFHxA	20.000	20.349	1.7	101.7
PFHxS	20.000	21.215	6.1	106.1
PFNA	20.000	20.113	0.6	100.6
PFOA	20.000	20.413	2.1	102.1
PFOS	20.000	20.475	2.4	102.4
PFPeA	20.000	20.552	2.8	102.8
PFTeDA	20.000	20.910	4.6	104.6
PFTrDA	20.000	16.766	-16.2	83.8
PFUnDA	20.000	19.395	-3.0	97.0
ADONA	20.000	20.252	1.3	101.3
9Cl-PF3ONS	20.000	20.441	2.2	102.2
11Cl-PF3OUdS	20.000	21.060	5.3	105.3
13C3-HFPO-DA	20.000	17.825	-10.9	89.1
HFPO-DA	20.000	19.024	-4.9	95.1

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q520-CC520
Lab FileID: 5Q31743.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041425_DW_S5Q520\s5q520.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041425_DW_S5Q520\5Q31732.d
2:D:\MassHunter\Data\041425_DW_S5Q520\5Q31733.d
3:D:\MassHunter\Data\041425_DW_S5Q520\5Q31734.d
4:D:\MassHunter\Data\041425_DW_S5Q520\5Q31735.d
5:D:\MassHunter\Data\041425_DW_S5Q520\5Q31736.d
6:D:\MassHunter\Data\041425_DW_S5Q520\5Q31737.d
7:D:\MassHunter\Data\041425_DW_S5Q520\5Q31738.d
8:D:\MassHunter\Data\041425_DW_S5Q520\5Q31739.d

Data File: 5Q31743
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	0.250	0.215	-13.8	86.2
13C2-PFHxA	0.250	0.177	-29.2	70.8
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	0.500	0.452	-9.6	90.4
8:2FTS	0.500	0.458	-8.4	91.6
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	0.500	0.360	-27.9	72.1
EtFOSAA	0.500	0.479	-4.2	95.8
MeFOSAA	0.500	0.417	-16.5	83.5
PFBS	0.500	0.399	-20.2	79.8
PFDA	0.500	0.360	-28.0	72.0
PFDoDA	0.500	0.435	-13.0	87.0
PFHpA	0.500	0.377	-24.7	75.3
PFHxA	0.500	0.390	-22.1	77.9
PFHxS	0.500	0.401	-19.8	80.2
PFNA	0.500	0.375	-25.0	75.0
PFOA	0.500	0.351	-29.8	70.2
PFOS	0.500	0.374	-25.2	74.8
PFPeA	0.500	0.379	-24.1	75.9
PFTeDA	0.500	0.463	-7.3	92.7
PFTrDA	0.500	0.386	-22.8	77.2
PFUnDA	0.500	0.382	-23.6	76.4
ADONA	0.500	0.370	-26.0	74.0
9Cl-PF3ONS	0.500	0.414	-17.1	82.9
11Cl-PF3OUdS	0.500	0.432	-13.5	86.5
13C3-HFPO-DA	0.500	0.384	-23.1	76.9
HFPO-DA	0.500	0.473	-5.4	94.6

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q520-ECC520
Lab FileID: 5Q31752.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041425_DW_S5Q520\s5q520.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041425_DW_S5Q520\5Q31732.d
2:D:\MassHunter\Data\041425_DW_S5Q520\5Q31733.d
3:D:\MassHunter\Data\041425_DW_S5Q520\5Q31734.d
4:D:\MassHunter\Data\041425_DW_S5Q520\5Q31735.d
5:D:\MassHunter\Data\041425_DW_S5Q520\5Q31736.d
6:D:\MassHunter\Data\041425_DW_S5Q520\5Q31737.d
7:D:\MassHunter\Data\041425_DW_S5Q520\5Q31738.d
8:D:\MassHunter\Data\041425_DW_S5Q520\5Q31739.d

Data File: 5Q31752
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	10.143	1.4	101.4
13C2-PFHxA	10.000	9.643	-3.6	96.4
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	22.948	14.7	114.7
8:2FTS	20.000	21.319	6.6	106.6
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	20.757	3.8	103.8
EtFOSAA	20.000	19.332	-3.3	96.7
MeFOSAA	20.000	20.911	4.6	104.6
PFBS	20.000	19.784	-1.1	98.9
PFDA	20.000	18.702	-6.5	93.5
PFDoDA	20.000	20.979	4.9	104.9
PFHpA	20.000	20.656	3.3	103.3
PFHxA	20.000	20.533	2.7	102.7
PFHxS	20.000	19.900	-0.5	99.5
PFNA	20.000	20.631	3.2	103.2
PFOA	20.000	20.643	3.2	103.2
PFOS	20.000	19.472	-2.6	97.4
PFPeA	20.000	20.559	2.8	102.8
PFTeDA	20.000	20.189	0.9	100.9
PFTrDA	20.000	16.350	-18.3	81.7
PFUnDA	20.000	18.353	-8.2	91.8
ADONA	20.000	20.539	2.7	102.7
9Cl-PF3ONS	20.000	20.339	1.7	101.7
11Cl-PF3OUdS	20.000	21.682	8.4	108.4
13C3-HFPO-DA	20.000	18.049	-9.8	90.2
HFPO-DA	20.000	19.676	-1.6	98.4

CC Criteria: +/- 30%

Initial Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q523-ICC523
Lab FileID: 5Q31825.D

Initial Calibration Report

Method Path	D:\MassHunter\Methods
Method File	537_041725_S5Q523.quantmethod.xml
Batch Name	D:\MassHunter\Data\041725_537.1_S5Q523\QuantResults\s5q523.batch.bin
Last Calib Update	4/18/2025 6:39:14 AM

Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time
1	D:\MassHunter\Data\041725_537.1_S5Q523\SQ31820.d	4/17/2025 12:39:17 PM	4/18/2025 6:39:14 AM
2	D:\MassHunter\Data\041725_537.1_S5Q523\SQ31821.d	4/17/2025 12:55:41 PM	4/18/2025 6:39:14 AM
3	D:\MassHunter\Data\041725_537.1_S5Q523\SQ31822.d	4/17/2025 1:12:06 PM	4/18/2025 6:39:14 AM
4	D:\MassHunter\Data\041725_537.1_S5Q523\SQ31823.d	4/17/2025 1:28:32 PM	4/18/2025 6:39:14 AM
5	D:\MassHunter\Data\041725_537.1_S5Q523\SQ31824.d	4/17/2025 1:44:57 PM	4/18/2025 6:39:14 AM
6	D:\MassHunter\Data\041725_537.1_S5Q523\SQ31825.d	4/17/2025 2:01:21 PM	4/18/2025 6:39:14 AM
7	D:\MassHunter\Data\041725_537.1_S5Q523\SQ31826.d	4/17/2025 2:17:47 PM	4/18/2025 6:39:14 AM
8	D:\MassHunter\Data\041725_537.1_S5Q523\SQ31827.d	4/17/2025 2:34:12 PM	4/18/2025 6:39:14 AM

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I 13C2-6:2FTS						ISTD					
T 6:2FTS	Linear	0.8388	1.0268	1.0401	1.0834	1.1920	1.1414	1.0745	0.9767	1.0467	10.262
T 8:2FTS	Linear	0.7748	0.9260	0.9054	0.9131	0.9451	0.9393	0.8994	0.8585	0.8952	6.215
I 13C2-PFOA						ISTD					
S 13C2-PFHxA	Linear	0.9105	1.0011	1.0179	1.0963	1.2633	1.1748	1.2566	1.2742	1.1243	12.344
T PFHxA	Linear	0.6086	0.6781	0.7124	0.7538	0.8667	0.8135	0.8539	0.8667	0.7692	12.596
S 13C3-HFPO-DA	Linear	0.0726	0.0692	0.0742	0.0731	0.0845	0.0784	0.0865	0.0909	0.0787	9.863
T HFPO-DA	Quadratic	0.0678	0.0670	0.0703	0.0702	0.0821	0.0764	0.0822	0.0883	0.0755	10.485
T PFHpA	Quadratic	1.2192	1.3214	1.4305	1.5035	1.7400	1.6132	1.7045	1.8103	1.5428	13.628
T ADONA	Quadratic	1.4817	1.7026	1.8434	1.9381	2.2182	2.0912	2.2333	2.4145	1.9904	15.507
T PFOA	Quadratic	0.6796	0.7914	0.7981	0.8401	0.9859	0.9556	0.9724	1.0061	0.8787	13.442
T PFNA	Quadratic	0.5135	0.5617	0.5722	0.6402	0.6884	0.6760	0.6806	0.7740	0.6383	13.232
T 9Cl-PF3ONS	Quadratic	0.2183	0.2263	0.2596	0.2544	0.2772	0.2753	0.2926	0.3331	0.2671	13.752
S 13C2-PFDA	Linear	0.6940	0.6614	0.6814	0.7331	0.8330	0.7863	0.8174	0.8690	0.7594	10.219
T PFDA	Quadratic	0.5362	0.6411	0.6496	0.6655	0.7584	0.7311	0.7305	0.7768	0.6862	11.514
T 11Cl-PF3OUdS	Quadratic	0.2336	0.2618	0.2668	0.2741	0.2756	0.2858	0.3202	0.3740	0.2865	14.964
I 13C3-PFPeA						ISTD					
T PFPeA	Quadratic	0.9115	1.0400	1.0824	1.1612	1.3292	1.2788	1.3088	1.3378	1.1812	13.388
I 13C4-PFOS						ISTD					
T PFBS	Linear	2.0308	2.1876	2.3023	2.4836	2.7092	2.7257	2.6663	2.5998	2.4632	10.615
T PFHxS	Quadratic	1.2645	1.2849	1.3422	1.4456	1.6839	1.6536	1.7238	1.7801	1.5223	13.858
T PFOS	Linear	0.9614	1.0956	0.9879	1.1120	1.2633	1.2524	1.2569	1.3389	1.1585	12.034
T PFUnDA	Linear	2.3999	2.5352	2.7972	2.8705	3.0779	3.2305	3.2187	3.3036	2.9292	11.492
T PFDoDA	Quadratic	2.2845	2.4478	2.7257	2.5831	2.0782	2.7741	3.1566	3.2641	2.6643	15.274
T PFTrDA	Linear	1.0471	1.0668	1.2384	1.0965	1.0695	1.1833	1.3574	1.4854	1.1930	13.309
T PFTeDA	Quadratic	0.7320	0.8555	0.9254	0.8891	0.9847	1.0125	1.1040	1.2114	0.9643	15.495
I d3-MeFOSAA						ISTD					

Generated at 6:40 AM on 4/18/2025

Initial Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q523-ICC523
Lab FileID: 5Q31825.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T MeFOSAA	Quadratic	0.5128	0.7923	0.9726	0.6756	0.8997	0.9566	0.9524	0.9283	0.8363	19.773
S d5-EtFOSAA	Linear	0.9104	0.7309	0.6111	0.6732	0.7834	0.8270	0.7542	0.7576	0.7560	12.056
T EtFOSAA	Linear	0.6681	0.5008	0.7935	0.5559	0.7688	0.6739	0.6963	0.6620	0.6649	14.741

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Initial Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q523-ICC523
Lab FileID: 5Q31825.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	Curve Fit R2
T PFPeA	Quadratic	y = 0.012513 * x ^ 2 + 1.275464 * x	0.999944
T PFBS	Linear	y = 2.616903 * x	0.999732
S 13C2-PFHxA	Linear	y = 1.267277 * x	0.999623
T PFHxA	Linear	y = 0.862359 * x	0.999728
S 13C3-HFPO-DA	Linear	y = 0.089551 * x	0.998564
T HFPO-DA	Quadratic	y = 0.002541 * x ^ 2 + 0.075635 * x	0.999921
T PFHpA	Quadratic	y = 0.042655 * x ^ 2 + 1.597047 * x	0.999919
T PFHxS	Quadratic	y = 0.038761 * x ^ 2 + 1.595147 * x	0.999003
T ADONA	Quadratic	y = 0.073191 * x ^ 2 + 2.048593 * x	0.999941
T 6:2FTS	Linear	y = 1.002409 * x	0.996282
T PFOA	Quadratic	y = 0.013166 * x ^ 2 + 0.940242 * x	0.999937
T PFOS	Linear	y = 1.319338 * x	0.998869
T PFNA	Quadratic	y = 0.031928 * x ^ 2 + 0.613141 * x	0.999771
T 9Cl-PF3ONS	Quadratic	y = 0.015385 * x ^ 2 + 0.256004 * x	0.999963
T MeFOSAA	Quadratic	y = 0.018127 * x ^ 2 + 0.893252 * x	0.995945
S d5-EtFOSAA	Linear	y = 0.759043 * x	0.999540
T EtFOSAA	Linear	y = 0.669574 * x	0.999012
S 13C2-PFDA	Linear	y = 0.855918 * x	0.998768
T PFDA	Quadratic	y = 0.015412 * x ^ 2 + 0.699047 * x	0.999890
T 8:2FTS	Linear	y = 0.869627 * x	0.999058
T PFUnDA	Linear	y = 3.282276 * x	0.999725
T 11Cl-PF3OUdS	Quadratic	y = 0.021715 * x ^ 2 + 0.265508 * x	0.999999
T PFDoDA	Quadratic	y = 0.087957 * x ^ 2 + 2.834969 * x	0.998899
T PFTrDA	Linear	y = 1.447528 * x	0.995753
T PFTeDA	Quadratic	y = 0.046245 * x ^ 2 + 0.980923 * x	0.999954

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Generated at 6:40 AM on 4/18/2025

6.7.16

6

Initial Calibration Verification

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q523-ICV523
Lab FileID: 5Q31828.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041725_537.1_S5Q523\s5q523.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31820.d
2:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31821.d
3:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31822.d
4:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31823.d
5:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31824.d
6:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31825.d
7:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31826.d
8:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31827.d

Data File: 5Q31828
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	0.000	# -100.0	0.0
13C2-PFHxA	10.000	0.000	# -100.0	0.0
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	20.484	2.4	102.4
8:2FTS	20.000	20.622	3.1	103.1
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	0.000	# -100.0	0.0
EtFOSAA	20.000	19.690	-1.6	98.4
MeFOSAA	20.000	19.270	-3.6	96.4
PFBS	20.000	18.204	-9.0	91.0
PFDA	20.000	18.931	-5.3	94.7
PFDoDA	20.000	25.436	27.2	127.2
PFHpA	20.000	20.478	2.4	102.4
PFHxA	20.000	17.690	-11.5	88.5
PFHxS	20.000	17.652	-11.7	88.3
PFNA	20.000	23.566	17.8	117.8
PFOA	20.000	20.409	2.0	102.0
PFOS	20.000	18.134	-9.3	90.7
PFPeA	20.000	20.165	0.8	100.8
PFTeDA	20.000	19.801	-1.0	99.0
PFTrDA	20.000	25.273	26.4	126.4
PFUnDA	20.000	22.254	11.3	111.3
ADONA	20.000	18.422	-7.9	92.1
9Cl-PF3ONS	20.000	18.635	-6.8	93.2
11Cl-PF3OUdS	20.000	20.631	3.2	103.2
13C3-HFPO-DA	20.000	0.000	# -100.0	0.0
HFPO-DA	20.000	19.689	-1.6	98.4

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q523-CC523
Lab FileID: 5Q31830.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041725_537.1_S5Q523\s5q523.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31820.d
2:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31821.d
3:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31822.d
4:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31823.d
5:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31824.d
6:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31825.d
7:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31826.d
8:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31827.d

Data File: 5Q31830
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	9.155	-8.5	91.5
13C2-PFHxA	10.000	9.386	-6.1	93.9
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	23.543	17.7	117.7
8:2FTS	20.000	21.132	5.7	105.7
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	19.379	-3.1	96.9
EtFOSAA	20.000	20.719	3.6	103.6
MeFOSAA	20.000	18.749	-6.3	93.7
PFBS	20.000	20.763	3.8	103.8
PFDA	20.000	20.466	2.3	102.3
PFDoDA	20.000	19.856	-0.7	99.3
PFHpA	20.000	19.556	-2.2	97.8
PFHxA	20.000	18.686	-6.6	93.4
PFHxS	20.000	20.052	0.3	100.3
PFNA	20.000	21.459	7.3	107.3
PFOA	20.000	20.295	1.5	101.5
PFOS	20.000	18.650	-6.8	93.2
PFPeA	20.000	20.148	0.7	100.7
PFTeDA	20.000	19.831	-0.8	99.2
PFTrDA	20.000	16.431	-17.8	82.2
PFUnDA	20.000	19.665	-1.7	98.3
ADONA	20.000	19.623	-1.9	98.1
9Cl-PF3ONS	20.000	20.079	0.4	100.4
11Cl-PF3OUdS	20.000	20.130	0.6	100.6
13C3-HFPO-DA	20.000	17.705	-11.5	88.5
HFPO-DA	20.000	19.965	-0.2	99.8

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q523-CC523
Lab FileID: 5Q31831.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041725_537.1_S5Q523\s5q523.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31820.d
2:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31821.d
3:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31822.d
4:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31823.d
5:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31824.d
6:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31825.d
7:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31826.d
8:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31827.d

Data File: 5Q31831
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	0.250	0.178	-28.8	71.2
13C2-PFHxA	0.250	0.176	-29.6	70.4
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	0.500	0.451	-9.9	90.1
8:2FTS	0.500	0.425	-15.0	85.0
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	0.500	0.618	23.7	123.7
EtFOSAA	0.500	0.457	-8.6	91.4
MeFOSAA	0.500	0.520	3.9	103.9
PFBS	0.500	0.381	-23.9	76.1
PFDA	0.500	0.375	-25.0	75.0
PFDoDA	0.500	0.453	-9.4	90.6
PFHpA	0.500	0.386	-22.8	77.2
PFHxA	0.500	0.361	-27.8	72.2
PFHxS	0.500	0.360	-28.0	72.0
PFNA	0.500	0.433	-13.4	86.6
PFOA	0.500	0.387	-22.7	77.3
PFOS	0.500	0.400	-19.9	80.1
PFPeA	0.500	0.368	-26.5	73.5
PFTeDA	0.500	0.450	-10.1	89.9
PFTrDA	0.500	0.402	-19.5	80.5
PFUnDA	0.500	0.366	-26.8	73.2
ADONA	0.500	0.363	-27.4	72.6
9Cl-PF3ONS	0.500	0.476	-4.7	95.3
11Cl-PF3OUdS	0.500	0.437	-12.6	87.4
13C3-HFPO-DA	0.500	0.350	-29.9	70.1
HFPO-DA	0.500	0.406	-18.7	81.3

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q523-ECC523
Lab FileID: 5Q31842.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041725_537.1_S5Q523\s5q523.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31820.d
2:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31821.d
3:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31822.d
4:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31823.d
5:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31824.d
6:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31825.d
7:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31826.d
8:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31827.d

Data File: 5Q31842
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	9.635	-3.6	96.4
13C2-PFHxA	10.000	9.657	-3.4	96.6
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	23.321	16.6	116.6
8:2FTS	20.000	21.376	6.9	106.9
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	19.700	-1.5	98.5
EtFOSAA	20.000	19.955	-0.2	99.8
MeFOSAA	20.000	18.881	-5.6	94.4
PFBS	20.000	20.731	3.7	103.7
PFDA	20.000	20.472	2.4	102.4
PFDoDA	20.000	19.924	-0.4	99.6
PFHpA	20.000	20.132	0.7	100.7
PFHxA	20.000	19.113	-4.4	95.6
PFHxS	20.000	20.456	2.3	102.3
PFNA	20.000	21.019	5.1	105.1
PFOA	20.000	20.275	1.4	101.4
PFOS	20.000	19.300	-3.5	96.5
PFPeA	20.000	20.143	0.7	100.7
PFTeDA	20.000	19.481	-2.6	97.4
PFTrDA	20.000	16.149	-19.3	80.7
PFUnDA	20.000	19.675	-1.6	98.4
ADONA	20.000	20.059	0.3	100.3
9Cl-PF3ONS	20.000	21.109	5.5	105.5
11Cl-PF3OUdS	20.000	20.694	3.5	103.5
13C3-HFPO-DA	20.000	18.081	-9.6	90.4
HFPO-DA	20.000	19.977	-0.1	99.9

CC Criteria: +/- 30%

Run Sequence Report

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Run ID: S3Q1491	**Method:** EPA 533	**Instrument ID:** GCMS3Q

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S3Q1491-IC1491	3Q101429.D	04/11/25 15:26	n/a	Mass Calibration Verification
S3Q1491-IC1491	3Q101430.D	04/11/25 15:42	n/a	Initial cal 0.5
S3Q1491-IC1491	3Q101431.D	04/11/25 15:58	n/a	Initial cal 1
S3Q1491-IC1491	3Q101432.D	04/11/25 16:14	n/a	Initial cal 2
S3Q1491-IC1491	3Q101433.D	04/11/25 16:30	n/a	Initial cal 5
S3Q1491-IC1491	3Q101434.D	04/11/25 16:47	n/a	Initial cal 10
S3Q1491-ICC1491	3Q101435.D	04/11/25 17:03	n/a	Initial cal 20
S3Q1491-IC1491	3Q101436.D	04/11/25 17:19	n/a	Initial cal 40
S3Q1491-IBLK	3Q101438.D	04/11/25 17:51	n/a	Instrument Blank
S3Q1491-ICV1491	3Q101439.D	04/11/25 18:07	n/a	Initial cal verification 20
S3Q1491-RT	3Q101440.D	04/11/25 18:23	n/a	Retention Time Marker
S3Q1491-CC1491	3Q101441.D	04/11/25 18:39	n/a	Continuing cal 20
S3Q1491-CC1491	3Q101442.D	04/11/25 18:55	n/a	Continuing cal 0.5LL
OP8808-BS	3Q101443.D	04/11/25 19:11	OP8808	Blank Spike
OP8808-MB	3Q101444.D	04/11/25 19:27	OP8808	Method Blank
FC23797-1	3Q101445.D	04/11/25 19:43	OP8808	SHAFT-HW-0018384-25098-N
OP8808-MS	3Q101446.D	04/11/25 20:00	OP8808	Matrix Spike
FC23797-2	3Q101447.D	04/11/25 20:16	OP8808	SHAFT-HW-0018393-25098-N
OP8808-DUP	3Q101448.D	04/11/25 20:32	OP8808	Duplicate
FC23797-3	3Q101449.D	04/11/25 20:48	OP8808	SHAFT-HW-0018394-25098-N
FC23797-4	3Q101450.D	04/11/25 21:04	OP8808	SHAFT-FB-250408-25098-N
S3Q1491-ECC1491	3Q101451.D	04/11/25 21:20	n/a	Ending cal 20

Run Sequence Report

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Run ID: S5Q519 **Method:** EPA 537.1 REV 2.0 **Instrument ID:** GCMS5Q

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S5Q519-IC519	5Q31687.D	04/11/25 11:16	n/a	Mass Calibration Verification
S5Q519-IC519	5Q31688.D	04/11/25 11:32	n/a	Initial cal 0.5
S5Q519-IC519	5Q31689.D	04/11/25 11:48	n/a	Initial cal 1
S5Q519-IC519	5Q31690.D	04/11/25 12:04	n/a	Initial cal 2
S5Q519-IC519	5Q31691.D	04/11/25 12:20	n/a	Initial cal 5
S5Q519-IC519	5Q31692.D	04/11/25 12:36	n/a	Initial cal 10
S5Q519-ICC519	5Q31693.D	04/11/25 12:53	n/a	Initial cal 20
S5Q519-IC519	5Q31694.D	04/11/25 13:09	n/a	Initial cal 50
S5Q519-IC519	5Q31695.D	04/11/25 13:25	n/a	Initial cal 100
S5Q519-ICV519	5Q31696.D	04/11/25 13:41	n/a	Initial cal verification 20
S5Q519-RT	5Q31697.D	04/11/25 13:57	n/a	Retention Time Marker
S5Q519-CC519	5Q31698.D	04/11/25 14:13	n/a	Continuing cal 20
S5Q519-CC519	5Q31699.D	04/11/25 14:29	n/a	Continuing cal 0.5LL
OP8806-BS	5Q31700.D	04/11/25 14:45	OP8806	Blank Spike
OP8806-MB	5Q31701.D	04/11/25 15:01	OP8806	Method Blank
FC23797-1A	5Q31702.D	04/11/25 15:17	OP8806	SHAFT-HW-0018384-25098-N
FC23797-2A	5Q31703.D	04/11/25 15:34	OP8806	SHAFT-HW-0018393-25098-N
OP8806-MS	5Q31704.D	04/11/25 15:50	OP8806	Matrix Spike
FC23797-3A	5Q31705.D	04/11/25 16:06	OP8806	SHAFT-HW-0018394-25098-N
OP8806-DUP	5Q31706.D	04/11/25 16:22	OP8806	Duplicate
FC23797-4A	5Q31707.D	04/11/25 16:38	OP8806	SHAFT-FB-250408-25098-N
S5Q519-ECC519	5Q31708.D	04/11/25 16:54	n/a	Ending cal 20

Run Sequence Report

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Run ID: S5Q520 **Method:** EPA 537.1 REV 2.0 **Instrument ID:** GCMS5Q

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S5Q520-IC520	5Q31731.D	04/14/25 10:34	n/a	Mass Calibration Verification
S5Q520-IC520	5Q31732.D	04/14/25 10:50	n/a	Initial cal 0.5
S5Q520-IC520	5Q31733.D	04/14/25 11:06	n/a	Initial cal 1
S5Q520-IC520	5Q31734.D	04/14/25 11:22	n/a	Initial cal 2
S5Q520-IC520	5Q31735.D	04/14/25 11:38	n/a	Initial cal 5
S5Q520-IC520	5Q31736.D	04/14/25 11:54	n/a	Initial cal 10
S5Q520-ICC520	5Q31737.D	04/14/25 12:10	n/a	Initial cal 20
S5Q520-IC520	5Q31738.D	04/14/25 12:26	n/a	Initial cal 50
S5Q520-IC520	5Q31739.D	04/14/25 12:42	n/a	Initial cal 100
S5Q520-ICV520	5Q31740.D	04/14/25 12:58	n/a	Initial cal verification 20
S5Q520-RT	5Q31741.D	04/14/25 13:14	n/a	Retention Time Marker
S5Q520-CC520	5Q31742.D	04/14/25 13:30	n/a	Continuing cal 20
S5Q520-CC520	5Q31743.D	04/14/25 13:46	n/a	Continuing cal 0.5LL
OP8806-BS	5Q31744.D	04/14/25 14:02	OP8806	Blank Spike
OP8806-MB	5Q31745.D	04/14/25 14:18	OP8806	Method Blank
FC23797-2A	5Q31747.D	04/14/25 14:50	OP8806	SHAFT-HW-0018393-25098-N
FC23797-3A	5Q31749.D	04/14/25 15:22	OP8806	SHAFT-HW-0018394-25098-N
FC23797-4A	5Q31751.D	04/14/25 15:54	OP8806	SHAFT-FB-250408-25098-N
S5Q520-ECC520	5Q31752.D	04/14/25 16:10	n/a	Ending cal 20

Run Sequence Report

Job Number: FC23797
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Run ID: S5Q523 **Method:** EPA 537.1 REV 2.0 **Instrument ID:** GCMS5Q

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S5Q523-IC523	5Q31819.D	04/17/25 12:22	n/a	Mass Calibration Verification
S5Q523-IC523	5Q31820.D	04/17/25 12:39	n/a	Initial cal 0.5
S5Q523-IC523	5Q31821.D	04/17/25 12:55	n/a	Initial cal 1
S5Q523-IC523	5Q31822.D	04/17/25 13:12	n/a	Initial cal 2
S5Q523-IC523	5Q31823.D	04/17/25 13:28	n/a	Initial cal 5
S5Q523-IC523	5Q31824.D	04/17/25 13:44	n/a	Initial cal 10
S5Q523-ICC523	5Q31825.D	04/17/25 14:01	n/a	Initial cal 20
S5Q523-IC523	5Q31826.D	04/17/25 14:17	n/a	Initial cal 50
S5Q523-IC523	5Q31827.D	04/17/25 14:34	n/a	Initial cal 100
S5Q523-ICV523	5Q31828.D	04/17/25 14:50	n/a	Initial cal verification 20
S5Q523-RT	5Q31829.D	04/17/25 15:07	n/a	Retention Time Marker
S5Q523-CC523	5Q31830.D	04/17/25 15:23	n/a	Continuing cal 20
S5Q523-CC523	5Q31831.D	04/17/25 15:39	n/a	Continuing cal 0.5LL
OP8904-BS	5Q31832.D	04/17/25 15:56	OP8904	Blank Spike
OP8904-MB	5Q31833.D	04/17/25 16:12	OP8904	Method Blank
FC23797-1A	5Q31834.D	04/17/25 16:29	OP8904	SHAFT-HW-0018384-25098-N
ZZZZZZ	5Q31835.D	04/17/25 16:45	OP8904	(unrelated sample)
ZZZZZZ	5Q31836.D	04/17/25 17:01	OP8904	(unrelated sample)
FC23948-3A	5Q31837.D	04/17/25 17:18	OP8904	(used for QC only; not part of job FC23797)
OP8904-MS	5Q31838.D	04/17/25 17:34	OP8904	Matrix Spike
FC23948-4A	5Q31839.D	04/17/25 17:51	OP8904	(used for QC only; not part of job FC23797)
OP8904-DUP	5Q31840.D	04/17/25 18:07	OP8904	Duplicate
ZZZZZZ	5Q31841.D	04/17/25 18:24	OP8904	(unrelated sample)
S5Q523-ECC523	5Q31842.D	04/17/25 18:40	n/a	Ending cal 20

MS Semi-volatiles

Raw Data

Manual Integrations APPROVED
(compounds with "m" flag)
(b) (6)
04/14/25 12:44

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101445.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/11/2025 7:43:59 PM
Sample Name : fc23797-1
Vial : P3-A3
DA Method File : 533_041125_S3Q1491.quantmethod.xml
Batch Name : s3q1491.batch.bin
Sample Information : op8808,S3Q1491,280,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	236400	10.00 µg/L	0.000
13C3-PFBA	2.307	216.0 -> 172.0	76190	10.00 µg/L	-0.025
13C4-PFOS	7.969	503.0 -> 80.0	33354	10.00 µg/L	-0.014
M4-PFBA	2.302	217.0 -> 172.0	89764	10.00 µg/L	-0.038
M5-PFPeA	4.400	268.0 -> 223.0	112981	10.00 µg/L	-0.013
M5-PFHxA	5.763	318.0 -> 273.0	152242	10.00 µg/L	-0.013
M4-PFHpA	6.694	367.0 -> 322.0	134382	10.00 µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	185250	10.00 µg/L	0.000
M9-PFNA	7.997	472.0 -> 427.0	197883	10.00 µg/L	-0.013
M6-PFDA	8.520	519.0 -> 474.0	291730	10.00 µg/L	-0.013
M7-PFUnDA	9.147	570.0 -> 525.0	448845	10.00 µg/L	-0.038
M2-PFDoDA	10.013	615.0 -> 570.0	526481	10.00 µg/L	-0.058
M3-PFBS	4.696	302.0 -> 99.0	13819	10.00 µg/L	-0.013
M3-PFHxS	6.723	402.0 -> 99.0	19903	10.00 µg/L	-0.013
M8-PFOS	7.968	507.0 -> 99.0	24653	10.00 µg/L	-0.014
M2-4:2FTS	5.659	329.0 -> 309.0	53033	10.00 µg/L	-0.013
M2-6:2FTS	7.420	429.0 -> 409.0	105351	10.00 µg/L	0.000
M2-8:2FTS	8.585	529.0 -> 509.0	156980	10.00 µg/L	-0.013
M3-HFPO-DA	6.056	287.0 -> 169.0	2055	10.00 µg/L	-0.013
System Monitoring Compounds					
13C2-4:2FTS	5.659	329.0 -> 309.0	53033	6.20 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 62.0%	
13C2-6:2FTS	7.420	429.0 -> 409.0	105351	6.36 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 63.6%	
13C2-8:2FTS	8.585	529.0 -> 509.0	156980	5.88 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 58.8%	
13C2-PFDoDA	10.013	615.0 -> 570.0	526481	5.09 µg/L	-0.058
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 50.9%	
13C3-PFBS	4.696	302.0 -> 99.0	13819	6.83 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 68.3%	
13C3-PFHxS	6.723	402.0 -> 99.0	19903	6.83 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 68.3%	
13C4-PFBA	2.302	217.0 -> 172.0	89764	6.89 µg/L	-0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 68.9%	
13C4-PFHpA	6.694	367.0 -> 322.0	134382	6.81 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 68.1%	
13C5-PFHxA	5.763	318.0 -> 273.0	152242	6.72 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 67.2%	
13C5-PFPeA	4.400	268.0 -> 223.0	112981	7.06 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 70.6%	
13C6-PFDA	8.520	519.0 -> 474.0	291730	6.55 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 65.5%	
13C7-PFUnDA	9.147	570.0 -> 525.0	448845	5.62 µg/L	-0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 56.2%	
13C8-PFOA	7.422	421.0 -> 376.0	185250	6.77 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

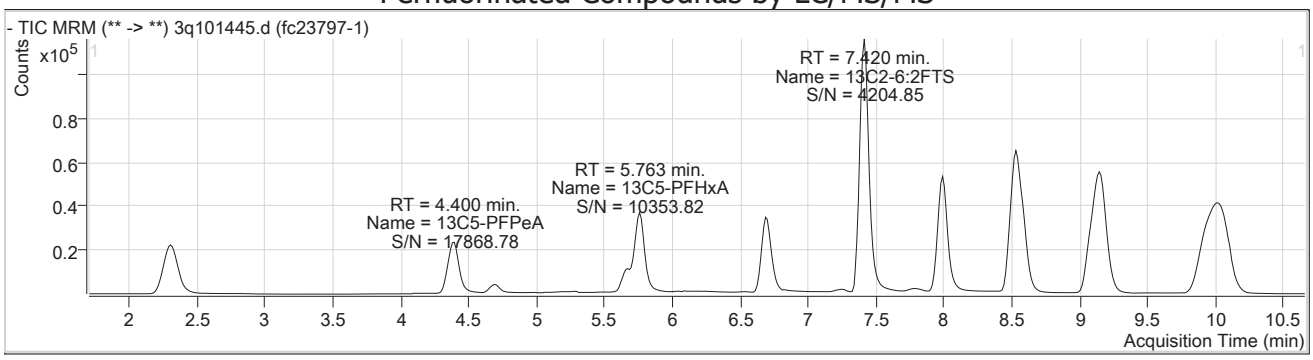
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 67.7%		
13C8-PFOS	7.968	507.0 -> 99.0	24653	6.62 µg/L		-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 66.2%		
13C9-PFNA	7.997	472.0 -> 427.0	197883	6.63 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 66.3%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	2055	7.45 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 74.5%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	2.311	213.0 -> 169.0	2685	1.15 µg/L		100
PFBS	4.697	299.0 -> 80.0	4953	1.92 µg/L	m	86
		299.0 -> 99.0	1931			
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	6.695	363.0 -> 319.0	20543	1.22 µg/L	m	100
		363.0 -> 169.0	1777			
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	5.765	313.0 -> 269.0	28841	2.26 µg/L		98
		313.0 -> 119.0	956			
PFHxS	6.725	399.0 -> 80.0	7788	2.26 µg/L	m	92
		399.0 -> 99.0	3907			
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	7.423	413.0 -> 369.0	31338	2.40 µg/L	m	95
		413.0 -> 169.0	12405			
PFOS	7.969	499.0 -> 80.0	15958	3.83 µg/L	m	75
		499.0 -> 99.0	7090			
PFPeA	4.402	263.0 -> 219.0	23257	2.87 µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	-	329.0 -> 169.0	-	N.D.		
		285.0 -> 169.0				

 # = Qualifier out of range, m = manually integrated, + = Area summed

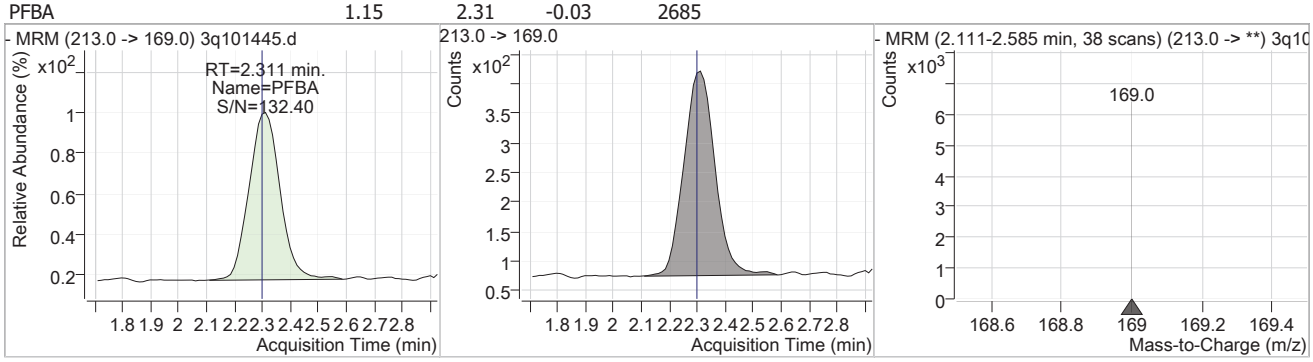
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

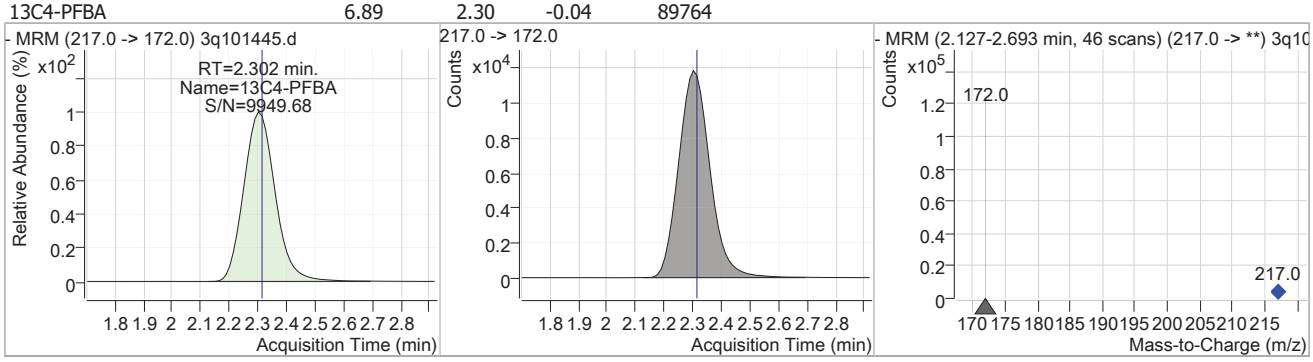
Perfluorinated Compounds by LC/MS/MS



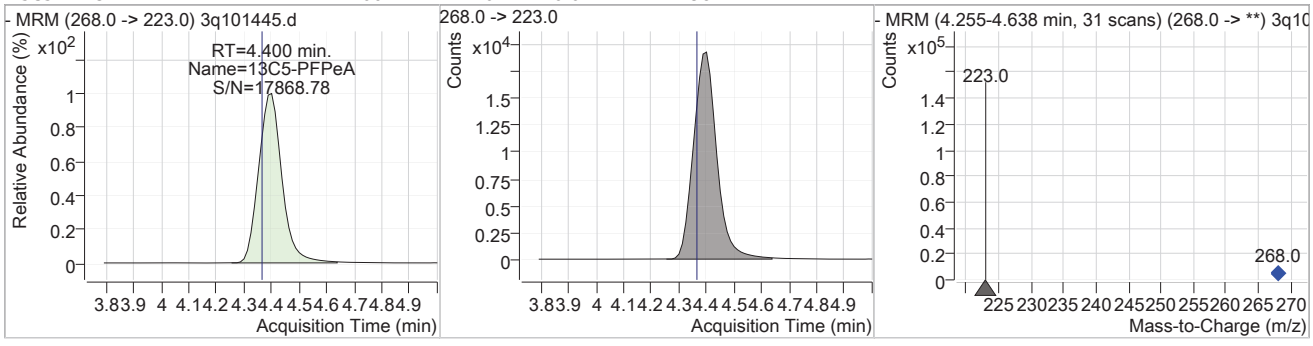
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	1.15	2.31	-0.03	2685				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	6.89	2.30	-0.04	89764				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	7.06	4.40	-0.01	112981				



7.1.1

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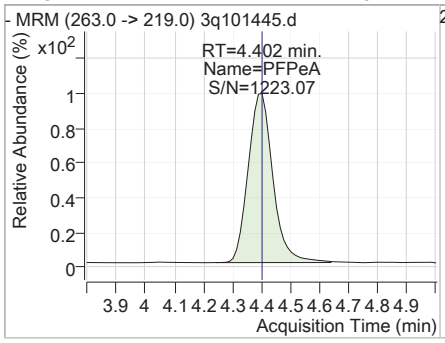
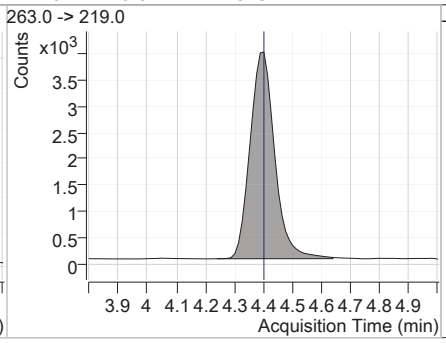
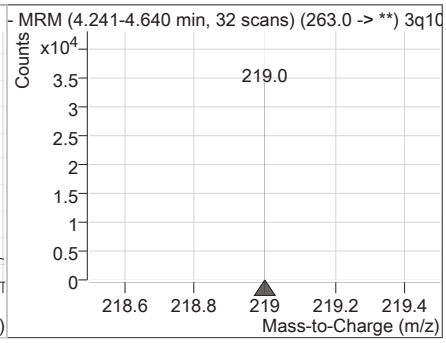
Perfluorinated Compounds by LC/MS/MS

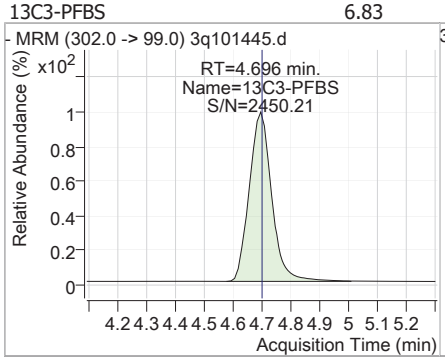
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	2.87	4.40	-0.01	23257				

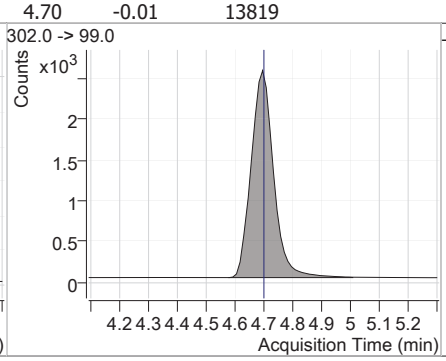


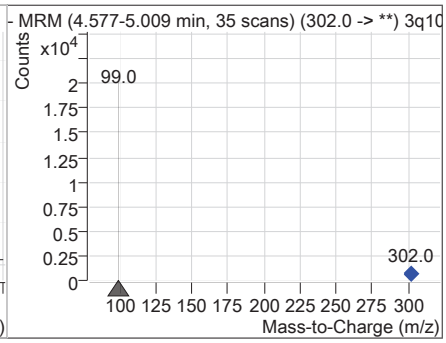




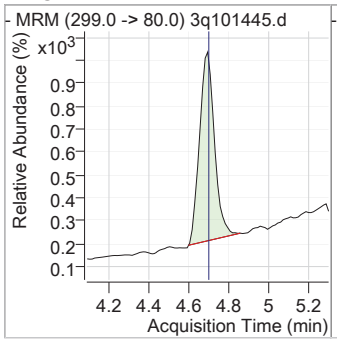
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	6.83	4.70	-0.01	13819				

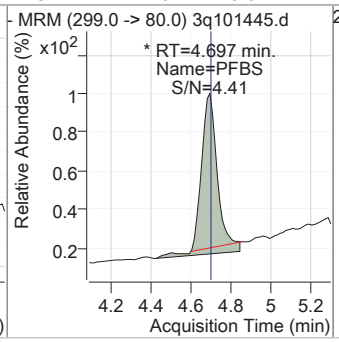


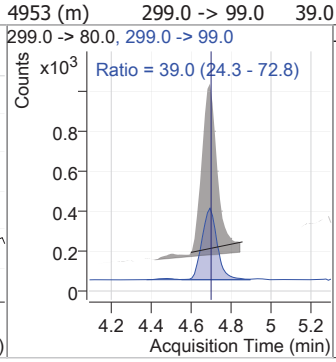


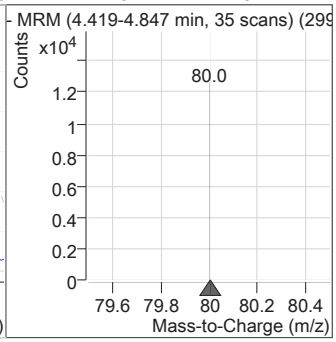


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.92	4.70	-0.01	4953 (m)	299.0 -> 99.0	39.0	24.3	72.8

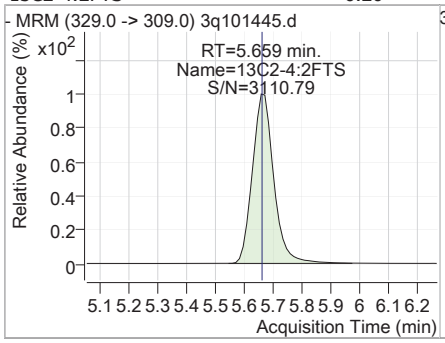


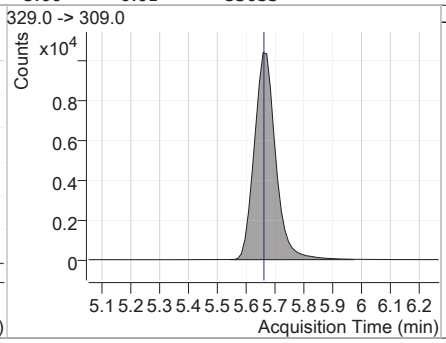


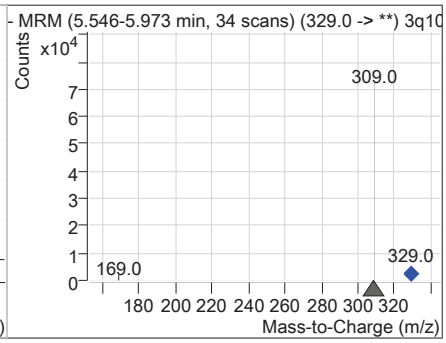




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	6.20	5.66	-0.01	53033				

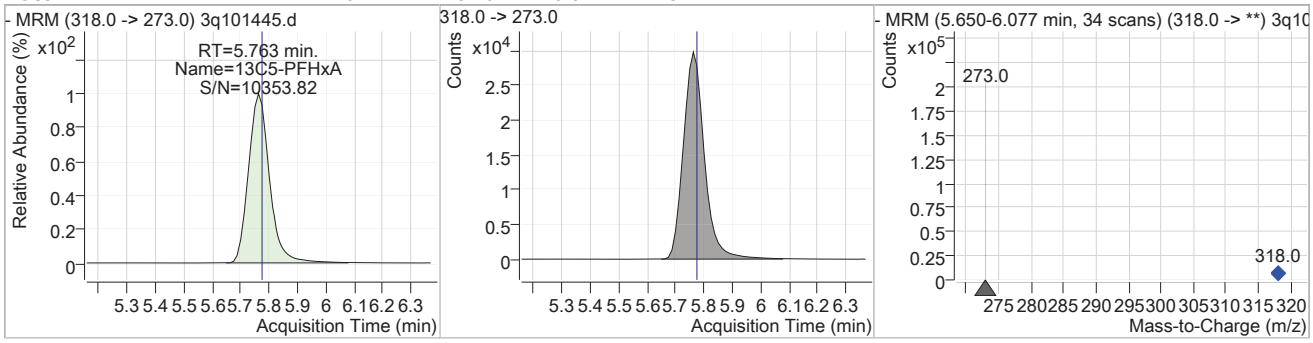




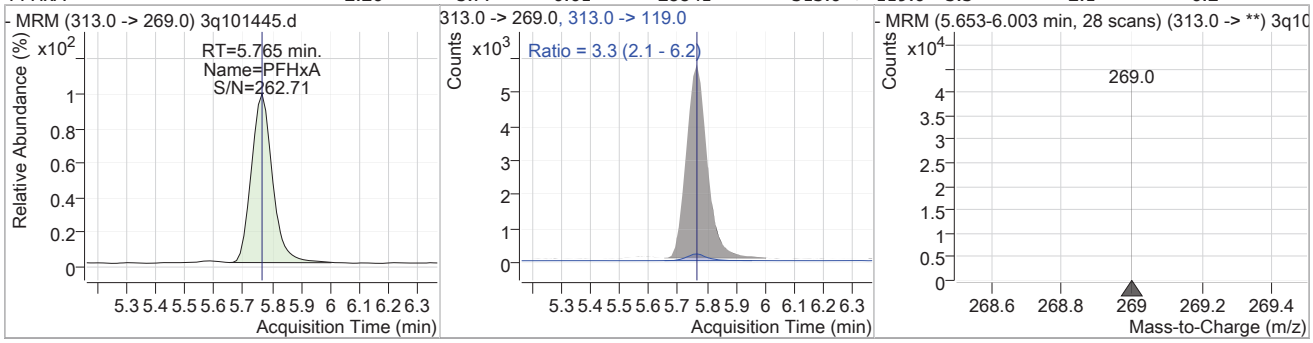


Perfluorinated Compounds by LC/MS/MS

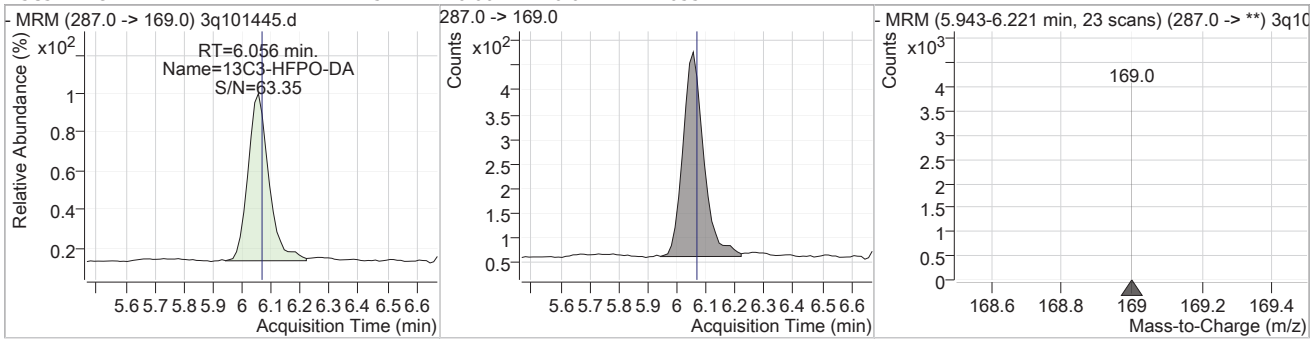
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	6.72	5.76	-0.01	152242				



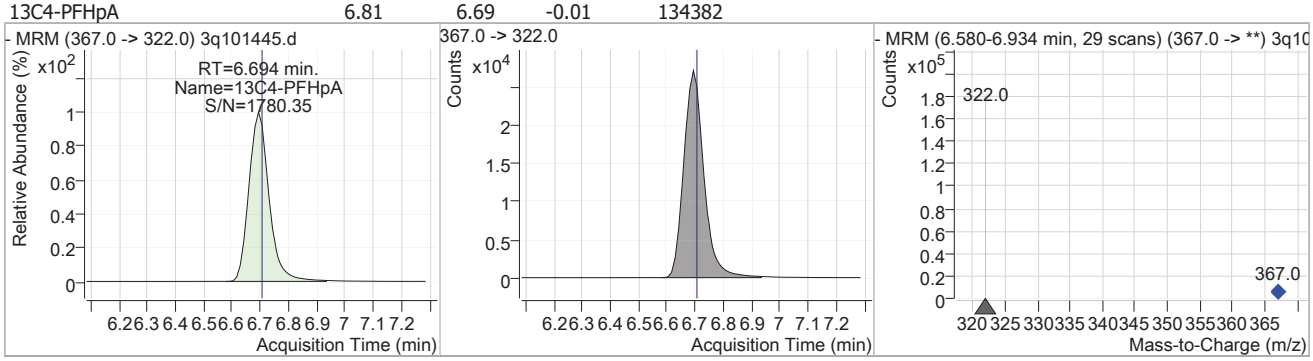
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.26	5.77	-0.01	28841	313.0 -> 119.0	3.3	2.1	6.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	7.45	6.06	-0.01	2055				

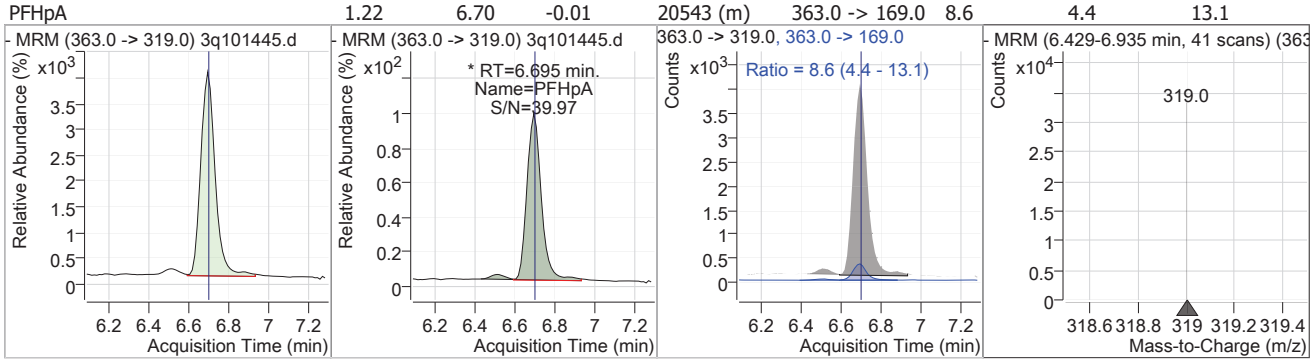


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	6.81	6.69	-0.01	134382				

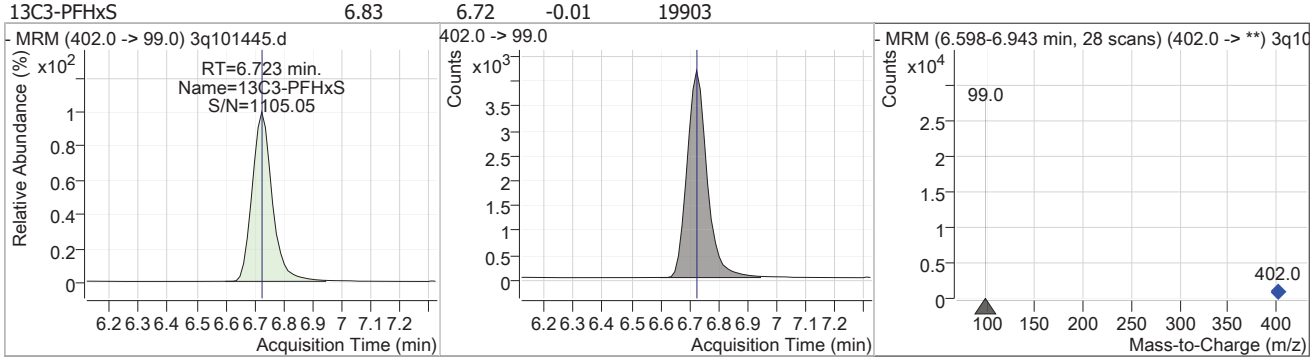


Perfluorinated Compounds by LC/MS/MS

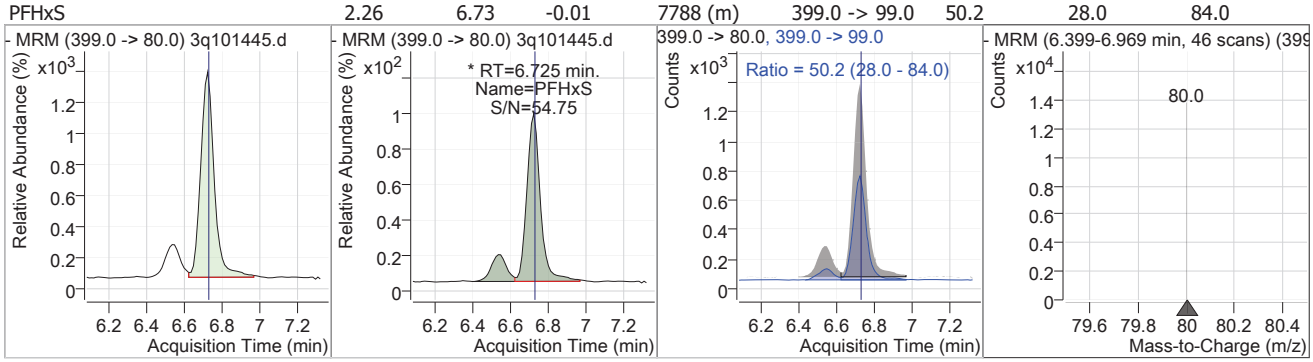
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.22	6.70	-0.01	20543 (m)	363.0 -> 169.0	8.6	4.4	13.1



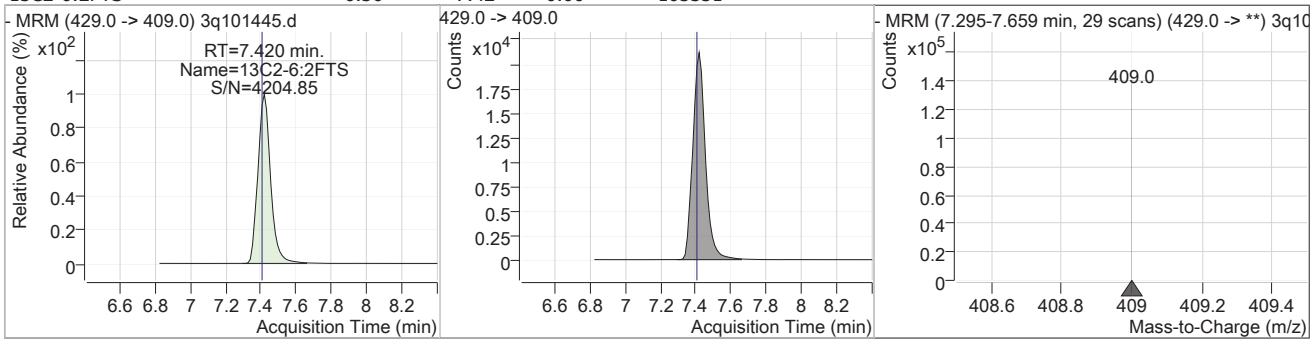
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	6.83	6.72	-0.01	19903				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.26	6.73	-0.01	7788 (m)	399.0 -> 99.0	50.2	28.0	84.0

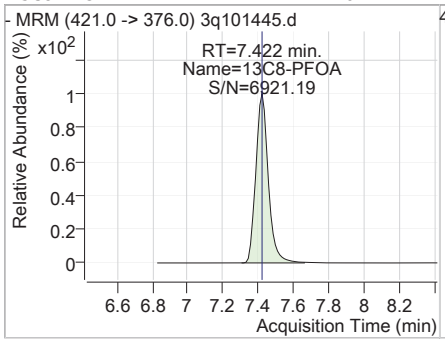


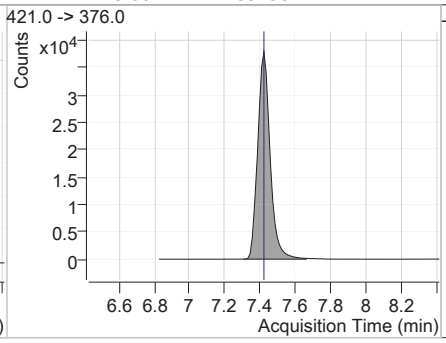
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	6.36	7.42	0.00	105351				

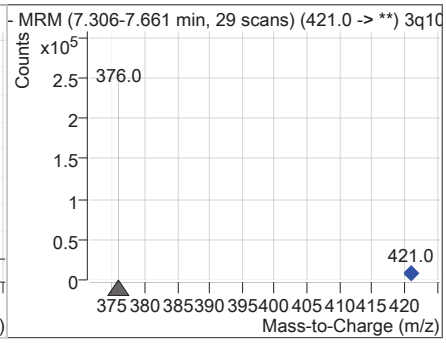


Perfluorinated Compounds by LC/MS/MS

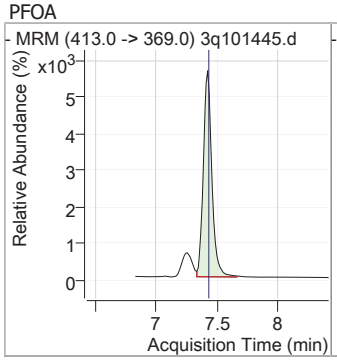
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	6.77	7.42	0.00	185250				

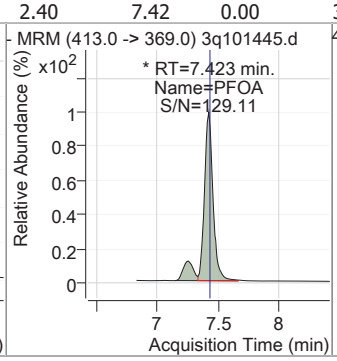


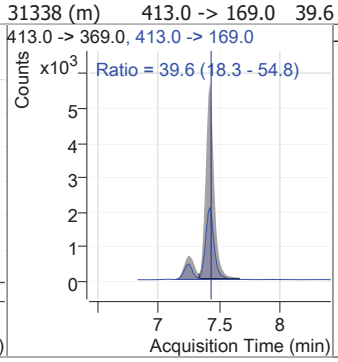


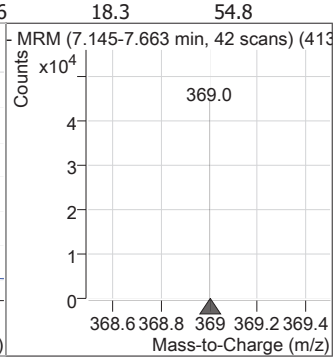


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	2.40	7.42	0.00	31338 (m)	413.0 -> 169.0	39.6	18.3	54.8

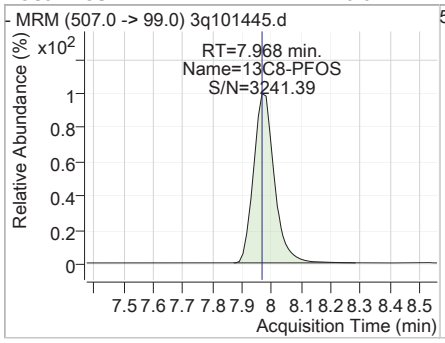


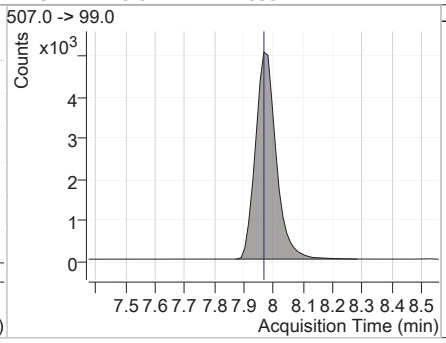


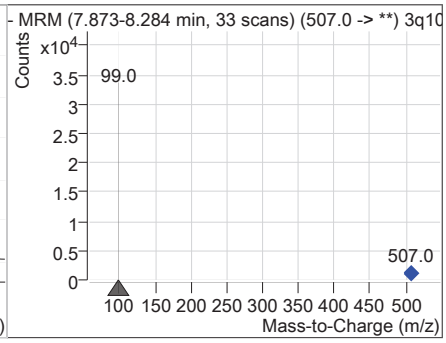




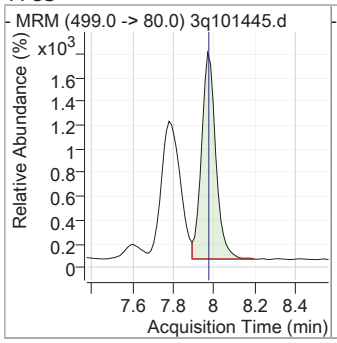
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	6.62	7.97	-0.01	24653				

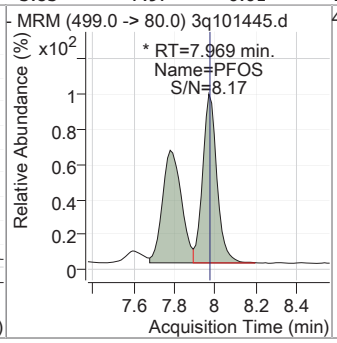


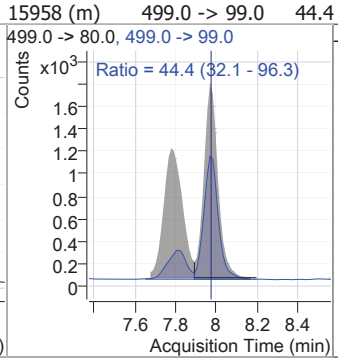


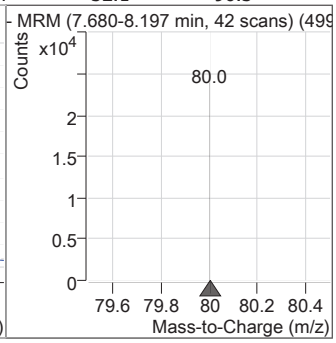


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	3.83	7.97	-0.01	15958 (m)	499.0 -> 99.0	44.4	32.1	96.3



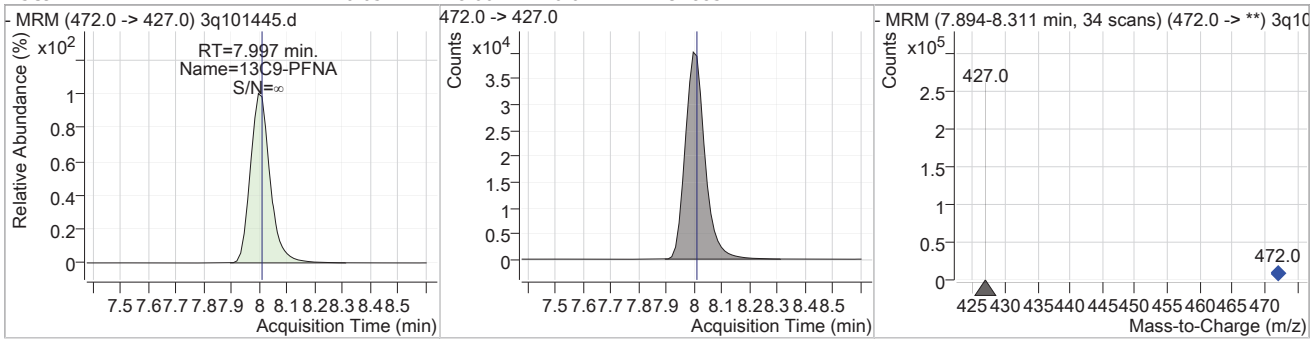




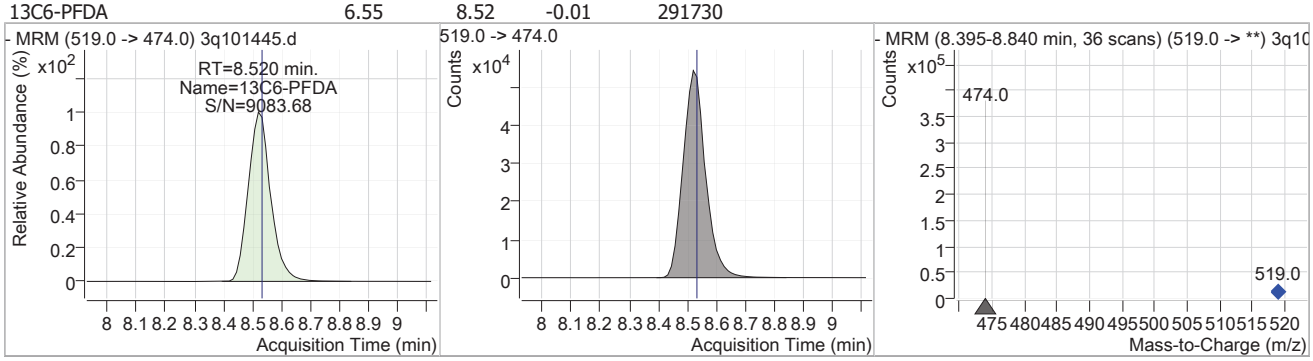


Perfluorinated Compounds by LC/MS/MS

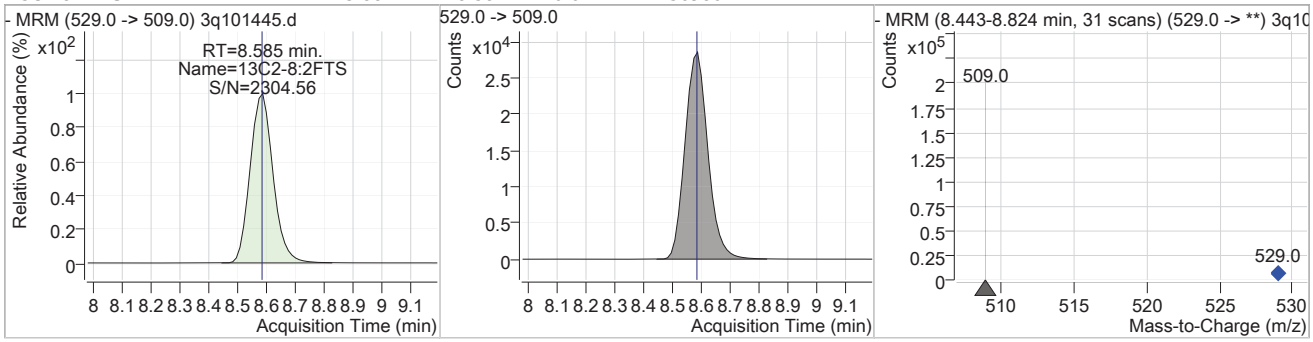
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	6.63	8.00	-0.01	197883				



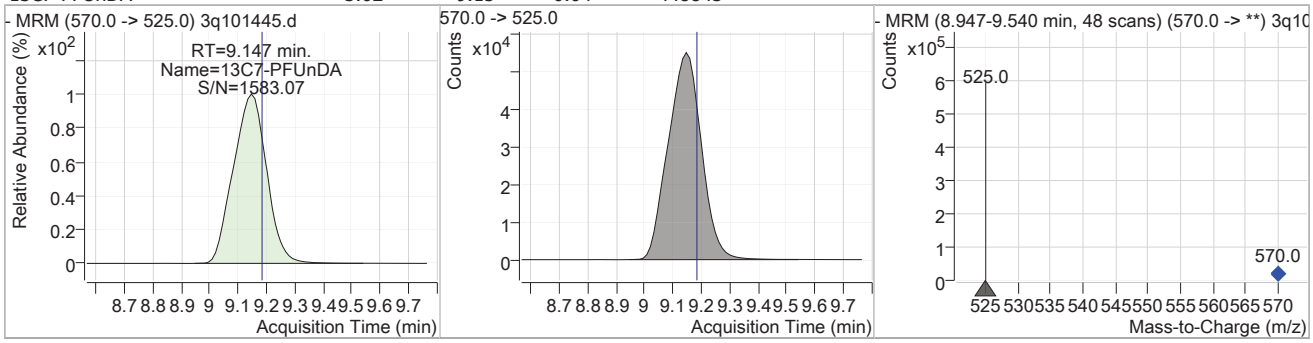
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	6.55	8.52	-0.01	291730				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.88	8.58	-0.01	156980				

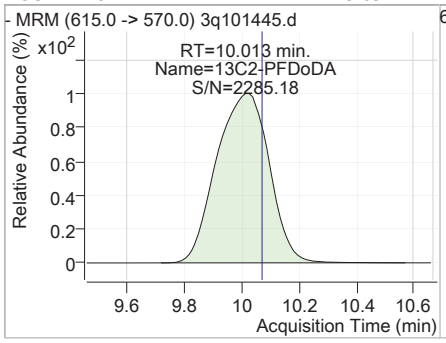


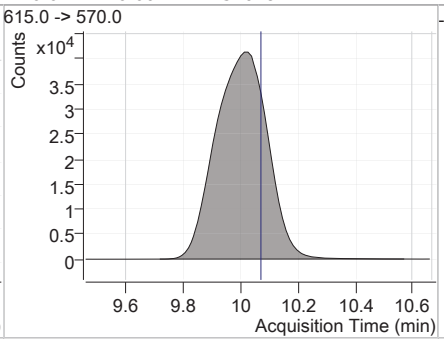
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	5.62	9.15	-0.04	448845				

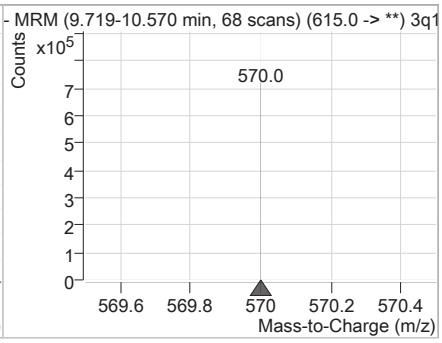


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	5.09	10.01	-0.06	526481				







7.1.1

7

Manual Integration Approval Summary

Sample Number:	FC23797-1	**Method:**	EPA 533
Lab FileID:	3Q101445.D	**Analyst approved:**	04/14/25 12:01 (b) (6)
Injection Time:	04/11/25 19:43	**Supervisor approved:**	04/14/25 12:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanesulfonic acid	375-73-5		4.70	Split peak
Perfluoroheptanoic acid	375-85-9		6.70	Split peak
Perfluorohexanesulfonic acid	355-46-4		6.72	Split peak
Perfluorooctanoic acid	335-67-1		7.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.97	Split peak

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101447.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/11/2025 8:16:09 PM
Sample Name : fc23797-2
Vial : P3-A5
DA Method File : 533_041125_S3Q1491.quantmethod.xml
Batch Name : s3q1491.batch.bin
Sample Information : op8808,S3Q1491,280,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	244572	10.00 µg/L	0.000
13C3-PFBA	2.307	216.0 -> 172.0	79150	10.00 µg/L	-0.025
13C4-PFOS	7.969	503.0 -> 80.0	34467	10.00 µg/L	-0.014
M4-PFBA	2.315	217.0 -> 172.0	94219	10.00 µg/L	-0.025
M5-PFPeA	4.400	268.0 -> 223.0	118400	10.00 µg/L	-0.013
M5-PFHxA	5.763	318.0 -> 273.0	163451	10.00 µg/L	-0.013
M4-PFHpA	6.694	367.0 -> 322.0	144091	10.00 µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	195771	10.00 µg/L	0.000
M9-PFNA	7.997	472.0 -> 427.0	208143	10.00 µg/L	-0.013
M6-PFDA	8.520	519.0 -> 474.0	298619	10.00 µg/L	-0.013
M7-PFUnDA	9.160	570.0 -> 525.0	464003	10.00 µg/L	-0.025
M2-PFDoDA	10.013	615.0 -> 570.0	547094	10.00 µg/L	-0.058
M3-PFBS	4.696	302.0 -> 99.0	14633	10.00 µg/L	-0.013
M3-PFHxS	6.724	402.0 -> 99.0	21364	10.00 µg/L	-0.013
M8-PFOS	7.968	507.0 -> 99.0	24846	10.00 µg/L	-0.014
M2-4:2FTS	5.659	329.0 -> 309.0	57760	10.00 µg/L	-0.013
M2-6:2FTS	7.420	429.0 -> 409.0	109926	10.00 µg/L	0.000
M2-8:2FTS	8.585	529.0 -> 509.0	164187	10.00 µg/L	-0.013
M3-HFPO-DA	6.056	287.0 -> 169.0	1979	10.00 µg/L	-0.013
System Monitoring Compounds					
13C2-4:2FTS	5.659	329.0 -> 309.0	57760	6.54 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 65.4%	
13C2-6:2FTS	7.420	429.0 -> 409.0	109954	6.42 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 64.2%	
13C2-8:2FTS	8.585	529.0 -> 509.0	164187	5.95 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 59.5%	
13C2-PFDoDA	10.013	615.0 -> 570.0	547094	5.11 µg/L	-0.058
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 51.1%	
13C3-PFBS	4.696	302.0 -> 99.0	14633	7.00 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 70.0%	
13C3-PFHxS	6.724	402.0 -> 99.0	21364	7.10 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 71.0%	
13C4-PFBA	2.315	217.0 -> 172.0	94219	6.96 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 69.6%	
13C4-PFHpA	6.694	367.0 -> 322.0	144091	7.05 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 70.5%	
13C5-PFHxA	5.763	318.0 -> 273.0	163451	6.98 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 69.8%	
13C5-PFPeA	4.400	268.0 -> 223.0	118400	7.13 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 71.3%	
13C6-PFDA	8.520	519.0 -> 474.0	298619	6.48 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 64.8%	
13C7-PFUnDA	9.160	570.0 -> 525.0	464003	5.62 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 56.2%	
13C8-PFOA	7.422	421.0 -> 376.0	195771	6.92 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

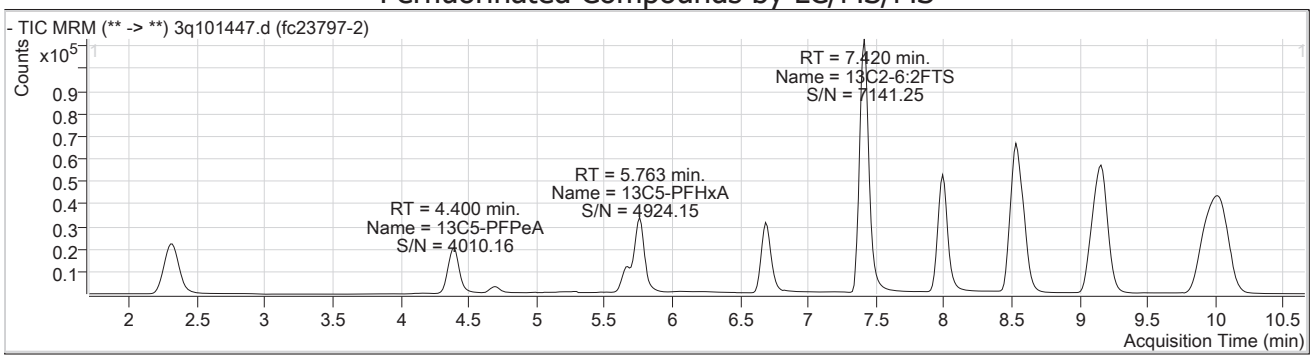
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 69.2%		
13C8-PFOS	7.968	507.0 -> 99.0	24846	6.45 µg/L		-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 64.5%		
13C9-PFNA	7.997	472.0 -> 427.0	208143	6.74 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 67.4%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	1979	6.94 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 69.4%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	-	299.0 -> 80.0	-	N.D.		
		299.0 -> 99.0				
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	-	363.0 -> 319.0	-	N.D.		
		363.0 -> 169.0				
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	5.622	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0	0			

 # = Qualifier out of range, m = manually integrated, + = Area summed

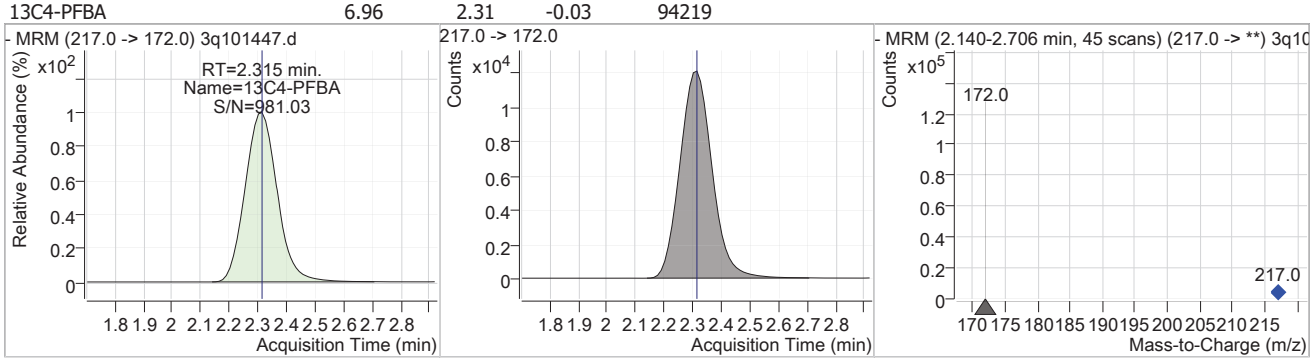
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

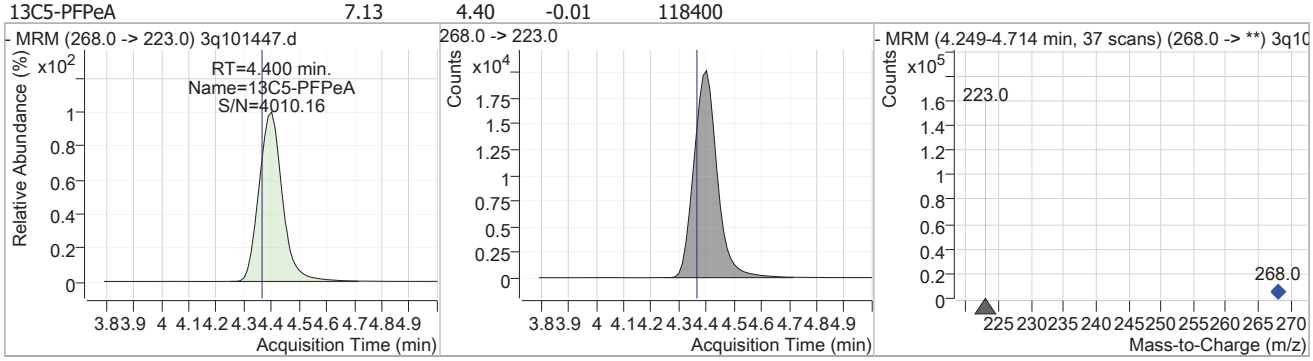
Perfluorinated Compounds by LC/MS/MS



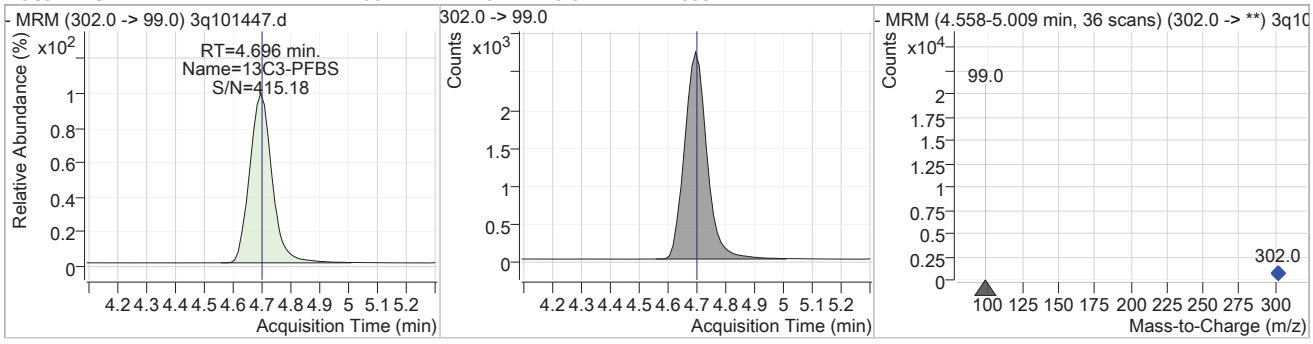
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	6.96	2.31	-0.03	94219				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	7.13	4.40	-0.01	118400				

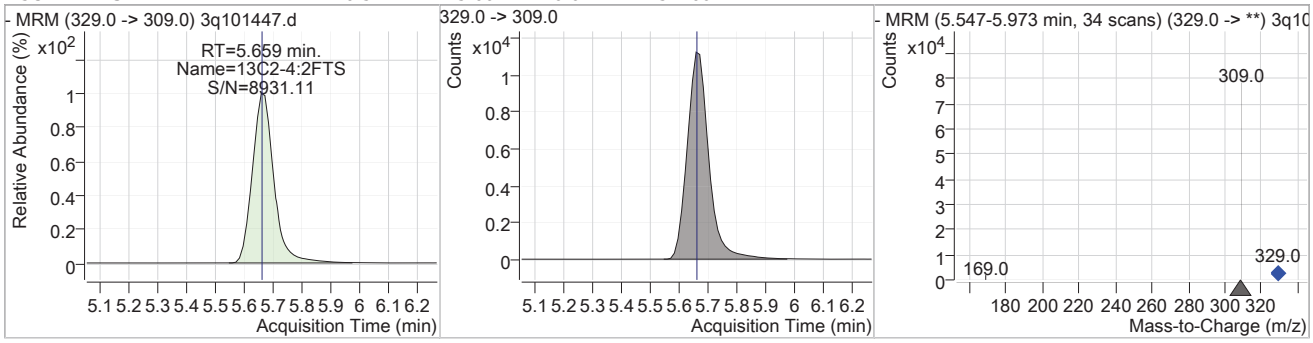


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	7.00	4.70	-0.01	14633				

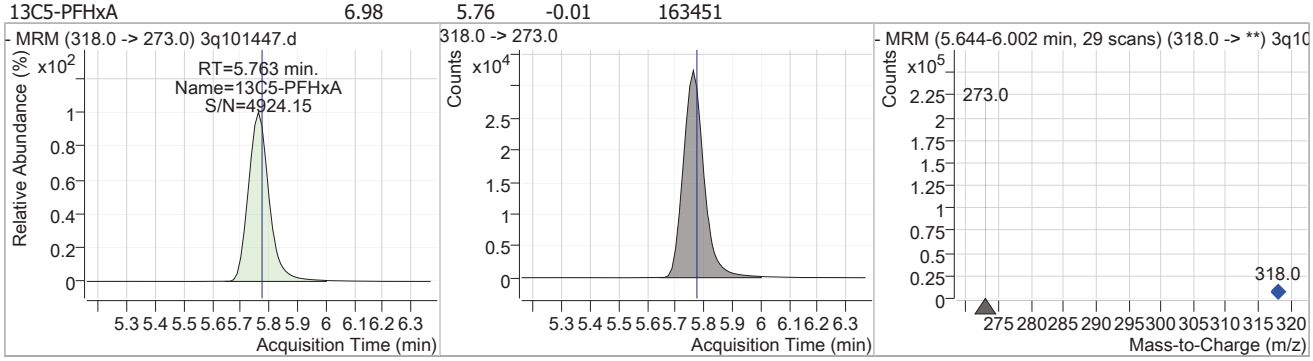


Perfluorinated Compounds by LC/MS/MS

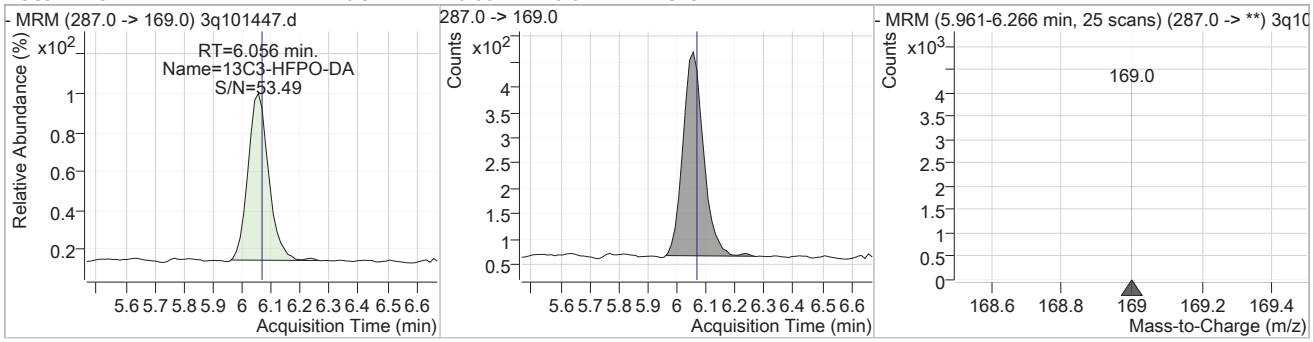
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	6.54	5.66	-0.01	57760				



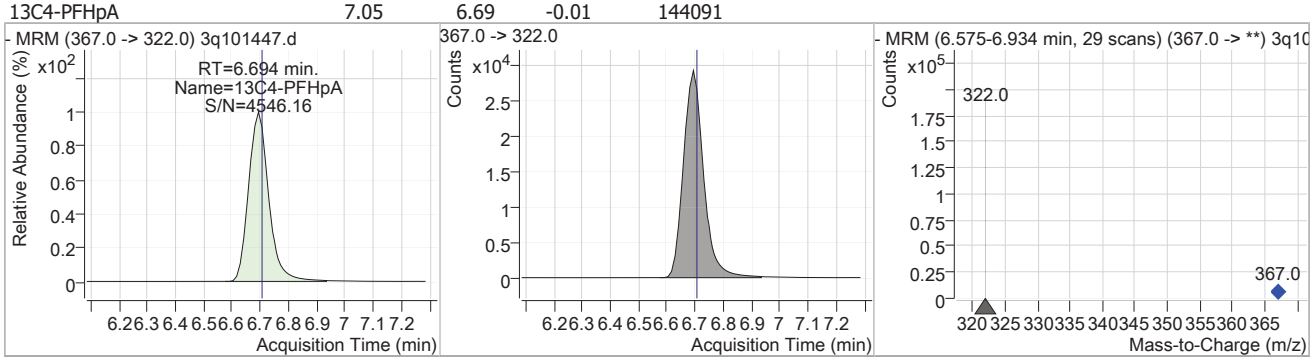
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	6.98	5.76	-0.01	163451				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	6.94	6.06	-0.01	1979				

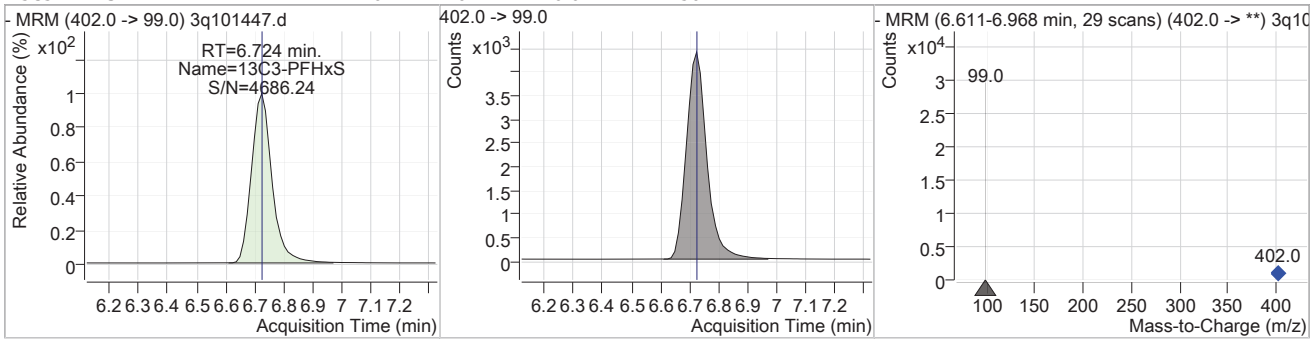


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	7.05	6.69	-0.01	144091				

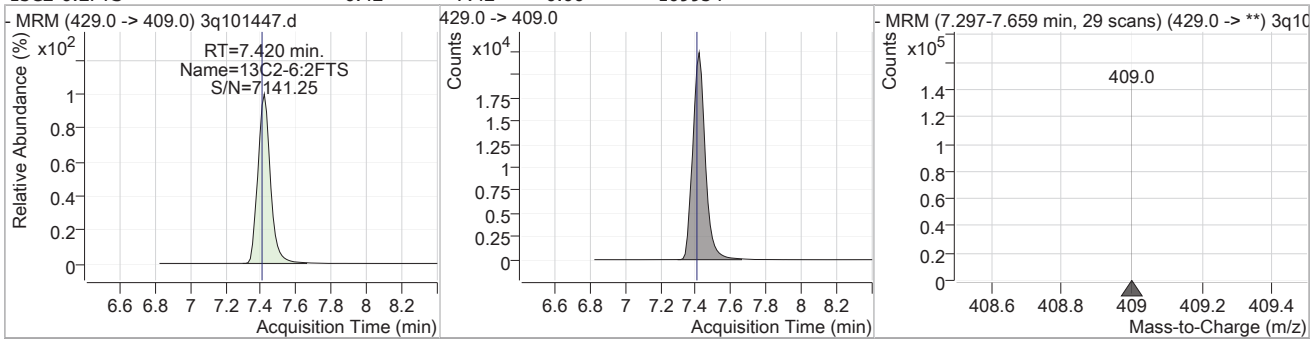


Perfluorinated Compounds by LC/MS/MS

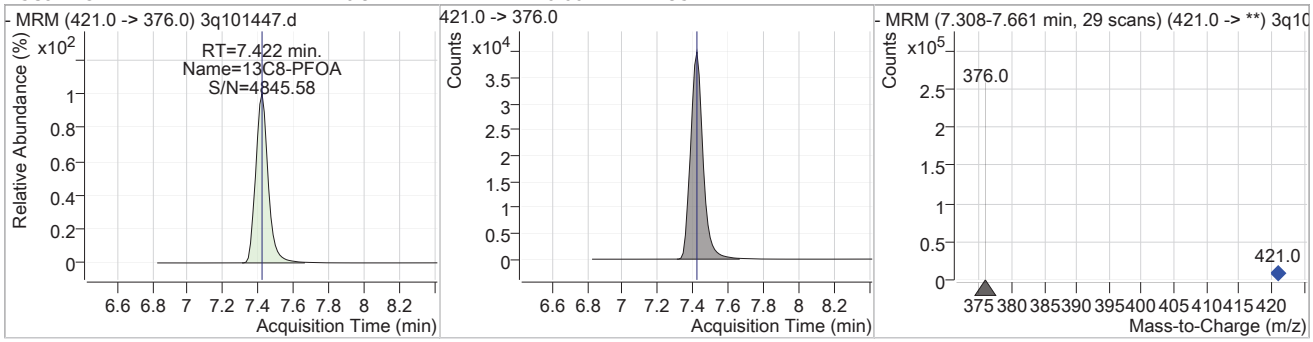
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	7.10	6.72	-0.01	21364				



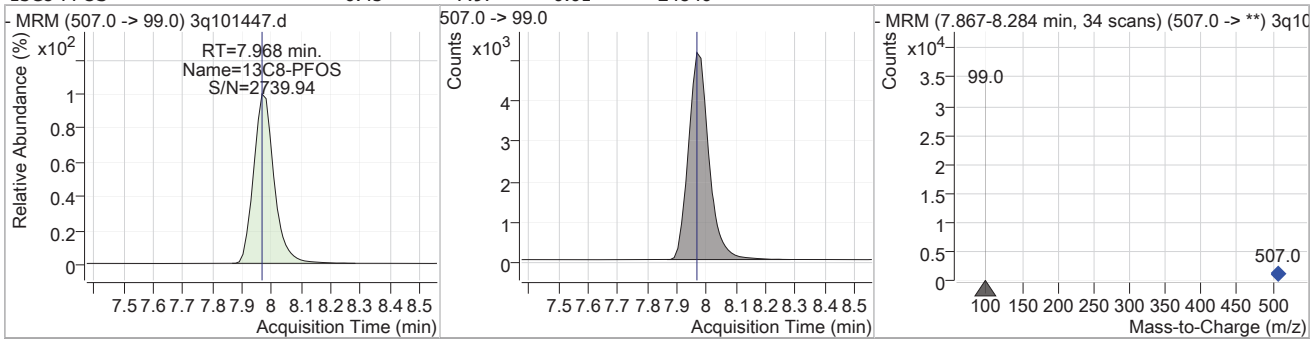
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	6.42	7.42	0.00	109954				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	6.92	7.42	0.00	195771				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	6.45	7.97	-0.01	24846				



7.1.2

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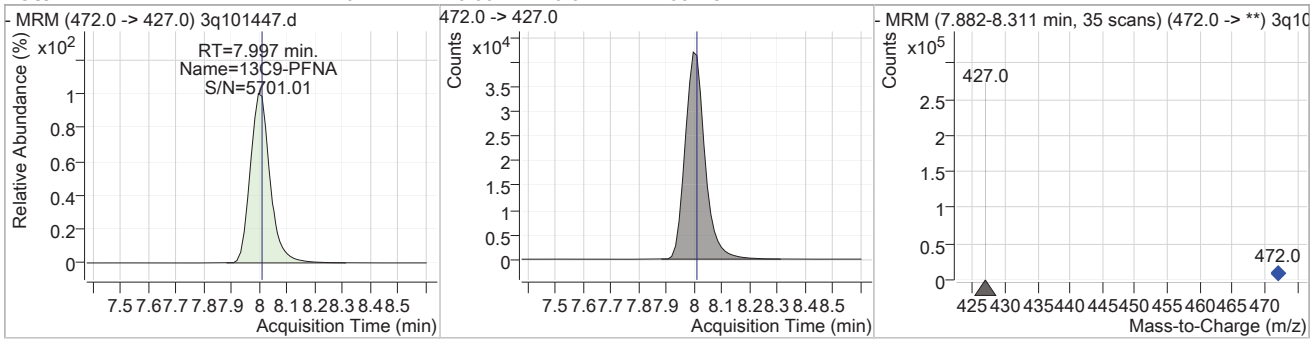
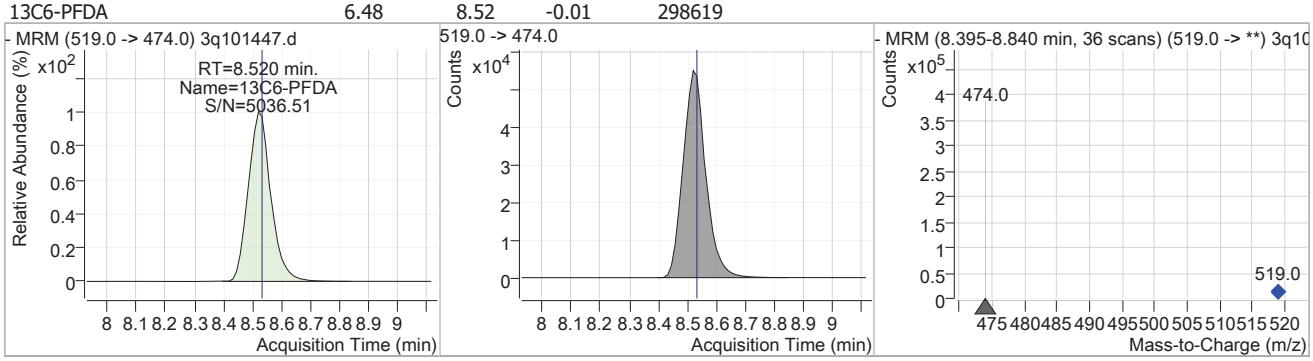
Perfluorinated Compounds by LC/MS/MS

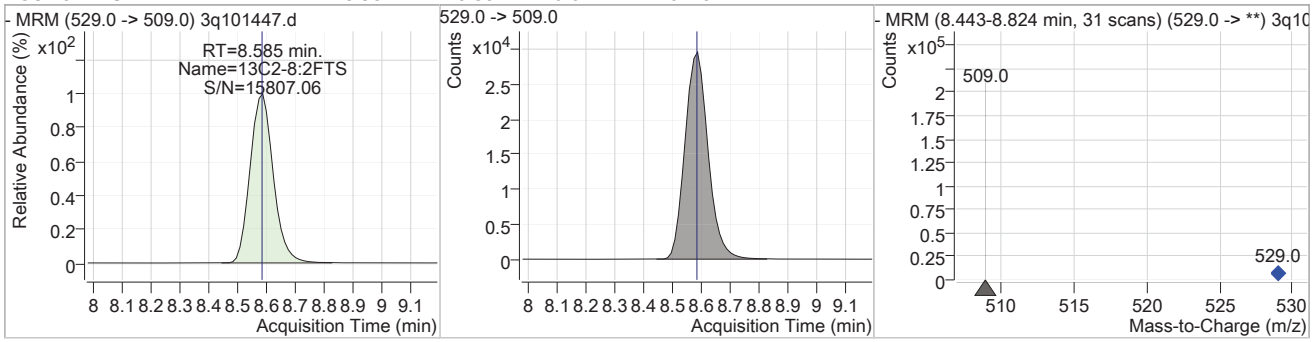
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	6.74	8.00	-0.01	208143				



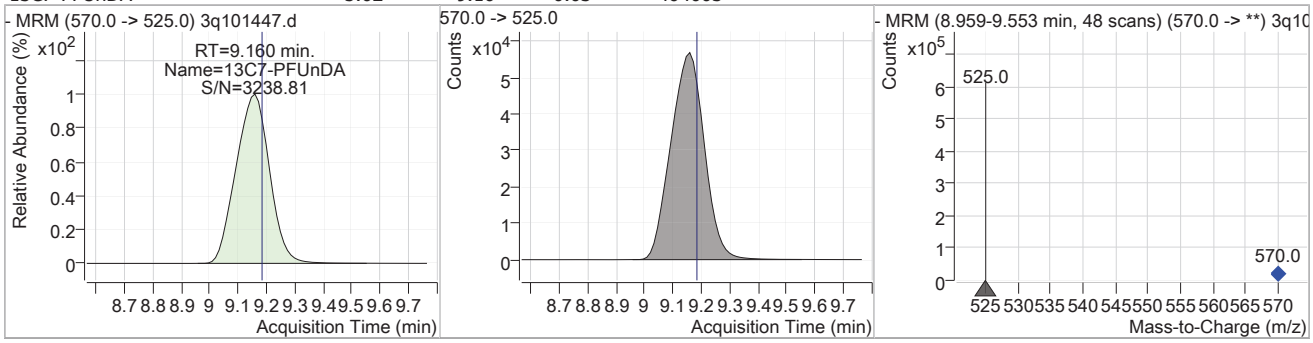
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	6.48	8.52	-0.01	298619				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.95	8.58	-0.01	164187				

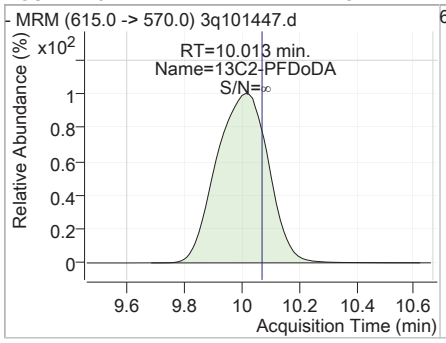


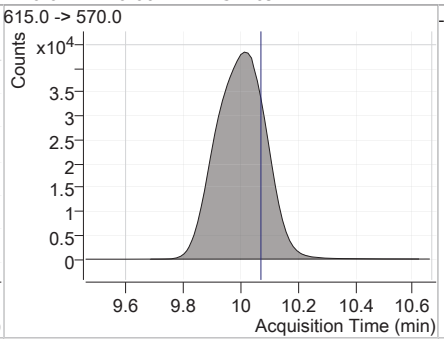
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	5.62	9.16	-0.03	464003				

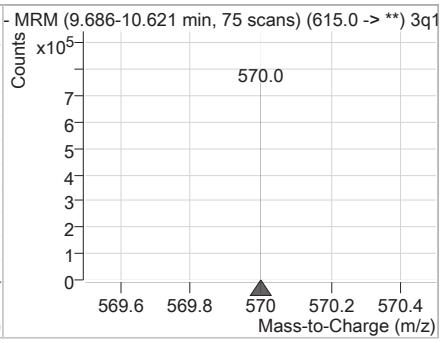


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	5.11	10.01	-0.06	547094				







7.1.2

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Perfluorinated Compounds by LC/MS/MS

Data File : 3q101449.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/11/2025 8:48:19 PM
Sample Name : fc23797-3
Vial : P3-A7
DA Method File : 533_041125_S3Q1491.quantmethod.xml
Batch Name : s3q1491.batch.bin
Sample Information : op8808,S3Q1491,265,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	261682	10.00 µg/L	0.000
13C3-PFBA	2.307	216.0 -> 172.0	86659	10.00 µg/L	-0.025
13C4-PFOS	7.969	503.0 -> 80.0	36228	10.00 µg/L	-0.014
M4-PFBA	2.315	217.0 -> 172.0	107713	10.00 µg/L	-0.025
M5-PFPeA	4.400	268.0 -> 223.0	136295	10.00 µg/L	-0.013
M5-PFHxA	5.763	318.0 -> 273.0	184111	10.00 µg/L	-0.013
M4-PFHpA	6.694	367.0 -> 322.0	161896	10.00 µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	220358	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	233674	10.00 µg/L	0.000
M6-PFDA	8.520	519.0 -> 474.0	341144	10.00 µg/L	-0.013
M7-PFUnDA	9.147	570.0 -> 525.0	535667	10.00 µg/L	-0.038
M2-PFDoDA	10.001	615.0 -> 570.0	603912	10.00 µg/L	-0.070
M3-PFBS	4.696	302.0 -> 99.0	16405	10.00 µg/L	-0.013
M3-PFHxS	6.724	402.0 -> 99.0	23963	10.00 µg/L	-0.013
M8-PFOS	7.968	507.0 -> 99.0	28043	10.00 µg/L	-0.014
M2-4:2FTS	5.672	329.0 -> 309.0	63205	10.00 µg/L	0.000
M2-6:2FTS	7.420	429.0 -> 409.0	122662	10.00 µg/L	0.000
M2-8:2FTS	8.585	529.0 -> 509.0	183166	10.00 µg/L	-0.013
M3-HFPO-DA	6.056	287.0 -> 169.0	2270	10.00 µg/L	-0.013
System Monitoring Compounds					
13C2-4:2FTS	5.672	329.0 -> 309.0	63205	6.81 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 68.1%	
13C2-6:2FTS	7.420	429.0 -> 409.0	122662	6.82 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 68.2%	
13C2-8:2FTS	8.585	529.0 -> 509.0	183166	6.32 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 63.2%	
13C2-PFDoDA	10.001	615.0 -> 570.0	603912	5.27 µg/L	-0.070
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 52.7%	
13C3-PFBS	4.696	302.0 -> 99.0	16405	7.47 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 74.7%	
13C3-PFHxS	6.724	402.0 -> 99.0	23963	7.57 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 75.7%	
13C4-PFBA	2.315	217.0 -> 172.0	107713	7.27 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 72.7%	
13C4-PFHpA	6.694	367.0 -> 322.0	161896	7.41 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 74.1%	
13C5-PFHxA	5.763	318.0 -> 273.0	184111	7.34 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 73.4%	
13C5-PFPeA	4.400	268.0 -> 223.0	136295	7.49 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 74.9%	
13C6-PFDA	8.520	519.0 -> 474.0	341144	6.92 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 69.2%	
13C7-PFUnDA	9.147	570.0 -> 525.0	535667	6.06 µg/L	-0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 60.6%	
13C8-PFOA	7.422	421.0 -> 376.0	220358	7.28 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

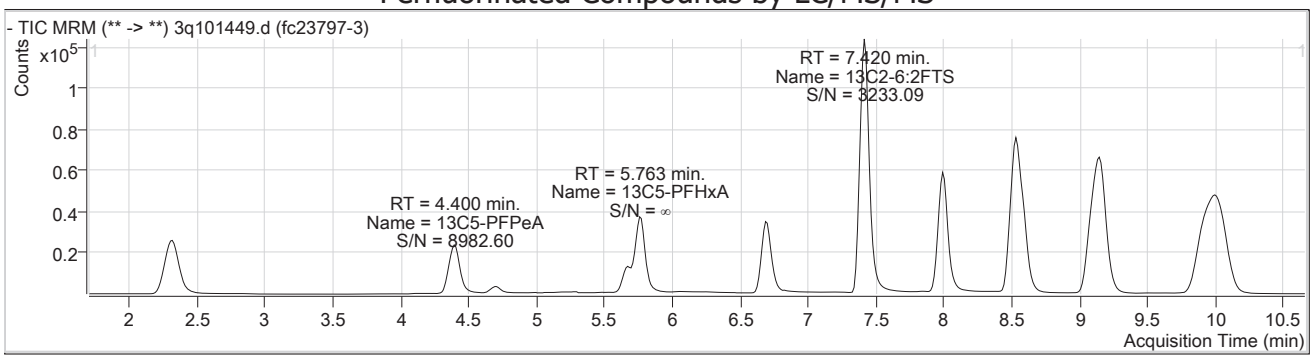
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 72.8%		
13C8-PFOS	7.968	507.0 -> 99.0	28043	6.93 µg/L		-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 69.3%		
13C9-PFNA	8.010	472.0 -> 427.0	233674	7.07 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 70.7%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	2270	7.43 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 74.3%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	-	299.0 -> 80.0	-	N.D.		
		299.0 -> 99.0				
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	-	363.0 -> 319.0	-	N.D.		
		363.0 -> 169.0				
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	6.330	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0	0			

 # = Qualifier out of range, m = manually integrated, + = Area summed

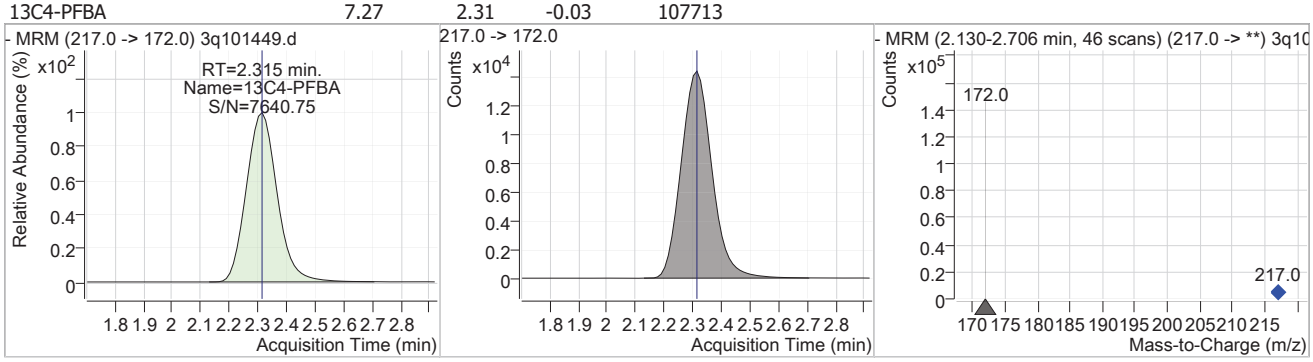
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

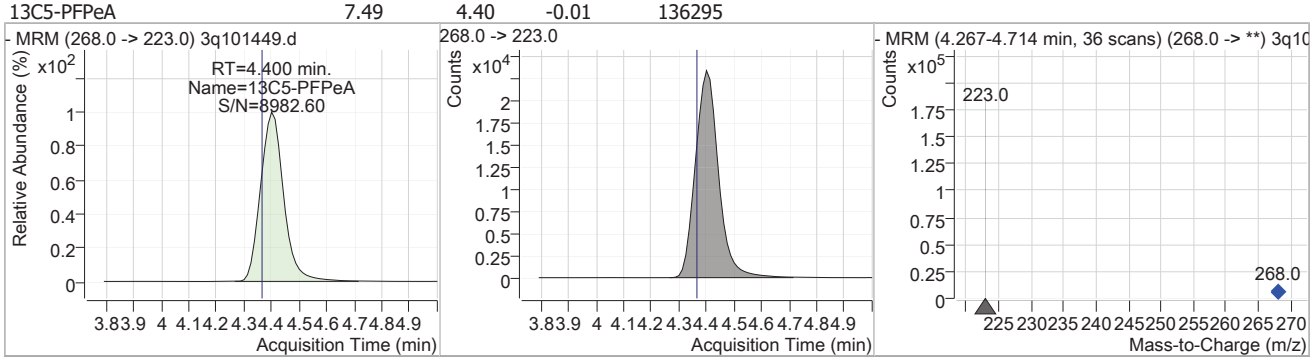
Perfluorinated Compounds by LC/MS/MS



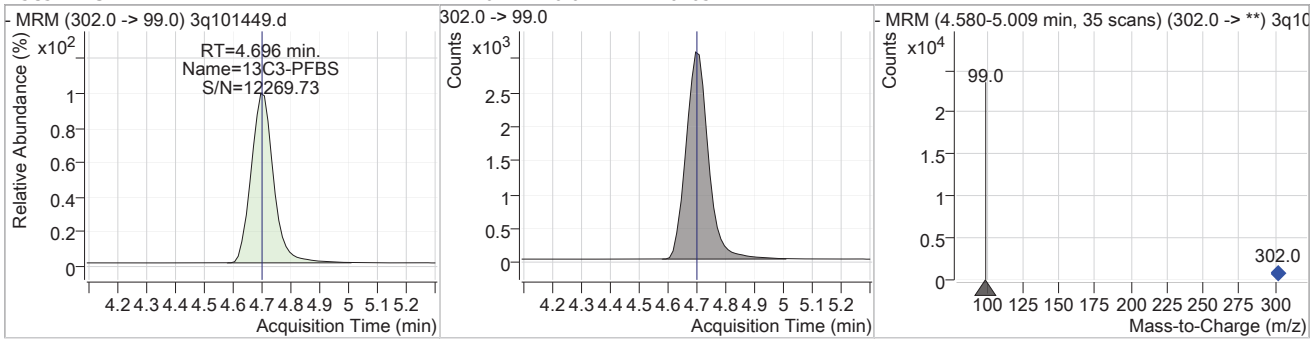
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	7.27	2.31	-0.03	107713				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	7.49	4.40	-0.01	136295				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	7.47	4.70	-0.01	16405				



7.1.3

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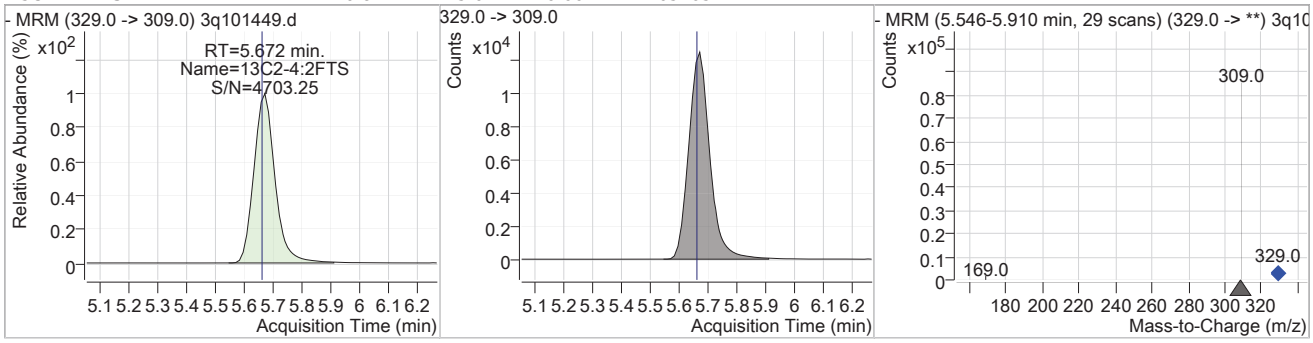
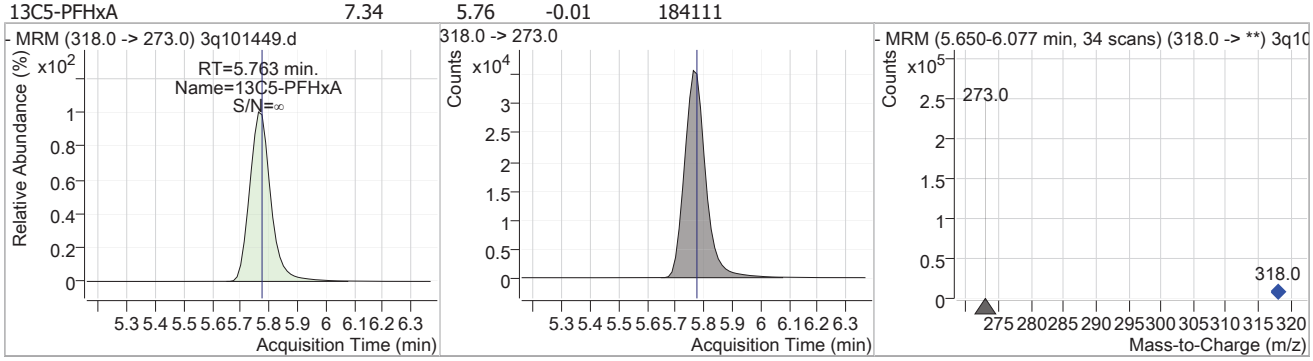
Perfluorinated Compounds by LC/MS/MS

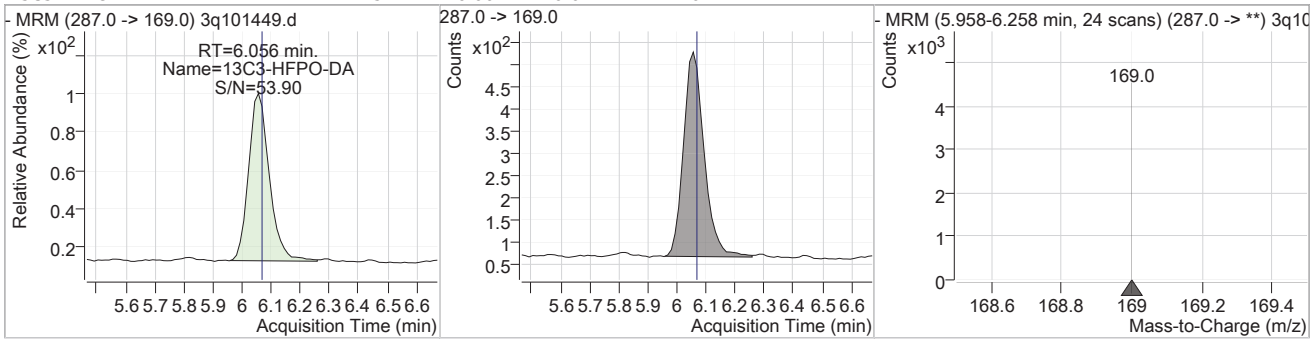
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	6.81	5.67	0.00	63205				



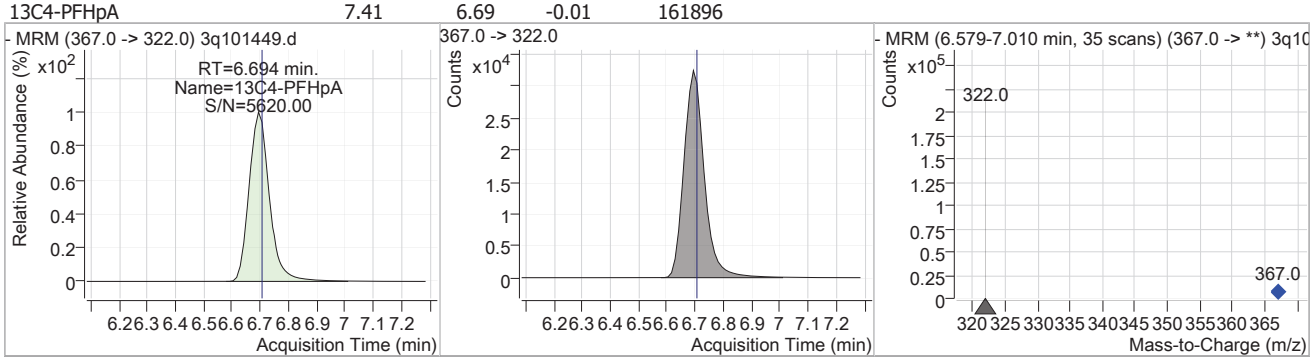
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	7.34	5.76	-0.01	184111				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	7.43	6.06	-0.01	2270				

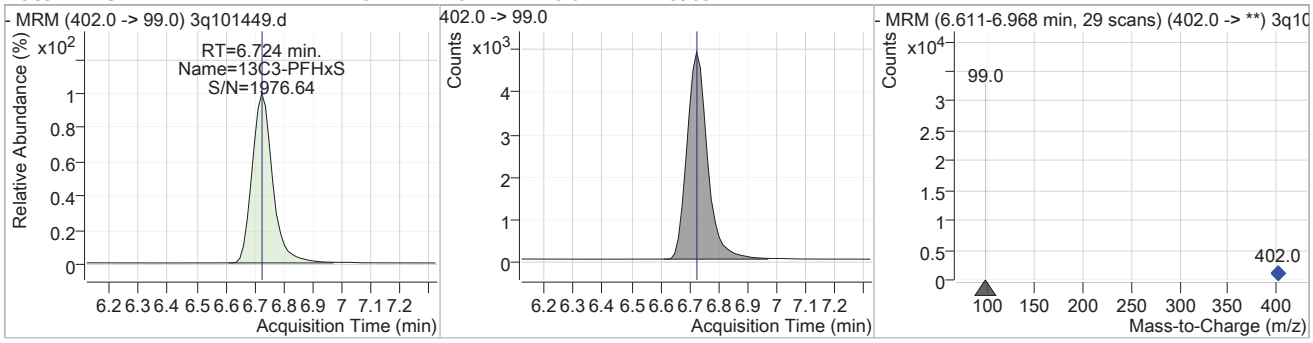


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	7.41	6.69	-0.01	161896				

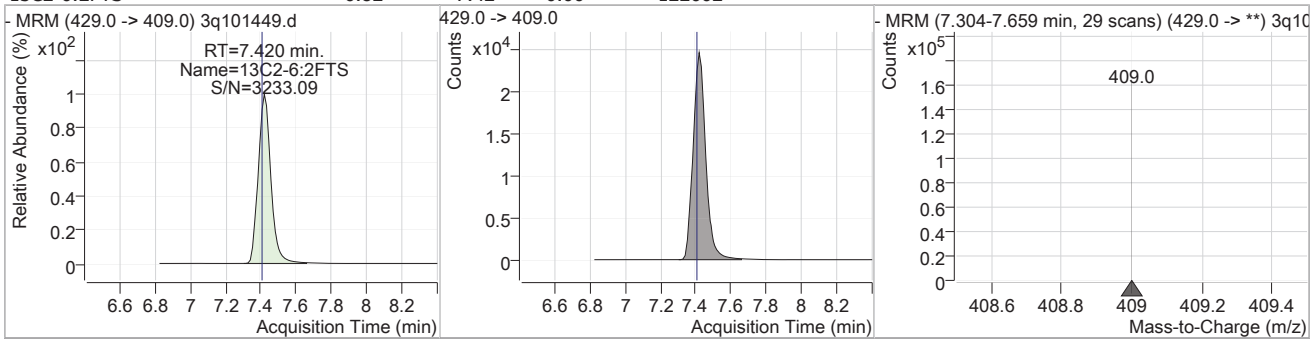


Perfluorinated Compounds by LC/MS/MS

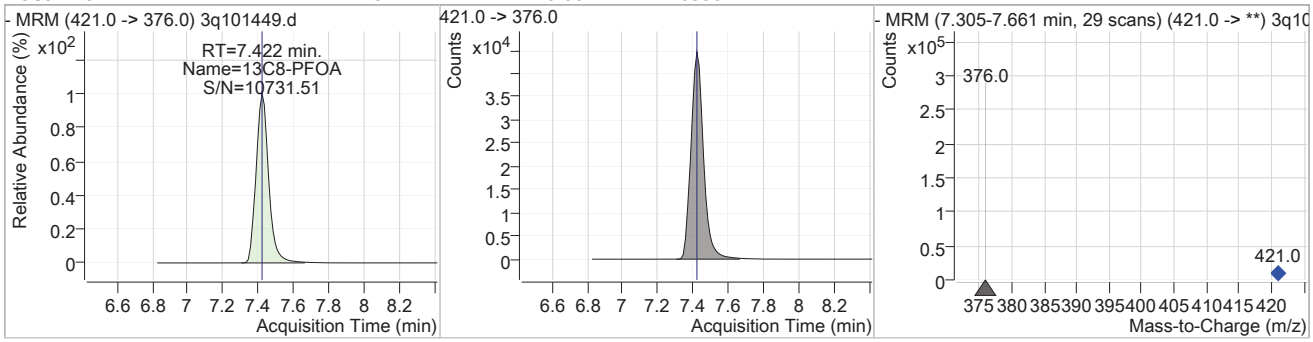
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	7.57	6.72	-0.01	23963				



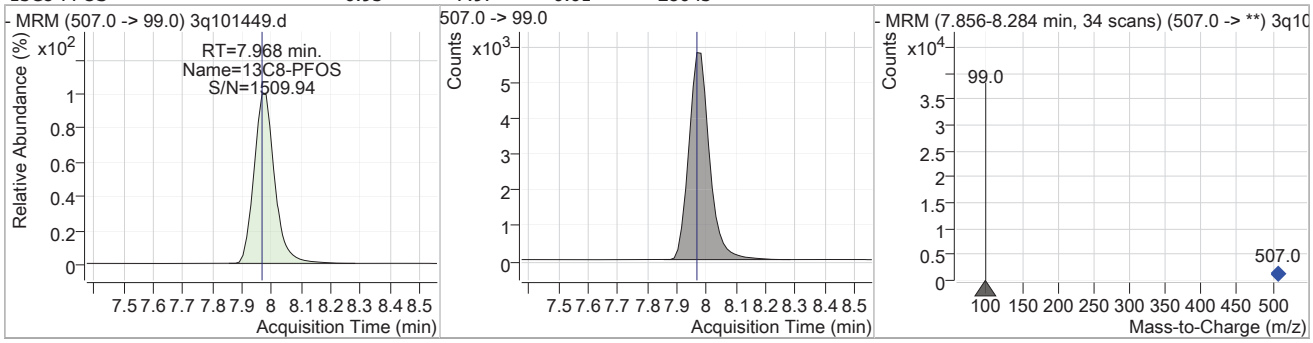
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	6.82	7.42	0.00	122662				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	7.28	7.42	0.00	220358				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	6.93	7.97	-0.01	28043				



7.1.3

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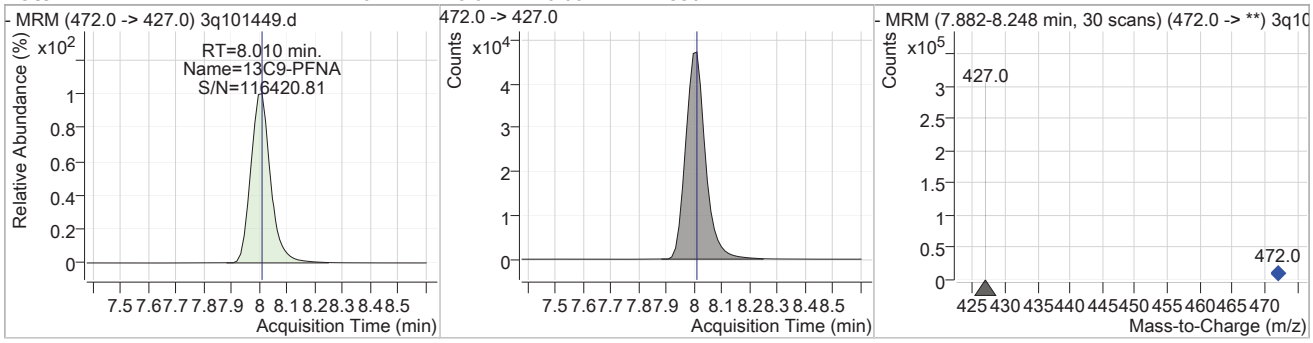
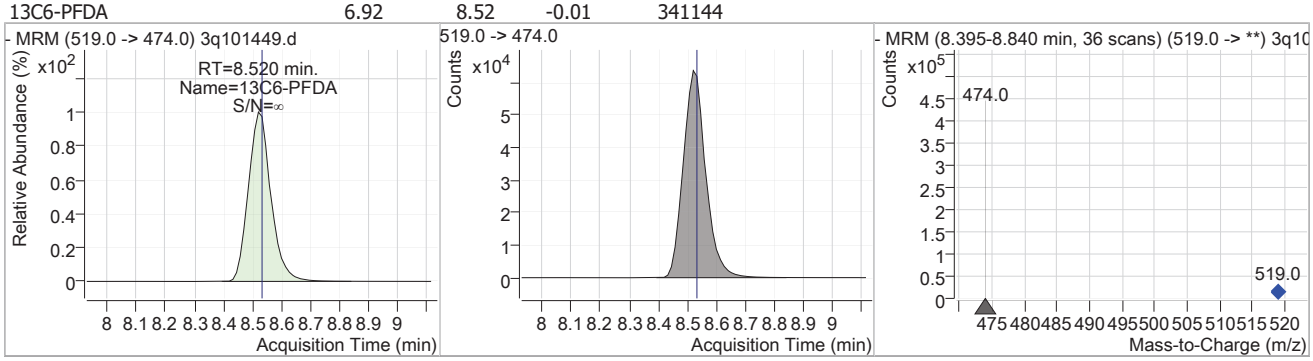
Perfluorinated Compounds by LC/MS/MS

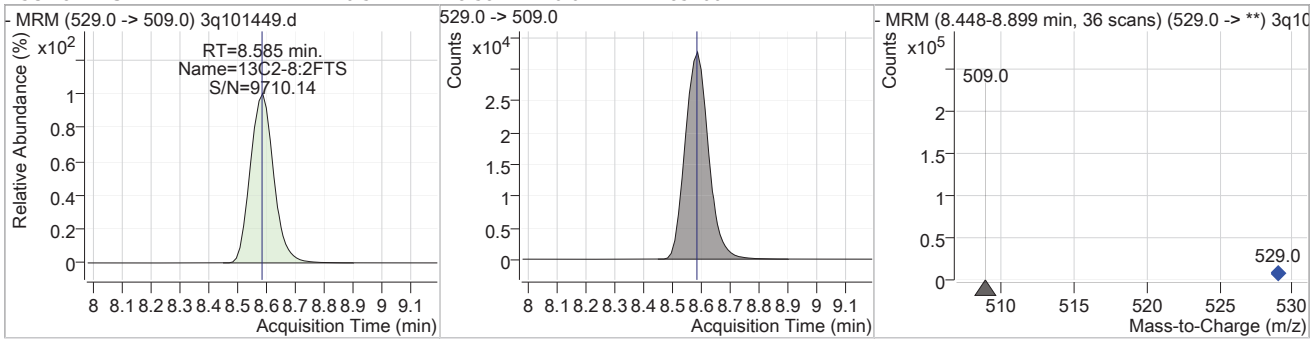
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	7.07	8.01	0.00	233674				



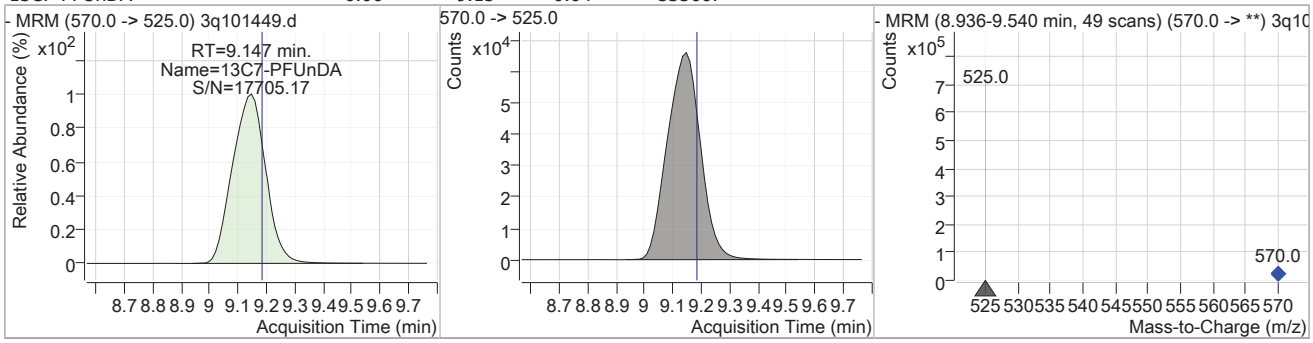
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	6.92	8.52	-0.01	341144				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	6.32	8.58	-0.01	183166				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	6.06	9.15	-0.04	535667				



7.1.3

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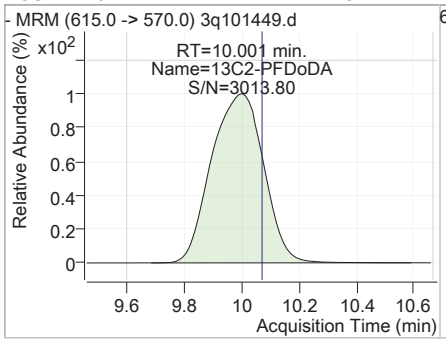
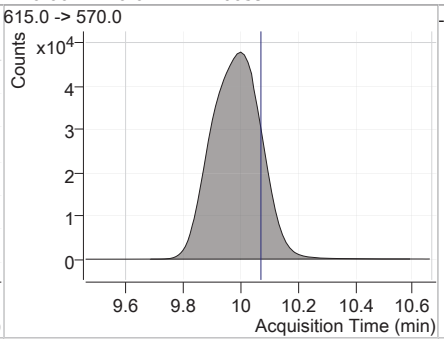
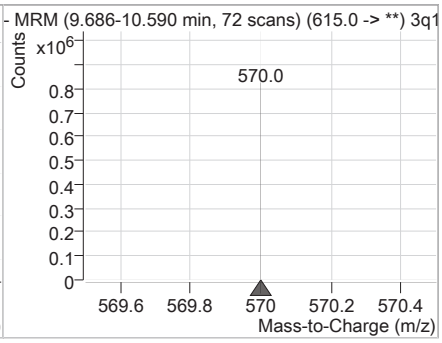
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	5.27	10.00	-0.07	603912				







Perfluorinated Compounds by LC/MS/MS

Data File : 3q101450.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/11/2025 9:04:24 PM
Sample Name : fc23797-4
Vial : P3-A8
DA Method File : 533_041125_S3Q1491.quantmethod.xml
Batch Name : s3q1491.batch.bin
Sample Information : op8808,S3Q1491,260,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	267897	10.00 µg/L	0.000
13C3-PFBA	2.307	216.0 -> 172.0	88873	10.00 µg/L	-0.025
13C4-PFOS	7.969	503.0 -> 80.0	37377	10.00 µg/L	-0.014
M4-PFBA	2.302	217.0 -> 172.0	106488	10.00 µg/L	-0.038
M5-PFPeA	4.400	268.0 -> 223.0	132348	10.00 µg/L	-0.013
M5-PFHxA	5.763	318.0 -> 273.0	177074	10.00 µg/L	-0.013
M4-PFHpA	6.694	367.0 -> 322.0	157202	10.00 µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	215308	10.00 µg/L	0.000
M9-PFNA	7.997	472.0 -> 427.0	226665	10.00 µg/L	-0.013
M6-PFDA	8.520	519.0 -> 474.0	333338	10.00 µg/L	-0.013
M7-PFUnDA	9.122	570.0 -> 525.0	490342	10.00 µg/L	-0.063
M2-PFDoDA	9.963	615.0 -> 570.0	582720	10.00 µg/L	-0.108
M3-PFBS	4.696	302.0 -> 99.0	15959	10.00 µg/L	-0.013
M3-PFHxS	6.723	402.0 -> 99.0	23227	10.00 µg/L	-0.013
M8-PFOS	7.968	507.0 -> 99.0	26328	10.00 µg/L	-0.014
M2-4:2FTS	5.659	329.0 -> 309.0	62444	10.00 µg/L	-0.013
M2-6:2FTS	7.420	429.0 -> 409.0	119771	10.00 µg/L	0.000
M2-8:2FTS	8.572	529.0 -> 509.0	174297	10.00 µg/L	-0.025
M3-HFPO-DA	6.056	287.0 -> 169.0	2260	10.00 µg/L	-0.013
System Monitoring Compounds					
13C2-4:2FTS	5.659	329.0 -> 309.0	62444	6.52 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 65.2%	
13C2-6:2FTS	7.420	429.0 -> 409.0	119747	6.45 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 64.5%	
13C2-8:2FTS	8.572	529.0 -> 509.0	174297	5.83 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 58.3%	
13C2-PFDoDA	9.963	615.0 -> 570.0	582720	4.97 µg/L	-0.108
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 49.7%	
13C3-PFBS	4.696	302.0 -> 99.0	15959	7.04 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 70.4%	
13C3-PFHxS	6.723	402.0 -> 99.0	23227	7.11 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 71.1%	
13C4-PFBA	2.302	217.0 -> 172.0	106488	7.01 µg/L	-0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 70.1%	
13C4-PFHpA	6.694	367.0 -> 322.0	157202	7.02 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 70.2%	
13C5-PFHxA	5.763	318.0 -> 273.0	177074	6.90 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 69.0%	
13C5-PFPeA	4.400	268.0 -> 223.0	132348	7.09 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 70.9%	
13C6-PFDA	8.520	519.0 -> 474.0	333338	6.60 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 66.0%	
13C7-PFUnDA	9.122	570.0 -> 525.0	490342	5.42 µg/L	-0.063
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 54.2%	
13C8-PFOA	7.422	421.0 -> 376.0	215308	6.95 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

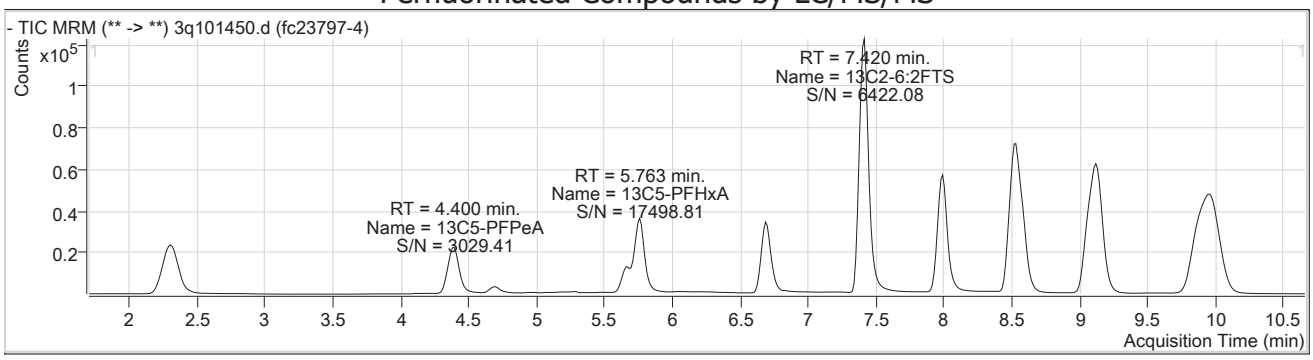
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 69.5%		
13C8-PFOS	7.968	507.0 -> 99.0	26328	6.30 µg/L		-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 63.0%		
13C9-PFNA	7.997	472.0 -> 427.0	226665	6.70 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 67.0%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	2260	7.23 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 72.3%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	-	299.0 -> 80.0	-	N.D.		
		299.0 -> 99.0				
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	-	363.0 -> 319.0	-	N.D.		
		363.0 -> 169.0				
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	5.659	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0	0			

 # = Qualifier out of range, m = manually integrated, + = Area summed

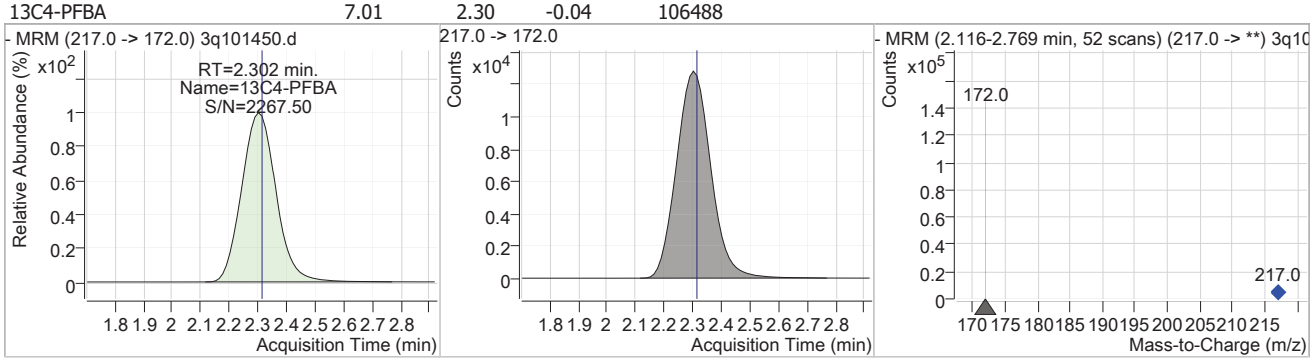
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

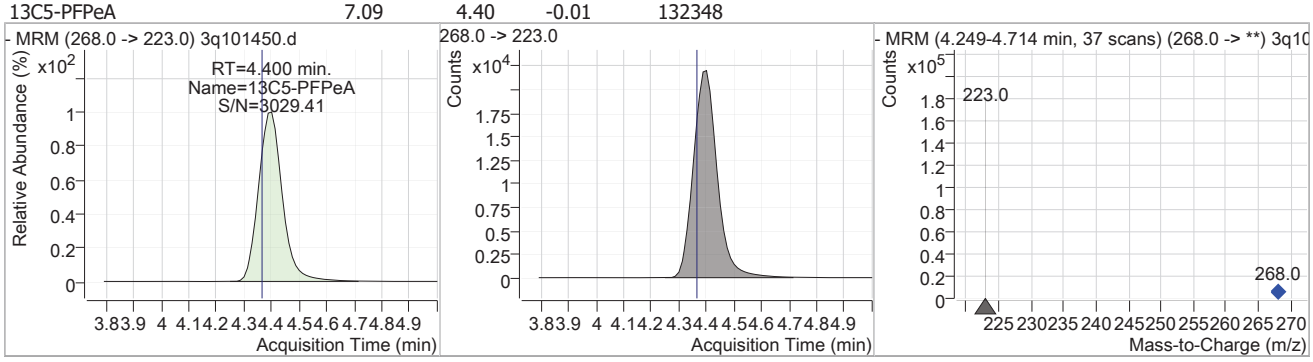
Perfluorinated Compounds by LC/MS/MS



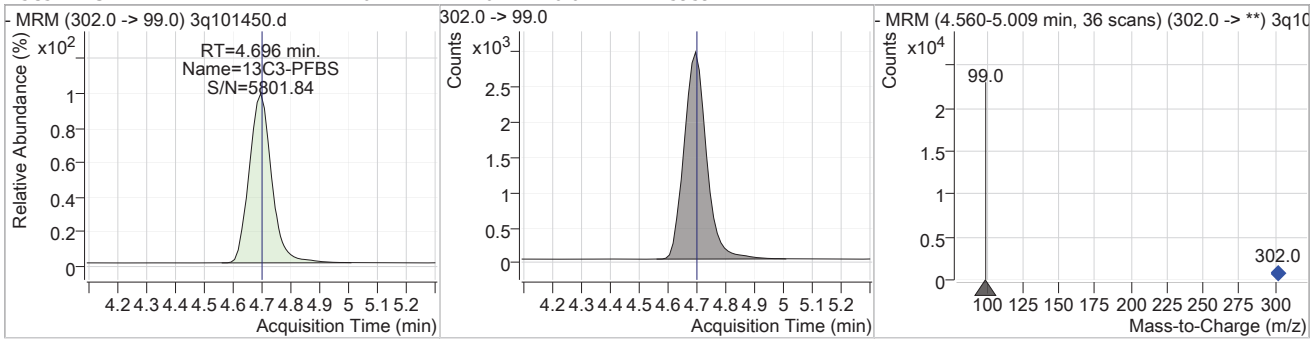
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	7.01	2.30	-0.04	106488				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	7.09	4.40	-0.01	132348				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	7.04	4.70	-0.01	15959				



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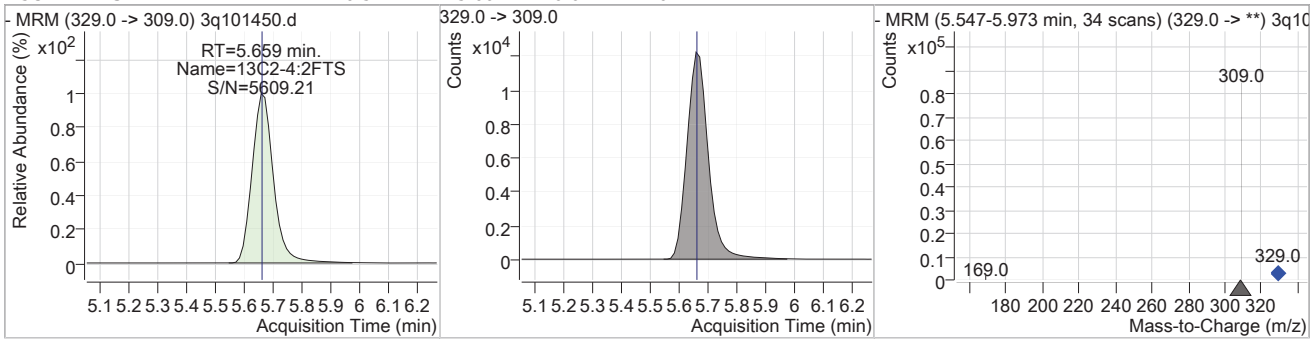
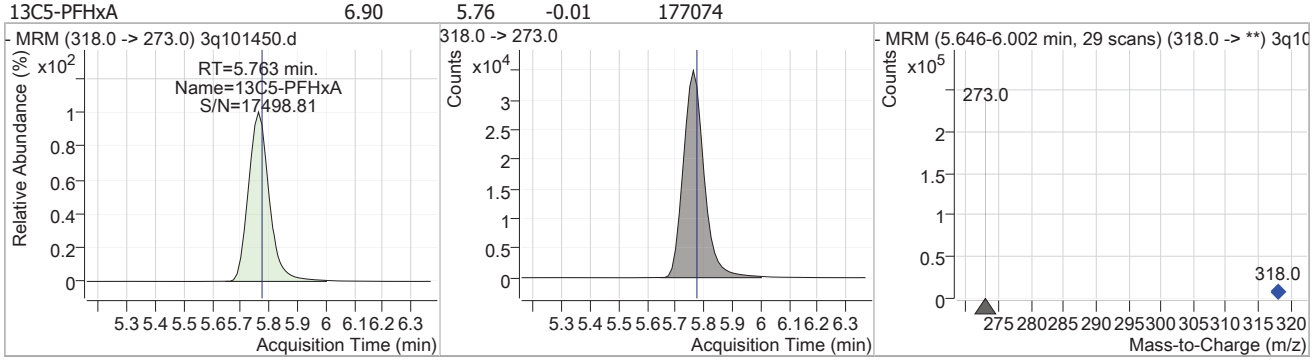
Perfluorinated Compounds by LC/MS/MS

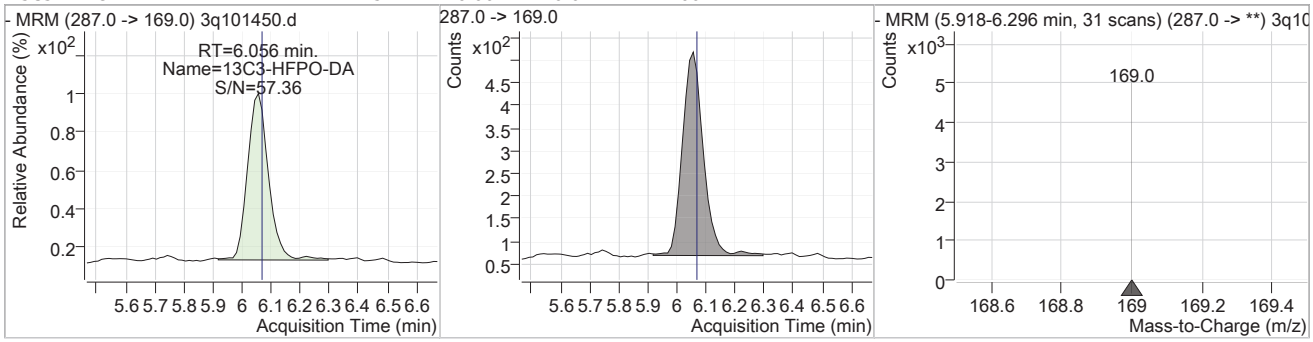
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	6.52	5.66	-0.01	62444				



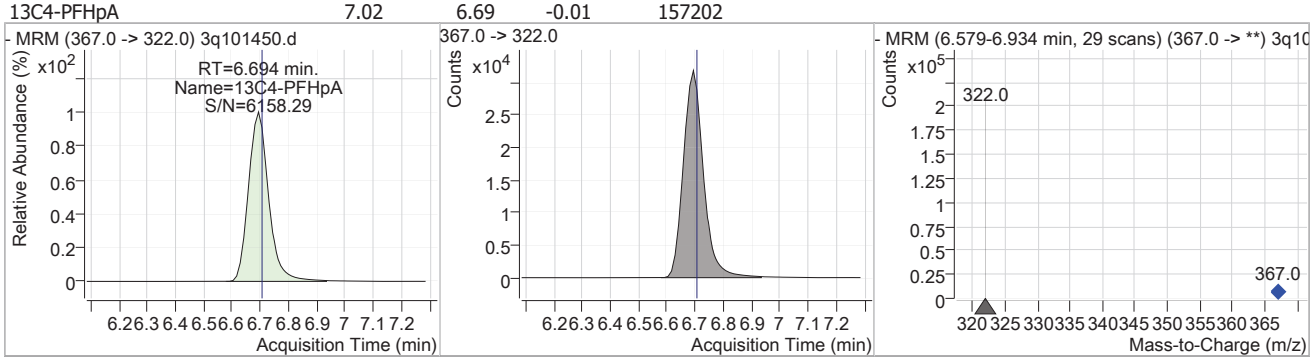
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	6.90	5.76	-0.01	177074				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	7.23	6.06	-0.01	2260				

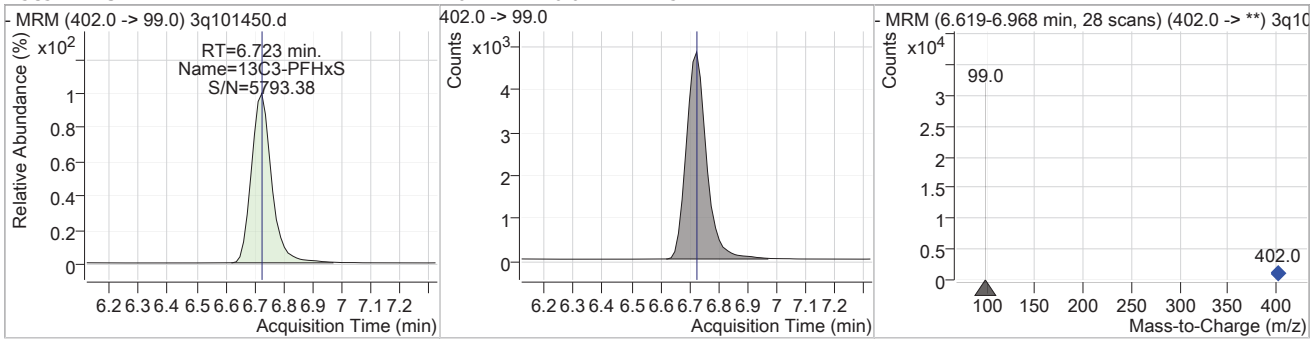


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	7.02	6.69	-0.01	157202				

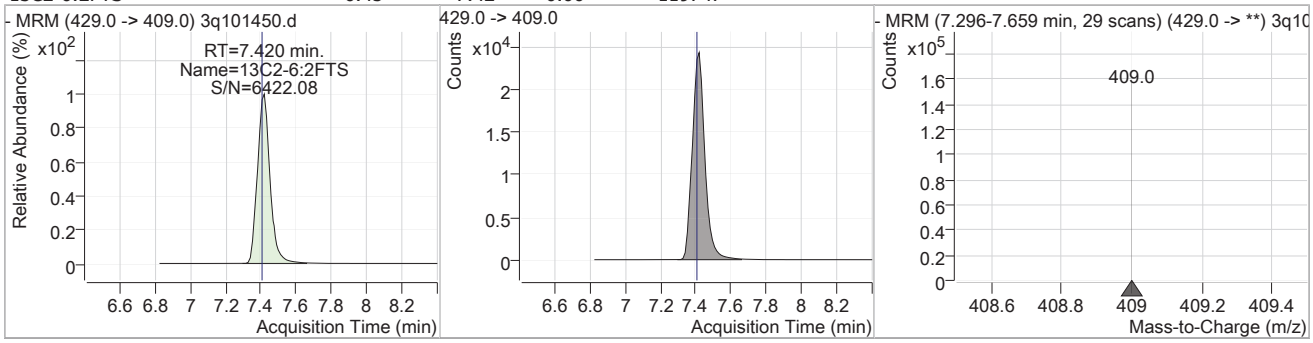


Perfluorinated Compounds by LC/MS/MS

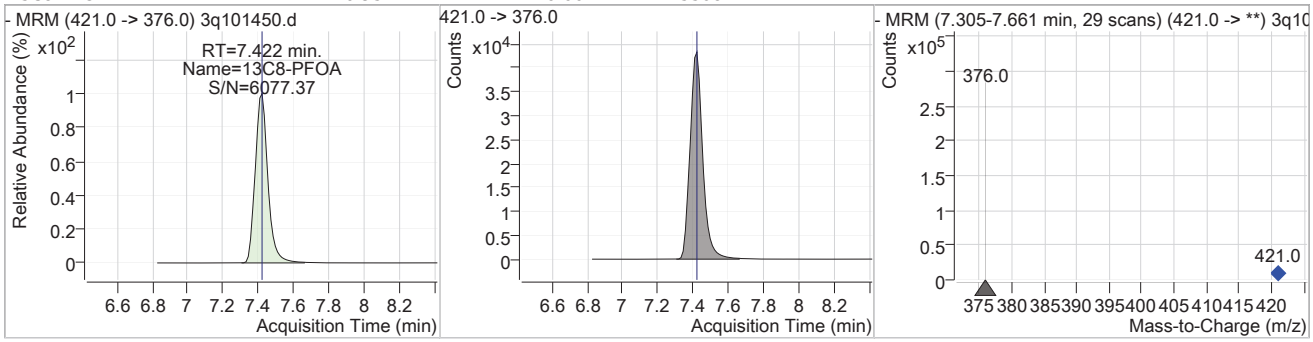
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	7.11	6.72	-0.01	23227				



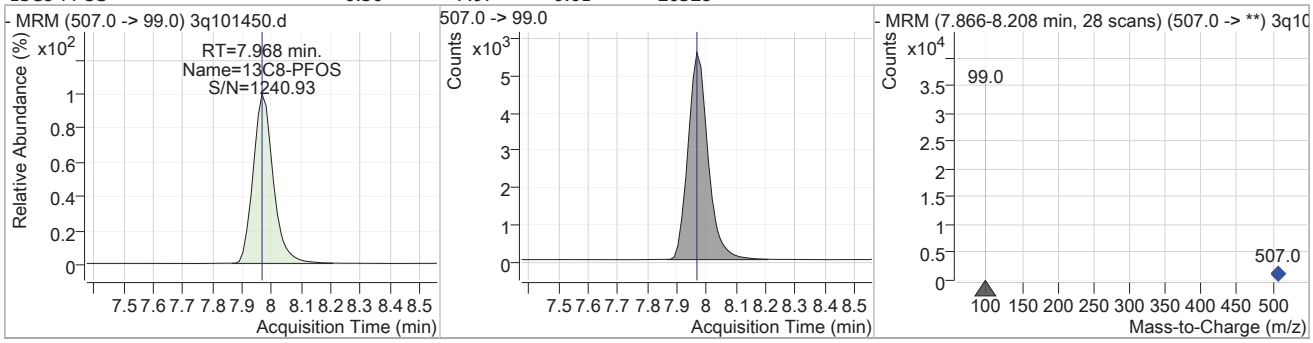
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	6.45	7.42	0.00	119747				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	6.95	7.42	0.00	215308				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	6.30	7.97	-0.01	26328				



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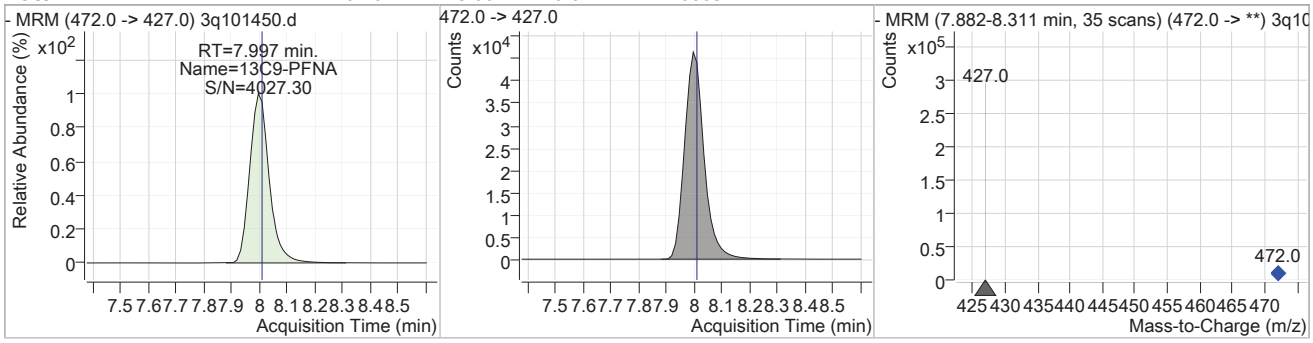
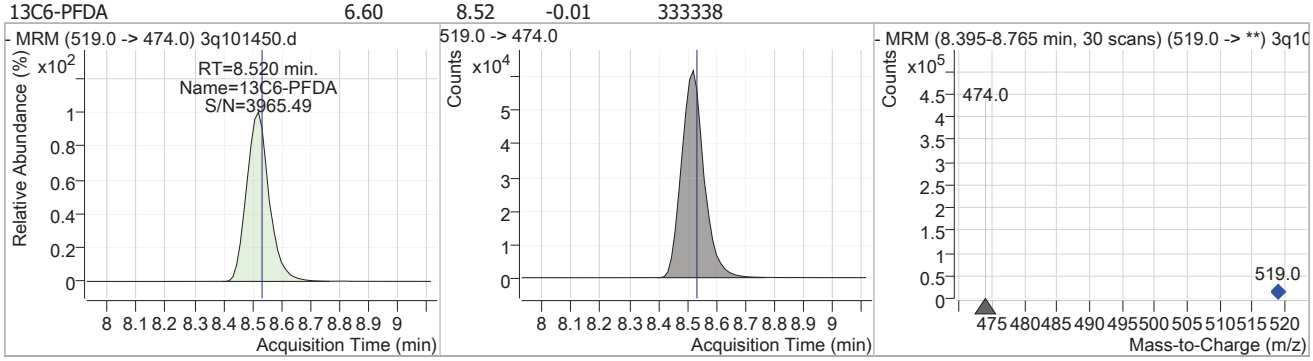
Perfluorinated Compounds by LC/MS/MS

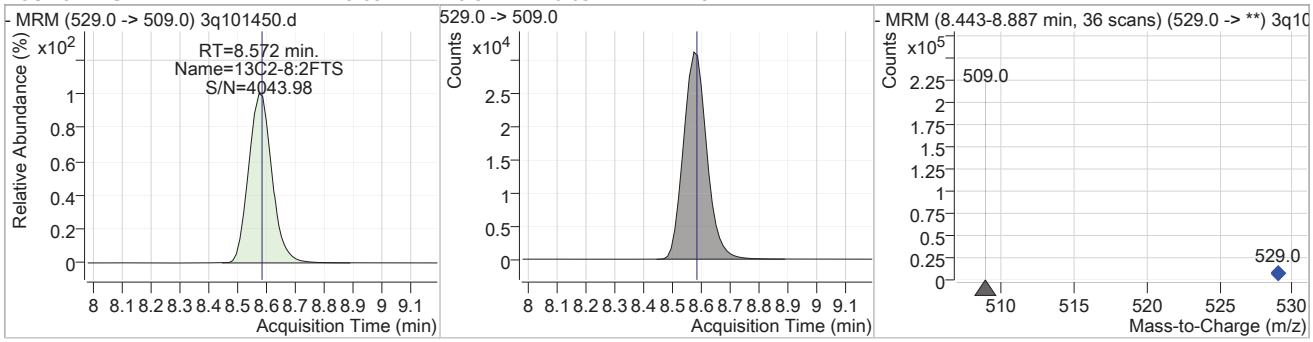
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	6.70	8.00	-0.01	226665				



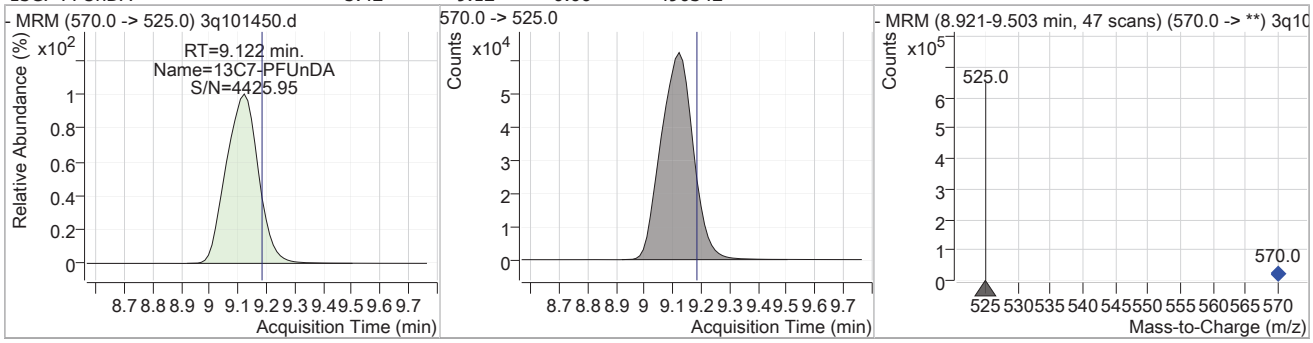
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	6.60	8.52	-0.01	333338				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.83	8.57	-0.03	174297				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	5.42	9.12	-0.06	490342				



7.1.4

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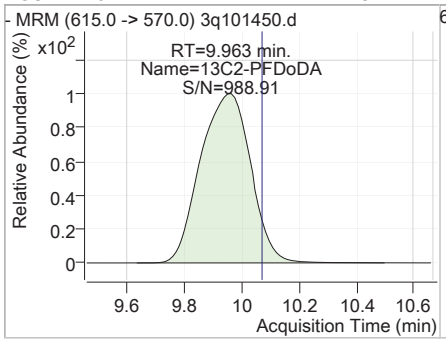
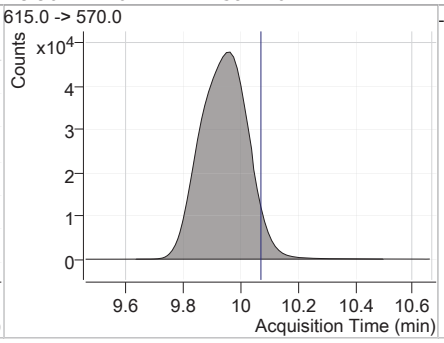
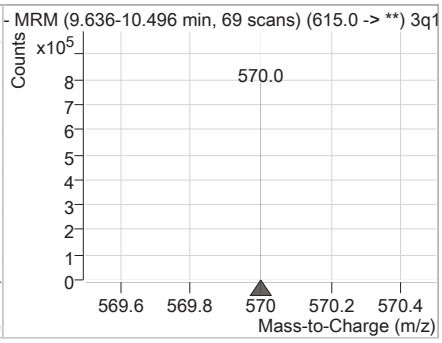
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	4.97	9.96	-0.11	582720				







7.1.4

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Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/15/25 15:59

Perfluorinated Compounds by LC/MS/MS

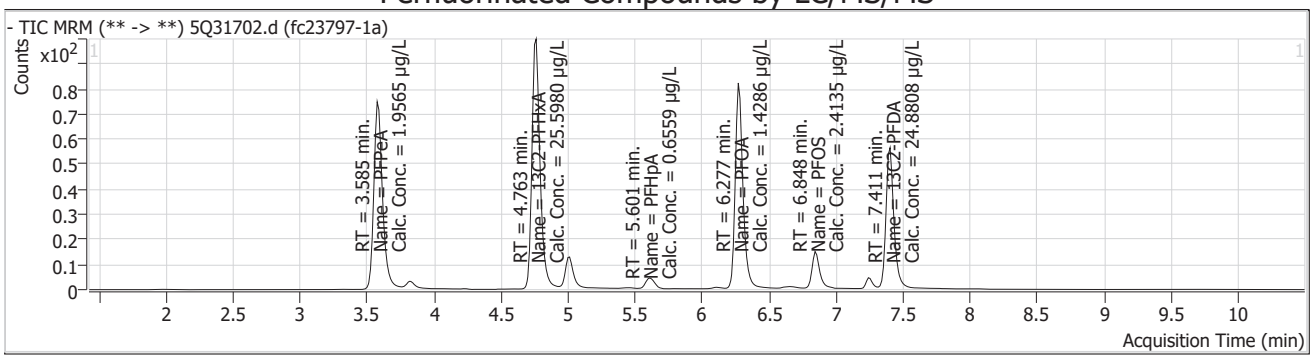
Data File : 5Q31702.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/11/2025 3:17:58 PM
Sample Name : fc23797-1a
Vial : P2-A3
DA Method File : 537_041125_S5Q519.quantmethod
Batch Name : s5q519.batch.bin
Sample Information : OP8806,S5Q519,270,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	154938	20.00	µg/L		-0.012
13C2-PFOA	6.277	415.0 -> 370.0	426304	20.00	µg/L		-0.012
13C3-PFPeA	3.582	266.0 -> 222.0	564033	20.00	µg/L		-0.025
13C4-PFOS	6.847	503.0 -> 80.0	94937	20.00	µg/L		-0.012
d3-MeFOSAA	7.242	573.0 -> 419.0	27441	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	406851	24.88	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 124.4%			
13C2-PFHxA	4.763	315.0 -> 270.0	756089	25.60	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 128.0%			
d5-EtFOSAA	7.378	589.0 -> 419.0	24240	51.55	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 128.9%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	94736	50.54	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 126.3%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	3.828	299.0 -> 80.0	15123	1.05	µg/L		97
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	5.601	363.0 -> 319.0	23779	0.66	µg/L		96
PFHxA	4.764	313.0 -> 269.0	25729	1.31	µg/L		99
PFHxS	5.635	399.0 -> 80.0	9936	1.26	µg/L	m	99
PFNA	6.874	463.0 -> 419.0	1515	0.12	µg/L	m	87
PFOA	6.277	413.0 -> 369.0	28378	1.43	µg/L	m	96
PFOS	6.848	499.0 -> 80.0	13585	2.41	µg/L	m	91
PFPeA	3.585	263.0 -> 219.0	66430	1.96	µg/L		100
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	5.558	285.0 -> 169.0	0		µg/L	m	1

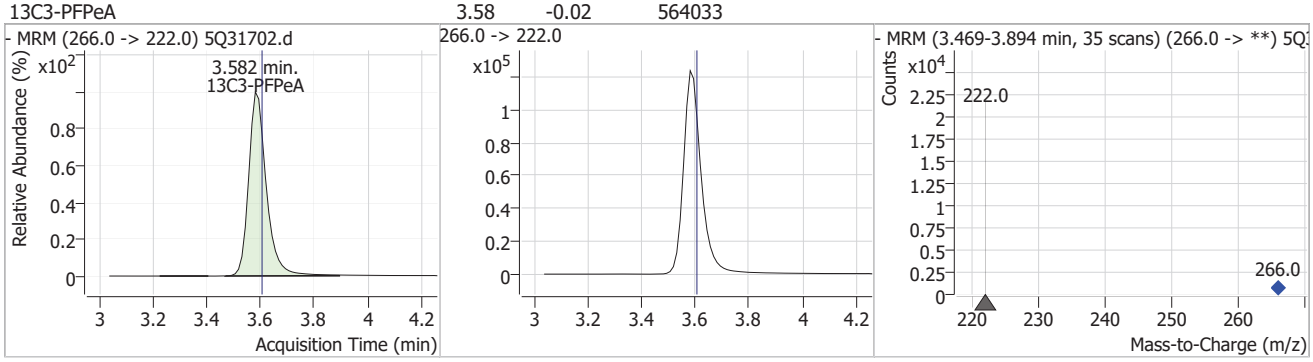
= Qualifier out of range, m = manually integrated, + = Area summed

7.1.5
7

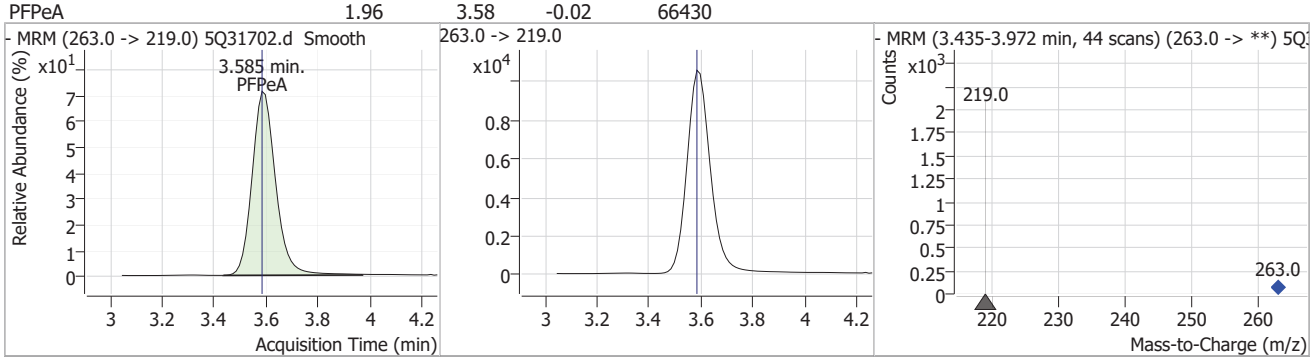
Perfluorinated Compounds by LC/MS/MS



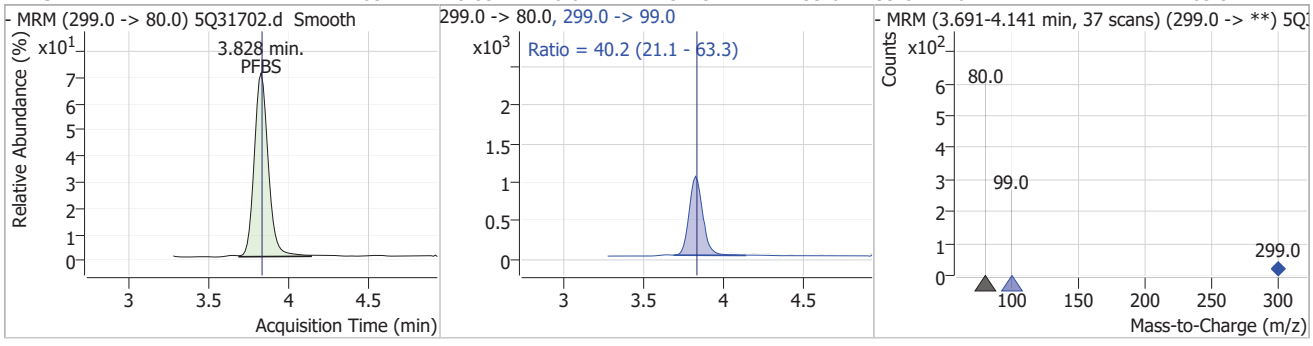
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.58	-0.02	564033				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.96	3.58	-0.02	66430				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.05	3.83	-0.01	15123	299.0 -> 99.0	40.2	21.1	63.3

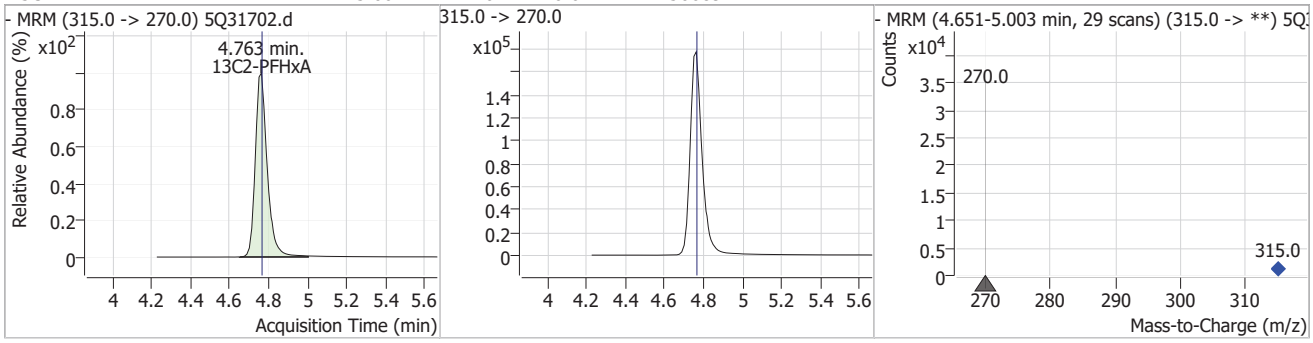


7.1.5

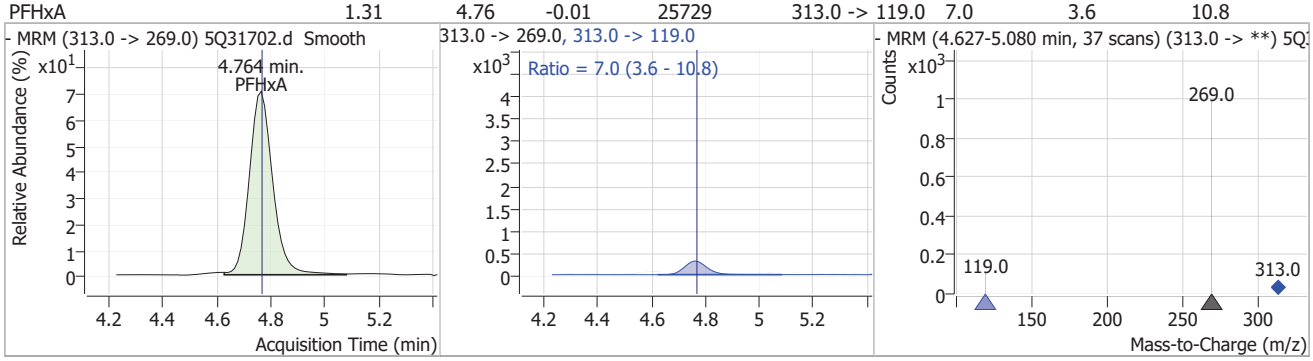
7

Perfluorinated Compounds by LC/MS/MS

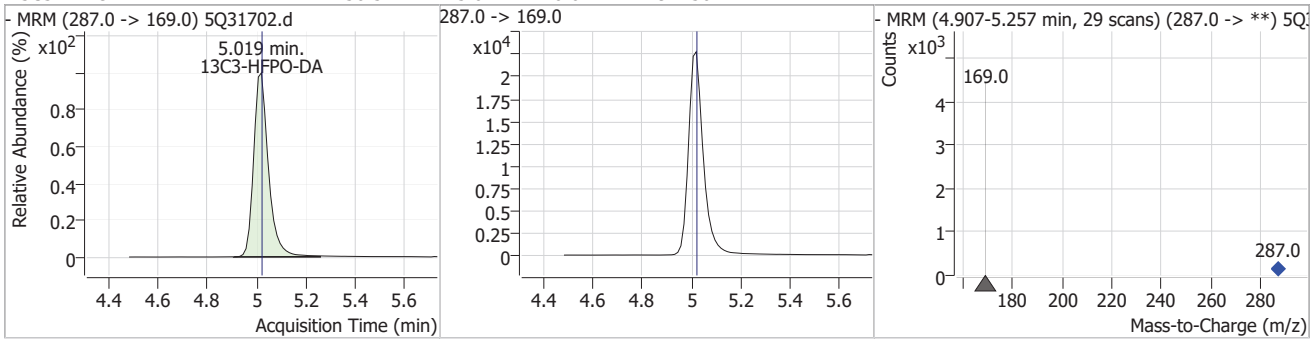
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	25.60	4.76	-0.01	756089				



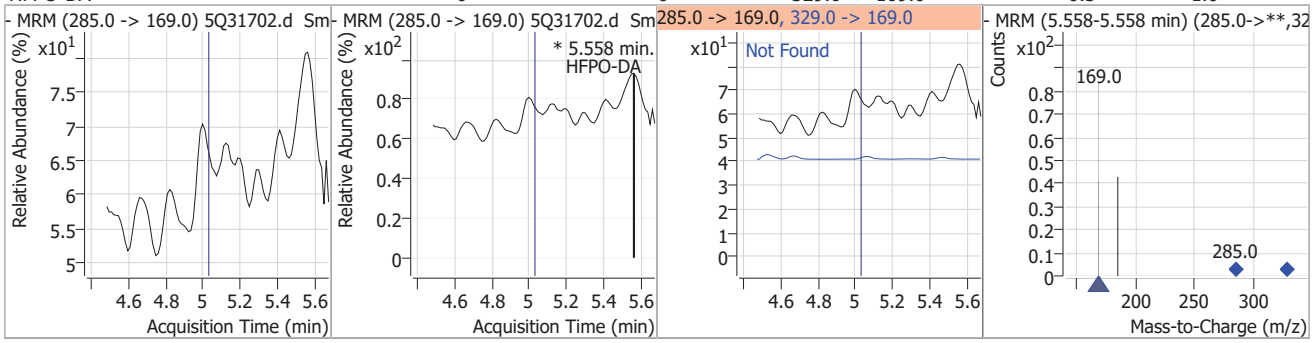
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.31	4.76	-0.01	25729	313.0 -> 119.0	7.0	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	50.54	5.02	-0.01	94736				

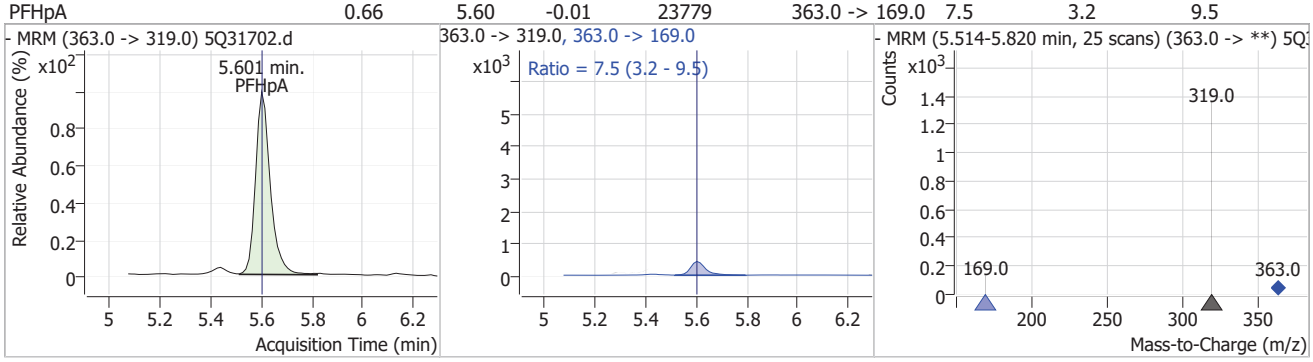


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA		0		0	329.0 -> 169.0		0.3	1.0

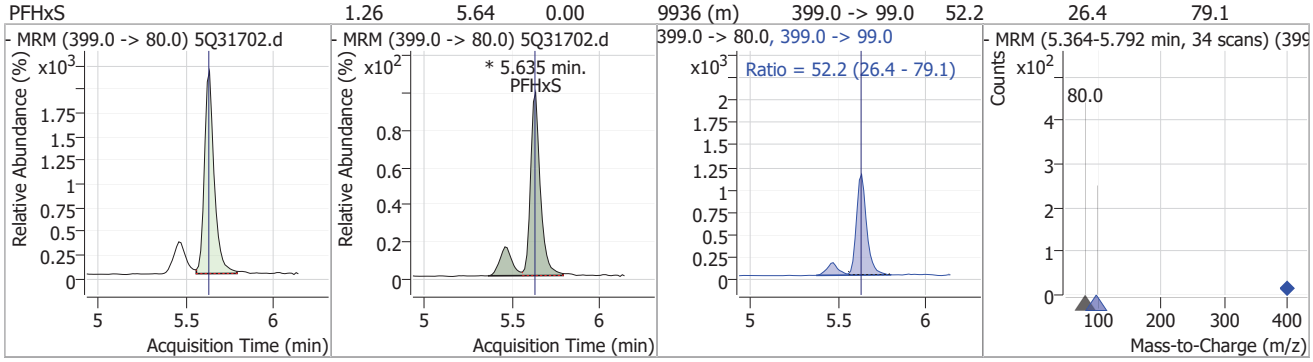


Perfluorinated Compounds by LC/MS/MS

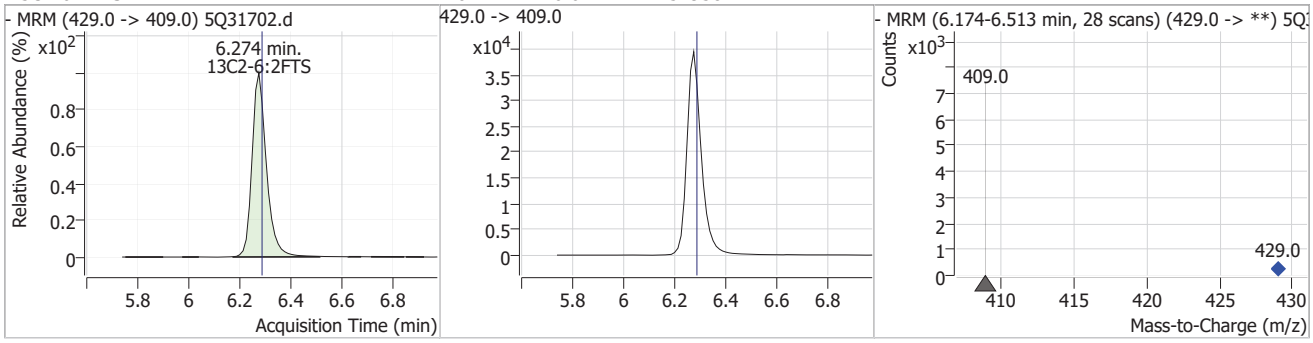
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.66	5.60	-0.01	23779	363.0 -> 169.0	7.5	3.2	9.5



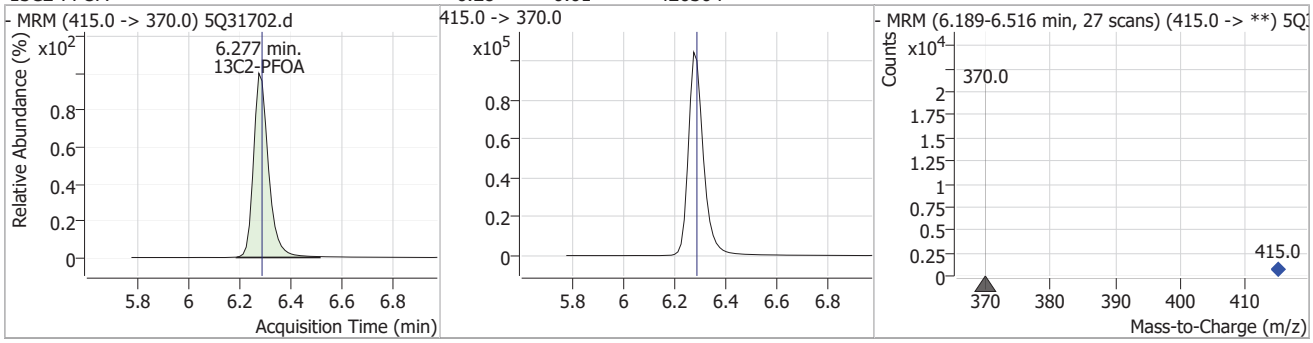
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.26	5.64	0.00	9936 (m)	399.0 -> 99.0	52.2	26.4	79.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	154938				

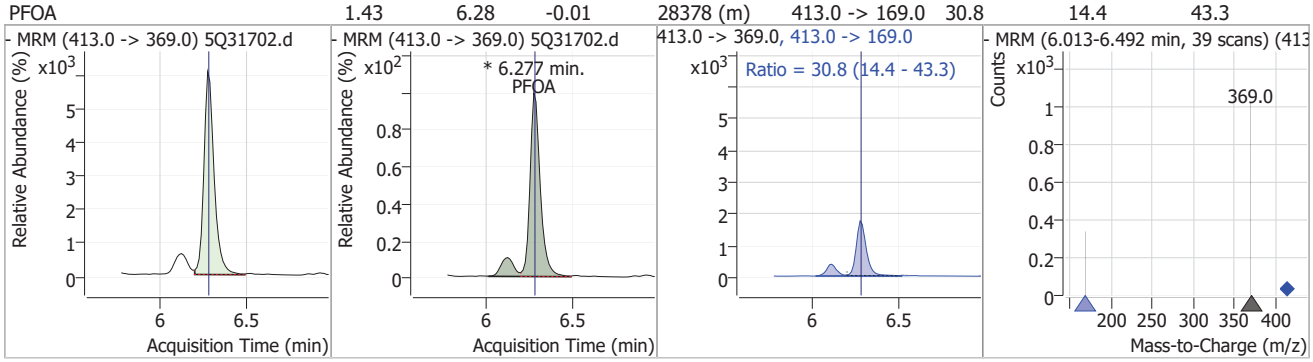


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.28	-0.01	426304				

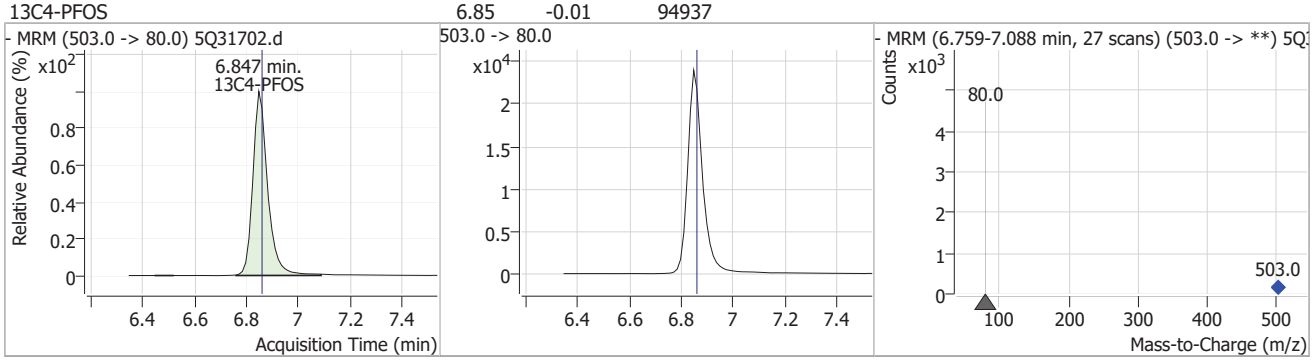


Perfluorinated Compounds by LC/MS/MS

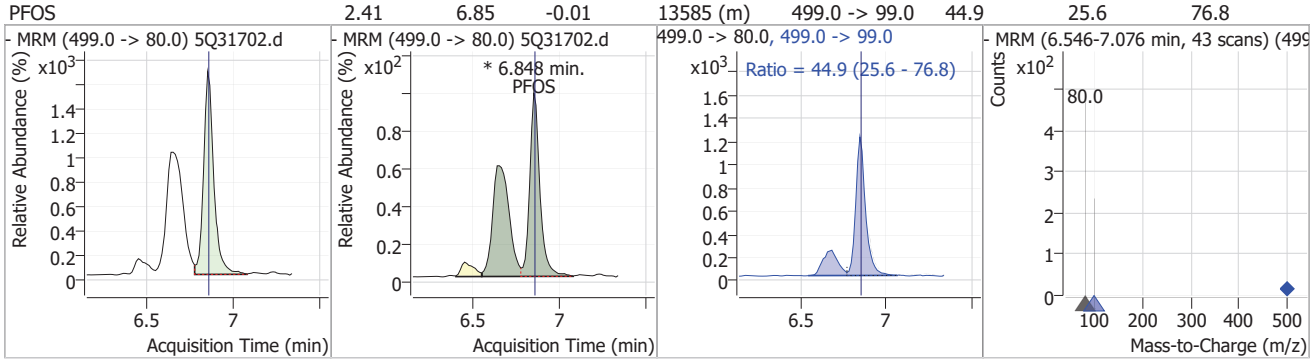
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.43	6.28	-0.01	28378 (m)	413.0 -> 169.0	30.8	14.4	43.3



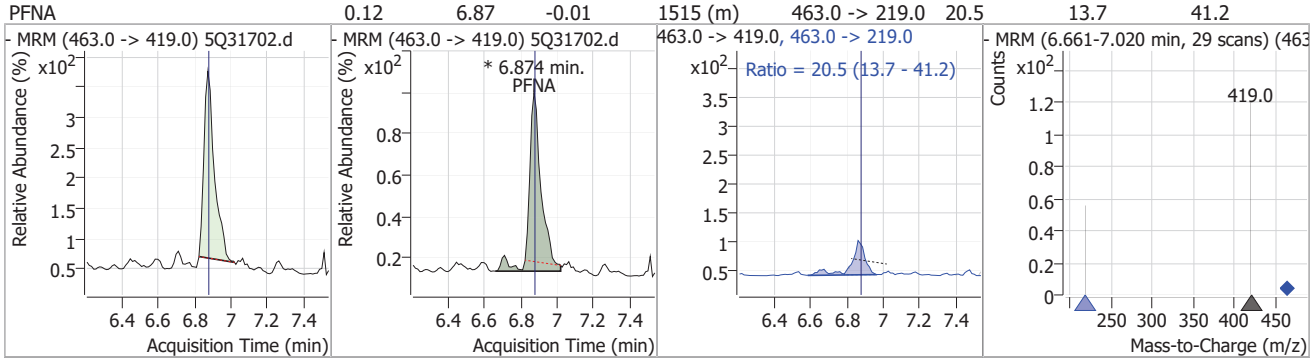
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.85	-0.01	94937				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.41	6.85	-0.01	13585 (m)	499.0 -> 99.0	44.9	25.6	76.8

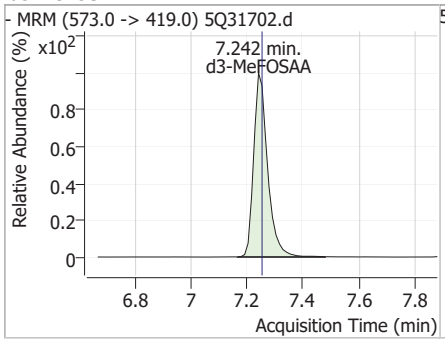


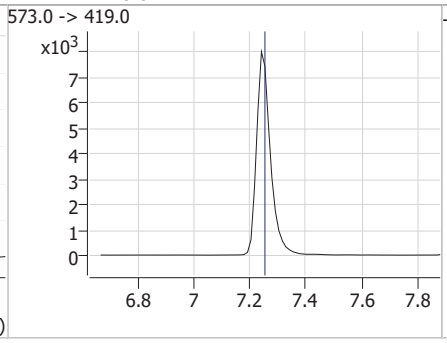
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.12	6.87	-0.01	1515 (m)	463.0 -> 219.0	20.5	13.7	41.2

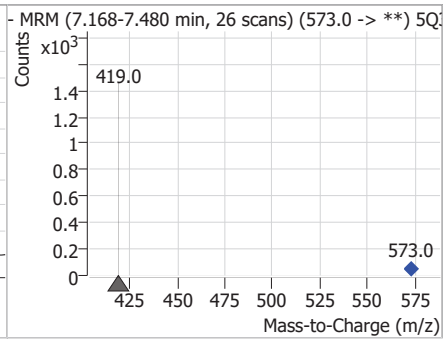


Perfluorinated Compounds by LC/MS/MS

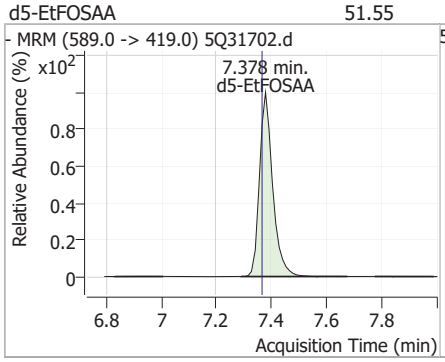
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	27441				

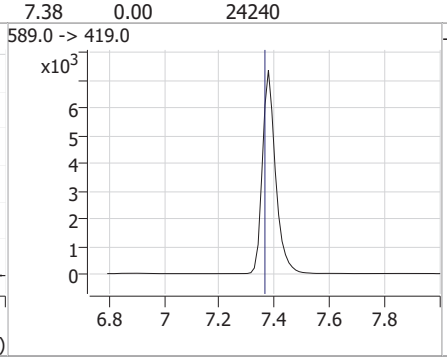


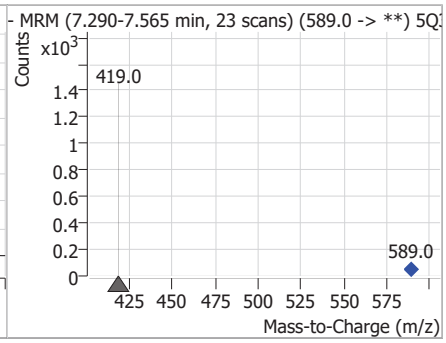




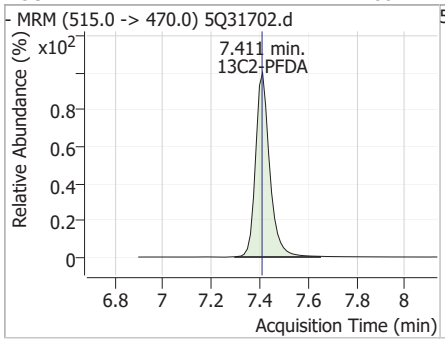
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	51.55	7.38	0.00	24240				

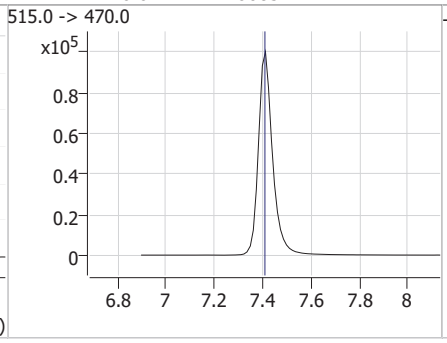


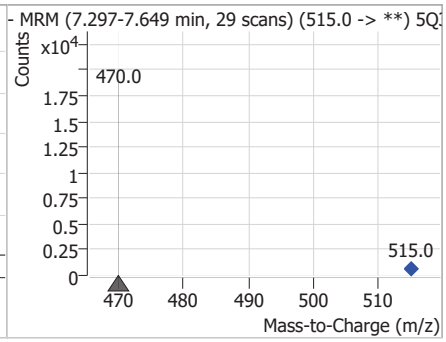




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	24.88	7.41	-0.01	406851				







Manual Integration Approval Summary

Sample Number: FC23797-1A
Lab FileID: 5Q31702.D
Injection Time: 04/11/25 15:17
Method: EPA 537.1 REV 2.0
Analyst approved: 04/15/25 14:50 (b) (6)
Supervisor approved: 04/15/25 15:59 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanoic acid	335-67-1		6.28	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.85	Split peak
Perfluorononanoic acid	375-95-1		6.87	Split peak

Sample Results: 5Q31834.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

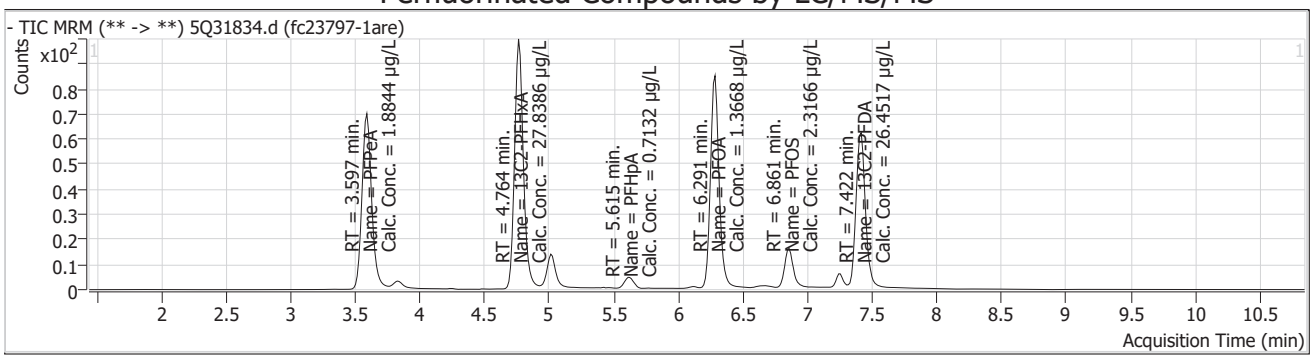
Data File : 5Q31834.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 4:29:06 PM
Sample Name : fc23797-1are
Vial : P2-E3
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8904,S5Q523,280,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.275	429.0 -> 409.0	157949	20.00	µg/L		-0.012
13C2-PFOA	6.290	415.0 -> 370.0	341170	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	431261	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	85160	20.00	µg/L		0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	27589	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.422	515.0 -> 470.0	386213	26.45	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 132.3%			
13C2-PFHxA	4.764	315.0 -> 270.0	601811	27.84	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 139.2%			
d5-EtFOSAA	7.378	589.0 -> 419.0	26738	51.07	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 127.7%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	79375	51.96	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 129.9%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	3.828	299.0 -> 80.0	12221	1.10	µg/L		98
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	5.615	363.0 -> 319.0	19449	0.71	µg/L		100
PFHxA	4.765	313.0 -> 269.0	18883	1.28	µg/L		98
PFHxS	5.636	399.0 -> 80.0	8449	1.24	µg/L	m	97
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	6.291	413.0 -> 369.0	21943	1.37	µg/L	m	93
PFOS	6.861	499.0 -> 80.0	13014	2.32	µg/L	m	86
PFPeA	3.597	263.0 -> 219.0	51873	1.88	µg/L		100
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	5.035	285.0 -> 169.0	0		µg/L	m	1

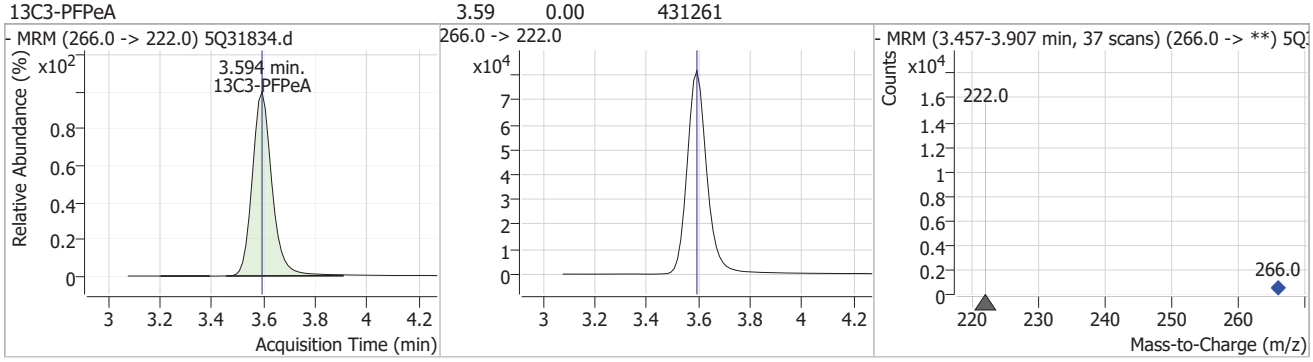
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.1.6
7

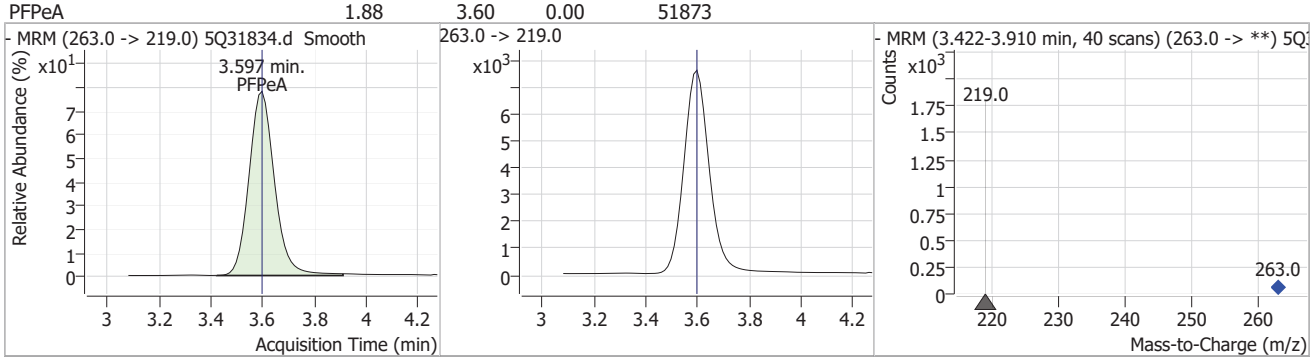
Perfluorinated Compounds by LC/MS/MS



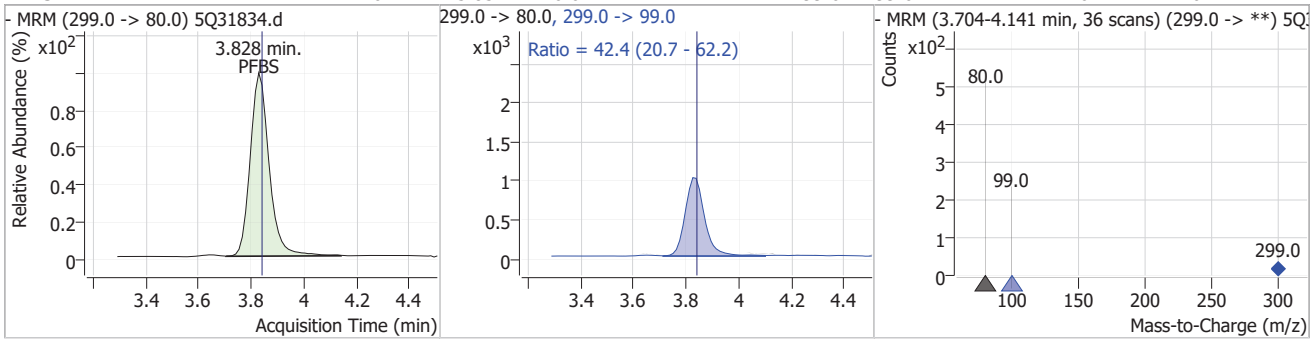
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	431261				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.88	3.60	0.00	51873				

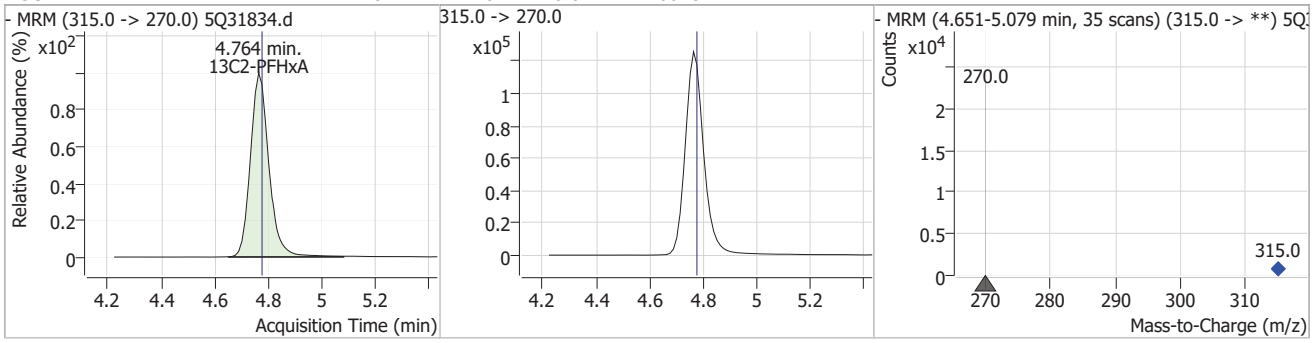


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.10	3.83	-0.01	12221	299.0 -> 99.0	42.4	20.7	62.2

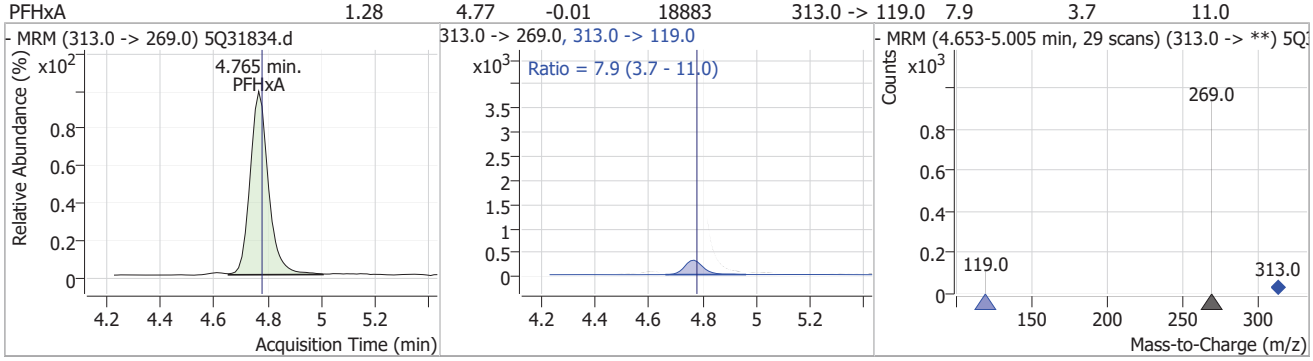


Perfluorinated Compounds by LC/MS/MS

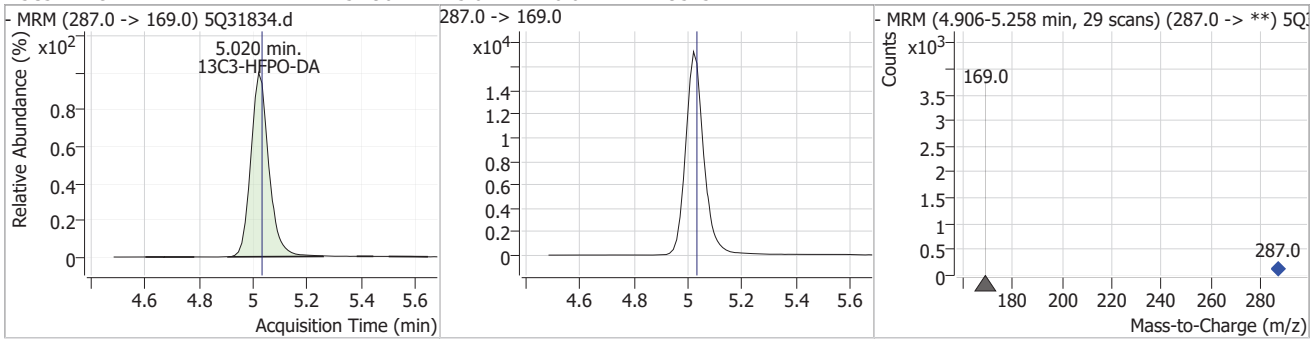
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	27.84	4.76	-0.01	601811				



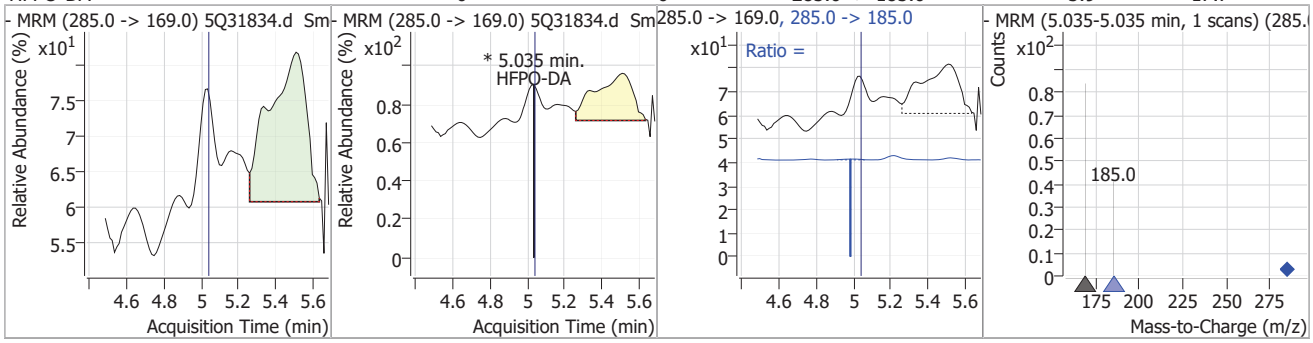
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.28	4.77	-0.01	18883	313.0 -> 119.0	7.9	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	51.96	5.02	-0.01	79375				

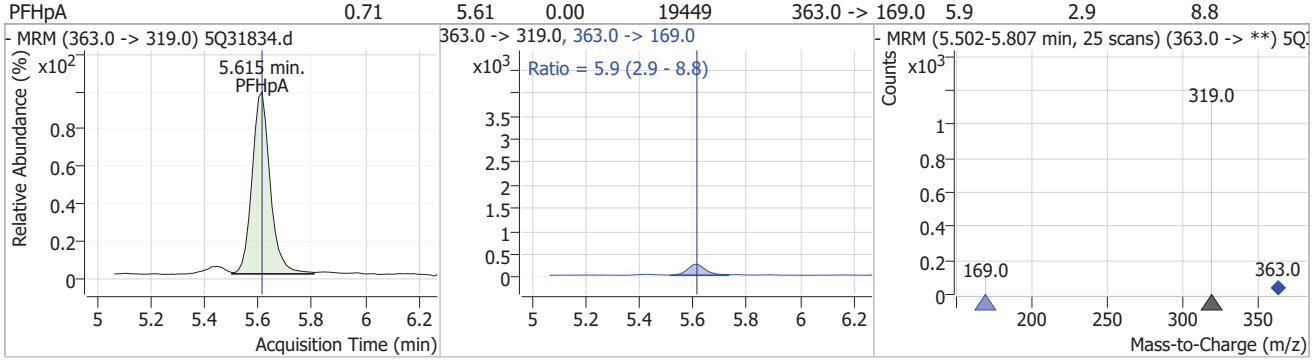


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA		0		0	285.0 -> 185.0		5.9	17.7

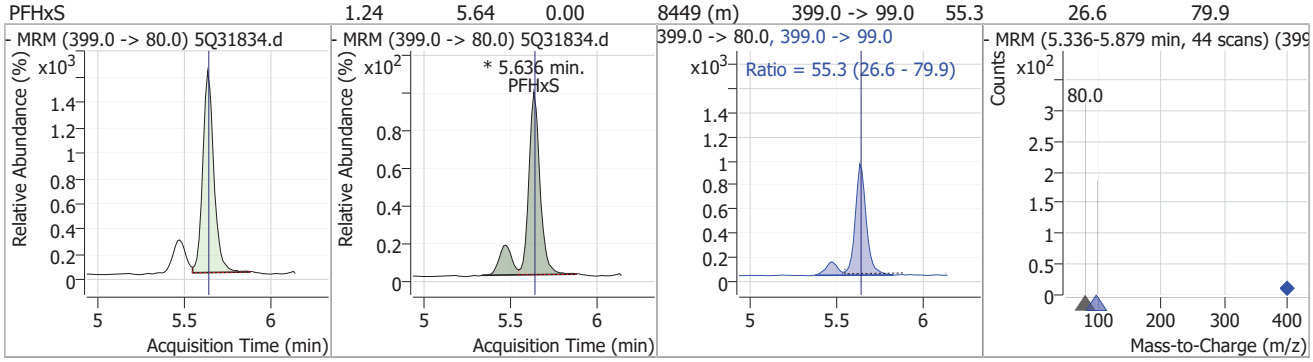


Perfluorinated Compounds by LC/MS/MS

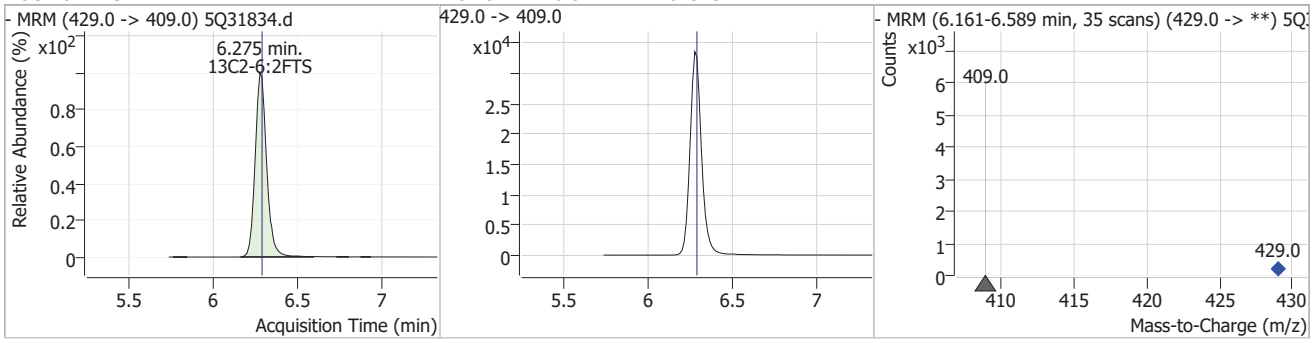
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.71	5.61	0.00	19449	363.0 -> 169.0	5.9	2.9	8.8



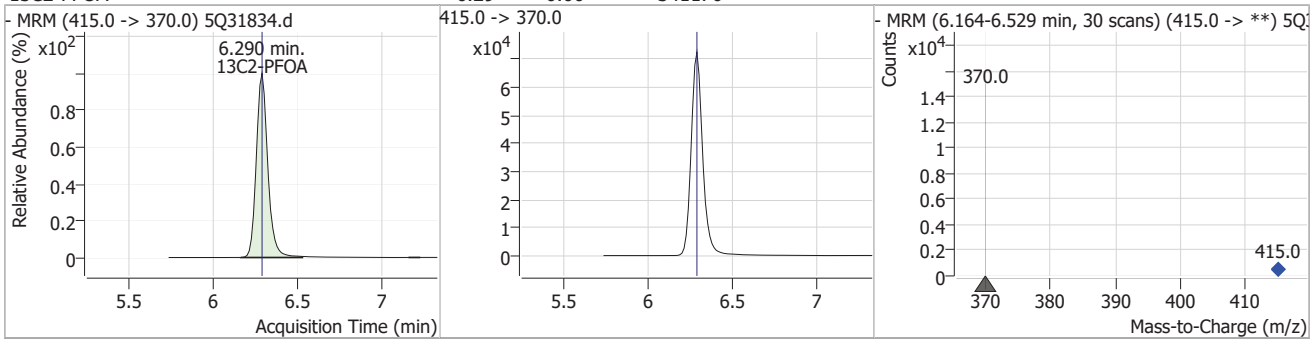
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.24	5.64	0.00	8449 (m)	399.0 -> 99.0	55.3	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	157949				

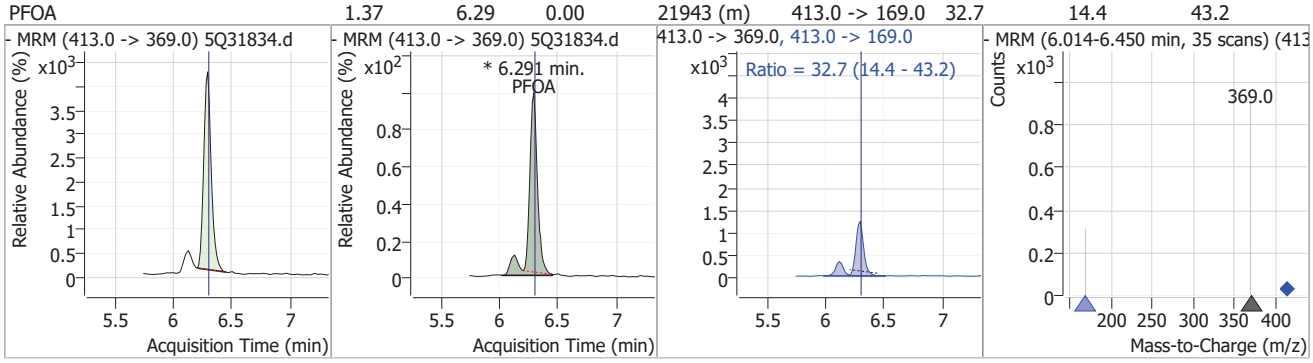


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	341170				

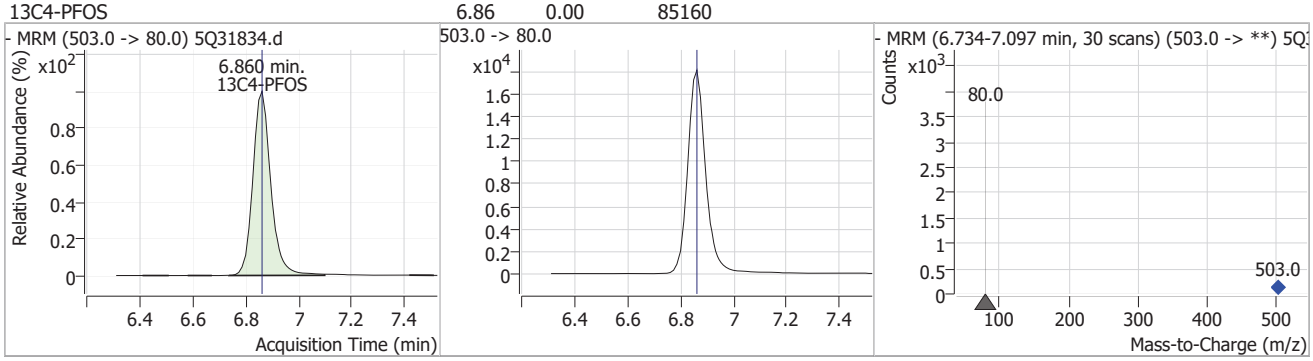


Perfluorinated Compounds by LC/MS/MS

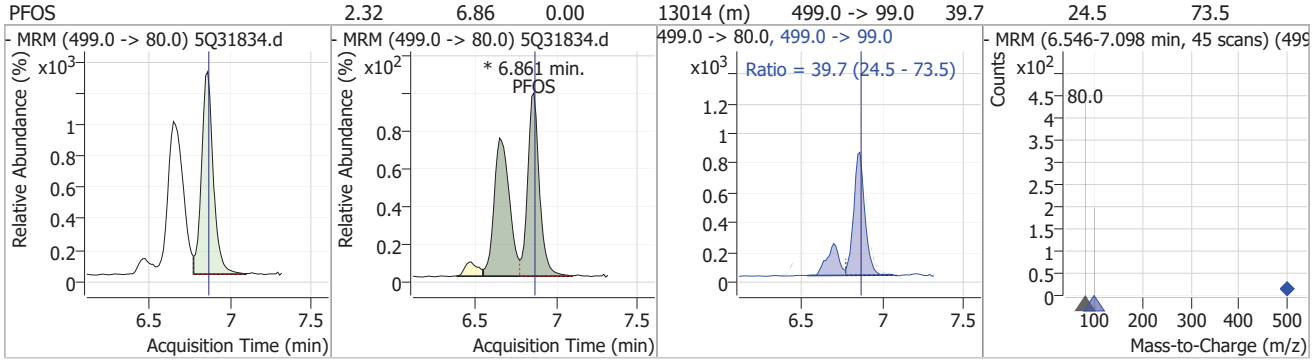
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.37	6.29	0.00	21943 (m)	413.0 -> 169.0	32.7	14.4	43.2



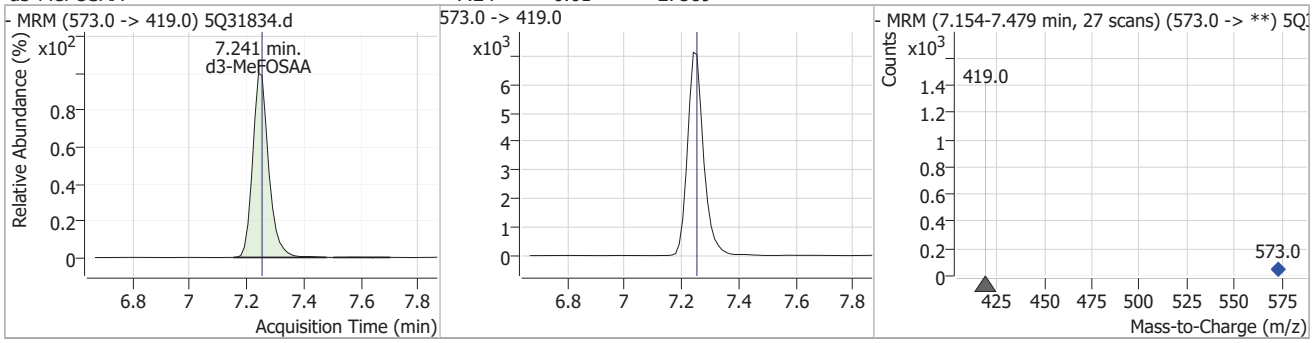
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	85160				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.32	6.86	0.00	13014 (m)	499.0 -> 99.0	39.7	24.5	73.5

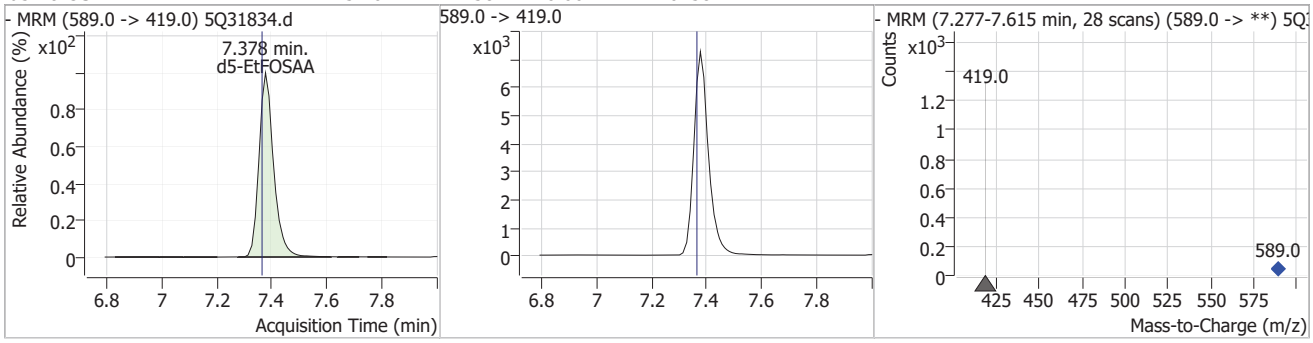


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	27589				

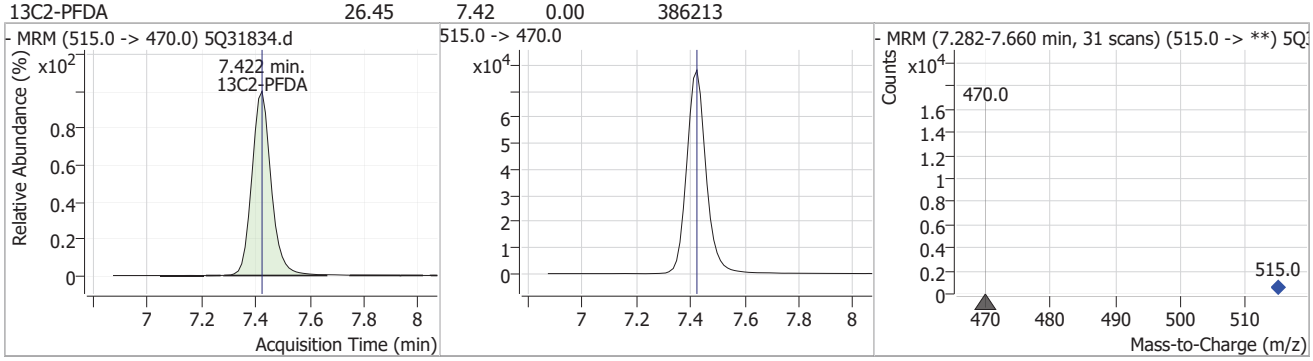


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	51.07	7.38	0.00	26738				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	26.45	7.42	0.00	386213				



7.1.6

7

Manual Integration Approval Summary

Sample Number:	FC23797-1A	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31834.D	**Analyst approved:**	04/18/25 07:45 (b) (6)
Injection Time:	04/17/25 16:29	**Supervisor approved:**	04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanoic acid	335-67-1		6.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak

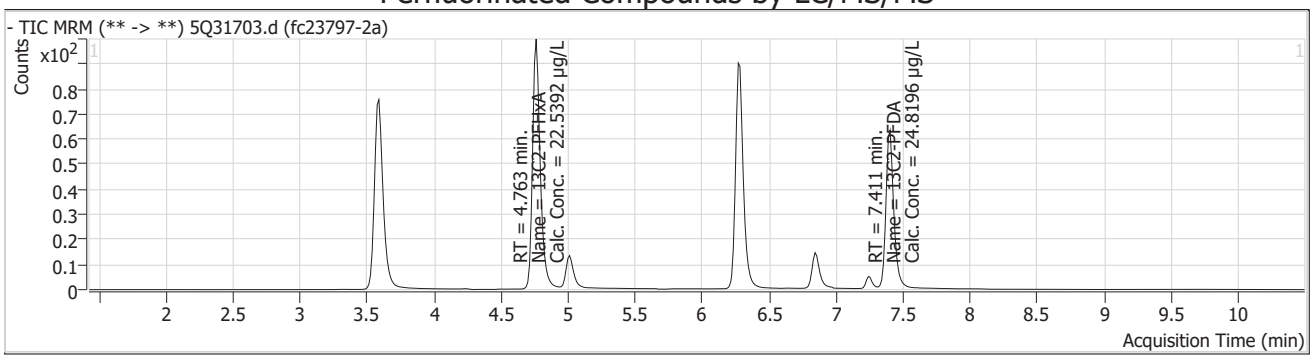
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31703.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/11/2025 3:34:00 PM
Sample Name : fc23797-2a
Vial : P2-A4
DA Method File : 537_041125_S5Q519.quantmethod
Batch Name : s5q519.batch.bin
Sample Information : OP8806,S5Q519,285,,,1,1,water

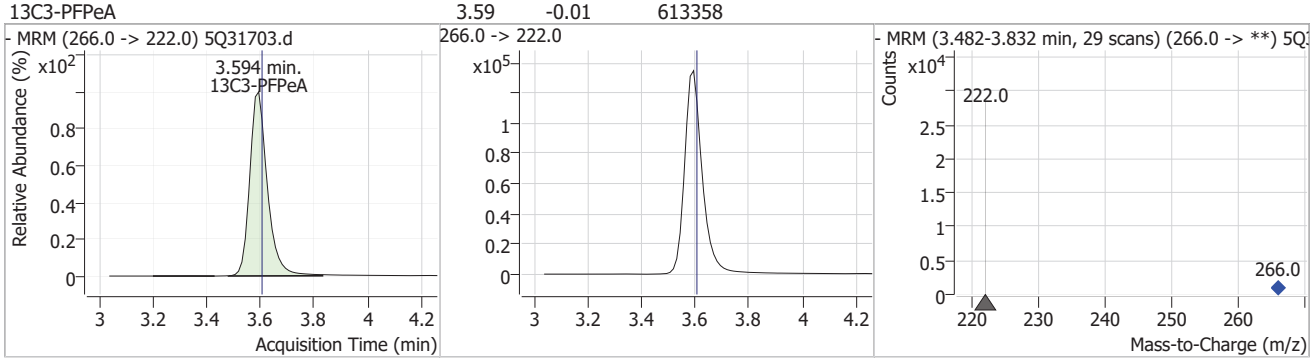
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.274	429.0 -> 409.0	201180	20.00 µg/L	-0.012
13C2-PFOA	6.289	415.0 -> 370.0	458682	20.00 µg/L	0.000
13C3-PFPeA	3.594	266.0 -> 222.0	613358	20.00 µg/L	-0.012
13C4-PFOS	6.847	503.0 -> 80.0	101031	20.00 µg/L	-0.012
d3-MeFOSAA	7.242	573.0 -> 419.0	28749	40.00 µg/L	-0.012
System Monitoring Compounds					
13C2-PFDA	7.411	515.0 -> 470.0	436673	24.82 µg/L	-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 124.1%	
13C2-PFHxA	4.763	315.0 -> 270.0	712823	22.54 µg/L	-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 112.7%	
d5-EtFOSAA	7.378	589.0 -> 419.0	26478	53.70 µg/L	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 134.3%	
13C3-HFPO-DA	5.019	287.0 -> 169.0	91465	45.62 µg/L	-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 114.0%	
Target Compounds					QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.	
8:2FTS	-	527.0 -> 507.0	-	N.D.	
EtFOSAA	-	584.0 -> 419.0	-	N.D.	
MeFOSAA	-	570.0 -> 419.0	-	N.D.	
PFBS	-	299.0 -> 80.0	-	N.D.	
PFDA	-	513.0 -> 469.0	-	N.D.	
PFDoDA	-	613.0 -> 569.0	-	N.D.	
PFHpA	-	363.0 -> 319.0	-	N.D.	
PFHxA	-	313.0 -> 269.0	-	N.D.	
PFHxS	-	399.0 -> 80.0	-	N.D.	
PFNA	-	463.0 -> 419.0	-	N.D.	
PFOA	-	413.0 -> 369.0	-	N.D.	
PFOS	-	499.0 -> 80.0	-	N.D.	
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	
ADONA	-	377.0 -> 251.0	-	N.D.	
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
HFPO-DA	-	285.0 -> 169.0	-	N.D.	

 # = Qualifier out of range, m = manually integrated, + = Area summed

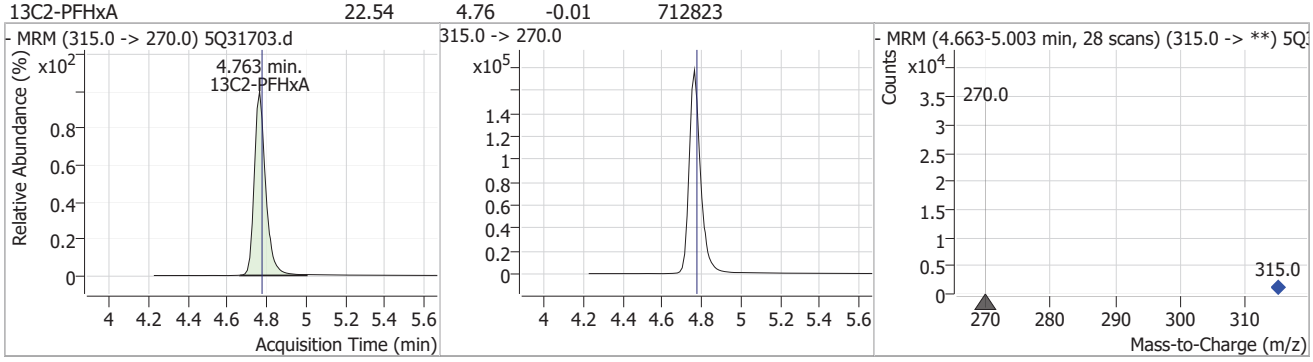
Perfluorinated Compounds by LC/MS/MS



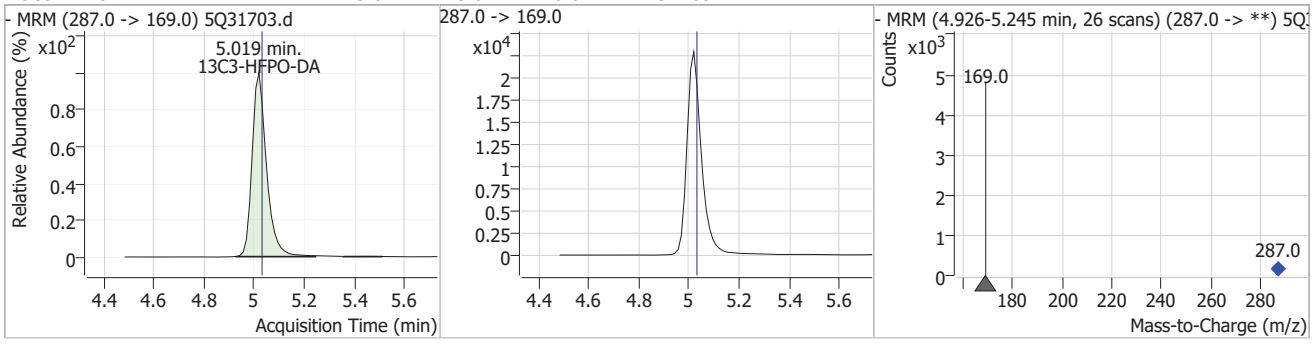
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	613358				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	22.54	4.76	-0.01	712823				

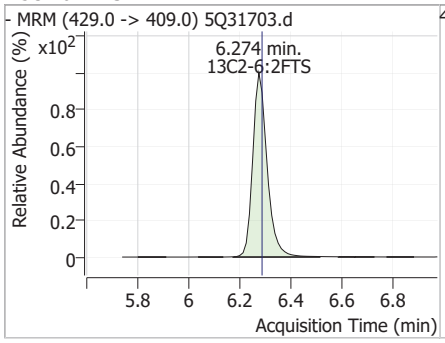


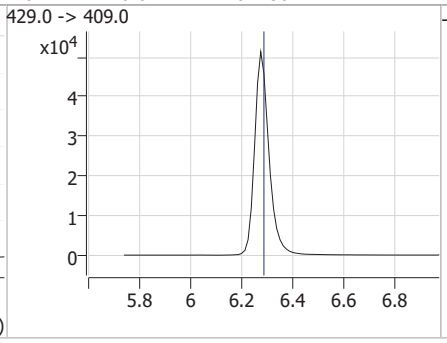
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	45.62	5.02	-0.01	91465				

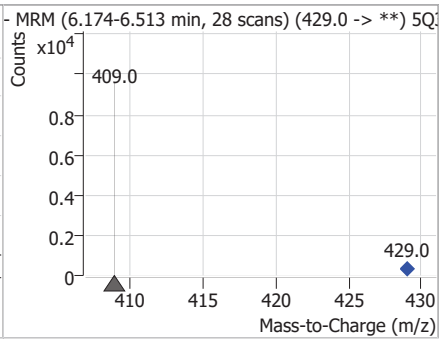


Perfluorinated Compounds by LC/MS/MS

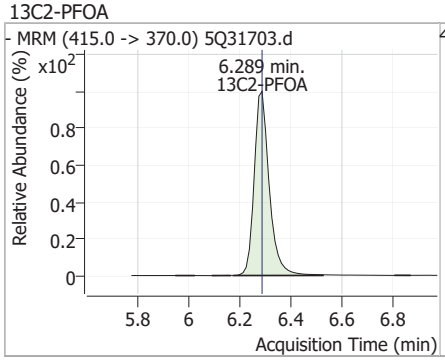
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	201180				

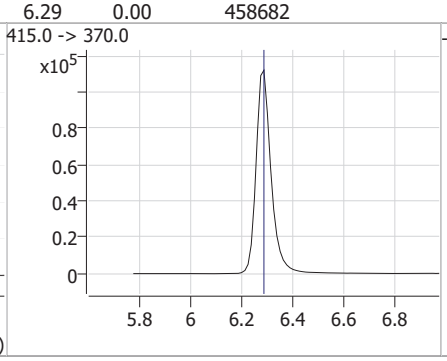


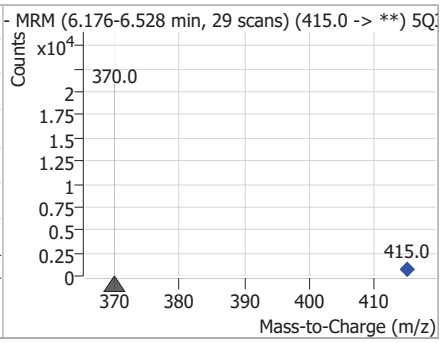




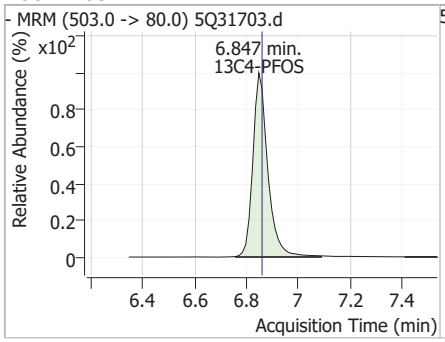
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	458682				

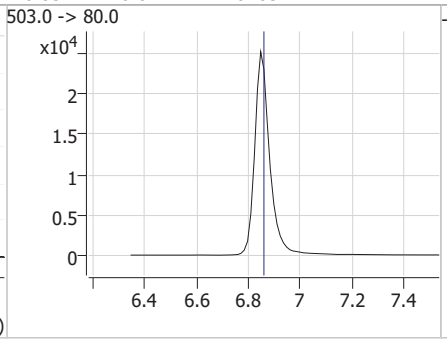


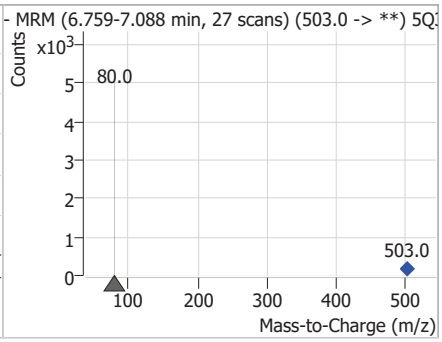




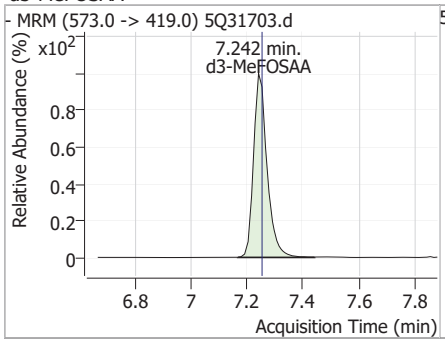
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.85	-0.01	101031				

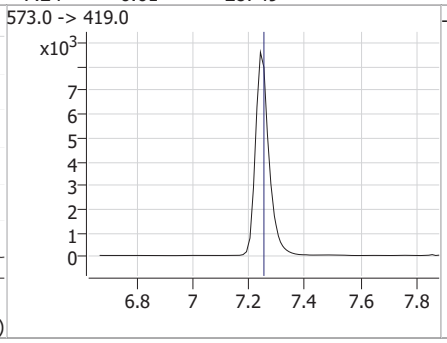


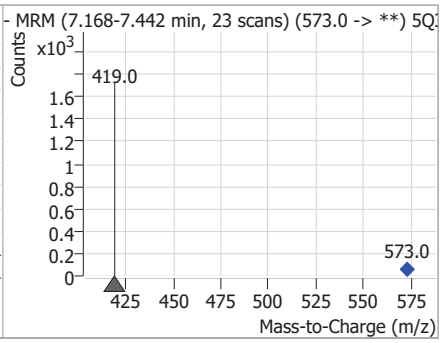




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	28749				

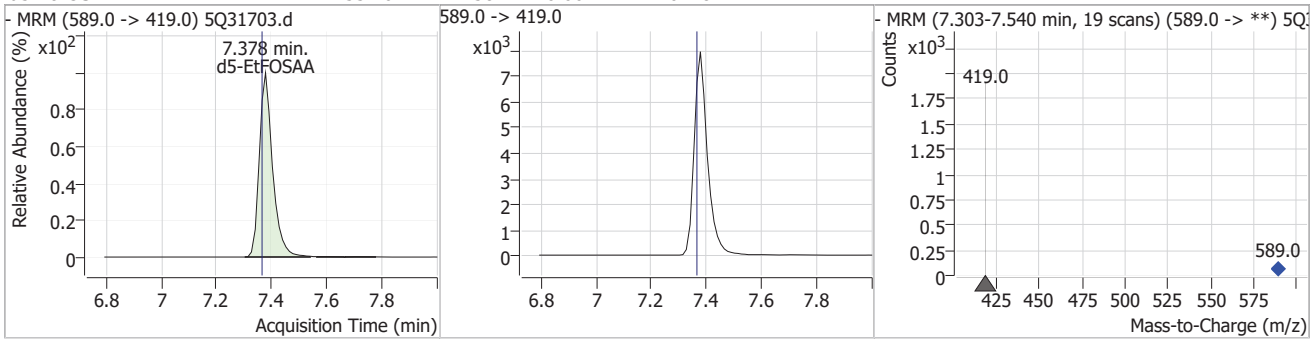




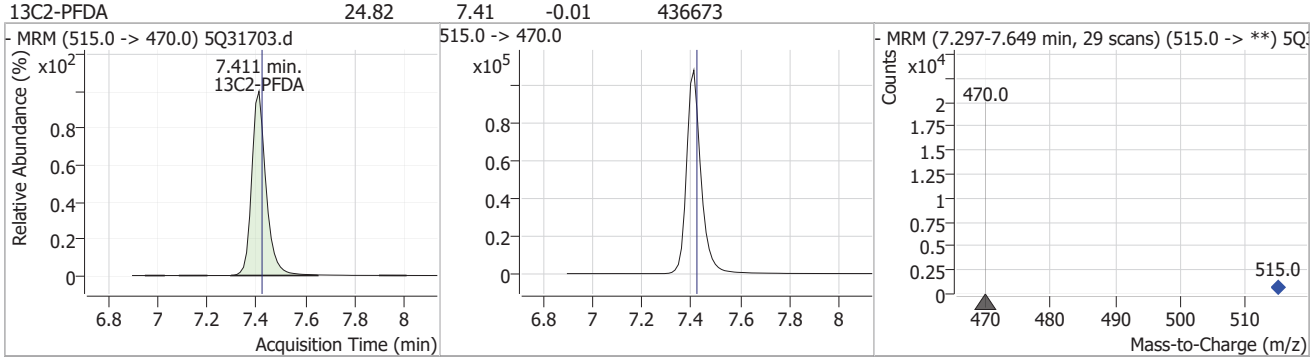


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	53.70	7.38	0.00	26478				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	24.82	7.41	-0.01	436673				



7.1.7

7

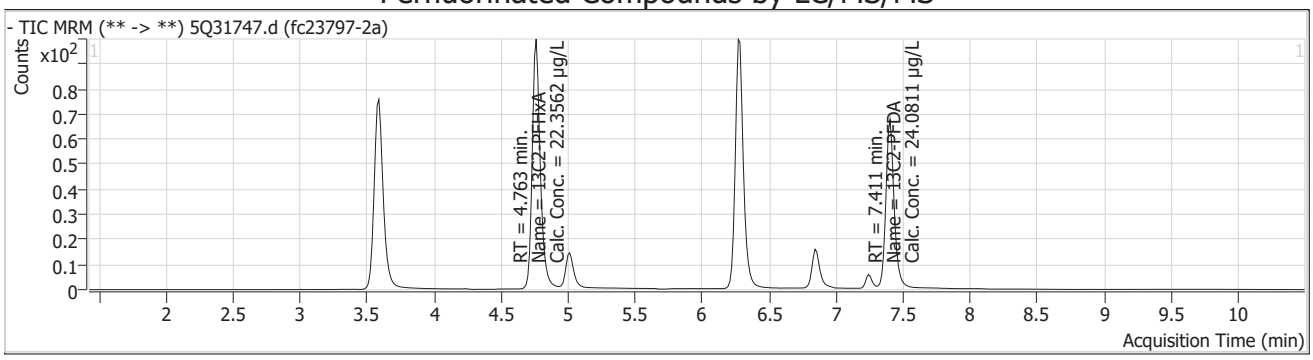
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31747.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/14/2025 2:50:46 PM
Sample Name : fc23797-2a
Vial : P2-A4
DA Method File : 537_041425_S5Q520.quantmethod
Batch Name : s5q520.batch.bin
Sample Information : OP8806,S5Q520,285,,,1,1,water

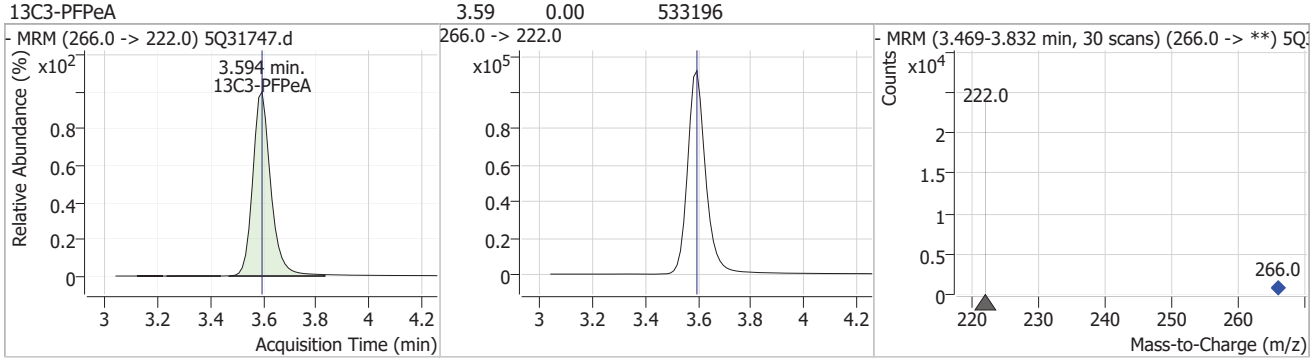
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	213344	20.00	µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	414631	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	533196	20.00	µg/L		0.000
13C4-PFOS	6.847	503.0 -> 80.0	95389	20.00	µg/L		-0.012
d3-MeFOSAA	7.242	573.0 -> 419.0	28085	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	405146	24.08	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 120.4%			
13C2-PFHxA	4.763	315.0 -> 270.0	620351	22.36	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 111.8%			
d5-EtFOSAA	7.378	589.0 -> 419.0	24990	47.15	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 117.9%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	86674	46.23	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 115.6%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	-	363.0 -> 319.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	-	413.0 -> 369.0	-	N.D.			
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	4.972	285.0 -> 169.0	0		µg/L	m	1

 # = Qualifier out of range, m = manually integrated, + = Area summed

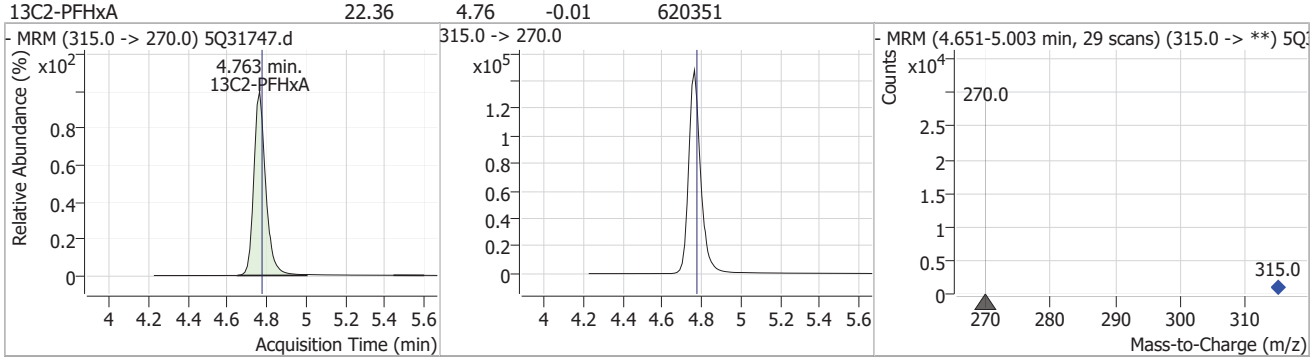
Perfluorinated Compounds by LC/MS/MS



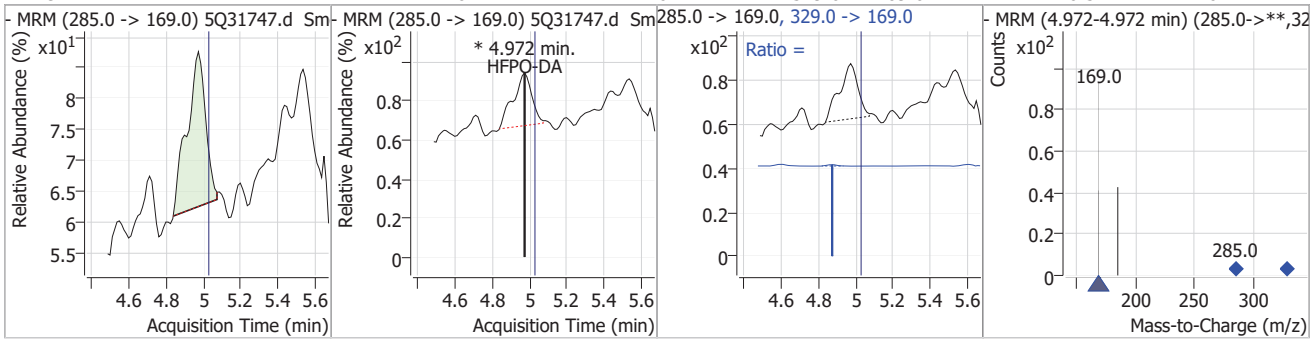
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	533196				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	22.36	4.76	-0.01	620351				

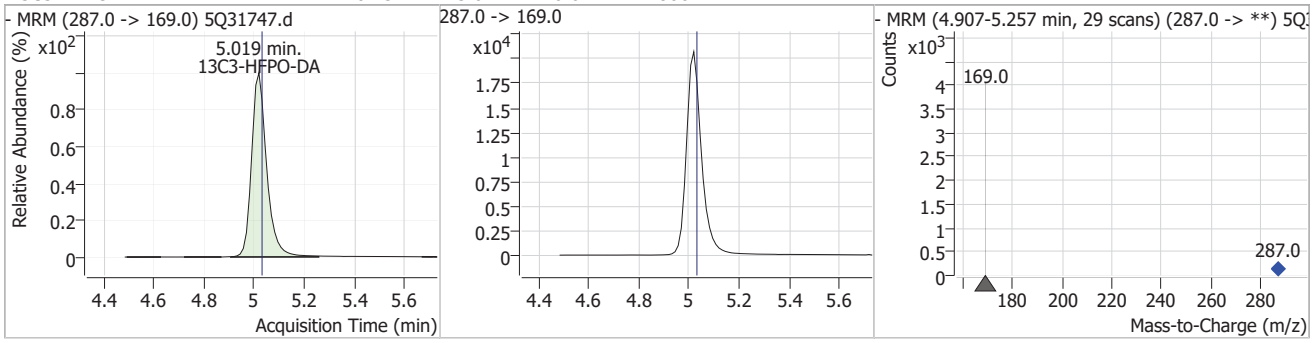


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA		0		0	329.0 -> 169.0		0.3	1.0

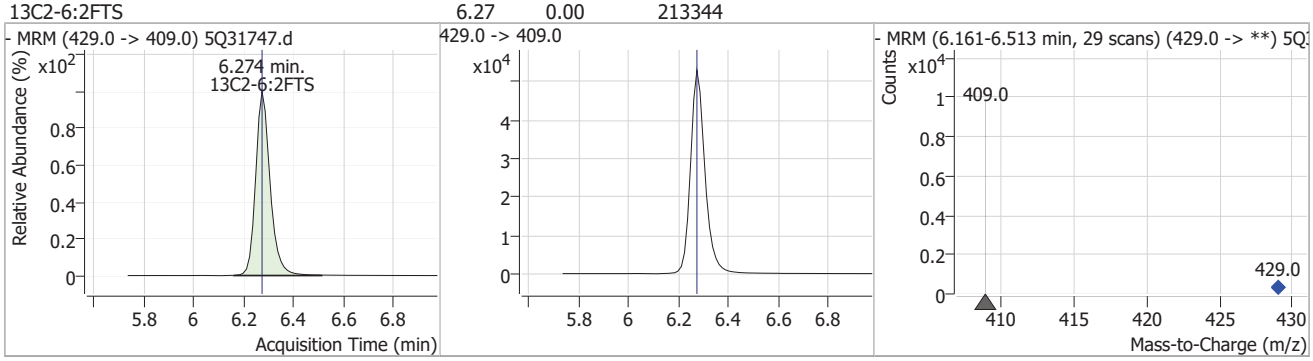


Perfluorinated Compounds by LC/MS/MS

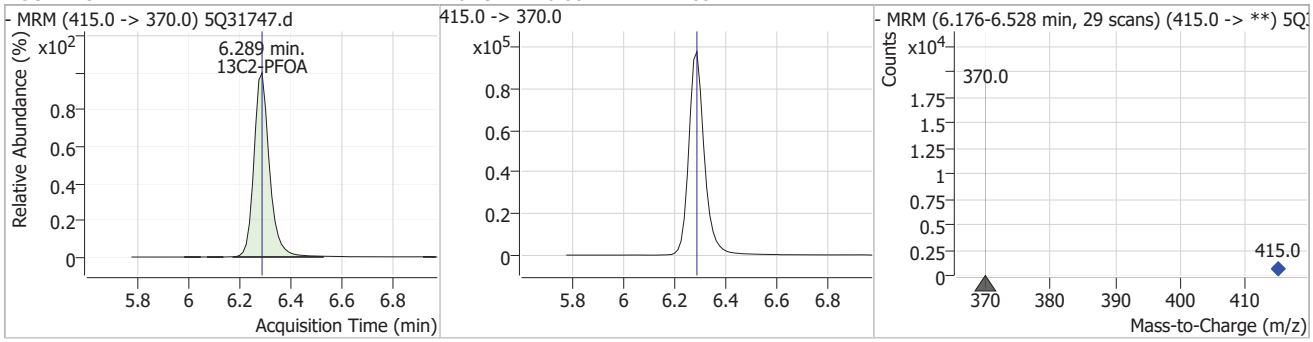
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	46.23	5.02	-0.01	86674				



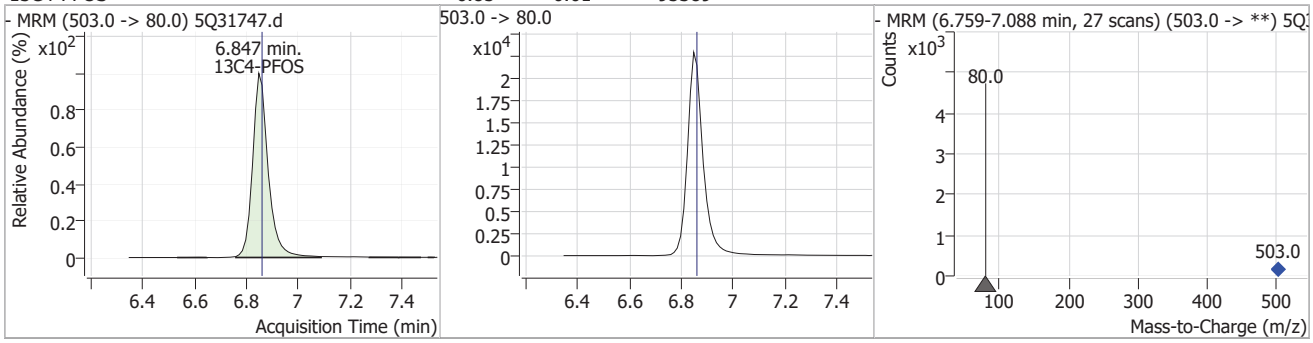
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	0.00	213344				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	414631				

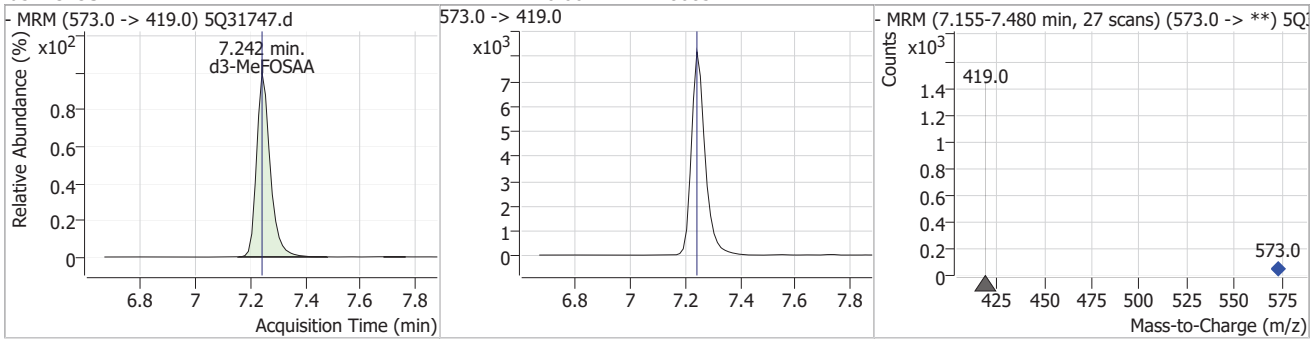


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.85	-0.01	95389				

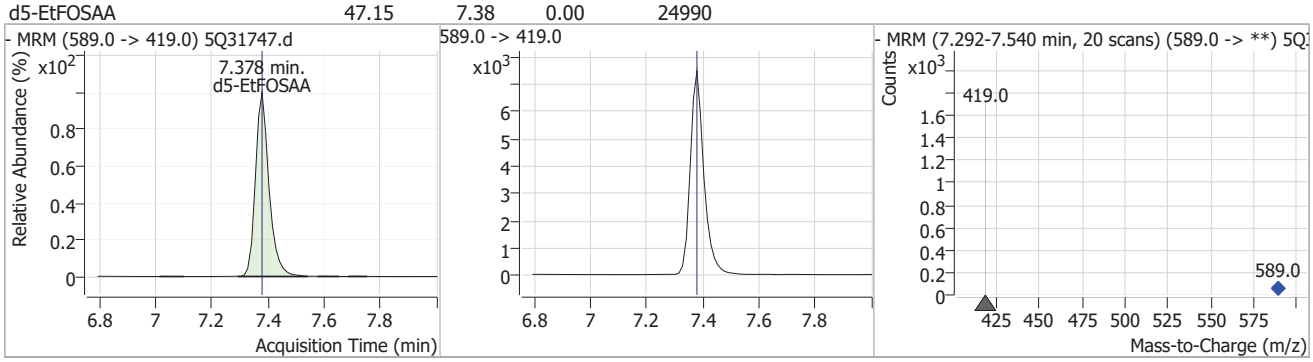


Perfluorinated Compounds by LC/MS/MS

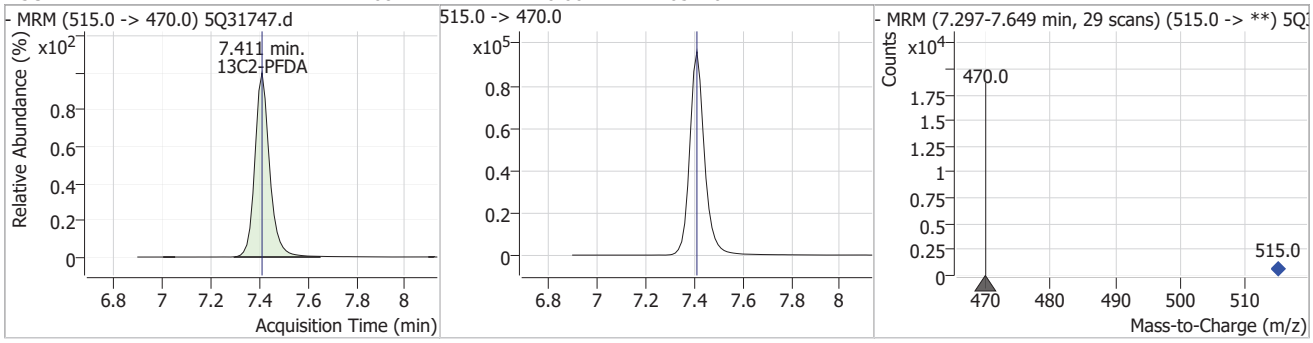
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	28085				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	47.15	7.38	0.00	24990				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	24.08	7.41	0.00	405146				



7.1.8

7

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/15/25 15:59

Perfluorinated Compounds by LC/MS/MS

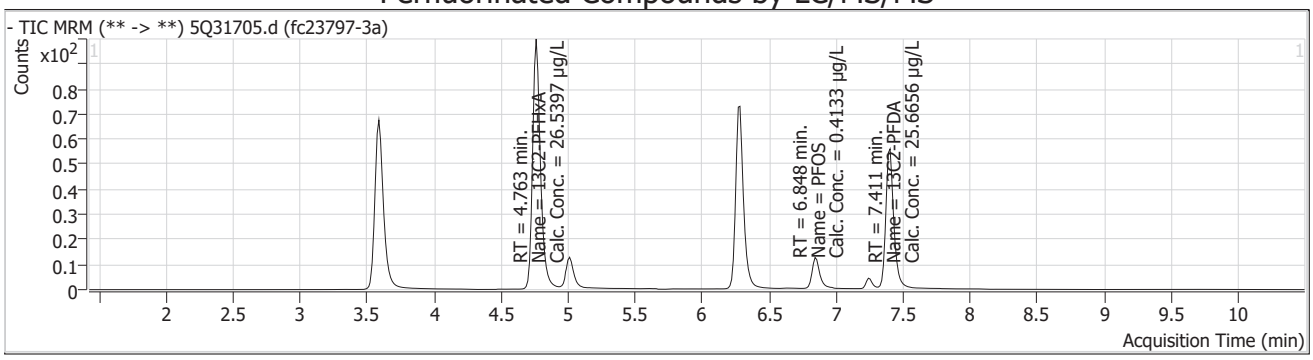
Data File : 5Q31705.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/11/2025 4:06:06 PM
Sample Name : fc23797-3a
Vial : P2-A6
DA Method File : 537_041125_S5Q519.quantmethod
Batch Name : s5q519.batch.bin
Sample Information : OP8806,S5Q519,275,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	155432	20.00	µg/L		-0.012
13C2-PFOA	6.289	415.0 -> 370.0	439940	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	599270	20.00	µg/L		-0.012
13C4-PFOS	6.847	503.0 -> 80.0	95995	20.00	µg/L		-0.012
d3-MeFOSAA	7.242	573.0 -> 419.0	27701	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	433108	25.67	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 128.3%			
13C2-PFHxA	4.763	315.0 -> 270.0	810187	26.54	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 132.7%			
d5-EtFOSAA	7.378	589.0 -> 419.0	26222	55.16	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 137.9%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	97992	50.65	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 126.6%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	-	363.0 -> 319.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	-	413.0 -> 369.0	-	N.D.			
PFOS	6.848	499.0 -> 80.0	2344	0.41	µg/L	m	92
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	5.558	285.0 -> 169.0	0		µg/L	m	1

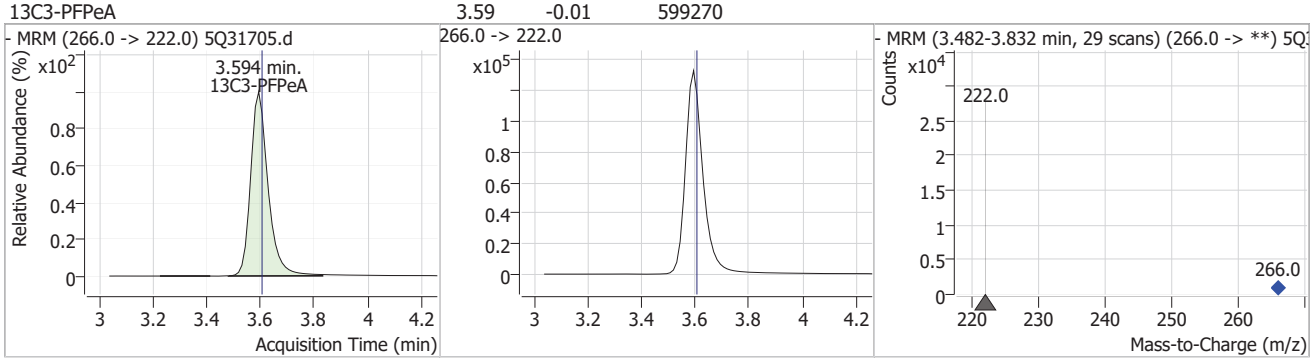
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.1.9
7

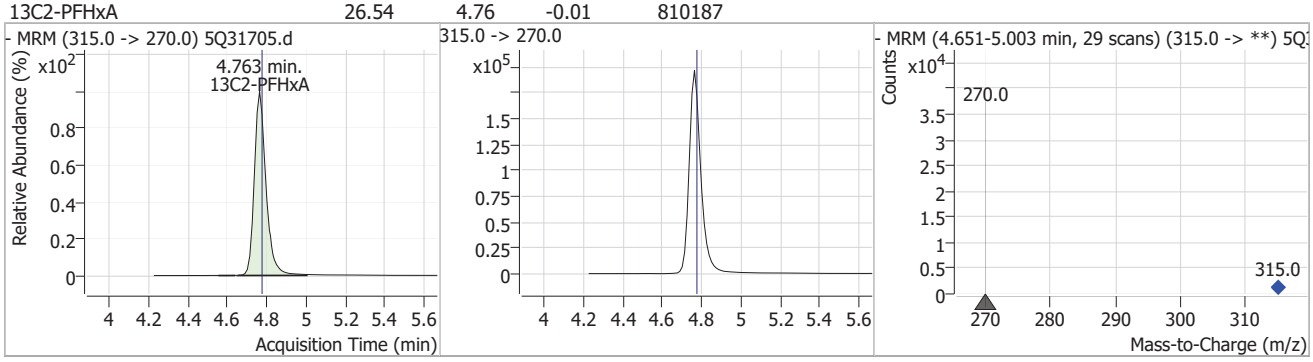
Perfluorinated Compounds by LC/MS/MS



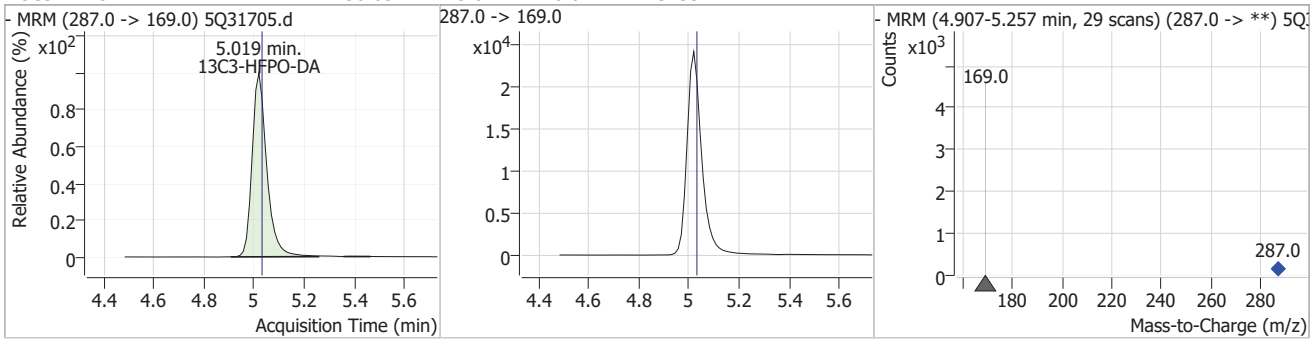
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	599270				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	26.54	4.76	-0.01	810187				

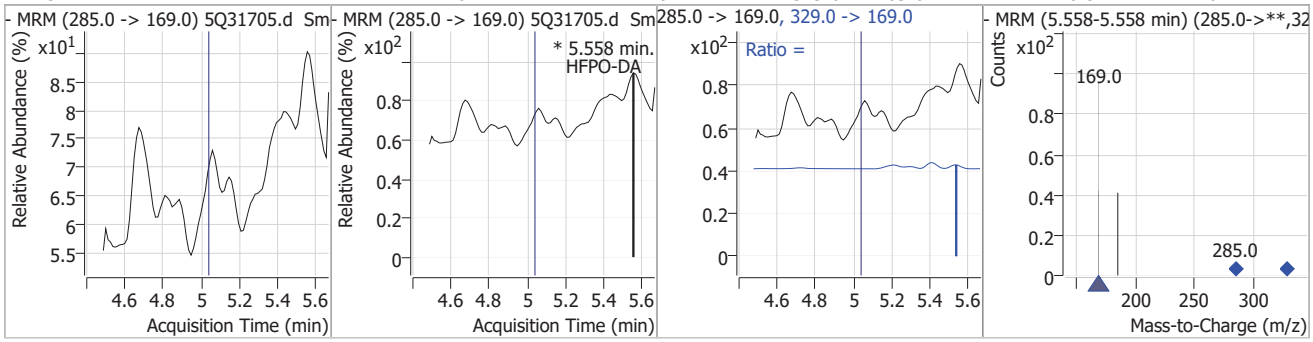


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	50.65	5.02	-0.01	97992				

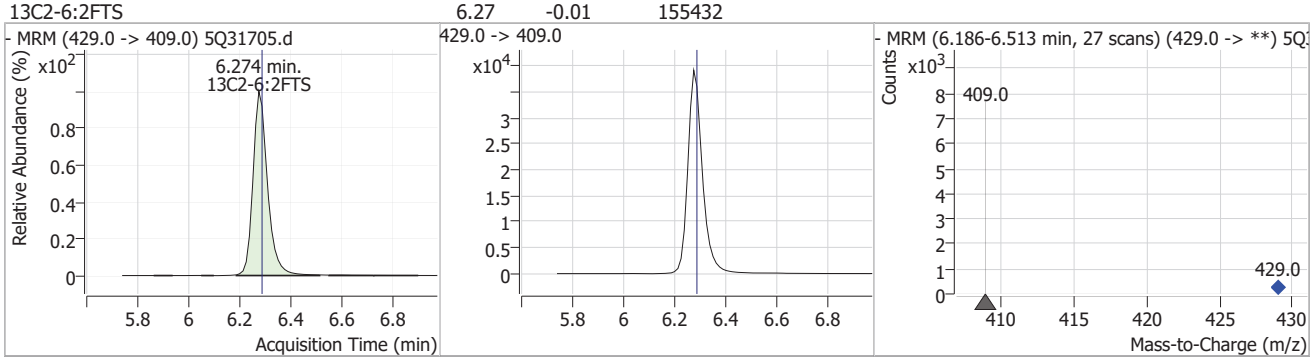


Perfluorinated Compounds by LC/MS/MS

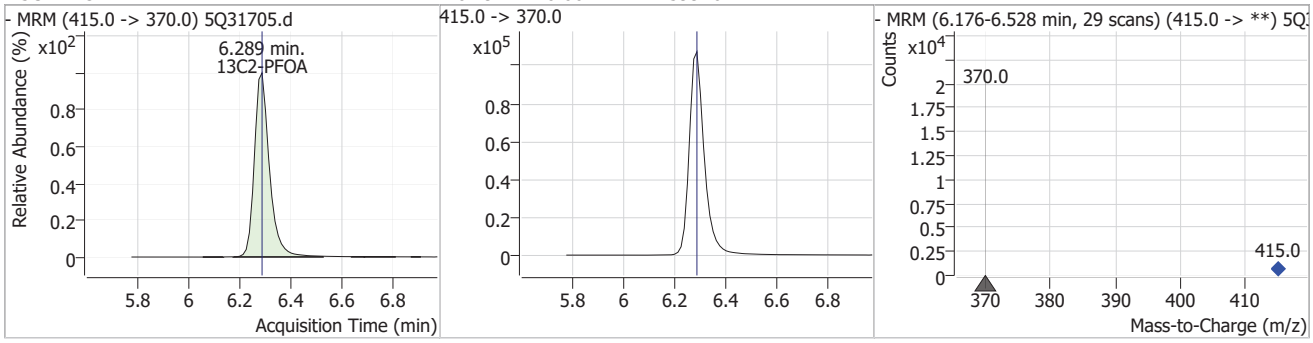
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA		0		0	329.0 -> 169.0		0.3	1.0



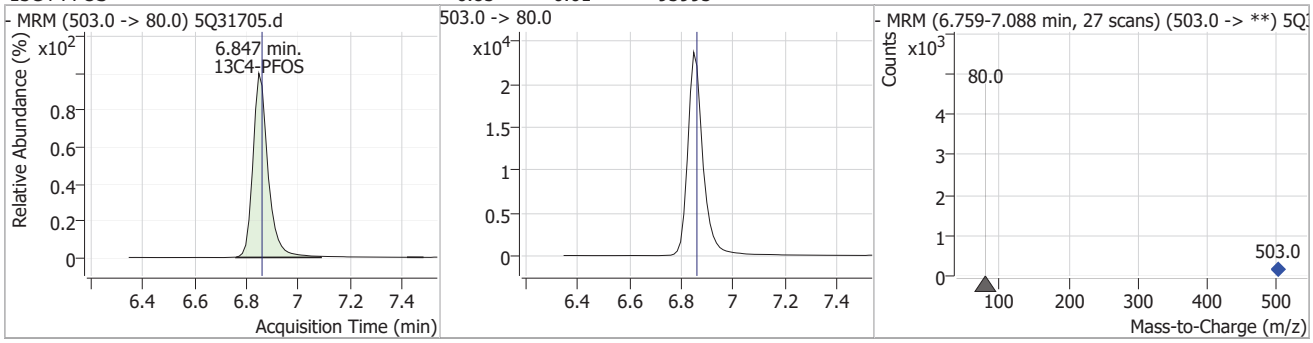
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	155432				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	439940				

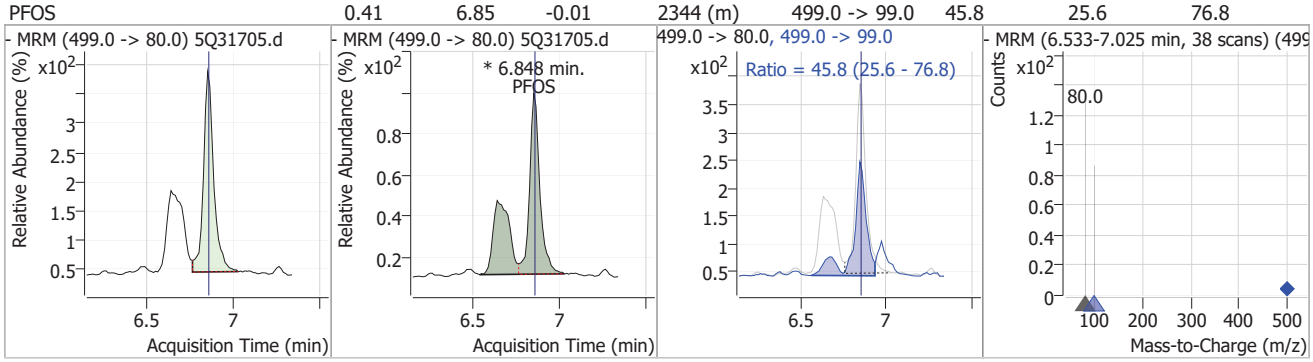


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.85	-0.01	95995				

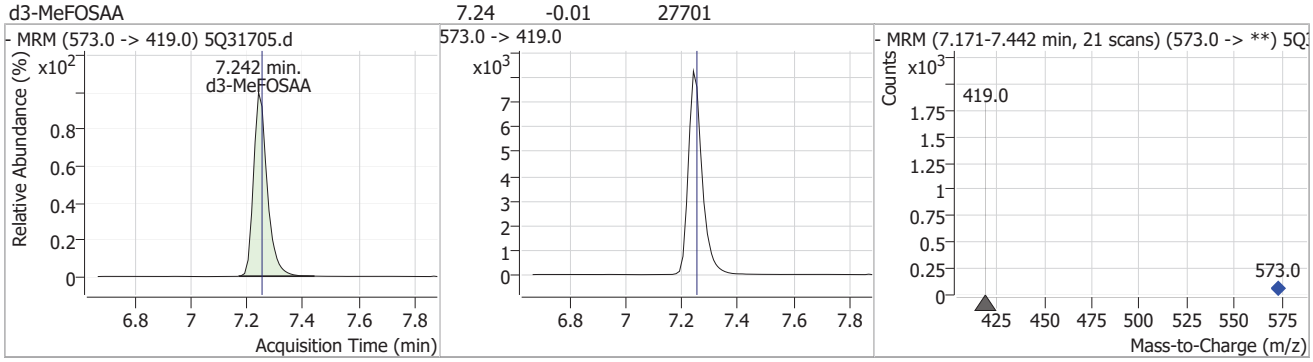


Perfluorinated Compounds by LC/MS/MS

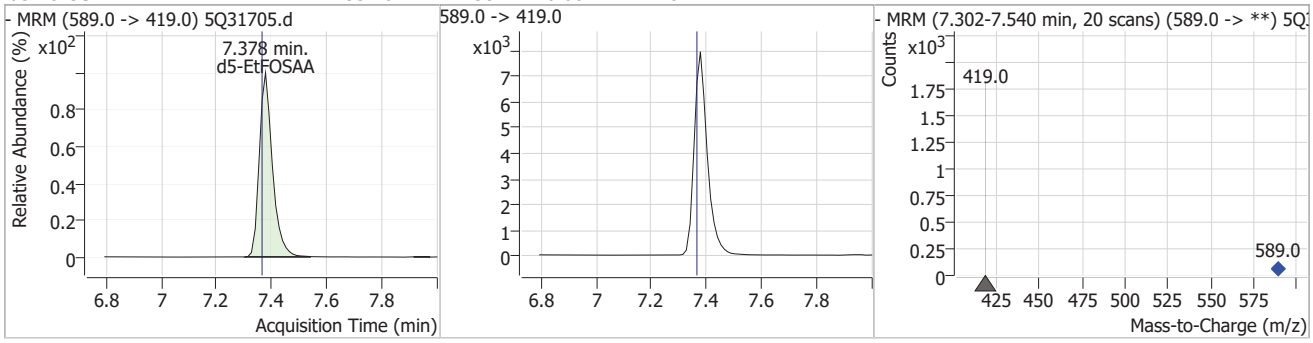
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.41	6.85	-0.01	2344 (m)	499.0 -> 99.0	45.8	25.6	76.8



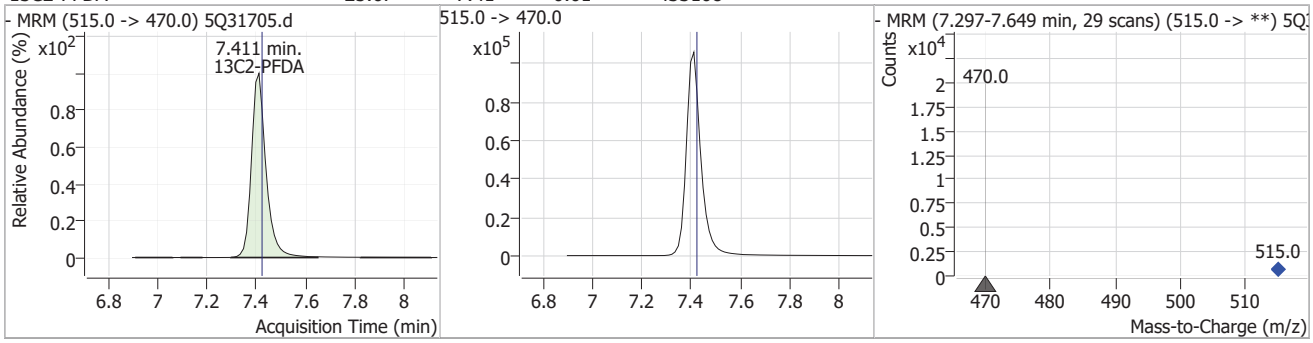
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	27701				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	55.16	7.38	0.00	26222				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	25.67	7.41	-0.01	433108				



Manual Integration Approval Summary

Sample Number:	FC23797-3A	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31705.D	**Analyst approved:**	04/15/25 14:52 (b) (6)
Injection Time:	04/11/25 16:06	**Supervisor approved:**	04/15/25 15:59 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		6.85	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/15/25 15:59

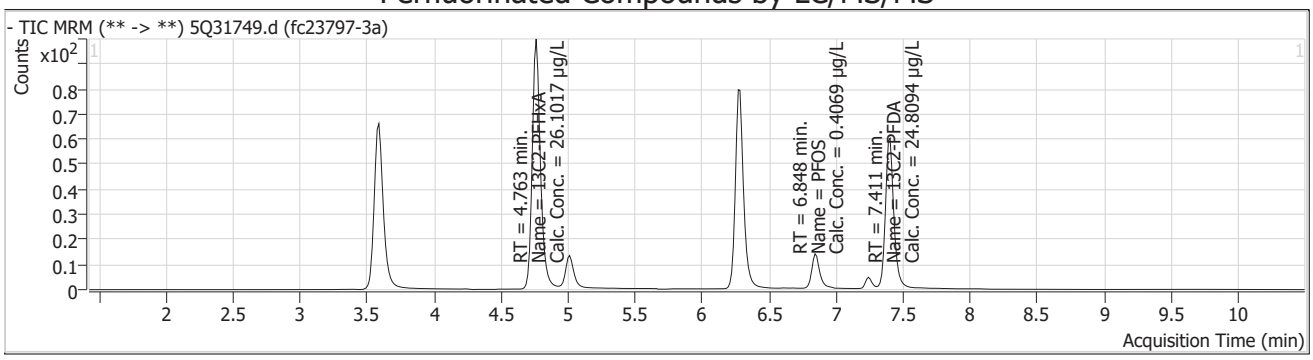
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31749.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/14/2025 3:22:52 PM
Sample Name : fc23797-3a
Vial : P2-A6
DA Method File : 537_041425_S5Q520.quantmethod
Batch Name : s5q520.batch.bin
Sample Information : OP8806,S5Q520,275,,,1,1,water

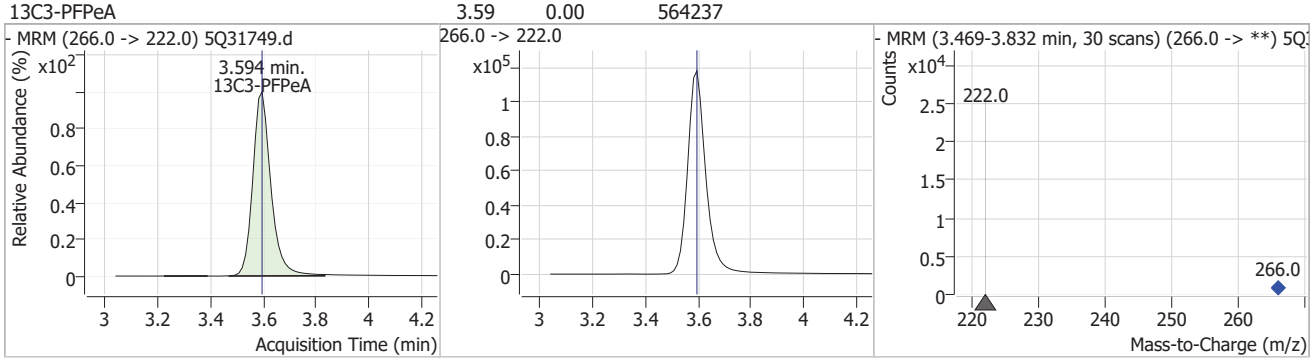
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.274	429.0 -> 409.0	174620	20.00 µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	439648	20.00 µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	564237	20.00 µg/L		0.000
13C4-PFOS	6.847	503.0 -> 80.0	100490	20.00 µg/L		-0.012
d3-MeFOSAA	7.242	573.0 -> 419.0	28260	40.00 µg/L		0.000
System Monitoring Compounds						
13C2-PFDA	7.411	515.0 -> 470.0	443482	24.81 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 124.0%		
13C2-PFHxA	4.763	315.0 -> 270.0	767982	26.10 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 130.5%		
d5-EtFOSAA	7.378	589.0 -> 419.0	26828	50.17 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 125.4%		
13C3-HFPO-DA	5.019	287.0 -> 169.0	98082	49.34 µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 123.4%		
Target Compounds						QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.		
8:2FTS	-	527.0 -> 507.0	-	N.D.		
EtFOSAA	-	584.0 -> 419.0	-	N.D.		
MeFOSAA	-	570.0 -> 419.0	-	N.D.		
PFBS	-	299.0 -> 80.0	-	N.D.		
PFDA	-	513.0 -> 469.0	-	N.D.		
PFDoDA	-	613.0 -> 569.0	-	N.D.		
PFHpA	-	363.0 -> 319.0	-	N.D.		
PFHxA	-	313.0 -> 269.0	-	N.D.		
PFHxS	-	399.0 -> 80.0	-	N.D.		
PFNA	-	463.0 -> 419.0	-	N.D.		
PFOA	-	413.0 -> 369.0	-	N.D.		
PFOS	6.848	499.0 -> 80.0	2480	0.41 µg/L	m	98
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFTeDA	-	713.0 -> 669.0	-	N.D.		
PFTrDA	-	663.0 -> 619.0	-	N.D.		
PFUnDA	-	563.0 -> 519.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
HFPO-DA	-	285.0 -> 169.0	-	N.D.		

 # = Qualifier out of range, m = manually integrated, + = Area summed

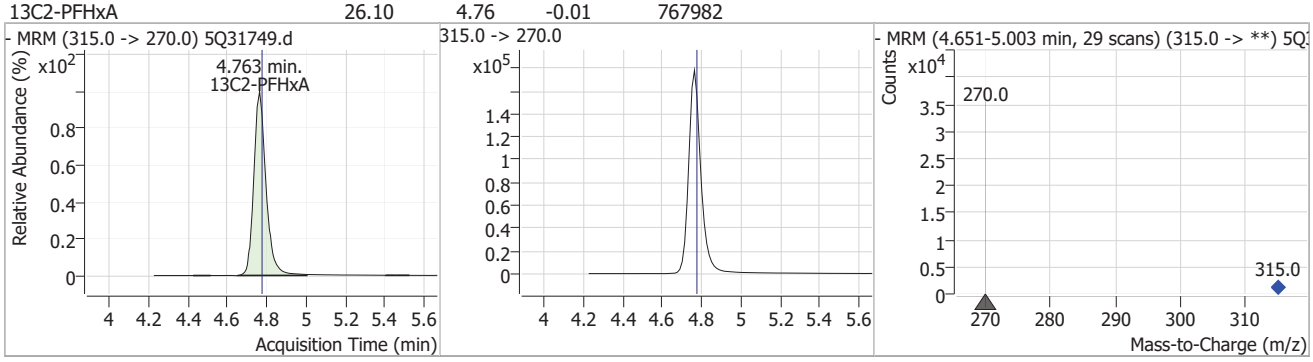
Perfluorinated Compounds by LC/MS/MS



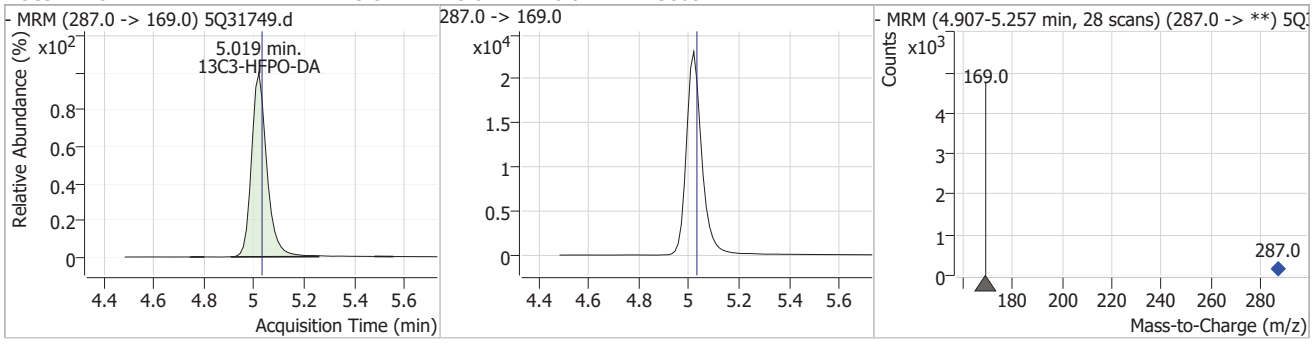
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	564237				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	26.10	4.76	-0.01	767982				

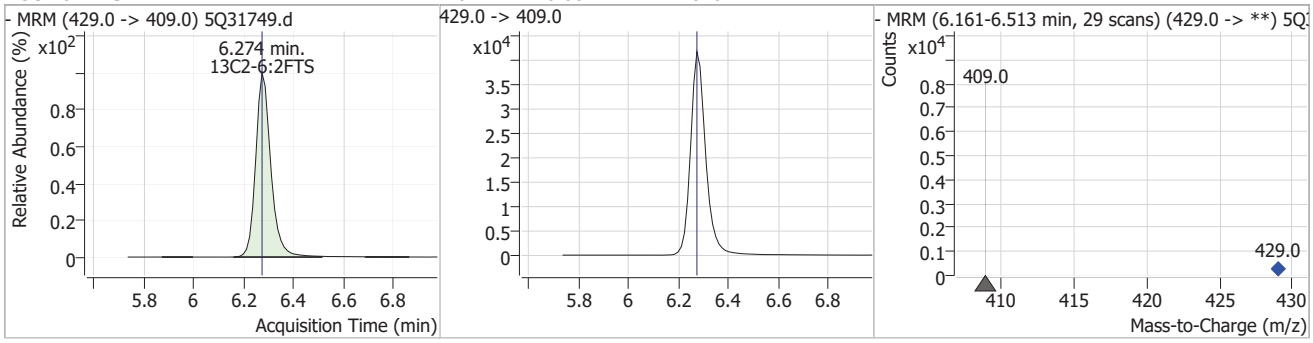


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	49.34	5.02	-0.01	98082				

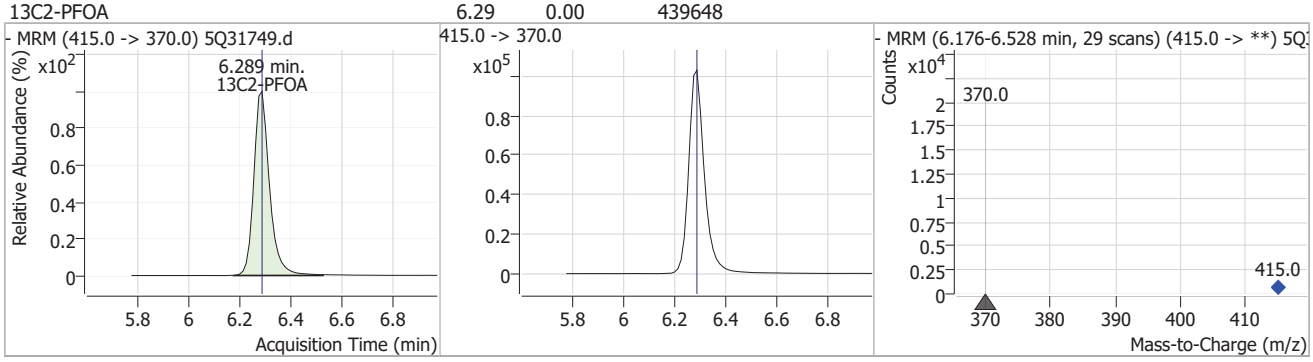


Perfluorinated Compounds by LC/MS/MS

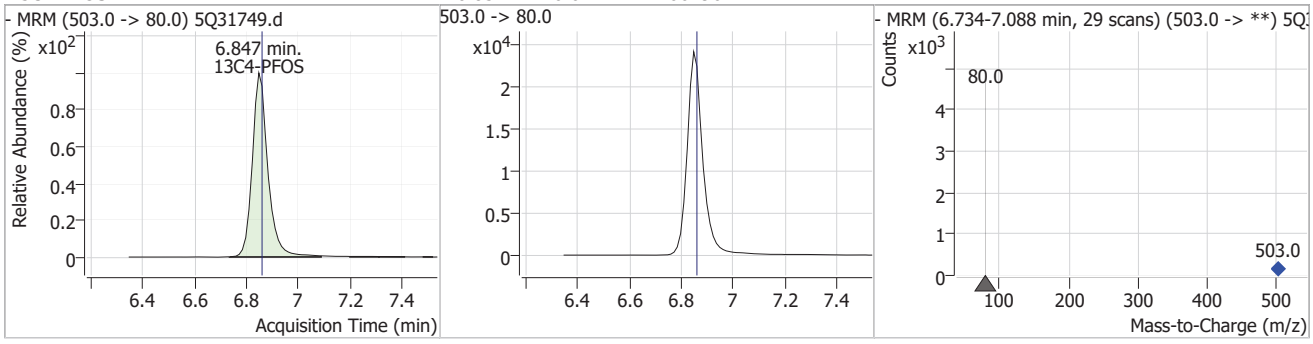
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	0.00	174620				



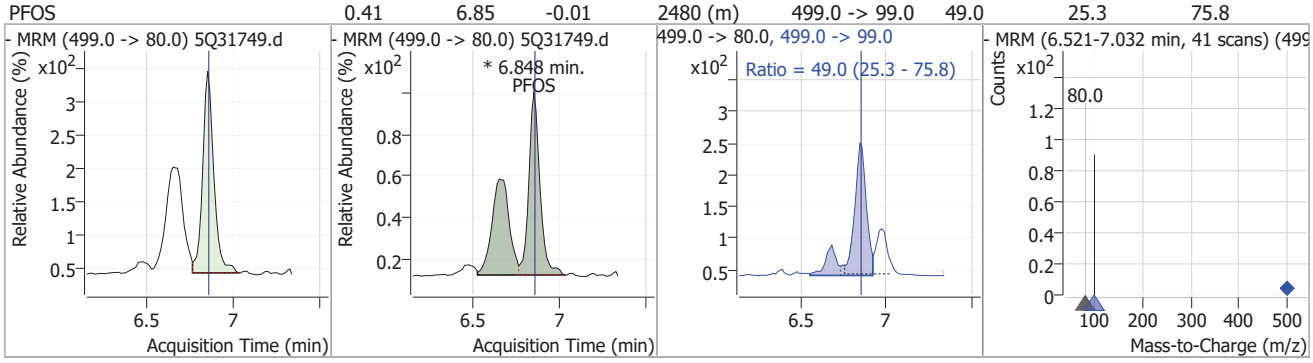
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	439648				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.85	-0.01	100490				

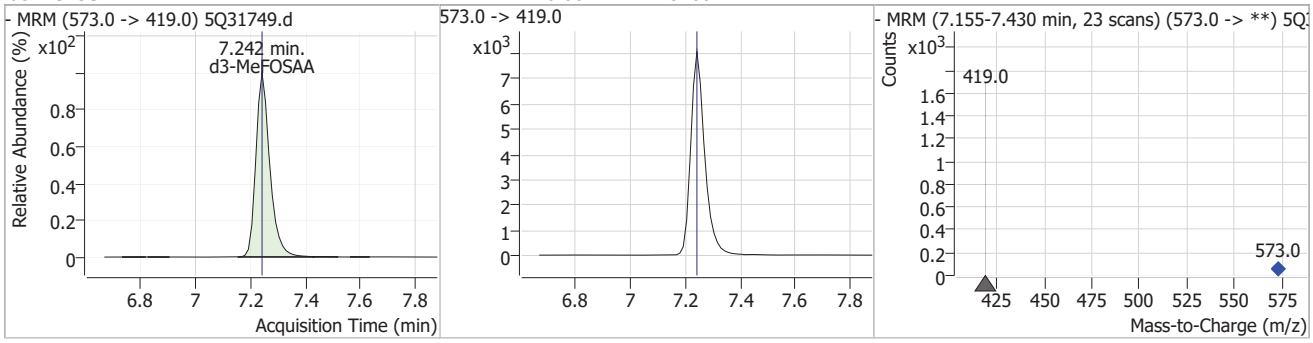


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.41	6.85	-0.01	2480 (m)	499.0 -> 99.0	49.0	25.3	75.8

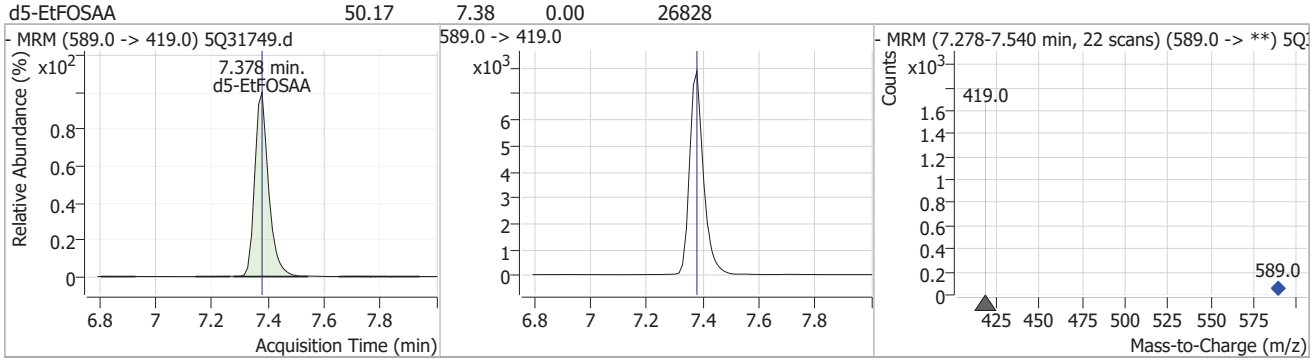


Perfluorinated Compounds by LC/MS/MS

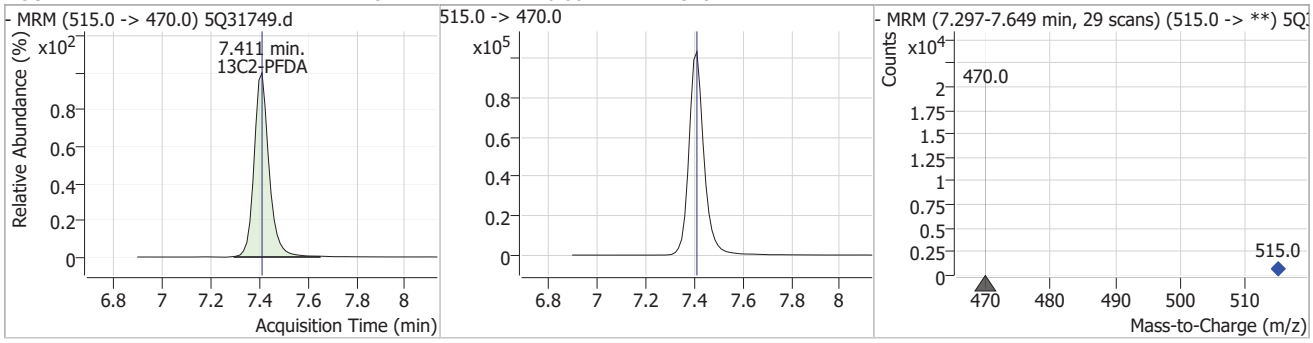
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	28260				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	50.17	7.38	0.00	26828				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	24.81	7.41	0.00	443482				



Manual Integration Approval Summary

Sample Number:	FC23797-3A	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31749.D	**Analyst approved:**	04/15/25 14:52 (b) (6)
Injection Time:	04/14/25 15:22	**Supervisor approved:**	04/15/25 15:59 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		6.85	Split peak

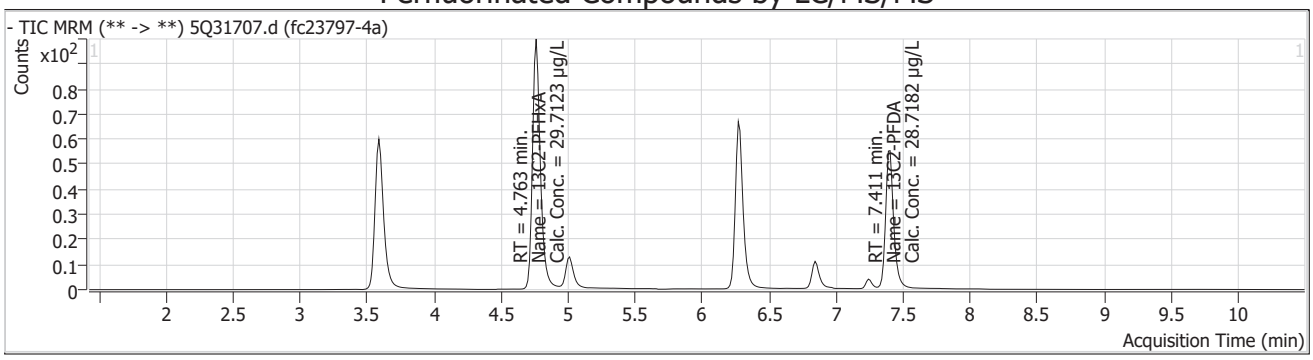
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31707.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/11/2025 4:38:08 PM
Sample Name : fc23797-4a
Vial : P2-A8
DA Method File : 537_041125_S5Q519.quantmethod
Batch Name : s5q519.batch.bin
Sample Information : OP8806,S5Q519,270,,,1,1,water

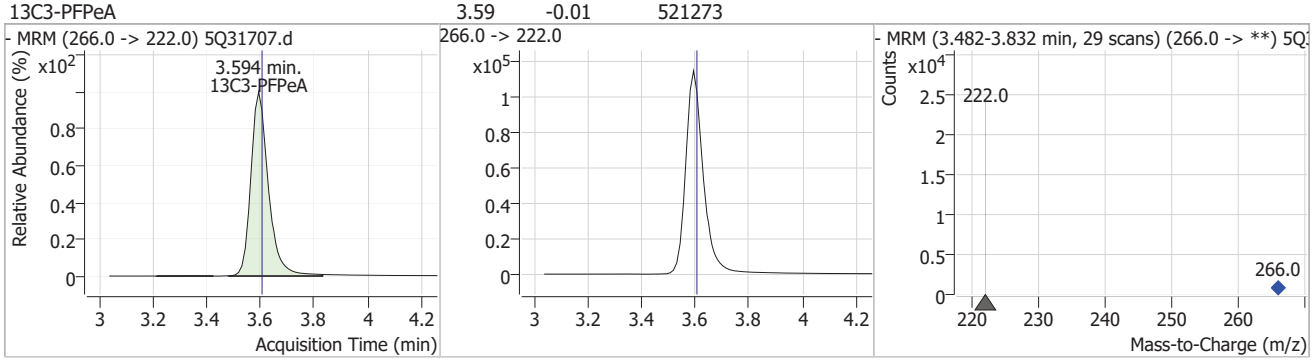
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	138757	20.00	µg/L		-0.012
13C2-PFOA	6.277	415.0 -> 370.0	380901	20.00	µg/L		-0.012
13C3-PFPeA	3.594	266.0 -> 222.0	521273	20.00	µg/L		-0.012
13C4-PFOS	6.847	503.0 -> 80.0	81758	20.00	µg/L		-0.012
d3-MeFOSAA	7.242	573.0 -> 419.0	24598	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	419586	28.72	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 143.6%			
13C2-PFHxA	4.763	315.0 -> 270.0	789268	29.71	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 148.6%			
d5-EtFOSAA	7.378	589.0 -> 419.0	25927	61.27	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 153.2%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	96663	57.25	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 143.1%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	-	363.0 -> 319.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	-	413.0 -> 369.0	-	N.D.			
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	5.047	285.0 -> 169.0	0		µg/L	m	1

 # = Qualifier out of range, m = manually integrated, + = Area summed

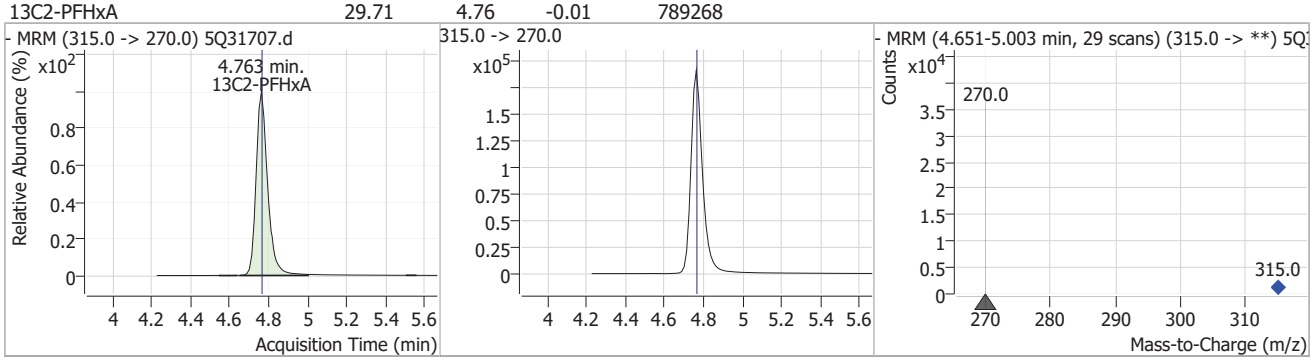
Perfluorinated Compounds by LC/MS/MS



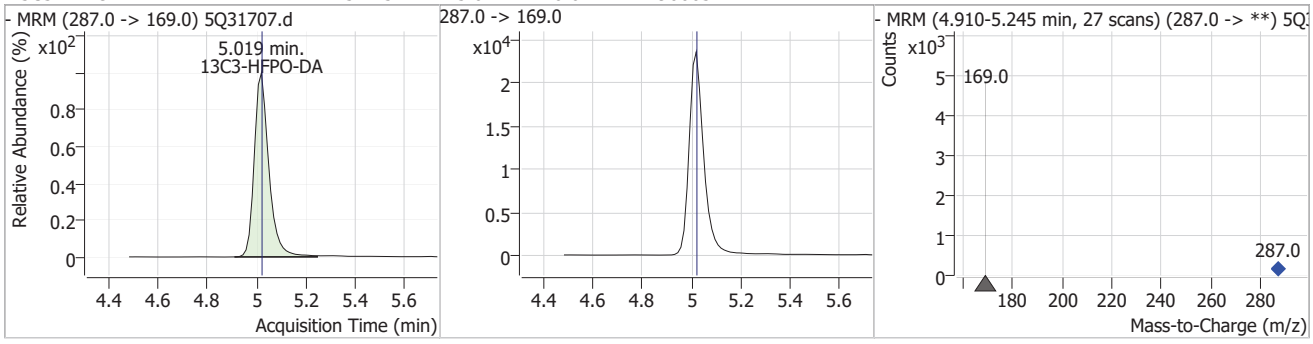
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	521273				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	29.71	4.76	-0.01	789268				

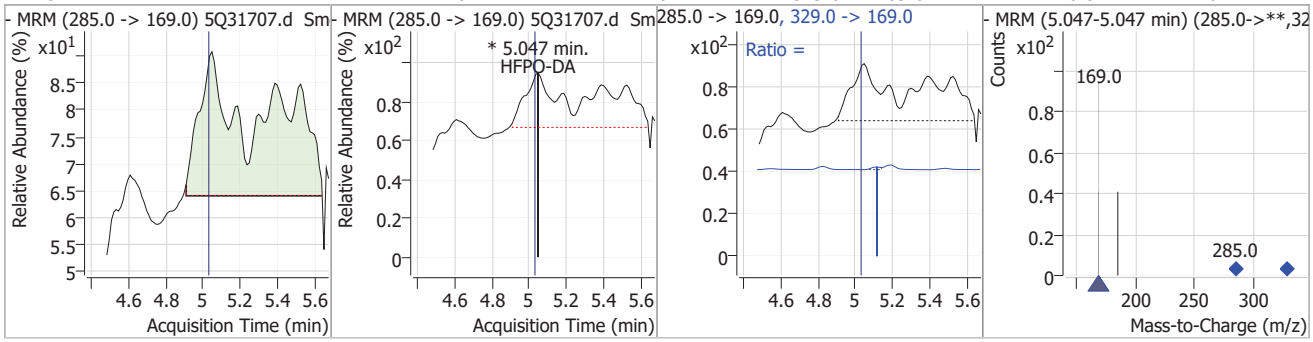


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	57.25	5.02	-0.01	96663				

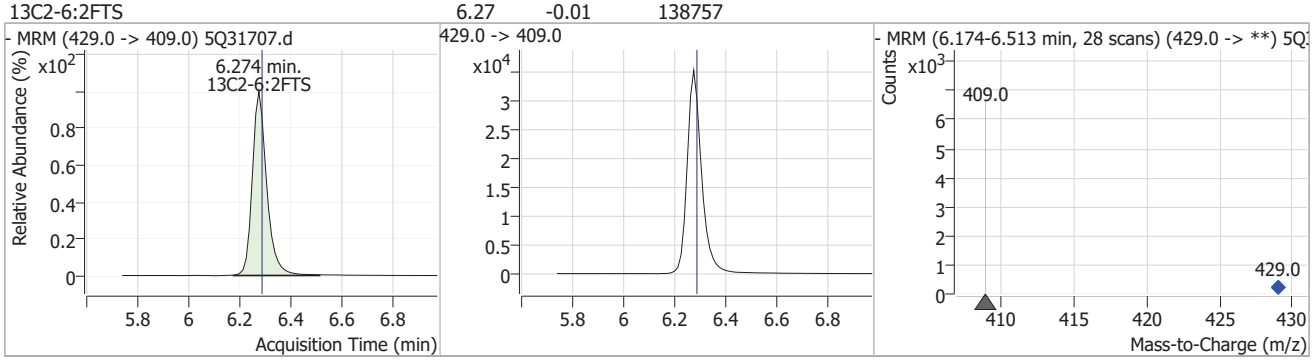


Perfluorinated Compounds by LC/MS/MS

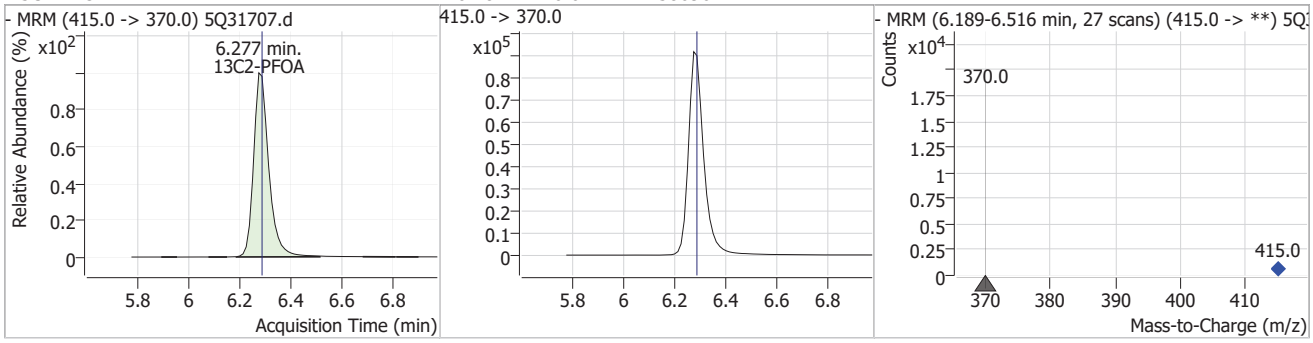
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA		0		0	329.0 -> 169.0		0.3	1.0



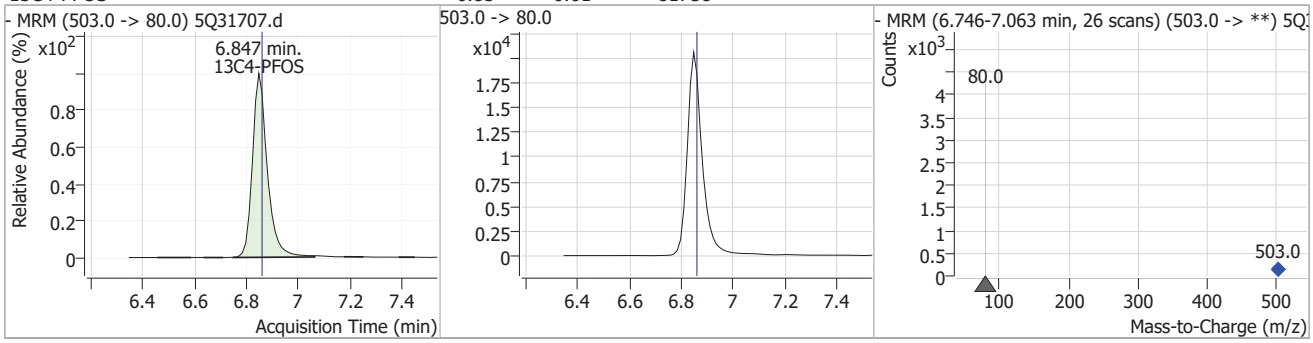
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	138757				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.28	-0.01	380901				

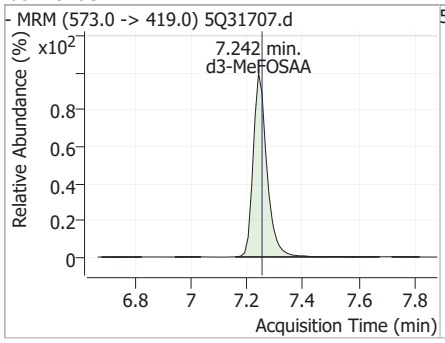


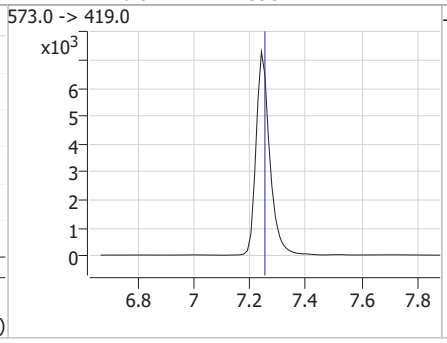
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.85	-0.01	81758				

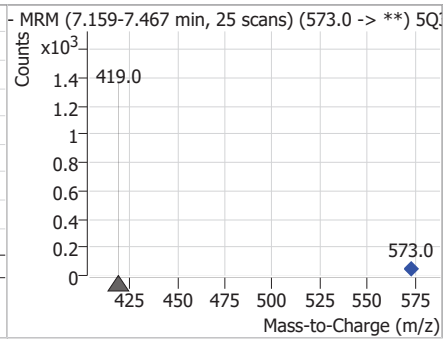


Perfluorinated Compounds by LC/MS/MS

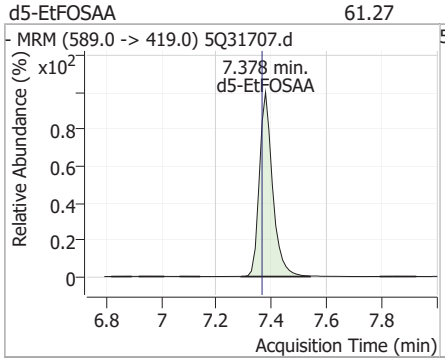
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	24598				

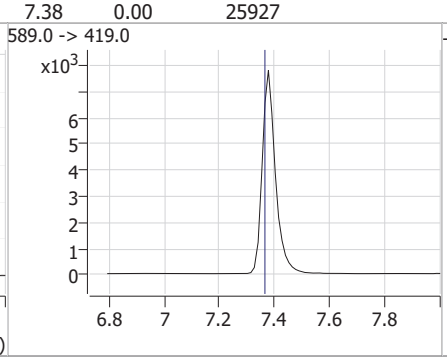


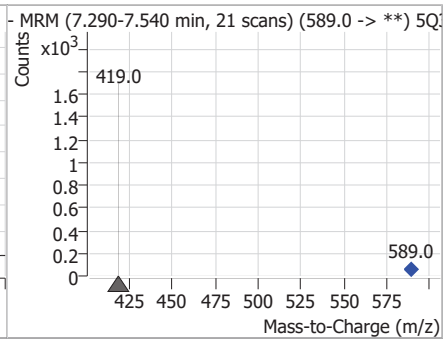




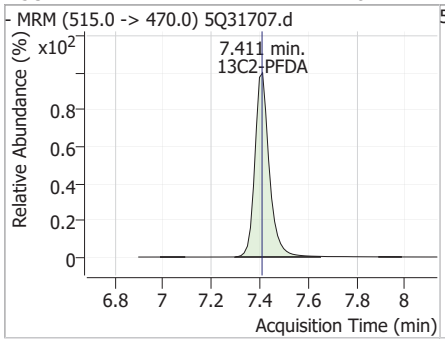
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	61.27	7.38	0.00	25927				

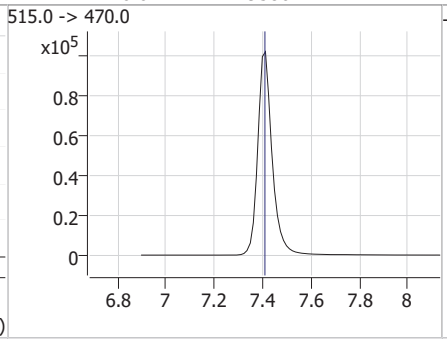


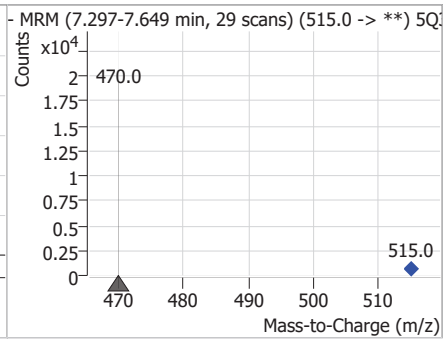




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	28.72	7.41	-0.01	419586				







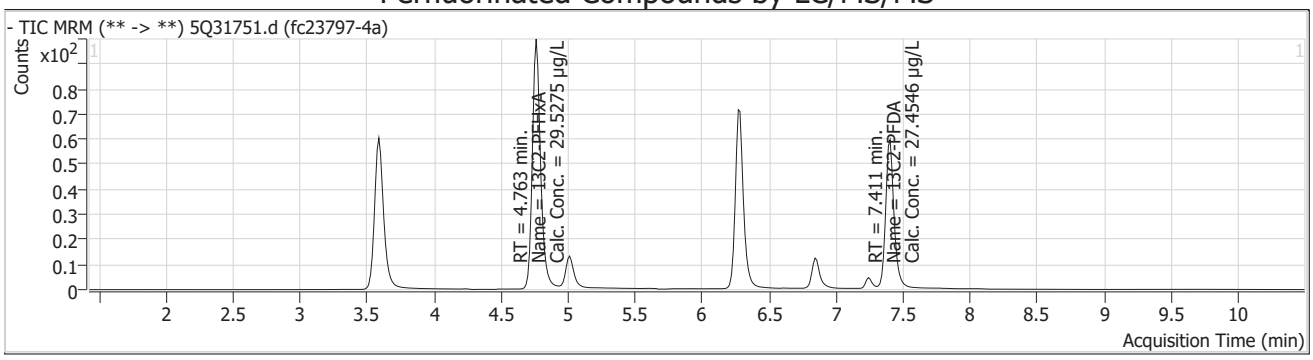
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31751.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/14/2025 3:54:54 PM
Sample Name : fc23797-4a
Vial : P2-A8
DA Method File : 537_041425_S5Q520.quantmethod
Batch Name : s5q520.batch.bin
Sample Information : OP8806,S5Q520,270,,,1,1,water

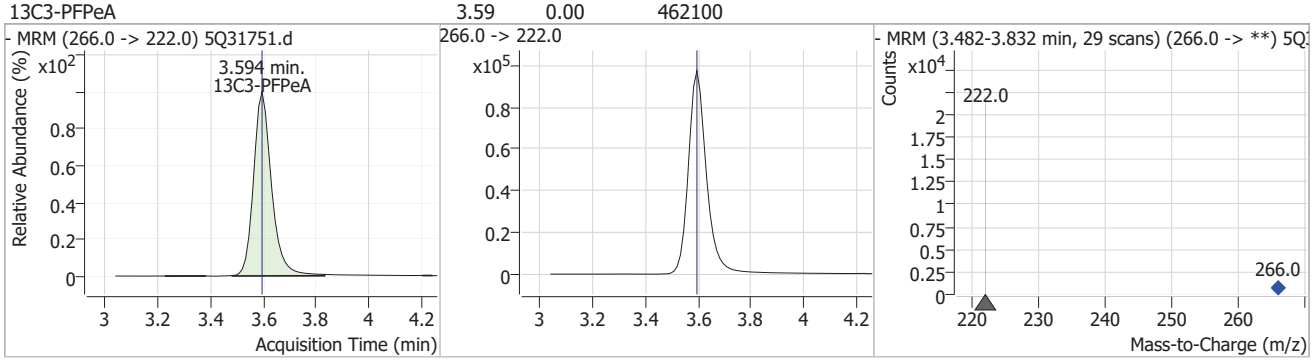
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	143571	20.00	µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	351301	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	462100	20.00	µg/L		0.000
13C4-PFOS	6.847	503.0 -> 80.0	80862	20.00	µg/L		-0.012
d3-MeFOSAA	7.242	573.0 -> 419.0	24098	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	395031	27.45	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 137.3%			
13C2-PFHxA	4.763	315.0 -> 270.0	694200	29.53	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 147.6%			
d5-EtFOSAA	7.378	589.0 -> 419.0	23843	52.19	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 130.5%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	86325	54.35	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 135.9%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	-	363.0 -> 319.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	-	413.0 -> 369.0	-	N.D.			
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	5.521	285.0 -> 169.0	0		µg/L	m	1

 # = Qualifier out of range, m = manually integrated, + = Area summed

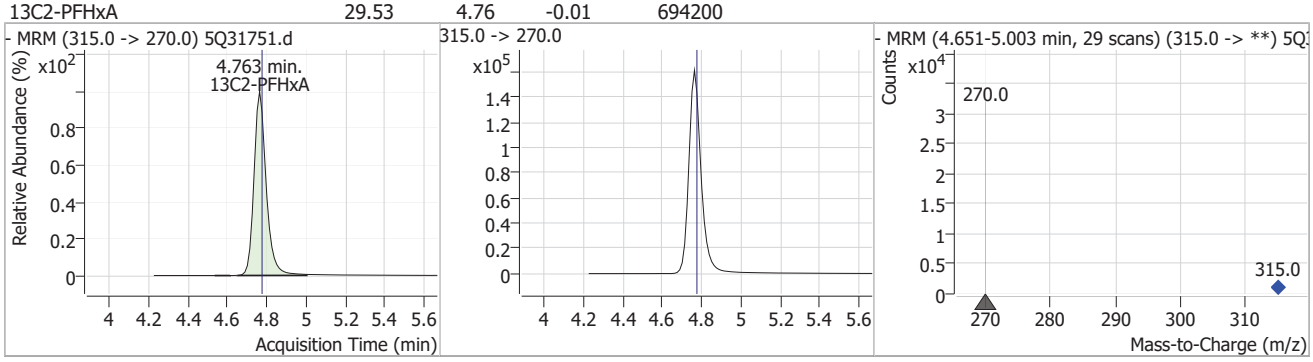
Perfluorinated Compounds by LC/MS/MS



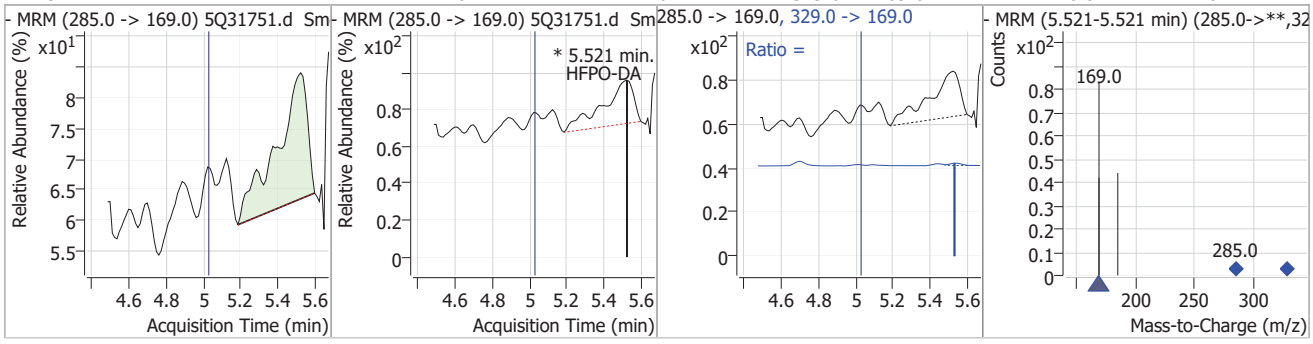
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	462100				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	29.53	4.76	-0.01	694200				

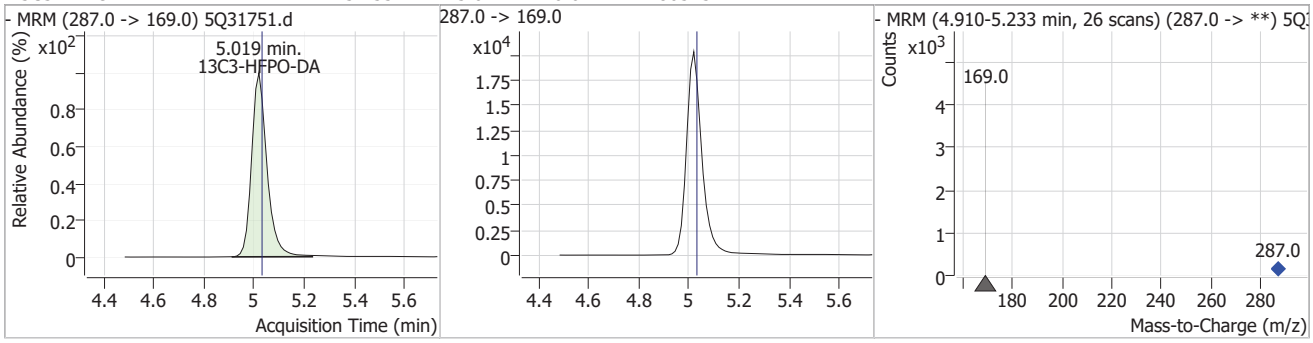


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA		0		0	329.0 -> 169.0		0.3	1.0

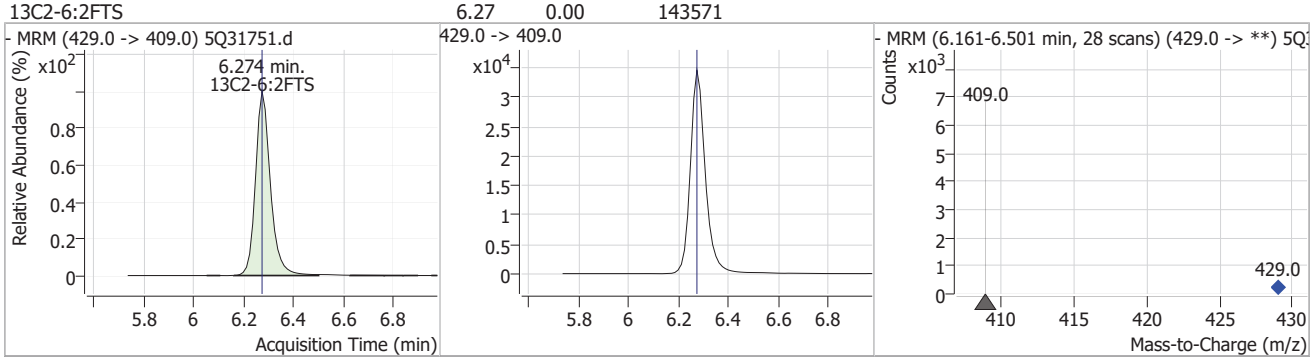


Perfluorinated Compounds by LC/MS/MS

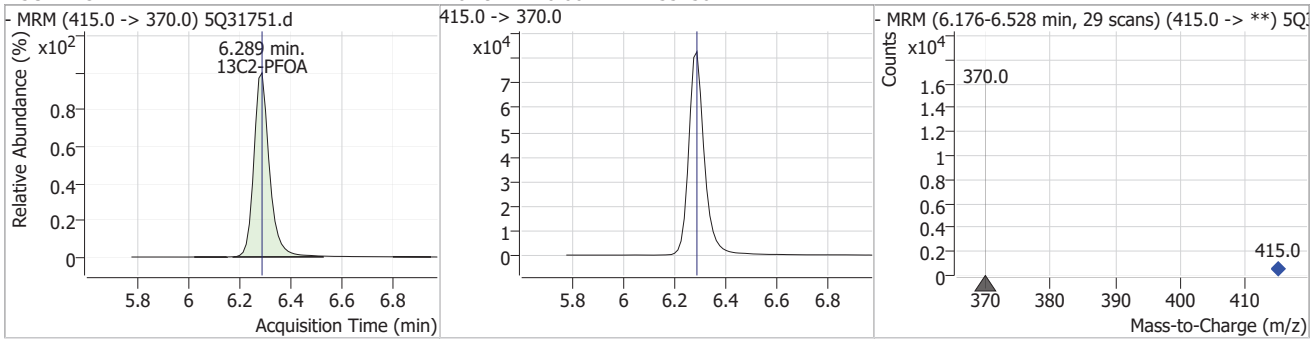
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	54.35	5.02	-0.01	86325				



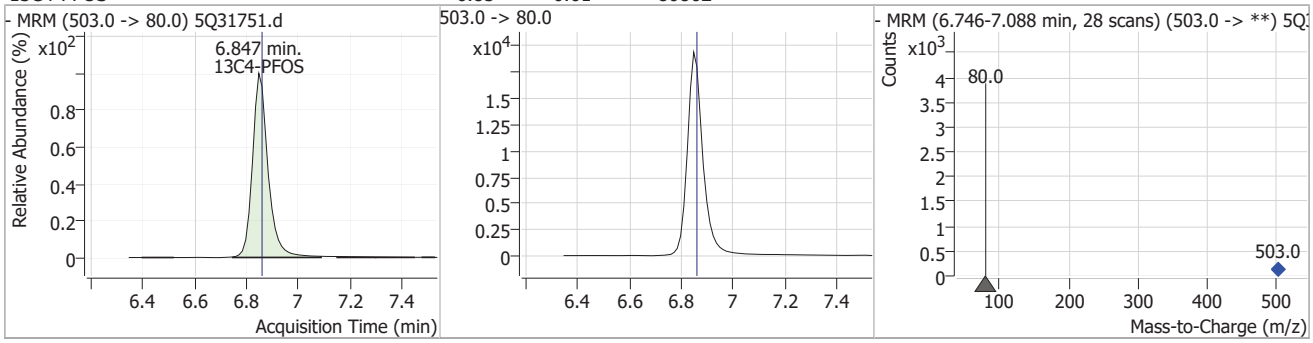
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	0.00	143571				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	351301				

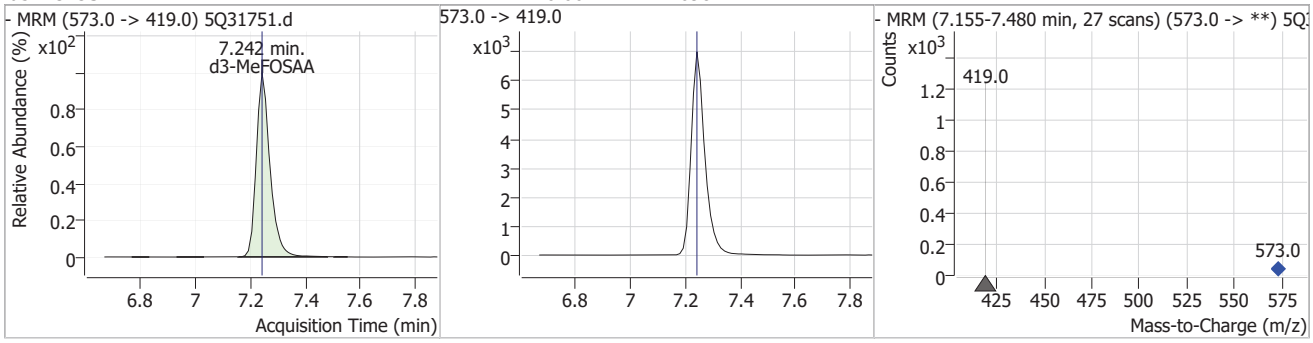


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.85	-0.01	80862				

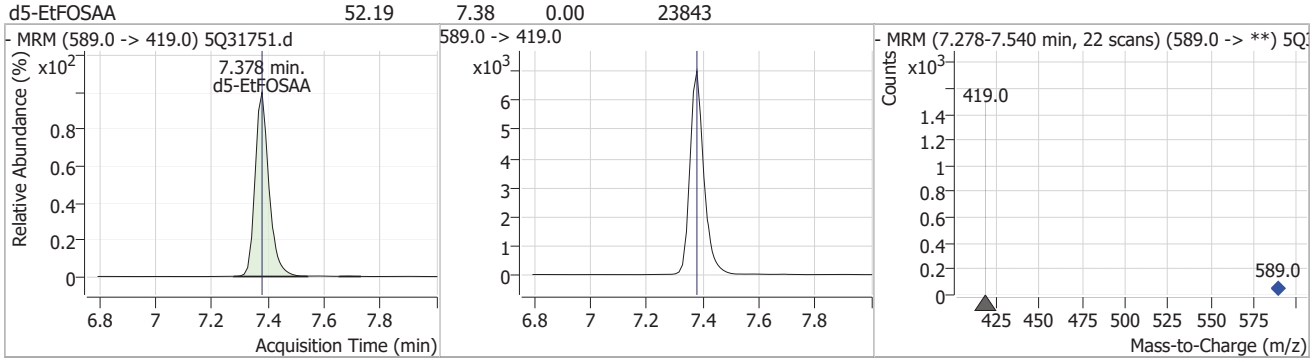


Perfluorinated Compounds by LC/MS/MS

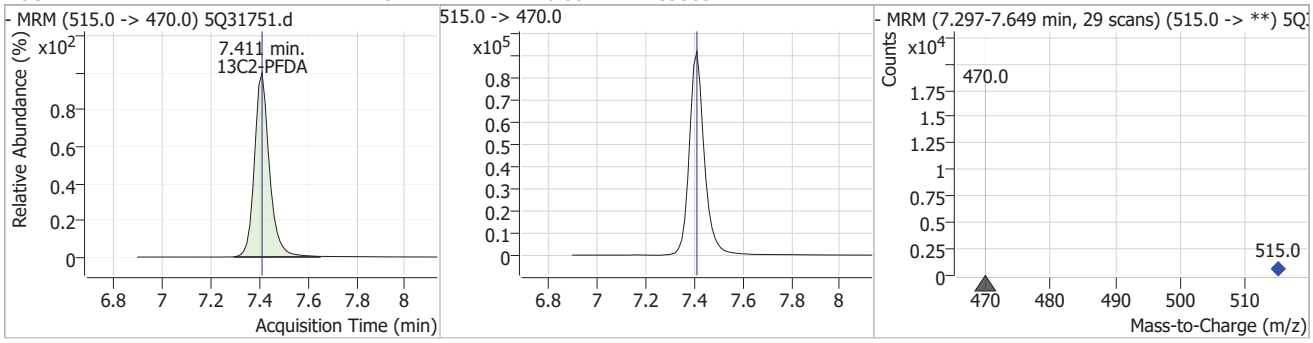
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	24098				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	52.19	7.38	0.00	23843				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	27.45	7.41	0.00	395031				



Perfluorinated Compounds by LC/MS/MS

Data File : 3q101444.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/11/2025 7:27:54 PM
Sample Name : op8808-mb
Vial : P3-A2
DA Method File : 533_041125_S3Q1491.quantmethod.xml
Batch Name : s3q1491.batch.bin
Sample Information : op8808,S3Q1491,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	212930	10.00 µg/L	0.000
13C3-PFBA	2.307	216.0 -> 172.0	70154	10.00 µg/L	-0.025
13C4-PFOS	7.983	503.0 -> 80.0	29955	10.00 µg/L	0.000
M4-PFBA	2.302	217.0 -> 172.0	94712	10.00 µg/L	-0.038
M5-PFPeA	4.400	268.0 -> 223.0	117400	10.00 µg/L	-0.013
M5-PFHxA	5.763	318.0 -> 273.0	158222	10.00 µg/L	-0.013
M4-PFHpA	6.694	367.0 -> 322.0	141002	10.00 µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	194498	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	207687	10.00 µg/L	0.000
M6-PFDA	8.533	519.0 -> 474.0	310550	10.00 µg/L	0.000
M7-PFUnDA	9.185	570.0 -> 525.0	516953	10.00 µg/L	0.000
M2-PFDoDA	10.071	615.0 -> 570.0	623160	10.00 µg/L	0.000
M3-PFBS	4.696	302.0 -> 99.0	14327	10.00 µg/L	-0.013
M3-PFHxS	6.724	402.0 -> 99.0	20970	10.00 µg/L	-0.013
M8-PFOS	7.982	507.0 -> 99.0	26596	10.00 µg/L	0.000
M2-4:2FTS	5.672	329.0 -> 309.0	54902	10.00 µg/L	0.000
M2-6:2FTS	7.420	429.0 -> 409.0	107932	10.00 µg/L	0.000
M2-8:2FTS	8.585	529.0 -> 509.0	163975	10.00 µg/L	-0.013
M3-HFPO-DA	6.056	287.0 -> 169.0	1910	10.00 µg/L	-0.013
System Monitoring Compounds					
13C2-4:2FTS	5.672	329.0 -> 309.0	54902	7.15 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 71.5%	
13C2-6:2FTS	7.420	429.0 -> 409.0	107932	7.25 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 72.5%	
13C2-8:2FTS	8.585	529.0 -> 509.0	163975	6.84 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 68.4%	
13C2-PFDoDA	10.071	615.0 -> 570.0	623160	6.68 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 66.8%	
13C3-PFBS	4.696	302.0 -> 99.0	14327	7.89 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.9%	
13C3-PFHxS	6.724	402.0 -> 99.0	20970	8.01 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.1%	
13C4-PFBA	2.302	217.0 -> 172.0	94712	7.89 µg/L	-0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.9%	
13C4-PFHpA	6.694	367.0 -> 322.0	141002	7.93 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.3%	
13C5-PFHxA	5.763	318.0 -> 273.0	158222	7.76 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.6%	
13C5-PFPeA	4.400	268.0 -> 223.0	117400	7.97 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.7%	
13C6-PFDA	8.533	519.0 -> 474.0	310550	7.74 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.4%	
13C7-PFUnDA	9.185	570.0 -> 525.0	516953	7.19 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 71.9%	
13C8-PFOA	7.422	421.0 -> 376.0	194498	7.90 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

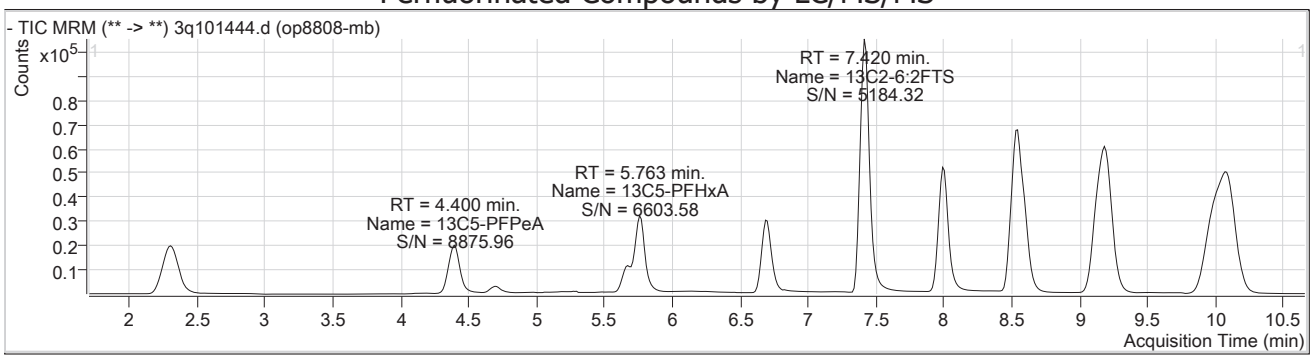
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.0%		
13C8-PFOS	7.982	507.0 -> 99.0	26596	7.95 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.5%		
13C9-PFNA	8.010	472.0 -> 427.0	207687	7.72 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.2%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	1910	7.69 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.9%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	5.202	299.0 -> 80.0	0	0.00 µg/L	m	1
		299.0 -> 99.0	0			
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	-	363.0 -> 319.0	-	N.D.		
		363.0 -> 169.0				
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	-	329.0 -> 169.0	-	N.D.		
		285.0 -> 169.0				

 # = Qualifier out of range, m = manually integrated, + = Area summed

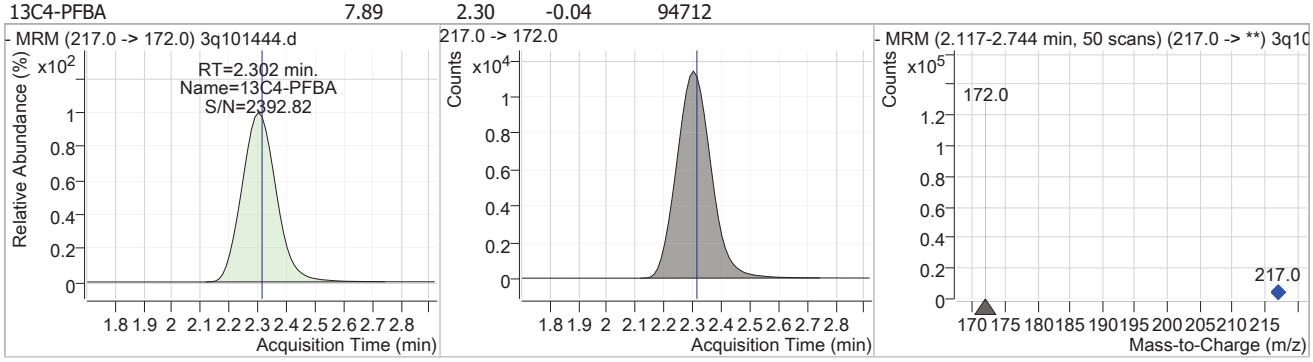
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

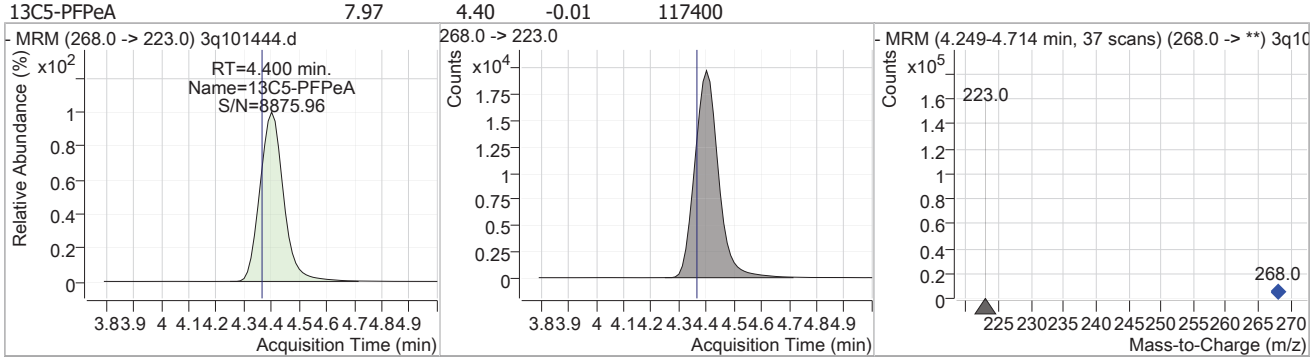
Perfluorinated Compounds by LC/MS/MS



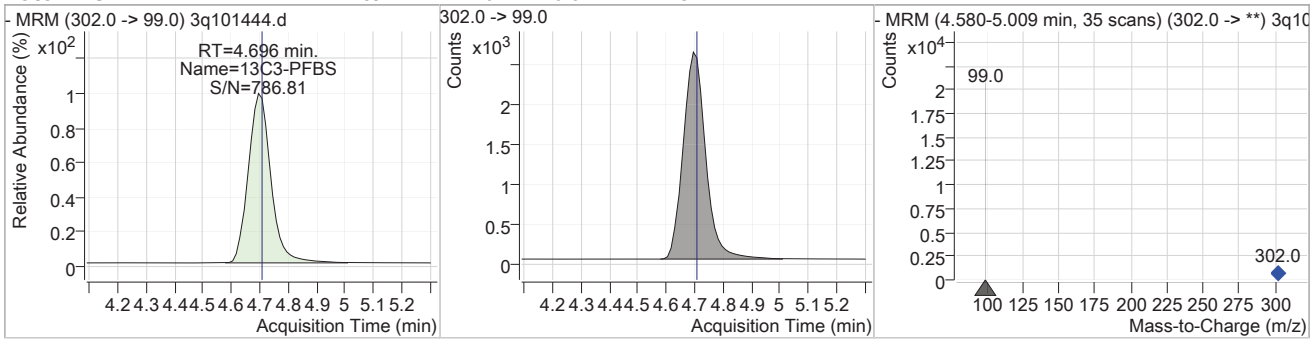
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	7.89	2.30	-0.04	94712				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	7.97	4.40	-0.01	117400				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	7.89	4.70	-0.01	14327				



7.2.1

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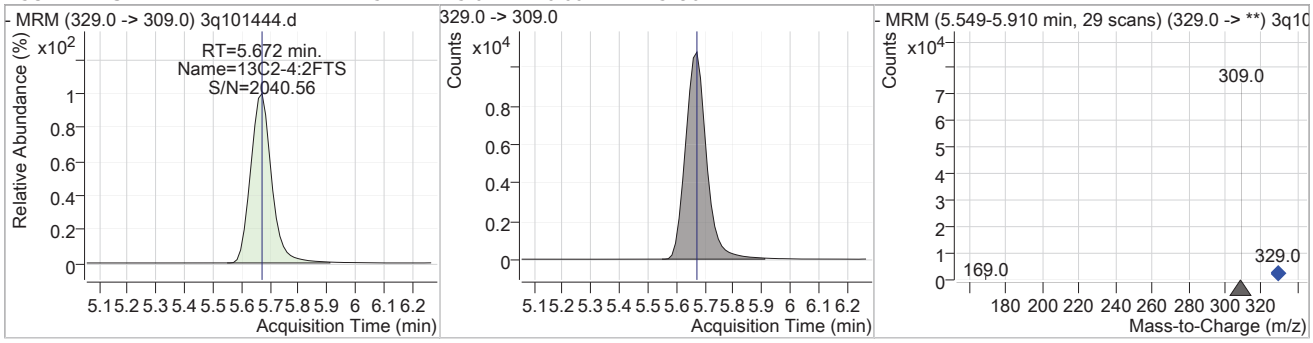
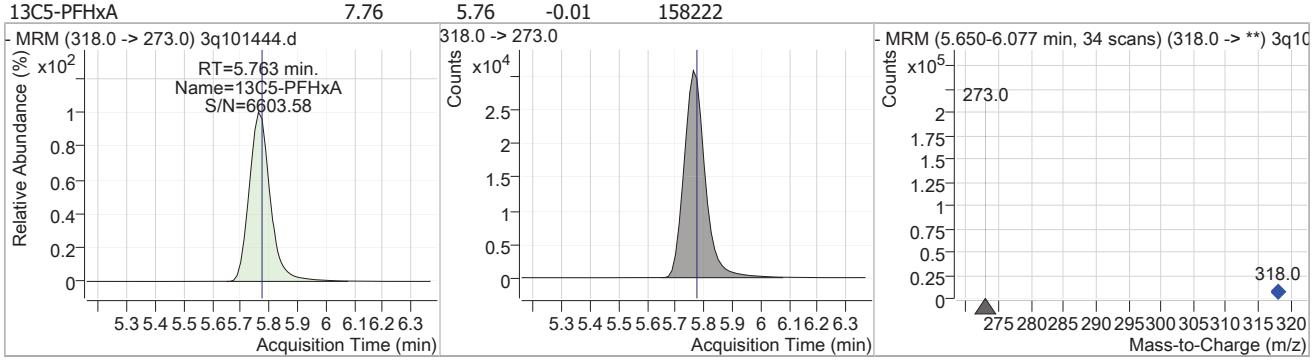
Perfluorinated Compounds by LC/MS/MS

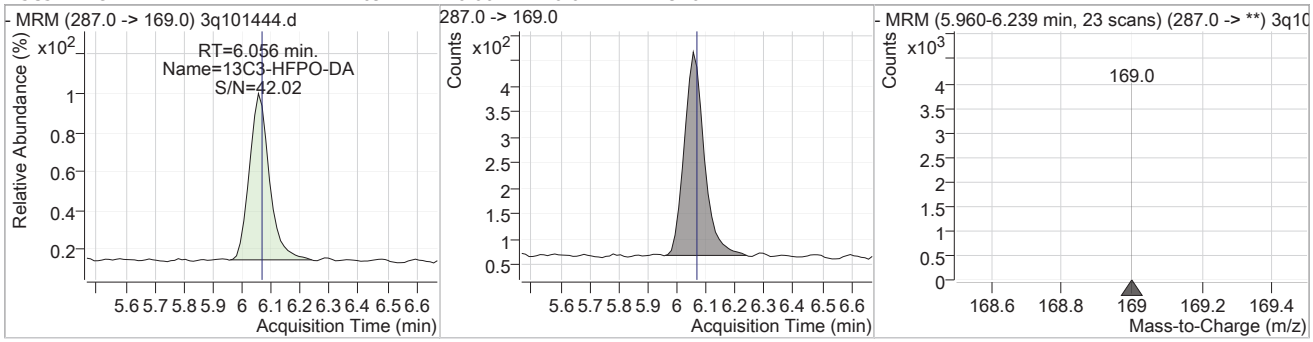
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	7.15	5.67	0.00	54902				



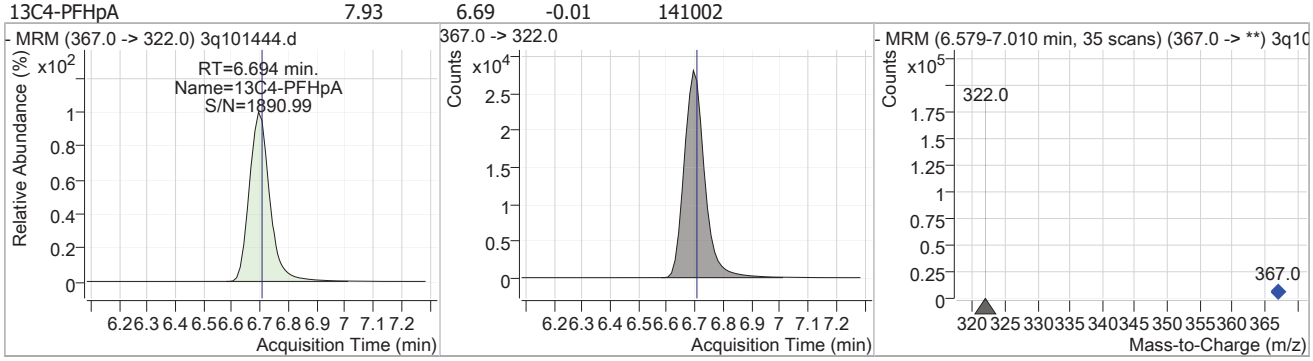
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	7.76	5.76	-0.01	158222				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	7.69	6.06	-0.01	1910				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	7.93	6.69	-0.01	141002				



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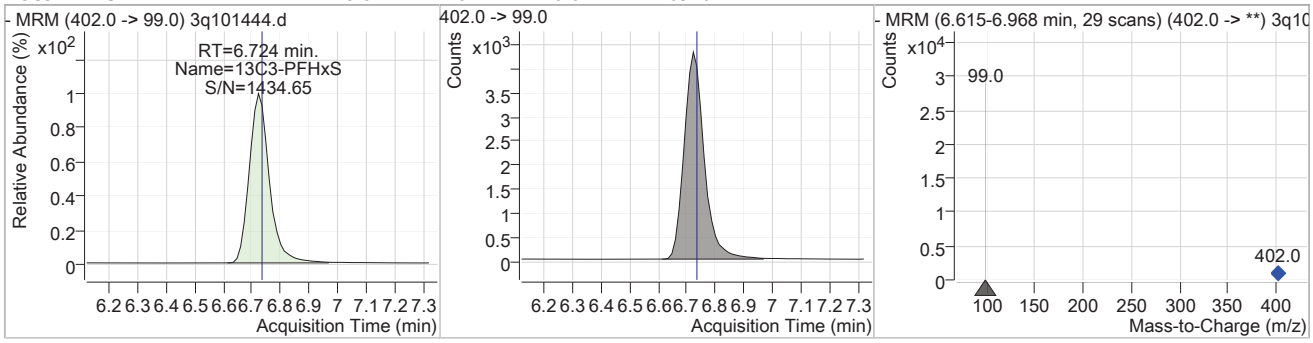
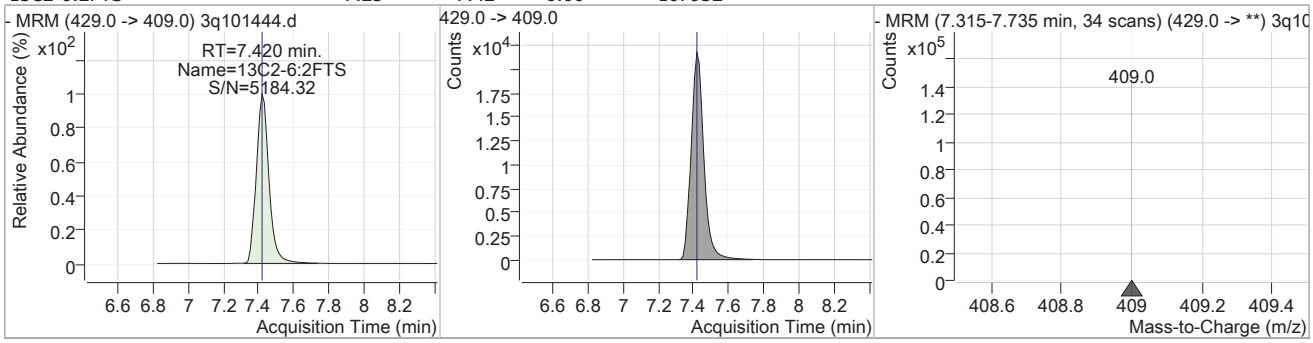
Perfluorinated Compounds by LC/MS/MS

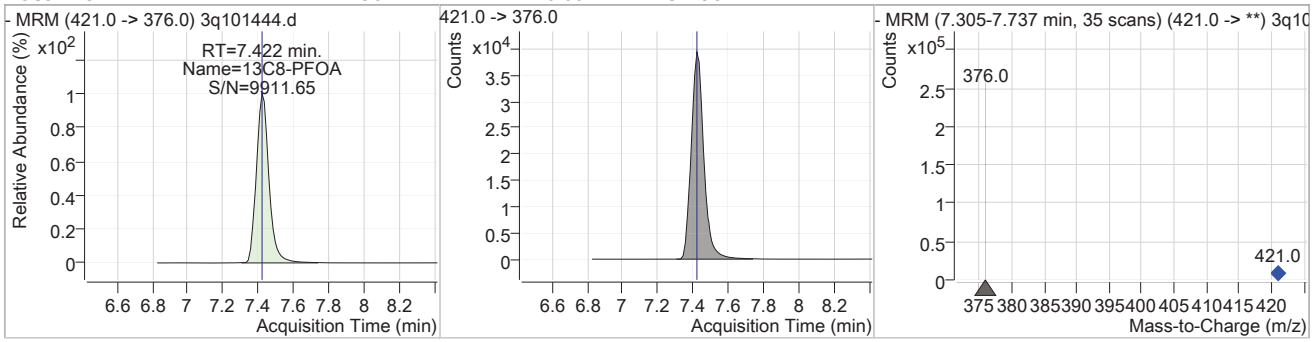
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	8.01	6.72	-0.01	20970				



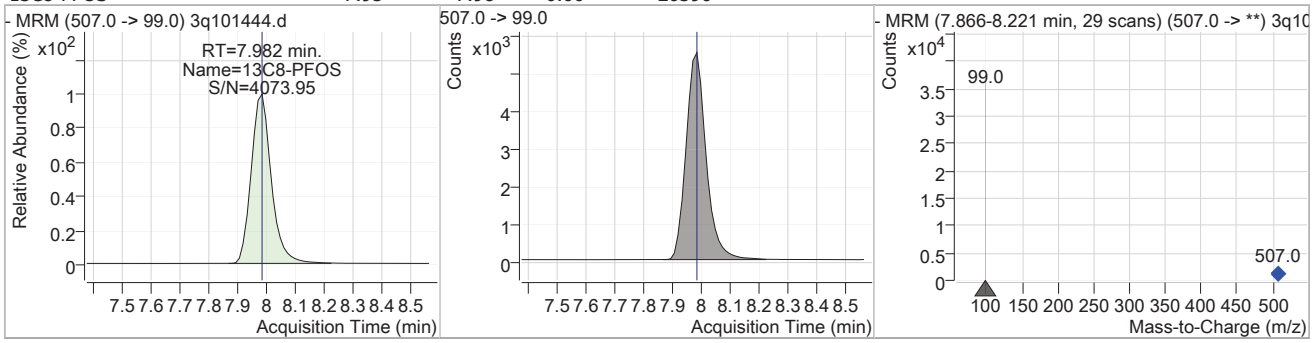
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	7.25	7.42	0.00	107932				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	7.90	7.42	0.00	194498				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	7.95	7.98	0.00	26596				



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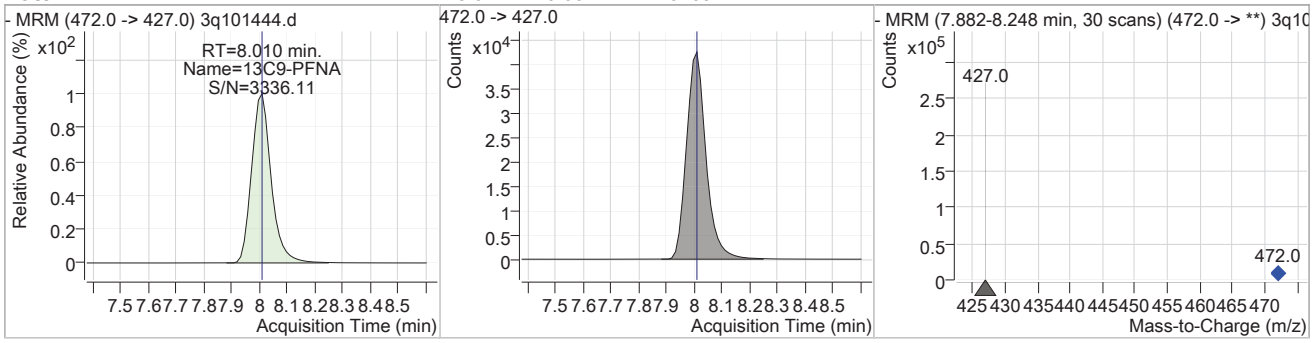
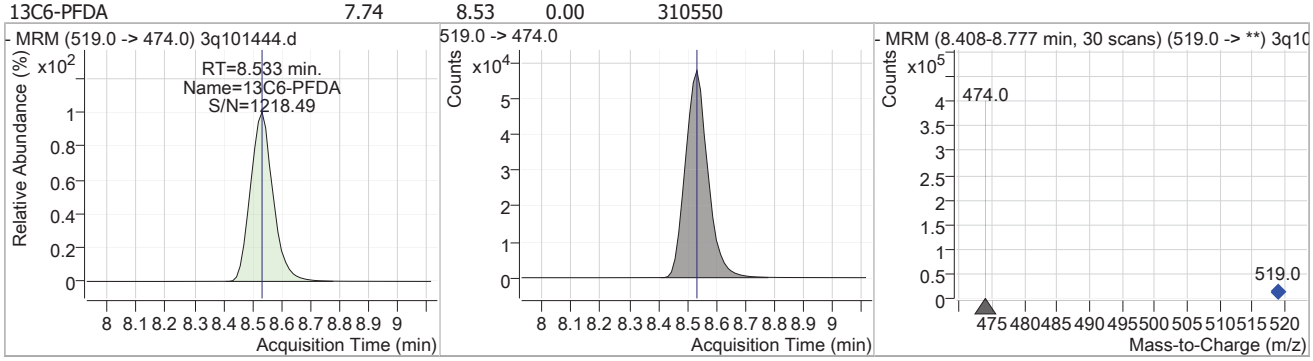
Perfluorinated Compounds by LC/MS/MS

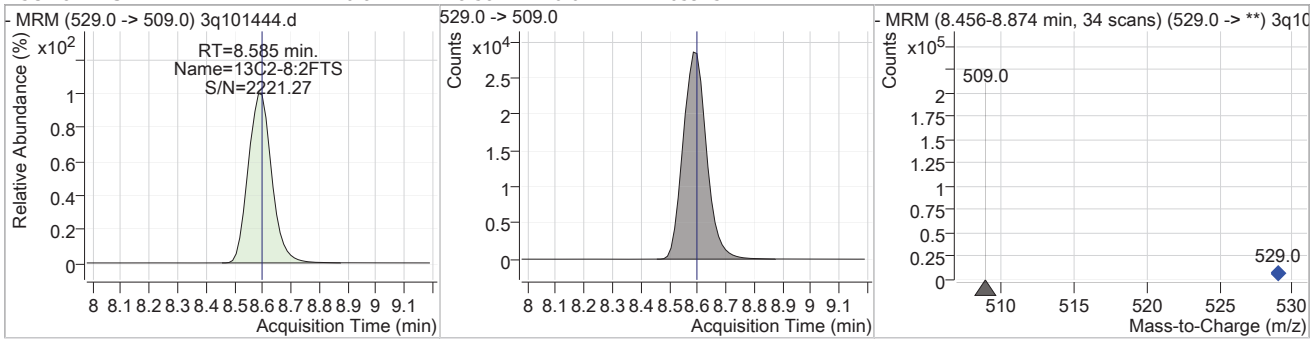
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	7.72	8.01	0.00	207687				



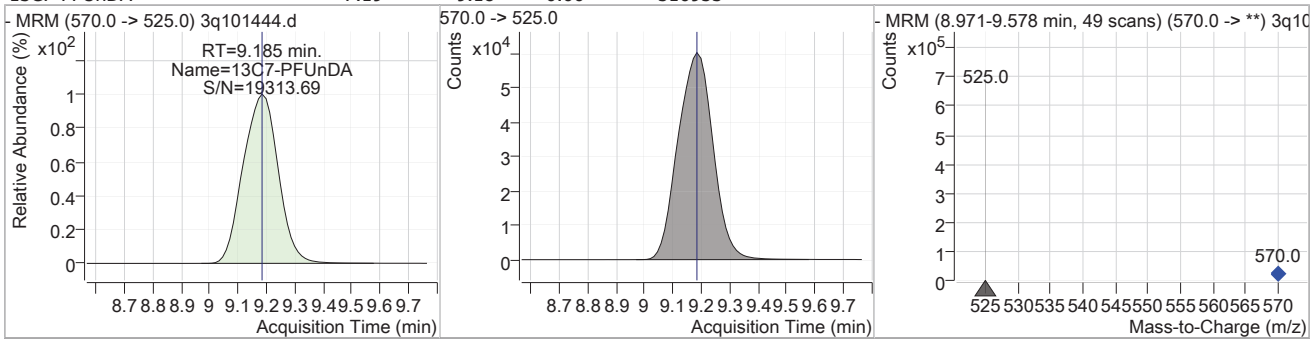
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	7.74	8.53	0.00	310550				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	6.84	8.58	-0.01	163975				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	7.19	9.18	0.00	516953				



7.2.1

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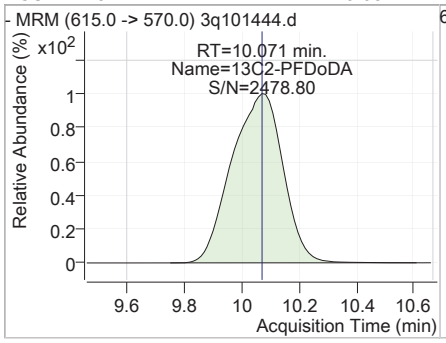
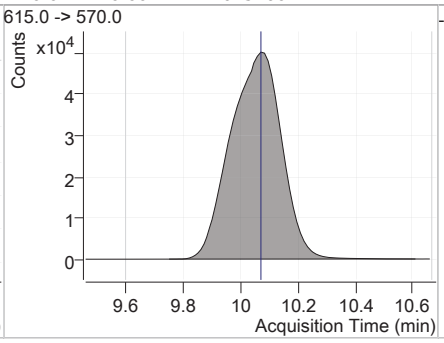
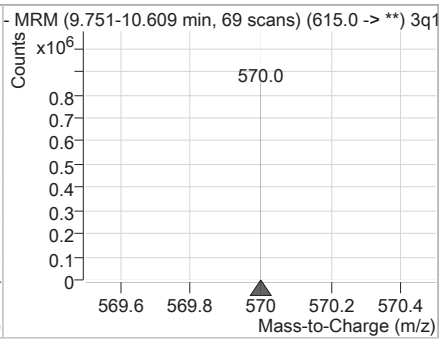
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	6.68	10.07	0.00	623160				







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Perfluorinated Compounds by LC/MS/MS

Data File : 3q101438.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/11/2025 5:51:23 PM
Sample Name : iblk
Vial : P1-C1
DA Method File : 533_041125_S3Q1491.quantmethod.xml
Batch Name : s3q1491.batch.bin
Sample Information : op8141,S3Q1491,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	219872	10.00 µg/L	0.000
13C3-PFBA	2.319	216.0 -> 172.0	72545	10.00 µg/L	-0.013
13C4-PFOS	7.969	503.0 -> 80.0	30849	10.00 µg/L	-0.014
M4-PFBA	2.315	217.0 -> 172.0	127081	10.00 µg/L	-0.025
M5-PFPeA	4.388	268.0 -> 223.0	155056	10.00 µg/L	-0.025
M5-PFHxA	5.763	318.0 -> 273.0	211489	10.00 µg/L	-0.013
M4-PFHpA	6.694	367.0 -> 322.0	185793	10.00 µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	260411	10.00 µg/L	0.000
M9-PFNA	7.997	472.0 -> 427.0	283905	10.00 µg/L	-0.013
M6-PFDA	8.520	519.0 -> 474.0	423091	10.00 µg/L	-0.013
M7-PFUnDA	9.172	570.0 -> 525.0	757535	10.00 µg/L	-0.013
M2-PFDoDA	10.058	615.0 -> 570.0	985585	10.00 µg/L	-0.013
M3-PFBS	4.696	302.0 -> 99.0	18910	10.00 µg/L	-0.013
M3-PFHxS	6.723	402.0 -> 99.0	27455	10.00 µg/L	-0.013
M8-PFOS	7.968	507.0 -> 99.0	35214	10.00 µg/L	-0.014
M2-4:2FTS	5.659	329.0 -> 309.0	74571	10.00 µg/L	-0.013
M2-6:2FTS	7.420	429.0 -> 409.0	147391	10.00 µg/L	0.000
M2-8:2FTS	8.585	529.0 -> 509.0	234476	10.00 µg/L	-0.013
M3-HFPO-DA	6.043	287.0 -> 169.0	2349	10.00 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.659	329.0 -> 309.0	74571	9.43 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C2-6:2FTS	7.420	429.0 -> 409.0	147305	9.61 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C2-8:2FTS	8.585	529.0 -> 509.0	234476	9.50 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C2-PFDoDA	10.058	615.0 -> 570.0	985585	10.24 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C3-PFBS	4.696	302.0 -> 99.0	18910	10.11 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C3-PFHxS	6.723	402.0 -> 99.0	27455	10.19 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C4-PFBA	2.315	217.0 -> 172.0	127081	10.24 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C4-PFHpA	6.694	367.0 -> 322.0	185793	10.12 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C5-PFHxA	5.763	318.0 -> 273.0	211489	10.04 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C5-PFPeA	4.388	268.0 -> 223.0	155056	10.18 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C6-PFDA	8.520	519.0 -> 474.0	423091	10.21 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C7-PFUnDA	9.172	570.0 -> 525.0	757535	10.20 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C8-PFOA	7.422	421.0 -> 376.0	260411	10.24 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

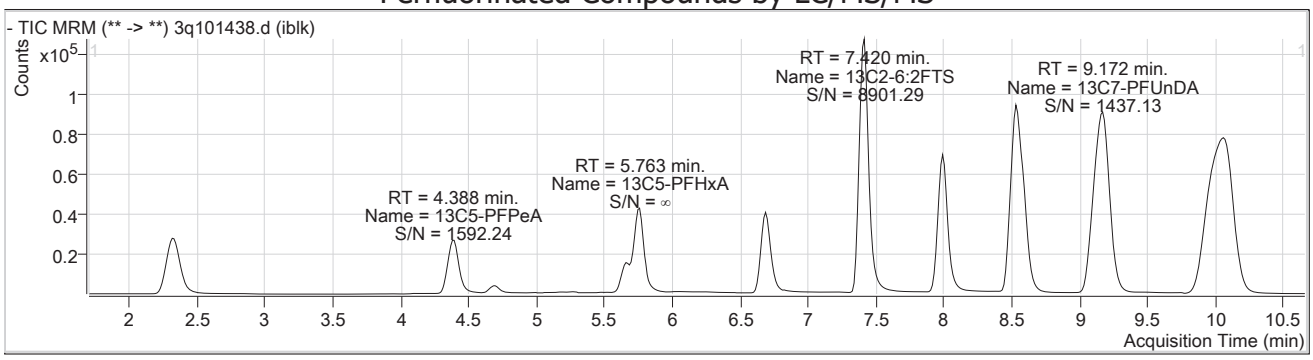
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C8-PFOS	7.968	507.0 -> 99.0	35214	10.22 µg/L	-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C9-PFNA	7.997	472.0 -> 427.0	283905	10.22 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C3-HFPO-DA	6.043	287.0 -> 169.0	2349	9.16 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.6%	
Target Compounds					QValue
PFMPA	-	229.0 -> 85.0	-	N.D.	
4:2FTS	-	327.0 -> 307.0	-	N.D.	
		327.0 -> 81.0			
6:2FTS	-	427.0 -> 407.0	-	N.D.	
		427.0 -> 81.0			
8:2FTS	-	527.0 -> 507.0	-	N.D.	
		527.0 -> 81.0			
PFMBA	-	279.0 -> 85.0	-	N.D.	
PFEESA	-	315.0 -> 135.0	-	N.D.	
		315.0 -> 69.0			
NFDHA	-	201.0 -> 85.0	-	N.D.	
		295.0 -> 201.0			
PFBA	-	213.0 -> 169.0	-	N.D.	
PFBS	-	299.0 -> 80.0	-	N.D.	
		299.0 -> 99.0			
PFDA	-	513.0 -> 469.0	-	N.D.	
		513.0 -> 219.0			
PFDoDA	-	613.0 -> 569.0	-	N.D.	
		613.0 -> 169.0			
PFHpA	-	363.0 -> 319.0	-	N.D.	
		363.0 -> 169.0			
PFHpS	-	449.0 -> 80.0	-	N.D.	
		449.0 -> 99.0			
PFHxA	-	313.0 -> 269.0	-	N.D.	
		313.0 -> 119.0			
PFHxS	-	399.0 -> 80.0	-	N.D.	
		399.0 -> 99.0			
PFNA	-	463.0 -> 419.0	-	N.D.	
		463.0 -> 219.0			
PFOA	-	413.0 -> 369.0	-	N.D.	
		413.0 -> 169.0			
PFOS	-	499.0 -> 80.0	-	N.D.	
		499.0 -> 99.0			
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFPeS	-	349.0 -> 80.0	-	N.D.	
		349.0 -> 99.0			
PFUnDA	-	563.0 -> 519.0	-	N.D.	
		563.0 -> 269.0			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
		631.0 -> 83.0			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
		531.0 -> 83.0			
ADONA	-	377.0 -> 251.0	-	N.D.	
		377.0 -> 85.0			
HFPO-DA	-	329.0 -> 169.0	-	N.D.	
		285.0 -> 169.0			

 # = Qualifier out of range, m = manually integrated, + = Area summed

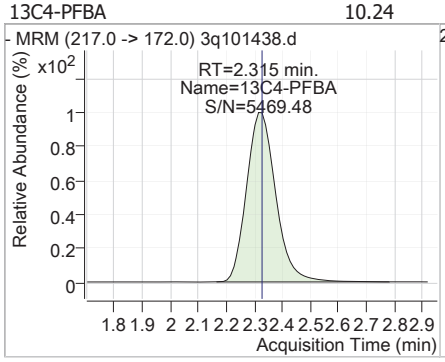
Perfluorinated Compounds by LC/MS/MS

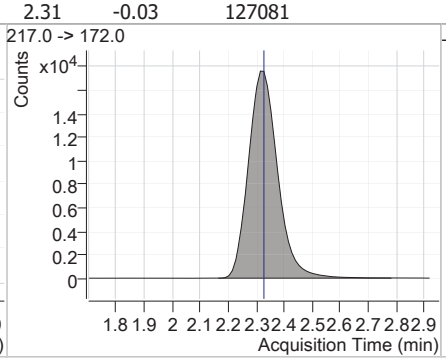
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

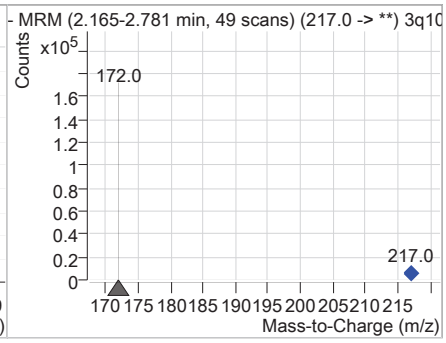
Perfluorinated Compounds by LC/MS/MS



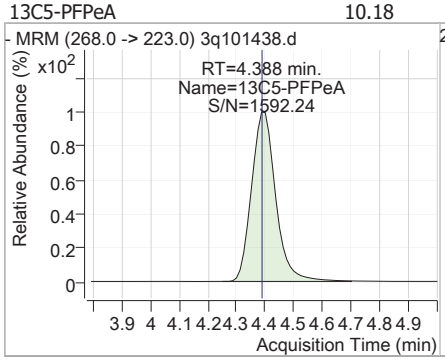
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.24	2.31	-0.03	127081				

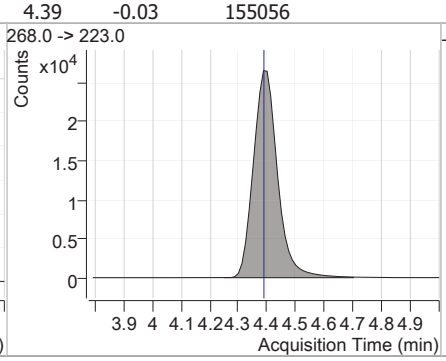


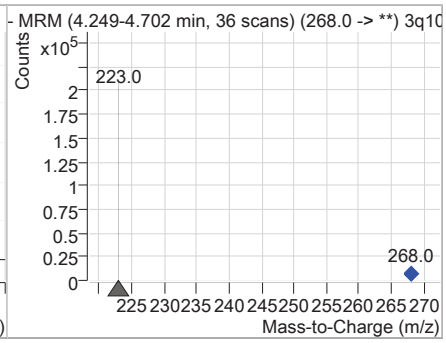




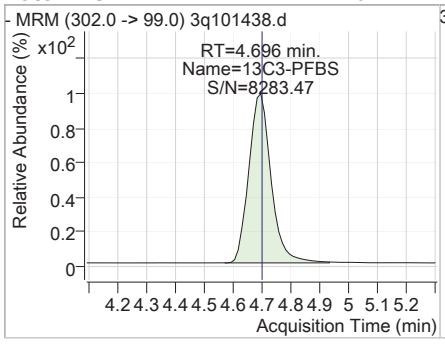
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.18	4.39	-0.03	155056				

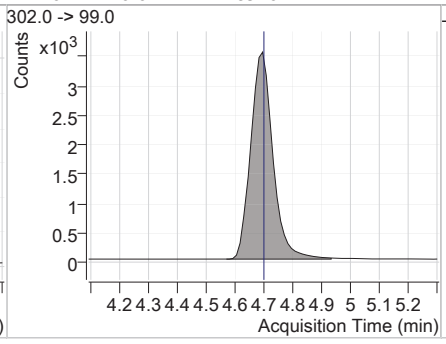


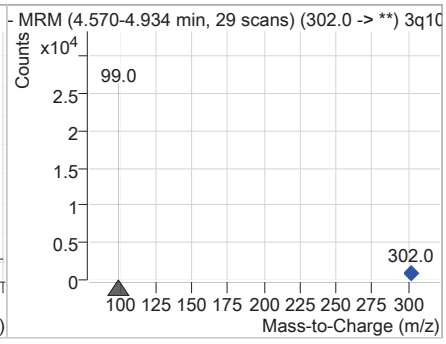




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.11	4.70	-0.01	18910				





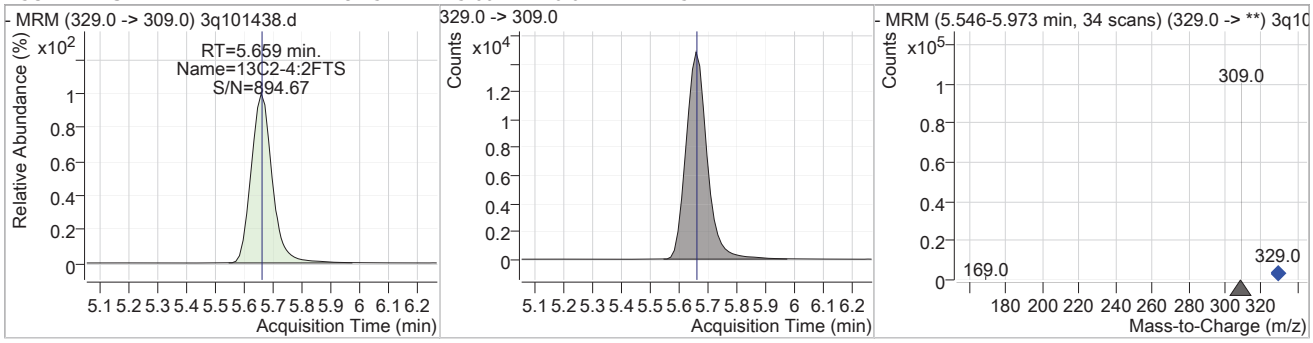


7.2.2

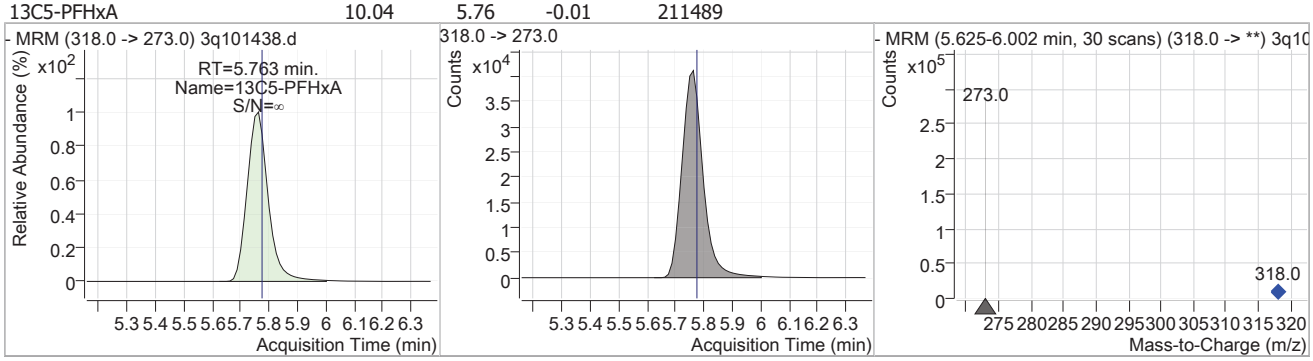
7

Perfluorinated Compounds by LC/MS/MS

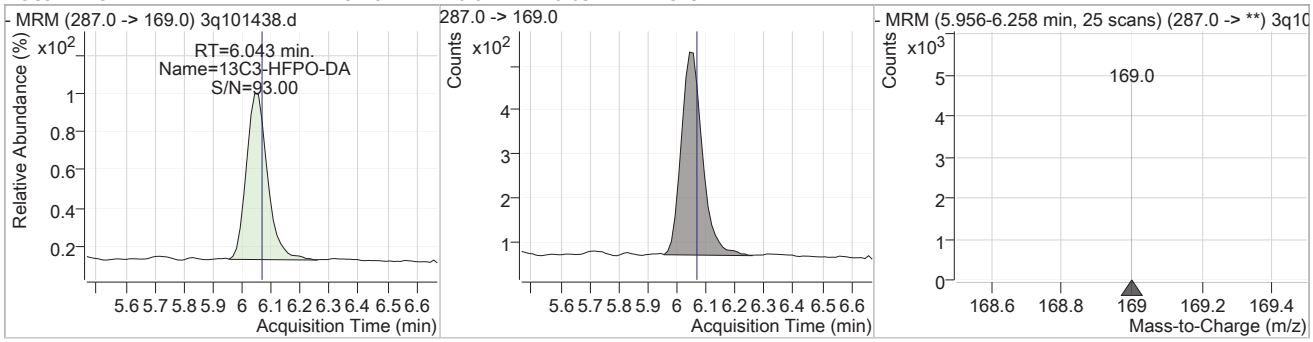
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	9.43	5.66	-0.01	74571				



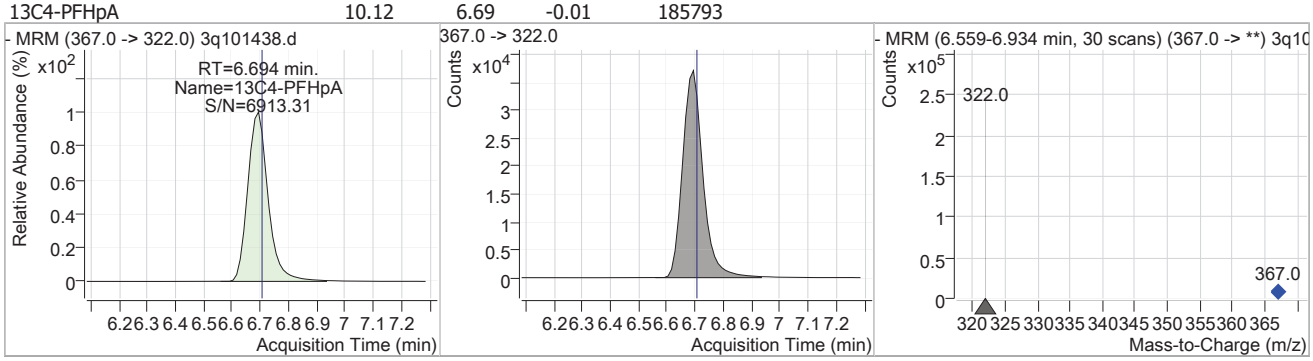
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.04	5.76	-0.01	211489				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.16	6.04	-0.03	2349				

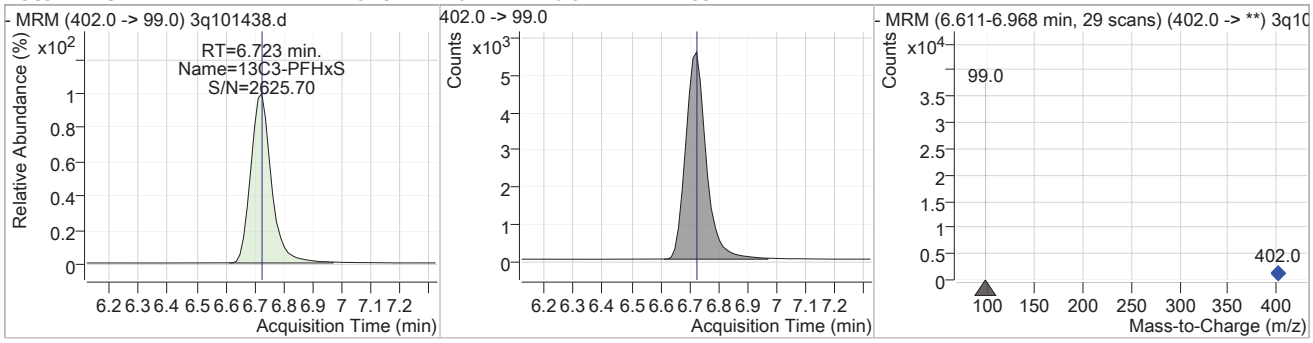


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.12	6.69	-0.01	185793				

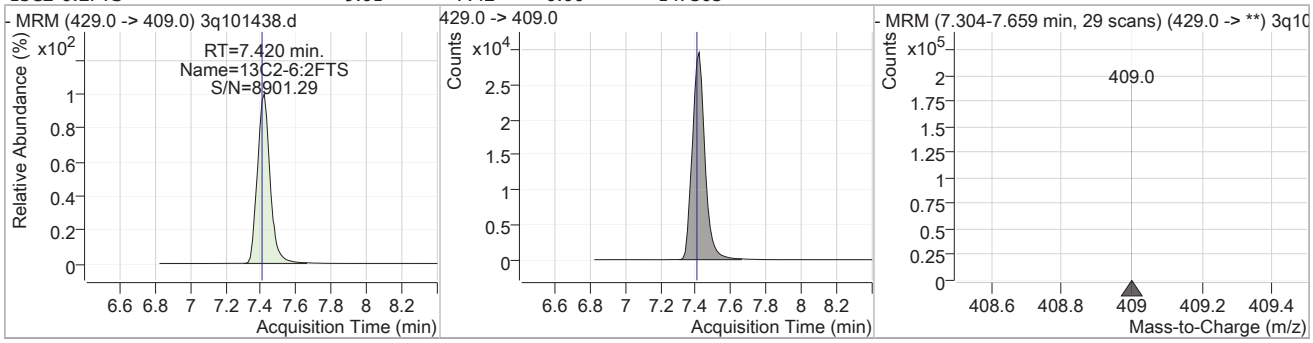


Perfluorinated Compounds by LC/MS/MS

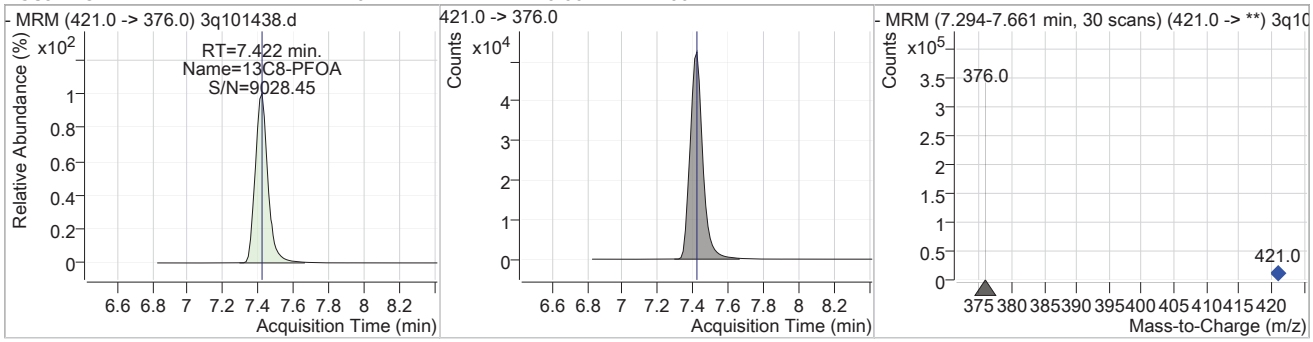
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.19	6.72	-0.01	27455				



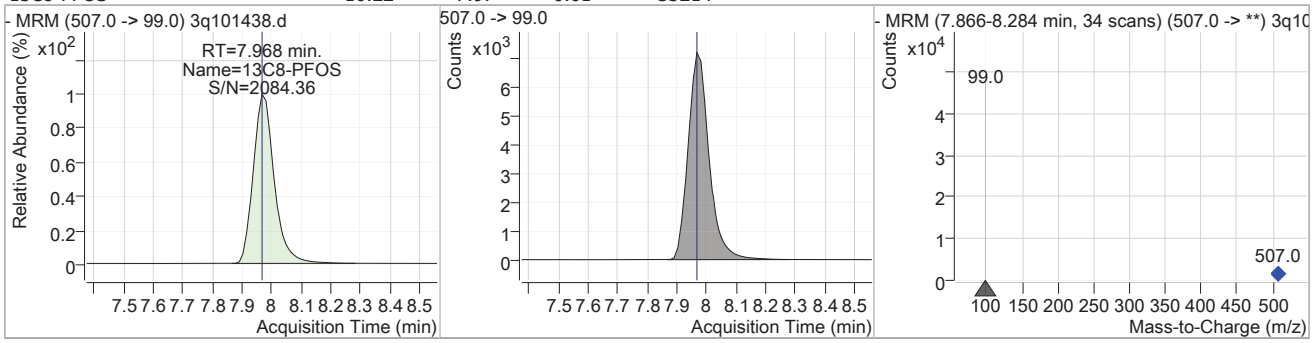
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	9.61	7.42	0.00	147305				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.24	7.42	0.00	260411				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.22	7.97	-0.01	35214				

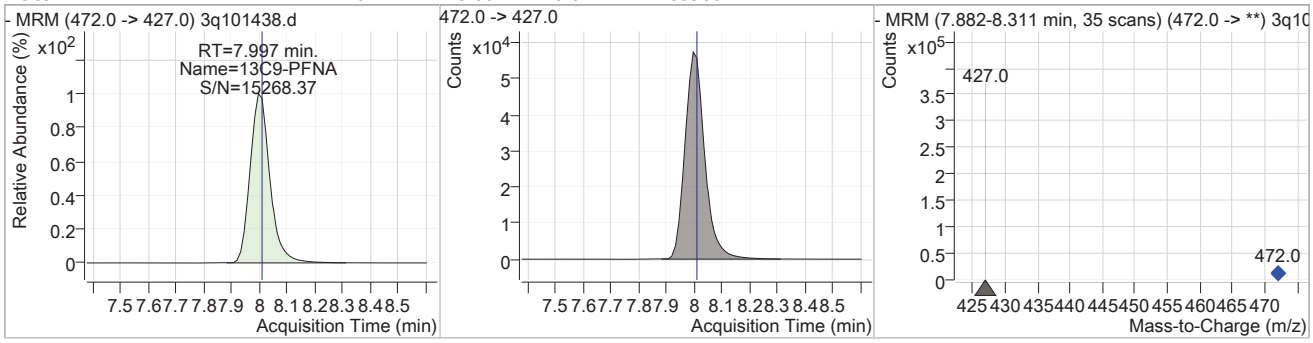


7.2.2

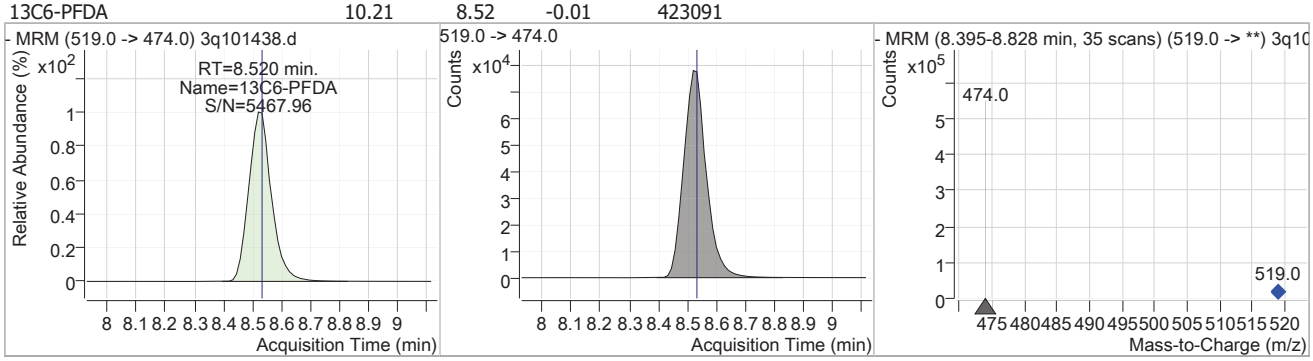
7

Perfluorinated Compounds by LC/MS/MS

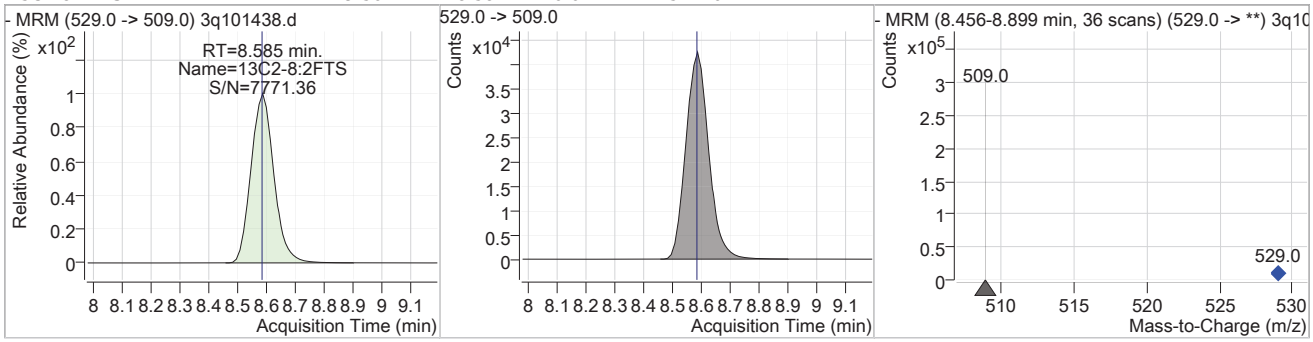
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.22	8.00	-0.01	283905				



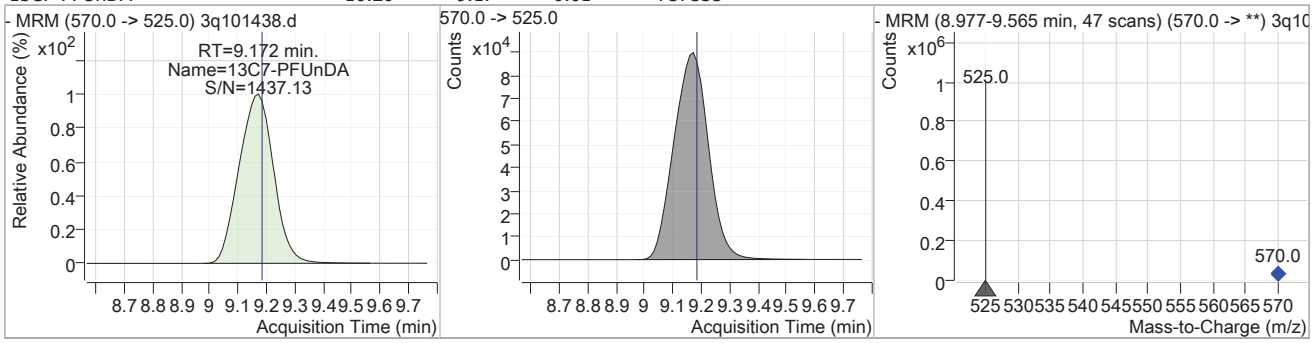
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	10.21	8.52	-0.01	423091				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	9.50	8.58	-0.01	234476				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	10.20	9.17	-0.01	757535				

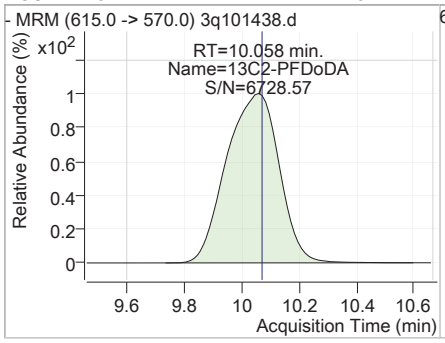


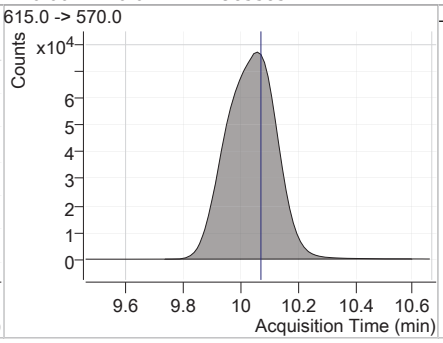
7.2.2

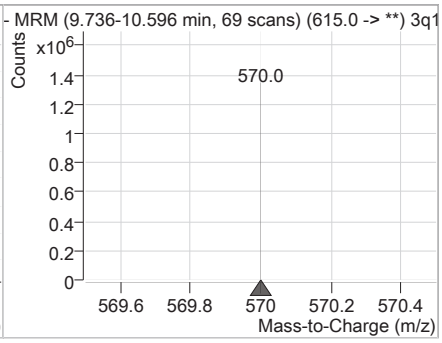
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.24	10.06	-0.01	985585				







7.2.2

7

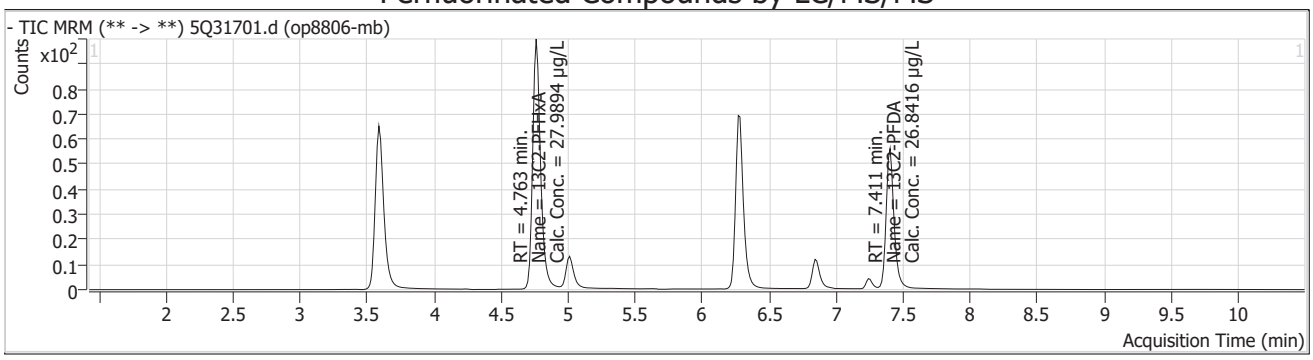
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31701.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/11/2025 3:01:57 PM
Sample Name : op8806-mb
Vial : P2-A2
DA Method File : 537_041125_S5Q519.quantmethod
Batch Name : s5q519.batch.bin
Sample Information : OP8806,S5Q519,250,,,1,1,water

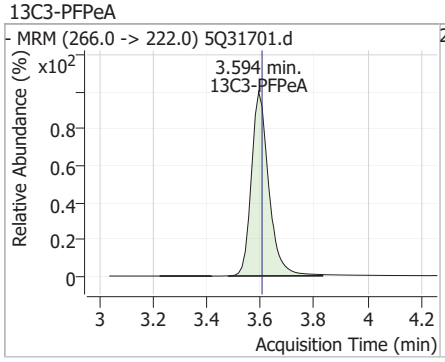
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	165164	20.00	µg/L		-0.012
13C2-PFOA	6.289	415.0 -> 370.0	462543	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	641019	20.00	µg/L		-0.012
13C4-PFOS	6.847	503.0 -> 80.0	102238	20.00	µg/L		-0.012
d3-MeFOSAA	7.242	573.0 -> 419.0	30528	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	476224	26.84	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 134.2%			
13C2-PFHxA	4.763	315.0 -> 270.0	900407	27.99	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 139.9%			
d5-EtFOSAA	7.378	589.0 -> 419.0	28570	54.55	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 136.4%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	111679	54.64	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 136.6%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	-	363.0 -> 319.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	-	413.0 -> 369.0	-	N.D.			
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	5.434	285.0 -> 169.0	0		µg/L	m	1

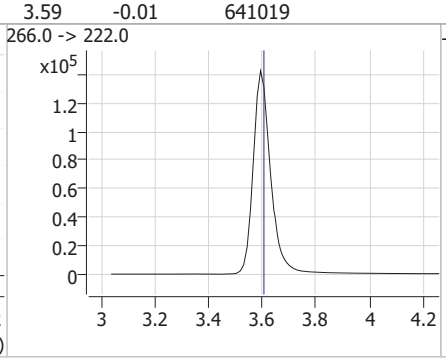
 # = Qualifier out of range, m = manually integrated, + = Area summed

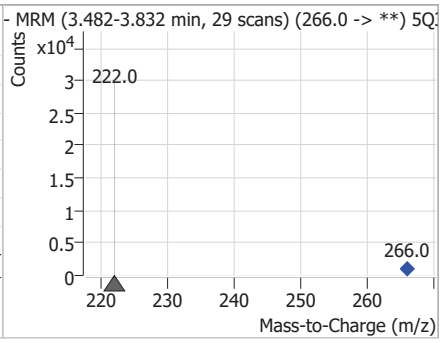
Perfluorinated Compounds by LC/MS/MS



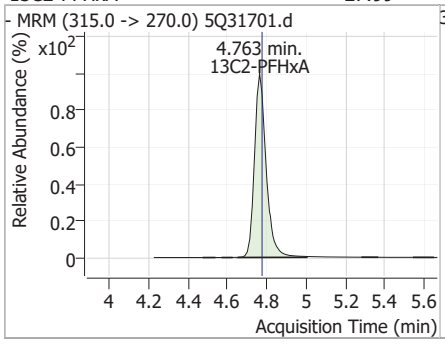
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	641019				

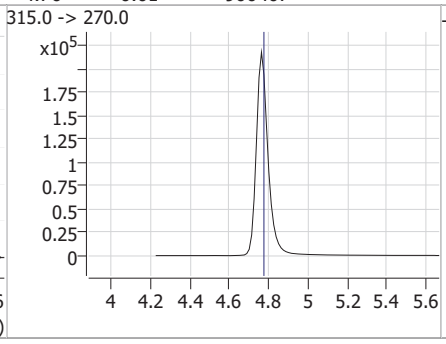


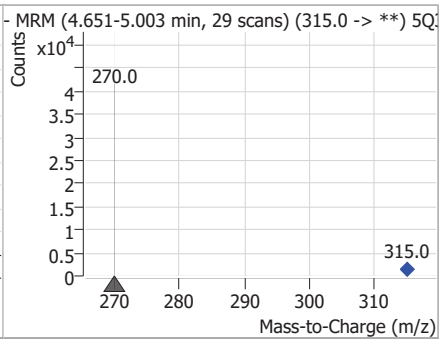




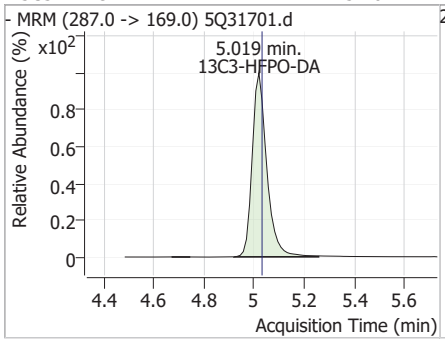
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	27.99	4.76	-0.01	900407				

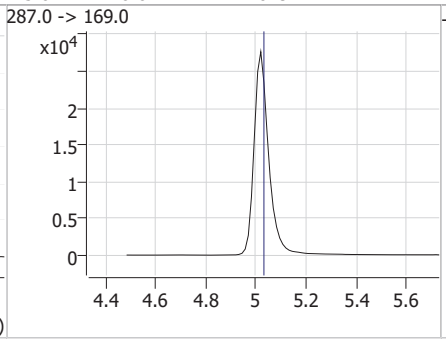


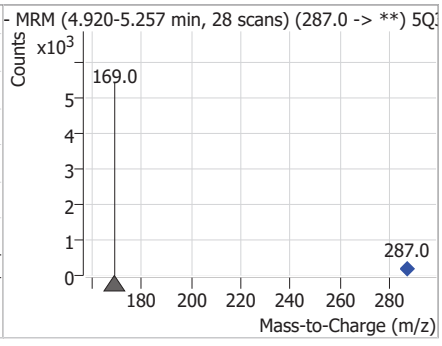




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	54.64	5.02	-0.01	111679				

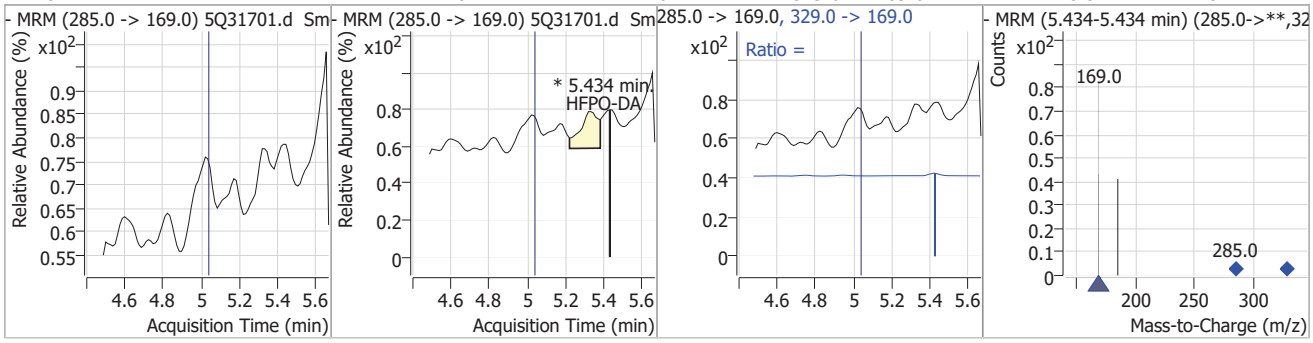




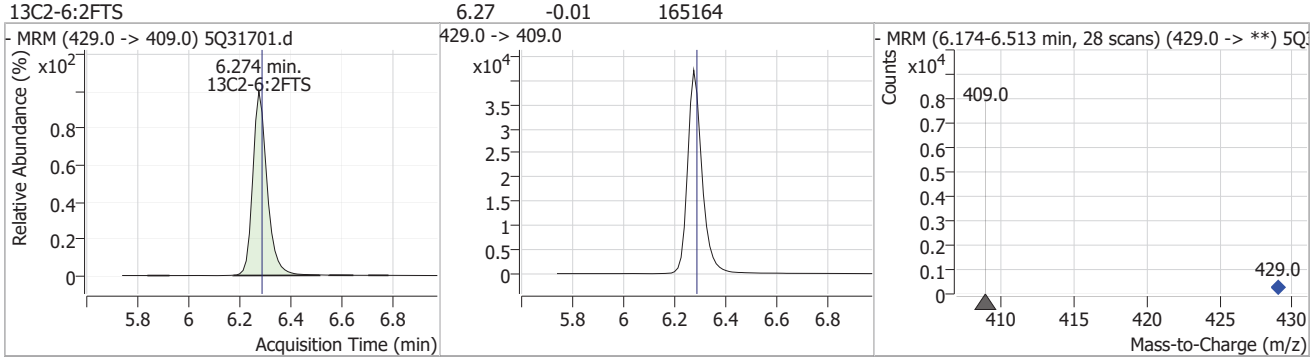


Perfluorinated Compounds by LC/MS/MS

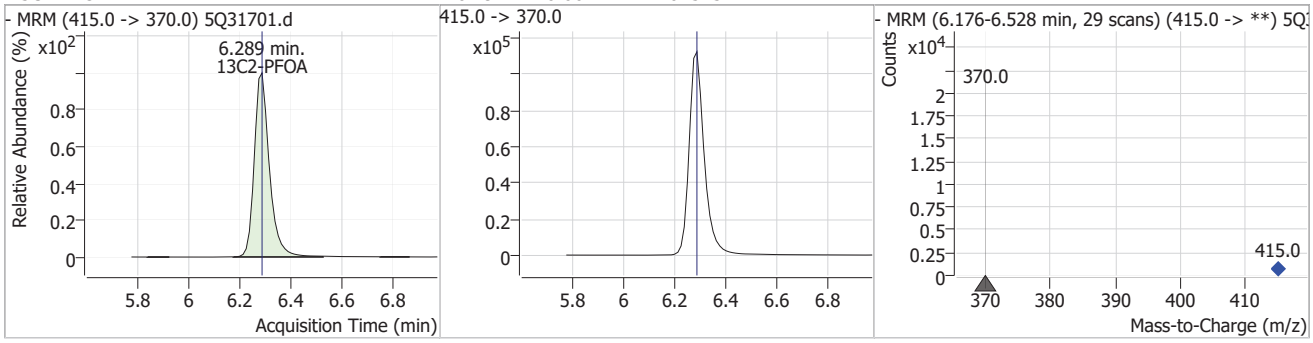
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA		0		0	329.0 -> 169.0		0.3	1.0



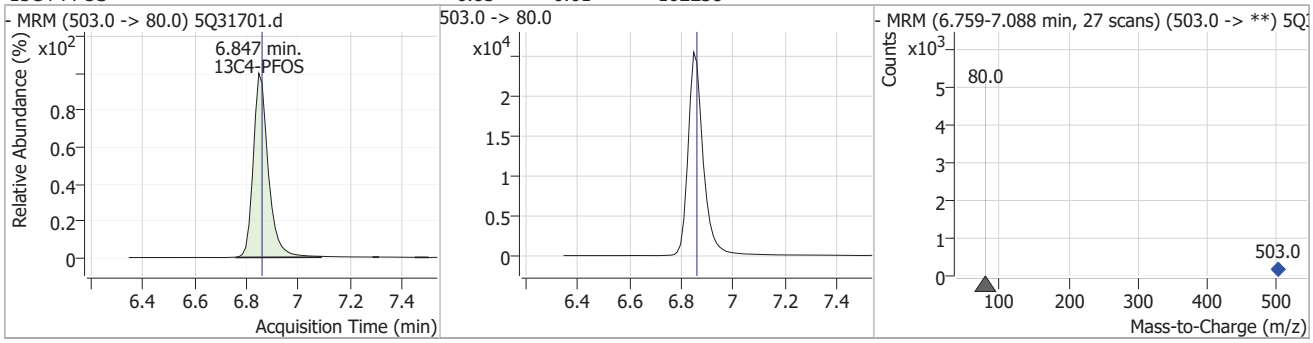
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	165164				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	462543				

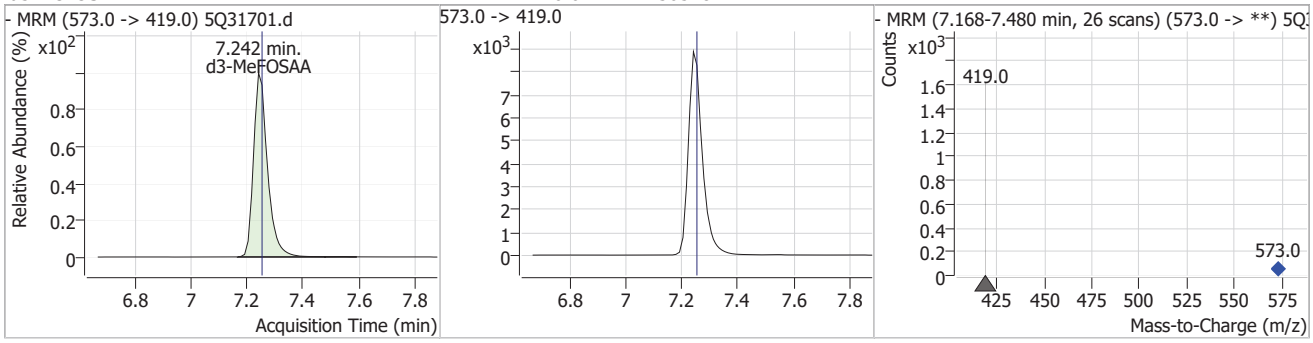


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.85	-0.01	102238				

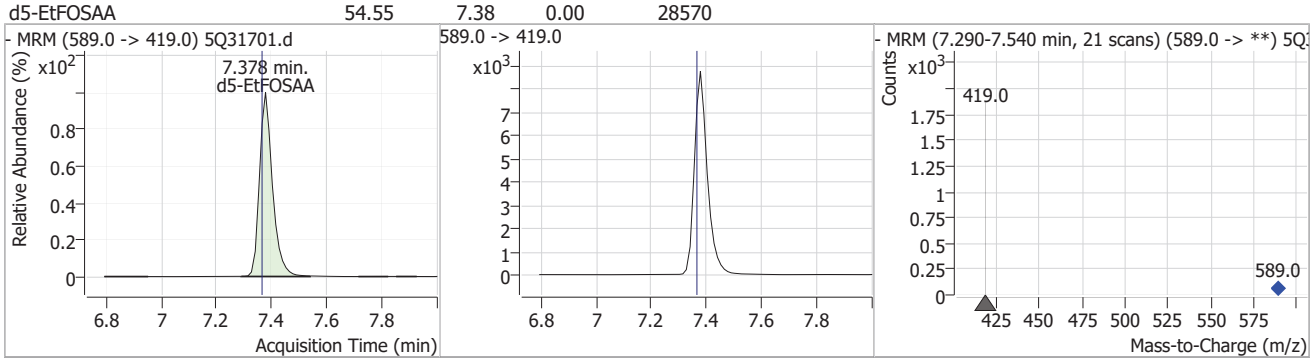


Perfluorinated Compounds by LC/MS/MS

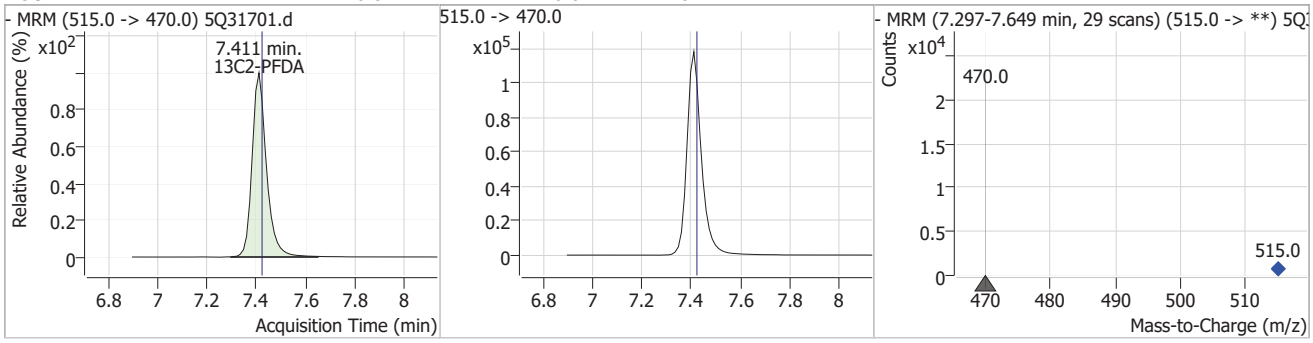
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	30528				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	54.55	7.38	0.00	28570				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	26.84	7.41	-0.01	476224				



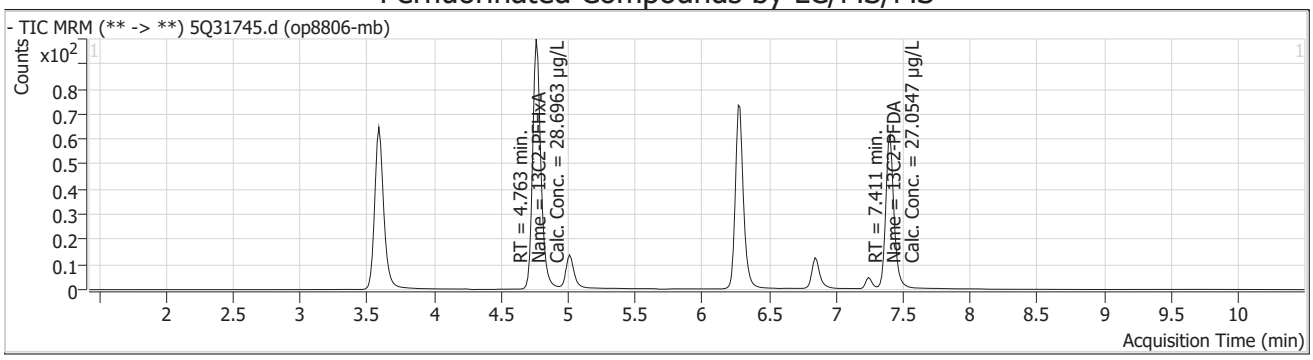
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31745.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/14/2025 2:18:45 PM
Sample Name : op8806-mb
Vial : P2-A2
DA Method File : 537_041425_S5Q520.quantmethod
Batch Name : s5q520.batch.bin
Sample Information : OP8806,S5Q520,250,,,1,1,water

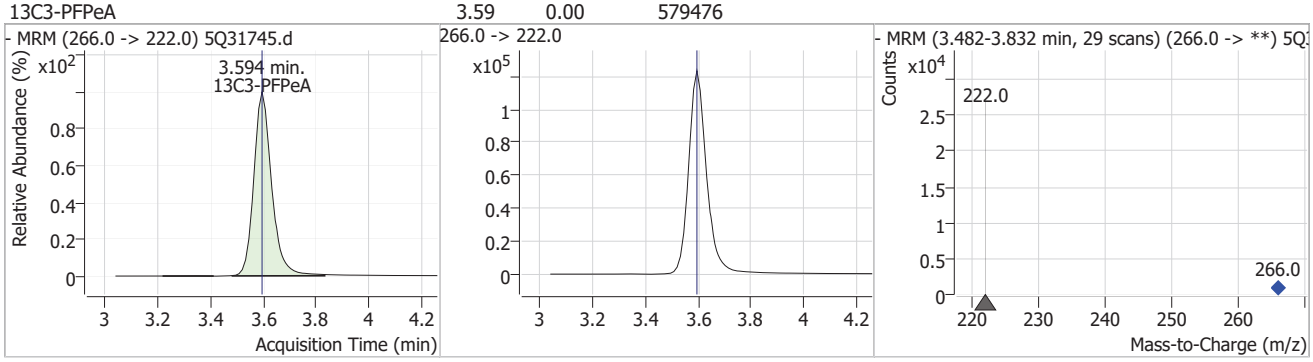
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	170499	20.00	µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	427221	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	579476	20.00	µg/L		0.000
13C4-PFOS	6.847	503.0 -> 80.0	97548	20.00	µg/L		-0.012
d3-MeFOSAA	7.242	573.0 -> 419.0	29607	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	472882	27.05	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 135.3%			
13C2-PFHxA	4.763	315.0 -> 270.0	820458	28.70	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 143.5%			
d5-EtFOSAA	7.378	589.0 -> 419.0	31032	55.14	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 137.9%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	105878	54.81	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 137.0%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	-	363.0 -> 319.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	-	413.0 -> 369.0	-	N.D.			
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	5.508	285.0 -> 169.0	0		µg/L	m	1

 # = Qualifier out of range, m = manually integrated, + = Area summed

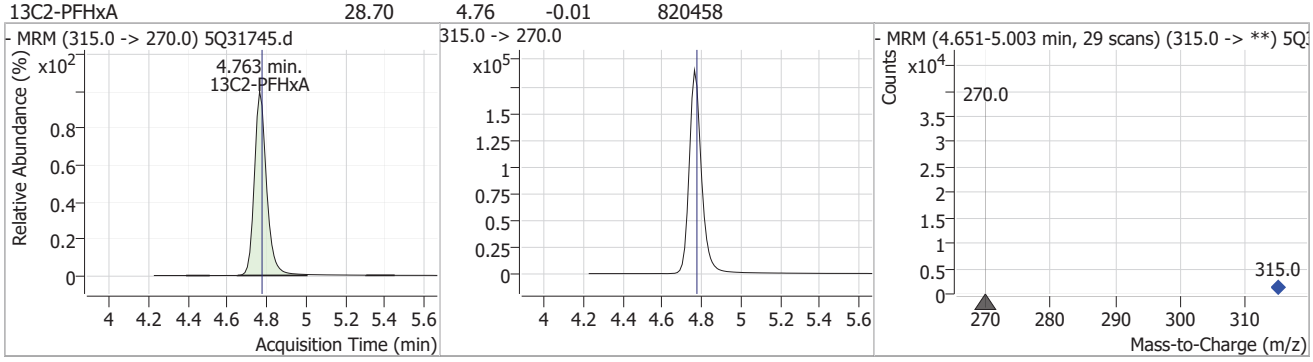
Perfluorinated Compounds by LC/MS/MS



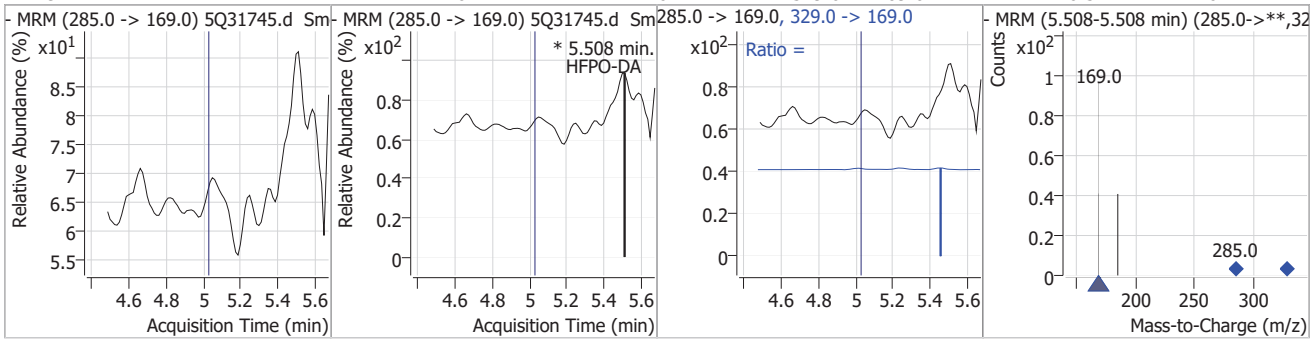
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	579476				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	28.70	4.76	-0.01	820458				

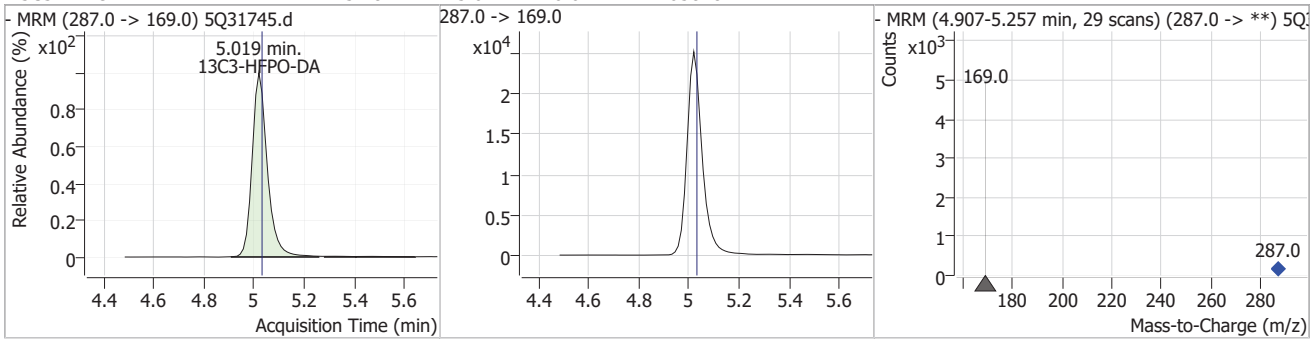


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA		0		0	329.0 -> 169.0		0.3	1.0

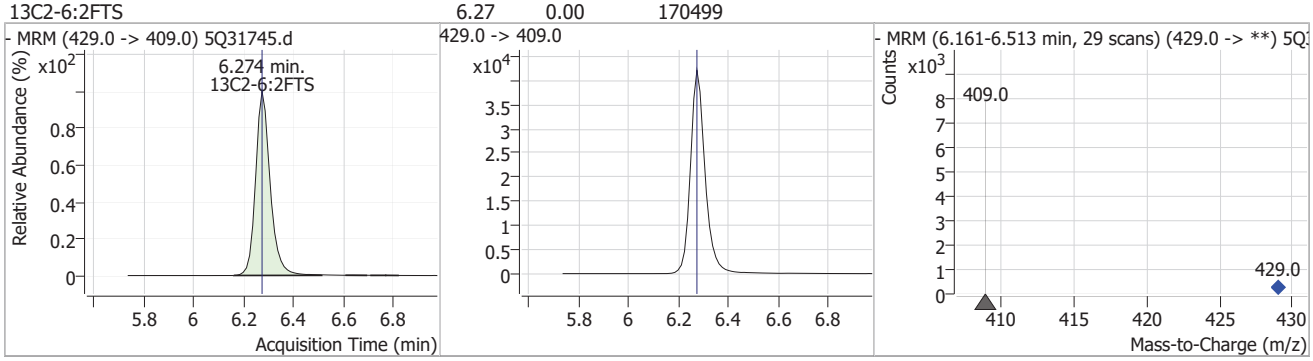


Perfluorinated Compounds by LC/MS/MS

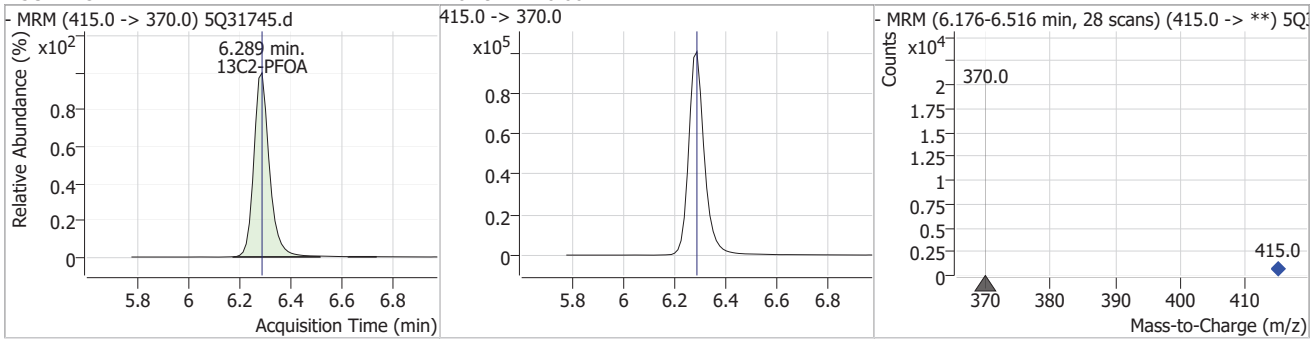
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	54.81	5.02	-0.01	105878				



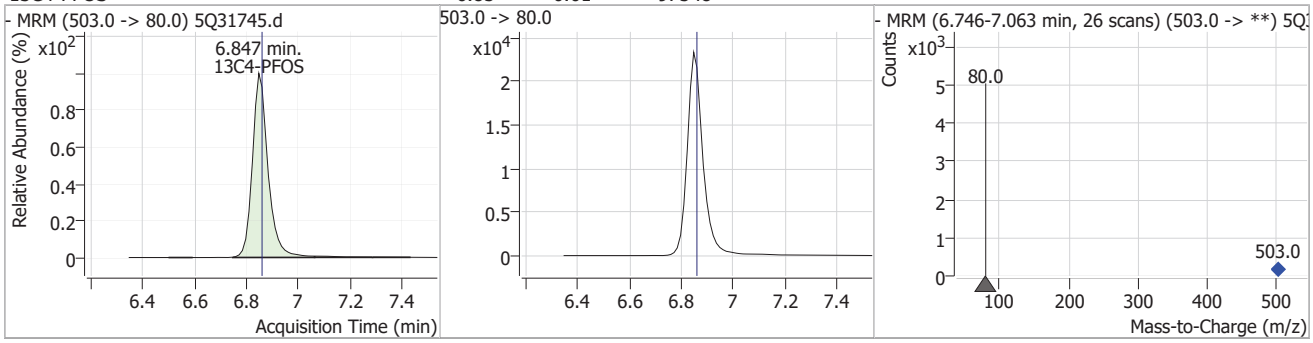
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	0.00	170499				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	427221				

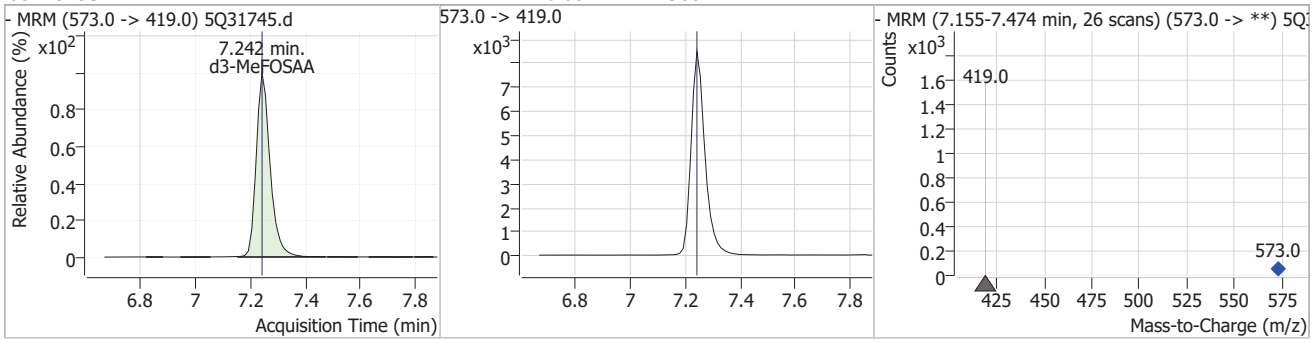


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.85	-0.01	97548				

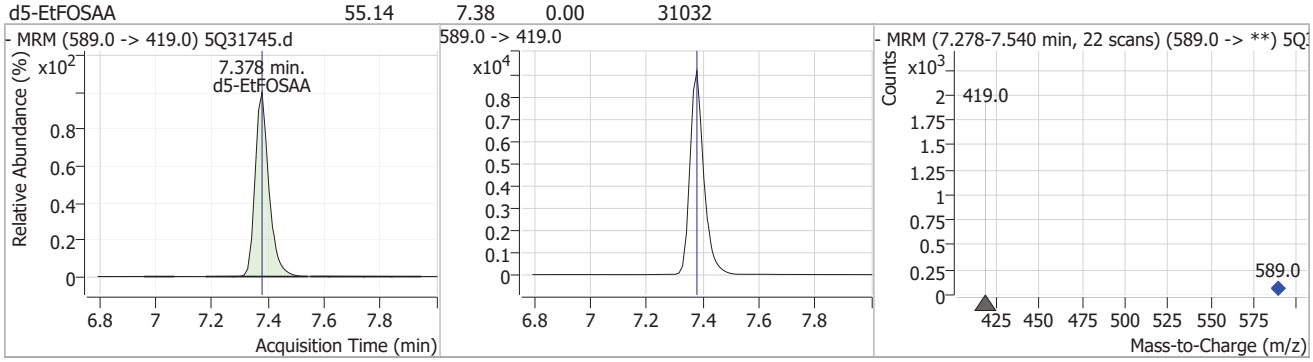


Perfluorinated Compounds by LC/MS/MS

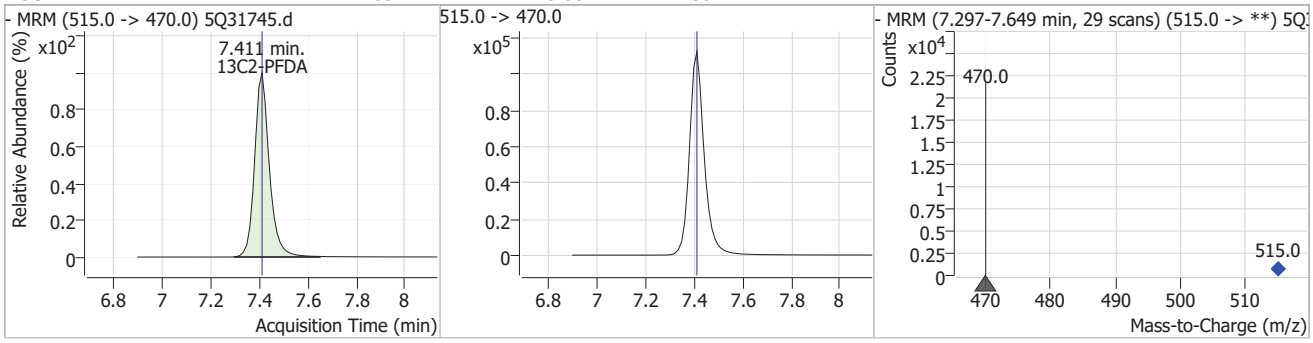
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	29607				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	55.14	7.38	0.00	31032				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	27.05	7.41	0.00	472882				



7.2.4

7

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/14/25 12:44

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101443.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/11/2025 7:11:49 PM
Sample Name : op8808-bs
Vial : P3-A1
DA Method File : 533_041125_S3Q1491.quantmethod.xml
Batch Name : s3q1491.batch.bin
Sample Information : op8808,S3Q1491,250,,,1,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	7.422	415.0 -> 370.0	216039	10.00	µg/L	0.000
13C3-PFBA	2.294	216.0 -> 172.0	73375	10.00	µg/L	-0.038
13C4-PFOS	7.983	503.0 -> 80.0	30409	10.00	µg/L	0.000
M4-PFBA	2.302	217.0 -> 172.0	88234	10.00	µg/L	-0.038
M5-PFPeA	4.400	268.0 -> 223.0	109496	10.00	µg/L	-0.013
M5-PFHxA	5.763	318.0 -> 273.0	147989	10.00	µg/L	-0.013
M4-PFHpA	6.694	367.0 -> 322.0	129450	10.00	µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	175014	10.00	µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	188522	10.00	µg/L	0.000
M6-PFDA	8.533	519.0 -> 474.0	281311	10.00	µg/L	0.000
M7-PFUnDA	9.172	570.0 -> 525.0	462440	10.00	µg/L	-0.013
M2-PFDoDA	10.058	615.0 -> 570.0	557351	10.00	µg/L	-0.013
M3-PFBS	4.696	302.0 -> 99.0	13440	10.00	µg/L	-0.013
M3-PFHxS	6.723	402.0 -> 99.0	19286	10.00	µg/L	-0.013
M8-PFOS	7.982	507.0 -> 99.0	24334	10.00	µg/L	0.000
M2-4:2FTS	5.672	329.0 -> 309.0	58150	10.00	µg/L	0.000
M2-6:2FTS	7.420	429.0 -> 409.0	110694	10.00	µg/L	0.000
M2-8:2FTS	8.585	529.0 -> 509.0	170212	10.00	µg/L	-0.013
M3-HFPO-DA	6.056	287.0 -> 169.0	2110	10.00	µg/L	-0.013
System Monitoring Compounds						
13C2-4:2FTS	5.672	329.0 -> 309.0	58150	7.46	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 74.6%		
13C2-6:2FTS	7.420	429.0 -> 409.0	110694	7.33	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 73.3%		
13C2-8:2FTS	8.585	529.0 -> 509.0	170212	6.99	µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 69.9%		
13C2-PFDoDA	10.058	615.0 -> 570.0	557351	5.89	µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 58.9%		
13C3-PFBS	4.696	302.0 -> 99.0	13440	7.29	µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 72.9%		
13C3-PFHxS	6.723	402.0 -> 99.0	19286	7.26	µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 72.6%		
13C4-PFBA	2.302	217.0 -> 172.0	88234	7.03	µg/L	-0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 70.3%		
13C4-PFHpA	6.694	367.0 -> 322.0	129450	7.17	µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 71.7%		
13C5-PFHxA	5.763	318.0 -> 273.0	147989	7.15	µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 71.5%		
13C5-PFPeA	4.400	268.0 -> 223.0	109496	7.11	µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 71.1%		
13C6-PFDA	8.533	519.0 -> 474.0	281311	6.91	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 69.1%		
13C7-PFUnDA	9.172	570.0 -> 525.0	462440	6.34	µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 63.4%		
13C8-PFOA	7.422	421.0 -> 376.0	175014	7.00	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

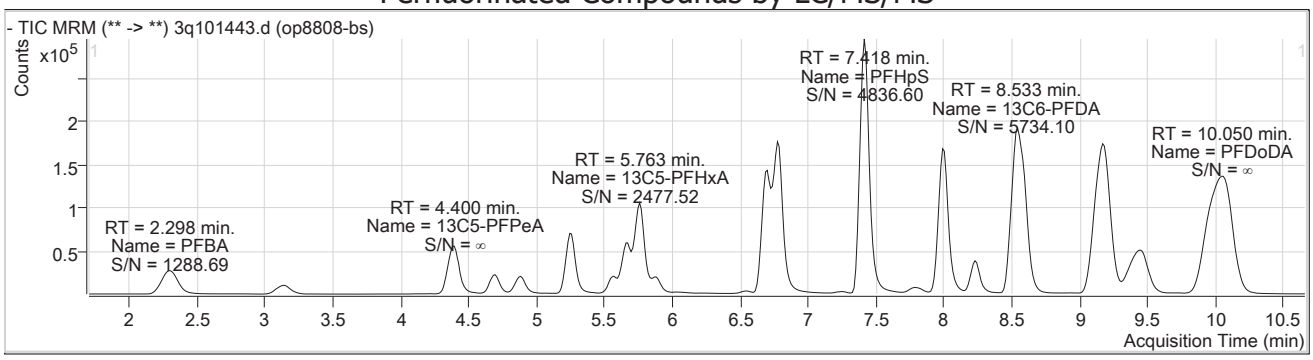
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 70.0%		
13C8-PFOS	7.982	507.0 -> 99.0	24334	7.16 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 71.6%		
13C9-PFNA	8.010	472.0 -> 427.0	188522	6.91 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 69.1%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	2110	8.37 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 83.7%		
Target Compounds						QValue
PFMPA	3.128	229.0 -> 85.0	77447	23.26 µg/L		100
4:2FTS	5.661	327.0 -> 307.0	167854	23.80 µg/L		86
		327.0 -> 81.0	68594			
6:2FTS	7.420	427.0 -> 407.0	228741	23.66 µg/L		95
		427.0 -> 81.0	94968			
8:2FTS	8.586	527.0 -> 507.0	349707	23.89 µg/L		97
		527.0 -> 81.0	128921			
PFMBA	4.888	279.0 -> 85.0	109544	22.99 µg/L		100
PFEESA	5.247	315.0 -> 135.0	334408	22.90 µg/L		98
		315.0 -> 69.0	25231			
NFDHA	5.569	201.0 -> 85.0	94761	22.81 µg/L		98
		295.0 -> 201.0	6576			
PFBA	2.298	213.0 -> 169.0	67876	23.29 µg/L		100
PFBS	4.697	299.0 -> 80.0	72827	22.76 µg/L		92
		299.0 -> 99.0	31438			
PFDA	8.534	513.0 -> 469.0	430006	22.92 µg/L		96
		513.0 -> 219.0	91825			
PFDoDA	10.050	613.0 -> 569.0	1078125	24.15 µg/L		99
		613.0 -> 169.0	101475			
PFHpA	6.695	363.0 -> 319.0	463527	22.75 µg/L		99
		363.0 -> 169.0	38624			
PFHpS	7.418	449.0 -> 80.0	99072	22.54 µg/L		94
		449.0 -> 99.0	55111			
PFHxA	5.765	313.0 -> 269.0	358150	22.95 µg/L		98
		313.0 -> 119.0	12605			
PFHxS	6.725	399.0 -> 80.0	95189	22.86 µg/L	m	94
		399.0 -> 99.0	49232			
PFNA	8.010	463.0 -> 419.0	404622	23.49 µg/L		98
		463.0 -> 219.0	113593			
PFOA	7.423	413.0 -> 369.0	354644	23.12 µg/L		99
		413.0 -> 169.0	128072			
PFOS	7.983	499.0 -> 80.0	106227	22.18 µg/L	m	83
		499.0 -> 99.0	53919			
PFPeA	4.402	263.0 -> 219.0	224873	22.99 µg/L		100
PFPeS	5.883	349.0 -> 80.0	53415	22.74 µg/L		96
		349.0 -> 99.0	22185			
PFUnDA	9.174	563.0 -> 519.0	847781	23.50 µg/L		96
		563.0 -> 269.0	148442			
11Cl-PF3OUdS	9.445	631.0 -> 451.0	461178	20.96 µg/L		100
		631.0 -> 83.0	21463			
9Cl-PF3ONS	8.229	531.0 -> 351.0	168458	22.25 µg/L		100
		531.0 -> 83.0	8773			
ADONA	6.792	377.0 -> 251.0	711155	22.72 µg/L		97
		377.0 -> 85.0	86964			
HFPO-DA	6.048	329.0 -> 169.0	1172	19.92 µg/L	#	9
		285.0 -> 169.0	2633			

 # = Qualifier out of range, m = manually integrated, + = Area summed

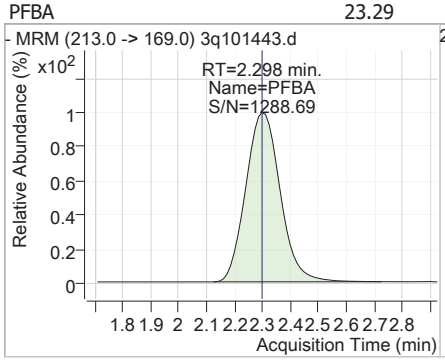
Perfluorinated Compounds by LC/MS/MS

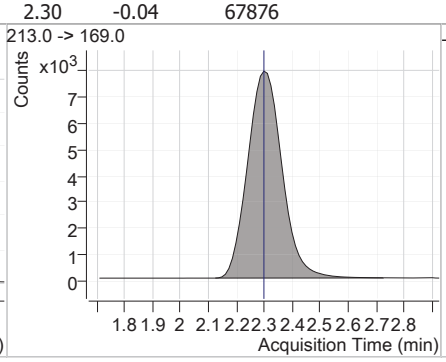
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

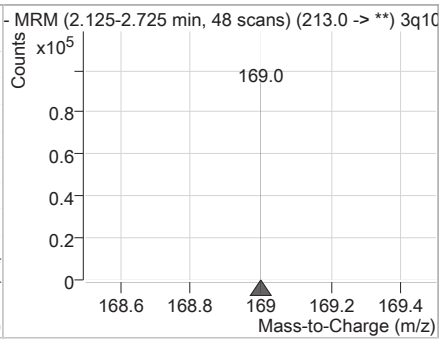
Perfluorinated Compounds by LC/MS/MS



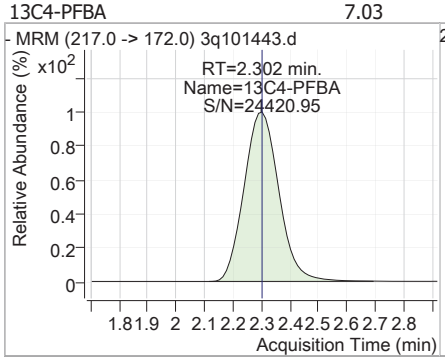
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	23.29	2.30	-0.04	67876				

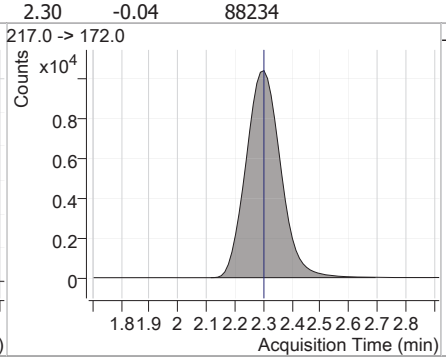


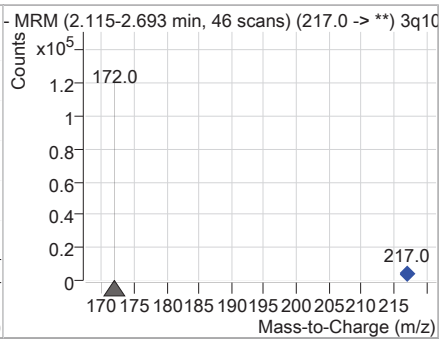




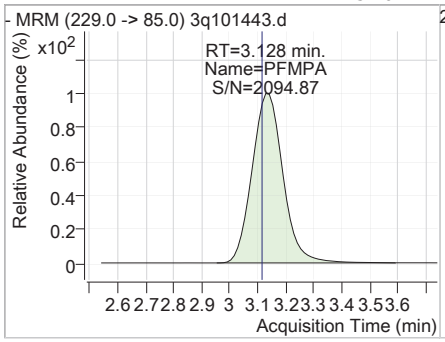
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	7.03	2.30	-0.04	88234				

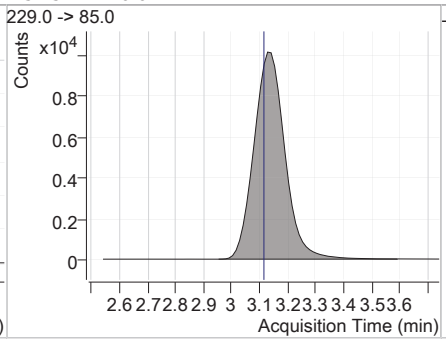


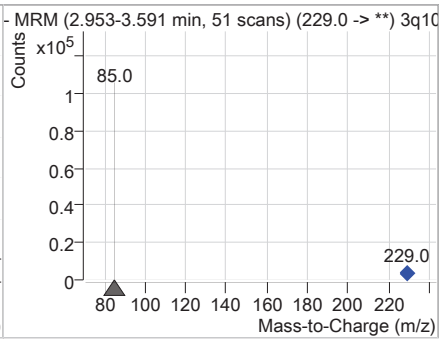




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	23.26	3.13	-0.04	77447				





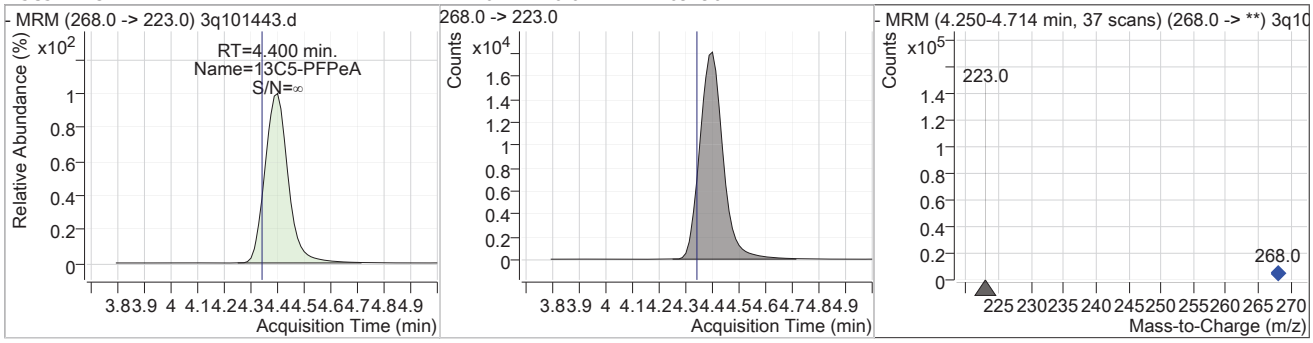


7.3.1

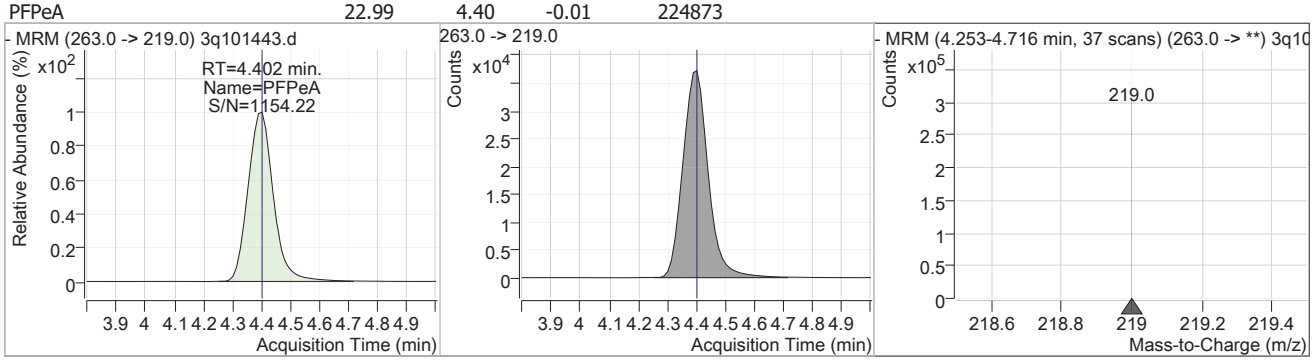
7

Perfluorinated Compounds by LC/MS/MS

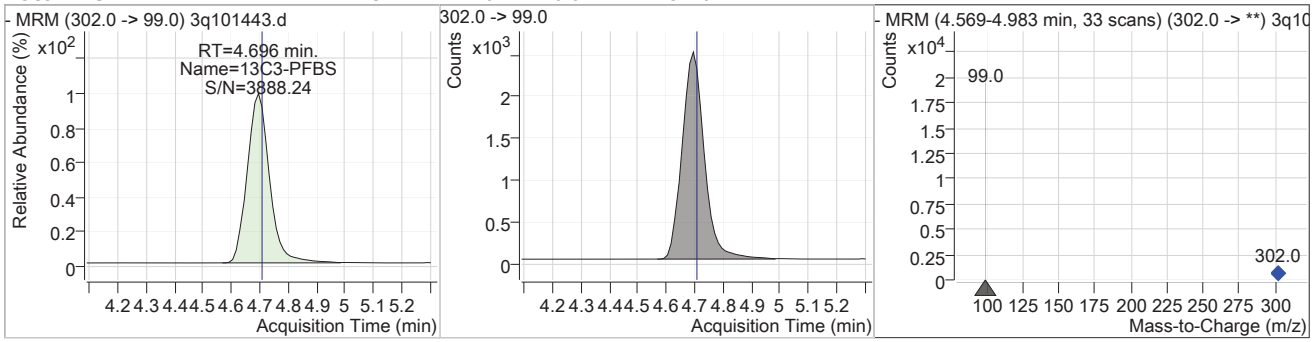
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	7.11	4.40	-0.01	109496				



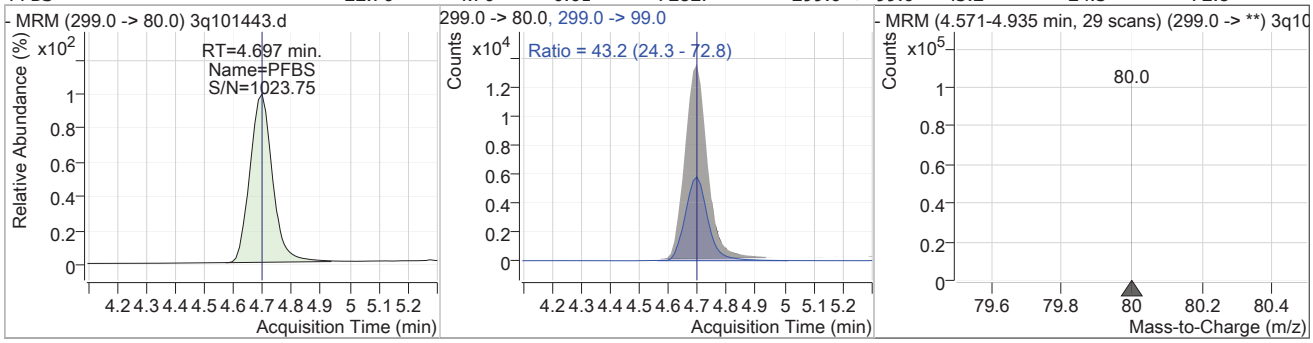
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	22.99	4.40	-0.01	224873				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	7.29	4.70	-0.01	13440				

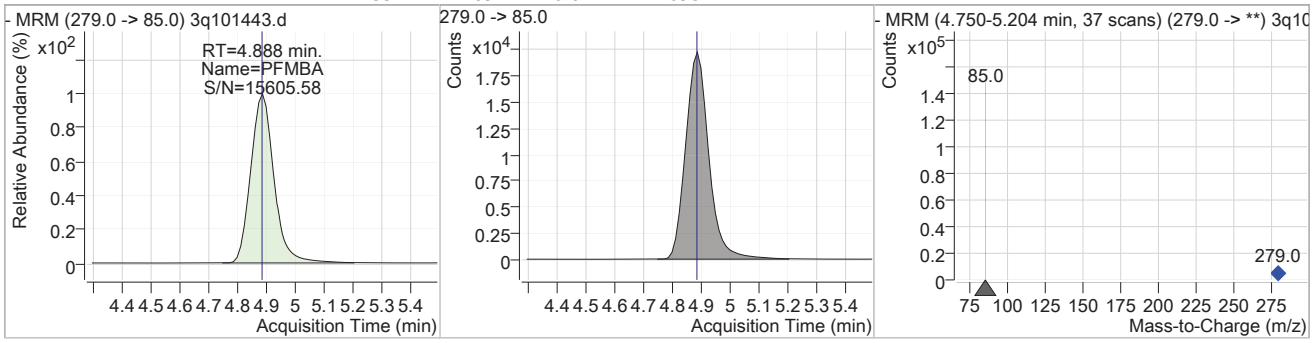


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	22.76	4.70	-0.01	72827	299.0 -> 99.0	43.2	24.3	72.8

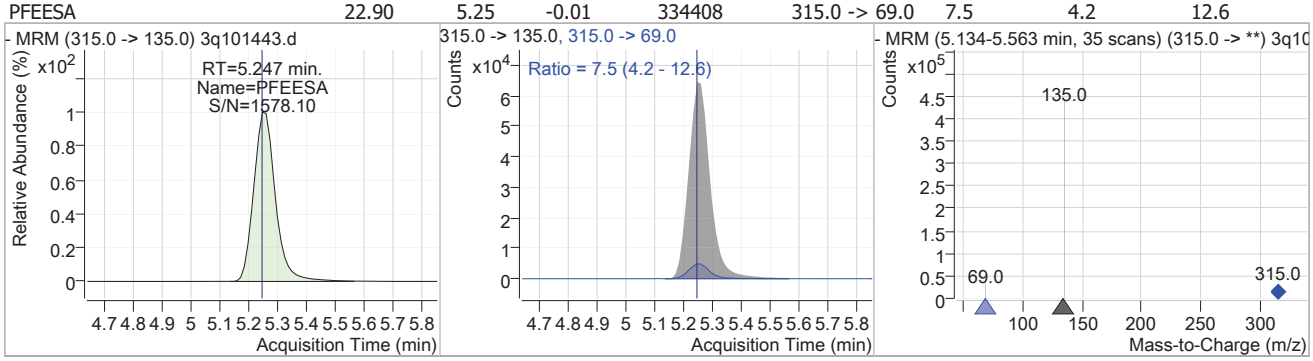


Perfluorinated Compounds by LC/MS/MS

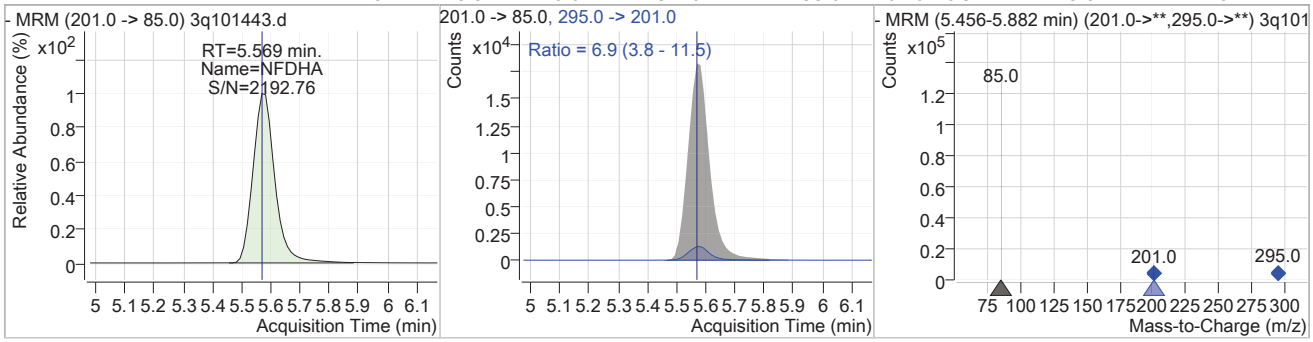
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	22.99	4.89	-0.01	109544				



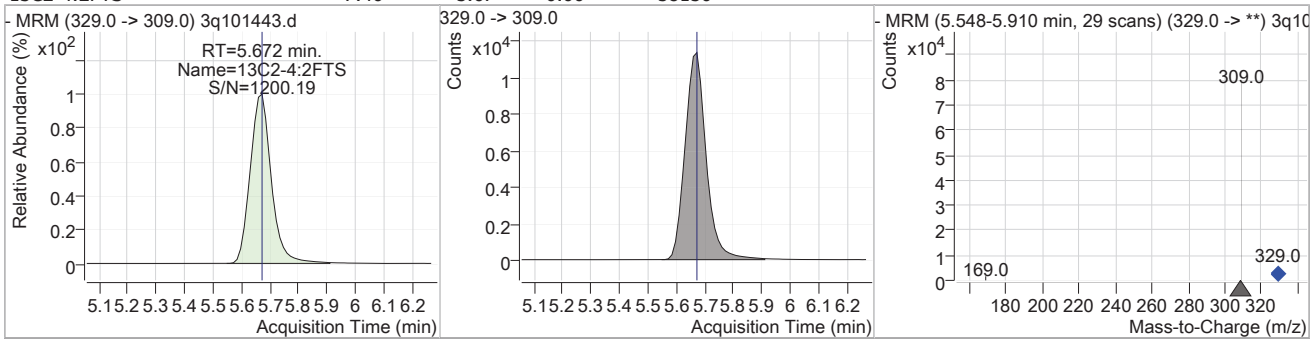
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	22.90	5.25	-0.01	334408	315.0 -> 69.0	7.5	4.2	12.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	22.81	5.57	-0.01	94761	295.0 -> 201.0	6.9	3.8	11.5

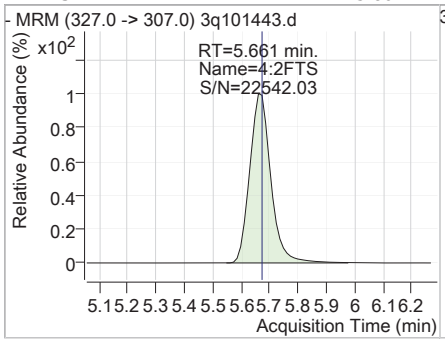


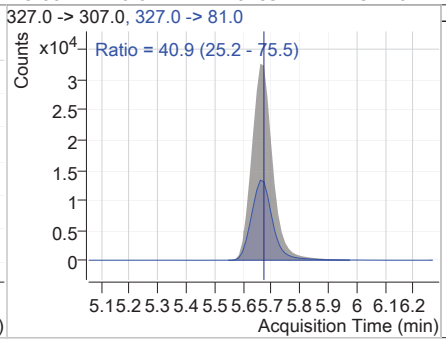
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	7.46	5.67	0.00	58150				

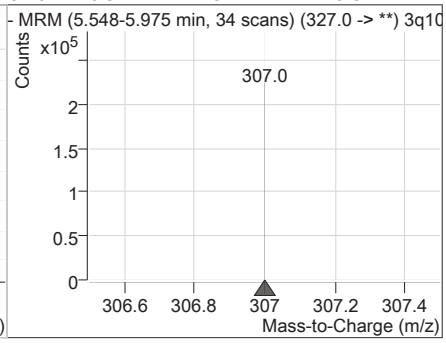


Perfluorinated Compounds by LC/MS/MS

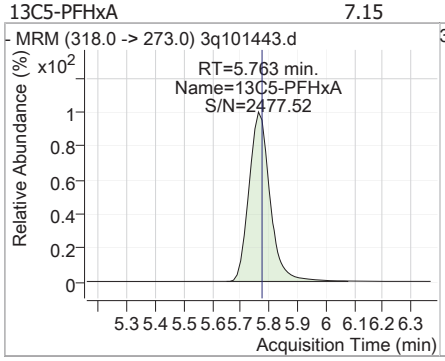
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	23.80	5.66	-0.01	167854	327.0 -> 81.0	40.9	25.2	75.5

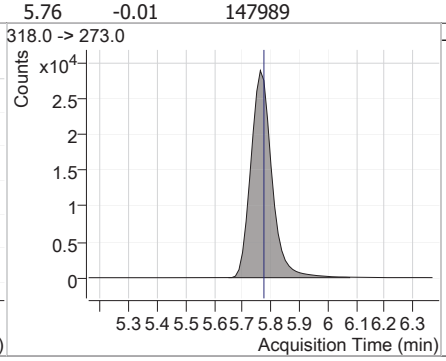


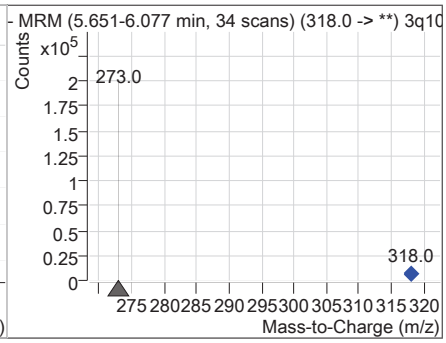




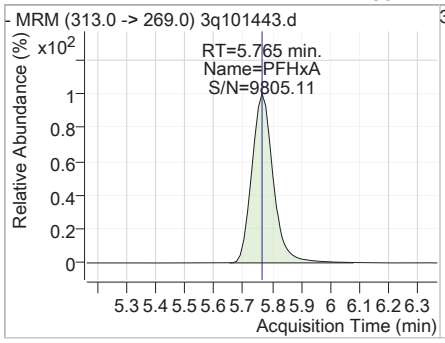
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	7.15	5.76	-0.01	147989				

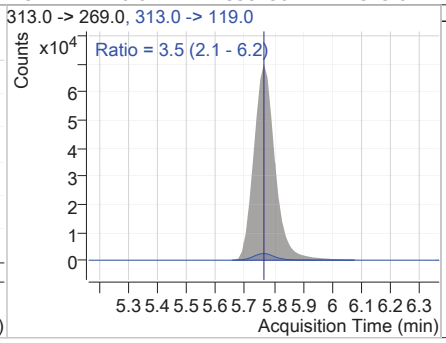


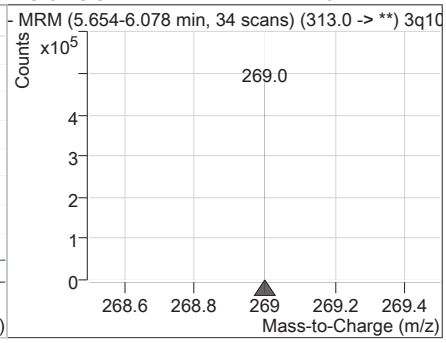




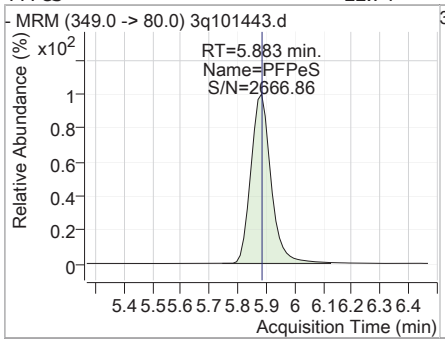
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	22.95	5.77	-0.01	358150	313.0 -> 119.0	3.5	2.1	6.2

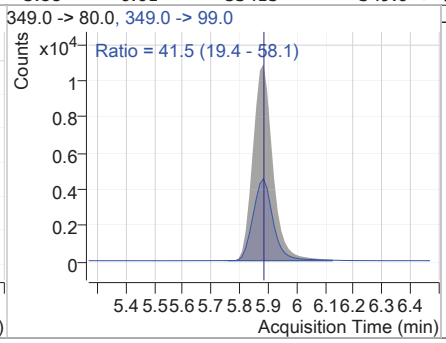


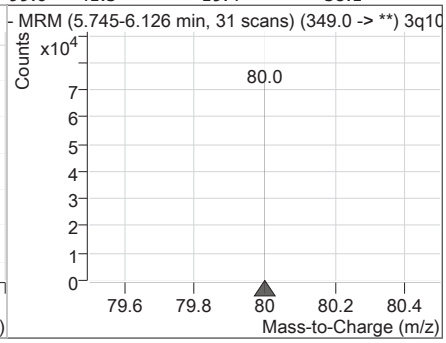




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	22.74	5.88	-0.01	53415	349.0 -> 99.0	41.5	19.4	58.1

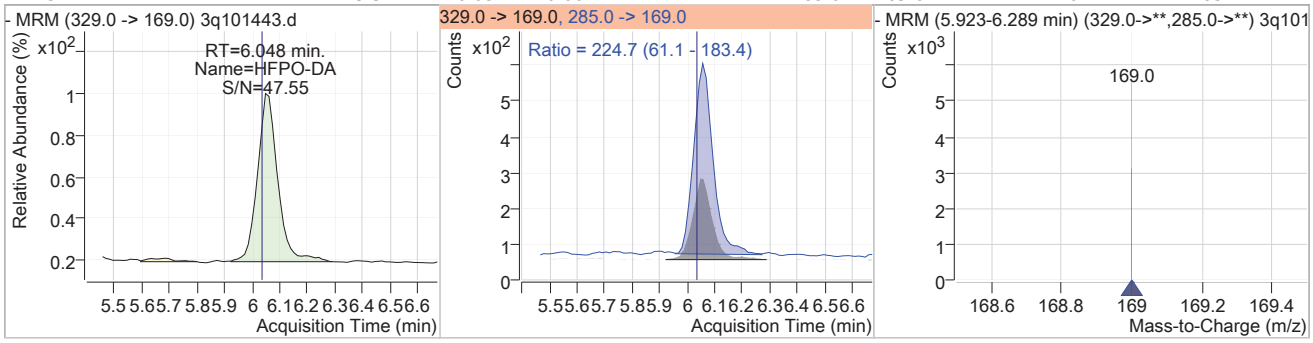




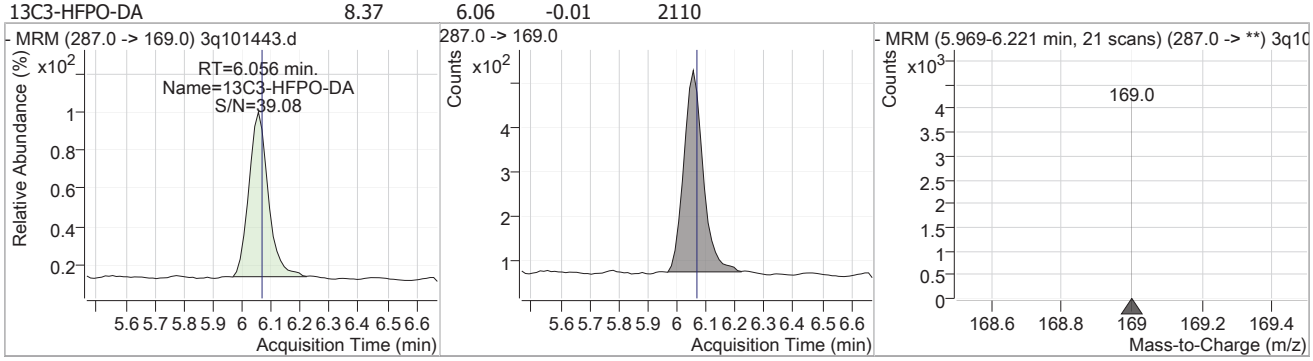


Perfluorinated Compounds by LC/MS/MS

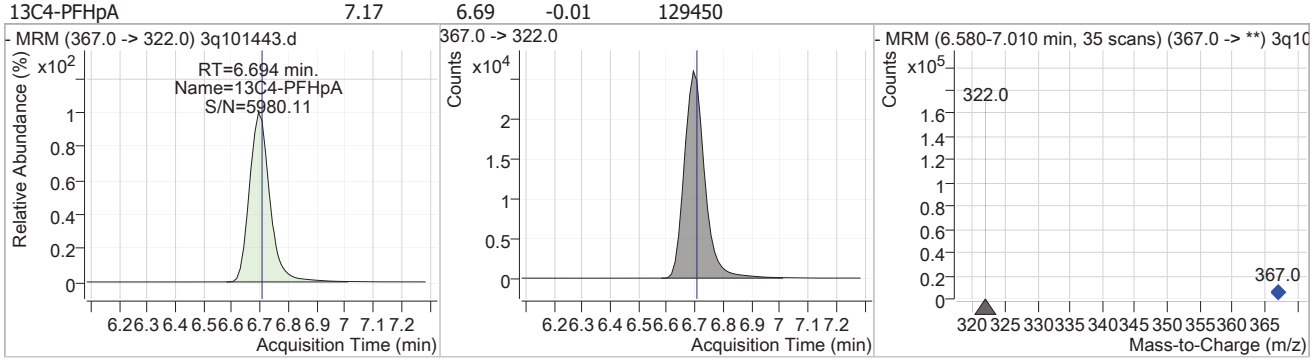
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.92	6.05	0.00	1172	285.0 -> 169.0	224.7	61.1	183.4



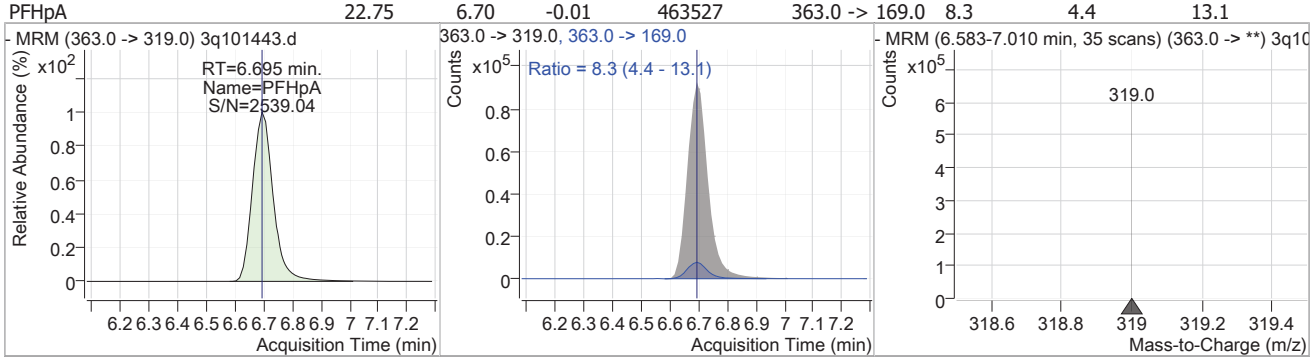
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.37	6.06	-0.01	2110				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	7.17	6.69	-0.01	129450				

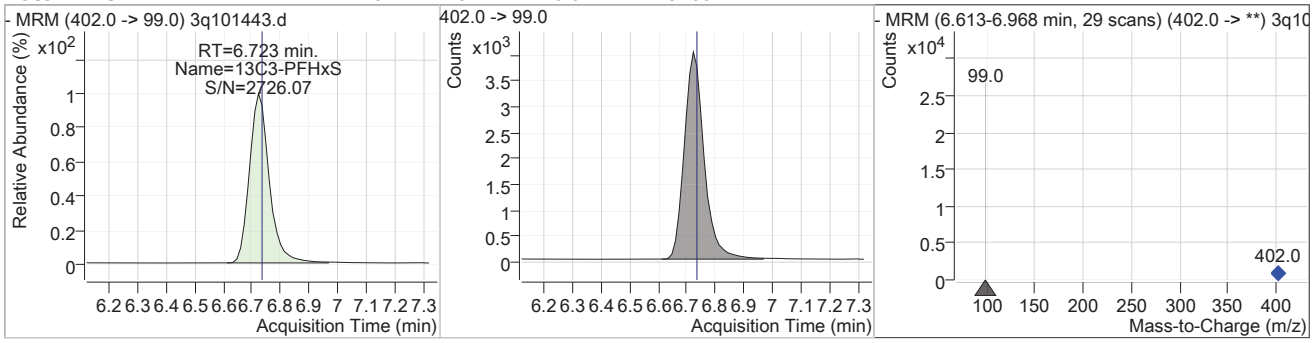


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	22.75	6.70	-0.01	463527	363.0 -> 169.0	8.3	4.4	13.1

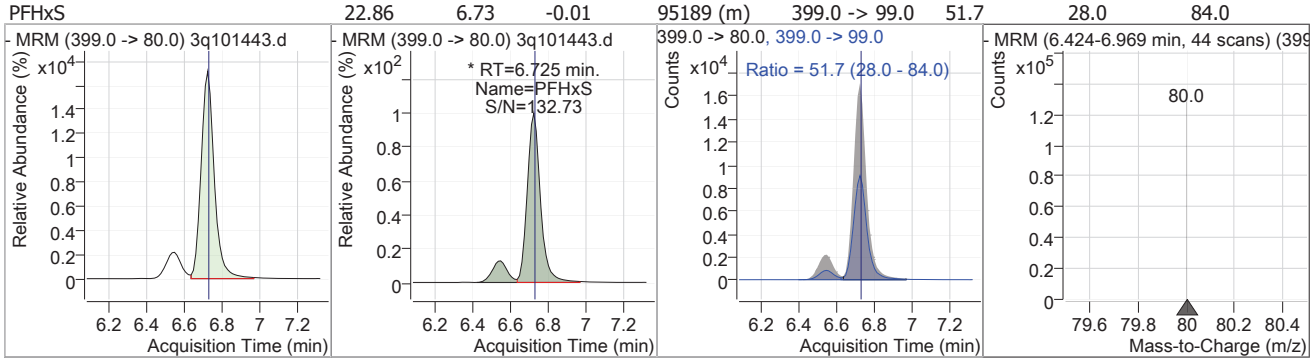


Perfluorinated Compounds by LC/MS/MS

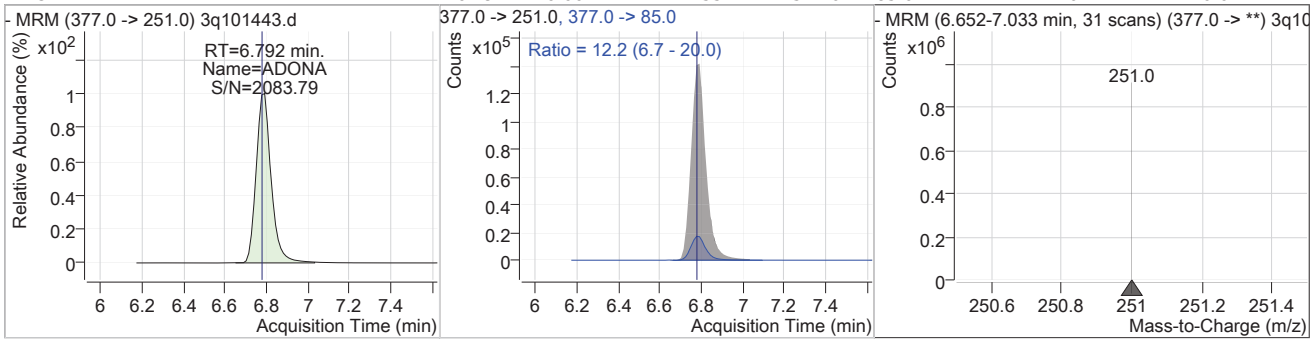
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	7.26	6.72	-0.01	19286				



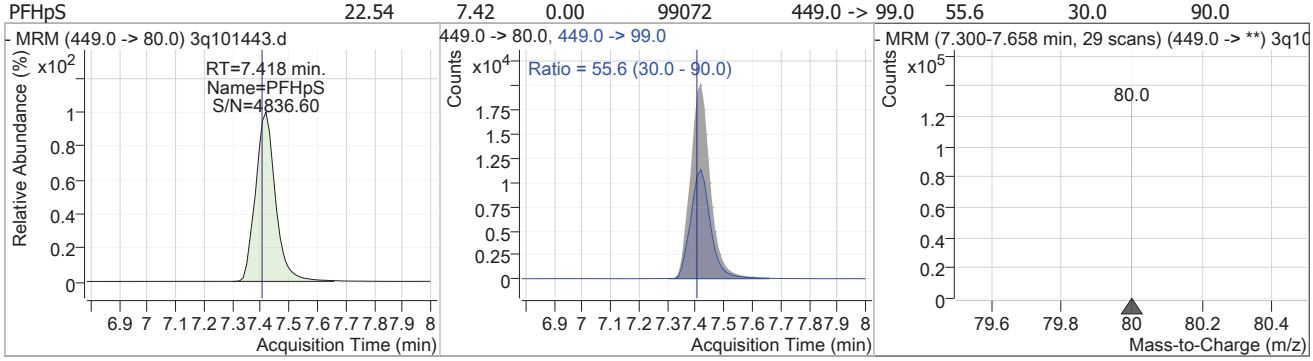
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	22.86	6.73	-0.01	95189 (m)	399.0 -> 99.0	51.7	28.0	84.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	22.72	6.79	0.00	711155	377.0 -> 85.0	12.2	6.7	20.0

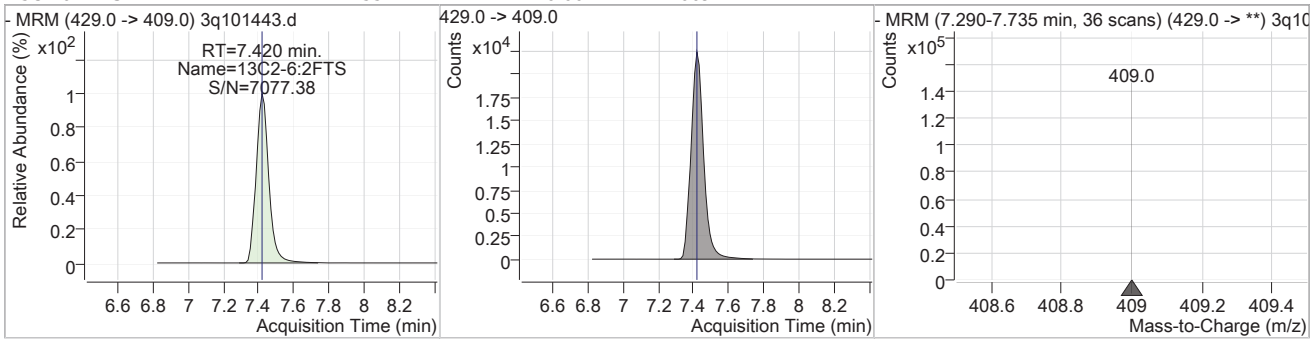


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	22.54	7.42	0.00	99072	449.0 -> 99.0	55.6	30.0	90.0

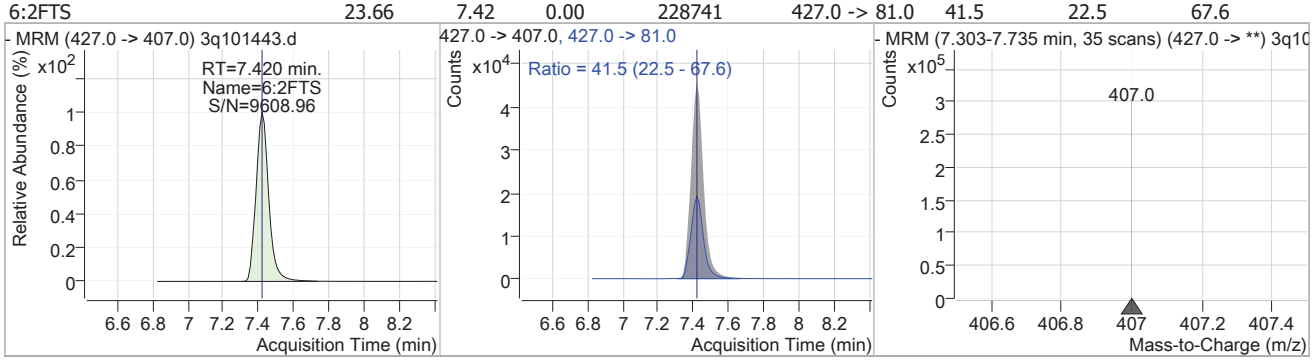


Perfluorinated Compounds by LC/MS/MS

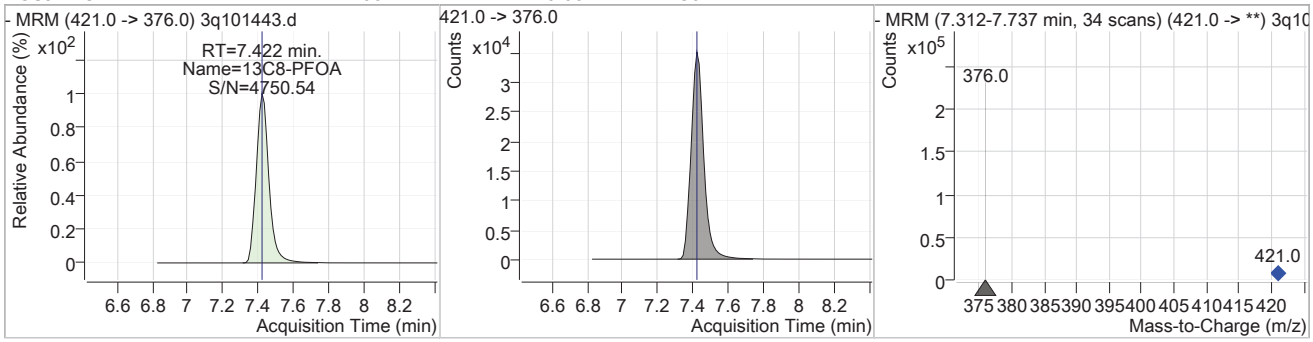
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	7.33	7.42	0.00	110694				



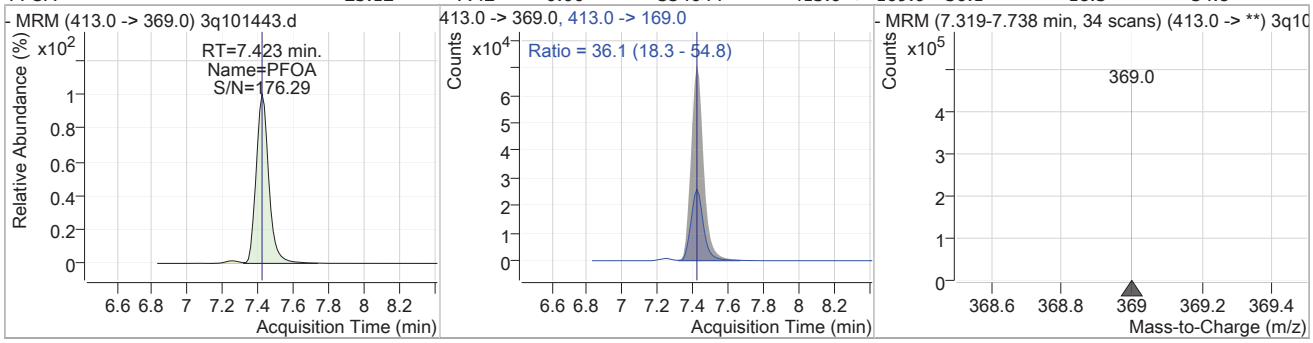
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	23.66	7.42	0.00	228741	427.0 -> 81.0	41.5	22.5	67.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	7.00	7.42	0.00	175014				

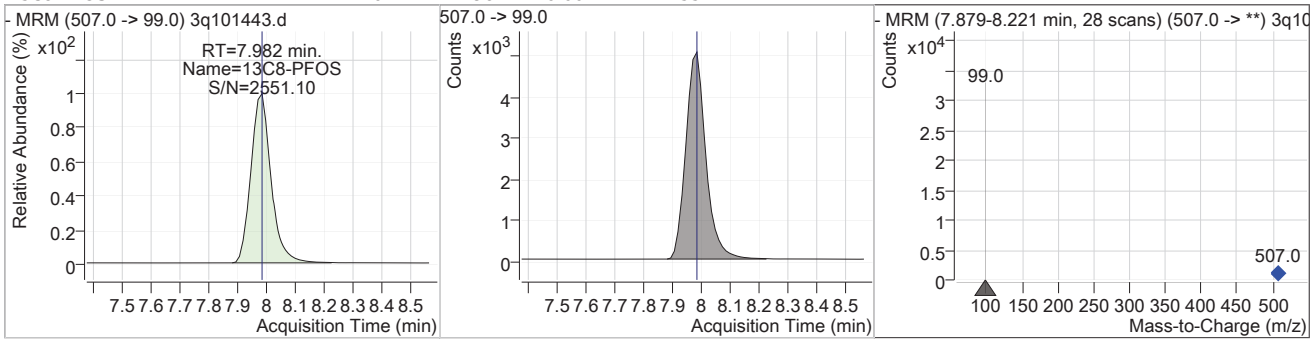


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	23.12	7.42	0.00	354644	413.0 -> 169.0	36.1	18.3	54.8

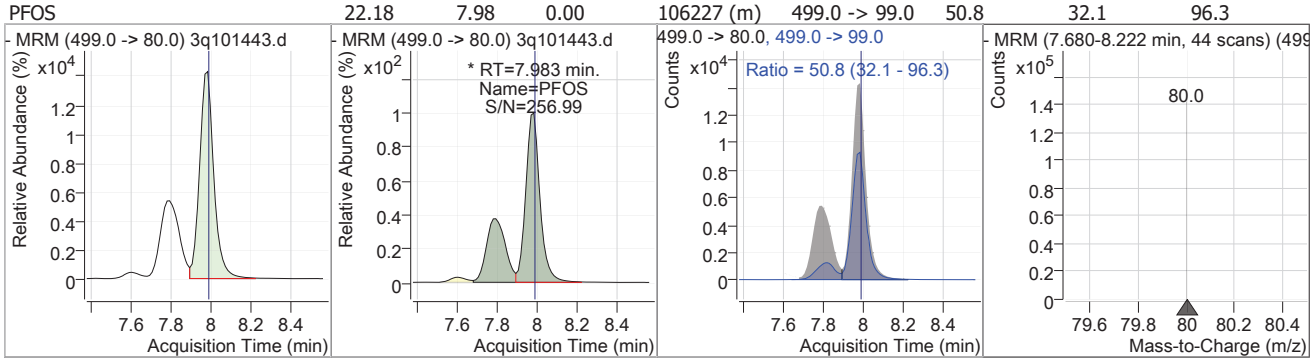


Perfluorinated Compounds by LC/MS/MS

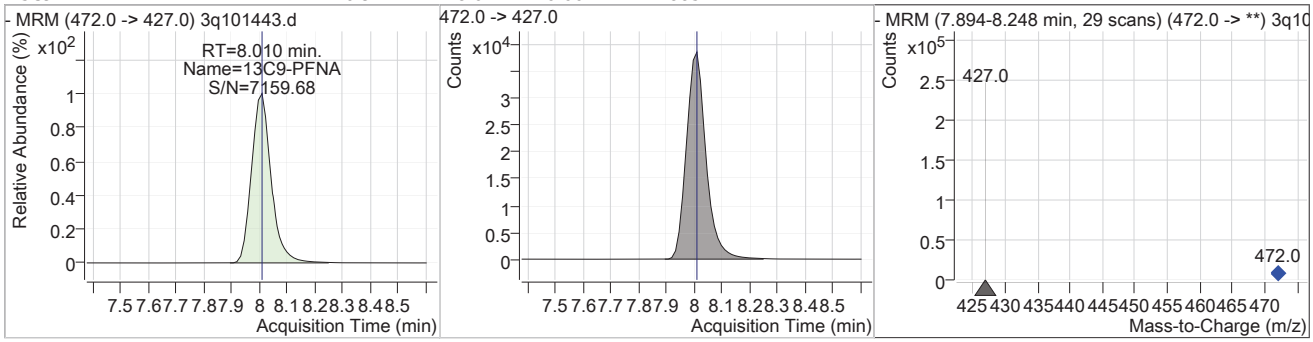
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	7.16	7.98	0.00	24334				



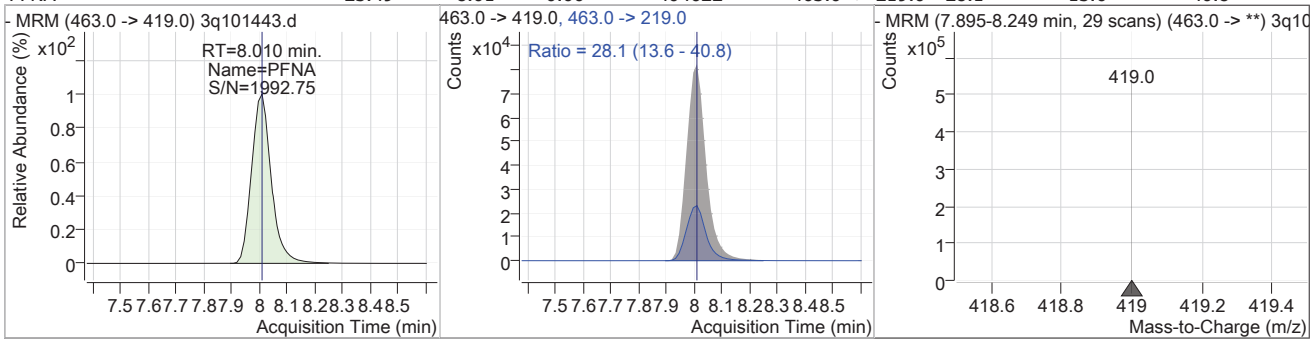
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	22.18	7.98	0.00	106227 (m)	499.0 -> 99.0	50.8	32.1	96.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	6.91	8.01	0.00	188522				

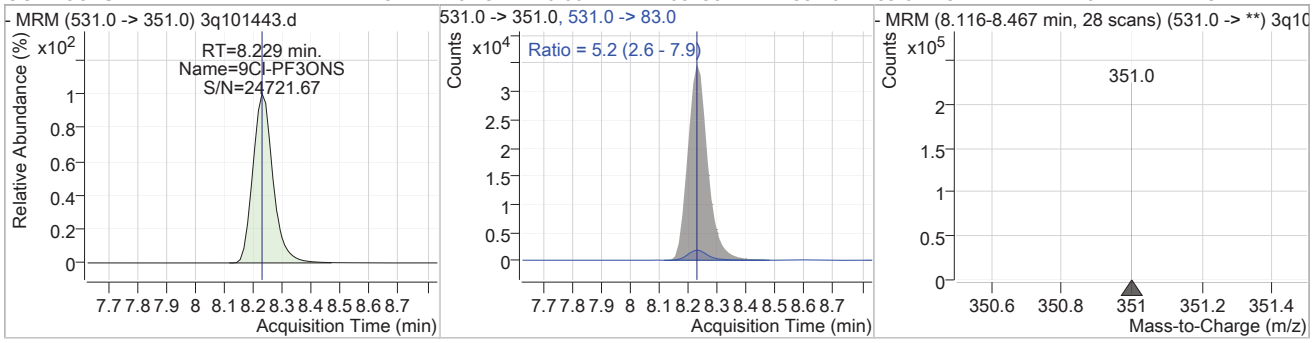


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	23.49	8.01	0.00	404622	463.0 -> 219.0	28.1	13.6	40.8

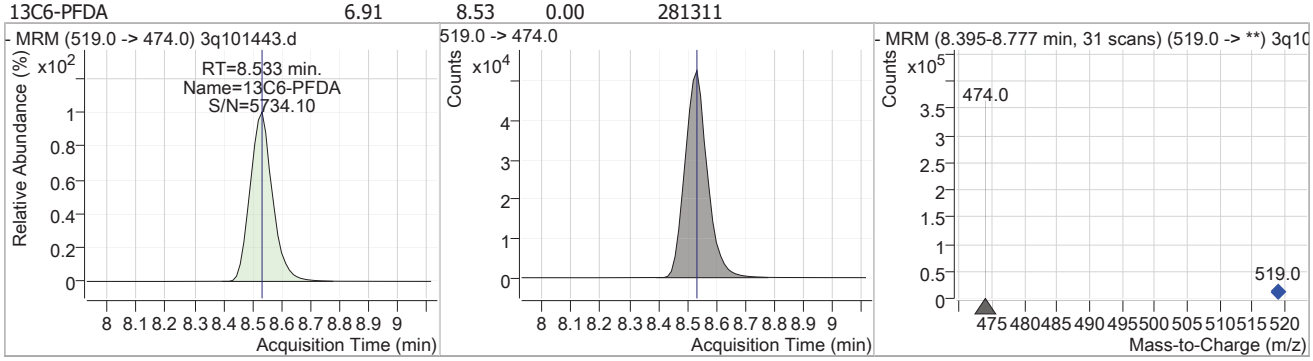


Perfluorinated Compounds by LC/MS/MS

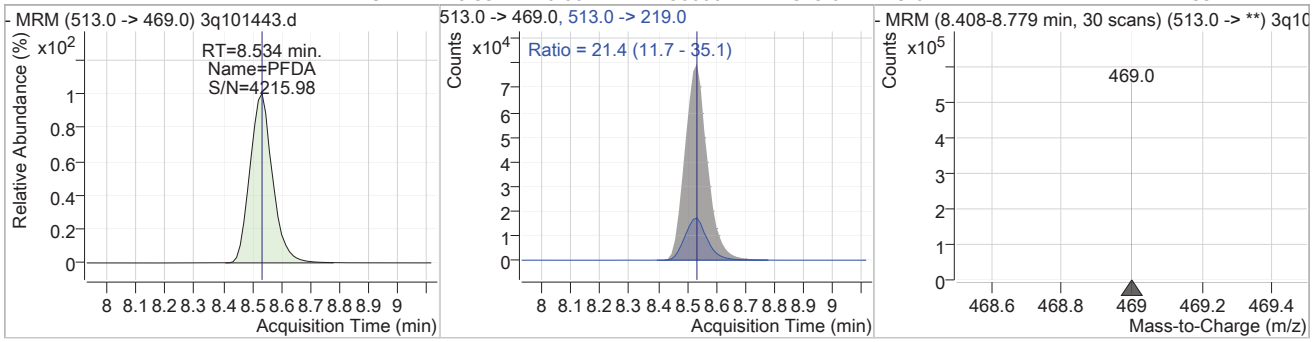
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	22.25	8.23	0.00	168458	531.0 -> 83.0	5.2	2.6	7.9



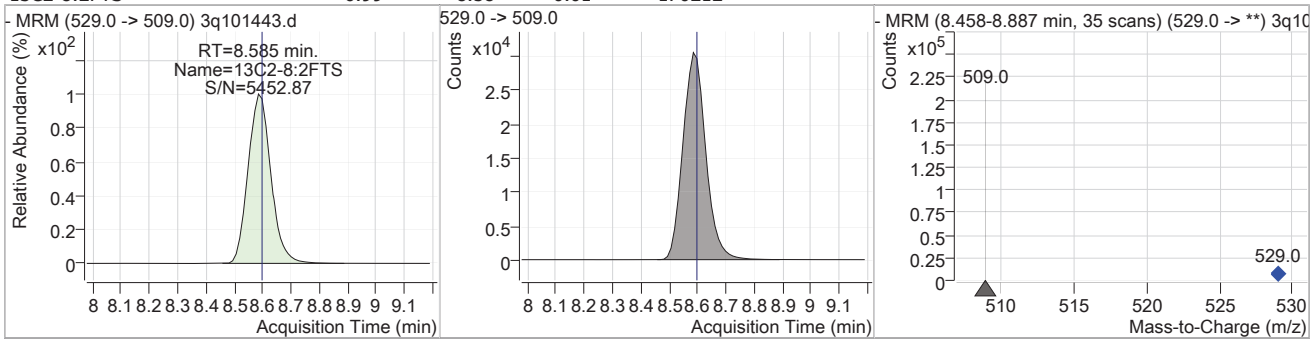
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	6.91	8.53	0.00	281311				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	22.92	8.53	0.00	430006	513.0 -> 219.0	21.4	11.7	35.1

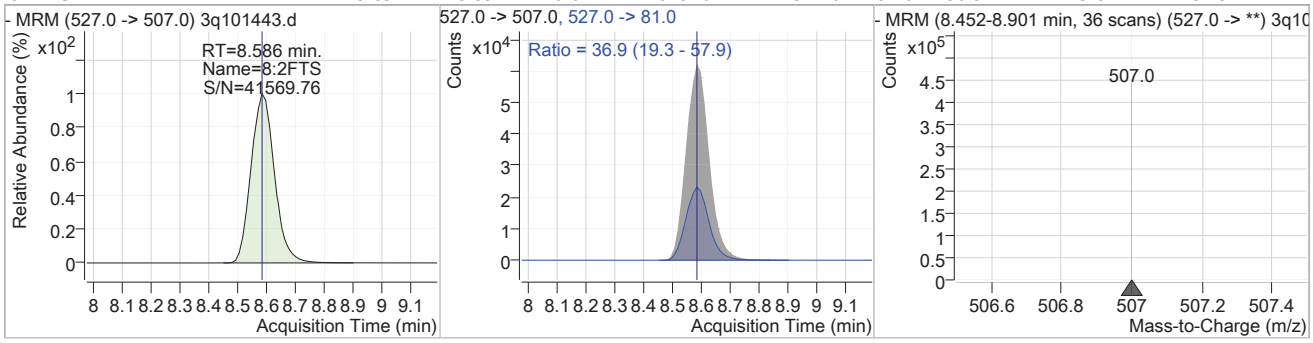


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	6.99	8.58	-0.01	170212				

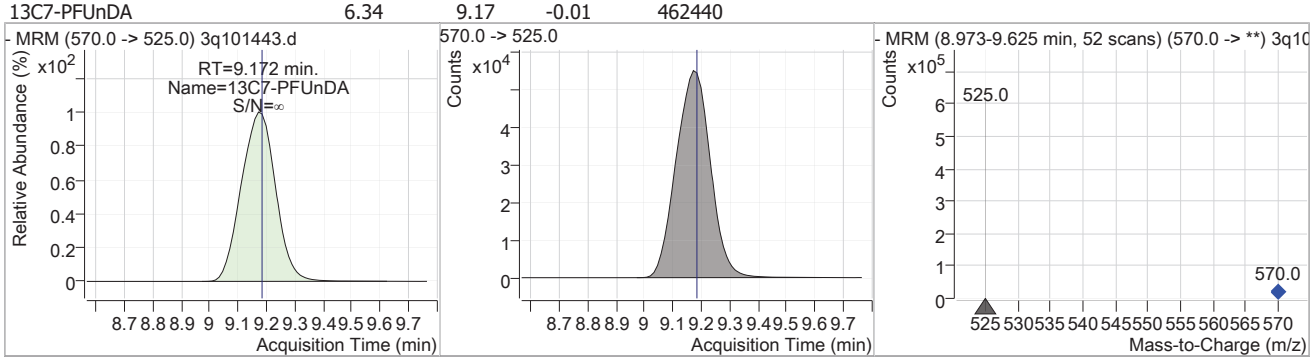


Perfluorinated Compounds by LC/MS/MS

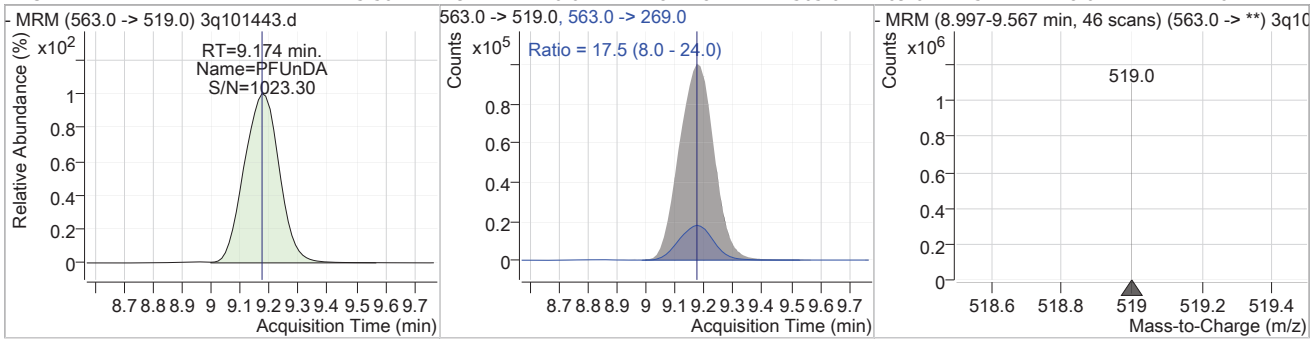
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	23.89	8.59	-0.01	349707	527.0 -> 81.0	36.9	19.3	57.9



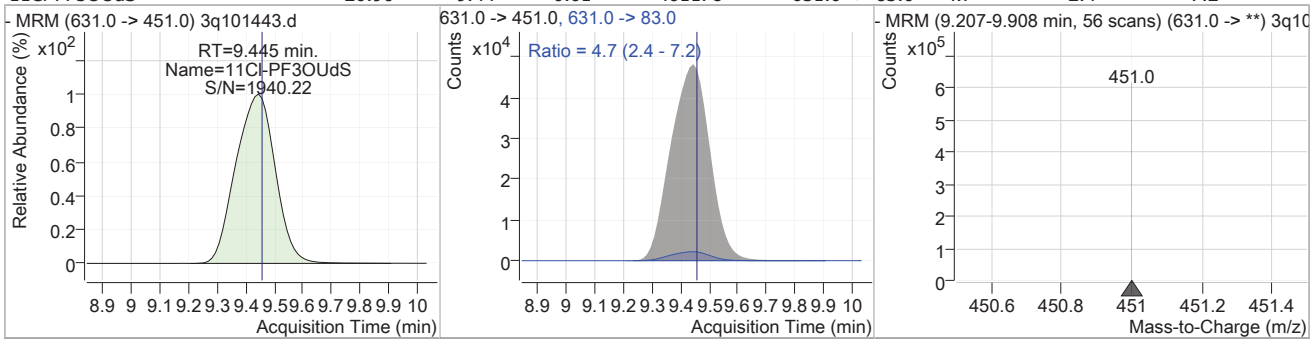
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	6.34	9.17	-0.01	462440				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	23.50	9.17	-0.01	847781	563.0 -> 269.0	17.5	8.0	24.0

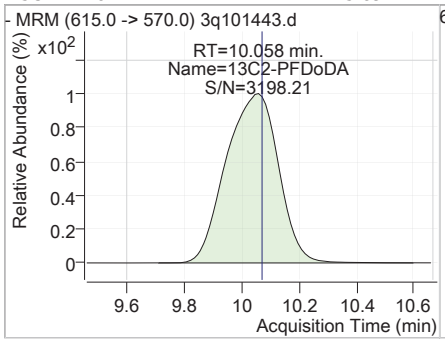


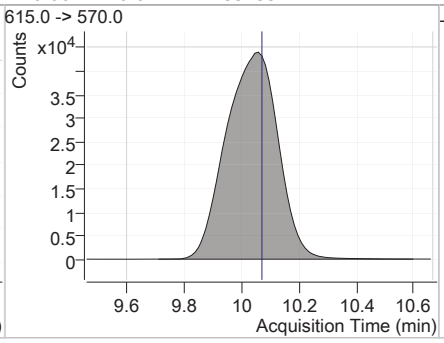
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	20.96	9.44	-0.01	461178	631.0 -> 83.0	4.7	2.4	7.2

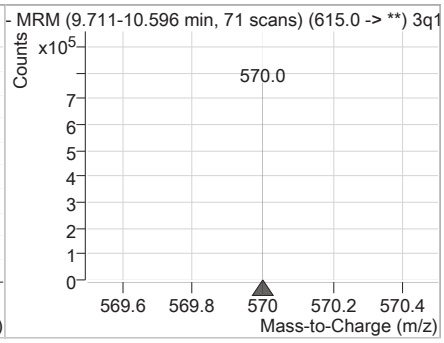


Perfluorinated Compounds by LC/MS/MS

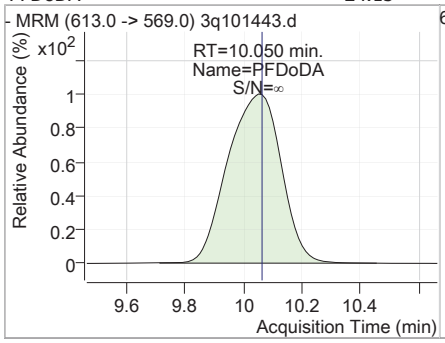
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	5.89	10.06	-0.01	557351				

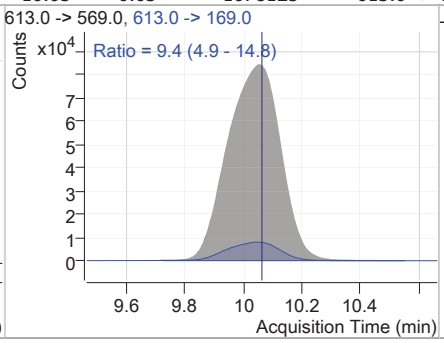


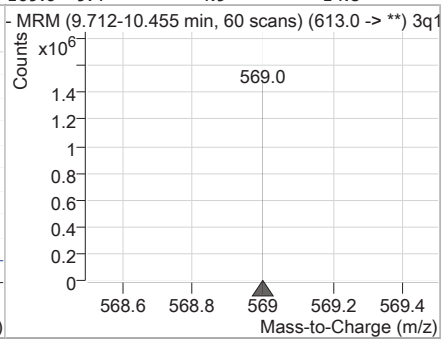




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	24.15	10.05	-0.03	1078125	613.0 -> 169.0	9.4	4.9	14.8







Manual Integration Approval Summary

Sample Number:	OP8808-BS	**Method:**	EPA 533
Lab FileID:	3Q101443.D	**Analyst approved:**	04/14/25 11:45 (b) (6)
Injection Time:	04/11/25 19:11	**Supervisor approved:**	04/14/25 12:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.72	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/14/25 12:26

Perfluorinated Compounds by LC/MS/MS

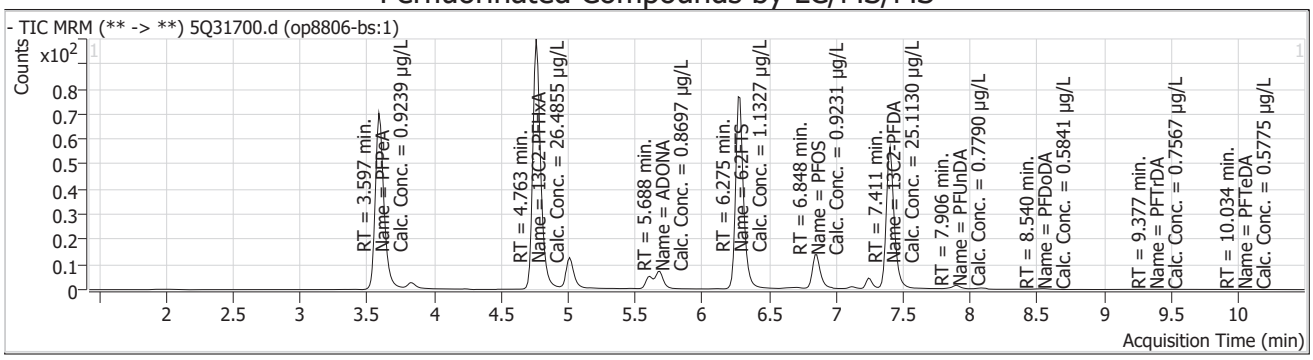
Data File : 5Q31700.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/11/2025 2:45:56 PM
Sample Name : op8806-bs:1
Vial : P2-A1
DA Method File : 537_041125_S5Q519.quantmethod
Batch Name : s5q519.batch.bin
Sample Information : OP8806,S5Q519,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.274	429.0 -> 409.0	171553	20.00 µg/L		-0.012
13C2-PFOA	6.289	415.0 -> 370.0	474314	20.00 µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	649152	20.00 µg/L		-0.012
13C4-PFOS	6.847	503.0 -> 80.0	105836	20.00 µg/L		-0.012
d3-MeFOSAA	7.242	573.0 -> 419.0	30618	40.00 µg/L		-0.012
System Monitoring Compounds						
13C2-PFDA	7.411	515.0 -> 470.0	456894	25.11 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 125.6%		
13C2-PFHxA	4.763	315.0 -> 270.0	871631	26.49 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 132.4%		
d5-EtFOSAA	7.378	589.0 -> 419.0	27752	52.87 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 132.2%		
13C3-HFPO-DA	5.019	287.0 -> 169.0	105706	50.67 µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 126.7%		
Target Compounds						QValue
6:2FTS	6.275	427.0 -> 407.0	9725	1.13 µg/L		99
8:2FTS	7.447	527.0 -> 507.0	6468	0.97 µg/L		96
EtFOSAA	7.380	584.0 -> 419.0	420	0.86 µg/L	m	95
MeFOSAA	7.256	570.0 -> 419.0	583	0.82 µg/L	m	84
PFBS	3.828	299.0 -> 80.0	14294	0.89 µg/L		99
PFDA	7.411	513.0 -> 469.0	13303	0.91 µg/L		97
PFDoDA	8.540	613.0 -> 569.0	4366	0.58 µg/L		97
PFHpA	5.601	363.0 -> 319.0	35807	0.89 µg/L		99
PFHxA	4.764	313.0 -> 269.0	19768	0.91 µg/L		99
PFHxS	5.635	399.0 -> 80.0	7888	0.89 µg/L	m	93
PFNA	6.874	463.0 -> 419.0	13362	0.95 µg/L	m	95
PFOA	6.290	413.0 -> 369.0	20373	0.92 µg/L		98
PFOS	6.848	499.0 -> 80.0	5778	0.92 µg/L	m	94
PFPeA	3.597	263.0 -> 219.0	36077	0.92 µg/L		100
PFTeDA	10.034	713.0 -> 669.0	1810	0.58 µg/L		98
PFTrDA	9.377	663.0 -> 619.0	2397	0.76 µg/L		97
PFUnDA	7.906	563.0 -> 519.0	10901	0.78 µg/L		95
ADONA	5.688	377.0 -> 251.0	45300	0.87 µg/L		100
9Cl-PF3ONS	7.121	531.0 -> 351.0	4840	0.81 µg/L		97
11Cl-PF3OUdS	8.075	631.0 -> 451.0	3512	0.69 µg/L		94
HFPO-DA	5.022	285.0 -> 169.0	1668	0.93 µg/L	#	98

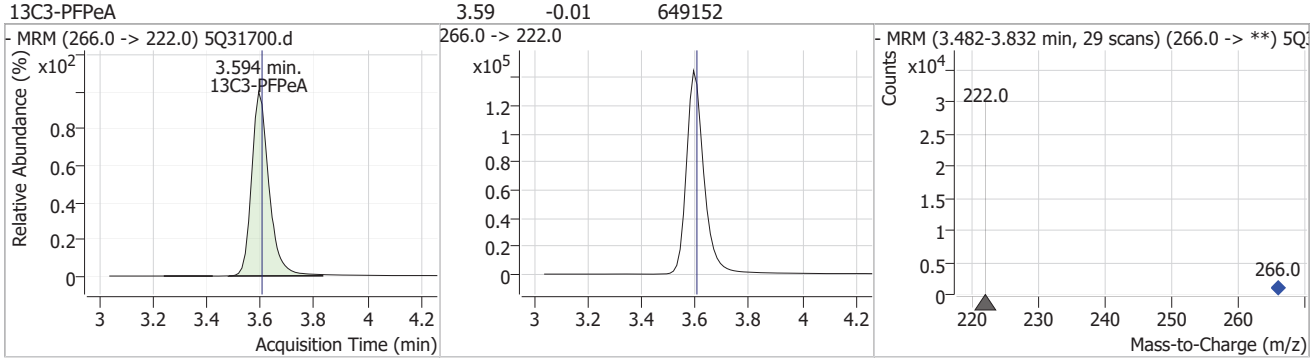
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.3.2
7

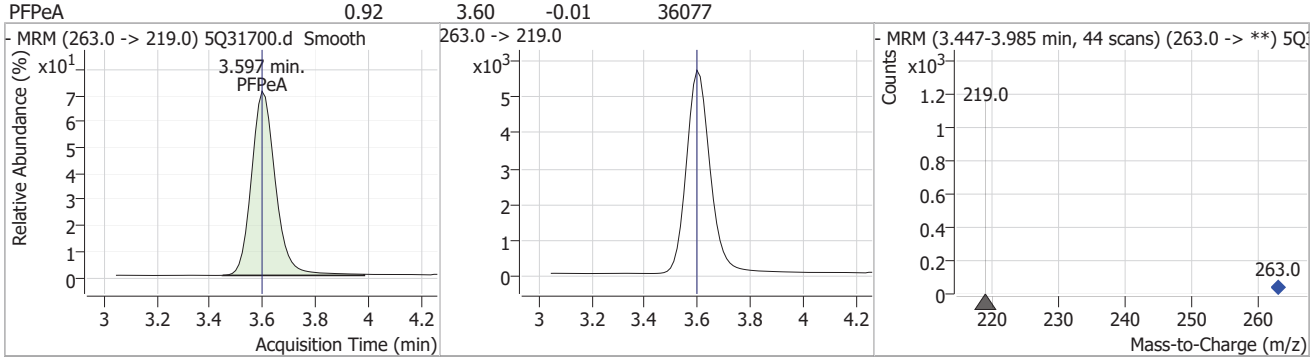
Perfluorinated Compounds by LC/MS/MS



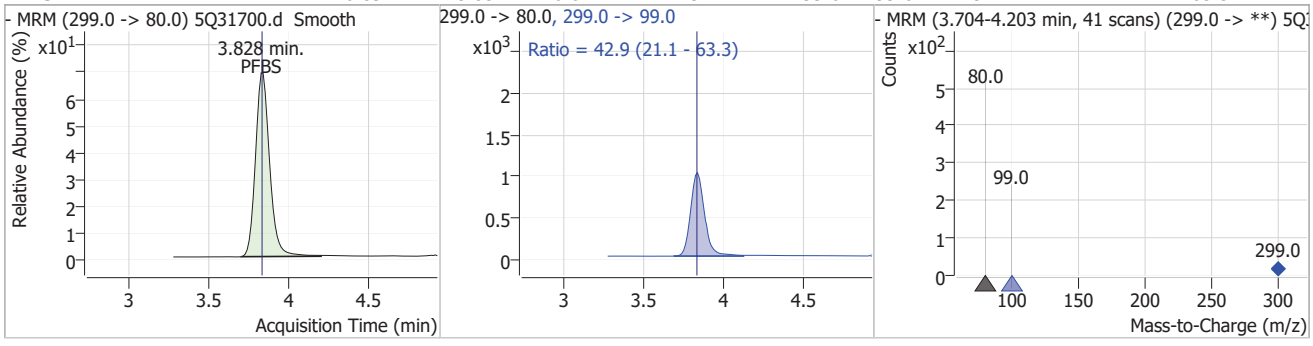
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	649152				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.92	3.60	-0.01	36077				

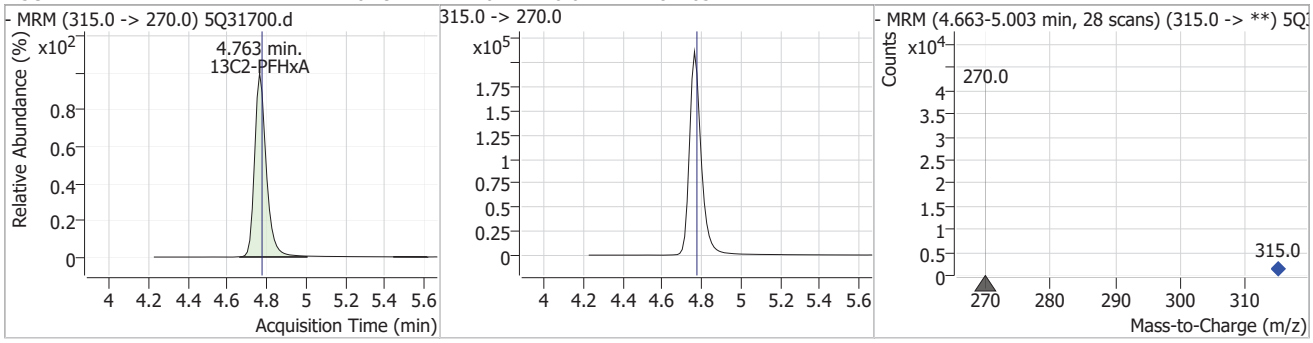


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.89	3.83	-0.01	14294	299.0 -> 99.0	42.9	21.1	63.3

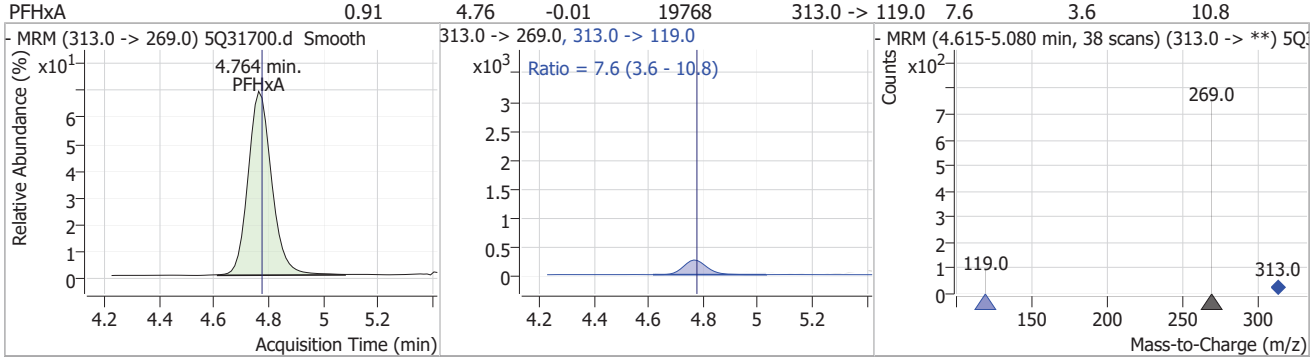


Perfluorinated Compounds by LC/MS/MS

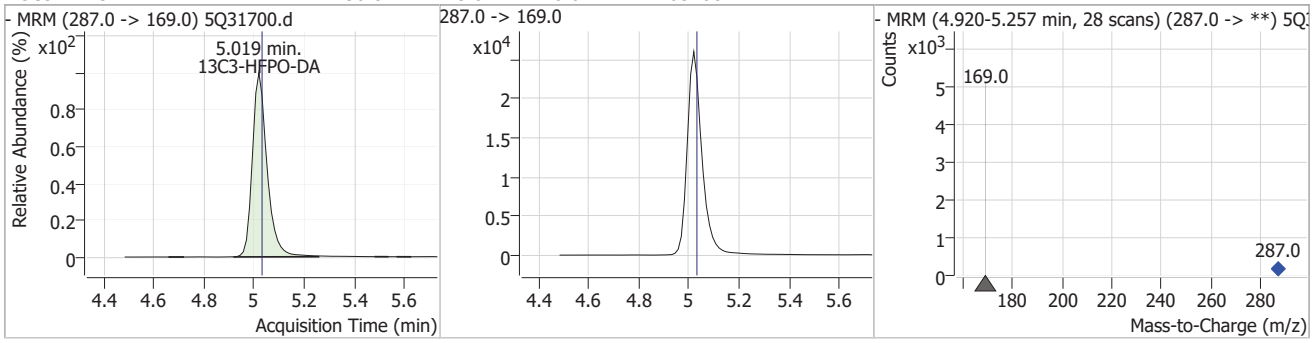
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	26.49	4.76	-0.01	871631				



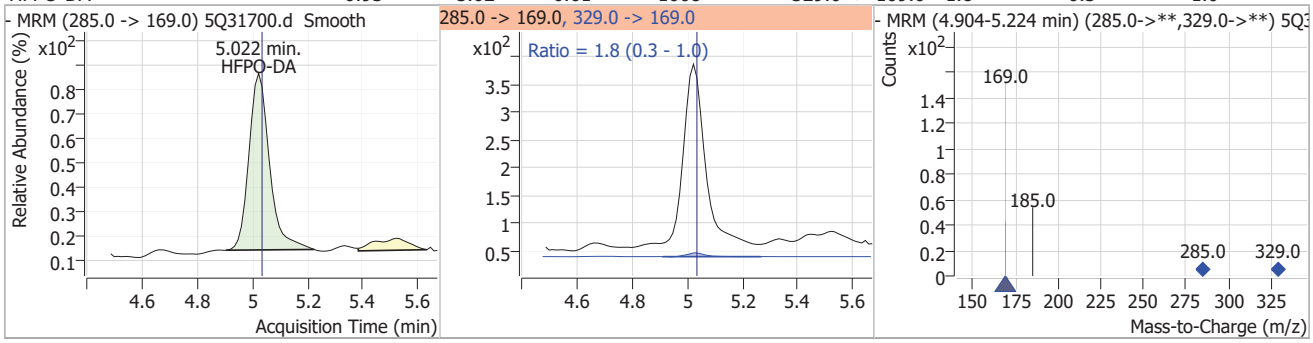
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.91	4.76	-0.01	19768	313.0 -> 119.0	7.6	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	50.67	5.02	-0.01	105706				

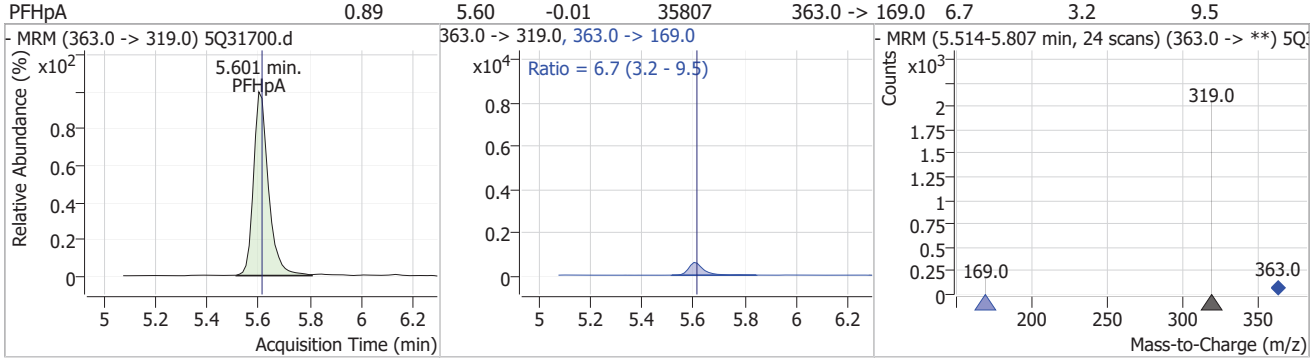


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.93	5.02	-0.01	1668	329.0 -> 169.0	1.8	0.3	1.0

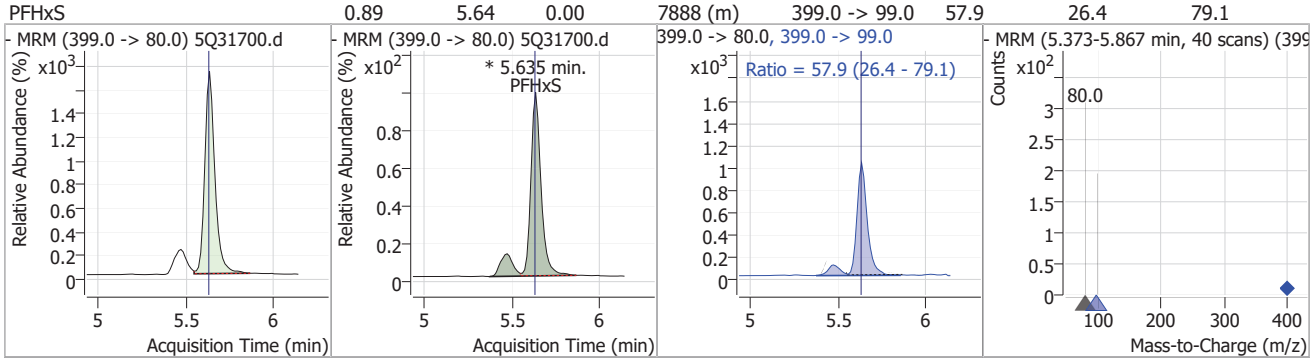


Perfluorinated Compounds by LC/MS/MS

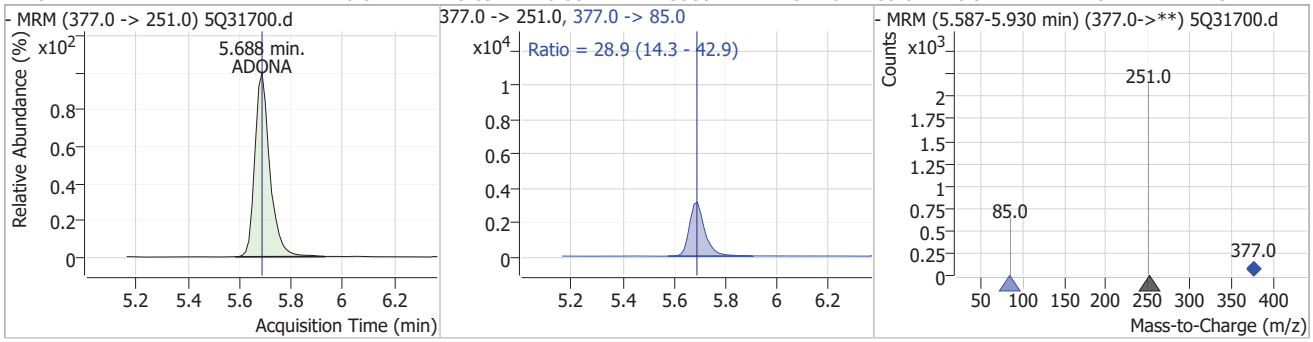
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.89	5.60	-0.01	35807	363.0 -> 169.0	6.7	3.2	9.5



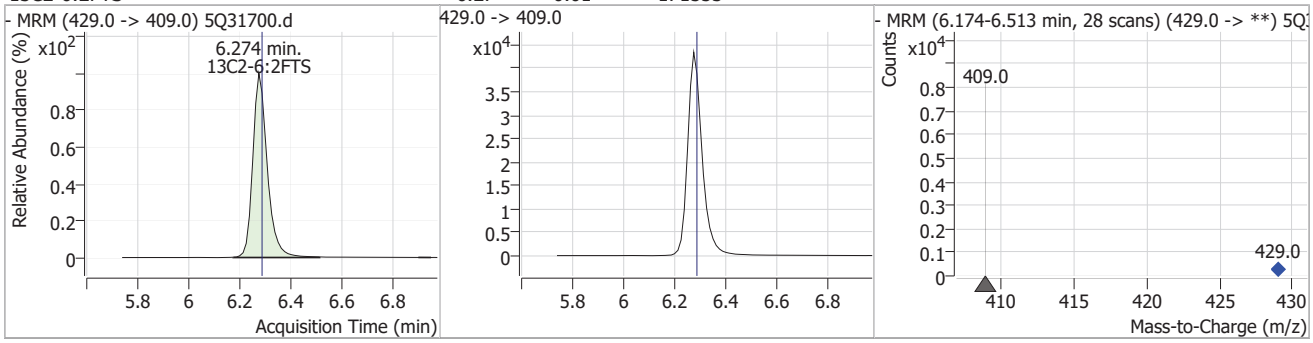
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.89	5.64	0.00	7888 (m)	399.0 -> 99.0	57.9	26.4	79.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.87	5.69	0.00	45300	377.0 -> 85.0	28.9	14.3	42.9

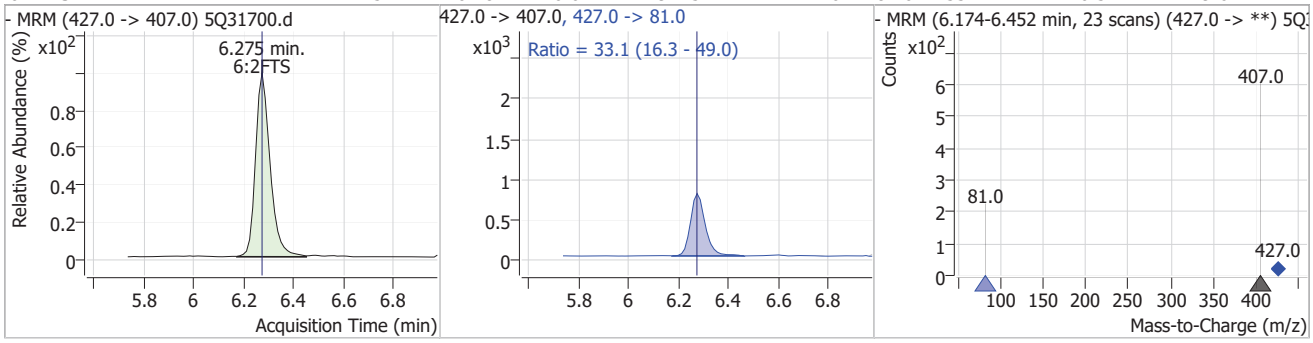


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	171553				

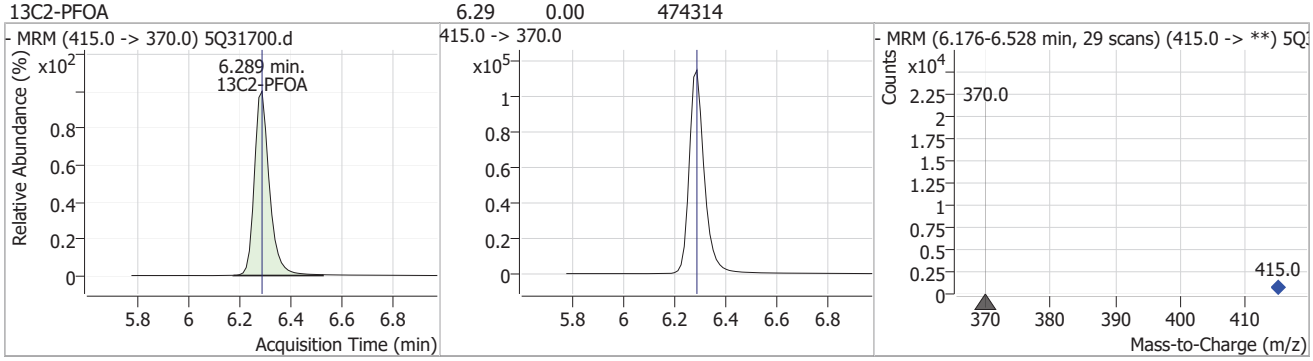


Perfluorinated Compounds by LC/MS/MS

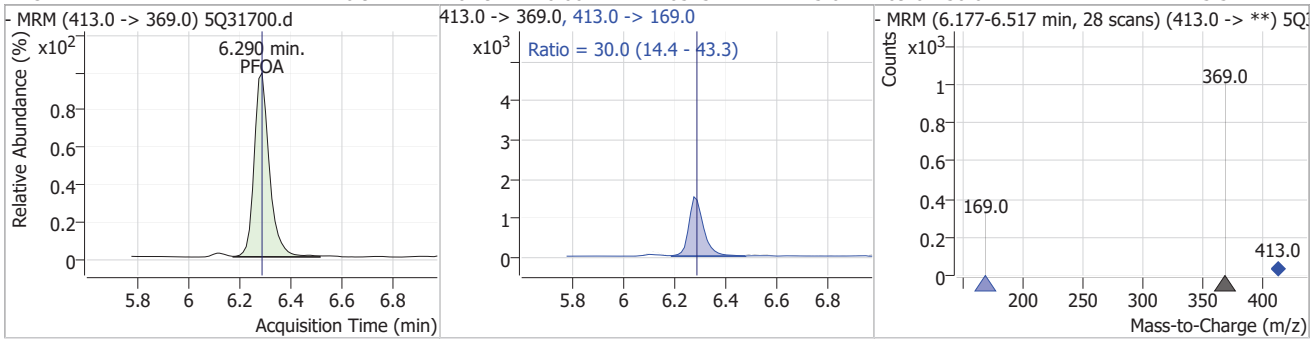
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.13	6.28	-0.01	9725	427.0 -> 81.0	33.1	16.3	49.0



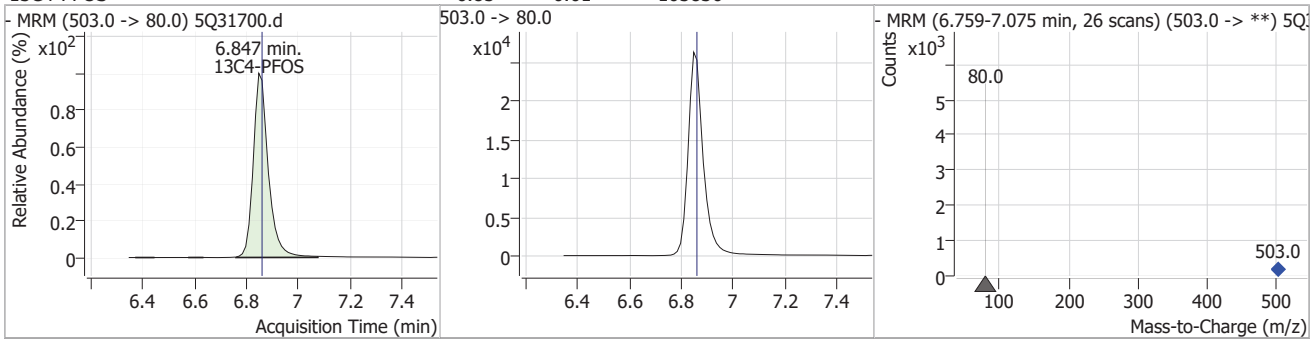
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	474314				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.92	6.29	0.00	20373	413.0 -> 169.0	30.0	14.4	43.3

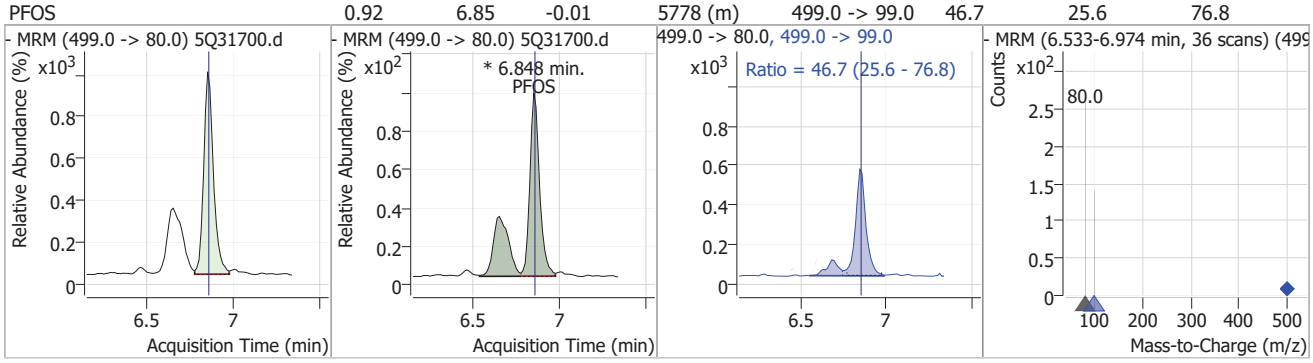


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.85	-0.01	105836				

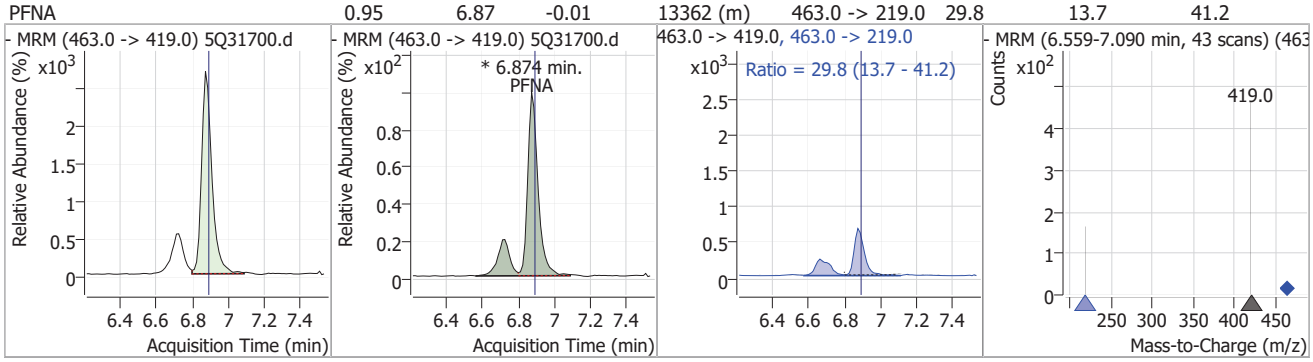


Perfluorinated Compounds by LC/MS/MS

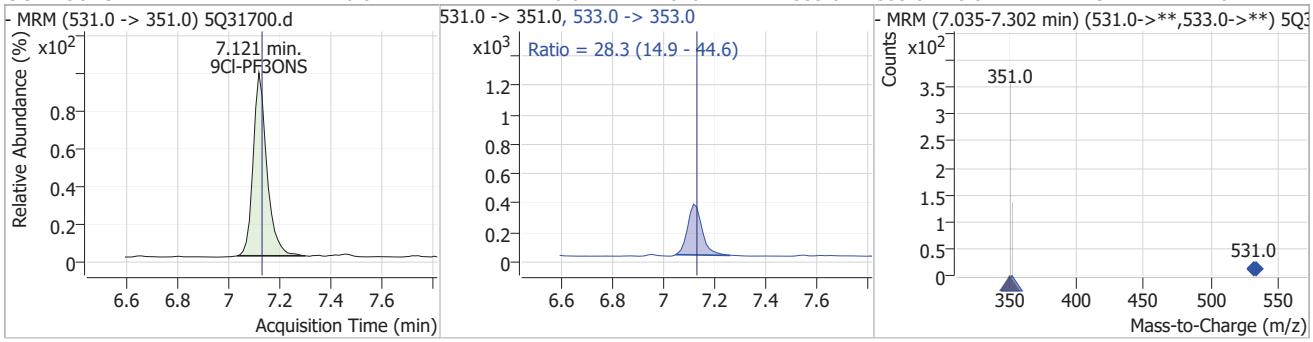
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.92	6.85	-0.01	5778 (m)	499.0 -> 99.0	46.7	25.6	76.8



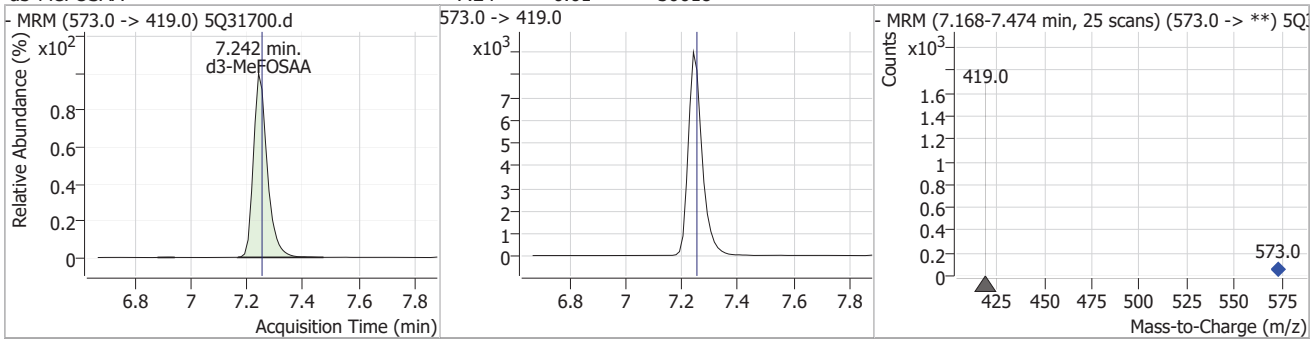
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.95	6.87	-0.01	13362 (m)	463.0 -> 219.0	29.8	13.7	41.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.81	7.12	-0.01	4840	533.0 -> 353.0	28.3	14.9	44.6

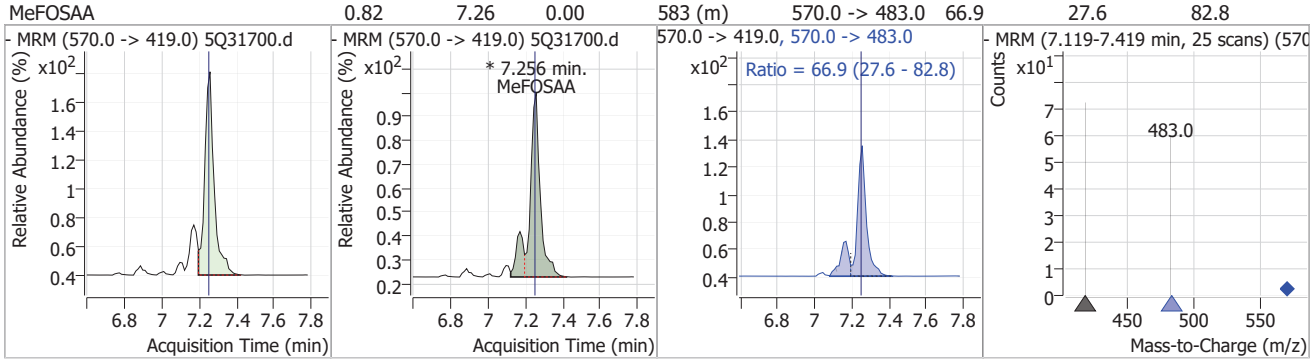


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	30618				

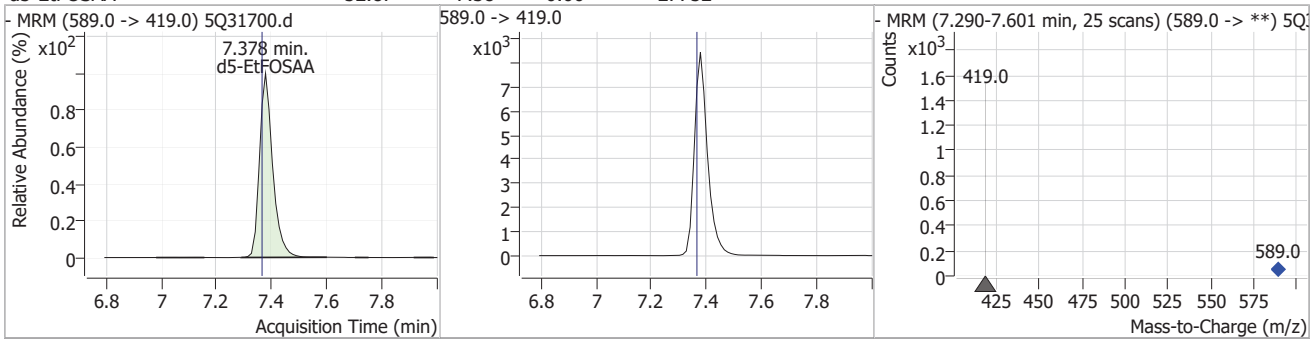


Perfluorinated Compounds by LC/MS/MS

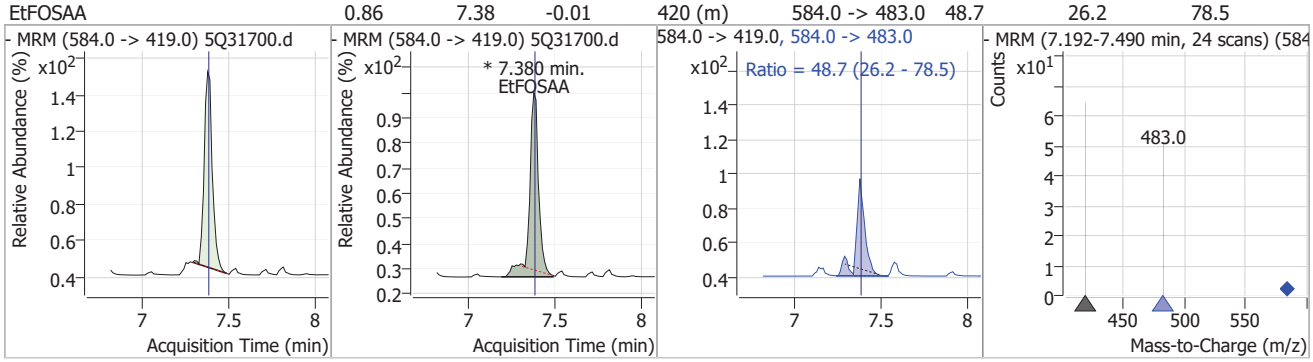
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.82	7.26	0.00	583 (m)	570.0 -> 483.0	66.9	27.6	82.8



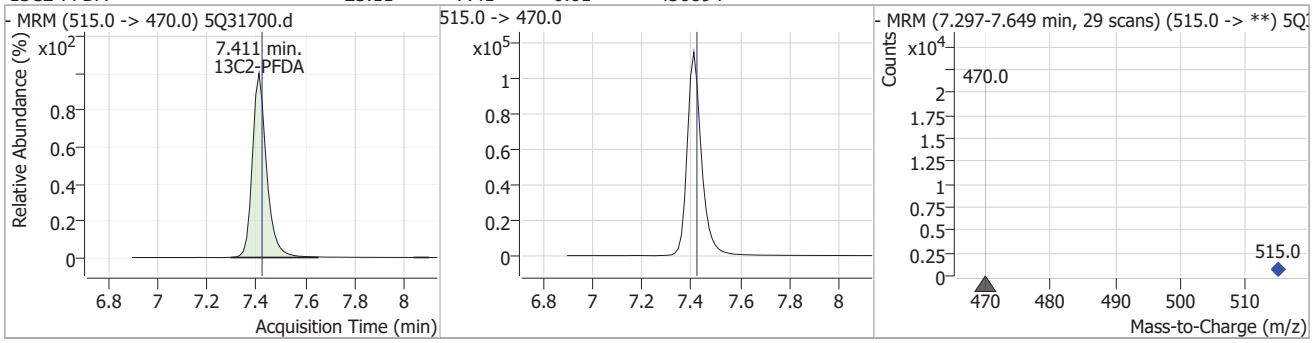
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	52.87	7.38	0.00	27752				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.86	7.38	-0.01	420 (m)	584.0 -> 483.0	48.7	26.2	78.5

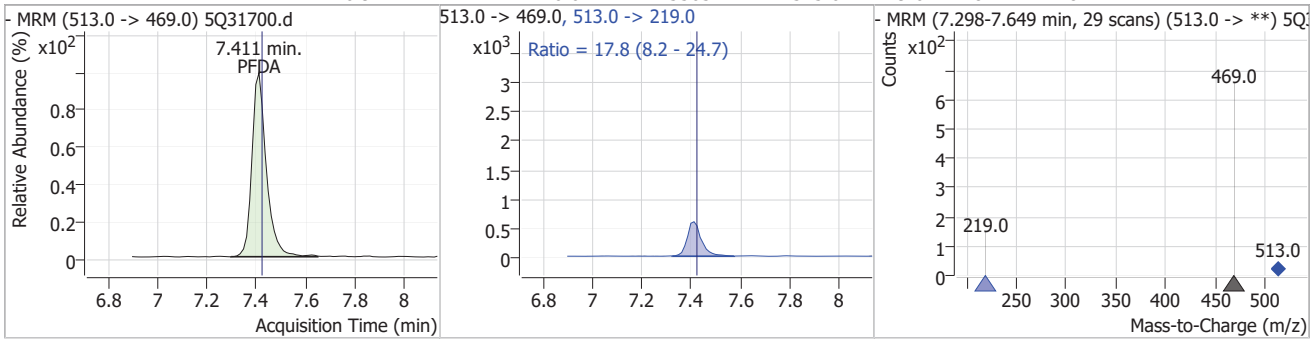


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	25.11	7.41	-0.01	456894				

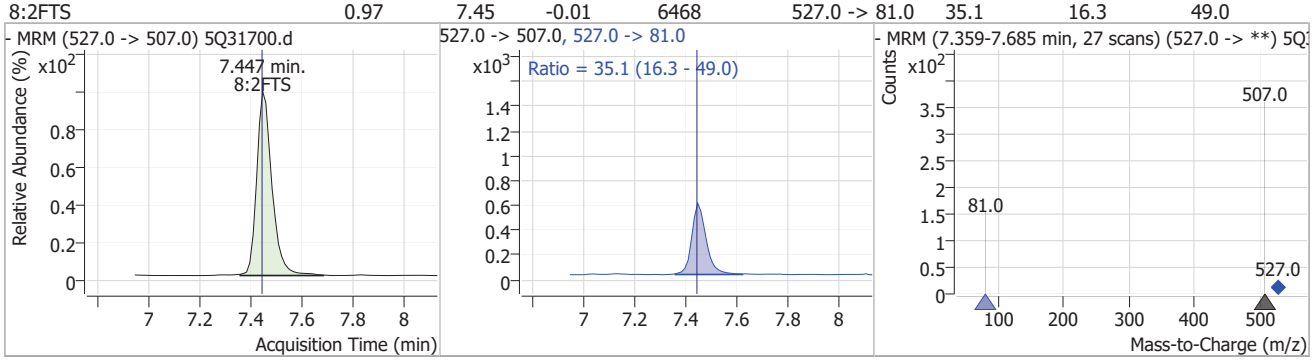


Perfluorinated Compounds by LC/MS/MS

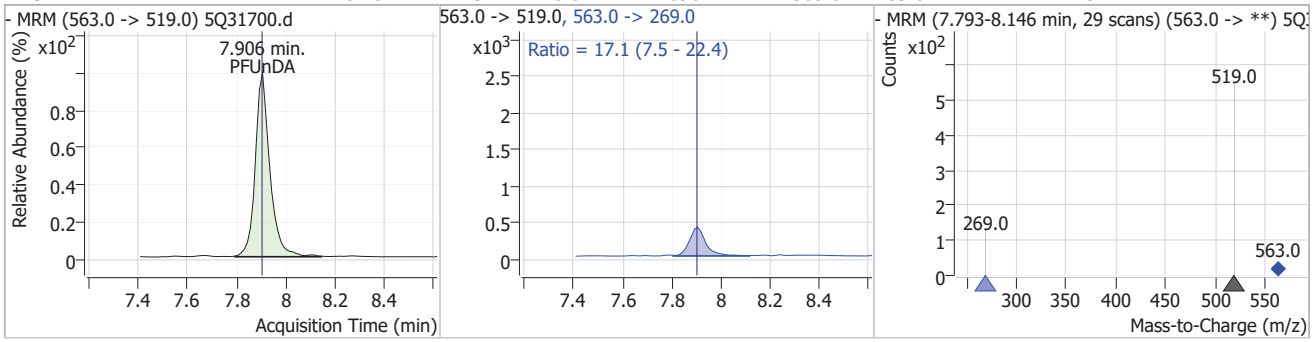
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.91	7.41	-0.01	13303	513.0 -> 219.0	17.8	8.2	24.7



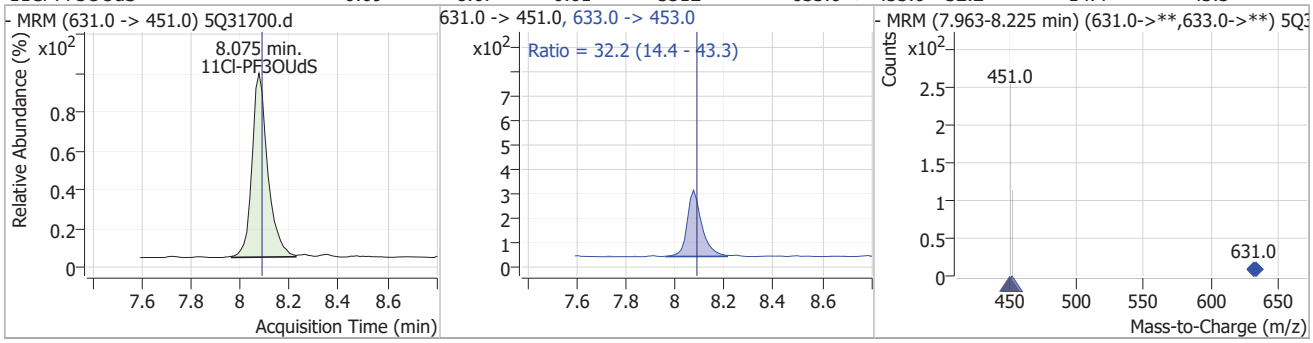
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.97	7.45	-0.01	6468	527.0 -> 81.0	35.1	16.3	49.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.78	7.91	-0.01	10901	563.0 -> 269.0	17.1	7.5	22.4

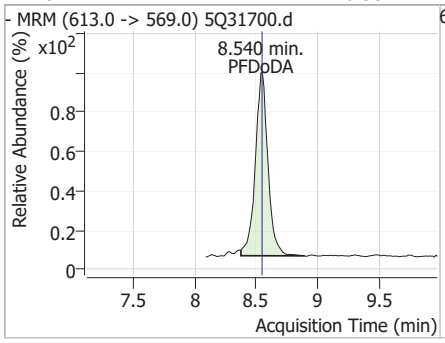


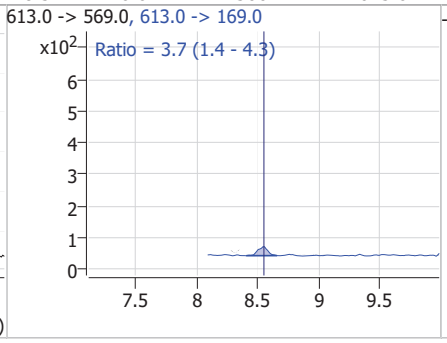
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.69	8.07	-0.01	3512	633.0 -> 453.0	32.2	14.4	43.3

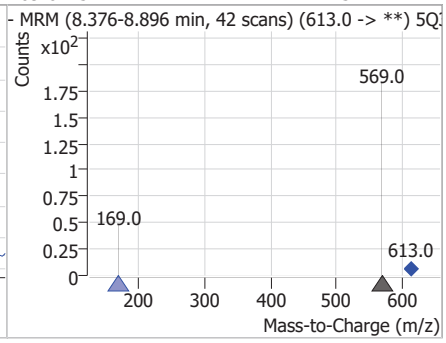


Perfluorinated Compounds by LC/MS/MS

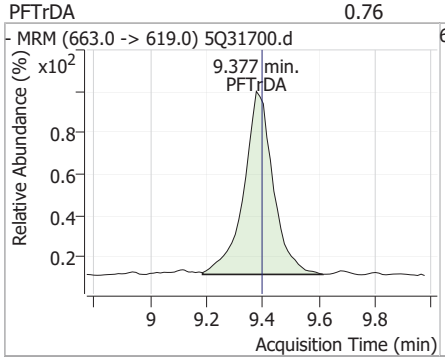
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.58	8.54	-0.02	4366	613.0 -> 169.0	3.7	1.4	4.3

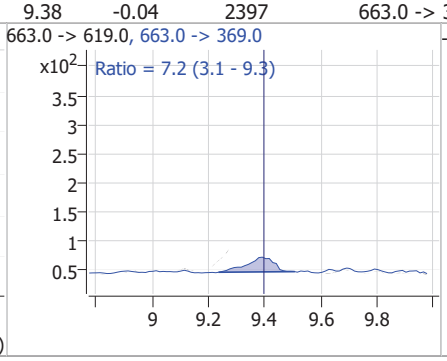


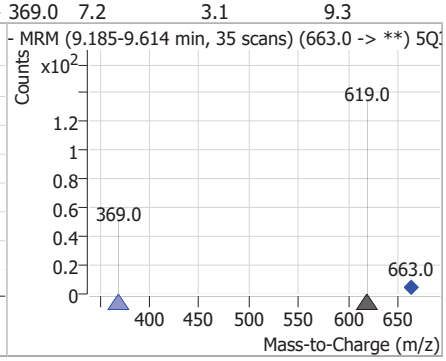




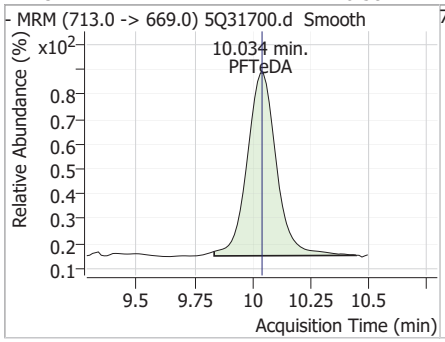
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.76	9.38	-0.04	2397	663.0 -> 369.0	7.2	3.1	9.3

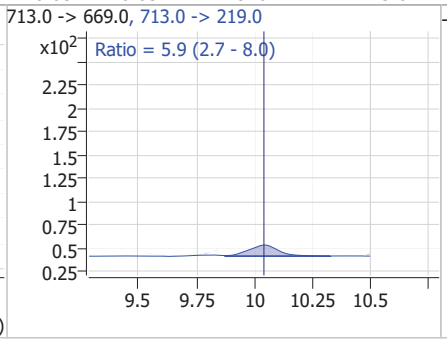


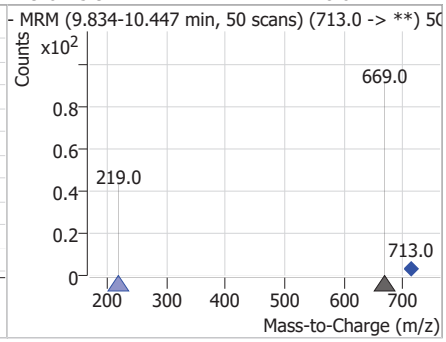




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.58	10.03	-0.03	1810	713.0 -> 219.0	5.9	2.7	8.0







7.3.2

7

Manual Integration Approval Summary

Sample Number:	OP8806-BS	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31700.D	**Analyst approved:**	04/14/25 10:08 (b) (6)
Injection Time:	04/11/25 14:45	**Supervisor approved:**	04/14/25 12:26 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.85	Split peak
Perfluorononanoic acid	375-95-1		6.87	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/15/25 15:59

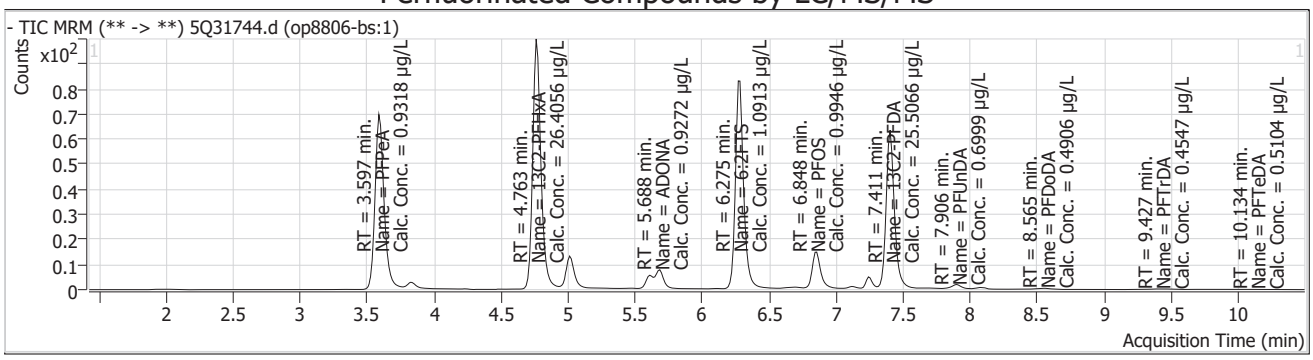
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31744.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/14/2025 2:02:44 PM
Sample Name : op8806-bs:1
Vial : P2-A1
DA Method File : 537_041425_S5Q520.quantmethod
Batch Name : s5q520.batch.bin
Sample Information : OP8806,S5Q520,250,,,1,1,water

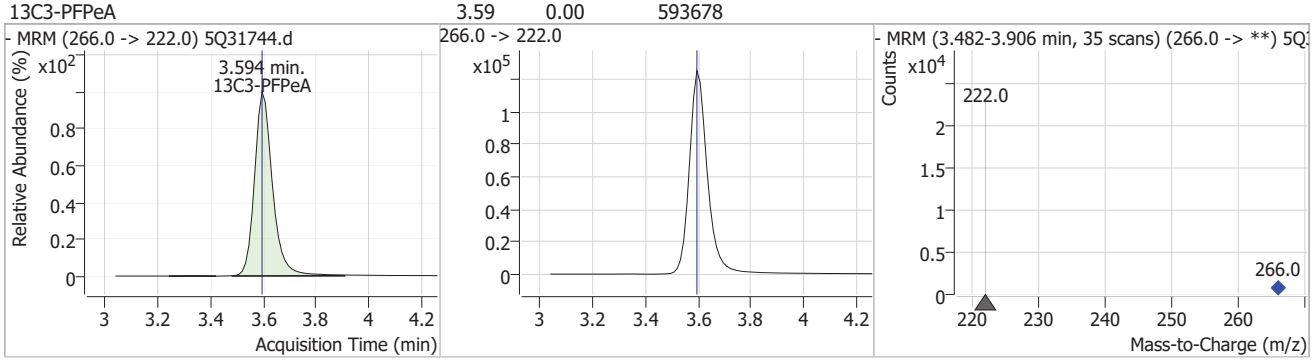
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.274	429.0 -> 409.0	182383	20.00 µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	447880	20.00 µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	593678	20.00 µg/L		0.000
13C4-PFOS	6.847	503.0 -> 80.0	103338	20.00 µg/L		-0.012
d3-MeFOSAA	7.242	573.0 -> 419.0	29446	40.00 µg/L		0.000
System Monitoring Compounds						
13C2-PFDA	7.411	515.0 -> 470.0	465381	25.51 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 127.5%		
13C2-PFHxA	4.763	315.0 -> 270.0	791472	26.41 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 132.0%		
d5-EtFOSAA	7.378	589.0 -> 419.0	28381	50.90 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 127.3%		
13C3-HFPO-DA	5.019	287.0 -> 169.0	100124	49.44 µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 123.6%		
Target Compounds						QValue
6:2FTS	6.275	427.0 -> 407.0	10056	1.09 µg/L		94
8:2FTS	7.447	527.0 -> 507.0	7190	0.91 µg/L		98
EtFOSAA	7.380	584.0 -> 419.0	572	1.15 µg/L	m	75
MeFOSAA	7.256	570.0 -> 419.0	759	1.22 µg/L	m	98
PFBS	3.828	299.0 -> 80.0	13892	0.98 µg/L		99
PFDA	7.411	513.0 -> 469.0	12953	0.75 µg/L		97
PFDoDA	8.565	613.0 -> 569.0	6379	0.49 µg/L		99
PFHpA	5.614	363.0 -> 319.0	34322	0.96 µg/L		100
PFHxA	4.764	313.0 -> 269.0	18900	1.01 µg/L		97
PFHxS	5.635	399.0 -> 80.0	8002	0.97 µg/L	m	99
PFNA	6.874	463.0 -> 419.0	13839	0.96 µg/L	m	99
PFOA	6.290	413.0 -> 369.0	19606	0.94 µg/L		98
PFOS	6.848	499.0 -> 80.0	6236	0.99 µg/L	m	83
PFPeA	3.597	263.0 -> 219.0	34086	0.93 µg/L		100
PFTeDA	10.134	713.0 -> 669.0	2401	0.51 µg/L		99
PFTrDA	9.427	663.0 -> 619.0	3218	0.45 µg/L		97
PFUnDA	7.906	563.0 -> 519.0	12271	0.70 µg/L		96
ADONA	5.688	377.0 -> 251.0	43687	0.93 µg/L		100
9Cl-PF3ONS	7.121	531.0 -> 351.0	4856	0.82 µg/L		99
11Cl-PF3OUdS	8.075	631.0 -> 451.0	4043	0.68 µg/L		88
HFPO-DA	5.022	285.0 -> 169.0	1599	0.92 µg/L	#	99

 # = Qualifier out of range, m = manually integrated, + = Area summed

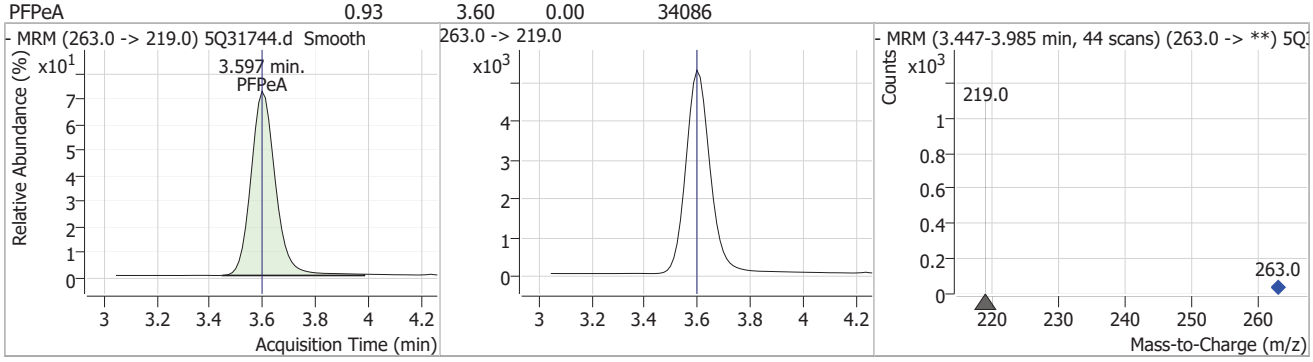
Perfluorinated Compounds by LC/MS/MS



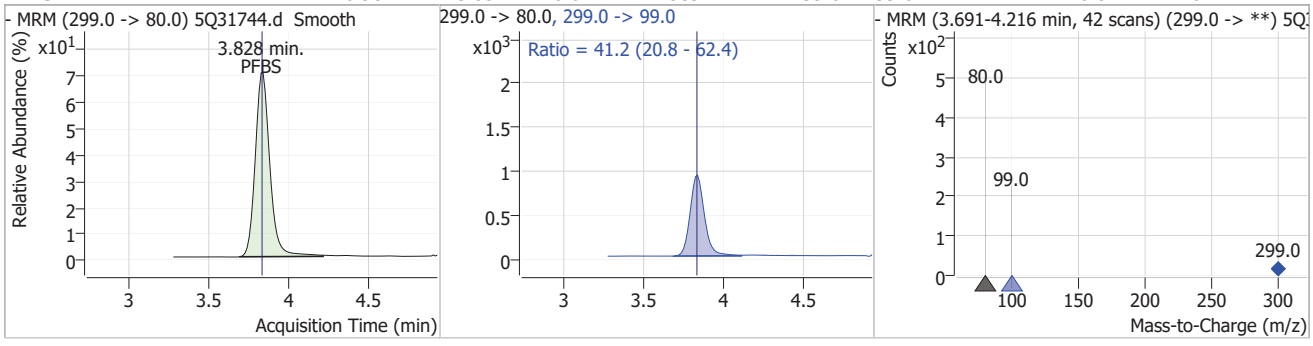
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	593678				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.93	3.60	0.00	34086				

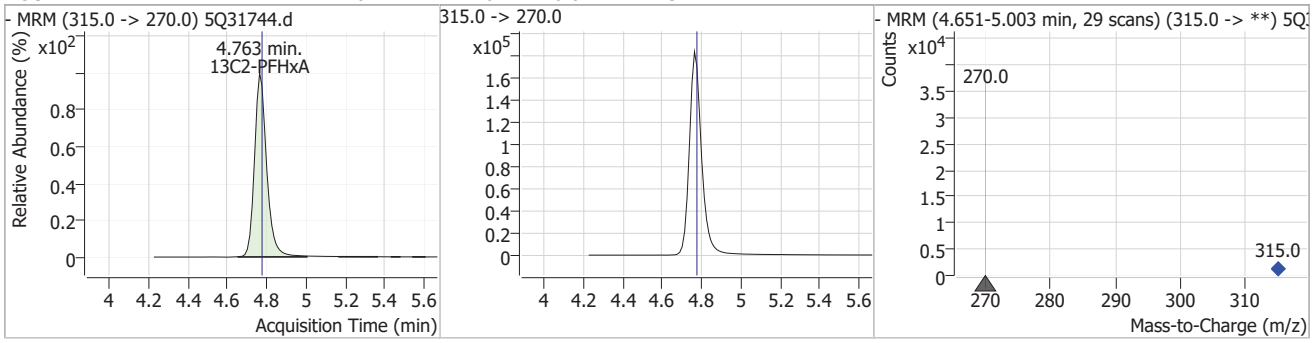


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.98	3.83	-0.01	13892	299.0 -> 99.0	41.2	20.8	62.4

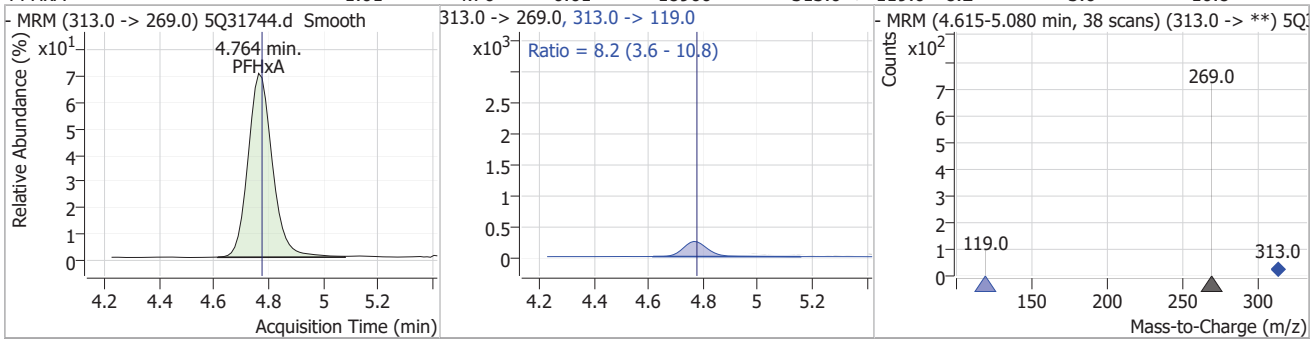


Perfluorinated Compounds by LC/MS/MS

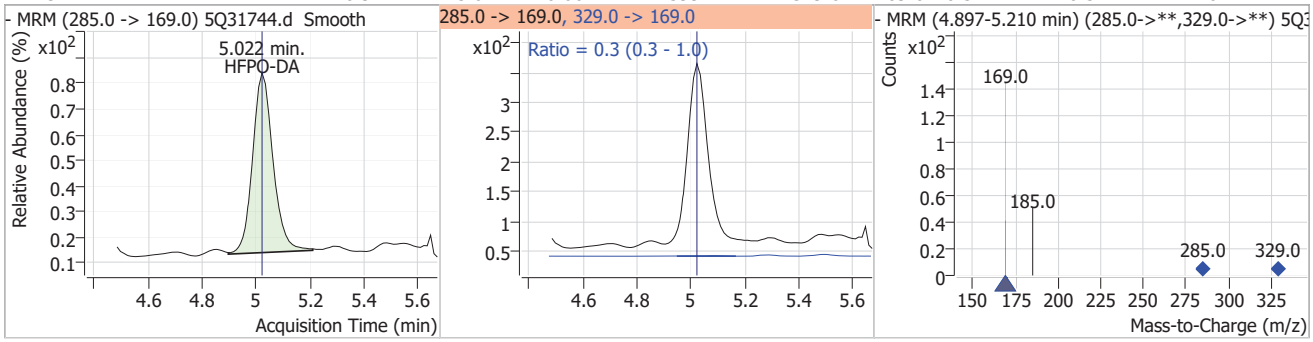
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	26.41	4.76	-0.01	791472				



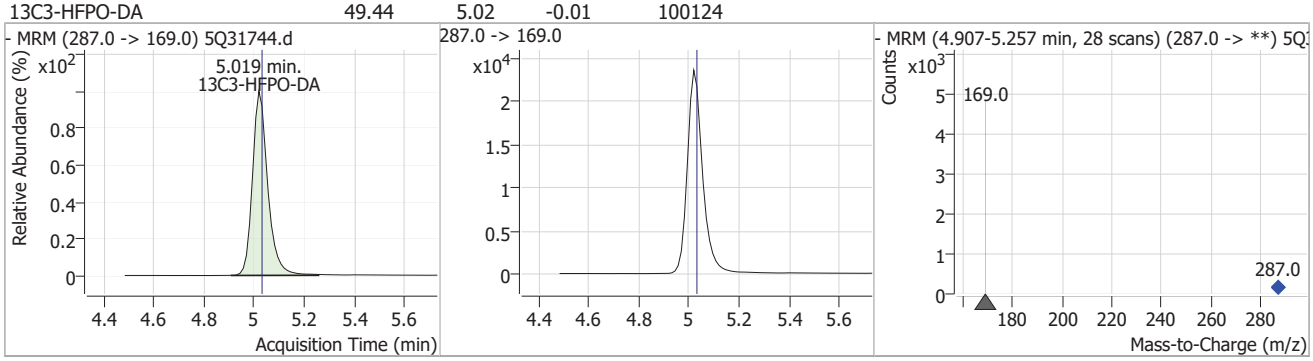
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.01	4.76	-0.01	18900	313.0 -> 119.0	8.2	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.92	5.02	0.00	1599	329.0 -> 169.0	0.3	0.3	1.0

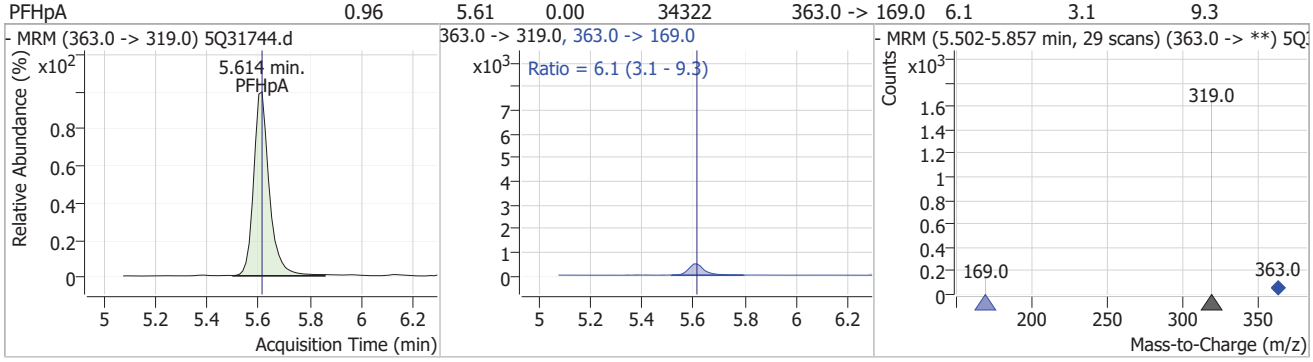


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	49.44	5.02	-0.01	100124				

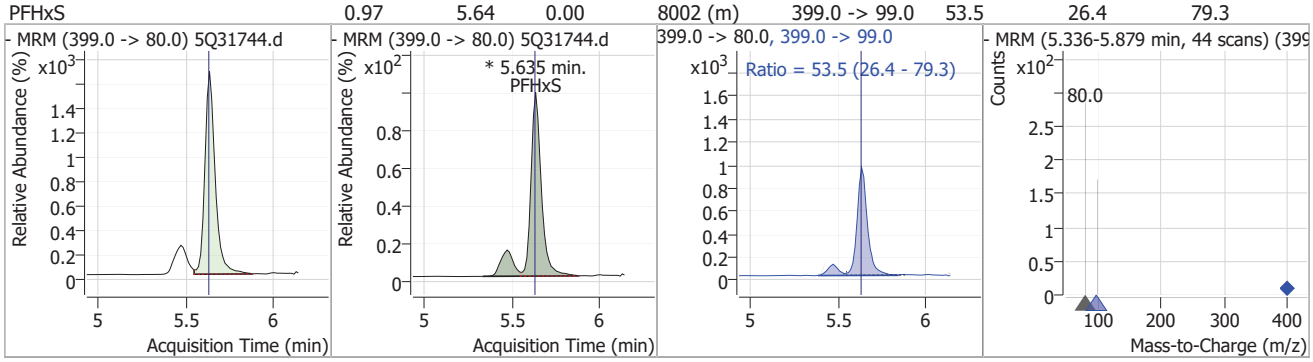


Perfluorinated Compounds by LC/MS/MS

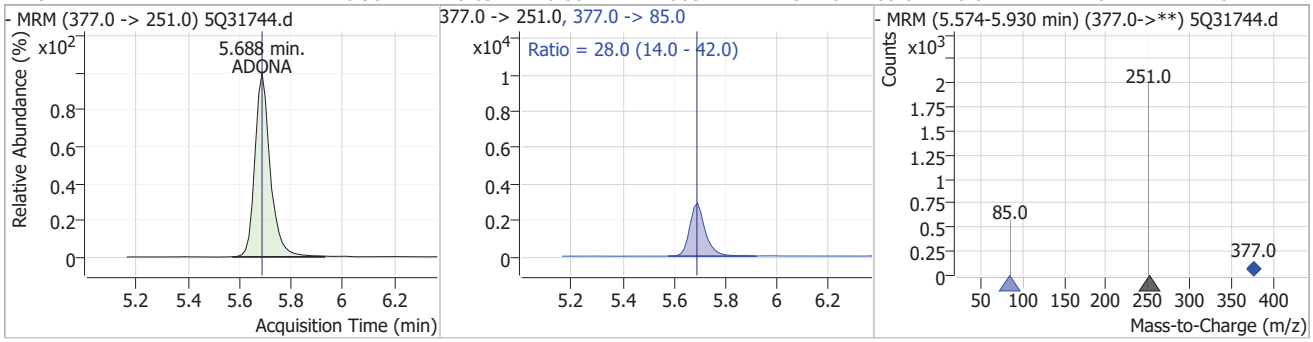
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.96	5.61	0.00	34322	363.0 -> 169.0	6.1	3.1	9.3



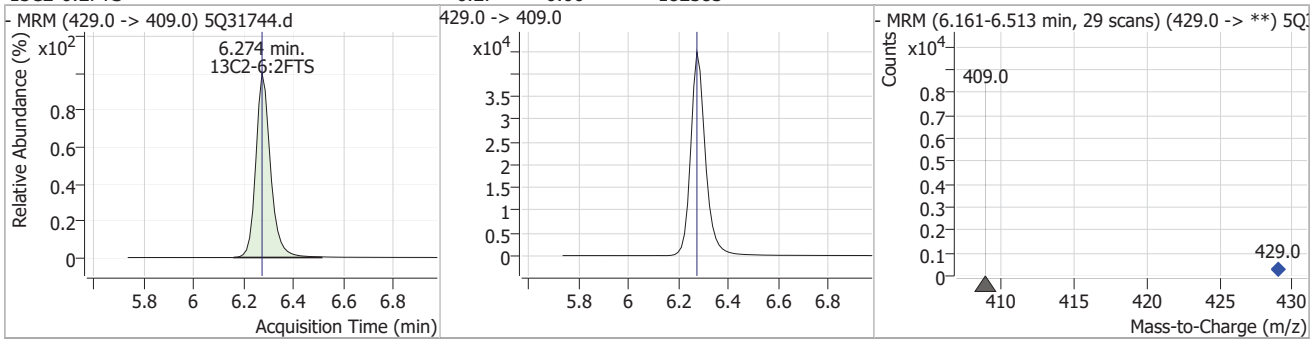
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.97	5.64	0.00	8002 (m)	399.0 -> 99.0	53.5	26.4	79.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.93	5.69	0.00	43687	377.0 -> 85.0	28.0	14.0	42.0

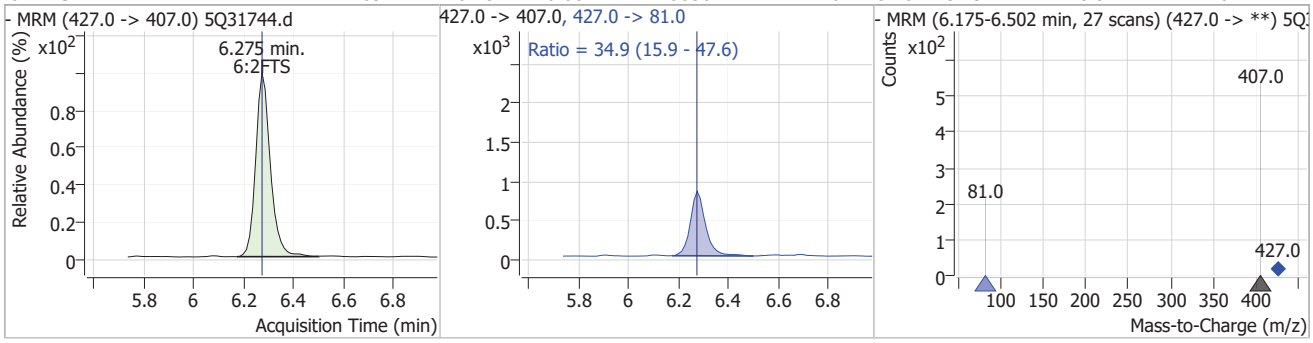


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	0.00	182383				

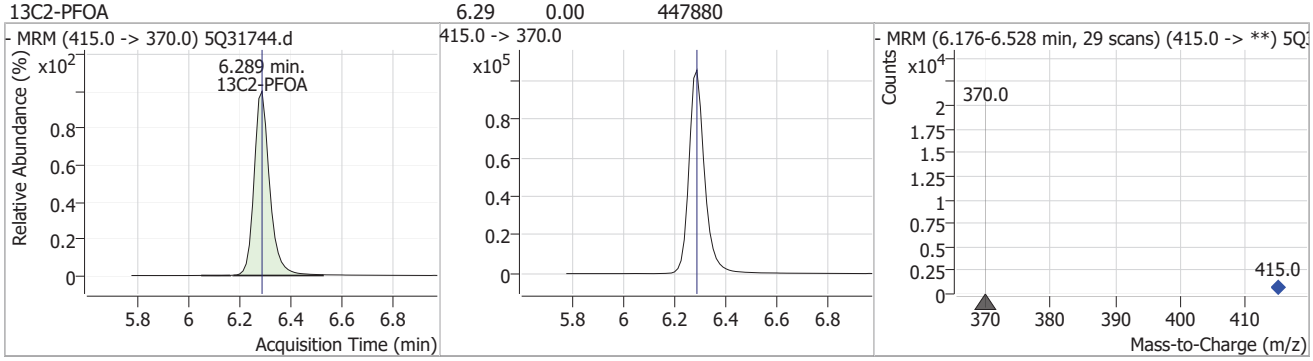


Perfluorinated Compounds by LC/MS/MS

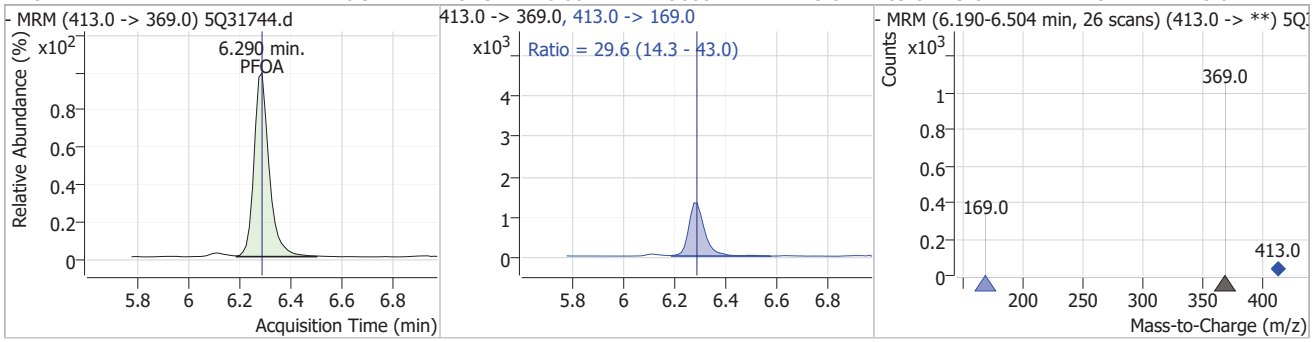
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.09	6.28	0.00	10056	427.0 -> 81.0	34.9	15.9	47.6



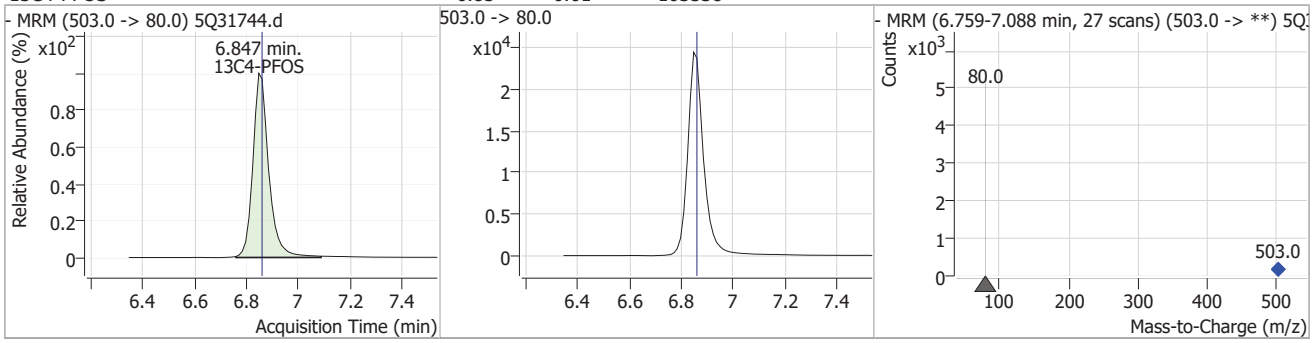
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	447880				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.94	6.29	0.00	19606	413.0 -> 169.0	29.6	14.3	43.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.85	-0.01	103338				



7.3.3

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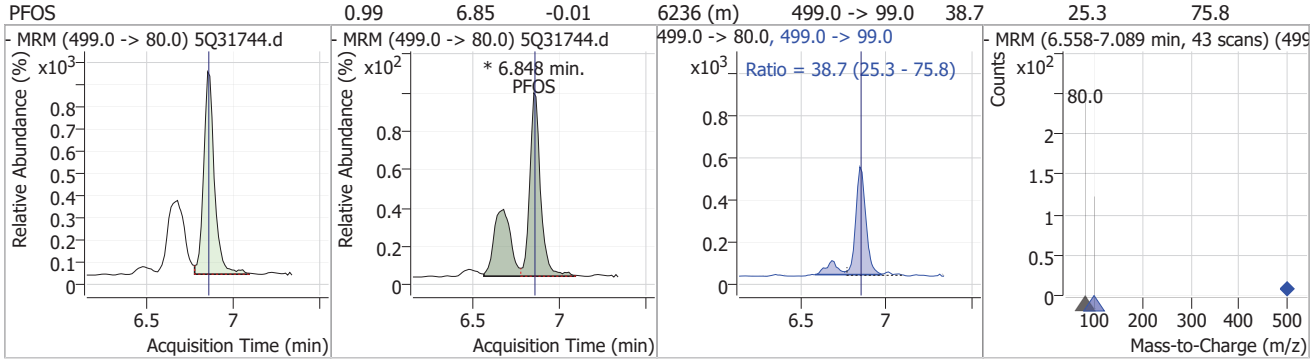
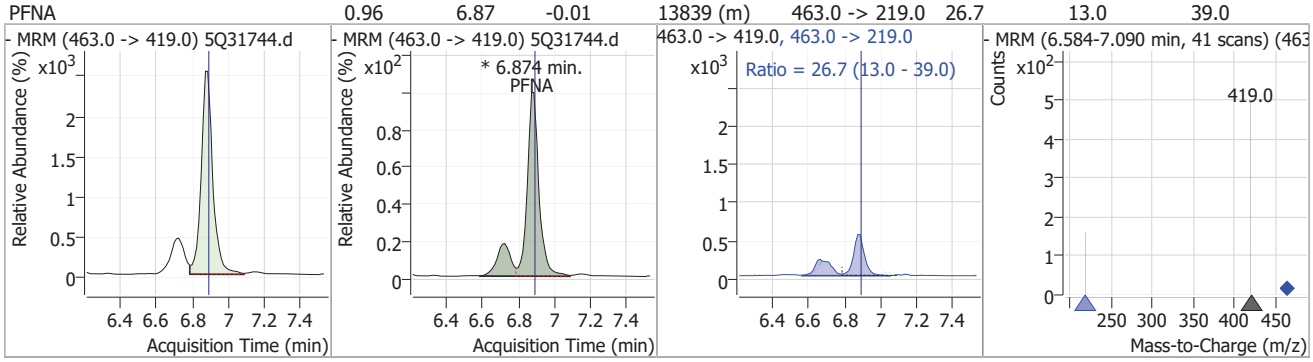
Perfluorinated Compounds by LC/MS/MS

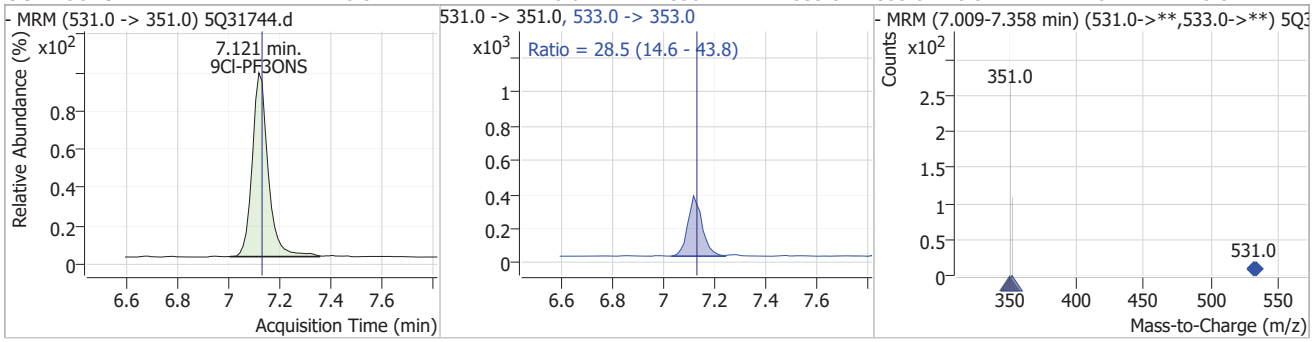
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.99	6.85	-0.01	6236 (m)	499.0 -> 99.0	38.7	25.3	75.8



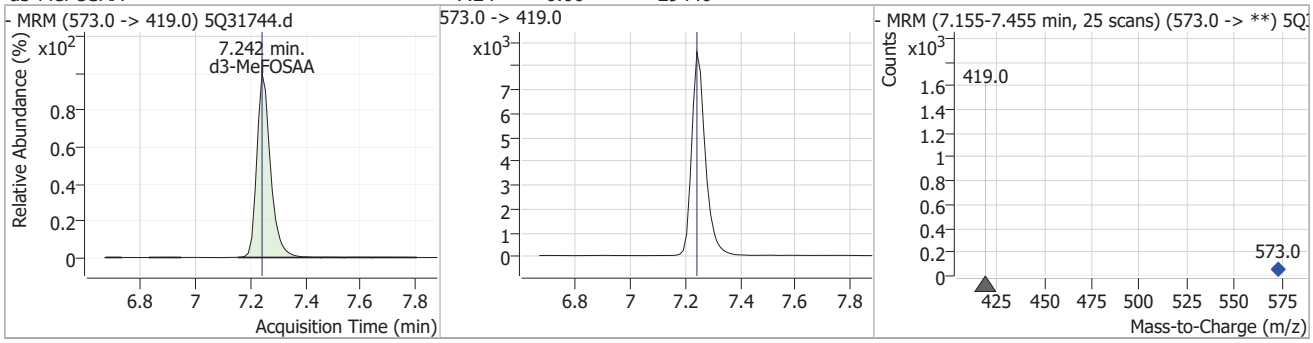
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.96	6.87	-0.01	13839 (m)	463.0 -> 219.0	26.7	13.0	39.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.82	7.12	-0.01	4856	533.0 -> 353.0	28.5	14.6	43.8

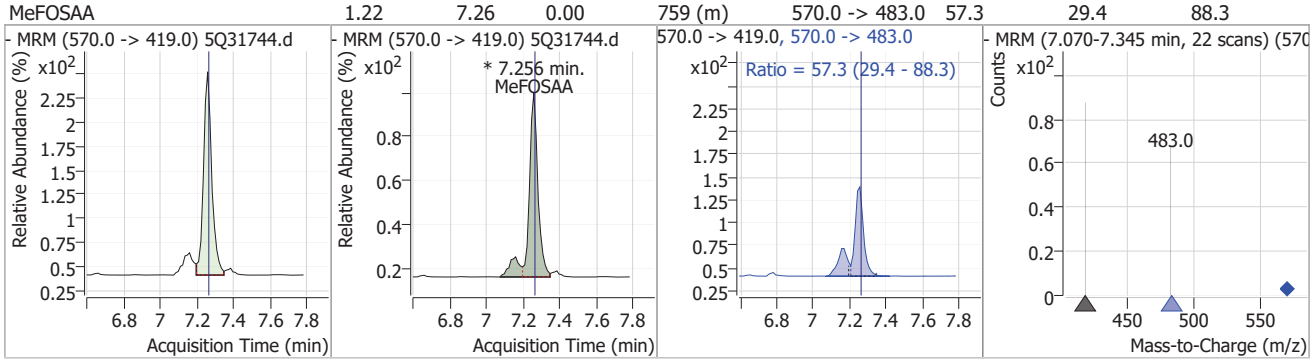


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	29446				

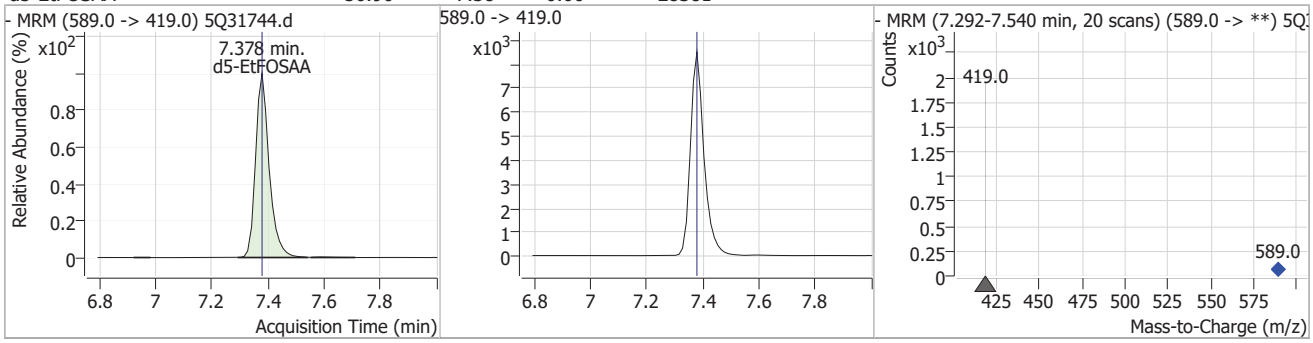


Perfluorinated Compounds by LC/MS/MS

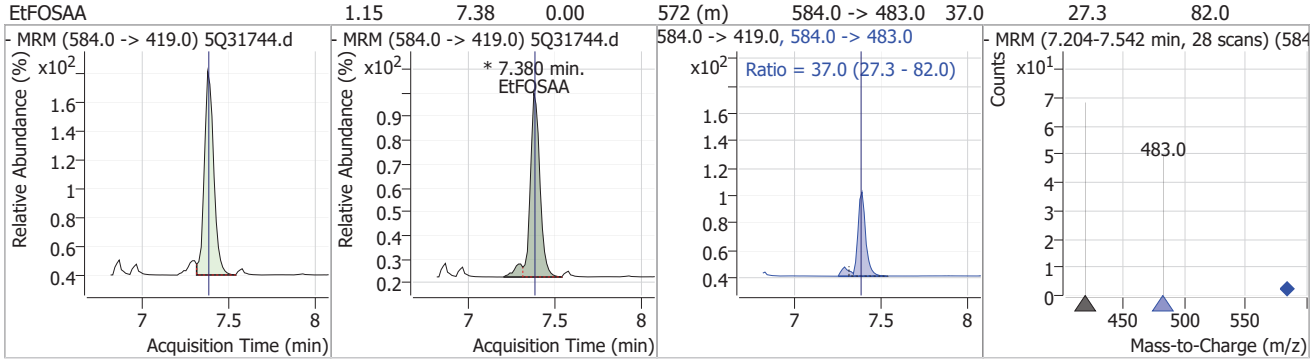
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	1.22	7.26	0.00	759 (m)	570.0 -> 483.0	57.3	29.4	88.3



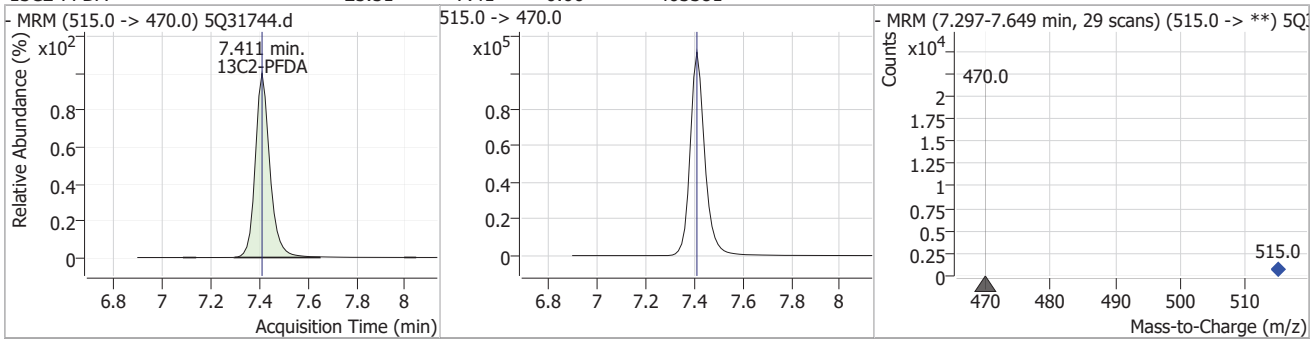
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	50.90	7.38	0.00	28381				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.15	7.38	0.00	572 (m)	584.0 -> 483.0	37.0	27.3	82.0

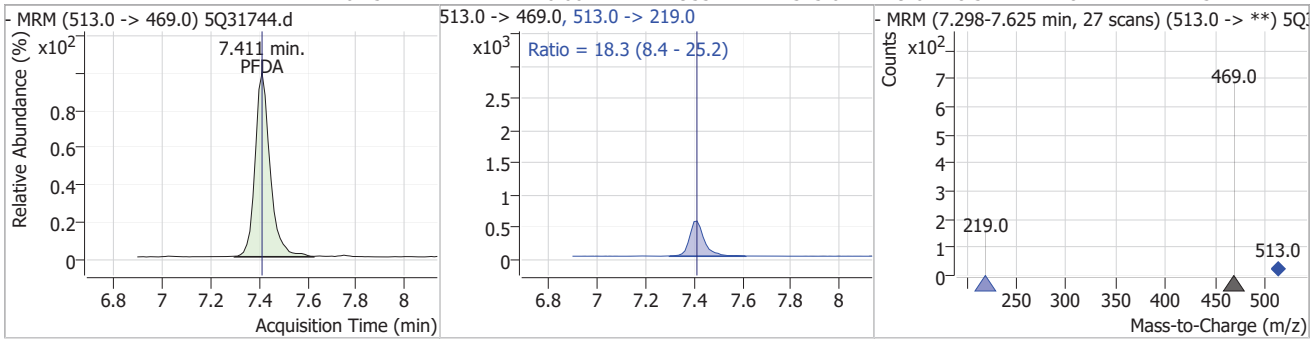


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	25.51	7.41	0.00	465381				

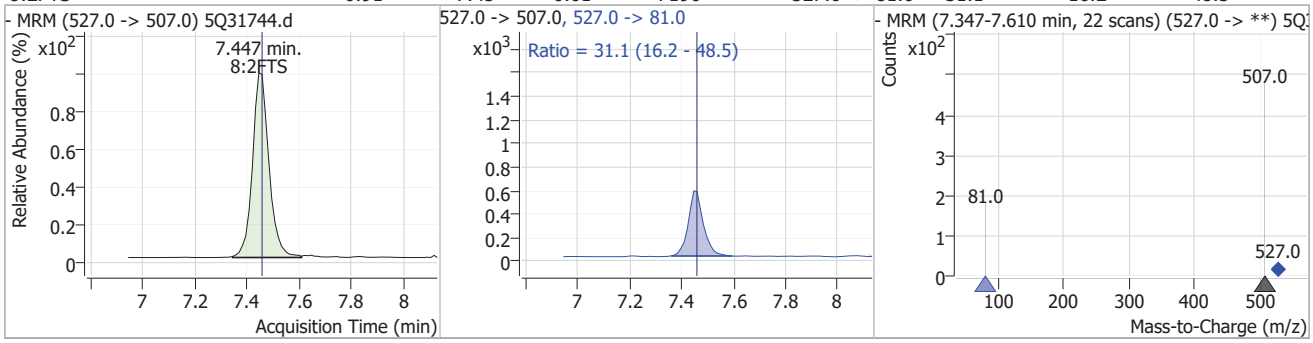


Perfluorinated Compounds by LC/MS/MS

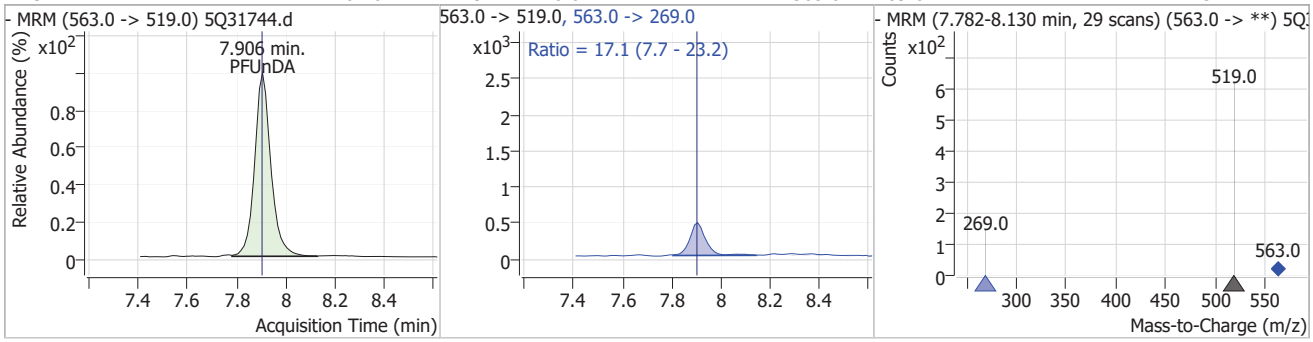
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.75	7.41	0.00	12953	513.0 -> 219.0	18.3	8.4	25.2



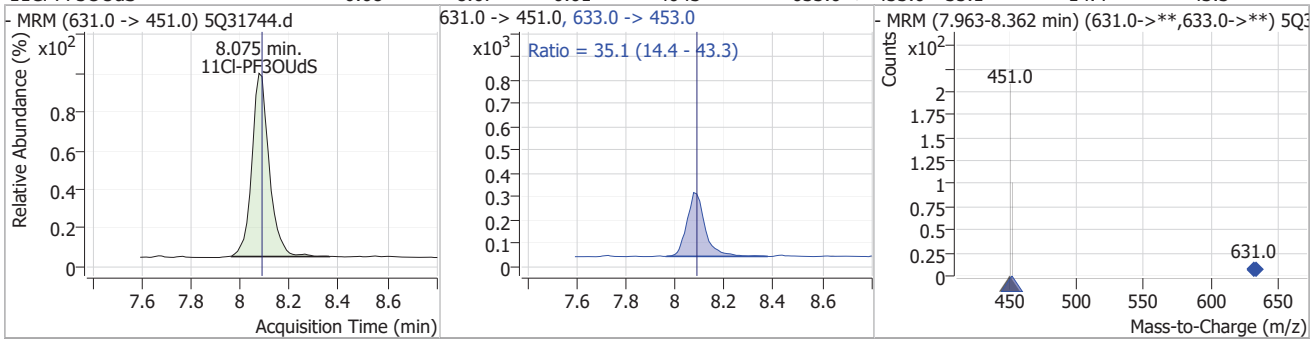
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.91	7.45	-0.01	7190	527.0 -> 81.0	31.1	16.2	48.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.70	7.91	-0.01	12271	563.0 -> 269.0	17.1	7.7	23.2

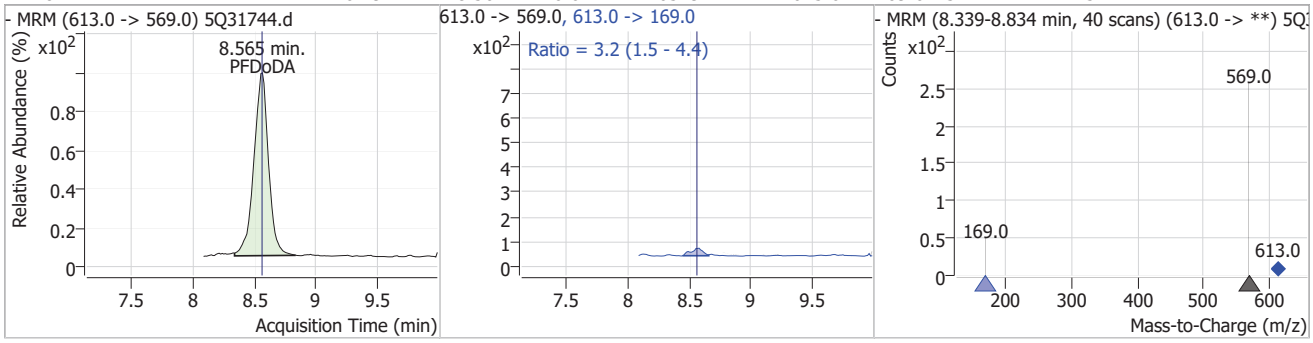


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.68	8.07	-0.01	4043	633.0 -> 453.0	35.1	14.4	43.3

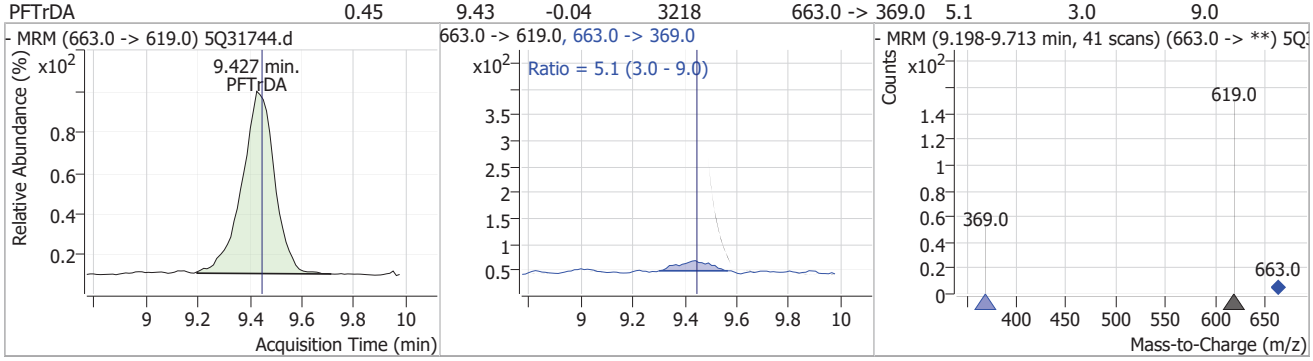


Perfluorinated Compounds by LC/MS/MS

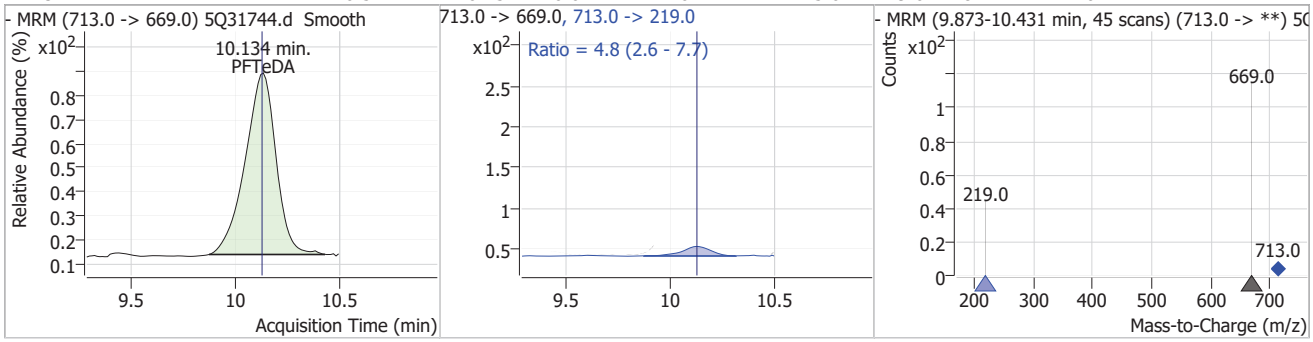
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.49	8.56	-0.01	6379	613.0 -> 169.0	3.2	1.5	4.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.45	9.43	-0.04	3218	663.0 -> 369.0	5.1	3.0	9.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.51	10.13	-0.01	2401	713.0 -> 219.0	4.8	2.6	7.7



7.3.3

7

Manual Integration Approval Summary

Sample Number:	OP8806-BS	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31744.D	**Analyst approved:**	04/15/25 14:46 (b) (6)
Injection Time:	04/14/25 14:02	**Supervisor approved:**	04/15/25 15:59 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.85	Split peak
Perfluorononanoic acid	375-95-1		6.87	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/14/25 13:46

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101446.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/11/2025 8:00:04 PM
Sample Name : op8808-ms
Vial : P3-A4
DA Method File : 533_041125_S3Q1491.quantmethod.xml
Batch Name : s3q1491.batch.bin
Sample Information : op8808,S3Q1491,280,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	267238	10.00 µg/L	0.000
13C3-PFBA	2.307	216.0 -> 172.0	90585	10.00 µg/L	-0.025
13C4-PFOS	7.983	503.0 -> 80.0	38303	10.00 µg/L	0.000
M4-PFBA	2.302	217.0 -> 172.0	104202	10.00 µg/L	-0.038
M5-PFPeA	4.400	268.0 -> 223.0	129527	10.00 µg/L	-0.013
M5-PFHxA	5.763	318.0 -> 273.0	173520	10.00 µg/L	-0.013
M4-PFHpA	6.694	367.0 -> 322.0	151895	10.00 µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	206639	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	223850	10.00 µg/L	0.000
M6-PFDA	8.533	519.0 -> 474.0	320442	10.00 µg/L	0.000
M7-PFUnDA	9.172	570.0 -> 525.0	518715	10.00 µg/L	-0.013
M2-PFDoDA	10.058	615.0 -> 570.0	625602	10.00 µg/L	-0.013
M3-PFBS	4.696	302.0 -> 99.0	15751	10.00 µg/L	-0.013
M3-PFHxS	6.723	402.0 -> 99.0	23025	10.00 µg/L	-0.013
M8-PFOS	7.982	507.0 -> 99.0	27804	10.00 µg/L	0.000
M2-4:2FTS	5.659	329.0 -> 309.0	70153	10.00 µg/L	-0.013
M2-6:2FTS	7.420	429.0 -> 409.0	133885	10.00 µg/L	0.000
M2-8:2FTS	8.585	529.0 -> 509.0	198165	10.00 µg/L	-0.013
M3-HFPO-DA	6.056	287.0 -> 169.0	2555	10.00 µg/L	-0.013
System Monitoring Compounds					
13C2-4:2FTS	5.659	329.0 -> 309.0	70153	7.14 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 71.4%	
13C2-6:2FTS	7.420	429.0 -> 409.0	133885	7.04 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 70.4%	
13C2-8:2FTS	8.585	529.0 -> 509.0	198165	6.46 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 64.6%	
13C2-PFDoDA	10.058	615.0 -> 570.0	625602	5.35 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 53.5%	
13C3-PFBS	4.696	302.0 -> 99.0	15751	6.78 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 67.8%	
13C3-PFHxS	6.723	402.0 -> 99.0	23025	6.88 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 68.8%	
13C4-PFBA	2.302	217.0 -> 172.0	104202	6.73 µg/L	-0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 67.3%	
13C4-PFHpA	6.694	367.0 -> 322.0	151895	6.80 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 68.0%	
13C5-PFHxA	5.763	318.0 -> 273.0	173520	6.78 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 67.8%	
13C5-PFPeA	4.400	268.0 -> 223.0	129527	6.81 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 68.1%	
13C6-PFDA	8.533	519.0 -> 474.0	320442	6.36 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 63.6%	
13C7-PFUnDA	9.172	570.0 -> 525.0	518715	5.75 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 57.5%	
13C8-PFOA	7.422	421.0 -> 376.0	206639	6.68 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

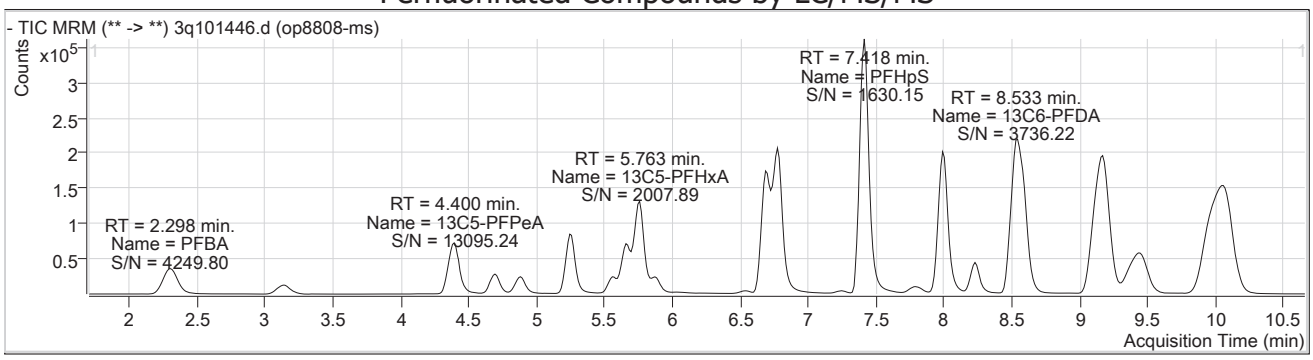
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 66.8%		
13C8-PFOS	7.982	507.0 -> 99.0	27804	6.50 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 65.0%		
13C9-PFNA	8.010	472.0 -> 427.0	223850	6.63 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 66.3%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	2555	8.19 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.9%		
Target Compounds						QValue
PFMPA	3.141	229.0 -> 85.0	91459	23.26 µg/L		100
4:2FTS	5.661	327.0 -> 307.0	200709	23.60 µg/L		86
		327.0 -> 81.0	81424			
6:2FTS	7.420	427.0 -> 407.0	276233	23.63 µg/L		94
		427.0 -> 81.0	113501			
8:2FTS	8.586	527.0 -> 507.0	405860	23.82 µg/L		97
		527.0 -> 81.0	149525			
PFMBA	4.888	279.0 -> 85.0	129219	22.93 µg/L		100
PFEESA	5.247	315.0 -> 135.0	397534	23.17 µg/L		97
		315.0 -> 69.0	29802			
NFDHA	5.569	201.0 -> 85.0	112773	23.09 µg/L		97
		295.0 -> 201.0	7575			
PFBA	2.298	213.0 -> 169.0	83726	24.13 µg/L		100
PFBS	4.697	299.0 -> 80.0	94452	24.70 µg/L	m	90
		299.0 -> 99.0	39394			
PFDA	8.534	513.0 -> 469.0	497387	23.21 µg/L		96
		513.0 -> 219.0	105941			
PFDoDA	10.050	613.0 -> 569.0	1200206	23.99 µg/L		99
		613.0 -> 169.0	113571			
PFHpA	6.695	363.0 -> 319.0	567399	23.55 µg/L	m	99
		363.0 -> 169.0	47165			
PFHpS	7.418	449.0 -> 80.0	117775	22.46 µg/L		93
		449.0 -> 99.0	64492			
PFHxA	5.765	313.0 -> 269.0	457807	24.61 µg/L		98
		313.0 -> 119.0	16047			
PFHxS	6.725	399.0 -> 80.0	121565	24.15 µg/L	m	94
		399.0 -> 99.0	62950			
PFNA	8.010	463.0 -> 419.0	474397	23.25 µg/L		99
		463.0 -> 219.0	132343			
PFOA	7.423	413.0 -> 369.0	455865	24.78 µg/L	m	99
		413.0 -> 169.0	168442			
PFOS	7.969	499.0 -> 80.0	142296	25.38 µg/L	m	81
		499.0 -> 99.0	69625			
PFPeA	4.402	263.0 -> 219.0	293421	24.90 µg/L		100
PFPeS	5.871	349.0 -> 80.0	64704	23.01 µg/L		95
		349.0 -> 99.0	27102			
PFUnDA	9.174	563.0 -> 519.0	969633	23.88 µg/L		97
		563.0 -> 269.0	169091			
11Cl-PF3OUdS	9.432	631.0 -> 451.0	530634	21.08 µg/L		100
		631.0 -> 83.0	24696			
9Cl-PF3ONS	8.229	531.0 -> 351.0	194183	22.41 µg/L		100
		531.0 -> 83.0	10069			
ADONA	6.778	377.0 -> 251.0	837171	22.78 µg/L		97
		377.0 -> 85.0	101750			
HFPO-DA	6.048	329.0 -> 169.0	1413	19.85 µg/L	#	1
		285.0 -> 169.0	3516			

 # = Qualifier out of range, m = manually integrated, + = Area summed

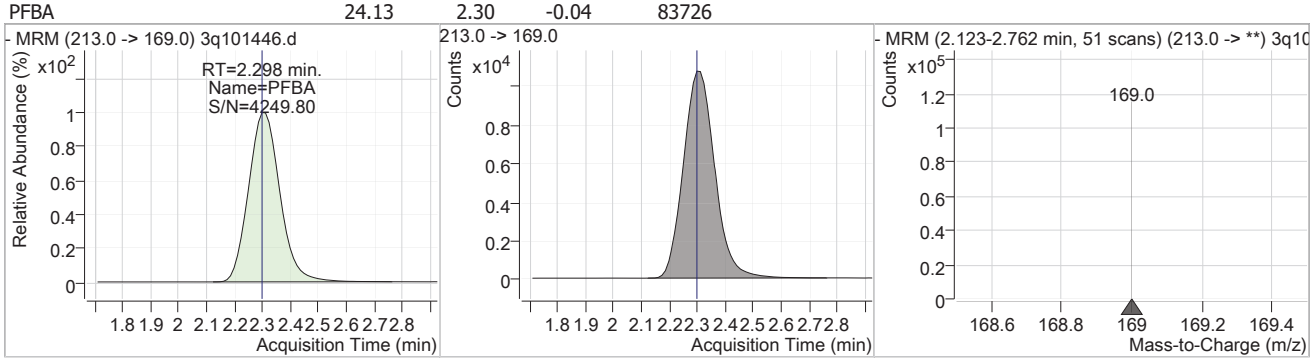
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

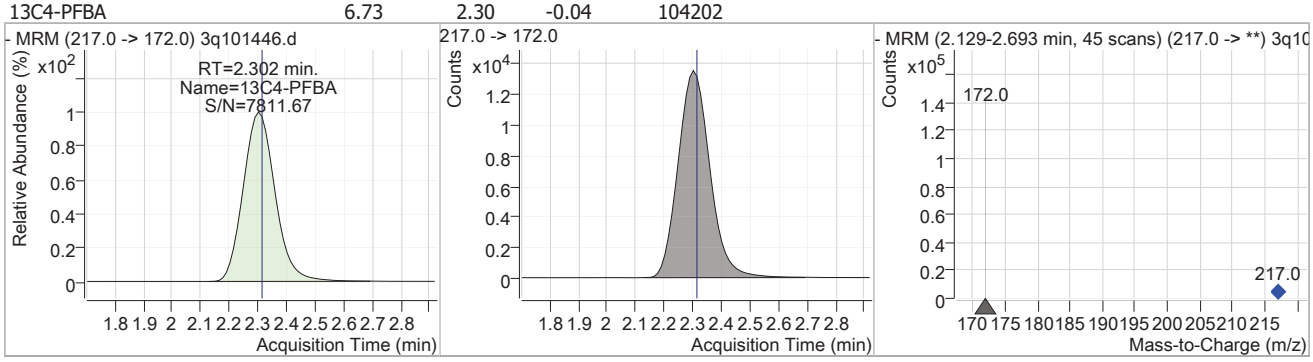
Perfluorinated Compounds by LC/MS/MS



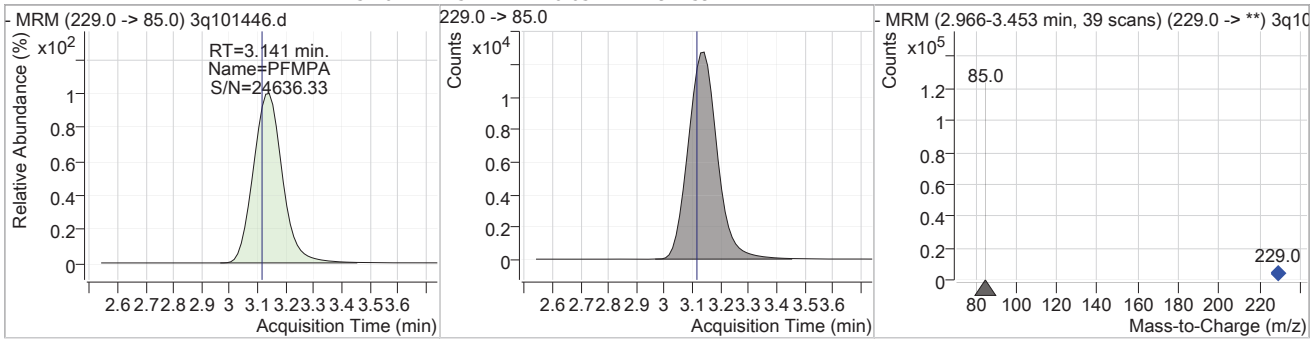
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	24.13	2.30	-0.04	83726				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	6.73	2.30	-0.04	104202				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	23.26	3.14	-0.03	91459				



7.4.1

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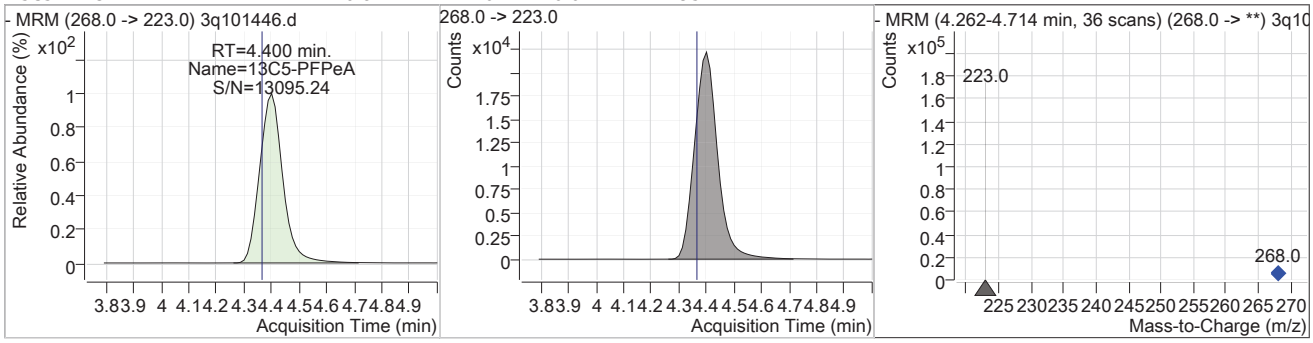
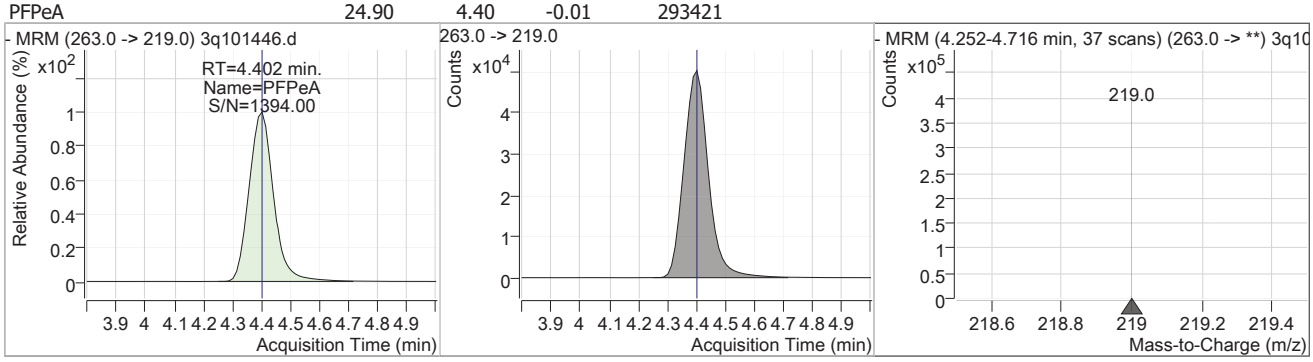
Perfluorinated Compounds by LC/MS/MS

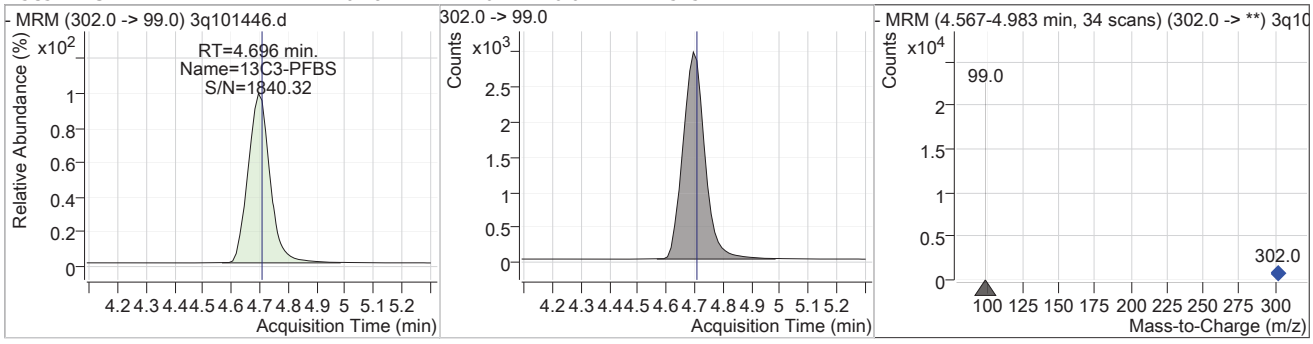
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	6.81	4.40	-0.01	129527				



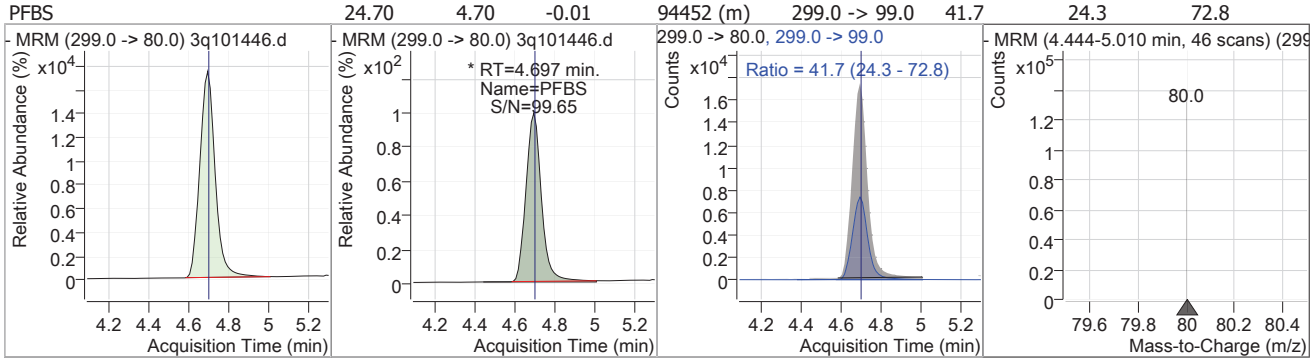
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	24.90	4.40	-0.01	293421				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	6.78	4.70	-0.01	15751				

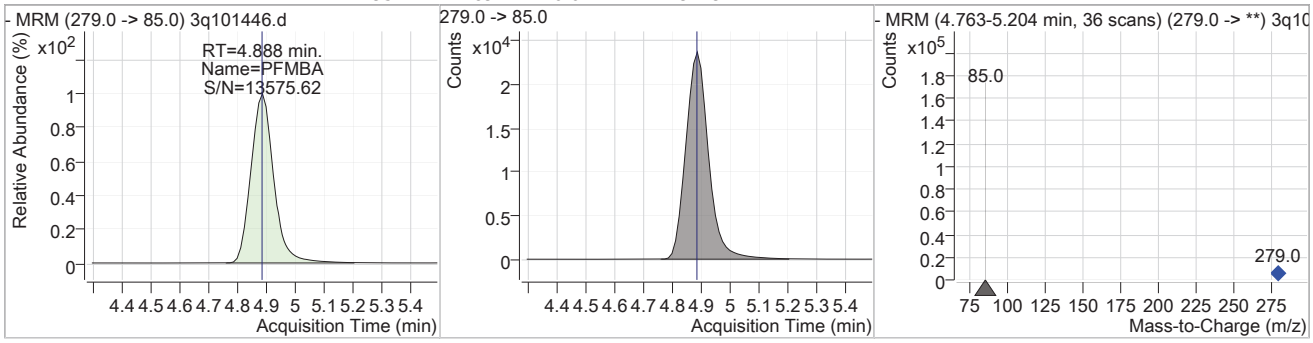


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	24.70	4.70	-0.01	94452 (m)	299.0 -> 99.0	41.7	24.3	72.8

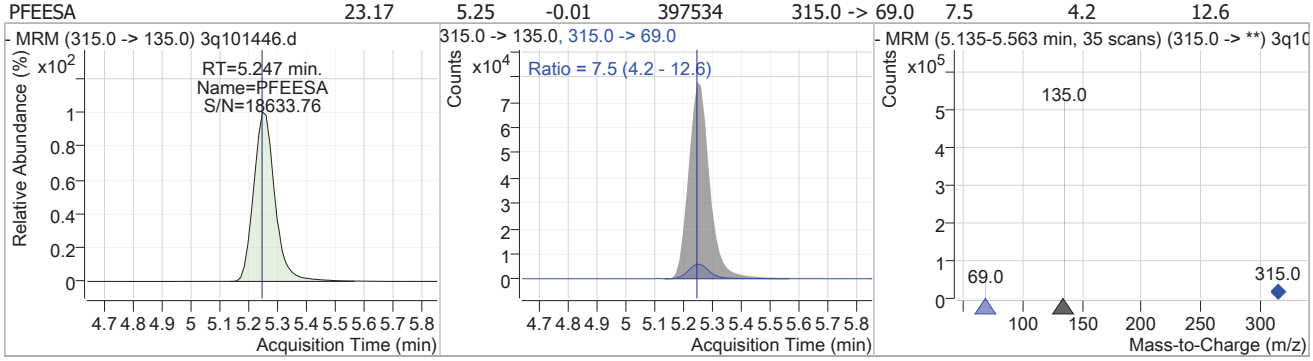


Perfluorinated Compounds by LC/MS/MS

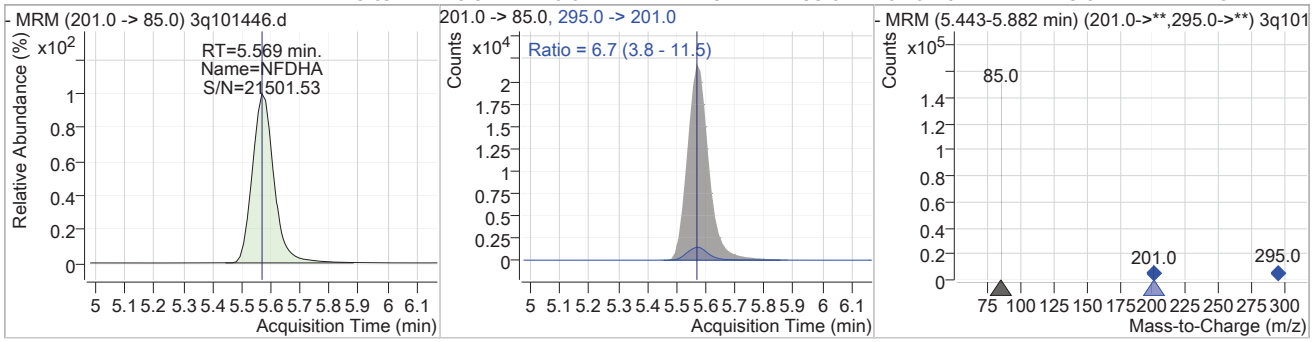
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	22.93	4.89	-0.01	129219				



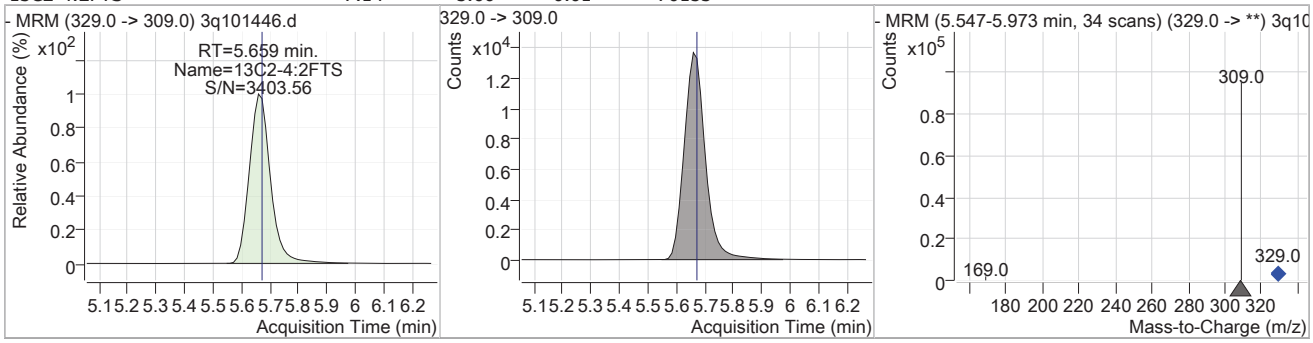
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	23.17	5.25	-0.01	397534	315.0 -> 69.0	7.5	4.2	12.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	23.09	5.57	-0.01	112773	295.0 -> 201.0	6.7	3.8	11.5

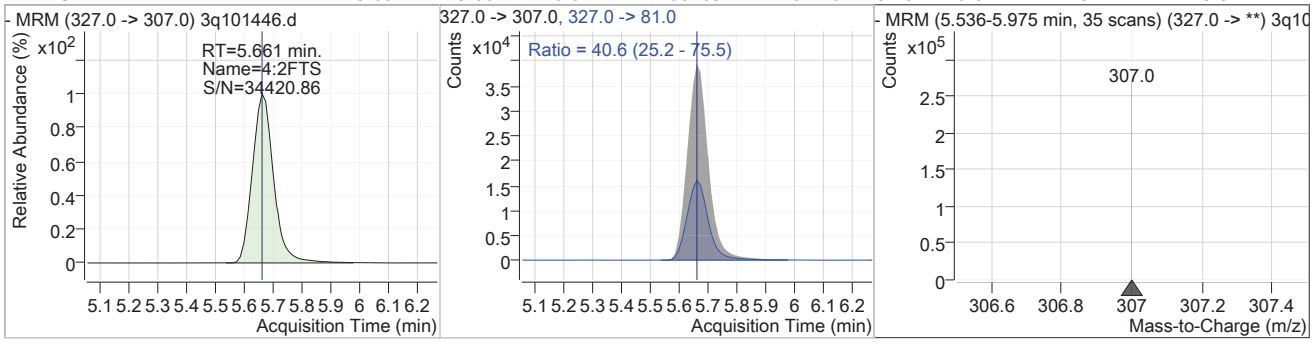


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	7.14	5.66	-0.01	70153				

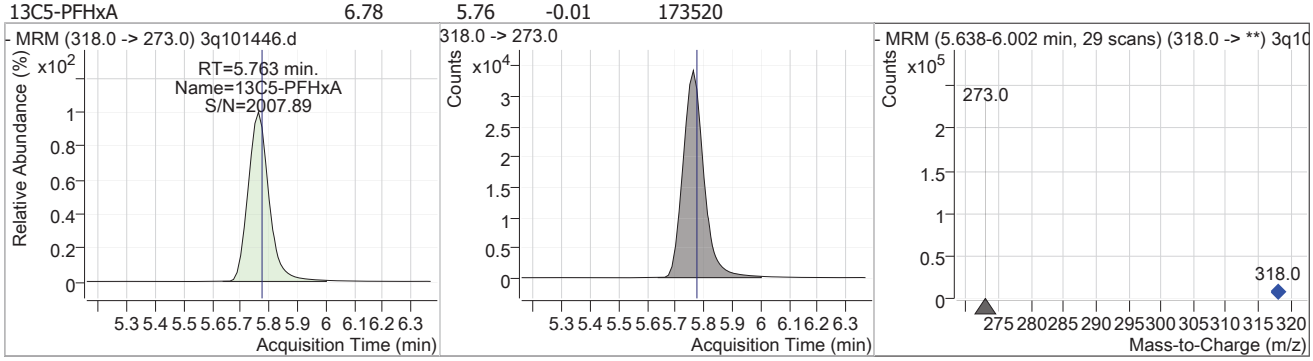


Perfluorinated Compounds by LC/MS/MS

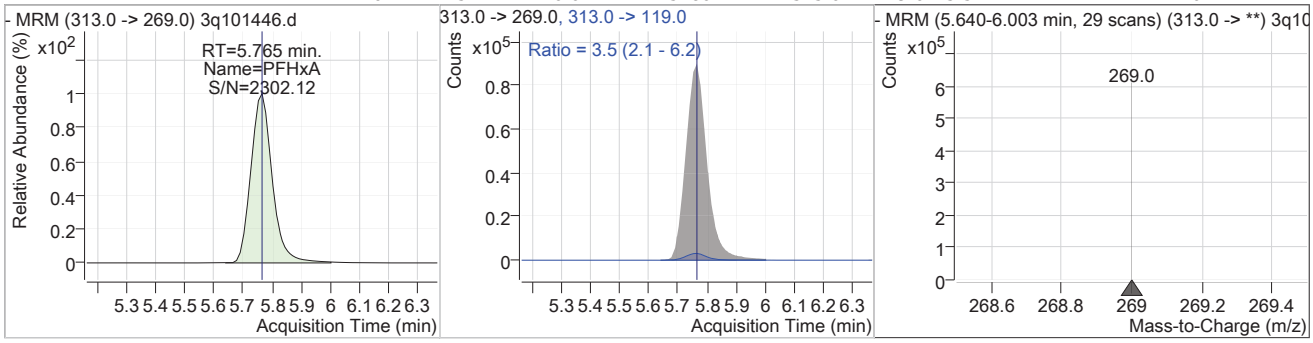
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	23.60	5.66	-0.01	200709	327.0 -> 81.0	40.6	25.2	75.5



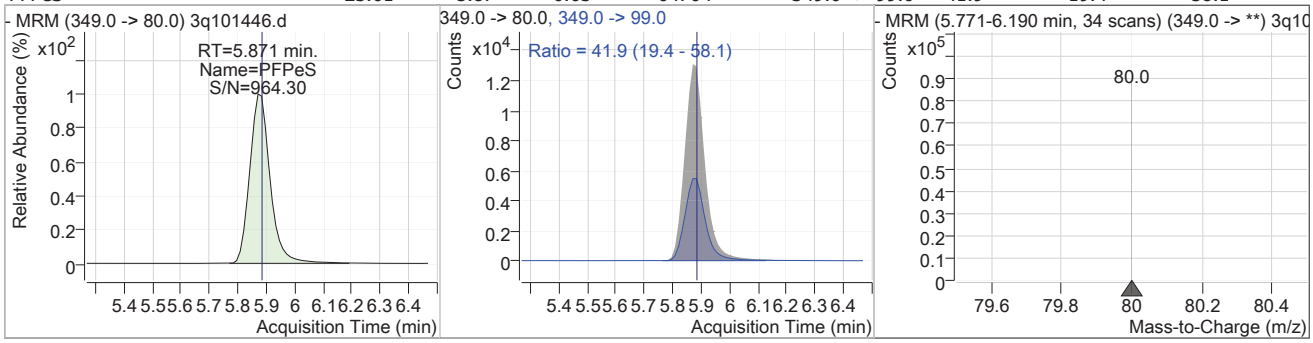
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	6.78	5.76	-0.01	173520				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	24.61	5.77	-0.01	457807	313.0 -> 119.0	3.5	2.1	6.2

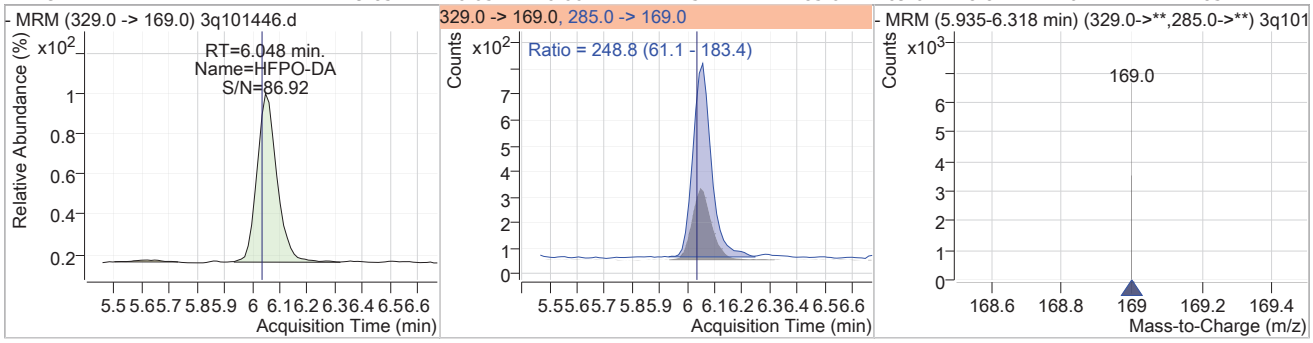


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	23.01	5.87	-0.03	64704	349.0 -> 99.0	41.9	19.4	58.1

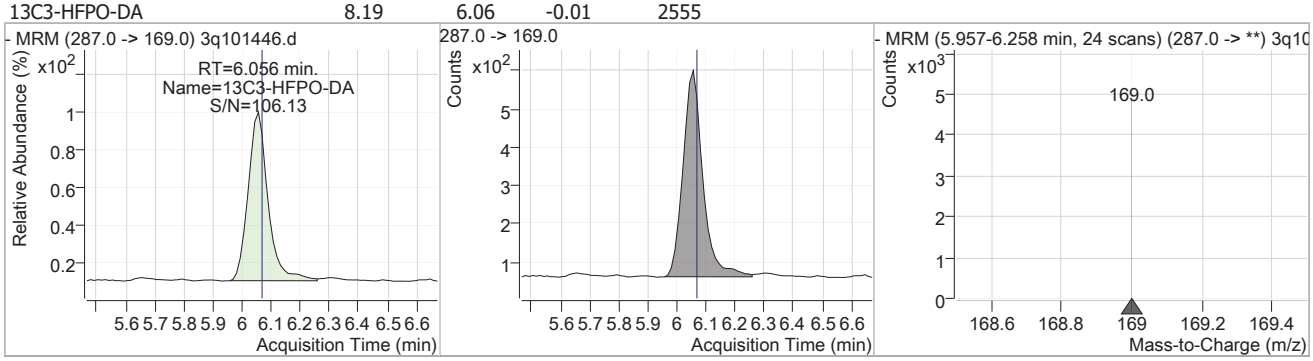


Perfluorinated Compounds by LC/MS/MS

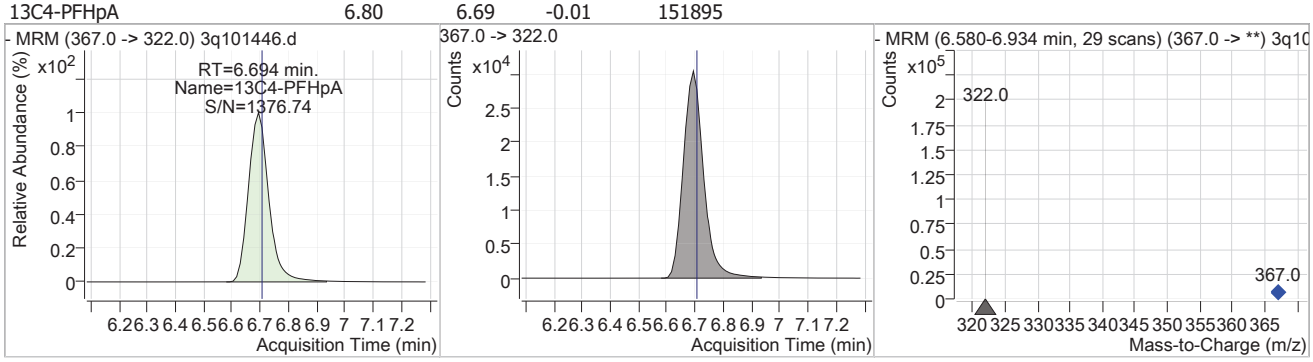
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.85	6.05	0.00	1413	285.0 -> 169.0	248.8	61.1	183.4



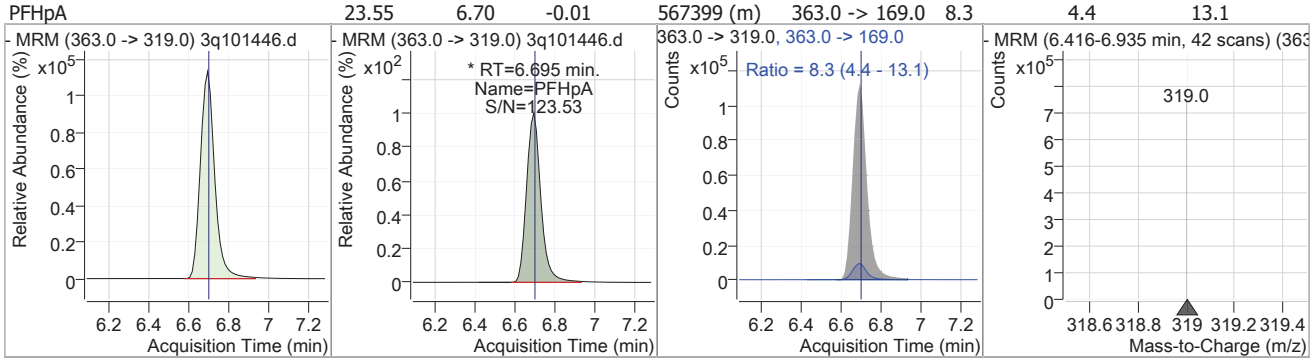
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.19	6.06	-0.01	2555				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	6.80	6.69	-0.01	151895				

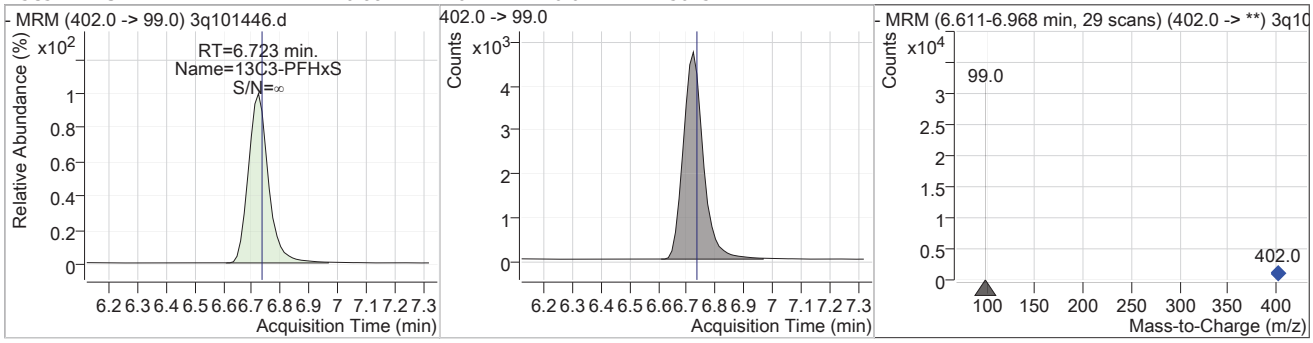


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	23.55	6.70	-0.01	567399 (m)	363.0 -> 169.0	8.3	4.4	13.1

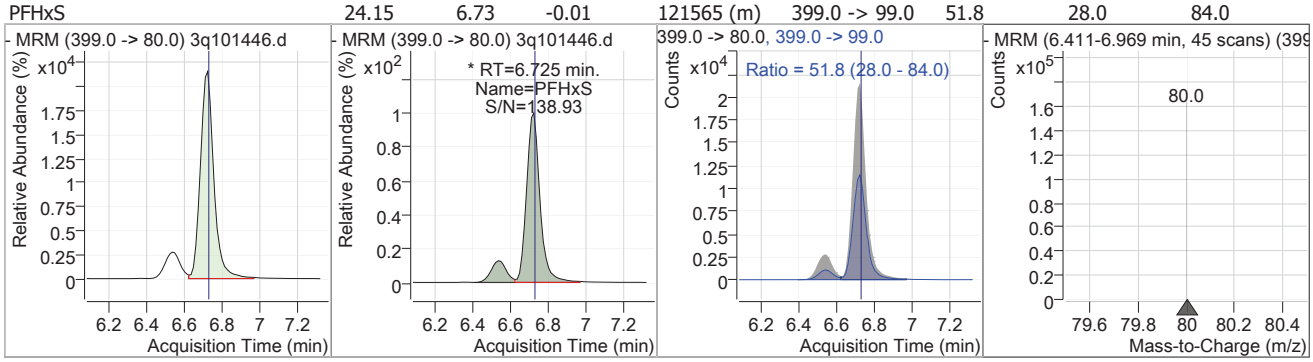


Perfluorinated Compounds by LC/MS/MS

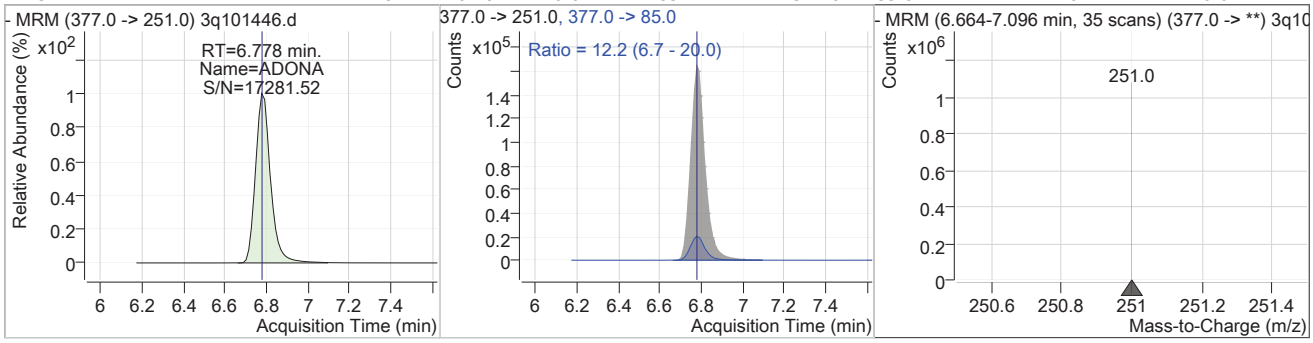
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	6.88	6.72	-0.01	23025				



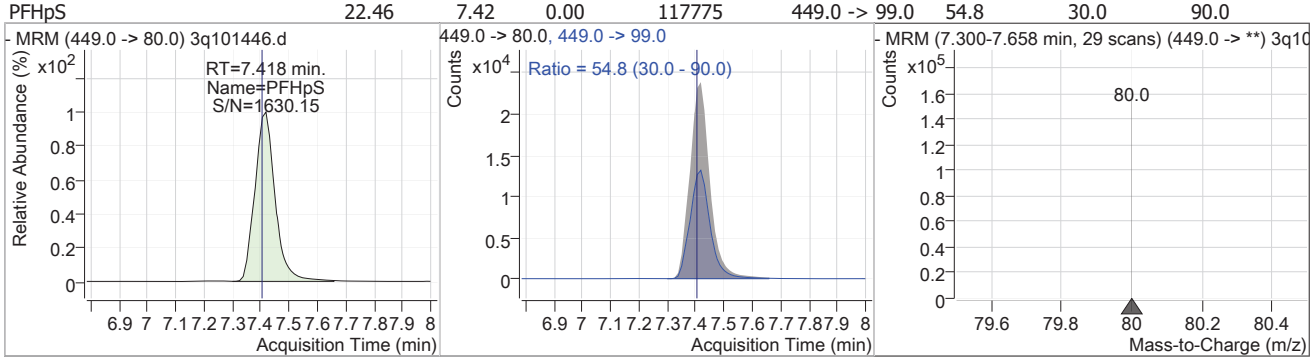
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	24.15	6.73	-0.01	121565 (m)	399.0 -> 99.0	51.8	28.0	84.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	22.78	6.78	-0.01	837171	377.0 -> 85.0	12.2	6.7	20.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	22.46	7.42	0.00	117775	449.0 -> 99.0	54.8	30.0	90.0



7.4.1

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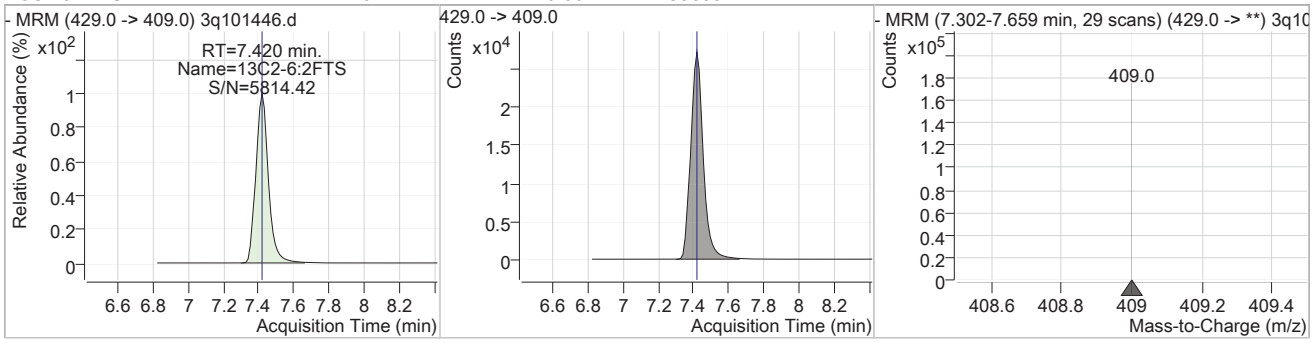
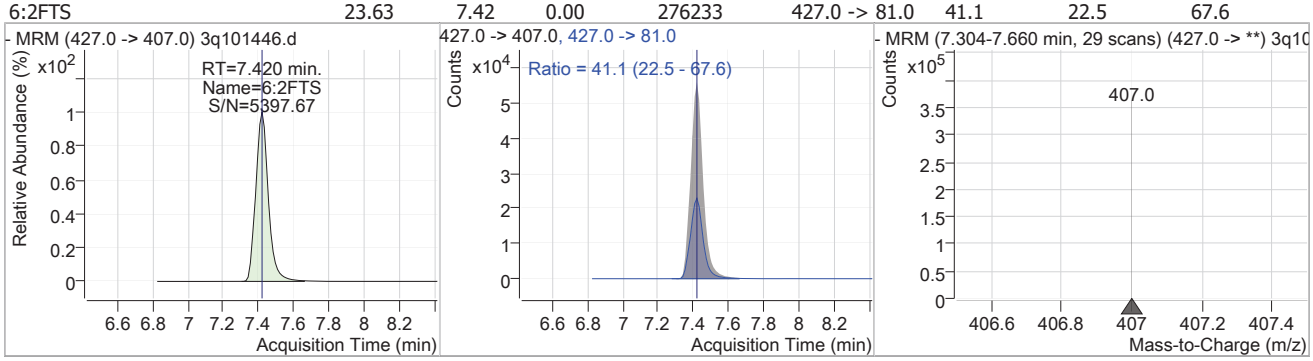
Perfluorinated Compounds by LC/MS/MS

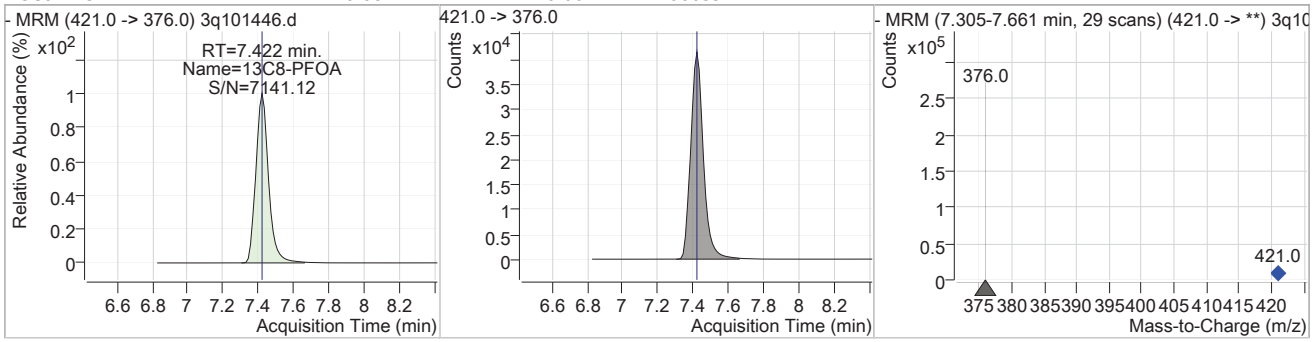
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	7.04	7.42	0.00	133885				



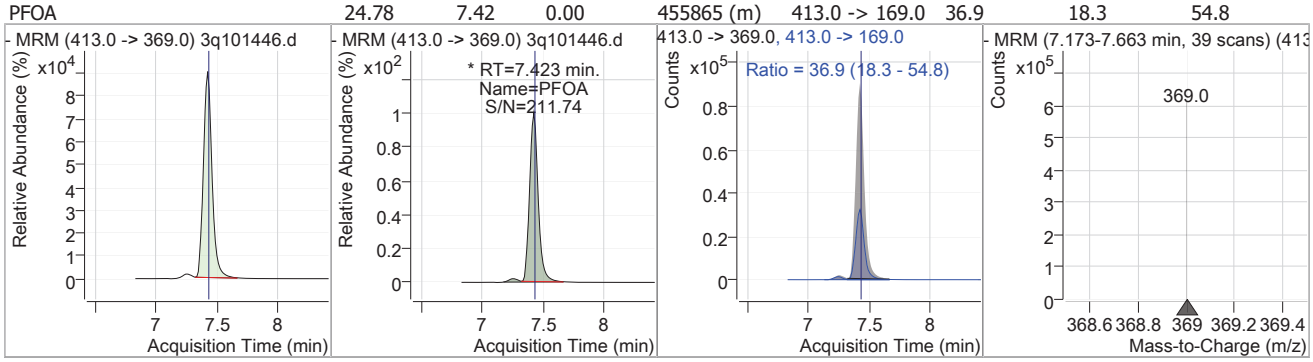
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	23.63	7.42	0.00	276233	427.0 -> 81.0	41.1	22.5	67.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	6.68	7.42	0.00	206639				

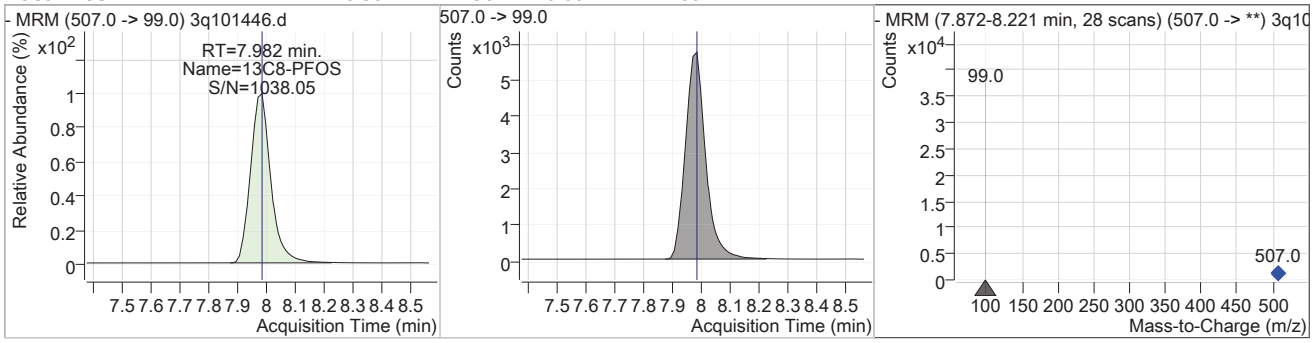


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	24.78	7.42	0.00	455865 (m)	413.0 -> 169.0	36.9	18.3	54.8

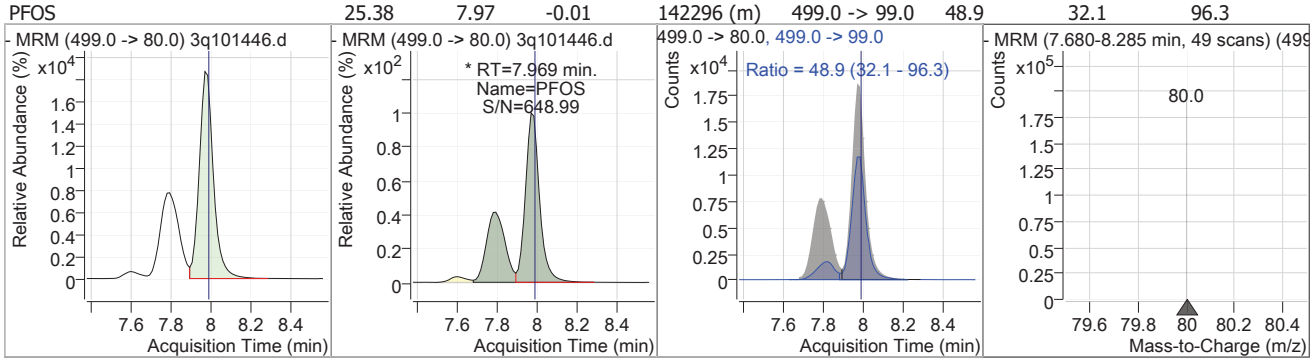


Perfluorinated Compounds by LC/MS/MS

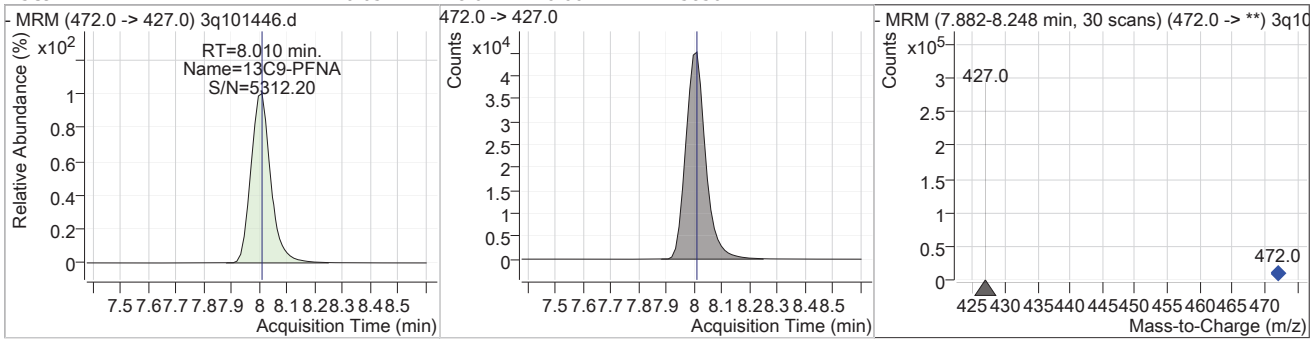
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	6.50	7.98	0.00	27804				



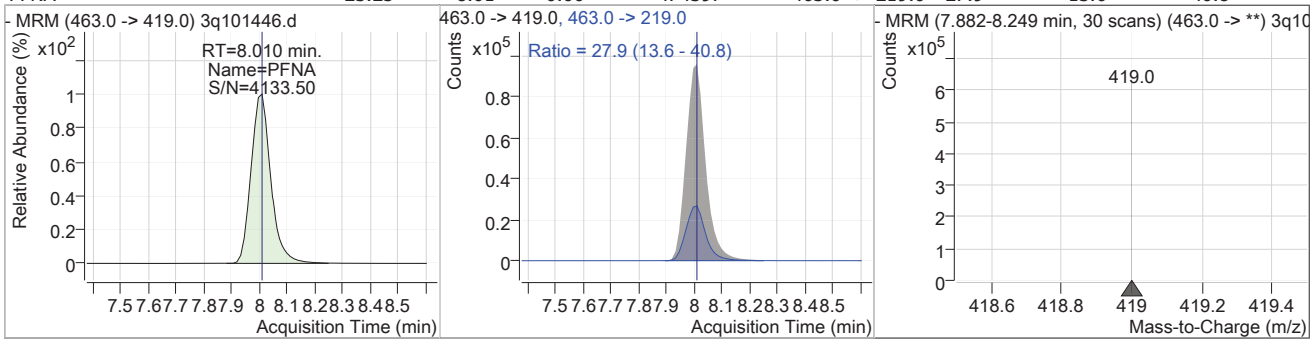
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	25.38	7.97	-0.01	142296 (m)	499.0 -> 99.0	48.9	32.1	96.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	6.63	8.01	0.00	223850				

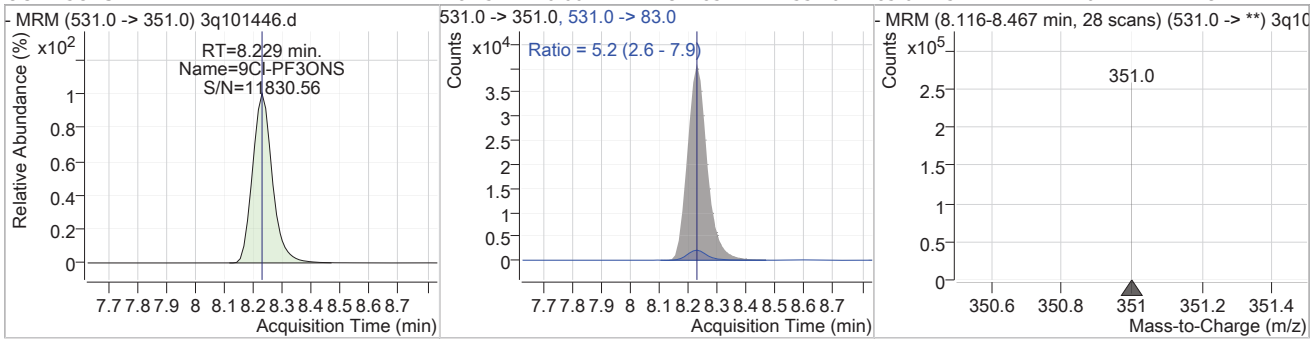


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	23.25	8.01	0.00	474397	463.0 -> 219.0	27.9	13.6	40.8

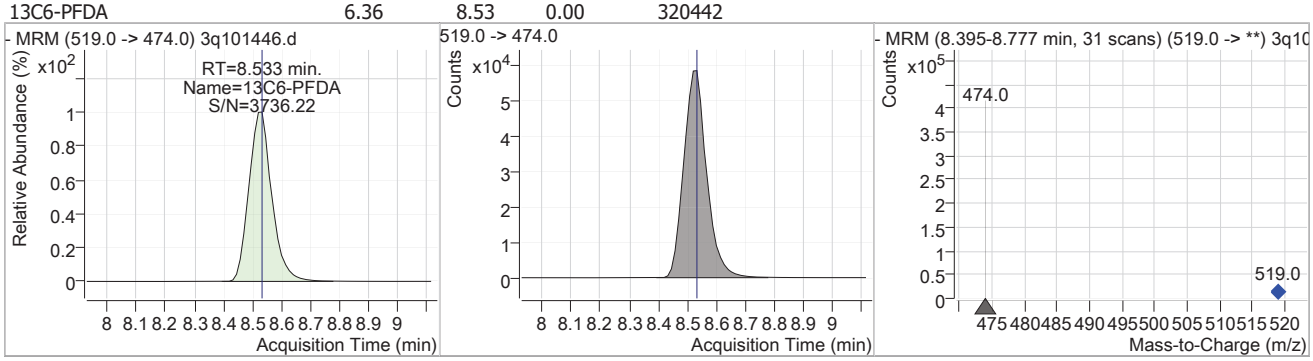


Perfluorinated Compounds by LC/MS/MS

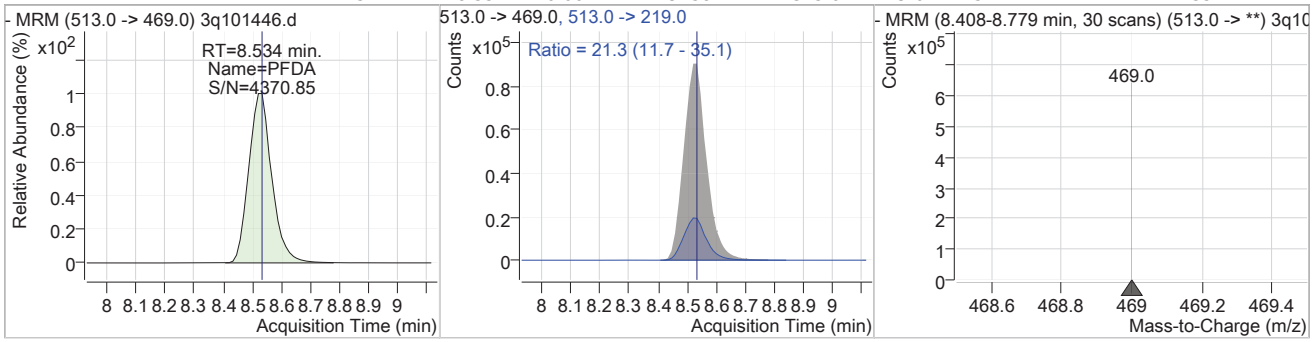
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	22.41	8.23	0.00	194183	531.0 -> 83.0	5.2	2.6	7.9



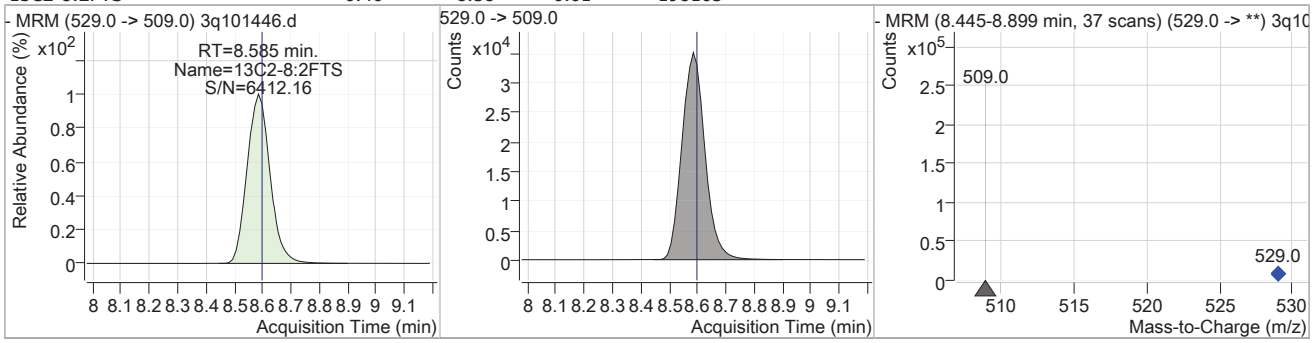
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	6.36	8.53	0.00	320442				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	23.21	8.53	0.00	497387	513.0 -> 219.0	21.3	11.7	35.1

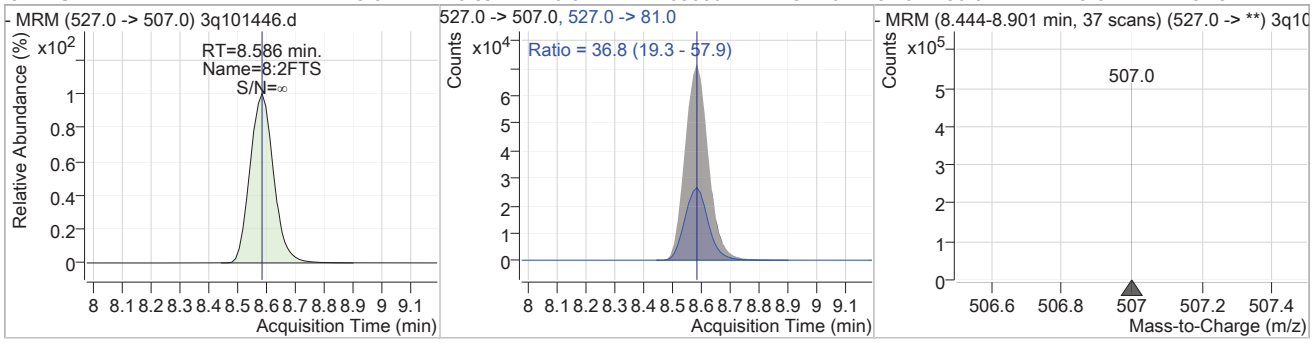


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	6.46	8.58	-0.01	198165				

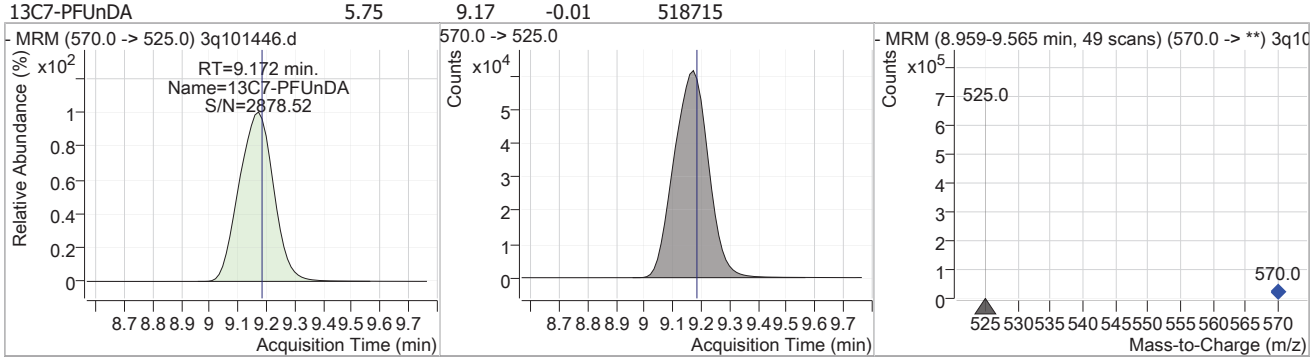


Perfluorinated Compounds by LC/MS/MS

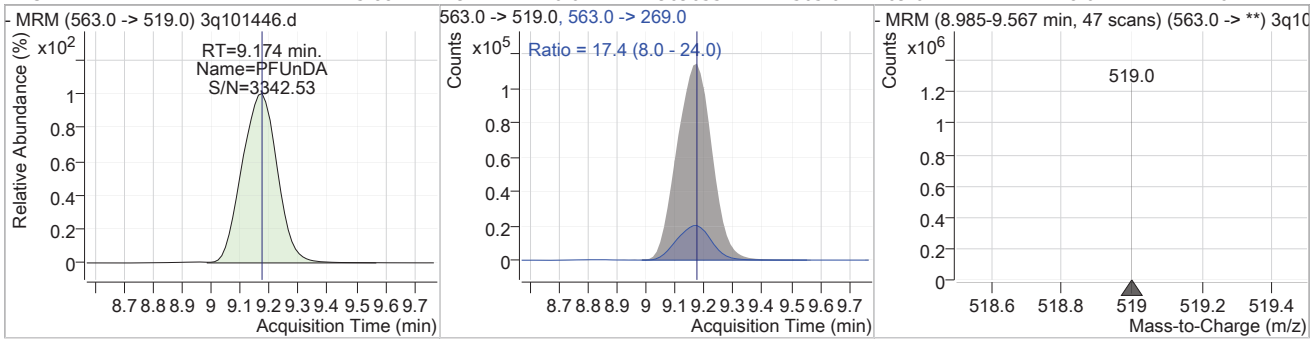
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	23.82	8.59	-0.01	405860	527.0 -> 81.0	36.8	19.3	57.9



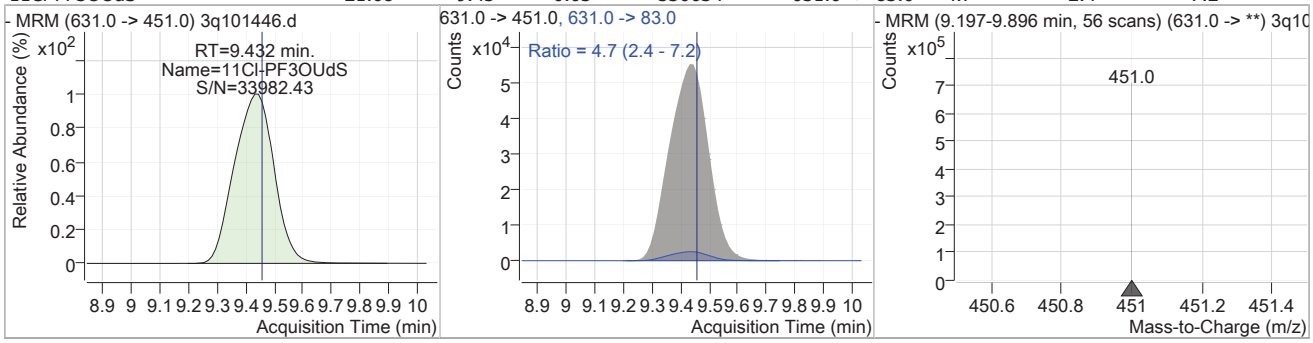
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	5.75	9.17	-0.01	518715				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	23.88	9.17	-0.01	969633	563.0 -> 269.0	17.4	8.0	24.0

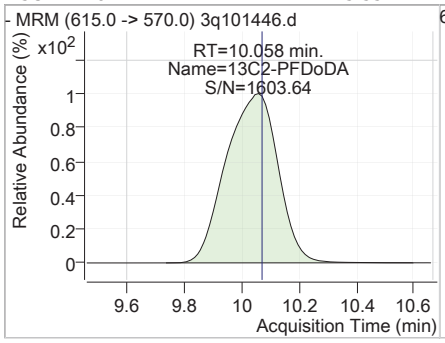


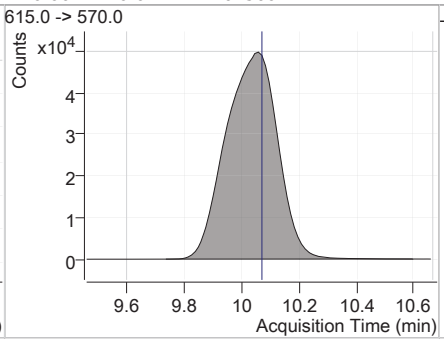
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	21.08	9.43	-0.03	530634	631.0 -> 83.0	4.7	2.4	7.2

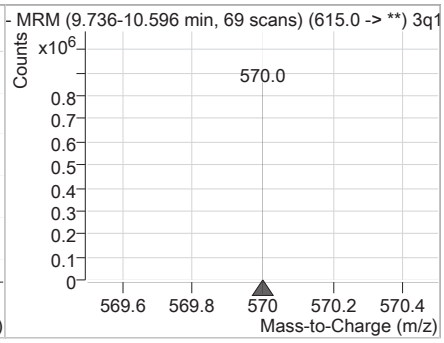


Perfluorinated Compounds by LC/MS/MS

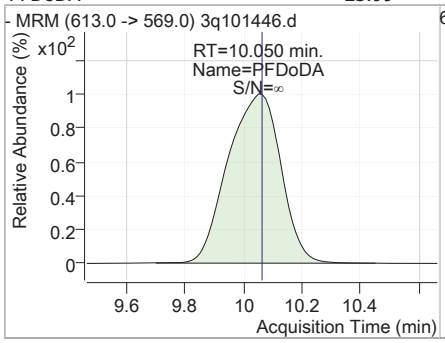
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	5.35	10.06	-0.01	625602				

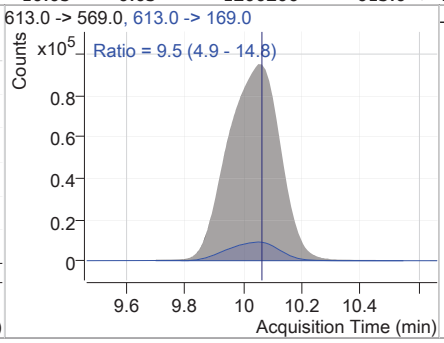


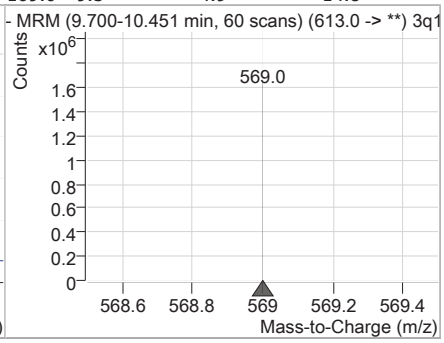




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	23.99	10.05	-0.03	1200206	613.0 -> 169.0	9.5	4.9	14.8







Manual Integration Approval Summary

Sample Number:	OP8808-MS	**Method:**	EPA 533
Lab FileID:	3Q101446.D	**Analyst approved:**	04/14/25 13:35 (b) (6)
Injection Time:	04/11/25 20:00	**Supervisor approved:**	04/14/25 13:46 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanesulfonic acid	375-73-5		4.70	Split peak
Perfluoroheptanoic acid	375-85-9		6.70	Split peak
Perfluorohexanesulfonic acid	355-46-4		6.72	Split peak
Perfluorooctanoic acid	335-67-1		7.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.97	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/15/25 15:59

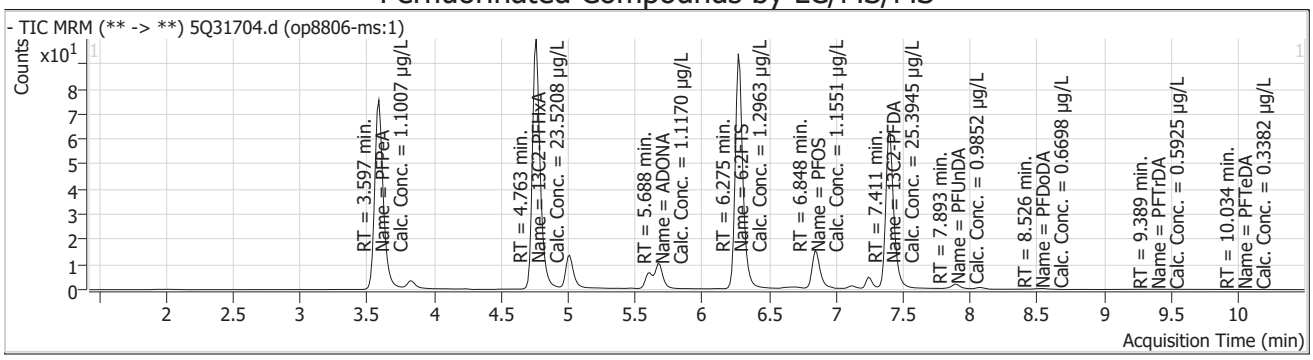
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31704.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/11/2025 3:50:01 PM
Sample Name : op8806-ms:1
Vial : P2-A5
DA Method File : 537_041125_S5Q519.quantmethod
Batch Name : s5q519.batch.bin
Sample Information : OP8806,S5Q519,285,,,1,1,water

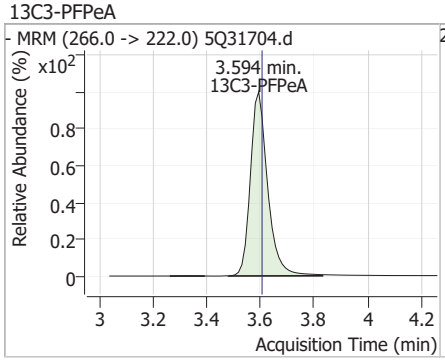
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.274	429.0 -> 409.0	196828	20.00 µg/L		-0.012
13C2-PFOA	6.277	415.0 -> 370.0	465930	20.00 µg/L		-0.012
13C3-PFPeA	3.594	266.0 -> 222.0	610754	20.00 µg/L		-0.012
13C4-PFOS	6.847	503.0 -> 80.0	100334	20.00 µg/L		-0.012
d3-MeFOSAA	7.242	573.0 -> 419.0	29162	40.00 µg/L		-0.012
System Monitoring Compounds						
13C2-PFDA	7.411	515.0 -> 470.0	453849	25.39 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 127.0%		
13C2-PFHxA	4.763	315.0 -> 270.0	756808	23.52 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 117.6%		
d5-EtFOSAA	7.378	589.0 -> 419.0	27150	54.27 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 135.7%		
13C3-HFPO-DA	5.019	287.0 -> 169.0	100935	49.34 µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 123.3%		
Target Compounds						QValue
6:2FTS	6.275	427.0 -> 407.0	12770	1.30 µg/L		94
8:2FTS	7.447	527.0 -> 507.0	7509	0.98 µg/L		89
EtFOSAA	7.380	584.0 -> 419.0	477	1.03 µg/L	m	94
MeFOSAA	7.244	570.0 -> 419.0	651	0.96 µg/L	m	89
PFBS	3.828	299.0 -> 80.0	17267	1.14 µg/L		97
PFDA	7.411	513.0 -> 469.0	16189	1.13 µg/L		95
PFDoDA	8.526	613.0 -> 569.0	4747	0.67 µg/L		100
PFHpA	5.601	363.0 -> 319.0	41499	1.05 µg/L		100
PFHxA	4.764	313.0 -> 269.0	20387	0.95 µg/L		99
PFHxS	5.635	399.0 -> 80.0	9678	1.16 µg/L	m	98
PFNA	6.874	463.0 -> 419.0	15458	1.12 µg/L	m	93
PFOA	6.277	413.0 -> 369.0	23887	1.10 µg/L		95
PFOS	6.848	499.0 -> 80.0	6857	1.16 µg/L	m	100
PFPeA	3.597	263.0 -> 219.0	40444	1.10 µg/L		100
PFTeDA	10.034	713.0 -> 669.0	1004	0.34 µg/L		100
PFTrDA	9.389	663.0 -> 619.0	1778	0.59 µg/L		99
PFUnDA	7.893	563.0 -> 519.0	13076	0.99 µg/L		99
ADONA	5.688	377.0 -> 251.0	57182	1.12 µg/L		100
9Cl-PF3ONS	7.121	531.0 -> 351.0	6462	1.09 µg/L		97
11Cl-PF3OUdS	8.075	631.0 -> 451.0	3742	0.75 µg/L		97
HFPO-DA	5.010	285.0 -> 169.0	1959	1.11 µg/L	m	100

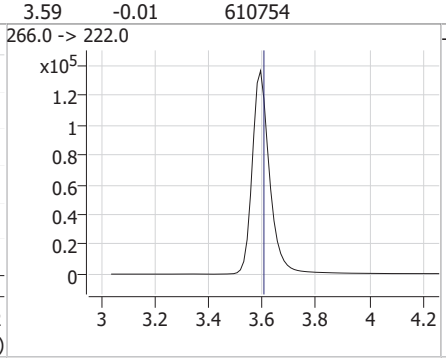
 # = Qualifier out of range, m = manually integrated, + = Area summed

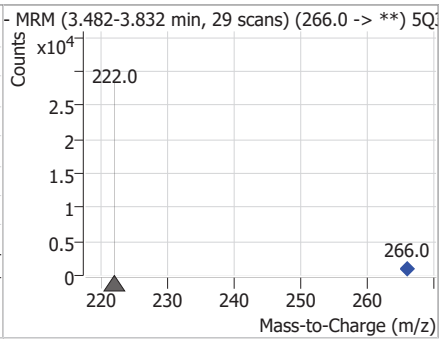
Perfluorinated Compounds by LC/MS/MS



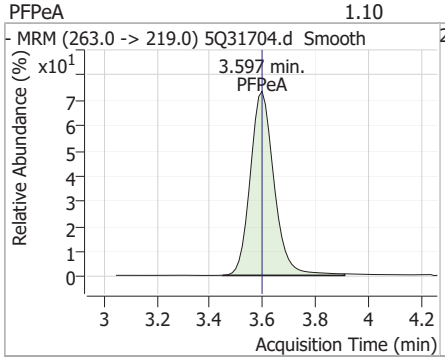
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	610754				

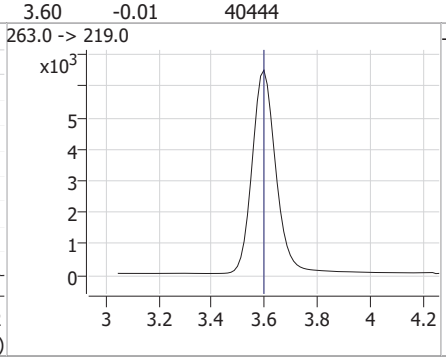


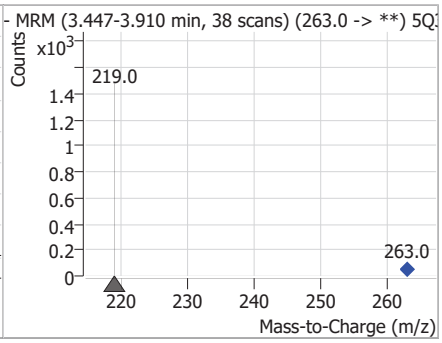




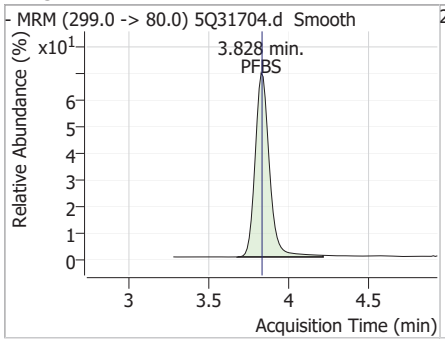
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.10	3.60	-0.01	40444				

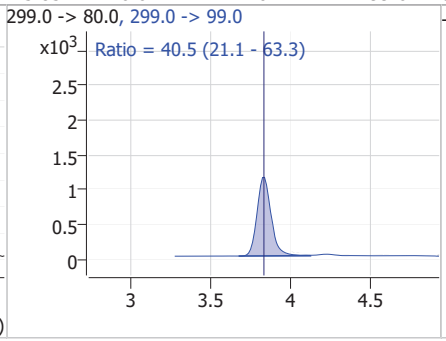


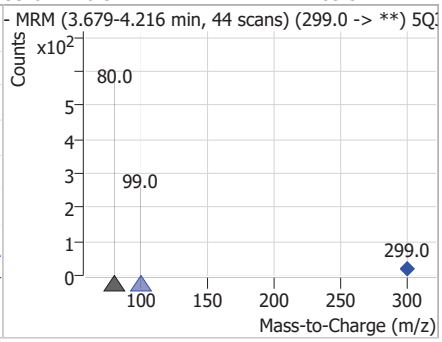




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.14	3.83	-0.01	17267	299.0 -> 99.0	40.5	21.1	63.3





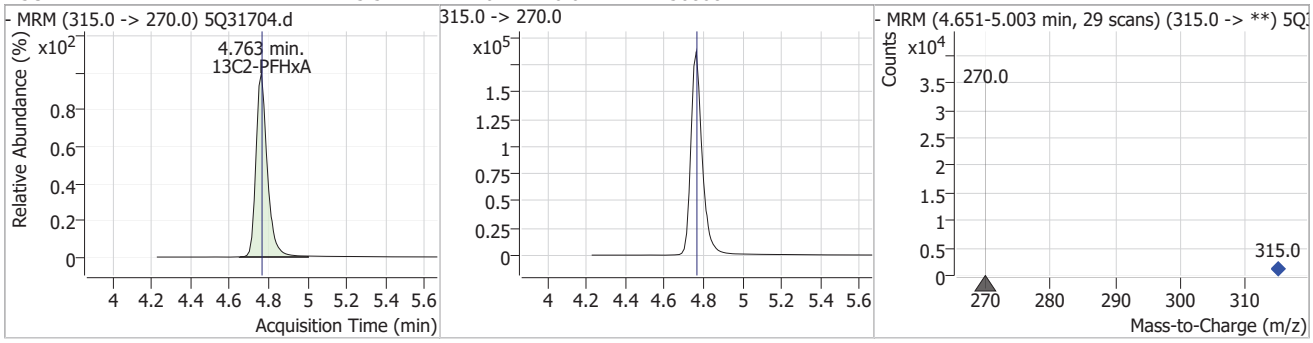


7.4.2

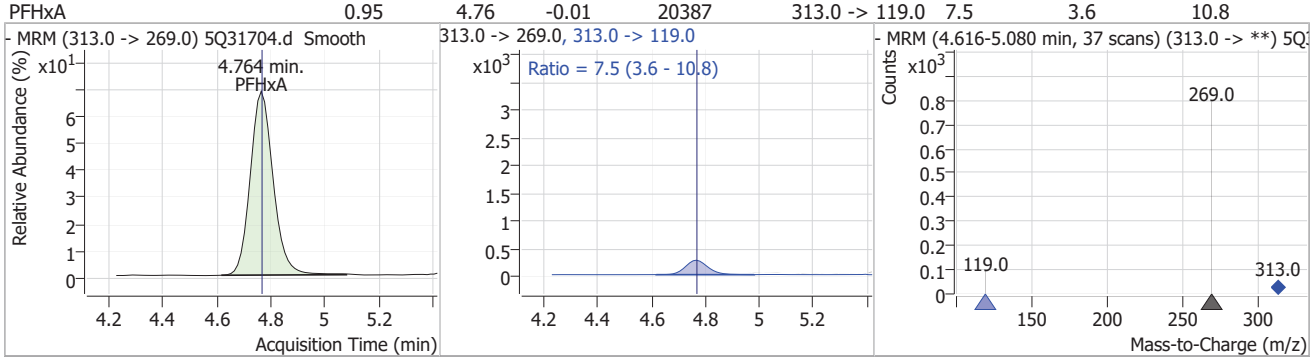
7

Perfluorinated Compounds by LC/MS/MS

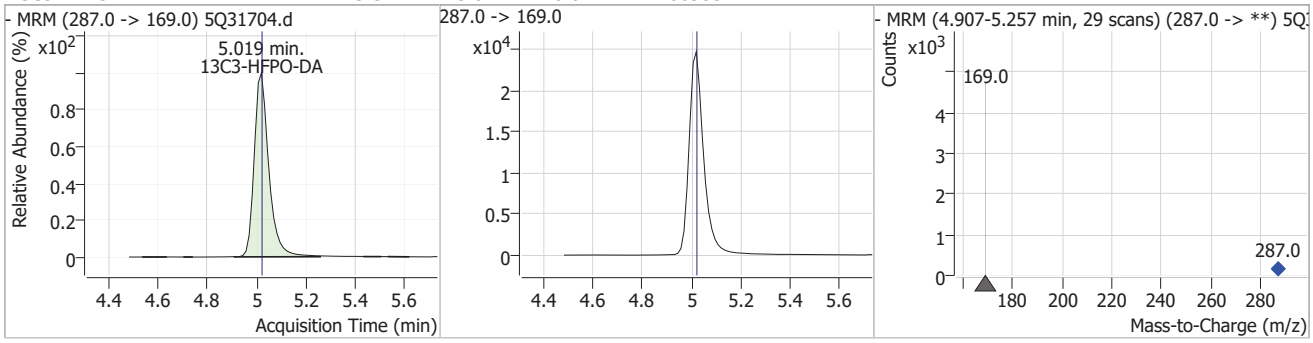
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	23.52	4.76	-0.01	756808				



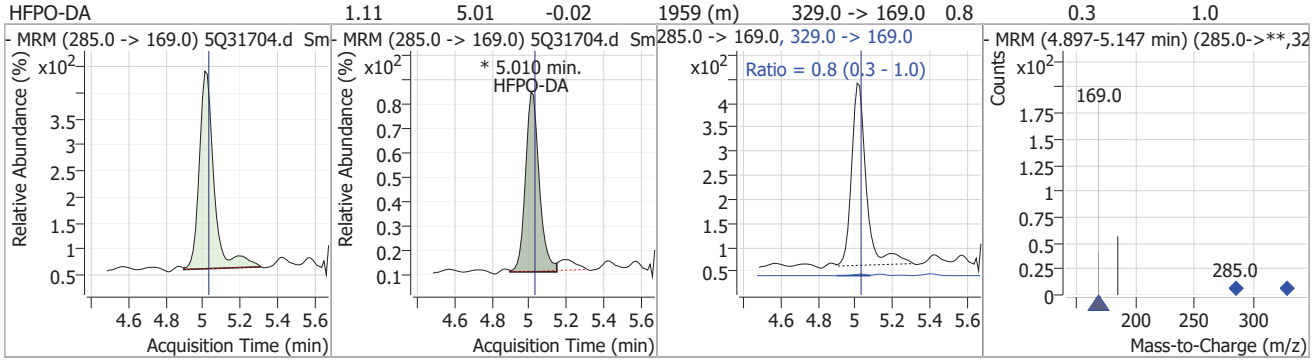
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.95	4.76	-0.01	20387	313.0 -> 119.0	7.5	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	49.34	5.02	-0.01	100935				

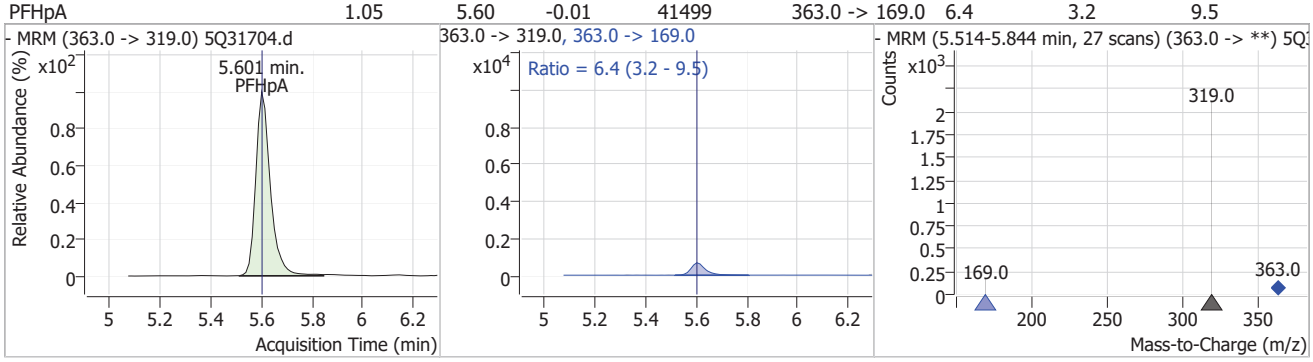


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	1.11	5.01	-0.02	1959 (m)	329.0 -> 169.0	0.8	0.3	1.0

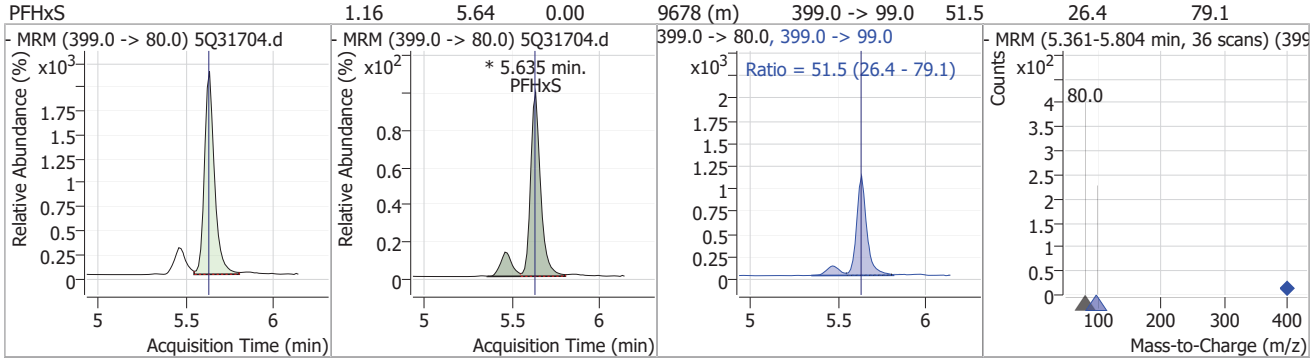


Perfluorinated Compounds by LC/MS/MS

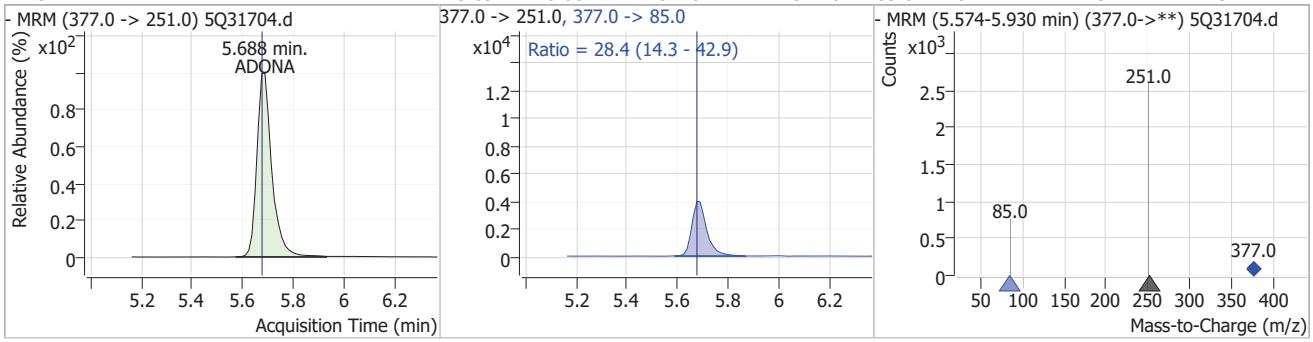
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.05	5.60	-0.01	41499	363.0 -> 169.0	6.4	3.2	9.5



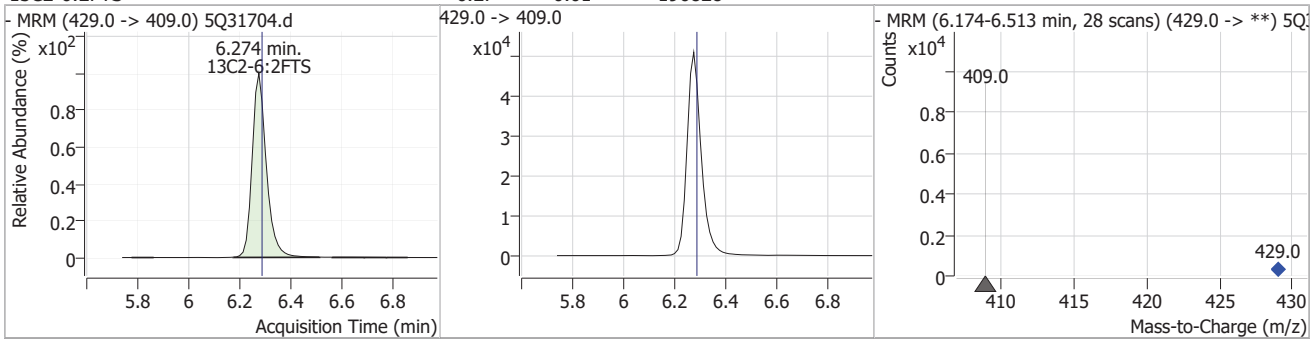
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.16	5.64	0.00	9678 (m)	399.0 -> 99.0	51.5	26.4	79.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	1.12	5.69	0.00	57182	377.0 -> 85.0	28.4	14.3	42.9

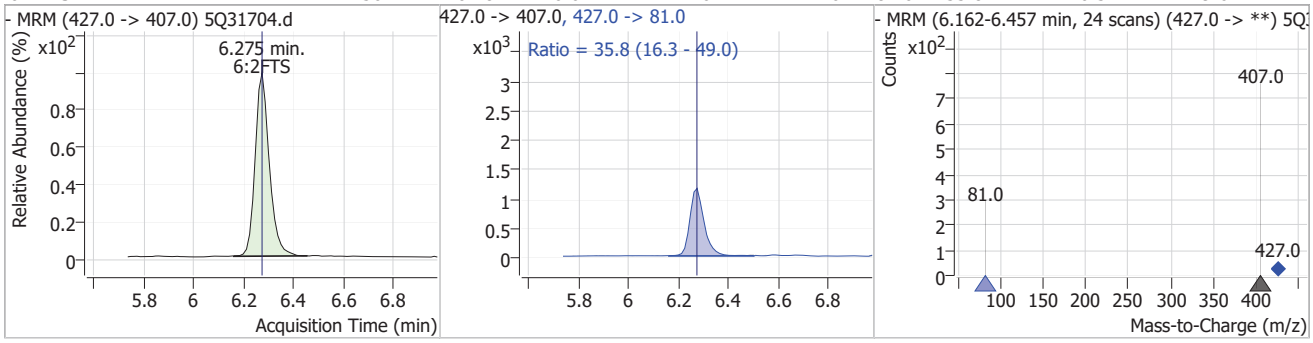


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	196828				

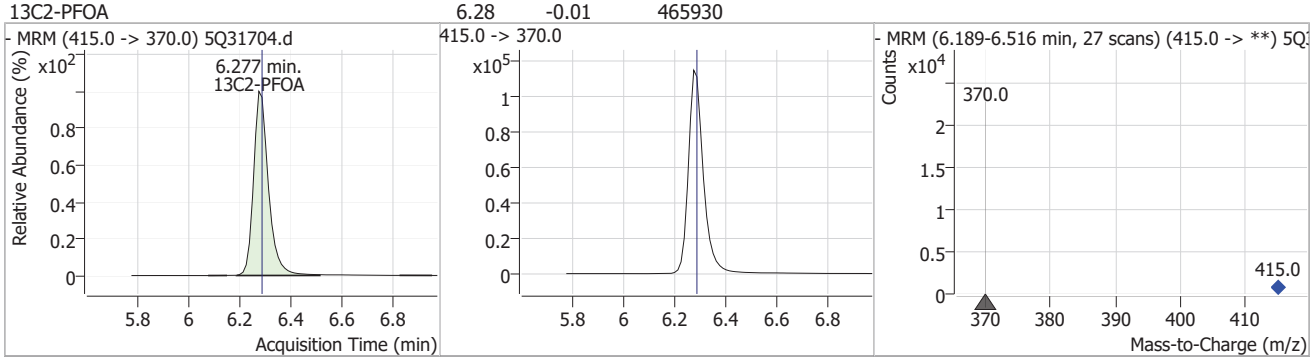


Perfluorinated Compounds by LC/MS/MS

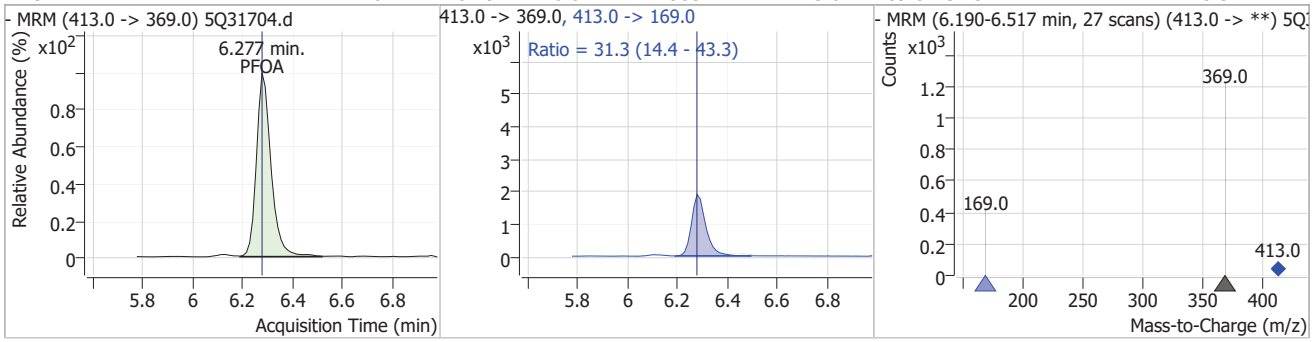
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.30	6.28	-0.01	12770	427.0 -> 81.0	35.8	16.3	49.0



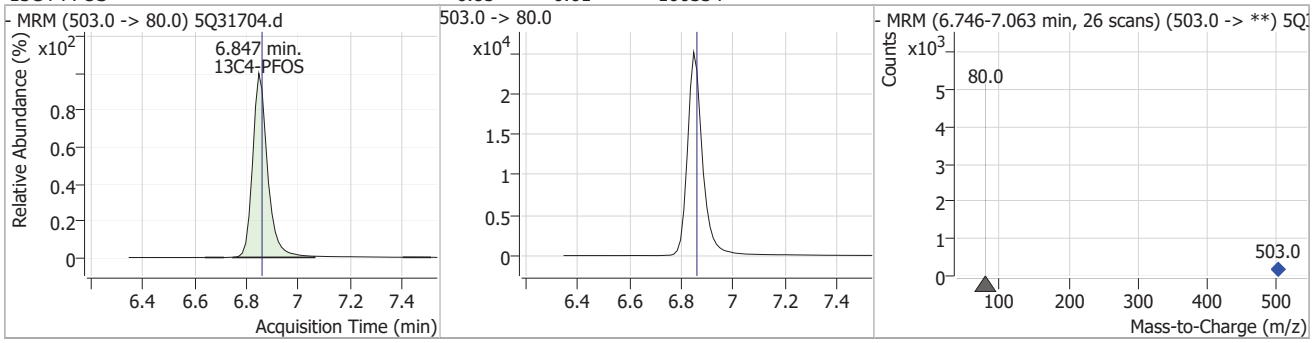
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.28	-0.01	465930				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.10	6.28	-0.01	23887	413.0 -> 169.0	31.3	14.4	43.3

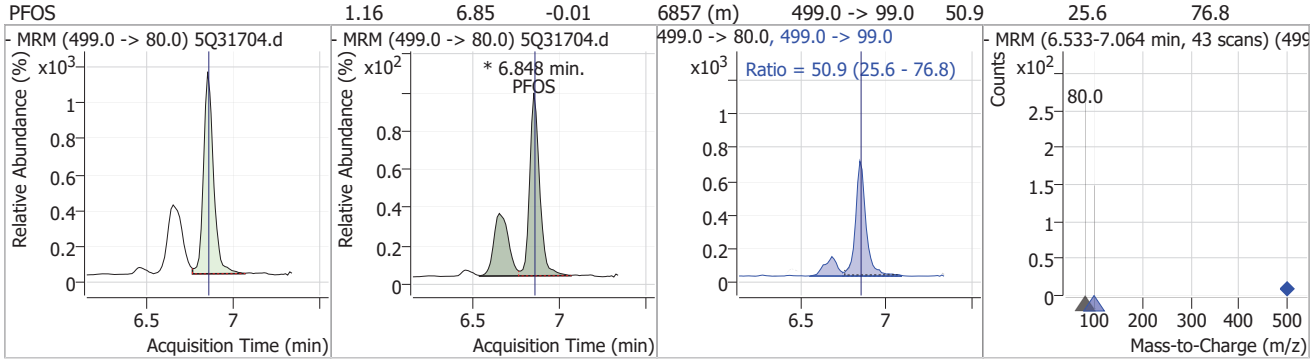


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.85	-0.01	100334				

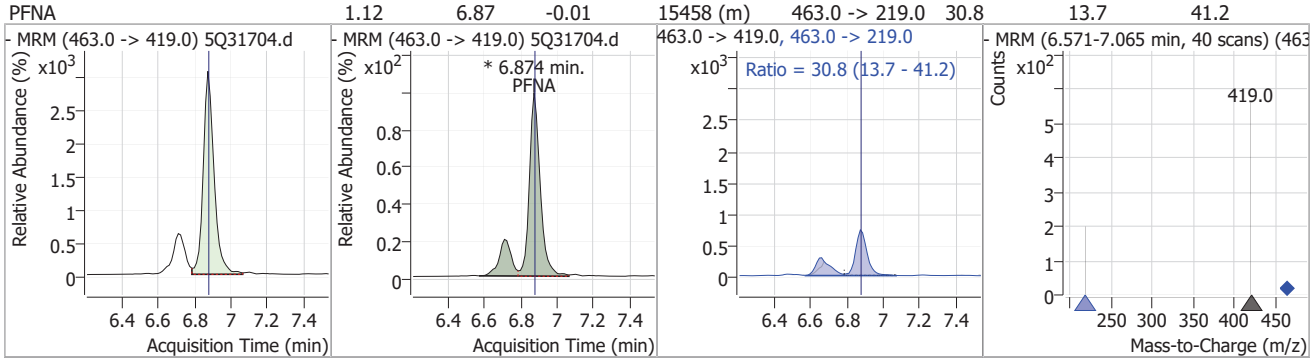


Perfluorinated Compounds by LC/MS/MS

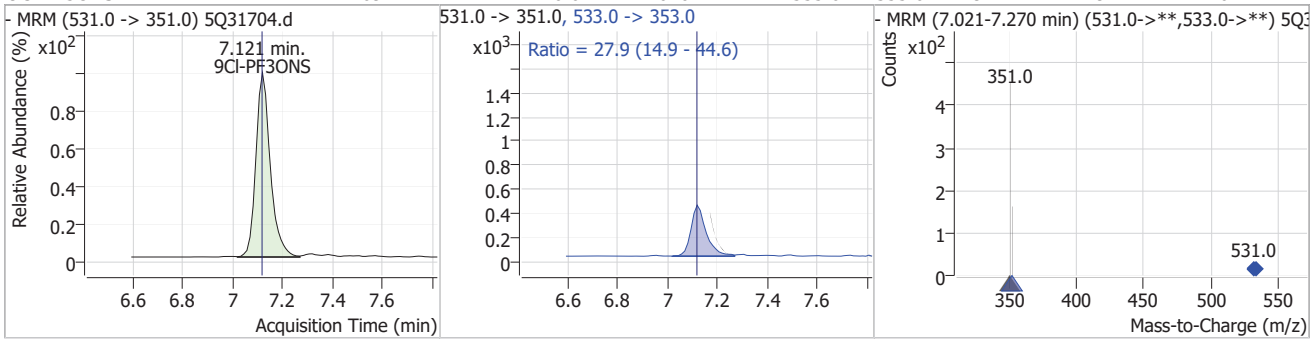
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.16	6.85	-0.01	6857 (m)	499.0 -> 99.0	50.9	25.6	76.8



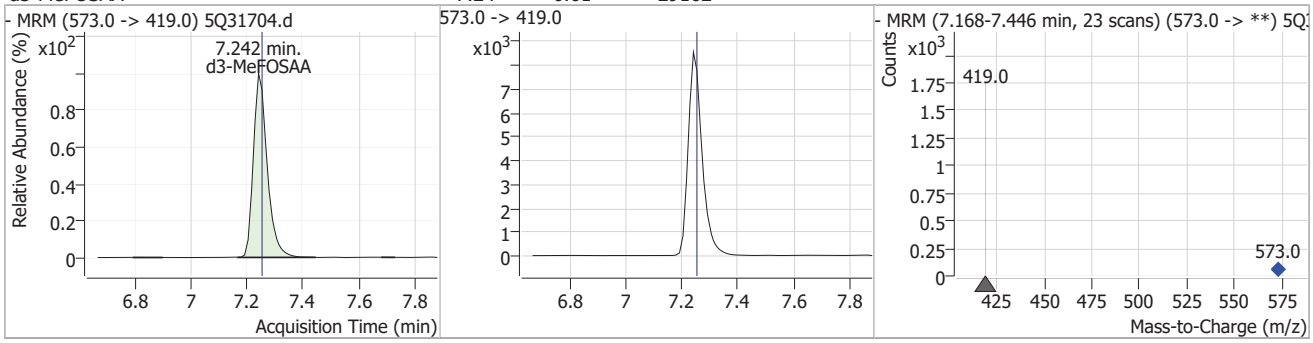
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.12	6.87	-0.01	15458 (m)	463.0 -> 219.0	30.8	13.7	41.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	1.09	7.12	-0.01	6462	533.0 -> 353.0	27.9	14.9	44.6

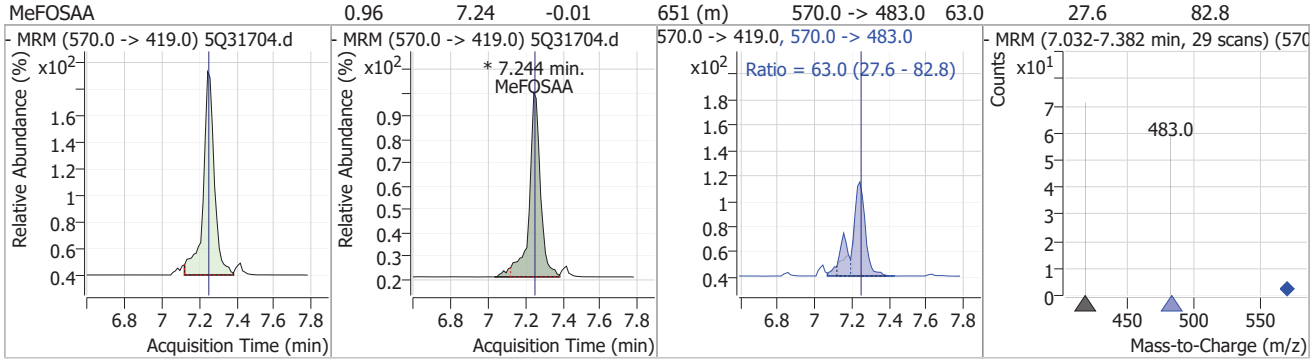


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	29162				

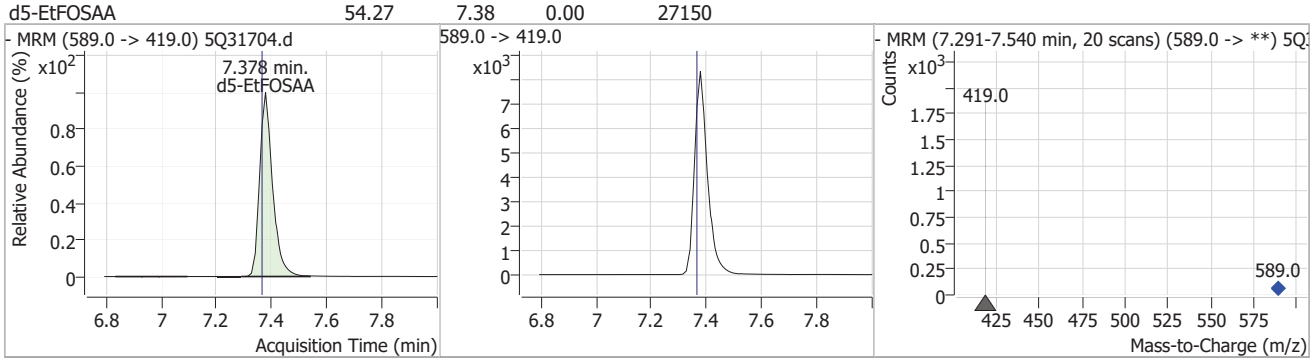


Perfluorinated Compounds by LC/MS/MS

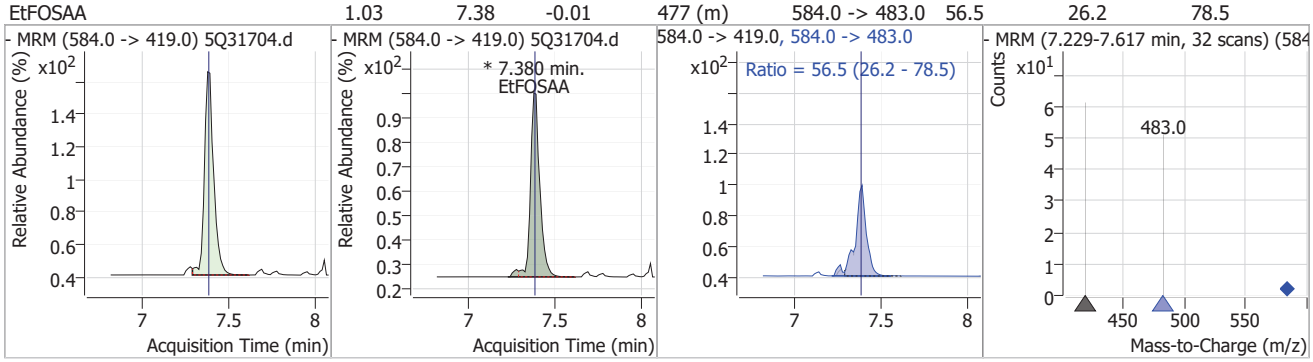
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.96	7.24	-0.01	651 (m)	570.0 -> 483.0	63.0	27.6	82.8



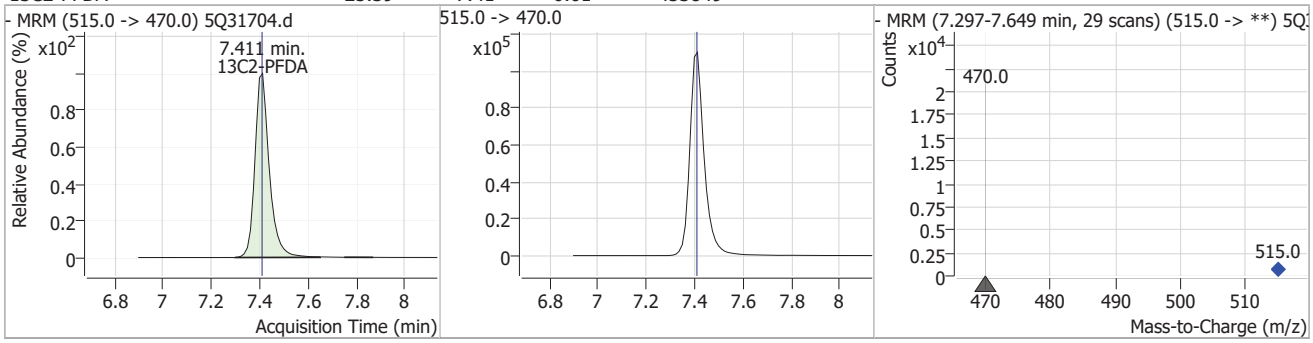
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	54.27	7.38	0.00	27150				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.03	7.38	-0.01	477 (m)	584.0 -> 483.0	56.5	26.2	78.5

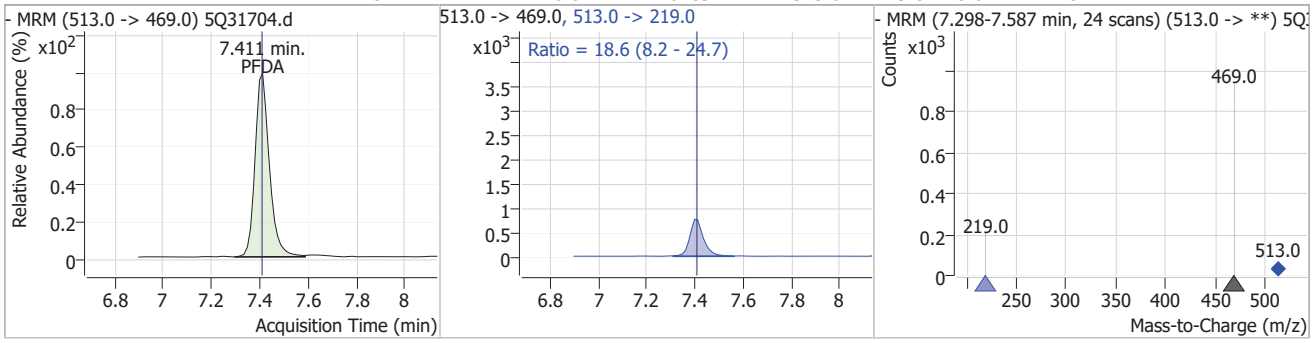


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	25.39	7.41	-0.01	453849				

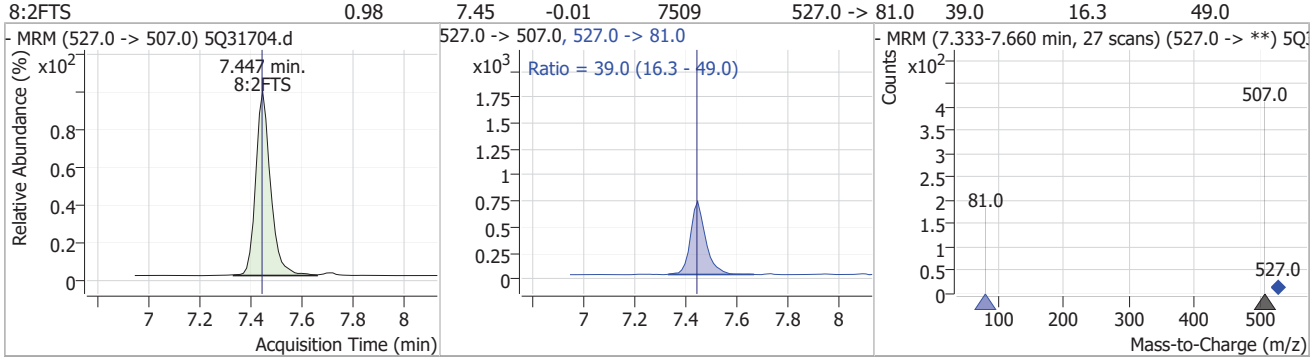


Perfluorinated Compounds by LC/MS/MS

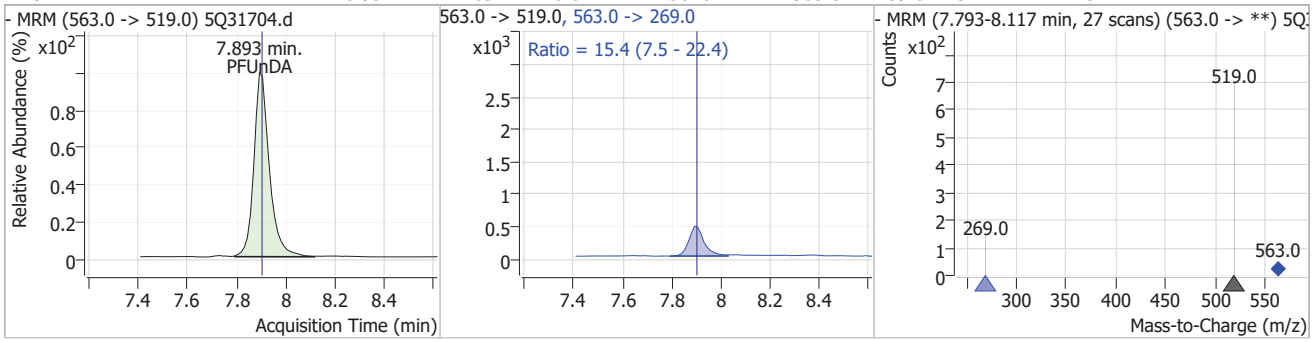
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.13	7.41	-0.01	16189	513.0 -> 219.0	18.6	8.2	24.7



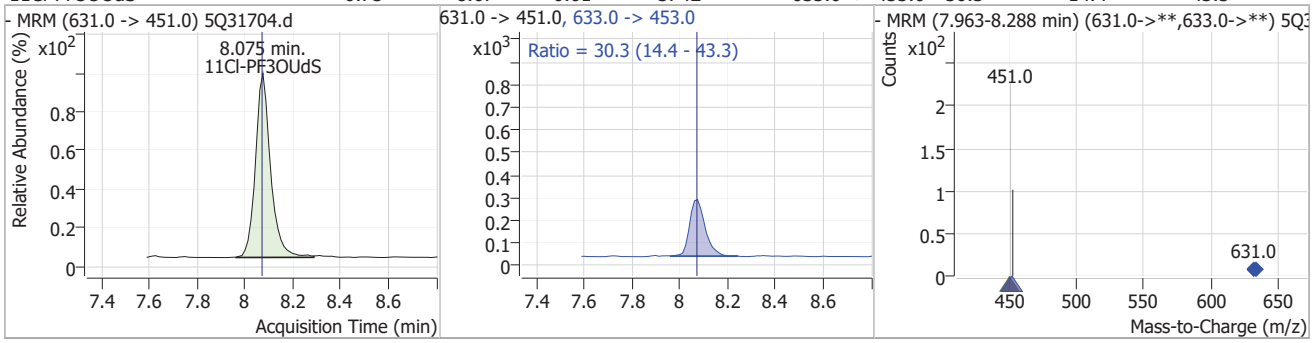
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.98	7.45	-0.01	7509	527.0 -> 81.0	39.0	16.3	49.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.99	7.89	-0.02	13076	563.0 -> 269.0	15.4	7.5	22.4

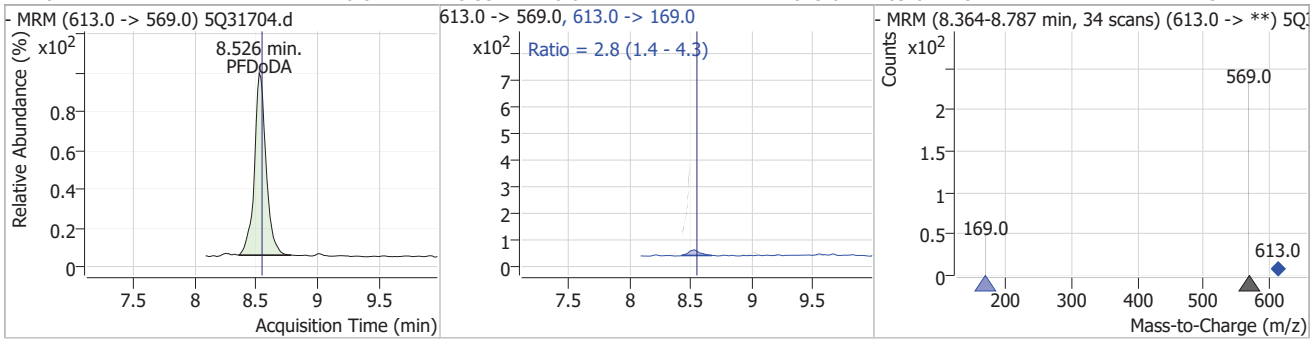


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.75	8.07	-0.01	3742	633.0 -> 453.0	30.3	14.4	43.3

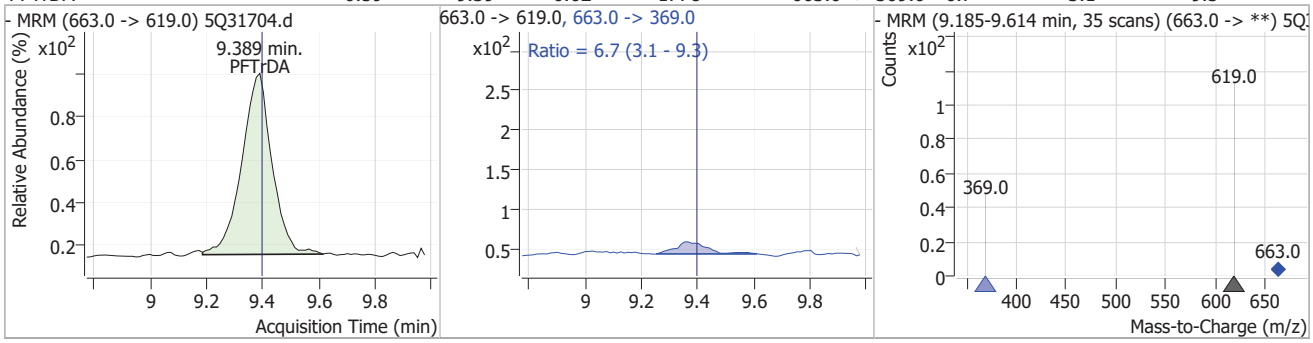


Perfluorinated Compounds by LC/MS/MS

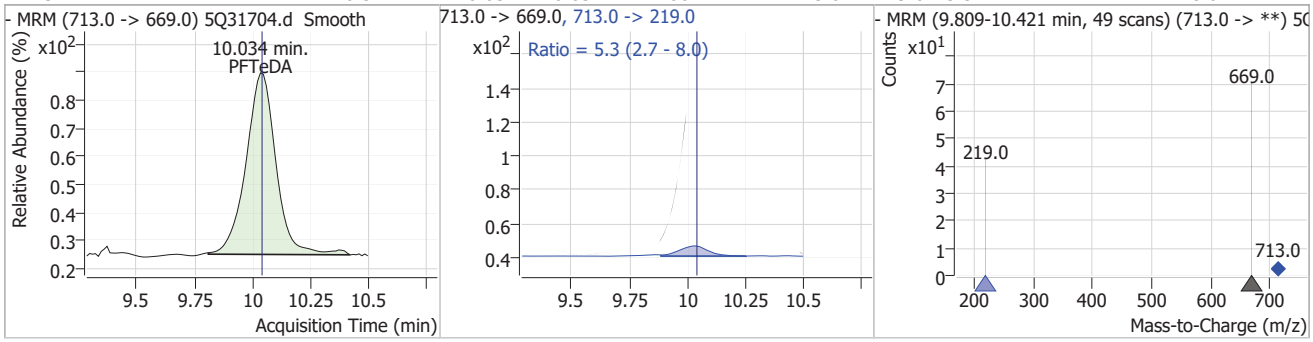
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.67	8.53	-0.04	4747	613.0 -> 169.0	2.8	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.59	9.39	-0.02	1778	663.0 -> 369.0	6.7	3.1	9.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.34	10.03	-0.03	1004	713.0 -> 219.0	5.3	2.7	8.0



7.4.2

7

Manual Integration Approval Summary

Sample Number: OP8806-MS
Lab FileID: 5Q31704.D
Injection Time: 04/11/25 15:50
Method: EPA 537.1 REV 2.0
Analyst approved: 04/15/25 15:44 (b) (6)
Supervisor approved: 04/15/25 15:59 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
HFPO-DA (GenX)	13252-13-6		5.01	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.85	Split peak
Perfluorononanoic acid	375-95-1		6.87	Split peak
MeFOSAA	2355-31-9		7.24	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101448.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/11/2025 8:32:14 PM
Sample Name : op8808-dup
Vial : P3-A6
DA Method File : 533_041125_S3Q1491.quantmethod.xml
Batch Name : s3q1491.batch.bin
Sample Information : op8808,S3Q1491,280,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	274255	10.00 µg/L	0.000
13C3-PFBA	2.307	216.0 -> 172.0	86904	10.00 µg/L	-0.025
13C4-PFOS	7.983	503.0 -> 80.0	38325	10.00 µg/L	0.000
M4-PFBA	2.302	217.0 -> 172.0	107381	10.00 µg/L	-0.038
M5-PFPeA	4.400	268.0 -> 223.0	136831	10.00 µg/L	-0.013
M5-PFHxA	5.763	318.0 -> 273.0	187104	10.00 µg/L	-0.013
M4-PFHpA	6.694	367.0 -> 322.0	168298	10.00 µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	228867	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	238099	10.00 µg/L	0.000
M6-PFDA	8.520	519.0 -> 474.0	331035	10.00 µg/L	-0.013
M7-PFUnDA	9.135	570.0 -> 525.0	488526	10.00 µg/L	-0.050
M2-PFDoDA	9.988	615.0 -> 570.0	550258	10.00 µg/L	-0.083
M3-PFBS	4.696	302.0 -> 99.0	17123	10.00 µg/L	-0.013
M3-PFHxS	6.724	402.0 -> 99.0	25047	10.00 µg/L	-0.013
M8-PFOS	7.982	507.0 -> 99.0	27998	10.00 µg/L	0.000
M2-4:2FTS	5.672	329.0 -> 309.0	79190	10.00 µg/L	0.000
M2-6:2FTS	7.420	429.0 -> 409.0	131120	10.00 µg/L	0.000
M2-8:2FTS	8.585	529.0 -> 509.0	188762	10.00 µg/L	-0.013
M3-HFPO-DA	6.056	287.0 -> 169.0	2486	10.00 µg/L	-0.013
System Monitoring Compounds					
13C2-4:2FTS	5.672	329.0 -> 309.0	79190	8.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.6%	
13C2-6:2FTS	7.420	429.0 -> 409.0	131120	6.89 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 68.9%	
13C2-8:2FTS	8.585	529.0 -> 509.0	188762	6.15 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 61.5%	
13C2-PFDoDA	9.988	615.0 -> 570.0	550258	4.58 µg/L	-0.083
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 45.8%	
13C3-PFBS	4.696	302.0 -> 99.0	17123	7.37 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 73.7%	
13C3-PFHxS	6.724	402.0 -> 99.0	25047	7.48 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 74.8%	
13C4-PFBA	2.302	217.0 -> 172.0	107381	7.23 µg/L	-0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 72.3%	
13C4-PFHpA	6.694	367.0 -> 322.0	168298	7.35 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 73.5%	
13C5-PFHxA	5.763	318.0 -> 273.0	187104	7.12 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 71.2%	
13C5-PFPeA	4.400	268.0 -> 223.0	136831	7.50 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 75.0%	
13C6-PFDA	8.520	519.0 -> 474.0	331035	6.41 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 64.1%	
13C7-PFUnDA	9.135	570.0 -> 525.0	488526	5.27 µg/L	-0.050
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 52.7%	
13C8-PFOA	7.422	421.0 -> 376.0	228867	7.21 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

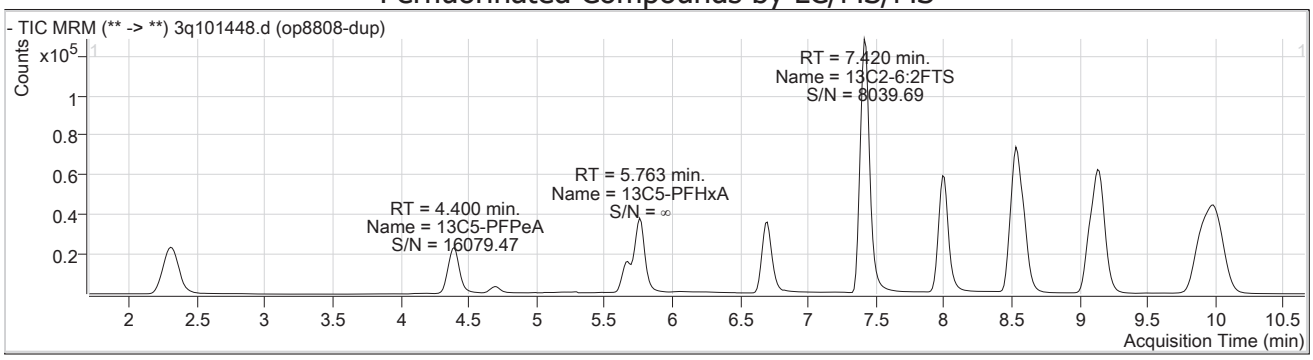
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 72.1%	
13C8-PFOS	7.982	507.0 -> 99.0	27998	6.54 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 65.4%	
13C9-PFNA	8.010	472.0 -> 427.0	238099	6.87 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 68.7%	
13C3-HFPO-DA	6.056	287.0 -> 169.0	2486	7.77 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.7%	
Target Compounds					**QValue**
PFMPA	-	229.0 -> 85.0	-	N.D.	
4:2FTS	-	327.0 -> 307.0	-	N.D.	
		327.0 -> 81.0			
6:2FTS	-	427.0 -> 407.0	-	N.D.	
		427.0 -> 81.0			
8:2FTS	-	527.0 -> 507.0	-	N.D.	
		527.0 -> 81.0			
PFMBA	-	279.0 -> 85.0	-	N.D.	
PFEESA	-	315.0 -> 135.0	-	N.D.	
		315.0 -> 69.0			
NFDHA	-	201.0 -> 85.0	-	N.D.	
		295.0 -> 201.0			
PFBA	-	213.0 -> 169.0	-	N.D.	
PFBS	-	299.0 -> 80.0	-	N.D.	
		299.0 -> 99.0			
PFDA	-	513.0 -> 469.0	-	N.D.	
		513.0 -> 219.0			
PFDoDA	-	613.0 -> 569.0	-	N.D.	
		613.0 -> 169.0			
PFHpA	-	363.0 -> 319.0	-	N.D.	
		363.0 -> 169.0			
PFHpS	-	449.0 -> 80.0	-	N.D.	
		449.0 -> 99.0			
PFHxA	-	313.0 -> 269.0	-	N.D.	
		313.0 -> 119.0			
PFHxS	-	399.0 -> 80.0	-	N.D.	
		399.0 -> 99.0			
PFNA	-	463.0 -> 419.0	-	N.D.	
		463.0 -> 219.0			
PFOA	-	413.0 -> 369.0	-	N.D.	
		413.0 -> 169.0			
PFOS	-	499.0 -> 80.0	-	N.D.	
		499.0 -> 99.0			
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFPeS	-	349.0 -> 80.0	-	N.D.	
		349.0 -> 99.0			
PFUnDA	-	563.0 -> 519.0	-	N.D.	
		563.0 -> 269.0			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
		631.0 -> 83.0			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
		531.0 -> 83.0			
ADONA	-	377.0 -> 251.0	-	N.D.	
		377.0 -> 85.0			
HFPO-DA	-	329.0 -> 169.0	-	N.D.	
		285.0 -> 169.0			

 # = Qualifier out of range, m = manually integrated, + = Area summed

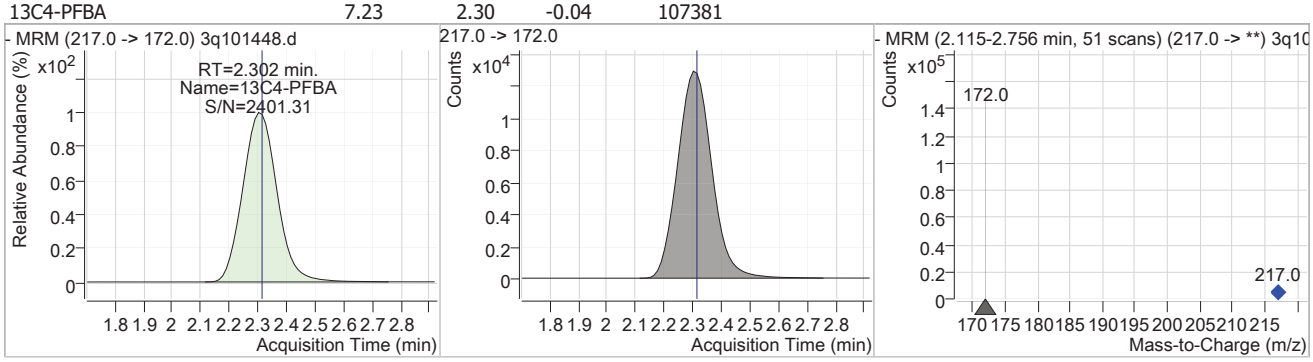
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

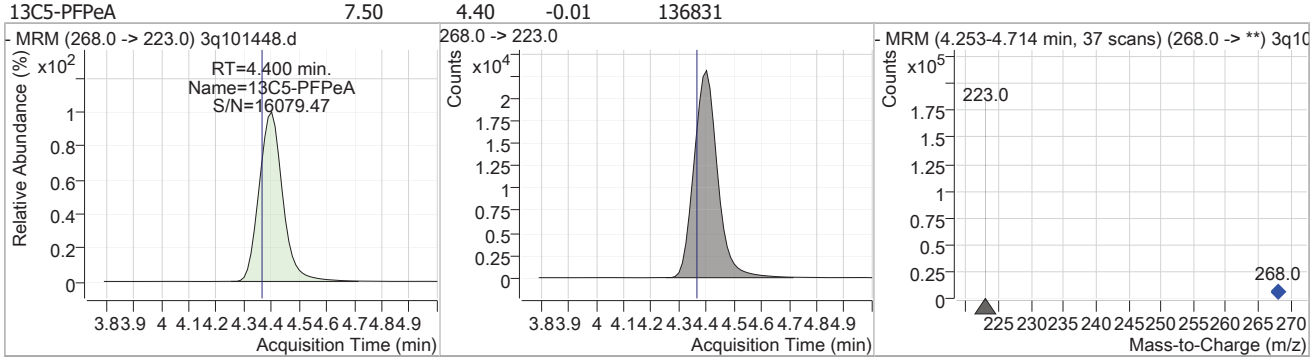
Perfluorinated Compounds by LC/MS/MS



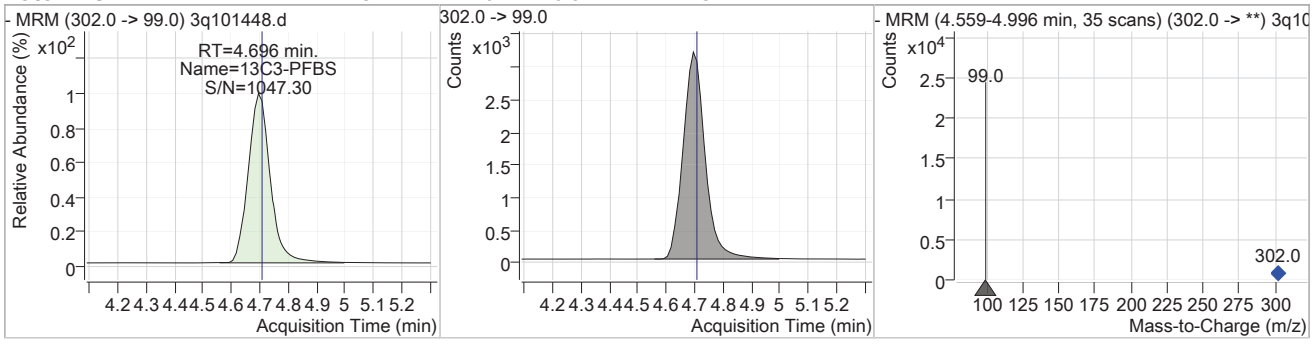
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	7.23	2.30	-0.04	107381				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	7.50	4.40	-0.01	136831				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	7.37	4.70	-0.01	17123				



7.5.1

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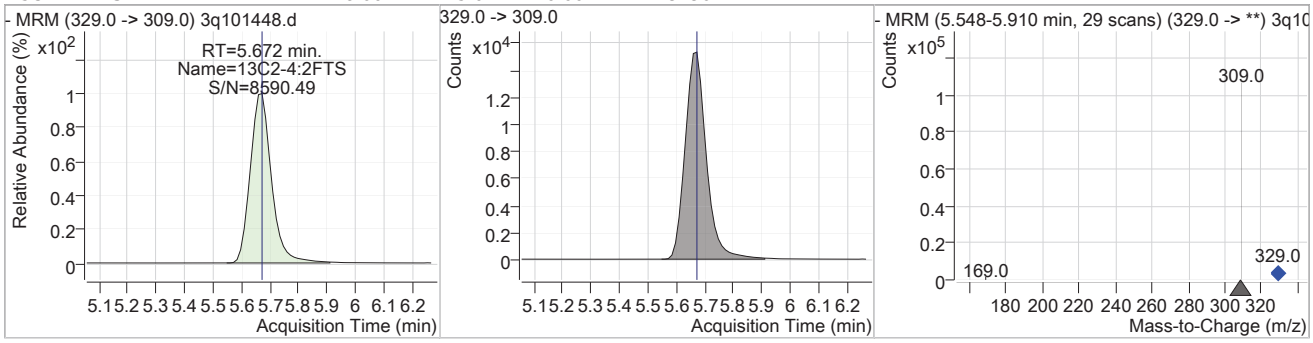
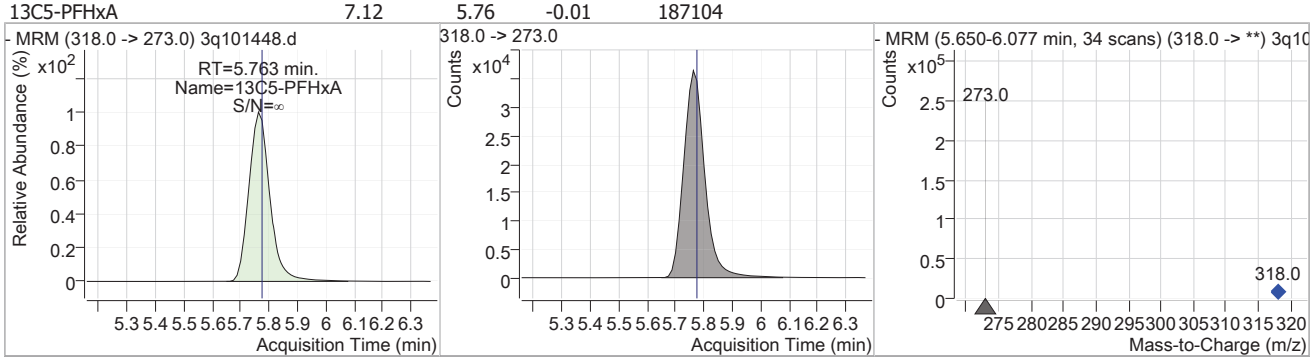
Perfluorinated Compounds by LC/MS/MS

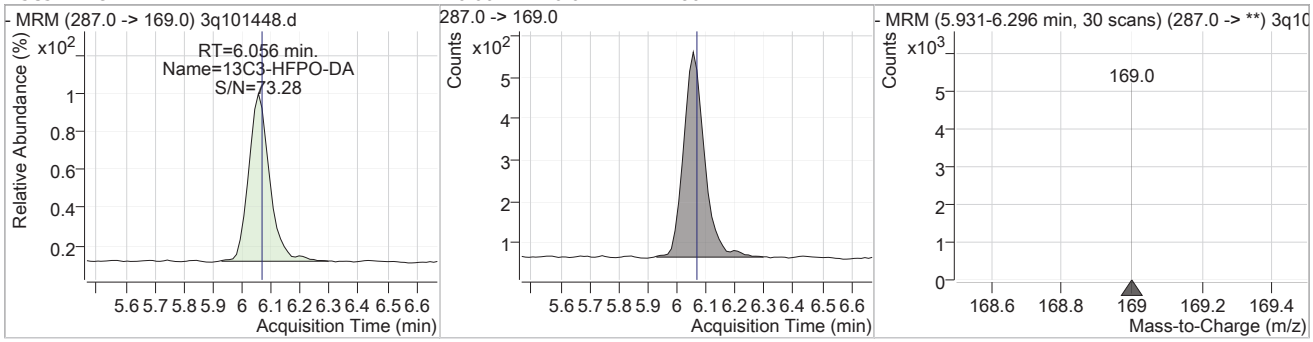
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	8.06	5.67	0.00	79190				



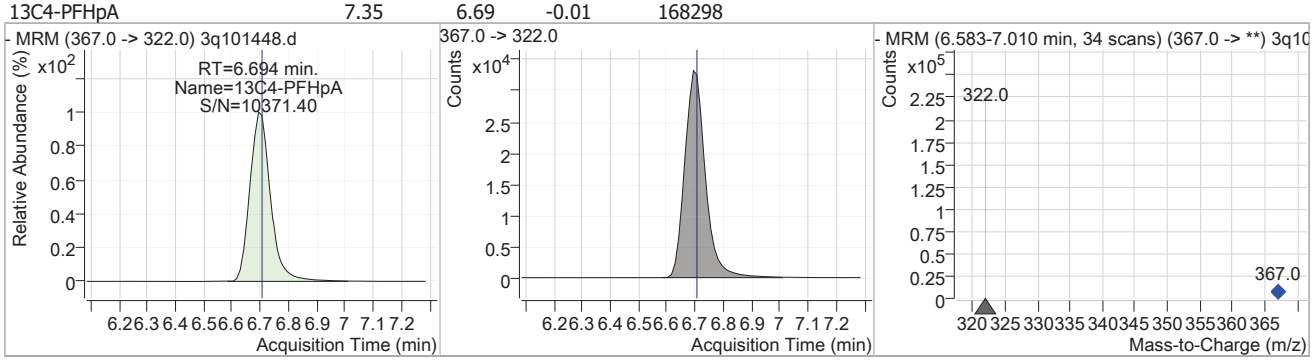
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	7.12	5.76	-0.01	187104				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	7.77	6.06	-0.01	2486				

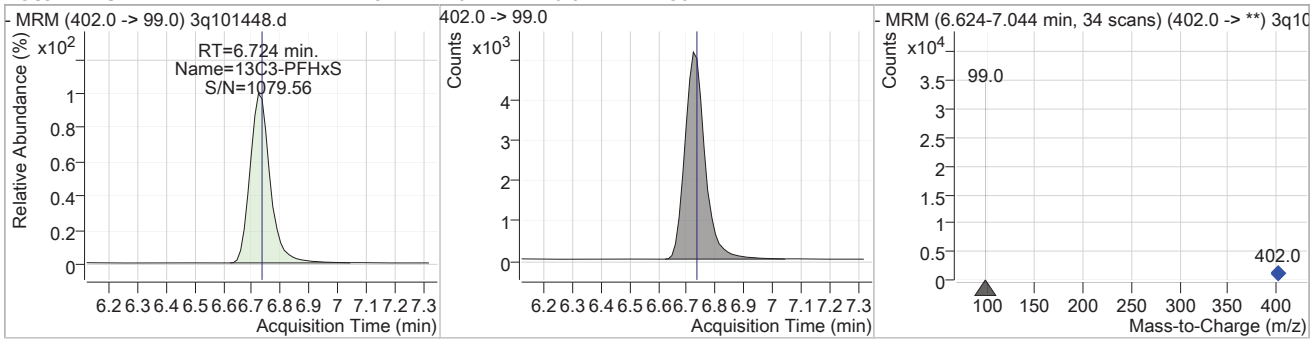


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	7.35	6.69	-0.01	168298				

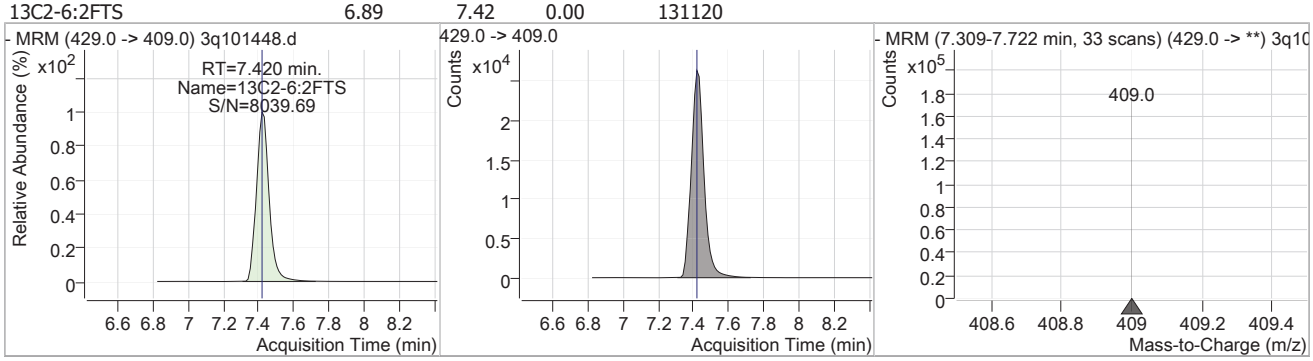


Perfluorinated Compounds by LC/MS/MS

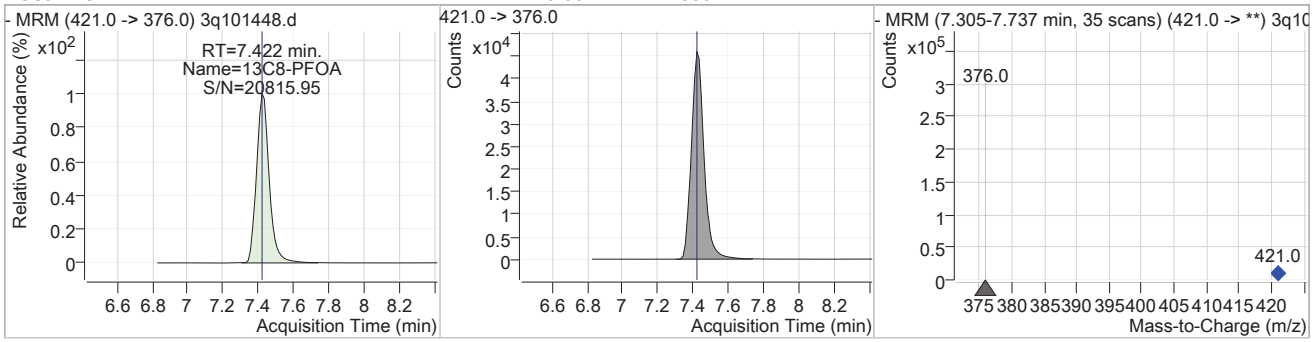
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	7.48	6.72	-0.01	25047				



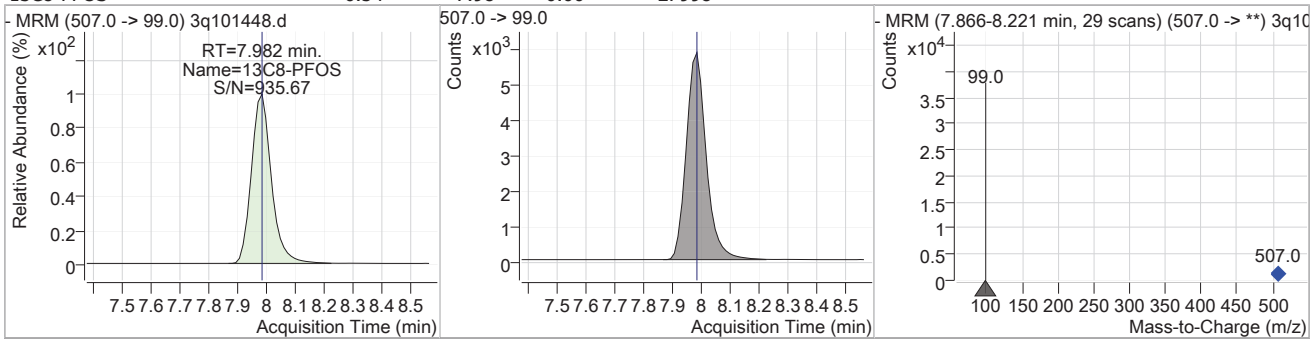
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	6.89	7.42	0.00	131120				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	7.21	7.42	0.00	228867				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	6.54	7.98	0.00	27998				



7.5.1

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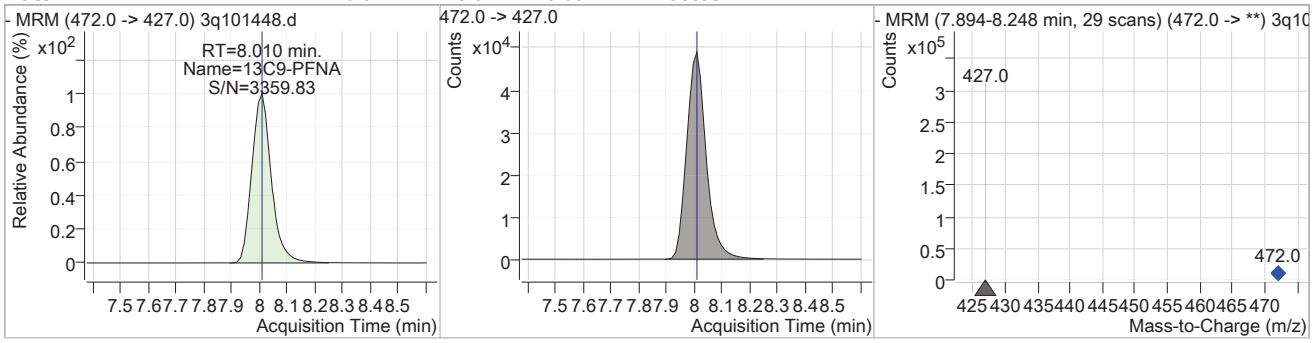
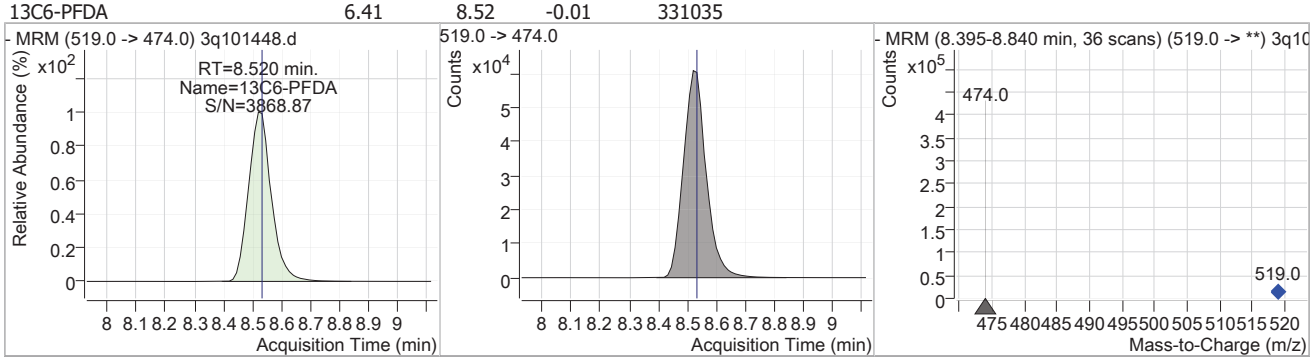
Perfluorinated Compounds by LC/MS/MS

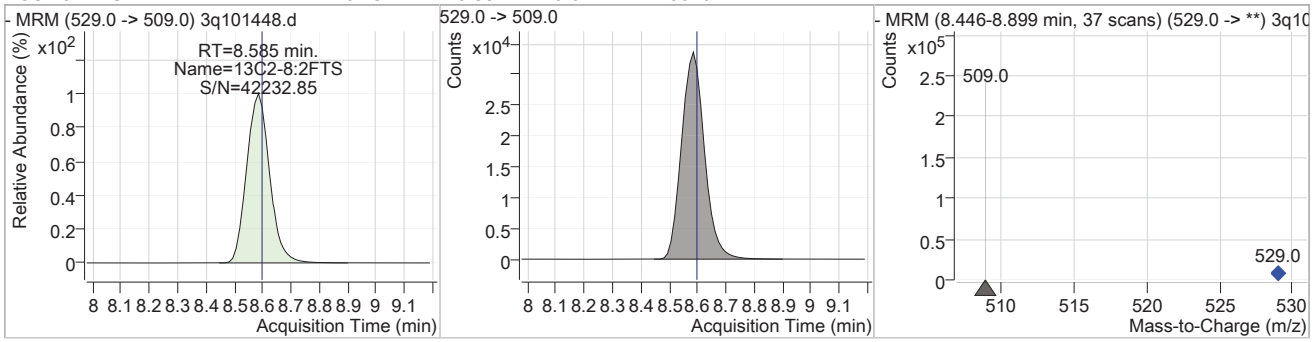
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	6.87	8.01	0.00	238099				



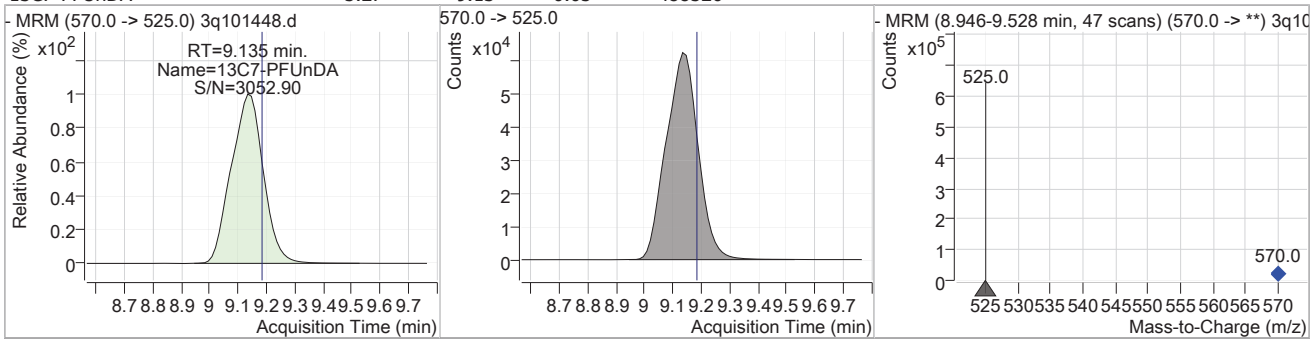
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	6.41	8.52	-0.01	331035				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	6.15	8.58	-0.01	188762				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	5.27	9.13	-0.05	488526				

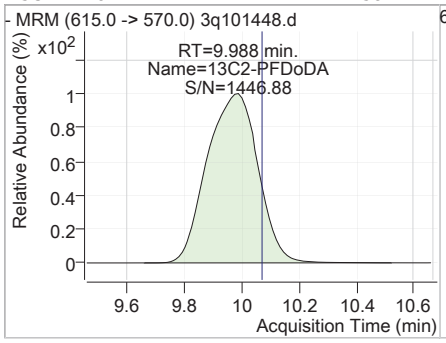


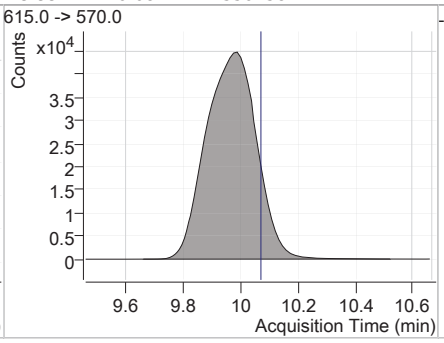
7.5.1

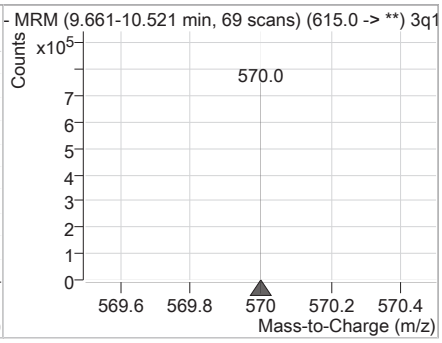
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	4.58	9.99	-0.08	550258				







7.5.1

7

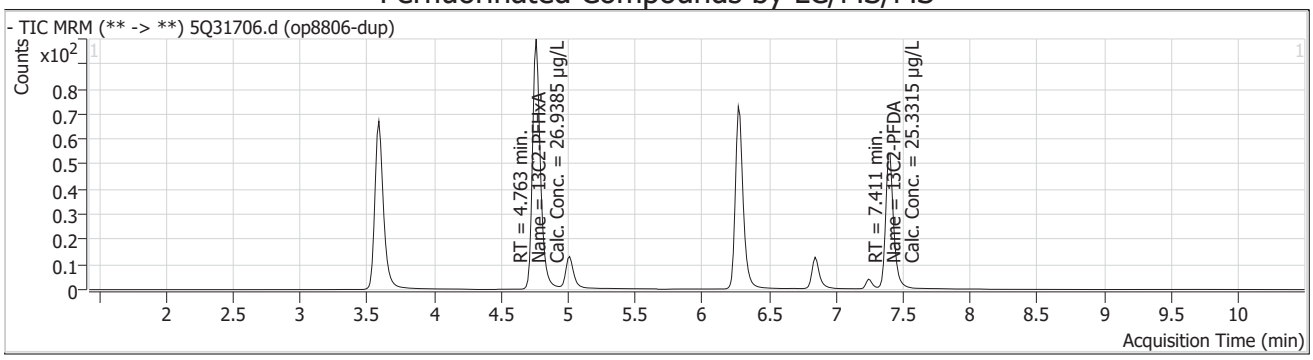
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31706.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/11/2025 4:22:07 PM
Sample Name : op8806-dup
Vial : P2-A7
DA Method File : 537_041125_S5Q519.quantmethod
Batch Name : s5q519.batch.bin
Sample Information : OP8806,S5Q519,285,,,1,1,water

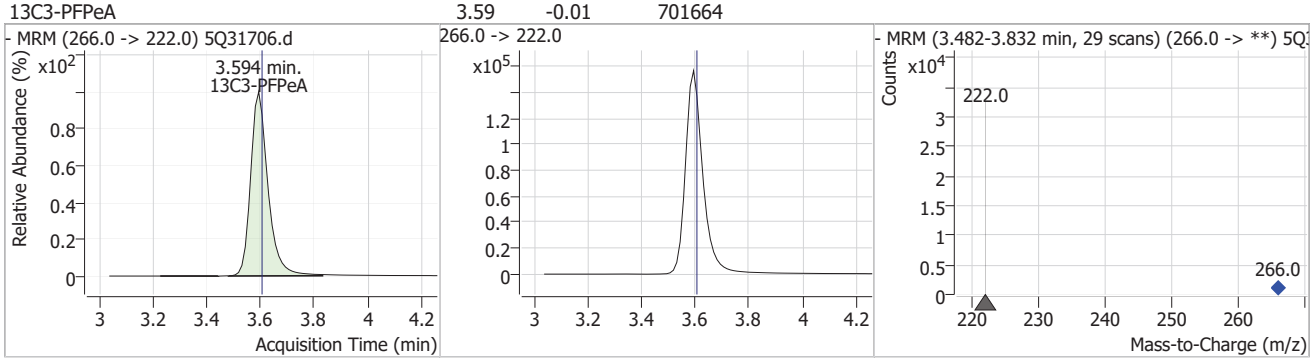
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	186164	20.00	µg/L		-0.012
13C2-PFOA	6.277	415.0 -> 370.0	515835	20.00	µg/L		-0.012
13C3-PFPeA	3.594	266.0 -> 222.0	701664	20.00	µg/L		-0.012
13C4-PFOS	6.847	503.0 -> 80.0	114358	20.00	µg/L		-0.012
d3-MeFOSAA	7.242	573.0 -> 419.0	31027	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	501214	25.33	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 126.7%			
13C2-PFHxA	4.763	315.0 -> 270.0	964838	26.94	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 134.7%			
d5-EtFOSAA	7.378	589.0 -> 419.0	28060	52.75	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 131.9%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	119673	52.63	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 131.6%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	-	363.0 -> 319.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	-	413.0 -> 369.0	-	N.D.			
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	5.571	285.0 -> 169.0	0		µg/L	m	1

 # = Qualifier out of range, m = manually integrated, + = Area summed

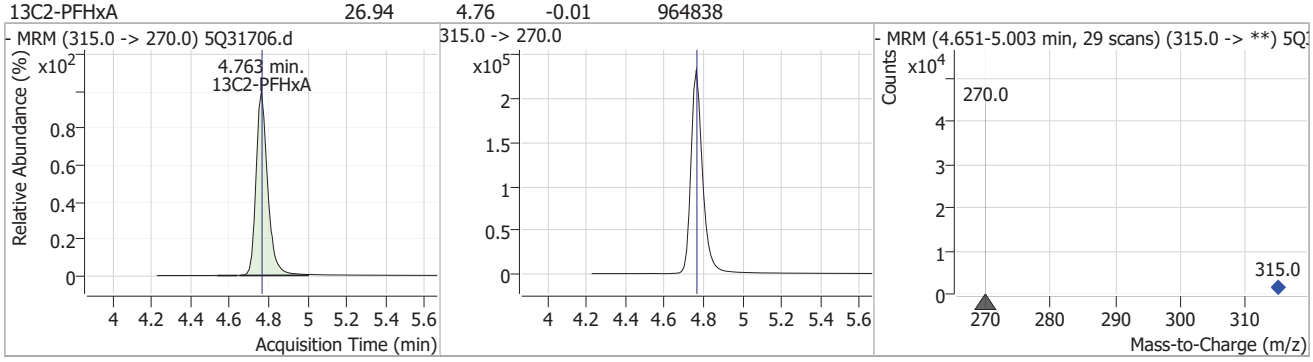
Perfluorinated Compounds by LC/MS/MS



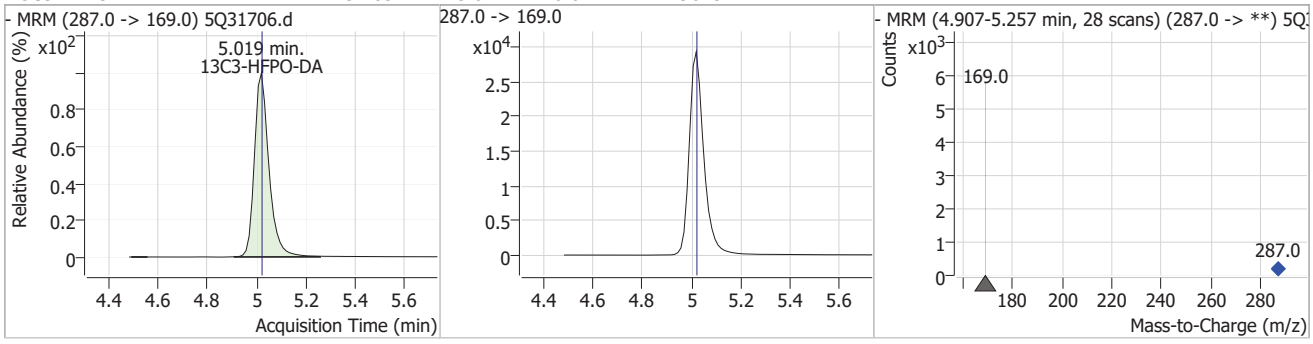
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	701664				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	26.94	4.76	-0.01	964838				

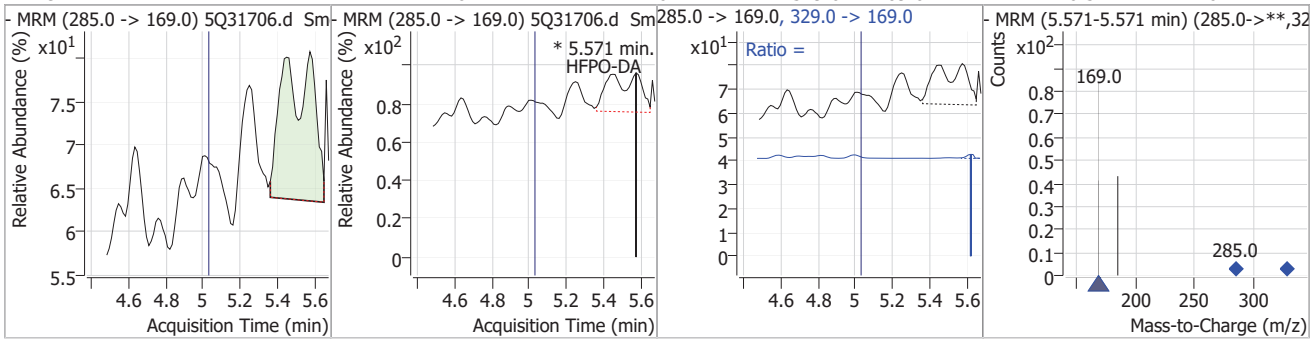


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	52.63	5.02	-0.01	119673				

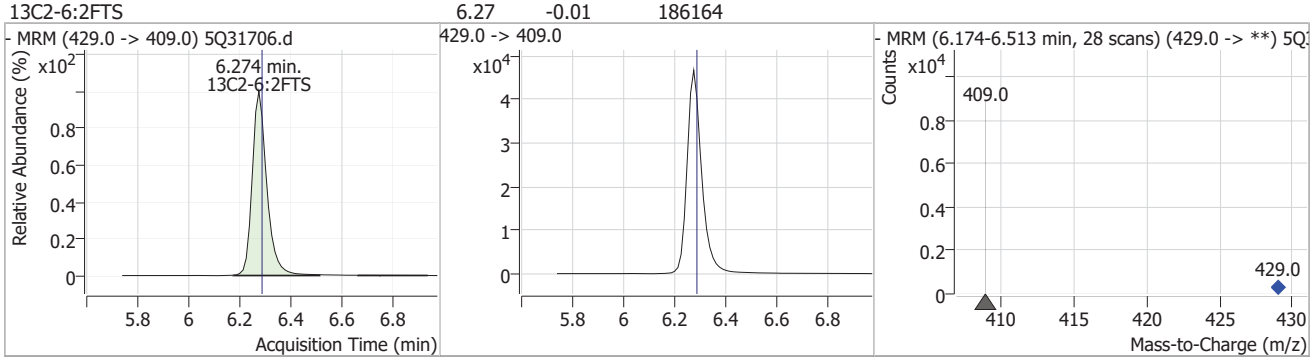


Perfluorinated Compounds by LC/MS/MS

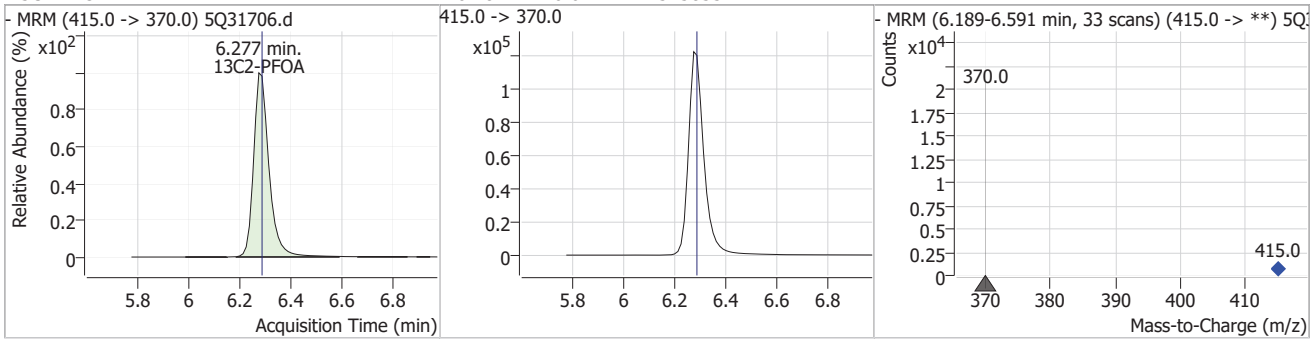
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA		0		0	329.0 -> 169.0		0.3	1.0



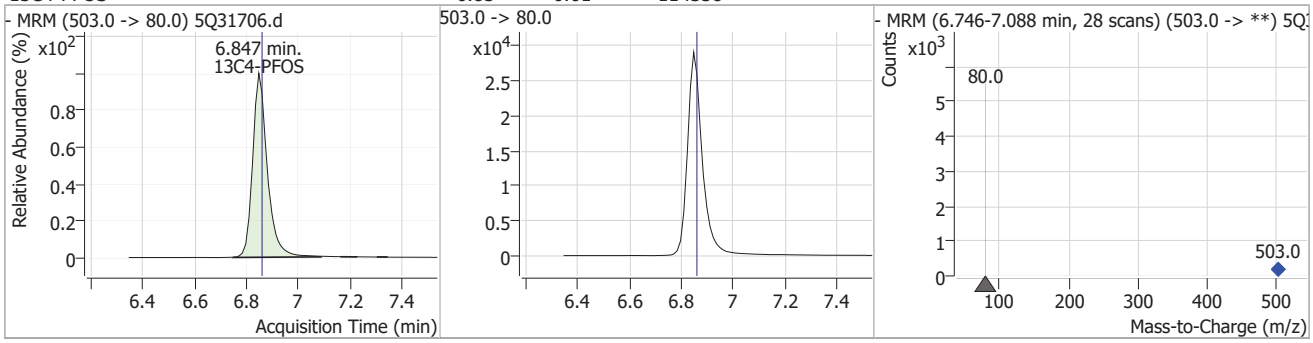
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	186164				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.28	-0.01	515835				

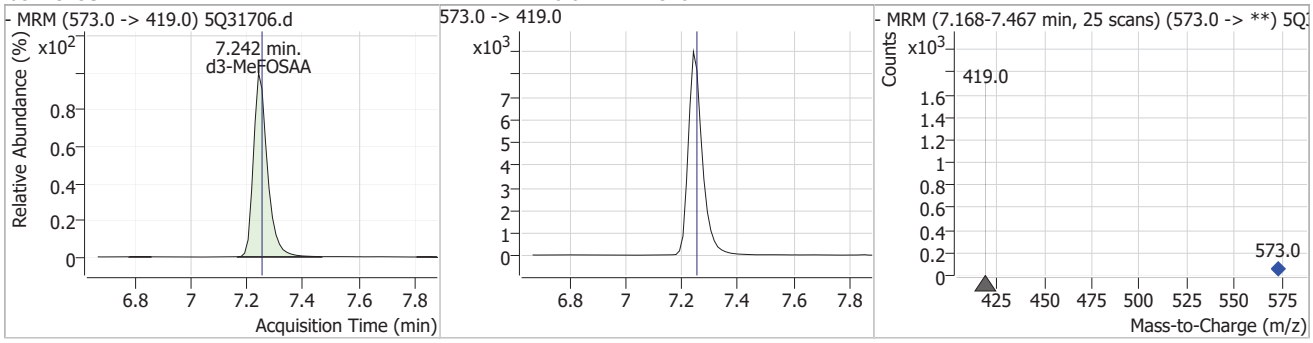


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.85	-0.01	114358				

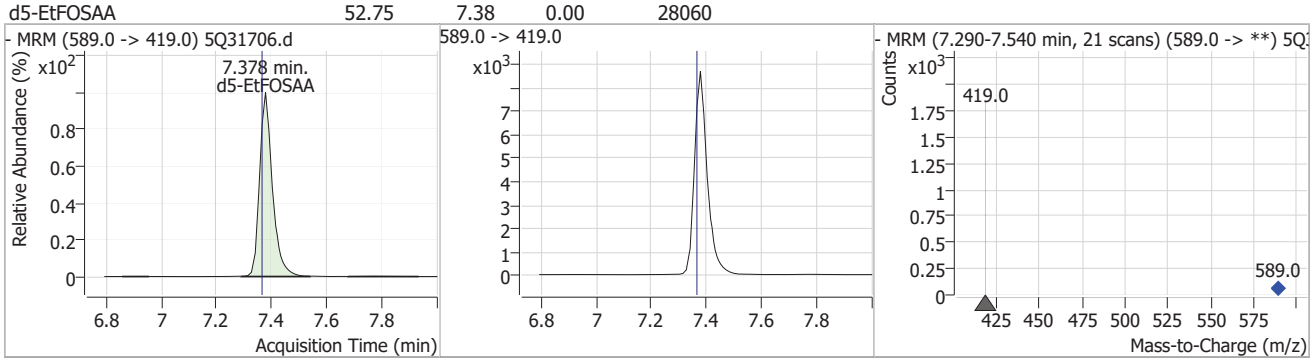


Perfluorinated Compounds by LC/MS/MS

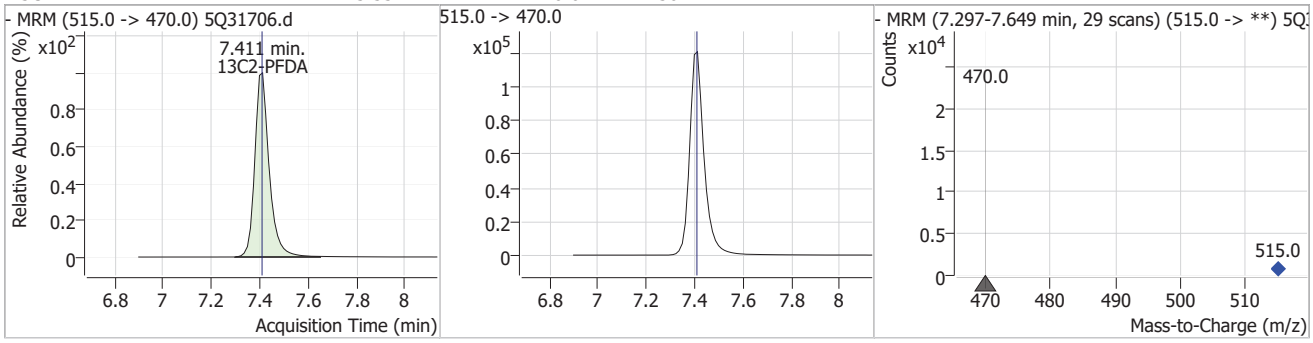
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	31027				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	52.75	7.38	0.00	28060				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	25.33	7.41	-0.01	501214				



Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/14/25 12:44

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101440.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/11/2025 6:23:33 PM
Sample Name : rt
Vial : P1-D2
DA Method File : 533_041125_S3Q1491.quantmethod.xml
Batch Name : s3q1491.batch.bin
Sample Information : op8141,S3Q1491,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	237108	10.00 µg/L	0.000
13C3-PFBA	2.332	216.0 -> 172.0	78411	10.00 µg/L	0.000
13C4-PFOS	7.983	503.0 -> 80.0	32851	10.00 µg/L	0.000
M4-PFBA	2.327	217.0 -> 172.0	129318	10.00 µg/L	-0.013
M5-PFPeA	4.400	268.0 -> 223.0	159290	10.00 µg/L	-0.013
M5-PFHxA	5.776	318.0 -> 273.0	217798	10.00 µg/L	0.000
M4-PFHpA	6.694	367.0 -> 322.0	190320	10.00 µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	263669	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	287961	10.00 µg/L	0.000
M6-PFDA	8.533	519.0 -> 474.0	435904	10.00 µg/L	0.000
M7-PFUnDA	9.185	570.0 -> 525.0	771494	10.00 µg/L	0.000
M2-PFDoDA	10.071	615.0 -> 570.0	992623	10.00 µg/L	0.000
M3-PFBS	4.708	302.0 -> 99.0	19184	10.00 µg/L	0.000
M3-PFHxS	6.723	402.0 -> 99.0	27966	10.00 µg/L	-0.013
M8-PFOS	7.982	507.0 -> 99.0	35396	10.00 µg/L	0.000
M2-4:2FTS	5.672	329.0 -> 309.0	76463	10.00 µg/L	0.000
M2-6:2FTS	7.420	429.0 -> 409.0	150880	10.00 µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	239378	10.00 µg/L	0.000
M3-HFPO-DA	6.056	287.0 -> 169.0	2329	10.00 µg/L	-0.013
System Monitoring Compounds					
13C2-4:2FTS	5.672	329.0 -> 309.0	76463	9.08 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.8%	
13C2-6:2FTS	7.420	429.0 -> 409.0	150880	9.25 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.5%	
13C2-8:2FTS	8.597	529.0 -> 509.0	239378	9.10 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.0%	
13C2-PFDoDA	10.071	615.0 -> 570.0	992623	9.56 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C3-PFBS	4.708	302.0 -> 99.0	19184	9.63 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C3-PFHxS	6.723	402.0 -> 99.0	27966	9.75 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C4-PFBA	2.327	217.0 -> 172.0	129318	9.64 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C4-PFHpA	6.694	367.0 -> 322.0	190320	9.61 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C5-PFHxA	5.776	318.0 -> 273.0	217798	9.59 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.9%	
13C5-PFPeA	4.400	268.0 -> 223.0	159290	9.68 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C6-PFDA	8.533	519.0 -> 474.0	435904	9.76 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C7-PFUnDA	9.185	570.0 -> 525.0	771494	9.63 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C8-PFOA	7.422	421.0 -> 376.0	263669	9.61 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

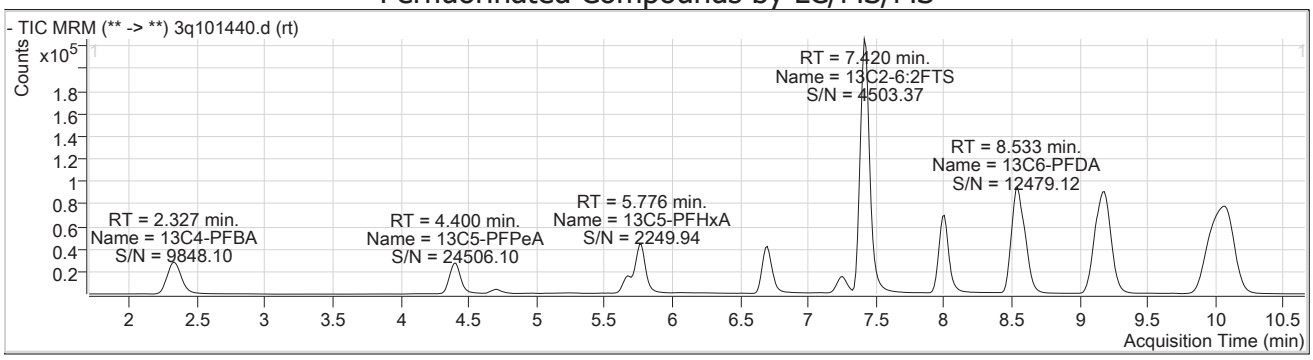
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.1%		
13C8-PFOS	7.982	507.0 -> 99.0	35396	9.64 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.4%		
13C9-PFNA	8.010	472.0 -> 427.0	287961	9.61 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.1%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	2329	8.42 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 84.2%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	-	299.0 -> 80.0	-	N.D.		
		299.0 -> 99.0				
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	6.708	363.0 -> 319.0	0	0.00 µg/L	m	1
		363.0 -> 169.0	0			
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	7.423	413.0 -> 369.0	399509	18.15 µg/L	m	95
		413.0 -> 169.0	156572			
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	6.023	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0	0			

 # = Qualifier out of range, m = manually integrated, + = Area summed

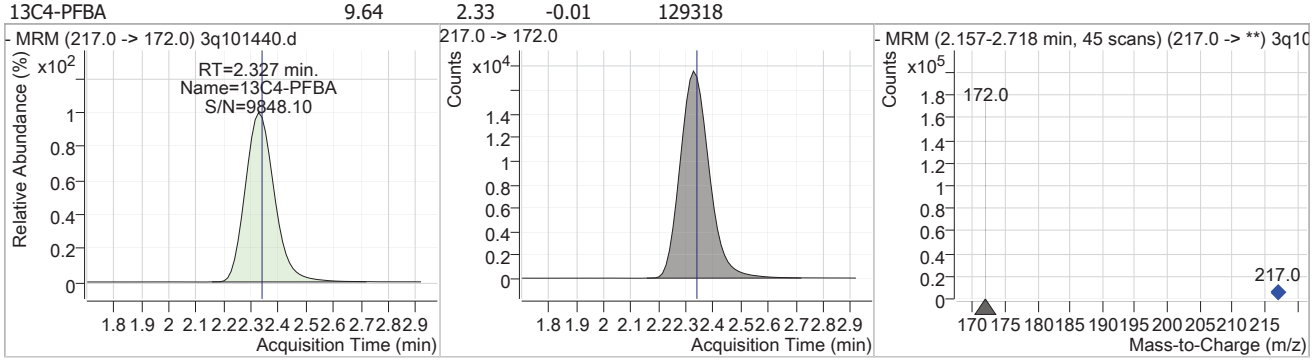
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

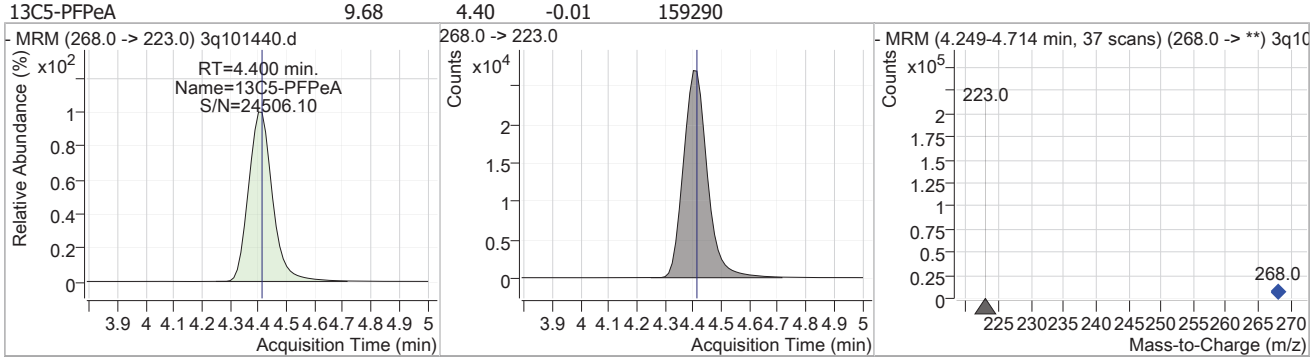
Perfluorinated Compounds by LC/MS/MS



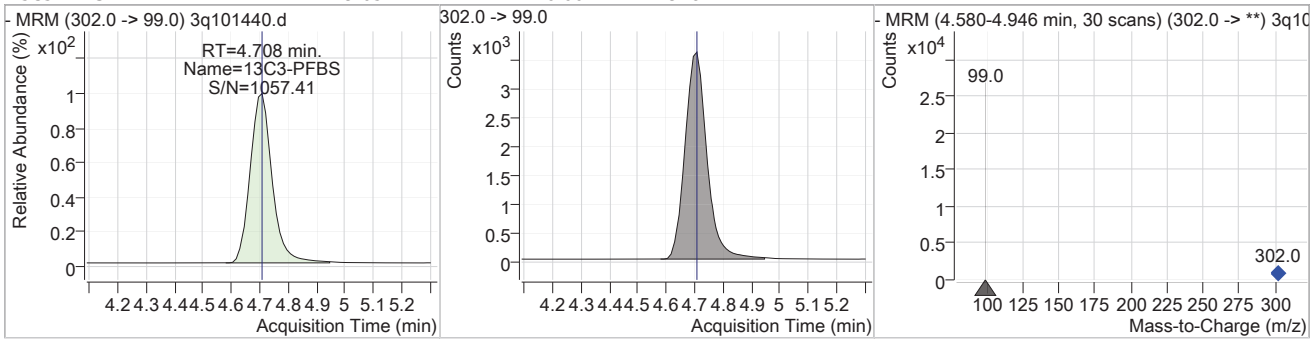
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	9.64	2.33	-0.01	129318				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	9.68	4.40	-0.01	159290				

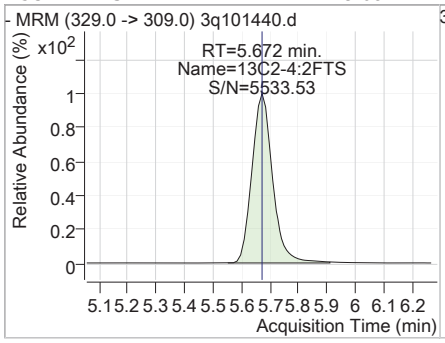


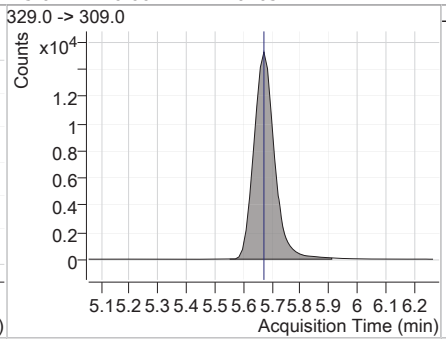
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	9.63	4.71	0.00	19184				

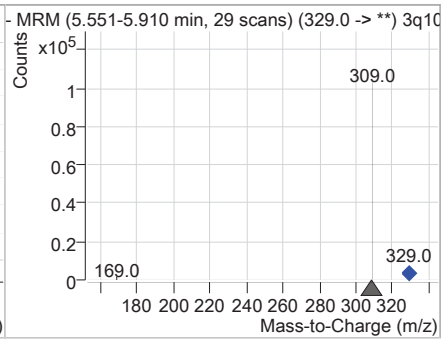


Perfluorinated Compounds by LC/MS/MS

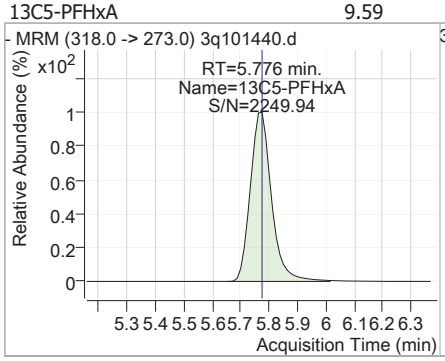
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	9.08	5.67	0.00	76463				

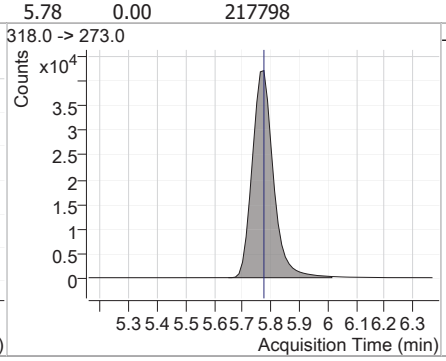


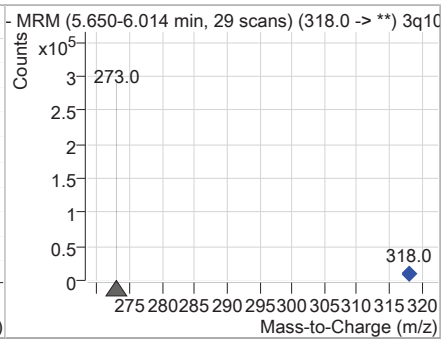




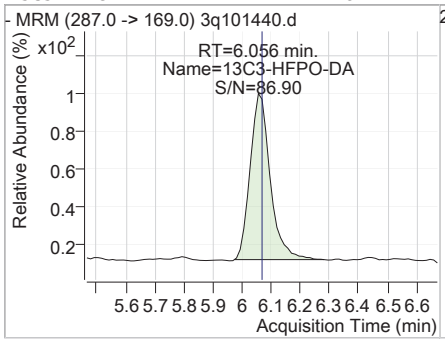
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	9.59	5.78	0.00	217798				

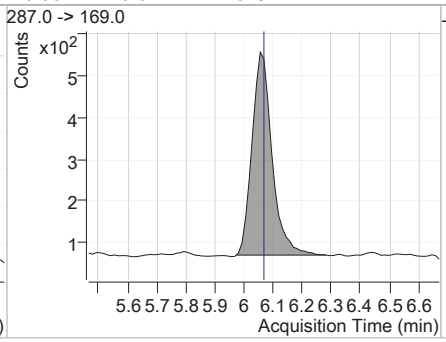


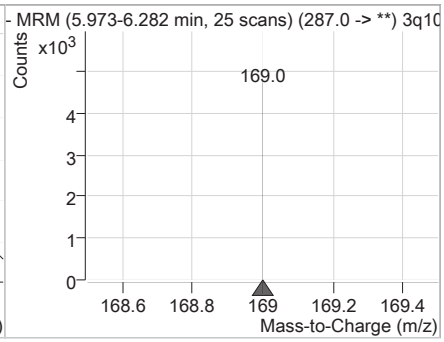




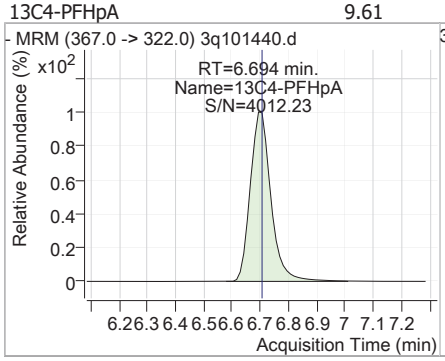
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.42	6.06	-0.01	2329				

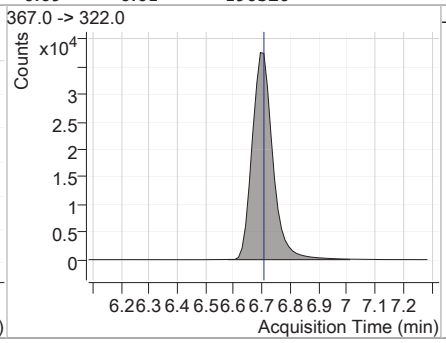


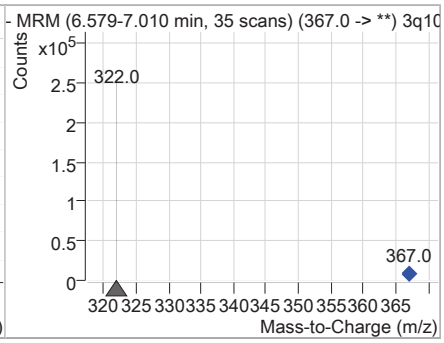




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	9.61	6.69	-0.01	190320				

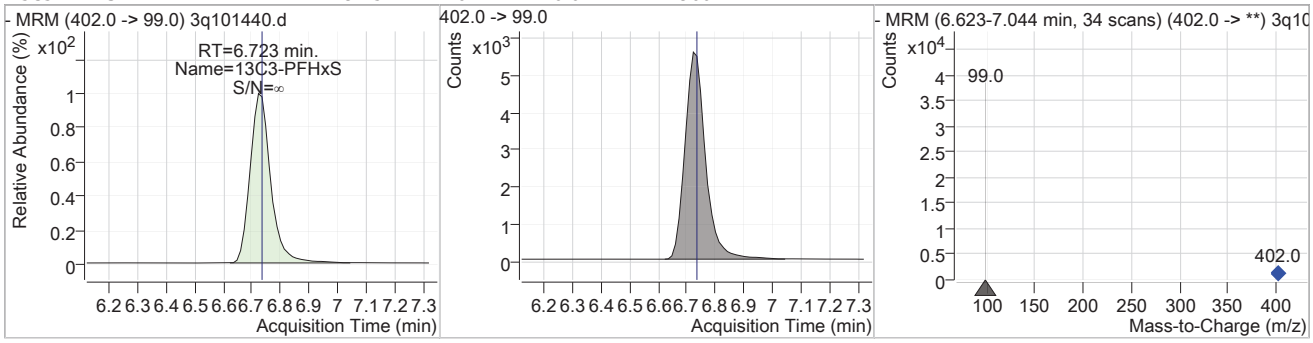




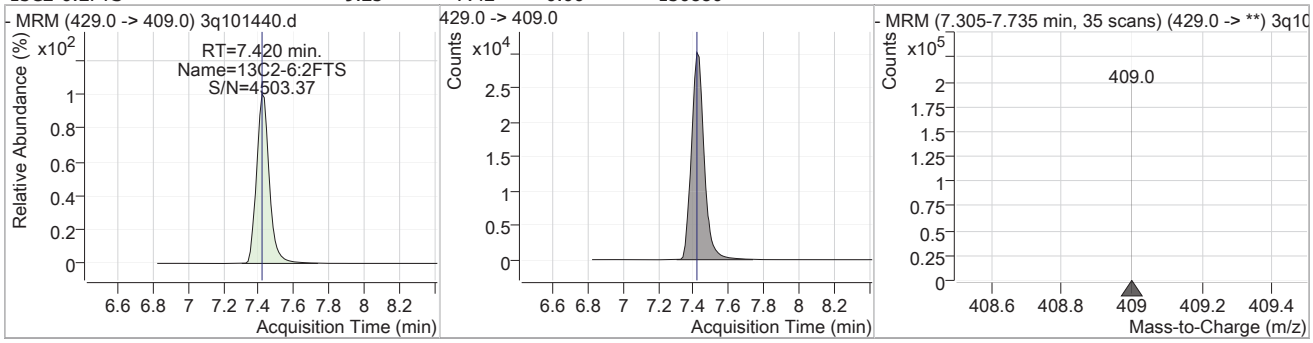


Perfluorinated Compounds by LC/MS/MS

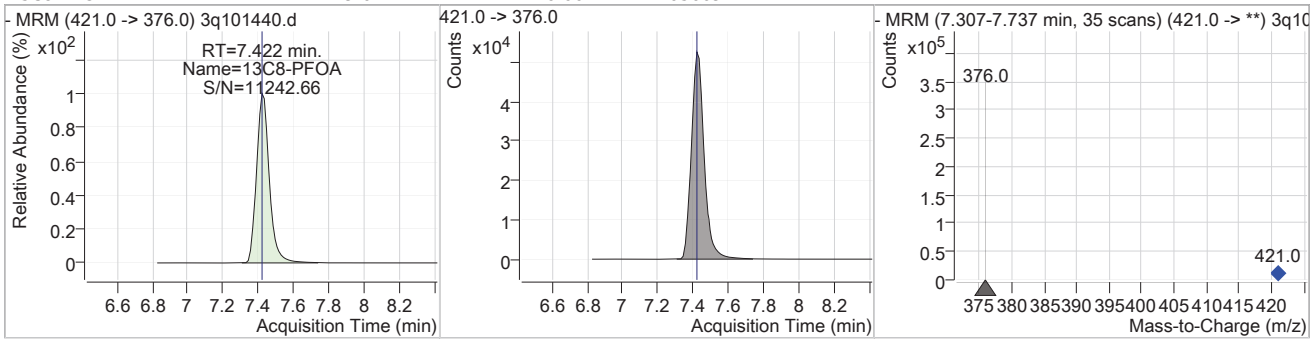
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	9.75	6.72	-0.01	27966				



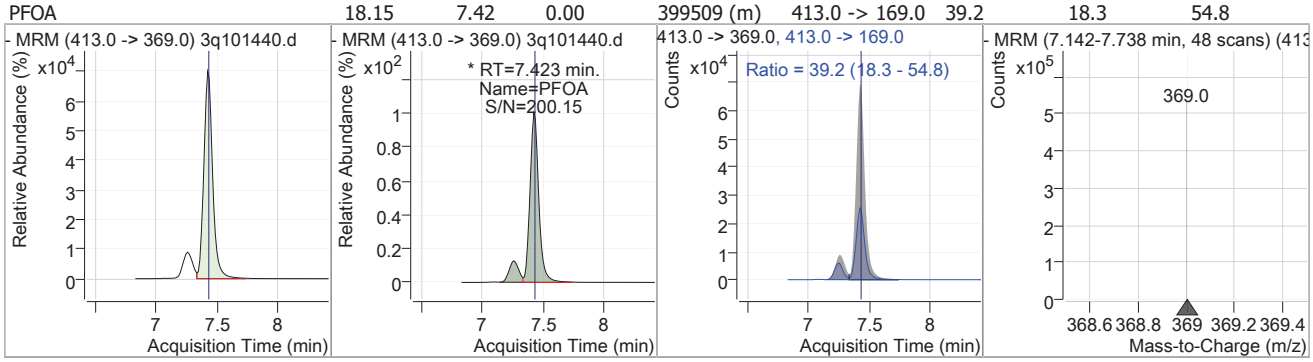
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	9.25	7.42	0.00	150880				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	9.61	7.42	0.00	263669				

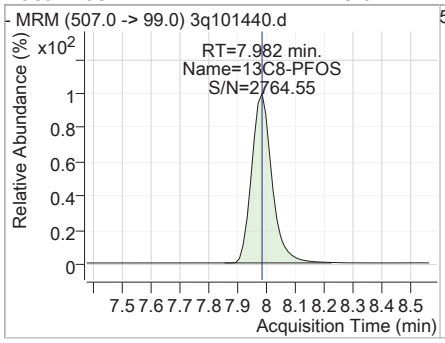


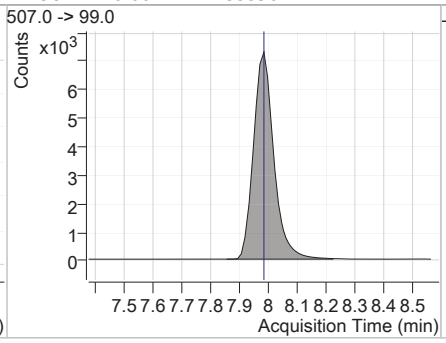
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	18.15	7.42	0.00	399509 (m)	413.0 -> 169.0	39.2	18.3	54.8

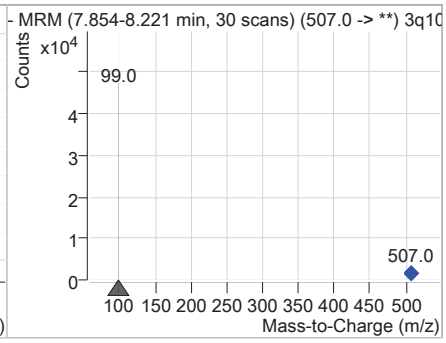


Perfluorinated Compounds by LC/MS/MS

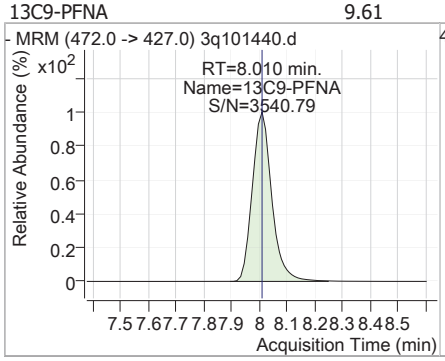
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	9.64	7.98	0.00	35396				

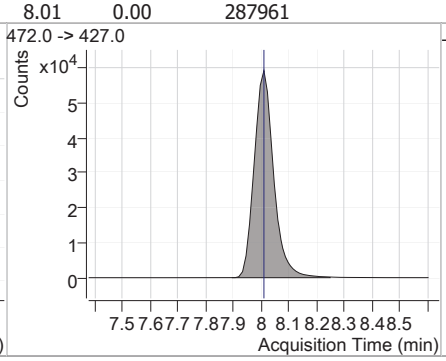


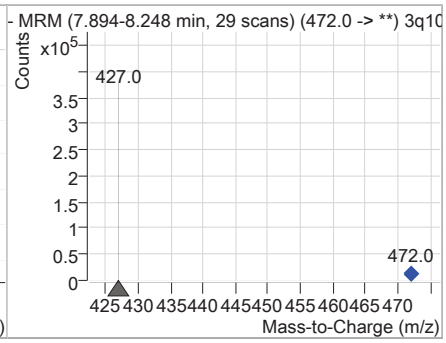




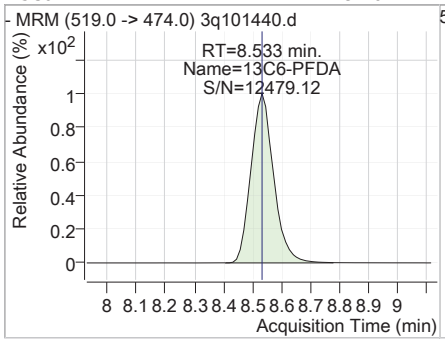
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	9.61	8.01	0.00	287961				

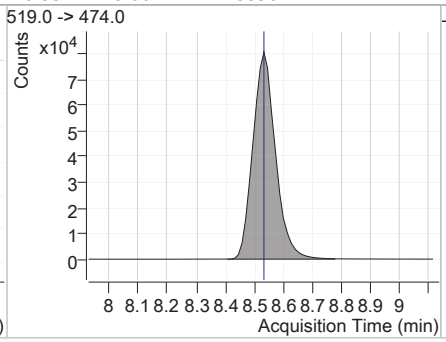


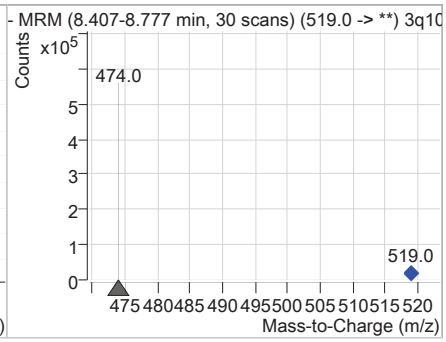




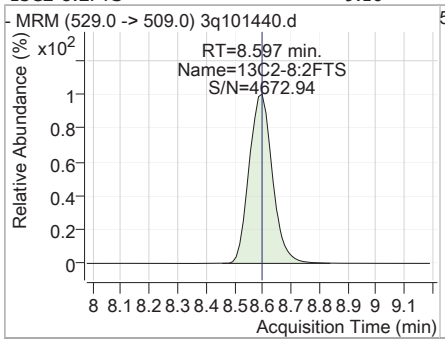
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	9.76	8.53	0.00	435904				

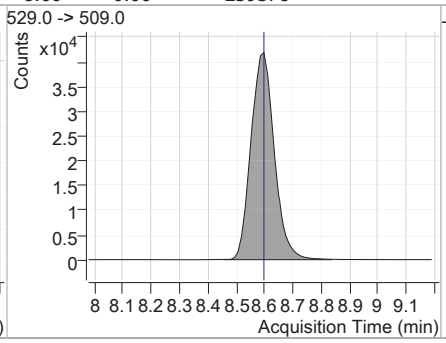


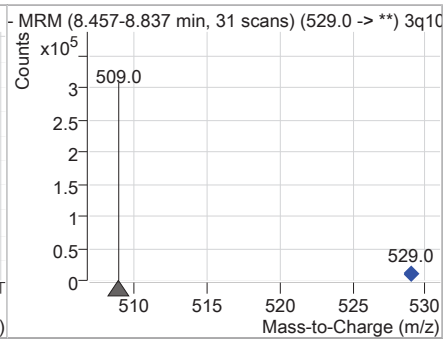




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	9.10	8.60	0.00	239378				

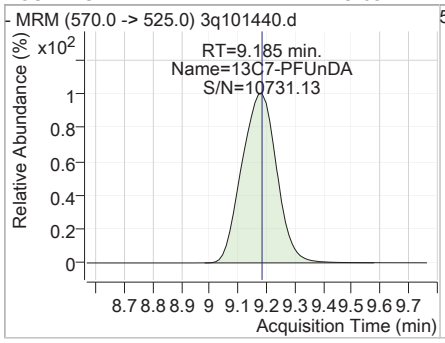


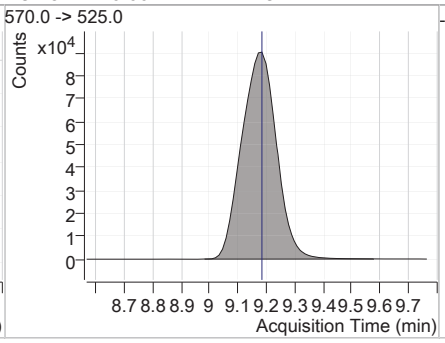


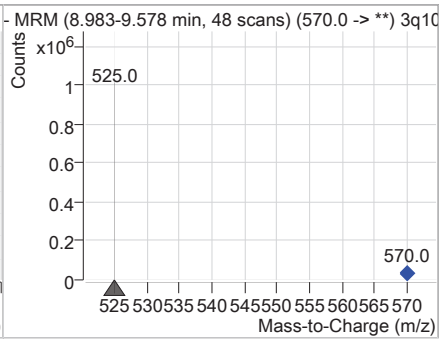


Perfluorinated Compounds by LC/MS/MS

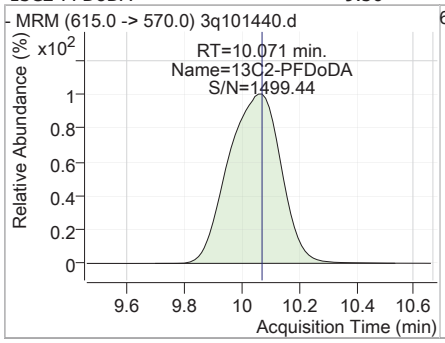
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	9.63	9.18	0.00	771494				

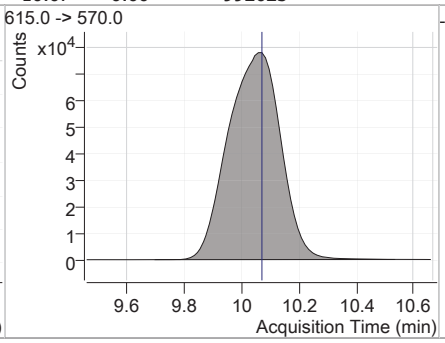


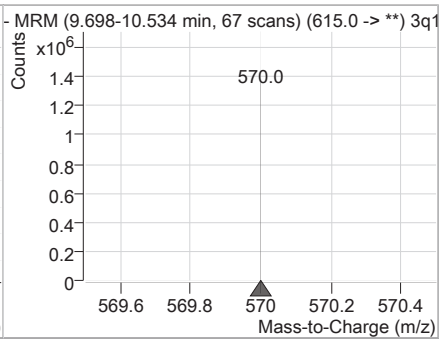




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	9.56	10.07	0.00	992623				







7.6.1

7

Manual Integration Approval Summary

Sample Number:	S3Q1491-RT	**Method:**	EPA 533
Lab FileID:	3Q101440.D	**Analyst approved:**	04/14/25 11:45 (b) (6)
Injection Time:	04/11/25 18:23	**Supervisor approved:**	04/14/25 12:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.42	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/14/25 12:24

Perfluorinated Compounds by LC/MS/MS

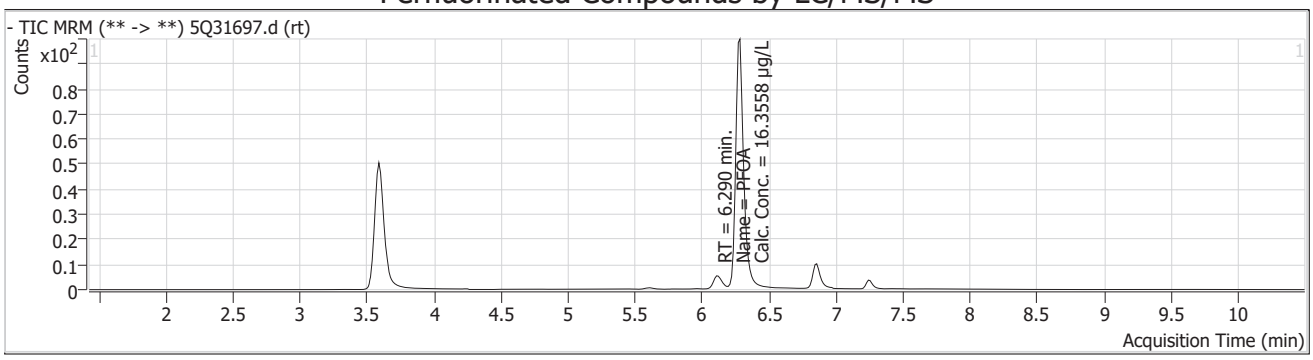
Data File : 5Q31697.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/11/2025 1:57:54 PM
Sample Name : rt
Vial : P1-B2
DA Method File : 537_041125_S5Q519.quantmethod
Batch Name : s5q519.batch.bin
Sample Information : OP8806,S5Q519,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	163355	20.00	µg/L		-0.012
13C2-PFOA	6.289	415.0 -> 370.0	464047	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	633276	20.00	µg/L		-0.012
13C4-PFOS	6.860	503.0 -> 80.0	99563	20.00	µg/L		0.000
d3-MeFOSAA	7.242	573.0 -> 419.0	29535	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	0		µg/L	m	-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C2-PFHxA	4.763	315.0 -> 270.0	0		µg/L	m	-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
d5-EtFOSAA	7.378	589.0 -> 419.0	0		µg/L	m	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C3-HFPO-DA	4.932	287.0 -> 169.0	0		µg/L	m	-0.100
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	7.380	584.0 -> 419.0	0		µg/L	m	1
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	5.601	363.0 -> 319.0	0		µg/L	m	1
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	6.290	413.0 -> 369.0	358203	16.36	µg/L	m	96
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	4.947	285.0 -> 169.0	0		µg/L	m	1

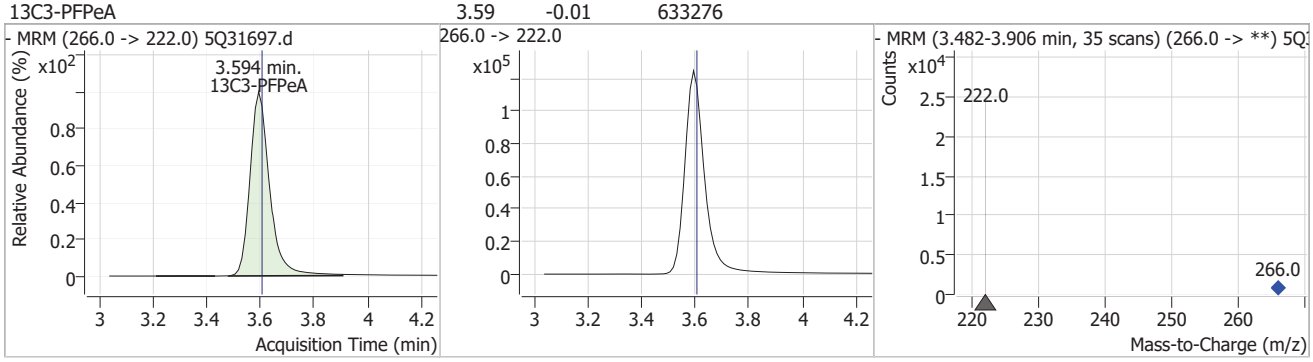
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.6.2
7

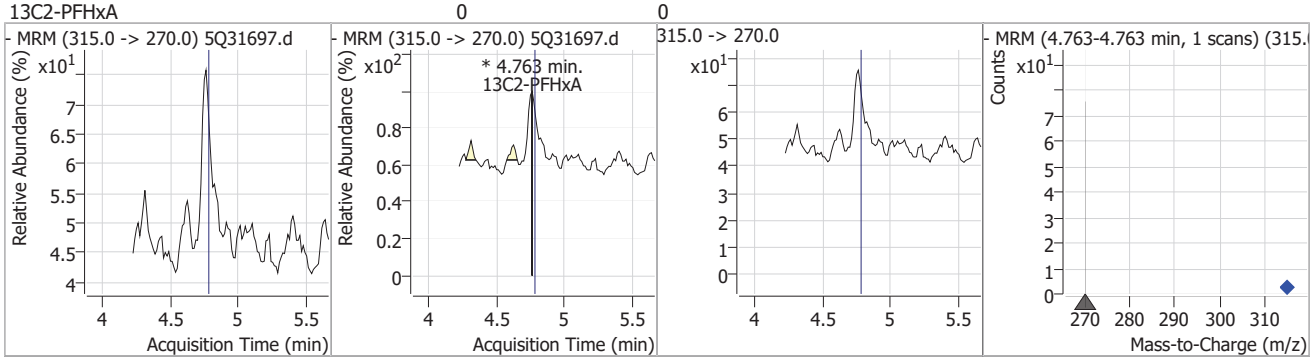
Perfluorinated Compounds by LC/MS/MS



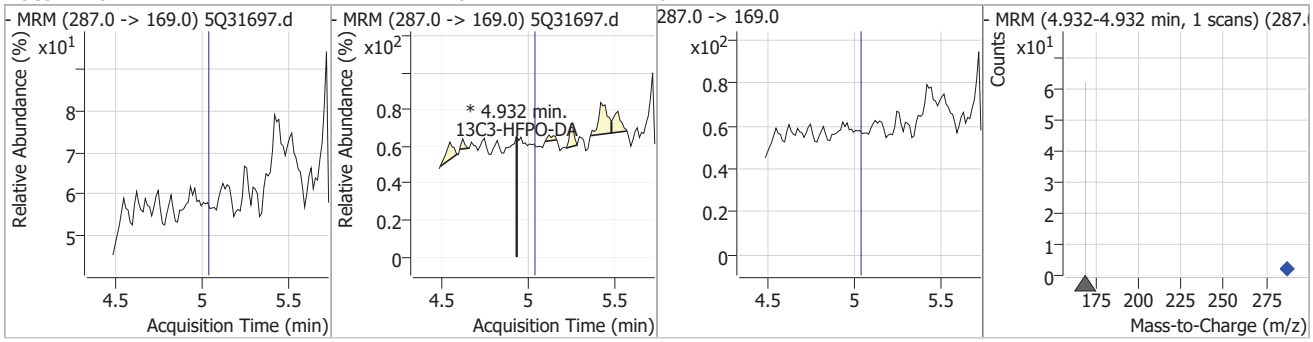
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	633276				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA		0		0				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA		0		0				

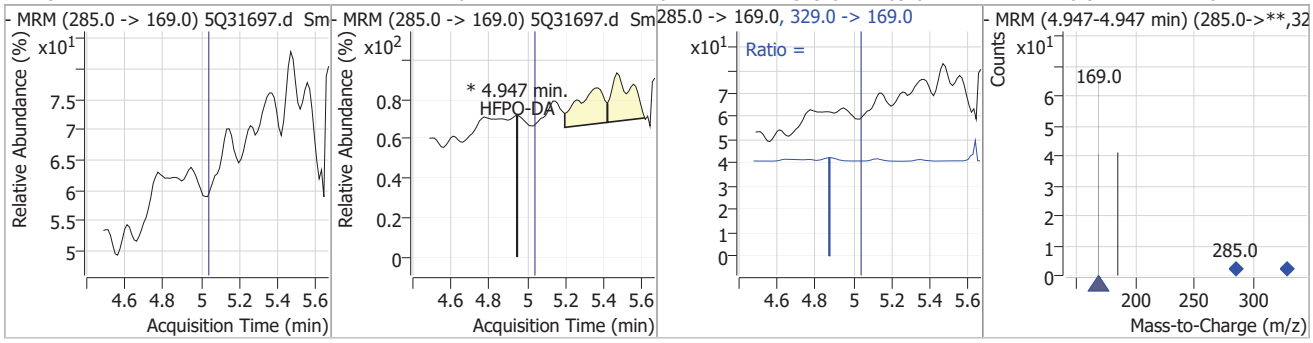


7.6.2

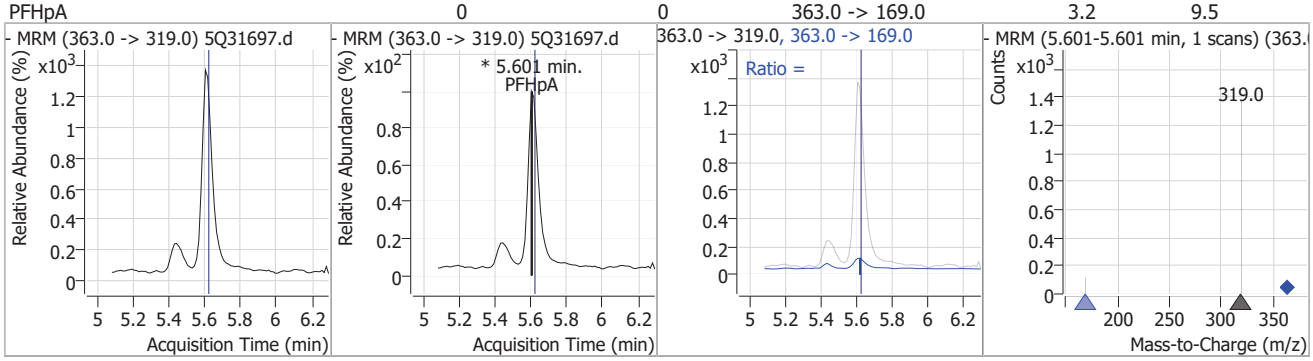
7

Perfluorinated Compounds by LC/MS/MS

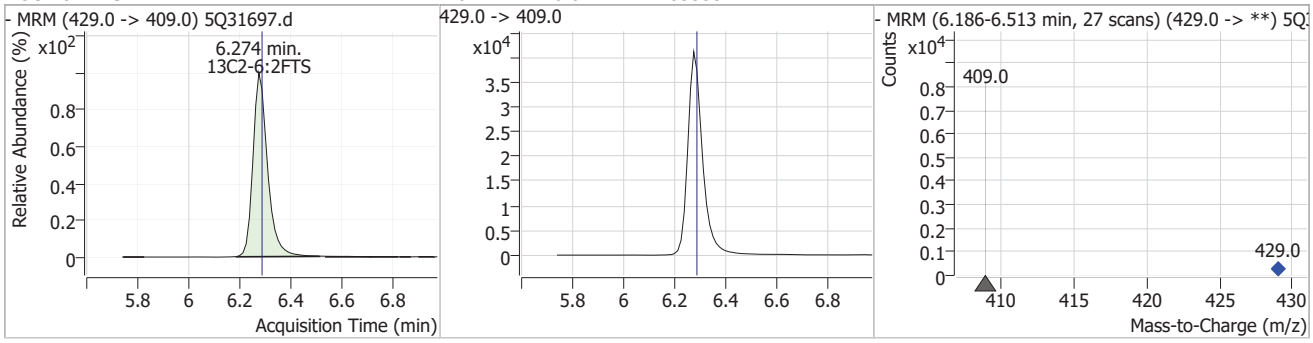
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA		0		0	329.0 -> 169.0		0.3	1.0



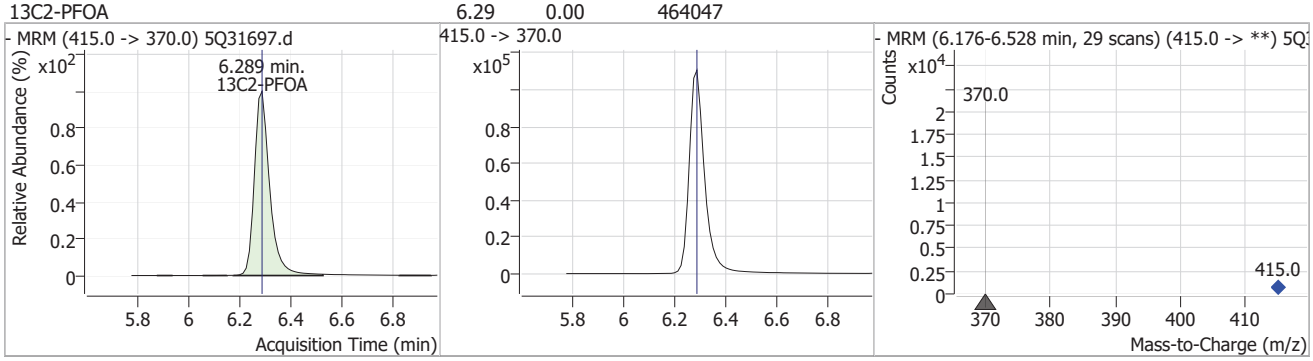
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA		0		0	363.0 -> 169.0		3.2	9.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	163355				

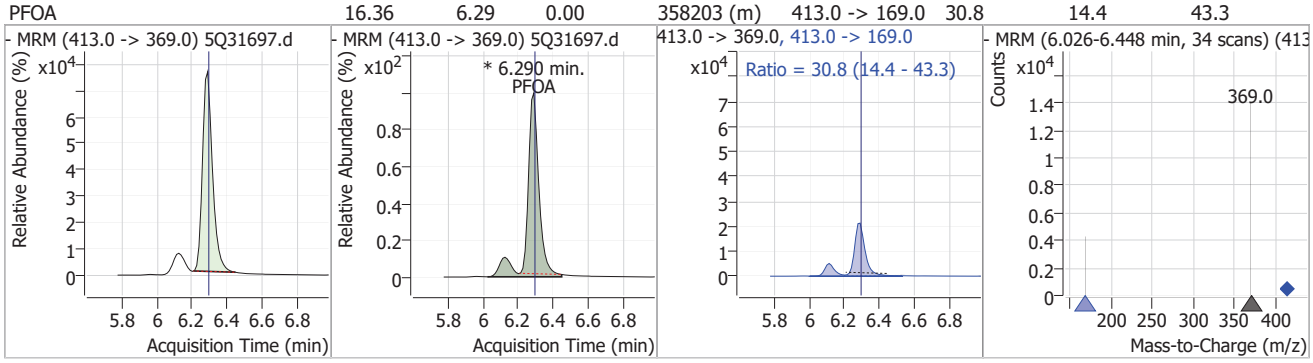


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	464047				

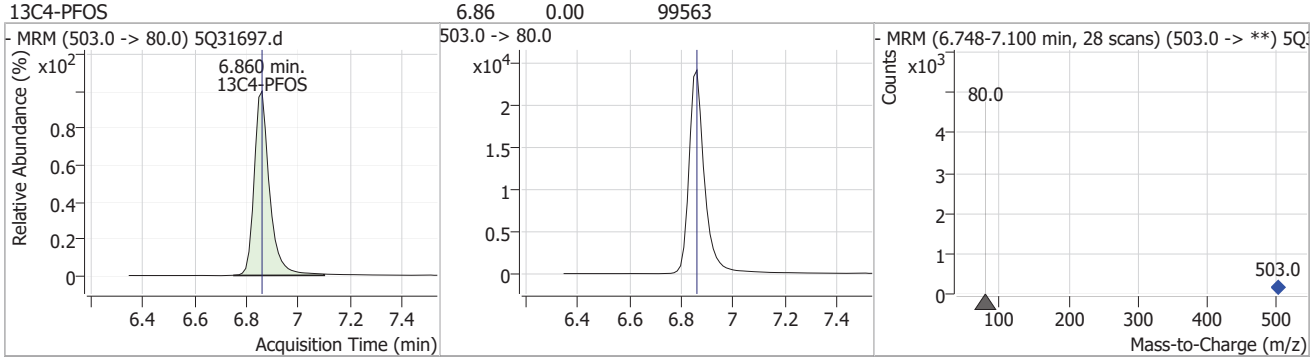


Perfluorinated Compounds by LC/MS/MS

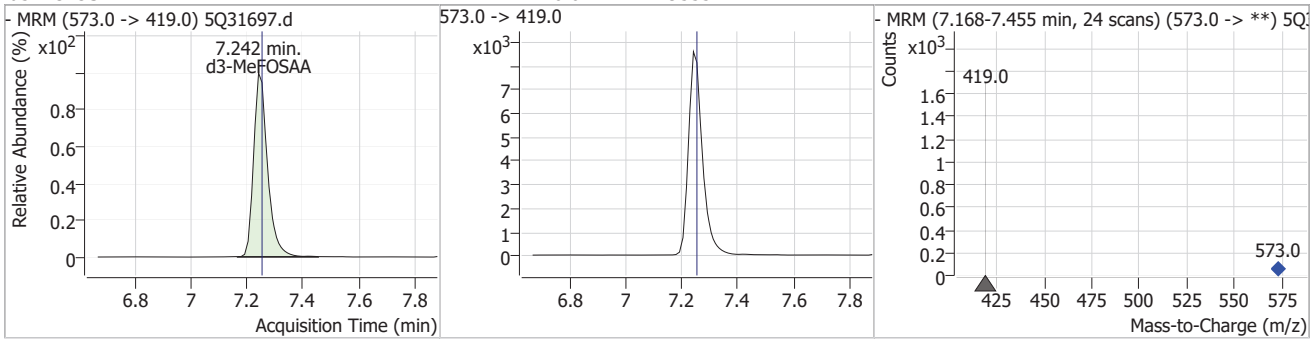
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	16.36	6.29	0.00	358203 (m)	413.0 -> 169.0	30.8	14.4	43.3



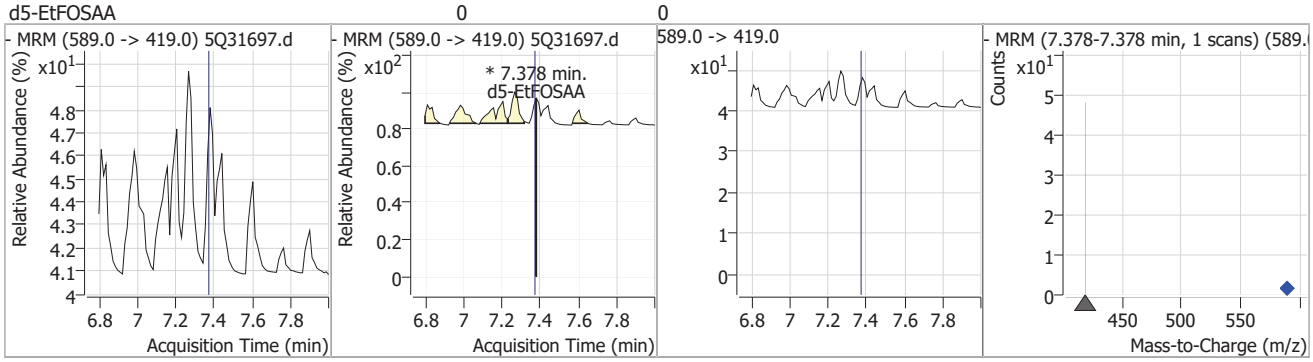
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	99563				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	29535				

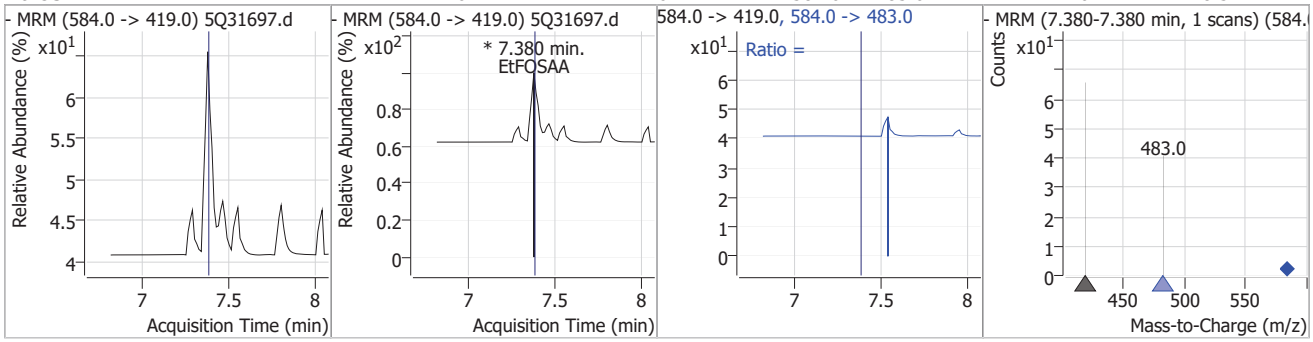


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA		0		0				

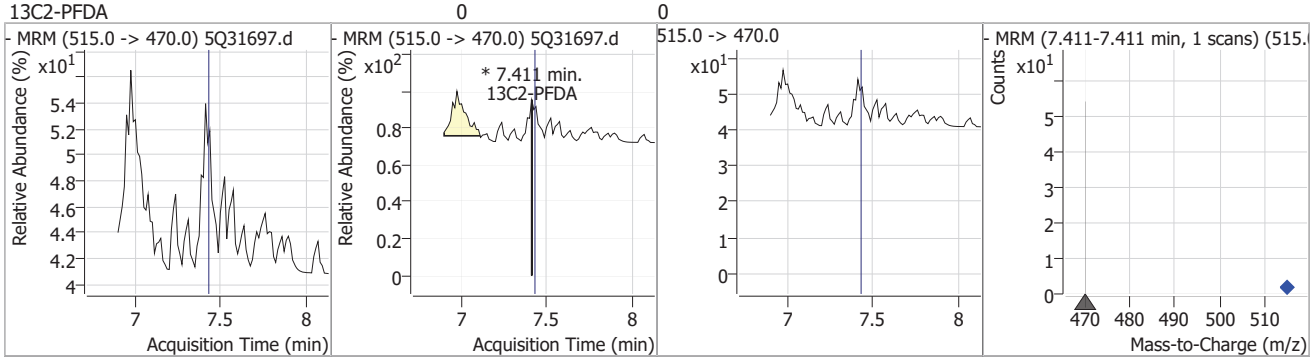


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA		0		0	584.0 -> 483.0		26.2	78.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA		0		0				



7.6.2

7

Manual Integration Approval Summary

Sample Number:	S5Q519-RT	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31697.D	**Analyst approved:**	04/14/25 10:08 (b) (6)
Injection Time:	04/11/25 13:57	**Supervisor approved:**	04/14/25 12:24 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		6.29	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/15/25 15:43

Perfluorinated Compounds by LC/MS/MS

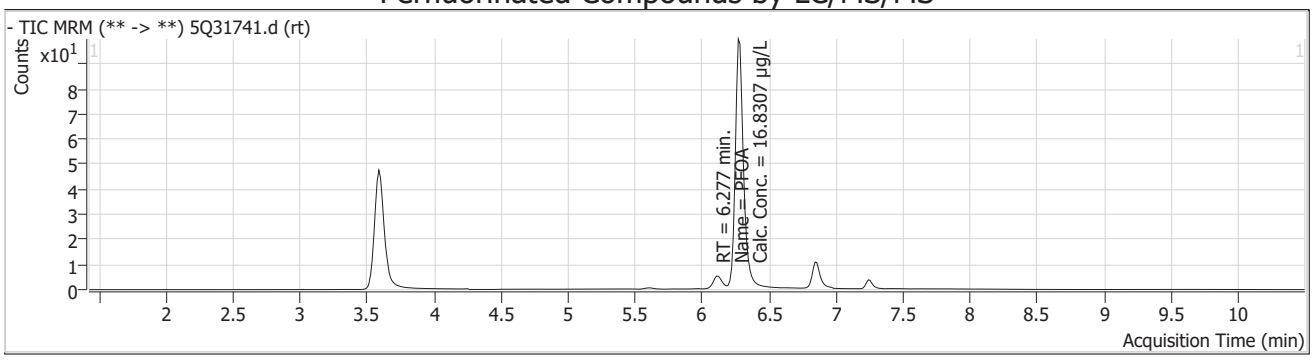
Data File : 5Q31741.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/14/2025 1:14:42 PM
Sample Name : rt
Vial : P1-B2
DA Method File : 537_041425_S5Q520.quantmethod
Batch Name : s5q520.batch.bin
Sample Information : OP8806,S5Q520,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	180824	20.00	µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	439315	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	581508	20.00	µg/L		0.000
13C4-PFOS	6.847	503.0 -> 80.0	103276	20.00	µg/L		-0.012
d3-MeFOSAA	7.242	573.0 -> 419.0	29086	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	0		µg/L	m	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C2-PFHxA	4.751	315.0 -> 270.0	0		µg/L	m	-0.025
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
d5-EtFOSAA	7.366	589.0 -> 419.0	0		µg/L	m	-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C3-HFPO-DA	5.095	287.0 -> 169.0	0		µg/L	m	0.063
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	5.601	363.0 -> 319.0	0		µg/L	m	1
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	6.277	413.0 -> 369.0	347660	16.83	µg/L	m	96
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	-	285.0 -> 169.0	-	N.D.			

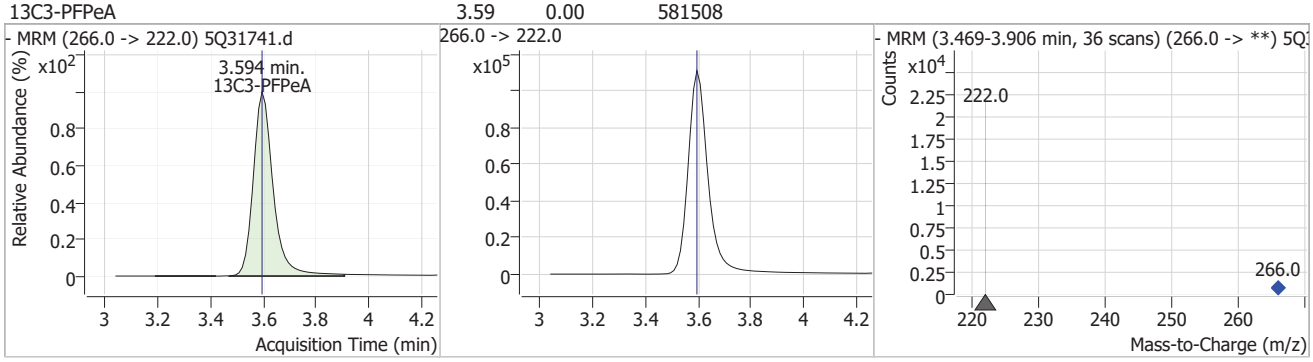
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.6.3
7

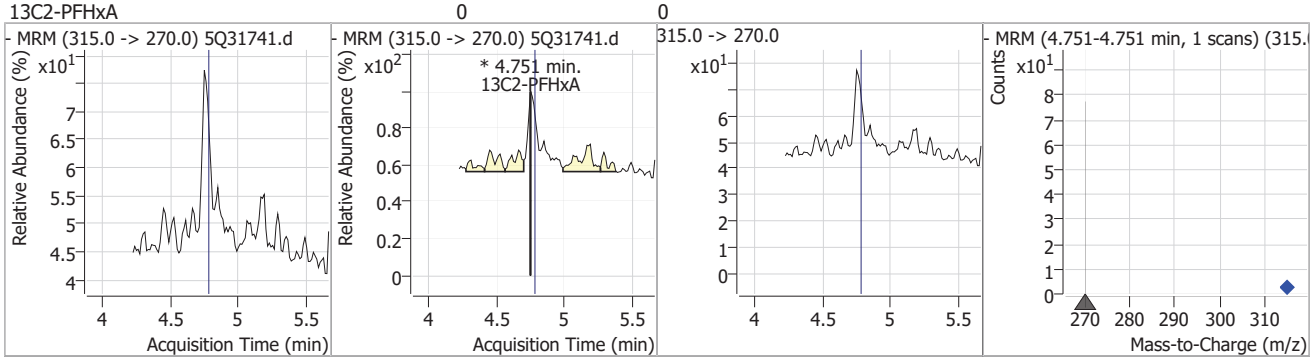
Perfluorinated Compounds by LC/MS/MS



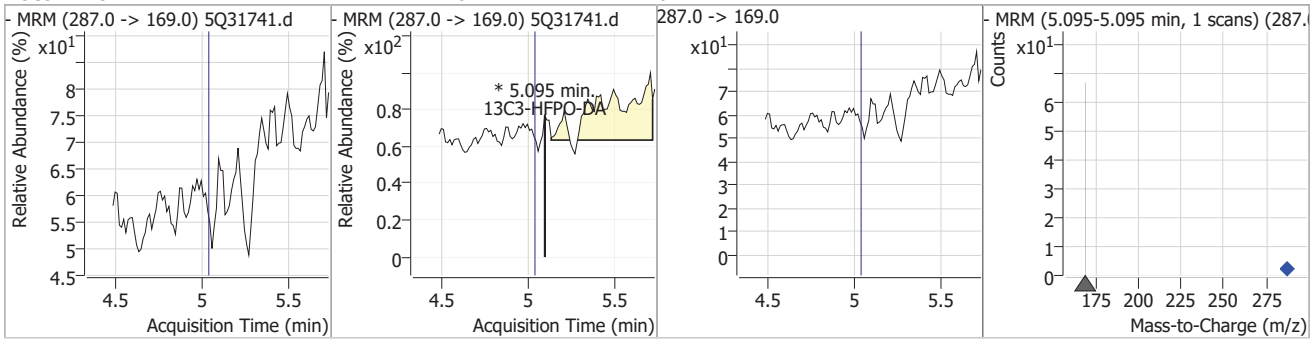
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	581508				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA		0		0				

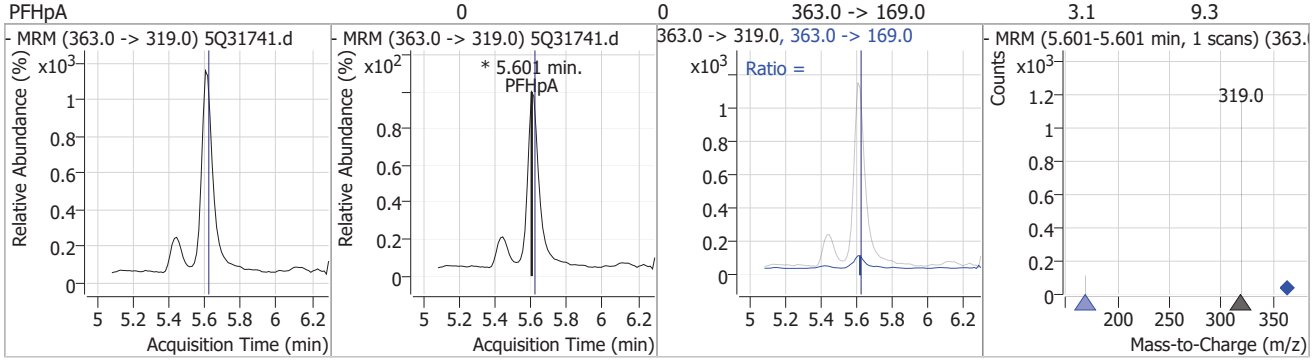


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA		0		0				

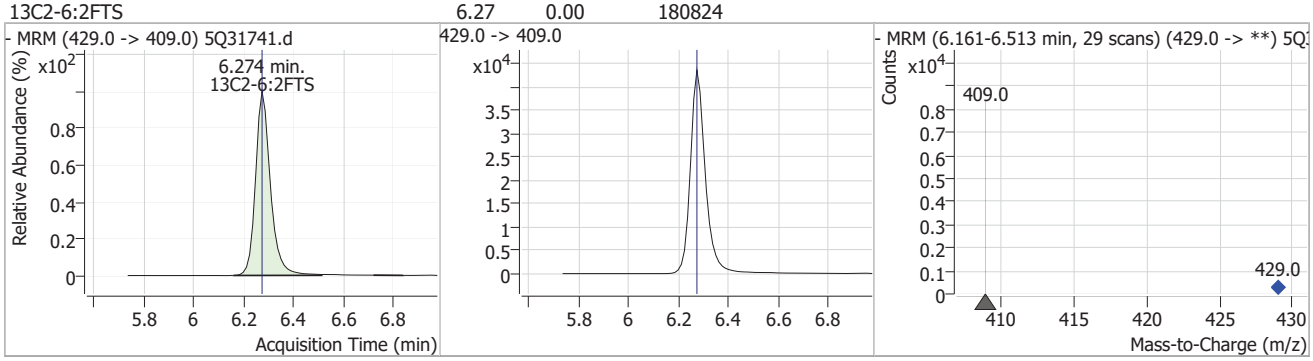


Perfluorinated Compounds by LC/MS/MS

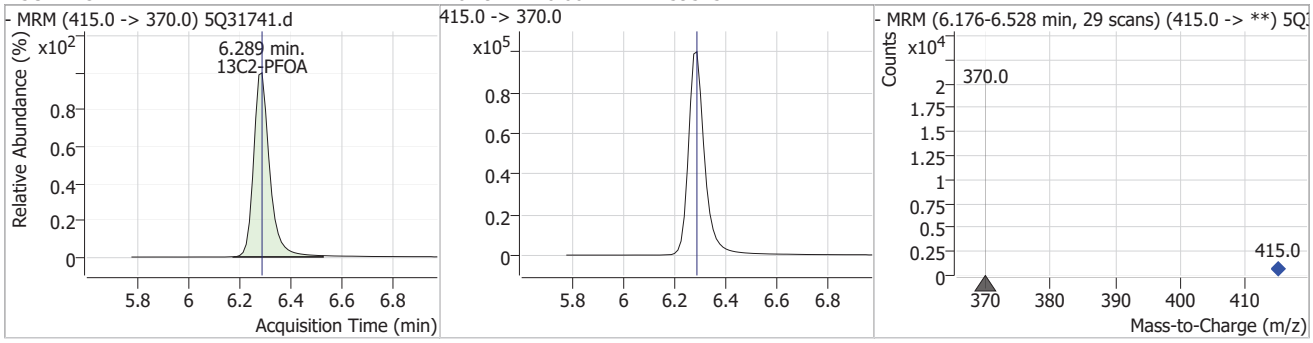
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA		0		0	363.0 -> 169.0		3.1	9.3



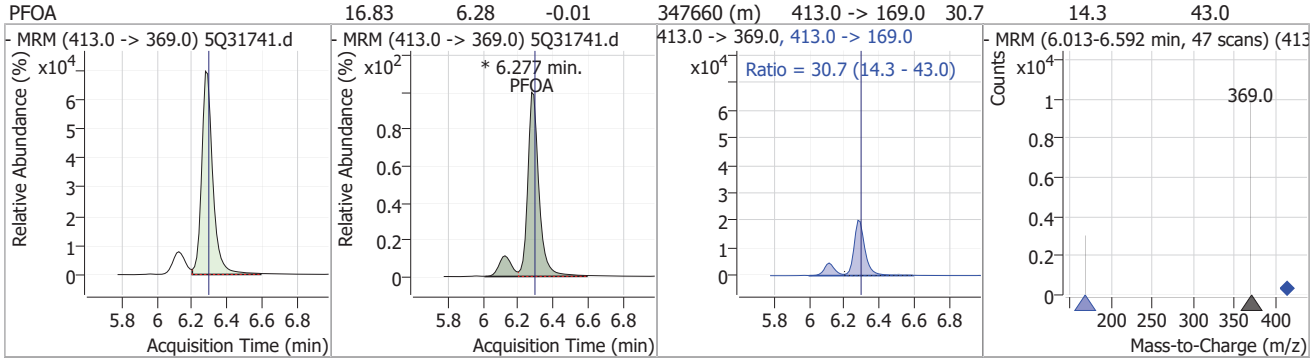
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	0.00	180824				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	439315				

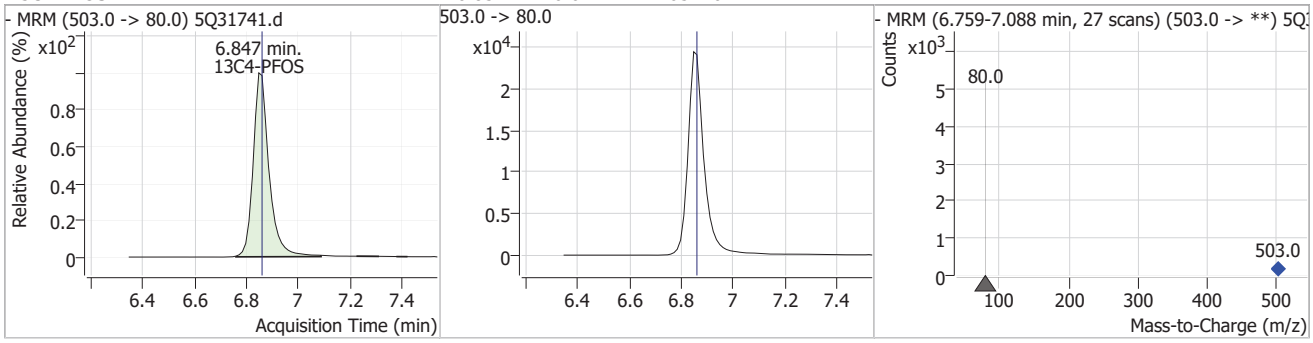


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	16.83	6.28	-0.01	347660 (m)	413.0 -> 169.0	30.7	14.3	43.0

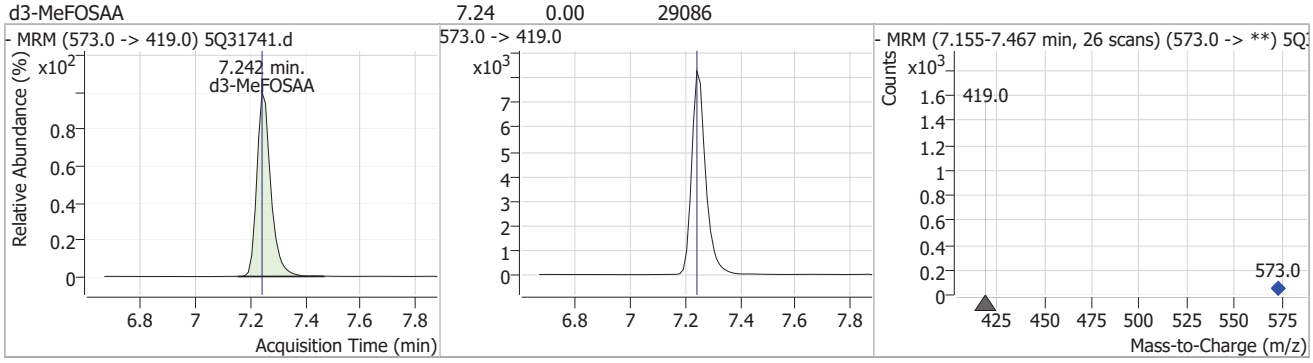


Perfluorinated Compounds by LC/MS/MS

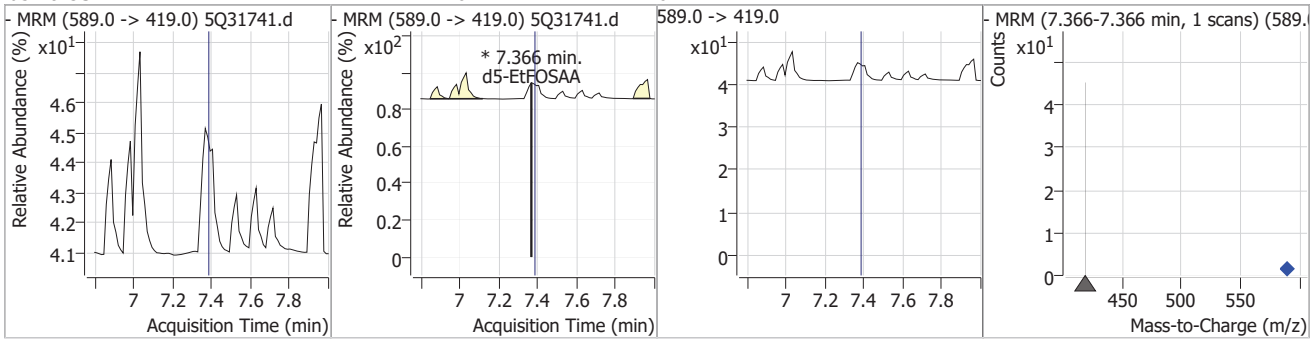
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.85	-0.01	103276				



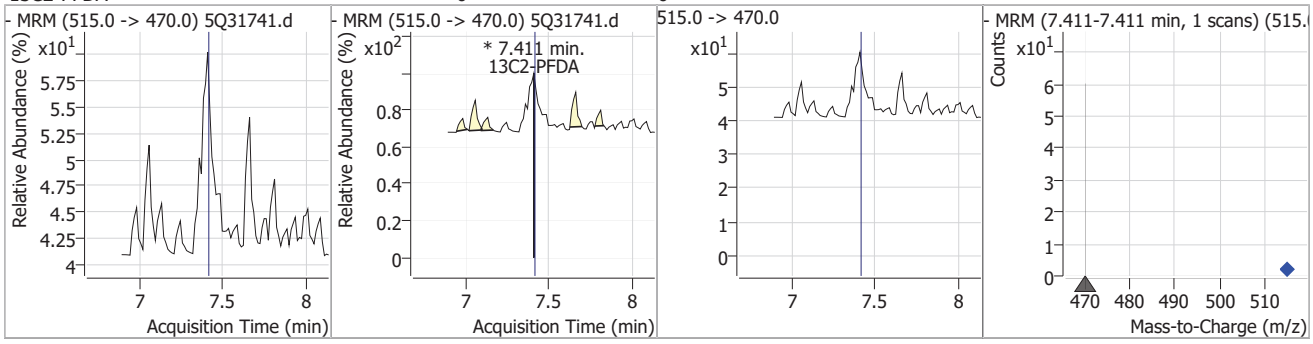
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	29086				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA		0		0				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA		0		0				



Manual Integration Approval Summary

Sample Number:	S5Q520-RT	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31741.D	**Analyst approved:**	04/15/25 14:42 (b) (6)
Injection Time:	04/14/25 13:14	**Supervisor approved:**	04/15/25 15:43 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		6.28	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 09:03

Perfluorinated Compounds by LC/MS/MS

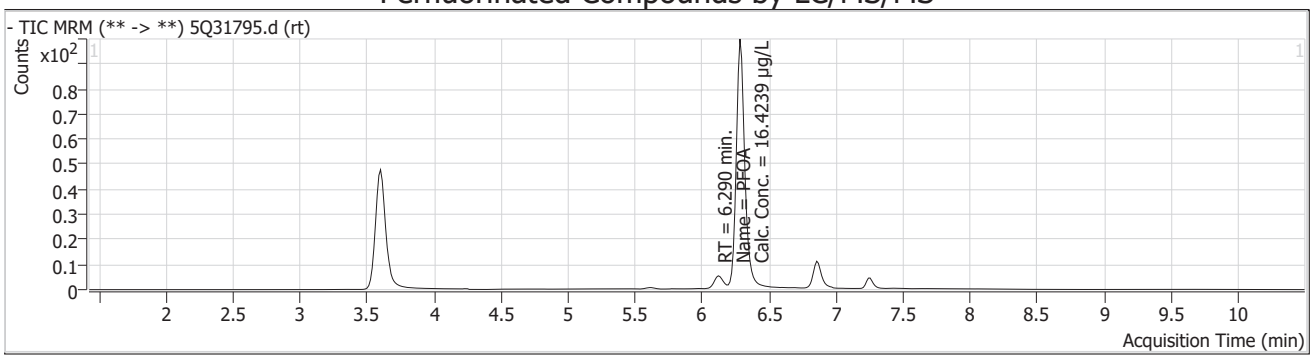
Data File : 5Q31795.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/16/2025 2:25:16 PM
Sample Name : rt
Vial : P1-B2
DA Method File : 537_041625_S5Q522.quantmethod
Batch Name : s5q522.batch.bin
Sample Information : OP8882,S5Q522,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.287	429.0 -> 409.0	156280	20.00	µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	352354	20.00	µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	472532	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	85982	20.00	µg/L		0.000
d3-MeFOSAA	7.255	573.0 -> 419.0	28662	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.460	515.0 -> 470.0	0		µg/L	m	0.037
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C2-PFHxA	4.775	315.0 -> 270.0	0		µg/L	m	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
d5-EtFOSAA	7.366	589.0 -> 419.0	0		µg/L	m	-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C3-HFPO-DA	4.932	287.0 -> 169.0	0		µg/L	m	-0.100
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	7.392	584.0 -> 419.0	0		µg/L	m	1
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	5.614	363.0 -> 319.0	0		µg/L	m	1
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	6.290	413.0 -> 369.0	276408	16.42	µg/L	m	96
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	5.608	285.0 -> 169.0	0		µg/L	m	1

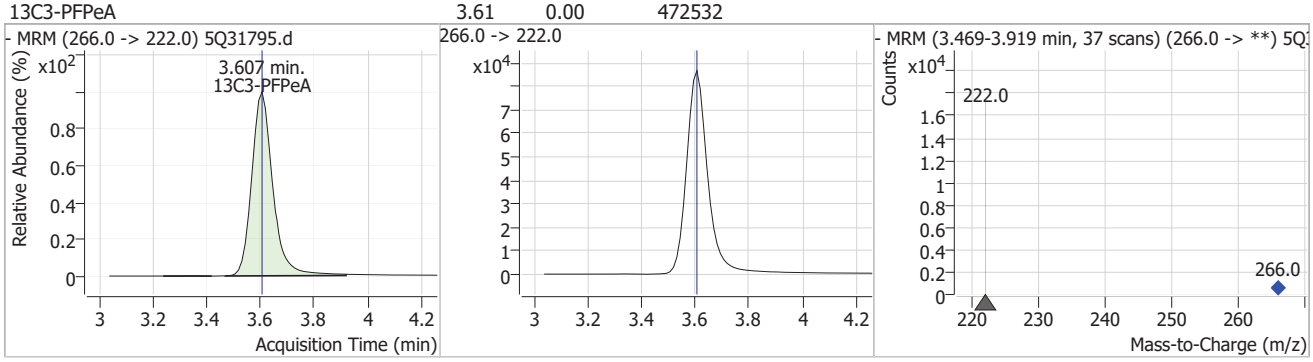
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.6.4
7

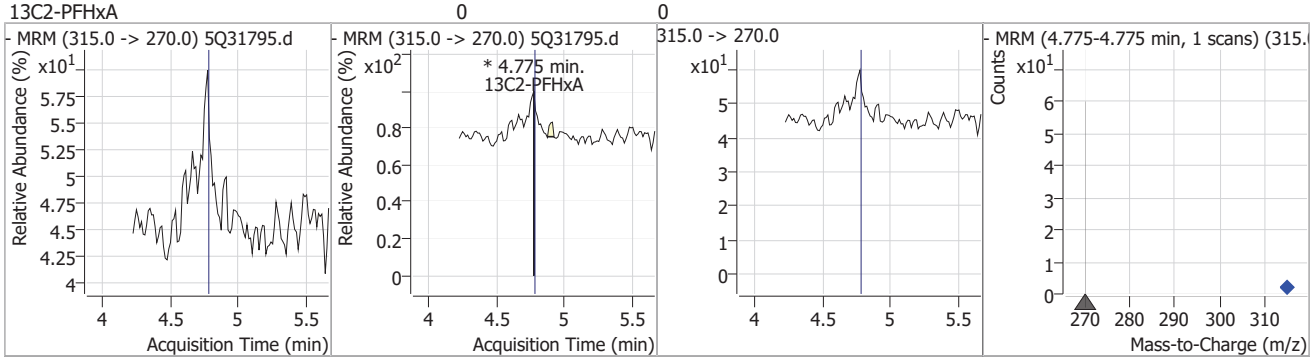
Perfluorinated Compounds by LC/MS/MS



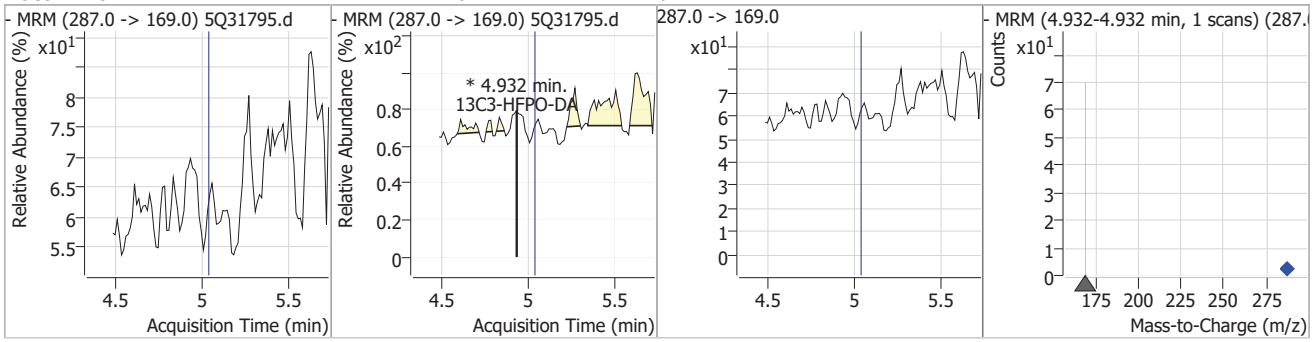
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.00	472532				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA		0		0				

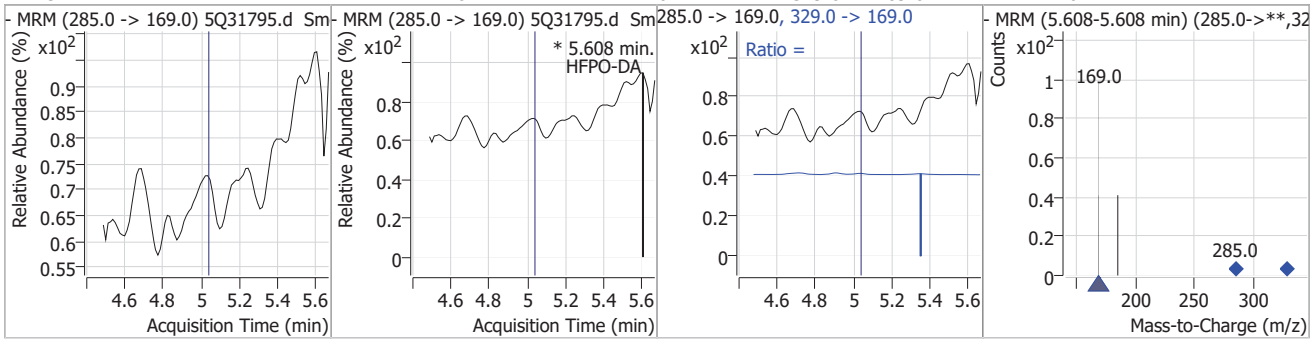


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA		0		0				

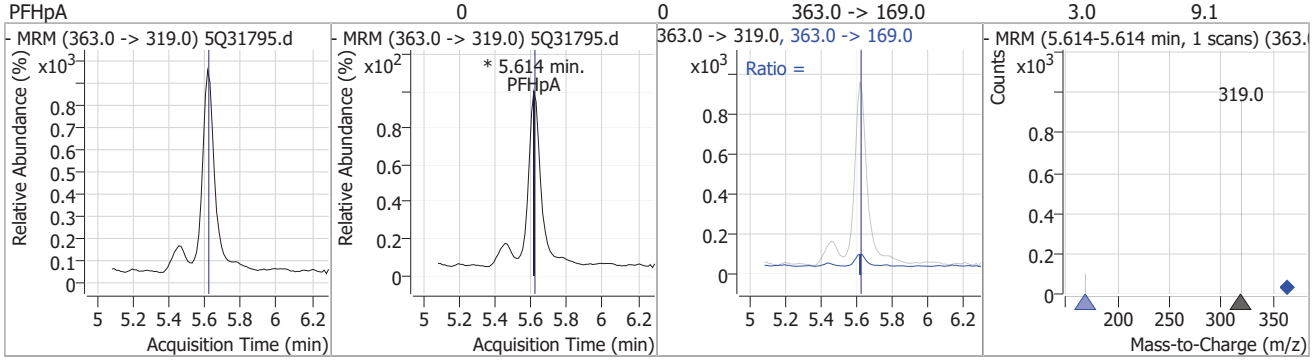


Perfluorinated Compounds by LC/MS/MS

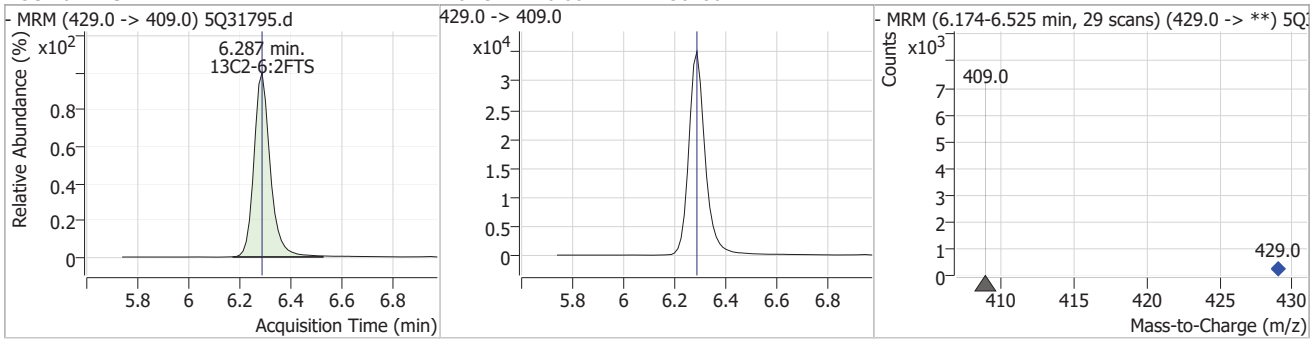
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA		0		0	329.0 -> 169.0		0.4	1.2



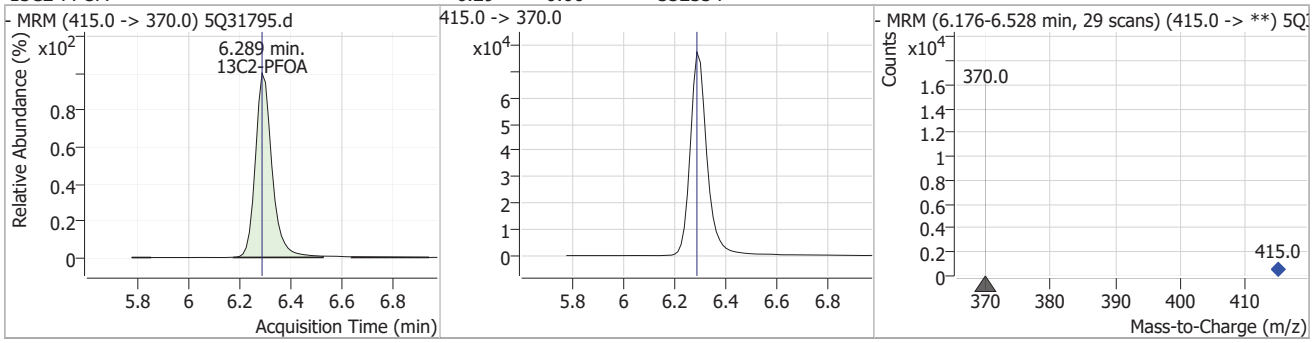
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA		0		0	363.0 -> 169.0		3.0	9.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	156280				

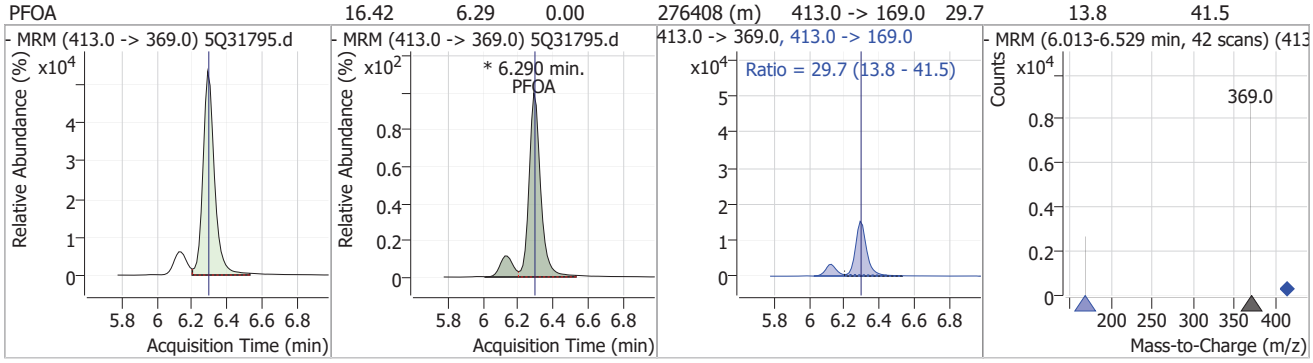


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	352354				

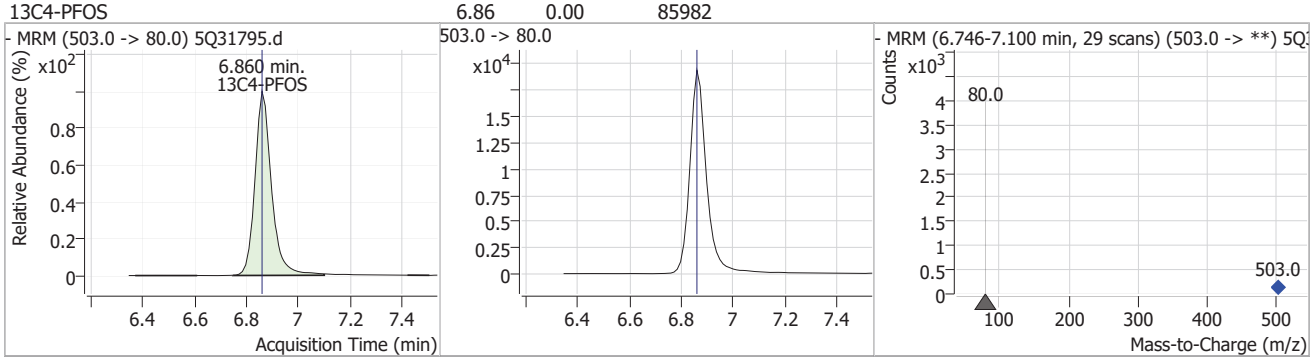


Perfluorinated Compounds by LC/MS/MS

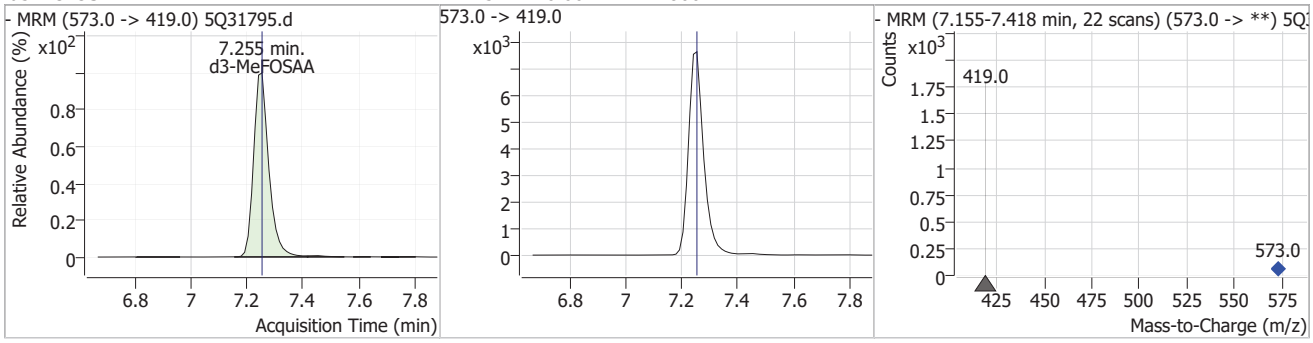
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	16.42	6.29	0.00	276408 (m)	413.0 -> 169.0	29.7	13.8	41.5



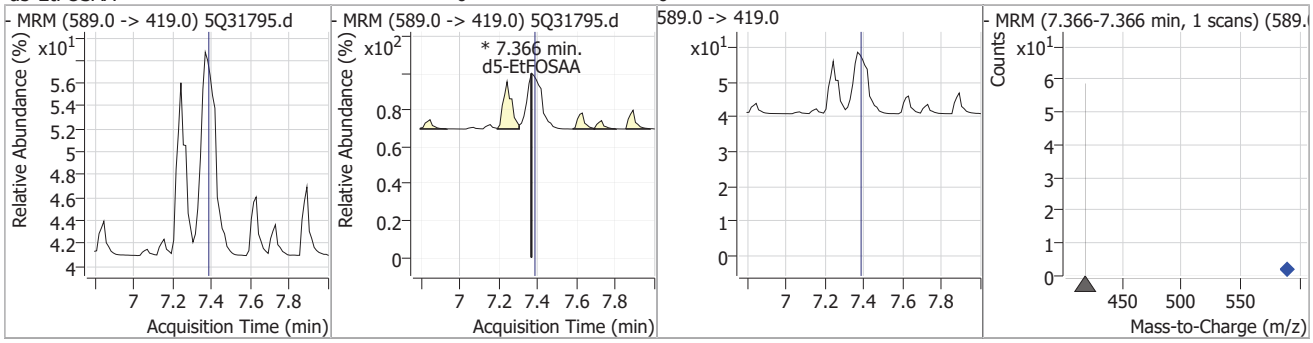
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	85982				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	28662				

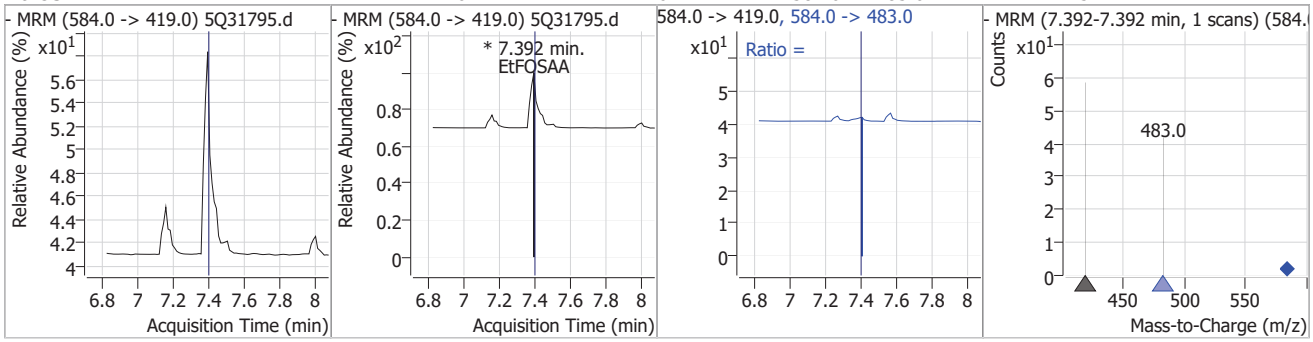


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA		0		0				

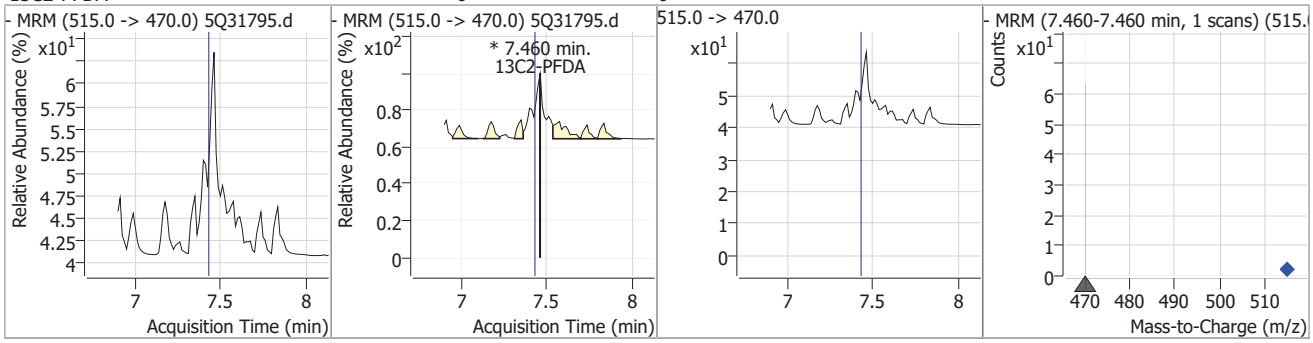


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA		0		0	584.0 -> 483.0		25.7	77.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA		0		0				



7.6.4

7

Manual Integration Approval Summary

Sample Number:	S5Q522-RT	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31795.D	**Analyst approved:**	04/17/25 07:52 (b) (6)
Injection Time:	04/16/25 14:25	**Supervisor approved:**	04/17/25 09:03 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		6.29	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

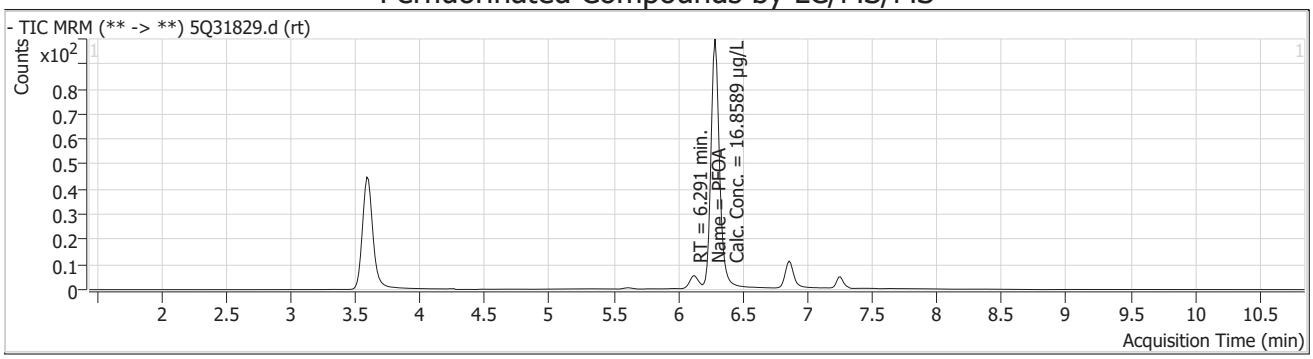
Data File : 5Q31829.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 3:07:04 PM
Sample Name : rt
Vial : P1-B2
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.288	429.0 -> 409.0	176883	20.00	µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	381361	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	488219	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	97082	20.00	µg/L		0.000
d3-MeFOSAA	7.254	573.0 -> 419.0	32235	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.435	515.0 -> 470.0	0		µg/L	m	0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C2-PFHxA	4.764	315.0 -> 270.0	0		µg/L	m	-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
d5-EtFOSAA	7.365	589.0 -> 419.0	0		µg/L	m	-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C3-HFPO-DA	5.070	287.0 -> 169.0	0		µg/L	m	0.038
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	7.254	570.0 -> 419.0	0		µg/L	m	1
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	5.615	363.0 -> 319.0	0		µg/L	m	1
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	6.291	413.0 -> 369.0	305824	16.86	µg/L	m	95
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	-	285.0 -> 169.0	-	N.D.			

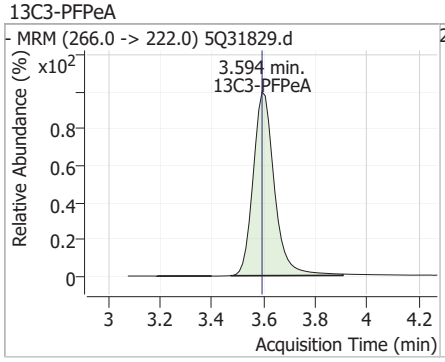
 # = Qualifier out of range, m = manually integrated, + = Area summed

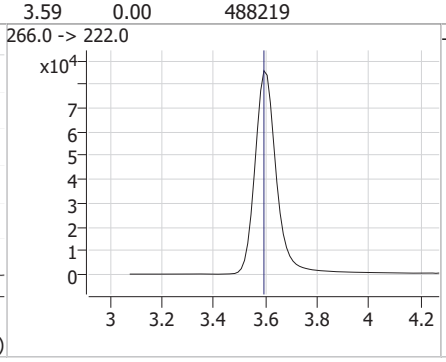
7.6.5
7

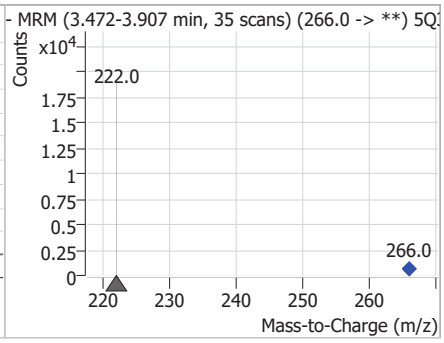
Perfluorinated Compounds by LC/MS/MS



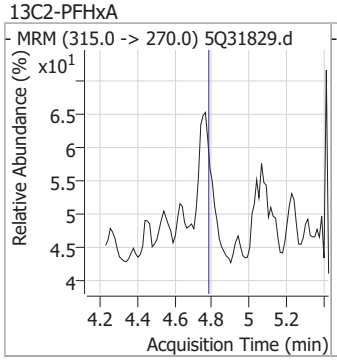
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	488219				

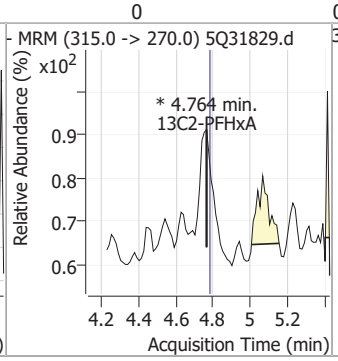


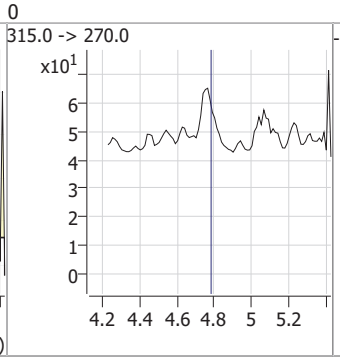


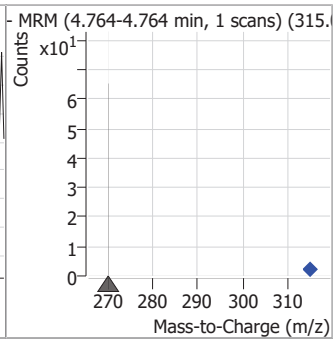


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA		0		0				

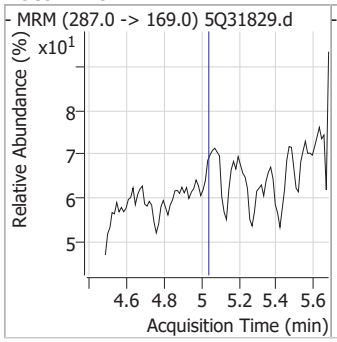


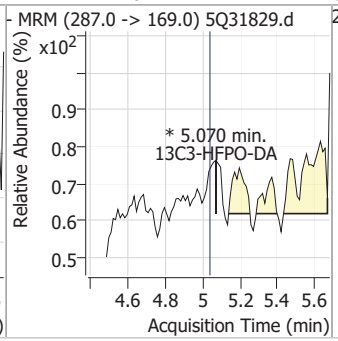


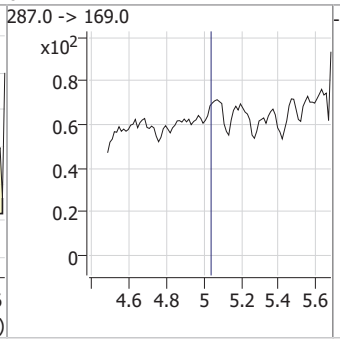


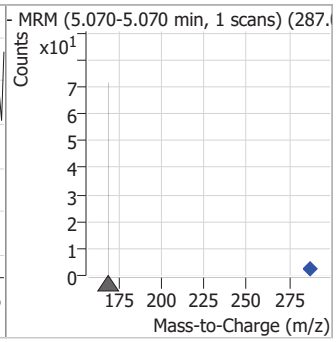


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA		0		0				



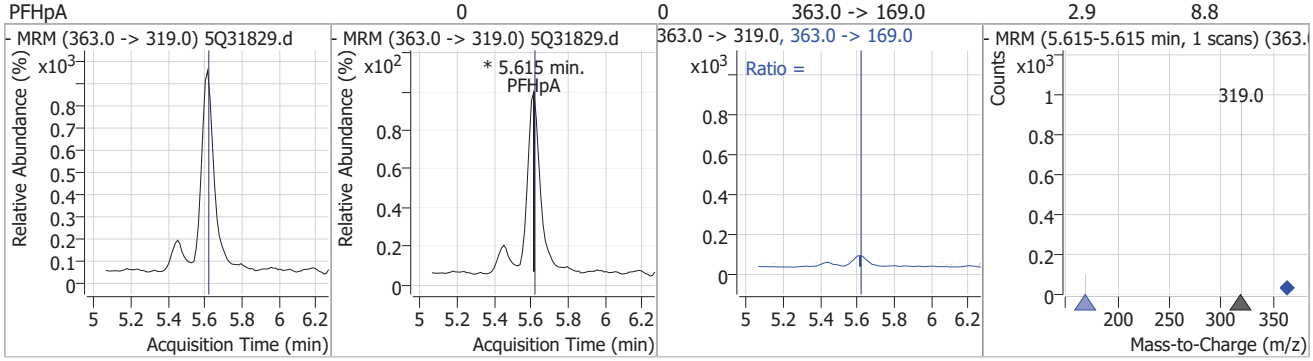




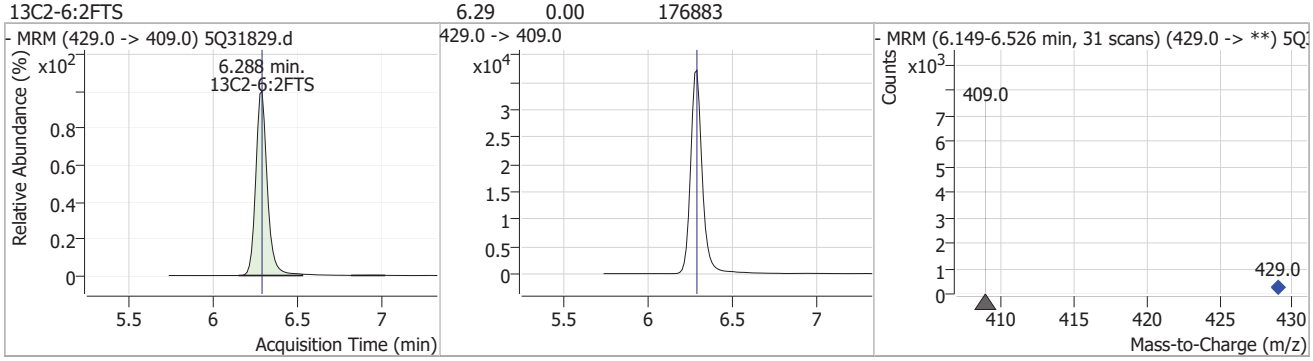


Perfluorinated Compounds by LC/MS/MS

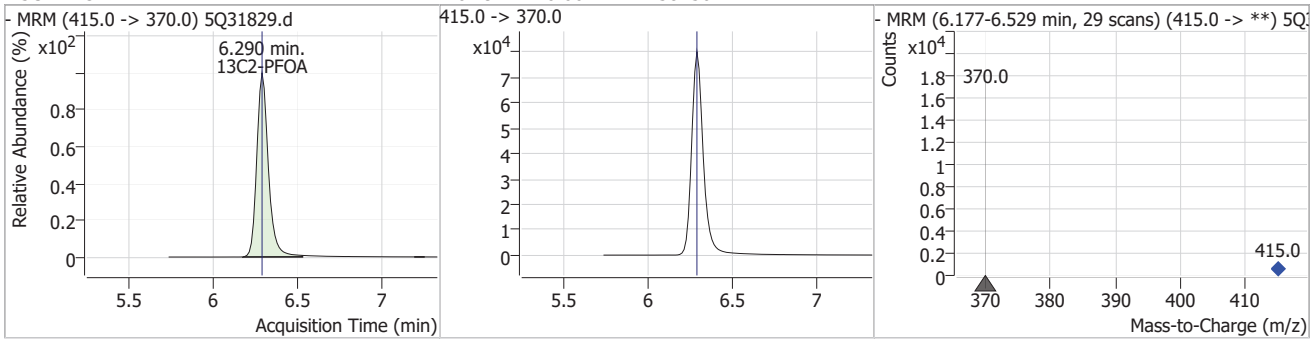
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA		0		0	363.0 -> 169.0		2.9	8.8



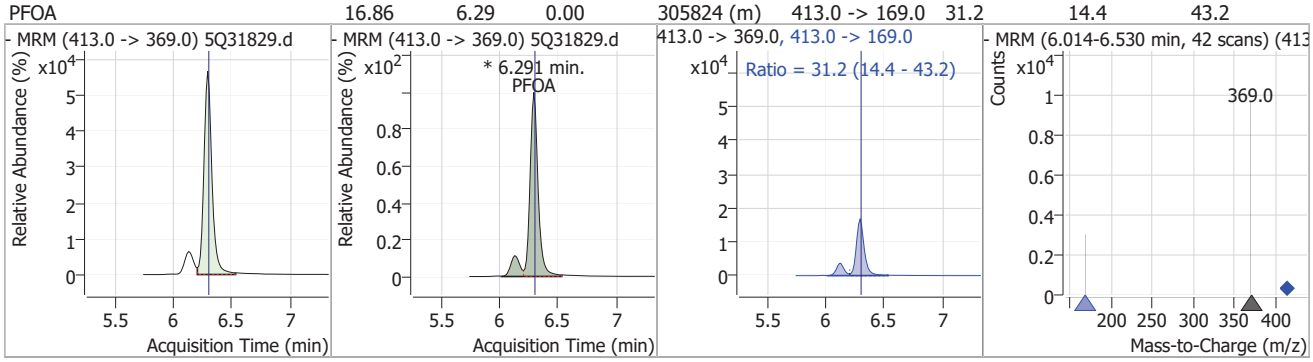
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	176883				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	381361				

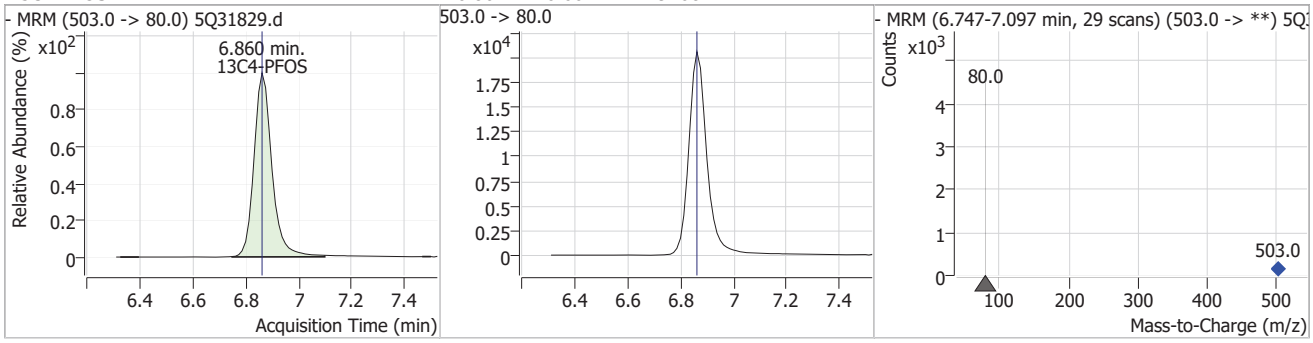


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	16.86	6.29	0.00	305824 (m)	413.0 -> 169.0	31.2	14.4	43.2

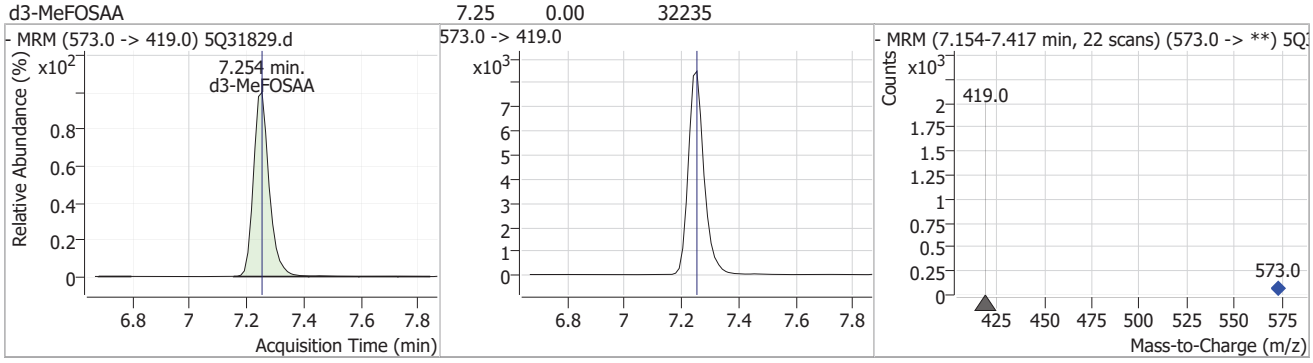


Perfluorinated Compounds by LC/MS/MS

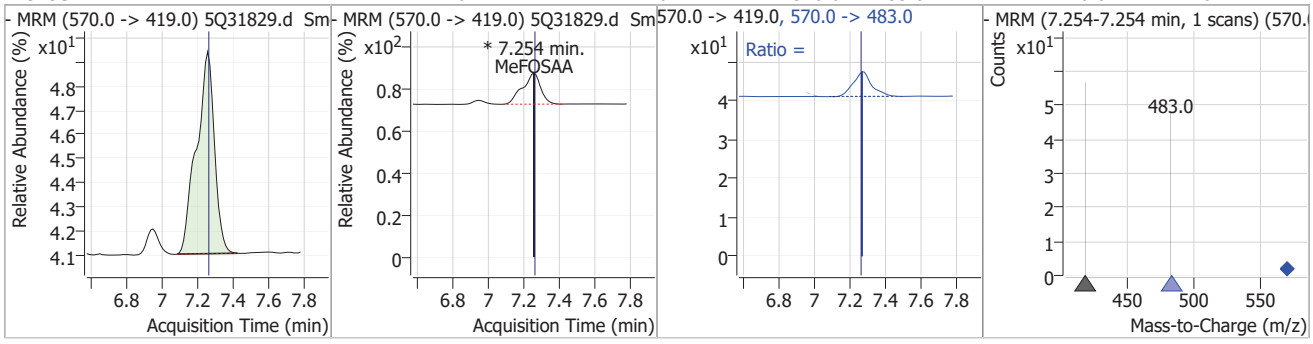
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	97082				



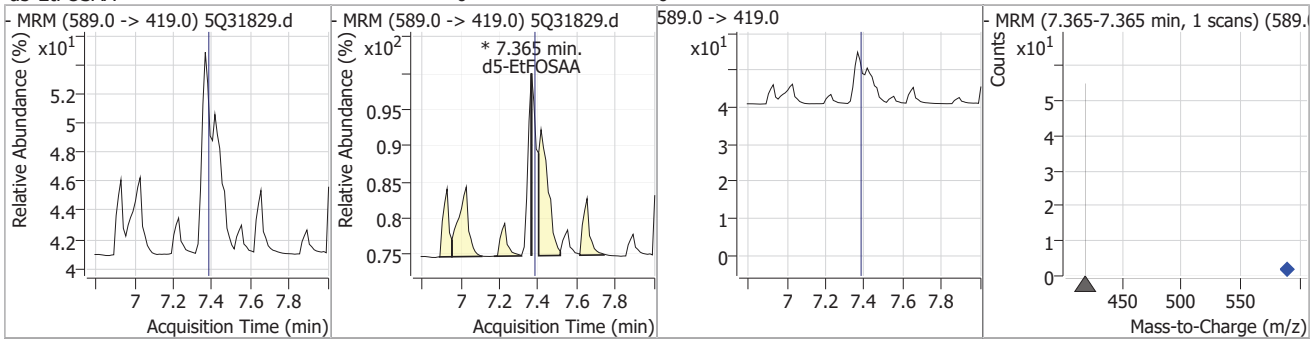
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	32235				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA		0		0	570.0 -> 483.0		26.0	78.1

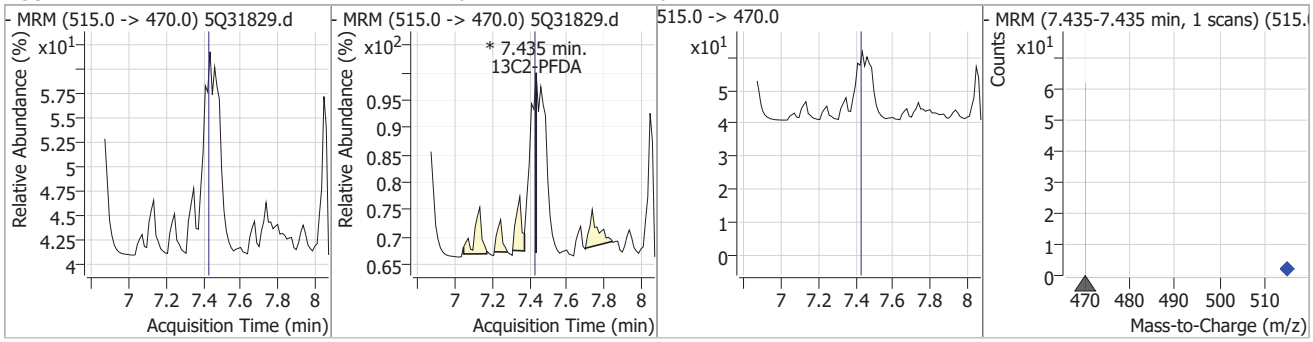


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA		0		0				



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA		0		0				



7.6.5

7

Manual Integration Approval Summary

Sample Number:	S5Q523-RT	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31829.D	**Analyst approved:**	04/18/25 07:39 (b) (6)
Injection Time:	04/17/25 15:07	**Supervisor approved:**	04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		6.29	Split peak

QQQ Check Tune Report

Agilent Technologies

Instrument Name	Instrument 1
MS Model	G6470A
MS Instrument Serial	SG1752G107
Software_Firmware Version	B.08.02.B8260.0, FW: A.00.08.62
Tune Date & Time	14 April 2025 09:26:03
Data Path	D:\MassHunter\Tune\QQQ\G6470A\atunes.TUNE.XML
Ion Source	AJS ESI
Ionization Mode	AJS ESI
Tuned Resolution	All
Vacuum Pressure	1.58E+0[R]; 2.57E-5[H]

Source Parameters

Parameter	Value
Gas Temp	300
Gas Flow	8
Nebulizer	15
Capillary	4000
Nozzle Voltage	1500
Sheath Gas Temp	250
Sheath Gas Flow	7

QQQ Check Tune Report

Agilent Technologies

Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.99	0.00	Pass	0.70	0.72	0.02	Pass	209432
302.00	301.99	-0.01	Pass	0.70	0.71	0.01	Pass	200449
601.98	601.99	0.01	Pass	0.70	0.69	-0.01	Pass	282457
1033.99	1034.00	0.01	Pass	0.70	0.69	-0.01	Pass	803006
1633.95	1633.95	0.00	Pass	0.70	0.68	-0.02	Pass	2090450
2233.91	2233.96	0.05	Pass	0.70	0.72	0.02	Pass	1995453

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.06	0.06	Pass	0.70	0.64	-0.06	Pass	44255
112.99	112.98	-0.01	Pass	0.70	0.70	0.00	Pass	158865
302.00	302.00	0.00	Pass	0.70	0.70	0.00	Pass	143803
601.98	602.01	0.03	Pass	0.70	0.68	-0.02	Pass	230520
1033.99	1034.02	0.03	Pass	0.70	0.67	-0.03	Pass	639287
1633.95	1634.01	0.06	Pass	0.70	0.67	-0.03	Pass	1452625
2233.91	2233.98	0.07	Pass	0.70	0.72	0.02	Pass	1440513

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.99	0.00	Pass	1.20	1.34	0.14	Pass	252901
302.00	302.01	0.01	Pass	1.20	1.48	0.28	Pass	251529
601.98	602.03	0.05	Pass	1.20	1.46	0.26	Pass	411399
1033.99	1033.99	0.00	Pass	1.20	1.36	0.16	Pass	1342330
1633.95	1634.02	0.07	Pass	1.20	1.20	0.00	Pass	3190707
2233.91	2233.79	-0.12	Pass	1.20	0.95	-0.25	Pass	2441568

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.08	0.08	Pass	1.20	1.09	-0.11	Pass	51746
112.99	112.98	-0.01	Pass	1.20	1.19	-0.01	Pass	210496
302.00	302.02	0.02	Pass	1.20	1.28	0.08	Pass	205511
601.98	602.02	0.04	Pass	1.20	1.31	0.11	Pass	342867
1033.99	1034.05	0.06	Pass	1.20	1.34	0.14	Pass	1139604
1633.95	1634.01	0.06	Pass	1.20	1.35	0.15	Pass	2186216
2233.91	2233.93	0.02	Pass	1.20	1.11	-0.09	Pass	2399423

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.93	-0.06	Pass	2.50	2.35	-0.15	Pass	318482
302.00	302.00	0.00	Pass	2.50	2.55	0.05	Pass	301393
601.98	602.02	0.04	Pass	2.50	2.65	0.15	Pass	506698
1033.99	1034.03	0.04	Pass	2.50	2.65	0.15	Pass	2232811
1633.95	1633.97	0.02	Pass	2.50	2.72	0.22	Pass	6712137
2233.91	2233.89	-0.02	Pass	2.50	2.78	0.28	Pass	7952976

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.01	0.01	Pass	2.50	2.35	-0.15	Pass	70461
112.99	112.97	-0.02	Pass	2.50	2.43	-0.07	Pass	276344
302.00	301.99	-0.01	Pass	2.50	2.56	0.06	Pass	283568
601.98	601.87	-0.11	Pass	2.50	2.69	0.19	Pass	477110
1033.99	1034.09	0.10	Pass	2.50	2.82	0.32	Pass	1973647
1633.95	1633.99	0.04	Pass	2.50	2.77	0.27	Pass	6872676
2233.91	2233.89	-0.02	Pass	2.50	2.80	0.30	Pass	7795088

Cal Report: 3Q101430.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/14/25 12:44

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101430.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/11/2025 3:42:43 PM
Sample Name : ic1491-0.5
Vial : P1-C2
DA Method File : 533_041125_S3Q1491.quantmethod.xml
Batch Name : s3q1491.batch.bin
Sample Information : op8141,S3Q1491,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	234953	10.00 µg/L	0.000
13C3-PFBA	2.332	216.0 -> 172.0	78306	10.00 µg/L	0.000
13C4-PFOS	7.983	503.0 -> 80.0	32949	10.00 µg/L	0.000
M4-PFBA	2.340	217.0 -> 172.0	140463	10.00 µg/L	0.000
M5-PFPeA	4.413	268.0 -> 223.0	172874	10.00 µg/L	0.000
M5-PFHxA	5.776	318.0 -> 273.0	233911	10.00 µg/L	0.000
M4-PFHpA	6.706	367.0 -> 322.0	206194	10.00 µg/L	0.000
M8-PFOA	7.422	421.0 -> 376.0	288194	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	312574	10.00 µg/L	0.000
M6-PFDA	8.533	519.0 -> 474.0	461485	10.00 µg/L	0.000
M7-PFUnDA	9.185	570.0 -> 525.0	830440	10.00 µg/L	0.000
M2-PFDoDA	10.071	615.0 -> 570.0	1085880	10.00 µg/L	0.000
M3-PFBS	4.708	302.0 -> 99.0	20651	10.00 µg/L	0.000
M3-PFHxS	6.736	402.0 -> 99.0	30373	10.00 µg/L	0.000
M8-PFOS	7.982	507.0 -> 99.0	38699	10.00 µg/L	0.000
M2-4:2FTS	5.672	329.0 -> 309.0	82429	10.00 µg/L	0.000
M2-6:2FTS	7.420	429.0 -> 409.0	164377	10.00 µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	263720	10.00 µg/L	0.000
M3-HFPO-DA	6.068	287.0 -> 169.0	2768	10.00 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.672	329.0 -> 309.0	82429	9.76 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C2-6:2FTS	7.420	429.0 -> 409.0	164377	10.04 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C2-8:2FTS	8.597	529.0 -> 509.0	263720	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C2-PFDoDA	10.071	615.0 -> 570.0	1085880	10.56 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C3-PFBS	4.708	302.0 -> 99.0	20651	10.34 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C3-PFHxS	6.736	402.0 -> 99.0	30373	10.55 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C4-PFBA	2.340	217.0 -> 172.0	140463	10.49 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C4-PFHpA	6.706	367.0 -> 322.0	206194	10.51 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.1%	
13C5-PFHxA	5.776	318.0 -> 273.0	233911	10.39 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C5-PFPeA	4.413	268.0 -> 223.0	172874	10.52 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C6-PFDA	8.533	519.0 -> 474.0	461485	10.42 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C7-PFUnDA	9.185	570.0 -> 525.0	830440	10.46 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C8-PFOA	7.422	421.0 -> 376.0	288194	10.60 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

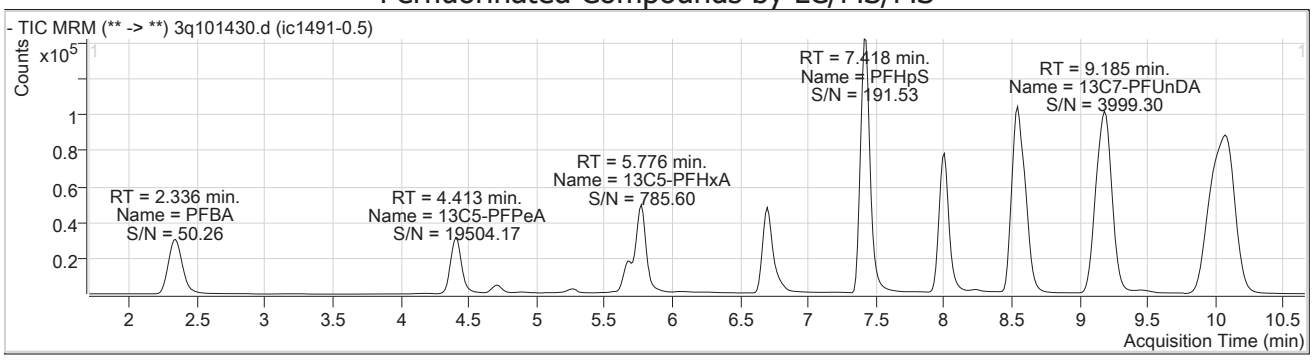
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.0%		
13C8-PFOS	7.982	507.0 -> 99.0	38699	10.51 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.1%		
13C9-PFNA	8.010	472.0 -> 427.0	312574	10.53 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.3%		
13C3-HFPO-DA	6.068	287.0 -> 169.0	2768	10.10 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%		
Target Compounds						QValue
PFMPA	3.166	229.0 -> 85.0	2007	0.49 µg/L		100
4:2FTS	5.674	327.0 -> 307.0	4205	0.45 µg/L		100
		327.0 -> 81.0	2116			
6:2FTS	7.420	427.0 -> 407.0	5850	0.44 µg/L		100
		427.0 -> 81.0	2635			
8:2FTS	8.598	527.0 -> 507.0	9456	0.45 µg/L		100
		527.0 -> 81.0	3653			
PFMBA	4.901	279.0 -> 85.0	2844	0.48 µg/L		100
PFEESA	5.260	315.0 -> 135.0	8416	0.48 µg/L		100
		315.0 -> 69.0	706			
NFDHA	5.582	201.0 -> 85.0	2619	0.52 µg/L		98
		295.0 -> 201.0	217			
PFBA	2.336	213.0 -> 169.0	1777	0.49 µg/L		100
PFBS	4.710	299.0 -> 80.0	1772	0.47 µg/L		100
		299.0 -> 99.0	860			
PFDA	8.534	513.0 -> 469.0	11488	0.48 µg/L		100
		513.0 -> 219.0	2691			
PFDoDA	10.075	613.0 -> 569.0	32574	0.48 µg/L		100
		613.0 -> 169.0	3224			
PFHpA	6.708	363.0 -> 319.0	12009	0.47 µg/L		100
		363.0 -> 169.0	1045			
PFHpS	7.418	449.0 -> 80.0	2488	0.45 µg/L		100
		449.0 -> 99.0	1493			
PFHxA	5.778	313.0 -> 269.0	8964	0.47 µg/L		100
		313.0 -> 119.0	371			
PFHxS	6.738	399.0 -> 80.0	2571	0.50 µg/L	m	94
		399.0 -> 99.0	1328			
PFNA	8.010	463.0 -> 419.0	11029	0.50 µg/L		100
		463.0 -> 219.0	3002			
PFOA	7.423	413.0 -> 369.0	9654	0.49 µg/L		100
		413.0 -> 169.0	3529			
PFOS	7.983	499.0 -> 80.0	3000	0.47 µg/L	m	82
		499.0 -> 99.0	1513			
PFPeA	4.415	263.0 -> 219.0	6032	0.50 µg/L		100
PFPeS	5.896	349.0 -> 80.0	1401	0.48 µg/L		100
		349.0 -> 99.0	543			
PFUnDA	9.187	563.0 -> 519.0	24404	0.48 µg/L		100
		563.0 -> 269.0	3910			
11Cl-PF3OUdS	9.457	631.0 -> 451.0	13337	0.49 µg/L		100
		631.0 -> 83.0	640			
9Cl-PF3ONS	8.229	531.0 -> 351.0	4577	0.48 µg/L		100
		531.0 -> 83.0	242			
ADONA	6.792	377.0 -> 251.0	17616	0.46 µg/L		100
		377.0 -> 85.0	2350			
HFPO-DA	6.048	329.0 -> 169.0	35	0.48 µg/L	m	100
		285.0 -> 169.0	43			

 # = Qualifier out of range, m = manually integrated, + = Area summed

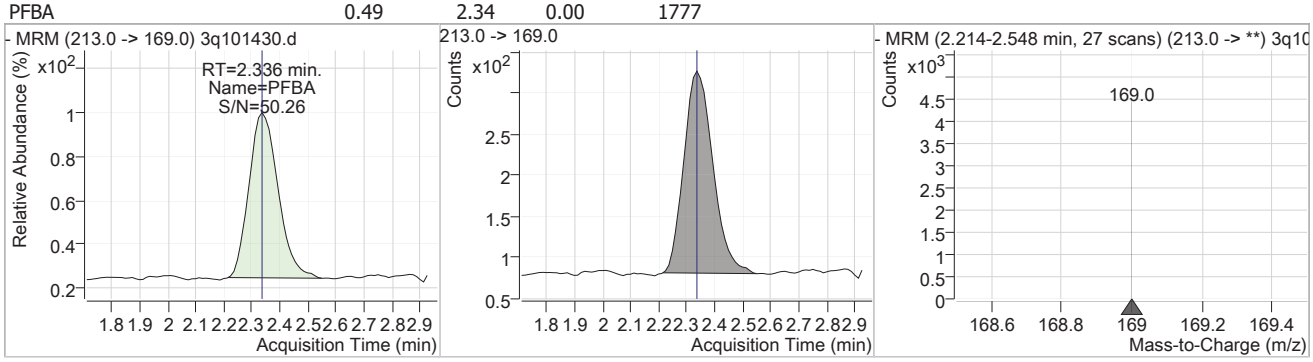
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

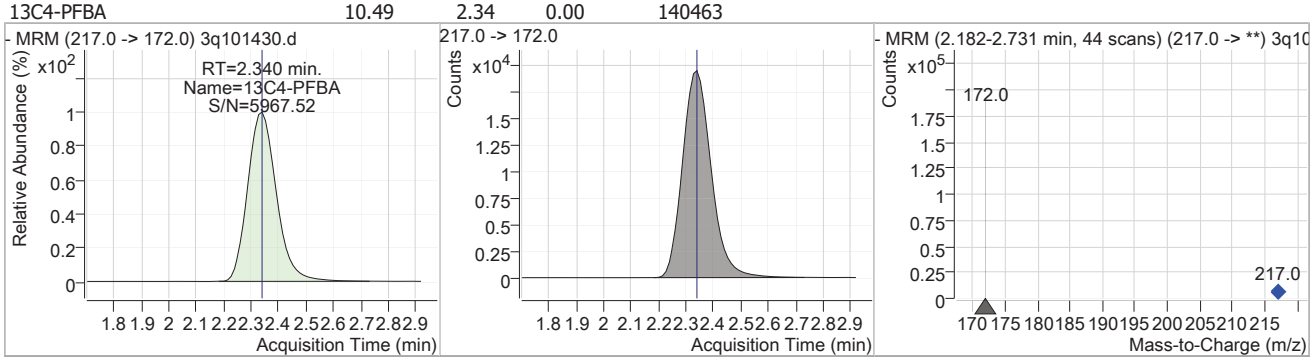
Perfluorinated Compounds by LC/MS/MS



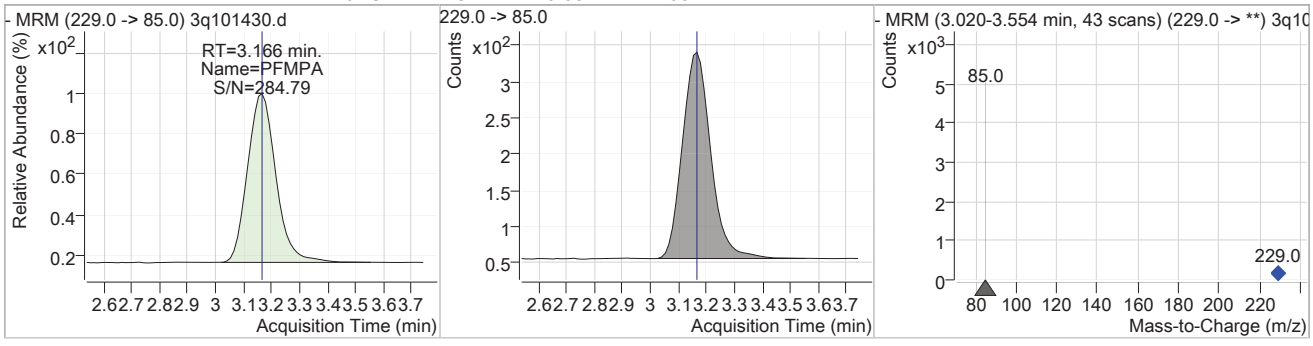
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.49	2.34	0.00	1777				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.49	2.34	0.00	140463				

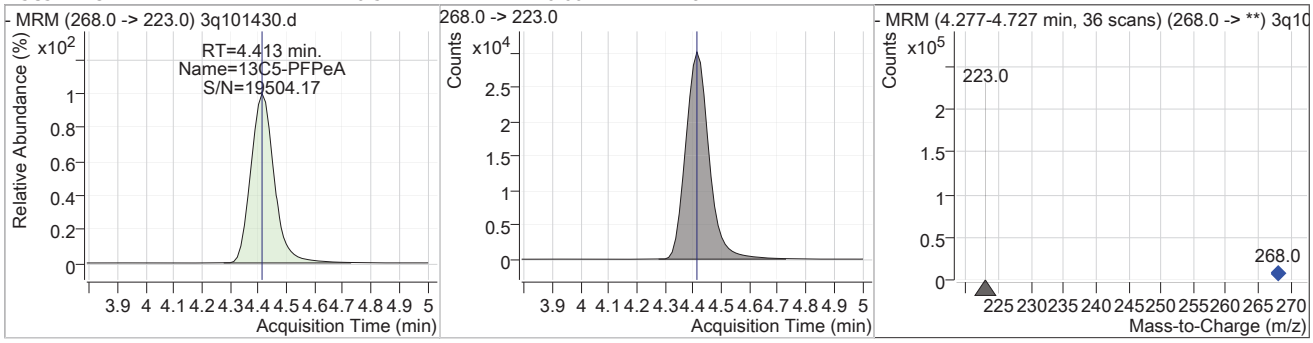


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	0.49	3.17	0.00	2007				

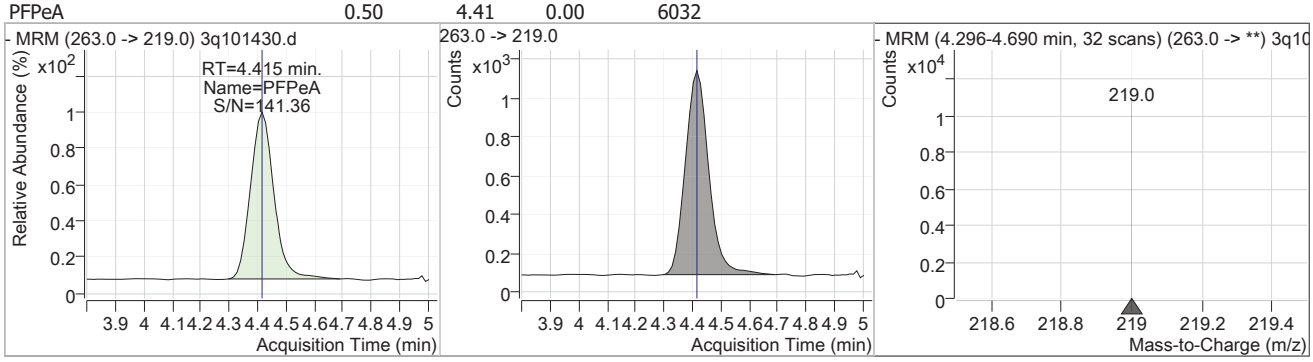


Perfluorinated Compounds by LC/MS/MS

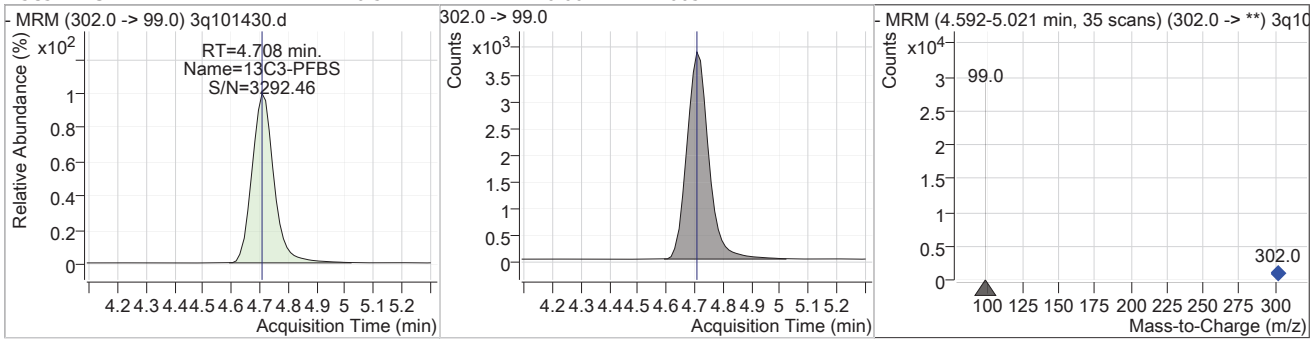
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.52	4.41	0.00	172874				



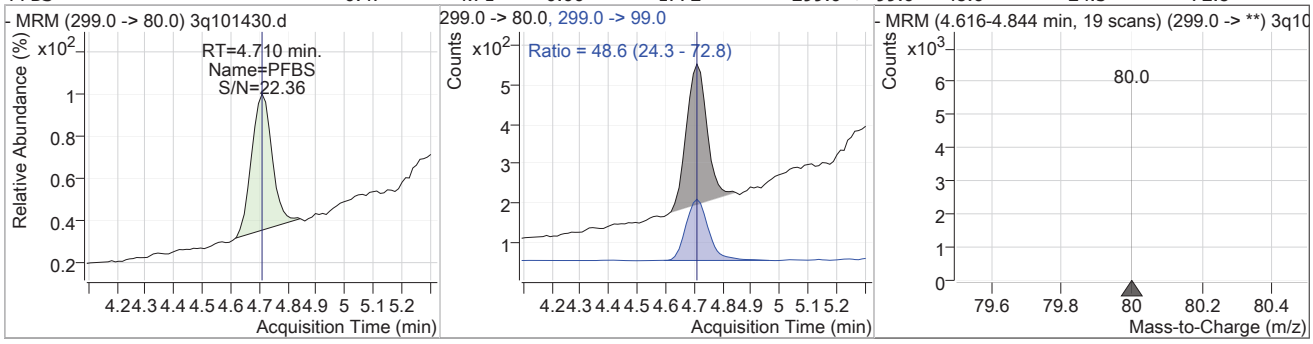
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.50	4.41	0.00	6032				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.34	4.71	0.00	20651				

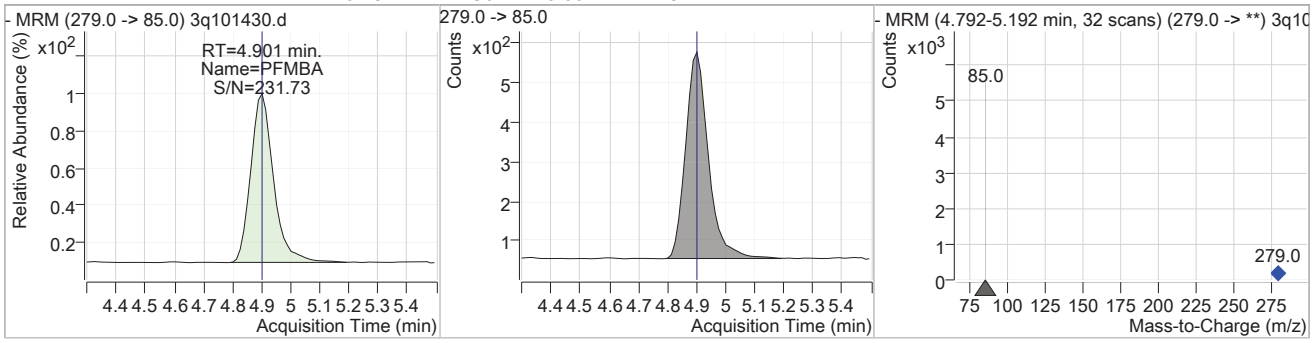


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.47	4.71	0.00	1772	299.0 -> 99.0	48.6	24.3	72.8

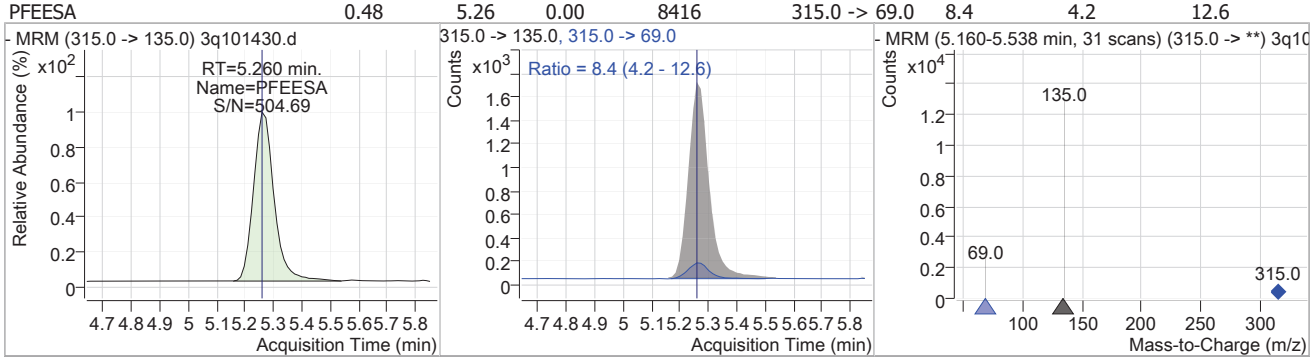


Perfluorinated Compounds by LC/MS/MS

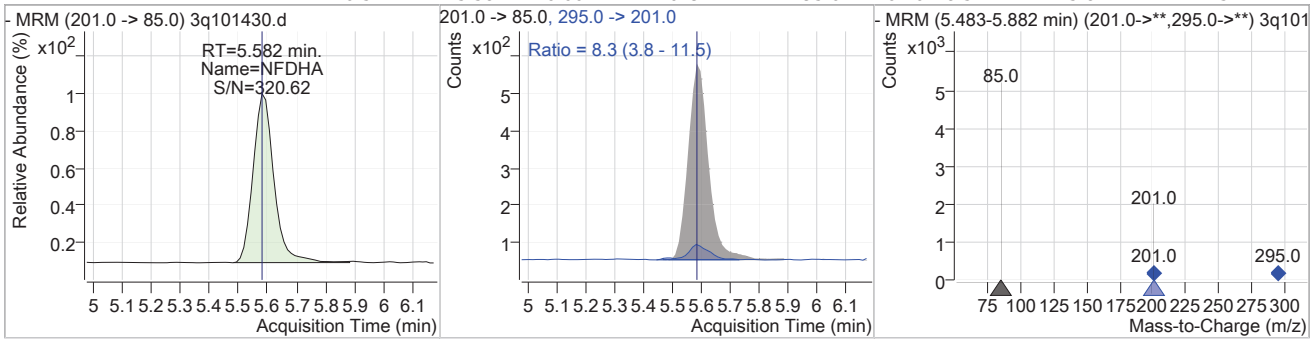
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.48	4.90	0.00	2844				



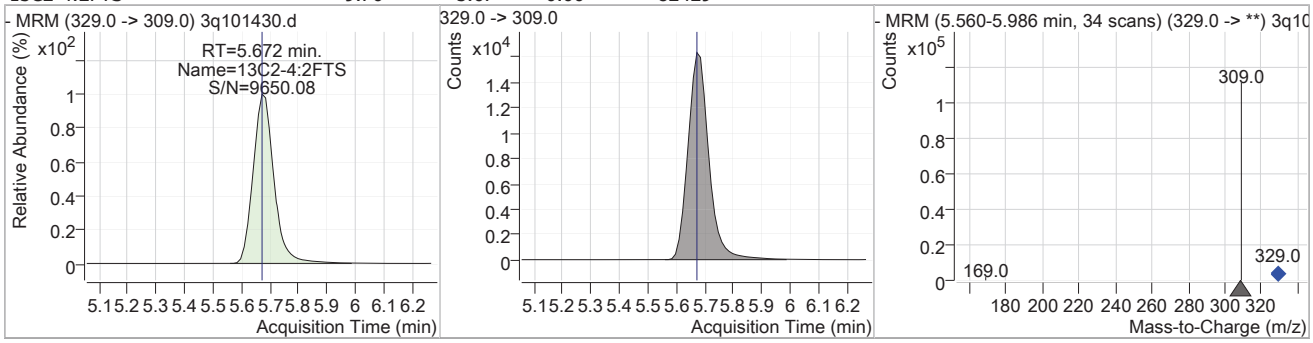
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.48	5.26	0.00	8416	315.0 -> 69.0	8.4	4.2	12.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	0.52	5.58	0.00	2619	295.0 -> 201.0	8.3	3.8	11.5

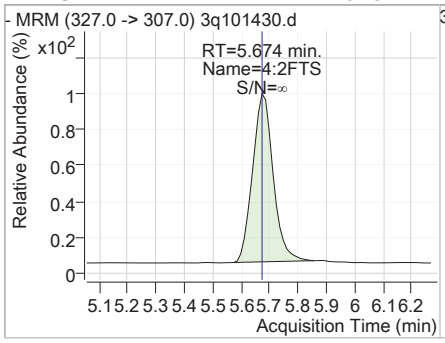


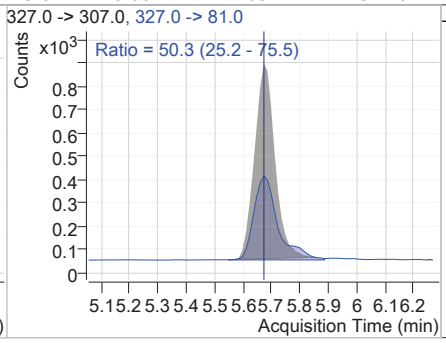
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	9.76	5.67	0.00	82429				

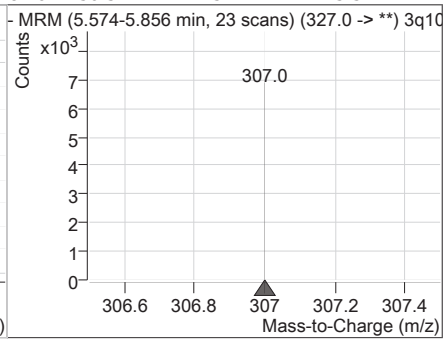


Perfluorinated Compounds by LC/MS/MS

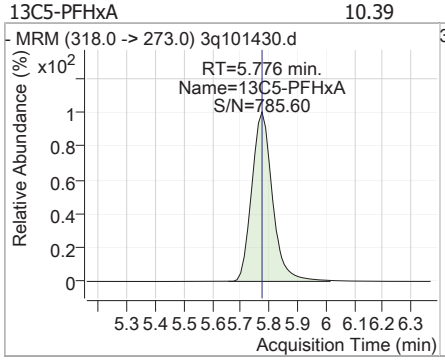
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	0.45	5.67	0.00	4205	327.0 -> 81.0	50.3	25.2	75.5

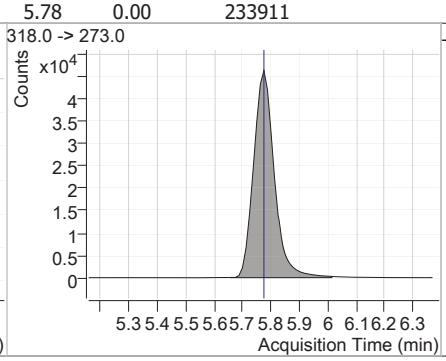


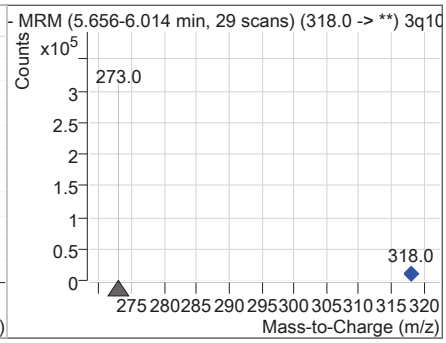




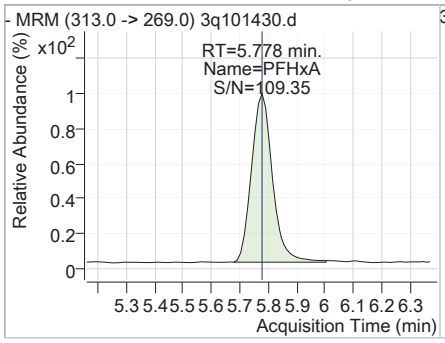
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.39	5.78	0.00	233911				

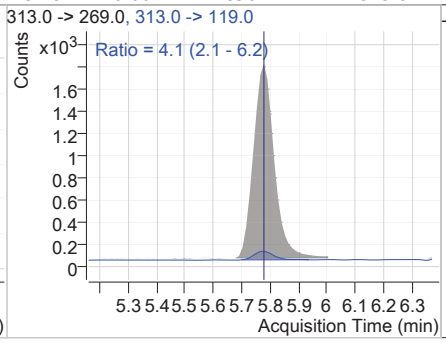


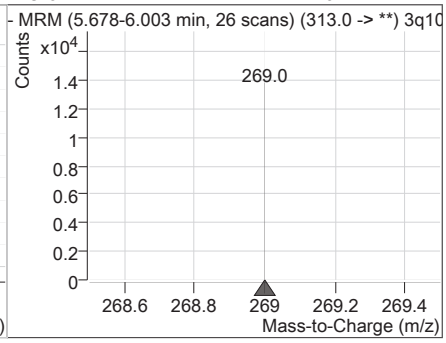




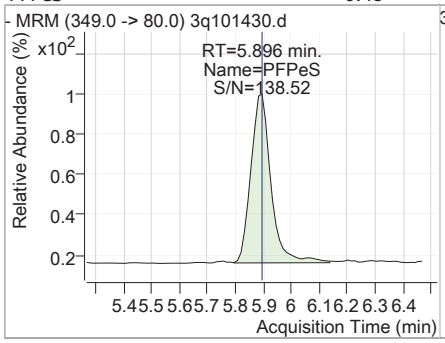
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.47	5.78	0.00	8964	313.0 -> 119.0	4.1	2.1	6.2

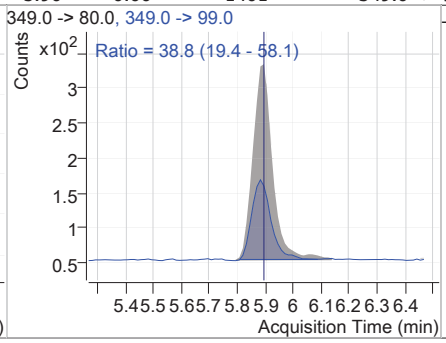


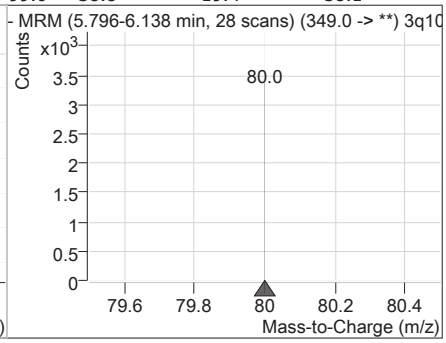




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.48	5.90	0.00	1401	349.0 -> 99.0	38.8	19.4	58.1

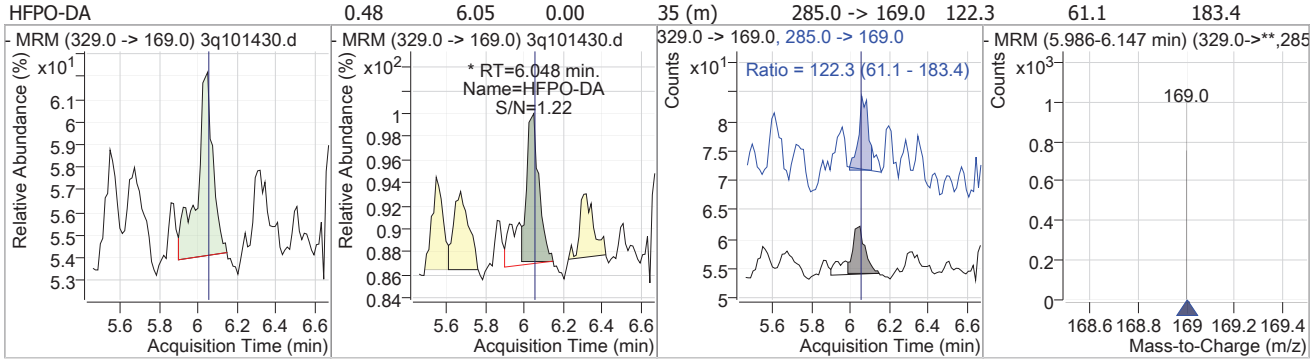




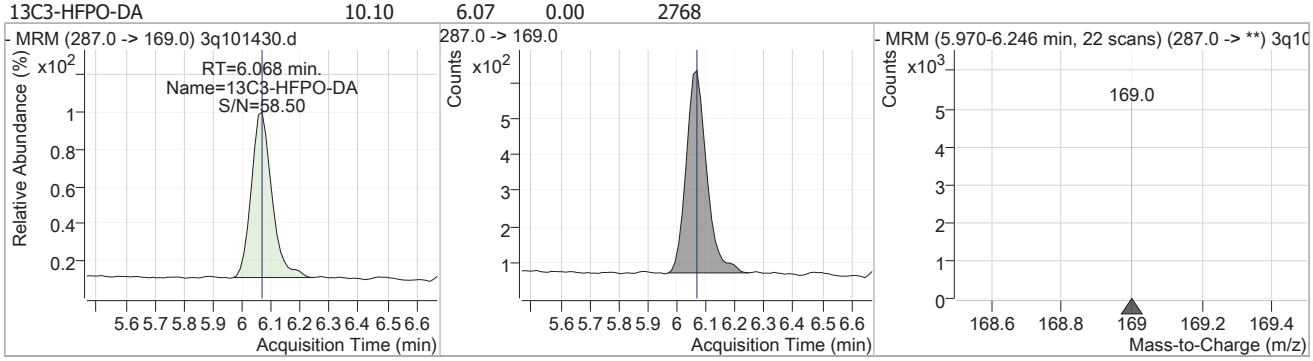


Perfluorinated Compounds by LC/MS/MS

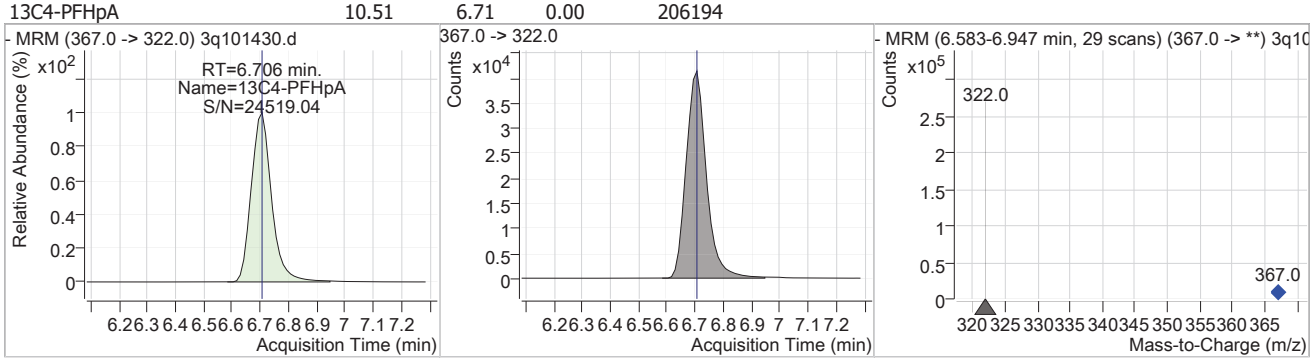
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.48	6.05	0.00	35 (m)	285.0 -> 169.0	122.3	61.1	183.4



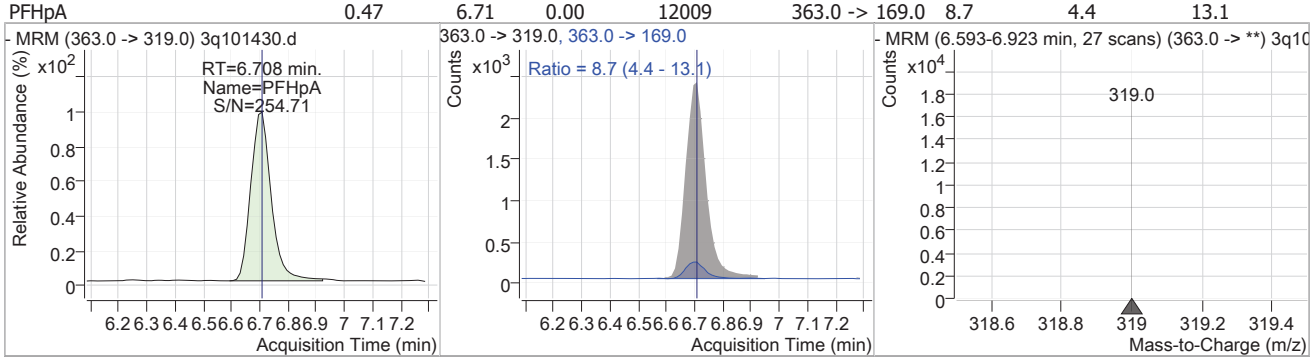
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.10	6.07	0.00	2768				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.51	6.71	0.00	206194				

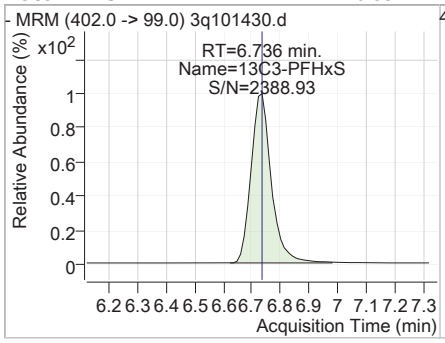


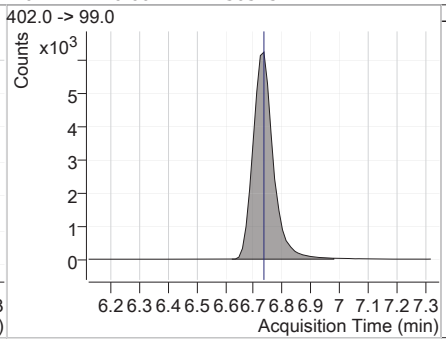
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.47	6.71	0.00	12009	363.0 -> 169.0	8.7	4.4	13.1

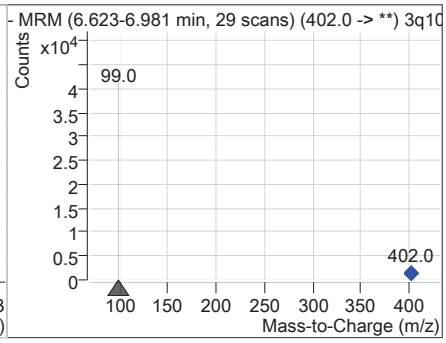


Perfluorinated Compounds by LC/MS/MS

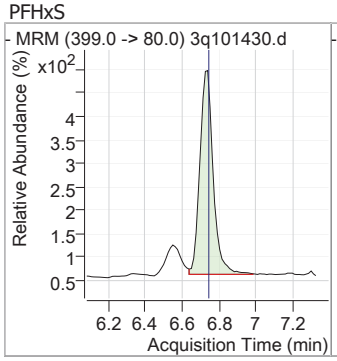
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.55	6.74	0.00	30373				

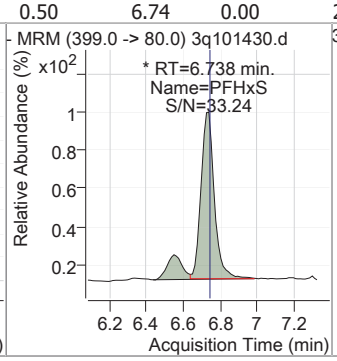


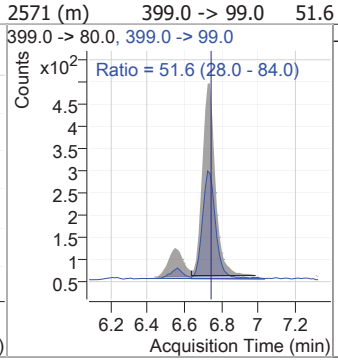


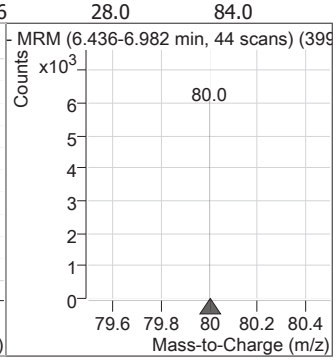


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.50	6.74	0.00	2571 (m)	399.0 -> 99.0	51.6	28.0	84.0

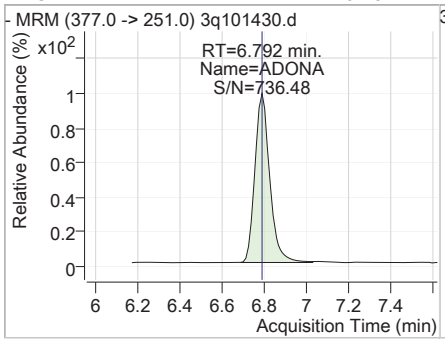


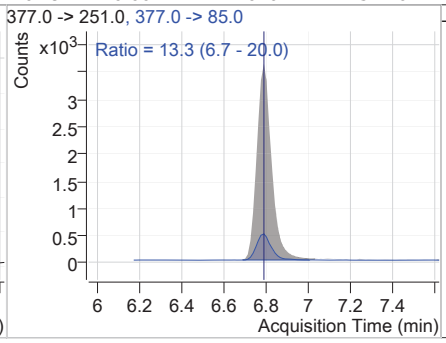


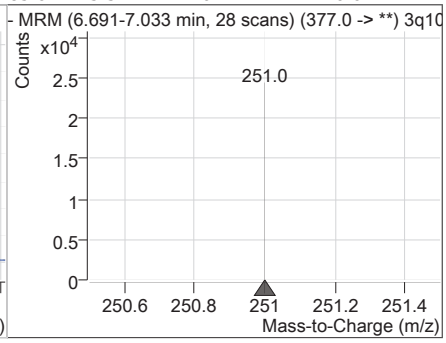




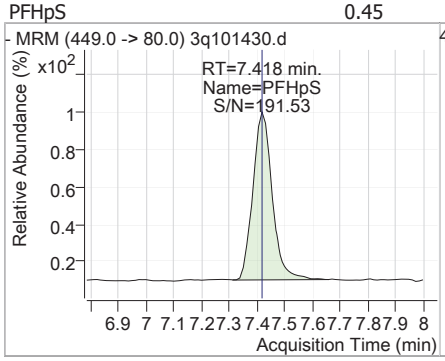
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.46	6.79	0.00	17616	377.0 -> 85.0	13.3	6.7	20.0

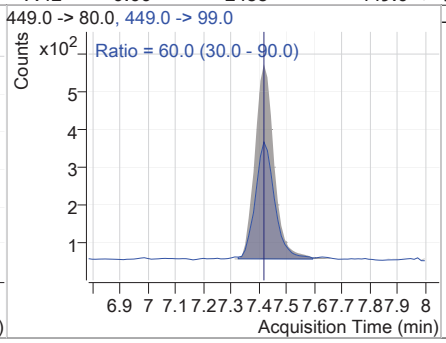


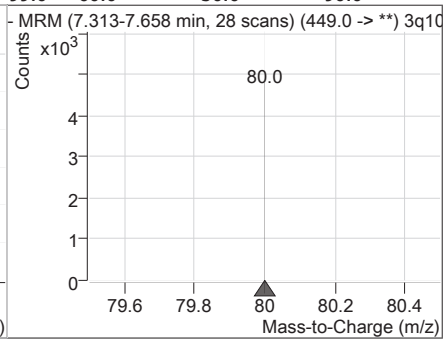




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.45	7.42	0.00	2488	449.0 -> 99.0	60.0	30.0	90.0

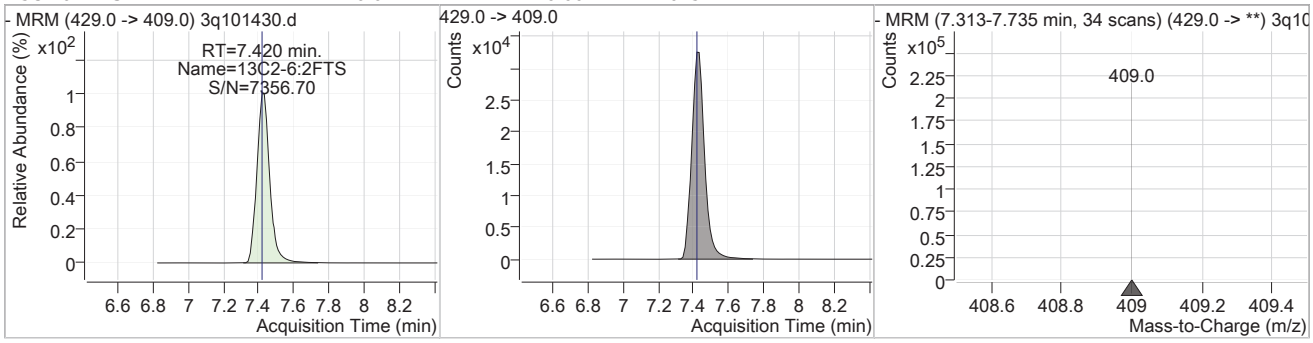




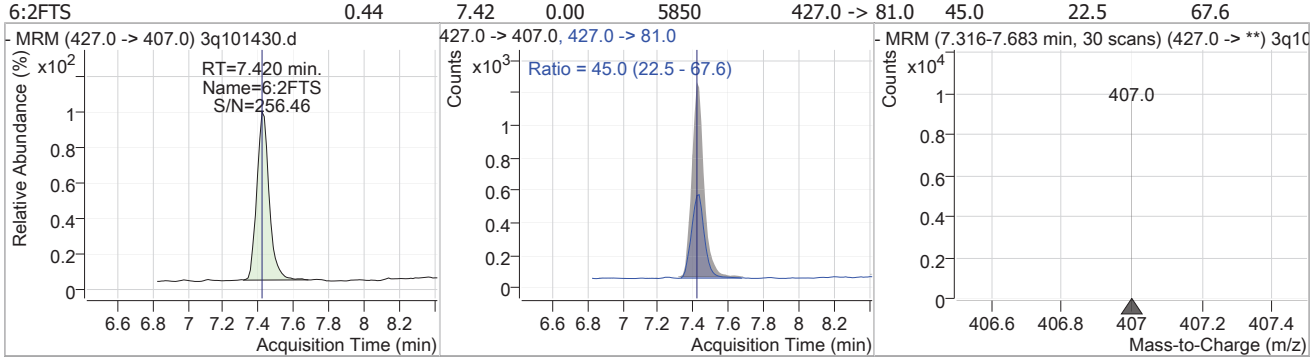


Perfluorinated Compounds by LC/MS/MS

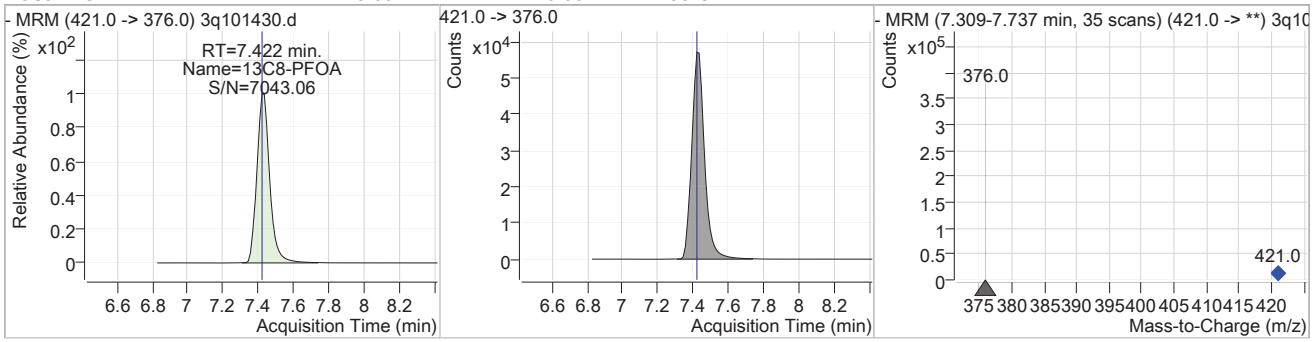
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	10.04	7.42	0.00	164377				



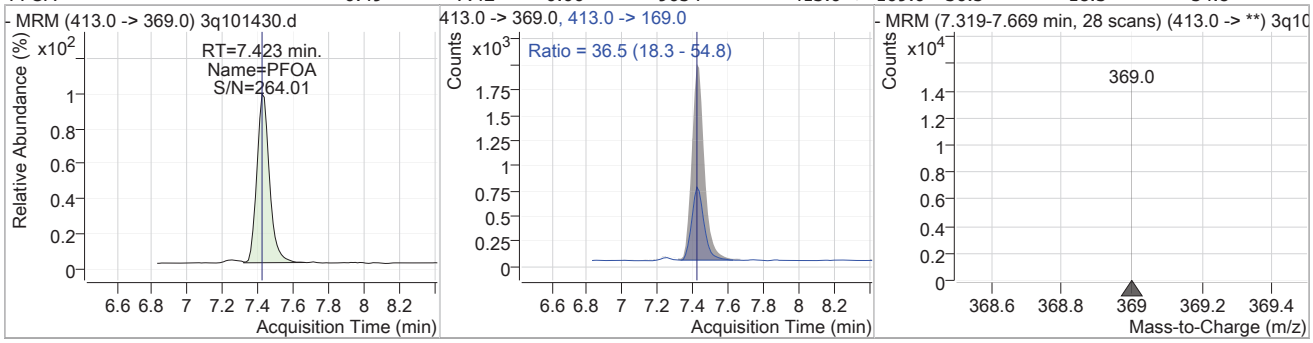
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.44	7.42	0.00	5850	427.0 -> 81.0	45.0	22.5	67.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.60	7.42	0.00	288194				

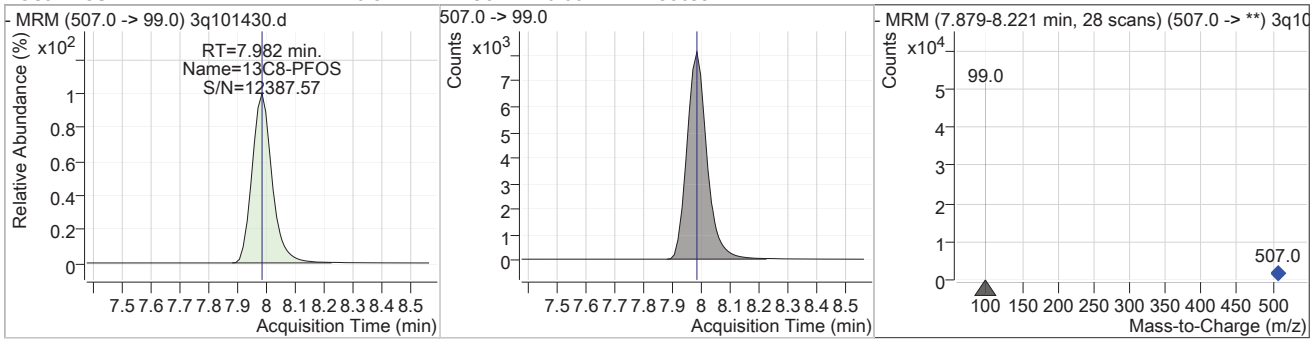


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.49	7.42	0.00	9654	413.0 -> 169.0	36.5	18.3	54.8

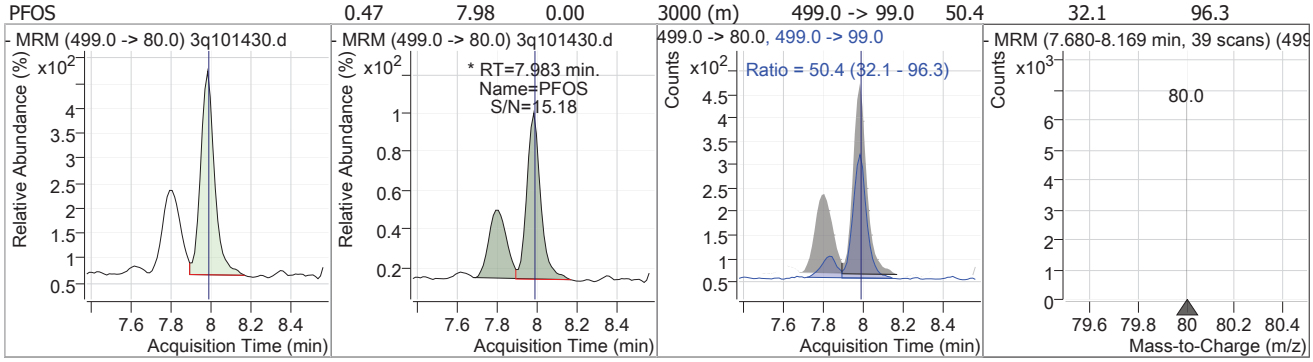


Perfluorinated Compounds by LC/MS/MS

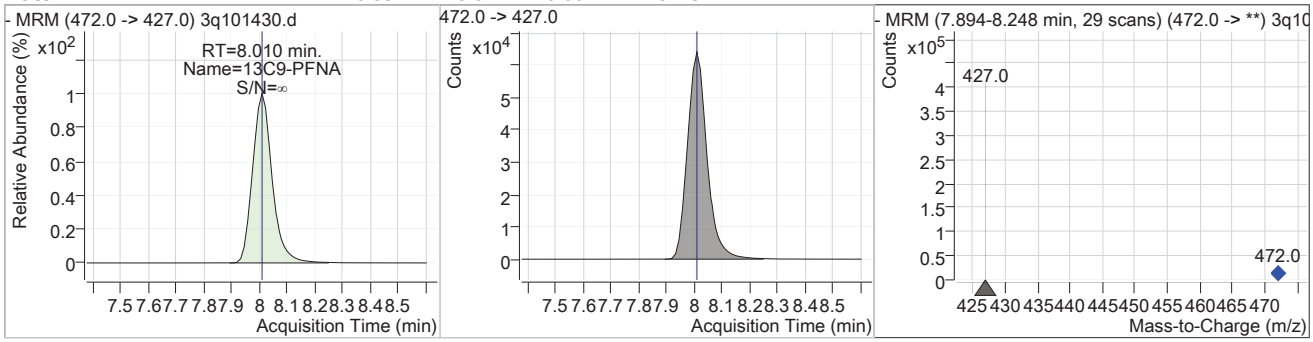
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.51	7.98	0.00	38699				



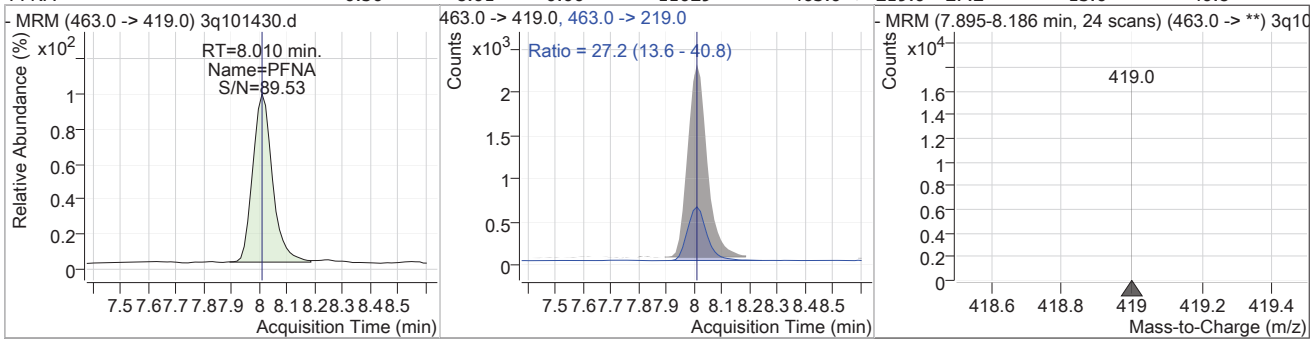
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.47	7.98	0.00	3000 (m)	499.0 -> 99.0	50.4	32.1	96.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.53	8.01	0.00	312574				

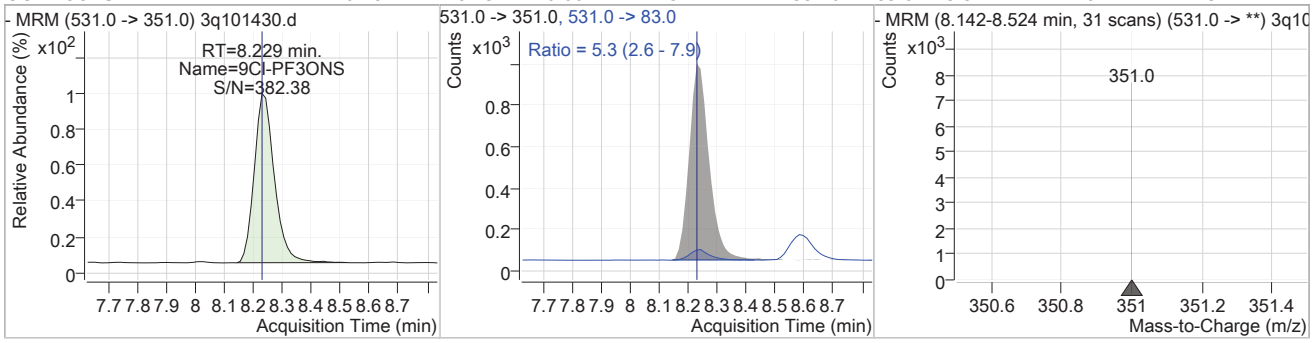


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.50	8.01	0.00	11029	463.0 -> 219.0	27.2	13.6	40.8

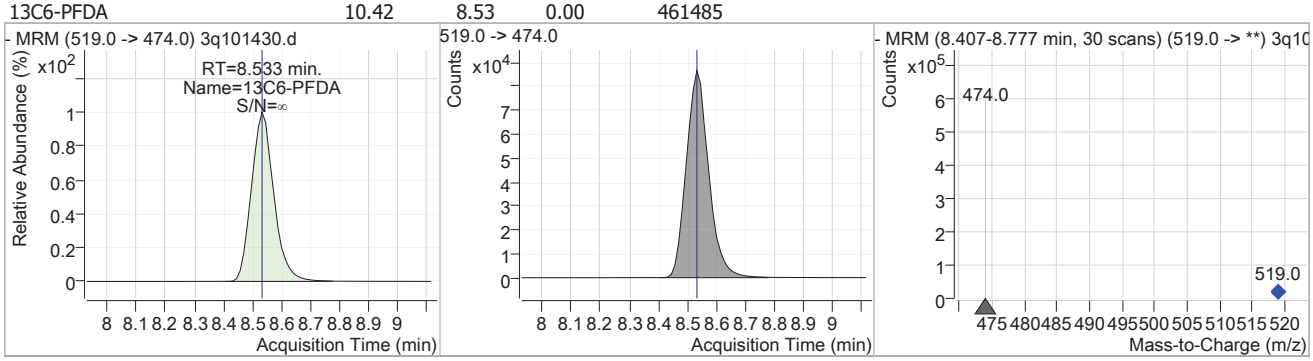


Perfluorinated Compounds by LC/MS/MS

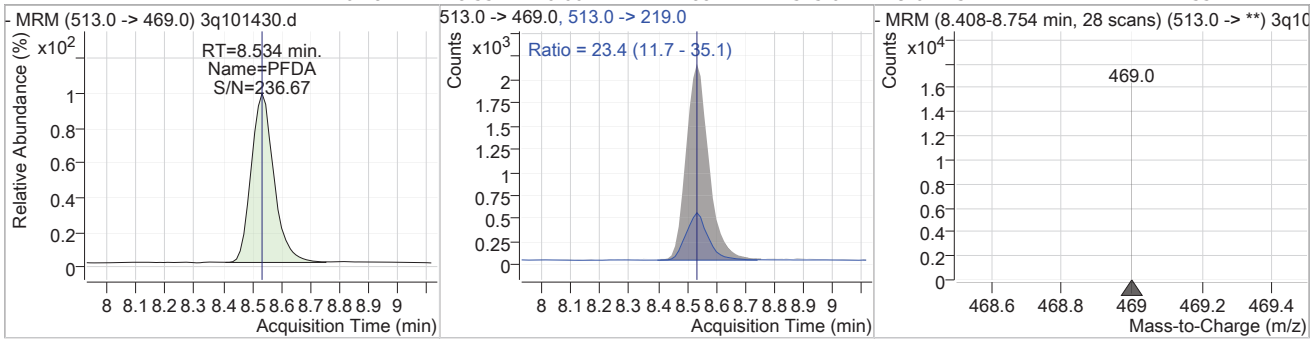
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.48	8.23	0.00	4577	531.0 -> 83.0	5.3	2.6	7.9



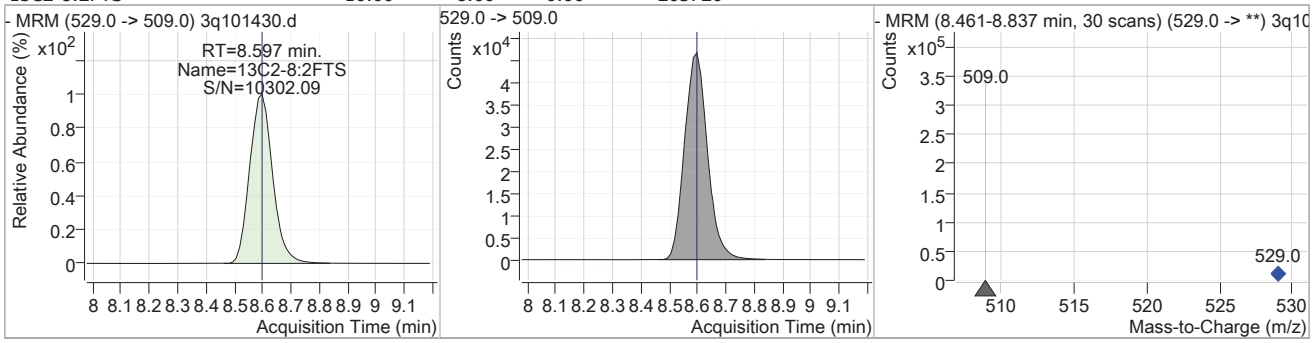
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	10.42	8.53	0.00	461485				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.48	8.53	0.00	11488	513.0 -> 219.0	23.4	11.7	35.1

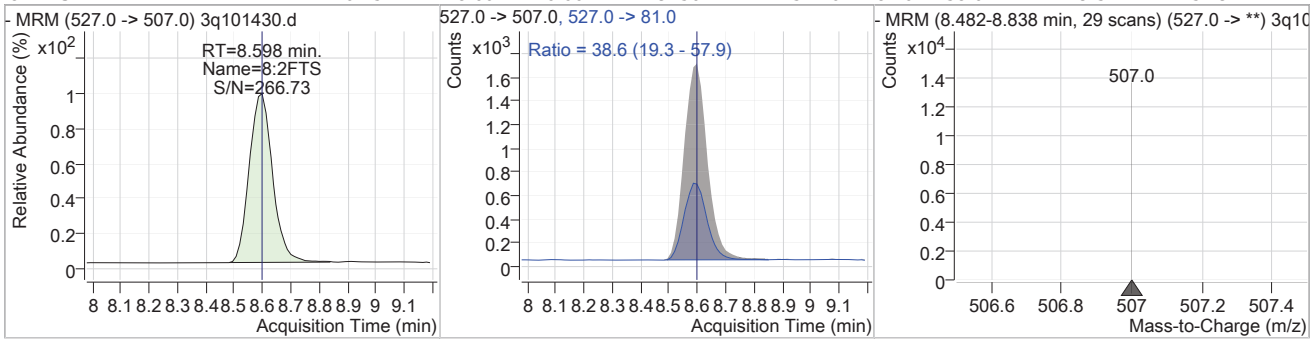


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	10.00	8.60	0.00	263720				

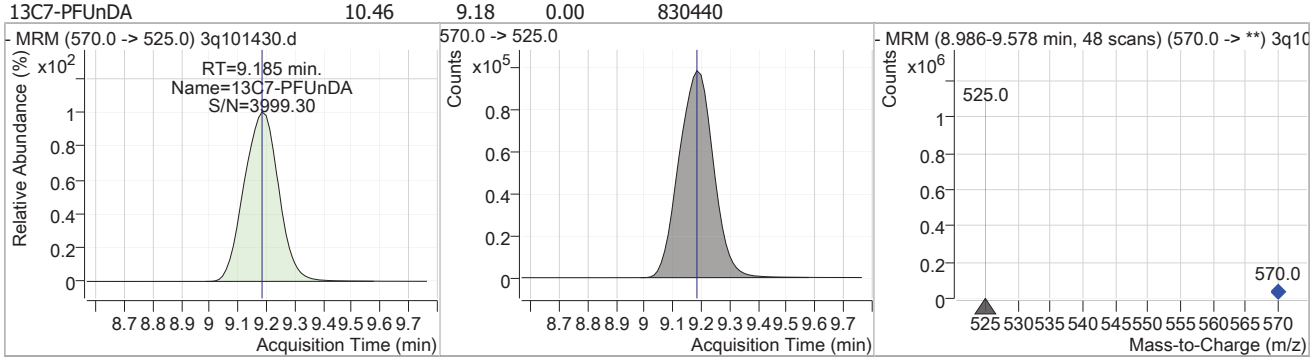


Perfluorinated Compounds by LC/MS/MS

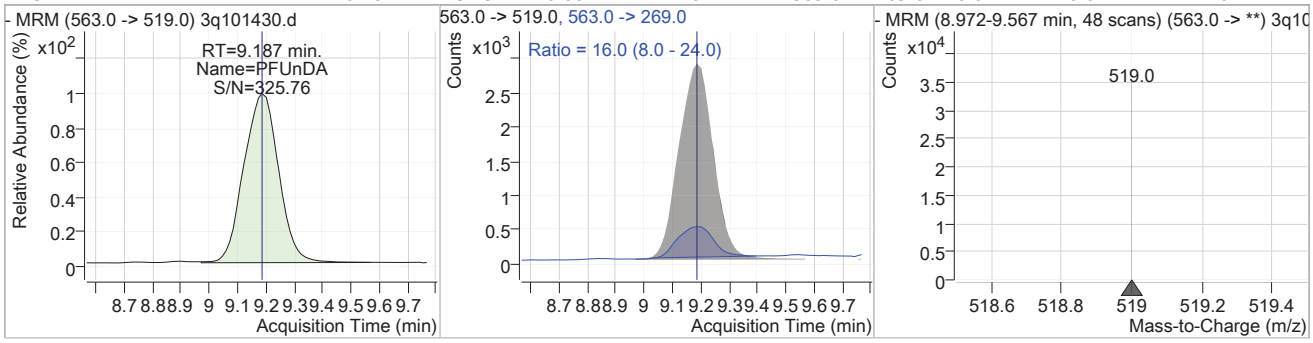
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.45	8.60	0.00	9456	527.0 -> 81.0	38.6	19.3	57.9



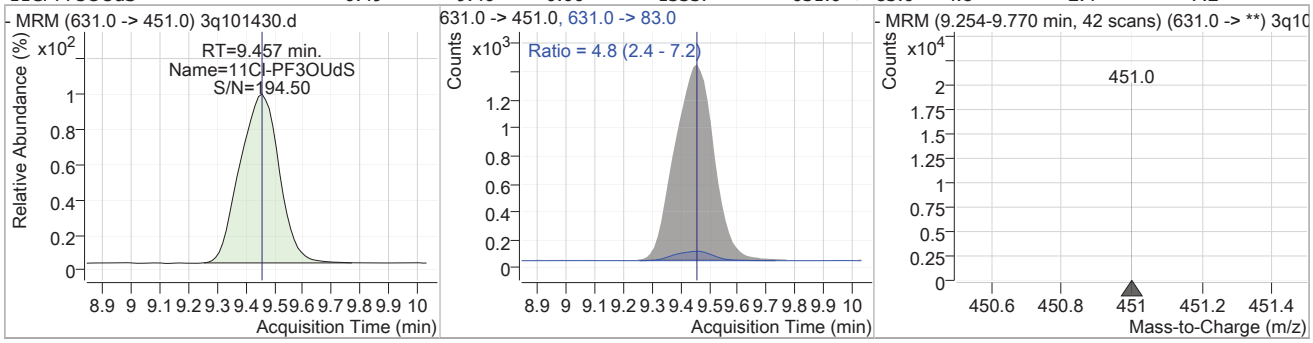
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	10.46	9.18	0.00	830440				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.48	9.19	0.00	24404	563.0 -> 269.0	16.0	8.0	24.0

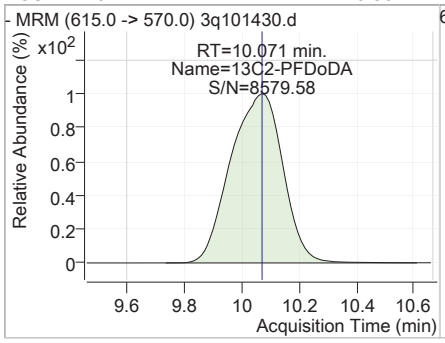


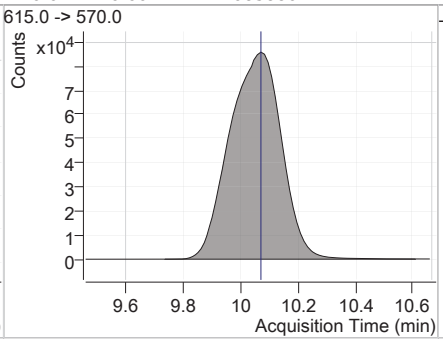
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.49	9.46	0.00	13337	631.0 -> 83.0	4.8	2.4	7.2

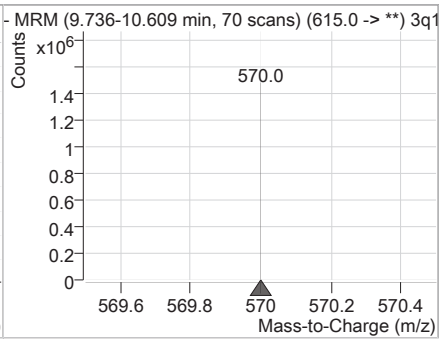


Perfluorinated Compounds by LC/MS/MS

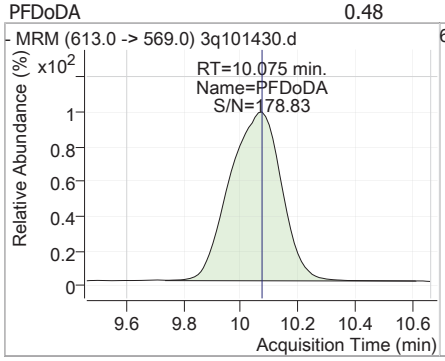
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.56	10.07	0.00	1085880				

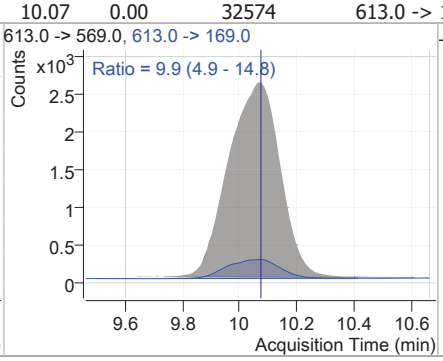


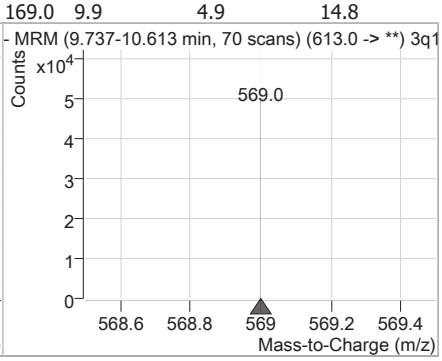




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.48	10.07	0.00	32574	613.0 -> 169.0	9.9	4.9	14.8







7.7.2

7

Manual Integration Approval Summary

Sample Number: S3Q1491-IC1491
Lab FileID: 3Q101430.D
Injection Time: 04/11/25 15:42
Method: EPA 533
Analyst approved: 04/14/25 11:45 (b) (6)
Supervisor approved: 04/14/25 12:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
HFPO-DA (GenX)	13252-13-6		6.05	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		6.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/14/25 12:44

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101431.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/11/2025 3:58:48 PM
Sample Name : ic1491-1
Vial : P1-C3
DA Method File : 533_041125_S3Q1491.quantmethod.xml
Batch Name : s3q1491.batch.bin
Sample Information : op8141,S3Q1491,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	249810	10.00 µg/L	0.000
13C3-PFBA	2.332	216.0 -> 172.0	82330	10.00 µg/L	0.000
13C4-PFOS	7.983	503.0 -> 80.0	34743	10.00 µg/L	0.000
M4-PFBA	2.327	217.0 -> 172.0	133231	10.00 µg/L	-0.013
M5-PFPeA	4.413	268.0 -> 223.0	162762	10.00 µg/L	0.000
M5-PFHxA	5.776	318.0 -> 273.0	220755	10.00 µg/L	0.000
M4-PFHpA	6.706	367.0 -> 322.0	193715	10.00 µg/L	0.000
M8-PFOA	7.422	421.0 -> 376.0	273225	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	294001	10.00 µg/L	0.000
M6-PFDA	8.533	519.0 -> 474.0	434083	10.00 µg/L	0.000
M7-PFUnDA	9.172	570.0 -> 525.0	775507	10.00 µg/L	-0.013
M2-PFDoDA	10.038	615.0 -> 570.0	1008085	10.00 µg/L	-0.033
M3-PFBS	4.708	302.0 -> 99.0	19778	10.00 µg/L	0.000
M3-PFHxS	6.723	402.0 -> 99.0	28819	10.00 µg/L	-0.013
M8-PFOS	7.982	507.0 -> 99.0	36192	10.00 µg/L	0.000
M2-4:2FTS	5.672	329.0 -> 309.0	78580	10.00 µg/L	0.000
M2-6:2FTS	7.420	429.0 -> 409.0	154436	10.00 µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	252551	10.00 µg/L	0.000
M3-HFPO-DA	6.056	287.0 -> 169.0	2609	10.00 µg/L	-0.013
System Monitoring Compounds					
13C2-4:2FTS	5.672	329.0 -> 309.0	78580	8.82 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.2%	
13C2-6:2FTS	7.420	429.0 -> 409.0	154436	8.95 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.5%	
13C2-8:2FTS	8.597	529.0 -> 509.0	252551	9.08 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.8%	
13C2-PFDoDA	10.038	615.0 -> 570.0	1008085	9.22 µg/L	-0.033
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.2%	
13C3-PFBS	4.708	302.0 -> 99.0	19778	9.39 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.9%	
13C3-PFHxS	6.723	402.0 -> 99.0	28819	9.50 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C4-PFBA	2.327	217.0 -> 172.0	133231	9.46 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C4-PFHpA	6.706	367.0 -> 322.0	193715	9.28 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.8%	
13C5-PFHxA	5.776	318.0 -> 273.0	220755	9.22 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.2%	
13C5-PFPeA	4.413	268.0 -> 223.0	162762	9.42 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.2%	
13C6-PFDA	8.533	519.0 -> 474.0	434083	9.22 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.2%	
13C7-PFUnDA	9.172	570.0 -> 525.0	775507	9.19 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.9%	
13C8-PFOA	7.422	421.0 -> 376.0	273225	9.45 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

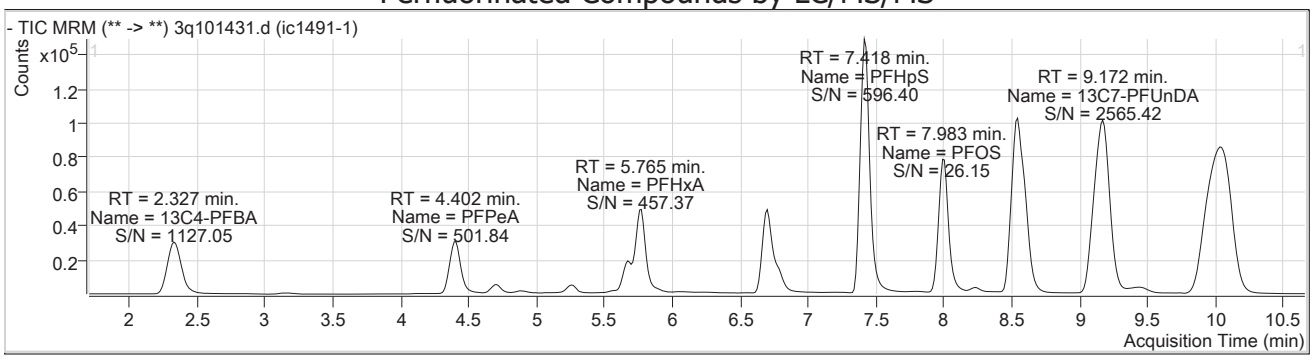
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.5%		
13C8-PFOS	7.982	507.0 -> 99.0	36192	9.32 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.2%		
13C9-PFNA	8.010	472.0 -> 427.0	294001	9.32 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.2%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	2609	8.95 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.5%		
Target Compounds						QValue
PFMPA	3.153	229.0 -> 85.0	4780	1.21 µg/L		100
4:2FTS	5.674	327.0 -> 307.0	10199	1.14 µg/L		90
		327.0 -> 81.0	4442			
6:2FTS	7.420	427.0 -> 407.0	13823	1.10 µg/L		99
		427.0 -> 81.0	6142			
8:2FTS	8.586	527.0 -> 507.0	22307	1.11 µg/L		100
		527.0 -> 81.0	8602			
PFMBA	4.901	279.0 -> 85.0	6828	1.21 µg/L		100
PFEESA	5.260	315.0 -> 135.0	20115	1.19 µg/L		98
		315.0 -> 69.0	1516			
NFDHA	5.582	201.0 -> 85.0	6010	1.24 µg/L		98
		295.0 -> 201.0	427			
PFBA	2.336	213.0 -> 169.0	4248	1.23 µg/L		100
PFBS	4.697	299.0 -> 80.0	4256	1.17 µg/L		95
		299.0 -> 99.0	1927			
PFDA	8.534	513.0 -> 469.0	26623	1.17 µg/L		97
		513.0 -> 219.0	5777			
PFDoDA	10.041	613.0 -> 569.0	73757	1.16 µg/L		99
		613.0 -> 169.0	7098			
PFHpA	6.695	363.0 -> 319.0	28445	1.18 µg/L		99
		363.0 -> 169.0	2378			
PFHpS	7.418	449.0 -> 80.0	6106	1.15 µg/L		96
		449.0 -> 99.0	3463			
PFHxA	5.765	313.0 -> 269.0	21632	1.18 µg/L		99
		313.0 -> 119.0	804			
PFHxS	6.725	399.0 -> 80.0	5951	1.21 µg/L	m	93
		399.0 -> 99.0	3040			
PFNA	8.010	463.0 -> 419.0	25567	1.21 µg/L		99
		463.0 -> 219.0	7064			
PFOA	7.423	413.0 -> 369.0	22454	1.19 µg/L		99
		413.0 -> 169.0	8321			
PFOS	7.983	499.0 -> 80.0	7363	1.23 µg/L	m	79
		499.0 -> 99.0	3489			
PFPeA	4.402	263.0 -> 219.0	13602	1.19 µg/L		100
PFPeS	5.883	349.0 -> 80.0	3399	1.22 µg/L		93
		349.0 -> 99.0	1456			
PFUnDA	9.174	563.0 -> 519.0	55859	1.18 µg/L		96
		563.0 -> 269.0	9793			
11Cl-PF3OUdS	9.432	631.0 -> 451.0	31009	1.20 µg/L		99
		631.0 -> 83.0	1555			
9Cl-PF3ONS	8.229	531.0 -> 351.0	10920	1.22 µg/L		99
		531.0 -> 83.0	539			
ADONA	6.792	377.0 -> 251.0	43205	1.18 µg/L		98
		377.0 -> 85.0	5485			
HFPO-DA	6.073	329.0 -> 169.0	86	1.24 µg/L	#m	45
		285.0 -> 169.0	159			

 # = Qualifier out of range, m = manually integrated, + = Area summed

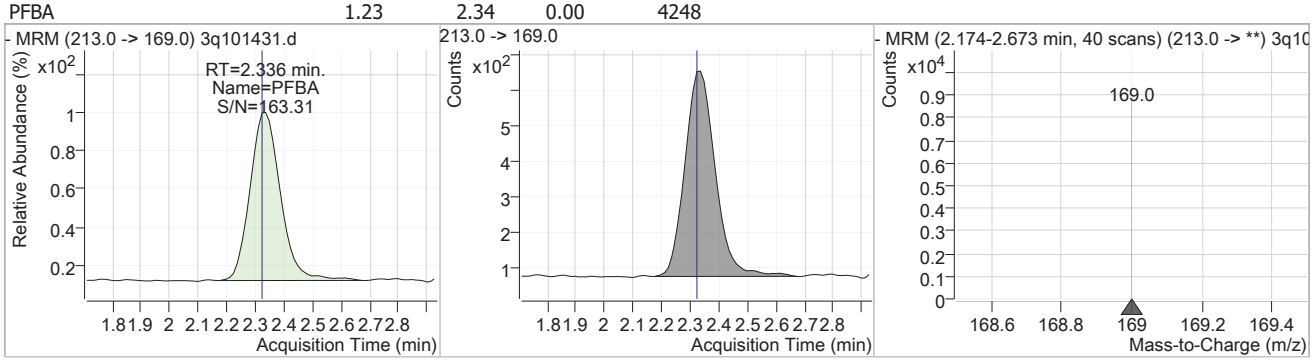
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

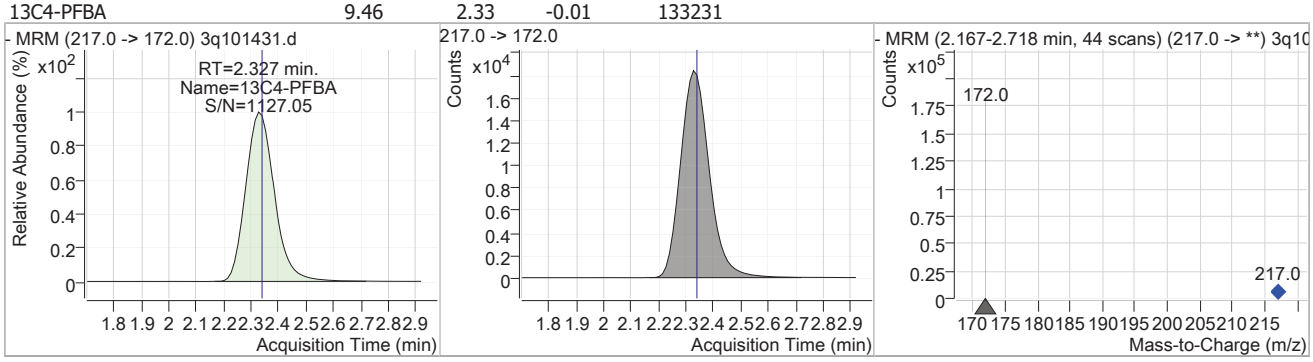
Perfluorinated Compounds by LC/MS/MS



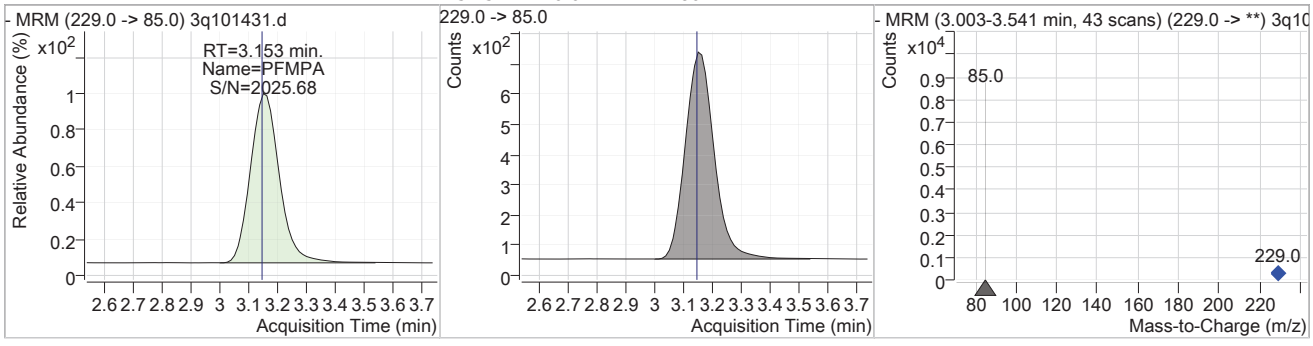
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	1.23	2.34	0.00	4248				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	9.46	2.33	-0.01	133231				

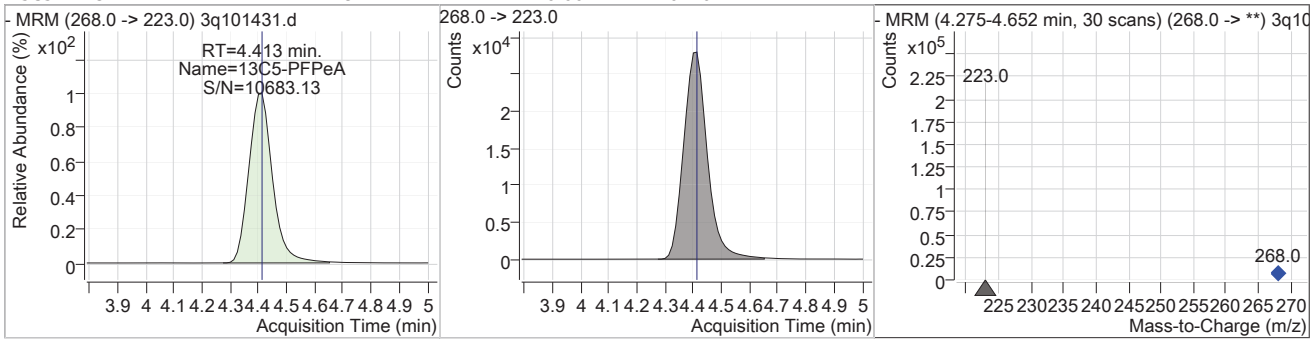


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	1.21	3.15	-0.01	4780				

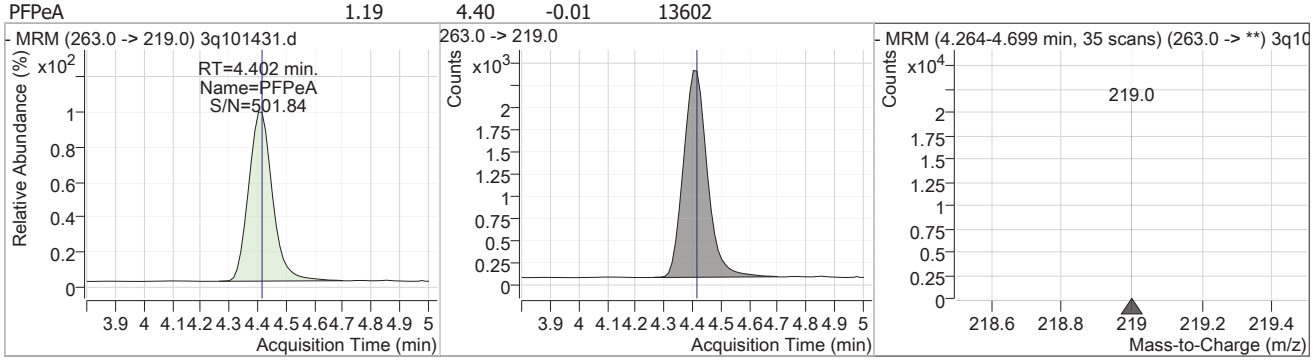


Perfluorinated Compounds by LC/MS/MS

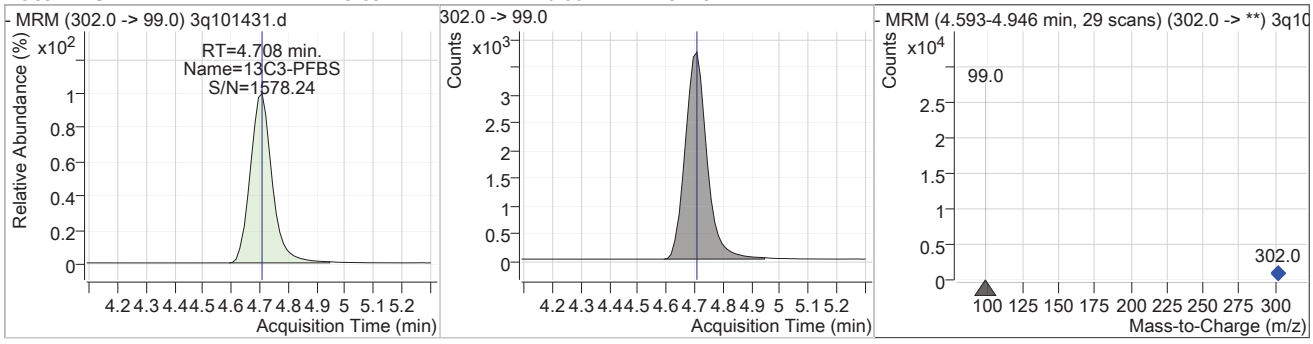
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	9.42	4.41	0.00	162762				



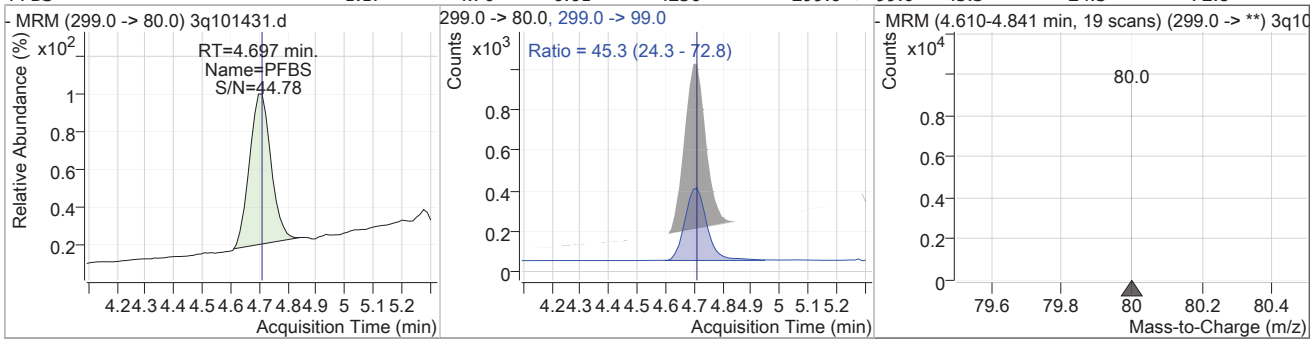
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.19	4.40	-0.01	13602				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	9.39	4.71	0.00	19778				

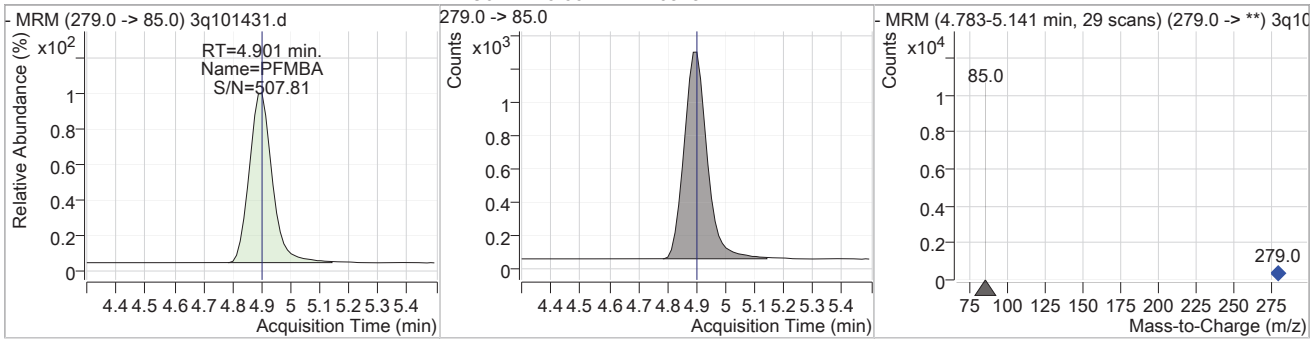


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.17	4.70	-0.01	4256	299.0 -> 99.0	45.3	24.3	72.8

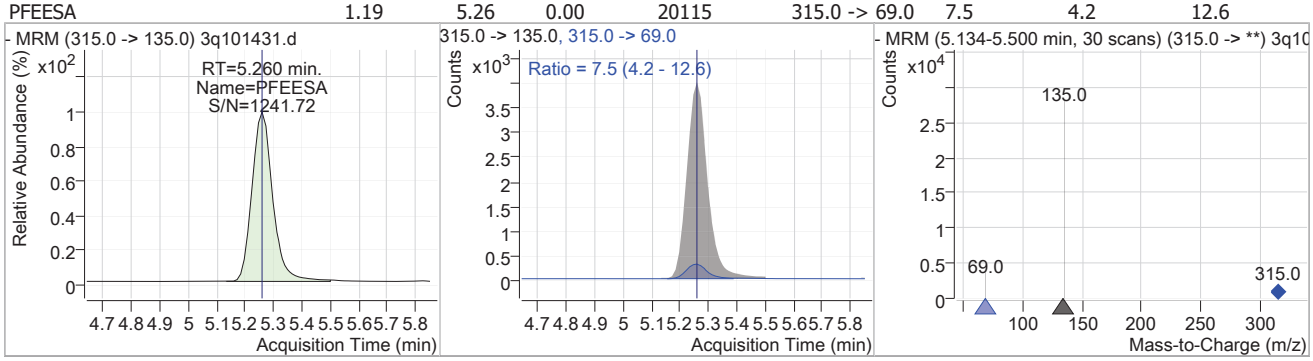


Perfluorinated Compounds by LC/MS/MS

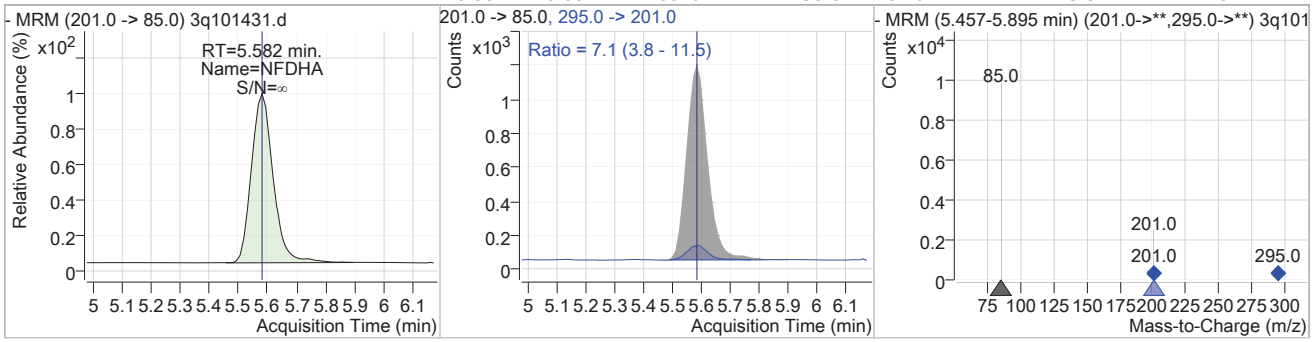
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	1.21	4.90	0.00	6828				



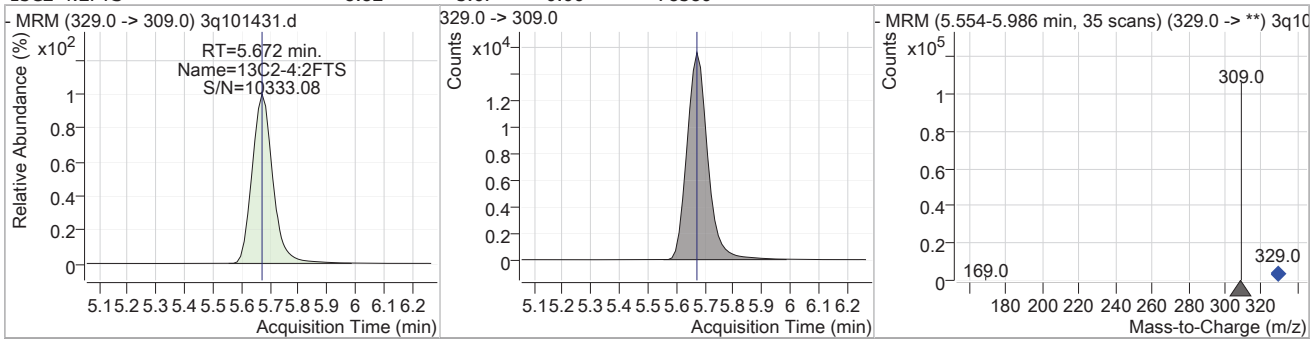
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	1.19	5.26	0.00	20115	315.0 -> 69.0	7.5	4.2	12.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	1.24	5.58	0.00	6010	295.0 -> 201.0	7.1	3.8	11.5

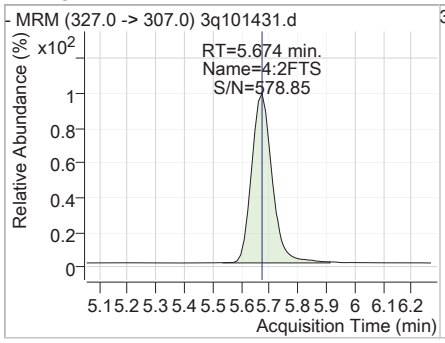


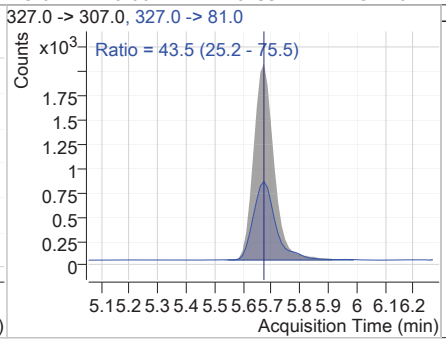
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	8.82	5.67	0.00	78580				

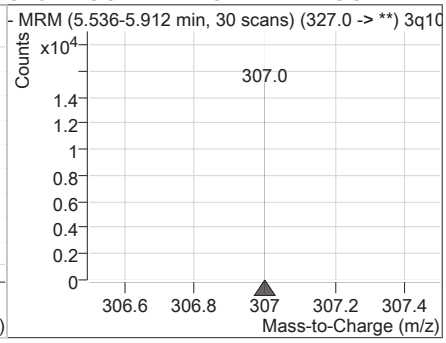


Perfluorinated Compounds by LC/MS/MS

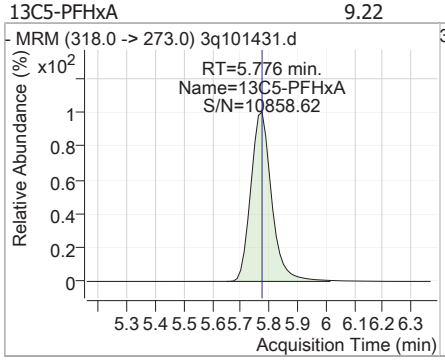
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	1.14	5.67	0.00	10199	327.0 -> 81.0	43.5	25.2	75.5

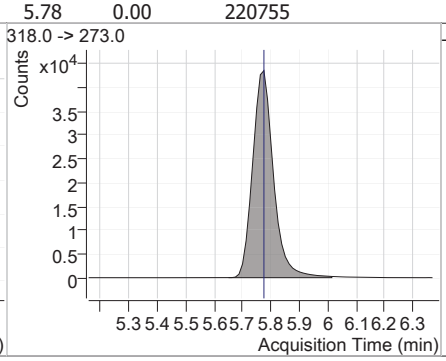


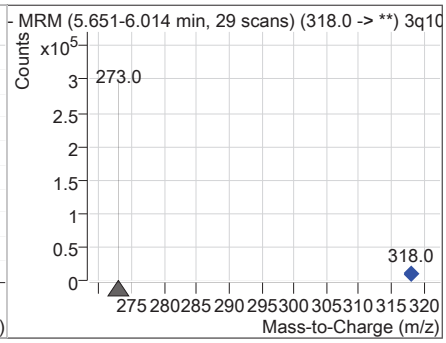




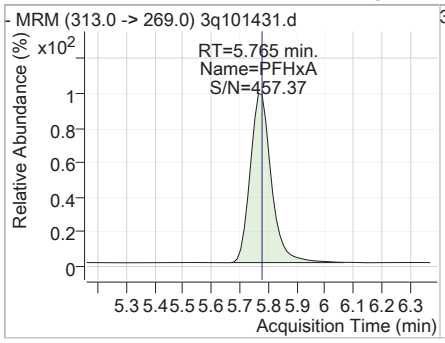
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	9.22	5.78	0.00	220755				

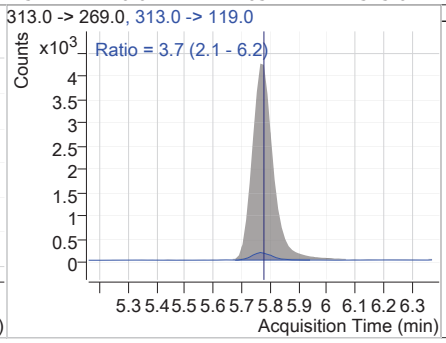


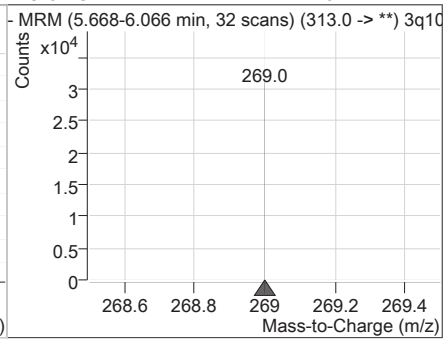




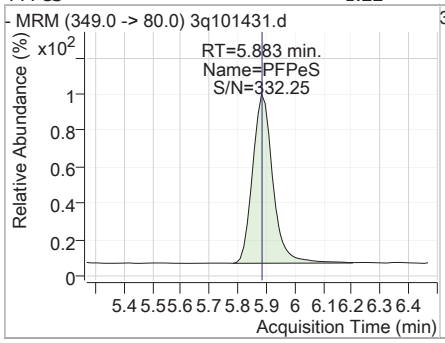
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.18	5.77	-0.01	21632	313.0 -> 119.0	3.7	2.1	6.2

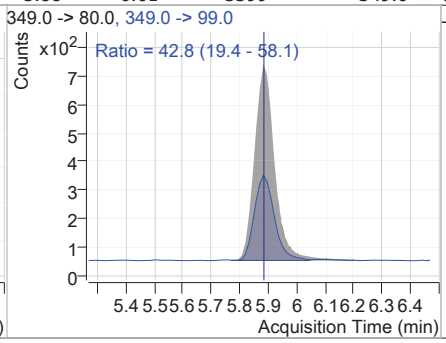


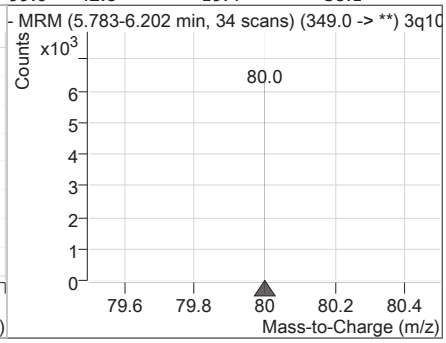




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	1.22	5.88	-0.01	3399	349.0 -> 99.0	42.8	19.4	58.1

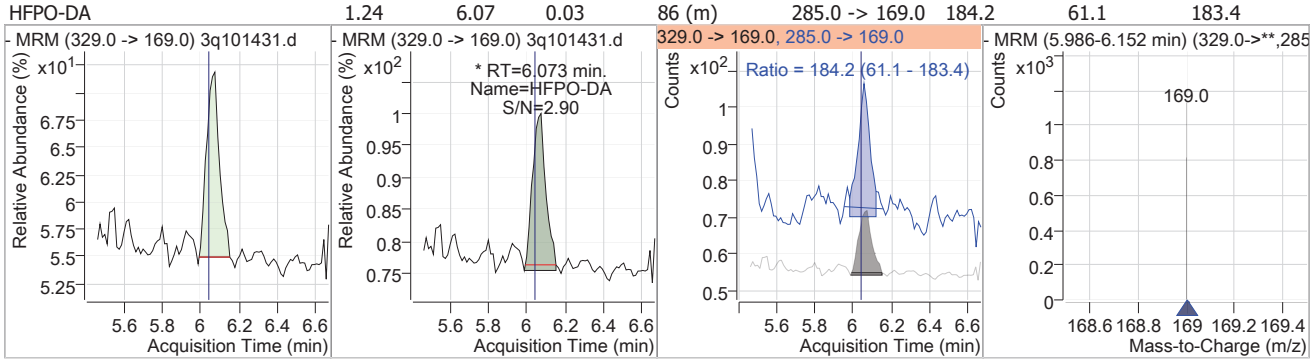




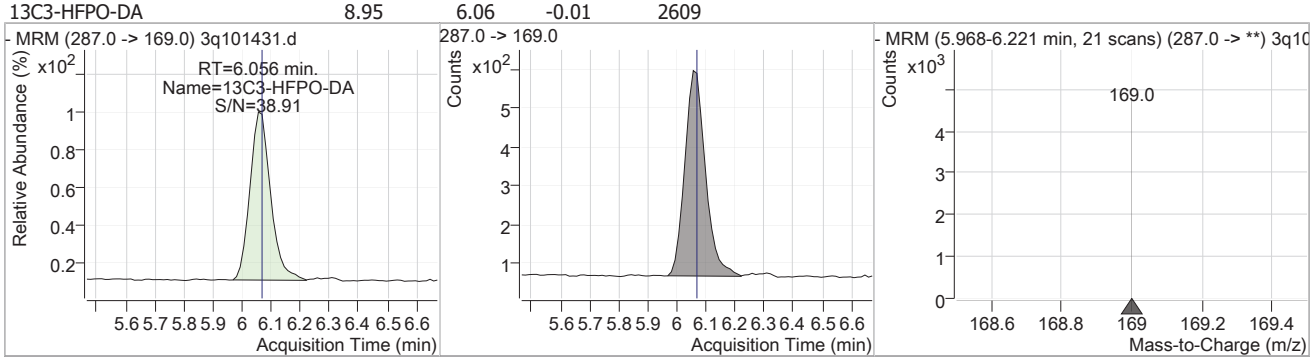


Perfluorinated Compounds by LC/MS/MS

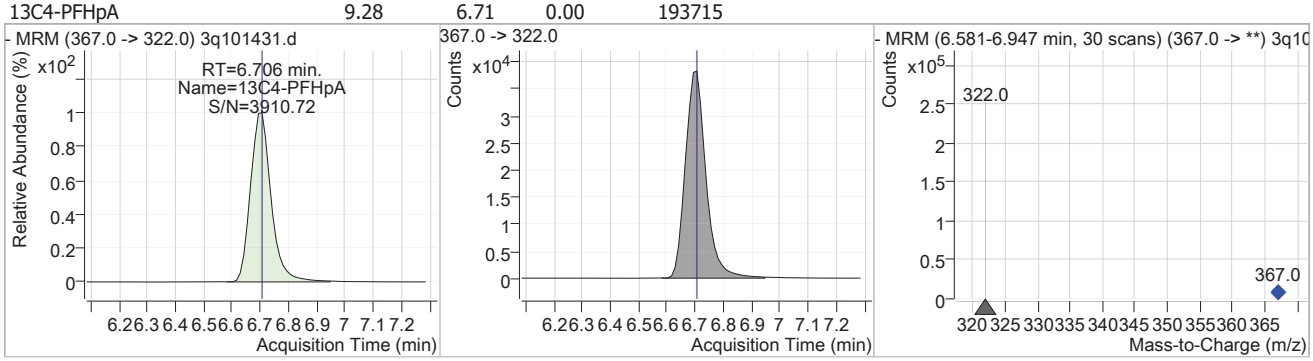
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	1.24	6.07	0.03	86 (m)	285.0 -> 169.0	184.2	61.1	183.4



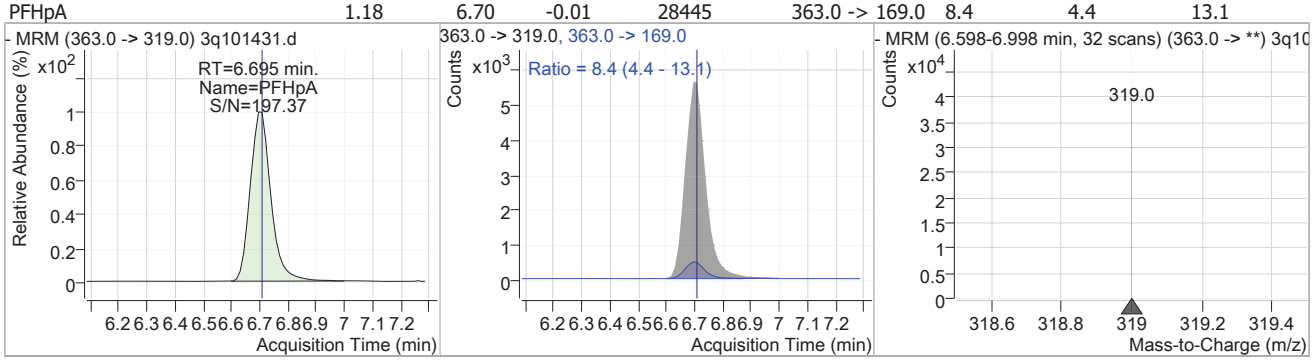
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.95	6.06	-0.01	2609				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	9.28	6.71	0.00	193715				

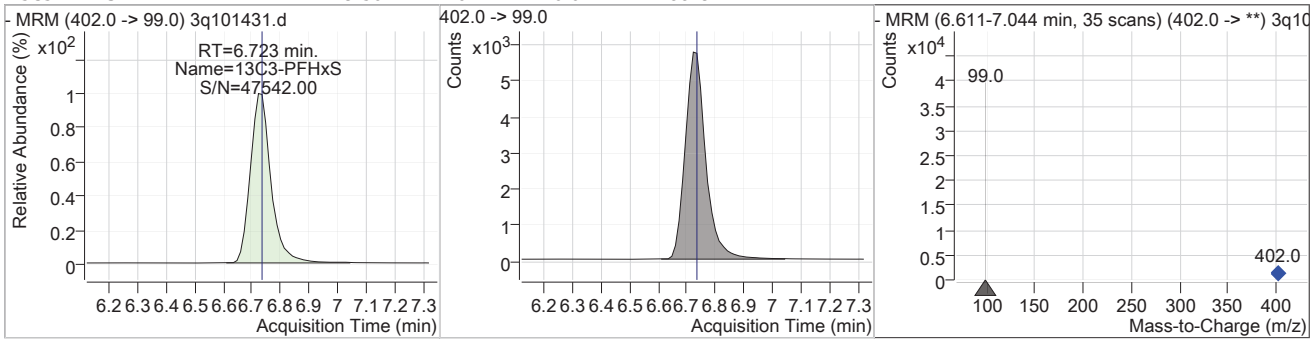


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.18	6.70	-0.01	28445	363.0 -> 169.0	8.4	4.4	13.1

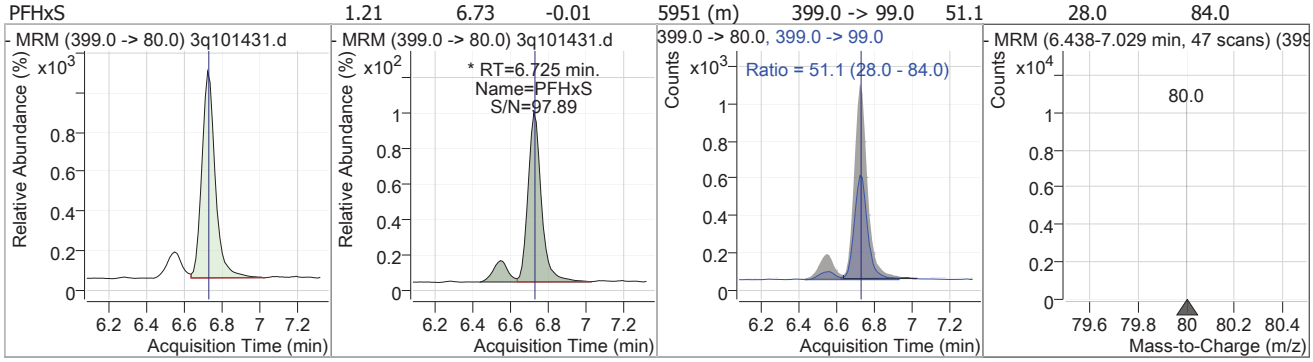


Perfluorinated Compounds by LC/MS/MS

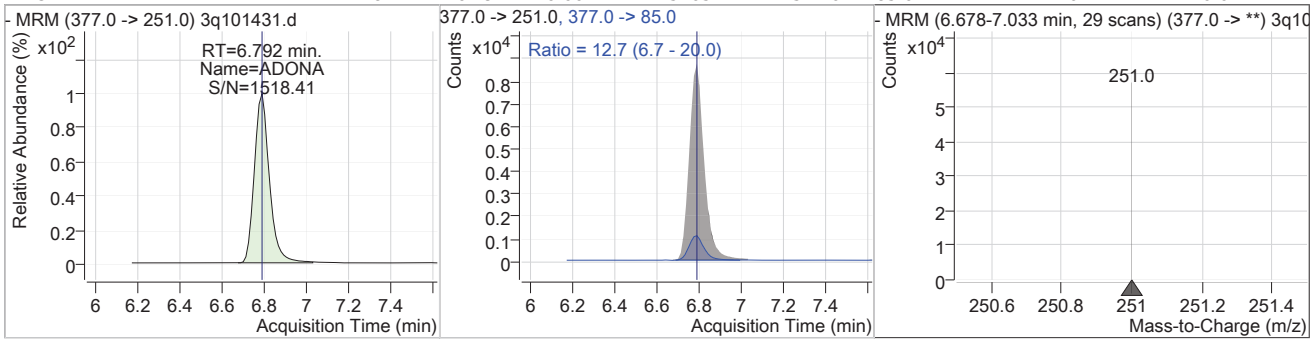
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	9.50	6.72	-0.01	28819				



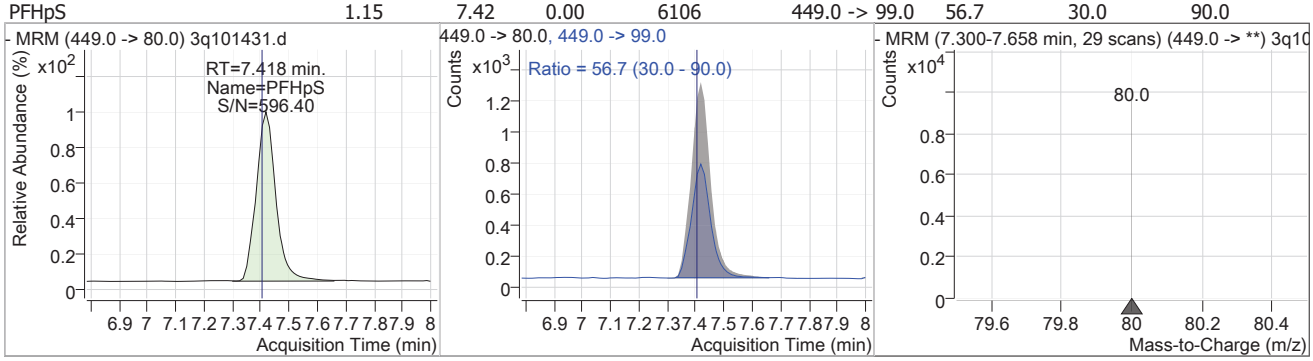
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.21	6.73	-0.01	5951 (m)	399.0 -> 99.0	51.1	28.0	84.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	1.18	6.79	0.00	43205	377.0 -> 85.0	12.7	6.7	20.0

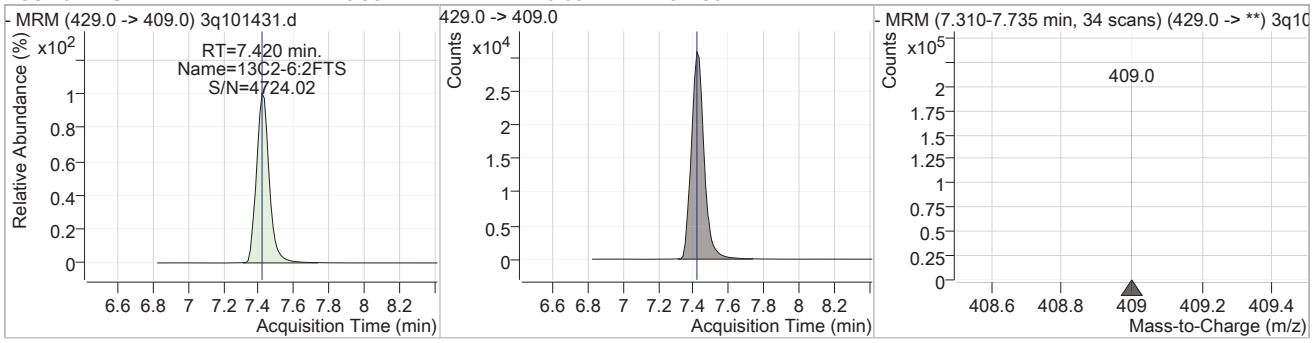


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	1.15	7.42	0.00	6106	449.0 -> 99.0	56.7	30.0	90.0

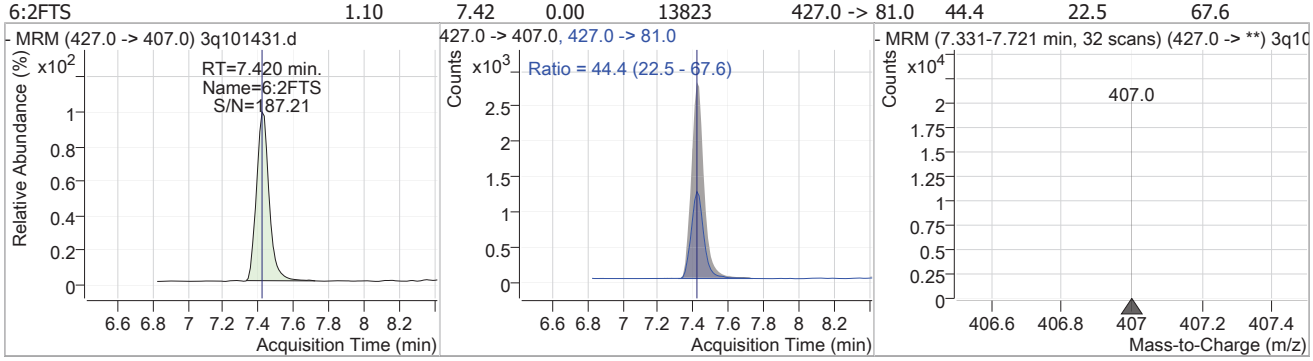


Perfluorinated Compounds by LC/MS/MS

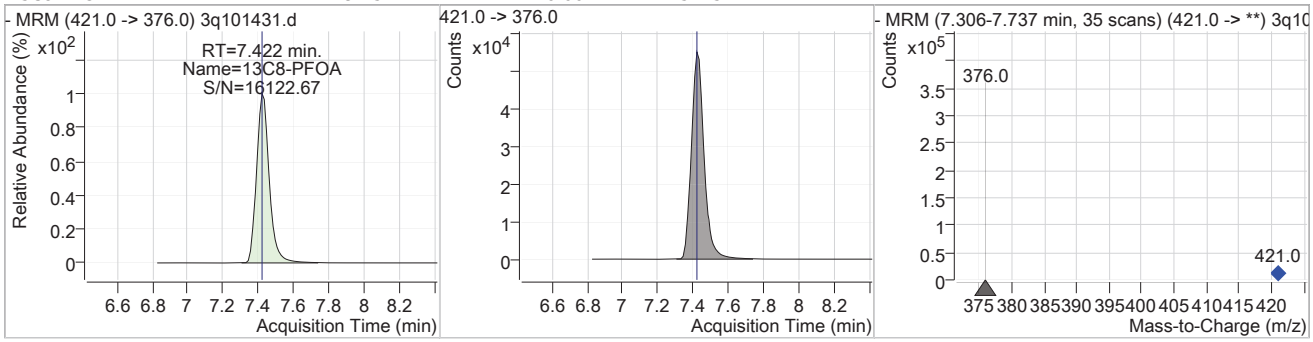
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	8.95	7.42	0.00	154436				



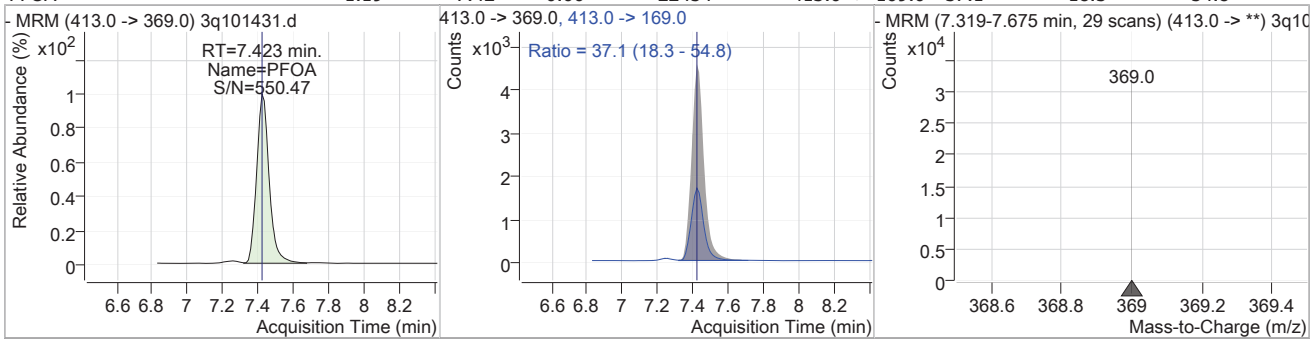
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.10	7.42	0.00	13823	427.0 -> 81.0	44.4	22.5	67.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	9.45	7.42	0.00	273225				

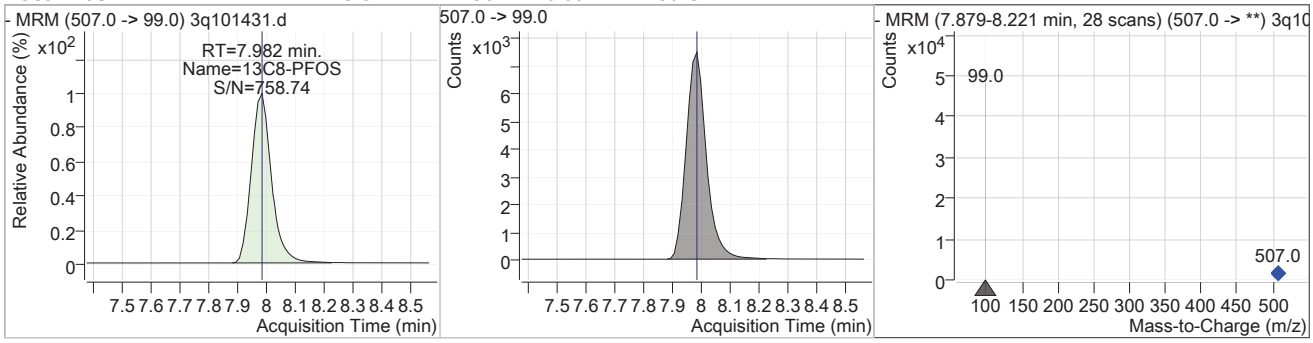


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.19	7.42	0.00	22454	413.0 -> 169.0	37.1	18.3	54.8

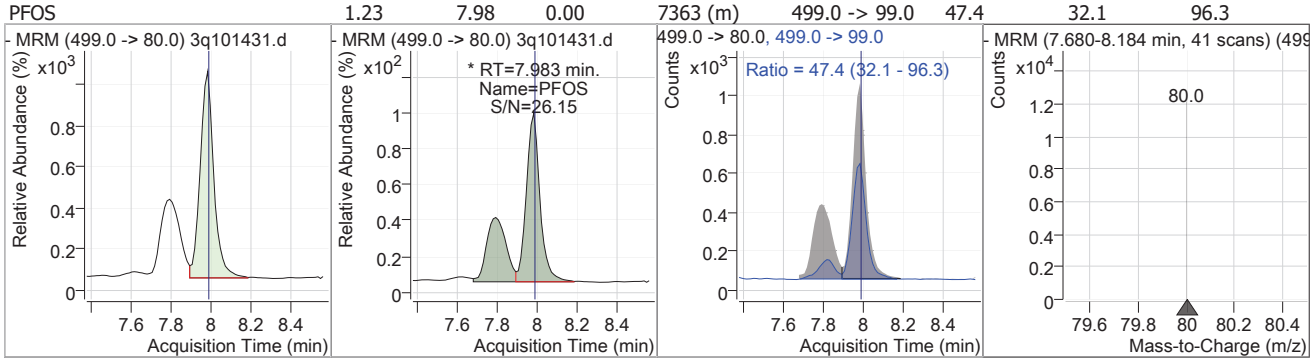


Perfluorinated Compounds by LC/MS/MS

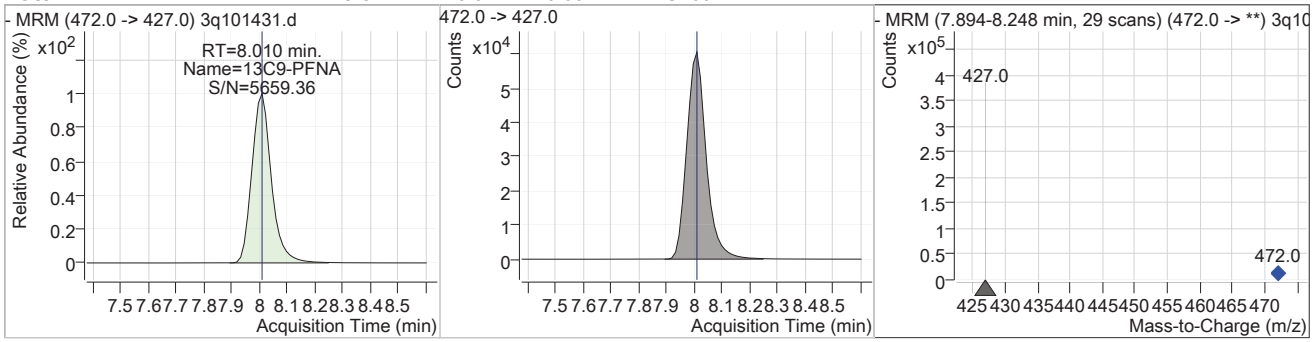
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	9.32	7.98	0.00	36192				



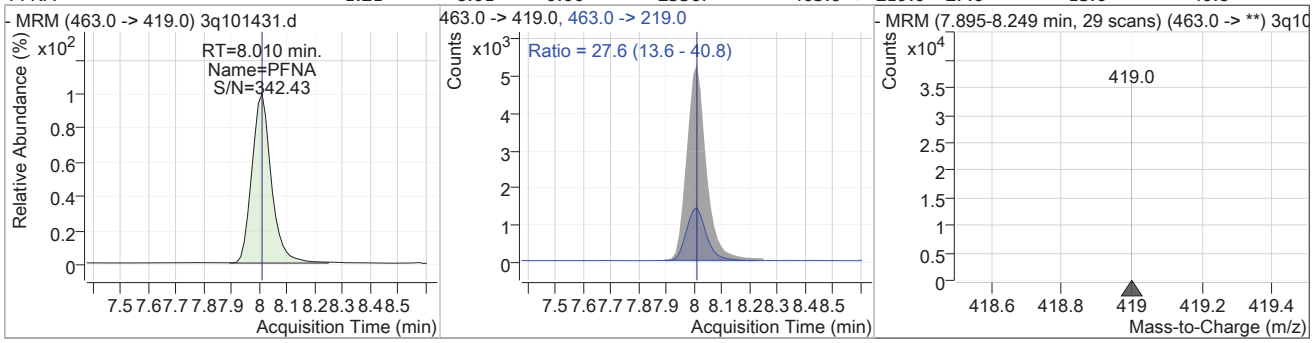
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.23	7.98	0.00	7363 (m)	499.0 -> 99.0	47.4	32.1	96.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	9.32	8.01	0.00	294001				

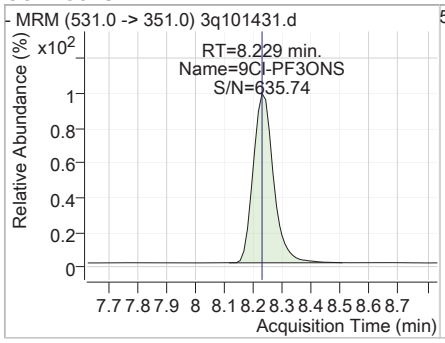


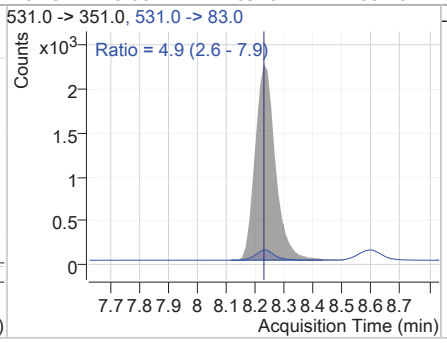
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.21	8.01	0.00	25567	463.0 -> 219.0	27.6	13.6	40.8

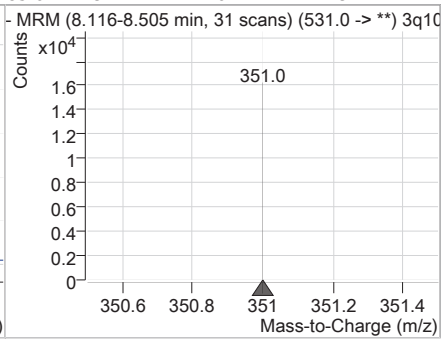


Perfluorinated Compounds by LC/MS/MS

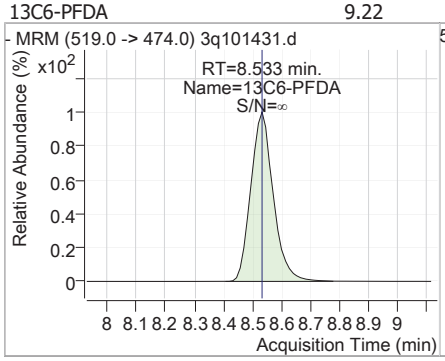
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	1.22	8.23	0.00	10920	531.0 -> 83.0	4.9	2.6	7.9

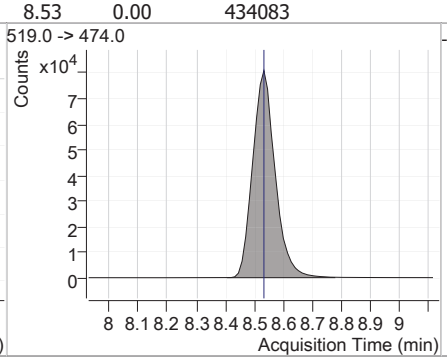


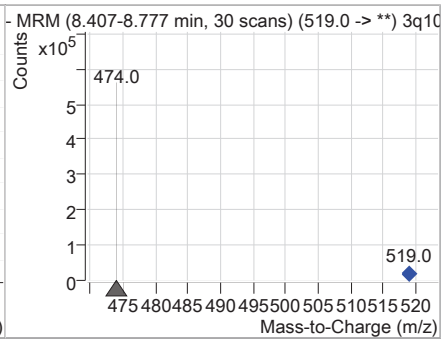




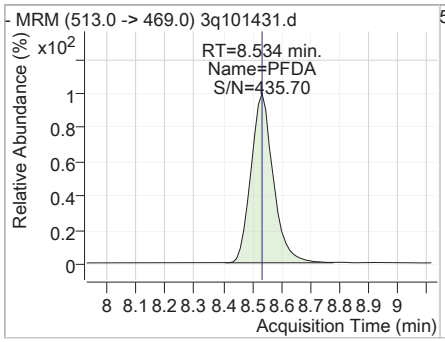
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	9.22	8.53	0.00	434083				

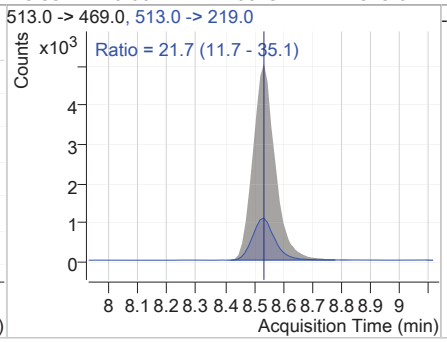


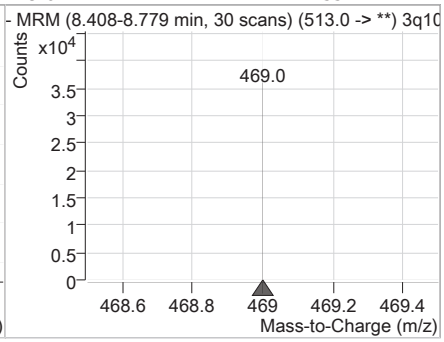




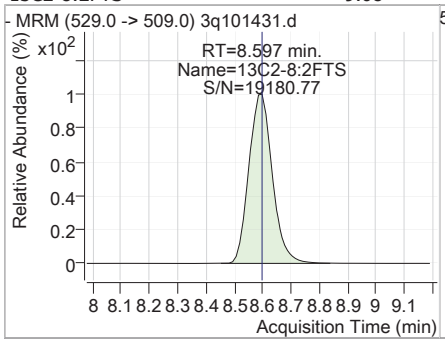
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.17	8.53	0.00	26623	513.0 -> 219.0	21.7	11.7	35.1

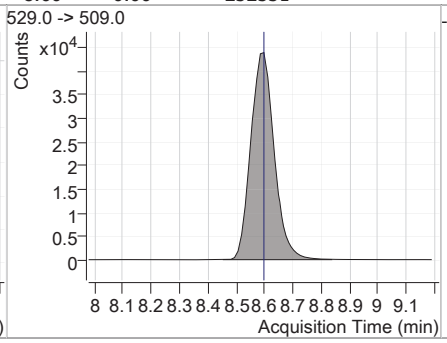


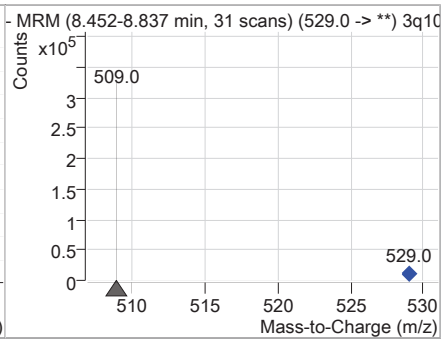




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	9.08	8.60	0.00	252551				

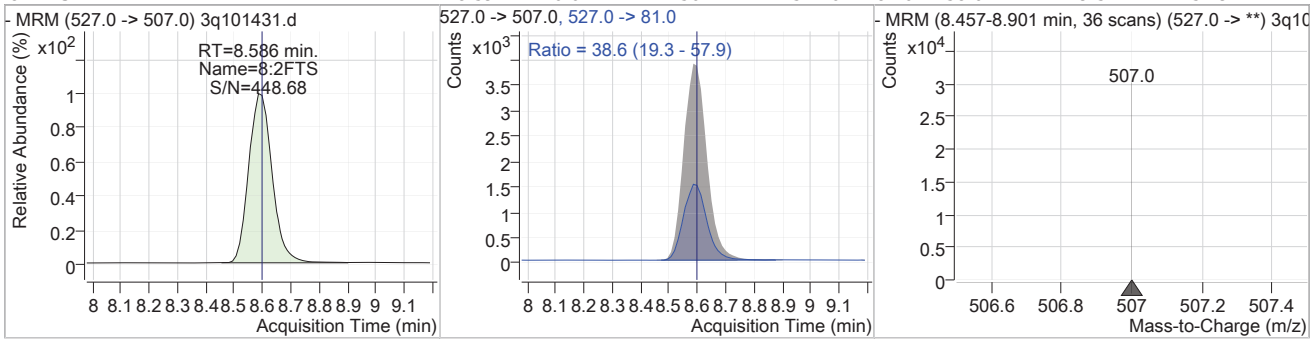




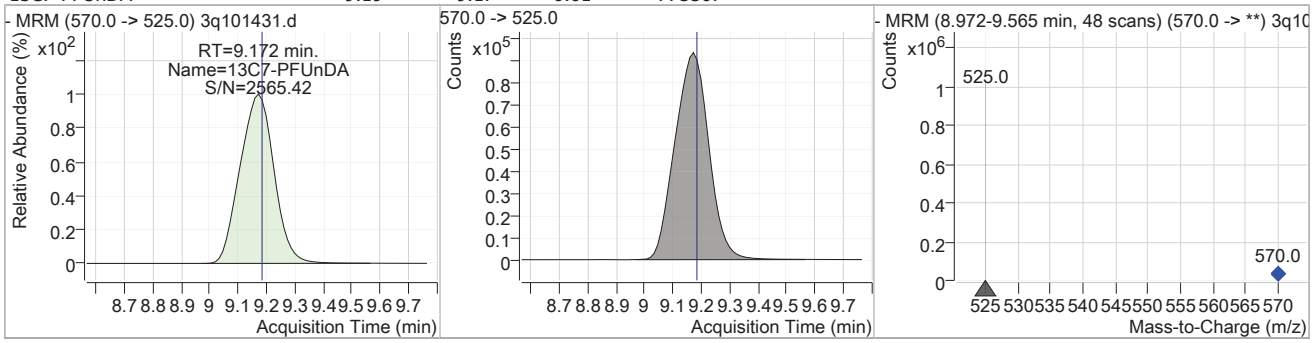


Perfluorinated Compounds by LC/MS/MS

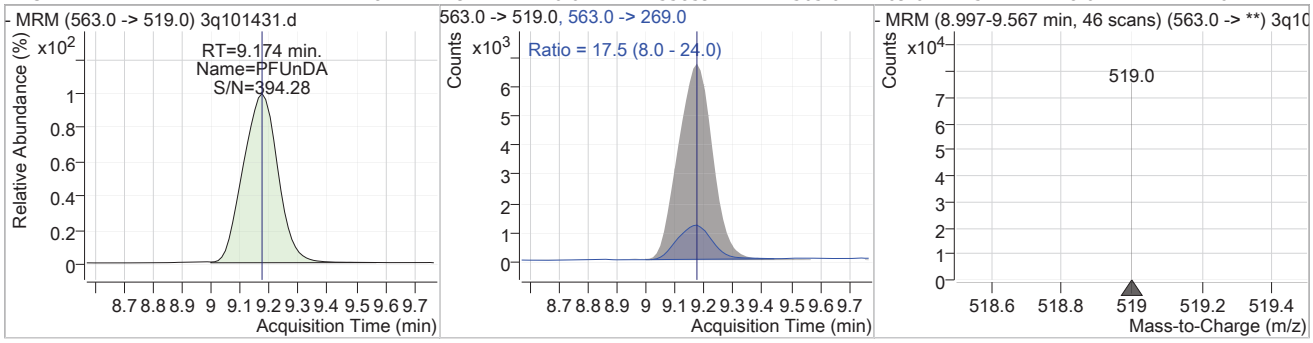
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	1.11	8.59	-0.01	22307	527.0 -> 81.0	38.6	19.3	57.9



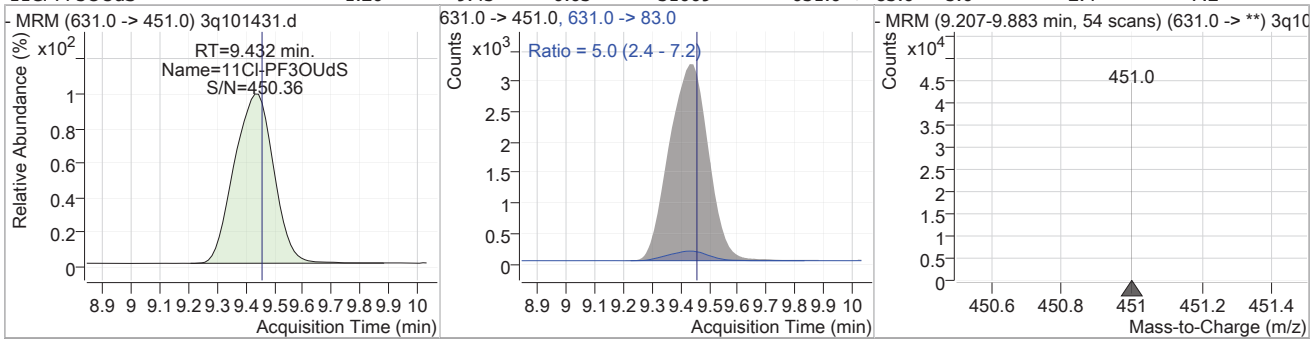
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	9.19	9.17	-0.01	775507				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.18	9.17	-0.01	55859	563.0 -> 269.0	17.5	8.0	24.0

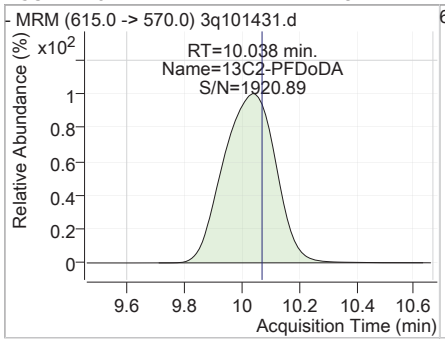


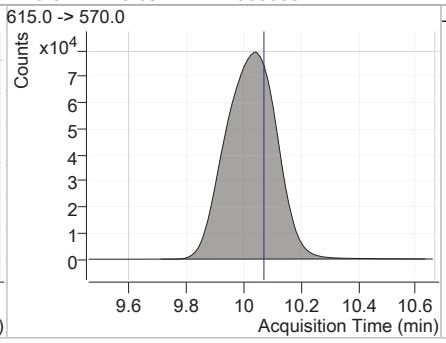
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	1.20	9.43	-0.03	31009	631.0 -> 83.0	5.0	2.4	7.2

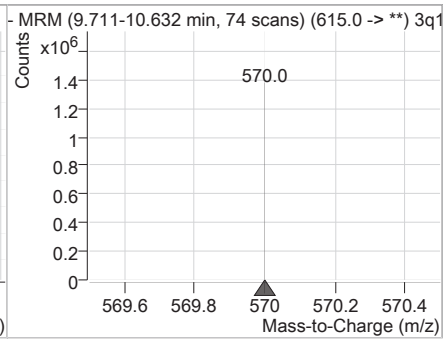


Perfluorinated Compounds by LC/MS/MS

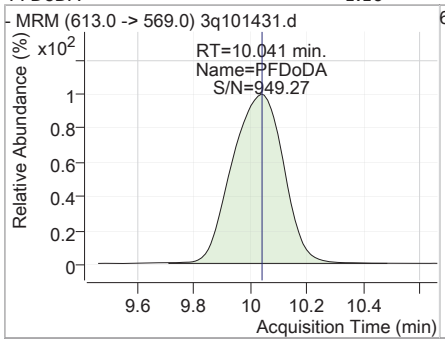
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	9.22	10.04	-0.03	1008085				

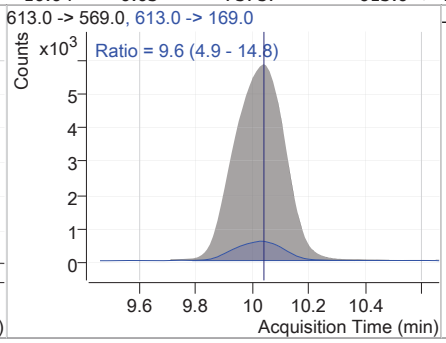


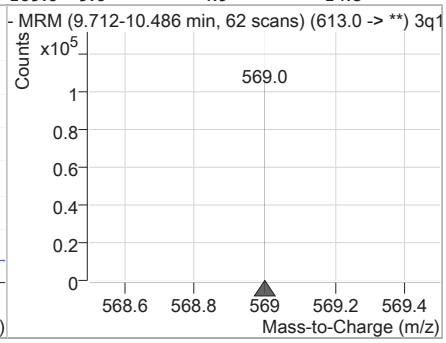




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	1.16	10.04	-0.03	73757	613.0 -> 169.0	9.6	4.9	14.8







Manual Integration Approval Summary

Sample Number: S3Q1491-IC1491
Lab FileID: 3Q101431.D
Injection Time: 04/11/25 15:58
Method: EPA 533
Analyst approved: 04/14/25 11:45 (b) (6)
Supervisor approved: 04/14/25 12:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
HFPO-DA (GenX)	13252-13-6		6.07	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		6.72	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/14/25 12:44

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101432.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/11/2025 4:14:52 PM
Sample Name : ic1491-2
Vial : P1-C4
DA Method File : 533_041125_S3Q1491.quantmethod.xml
Batch Name : s3q1491.batch.bin
Sample Information : op8141,S3Q1491,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	245443	10.00 µg/L	0.000
13C3-PFBA	2.332	216.0 -> 172.0	81413	10.00 µg/L	0.000
13C4-PFOS	7.983	503.0 -> 80.0	34539	10.00 µg/L	0.000
M4-PFBA	2.327	217.0 -> 172.0	132556	10.00 µg/L	-0.013
M5-PFPeA	4.413	268.0 -> 223.0	162611	10.00 µg/L	0.000
M5-PFHxA	5.776	318.0 -> 273.0	222133	10.00 µg/L	0.000
M4-PFHpA	6.706	367.0 -> 322.0	195283	10.00 µg/L	0.000
M8-PFOA	7.422	421.0 -> 376.0	270154	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	292528	10.00 µg/L	0.000
M6-PFDA	8.533	519.0 -> 474.0	439241	10.00 µg/L	0.000
M7-PFUnDA	9.185	570.0 -> 525.0	788482	10.00 µg/L	0.000
M2-PFDoDA	10.071	615.0 -> 570.0	1013361	10.00 µg/L	0.000
M3-PFBS	4.708	302.0 -> 99.0	19660	10.00 µg/L	0.000
M3-PFHxS	6.724	402.0 -> 99.0	28534	10.00 µg/L	-0.013
M8-PFOS	7.982	507.0 -> 99.0	36831	10.00 µg/L	0.000
M2-4:2FTS	5.672	329.0 -> 309.0	79228	10.00 µg/L	0.000
M2-6:2FTS	7.420	429.0 -> 409.0	155767	10.00 µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	244440	10.00 µg/L	0.000
M3-HFPO-DA	6.056	287.0 -> 169.0	2614	10.00 µg/L	-0.013
System Monitoring Compounds					
13C2-4:2FTS	5.672	329.0 -> 309.0	79228	8.95 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.5%	
13C2-6:2FTS	7.420	429.0 -> 409.0	155767	9.08 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.8%	
13C2-8:2FTS	8.597	529.0 -> 509.0	244440	8.84 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.4%	
13C2-PFDoDA	10.071	615.0 -> 570.0	1013361	9.43 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C3-PFBS	4.708	302.0 -> 99.0	19660	9.39 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.9%	
13C3-PFHxS	6.724	402.0 -> 99.0	28534	9.46 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C4-PFBA	2.327	217.0 -> 172.0	132556	9.52 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.2%	
13C4-PFHpA	6.706	367.0 -> 322.0	195283	9.52 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.2%	
13C5-PFHxA	5.776	318.0 -> 273.0	222133	9.45 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.5%	
13C5-PFPeA	4.413	268.0 -> 223.0	162611	9.51 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C6-PFDA	8.533	519.0 -> 474.0	439241	9.50 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C7-PFUnDA	9.185	570.0 -> 525.0	788482	9.51 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C8-PFOA	7.422	421.0 -> 376.0	270154	9.51 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

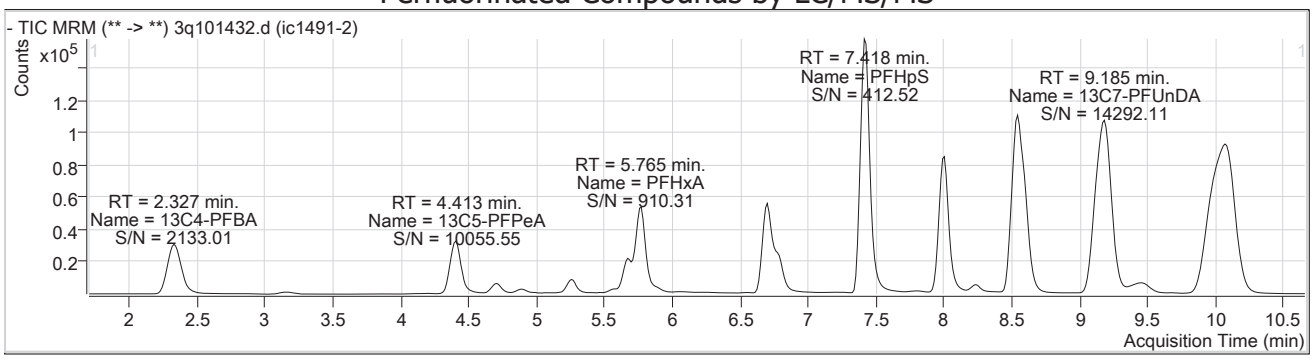
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.1%		
13C8-PFOS	7.982	507.0 -> 99.0	36831	9.54 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.4%		
13C9-PFNA	8.010	472.0 -> 427.0	292528	9.43 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.3%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	2614	9.13 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.3%		
Target Compounds						QValue
PFMPA	3.153	229.0 -> 85.0	8902	2.24 µg/L		100
4:2FTS	5.674	327.0 -> 307.0	18674	2.06 µg/L		91
		327.0 -> 81.0	8176			
6:2FTS	7.420	427.0 -> 407.0	26369	2.07 µg/L		95
		427.0 -> 81.0	10945			
8:2FTS	8.598	527.0 -> 507.0	40432	2.07 µg/L		100
		527.0 -> 81.0	15565			
PFMBA	4.901	279.0 -> 85.0	12643	2.21 µg/L		100
PFEESA	5.260	315.0 -> 135.0	37504	2.21 µg/L		98
		315.0 -> 69.0	2945			
NFDHA	5.582	201.0 -> 85.0	11131	2.26 µg/L		96
		295.0 -> 201.0	704			
PFBA	2.336	213.0 -> 169.0	7603	2.18 µg/L		100
PFBS	4.710	299.0 -> 80.0	8152	2.22 µg/L		94
		299.0 -> 99.0	3607			
PFDA	8.534	513.0 -> 469.0	50504	2.17 µg/L		95
		513.0 -> 219.0	10683			
PFDoDA	10.075	613.0 -> 569.0	140494	2.17 µg/L		99
		613.0 -> 169.0	13325			
PFHpA	6.708	363.0 -> 319.0	52645	2.13 µg/L		100
		363.0 -> 169.0	4544			
PFHpS	7.418	449.0 -> 80.0	11535	2.18 µg/L		96
		449.0 -> 99.0	6562			
PFHxA	5.765	313.0 -> 269.0	41156	2.21 µg/L		98
		313.0 -> 119.0	1452			
PFHxS	6.725	399.0 -> 80.0	11057	2.24 µg/L	m	95
		399.0 -> 99.0	5759			
PFNA	8.010	463.0 -> 419.0	46451	2.19 µg/L		98
		463.0 -> 219.0	13092			
PFOA	7.423	413.0 -> 369.0	42355	2.23 µg/L		99
		413.0 -> 169.0	15268			
PFOS	7.983	499.0 -> 80.0	12821	2.09 µg/L	m	81
		499.0 -> 99.0	6327			
PFPeA	4.415	263.0 -> 219.0	25438	2.20 µg/L		100
PFPeS	5.883	349.0 -> 80.0	6136	2.20 µg/L		95
		349.0 -> 99.0	2577			
PFUnDA	9.187	563.0 -> 519.0	106337	2.18 µg/L		97
		563.0 -> 269.0	18537			
11Cl-PF3OUdS	9.445	631.0 -> 451.0	58307	2.19 µg/L		100
		631.0 -> 83.0	2827			
9Cl-PF3ONS	8.229	531.0 -> 351.0	19828	2.15 µg/L		99
		531.0 -> 83.0	1000			
ADONA	6.792	377.0 -> 251.0	81330	2.18 µg/L		98
		377.0 -> 85.0	10027			
HFPO-DA	6.061	329.0 -> 169.0	149	2.14 µg/L	#	13
		285.0 -> 169.0	328			

 # = Qualifier out of range, m = manually integrated, + = Area summed

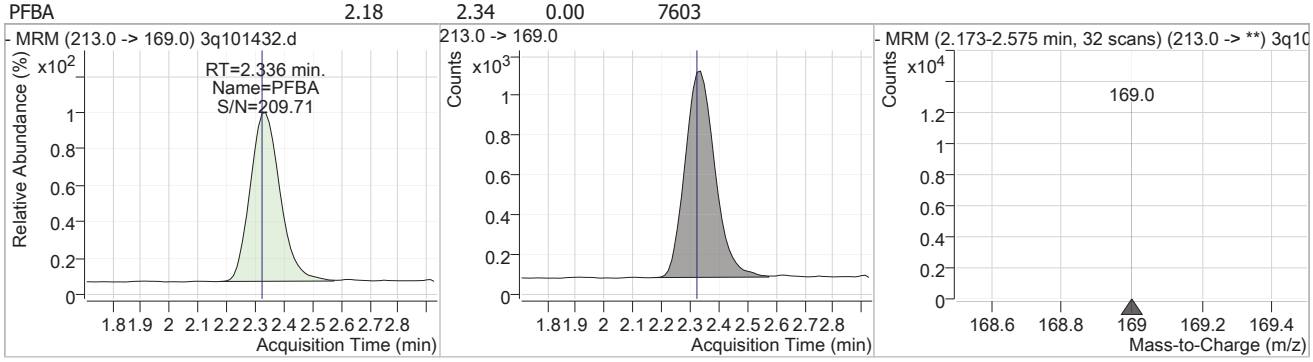
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

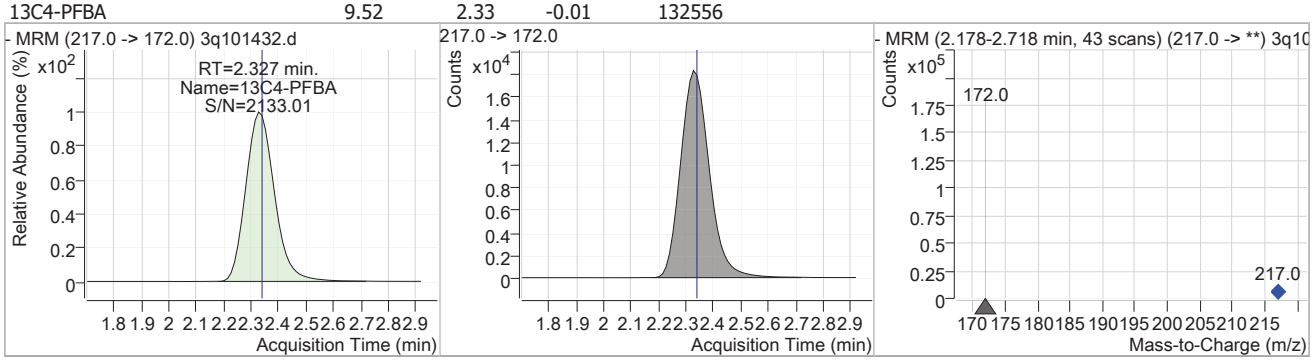
Perfluorinated Compounds by LC/MS/MS



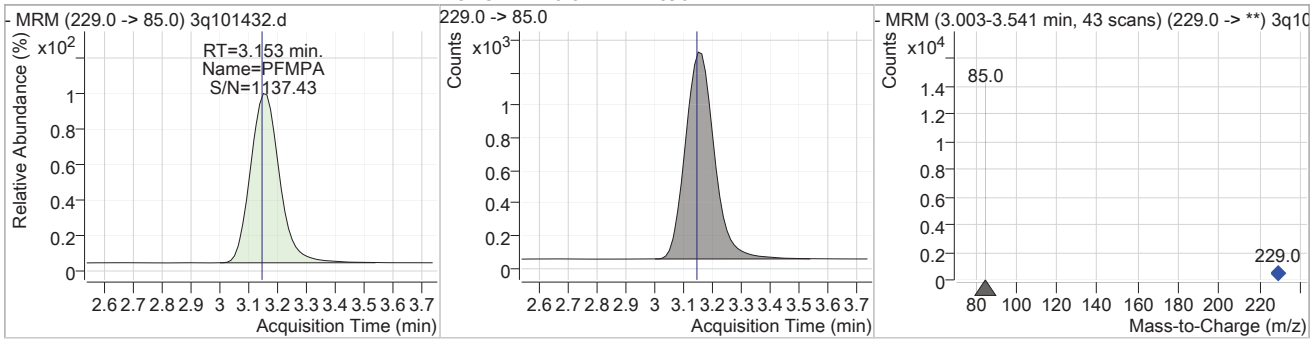
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	2.18	2.34	0.00	7603				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	9.52	2.33	-0.01	132556				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	2.24	3.15	-0.01	8902				

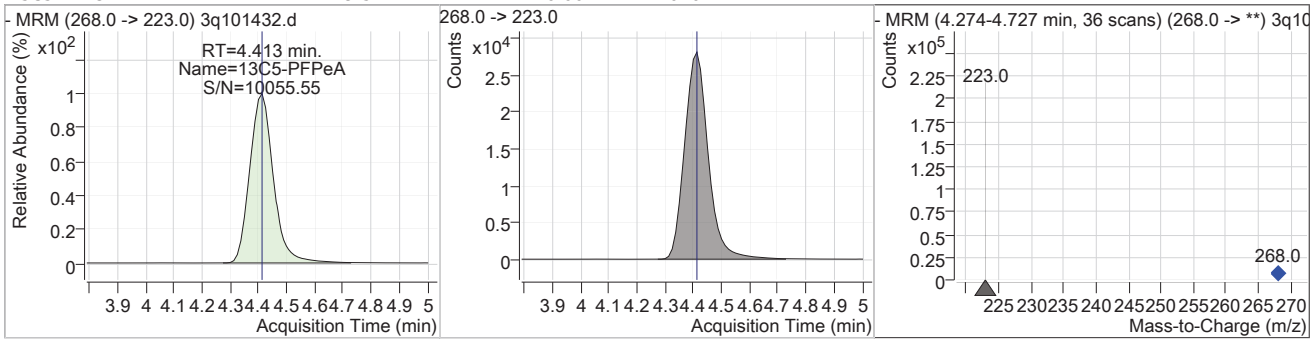


7.7.4

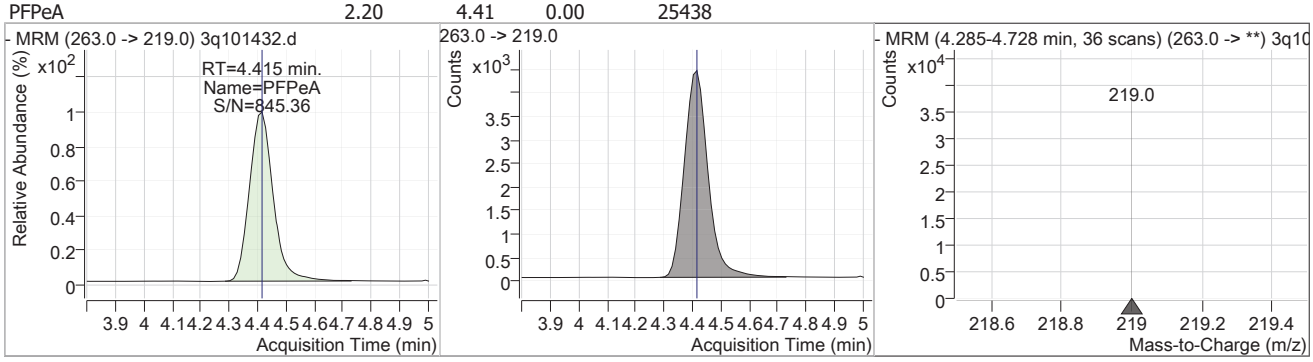
7

Perfluorinated Compounds by LC/MS/MS

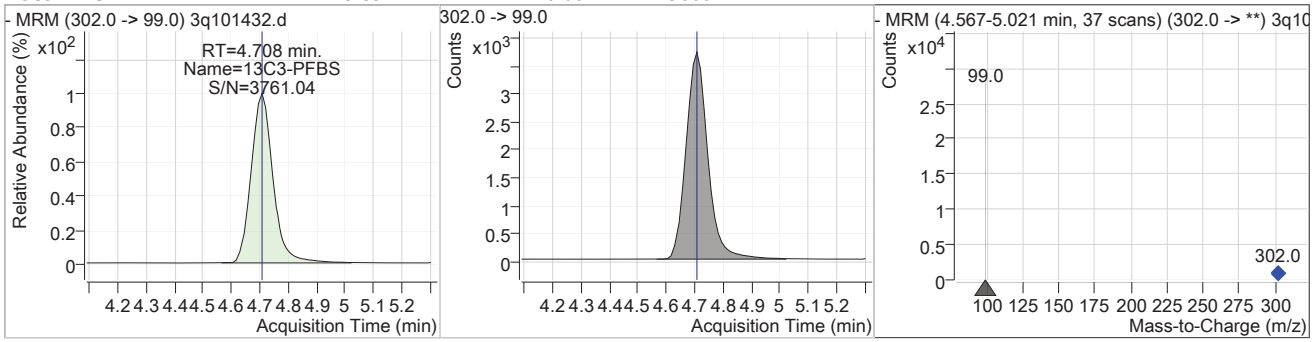
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	9.51	4.41	0.00	162611				



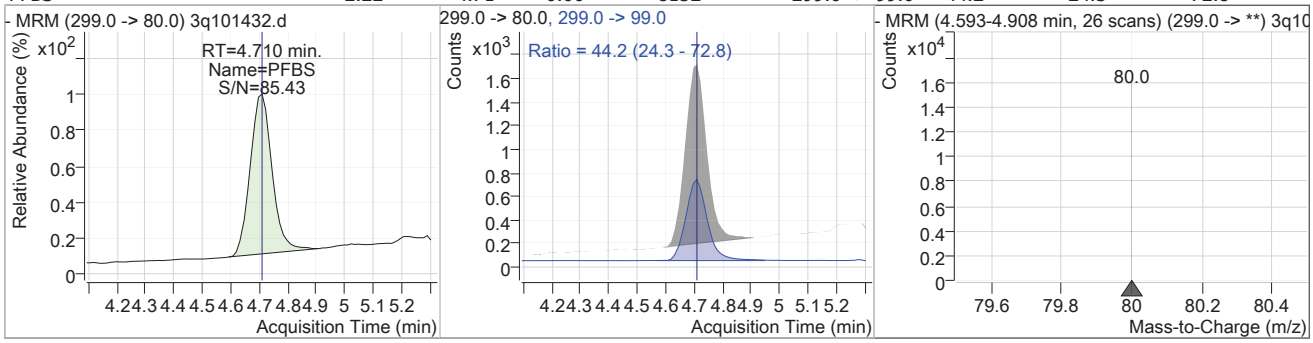
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	2.20	4.41	0.00	25438				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	9.39	4.71	0.00	19660				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.22	4.71	0.00	8152	299.0 -> 99.0	44.2	24.3	72.8

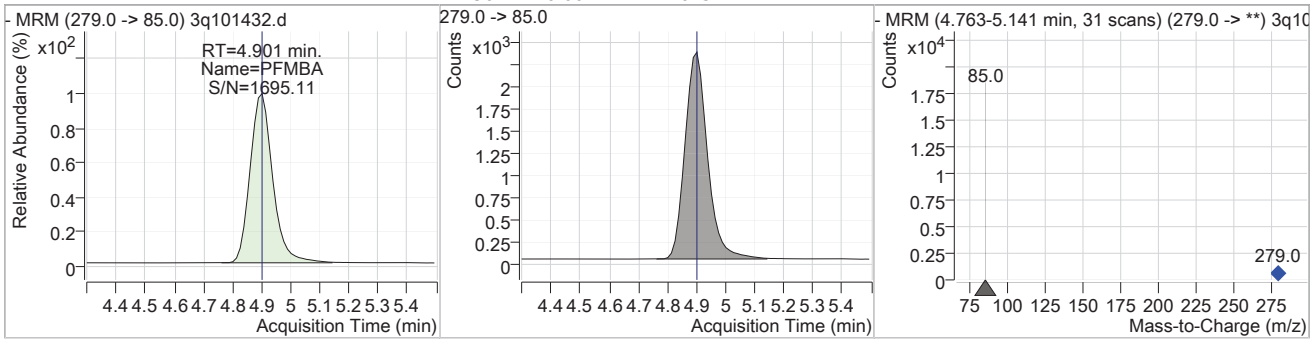


7.7.4

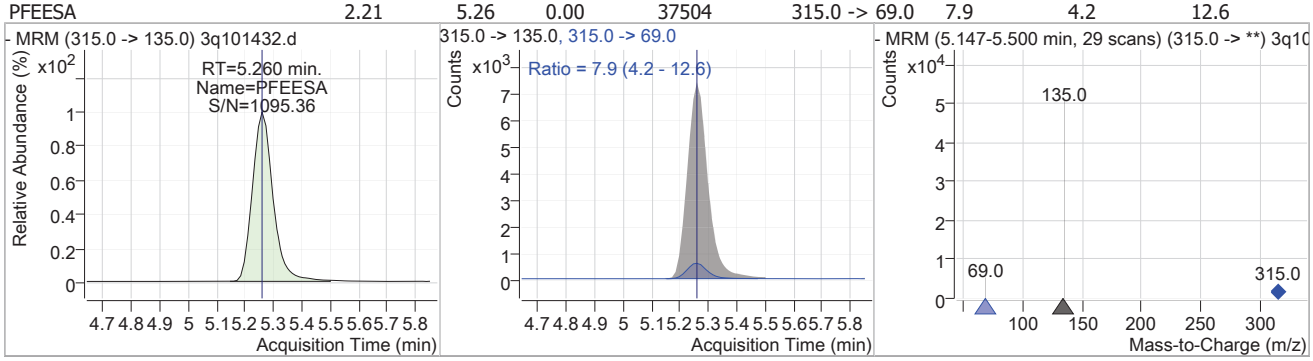
7

Perfluorinated Compounds by LC/MS/MS

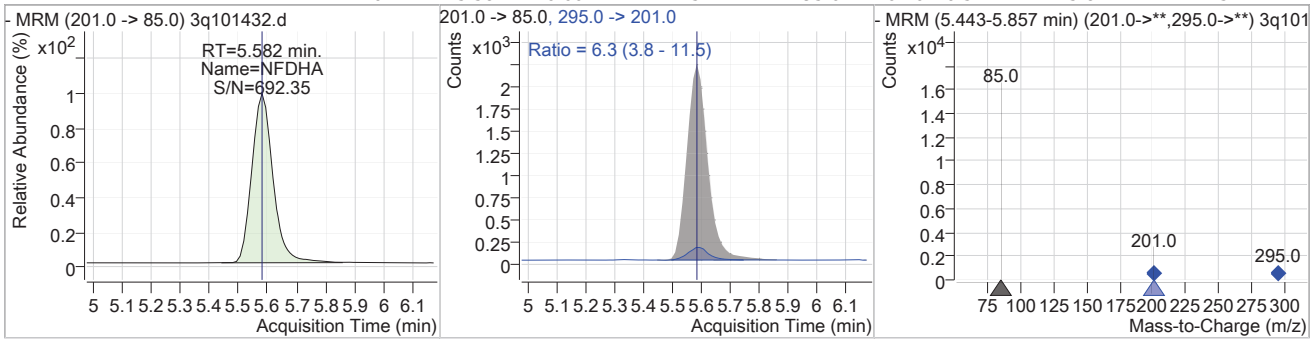
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	2.21	4.90	0.00	12643				



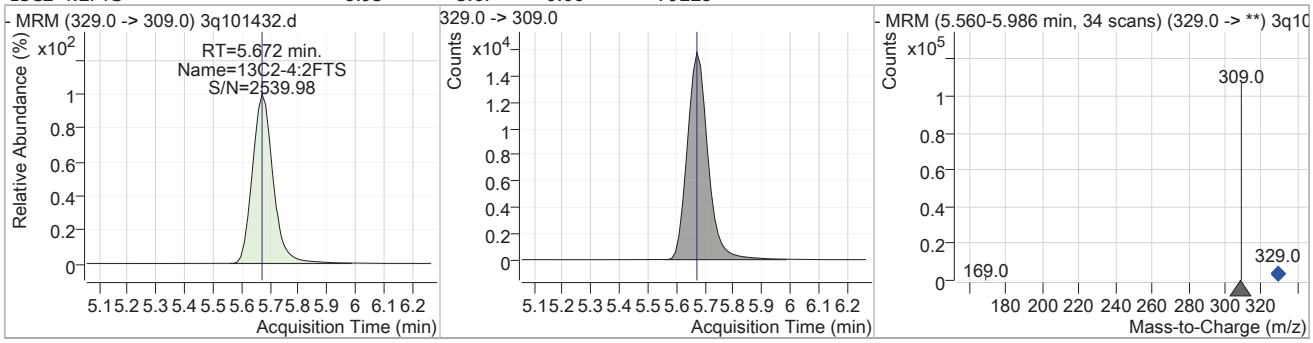
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	2.21	5.26	0.00	37504	315.0 -> 69.0	7.9	4.2	12.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	2.26	5.58	0.00	11131	295.0 -> 201.0	6.3	3.8	11.5

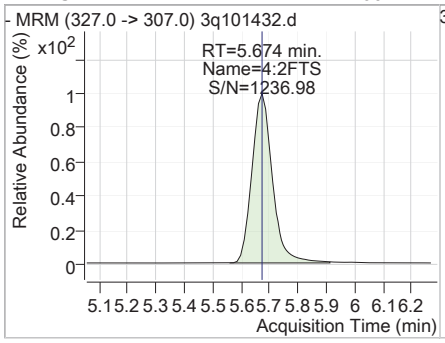


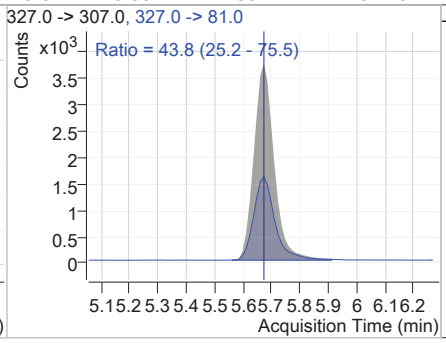
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	8.95	5.67	0.00	79228				

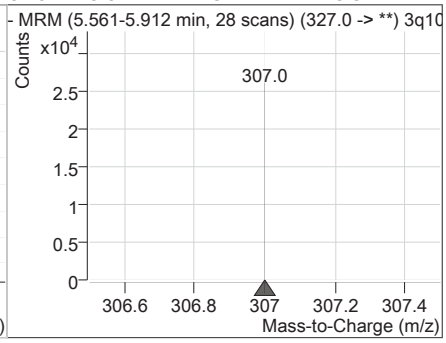


Perfluorinated Compounds by LC/MS/MS

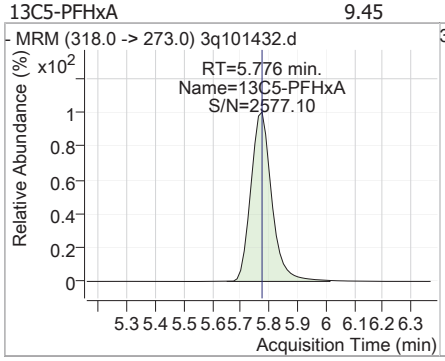
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	2.06	5.67	0.00	18674	327.0 -> 81.0	43.8	25.2	75.5

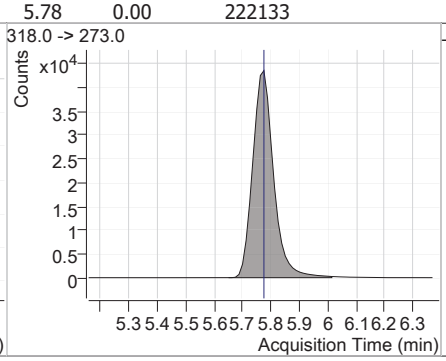


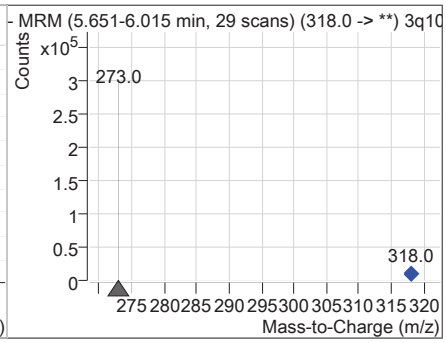




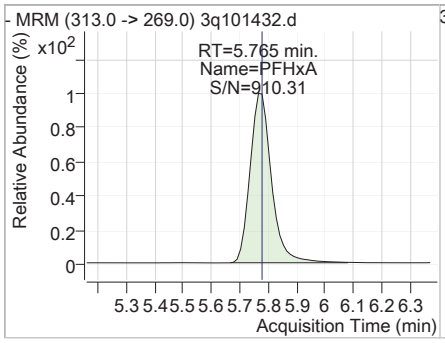
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	9.45	5.78	0.00	222133				

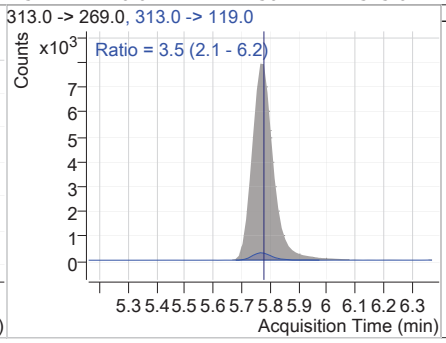


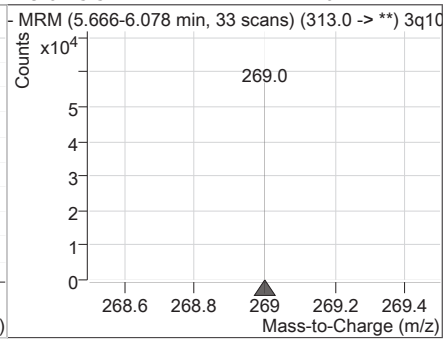




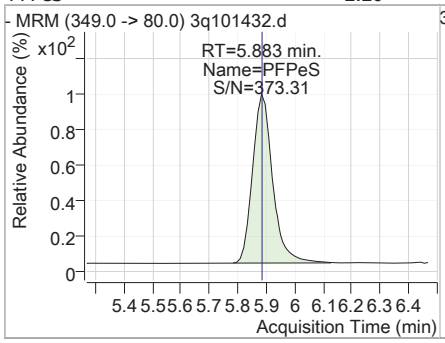
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.21	5.77	-0.01	41156	313.0 -> 119.0	3.5	2.1	6.2

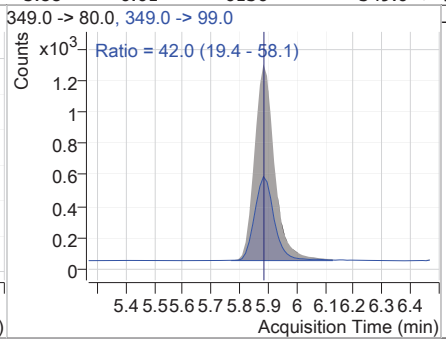


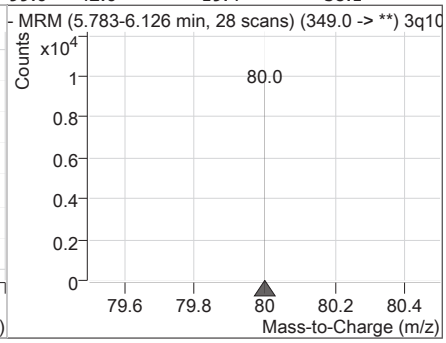




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.20	5.88	-0.01	6136	349.0 -> 99.0	42.0	19.4	58.1

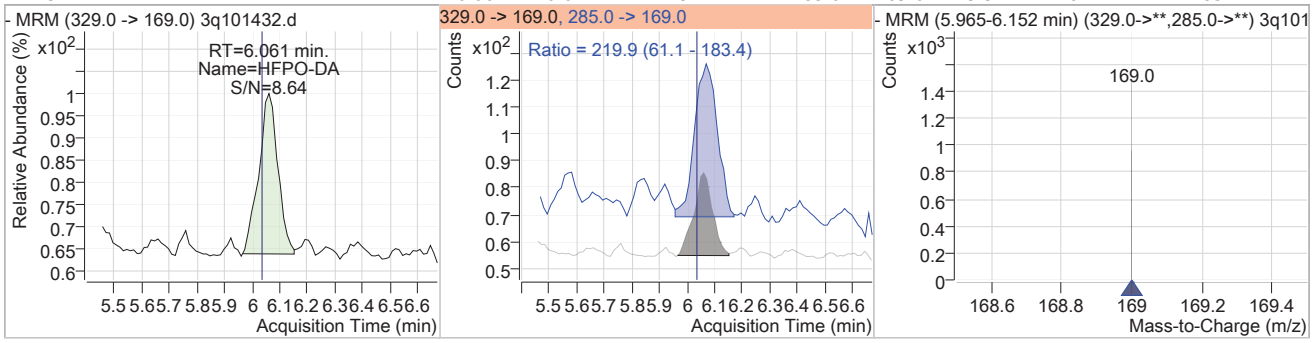




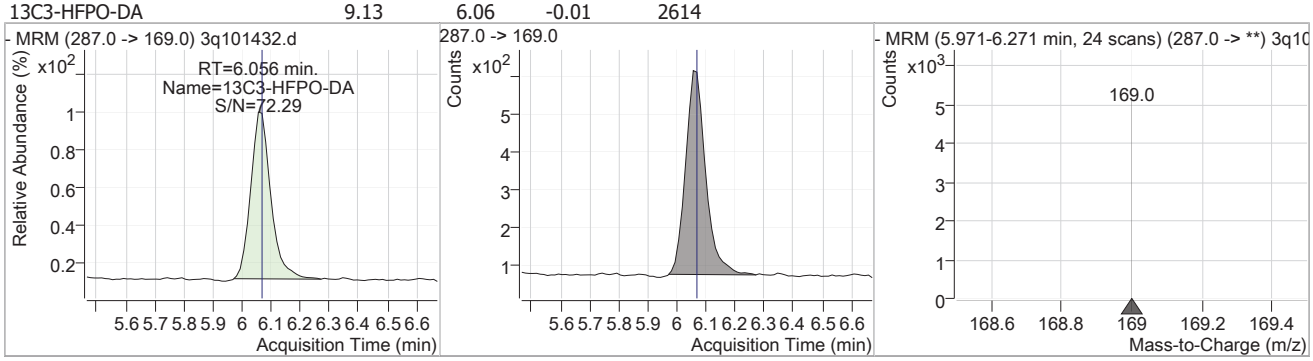


Perfluorinated Compounds by LC/MS/MS

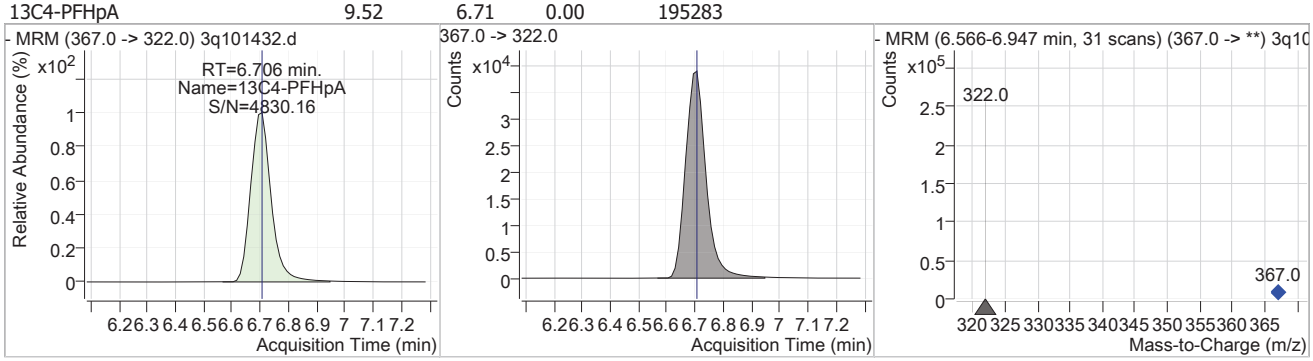
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	2.14	6.06	0.01	149	285.0 -> 169.0	219.9	61.1	183.4



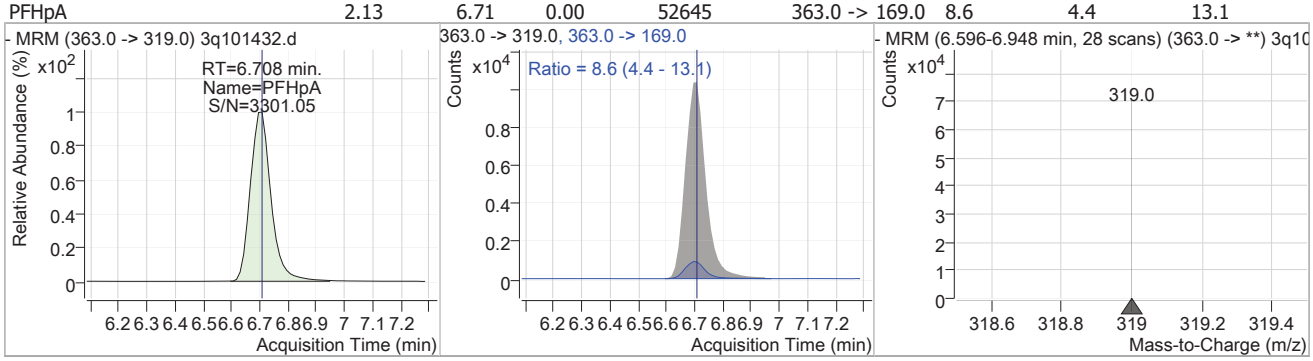
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.13	6.06	-0.01	2614				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	9.52	6.71	0.00	195283				

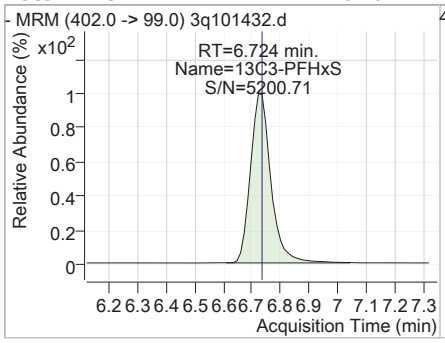


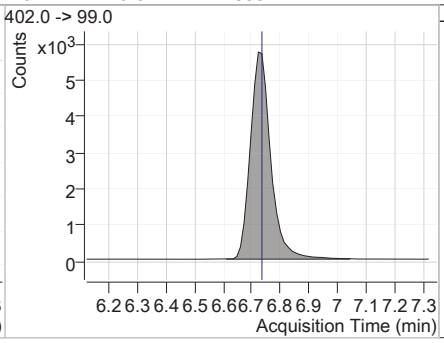
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.13	6.71	0.00	52645	363.0 -> 169.0	8.6	4.4	13.1

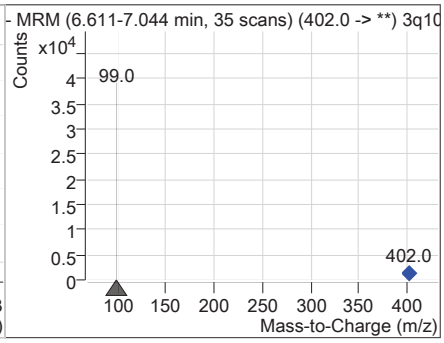


Perfluorinated Compounds by LC/MS/MS

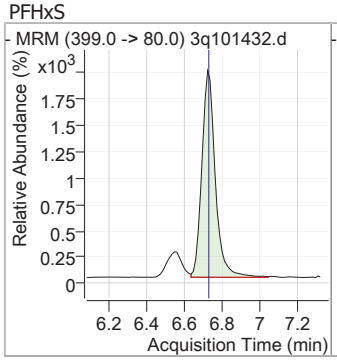
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	9.46	6.72	-0.01	28534				

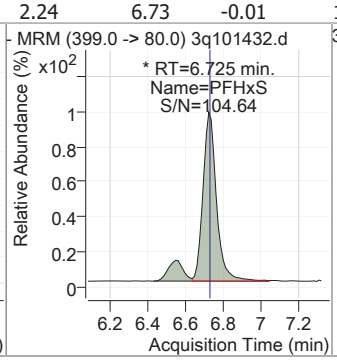


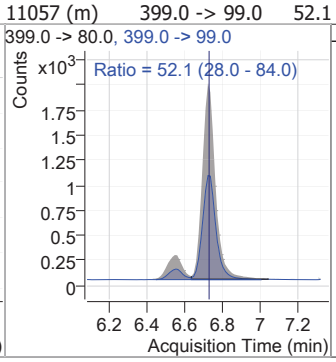


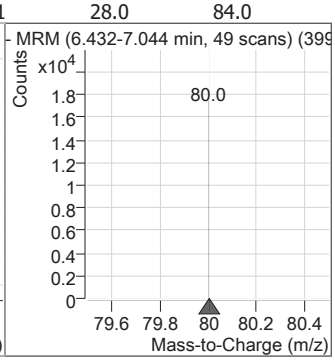


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.24	6.73	-0.01	11057 (m)	399.0 -> 99.0	52.1	28.0	84.0

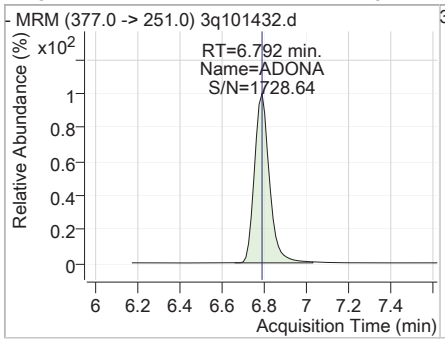


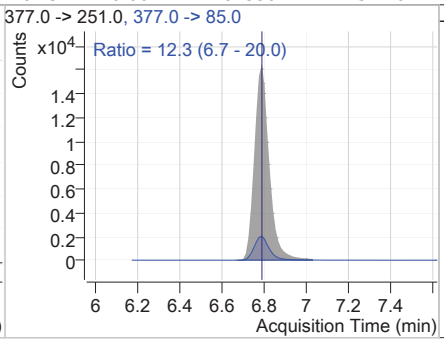


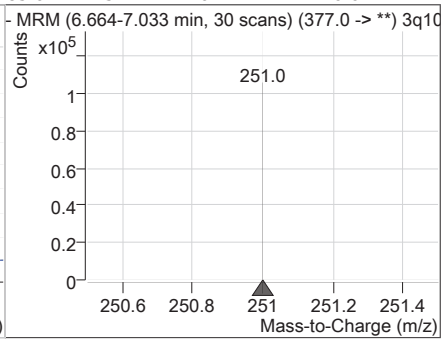




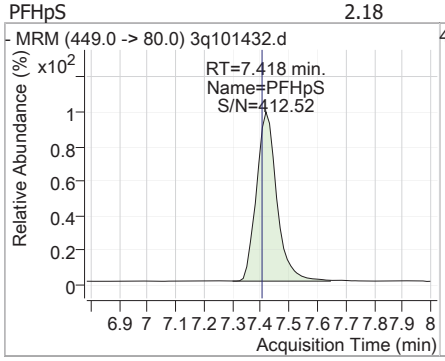
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	2.18	6.79	0.00	81330	377.0 -> 85.0	12.3	6.7	20.0

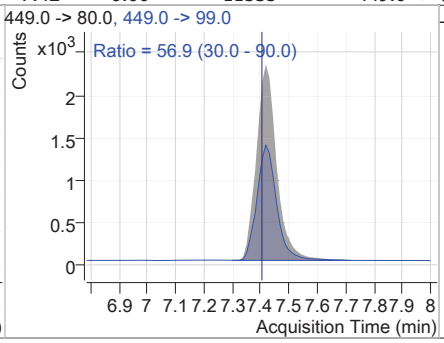


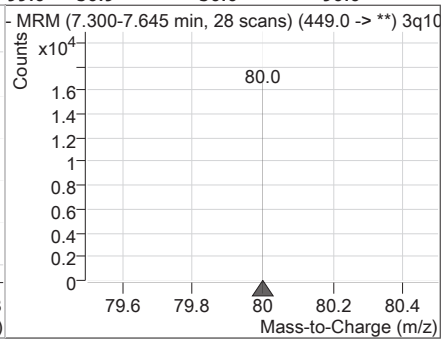




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.18	7.42	0.00	11535	449.0 -> 99.0	56.9	30.0	90.0

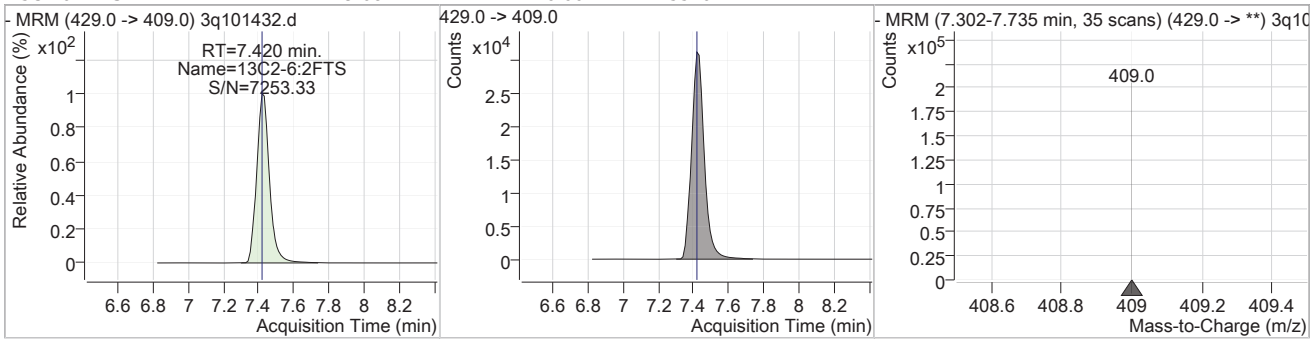




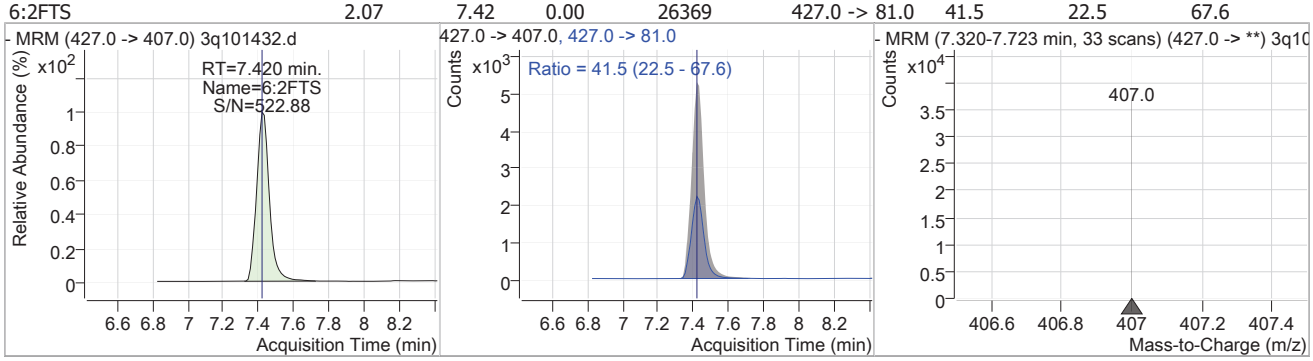


Perfluorinated Compounds by LC/MS/MS

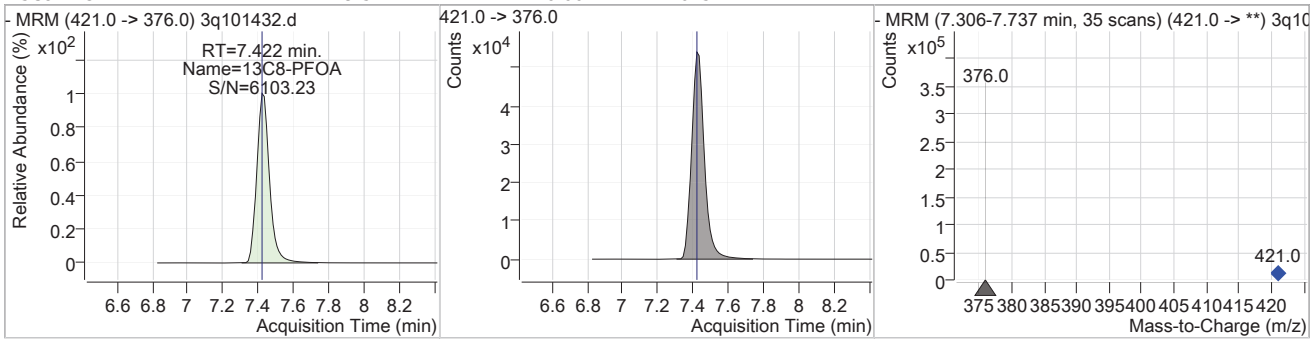
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	9.08	7.42	0.00	155767				



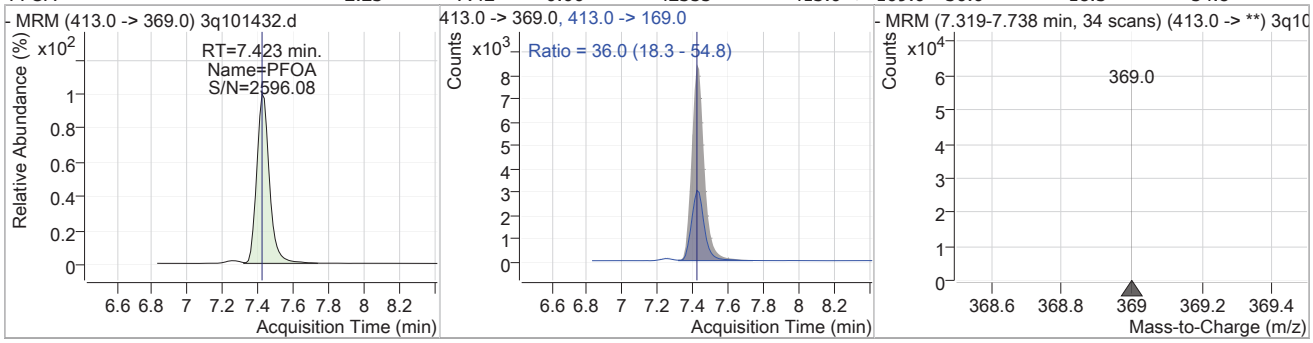
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	2.07	7.42	0.00	26369	427.0 -> 81.0	41.5	22.5	67.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	9.51	7.42	0.00	270154				

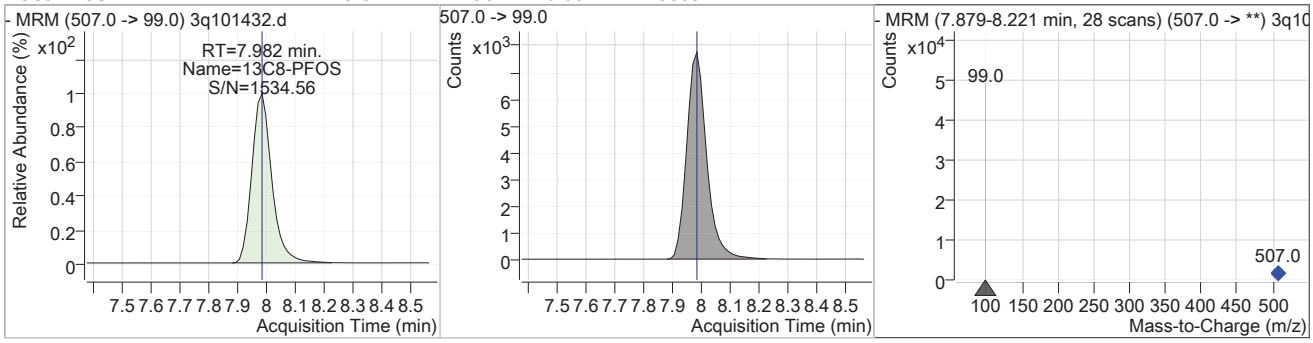


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	2.23	7.42	0.00	42355	413.0 -> 169.0	36.0	18.3	54.8

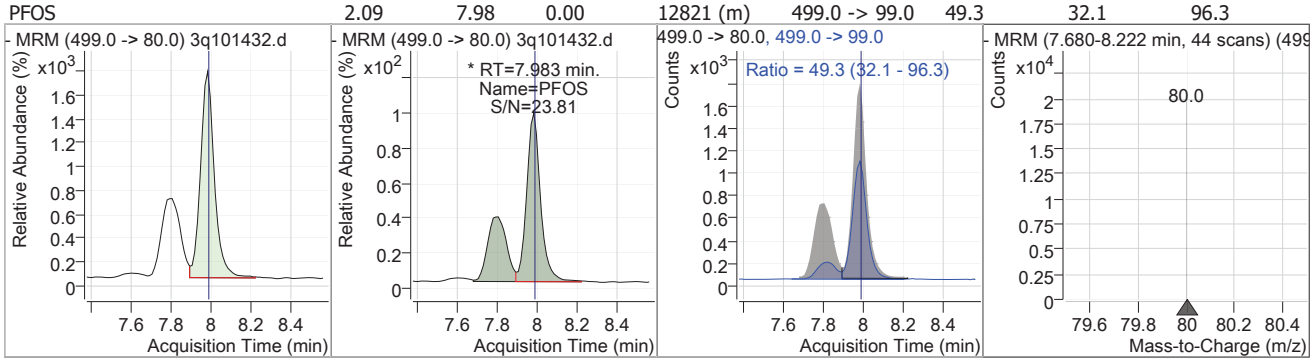


Perfluorinated Compounds by LC/MS/MS

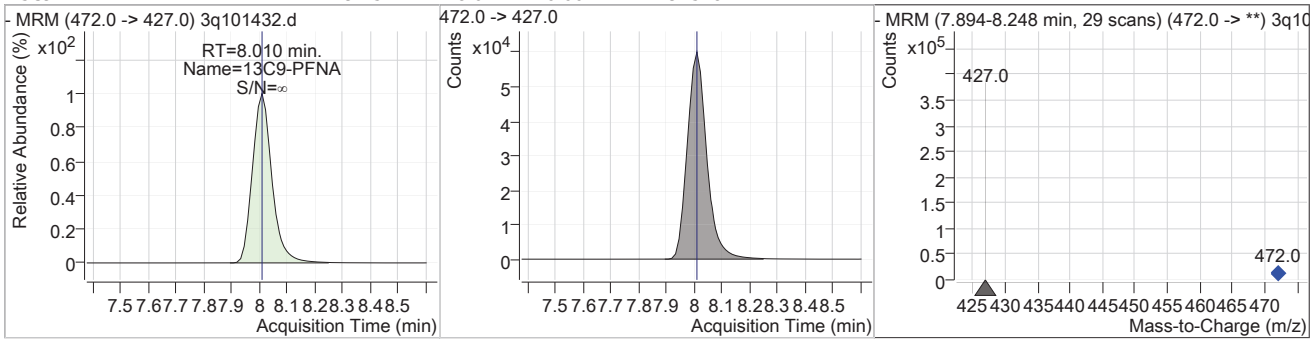
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	9.54	7.98	0.00	36831				



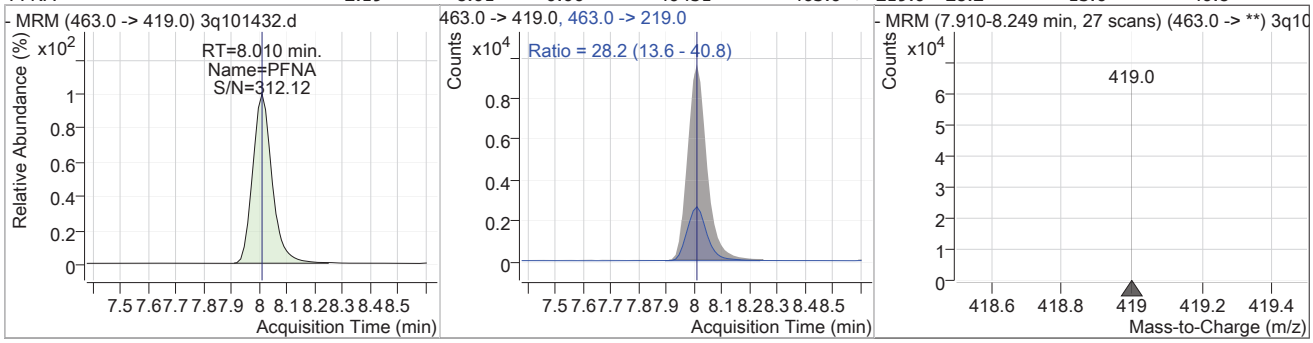
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.09	7.98	0.00	12821 (m)	499.0 -> 99.0	49.3	32.1	96.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	9.43	8.01	0.00	292528				

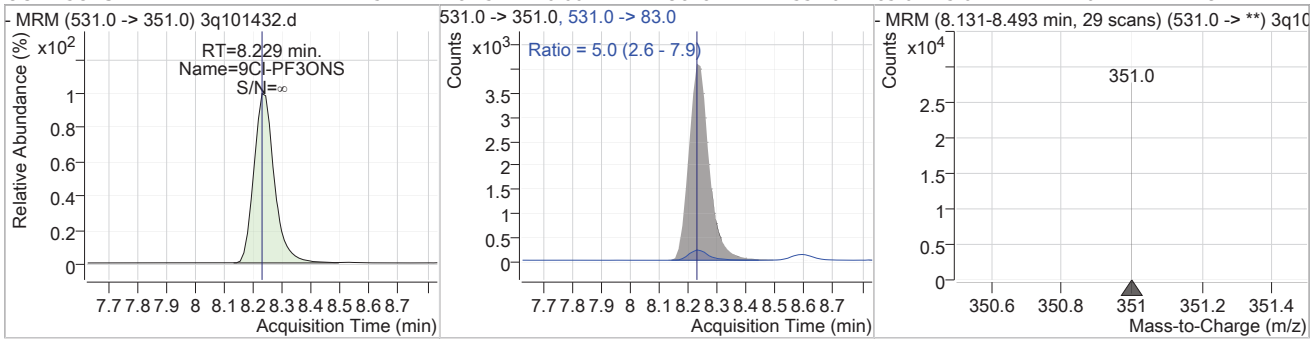


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.19	8.01	0.00	46451	463.0 -> 219.0	28.2	13.6	40.8

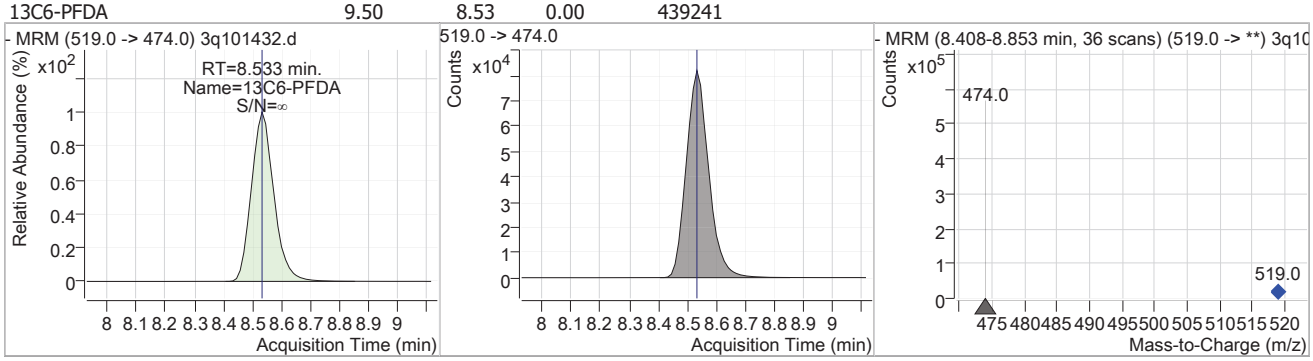


Perfluorinated Compounds by LC/MS/MS

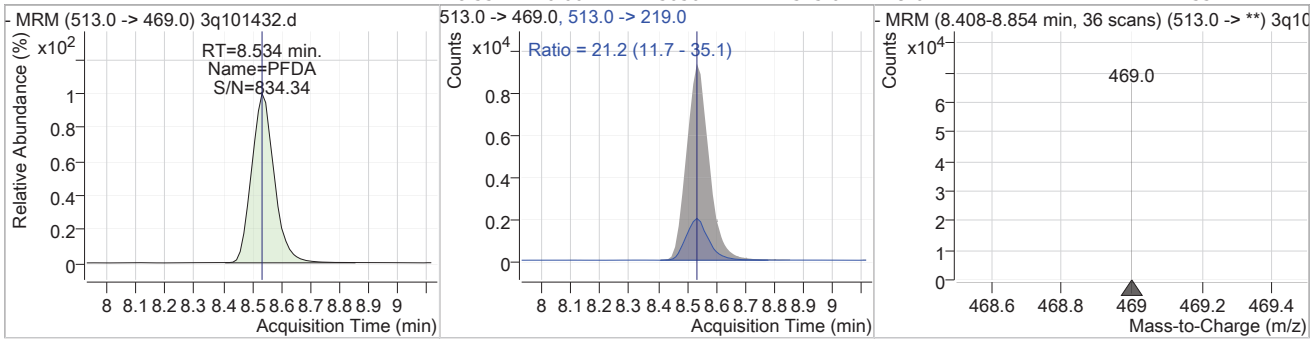
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	2.15	8.23	0.00	19828	531.0 -> 83.0	5.0	2.6	7.9



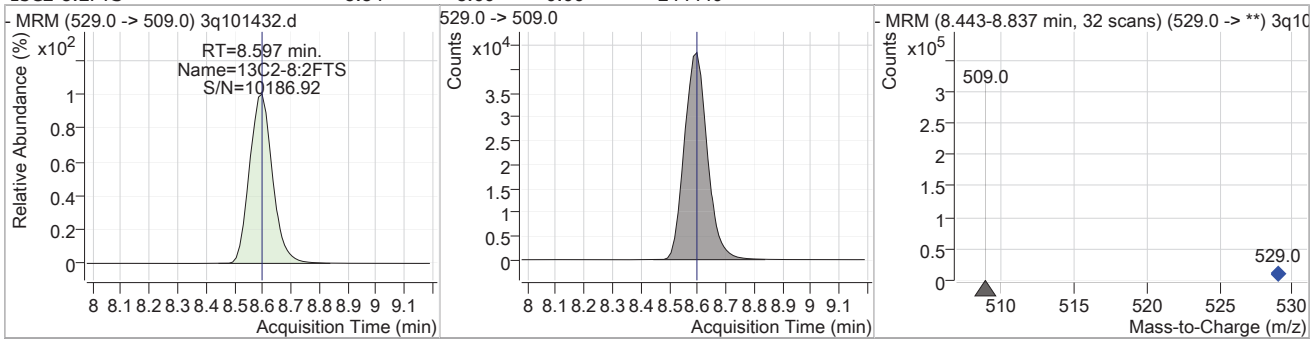
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	9.50	8.53	0.00	439241				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.17	8.53	0.00	50504	513.0 -> 219.0	21.2	11.7	35.1

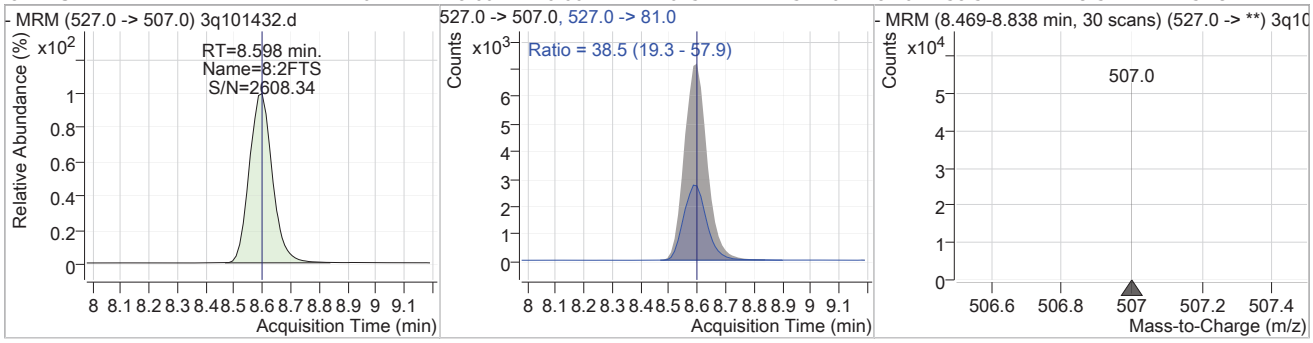


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	8.84	8.60	0.00	244440				

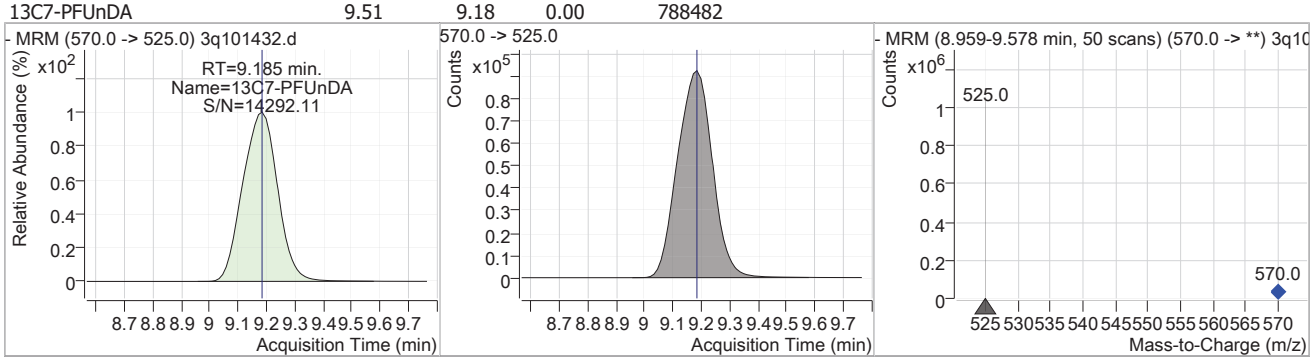


Perfluorinated Compounds by LC/MS/MS

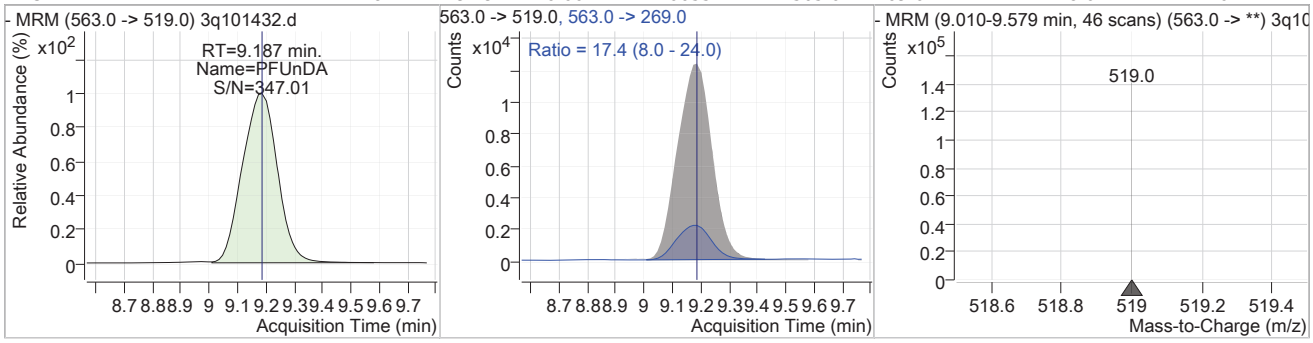
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	2.07	8.60	0.00	40432	527.0 -> 81.0	38.5	19.3	57.9



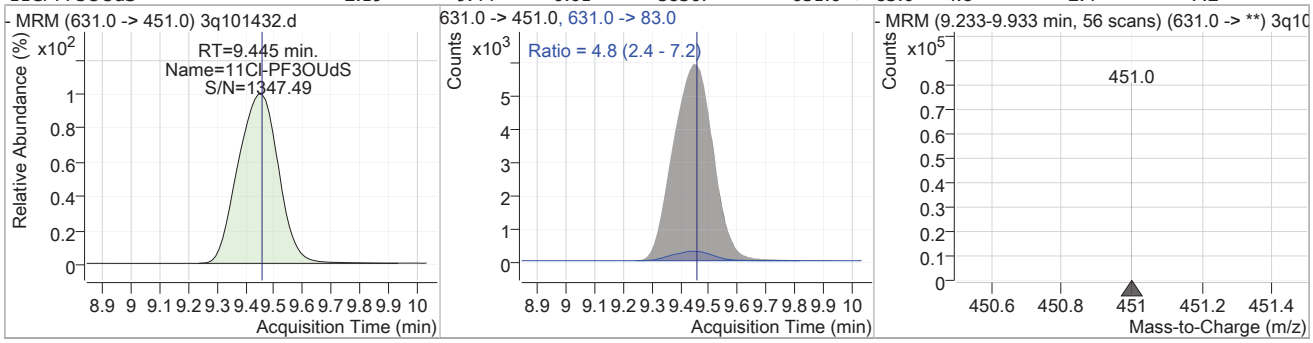
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	9.51	9.18	0.00	788482				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.18	9.19	0.00	106337	563.0 -> 269.0	17.4	8.0	24.0

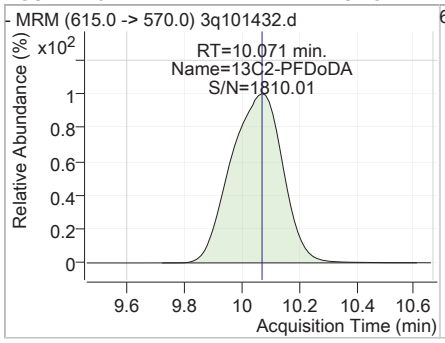


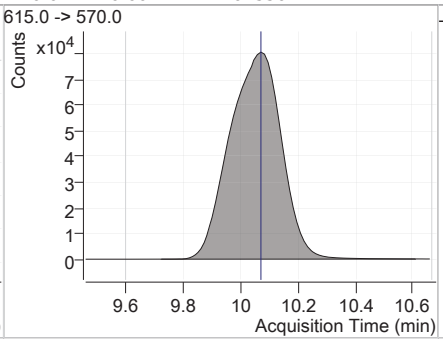
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	2.19	9.44	-0.01	58307	631.0 -> 83.0	4.8	2.4	7.2

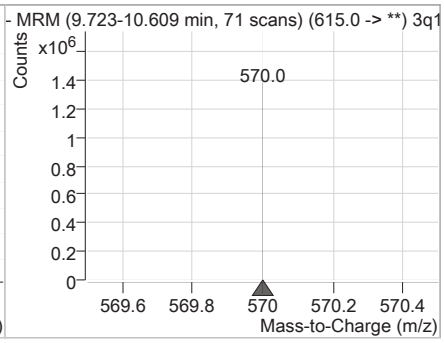


Perfluorinated Compounds by LC/MS/MS

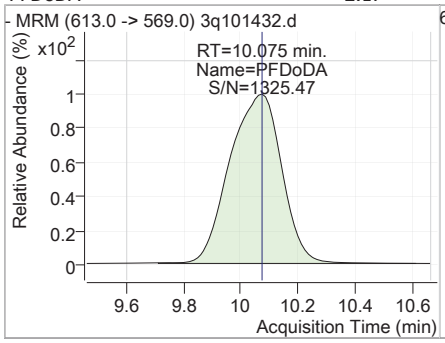
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	9.43	10.07	0.00	1013361				

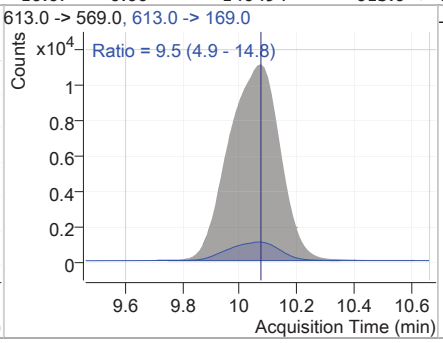


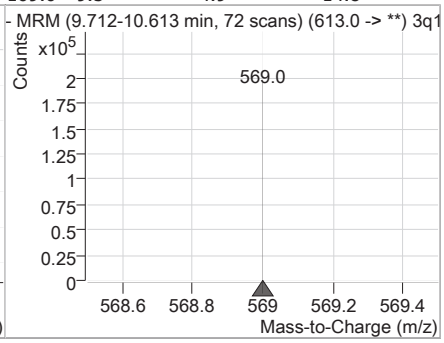




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	2.17	10.07	0.00	140494	613.0 -> 169.0	9.5	4.9	14.8







Manual Integration Approval Summary

Sample Number:	S3Q1491-IC1491	**Method:**	EPA 533
Lab FileID:	3Q101432.D	**Analyst approved:**	04/14/25 11:45 (b) (6)
Injection Time:	04/11/25 16:14	**Supervisor approved:**	04/14/25 12:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.72	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/14/25 12:44

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101433.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/11/2025 4:30:57 PM
Sample Name : ic1491-5
Vial : P1-C5
DA Method File : 533_041125_S3Q1491.quantmethod.xml
Batch Name : s3q1491.batch.bin
Sample Information : op8141,S3Q1491,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	248973	10.00 µg/L	0.000
13C3-PFBA	2.319	216.0 -> 172.0	81875	10.00 µg/L	-0.013
13C4-PFOS	7.983	503.0 -> 80.0	35049	10.00 µg/L	0.000
M4-PFBA	2.327	217.0 -> 172.0	132262	10.00 µg/L	-0.013
M5-PFPeA	4.400	268.0 -> 223.0	163452	10.00 µg/L	-0.013
M5-PFHxA	5.763	318.0 -> 273.0	221789	10.00 µg/L	-0.013
M4-PFHpA	6.694	367.0 -> 322.0	194679	10.00 µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	270796	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	294205	10.00 µg/L	0.000
M6-PFDA	8.533	519.0 -> 474.0	445547	10.00 µg/L	0.000
M7-PFUnDA	9.172	570.0 -> 525.0	783974	10.00 µg/L	-0.013
M2-PFDoDA	10.038	615.0 -> 570.0	1008124	10.00 µg/L	-0.033
M3-PFBS	4.696	302.0 -> 99.0	20072	10.00 µg/L	-0.013
M3-PFHxS	6.724	402.0 -> 99.0	28945	10.00 µg/L	-0.013
M8-PFOS	7.982	507.0 -> 99.0	36924	10.00 µg/L	0.000
M2-4:2FTS	5.659	329.0 -> 309.0	80612	10.00 µg/L	-0.013
M2-6:2FTS	7.420	429.0 -> 409.0	157221	10.00 µg/L	0.000
M2-8:2FTS	8.585	529.0 -> 509.0	253760	10.00 µg/L	-0.013
M3-HFPO-DA	6.056	287.0 -> 169.0	2457	10.00 µg/L	-0.013
System Monitoring Compounds					
13C2-4:2FTS	5.659	329.0 -> 309.0	80612	8.97 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.7%	
13C2-6:2FTS	7.420	429.0 -> 409.0	157221	9.03 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.3%	
13C2-8:2FTS	8.585	529.0 -> 509.0	253760	9.05 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.5%	
13C2-PFDoDA	10.038	615.0 -> 570.0	1008124	9.25 µg/L	-0.033
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.5%	
13C3-PFBS	4.696	302.0 -> 99.0	20072	9.45 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.5%	
13C3-PFHxS	6.724	402.0 -> 99.0	28945	9.45 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.5%	
13C4-PFBA	2.327	217.0 -> 172.0	132262	9.45 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.5%	
13C4-PFHpA	6.694	367.0 -> 322.0	194679	9.36 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.6%	
13C5-PFHxA	5.763	318.0 -> 273.0	221789	9.30 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.0%	
13C5-PFPeA	4.400	268.0 -> 223.0	163452	9.51 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C6-PFDA	8.533	519.0 -> 474.0	445547	9.50 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C7-PFUnDA	9.172	570.0 -> 525.0	783974	9.32 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.2%	
13C8-PFOA	7.422	421.0 -> 376.0	270796	9.40 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

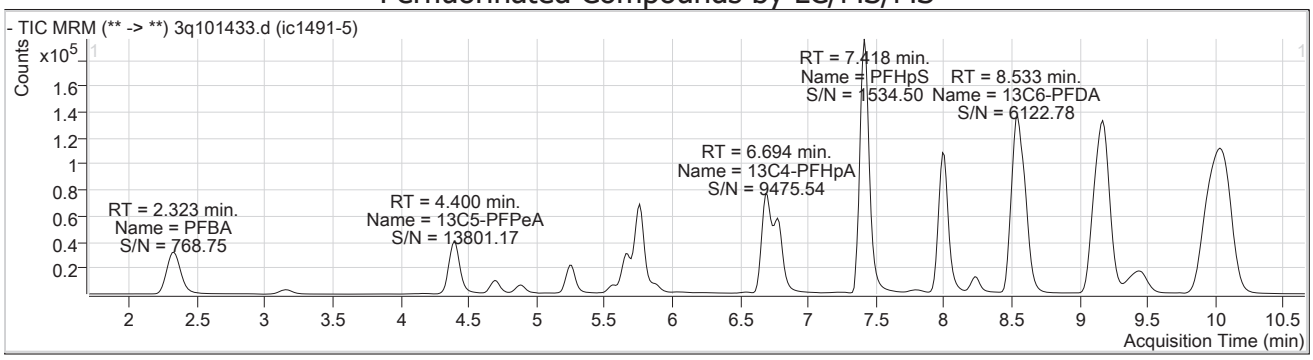
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.0%		
13C8-PFOS	7.982	507.0 -> 99.0	36924	9.43 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.3%		
13C9-PFNA	8.010	472.0 -> 427.0	294205	9.35 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.5%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	2457	8.46 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 84.6%		
Target Compounds						QValue
PFMPA	3.153	229.0 -> 85.0	23384	5.65 µg/L		100
4:2FTS	5.661	327.0 -> 307.0	50984	5.48 µg/L		88
		327.0 -> 81.0	21304			
6:2FTS	7.420	427.0 -> 407.0	70397	5.42 µg/L		94
		427.0 -> 81.0	28729			
8:2FTS	8.586	527.0 -> 507.0	110272	5.37 µg/L		98
		527.0 -> 81.0	40909			
PFMBA	4.888	279.0 -> 85.0	33700	5.64 µg/L		100
PFEESA	5.247	315.0 -> 135.0	101926	5.64 µg/L		98
		315.0 -> 69.0	7775			
NFDHA	5.569	201.0 -> 85.0	29556	5.75 µg/L		96
		295.0 -> 201.0	1890			
PFBA	2.323	213.0 -> 169.0	20547	5.67 µg/L		100
PFBS	4.697	299.0 -> 80.0	22135	5.64 µg/L		92
		299.0 -> 99.0	9606			
PFDA	8.534	513.0 -> 469.0	138187	5.61 µg/L		96
		513.0 -> 219.0	29352			
PFDoDA	10.041	613.0 -> 569.0	374790	5.59 µg/L		99
		613.0 -> 169.0	35435			
PFHpA	6.695	363.0 -> 319.0	142977	5.58 µg/L		99
		363.0 -> 169.0	12028			
PFHpS	7.418	449.0 -> 80.0	30581	5.48 µg/L		93
		449.0 -> 99.0	16810			
PFHxA	5.765	313.0 -> 269.0	109448	5.64 µg/L		98
		313.0 -> 119.0	3902			
PFHxS	6.725	399.0 -> 80.0	28797	5.53 µg/L	m	96
		399.0 -> 99.0	15272			
PFNA	8.010	463.0 -> 419.0	124763	5.61 µg/L		98
		463.0 -> 219.0	35343			
PFOA	7.423	413.0 -> 369.0	109639	5.55 µg/L		99
		413.0 -> 169.0	39546			
PFOS	7.983	499.0 -> 80.0	33692	5.33 µg/L	m	83
		499.0 -> 99.0	17065			
PFPeA	4.402	263.0 -> 219.0	68579	5.66 µg/L		100
PFPeS	5.871	349.0 -> 80.0	16236	5.53 µg/L		94
		349.0 -> 99.0	6879			
PFUnDA	9.174	563.0 -> 519.0	283617	5.60 µg/L		97
		563.0 -> 269.0	48827			
11Cl-PF3OUdS	9.432	631.0 -> 451.0	156740	5.61 µg/L		100
		631.0 -> 83.0	7525			
9Cl-PF3ONS	8.229	531.0 -> 351.0	54203	5.63 µg/L		99
		531.0 -> 83.0	2699			
ADONA	6.792	377.0 -> 251.0	219607	5.65 µg/L		97
		377.0 -> 85.0	26710			
HFPO-DA	6.048	329.0 -> 169.0	354	5.35 µg/L	#	27
		285.0 -> 169.0	722			

 # = Qualifier out of range, m = manually integrated, + = Area summed

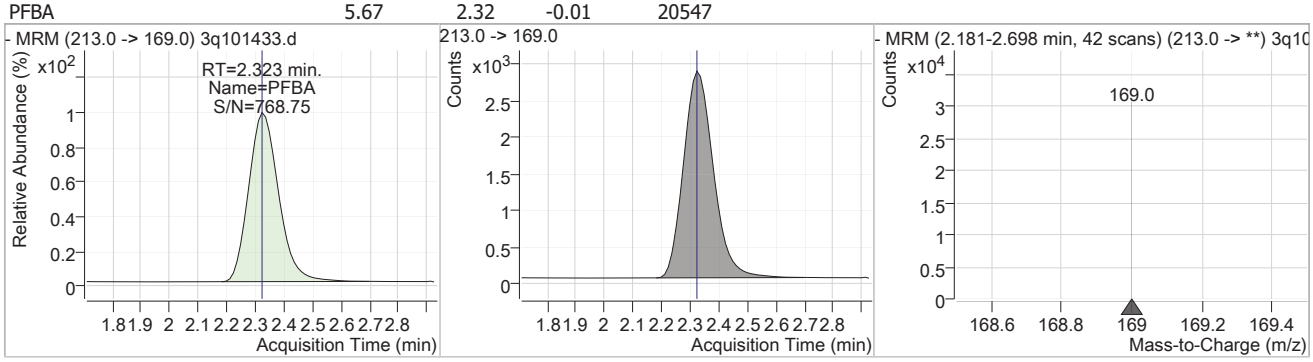
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

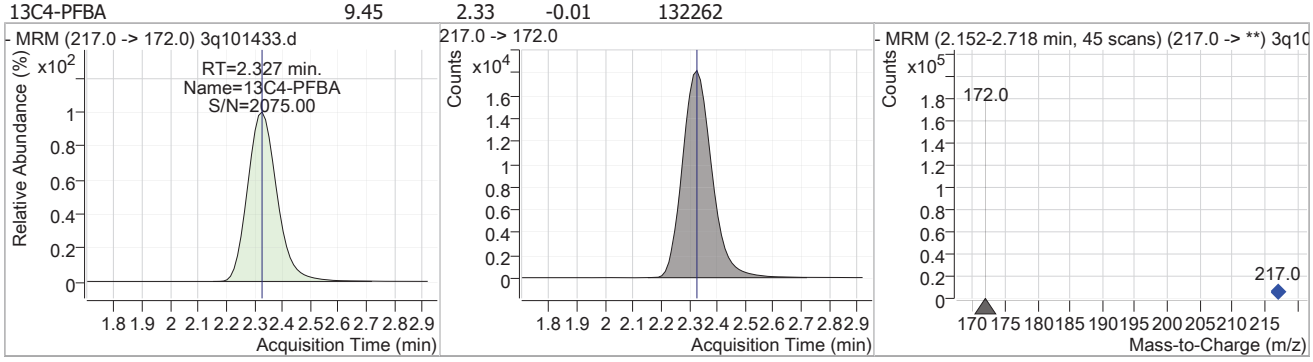
Perfluorinated Compounds by LC/MS/MS



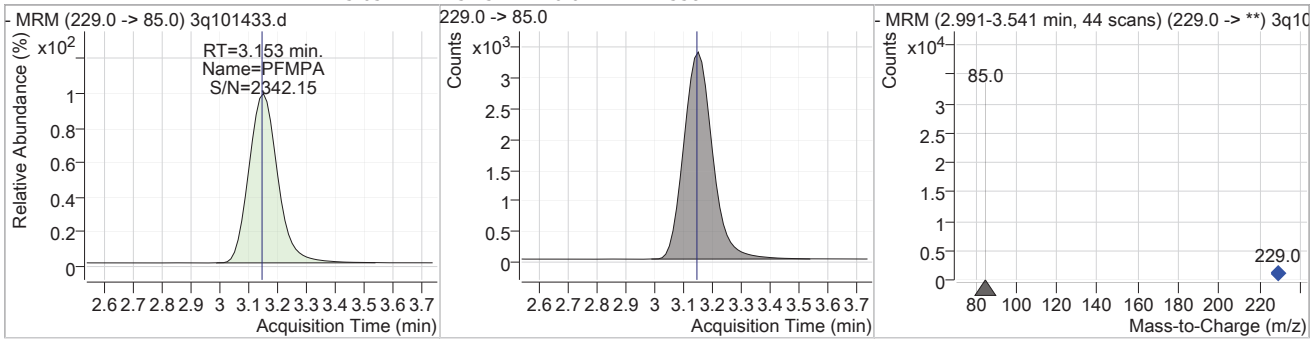
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	5.67	2.32	-0.01	20547				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	9.45	2.33	-0.01	132262				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	5.65	3.15	-0.01	23384				

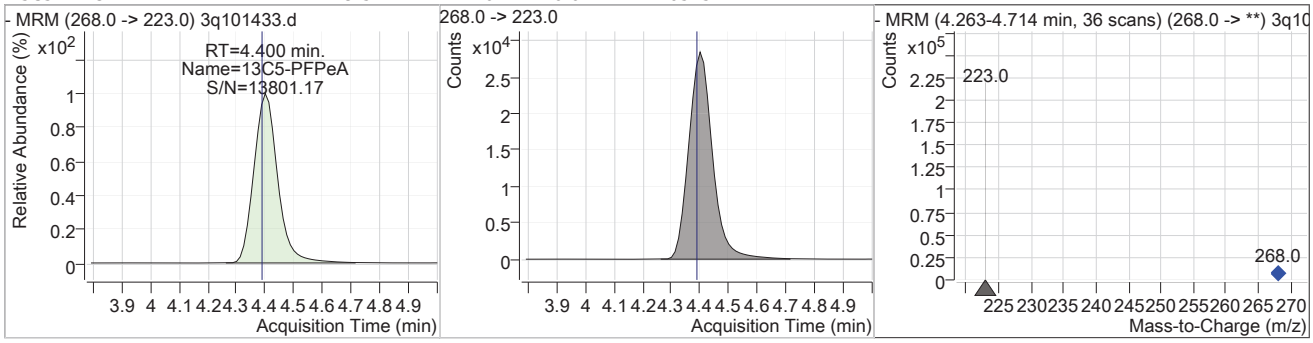


7.7.5

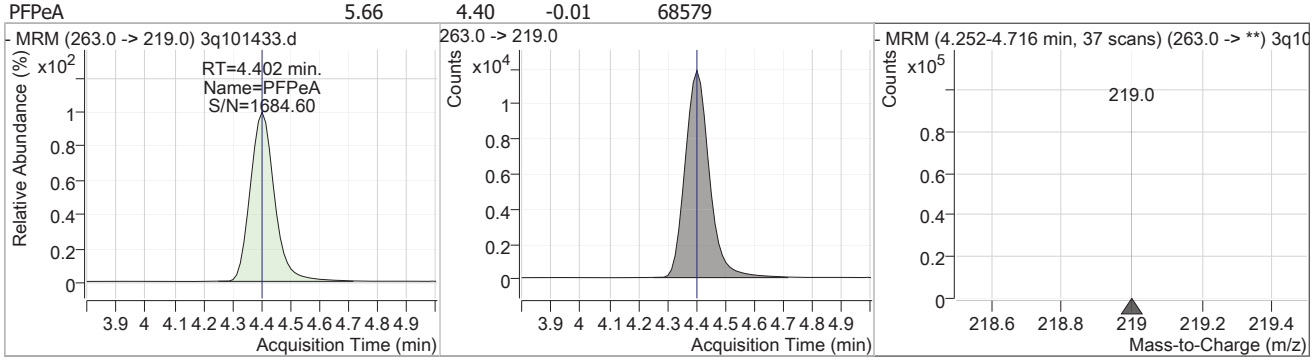
7

Perfluorinated Compounds by LC/MS/MS

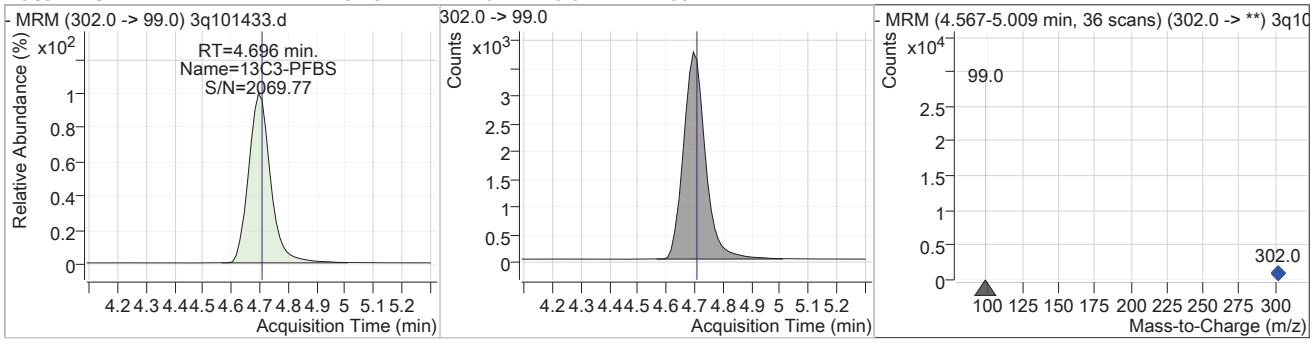
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	9.51	4.40	-0.01	163452				



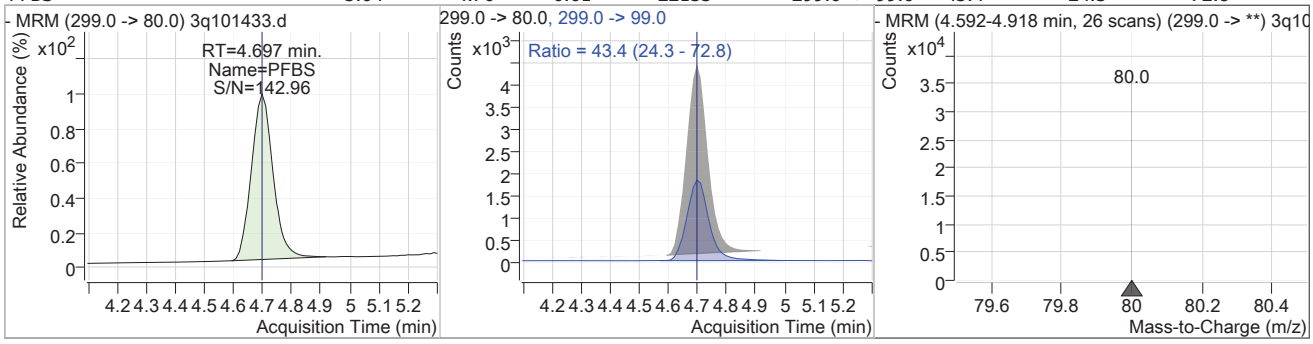
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	5.66	4.40	-0.01	68579				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	9.45	4.70	-0.01	20072				

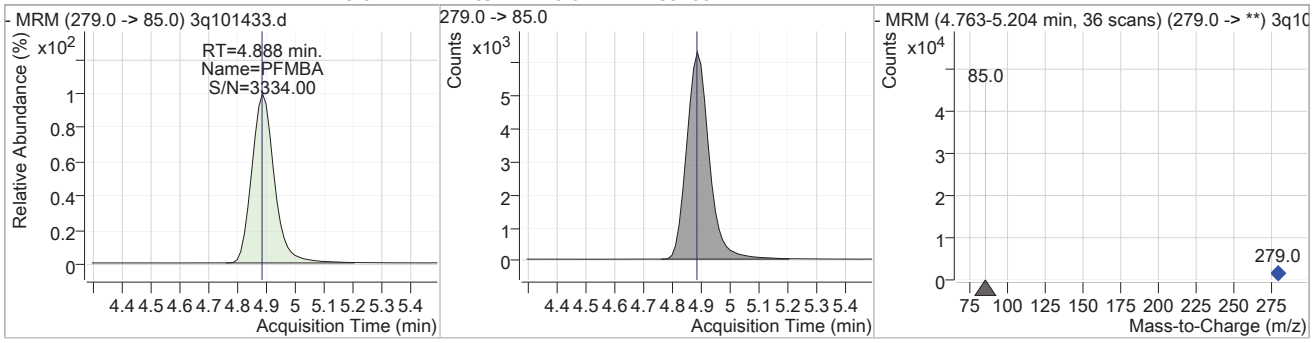


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	5.64	4.70	-0.01	22135	299.0 -> 99.0	43.4	24.3	72.8

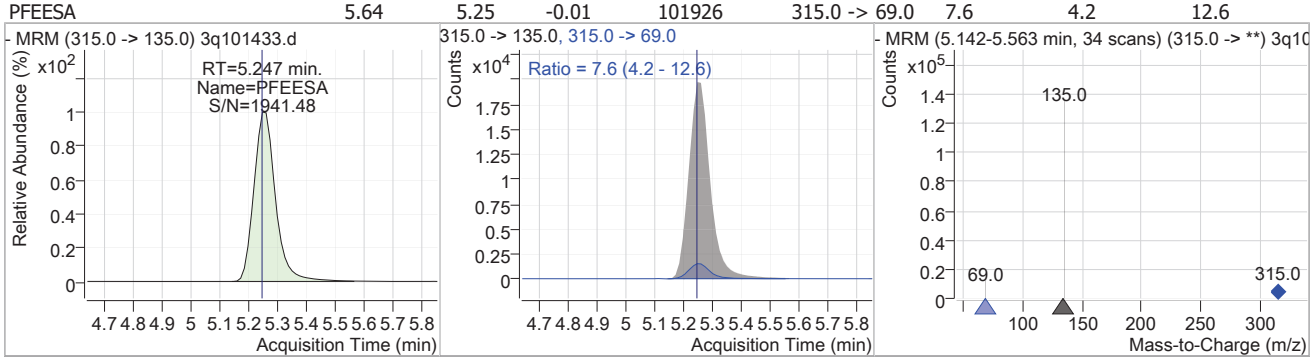


Perfluorinated Compounds by LC/MS/MS

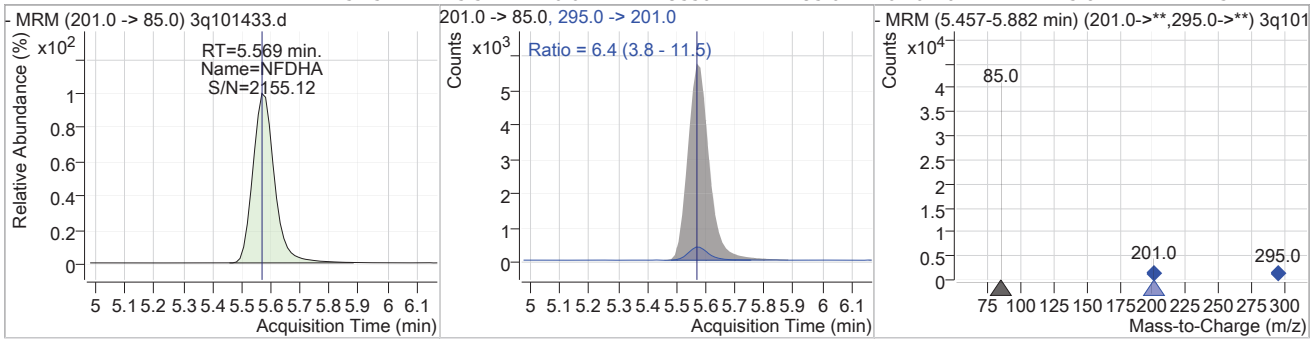
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	5.64	4.89	-0.01	33700				



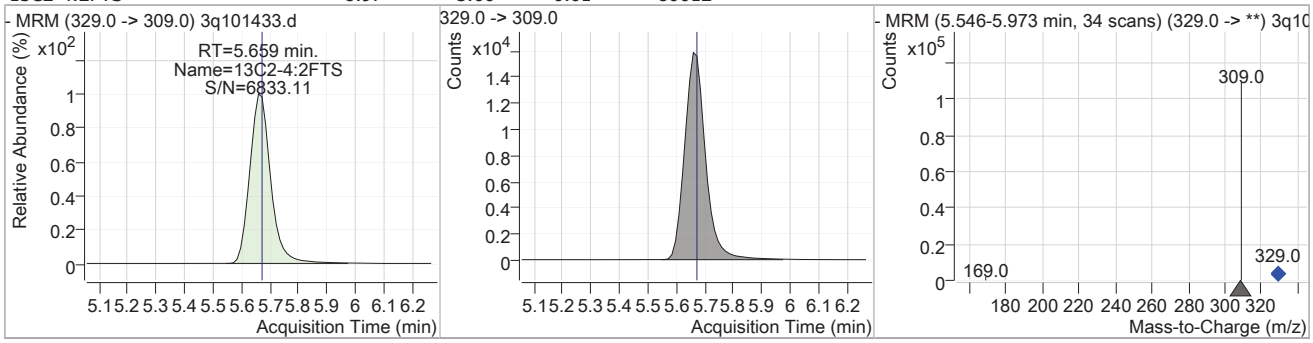
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	5.64	5.25	-0.01	101926	315.0 -> 69.0	7.6	4.2	12.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	5.75	5.57	-0.01	29556	295.0 -> 201.0	6.4	3.8	11.5

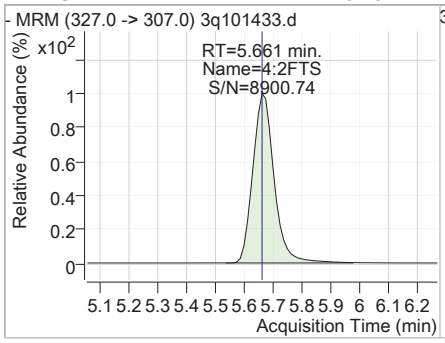


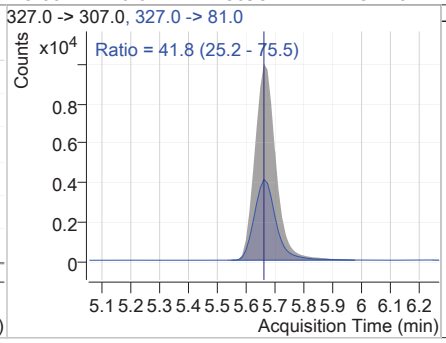
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	8.97	5.66	-0.01	80612				

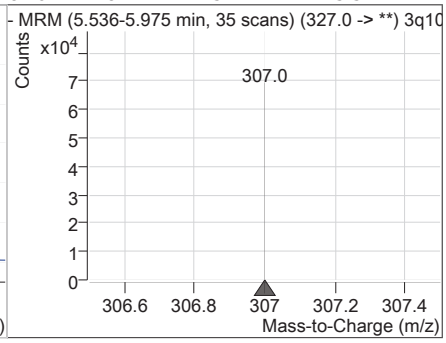


Perfluorinated Compounds by LC/MS/MS

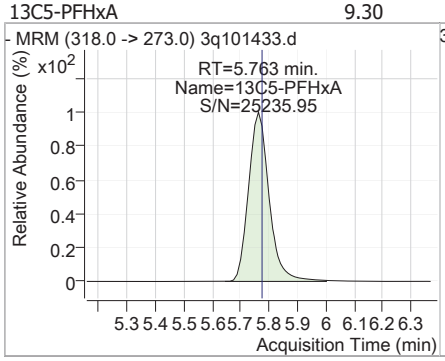
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	5.48	5.66	-0.01	50984	327.0 -> 81.0	41.8	25.2	75.5

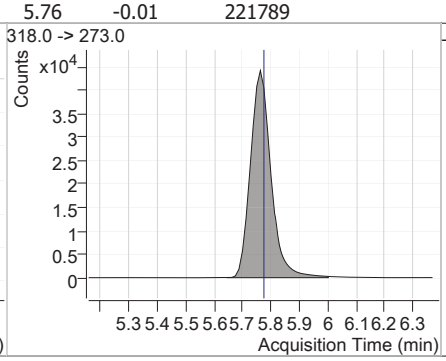


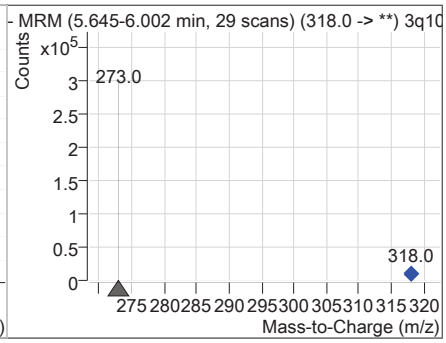




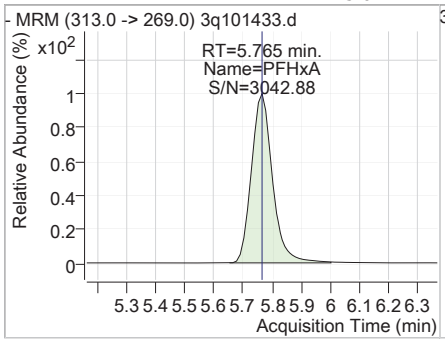
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	9.30	5.76	-0.01	221789				

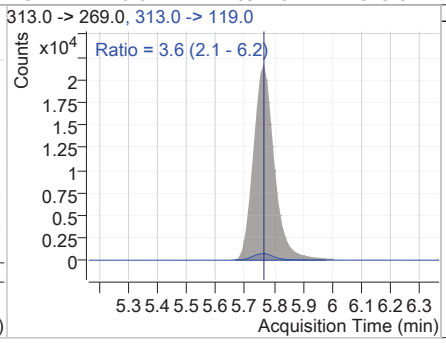


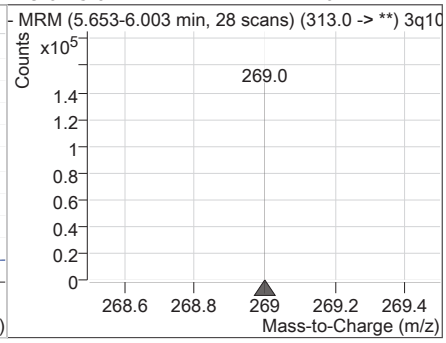




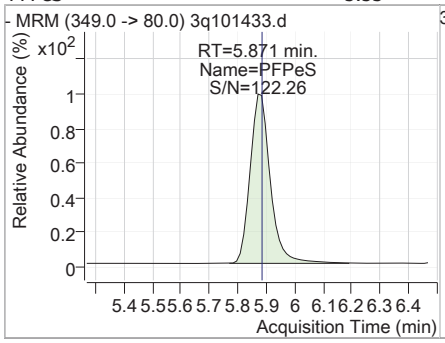
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	5.64	5.77	-0.01	109448	313.0 -> 119.0	3.6	2.1	6.2

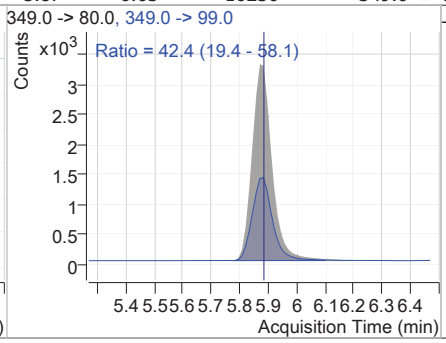


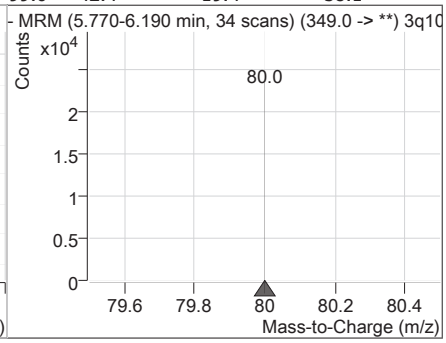




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	5.53	5.87	-0.03	16236	349.0 -> 99.0	42.4	19.4	58.1

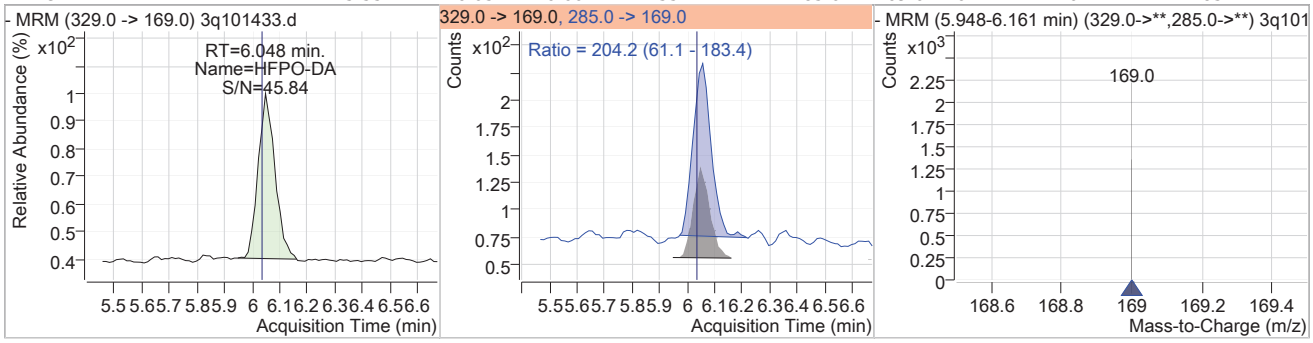




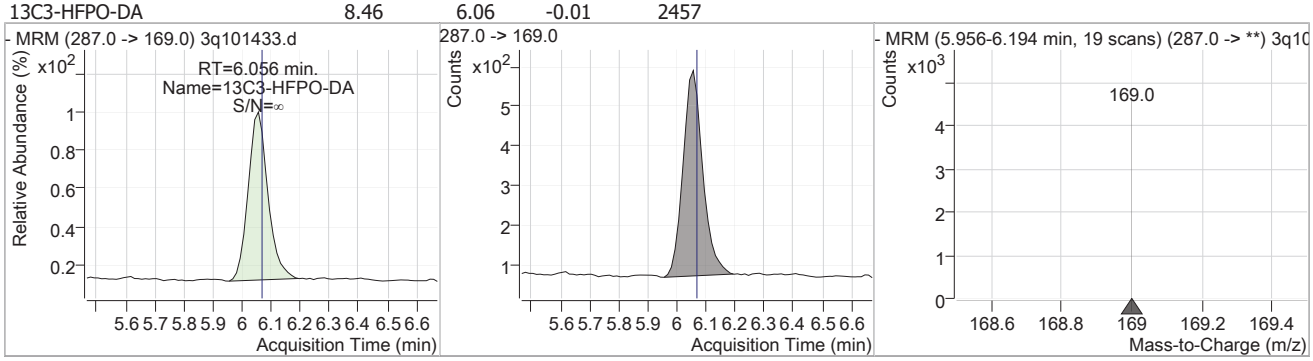


Perfluorinated Compounds by LC/MS/MS

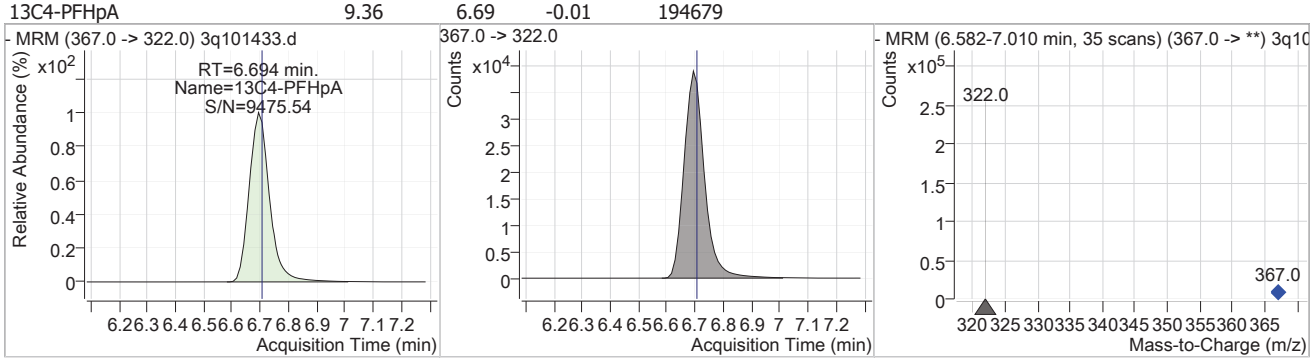
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.35	6.05	0.00	354	285.0 -> 169.0	204.2	61.1	183.4



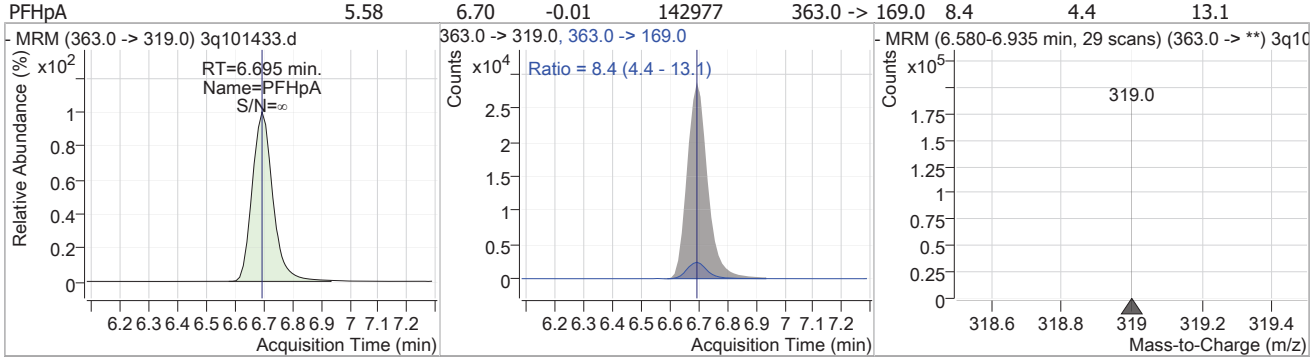
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.46	6.06	-0.01	2457				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	9.36	6.69	-0.01	194679				

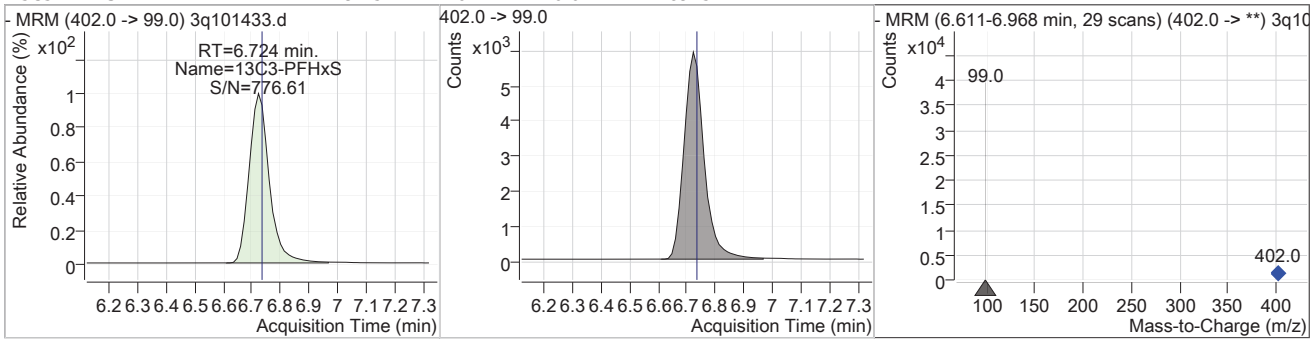


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	5.58	6.70	-0.01	142977	363.0 -> 169.0	8.4	4.4	13.1

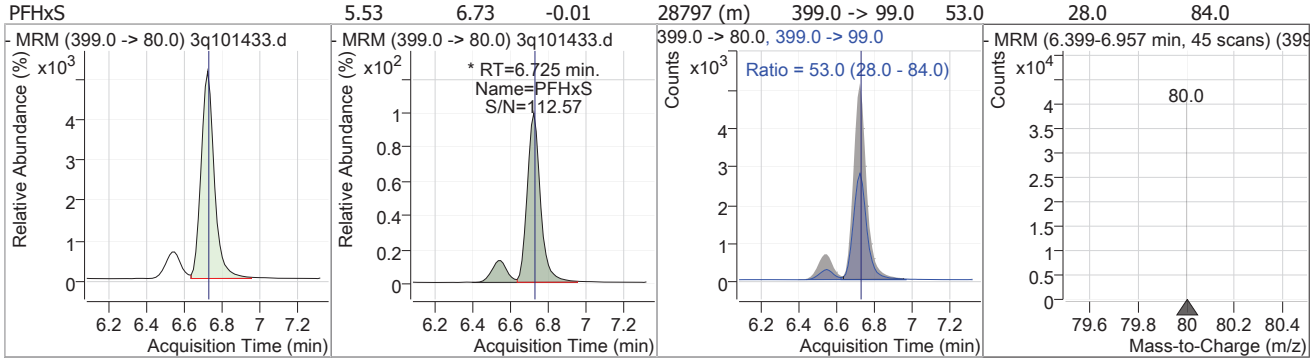


Perfluorinated Compounds by LC/MS/MS

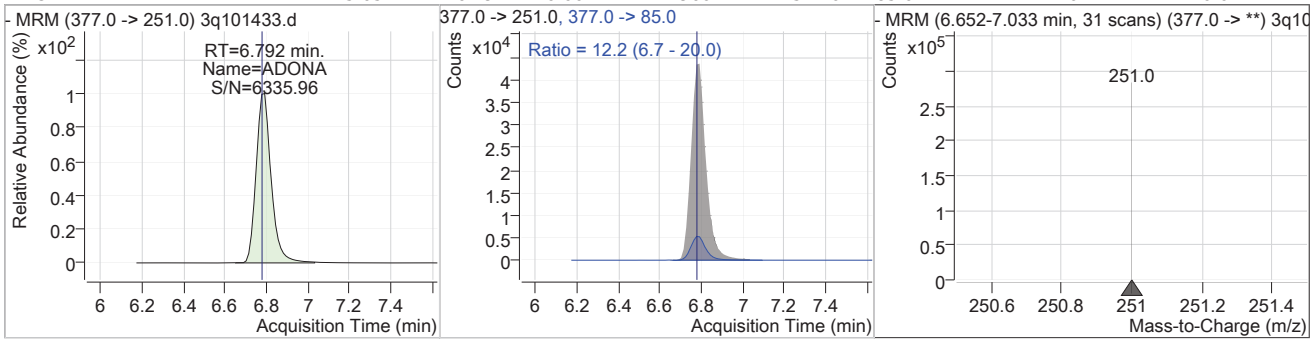
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	9.45	6.72	-0.01	28945				



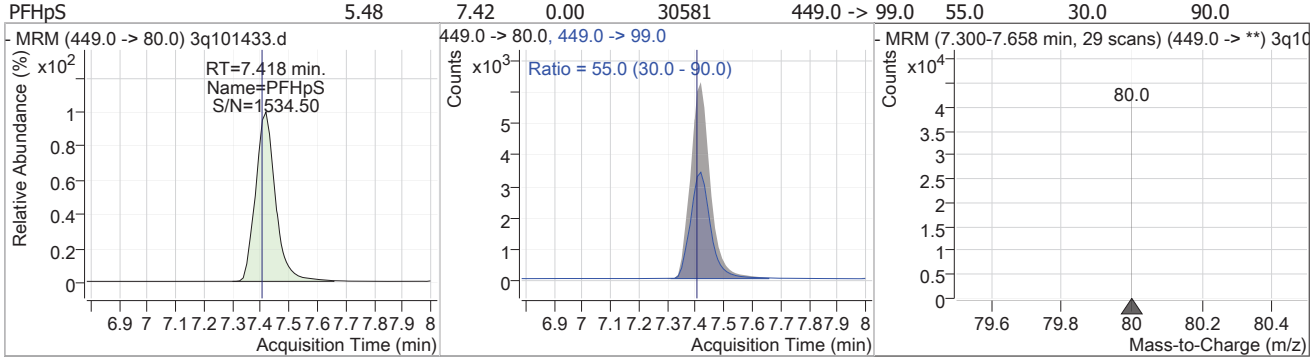
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	5.53	6.73	-0.01	28797 (m)	399.0 -> 99.0	53.0	28.0	84.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	5.65	6.79	0.00	219607	377.0 -> 85.0	12.2	6.7	20.0

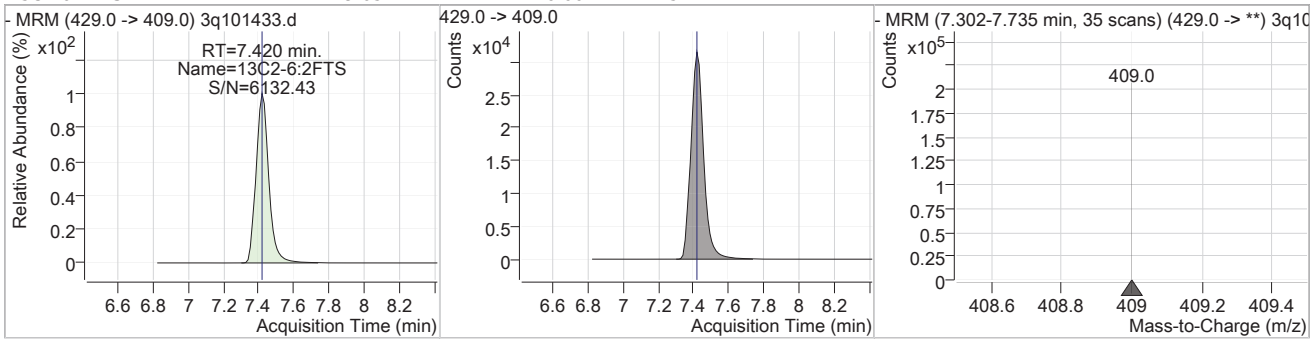


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	5.48	7.42	0.00	30581	449.0 -> 99.0	55.0	30.0	90.0

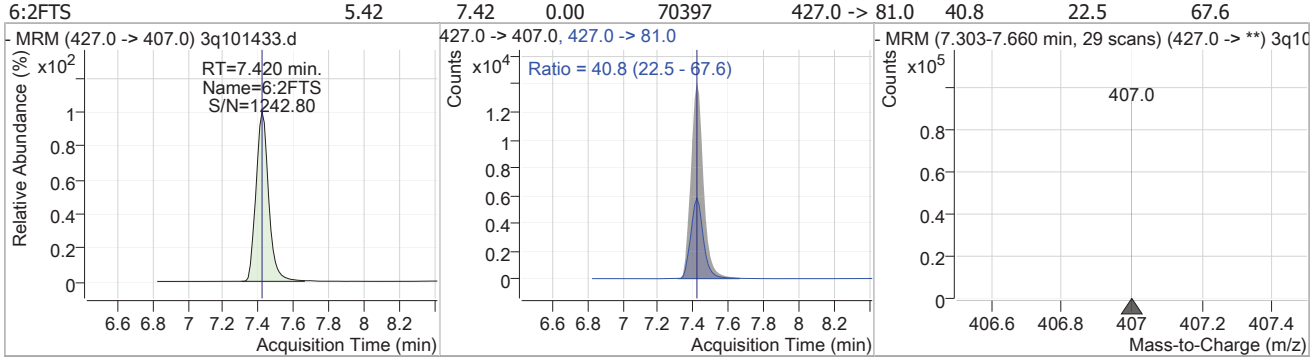


Perfluorinated Compounds by LC/MS/MS

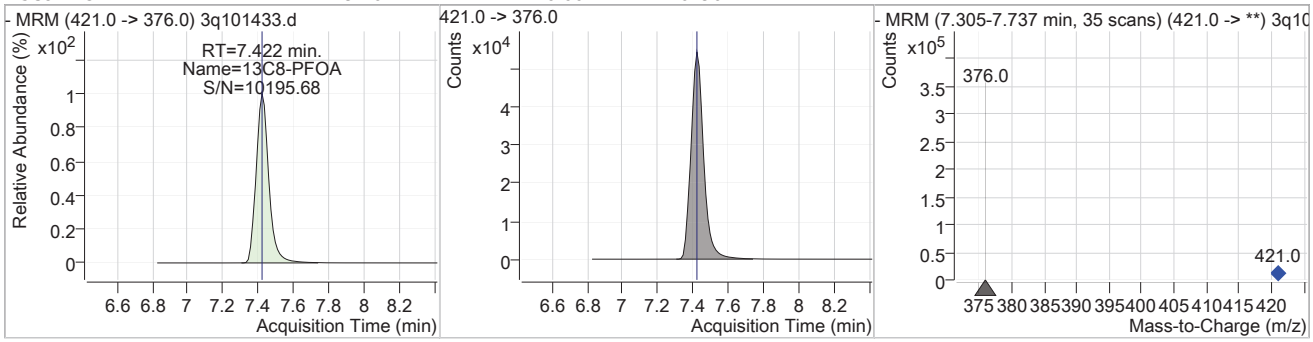
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	9.03	7.42	0.00	157221				



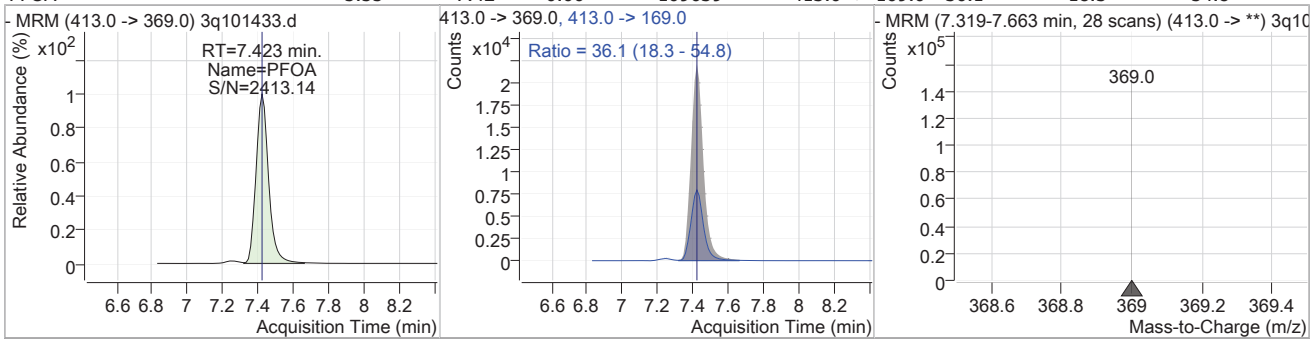
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	5.42	7.42	0.00	70397	427.0 -> 81.0	40.8	22.5	67.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	9.40	7.42	0.00	270796				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	5.55	7.42	0.00	109639	413.0 -> 169.0	36.1	18.3	54.8

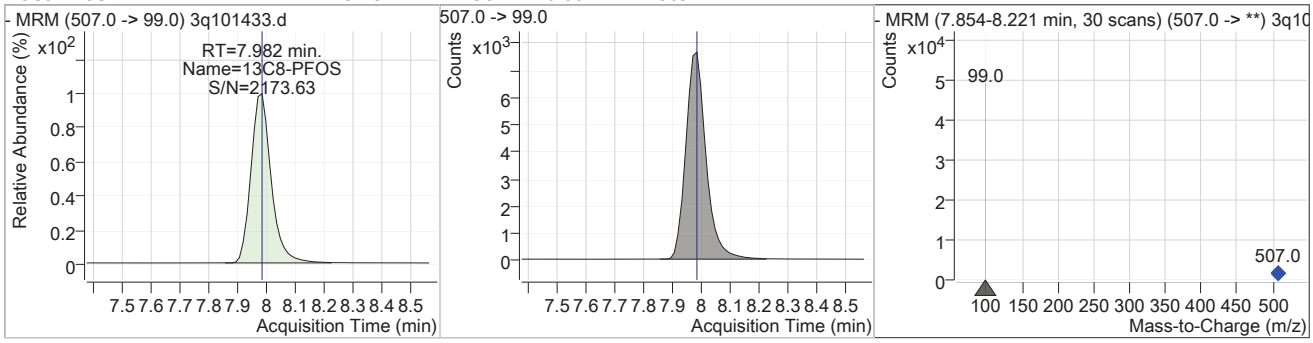


7.7.5

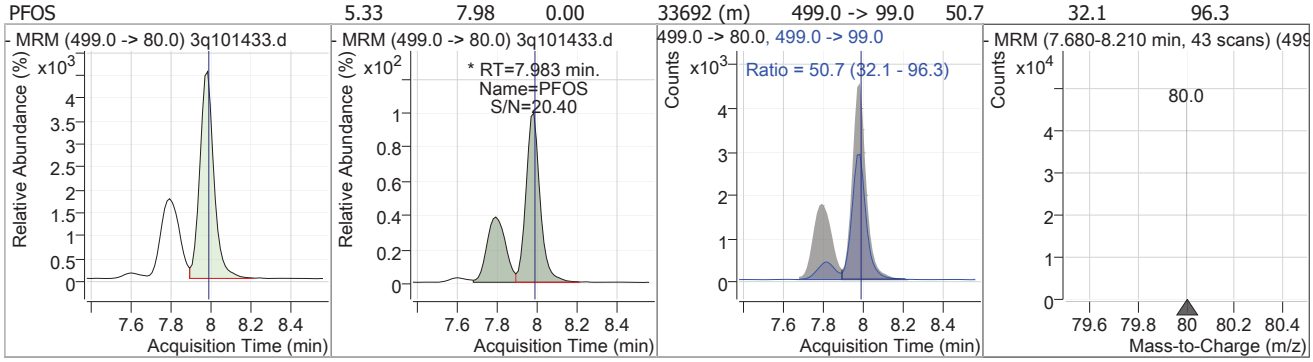
7

Perfluorinated Compounds by LC/MS/MS

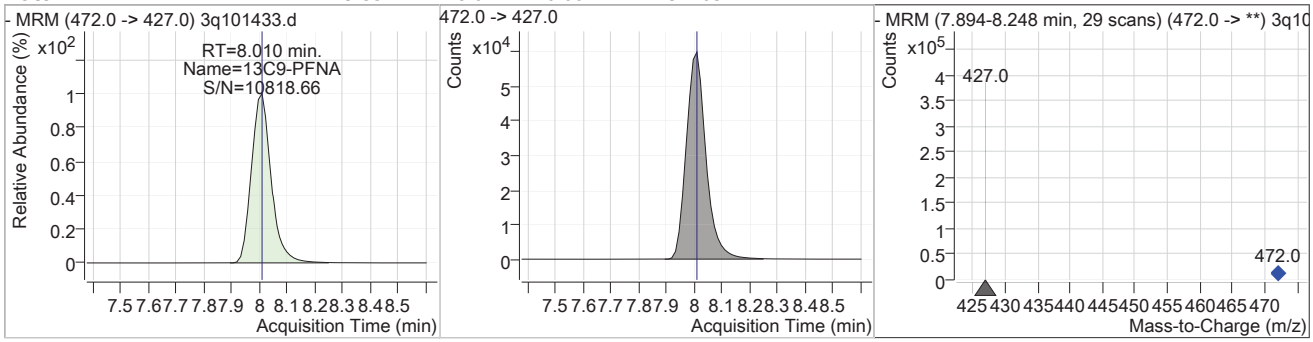
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	9.43	7.98	0.00	36924				



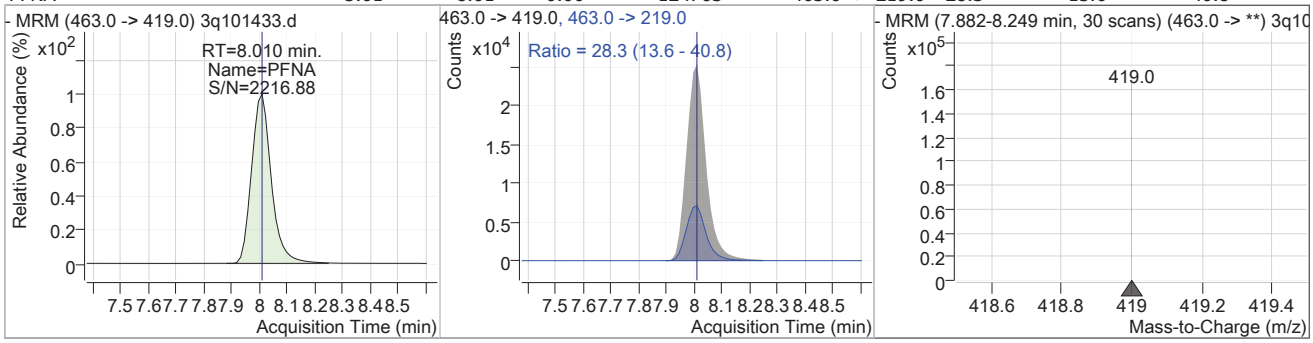
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	5.33	7.98	0.00	33692 (m)	499.0 -> 99.0	50.7	32.1	96.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	9.35	8.01	0.00	294205				

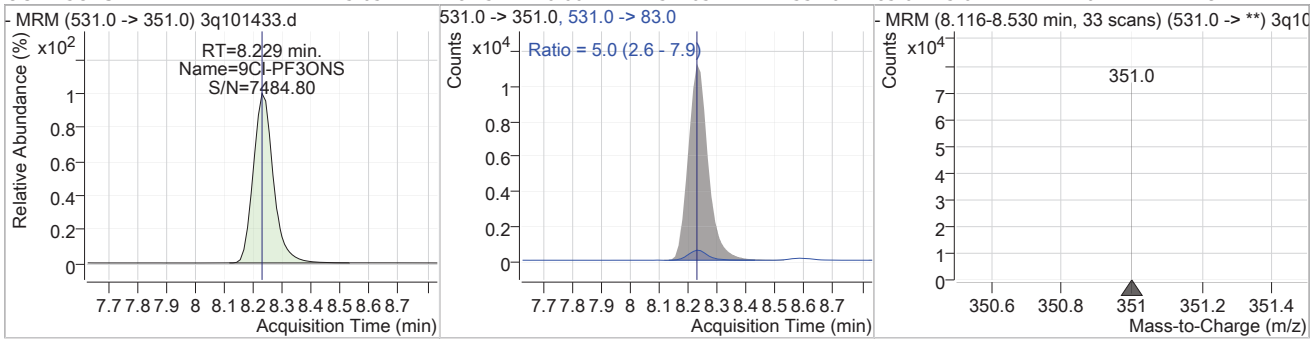


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	5.61	8.01	0.00	124763	463.0 -> 219.0	28.3	13.6	40.8

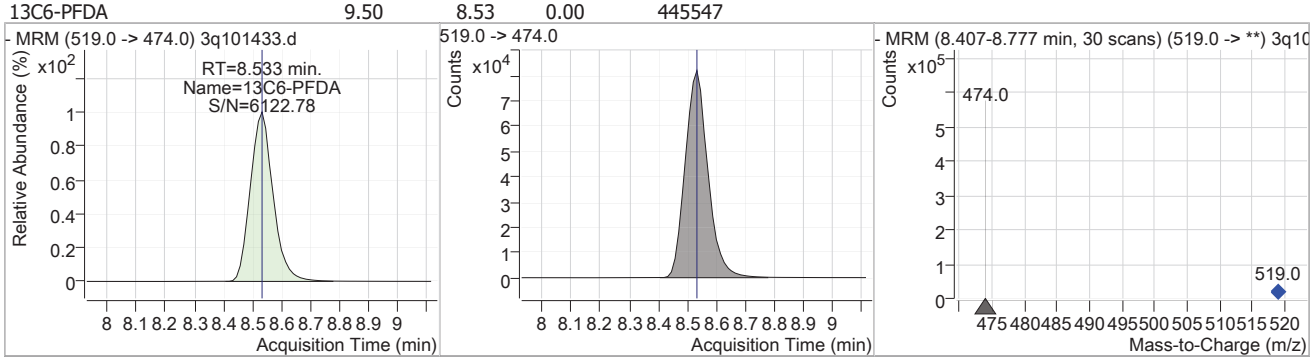


Perfluorinated Compounds by LC/MS/MS

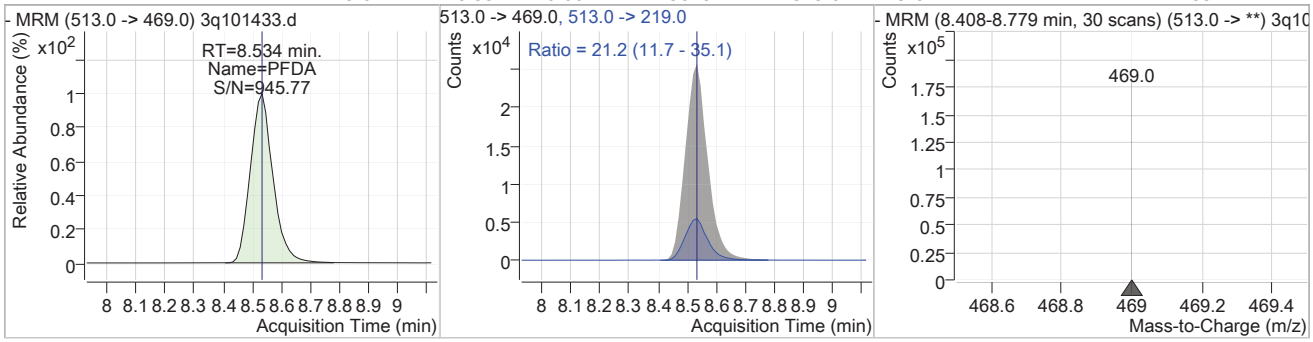
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	5.63	8.23	0.00	54203	531.0 -> 83.0	5.0	2.6	7.9



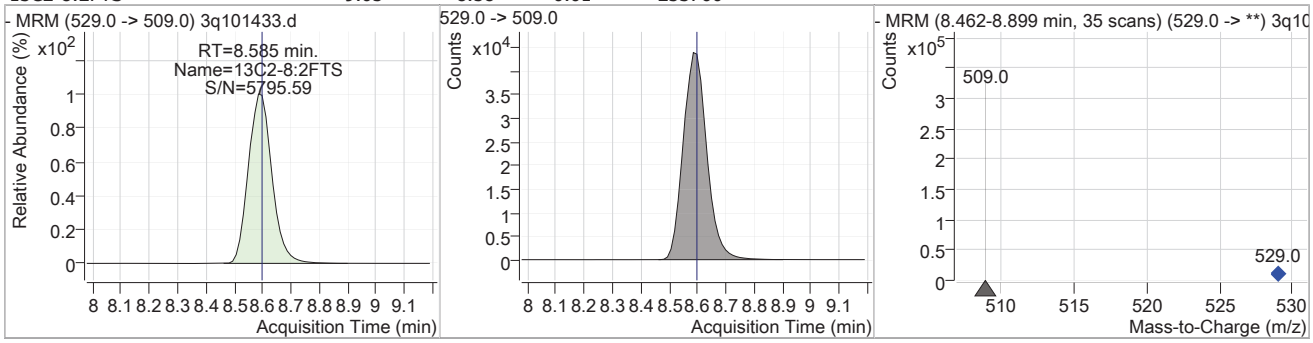
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	9.50	8.53	0.00	445547				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	5.61	8.53	0.00	138187	513.0 -> 219.0	21.2	11.7	35.1

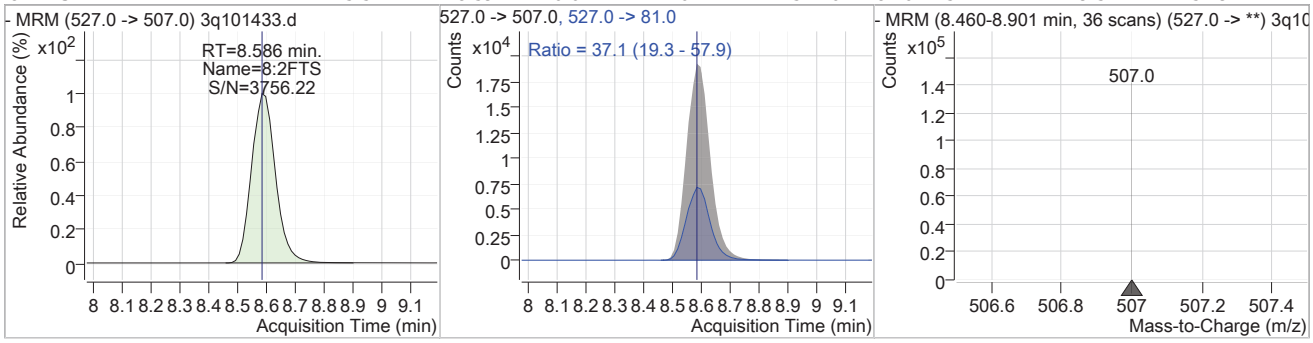


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	9.05	8.58	-0.01	253760				

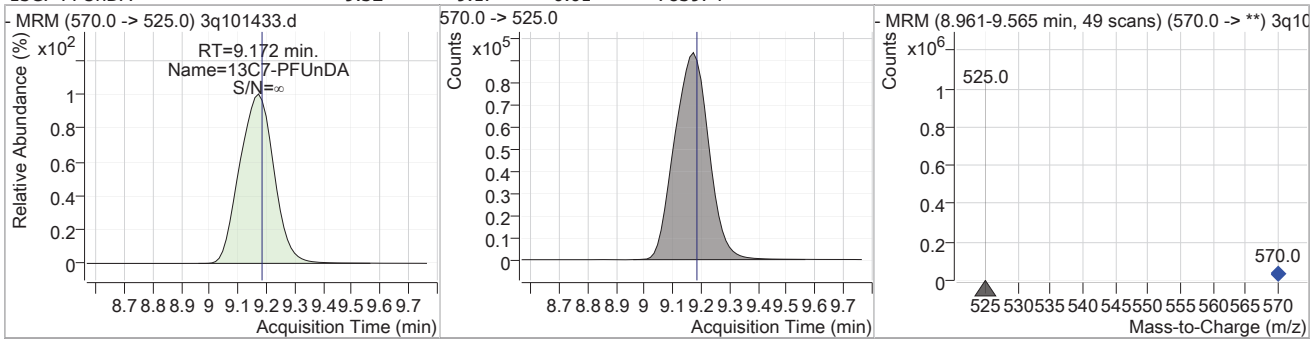


Perfluorinated Compounds by LC/MS/MS

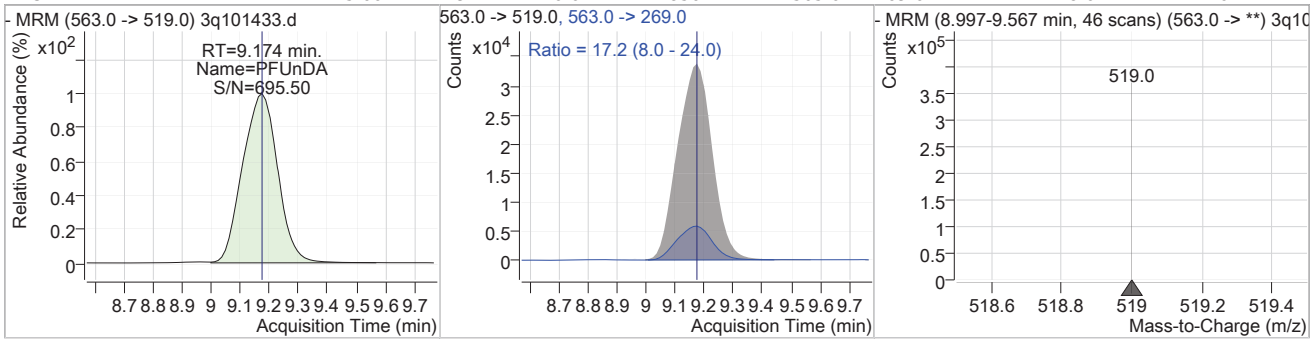
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	5.37	8.59	-0.01	110272	527.0 -> 81.0	37.1	19.3	57.9



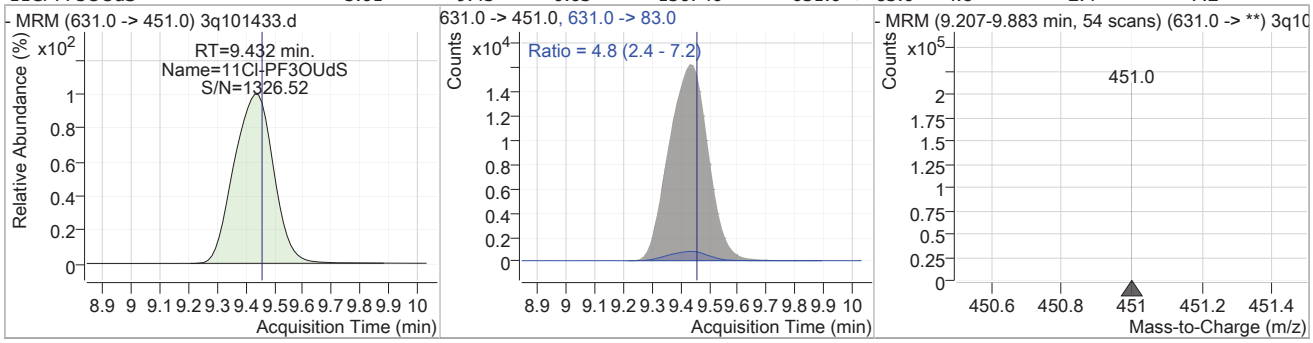
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	9.32	9.17	-0.01	783974				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	5.60	9.17	-0.01	283617	563.0 -> 269.0	17.2	8.0	24.0

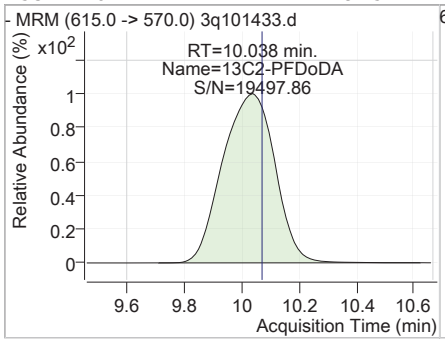


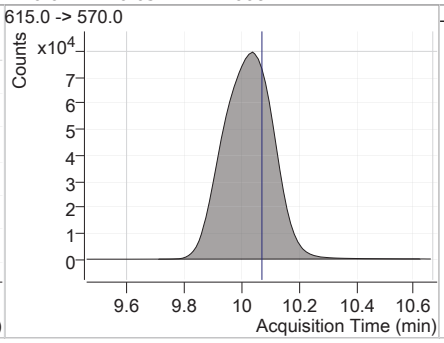
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	5.61	9.43	-0.03	156740	631.0 -> 83.0	4.8	2.4	7.2

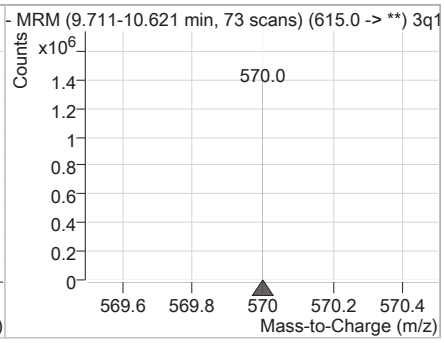


Perfluorinated Compounds by LC/MS/MS

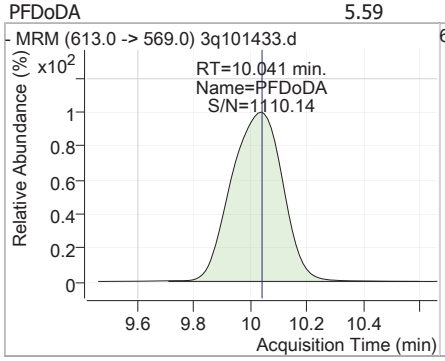
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	9.25	10.04	-0.03	1008124				

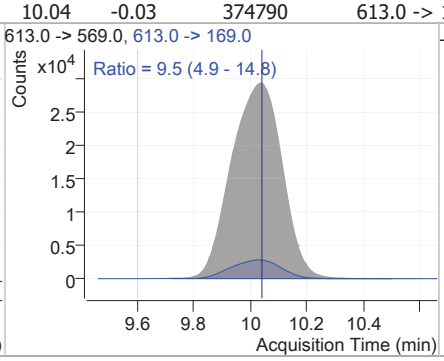


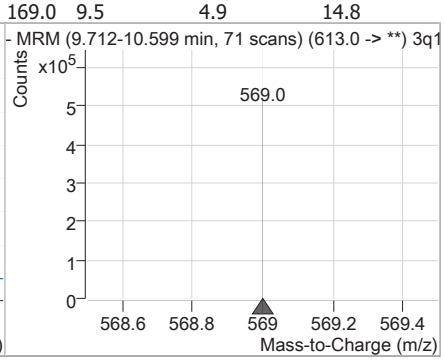




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	5.59	10.04	-0.03	374790	613.0 -> 169.0	9.5	4.9	14.8







7.7.5

7

Manual Integration Approval Summary

Sample Number:	S3Q1491-IC1491	**Method:**	EPA 533
Lab FileID:	3Q101433.D	**Analyst approved:**	04/14/25 11:45 (b) (6)
Injection Time:	04/11/25 16:30	**Supervisor approved:**	04/14/25 12:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.72	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/14/25 12:44

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101434.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/11/2025 4:47:03 PM
Sample Name : ic1491-10
Vial : P1-C6
DA Method File : 533_041125_S3Q1491.quantmethod.xml
Batch Name : s3q1491.batch.bin
Sample Information : op8141,S3Q1491,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	227813	10.00 µg/L	0.000
13C3-PFBA	2.319	216.0 -> 172.0	76313	10.00 µg/L	-0.013
13C4-PFOS	7.983	503.0 -> 80.0	32054	10.00 µg/L	0.000
M4-PFBA	2.327	217.0 -> 172.0	134543	10.00 µg/L	-0.013
M5-PFPeA	4.400	268.0 -> 223.0	165199	10.00 µg/L	-0.013
M5-PFHxA	5.763	318.0 -> 273.0	225752	10.00 µg/L	-0.013
M4-PFHpA	6.694	367.0 -> 322.0	195807	10.00 µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	271092	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	295084	10.00 µg/L	0.000
M6-PFDA	8.533	519.0 -> 474.0	441177	10.00 µg/L	0.000
M7-PFUnDA	9.172	570.0 -> 525.0	790804	10.00 µg/L	-0.013
M2-PFDoDA	10.058	615.0 -> 570.0	1018486	10.00 µg/L	-0.013
M3-PFBS	4.696	302.0 -> 99.0	20185	10.00 µg/L	-0.013
M3-PFHxS	6.723	402.0 -> 99.0	29064	10.00 µg/L	-0.013
M8-PFOS	7.982	507.0 -> 99.0	37109	10.00 µg/L	0.000
M2-4:2FTS	5.672	329.0 -> 309.0	83599	10.00 µg/L	0.000
M2-6:2FTS	7.420	429.0 -> 409.0	163939	10.00 µg/L	0.000
M2-8:2FTS	8.585	529.0 -> 509.0	258511	10.00 µg/L	-0.013
M3-HFPO-DA	6.056	287.0 -> 169.0	2659	10.00 µg/L	-0.013
System Monitoring Compounds					
13C2-4:2FTS	5.672	329.0 -> 309.0	83599	10.17 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C2-6:2FTS	7.420	429.0 -> 409.0	163939	10.30 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C2-8:2FTS	8.585	529.0 -> 509.0	258511	10.08 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C2-PFDoDA	10.058	615.0 -> 570.0	1018486	10.21 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C3-PFBS	4.696	302.0 -> 99.0	20185	10.39 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C3-PFHxS	6.723	402.0 -> 99.0	29064	10.38 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C4-PFBA	2.327	217.0 -> 172.0	134543	10.31 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C4-PFHpA	6.694	367.0 -> 322.0	195807	10.29 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C5-PFHxA	5.763	318.0 -> 273.0	225752	10.34 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C5-PFPeA	4.400	268.0 -> 223.0	165199	10.31 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C6-PFDA	8.533	519.0 -> 474.0	441177	10.28 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C7-PFUnDA	9.172	570.0 -> 525.0	790804	10.28 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C8-PFOA	7.422	421.0 -> 376.0	271092	10.29 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

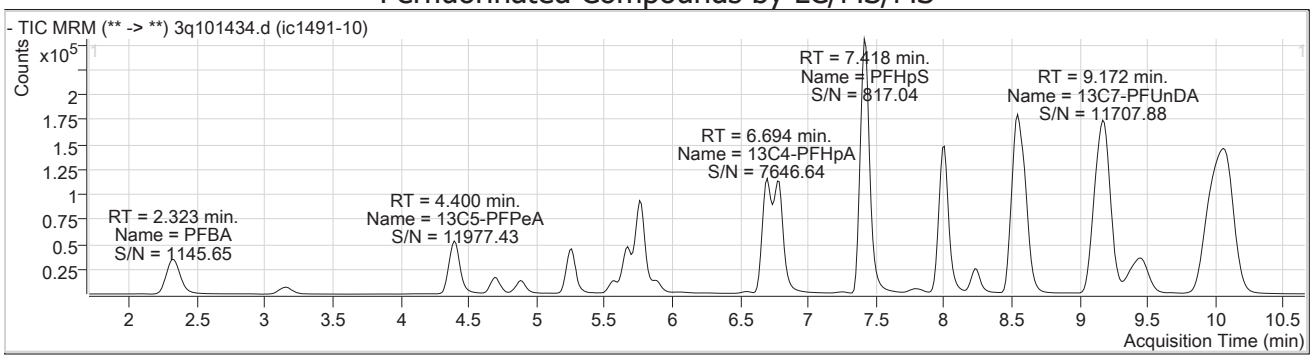
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.9%		
13C8-PFOS	7.982	507.0 -> 99.0	37109	10.36 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.6%		
13C9-PFNA	8.010	472.0 -> 427.0	295084	10.25 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.5%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	2659	10.00 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
Target Compounds						QValue
PFMPA	3.153	229.0 -> 85.0	48181	10.80 µg/L		100
4:2FTS	5.674	327.0 -> 307.0	103311	10.56 µg/L		88
		327.0 -> 81.0	43258			
6:2FTS	7.420	427.0 -> 407.0	145318	10.56 µg/L		94
		427.0 -> 81.0	59760			
8:2FTS	8.586	527.0 -> 507.0	225129	10.57 µg/L		97
		527.0 -> 81.0	83437			
PFMBA	4.888	279.0 -> 85.0	68903	10.80 µg/L		100
PFEESA	5.260	315.0 -> 135.0	209968	10.87 µg/L		98
		315.0 -> 69.0	15880			
NFDHA	5.582	201.0 -> 85.0	60012	10.79 µg/L		98
		295.0 -> 201.0	4218			
PFBA	2.323	213.0 -> 169.0	42019	10.76 µg/L		100
PFBS	4.697	299.0 -> 80.0	45204	10.75 µg/L		93
		299.0 -> 99.0	19941			
PFDA	8.534	513.0 -> 469.0	278748	10.77 µg/L		96
		513.0 -> 219.0	60041			
PFDoDA	10.062	613.0 -> 569.0	770707	10.77 µg/L		99
		613.0 -> 169.0	72695			
PFHpA	6.695	363.0 -> 319.0	294446	10.79 µg/L		99
		363.0 -> 169.0	24188			
PFHpS	7.418	449.0 -> 80.0	62431	10.57 µg/L		95
		449.0 -> 99.0	35030			
PFHxA	5.765	313.0 -> 269.0	226685	10.81 µg/L		98
		313.0 -> 119.0	7890			
PFHxS	6.725	399.0 -> 80.0	60111	10.83 µg/L	m	93
		399.0 -> 99.0	30520			
PFNA	8.010	463.0 -> 419.0	257659	10.89 µg/L		99
		463.0 -> 219.0	71886			
PFOA	7.423	413.0 -> 369.0	226164	10.79 µg/L		99
		413.0 -> 169.0	81418			
PFOS	7.983	499.0 -> 80.0	68905	10.38 µg/L	m	83
		499.0 -> 99.0	34805			
PFPeA	4.402	263.0 -> 219.0	140653	10.82 µg/L		100
PFPeS	5.883	349.0 -> 80.0	33001	10.57 µg/L		95
		349.0 -> 99.0	13890			
PFUnDA	9.174	563.0 -> 519.0	584410	10.80 µg/L		97
		563.0 -> 269.0	100631			
11Cl-PF3OUdS	9.445	631.0 -> 451.0	324949	10.85 µg/L		100
		631.0 -> 83.0	15223			
9Cl-PF3ONS	8.229	531.0 -> 351.0	109885	10.72 µg/L		100
		531.0 -> 83.0	5695			
ADONA	6.792	377.0 -> 251.0	450295	10.83 µg/L		97
		377.0 -> 85.0	54676			
HFPO-DA	6.061	329.0 -> 169.0	733	10.12 µg/L	#	4
		285.0 -> 169.0	1686			

 # = Qualifier out of range, m = manually integrated, + = Area summed

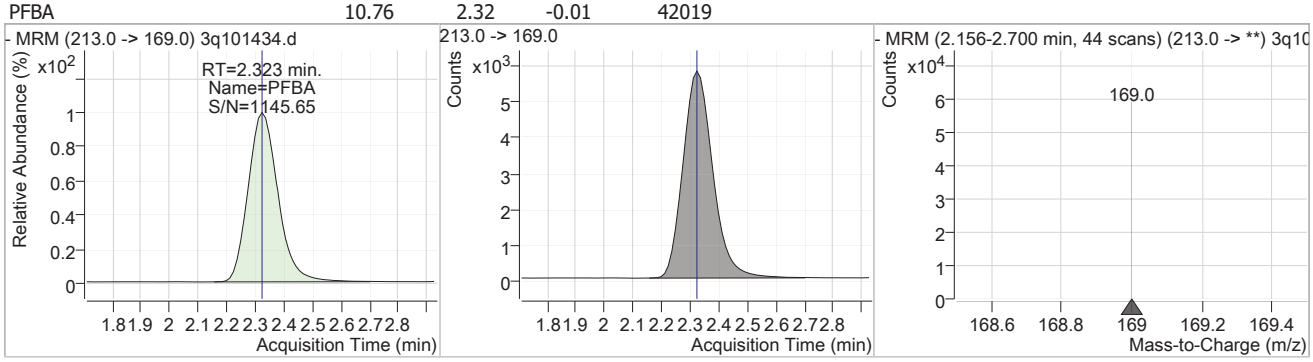
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

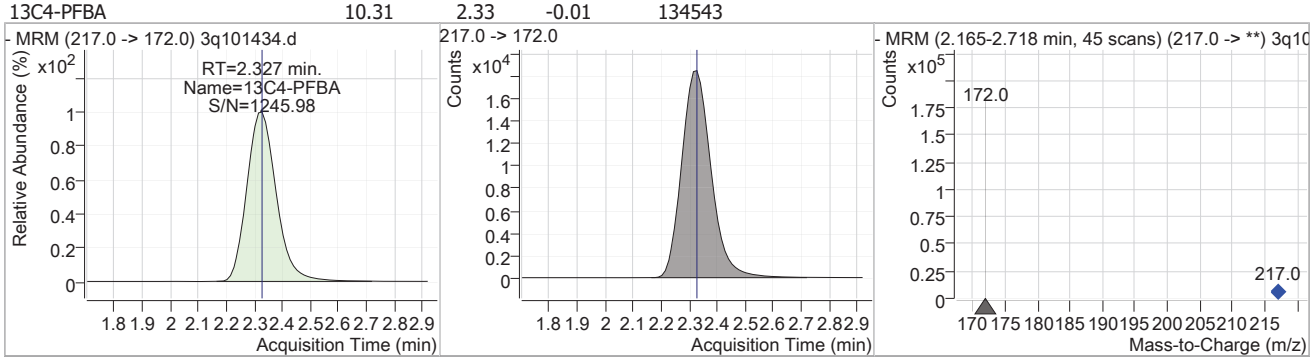
Perfluorinated Compounds by LC/MS/MS



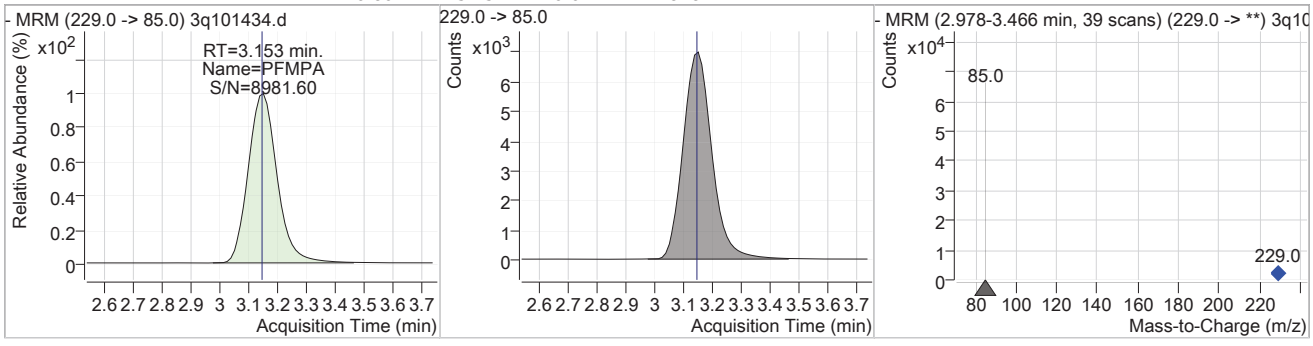
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	10.76	2.32	-0.01	42019				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.31	2.33	-0.01	134543				

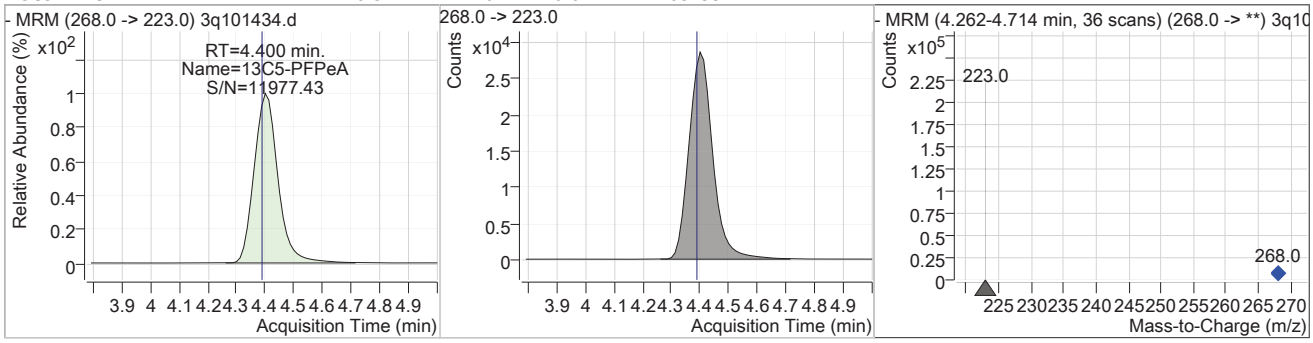


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	10.80	3.15	-0.01	48181				

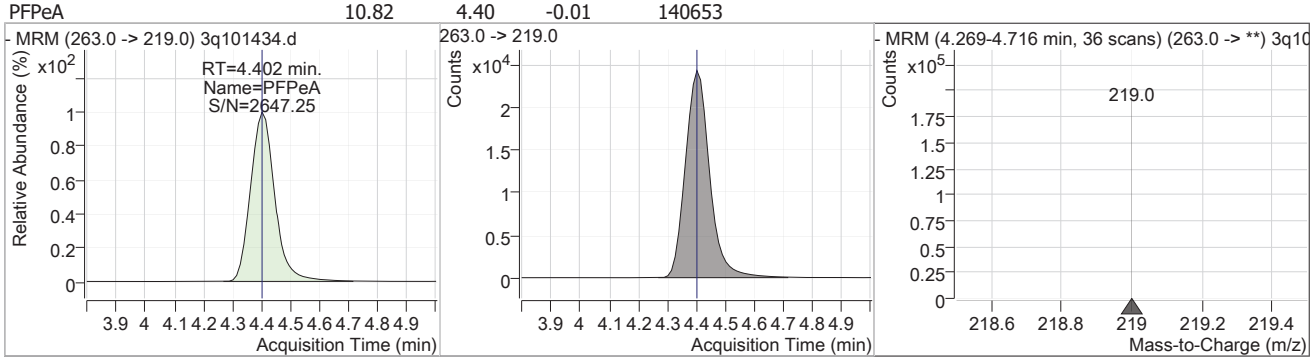


Perfluorinated Compounds by LC/MS/MS

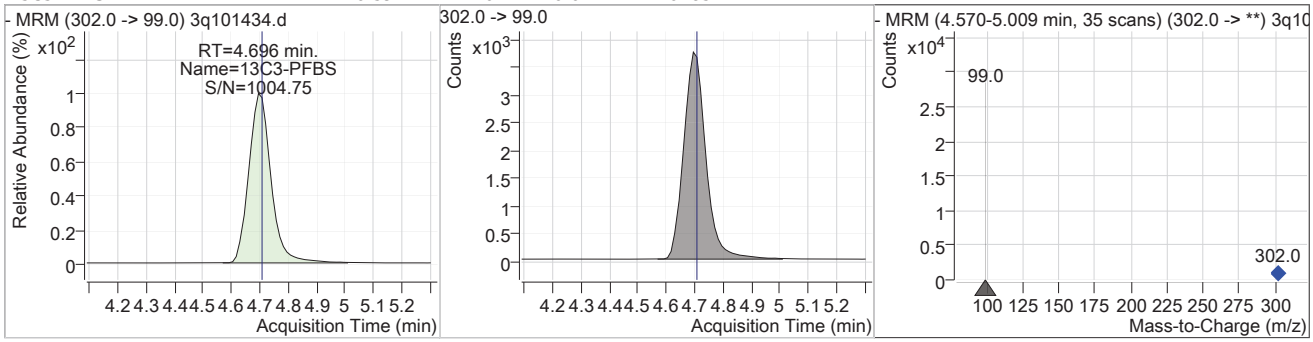
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.31	4.40	-0.01	165199				



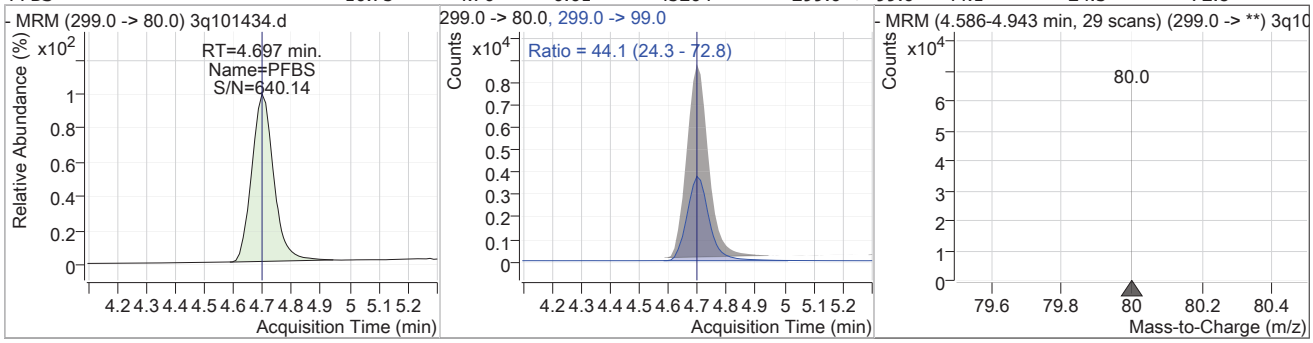
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	10.82	4.40	-0.01	140653				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.39	4.70	-0.01	20185				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	10.75	4.70	-0.01	45204	299.0 -> 99.0	44.1	24.3	72.8

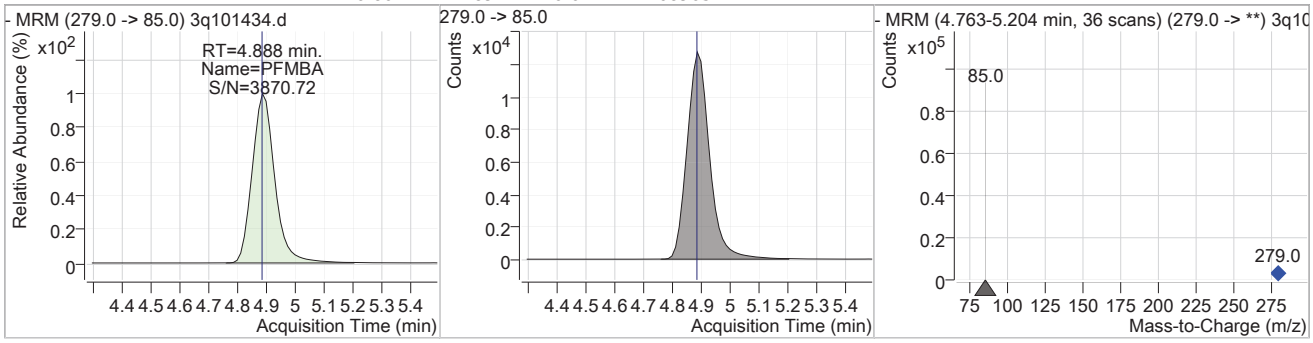


7.7.9

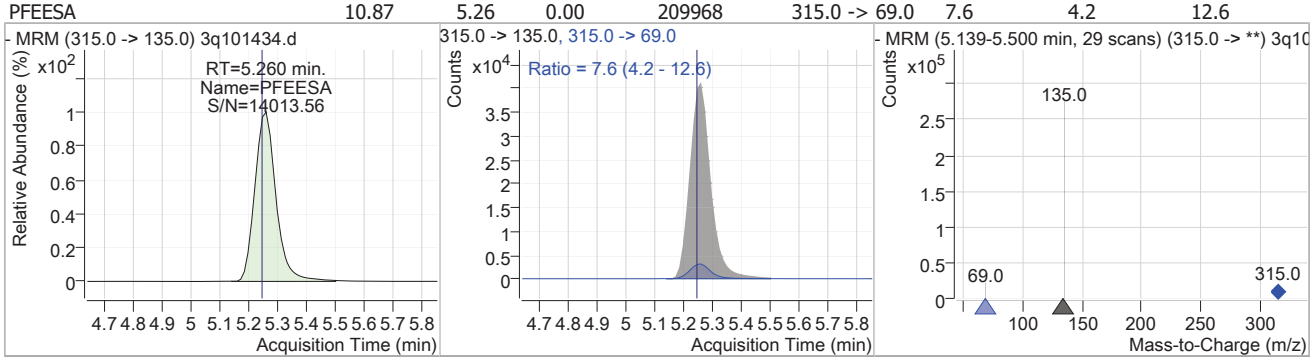
7

Perfluorinated Compounds by LC/MS/MS

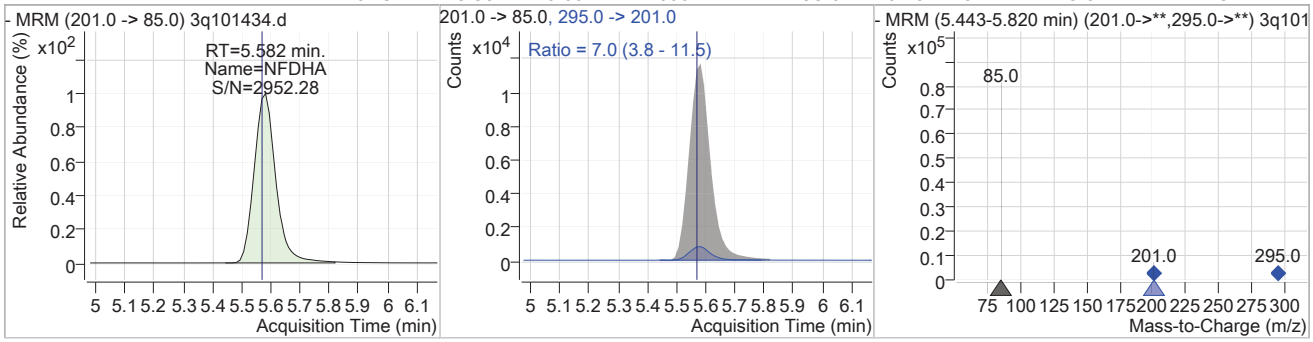
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	10.80	4.89	-0.01	68903				



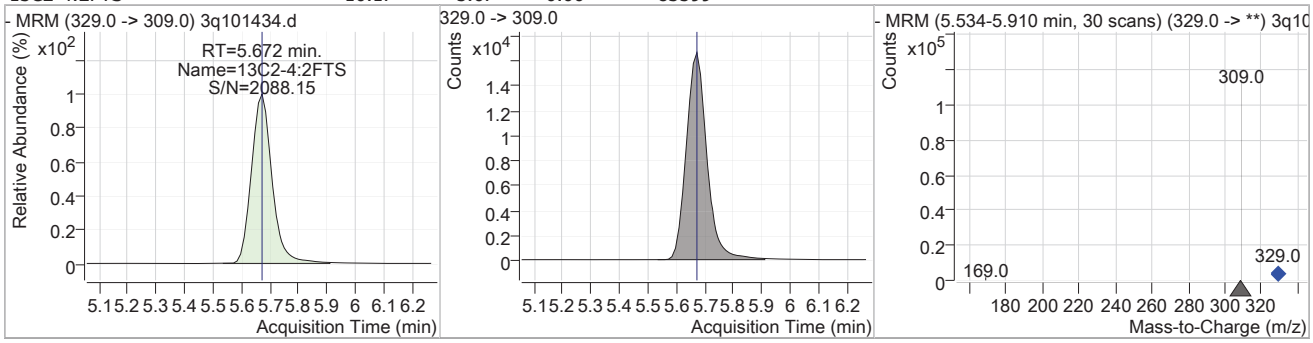
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	10.87	5.26	0.00	209968	315.0 -> 69.0	7.6	4.2	12.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	10.79	5.58	0.00	60012	295.0 -> 201.0	7.0	3.8	11.5

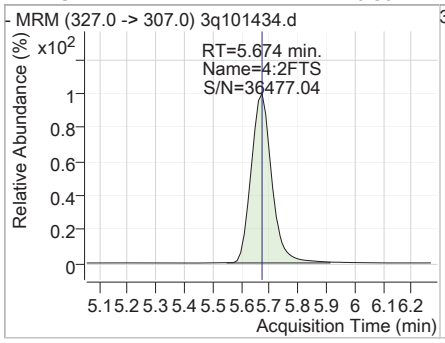


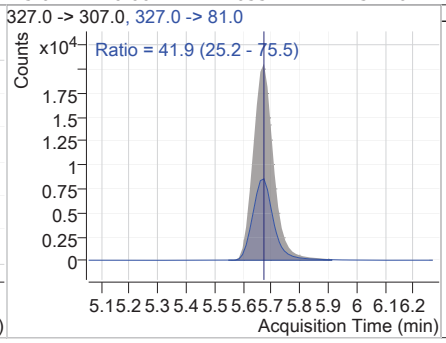
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	10.17	5.67	0.00	83599				

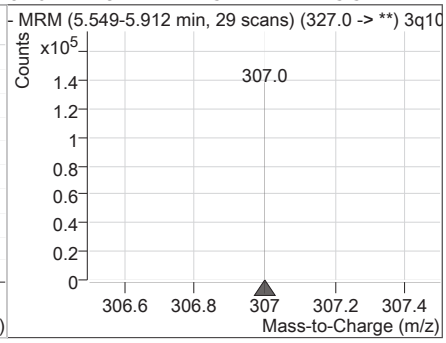


Perfluorinated Compounds by LC/MS/MS

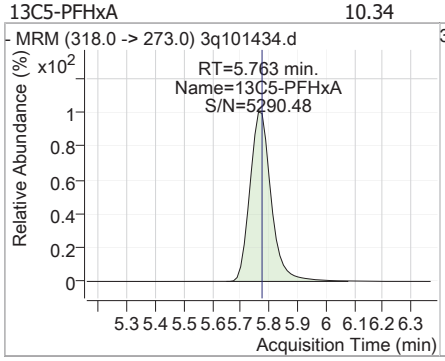
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	10.56	5.67	0.00	103311	327.0 -> 81.0	41.9	25.2	75.5

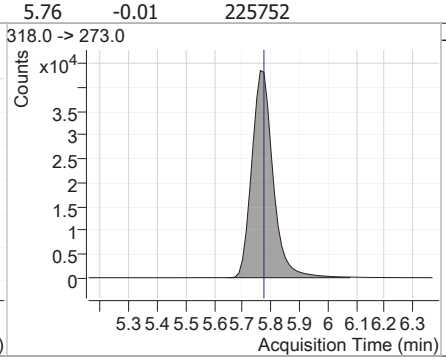


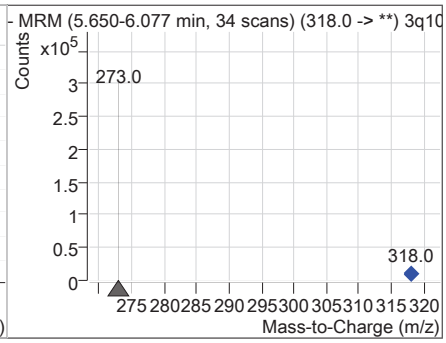




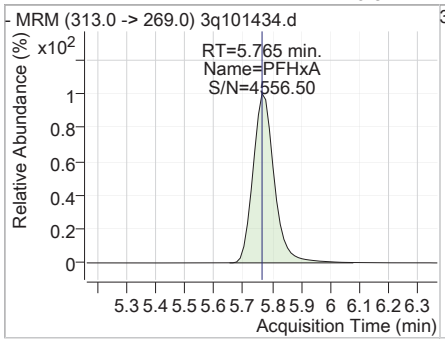
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.34	5.76	-0.01	225752				

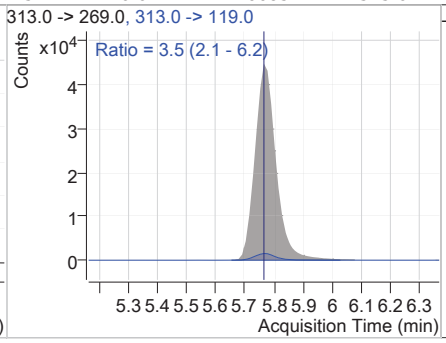


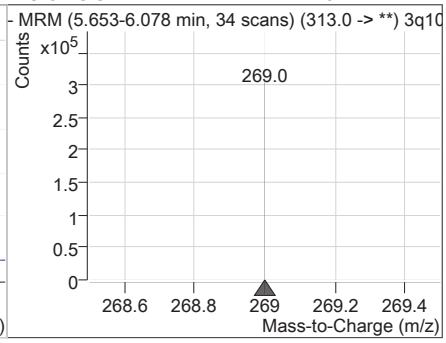




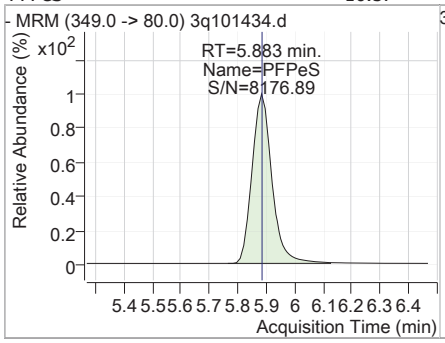
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	10.81	5.77	-0.01	226685	313.0 -> 119.0	3.5	2.1	6.2

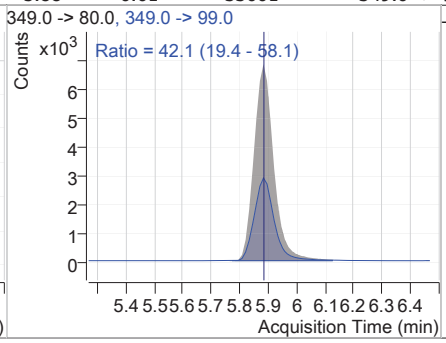


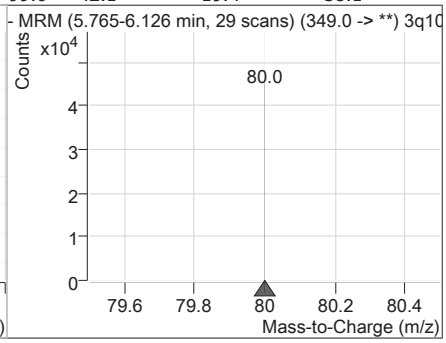




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	10.57	5.88	-0.01	33001	349.0 -> 99.0	42.1	19.4	58.1

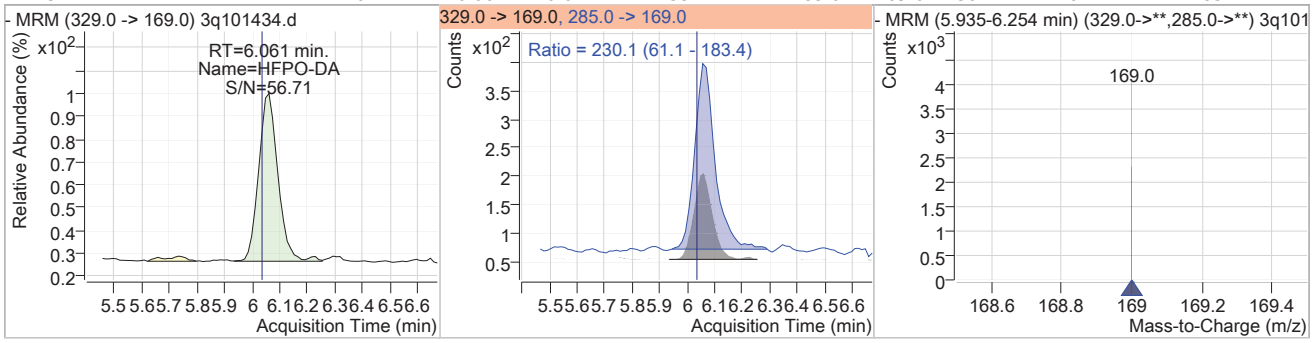




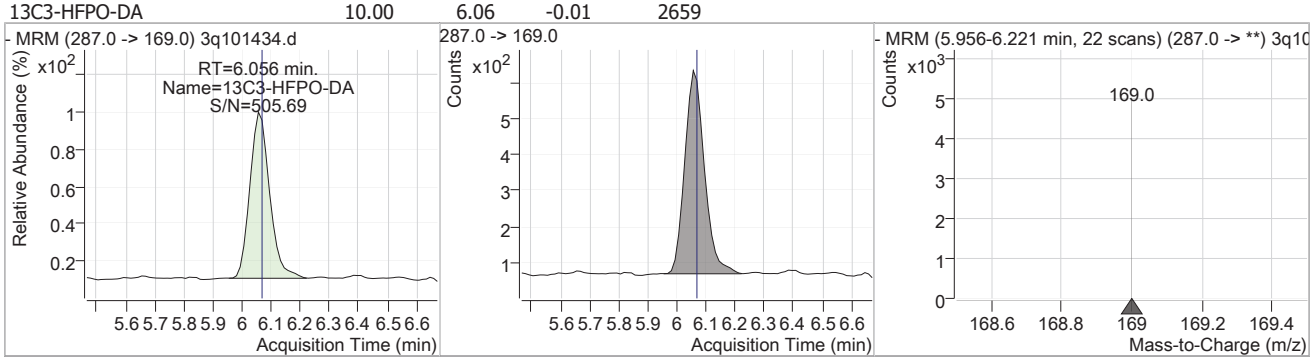


Perfluorinated Compounds by LC/MS/MS

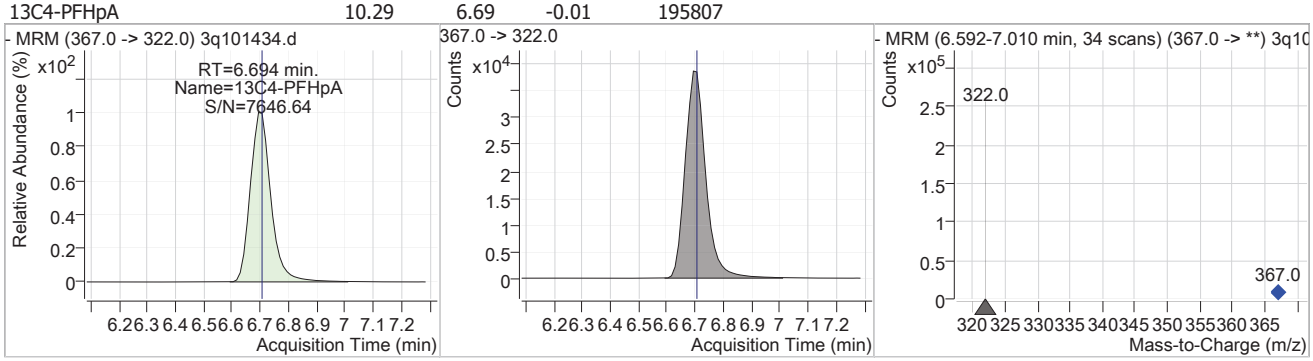
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	10.12	6.06	0.01	733	285.0 -> 169.0	230.1	61.1	183.4



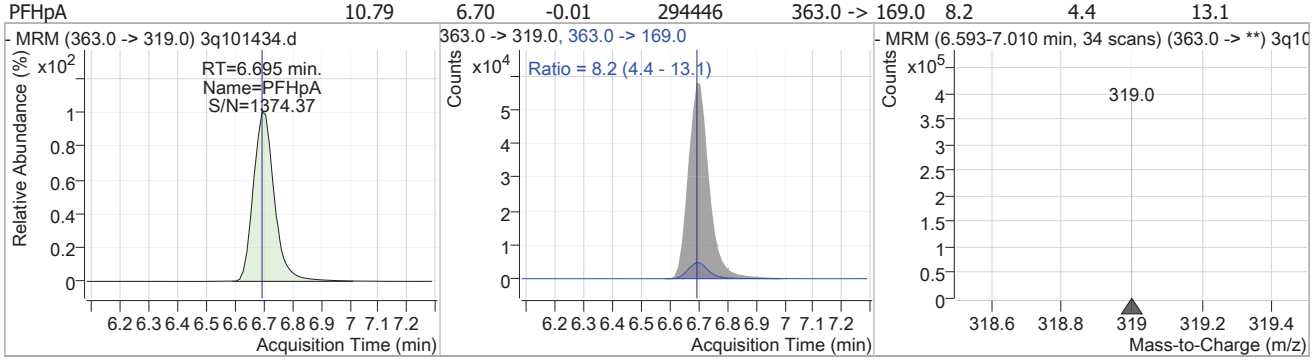
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.00	6.06	-0.01	2659				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.29	6.69	-0.01	195807				

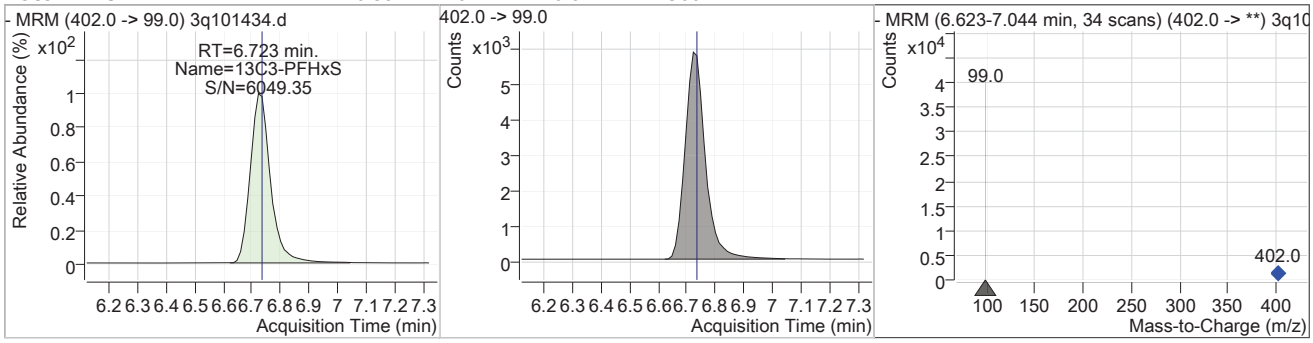


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	10.79	6.70	-0.01	294446	363.0 -> 169.0	8.2	4.4	13.1

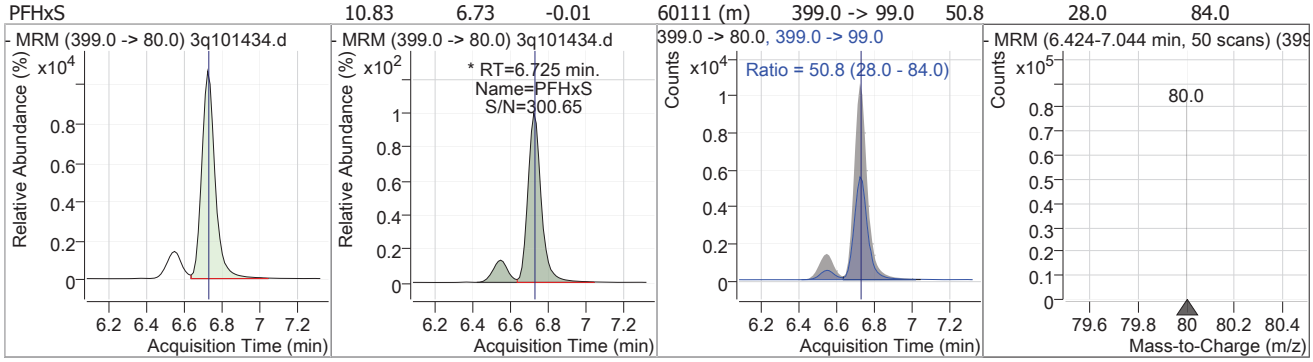


Perfluorinated Compounds by LC/MS/MS

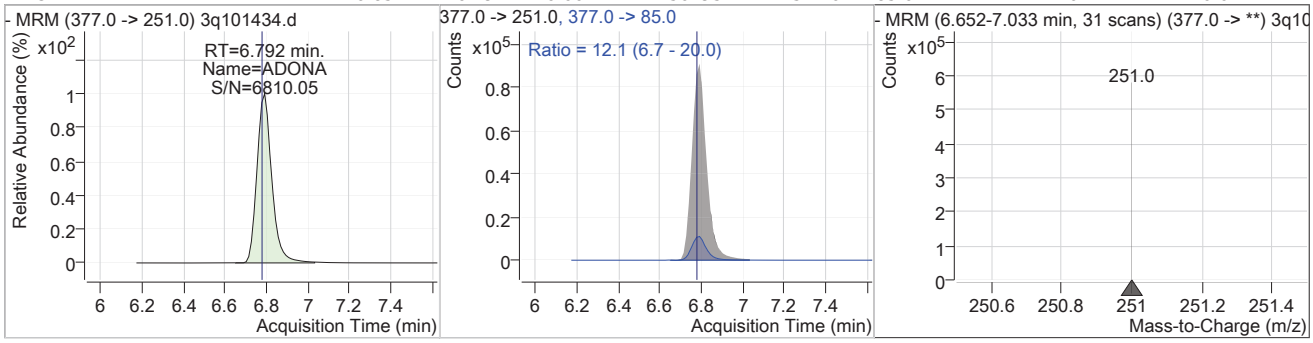
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.38	6.72	-0.01	29064				



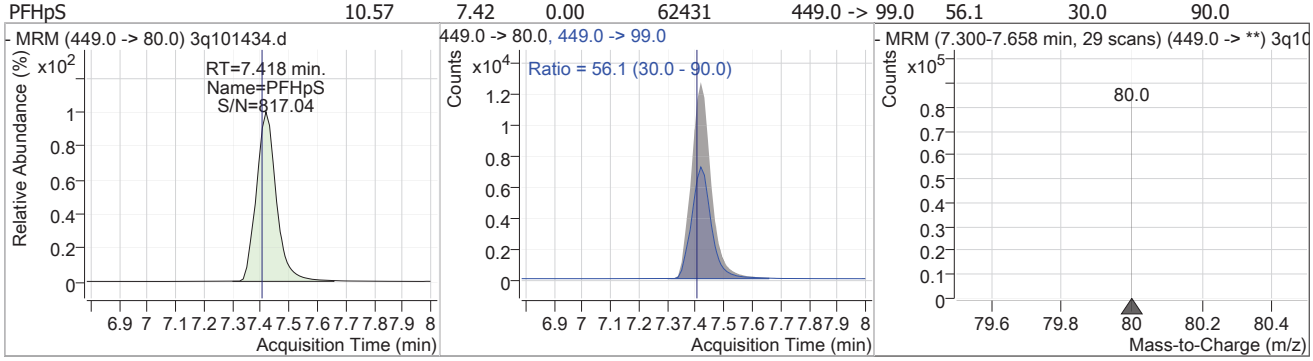
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	10.83	6.73	-0.01	60111 (m)	399.0 -> 99.0	50.8	28.0	84.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	10.83	6.79	0.00	450295	377.0 -> 85.0	12.1	6.7	20.0

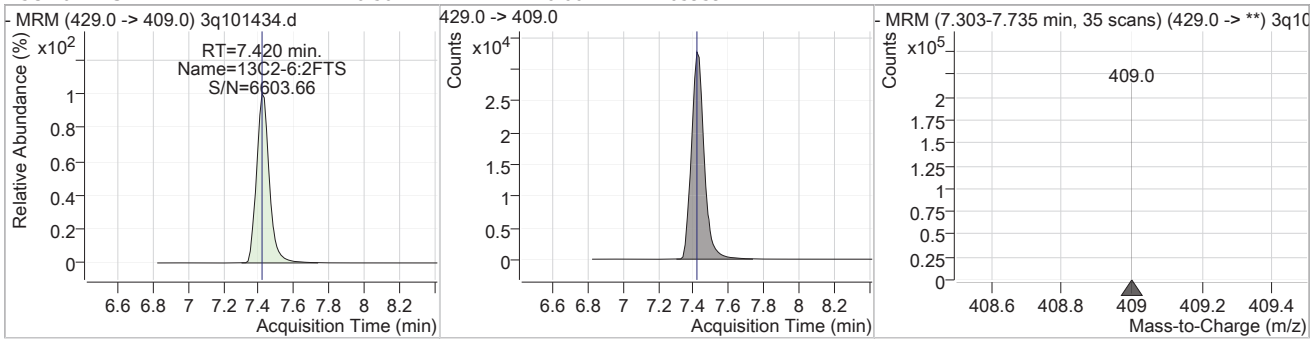


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	10.57	7.42	0.00	62431	449.0 -> 99.0	56.1	30.0	90.0

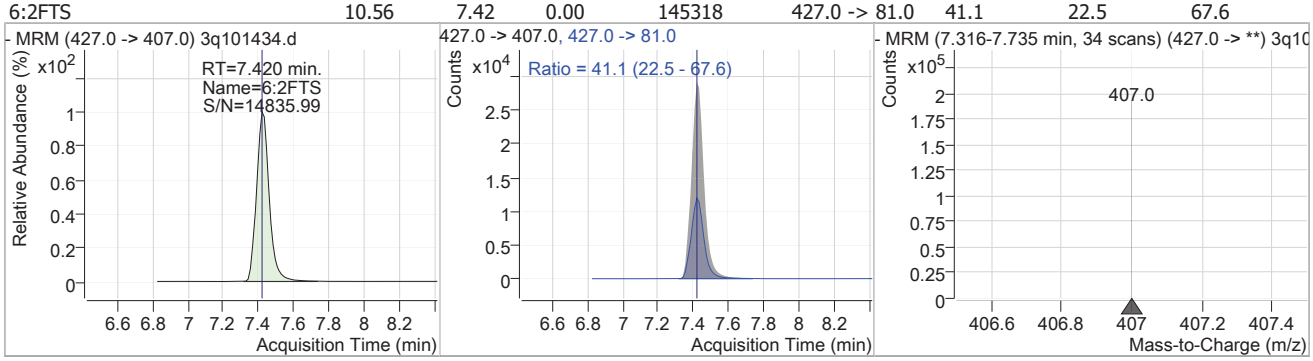


Perfluorinated Compounds by LC/MS/MS

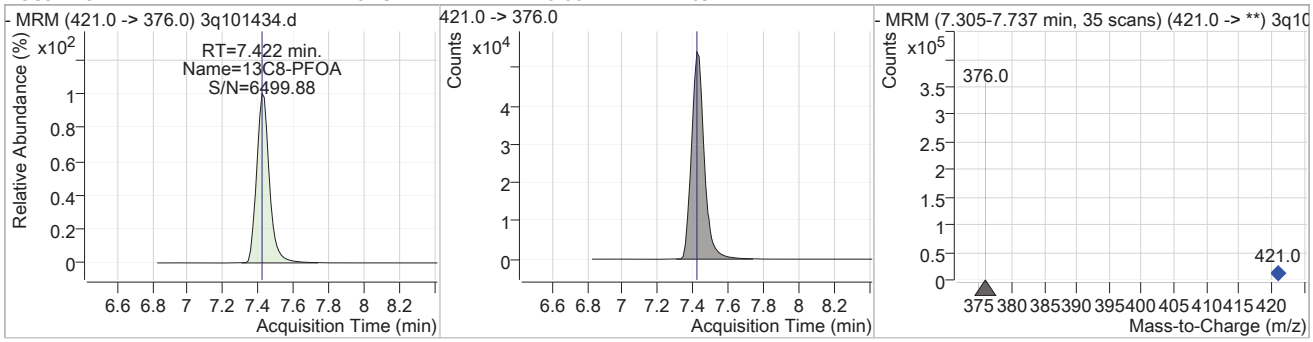
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	10.30	7.42	0.00	163939				



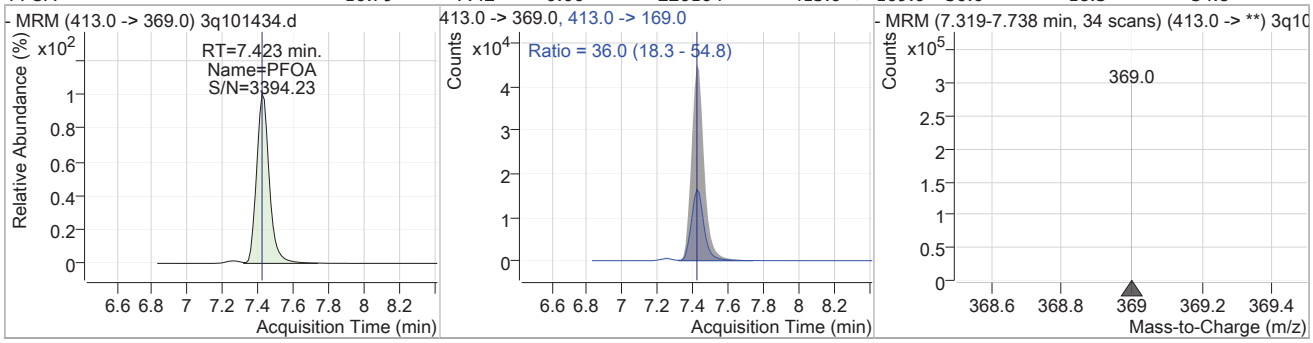
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	10.56	7.42	0.00	145318	427.0 -> 81.0	41.1	22.5	67.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.29	7.42	0.00	271092				

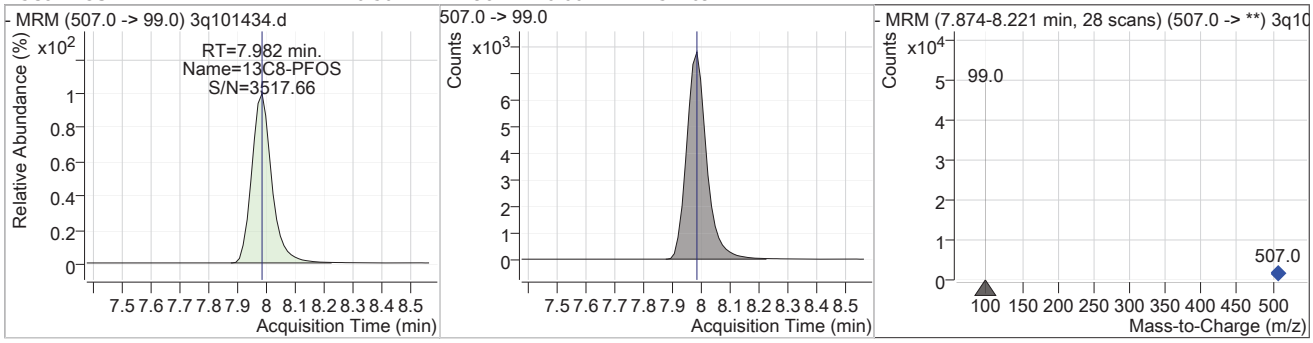


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	10.79	7.42	0.00	226164	413.0 -> 169.0	36.0	18.3	54.8

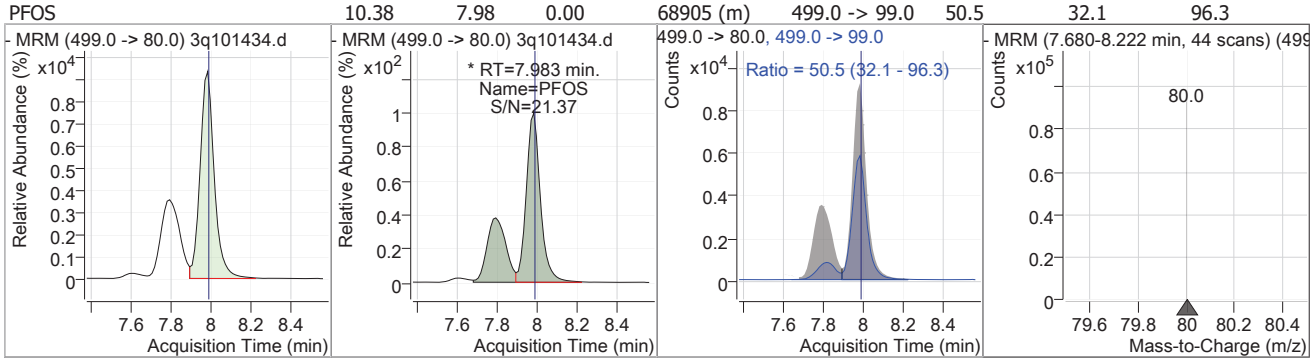


Perfluorinated Compounds by LC/MS/MS

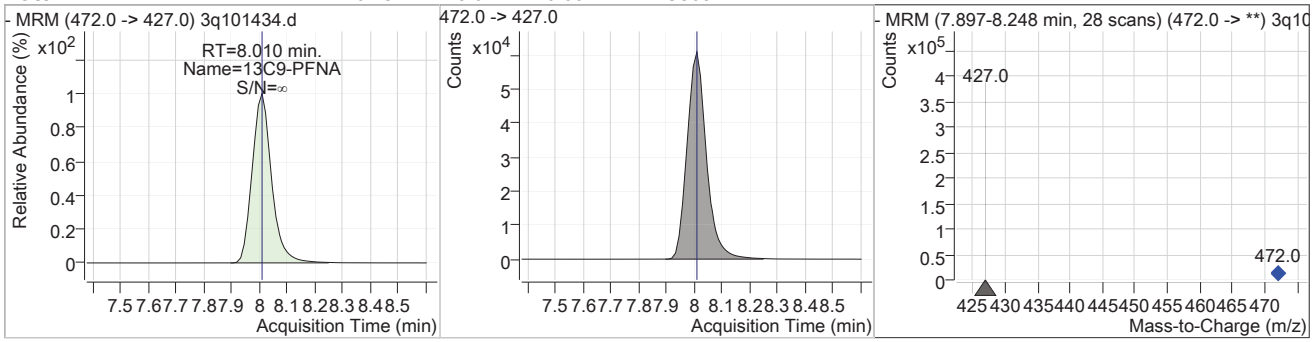
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.36	7.98	0.00	37109				



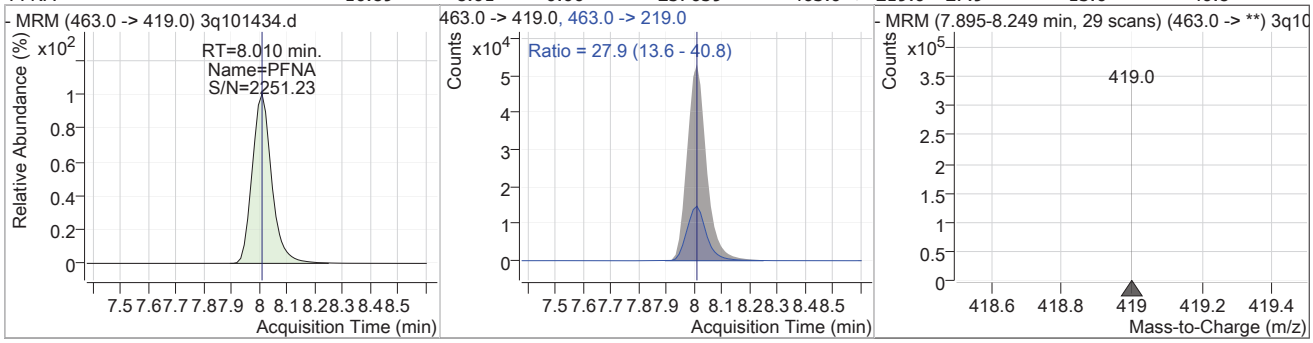
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	10.38	7.98	0.00	68905 (m)	499.0 -> 99.0	50.5	32.1	96.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.25	8.01	0.00	295084				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	10.89	8.01	0.00	257659	463.0 -> 219.0	27.9	13.6	40.8

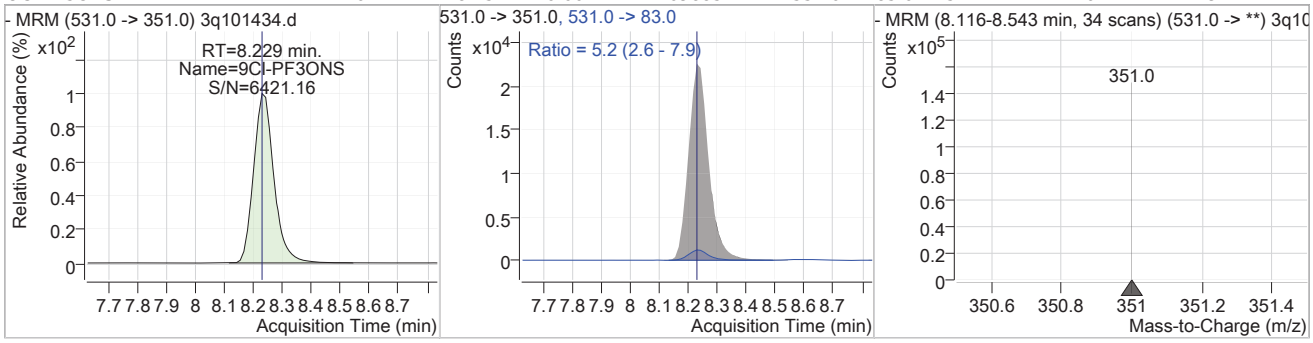


7.7.9

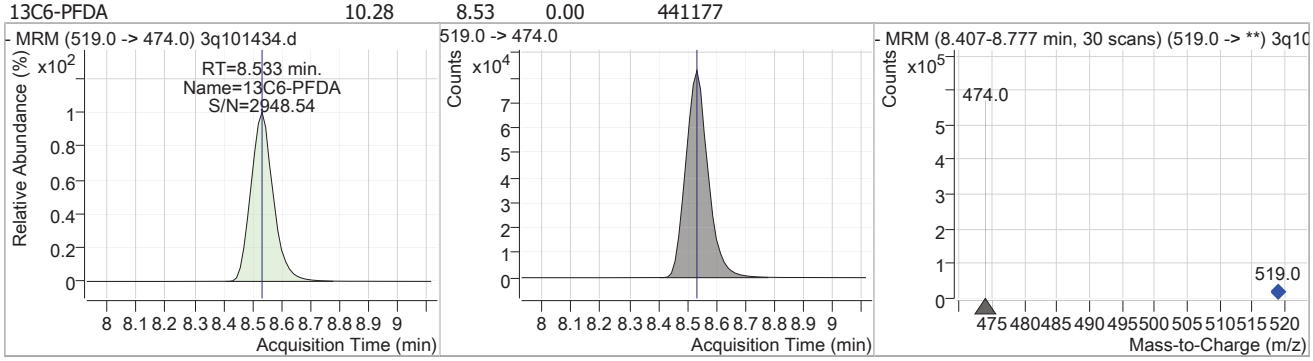
7

Perfluorinated Compounds by LC/MS/MS

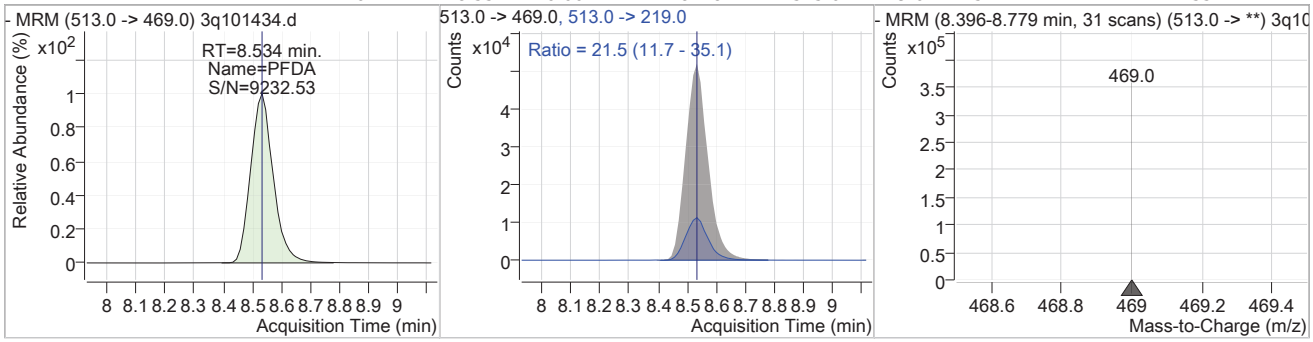
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	10.72	8.23	0.00	109885	531.0 -> 83.0	5.2	2.6	7.9



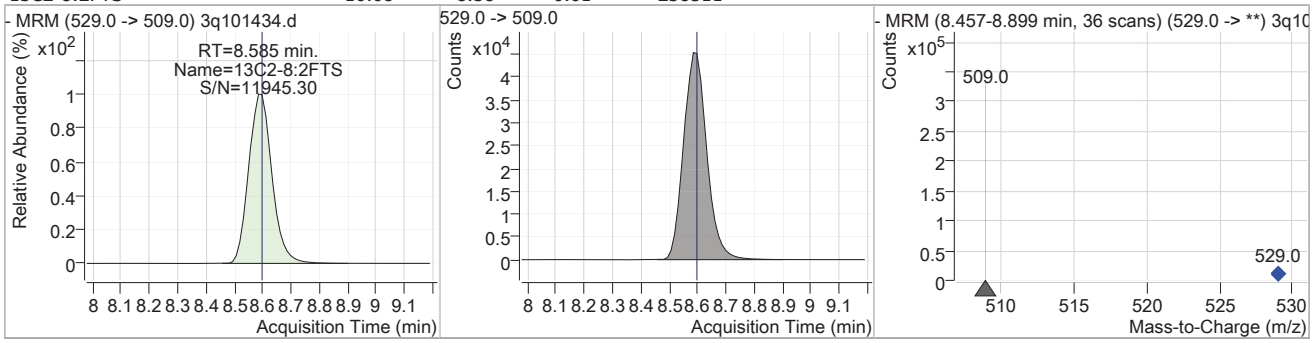
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	10.28	8.53	0.00	441177				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	10.77	8.53	0.00	278748	513.0 -> 219.0	21.5	11.7	35.1

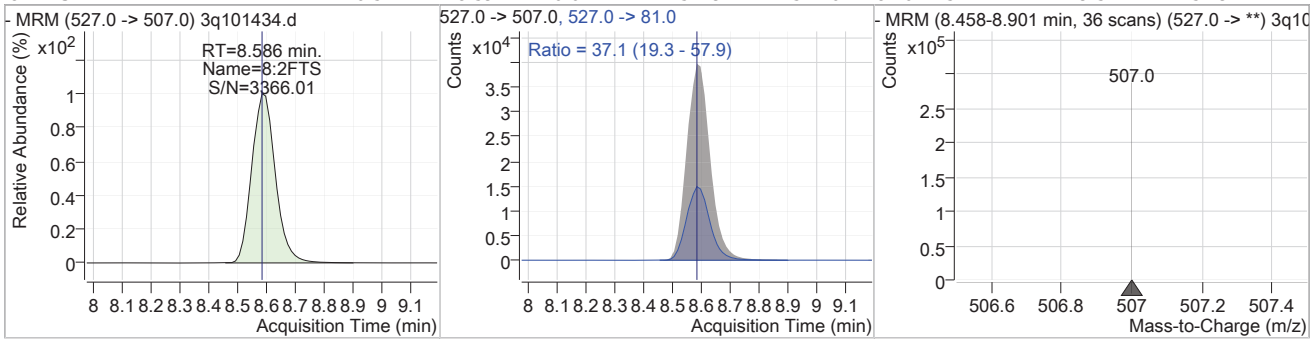


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	10.08	8.58	-0.01	258511				

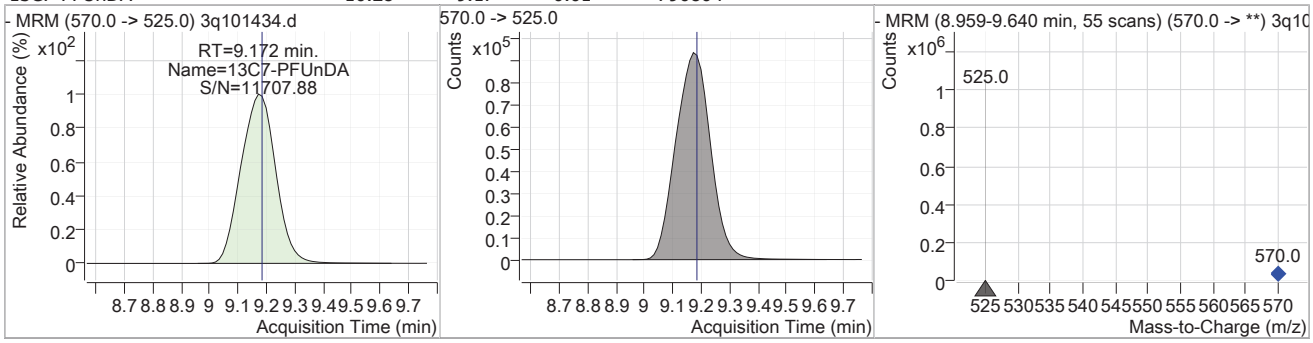


Perfluorinated Compounds by LC/MS/MS

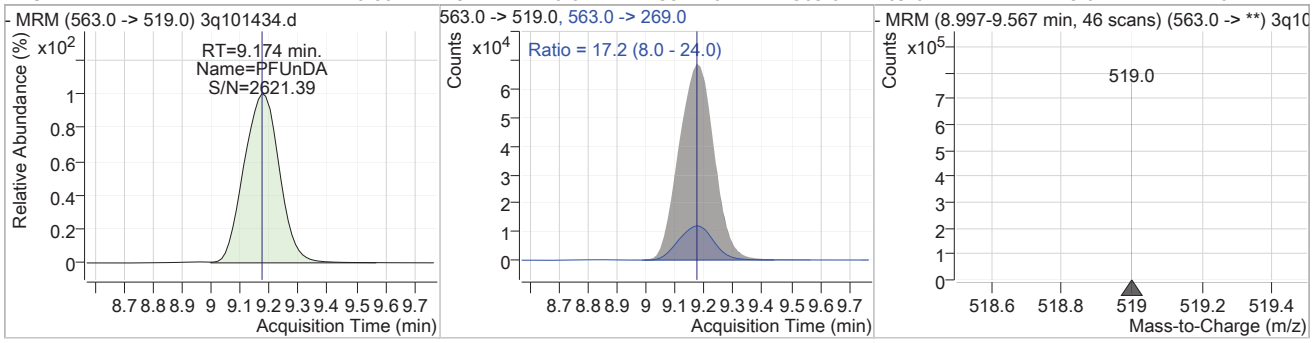
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	10.57	8.59	-0.01	225129	527.0 -> 81.0	37.1	19.3	57.9



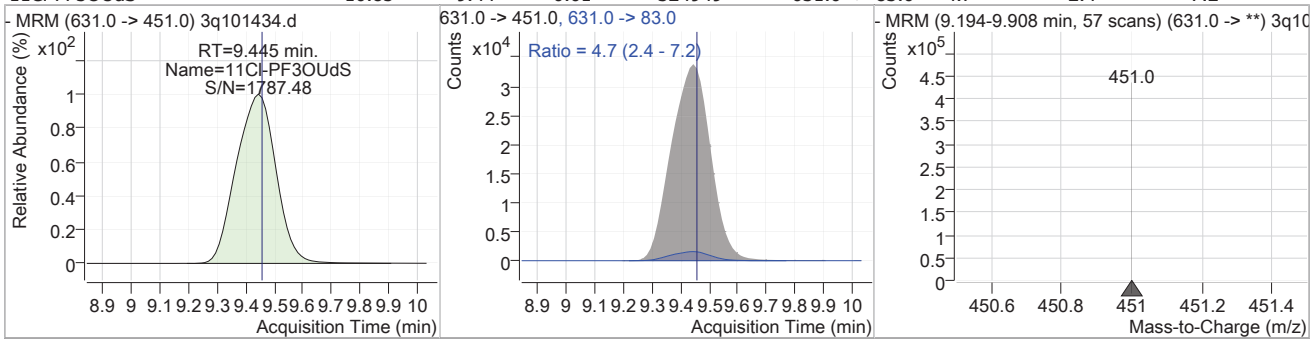
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	10.28	9.17	-0.01	790804				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	10.80	9.17	-0.01	584410	563.0 -> 269.0	17.2	8.0	24.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	10.85	9.44	-0.01	324949	631.0 -> 83.0	4.7	2.4	7.2

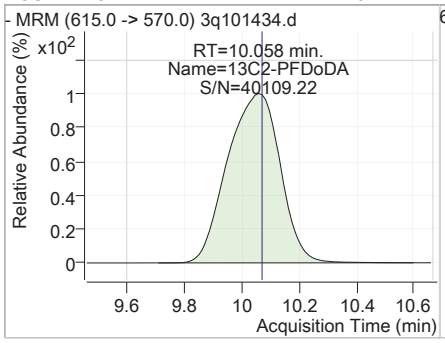


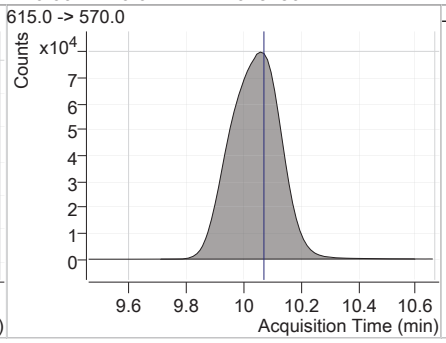
7.7.6

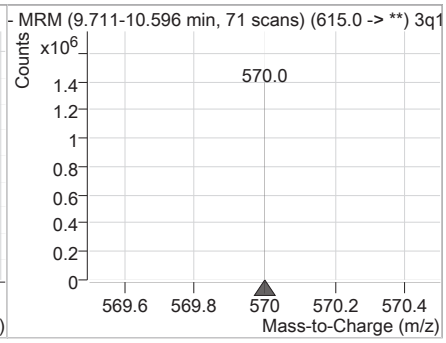
7

Perfluorinated Compounds by LC/MS/MS

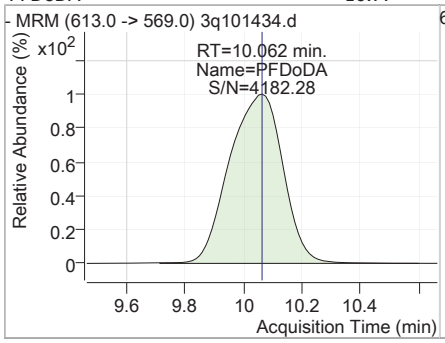
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.21	10.06	-0.01	1018486				

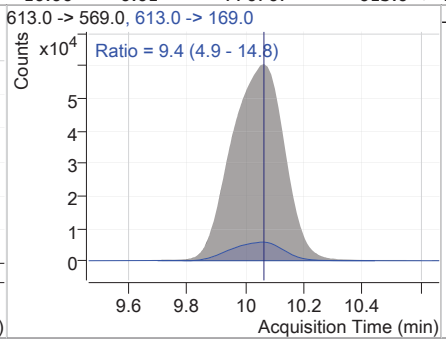


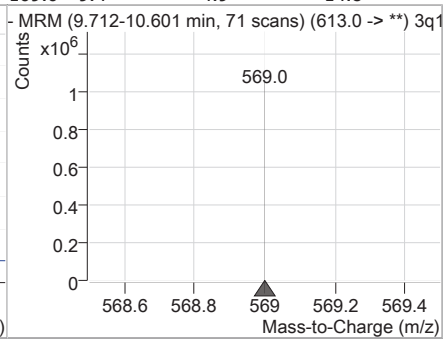




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	10.77	10.06	-0.01	770707	613.0 -> 169.0	9.4	4.9	14.8







Manual Integration Approval Summary

Sample Number:	S3Q1491-IC1491	**Method:**	EPA 533
Lab FileID:	3Q101434.D	**Analyst approved:**	04/14/25 11:45 (b) (6)
Injection Time:	04/11/25 16:47	**Supervisor approved:**	04/14/25 12:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.72	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

3Q101435.D

Manual Integrations APPROVED (compounds with "m" flag)

(b) (6)

04/14/25 12:44

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101435.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/11/2025 5:03:08 PM
Sample Name : icc1491-20
Vial : P1-C7
DA Method File : 533_041125_S3Q1491.quantmethod.xml
Batch Name : s3q1491.batch.bin
Sample Information : op8141,S3Q1491,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	230418	10.00 µg/L	0.000
13C3-PFBA	2.332	216.0 -> 172.0	78378	10.00 µg/L	0.000
13C4-PFOS	7.983	503.0 -> 80.0	32850	10.00 µg/L	0.000
M4-PFBA	2.327	217.0 -> 172.0	135360	10.00 µg/L	-0.013
M5-PFPeA	4.400	268.0 -> 223.0	166682	10.00 µg/L	-0.013
M5-PFHxA	5.763	318.0 -> 273.0	224047	10.00 µg/L	-0.013
M4-PFHpA	6.694	367.0 -> 322.0	194113	10.00 µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	267684	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	295871	10.00 µg/L	0.000
M6-PFDA	8.533	519.0 -> 474.0	442681	10.00 µg/L	0.000
M7-PFUnDA	9.160	570.0 -> 525.0	789569	10.00 µg/L	-0.025
M2-PFDoDA	10.038	615.0 -> 570.0	1018080	10.00 µg/L	-0.033
M3-PFBS	4.696	302.0 -> 99.0	20299	10.00 µg/L	-0.013
M3-PFHxS	6.724	402.0 -> 99.0	28631	10.00 µg/L	-0.013
M8-PFOS	7.982	507.0 -> 99.0	37291	10.00 µg/L	0.000
M2-4:2FTS	5.672	329.0 -> 309.0	87827	10.00 µg/L	0.000
M2-6:2FTS	7.420	429.0 -> 409.0	168110	10.00 µg/L	0.000
M2-8:2FTS	8.585	529.0 -> 509.0	271806	10.00 µg/L	-0.013
M3-HFPO-DA	6.056	287.0 -> 169.0	2753	10.00 µg/L	-0.013
System Monitoring Compounds					
13C2-4:2FTS	5.672	329.0 -> 309.0	87827	10.43 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C2-6:2FTS	7.420	429.0 -> 409.0	168110	10.30 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C2-8:2FTS	8.585	529.0 -> 509.0	271806	10.34 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C2-PFDoDA	10.038	615.0 -> 570.0	1018080	10.09 µg/L	-0.033
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C3-PFBS	4.696	302.0 -> 99.0	20299	10.19 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C3-PFHxS	6.724	402.0 -> 99.0	28631	9.98 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFBA	2.327	217.0 -> 172.0	135360	10.10 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C4-PFHpA	6.694	367.0 -> 322.0	194113	10.09 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C5-PFHxA	5.763	318.0 -> 273.0	224047	10.15 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C5-PFPeA	4.400	268.0 -> 223.0	166682	10.13 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C6-PFDA	8.533	519.0 -> 474.0	442681	10.20 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C7-PFUnDA	9.160	570.0 -> 525.0	789569	10.15 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C8-PFOA	7.422	421.0 -> 376.0	267684	10.04 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%		
13C8-PFOS	7.982	507.0 -> 99.0	37291	10.16 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.6%		
13C9-PFNA	8.010	472.0 -> 427.0	295871	10.16 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.6%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	2753	10.24 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.4%		
Target Compounds						QValue
PFMPA	3.153	229.0 -> 85.0	94408	19.23 µg/L		100
4:2FTS	5.661	327.0 -> 307.0	204124	19.39 µg/L		87
		327.0 -> 81.0	84405			
6:2FTS	7.420	427.0 -> 407.0	281458	19.42 µg/L		94
		427.0 -> 81.0	114977			
8:2FTS	8.586	527.0 -> 507.0	447910	19.43 µg/L		97
		527.0 -> 81.0	165366			
PFMBA	4.888	279.0 -> 85.0	134670	19.23 µg/L		100
PFEESA	5.260	315.0 -> 135.0	407822	19.20 µg/L		97
		315.0 -> 69.0	30448			
NFDHA	5.569	201.0 -> 85.0	116306	19.20 µg/L		97
		295.0 -> 201.0	7745			
PFBA	2.323	213.0 -> 169.0	82758	19.26 µg/L		100
PFBS	4.697	299.0 -> 80.0	89780	19.28 µg/L		91
		299.0 -> 99.0	38435			
PFDA	8.534	513.0 -> 469.0	548428	19.28 µg/L		96
		513.0 -> 219.0	117370			
PFDoDA	10.041	613.0 -> 569.0	1501658	19.28 µg/L		98
		613.0 -> 169.0	140058			
PFHpA	6.695	363.0 -> 319.0	569438	19.28 µg/L		99
		363.0 -> 169.0	46815			
PFHpS	7.418	449.0 -> 80.0	123303	19.44 µg/L		92
		449.0 -> 99.0	66855			
PFHxA	5.765	313.0 -> 269.0	437876	19.23 µg/L		98
		313.0 -> 119.0	15717			
PFHxS	6.725	399.0 -> 80.0	114839	19.25 µg/L	m	95
		399.0 -> 99.0	59815			
PFNA	8.010	463.0 -> 419.0	497324	19.19 µg/L		99
		463.0 -> 219.0	138577			
PFOA	7.423	413.0 -> 369.0	435592	19.27 µg/L		99
		413.0 -> 169.0	155358			
PFOS	7.969	499.0 -> 80.0	133437	18.68 µg/L	m	83
		499.0 -> 99.0	68259			
PFPeA	4.402	263.0 -> 219.0	275629	19.22 µg/L		100
PFPeS	5.883	349.0 -> 80.0	65574	19.42 µg/L		95
		349.0 -> 99.0	27432			
PFUnDA	9.161	563.0 -> 519.0	1137685	19.26 µg/L		96
		563.0 -> 269.0	199428			
11Cl-PF3OUdS	9.432	631.0 -> 451.0	636766	19.23 µg/L		100
		631.0 -> 83.0	29698			
9Cl-PF3ONS	8.229	531.0 -> 351.0	217455	19.30 µg/L		99
		531.0 -> 83.0	11025			
ADONA	6.792	377.0 -> 251.0	869936	19.23 µg/L		97
		377.0 -> 85.0	104801			
HFPO-DA	6.048	329.0 -> 169.0	1440	18.80 µg/L	#	9
		285.0 -> 169.0	3229			

 # = Qualifier out of range, m = manually integrated, + = Area summed

(b) (4)

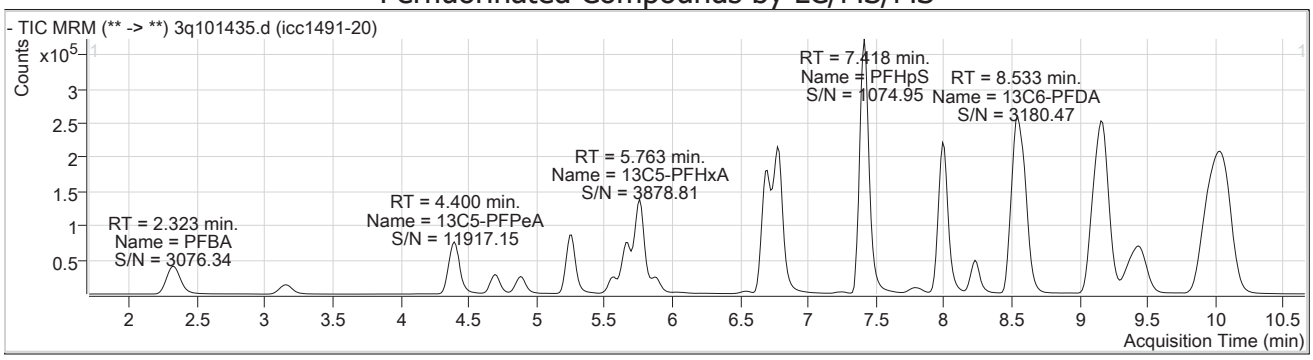
7.7.7

7

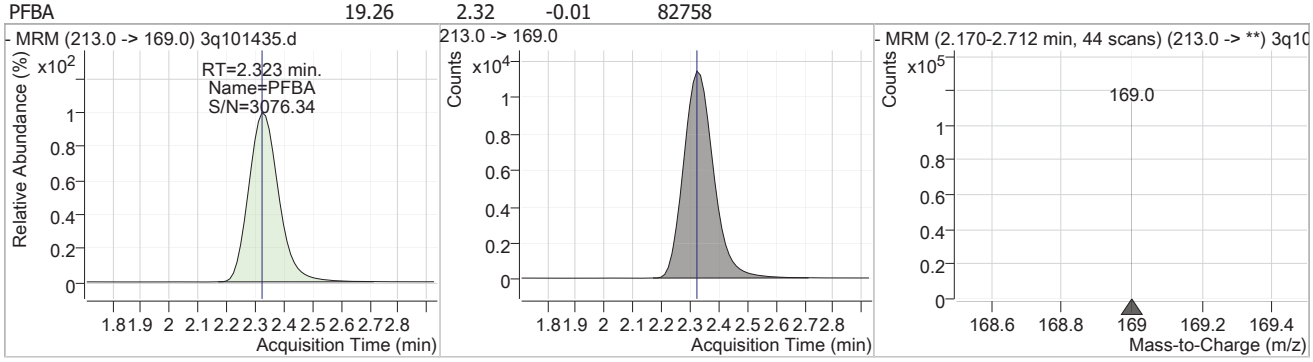
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

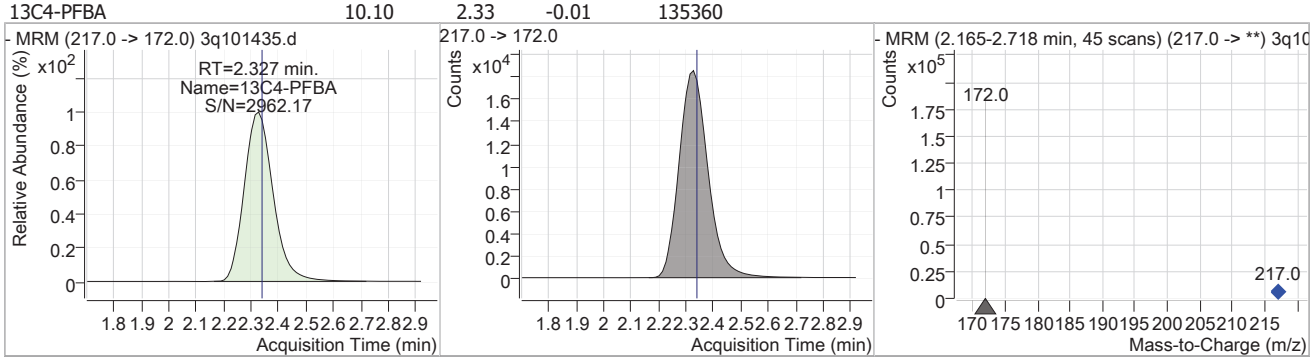
Perfluorinated Compounds by LC/MS/MS



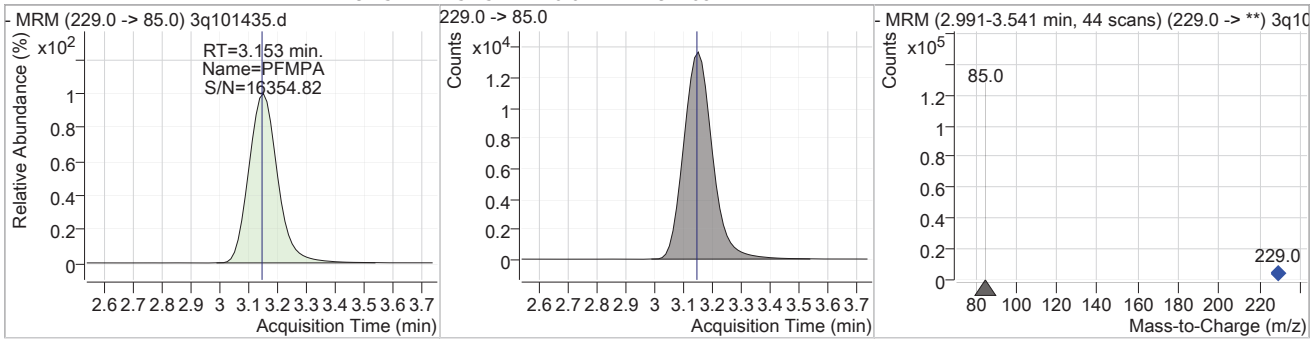
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.26	2.32	-0.01	82758				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.10	2.33	-0.01	135360				

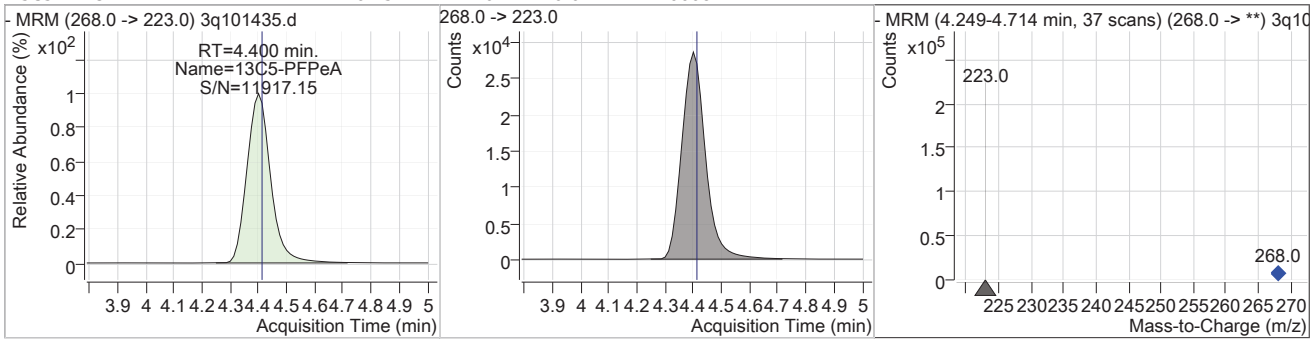


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	19.23	3.15	-0.01	94408				

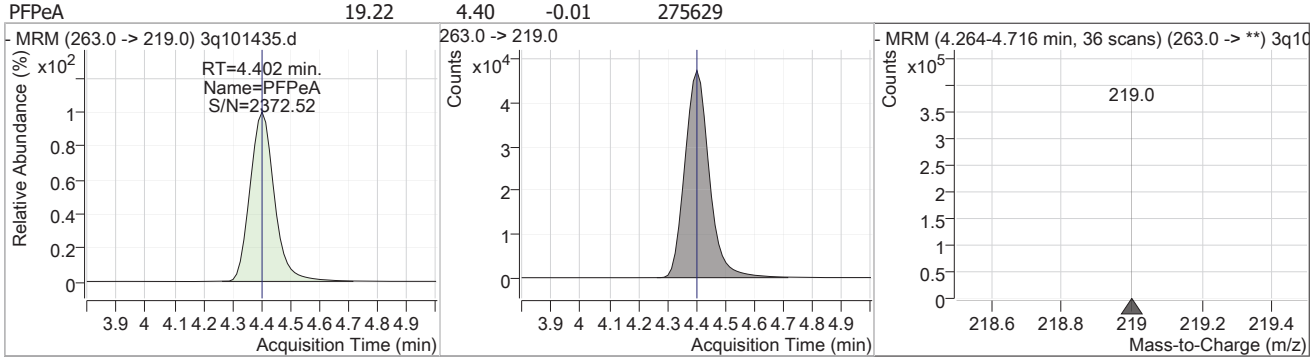


Perfluorinated Compounds by LC/MS/MS

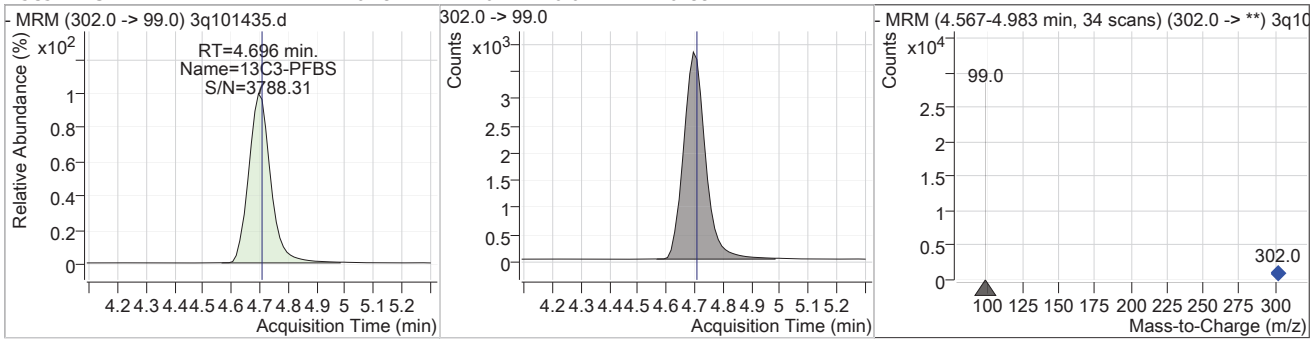
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.13	4.40	-0.01	166682				



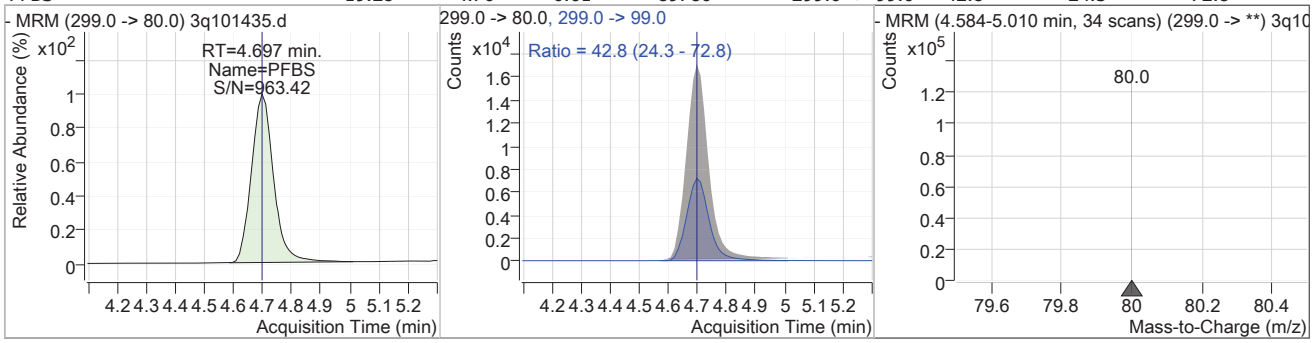
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.22	4.40	-0.01	275629				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.19	4.70	-0.01	20299				



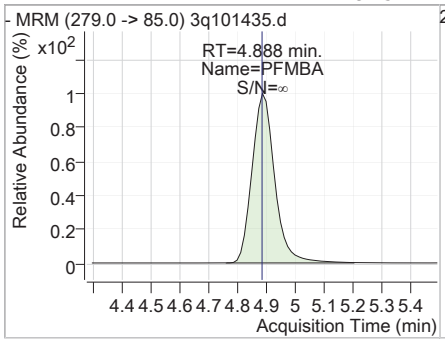
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.28	4.70	-0.01	89780	299.0 -> 99.0	42.8	24.3	72.8

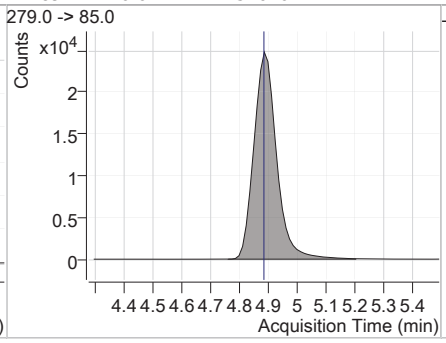


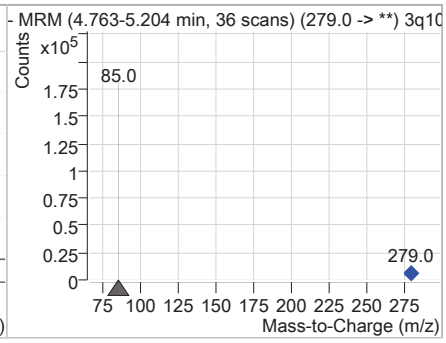
7.7.7

Perfluorinated Compounds by LC/MS/MS

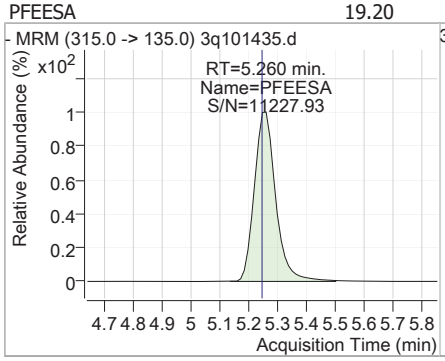
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	19.23	4.89	-0.01	134670				

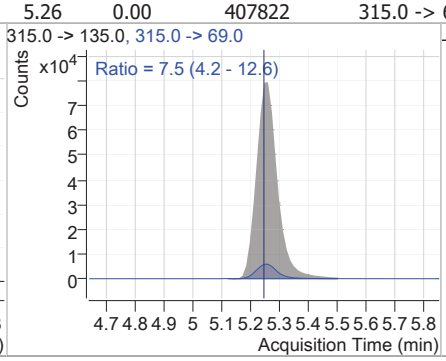


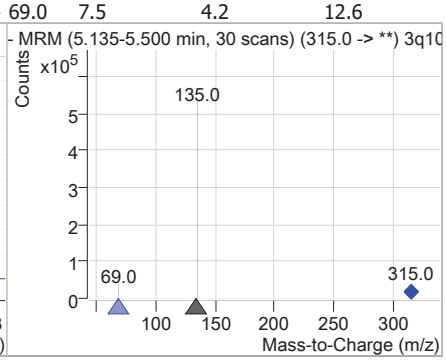




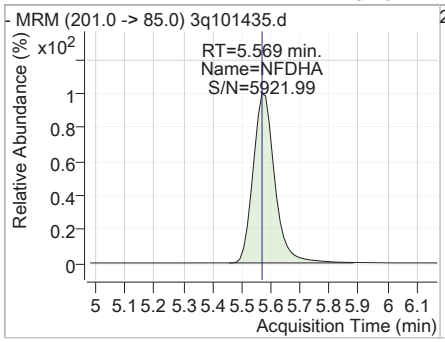
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	19.20	5.26	0.00	407822	315.0 -> 69.0	7.5	4.2	12.6

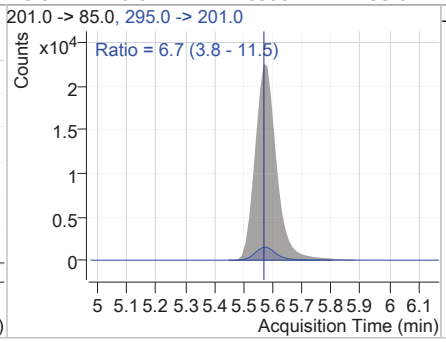


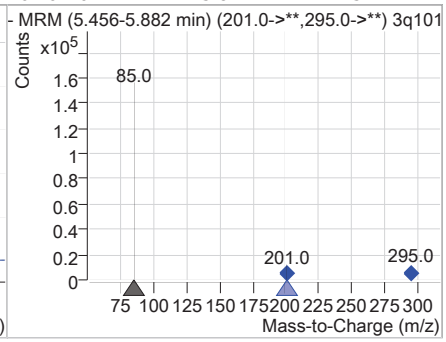




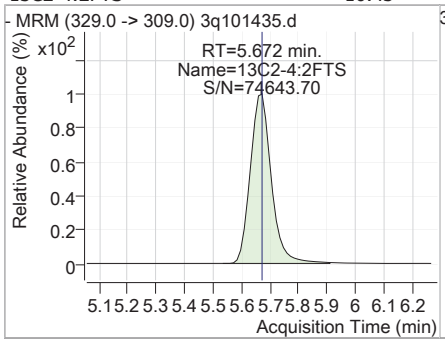
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	19.20	5.57	-0.01	116306	295.0 -> 201.0	6.7	3.8	11.5

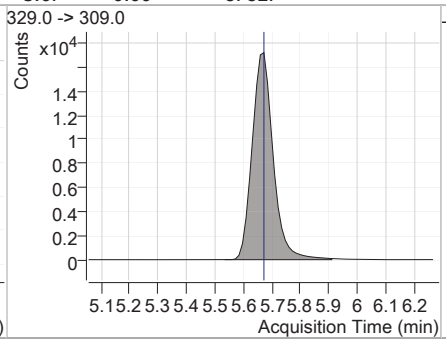


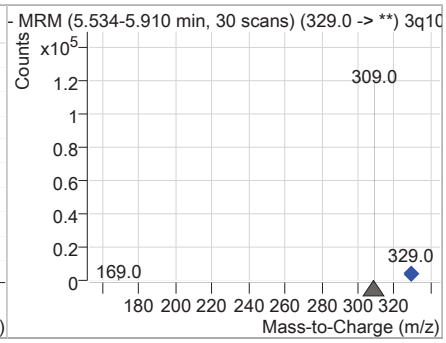




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	10.43	5.67	0.00	87827				

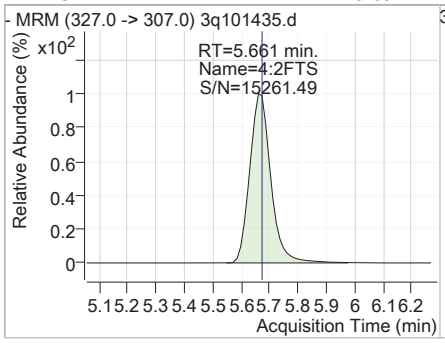


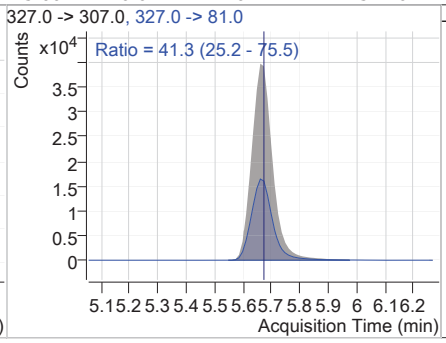


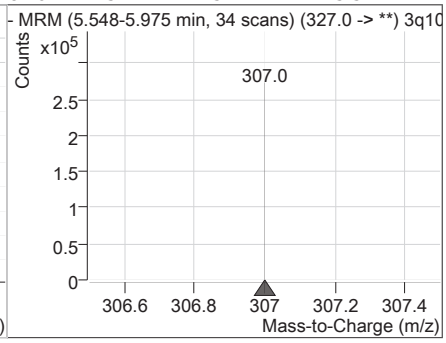


Perfluorinated Compounds by LC/MS/MS

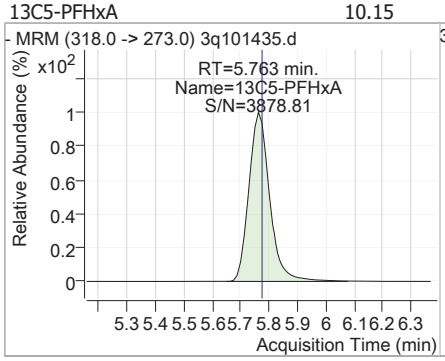
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.39	5.66	-0.01	204124	327.0 -> 81.0	41.3	25.2	75.5

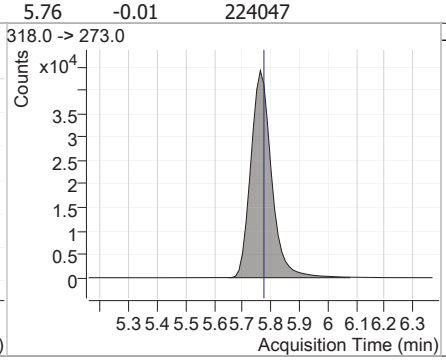


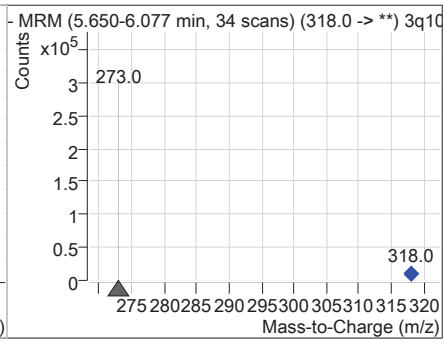




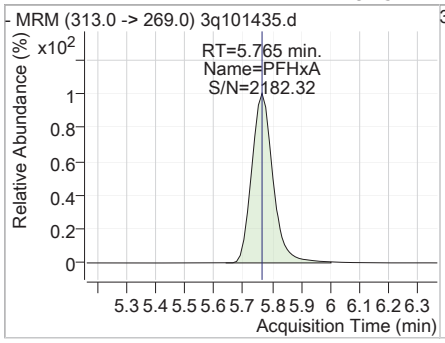
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.15	5.76	-0.01	224047				

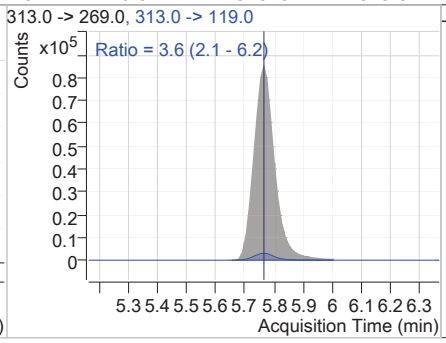


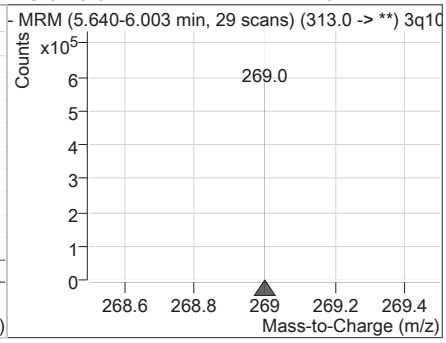




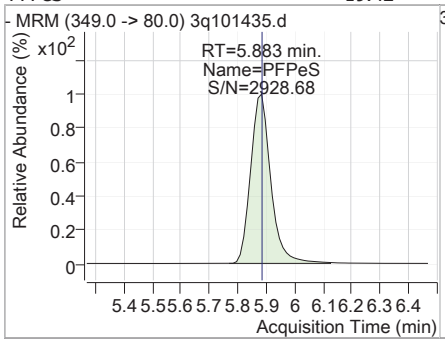
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.23	5.77	-0.01	437876	313.0 -> 119.0	3.6	2.1	6.2

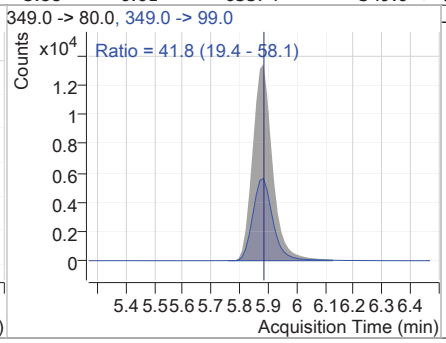


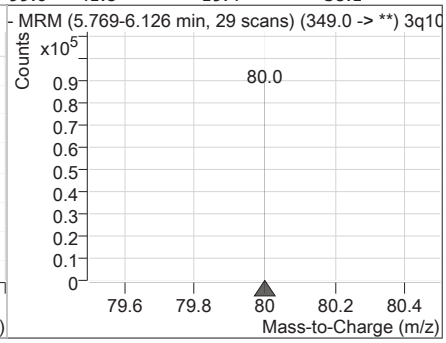




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	19.42	5.88	-0.01	65574	349.0 -> 99.0	41.8	19.4	58.1

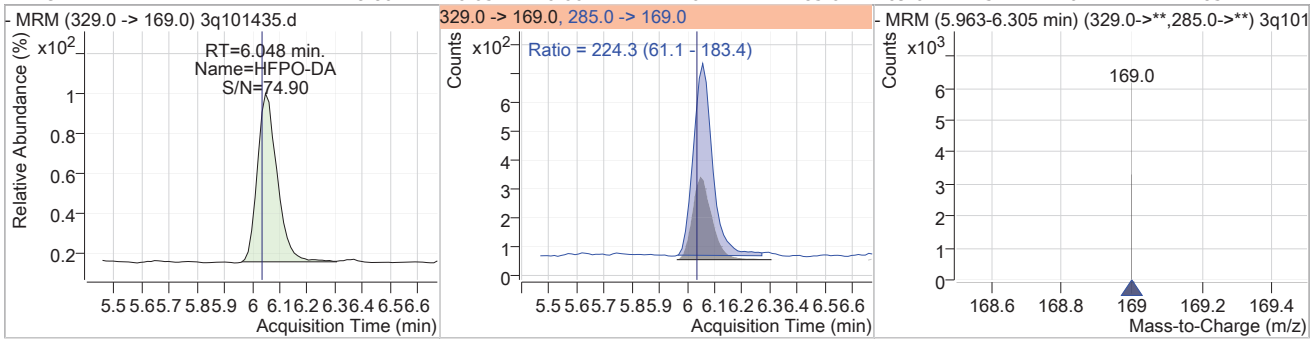




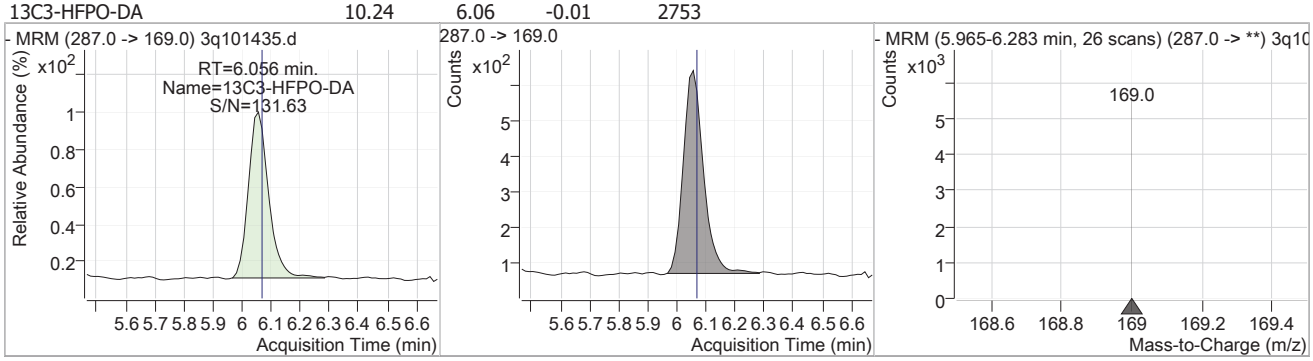


Perfluorinated Compounds by LC/MS/MS

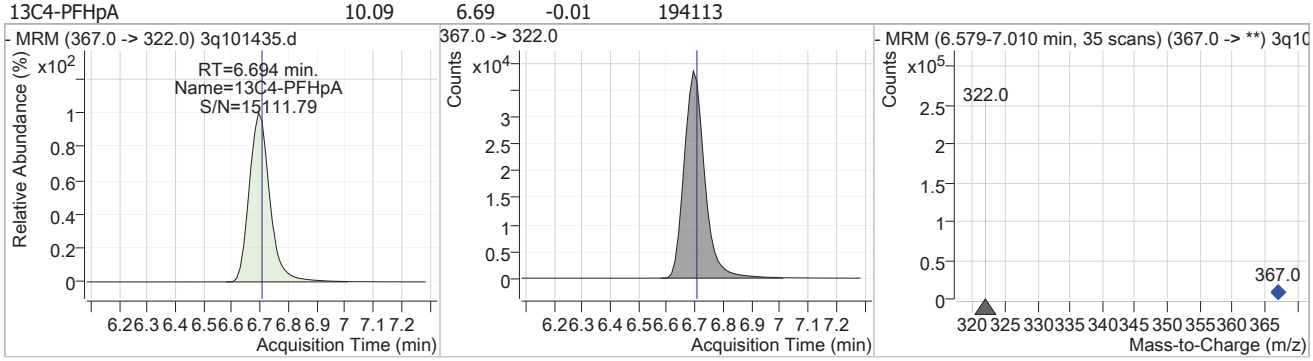
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	18.80	6.05	0.00	1440	285.0 -> 169.0	224.3	61.1	183.4



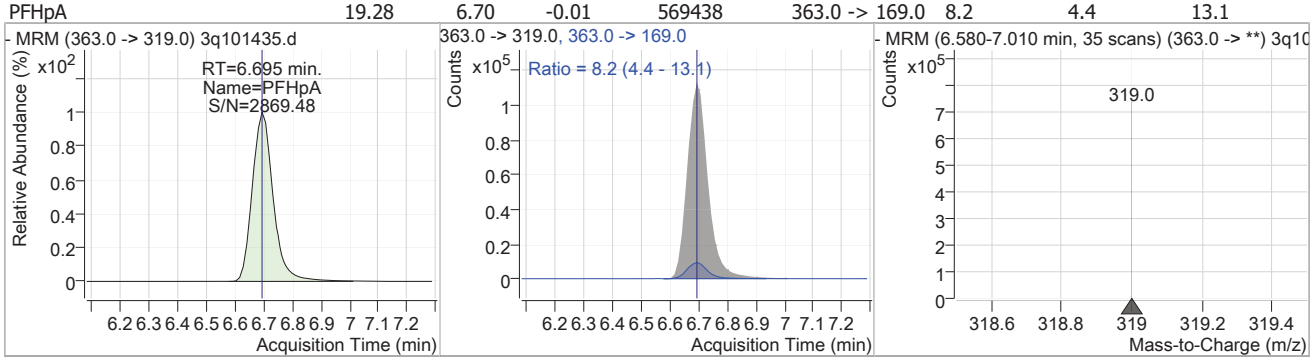
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.24	6.06	-0.01	2753				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.09	6.69	-0.01	194113				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.28	6.70	-0.01	569438	363.0 -> 169.0	8.2	4.4	13.1

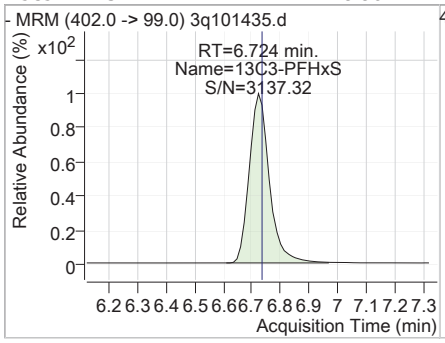


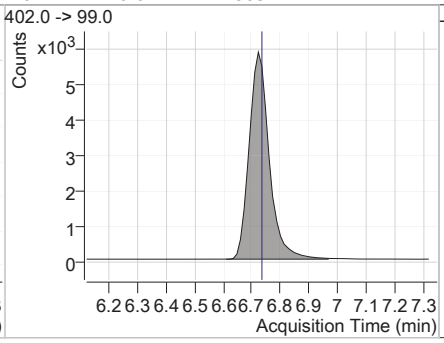
7.7.7

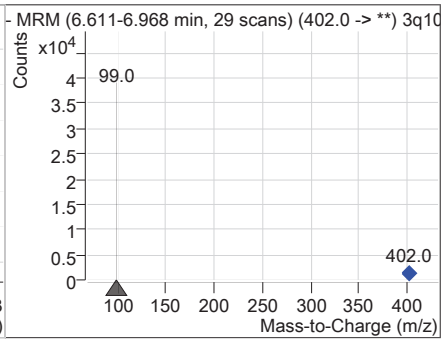
7

Perfluorinated Compounds by LC/MS/MS

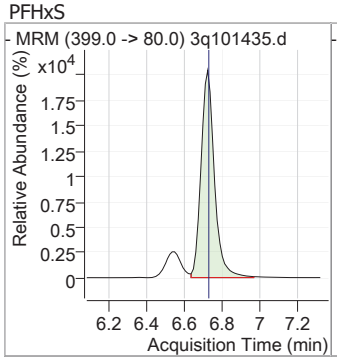
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	9.98	6.72	-0.01	28631				

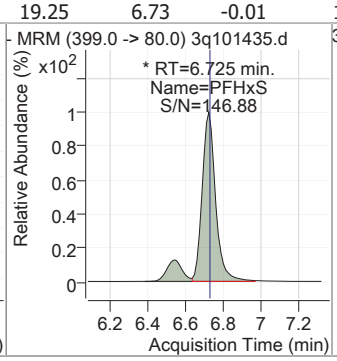


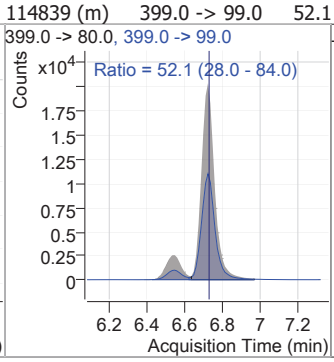


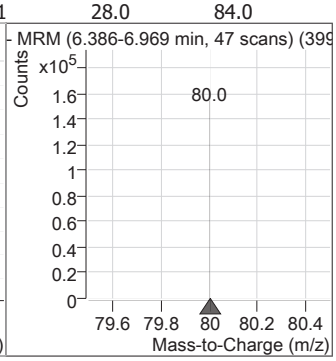


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.25	6.73	-0.01	114839 (m)	399.0 -> 99.0	52.1	28.0	84.0

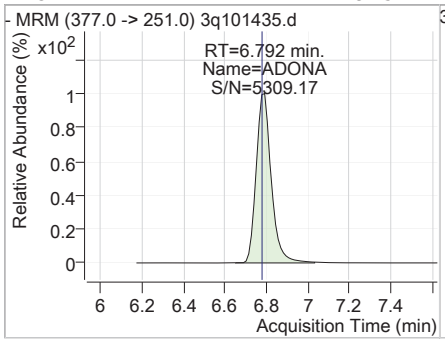


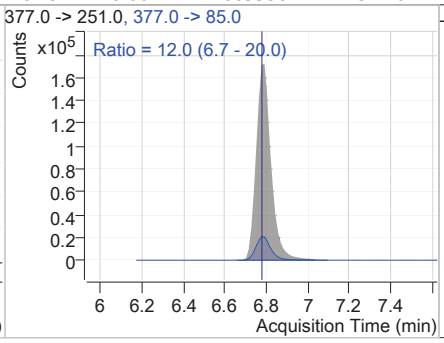


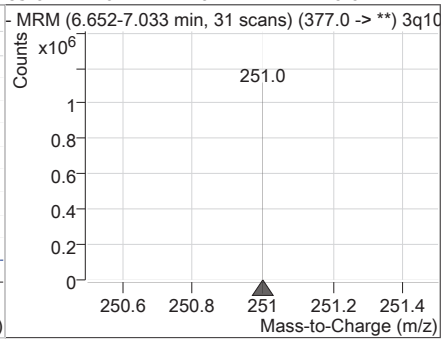




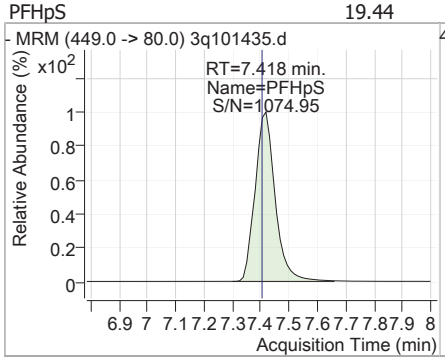
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.23	6.79	0.00	869936	377.0 -> 85.0	12.0	6.7	20.0

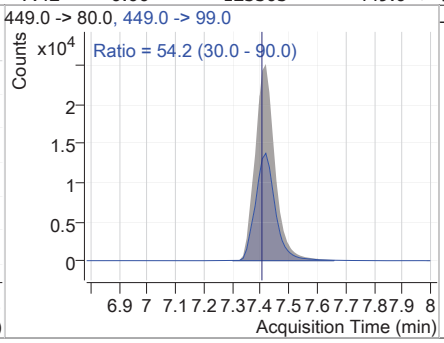


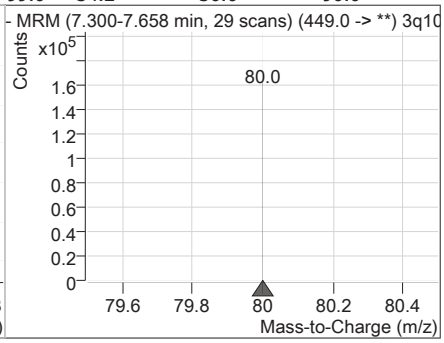




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	19.44	7.42	0.00	123303	449.0 -> 99.0	54.2	30.0	90.0

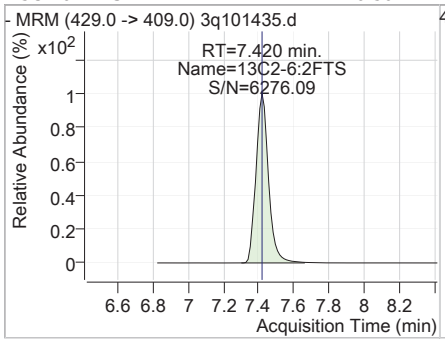


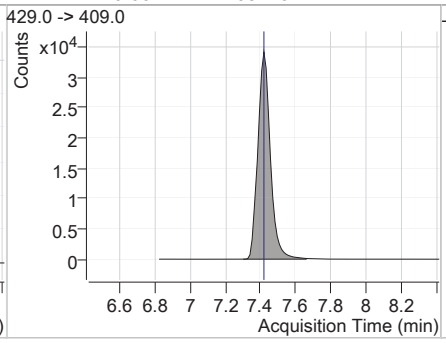


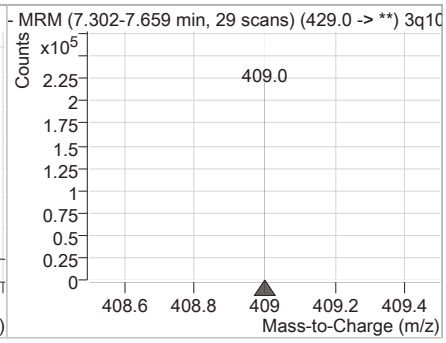


Perfluorinated Compounds by LC/MS/MS

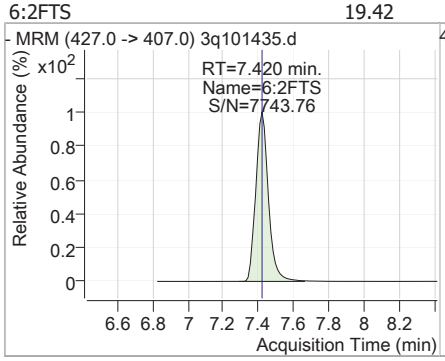
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	10.30	7.42	0.00	168110				

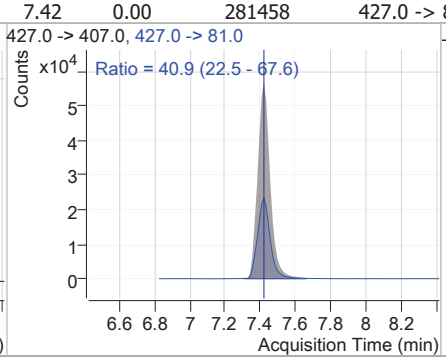


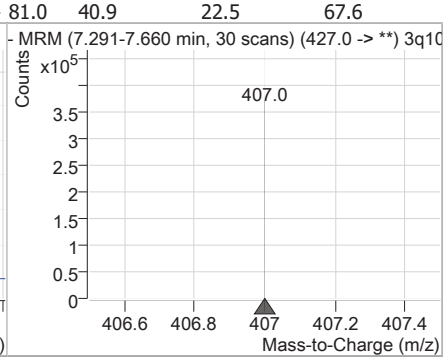




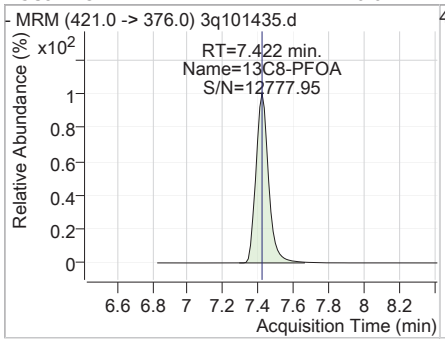
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.42	7.42	0.00	281458	427.0 -> 81.0	40.9	22.5	67.6

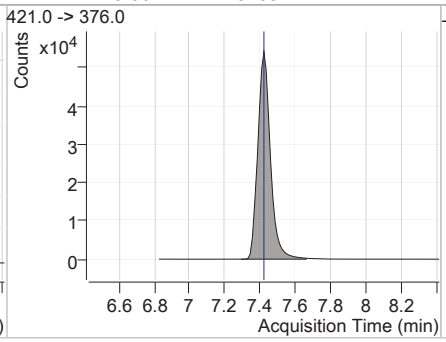


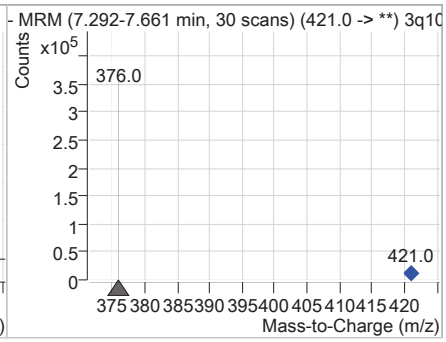




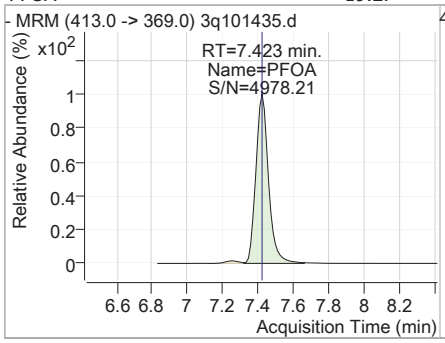
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.04	7.42	0.00	267684				

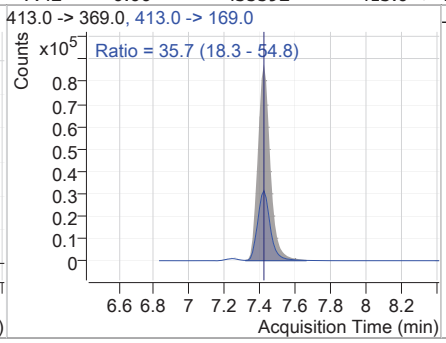


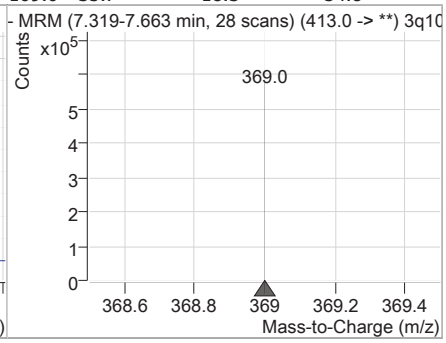




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.27	7.42	0.00	435592	413.0 -> 169.0	35.7	18.3	54.8

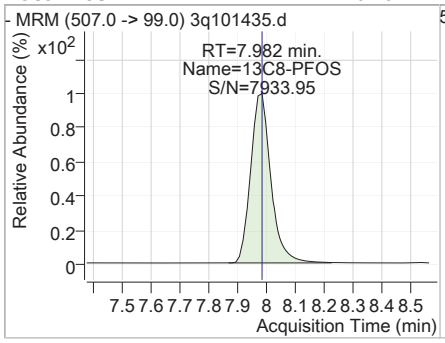


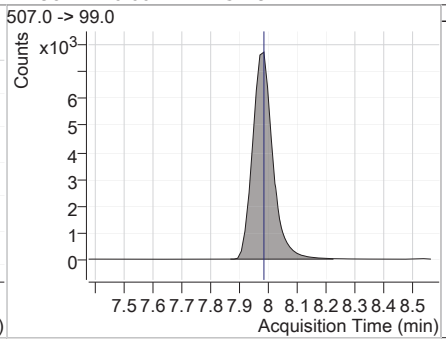


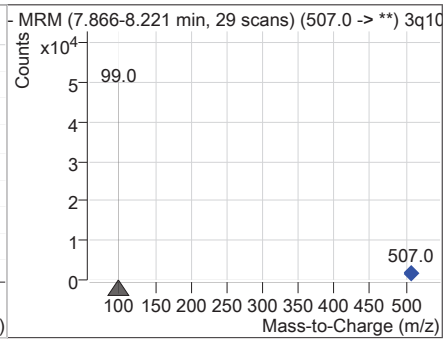


Perfluorinated Compounds by LC/MS/MS

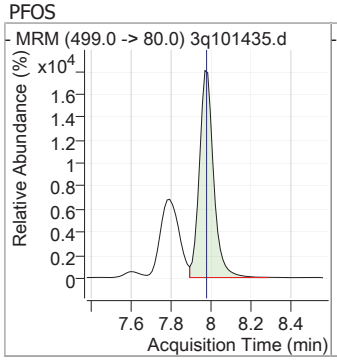
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.16	7.98	0.00	37291				

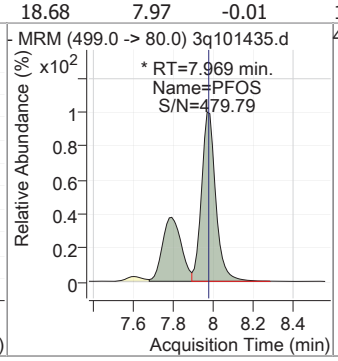


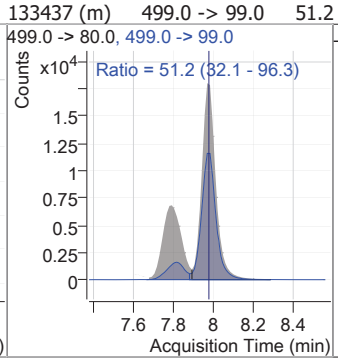


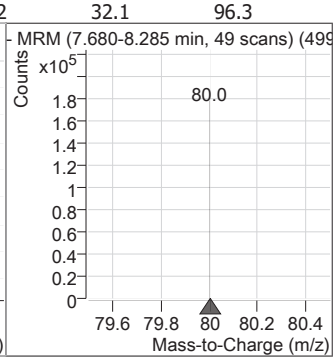


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.68	7.97	-0.01	133437 (m)	499.0 -> 99.0	51.2	32.1	96.3

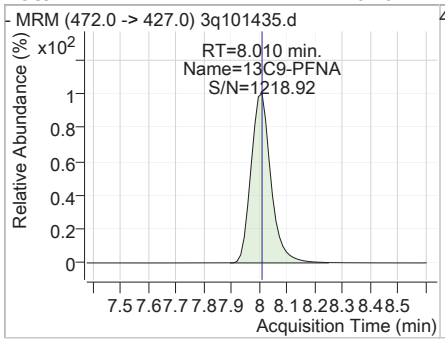


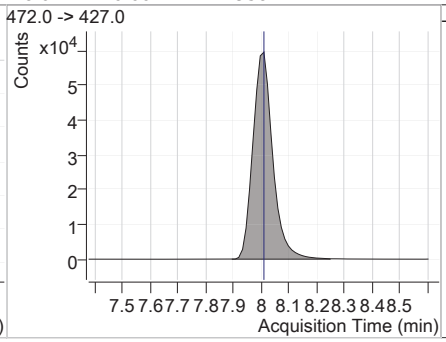


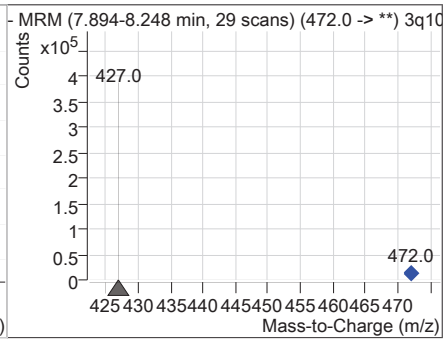




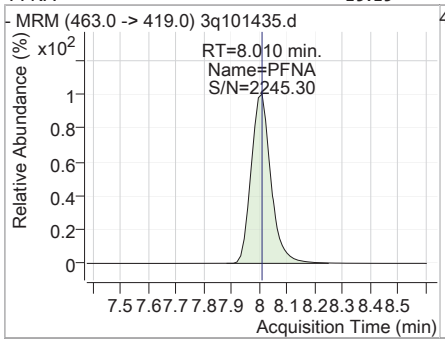
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.16	8.01	0.00	295871				

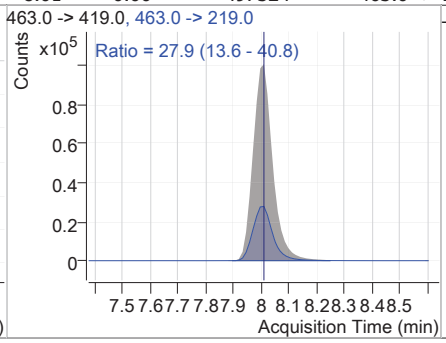


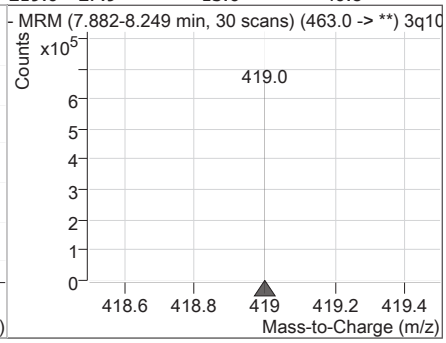




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.19	8.01	0.00	497324	463.0 -> 219.0	27.9	13.6	40.8

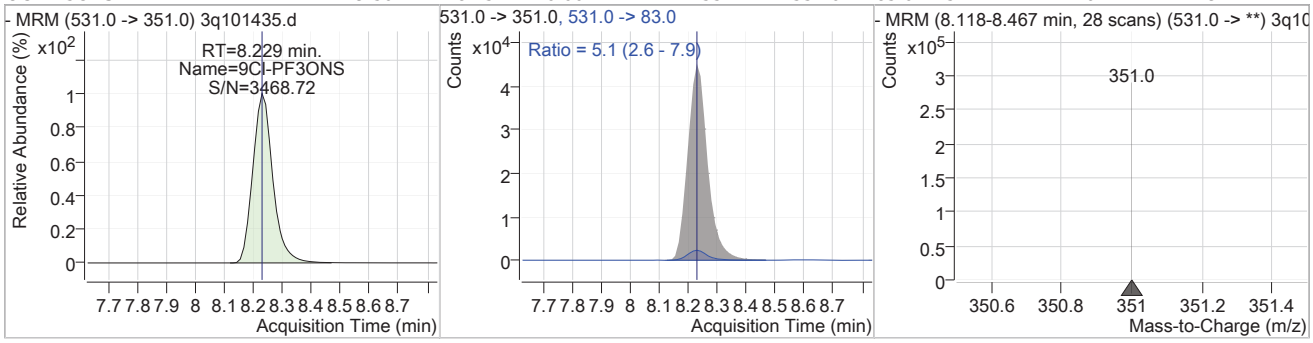




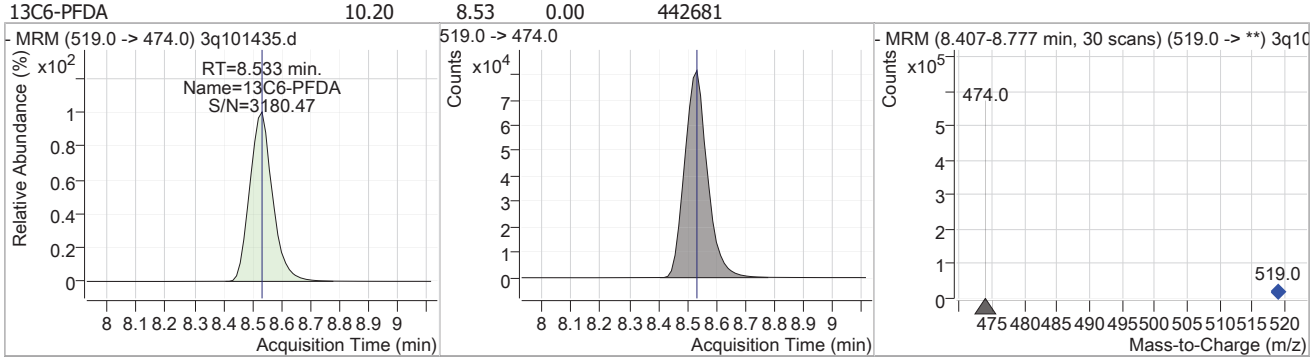


Perfluorinated Compounds by LC/MS/MS

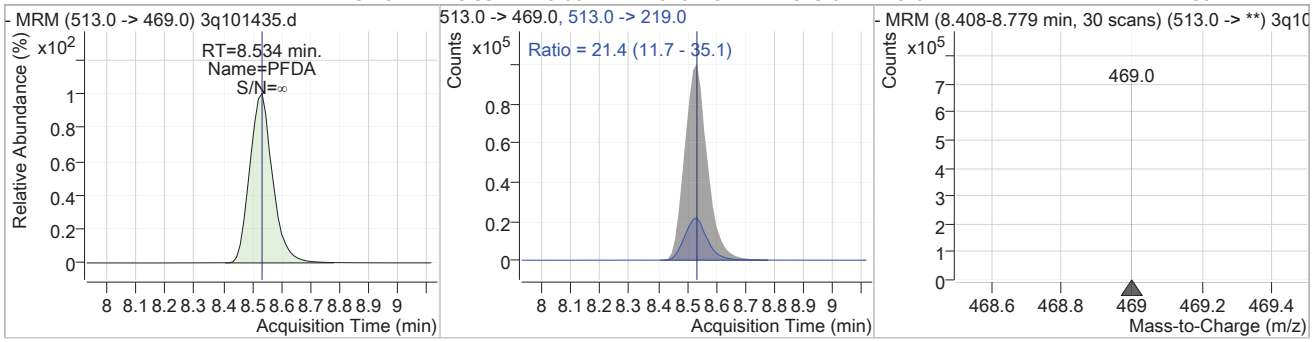
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	19.30	8.23	0.00	217455	531.0 -> 83.0	5.1	2.6	7.9



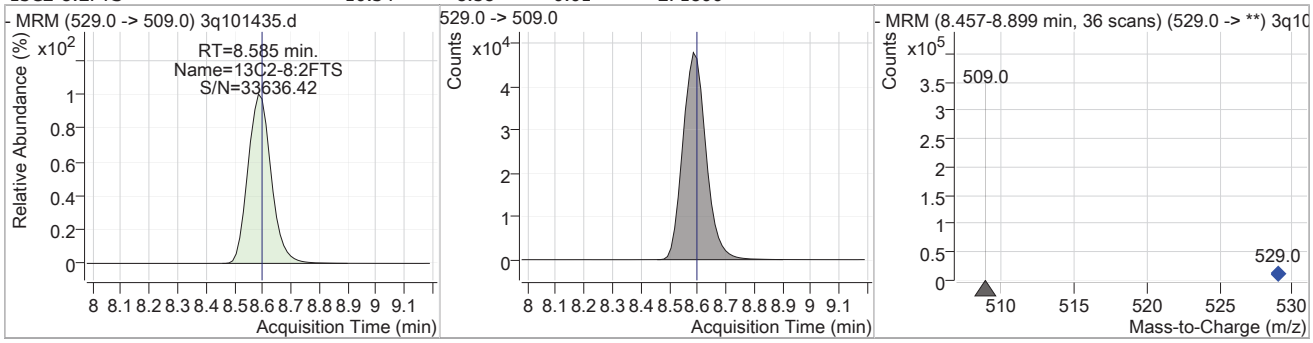
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	10.20	8.53	0.00	442681				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.28	8.53	0.00	548428	513.0 -> 219.0	21.4	11.7	35.1

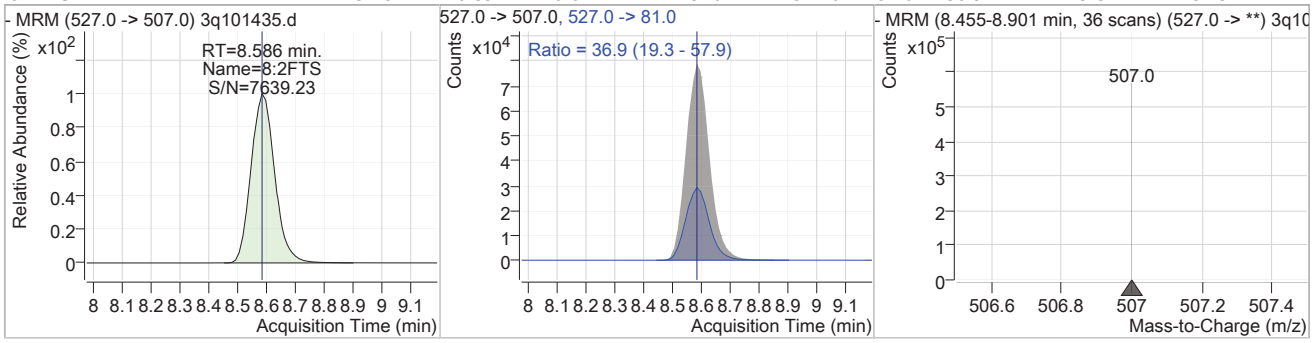


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	10.34	8.58	-0.01	271806				

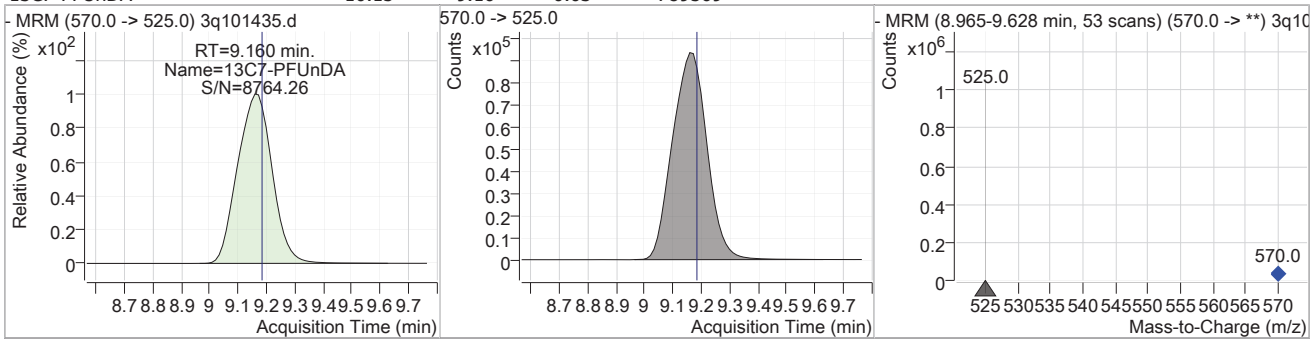


Perfluorinated Compounds by LC/MS/MS

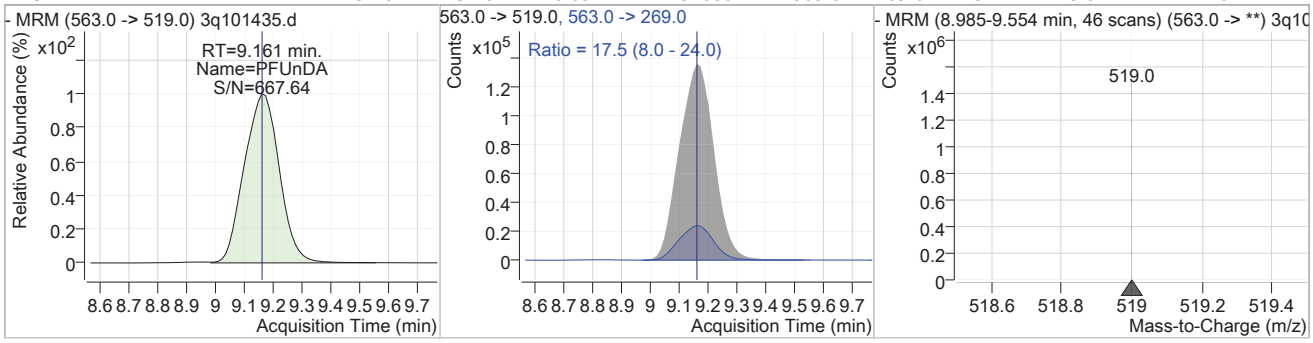
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	19.43	8.59	-0.01	447910	527.0 -> 81.0	36.9	19.3	57.9



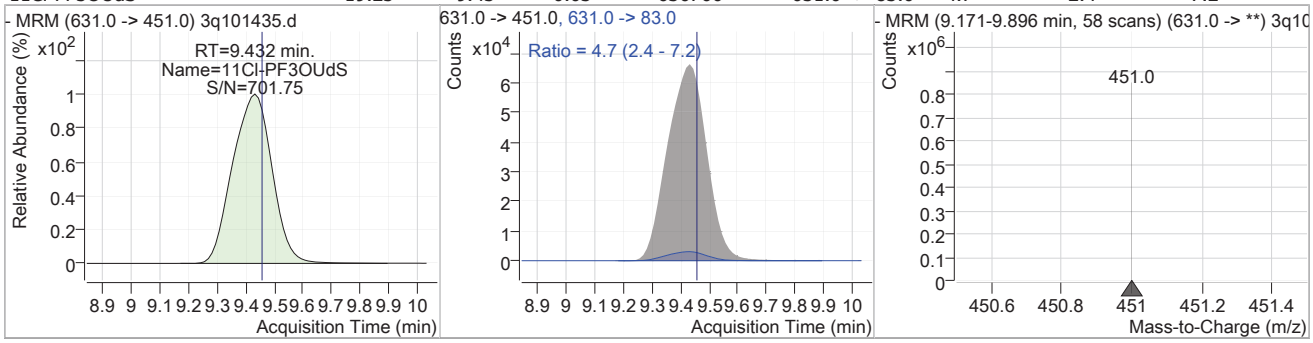
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	10.15	9.16	-0.03	789569				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.26	9.16	-0.03	1137685	563.0 -> 269.0	17.5	8.0	24.0

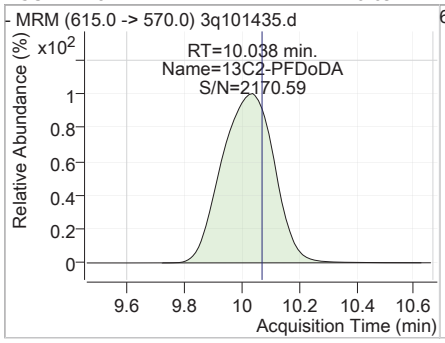


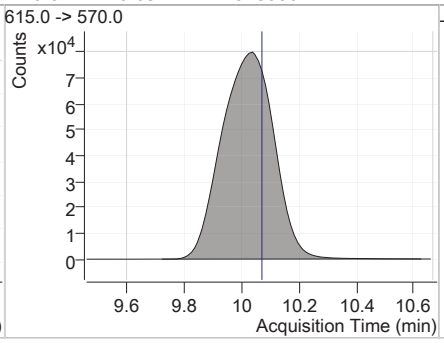
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	19.23	9.43	-0.03	636766	631.0 -> 83.0	4.7	2.4	7.2

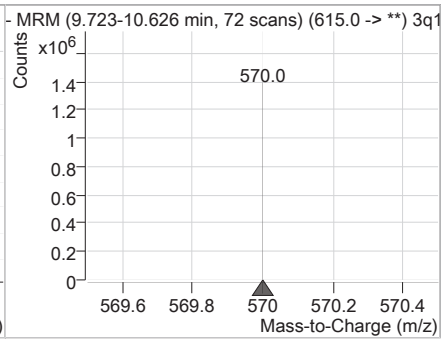


Perfluorinated Compounds by LC/MS/MS

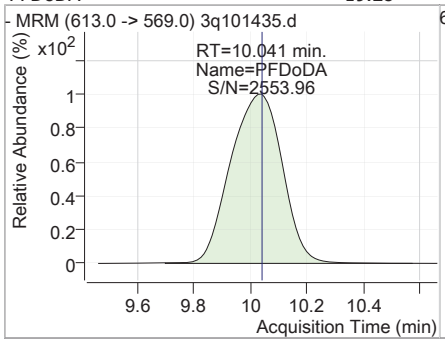
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.09	10.04	-0.03	1018080				

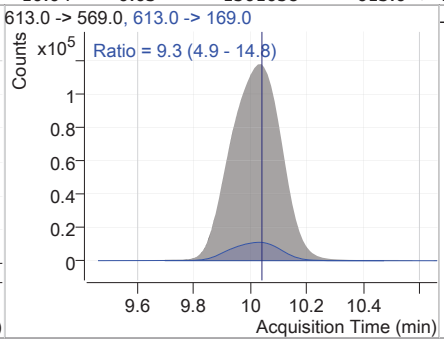


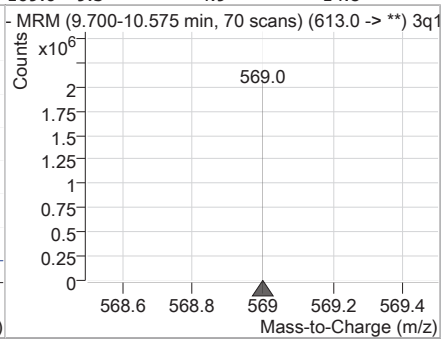




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.28	10.04	-0.03	1501658	613.0 -> 169.0	9.3	4.9	14.8







7.7.7

7

Manual Integration Approval Summary

Sample Number:	S3Q1491-ICC1491	**Method:**	EPA 533
Lab FileID:	3Q101435.D	**Analyst approved:**	04/14/25 11:45 (b) (6)
Injection Time:	04/11/25 17:03	**Supervisor approved:**	04/14/25 12:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.72	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.97	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/14/25 12:44

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101436.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/11/2025 5:19:13 PM
Sample Name : ic1491-40
Vial : P1-C8
DA Method File : 533_041125_S3Q1491.quantmethod.xml
Batch Name : s3q1491.batch.bin
Sample Information : op8141,S3Q1491,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	197056	10.00 µg/L	0.000
13C3-PFBA	2.319	216.0 -> 172.0	70848	10.00 µg/L	-0.013
13C4-PFOS	7.969	503.0 -> 80.0	29306	10.00 µg/L	-0.014
M4-PFBA	2.315	217.0 -> 172.0	129331	10.00 µg/L	-0.025
M5-PFPeA	4.400	268.0 -> 223.0	157685	10.00 µg/L	-0.013
M5-PFHxA	5.763	318.0 -> 273.0	210487	10.00 µg/L	-0.013
M4-PFHpA	6.694	367.0 -> 322.0	180254	10.00 µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	243922	10.00 µg/L	0.000
M9-PFNA	7.997	472.0 -> 427.0	272617	10.00 µg/L	-0.013
M6-PFDA	8.520	519.0 -> 474.0	404038	10.00 µg/L	-0.013
M7-PFUnDA	9.172	570.0 -> 525.0	737885	10.00 µg/L	-0.013
M2-PFDoDA	10.046	615.0 -> 570.0	969718	10.00 µg/L	-0.025
M3-PFBS	4.696	302.0 -> 99.0	19292	10.00 µg/L	-0.013
M3-PFHxS	6.723	402.0 -> 99.0	27350	10.00 µg/L	-0.013
M8-PFOS	7.968	507.0 -> 99.0	34940	10.00 µg/L	-0.014
M2-4:2FTS	5.659	329.0 -> 309.0	96903	10.00 µg/L	-0.013
M2-6:2FTS	7.420	429.0 -> 409.0	178947	10.00 µg/L	0.000
M2-8:2FTS	8.585	529.0 -> 509.0	295819	10.00 µg/L	-0.013
M3-HFPO-DA	6.056	287.0 -> 169.0	3016	10.00 µg/L	-0.013
System Monitoring Compounds					
13C2-4:2FTS	5.659	329.0 -> 309.0	96903	12.90 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 129.0%	
13C2-6:2FTS	7.420	429.0 -> 409.0	178933	12.29 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 122.9%	
13C2-8:2FTS	8.585	529.0 -> 509.0	295819	12.61 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 126.1%	
13C2-PFDoDA	10.046	615.0 -> 570.0	969718	11.24 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.4%	
13C3-PFBS	4.696	302.0 -> 99.0	19292	10.86 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.6%	
13C3-PFHxS	6.723	402.0 -> 99.0	27350	10.68 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.8%	
13C4-PFBA	2.315	217.0 -> 172.0	129331	10.67 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.7%	
13C4-PFHpA	6.694	367.0 -> 322.0	180254	10.95 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.5%	
13C5-PFHxA	5.763	318.0 -> 273.0	210487	11.15 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.5%	
13C5-PFPeA	4.400	268.0 -> 223.0	157685	10.60 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C6-PFDA	8.520	519.0 -> 474.0	404038	10.88 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.8%	
13C7-PFUnDA	9.172	570.0 -> 525.0	737885	11.09 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.9%	
13C8-PFOA	7.422	421.0 -> 376.0	243922	10.70 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

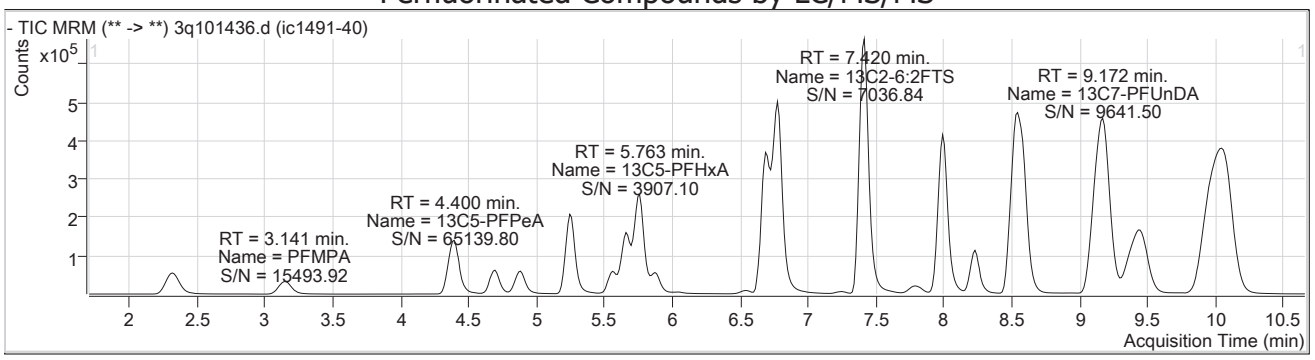
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.0%		
13C8-PFOS	7.968	507.0 -> 99.0	34940	10.67 µg/L		-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.7%		
13C9-PFNA	7.997	472.0 -> 427.0	272617	10.95 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.5%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	3016	13.12 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 131.2%		
Target Compounds						QValue
PFMPA	3.141	229.0 -> 85.0	227851	40.11 µg/L		100
4:2FTS	5.661	327.0 -> 307.0	491723	40.10 µg/L		86
		327.0 -> 81.0	200222			
6:2FTS	7.420	427.0 -> 407.0	657229	40.10 µg/L		94
		427.0 -> 81.0	270393			
8:2FTS	8.586	527.0 -> 507.0	1072429	40.09 µg/L		97
		527.0 -> 81.0	391622			
PFMBA	4.888	279.0 -> 85.0	318746	40.11 µg/L		100
PFEESA	5.247	315.0 -> 135.0	983651	40.11 µg/L		98
		315.0 -> 69.0	74818			
NFDHA	5.569	201.0 -> 85.0	278722	40.11 µg/L		97
		295.0 -> 201.0	18906			
PFBA	2.323	213.0 -> 169.0	199186	40.10 µg/L		100
PFBS	4.697	299.0 -> 80.0	217371	40.10 µg/L		91
		299.0 -> 99.0	91827			
PFDA	8.521	513.0 -> 469.0	1264425	40.10 µg/L		96
		513.0 -> 219.0	269533			
PFDoDA	10.050	613.0 -> 569.0	3570461	40.10 µg/L		99
		613.0 -> 169.0	337370			
PFHpA	6.695	363.0 -> 319.0	1326525	40.10 µg/L		99
		363.0 -> 169.0	110383			
PFHpS	7.406	449.0 -> 80.0	289646	40.08 µg/L		93
		449.0 -> 99.0	159491			
PFHxA	5.765	313.0 -> 269.0	1040585	40.10 µg/L		98
		313.0 -> 119.0	35469			
PFHxS	6.725	399.0 -> 80.0	276119	40.10 µg/L	m	94
		399.0 -> 99.0	143224			
PFNA	7.997	463.0 -> 419.0	1160522	40.11 µg/L		98
		463.0 -> 219.0	324916			
PFOA	7.423	413.0 -> 369.0	995729	40.10 µg/L		99
		413.0 -> 169.0	360166			
PFOS	7.969	499.0 -> 80.0	318102	40.53 µg/L	m	82
		499.0 -> 99.0	158469			
PFPeA	4.402	263.0 -> 219.0	659386	40.11 µg/L		100
PFPeS	5.871	349.0 -> 80.0	155981	40.08 µg/L		94
		349.0 -> 99.0	66138			
PFUnDA	9.174	563.0 -> 519.0	2677803	40.10 µg/L		96
		563.0 -> 269.0	470670			
11Cl-PF3OUdS	9.432	631.0 -> 451.0	1524569	40.10 µg/L		100
		631.0 -> 83.0	70723			
9Cl-PF3ONS	8.229	531.0 -> 351.0	511974	40.10 µg/L		100
		531.0 -> 83.0	26351			
ADONA	6.778	377.0 -> 251.0	2058597	40.10 µg/L		97
		377.0 -> 85.0	247987			
HFPO-DA	6.048	329.0 -> 169.0	3573	40.54 µg/L	#	1
		285.0 -> 169.0	8952			

 # = Qualifier out of range, m = manually integrated, + = Area summed

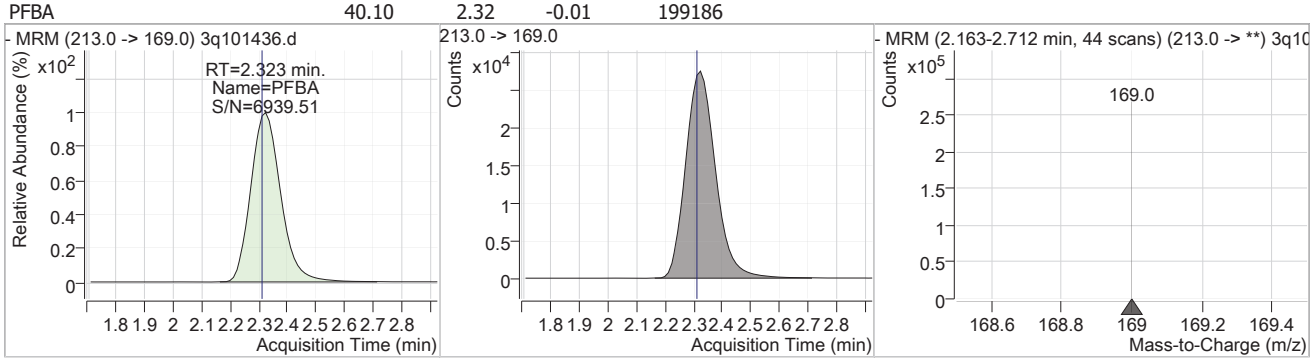
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

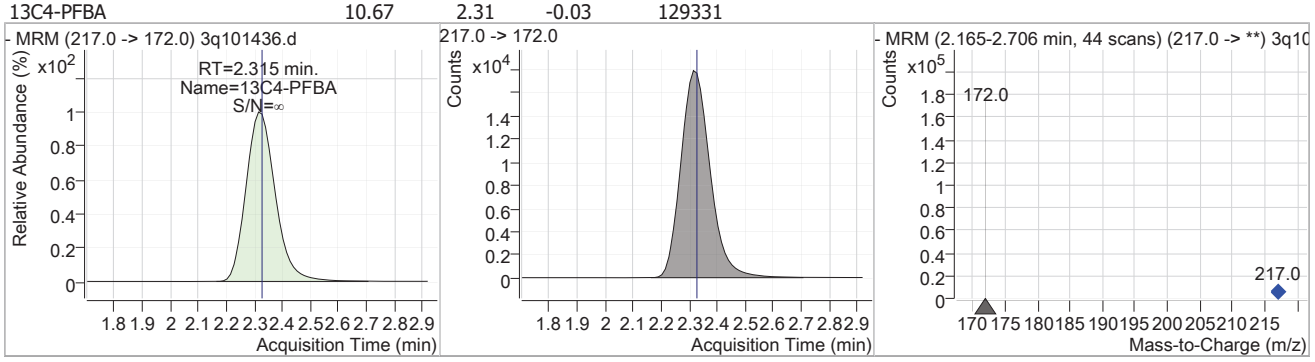
Perfluorinated Compounds by LC/MS/MS



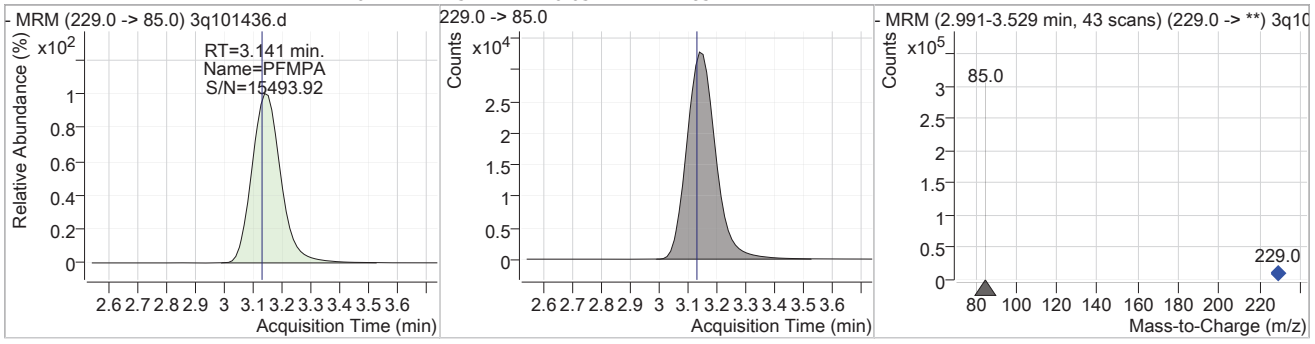
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	40.10	2.32	-0.01	199186				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.67	2.31	-0.03	129331				

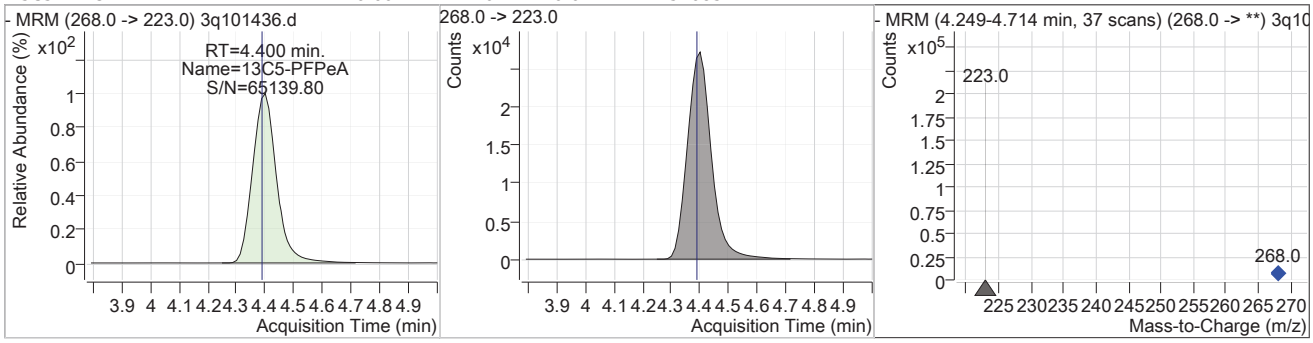


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	40.11	3.14	-0.03	227851				

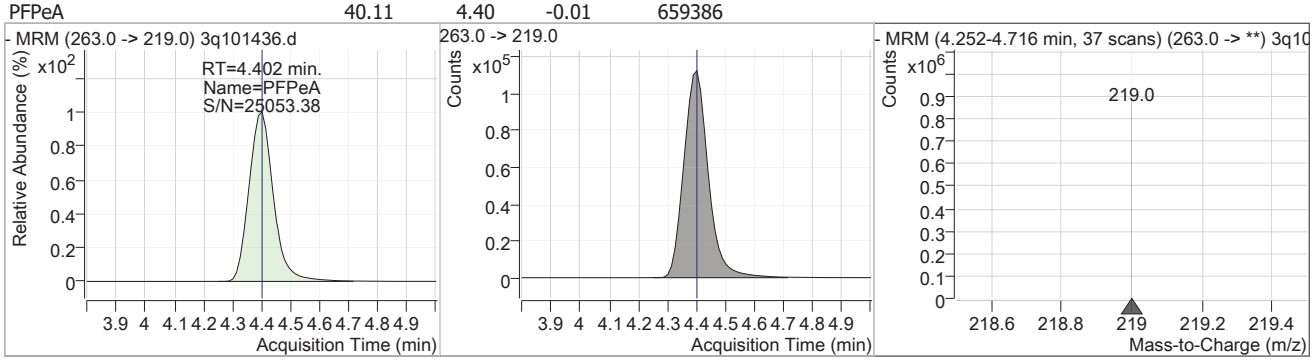


Perfluorinated Compounds by LC/MS/MS

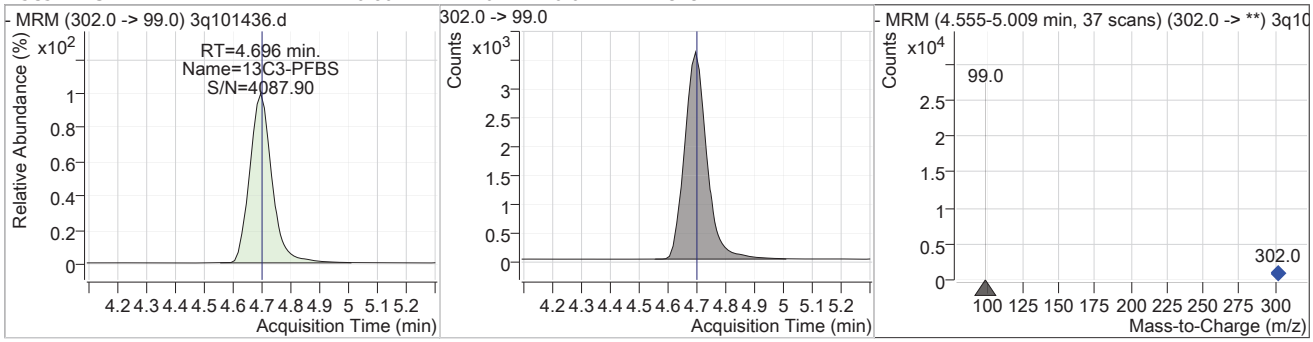
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.60	4.40	-0.01	157685				



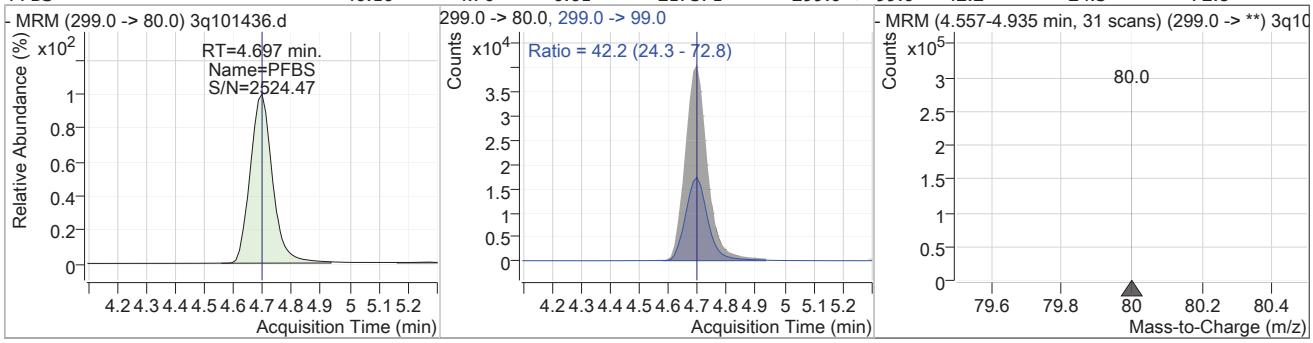
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	40.11	4.40	-0.01	659386				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.86	4.70	-0.01	19292				

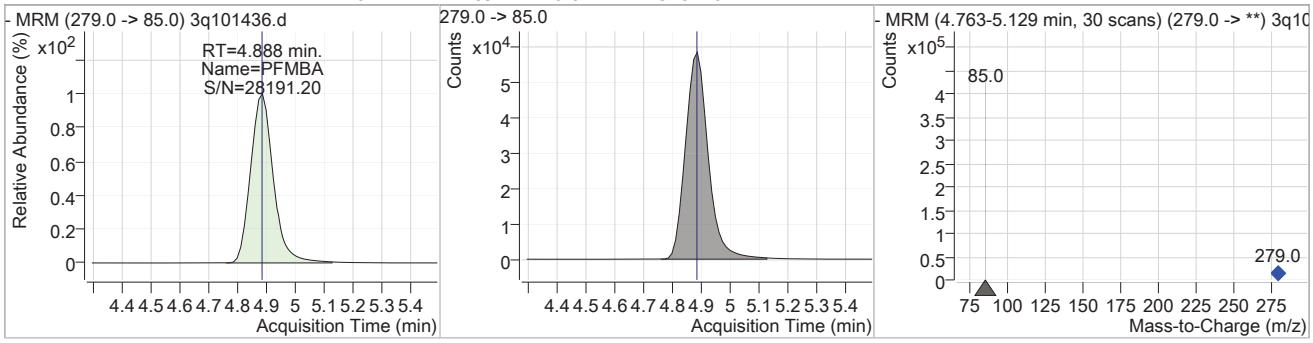


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	40.10	4.70	-0.01	217371	299.0 -> 99.0	42.2	24.3	72.8

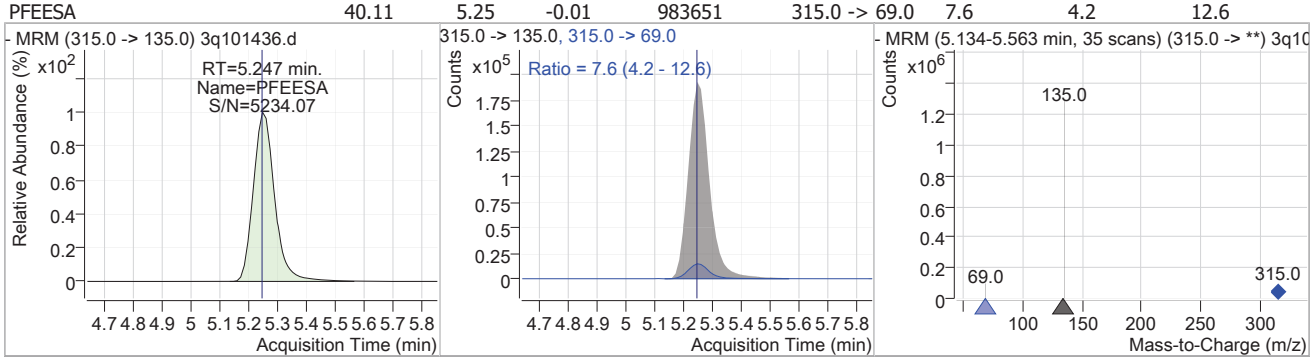


Perfluorinated Compounds by LC/MS/MS

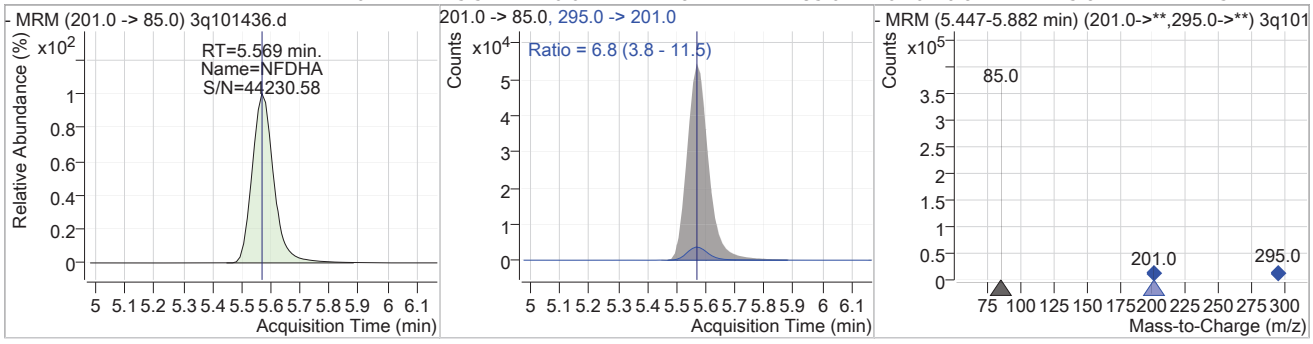
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	40.11	4.89	-0.01	318746				



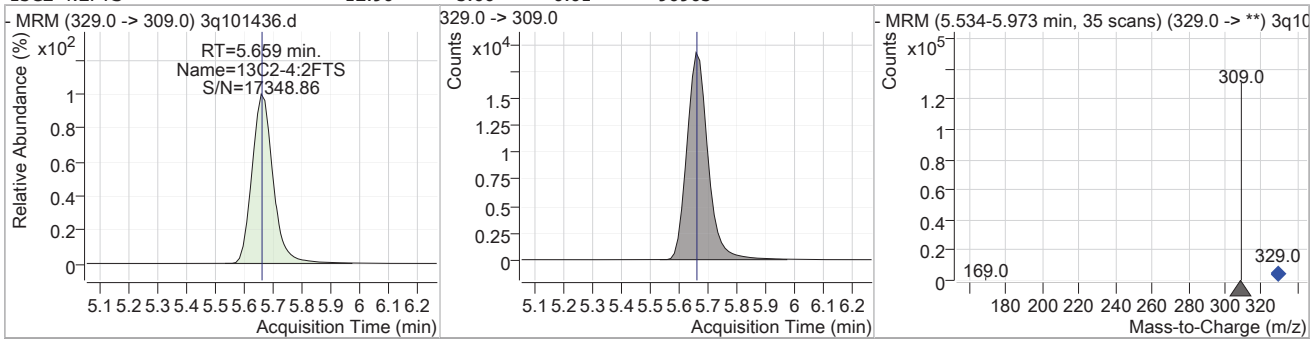
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	40.11	5.25	-0.01	983651	315.0 -> 69.0	7.6	4.2	12.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	40.11	5.57	-0.01	278722	295.0 -> 201.0	6.8	3.8	11.5

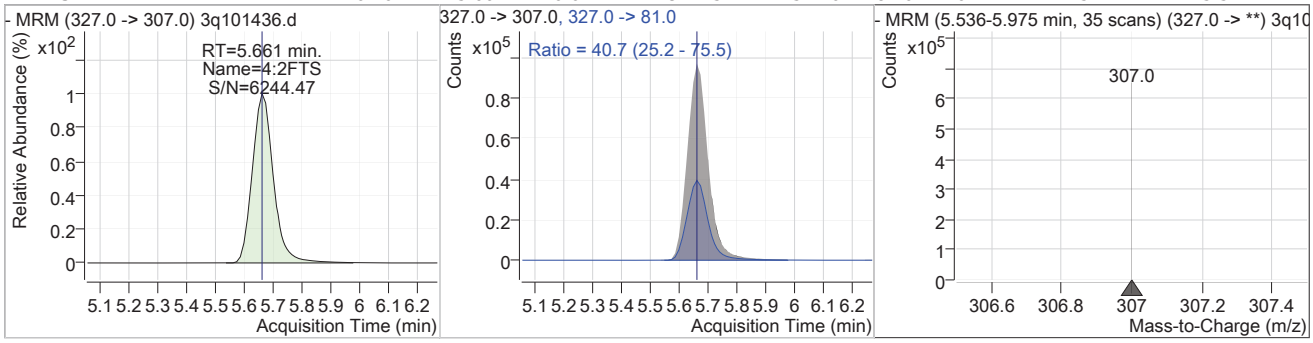


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	12.90	5.66	-0.01	96903				

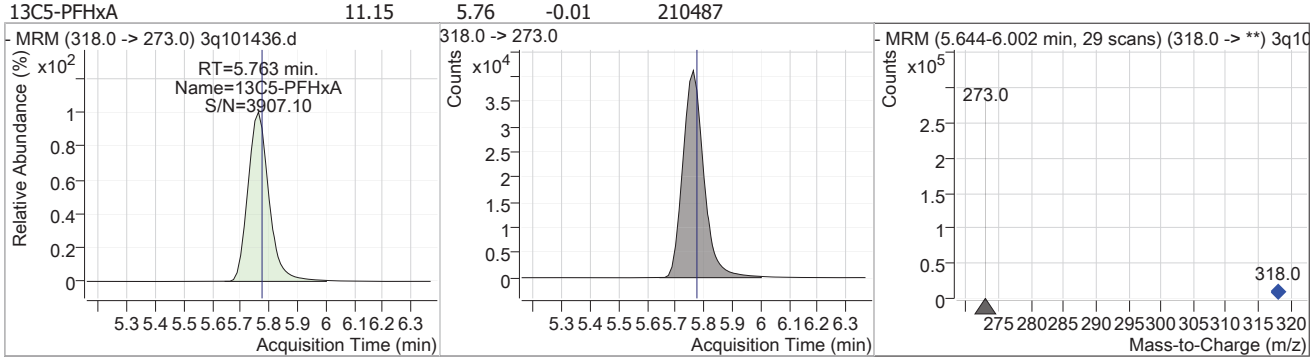


Perfluorinated Compounds by LC/MS/MS

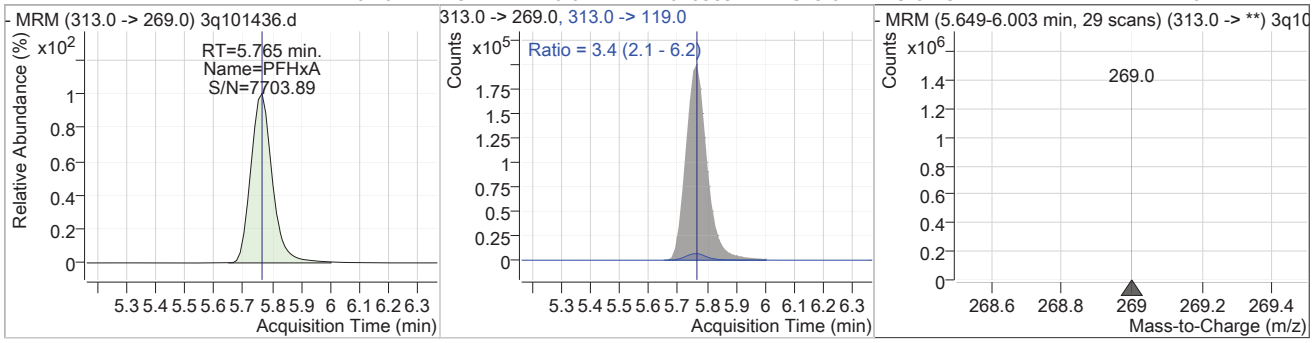
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	40.10	5.66	-0.01	491723	327.0 -> 81.0	40.7	25.2	75.5



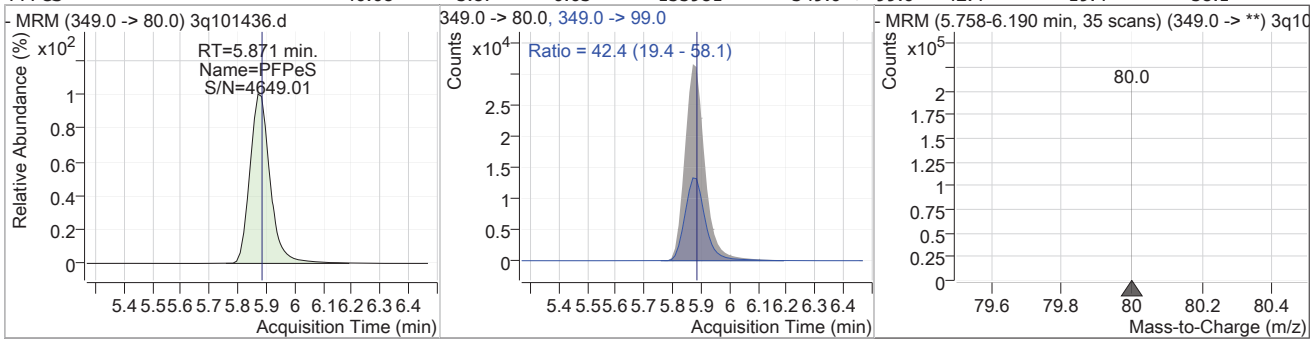
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	11.15	5.76	-0.01	210487				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	40.10	5.77	-0.01	1040585	313.0 -> 119.0	3.4	2.1	6.2

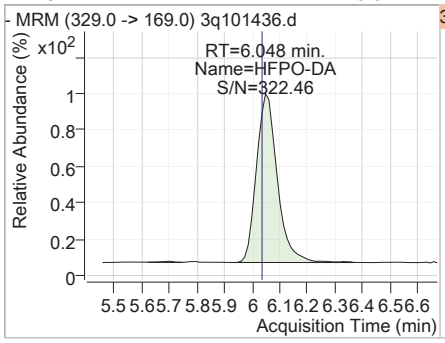


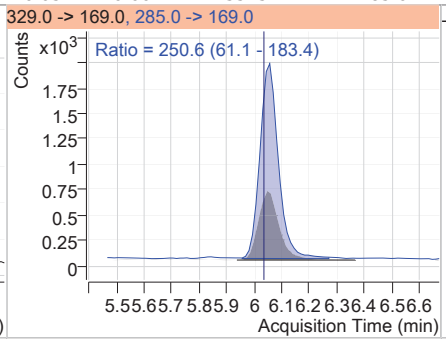
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	40.08	5.87	-0.03	155981	349.0 -> 99.0	42.4	19.4	58.1

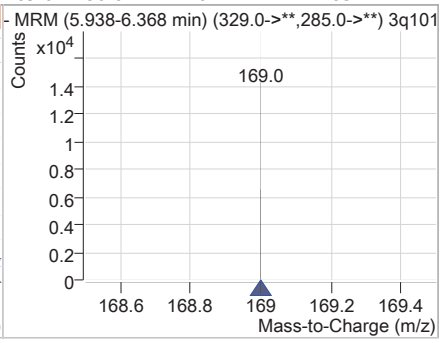


Perfluorinated Compounds by LC/MS/MS

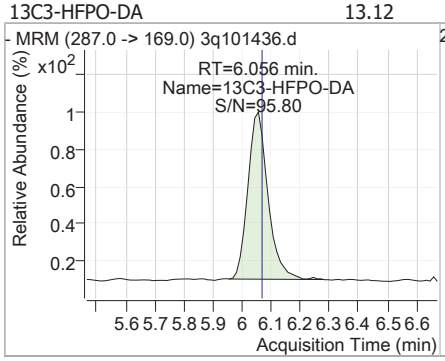
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	40.54	6.05	0.00	3573	285.0 -> 169.0	250.6	61.1	183.4

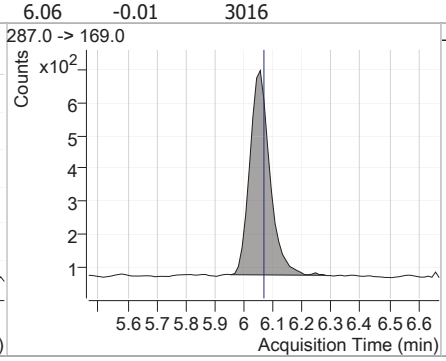


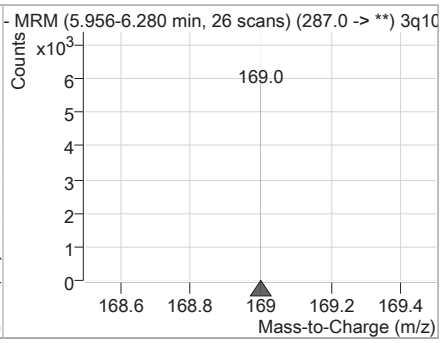




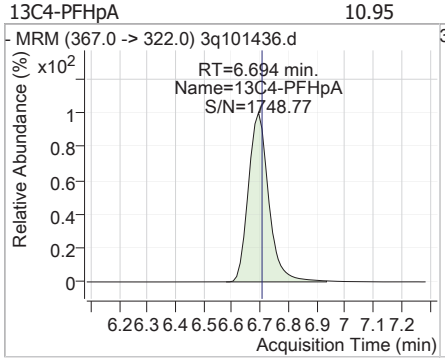
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	13.12	6.06	-0.01	3016				

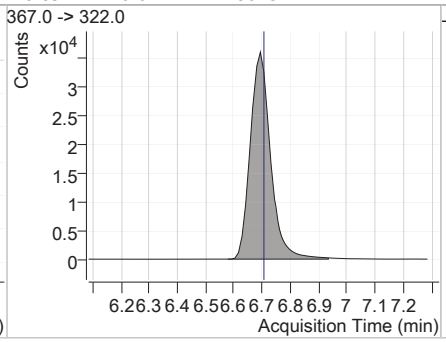


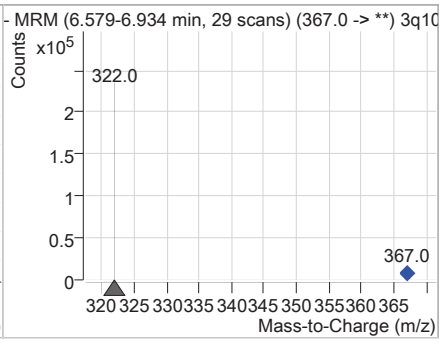




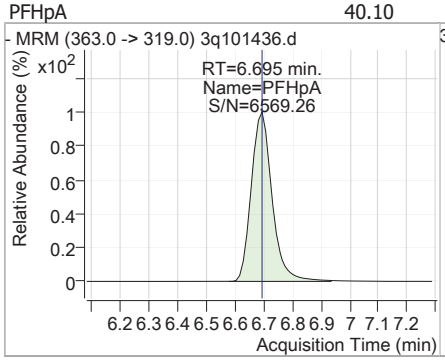
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.95	6.69	-0.01	180254				

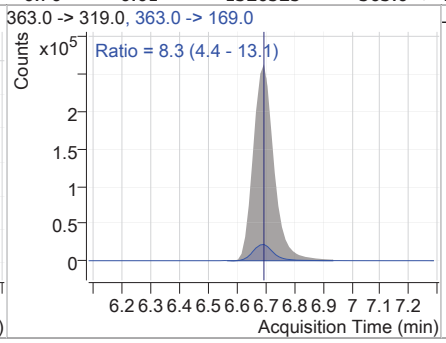


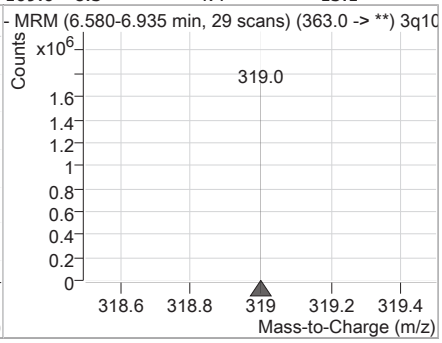




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	40.10	6.70	-0.01	1326525	363.0 -> 169.0	8.3	4.4	13.1

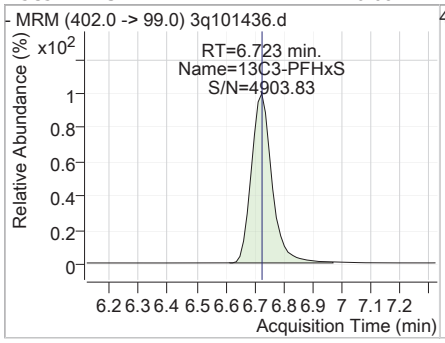


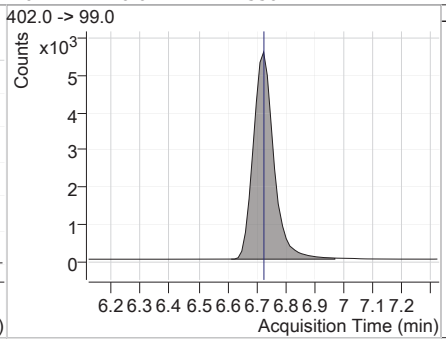


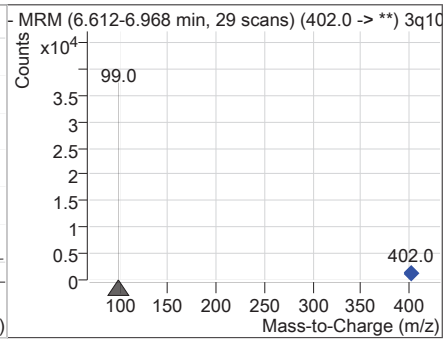


Perfluorinated Compounds by LC/MS/MS

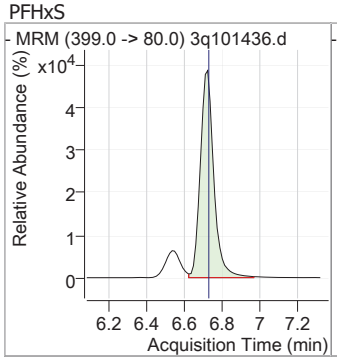
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.68	6.72	-0.01	27350				

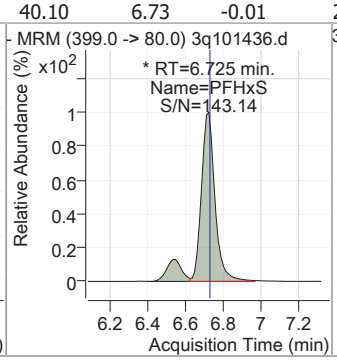


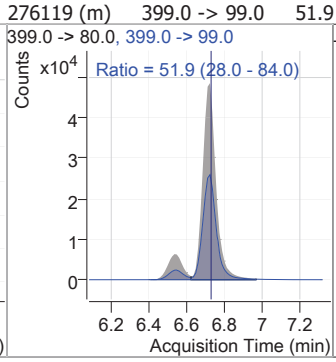


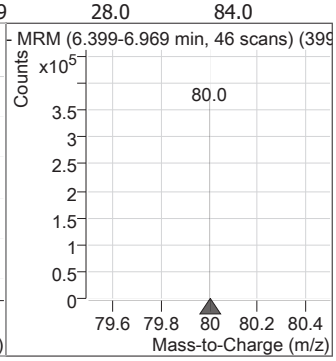


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	40.10	6.73	-0.01	276119 (m)	399.0 -> 99.0	51.9	28.0	84.0

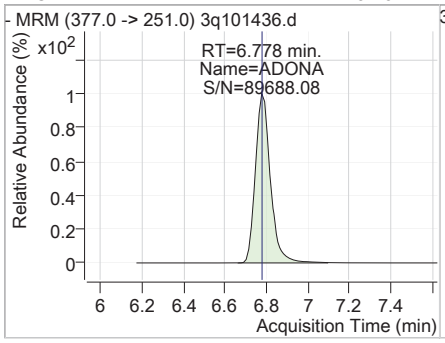


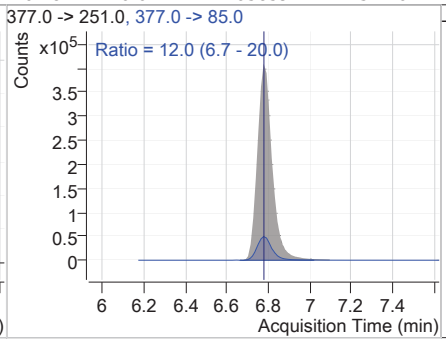


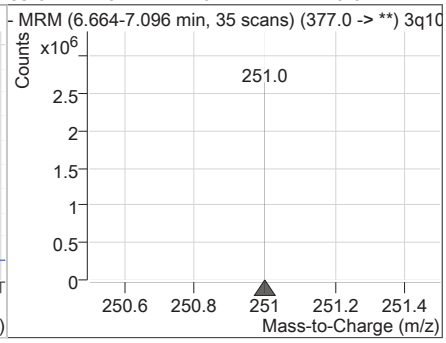




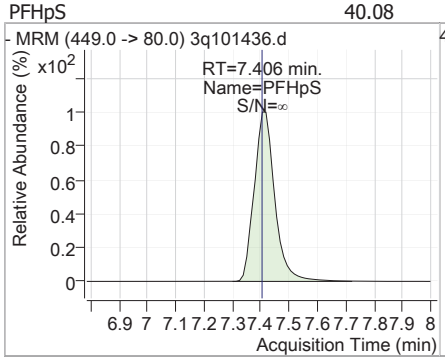
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	40.10	6.78	-0.01	2058597	377.0 -> 85.0	12.0	6.7	20.0

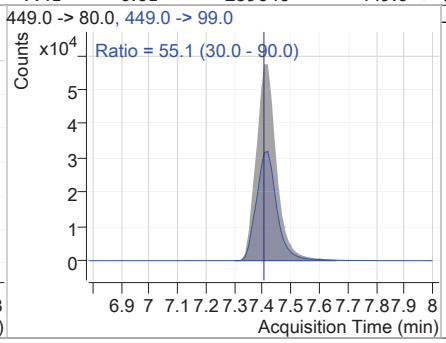


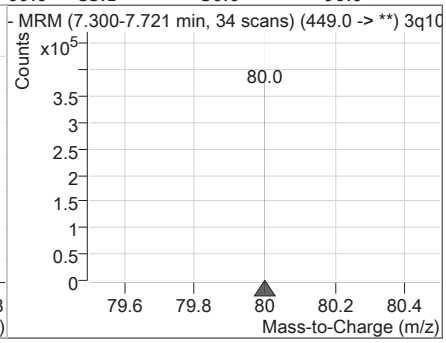




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	40.08	7.41	-0.01	289646	449.0 -> 99.0	55.1	30.0	90.0

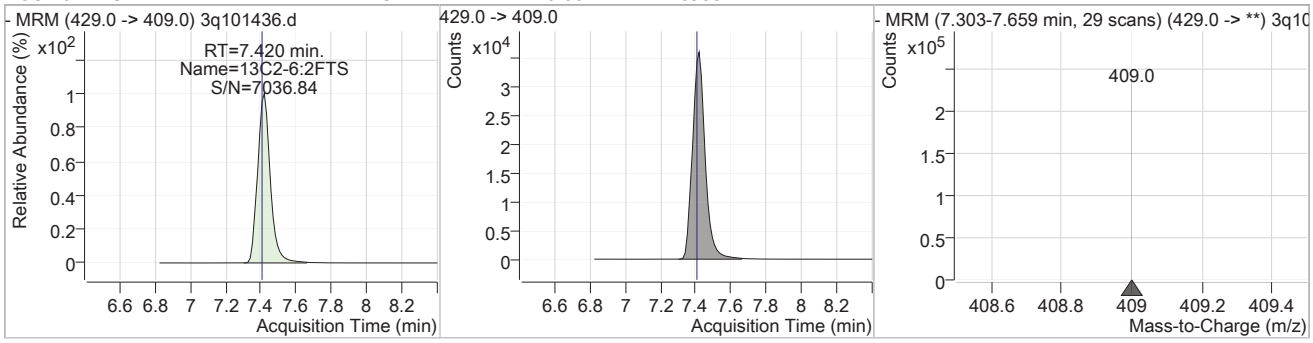




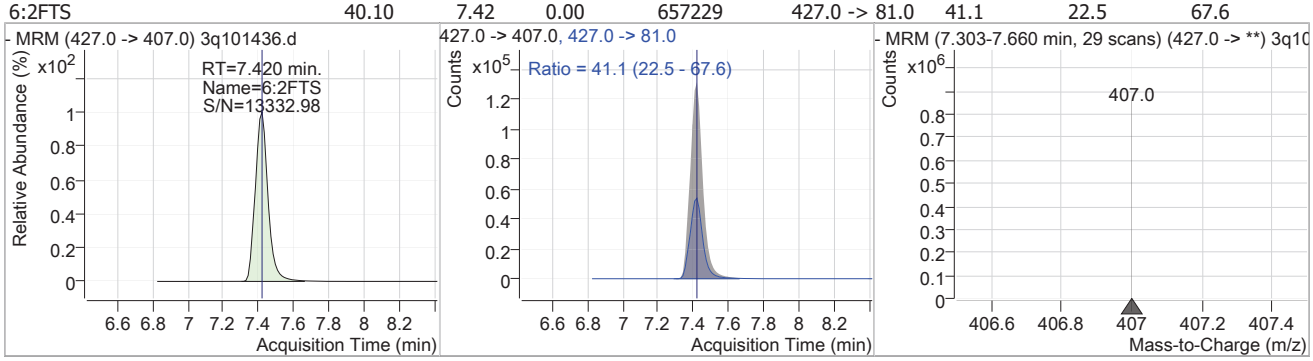


Perfluorinated Compounds by LC/MS/MS

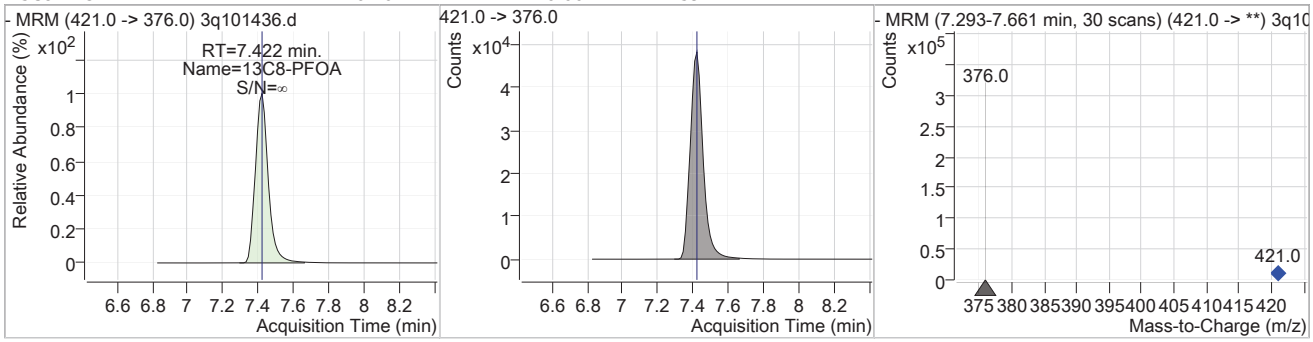
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	12.29	7.42	0.00	178933				



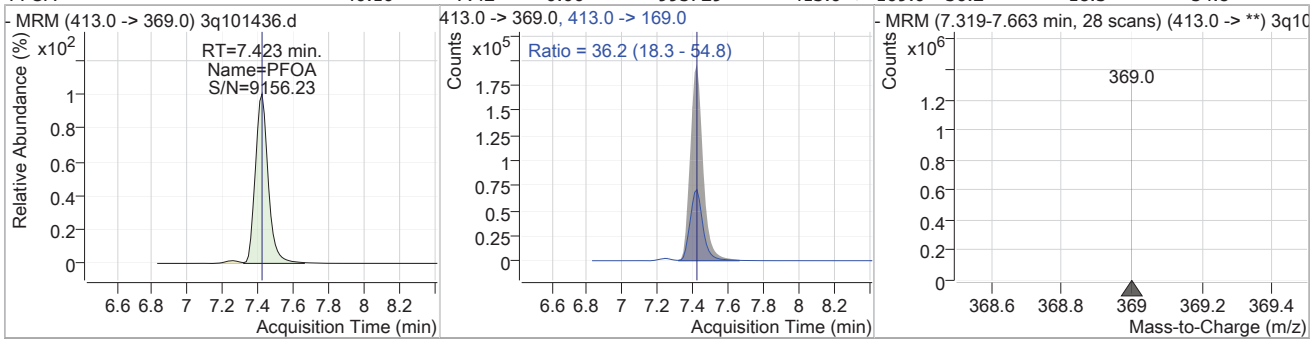
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	40.10	7.42	0.00	657229	427.0 -> 81.0	41.1	22.5	67.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.70	7.42	0.00	243922				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	40.10	7.42	0.00	995729	413.0 -> 169.0	36.2	18.3	54.8

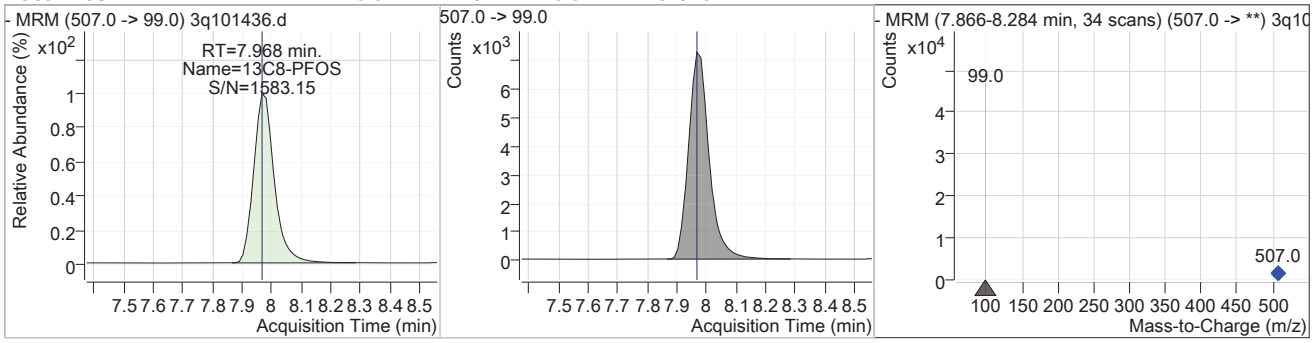


7.7.8

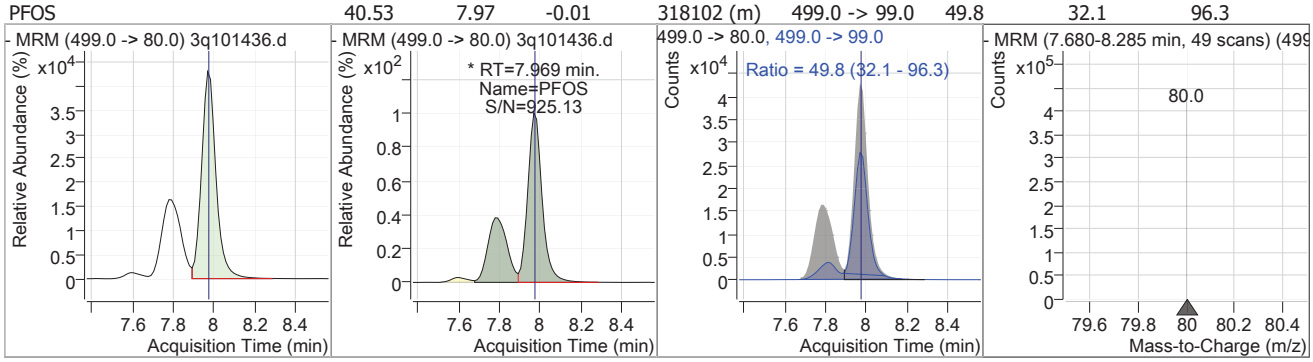
7

Perfluorinated Compounds by LC/MS/MS

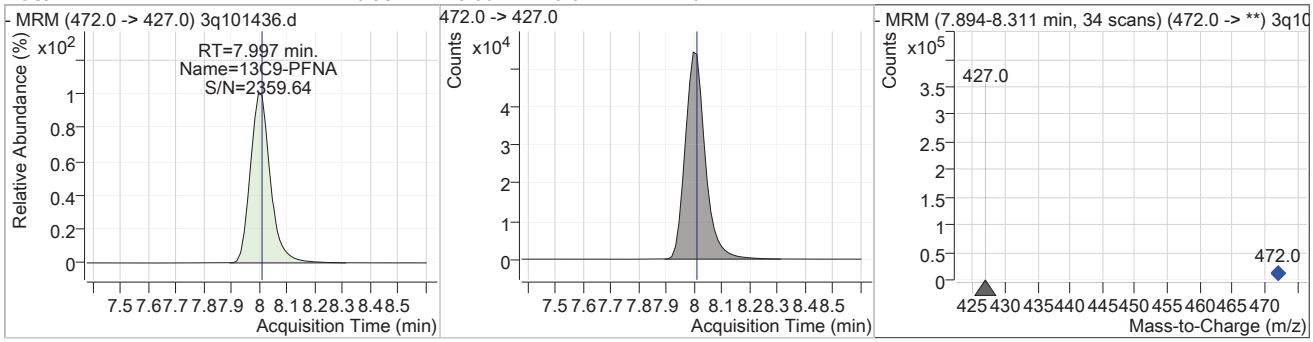
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.67	7.97	-0.01	34940				



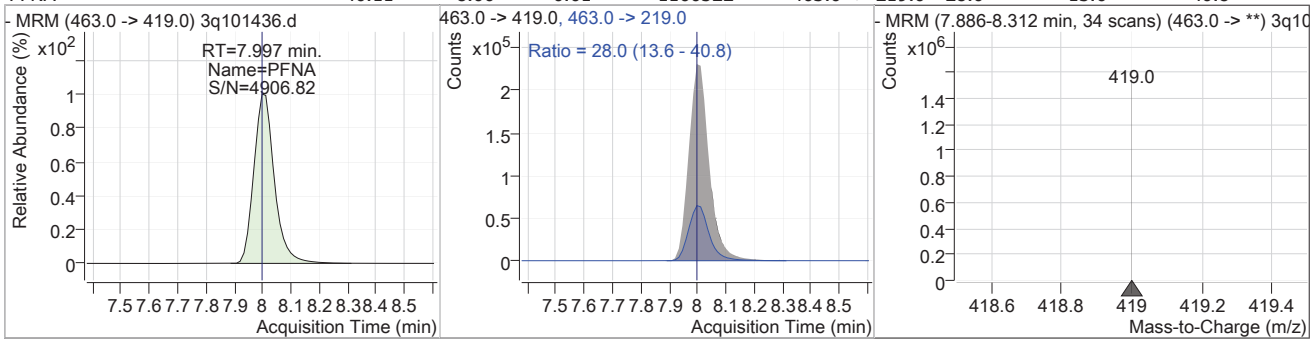
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	40.53	7.97	-0.01	318102 (m)	499.0 -> 99.0	49.8	32.1	96.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.95	8.00	-0.01	272617				

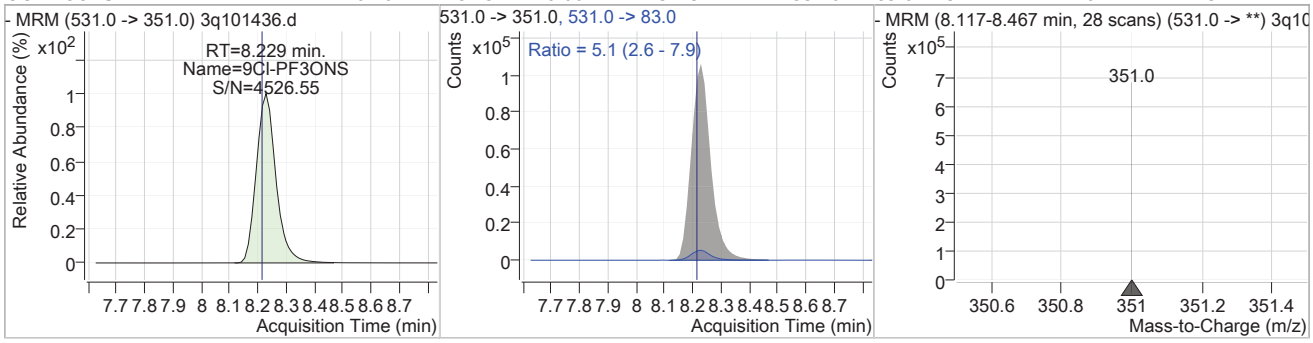


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	40.11	8.00	-0.01	1160522	463.0 -> 219.0	28.0	13.6	40.8

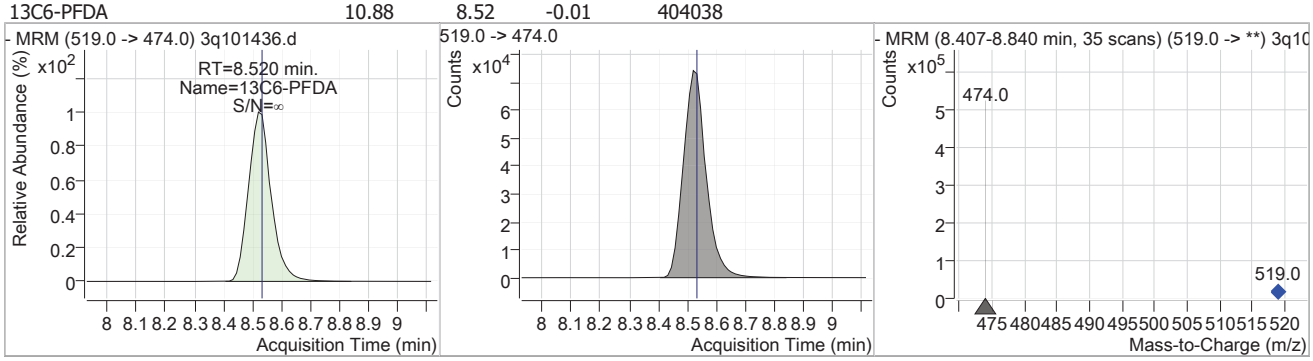


Perfluorinated Compounds by LC/MS/MS

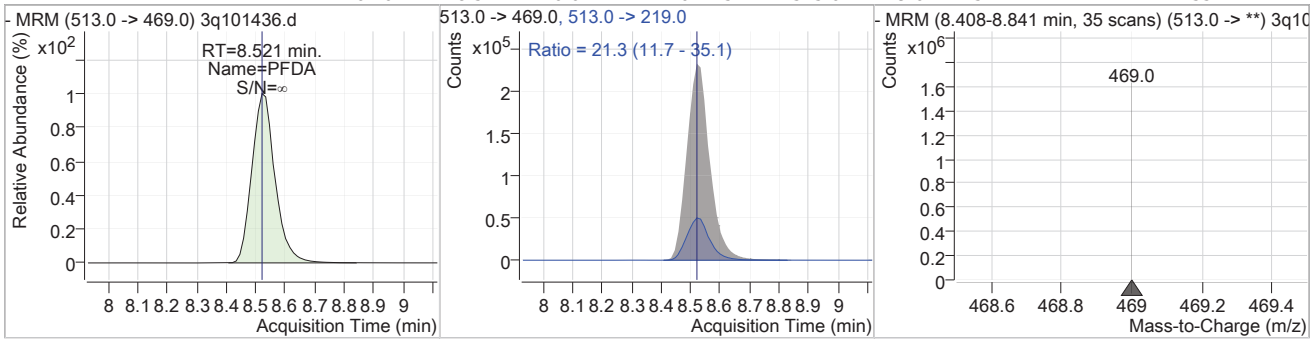
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	40.10	8.23	0.00	511974	531.0 -> 83.0	5.1	2.6	7.9



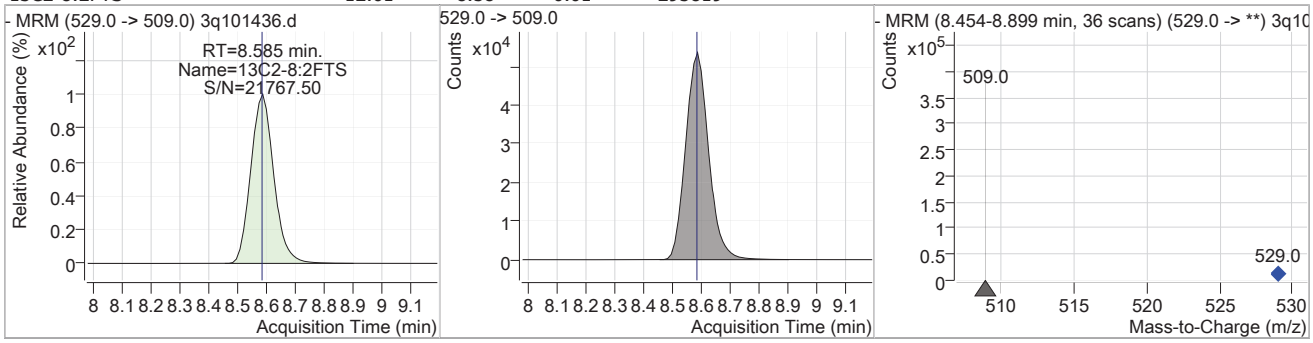
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	10.88	8.52	-0.01	404038				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	40.10	8.52	-0.01	1264425	513.0 -> 219.0	21.3	11.7	35.1

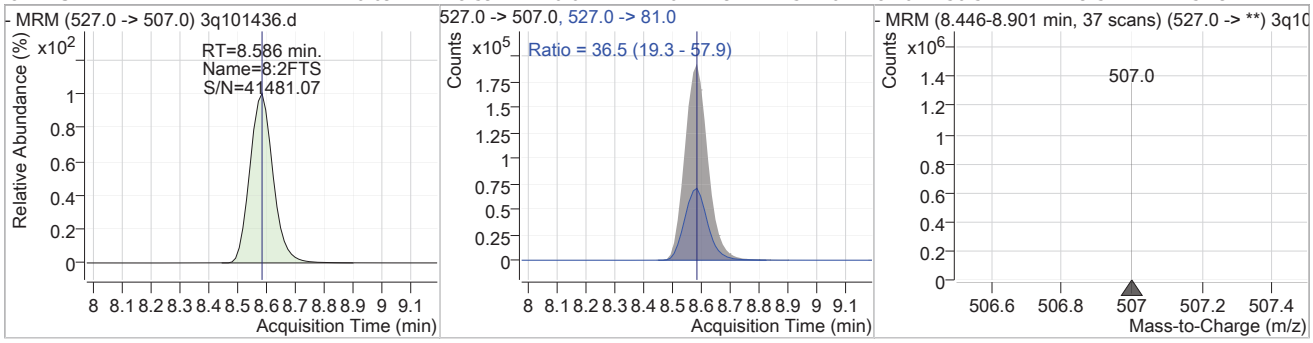


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	12.61	8.58	-0.01	295819				

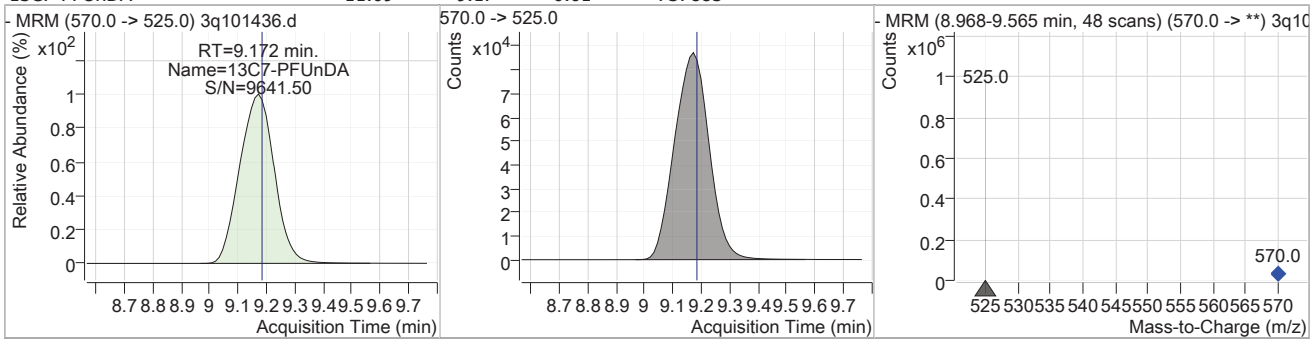


Perfluorinated Compounds by LC/MS/MS

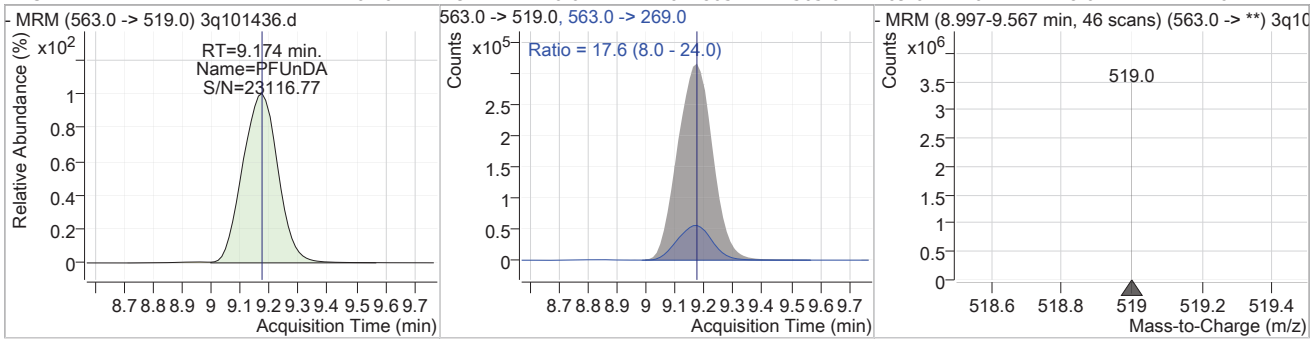
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	40.09	8.59	-0.01	1072429	527.0 -> 81.0	36.5	19.3	57.9



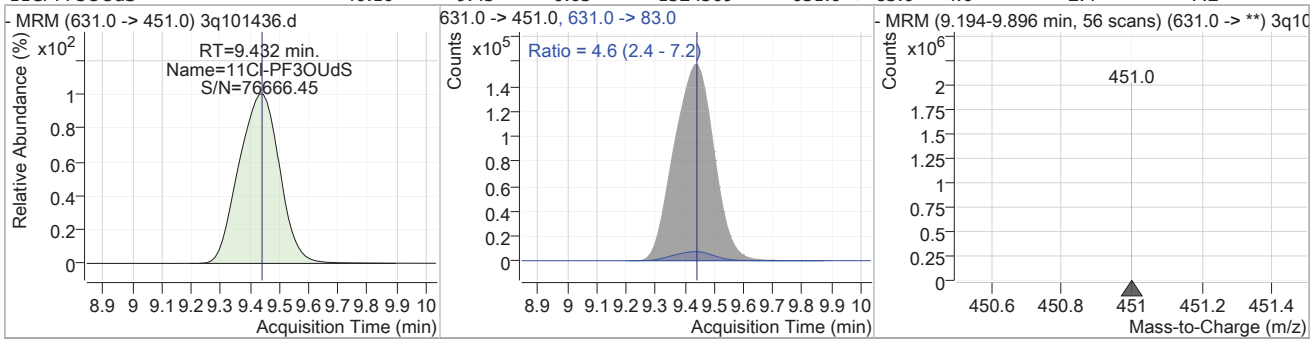
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	11.09	9.17	-0.01	737885				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	40.10	9.17	-0.01	2677803	563.0 -> 269.0	17.6	8.0	24.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	40.10	9.43	-0.03	1524569	631.0 -> 83.0	4.6	2.4	7.2

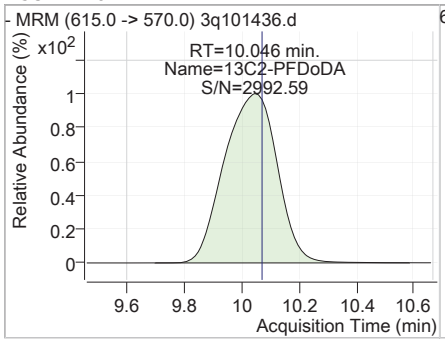


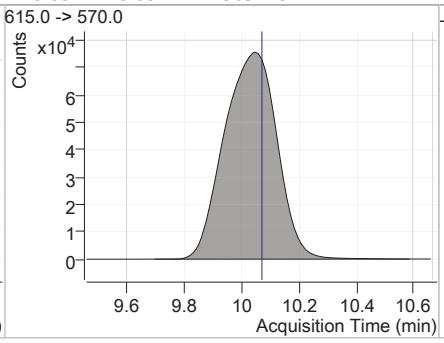
7.7.8

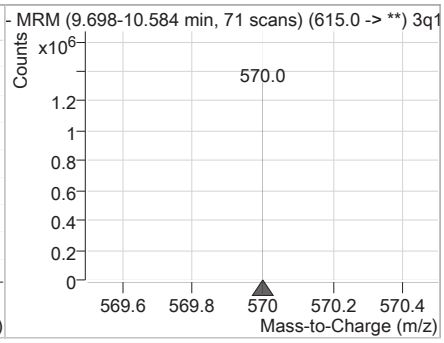
7

Perfluorinated Compounds by LC/MS/MS

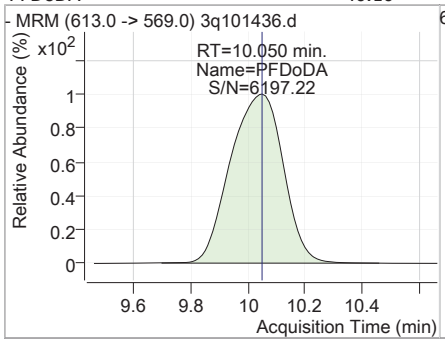
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	11.24	10.05	-0.03	969718				

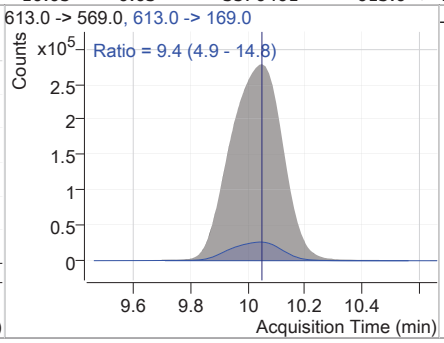


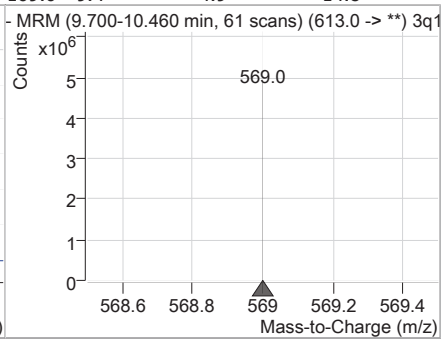




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	40.10	10.05	-0.03	3570461	613.0 -> 169.0	9.4	4.9	14.8







Manual Integration Approval Summary

Sample Number:	S3Q1491-IC1491	**Method:**	EPA 533
Lab FileID:	3Q101436.D	**Analyst approved:**	04/14/25 11:45 (b) (6)
Injection Time:	04/11/25 17:19	**Supervisor approved:**	04/14/25 12:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.72	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.97	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/14/25 12:44

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101439.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/11/2025 6:07:28 PM
Sample Name : icv1491-20
Vial : P1-D1
DA Method File : 533_041125_S3Q1491.quantmethod.xml
Batch Name : s3q1491.batch.bin
Sample Information : op8141,S3Q1491,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	255314	10.00 µg/L	0.000
13C3-PFBA	2.332	216.0 -> 172.0	86676	10.00 µg/L	0.000
13C4-PFOS	7.983	503.0 -> 80.0	36341	10.00 µg/L	0.000
M4-PFBA	2.327	217.0 -> 172.0	130875	10.00 µg/L	-0.013
M5-PFPeA	4.413	268.0 -> 223.0	159577	10.00 µg/L	0.000
M5-PFHxA	5.763	318.0 -> 273.0	217452	10.00 µg/L	-0.013
M4-PFHpA	6.694	367.0 -> 322.0	189668	10.00 µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	262231	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	283584	10.00 µg/L	0.000
M6-PFDA	8.533	519.0 -> 474.0	427696	10.00 µg/L	0.000
M7-PFUnDA	9.199	570.0 -> 525.0	775684	10.00 µg/L	0.014
M2-PFDoDA	10.083	615.0 -> 570.0	1004900	10.00 µg/L	0.012
M3-PFBS	4.708	302.0 -> 99.0	19515	10.00 µg/L	0.000
M3-PFHxS	6.723	402.0 -> 99.0	27819	10.00 µg/L	-0.013
M8-PFOS	7.982	507.0 -> 99.0	35473	10.00 µg/L	0.000
M2-4:2FTS	5.672	329.0 -> 309.0	85097	10.00 µg/L	0.000
M2-6:2FTS	7.420	429.0 -> 409.0	160710	10.00 µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	271155	10.00 µg/L	0.000
M3-HFPO-DA	6.056	287.0 -> 169.0	2568	10.00 µg/L	-0.013
System Monitoring Compounds					
13C2-4:2FTS	5.672	329.0 -> 309.0	85097	9.13 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.3%	
13C2-6:2FTS	7.420	429.0 -> 409.0	160710	8.90 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.0%	
13C2-8:2FTS	8.597	529.0 -> 509.0	271155	9.32 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.2%	
13C2-PFDoDA	10.083	615.0 -> 570.0	1004900	8.99 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.9%	
13C3-PFBS	4.708	302.0 -> 99.0	19515	8.86 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.6%	
13C3-PFHxS	6.723	402.0 -> 99.0	27819	8.76 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 87.6%	
13C4-PFBA	2.327	217.0 -> 172.0	130875	8.83 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.3%	
13C4-PFHpA	6.694	367.0 -> 322.0	189668	8.89 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.9%	
13C5-PFHxA	5.763	318.0 -> 273.0	217452	8.89 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.9%	
13C5-PFPeA	4.413	268.0 -> 223.0	159577	8.77 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 87.7%	
13C6-PFDA	8.533	519.0 -> 474.0	427696	8.89 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.9%	
13C7-PFUnDA	9.199	570.0 -> 525.0	775684	9.00 µg/L	0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.0%	
13C8-PFOA	7.422	421.0 -> 376.0	262231	8.88 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

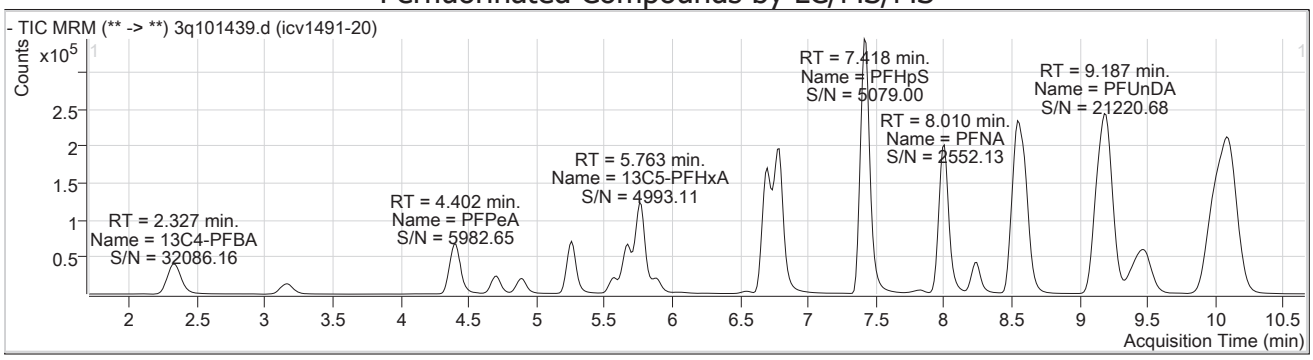
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.8%		
13C8-PFOS	7.982	507.0 -> 99.0	35473	8.74 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 87.4%		
13C9-PFNA	8.010	472.0 -> 427.0	283584	8.79 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 87.9%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	2568	8.62 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 86.2%		
Target Compounds						QValue
PFMPA	3.153	229.0 -> 85.0	96091	20.08 µg/L		100
4:2FTS	5.674	327.0 -> 307.0	174934	17.25 µg/L		86
		327.0 -> 81.0	71251			
6:2FTS	7.420	427.0 -> 407.0	242733	17.61 µg/L		96
		427.0 -> 81.0	102276			
8:2FTS	8.598	527.0 -> 507.0	420607	18.36 µg/L		97
		527.0 -> 81.0	154383			
PFMBA	4.901	279.0 -> 85.0	109075	16.68 µg/L		100
PFEESA	5.260	315.0 -> 135.0	328570	16.54 µg/L		98
		315.0 -> 69.0	25102			
NFDHA	5.582	201.0 -> 85.0	100960	17.49 µg/L		97
		295.0 -> 201.0	6805			
PFBA	2.336	213.0 -> 169.0	78404	18.93 µg/L		100
PFBS	4.710	299.0 -> 80.0	74458	17.05 µg/L		91
		299.0 -> 99.0	31773			
PFDA	8.534	513.0 -> 469.0	462255	17.19 µg/L		96
		513.0 -> 219.0	98220			
PFDoDA	10.087	613.0 -> 569.0	1476840	19.22 µg/L		99
		613.0 -> 169.0	138486			
PFHpA	6.695	363.0 -> 319.0	523873	18.32 µg/L		99
		363.0 -> 169.0	43249			
PFHpS	7.418	449.0 -> 80.0	100823	16.78 µg/L		93
		449.0 -> 99.0	55311			
PFHxA	5.765	313.0 -> 269.0	380766	17.54 µg/L		98
		313.0 -> 119.0	13271			
PFHxS	6.725	399.0 -> 80.0	102519	17.92 µg/L	m	94
		399.0 -> 99.0	53096			
PFNA	8.010	463.0 -> 419.0	418133	17.19 µg/L		99
		463.0 -> 219.0	115984			
PFOA	7.423	413.0 -> 369.0	409677	18.62 µg/L		98
		413.0 -> 169.0	145161			
PFOS	7.983	499.0 -> 80.0	123943	18.30 µg/L	m	92
		499.0 -> 99.0	72059			
PFPeA	4.402	263.0 -> 219.0	235431	17.46 µg/L		100
PFPeS	5.883	349.0 -> 80.0	56188	17.47 µg/L		94
		349.0 -> 99.0	23830			
PFUnDA	9.187	563.0 -> 519.0	1145402	19.66 µg/L		97
		563.0 -> 269.0	200119			
11Cl-PF3OUdS	9.470	631.0 -> 451.0	557698	17.96 µg/L		100
		631.0 -> 83.0	25862			
9Cl-PF3ONS	8.241	531.0 -> 351.0	191183	18.06 µg/L		100
		531.0 -> 83.0	9959			
ADONA	6.792	377.0 -> 251.0	804356	18.36 µg/L		97
		377.0 -> 85.0	98405			
HFPO-DA	6.048	329.0 -> 169.0	1261	17.71 µg/L	#	13
		285.0 -> 169.0	2783			

 # = Qualifier out of range, m = manually integrated, + = Area summed

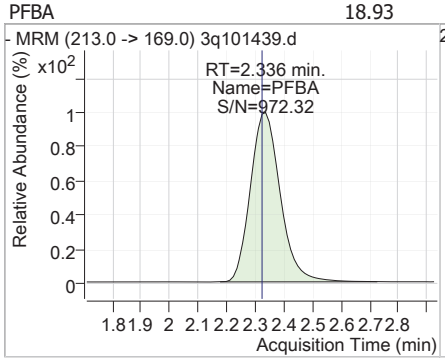
Perfluorinated Compounds by LC/MS/MS

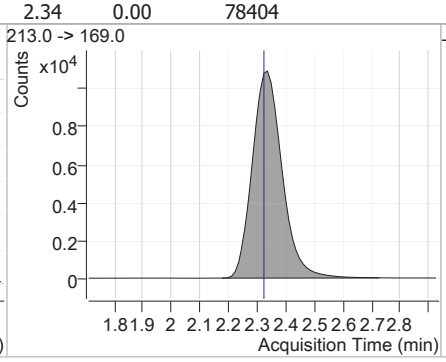
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

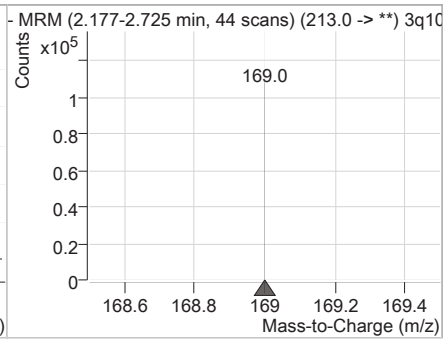
Perfluorinated Compounds by LC/MS/MS



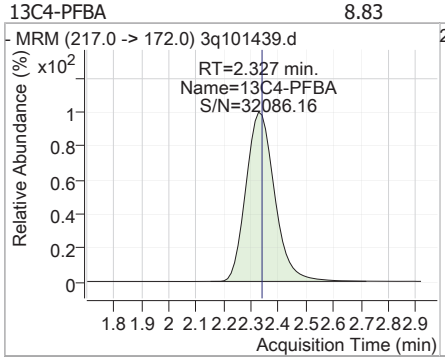
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	18.93	2.34	0.00	78404				

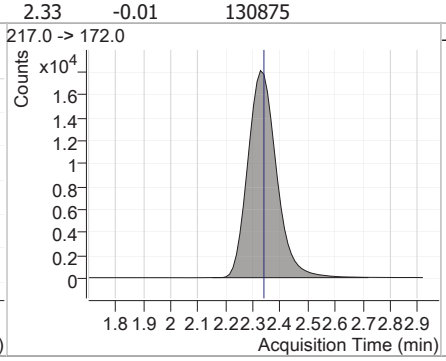


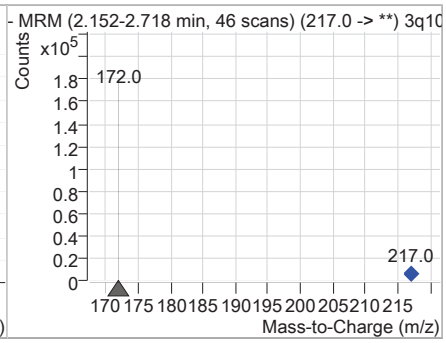




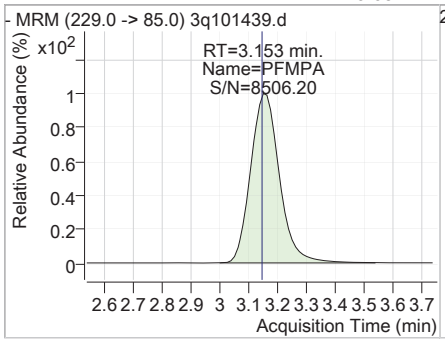
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	8.83	2.33	-0.01	130875				

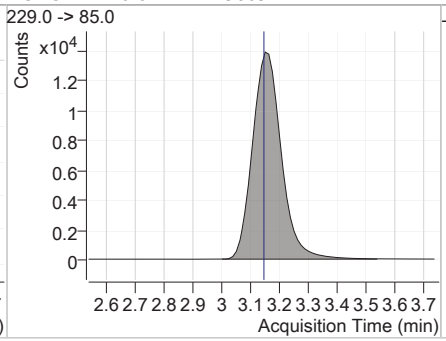


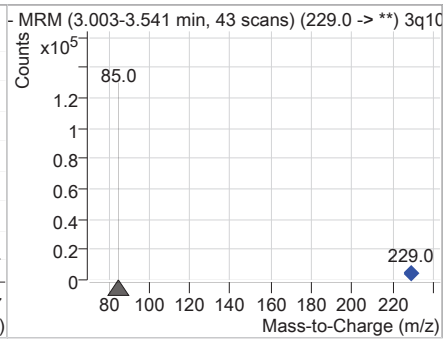




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	20.08	3.15	-0.01	96091				







7.7.9

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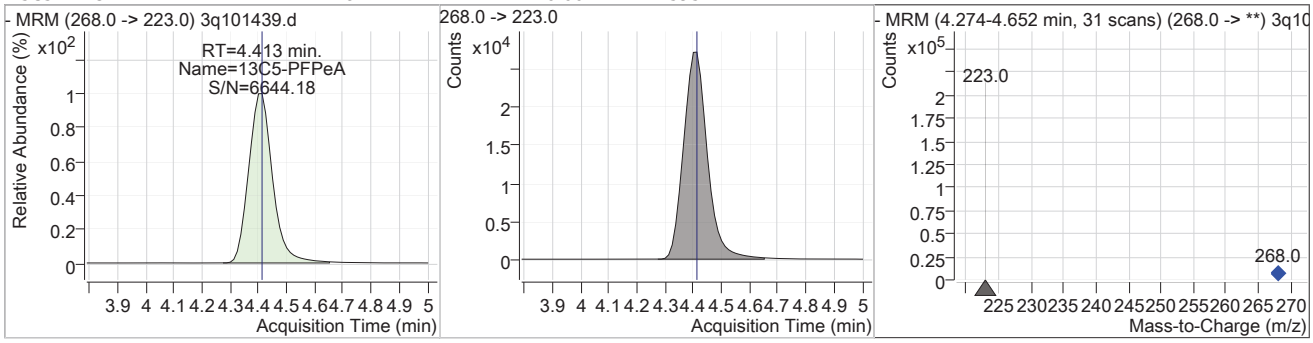
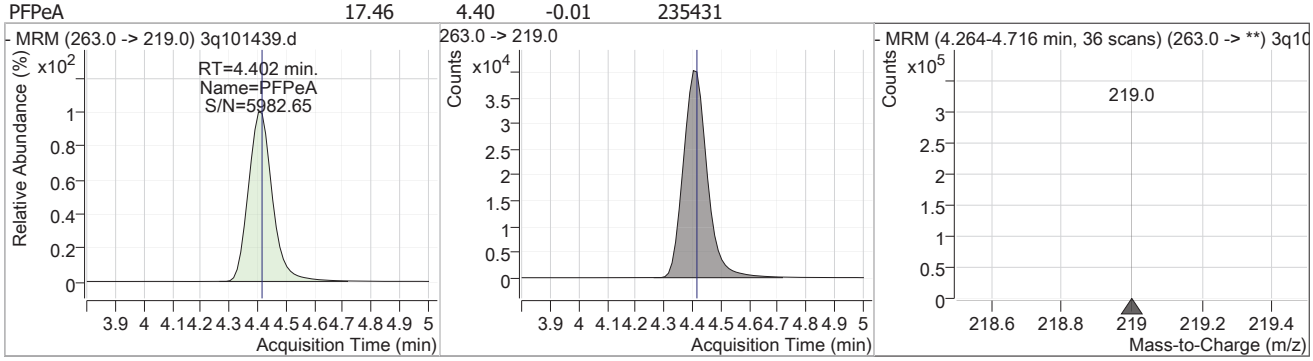
Perfluorinated Compounds by LC/MS/MS

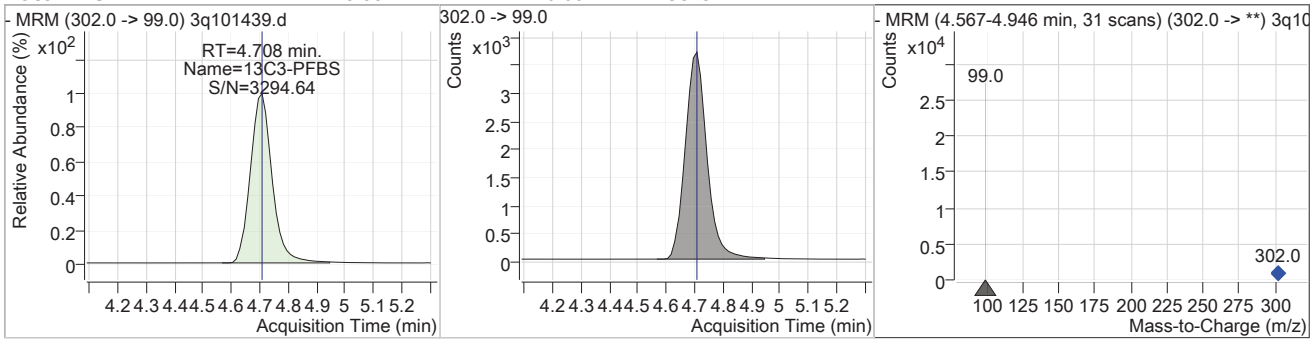
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	8.77	4.41	0.00	159577				



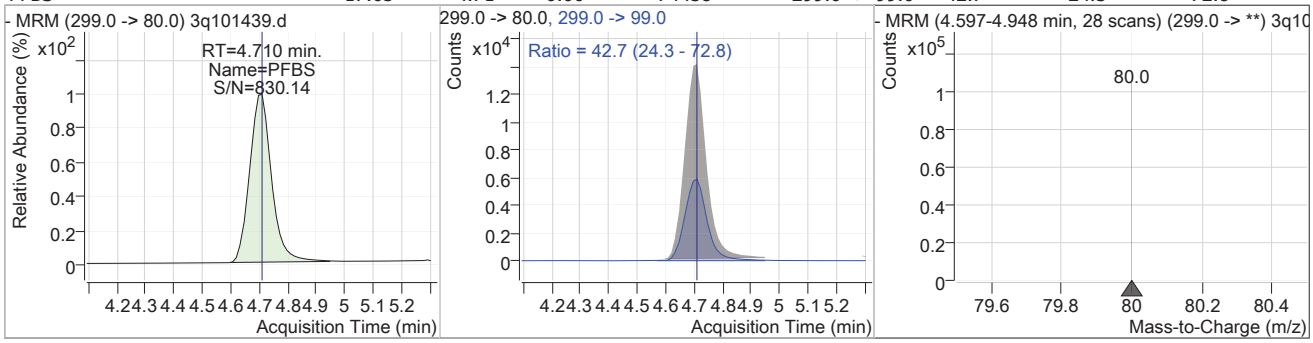
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	17.46	4.40	-0.01	235431				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	8.86	4.71	0.00	19515				

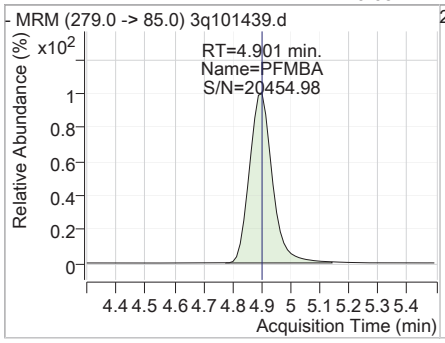


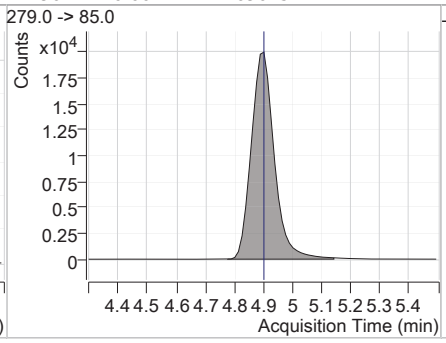
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	17.05	4.71	0.00	74458	299.0 -> 99.0	42.7	24.3	72.8

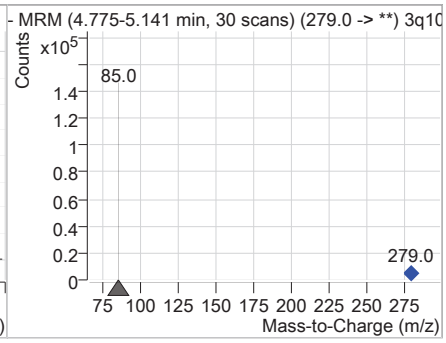


Perfluorinated Compounds by LC/MS/MS

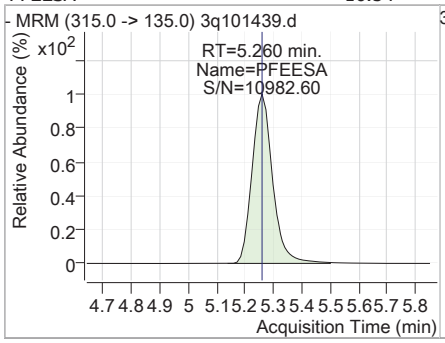
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	16.68	4.90	0.00	109075				

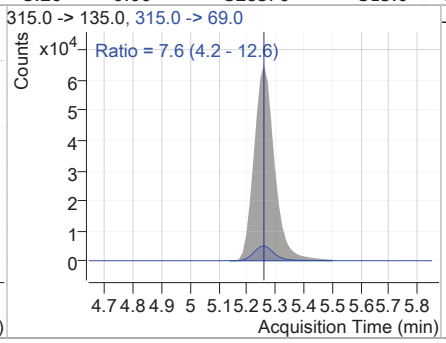


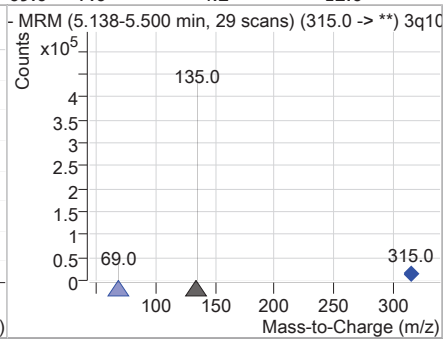




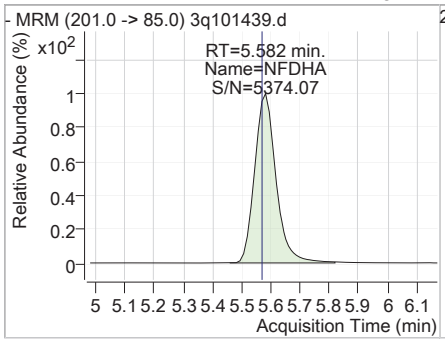
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	16.54	5.26	0.00	328570	315.0 -> 69.0	7.6	4.2	12.6

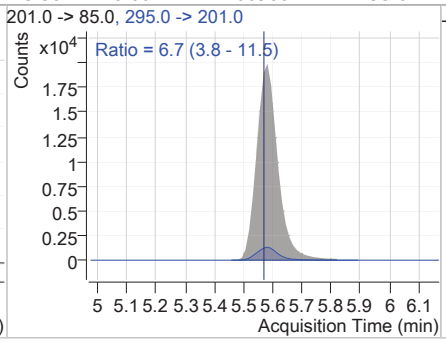


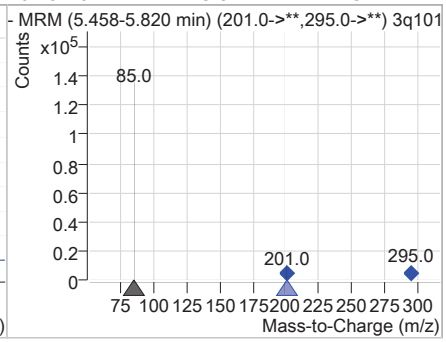




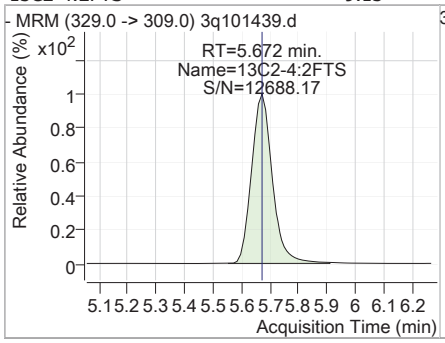
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	17.49	5.58	0.00	100960	295.0 -> 201.0	6.7	3.8	11.5

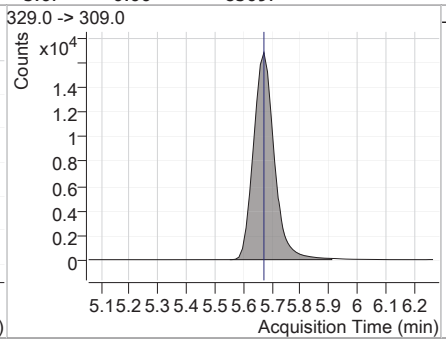


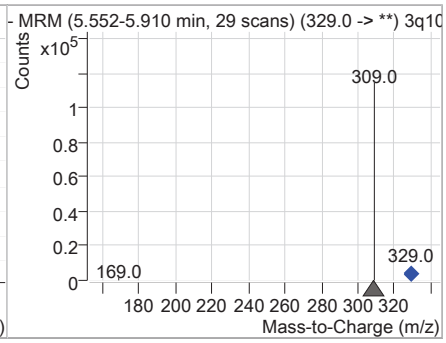




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	9.13	5.67	0.00	85097				







7.7.9

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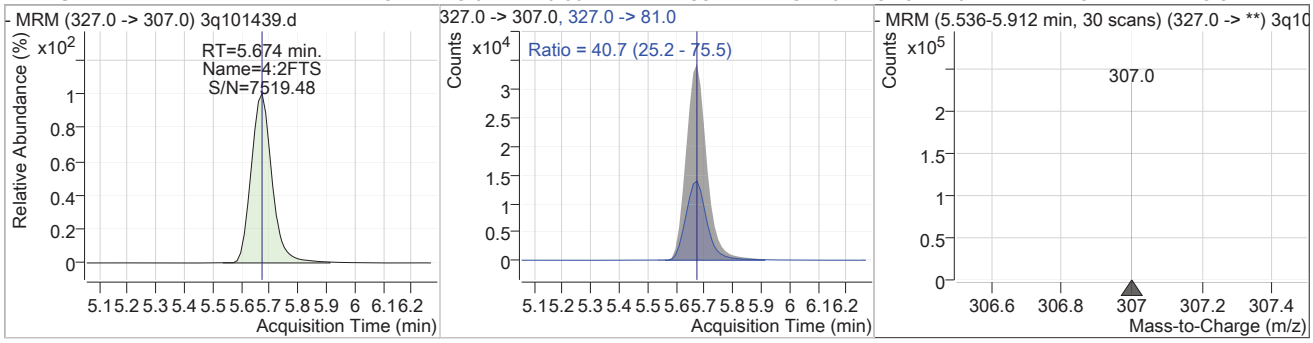
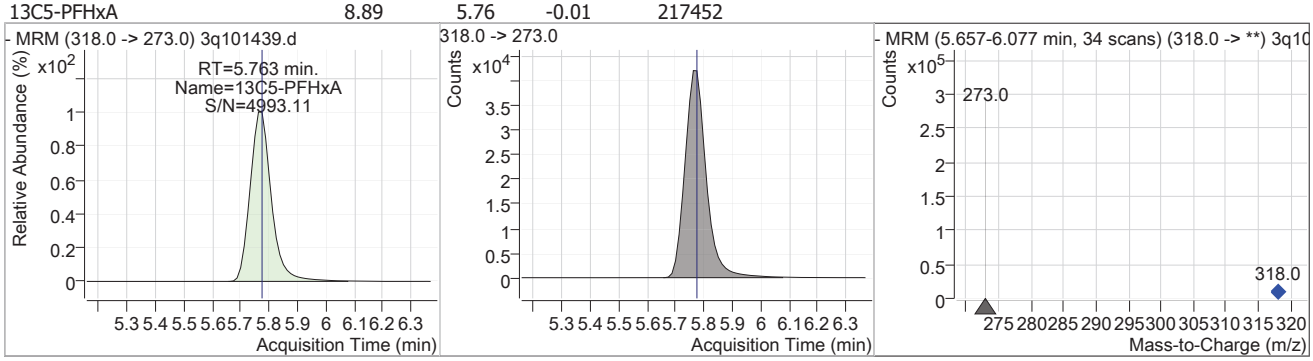
Perfluorinated Compounds by LC/MS/MS

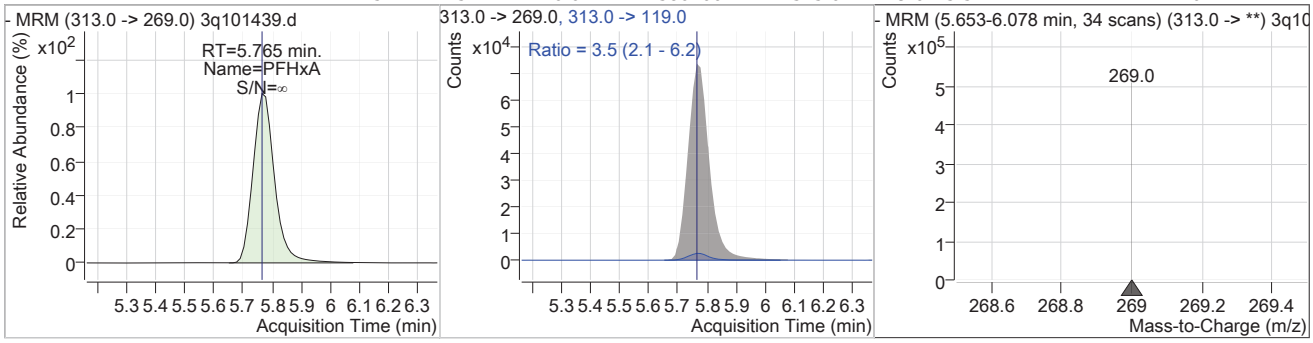
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	17.25	5.67	0.00	174934	327.0 -> 81.0	40.7	25.2	75.5



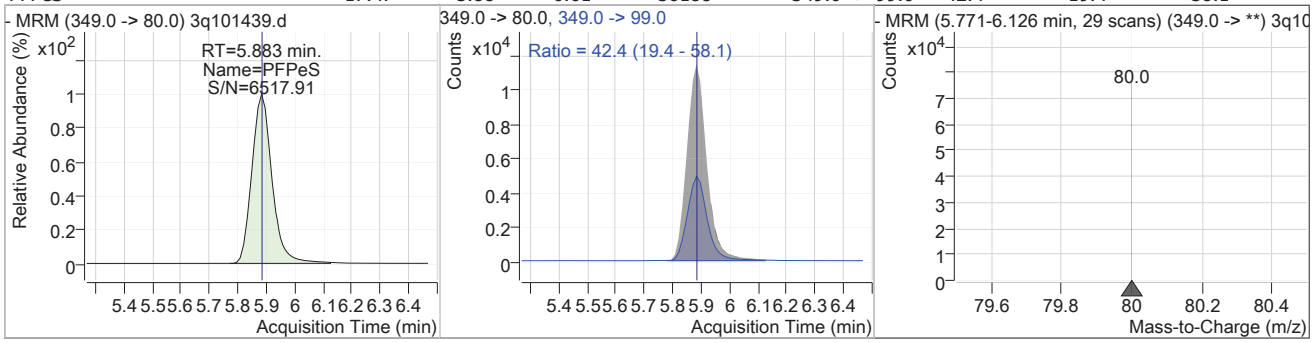
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	8.89	5.76	-0.01	217452				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	17.54	5.77	-0.01	380766	313.0 -> 119.0	3.5	2.1	6.2

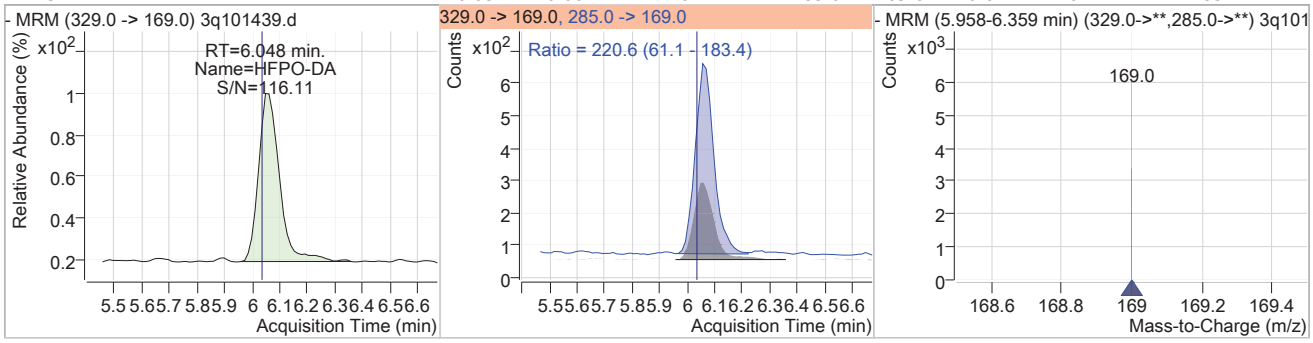


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	17.47	5.88	-0.01	56188	349.0 -> 99.0	42.4	19.4	58.1

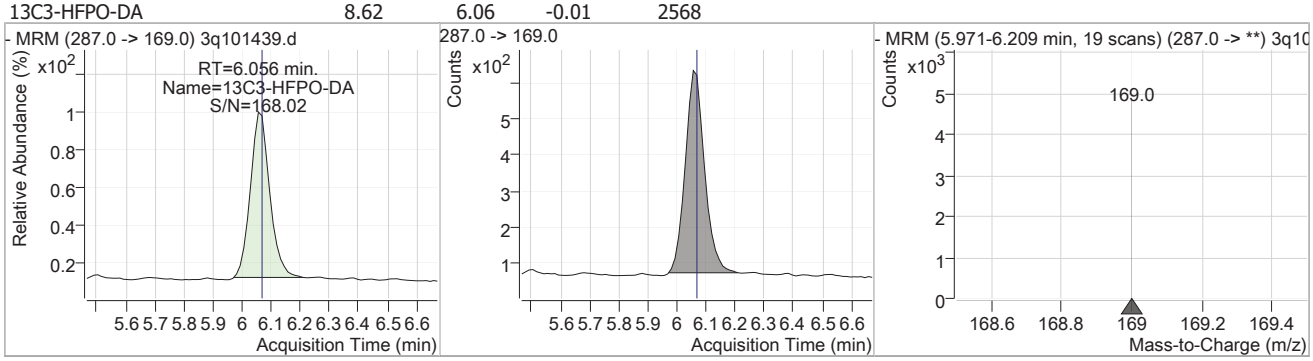


Perfluorinated Compounds by LC/MS/MS

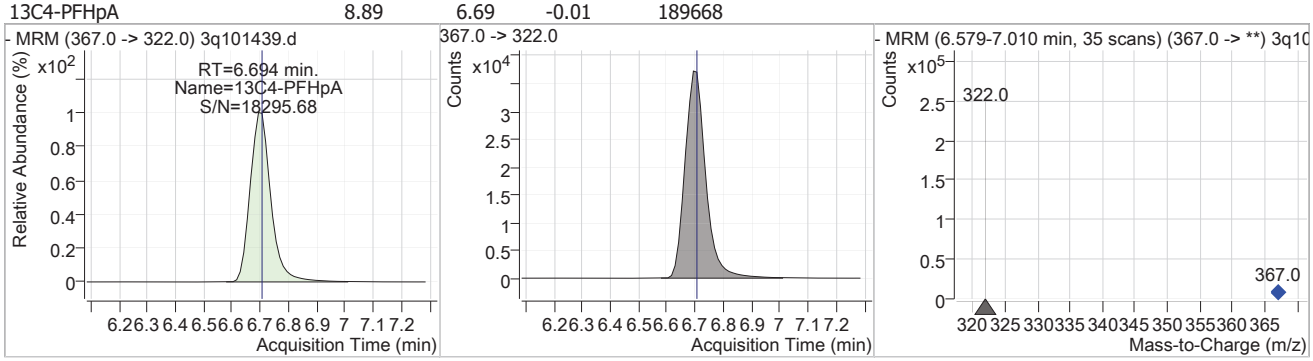
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	17.71	6.05	0.00	1261	285.0 -> 169.0	220.6	61.1	183.4



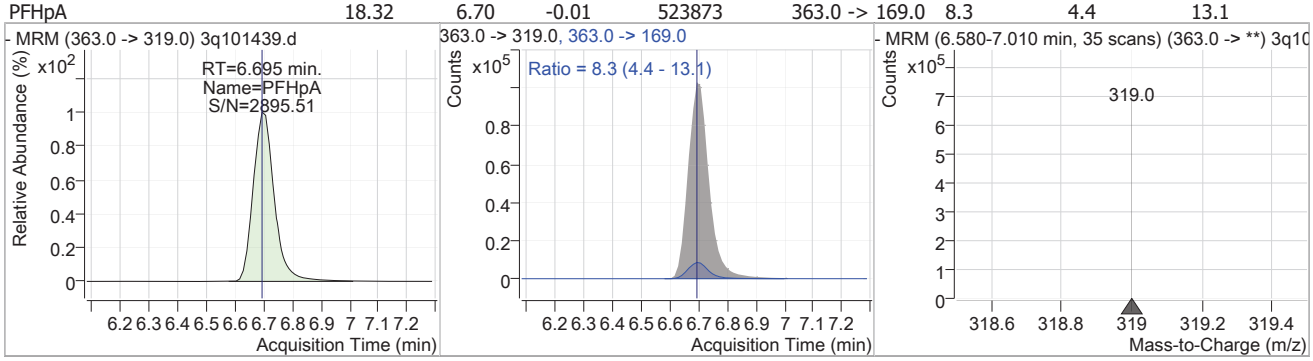
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.62	6.06	-0.01	2568				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	8.89	6.69	-0.01	189668				

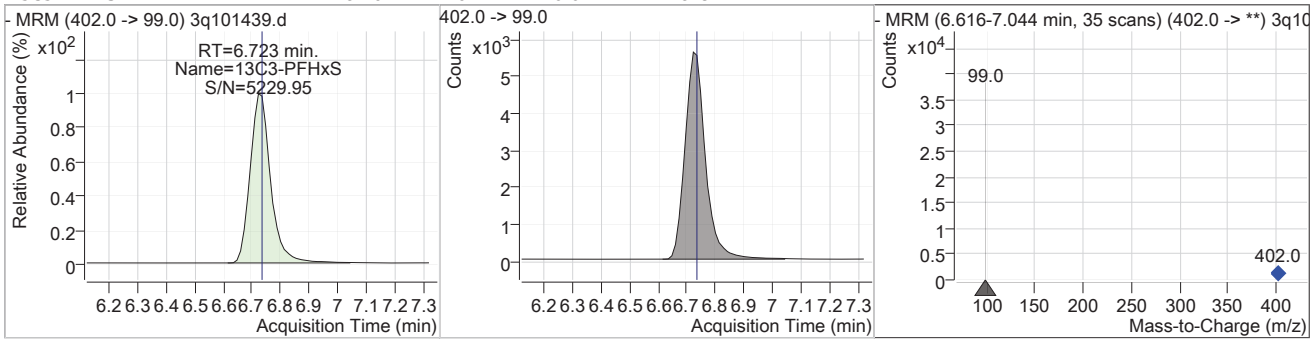


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	18.32	6.70	-0.01	523873	363.0 -> 169.0	8.3	4.4	13.1

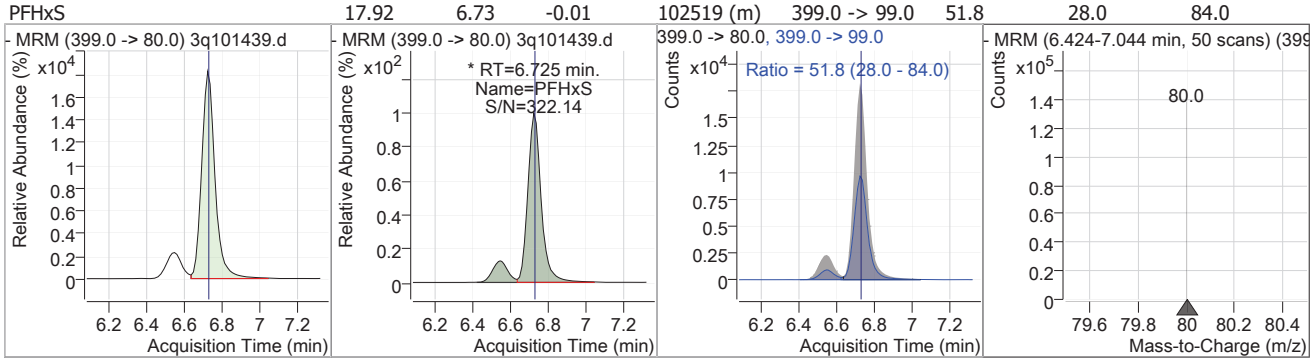


Perfluorinated Compounds by LC/MS/MS

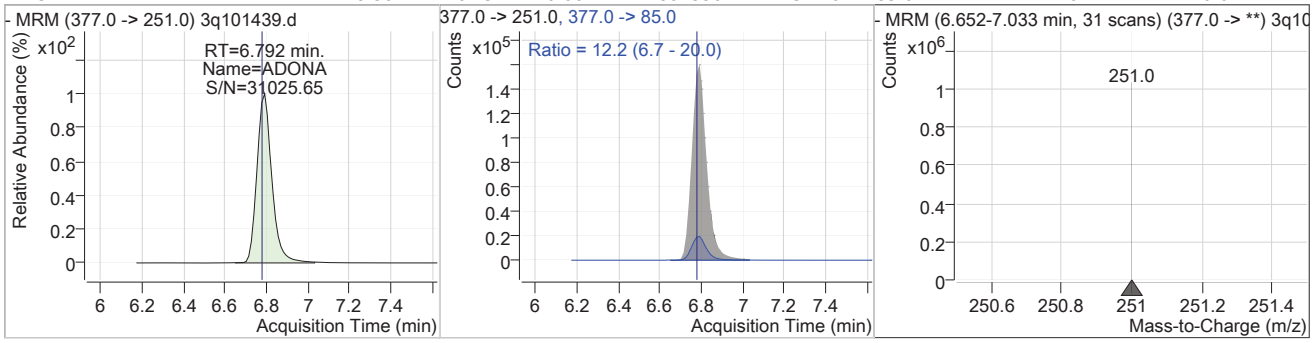
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	8.76	6.72	-0.01	27819				



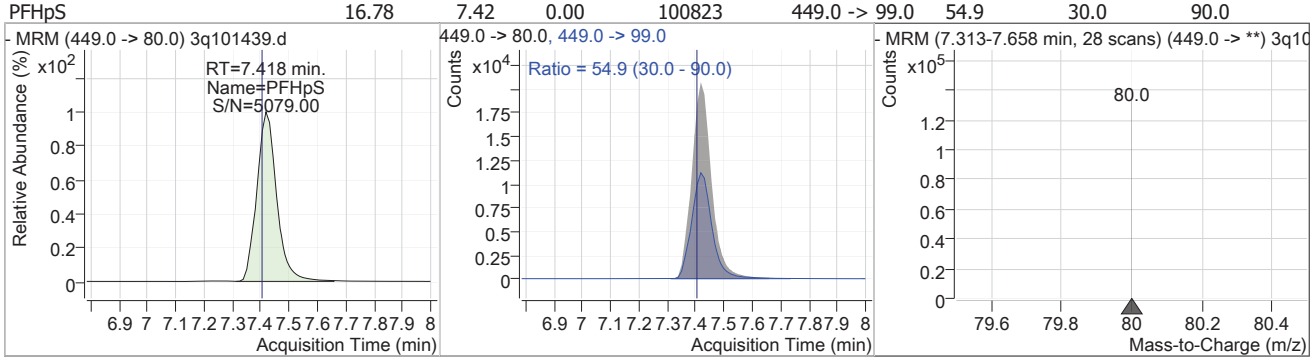
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	17.92	6.73	-0.01	102519 (m)	399.0 -> 99.0	51.8	28.0	84.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	18.36	6.79	0.00	804356	377.0 -> 85.0	12.2	6.7	20.0

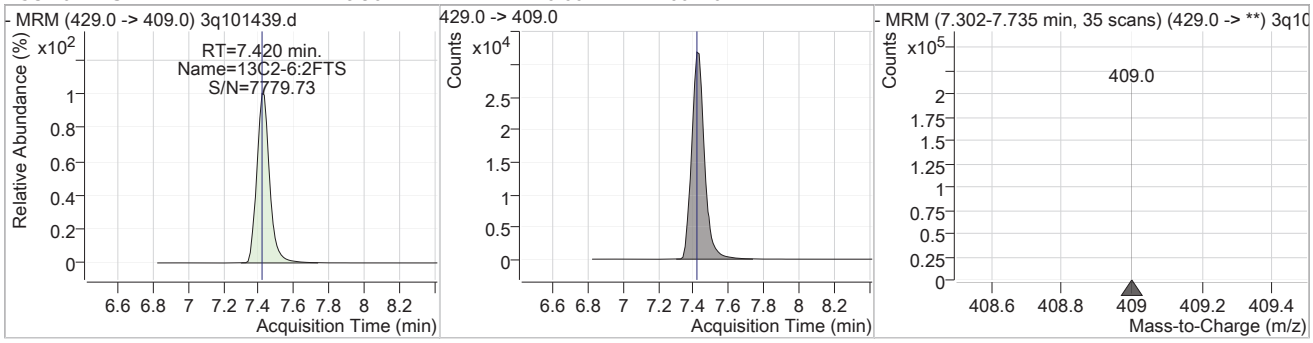


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	16.78	7.42	0.00	100823	449.0 -> 99.0	54.9	30.0	90.0

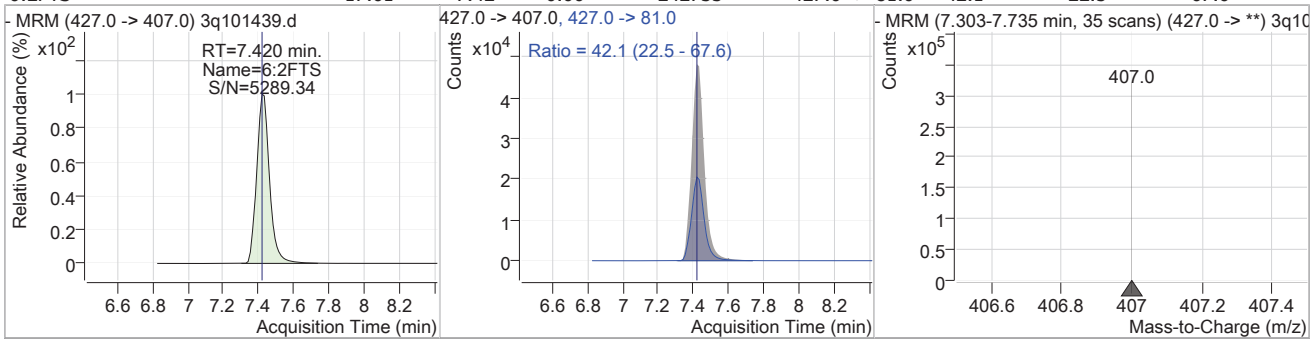


Perfluorinated Compounds by LC/MS/MS

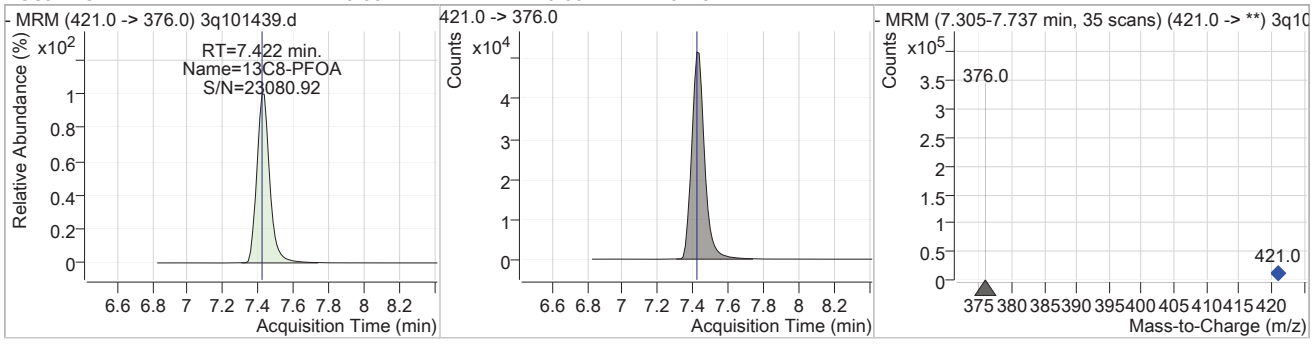
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	8.90	7.42	0.00	160710				



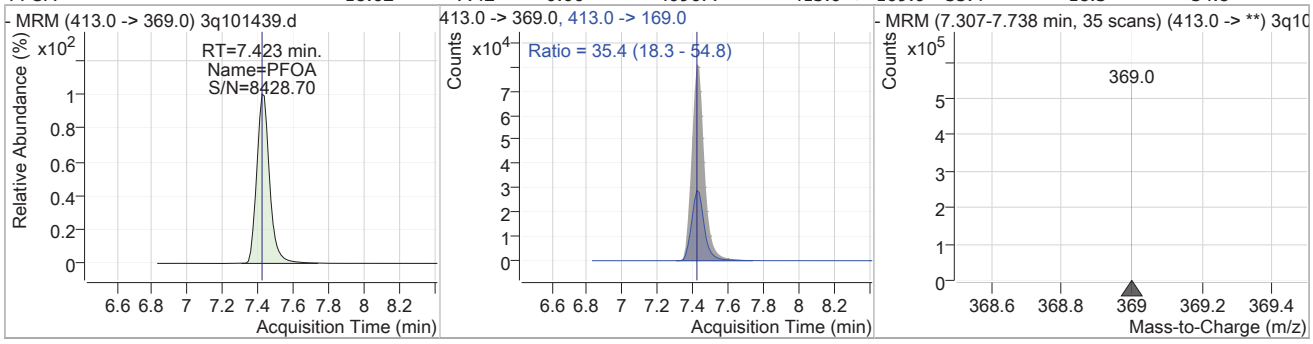
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	17.61	7.42	0.00	242733	427.0 -> 81.0	42.1	22.5	67.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	8.88	7.42	0.00	262231				

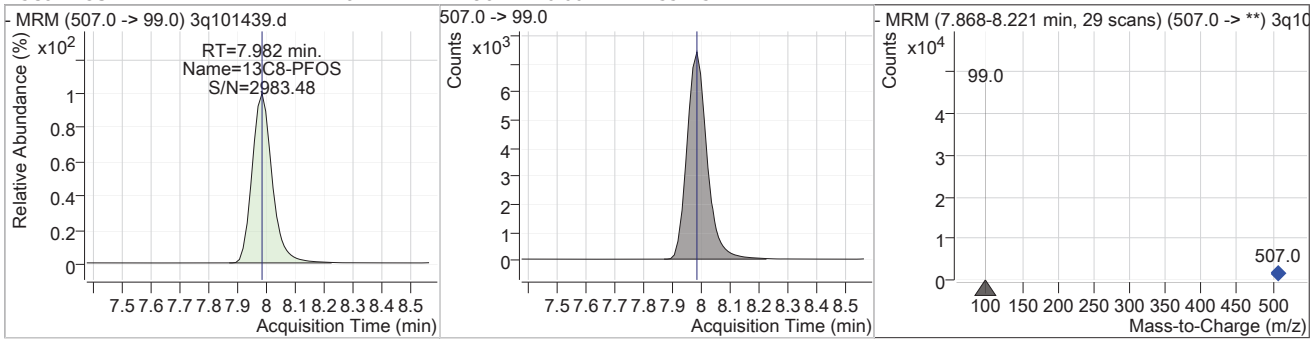


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	18.62	7.42	0.00	409677	413.0 -> 169.0	35.4	18.3	54.8

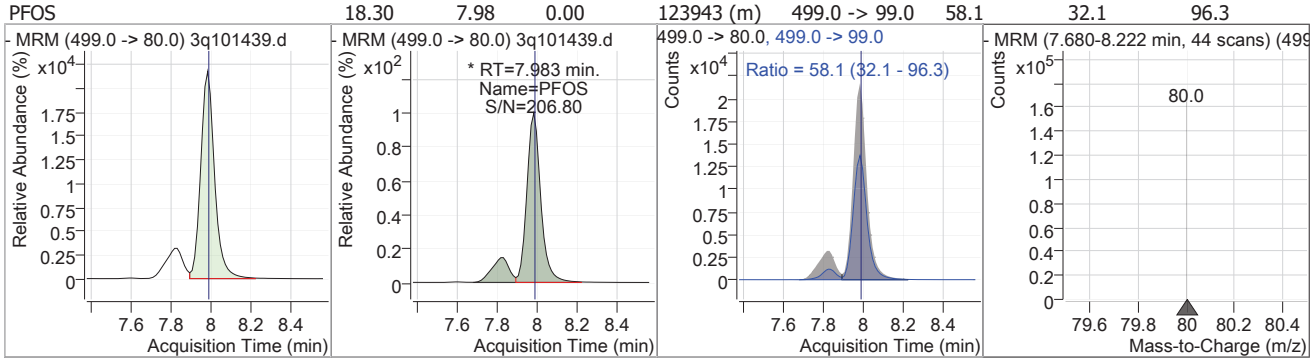


Perfluorinated Compounds by LC/MS/MS

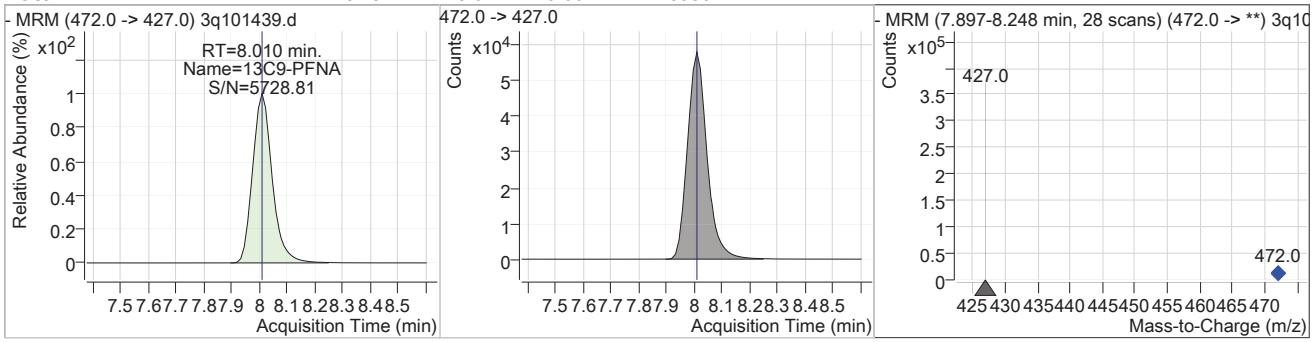
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	8.74	7.98	0.00	35473				



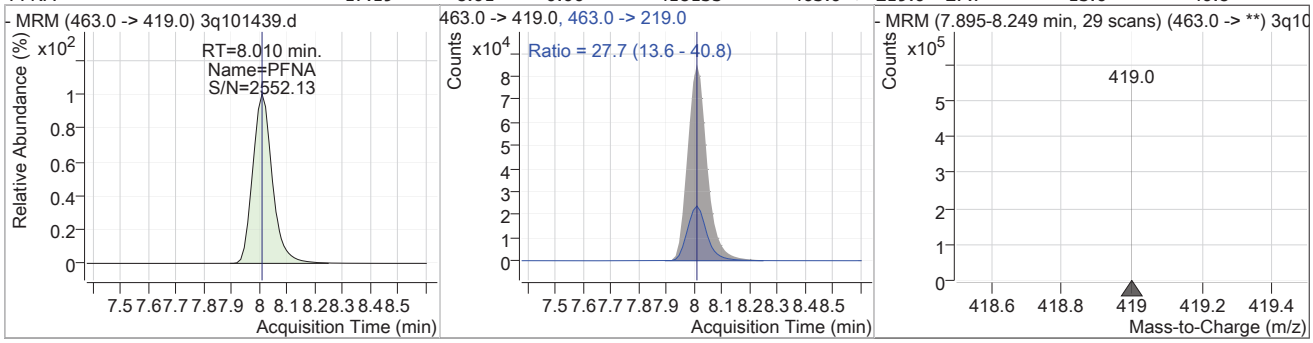
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.30	7.98	0.00	123943 (m)	499.0 -> 99.0	58.1	32.1	96.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	8.79	8.01	0.00	283584				

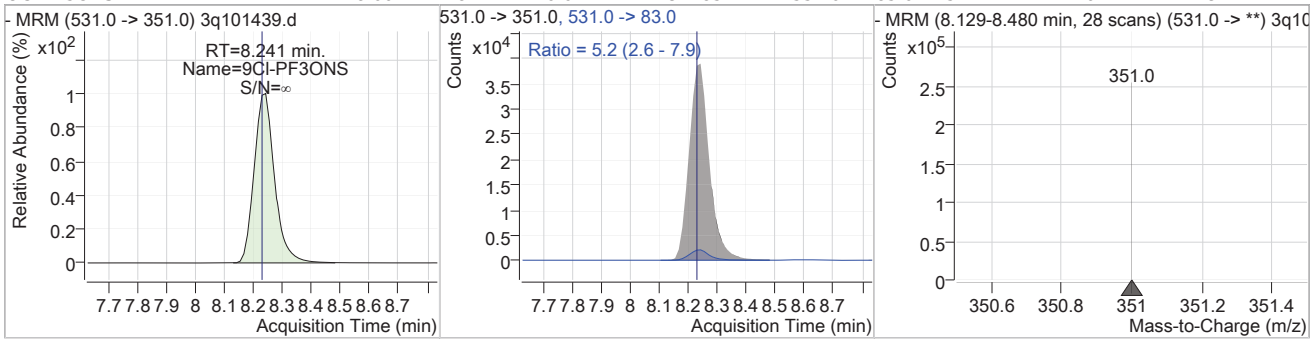


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	17.19	8.01	0.00	418133	463.0 -> 219.0	27.7	13.6	40.8

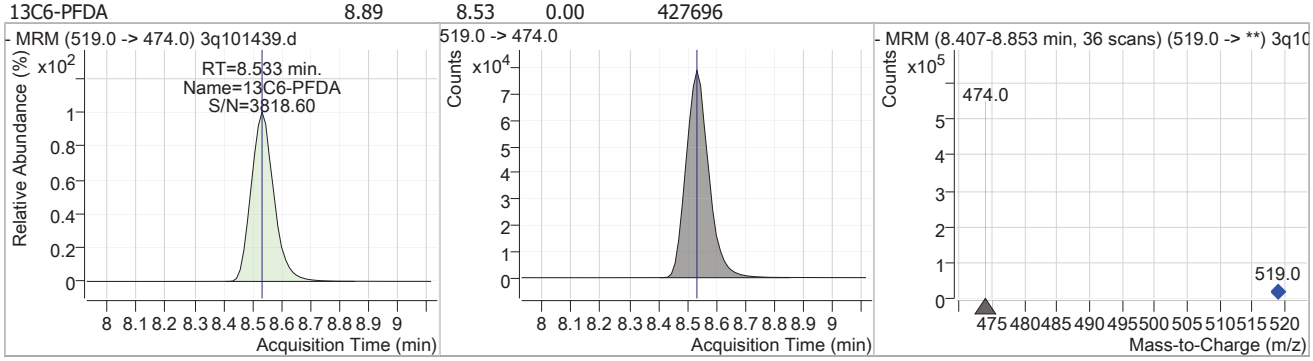


Perfluorinated Compounds by LC/MS/MS

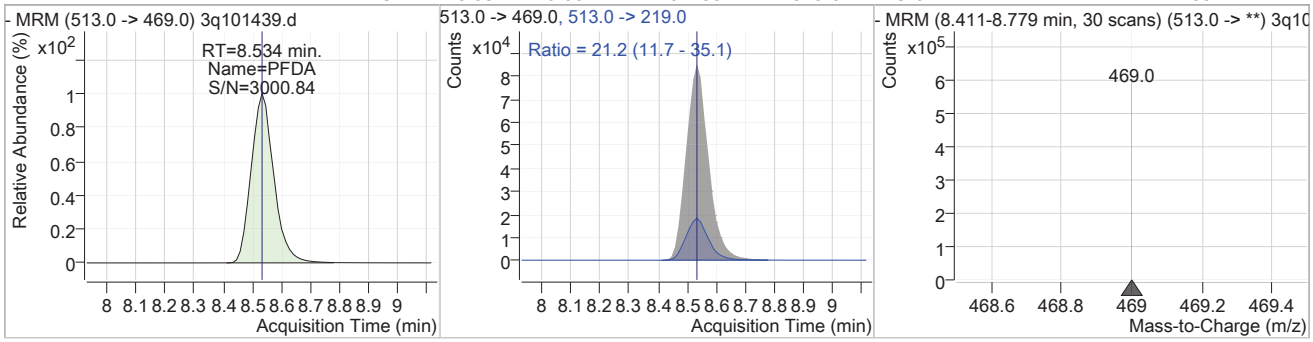
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	18.06	8.24	0.01	191183	531.0 -> 83.0	5.2	2.6	7.9



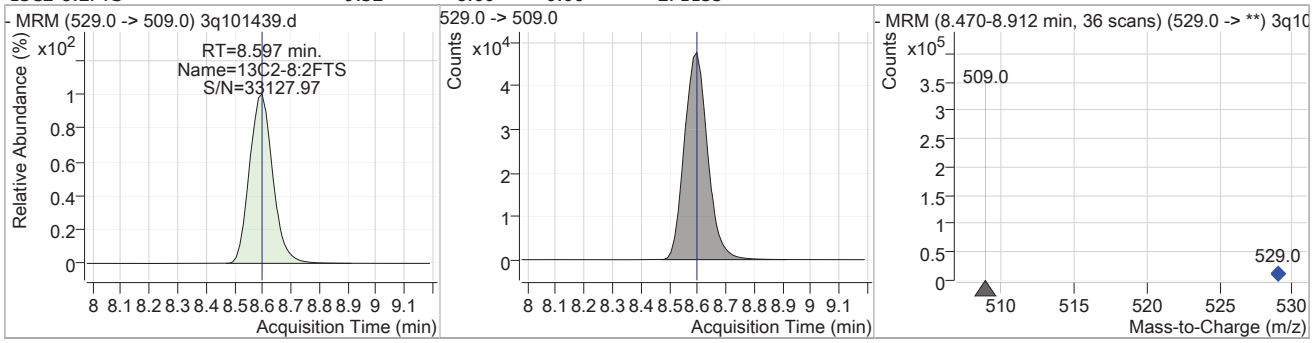
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	8.89	8.53	0.00	427696				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	17.19	8.53	0.00	462255	513.0 -> 219.0	21.2	11.7	35.1

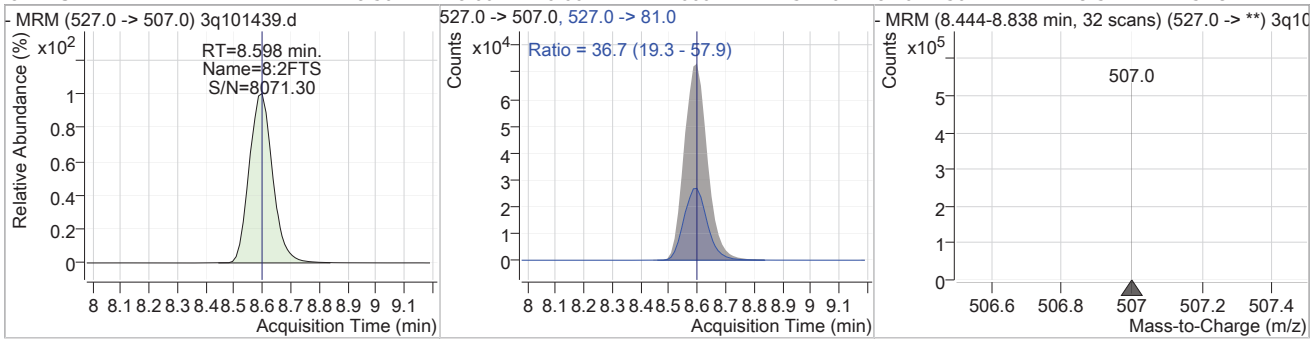


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	9.32	8.60	0.00	271155				

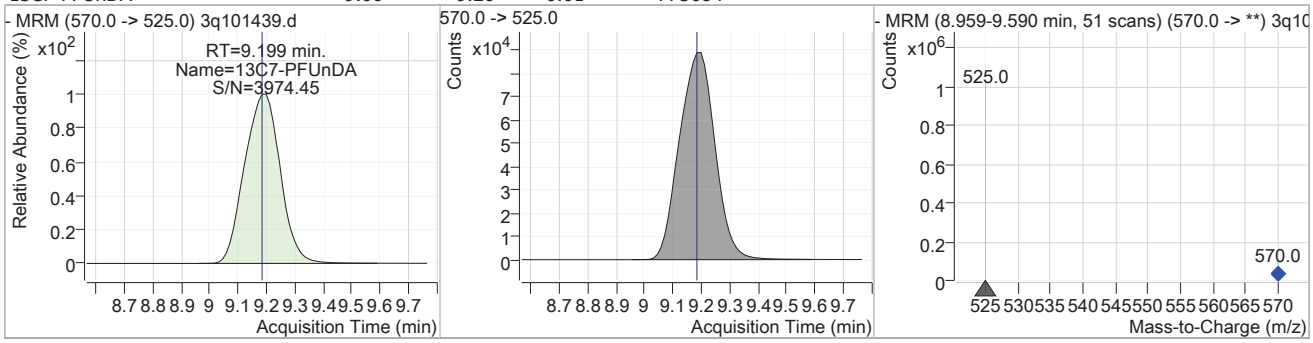


Perfluorinated Compounds by LC/MS/MS

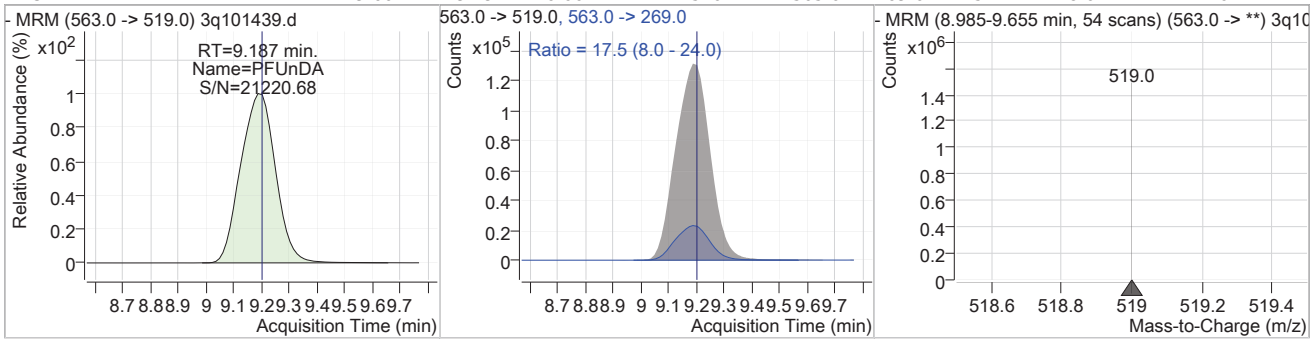
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	18.36	8.60	0.00	420607	527.0 -> 81.0	36.7	19.3	57.9



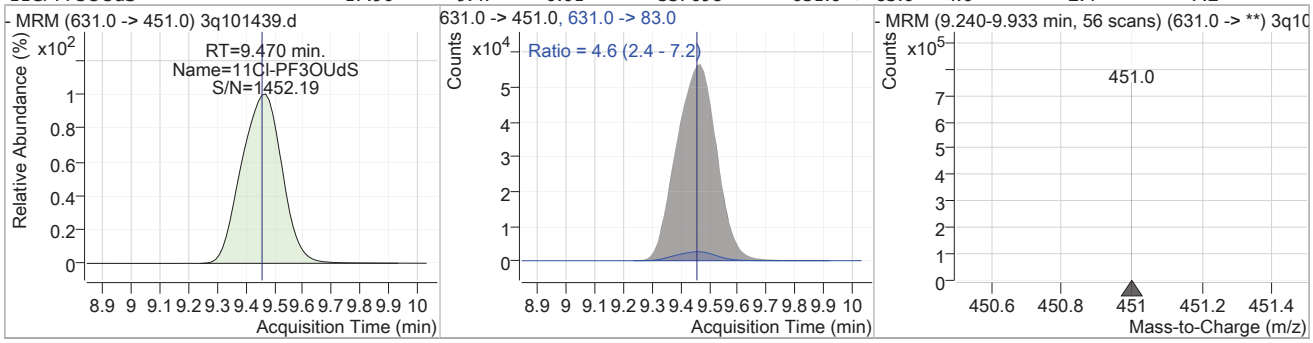
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	9.00	9.20	0.01	775684				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.66	9.19	0.00	1145402	563.0 -> 269.0	17.5	8.0	24.0

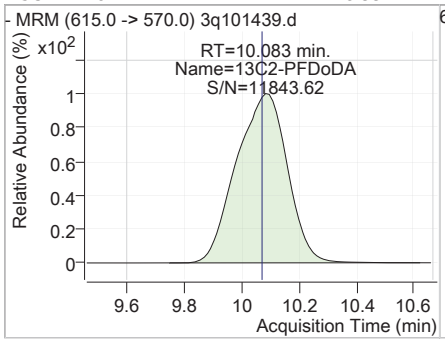


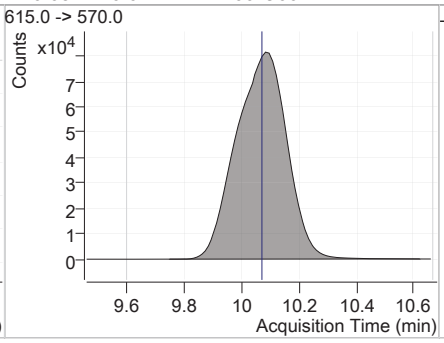
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	17.96	9.47	0.01	557698	631.0 -> 83.0	4.6	2.4	7.2

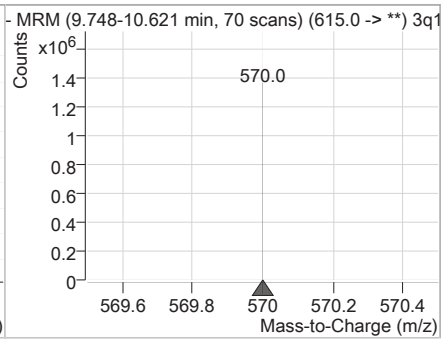


Perfluorinated Compounds by LC/MS/MS

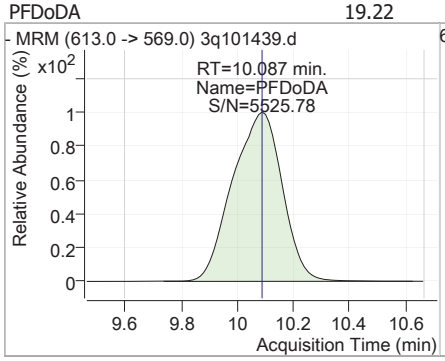
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	8.99	10.08	0.01	1004900				

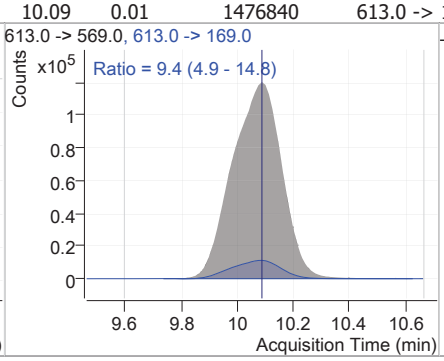


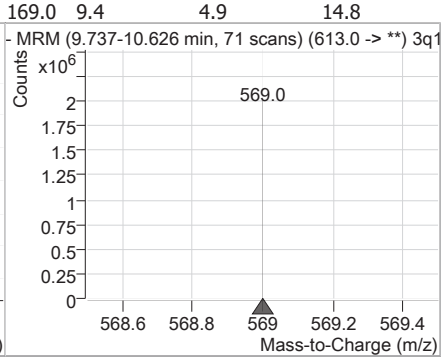




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.22	10.09	0.01	1476840	613.0 -> 169.0	9.4	4.9	14.8







7.7.9

7

Manual Integration Approval Summary

Sample Number:	S3Q1491-ICV1491	**Method:**	EPA 533
Lab FileID:	3Q101439.D	**Analyst approved:**	04/14/25 11:45 (b) (6)
Injection Time:	04/11/25 18:07	**Supervisor approved:**	04/14/25 12:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.72	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/14/25 12:44

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101441.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/11/2025 6:39:39 PM
Sample Name : cc1491-20
Vial : P1-C7
DA Method File : 533_041125_S3Q1491.quantmethod.xml
Batch Name : s3q1491.batch.bin
Sample Information : op8141,S3Q1491,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	226004	10.00 µg/L	0.000
13C3-PFBA	2.332	216.0 -> 172.0	77650	10.00 µg/L	0.000
13C4-PFOS	7.983	503.0 -> 80.0	32348	10.00 µg/L	0.000
M4-PFBA	2.327	217.0 -> 172.0	134160	10.00 µg/L	-0.013
M5-PFPeA	4.400	268.0 -> 223.0	163860	10.00 µg/L	-0.013
M5-PFHxA	5.763	318.0 -> 273.0	222327	10.00 µg/L	-0.013
M4-PFHpA	6.694	367.0 -> 322.0	191976	10.00 µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	266821	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	292201	10.00 µg/L	0.000
M6-PFDA	8.533	519.0 -> 474.0	429548	10.00 µg/L	0.000
M7-PFUnDA	9.185	570.0 -> 525.0	789683	10.00 µg/L	0.000
M2-PFDoDA	10.083	615.0 -> 570.0	1014999	10.00 µg/L	0.013
M3-PFBS	4.696	302.0 -> 99.0	19853	10.00 µg/L	-0.013
M3-PFHxS	6.724	402.0 -> 99.0	28716	10.00 µg/L	-0.013
M8-PFOS	7.982	507.0 -> 99.0	36127	10.00 µg/L	0.000
M2-4:2FTS	5.672	329.0 -> 309.0	87231	10.00 µg/L	0.000
M2-6:2FTS	7.420	429.0 -> 409.0	165793	10.00 µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	265927	10.00 µg/L	0.000
M3-HFPO-DA	6.056	287.0 -> 169.0	2857	10.00 µg/L	-0.013
System Monitoring Compounds					
13C2-4:2FTS	5.672	329.0 -> 309.0	87231	10.52 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C2-6:2FTS	7.420	429.0 -> 409.0	165793	10.32 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C2-8:2FTS	8.597	529.0 -> 509.0	265927	10.27 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C2-PFDoDA	10.083	615.0 -> 570.0	1014999	10.26 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C3-PFBS	4.696	302.0 -> 99.0	19853	10.12 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C3-PFHxS	6.724	402.0 -> 99.0	28716	10.16 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C4-PFBA	2.327	217.0 -> 172.0	134160	10.10 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C4-PFHpA	6.694	367.0 -> 322.0	191976	10.17 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C5-PFHxA	5.763	318.0 -> 273.0	222327	10.27 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C5-PFPeA	4.400	268.0 -> 223.0	163860	10.05 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C6-PFDA	8.533	519.0 -> 474.0	429548	10.09 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C7-PFUnDA	9.185	570.0 -> 525.0	789683	10.35 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C8-PFOA	7.422	421.0 -> 376.0	266821	10.21 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

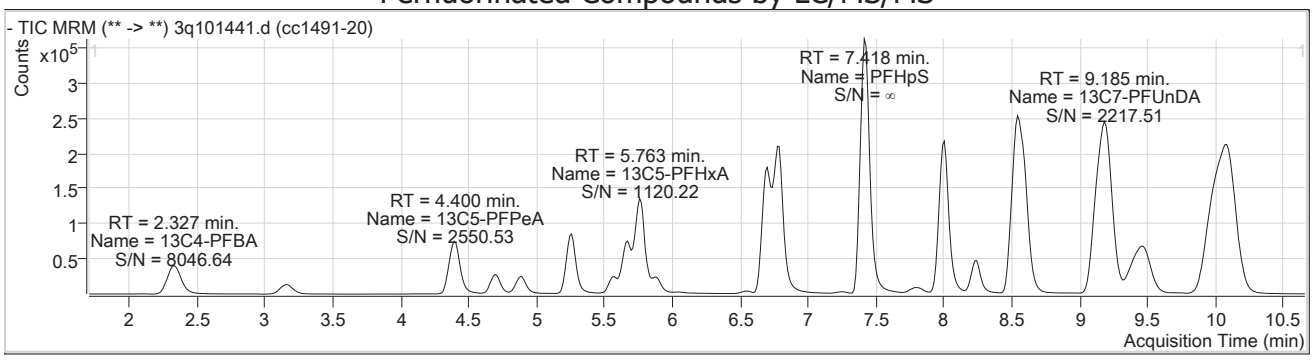
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.1%		
13C8-PFOS	7.982	507.0 -> 99.0	36127	10.00 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
13C9-PFNA	8.010	472.0 -> 427.0	292201	10.23 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.3%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	2857	10.84 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.4%		
Target Compounds						QValue
PFMPA	3.153	229.0 -> 85.0	93556	19.23 µg/L		100
4:2FTS	5.674	327.0 -> 307.0	200701	19.20 µg/L		87
		327.0 -> 81.0	82573			
6:2FTS	7.420	427.0 -> 407.0	276609	19.35 µg/L		95
		427.0 -> 81.0	115586			
8:2FTS	8.586	527.0 -> 507.0	437414	19.40 µg/L		97
		527.0 -> 81.0	160952			
PFMBA	4.888	279.0 -> 85.0	131424	19.11 µg/L		100
PFEESA	5.260	315.0 -> 135.0	402131	19.33 µg/L		98
		315.0 -> 69.0	30641			
NFDHA	5.582	201.0 -> 85.0	115457	19.21 µg/L		97
		295.0 -> 201.0	7745			
PFBA	2.336	213.0 -> 169.0	82025	19.26 µg/L		100
PFBS	4.697	299.0 -> 80.0	88123	19.34 µg/L		91
		299.0 -> 99.0	37621			
PFDA	8.534	513.0 -> 469.0	530236	19.22 µg/L		95
		513.0 -> 219.0	112190			
PFDoDA	10.075	613.0 -> 569.0	1498936	19.30 µg/L		99
		613.0 -> 169.0	140890			
PFHpA	6.695	363.0 -> 319.0	559428	19.17 µg/L		99
		363.0 -> 169.0	46577			
PFHpS	7.418	449.0 -> 80.0	121839	19.20 µg/L		93
		449.0 -> 99.0	66501			
PFHxA	5.765	313.0 -> 269.0	433807	19.21 µg/L		98
		313.0 -> 119.0	15302			
PFHxS	6.725	399.0 -> 80.0	114274	19.12 µg/L	m	95
		399.0 -> 99.0	59632			
PFNA	8.010	463.0 -> 419.0	491221	19.20 µg/L		99
		463.0 -> 219.0	136053			
PFOA	7.423	413.0 -> 369.0	429125	19.08 µg/L		99
		413.0 -> 169.0	153695			
PFOS	7.983	499.0 -> 80.0	131698	18.99 µg/L	m	83
		499.0 -> 99.0	66968			
PFPeA	4.402	263.0 -> 219.0	272394	19.31 µg/L		100
PFPeS	5.883	349.0 -> 80.0	63770	18.93 µg/L		93
		349.0 -> 99.0	27294			
PFUnDA	9.187	563.0 -> 519.0	1139296	19.28 µg/L		97
		563.0 -> 269.0	199165			
11Cl-PF3OUdS	9.457	631.0 -> 451.0	633398	19.66 µg/L		99
		631.0 -> 83.0	29219			
9Cl-PF3ONS	8.241	531.0 -> 351.0	213258	19.50 µg/L		100
		531.0 -> 83.0	11156			
ADONA	6.792	377.0 -> 251.0	858920	19.20 µg/L		97
		377.0 -> 85.0	105088			
HFPO-DA	6.061	329.0 -> 169.0	1473	18.55 µg/L	#	13
		285.0 -> 169.0	3243			

 # = Qualifier out of range, m = manually integrated, + = Area summed

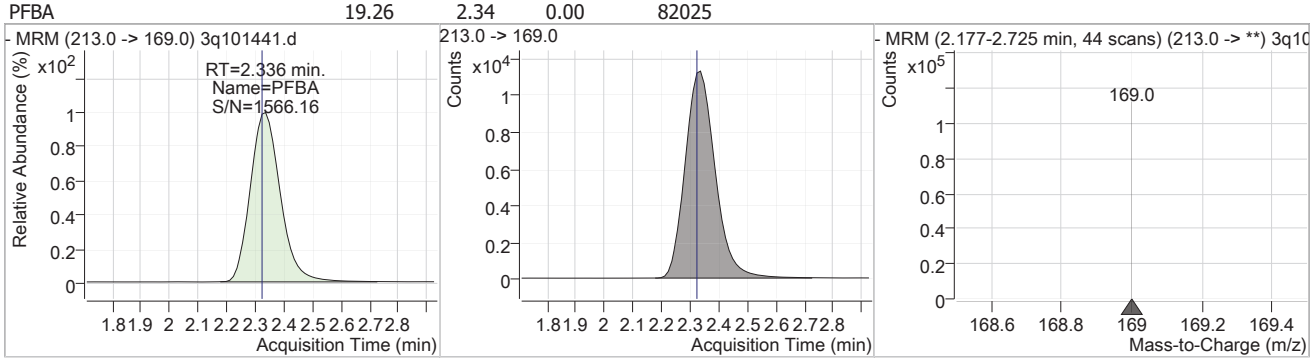
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

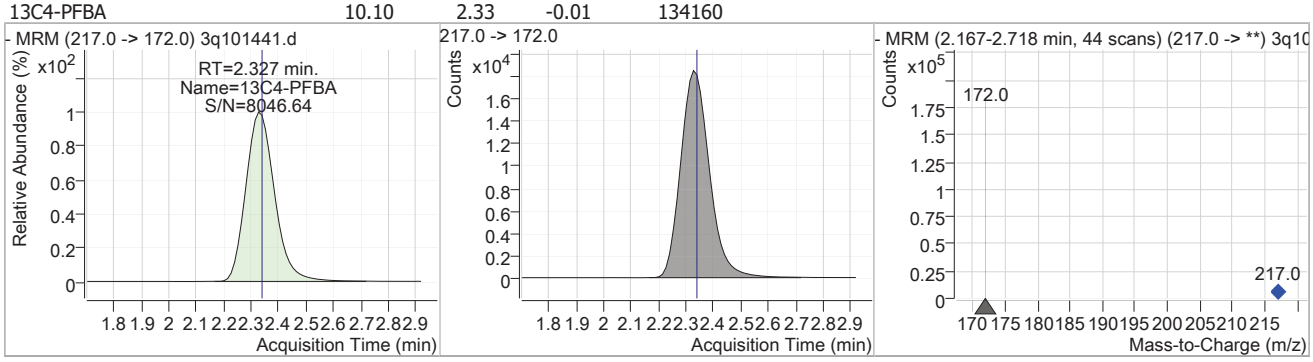
Perfluorinated Compounds by LC/MS/MS



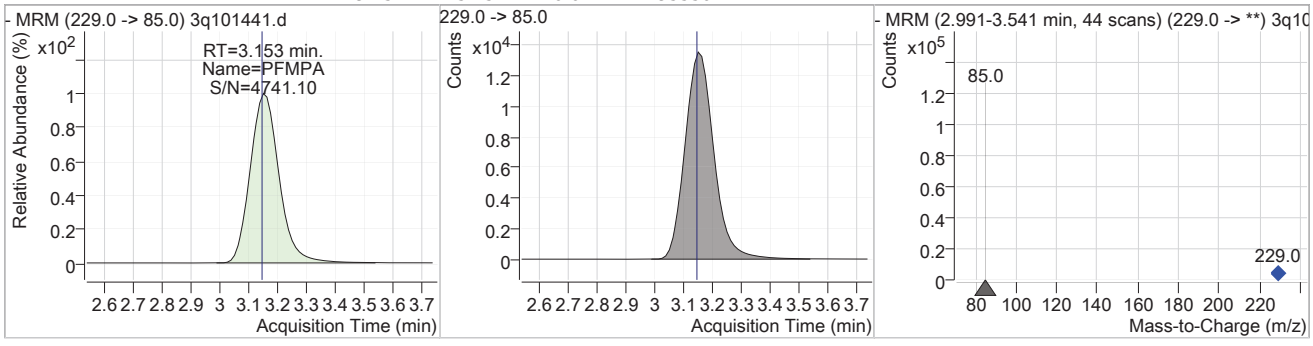
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.26	2.34	0.00	82025				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.10	2.33	-0.01	134160				

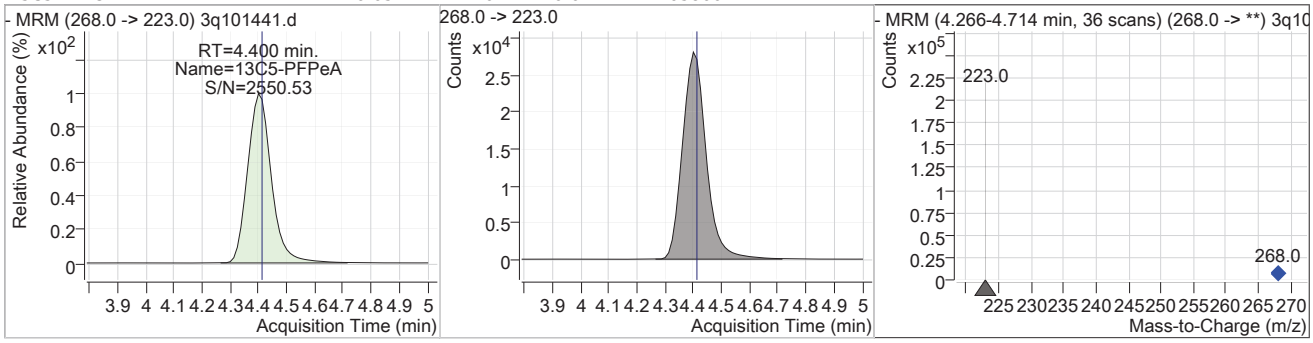


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	19.23	3.15	-0.01	93556				

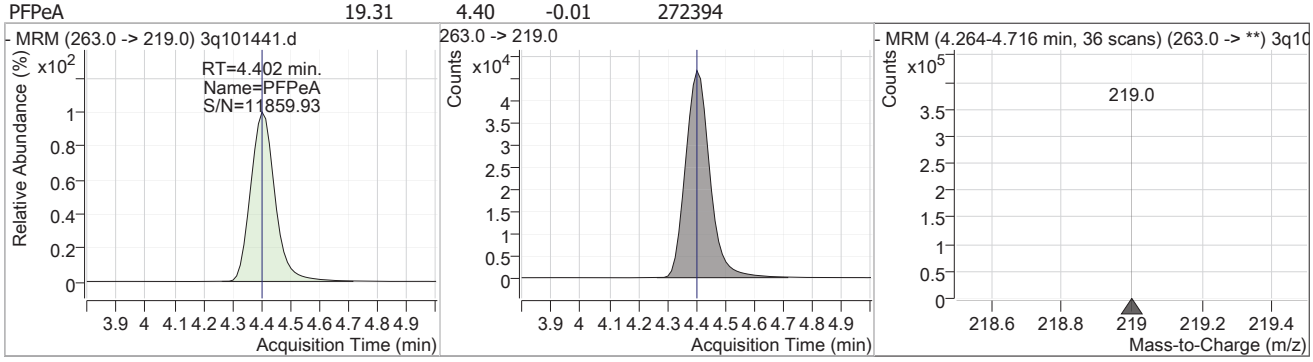


Perfluorinated Compounds by LC/MS/MS

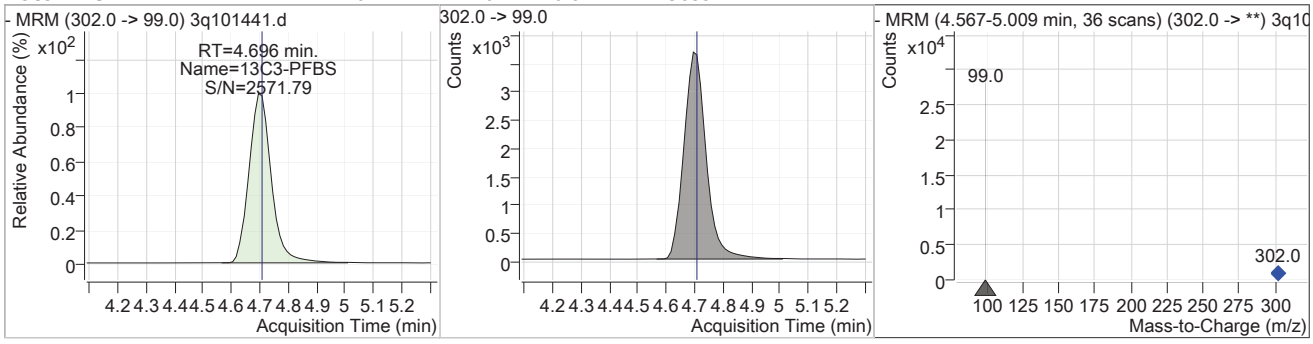
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.05	4.40	-0.01	163860				



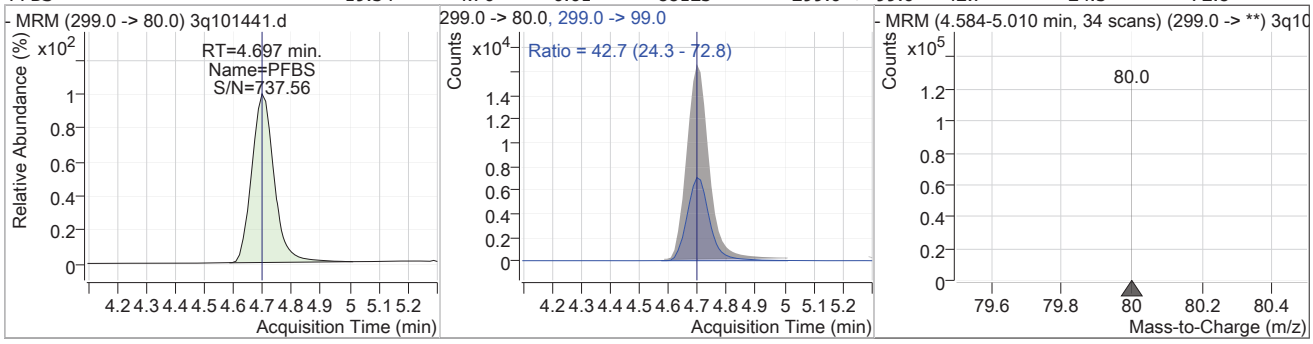
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.31	4.40	-0.01	272394				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.12	4.70	-0.01	19853				

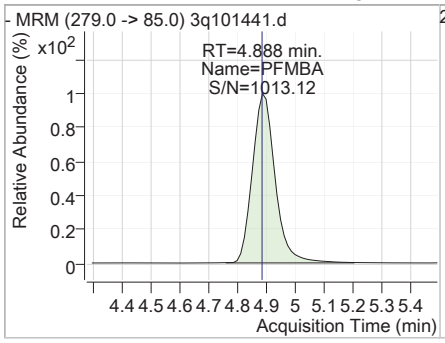


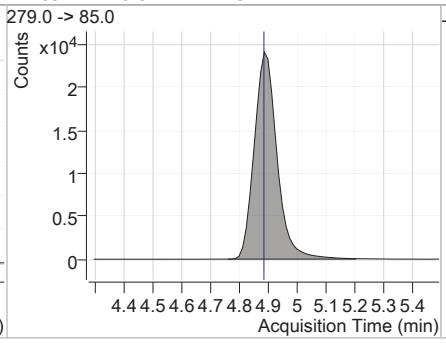
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.34	4.70	-0.01	88123	299.0 -> 99.0	42.7	24.3	72.8

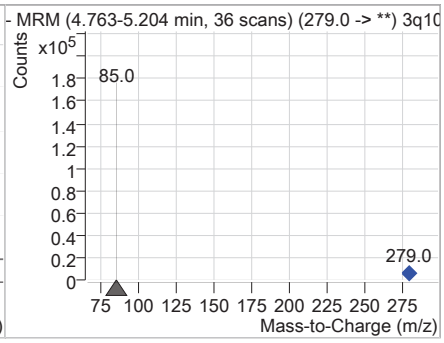


Perfluorinated Compounds by LC/MS/MS

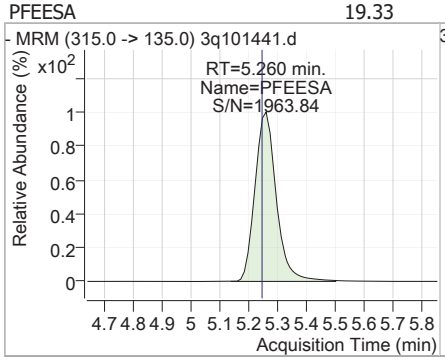
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	19.11	4.89	-0.01	131424				

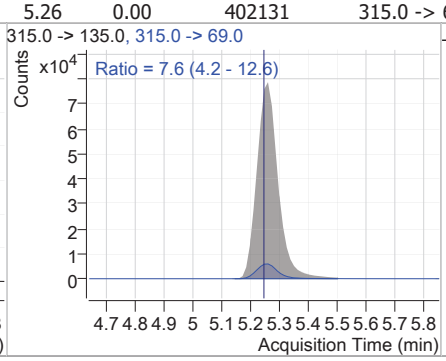


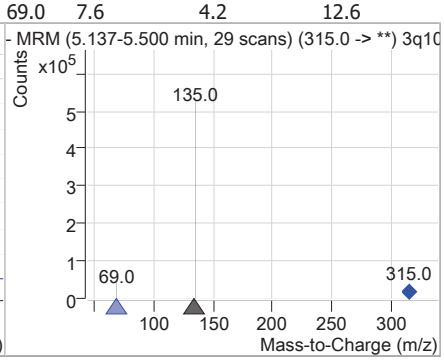




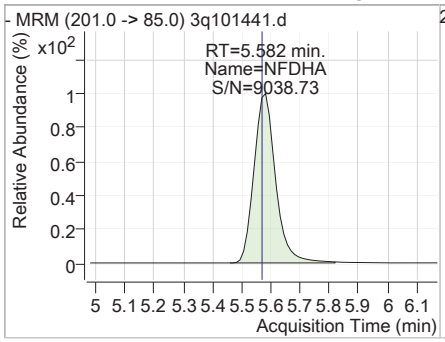
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	19.33	5.26	0.00	402131	315.0 -> 69.0	7.6	4.2	12.6

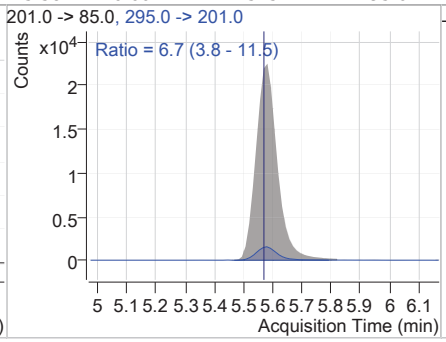


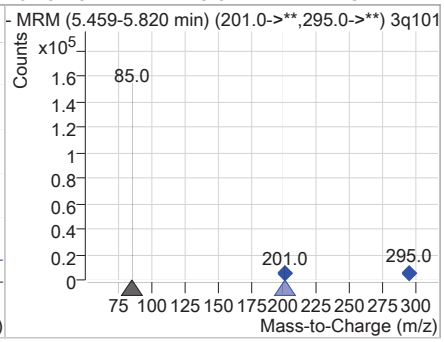




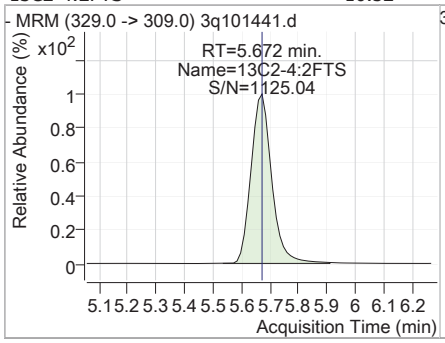
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	19.21	5.58	0.00	115457	295.0 -> 201.0	6.7	3.8	11.5

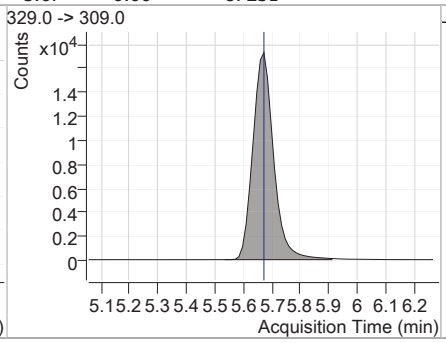


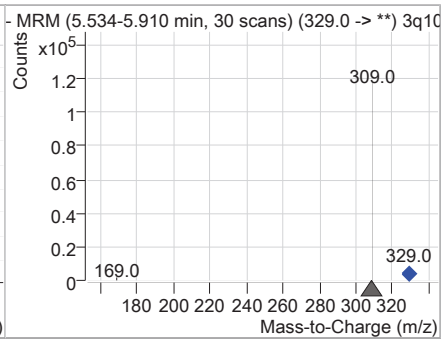




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	10.52	5.67	0.00	87231				

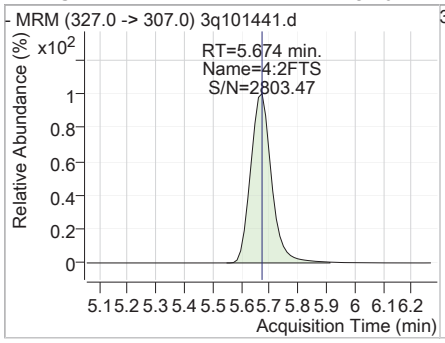


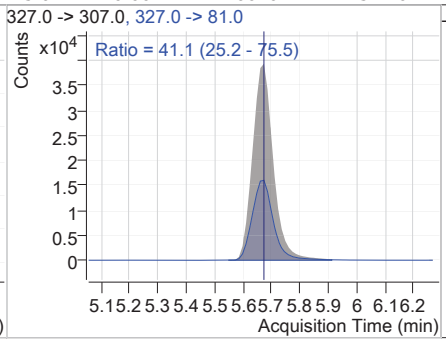


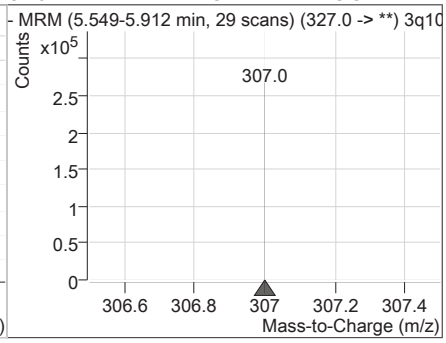


Perfluorinated Compounds by LC/MS/MS

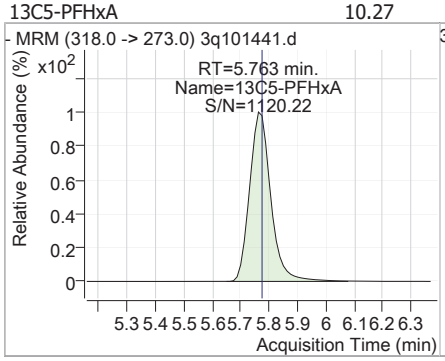
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.20	5.67	0.00	200701	327.0 -> 81.0	41.1	25.2	75.5

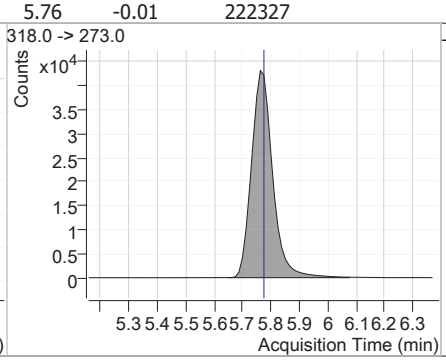


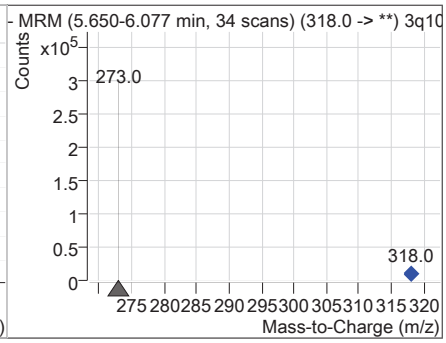




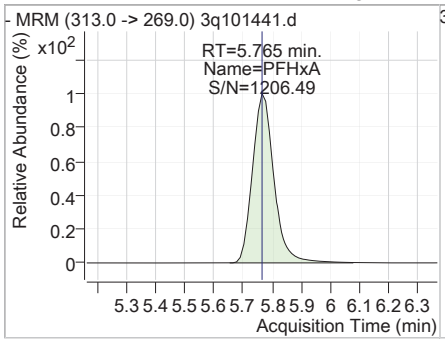
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.27	5.76	-0.01	222327				

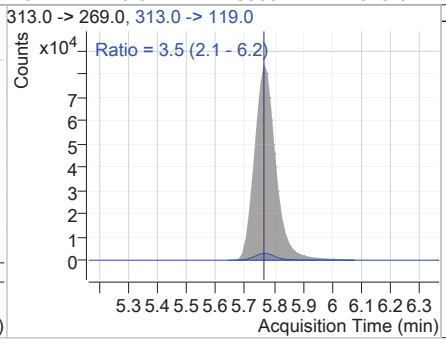


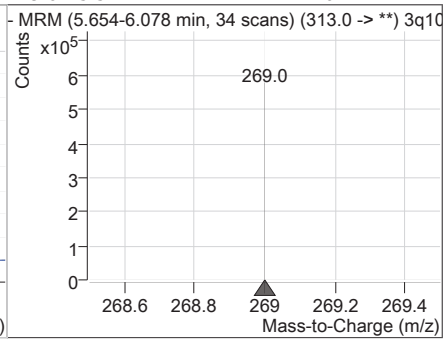




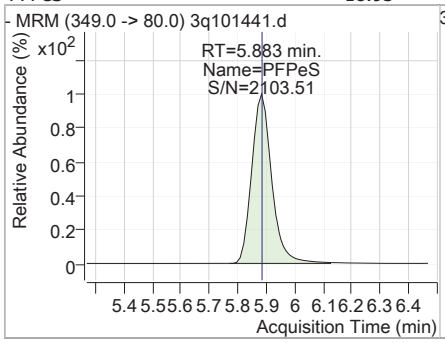
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.21	5.77	-0.01	433807	313.0 -> 119.0	3.5	2.1	6.2

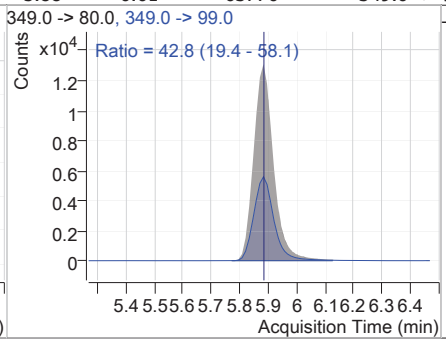


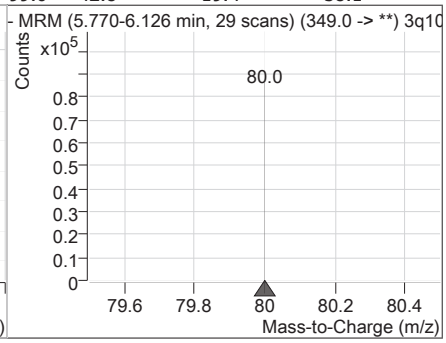




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	18.93	5.88	-0.01	63770	349.0 -> 99.0	42.8	19.4	58.1

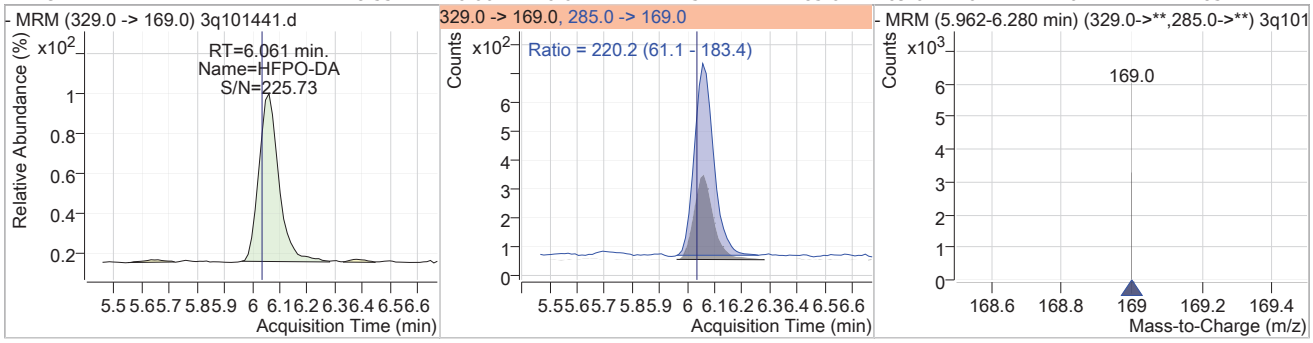




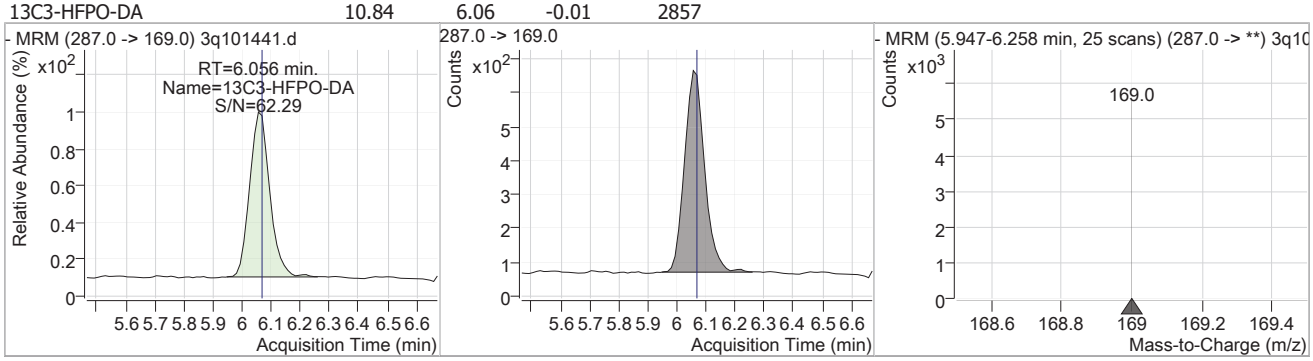


Perfluorinated Compounds by LC/MS/MS

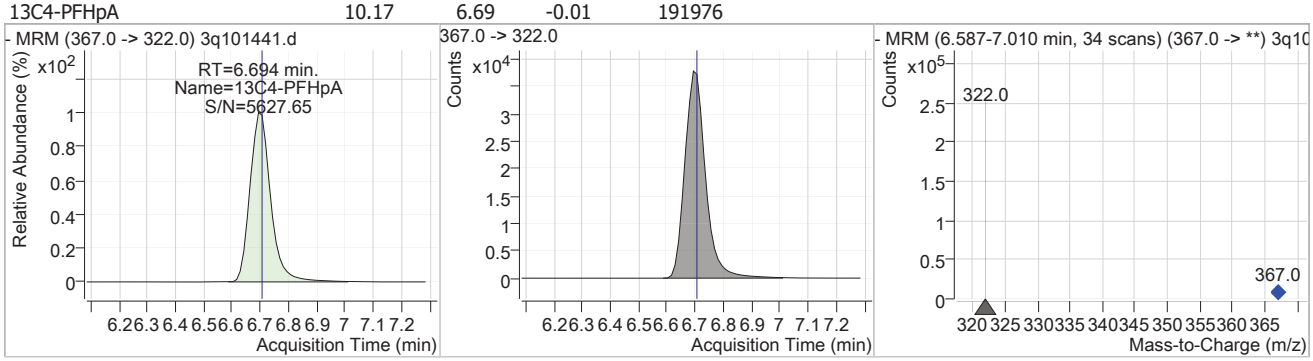
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	18.55	6.06	0.01	1473	285.0 -> 169.0	220.2	61.1	183.4



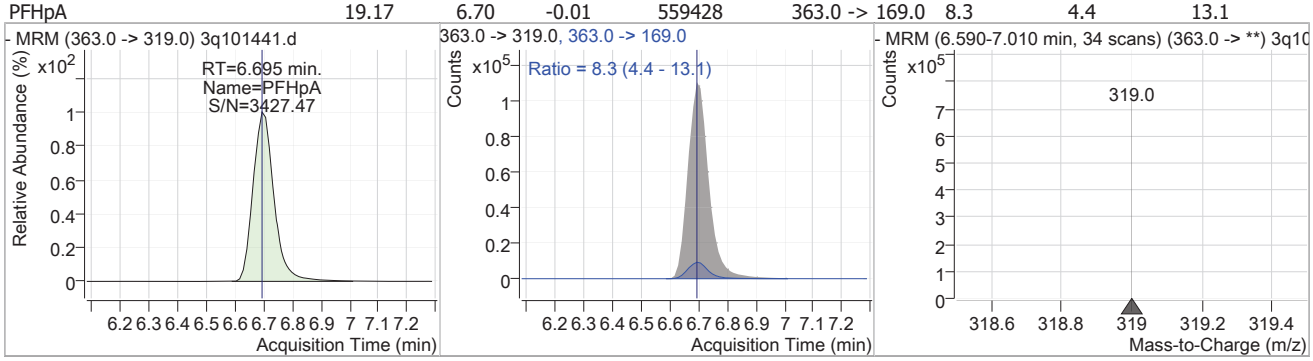
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.84	6.06	-0.01	2857				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.17	6.69	-0.01	191976				

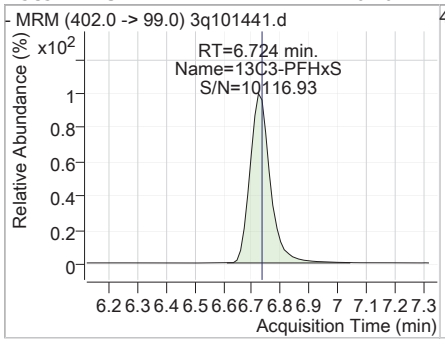


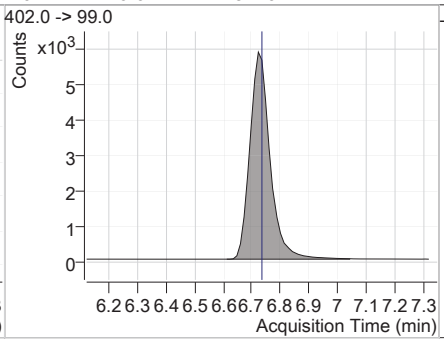
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.17	6.70	-0.01	559428	363.0 -> 169.0	8.3	4.4	13.1

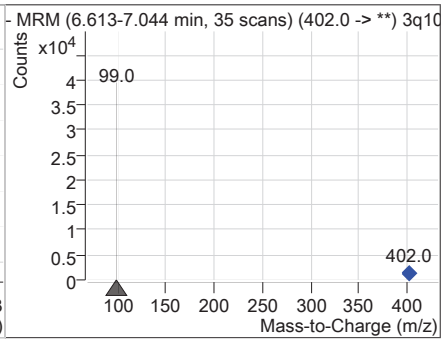


Perfluorinated Compounds by LC/MS/MS

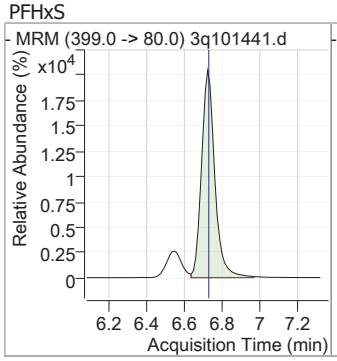
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.16	6.72	-0.01	28716				

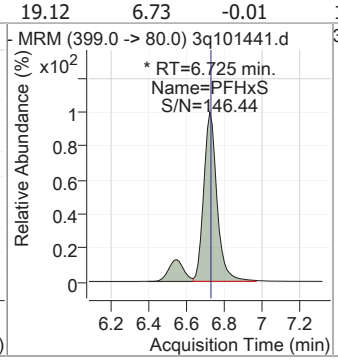


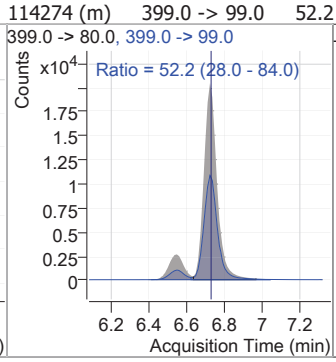


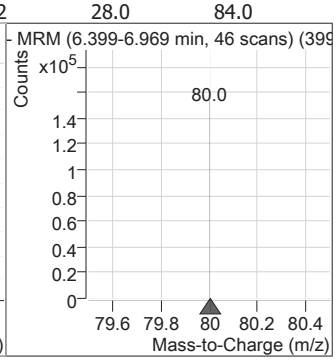


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.12	6.73	-0.01	114274 (m)	399.0 -> 99.0	52.2	28.0	84.0

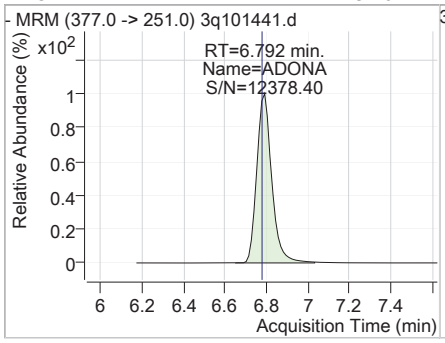


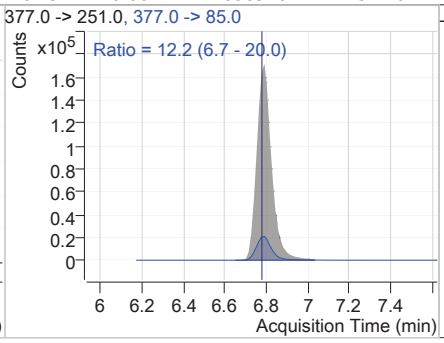


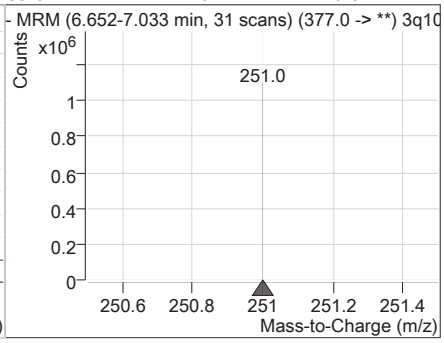




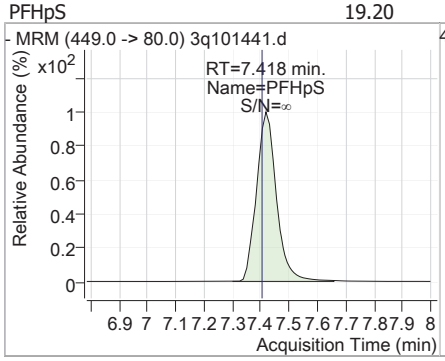
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.20	6.79	0.00	858920	377.0 -> 85.0	12.2	6.7	20.0

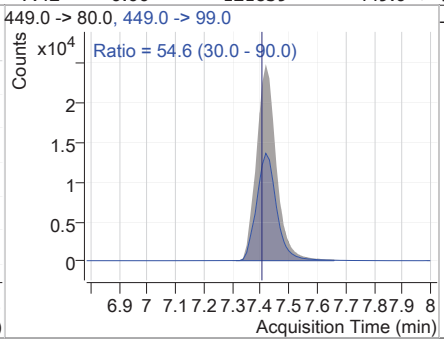


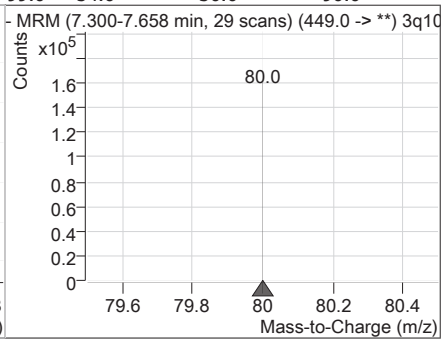




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	19.20	7.42	0.00	121839	449.0 -> 99.0	54.6	30.0	90.0

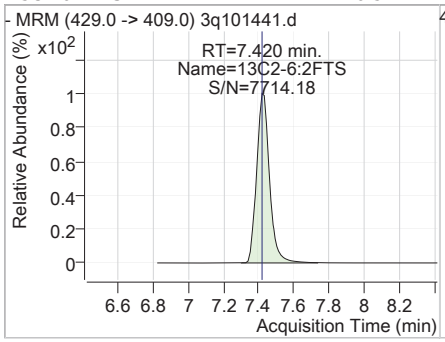


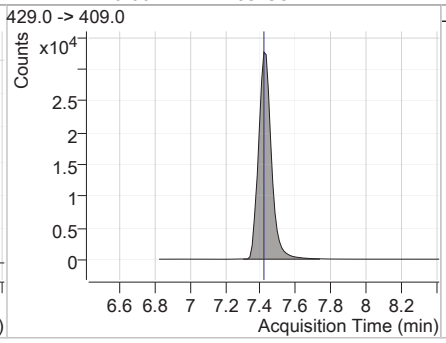


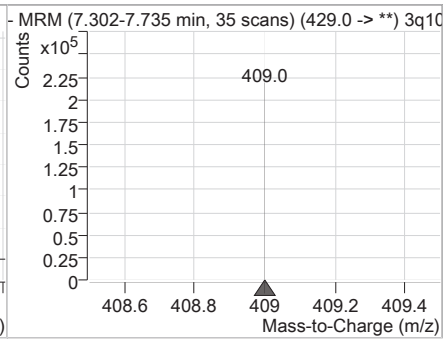


Perfluorinated Compounds by LC/MS/MS

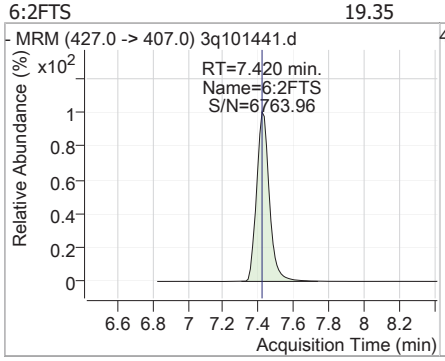
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	10.32	7.42	0.00	165793				

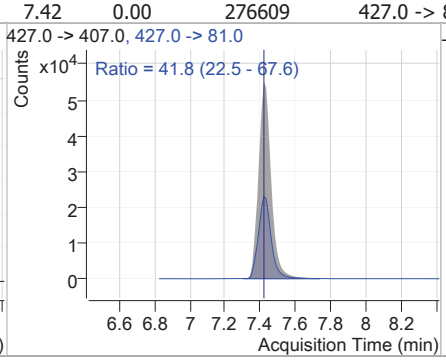


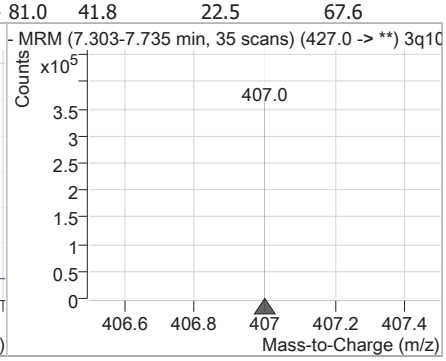




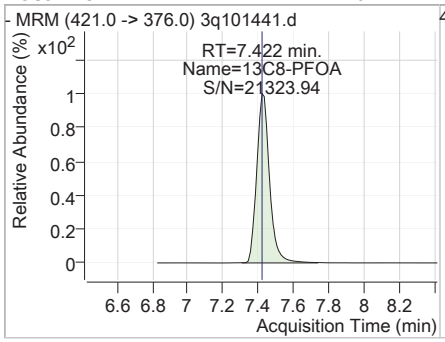
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.35	7.42	0.00	276609	427.0 -> 81.0	41.8	22.5	67.6

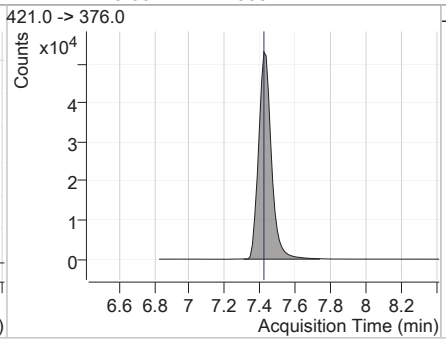


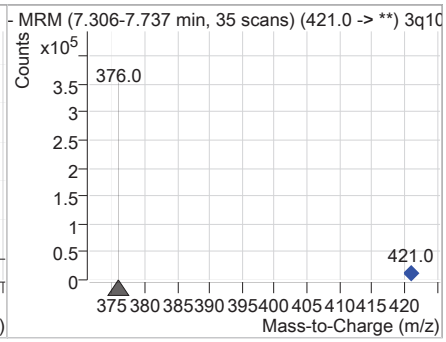




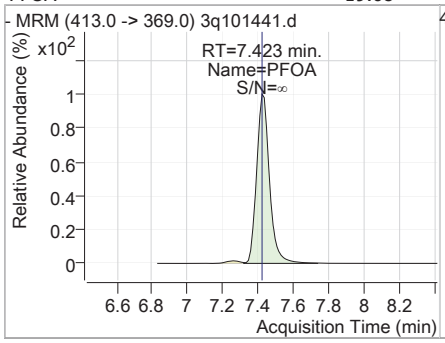
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.21	7.42	0.00	266821				

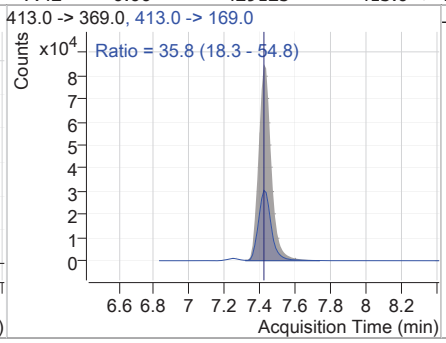


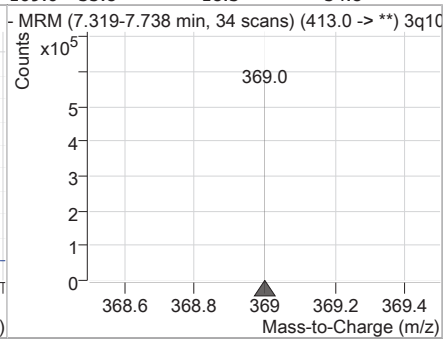




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.08	7.42	0.00	429125	413.0 -> 169.0	35.8	18.3	54.8

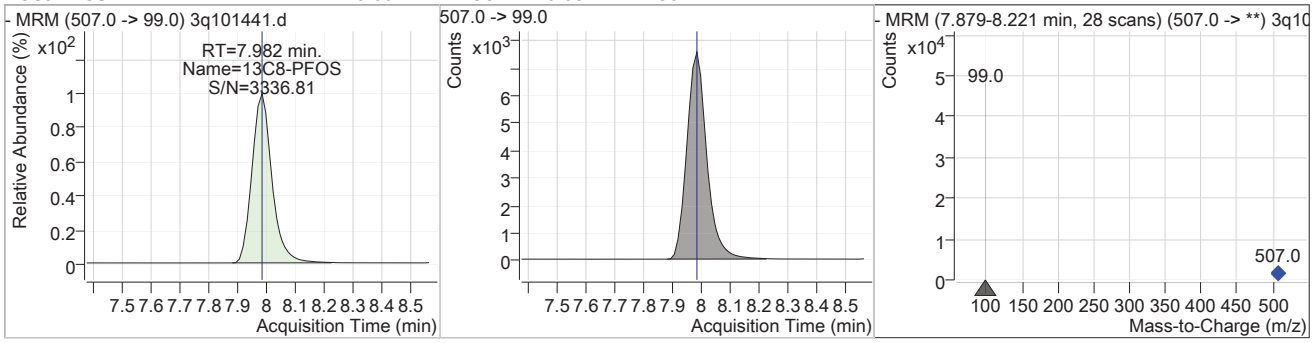




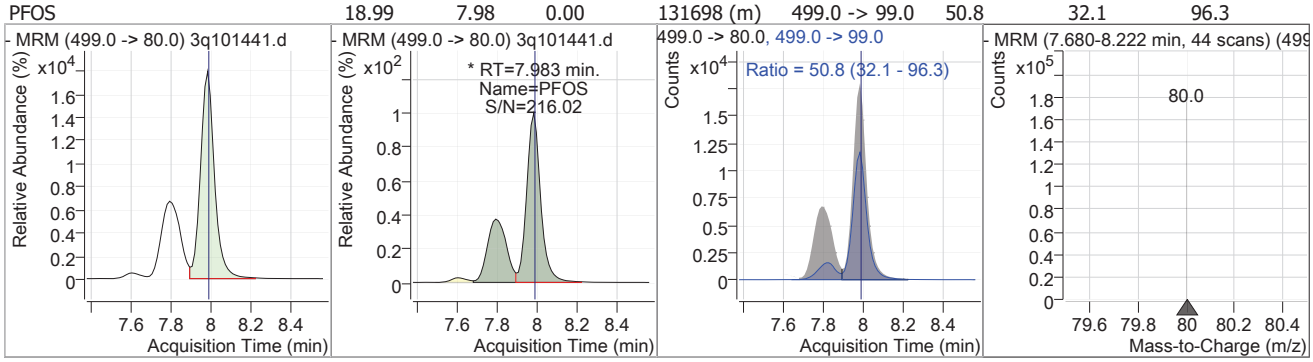


Perfluorinated Compounds by LC/MS/MS

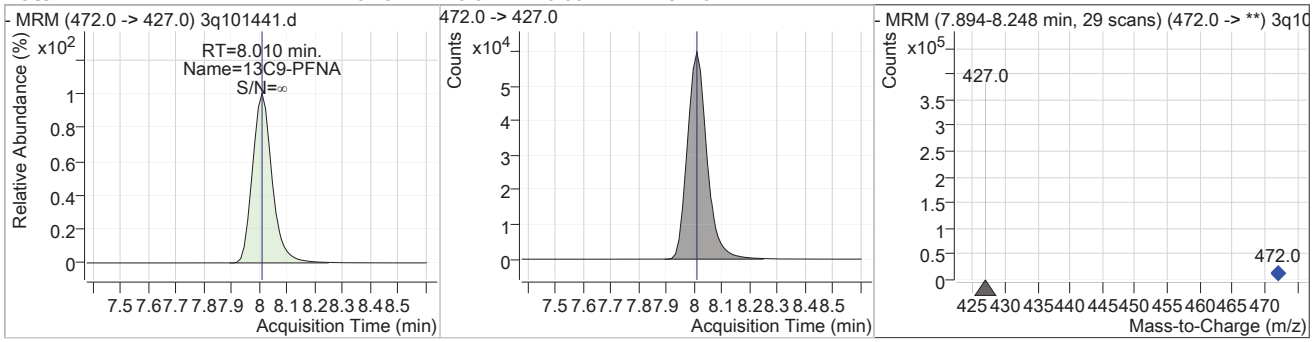
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.00	7.98	0.00	36127				



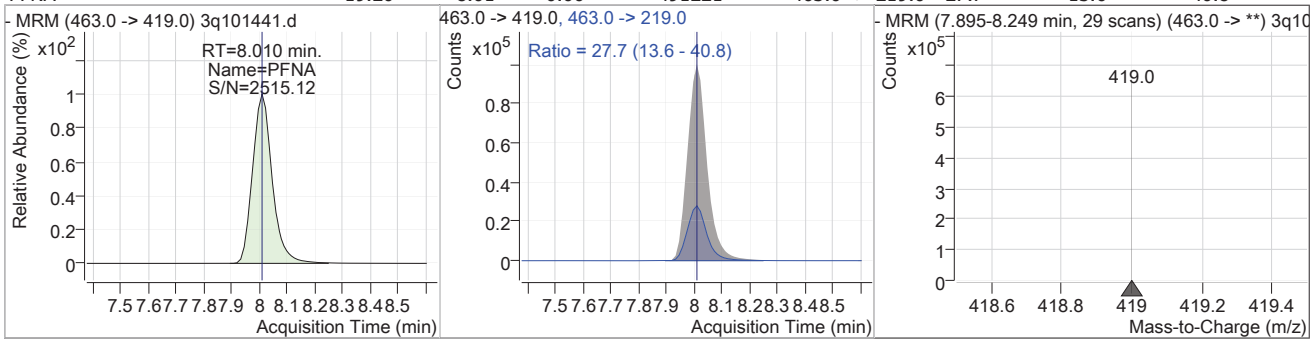
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.99	7.98	0.00	131698 (m)	499.0 -> 99.0	50.8	32.1	96.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.23	8.01	0.00	292201				

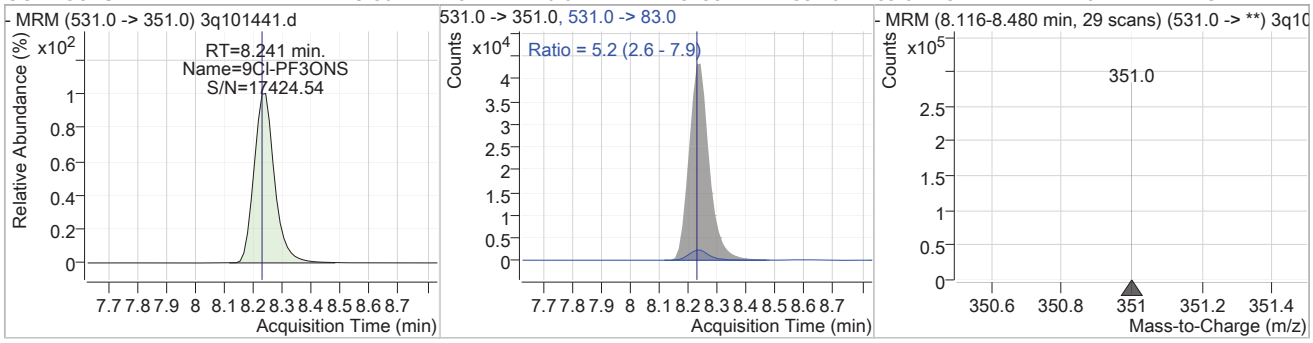


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.20	8.01	0.00	491221	463.0 -> 219.0	27.7	13.6	40.8

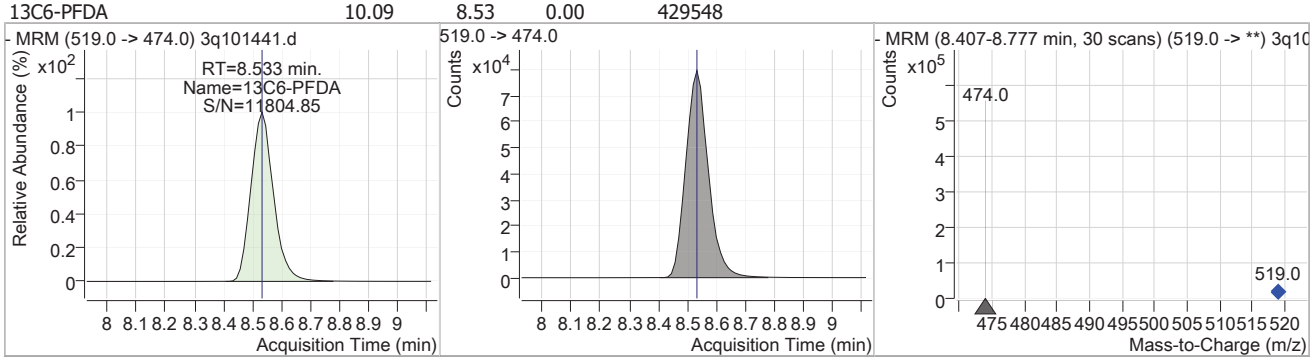


Perfluorinated Compounds by LC/MS/MS

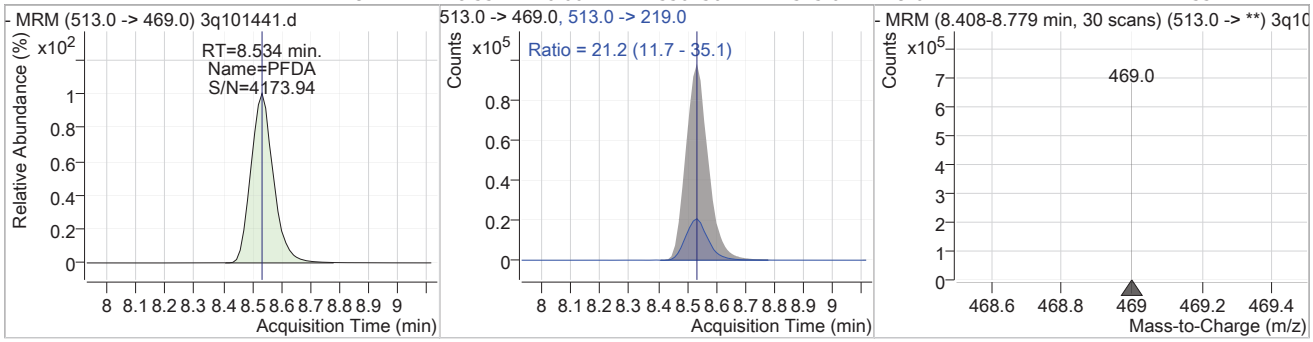
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	19.50	8.24	0.01	213258	531.0 -> 83.0	5.2	2.6	7.9



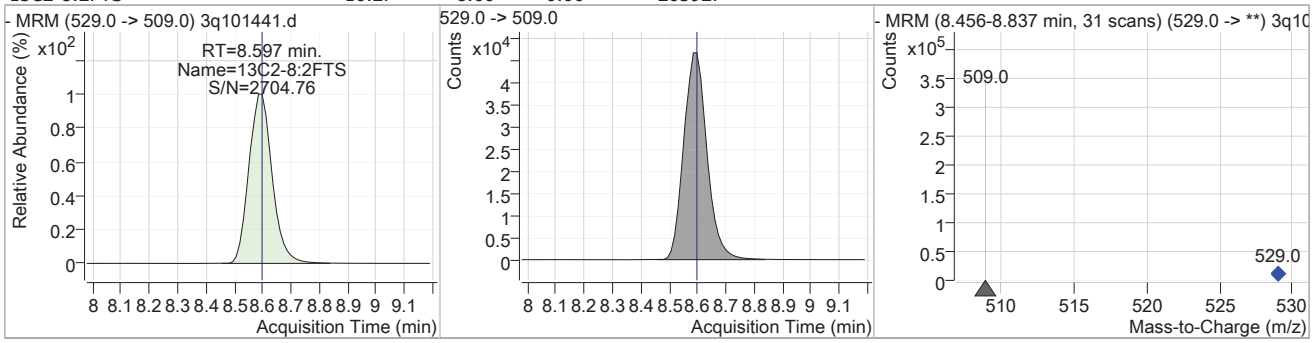
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	10.09	8.53	0.00	429548				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.22	8.53	0.00	530236	513.0 -> 219.0	21.2	11.7	35.1

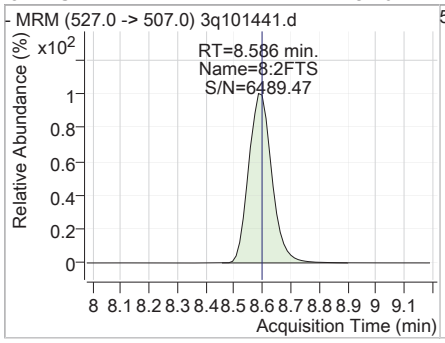


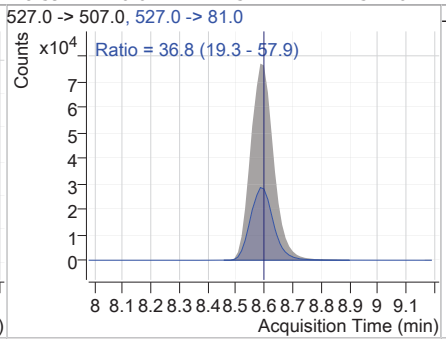
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	10.27	8.60	0.00	265927				

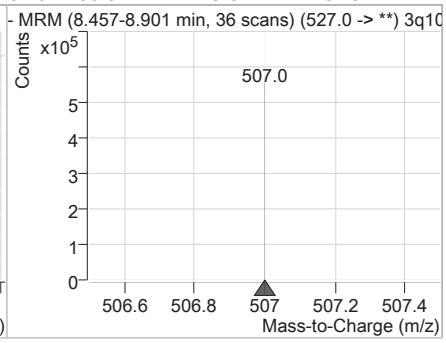


Perfluorinated Compounds by LC/MS/MS

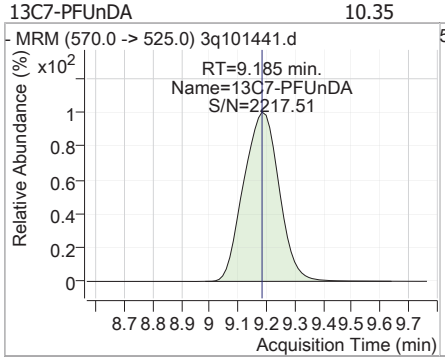
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	19.40	8.59	-0.01	437414	527.0 -> 81.0	36.8	19.3	57.9

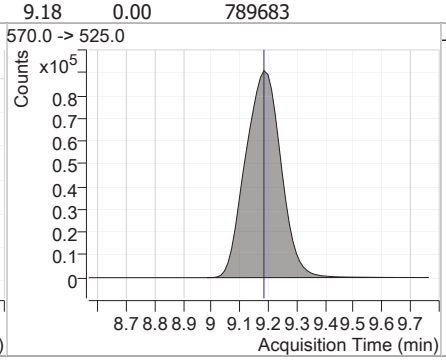


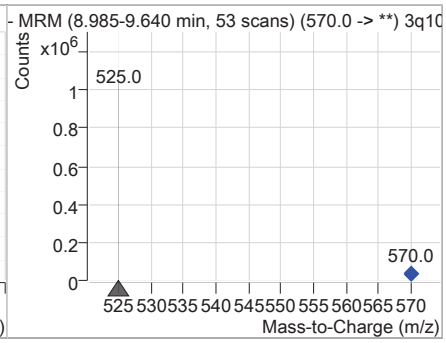




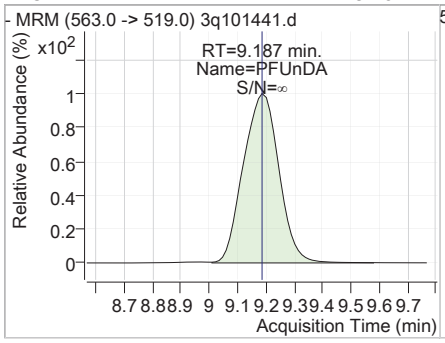
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	10.35	9.18	0.00	789683				

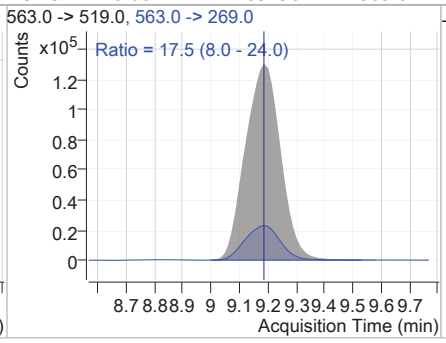


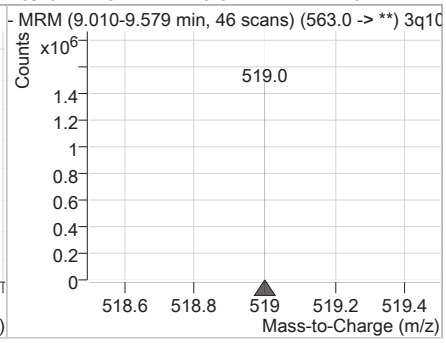




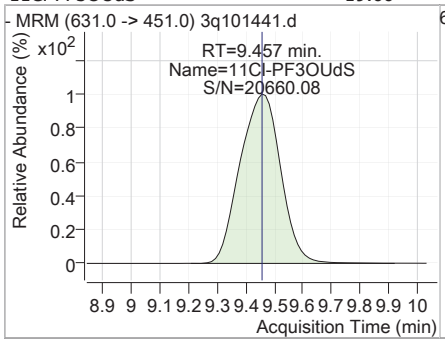
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.28	9.19	0.00	1139296	563.0 -> 269.0	17.5	8.0	24.0

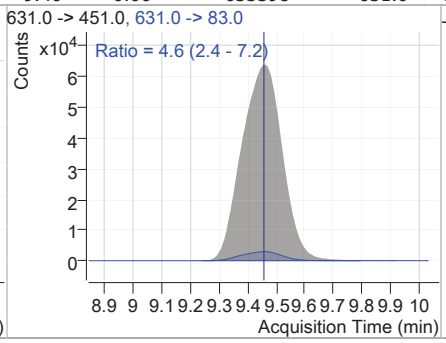


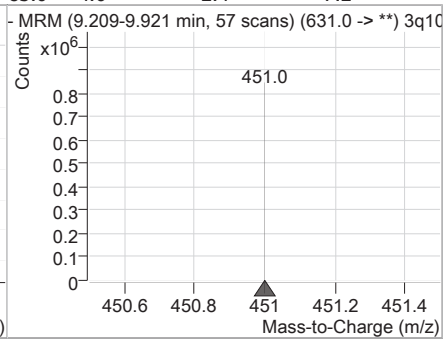




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	19.66	9.46	0.00	633398	631.0 -> 83.0	4.6	2.4	7.2

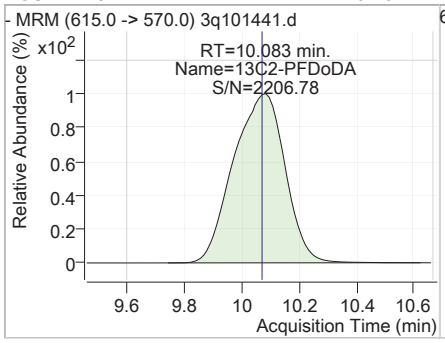


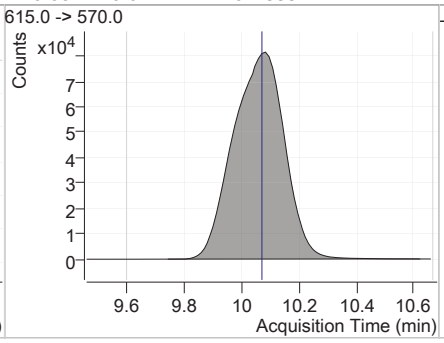


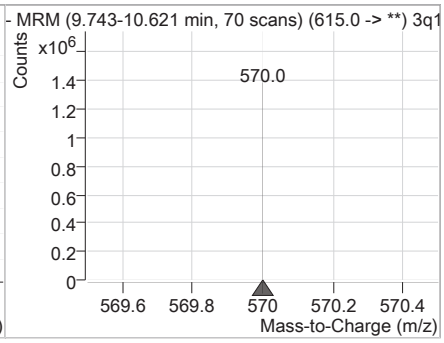


Perfluorinated Compounds by LC/MS/MS

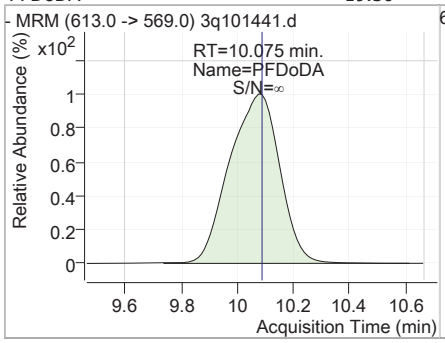
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.26	10.08	0.01	1014999				

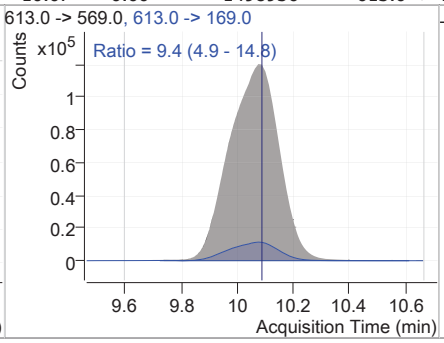


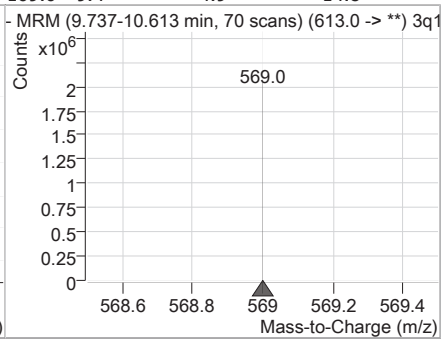




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.30	10.07	0.00	1498936	613.0 -> 169.0	9.4	4.9	14.8







Manual Integration Approval Summary

Sample Number:	S3Q1491-CC1491	**Method:**	EPA 533
Lab FileID:	3Q101441.D	**Analyst approved:**	04/14/25 11:45 (b) (6)
Injection Time:	04/11/25 18:39	**Supervisor approved:**	04/14/25 12:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.72	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/14/25 12:44

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101442.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/11/2025 6:55:44 PM
Sample Name : cc1491-0.5LL
Vial : P1-C2
DA Method File : 533_041125_S3Q1491.quantmethod.xml
Batch Name : s3q1491.batch.bin
Sample Information : op8141,S3Q1491,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	232244	10.00 µg/L	0.000
13C3-PFBA	2.332	216.0 -> 172.0	77603	10.00 µg/L	0.000
13C4-PFOS	7.983	503.0 -> 80.0	33042	10.00 µg/L	0.000
M4-PFBA	2.327	217.0 -> 172.0	139748	10.00 µg/L	-0.013
M5-PFPeA	4.413	268.0 -> 223.0	171932	10.00 µg/L	0.000
M5-PFHxA	5.763	318.0 -> 273.0	235043	10.00 µg/L	-0.013
M4-PFHpA	6.694	367.0 -> 322.0	205034	10.00 µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	284980	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	311005	10.00 µg/L	0.000
M6-PFDA	8.533	519.0 -> 474.0	460614	10.00 µg/L	0.000
M7-PFUnDA	9.185	570.0 -> 525.0	830319	10.00 µg/L	0.000
M2-PFDoDA	10.083	615.0 -> 570.0	1079787	10.00 µg/L	0.012
M3-PFBS	4.708	302.0 -> 99.0	20597	10.00 µg/L	0.000
M3-PFHxS	6.723	402.0 -> 99.0	30251	10.00 µg/L	-0.013
M8-PFOS	7.982	507.0 -> 99.0	38201	10.00 µg/L	0.000
M2-4:2FTS	5.672	329.0 -> 309.0	82925	10.00 µg/L	0.000
M2-6:2FTS	7.420	429.0 -> 409.0	163751	10.00 µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	266490	10.00 µg/L	0.000
M3-HFPO-DA	6.056	287.0 -> 169.0	2594	10.00 µg/L	-0.013
System Monitoring Compounds					
13C2-4:2FTS	5.672	329.0 -> 309.0	82925	9.79 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C2-6:2FTS	7.420	429.0 -> 409.0	163751	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C2-8:2FTS	8.597	529.0 -> 509.0	266490	10.08 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C2-PFDoDA	10.083	615.0 -> 570.0	1079787	10.62 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.2%	
13C3-PFBS	4.708	302.0 -> 99.0	20597	10.28 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C3-PFHxS	6.723	402.0 -> 99.0	30251	10.48 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C4-PFBA	2.327	217.0 -> 172.0	139748	10.53 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
13C4-PFHpA	6.694	367.0 -> 322.0	205034	10.57 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C5-PFHxA	5.763	318.0 -> 273.0	235043	10.56 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C5-PFPeA	4.413	268.0 -> 223.0	171932	10.55 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C6-PFDA	8.533	519.0 -> 474.0	460614	10.53 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
13C7-PFUnDA	9.185	570.0 -> 525.0	830319	10.59 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C8-PFOA	7.422	421.0 -> 376.0	284980	10.61 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

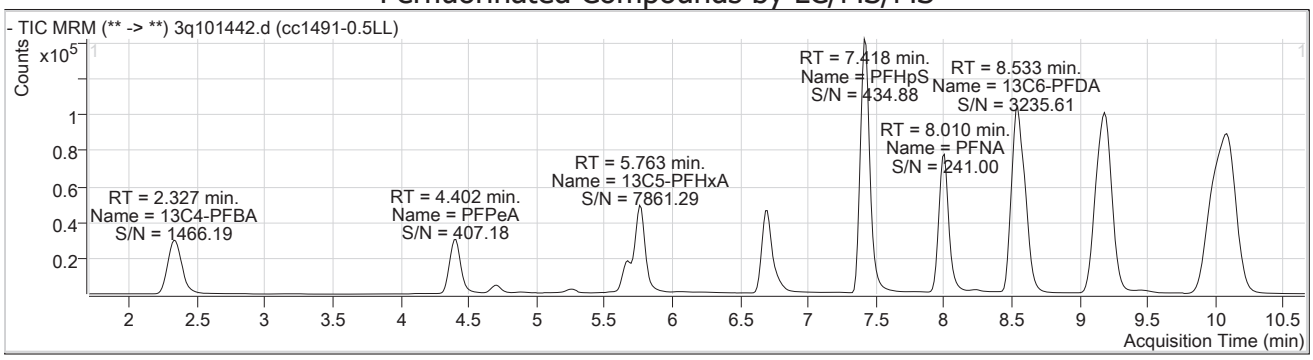
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.1%		
13C8-PFOS	7.982	507.0 -> 99.0	38201	10.35 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.5%		
13C9-PFNA	8.010	472.0 -> 427.0	311005	10.60 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.0%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	2594	9.58 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.8%		
Target Compounds						QValue
PFMPA	3.166	229.0 -> 85.0	1994	0.49 µg/L		100
4:2FTS	5.674	327.0 -> 307.0	4287	0.45 µg/L		99
		327.0 -> 81.0	2134			
6:2FTS	7.420	427.0 -> 407.0	5593	0.42 µg/L		99
		427.0 -> 81.0	2536			
8:2FTS	8.598	527.0 -> 507.0	9567	0.45 µg/L		100
		527.0 -> 81.0	3712			
PFMBA	4.901	279.0 -> 85.0	2839	0.48 µg/L		100
PFEESA	5.260	315.0 -> 135.0	8338	0.48 µg/L		98
		315.0 -> 69.0	626			
NFDHA	5.582	201.0 -> 85.0	2684	0.53 µg/L		97
		295.0 -> 201.0	178			
PFBA	2.336	213.0 -> 169.0	1694	0.47 µg/L		100
PFBS	4.710	299.0 -> 80.0	1636	0.43 µg/L		97
		299.0 -> 99.0	759			
PFDA	8.534	513.0 -> 469.0	11705	0.49 µg/L		94
		513.0 -> 219.0	2372			
PFDoDA	10.075	613.0 -> 569.0	33374	0.49 µg/L		100
		613.0 -> 169.0	3350			
PFHpA	6.695	363.0 -> 319.0	11846	0.47 µg/L		100
		363.0 -> 169.0	1031			
PFHpS	7.418	449.0 -> 80.0	2566	0.47 µg/L		99
		449.0 -> 99.0	1528			
PFHxA	5.765	313.0 -> 269.0	8923	0.46 µg/L		99
		313.0 -> 119.0	337			
PFHxS	6.725	399.0 -> 80.0	2557	0.50 µg/L	m	94
		399.0 -> 99.0	1325			
PFNA	8.010	463.0 -> 419.0	10564	0.48 µg/L		96
		463.0 -> 219.0	3083			
PFOA	7.423	413.0 -> 369.0	9407	0.48 µg/L		94
		413.0 -> 169.0	3760			
PFOS	7.983	499.0 -> 80.0	3135	0.50 µg/L	m	81
		499.0 -> 99.0	1550			
PFPeA	4.402	263.0 -> 219.0	5843	0.49 µg/L		100
PFPeS	5.883	349.0 -> 80.0	1456	0.50 µg/L		99
		349.0 -> 99.0	576			
PFUnDA	9.187	563.0 -> 519.0	24858	0.49 µg/L		89
		563.0 -> 269.0	5172			
11Cl-PF3OUdS	9.457	631.0 -> 451.0	13554	0.50 µg/L		99
		631.0 -> 83.0	681			
9Cl-PF3ONS	8.241	531.0 -> 351.0	4836	0.52 µg/L		98
		531.0 -> 83.0	231			
ADONA	6.792	377.0 -> 251.0	18266	0.48 µg/L		97
		377.0 -> 85.0	2188			
HFPO-DA	6.048	329.0 -> 169.0	34	0.49 µg/L	#m	1
		285.0 -> 169.0	99			

 # = Qualifier out of range, m = manually integrated, + = Area summed

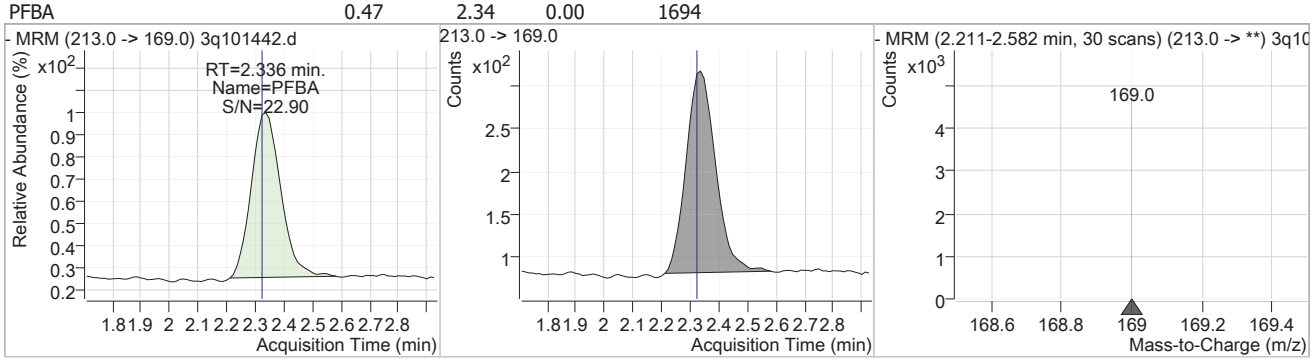
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

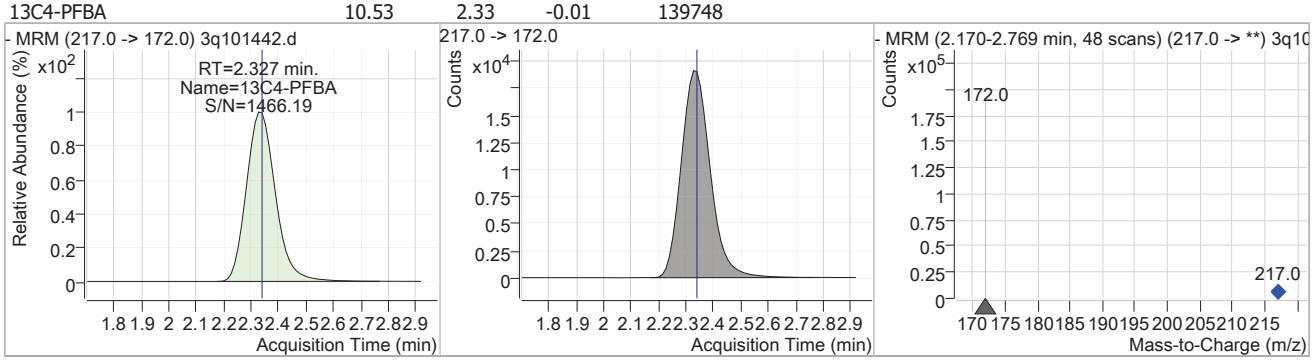
Perfluorinated Compounds by LC/MS/MS



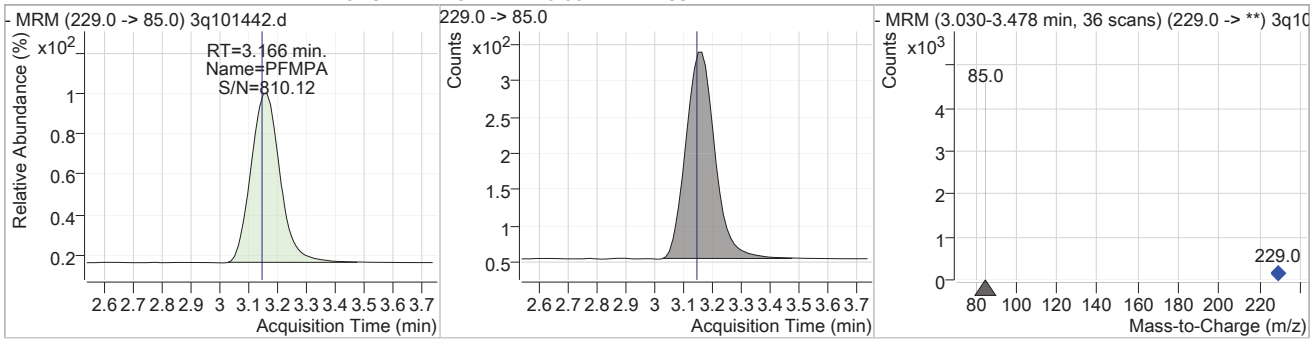
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.47	2.34	0.00	1694				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.53	2.33	-0.01	139748				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	0.49	3.17	0.00	1994				



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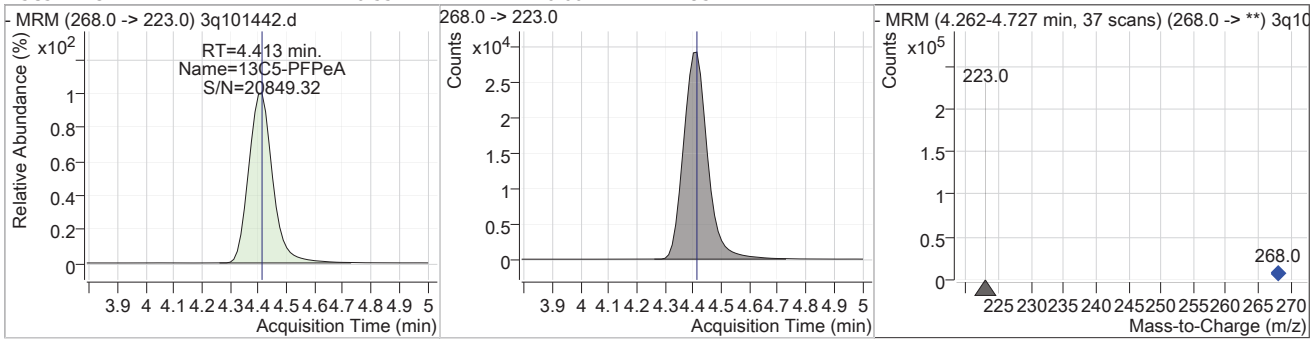
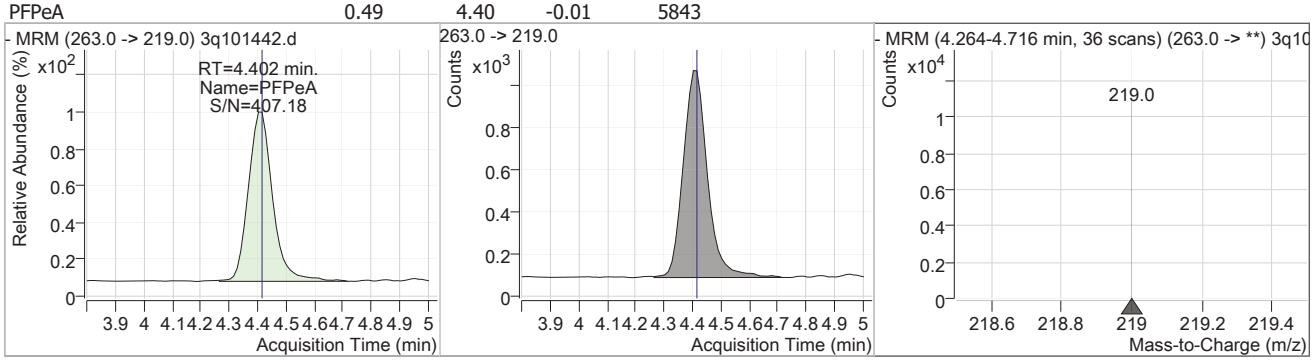
Perfluorinated Compounds by LC/MS/MS

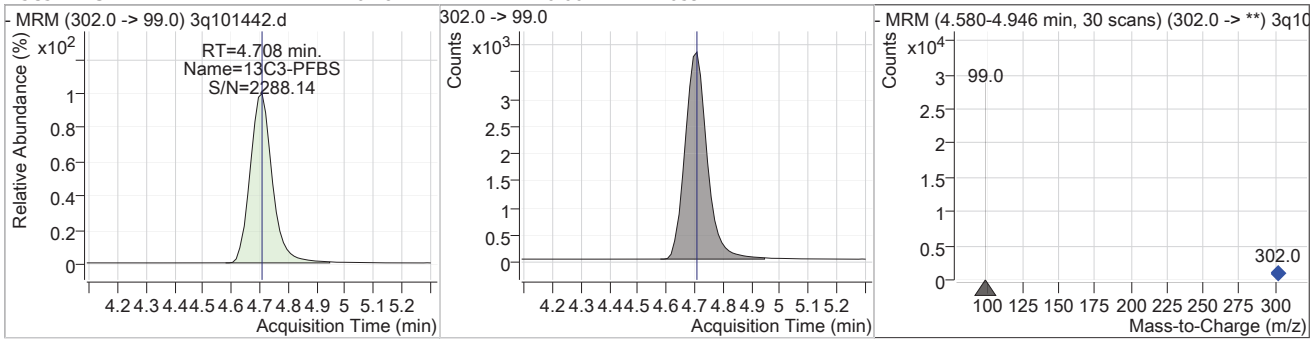
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.55	4.41	0.00	171932				



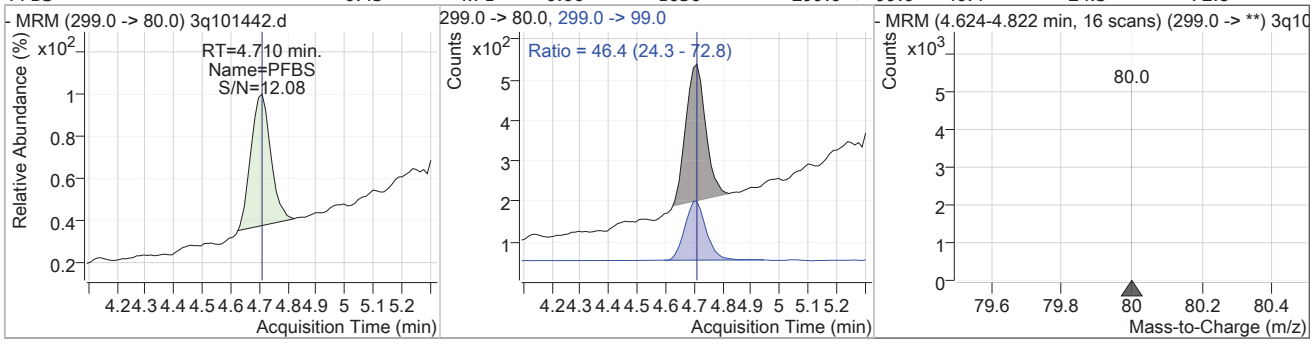
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.49	4.40	-0.01	5843				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.28	4.71	0.00	20597				

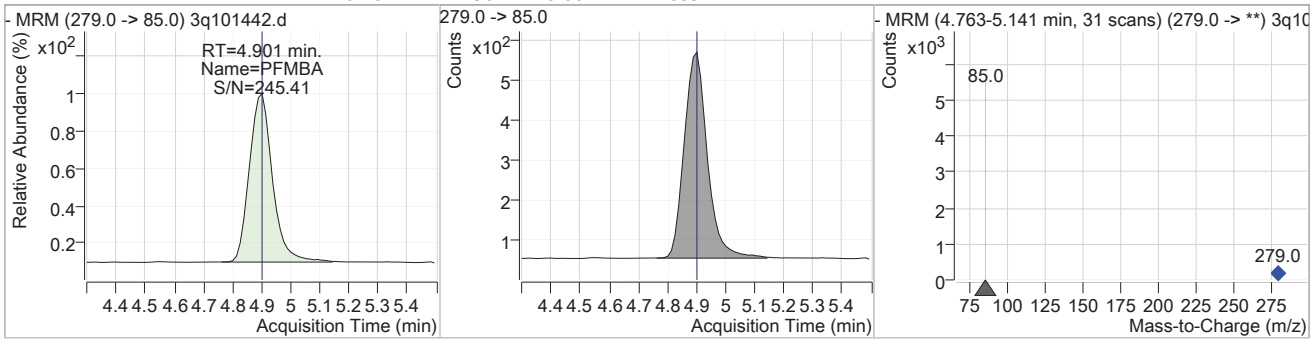


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.43	4.71	0.00	1636	299.0 -> 99.0	46.4	24.3	72.8

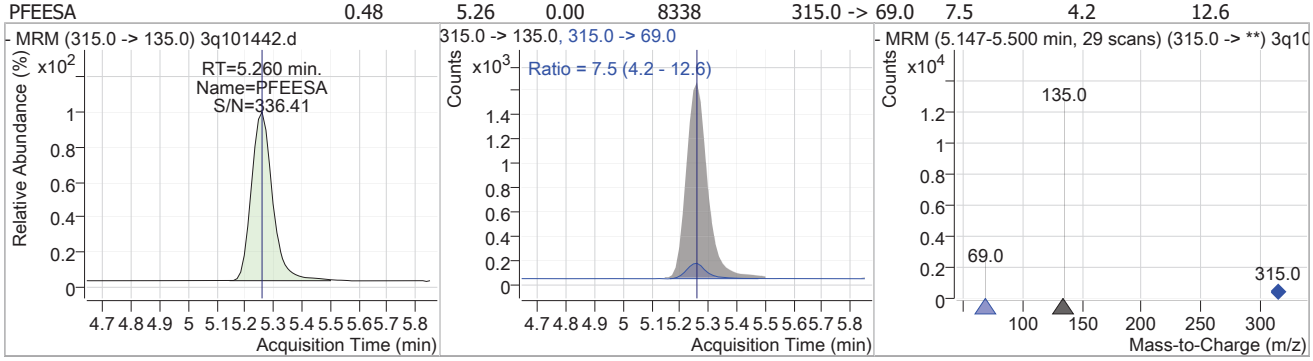


Perfluorinated Compounds by LC/MS/MS

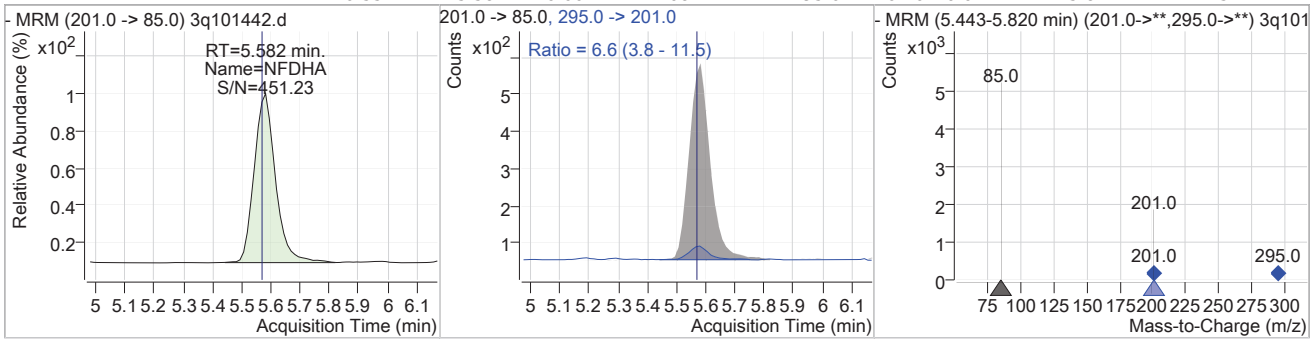
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.48	4.90	0.00	2839				



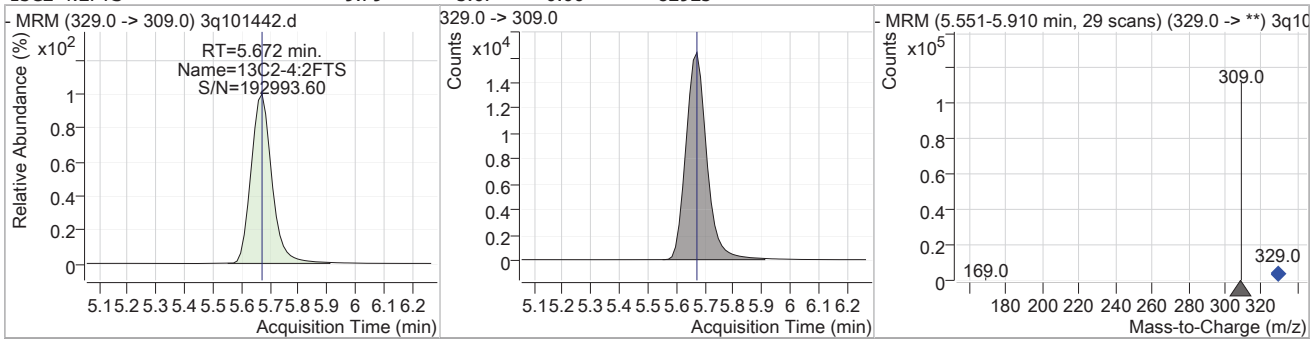
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.48	5.26	0.00	8338	315.0 -> 69.0	7.5	4.2	12.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	0.53	5.58	0.00	2684	295.0 -> 201.0	6.6	3.8	11.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	9.79	5.67	0.00	82925				



7.7.11

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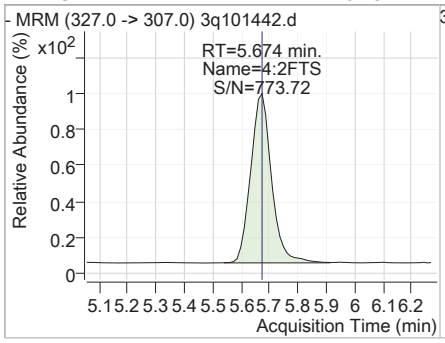
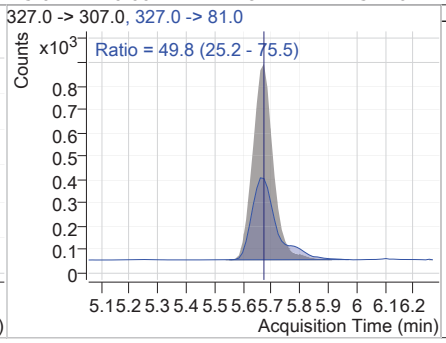
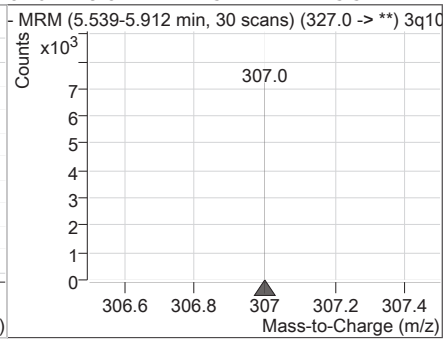
Perfluorinated Compounds by LC/MS/MS

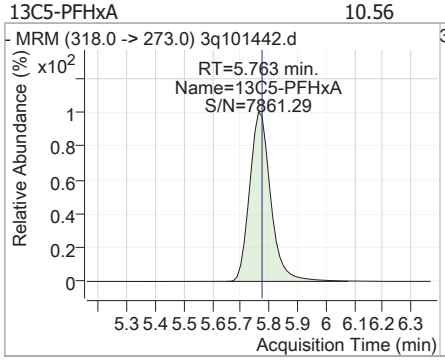
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	0.45	5.67	0.00	4287	327.0 -> 81.0	49.8	25.2	75.5

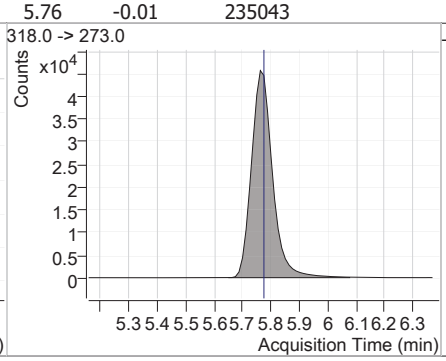


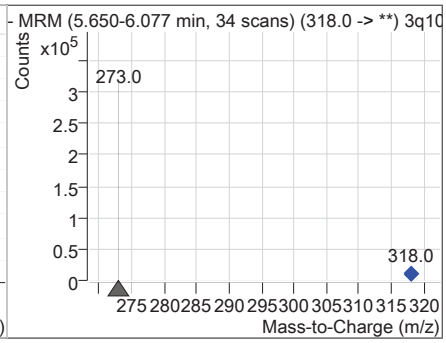




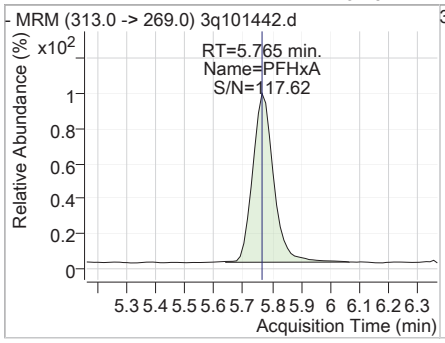
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.56	5.76	-0.01	235043				

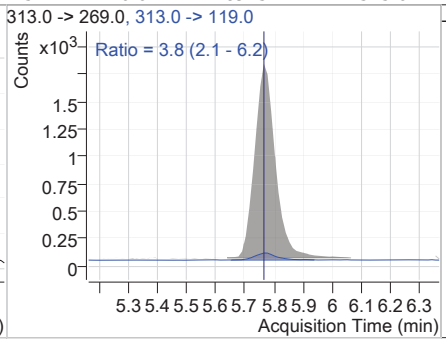


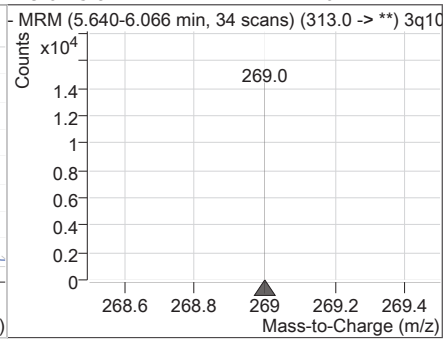




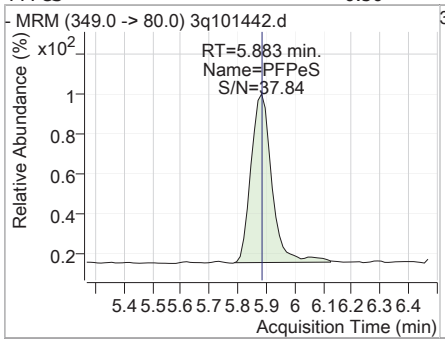
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.46	5.77	-0.01	8923	313.0 -> 119.0	3.8	2.1	6.2

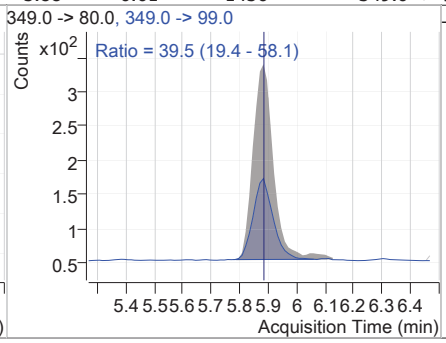


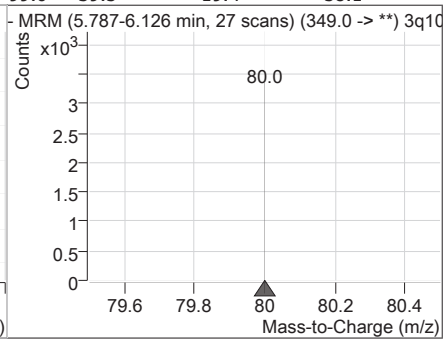




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.50	5.88	-0.01	1456	349.0 -> 99.0	39.5	19.4	58.1

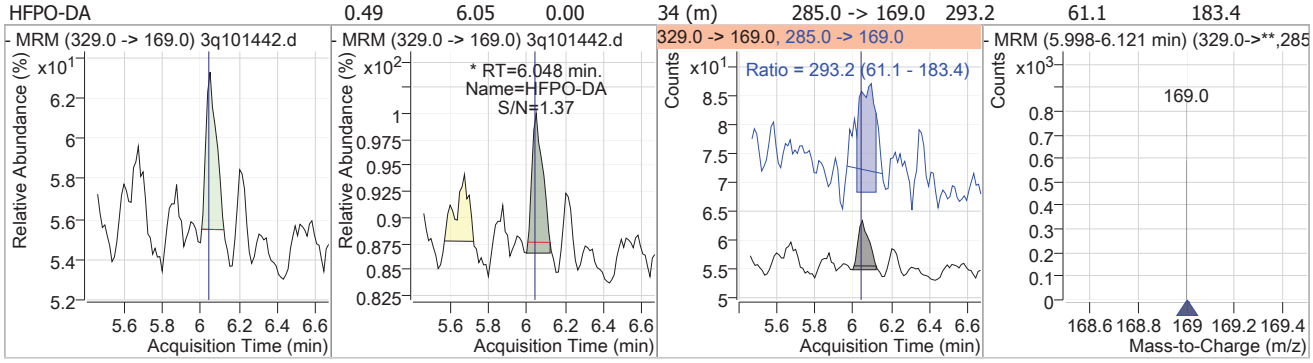




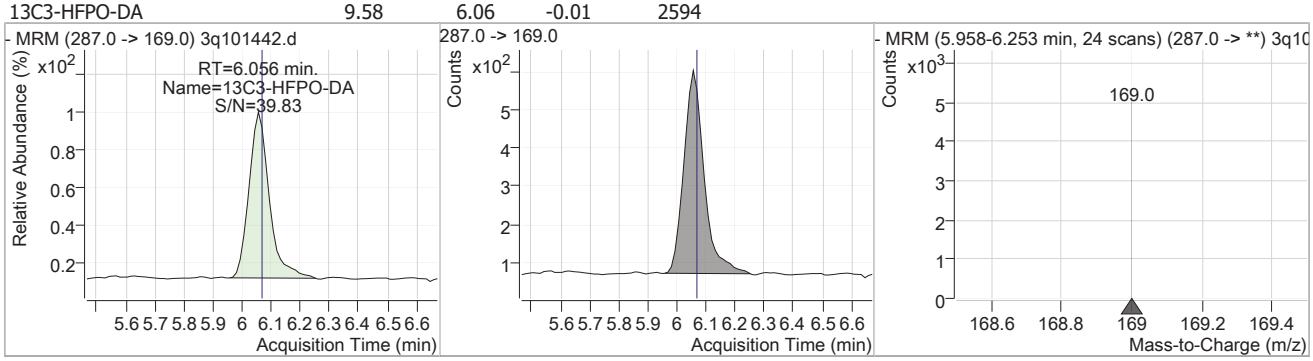


Perfluorinated Compounds by LC/MS/MS

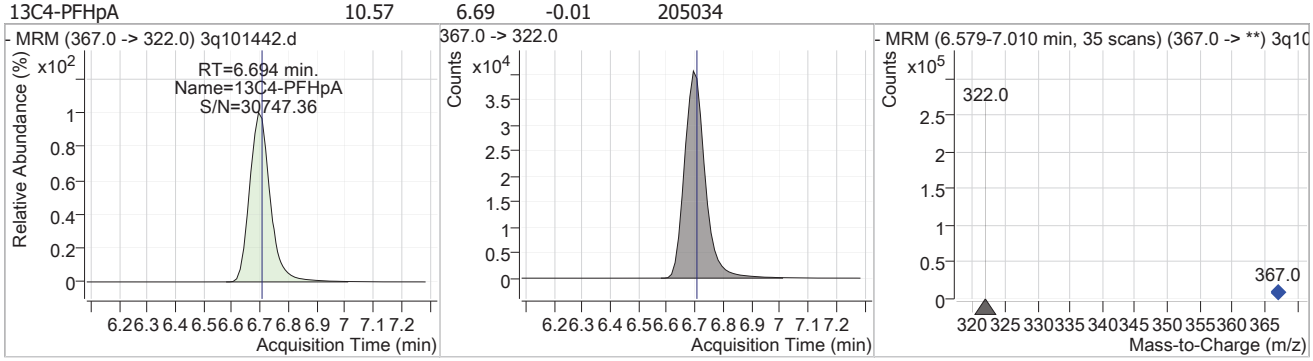
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.49	6.05	0.00	34 (m)	285.0 -> 169.0	293.2	61.1	183.4



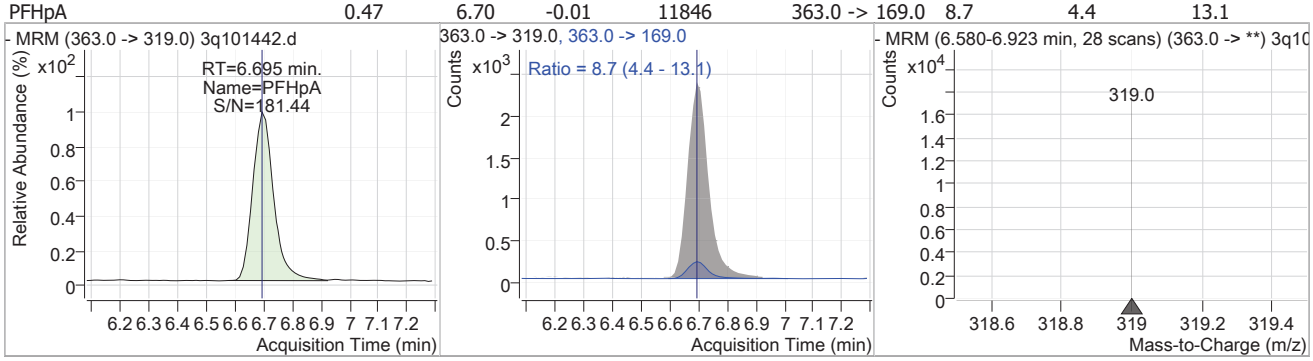
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.58	6.06	-0.01	2594				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.57	6.69	-0.01	205034				

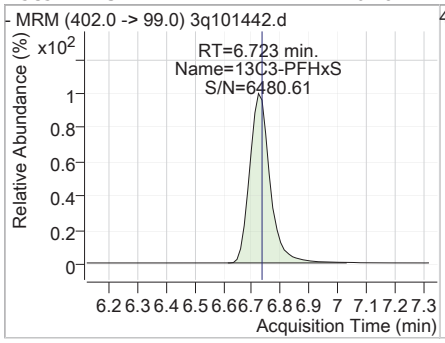


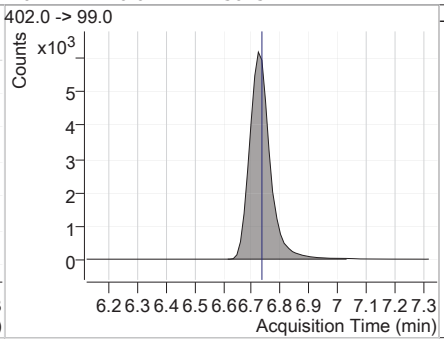
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.47	6.70	-0.01	11846	363.0 -> 169.0	8.7	4.4	13.1

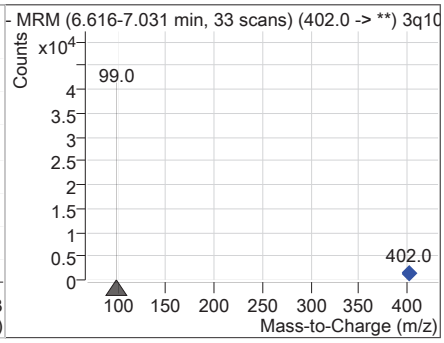


Perfluorinated Compounds by LC/MS/MS

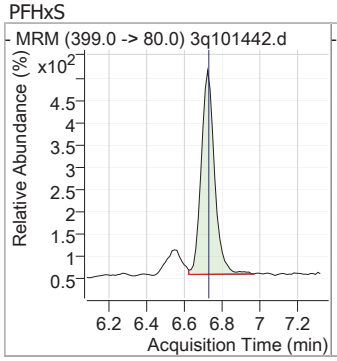
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.48	6.72	-0.01	30251				

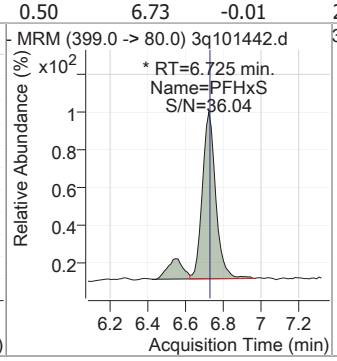


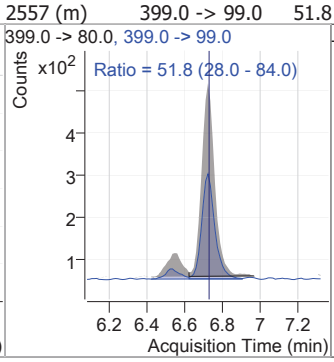


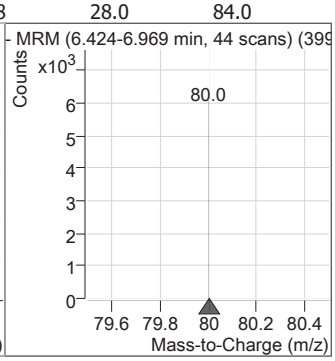


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.50	6.73	-0.01	2557 (m)	399.0 -> 99.0	51.8	28.0	84.0

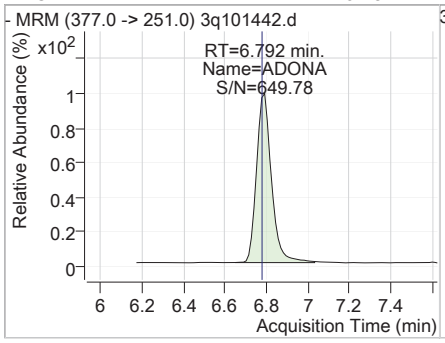


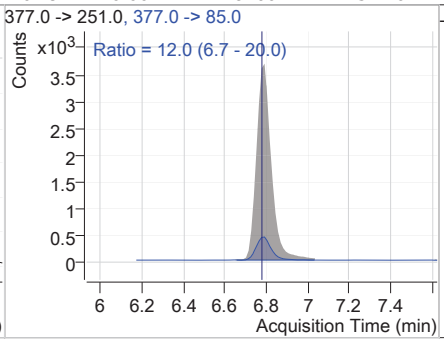


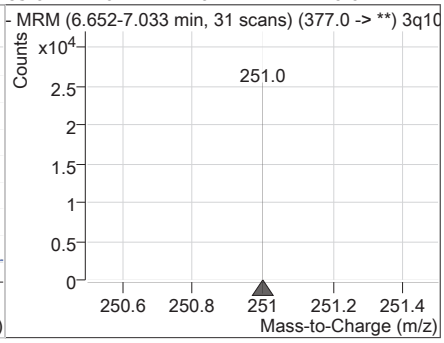




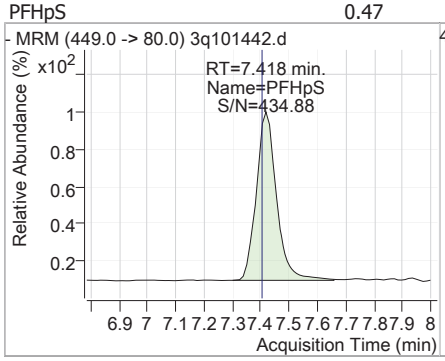
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.48	6.79	0.00	18266	377.0 -> 85.0	12.0	6.7	20.0

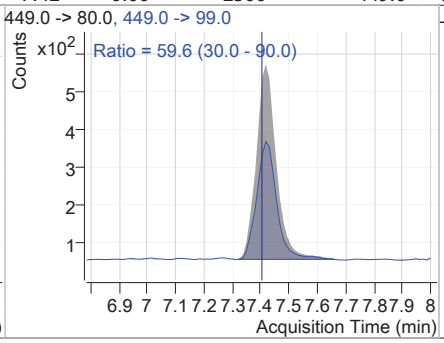


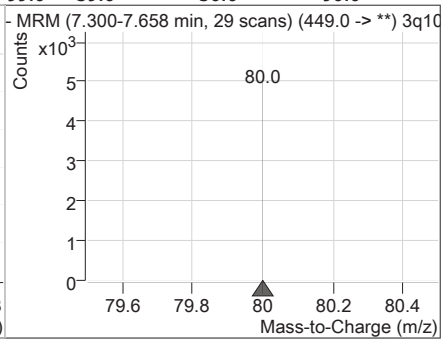




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.47	7.42	0.00	2566	449.0 -> 99.0	59.6	30.0	90.0

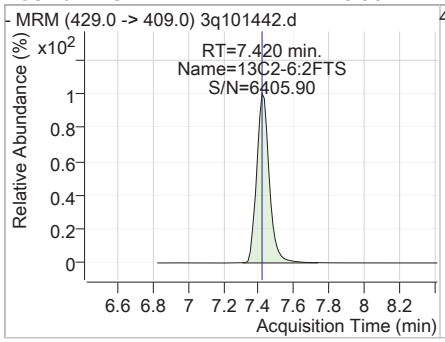


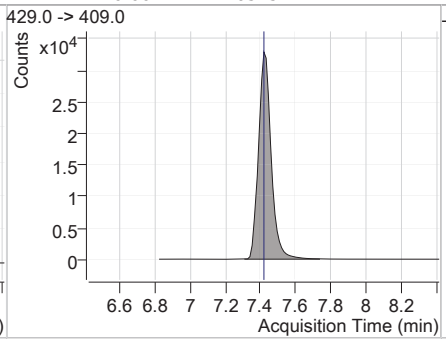


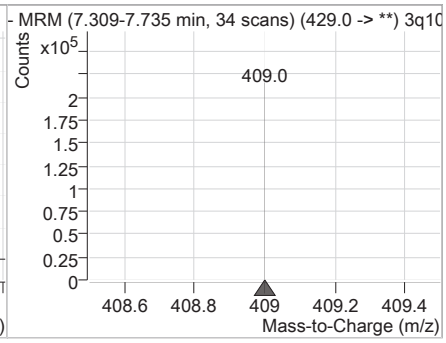


Perfluorinated Compounds by LC/MS/MS

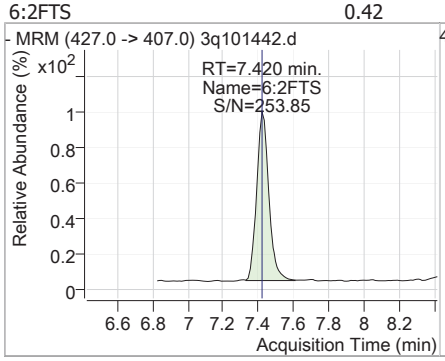
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	9.98	7.42	0.00	163751				

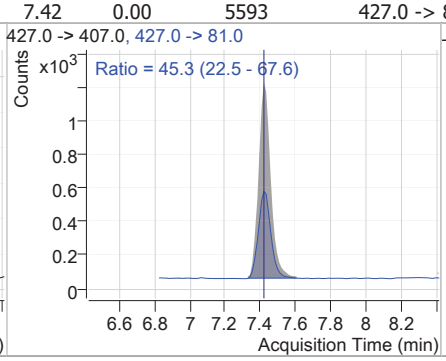


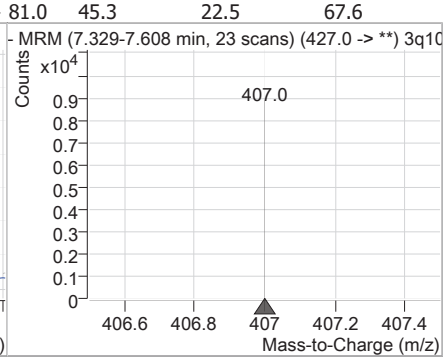




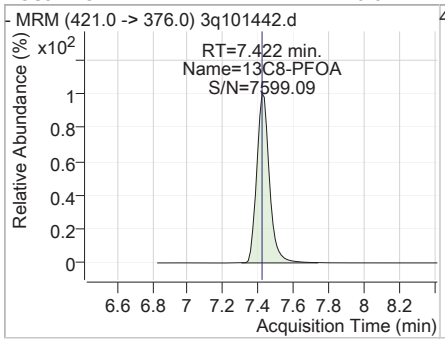
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.42	7.42	0.00	5593	427.0 -> 81.0	45.3	22.5	67.6

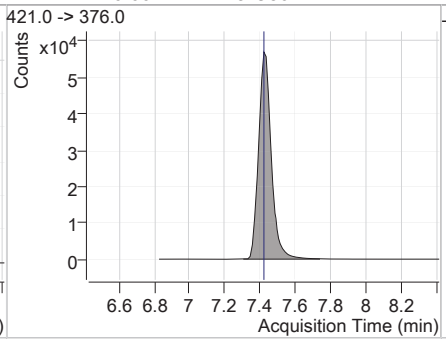


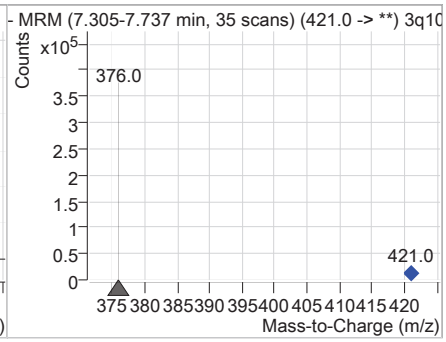




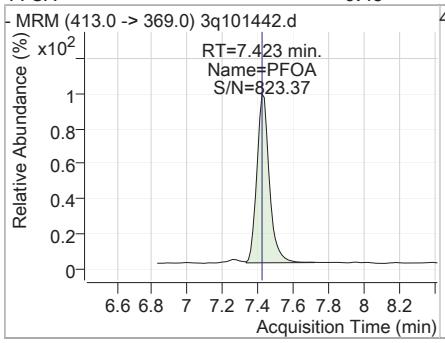
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.61	7.42	0.00	284980				

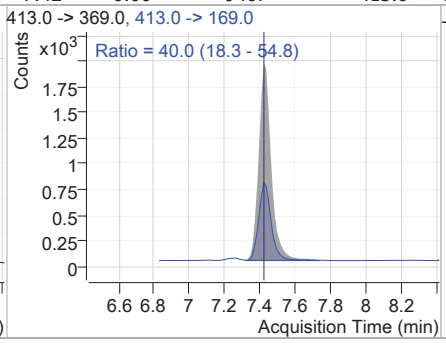


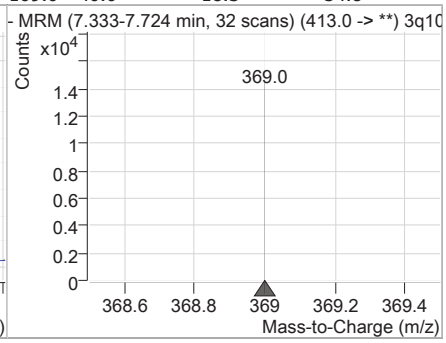




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.48	7.42	0.00	9407	413.0 -> 169.0	40.0	18.3	54.8

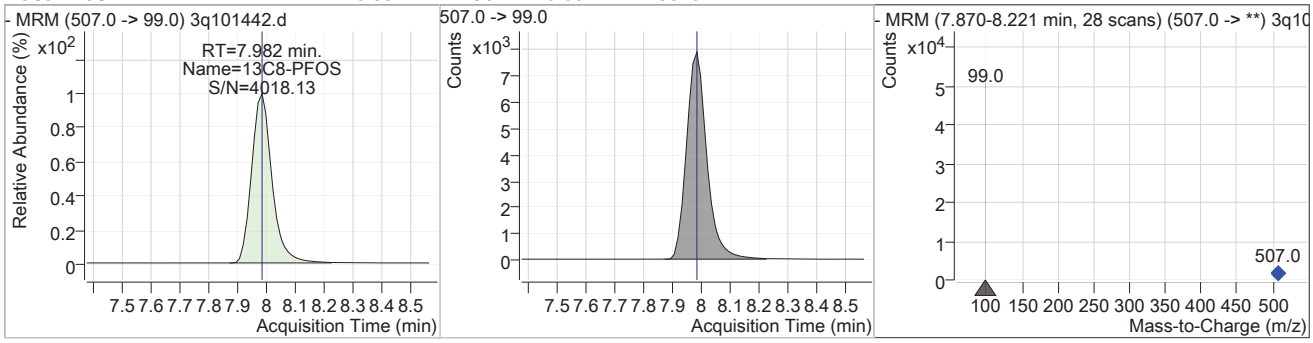




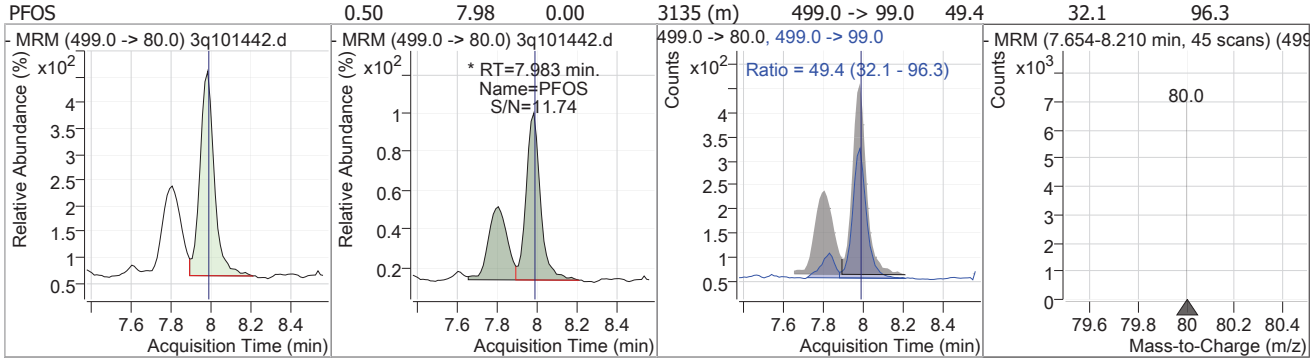


Perfluorinated Compounds by LC/MS/MS

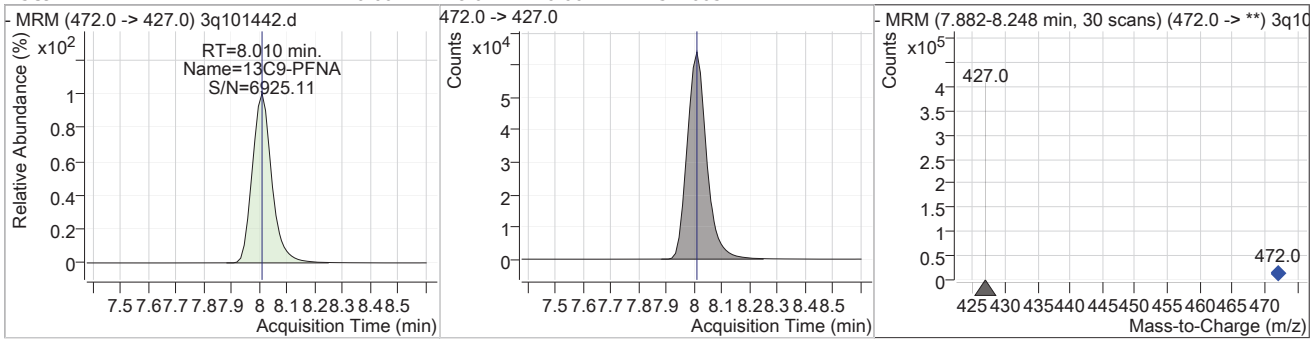
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.35	7.98	0.00	38201				



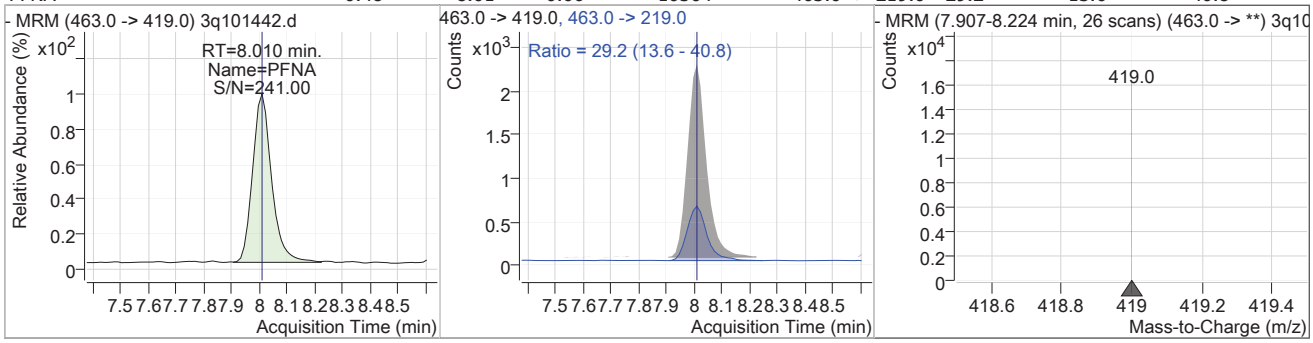
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.50	7.98	0.00	3135 (m)	499.0 -> 99.0	49.4	32.1	96.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.60	8.01	0.00	311005				

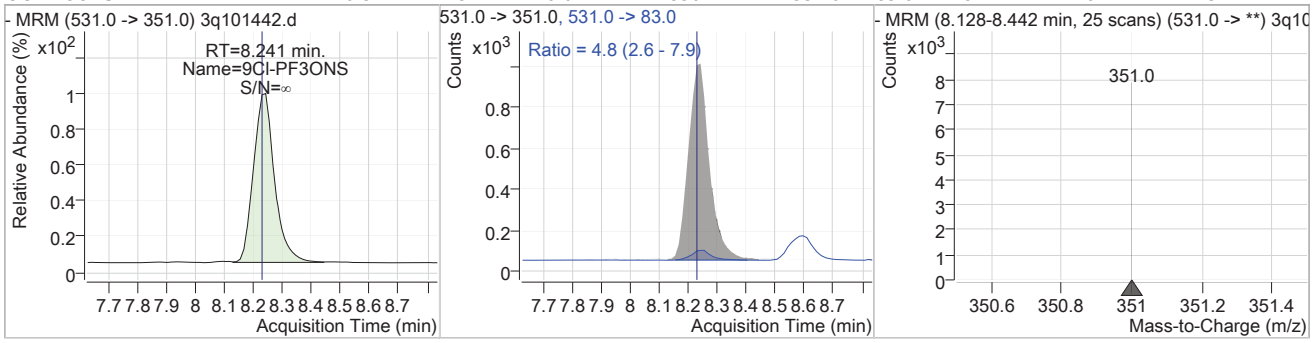


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.48	8.01	0.00	10564	463.0 -> 219.0	29.2	13.6	40.8

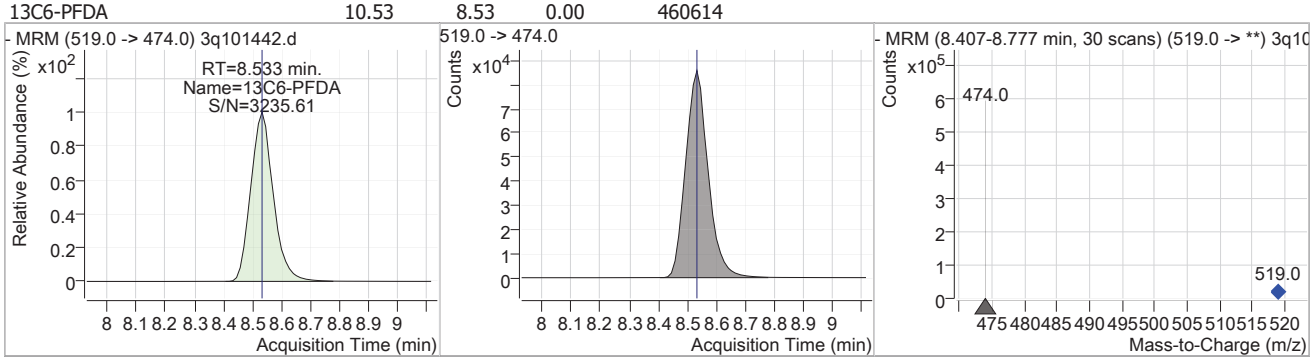


Perfluorinated Compounds by LC/MS/MS

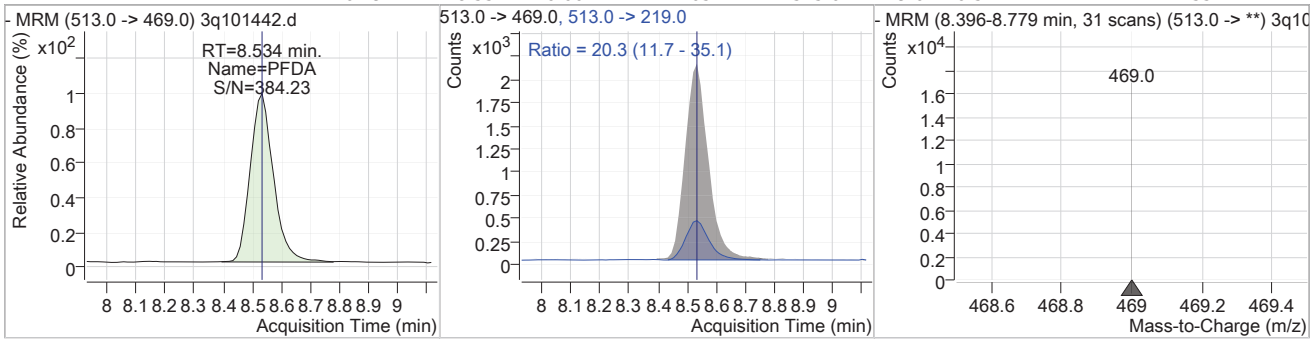
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.52	8.24	0.01	4836	531.0 -> 83.0	4.8	2.6	7.9



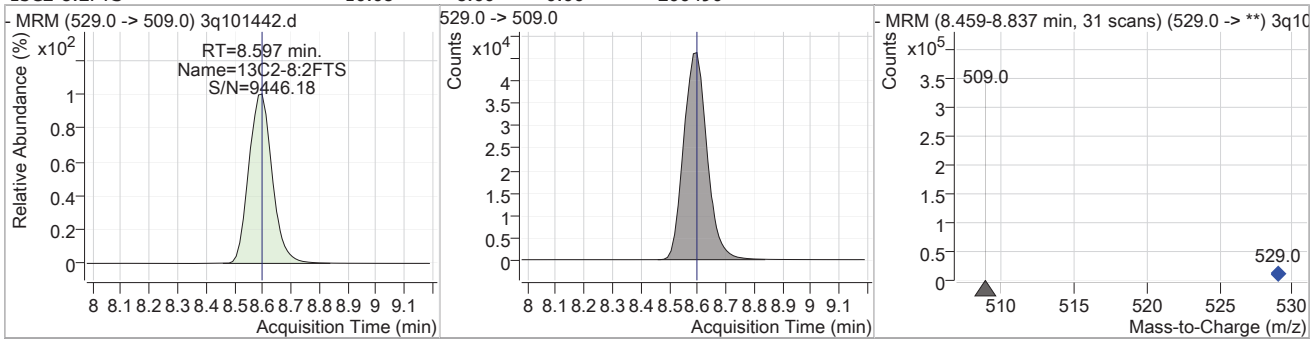
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	10.53	8.53	0.00	460614				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.49	8.53	0.00	11705	513.0 -> 219.0	20.3	11.7	35.1

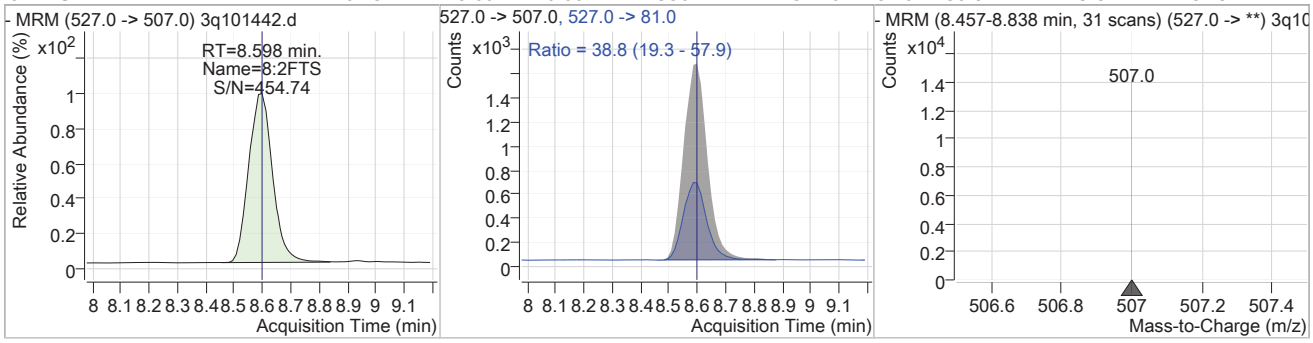


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	10.08	8.60	0.00	266490				

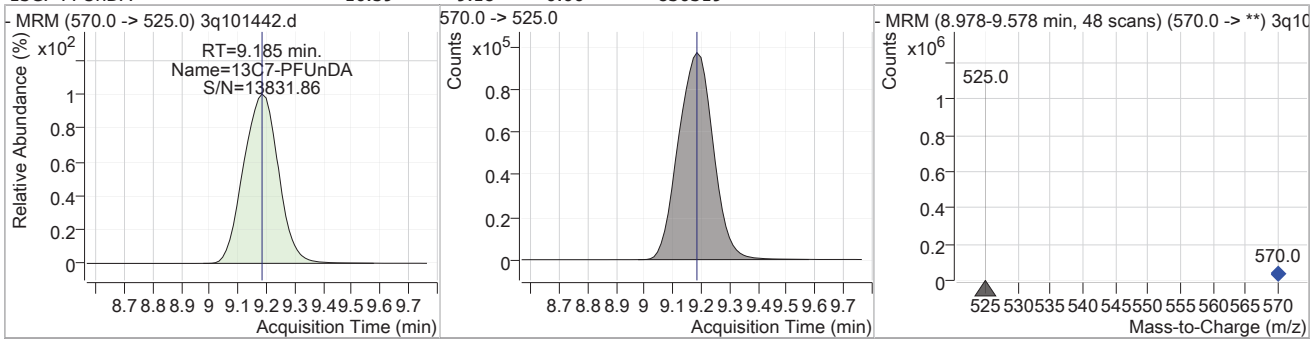


Perfluorinated Compounds by LC/MS/MS

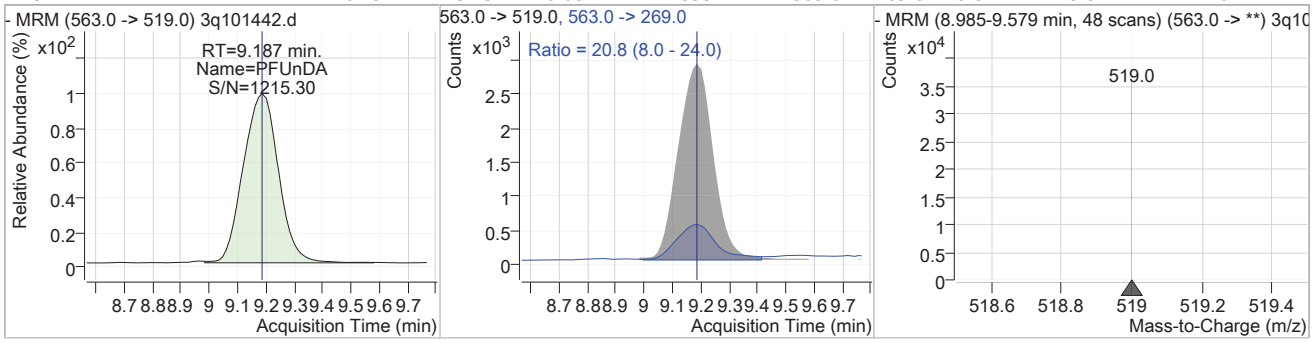
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.45	8.60	0.00	9567	527.0 -> 81.0	38.8	19.3	57.9



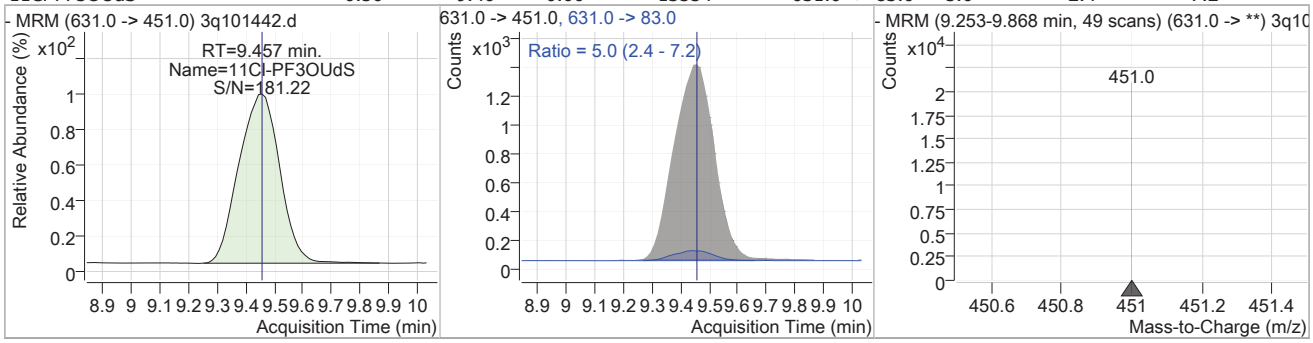
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	10.59	9.18	0.00	830319				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.49	9.19	0.00	24858	563.0 -> 269.0	20.8	8.0	24.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.50	9.46	0.00	13554	631.0 -> 83.0	5.0	2.4	7.2

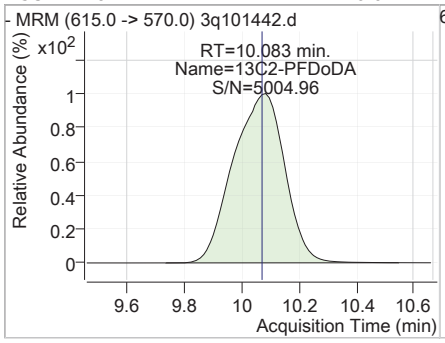


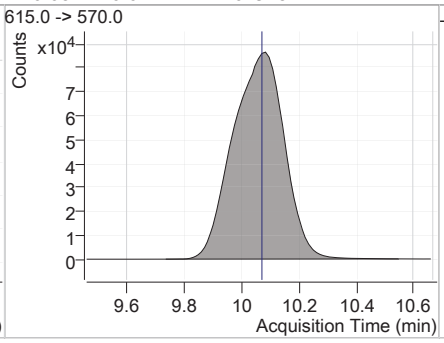
7.7.11

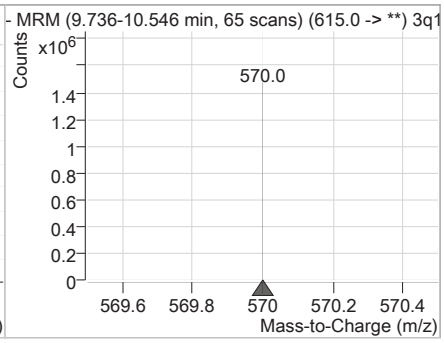
7

Perfluorinated Compounds by LC/MS/MS

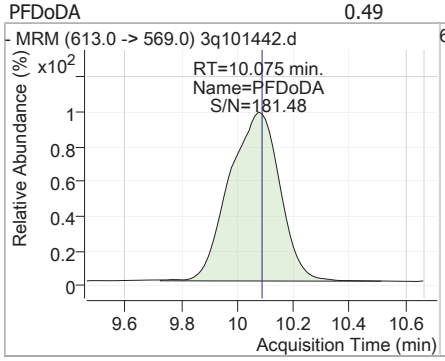
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.62	10.08	0.01	1079787				

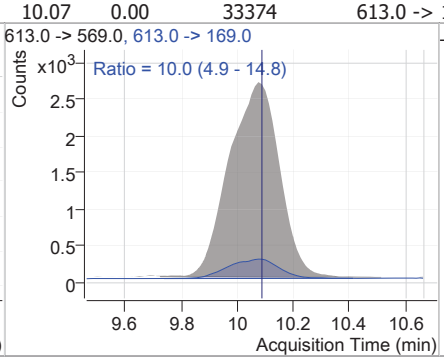


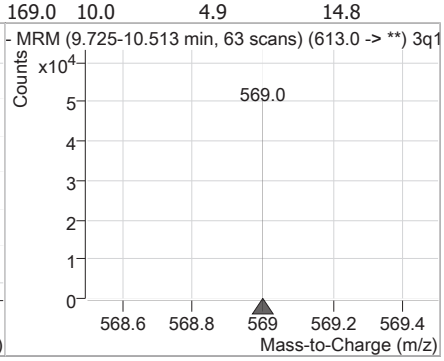




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.49	10.07	0.00	33374	613.0 -> 169.0	10.0	4.9	14.8







Manual Integration Approval Summary

Sample Number:	S3Q1491-CC1491	**Method:**	EPA 533
Lab FileID:	3Q101442.D	**Analyst approved:**	04/14/25 11:45 (b) (6)
Injection Time:	04/11/25 18:55	**Supervisor approved:**	04/14/25 12:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
HFPO-DA (GenX)	13252-13-6		6.05	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		6.72	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Manual Integrations APPROVED
(compounds with "m" flag)
(b) (6)
04/14/25 12:44

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101451.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/11/2025 9:20:30 PM
Sample Name : ecc1491-20
Vial : P1-C7
DA Method File : 533_041125_S3Q1491.quantmethod.xml
Batch Name : s3q1491.batch.bin
Sample Information : op8141,S3Q1491,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	255685	10.00 µg/L	0.000
13C3-PFBA	2.319	216.0 -> 172.0	90078	10.00 µg/L	-0.013
13C4-PFOS	7.983	503.0 -> 80.0	36702	10.00 µg/L	0.000
M4-PFBA	2.315	217.0 -> 172.0	155895	10.00 µg/L	-0.025
M5-PFPeA	4.400	268.0 -> 223.0	189178	10.00 µg/L	-0.013
M5-PFHxA	5.763	318.0 -> 273.0	256091	10.00 µg/L	-0.013
M4-PFHpA	6.694	367.0 -> 322.0	219155	10.00 µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	300707	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	331057	10.00 µg/L	0.000
M6-PFDA	8.533	519.0 -> 474.0	502840	10.00 µg/L	0.000
M7-PFUnDA	9.172	570.0 -> 525.0	882241	10.00 µg/L	-0.013
M2-PFDoDA	10.058	615.0 -> 570.0	1118902	10.00 µg/L	-0.013
M3-PFBS	4.696	302.0 -> 99.0	23099	10.00 µg/L	-0.013
M3-PFHxS	6.723	402.0 -> 99.0	32638	10.00 µg/L	-0.013
M8-PFOS	7.982	507.0 -> 99.0	41515	10.00 µg/L	0.000
M2-4:2FTS	5.659	329.0 -> 309.0	99535	10.00 µg/L	-0.013
M2-6:2FTS	7.420	429.0 -> 409.0	188535	10.00 µg/L	0.000
M2-8:2FTS	8.585	529.0 -> 509.0	303234	10.00 µg/L	-0.013
M3-HFPO-DA	6.056	287.0 -> 169.0	3415	10.00 µg/L	-0.013
System Monitoring Compounds					
13C2-4:2FTS	5.659	329.0 -> 309.0	99535	10.58 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.8%	
13C2-6:2FTS	7.420	429.0 -> 409.0	188535	10.34 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C2-8:2FTS	8.585	529.0 -> 509.0	303234	10.32 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C2-PFDoDA	10.058	615.0 -> 570.0	1118902	10.00 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C3-PFBS	4.696	302.0 -> 99.0	23099	10.38 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C3-PFHxS	6.723	402.0 -> 99.0	32638	10.18 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C4-PFBA	2.315	217.0 -> 172.0	155895	10.12 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C4-PFHpA	6.694	367.0 -> 322.0	219155	10.26 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C5-PFHxA	5.763	318.0 -> 273.0	256091	10.45 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C5-PFPeA	4.400	268.0 -> 223.0	189178	10.00 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C6-PFDA	8.533	519.0 -> 474.0	502840	10.44 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C7-PFUnDA	9.172	570.0 -> 525.0	882241	10.22 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C8-PFOA	7.422	421.0 -> 376.0	300707	10.17 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

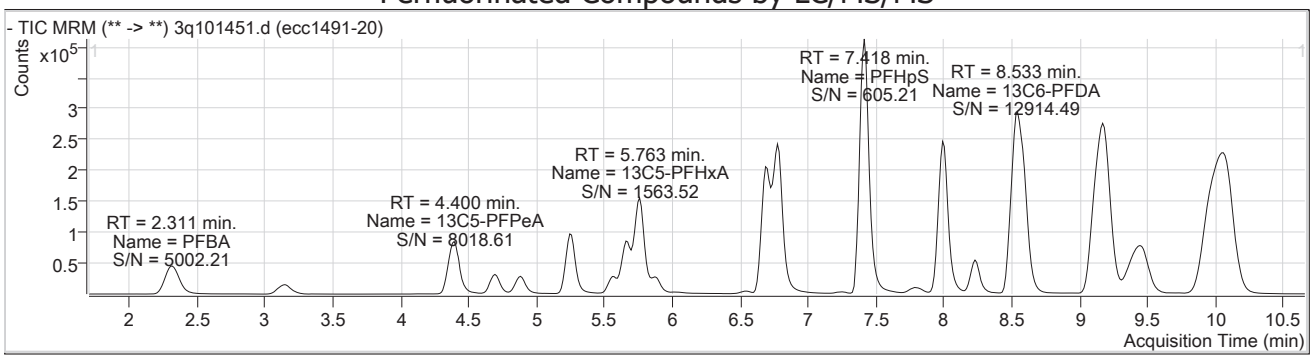
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.7%		
13C8-PFOS	7.982	507.0 -> 99.0	41515	10.12 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.2%		
13C9-PFNA	8.010	472.0 -> 427.0	331057	10.25 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.5%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	3415	11.45 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.5%		
Target Compounds						QValue
PFMPA	3.141	229.0 -> 85.0	108212	19.16 µg/L		100
4:2FTS	5.661	327.0 -> 307.0	231015	19.36 µg/L		87
		327.0 -> 81.0	94740			
6:2FTS	7.420	427.0 -> 407.0	314430	19.34 µg/L		94
		427.0 -> 81.0	129928			
8:2FTS	8.586	527.0 -> 507.0	495205	19.27 µg/L		97
		527.0 -> 81.0	182514			
PFMBA	4.888	279.0 -> 85.0	151678	19.11 µg/L		100
PFEESA	5.247	315.0 -> 135.0	464238	19.20 µg/L		98
		315.0 -> 69.0	35709			
NFDHA	5.569	201.0 -> 85.0	133496	19.27 µg/L		97
		295.0 -> 201.0	8744			
PFBA	2.311	213.0 -> 169.0	95213	19.24 µg/L		100
PFBS	4.697	299.0 -> 80.0	101927	19.24 µg/L		91
		299.0 -> 99.0	43553			
PFDA	8.534	513.0 -> 469.0	620468	19.21 µg/L		95
		513.0 -> 219.0	131542			
PFDoDA	10.050	613.0 -> 569.0	1651966	19.29 µg/L		99
		613.0 -> 169.0	154515			
PFHpA	6.695	363.0 -> 319.0	642401	19.26 µg/L		99
		363.0 -> 169.0	52906			
PFHpS	7.418	449.0 -> 80.0	138916	19.25 µg/L		93
		449.0 -> 99.0	76043			
PFHxA	5.765	313.0 -> 269.0	497299	19.13 µg/L		98
		313.0 -> 119.0	17476			
PFHxS	6.725	399.0 -> 80.0	132196	19.41 µg/L	m	94
		399.0 -> 99.0	68117			
PFNA	8.010	463.0 -> 419.0	554480	19.14 µg/L		98
		463.0 -> 219.0	155594			
PFOA	7.423	413.0 -> 369.0	485694	19.15 µg/L		99
		413.0 -> 169.0	175488			
PFOS	7.969	499.0 -> 80.0	152061	19.07 µg/L	m	82
		499.0 -> 99.0	76456			
PFPeA	4.402	263.0 -> 219.0	313016	19.23 µg/L		100
PFPeS	5.883	349.0 -> 80.0	73350	19.12 µg/L		94
		349.0 -> 99.0	31000			
PFUnDA	9.174	563.0 -> 519.0	1274245	19.30 µg/L		97
		563.0 -> 269.0	222572			
11Cl-PF3OUdS	9.445	631.0 -> 451.0	721785	19.52 µg/L		100
		631.0 -> 83.0	33579			
9Cl-PF3ONS	8.229	531.0 -> 351.0	244097	19.43 µg/L		100
		531.0 -> 83.0	12628			
ADONA	6.778	377.0 -> 251.0	987946	19.32 µg/L		97
		377.0 -> 85.0	119535			
HFPO-DA	6.061	329.0 -> 169.0	1618	17.10 µg/L	#	1
		285.0 -> 169.0	3846			

 # = Qualifier out of range, m = manually integrated, + = Area summed

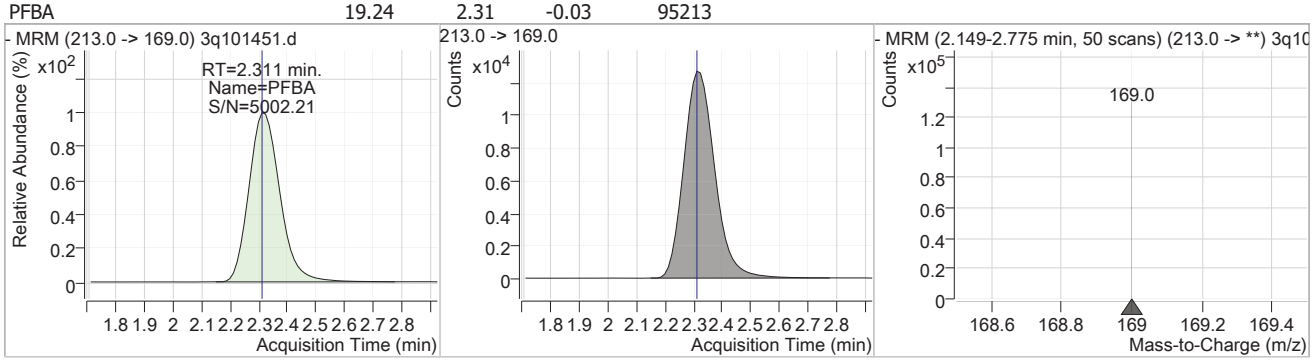
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

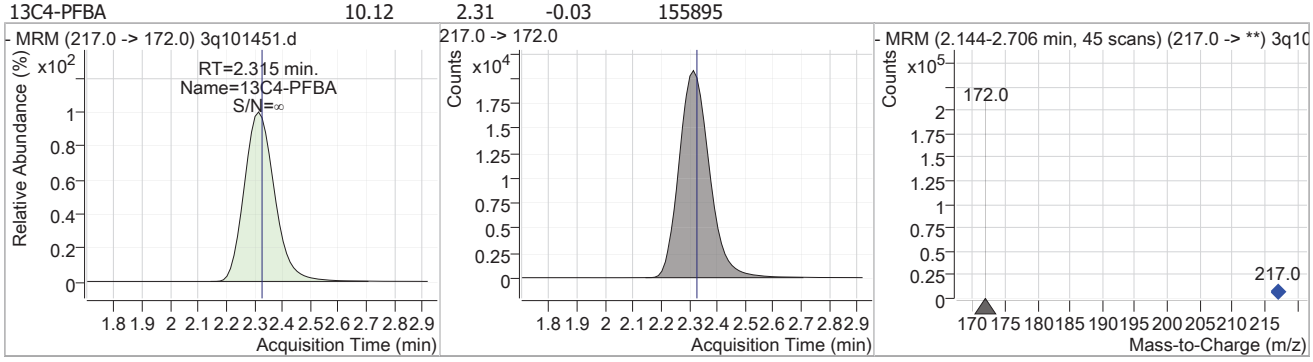
Perfluorinated Compounds by LC/MS/MS



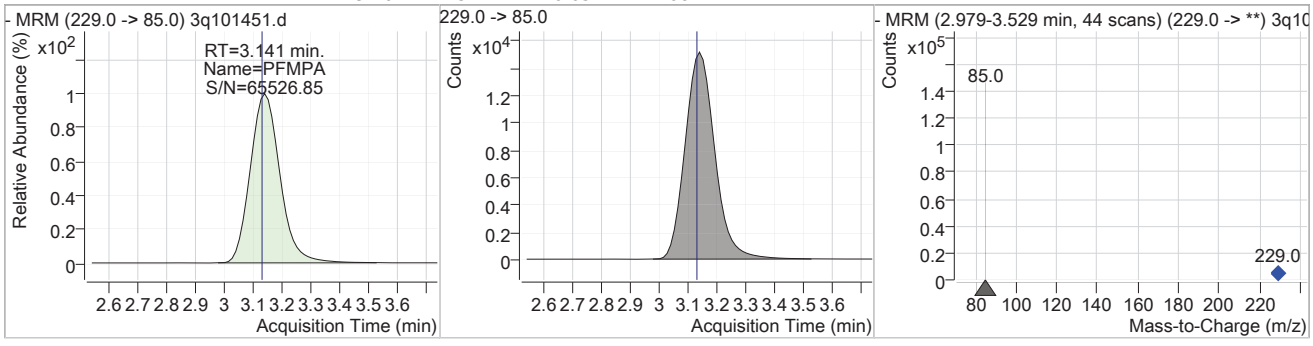
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.24	2.31	-0.03	95213				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.12	2.31	-0.03	155895				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	19.16	3.14	-0.03	108212				

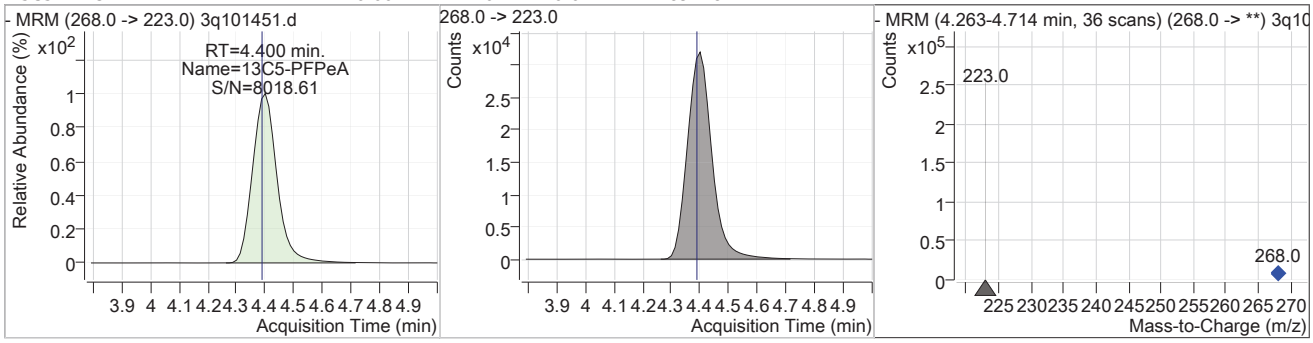


7.7.12

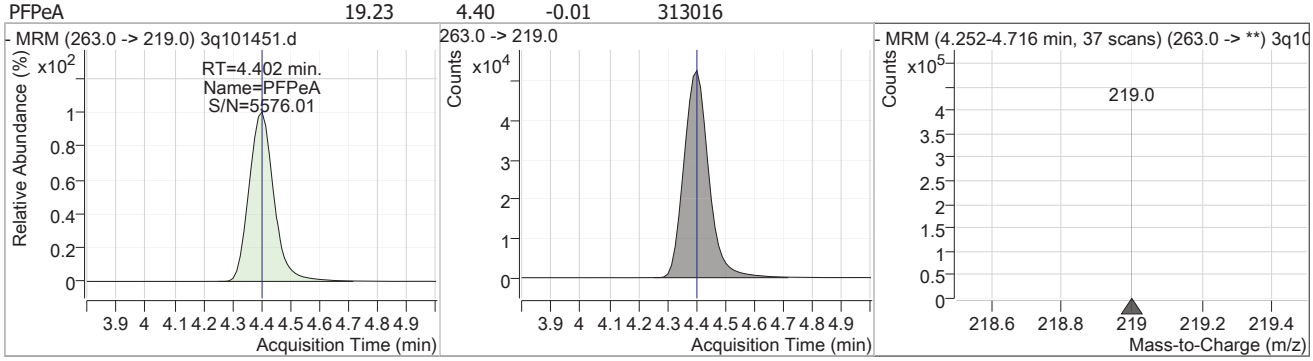
7

Perfluorinated Compounds by LC/MS/MS

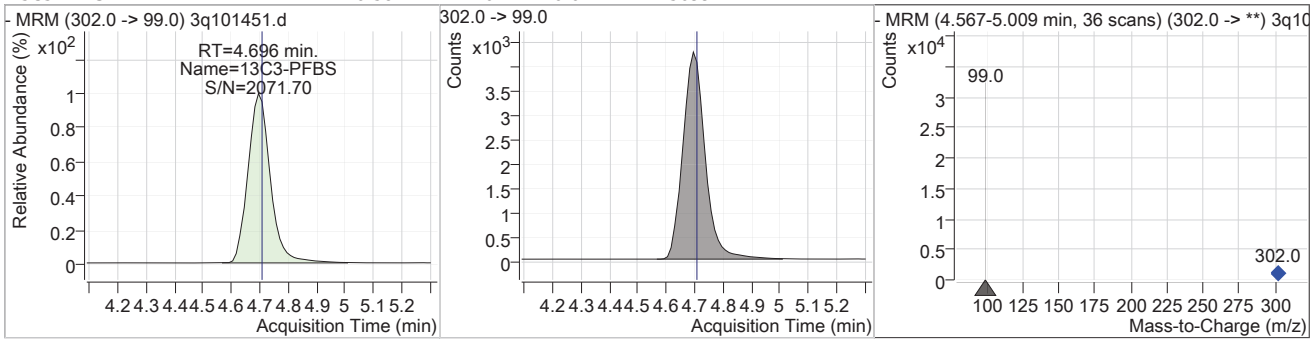
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.00	4.40	-0.01	189178				



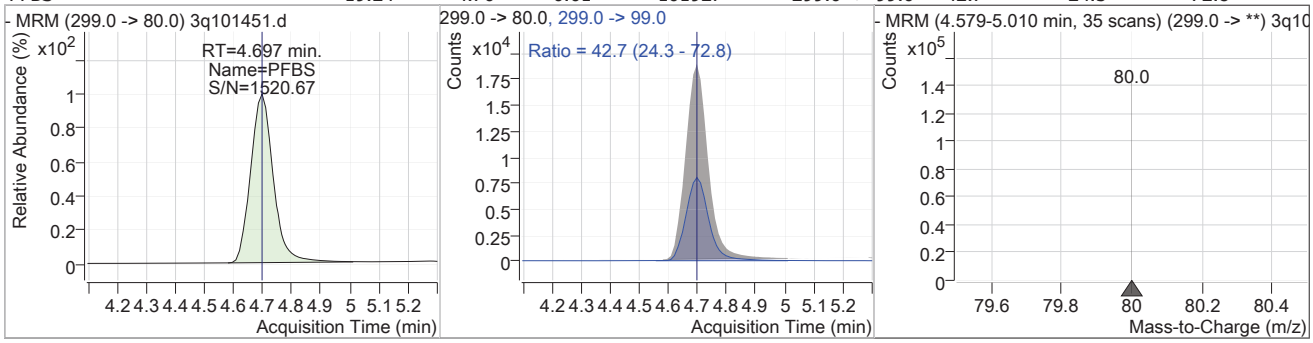
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.23	4.40	-0.01	313016				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.38	4.70	-0.01	23099				

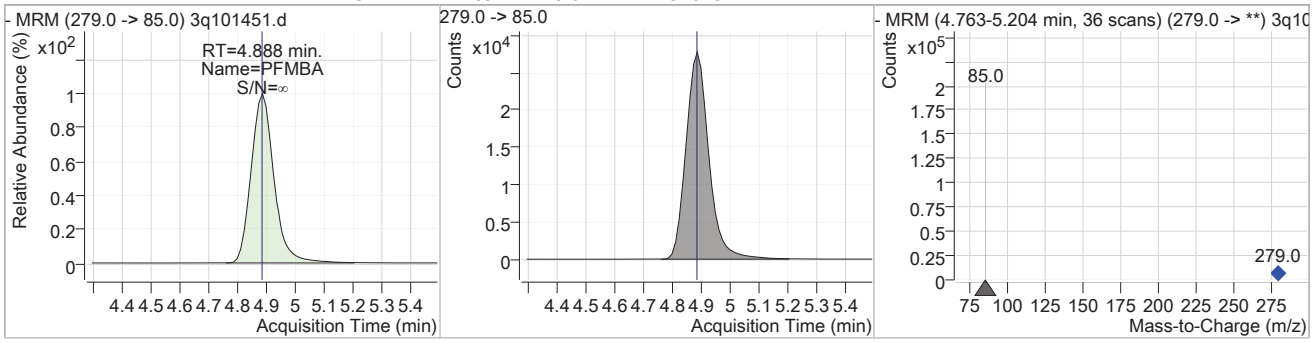


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.24	4.70	-0.01	101927	299.0 -> 99.0	42.7	24.3	72.8

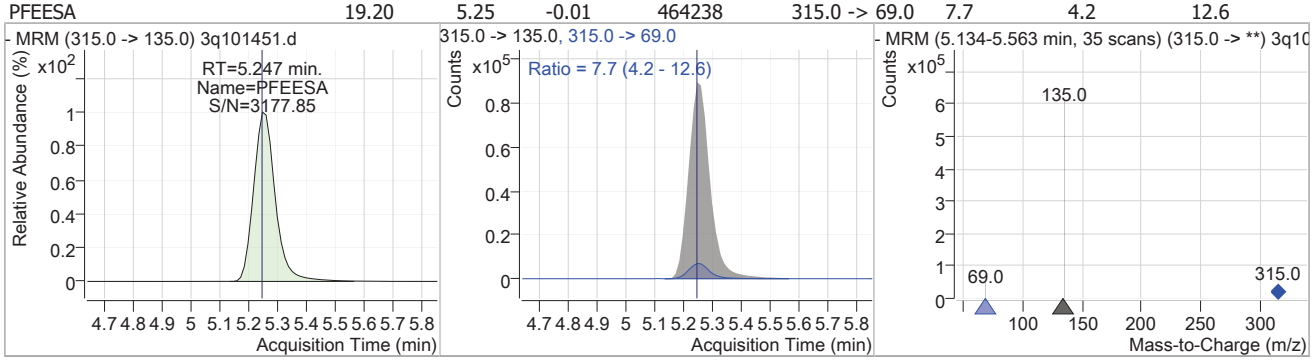


Perfluorinated Compounds by LC/MS/MS

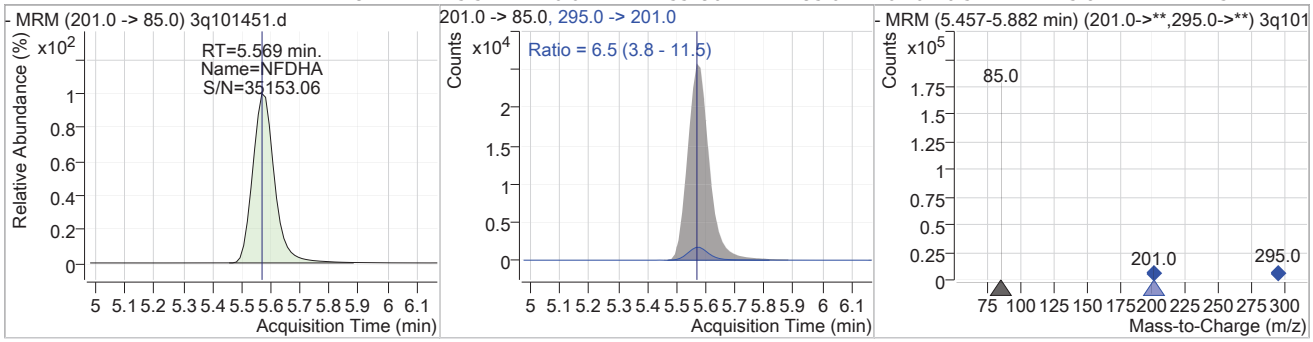
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	19.11	4.89	-0.01	151678				



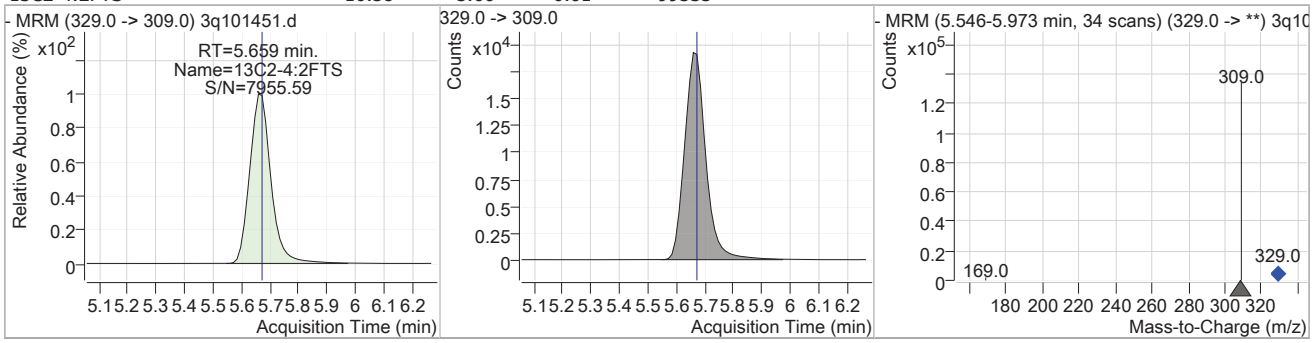
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	19.20	5.25	-0.01	464238	315.0 -> 69.0	7.7	4.2	12.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	19.27	5.57	-0.01	133496	295.0 -> 201.0	6.5	3.8	11.5

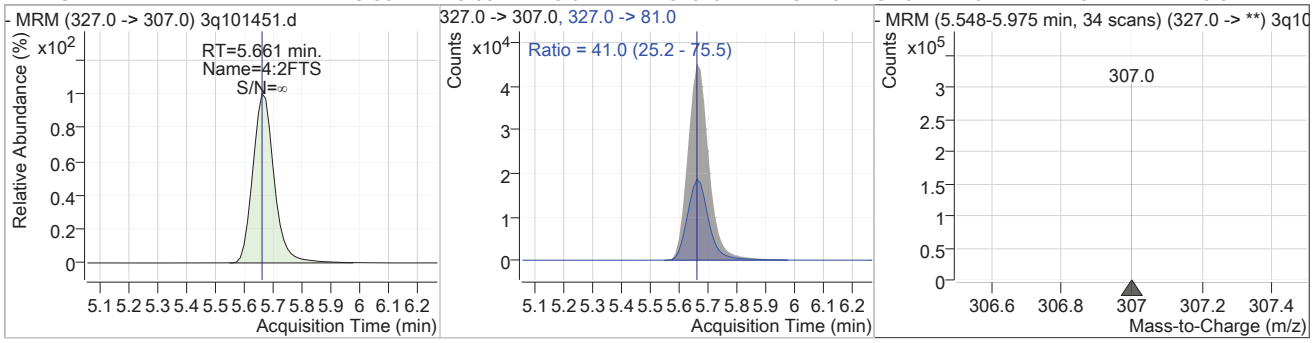


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	10.58	5.66	-0.01	99535				

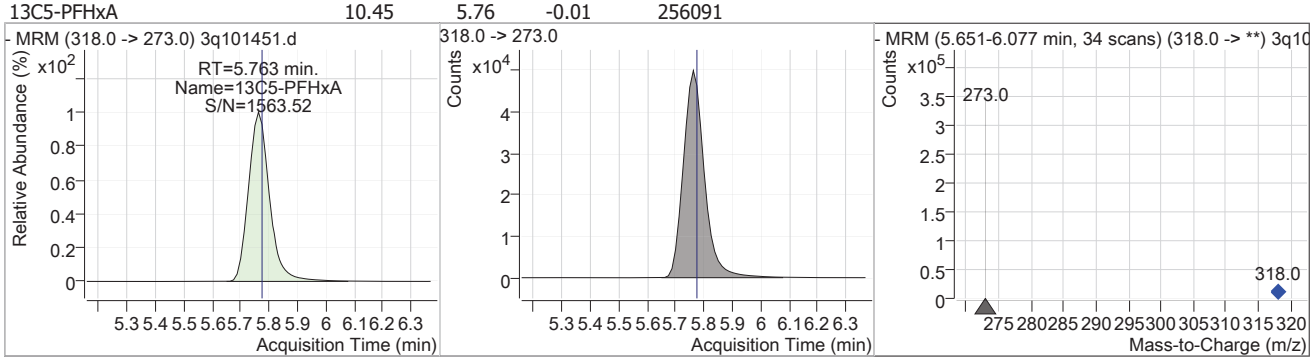


Perfluorinated Compounds by LC/MS/MS

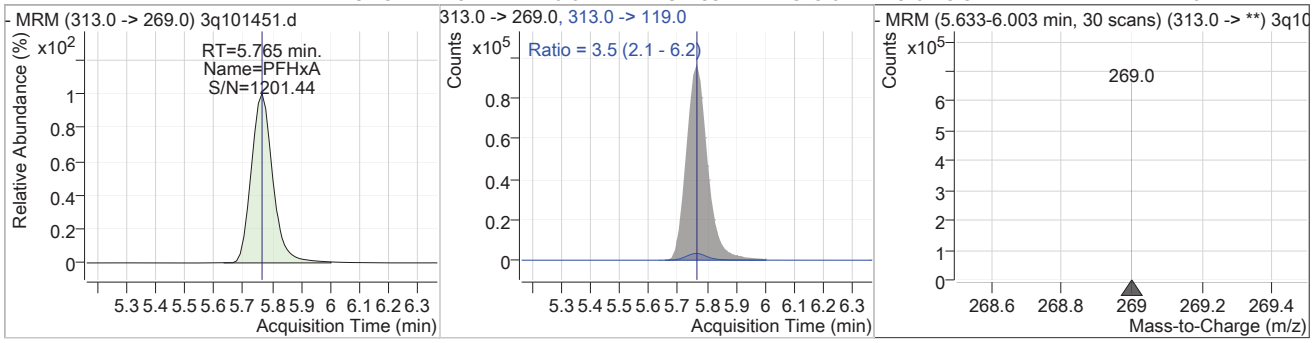
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.36	5.66	-0.01	231015	327.0 -> 81.0	41.0	25.2	75.5



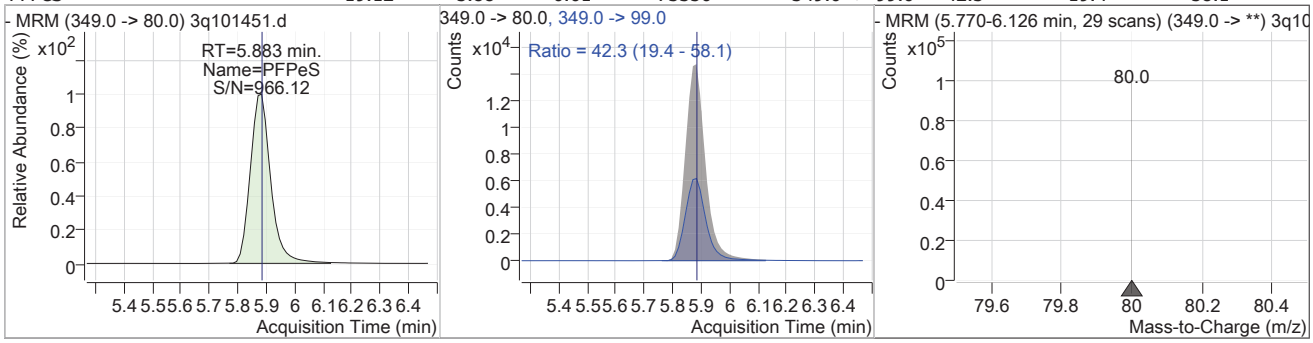
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.45	5.76	-0.01	256091				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.13	5.77	-0.01	497299	313.0 -> 119.0	3.5	2.1	6.2

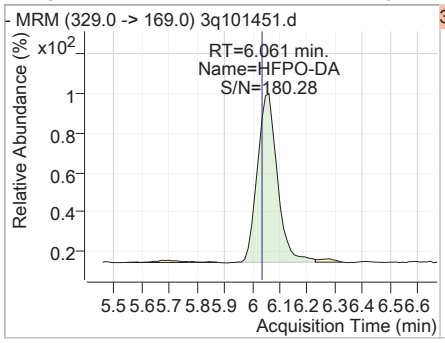


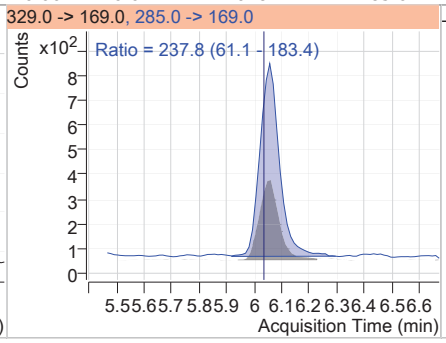
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	19.12	5.88	-0.01	73350	349.0 -> 99.0	42.3	19.4	58.1

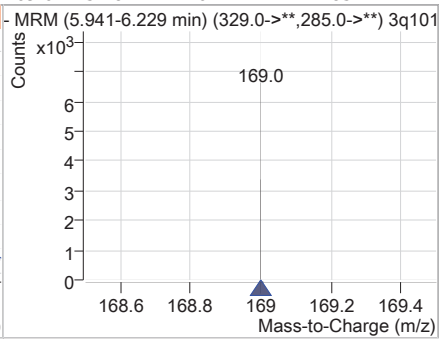


Perfluorinated Compounds by LC/MS/MS

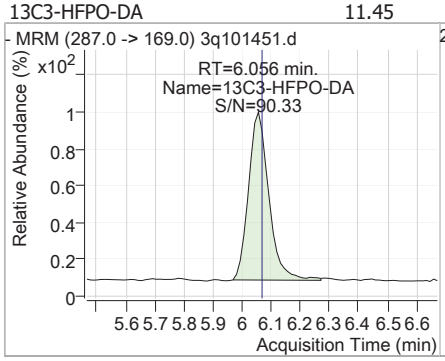
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	17.10	6.06	0.01	1618	285.0 -> 169.0	237.8	61.1	183.4

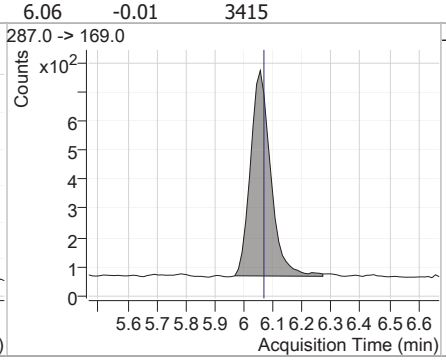


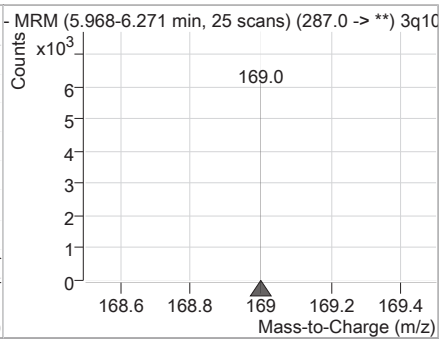




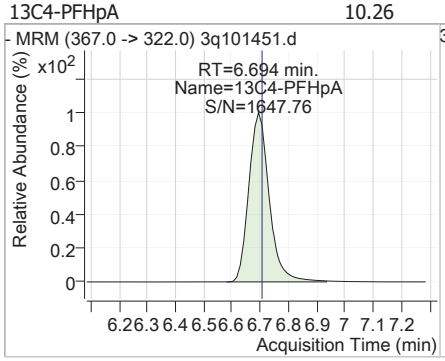
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	11.45	6.06	-0.01	3415				

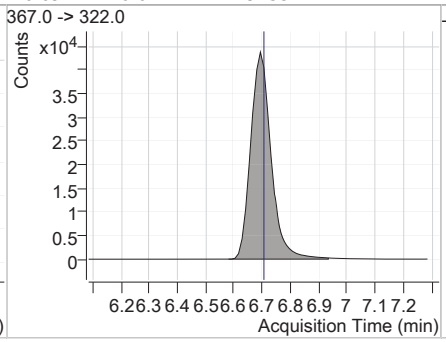


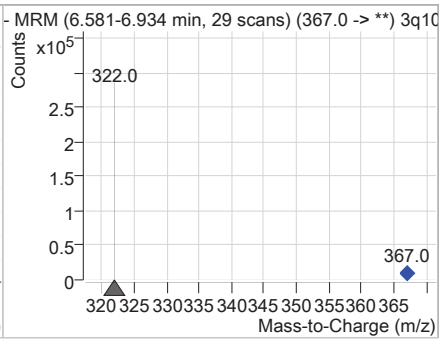




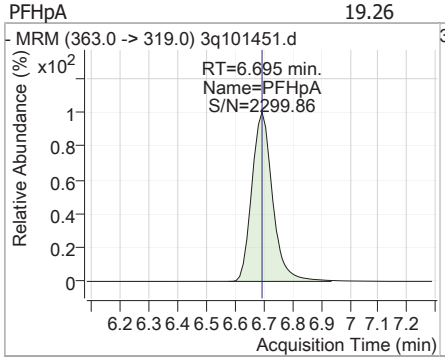
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.26	6.69	-0.01	219155				

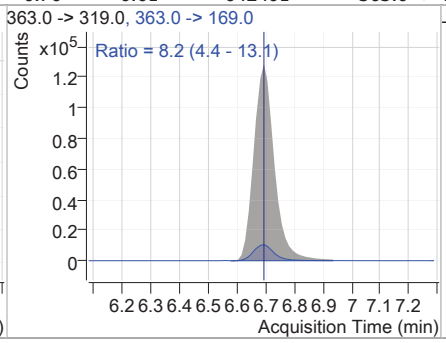


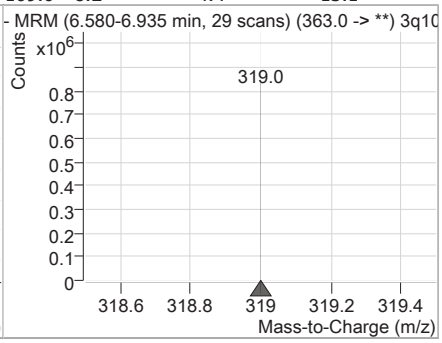




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.26	6.70	-0.01	642401	363.0 -> 169.0	8.2	4.4	13.1

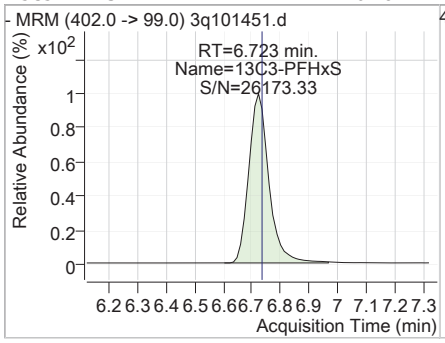


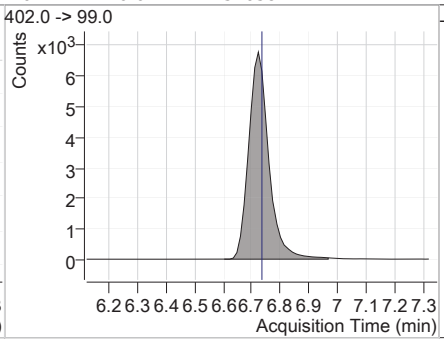


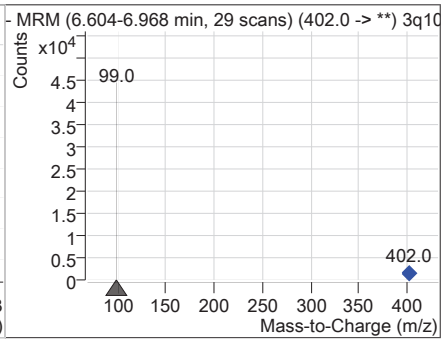


Perfluorinated Compounds by LC/MS/MS

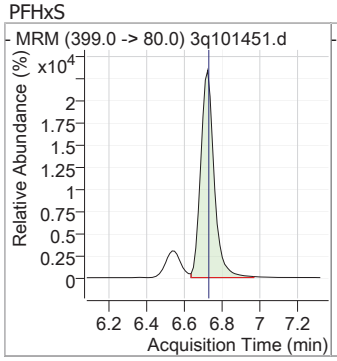
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.18	6.72	-0.01	32638				

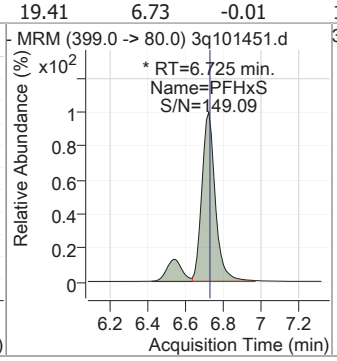


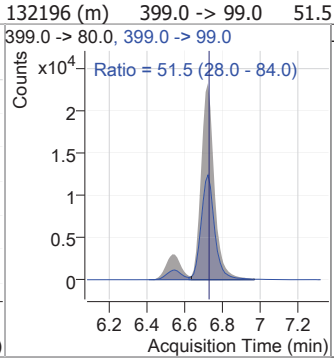


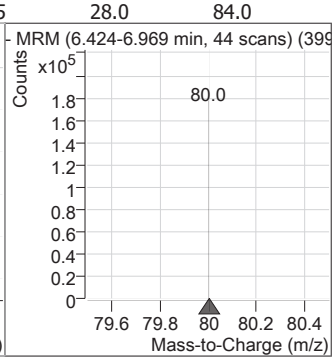


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.41	6.73	-0.01	132196 (m)	399.0 -> 99.0	51.5	28.0	84.0

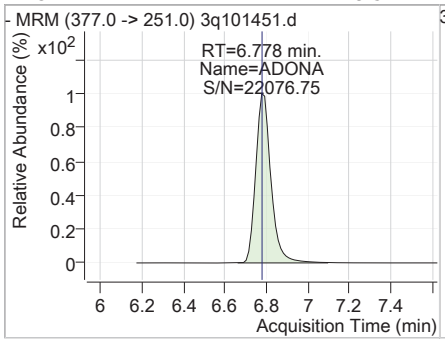


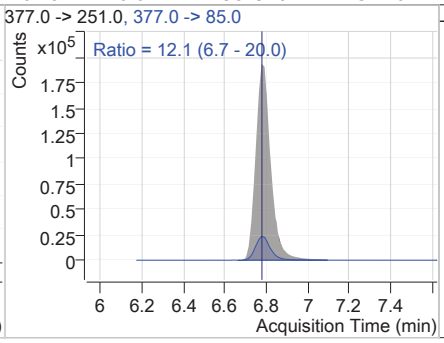


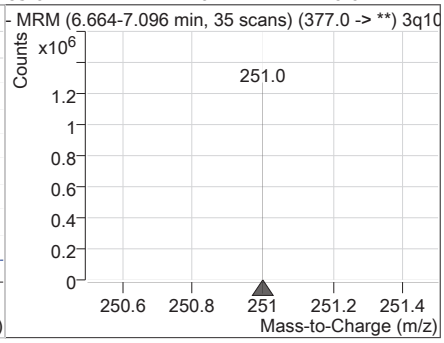




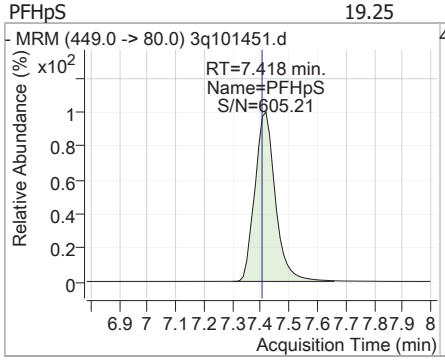
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.32	6.78	-0.01	987946	377.0 -> 85.0	12.1	6.7	20.0

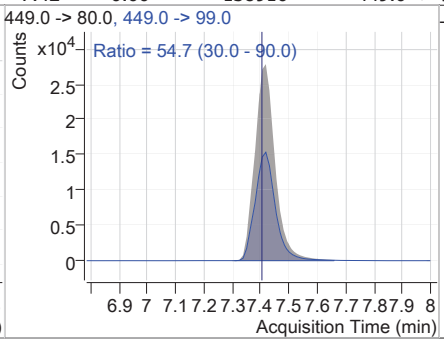


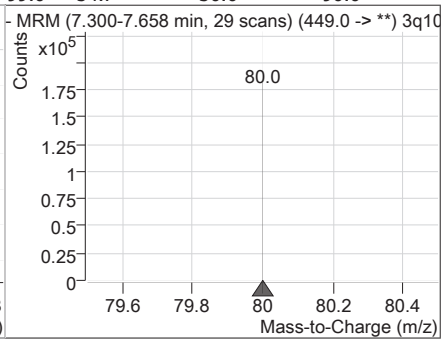




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	19.25	7.42	0.00	138916	449.0 -> 99.0	54.7	30.0	90.0

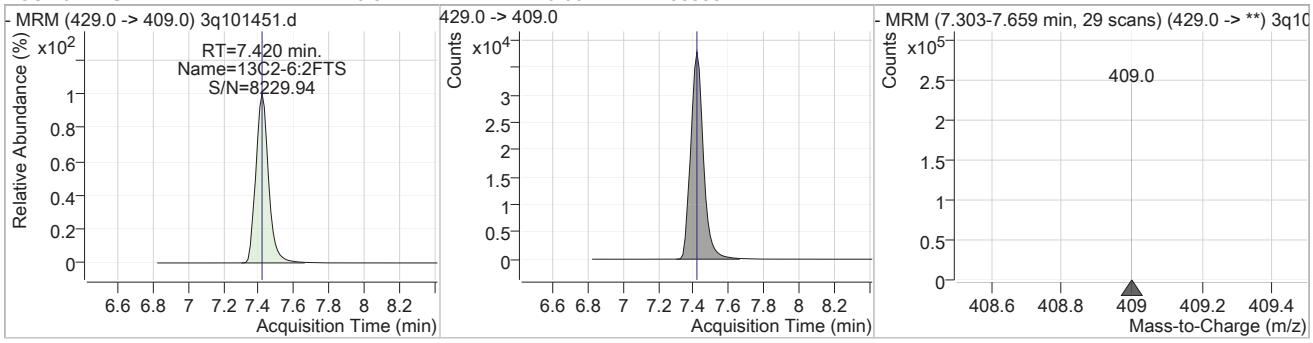




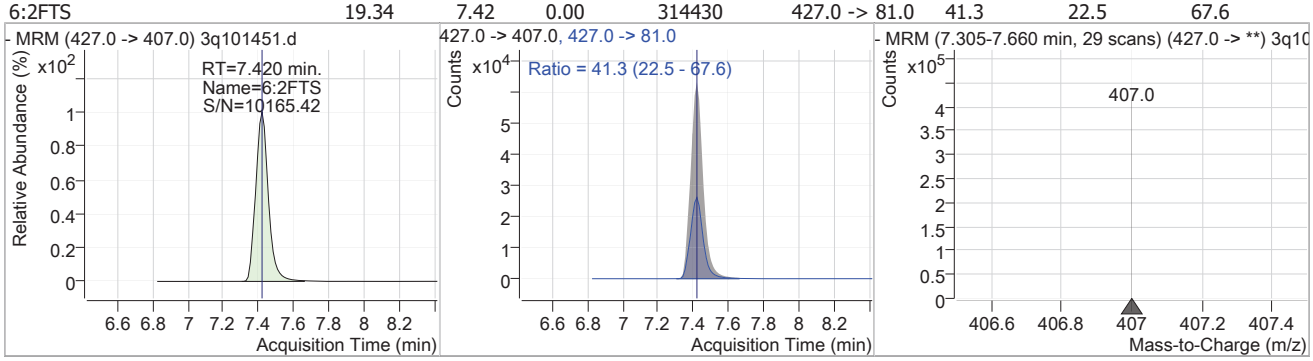


Perfluorinated Compounds by LC/MS/MS

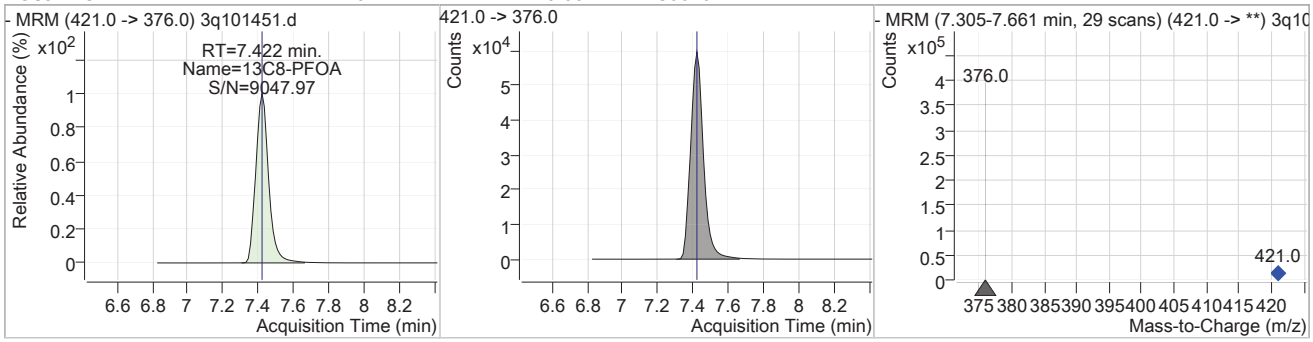
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	10.34	7.42	0.00	188535				



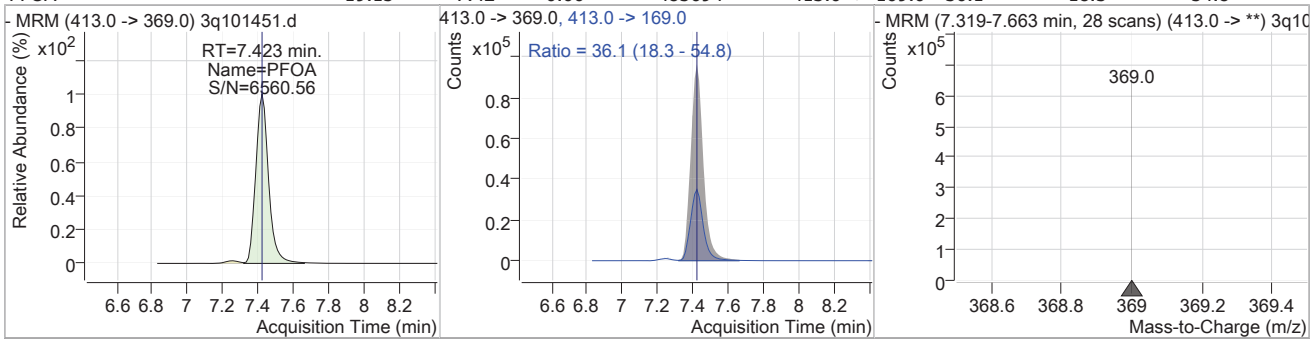
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.34	7.42	0.00	314430	427.0 -> 81.0	41.3	22.5	67.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.17	7.42	0.00	300707				

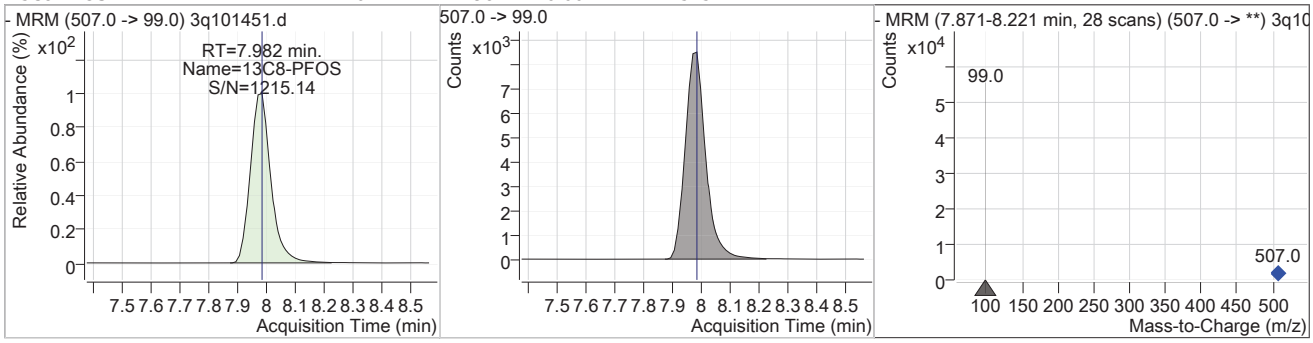


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.15	7.42	0.00	485694	413.0 -> 169.0	36.1	18.3	54.8

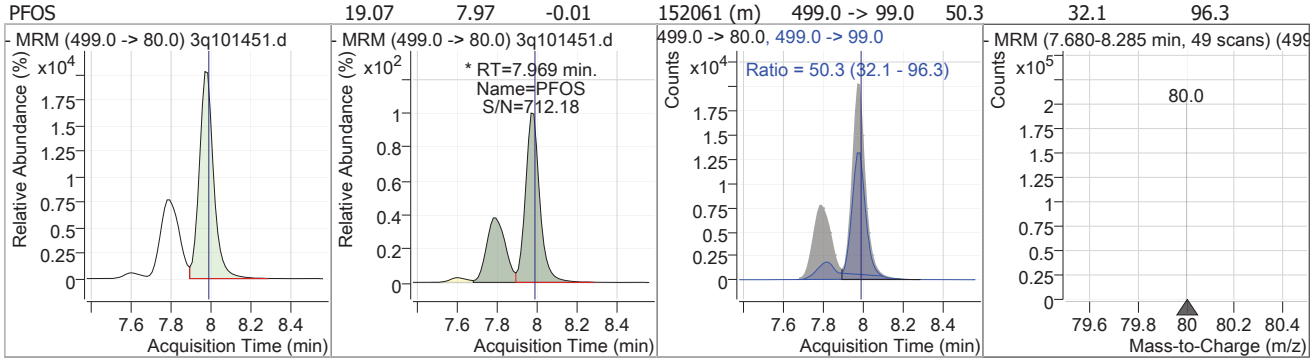


Perfluorinated Compounds by LC/MS/MS

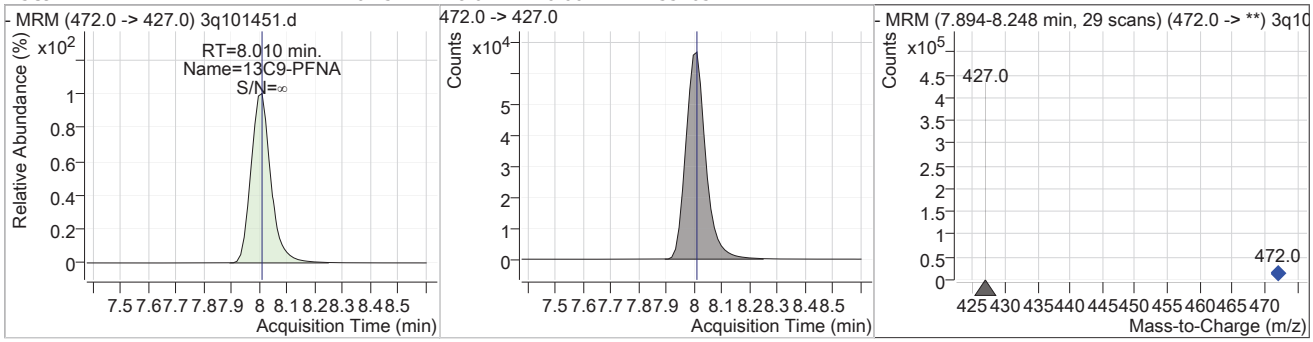
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.12	7.98	0.00	41515				



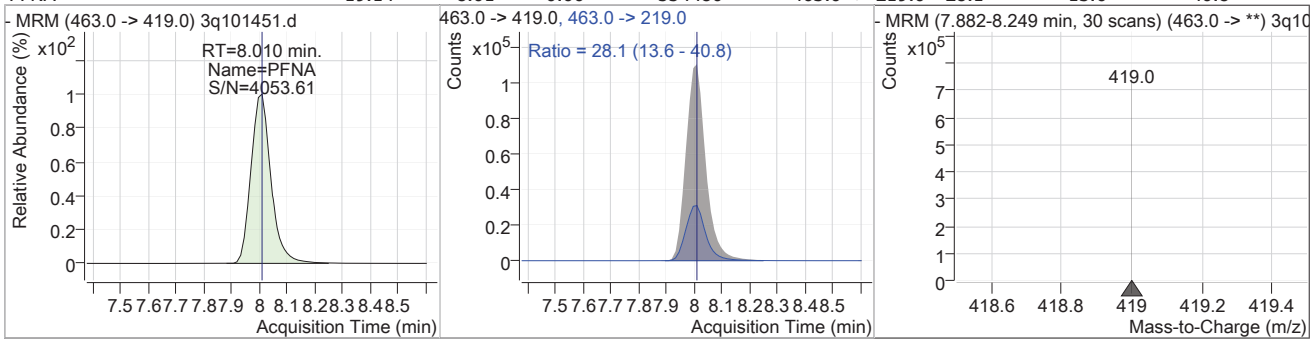
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.07	7.97	-0.01	152061 (m)	499.0 -> 99.0	50.3	32.1	96.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.25	8.01	0.00	331057				

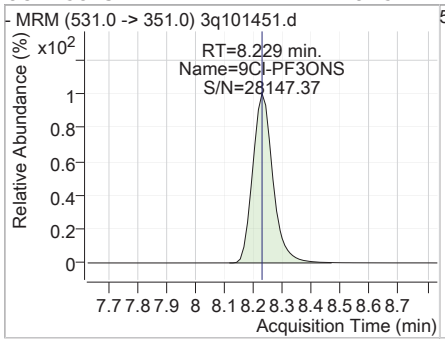


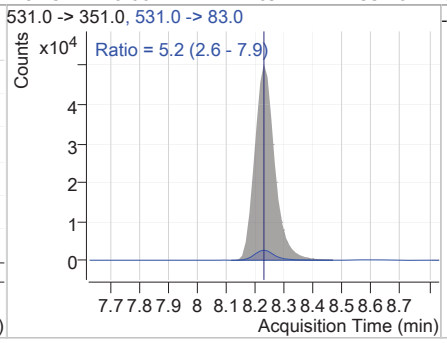
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.14	8.01	0.00	554480	463.0 -> 219.0	28.1	13.6	40.8

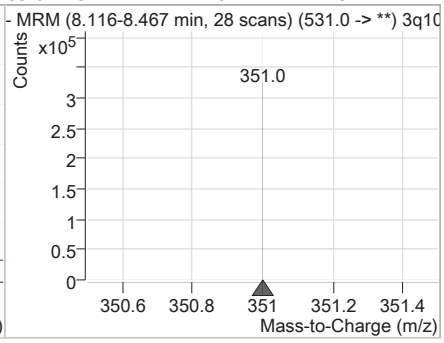


Perfluorinated Compounds by LC/MS/MS

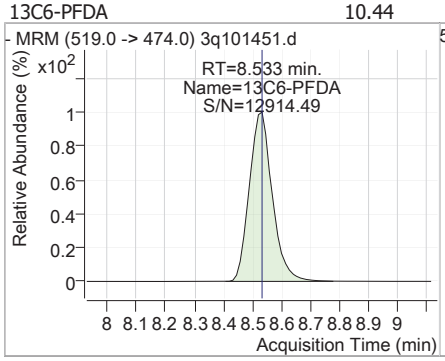
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	19.43	8.23	0.00	244097	531.0 -> 83.0	5.2	2.6	7.9

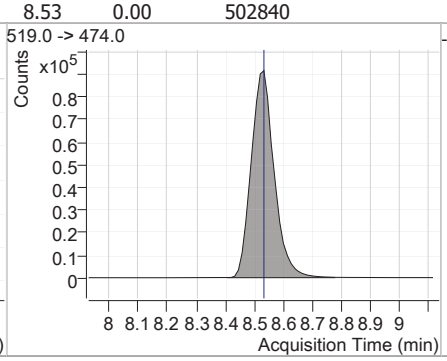


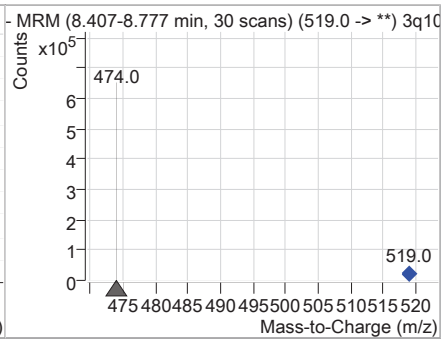




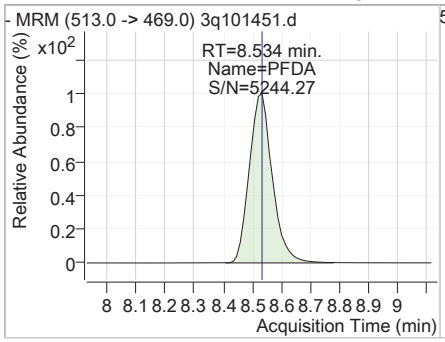
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	10.44	8.53	0.00	502840				

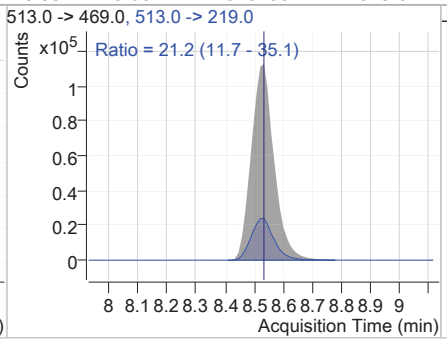


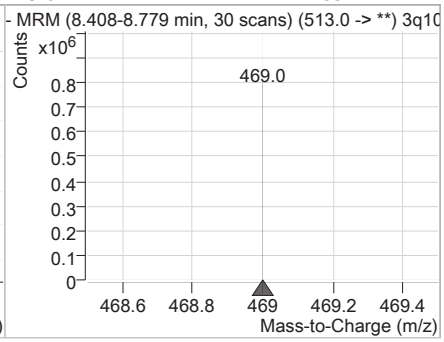




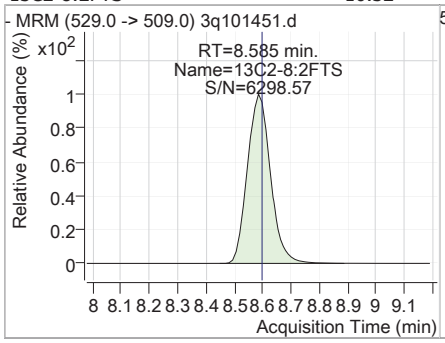
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.21	8.53	0.00	620468	513.0 -> 219.0	21.2	11.7	35.1

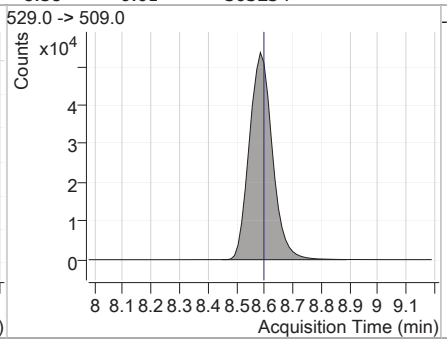


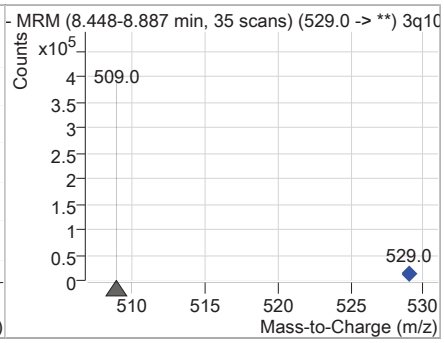




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	10.32	8.58	-0.01	303234				

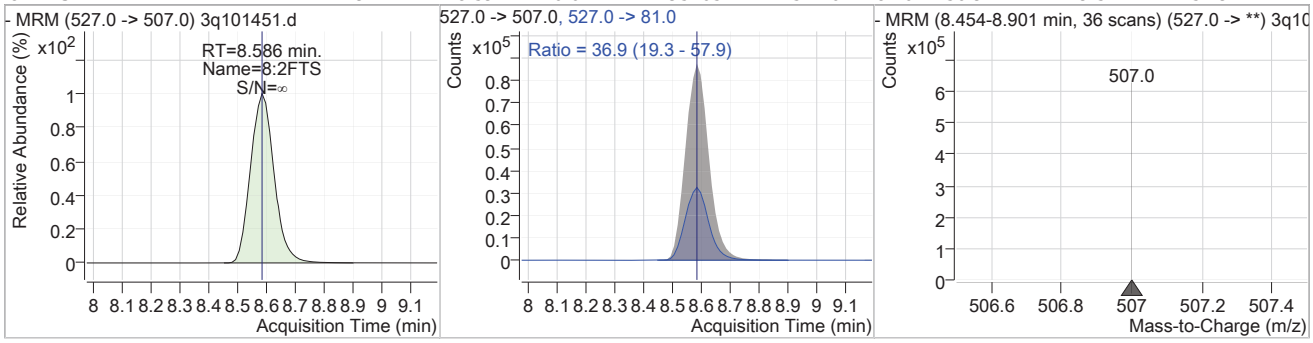




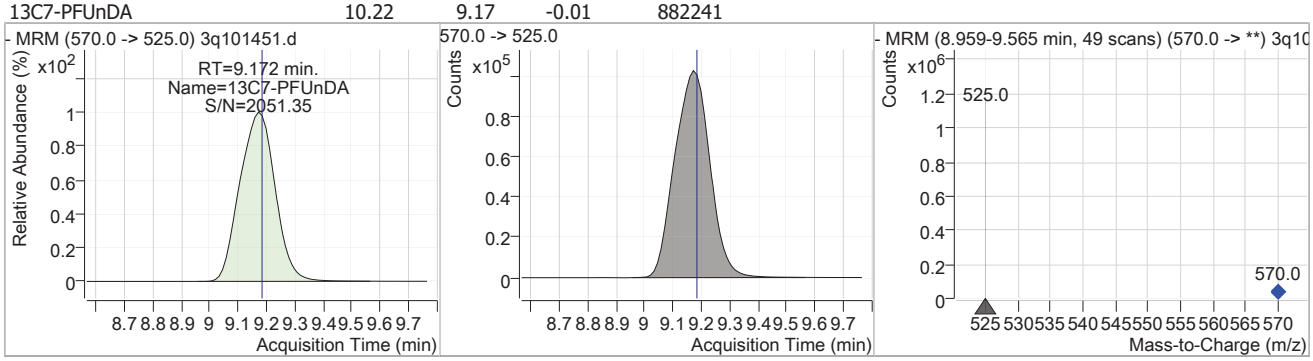


Perfluorinated Compounds by LC/MS/MS

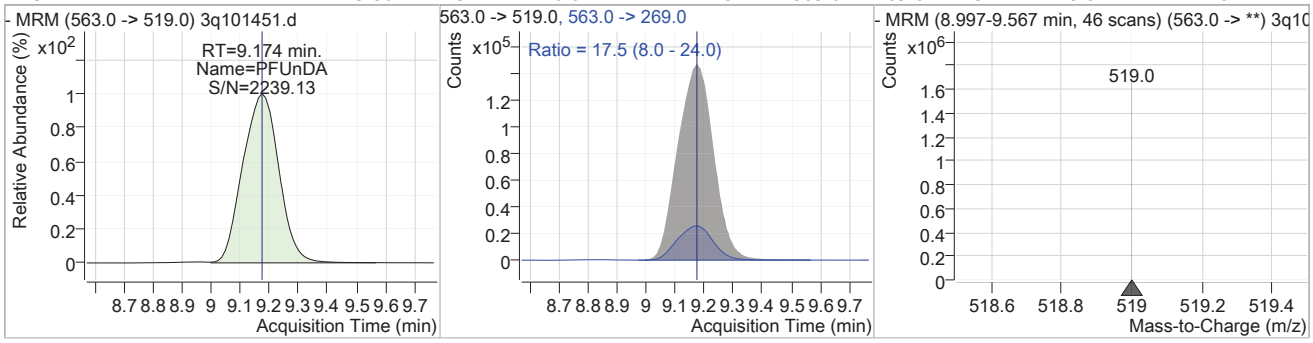
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	19.27	8.59	-0.01	495205	527.0 -> 81.0	36.9	19.3	57.9



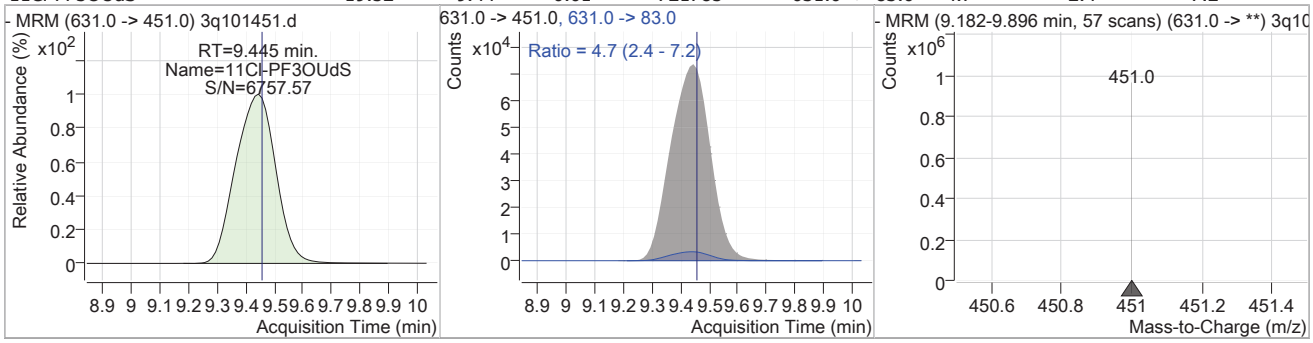
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	10.22	9.17	-0.01	882241				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.30	9.17	-0.01	1274245	563.0 -> 269.0	17.5	8.0	24.0

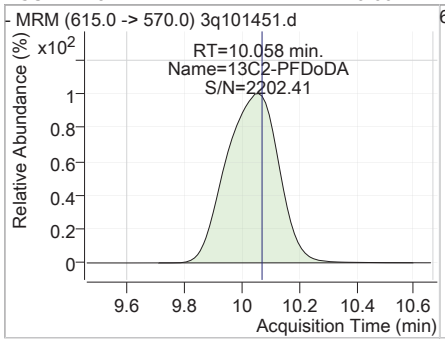


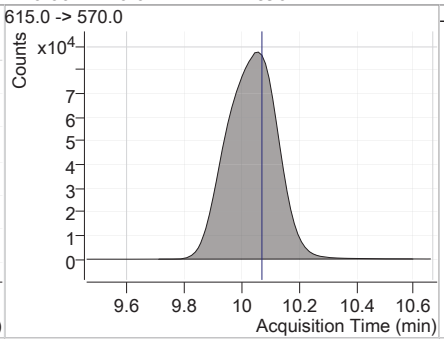
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	19.52	9.44	-0.01	721785	631.0 -> 83.0	4.7	2.4	7.2

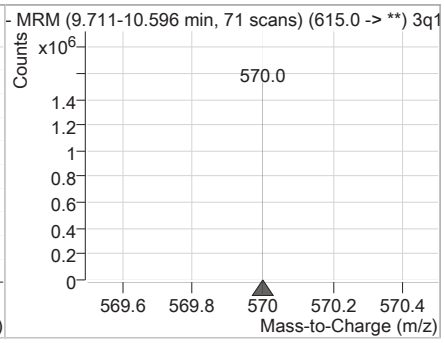


Perfluorinated Compounds by LC/MS/MS

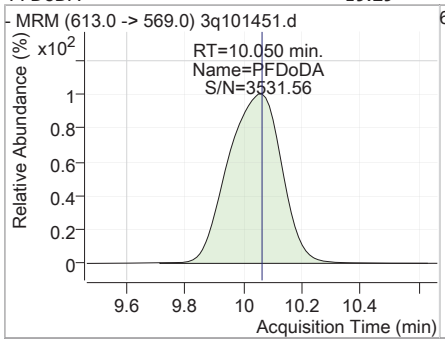
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.00	10.06	-0.01	1118902				

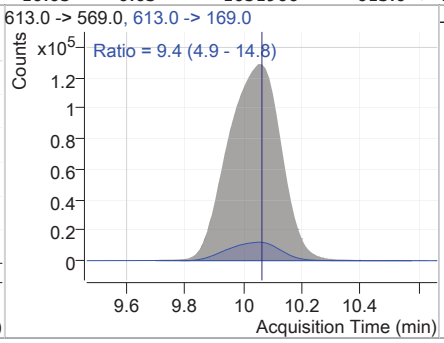


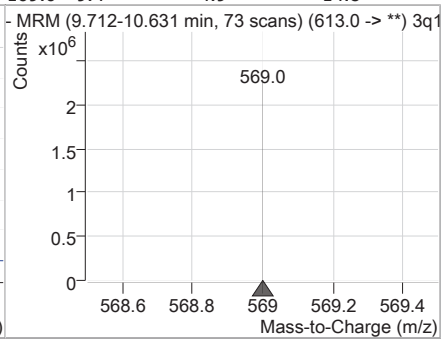




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.29	10.05	-0.03	1651966	613.0 -> 169.0	9.4	4.9	14.8







Manual Integration Approval Summary

Sample Number:	S3Q1491-ECC1491	**Method:**	EPA 533
Lab FileID:	3Q101451.D	**Analyst approved:**	04/14/25 11:45 (b) (6)
Injection Time:	04/11/25 21:20	**Supervisor approved:**	04/14/25 12:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.72	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.97	Split peak

QQQ Check Tune Report

(b) (4)

Instrument Name	LCMS5Q
MS Model	G6470B
MS Instrument Serial	SG2221G211
Software_Firmware Version	10.1.67, FW: A.00.08.112
Tune Date & Time	08 April 2025 16:48:23
File Path	D:\MassHunter\Tune\QQQ\G6470B\atunes.TUNE.XML
Ion Source	AJS ESI
Ionization Mode	AJS ESI
Tuned Resolution	All
Vacuum Pressure	1.33E+0 [R] (Torr); 3.48E-5 [H] (Torr)

Source Parameters

Parameter	Negative
Gas Temp (°C)	300
Gas Flow (l/min)	8
Nebulizer (psi)	15
Capillary (V)	3500
Nozzle Voltage (V)	1500
Sheath Gas Temp (°C)	250
Sheath Gas Flow (l/min)	7

QQQ Check Tune Report

(b) (4)

Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	113.02	0.03	Pass	0.70	0.70	0.00	Pass	187297
302.00	302.10	0.10	Pass	0.70	0.67	-0.03	Pass	74583
601.98	602.09	0.11	Pass	0.70	0.66	-0.04	Pass	159552
1033.99	1034.10	0.11	Pass	0.70	0.65	-0.05	Pass	261292
1633.95	1634.07	0.12	Pass	0.70	0.61	-0.09	Pass	751777
2233.91	2234.06	0.15	Pass	0.70	0.57	-0.13	Pass	323977

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.00	0.00	Pass	0.70	0.67	-0.03	Pass	43403
112.99	113.00	0.01	Pass	0.70	0.71	0.01	Pass	130106
302.00	302.01	0.01	Pass	0.70	0.71	0.01	Pass	65094
601.98	601.98	0.00	Pass	0.70	0.72	0.02	Pass	127122
1033.99	1033.99	0.00	Pass	0.70	0.68	-0.02	Pass	245033
1633.95	1633.95	0.00	Pass	0.70	0.73	0.03	Pass	695798
2233.91	2233.94	0.03	Pass	0.70	0.69	-0.01	Pass	322762

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	113.03	0.04	Pass	1.20	1.22	0.02	Pass	238331
302.00	302.05	0.05	Pass	1.20	1.40	0.20	Pass	93986
601.98	602.07	0.09	Pass	1.20	1.41	0.21	Pass	255771
1033.99	1034.06	0.07	Pass	1.20	1.45	0.25	Pass	452269
1633.95	1634.05	0.10	Pass	1.20	1.31	0.11	Pass	1289509
2233.91	2233.96	0.05	Pass	1.20	1.01	-0.19	Pass	682094

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.99	-0.01	Pass	1.20	1.24	0.04	Pass	56145
112.99	112.99	0.00	Pass	1.20	1.28	0.08	Pass	190030
302.00	302.00	0.00	Pass	1.20	1.11	-0.09	Pass	82158
601.98	601.96	-0.02	Pass	1.20	1.06	-0.14	Pass	163373
1033.99	1033.95	-0.04	Pass	1.20	1.09	-0.11	Pass	333087
1633.95	1633.90	-0.05	Pass	1.20	1.29	0.09	Pass	1148369
2233.91	2233.99	0.08	Pass	1.20	1.32	0.12	Pass	618265

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	113.01	0.02	Pass	2.50	2.44	-0.06	Pass	276697
302.00	302.06	0.06	Pass	2.50	2.62	0.12	Pass	114608
601.98	602.06	0.08	Pass	2.50	2.77	0.27	Pass	323782
1033.99	1034.08	0.09	Pass	2.50	2.79	0.29	Pass	800394
1633.95	1634.02	0.07	Pass	2.50	2.72	0.22	Pass	3468214
2233.91	2233.95	0.04	Pass	2.50	2.60	0.10	Pass	2232014

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.97	-0.03	Pass	2.50	2.46	-0.04	Pass	63214
112.99	112.99	0.00	Pass	2.50	2.48	-0.02	Pass	267330
302.00	302.02	0.02	Pass	2.50	2.23	-0.27	Pass	111908
601.98	601.95	-0.03	Pass	2.50	2.29	-0.21	Pass	263657
1033.99	1033.98	-0.01	Pass	2.50	2.21	-0.29	Pass	725325
1633.95	1633.95	0.00	Pass	2.50	2.35	-0.15	Pass	2811409
2233.91	2233.89	-0.02	Pass	2.50	2.48	-0.02	Pass	1802919

7.7.13

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Cal Report: 5Q31688.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/14/25 12:24

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31688.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/11/2025 11:32:48 AM
Sample Name : ic519-0.5
Vial : P1-A2
DA Method File : 537_041125_S5Q519.quantmethod
Batch Name : s5q519.batch.bin
Sample Information : OP7448,S5Q519,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.287	429.0 -> 409.0	118918	20.00	µg/L		0.000
13C2-PFOA	6.303	415.0 -> 370.0	359355	20.00	µg/L		0.013
13C3-PFPeA	3.594	266.0 -> 222.0	532126	20.00	µg/L		-0.012
13C4-PFOS	6.860	503.0 -> 80.0	78121	20.00	µg/L		0.000
d3-MeFOSAA	7.255	573.0 -> 419.0	23022	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.423	515.0 -> 470.0	2432	0.18	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 0.9%			
13C2-PFHxA	4.775	315.0 -> 270.0	4642	0.19	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 1.0%			
d5-EtFOSAA	7.391	589.0 -> 419.0	167	0.43	µg/L		0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 1.1%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	632	0.43	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 1.1%			
Target Compounds							QValue
6:2FTS	6.287	427.0 -> 407.0	3083	0.52	µg/L		99
8:2FTS	7.472	527.0 -> 507.0	2259	0.49	µg/L		94
EtFOSAA	7.380	584.0 -> 419.0	140	0.38	µg/L	m	82
MeFOSAA	7.244	570.0 -> 419.0	241	0.45	µg/L	m	88
PFBS	3.841	299.0 -> 80.0	4550	0.38	µg/L		95
PFDA	7.424	513.0 -> 469.0	3826	0.35	µg/L		88
PFDoDA	8.577	613.0 -> 569.0	2046	0.37	µg/L		96
PFHpA	5.614	363.0 -> 319.0	11765	0.39	µg/L		98
PFHxA	4.777	313.0 -> 269.0	5963	0.36	µg/L		93
PFHxS	5.648	399.0 -> 80.0	2474	0.38	µg/L	m	99
PFNA	6.899	463.0 -> 419.0	4190	0.39	µg/L	m	94
PFOA	6.290	413.0 -> 369.0	5887	0.35	µg/L		88
PFOS	6.873	499.0 -> 80.0	1821	0.39	µg/L	m	87
PFPeA	3.597	263.0 -> 219.0	11312	0.35	µg/L		100
PFTeDA	10.084	713.0 -> 669.0	965	0.42	µg/L		99
PFTrDA	9.427	663.0 -> 619.0	935	0.40	µg/L		98
PFUnDA	7.931	563.0 -> 519.0	4095	0.40	µg/L		94
ADONA	5.700	377.0 -> 251.0	15028	0.38	µg/L		98
9Cl-PF3ONS	7.146	531.0 -> 351.0	1785	0.39	µg/L		100
11Cl-PF3OUdS	8.100	631.0 -> 451.0	1363	0.35	µg/L		88
HFPO-DA	5.035	285.0 -> 169.0	468	0.34	µg/L	#	96

 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.14
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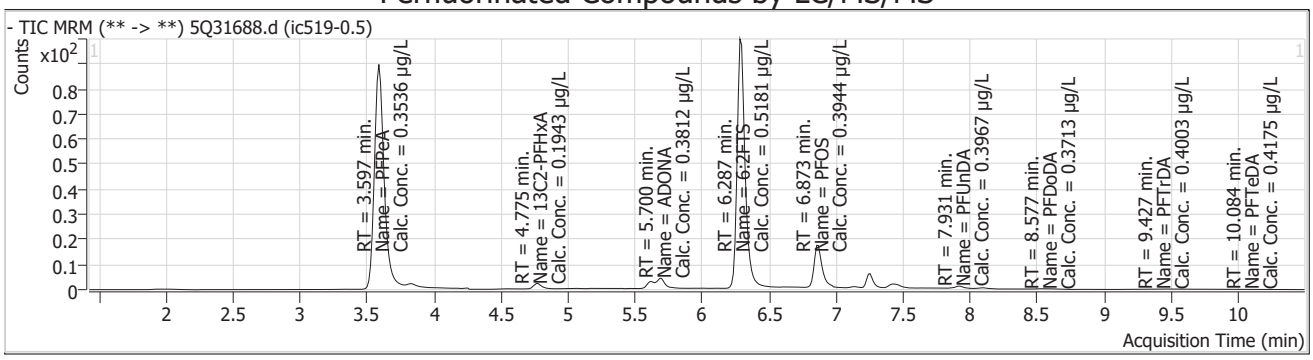
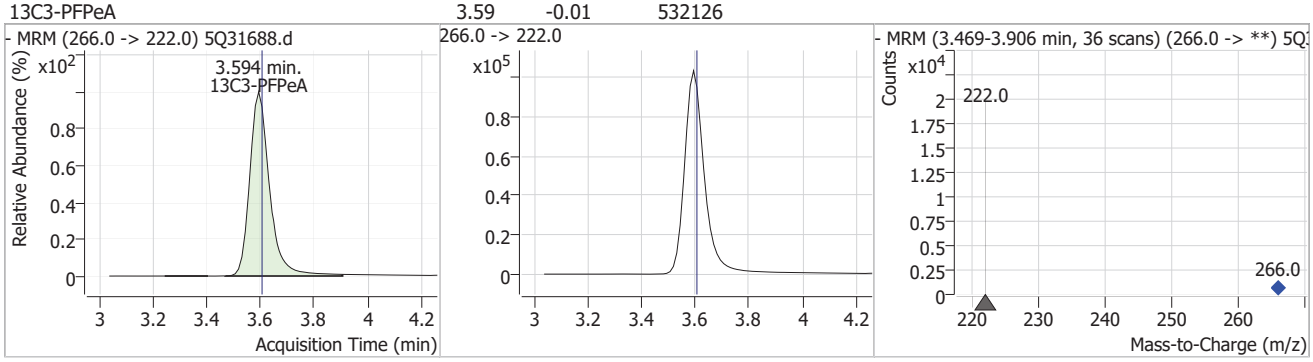
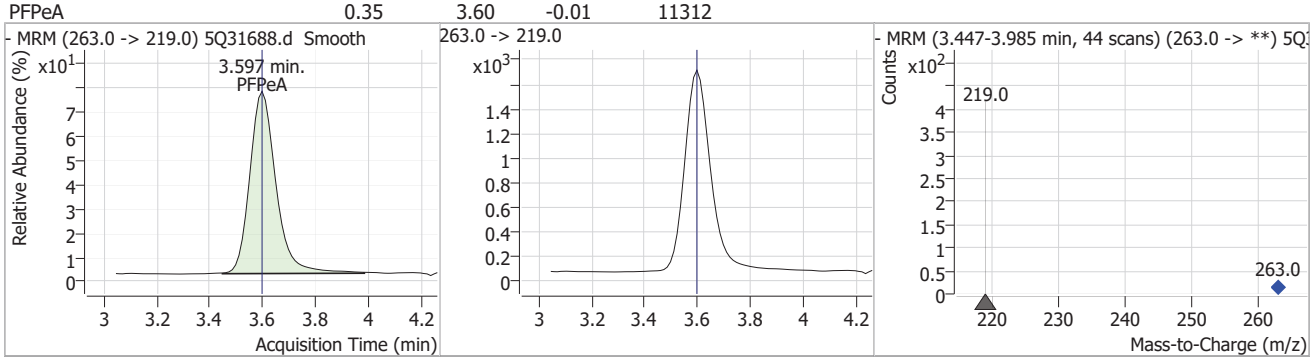
Perfluorinated Compounds by LC/MS/MS



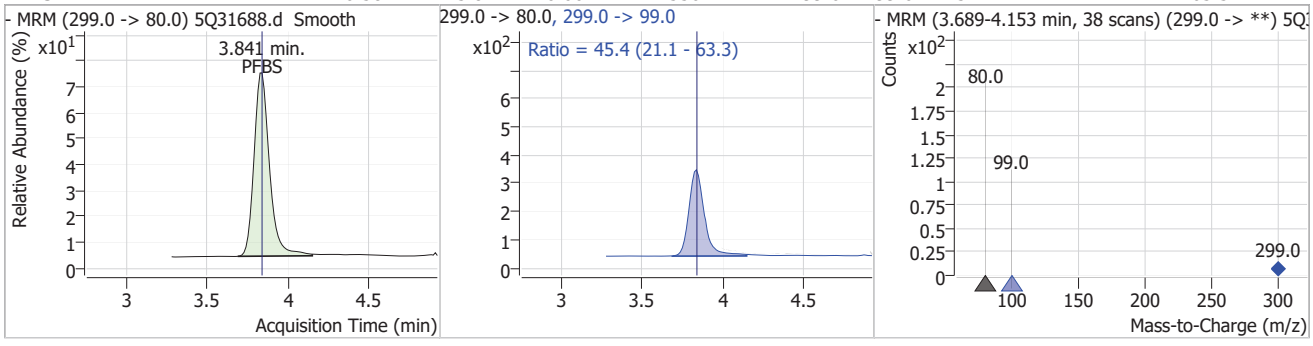
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	532126				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.35	3.60	-0.01	11312				

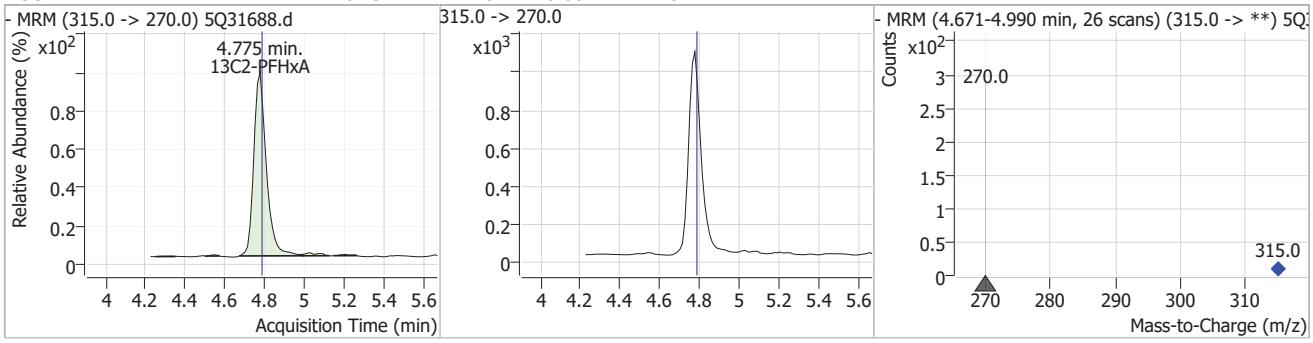


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.38	3.84	0.00	4550	299.0 -> 99.0	45.4	21.1	63.3

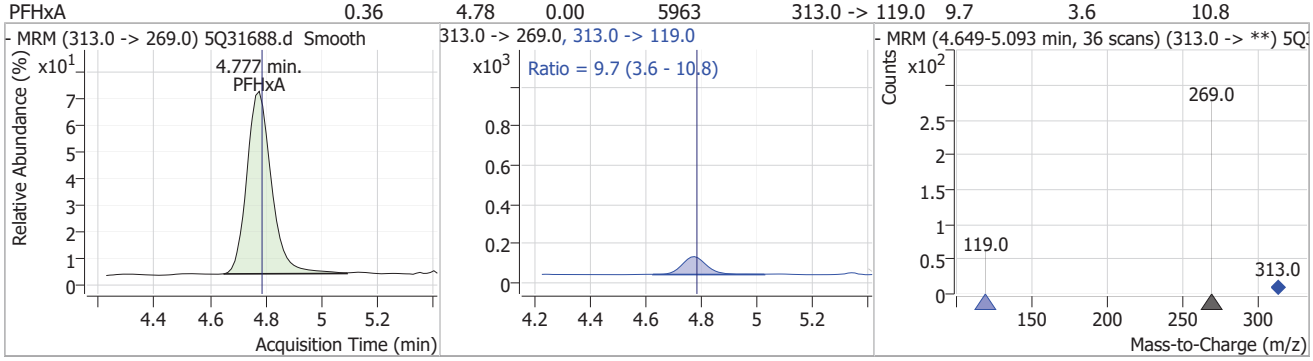


Perfluorinated Compounds by LC/MS/MS

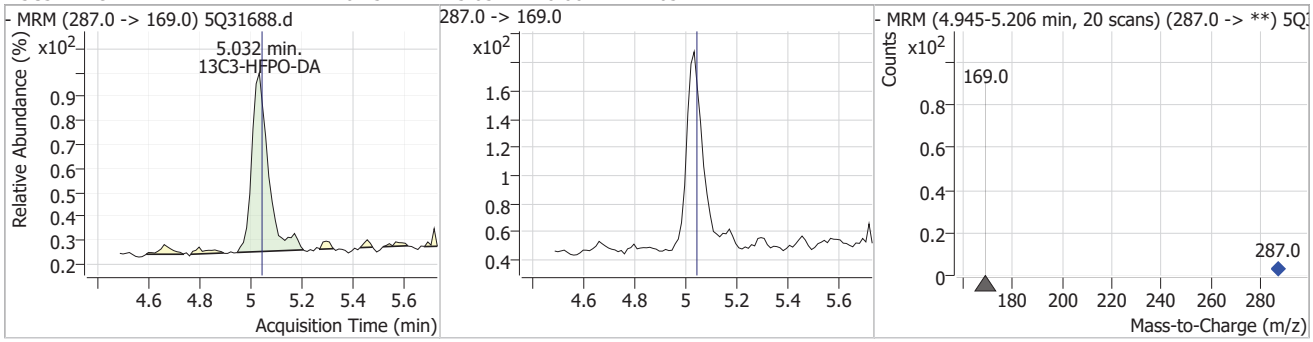
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.19	4.78	0.00	4642				



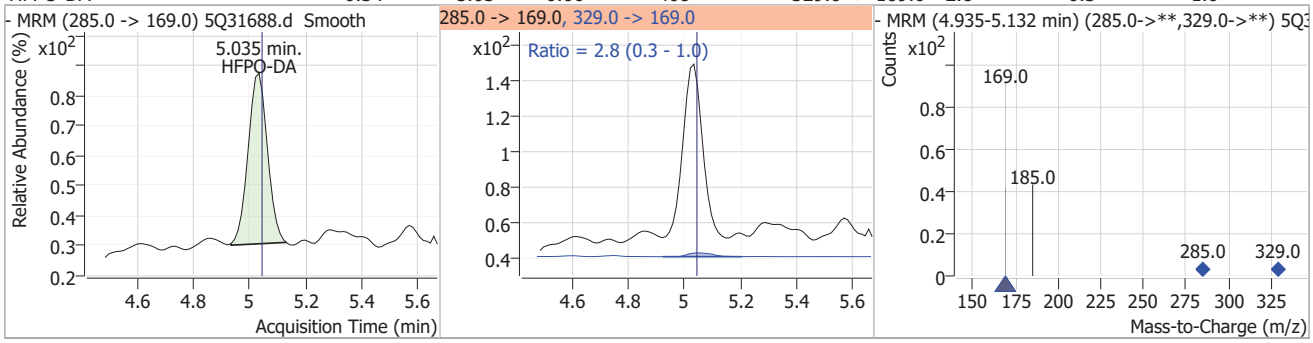
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.36	4.78	0.00	5963	313.0 -> 119.0	9.7	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.43	5.03	0.00	632				

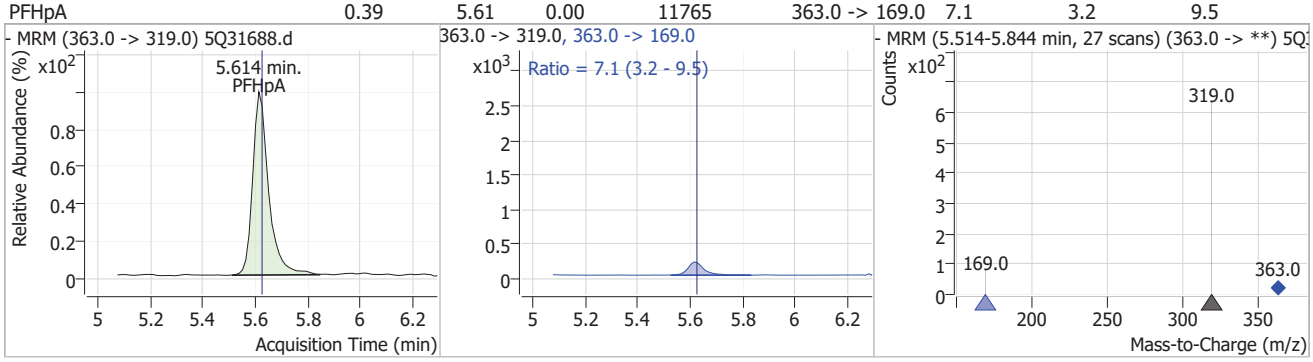


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.34	5.03	0.00	468	329.0 -> 169.0	2.8	0.3	1.0

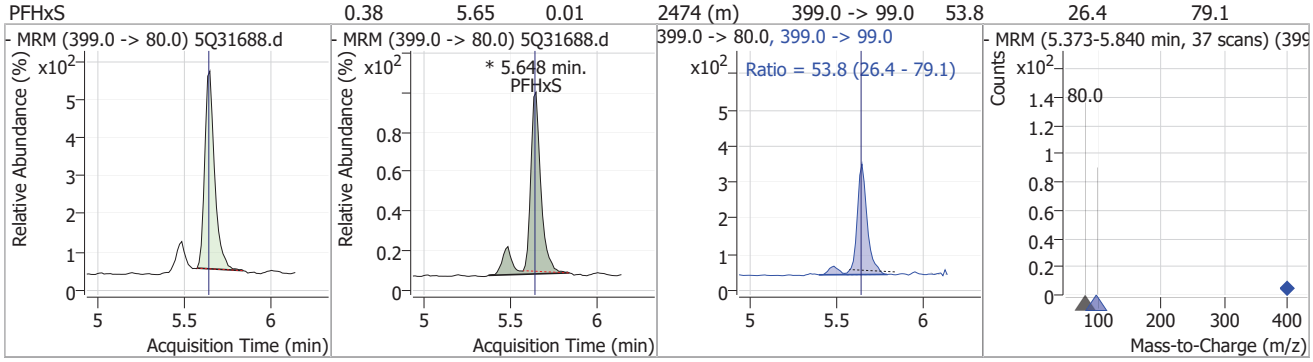


Perfluorinated Compounds by LC/MS/MS

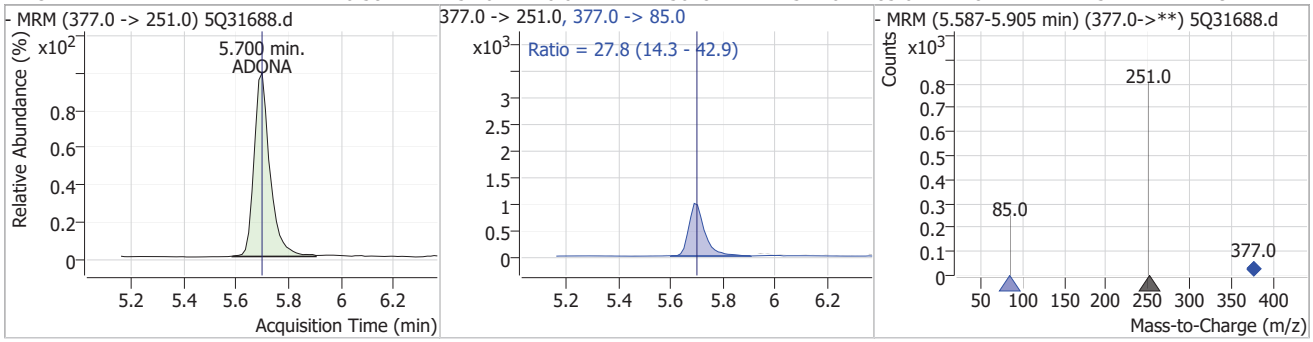
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.39	5.61	0.00	11765	363.0 -> 169.0	7.1	3.2	9.5



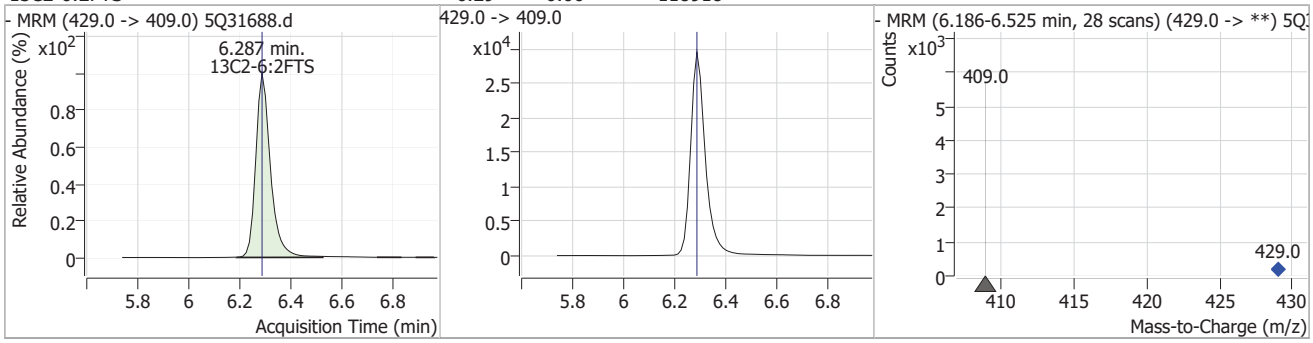
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.38	5.65	0.01	2474 (m)	399.0 -> 99.0	53.8	26.4	79.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.38	5.70	0.01	15028	377.0 -> 85.0	27.8	14.3	42.9

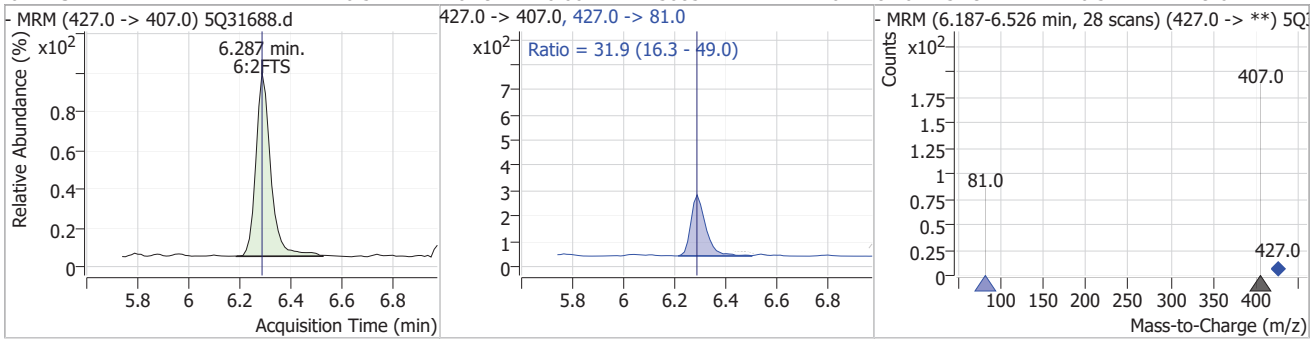


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	118918				

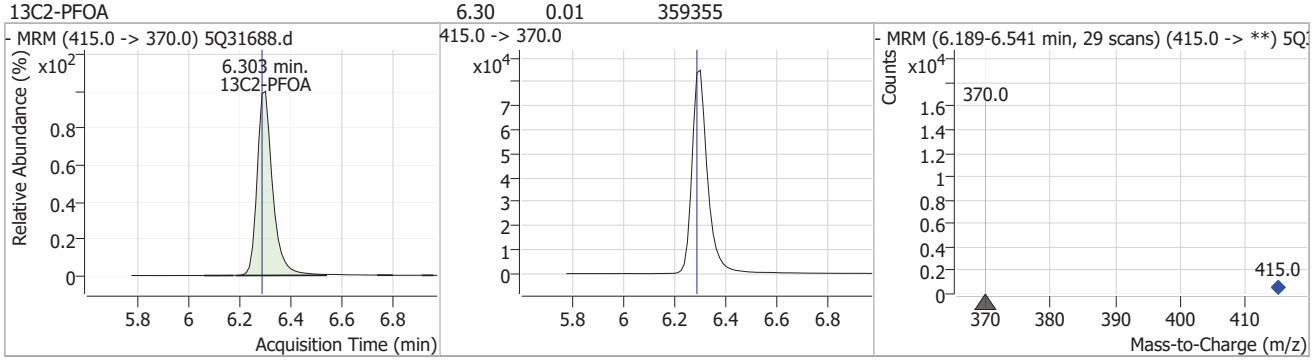


Perfluorinated Compounds by LC/MS/MS

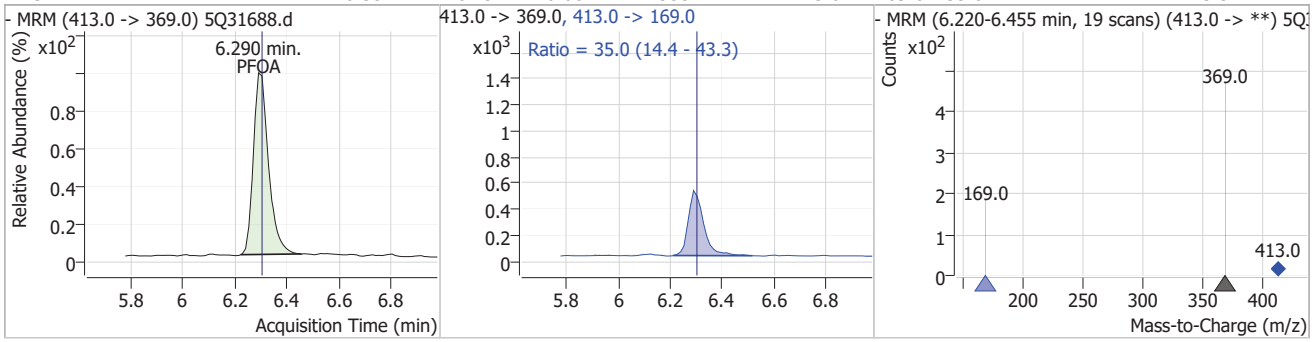
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.52	6.29	0.00	3083	427.0 -> 81.0	31.9	16.3	49.0



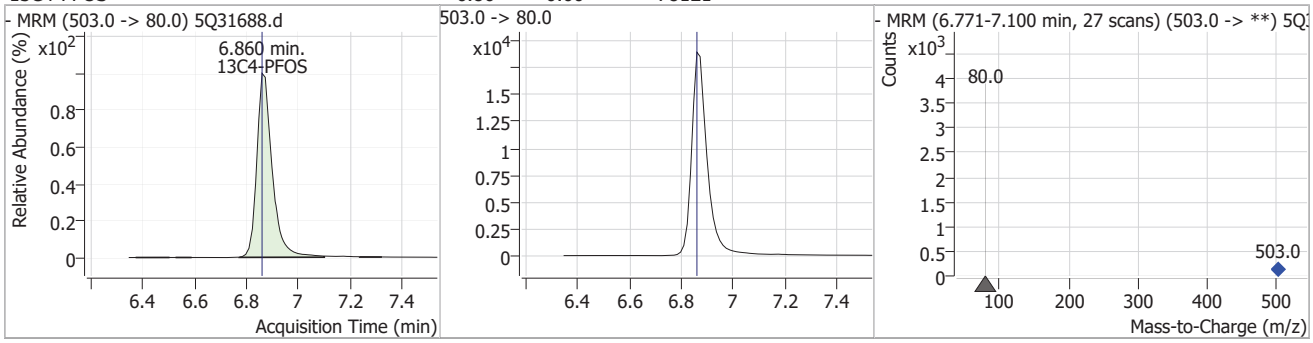
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.30	0.01	359355				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.35	6.29	0.00	5887	413.0 -> 169.0	35.0	14.4	43.3

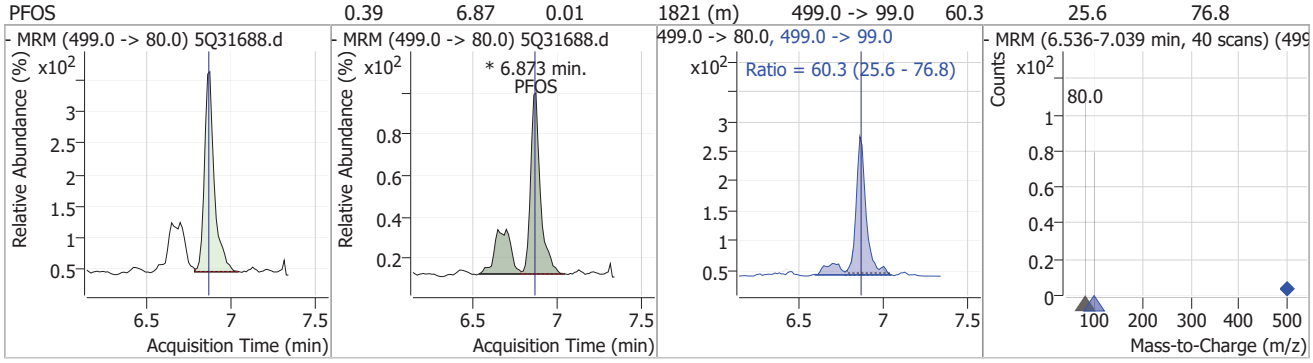


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	78121				

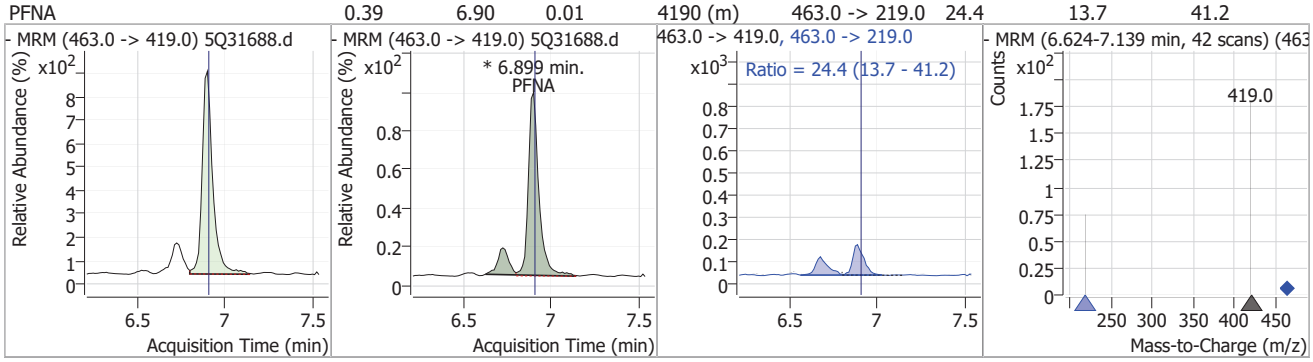


Perfluorinated Compounds by LC/MS/MS

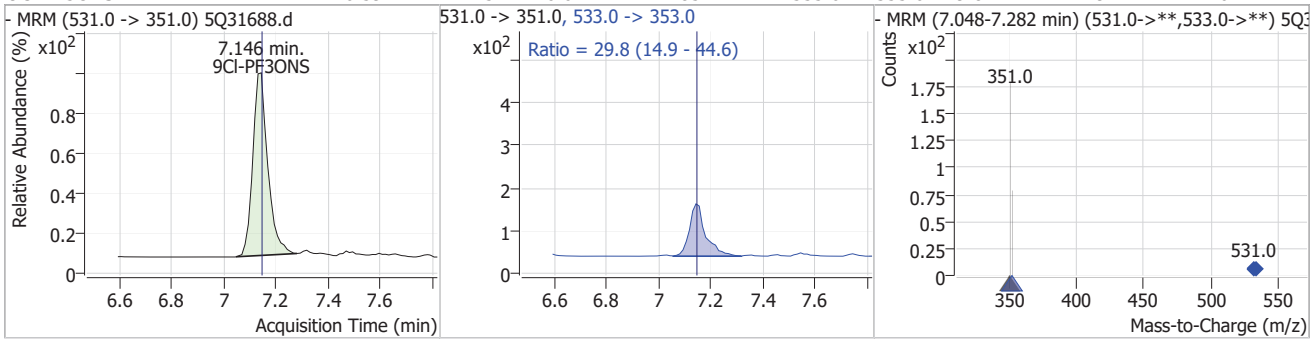
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.39	6.87	0.01	1821 (m)	499.0 -> 99.0	60.3	25.6	76.8



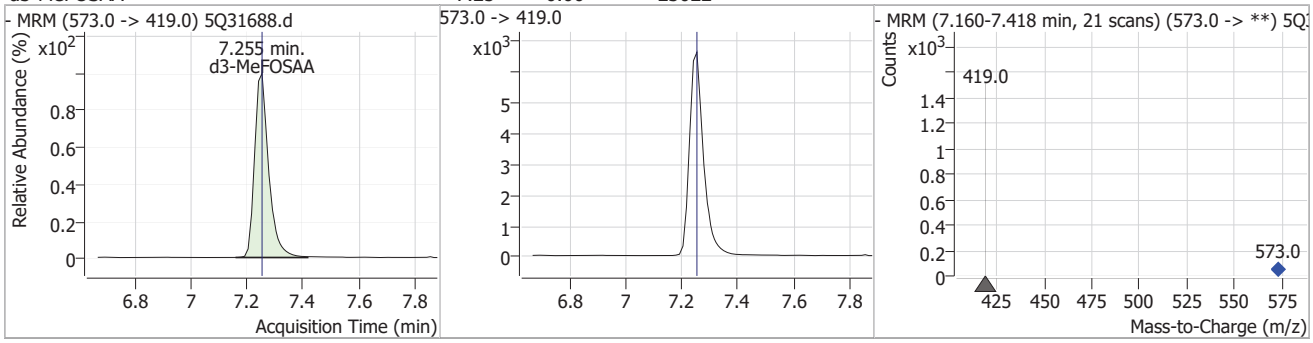
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.39	6.90	0.01	4190 (m)	463.0 -> 219.0	24.4	13.7	41.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.39	7.15	0.01	1785	533.0 -> 353.0	29.8	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	23022				



7.7.14

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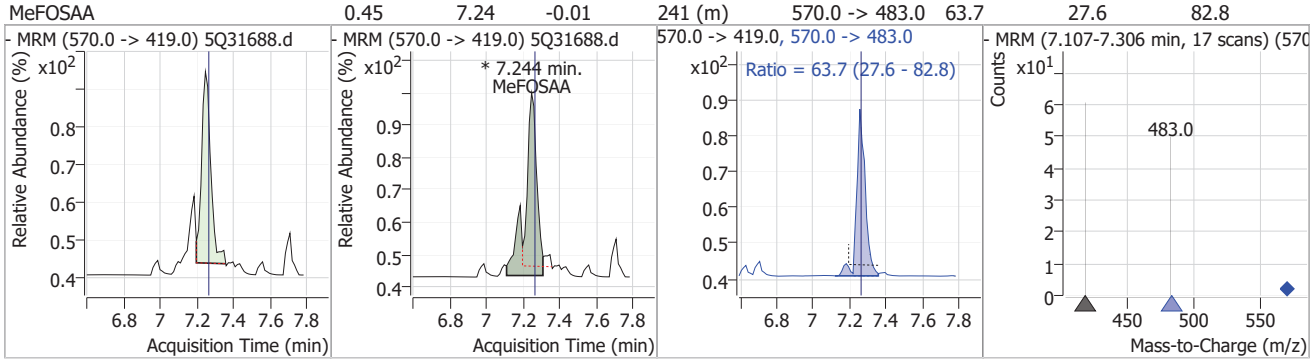
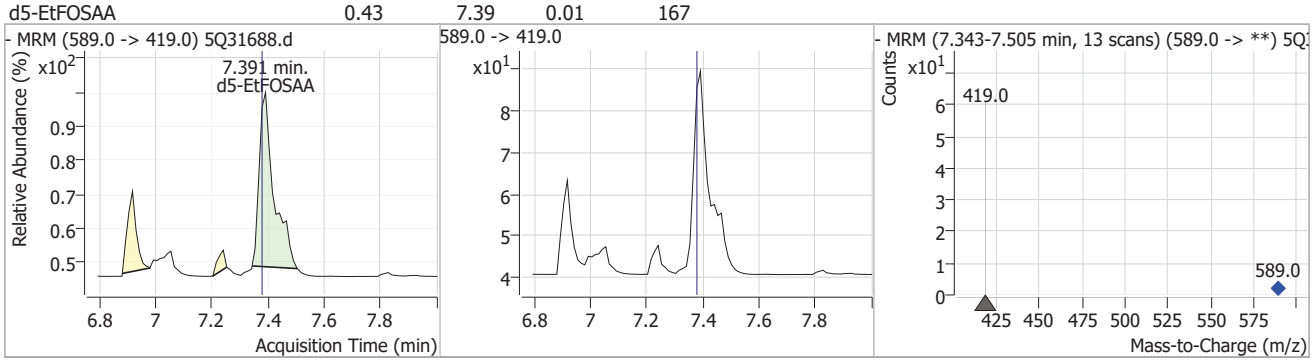
Perfluorinated Compounds by LC/MS/MS

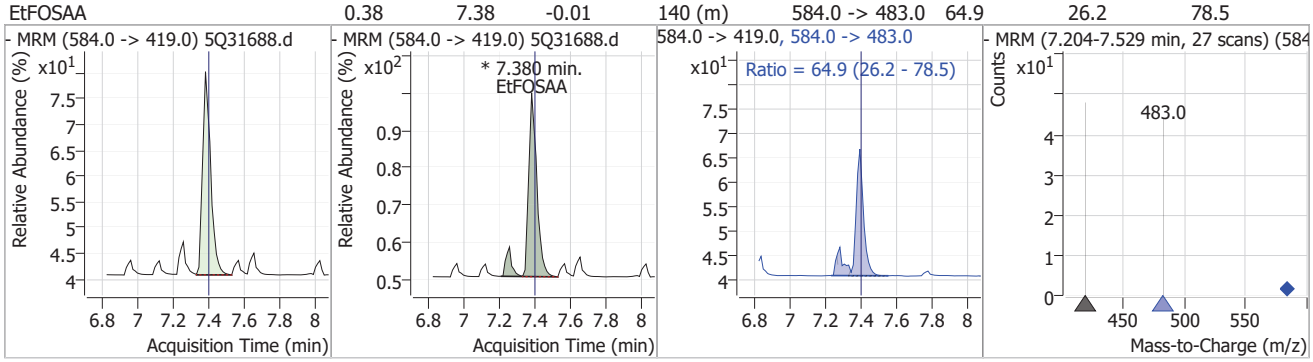
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.45	7.24	-0.01	241 (m)	570.0 -> 483.0	63.7	27.6	82.8



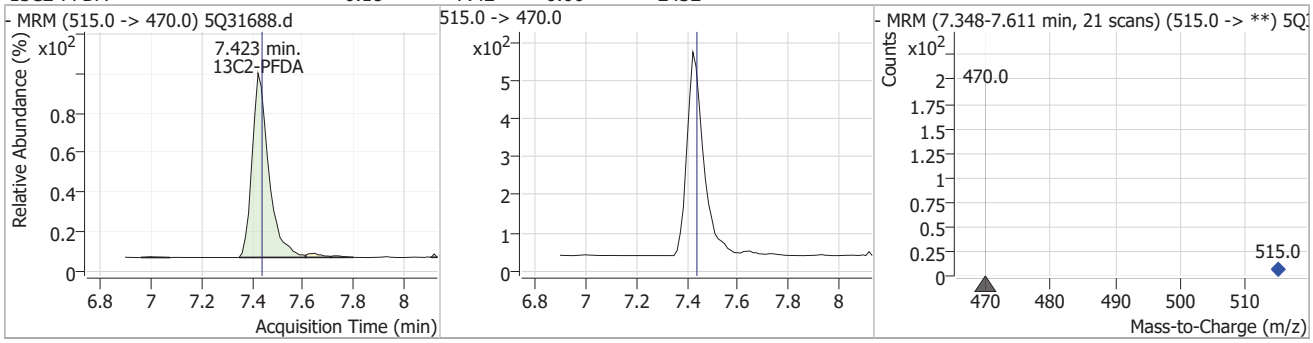
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	0.43	7.39	0.01	167				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.38	7.38	-0.01	140 (m)	584.0 -> 483.0	64.9	26.2	78.5

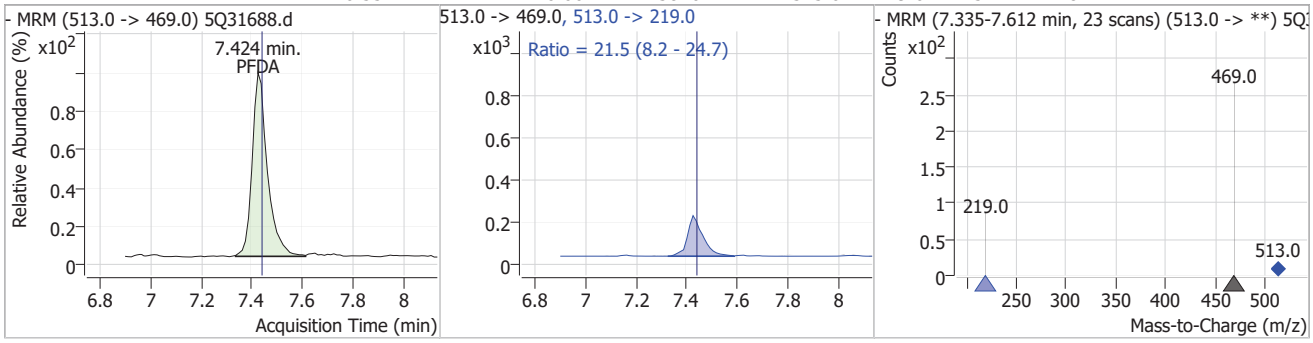


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.18	7.42	0.00	2432				

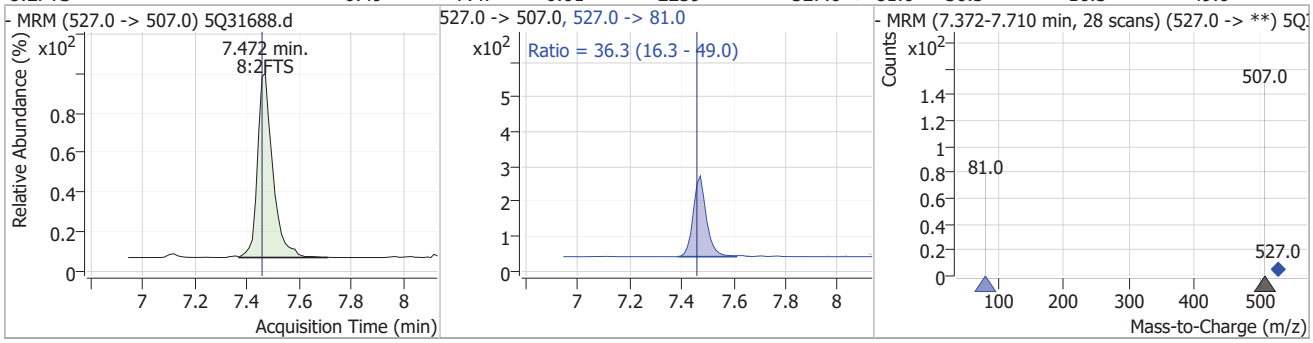


Perfluorinated Compounds by LC/MS/MS

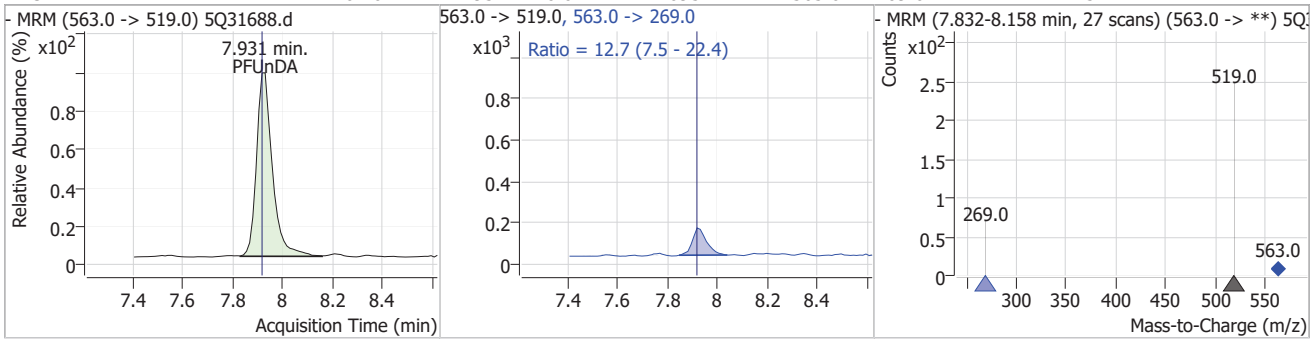
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.35	7.42	0.00	3826	513.0 -> 219.0	21.5	8.2	24.7



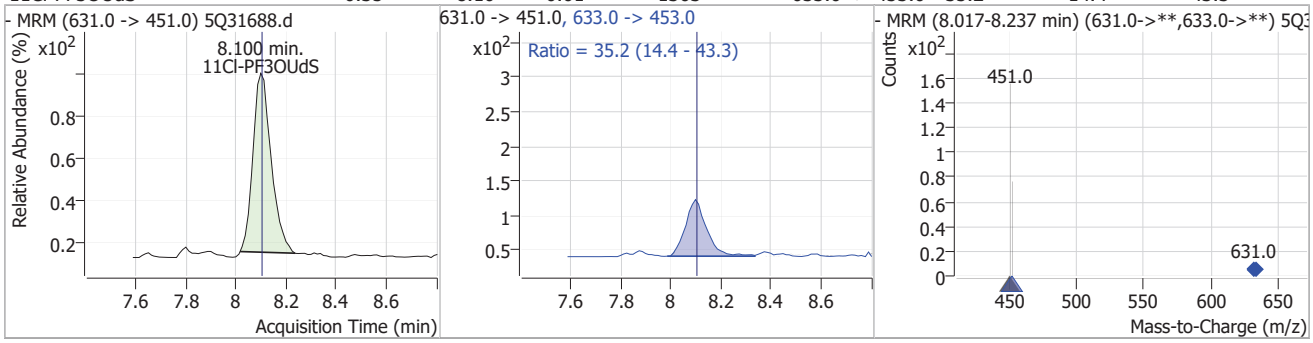
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.49	7.47	0.01	2259	527.0 -> 81.0	36.3	16.3	49.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.40	7.93	0.01	4095	563.0 -> 269.0	12.7	7.5	22.4

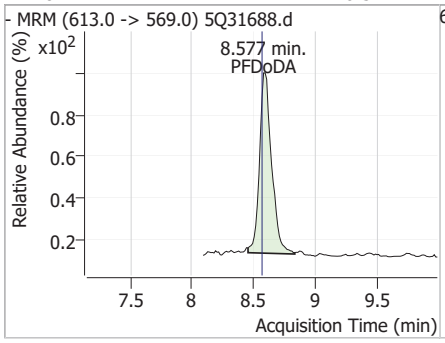


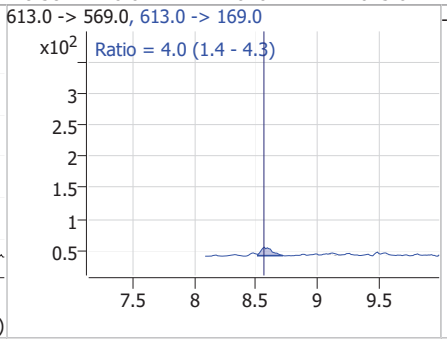
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.35	8.10	0.01	1363	633.0 -> 453.0	35.2	14.4	43.3

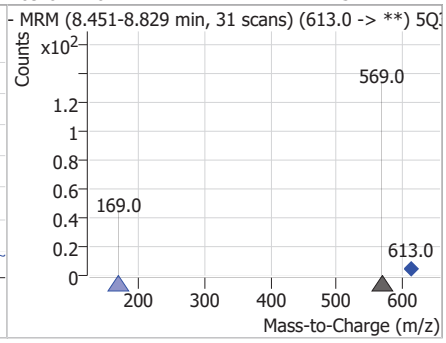


Perfluorinated Compounds by LC/MS/MS

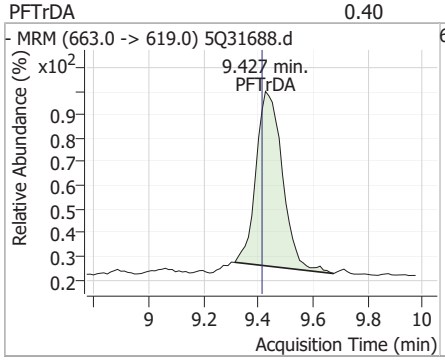
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.37	8.58	0.01	2046	613.0 -> 169.0	4.0	1.4	4.3

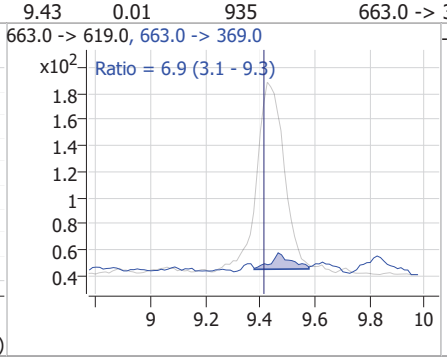


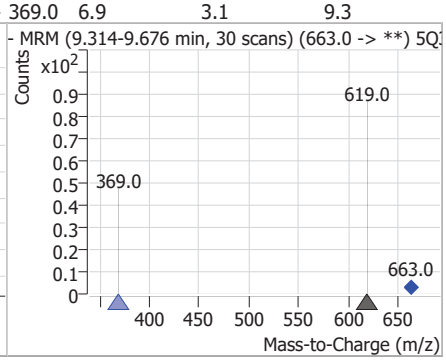




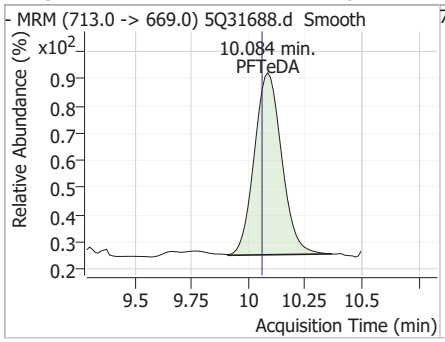
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.40	9.43	0.01	935	663.0 -> 369.0	6.9	3.1	9.3

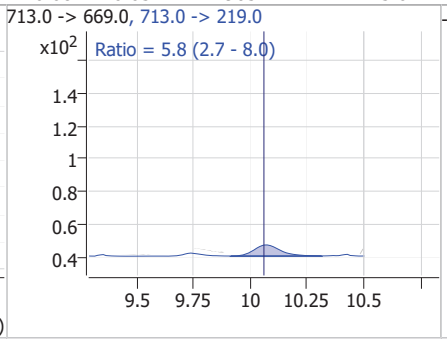


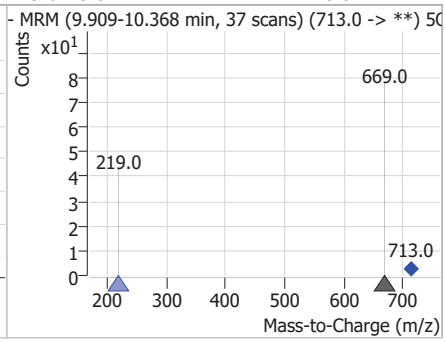




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.42	10.08	0.03	965	713.0 -> 219.0	5.8	2.7	8.0







Manual Integration Approval Summary

Sample Number: S5Q519-IC519
Lab FileID: 5Q31688.D
Injection Time: 04/11/25 11:32
Method: EPA 537.1 REV 2.0
Analyst approved: 04/14/25 10:08 (b) (6)
Supervisor approved: 04/14/25 12:24 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.87	Split peak
Perfluorononanoic acid	375-95-1		6.90	Split peak
MeFOSAA	2355-31-9		7.24	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Cal Report: 5Q31689.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/14/25 12:24

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31689.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/11/2025 11:48:48 AM
Sample Name : ic519-1
Vial : P1-A3
DA Method File : 537_041125_S5Q519.quantmethod
Batch Name : s5q519.batch.bin
Sample Information : OP7448,S5Q519,250,,,1,1,water

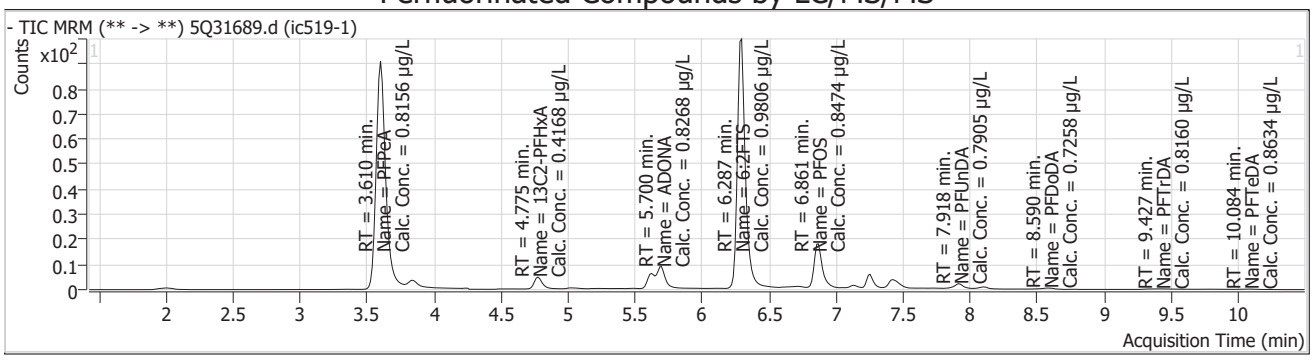
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.287	429.0 -> 409.0	133576	20.00	µg/L		0.000
13C2-PFOA	6.303	415.0 -> 370.0	384863	20.00	µg/L		0.013
13C3-PFPeA	3.607	266.0 -> 222.0	576849	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	85062	20.00	µg/L		0.000
d3-MeFOSAA	7.255	573.0 -> 419.0	24632	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.423	515.0 -> 470.0	5486	0.37	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 1.9%			
13C2-PFHxA	4.775	315.0 -> 270.0	10671	0.42	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 2.1%			
d5-EtFOSAA	7.391	589.0 -> 419.0	426	1.03	µg/L		0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 2.6%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	1353	0.85	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 2.1%			
Target Compounds							QValue
6:2FTS	6.287	427.0 -> 407.0	6556	0.98	µg/L		90
8:2FTS	7.472	527.0 -> 507.0	4775	0.92	µg/L		95
EtFOSAA	7.392	584.0 -> 419.0	277	0.71	µg/L	#m	9
MeFOSAA	7.256	570.0 -> 419.0	473	0.82	µg/L	m	85
PFBS	3.841	299.0 -> 80.0	10874	0.84	µg/L		99
PFDA	7.424	513.0 -> 469.0	9440	0.80	µg/L		94
PFDoDA	8.590	613.0 -> 569.0	4363	0.73	µg/L		98
PFHpA	5.614	363.0 -> 319.0	27655	0.84	µg/L		99
PFHxA	4.777	313.0 -> 269.0	15167	0.86	µg/L		99
PFHxS	5.648	399.0 -> 80.0	6043	0.85	µg/L	m	96
PFNA	6.886	463.0 -> 419.0	9222	0.81	µg/L	m	98
PFOA	6.303	413.0 -> 369.0	14615	0.82	µg/L		97
PFOS	6.861	499.0 -> 80.0	4263	0.85	µg/L	m	94
PFPeA	3.610	263.0 -> 219.0	28299	0.82	µg/L		100
PFTeDA	10.084	713.0 -> 669.0	2178	0.86	µg/L		99
PFTrDA	9.427	663.0 -> 619.0	2078	0.82	µg/L		97
PFUnDA	7.918	563.0 -> 519.0	8891	0.79	µg/L		98
ADONA	5.700	377.0 -> 251.0	34938	0.83	µg/L		99
9Cl-PF3ONS	7.133	531.0 -> 351.0	4612	0.95	µg/L		95
11Cl-PF3OUdS	8.100	631.0 -> 451.0	3311	0.80	µg/L		85
HFPO-DA	5.035	285.0 -> 169.0	1201	0.83	µg/L		100

 # = Qualifier out of range, m = manually integrated, + = Area summed

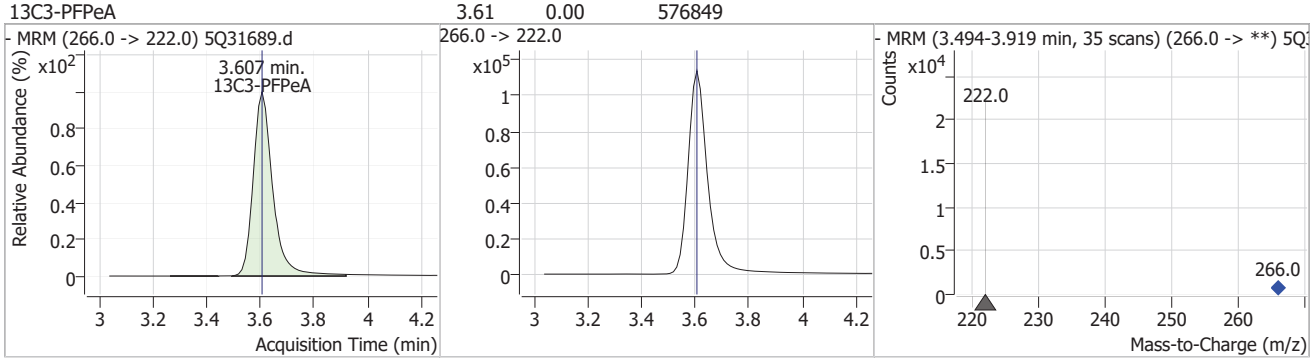
7.7.15

7

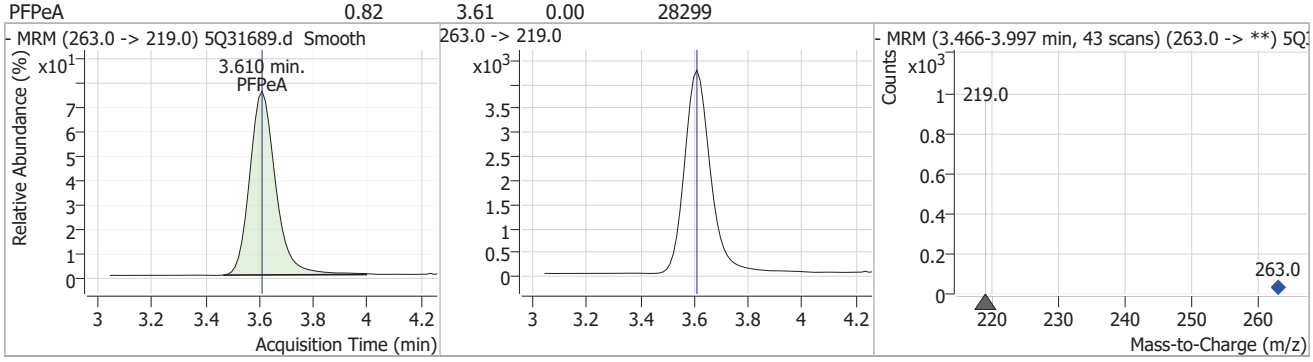
Perfluorinated Compounds by LC/MS/MS



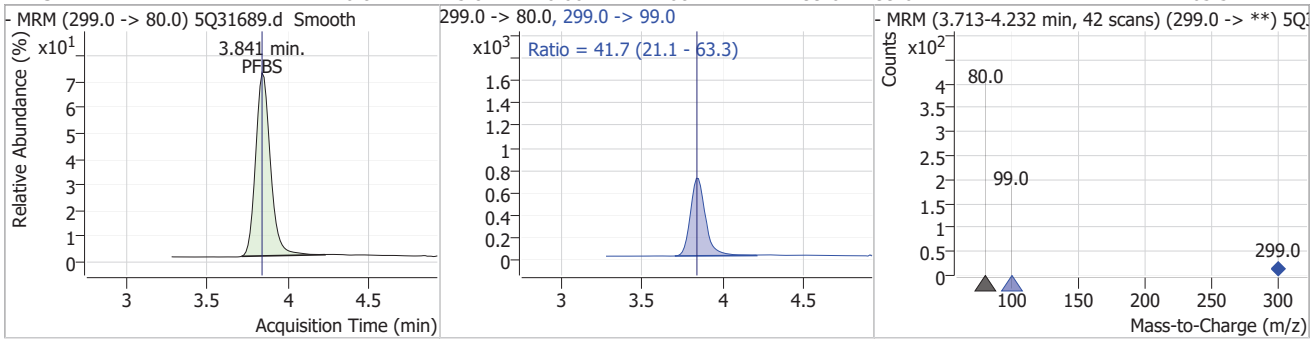
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.00	576849				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.82	3.61	0.00	28299				

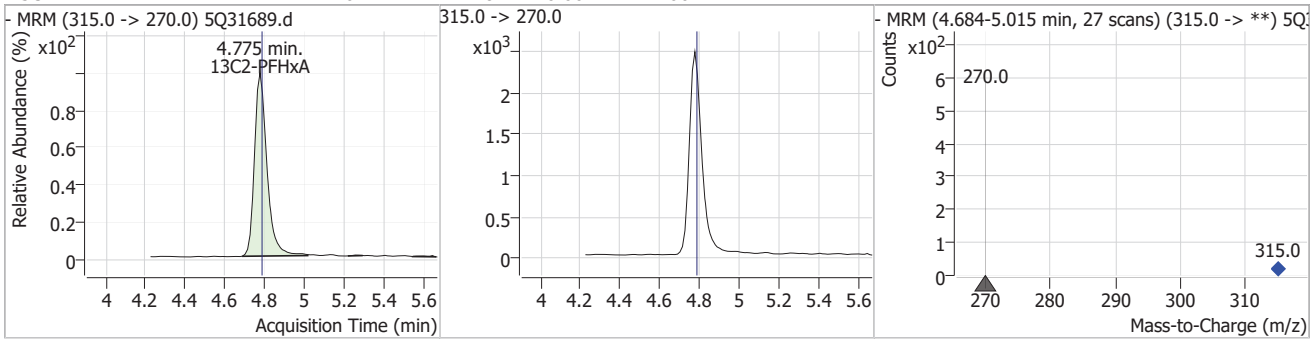


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.84	3.84	0.00	10874	299.0 -> 99.0	41.7	21.1	63.3

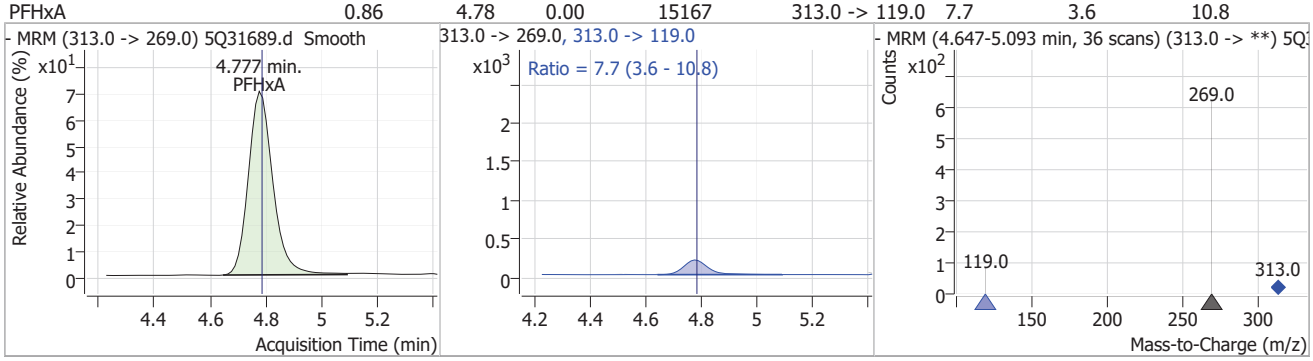


Perfluorinated Compounds by LC/MS/MS

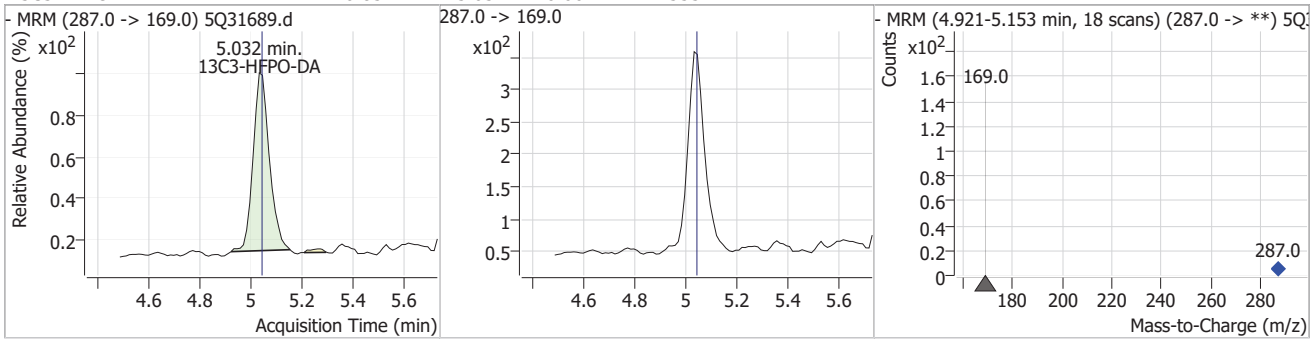
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.42	4.78	0.00	10671				



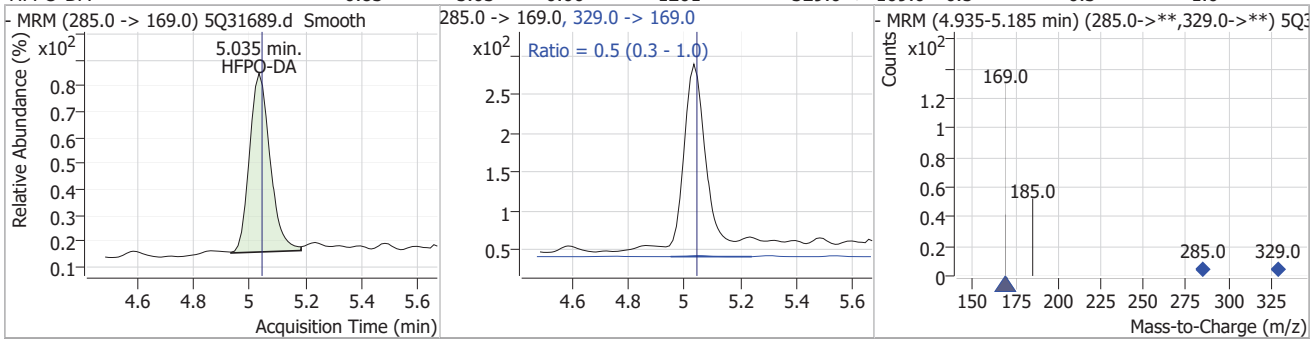
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.86	4.78	0.00	15167	313.0 -> 119.0	7.7	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.85	5.03	0.00	1353				

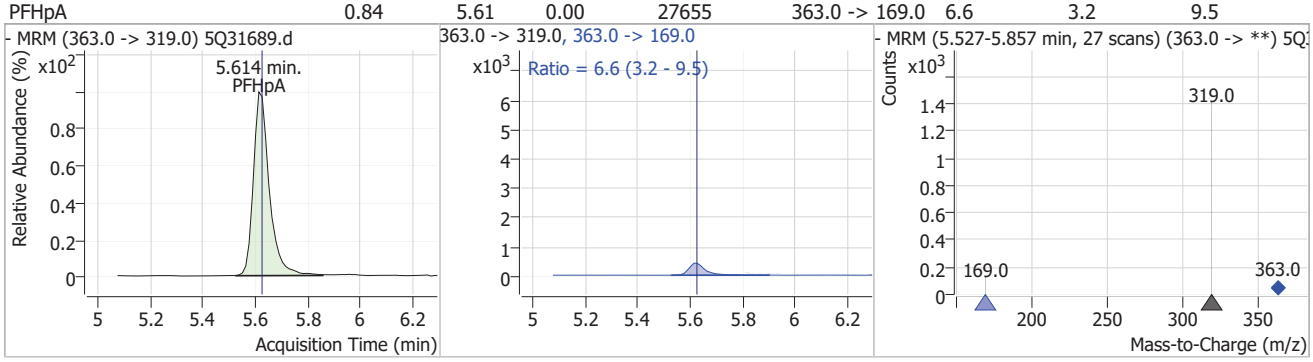


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.83	5.03	0.00	1201	329.0 -> 169.0	0.5	0.3	1.0

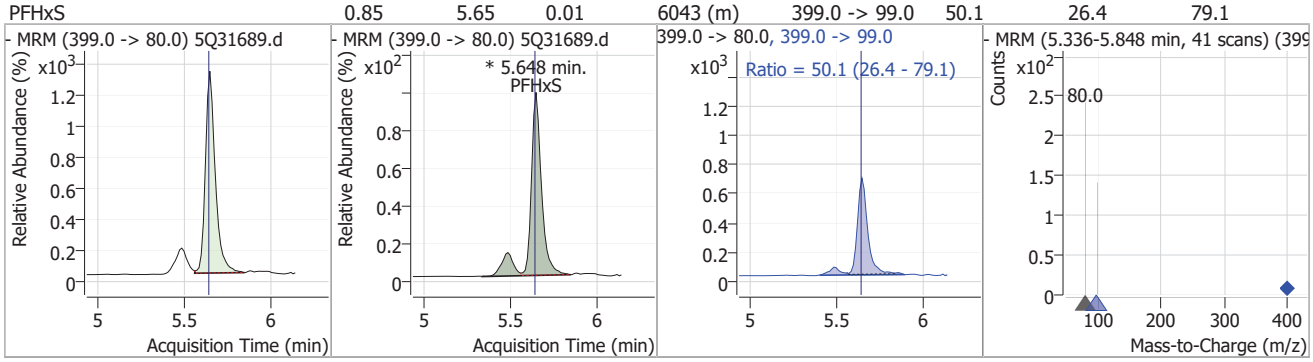


Perfluorinated Compounds by LC/MS/MS

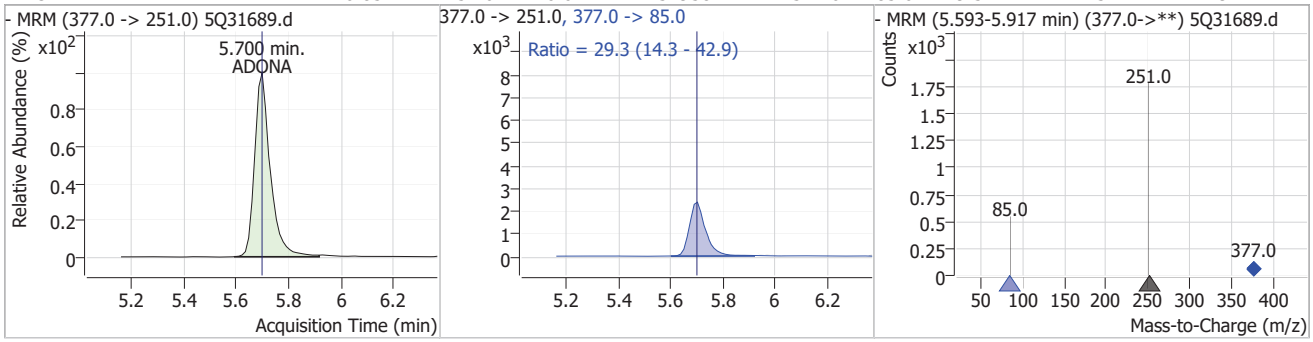
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.84	5.61	0.00	27655	363.0 -> 169.0	6.6	3.2	9.5



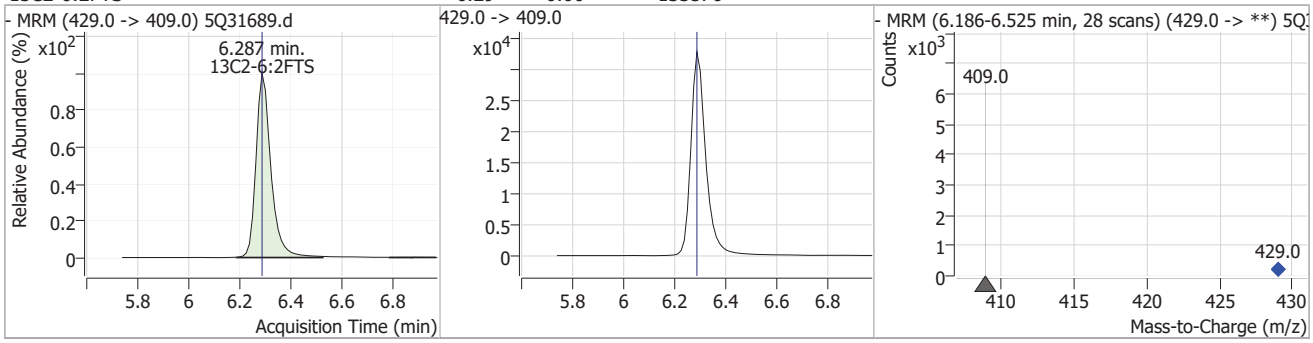
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.85	5.65	0.01	6043 (m)	399.0 -> 99.0	50.1	26.4	79.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.83	5.70	0.01	34938	377.0 -> 85.0	29.3	14.3	42.9

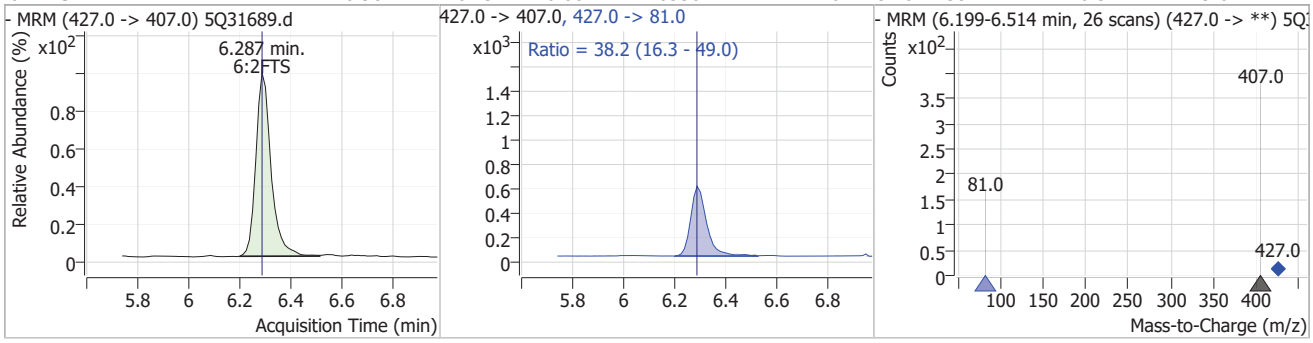


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	133576				

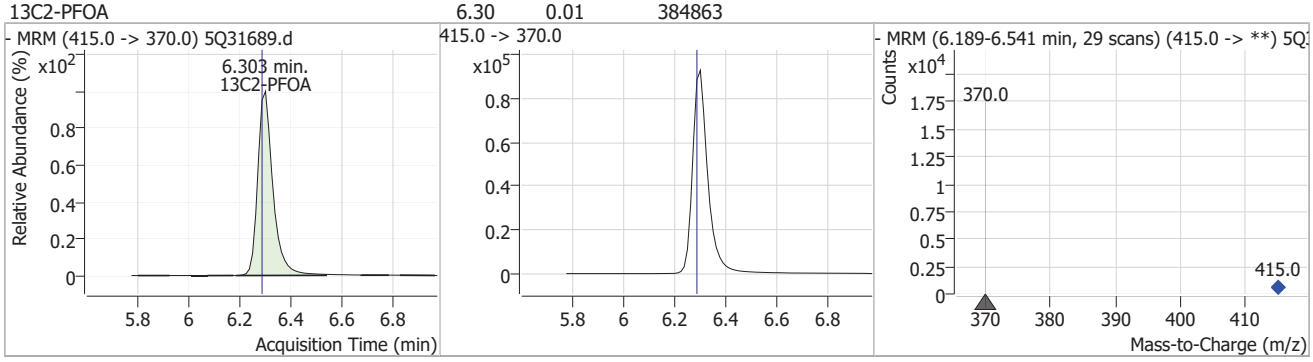


Perfluorinated Compounds by LC/MS/MS

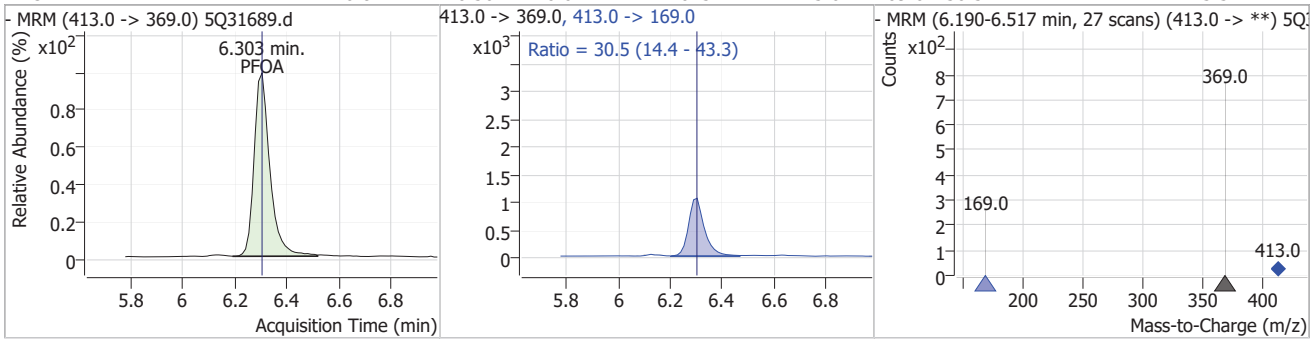
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.98	6.29	0.00	6556	427.0 -> 81.0	38.2	16.3	49.0



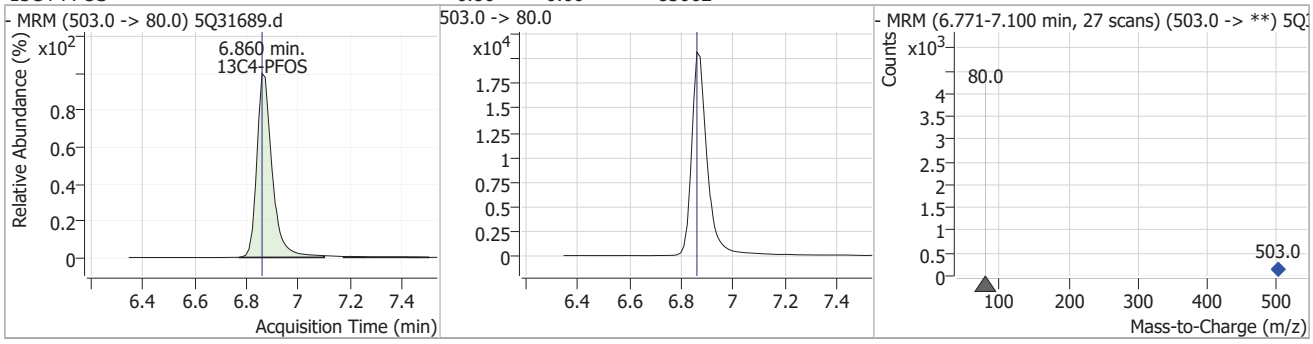
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.30	0.01	384863				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.82	6.30	0.01	14615	413.0 -> 169.0	30.5	14.4	43.3

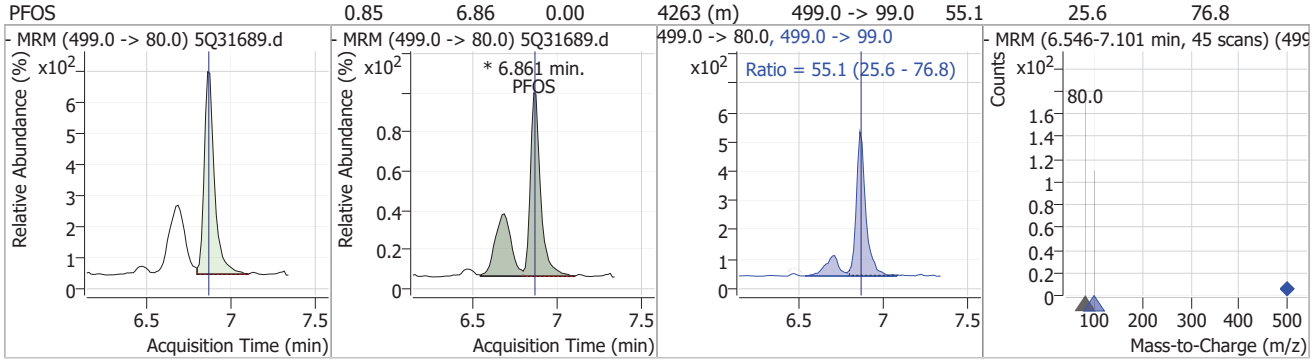


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	85062				

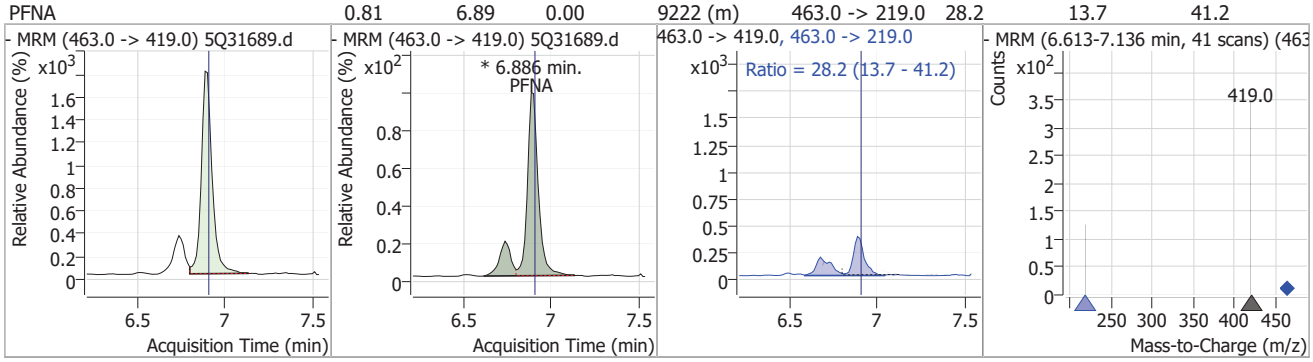


Perfluorinated Compounds by LC/MS/MS

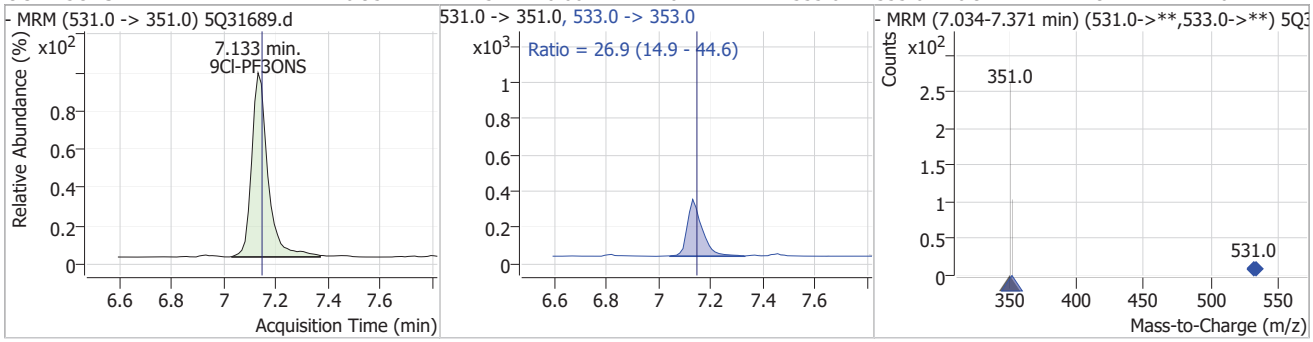
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.85	6.86	0.00	4263 (m)	499.0 -> 99.0	55.1	25.6	76.8



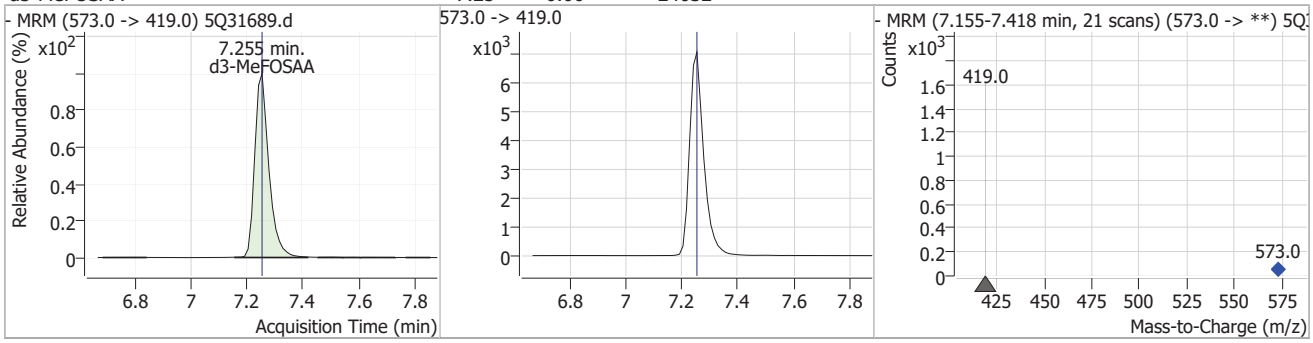
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.81	6.89	0.00	9222 (m)	463.0 -> 219.0	28.2	13.7	41.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.95	7.13	0.00	4612	533.0 -> 353.0	26.9	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	24632				



7.7.15

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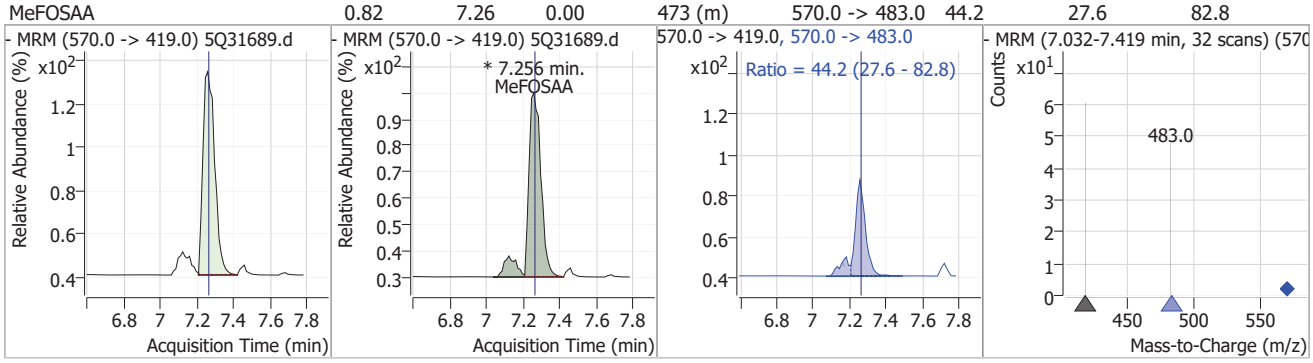
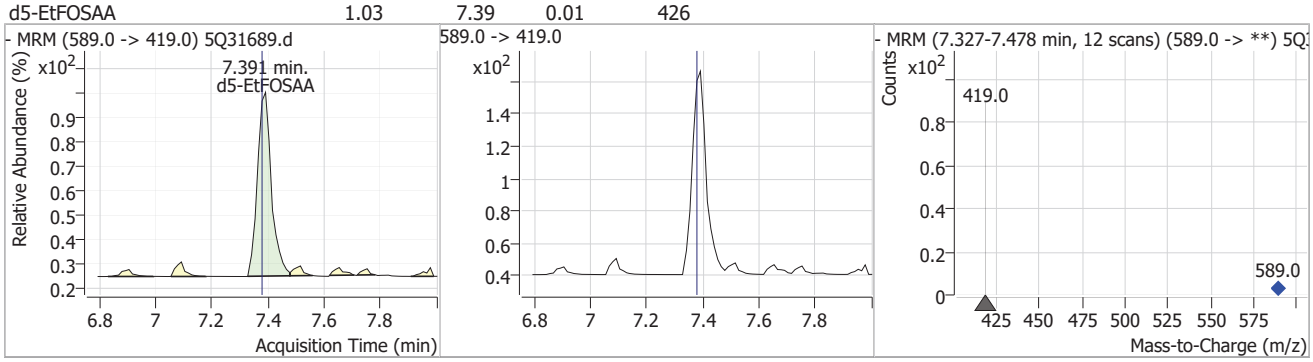
Perfluorinated Compounds by LC/MS/MS

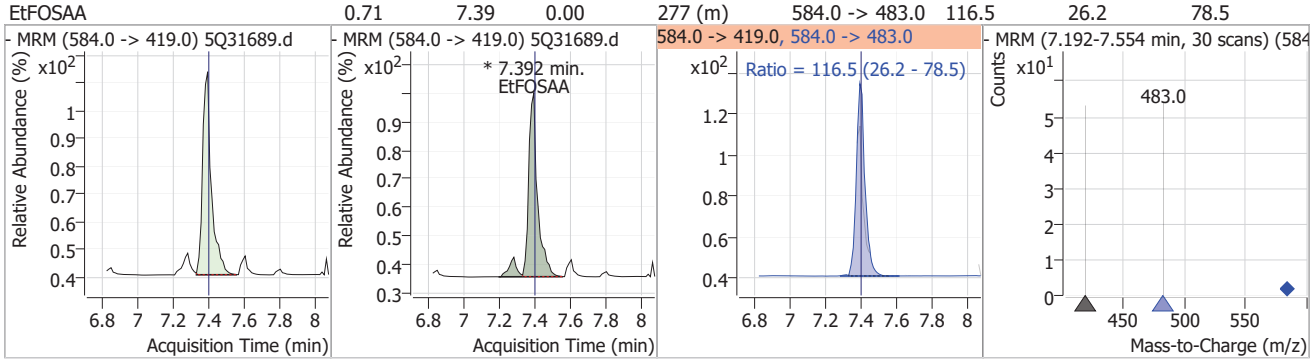
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.82	7.26	0.00	473 (m)	570.0 -> 483.0	44.2	27.6	82.8



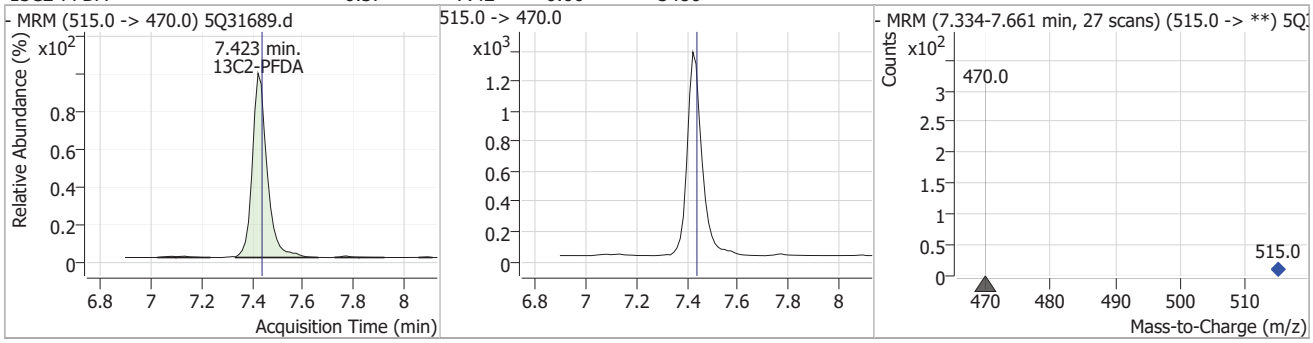
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	1.03	7.39	0.01	426				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.71	7.39	0.00	277 (m)	584.0 -> 483.0	116.5	26.2	78.5

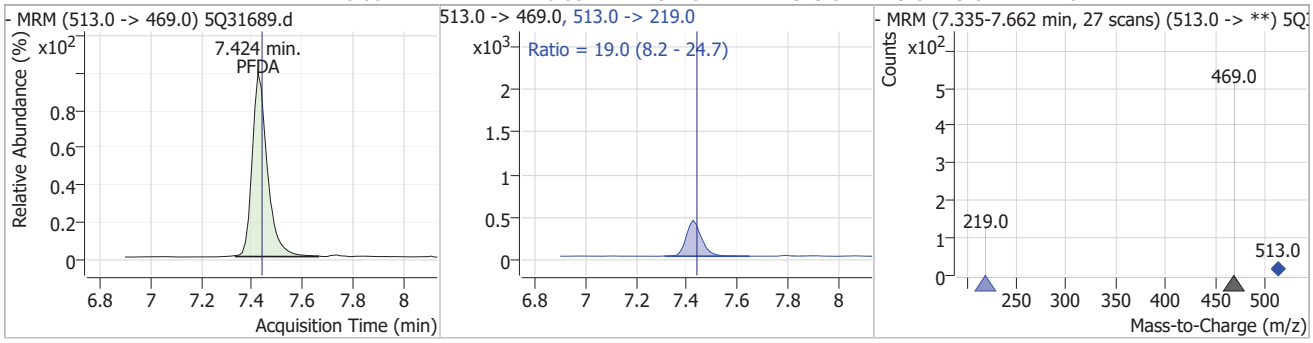


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.37	7.42	0.00	5486				

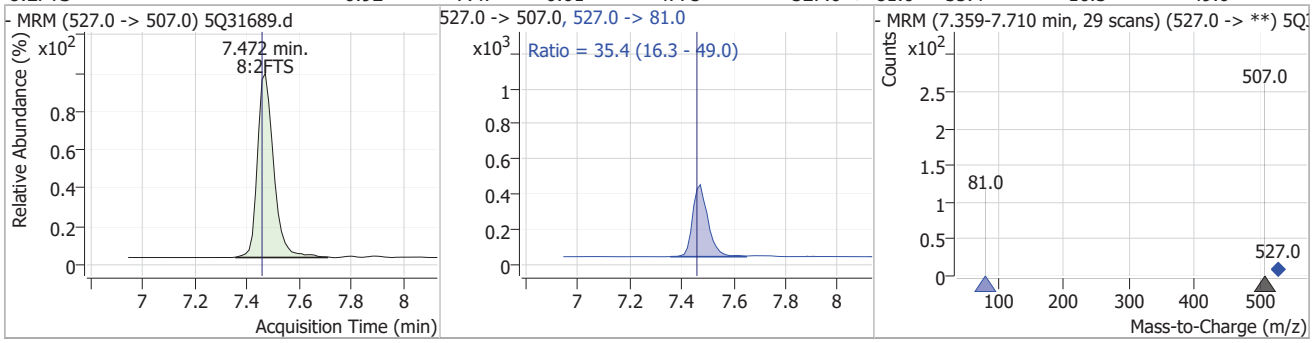


Perfluorinated Compounds by LC/MS/MS

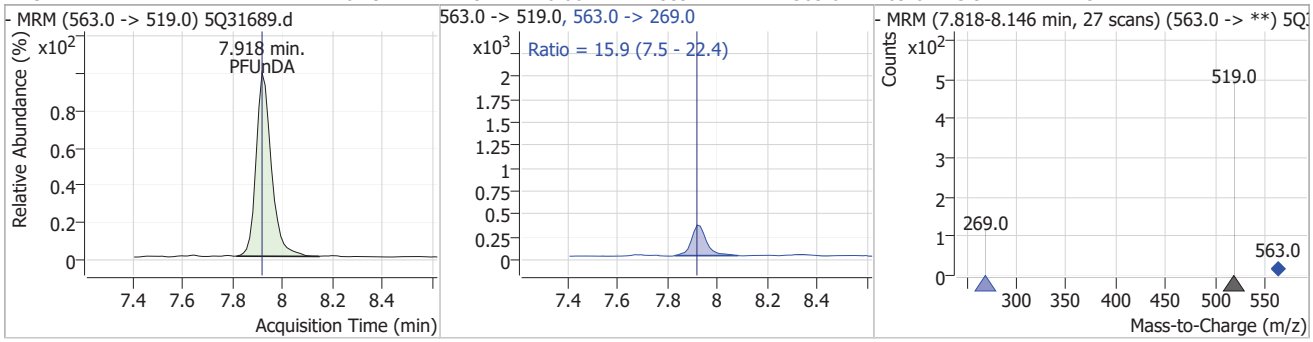
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.80	7.42	0.00	9440	513.0 -> 219.0	19.0	8.2	24.7



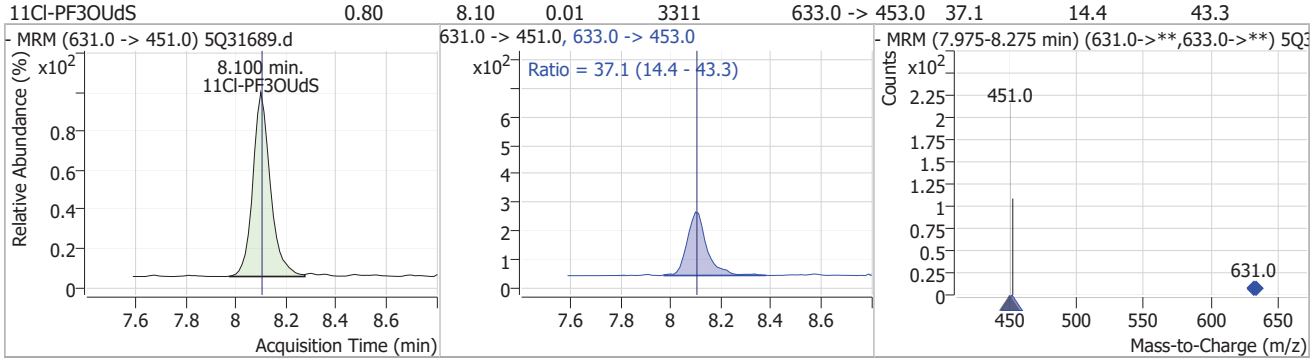
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.92	7.47	0.01	4775	527.0 -> 81.0	35.4	16.3	49.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.79	7.92	0.00	8891	563.0 -> 269.0	15.9	7.5	22.4

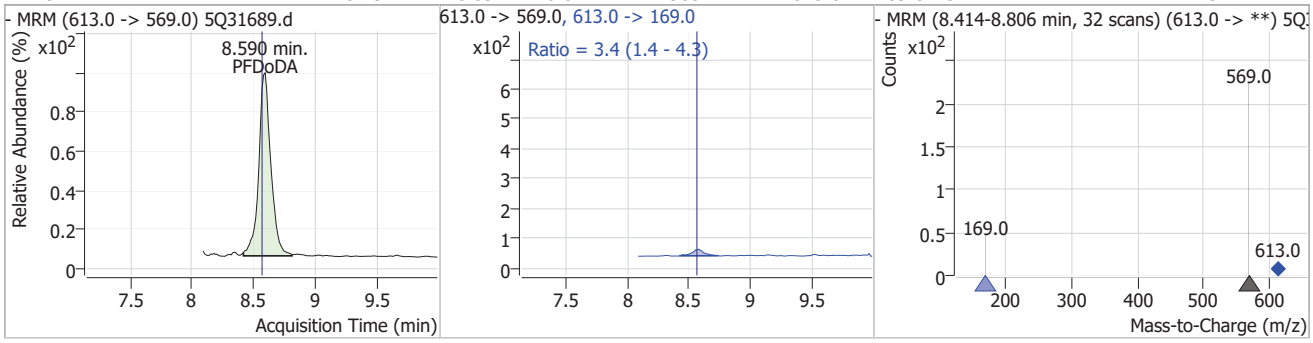


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.80	8.10	0.01	3311	633.0 -> 453.0	37.1	14.4	43.3

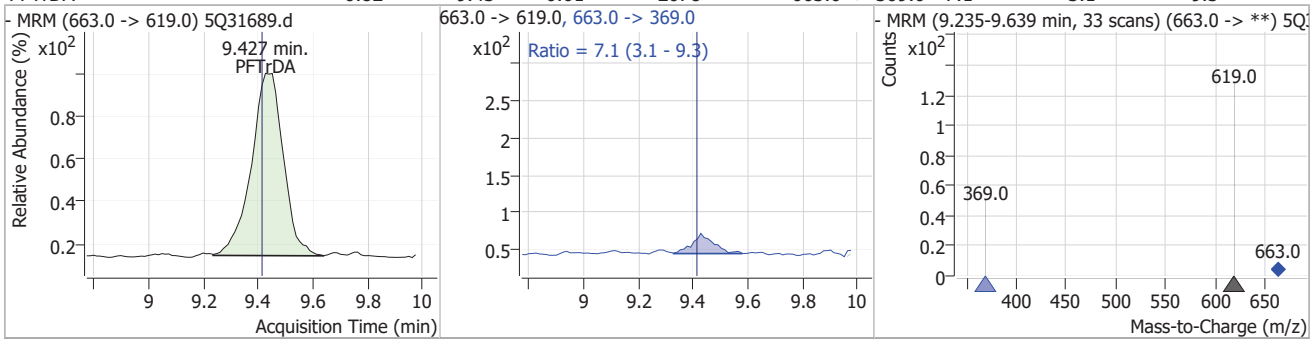


Perfluorinated Compounds by LC/MS/MS

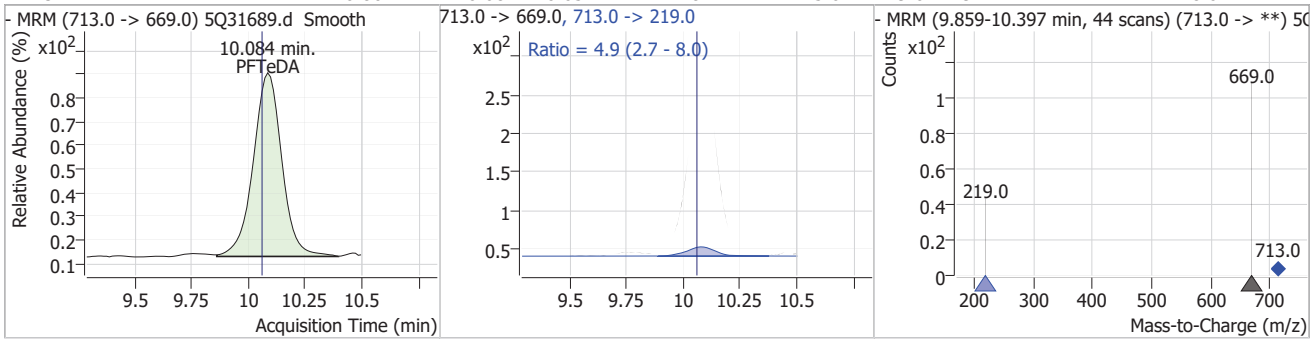
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.73	8.59	0.02	4363	613.0 -> 169.0	3.4	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.82	9.43	0.01	2078	663.0 -> 369.0	7.1	3.1	9.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.86	10.08	0.03	2178	713.0 -> 219.0	4.9	2.7	8.0



Manual Integration Approval Summary

Sample Number: S5Q519-IC519
Lab FileID: 5Q31689.D
Injection Time: 04/11/25 11:48
Method: EPA 537.1 REV 2.0
Analyst approved: 04/14/25 10:08 (b) (6)
Supervisor approved: 04/14/25 12:24 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/14/25 12:24

Perfluorinated Compounds by LC/MS/MS

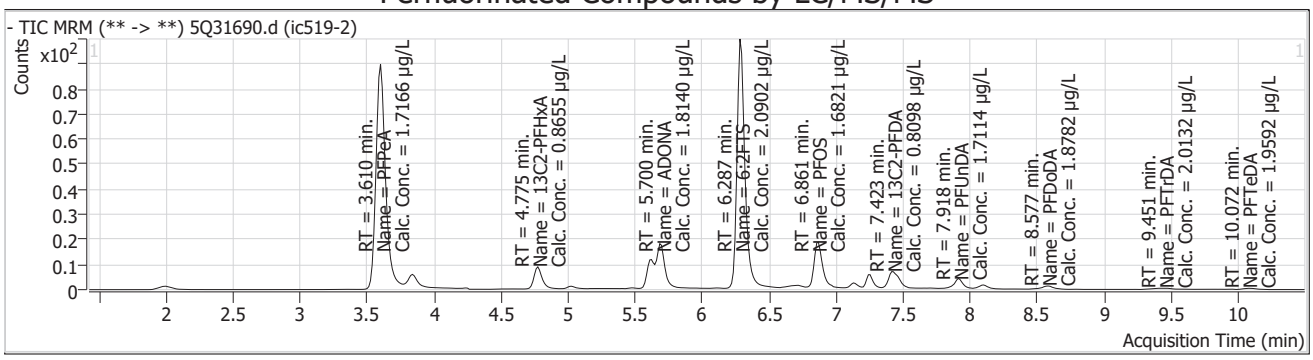
Data File : 5Q31690.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/11/2025 12:04:50 PM
Sample Name : ic519-2
Vial : P1-A4
DA Method File : 537_041125_S5Q519.quantmethod
Batch Name : s5q519.batch.bin
Sample Information : OP7448,S5Q519,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.287	429.0 -> 409.0	135142	20.00	µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	378403	20.00	µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	575486	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	85605	20.00	µg/L		0.000
d3-MeFOSAA	7.255	573.0 -> 419.0	25145	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.423	515.0 -> 470.0	11754	0.81	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 4.0%			
13C2-PFHxA	4.775	315.0 -> 270.0	21802	0.87	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 4.3%			
d5-EtFOSAA	7.378	589.0 -> 419.0	709	1.68	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 4.2%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	2857	1.82	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 4.6%			
Target Compounds							QValue
6:2FTS	6.287	427.0 -> 407.0	14137	2.09	µg/L		100
8:2FTS	7.472	527.0 -> 507.0	11074	2.11	µg/L		90
EtFOSAA	7.380	584.0 -> 419.0	760	1.90	µg/L	m	98
MeFOSAA	7.244	570.0 -> 419.0	995	1.70	µg/L	m	86
PFBS	3.841	299.0 -> 80.0	22653	1.75	µg/L		100
PFDA	7.424	513.0 -> 469.0	19660	1.69	µg/L		97
PFDoDA	8.577	613.0 -> 569.0	11420	1.88	µg/L		100
PFHpA	5.614	363.0 -> 319.0	56721	1.76	µg/L		99
PFHxA	4.777	313.0 -> 269.0	29308	1.68	µg/L		98
PFHxS	5.648	399.0 -> 80.0	12433	1.74	µg/L	m	98
PFNA	6.886	463.0 -> 419.0	19767	1.76	µg/L	m	99
PFOA	6.290	413.0 -> 369.0	30166	1.71	µg/L		98
PFOS	6.861	499.0 -> 80.0	8527	1.68	µg/L	m	98
PFPeA	3.610	263.0 -> 219.0	59457	1.72	µg/L		100
PFTeDA	10.072	713.0 -> 669.0	5002	1.96	µg/L		99
PFTrDA	9.451	663.0 -> 619.0	5185	2.01	µg/L		99
PFUnDA	7.918	563.0 -> 519.0	19405	1.71	µg/L		100
ADONA	5.700	377.0 -> 251.0	75527	1.81	µg/L		98
9Cl-PF3ONS	7.133	531.0 -> 351.0	8838	1.84	µg/L		97
11Cl-PF3OUdS	8.100	631.0 -> 451.0	7975	1.95	µg/L		99
HFPO-DA	5.035	285.0 -> 169.0	2816	1.97	µg/L		100

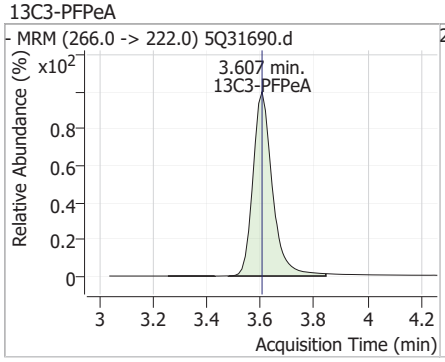
 # = Qualifier out of range, m = manually integrated, + = Area summed

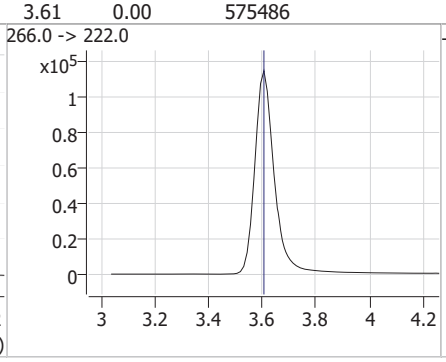
7.7.16
7

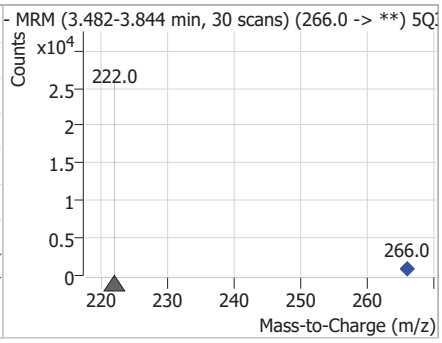
Perfluorinated Compounds by LC/MS/MS



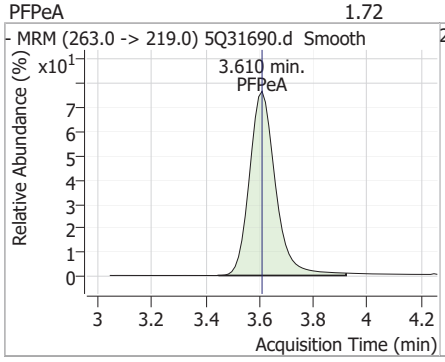
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.00	575486				

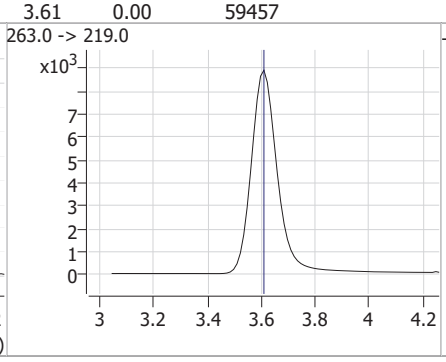


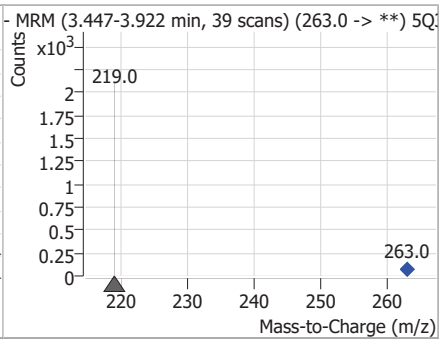




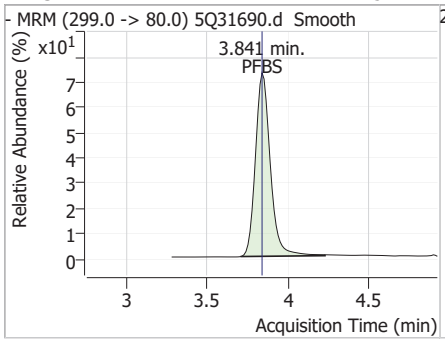
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.72	3.61	0.00	59457				

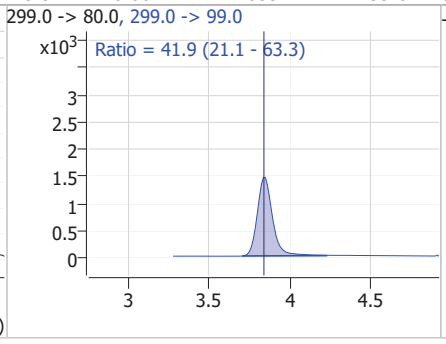


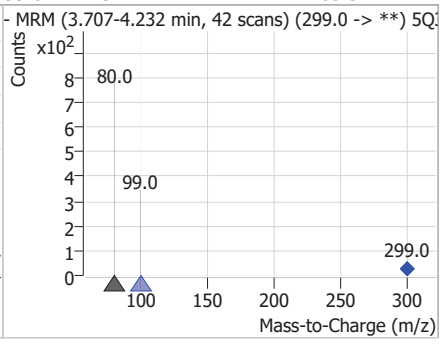




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.75	3.84	0.00	22653	299.0 -> 99.0	41.9	21.1	63.3





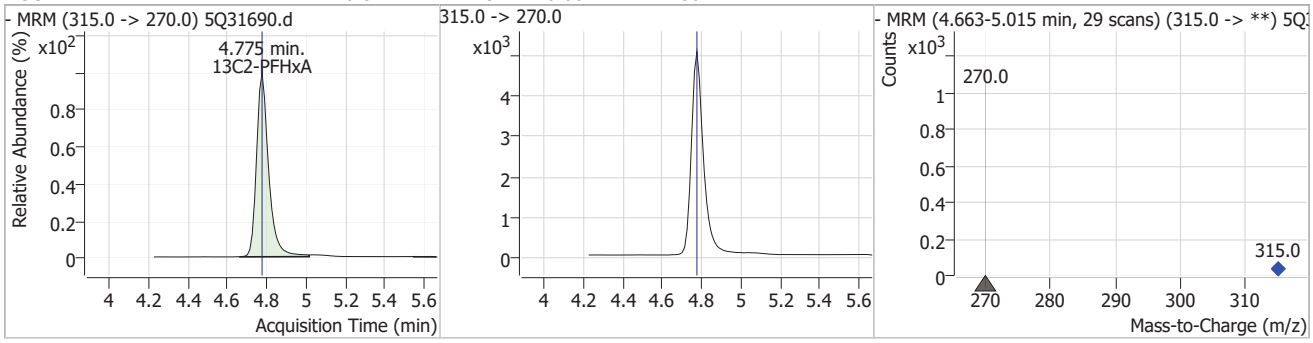


7.7.16

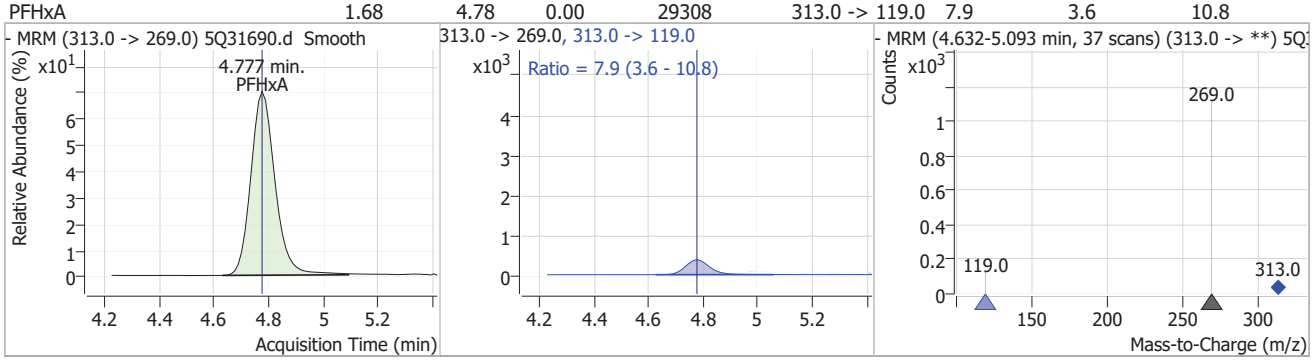
7

Perfluorinated Compounds by LC/MS/MS

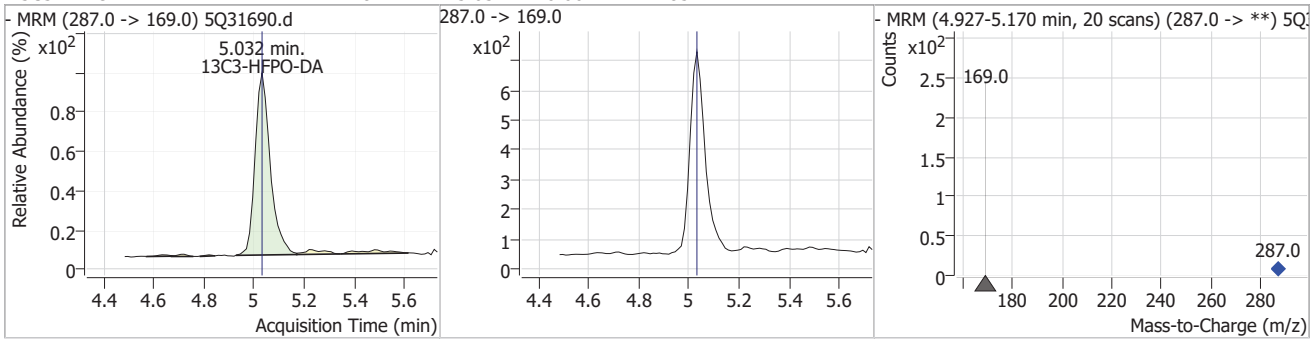
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.87	4.78	0.00	21802				



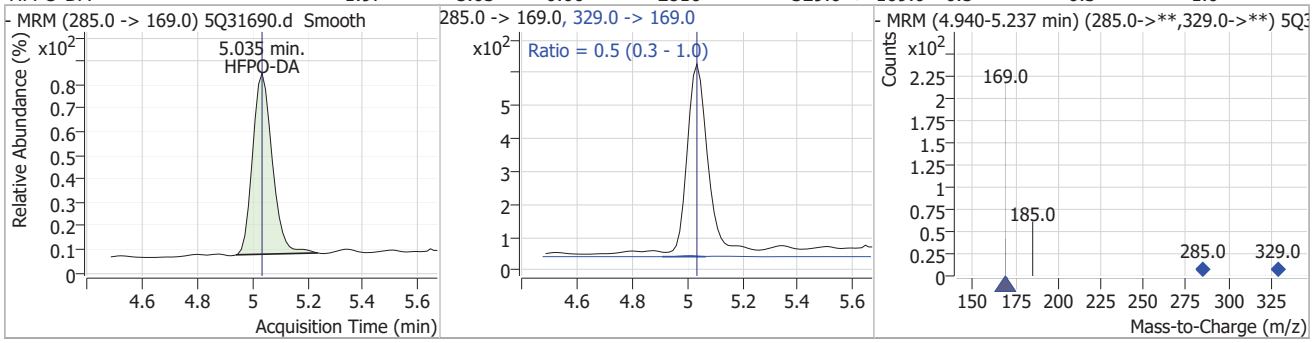
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.68	4.78	0.00	29308	313.0 -> 119.0	7.9	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	1.82	5.03	0.00	2857				

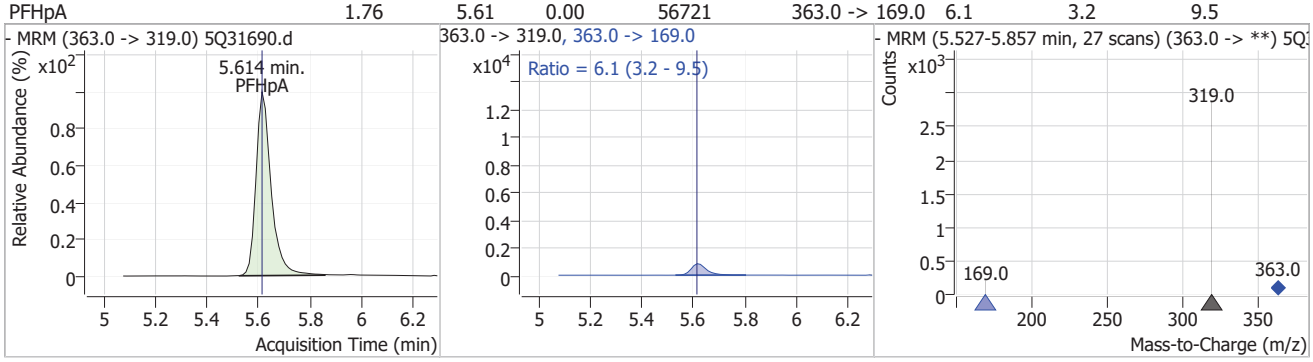


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	1.97	5.03	0.00	2816	329.0 -> 169.0	0.5	0.3	1.0

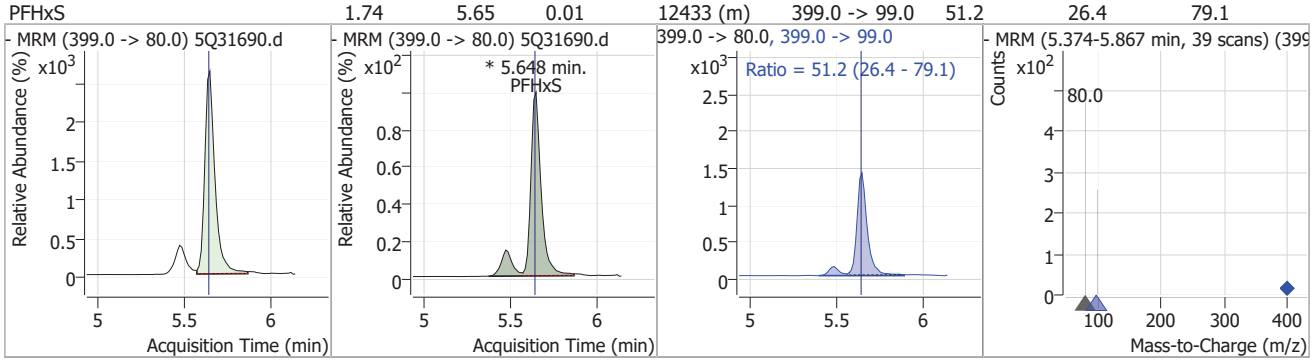


Perfluorinated Compounds by LC/MS/MS

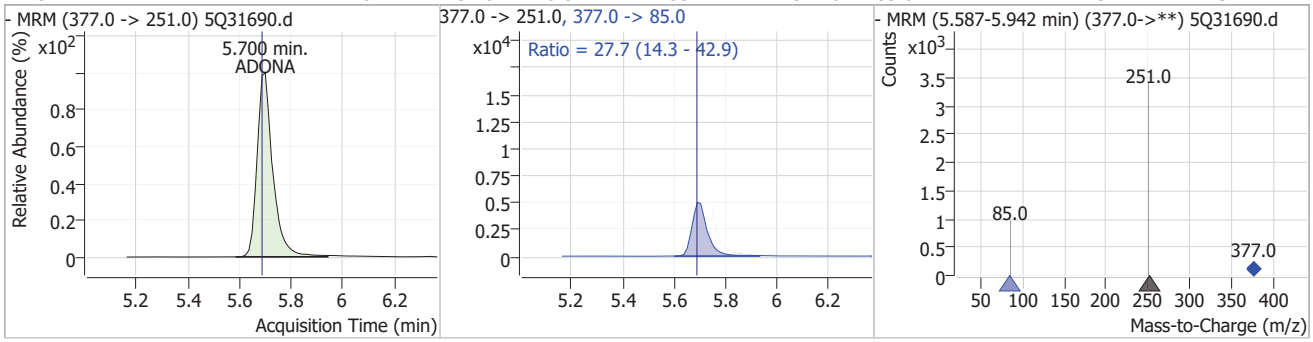
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.76	5.61	0.00	56721	363.0 -> 169.0	6.1	3.2	9.5



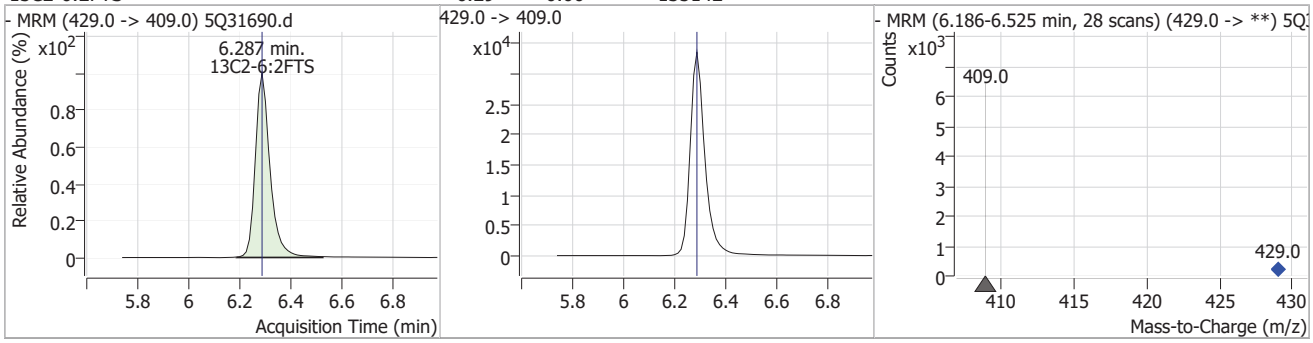
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.74	5.65	0.01	12433 (m)	399.0 -> 99.0	51.2	26.4	79.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	1.81	5.70	0.01	75527	377.0 -> 85.0	27.7	14.3	42.9

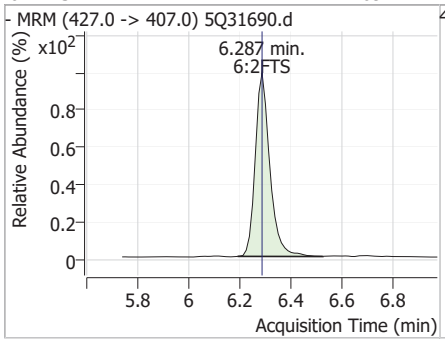


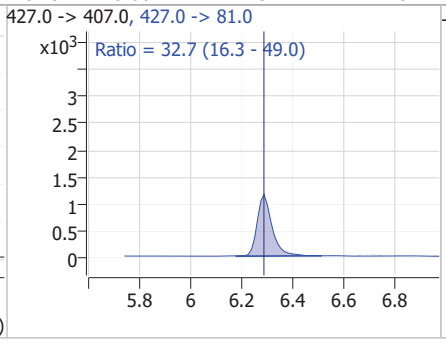
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	135142				

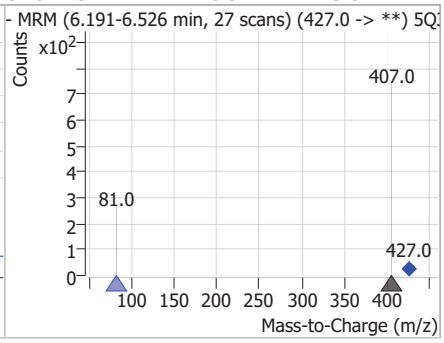


Perfluorinated Compounds by LC/MS/MS

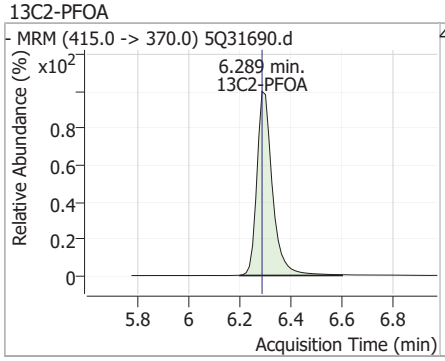
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	2.09	6.29	0.00	14137	427.0 -> 81.0	32.7	16.3	49.0

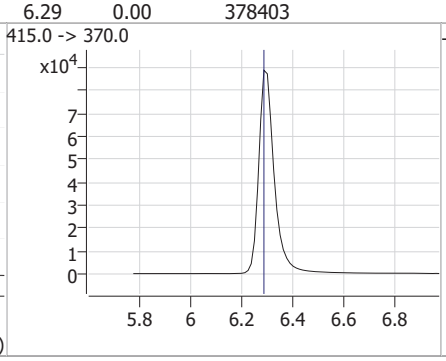


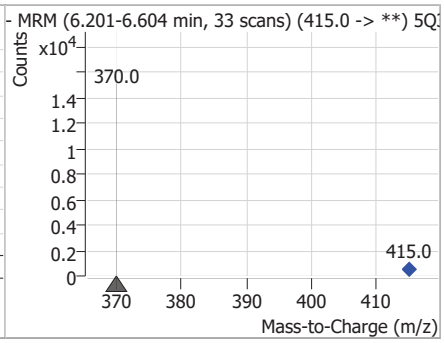




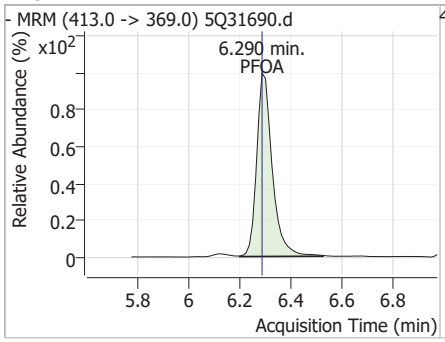
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	378403				

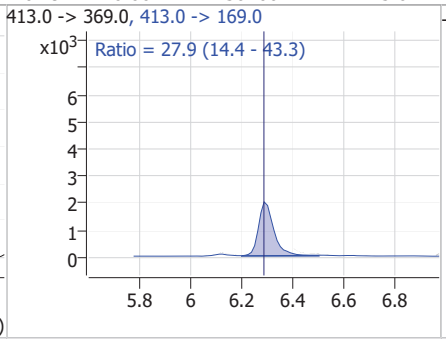


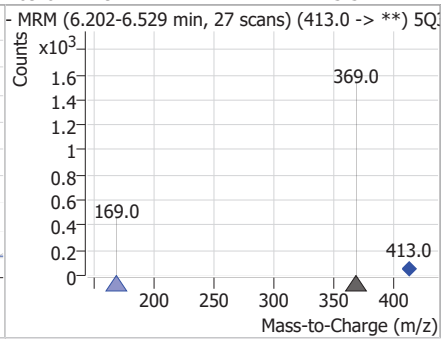




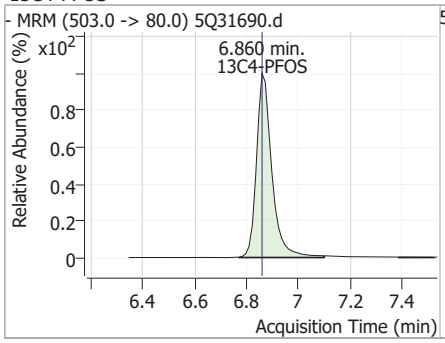
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.71	6.29	0.00	30166	413.0 -> 169.0	27.9	14.4	43.3

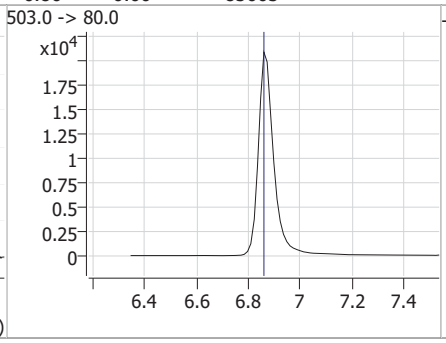


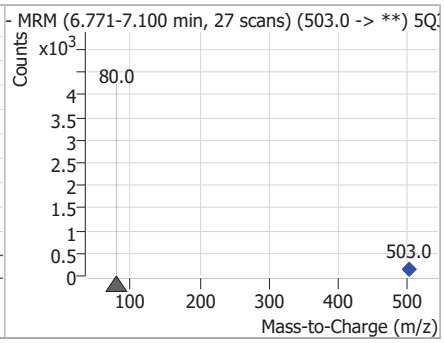




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	85605				







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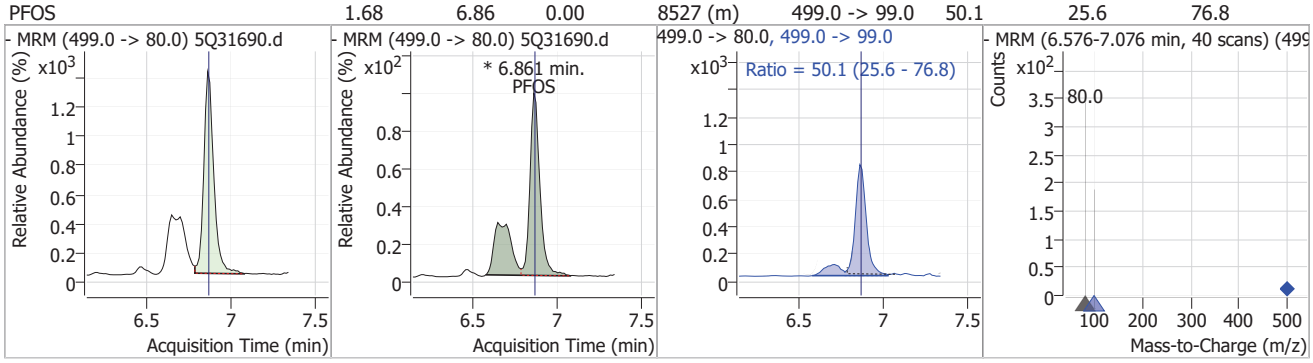
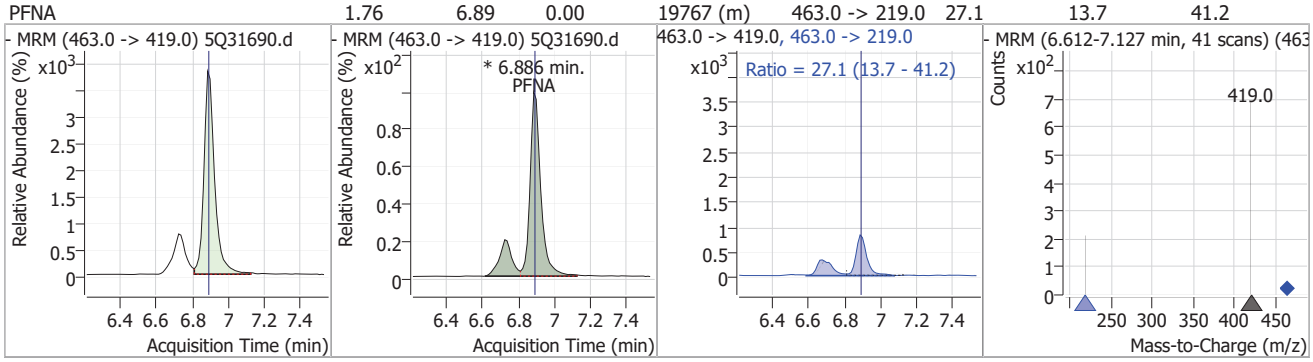
Perfluorinated Compounds by LC/MS/MS

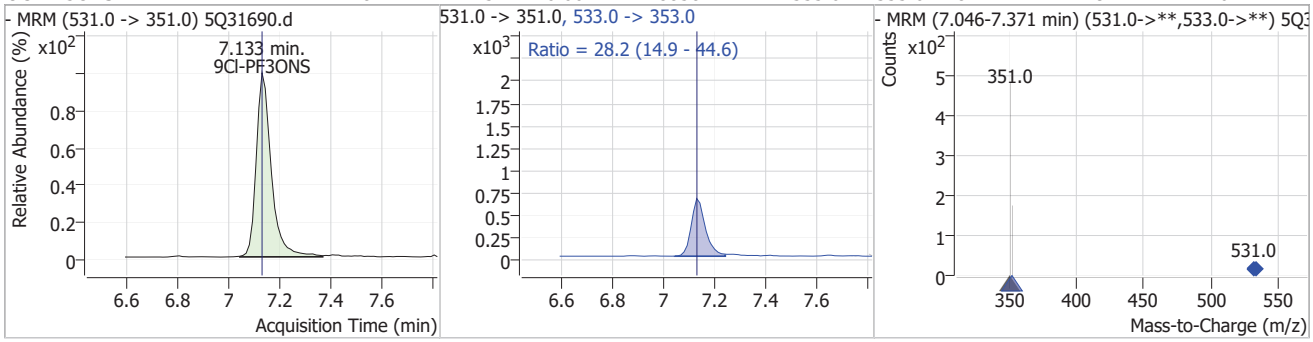
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.68	6.86	0.00	8527 (m)	499.0 -> 99.0	50.1	25.6	76.8



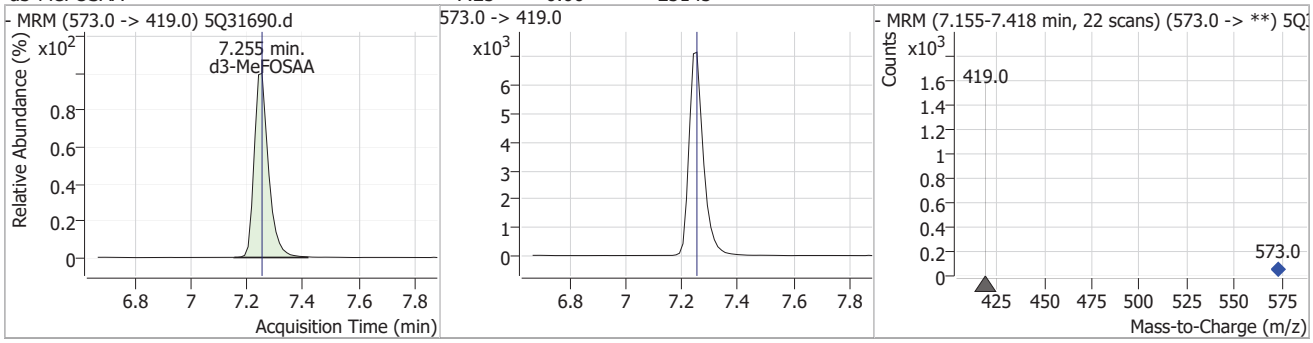
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.76	6.89	0.00	19767 (m)	463.0 -> 219.0	27.1	13.7	41.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	1.84	7.13	0.00	8838	533.0 -> 353.0	28.2	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	25145				



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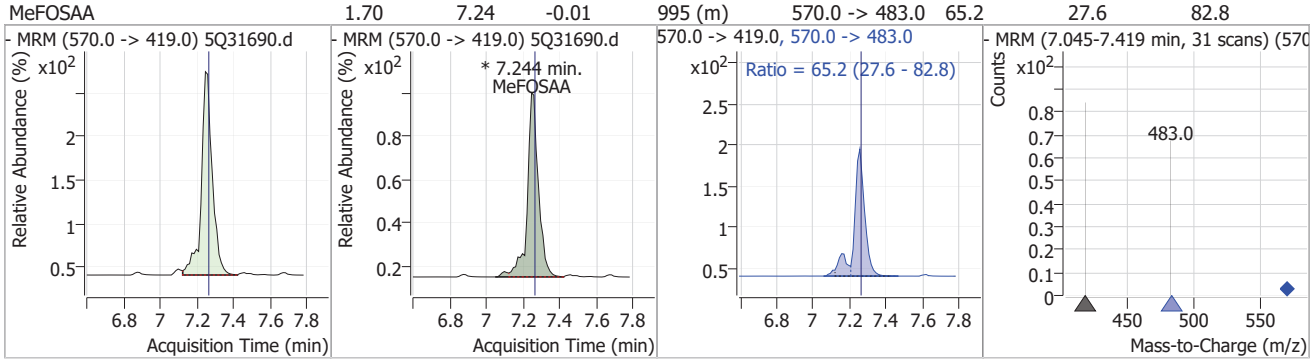
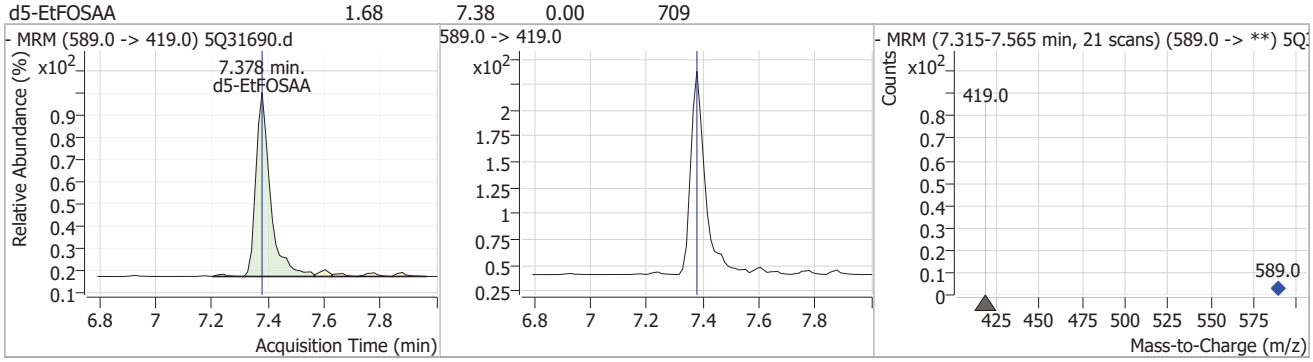
Perfluorinated Compounds by LC/MS/MS

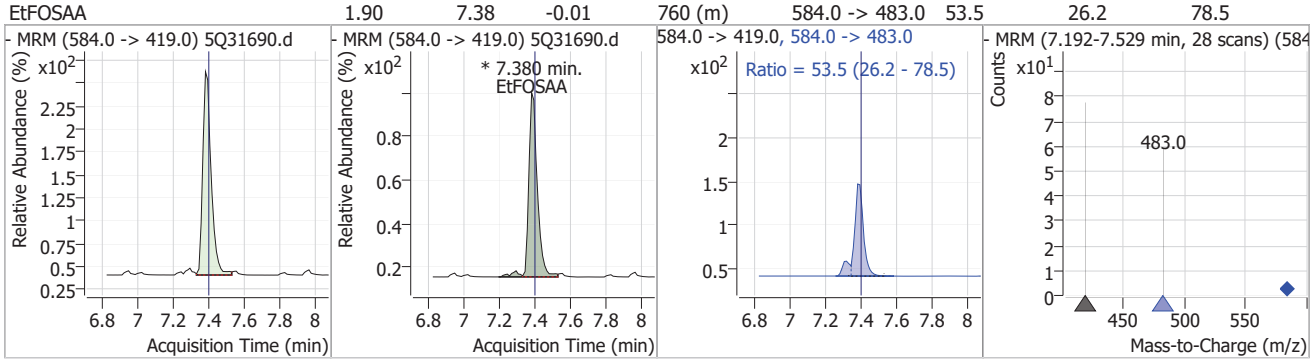
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	1.70	7.24	-0.01	995 (m)	570.0 -> 483.0	65.2	27.6	82.8



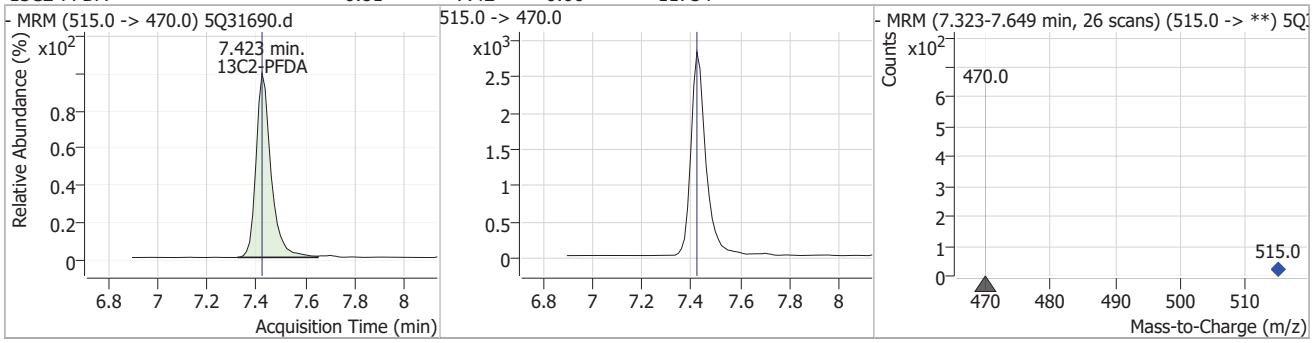
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	1.68	7.38	0.00	709				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.90	7.38	-0.01	760 (m)	584.0 -> 483.0	53.5	26.2	78.5

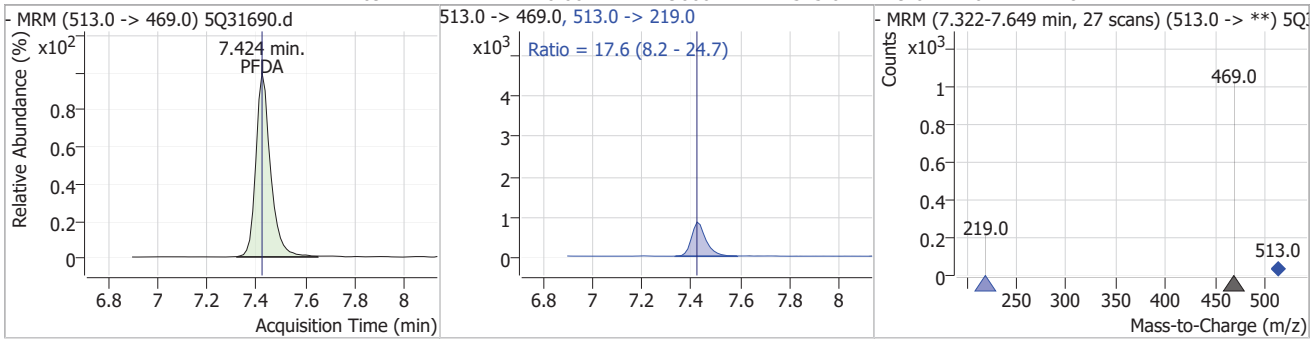


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.81	7.42	0.00	11754				

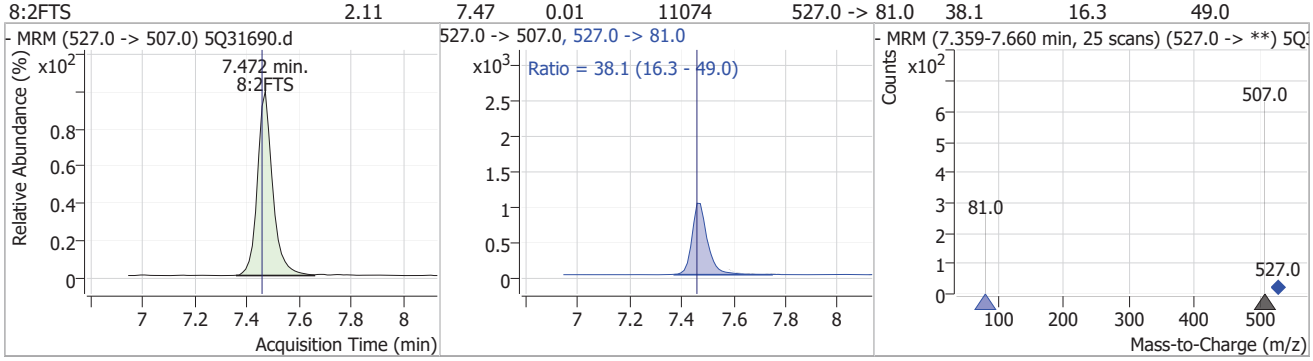


Perfluorinated Compounds by LC/MS/MS

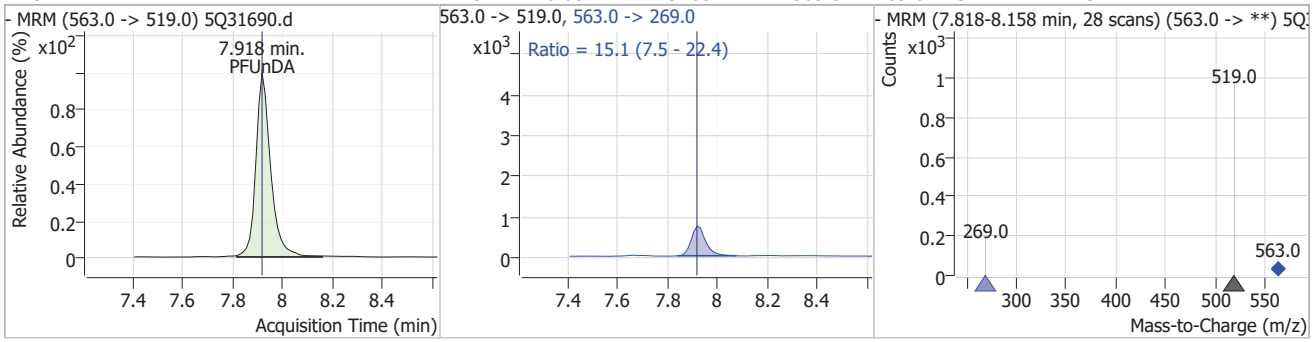
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.69	7.42	0.00	19660	513.0 -> 219.0	17.6	8.2	24.7



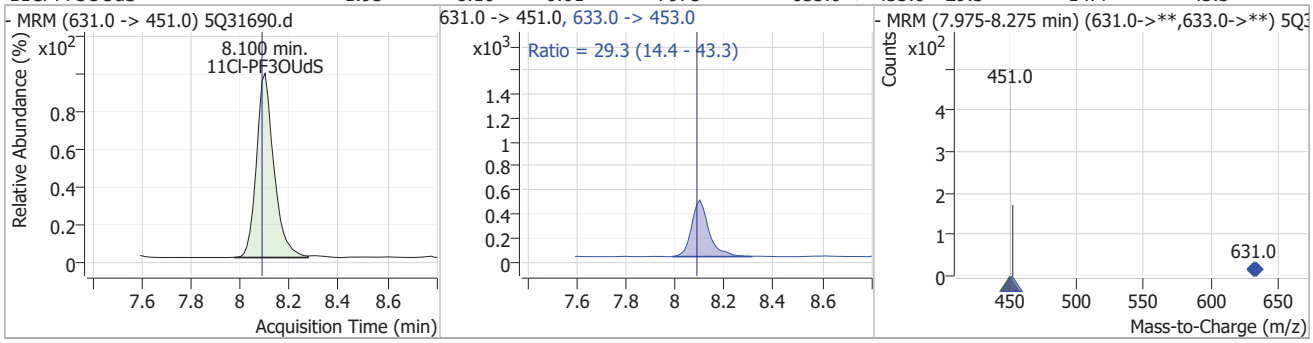
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	2.11	7.47	0.01	11074	527.0 -> 81.0	38.1	16.3	49.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.71	7.92	0.00	19405	563.0 -> 269.0	15.1	7.5	22.4

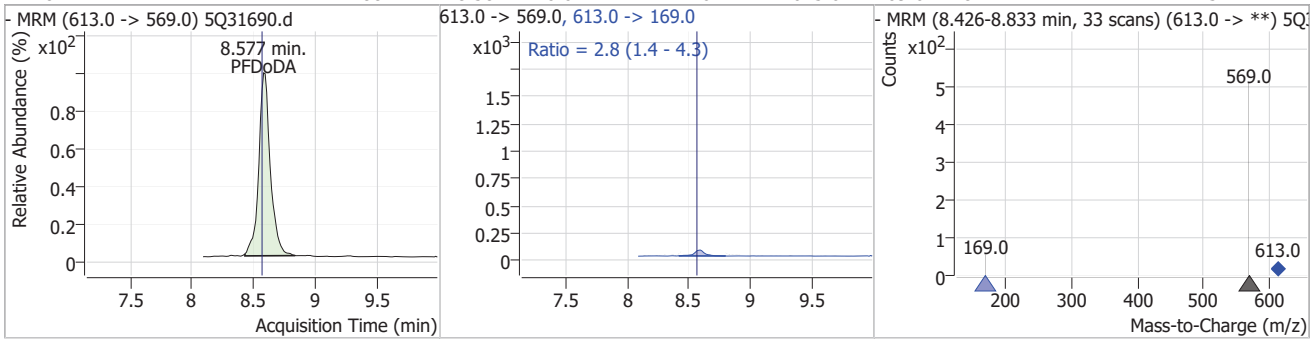


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	1.95	8.10	0.01	7975	633.0 -> 453.0	29.3	14.4	43.3

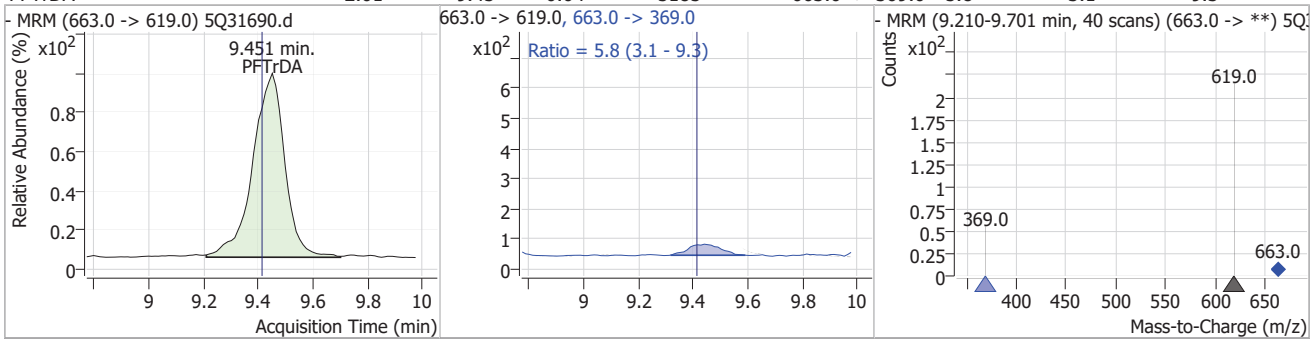


Perfluorinated Compounds by LC/MS/MS

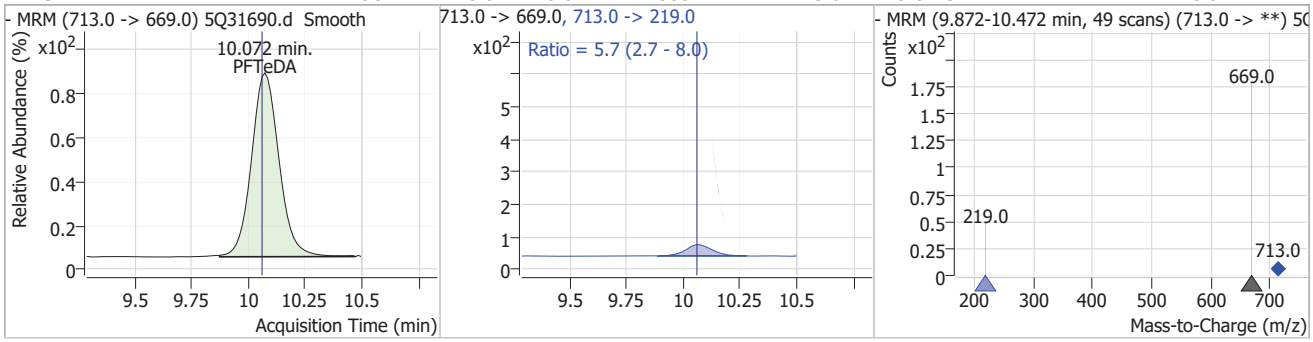
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	1.88	8.58	0.01	11420	613.0 -> 169.0	2.8	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	2.01	9.45	0.04	5185	663.0 -> 369.0	5.8	3.1	9.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.96	10.07	0.01	5002	713.0 -> 219.0	5.7	2.7	8.0



Manual Integration Approval Summary

Sample Number: S5Q519-IC519
Lab FileID: 5Q31690.D
Injection Time: 04/11/25 12:04
Method: EPA 537.1 REV 2.0
Analyst approved: 04/14/25 10:08 (b) (6)
Supervisor approved: 04/14/25 12:24 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.24	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/14/25 12:24

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31691.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/11/2025 12:20:51 PM
Sample Name : ic519-5
Vial : P1-A5
DA Method File : 537_041125_S5Q519.quantmethod
Batch Name : s5q519.batch.bin
Sample Information : OP7448,S5Q519,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.287	429.0 -> 409.0	144687	20.00	µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	397493	20.00	µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	590572	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	88755	20.00	µg/L		0.000
d3-MeFOSAA	7.255	573.0 -> 419.0	25732	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.423	515.0 -> 470.0	30334	1.99	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 9.9%			
13C2-PFHxA	4.775	315.0 -> 270.0	64468	2.43	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 12.2%			
d5-EtFOSAA	7.378	589.0 -> 419.0	2127	4.91	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 12.3%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	8088	4.90	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 12.2%			
Target Compounds							QValue
6:2FTS	6.287	427.0 -> 407.0	37902	5.23	µg/L		98
8:2FTS	7.459	527.0 -> 507.0	28820	5.13	µg/L		97
EtFOSAA	7.380	584.0 -> 419.0	2041	4.99	µg/L	m	95
MeFOSAA	7.256	570.0 -> 419.0	2529	4.22	µg/L	m	92
PFBS	3.841	299.0 -> 80.0	62766	4.67	µg/L		100
PFDA	7.424	513.0 -> 469.0	58495	4.76	µg/L		98
PFDoDA	8.577	613.0 -> 569.0	26872	4.22	µg/L		98
PFHpA	5.614	363.0 -> 319.0	164011	4.82	µg/L		100
PFHxA	4.777	313.0 -> 269.0	86588	4.73	µg/L		100
PFHxS	5.648	399.0 -> 80.0	34554	4.64	µg/L	m	99
PFNA	6.886	463.0 -> 419.0	55534	4.68	µg/L	m	98
PFOA	6.290	413.0 -> 369.0	85391	4.60	µg/L		98
PFOS	6.861	499.0 -> 80.0	24886	4.71	µg/L	m	98
PFPeA	3.610	263.0 -> 219.0	160731	4.51	µg/L		100
PFTeDA	10.072	713.0 -> 669.0	12210	4.55	µg/L		100
PFTrDA	9.427	663.0 -> 619.0	12102	4.49	µg/L		97
PFUnDA	7.918	563.0 -> 519.0	51741	4.38	µg/L		99
ADONA	5.688	377.0 -> 251.0	214338	4.87	µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	24984	4.91	µg/L		99
11Cl-PF3OUdS	8.100	631.0 -> 451.0	20244	4.65	µg/L		98
HFPO-DA	5.035	285.0 -> 169.0	6966	4.61	µg/L		100

 # = Qualifier out of range, m = manually integrated, + = Area summed

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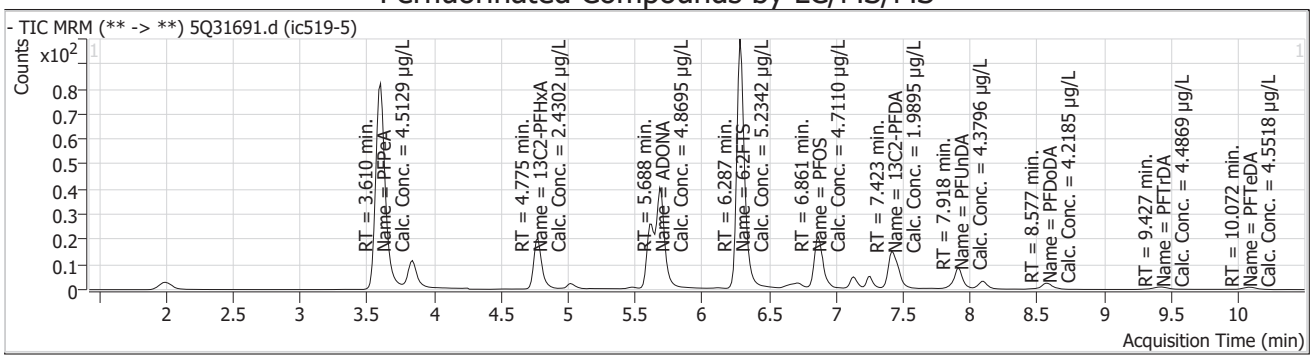
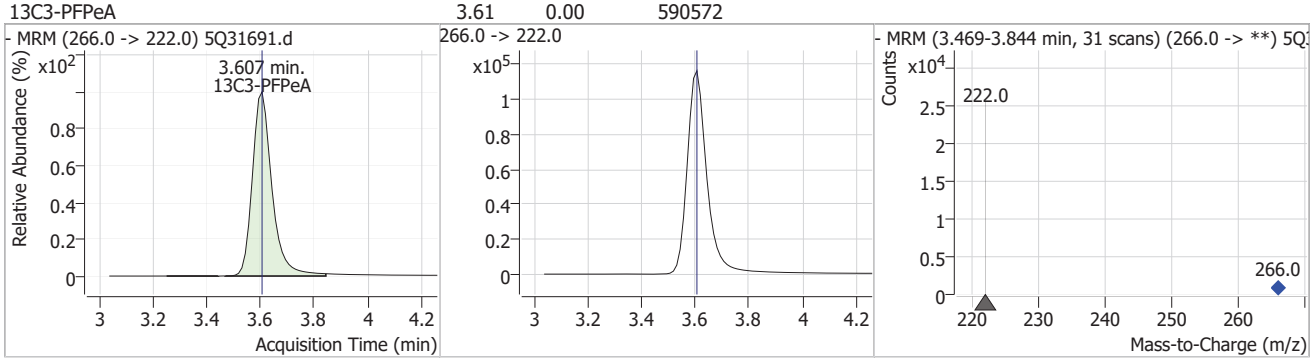
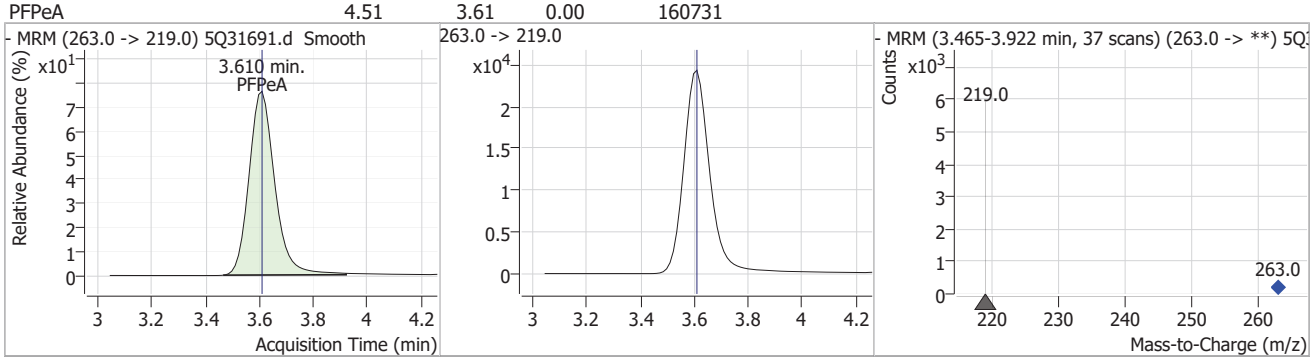
Perfluorinated Compounds by LC/MS/MS



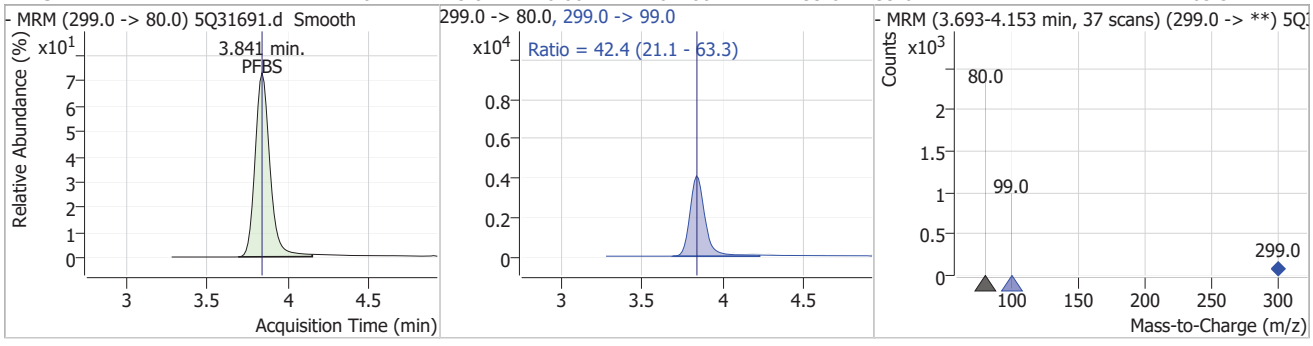
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.00	590572				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.51	3.61	0.00	160731				

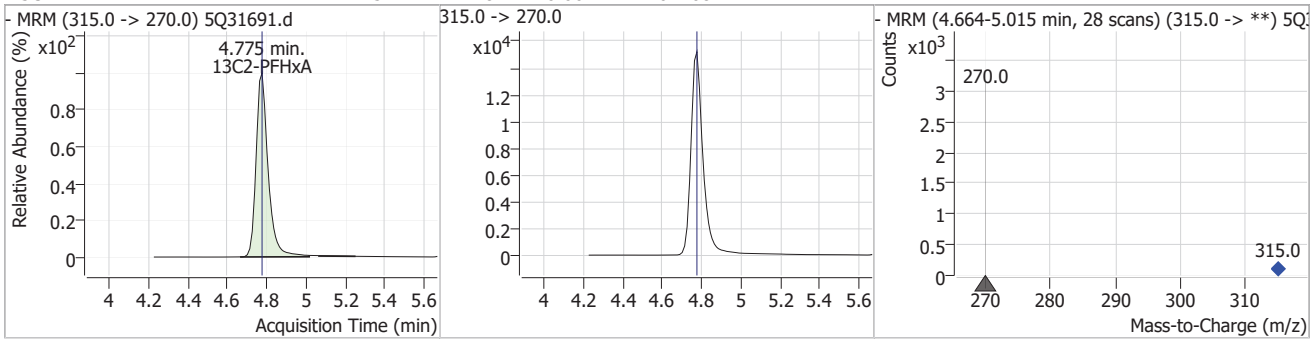


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	4.67	3.84	0.00	62766	299.0 -> 99.0	42.4	21.1	63.3

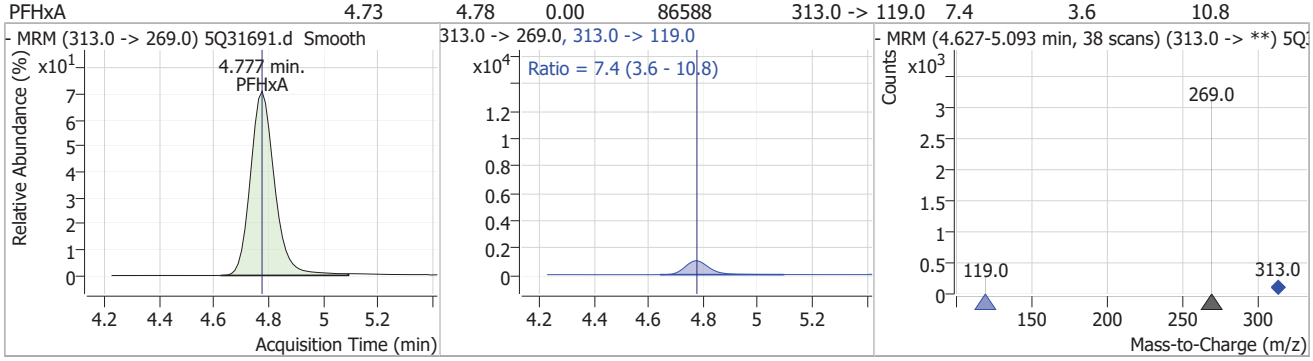


Perfluorinated Compounds by LC/MS/MS

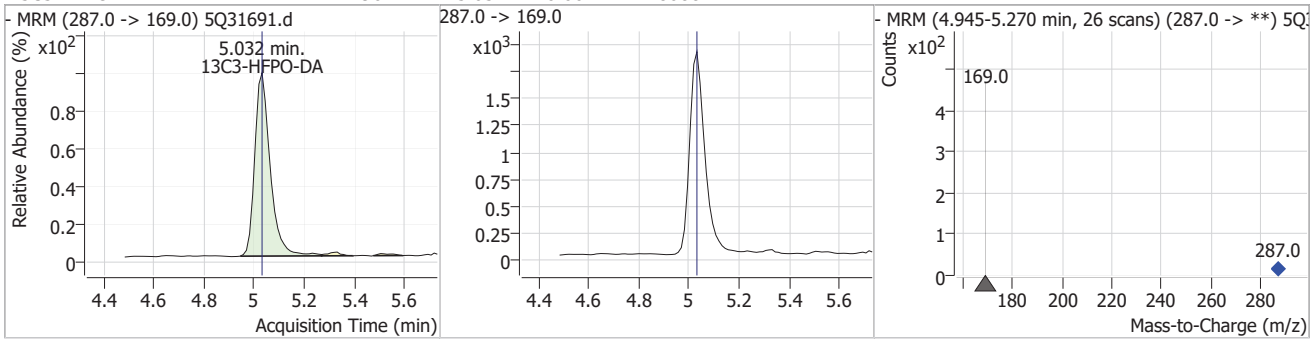
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	2.43	4.78	0.00	64468				



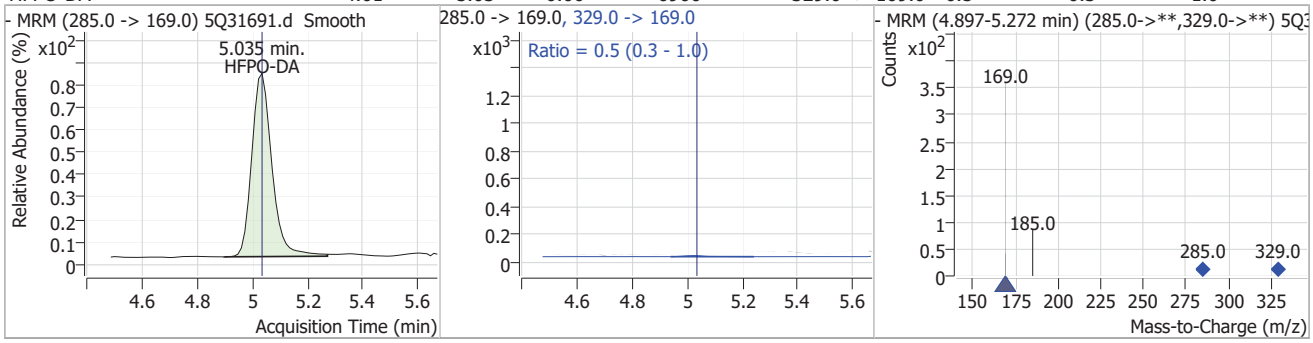
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	4.73	4.78	0.00	86588	313.0 -> 119.0	7.4	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	4.90	5.03	0.00	8088				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.61	5.03	0.00	6966	329.0 -> 169.0	0.5	0.3	1.0



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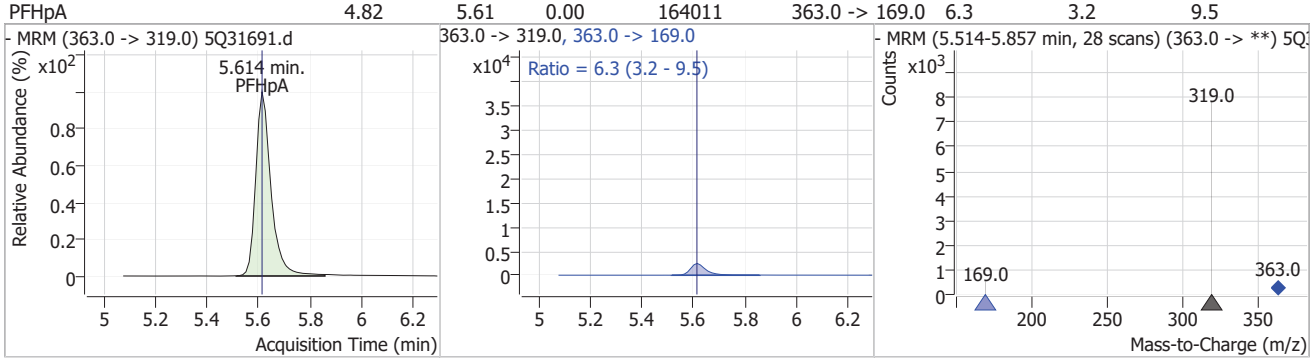
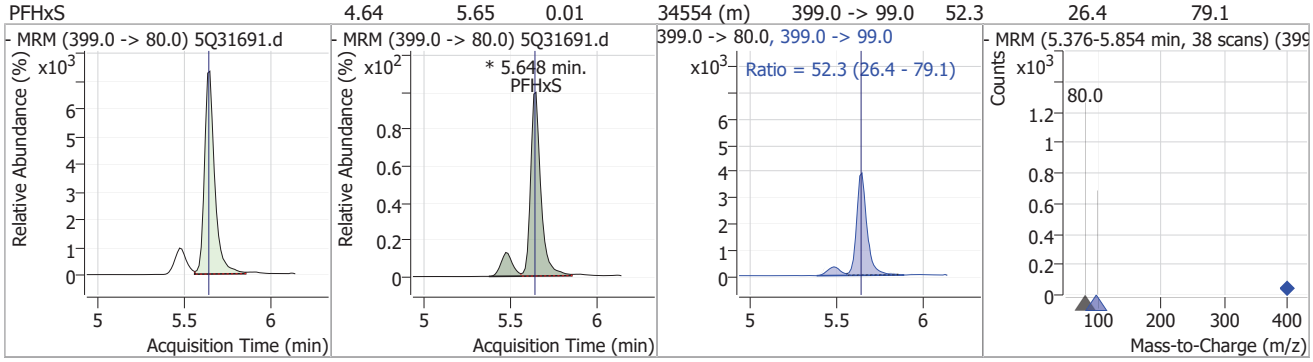
Perfluorinated Compounds by LC/MS/MS

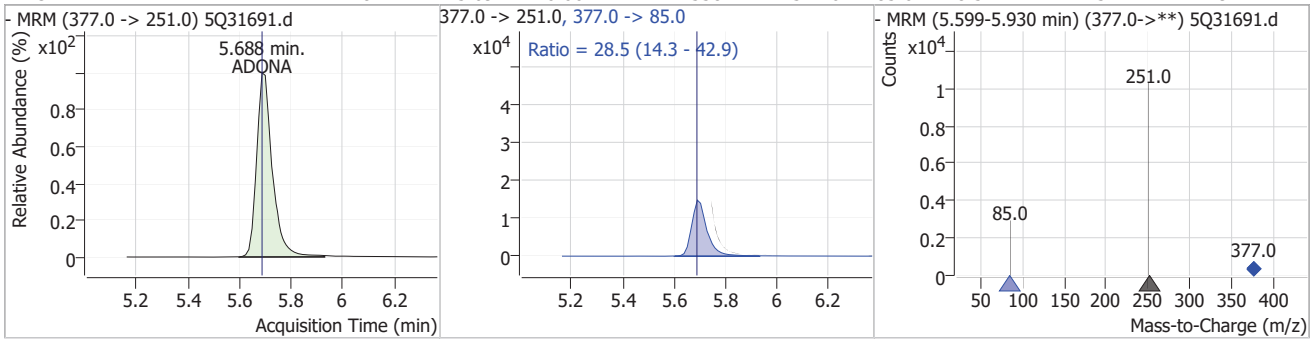
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	4.82	5.61	0.00	164011	363.0 -> 169.0	6.3	3.2	9.5



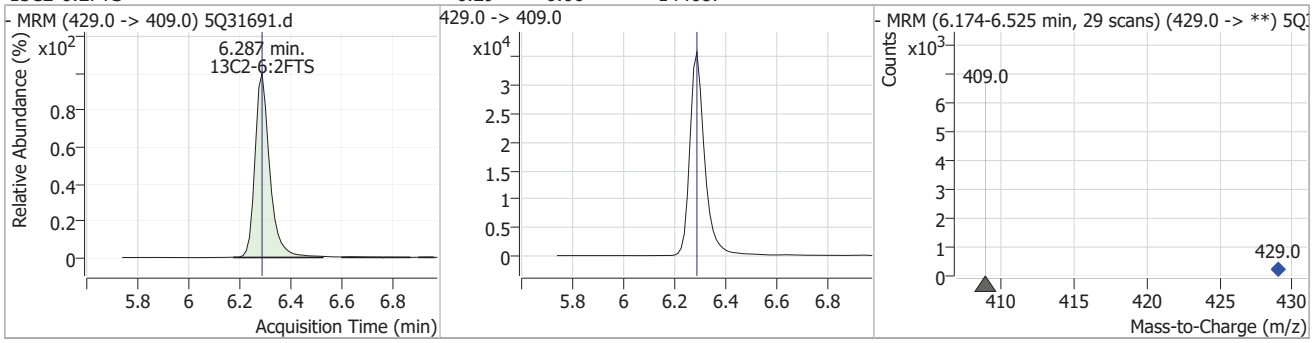
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	4.64	5.65	0.01	34554 (m)	399.0 -> 99.0	52.3	26.4	79.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	4.87	5.69	0.00	214338	377.0 -> 85.0	28.5	14.3	42.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	144687				



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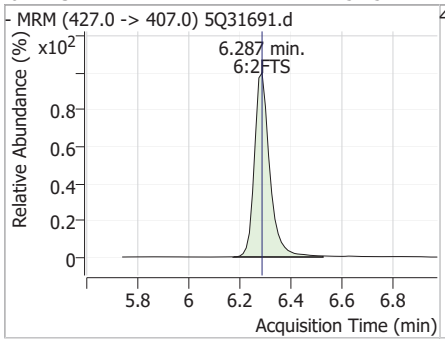
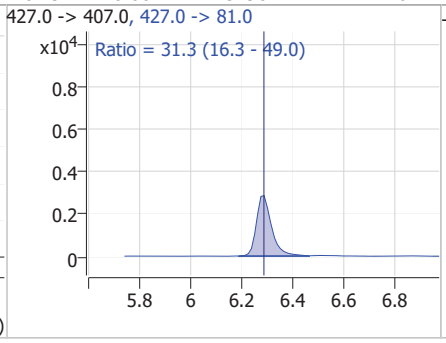
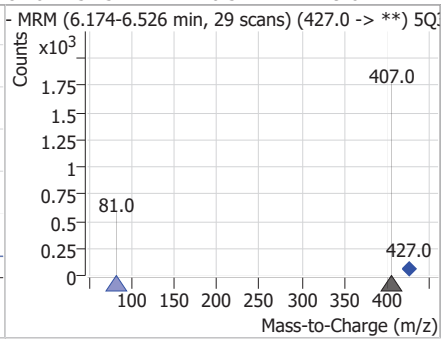
Perfluorinated Compounds by LC/MS/MS

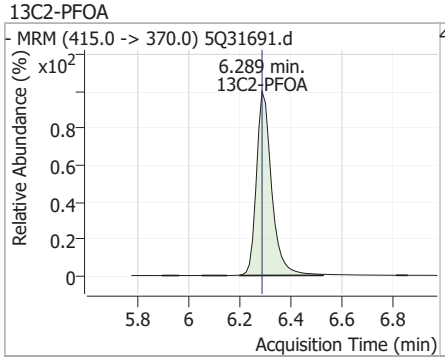
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	5.23	6.29	0.00	37902	427.0 -> 81.0	31.3	16.3	49.0

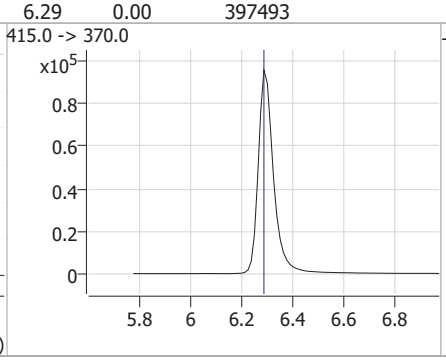


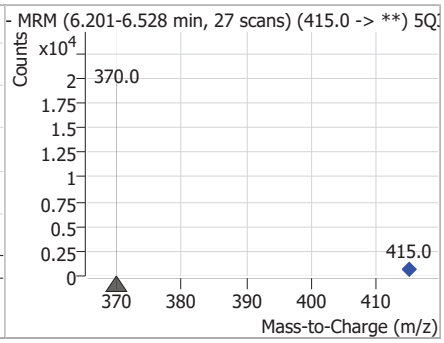




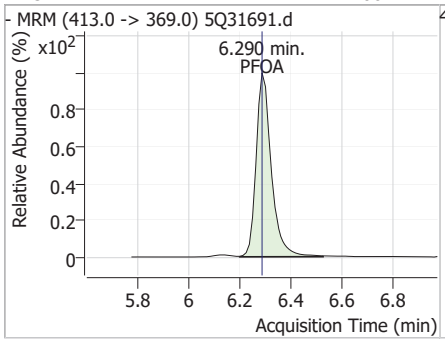
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	397493				

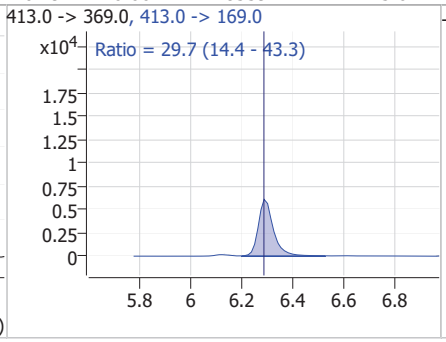


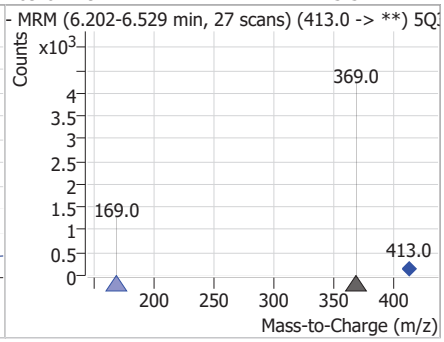




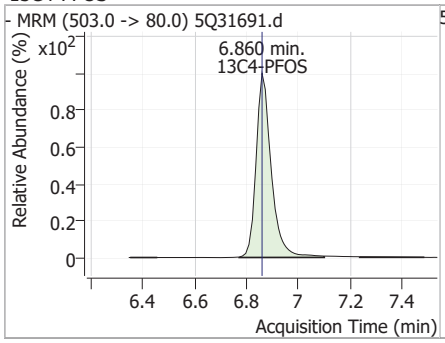
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	4.60	6.29	0.00	85391	413.0 -> 169.0	29.7	14.4	43.3

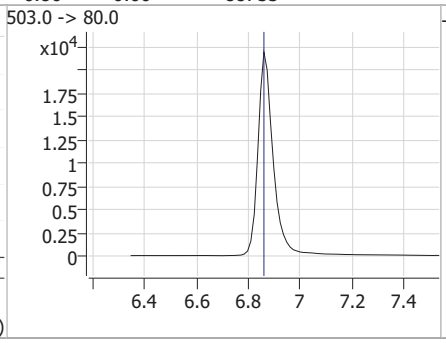


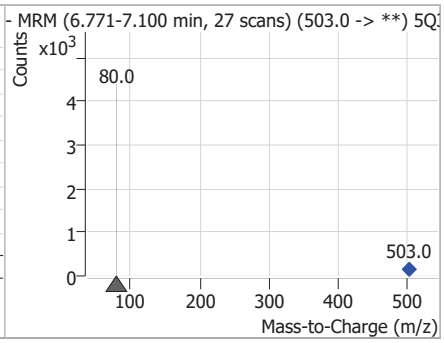




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	88755				

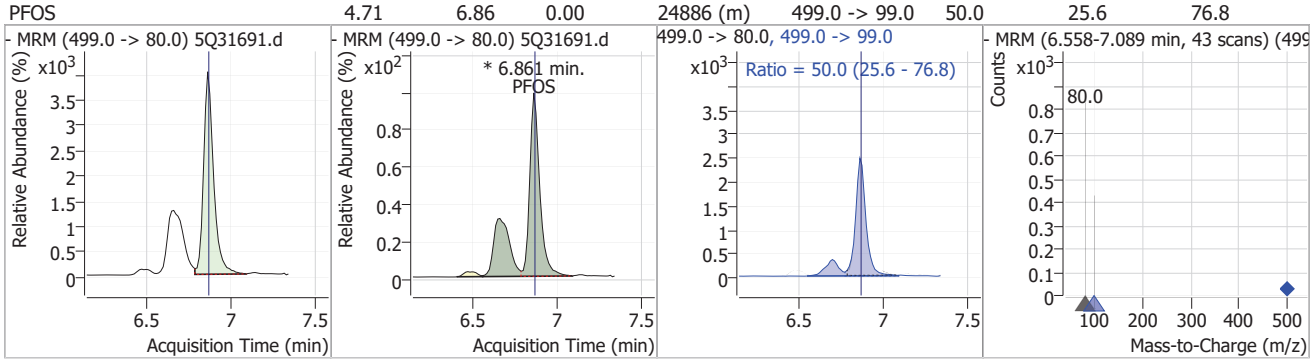




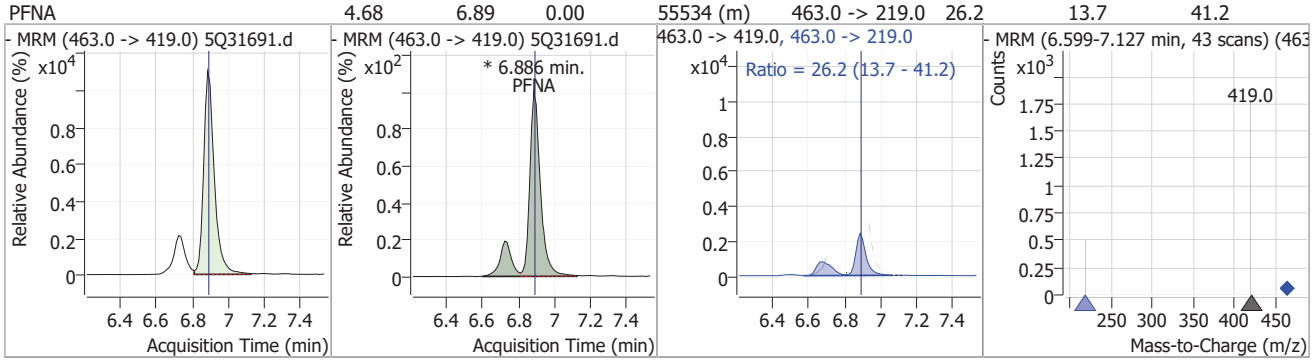


Perfluorinated Compounds by LC/MS/MS

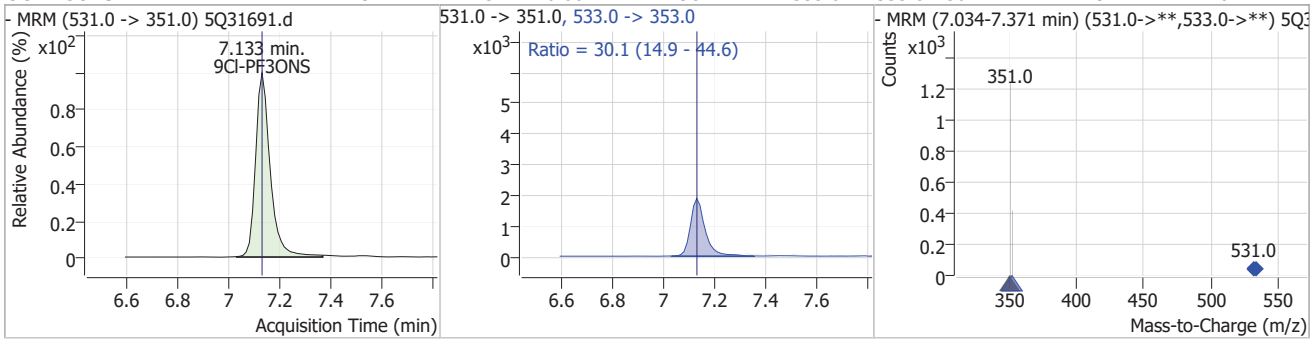
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	4.71	6.86	0.00	24886 (m)	499.0 -> 99.0	50.0	25.6	76.8



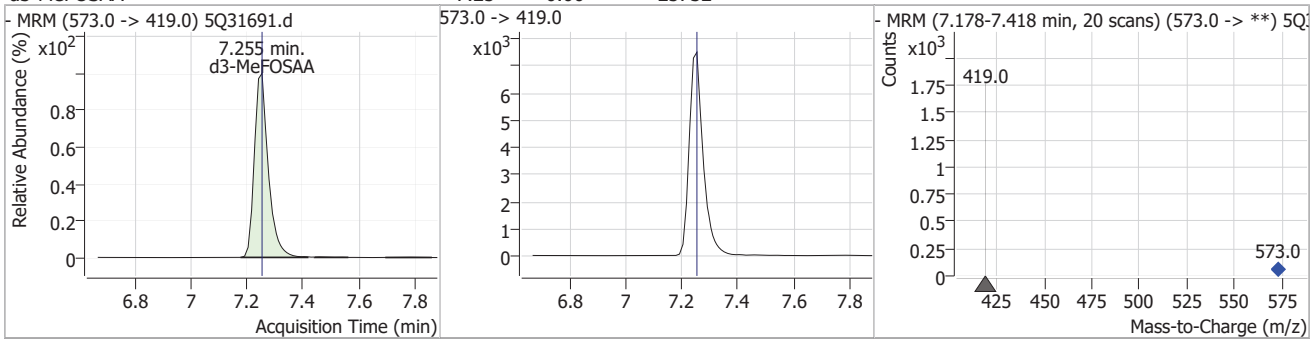
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	4.68	6.89	0.00	55534 (m)	463.0 -> 219.0	26.2	13.7	41.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	4.91	7.13	0.00	24984	533.0 -> 353.0	30.1	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	25732				



7.7.17

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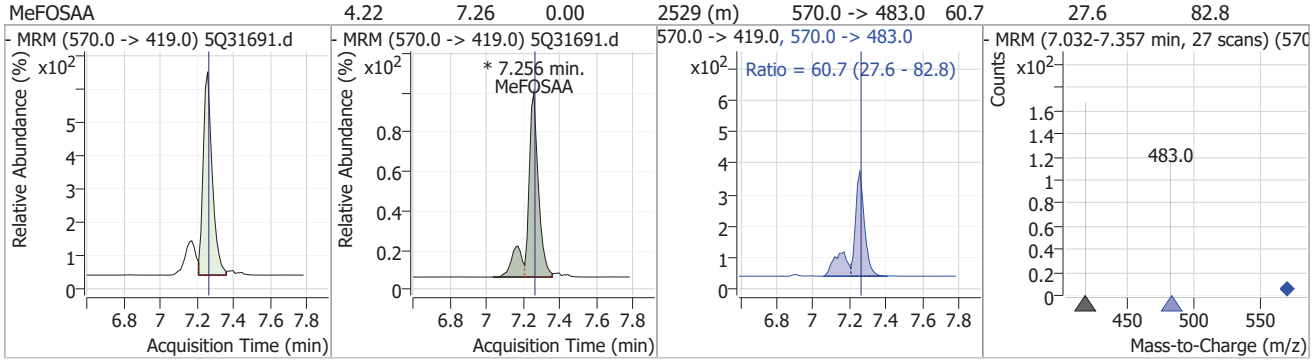
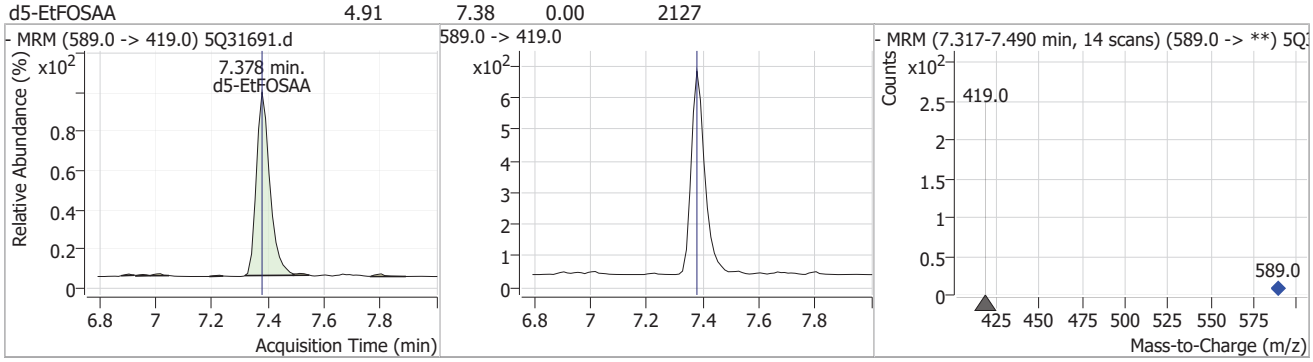
Perfluorinated Compounds by LC/MS/MS

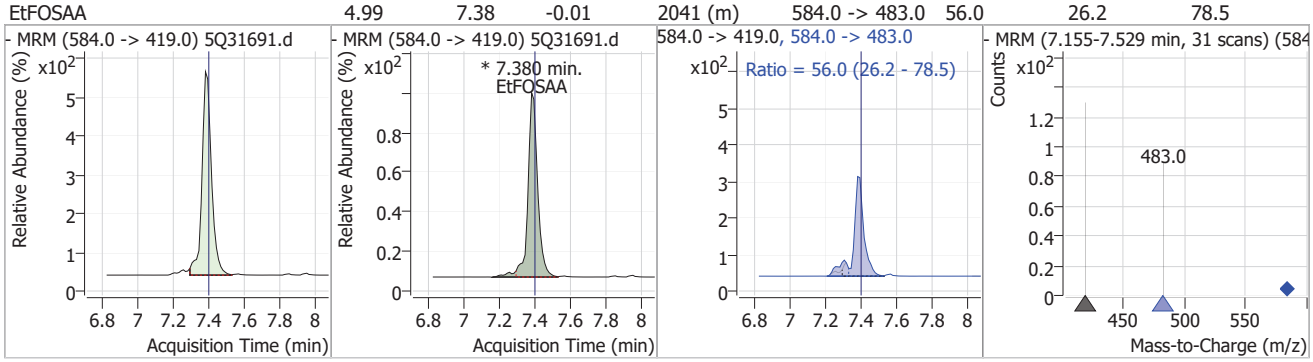
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	4.22	7.26	0.00	2529 (m)	570.0 -> 483.0	60.7	27.6	82.8



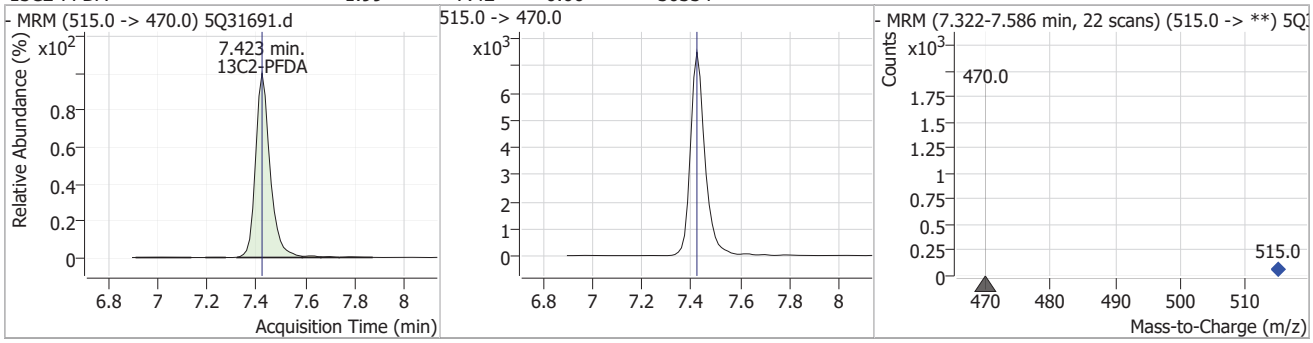
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.91	7.38	0.00	2127				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	4.99	7.38	-0.01	2041 (m)	584.0 -> 483.0	56.0	26.2	78.5

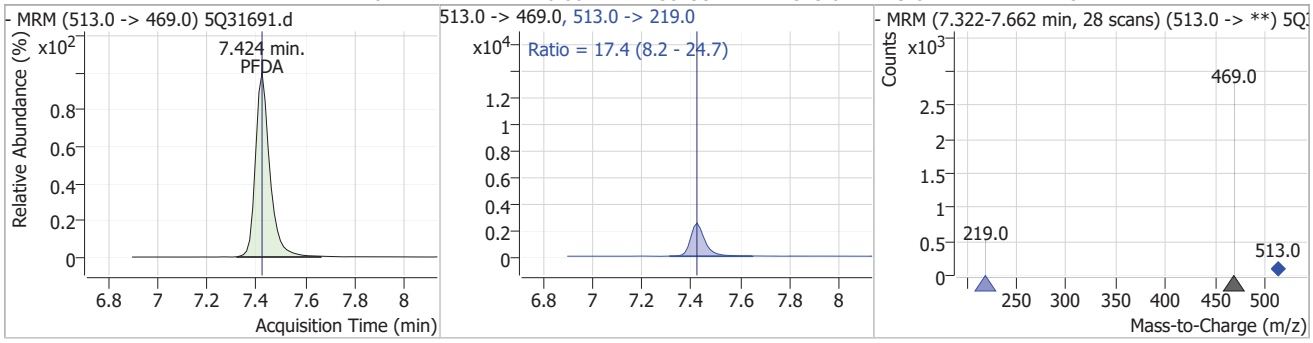


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	1.99	7.42	0.00	30334				

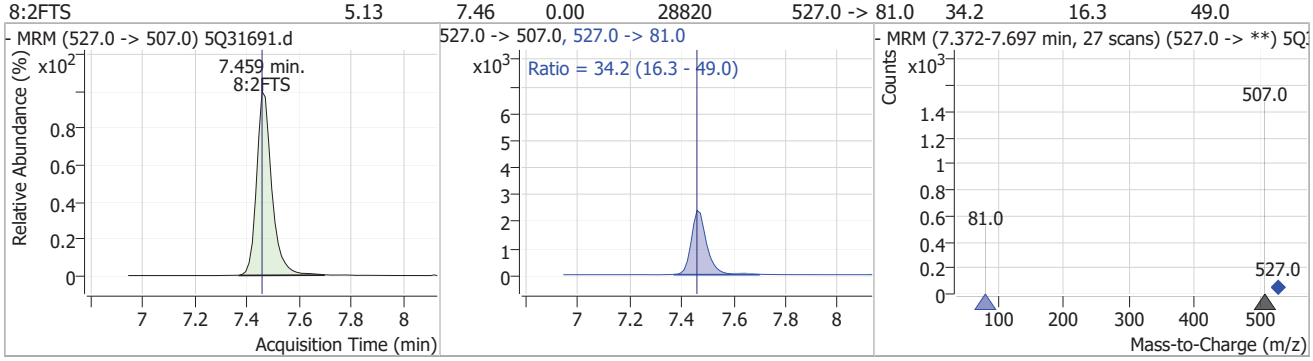


Perfluorinated Compounds by LC/MS/MS

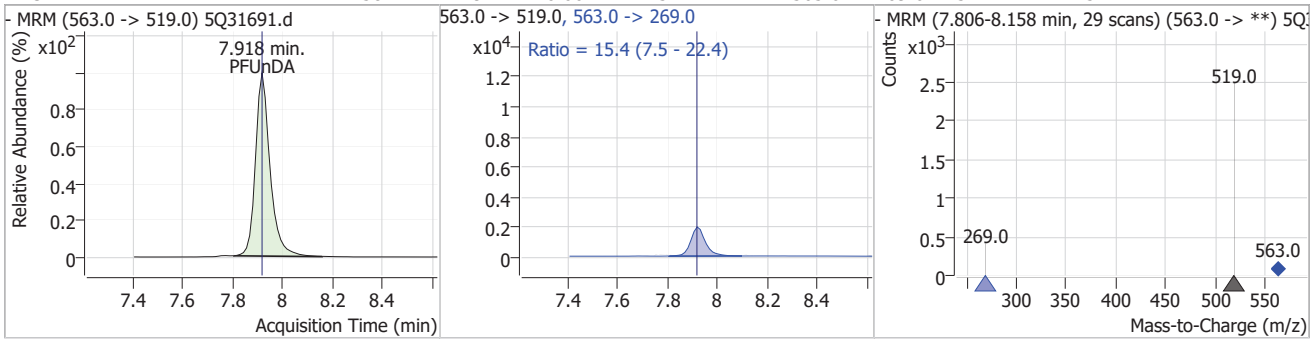
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	4.76	7.42	0.00	58495	513.0 -> 219.0	17.4	8.2	24.7



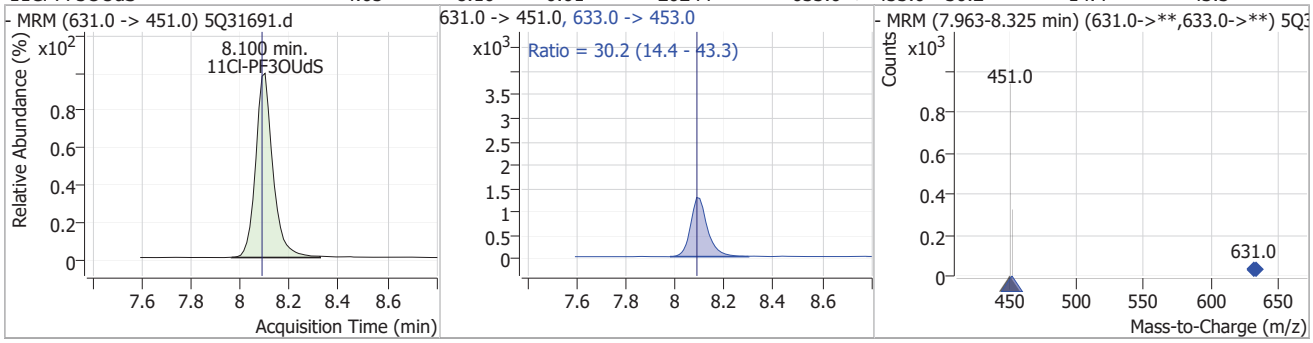
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	5.13	7.46	0.00	28820	527.0 -> 81.0	34.2	16.3	49.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	4.38	7.92	0.00	51741	563.0 -> 269.0	15.4	7.5	22.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	4.65	8.10	0.01	20244	633.0 -> 453.0	30.2	14.4	43.3



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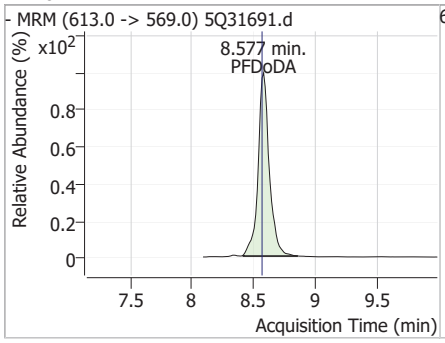
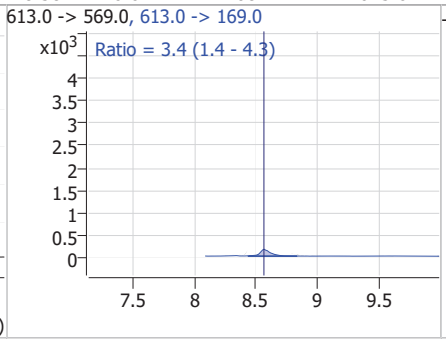
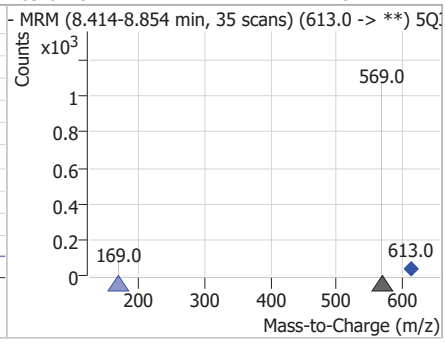
Perfluorinated Compounds by LC/MS/MS

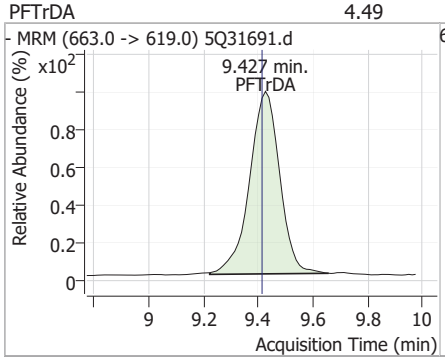
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	4.22	8.58	0.01	26872	613.0 -> 169.0	3.4	1.4	4.3

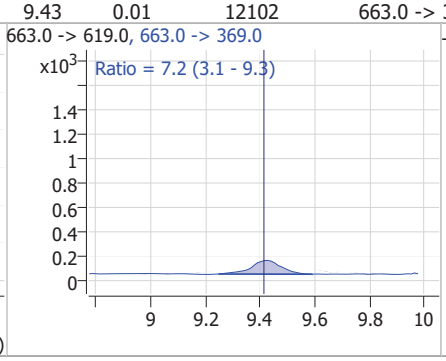


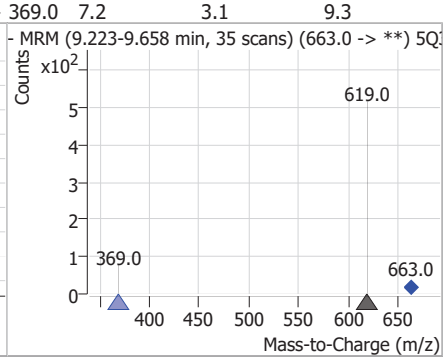




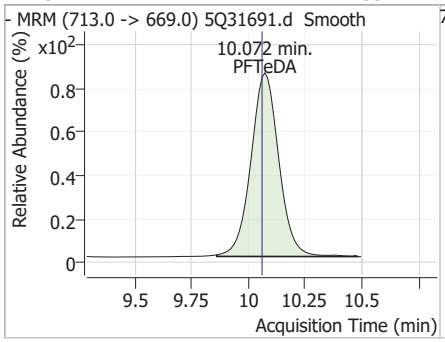
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	4.49	9.43	0.01	12102	663.0 -> 369.0	7.2	3.1	9.3

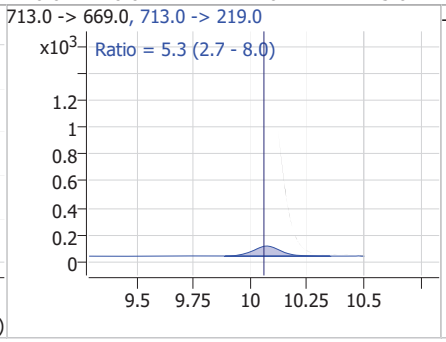


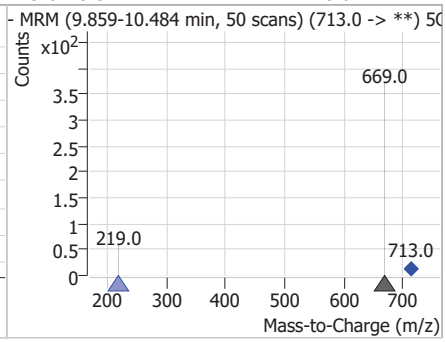




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	4.55	10.07	0.01	12210	713.0 -> 219.0	5.3	2.7	8.0







Manual Integration Approval Summary

Sample Number: S5Q519-IC519
Lab FileID: 5Q31691.D
Injection Time: 04/11/25 12:20
Method: EPA 537.1 REV 2.0
Analyst approved: 04/14/25 10:08 (b) (6)
Supervisor approved: 04/14/25 12:24 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/14/25 12:24

Perfluorinated Compounds by LC/MS/MS

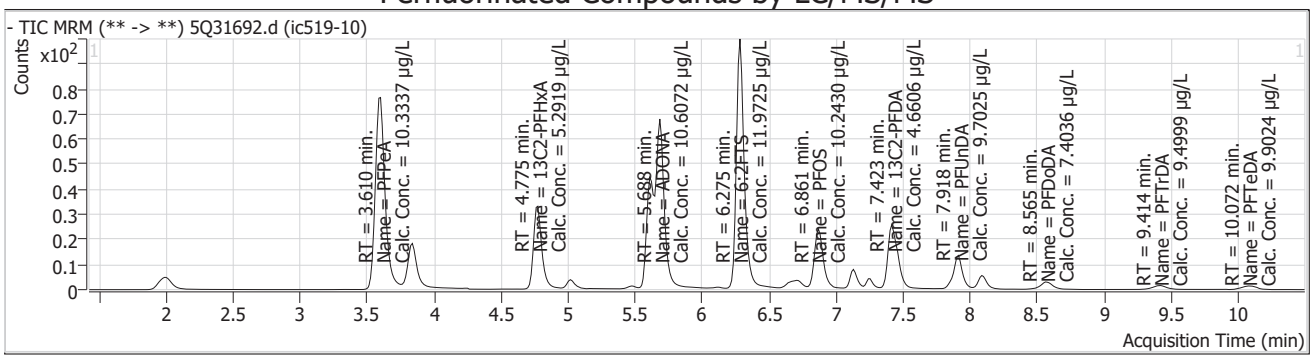
Data File : 5Q31692.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/11/2025 12:36:53 PM
Sample Name : ic519-10
Vial : P1-A6
DA Method File : 537_041125_S5Q519.quantmethod
Batch Name : s5q519.batch.bin
Sample Information : OP7448,S5Q519,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.287	429.0 -> 409.0	156228	20.00	µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	426732	20.00	µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	624889	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	93721	20.00	µg/L		0.000
d3-MeFOSAA	7.242	573.0 -> 419.0	26766	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.423	515.0 -> 470.0	76287	4.66	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 23.3%			
13C2-PFHxA	4.775	315.0 -> 270.0	151417	5.29	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 26.5%			
d5-EtFOSAA	7.378	589.0 -> 419.0	5055	11.20	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 28.0%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	18514	10.37	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 25.9%			
Target Compounds							QValue
6:2FTS	6.275	427.0 -> 407.0	93612	11.97	µg/L		100
8:2FTS	7.459	527.0 -> 507.0	65337	10.77	µg/L		97
EtFOSAA	7.392	584.0 -> 419.0	4770	11.20	µg/L	m	99
MeFOSAA	7.256	570.0 -> 419.0	5821	9.33	µg/L	m	94
PFBS	3.841	299.0 -> 80.0	149728	10.55	µg/L		100
PFDA	7.424	513.0 -> 469.0	140879	10.56	µg/L		99
PFDoDA	8.565	613.0 -> 569.0	50505	7.40	µg/L		100
PFHpA	5.614	363.0 -> 319.0	396918	10.79	µg/L		99
PFHxA	4.777	313.0 -> 269.0	208014	10.54	µg/L		100
PFHxS	5.635	399.0 -> 80.0	82790	10.42	µg/L	m	100
PFNA	6.886	463.0 -> 419.0	131552	10.21	µg/L	m	100
PFOA	6.290	413.0 -> 369.0	210824	10.52	µg/L		97
PFOS	6.861	499.0 -> 80.0	57667	10.24	µg/L	m	100
PFPeA	3.610	263.0 -> 219.0	391039	10.33	µg/L		100
PFTeDA	10.072	713.0 -> 669.0	28811	9.90	µg/L		100
PFTrDA	9.414	663.0 -> 619.0	27602	9.50	µg/L		99
PFUnDA	7.918	563.0 -> 519.0	122232	9.70	µg/L		99
ADONA	5.688	377.0 -> 251.0	507242	10.61	µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	57366	10.36	µg/L		99
11Cl-PF3OUdS	8.087	631.0 -> 451.0	48332	10.08	µg/L		100
HFPO-DA	5.035	285.0 -> 169.0	17766	10.84	µg/L		100

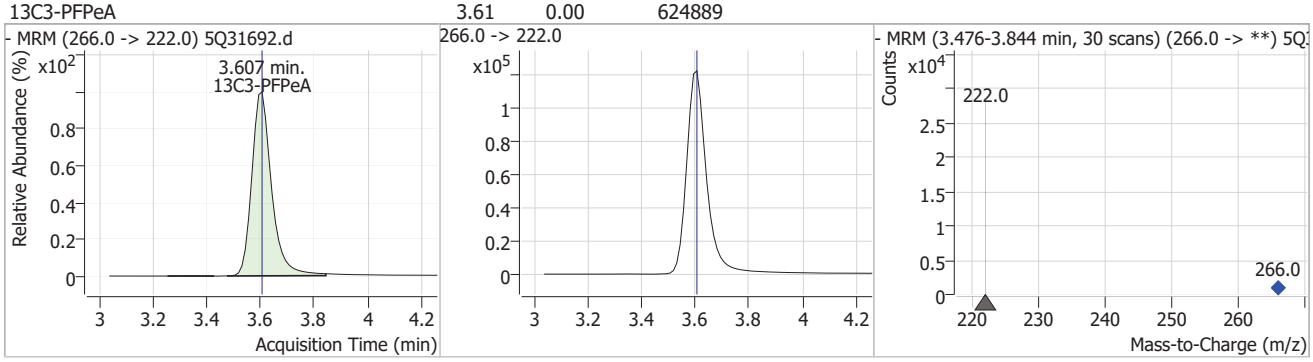
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.18
7

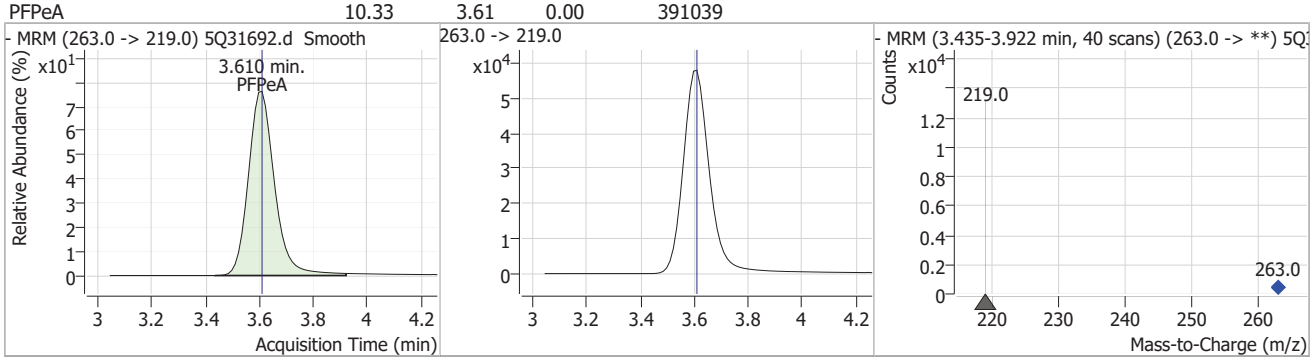
Perfluorinated Compounds by LC/MS/MS



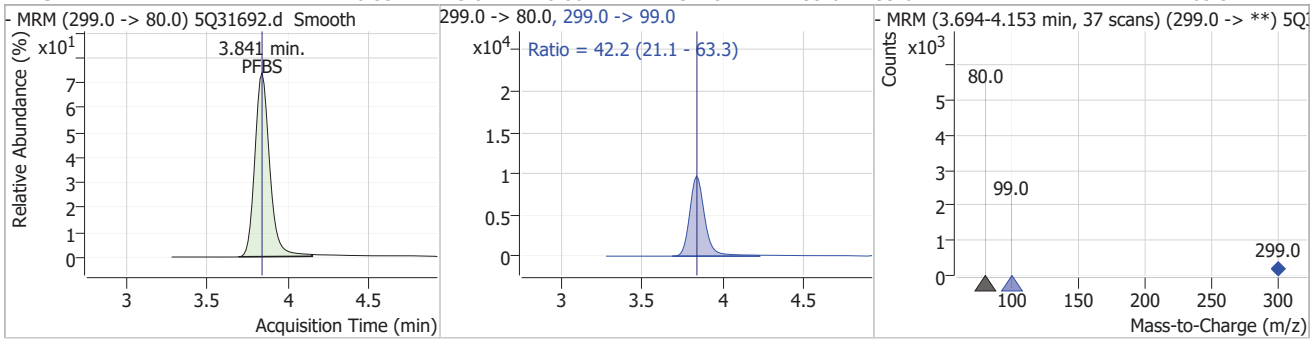
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.00	624889				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	10.33	3.61	0.00	391039				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	10.55	3.84	0.00	149728	299.0 -> 99.0	42.2	21.1	63.3



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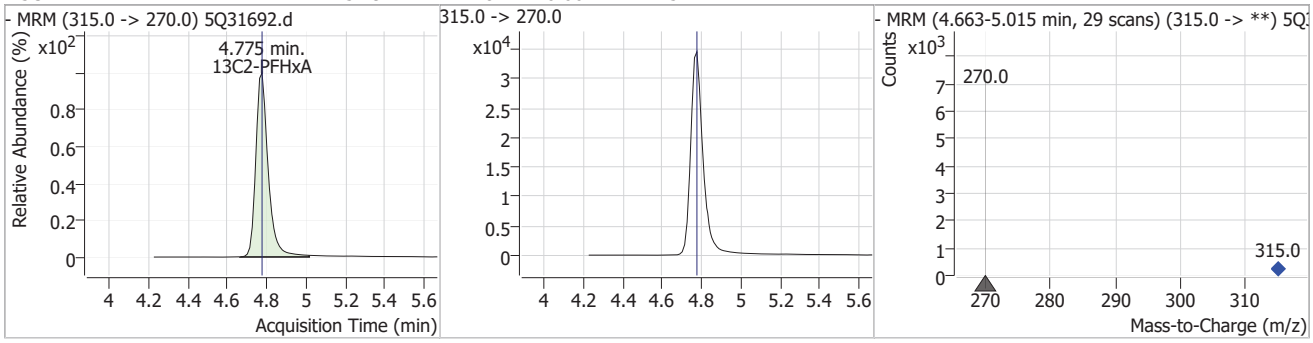
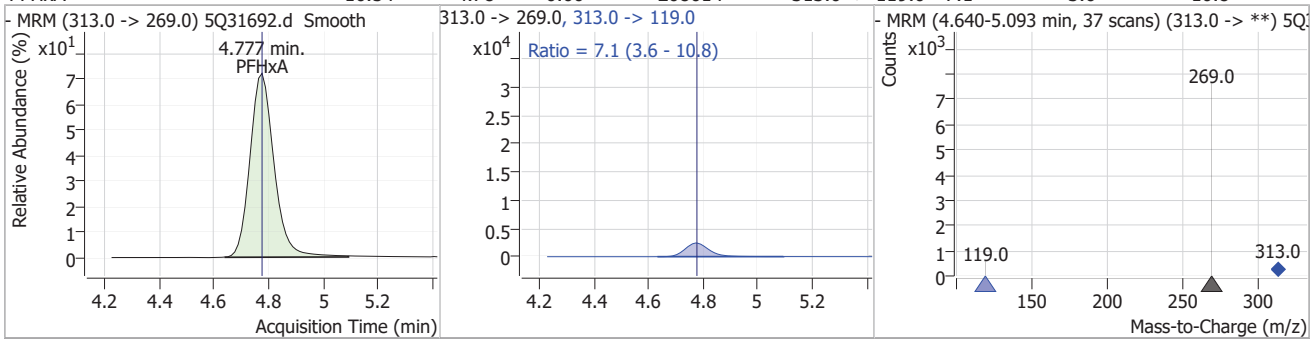
Perfluorinated Compounds by LC/MS/MS

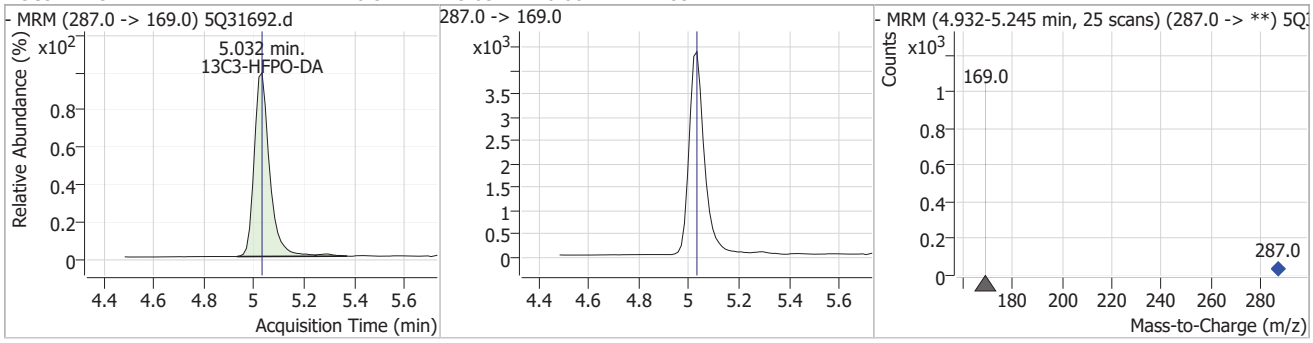
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	5.29	4.78	0.00	151417				



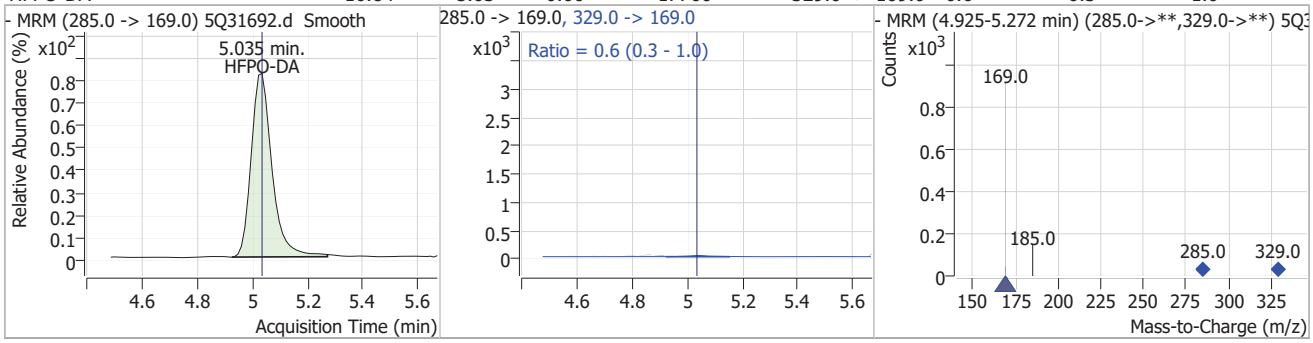
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	10.54	4.78	0.00	208014	313.0 -> 119.0	7.1	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.37	5.03	0.00	18514				

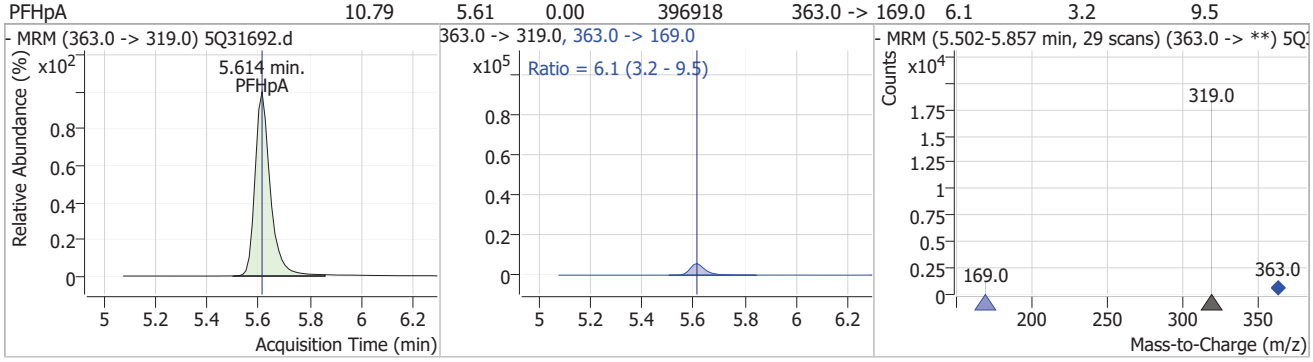


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	10.84	5.03	0.00	17766	329.0 -> 169.0	0.6	0.3	1.0

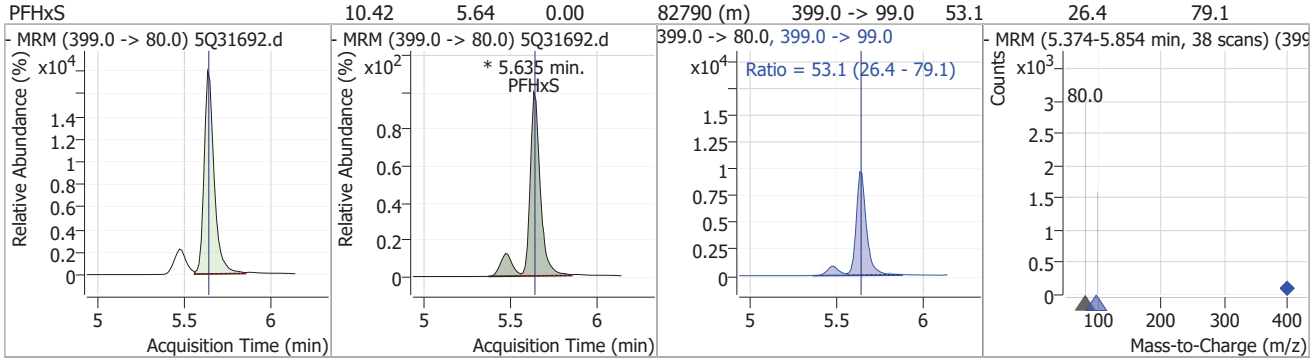


Perfluorinated Compounds by LC/MS/MS

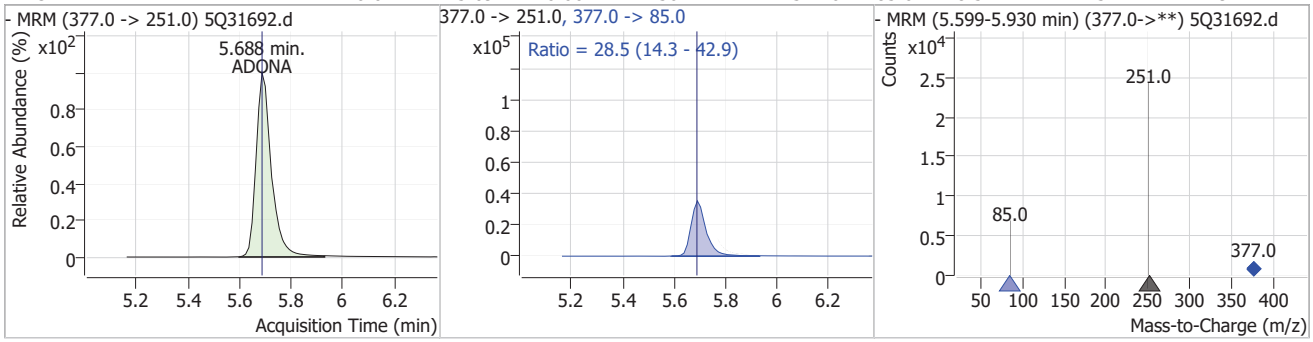
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	10.79	5.61	0.00	396918	363.0 -> 169.0	6.1	3.2	9.5



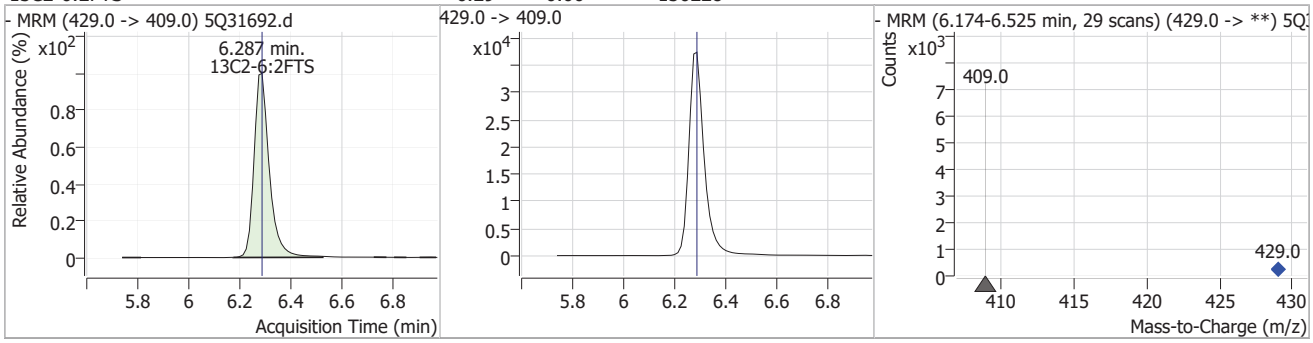
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	10.42	5.64	0.00	82790 (m)	399.0 -> 99.0	53.1	26.4	79.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	10.61	5.69	0.00	507242	377.0 -> 85.0	28.5	14.3	42.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	156228				



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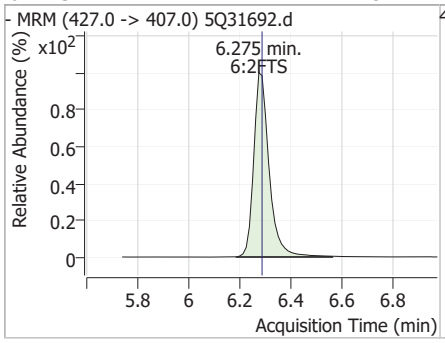
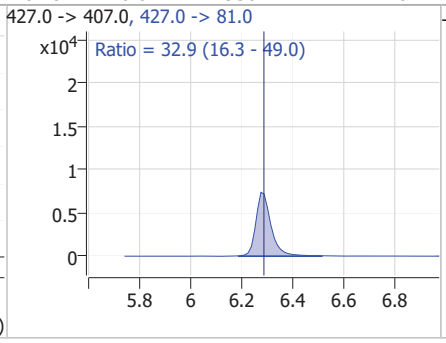
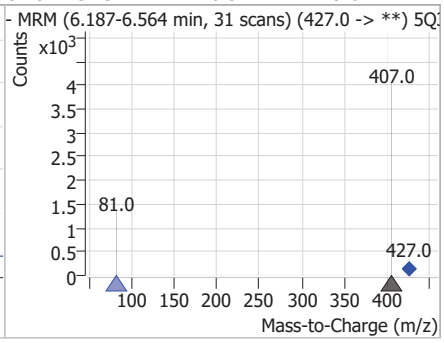
Perfluorinated Compounds by LC/MS/MS

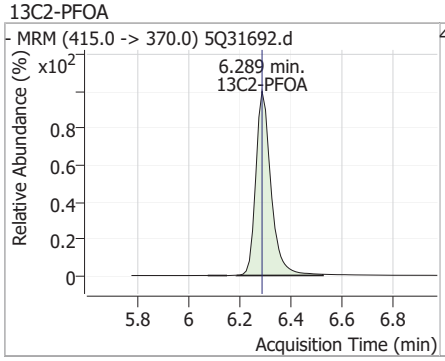
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	11.97	6.28	-0.01	93612	427.0 -> 81.0	32.9	16.3	49.0

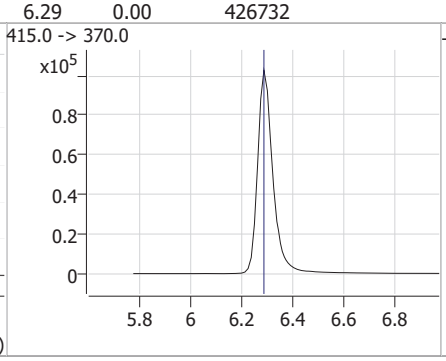


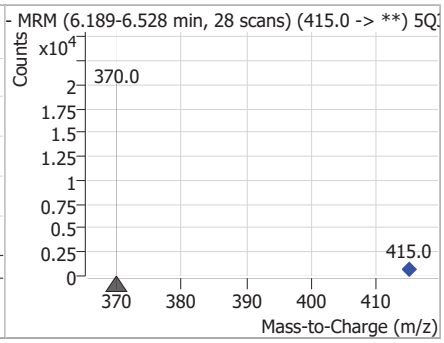




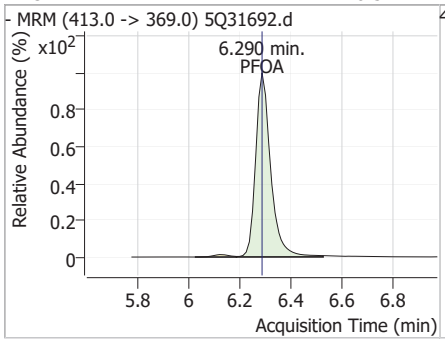
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	426732				

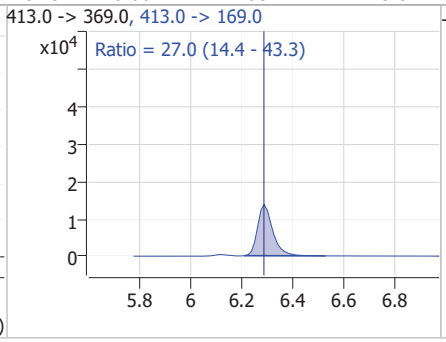


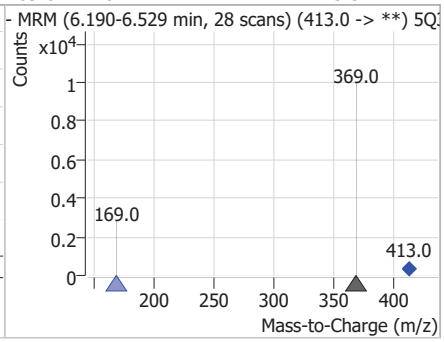




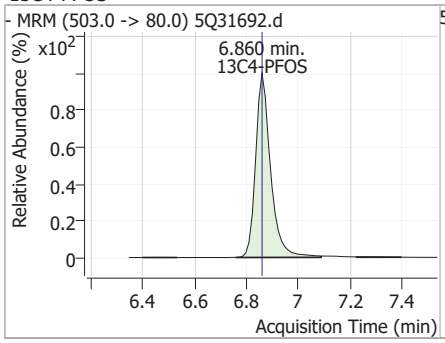
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	10.52	6.29	0.00	210824	413.0 -> 169.0	27.0	14.4	43.3

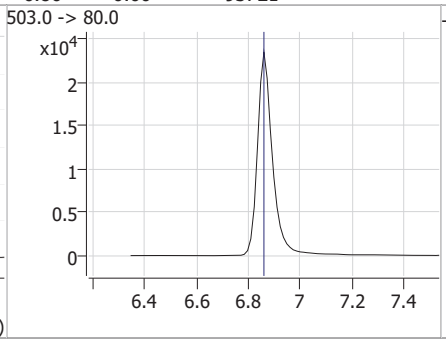


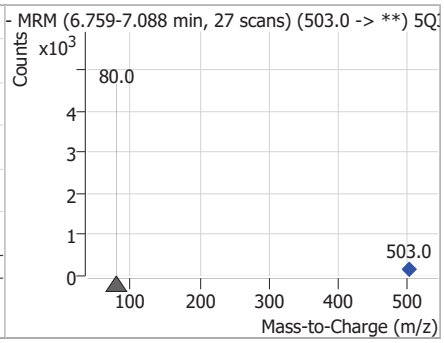




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	93721				







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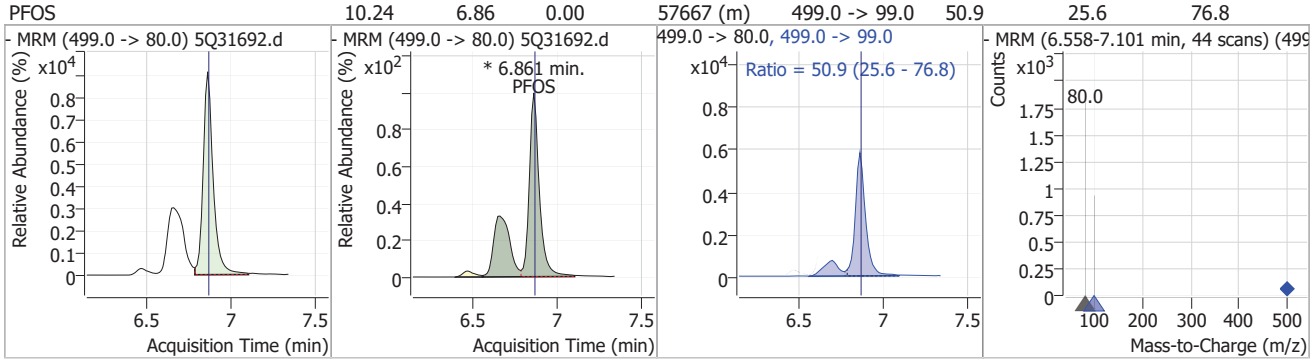
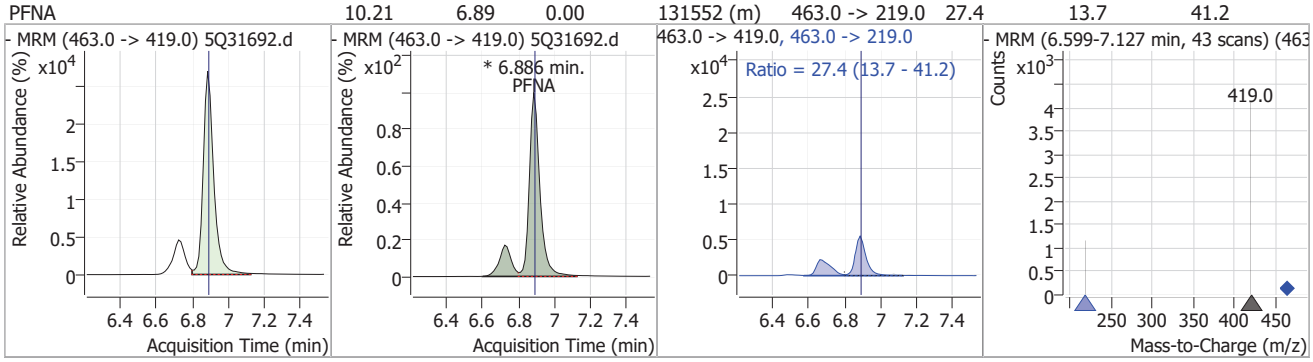
Perfluorinated Compounds by LC/MS/MS

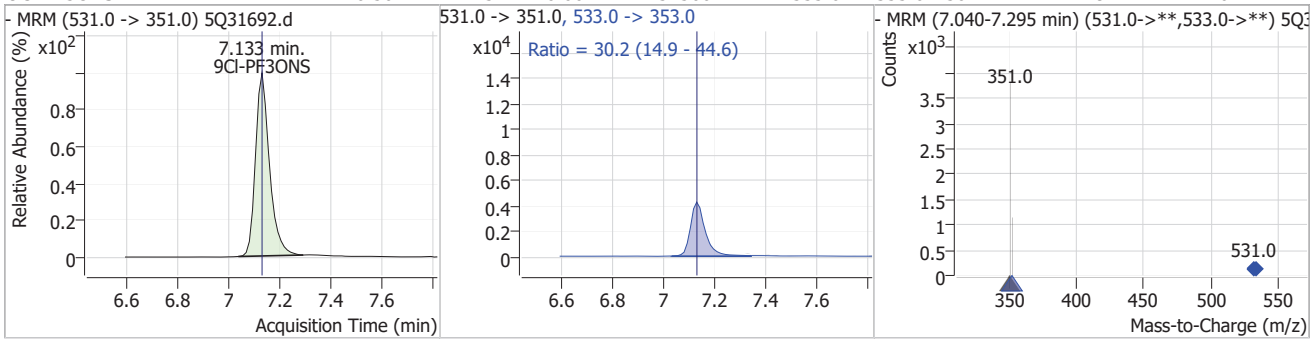
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	10.24	6.86	0.00	57667 (m)	499.0 -> 99.0	50.9	25.6	76.8



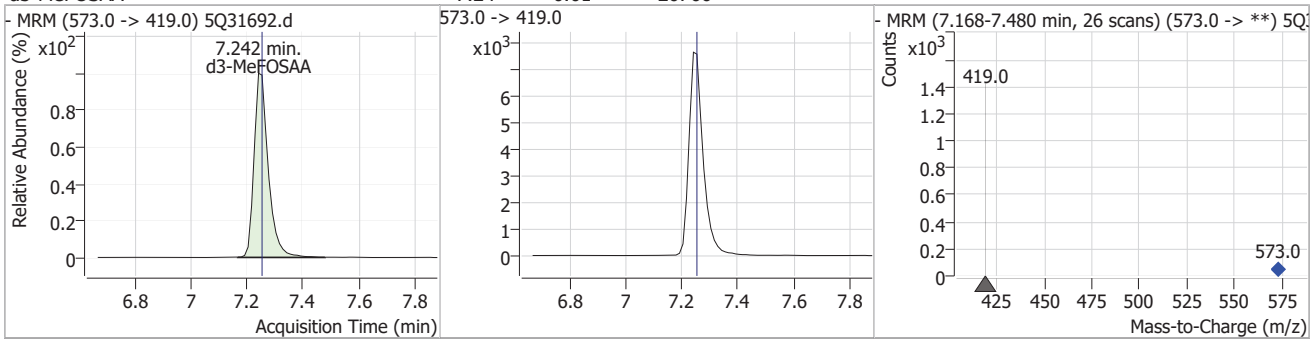
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	10.21	6.89	0.00	131552 (m)	463.0 -> 219.0	27.4	13.7	41.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	10.36	7.13	0.00	57366	533.0 -> 353.0	30.2	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	26766				



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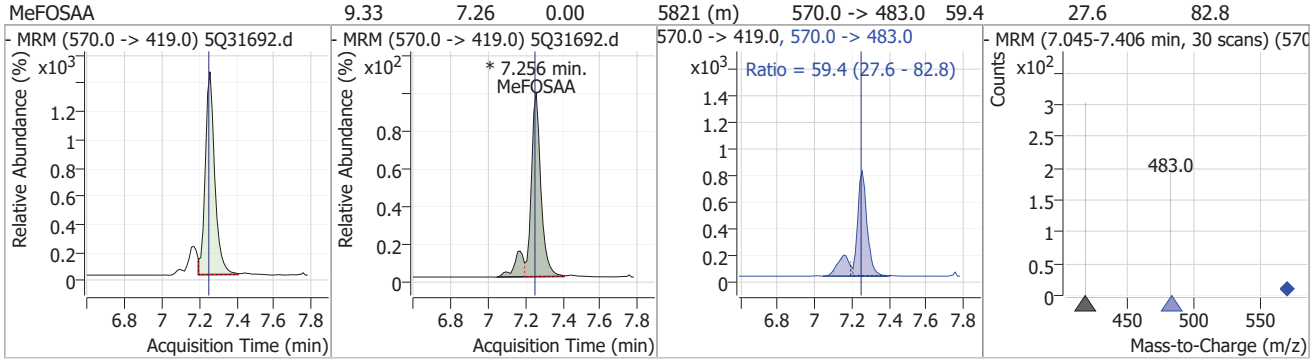
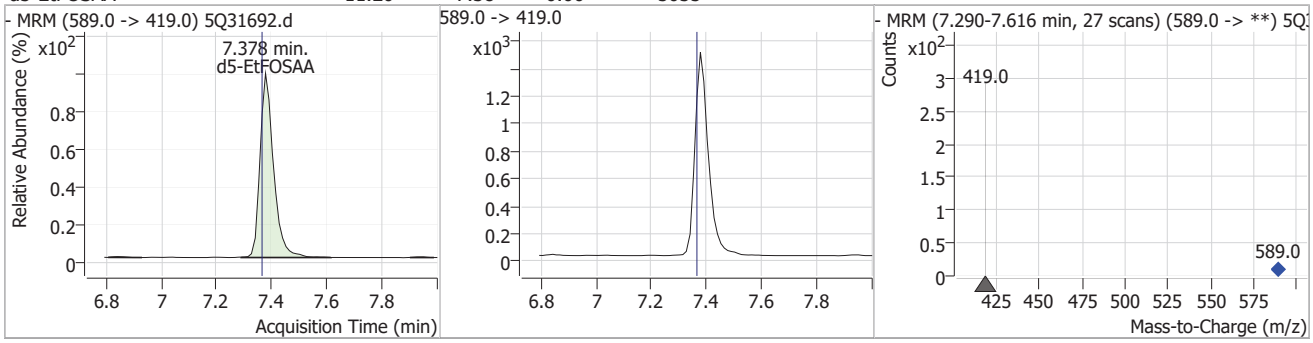
Perfluorinated Compounds by LC/MS/MS

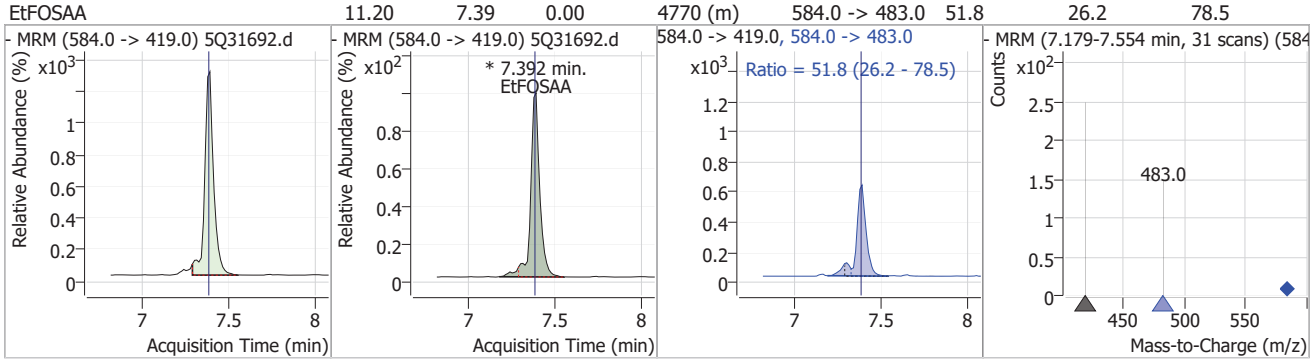
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	9.33	7.26	0.00	5821 (m)	570.0 -> 483.0	59.4	27.6	82.8



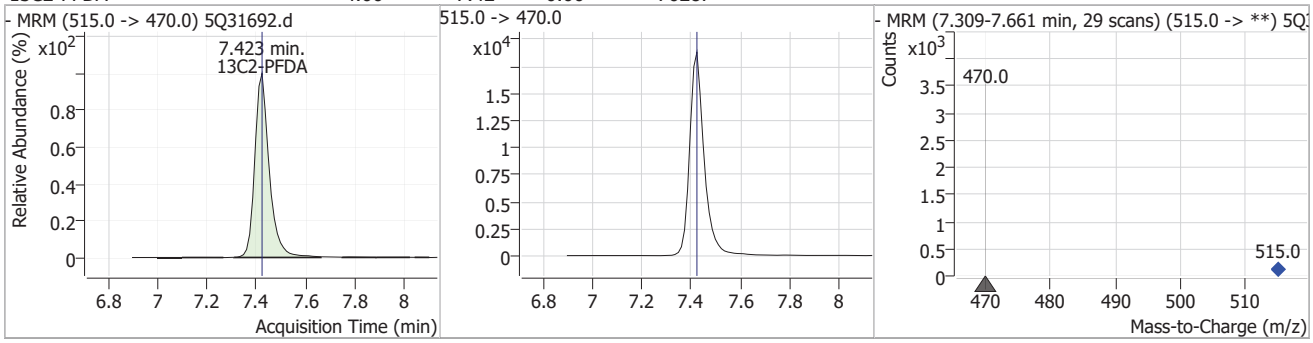
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	11.20	7.38	0.00	5055				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	11.20	7.39	0.00	4770 (m)	584.0 -> 483.0	51.8	26.2	78.5

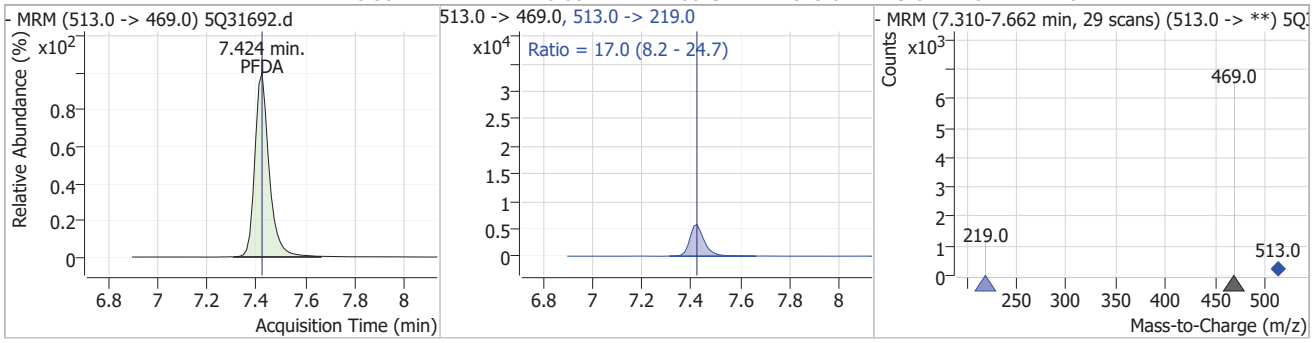


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	4.66	7.42	0.00	76287				

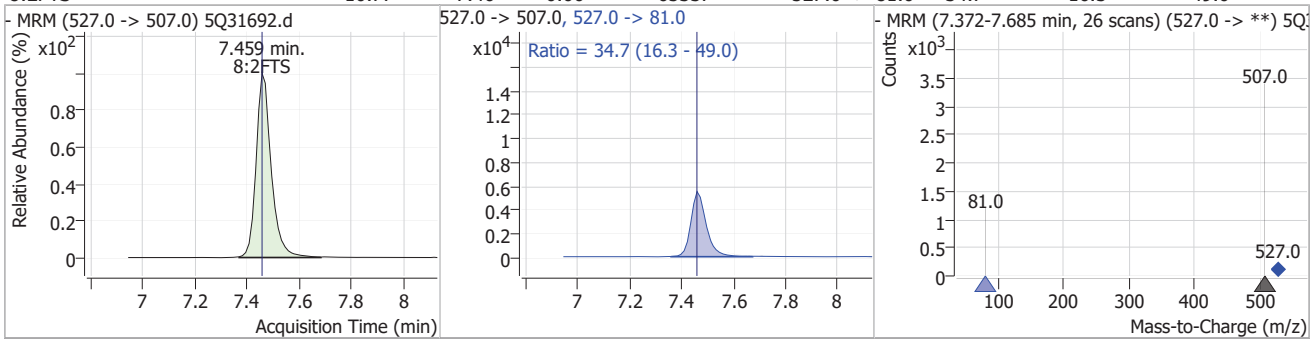


Perfluorinated Compounds by LC/MS/MS

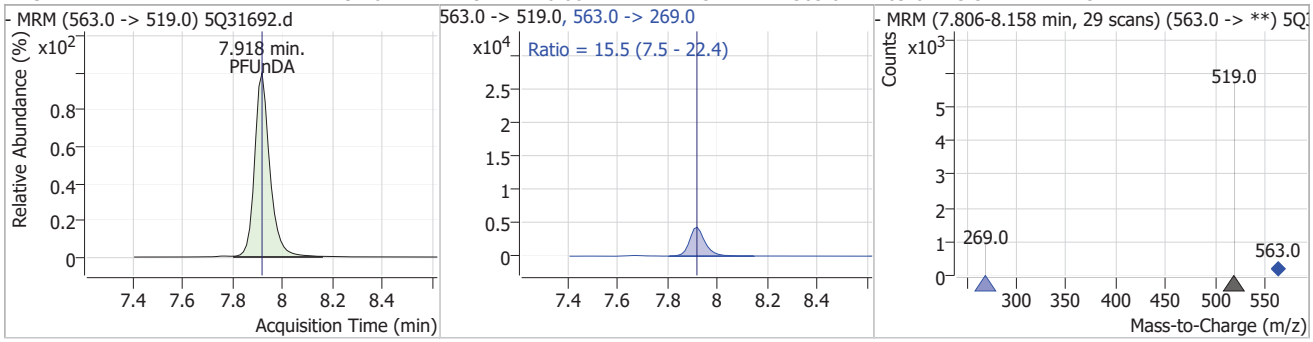
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	10.56	7.42	0.00	140879	513.0 -> 219.0	17.0	8.2	24.7



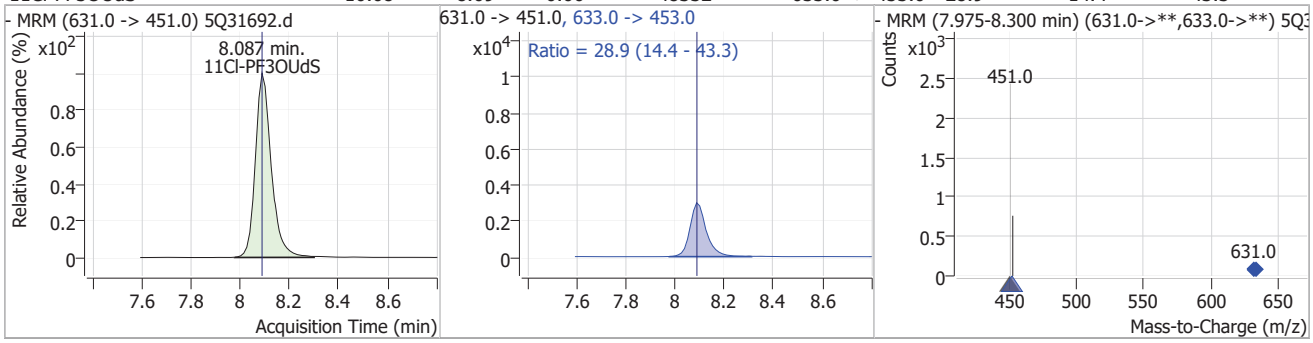
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	10.77	7.46	0.00	65337	527.0 -> 81.0	34.7	16.3	49.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	9.70	7.92	0.00	122232	563.0 -> 269.0	15.5	7.5	22.4

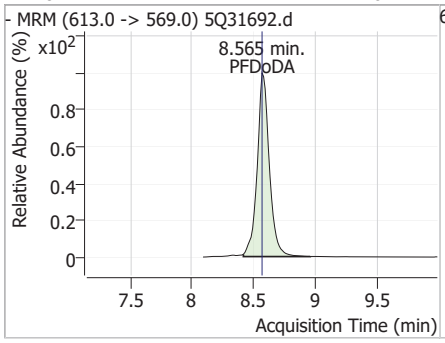


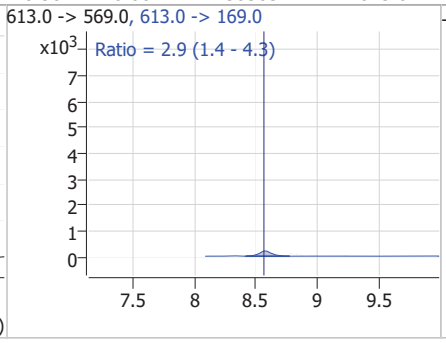
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	10.08	8.09	0.00	48332	633.0 -> 453.0	28.9	14.4	43.3

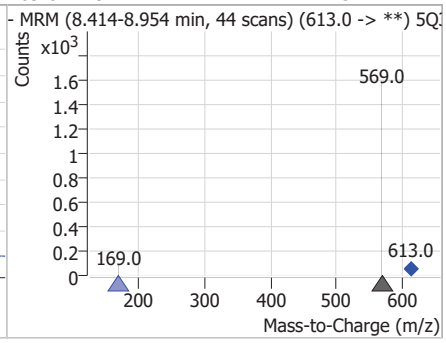


Perfluorinated Compounds by LC/MS/MS

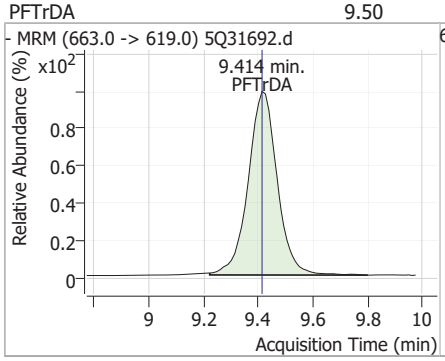
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	7.40	8.56	0.00	50505	613.0 -> 169.0	2.9	1.4	4.3

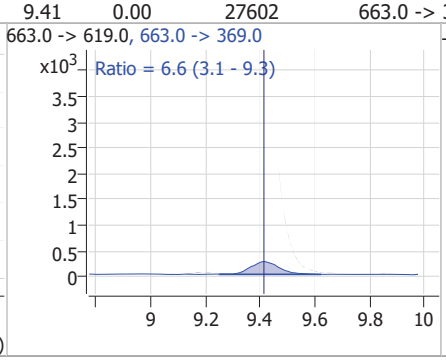


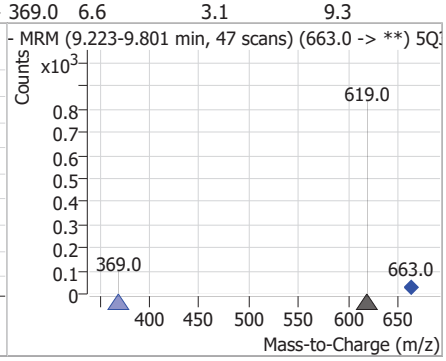




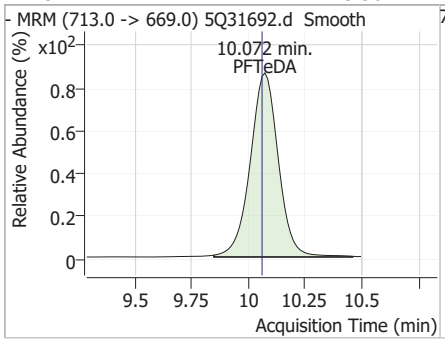
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	9.50	9.41	0.00	27602	663.0 -> 369.0	6.6	3.1	9.3

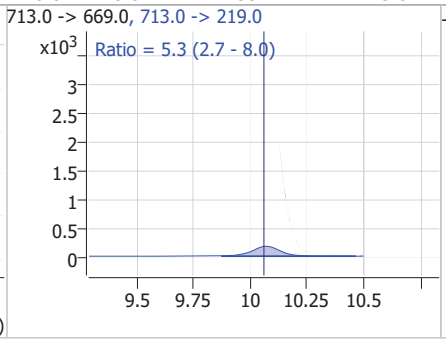


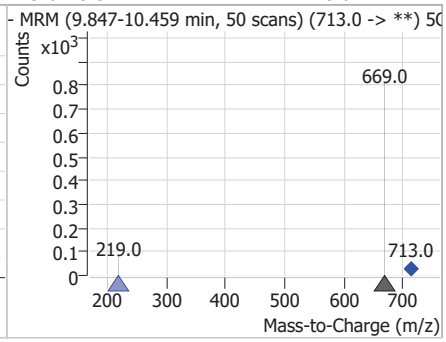




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	9.90	10.07	0.01	28811	713.0 -> 219.0	5.3	2.7	8.0







7.7.18

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Manual Integration Approval Summary

Sample Number: S5Q519-IC519
Lab FileID: 5Q31692.D
Injection Time: 04/11/25 12:36
Method: EPA 537.1 REV 2.0
Analyst approved: 04/14/25 10:08 (b) (6)
Supervisor approved: 04/14/25 12:24 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

5Q31693.D

Manual Integrations APPROVED (compounds with "m" flag)

(b) (6)

04/14/25 12:24

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31693.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/11/2025 12:53:46 PM
Sample Name : icc519-20
Vial : P1-A7
DA Method File : 537_041125_S5Q519.quantmethod
Batch Name : s5q519.batch.bin
Sample Information : OP8806,S5Q519,250,,,1,1,water

Compound	RT	QIon	Resp.	Symmetry	Conc.	Units		Dev(Min)
Internal Standards								
13C2-6:2FTS	6.287	429.0 -> 409.0	158704		20.00	µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	418343		20.00	µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	592418		20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	91350		20.00	µg/L		0.000
d3-MeFOSAA	7.255	573.0 -> 419.0	26542		40.00	µg/L		0.000
System Monitoring Compounds								
13C2-PFDA	7.423	515.0 -> 470.0	145131		9.04	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%				Recovery = 45.2%			
13C2-PFHxA	4.775	315.0 -> 270.0	282625		10.00	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%				Recovery = 50.0%			
d5-EtFOSAA	7.378	589.0 -> 419.0	9174		20.42	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%				Recovery = 51.1%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	35220		19.88	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%				Recovery = 49.7%			
Target Compounds								QValue
6:2FTS	6.287	427.0 -> 407.0	183954		23.16	µg/L		100
8:2FTS	7.459	527.0 -> 507.0	134109		21.77	µg/L		100
EtFOSAA	7.392	584.0 -> 419.0	8266		19.55	µg/L	m	100
MeFOSAA	7.256	570.0 -> 419.0	11576		18.70	µg/L	m	100
PFBS	3.841	299.0 -> 80.0	281243	1.21	20.32	µg/L		100
PFDA	7.424	513.0 -> 469.0	269385		20.27	µg/L		100
PFDoDA	8.565	613.0 -> 569.0	126918		18.22	µg/L		100
PFHpA	5.614	363.0 -> 319.0	736932		20.18	µg/L		100
PFHxA	4.777	313.0 -> 269.0	387369	1.16	19.92	µg/L		100
PFHxS	5.635	399.0 -> 80.0	161391		20.47	µg/L	m	100
PFNA	6.886	463.0 -> 419.0	255209		19.80	µg/L	m	100
PFOA	6.290	413.0 -> 369.0	403145		20.35	µg/L		100
PFOS	6.861	499.0 -> 80.0	110534		19.83	µg/L	m	100
PFPeA	3.610	263.0 -> 219.0	728382		20.16	µg/L		100
PFTeDA	10.059	713.0 -> 669.0	58346		19.63	µg/L		100
PFTrDA	9.414	663.0 -> 619.0	57563		19.55	µg/L		100
PFUnDA	7.918	563.0 -> 519.0	248790		19.89	µg/L		100
ADONA	5.688	377.0 -> 251.0	982152		20.53	µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	110394		19.89	µg/L		100
11Cl-PF3OUdS	8.087	631.0 -> 451.0	97735		19.91	µg/L		100
HFPO-DA	5.035	285.0 -> 169.0	32404		19.86	µg/L		100

 # = Qualifier out of range, m = manually integrated, + = Area summed

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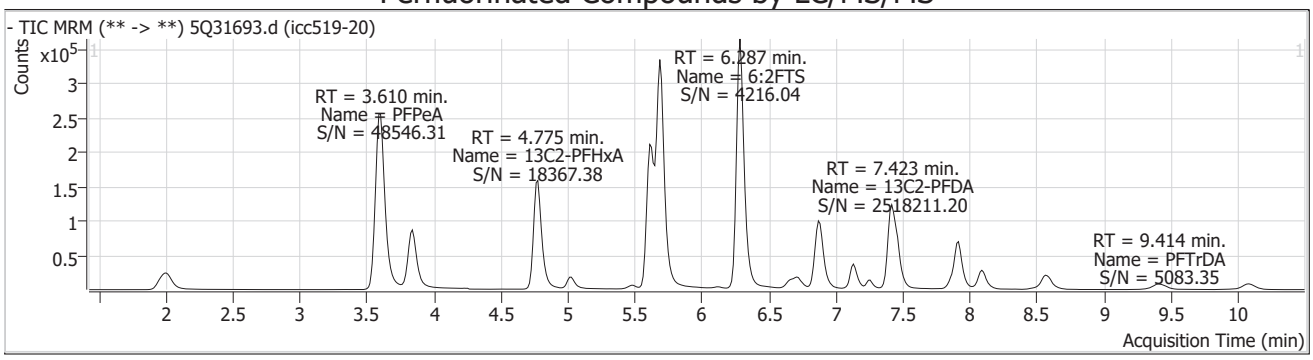
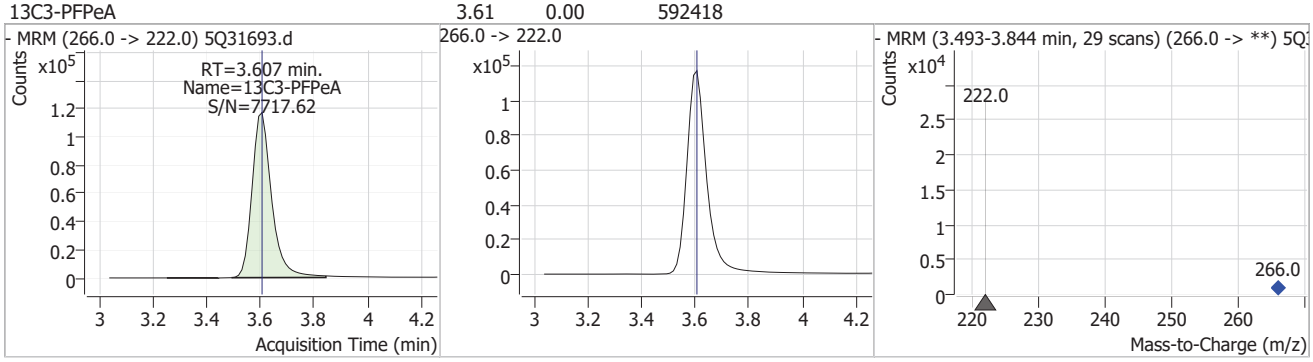
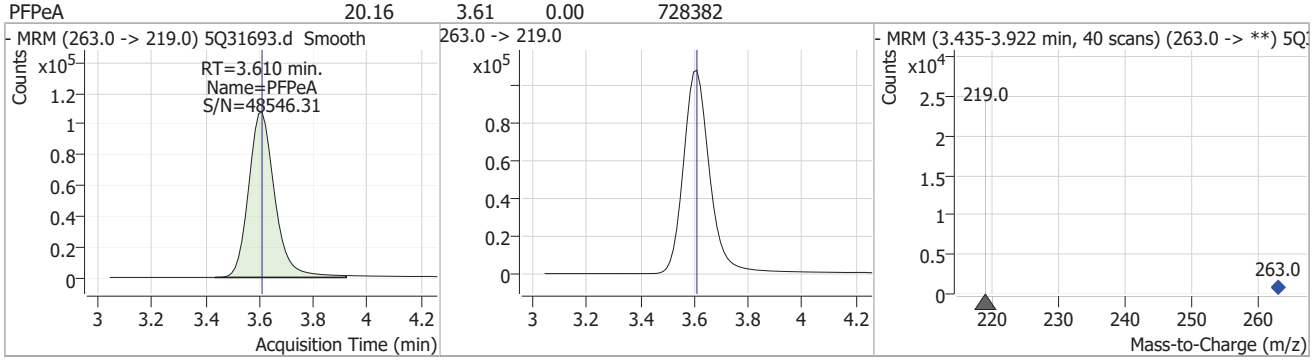
Perfluorinated Compounds by LC/MS/MS



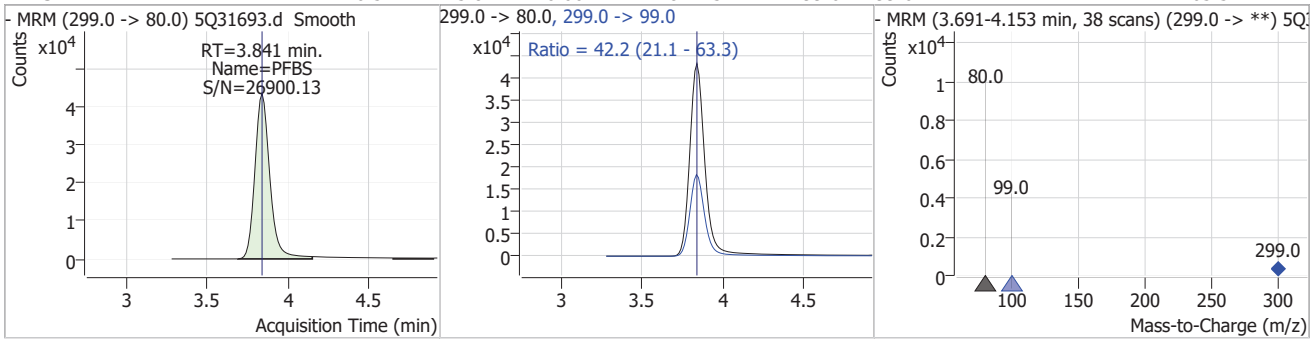
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.00	592418				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.16	3.61	0.00	728382				

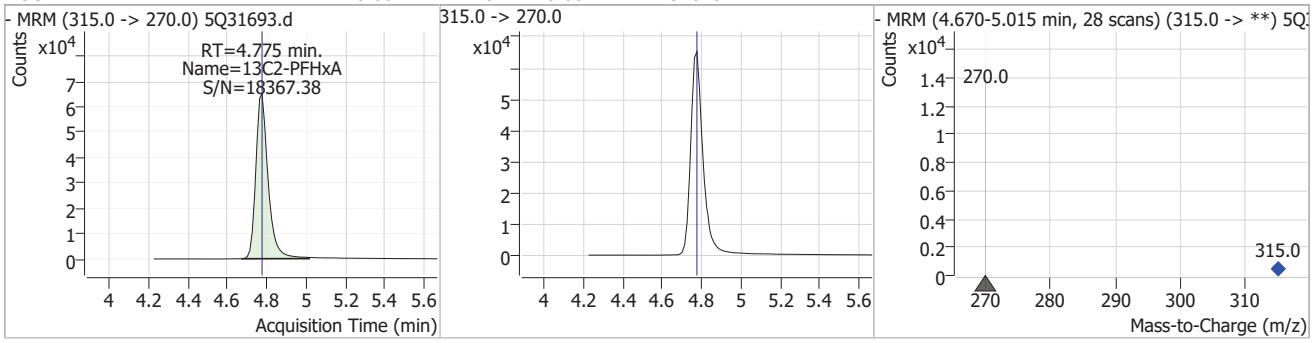


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.32	3.84	0.00	281243	299.0 -> 99.0	42.2	21.1	63.3

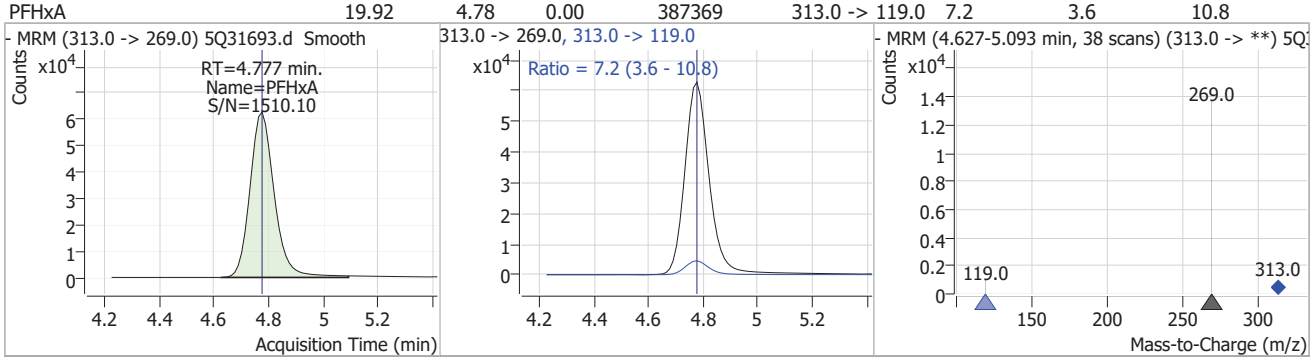


Perfluorinated Compounds by LC/MS/MS

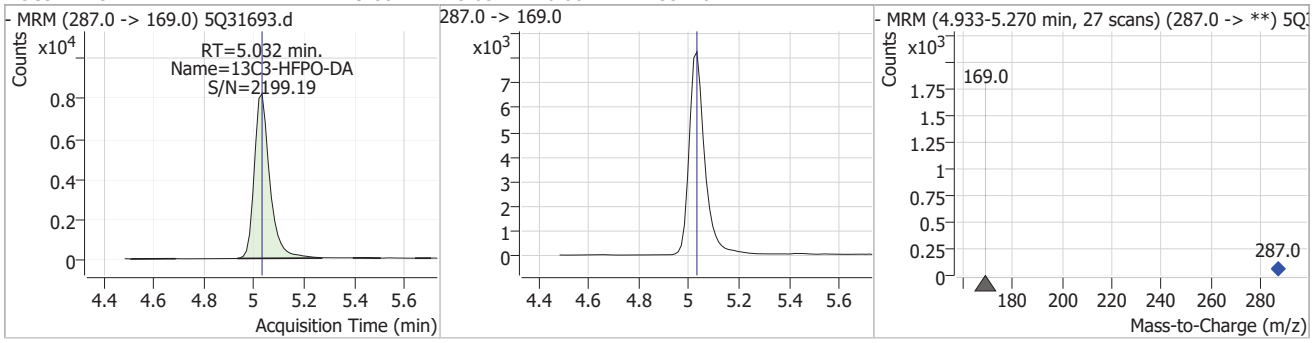
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	10.00	4.78	0.00	282625				



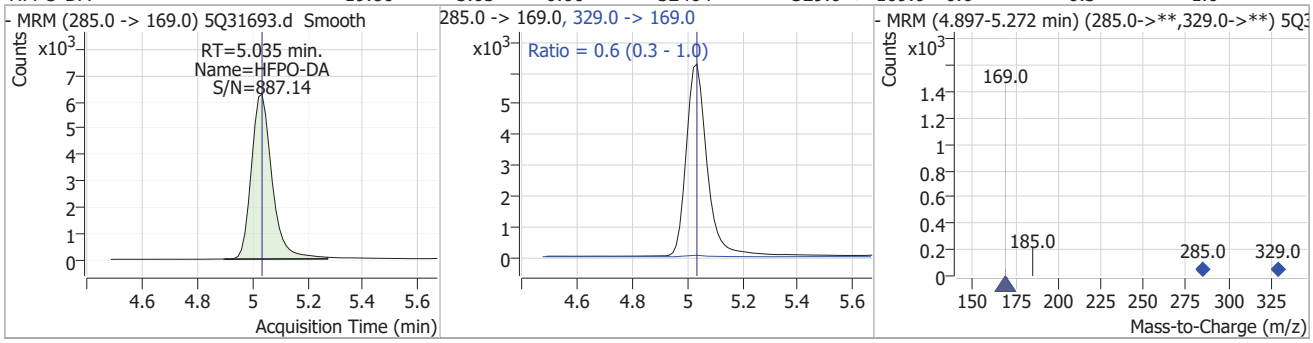
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.92	4.78	0.00	387369	313.0 -> 119.0	7.2	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	19.88	5.03	0.00	35220				

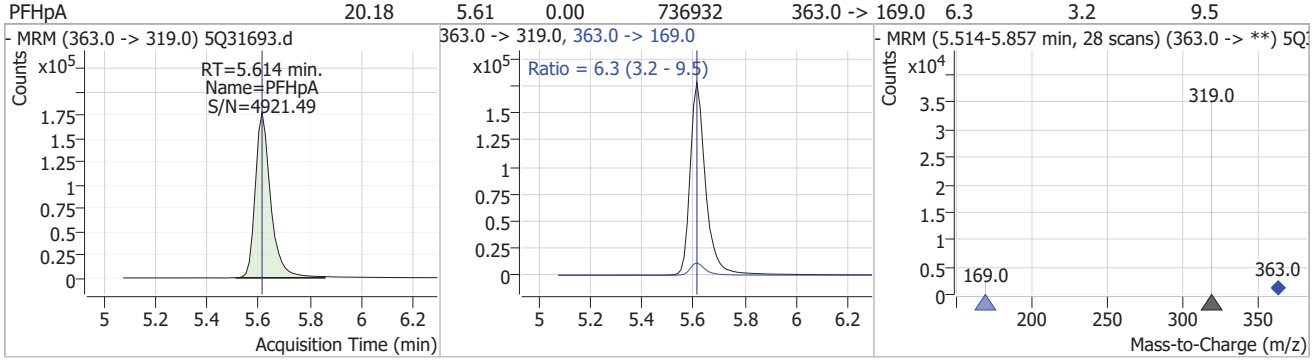


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.86	5.03	0.00	32404	329.0 -> 169.0	0.6	0.3	1.0

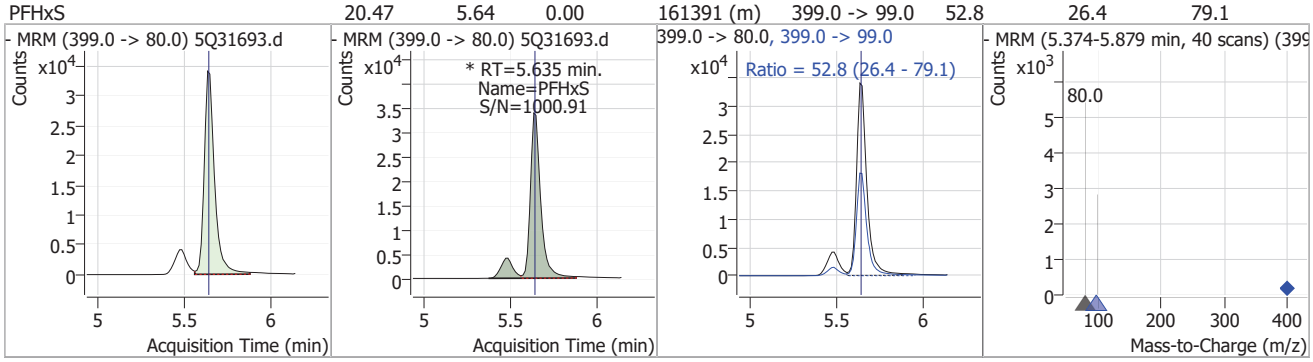


Perfluorinated Compounds by LC/MS/MS

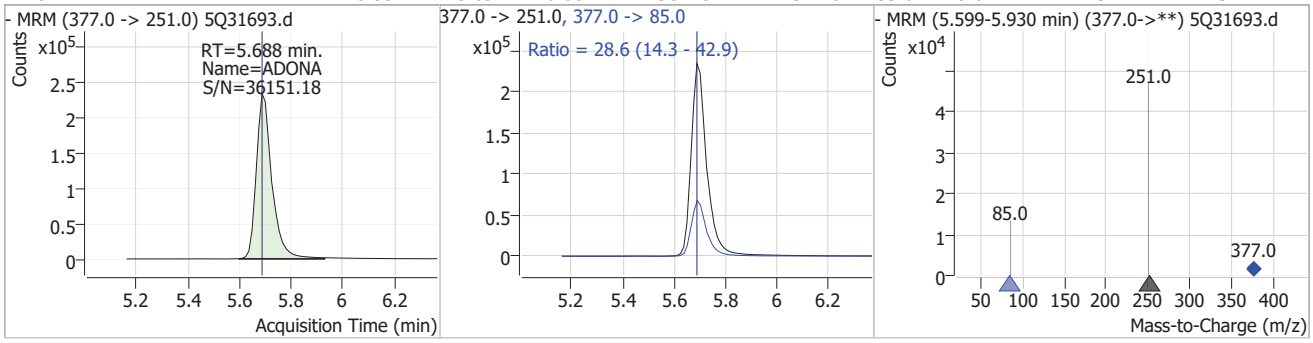
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.18	5.61	0.00	736932	363.0 -> 169.0	6.3	3.2	9.5



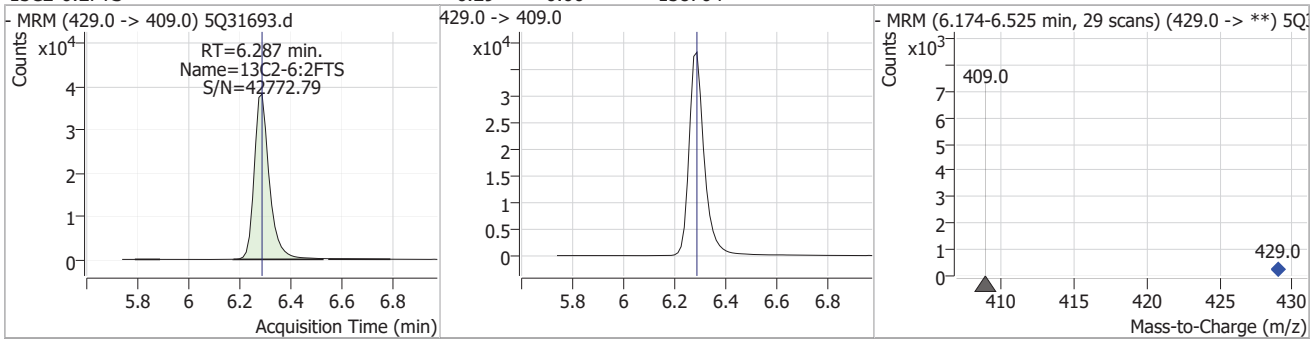
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	20.47	5.64	0.00	161391 (m)	399.0 -> 99.0	52.8	26.4	79.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.53	5.69	0.00	982152	377.0 -> 85.0	28.6	14.3	42.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	158704				



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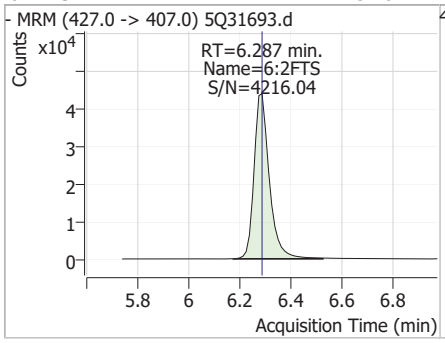
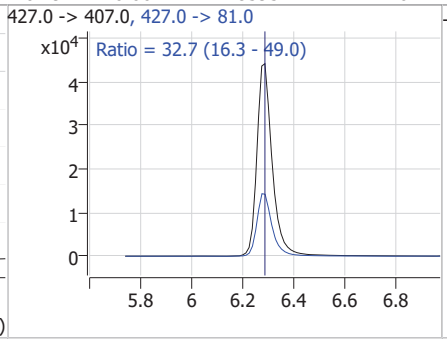
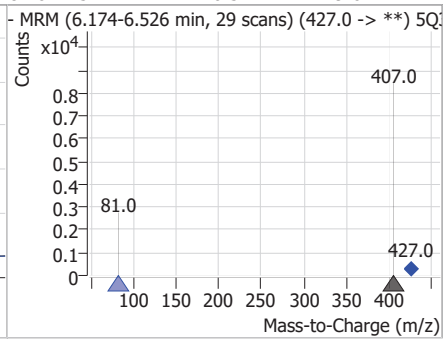
Perfluorinated Compounds by LC/MS/MS

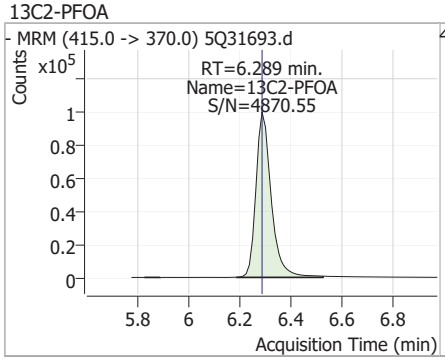
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	23.16	6.29	0.00	183954	427.0 -> 81.0	32.7	16.3	49.0

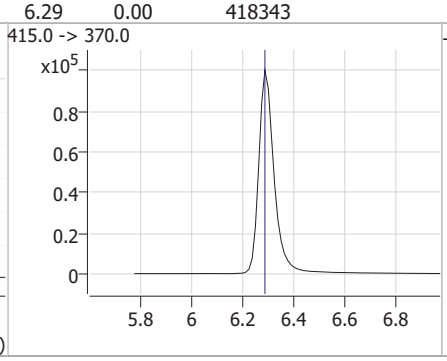


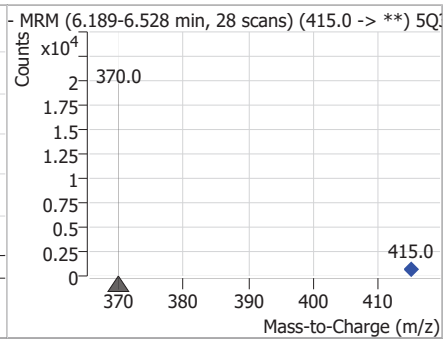




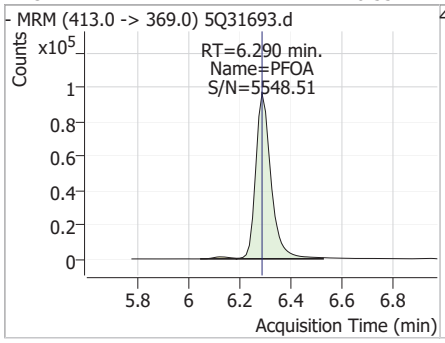
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	418343				

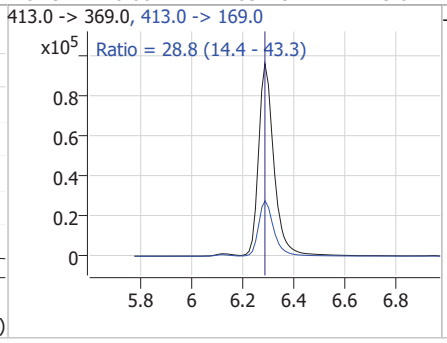


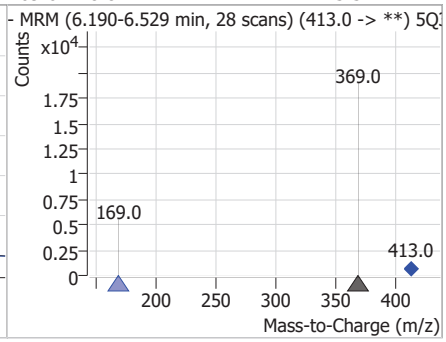




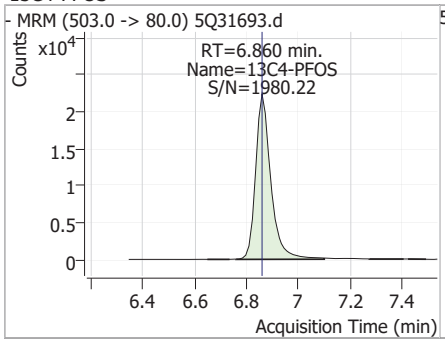
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.35	6.29	0.00	403145	413.0 -> 169.0	28.8	14.4	43.3

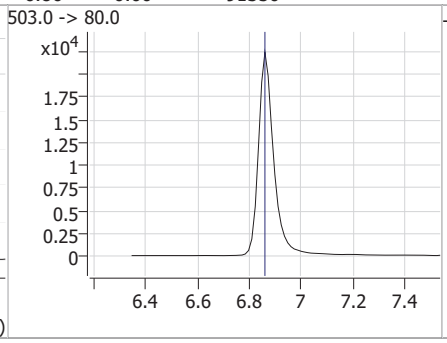


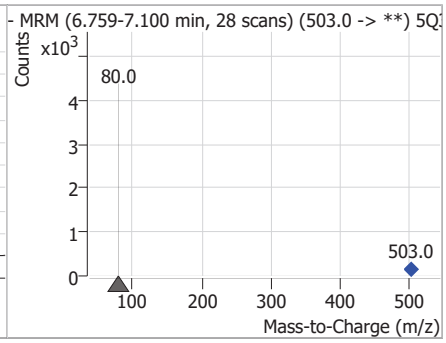




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	91350				







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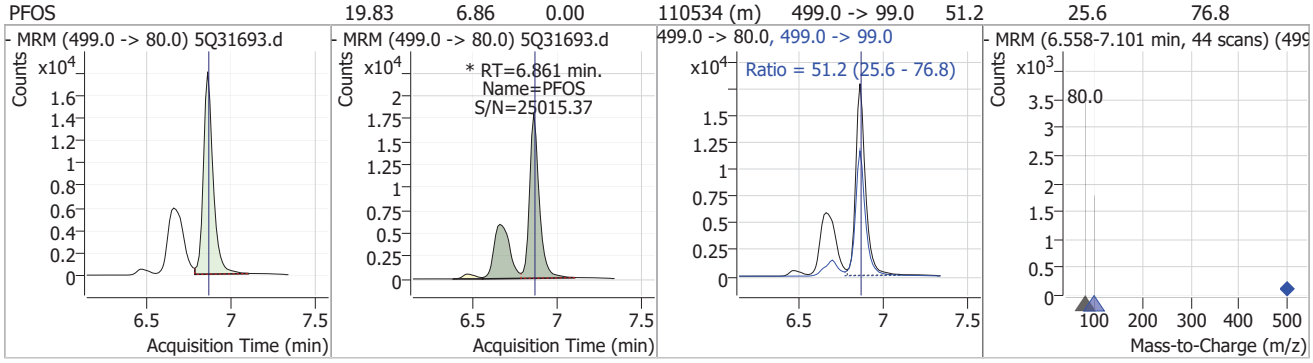
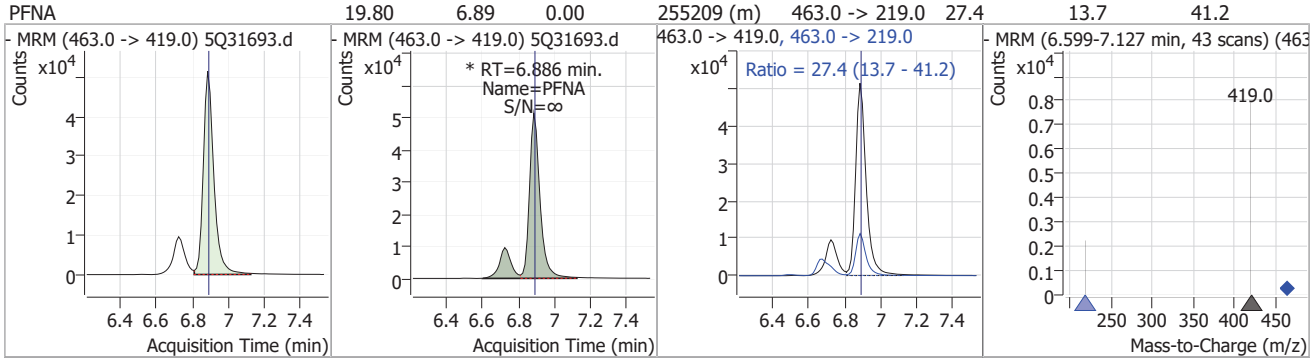
Perfluorinated Compounds by LC/MS/MS

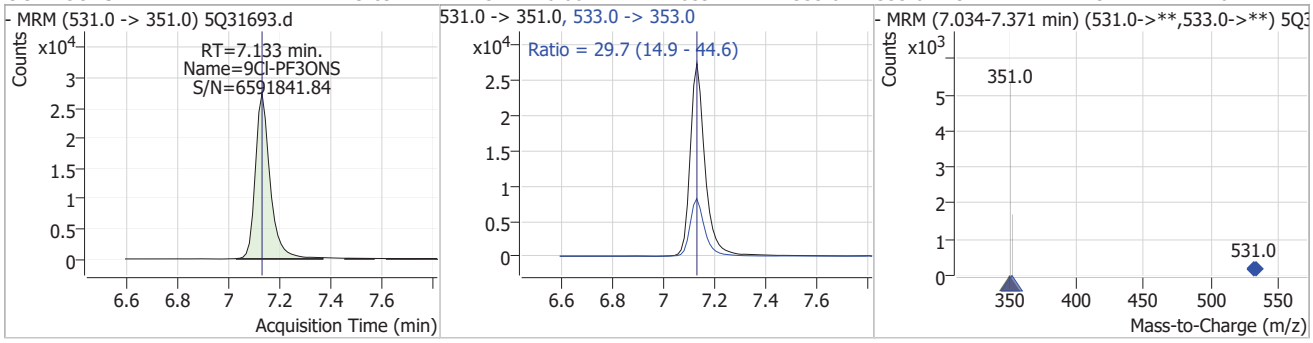
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.83	6.86	0.00	110534 (m)	499.0 -> 99.0	51.2	25.6	76.8



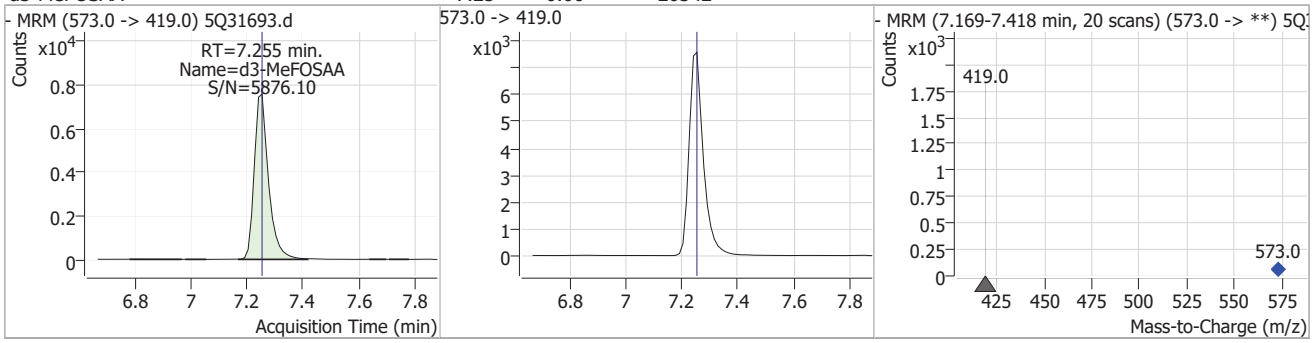
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.80	6.89	0.00	255209 (m)	463.0 -> 219.0	27.4	13.7	41.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	19.89	7.13	0.00	110394	533.0 -> 353.0	29.7	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	26542				



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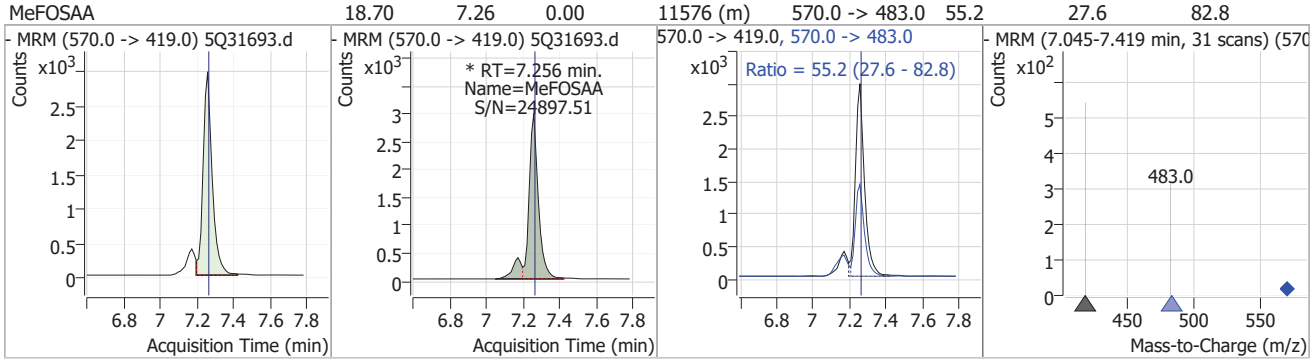
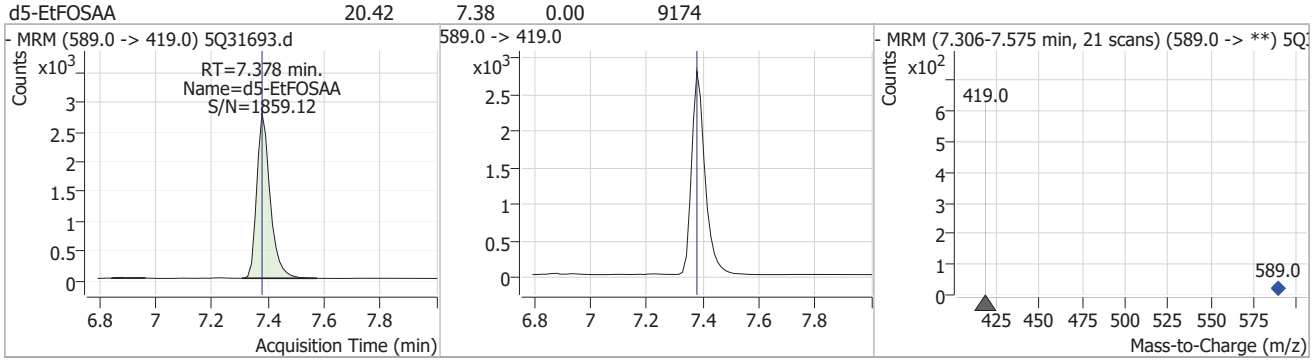
Perfluorinated Compounds by LC/MS/MS

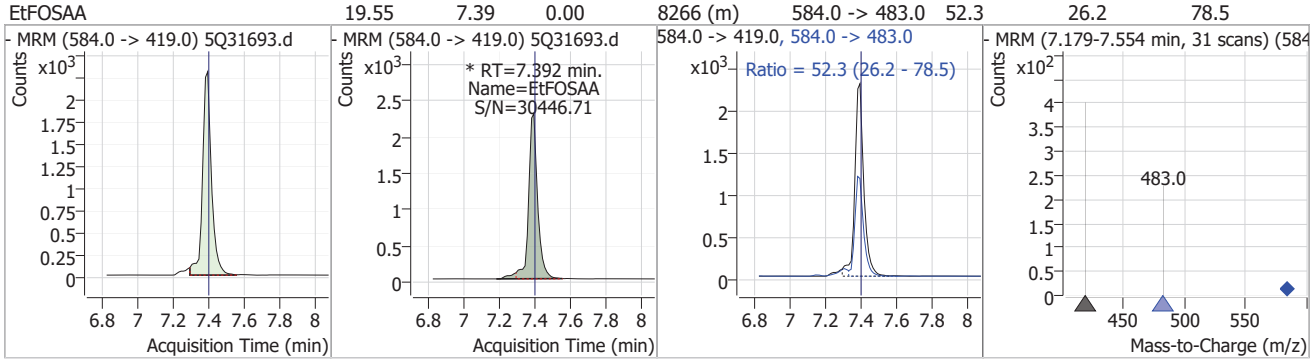
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	18.70	7.26	0.00	11576 (m)	570.0 -> 483.0	55.2	27.6	82.8



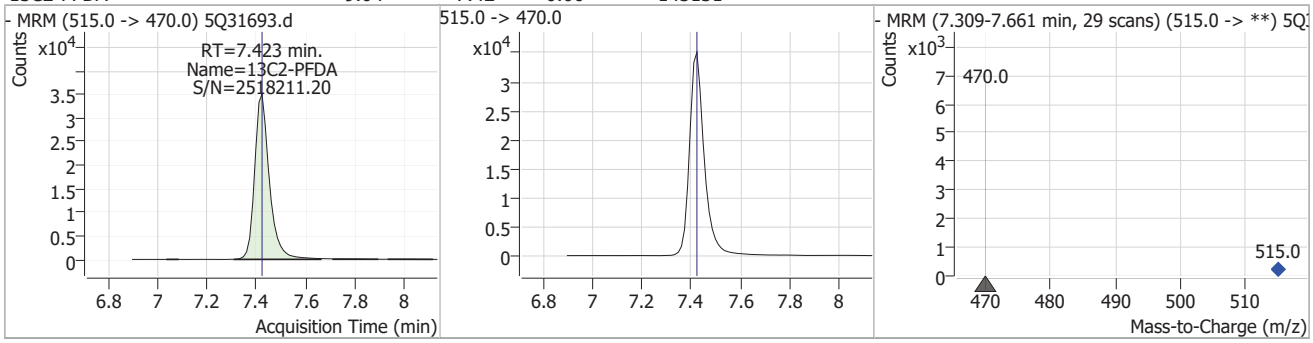
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	20.42	7.38	0.00	9174				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.55	7.39	0.00	8266 (m)	584.0 -> 483.0	52.3	26.2	78.5

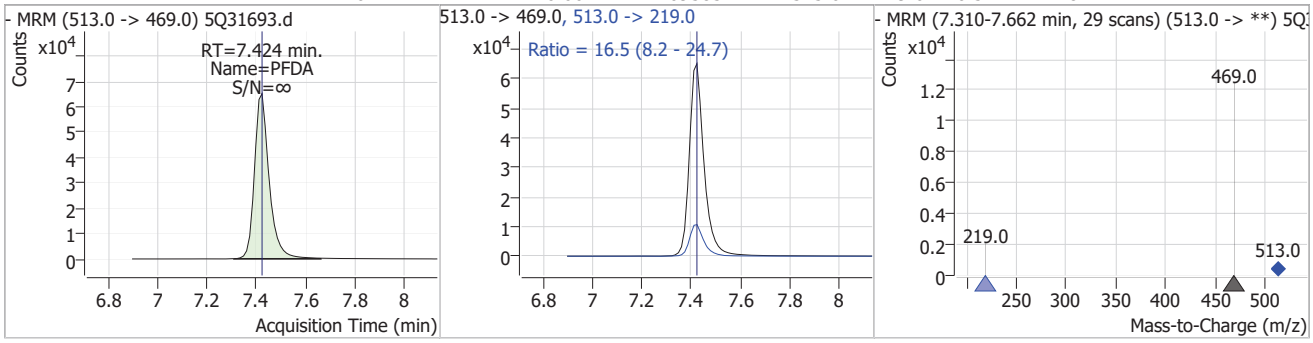


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	9.04	7.42	0.00	145131				

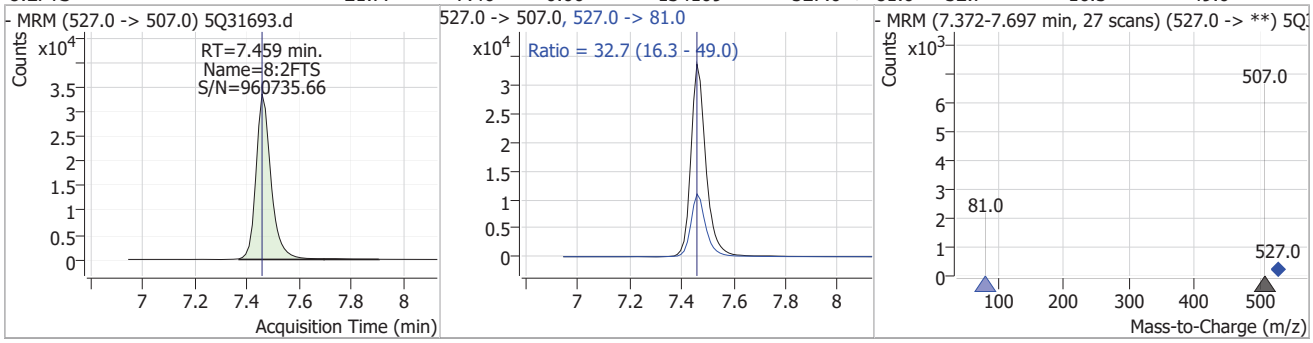


Perfluorinated Compounds by LC/MS/MS

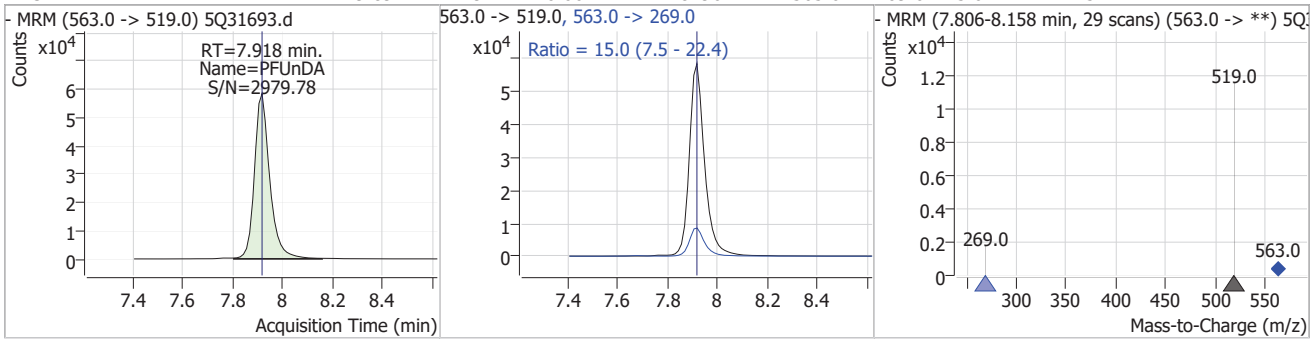
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.27	7.42	0.00	269385	513.0 -> 219.0	16.5	8.2	24.7



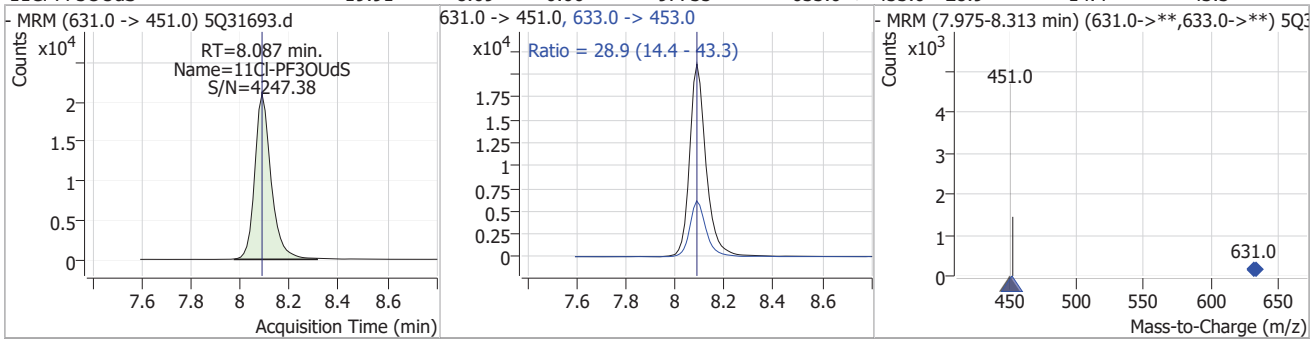
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.77	7.46	0.00	134109	527.0 -> 81.0	32.7	16.3	49.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.89	7.92	0.00	248790	563.0 -> 269.0	15.0	7.5	22.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	19.91	8.09	0.00	97735	633.0 -> 453.0	28.9	14.4	43.3



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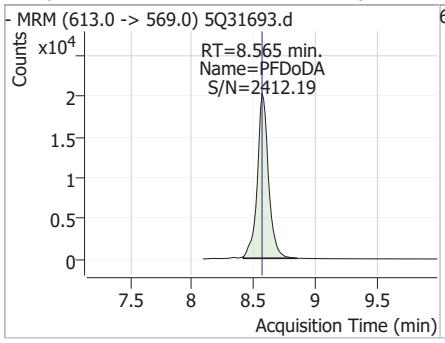
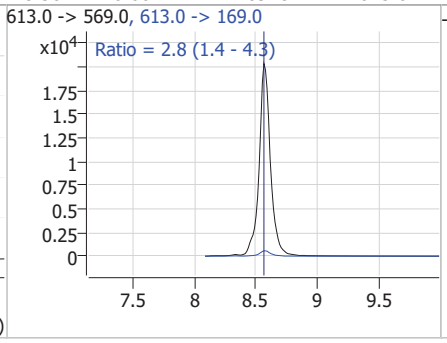
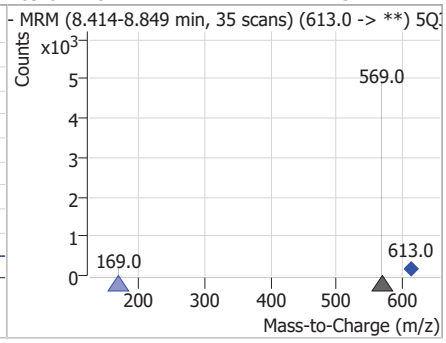
Perfluorinated Compounds by LC/MS/MS

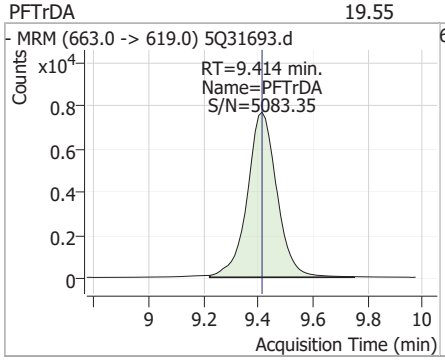
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	18.22	8.56	0.00	126918	613.0 -> 169.0	2.8	1.4	4.3

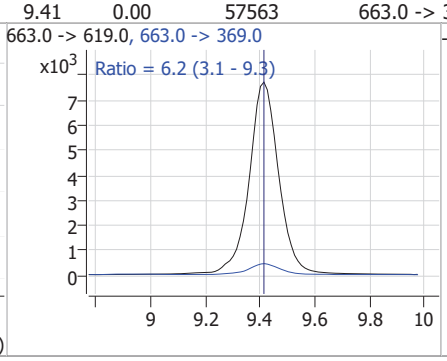


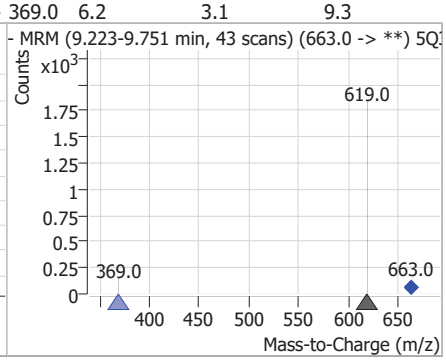




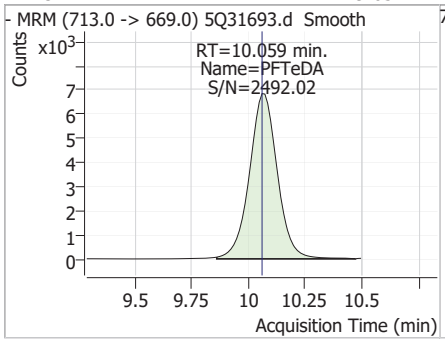
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	19.55	9.41	0.00	57563	663.0 -> 369.0	6.2	3.1	9.3

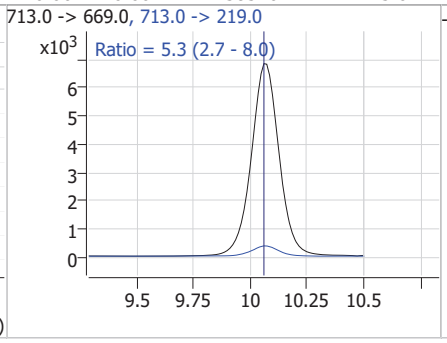


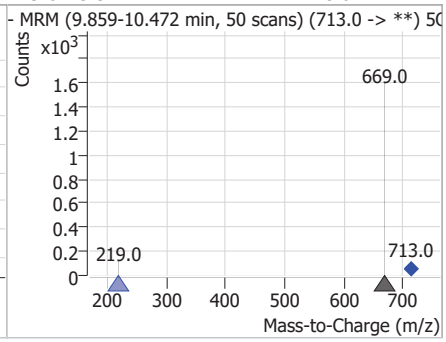




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.63	10.06	0.00	58346	713.0 -> 219.0	5.3	2.7	8.0







7.7.19

7

Manual Integration Approval Summary

Sample Number: S5Q519-ICC519
Lab FileID: 5Q31693.D
Injection Time: 04/11/25 12:53
Method: EPA 537.1 REV 2.0
Analyst approved: 04/14/25 10:08 (b) (6)
Supervisor approved: 04/14/25 12:24 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/14/25 12:24

Perfluorinated Compounds by LC/MS/MS

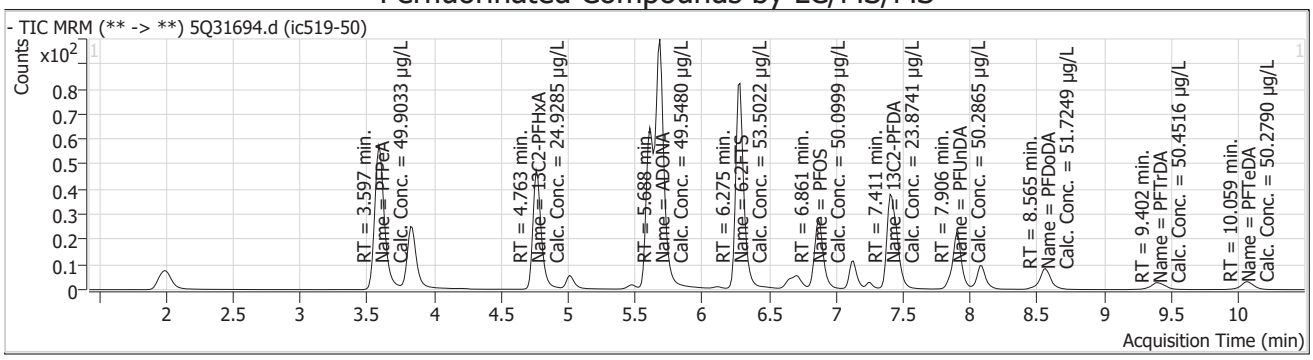
Data File : 5Q31694.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/11/2025 1:09:48 PM
Sample Name : ic519-50
Vial : P1-A8
DA Method File : 537_041125_S5Q519.quantmethod
Batch Name : s5q519.batch.bin
Sample Information : OP8806,S5Q519,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.274	429.0 -> 409.0	171608	20.00 µg/L		-0.012
13C2-PFOA	6.289	415.0 -> 370.0	407098	20.00 µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	595822	20.00 µg/L		-0.012
13C4-PFOS	6.860	503.0 -> 80.0	90786	20.00 µg/L		0.000
d3-MeFOSAA	7.242	573.0 -> 419.0	28107	40.00 µg/L		-0.012
System Monitoring Compounds						
13C2-PFDA	7.411	515.0 -> 470.0	372801	23.87 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 119.4%		
13C2-PFHxA	4.763	315.0 -> 270.0	702393	24.93 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 124.6%		
d5-EtFOSAA	7.378	589.0 -> 419.0	23752	49.36 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 123.4%		
13C3-HFPO-DA	5.019	287.0 -> 169.0	89421	49.98 µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 125.0%		
Target Compounds						QValue
6:2FTS	6.275	427.0 -> 407.0	459515	53.50 µg/L		99
8:2FTS	7.459	527.0 -> 507.0	348285	52.28 µg/L		99
EtFOSAA	7.380	584.0 -> 419.0	22437	49.88 µg/L	m	99
MeFOSAA	7.256	570.0 -> 419.0	30803	47.00 µg/L	m	98
PFBS	3.841	299.0 -> 80.0	685701	49.86 µg/L		99
PFDA	7.411	513.0 -> 469.0	682334	50.24 µg/L		99
PFDoDA	8.565	613.0 -> 569.0	408108	51.72 µg/L		100
PFHpA	5.614	363.0 -> 319.0	1834274	49.69 µg/L		100
PFHxA	4.764	313.0 -> 269.0	962490	49.94 µg/L		100
PFHxS	5.635	399.0 -> 80.0	409586	49.68 µg/L	m	99
PFNA	6.886	463.0 -> 419.0	667852	50.13 µg/L	m	100
PFOA	6.290	413.0 -> 369.0	997070	50.43 µg/L		99
PFOS	6.861	499.0 -> 80.0	291330	50.10 µg/L	m	99
PFPeA	3.597	263.0 -> 219.0	1850995	49.90 µg/L		100
PFTeDA	10.059	713.0 -> 669.0	170001	50.28 µg/L		99
PFTrDA	9.402	663.0 -> 619.0	164911	50.45 µg/L		98
PFUnDA	7.906	563.0 -> 519.0	659320	50.29 µg/L		98
ADONA	5.688	377.0 -> 251.0	2441992	49.55 µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	288887	49.98 µg/L		98
11Cl-PF3OUdS	8.075	631.0 -> 451.0	276592	51.03 µg/L		98
HFPO-DA	5.022	285.0 -> 169.0	83527	50.13 µg/L		100

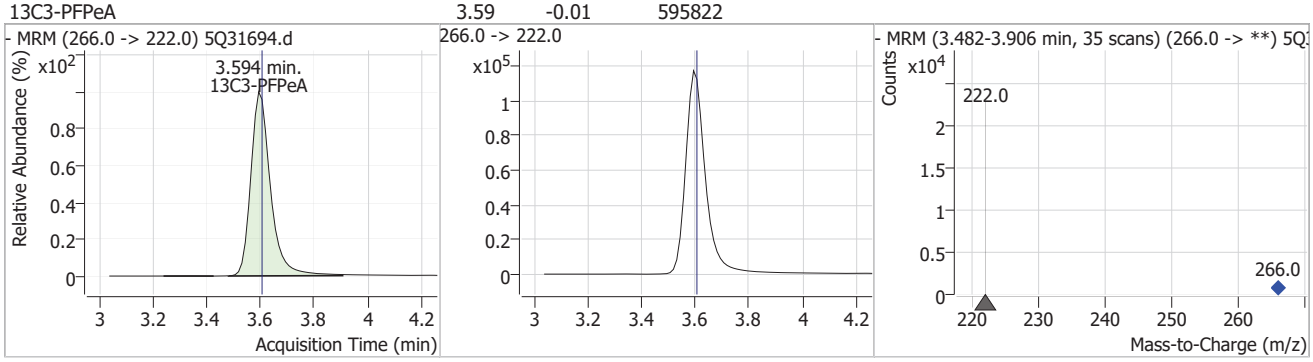
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.20
7

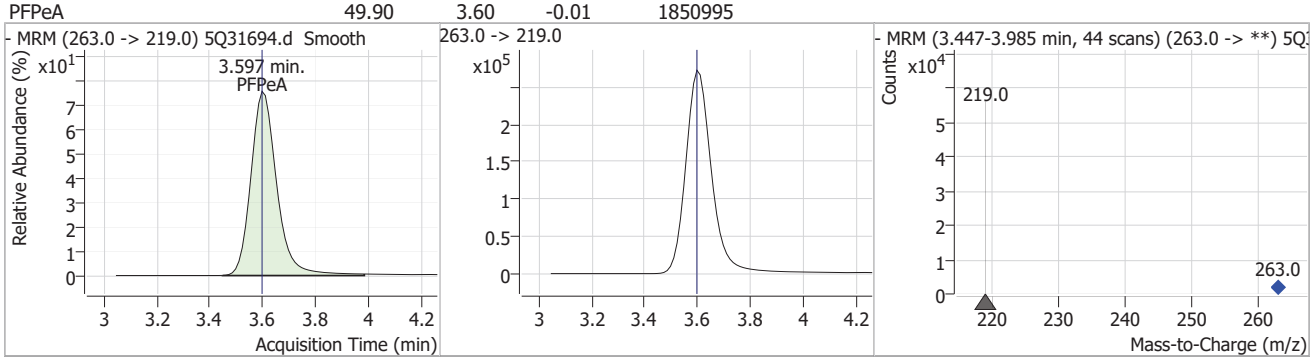
Perfluorinated Compounds by LC/MS/MS



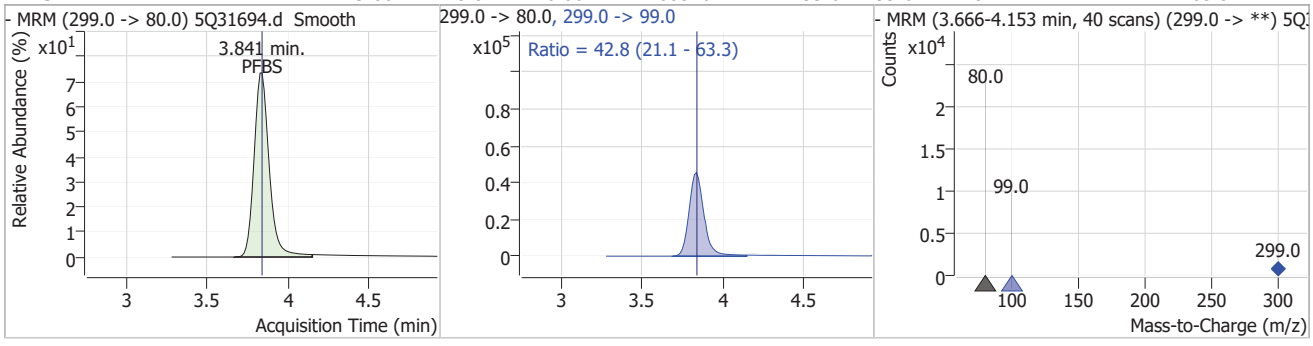
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	595822				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	49.90	3.60	-0.01	1850995				

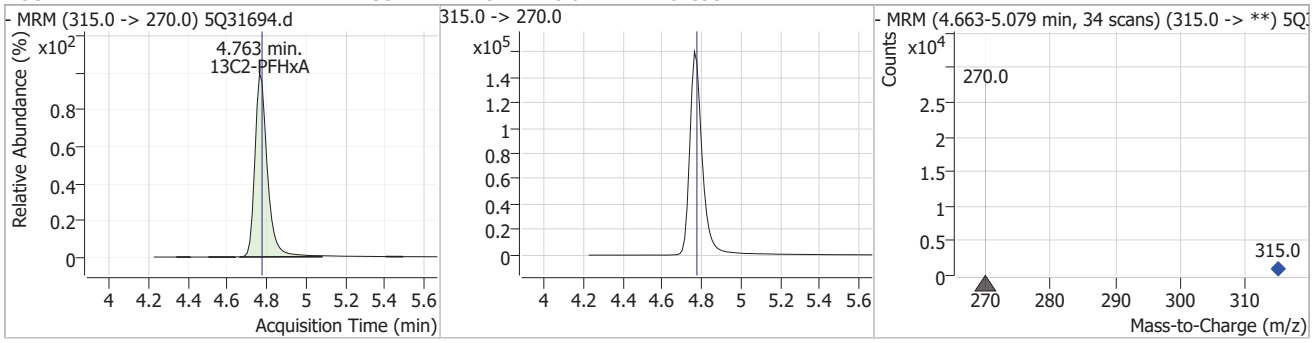


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	49.86	3.84	0.00	685701	299.0 -> 99.0	42.8	21.1	63.3

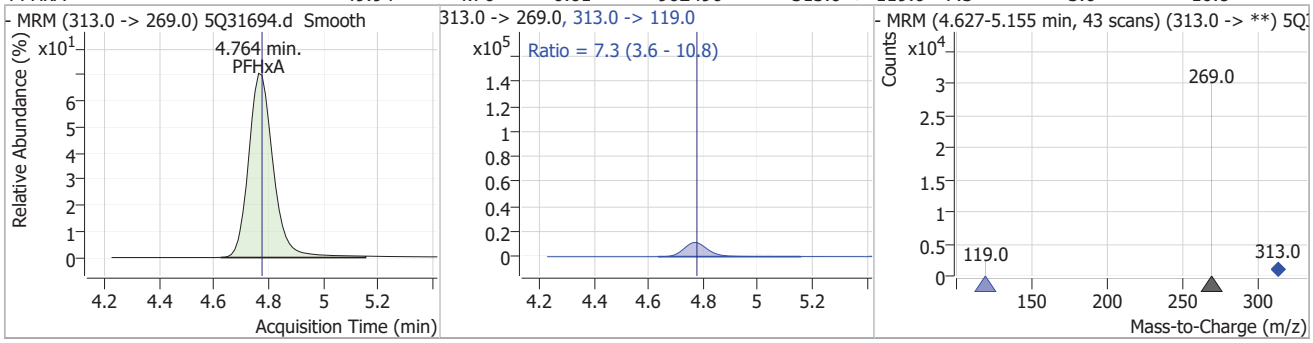


Perfluorinated Compounds by LC/MS/MS

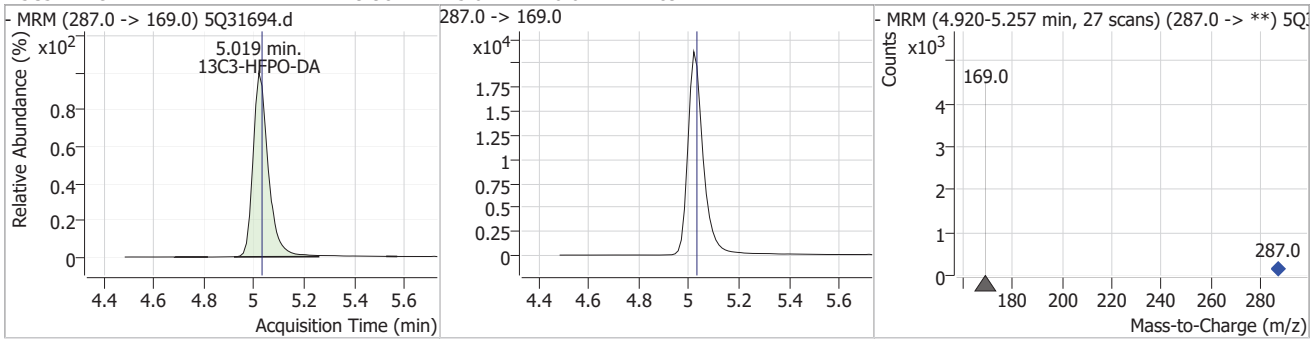
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	24.93	4.76	-0.01	702393				



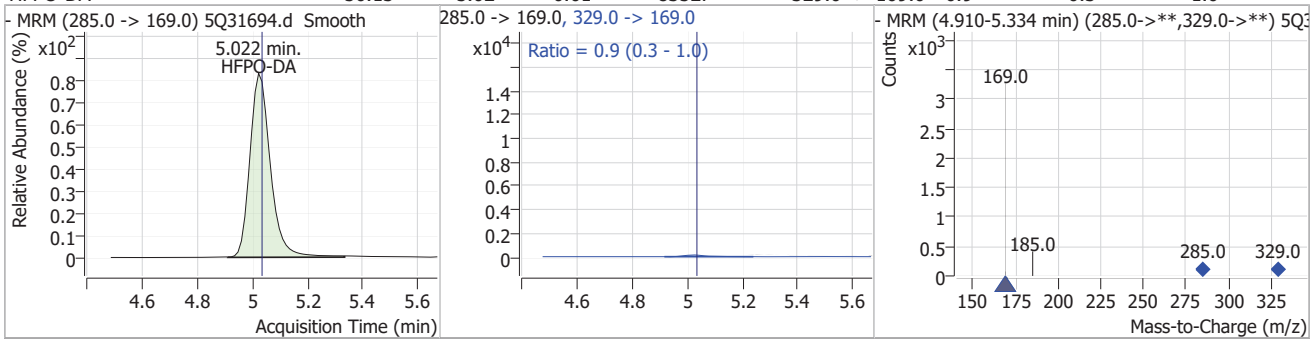
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	49.94	4.76	-0.01	962490	313.0 -> 119.0	7.3	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	49.98	5.02	-0.01	89421				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	50.13	5.02	-0.01	83527	329.0 -> 169.0	0.9	0.3	1.0

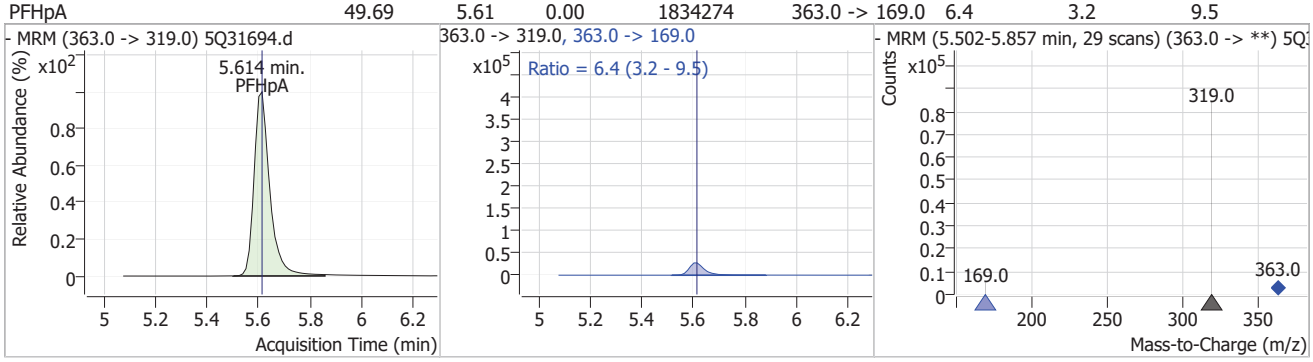


7.7.20

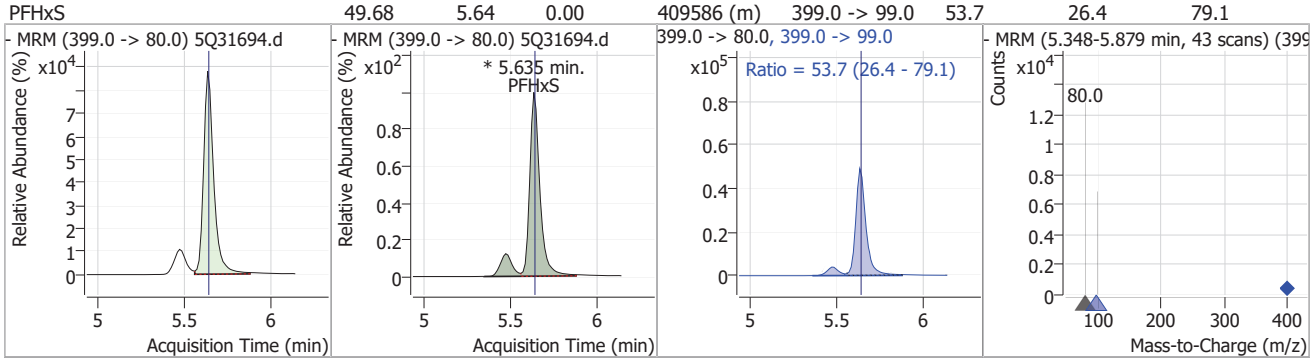
7

Perfluorinated Compounds by LC/MS/MS

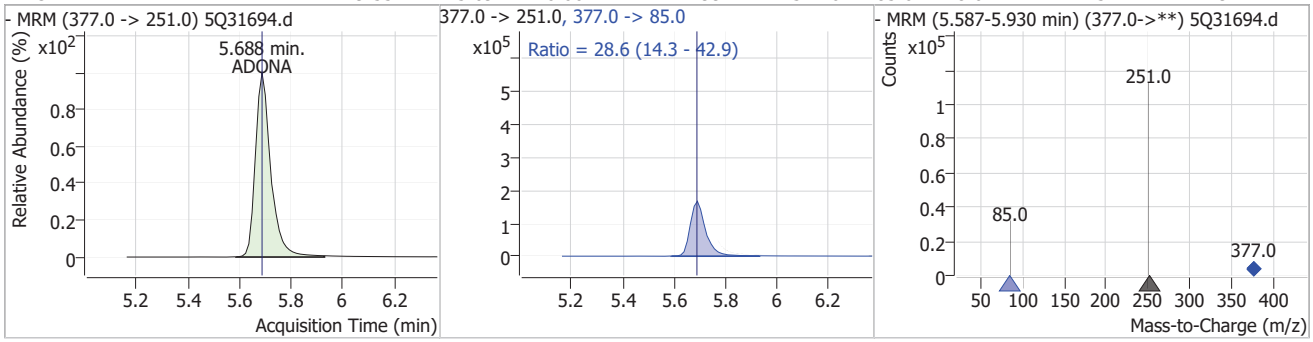
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	49.69	5.61	0.00	1834274	363.0 -> 169.0	6.4	3.2	9.5



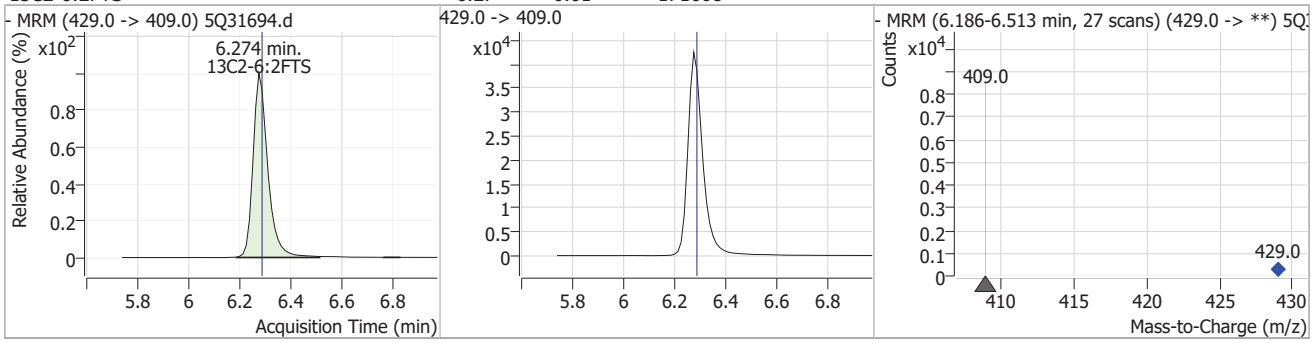
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	49.68	5.64	0.00	409586 (m)	399.0 -> 99.0	53.7	26.4	79.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	49.55	5.69	0.00	2441992	377.0 -> 85.0	28.6	14.3	42.9

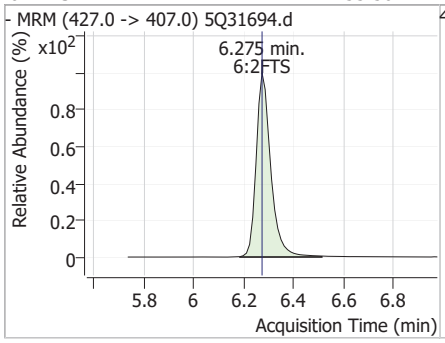


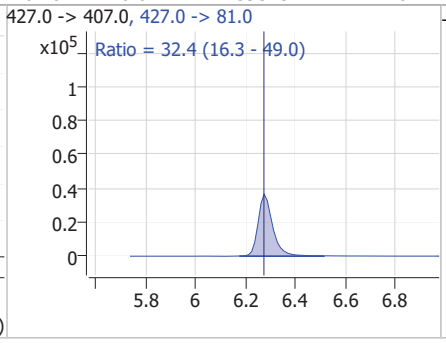
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	171608				

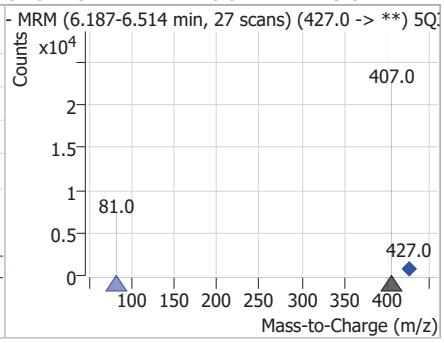


Perfluorinated Compounds by LC/MS/MS

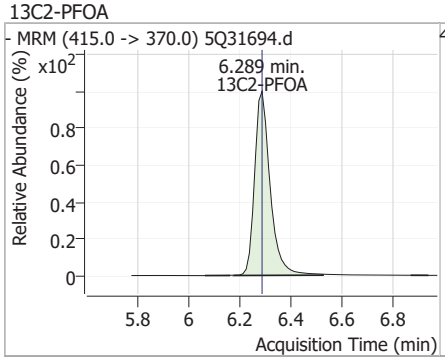
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	53.50	6.28	-0.01	459515	427.0 -> 81.0	32.4	16.3	49.0

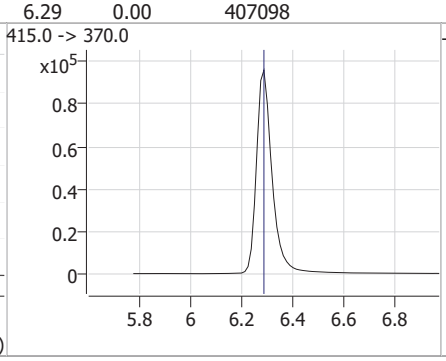


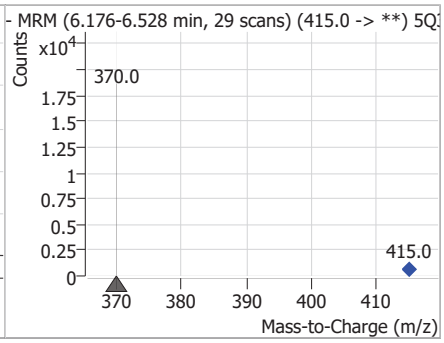




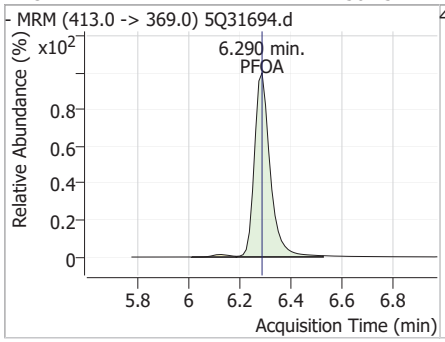
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	407098				

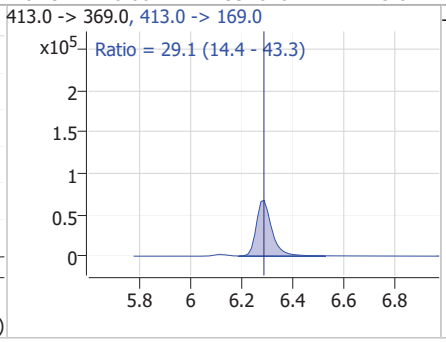


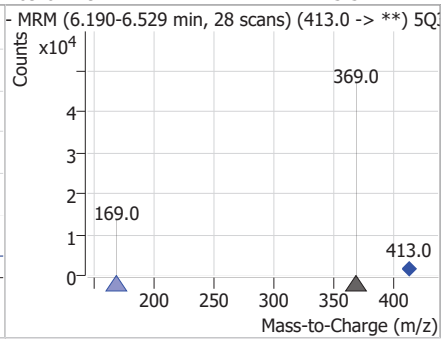




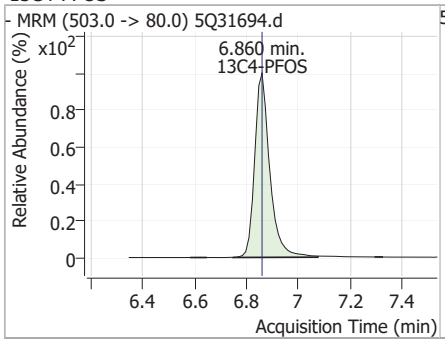
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	50.43	6.29	0.00	997070	413.0 -> 169.0	29.1	14.4	43.3

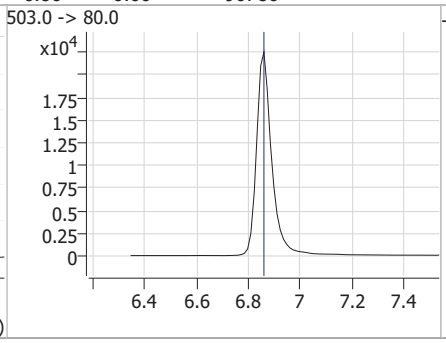


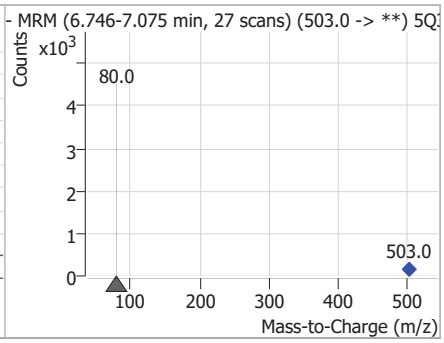




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	90786				

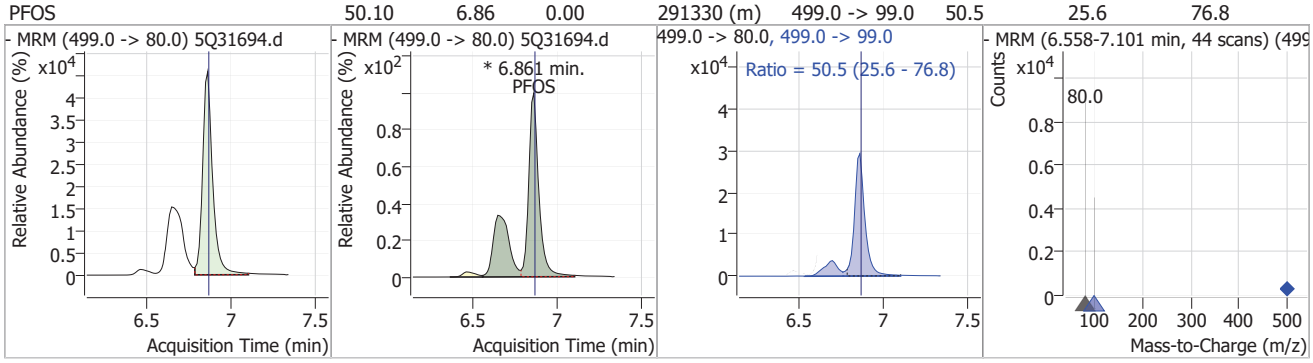




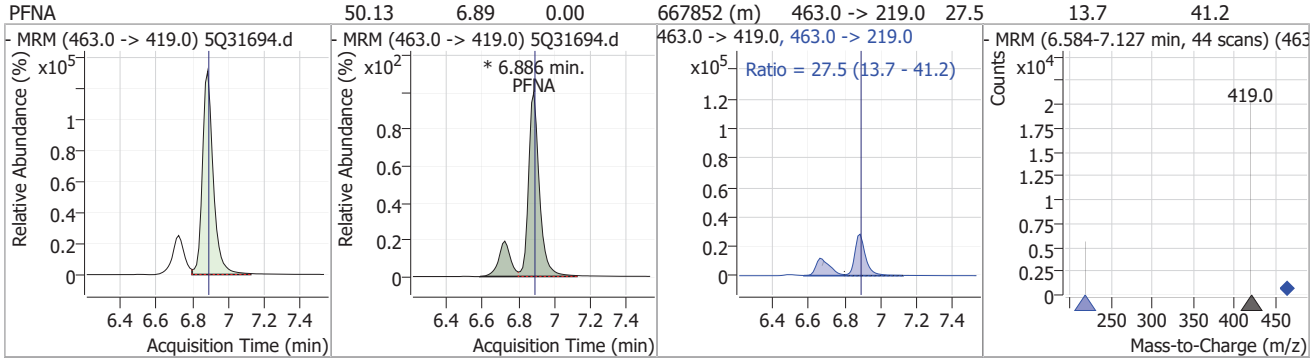


Perfluorinated Compounds by LC/MS/MS

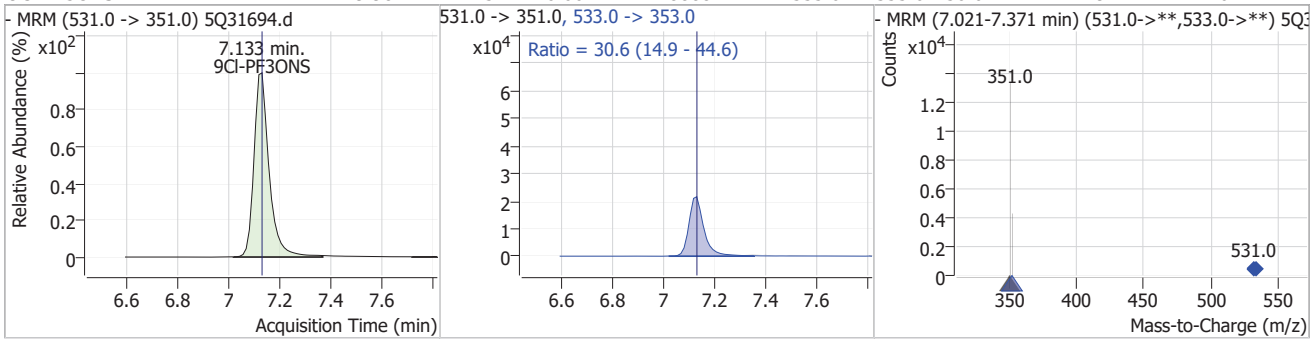
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	50.10	6.86	0.00	291330 (m)	499.0 -> 99.0	50.5	25.6	76.8



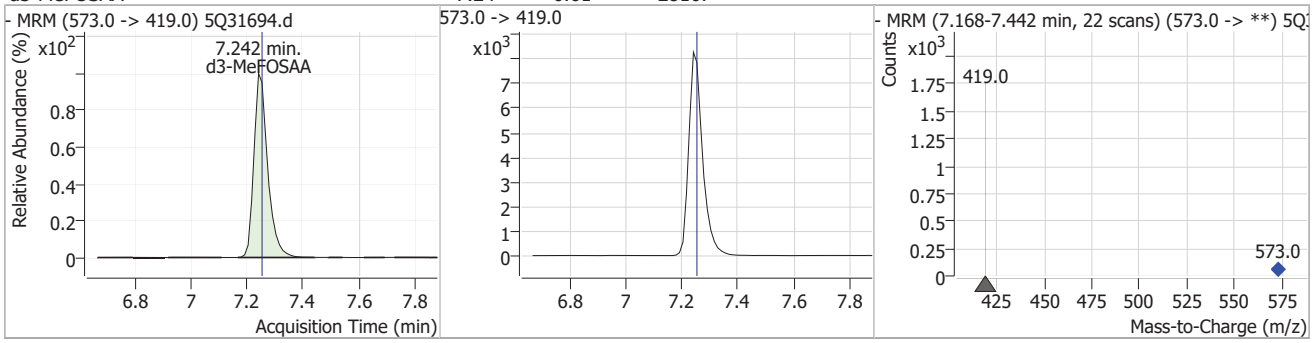
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	50.13	6.89	0.00	667852 (m)	463.0 -> 219.0	27.5	13.7	41.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	49.98	7.13	0.00	288887	533.0 -> 353.0	30.6	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	28107				



7.7.20

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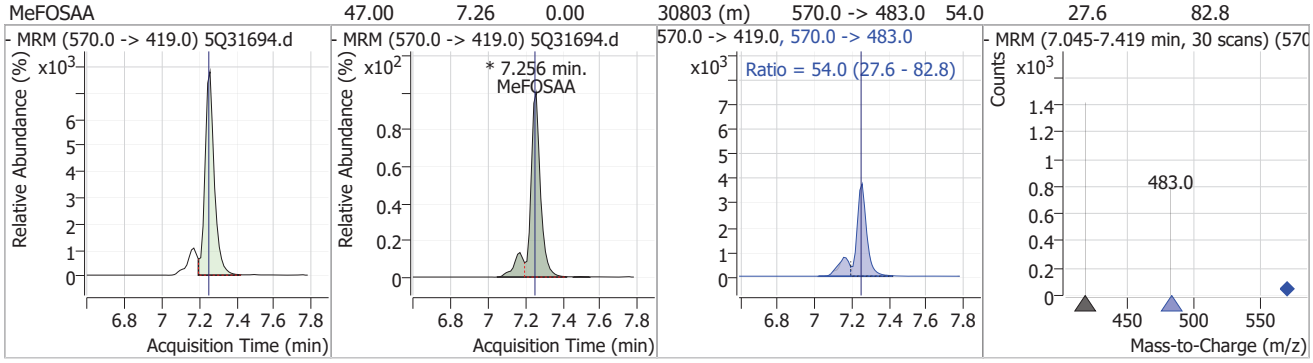
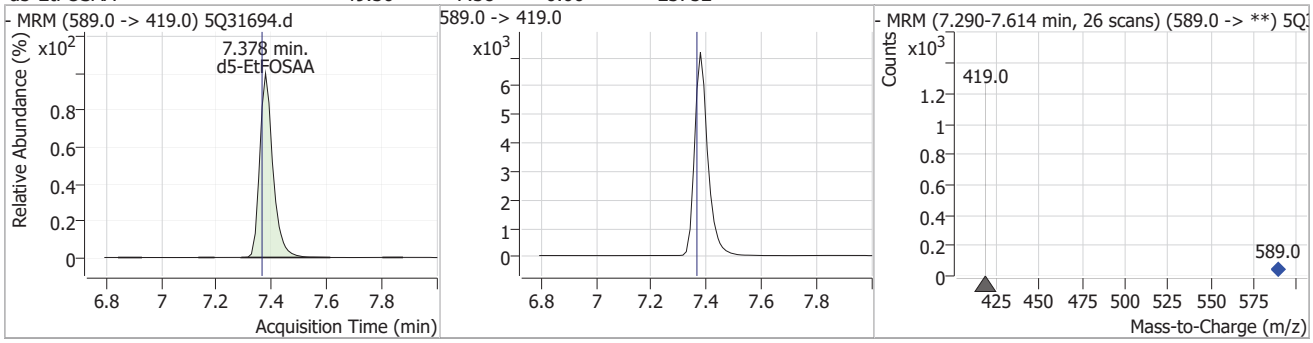
Perfluorinated Compounds by LC/MS/MS

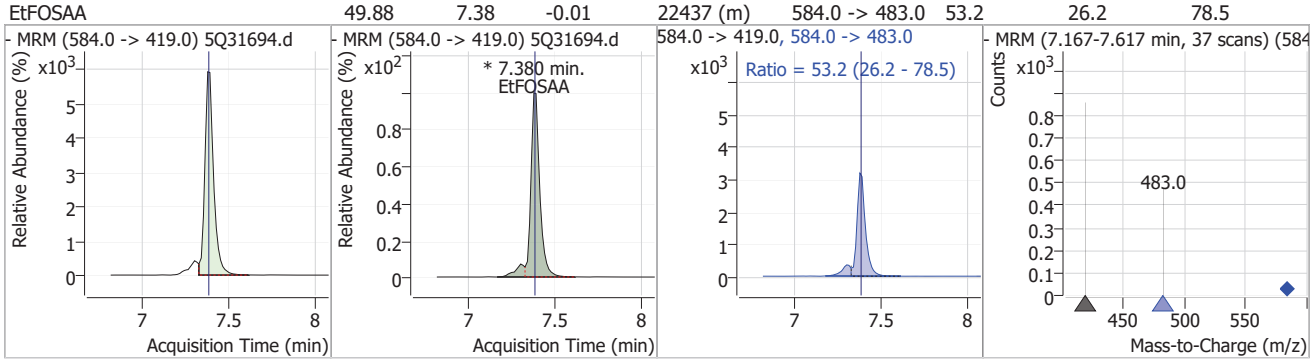
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	47.00	7.26	0.00	30803 (m)	570.0 -> 483.0	54.0	27.6	82.8



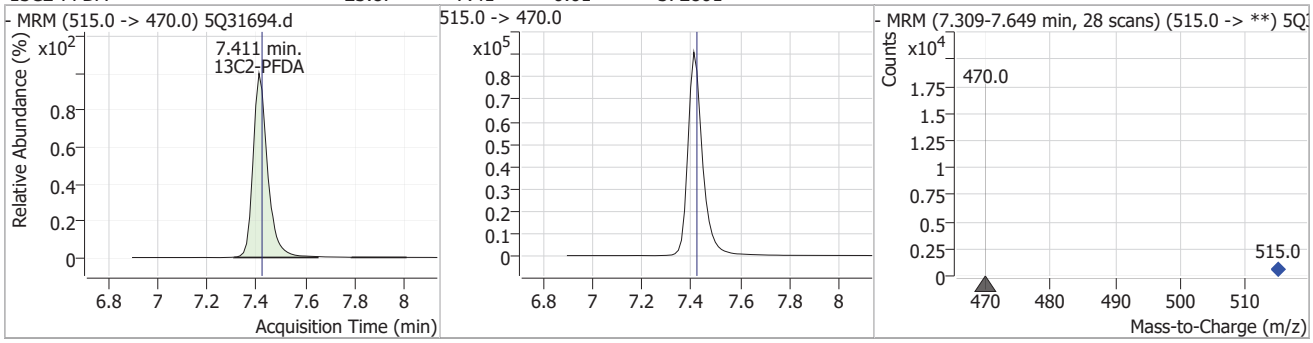
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	49.36	7.38	0.00	23752				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	49.88	7.38	-0.01	22437 (m)	584.0 -> 483.0	53.2	26.2	78.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	23.87	7.41	-0.01	372801				



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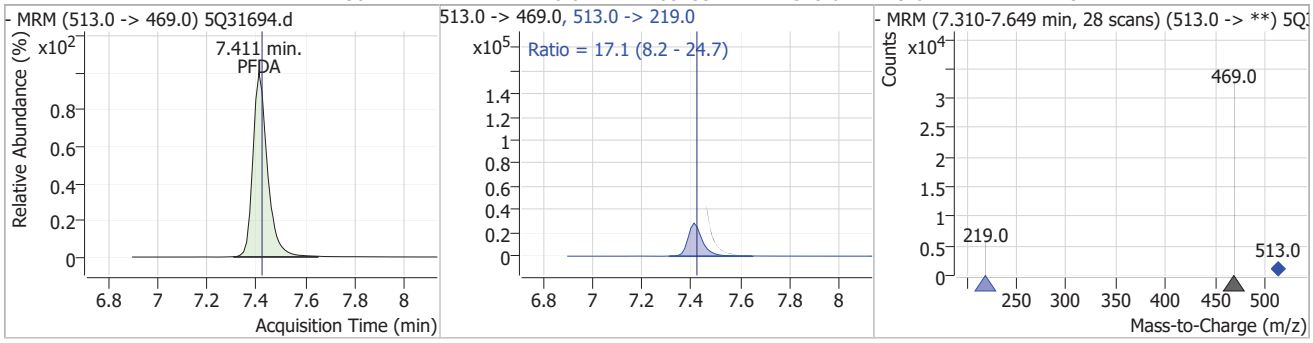
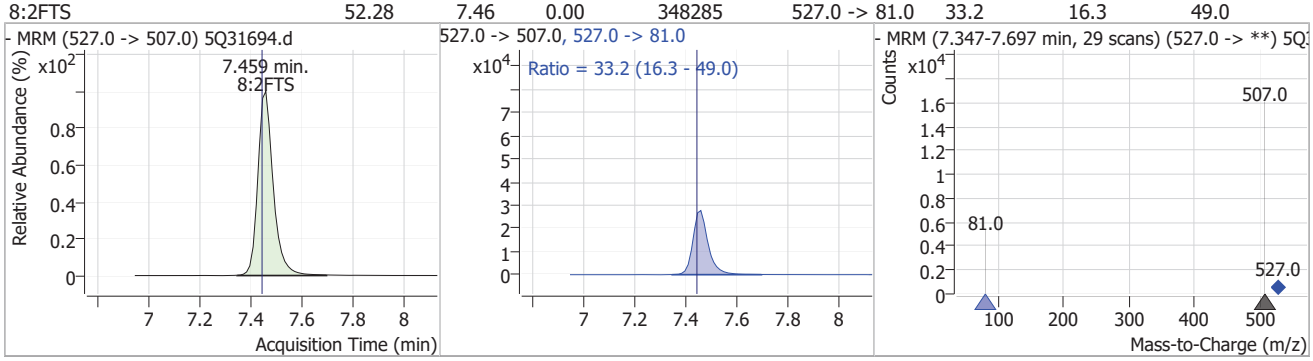
Perfluorinated Compounds by LC/MS/MS

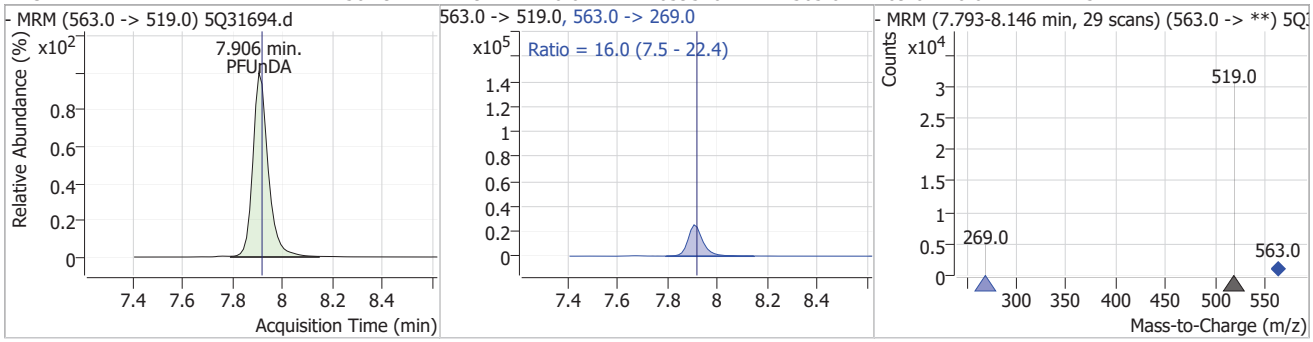
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	50.24	7.41	-0.01	682334	513.0 -> 219.0	17.1	8.2	24.7



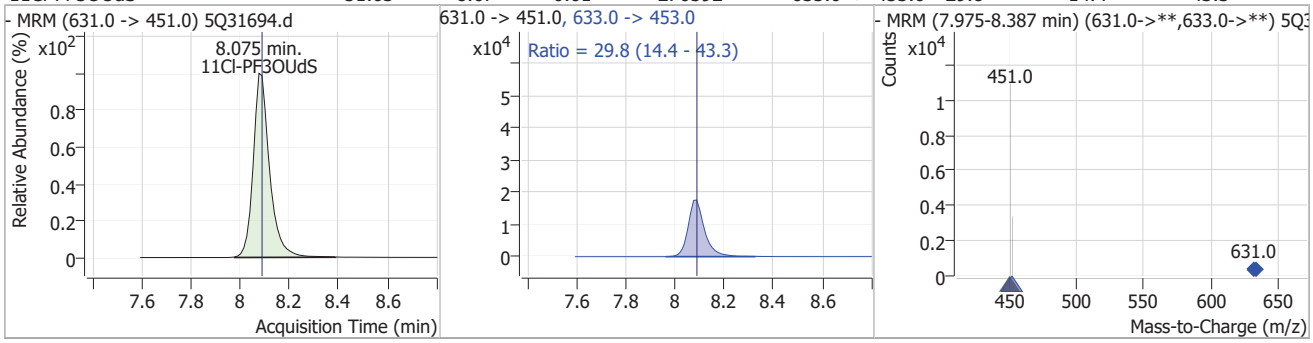
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	52.28	7.46	0.00	348285	527.0 -> 81.0	33.2	16.3	49.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	50.29	7.91	-0.01	659320	563.0 -> 269.0	16.0	7.5	22.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	51.03	8.07	-0.01	276592	633.0 -> 453.0	29.8	14.4	43.3



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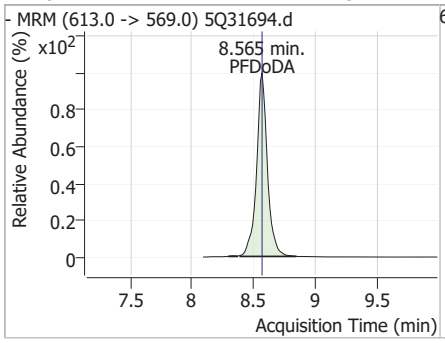
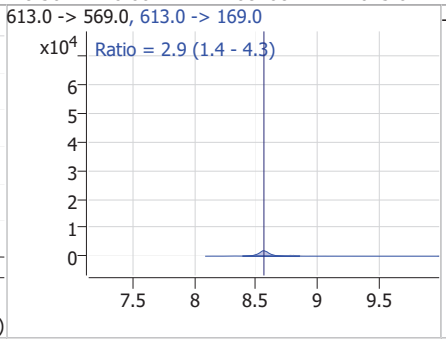
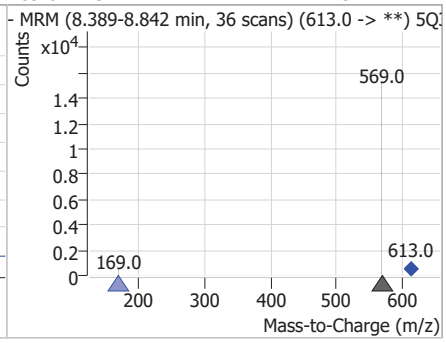
Perfluorinated Compounds by LC/MS/MS

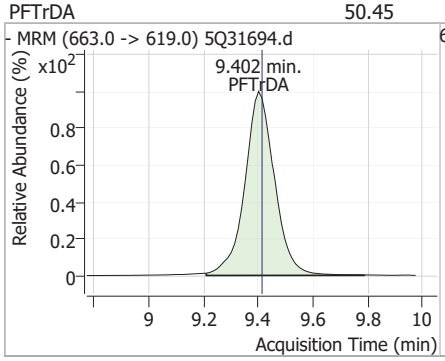
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	51.72	8.56	0.00	408108	613.0 -> 169.0	2.9	1.4	4.3

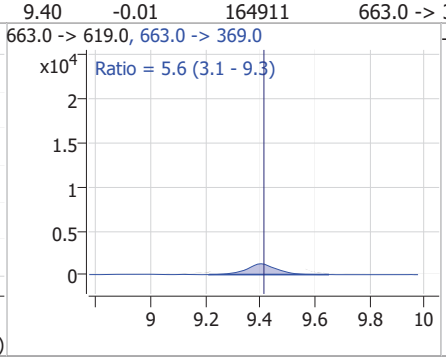


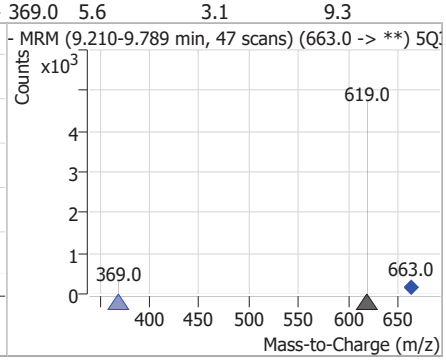




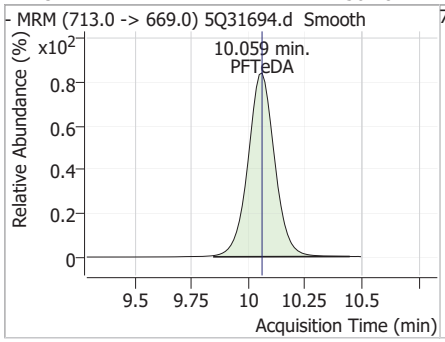
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	50.45	9.40	-0.01	164911	663.0 -> 369.0	5.6	3.1	9.3

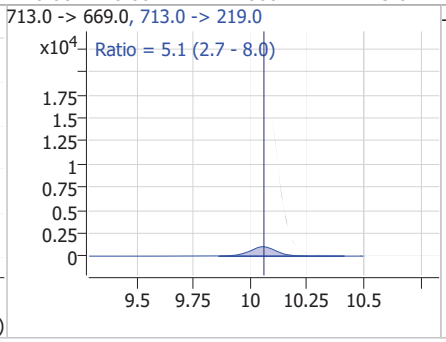


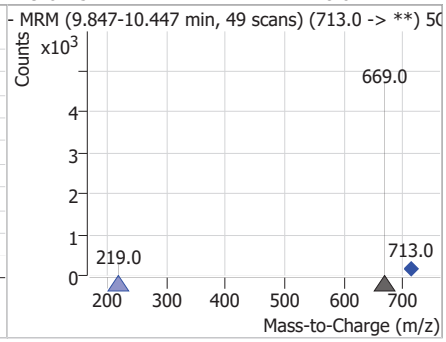




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	50.28	10.06	0.00	170001	713.0 -> 219.0	5.1	2.7	8.0







Manual Integration Approval Summary

Sample Number:	S5Q519-IC519	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31694.D	**Analyst approved:**	04/14/25 10:08 (b) (6)
Injection Time:	04/11/25 13:09	**Supervisor approved:**	04/14/25 12:24 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/14/25 12:24

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31695.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/11/2025 1:25:52 PM
Sample Name : ic519-100
Vial : P1-A9
DA Method File : 537_041125_S5Q519.quantmethod
Batch Name : s5q519.batch.bin
Sample Information : OP8806,S5Q519,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	191604	20.00	µg/L		-0.012
13C2-PFOA	6.277	415.0 -> 370.0	398617	20.00	µg/L		-0.012
13C3-PFPeA	3.594	266.0 -> 222.0	607519	20.00	µg/L		-0.012
13C4-PFOS	6.847	503.0 -> 80.0	91104	20.00	µg/L		-0.012
d3-MeFOSAA	7.242	573.0 -> 419.0	28349	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	777021	50.82	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 254.1%			
13C2-PFHxA	4.763	315.0 -> 270.0	1434897	50.01	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 250.1%			
d5-EtFOSAA	7.378	589.0 -> 419.0	49575	100.13	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 250.3%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	185796	100.00	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 250.0%			
Target Compounds							QValue
6:2FTS	6.275	427.0 -> 407.0	934072	97.41	µg/L		99
8:2FTS	7.447	527.0 -> 507.0	732010	98.42	µg/L		98
EtFOSAA	7.380	584.0 -> 419.0	45729	100.04	µg/L	m	100
MeFOSAA	7.256	570.0 -> 419.0	67345	101.88	µg/L	m	97
PFBS	3.828	299.0 -> 80.0	1379798	99.98	µg/L		99
PFDA	7.399	513.0 -> 469.0	1432480	99.83	µg/L		98
PFDoDA	8.552	613.0 -> 569.0	928577	99.73	µg/L		100
PFHpA	5.601	363.0 -> 319.0	3847566	100.06	µg/L		99
PFHxA	4.764	313.0 -> 269.0	1943367	100.01	µg/L		99
PFHxS	5.635	399.0 -> 80.0	898251	100.05	µg/L	m	99
PFNA	6.874	463.0 -> 419.0	1429732	99.98	µg/L	m	97
PFOA	6.277	413.0 -> 369.0	2009280	99.72	µg/L		99
PFOS	6.848	499.0 -> 80.0	628813	99.98	µg/L	m	99
PFPeA	3.597	263.0 -> 219.0	3913056	100.02	µg/L		100
PFTeDA	10.047	713.0 -> 669.0	408612	99.96	µg/L		99
PFTrDA	9.389	663.0 -> 619.0	382804	99.93	µg/L		99
PFUnDA	7.906	563.0 -> 519.0	1426410	99.95	µg/L		99
ADONA	5.688	377.0 -> 251.0	5295515	100.08	µg/L		99
9Cl-PF3ONS	7.121	531.0 -> 351.0	627828	100.01	µg/L		100
11Cl-PF3OUdS	8.075	631.0 -> 451.0	626519	99.63	µg/L		99
HFPO-DA	5.022	285.0 -> 169.0	175700	99.92	µg/L	#	99

 # = Qualifier out of range, m = manually integrated, + = Area summed

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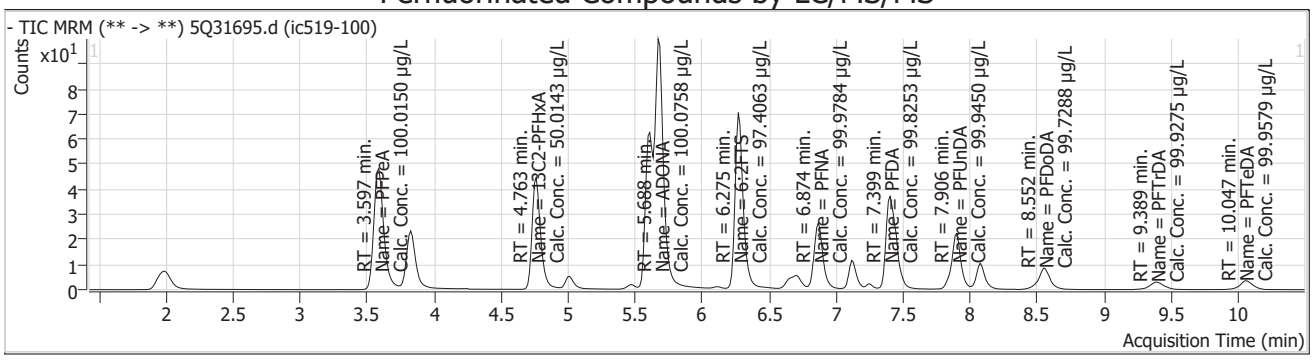
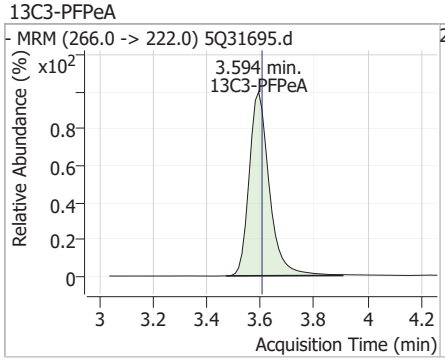
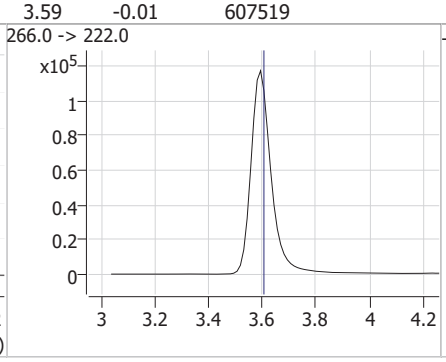
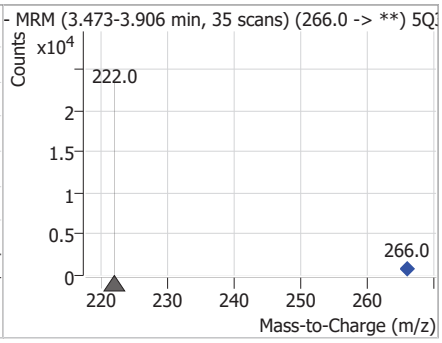
Perfluorinated Compounds by LC/MS/MS



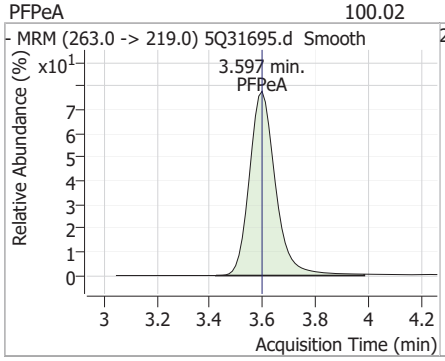
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	607519				

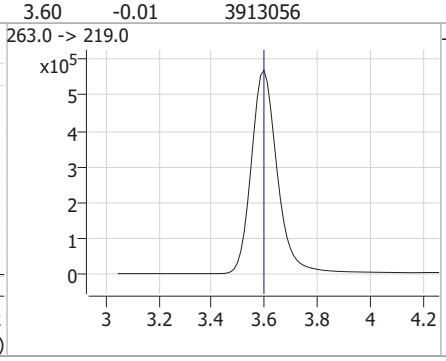


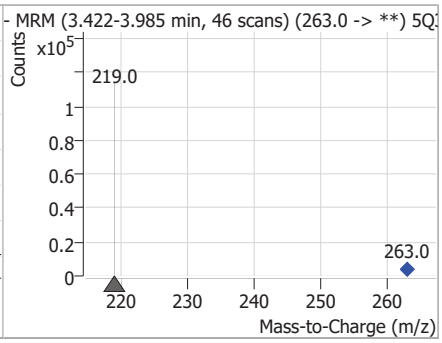




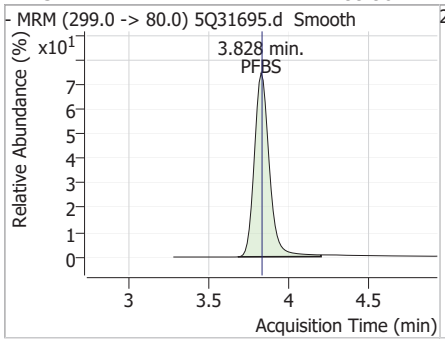
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	100.02	3.60	-0.01	3913056				

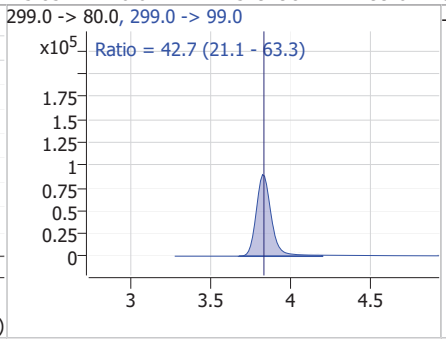


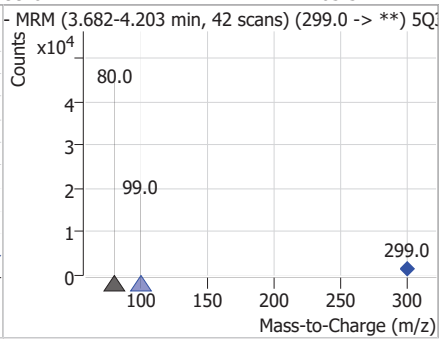




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	99.98	3.83	-0.01	1379798	299.0 -> 99.0	42.7	21.1	63.3







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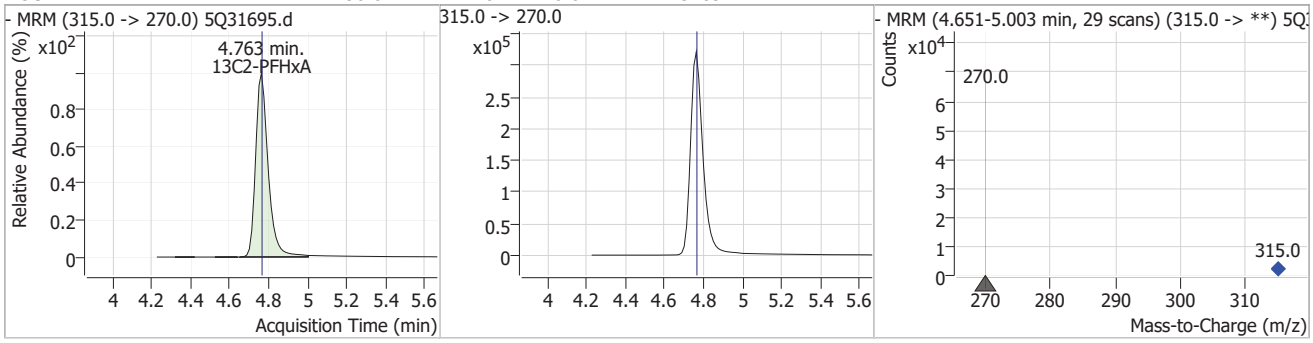
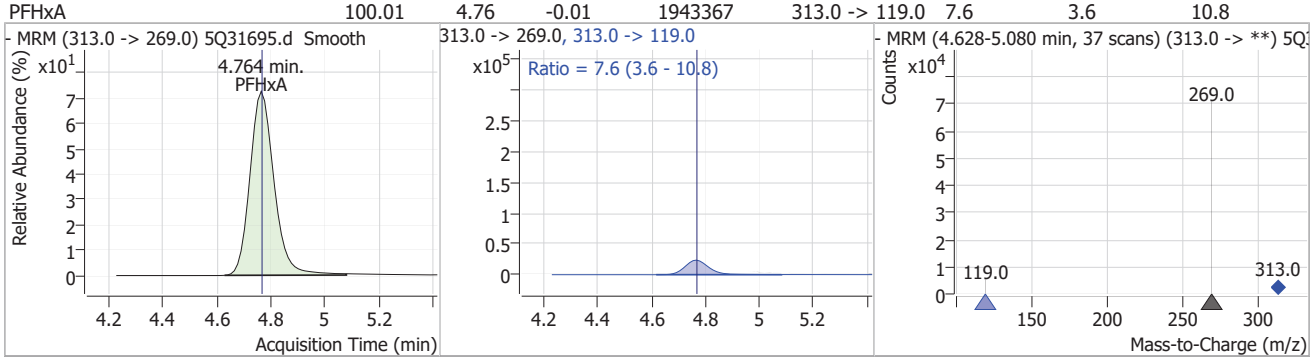
Perfluorinated Compounds by LC/MS/MS

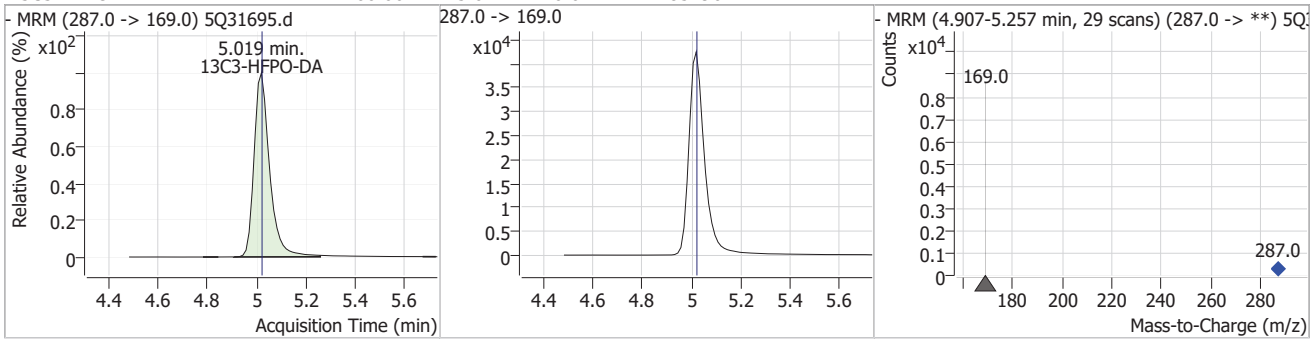
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	50.01	4.76	-0.01	1434897				



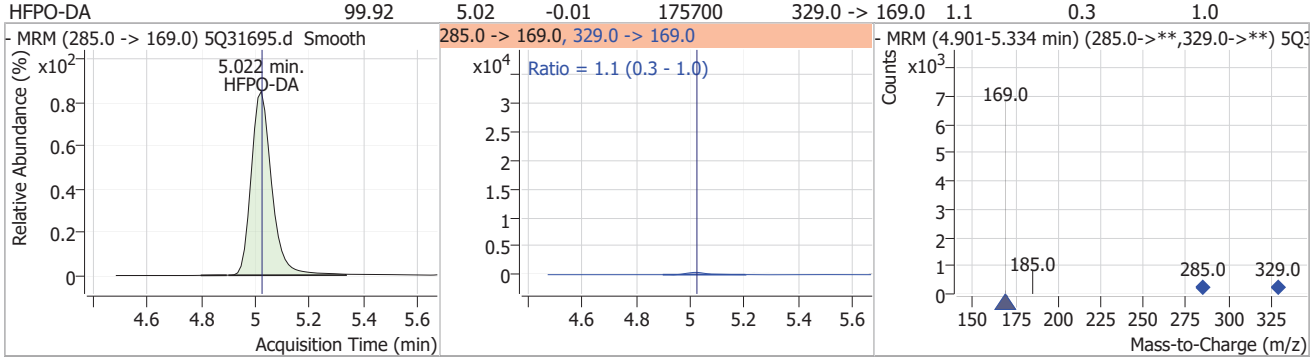
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	100.01	4.76	-0.01	1943367	313.0 -> 119.0	7.6	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	100.00	5.02	-0.01	185796				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	99.92	5.02	-0.01	175700	329.0 -> 169.0	1.1	0.3	1.0



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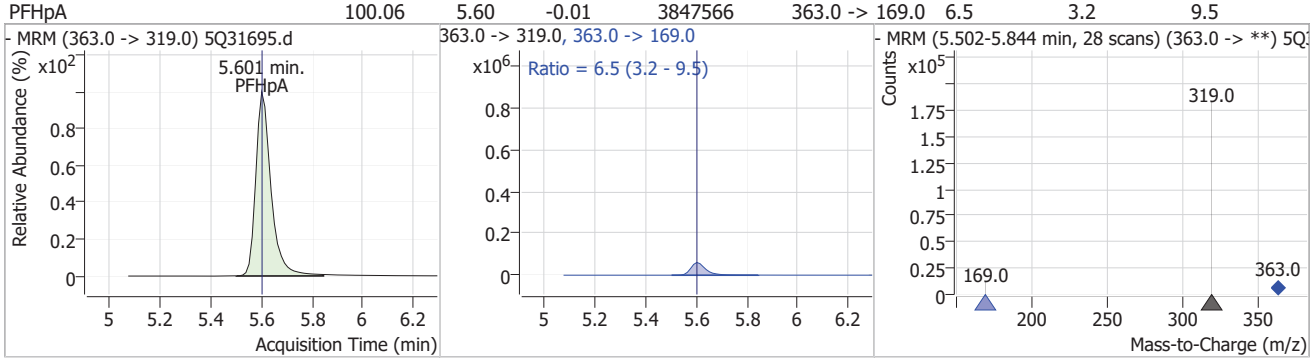
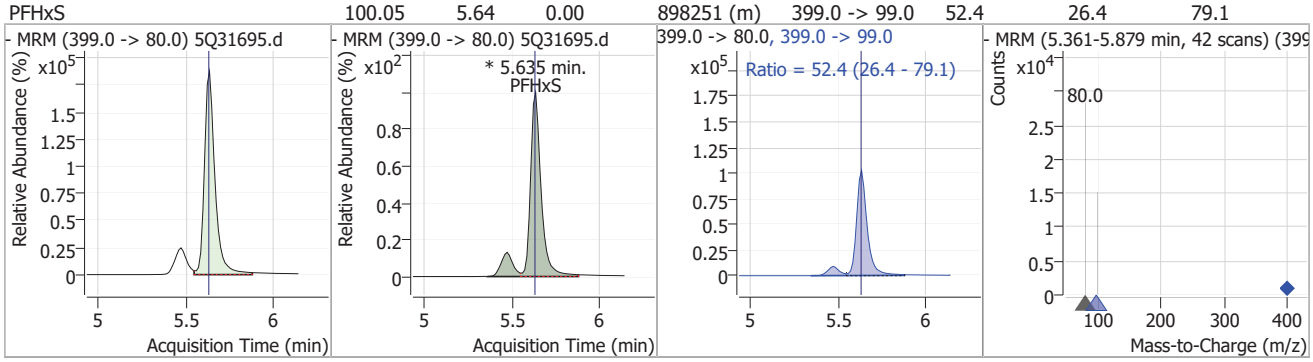
Perfluorinated Compounds by LC/MS/MS

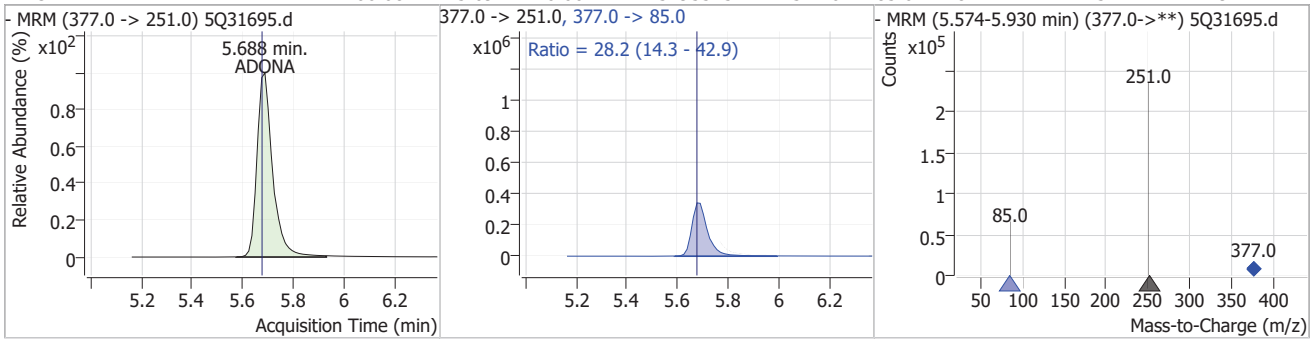
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	100.06	5.60	-0.01	3847566	363.0 -> 169.0	6.5	3.2	9.5



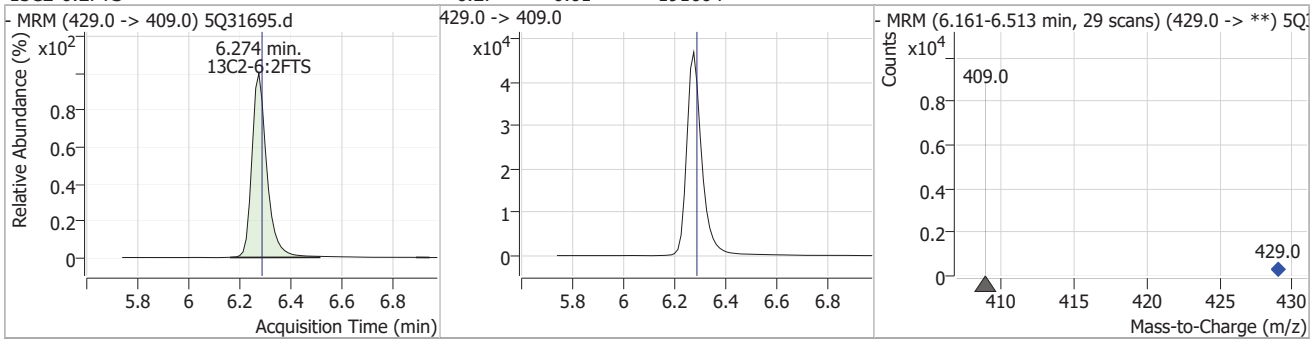
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	100.05	5.64	0.00	898251 (m)	399.0 -> 99.0	52.4	26.4	79.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	100.08	5.69	0.00	5295515	377.0 -> 85.0	28.2	14.3	42.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	191604				

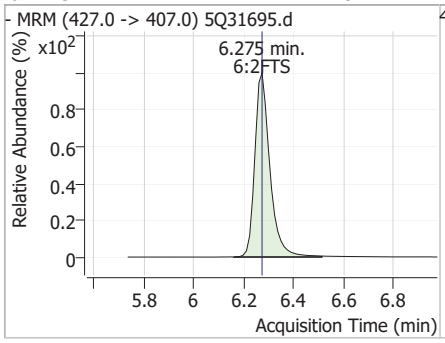


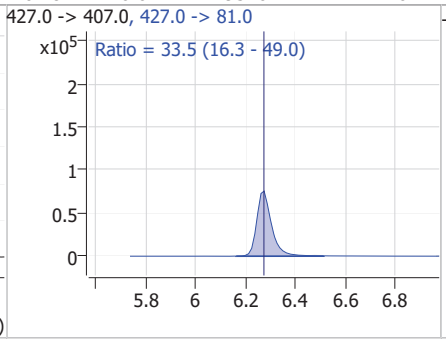
7.7.21

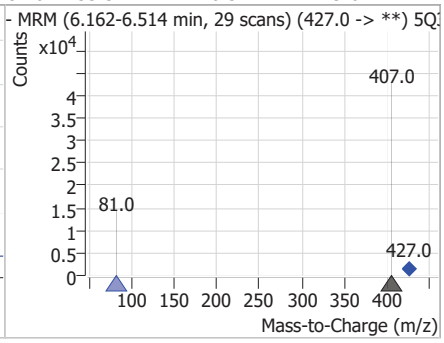
7

Perfluorinated Compounds by LC/MS/MS

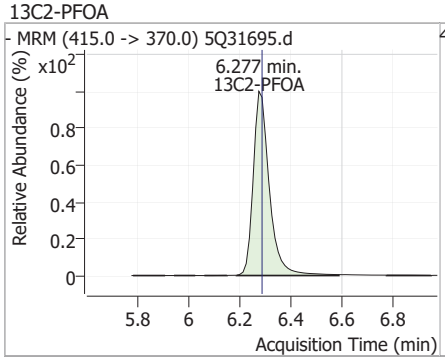
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	97.41	6.28	-0.01	934072	427.0 -> 81.0	33.5	16.3	49.0

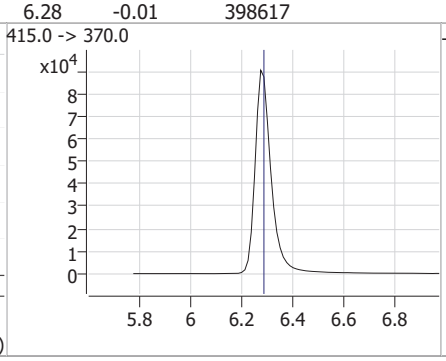


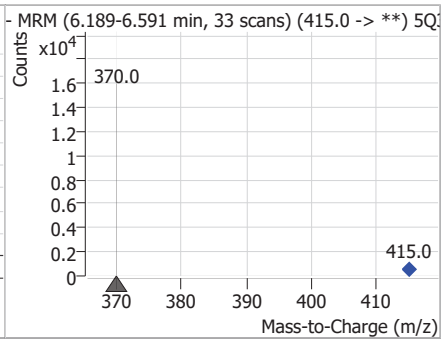




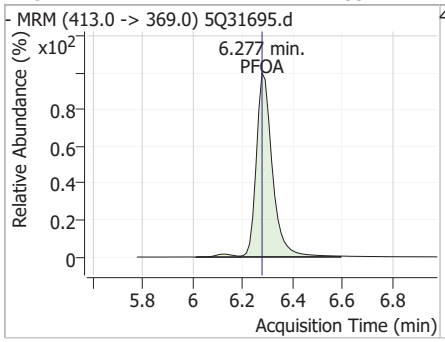
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.28	-0.01	398617				

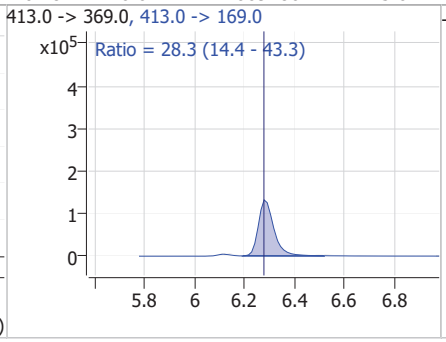


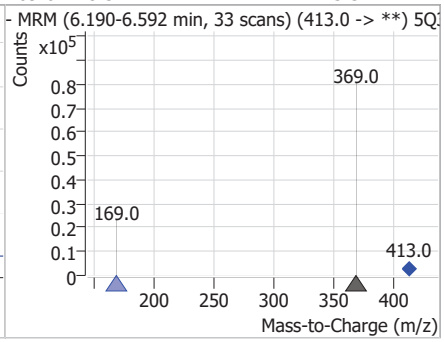




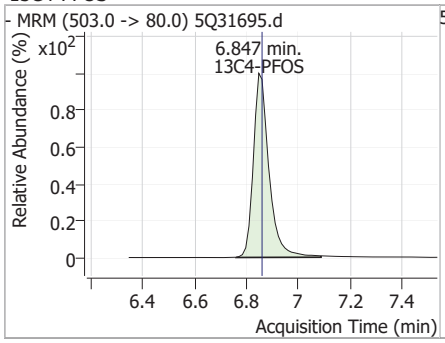
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	99.72	6.28	-0.01	2009280	413.0 -> 169.0	28.3	14.4	43.3

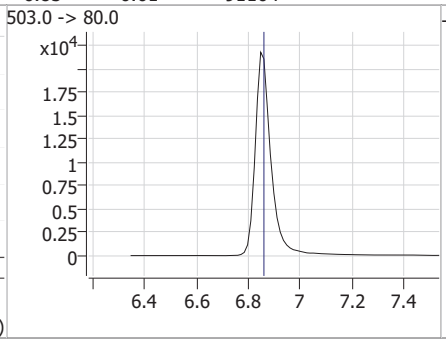


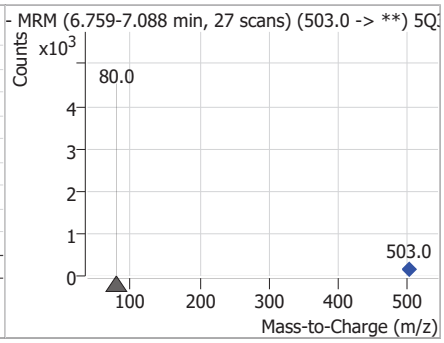




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.85	-0.01	91104				







7.7.21

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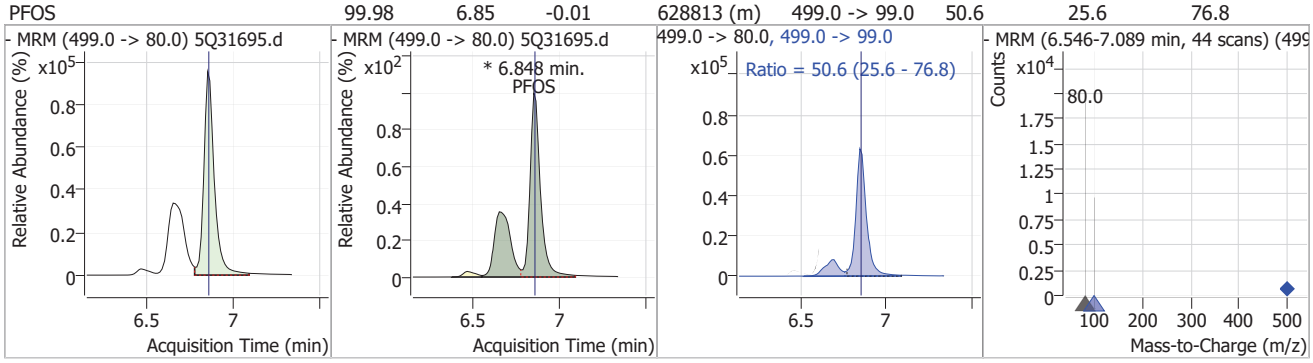
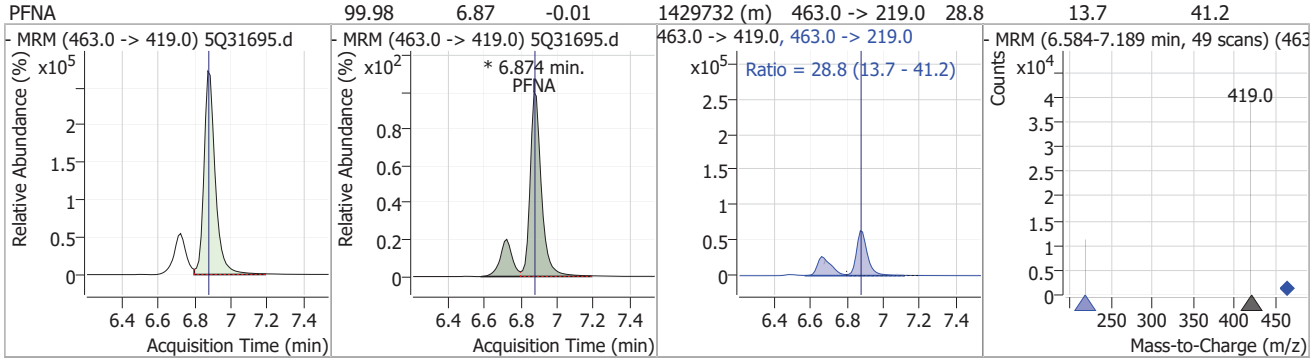
Perfluorinated Compounds by LC/MS/MS

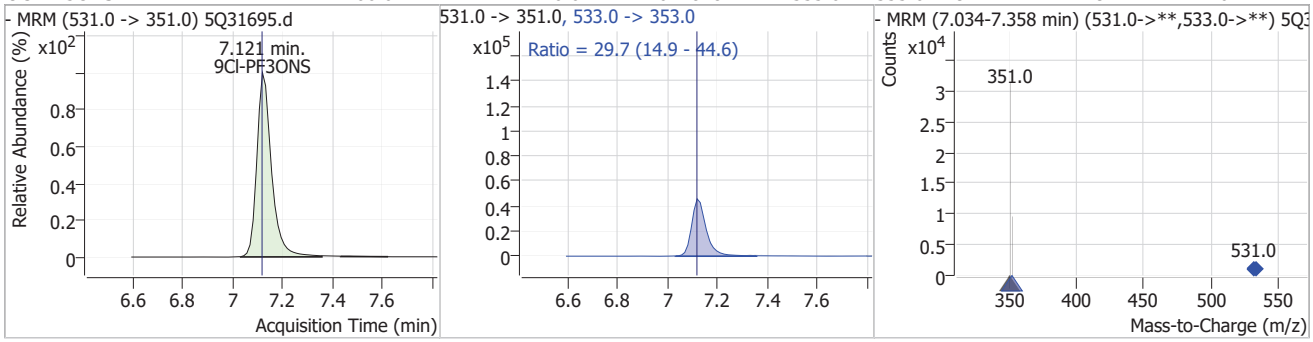
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	99.98	6.85	-0.01	628813 (m)	499.0 -> 99.0	50.6	25.6	76.8



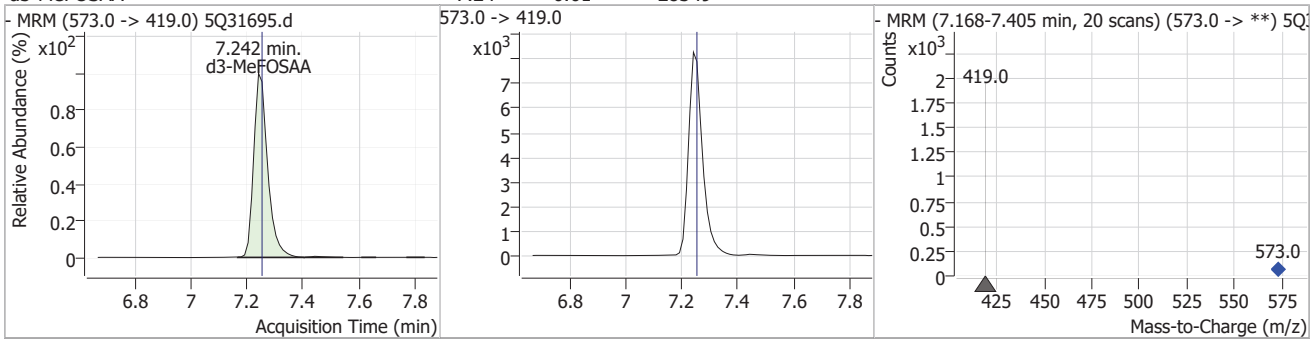
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	99.98	6.87	-0.01	1429732 (m)	463.0 -> 219.0	28.8	13.7	41.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	100.01	7.12	-0.01	627828	533.0 -> 353.0	29.7	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	28349				

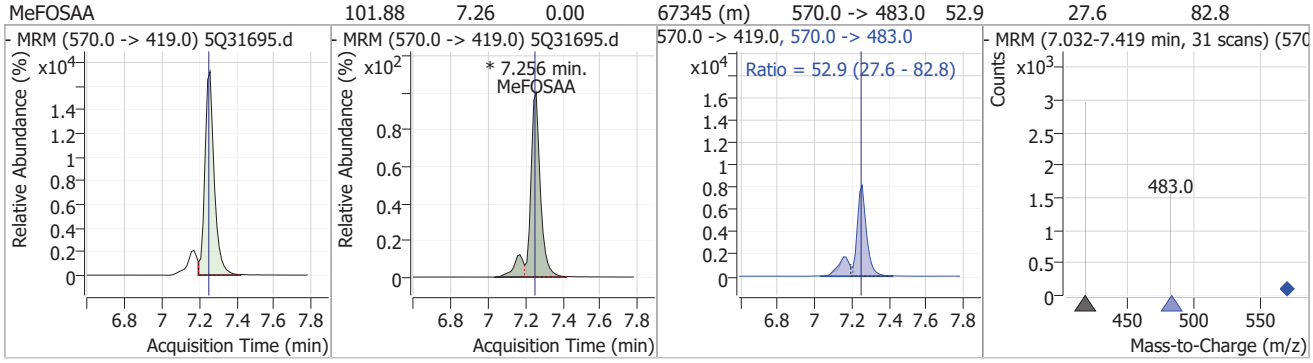


7.7.21

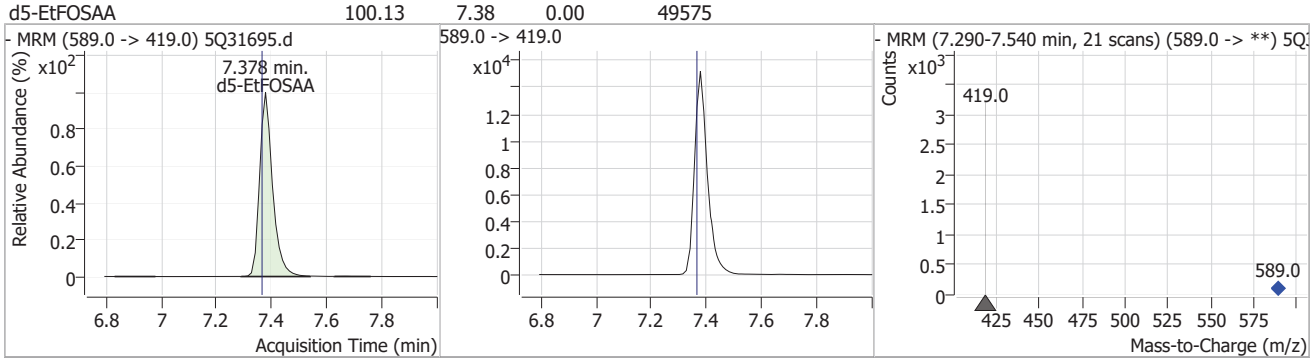
7

Perfluorinated Compounds by LC/MS/MS

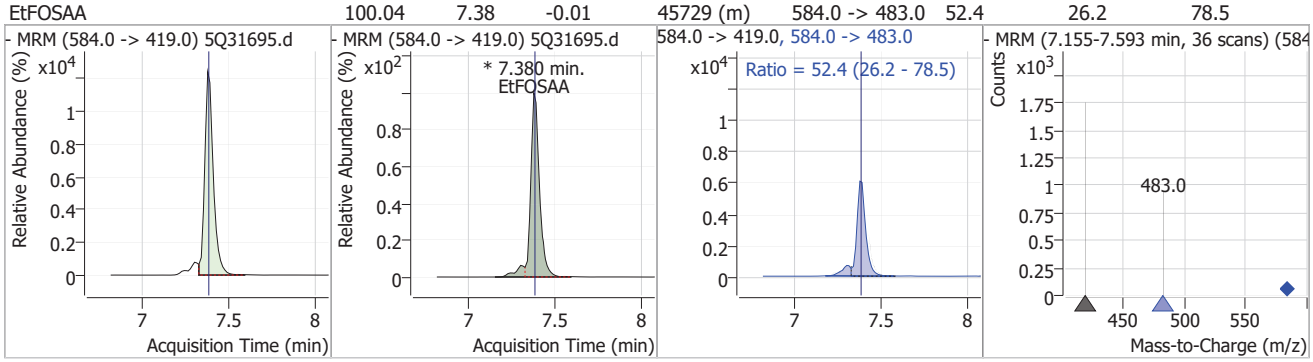
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	101.88	7.26	0.00	67345 (m)	570.0 -> 483.0	52.9	27.6	82.8



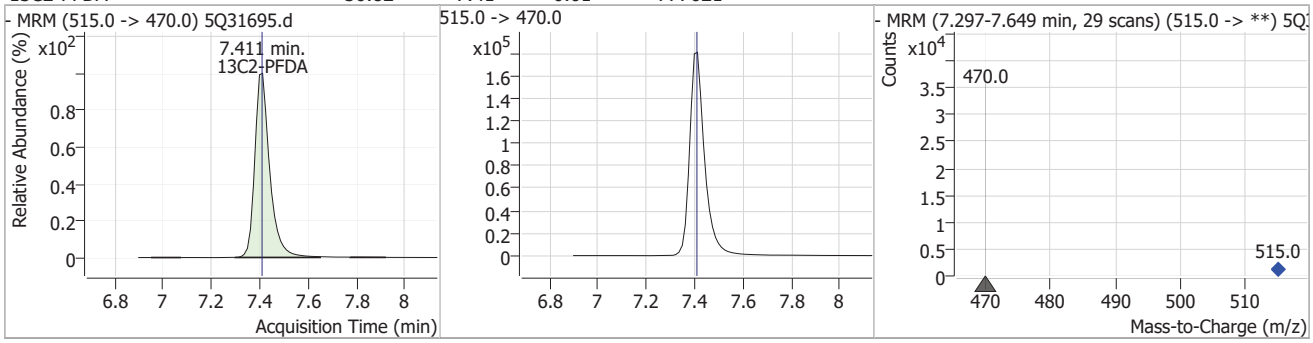
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	100.13	7.38	0.00	49575				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	100.04	7.38	-0.01	45729 (m)	584.0 -> 483.0	52.4	26.2	78.5

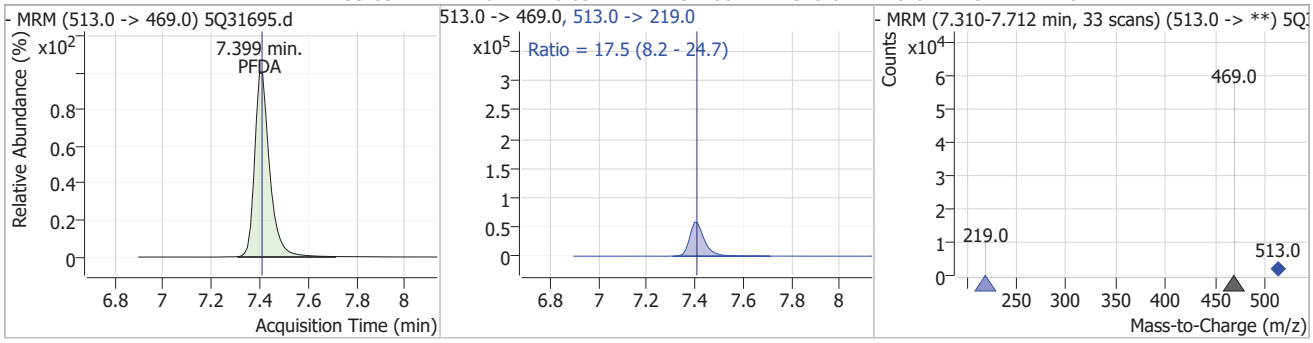


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	50.82	7.41	-0.01	777021				

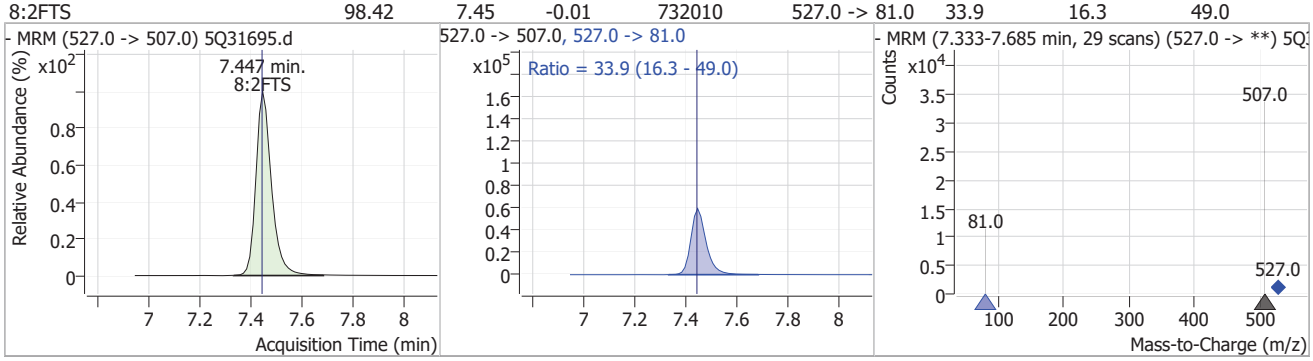


Perfluorinated Compounds by LC/MS/MS

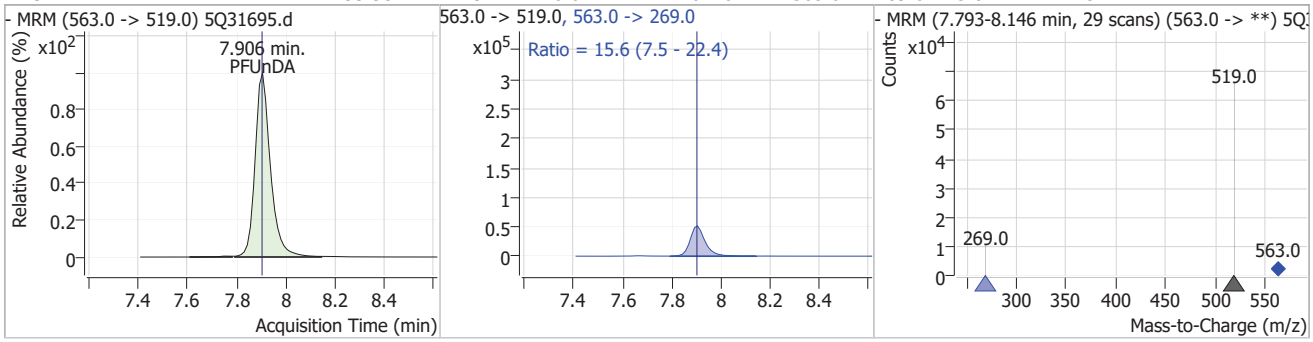
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	99.83	7.40	-0.03	1432480	513.0 -> 219.0	17.5	8.2	24.7



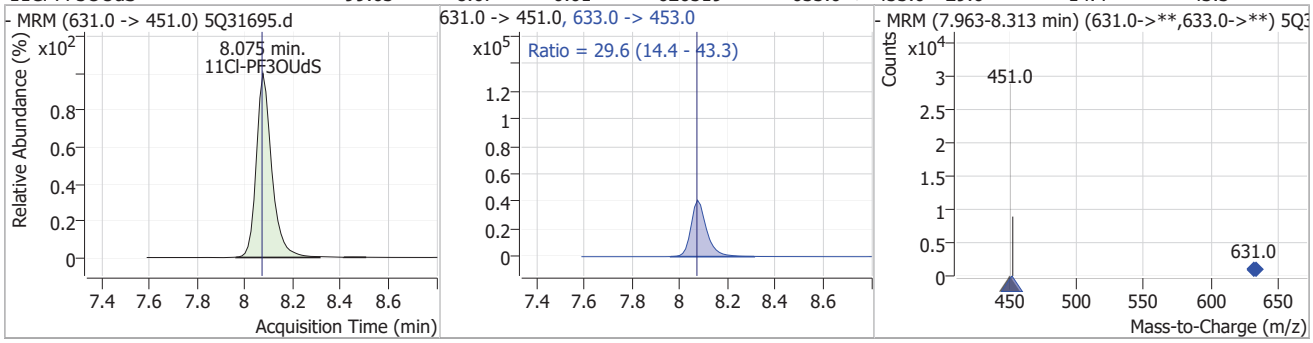
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	98.42	7.45	-0.01	732010	527.0 -> 81.0	33.9	16.3	49.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	99.95	7.91	-0.01	1426410	563.0 -> 269.0	15.6	7.5	22.4

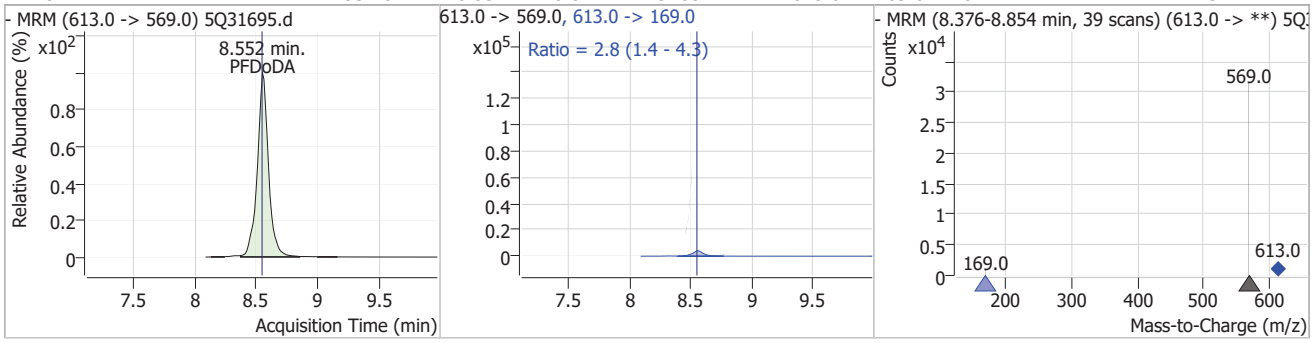


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	99.63	8.07	-0.01	626519	633.0 -> 453.0	29.6	14.4	43.3

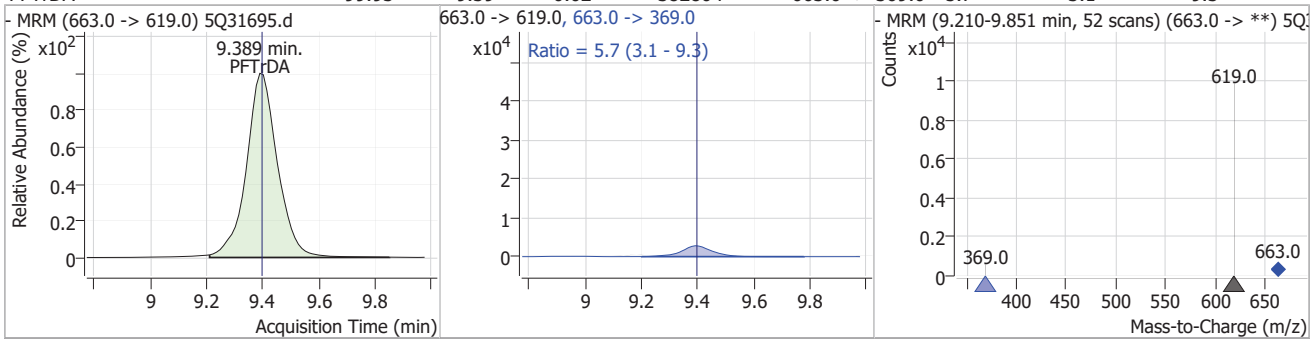


Perfluorinated Compounds by LC/MS/MS

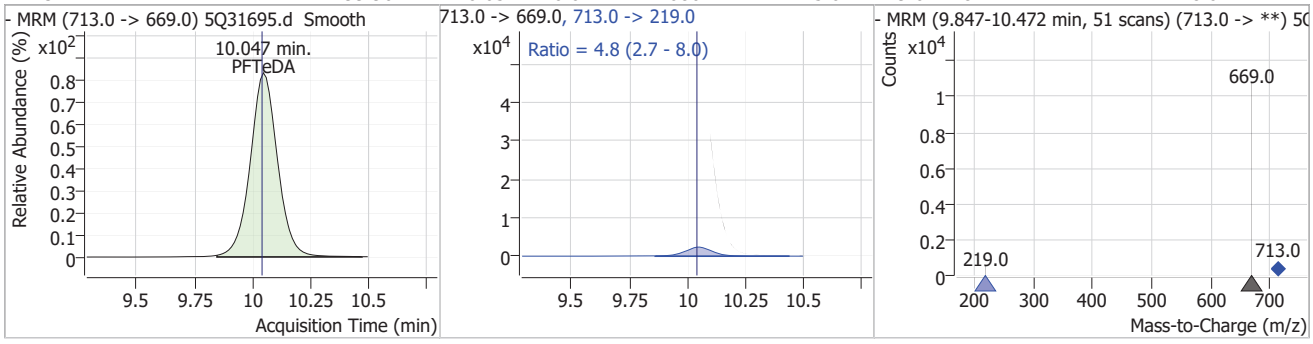
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	99.73	8.55	-0.01	928577	613.0 -> 169.0	2.8	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	99.93	9.39	-0.02	382804	663.0 -> 369.0	5.7	3.1	9.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	99.96	10.05	-0.01	408612	713.0 -> 219.0	4.8	2.7	8.0



Manual Integration Approval Summary

Sample Number:	S5Q519-IC519	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31695.D	**Analyst approved:**	04/14/25 10:08 (b) (6)
Injection Time:	04/11/25 13:25	**Supervisor approved:**	04/14/25 12:24 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.85	Split peak
Perfluorononanoic acid	375-95-1		6.87	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/14/25 12:24

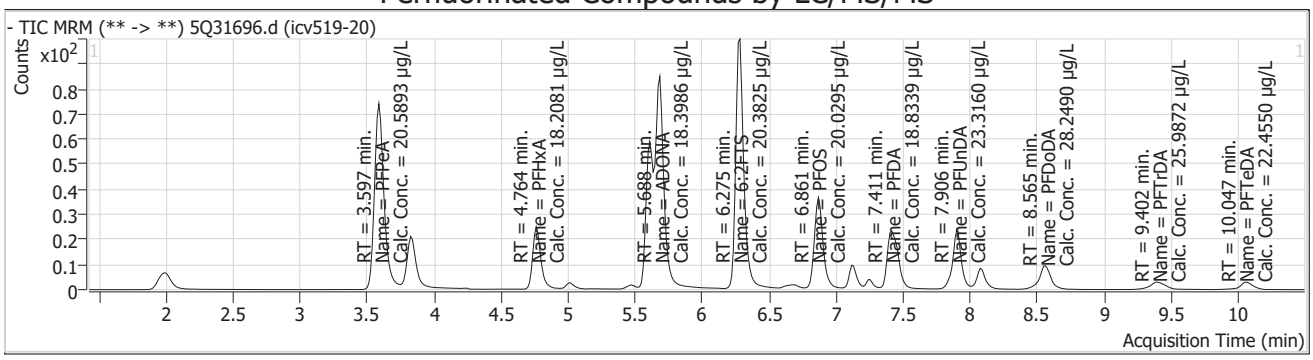
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31696.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/11/2025 1:41:53 PM
Sample Name : icv519-20
Vial : P1-B1
DA Method File : 537_041125_S5Q519.quantmethod
Batch Name : s5q519.batch.bin
Sample Information : OP8806,S5Q519,250,,,1,1,water

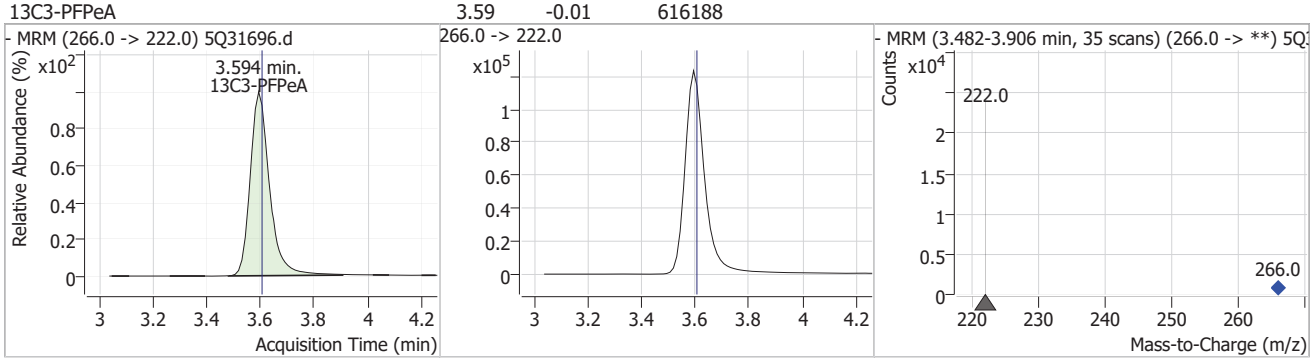
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	170325	20.00	µg/L		-0.012
13C2-PFOA	6.289	415.0 -> 370.0	443328	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	616188	20.00	µg/L		-0.012
13C4-PFOS	6.860	503.0 -> 80.0	94979	20.00	µg/L		0.000
d3-MeFOSAA	7.242	573.0 -> 419.0	29373	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	0		µg/L	m	-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C2-PFHxA	4.763	315.0 -> 270.0	0		µg/L	m	-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
d5-EtFOSAA	7.378	589.0 -> 419.0	0		µg/L	m	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C3-HFPO-DA	4.957	287.0 -> 169.0	0		µg/L	m	-0.075
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
Target Compounds							QValue
6:2FTS	6.275	427.0 -> 407.0	173750	20.38	µg/L		100
8:2FTS	7.459	527.0 -> 507.0	128344	19.41	µg/L		97
EtFOSAA	7.380	584.0 -> 419.0	8774	18.75	µg/L	m	95
MeFOSAA	7.256	570.0 -> 419.0	11890	17.36	µg/L	m	95
PFBS	3.828	299.0 -> 80.0	251654	17.49	µg/L		99
PFDA	7.411	513.0 -> 469.0	264614	18.83	µg/L		100
PFDoDA	8.565	613.0 -> 569.0	213111	28.25	µg/L		100
PFHpA	5.614	363.0 -> 319.0	766898	19.83	µg/L		100
PFHxA	4.764	313.0 -> 269.0	374908	18.21	µg/L		100
PFHxS	5.635	399.0 -> 80.0	136929	16.81	µg/L	m	95
PFNA	6.886	463.0 -> 419.0	314465	22.88	µg/L		88
PFOA	6.290	413.0 -> 369.0	429812	20.47	µg/L		100
PFOS	6.861	499.0 -> 80.0	116138	20.03	µg/L	m	94
PFPeA	3.597	263.0 -> 219.0	773856	20.59	µg/L		100
PFTeDA	10.047	713.0 -> 669.0	70321	22.45	µg/L		100
PFTrDA	9.402	663.0 -> 619.0	81491	25.99	µg/L		99
PFUnDA	7.906	563.0 -> 519.0	305108	23.32	µg/L		99
ADONA	5.688	377.0 -> 251.0	928743	18.40	µg/L		100
9Cl-PF3ONS	7.121	531.0 -> 351.0	108916	18.58	µg/L		98
11Cl-PF3OUdS	8.075	631.0 -> 451.0	107034	20.52	µg/L		99
HFPO-DA	5.022	285.0 -> 169.0	34202	19.79	µg/L		100

 # = Qualifier out of range, m = manually integrated, + = Area summed

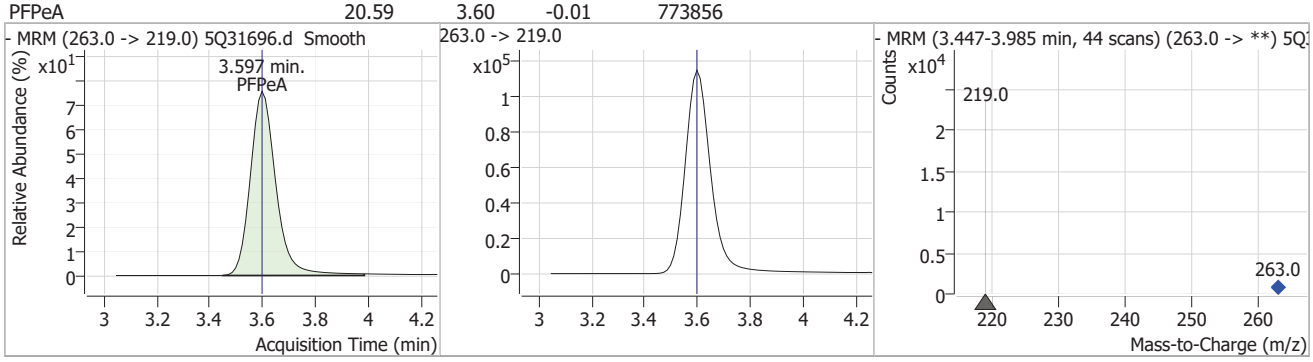
Perfluorinated Compounds by LC/MS/MS



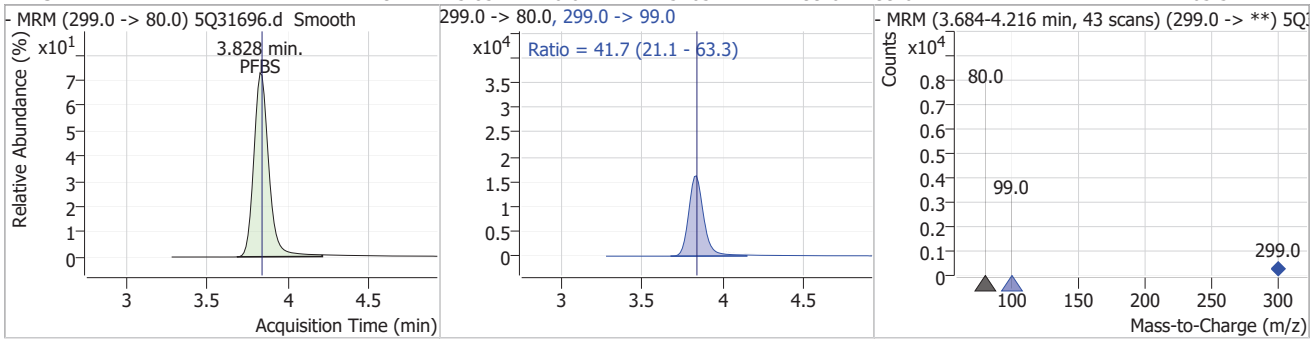
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	616188				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.59	3.60	-0.01	773856				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	17.49	3.83	-0.01	251654	299.0 -> 99.0	41.7	21.1	63.3



7.7.22

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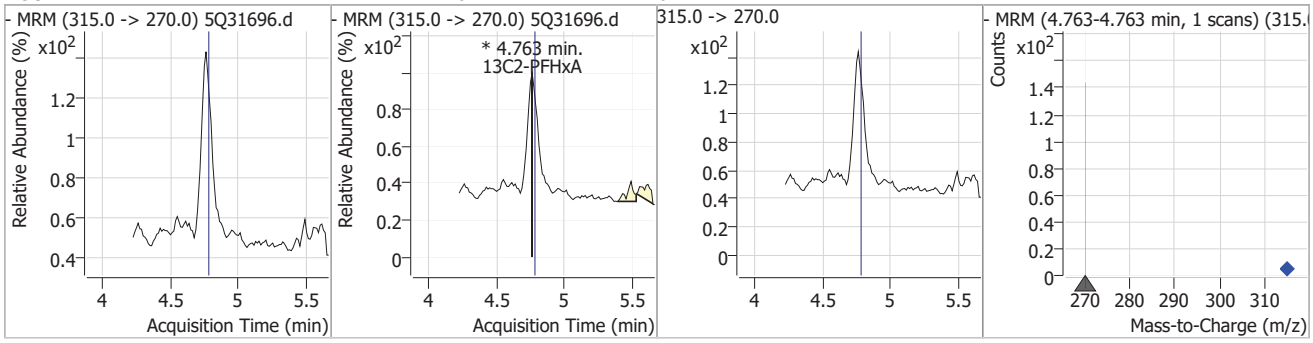
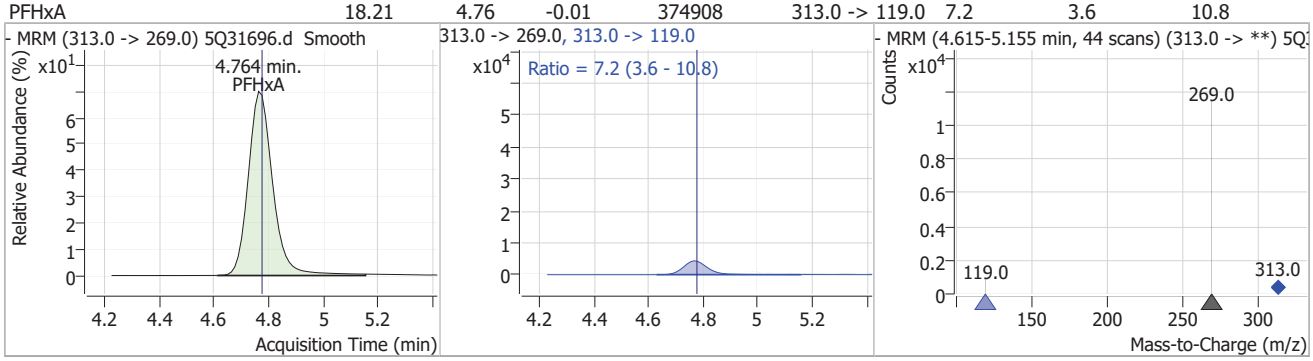
Perfluorinated Compounds by LC/MS/MS

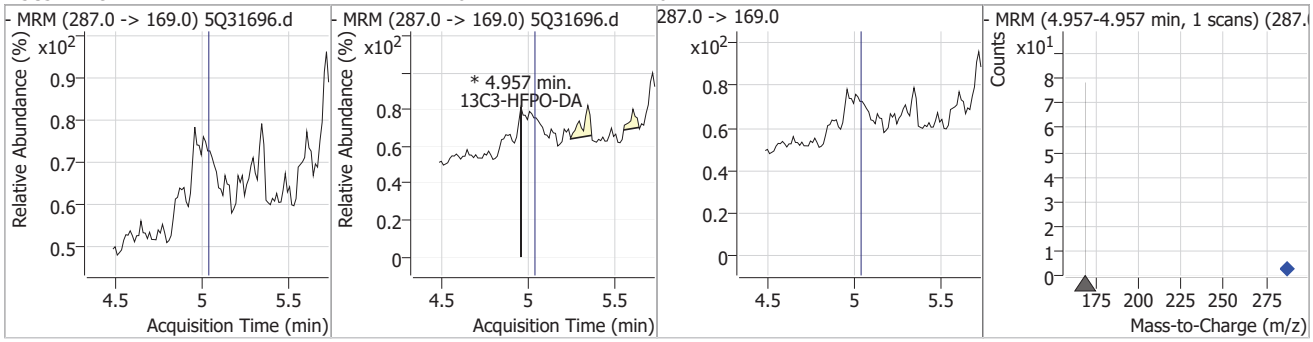
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA		0		0				



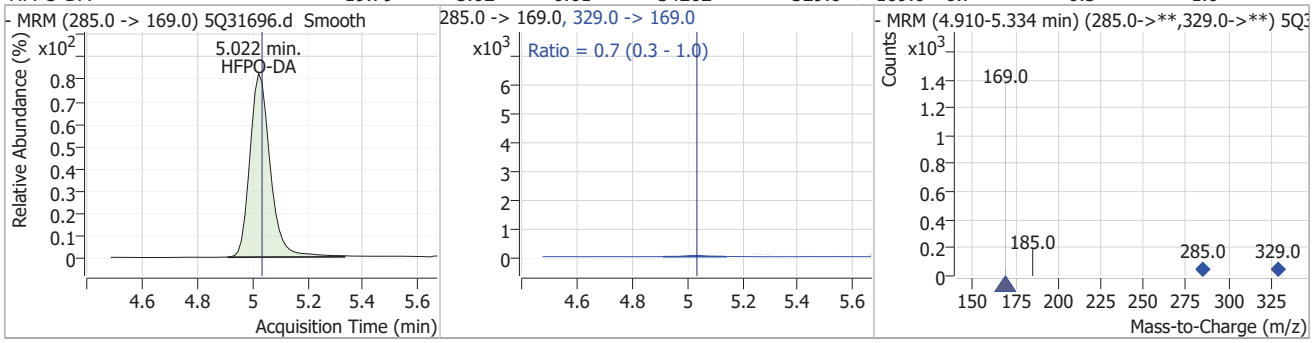
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	18.21	4.76	-0.01	374908	313.0 -> 119.0	7.2	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA		0		0				

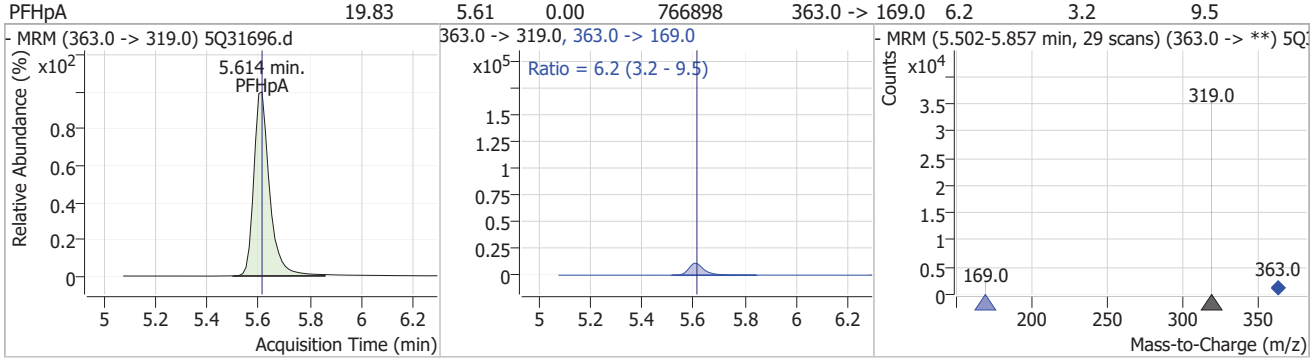


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.79	5.02	-0.01	34202	329.0 -> 169.0	0.7	0.3	1.0

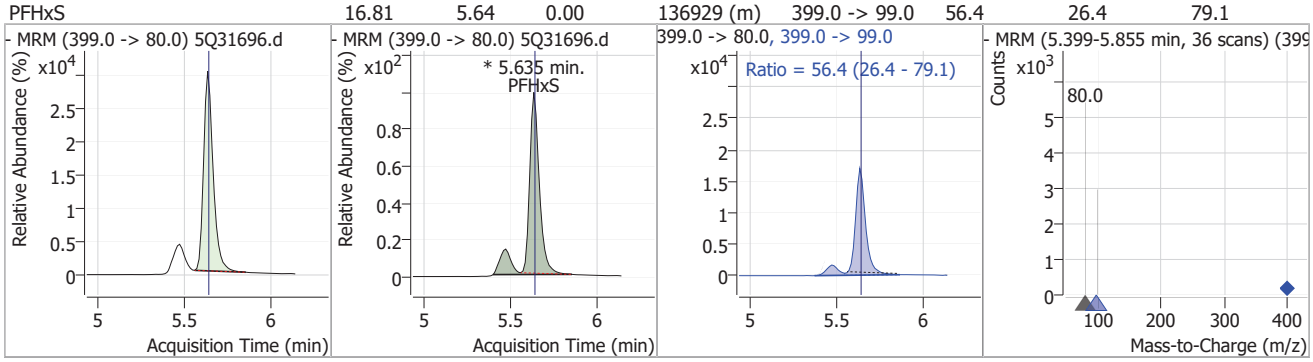


Perfluorinated Compounds by LC/MS/MS

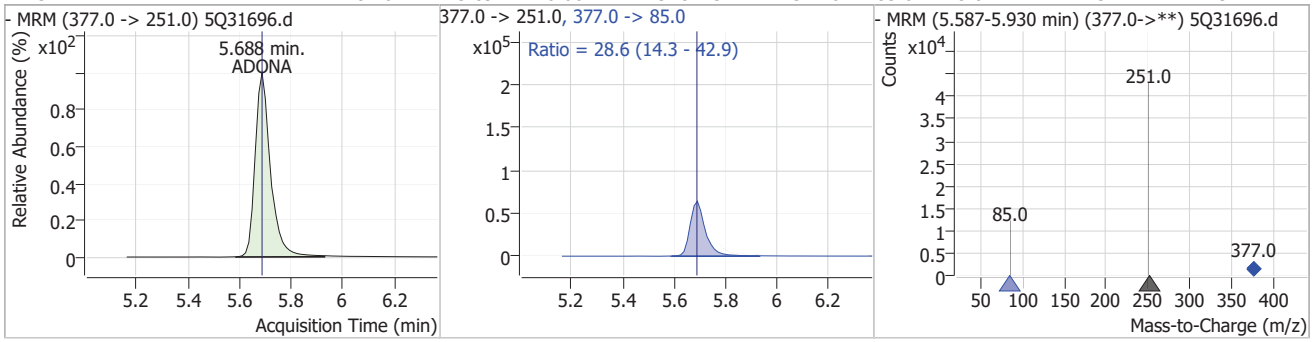
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.83	5.61	0.00	766898	363.0 -> 169.0	6.2	3.2	9.5



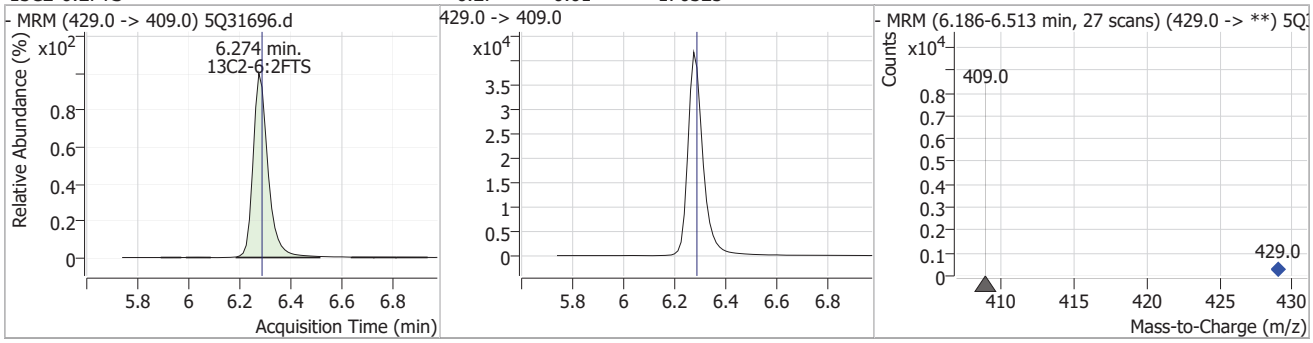
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	16.81	5.64	0.00	136929 (m)	399.0 -> 99.0	56.4	26.4	79.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	18.40	5.69	0.00	928743	377.0 -> 85.0	28.6	14.3	42.9

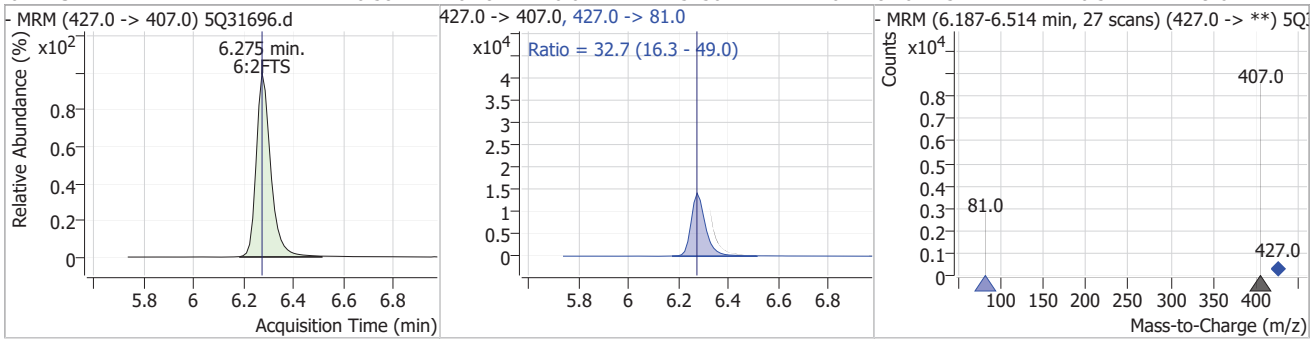


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	170325				

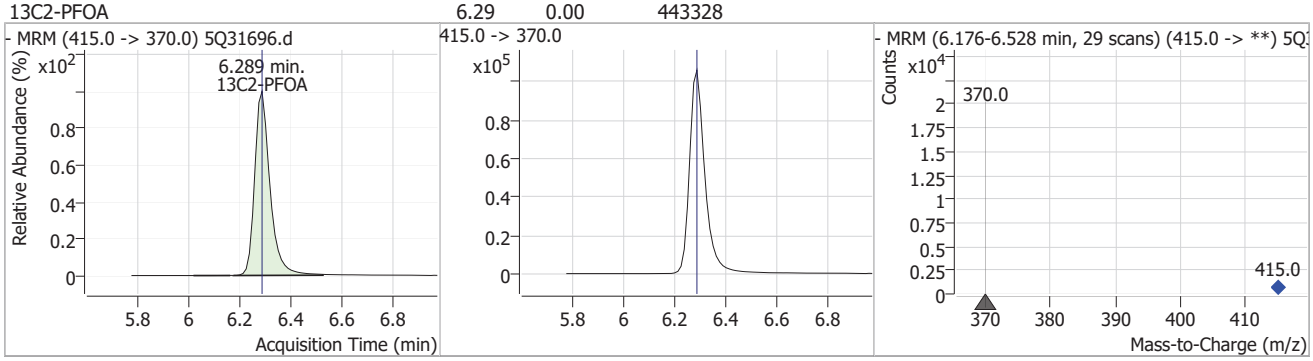


Perfluorinated Compounds by LC/MS/MS

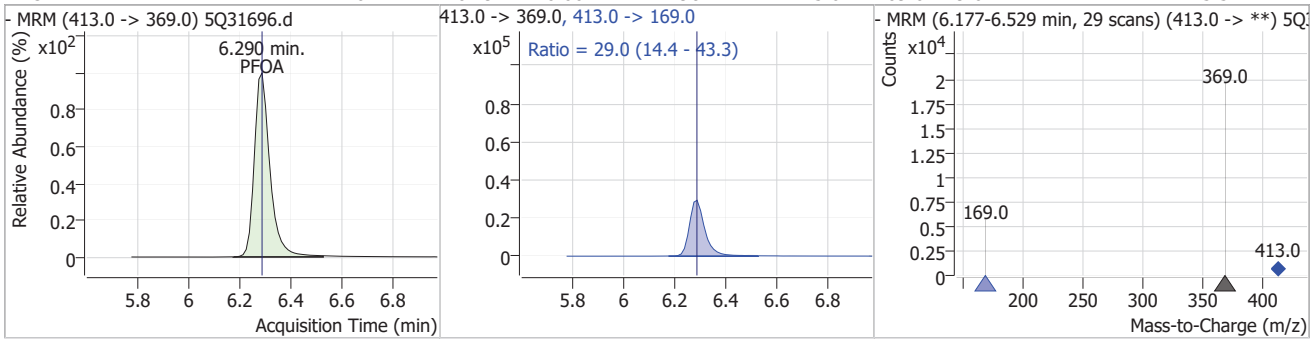
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	20.38	6.28	-0.01	173750	427.0 -> 81.0	32.7	16.3	49.0



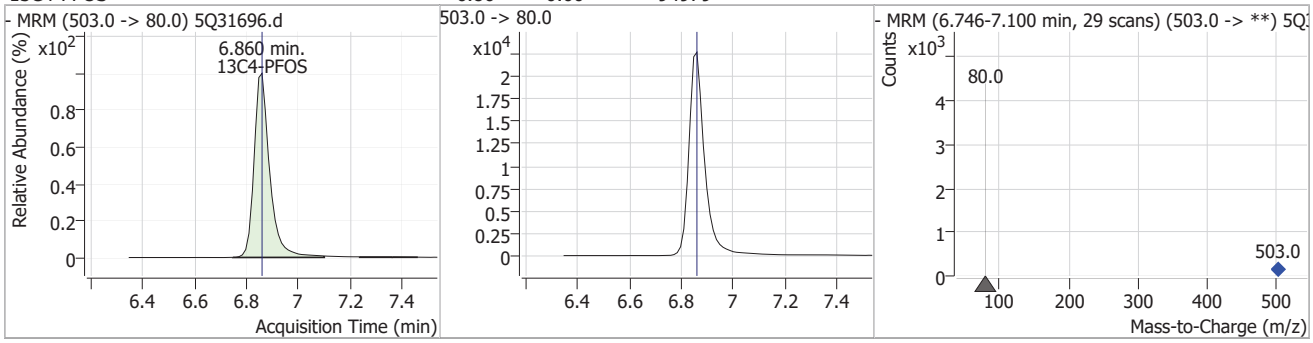
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	443328				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.47	6.29	0.00	429812	413.0 -> 169.0	29.0	14.4	43.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	94979				



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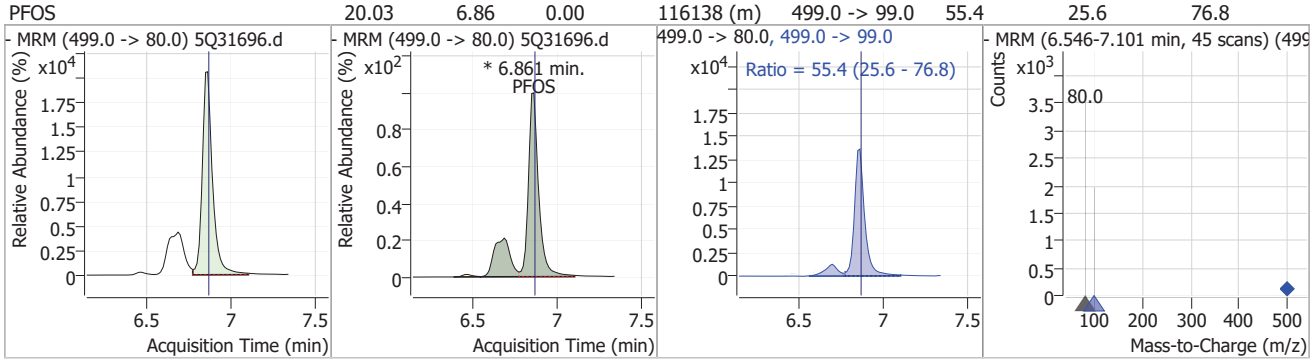
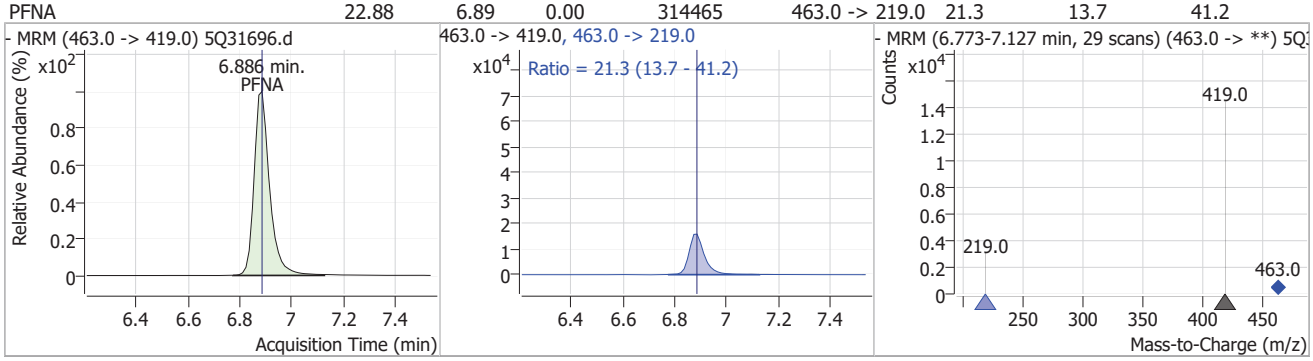
Perfluorinated Compounds by LC/MS/MS

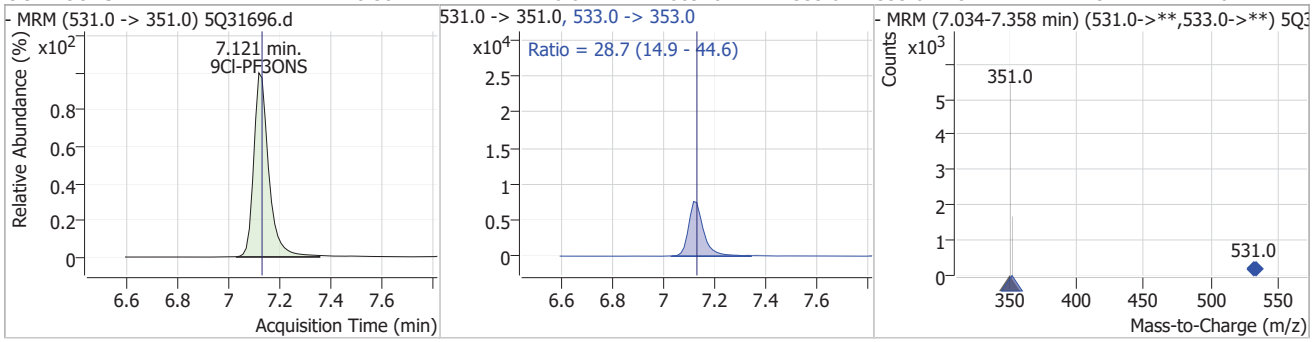
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	20.03	6.86	0.00	116138 (m)	499.0 -> 99.0	55.4	25.6	76.8



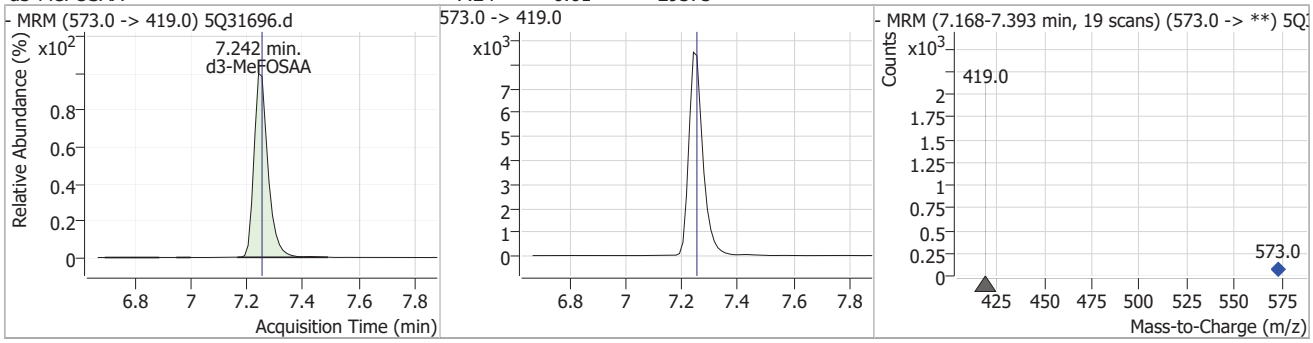
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	22.88	6.89	0.00	314465	463.0 -> 219.0	21.3	13.7	41.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	18.58	7.12	-0.01	108916	533.0 -> 353.0	28.7	14.9	44.6

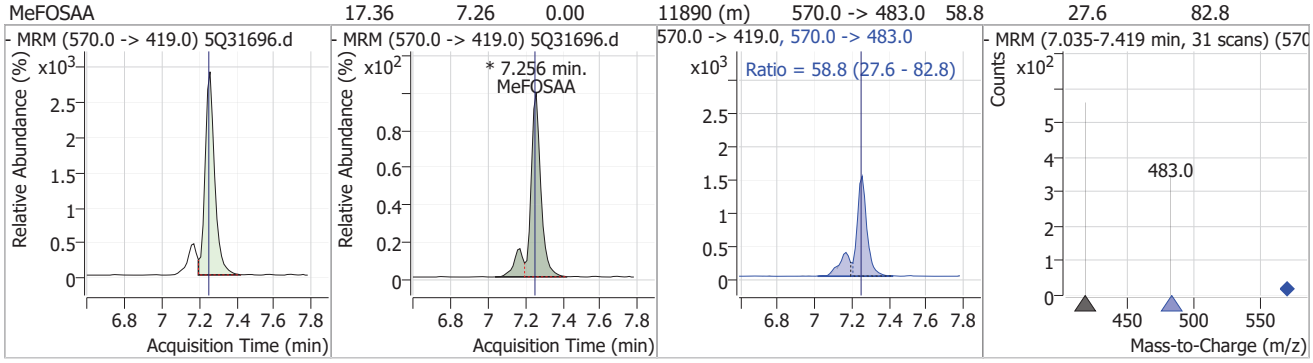


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	29373				

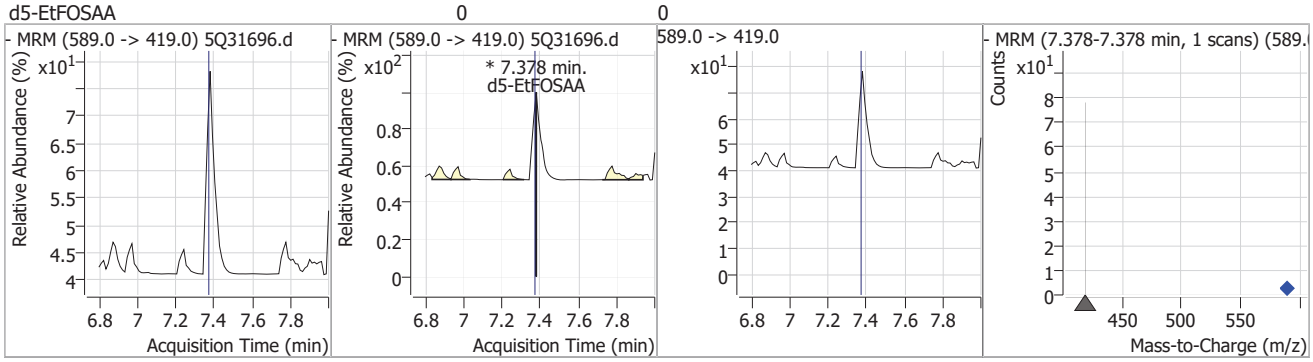


Perfluorinated Compounds by LC/MS/MS

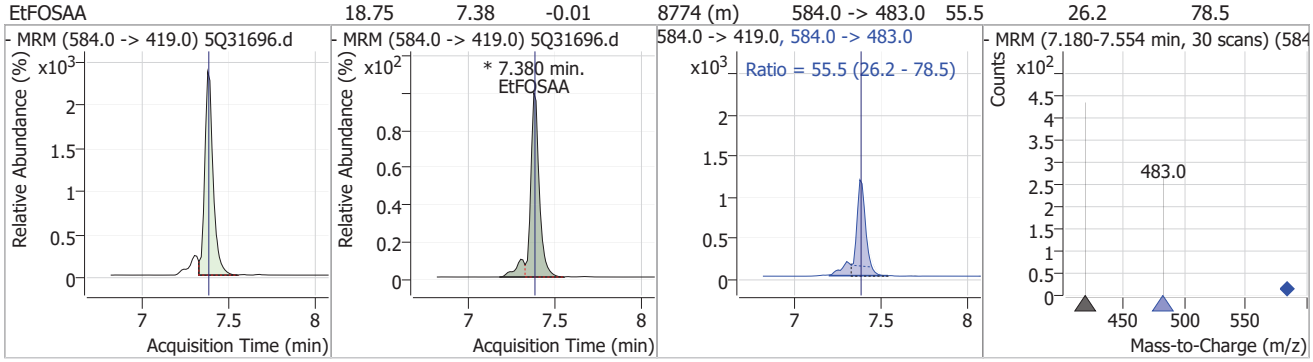
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	17.36	7.26	0.00	11890 (m)	570.0 -> 483.0	58.8	27.6	82.8



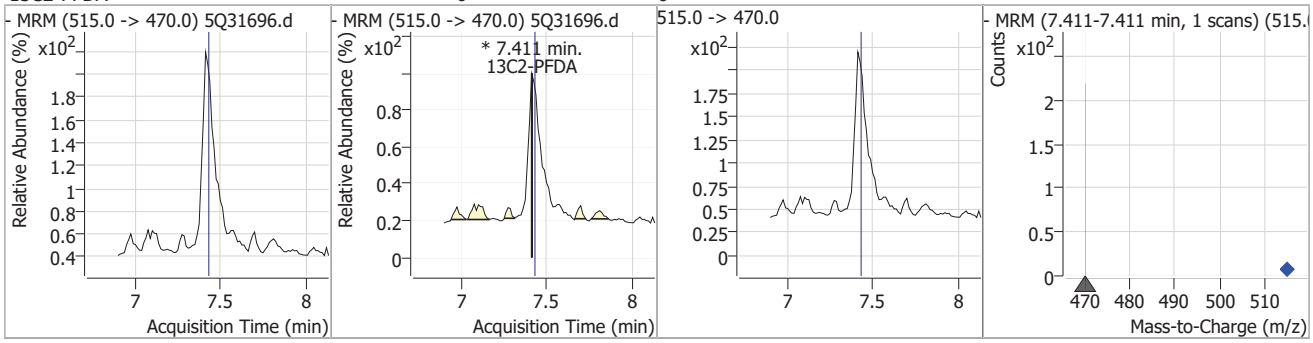
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA		0		0				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	18.75	7.38	-0.01	8774 (m)	584.0 -> 483.0	55.5	26.2	78.5

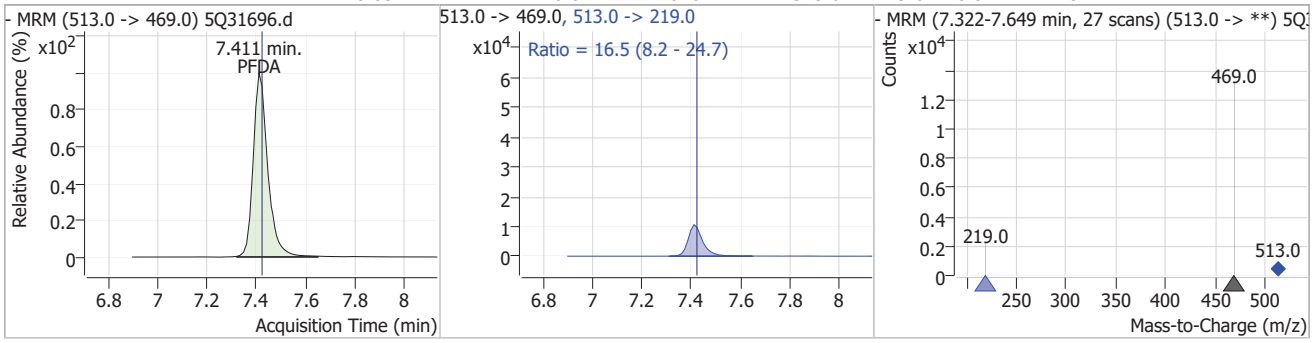


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA		0		0				

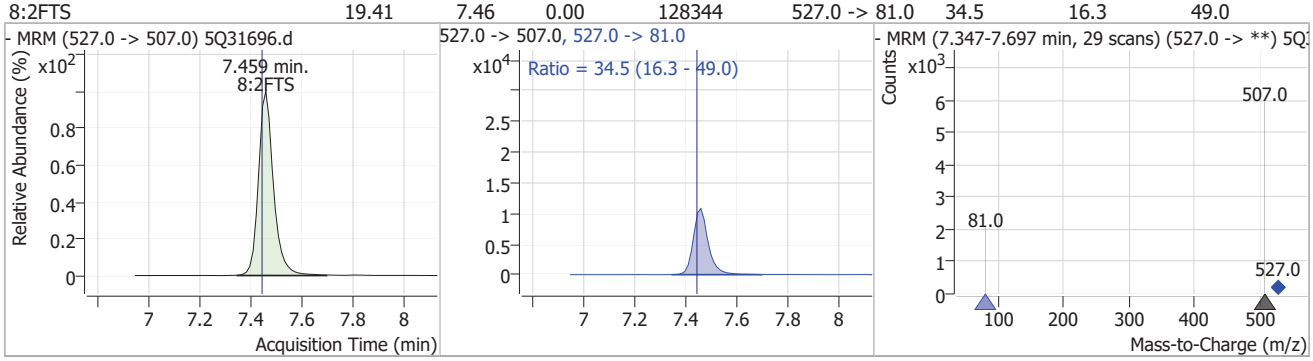


Perfluorinated Compounds by LC/MS/MS

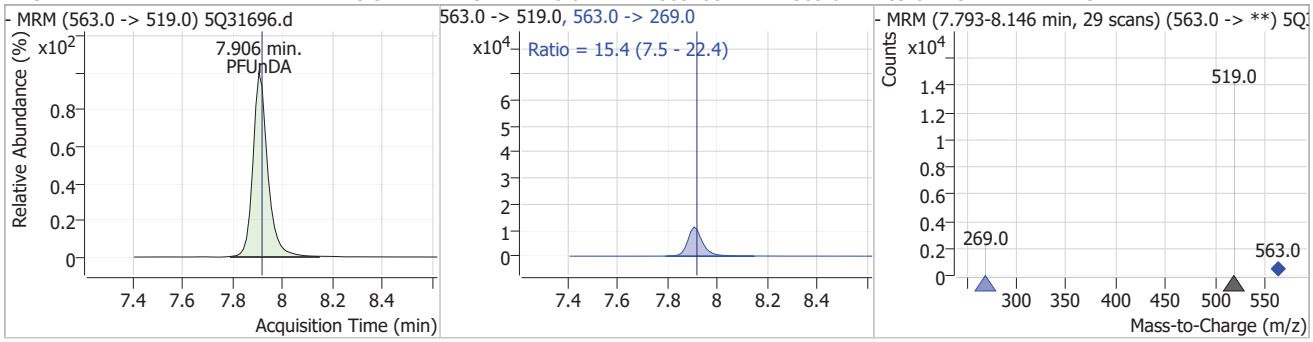
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	18.83	7.41	-0.01	264614	513.0 -> 219.0	16.5	8.2	24.7



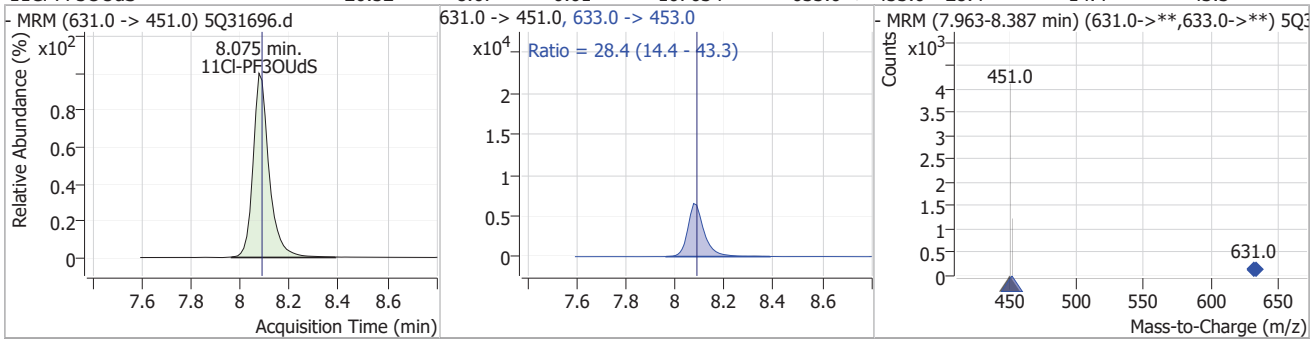
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	19.41	7.46	0.00	128344	527.0 -> 81.0	34.5	16.3	49.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	23.32	7.91	-0.01	305108	563.0 -> 269.0	15.4	7.5	22.4

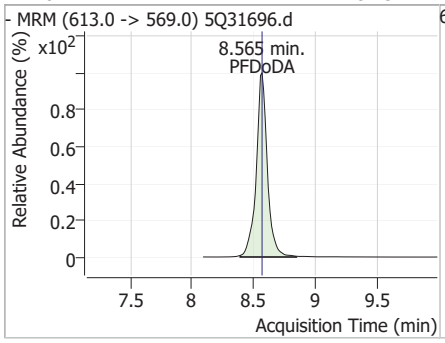


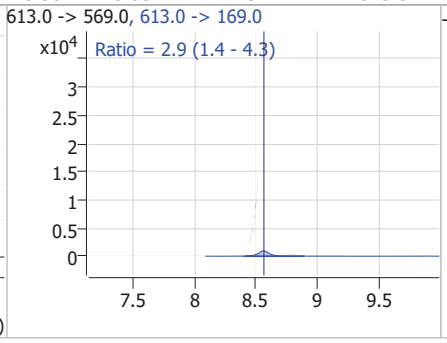
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	20.52	8.07	-0.01	107034	633.0 -> 453.0	28.4	14.4	43.3

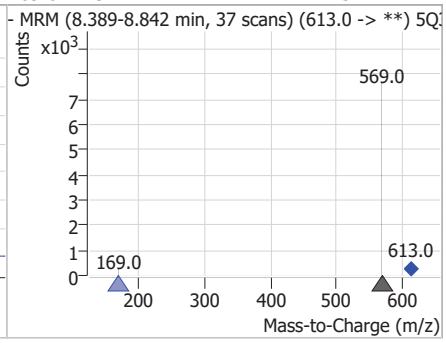


Perfluorinated Compounds by LC/MS/MS

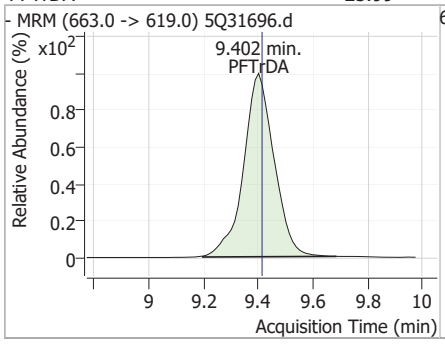
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	28.25	8.56	0.00	213111	613.0 -> 169.0	2.9	1.4	4.3

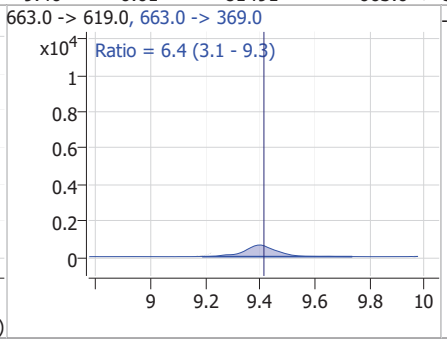


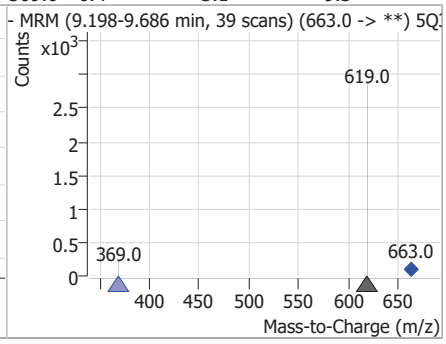




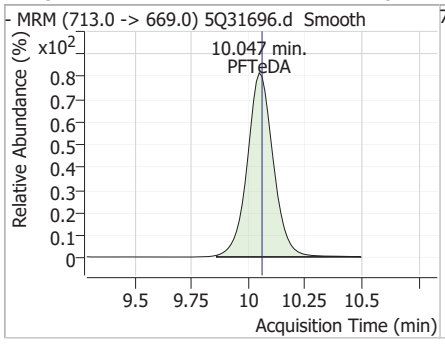
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	25.99	9.40	-0.01	81491	663.0 -> 369.0	6.4	3.1	9.3

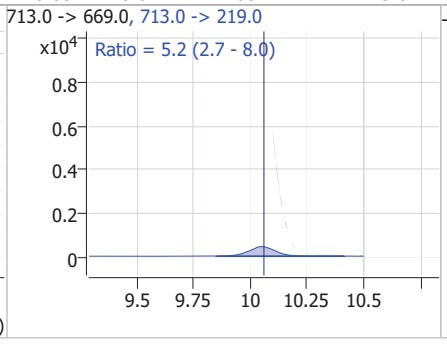


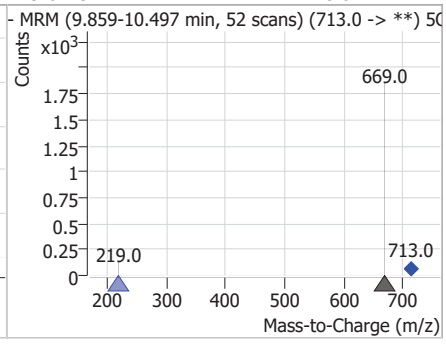




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	22.45	10.05	-0.01	70321	713.0 -> 219.0	5.2	2.7	8.0







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Manual Integration Approval Summary

Sample Number:	S5Q519-ICV519	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31696.D	**Analyst approved:**	04/14/25 10:08 (b) (6)
Injection Time:	04/11/25 13:41	**Supervisor approved:**	04/14/25 12:24 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/14/25 12:24

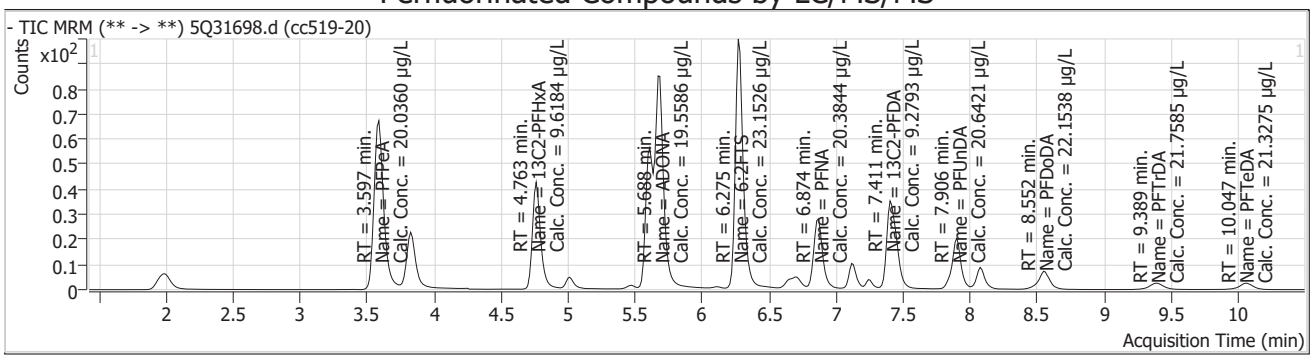
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31698.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/11/2025 2:13:54 PM
Sample Name : cc519-20
Vial : P1-A7
DA Method File : 537_041125_S5Q519.quantmethod
Batch Name : s5q519.batch.bin
Sample Information : OP8806,S5Q519,250,,,1,1,water

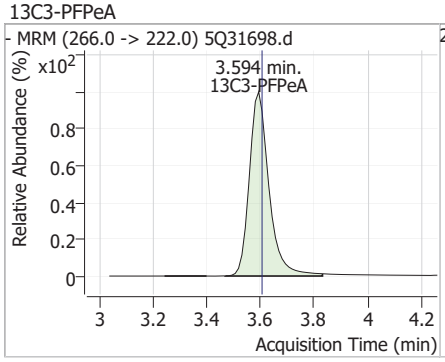
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	175758	20.00	µg/L		-0.012
13C2-PFOA	6.277	415.0 -> 370.0	460891	20.00	µg/L		-0.012
13C3-PFPeA	3.594	266.0 -> 222.0	623949	20.00	µg/L		-0.012
13C4-PFOS	6.847	503.0 -> 80.0	102338	20.00	µg/L		-0.012
d3-MeFOSAA	7.242	573.0 -> 419.0	31309	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	164045	9.28	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 46.4%			
13C2-PFHxA	4.763	315.0 -> 270.0	299354	9.62	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 48.1%			
d5-EtFOSAA	7.378	589.0 -> 419.0	10842	20.46	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 51.2%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	37722	19.34	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 48.4%			
Target Compounds							QValue
6:2FTS	6.275	427.0 -> 407.0	203659	23.15	µg/L		100
8:2FTS	7.459	527.0 -> 507.0	149580	21.92	µg/L		99
EtFOSAA	7.380	584.0 -> 419.0	9826	19.70	µg/L	m	98
MeFOSAA	7.256	570.0 -> 419.0	13570	18.59	µg/L	m	98
PFBS	3.828	299.0 -> 80.0	297258	19.17	µg/L		99
PFDA	7.411	513.0 -> 469.0	306025	20.88	µg/L		100
PFDoDA	8.552	613.0 -> 569.0	175674	22.15	µg/L		100
PFHpA	5.601	363.0 -> 319.0	779159	19.39	µg/L		99
PFHxA	4.764	313.0 -> 269.0	411364	19.21	µg/L		100
PFHxS	5.635	399.0 -> 80.0	170455	19.33	µg/L	m	100
PFNA	6.874	463.0 -> 419.0	289833	20.38	µg/L	m	99
PFOA	6.277	413.0 -> 369.0	450279	20.63	µg/L		99
PFOS	6.848	499.0 -> 80.0	124187	19.88	µg/L	m	98
PFPeA	3.597	263.0 -> 219.0	762246	20.04	µg/L		100
PFTeDA	10.047	713.0 -> 669.0	71587	21.33	µg/L		100
PFTrDA	9.389	663.0 -> 619.0	72367	21.76	µg/L		99
PFUnDA	7.906	563.0 -> 519.0	289654	20.64	µg/L		99
ADONA	5.688	377.0 -> 251.0	1028826	19.56	µg/L		100
9Cl-PF3ONS	7.121	531.0 -> 351.0	123863	20.24	µg/L		99
11Cl-PF3OUdS	8.075	631.0 -> 451.0	116785	21.45	µg/L		99
HFPO-DA	5.022	285.0 -> 169.0	34662	19.30	µg/L		100

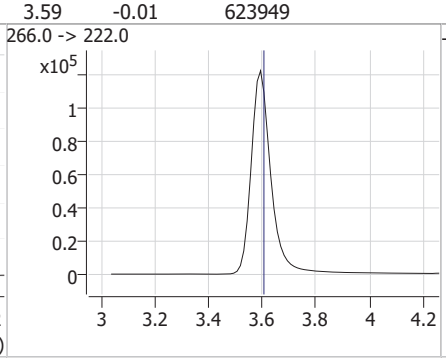
 # = Qualifier out of range, m = manually integrated, + = Area summed

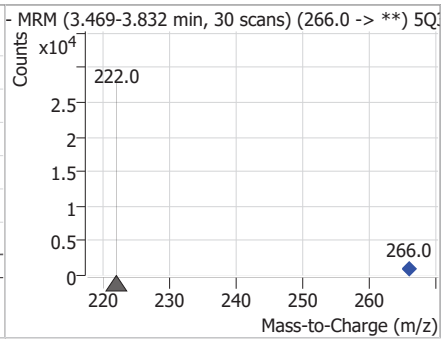
Perfluorinated Compounds by LC/MS/MS



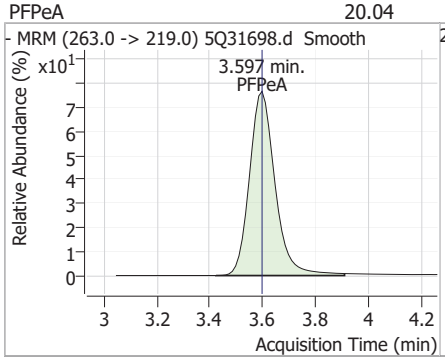
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	623949				

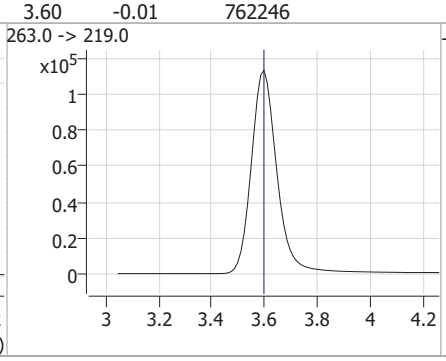


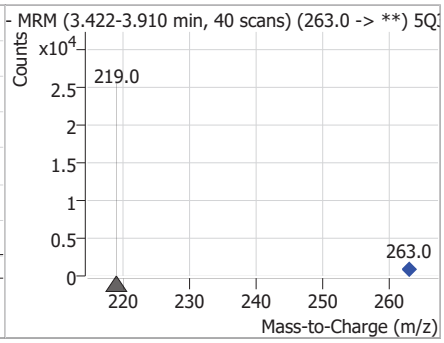




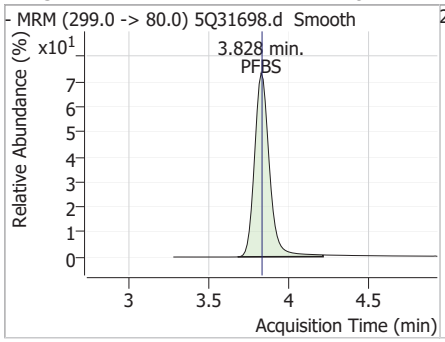
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.04	3.60	-0.01	762246				

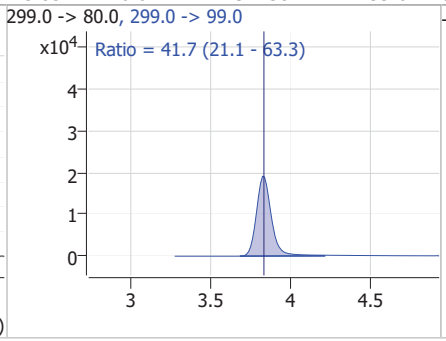


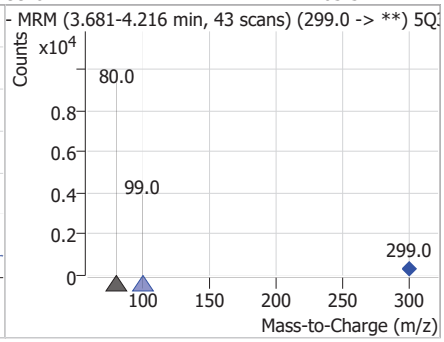




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.17	3.83	-0.01	297258	299.0 -> 99.0	41.7	21.1	63.3







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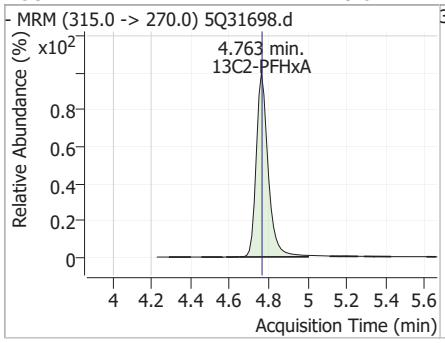
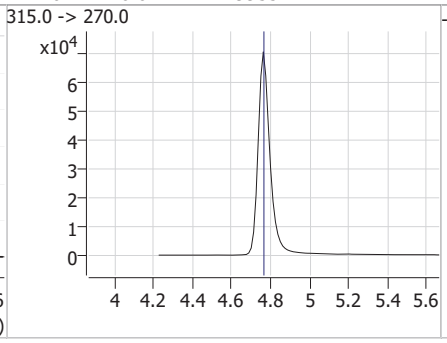
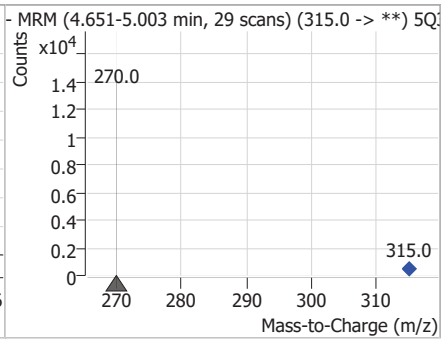
Perfluorinated Compounds by LC/MS/MS

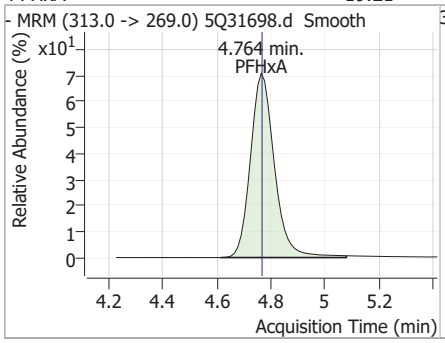
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	9.62	4.76	-0.01	299354				

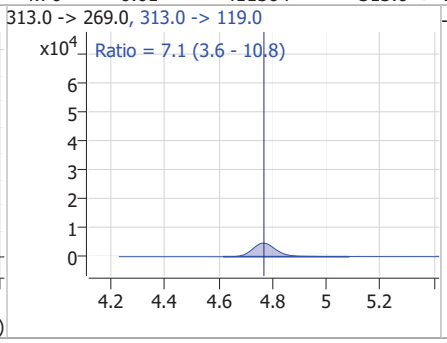


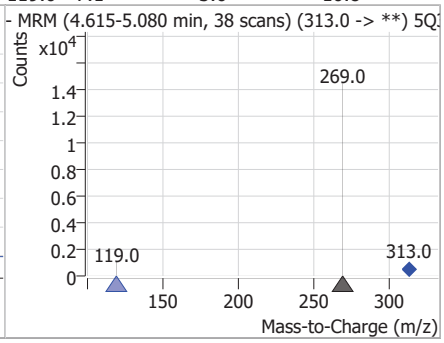




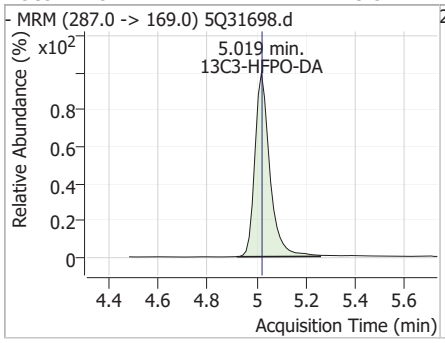
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.21	4.76	-0.01	411364	313.0 -> 119.0	7.1	3.6	10.8

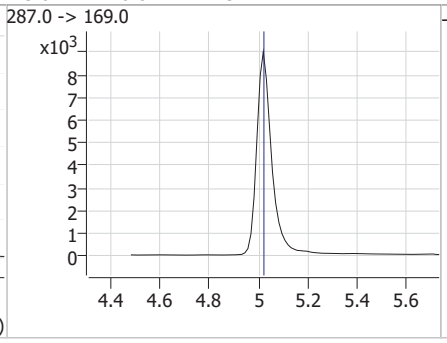


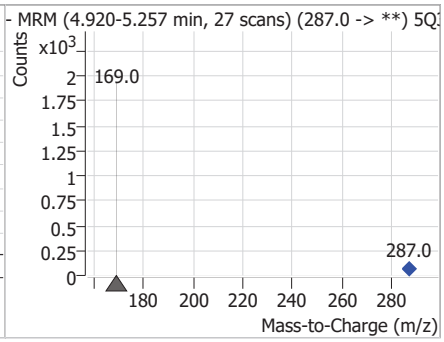




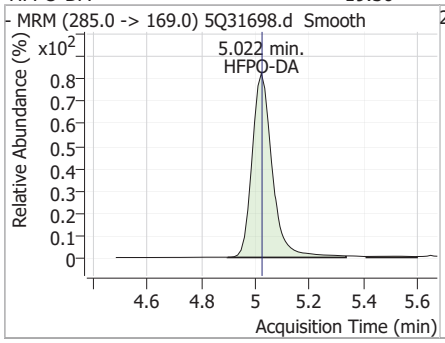
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	19.34	5.02	-0.01	37722				

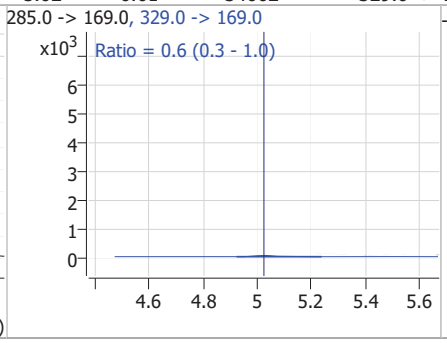


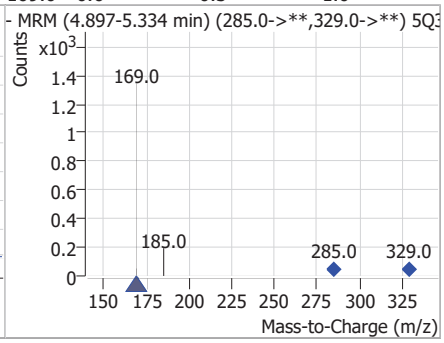




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.30	5.02	-0.01	34662	329.0 -> 169.0	0.6	0.3	1.0

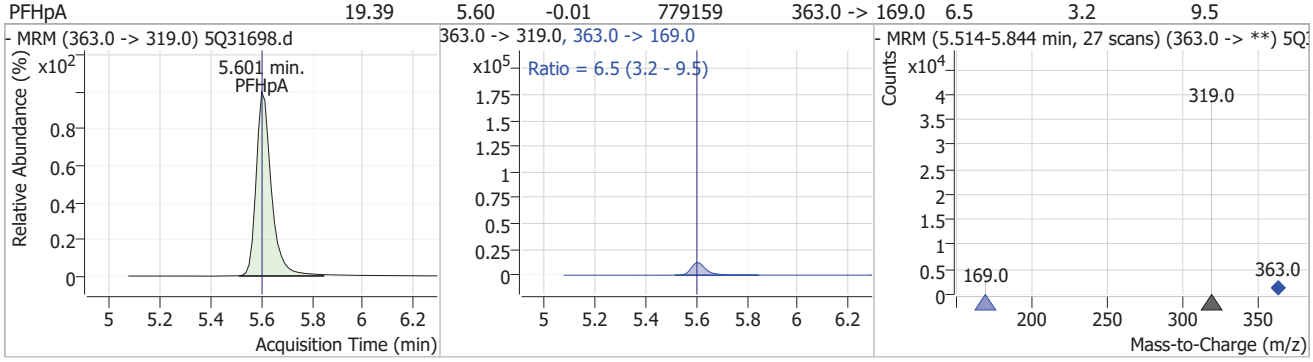




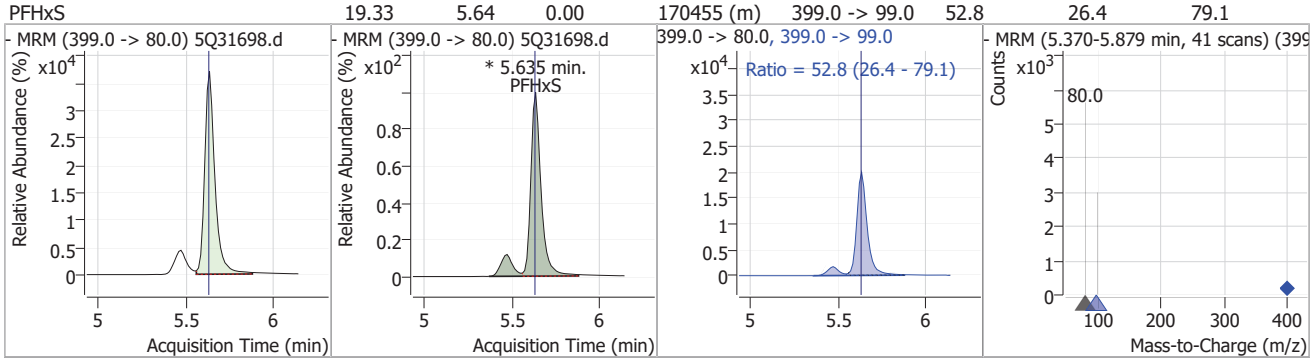


Perfluorinated Compounds by LC/MS/MS

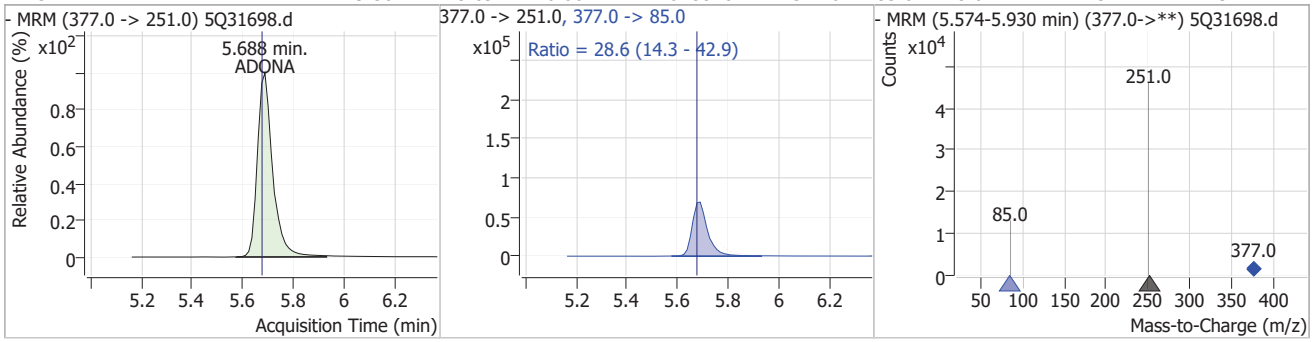
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.39	5.60	-0.01	779159	363.0 -> 169.0	6.5	3.2	9.5



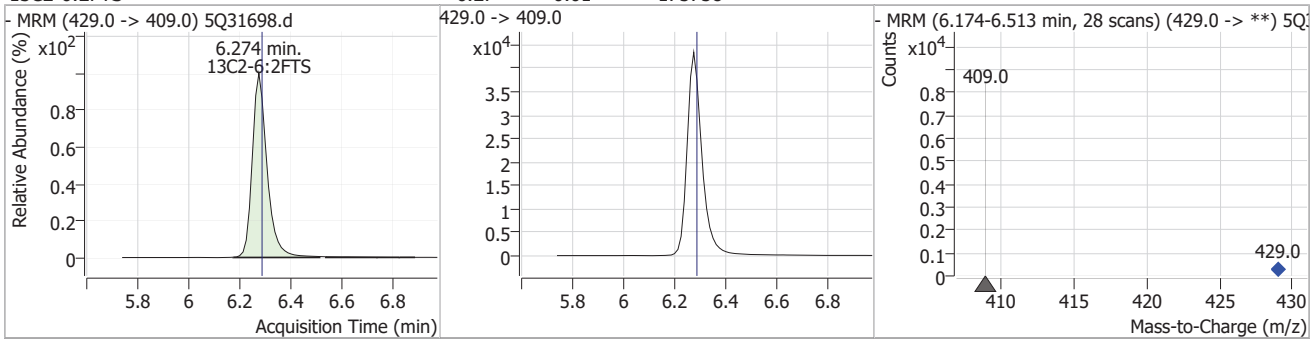
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.33	5.64	0.00	170455 (m)	399.0 -> 99.0	52.8	26.4	79.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.56	5.69	0.00	1028826	377.0 -> 85.0	28.6	14.3	42.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	175758				



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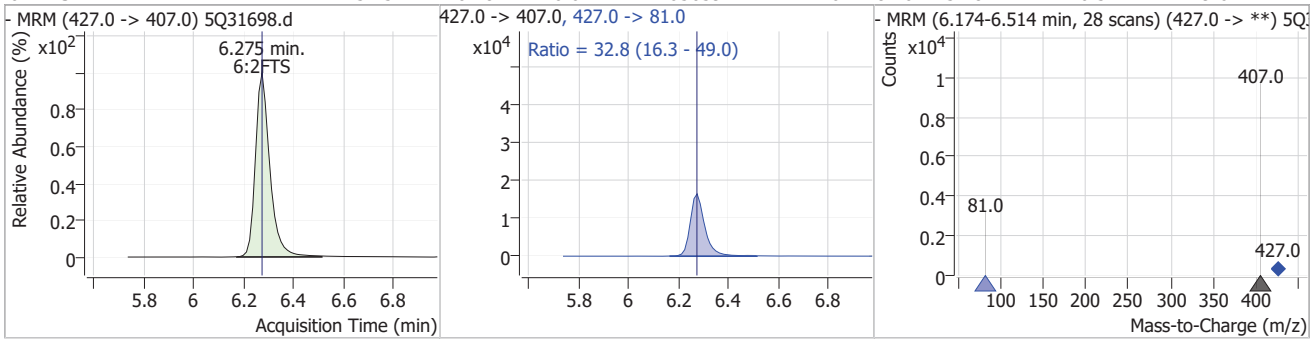
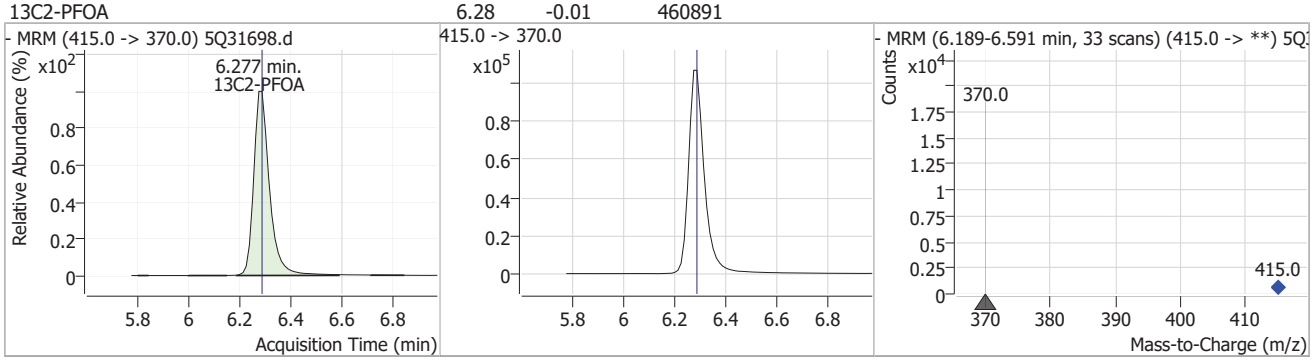
Perfluorinated Compounds by LC/MS/MS

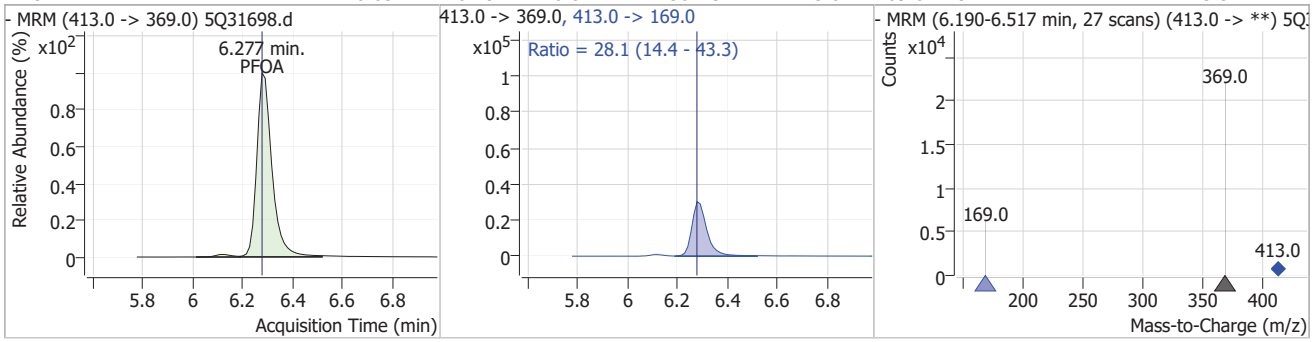
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	23.15	6.28	-0.01	203659	427.0 -> 81.0	32.8	16.3	49.0



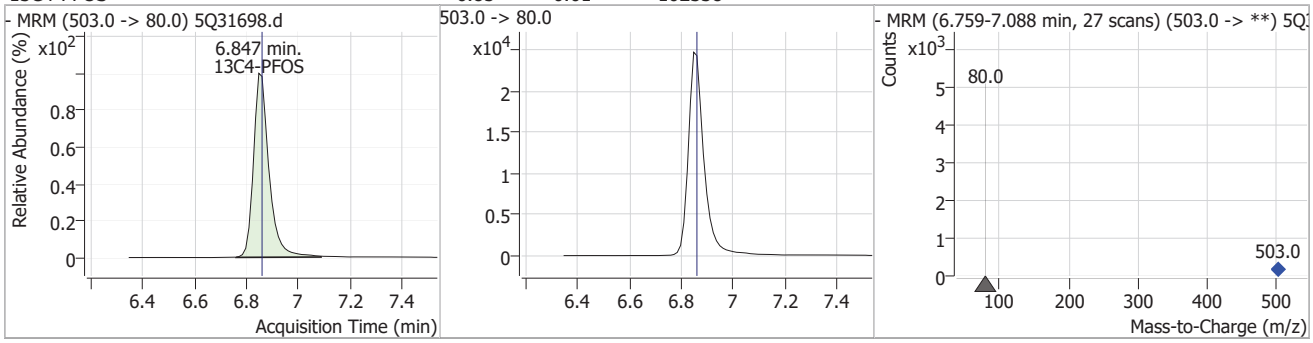
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.28	-0.01	460891				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.63	6.28	-0.01	450279	413.0 -> 169.0	28.1	14.4	43.3

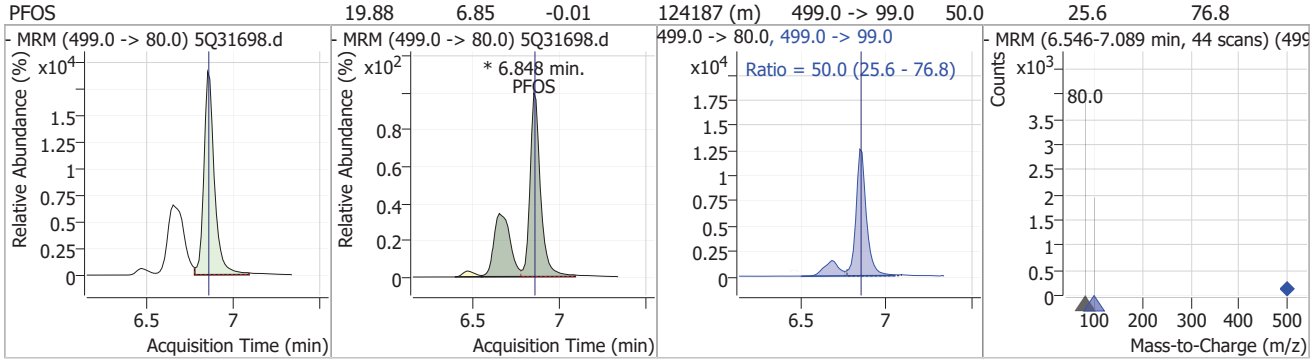


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.85	-0.01	102338				

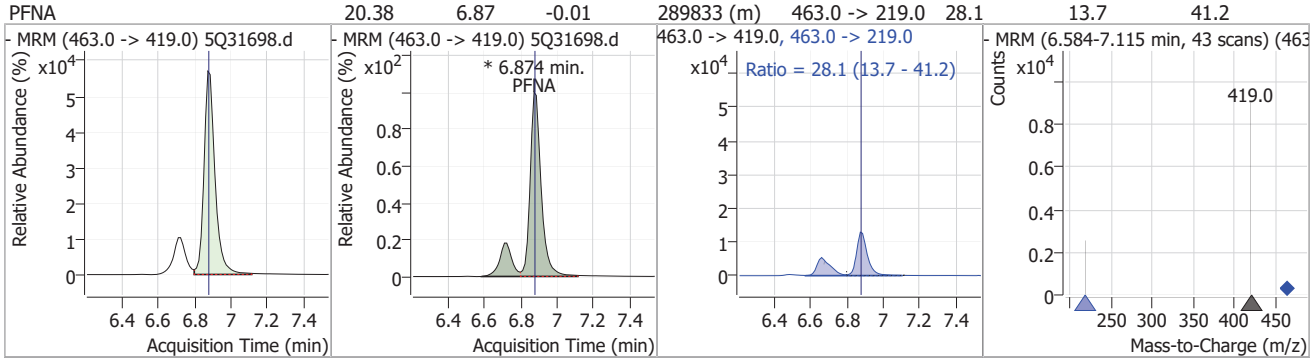


Perfluorinated Compounds by LC/MS/MS

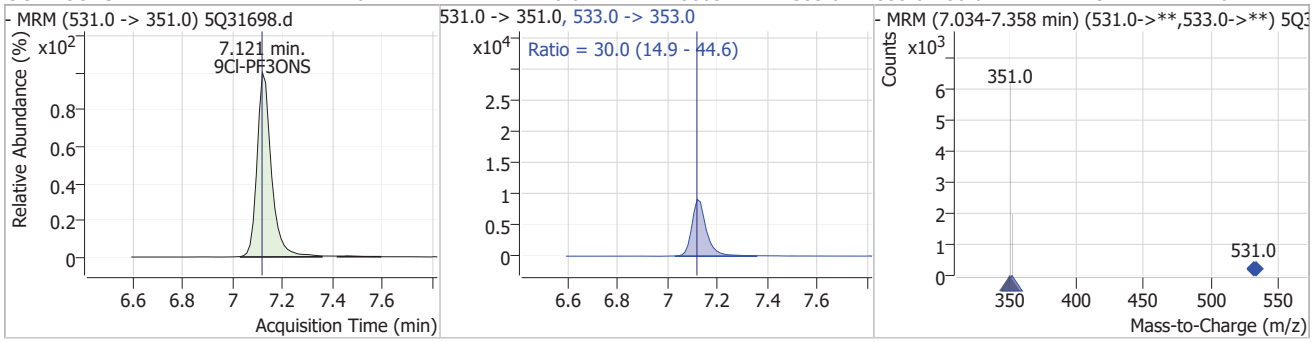
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.88	6.85	-0.01	124187 (m)	499.0 -> 99.0	50.0	25.6	76.8



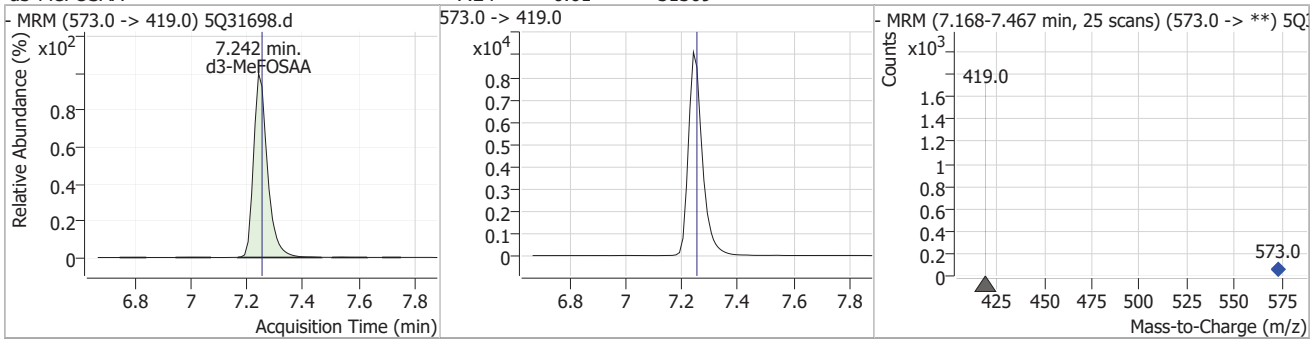
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	20.38	6.87	-0.01	289833 (m)	463.0 -> 219.0	28.1	13.7	41.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	20.24	7.12	-0.01	123863	533.0 -> 353.0	30.0	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	31309				



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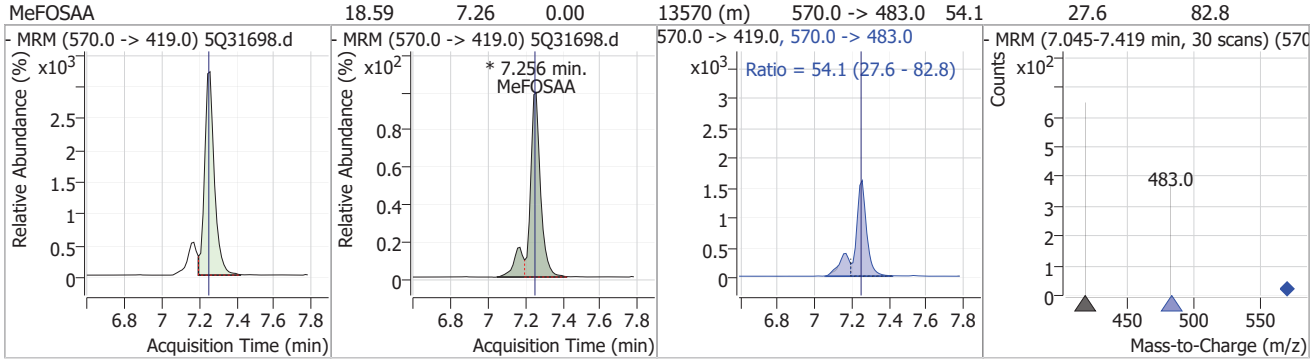
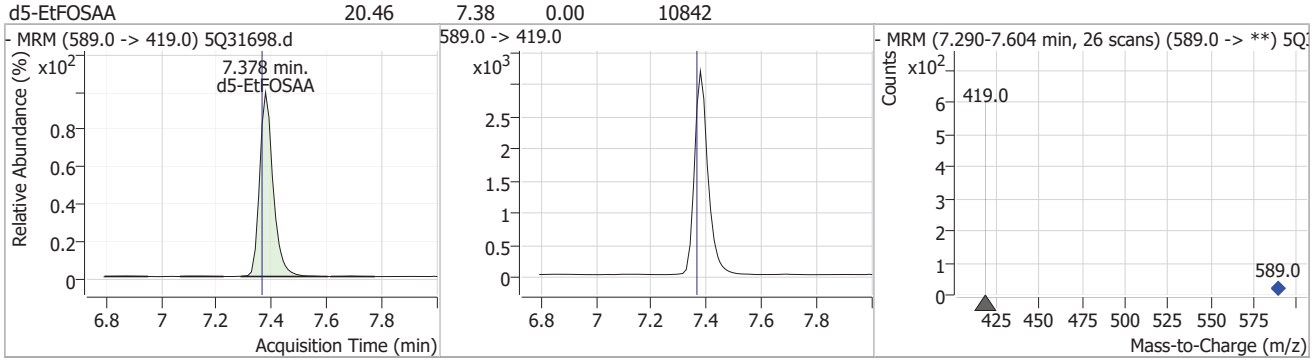
Perfluorinated Compounds by LC/MS/MS

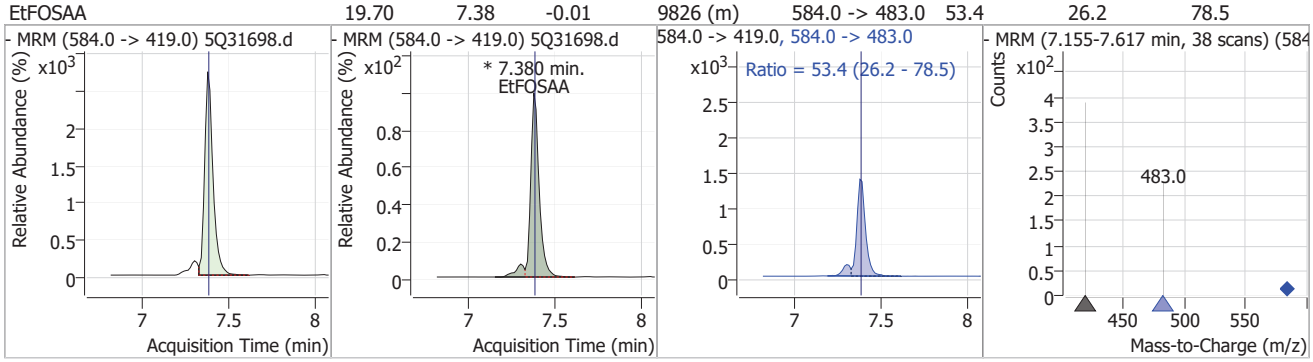
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	18.59	7.26	0.00	13570 (m)	570.0 -> 483.0	54.1	27.6	82.8



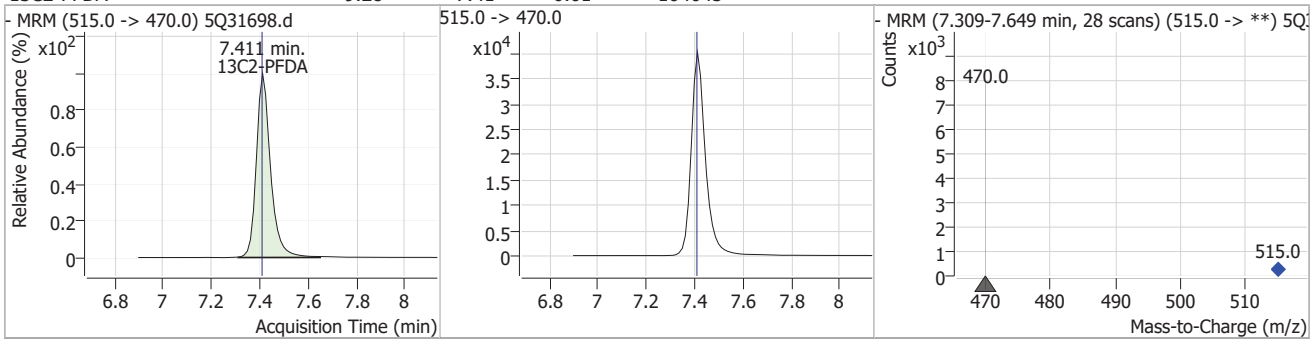
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	20.46	7.38	0.00	10842				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.70	7.38	-0.01	9826 (m)	584.0 -> 483.0	53.4	26.2	78.5

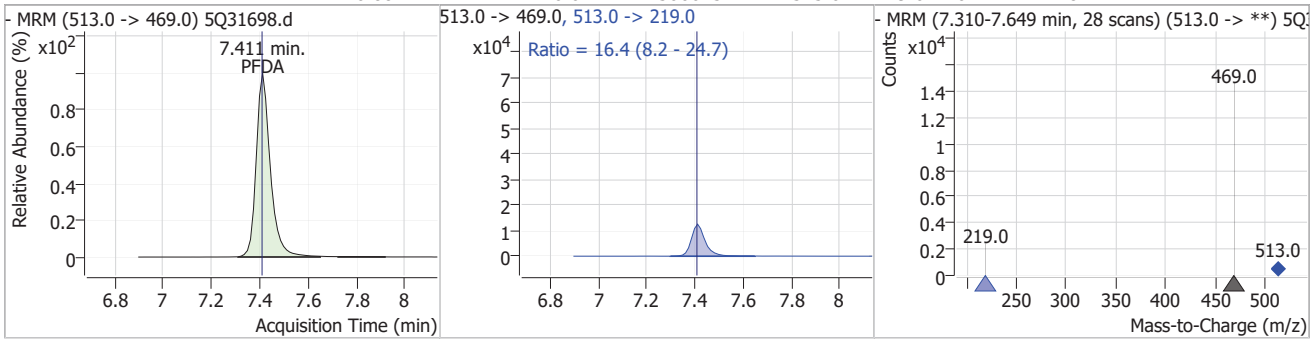


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	9.28	7.41	-0.01	164045				

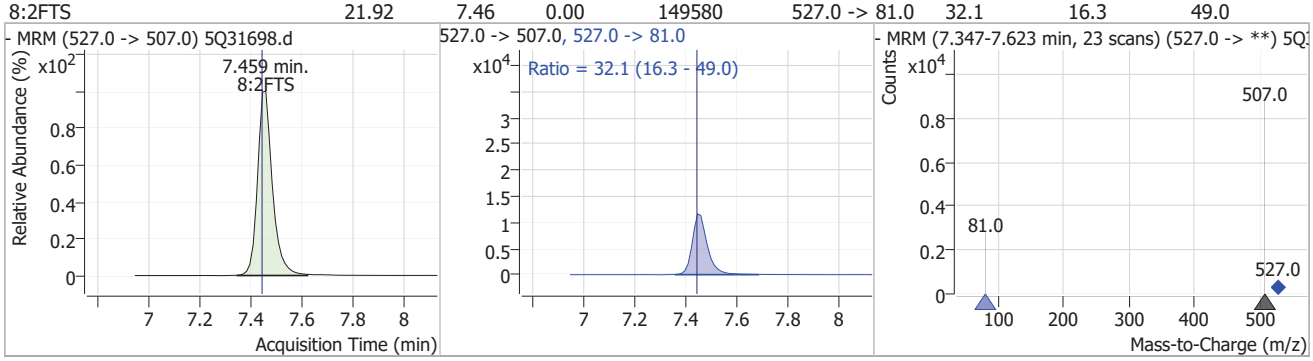


Perfluorinated Compounds by LC/MS/MS

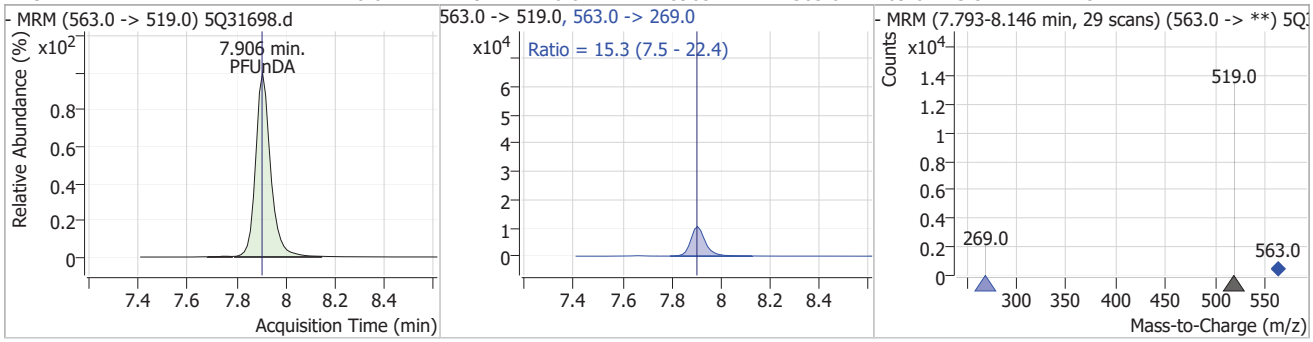
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.88	7.41	-0.01	306025	513.0 -> 219.0	16.4	8.2	24.7



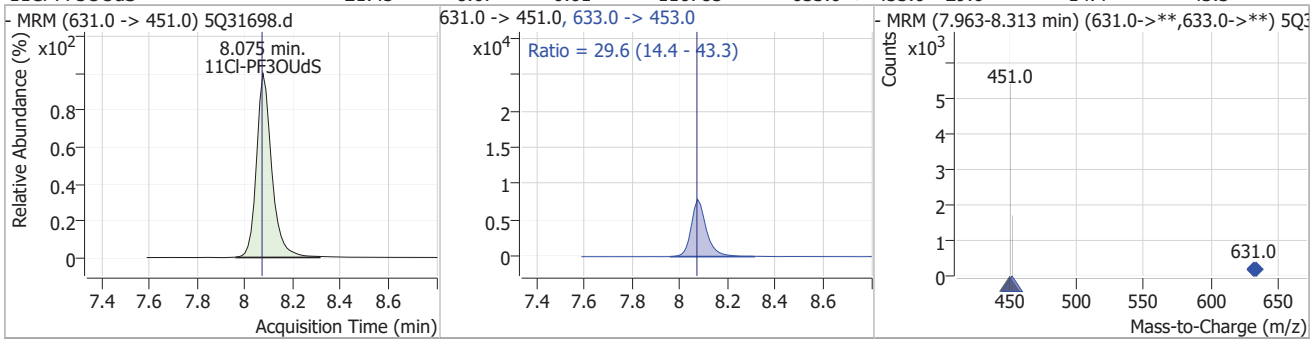
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.92	7.46	0.00	149580	527.0 -> 81.0	32.1	16.3	49.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	20.64	7.91	-0.01	289654	563.0 -> 269.0	15.3	7.5	22.4

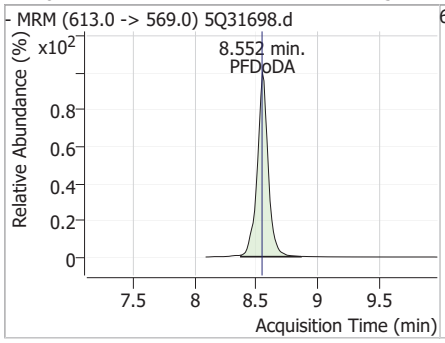


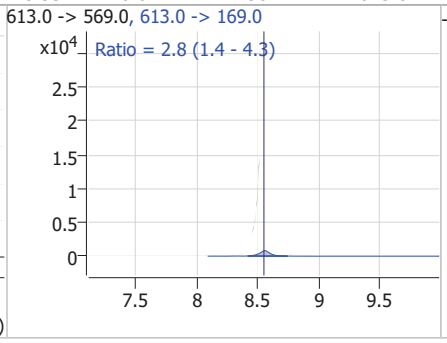
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	21.45	8.07	-0.01	116785	633.0 -> 453.0	29.6	14.4	43.3

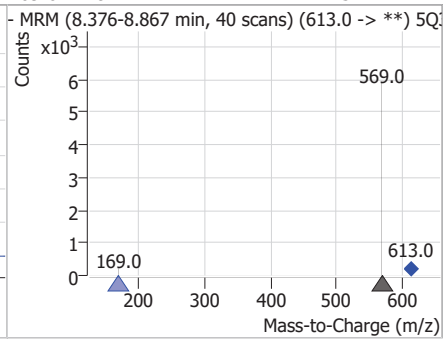


Perfluorinated Compounds by LC/MS/MS

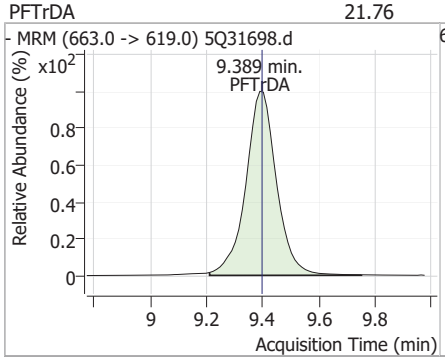
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	22.15	8.55	-0.01	175674	613.0 -> 169.0	2.8	1.4	4.3

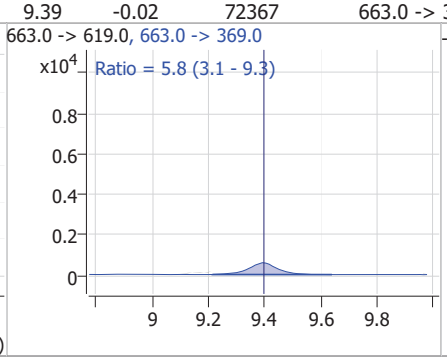


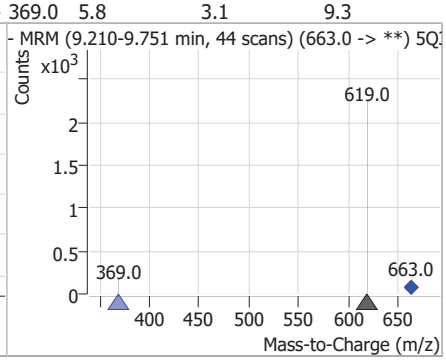




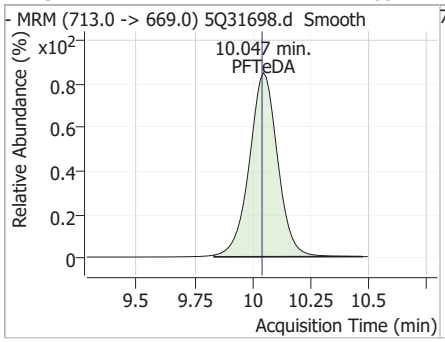
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	21.76	9.39	-0.02	72367	663.0 -> 369.0	5.8	3.1	9.3

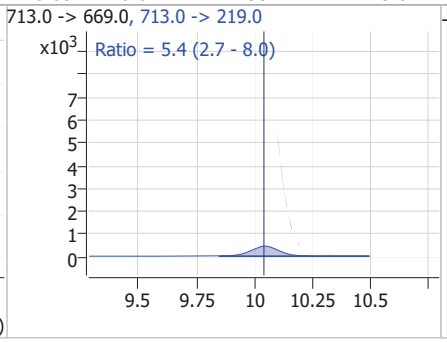


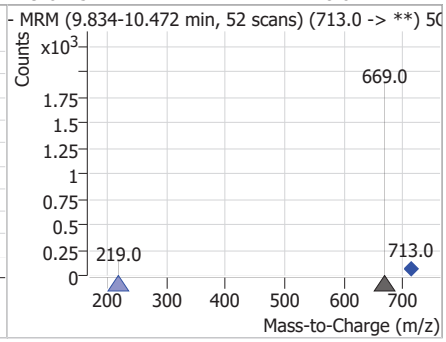




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	21.33	10.05	-0.01	71587	713.0 -> 219.0	5.4	2.7	8.0







7.7.23

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Manual Integration Approval Summary

Sample Number:	S5Q519-CC519	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31698.D	**Analyst approved:**	04/14/25 10:08 (b) (6)
Injection Time:	04/11/25 14:13	**Supervisor approved:**	04/14/25 12:24 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.85	Split peak
Perfluorononanoic acid	375-95-1		6.87	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/14/25 12:24

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31699.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/11/2025 2:29:56 PM
Sample Name : cc519-0.5LL
Vial : P1-A2
DA Method File : 537_041125_S5Q519.quantmethod
Batch Name : s5q519.batch.bin
Sample Information : OP8806,S5Q519,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	163142	20.00	µg/L		-0.012
13C2-PFOA	6.289	415.0 -> 370.0	460266	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	636520	20.00	µg/L		-0.012
13C4-PFOS	6.860	503.0 -> 80.0	105015	20.00	µg/L		0.000
d3-MeFOSAA	7.242	573.0 -> 419.0	31301	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	3220	0.18	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 0.9%			
13C2-PFHxA	4.763	315.0 -> 270.0	5689	0.19	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 0.9%			
d5-EtFOSAA	7.378	589.0 -> 419.0	276	0.53	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 1.3%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	661	0.35	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 0.9%			
Target Compounds							QValue
6:2FTS	6.275	427.0 -> 407.0	3929	0.48	µg/L		97
8:2FTS	7.459	527.0 -> 507.0	2962	0.47	µg/L		97
EtFOSAA	7.392	584.0 -> 419.0	291	0.58	µg/L	m	89
MeFOSAA	7.256	570.0 -> 419.0	268	0.37	µg/L	m	90
PFBS	3.828	299.0 -> 80.0	5957	0.37	µg/L		97
PFDA	7.411	513.0 -> 469.0	6284	0.44	µg/L		98
PFDoDA	8.552	613.0 -> 569.0	4623	0.62	µg/L		100
PFHpA	5.601	363.0 -> 319.0	13985	0.36	µg/L		97
PFHxA	4.764	313.0 -> 269.0	7802	0.37	µg/L		96
PFHxS	5.635	399.0 -> 80.0	3079	0.35	µg/L	m	96
PFNA	6.874	463.0 -> 419.0	5416	0.40	µg/L	m	81
PFOA	6.277	413.0 -> 369.0	8274	0.39	µg/L		95
PFOS	6.848	499.0 -> 80.0	2501	0.40	µg/L	m	90
PFPeA	3.597	263.0 -> 219.0	14944	0.39	µg/L		100
PFTeDA	10.047	713.0 -> 669.0	1678	0.54	µg/L		100
PFTrDA	9.402	663.0 -> 619.0	1596	0.51	µg/L		94
PFUnDA	7.906	563.0 -> 519.0	6120	0.44	µg/L		98
ADONA	5.688	377.0 -> 251.0	18080	0.36	µg/L		98
9Cl-PF3ONS	7.121	531.0 -> 351.0	2310	0.40	µg/L		98
11Cl-PF3OUdS	8.075	631.0 -> 451.0	2294	0.46	µg/L		86
HFPO-DA	5.022	285.0 -> 169.0	701	0.40	µg/L	#m	97

 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.24
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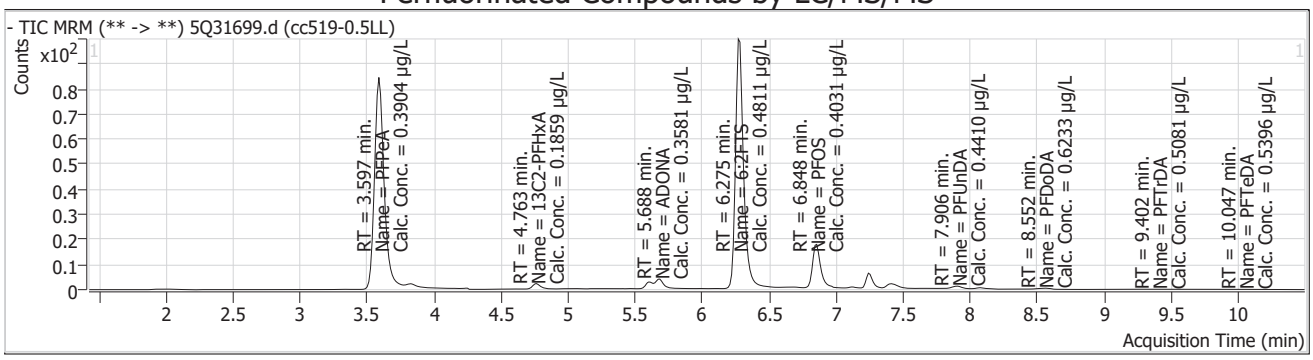
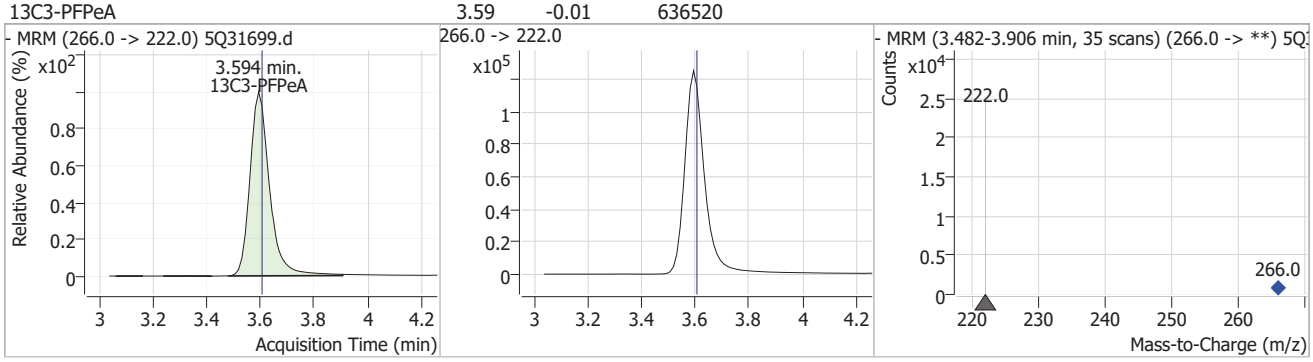
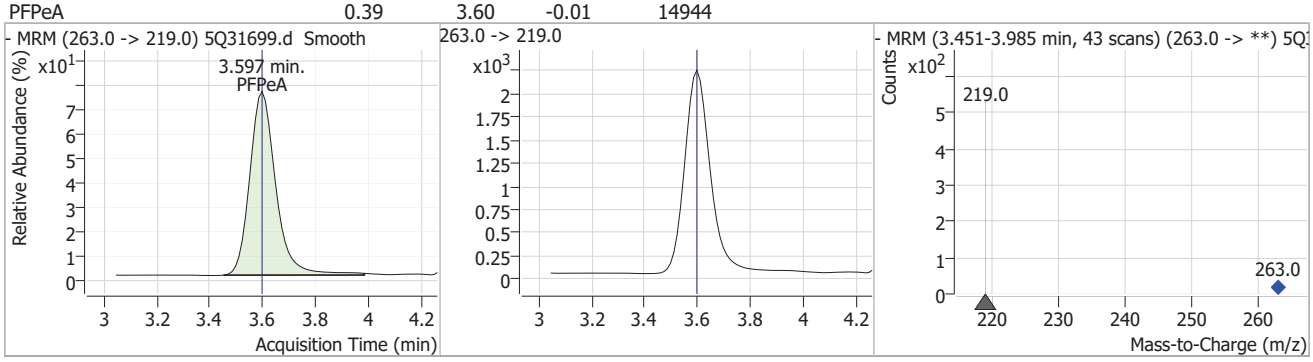
Perfluorinated Compounds by LC/MS/MS



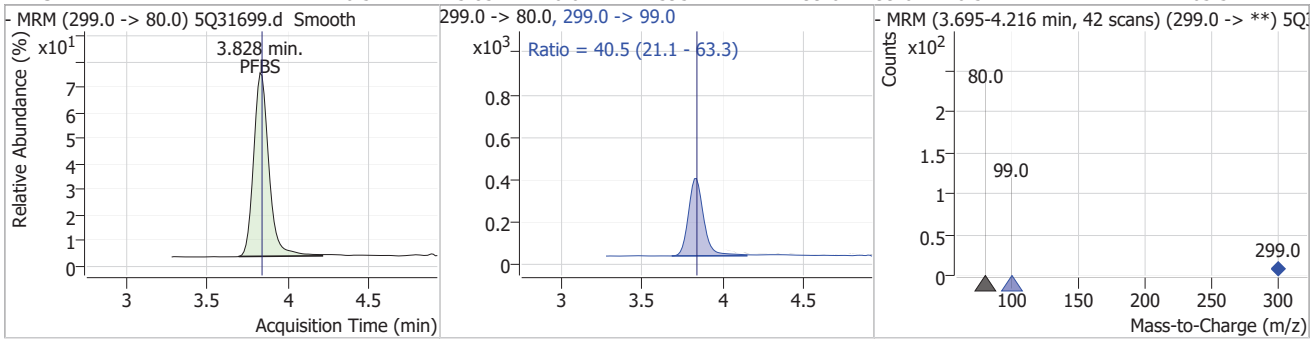
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	636520				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.39	3.60	-0.01	14944				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.37	3.83	-0.01	5957	299.0 -> 99.0	40.5	21.1	63.3



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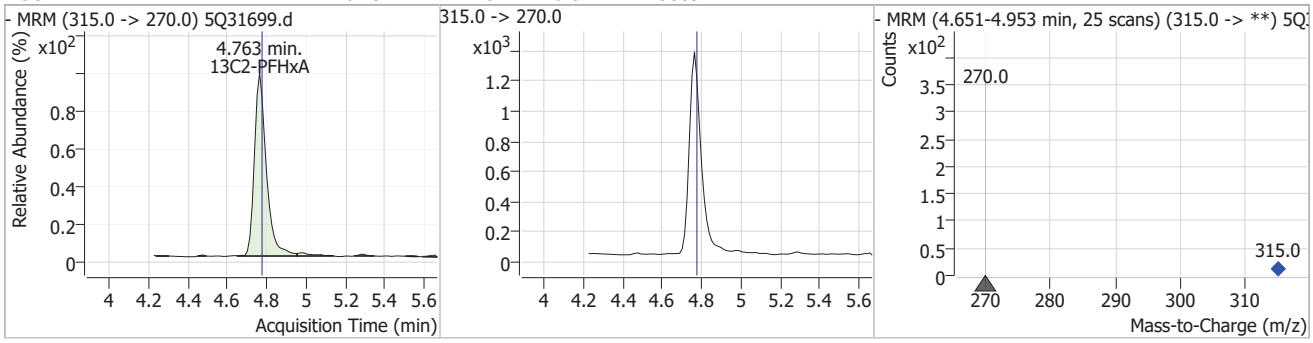
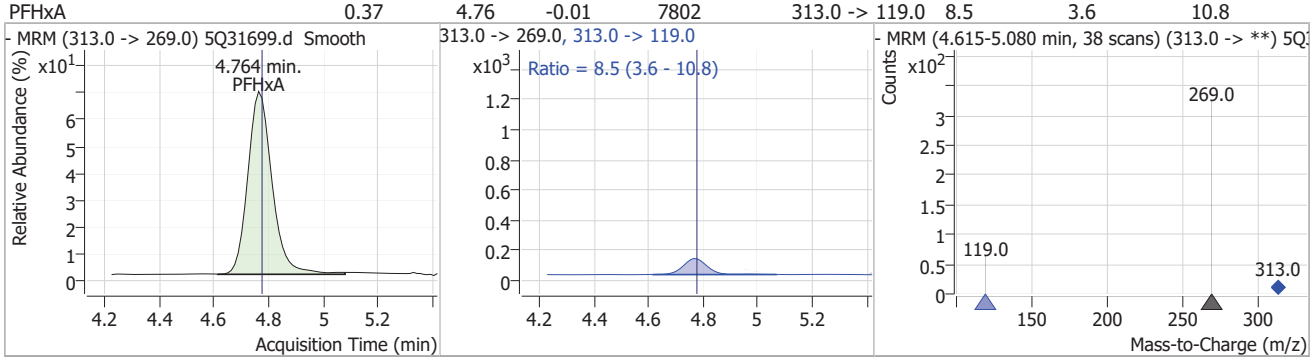
Perfluorinated Compounds by LC/MS/MS

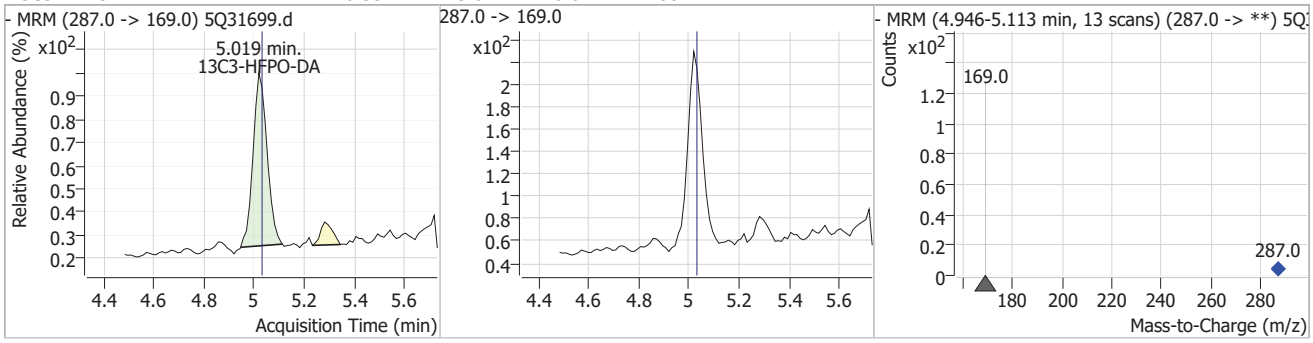
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.19	4.76	-0.01	5689				



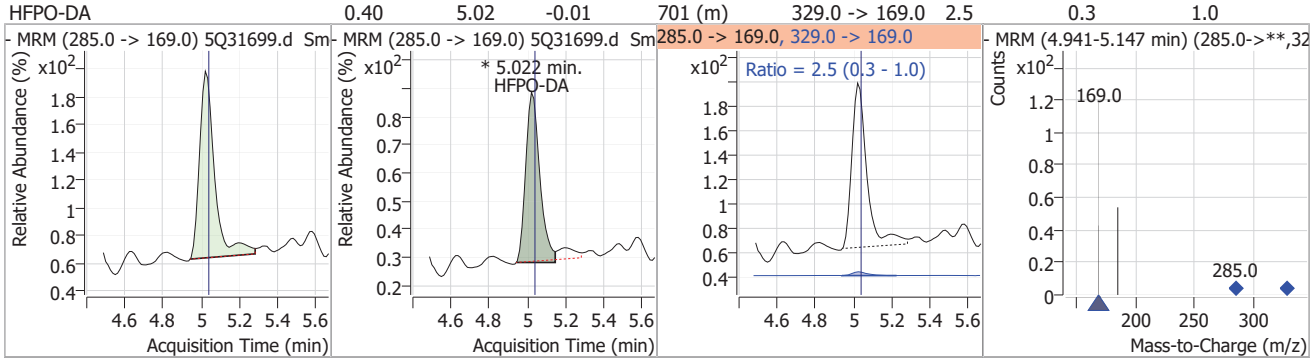
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.37	4.76	-0.01	7802	313.0 -> 119.0	8.5	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.35	5.02	-0.01	661				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.40	5.02	-0.01	701 (m)	329.0 -> 169.0	2.5	0.3	1.0



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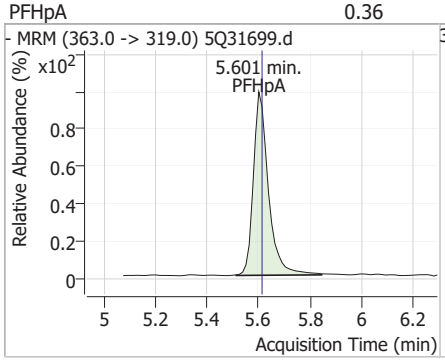
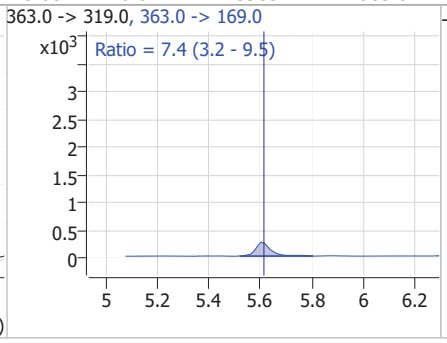
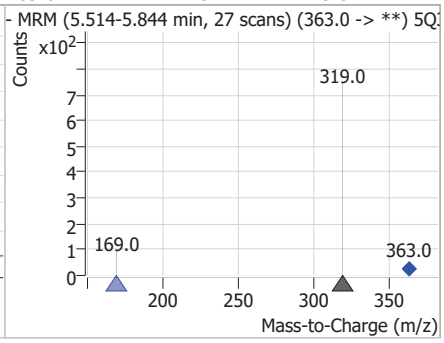
Perfluorinated Compounds by LC/MS/MS

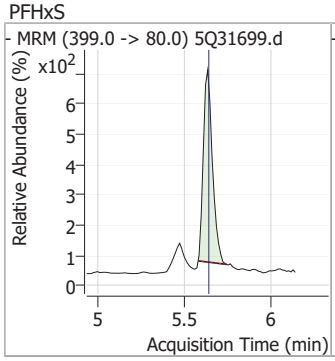
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.36	5.60	-0.01	13985	363.0 -> 169.0	7.4	3.2	9.5

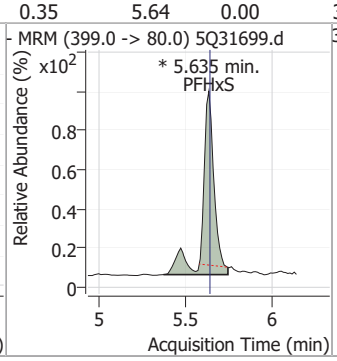


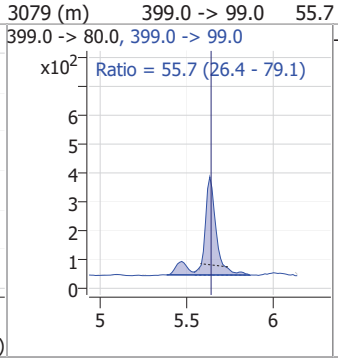


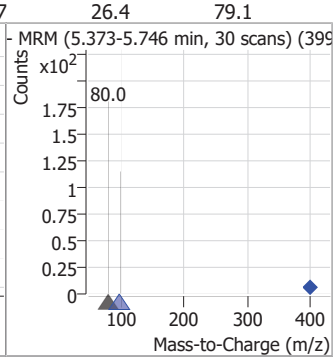


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.35	5.64	0.00	3079 (m)	399.0 -> 99.0	55.7	26.4	79.1

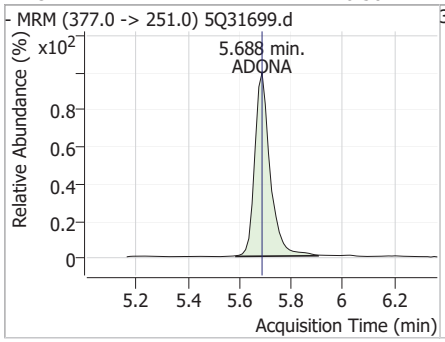


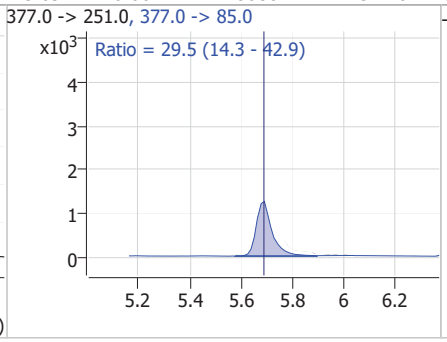


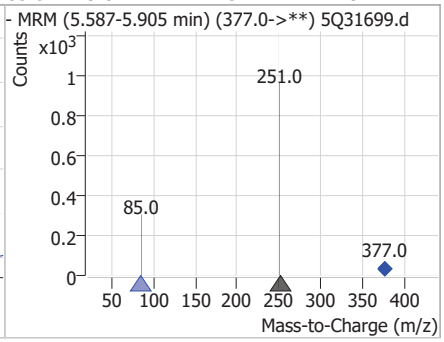




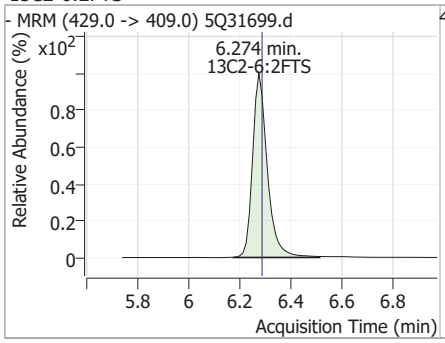
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.36	5.69	0.00	18080	377.0 -> 85.0	29.5	14.3	42.9

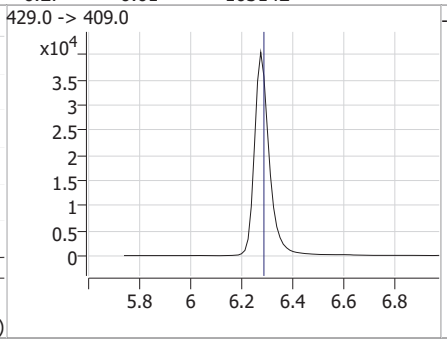


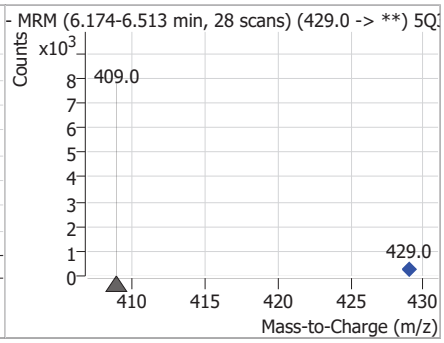




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	163142				







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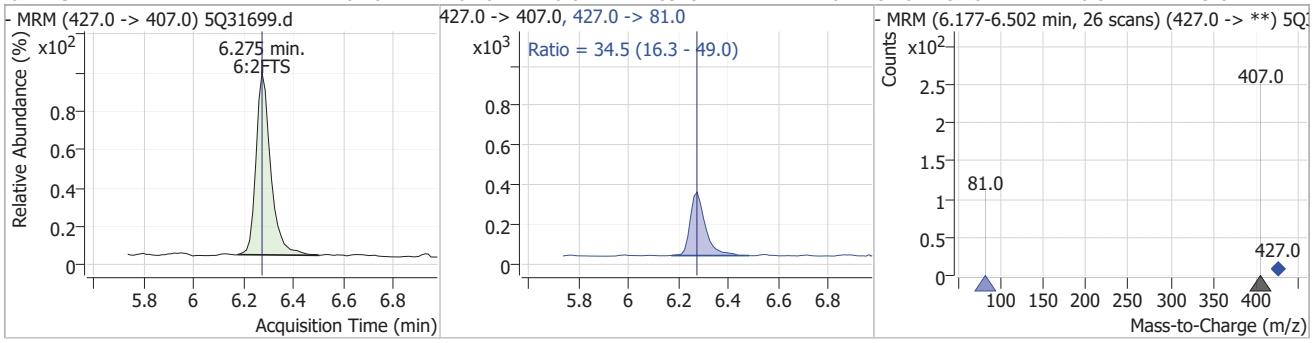
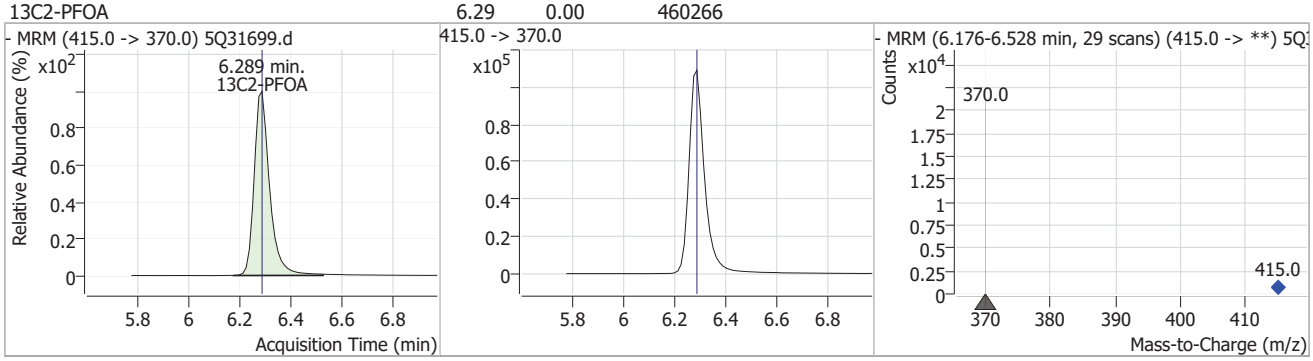
Perfluorinated Compounds by LC/MS/MS

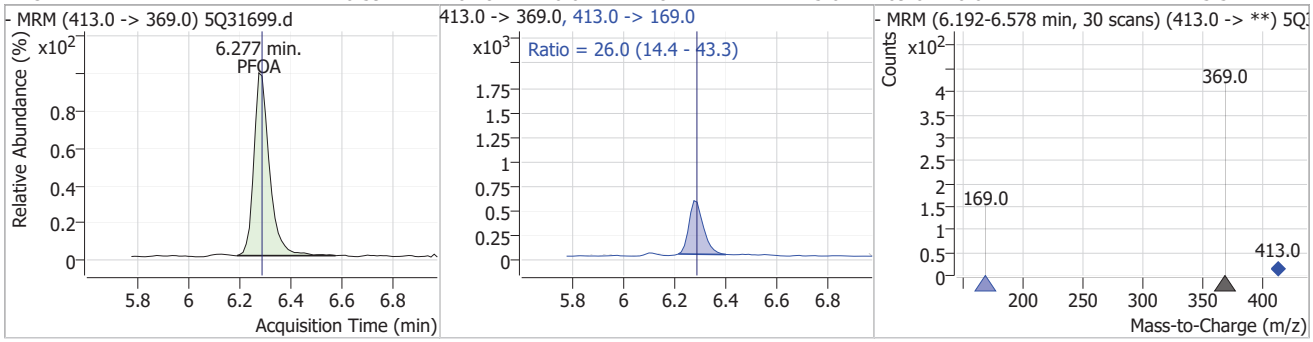
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.48	6.28	-0.01	3929	427.0 -> 81.0	34.5	16.3	49.0



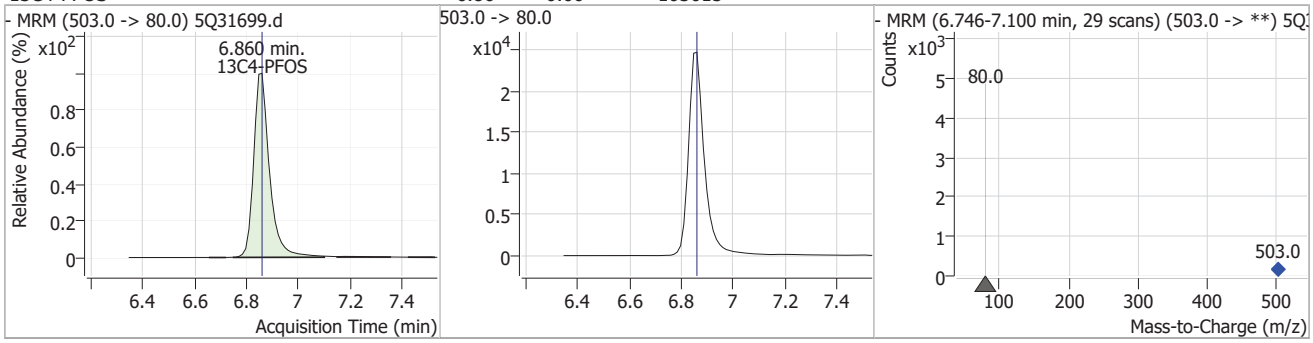
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	460266				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.39	6.28	-0.01	8274	413.0 -> 169.0	26.0	14.4	43.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	105015				



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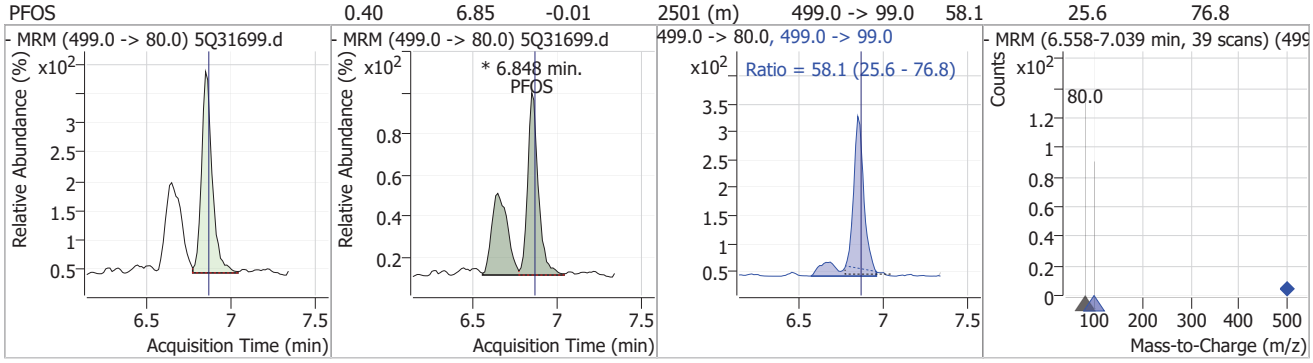
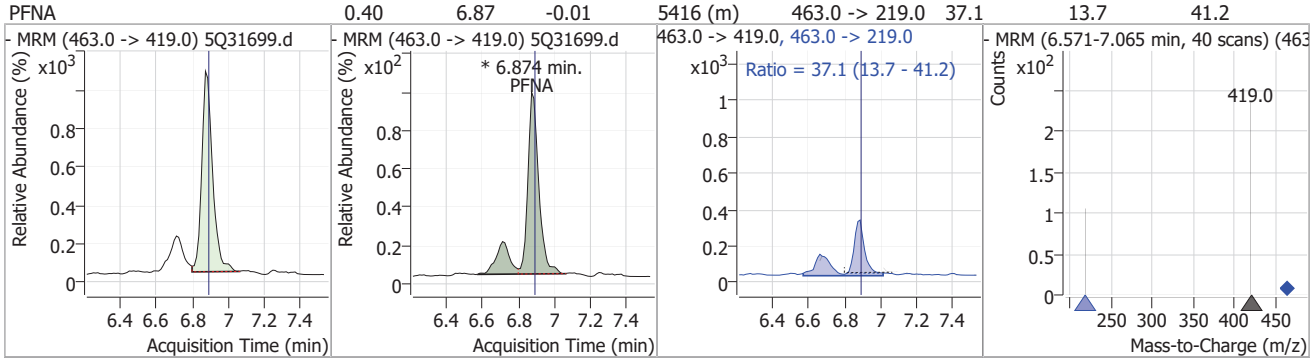
Perfluorinated Compounds by LC/MS/MS

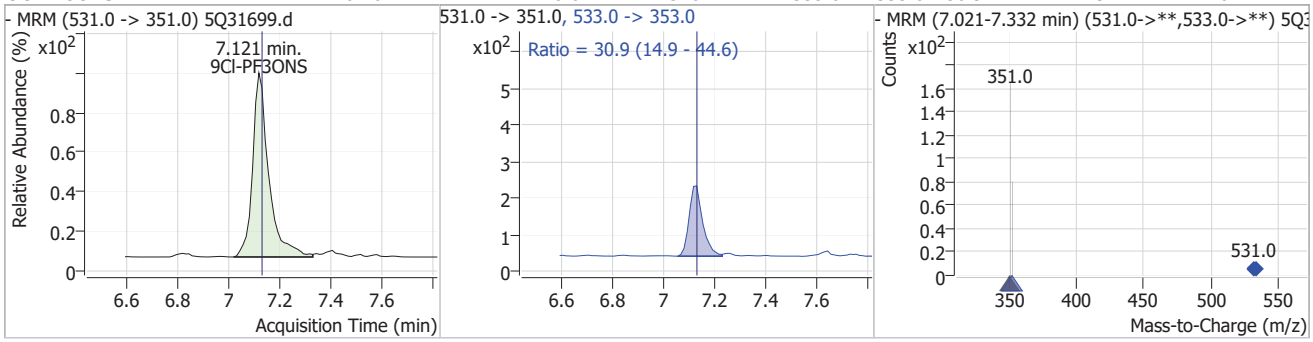
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.40	6.85	-0.01	2501 (m)	499.0 -> 99.0	58.1	25.6	76.8



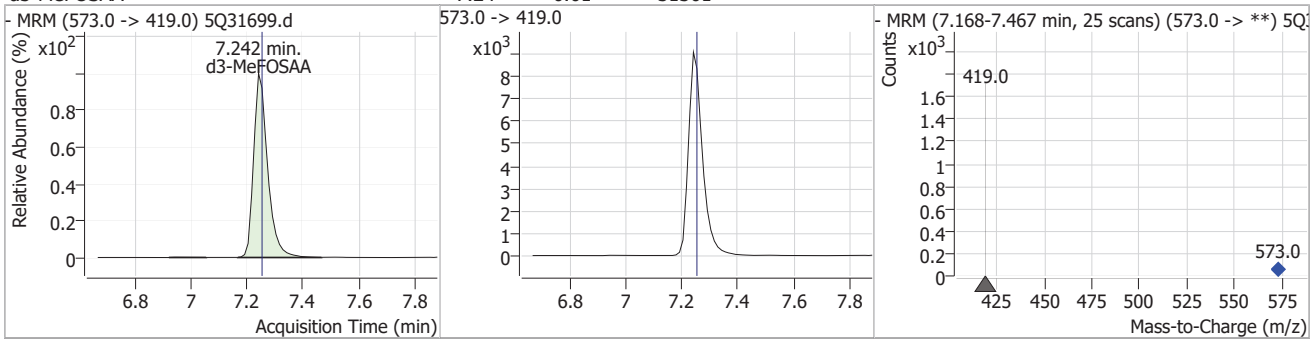
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.40	6.87	-0.01	5416 (m)	463.0 -> 219.0	37.1	13.7	41.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.40	7.12	-0.01	2310	533.0 -> 353.0	30.9	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	31301				



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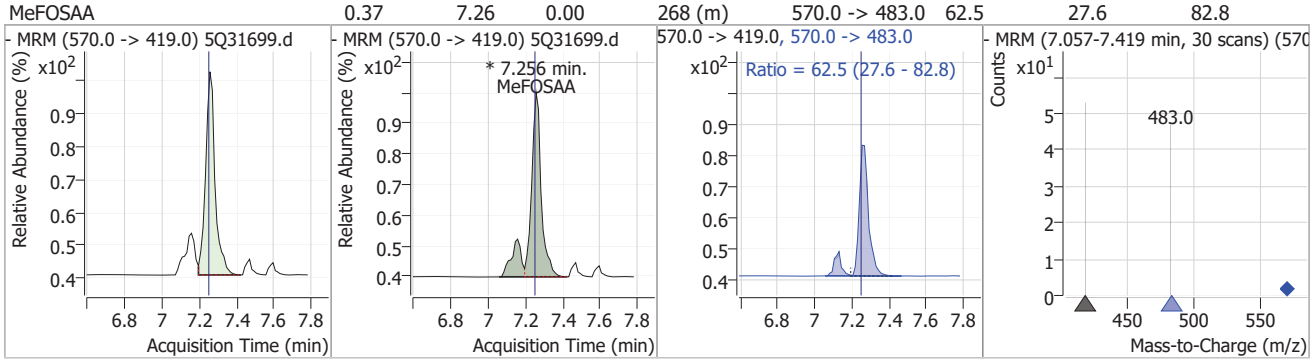
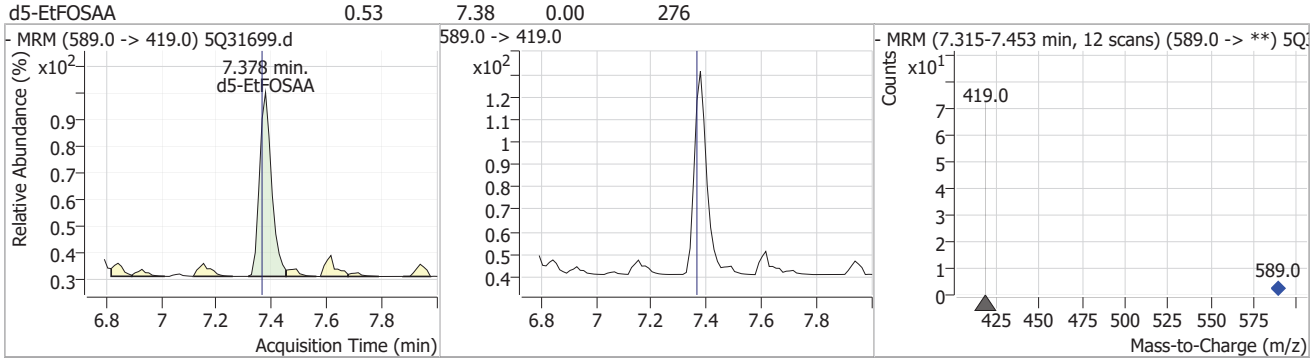
Perfluorinated Compounds by LC/MS/MS

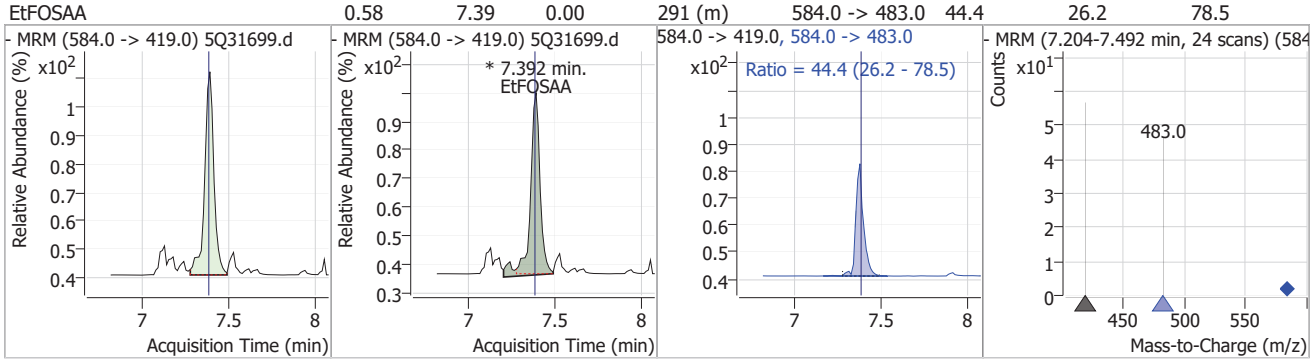
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.37	7.26	0.00	268 (m)	570.0 -> 483.0	62.5	27.6	82.8



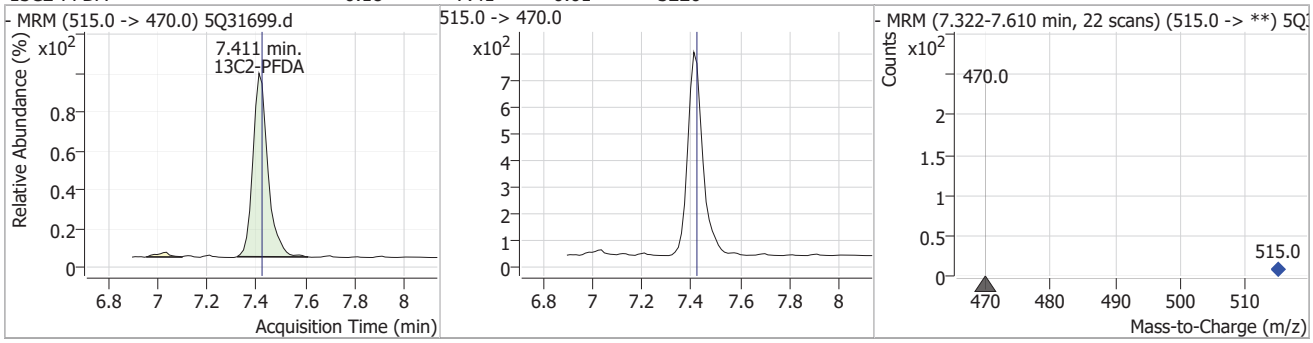
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	0.53	7.38	0.00	276				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.58	7.39	0.00	291 (m)	584.0 -> 483.0	44.4	26.2	78.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.18	7.41	-0.01	3220				



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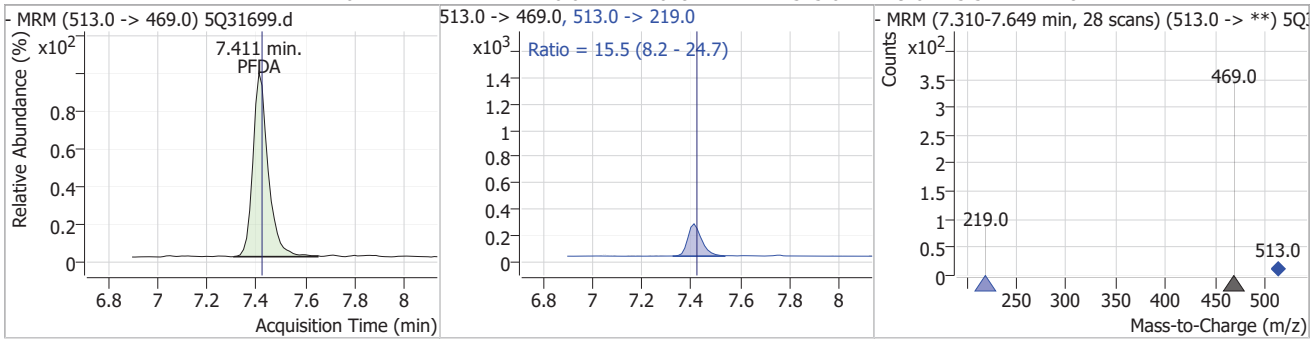
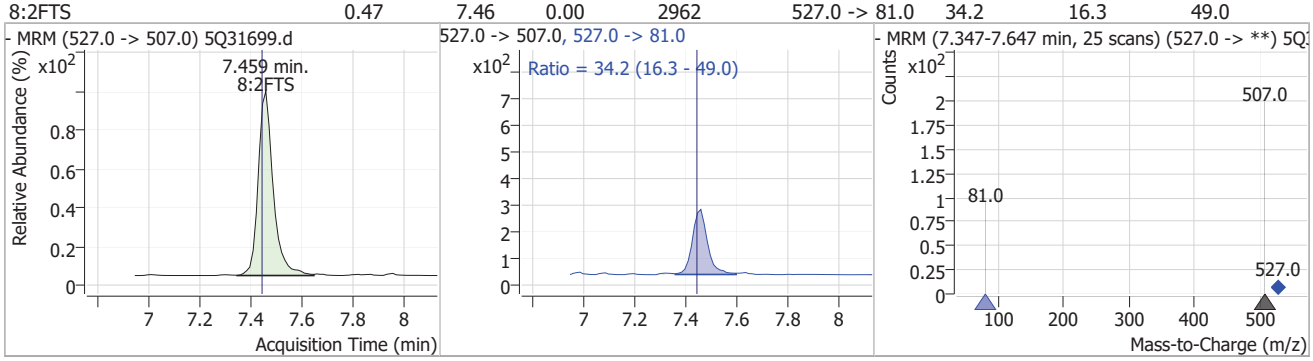
Perfluorinated Compounds by LC/MS/MS

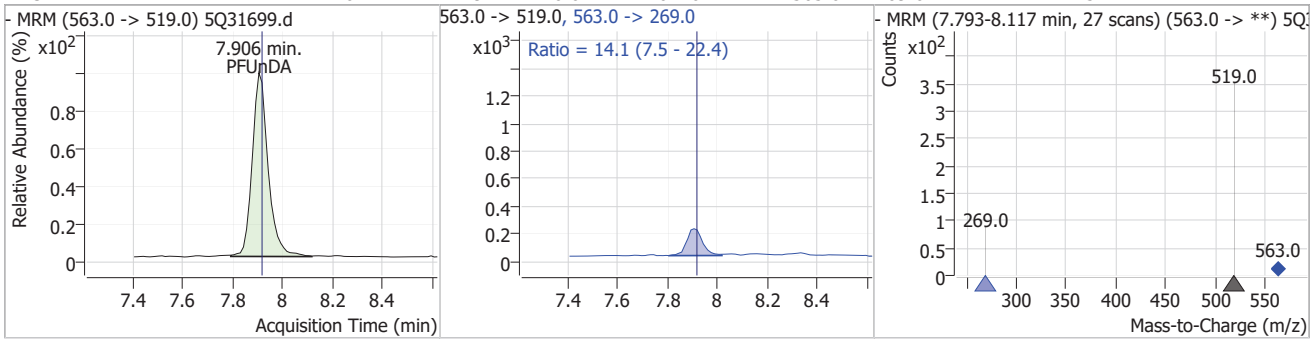
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.44	7.41	-0.01	6284	513.0 -> 219.0	15.5	8.2	24.7



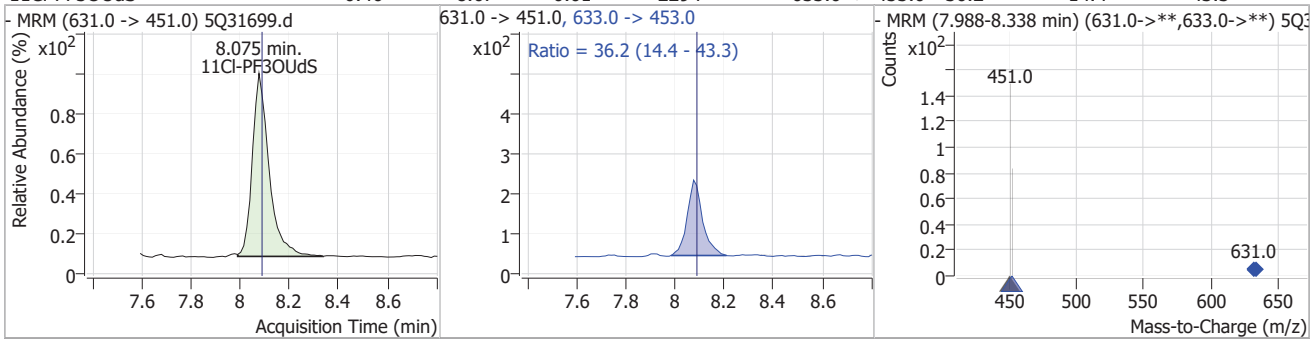
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.47	7.46	0.00	2962	527.0 -> 81.0	34.2	16.3	49.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.44	7.91	-0.01	6120	563.0 -> 269.0	14.1	7.5	22.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.46	8.07	-0.01	2294	633.0 -> 453.0	36.2	14.4	43.3

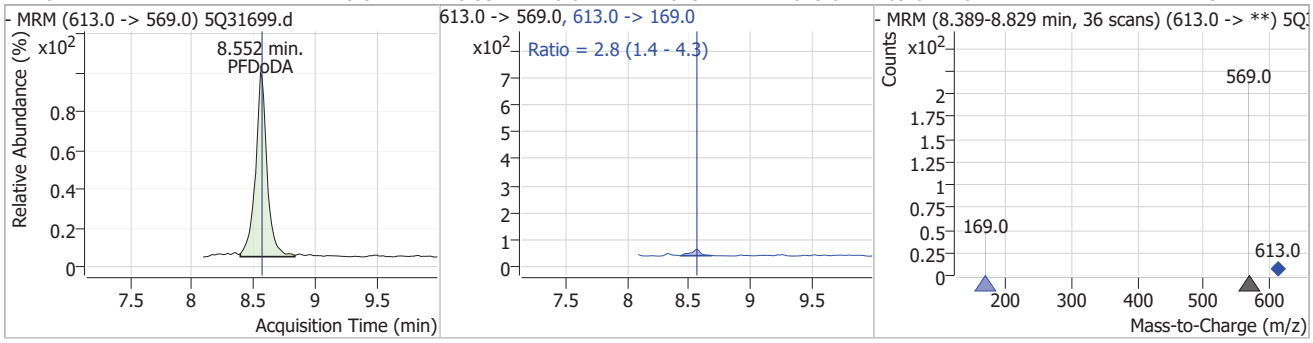


7.7.24

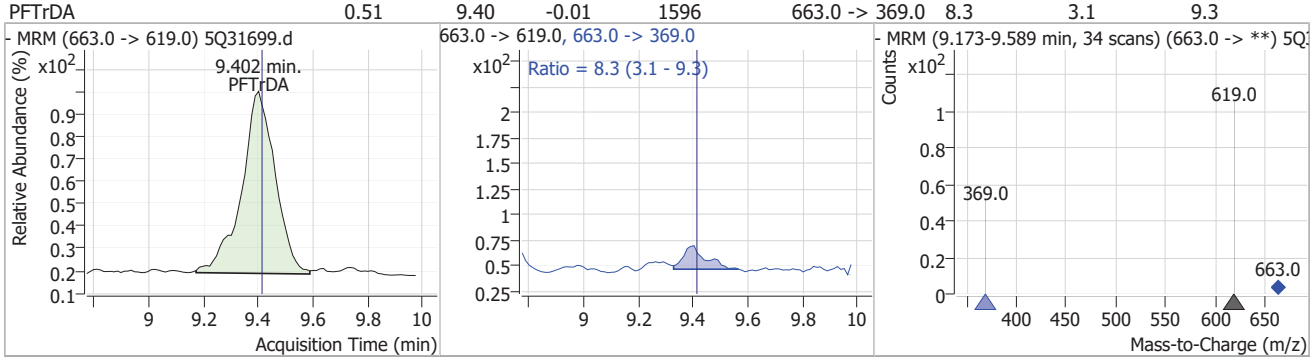
7

Perfluorinated Compounds by LC/MS/MS

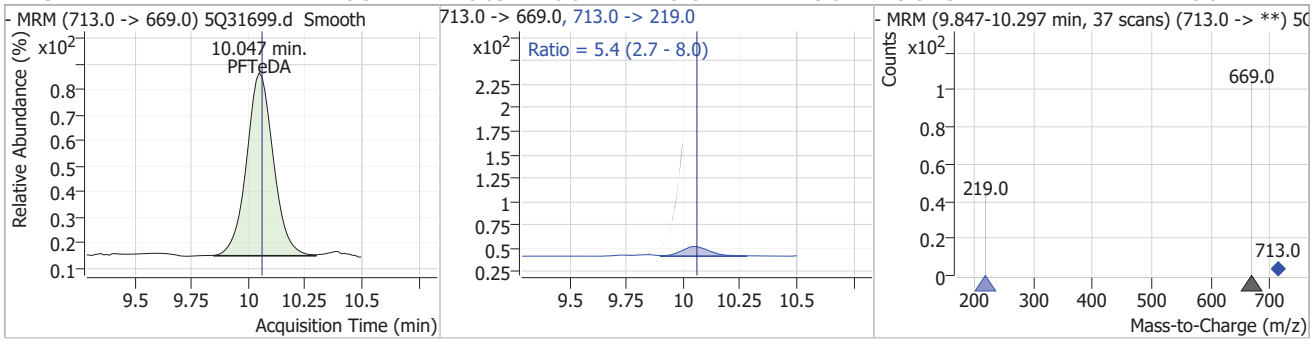
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.62	8.55	-0.01	4623	613.0 -> 169.0	2.8	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.51	9.40	-0.01	1596	663.0 -> 369.0	8.3	3.1	9.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.54	10.05	-0.01	1678	713.0 -> 219.0	5.4	2.7	8.0



7.7.24

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Manual Integration Approval Summary

Sample Number:	S5Q519-CC519	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31699.D	**Analyst approved:**	04/14/25 10:08 (b) (6)
Injection Time:	04/11/25 14:29	**Supervisor approved:**	04/14/25 12:24 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
HFPO-DA (GenX)	13252-13-6		5.02	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.85	Split peak
Perfluorononanoic acid	375-95-1		6.87	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/14/25 12:24

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31708.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/11/2025 4:54:09 PM
Sample Name : ecc519-20
Vial : P1-A7
DA Method File : 537_041125_S5Q519.quantmethod
Batch Name : s5q519.batch.bin
Sample Information : OP8806,S5Q519,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	185572	20.00	µg/L		-0.012
13C2-PFOA	6.277	415.0 -> 370.0	480190	20.00	µg/L		-0.012
13C3-PFPeA	3.594	266.0 -> 222.0	639081	20.00	µg/L		-0.012
13C4-PFOS	6.847	503.0 -> 80.0	106491	20.00	µg/L		-0.012
d3-MeFOSAA	7.242	573.0 -> 419.0	31154	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	178727	9.70	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 48.5%			
13C2-PFHxA	4.763	315.0 -> 270.0	313200	9.66	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 48.3%			
d5-EtFOSAA	7.378	589.0 -> 419.0	11768	22.30	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 55.8%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	39253	19.32	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 48.3%			
Target Compounds							QValue
6:2FTS	6.275	427.0 -> 407.0	206633	22.25	µg/L		98
8:2FTS	7.447	527.0 -> 507.0	159637	22.16	µg/L		100
EtFOSAA	7.380	584.0 -> 419.0	10857	21.87	µg/L	m	95
MeFOSAA	7.256	570.0 -> 419.0	14360	19.77	µg/L	m	100
PFBS	3.828	299.0 -> 80.0	310054	19.22	µg/L		100
PFDA	7.411	513.0 -> 469.0	331966	21.71	µg/L		98
PFDoDA	8.552	613.0 -> 569.0	228434	27.13	µg/L		99
PFHpA	5.601	363.0 -> 319.0	817808	19.53	µg/L		100
PFHxA	4.764	313.0 -> 269.0	432670	19.39	µg/L		100
PFHxS	5.635	399.0 -> 80.0	182420	19.86	µg/L	m	100
PFNA	6.874	463.0 -> 419.0	310645	20.95	µg/L	m	99
PFOA	6.277	413.0 -> 369.0	458338	20.16	µg/L		100
PFOS	6.848	499.0 -> 80.0	133969	20.59	µg/L	m	97
PFPeA	3.597	263.0 -> 219.0	778936	19.99	µg/L		100
PFTeDA	10.034	713.0 -> 669.0	85584	24.18	µg/L		100
PFTrDA	9.377	663.0 -> 619.0	87191	24.90	µg/L		100
PFUnDA	7.893	563.0 -> 519.0	323615	22.10	µg/L		100
ADONA	5.675	377.0 -> 251.0	1078274	19.67	µg/L		100
9Cl-PF3ONS	7.121	531.0 -> 351.0	131480	20.61	µg/L		100
11Cl-PF3OUdS	8.075	631.0 -> 451.0	133432	23.33	µg/L		99
HFPO-DA	5.022	285.0 -> 169.0	35026	18.74	µg/L		100

 # = Qualifier out of range, m = manually integrated, + = Area summed

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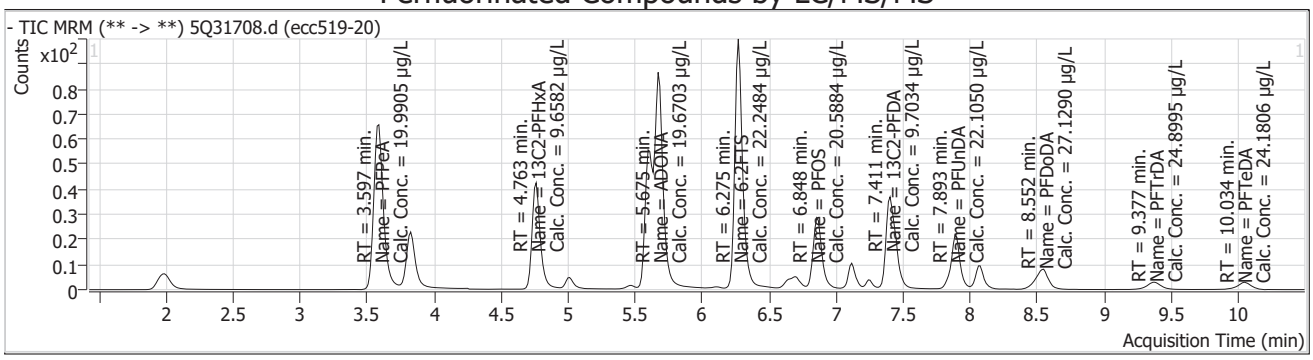
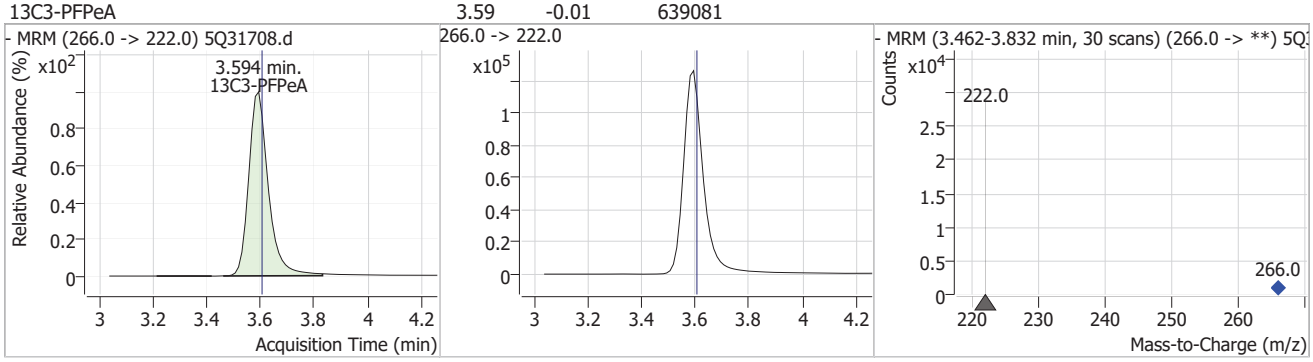
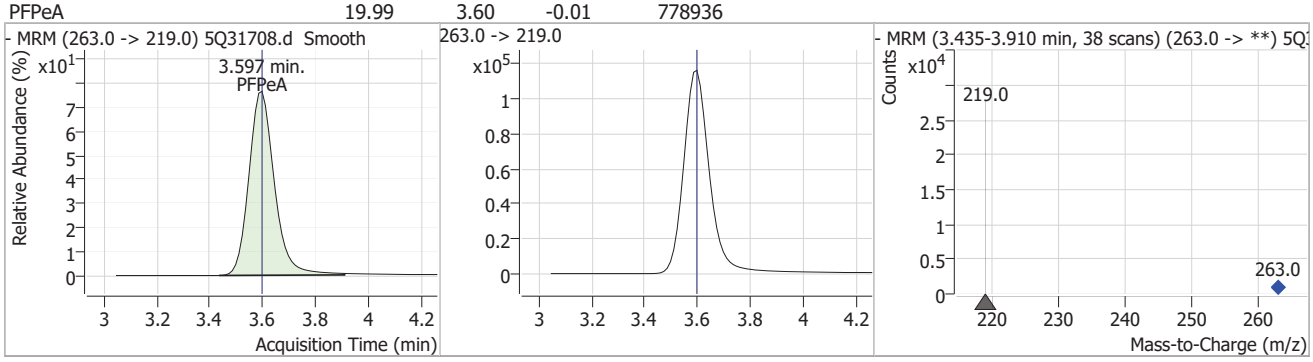
Perfluorinated Compounds by LC/MS/MS



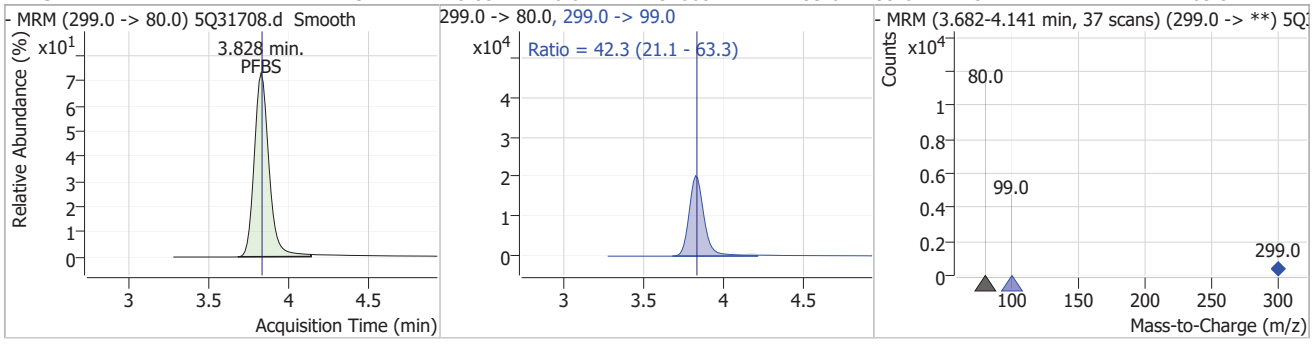
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	639081				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.99	3.60	-0.01	778936				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.22	3.83	-0.01	310054	299.0 -> 99.0	42.3	21.1	63.3



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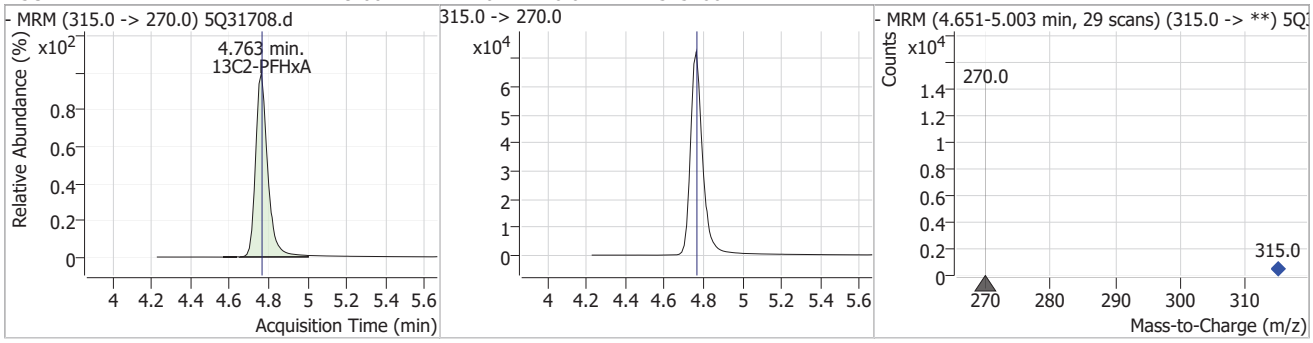
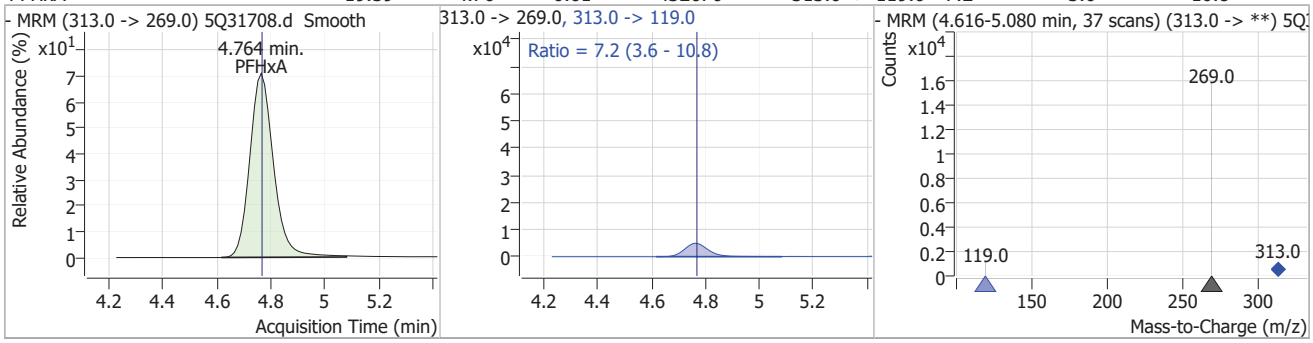
Perfluorinated Compounds by LC/MS/MS

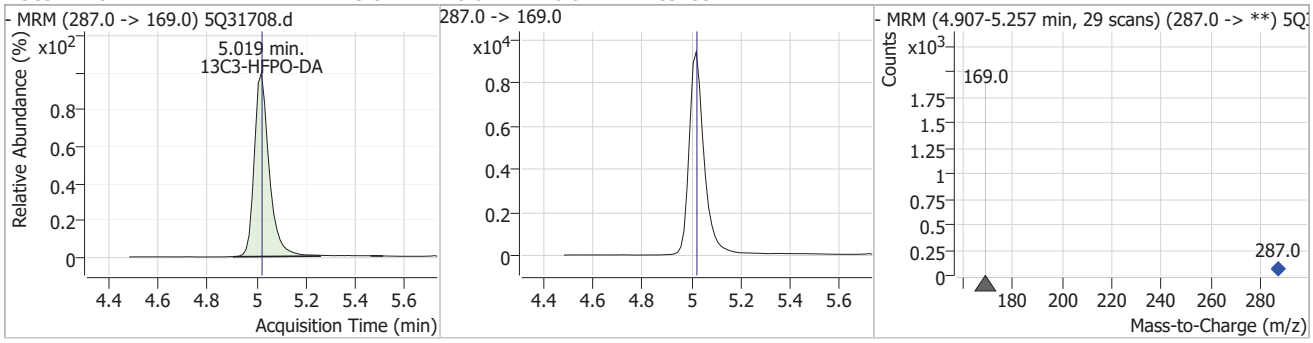
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	9.66	4.76	-0.01	313200				



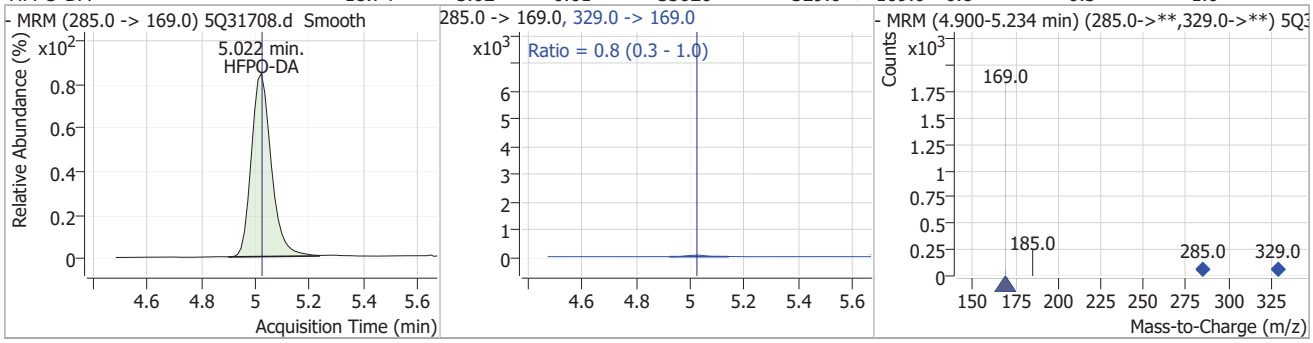
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.39	4.76	-0.01	432670	313.0 -> 119.0	7.2	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	19.32	5.02	-0.01	39253				

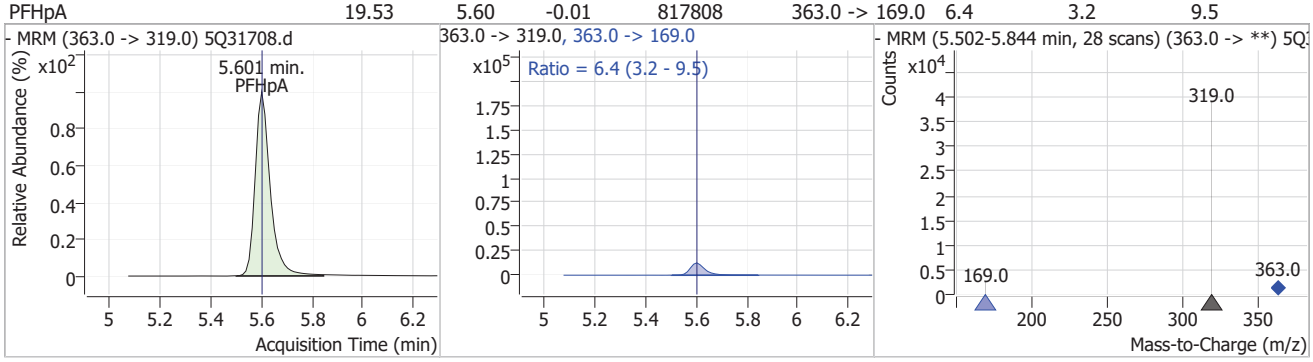


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	18.74	5.02	-0.01	35026	329.0 -> 169.0	0.8	0.3	1.0

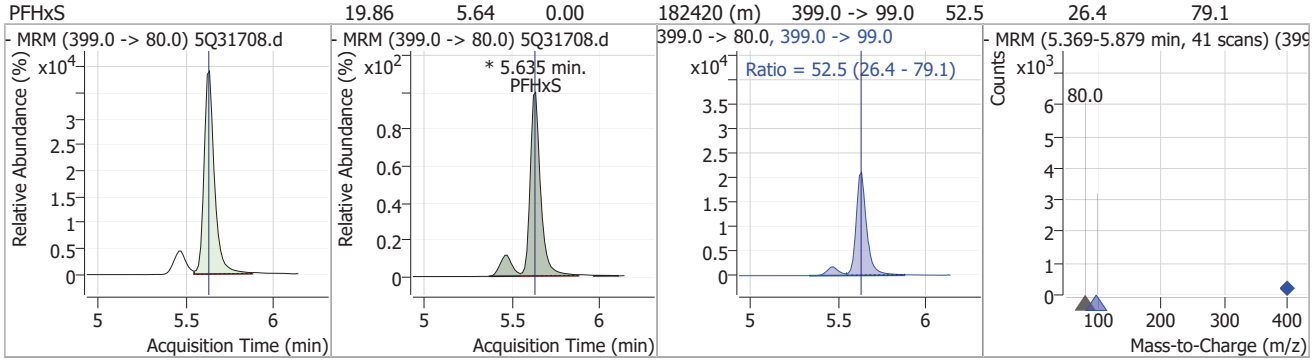


Perfluorinated Compounds by LC/MS/MS

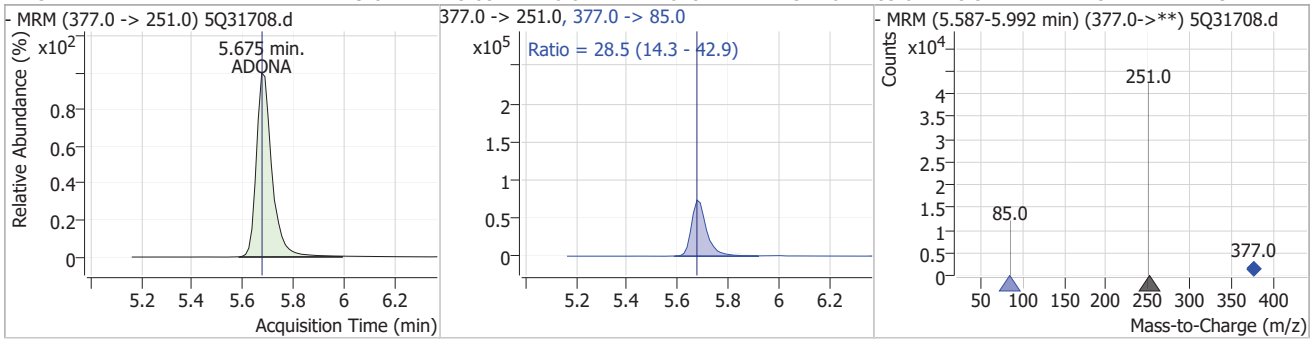
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.53	5.60	-0.01	817808	363.0 -> 169.0	6.4	3.2	9.5



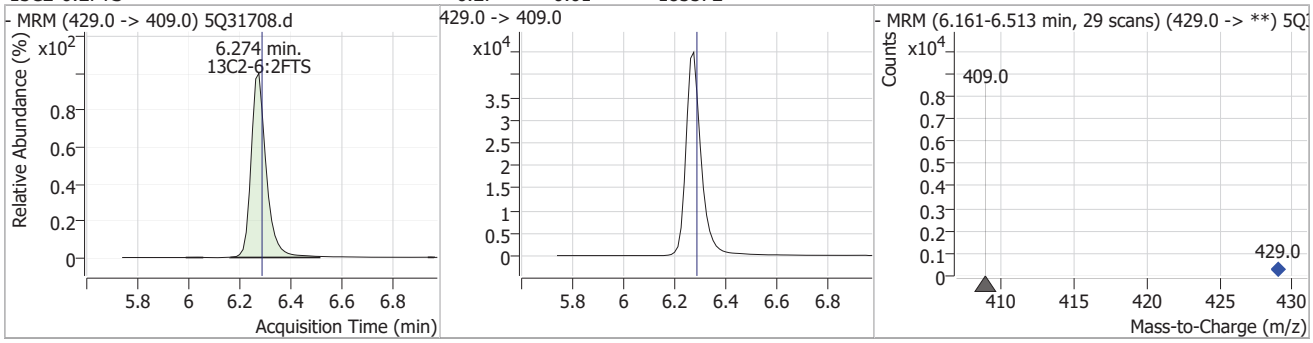
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.86	5.64	0.00	182420 (m)	399.0 -> 99.0	52.5	26.4	79.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.67	5.68	-0.01	1078274	377.0 -> 85.0	28.5	14.3	42.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	185572				



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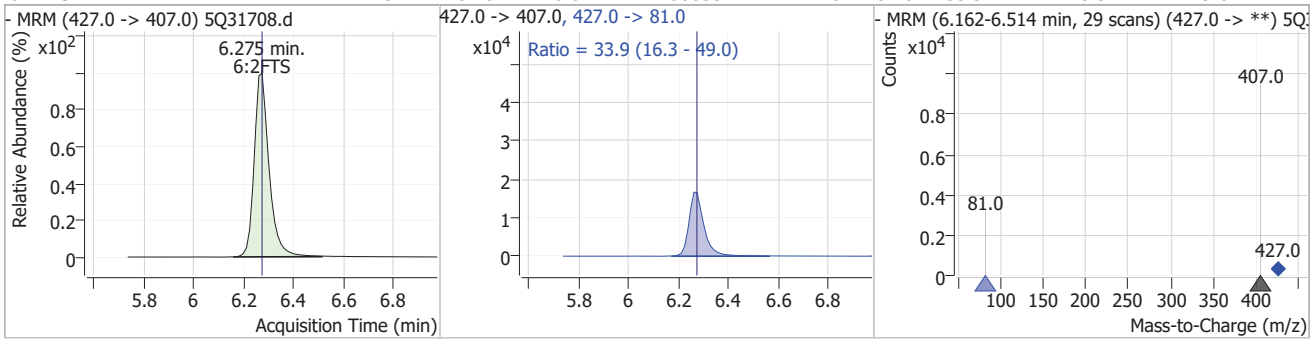
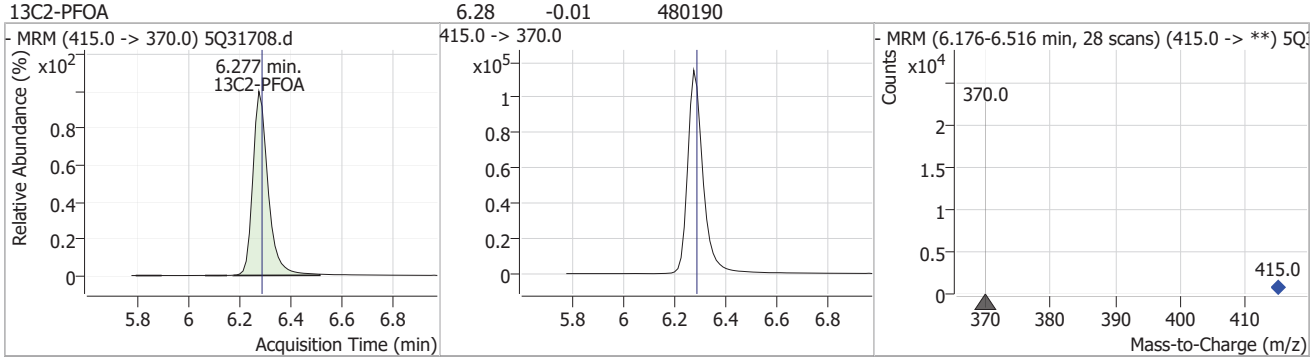
Perfluorinated Compounds by LC/MS/MS

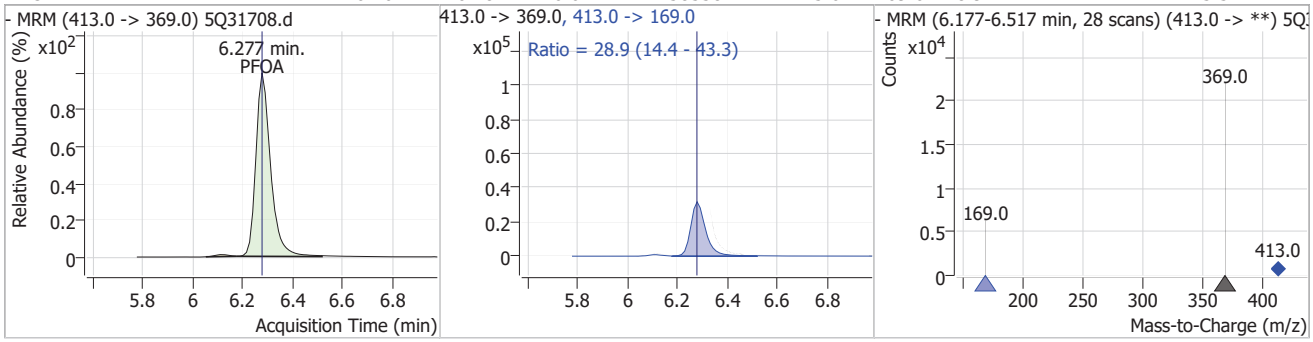
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	22.25	6.28	-0.01	206633	427.0 -> 81.0	33.9	16.3	49.0



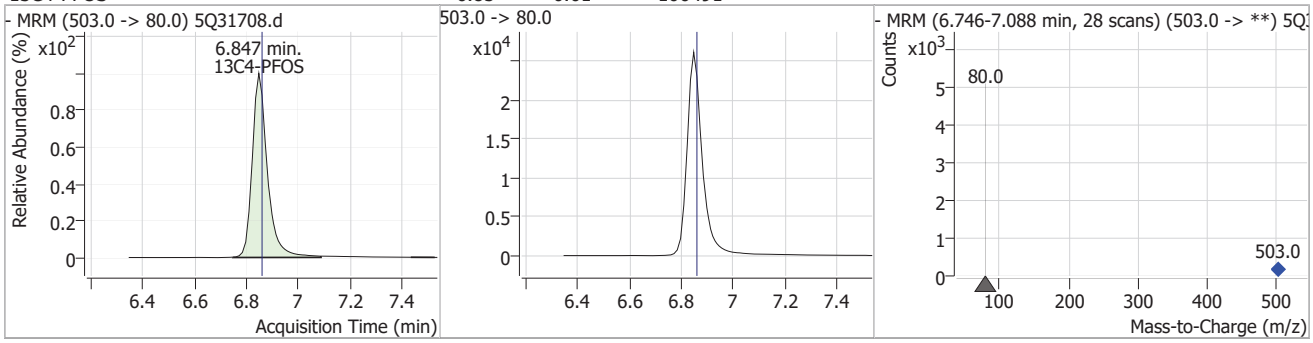
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.28	-0.01	480190				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.16	6.28	-0.01	458338	413.0 -> 169.0	28.9	14.4	43.3

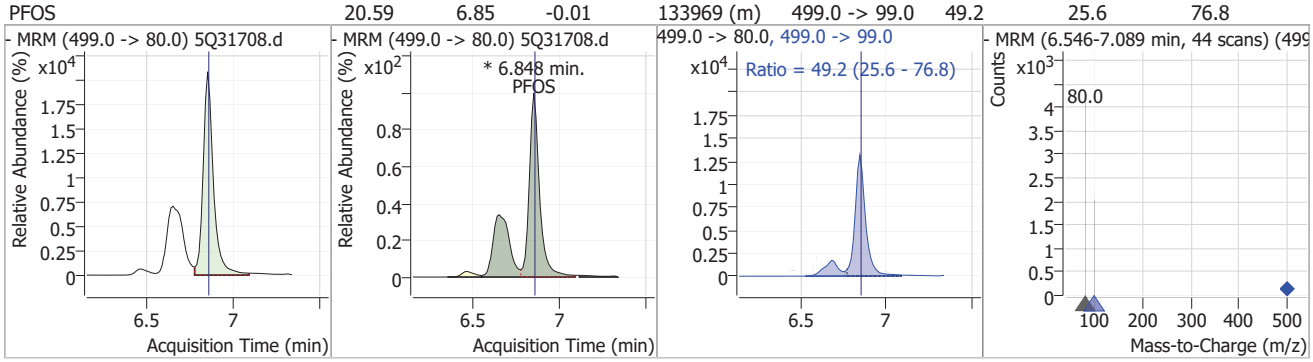


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.85	-0.01	106491				

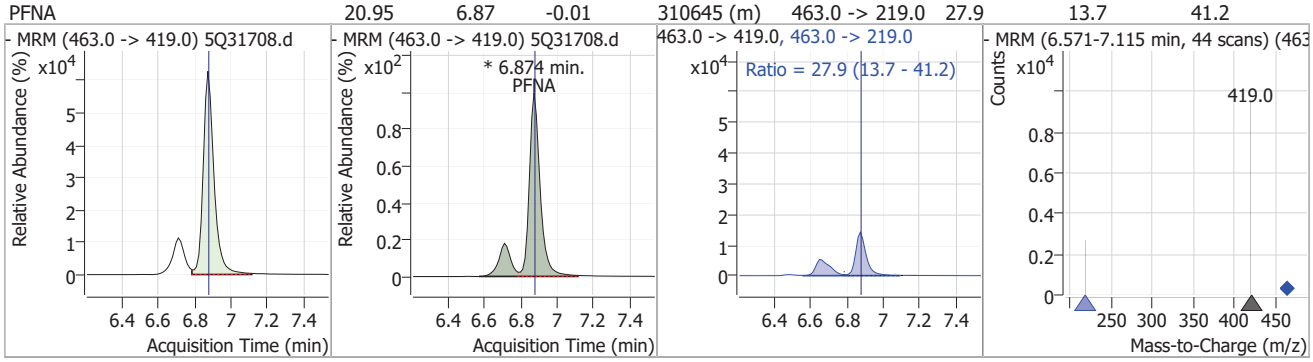


Perfluorinated Compounds by LC/MS/MS

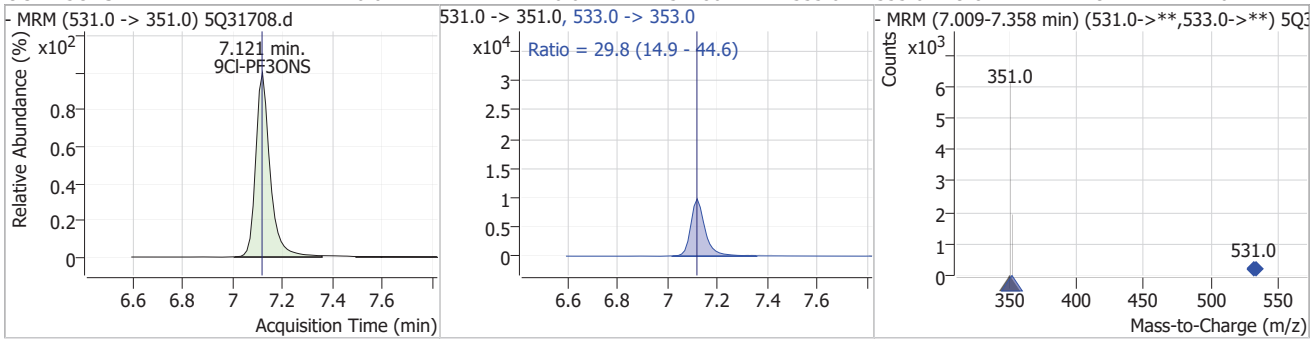
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	20.59	6.85	-0.01	133969 (m)	499.0 -> 99.0	49.2	25.6	76.8



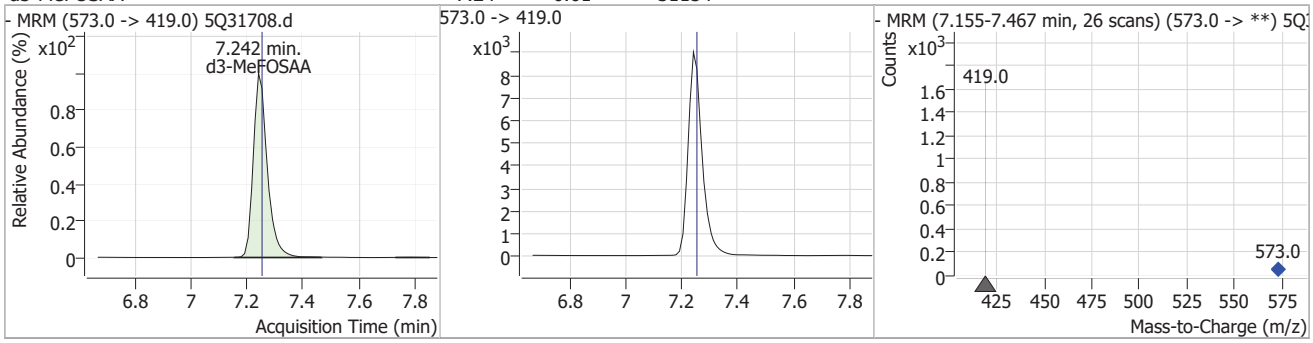
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	20.95	6.87	-0.01	310645 (m)	463.0 -> 219.0	27.9	13.7	41.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	20.61	7.12	-0.01	131480	533.0 -> 353.0	29.8	14.9	44.6

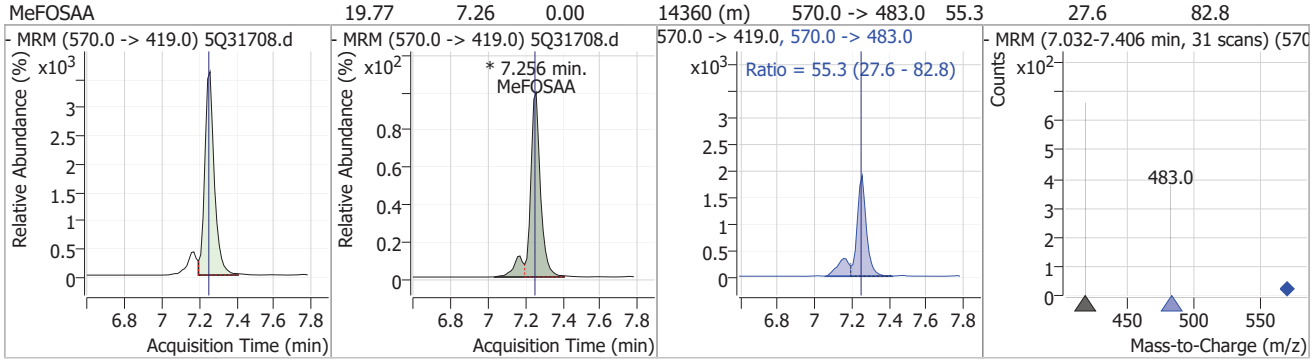


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	31154				

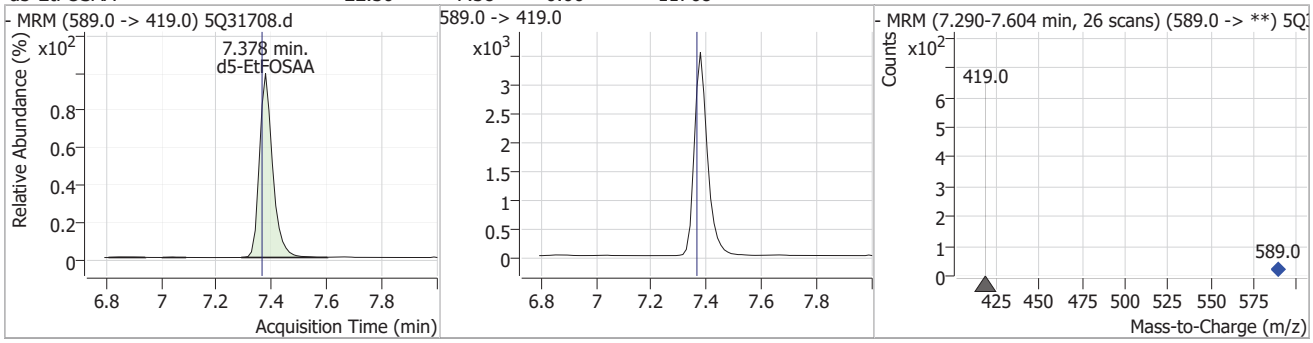


Perfluorinated Compounds by LC/MS/MS

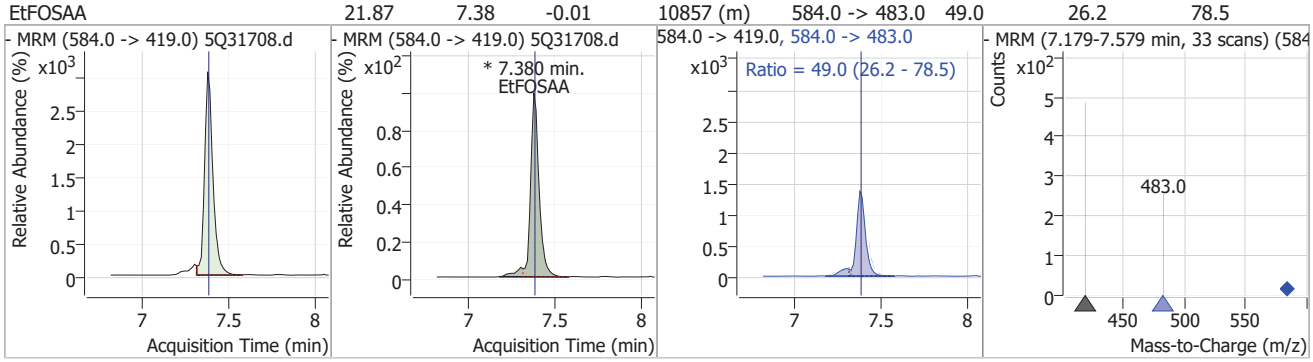
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.77	7.26	0.00	14360 (m)	570.0 -> 483.0	55.3	27.6	82.8



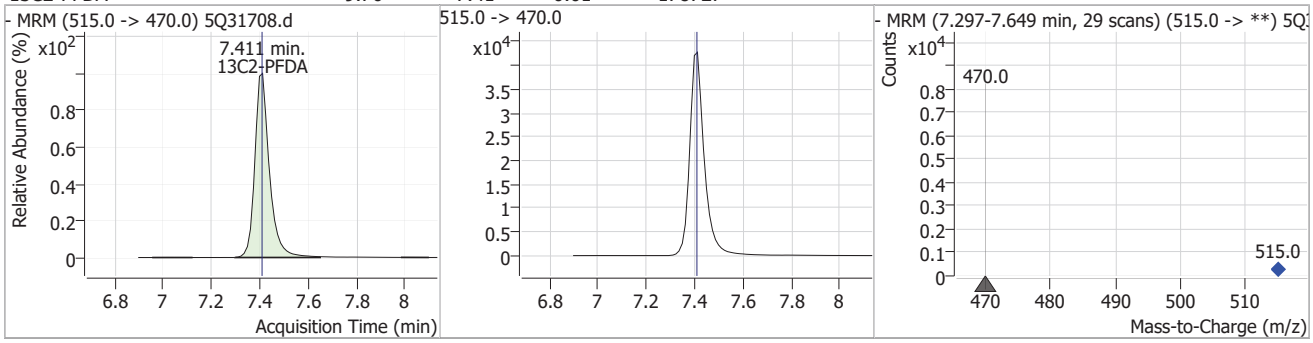
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	22.30	7.38	0.00	11768				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	21.87	7.38	-0.01	10857 (m)	584.0 -> 483.0	49.0	26.2	78.5

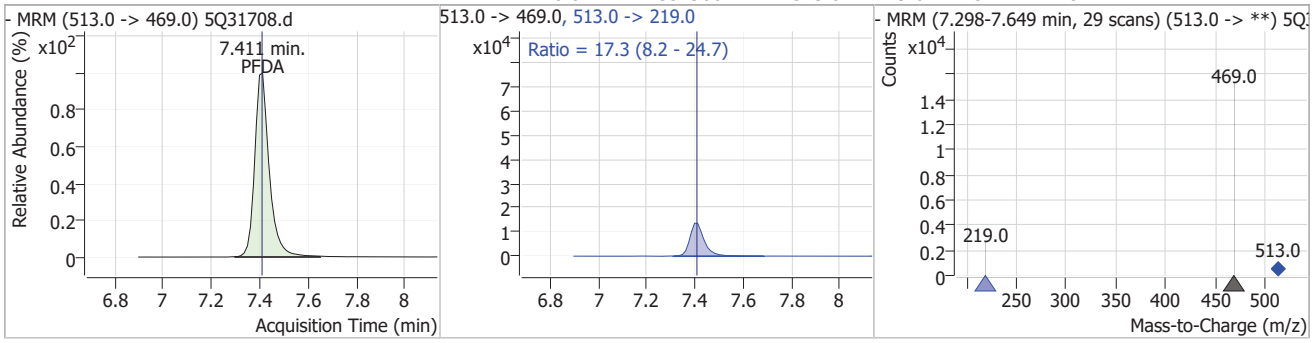


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	9.70	7.41	-0.01	178727				

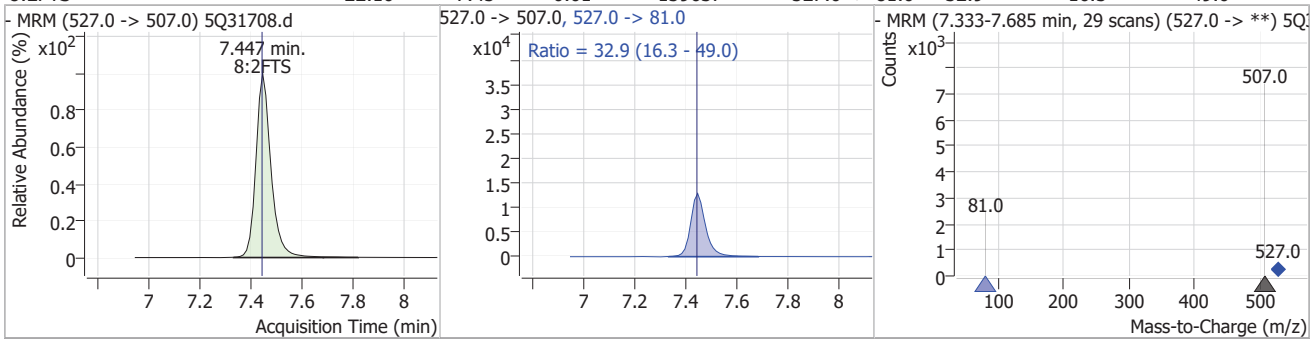


Perfluorinated Compounds by LC/MS/MS

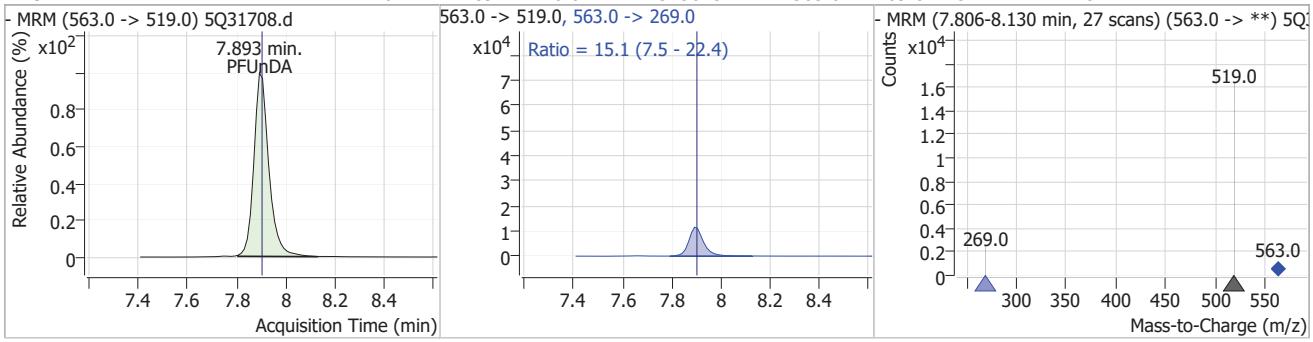
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	21.71	7.41	-0.01	331966	513.0 -> 219.0	17.3	8.2	24.7



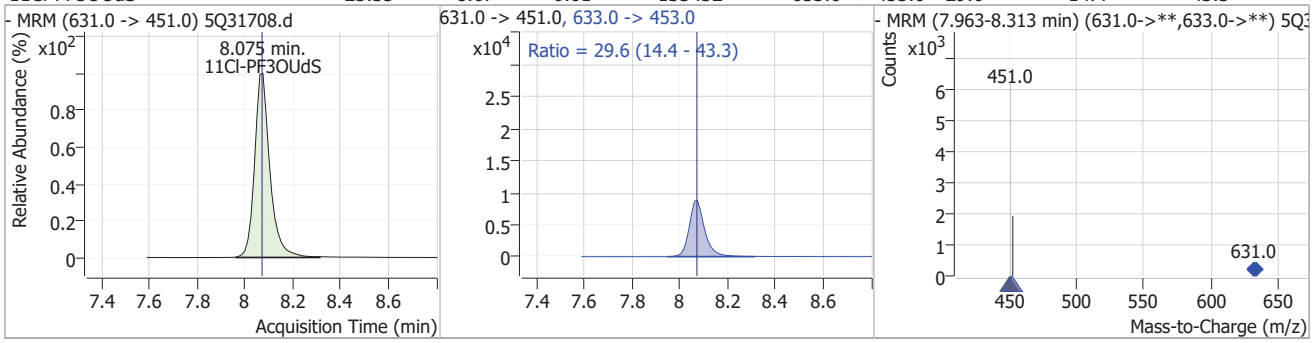
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	22.16	7.45	-0.01	159637	527.0 -> 81.0	32.9	16.3	49.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	22.10	7.89	-0.02	323615	563.0 -> 269.0	15.1	7.5	22.4

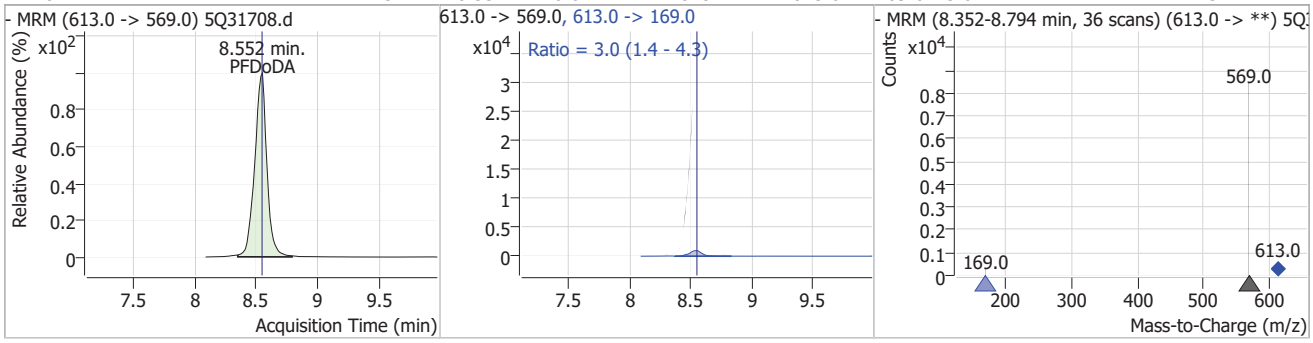


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	23.33	8.07	-0.01	133432	633.0 -> 453.0	29.6	14.4	43.3

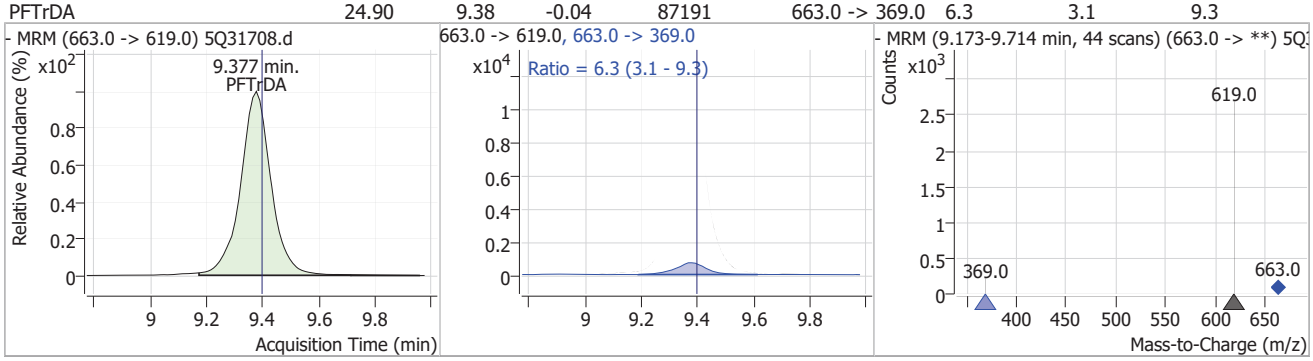


Perfluorinated Compounds by LC/MS/MS

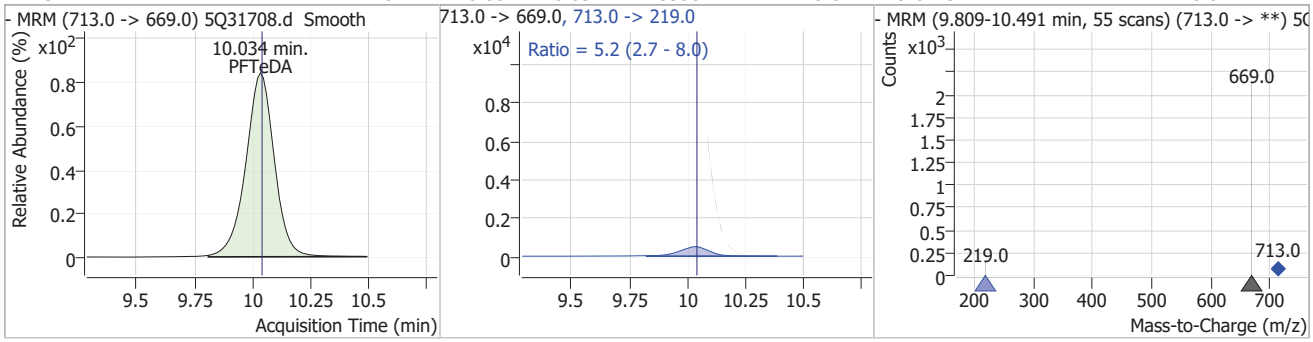
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	27.13	8.55	-0.01	228434	613.0 -> 169.0	3.0	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	24.90	9.38	-0.04	87191	663.0 -> 369.0	6.3	3.1	9.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	24.18	10.03	-0.03	85584	713.0 -> 219.0	5.2	2.7	8.0



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Manual Integration Approval Summary

Sample Number:	S5Q519-ECC519	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31708.D	**Analyst approved:**	04/14/25 10:08 (b) (6)
Injection Time:	04/11/25 16:54	**Supervisor approved:**	04/14/25 12:24 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.85	Split peak
Perfluorononanoic acid	375-95-1		6.87	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

QQQ Check Tune Report

Agilent | Trusted Answers

Instrument Name	LCMS5Q
MS Model	G6470B
MS Instrument Serial	SG2221G211
Software_Firmware Version	10.1.67, FW: A.00.08.112
Tune Date & Time	14 April 2025 09:23:21
File Path	D:\MassHunter\Tune\QQQ\G6470B\atunes.TUNE.XML
Ion Source	AJS ESI
Ionization Mode	AJS ESI
Tuned Resolution	All
Vacuum Pressure	1.29E+0 [R] (Torr); 3.37E-5 [H] (Torr)

Source Parameters

Parameter	Negative
Gas Temp (°C)	300
Gas Flow (l/min)	8
Nebulizer (psi)	15
Capillary (V)	3500
Nozzle Voltage (V)	1500
Sheath Gas Temp (°C)	250
Sheath Gas Flow (l/min)	7

QQQ Check Tune Report

Agilent | Trusted Answers

Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.99	0.00	Pass	0.70	0.68	-0.02	Pass	63164
302.00	302.07	0.07	Pass	0.70	0.71	0.01	Pass	46772
601.98	602.03	0.05	Pass	0.70	0.70	0.00	Pass	106524
1033.99	1034.06	0.07	Pass	0.70	0.68	-0.02	Pass	168600
1633.95	1634.05	0.10	Pass	0.70	0.64	-0.06	Pass	576560
2233.91	2234.00	0.09	Pass	0.70	0.58	-0.12	Pass	230330

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.98	-0.02	Pass	0.70	0.66	-0.04	Pass	14469
112.99	112.99	0.00	Pass	0.70	0.70	0.00	Pass	45487
302.00	302.00	0.00	Pass	0.70	0.70	0.00	Pass	38497
601.98	601.92	-0.06	Pass	0.70	0.74	0.04	Pass	82452
1033.99	1033.95	-0.04	Pass	0.70	0.74	0.04	Pass	150073
1633.95	1633.90	-0.05	Pass	0.70	0.75	0.05	Pass	482147
2233.91	2233.91	0.00	Pass	0.70	0.73	0.03	Pass	204643

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	113.00	0.01	Pass	1.20	1.28	0.08	Pass	76882
302.00	302.02	0.02	Pass	1.20	1.42	0.22	Pass	60436
601.98	602.02	0.04	Pass	1.20	1.51	0.31	Pass	169034
1033.99	1034.04	0.05	Pass	1.20	1.49	0.29	Pass	303637
1633.95	1634.01	0.06	Pass	1.20	1.40	0.20	Pass	895413
2233.91	2233.93	0.02	Pass	1.20	1.09	-0.11	Pass	499569

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.94	-0.06	Pass	1.20	1.28	0.08	Pass	17547
112.99	112.98	-0.01	Pass	1.20	1.24	0.04	Pass	71681
302.00	301.96	-0.04	Pass	1.20	1.15	-0.05	Pass	46328
601.98	601.90	-0.08	Pass	1.20	1.08	-0.12	Pass	100357
1033.99	1033.91	-0.08	Pass	1.20	1.14	-0.06	Pass	212087
1633.95	1633.85	-0.10	Pass	1.20	1.30	0.10	Pass	824024
2233.91	2233.95	0.04	Pass	1.20	1.35	0.15	Pass	396130

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.98	-0.01	Pass	2.50	2.47	-0.03	Pass	96749
302.00	302.03	0.03	Pass	2.50	2.71	0.21	Pass	70573
601.98	602.02	0.04	Pass	2.50	2.86	0.36	Pass	189021
1033.99	1034.01	0.02	Pass	2.50	2.93	0.43	Pass	591197
1633.95	1633.96	0.01	Pass	2.50	2.77	0.27	Pass	2441107
2233.91	2233.80	-0.11	Pass	2.50	2.89	0.39	Pass	1642805

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.95	-0.05	Pass	2.50	2.40	-0.10	Pass	22938
112.99	112.98	-0.01	Pass	2.50	2.44	-0.06	Pass	88146
302.00	301.97	-0.03	Pass	2.50	2.29	-0.21	Pass	64094
601.98	601.92	-0.06	Pass	2.50	2.30	-0.20	Pass	163732
1033.99	1033.91	-0.08	Pass	2.50	2.26	-0.24	Pass	434415
1633.95	1633.91	-0.04	Pass	2.50	2.40	-0.10	Pass	1901064
2233.91	2233.85	-0.06	Pass	2.50	2.47	-0.03	Pass	1169263

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/15/25 15:43

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31732.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/14/2025 10:50:29 AM
Sample Name : ic520-0.5
Vial : P1-A2
DA Method File : 537_041425_S5Q520.quantmethod
Batch Name : s5q520.batch.bin
Sample Information : OP8806,S5Q520,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.287	429.0 -> 409.0	174765	20.00	µg/L		0.012
13C2-PFOA	6.289	415.0 -> 370.0	422032	20.00	µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	580834	20.00	µg/L		0.012
13C4-PFOS	6.860	503.0 -> 80.0	102877	20.00	µg/L		0.000
d3-MeFOSAA	7.242	573.0 -> 419.0	27813	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.423	515.0 -> 470.0	3042	0.19	µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 1.0%			
13C2-PFHxA	4.775	315.0 -> 270.0	5140	0.18	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 0.9%			
d5-EtFOSAA	7.391	589.0 -> 419.0	262	0.52	µg/L		0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 1.3%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	722	0.38	µg/L	m	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 0.9%			
Target Compounds							QValue
6:2FTS	6.287	427.0 -> 407.0	3901	0.44	µg/L		93
8:2FTS	7.472	527.0 -> 507.0	3488	0.46	µg/L		96
EtFOSAA	7.380	584.0 -> 419.0	149	0.32	µg/L	#m	19
MeFOSAA	7.256	570.0 -> 419.0	340	0.58	µg/L	m	96
PFBS	3.841	299.0 -> 80.0	5663	0.40	µg/L		100
PFDA	7.424	513.0 -> 469.0	5726	0.35	µg/L		99
PFDoDA	8.590	613.0 -> 569.0	5658	0.44	µg/L		99
PFHpA	5.614	363.0 -> 319.0	12876	0.38	µg/L		98
PFHxA	4.777	313.0 -> 269.0	6475	0.37	µg/L		97
PFHxS	5.648	399.0 -> 80.0	3132	0.38	µg/L	m	98
PFNA	6.886	463.0 -> 419.0	5365	0.40	µg/L	m	90
PFOA	6.290	413.0 -> 369.0	7630	0.39	µg/L		99
PFOS	6.861	499.0 -> 80.0	2556	0.41	µg/L	m	98
PFPeA	3.610	263.0 -> 219.0	13424	0.38	µg/L		100
PFTeDA	10.172	713.0 -> 669.0	1965	0.42	µg/L		98
PFTrDA	9.476	663.0 -> 619.0	2835	0.40	µg/L		93
PFUnDA	7.918	563.0 -> 519.0	6182	0.35	µg/L		92
ADONA	5.700	377.0 -> 251.0	16701	0.38	µg/L		94
9Cl-PF3ONS	7.133	531.0 -> 351.0	2399	0.43	µg/L		92
11Cl-PF3OUdS	8.100	631.0 -> 451.0	2388	0.43	µg/L		83
HFPO-DA	5.035	285.0 -> 169.0	627	0.38	µg/L	m	100

 # = Qualifier out of range, m = manually integrated, + = Area summed

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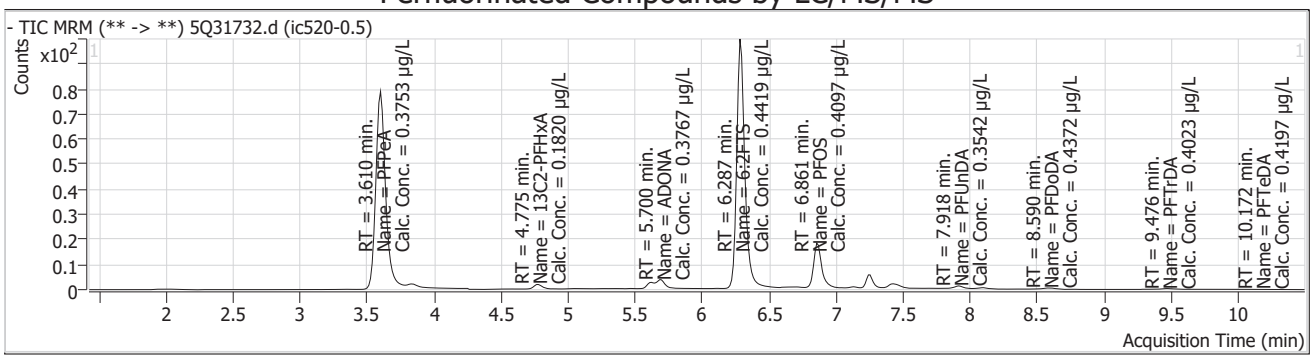
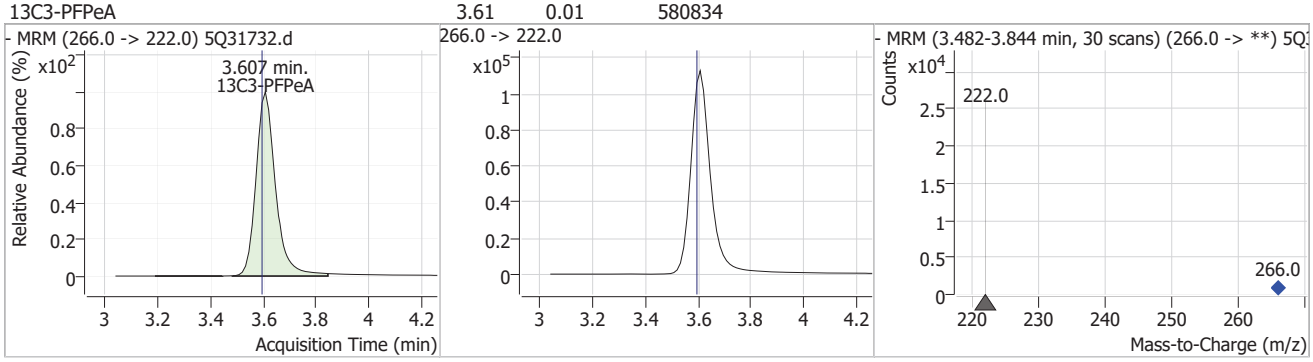
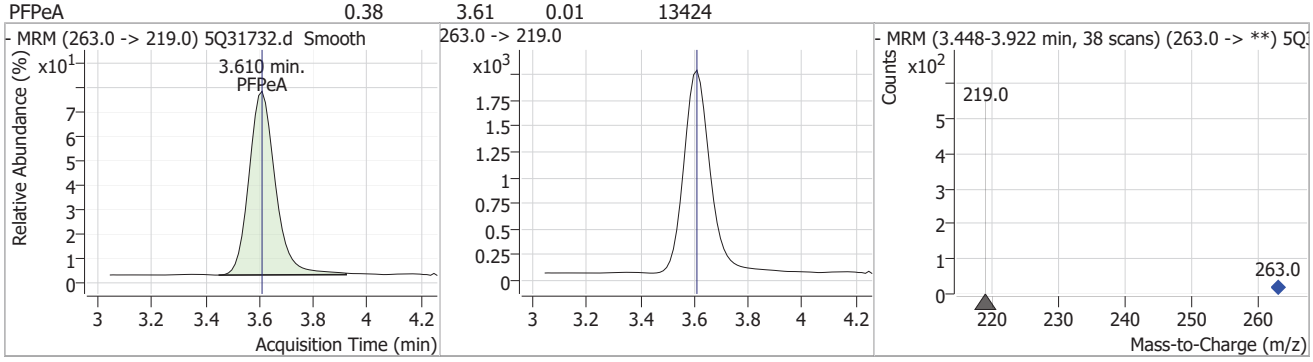
Perfluorinated Compounds by LC/MS/MS



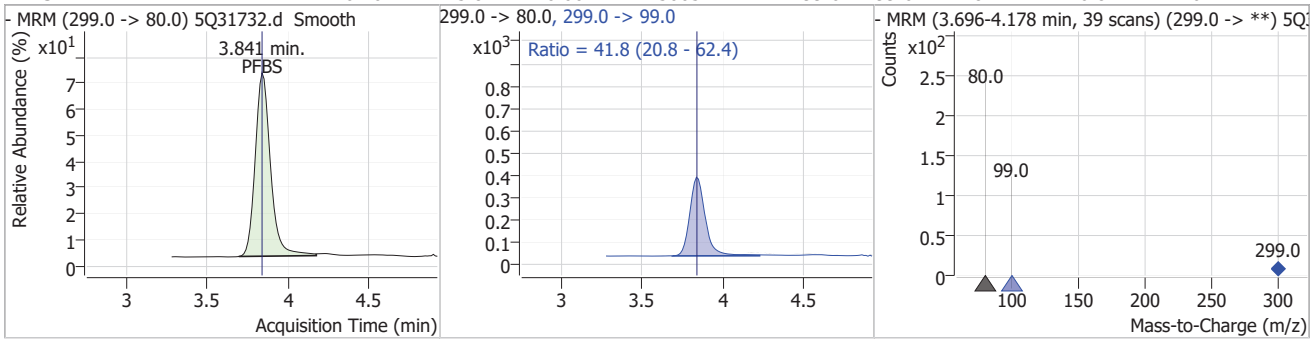
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.01	580834				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.38	3.61	0.01	13424				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.40	3.84	0.00	5663	299.0 -> 99.0	41.8	20.8	62.4



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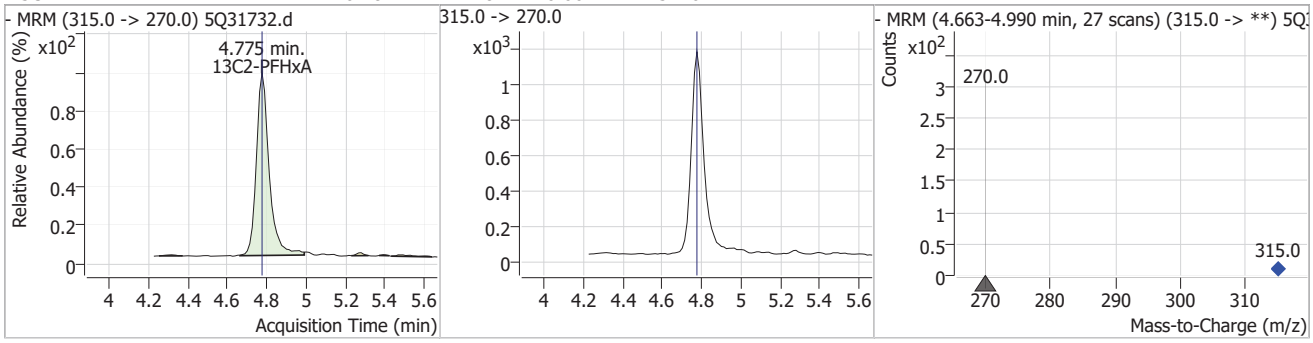
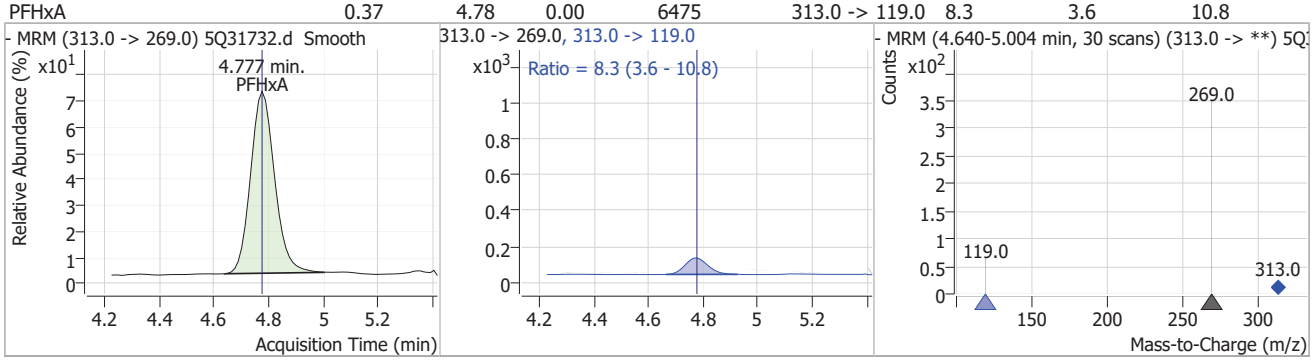
Perfluorinated Compounds by LC/MS/MS

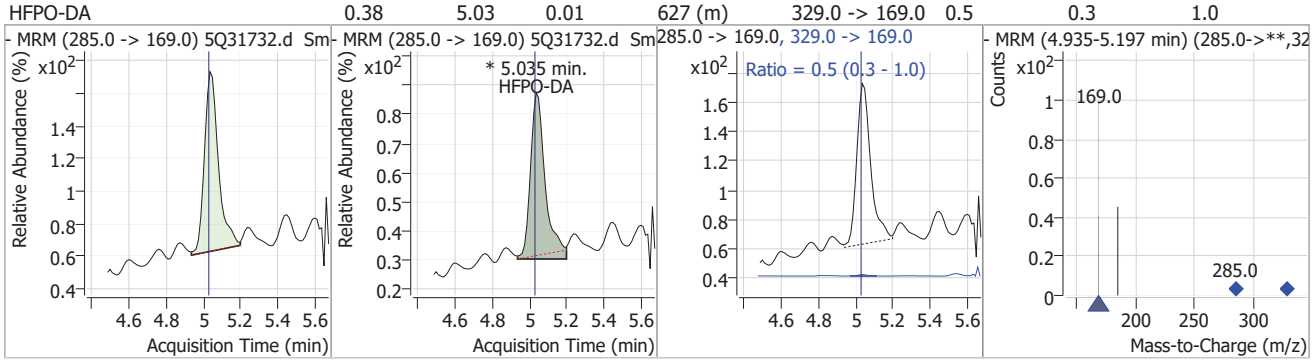
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.18	4.78	0.00	5140				



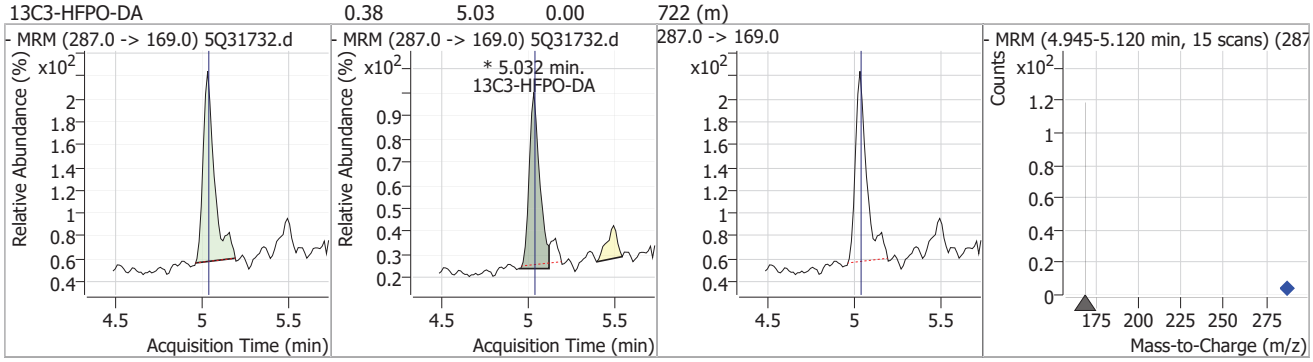
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.37	4.78	0.00	6475	313.0 -> 119.0	8.3	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.38	5.03	0.01	627 (m)	329.0 -> 169.0	0.5	0.3	1.0

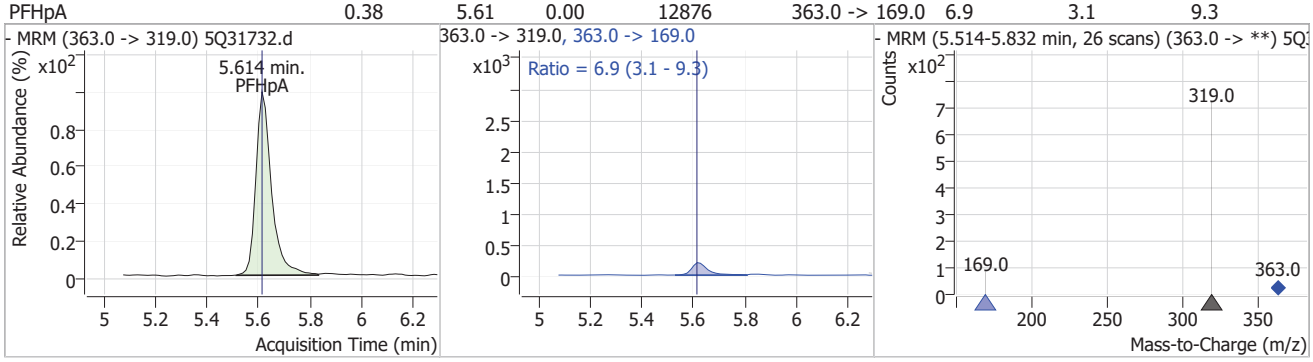


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.38	5.03	0.00	722 (m)				

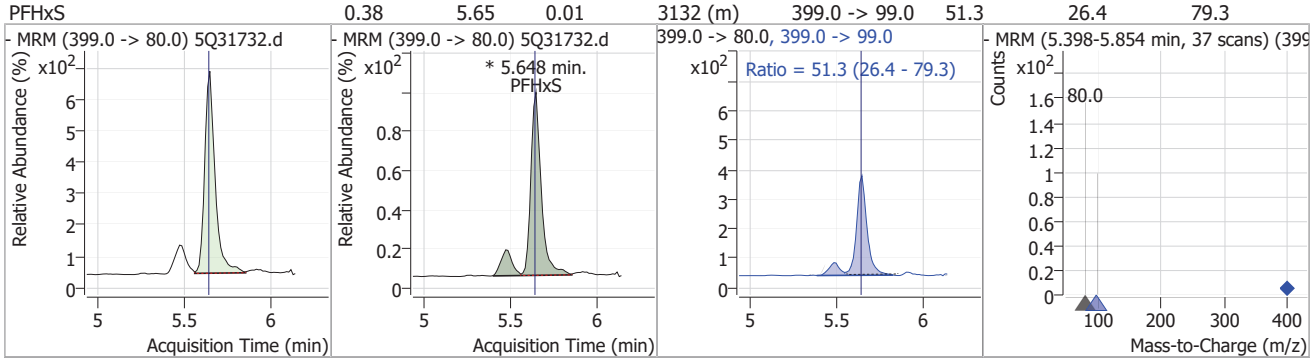


Perfluorinated Compounds by LC/MS/MS

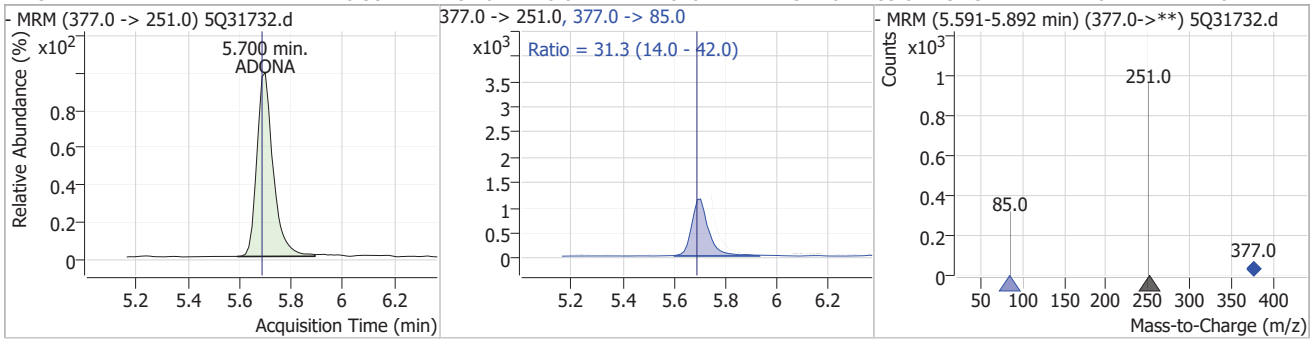
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.38	5.61	0.00	12876	363.0 -> 169.0	6.9	3.1	9.3



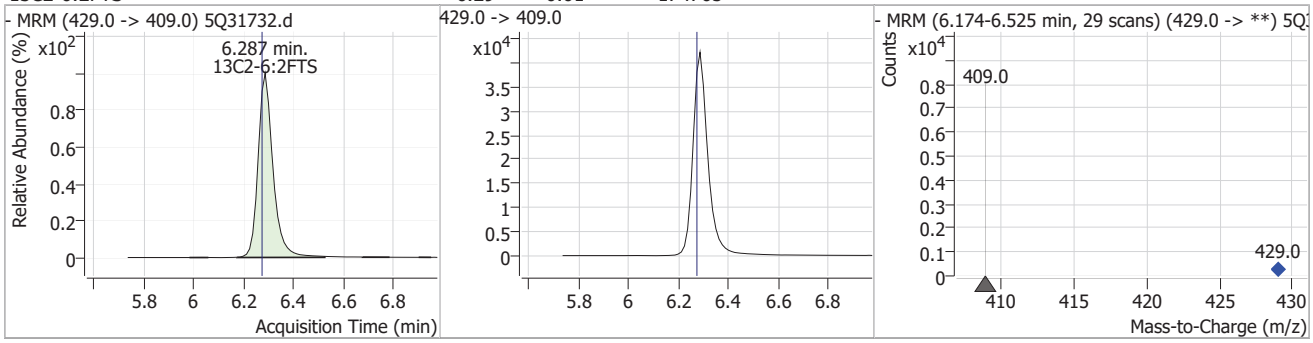
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.38	5.65	0.01	3132 (m)	399.0 -> 99.0	51.3	26.4	79.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.38	5.70	0.01	16701	377.0 -> 85.0	31.3	14.0	42.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.01	174765				



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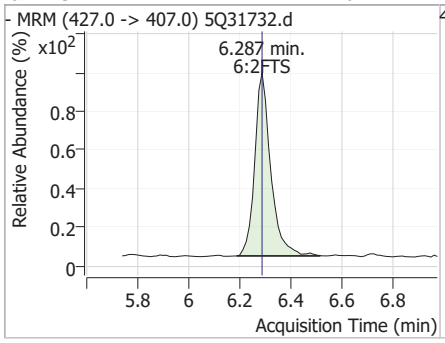
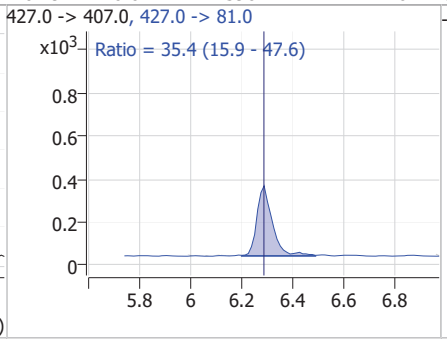
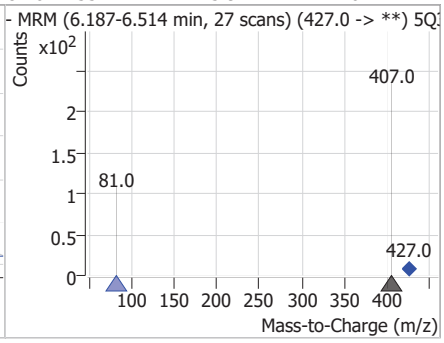
Perfluorinated Compounds by LC/MS/MS

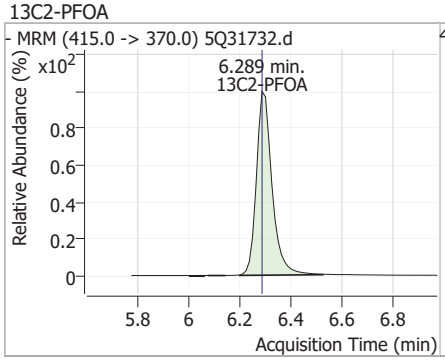
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.44	6.29	0.01	3901	427.0 -> 81.0	35.4	15.9	47.6

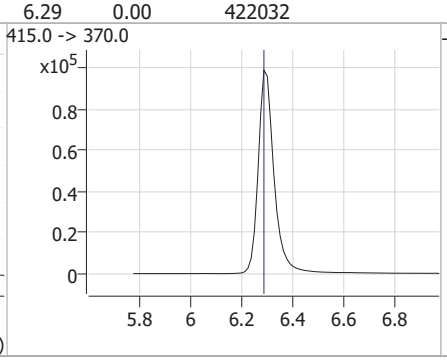


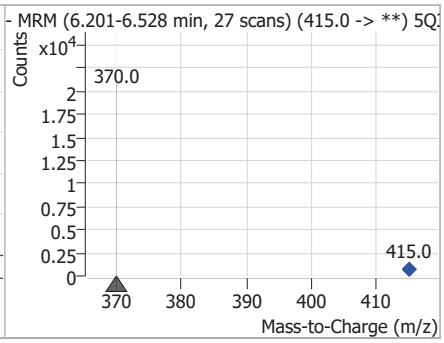




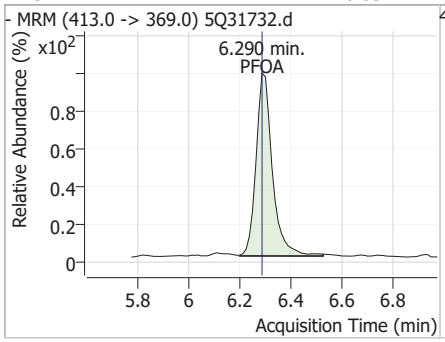
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	422032				

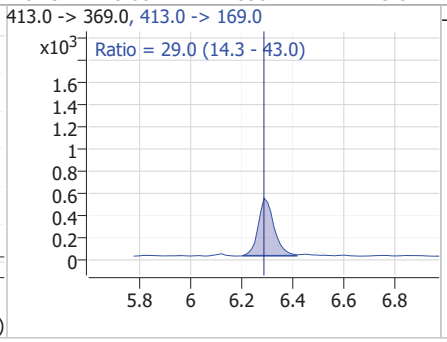


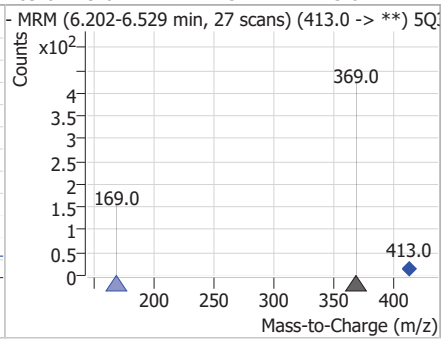




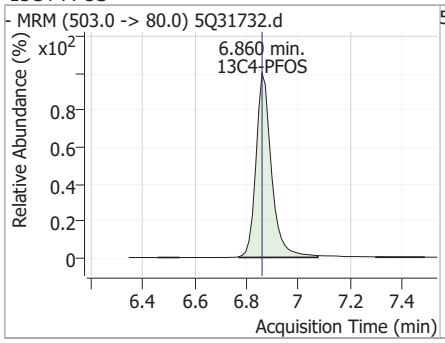
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.39	6.29	0.00	7630	413.0 -> 169.0	29.0	14.3	43.0

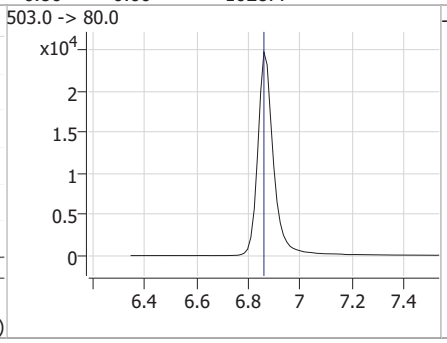


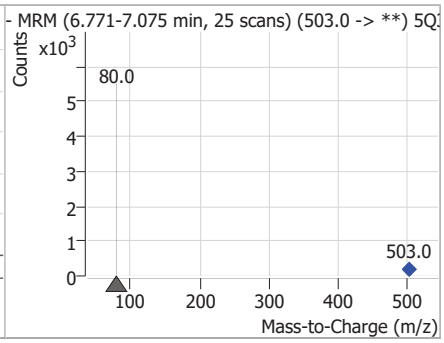




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	102877				





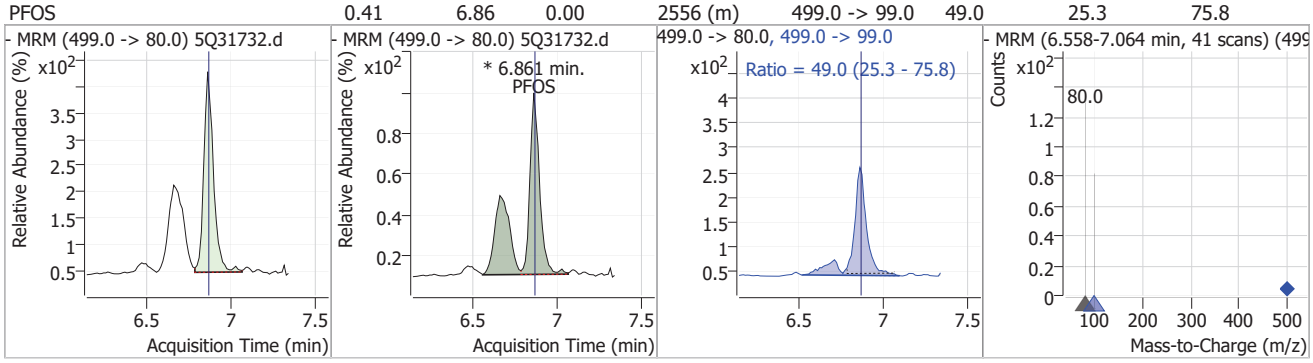


7.7.27

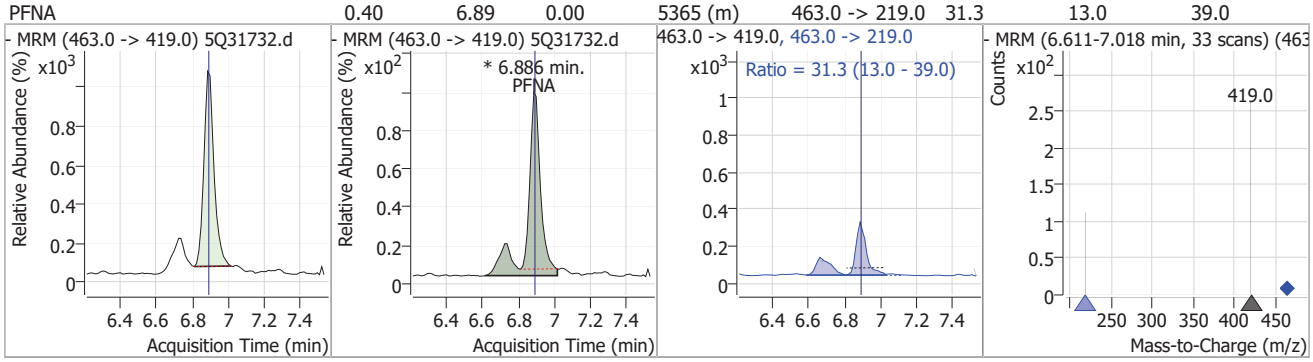
7

Perfluorinated Compounds by LC/MS/MS

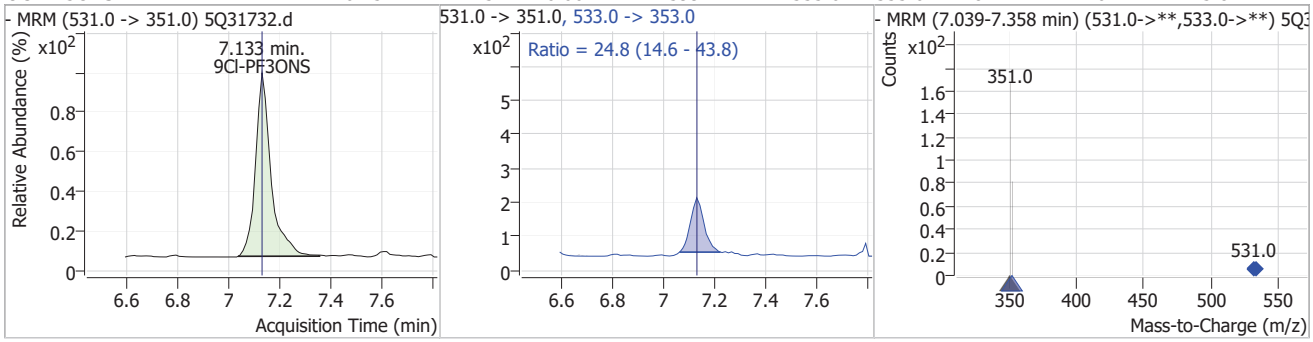
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.41	6.86	0.00	2556 (m)	499.0 -> 99.0	49.0	25.3	75.8



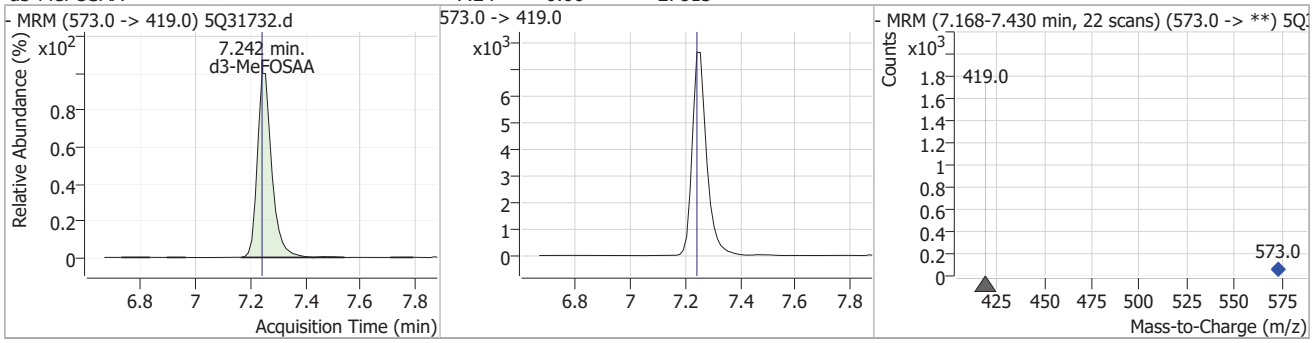
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.40	6.89	0.00	5365 (m)	463.0 -> 219.0	31.3	13.0	39.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.43	7.13	0.00	2399	533.0 -> 353.0	24.8	14.6	43.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	27813				

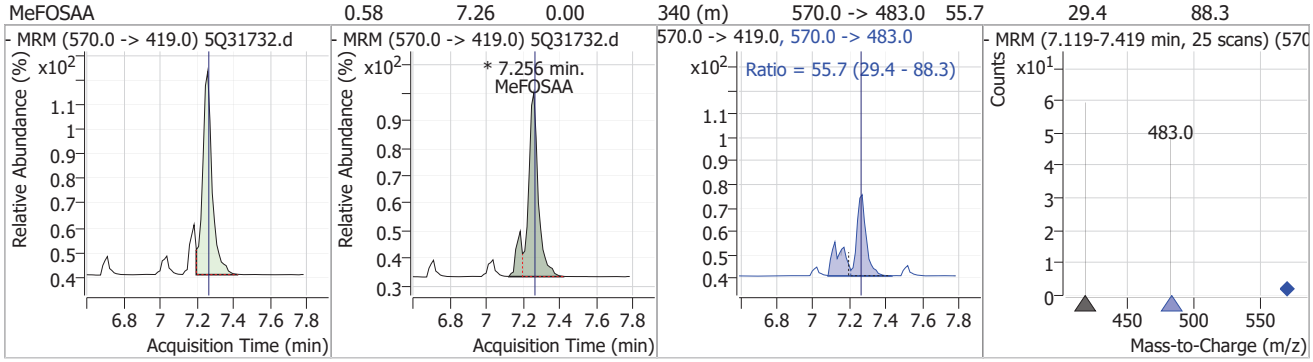


7.7.27

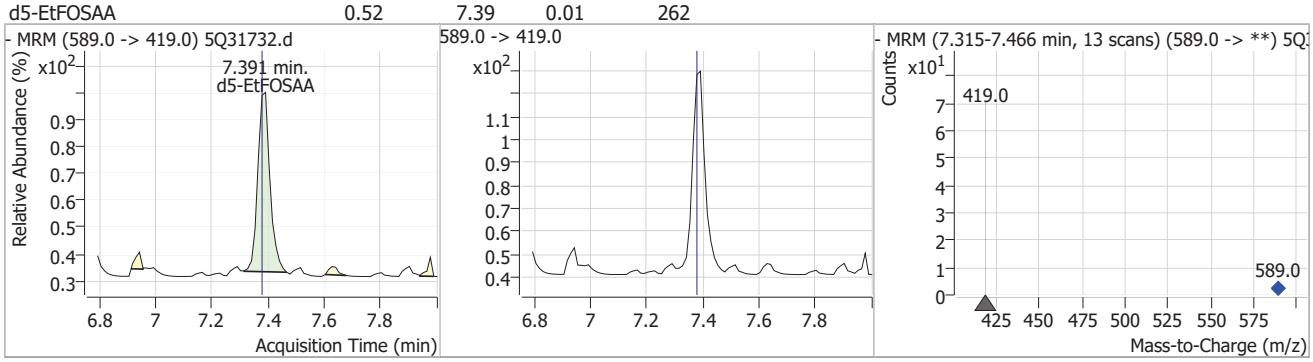
7

Perfluorinated Compounds by LC/MS/MS

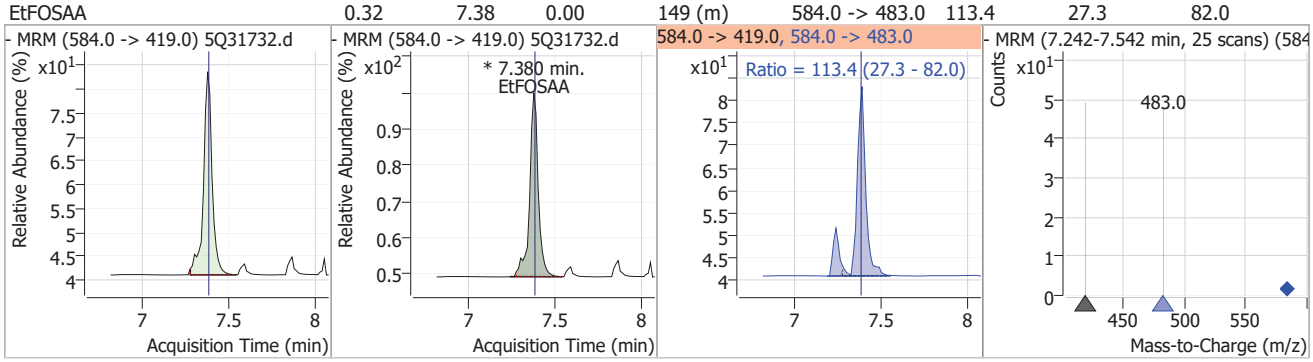
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.58	7.26	0.00	340 (m)	570.0 -> 483.0	55.7	29.4	88.3



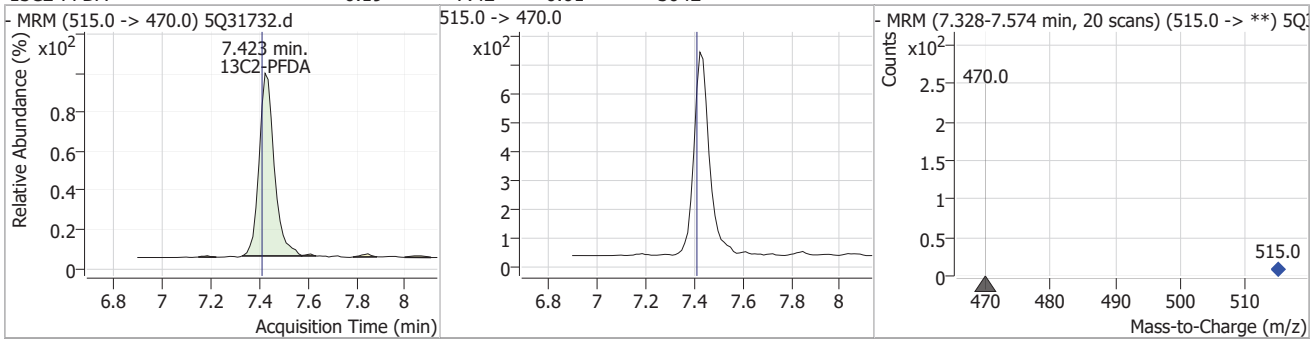
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	0.52	7.39	0.01	262				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.32	7.38	0.00	149 (m)	584.0 -> 483.0	113.4	27.3	82.0

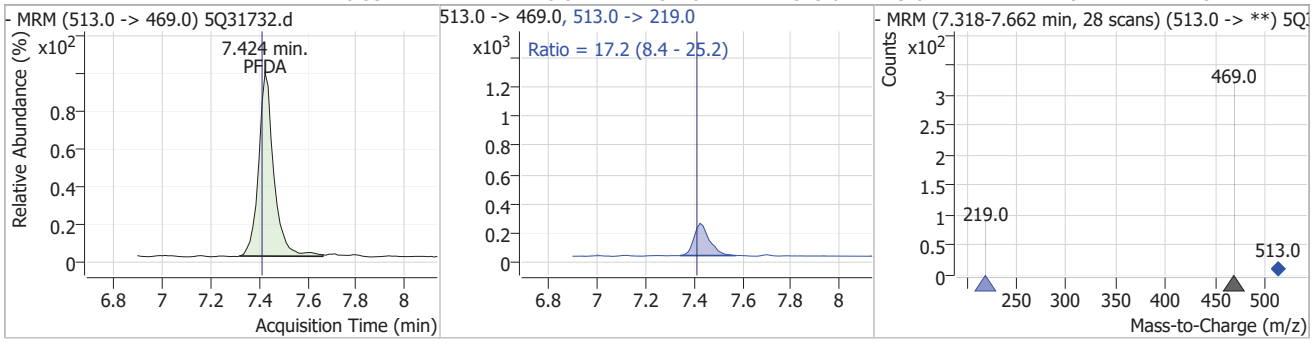


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.19	7.42	0.01	3042				

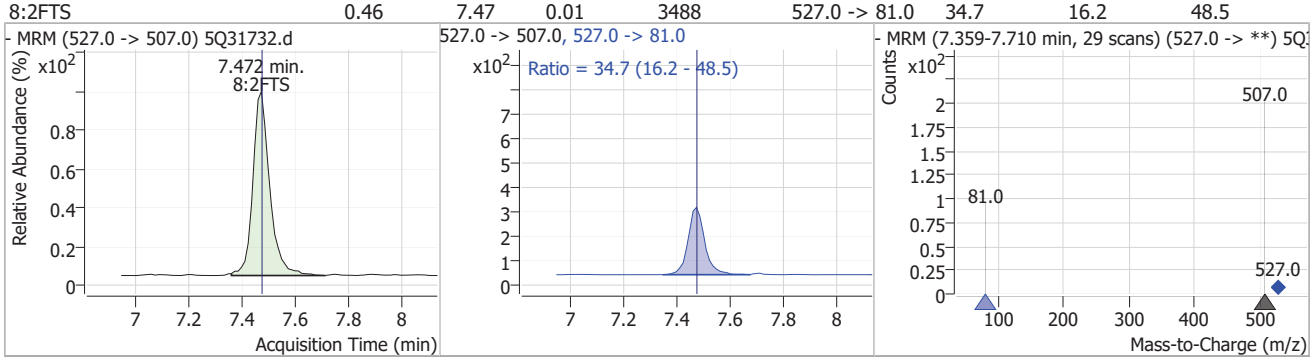


Perfluorinated Compounds by LC/MS/MS

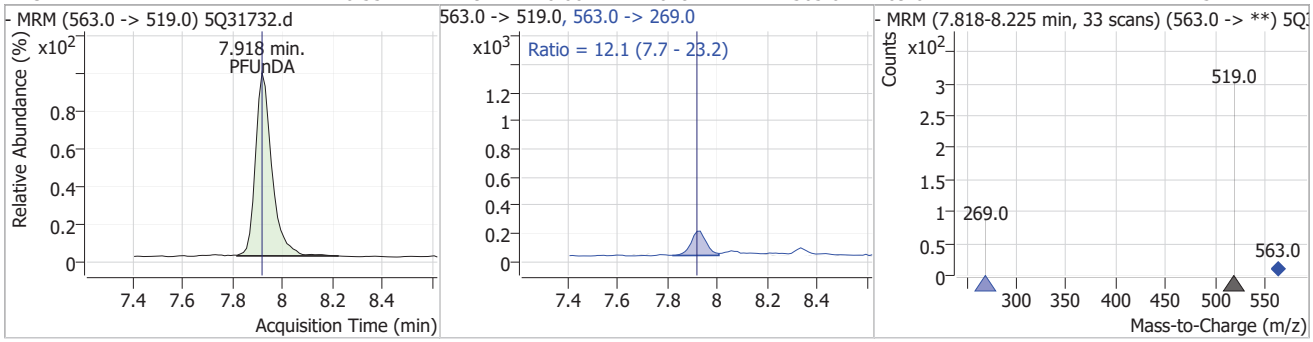
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.35	7.42	0.01	5726	513.0 -> 219.0	17.2	8.4	25.2



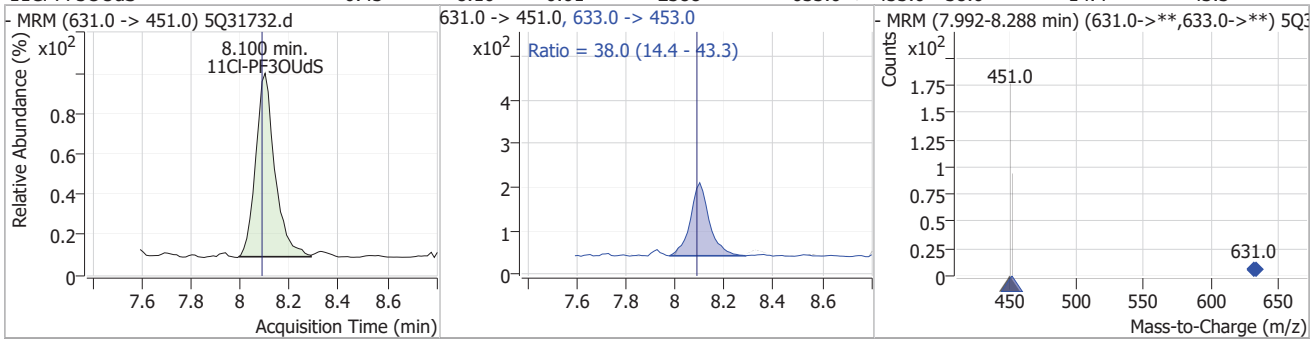
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.46	7.47	0.01	3488	527.0 -> 81.0	34.7	16.2	48.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.35	7.92	0.00	6182	563.0 -> 269.0	12.1	7.7	23.2

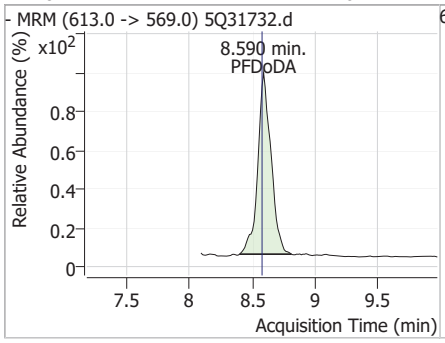


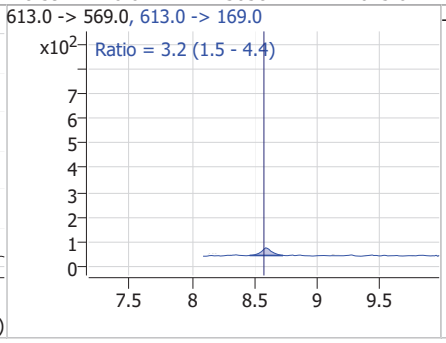
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.43	8.10	0.01	2388	633.0 -> 453.0	38.0	14.4	43.3

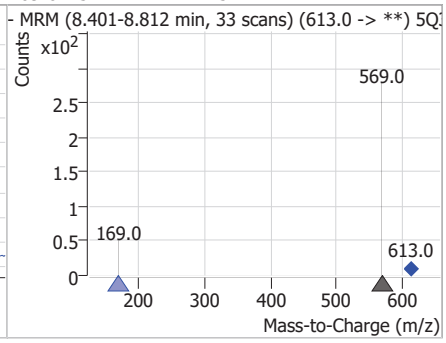


Perfluorinated Compounds by LC/MS/MS

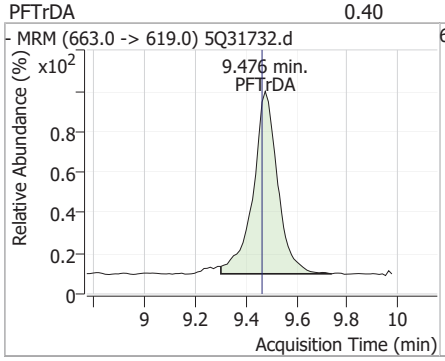
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.44	8.59	0.01	5658	613.0 -> 169.0	3.2	1.5	4.4

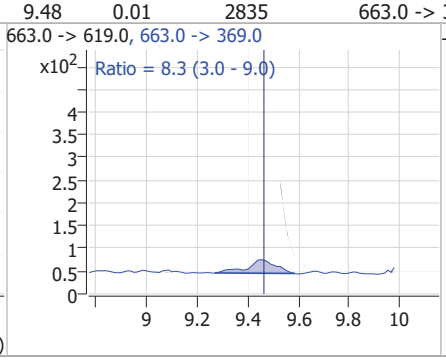


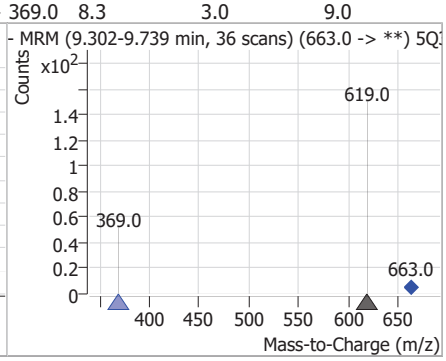




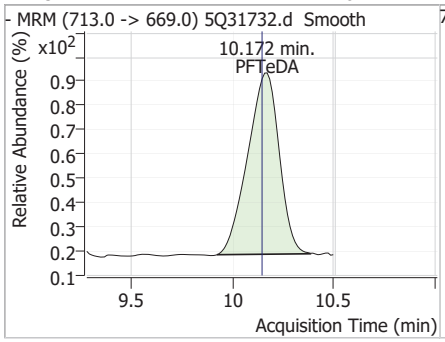
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.40	9.48	0.01	2835	663.0 -> 369.0	8.3	3.0	9.0

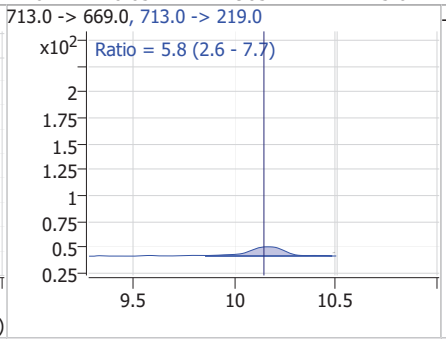


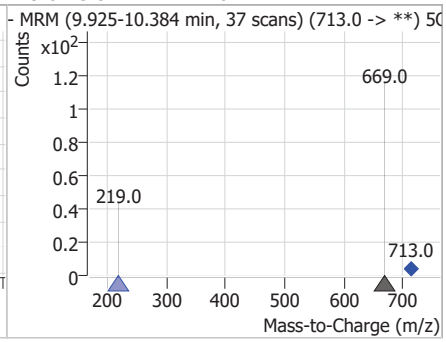




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.42	10.17	0.03	1965	713.0 -> 219.0	5.8	2.6	7.7







Manual Integration Approval Summary

Sample Number:	S5Q520-IC520	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31732.D	**Analyst approved:**	04/15/25 14:42 (b) (6)
Injection Time:	04/14/25 10:50	**Supervisor approved:**	04/15/25 15:43 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C3-HFPO-DA			5.03	Poor instrument integration
HFPO-DA (GenX)	13252-13-6		5.04	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/15/25 15:43

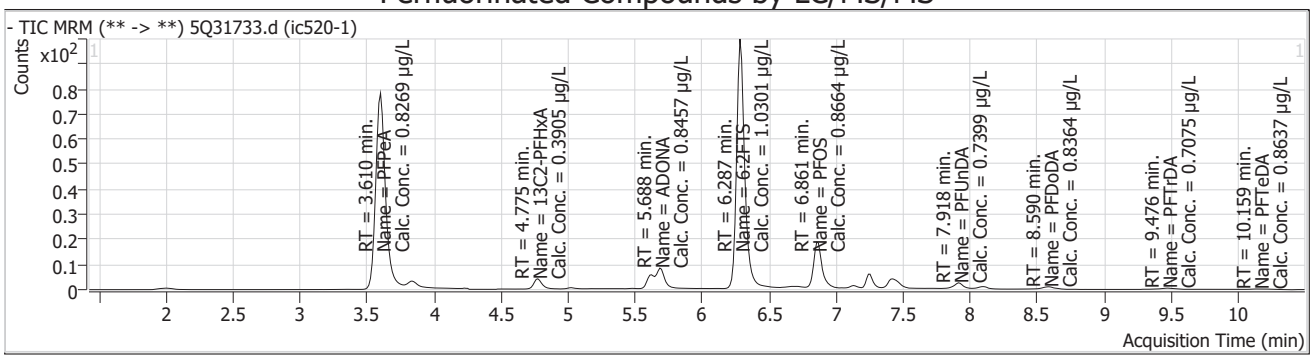
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31733.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/14/2025 11:06:30 AM
Sample Name : ic520-1
Vial : P1-A3
DA Method File : 537_041425_S5Q520.quantmethod
Batch Name : s5q520.batch.bin
Sample Information : OP8806,S5Q520,250,,,1,1,water

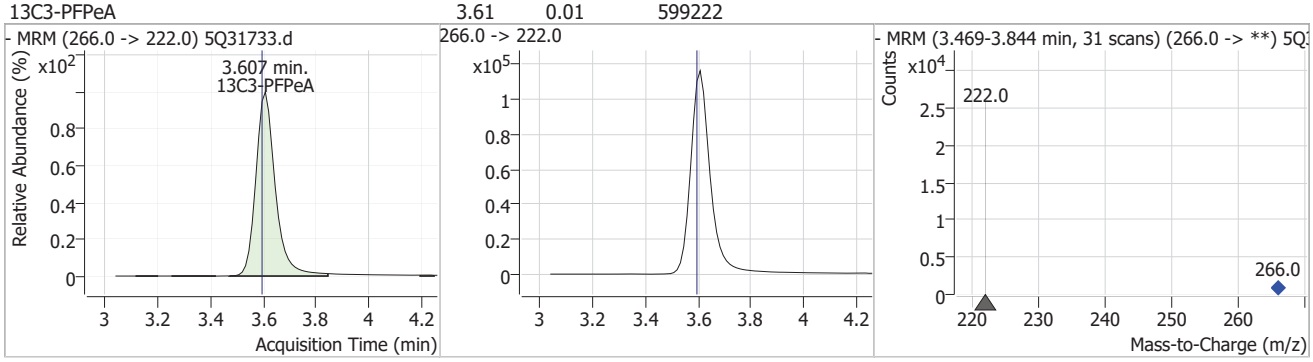
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.287	429.0 -> 409.0	181924	20.00	µg/L		0.012
13C2-PFOA	6.289	415.0 -> 370.0	439387	20.00	µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	599222	20.00	µg/L		0.012
13C4-PFOS	6.860	503.0 -> 80.0	108228	20.00	µg/L		0.000
d3-MeFOSAA	7.242	573.0 -> 419.0	30912	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.423	515.0 -> 470.0	7185	0.43	µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 2.2%			
13C2-PFHxA	4.775	315.0 -> 270.0	11483	0.39	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 2.0%			
d5-EtFOSAA	7.378	589.0 -> 419.0	495	0.89	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 2.2%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	1610	0.81	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 2.0%			
Target Compounds							QValue
6:2FTS	6.287	427.0 -> 407.0	9468	1.03	µg/L		98
8:2FTS	7.472	527.0 -> 507.0	7665	0.97	µg/L		96
EtFOSAA	7.380	584.0 -> 419.0	607	1.16	µg/L	m	73
MeFOSAA	7.244	570.0 -> 419.0	523	0.80	µg/L		74
PFBS	3.841	299.0 -> 80.0	12622	0.85	µg/L		99
PFDA	7.424	513.0 -> 469.0	13040	0.77	µg/L		96
PFDoDA	8.590	613.0 -> 569.0	11402	0.84	µg/L		100
PFHpA	5.614	363.0 -> 319.0	30056	0.85	µg/L		99
PFHxA	4.777	313.0 -> 269.0	15759	0.86	µg/L		98
PFHxS	5.648	399.0 -> 80.0	7147	0.82	µg/L	m	98
PFNA	6.886	463.0 -> 419.0	12638	0.89	µg/L	m	93
PFOA	6.290	413.0 -> 369.0	17747	0.87	µg/L		97
PFOS	6.861	499.0 -> 80.0	5689	0.87	µg/L	m	99
PFPeA	3.610	263.0 -> 219.0	30525	0.83	µg/L		100
PFTeDA	10.159	713.0 -> 669.0	4261	0.86	µg/L		98
PFTrDA	9.476	663.0 -> 619.0	5245	0.71	µg/L		98
PFUnDA	7.918	563.0 -> 519.0	13586	0.74	µg/L		95
ADONA	5.688	377.0 -> 251.0	39086	0.85	µg/L		99
9Cl-PF3ONS	7.133	531.0 -> 351.0	4991	0.86	µg/L		93
11Cl-PF3OUdS	8.100	631.0 -> 451.0	5181	0.89	µg/L		91
HFPO-DA	5.035	285.0 -> 169.0	1546	0.91	µg/L		99

 # = Qualifier out of range, m = manually integrated, + = Area summed

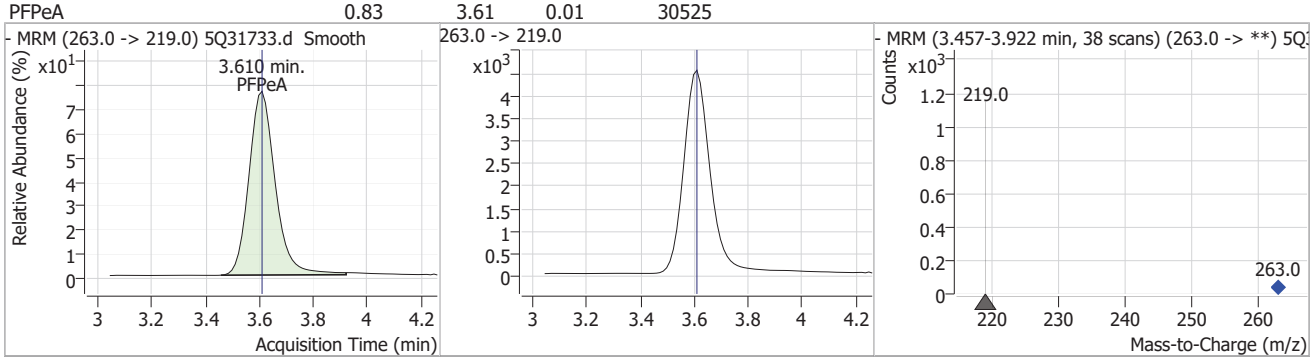
Perfluorinated Compounds by LC/MS/MS



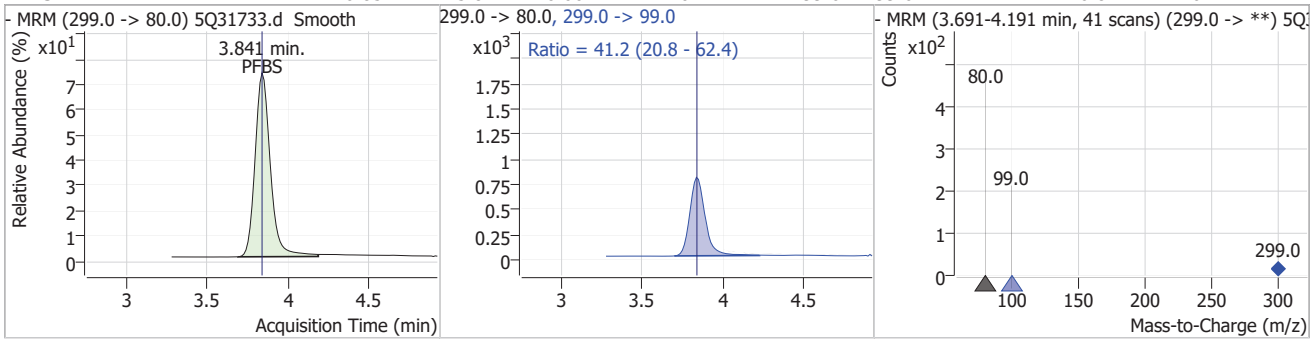
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.01	599222				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.83	3.61	0.01	30525				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.85	3.84	0.00	12622	299.0 -> 99.0	41.2	20.8	62.4

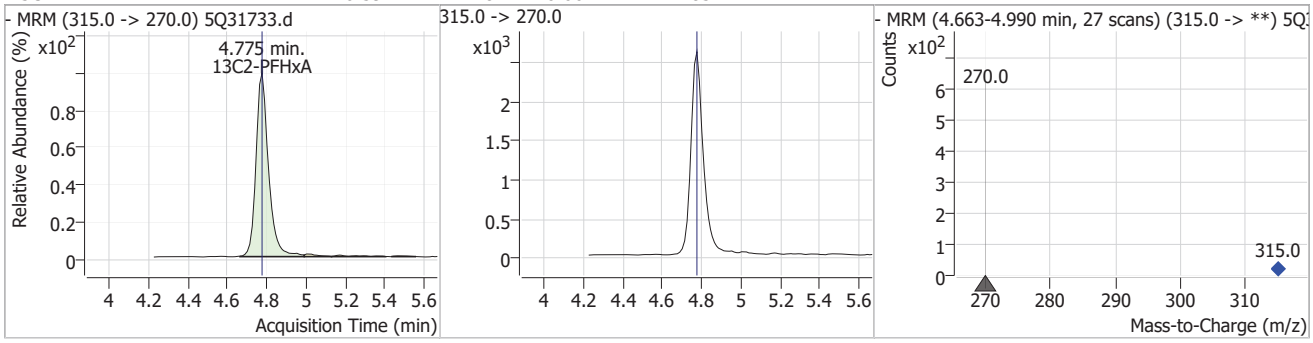


7.7.28

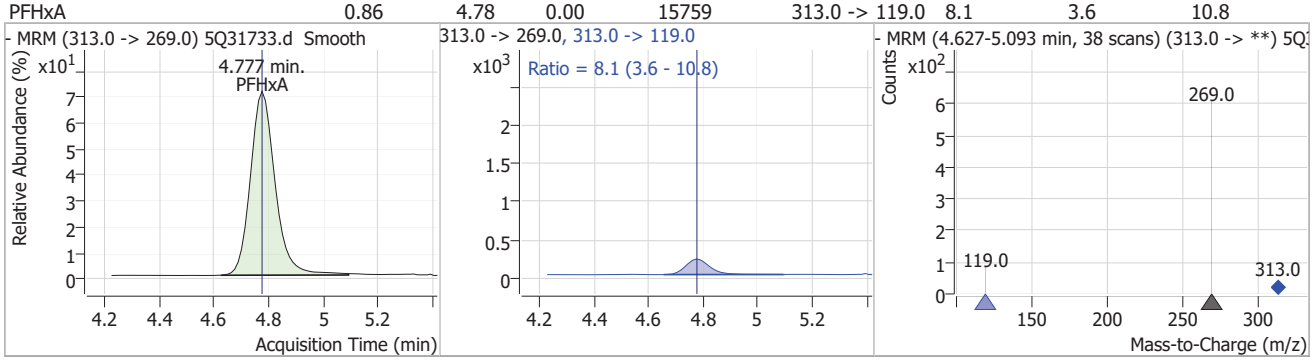
7

Perfluorinated Compounds by LC/MS/MS

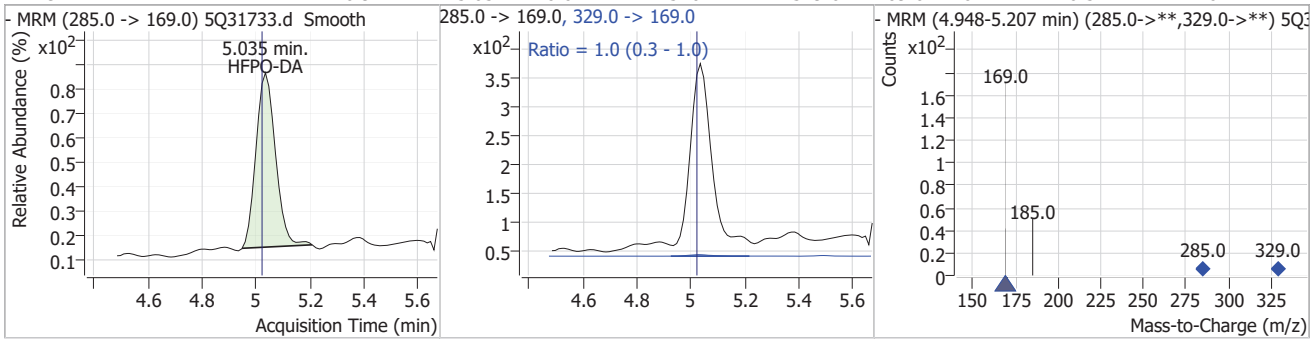
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.39	4.78	0.00	11483				



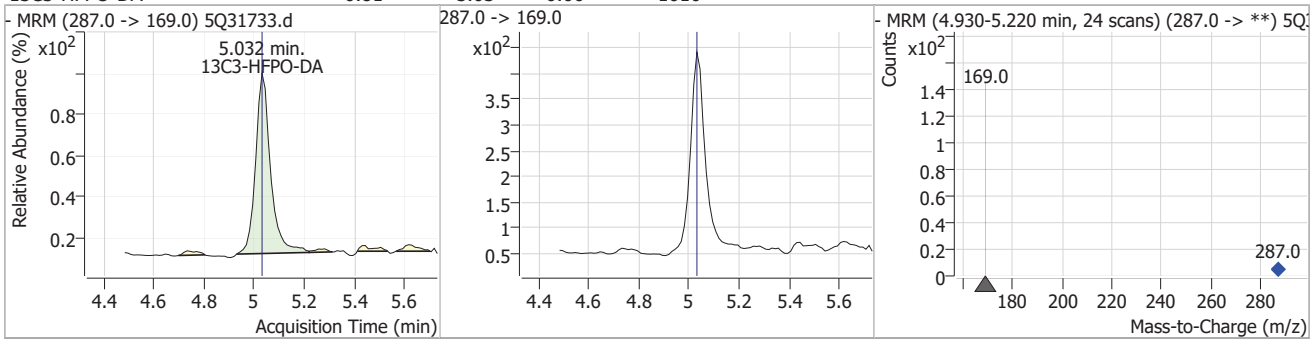
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.86	4.78	0.00	15759	313.0 -> 119.0	8.1	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.91	5.03	0.01	1546	329.0 -> 169.0	1.0	0.3	1.0

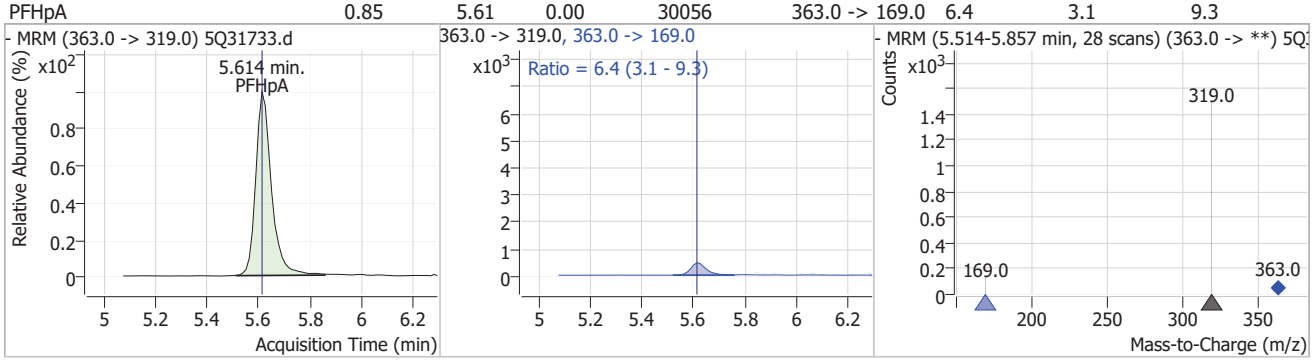


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.81	5.03	0.00	1610				

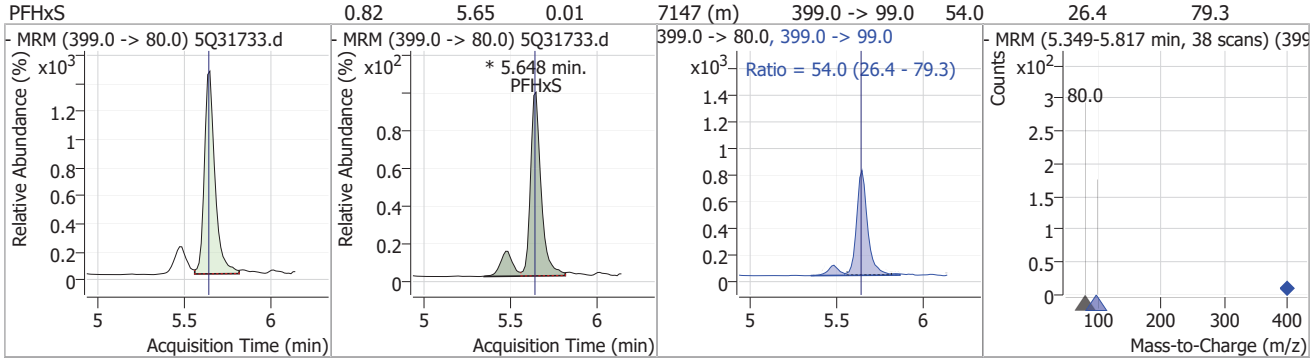


Perfluorinated Compounds by LC/MS/MS

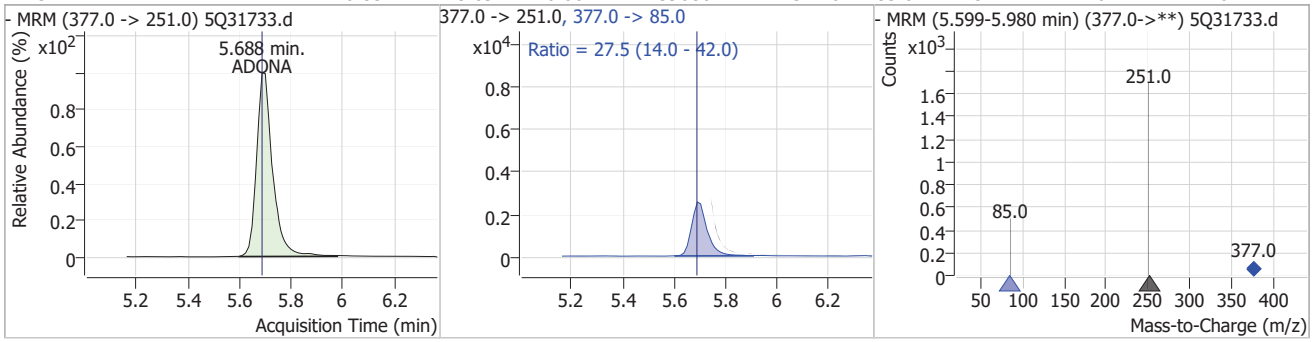
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.85	5.61	0.00	30056	363.0 -> 169.0	6.4	3.1	9.3



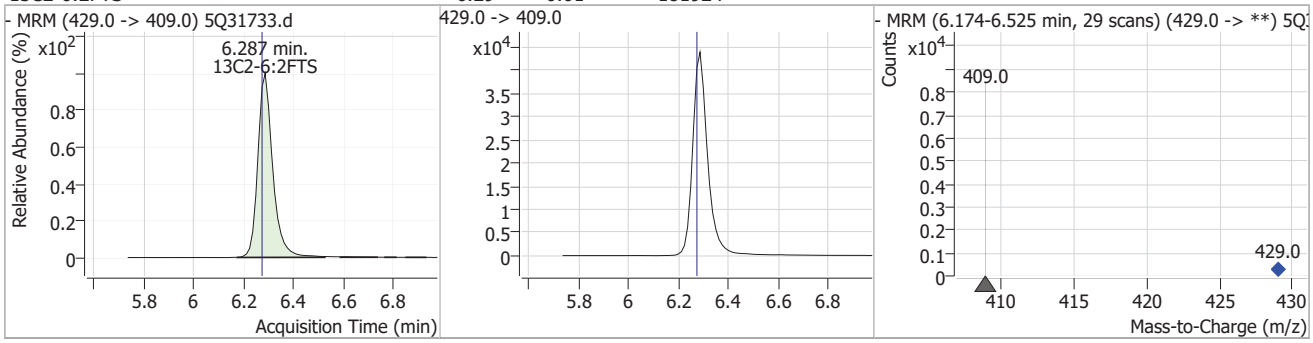
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.82	5.65	0.01	7147 (m)	399.0 -> 99.0	54.0	26.4	79.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.85	5.69	0.00	39086	377.0 -> 85.0	27.5	14.0	42.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.01	181924				

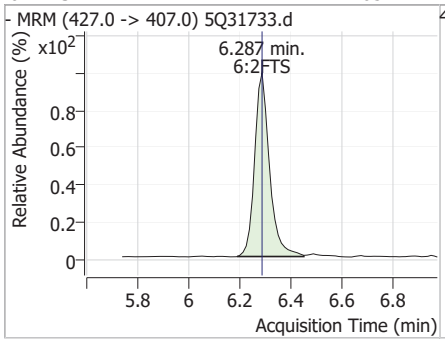


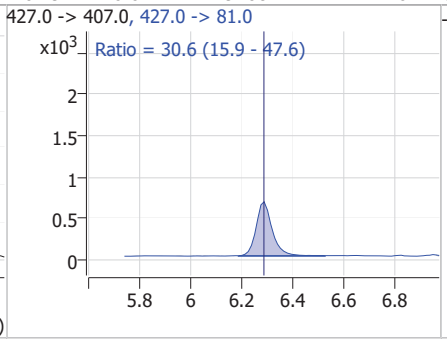
7.7.28

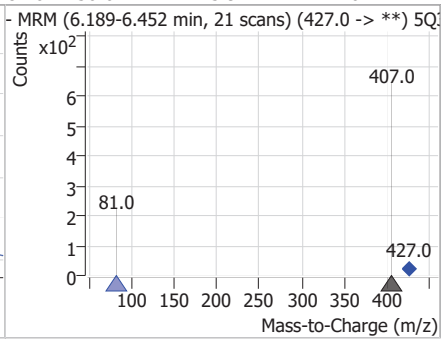
7

Perfluorinated Compounds by LC/MS/MS

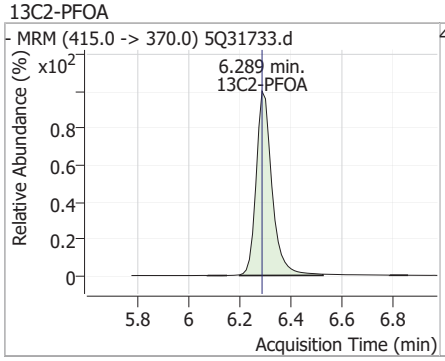
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.03	6.29	0.01	9468	427.0 -> 81.0	30.6	15.9	47.6

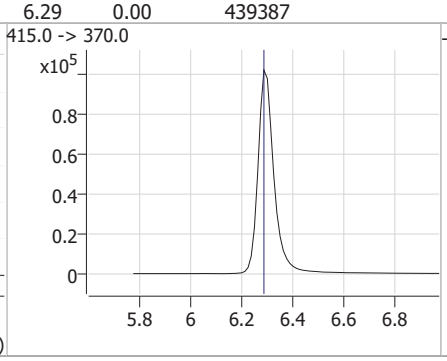


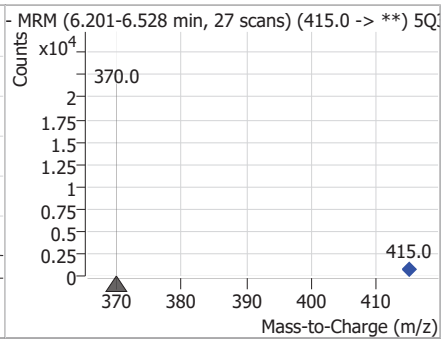




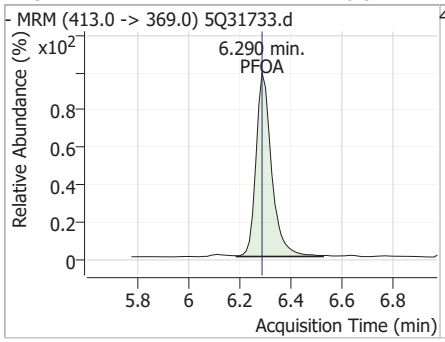
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	439387				

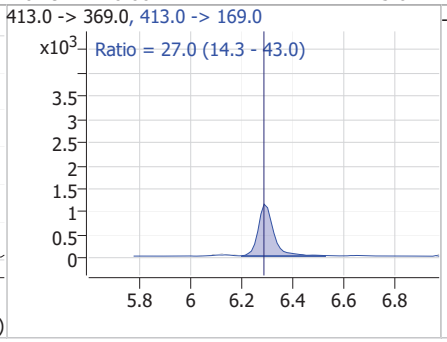


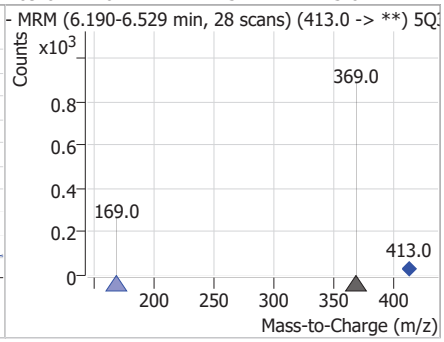




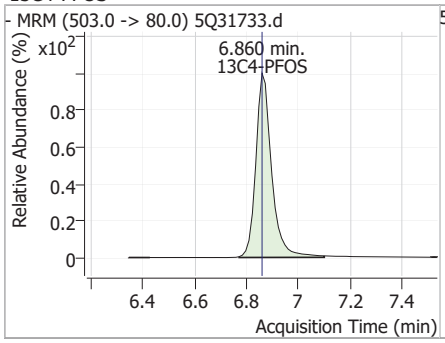
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.87	6.29	0.00	17747	413.0 -> 169.0	27.0	14.3	43.0

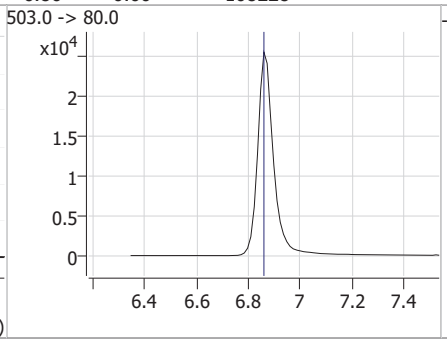


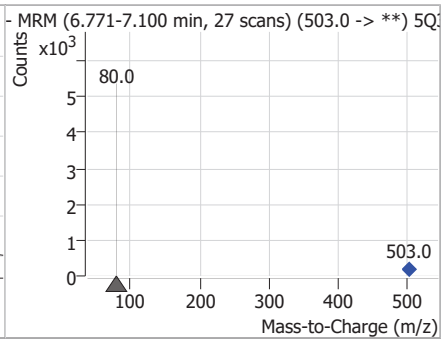




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	108228				







7.7.28

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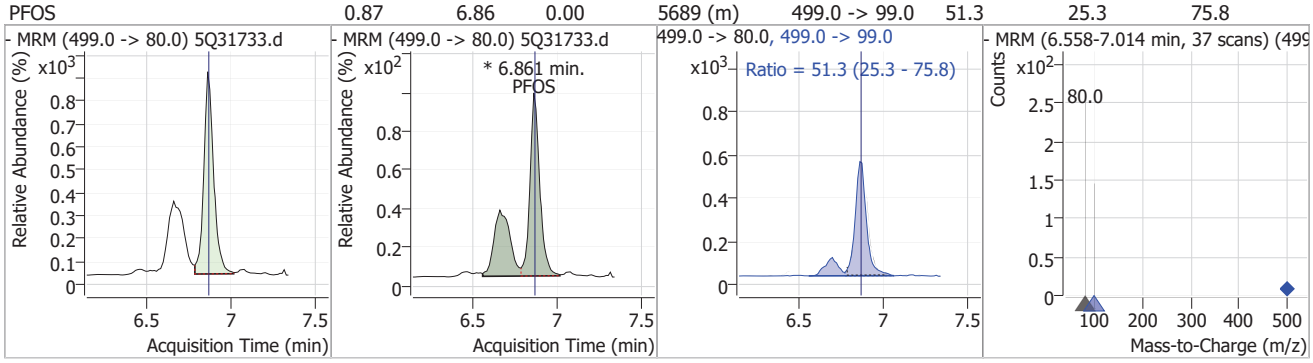
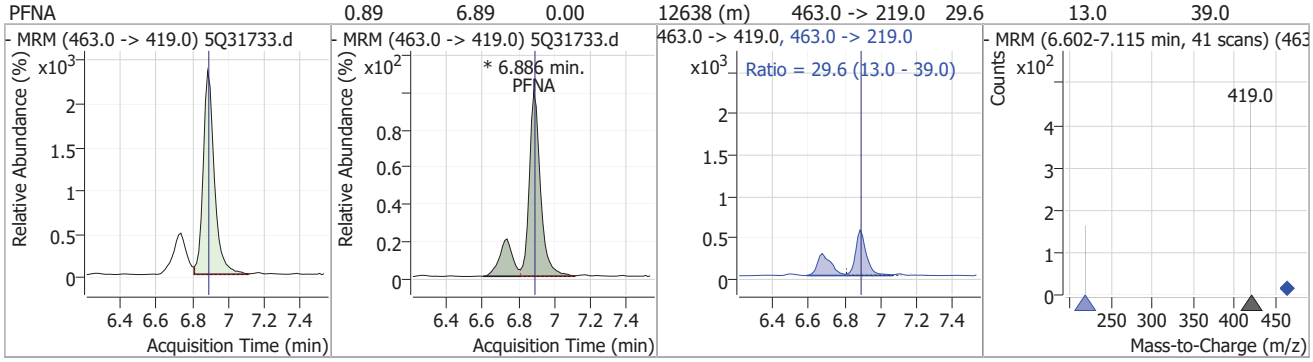
Perfluorinated Compounds by LC/MS/MS

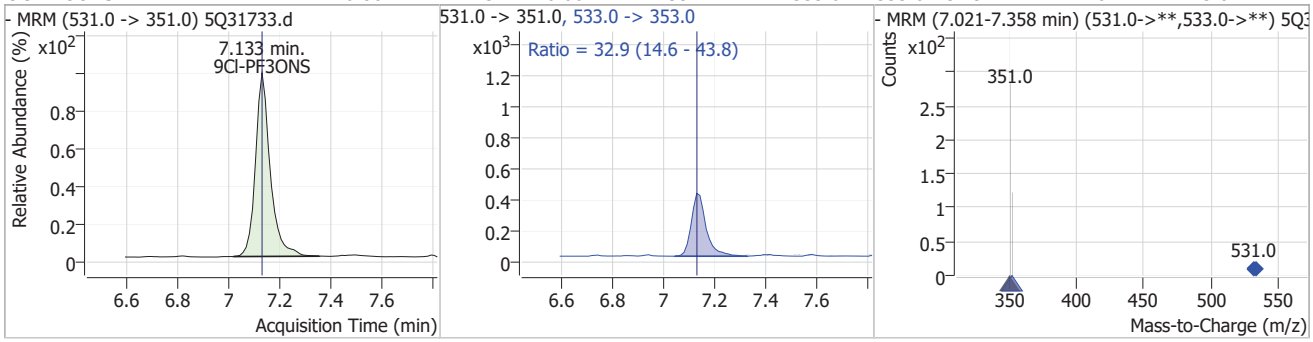
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.87	6.86	0.00	5689 (m)	499.0 -> 99.0	51.3	25.3	75.8



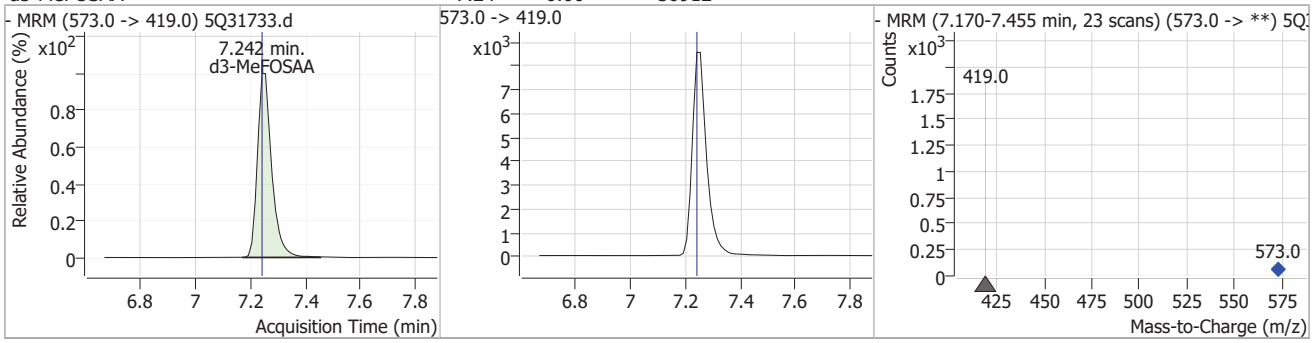
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.89	6.89	0.00	12638 (m)	463.0 -> 219.0	29.6	13.0	39.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.86	7.13	0.00	4991	533.0 -> 353.0	32.9	14.6	43.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	30912				

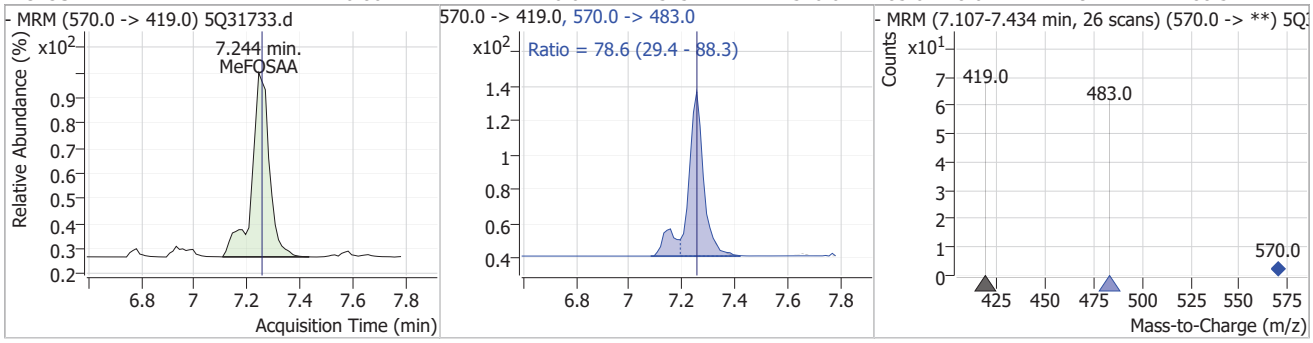


7.7.28

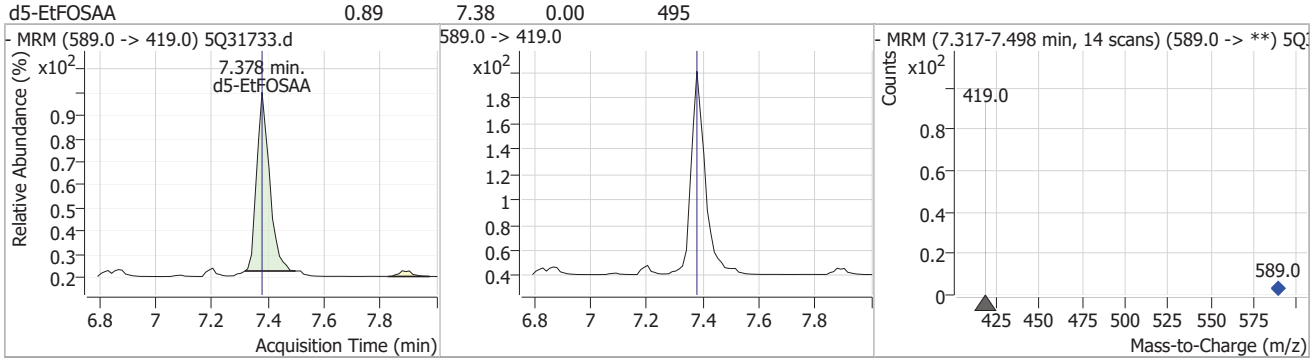
7

Perfluorinated Compounds by LC/MS/MS

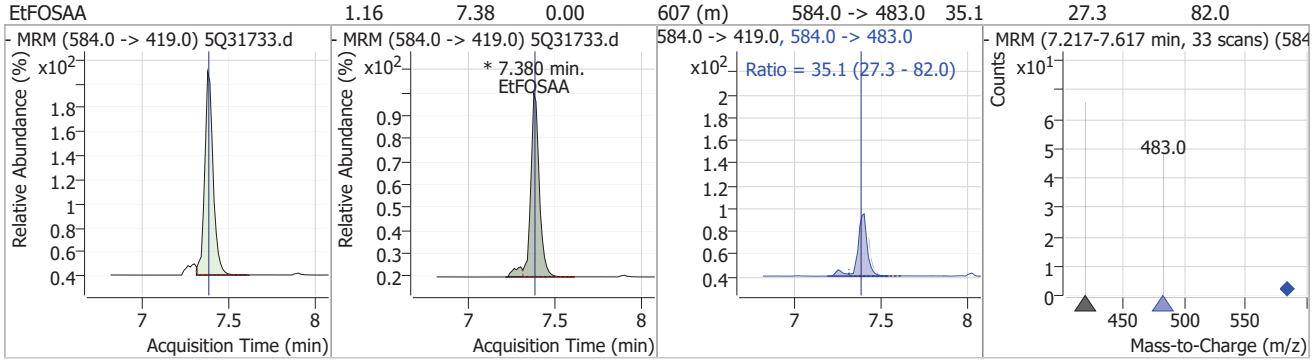
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.80	7.24	-0.01	523	570.0 -> 483.0	78.6	29.4	88.3



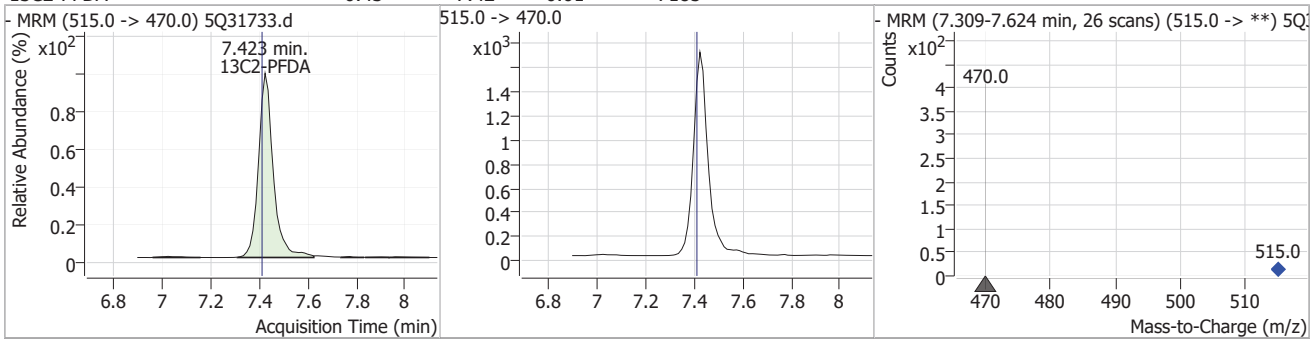
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	0.89	7.38	0.00	495				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.16	7.38	0.00	607 (m)	584.0 -> 483.0	35.1	27.3	82.0

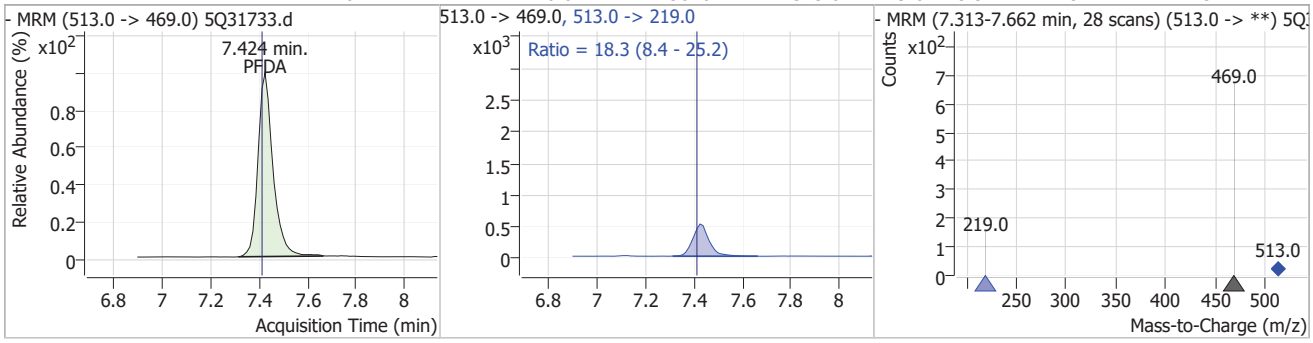


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.43	7.42	0.01	7185				

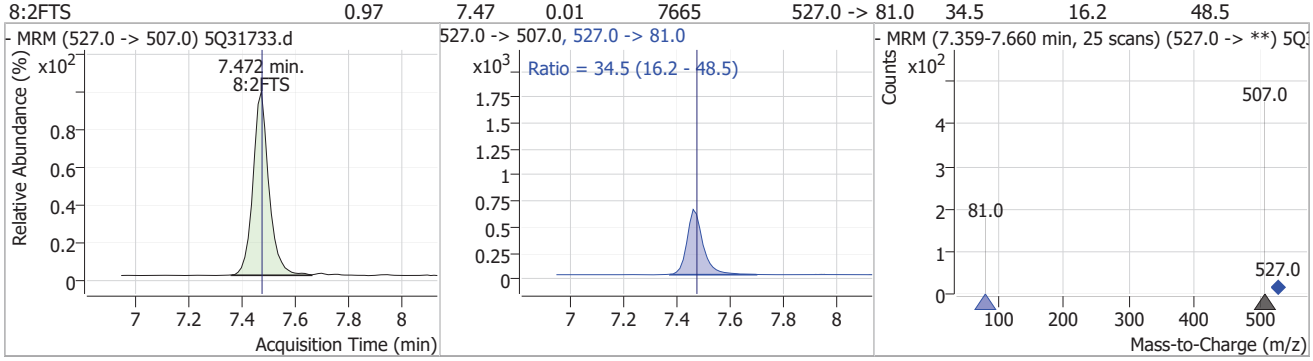


Perfluorinated Compounds by LC/MS/MS

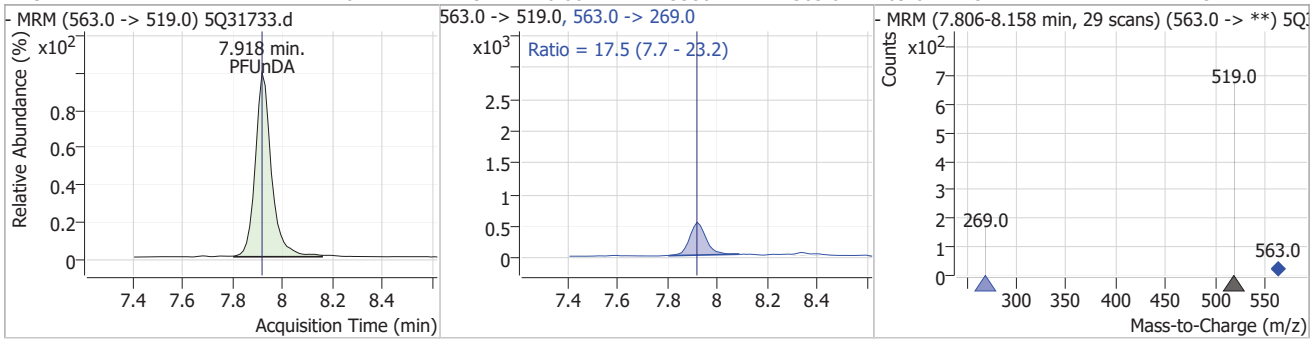
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.77	7.42	0.01	13040	513.0 -> 219.0	18.3	8.4	25.2



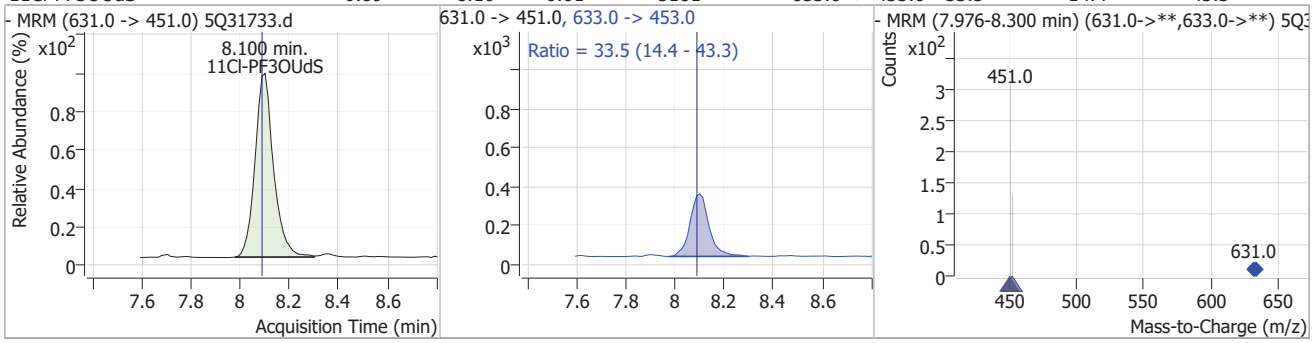
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.97	7.47	0.01	7665	527.0 -> 81.0	34.5	16.2	48.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.74	7.92	0.00	13586	563.0 -> 269.0	17.5	7.7	23.2

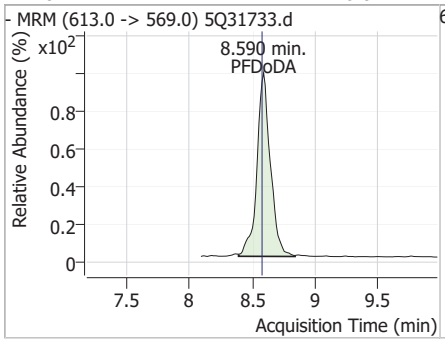


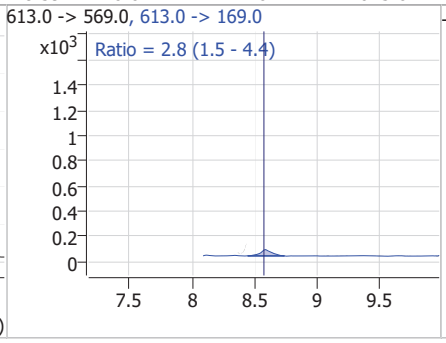
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.89	8.10	0.01	5181	633.0 -> 453.0	33.5	14.4	43.3

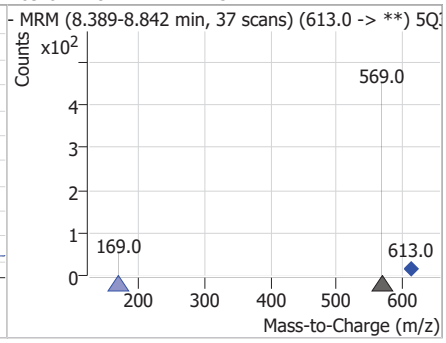


Perfluorinated Compounds by LC/MS/MS

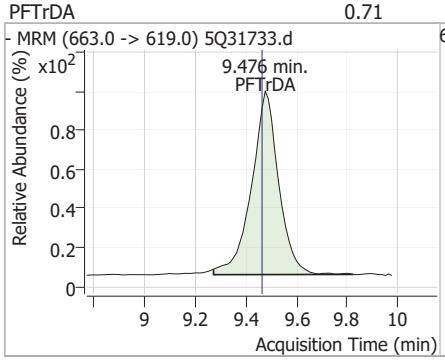
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.84	8.59	0.01	11402	613.0 -> 169.0	2.8	1.5	4.4

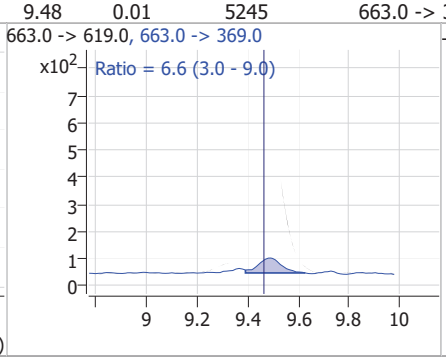


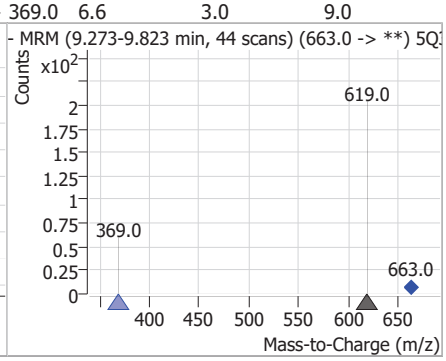




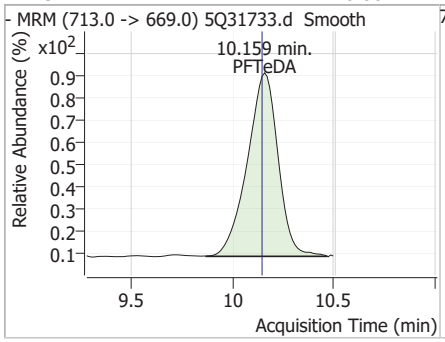
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.71	9.48	0.01	5245	663.0 -> 369.0	6.6	3.0	9.0

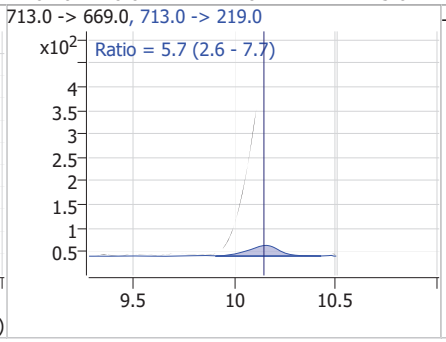


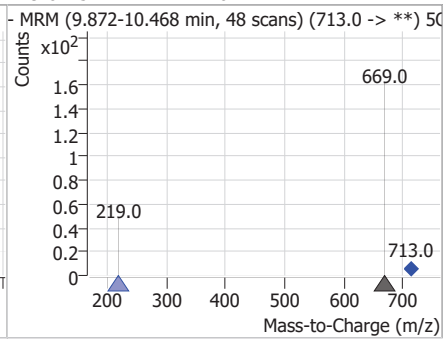




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.86	10.16	0.01	4261	713.0 -> 219.0	5.7	2.6	7.7







Manual Integration Approval Summary

Sample Number: S5Q520-IC520
Lab FileID: 5Q31733.D
Injection Time: 04/14/25 11:06
Method: EPA 537.1 REV 2.0
Analyst approved: 04/15/25 14:42 (b) (6)
Supervisor approved: 04/15/25 15:43 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/15/25 15:43

Perfluorinated Compounds by LC/MS/MS

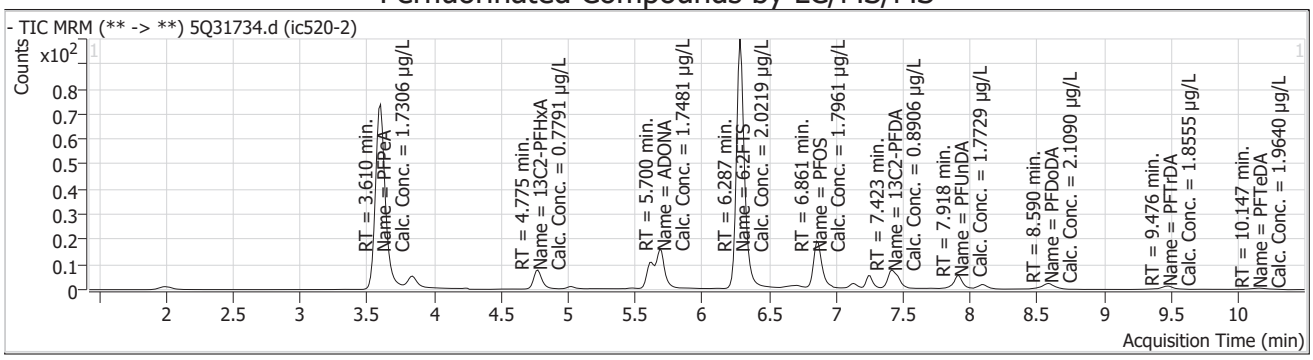
Data File : 5Q31734.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/14/2025 11:22:31 AM
Sample Name : ic520-2
Vial : P1-A4
DA Method File : 537_041425_S5Q520.quantmethod
Batch Name : s5q520.batch.bin
Sample Information : OP8806,S5Q520,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.287	429.0 -> 409.0	180882	20.00	µg/L		0.012
13C2-PFOA	6.289	415.0 -> 370.0	444988	20.00	µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	586189	20.00	µg/L		0.012
13C4-PFOS	6.860	503.0 -> 80.0	105675	20.00	µg/L		0.000
d3-MeFOSAA	7.242	573.0 -> 419.0	28695	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.423	515.0 -> 470.0	15041	0.89	µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 4.5%			
13C2-PFHxA	4.775	315.0 -> 270.0	23202	0.78	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 3.9%			
d5-EtFOSAA	7.378	589.0 -> 419.0	928	1.79	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 4.5%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	3149	1.57	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 3.9%			
Target Compounds							QValue
6:2FTS	6.287	427.0 -> 407.0	18477	2.02	µg/L		98
8:2FTS	7.472	527.0 -> 507.0	15343	1.95	µg/L		93
EtFOSAA	7.380	584.0 -> 419.0	800	1.65	µg/L	m	90
MeFOSAA	7.256	570.0 -> 419.0	1395	2.30	µg/L	m	87
PFBS	3.841	299.0 -> 80.0	25546	1.77	µg/L		98
PFDA	7.424	513.0 -> 469.0	27122	1.58	µg/L		100
PFDoDA	8.590	613.0 -> 569.0	28178	2.11	µg/L		99
PFHpA	5.614	363.0 -> 319.0	63311	1.77	µg/L		99
PFHxA	4.777	313.0 -> 269.0	32544	1.74	µg/L		98
PFHxS	5.648	399.0 -> 80.0	14016	1.65	µg/L	m	99
PFNA	6.886	463.0 -> 419.0	24309	1.69	µg/L	m	96
PFOA	6.290	413.0 -> 369.0	35434	1.72	µg/L		100
PFOS	6.861	499.0 -> 80.0	11527	1.80	µg/L	m	99
PFPeA	3.610	263.0 -> 219.0	62559	1.73	µg/L		100
PFTeDA	10.147	713.0 -> 669.0	9499	1.96	µg/L		100
PFTrDA	9.476	663.0 -> 619.0	13431	1.86	µg/L		97
PFUnDA	7.918	563.0 -> 519.0	31787	1.77	µg/L		94
ADONA	5.700	377.0 -> 251.0	82003	1.75	µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	10063	1.71	µg/L		97
11Cl-PF3OUdS	8.087	631.0 -> 451.0	11028	1.86	µg/L		94
HFPO-DA	5.035	285.0 -> 169.0	3112	1.81	µg/L	#	99

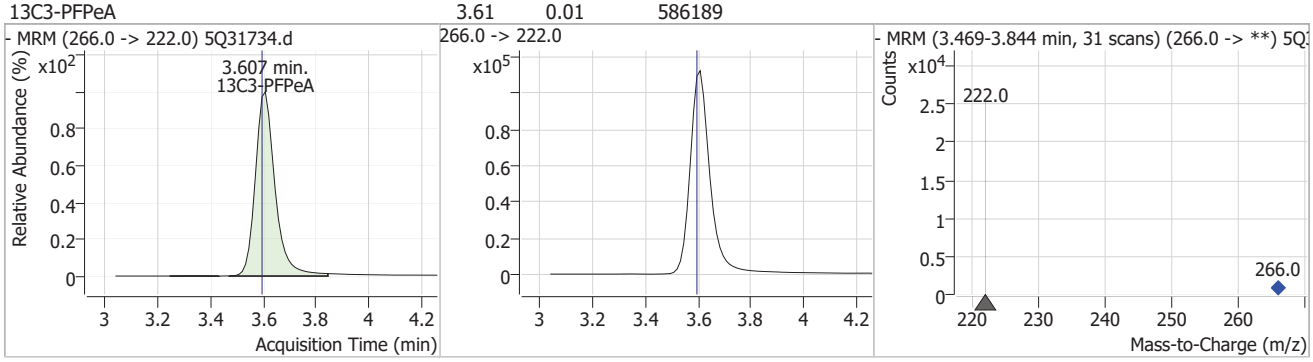
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.29
7

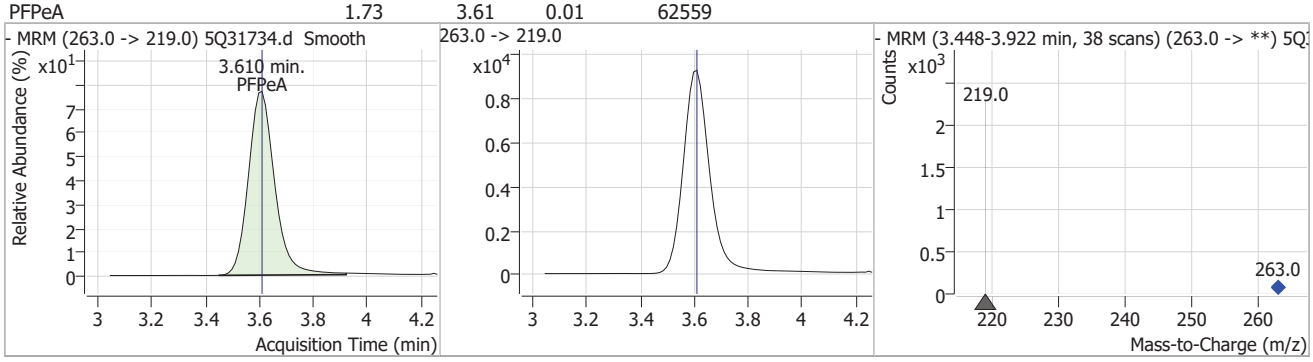
Perfluorinated Compounds by LC/MS/MS



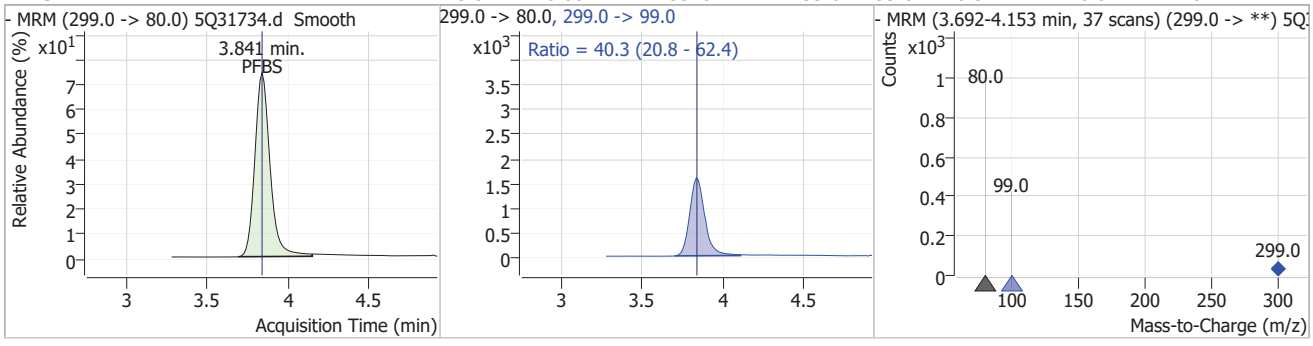
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.01	586189				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.73	3.61	0.01	62559				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.77	3.84	0.00	25546	299.0 -> 99.0	40.3	20.8	62.4



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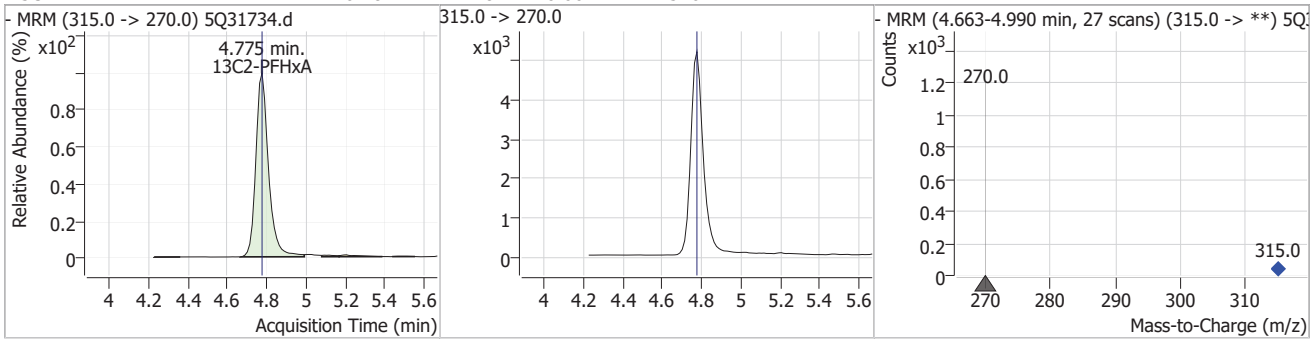
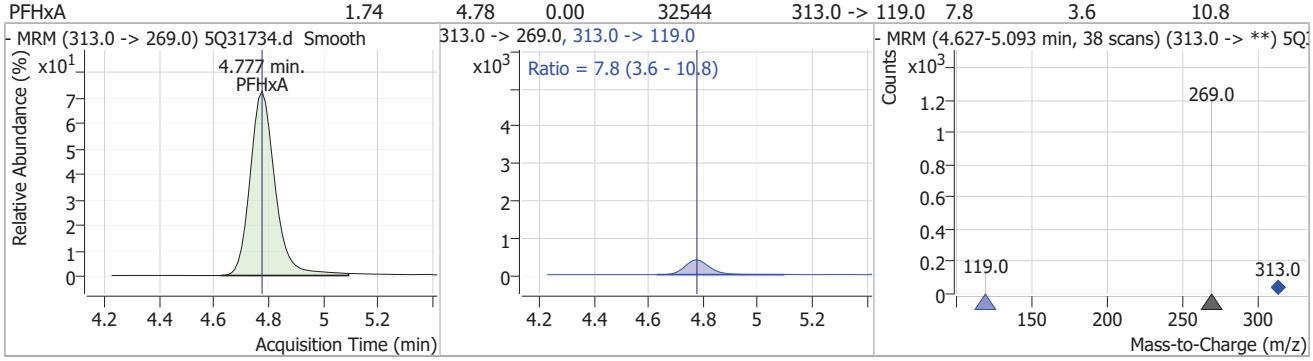
Perfluorinated Compounds by LC/MS/MS

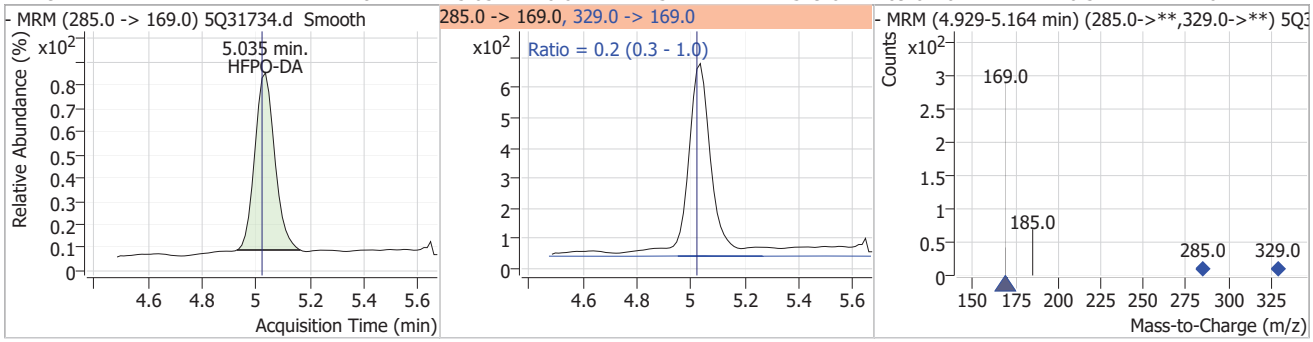
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.78	4.78	0.00	23202				



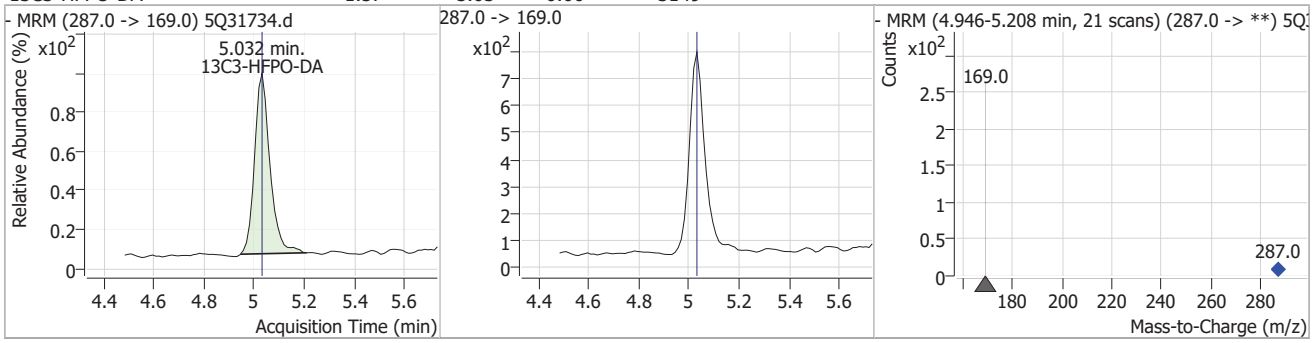
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.74	4.78	0.00	32544	313.0 -> 119.0	7.8	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	1.81	5.03	0.01	3112	329.0 -> 169.0	0.2	0.3	1.0

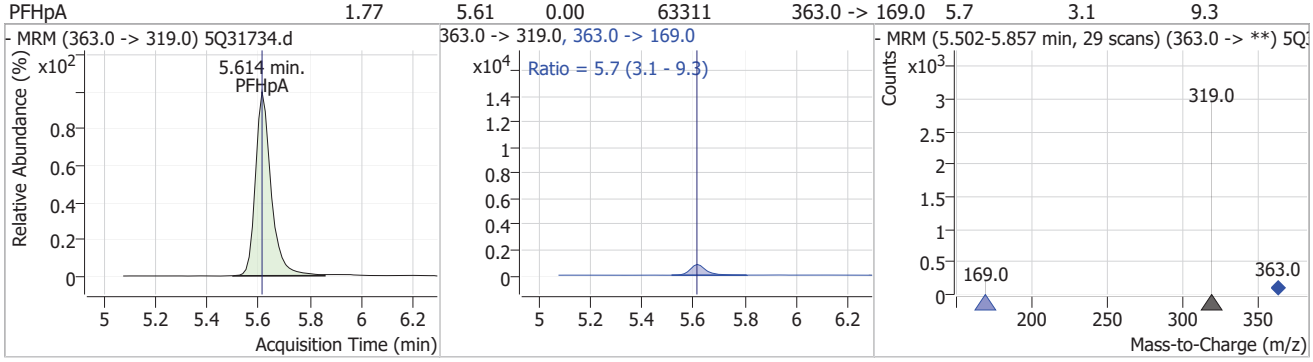


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	1.57	5.03	0.00	3149				

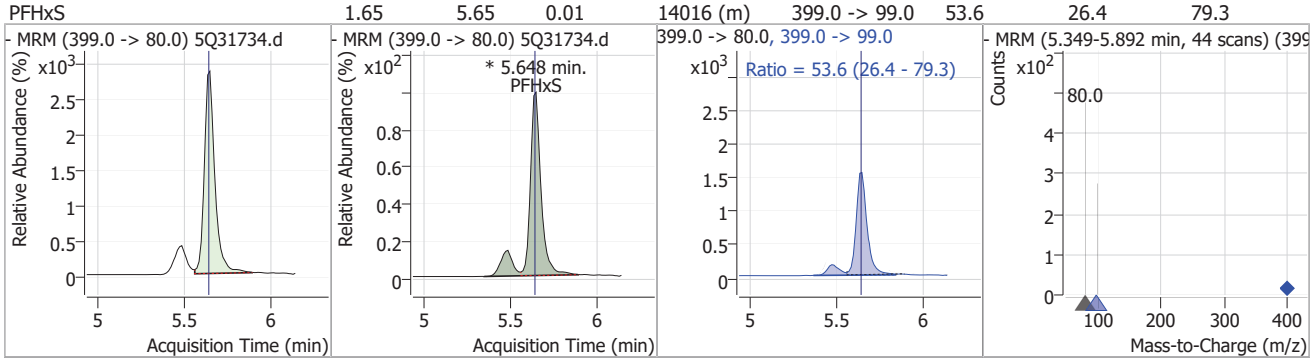


Perfluorinated Compounds by LC/MS/MS

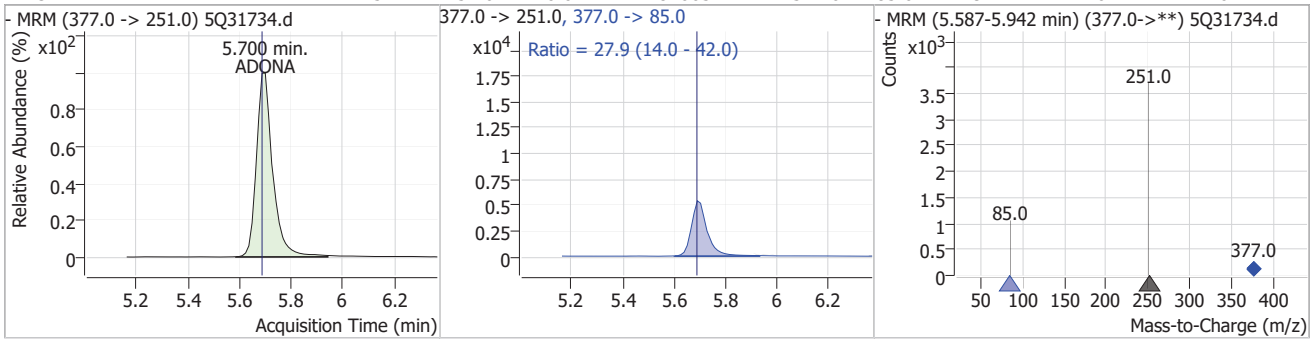
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.77	5.61	0.00	63311	363.0 -> 169.0	5.7	3.1	9.3



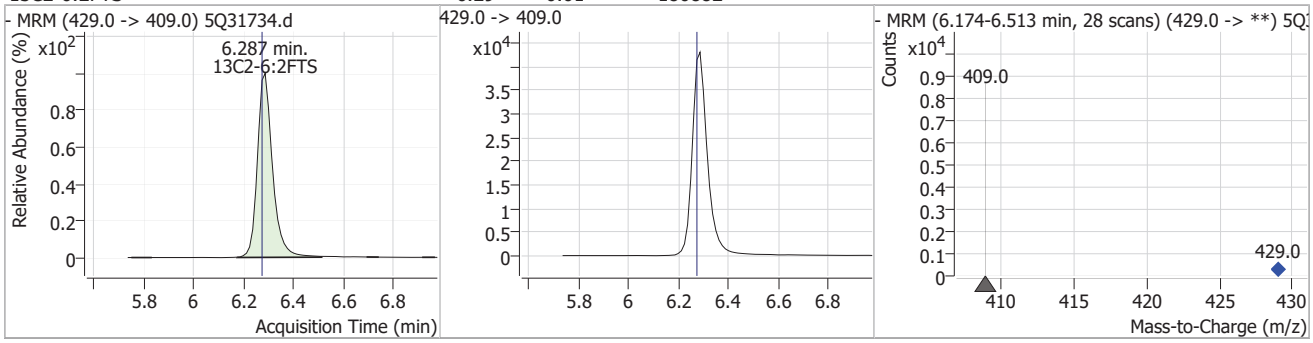
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.65	5.65	0.01	14016 (m)	399.0 -> 99.0	53.6	26.4	79.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	1.75	5.70	0.01	82003	377.0 -> 85.0	27.9	14.0	42.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.01	180882				



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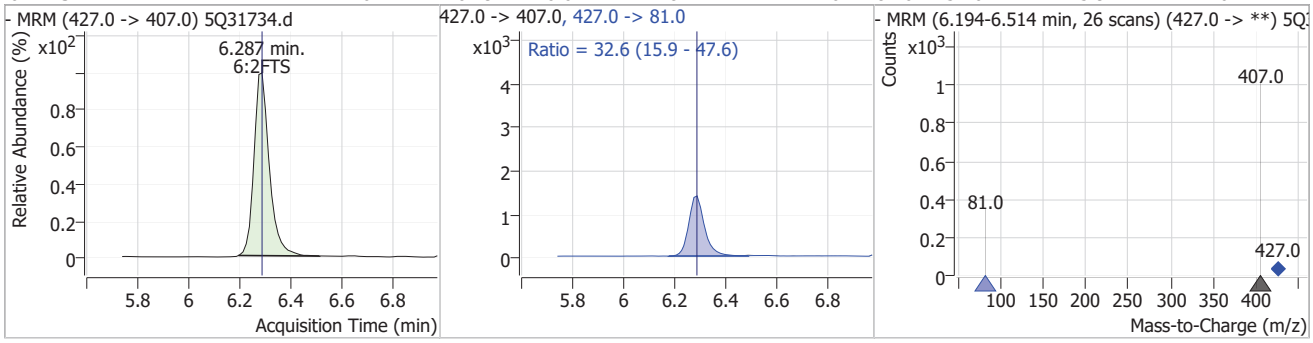
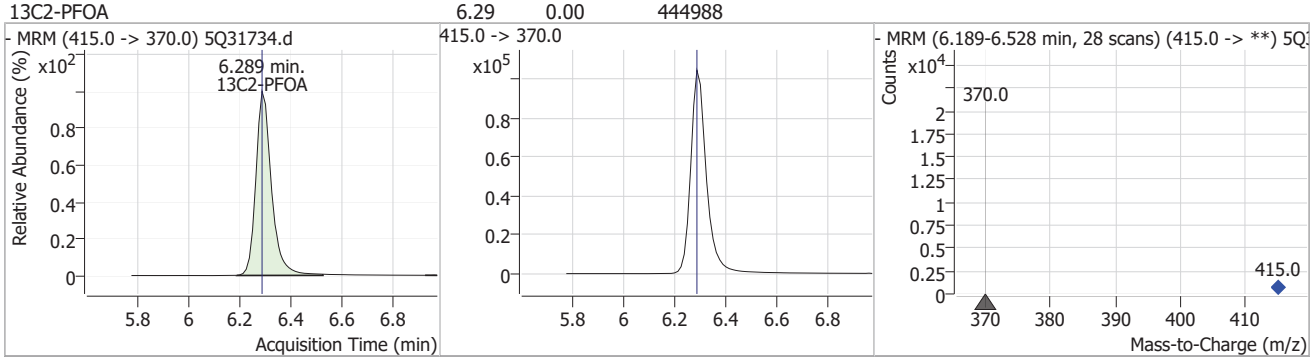
Perfluorinated Compounds by LC/MS/MS

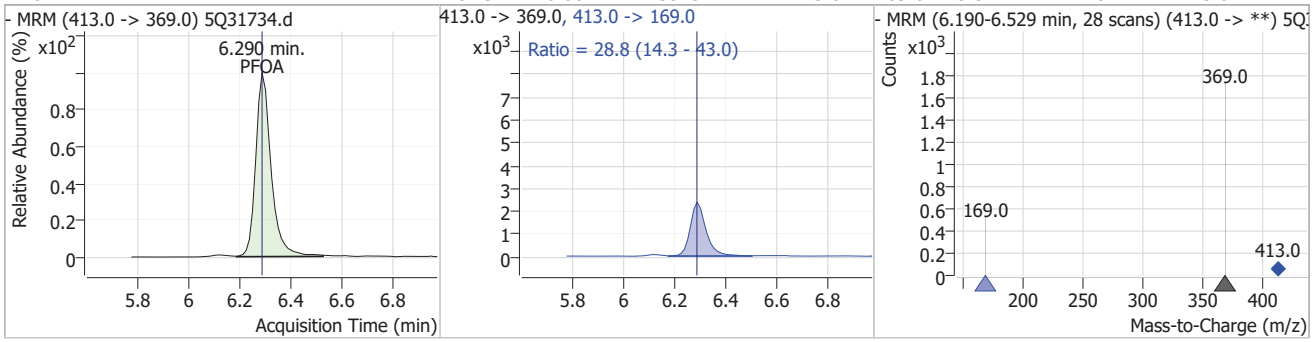
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	2.02	6.29	0.01	18477	427.0 -> 81.0	32.6	15.9	47.6



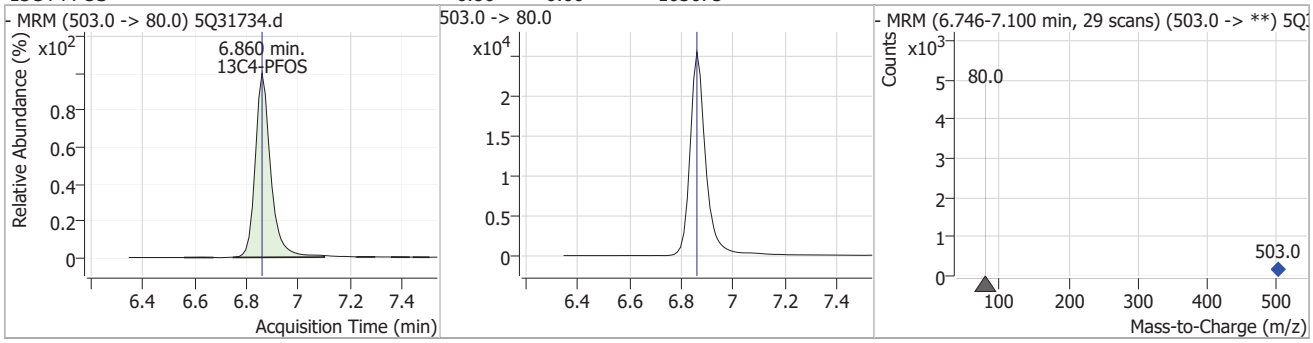
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	444988				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.72	6.29	0.00	35434	413.0 -> 169.0	28.8	14.3	43.0

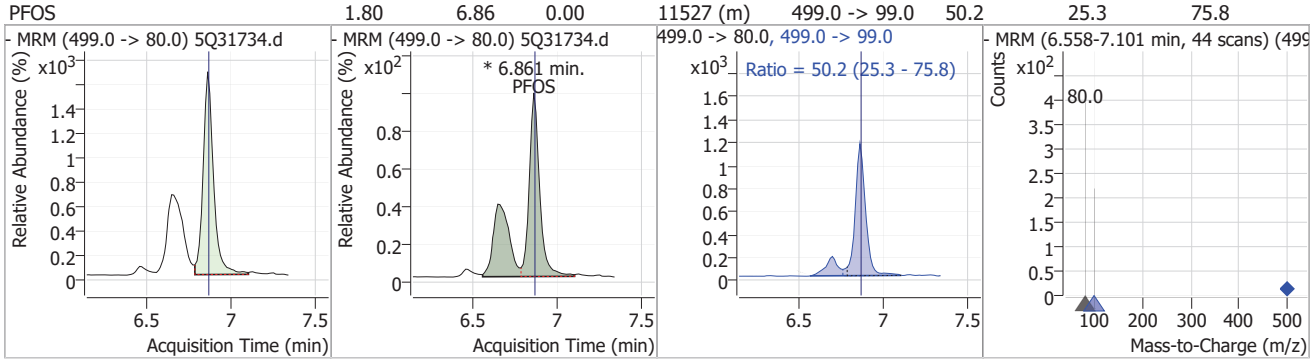


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	105675				

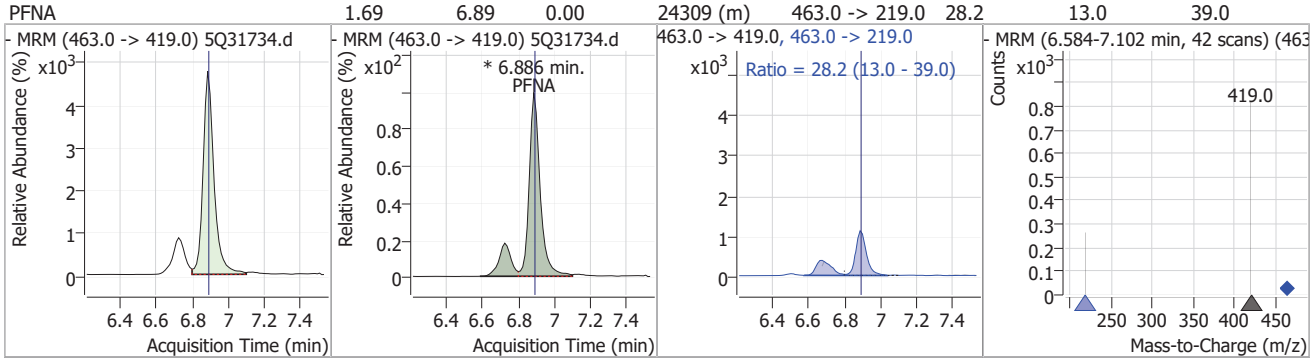


Perfluorinated Compounds by LC/MS/MS

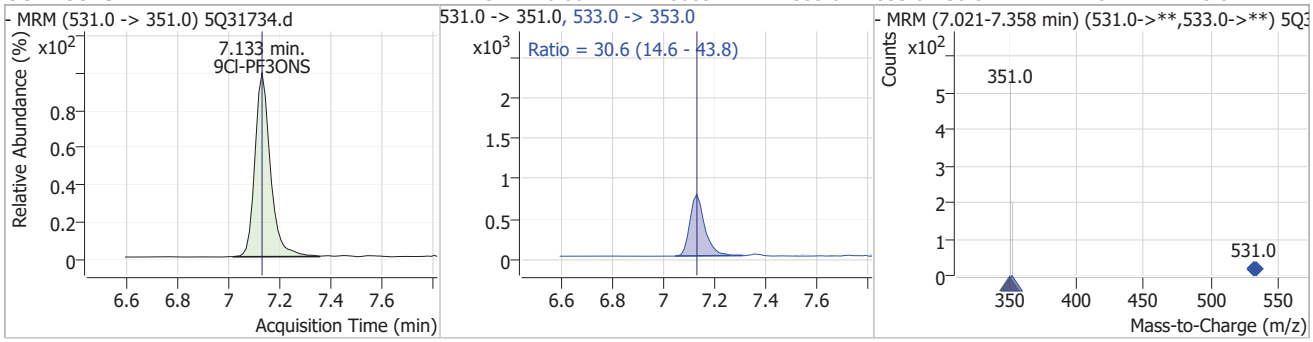
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.80	6.86	0.00	11527 (m)	499.0 -> 99.0	50.2	25.3	75.8



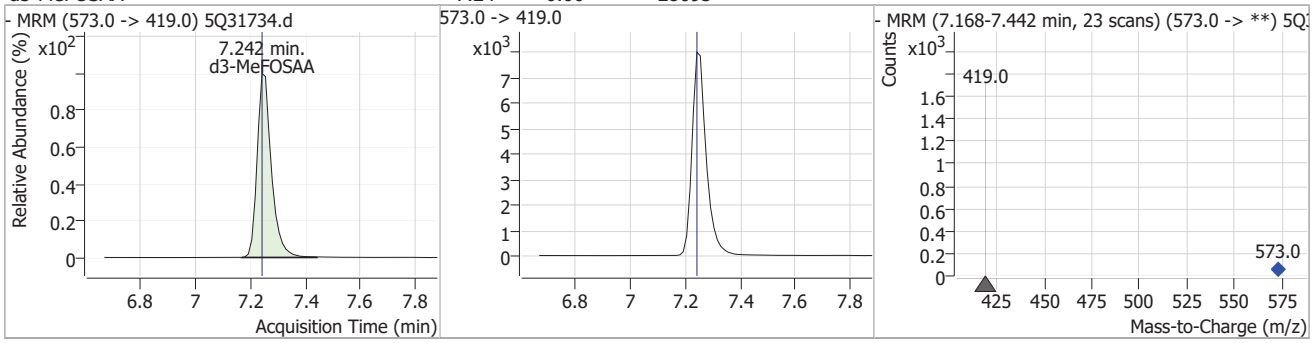
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.69	6.89	0.00	24309 (m)	463.0 -> 219.0	28.2	13.0	39.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	1.71	7.13	0.00	10063	533.0 -> 353.0	30.6	14.6	43.8

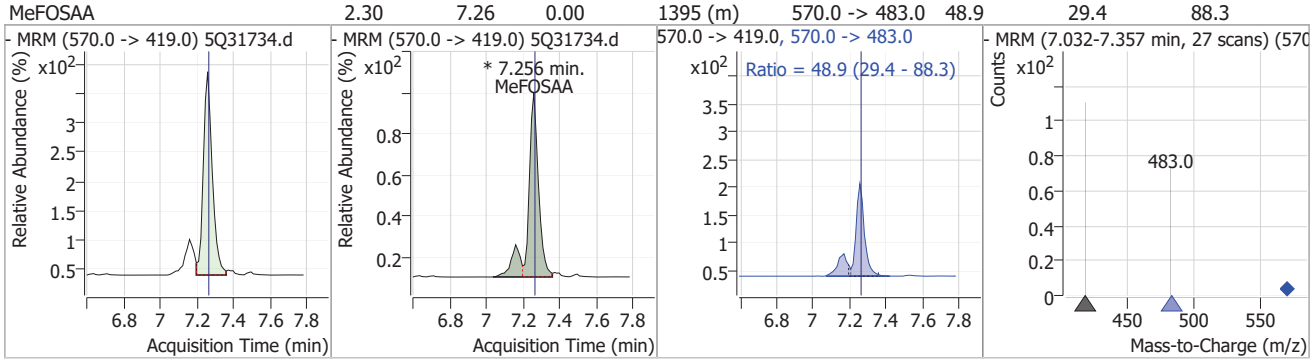


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	28695				

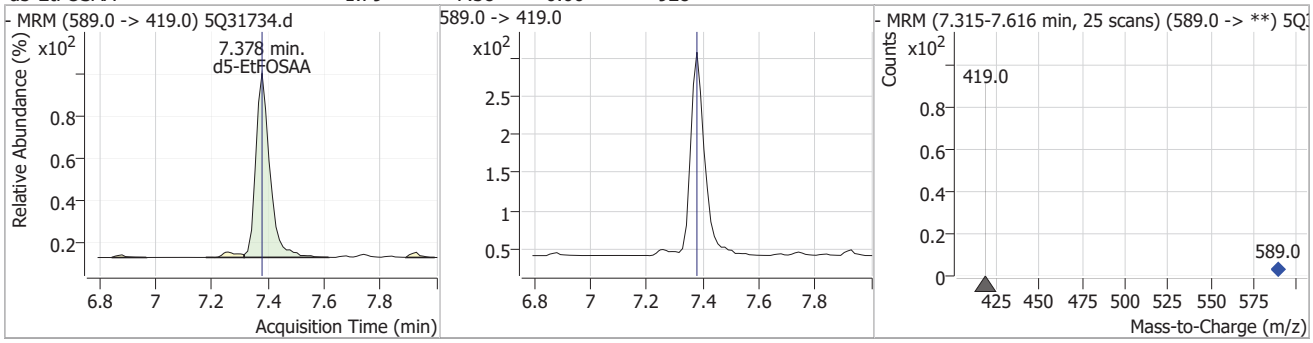


Perfluorinated Compounds by LC/MS/MS

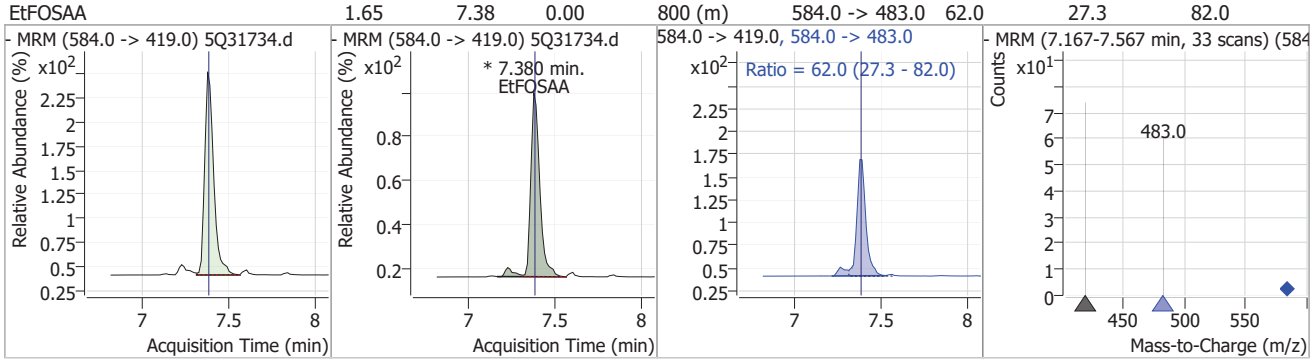
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.30	7.26	0.00	1395 (m)	570.0 -> 483.0	48.9	29.4	88.3



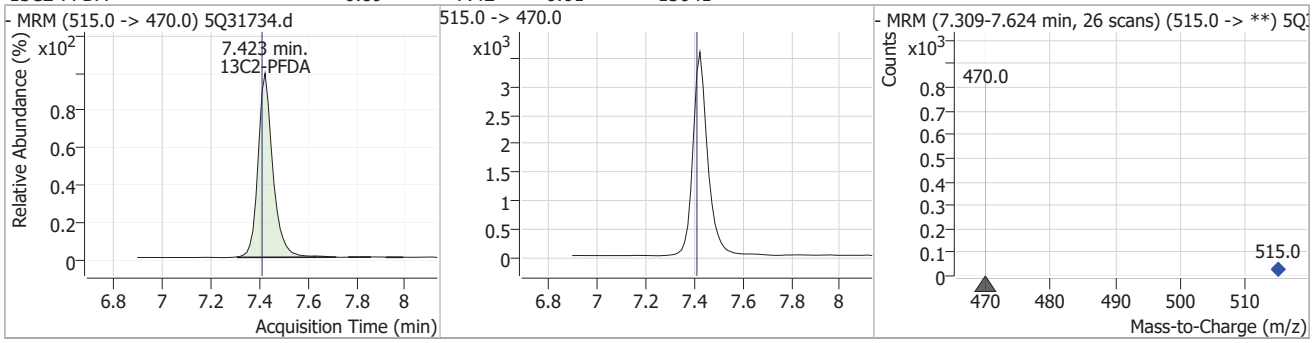
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	1.79	7.38	0.00	928				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.65	7.38	0.00	800 (m)	584.0 -> 483.0	62.0	27.3	82.0

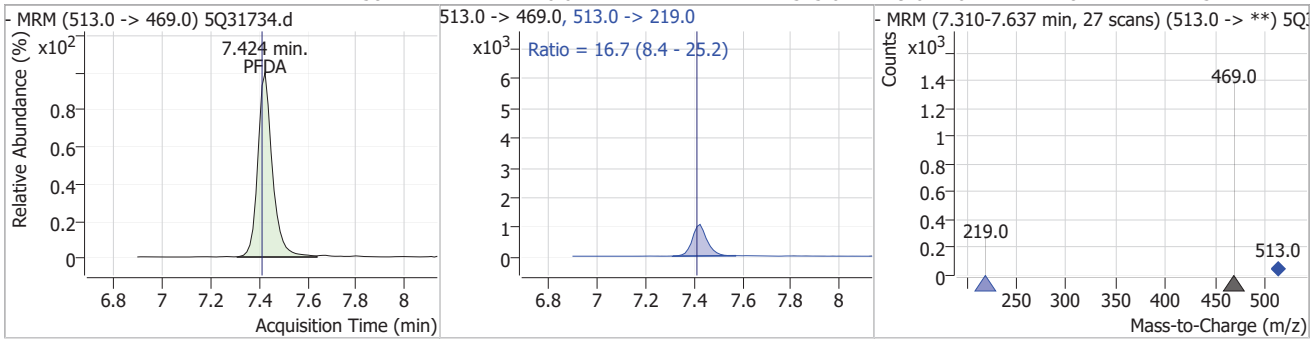


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.89	7.42	0.01	15041				

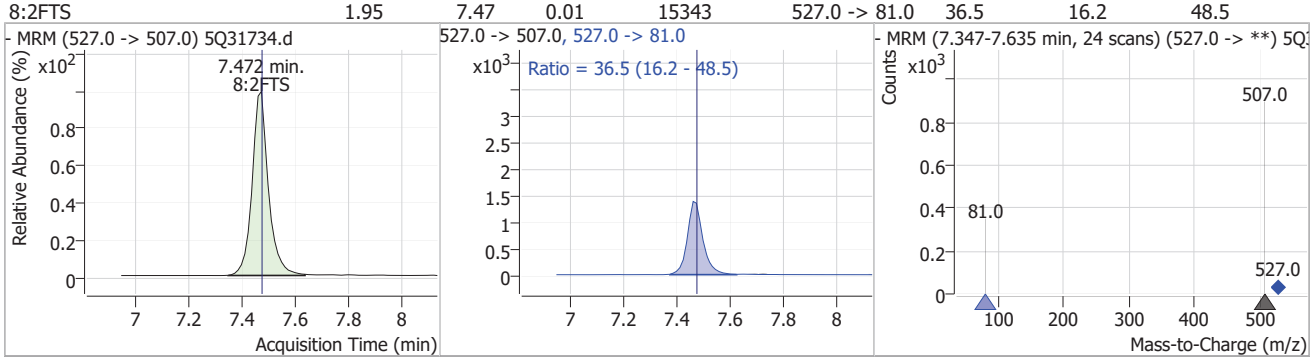


Perfluorinated Compounds by LC/MS/MS

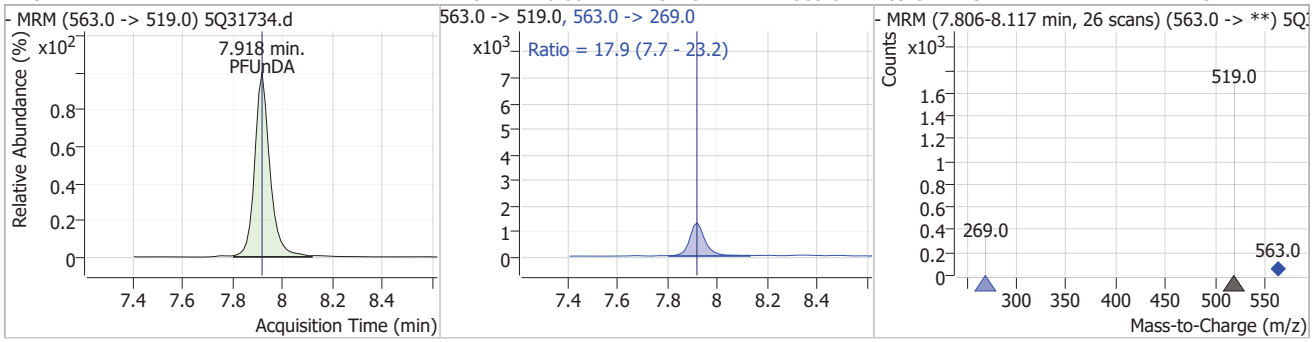
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.58	7.42	0.01	27122	513.0 -> 219.0	16.7	8.4	25.2



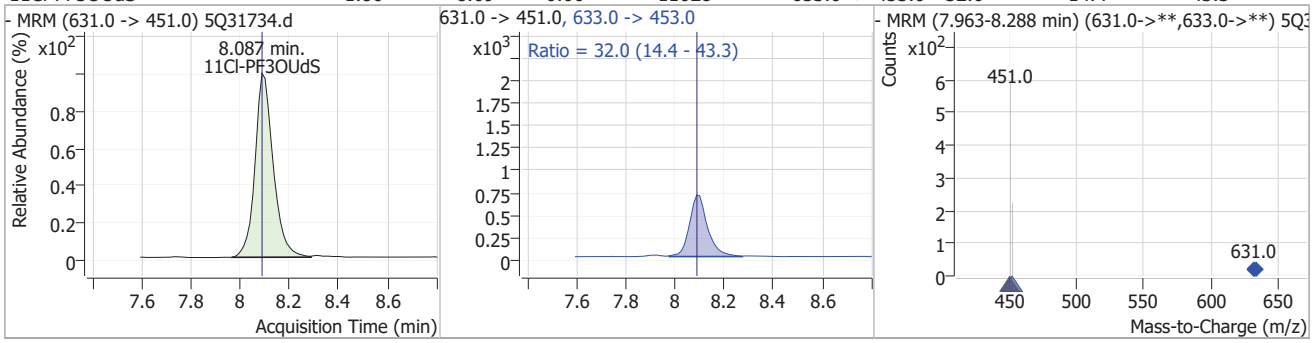
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	1.95	7.47	0.01	15343	527.0 -> 81.0	36.5	16.2	48.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.77	7.92	0.00	31787	563.0 -> 269.0	17.9	7.7	23.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	1.86	8.09	0.00	11028	633.0 -> 453.0	32.0	14.4	43.3



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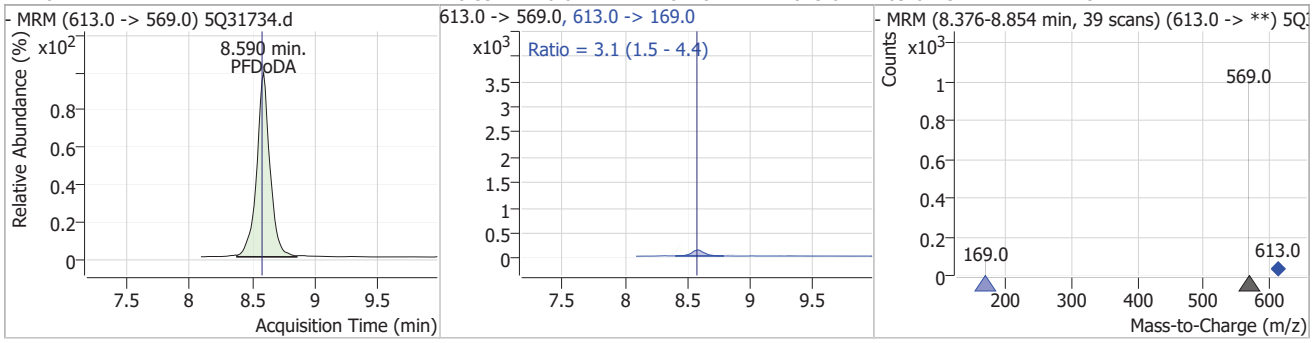
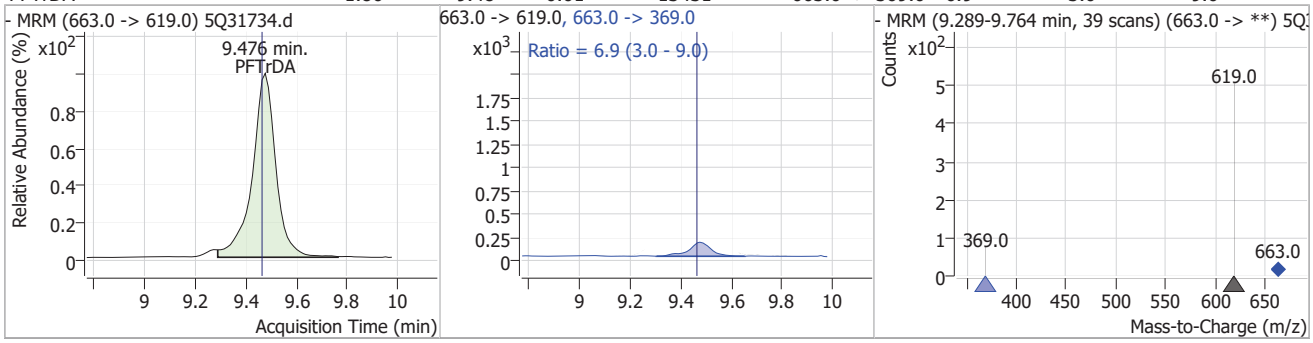
Perfluorinated Compounds by LC/MS/MS

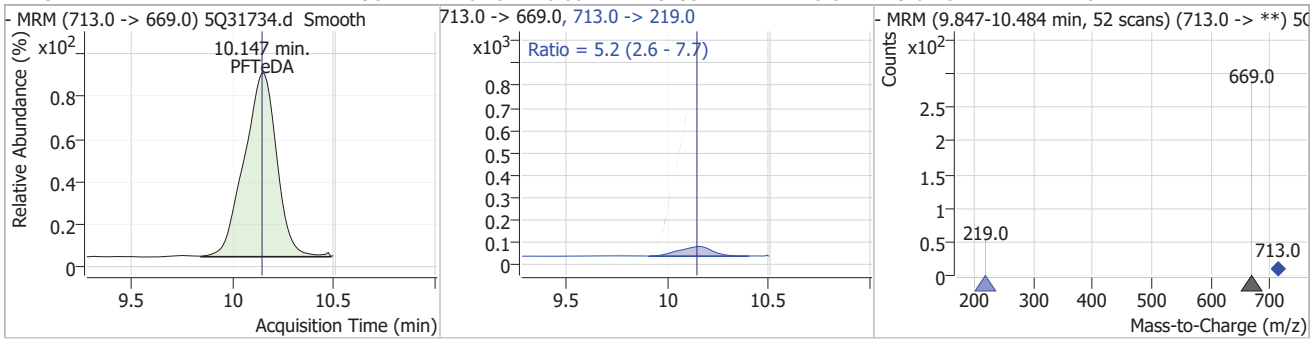
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	2.11	8.59	0.01	28178	613.0 -> 169.0	3.1	1.5	4.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	1.86	9.48	0.01	13431	663.0 -> 369.0	6.9	3.0	9.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.96	10.15	0.00	9499	713.0 -> 219.0	5.2	2.6	7.7



Manual Integration Approval Summary

Sample Number: S5Q520-IC520
Lab FileID: 5Q31734.D
Injection Time: 04/14/25 11:22
Method: EPA 537.1 REV 2.0
Analyst approved: 04/15/25 14:42 (b) (6)
Supervisor approved: 04/15/25 15:43 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/15/25 15:43

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31735.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/14/2025 11:38:31 AM
Sample Name : ic520-5
Vial : P1-A5
DA Method File : 537_041425_S5Q520.quantmethod
Batch Name : s5q520.batch.bin
Sample Information : OP8806,S5Q520,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.287	429.0 -> 409.0	180128	20.00	µg/L		0.012
13C2-PFOA	6.289	415.0 -> 370.0	441823	20.00	µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	585647	20.00	µg/L		0.012
13C4-PFOS	6.860	503.0 -> 80.0	104229	20.00	µg/L		0.000
d3-MeFOSAA	7.242	573.0 -> 419.0	30159	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.423	515.0 -> 470.0	40746	2.42	µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 12.1%			
13C2-PFHxA	4.775	315.0 -> 270.0	62203	2.10	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 10.5%			
d5-EtFOSAA	7.378	589.0 -> 419.0	2441	4.46	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 11.2%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	8403	4.21	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 10.5%			
Target Compounds							QValue
6:2FTS	6.287	427.0 -> 407.0	48053	5.28	µg/L		97
8:2FTS	7.459	527.0 -> 507.0	39948	5.11	µg/L		98
EtFOSAA	7.392	584.0 -> 419.0	2421	4.75	µg/L	m	96
MeFOSAA	7.256	570.0 -> 419.0	3204	5.01	µg/L	m	98
PFBS	3.841	299.0 -> 80.0	68581	4.81	µg/L		99
PFDA	7.424	513.0 -> 469.0	72034	4.23	µg/L		100
PFDoDA	8.590	613.0 -> 569.0	64586	4.86	µg/L		99
PFHpA	5.614	363.0 -> 319.0	168682	4.73	µg/L		100
PFHxA	4.777	313.0 -> 269.0	86622	4.66	µg/L		99
PFHxS	5.635	399.0 -> 80.0	39895	4.75	µg/L	m	100
PFNA	6.886	463.0 -> 419.0	67477	4.71	µg/L	m	99
PFOA	6.290	413.0 -> 369.0	96238	4.69	µg/L		99
PFOS	6.861	499.0 -> 80.0	30182	4.75	µg/L	m	99
PFPeA	3.610	263.0 -> 219.0	167763	4.63	µg/L		100
PFTeDA	10.159	713.0 -> 669.0	22281	4.63	µg/L		99
PFTrDA	9.476	663.0 -> 619.0	28418	3.98	µg/L		100
PFUnDA	7.918	563.0 -> 519.0	77242	4.37	µg/L		98
ADONA	5.688	377.0 -> 251.0	221714	4.73	µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	27148	4.61	µg/L		99
11Cl-PF3OUdS	8.087	631.0 -> 451.0	28071	4.71	µg/L		95
HFPO-DA	5.035	285.0 -> 169.0	8156	4.74	µg/L		100

 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.30
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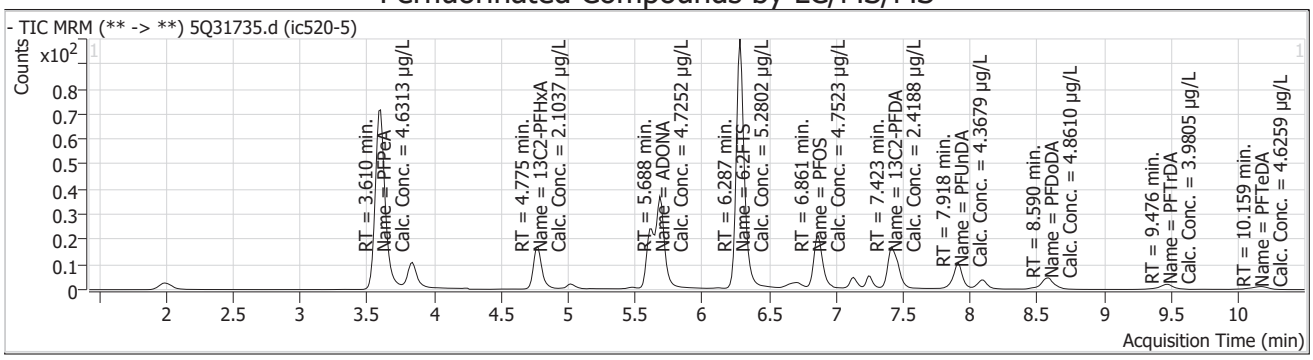
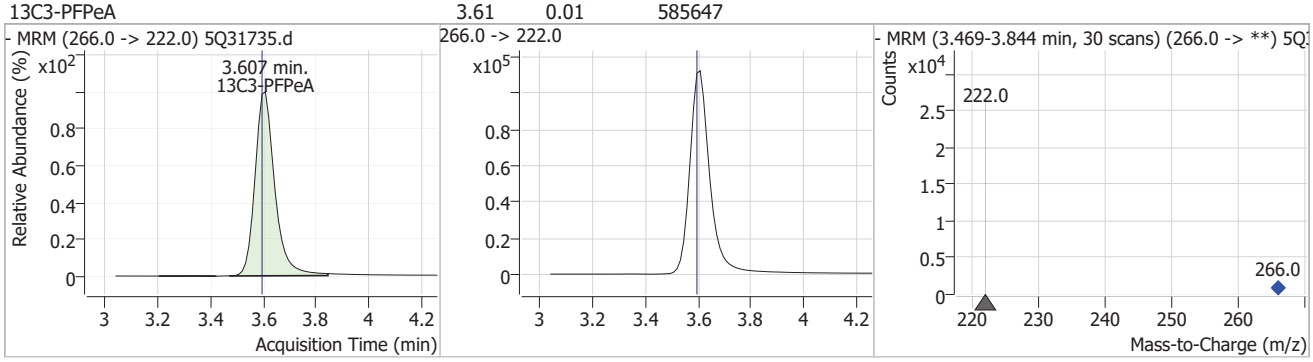
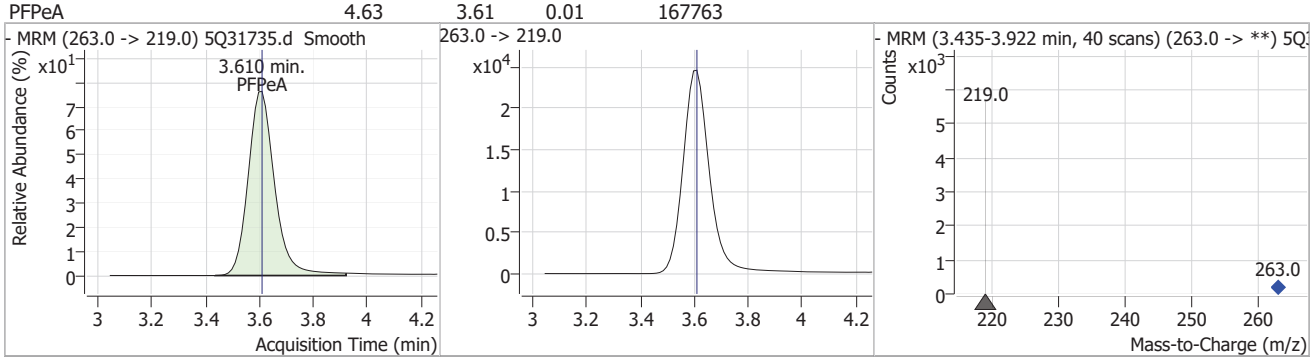
Perfluorinated Compounds by LC/MS/MS



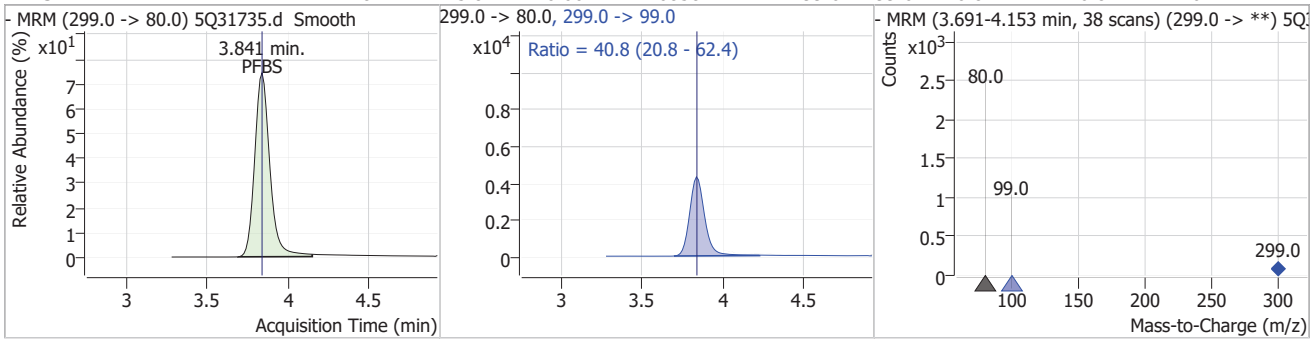
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.01	585647				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.63	3.61	0.01	167763				

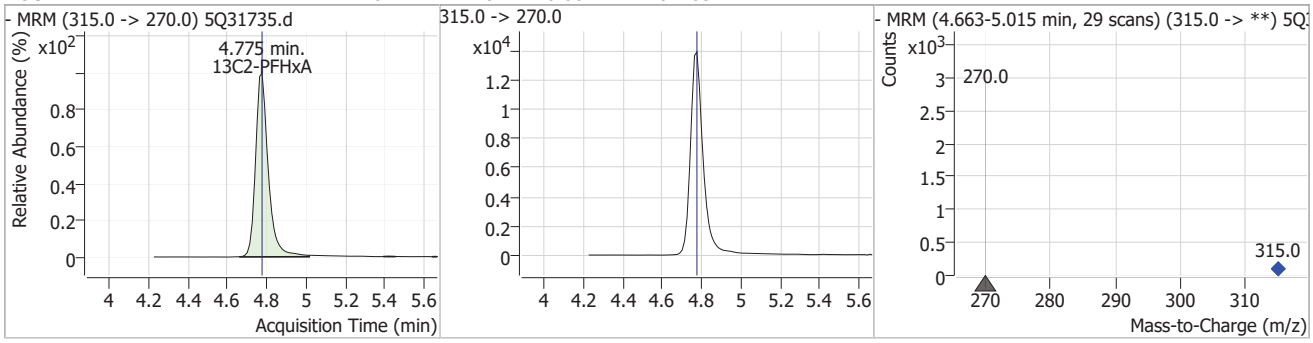


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	4.81	3.84	0.00	68581	299.0 -> 99.0	40.8	20.8	62.4

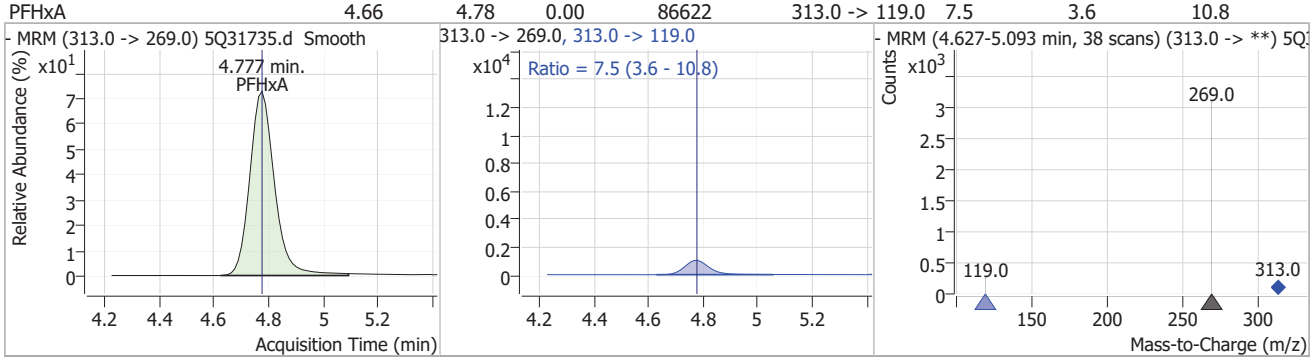


Perfluorinated Compounds by LC/MS/MS

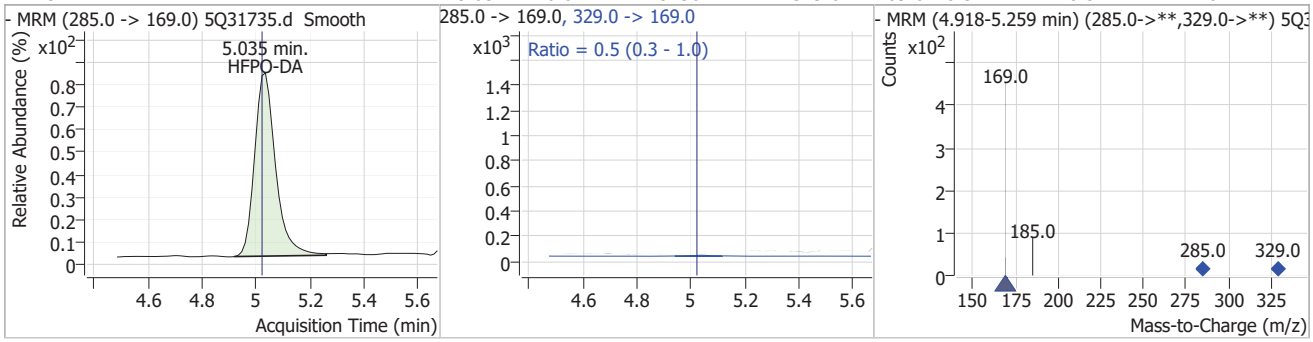
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	2.10	4.78	0.00	62203				



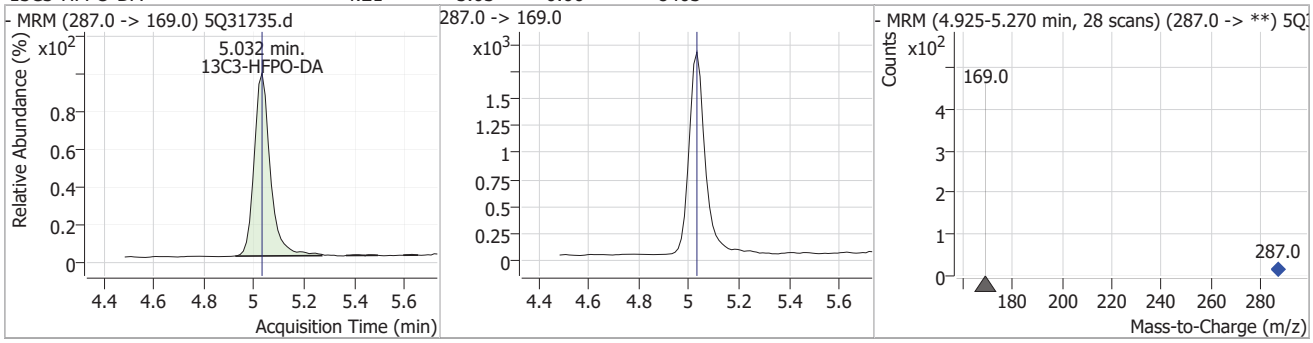
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	4.66	4.78	0.00	86622	313.0 -> 119.0	7.5	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.74	5.03	0.01	8156	329.0 -> 169.0	0.5	0.3	1.0

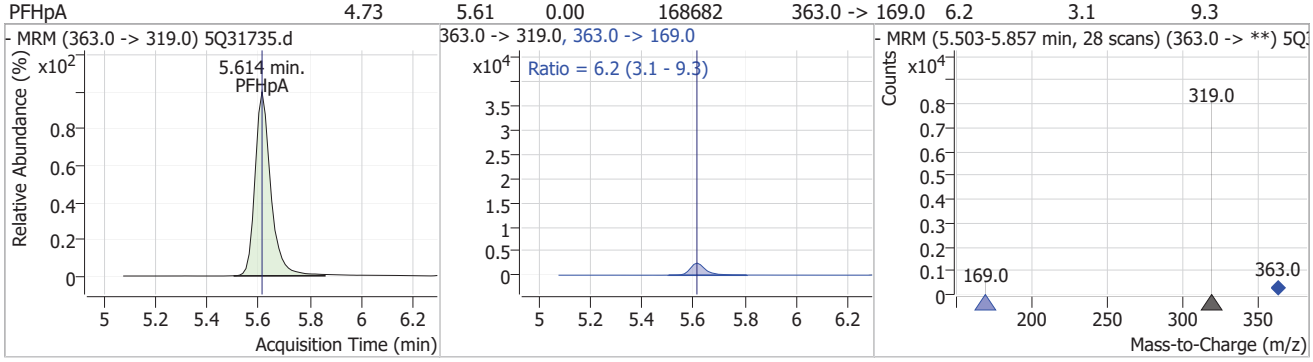


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	4.21	5.03	0.00	8403				

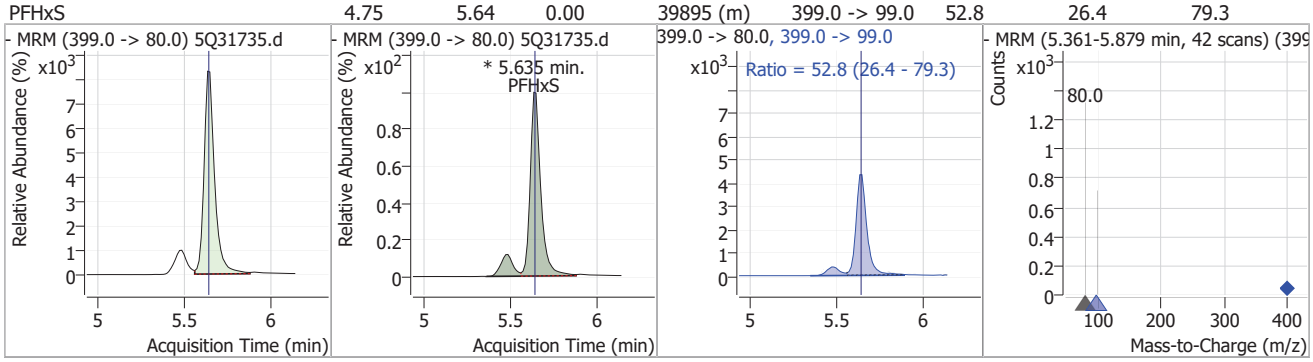


Perfluorinated Compounds by LC/MS/MS

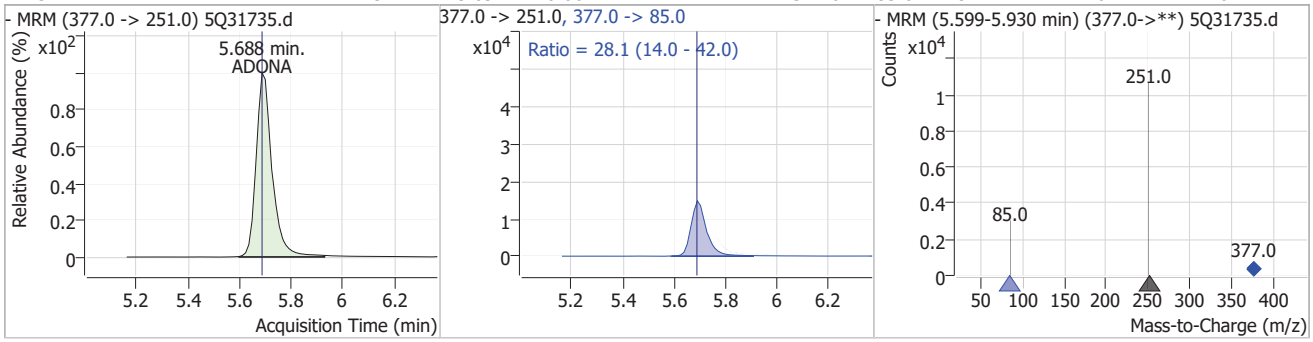
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	4.73	5.61	0.00	168682	363.0 -> 169.0	6.2	3.1	9.3



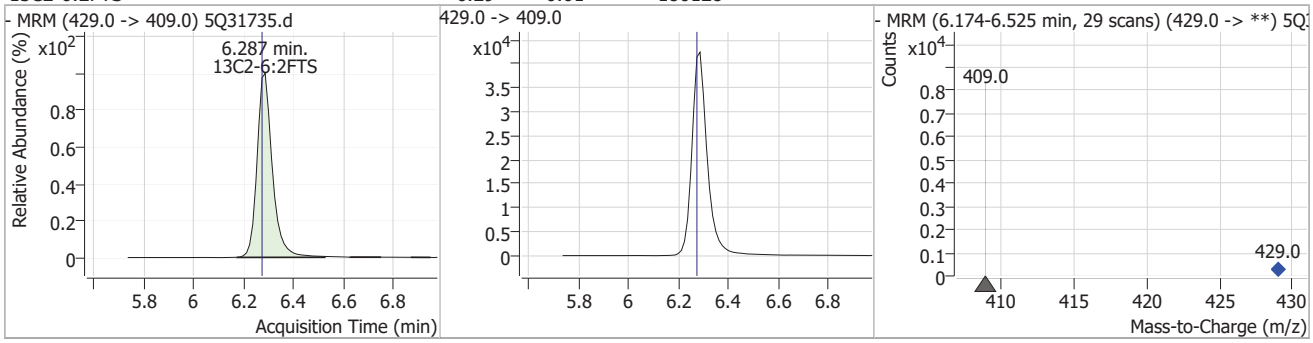
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	4.75	5.64	0.00	39895 (m)	399.0 -> 99.0	52.8	26.4	79.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	4.73	5.69	0.00	221714	377.0 -> 85.0	28.1	14.0	42.0

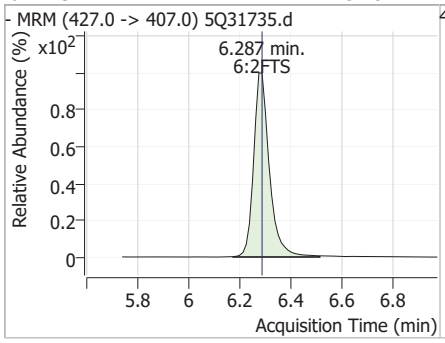


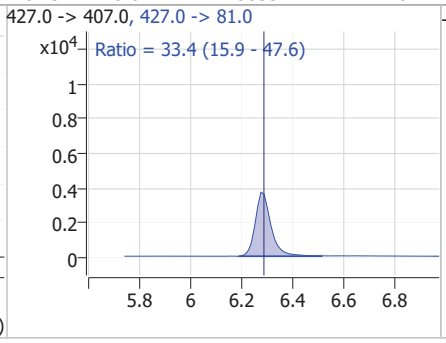
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.01	180128				

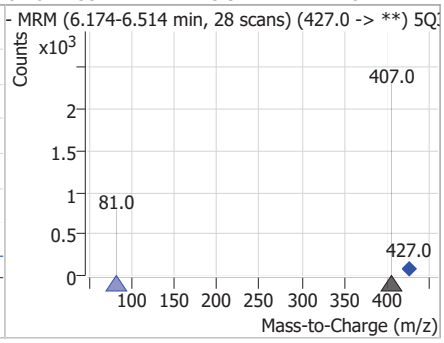


Perfluorinated Compounds by LC/MS/MS

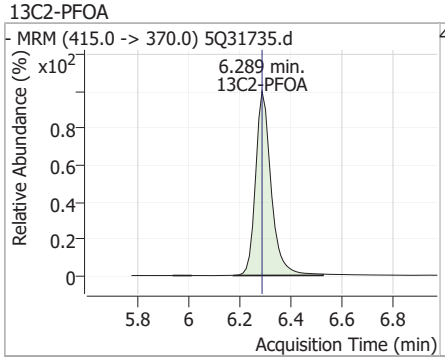
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	5.28	6.29	0.01	48053	427.0 -> 81.0	33.4	15.9	47.6

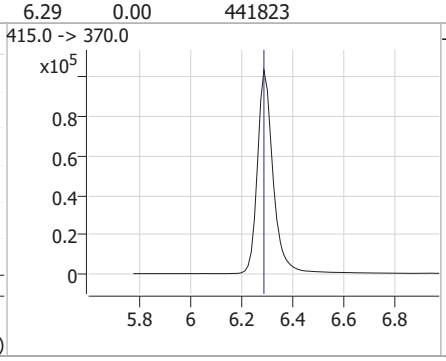


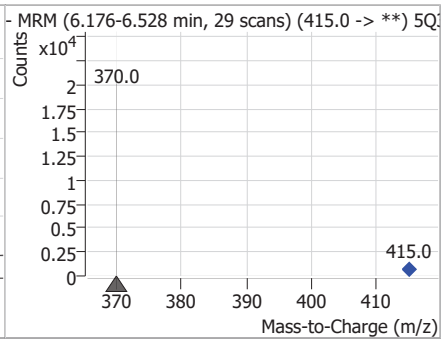




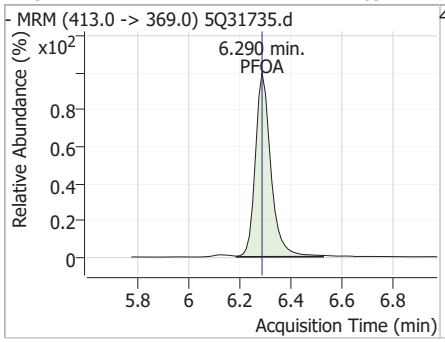
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	441823				

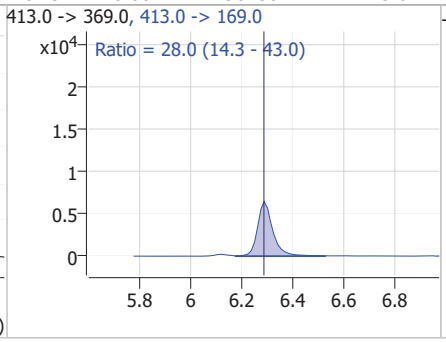


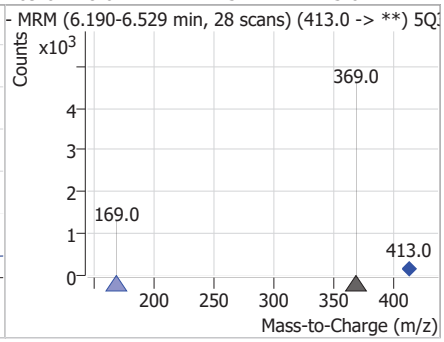




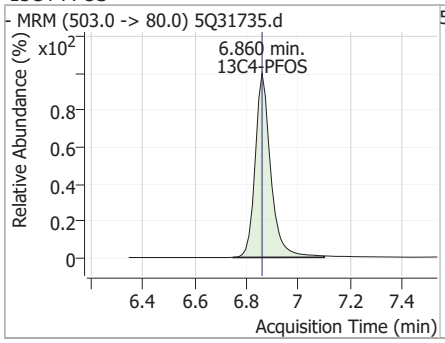
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	4.69	6.29	0.00	96238	413.0 -> 169.0	28.0	14.3	43.0

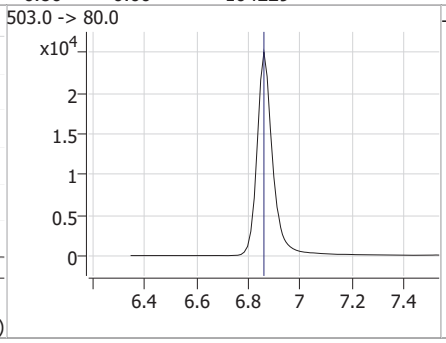


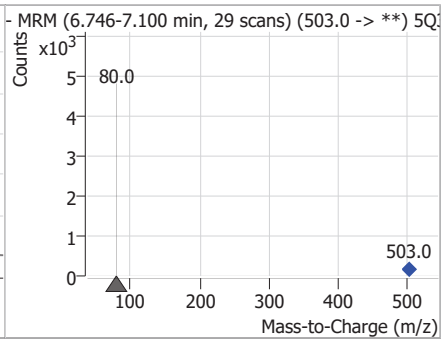




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	104229				

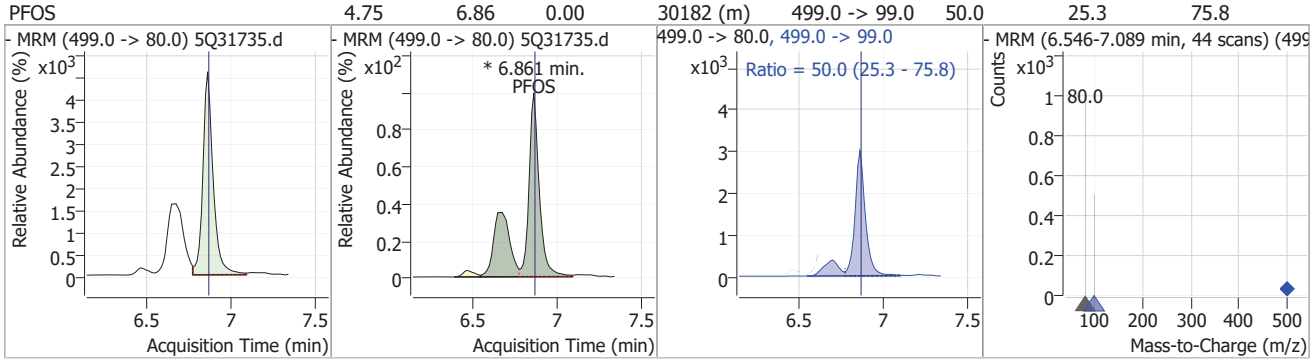




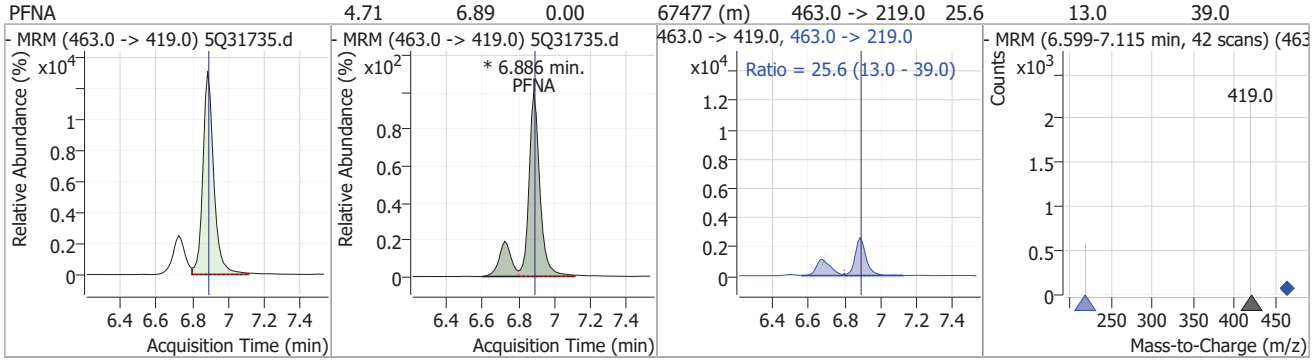


Perfluorinated Compounds by LC/MS/MS

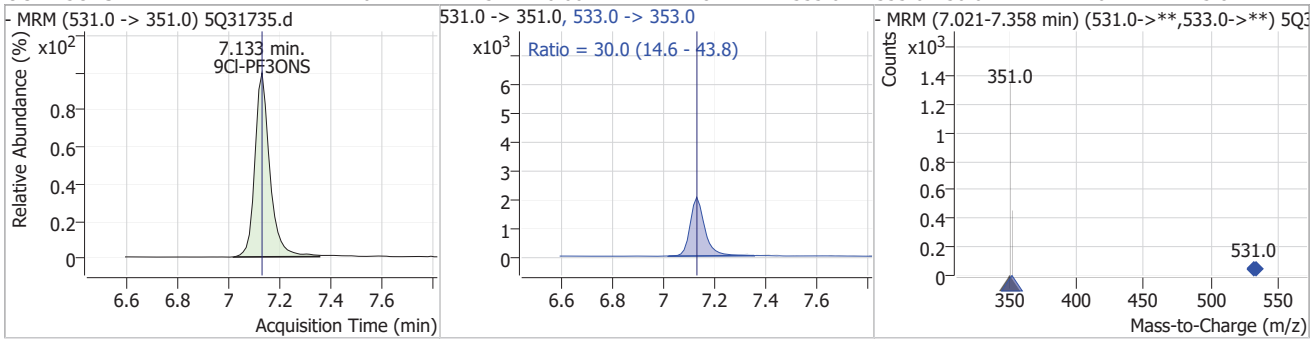
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	4.75	6.86	0.00	30182 (m)	499.0 -> 99.0	50.0	25.3	75.8



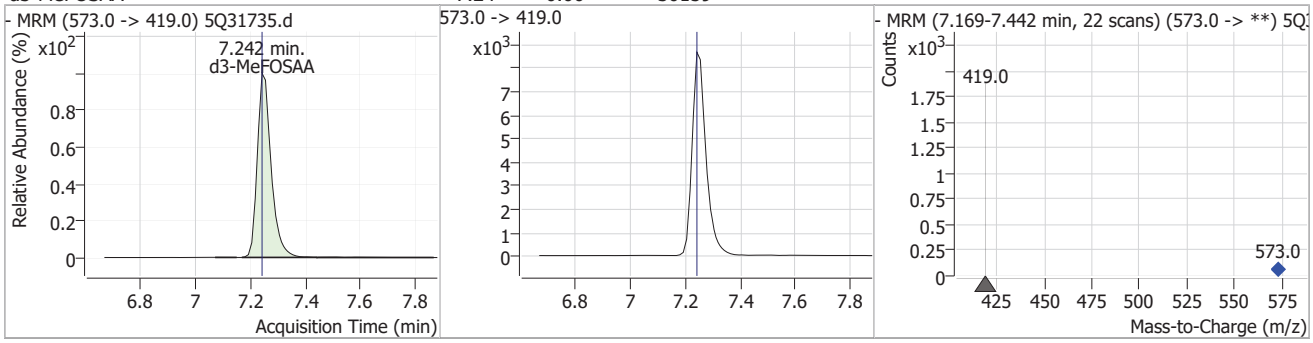
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	4.71	6.89	0.00	67477 (m)	463.0 -> 219.0	25.6	13.0	39.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	4.61	7.13	0.00	27148	533.0 -> 353.0	30.0	14.6	43.8

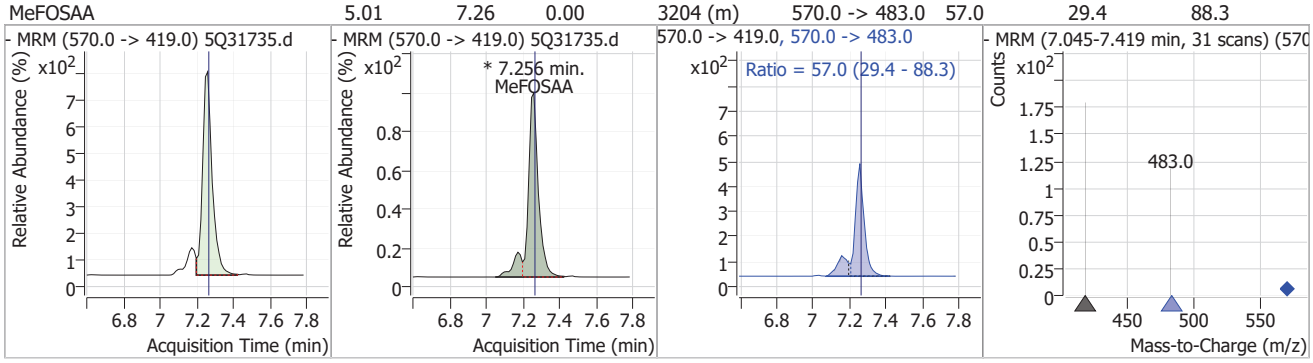


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	30159				

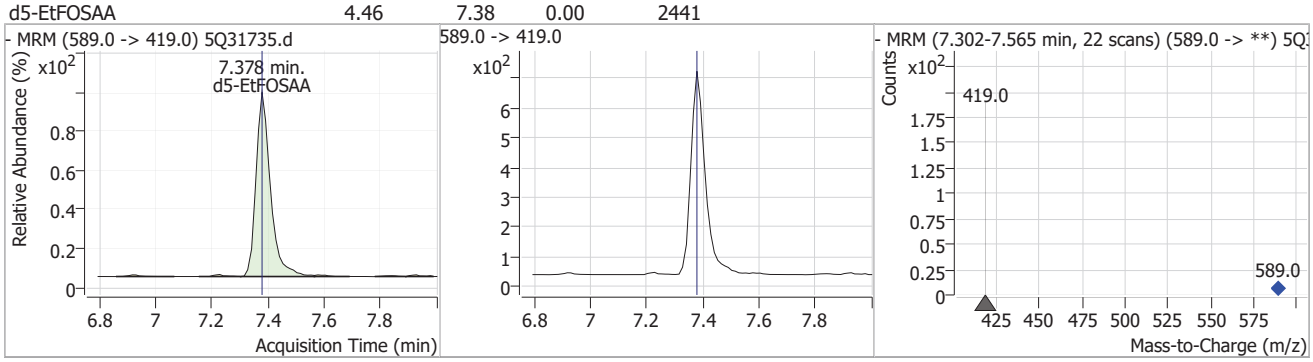


Perfluorinated Compounds by LC/MS/MS

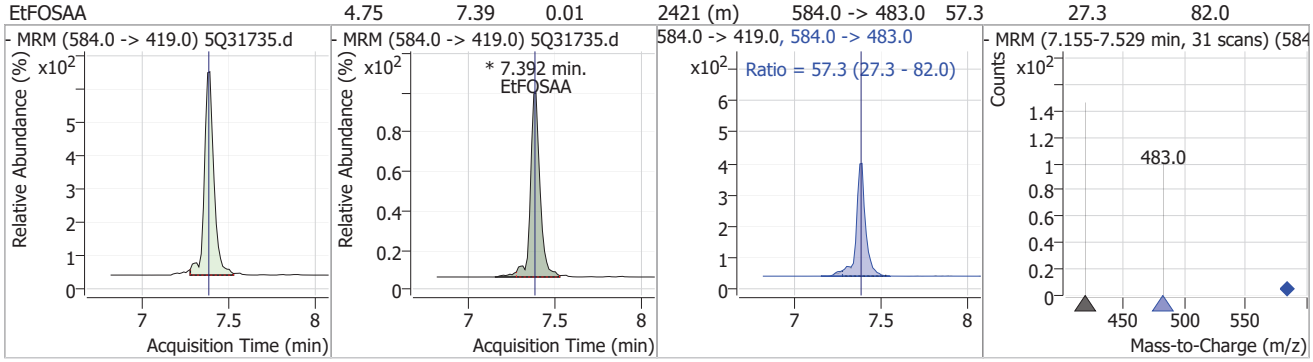
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	5.01	7.26	0.00	3204 (m)	570.0 -> 483.0	57.0	29.4	88.3



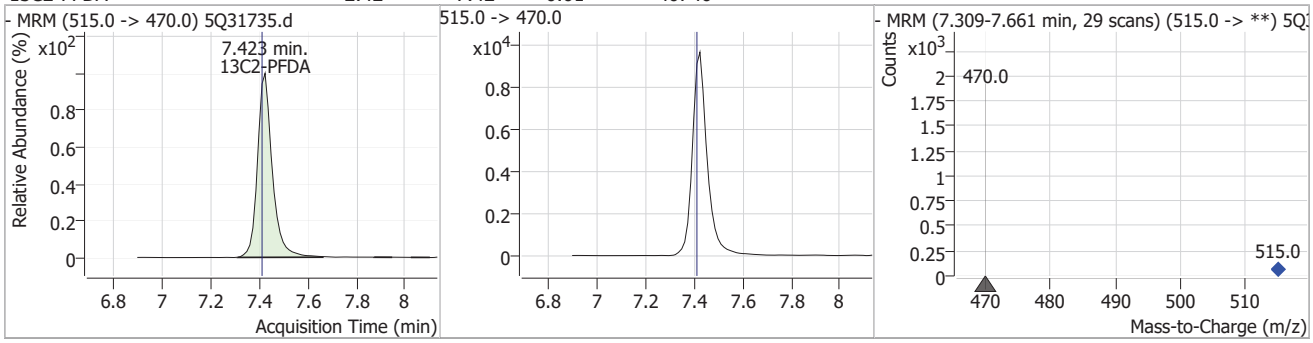
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.46	7.38	0.00	2441				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	4.75	7.39	0.01	2421 (m)	584.0 -> 483.0	57.3	27.3	82.0

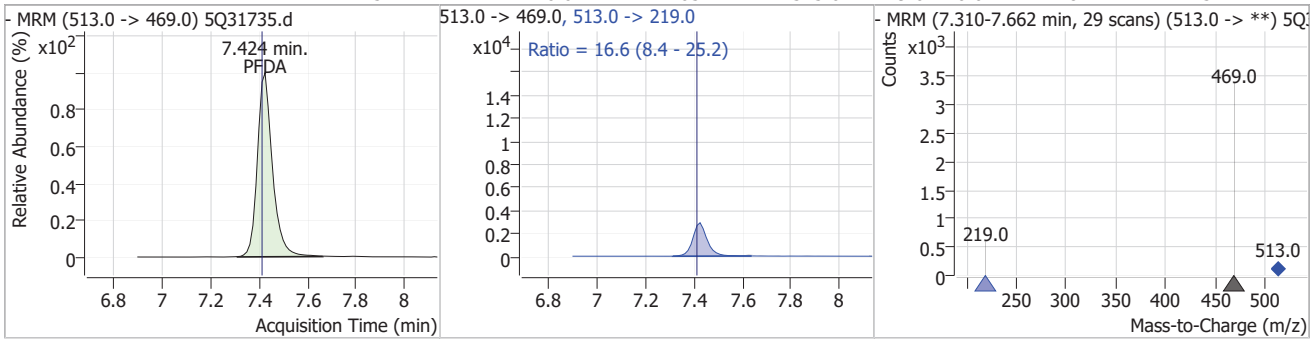


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	2.42	7.42	0.01	40746				

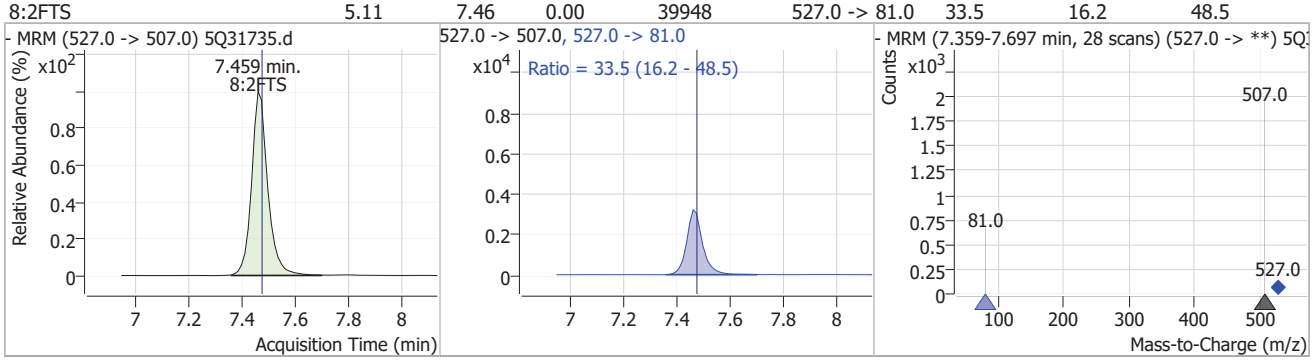


Perfluorinated Compounds by LC/MS/MS

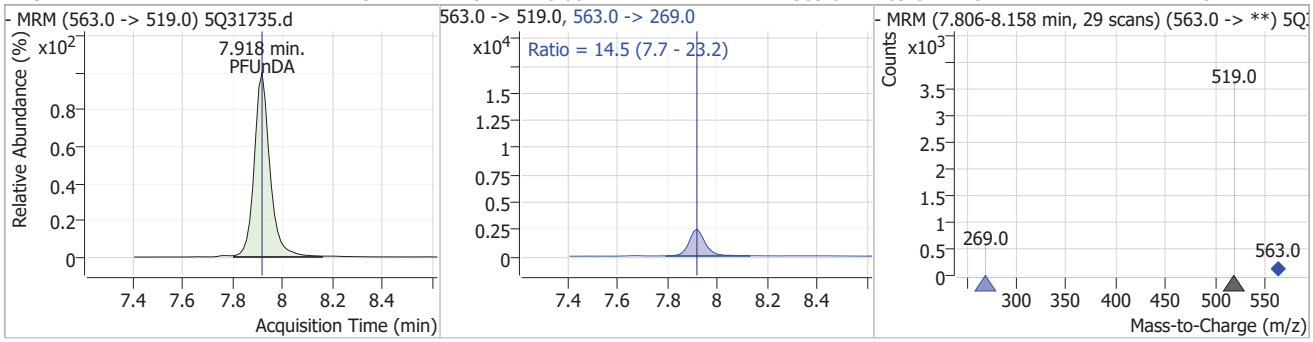
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	4.23	7.42	0.01	72034	513.0 -> 219.0	16.6	8.4	25.2



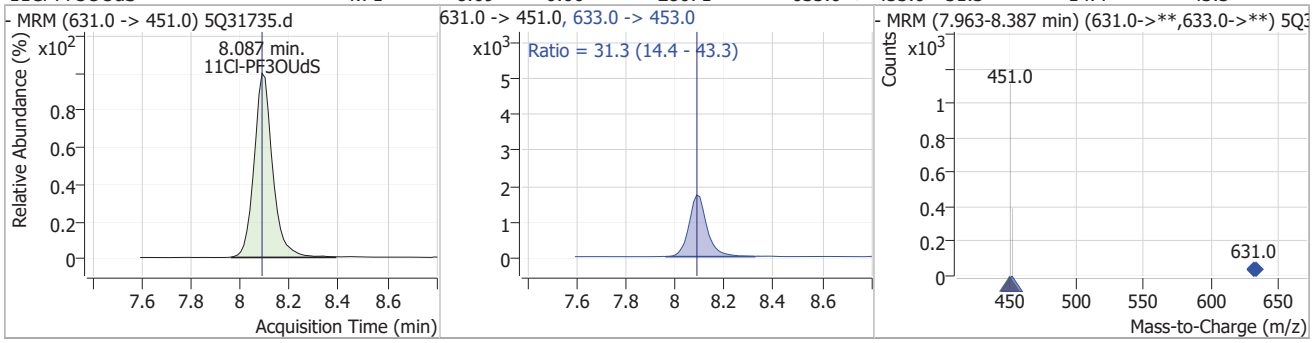
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	5.11	7.46	0.00	39948	527.0 -> 81.0	33.5	16.2	48.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	4.37	7.92	0.00	77242	563.0 -> 269.0	14.5	7.7	23.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	4.71	8.09	0.00	28071	633.0 -> 453.0	31.3	14.4	43.3



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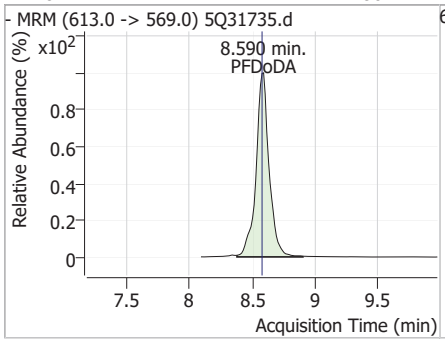
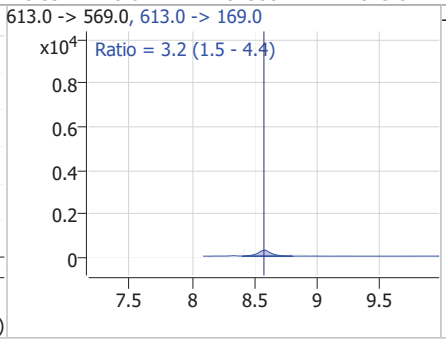
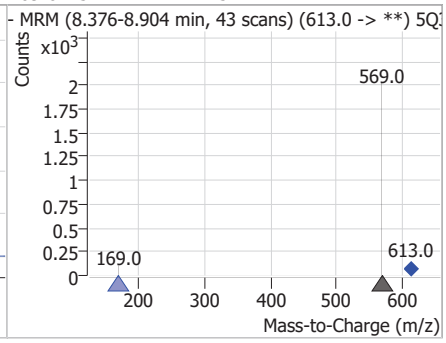
Perfluorinated Compounds by LC/MS/MS

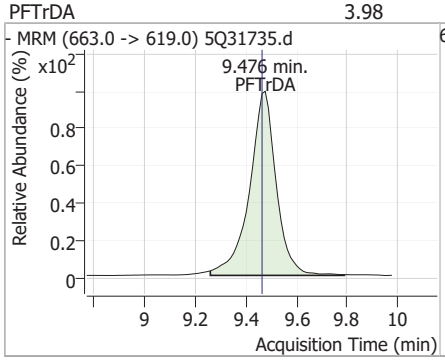
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	4.86	8.59	0.01	64586	613.0 -> 169.0	3.2	1.5	4.4

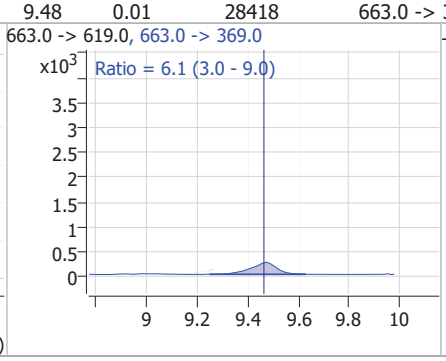


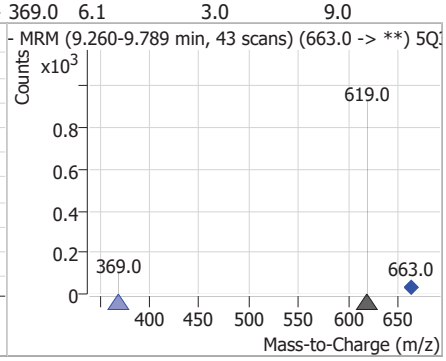




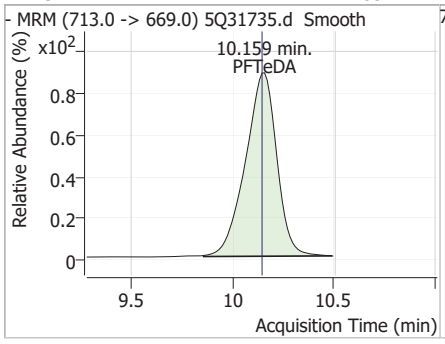
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	3.98	9.48	0.01	28418	663.0 -> 369.0	6.1	3.0	9.0

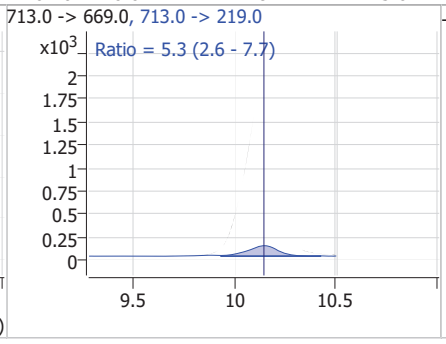


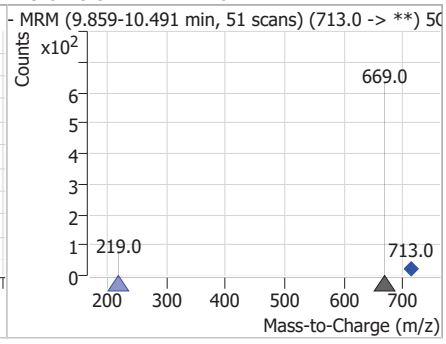




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	4.63	10.16	0.01	22281	713.0 -> 219.0	5.3	2.6	7.7







Manual Integration Approval Summary

Sample Number:	S5Q520-IC520	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31735.D	**Analyst approved:**	04/15/25 14:42 (b) (6)
Injection Time:	04/14/25 11:38	**Supervisor approved:**	04/15/25 15:43 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/15/25 15:43

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31736.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/14/2025 11:54:33 AM
Sample Name : ic520-10
Vial : P1-A6
DA Method File : 537_041425_S5Q520.quantmethod
Batch Name : s5q520.batch.bin
Sample Information : OP8806,S5Q520,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	190671	20.00	µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	461206	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	612698	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	109389	20.00	µg/L		0.000
d3-MeFOSAA	7.242	573.0 -> 419.0	31821	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.423	515.0 -> 470.0	91992	5.19	µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 25.9%			
13C2-PFHxA	4.763	315.0 -> 270.0	145706	4.72	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 23.6%			
d5-EtFOSAA	7.378	589.0 -> 419.0	6434	11.08	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 27.7%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	18751	8.99	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 22.5%			
Target Compounds							QValue
6:2FTS	6.275	427.0 -> 407.0	115682	12.01	µg/L		98
8:2FTS	7.459	527.0 -> 507.0	93251	11.27	µg/L		98
EtFOSAA	7.380	584.0 -> 419.0	5630	10.45	µg/L	m	98
MeFOSAA	7.256	570.0 -> 419.0	6773	9.93	µg/L	m	91
PFBS	3.841	299.0 -> 80.0	160837	10.76	µg/L		98
PFDA	7.411	513.0 -> 469.0	168435	9.46	µg/L		100
PFDoDA	8.577	613.0 -> 569.0	106439	7.57	µg/L		100
PFHpA	5.614	363.0 -> 319.0	402454	10.70	µg/L		100
PFHxA	4.777	313.0 -> 269.0	203442	10.42	µg/L		99
PFHxS	5.635	399.0 -> 80.0	90246	10.17	µg/L	m	97
PFNA	6.886	463.0 -> 419.0	158419	10.46	µg/L	m	100
PFOA	6.290	413.0 -> 369.0	226554	10.51	µg/L		100
PFOS	6.861	499.0 -> 80.0	69290	10.33	µg/L	m	98
PFPeA	3.597	263.0 -> 219.0	396702	10.40	µg/L		100
PFTeDA	10.147	713.0 -> 669.0	52085	10.11	µg/L		99
PFTrDA	9.464	663.0 -> 619.0	55331	7.38	µg/L		100
PFUnDA	7.918	563.0 -> 519.0	166211	8.96	µg/L		99
ADONA	5.688	377.0 -> 251.0	523051	10.53	µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	64666	10.38	µg/L		98
11Cl-PF3OUdS	8.087	631.0 -> 451.0	61792	9.71	µg/L		97
HFPO-DA	5.022	285.0 -> 169.0	18007	9.95	µg/L		100

 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.31

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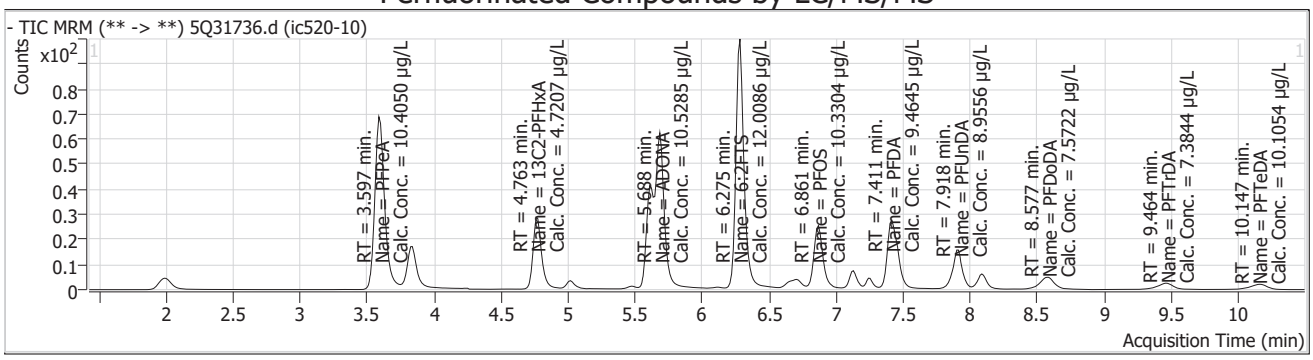
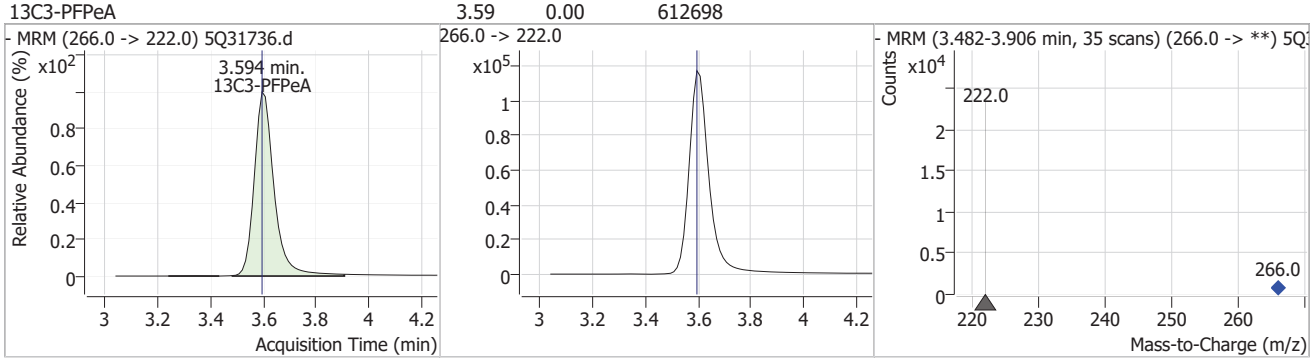
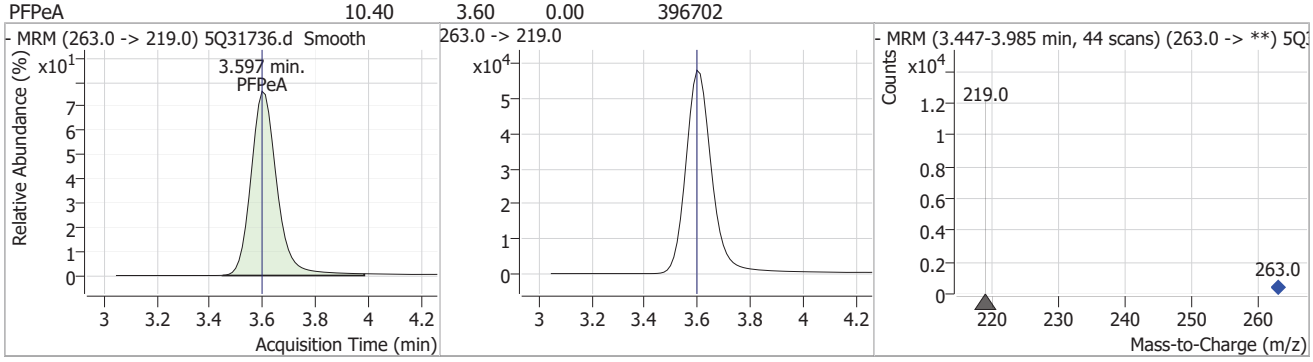
Perfluorinated Compounds by LC/MS/MS



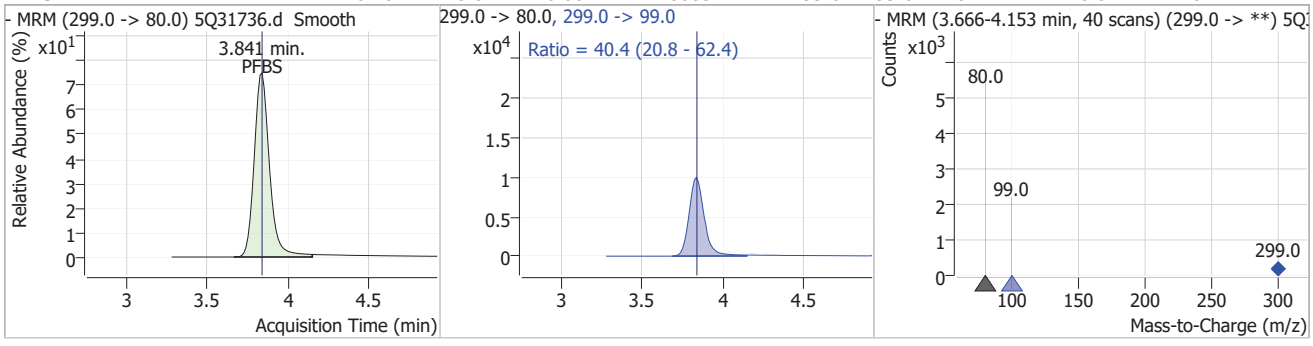
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	612698				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	10.40	3.60	0.00	396702				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	10.76	3.84	0.00	160837	299.0 -> 99.0	40.4	20.8	62.4



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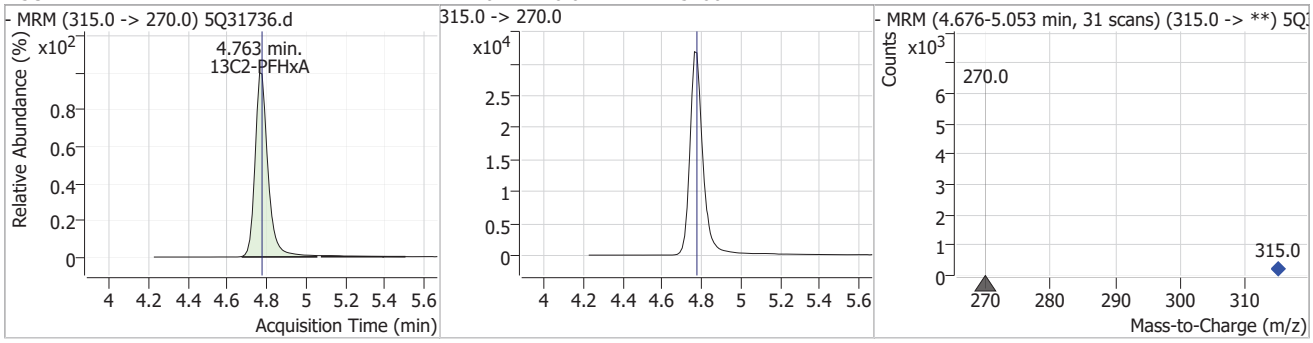
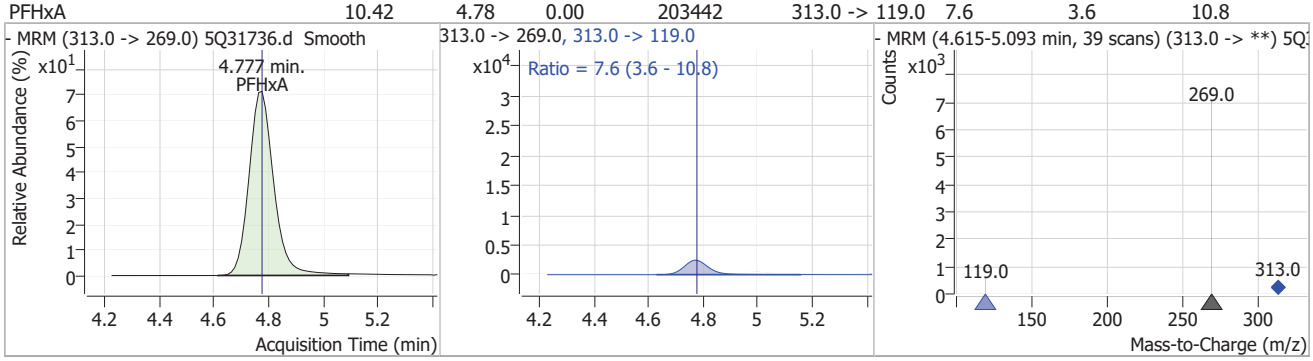
Perfluorinated Compounds by LC/MS/MS

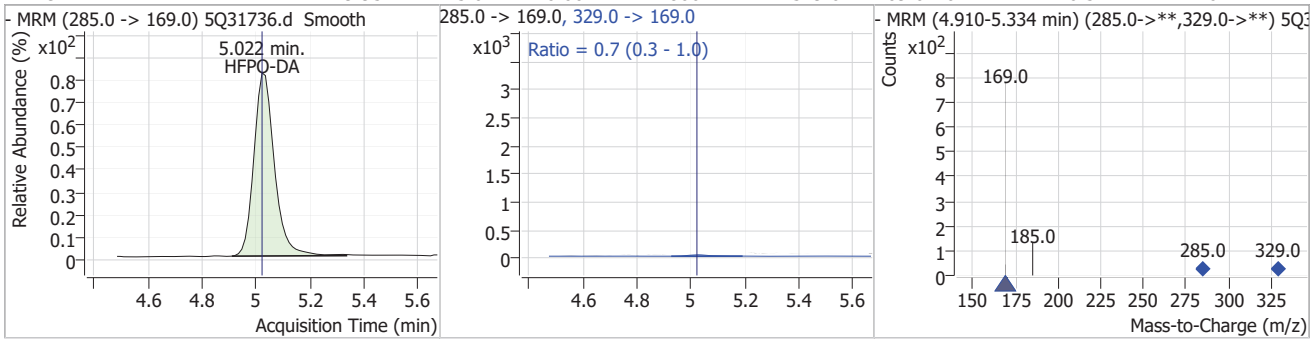
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	4.72	4.76	-0.01	145706				



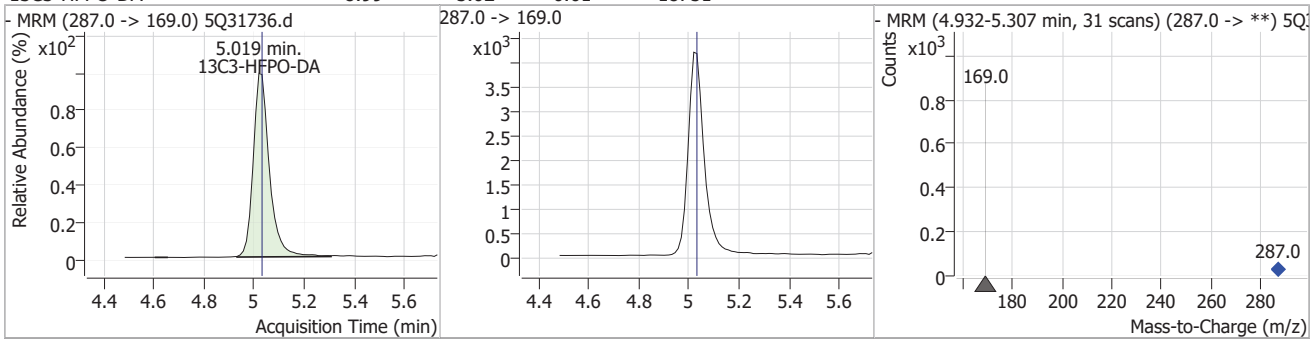
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	10.42	4.78	0.00	203442	313.0 -> 119.0	7.6	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.95	5.02	0.00	18007	329.0 -> 169.0	0.7	0.3	1.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.99	5.02	-0.01	18751				



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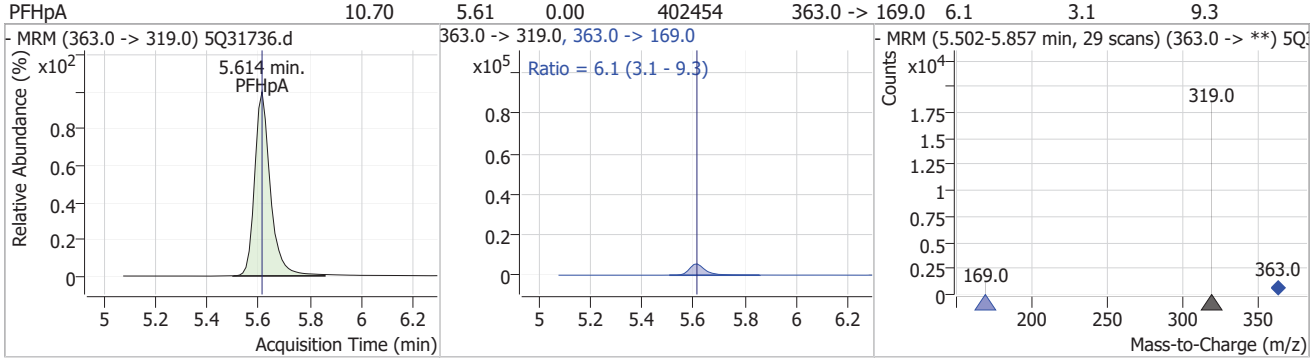
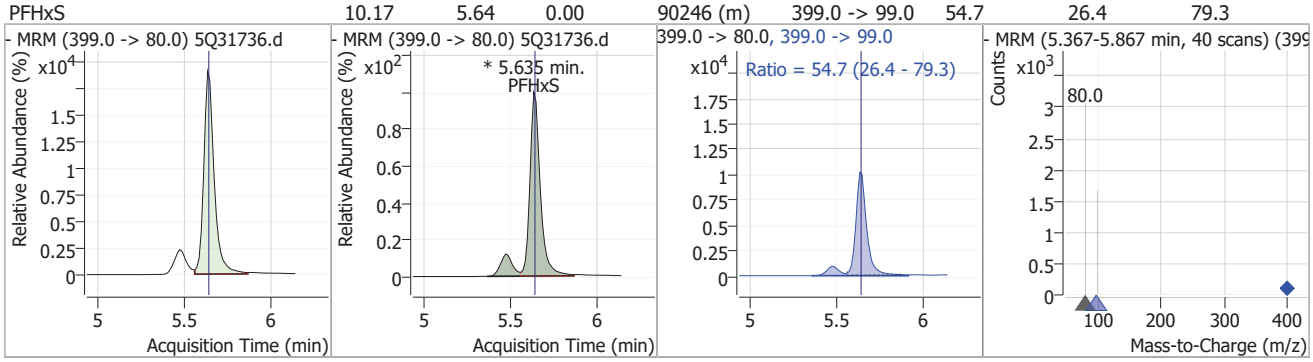
Perfluorinated Compounds by LC/MS/MS

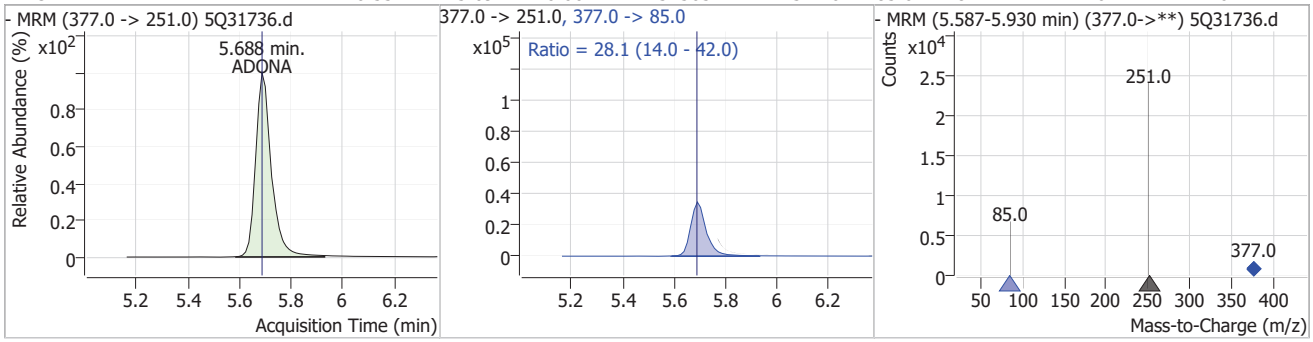
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	10.70	5.61	0.00	402454	363.0 -> 169.0	6.1	3.1	9.3



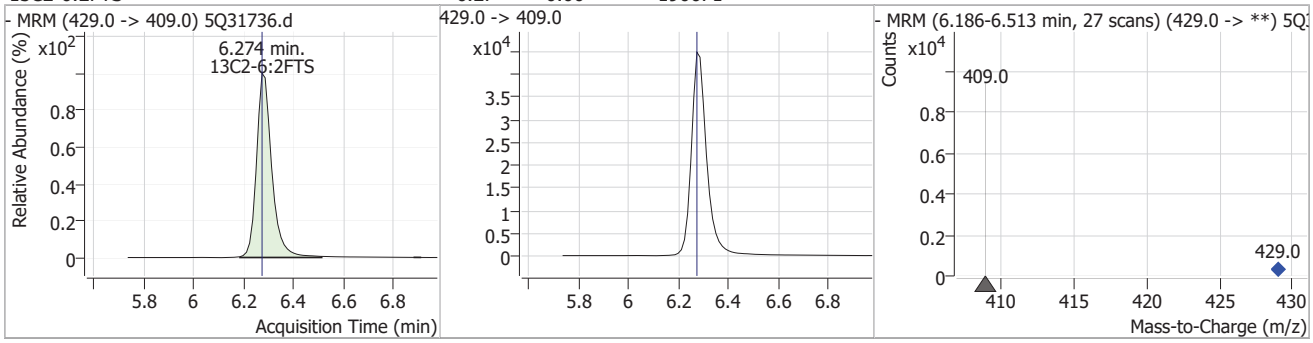
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	10.17	5.64	0.00	90246 (m)	399.0 -> 99.0	54.7	26.4	79.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	10.53	5.69	0.00	523051	377.0 -> 85.0	28.1	14.0	42.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	0.00	190671				



7.7.31

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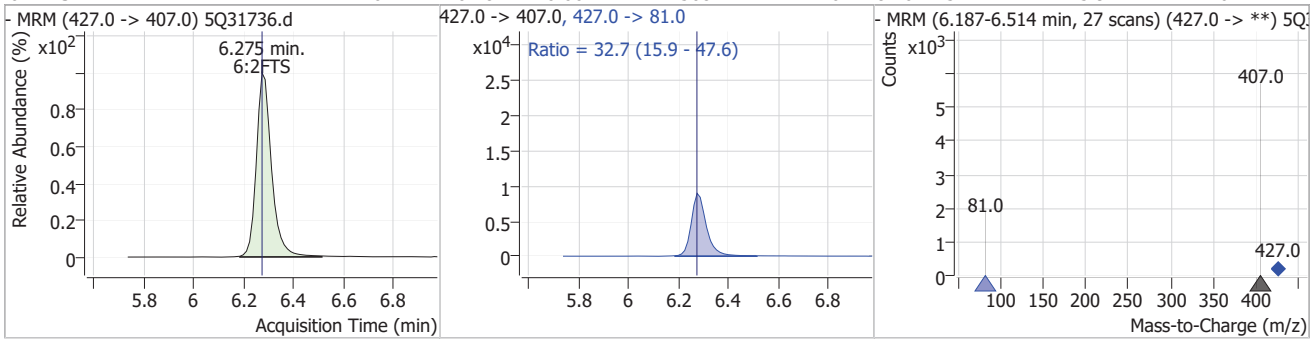
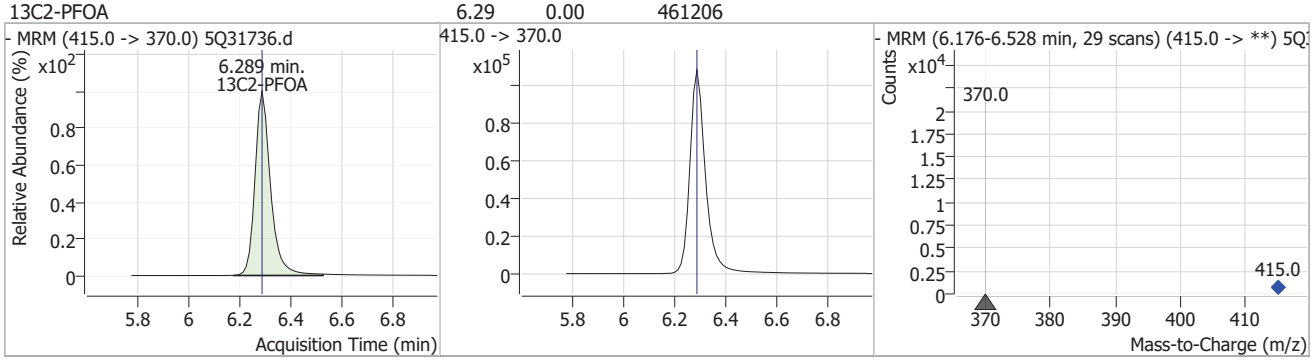
Perfluorinated Compounds by LC/MS/MS

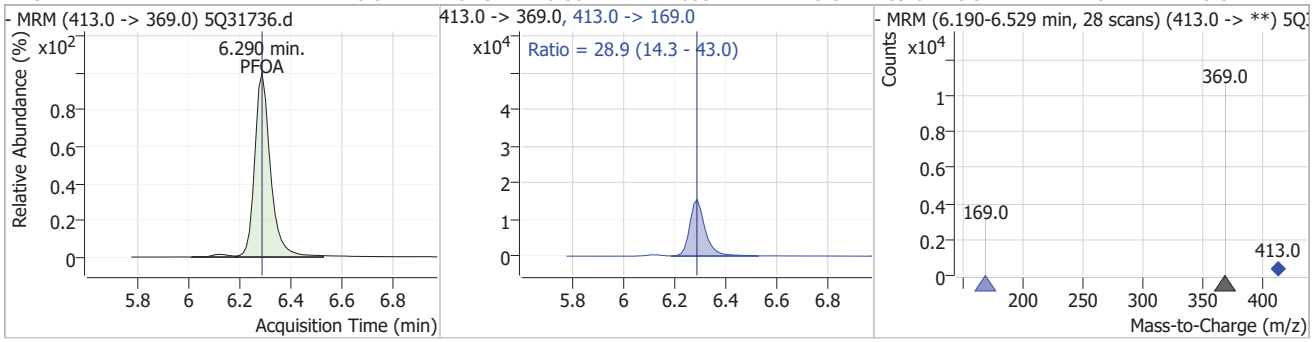
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	12.01	6.28	0.00	115682	427.0 -> 81.0	32.7	15.9	47.6



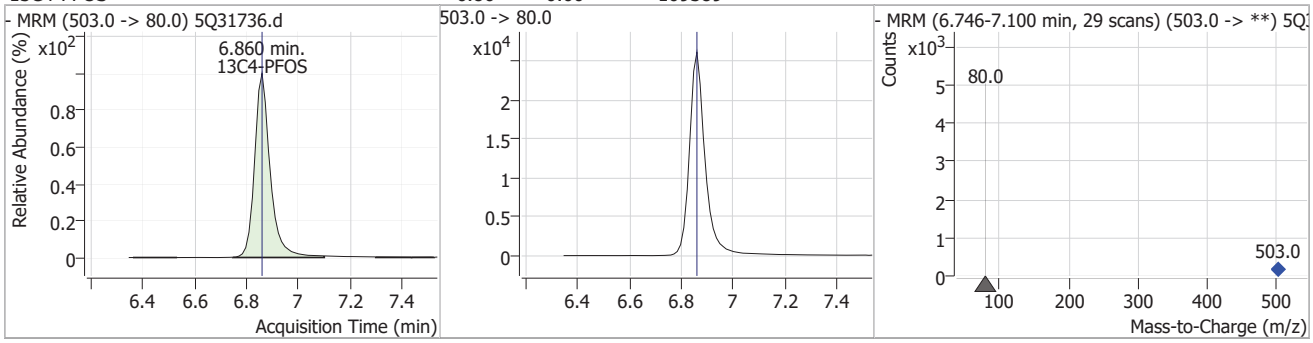
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	461206				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	10.51	6.29	0.00	226554	413.0 -> 169.0	28.9	14.3	43.0

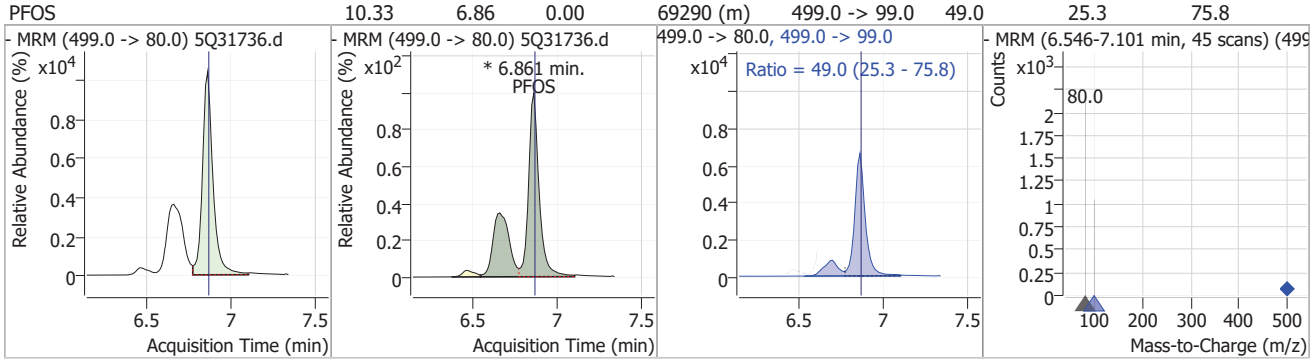


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	109389				

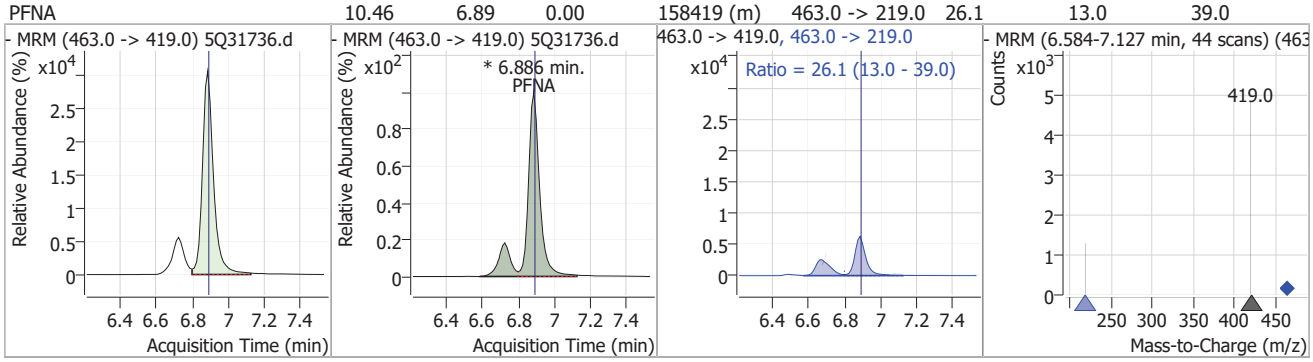


Perfluorinated Compounds by LC/MS/MS

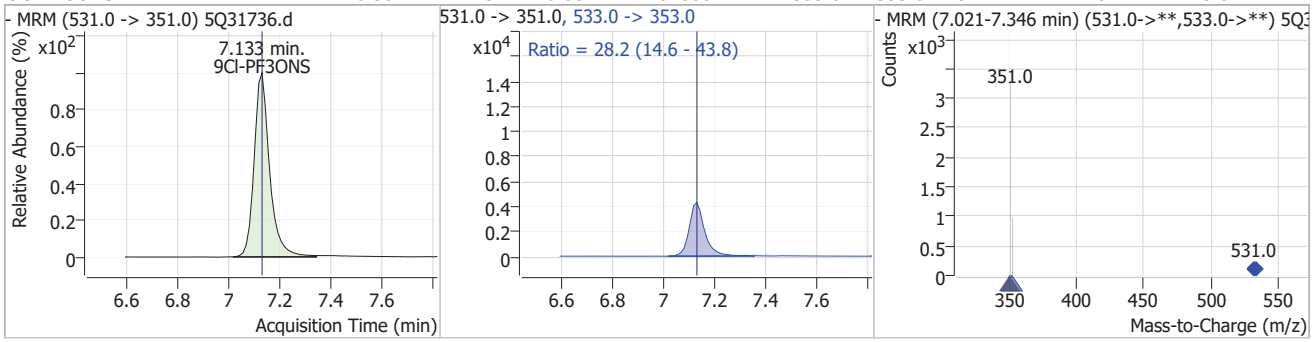
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	10.33	6.86	0.00	69290 (m)	499.0 -> 99.0	49.0	25.3	75.8



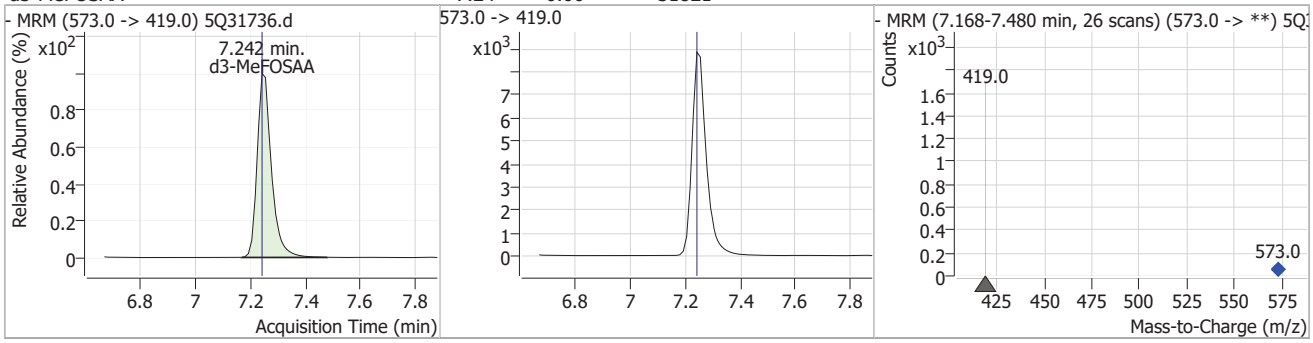
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	10.46	6.89	0.00	158419 (m)	463.0 -> 219.0	26.1	13.0	39.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	10.38	7.13	0.00	64666	533.0 -> 353.0	28.2	14.6	43.8

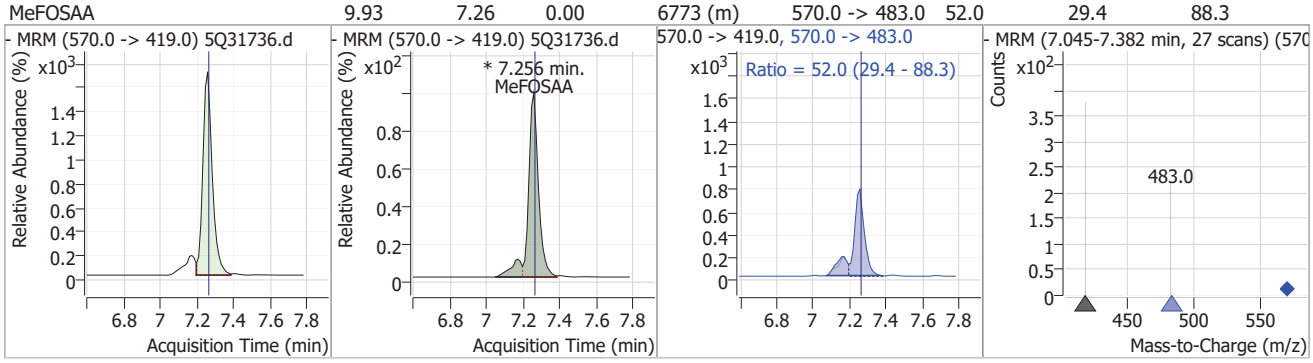


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	31821				

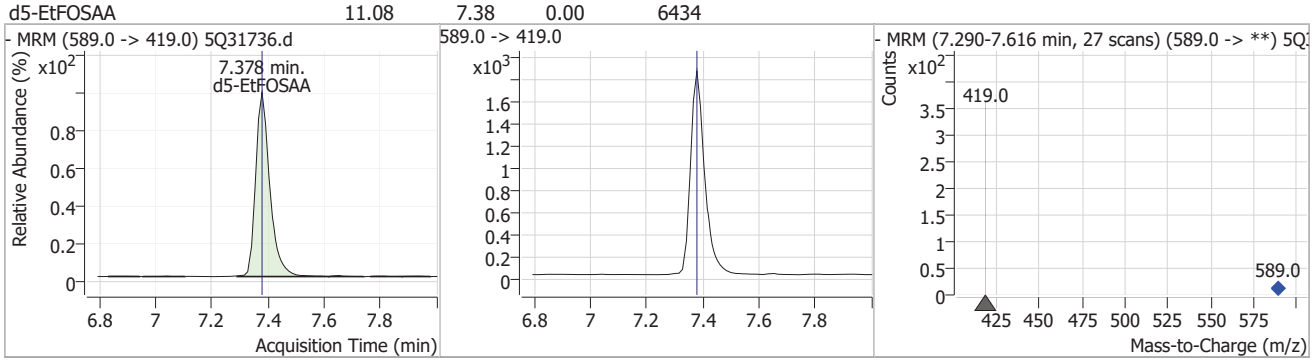


Perfluorinated Compounds by LC/MS/MS

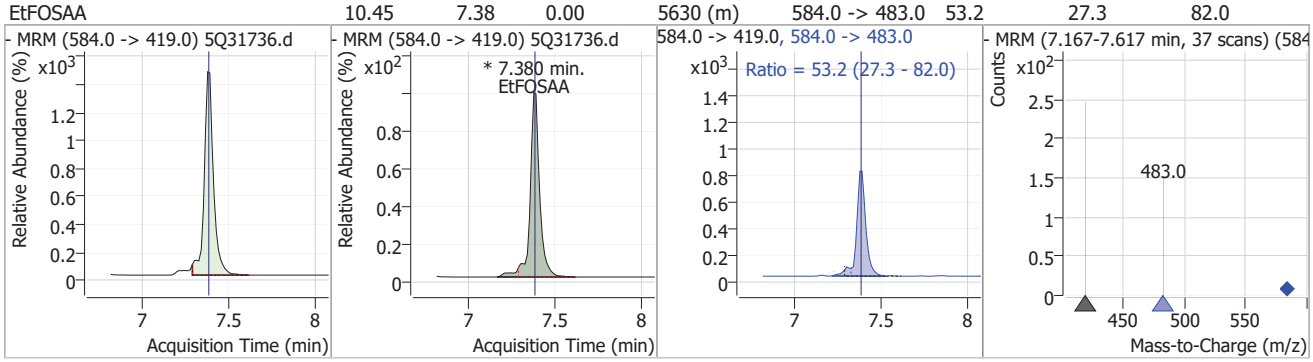
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	9.93	7.26	0.00	6773 (m)	570.0 -> 483.0	52.0	29.4	88.3



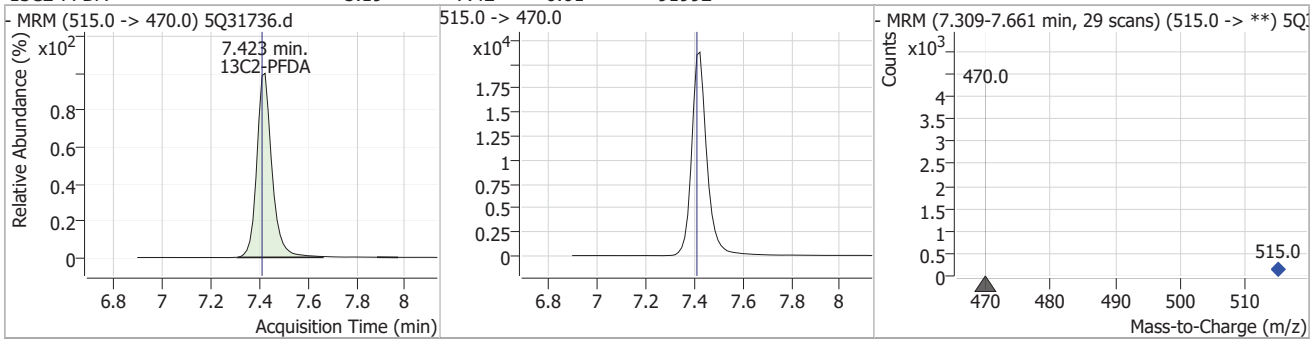
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	11.08	7.38	0.00	6434				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	10.45	7.38	0.00	5630 (m)	584.0 -> 483.0	53.2	27.3	82.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	5.19	7.42	0.01	91992				



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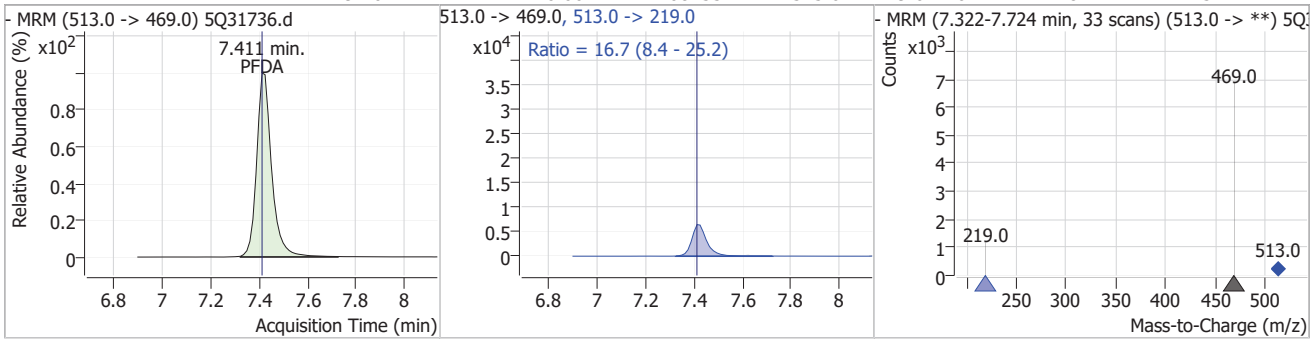
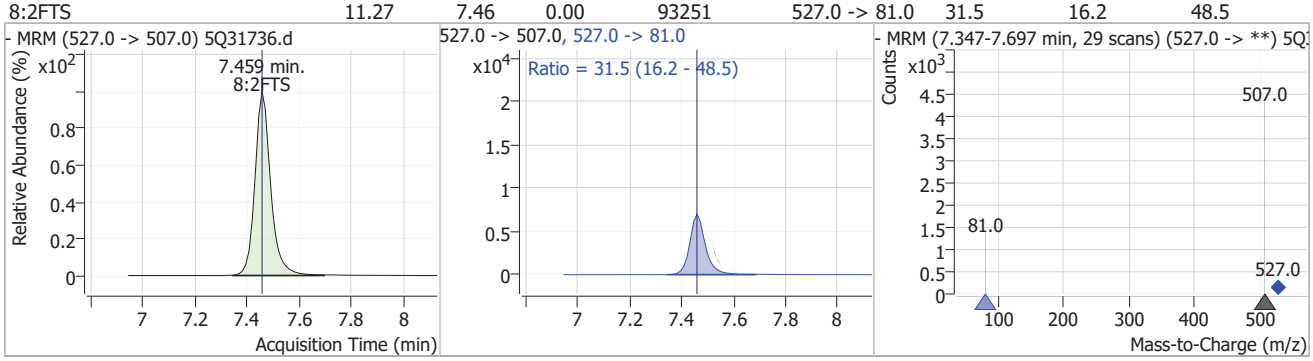
Perfluorinated Compounds by LC/MS/MS

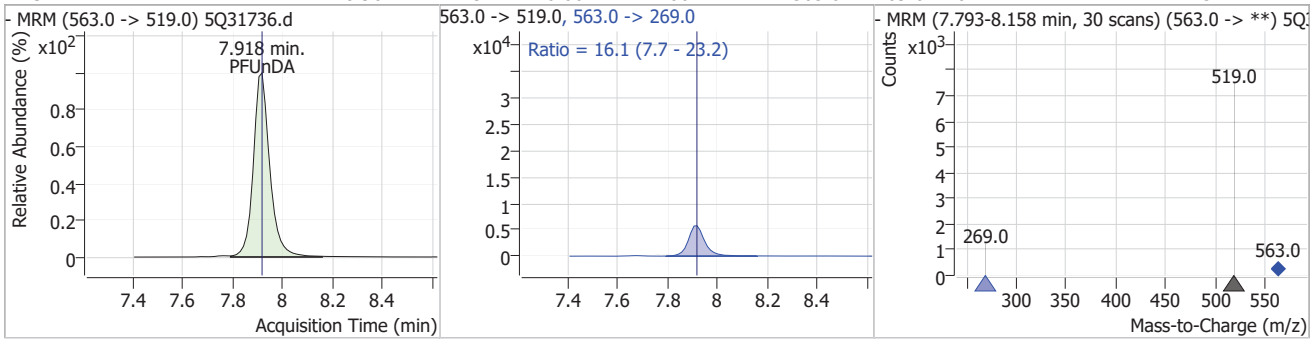
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	9.46	7.41	0.00	168435	513.0 -> 219.0	16.7	8.4	25.2



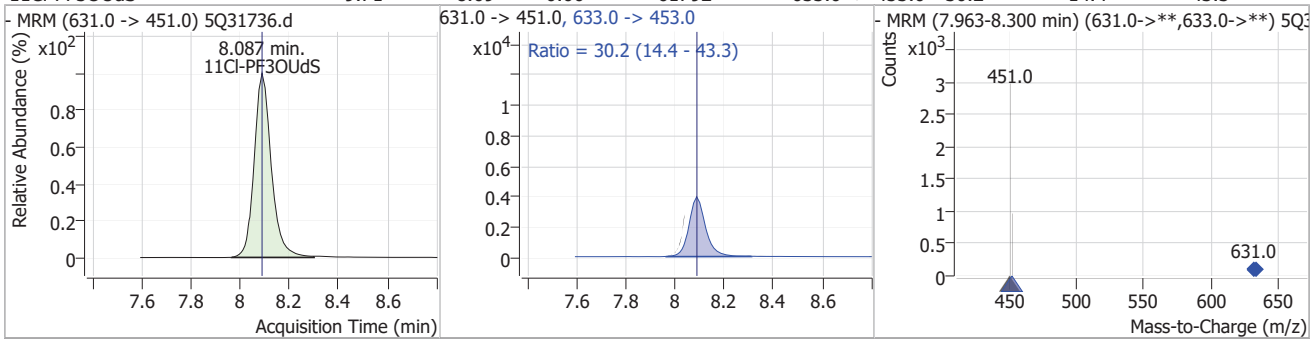
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	11.27	7.46	0.00	93251	527.0 -> 81.0	31.5	16.2	48.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	8.96	7.92	0.00	166211	563.0 -> 269.0	16.1	7.7	23.2

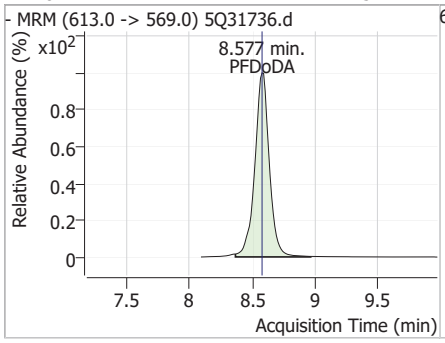


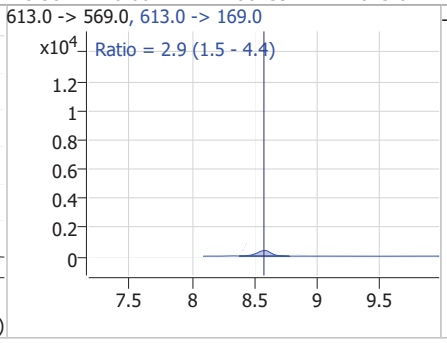
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	9.71	8.09	0.00	61792	633.0 -> 453.0	30.2	14.4	43.3

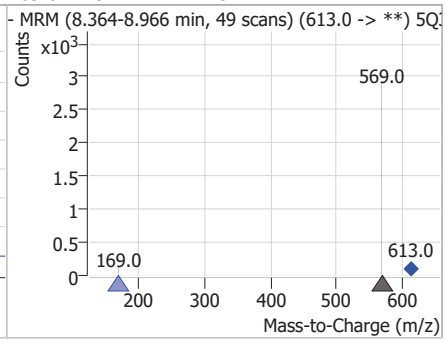


Perfluorinated Compounds by LC/MS/MS

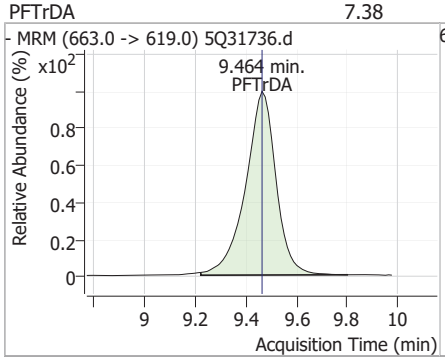
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	7.57	8.58	0.00	106439	613.0 -> 169.0	2.9	1.5	4.4

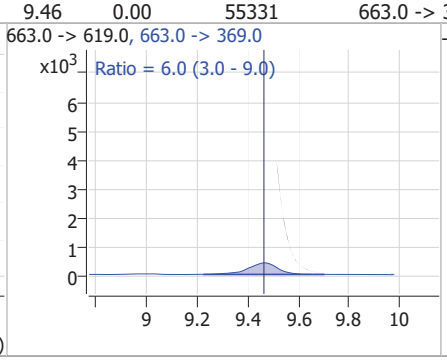


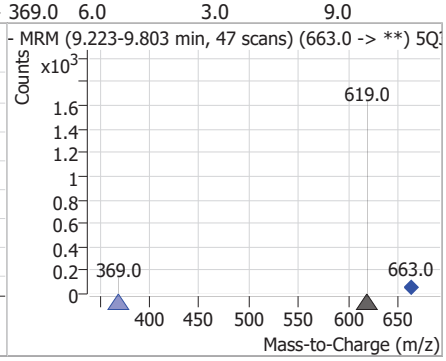




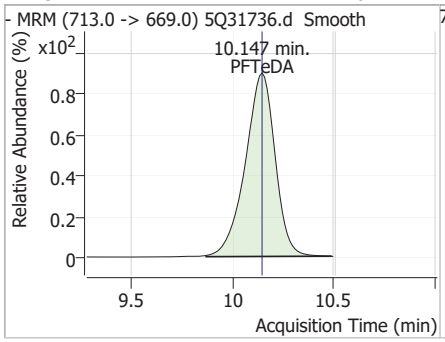
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	7.38	9.46	0.00	55331	663.0 -> 369.0	6.0	3.0	9.0

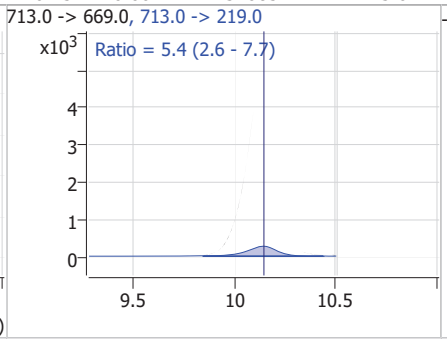


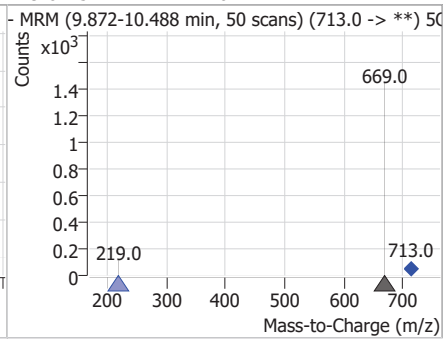




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	10.11	10.15	0.00	52085	713.0 -> 219.0	5.4	2.6	7.7







Manual Integration Approval Summary

Sample Number:	S5Q520-IC520	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31736.D	**Analyst approved:**	04/15/25 14:42 (b) (6)
Injection Time:	04/14/25 11:54	**Supervisor approved:**	04/15/25 15:43 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

5Q31737.D

Manual Integrations APPROVED (compounds with "m" flag)

(b) (6)

04/15/25 15:43

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31737.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/14/2025 12:10:34 PM
Sample Name : icc520-20
Vial : P1-A7
DA Method File : 537_041425_S5Q520.quantmethod
Batch Name : s5q520.batch.bin
Sample Information : OP8806,S5Q520,250,,,1,1,water

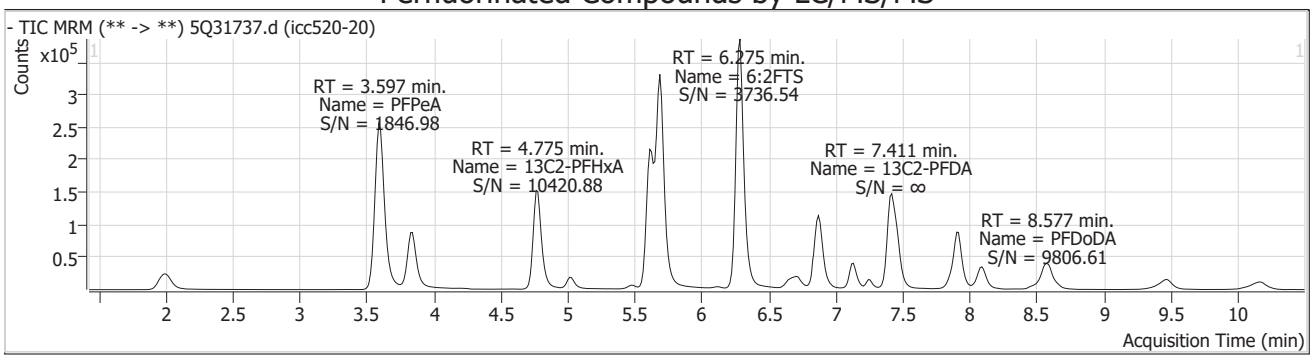
Compound	RT	QIon	Resp.	Symmetry	Conc.	Units		Dev(Min)
Internal Standards								
13C2-6:2FTS	6.274	429.0 -> 409.0	195052		20.00	µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	435034		20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	585595		20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	104946		20.00	µg/L		0.000
d3-MeFOSAA	7.242	573.0 -> 419.0	29563		40.00	µg/L		0.000
System Monitoring Compounds								
13C2-PFDA	7.411	515.0 -> 470.0	180536		10.63	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%				Recovery = 53.1%			
13C2-PFHxA	4.775	315.0 -> 270.0	280847		9.65	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%				Recovery = 48.2%			
d5-EtFOSAA	7.378	589.0 -> 419.0	11063		20.33	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%				Recovery = 50.8%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	36590		18.60	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%				Recovery = 46.5%			
Target Compounds								QValue
6:2FTS	6.275	427.0 -> 407.0	224486		22.78	µg/L		100
8:2FTS	7.459	527.0 -> 507.0	179640		21.22	µg/L		100
EtFOSAA	7.380	584.0 -> 419.0	10319		20.57	µg/L	m	100
MeFOSAA	7.256	570.0 -> 419.0	12743		19.73	µg/L	m	100
PFBS	3.841	299.0 -> 80.0	295642	1.11	20.61	µg/L		100
PFDA	7.411	513.0 -> 469.0	319701		19.05	µg/L		100
PFDoDA	8.577	613.0 -> 569.0	276862		19.82	µg/L		100
PFHpA	5.614	363.0 -> 319.0	747811		20.72	µg/L		100
PFHxA	4.777	313.0 -> 269.0	383442	1.09	20.57	µg/L		100
PFHxS	5.635	399.0 -> 80.0	179091		20.74	µg/L	m	100
PFNA	6.886	463.0 -> 419.0	295885		20.28	µg/L	m	100
PFOA	6.290	413.0 -> 369.0	421530		20.54	µg/L		100
PFOS	6.861	499.0 -> 80.0	131084		20.15	µg/L	m	100
PFPeA	3.597	263.0 -> 219.0	747634		20.31	µg/L		100
PFTeDA	10.147	713.0 -> 669.0	103358		20.19	µg/L		100
PFTrDA	9.464	663.0 -> 619.0	114376		15.91	µg/L		100
PFUnDA	7.918	563.0 -> 519.0	333413		18.73	µg/L		100
ADONA	5.688	377.0 -> 251.0	996927		20.76	µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	125078		20.78	µg/L		100
11Cl-PF3OUdS	8.087	631.0 -> 451.0	131761		20.93	µg/L		100
HFPO-DA	5.022	285.0 -> 169.0	36051		20.76	µg/L		100

 # = Qualifier out of range, m = manually integrated, + = Area summed

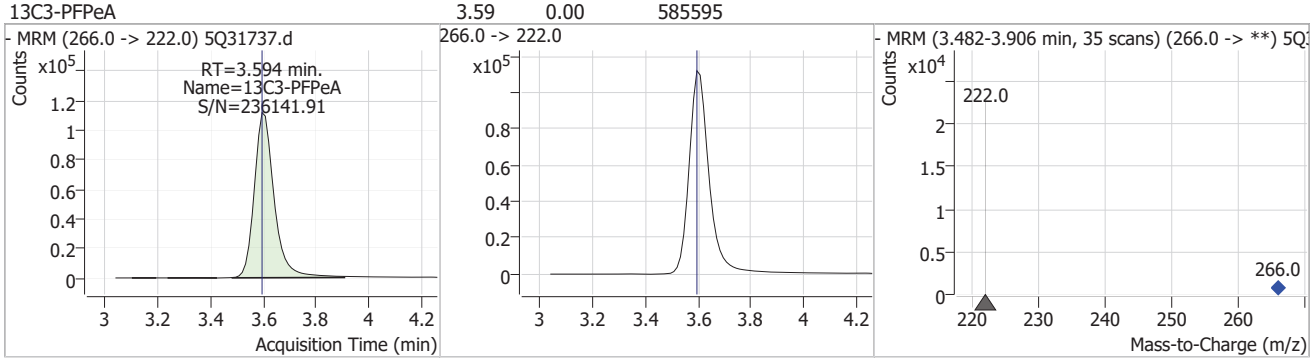
7.7.32

7

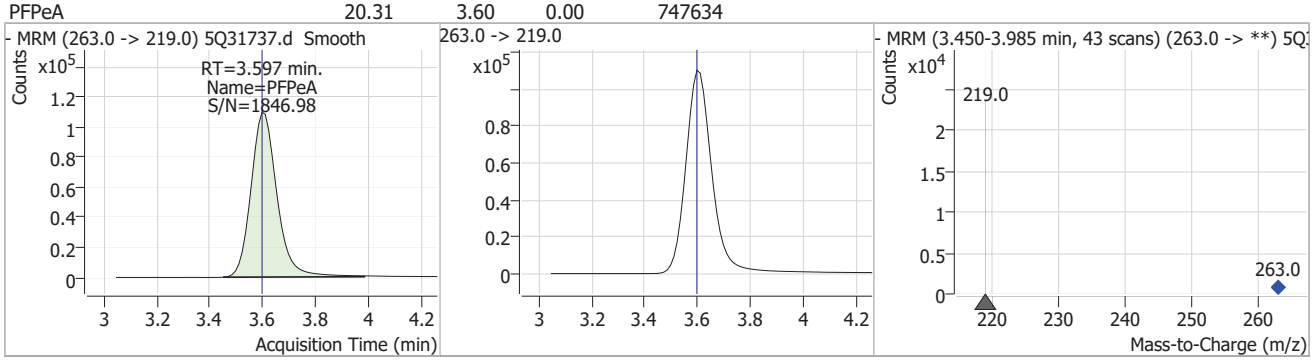
Perfluorinated Compounds by LC/MS/MS



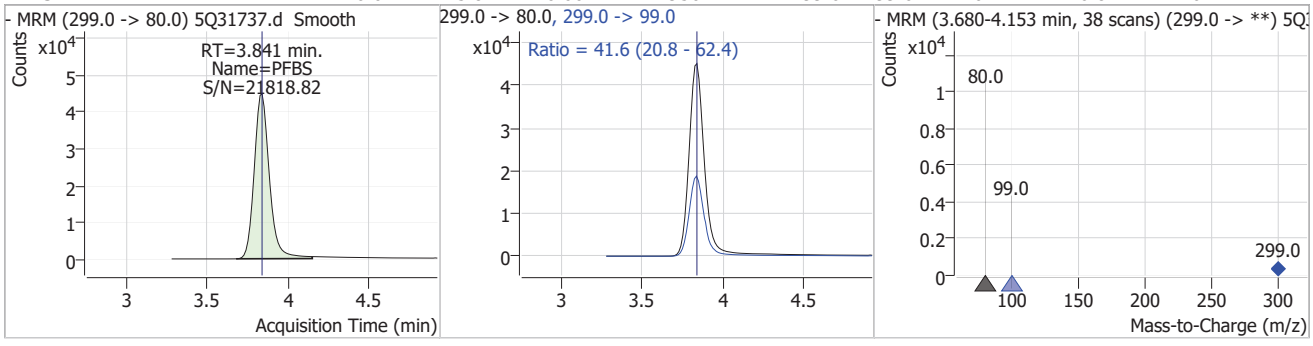
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	585595				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.31	3.60	0.00	747634				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.61	3.84	0.00	295642	299.0 -> 99.0	41.6	20.8	62.4

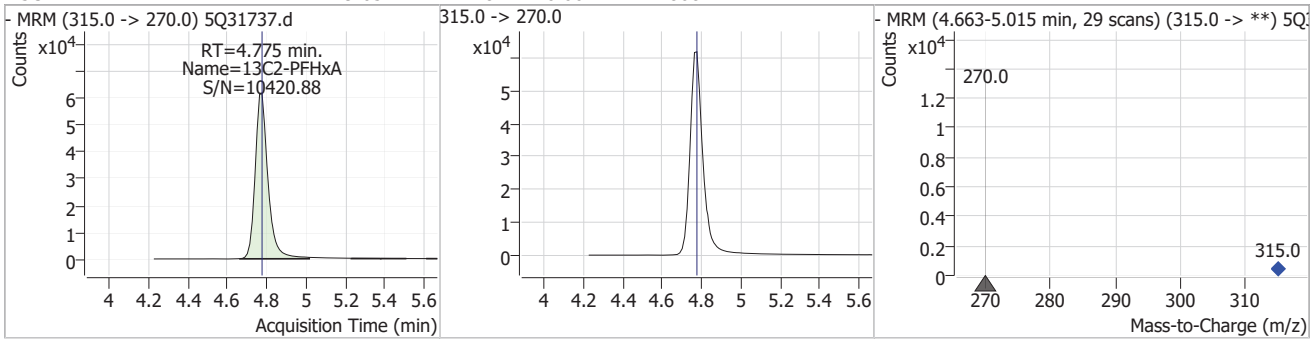


7.7.32

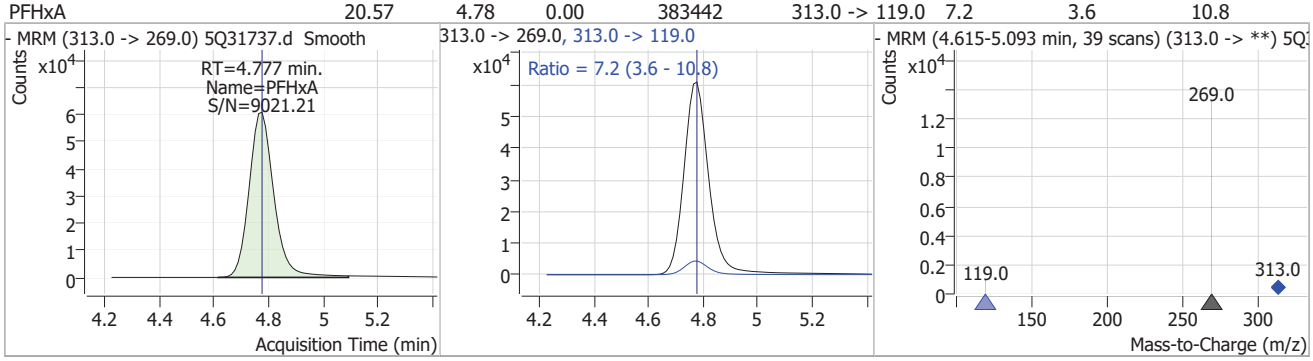
7

Perfluorinated Compounds by LC/MS/MS

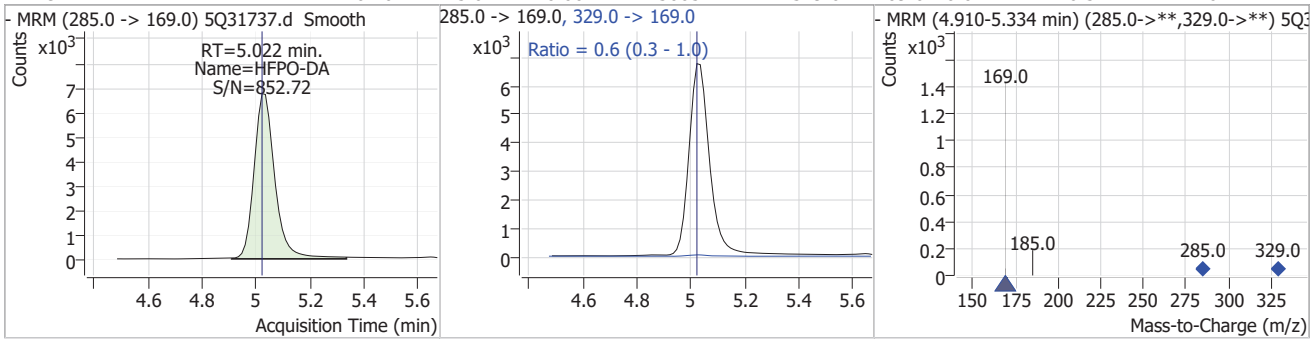
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	9.65	4.78	0.00	280847				



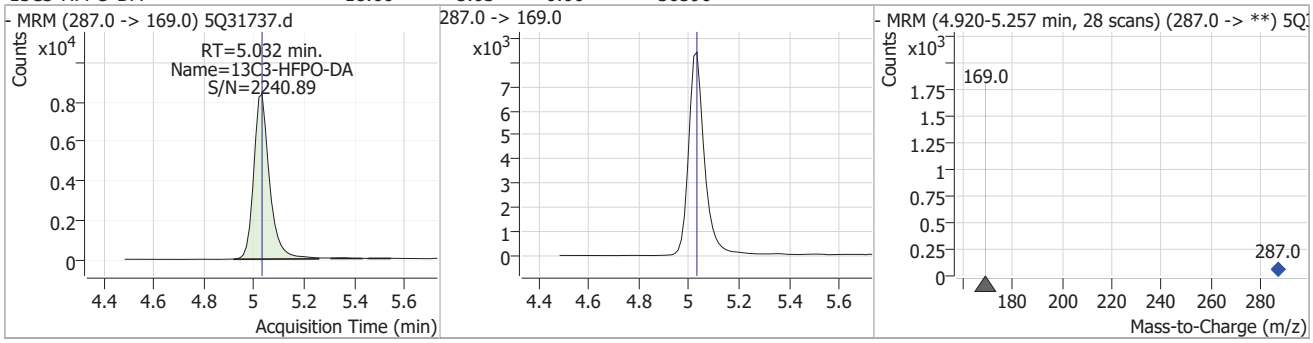
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	20.57	4.78	0.00	383442	313.0 -> 119.0	7.2	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	20.76	5.02	0.00	36051	329.0 -> 169.0	0.6	0.3	1.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	18.60	5.03	0.00	36590				

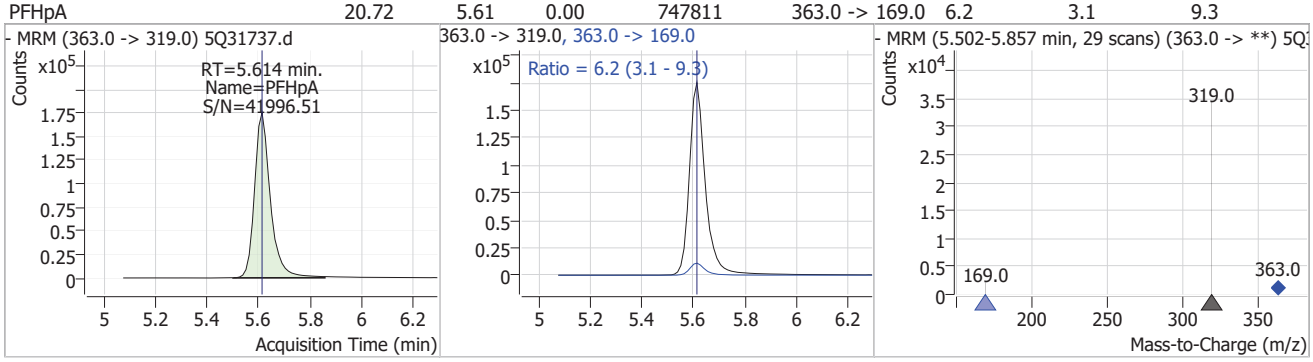


7.7.32

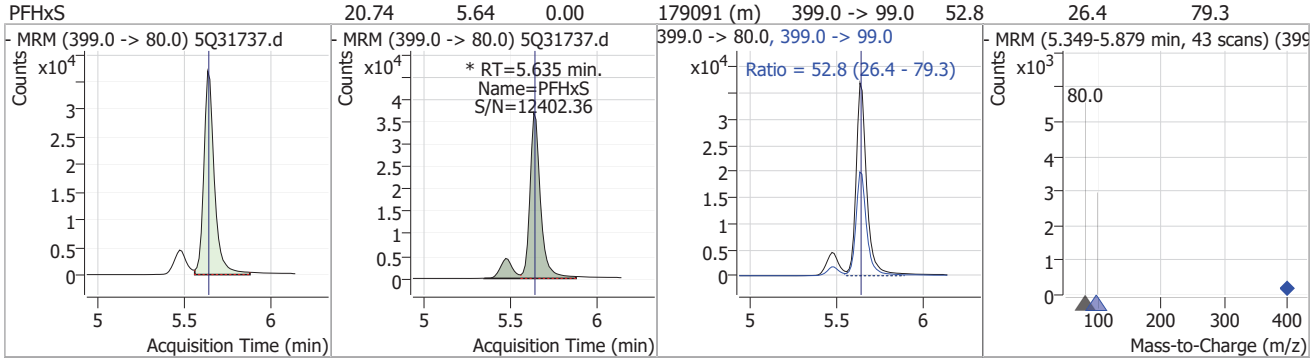
7

Perfluorinated Compounds by LC/MS/MS

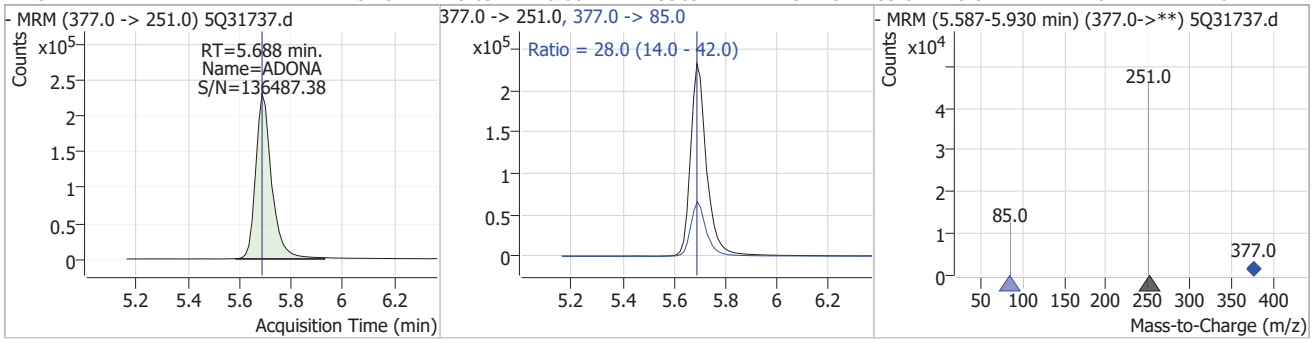
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.72	5.61	0.00	747811	363.0 -> 169.0	6.2	3.1	9.3



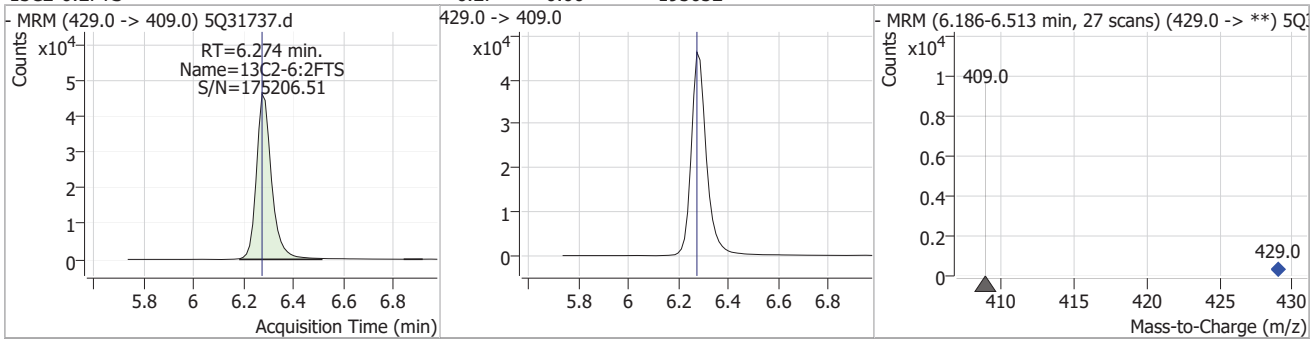
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	20.74	5.64	0.00	179091 (m)	399.0 -> 99.0	52.8	26.4	79.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.76	5.69	0.00	996927	377.0 -> 85.0	28.0	14.0	42.0

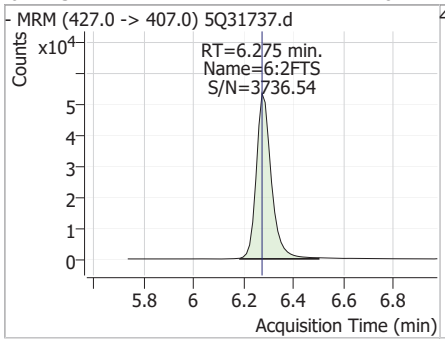


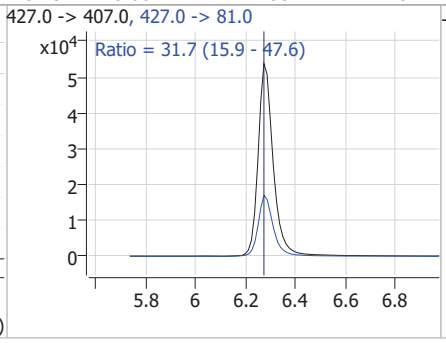
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	0.00	195052				

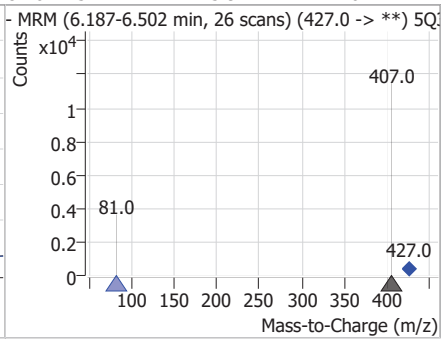


Perfluorinated Compounds by LC/MS/MS

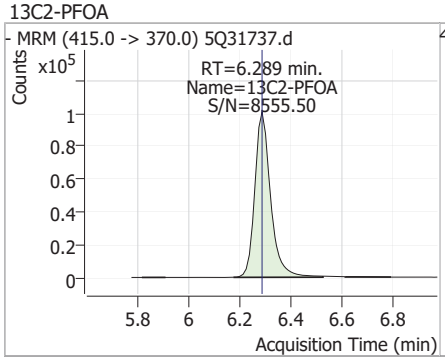
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	22.78	6.28	0.00	224486	427.0 -> 81.0	31.7	15.9	47.6

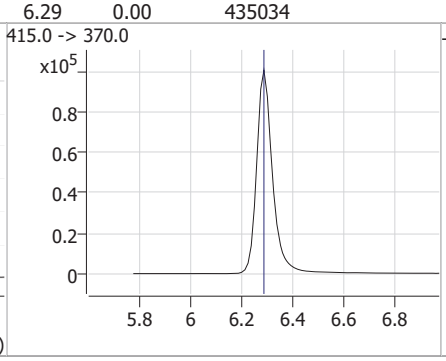


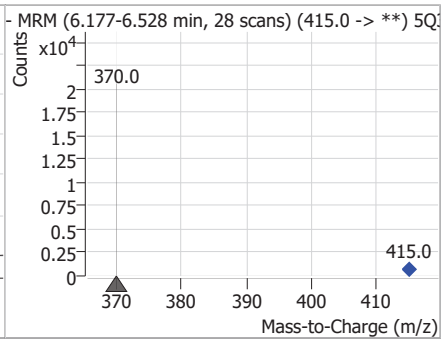




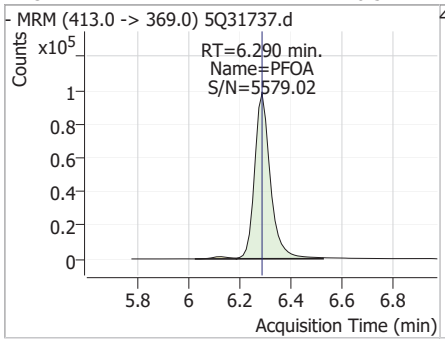
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	435034				

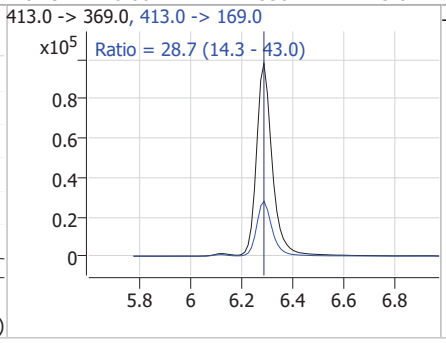


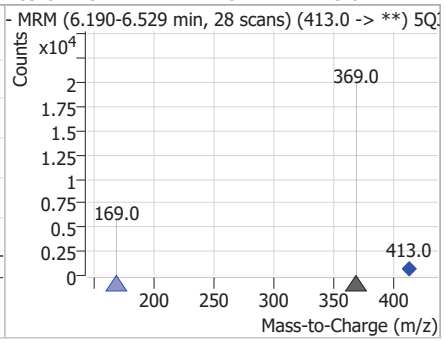




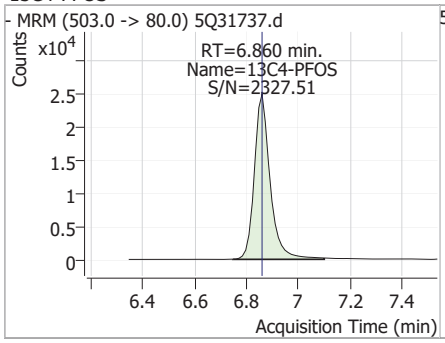
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.54	6.29	0.00	421530	413.0 -> 169.0	28.7	14.3	43.0

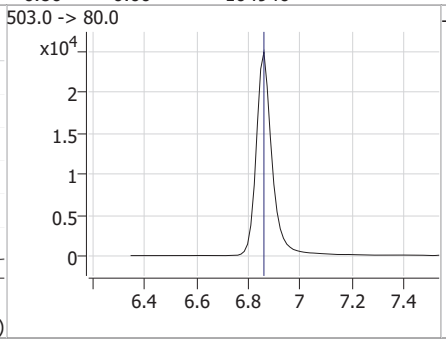


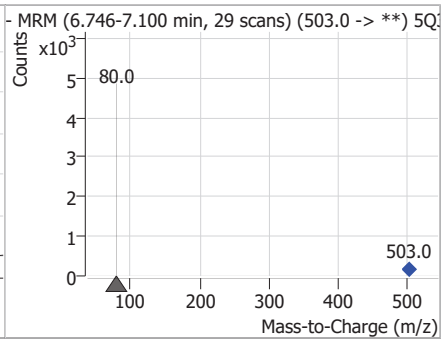




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	104946				

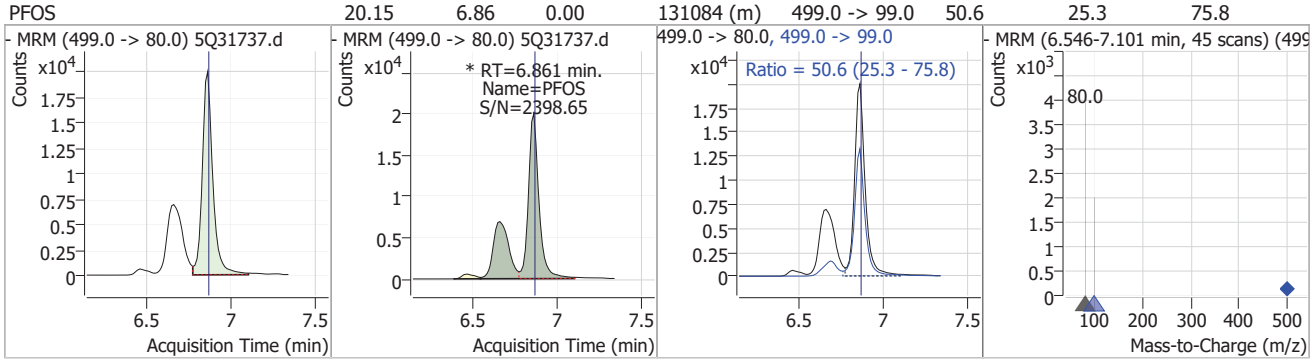




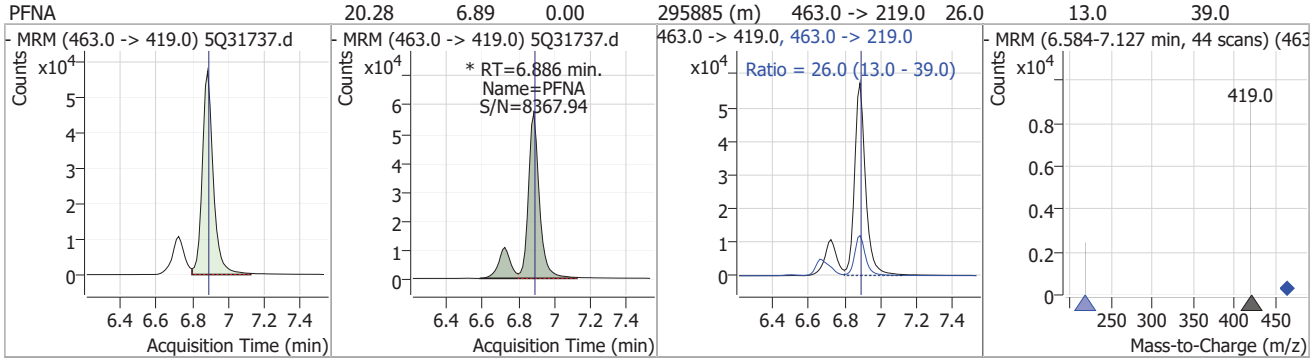


Perfluorinated Compounds by LC/MS/MS

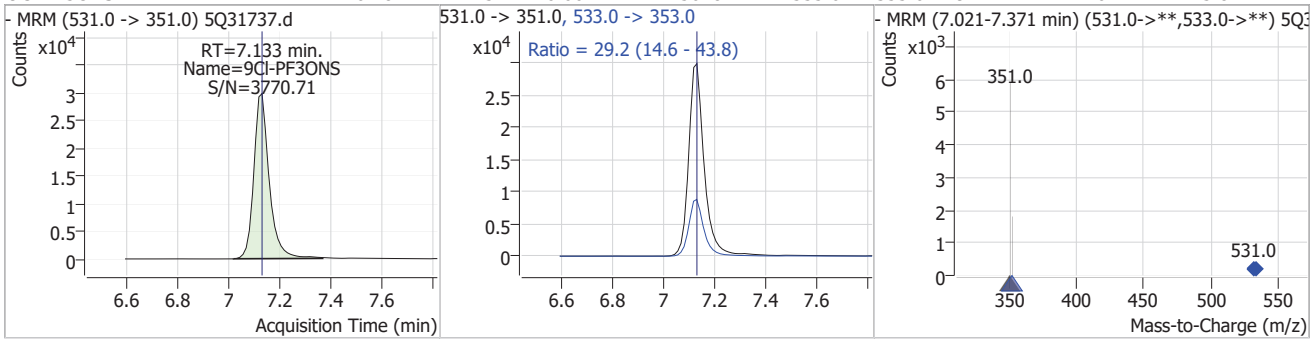
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	20.15	6.86	0.00	131084 (m)	499.0 -> 99.0	50.6	25.3	75.8



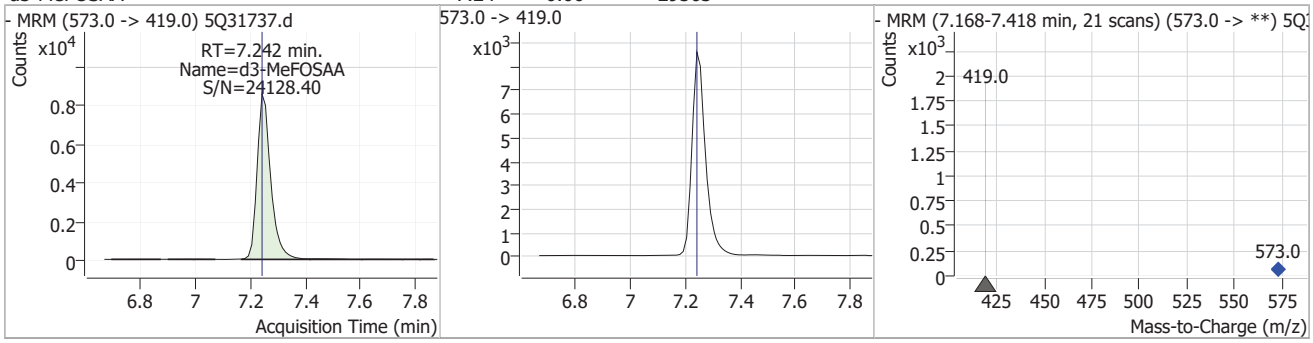
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	20.28	6.89	0.00	295885 (m)	463.0 -> 219.0	26.0	13.0	39.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	20.78	7.13	0.00	125078	533.0 -> 353.0	29.2	14.6	43.8

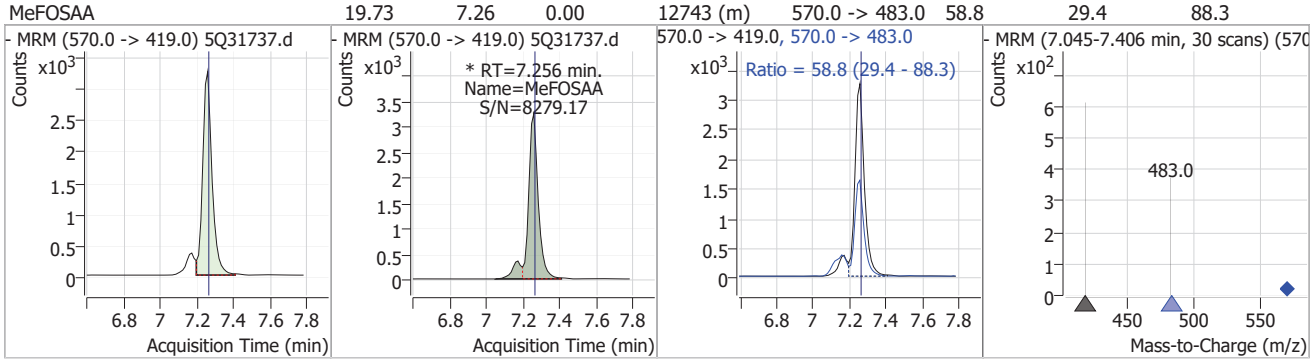


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	29563				

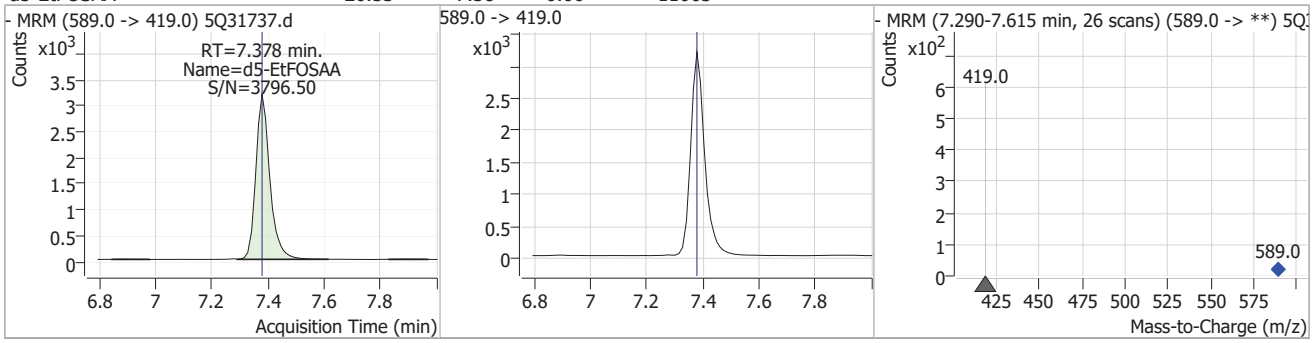


Perfluorinated Compounds by LC/MS/MS

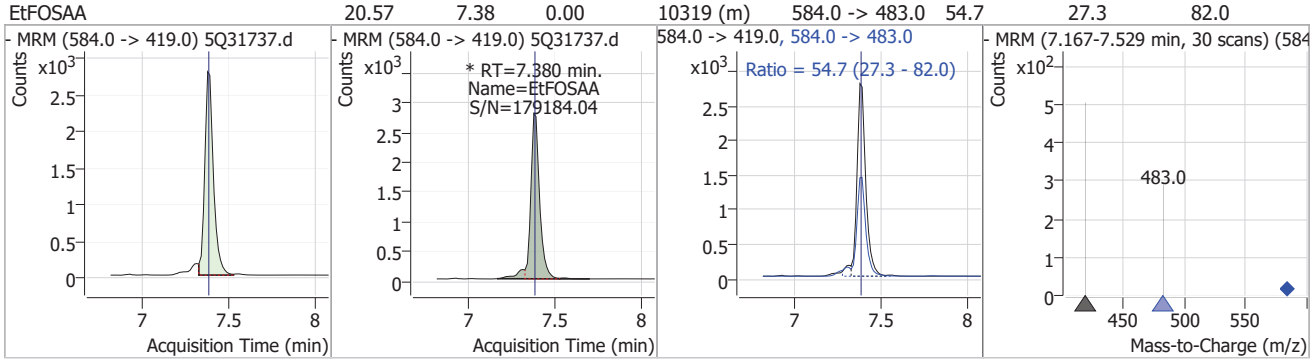
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.73	7.26	0.00	12743 (m)	570.0 -> 483.0	58.8	29.4	88.3



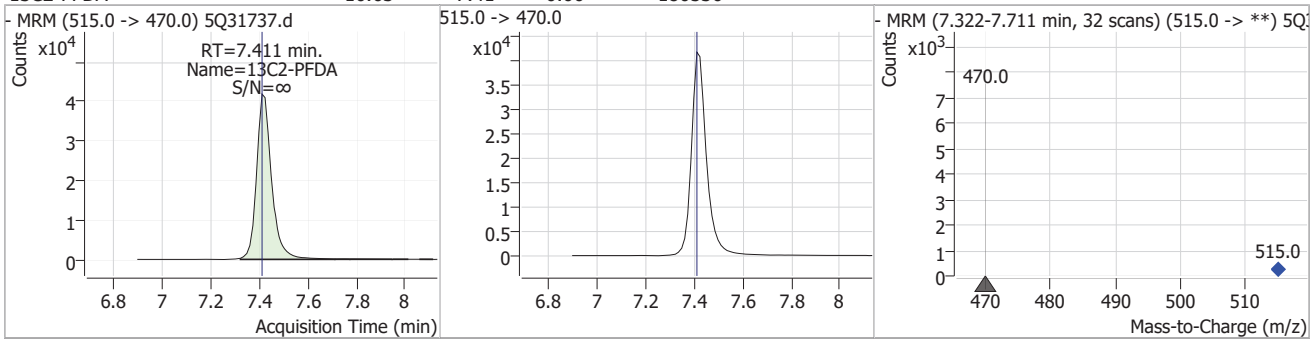
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	20.33	7.38	0.00	11063				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	20.57	7.38	0.00	10319 (m)	584.0 -> 483.0	54.7	27.3	82.0

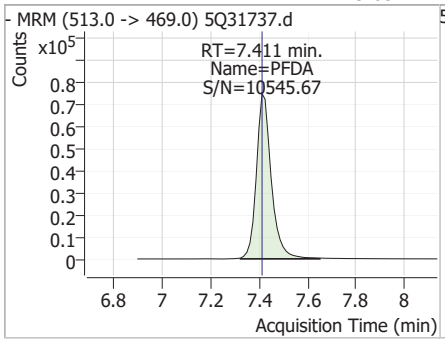


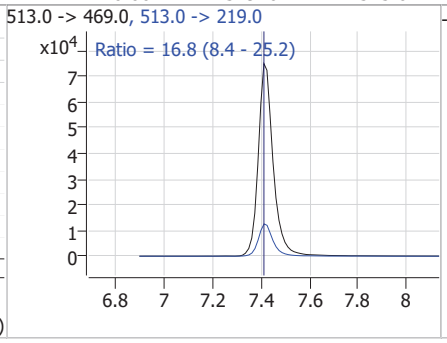
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	10.63	7.41	0.00	180536				

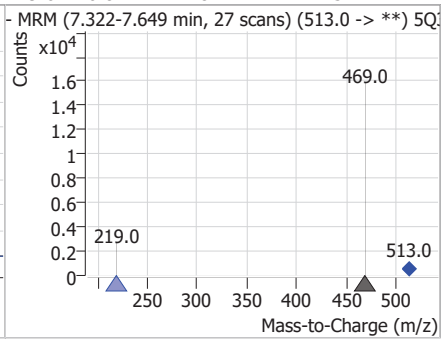


Perfluorinated Compounds by LC/MS/MS

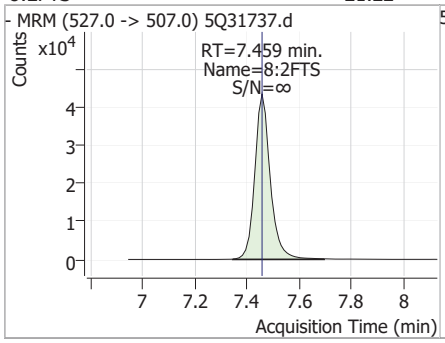
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.05	7.41	0.00	319701	513.0 -> 219.0	16.8	8.4	25.2

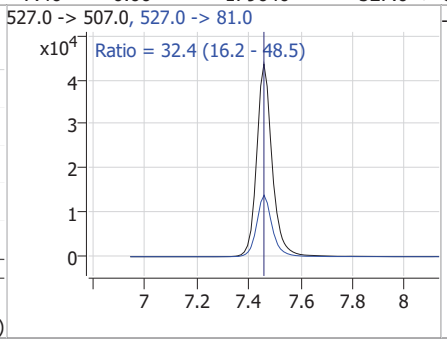


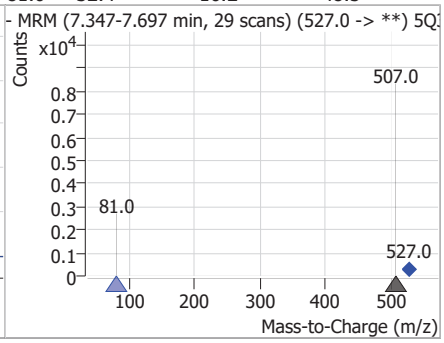




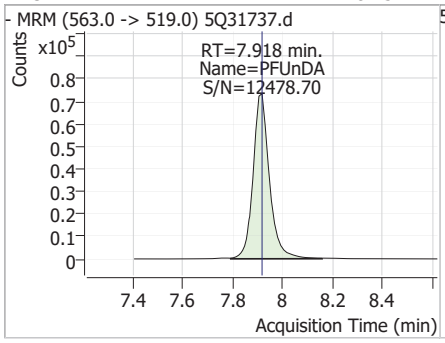
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.22	7.46	0.00	179640	527.0 -> 81.0	32.4	16.2	48.5

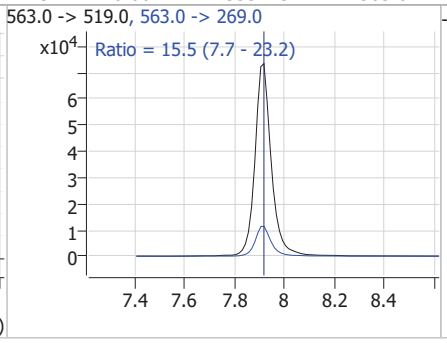


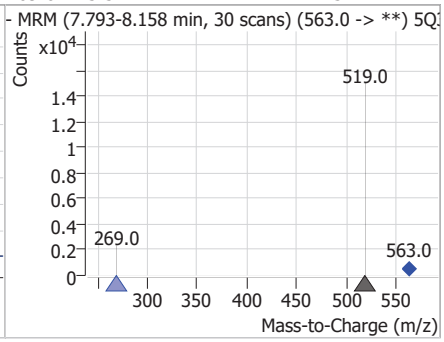




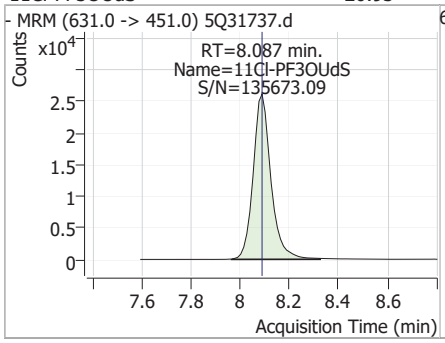
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	18.73	7.92	0.00	333413	563.0 -> 269.0	15.5	7.7	23.2

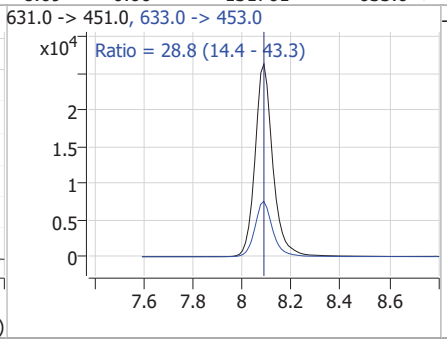


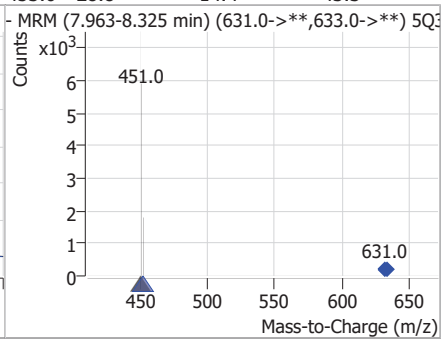




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	20.93	8.09	0.00	131761	633.0 -> 453.0	28.8	14.4	43.3

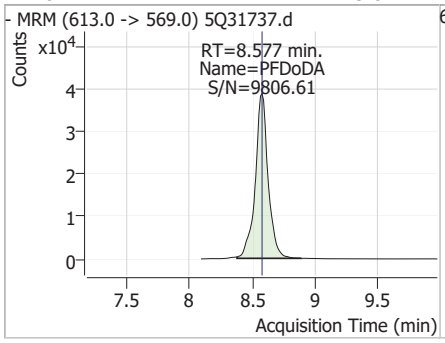


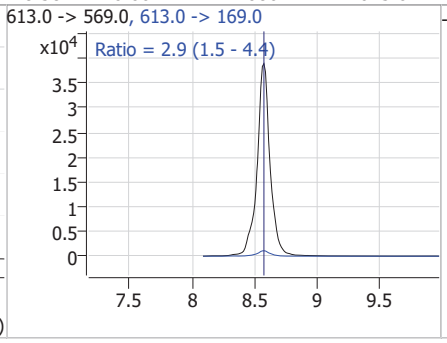


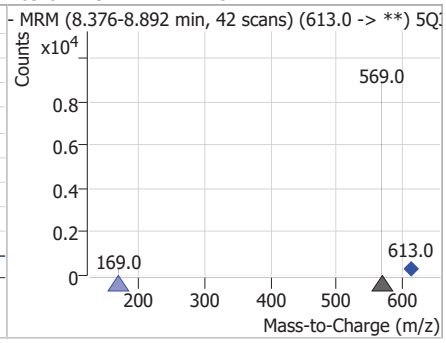


Perfluorinated Compounds by LC/MS/MS

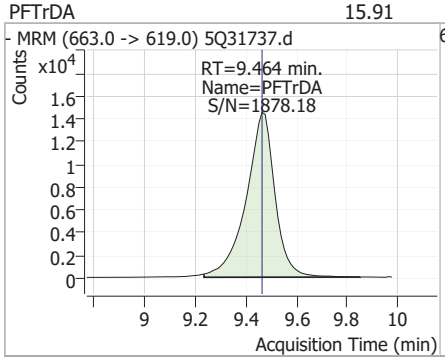
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.82	8.58	0.00	276862	613.0 -> 169.0	2.9	1.5	4.4

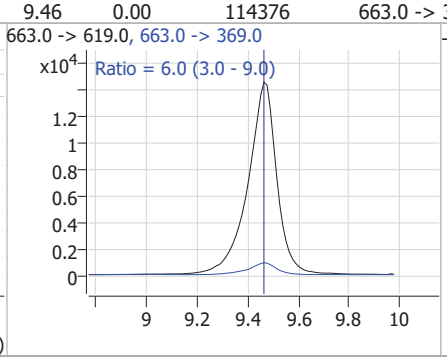


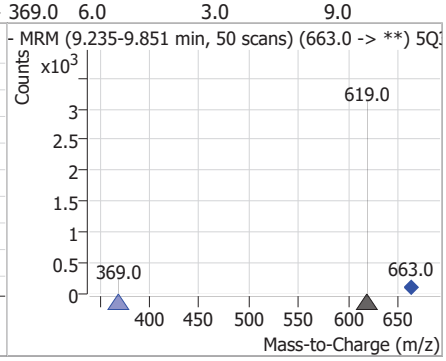




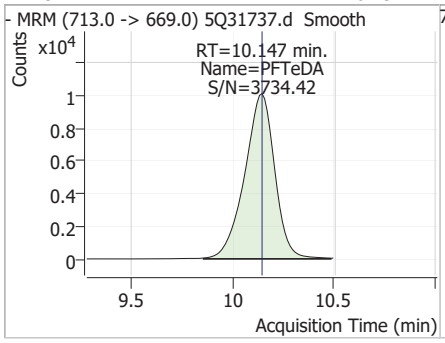
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	15.91	9.46	0.00	114376	663.0 -> 369.0	6.0	3.0	9.0

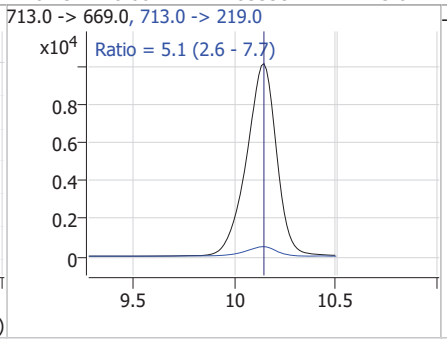


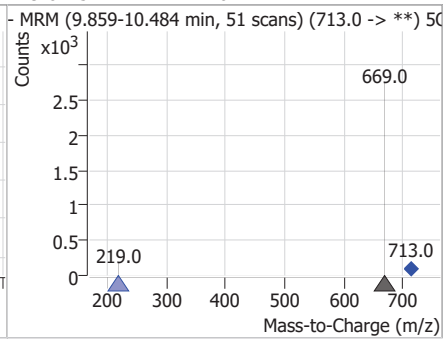




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	20.19	10.15	0.00	103358	713.0 -> 219.0	5.1	2.6	7.7







Manual Integration Approval Summary

Sample Number:	S5Q520-ICC520	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31737.D	**Analyst approved:**	04/15/25 14:42 (b) (6)
Injection Time:	04/14/25 12:10	**Supervisor approved:**	04/15/25 15:43 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/15/25 15:43

Perfluorinated Compounds by LC/MS/MS

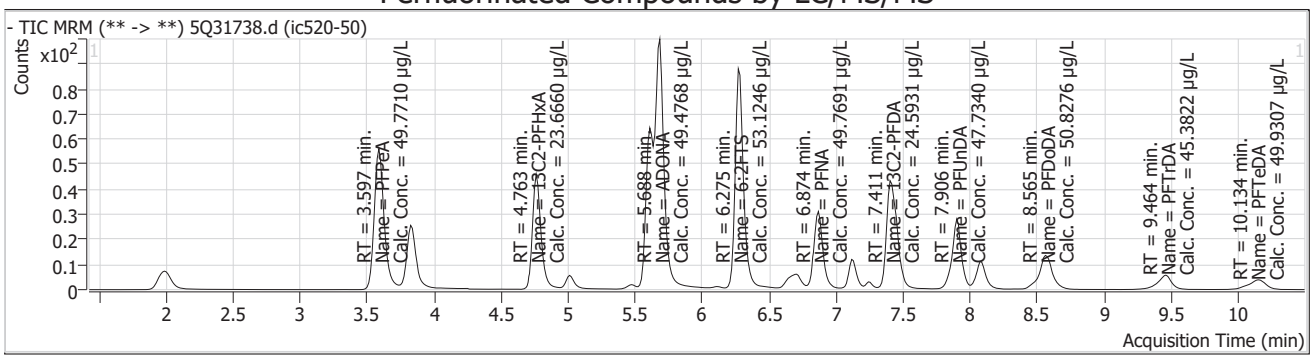
Data File : 5Q31738.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/14/2025 12:26:35 PM
Sample Name : ic520-50
Vial : P1-A8
DA Method File : 537_041425_S5Q520.quantmethod
Batch Name : s5q520.batch.bin
Sample Information : OP8806,S5Q520,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	199647	20.00	µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	422008	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	568848	20.00	µg/L		0.000
13C4-PFOS	6.847	503.0 -> 80.0	104208	20.00	µg/L		-0.012
d3-MeFOSAA	7.242	573.0 -> 419.0	28907	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	421722	24.59	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 123.0%			
13C2-PFHxA	4.763	315.0 -> 270.0	668379	23.67	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 118.3%			
d5-EtFOSAA	7.378	589.0 -> 419.0	27089	49.55	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 123.9%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	89034	46.66	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 116.7%			
Target Compounds							QValue
6:2FTS	6.275	427.0 -> 407.0	535855	53.12	µg/L		99
8:2FTS	7.459	527.0 -> 507.0	441545	50.95	µg/L		99
EtFOSAA	7.380	584.0 -> 419.0	24460	49.56	µg/L	m	96
MeFOSAA	7.244	570.0 -> 419.0	33536	50.16	µg/L	m	93
PFBS	3.828	299.0 -> 80.0	708348	49.72	µg/L		100
PFDA	7.411	513.0 -> 469.0	764230	46.93	µg/L		98
PFDoDA	8.565	613.0 -> 569.0	767391	50.83	µg/L		99
PFHpA	5.614	363.0 -> 319.0	1815596	49.43	µg/L		100
PFHxA	4.764	313.0 -> 269.0	926230	49.60	µg/L		99
PFHxS	5.635	399.0 -> 80.0	440968	49.58	µg/L	m	98
PFNA	6.874	463.0 -> 419.0	747381	49.77	µg/L	m	97
PFOA	6.290	413.0 -> 369.0	1018906	49.82	µg/L		99
PFOS	6.848	499.0 -> 80.0	332769	49.86	µg/L	m	98
PFPeA	3.597	263.0 -> 219.0	1833879	49.77	µg/L		100
PFTeDA	10.134	713.0 -> 669.0	279480	49.93	µg/L		100
PFTrDA	9.464	663.0 -> 619.0	323939	45.38	µg/L		100
PFUnDA	7.906	563.0 -> 519.0	843954	47.73	µg/L		100
ADONA	5.688	377.0 -> 251.0	2461767	49.48	µg/L		99
9Cl-PF3ONS	7.121	531.0 -> 351.0	308059	49.53	µg/L		100
11Cl-PF3OUdS	8.075	631.0 -> 451.0	339057	49.64	µg/L		99
HFPO-DA	5.022	285.0 -> 169.0	87424	49.63	µg/L		100

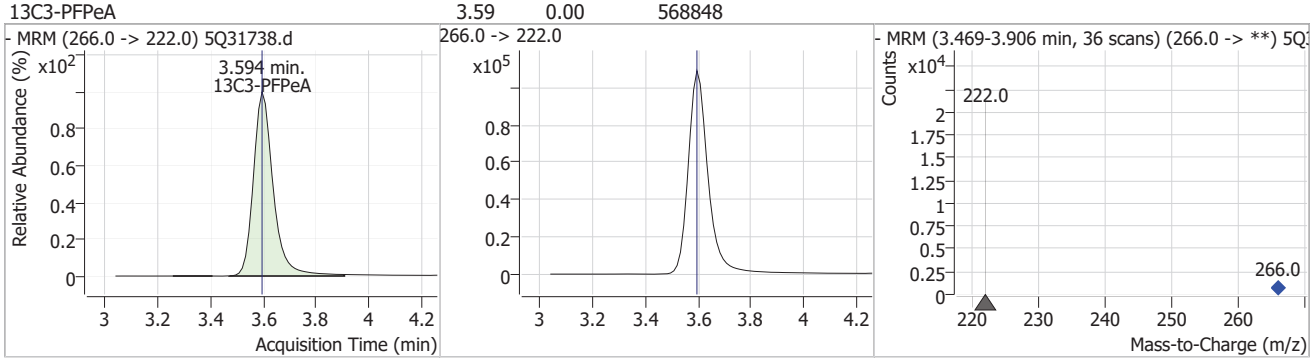
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.33
7

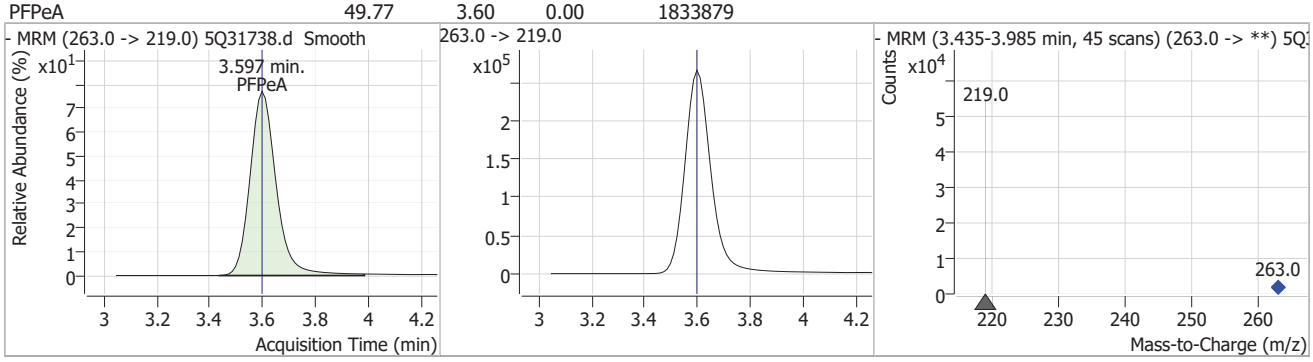
Perfluorinated Compounds by LC/MS/MS



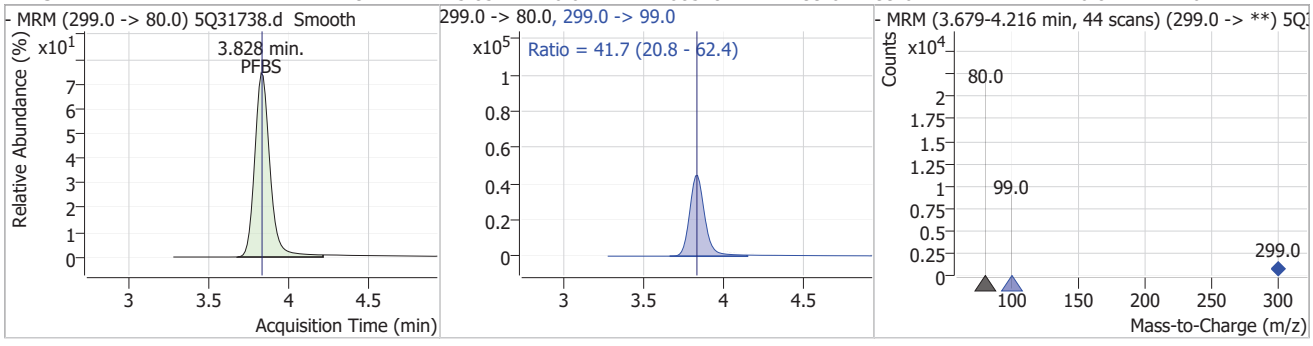
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	568848				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	49.77	3.60	0.00	1833879				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	49.72	3.83	-0.01	708348	299.0 -> 99.0	41.7	20.8	62.4

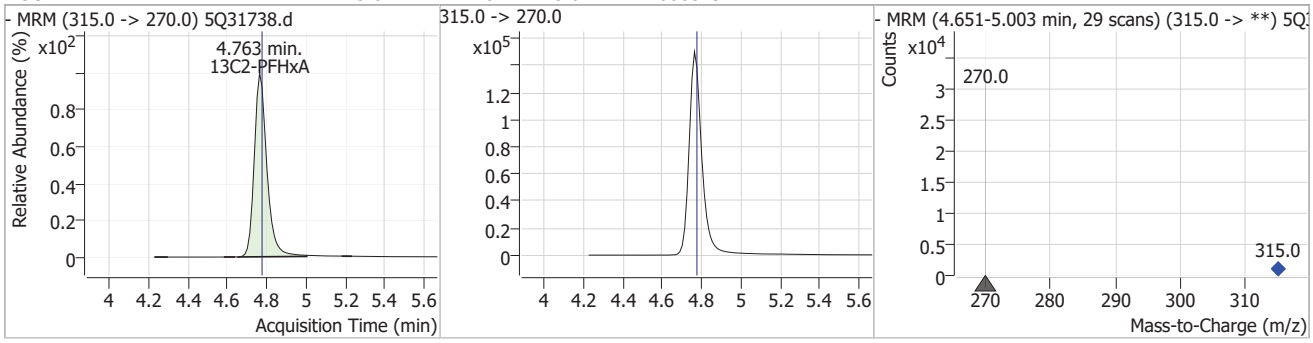


7.7.33

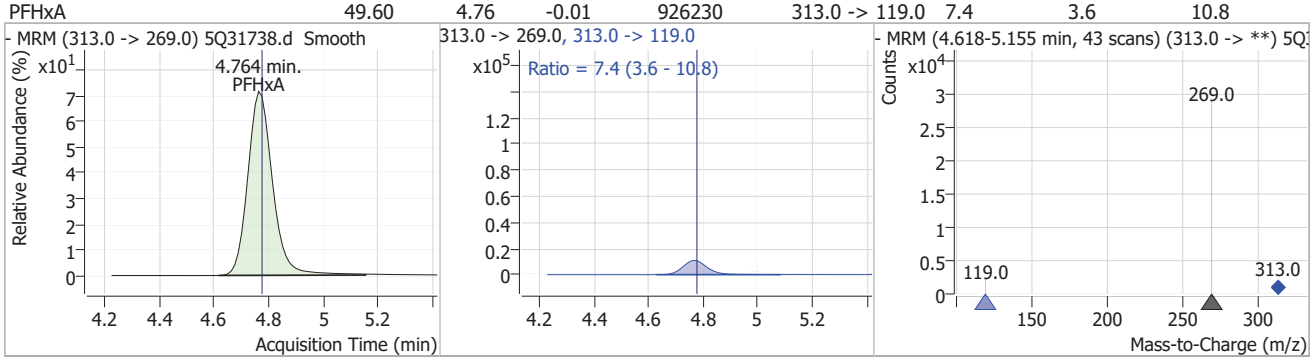
7

Perfluorinated Compounds by LC/MS/MS

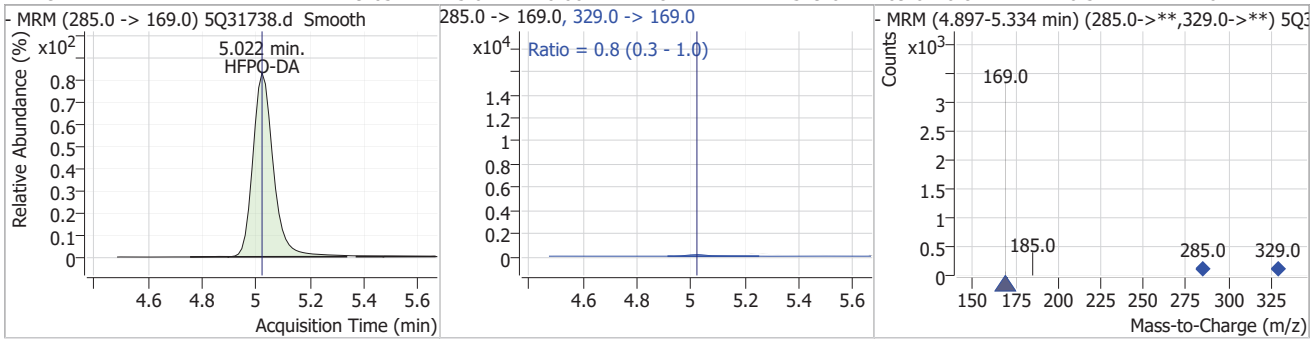
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	23.67	4.76	-0.01	668379				



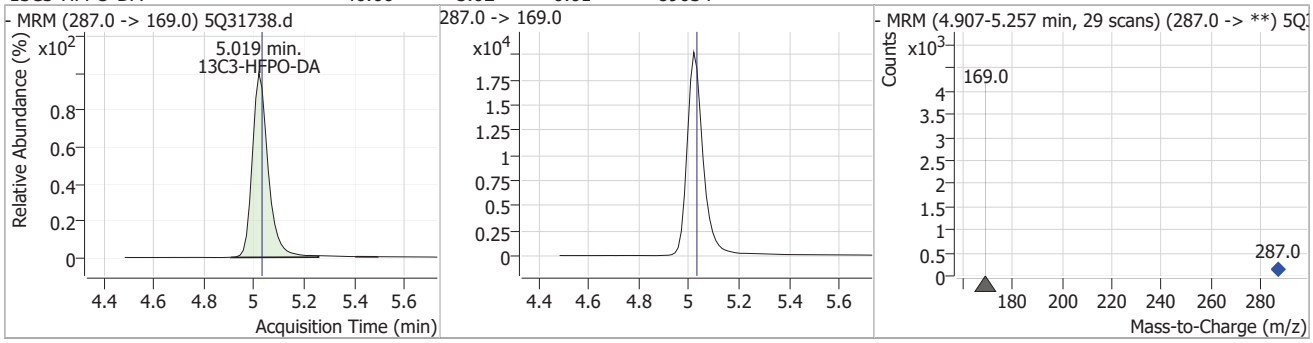
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	49.60	4.76	-0.01	926230	313.0 -> 119.0	7.4	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	49.63	5.02	0.00	87424	329.0 -> 169.0	0.8	0.3	1.0

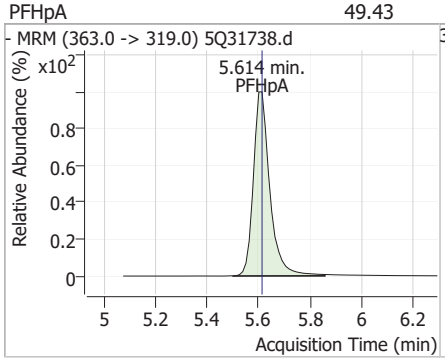


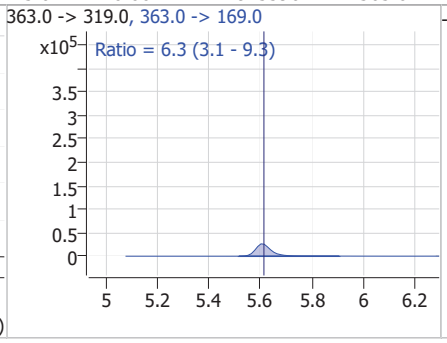
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	46.66	5.02	-0.01	89034				

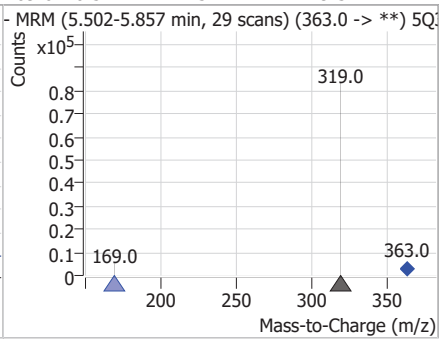


Perfluorinated Compounds by LC/MS/MS

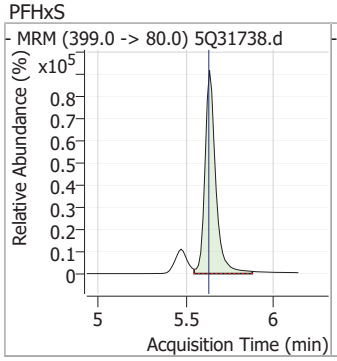
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	49.43	5.61	0.00	1815596	363.0 -> 169.0	6.3	3.1	9.3

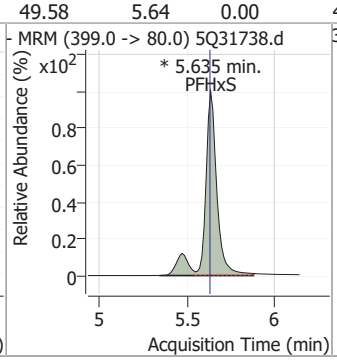


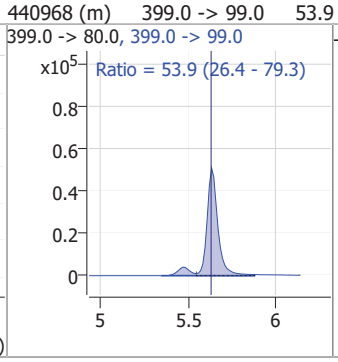


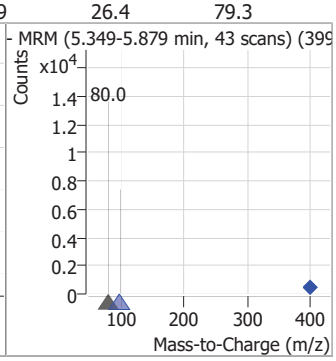


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	49.58	5.64	0.00	440968 (m)	399.0 -> 99.0	53.9	26.4	79.3

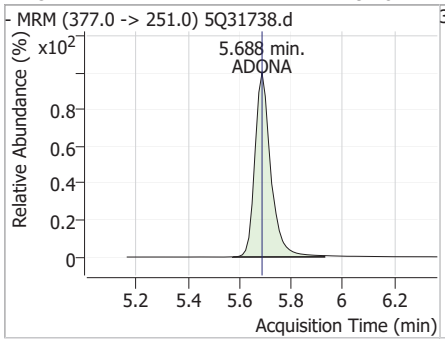


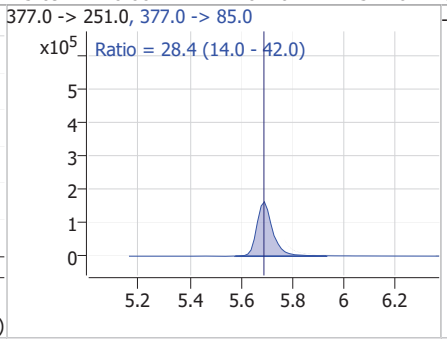


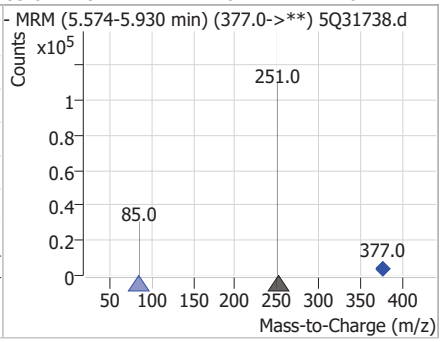




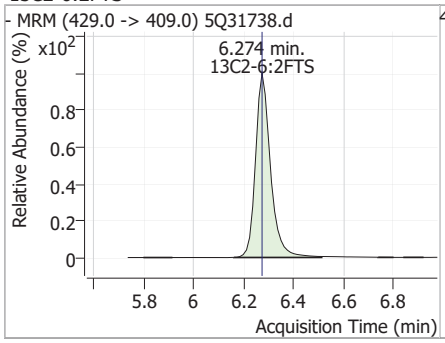
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	49.48	5.69	0.00	2461767	377.0 -> 85.0	28.4	14.0	42.0

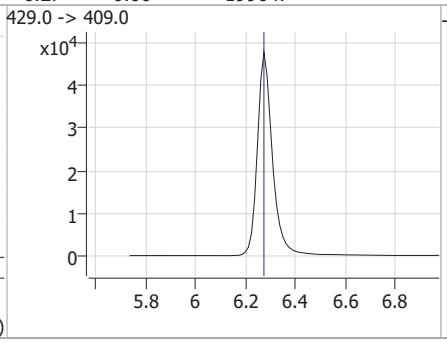


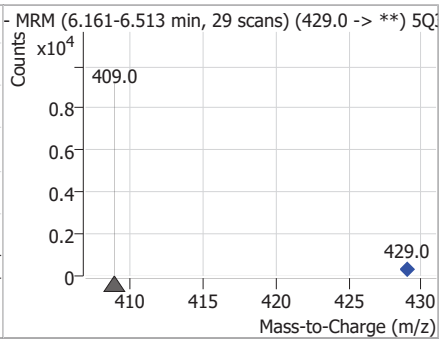




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	0.00	199647				

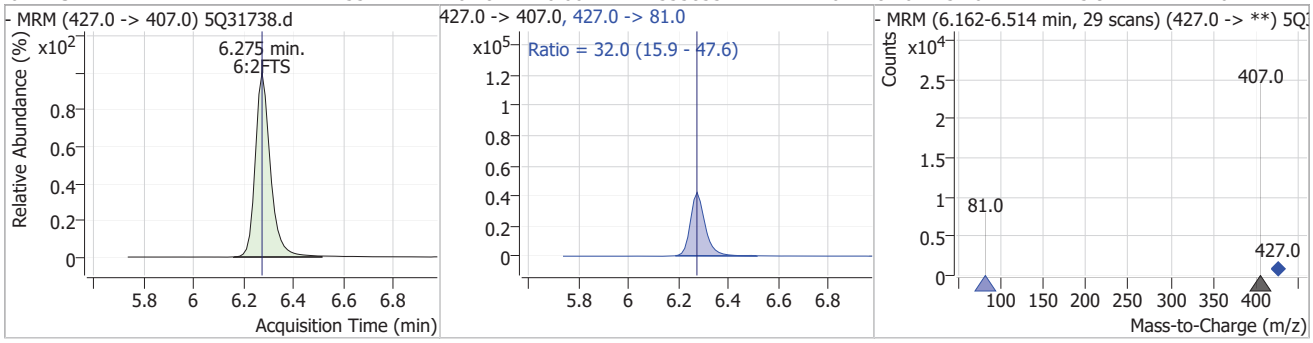




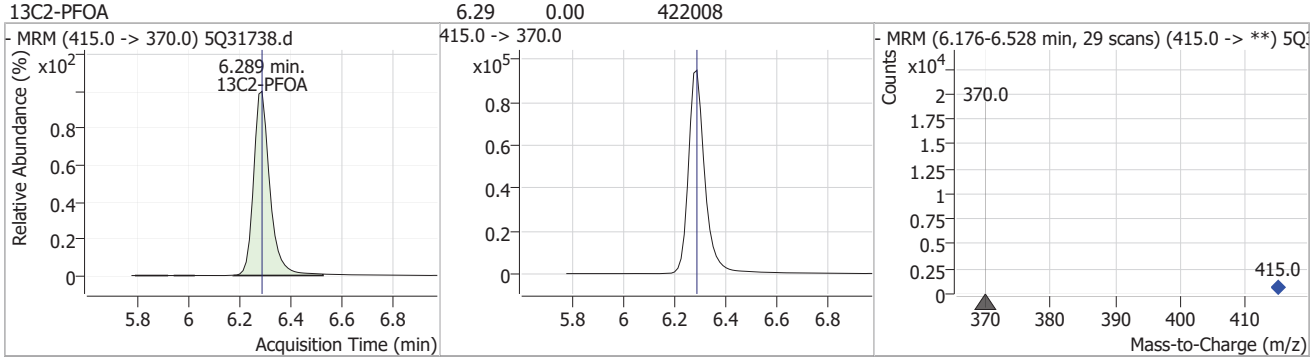


Perfluorinated Compounds by LC/MS/MS

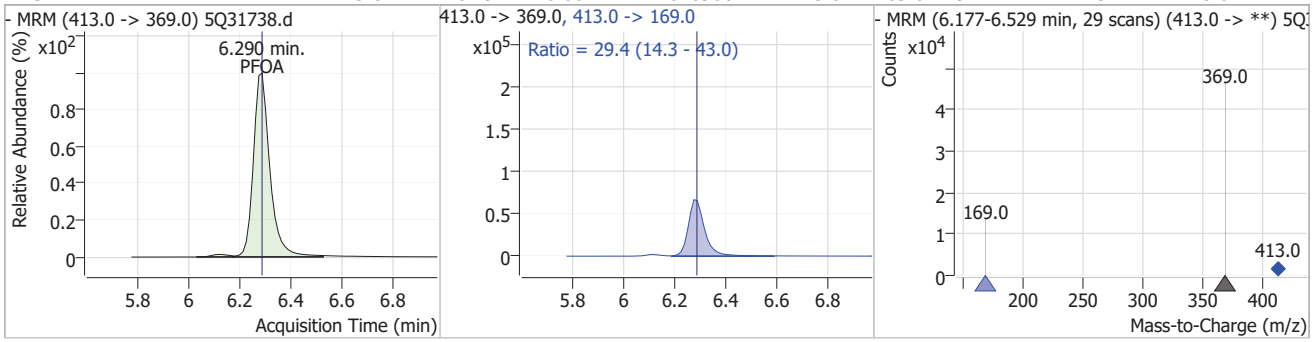
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	53.12	6.28	0.00	535855	427.0 -> 81.0	32.0	15.9	47.6



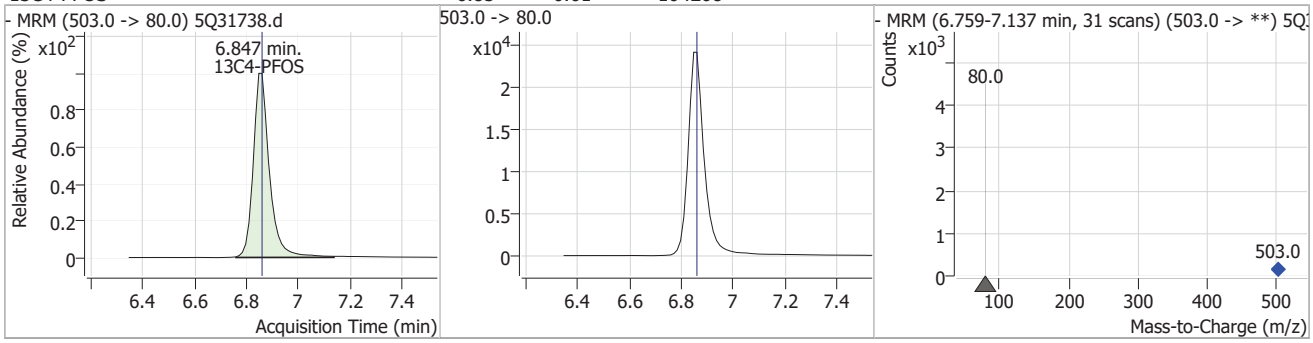
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	422008				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	49.82	6.29	0.00	1018906	413.0 -> 169.0	29.4	14.3	43.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.85	-0.01	104208				

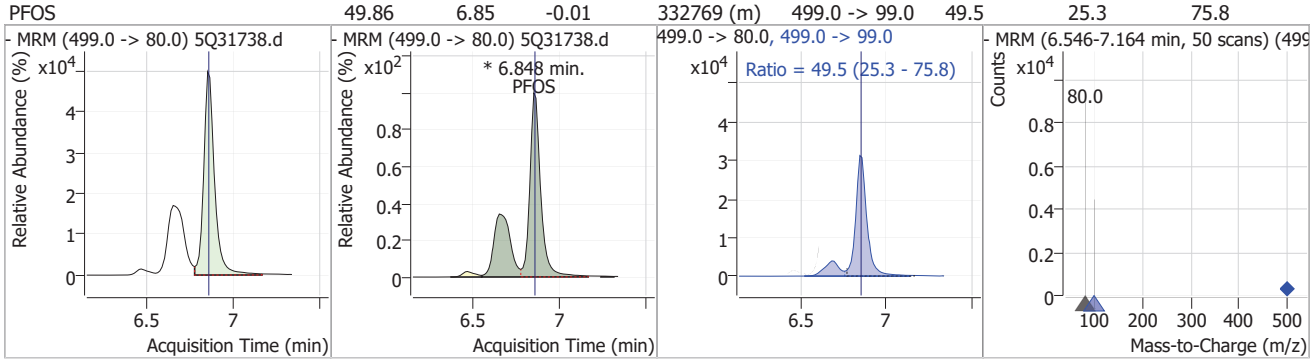


7.7.33

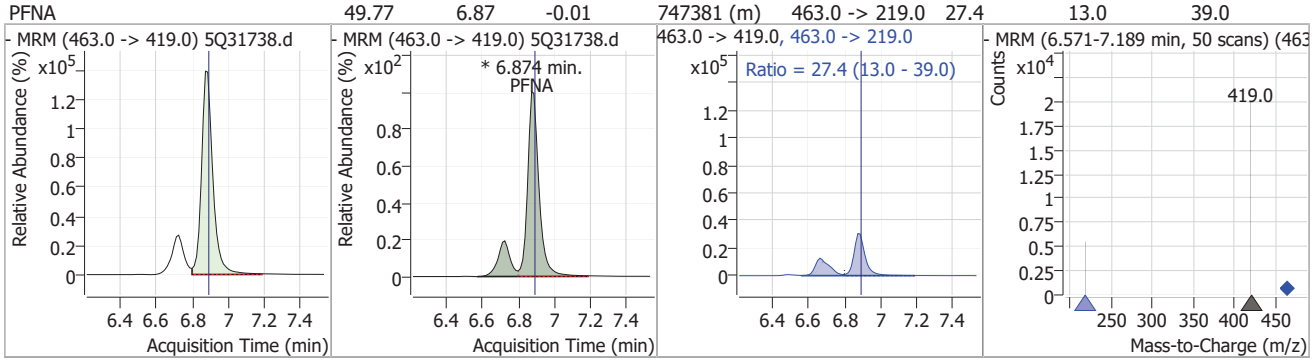
7

Perfluorinated Compounds by LC/MS/MS

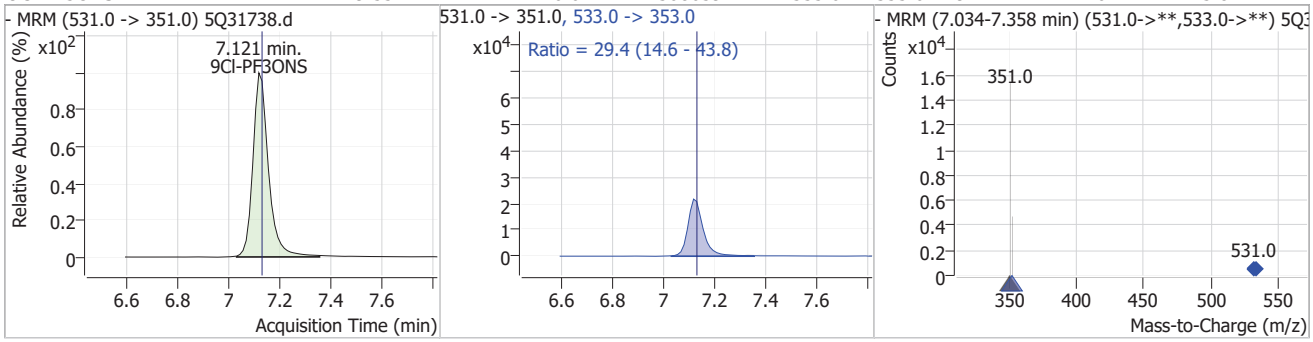
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	49.86	6.85	-0.01	332769 (m)	499.0 -> 99.0	49.5	25.3	75.8



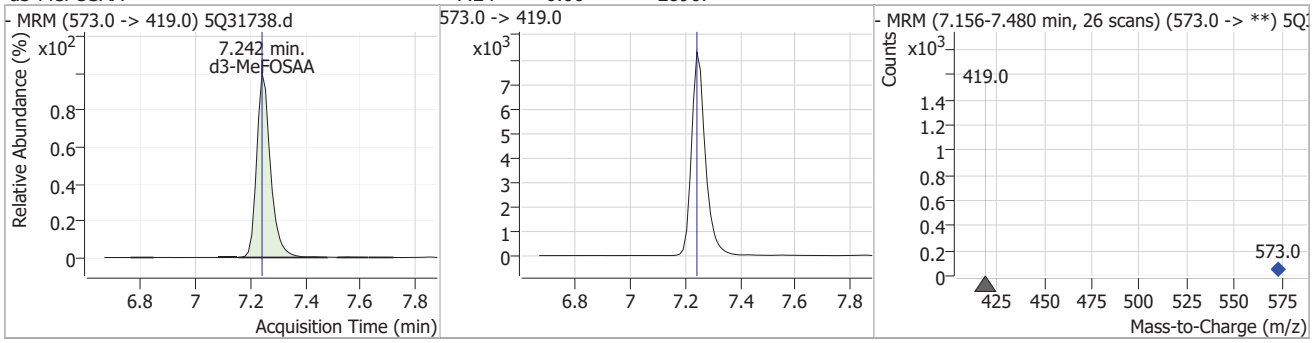
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	49.77	6.87	-0.01	747381 (m)	463.0 -> 219.0	27.4	13.0	39.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	49.53	7.12	-0.01	308059	533.0 -> 353.0	29.4	14.6	43.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	28907				

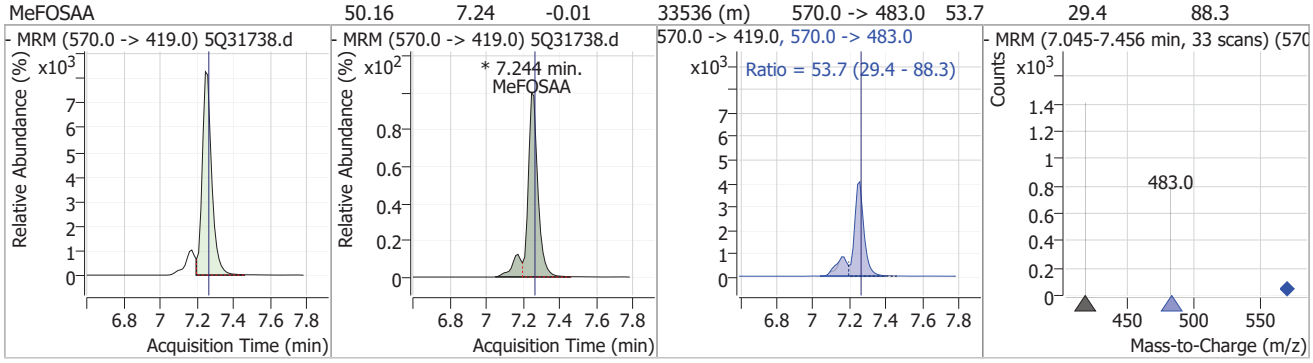


7.7.33

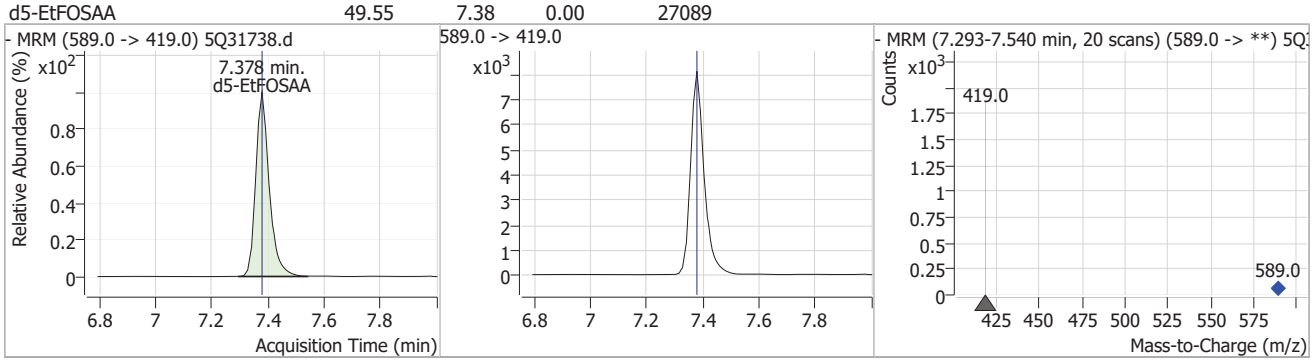
7

Perfluorinated Compounds by LC/MS/MS

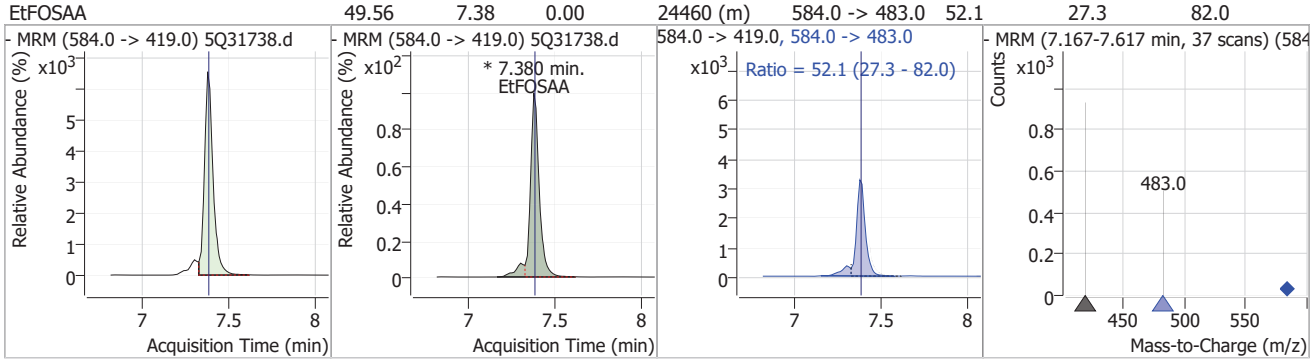
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	50.16	7.24	-0.01	33536 (m)	570.0 -> 483.0	53.7	29.4	88.3



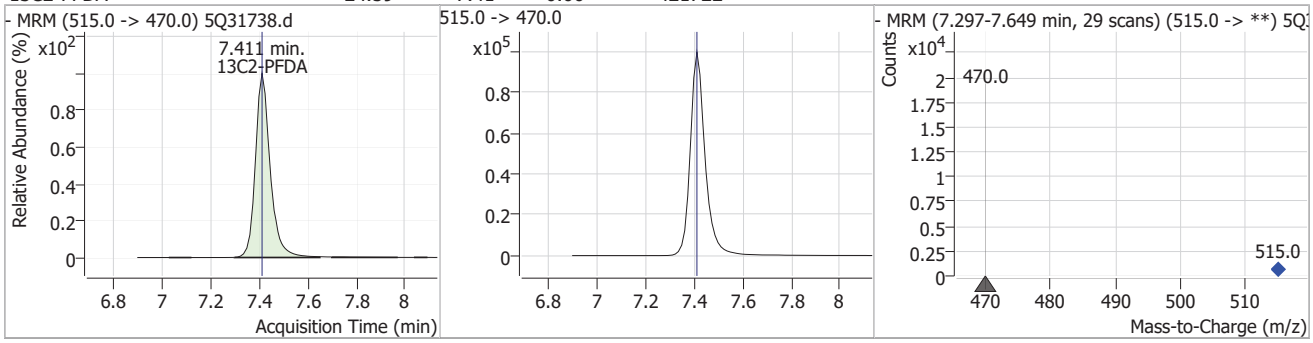
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	49.55	7.38	0.00	27089				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	49.56	7.38	0.00	24460 (m)	584.0 -> 483.0	52.1	27.3	82.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	24.59	7.41	0.00	421722				

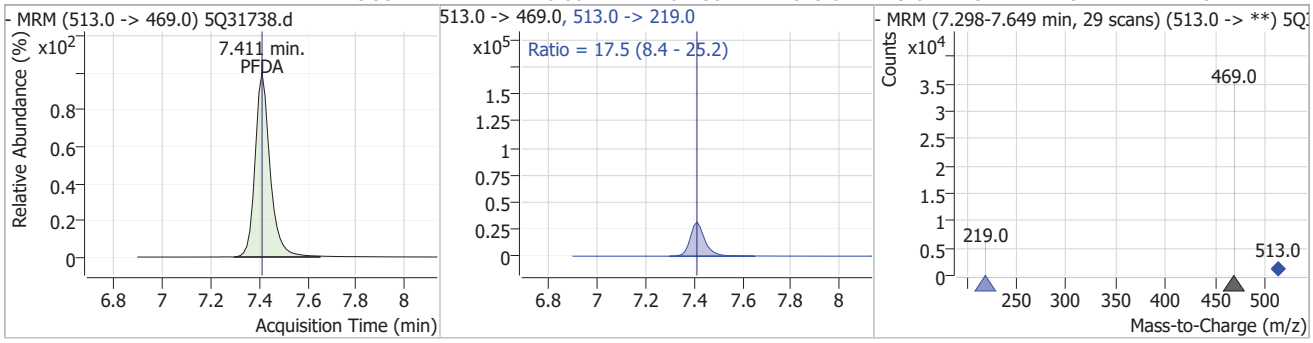


7.7.33

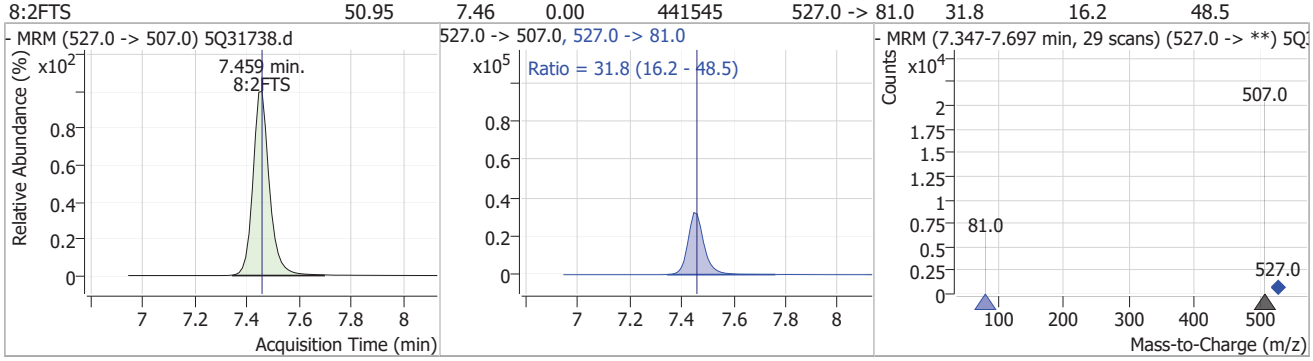
7

Perfluorinated Compounds by LC/MS/MS

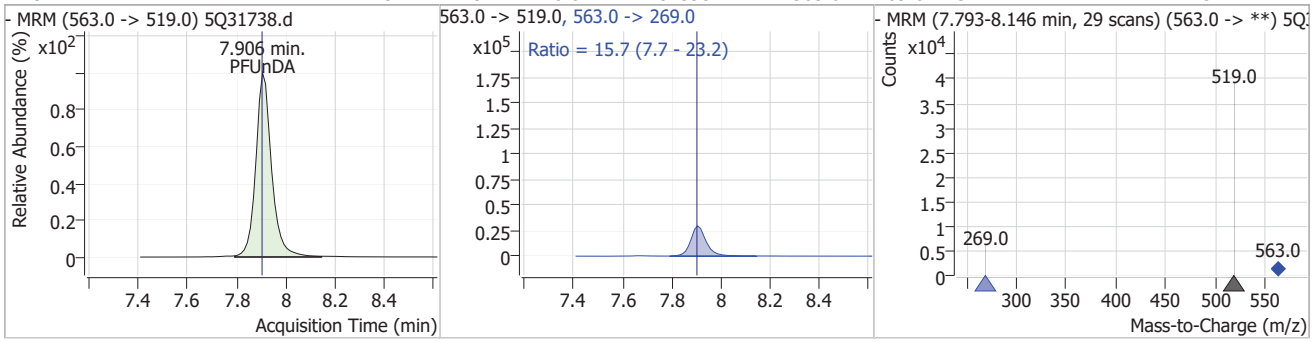
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	46.93	7.41	0.00	764230	513.0 -> 219.0	17.5	8.4	25.2



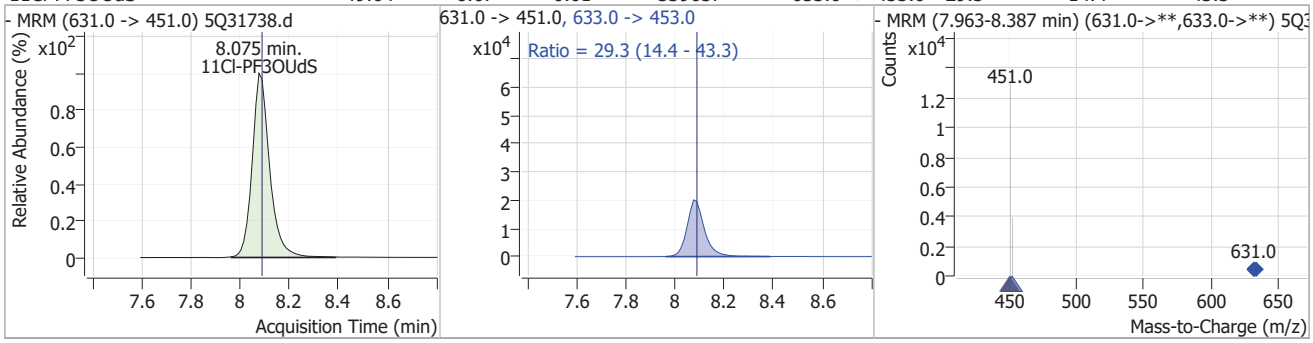
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	50.95	7.46	0.00	441545	527.0 -> 81.0	31.8	16.2	48.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	47.73	7.91	-0.01	843954	563.0 -> 269.0	15.7	7.7	23.2

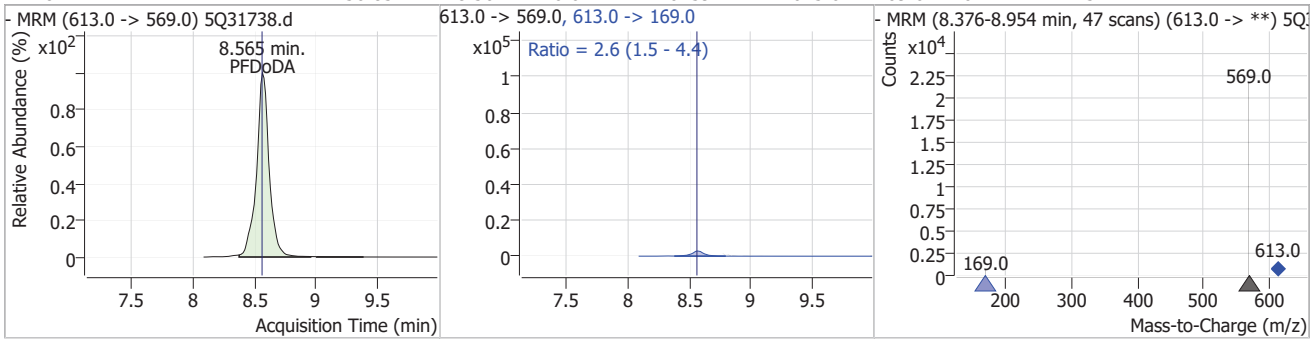


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	49.64	8.07	-0.01	339057	633.0 -> 453.0	29.3	14.4	43.3

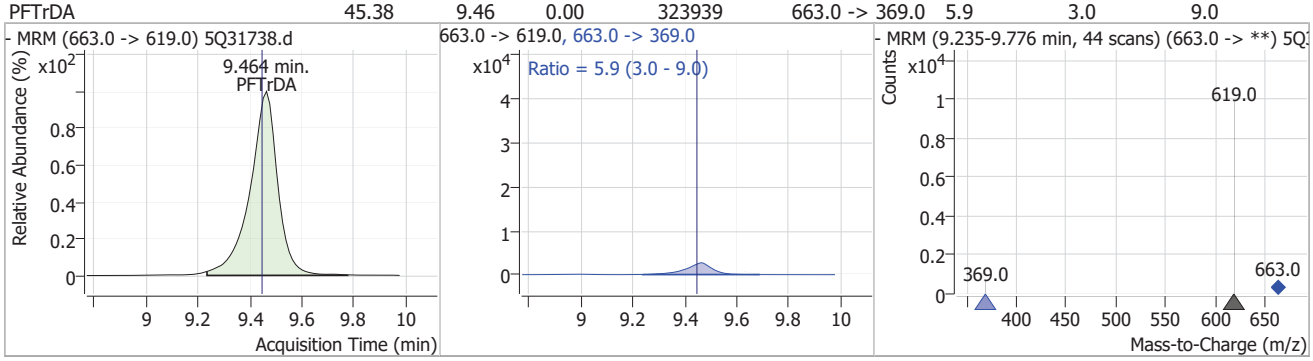


Perfluorinated Compounds by LC/MS/MS

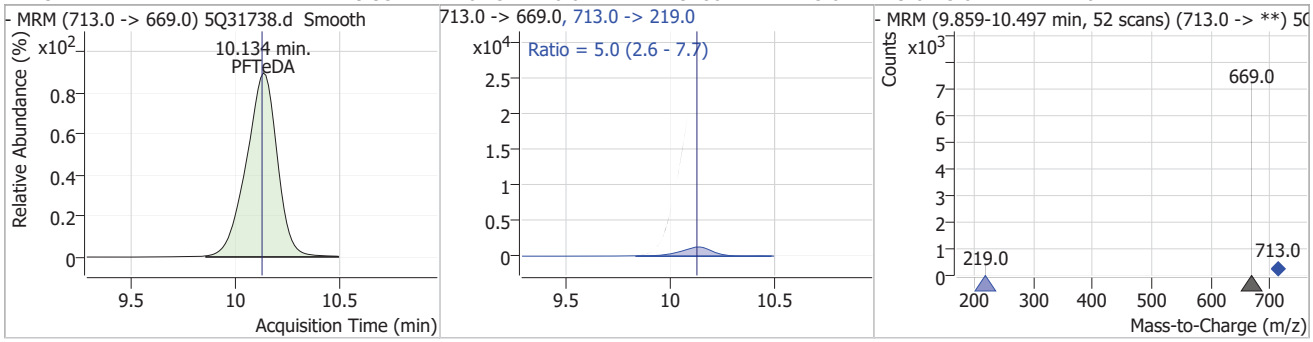
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	50.83	8.56	-0.01	767391	613.0 -> 169.0	2.6	1.5	4.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	45.38	9.46	0.00	323939	663.0 -> 369.0	5.9	3.0	9.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	49.93	10.13	-0.01	279480	713.0 -> 219.0	5.0	2.6	7.7



Manual Integration Approval Summary

Sample Number:	S5Q520-IC520	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31738.D	**Analyst approved:**	04/15/25 14:42 (b) (6)
Injection Time:	04/14/25 12:26	**Supervisor approved:**	04/15/25 15:43 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.85	Split peak
Perfluorononanoic acid	375-95-1		6.87	Split peak
MeFOSAA	2355-31-9		7.24	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/15/25 15:43

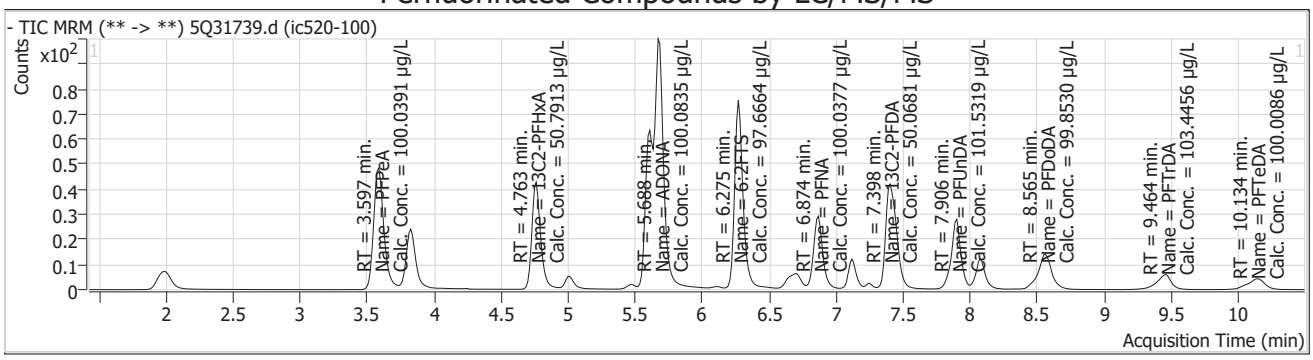
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31739.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/14/2025 12:42:39 PM
Sample Name : ic520-100
Vial : P1-A9
DA Method File : 537_041425_S5Q520.quantmethod
Batch Name : s5q520.batch.bin
Sample Information : OP8806,S5Q520,250,,,1,1,water

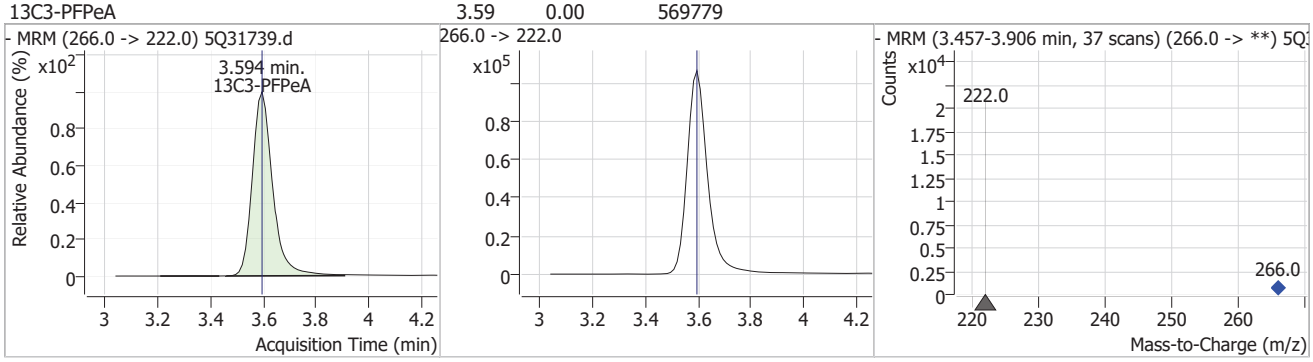
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.274	429.0 -> 409.0	218333	20.00 µg/L		0.000
13C2-PFOA	6.277	415.0 -> 370.0	393854	20.00 µg/L		-0.012
13C3-PFPeA	3.594	266.0 -> 222.0	569779	20.00 µg/L		0.000
13C4-PFOS	6.847	503.0 -> 80.0	103075	20.00 µg/L		-0.012
d3-MeFOSAA	7.242	573.0 -> 419.0	28734	40.00 µg/L		0.000
System Monitoring Compounds						
13C2-PFDA	7.398	515.0 -> 470.0	858092	50.07 µg/L		-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 250.3%		
13C2-PFHxA	4.763	315.0 -> 270.0	1338760	50.79 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 254.0%		
d5-EtFOSAA	7.378	589.0 -> 419.0	56877	100.08 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 250.2%		
13C3-HFPO-DA	5.019	287.0 -> 169.0	181811	102.10 µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 255.2%		
Target Compounds						QValue
6:2FTS	6.275	427.0 -> 407.0	1077345	97.67 µg/L		98
8:2FTS	7.447	527.0 -> 507.0	939604	99.15 µg/L		99
EtFOSAA	7.380	584.0 -> 419.0	49618	100.08 µg/L	m	98
MeFOSAA	7.244	570.0 -> 419.0	72500	99.97 µg/L	m	93
PFBS	3.828	299.0 -> 80.0	1408539	99.96 µg/L		99
PFDA	7.399	513.0 -> 469.0	1547555	101.83 µg/L		97
PFDoDA	8.565	613.0 -> 569.0	1682283	99.85 µg/L		100
PFHpA	5.601	363.0 -> 319.0	3715095	100.10 µg/L		100
PFHxA	4.764	313.0 -> 269.0	1840504	100.07 µg/L		99
PFHxS	5.635	399.0 -> 80.0	936272	100.07 µg/L	m	100
PFNA	6.874	463.0 -> 419.0	1539819	100.04 µg/L	m	96
PFOA	6.277	413.0 -> 369.0	1994321	99.96 µg/L		99
PFOS	6.848	499.0 -> 80.0	695855	100.02 µg/L	m	99
PFPeA	3.597	263.0 -> 219.0	3877485	100.04 µg/L		100
PFTeDA	10.134	713.0 -> 669.0	639197	100.01 µg/L		99
PFTrDA	9.464	663.0 -> 619.0	730373	103.45 µg/L		99
PFUnDA	7.906	563.0 -> 519.0	1775613	101.53 µg/L		99
ADONA	5.688	377.0 -> 251.0	5169231	100.08 µg/L		100
9Cl-PF3ONS	7.121	531.0 -> 351.0	643238	100.07 µg/L		99
11Cl-PF3OUdS	8.075	631.0 -> 451.0	756336	100.05 µg/L		98
HFPO-DA	5.022	285.0 -> 169.0	176993	100.06 µg/L	#	99

 # = Qualifier out of range, m = manually integrated, + = Area summed

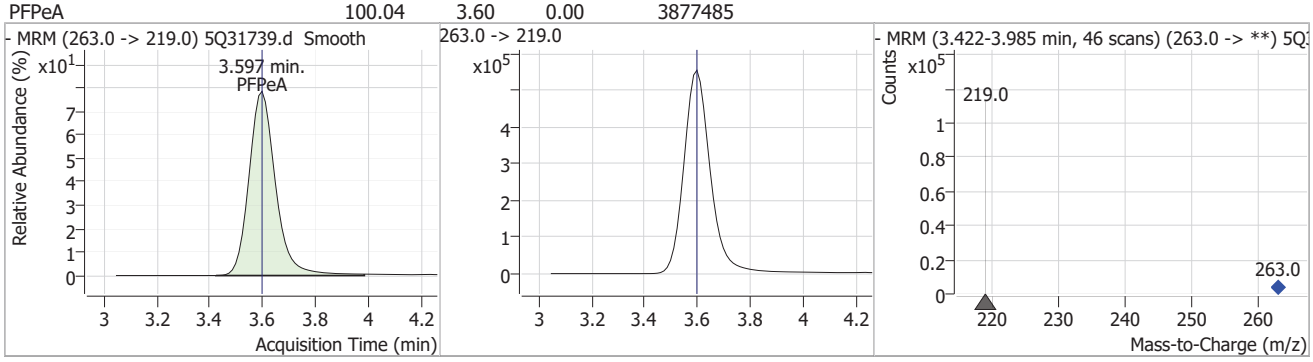
Perfluorinated Compounds by LC/MS/MS



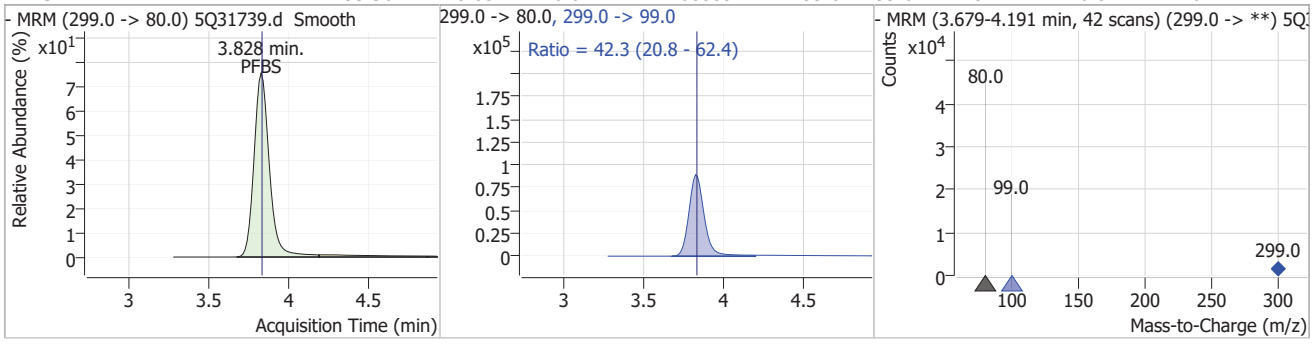
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	569779				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	100.04	3.60	0.00	3877485				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	99.96	3.83	-0.01	1408539	299.0 -> 99.0	42.3	20.8	62.4

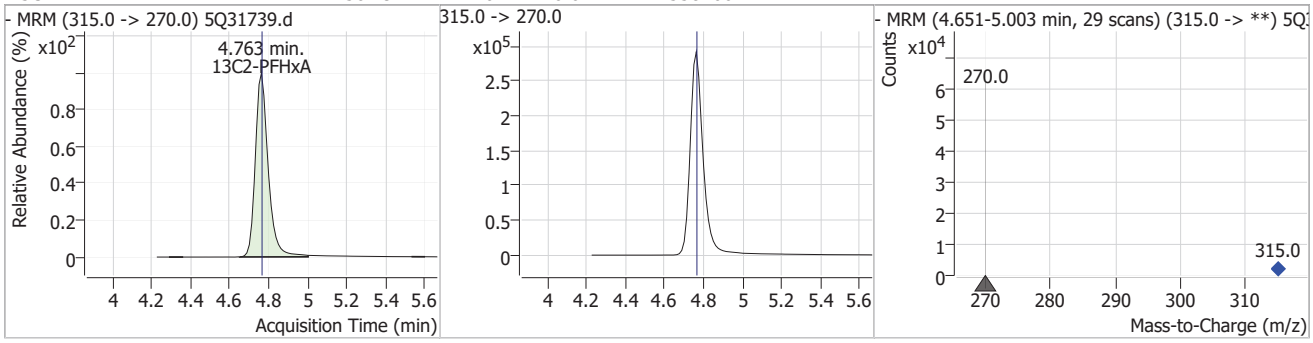


7.7.34

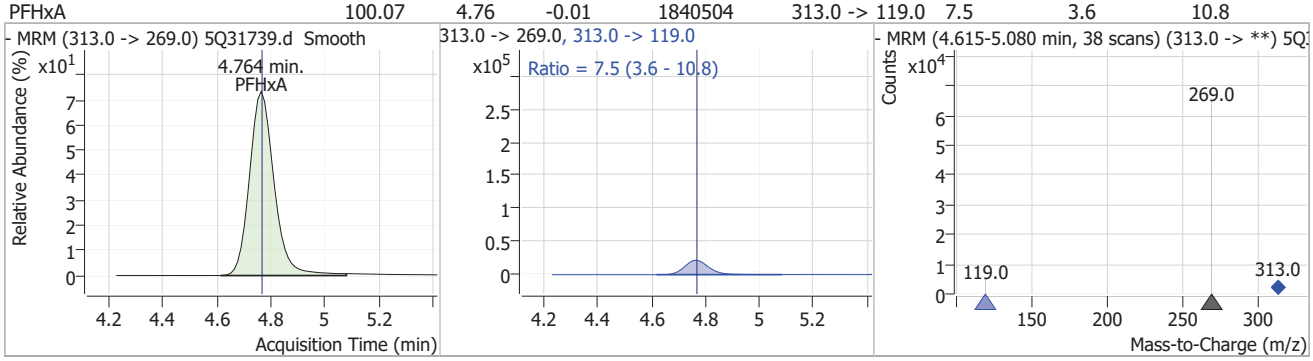
7

Perfluorinated Compounds by LC/MS/MS

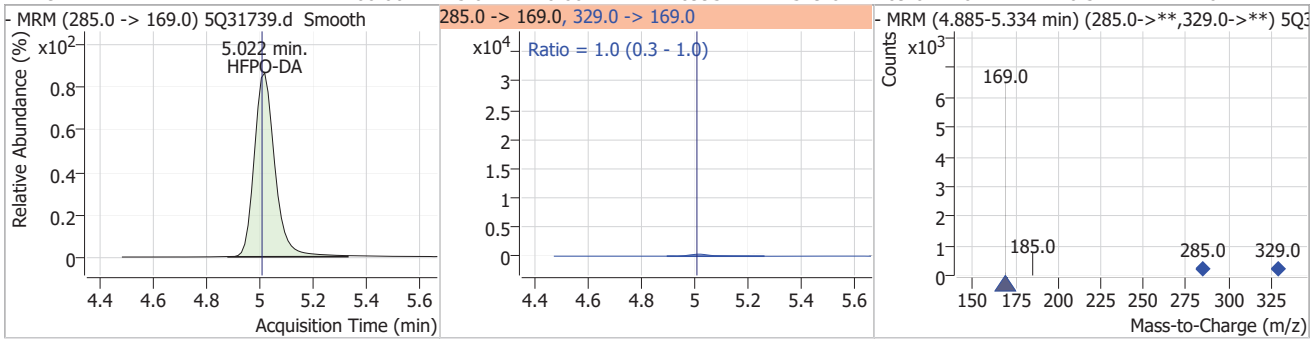
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	50.79	4.76	-0.01	1338760				



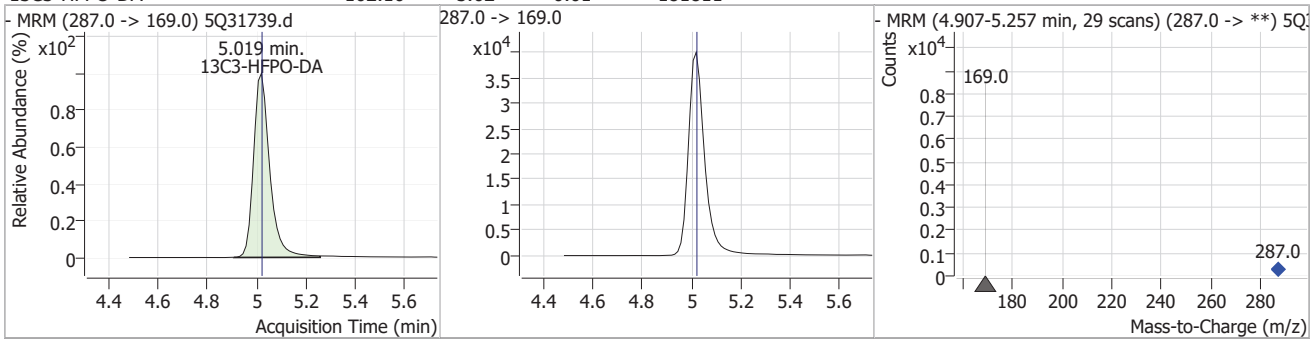
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	100.07	4.76	-0.01	1840504	313.0 -> 119.0	7.5	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	100.06	5.02	0.00	176993	329.0 -> 169.0	1.0	0.3	1.0

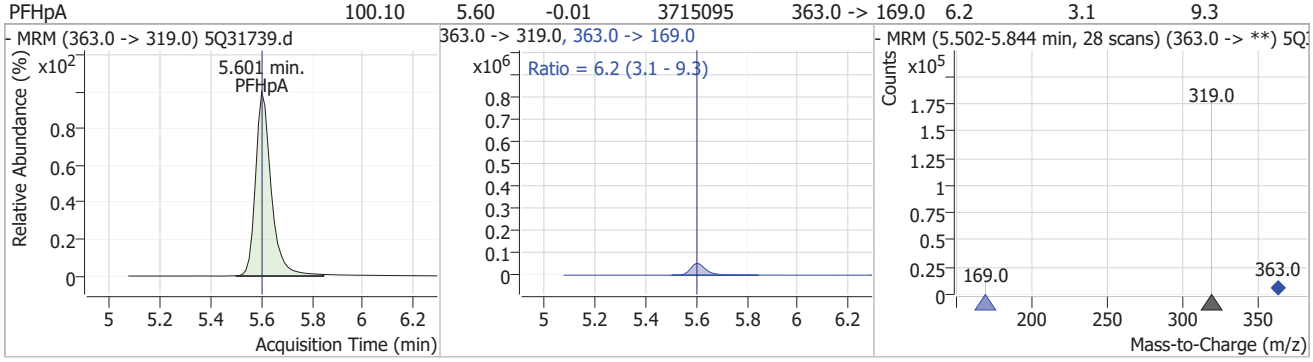


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	102.10	5.02	-0.01	181811				

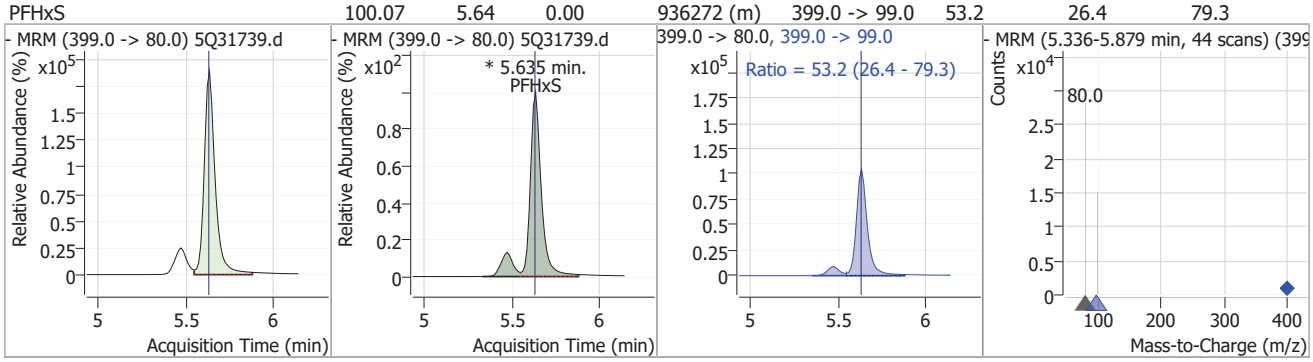


Perfluorinated Compounds by LC/MS/MS

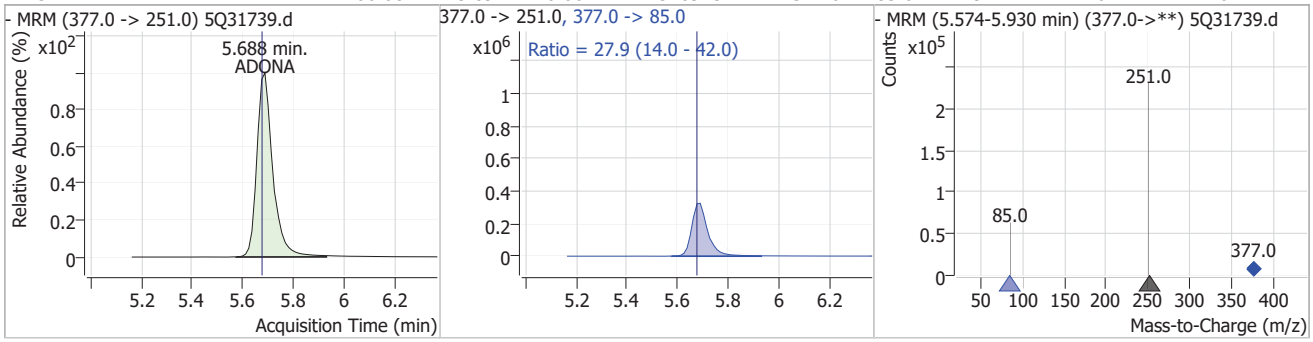
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	100.10	5.60	-0.01	3715095	363.0 -> 169.0	6.2	3.1	9.3



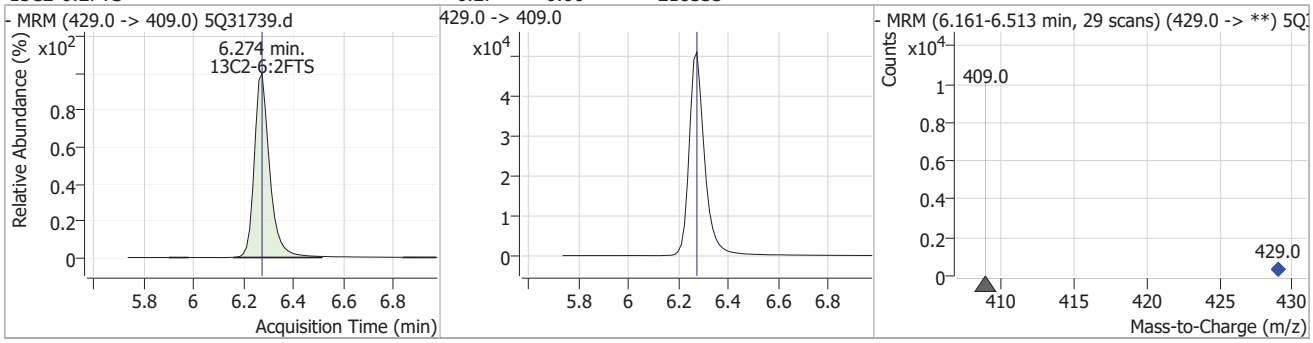
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	100.07	5.64	0.00	936272 (m)	399.0 -> 99.0	53.2	26.4	79.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	100.08	5.69	0.00	5169231	377.0 -> 85.0	27.9	14.0	42.0

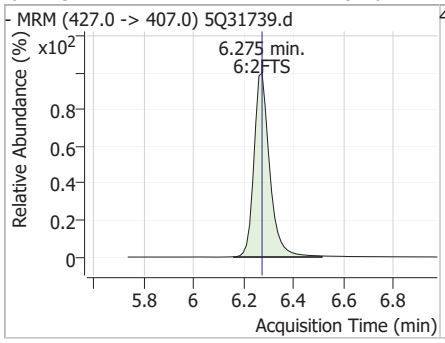


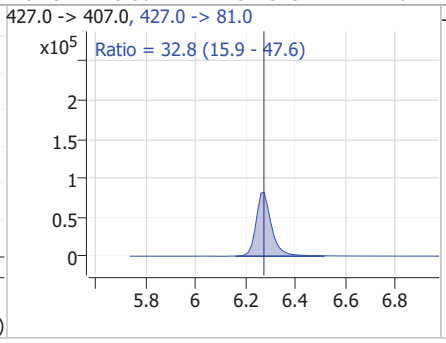
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	0.00	218333				

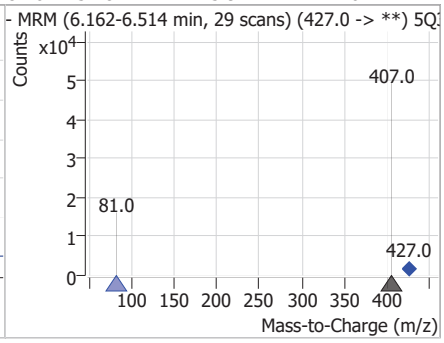


Perfluorinated Compounds by LC/MS/MS

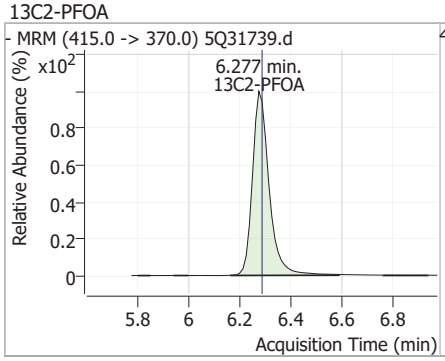
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	97.67	6.28	0.00	1077345	427.0 -> 81.0	32.8	15.9	47.6

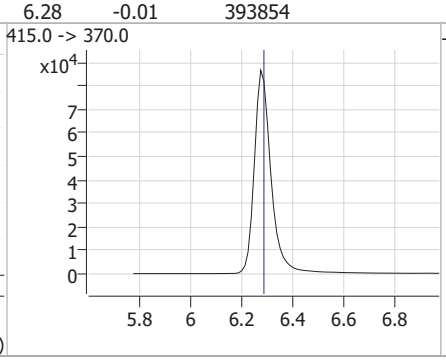


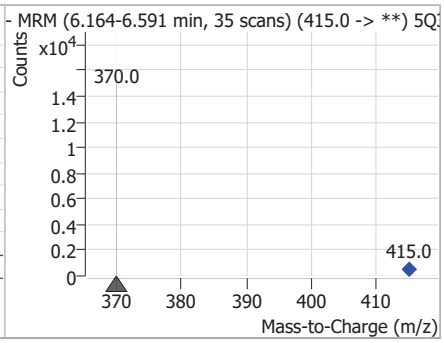




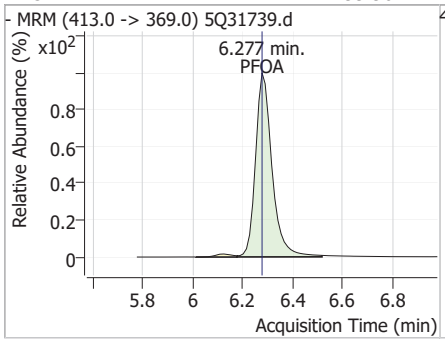
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.28	-0.01	393854				

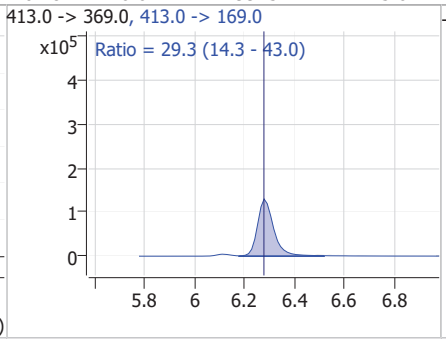


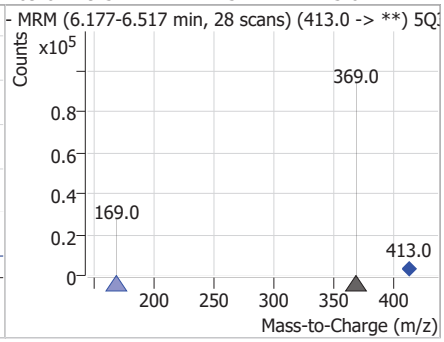




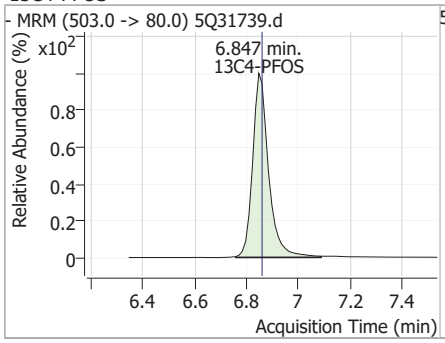
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	99.96	6.28	-0.01	1994321	413.0 -> 169.0	29.3	14.3	43.0

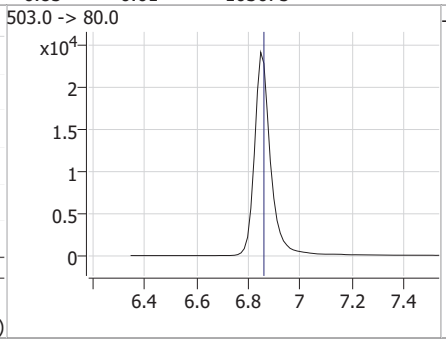


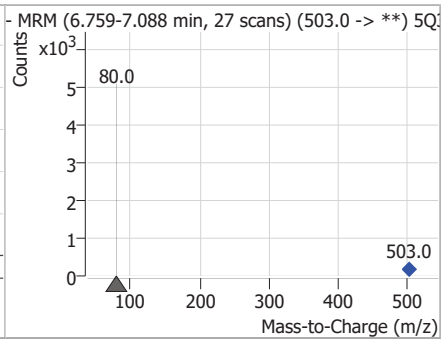




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.85	-0.01	103075				

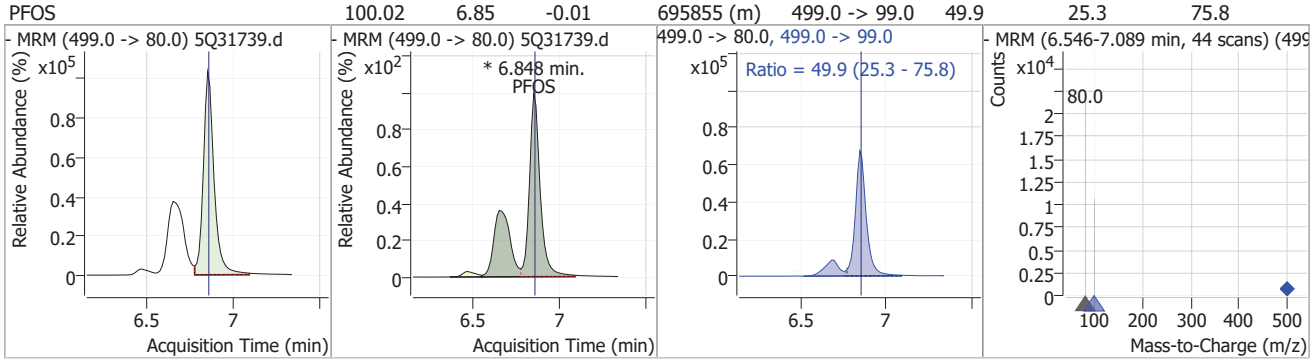




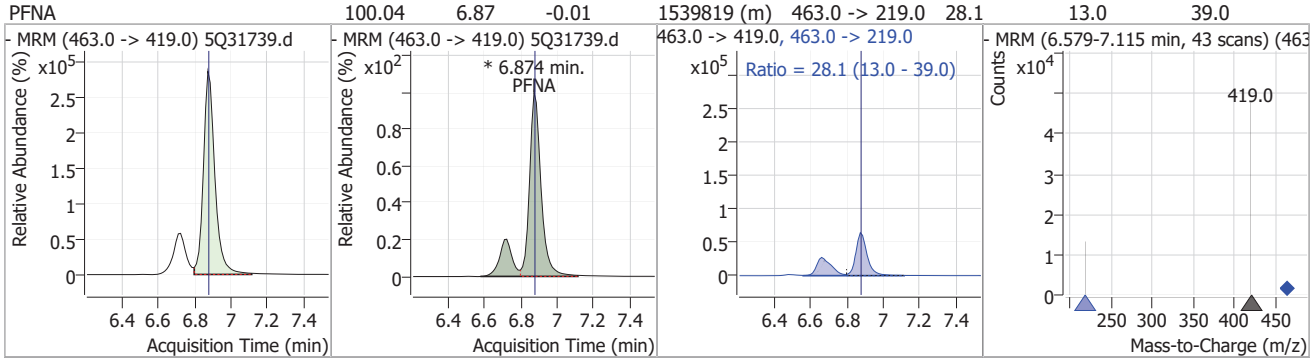


Perfluorinated Compounds by LC/MS/MS

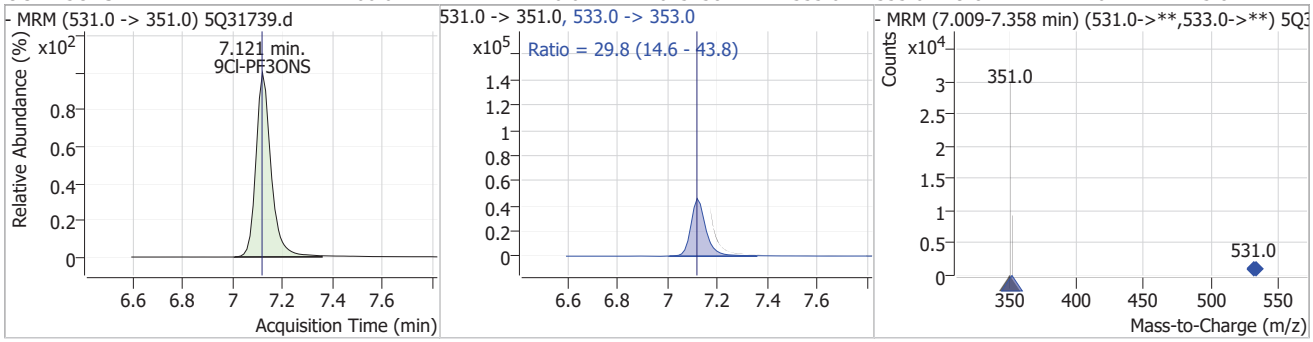
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	100.02	6.85	-0.01	695855 (m)	499.0 -> 99.0	49.9	25.3	75.8



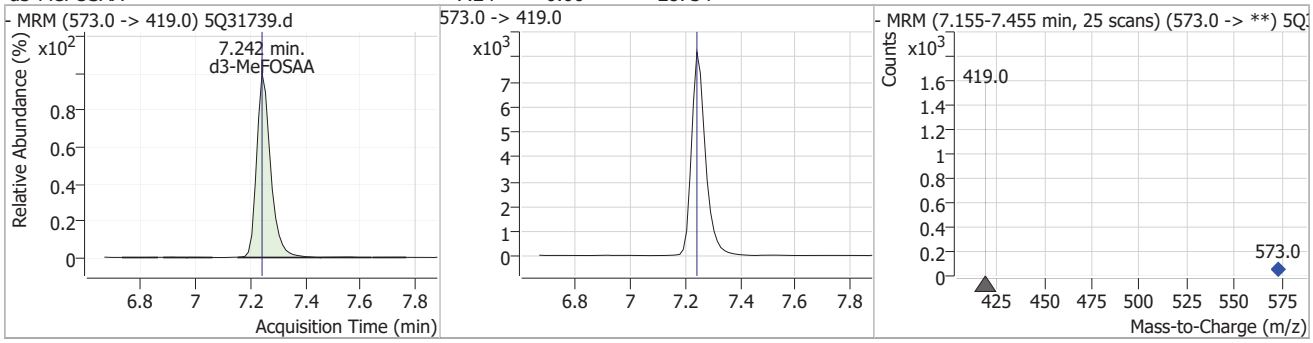
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	100.04	6.87	-0.01	1539819 (m)	463.0 -> 219.0	28.1	13.0	39.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	100.07	7.12	-0.01	643238	533.0 -> 353.0	29.8	14.6	43.8

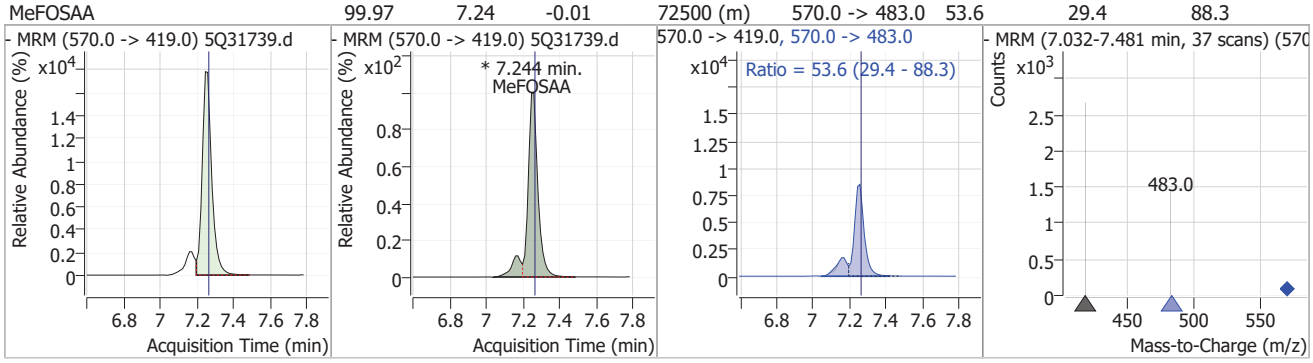


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	28734				

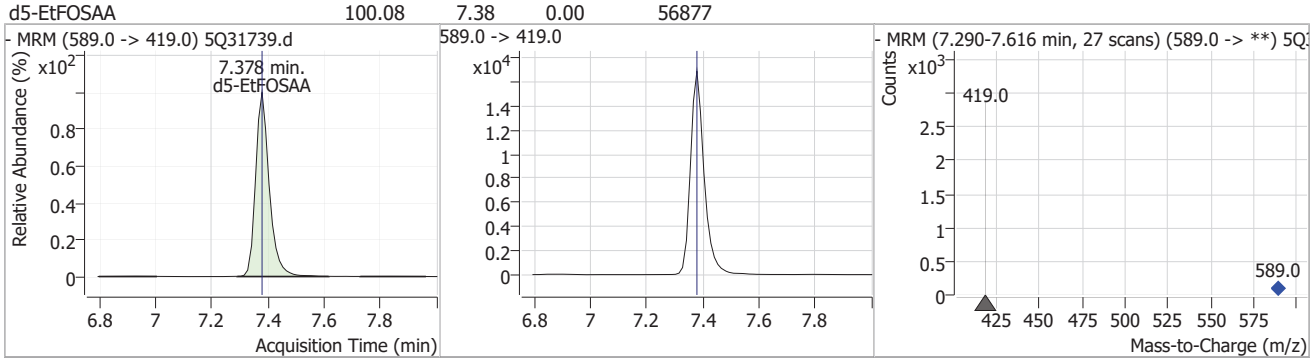


Perfluorinated Compounds by LC/MS/MS

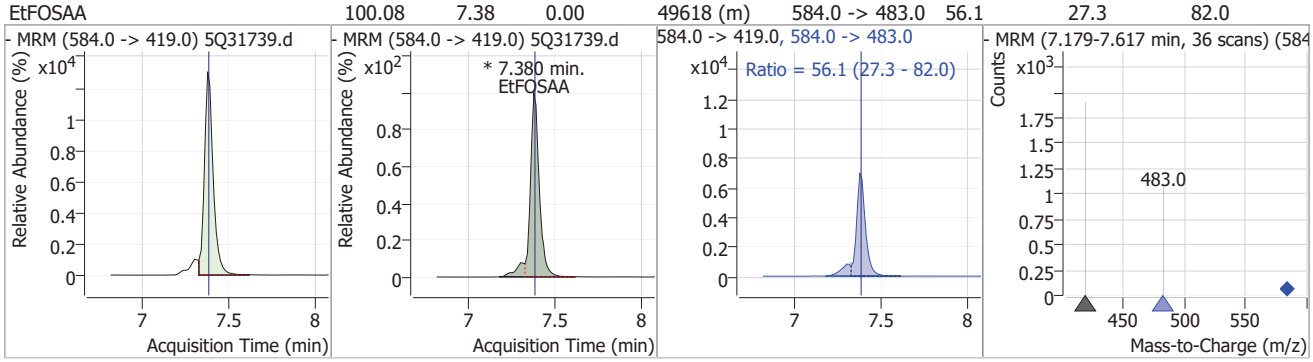
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	99.97	7.24	-0.01	72500 (m)	570.0 -> 483.0	53.6	29.4	88.3



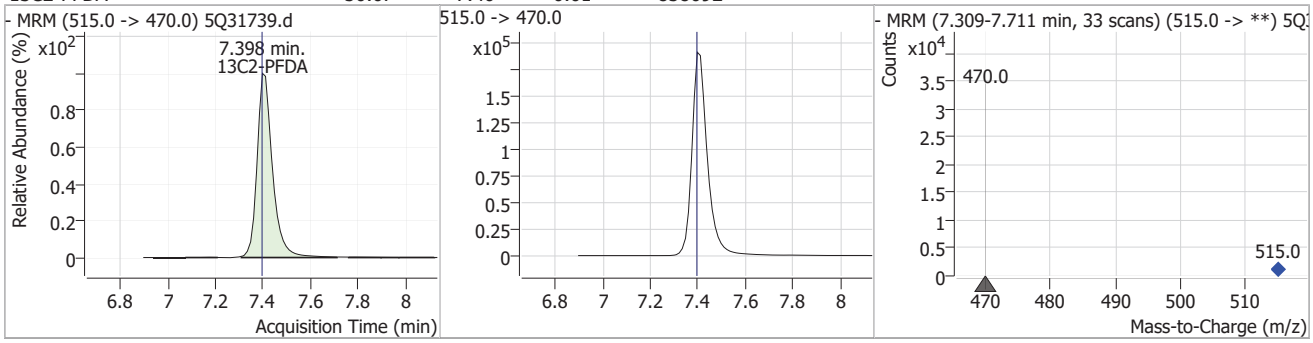
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	100.08	7.38	0.00	56877				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	100.08	7.38	0.00	49618 (m)	584.0 -> 483.0	56.1	27.3	82.0

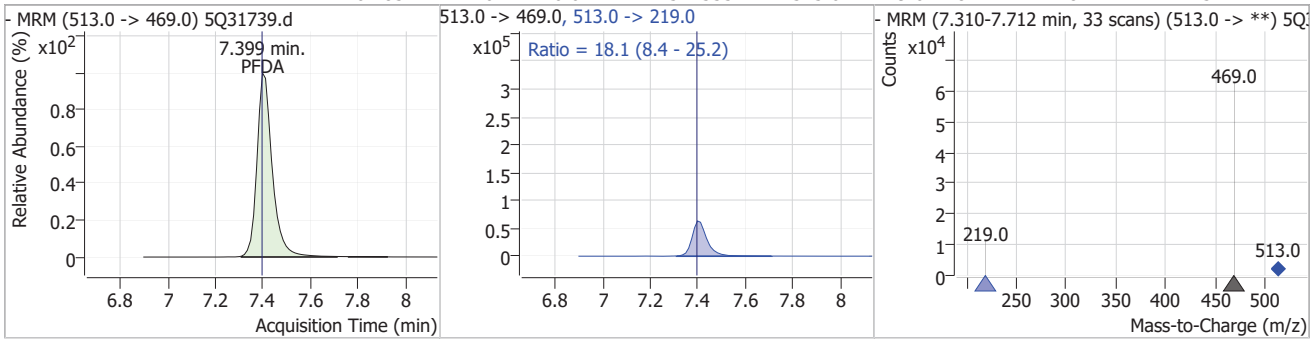


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	50.07	7.40	-0.01	858092				

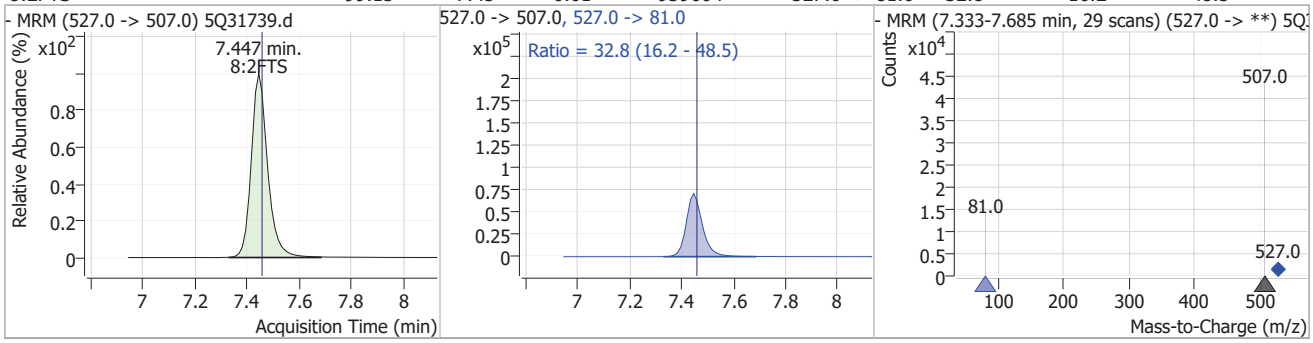


Perfluorinated Compounds by LC/MS/MS

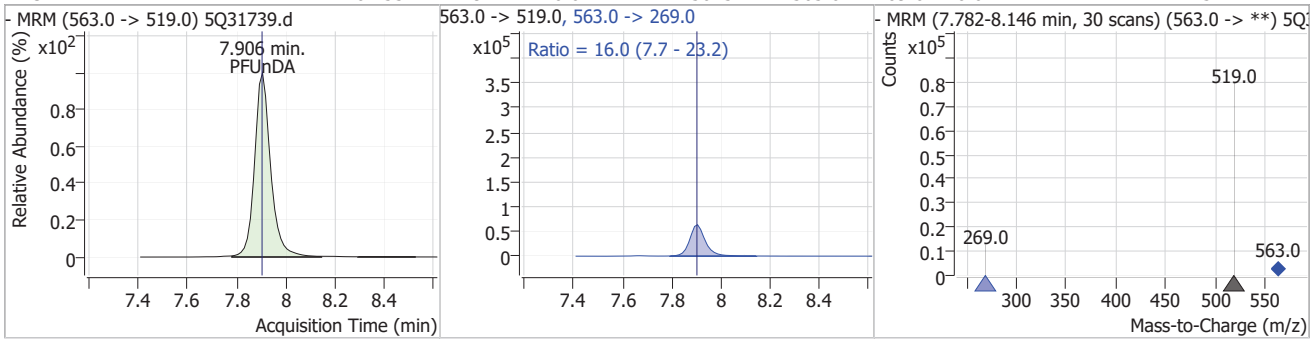
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	101.83	7.40	-0.01	1547555	513.0 -> 219.0	18.1	8.4	25.2



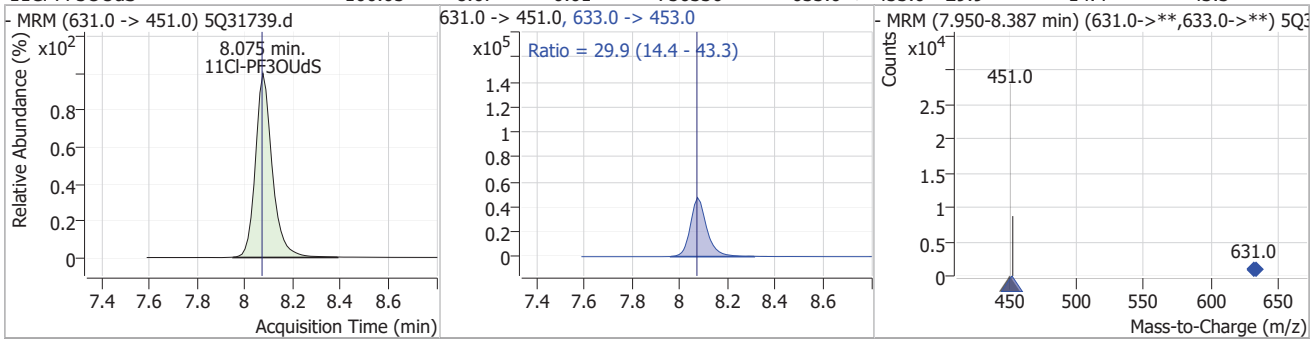
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	99.15	7.45	-0.01	939604	527.0 -> 81.0	32.8	16.2	48.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	101.53	7.91	-0.01	1775613	563.0 -> 269.0	16.0	7.7	23.2

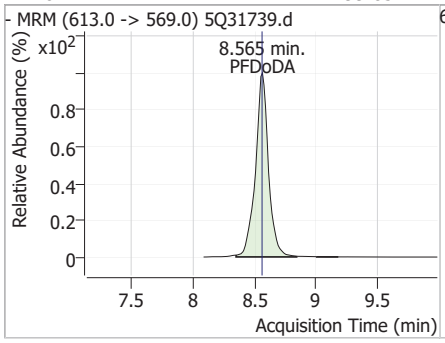


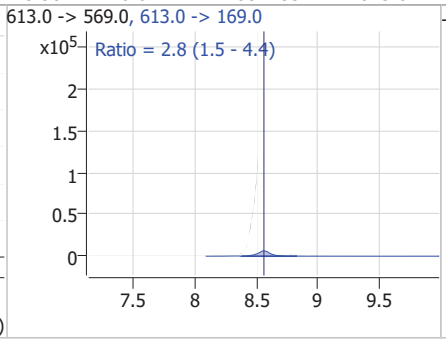
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	100.05	8.07	-0.01	756336	633.0 -> 453.0	29.9	14.4	43.3

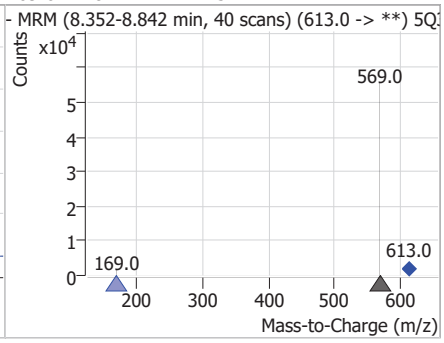


Perfluorinated Compounds by LC/MS/MS

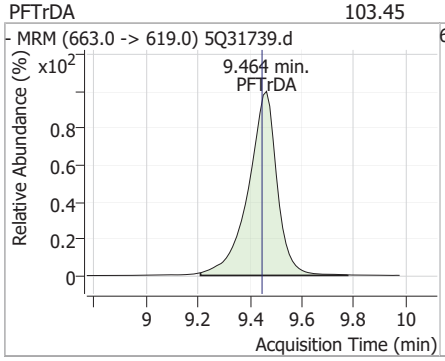
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	99.85	8.56	-0.01	1682283	613.0 -> 169.0	2.8	1.5	4.4

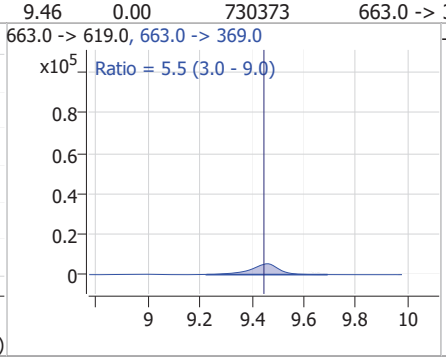


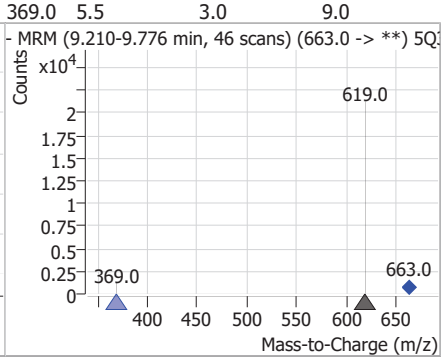




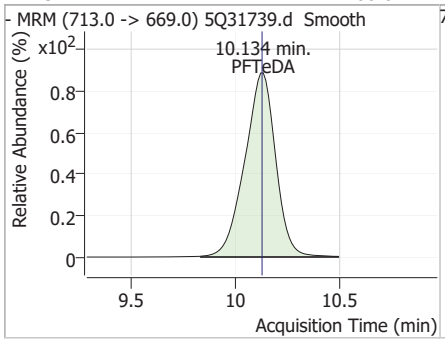
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	103.45	9.46	0.00	730373	663.0 -> 369.0	5.5	3.0	9.0

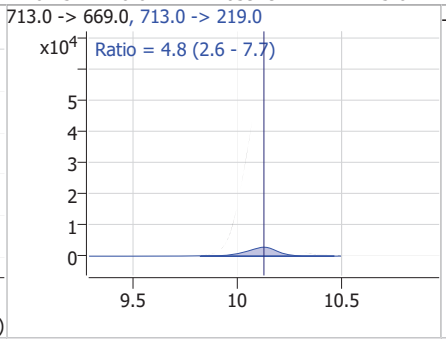


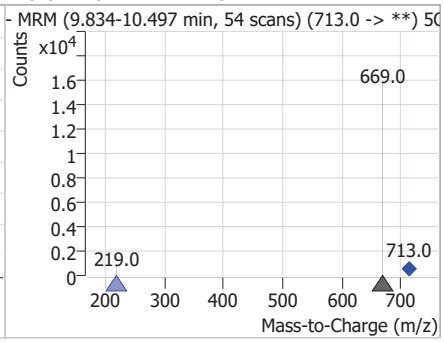




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	100.01	10.13	-0.01	639197	713.0 -> 219.0	4.8	2.6	7.7







Manual Integration Approval Summary

Sample Number:	S5Q520-IC520	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31739.D	**Analyst approved:**	04/15/25 14:42 (b) (6)
Injection Time:	04/14/25 12:42	**Supervisor approved:**	04/15/25 15:43 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.85	Split peak
Perfluorononanoic acid	375-95-1		6.87	Split peak
MeFOSAA	2355-31-9		7.24	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/15/25 15:43

Perfluorinated Compounds by LC/MS/MS

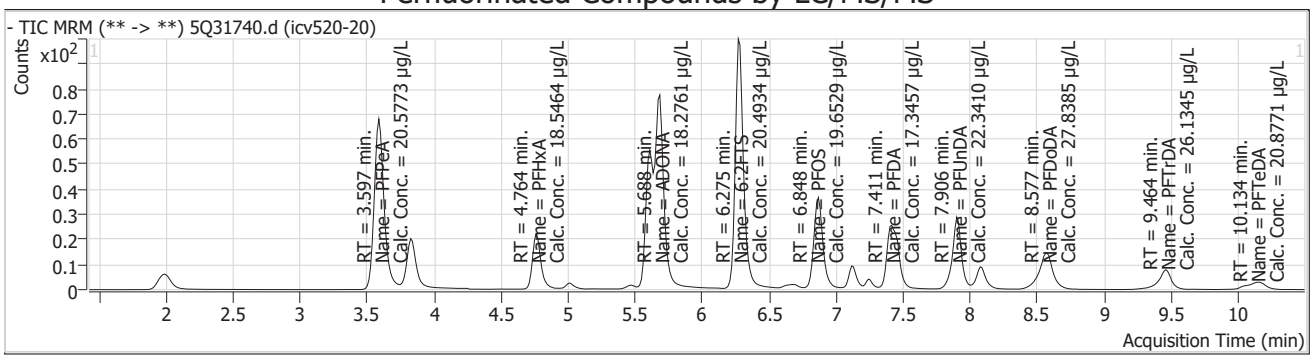
Data File : 5Q31740.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/14/2025 12:58:40 PM
Sample Name : icv520-20
Vial : P1-B1
DA Method File : 537_041425_S5Q520.quantmethod
Batch Name : s5q520.batch.bin
Sample Information : OP8806,S5Q520,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	193576	20.00	µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	443451	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	586199	20.00	µg/L		0.000
13C4-PFOS	6.847	503.0 -> 80.0	104145	20.00	µg/L		-0.012
d3-MeFOSAA	7.242	573.0 -> 419.0	30318	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.423	515.0 -> 470.0	0		µg/L	m	0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C2-PFHxA	4.763	315.0 -> 270.0	0		µg/L	m	-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
d5-EtFOSAA	7.391	589.0 -> 419.0	0		µg/L	m	0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C3-HFPO-DA	5.007	287.0 -> 169.0	0		µg/L	m	-0.025
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
Target Compounds							QValue
6:2FTS	6.275	427.0 -> 407.0	200427	20.49	µg/L		99
8:2FTS	7.459	527.0 -> 507.0	172737	20.56	µg/L		98
EtFOSAA	7.380	584.0 -> 419.0	9337	18.15	µg/L	m	95
MeFOSAA	7.256	570.0 -> 419.0	13318	20.10	µg/L	m	95
PFBS	3.828	299.0 -> 80.0	251004	17.63	µg/L		100
PFDA	7.411	513.0 -> 469.0	296809	17.35	µg/L		100
PFDoDA	8.577	613.0 -> 569.0	394808	27.84	µg/L		100
PFHpA	5.601	363.0 -> 319.0	745219	20.27	µg/L		100
PFHxA	4.764	313.0 -> 269.0	351526	18.55	µg/L		99
PFHxS	5.635	399.0 -> 80.0	148350	17.39	µg/L	m	98
PFNA	6.886	463.0 -> 419.0	334274	22.38	µg/L		89
PFOA	6.290	413.0 -> 369.0	428227	20.47	µg/L		99
PFOS	6.848	499.0 -> 80.0	126814	19.65	µg/L	m	95
PFPeA	3.597	263.0 -> 219.0	758542	20.58	µg/L		100
PFTeDA	10.134	713.0 -> 669.0	106324	20.88	µg/L		100
PFTrDA	9.464	663.0 -> 619.0	186436	26.13	µg/L		100
PFUnDA	7.906	563.0 -> 519.0	394759	22.34	µg/L		100
ADONA	5.688	377.0 -> 251.0	889423	18.28	µg/L		99
9Cl-PF3ONS	7.121	531.0 -> 351.0	110101	18.05	µg/L		99
11Cl-PF3OUdS	8.075	631.0 -> 451.0	124802	19.56	µg/L		98
HFPO-DA	5.022	285.0 -> 169.0	33725	19.10	µg/L		100

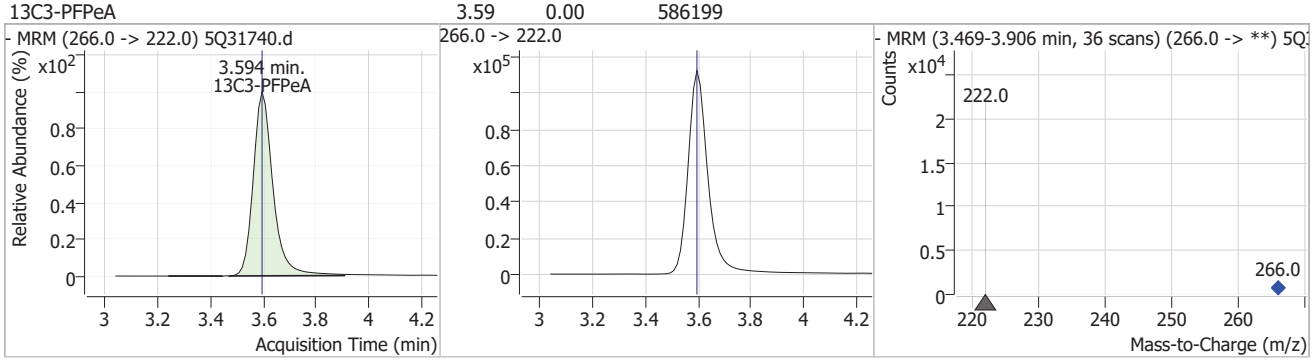
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.35
7

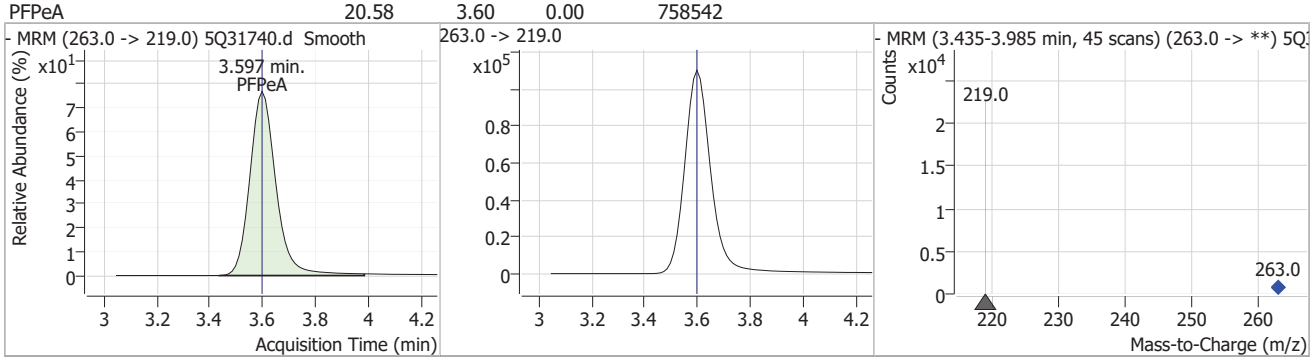
Perfluorinated Compounds by LC/MS/MS



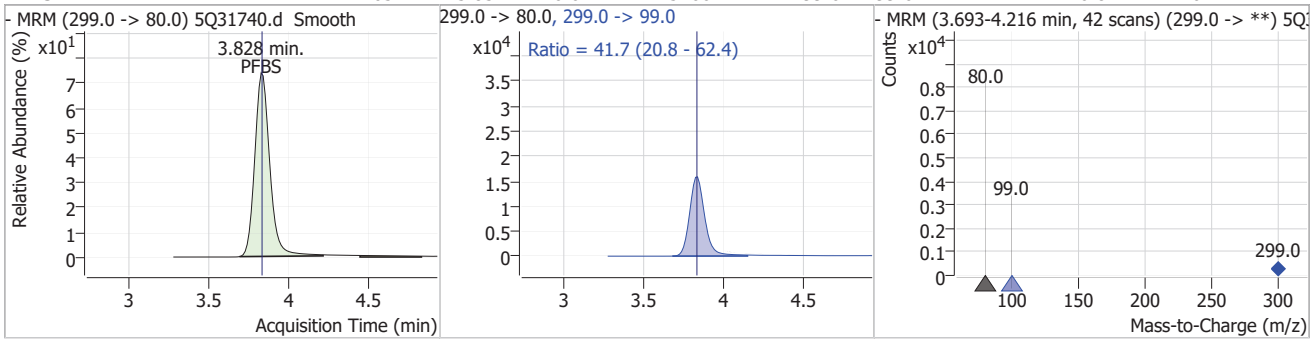
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	586199				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.58	3.60	0.00	758542				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	17.63	3.83	-0.01	251004	299.0 -> 99.0	41.7	20.8	62.4



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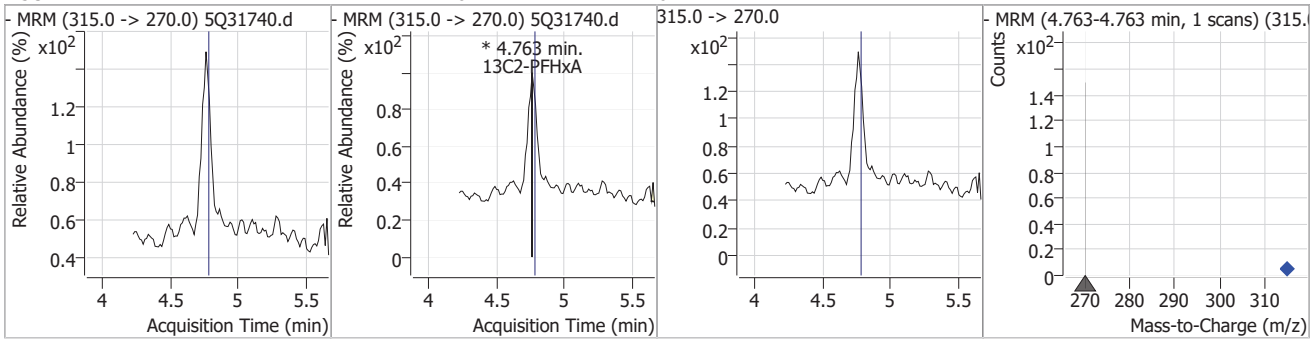
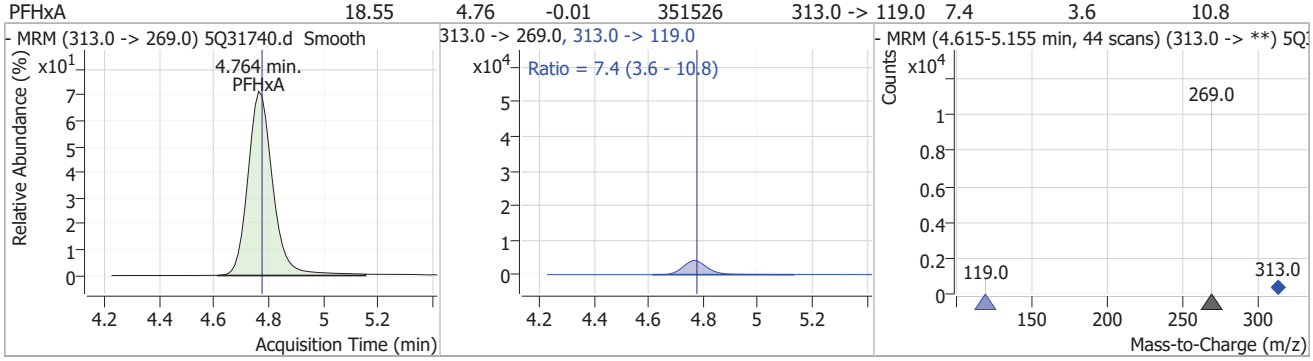
Perfluorinated Compounds by LC/MS/MS

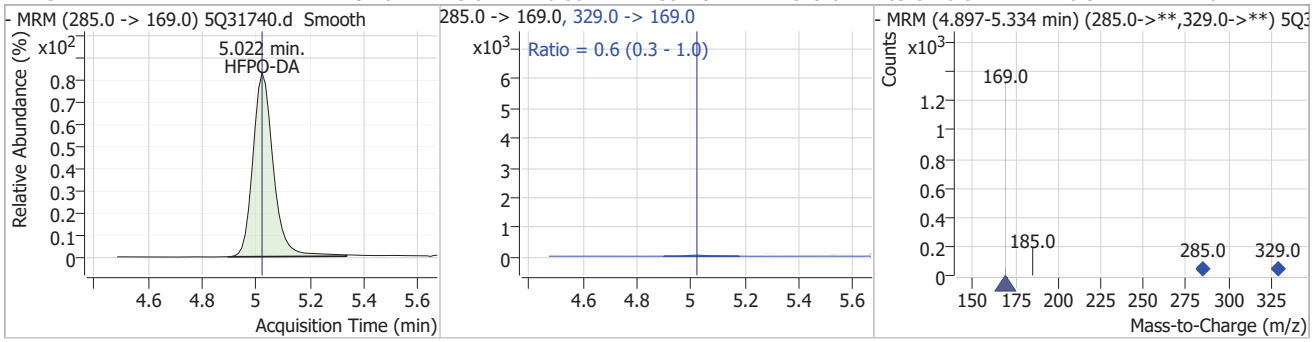
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA		0		0				



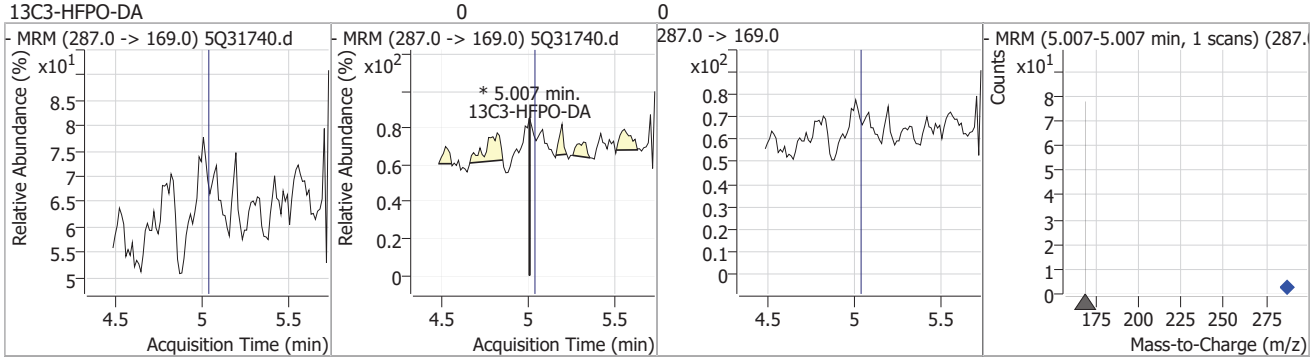
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	18.55	4.76	-0.01	351526	313.0 -> 119.0	7.4	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.10	5.02	0.00	33725	329.0 -> 169.0	0.6	0.3	1.0

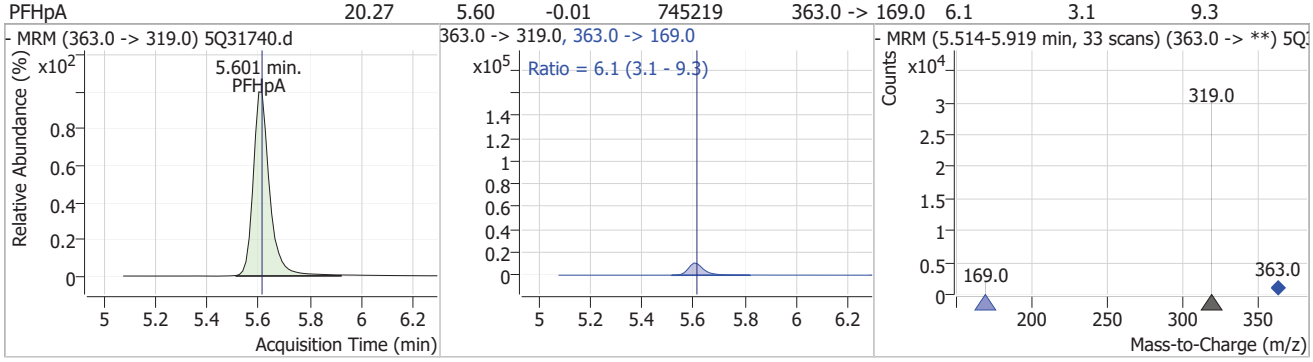


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA		0		0				

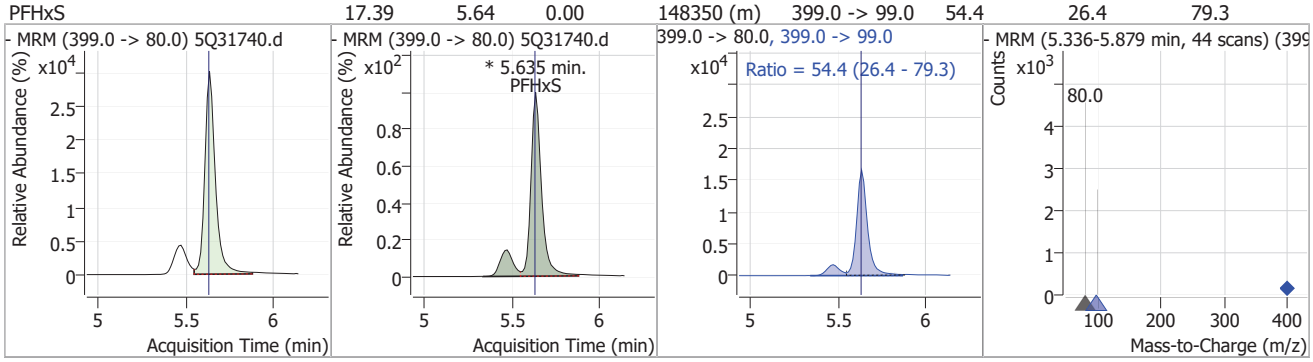


Perfluorinated Compounds by LC/MS/MS

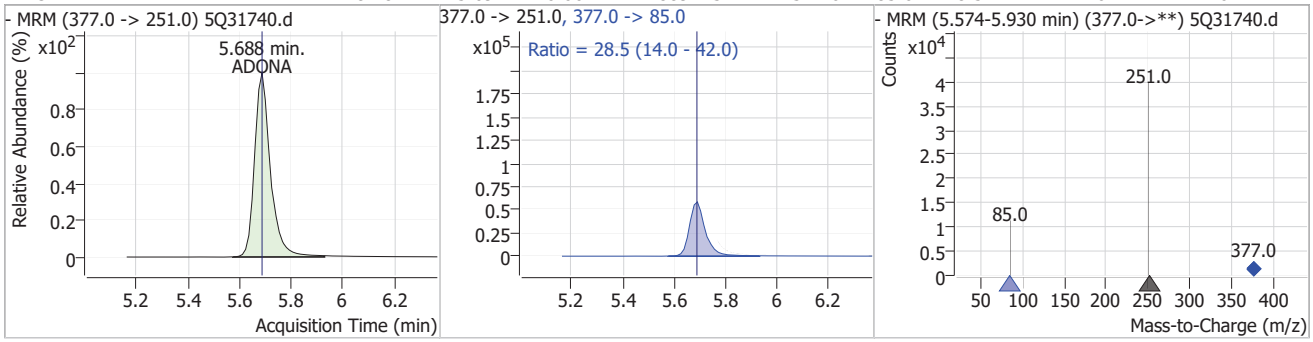
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.27	5.60	-0.01	745219	363.0 -> 169.0	6.1	3.1	9.3



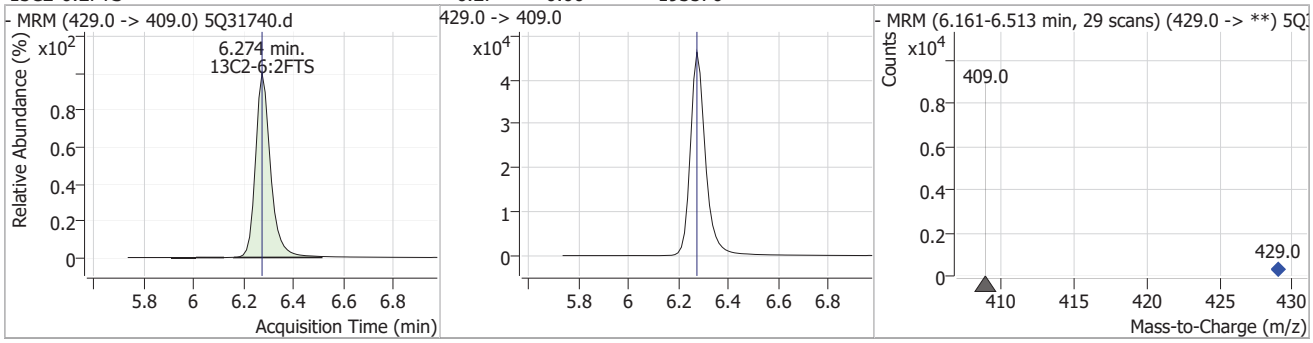
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	17.39	5.64	0.00	148350 (m)	399.0 -> 99.0	54.4	26.4	79.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	18.28	5.69	0.00	889423	377.0 -> 85.0	28.5	14.0	42.0

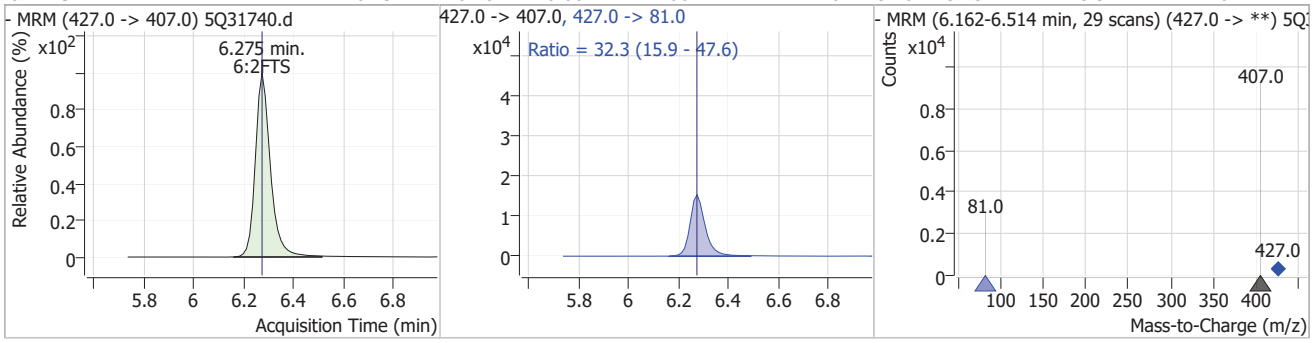


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	0.00	193576				

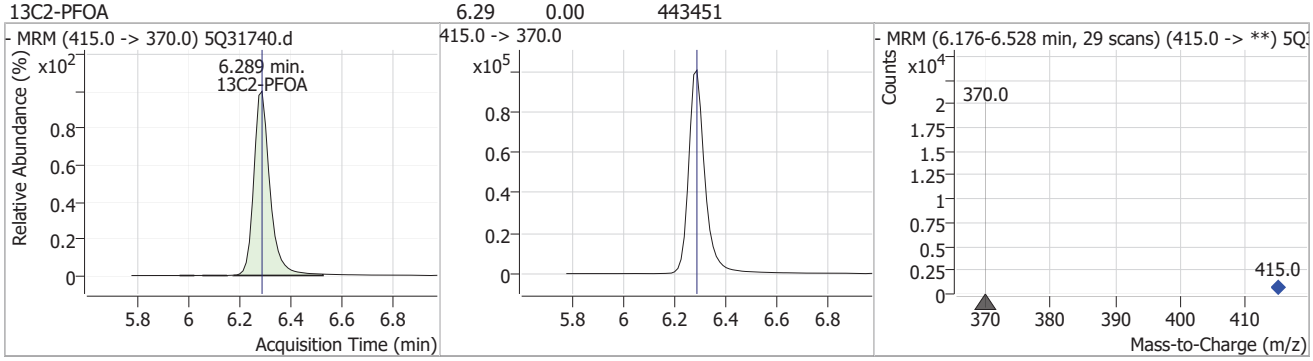


Perfluorinated Compounds by LC/MS/MS

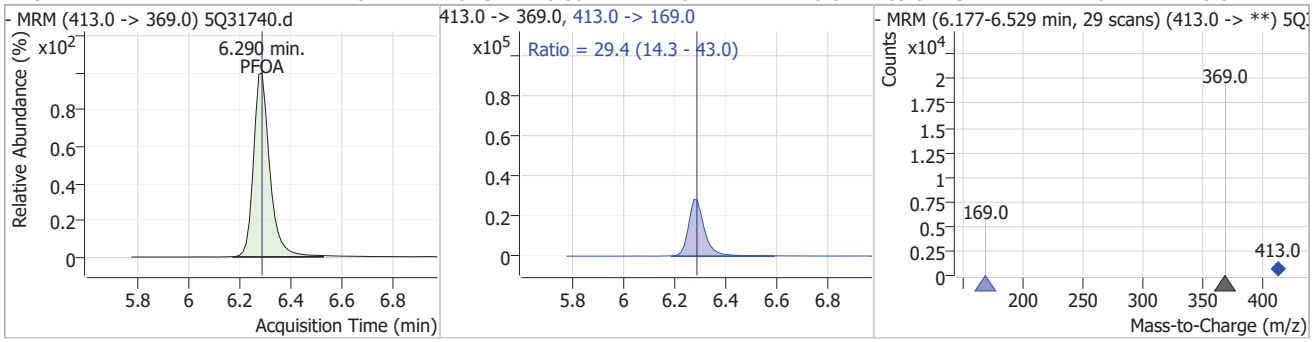
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	20.49	6.28	0.00	200427	427.0 -> 81.0	32.3	15.9	47.6



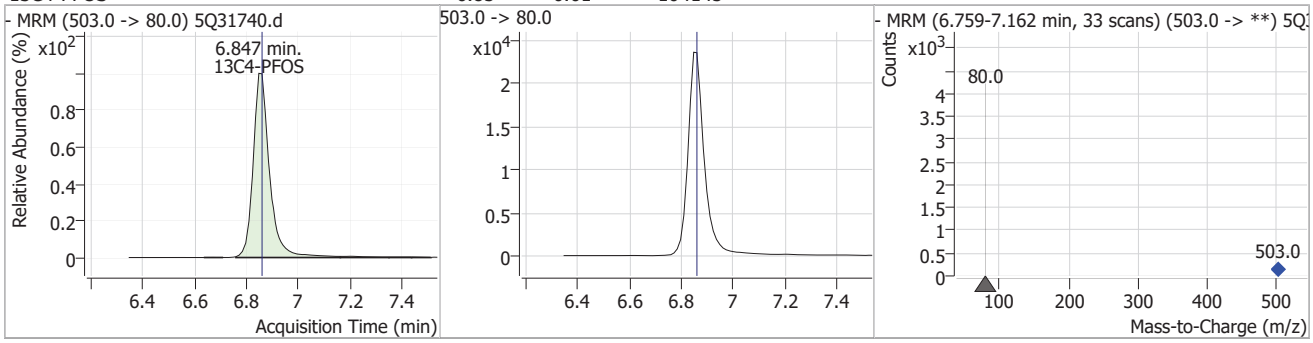
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	443451				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.47	6.29	0.00	428227	413.0 -> 169.0	29.4	14.3	43.0

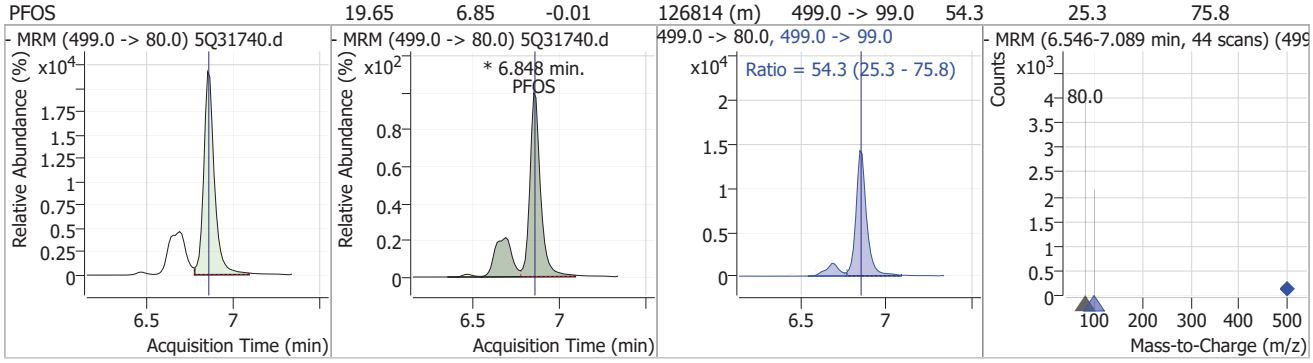


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.85	-0.01	104145				

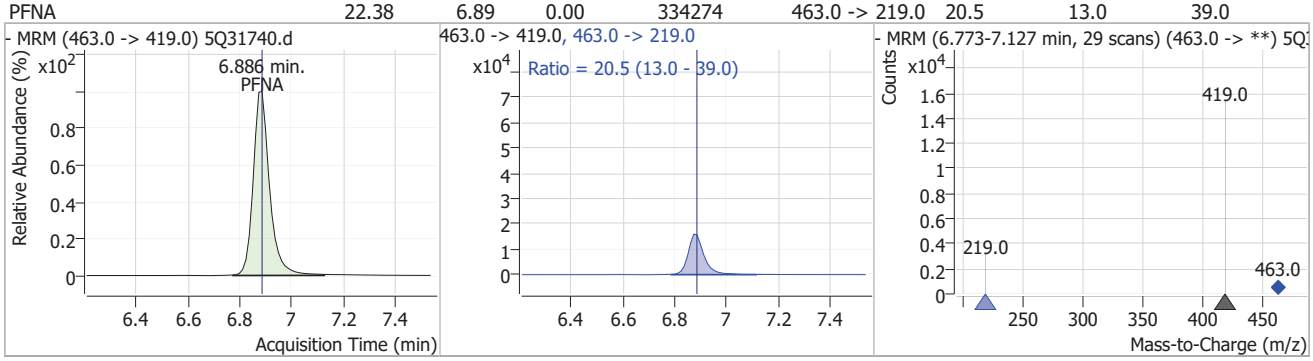


Perfluorinated Compounds by LC/MS/MS

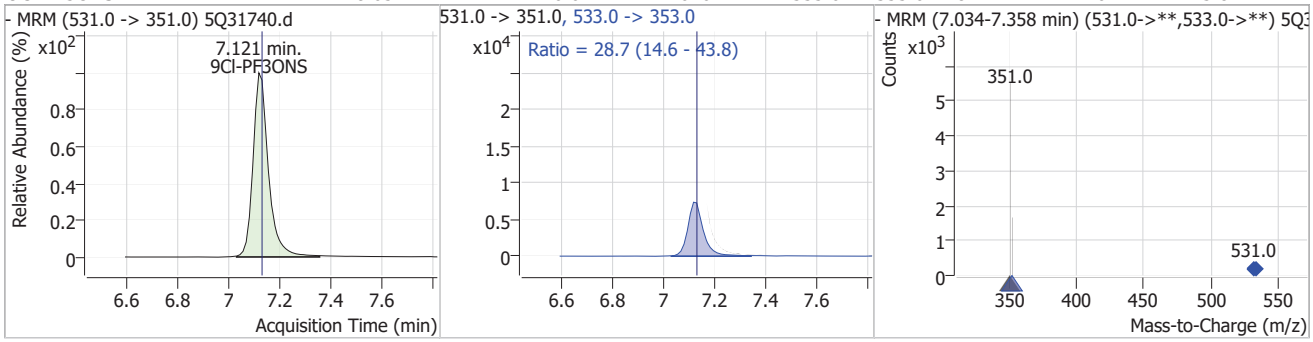
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.65	6.85	-0.01	126814 (m)	499.0 -> 99.0	54.3	25.3	75.8



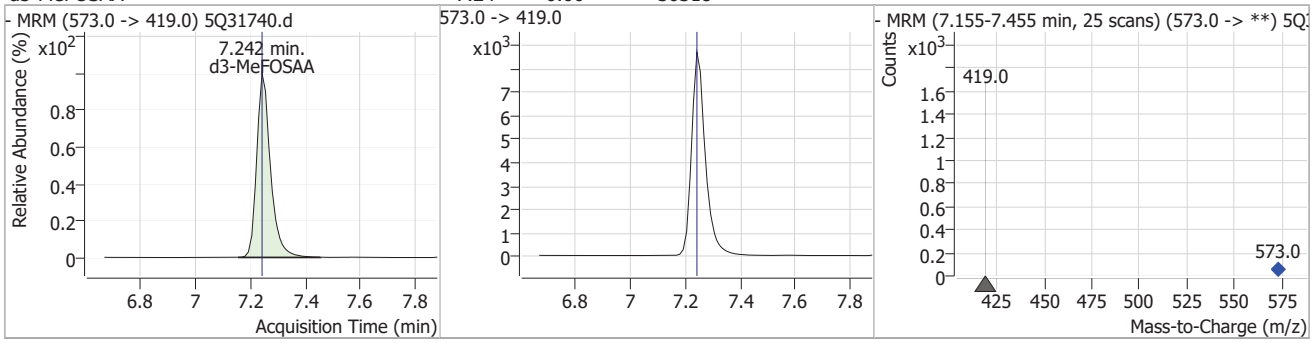
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	22.38	6.89	0.00	334274	463.0 -> 219.0	20.5	13.0	39.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	18.05	7.12	-0.01	110101	533.0 -> 353.0	28.7	14.6	43.8

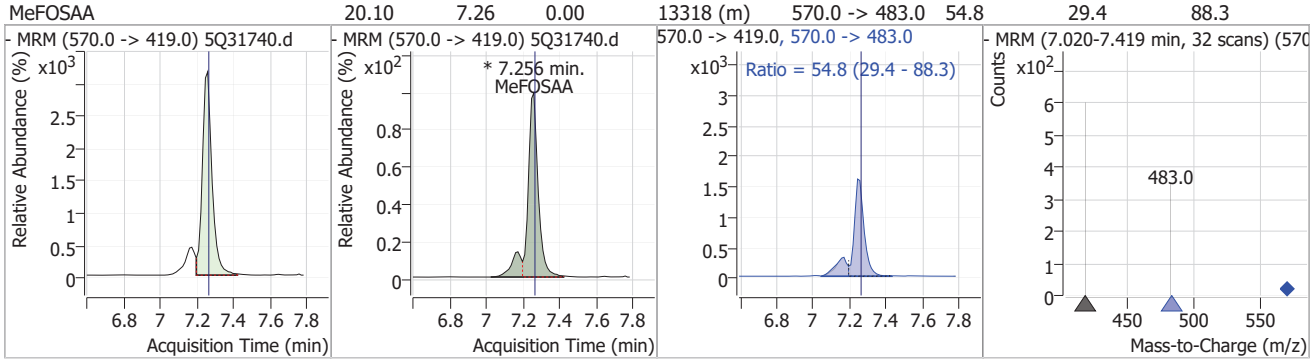


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	30318				

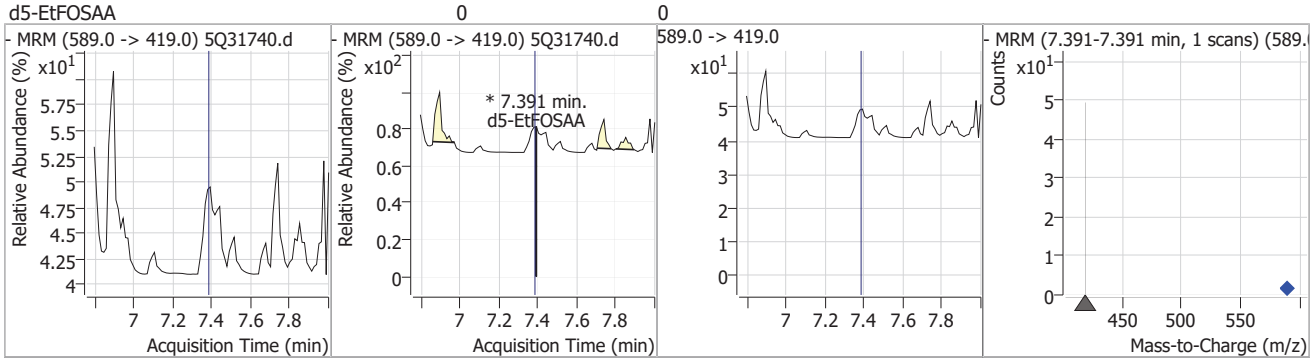


Perfluorinated Compounds by LC/MS/MS

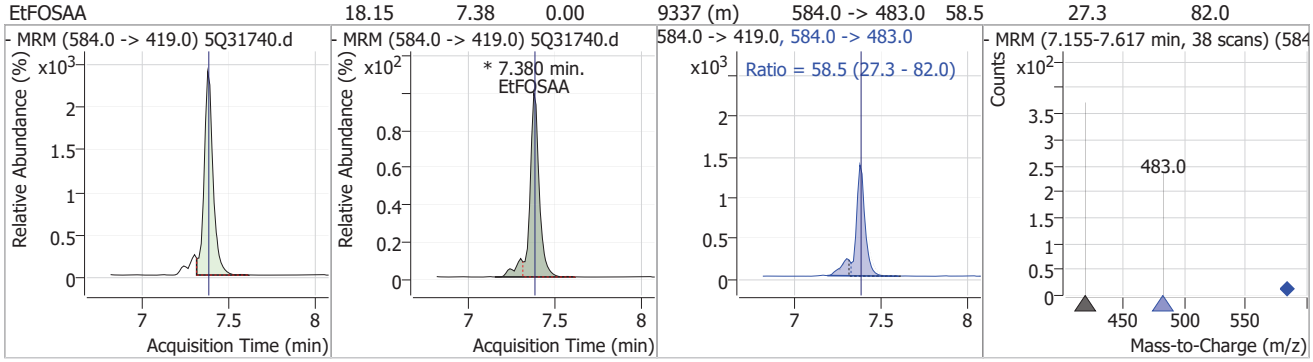
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	20.10	7.26	0.00	13318 (m)	570.0 -> 483.0	54.8	29.4	88.3



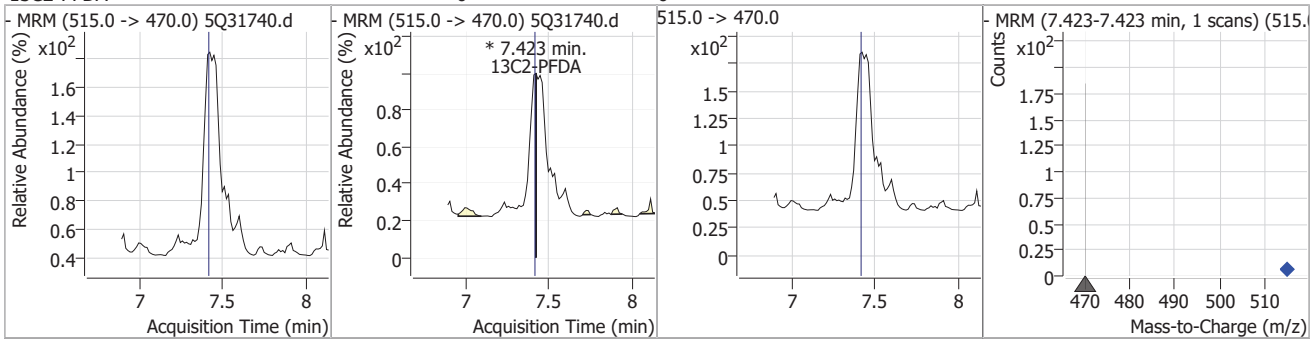
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA		0		0				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	18.15	7.38	0.00	9337 (m)	584.0 -> 483.0	58.5	27.3	82.0

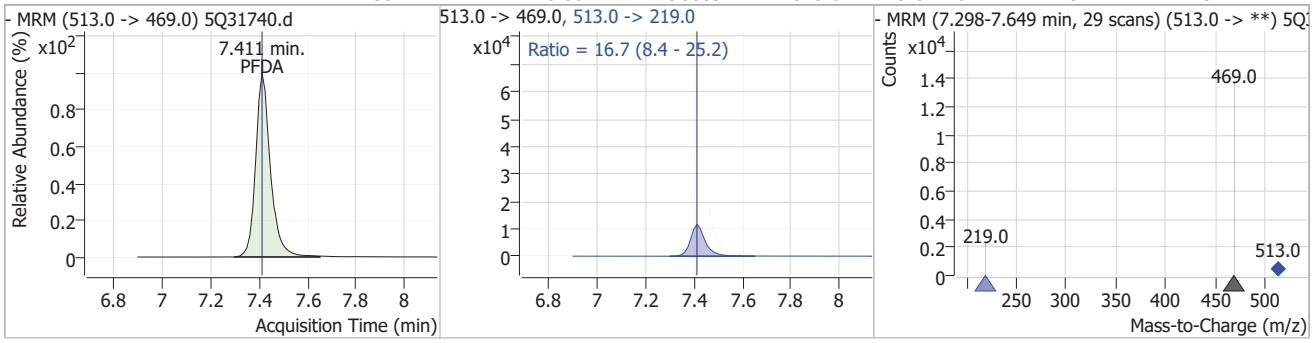


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA		0		0				

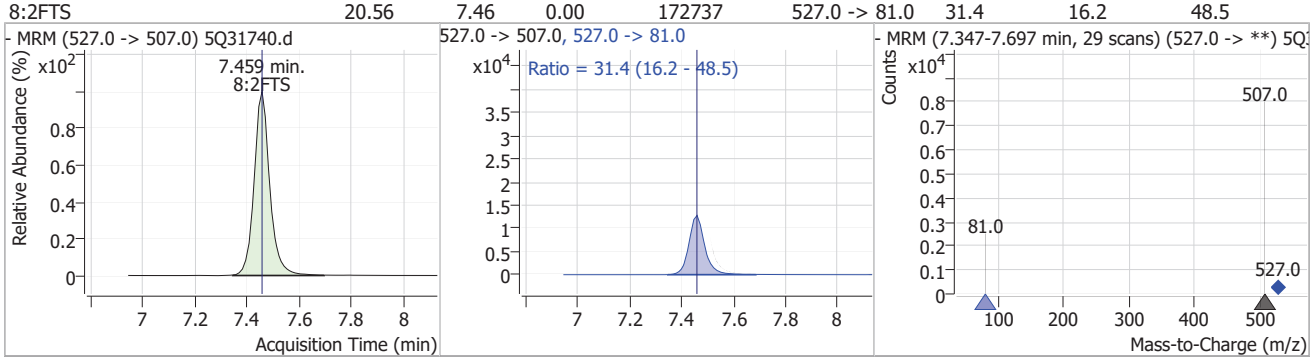


Perfluorinated Compounds by LC/MS/MS

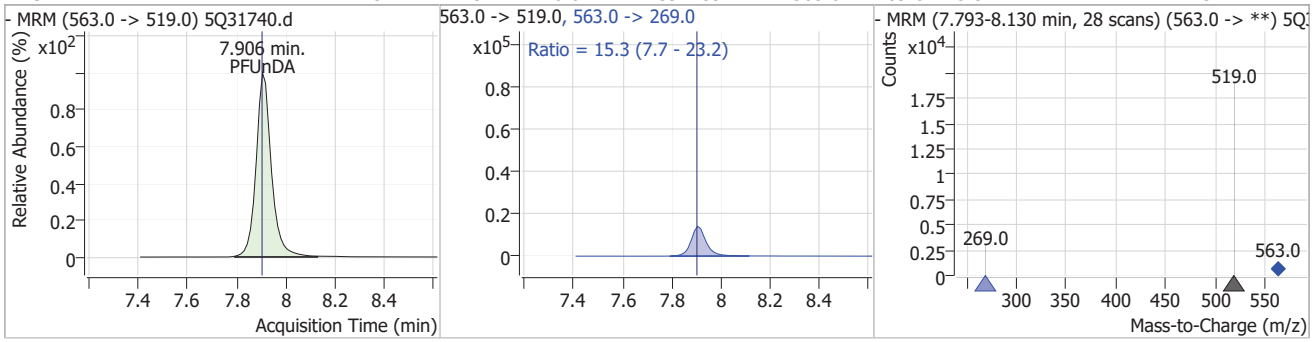
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	17.35	7.41	0.00	296809	513.0 -> 219.0	16.7	8.4	25.2



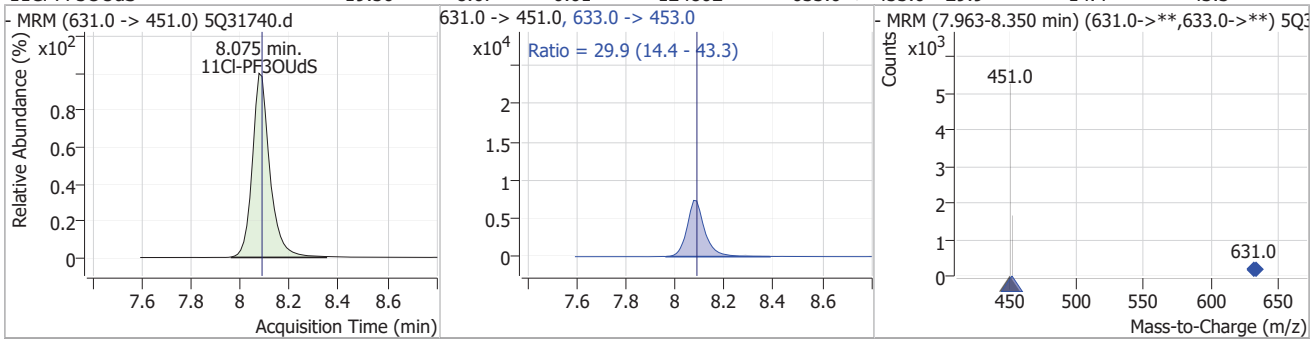
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	20.56	7.46	0.00	172737	527.0 -> 81.0	31.4	16.2	48.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	22.34	7.91	-0.01	394759	563.0 -> 269.0	15.3	7.7	23.2

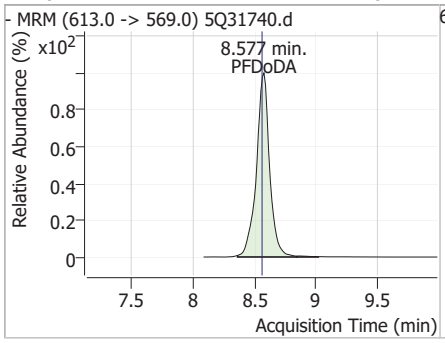


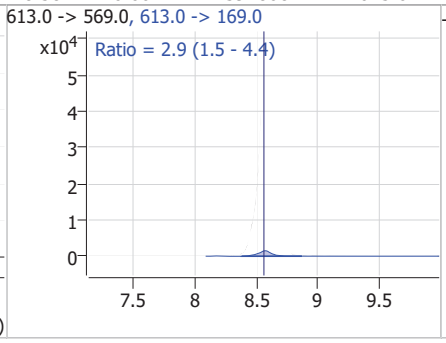
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	19.56	8.07	-0.01	124802	633.0 -> 453.0	29.9	14.4	43.3

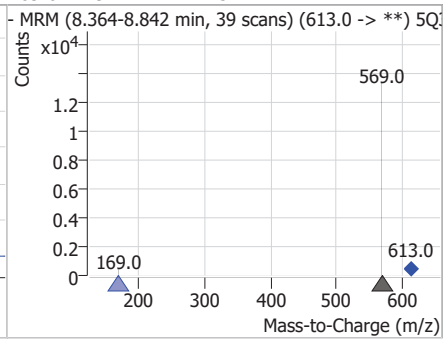


Perfluorinated Compounds by LC/MS/MS

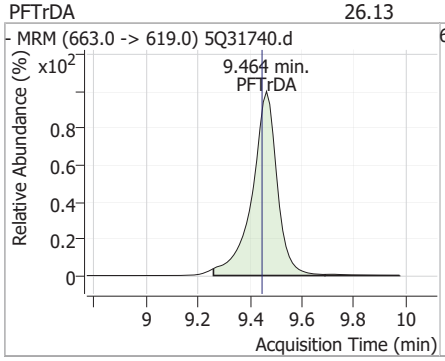
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	27.84	8.58	0.00	394808	613.0 -> 169.0	2.9	1.5	4.4

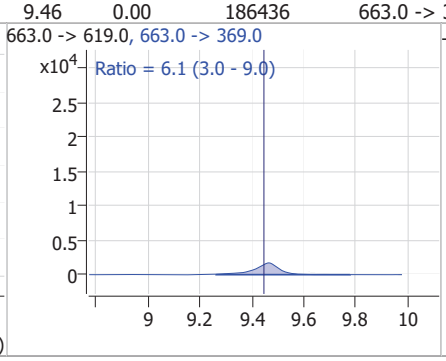


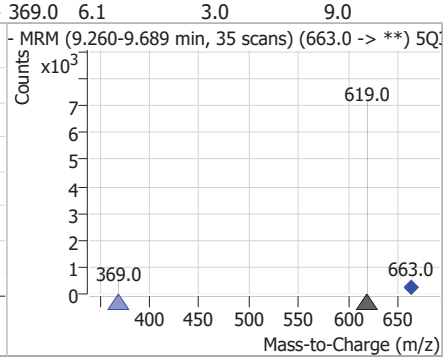




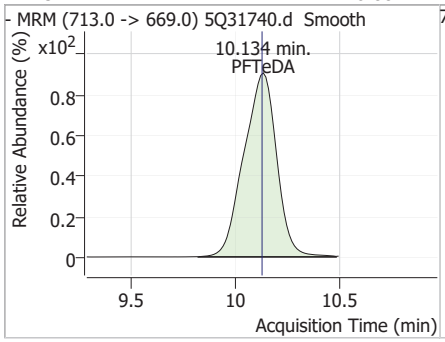
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	26.13	9.46	0.00	186436	663.0 -> 369.0	6.1	3.0	9.0

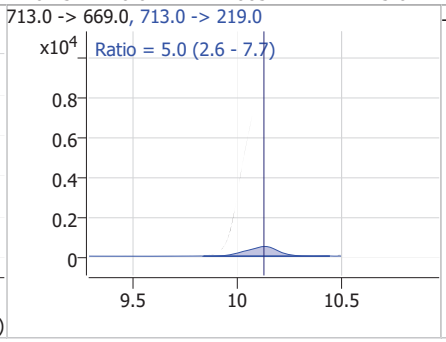


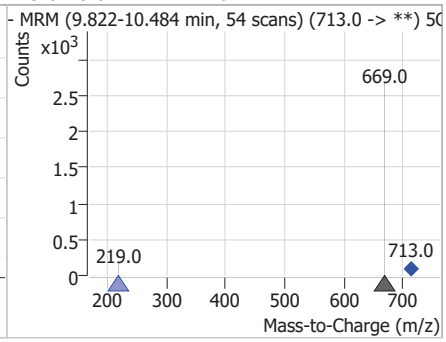




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	20.88	10.13	-0.01	106324	713.0 -> 219.0	5.0	2.6	7.7







Manual Integration Approval Summary

Sample Number:	S5Q520-ICV520	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31740.D	**Analyst approved:**	04/15/25 14:42 (b) (6)
Injection Time:	04/14/25 12:58	**Supervisor approved:**	04/15/25 15:43 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.85	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/15/25 15:43

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31742.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/14/2025 1:30:43 PM
Sample Name : cc520-20
Vial : P1-A7
DA Method File : 537_041425_S5Q520.quantmethod
Batch Name : s5q520.batch.bin
Sample Information : OP8806,S5Q520,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	195596	20.00	µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	439923	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	573673	20.00	µg/L		0.000
13C4-PFOS	6.847	503.0 -> 80.0	102079	20.00	µg/L		-0.012
d3-MeFOSAA	7.242	573.0 -> 419.0	30443	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	175682	10.24	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 51.2%			
13C2-PFHxA	4.763	315.0 -> 270.0	277304	9.42	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 47.1%			
d5-EtFOSAA	7.378	589.0 -> 419.0	11436	20.40	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 51.0%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	35453	17.82	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 44.6%			
Target Compounds							QValue
6:2FTS	6.275	427.0 -> 407.0	225007	22.77	µg/L		99
8:2FTS	7.459	527.0 -> 507.0	174290	20.53	µg/L		99
EtFOSAA	7.380	584.0 -> 419.0	10427	20.18	µg/L	m	97
MeFOSAA	7.256	570.0 -> 419.0	12886	19.39	µg/L	m	97
PFBS	3.828	299.0 -> 80.0	296756	21.27	µg/L		99
PFDA	7.411	513.0 -> 469.0	315514	18.59	µg/L		100
PFDoDA	8.565	613.0 -> 569.0	284234	20.85	µg/L		100
PFHpA	5.601	363.0 -> 319.0	743033	20.37	µg/L		100
PFHxA	4.764	313.0 -> 269.0	383403	20.35	µg/L		100
PFHxS	5.635	399.0 -> 80.0	178262	21.22	µg/L	m	98
PFNA	6.874	463.0 -> 419.0	296606	20.11	µg/L	m	98
PFOA	6.277	413.0 -> 369.0	423636	20.41	µg/L		100
PFOS	6.848	499.0 -> 80.0	129617	20.48	µg/L	m	98
PFPeA	3.597	263.0 -> 219.0	741414	20.55	µg/L		100
PFTeDA	10.134	713.0 -> 669.0	104393	20.91	µg/L		100
PFTrDA	9.451	663.0 -> 619.0	117230	16.77	µg/L		100
PFUnDA	7.906	563.0 -> 519.0	335909	19.40	µg/L		99
ADONA	5.688	377.0 -> 251.0	982357	20.25	µg/L		99
9Cl-PF3ONS	7.121	531.0 -> 351.0	124350	20.44	µg/L		97
11Cl-PF3OUdS	8.075	631.0 -> 451.0	134128	21.06	µg/L		99
HFPO-DA	5.022	285.0 -> 169.0	33321	19.02	µg/L		100

 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.36
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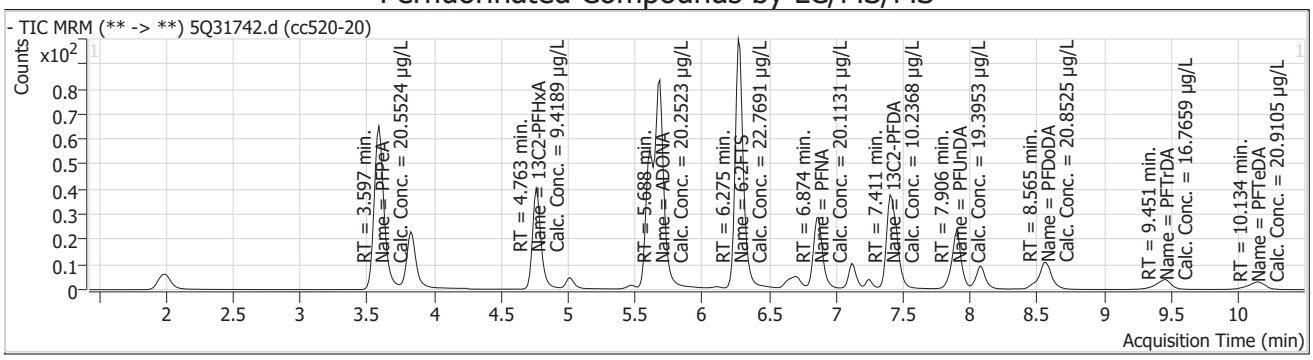
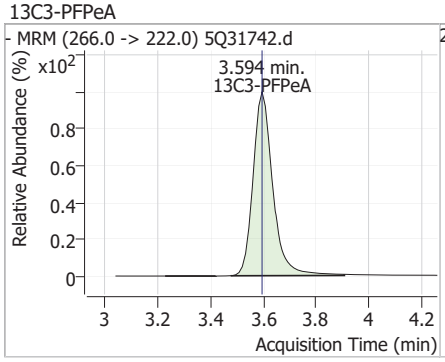
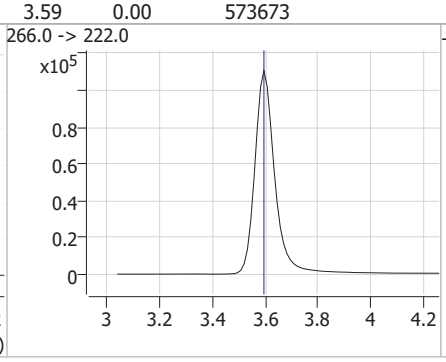
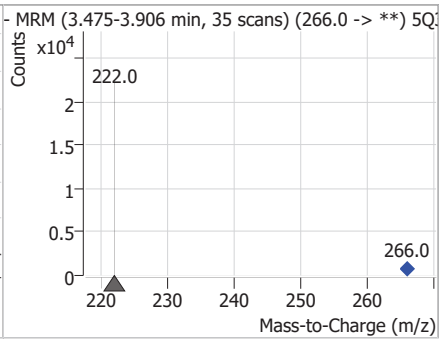
Perfluorinated Compounds by LC/MS/MS



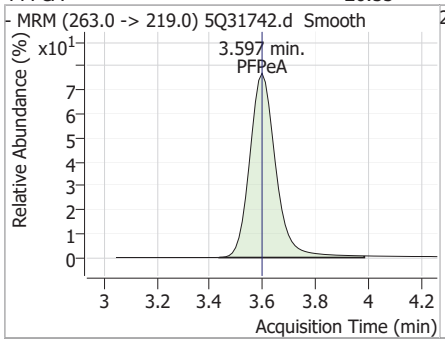
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	573673				

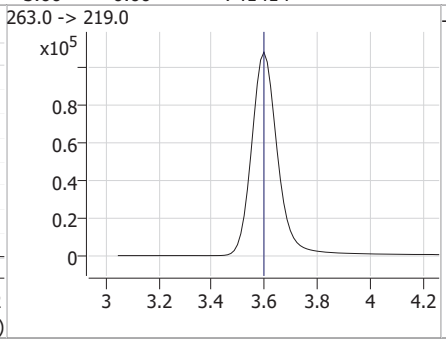


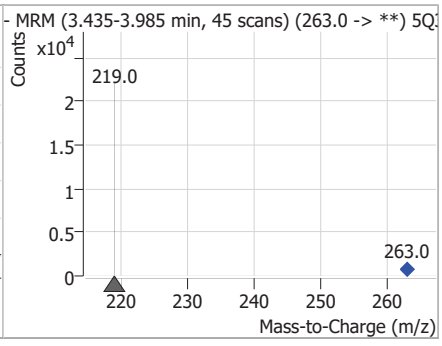




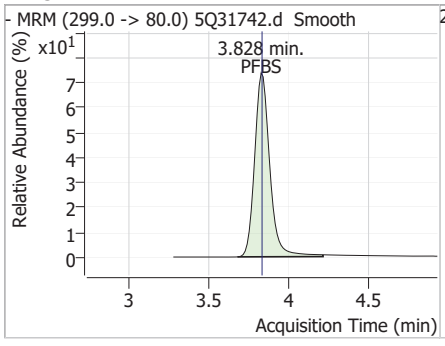
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.55	3.60	0.00	741414				

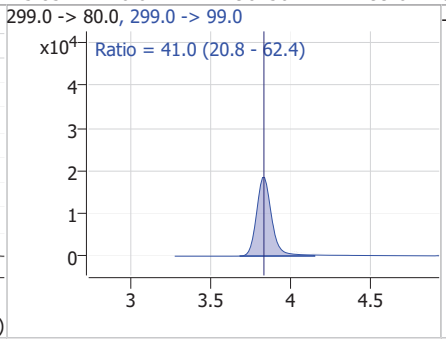


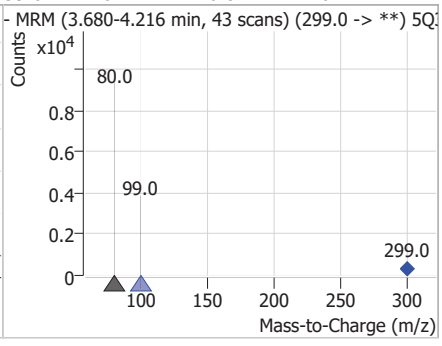




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	21.27	3.83	-0.01	296756	299.0 -> 99.0	41.0	20.8	62.4

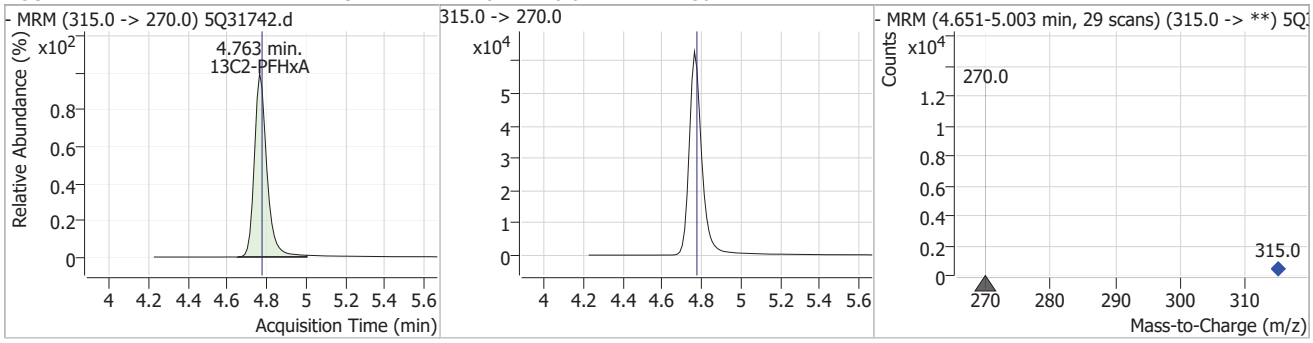




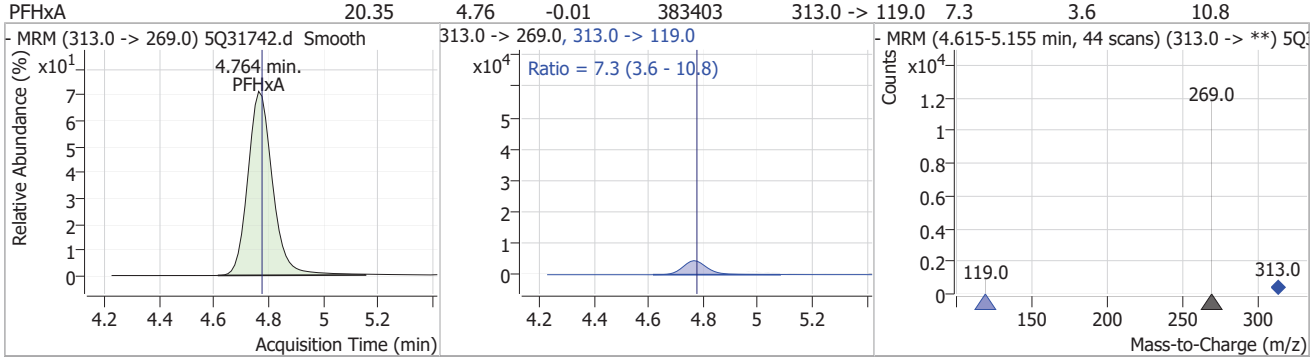


Perfluorinated Compounds by LC/MS/MS

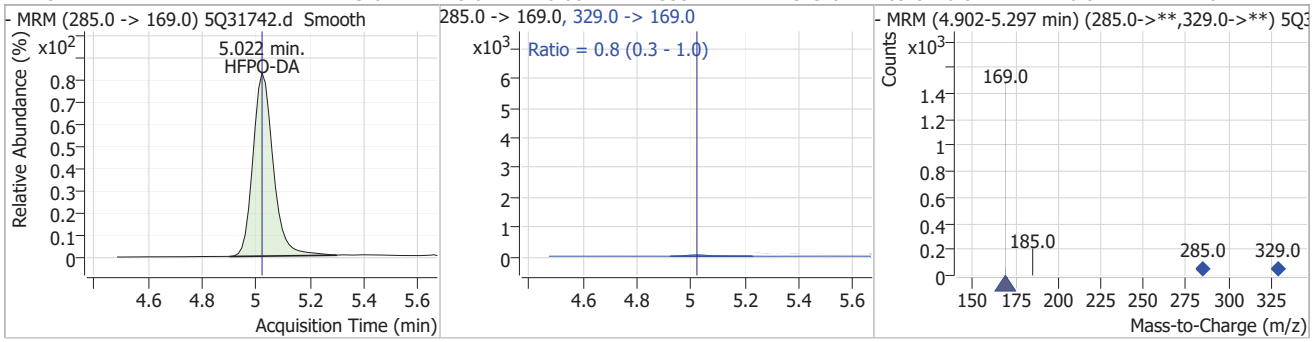
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	9.42	4.76	-0.01	277304				



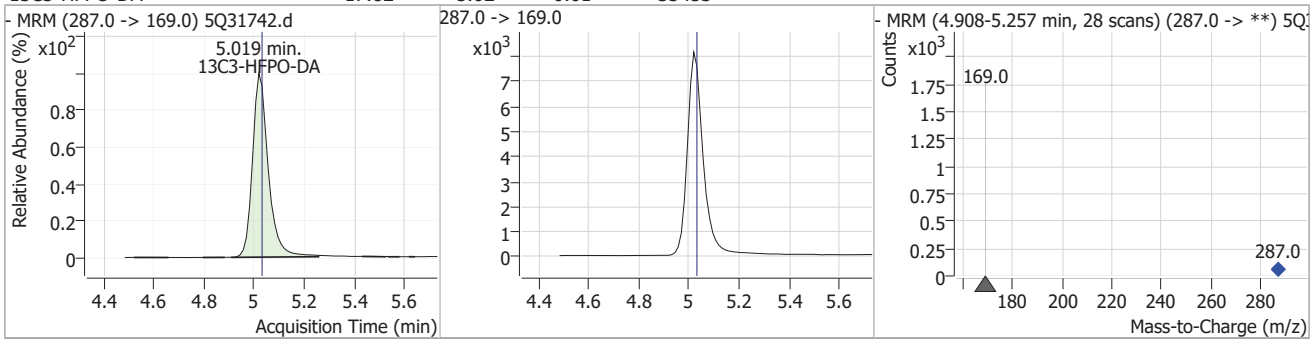
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	20.35	4.76	-0.01	383403	313.0 -> 119.0	7.3	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.02	5.02	0.00	33321	329.0 -> 169.0	0.8	0.3	1.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	17.82	5.02	-0.01	35453				



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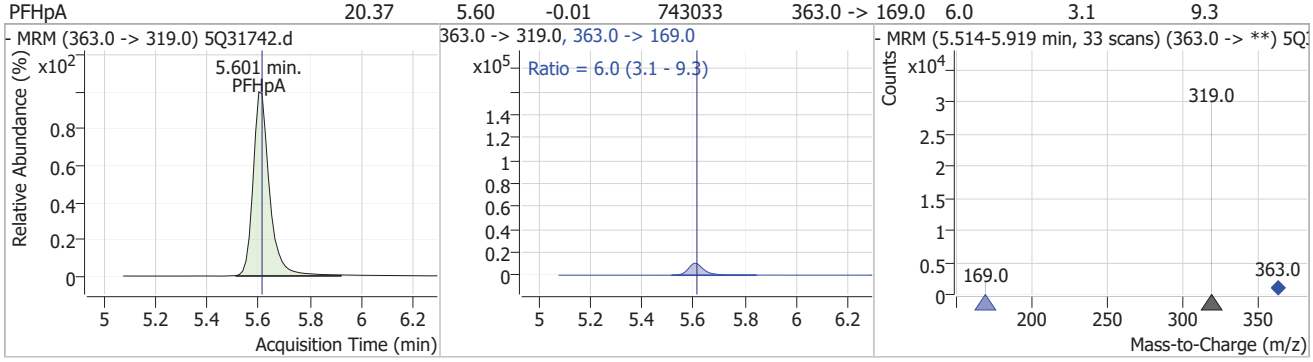
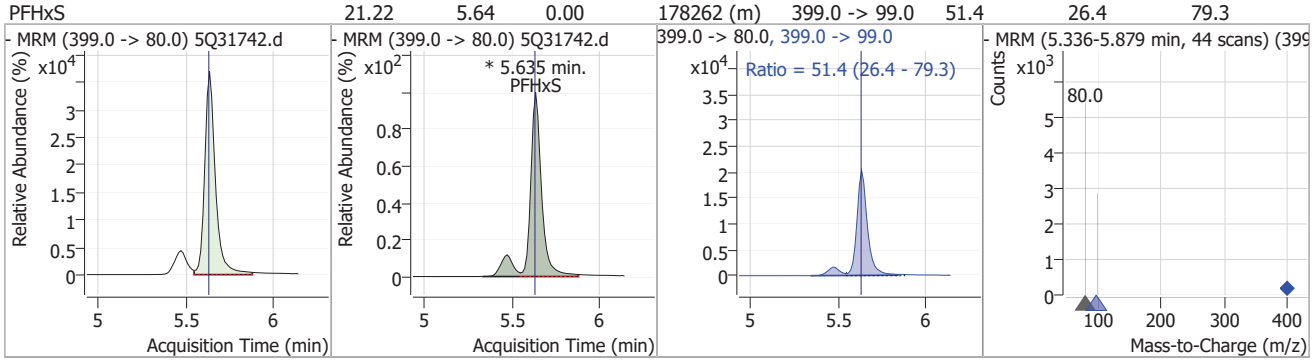
Perfluorinated Compounds by LC/MS/MS

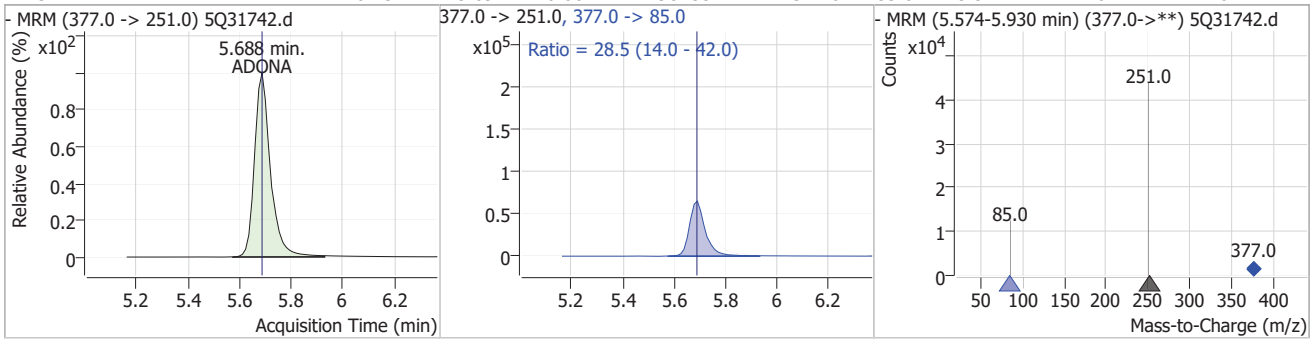
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.37	5.60	-0.01	743033	363.0 -> 169.0	6.0	3.1	9.3



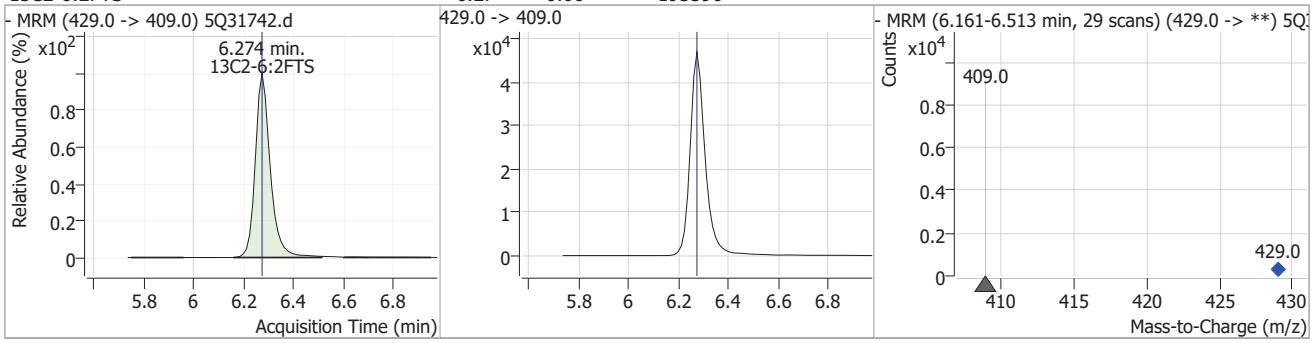
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	21.22	5.64	0.00	178262 (m)	399.0 -> 99.0	51.4	26.4	79.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.25	5.69	0.00	982357	377.0 -> 85.0	28.5	14.0	42.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	0.00	195596				



7.7.36

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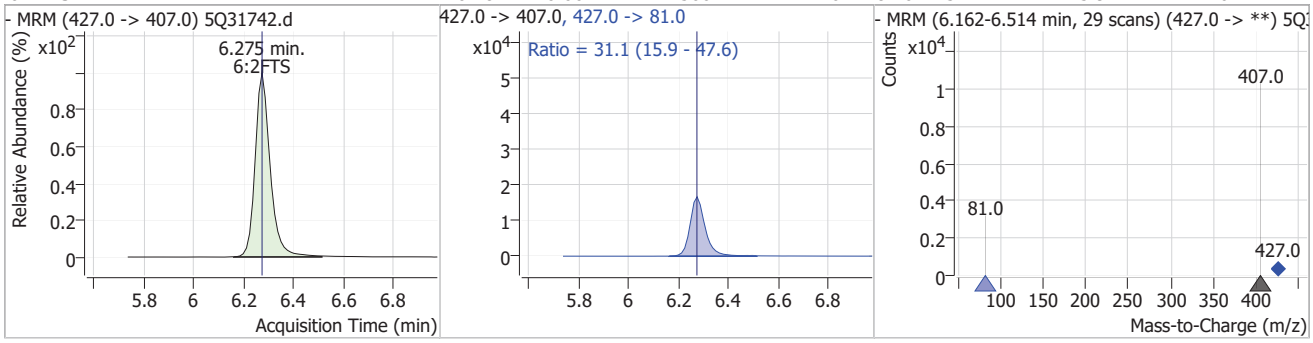
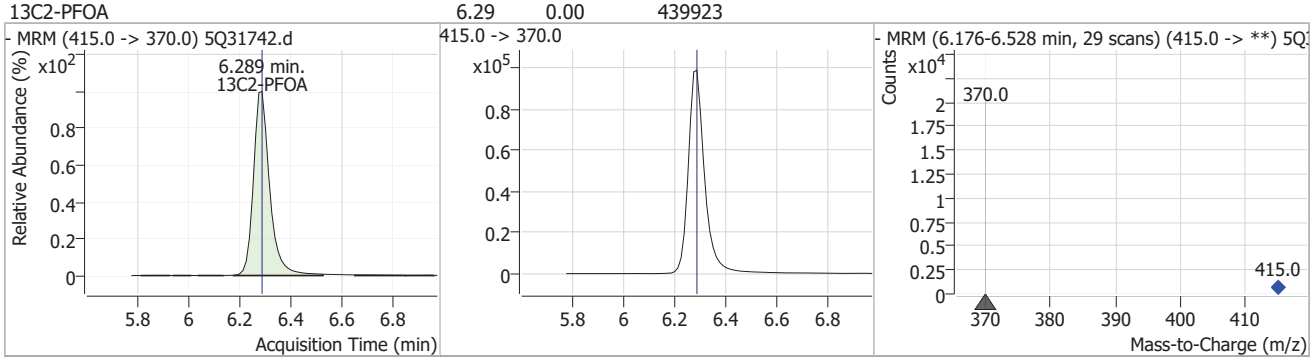
Perfluorinated Compounds by LC/MS/MS

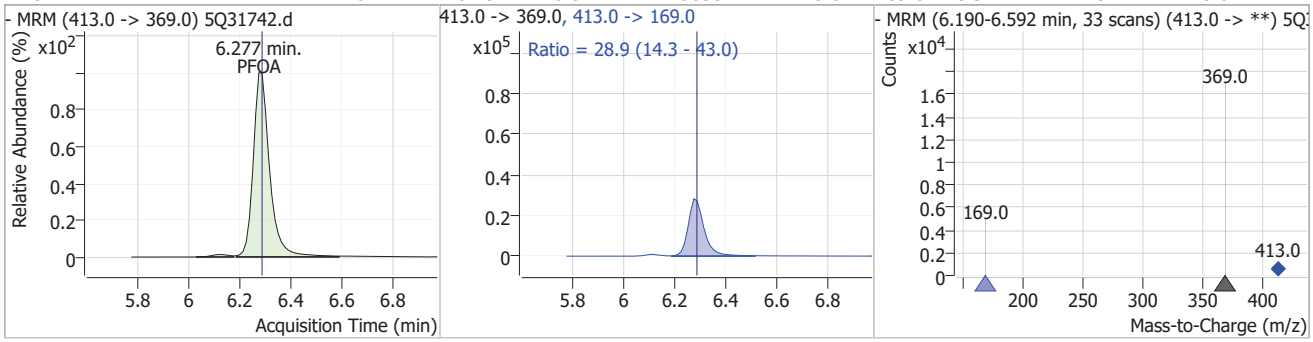
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	22.77	6.28	0.00	225007	427.0 -> 81.0	31.1	15.9	47.6



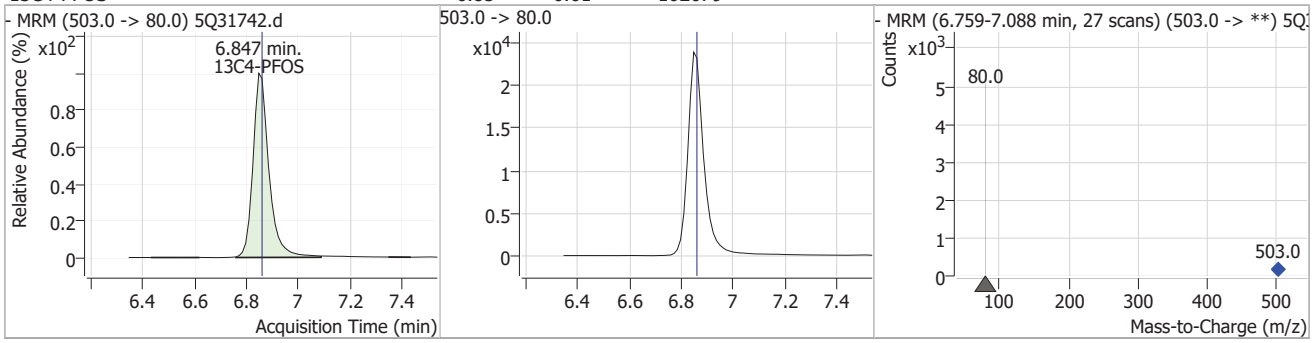
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	439923				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.41	6.28	-0.01	423636	413.0 -> 169.0	28.9	14.3	43.0

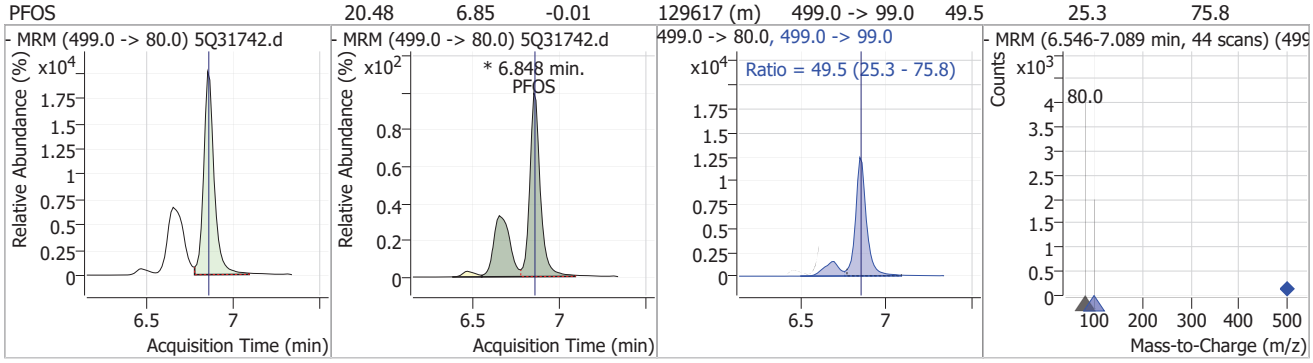


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.85	-0.01	102079				

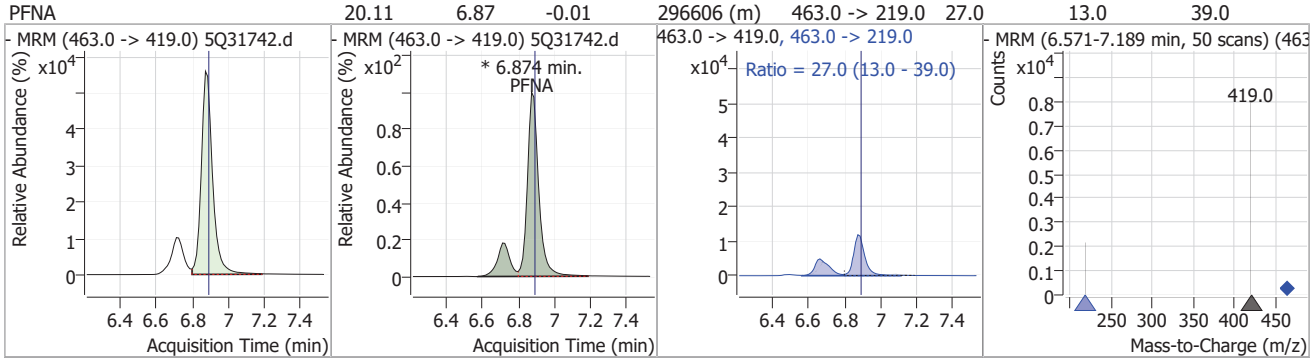


Perfluorinated Compounds by LC/MS/MS

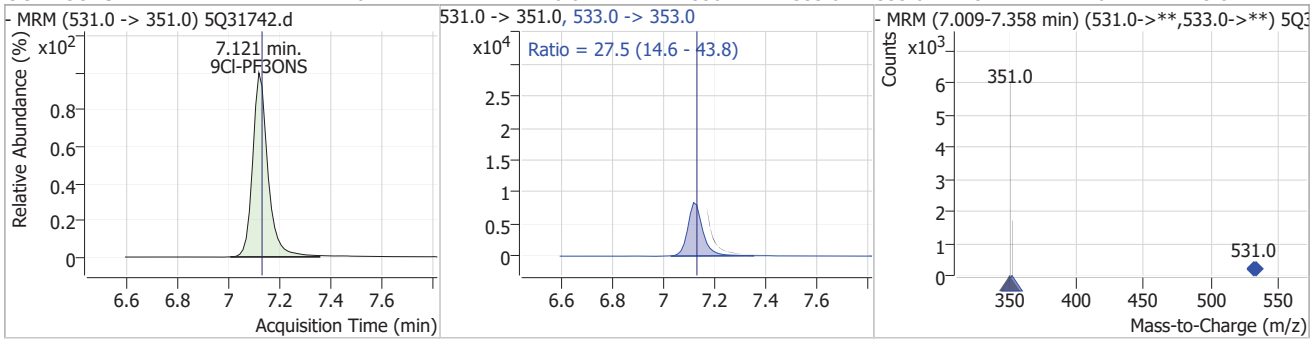
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	20.48	6.85	-0.01	129617 (m)	499.0 -> 99.0	49.5	25.3	75.8



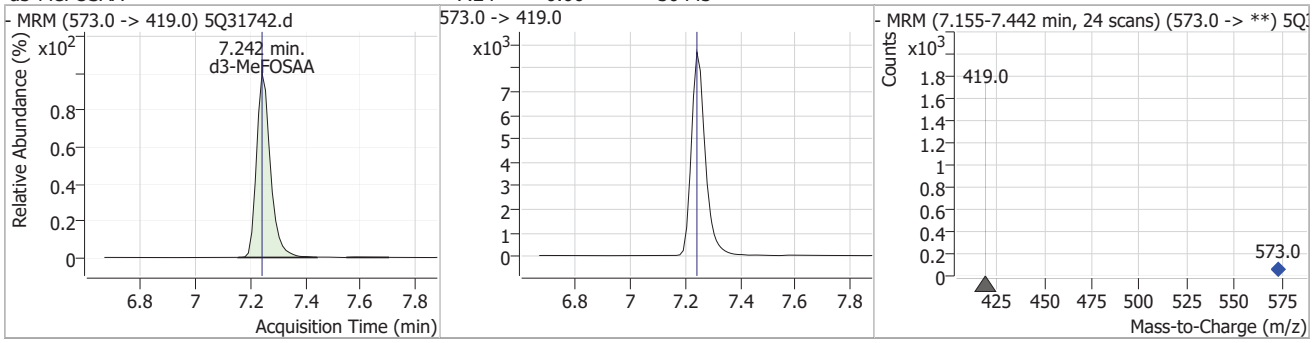
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	20.11	6.87	-0.01	296606 (m)	463.0 -> 219.0	27.0	13.0	39.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	20.44	7.12	-0.01	124350	533.0 -> 353.0	27.5	14.6	43.8

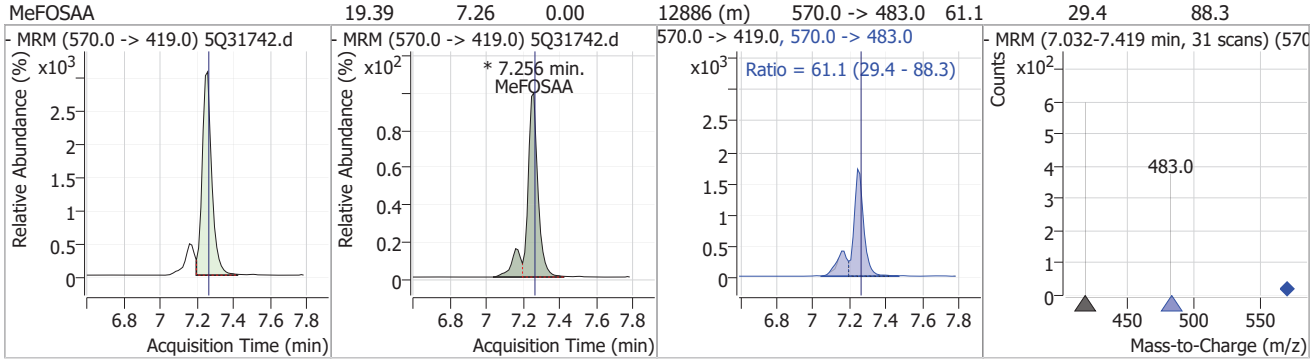


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	30443				

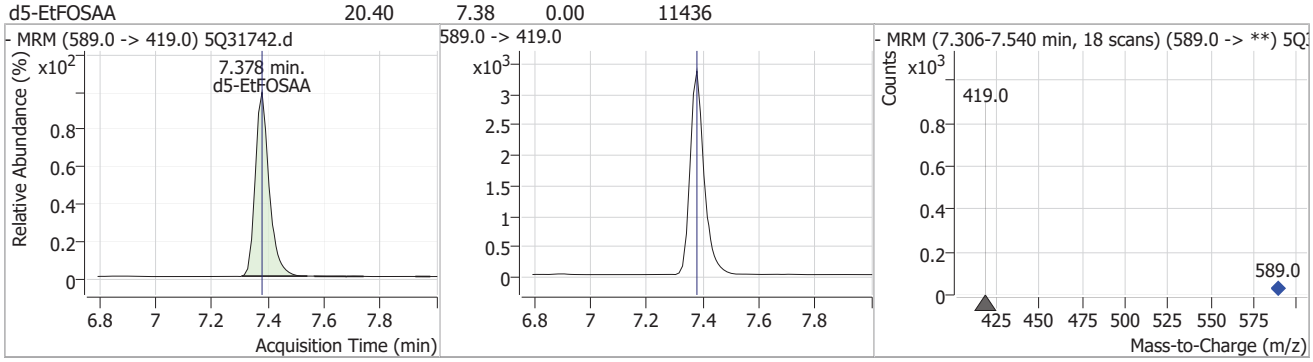


Perfluorinated Compounds by LC/MS/MS

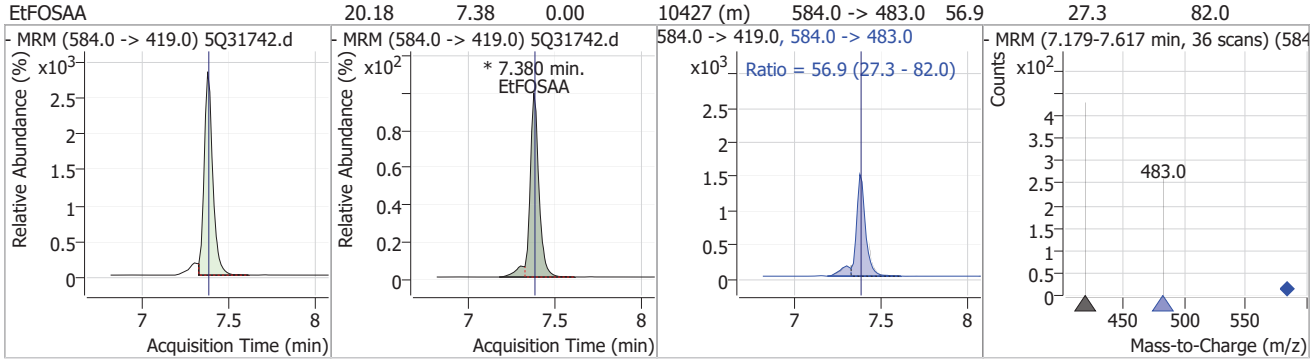
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.39	7.26	0.00	12886 (m)	570.0 -> 483.0	61.1	29.4	88.3



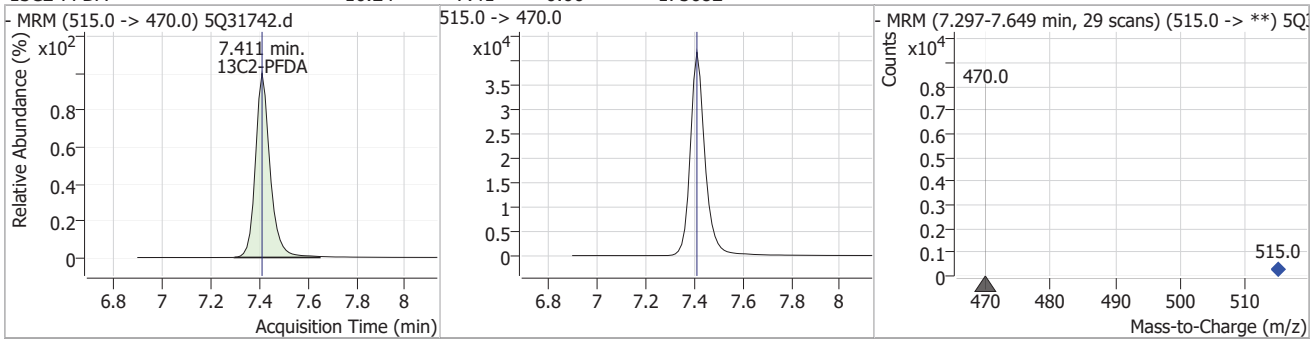
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	20.40	7.38	0.00	11436				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	20.18	7.38	0.00	10427 (m)	584.0 -> 483.0	56.9	27.3	82.0

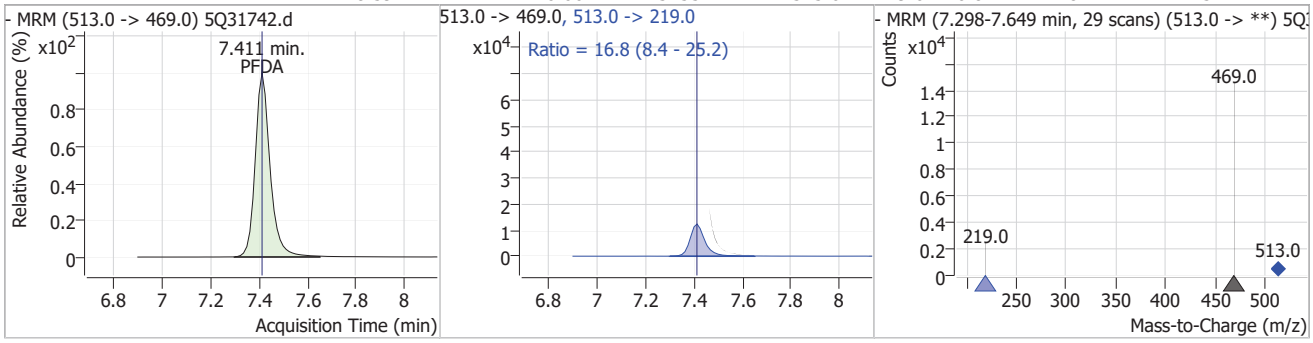


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	10.24	7.41	0.00	175682				

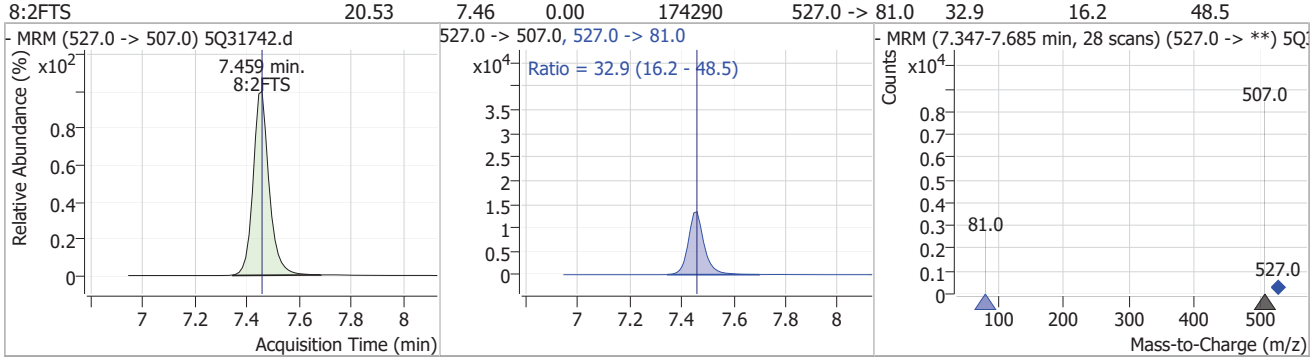


Perfluorinated Compounds by LC/MS/MS

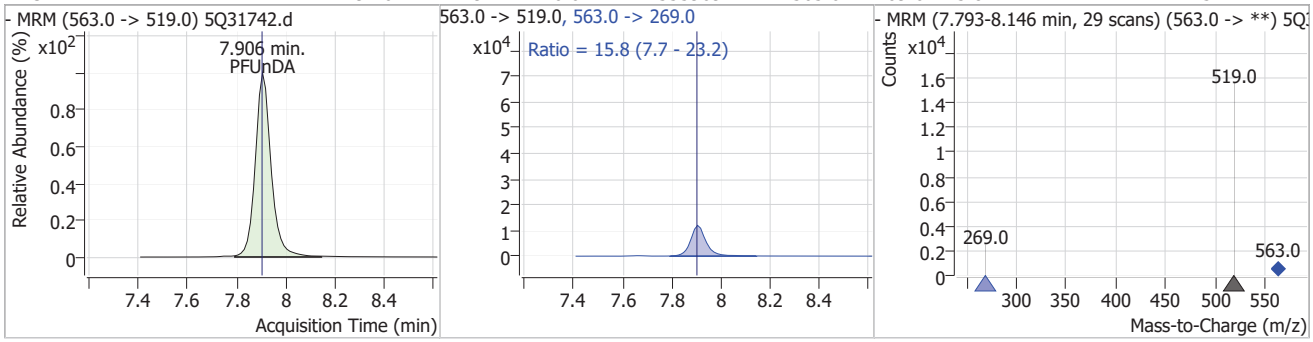
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	18.59	7.41	0.00	315514	513.0 -> 219.0	16.8	8.4	25.2



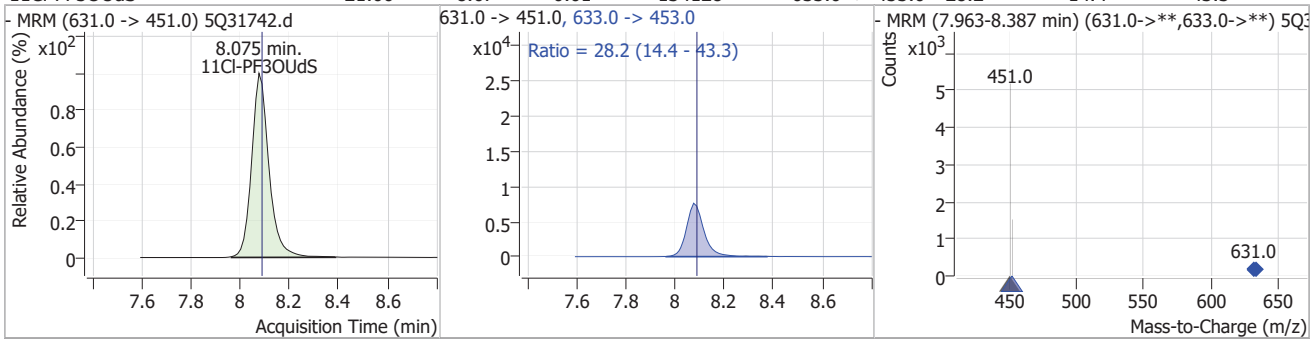
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	20.53	7.46	0.00	174290	527.0 -> 81.0	32.9	16.2	48.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.40	7.91	-0.01	335909	563.0 -> 269.0	15.8	7.7	23.2

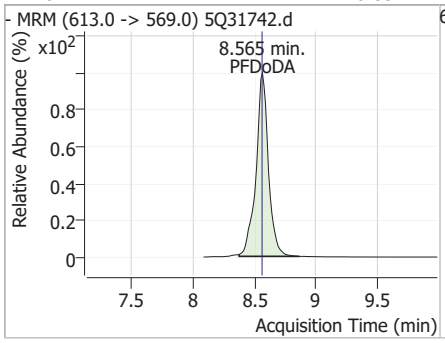


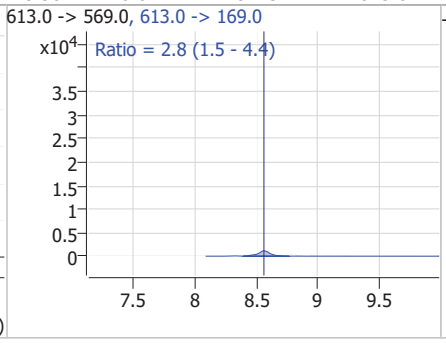
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	21.06	8.07	-0.01	134128	633.0 -> 453.0	28.2	14.4	43.3

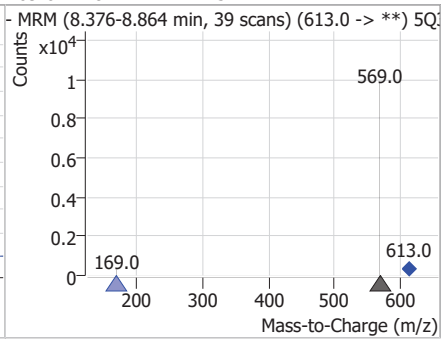


Perfluorinated Compounds by LC/MS/MS

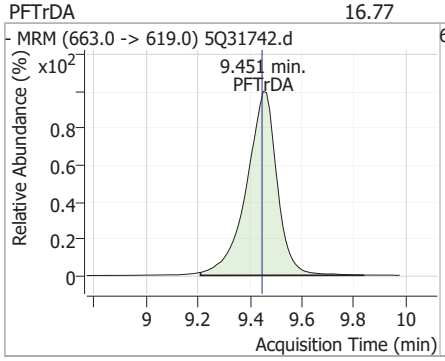
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	20.85	8.56	-0.01	284234	613.0 -> 169.0	2.8	1.5	4.4

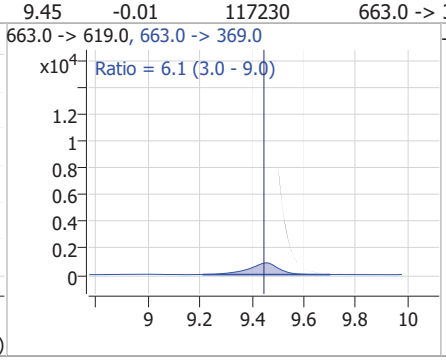


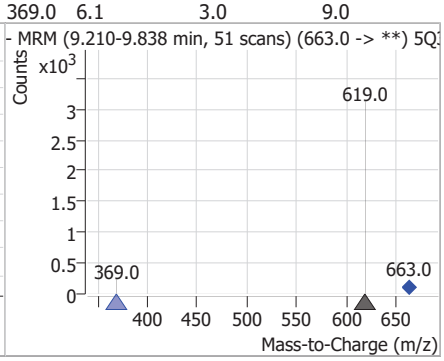




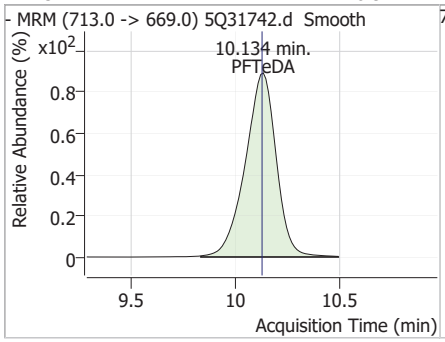
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	16.77	9.45	-0.01	117230	663.0 -> 369.0	6.1	3.0	9.0

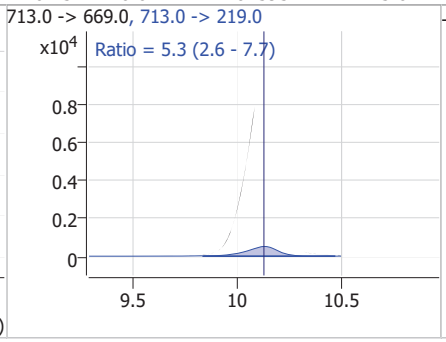


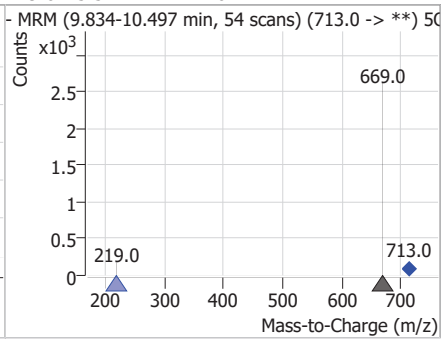




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	20.91	10.13	-0.01	104393	713.0 -> 219.0	5.3	2.6	7.7







Manual Integration Approval Summary

Sample Number:	S5Q520-CC520	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31742.D	**Analyst approved:**	04/15/25 14:42 (b) (6)
Injection Time:	04/14/25 13:30	**Supervisor approved:**	04/15/25 15:43 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.85	Split peak
Perfluorononanoic acid	375-95-1		6.87	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/15/25 15:43

Perfluorinated Compounds by LC/MS/MS

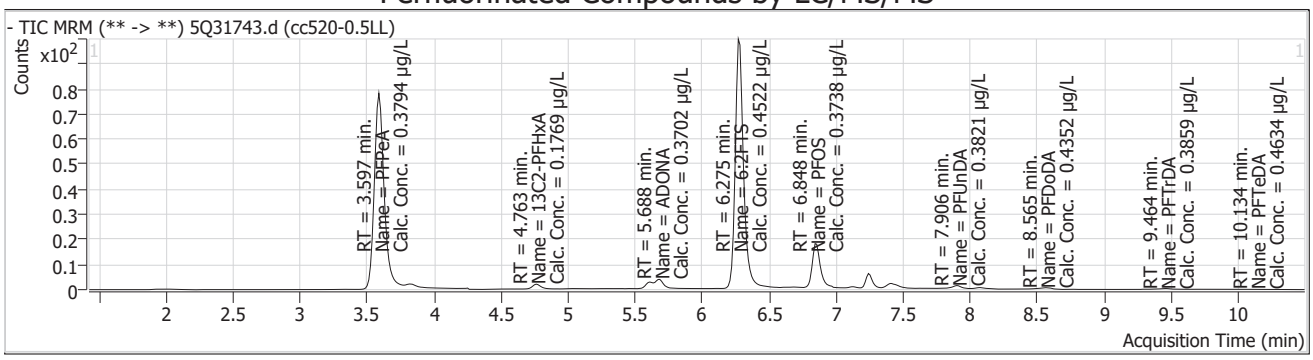
Data File : 5Q31743.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/14/2025 1:46:44 PM
Sample Name : cc520-0.5LL
Vial : P1-A2
DA Method File : 537_041425_S5Q520.quantmethod
Batch Name : s5q520.batch.bin
Sample Information : OP8806,S5Q520,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	176519	20.00	µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	435723	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	581633	20.00	µg/L		0.000
13C4-PFOS	6.847	503.0 -> 80.0	103955	20.00	µg/L		-0.012
d3-MeFOSAA	7.242	573.0 -> 419.0	29218	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	3555	0.22	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 1.1%			
13C2-PFHxA	4.763	315.0 -> 270.0	5160	0.18	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 0.9%			
d5-EtFOSAA	7.378	589.0 -> 419.0	190	0.36	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 0.9%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	757	0.38	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 1.0%			
Target Compounds							QValue
6:2FTS	6.275	427.0 -> 407.0	4033	0.45	µg/L		96
8:2FTS	7.459	527.0 -> 507.0	3510	0.46	µg/L		96
EtFOSAA	7.380	584.0 -> 419.0	236	0.48	µg/L	m	72
MeFOSAA	7.244	570.0 -> 419.0	256	0.42	µg/L	m	98
PFBS	3.828	299.0 -> 80.0	5669	0.40	µg/L		100
PFDA	7.411	513.0 -> 469.0	6052	0.36	µg/L		100
PFDoDA	8.565	613.0 -> 569.0	5691	0.44	µg/L		99
PFHpA	5.601	363.0 -> 319.0	13142	0.38	µg/L		99
PFHxA	4.764	313.0 -> 269.0	7105	0.39	µg/L		97
PFHxS	5.635	399.0 -> 80.0	3336	0.40	µg/L	m	95
PFNA	6.874	463.0 -> 419.0	5255	0.38	µg/L	m	95
PFOA	6.290	413.0 -> 369.0	7085	0.35	µg/L		96
PFOS	6.848	499.0 -> 80.0	2356	0.37	µg/L	m	96
PFPeA	3.597	263.0 -> 219.0	13589	0.38	µg/L		100
PFTeDA	10.134	713.0 -> 669.0	2193	0.46	µg/L		98
PFTrDA	9.464	663.0 -> 619.0	2748	0.39	µg/L		99
PFUnDA	7.906	563.0 -> 519.0	6739	0.38	µg/L		97
ADONA	5.688	377.0 -> 251.0	16947	0.37	µg/L		95
9Cl-PF3ONS	7.133	531.0 -> 351.0	2383	0.41	µg/L		100
11Cl-PF3OUdS	8.075	631.0 -> 451.0	2495	0.43	µg/L		90
HFPO-DA	5.022	285.0 -> 169.0	797	0.47	µg/L	m	99

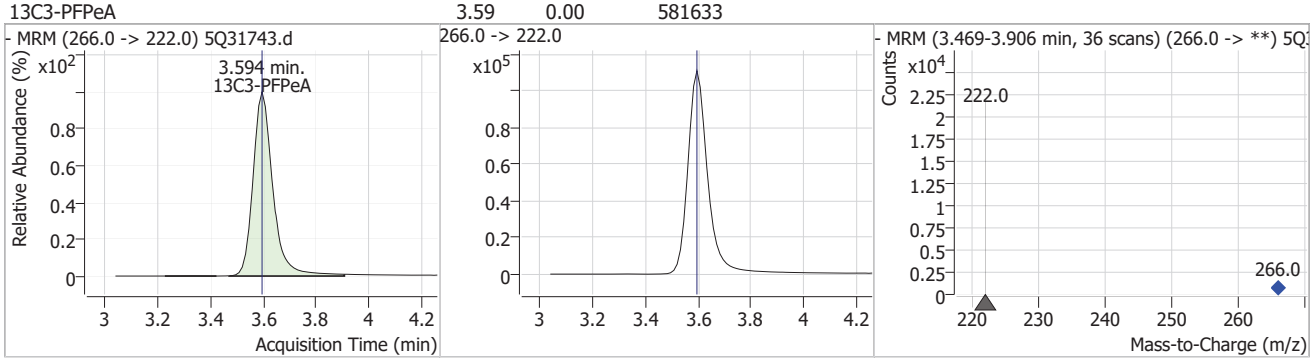
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.37
7

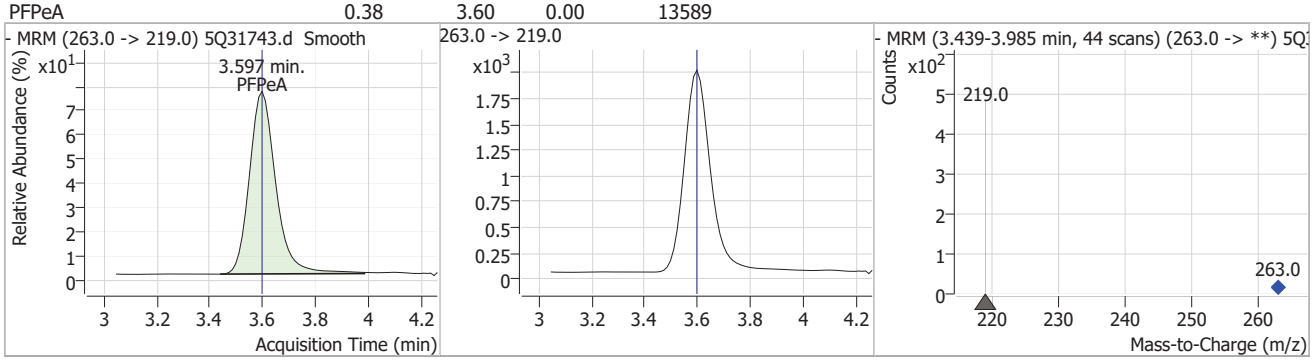
Perfluorinated Compounds by LC/MS/MS



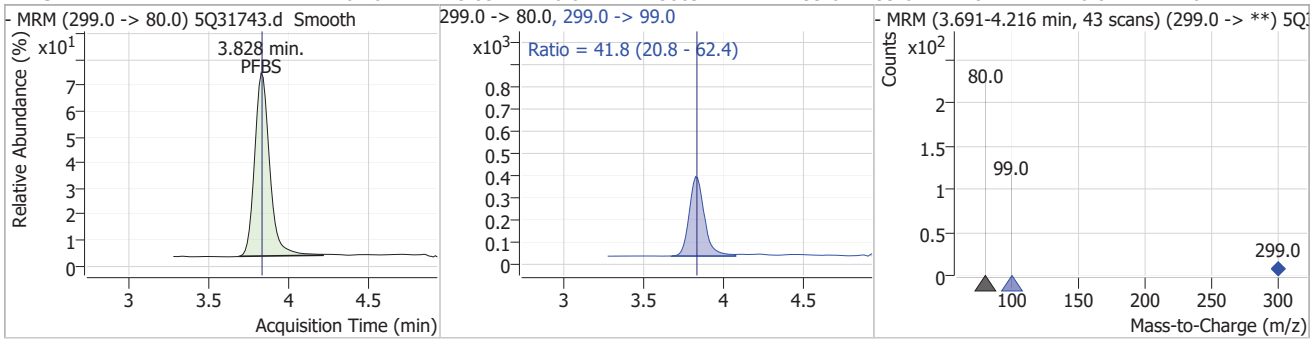
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	581633				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.38	3.60	0.00	13589				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.40	3.83	-0.01	5669	299.0 -> 99.0	41.8	20.8	62.4

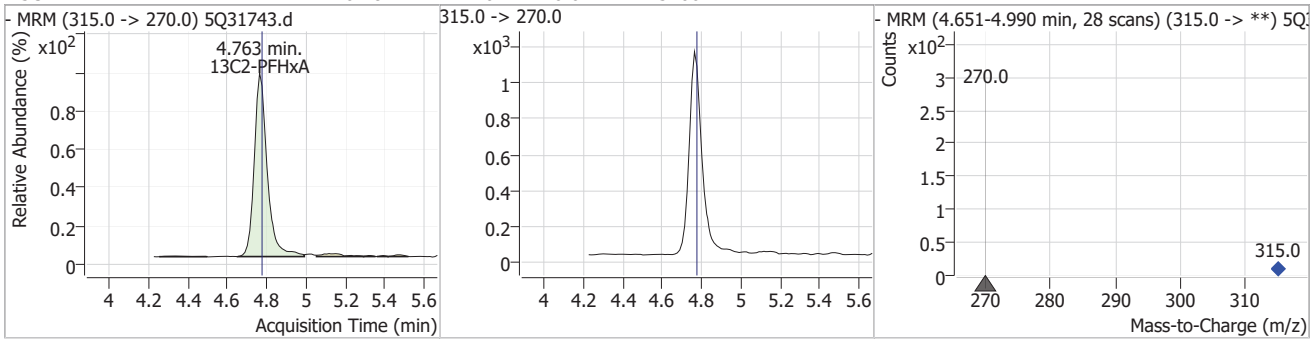


7.7.37

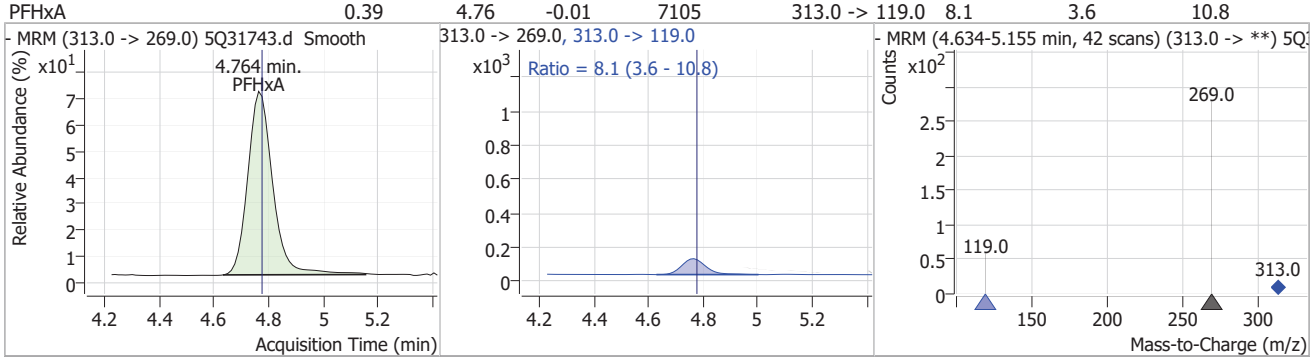
7

Perfluorinated Compounds by LC/MS/MS

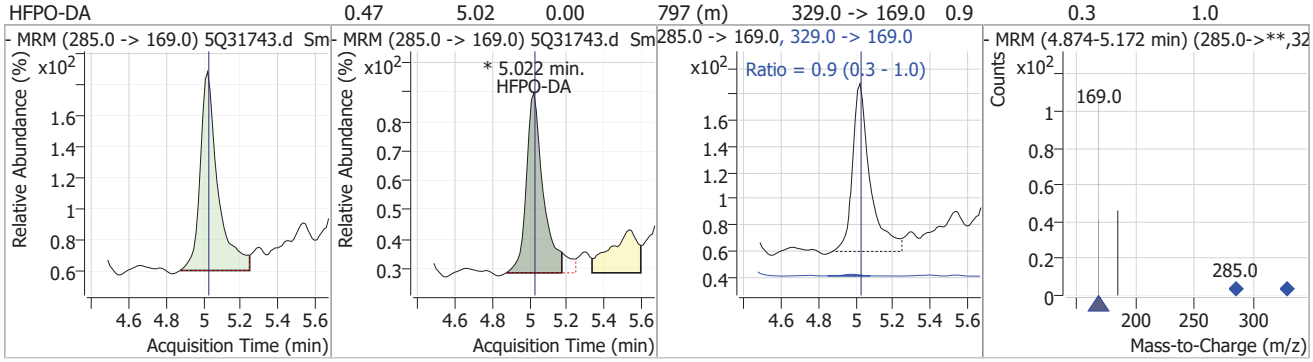
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.18	4.76	-0.01	5160				



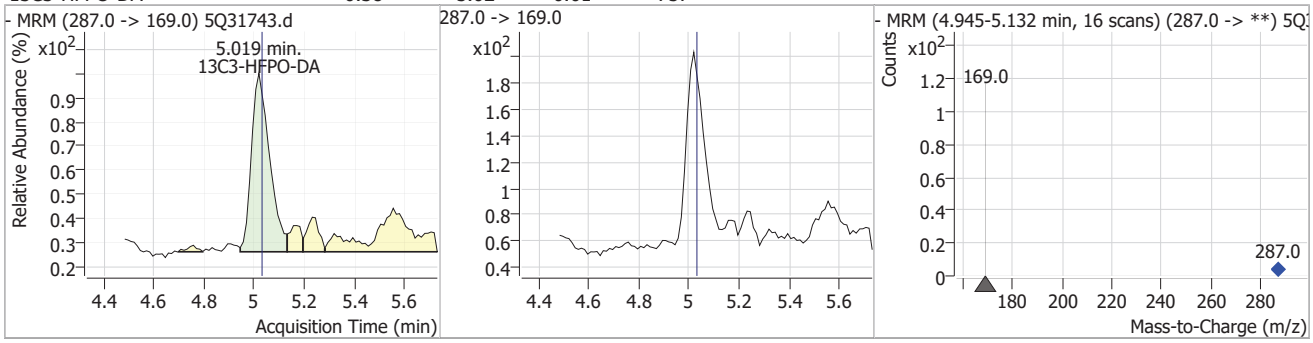
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.39	4.76	-0.01	7105	313.0 -> 119.0	8.1	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.47	5.02	0.00	797 (m)	329.0 -> 169.0	0.9	0.3	1.0

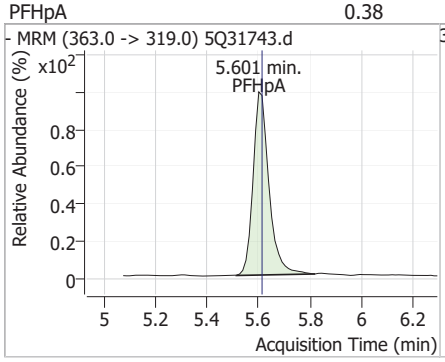


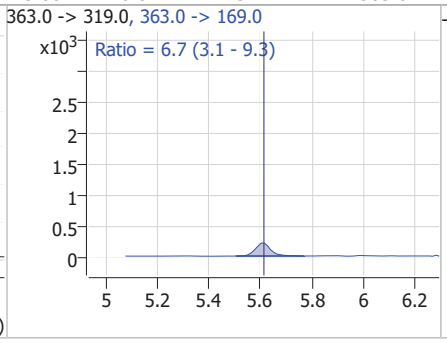
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.38	5.02	-0.01	757				

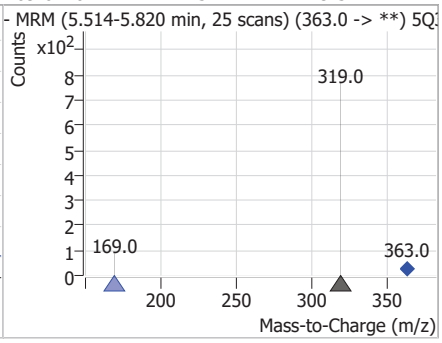


Perfluorinated Compounds by LC/MS/MS

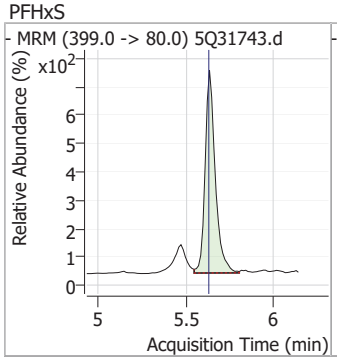
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.38	5.60	-0.01	13142	363.0 -> 169.0	6.7	3.1	9.3

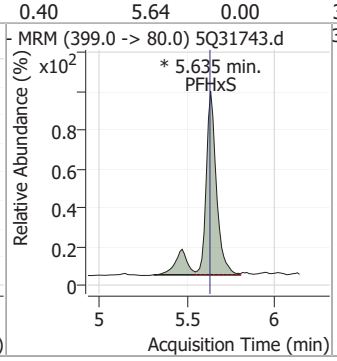


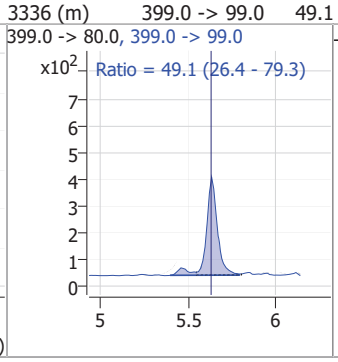


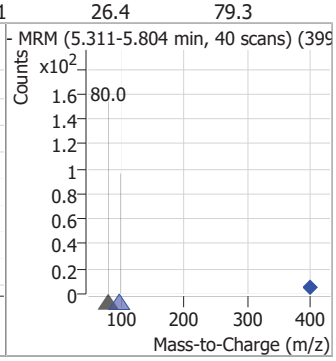


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.40	5.64	0.00	3336 (m)	399.0 -> 99.0	49.1	26.4	79.3

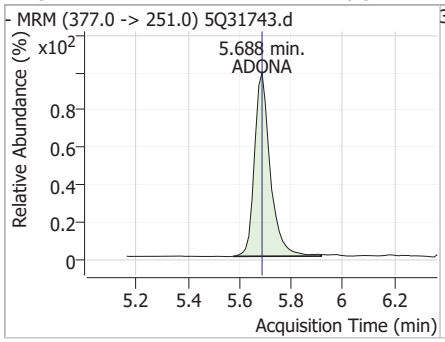


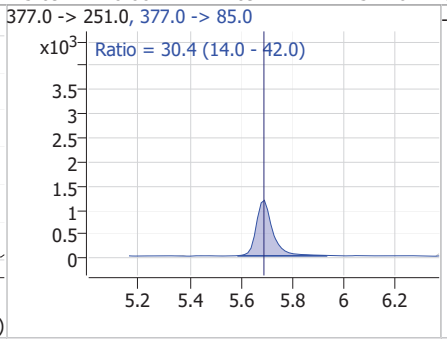


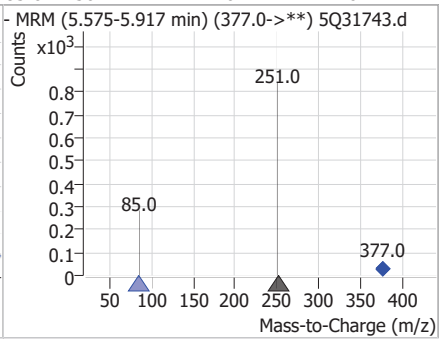




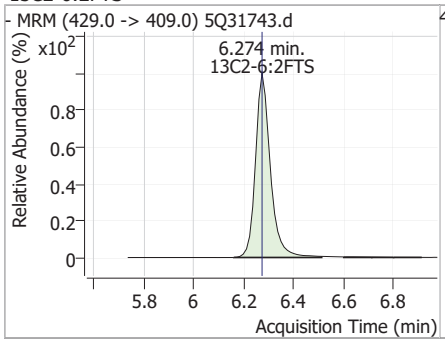
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.37	5.69	0.00	16947	377.0 -> 85.0	30.4	14.0	42.0

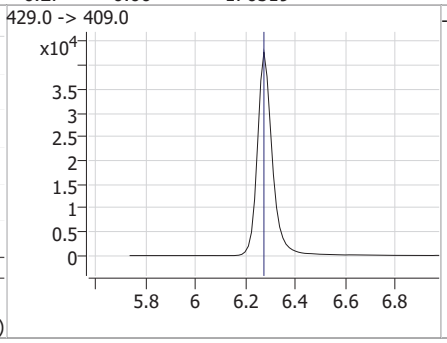


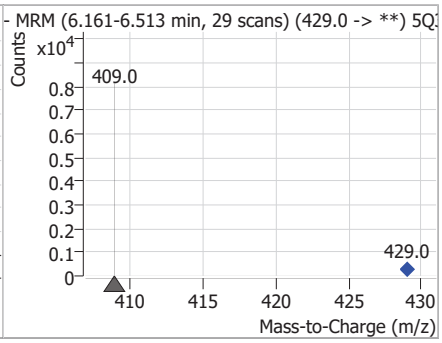




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	0.00	176519				

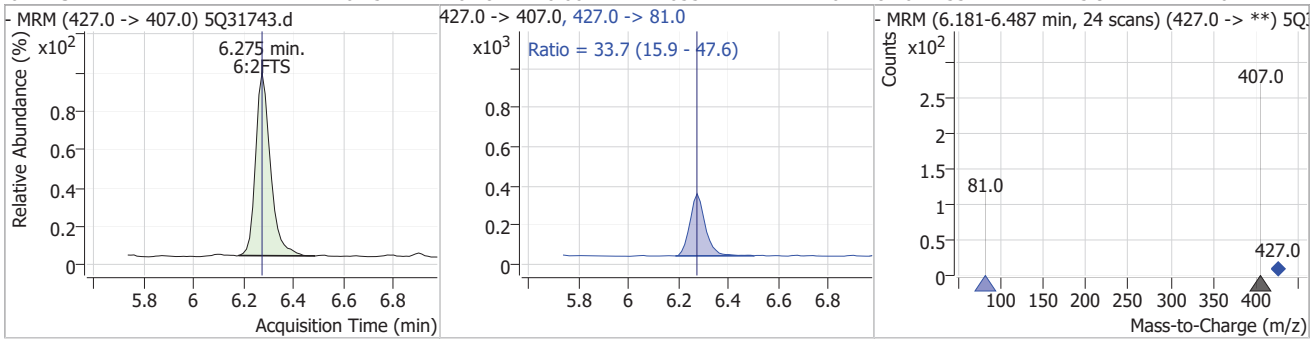




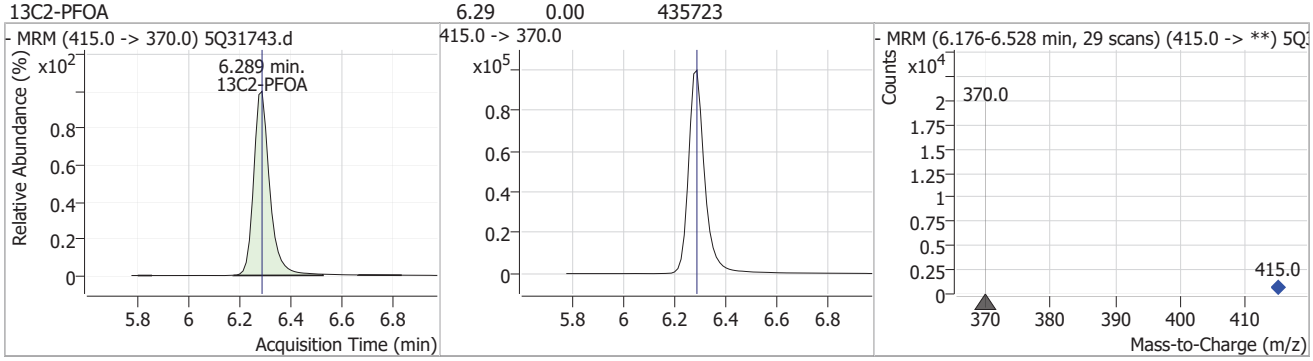


Perfluorinated Compounds by LC/MS/MS

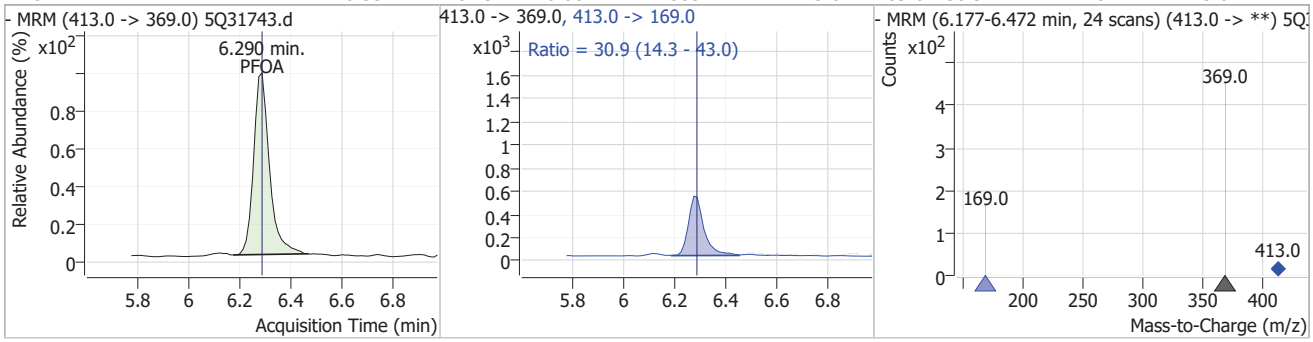
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.45	6.28	0.00	4033	427.0 -> 81.0	33.7	15.9	47.6



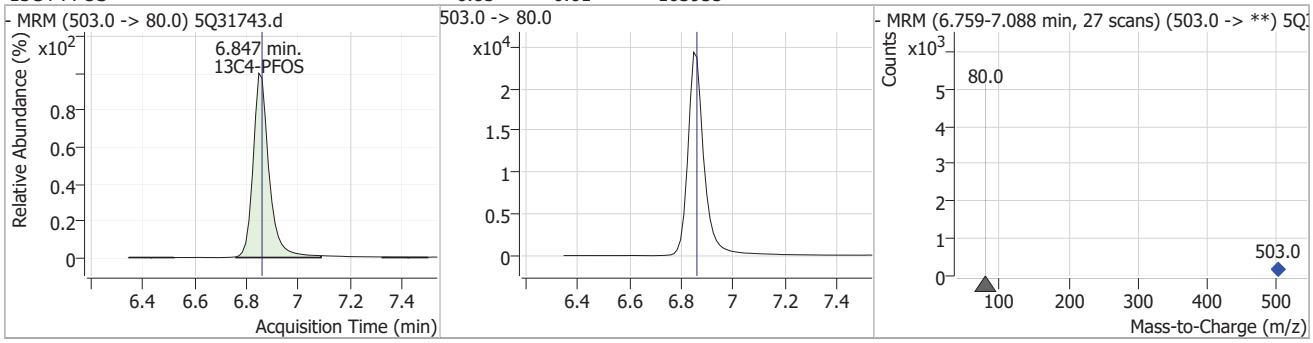
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	435723				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.35	6.29	0.00	7085	413.0 -> 169.0	30.9	14.3	43.0

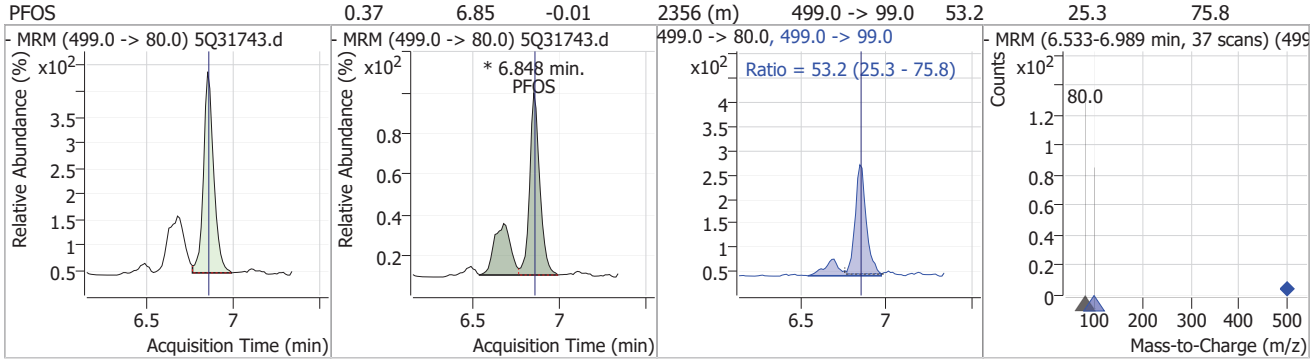


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.85	-0.01	103955				

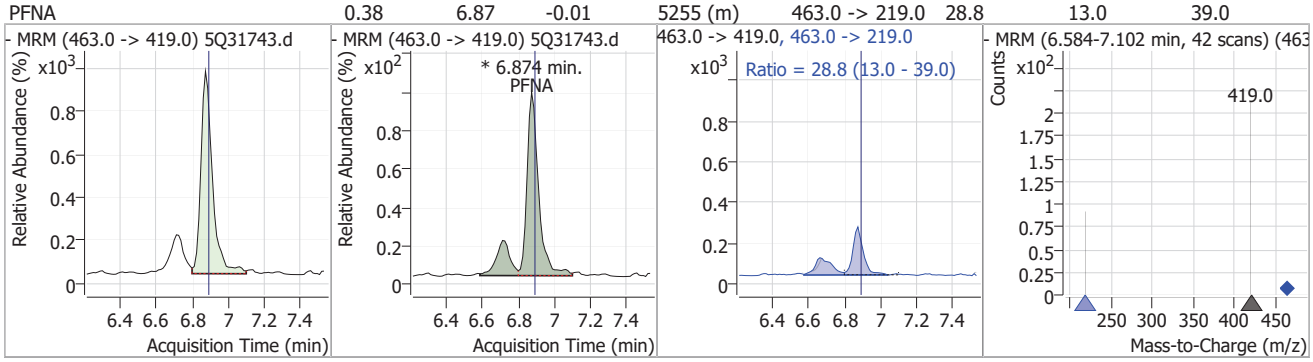


Perfluorinated Compounds by LC/MS/MS

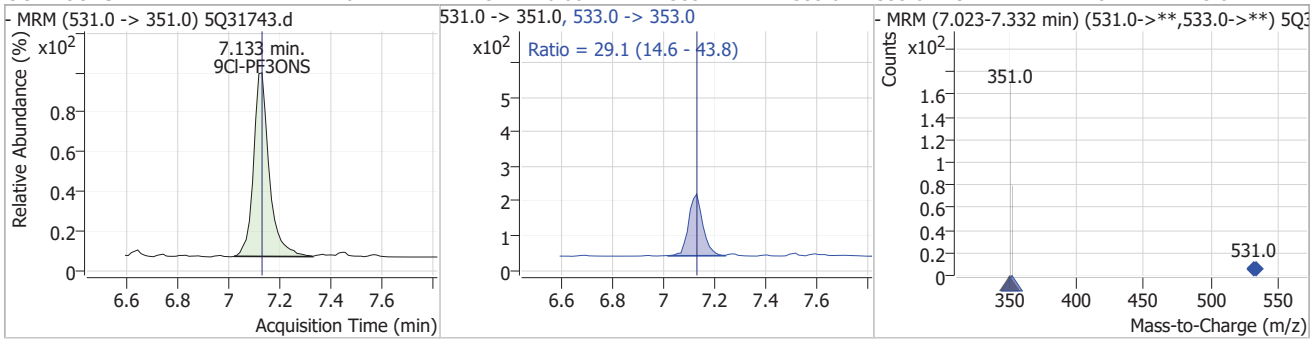
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.37	6.85	-0.01	2356 (m)	499.0 -> 99.0	53.2	25.3	75.8



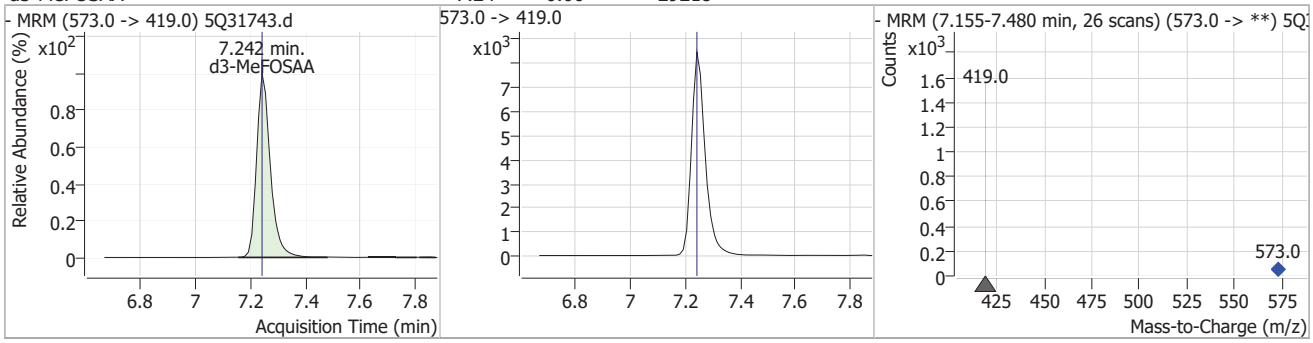
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.38	6.87	-0.01	5255 (m)	463.0 -> 219.0	28.8	13.0	39.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.41	7.13	0.00	2383	533.0 -> 353.0	29.1	14.6	43.8

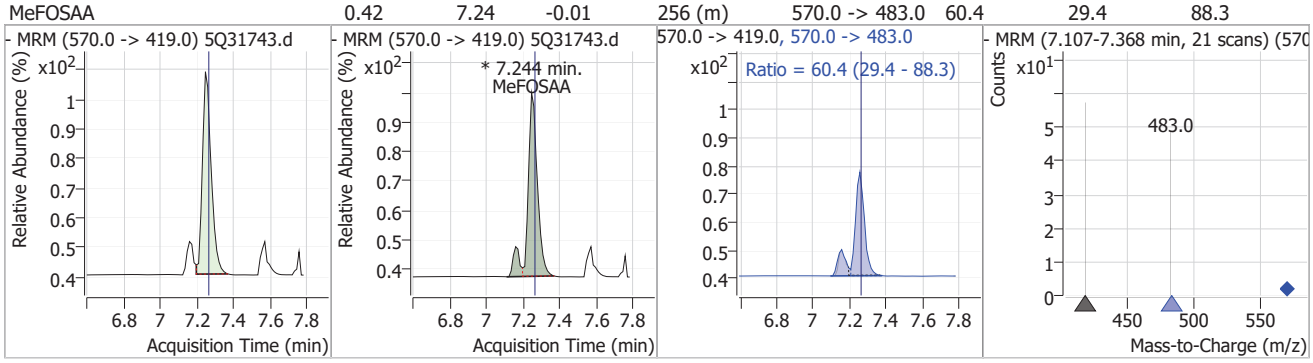


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	29218				

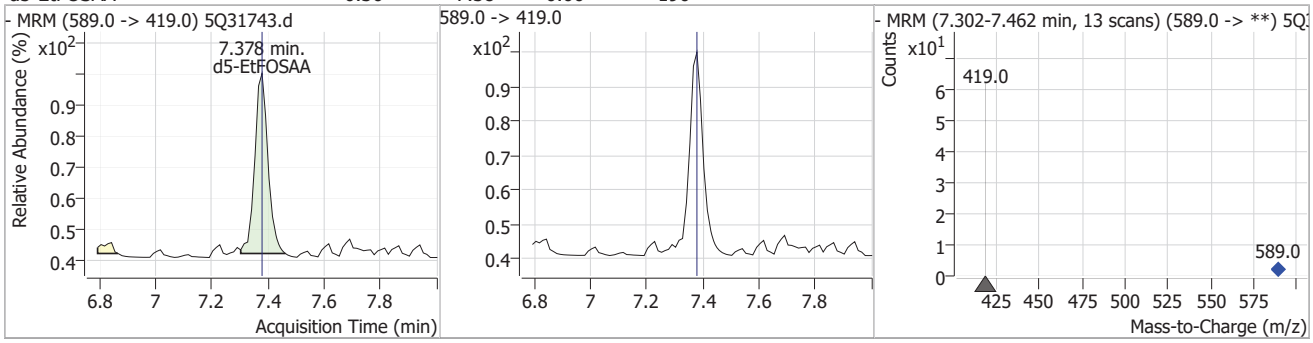


Perfluorinated Compounds by LC/MS/MS

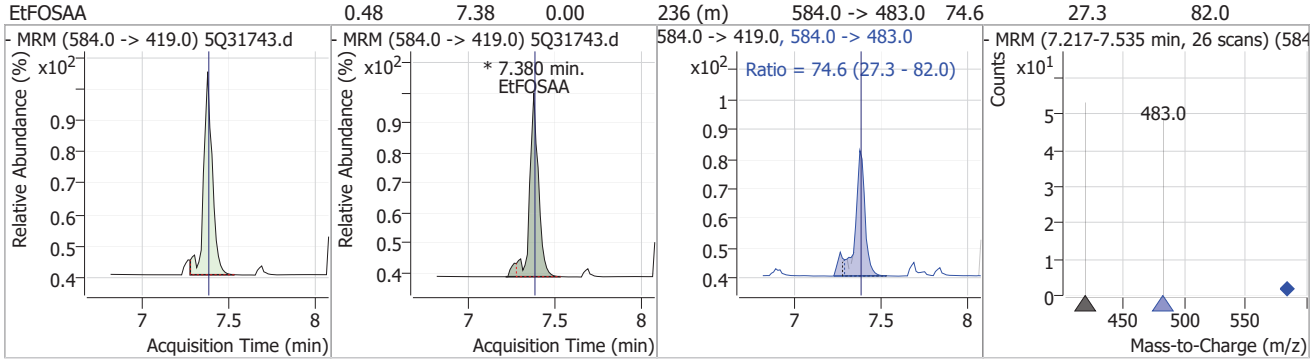
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.42	7.24	-0.01	256 (m)	570.0 -> 483.0	60.4	29.4	88.3



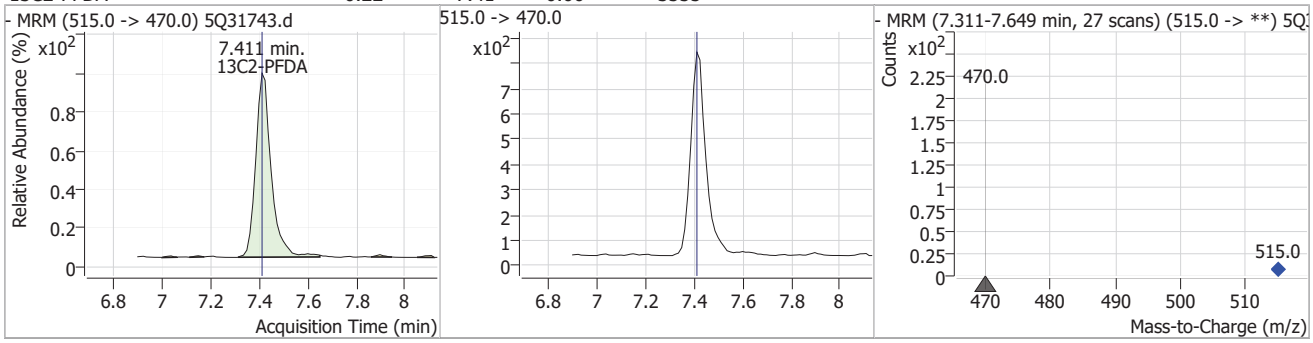
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	0.36	7.38	0.00	190				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.48	7.38	0.00	236 (m)	584.0 -> 483.0	74.6	27.3	82.0

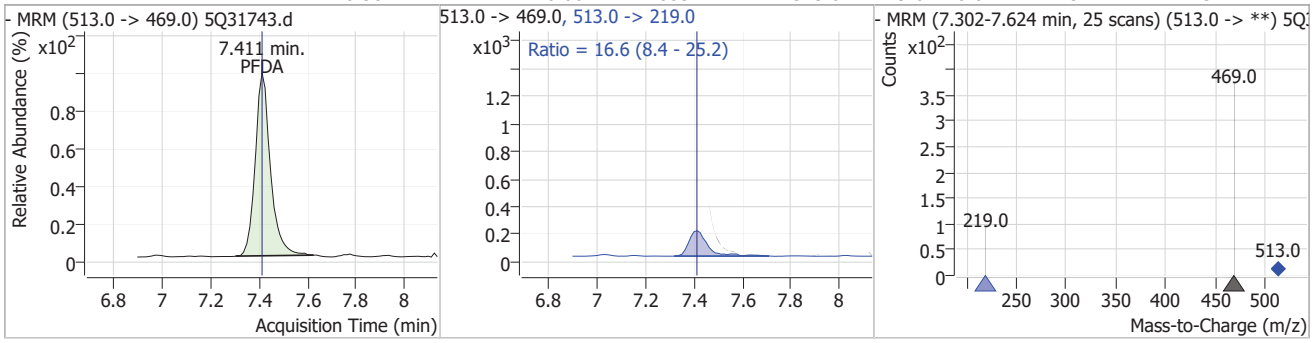


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.22	7.41	0.00	3555				

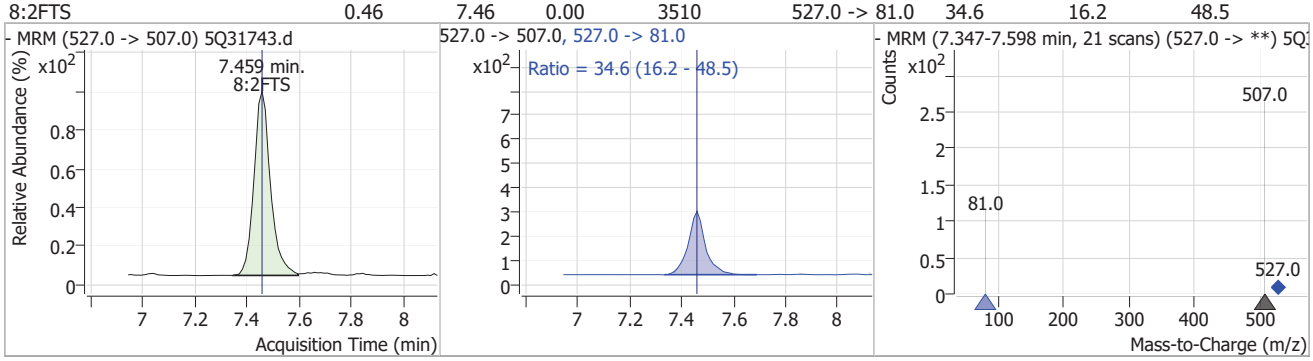


Perfluorinated Compounds by LC/MS/MS

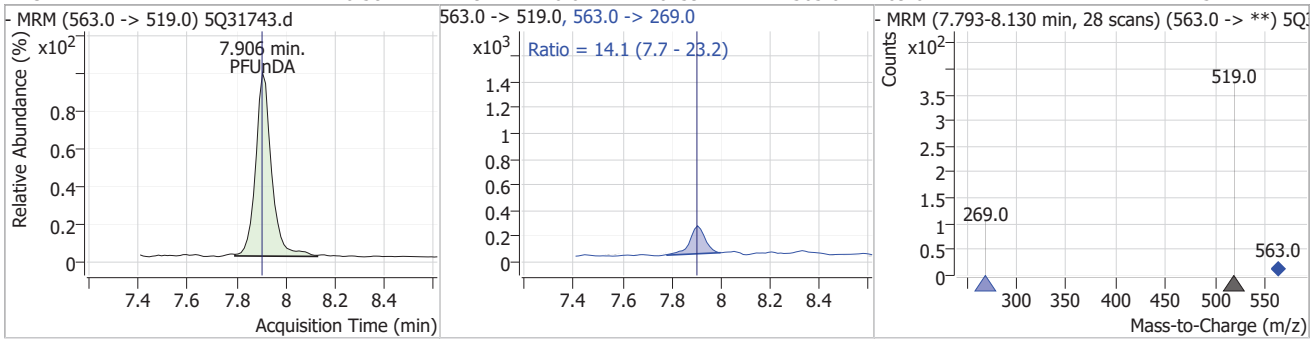
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.36	7.41	0.00	6052	513.0 -> 219.0	16.6	8.4	25.2



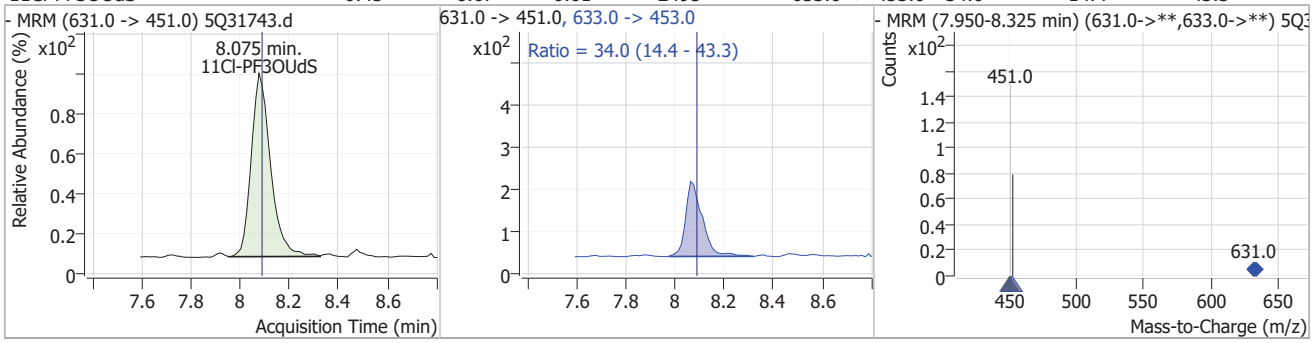
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.46	7.46	0.00	3510	527.0 -> 81.0	34.6	16.2	48.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.38	7.91	-0.01	6739	563.0 -> 269.0	14.1	7.7	23.2

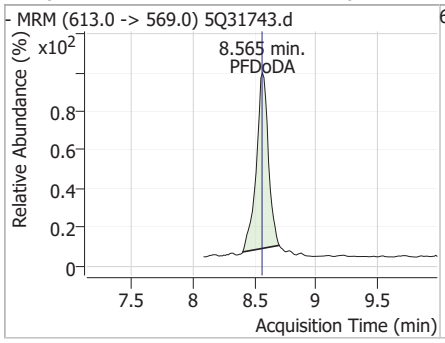


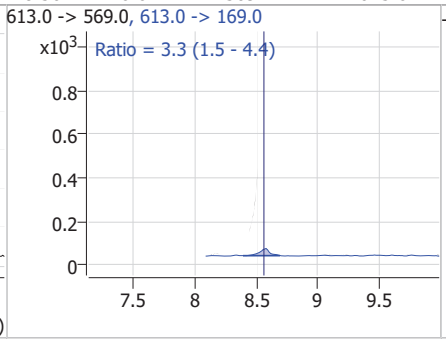
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.43	8.07	-0.01	2495	633.0 -> 453.0	34.0	14.4	43.3

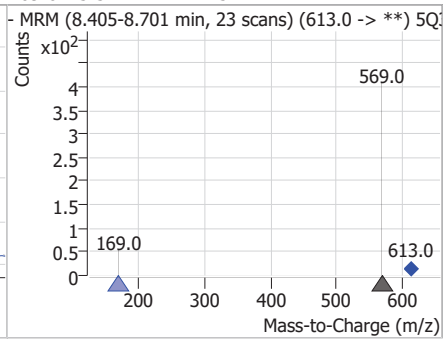


Perfluorinated Compounds by LC/MS/MS

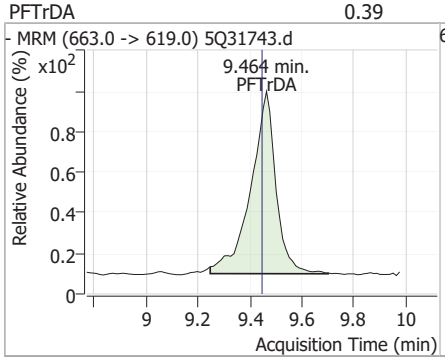
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.44	8.56	-0.01	5691	613.0 -> 169.0	3.3	1.5	4.4

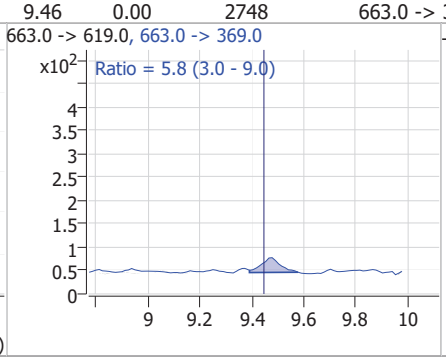


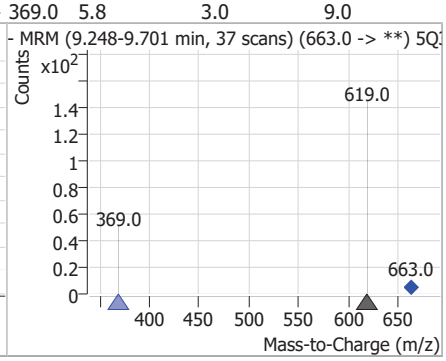




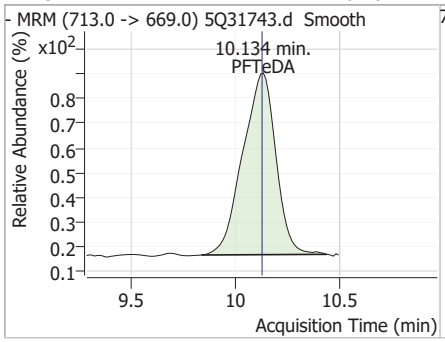
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.39	9.46	0.00	2748	663.0 -> 369.0	5.8	3.0	9.0

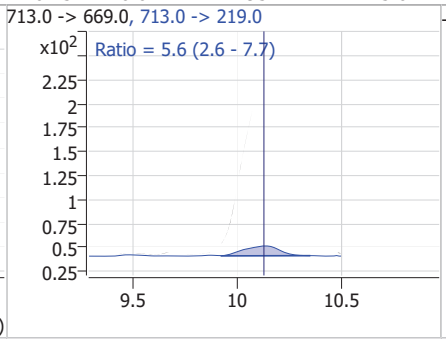


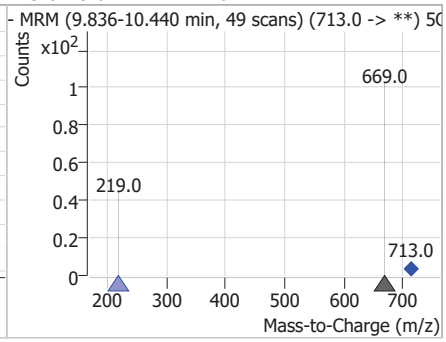




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.46	10.13	-0.01	2193	713.0 -> 219.0	5.6	2.6	7.7







Manual Integration Approval Summary

Sample Number: S5Q520-CC520
Lab FileID: 5Q31743.D
Injection Time: 04/14/25 13:46
Method: EPA 537.1 REV 2.0
Analyst approved: 04/15/25 14:42 (b) (6)
Supervisor approved: 04/15/25 15:43 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
HFPO-DA (GenX)	13252-13-6		5.02	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.85	Split peak
Perfluorononanoic acid	375-95-1		6.87	Split peak
MeFOSAA	2355-31-9		7.24	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/15/25 15:43

Perfluorinated Compounds by LC/MS/MS

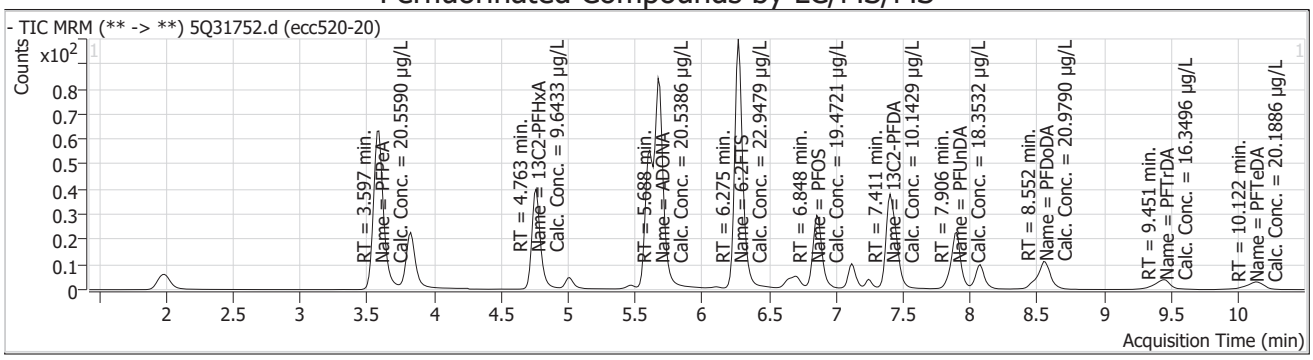
Data File : 5Q31752.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/14/2025 4:10:55 PM
Sample Name : ecc520-20
Vial : P1-A7
DA Method File : 537_041425_S5Q520.quantmethod
Batch Name : s5q520.batch.bin
Sample Information : OP8806,S5Q520,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	191607	20.00	µg/L		0.000
13C2-PFOA	6.277	415.0 -> 370.0	435807	20.00	µg/L		-0.012
13C3-PFPeA	3.594	266.0 -> 222.0	565797	20.00	µg/L		0.000
13C4-PFOS	6.847	503.0 -> 80.0	107945	20.00	µg/L		-0.012
d3-MeFOSAA	7.242	573.0 -> 419.0	30091	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	172396	10.14	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 50.7%			
13C2-PFHxA	4.763	315.0 -> 270.0	281254	9.64	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 48.2%			
d5-EtFOSAA	7.378	589.0 -> 419.0	11504	20.76	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 51.9%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	35563	18.05	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 45.1%			
Target Compounds							QValue
6:2FTS	6.275	427.0 -> 407.0	222149	22.95	µg/L		99
8:2FTS	7.447	527.0 -> 507.0	177306	21.32	µg/L		99
EtFOSAA	7.380	584.0 -> 419.0	9871	19.33	µg/L	m	94
MeFOSAA	7.244	570.0 -> 419.0	13776	20.91	µg/L	m	97
PFBS	3.828	299.0 -> 80.0	291949	19.78	µg/L		100
PFDA	7.411	513.0 -> 469.0	314506	18.70	µg/L		99
PFDoDA	8.552	613.0 -> 569.0	302499	20.98	µg/L		99
PFHpA	5.601	363.0 -> 319.0	746821	20.66	µg/L		99
PFHxA	4.764	313.0 -> 269.0	383330	20.53	µg/L		100
PFHxS	5.635	399.0 -> 80.0	176516	19.90	µg/L	m	100
PFNA	6.874	463.0 -> 419.0	301728	20.63	µg/L	m	100
PFOA	6.277	413.0 -> 369.0	424495	20.64	µg/L		100
PFOS	6.848	499.0 -> 80.0	130206	19.47	µg/L	m	98
PFPeA	3.597	263.0 -> 219.0	731475	20.56	µg/L		100
PFTeDA	10.122	713.0 -> 669.0	106321	20.19	µg/L		100
PFTrDA	9.451	663.0 -> 619.0	120889	16.35	µg/L		99
PFUnDA	7.906	563.0 -> 519.0	336128	18.35	µg/L		100
ADONA	5.688	377.0 -> 251.0	987594	20.54	µg/L		99
9Cl-PF3ONS	7.121	531.0 -> 351.0	122540	20.34	µg/L		100
11Cl-PF3OUdS	8.075	631.0 -> 451.0	137148	21.68	µg/L		100
HFPO-DA	5.022	285.0 -> 169.0	34175	19.68	µg/L		100

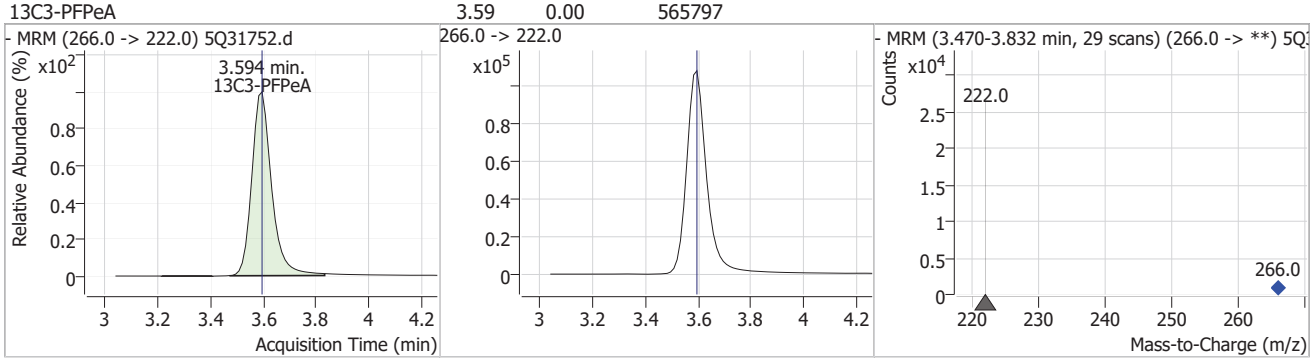
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.38
7

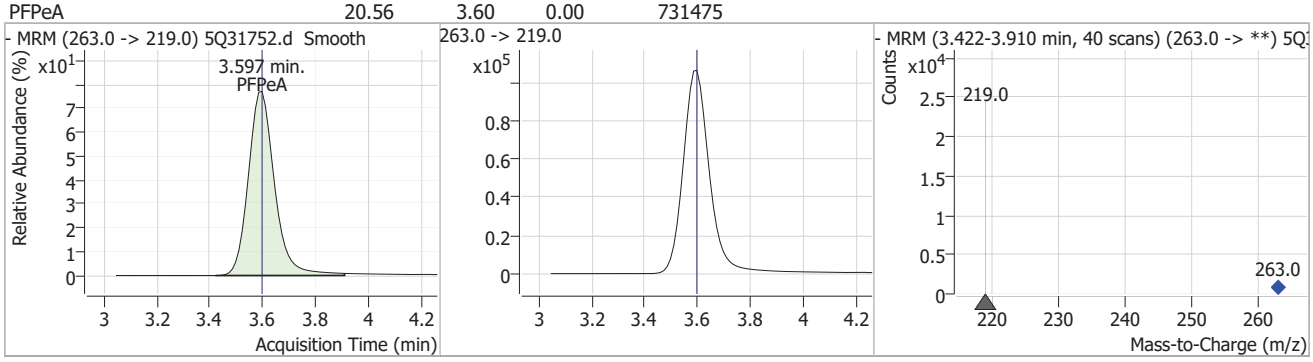
Perfluorinated Compounds by LC/MS/MS



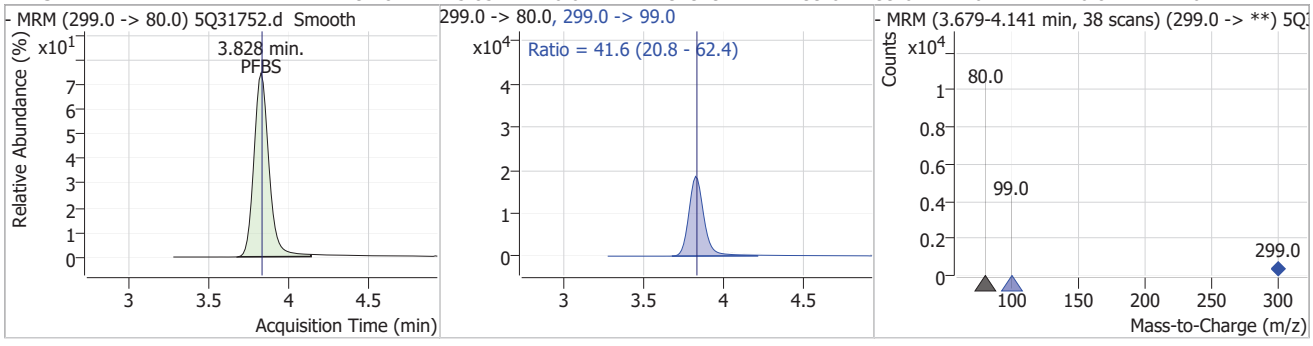
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	565797				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.56	3.60	0.00	731475				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.78	3.83	-0.01	291949	299.0 -> 99.0	41.6	20.8	62.4

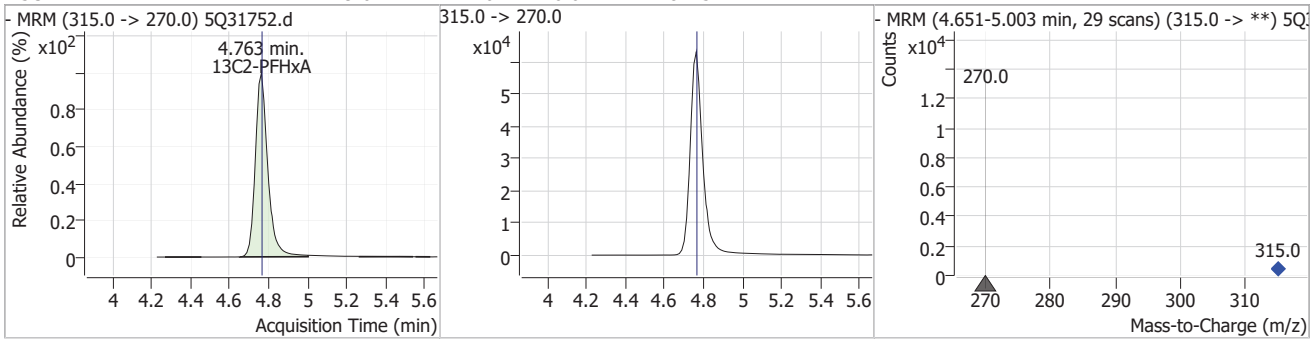


7.7.38

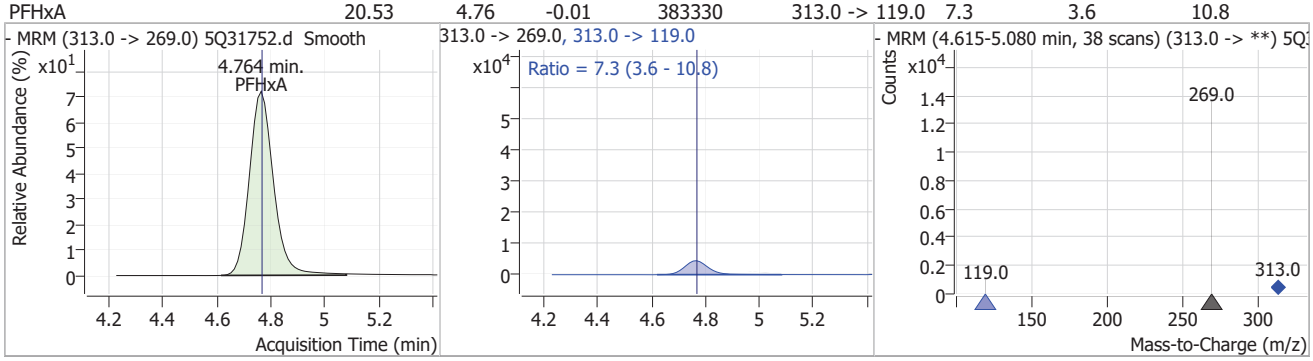
7

Perfluorinated Compounds by LC/MS/MS

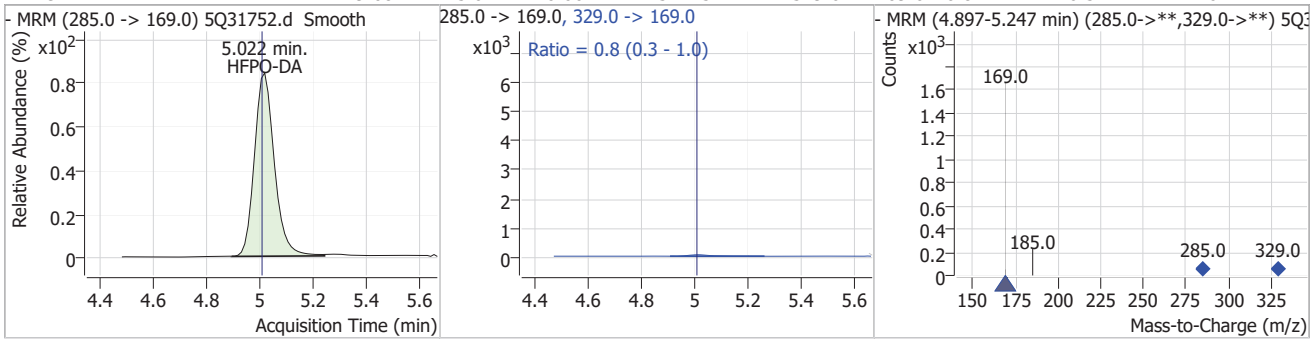
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	9.64	4.76	-0.01	281254				



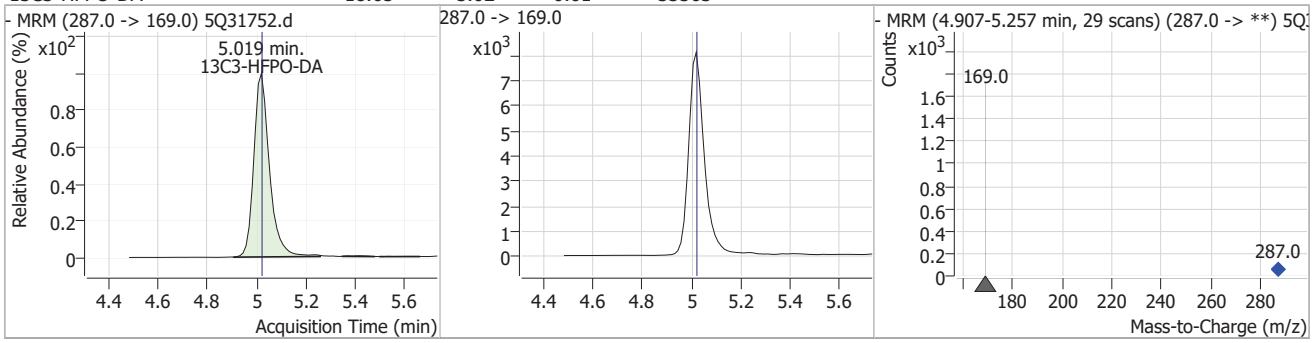
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	20.53	4.76	-0.01	383330	313.0 -> 119.0	7.3	3.6	10.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.68	5.02	0.00	34175	329.0 -> 169.0	0.8	0.3	1.0

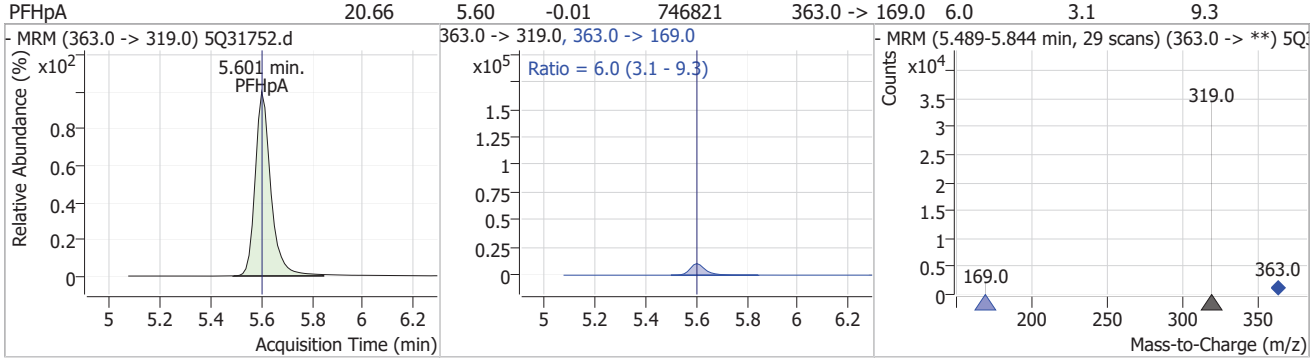


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	18.05	5.02	-0.01	35563				

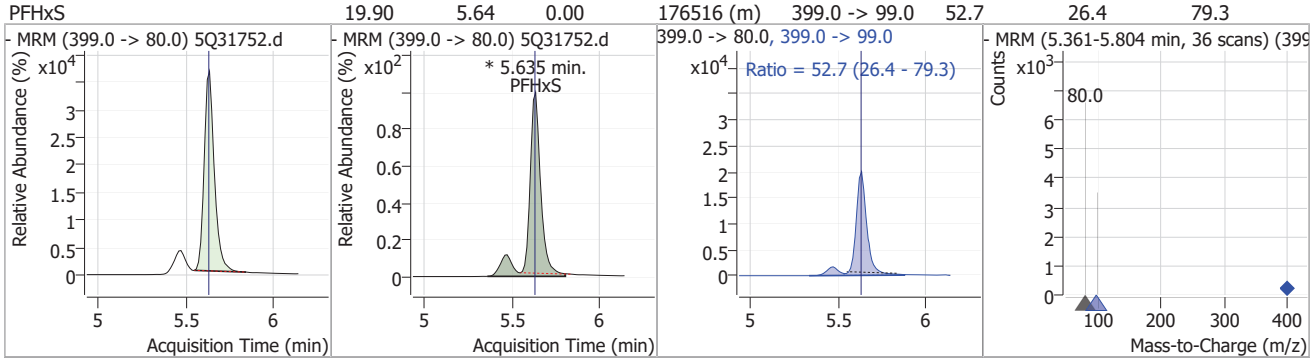


Perfluorinated Compounds by LC/MS/MS

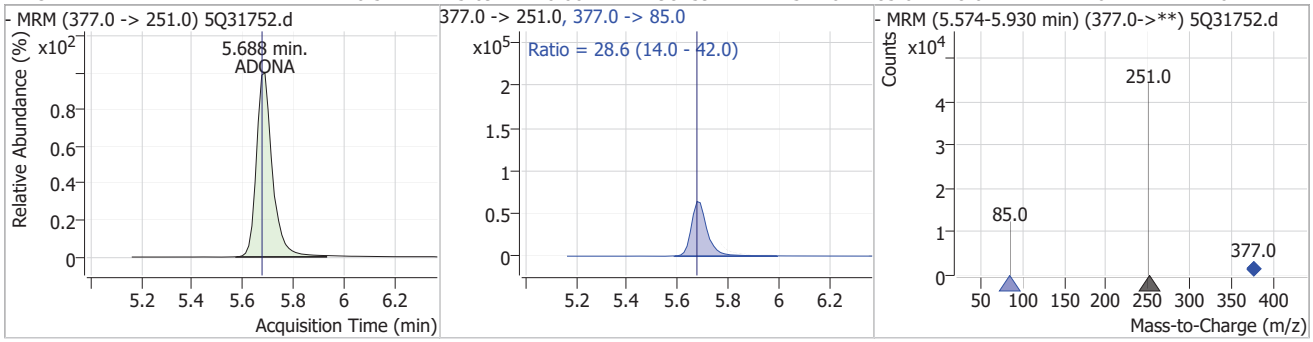
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.66	5.60	-0.01	746821	363.0 -> 169.0	6.0	3.1	9.3



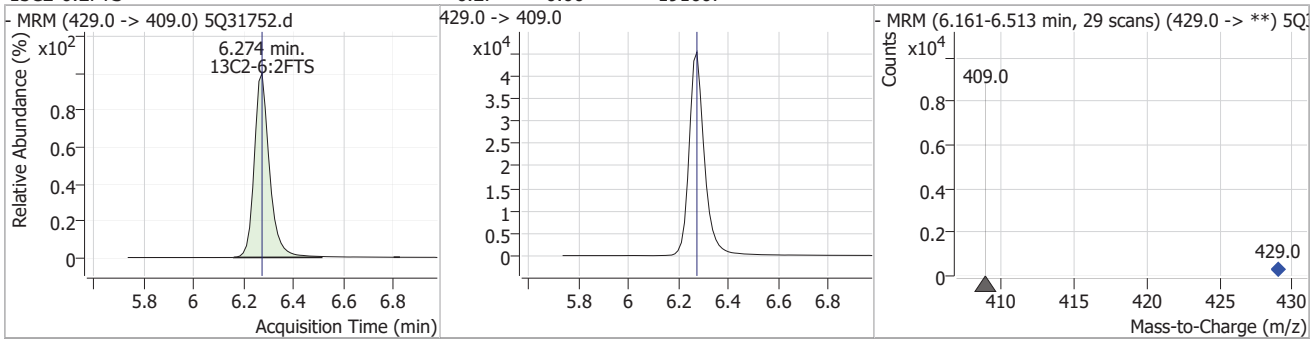
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.90	5.64	0.00	176516 (m)	399.0 -> 99.0	52.7	26.4	79.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.54	5.69	0.00	987594	377.0 -> 85.0	28.6	14.0	42.0

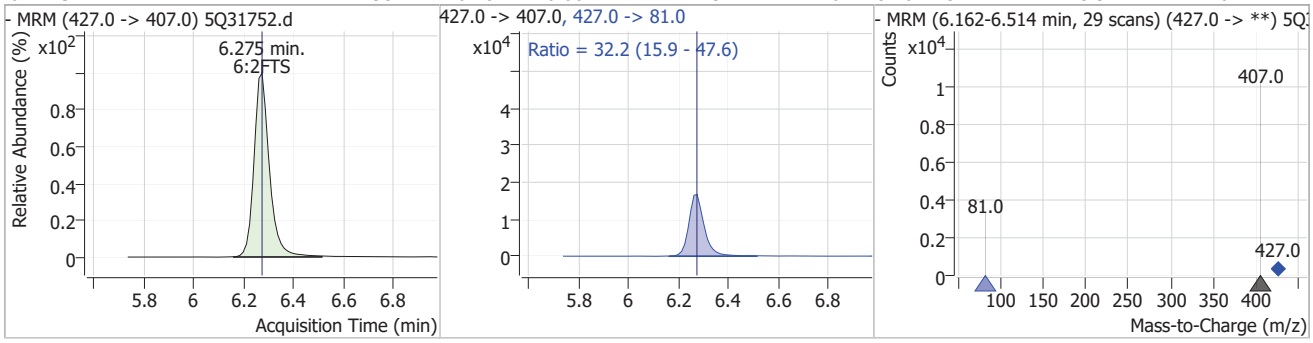


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	0.00	191607				

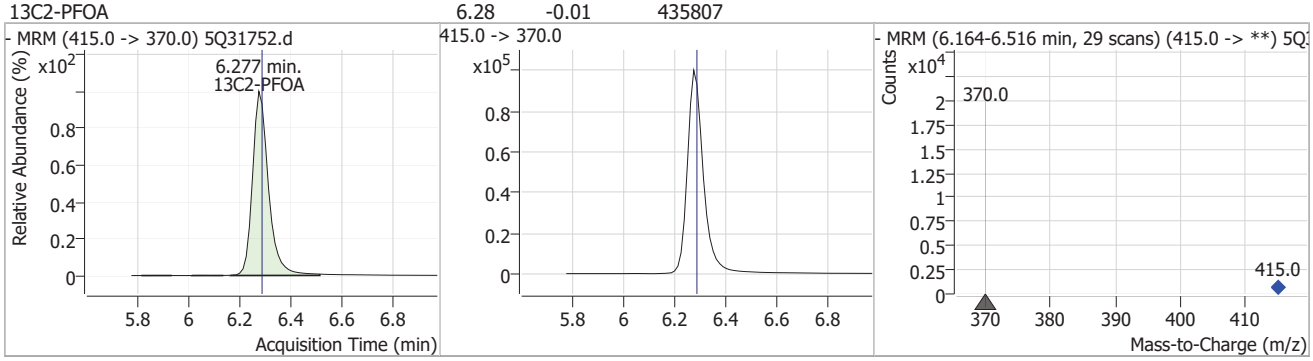


Perfluorinated Compounds by LC/MS/MS

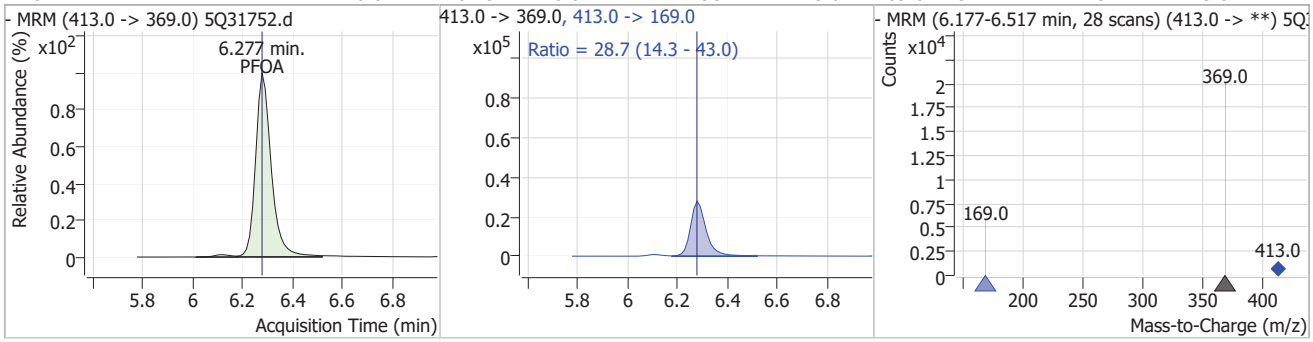
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	22.95	6.28	0.00	222149	427.0 -> 81.0	32.2	15.9	47.6



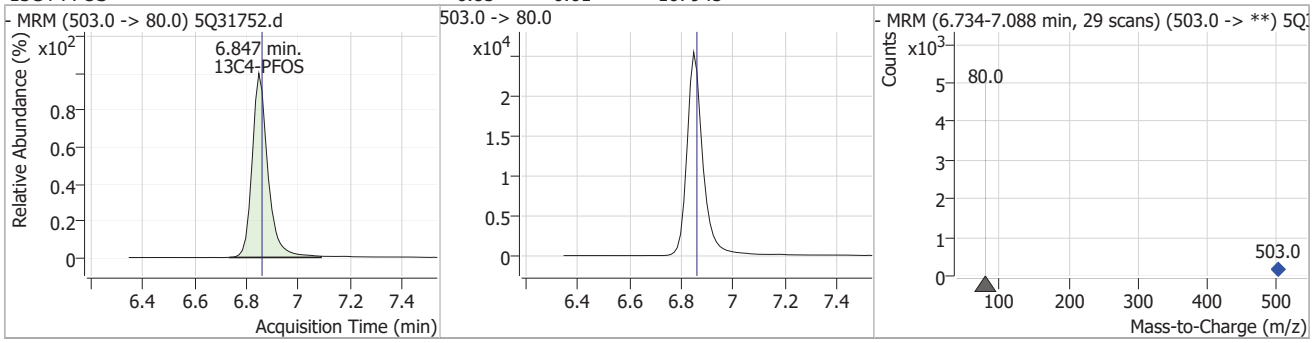
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.28	-0.01	435807				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.64	6.28	-0.01	424495	413.0 -> 169.0	28.7	14.3	43.0

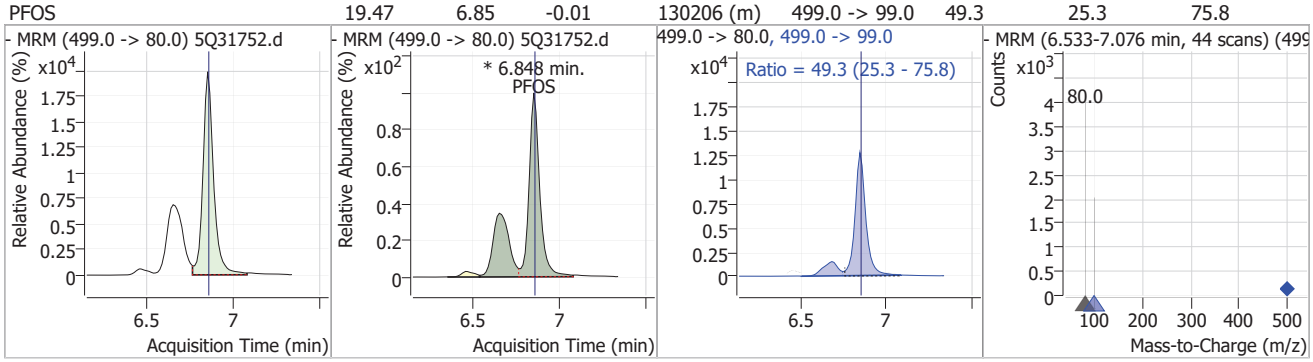


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.85	-0.01	107945				

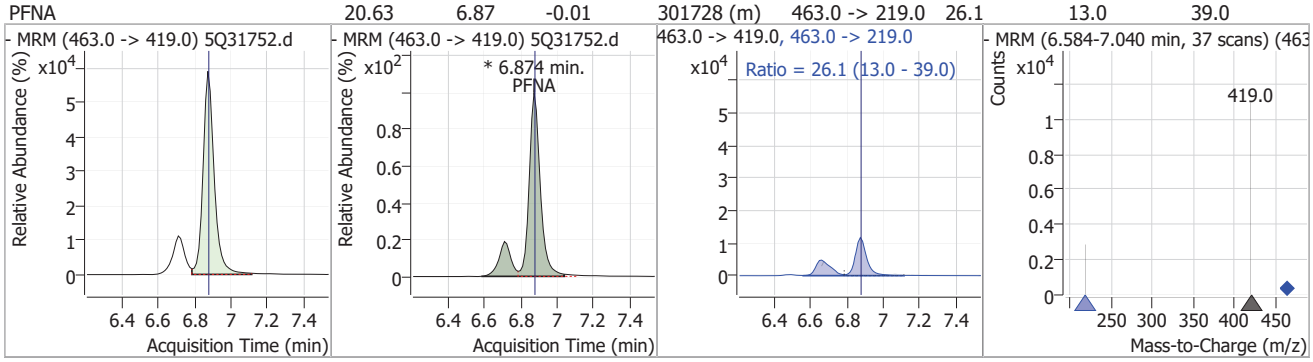


Perfluorinated Compounds by LC/MS/MS

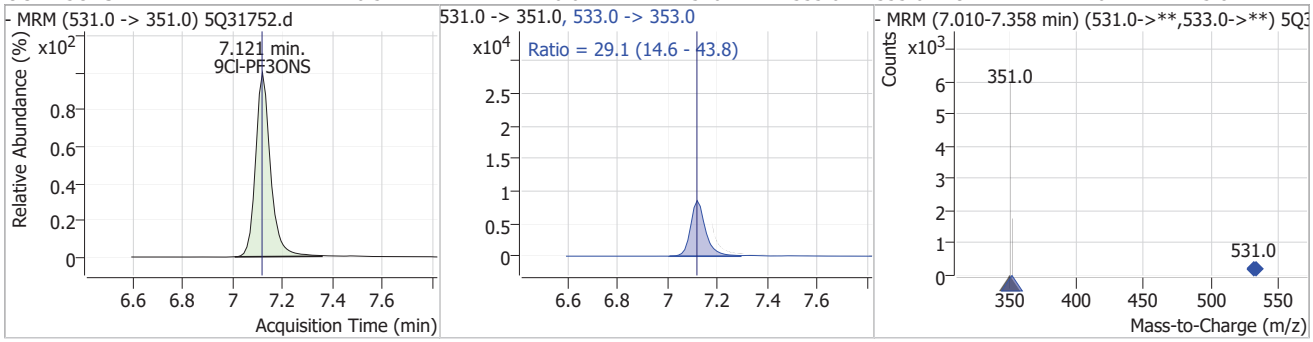
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.47	6.85	-0.01	130206 (m)	499.0 -> 99.0	49.3	25.3	75.8



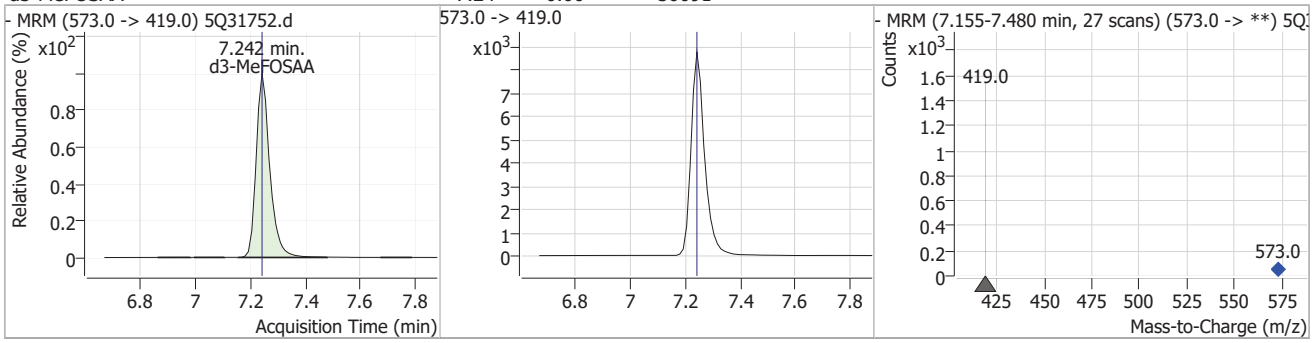
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	20.63	6.87	-0.01	301728 (m)	463.0 -> 219.0	26.1	13.0	39.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	20.34	7.12	-0.01	122540	533.0 -> 353.0	29.1	14.6	43.8

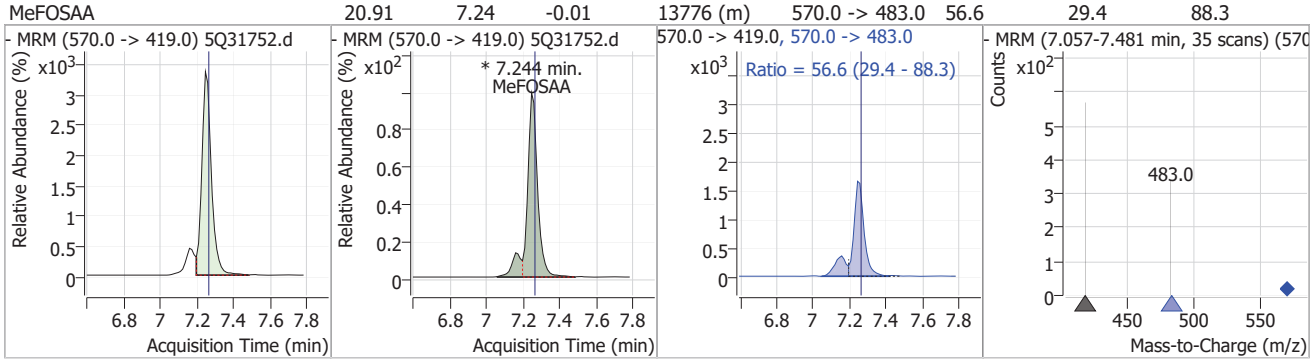


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	30091				

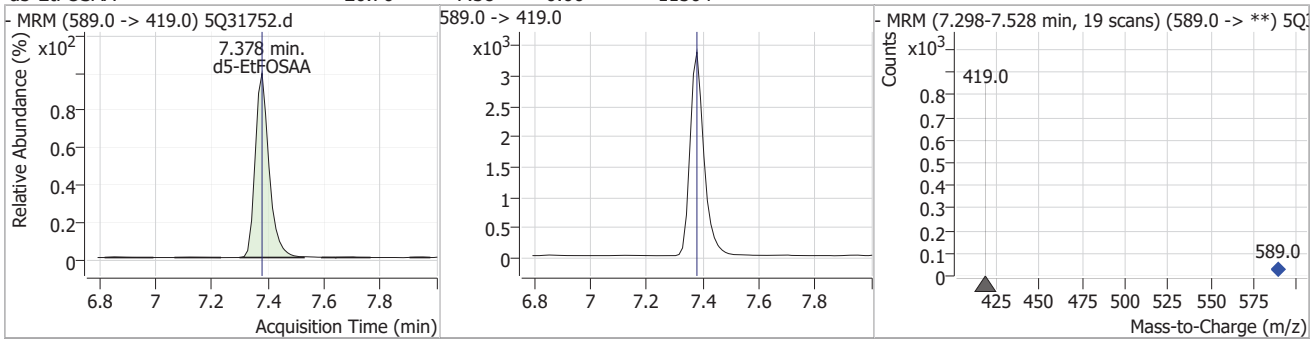


Perfluorinated Compounds by LC/MS/MS

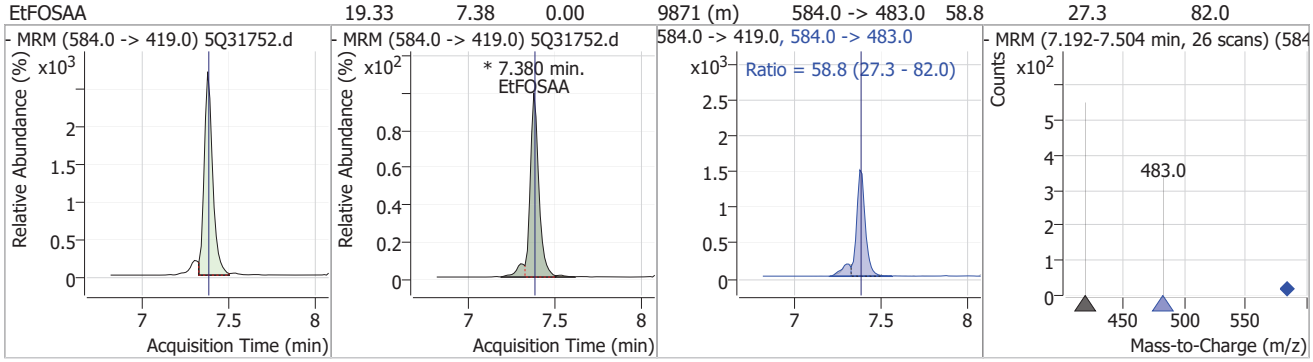
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	20.91	7.24	-0.01	13776 (m)	570.0 -> 483.0	56.6	29.4	88.3



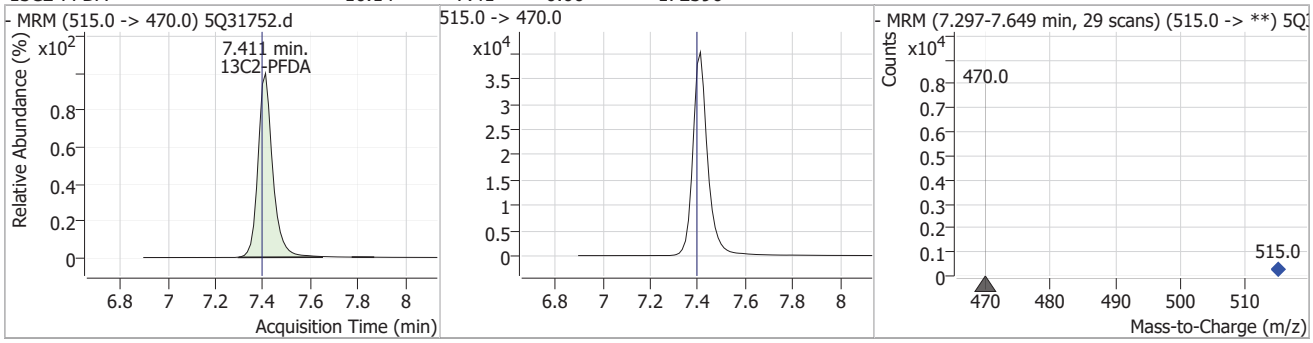
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	20.76	7.38	0.00	11504				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.33	7.38	0.00	9871 (m)	584.0 -> 483.0	58.8	27.3	82.0

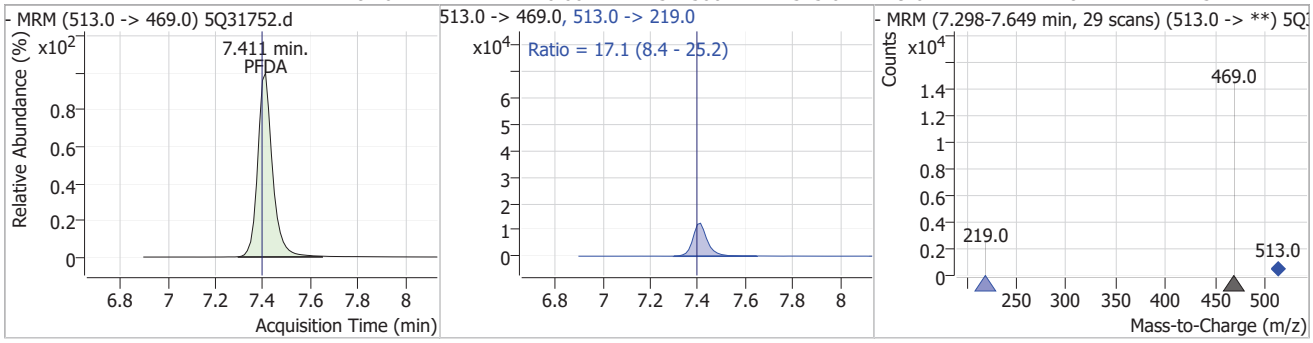


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	10.14	7.41	0.00	172396				

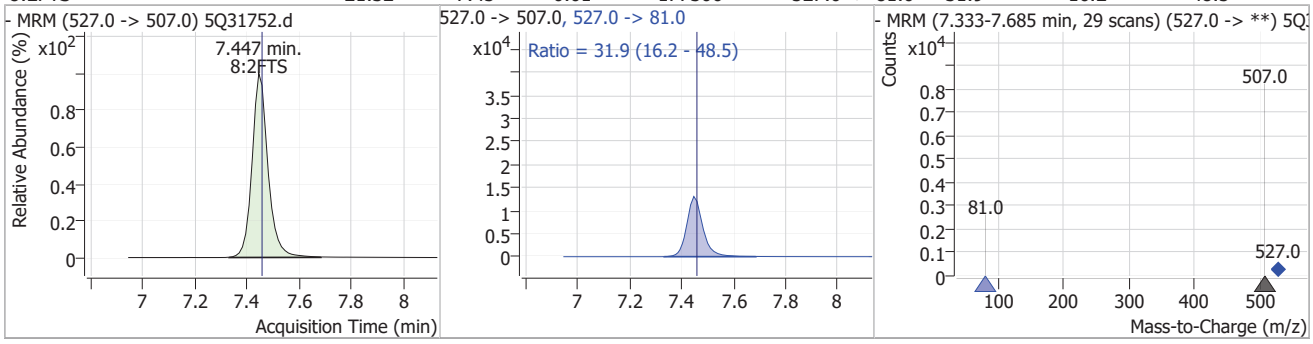


Perfluorinated Compounds by LC/MS/MS

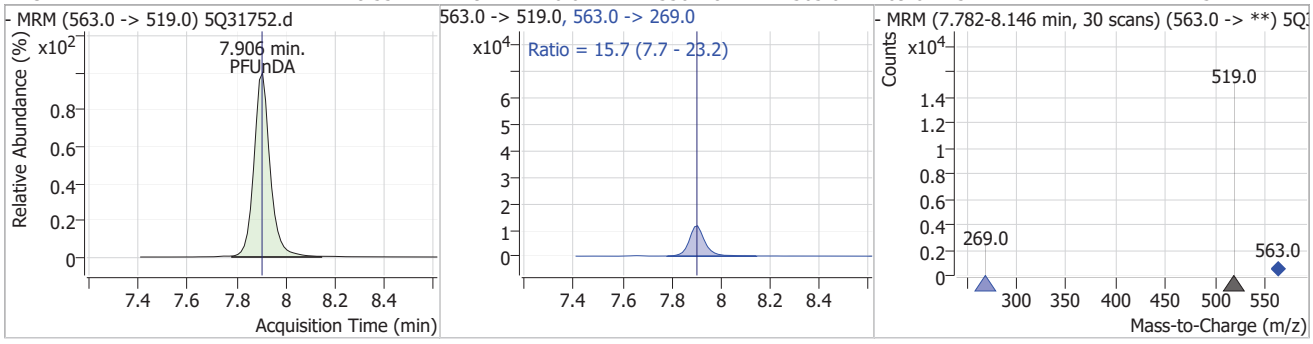
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	18.70	7.41	0.00	314506	513.0 -> 219.0	17.1	8.4	25.2



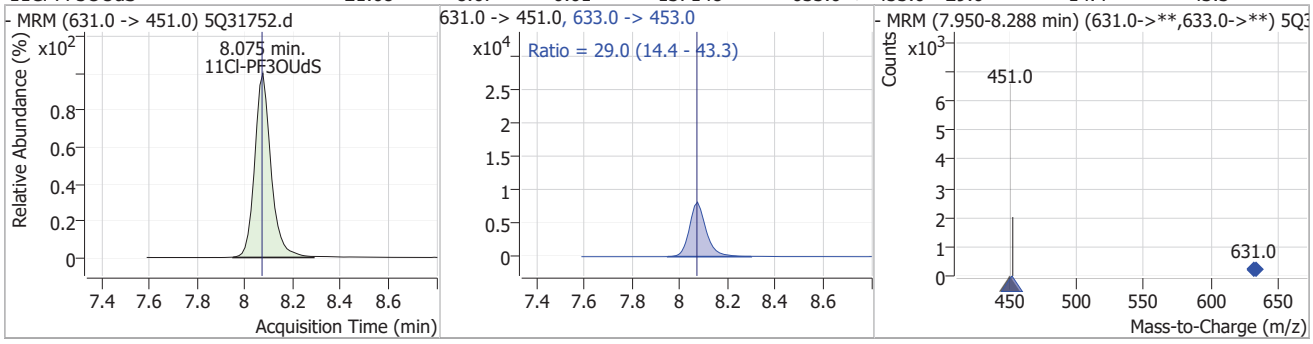
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.32	7.45	-0.01	177306	527.0 -> 81.0	31.9	16.2	48.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	18.35	7.91	-0.01	336128	563.0 -> 269.0	15.7	7.7	23.2

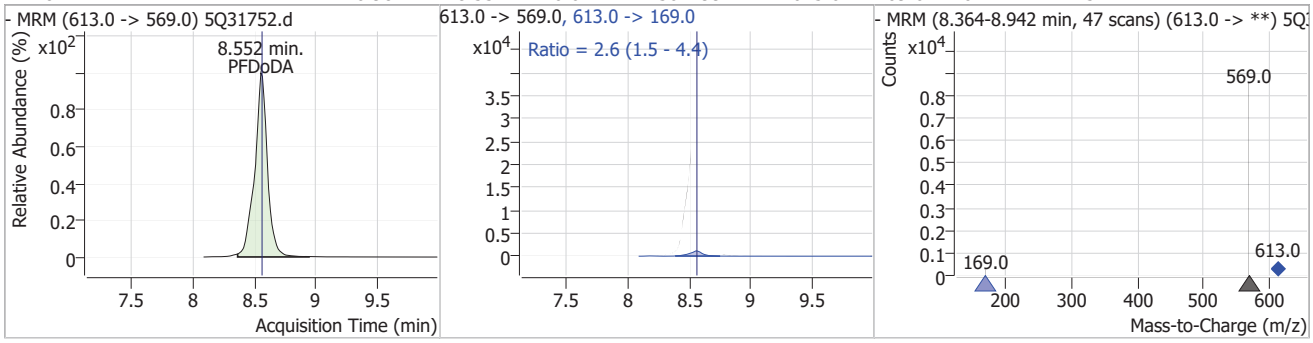


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	21.68	8.07	-0.01	137148	633.0 -> 453.0	29.0	14.4	43.3

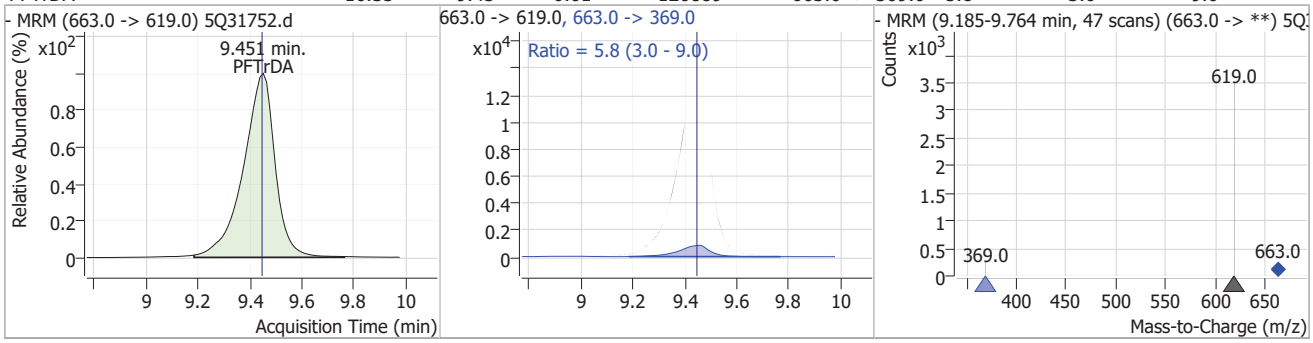


Perfluorinated Compounds by LC/MS/MS

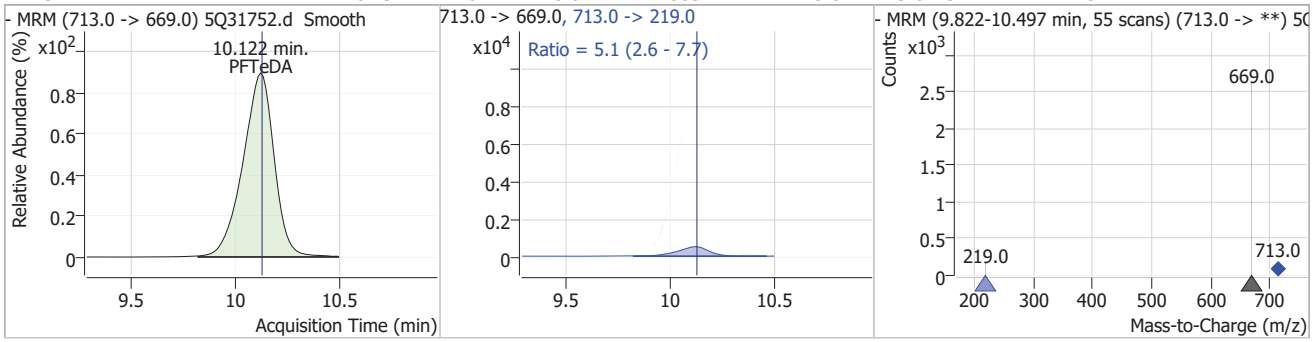
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	20.98	8.55	-0.02	302499	613.0 -> 169.0	2.6	1.5	4.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	16.35	9.45	-0.01	120889	663.0 -> 369.0	5.8	3.0	9.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	20.19	10.12	-0.02	106321	713.0 -> 219.0	5.1	2.6	7.7



Manual Integration Approval Summary

Sample Number:	S5Q520-ECC520	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31752.D	**Analyst approved:**	04/15/25 14:42 (b) (6)
Injection Time:	04/14/25 16:10	**Supervisor approved:**	04/15/25 15:43 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.85	Split peak
Perfluorononanoic acid	375-95-1		6.87	Split peak
MeFOSAA	2355-31-9		7.24	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

QQQ Check Tune Report

Agilent | Trusted Answers

Instrument Name	LCMS5Q
MS Model	G6470B
MS Instrument Serial	SG2221G211
Software_Firmware Version	10.1.67, FW: A.00.08.112
Tune Date & Time	14 April 2025 09:23:21
File Path	D:\MassHunter\Tune\QQQ\G6470B\atunes.TUNE.XML
Ion Source	AJS ESI
Ionization Mode	AJS ESI
Tuned Resolution	All
Vacuum Pressure	1.29E+0 [R] (Torr); 3.37E-5 [H] (Torr)

Source Parameters

Parameter	Negative
Gas Temp (°C)	300
Gas Flow (l/min)	8
Nebulizer (psi)	15
Capillary (V)	3500
Nozzle Voltage (V)	1500
Sheath Gas Temp (°C)	250
Sheath Gas Flow (l/min)	7

QQQ Check Tune Report

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Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.99	0.00	Pass	0.70	0.68	-0.02	Pass	63164
302.00	302.07	0.07	Pass	0.70	0.71	0.01	Pass	46772
601.98	602.03	0.05	Pass	0.70	0.70	0.00	Pass	106524
1033.99	1034.06	0.07	Pass	0.70	0.68	-0.02	Pass	168600
1633.95	1634.05	0.10	Pass	0.70	0.64	-0.06	Pass	576560
2233.91	2234.00	0.09	Pass	0.70	0.58	-0.12	Pass	230330

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.98	-0.02	Pass	0.70	0.66	-0.04	Pass	14469
112.99	112.99	0.00	Pass	0.70	0.70	0.00	Pass	45487
302.00	302.00	0.00	Pass	0.70	0.70	0.00	Pass	38497
601.98	601.92	-0.06	Pass	0.70	0.74	0.04	Pass	82452
1033.99	1033.95	-0.04	Pass	0.70	0.74	0.04	Pass	150073
1633.95	1633.90	-0.05	Pass	0.70	0.75	0.05	Pass	482147
2233.91	2233.91	0.00	Pass	0.70	0.73	0.03	Pass	204643

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	113.00	0.01	Pass	1.20	1.28	0.08	Pass	76882
302.00	302.02	0.02	Pass	1.20	1.42	0.22	Pass	60436
601.98	602.02	0.04	Pass	1.20	1.51	0.31	Pass	169034
1033.99	1034.04	0.05	Pass	1.20	1.49	0.29	Pass	303637
1633.95	1634.01	0.06	Pass	1.20	1.40	0.20	Pass	895413
2233.91	2233.93	0.02	Pass	1.20	1.09	-0.11	Pass	499569

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.94	-0.06	Pass	1.20	1.28	0.08	Pass	17547
112.99	112.98	-0.01	Pass	1.20	1.24	0.04	Pass	71681
302.00	301.96	-0.04	Pass	1.20	1.15	-0.05	Pass	46328
601.98	601.90	-0.08	Pass	1.20	1.08	-0.12	Pass	100357
1033.99	1033.91	-0.08	Pass	1.20	1.14	-0.06	Pass	212087
1633.95	1633.85	-0.10	Pass	1.20	1.30	0.10	Pass	824024
2233.91	2233.95	0.04	Pass	1.20	1.35	0.15	Pass	396130

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.98	-0.01	Pass	2.50	2.47	-0.03	Pass	96749
302.00	302.03	0.03	Pass	2.50	2.71	0.21	Pass	70573
601.98	602.02	0.04	Pass	2.50	2.86	0.36	Pass	189021
1033.99	1034.01	0.02	Pass	2.50	2.93	0.43	Pass	591197
1633.95	1633.96	0.01	Pass	2.50	2.77	0.27	Pass	2441107
2233.91	2233.80	-0.11	Pass	2.50	2.89	0.39	Pass	1642805

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.95	-0.05	Pass	2.50	2.40	-0.10	Pass	22938
112.99	112.98	-0.01	Pass	2.50	2.44	-0.06	Pass	88146
302.00	301.97	-0.03	Pass	2.50	2.29	-0.21	Pass	64094
601.98	601.92	-0.06	Pass	2.50	2.30	-0.20	Pass	163732
1033.99	1033.91	-0.08	Pass	2.50	2.26	-0.24	Pass	434415
1633.95	1633.91	-0.04	Pass	2.50	2.40	-0.10	Pass	1901064
2233.91	2233.85	-0.06	Pass	2.50	2.47	-0.03	Pass	1169263

Cal Report: 5Q31820.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

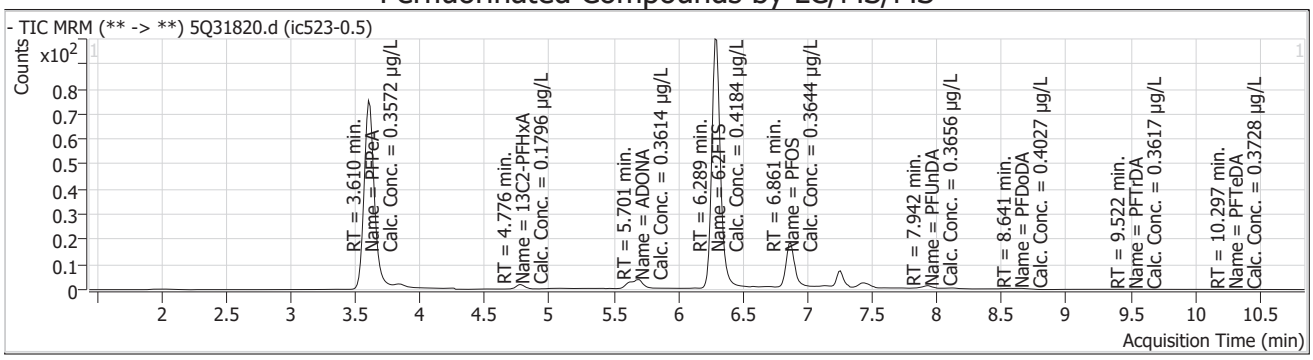
Data File : 5Q31820.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 12:39:17 PM
Sample Name : ic523-0.5
Vial : P1-A2
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.288	429.0 -> 409.0	170462	20.00	µg/L		0.000
13C2-PFOA	6.303	415.0 -> 370.0	376095	20.00	µg/L		0.012
13C3-PFPeA	3.607	266.0 -> 222.0	481778	20.00	µg/L		0.012
13C4-PFOS	6.873	503.0 -> 80.0	93141	20.00	µg/L		0.013
d3-MeFOSAA	7.254	573.0 -> 419.0	28351	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.435	515.0 -> 470.0	3263	0.20	µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 1.0%			
13C2-PFHxA	4.776	315.0 -> 270.0	4280	0.18	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 0.9%			
d5-EtFOSAA	7.378	589.0 -> 419.0	323	0.60	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 1.5%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	682	0.41	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 1.0%			
Target Compounds							QValue
6:2FTS	6.289	427.0 -> 407.0	3575	0.42	µg/L		95
8:2FTS	7.471	527.0 -> 507.0	3302	0.45	µg/L		91
EtFOSAA	7.391	584.0 -> 419.0	237	0.50	µg/L	m	77
MeFOSAA	7.254	570.0 -> 419.0	182	0.29	µg/L	#m	13
PFBS	3.841	299.0 -> 80.0	4729	0.39	µg/L		98
PFDA	7.423	513.0 -> 469.0	5042	0.38	µg/L		99
PFDoDA	8.641	613.0 -> 569.0	5319	0.40	µg/L	m	100
PFHpA	5.627	363.0 -> 319.0	11464	0.38	µg/L		100
PFHxA	4.778	313.0 -> 269.0	5722	0.35	µg/L		95
PFHxS	5.648	399.0 -> 80.0	2944	0.40	µg/L	m	94
PFNA	6.900	463.0 -> 419.0	4829	0.42	µg/L	m	99
PFOA	6.304	413.0 -> 369.0	6390	0.36	µg/L		90
PFOS	6.861	499.0 -> 80.0	2239	0.36	µg/L	m	88
PFPeA	3.610	263.0 -> 219.0	10978	0.36	µg/L		100
PFTeDA	10.297	713.0 -> 669.0	1704	0.37	µg/L		99
PFTrDA	9.522	663.0 -> 619.0	2438	0.36	µg/L		98
PFUnDA	7.942	563.0 -> 519.0	5588	0.37	µg/L		93
ADONA	5.701	377.0 -> 251.0	13932	0.36	µg/L		95
9Cl-PF3ONS	7.131	531.0 -> 351.0	2052	0.43	µg/L		92
11Cl-PF3OUdS	8.125	631.0 -> 451.0	2197	0.44	µg/L		86
HFPO-DA	5.035	285.0 -> 169.0	638	0.45	µg/L		100

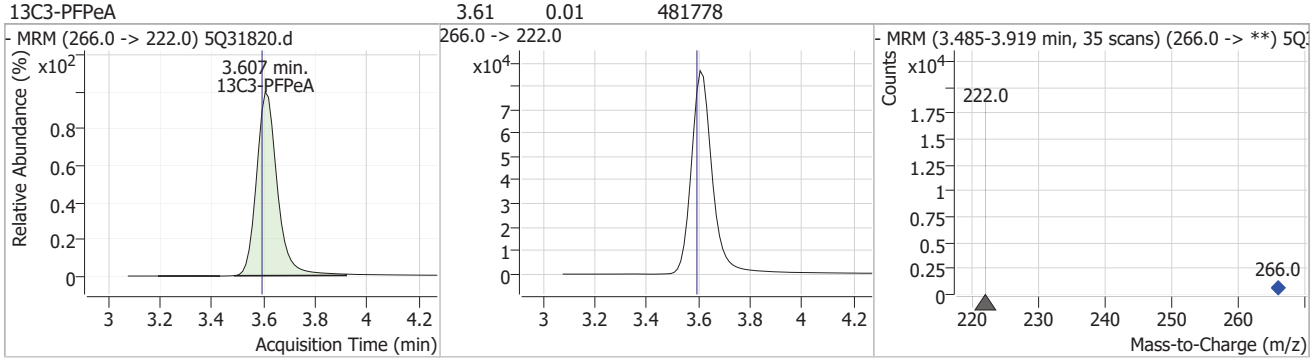
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.40
7

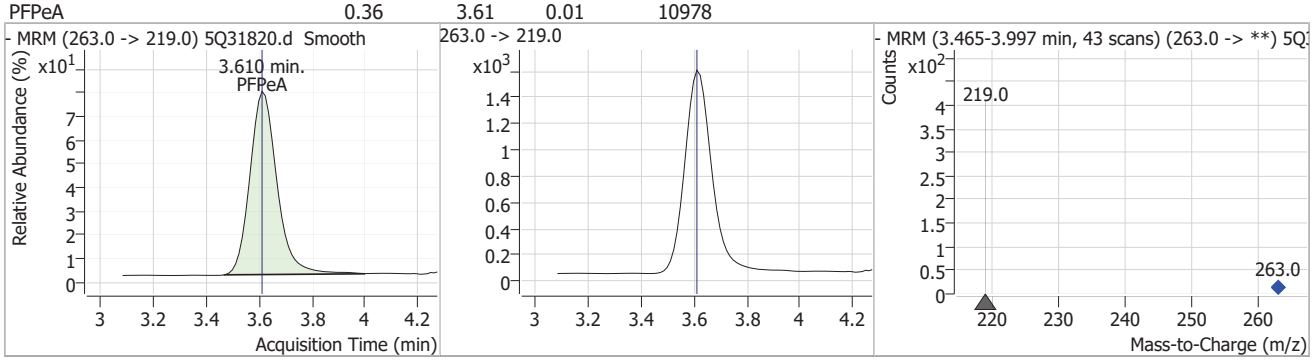
Perfluorinated Compounds by LC/MS/MS



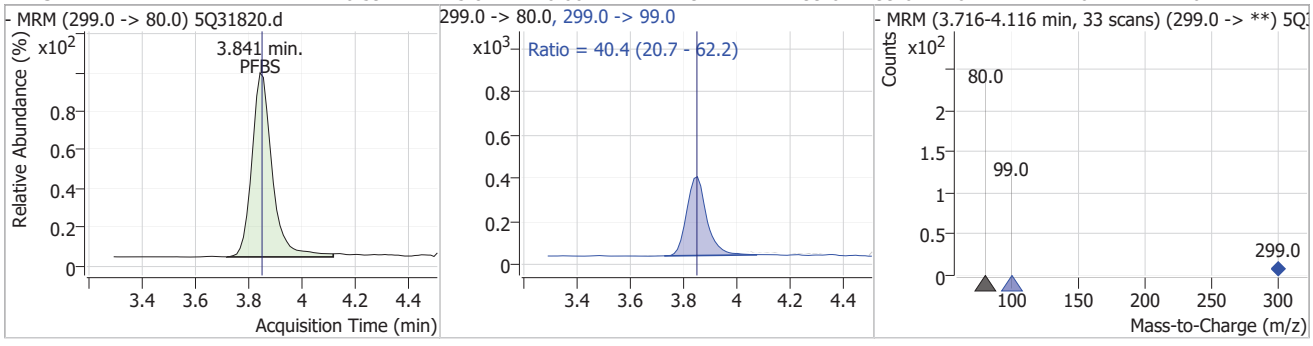
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.01	481778				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.36	3.61	0.01	10978				

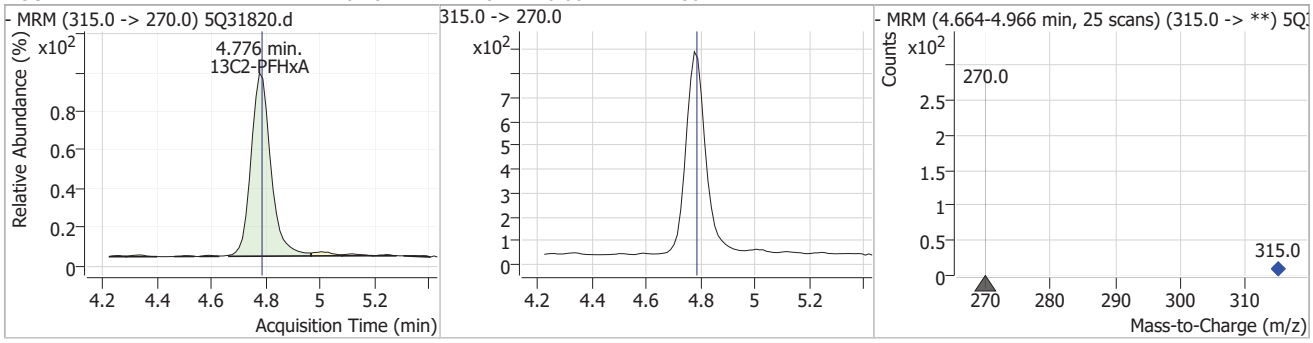


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.39	3.84	0.00	4729	299.0 -> 99.0	40.4	20.7	62.2

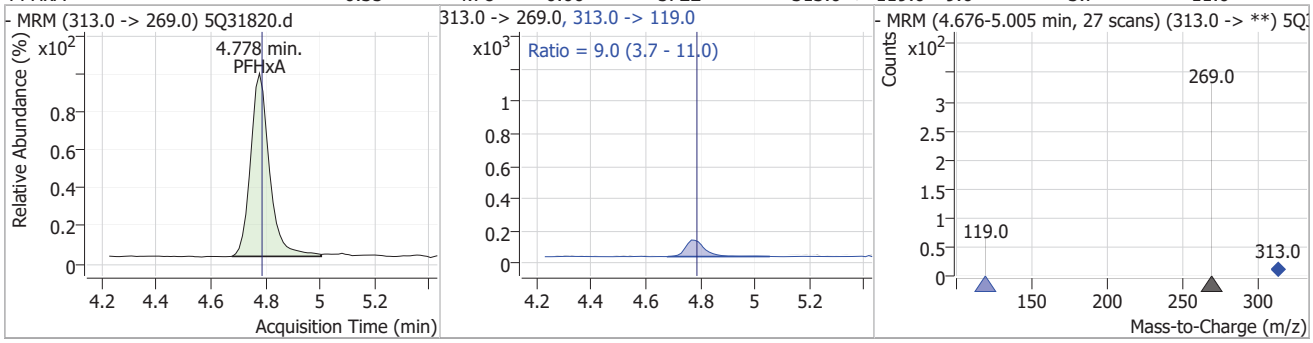


Perfluorinated Compounds by LC/MS/MS

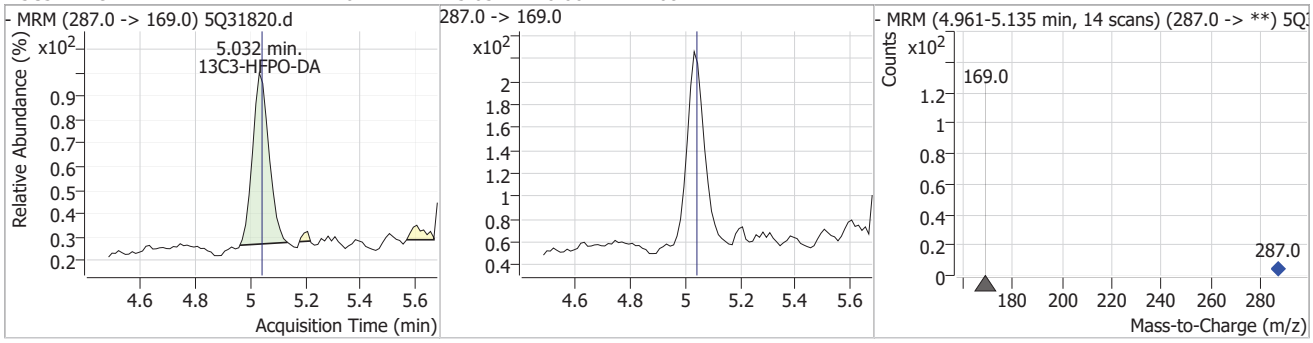
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.18	4.78	0.00	4280				



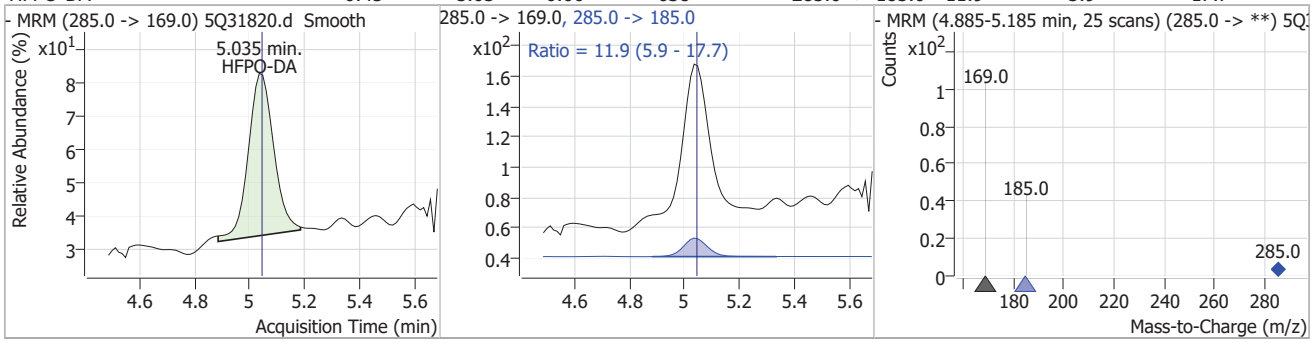
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.35	4.78	0.00	5722	313.0 -> 119.0	9.0	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.41	5.03	0.00	682				

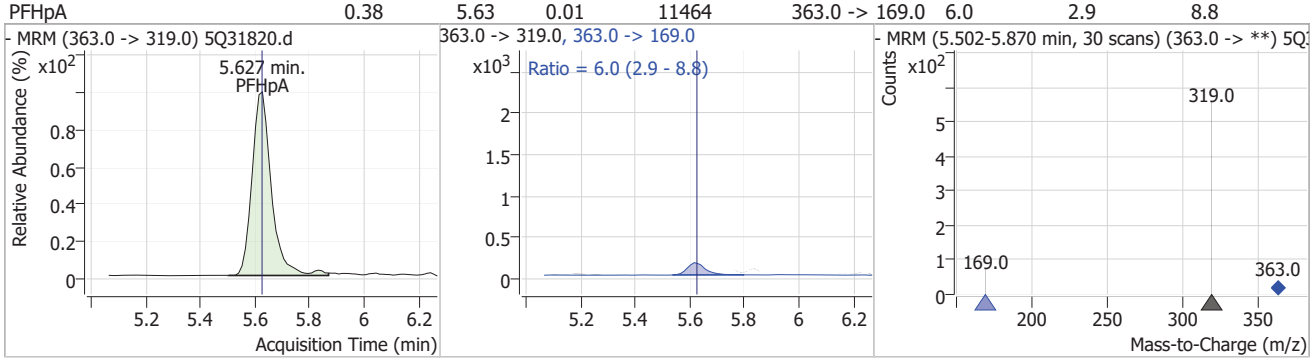


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.45	5.03	0.00	638	285.0 -> 185.0	11.9	5.9	17.7

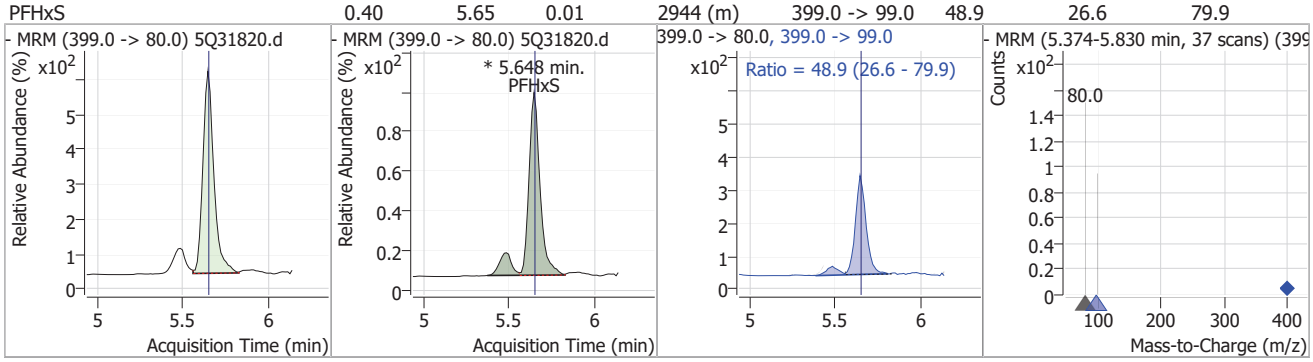


Perfluorinated Compounds by LC/MS/MS

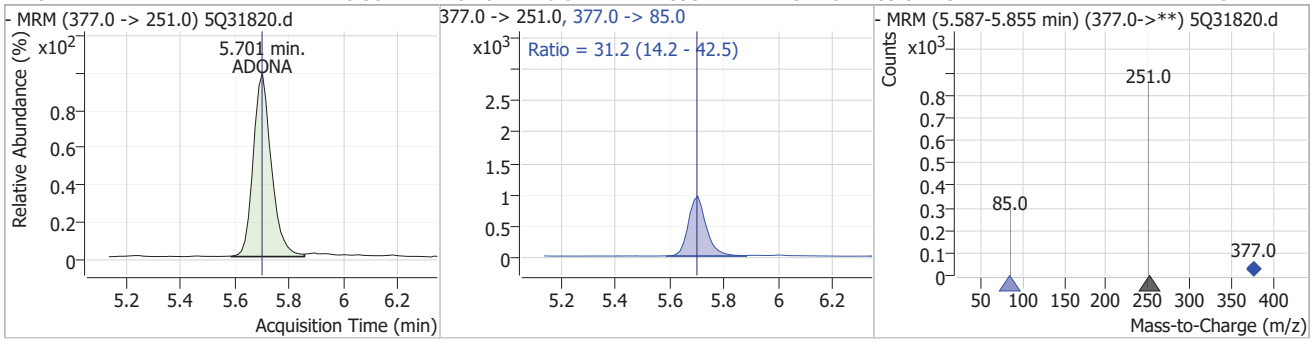
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.38	5.63	0.01	11464	363.0 -> 169.0	6.0	2.9	8.8



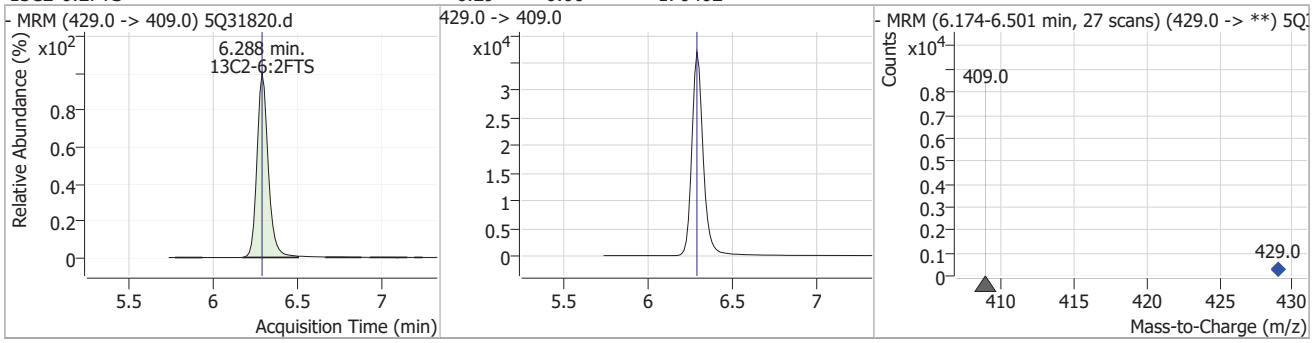
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.40	5.65	0.01	2944 (m)	399.0 -> 99.0	48.9	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.36	5.70	0.01	13932	377.0 -> 85.0	31.2	14.2	42.5

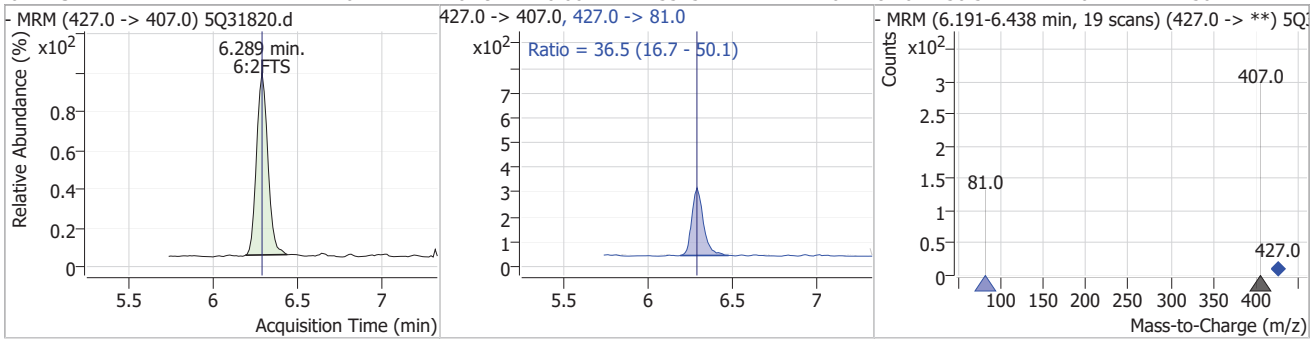


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	170462				

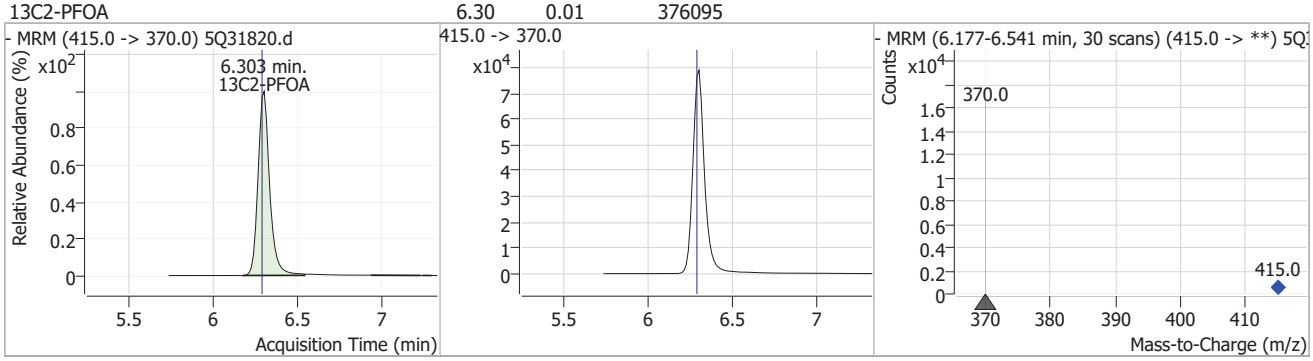


Perfluorinated Compounds by LC/MS/MS

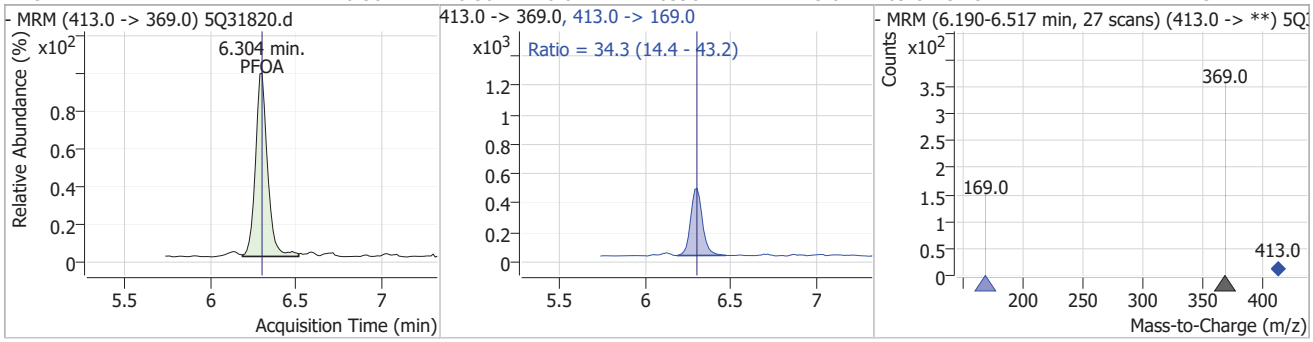
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.42	6.29	0.00	3575	427.0 -> 81.0	36.5	16.7	50.1



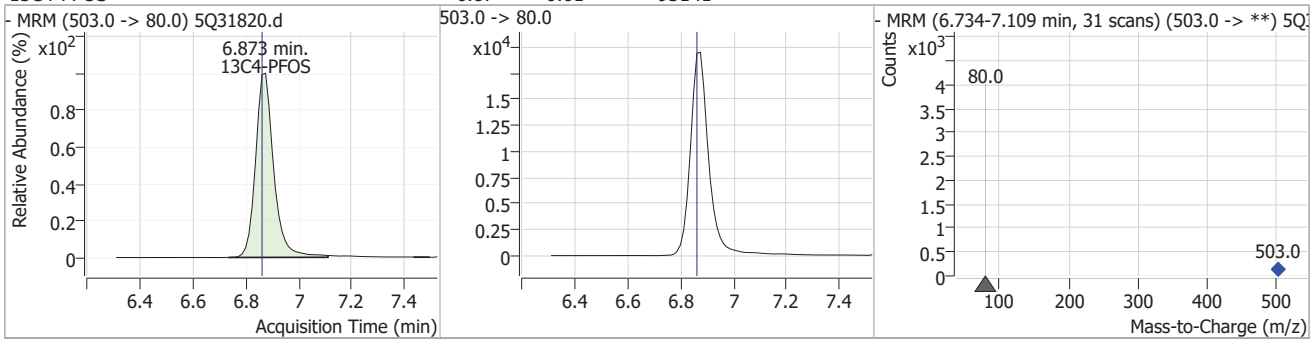
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.30	0.01	376095				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.36	6.30	0.01	6390	413.0 -> 169.0	34.3	14.4	43.2

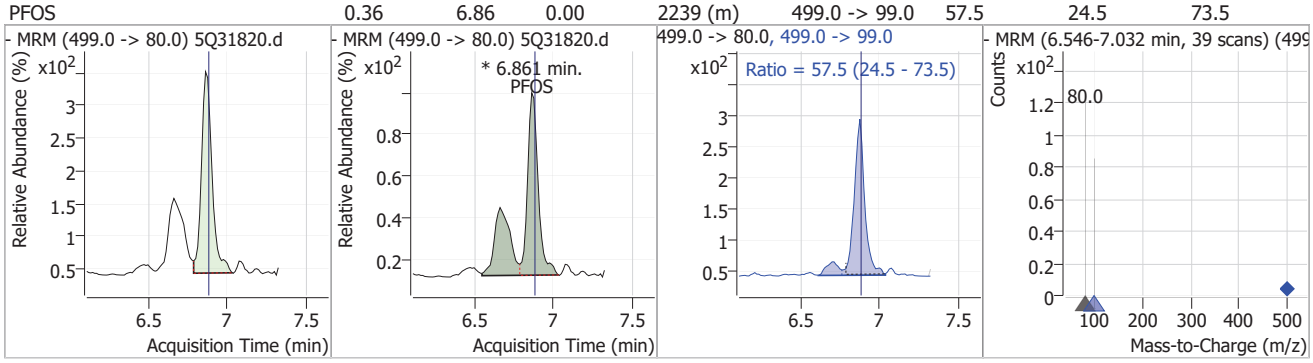


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.87	0.01	93141				

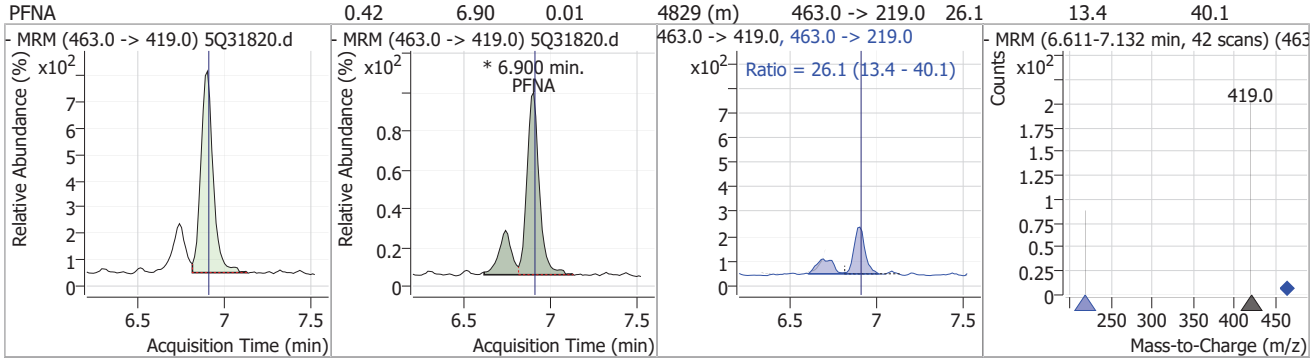


Perfluorinated Compounds by LC/MS/MS

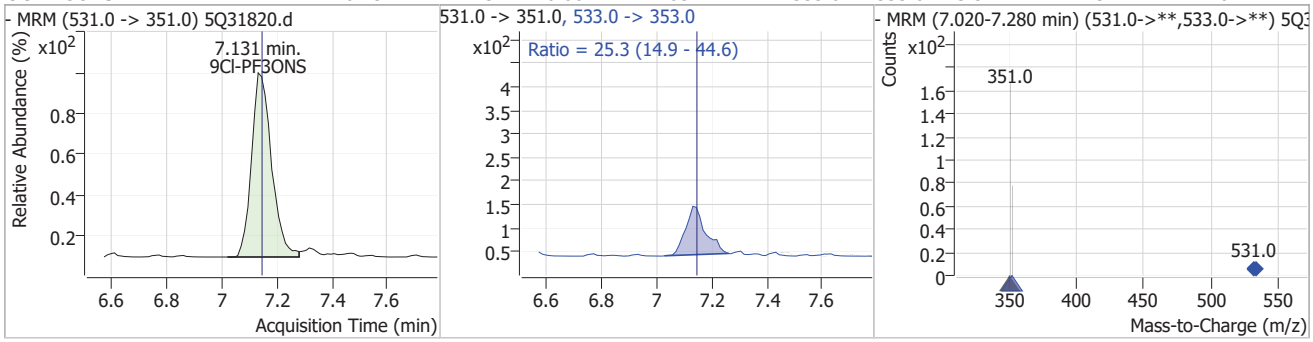
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.36	6.86	0.00	2239 (m)	499.0 -> 99.0	57.5	24.5	73.5



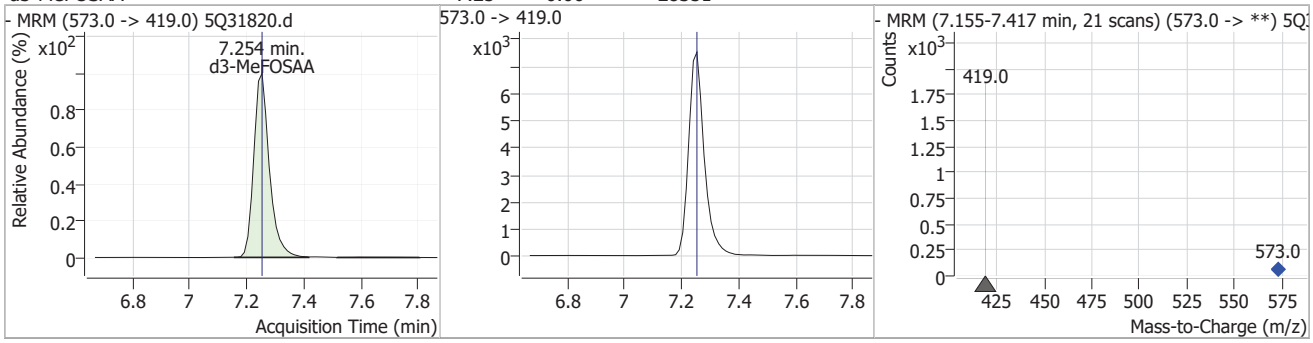
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.42	6.90	0.01	4829 (m)	463.0 -> 219.0	26.1	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.43	7.13	0.00	2052	533.0 -> 353.0	25.3	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	28351				

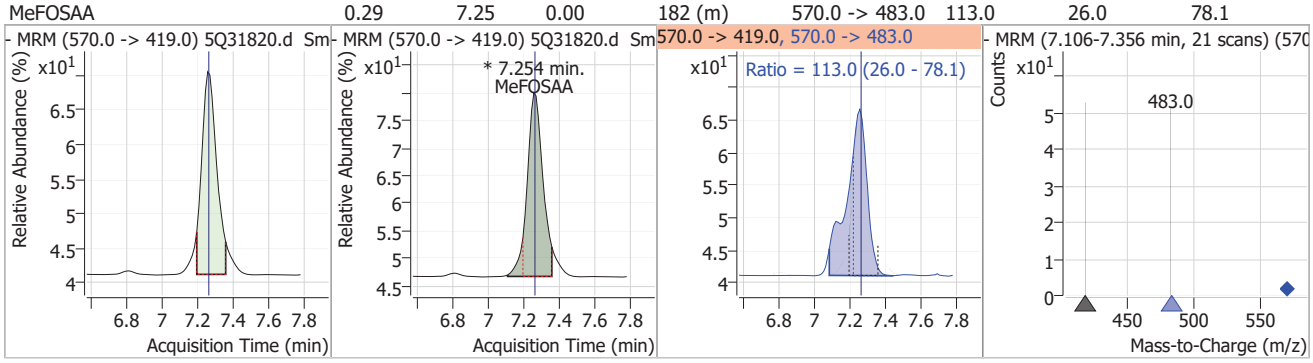


7.7.40

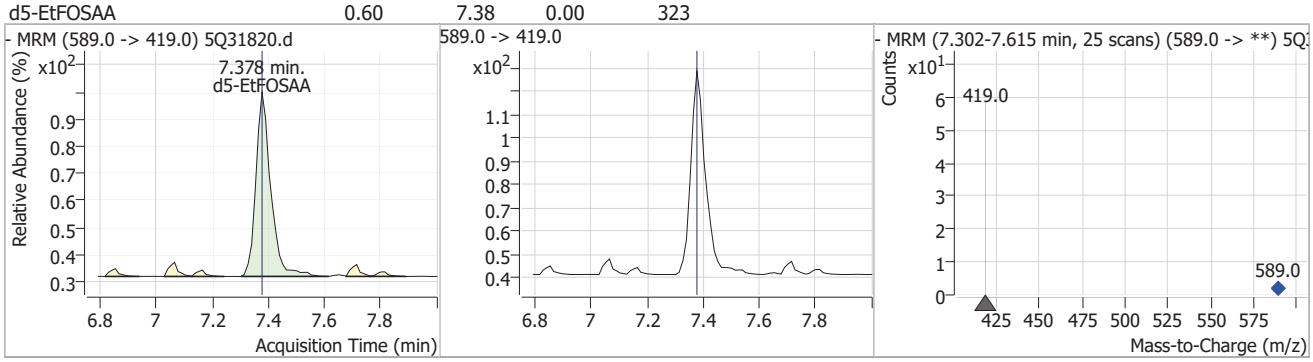
7

Perfluorinated Compounds by LC/MS/MS

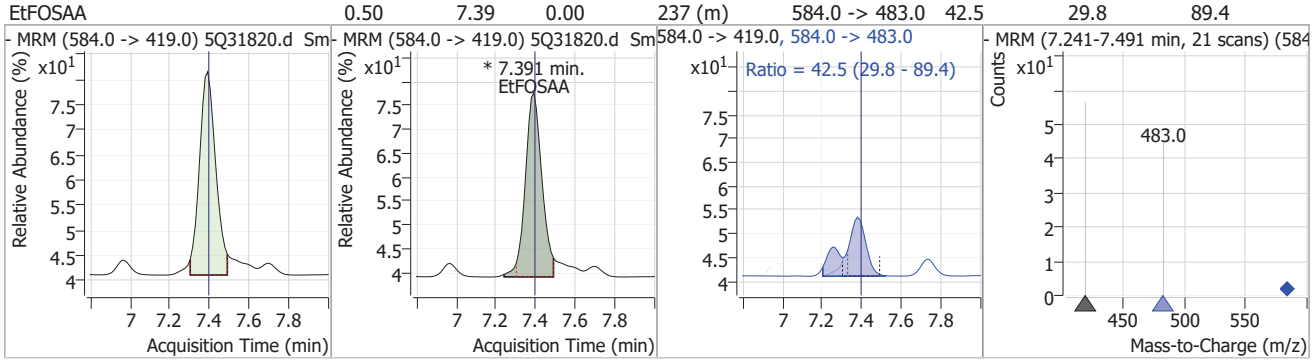
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.29	7.25	0.00	182 (m)	570.0 -> 483.0	113.0	26.0	78.1



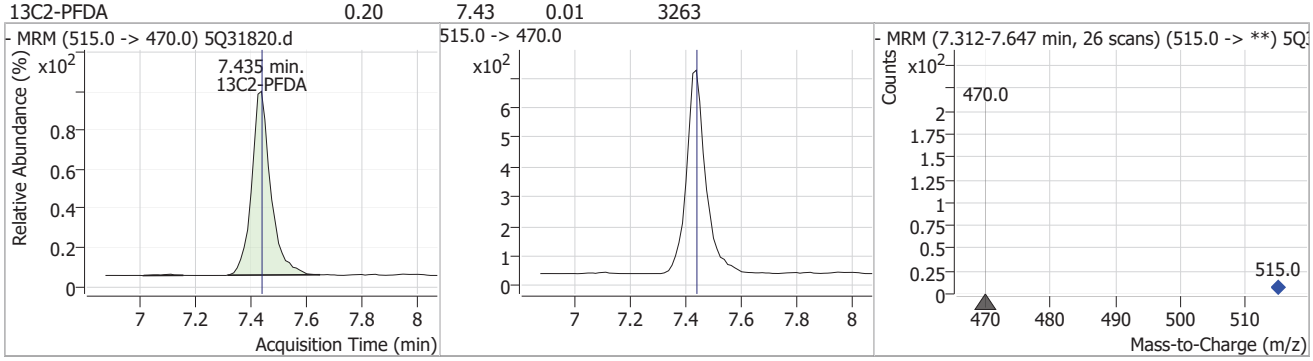
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	0.60	7.38	0.00	323				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.50	7.39	0.00	237 (m)	584.0 -> 483.0	42.5	29.8	89.4

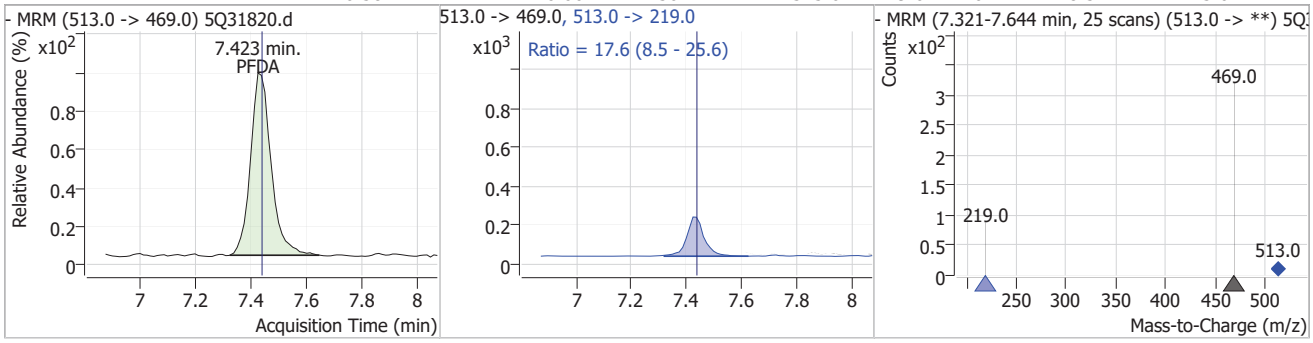


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.20	7.43	0.01	3263				

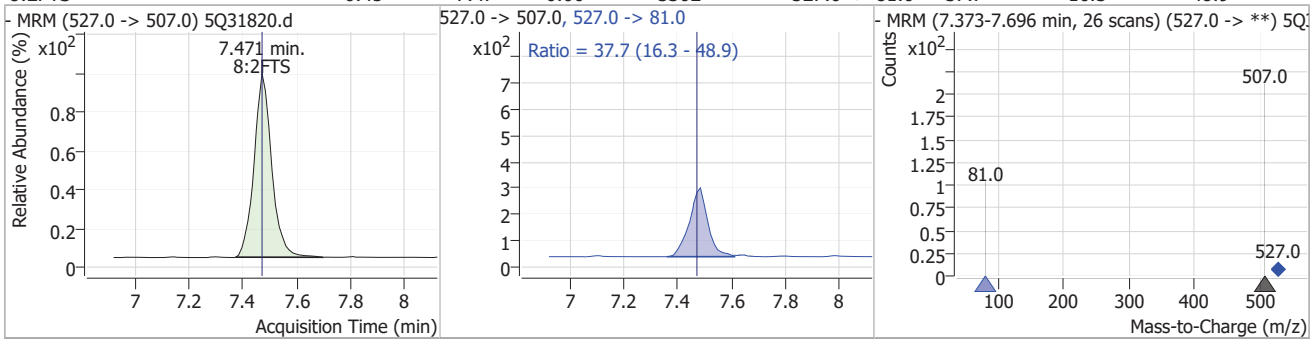


Perfluorinated Compounds by LC/MS/MS

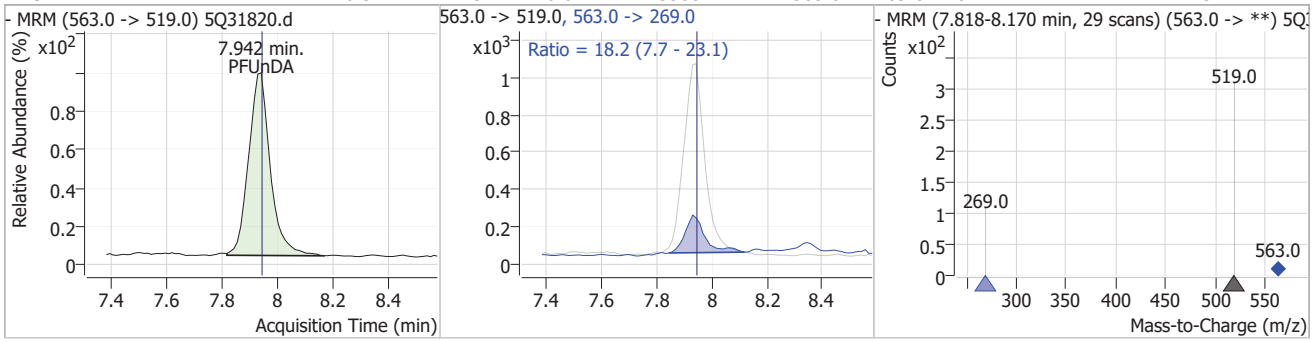
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.38	7.42	0.00	5042	513.0 -> 219.0	17.6	8.5	25.6



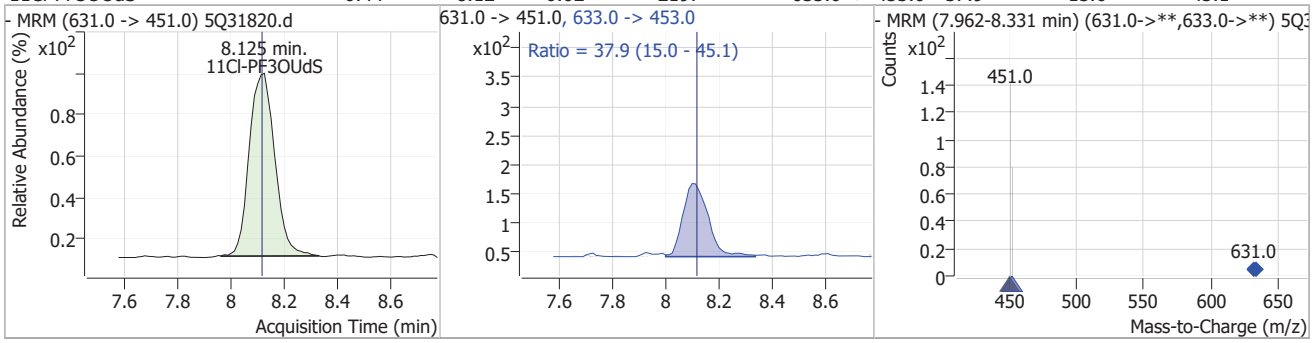
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.45	7.47	0.00	3302	527.0 -> 81.0	37.7	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.37	7.94	0.01	5588	563.0 -> 269.0	18.2	7.7	23.1

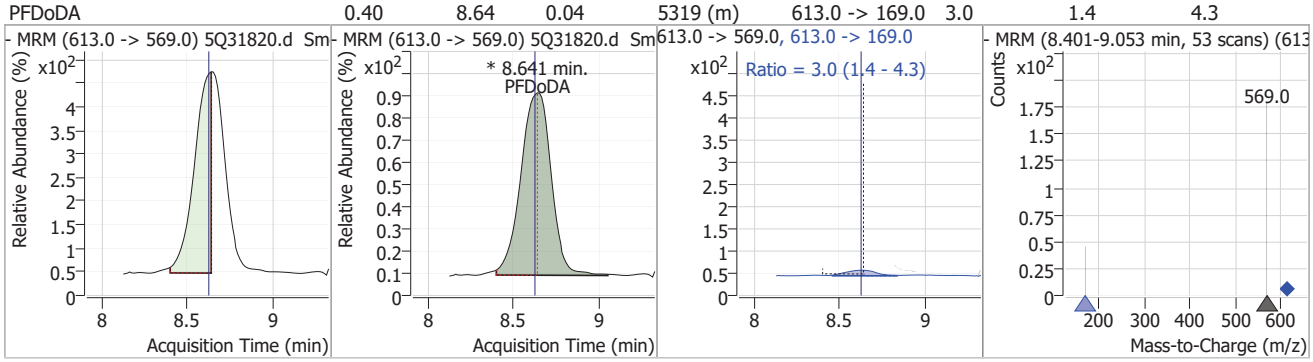


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.44	8.12	0.02	2197	633.0 -> 453.0	37.9	15.0	45.1

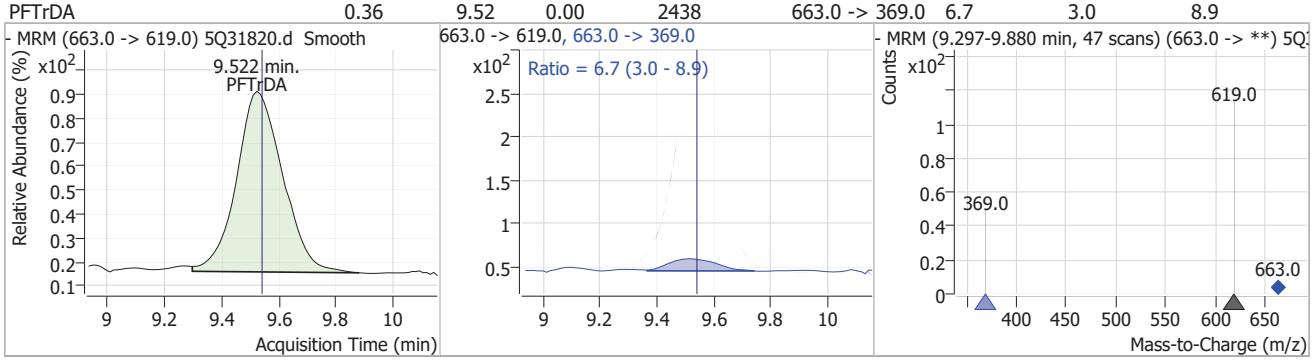


Perfluorinated Compounds by LC/MS/MS

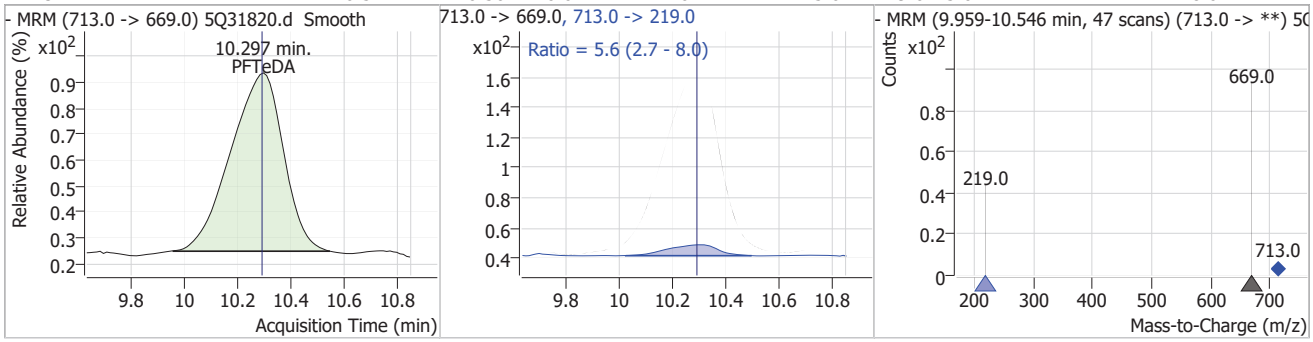
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.40	8.64	0.04	5319 (m)	613.0 -> 169.0	3.0	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.36	9.52	0.00	2438	663.0 -> 369.0	6.7	3.0	8.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.37	10.30	0.02	1704	713.0 -> 219.0	5.6	2.7	8.0



Manual Integration Approval Summary

Sample Number:	S5Q523-IC523	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31820.D	**Analyst approved:**	04/18/25 07:39 (b) (6)
Injection Time:	04/17/25 12:39	**Supervisor approved:**	04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.90	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak
Perfluorododecanoic acid	307-55-1		8.64	Poor instrument integration

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

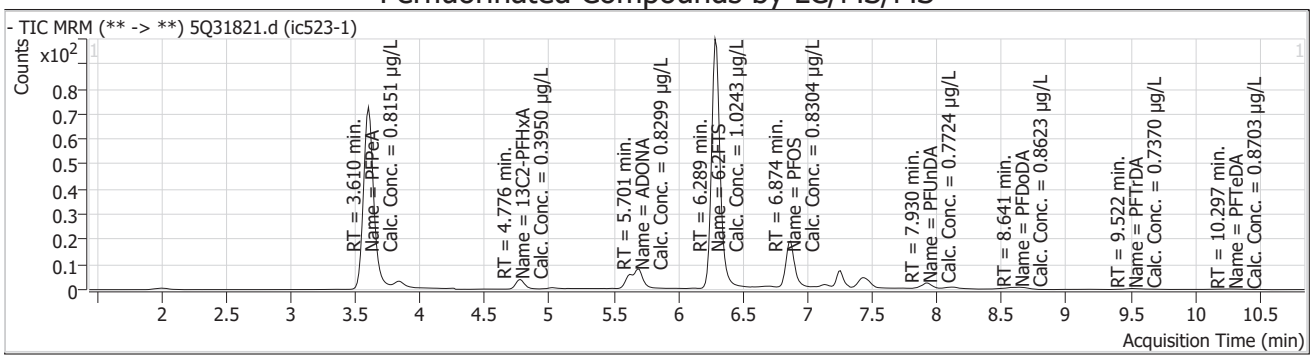
Data File : 5Q31821.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 12:55:41 PM
Sample Name : ic523-1
Vial : P1-A3
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.288	429.0 -> 409.0	187895	20.00	µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	418170	20.00	µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	528114	20.00	µg/L		0.012
13C4-PFOS	6.860	503.0 -> 80.0	105227	20.00	µg/L		0.000
d3-MeFOSAA	7.254	573.0 -> 419.0	33366	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.435	515.0 -> 470.0	6914	0.39	µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 1.9%			
13C2-PFHxA	4.776	315.0 -> 270.0	10466	0.39	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 2.0%			
d5-EtFOSAA	7.378	589.0 -> 419.0	610	0.96	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 2.4%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	1447	0.77	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 1.9%			
Target Compounds							QValue
6:2FTS	6.289	427.0 -> 407.0	9646	1.02	µg/L		100
8:2FTS	7.471	527.0 -> 507.0	8700	1.06	µg/L		94
EtFOSAA	7.391	584.0 -> 419.0	418	0.75	µg/L	m	63
MeFOSAA	7.254	570.0 -> 419.0	661	0.89	µg/L	m	95
PFBS	3.841	299.0 -> 80.0	11510	0.84	µg/L		98
PFDA	7.435	513.0 -> 469.0	13405	0.92	µg/L		93
PFDoDA	8.641	613.0 -> 569.0	12879	0.86	µg/L		99
PFHpA	5.615	363.0 -> 319.0	27628	0.83	µg/L		98
PFHxA	4.778	313.0 -> 269.0	14178	0.79	µg/L		99
PFHxS	5.648	399.0 -> 80.0	6760	0.80	µg/L	m	99
PFNA	6.887	463.0 -> 419.0	11745	0.91	µg/L	m	99
PFOA	6.291	413.0 -> 369.0	16548	0.84	µg/L		97
PFOS	6.874	499.0 -> 80.0	5764	0.83	µg/L	m	99
PFPeA	3.610	263.0 -> 219.0	27463	0.82	µg/L		100
PFTeDA	10.297	713.0 -> 669.0	4501	0.87	µg/L		100
PFTrDA	9.522	663.0 -> 619.0	5613	0.74	µg/L		100
PFUnDA	7.930	563.0 -> 519.0	13339	0.77	µg/L		97
ADONA	5.701	377.0 -> 251.0	35599	0.83	µg/L		99
9Cl-PF3ONS	7.131	531.0 -> 351.0	4732	0.88	µg/L		90
11Cl-PF3OUdS	8.112	631.0 -> 451.0	5474	0.98	µg/L		99
HFPO-DA	5.035	285.0 -> 169.0	1401	0.88	µg/L		91

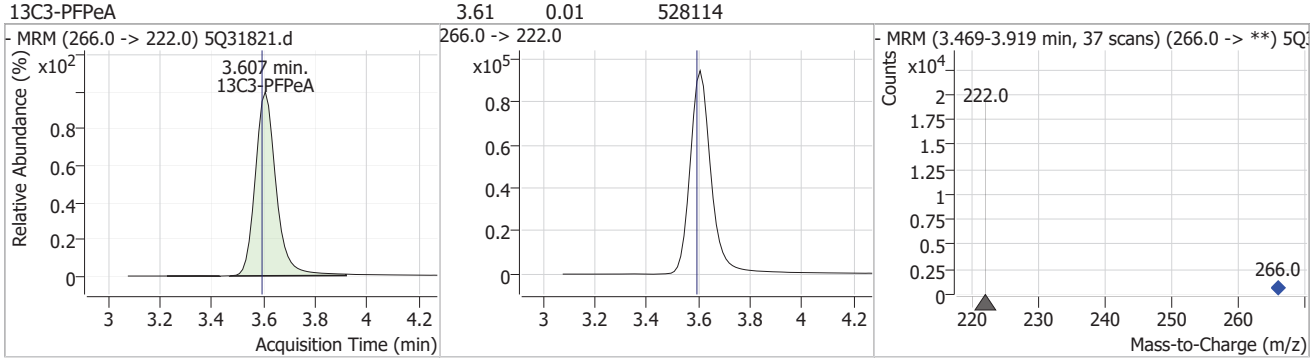
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.41
7

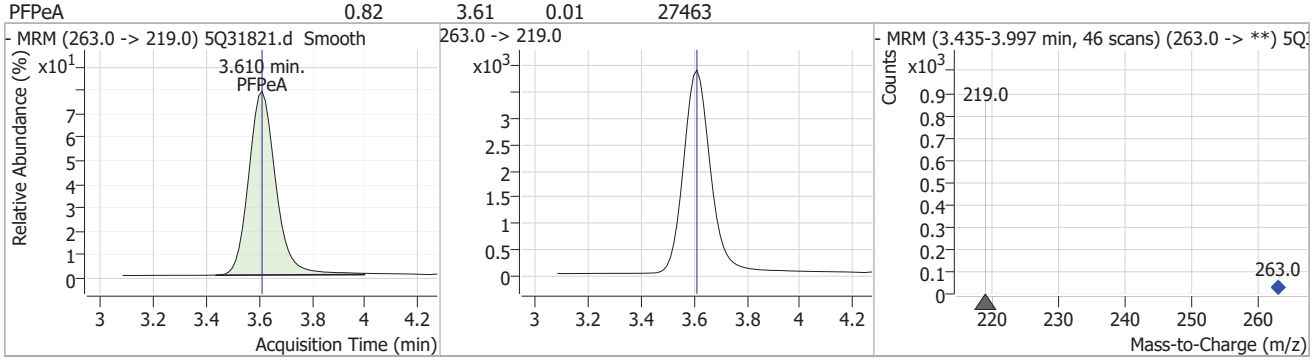
Perfluorinated Compounds by LC/MS/MS



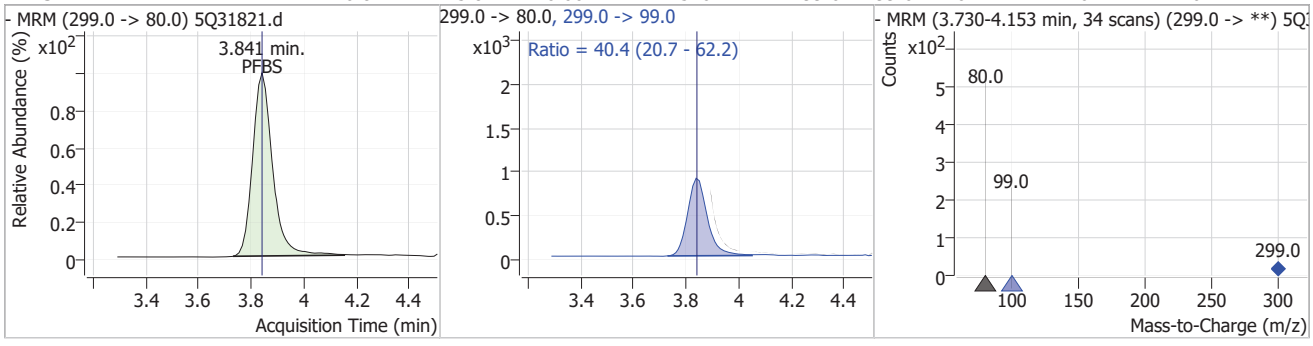
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.01	528114				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.82	3.61	0.01	27463				

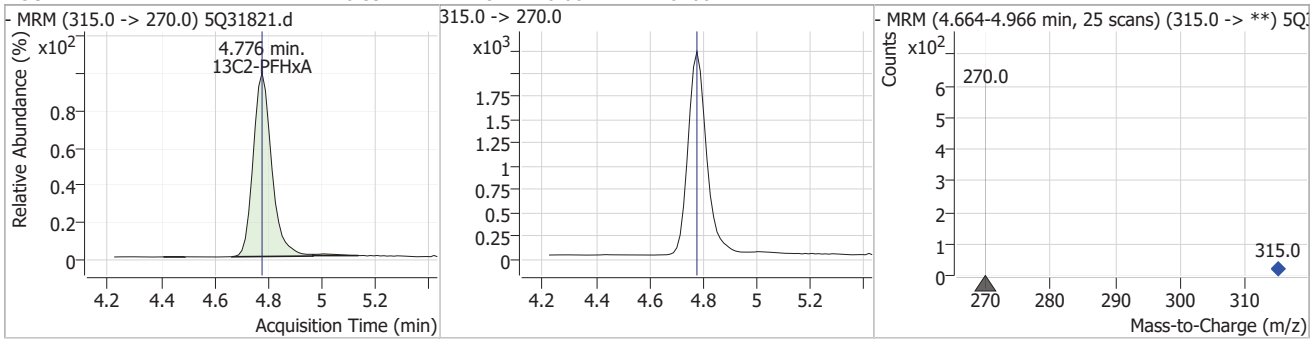


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.84	3.84	0.00	11510	299.0 -> 99.0	40.4	20.7	62.2

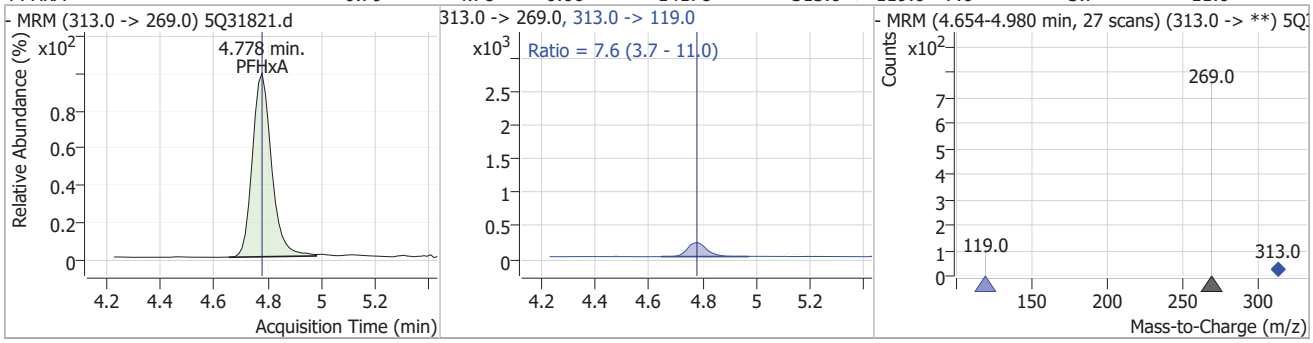


Perfluorinated Compounds by LC/MS/MS

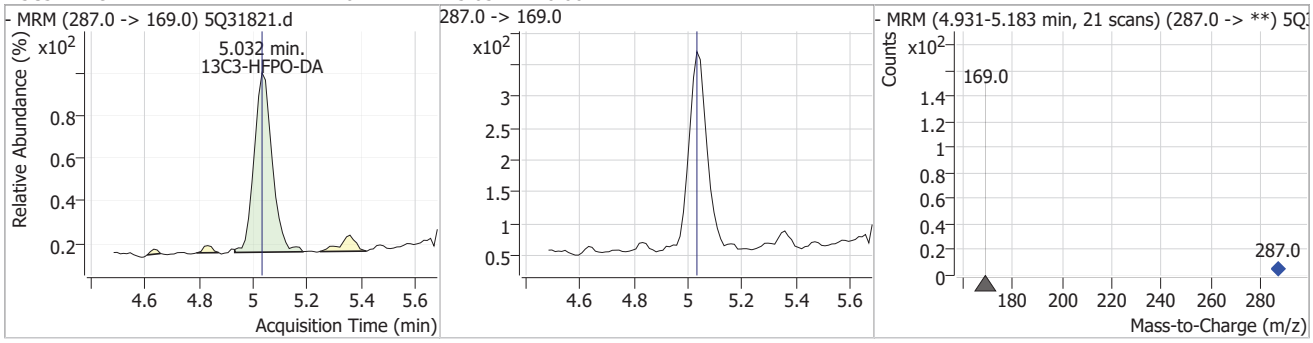
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.39	4.78	0.00	10466				



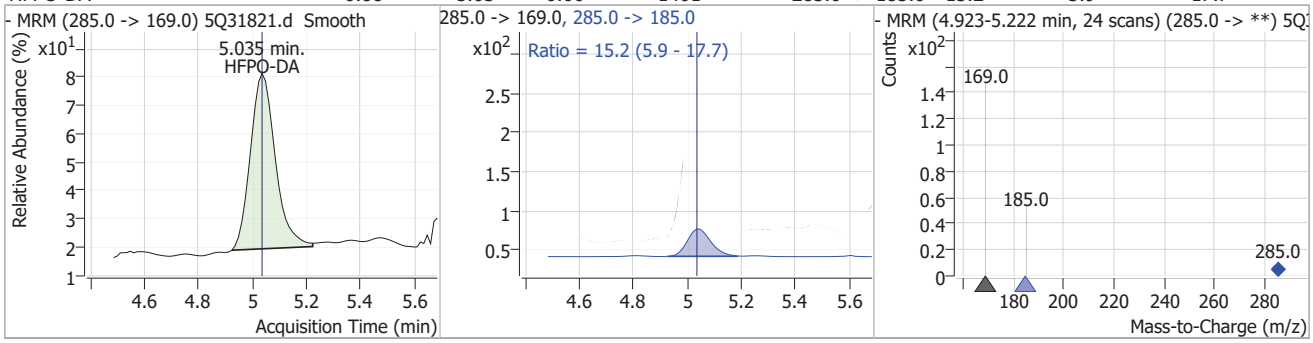
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.79	4.78	0.00	14178	313.0 -> 119.0	7.6	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.77	5.03	0.00	1447				

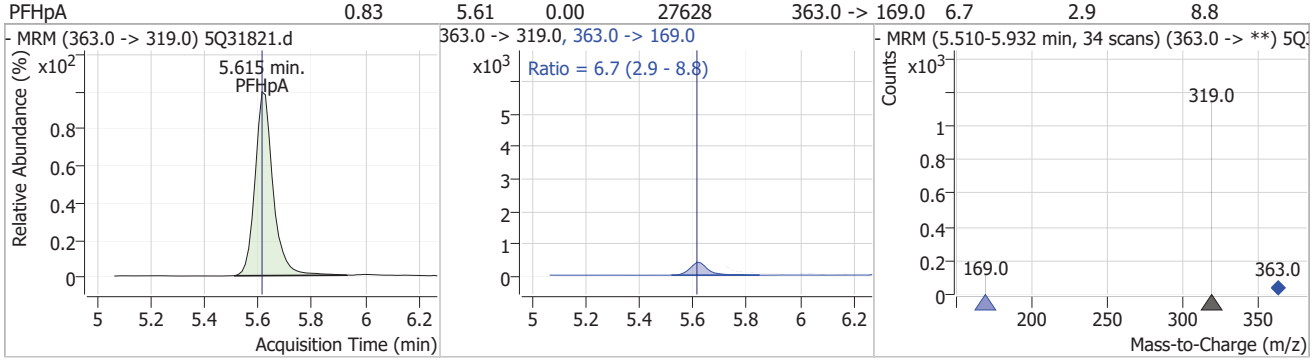


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.88	5.03	0.00	1401	285.0 -> 185.0	15.2	5.9	17.7

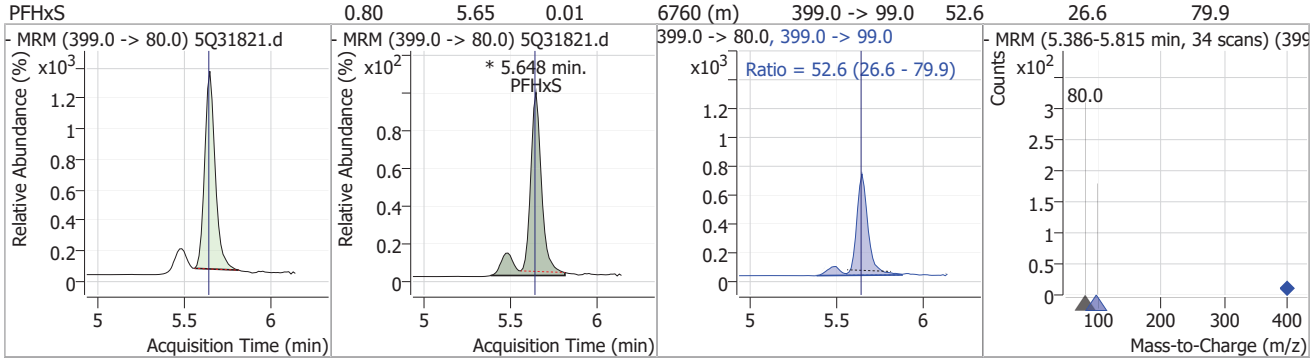


Perfluorinated Compounds by LC/MS/MS

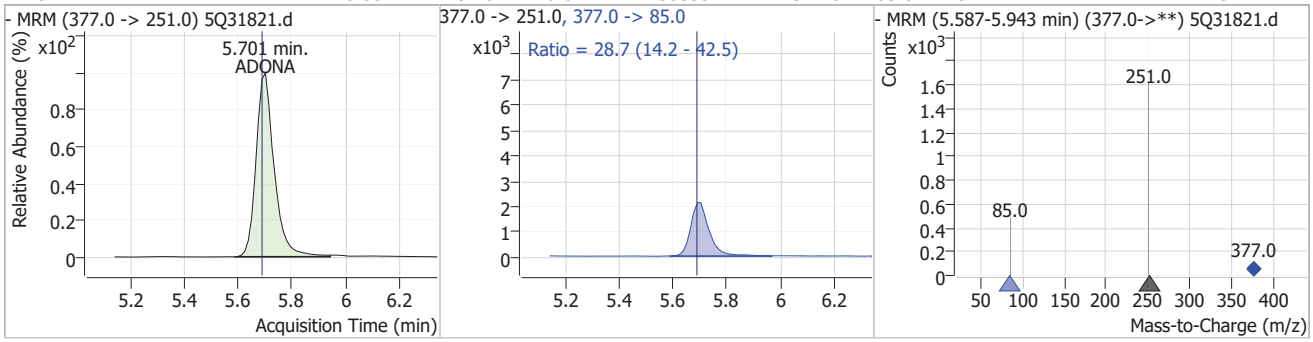
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.83	5.61	0.00	27628	363.0 -> 169.0	6.7	2.9	8.8



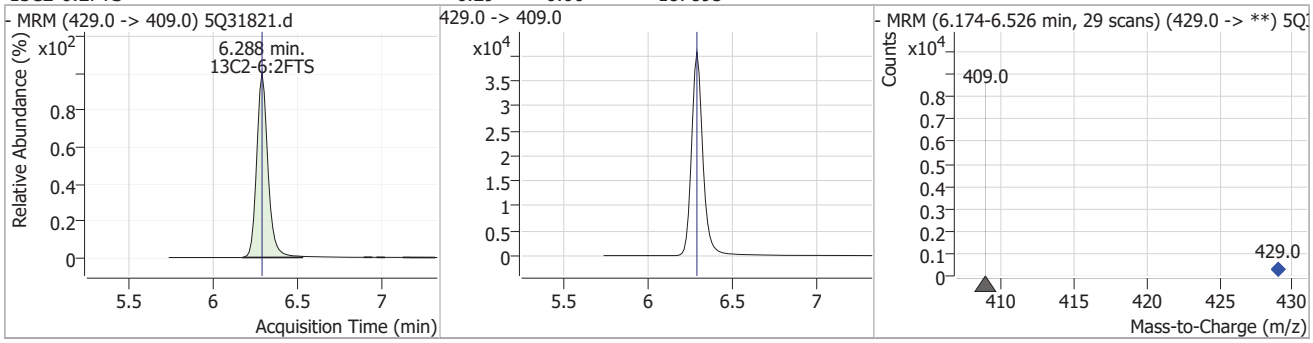
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.80	5.65	0.01	6760 (m)	399.0 -> 99.0	52.6	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.83	5.70	0.01	35599	377.0 -> 85.0	28.7	14.2	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	187895				

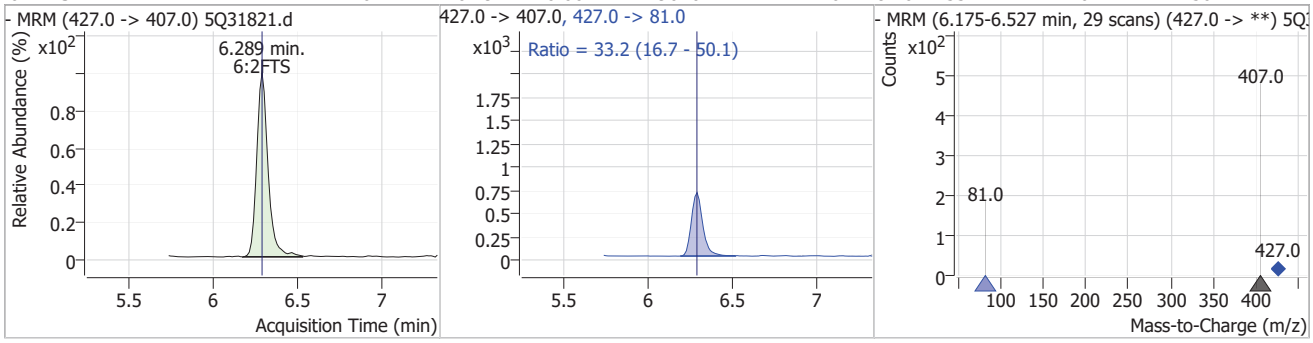


7.7.41

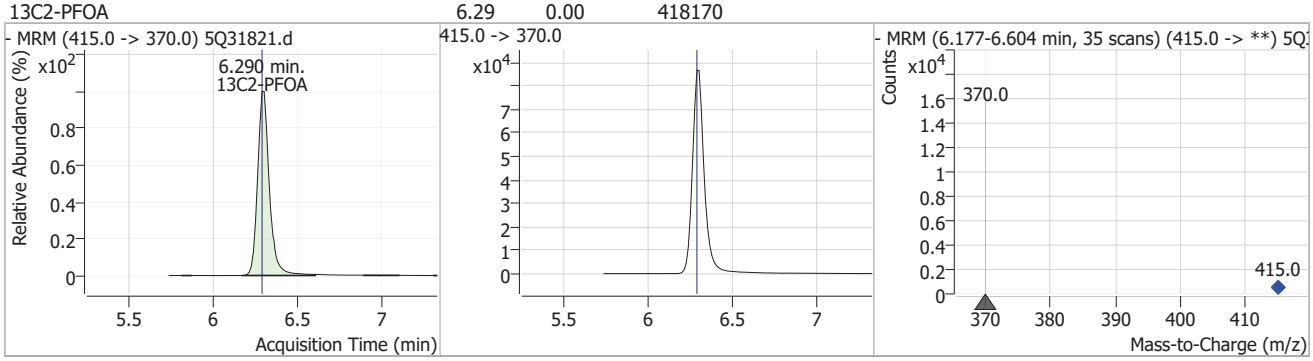
7

Perfluorinated Compounds by LC/MS/MS

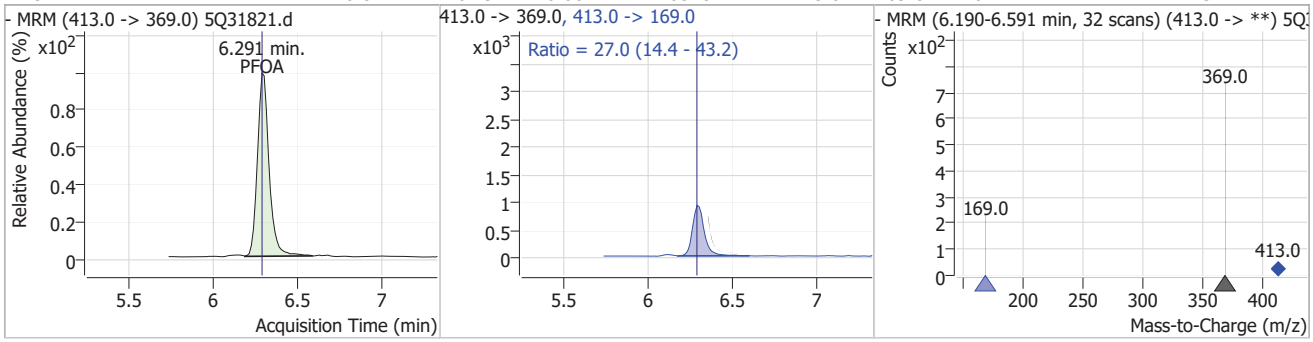
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.02	6.29	0.00	9646	427.0 -> 81.0	33.2	16.7	50.1



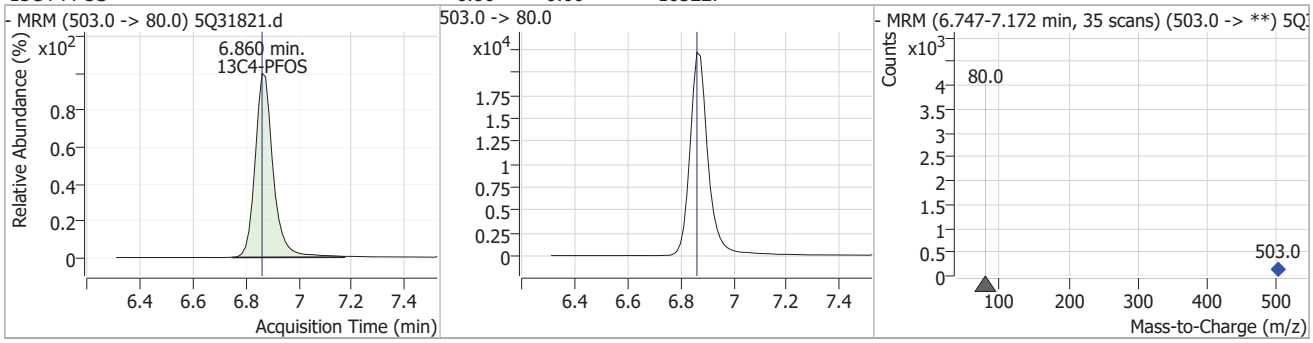
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	418170				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.84	6.29	0.00	16548	413.0 -> 169.0	27.0	14.4	43.2

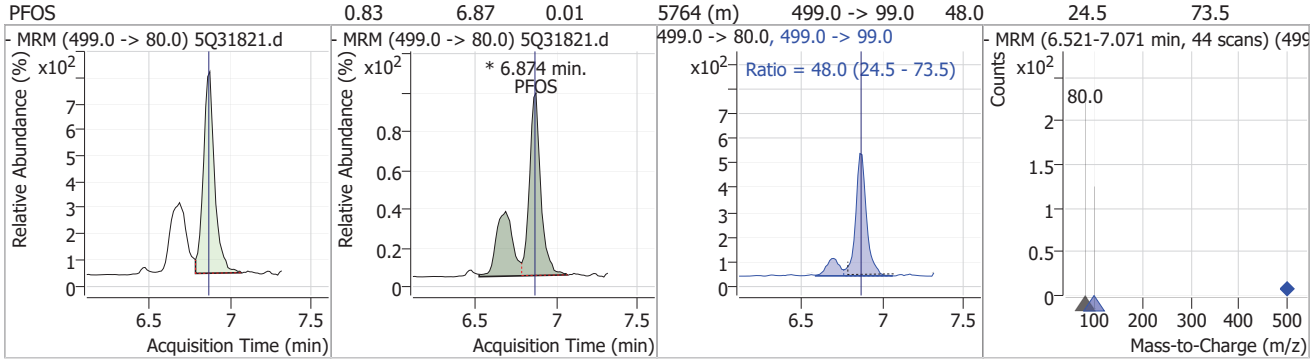


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	105227				

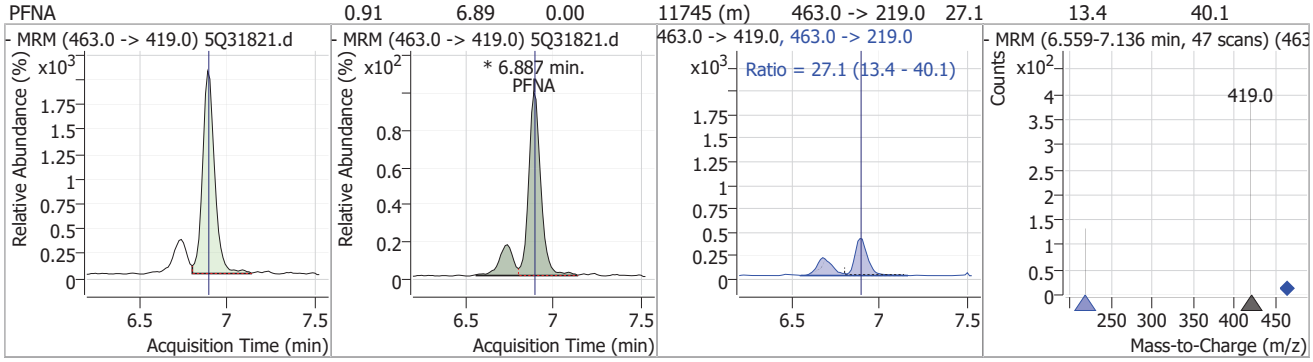


Perfluorinated Compounds by LC/MS/MS

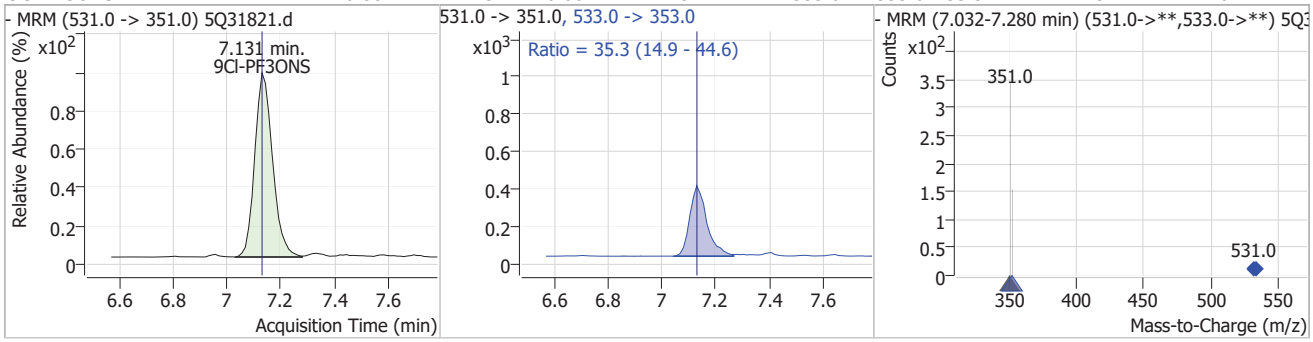
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.83	6.87	0.01	5764 (m)	499.0 -> 99.0	48.0	24.5	73.5



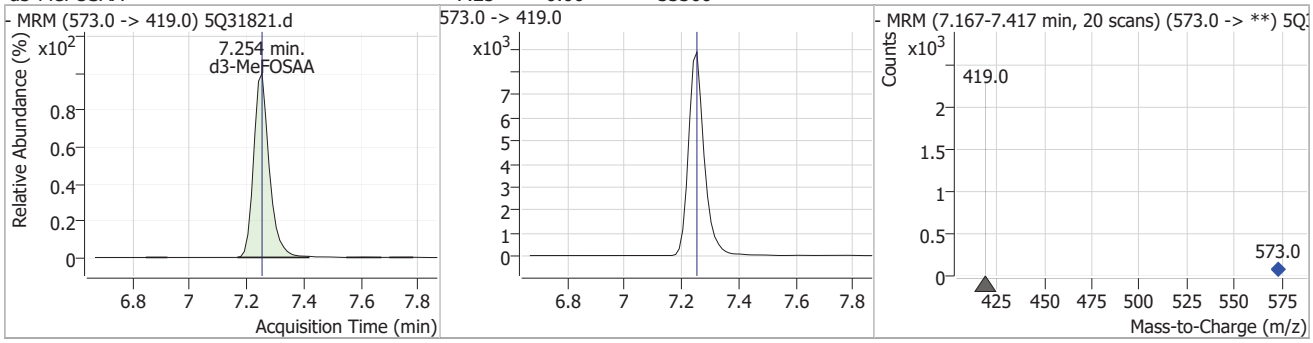
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.91	6.89	0.00	11745 (m)	463.0 -> 219.0	27.1	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.88	7.13	0.00	4732	533.0 -> 353.0	35.3	14.9	44.6

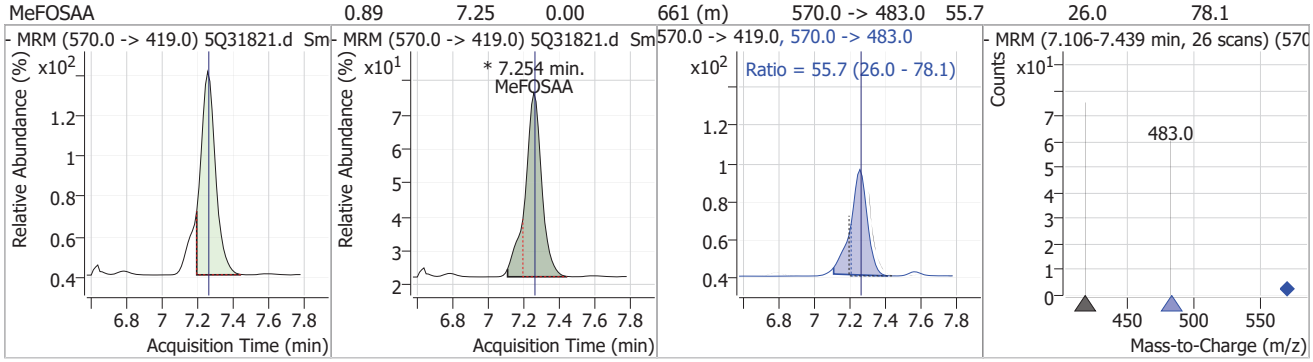


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	33366				

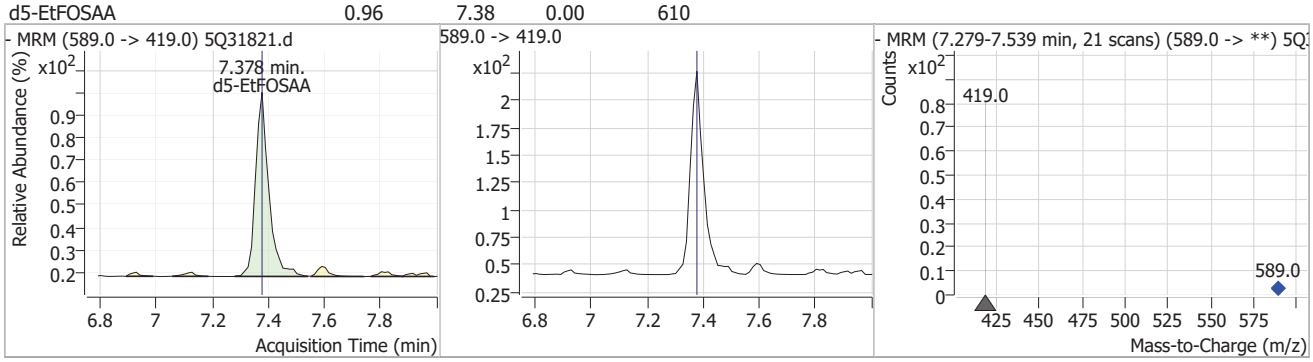


Perfluorinated Compounds by LC/MS/MS

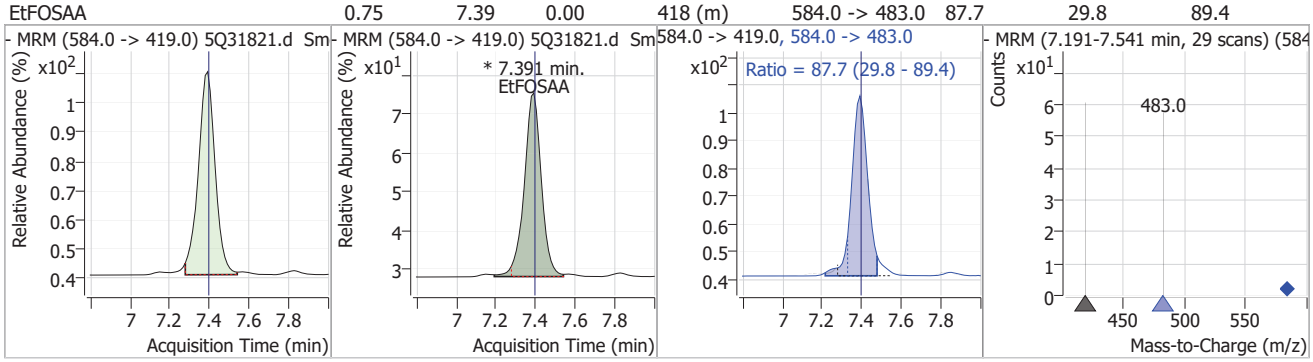
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.89	7.25	0.00	661 (m)	570.0 -> 483.0	55.7	26.0	78.1



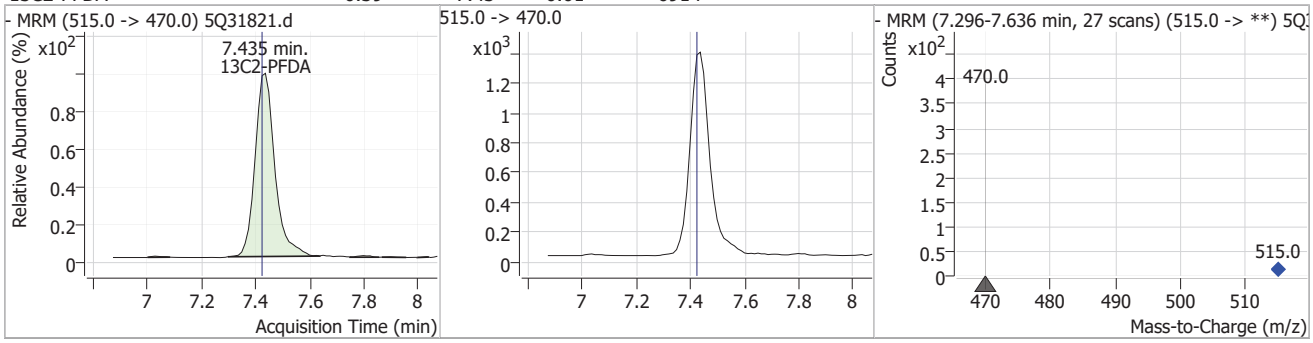
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	0.96	7.38	0.00	610				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.75	7.39	0.00	418 (m)	584.0 -> 483.0	87.7	29.8	89.4

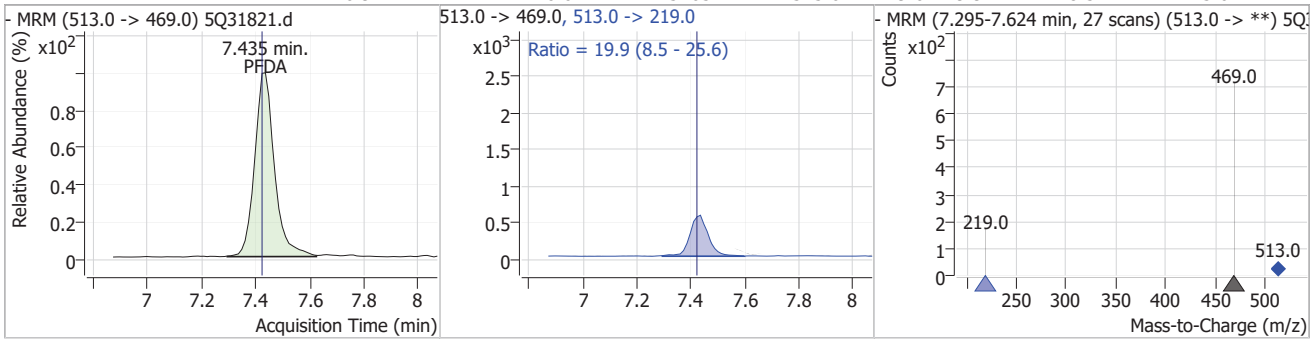


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.39	7.43	0.01	6914				

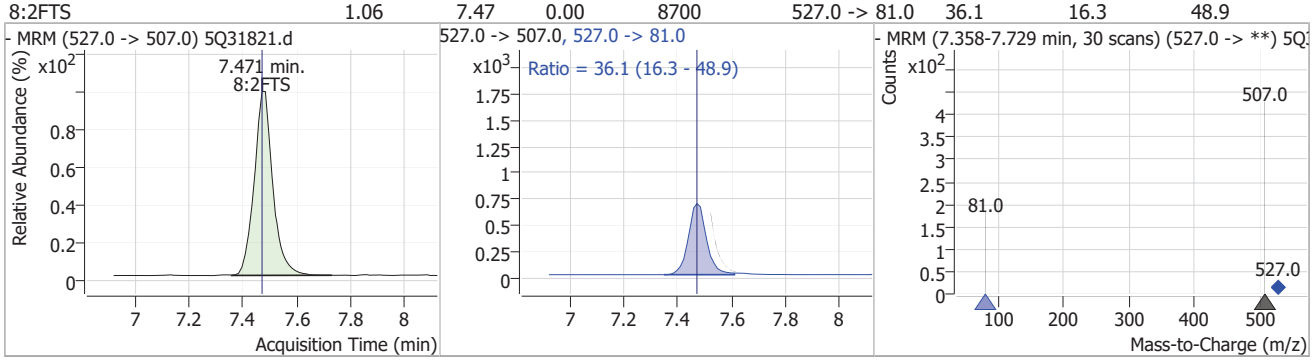


Perfluorinated Compounds by LC/MS/MS

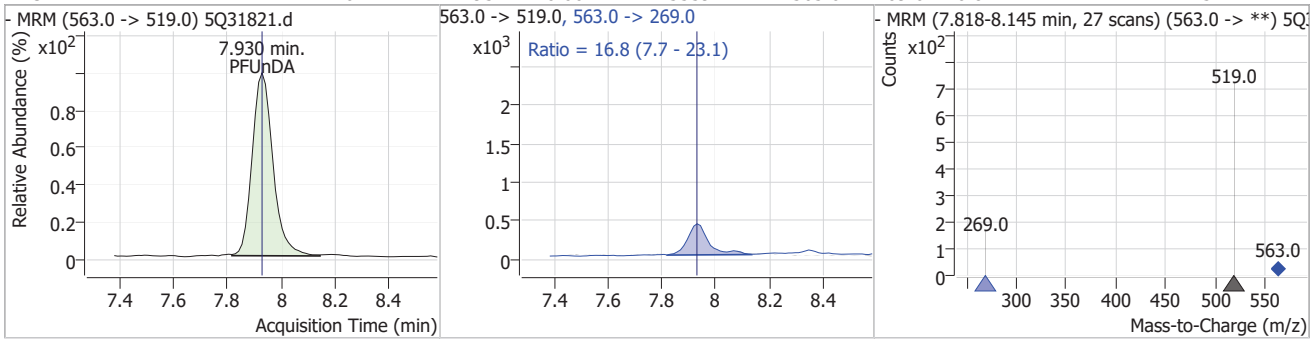
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.92	7.44	0.01	13405	513.0 -> 219.0	19.9	8.5	25.6



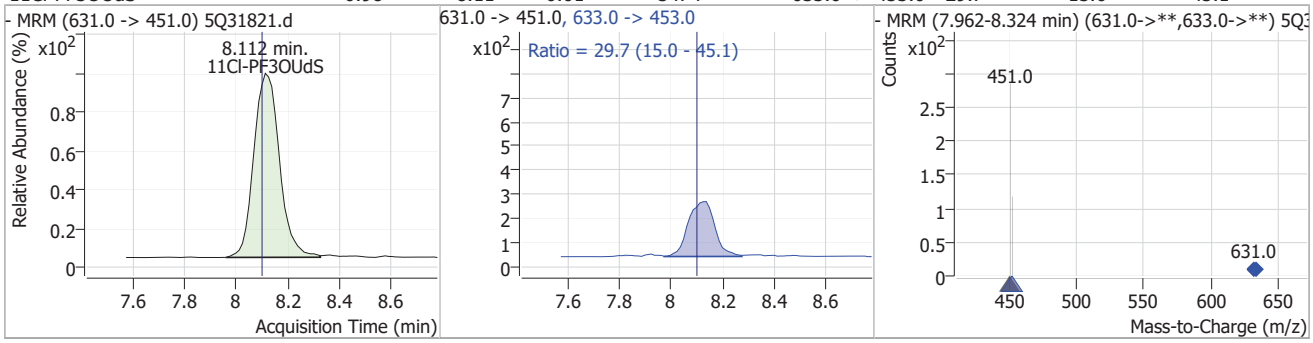
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	1.06	7.47	0.00	8700	527.0 -> 81.0	36.1	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.77	7.93	0.00	13339	563.0 -> 269.0	16.8	7.7	23.1

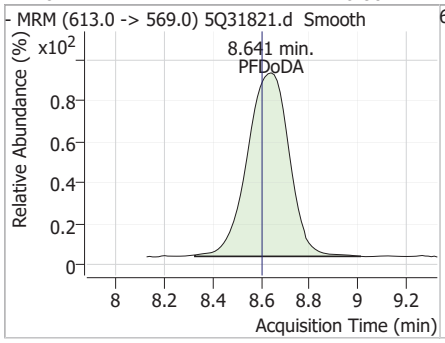


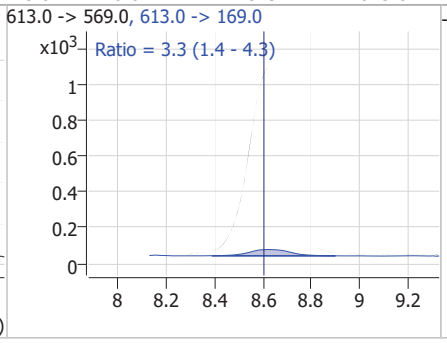
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.98	8.11	0.01	5474	633.0 -> 453.0	29.7	15.0	45.1

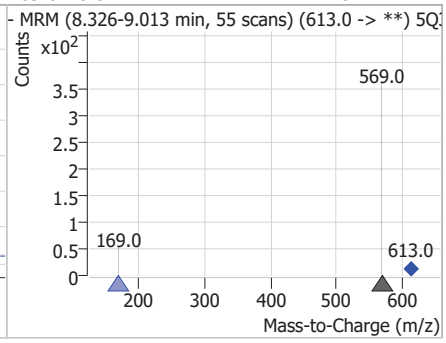


Perfluorinated Compounds by LC/MS/MS

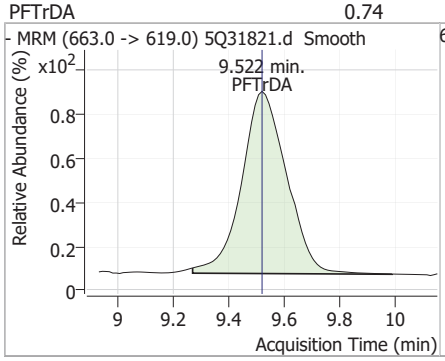
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.86	8.64	0.04	12879	613.0 -> 169.0	3.3	1.4	4.3

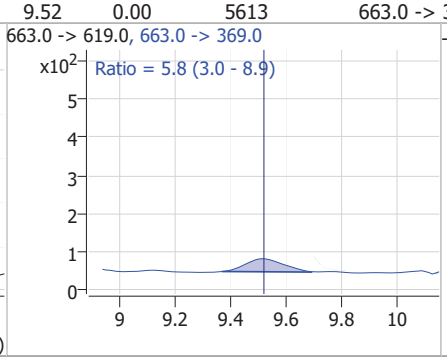


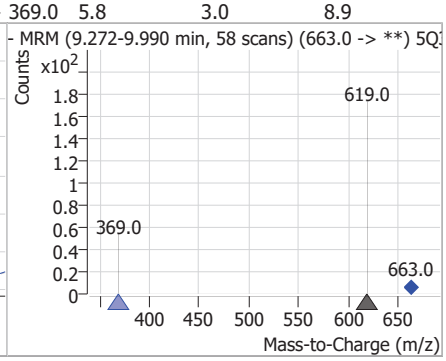




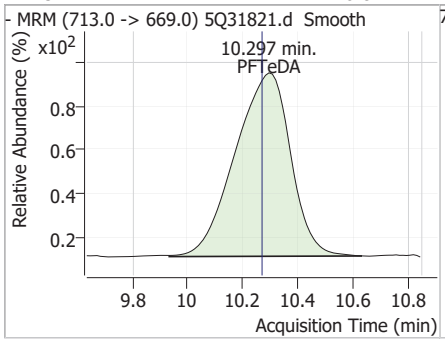
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.74	9.52	0.00	5613	663.0 -> 369.0	5.8	3.0	8.9

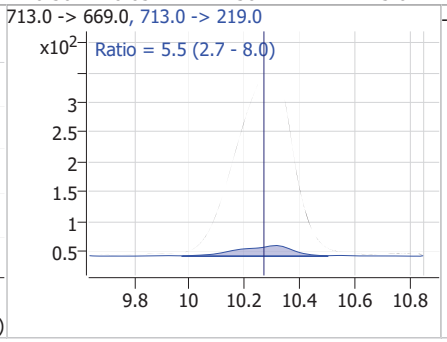


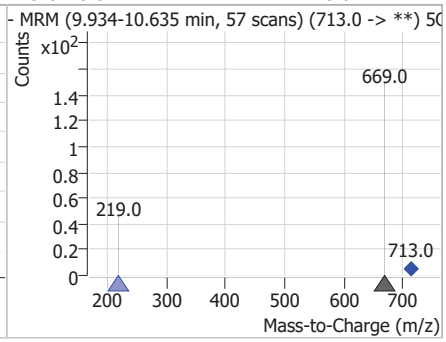




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.87	10.30	0.03	4501	713.0 -> 219.0	5.5	2.7	8.0







Manual Integration Approval Summary

Sample Number:	S5Q523-IC523	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31821.D	**Analyst approved:**	04/18/25 07:39 (b) (6)
Injection Time:	04/17/25 12:55	**Supervisor approved:**	04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.87	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

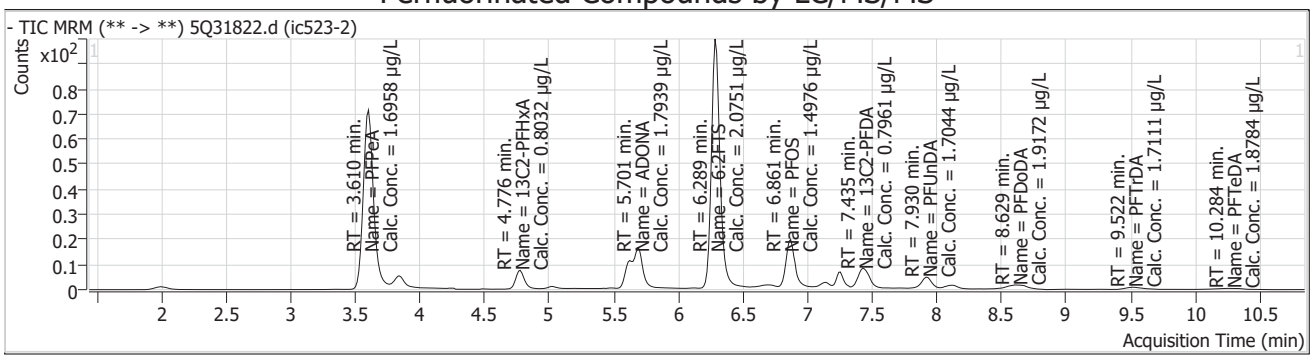
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31822.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 1:12:06 PM
Sample Name : ic523-2
Vial : P1-A4
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

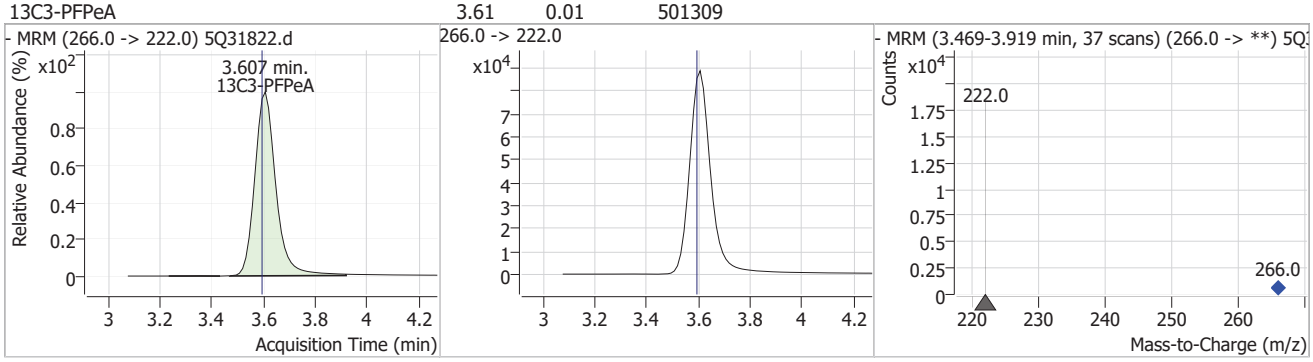
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.288	429.0 -> 409.0	176876	20.00 µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	392988	20.00 µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	501309	20.00 µg/L		0.012
13C4-PFOS	6.860	503.0 -> 80.0	98059	20.00 µg/L		0.000
d3-MeFOSAA	7.254	573.0 -> 419.0	29802	40.00 µg/L		0.000
System Monitoring Compounds						
13C2-PFDA	7.435	515.0 -> 470.0	13389	0.80 µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 4.0%		
13C2-PFHxA	4.776	315.0 -> 270.0	20002	0.80 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 4.0%		
d5-EtFOSAA	7.378	589.0 -> 419.0	911	1.61 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 4.0%		
13C3-HFPO-DA	5.032	287.0 -> 169.0	2916	1.66 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 4.1%		
Target Compounds						QValue
6:2FTS	6.289	427.0 -> 407.0	18396	2.08 µg/L		98
8:2FTS	7.471	527.0 -> 507.0	16014	2.08 µg/L		97
EtFOSAA	7.391	584.0 -> 419.0	1182	2.37 µg/L	m	97
MeFOSAA	7.254	570.0 -> 419.0	1449	2.18 µg/L	m	91
PFBS	3.841	299.0 -> 80.0	22576	1.76 µg/L		100
PFDA	7.435	513.0 -> 469.0	25527	1.85 µg/L		100
PFDoDA	8.629	613.0 -> 569.0	26728	1.92 µg/L		99
PFHpA	5.615	363.0 -> 319.0	56216	1.79 µg/L		99
PFHxA	4.778	313.0 -> 269.0	27998	1.65 µg/L		98
PFHxS	5.648	399.0 -> 80.0	13162	1.68 µg/L	m	97
PFNA	6.887	463.0 -> 419.0	22488	1.86 µg/L	m	96
PFOA	6.291	413.0 -> 369.0	31366	1.70 µg/L		97
PFOS	6.861	499.0 -> 80.0	9688	1.50 µg/L	m	96
PFPeA	3.610	263.0 -> 219.0	54261	1.70 µg/L		100
PFTeDA	10.284	713.0 -> 669.0	9074	1.88 µg/L		98
PFTrDA	9.522	663.0 -> 619.0	12144	1.71 µg/L		98
PFUnDA	7.930	563.0 -> 519.0	27429	1.70 µg/L		100
ADONA	5.701	377.0 -> 251.0	72441	1.79 µg/L		99
9Cl-PF3ONS	7.144	531.0 -> 351.0	10201	2.02 µg/L		91
11Cl-PF3OUdS	8.112	631.0 -> 451.0	10483	1.99 µg/L		98
HFPO-DA	5.035	285.0 -> 169.0	2763	1.85 µg/L		98

 # = Qualifier out of range, m = manually integrated, + = Area summed

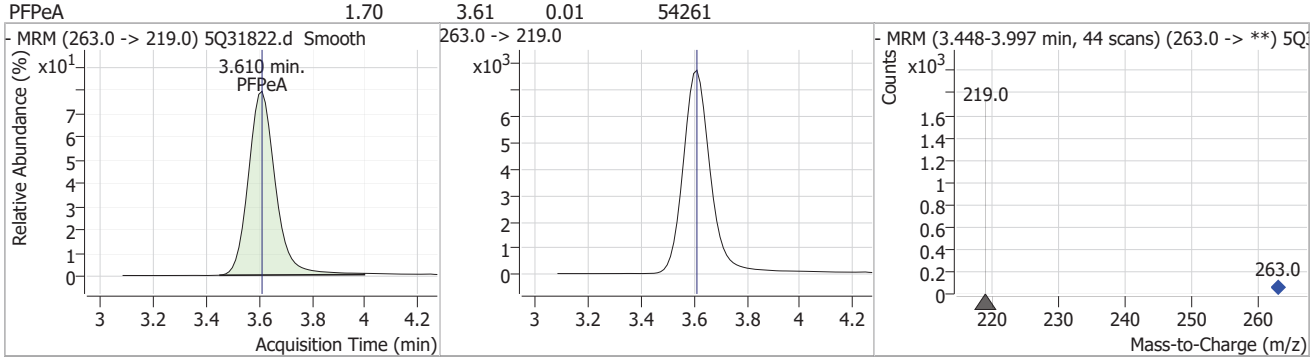
Perfluorinated Compounds by LC/MS/MS



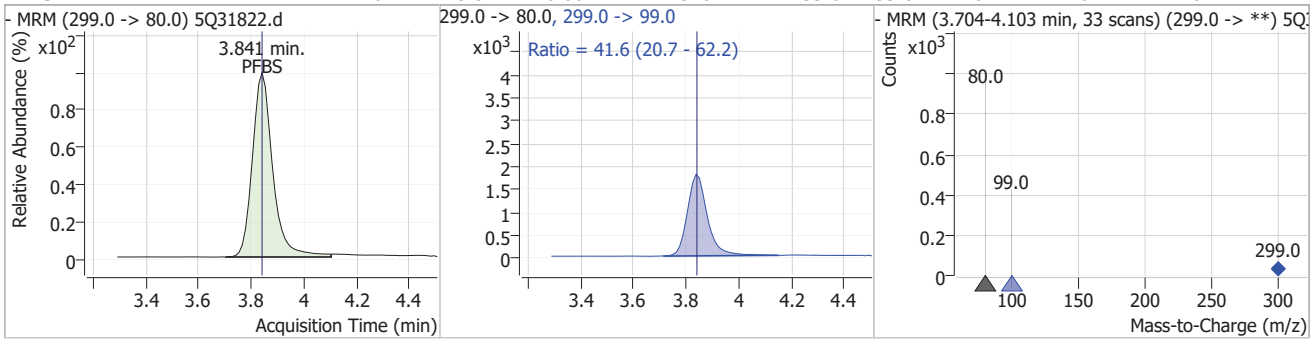
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.01	501309				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.70	3.61	0.01	54261				

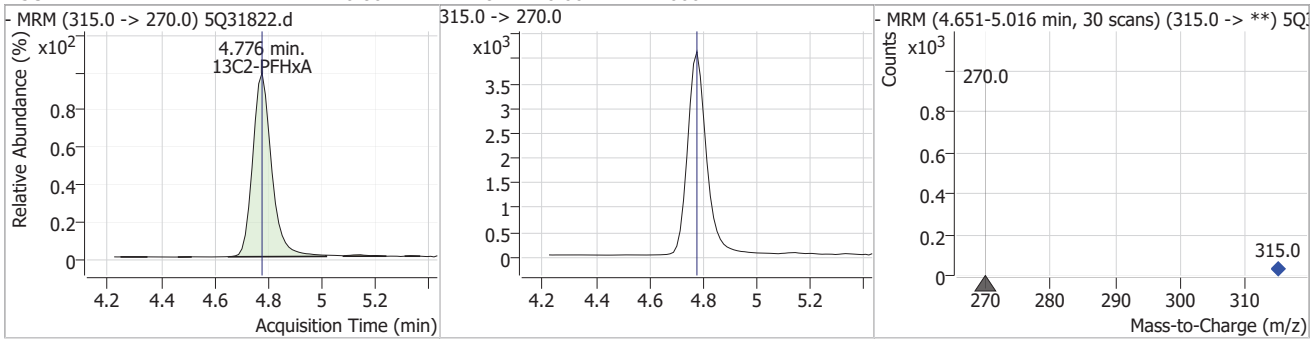


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.76	3.84	0.00	22576	299.0 -> 99.0	41.6	20.7	62.2

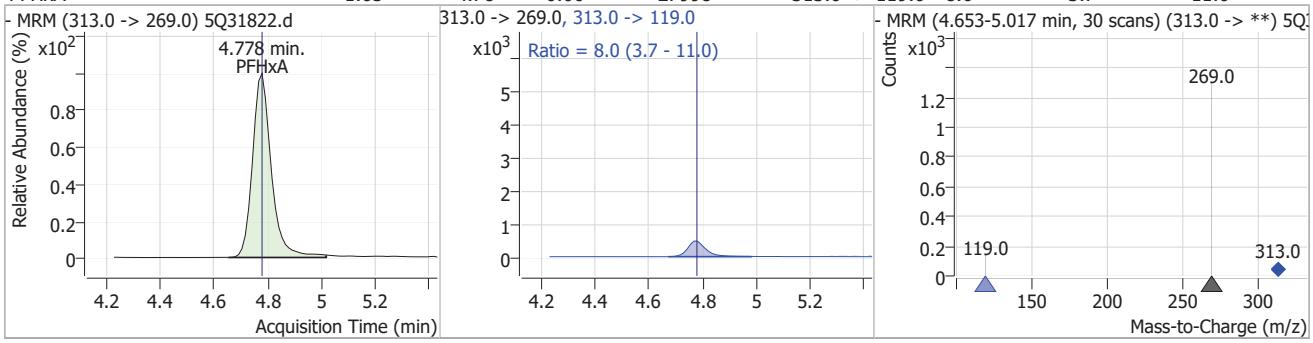


Perfluorinated Compounds by LC/MS/MS

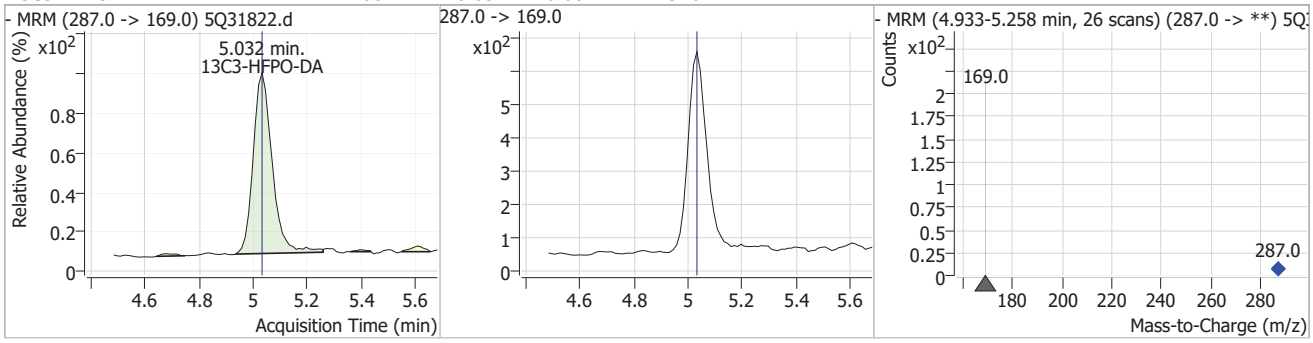
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.80	4.78	0.00	20002				



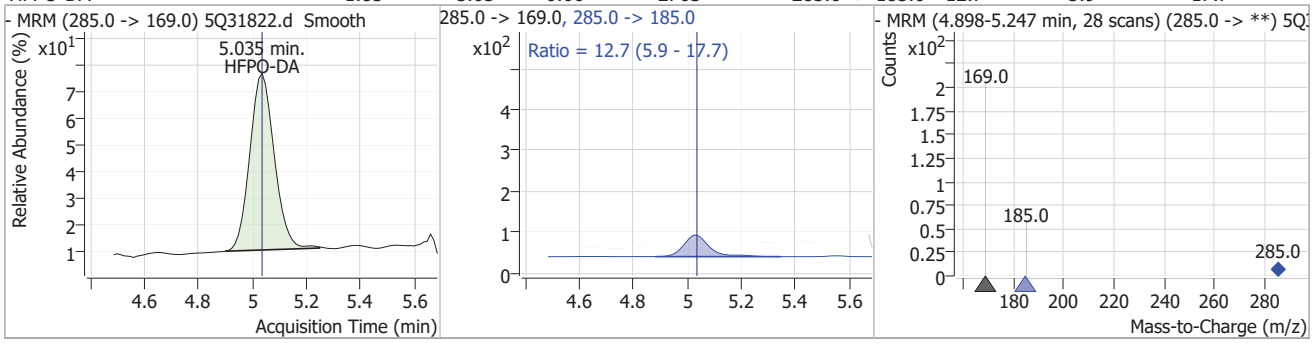
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.65	4.78	0.00	27998	313.0 -> 119.0	8.0	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	1.66	5.03	0.00	2916				

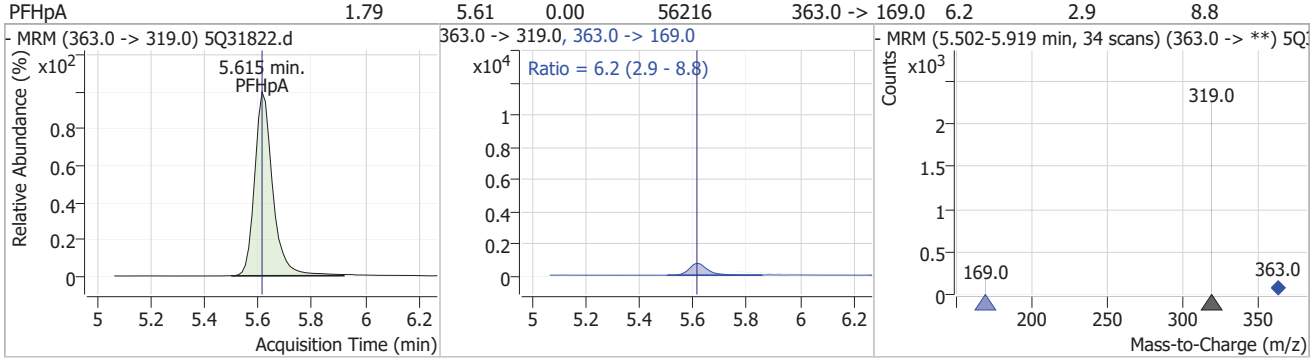


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	1.85	5.03	0.00	2763	285.0 -> 185.0	12.7	5.9	17.7

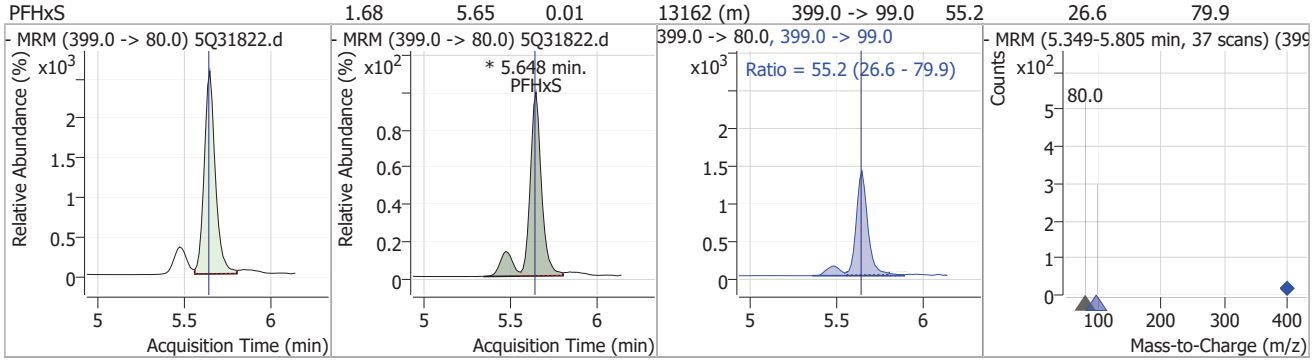


Perfluorinated Compounds by LC/MS/MS

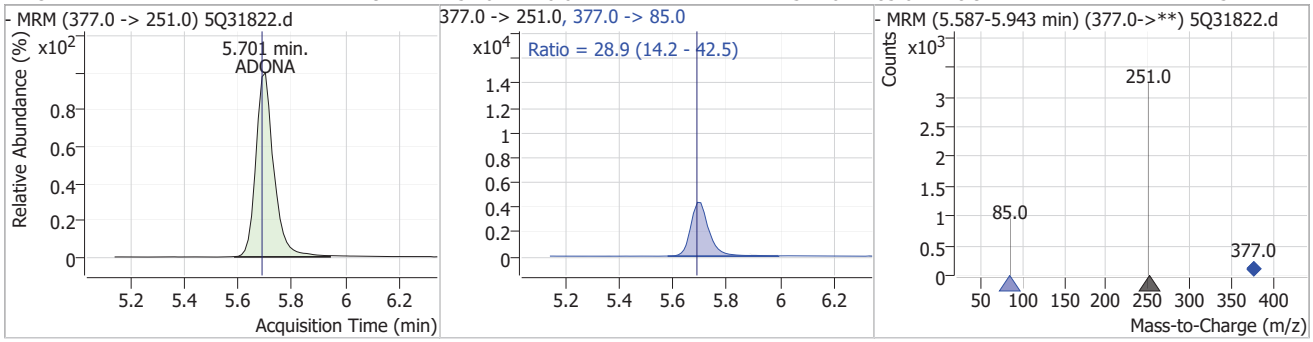
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.79	5.61	0.00	56216	363.0 -> 169.0	6.2	2.9	8.8



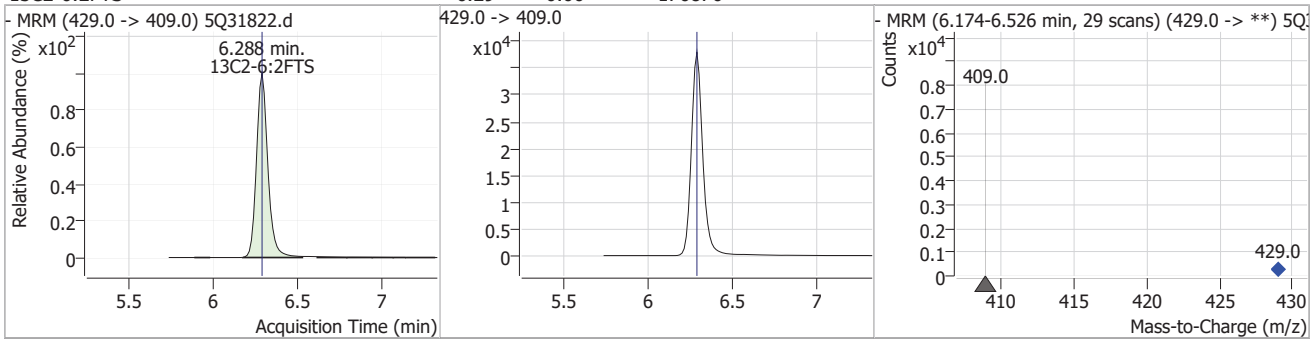
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.68	5.65	0.01	13162 (m)	399.0 -> 99.0	55.2	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	1.79	5.70	0.01	72441	377.0 -> 85.0	28.9	14.2	42.5

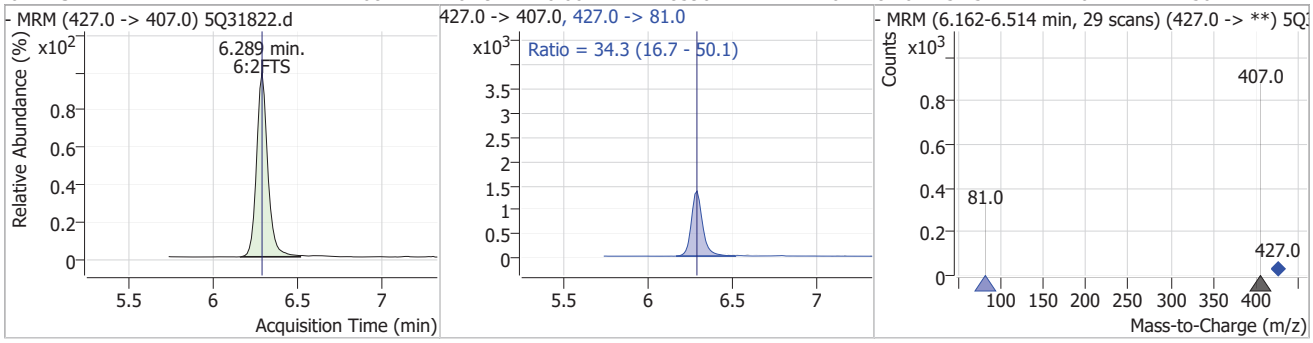


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	176876				

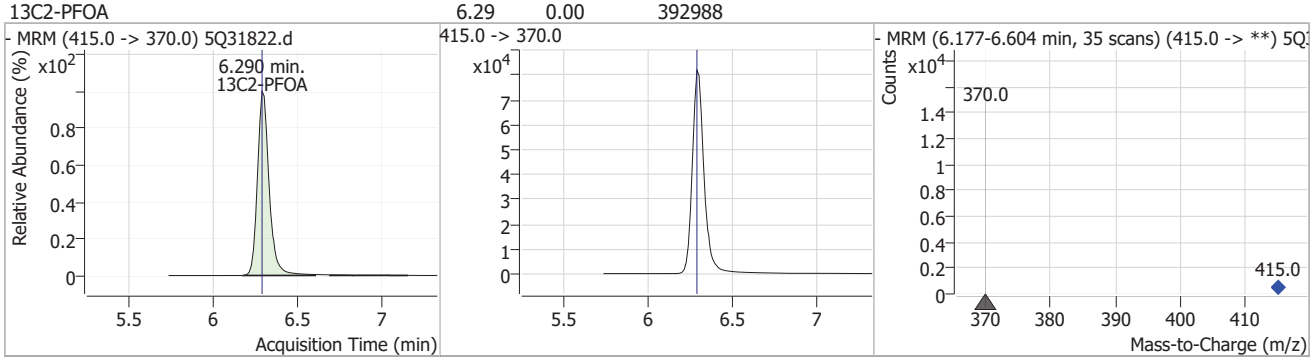


Perfluorinated Compounds by LC/MS/MS

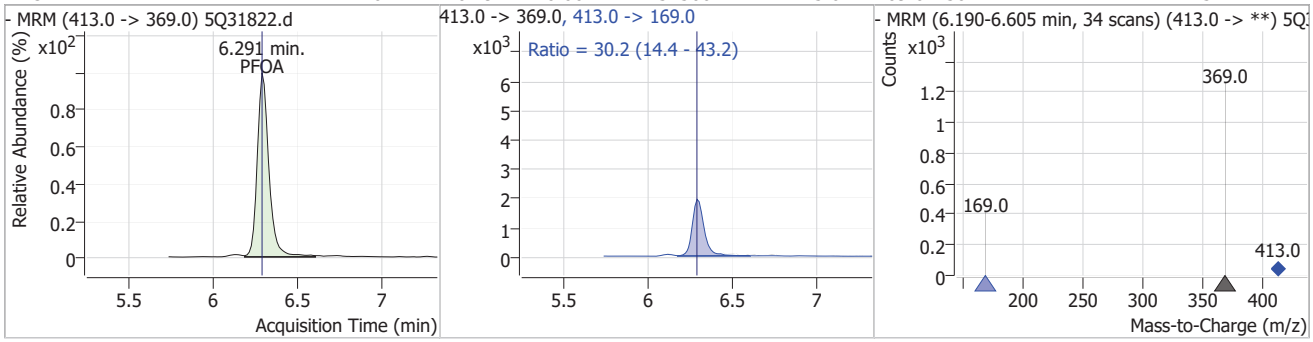
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	2.08	6.29	0.00	18396	427.0 -> 81.0	34.3	16.7	50.1



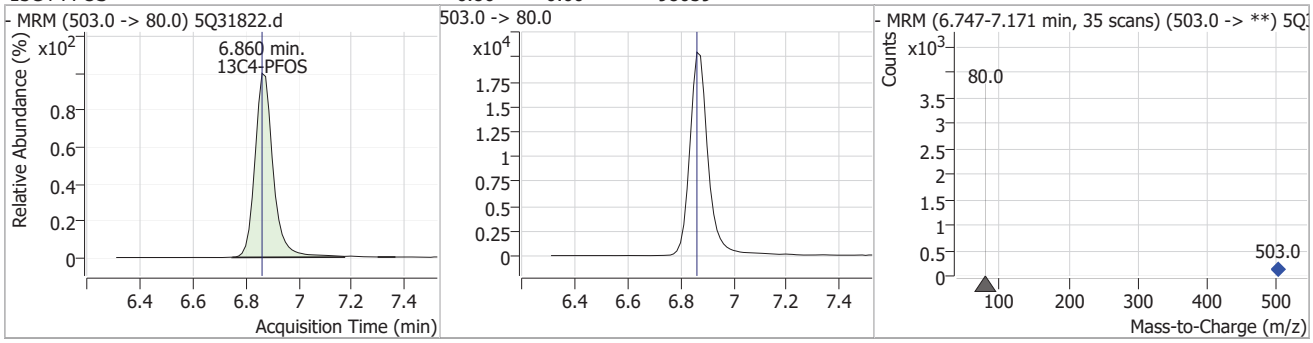
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	392988				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.70	6.29	0.00	31366	413.0 -> 169.0	30.2	14.4	43.2

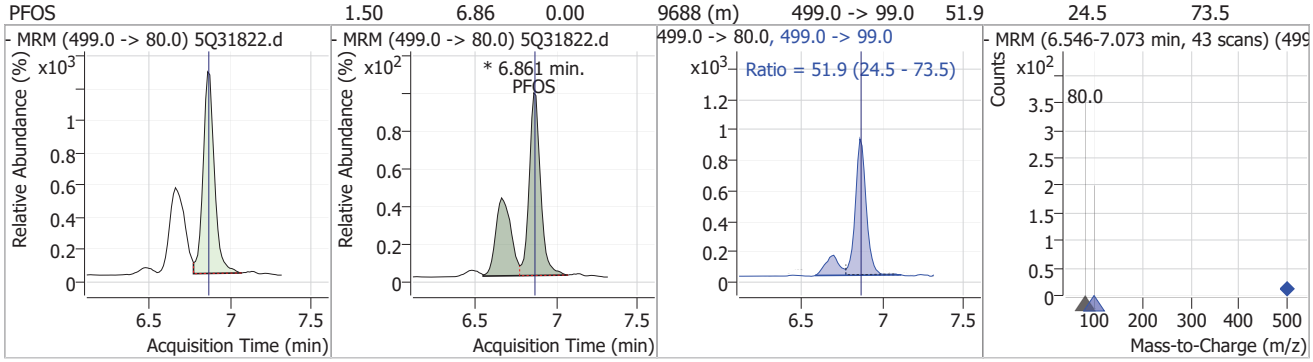


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	98059				

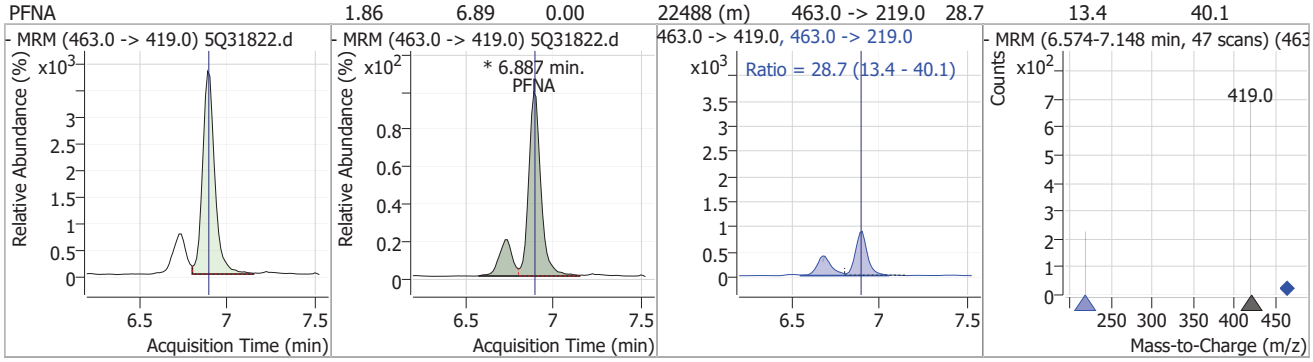


Perfluorinated Compounds by LC/MS/MS

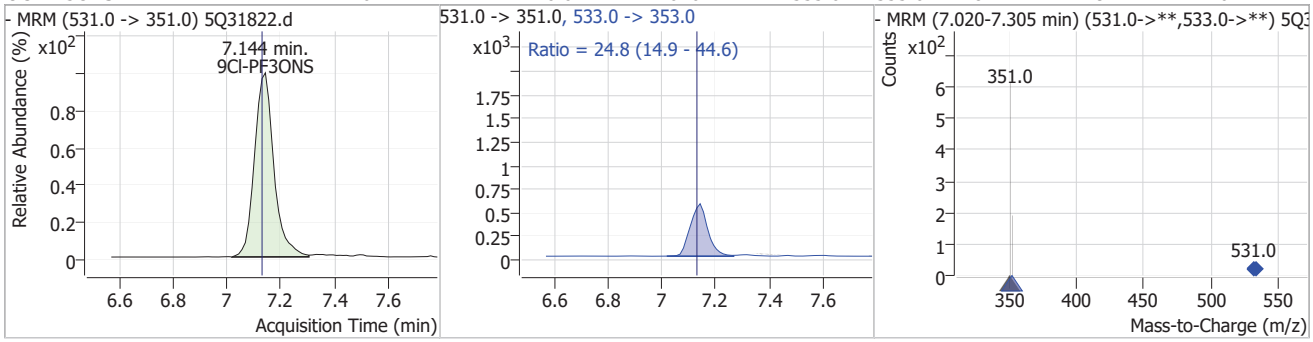
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.50	6.86	0.00	9688 (m)	499.0 -> 99.0	51.9	24.5	73.5



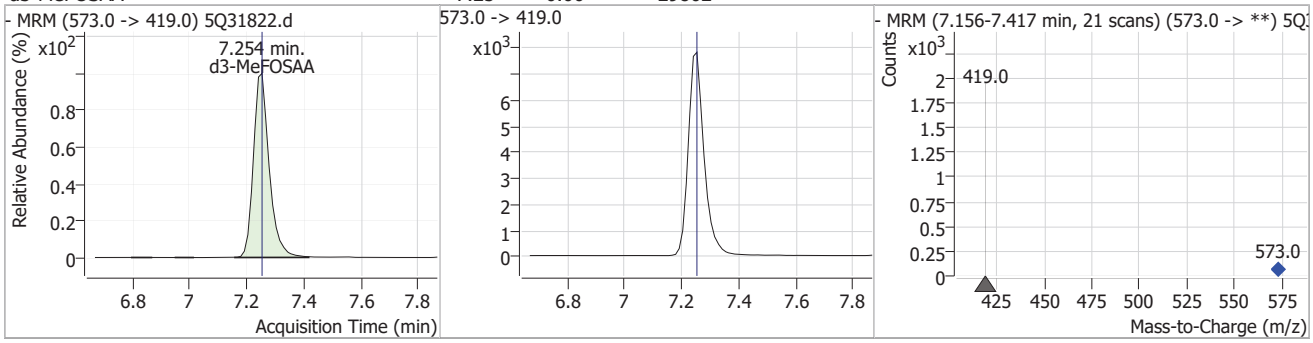
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.86	6.89	0.00	22488 (m)	463.0 -> 219.0	28.7	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	2.02	7.14	0.01	10201	533.0 -> 353.0	24.8	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	29802				



7.7.42

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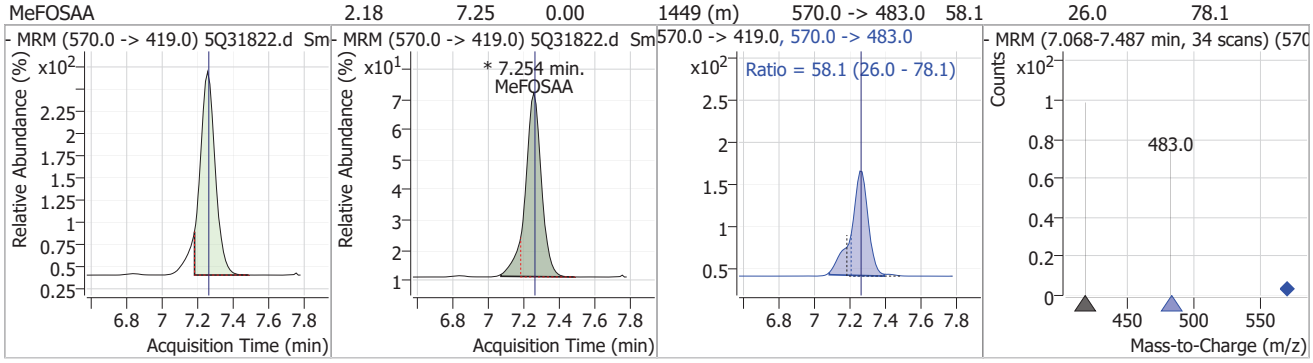
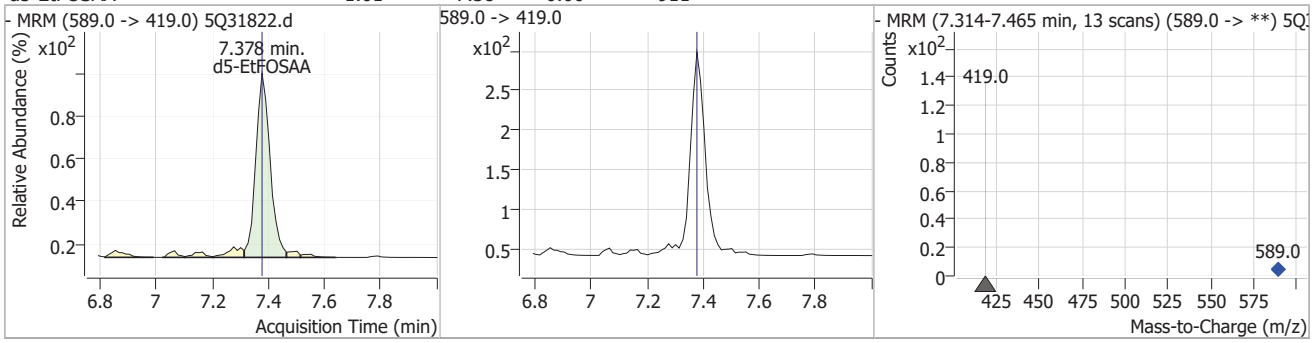
Perfluorinated Compounds by LC/MS/MS

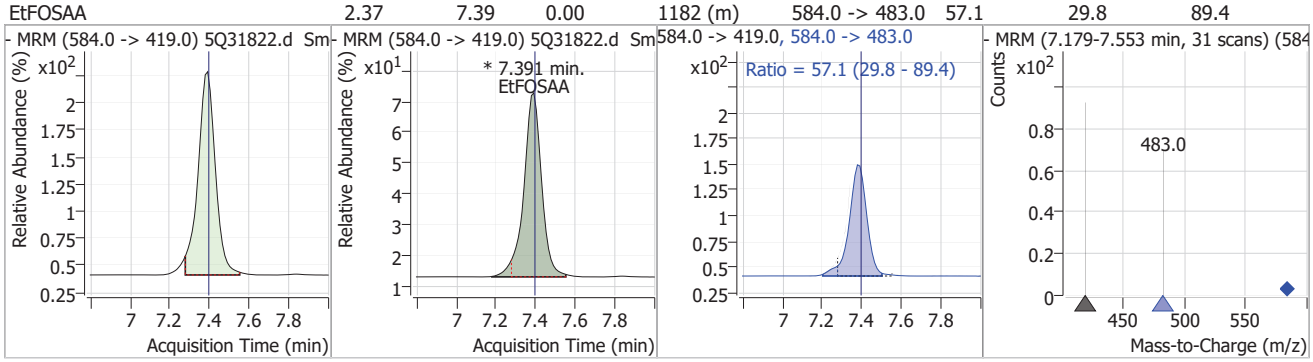
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.18	7.25	0.00	1449 (m)	570.0 -> 483.0	58.1	26.0	78.1



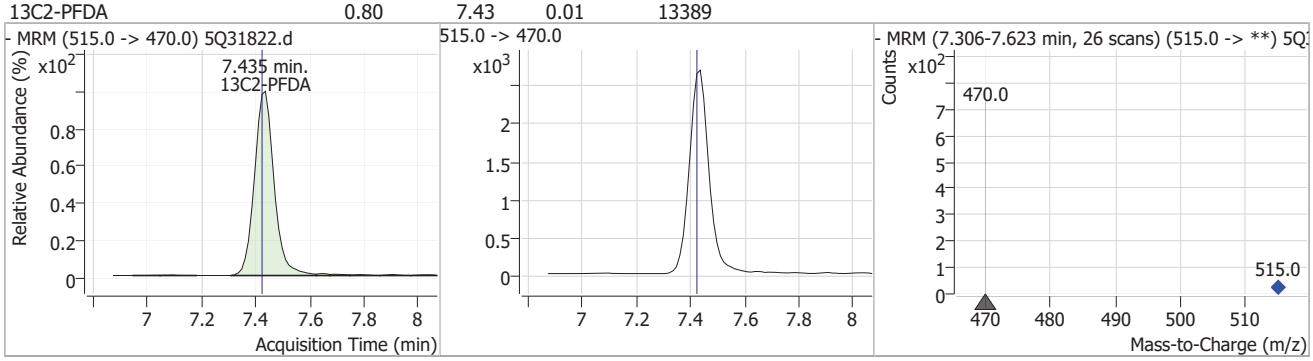
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	1.61	7.38	0.00	911				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.37	7.39	0.00	1182 (m)	584.0 -> 483.0	57.1	29.8	89.4

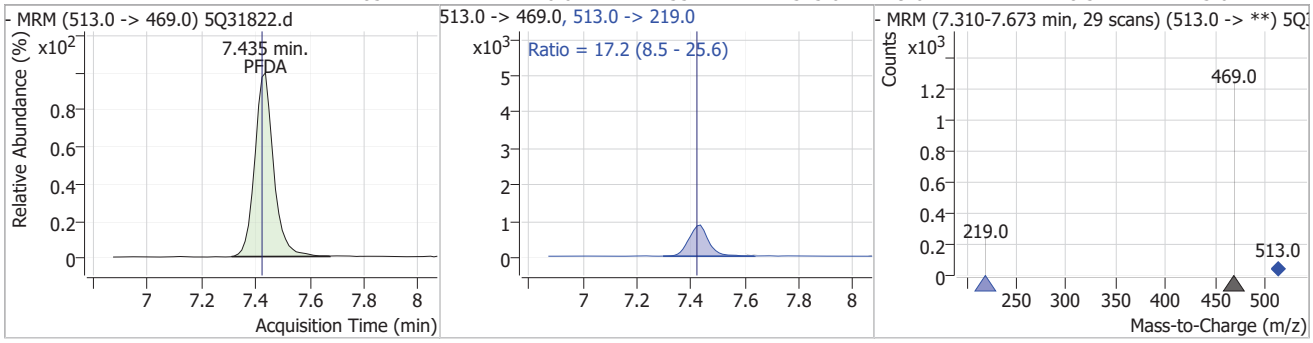


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.80	7.43	0.01	13389				

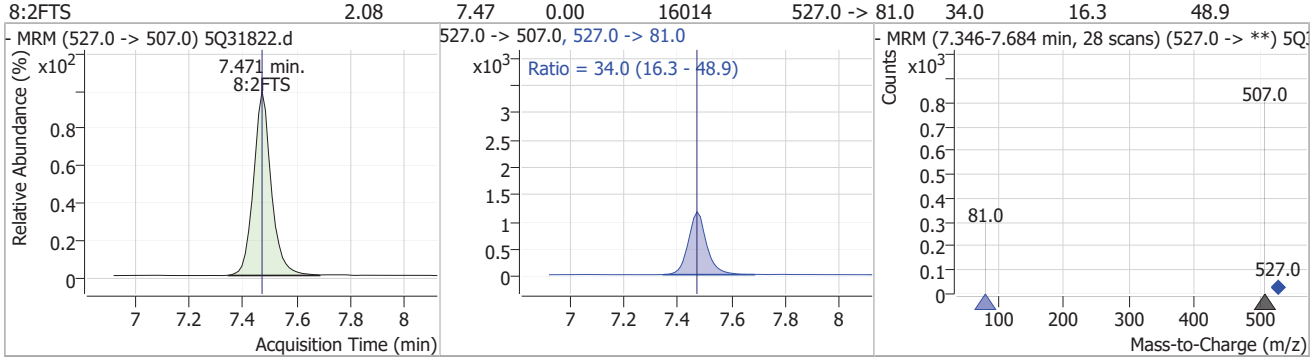


Perfluorinated Compounds by LC/MS/MS

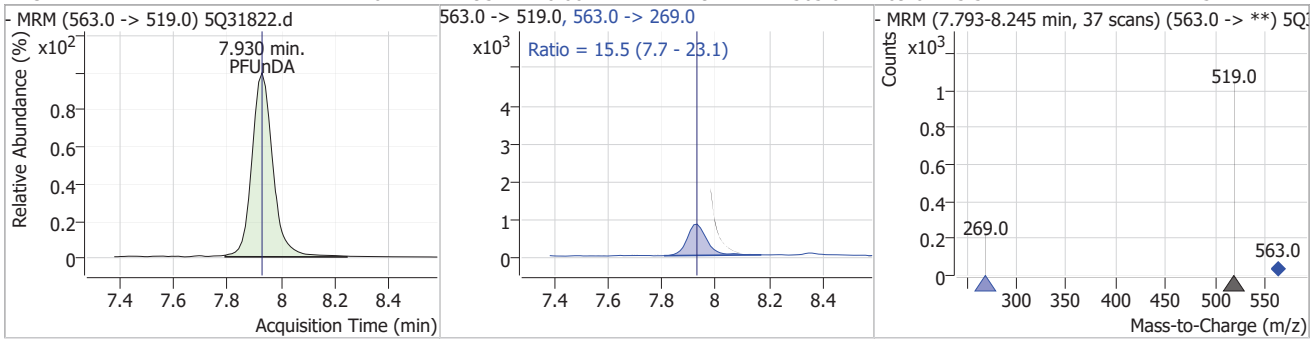
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.85	7.44	0.01	25527	513.0 -> 219.0	17.2	8.5	25.6



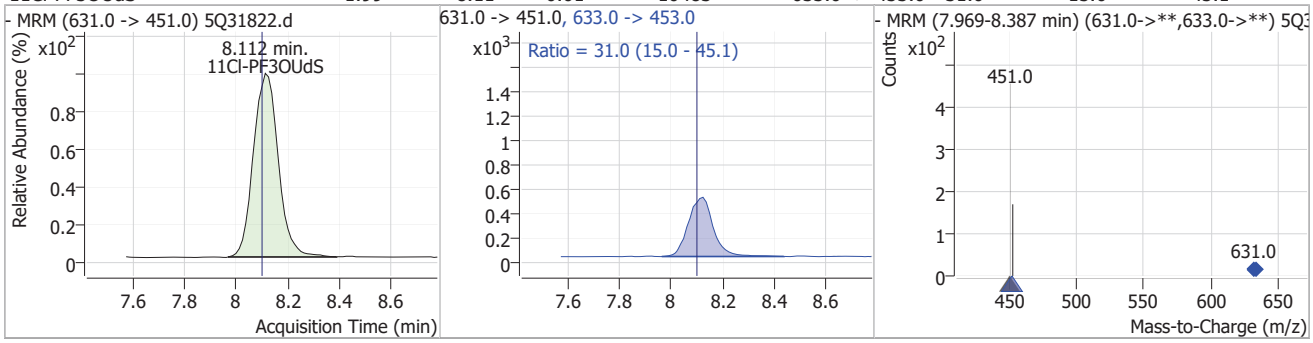
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	2.08	7.47	0.00	16014	527.0 -> 81.0	34.0	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.70	7.93	0.00	27429	563.0 -> 269.0	15.5	7.7	23.1

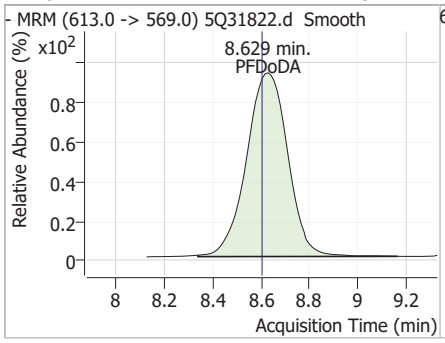


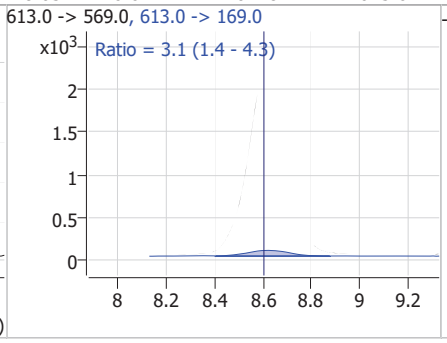
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	1.99	8.11	0.01	10483	633.0 -> 453.0	31.0	15.0	45.1

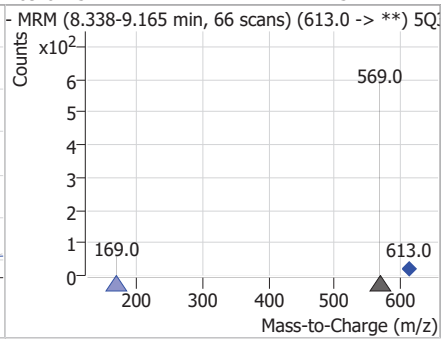


Perfluorinated Compounds by LC/MS/MS

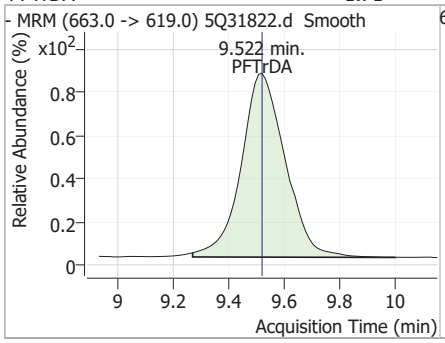
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	1.92	8.63	0.02	26728	613.0 -> 169.0	3.1	1.4	4.3

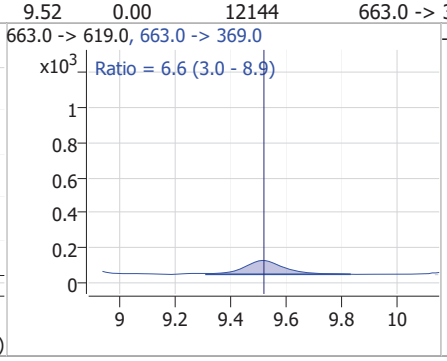


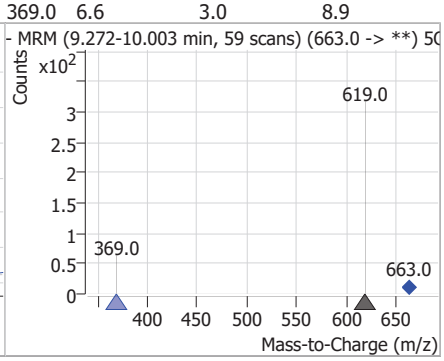




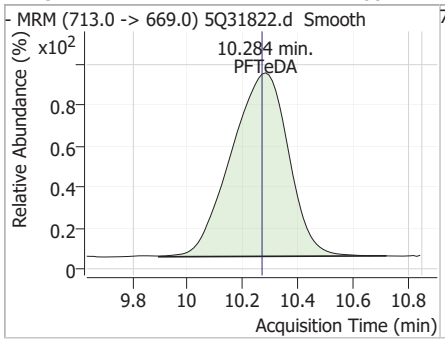
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	1.71	9.52	0.00	12144	663.0 -> 369.0	6.6	3.0	8.9

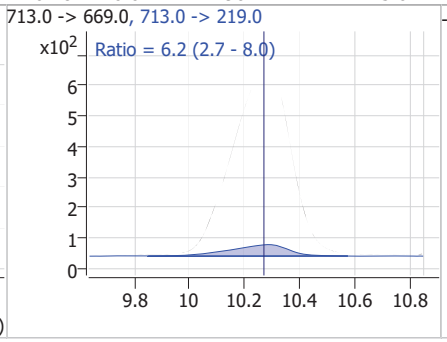


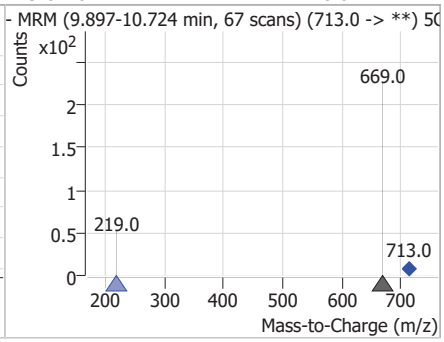




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.88	10.28	0.01	9074	713.0 -> 219.0	6.2	2.7	8.0







Manual Integration Approval Summary

Sample Number:	S5Q523-IC523	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31822.D	**Analyst approved:**	04/18/25 07:39 (b) (6)
Injection Time:	04/17/25 13:12	**Supervisor approved:**	04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31823.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 1:28:32 PM
Sample Name : ic523-5
Vial : P1-A5
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.288	429.0 -> 409.0	183368	20.00 µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	403054	20.00 µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	506505	20.00 µg/L		0.012
13C4-PFOS	6.860	503.0 -> 80.0	99224	20.00 µg/L		0.000
d3-MeFOSAA	7.254	573.0 -> 419.0	31569	40.00 µg/L		0.000
System Monitoring Compounds						
13C2-PFDA	7.422	515.0 -> 470.0	36936	2.14 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 10.7%		
13C2-PFHxA	4.776	315.0 -> 270.0	55232	2.16 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 10.8%		
d5-EtFOSAA	7.378	589.0 -> 419.0	2656	4.43 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 11.1%		
13C3-HFPO-DA	5.032	287.0 -> 169.0	7370	4.08 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 10.2%		
Target Compounds						QValue
6:2FTS	6.289	427.0 -> 407.0	49664	5.40 µg/L		98
8:2FTS	7.471	527.0 -> 507.0	41857	5.25 µg/L		99
EtFOSAA	7.391	584.0 -> 419.0	2194	4.15 µg/L	m	99
MeFOSAA	7.254	570.0 -> 419.0	2666	3.77 µg/L	#m	63
PFBS	3.841	299.0 -> 80.0	61607	4.75 µg/L		98
PFDA	7.423	513.0 -> 469.0	67060	4.74 µg/L		98
PFDoDA	8.604	613.0 -> 569.0	64076	4.52 µg/L		99
PFHpA	5.615	363.0 -> 319.0	151502	4.68 µg/L		100
PFHxA	4.778	313.0 -> 269.0	75952	4.37 µg/L		99
PFHxS	5.648	399.0 -> 80.0	35860	4.51 µg/L	m	100
PFNA	6.887	463.0 -> 419.0	64507	5.15 µg/L	m	99
PFOA	6.291	413.0 -> 369.0	84652	4.45 µg/L		99
PFOS	6.861	499.0 -> 80.0	27585	4.21 µg/L	m	100
PFPeA	3.610	263.0 -> 219.0	147044	4.54 µg/L		100
PFTeDA	10.284	713.0 -> 669.0	22055	4.48 µg/L		100
PFTrDA	9.522	663.0 -> 619.0	27200	3.79 µg/L		97
PFUnDA	7.930	563.0 -> 519.0	71206	4.37 µg/L		100
ADONA	5.689	377.0 -> 251.0	195292	4.69 µg/L		99
9Cl-PF3ONS	7.131	531.0 -> 351.0	25637	4.90 µg/L		96
11Cl-PF3OUdS	8.112	631.0 -> 451.0	27621	5.06 µg/L		99
HFPO-DA	5.035	285.0 -> 169.0	7077	4.61 µg/L		93

 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.43
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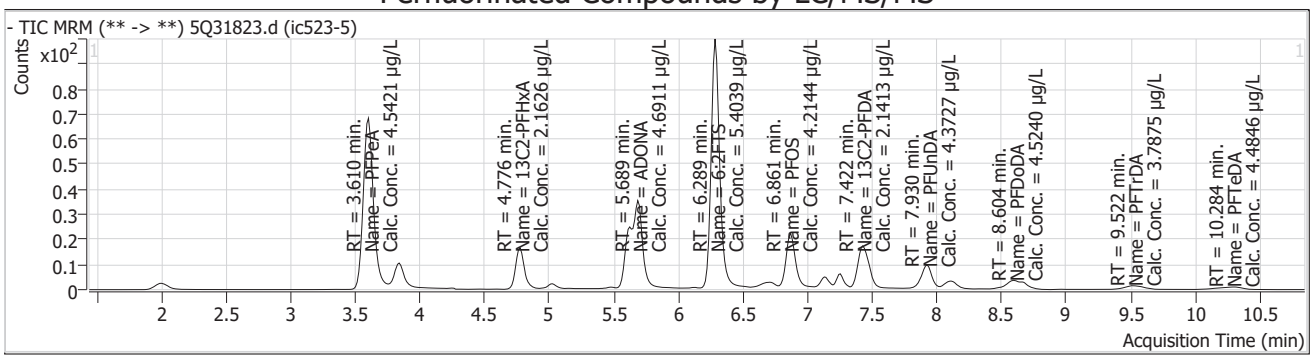
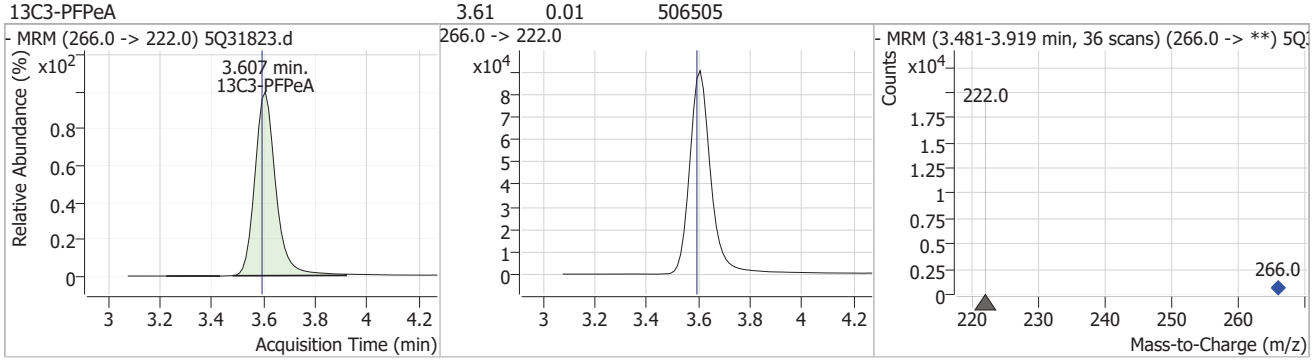
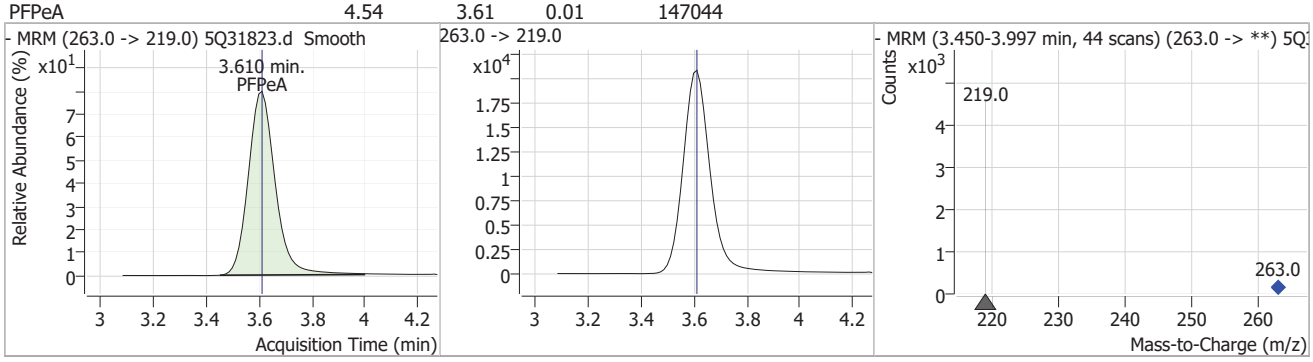
Perfluorinated Compounds by LC/MS/MS



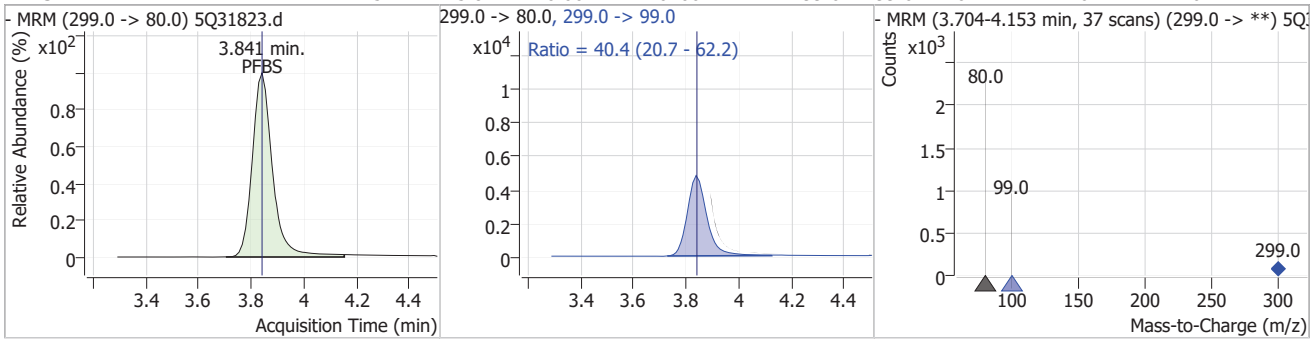
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.01	506505				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.54	3.61	0.01	147044				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	4.75	3.84	0.00	61607	299.0 -> 99.0	40.4	20.7	62.2



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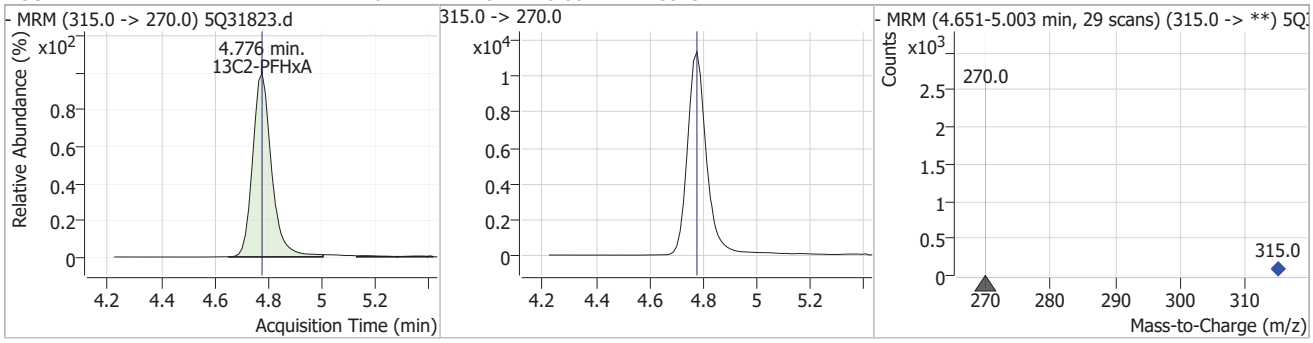
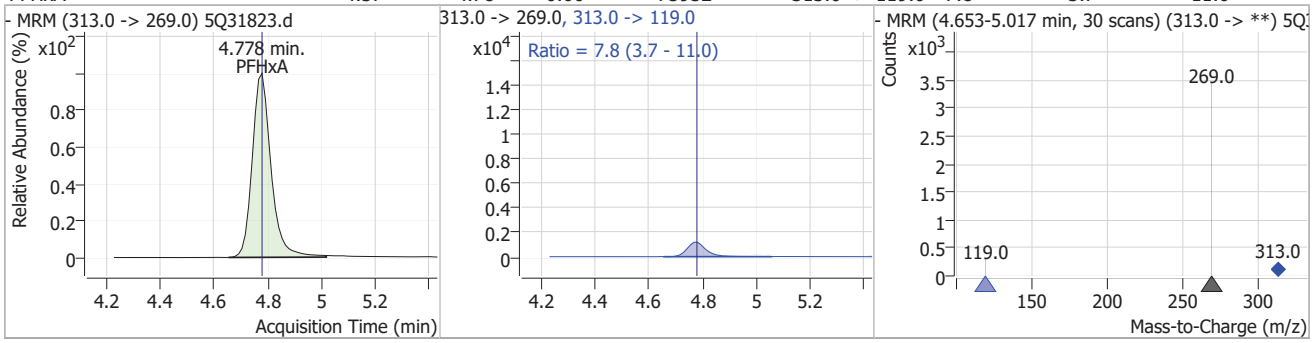
Perfluorinated Compounds by LC/MS/MS

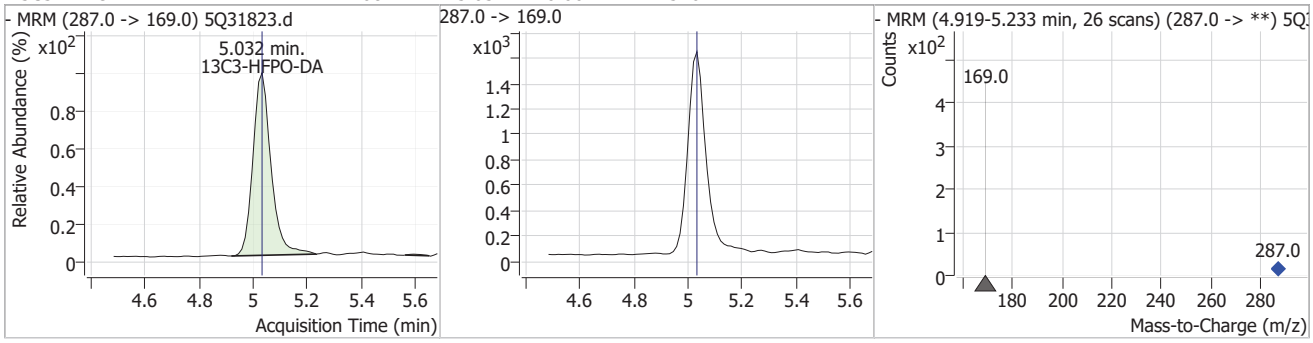
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	2.16	4.78	0.00	55232				



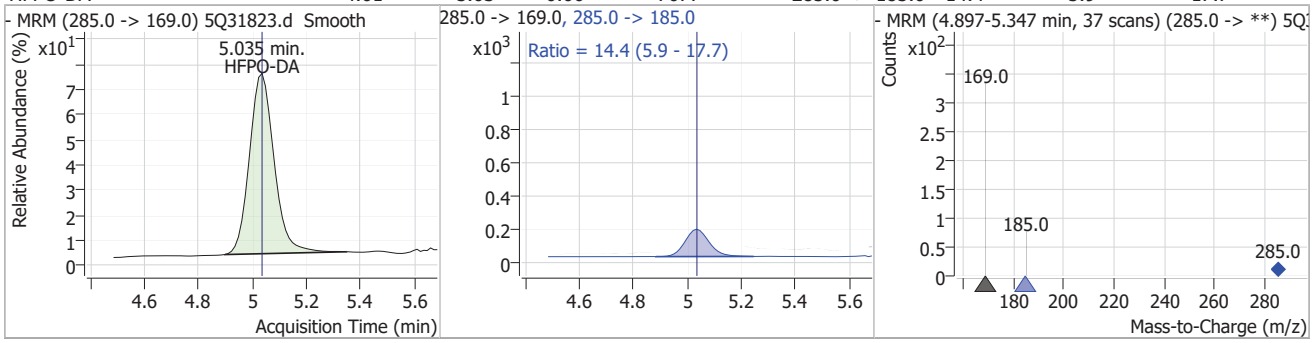
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	4.37	4.78	0.00	75952	313.0 -> 119.0	7.8	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	4.08	5.03	0.00	7370				

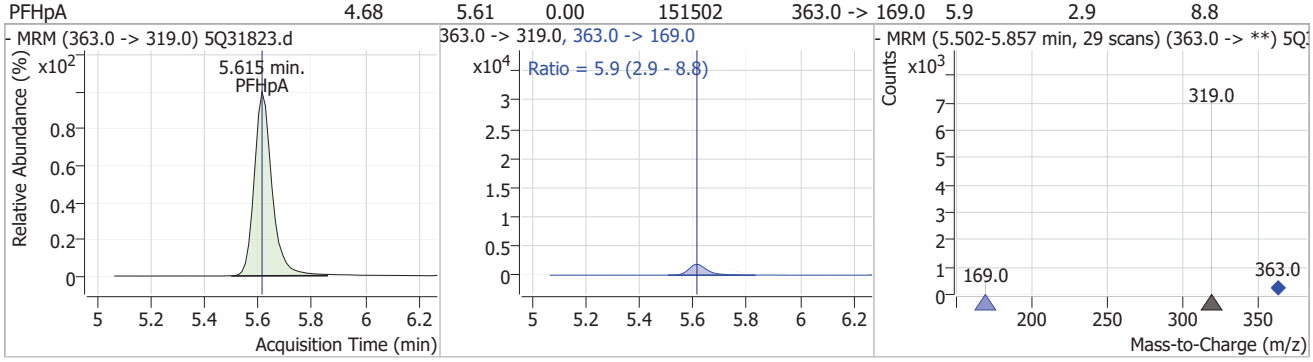


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.61	5.03	0.00	7077	285.0 -> 185.0	14.4	5.9	17.7

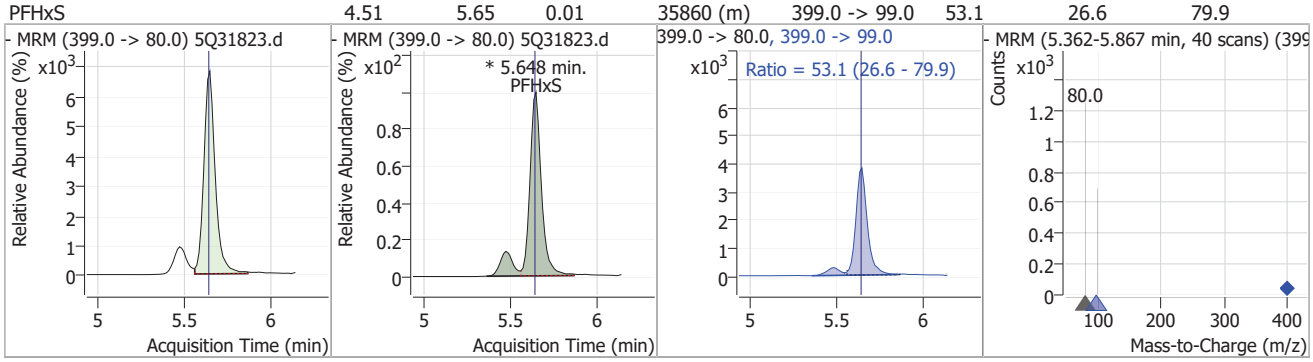


Perfluorinated Compounds by LC/MS/MS

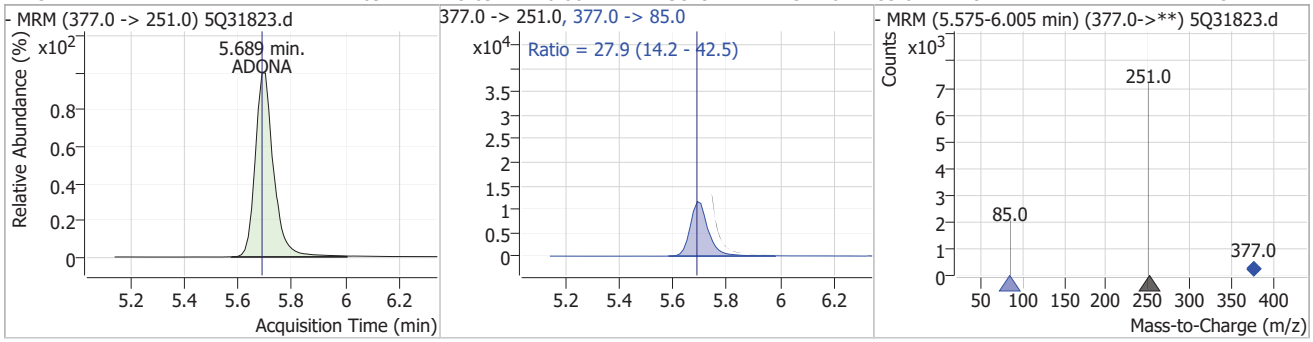
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	4.68	5.61	0.00	151502	363.0 -> 169.0	5.9	2.9	8.8



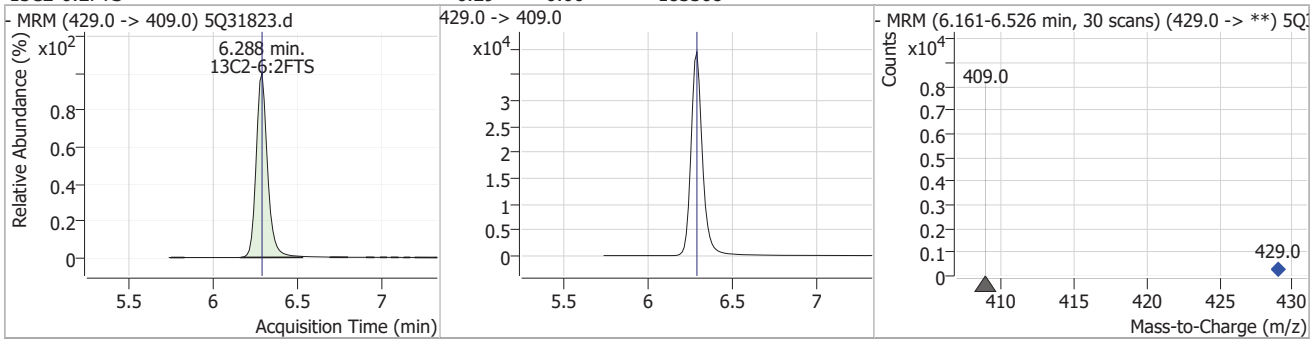
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	4.51	5.65	0.01	35860 (m)	399.0 -> 99.0	53.1	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	4.69	5.69	0.00	195292	377.0 -> 85.0	27.9	14.2	42.5

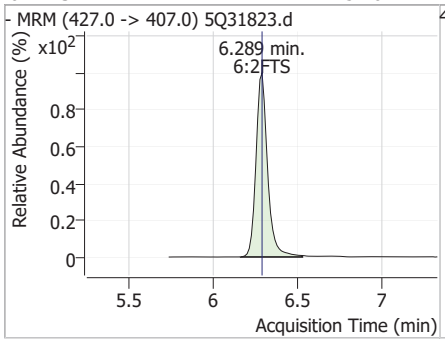


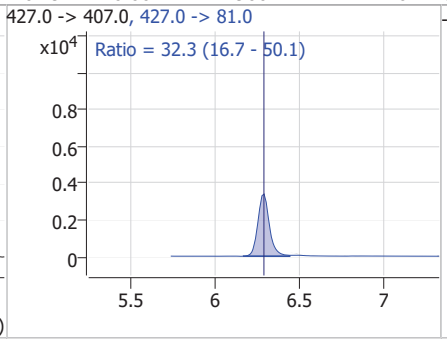
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	183368				

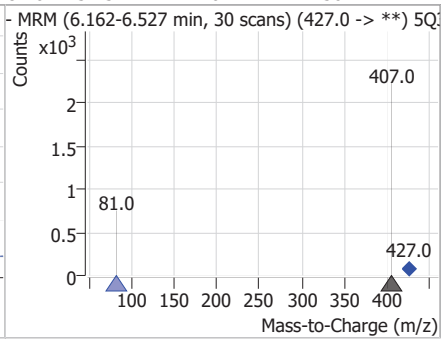


Perfluorinated Compounds by LC/MS/MS

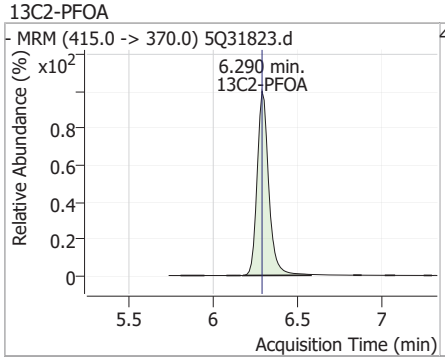
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	5.40	6.29	0.00	49664	427.0 -> 81.0	32.3	16.7	50.1

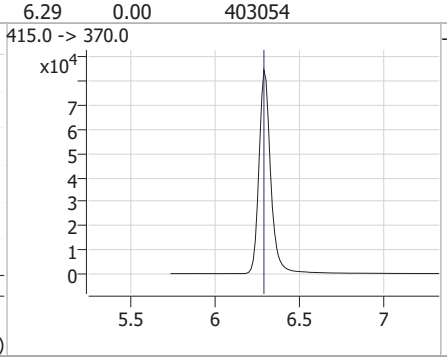


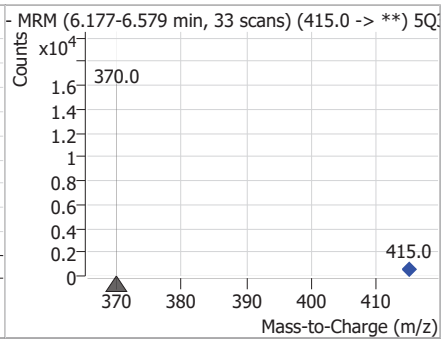




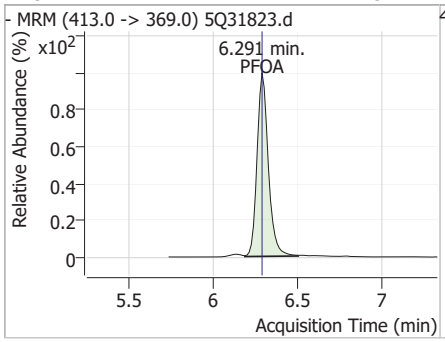
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	403054				

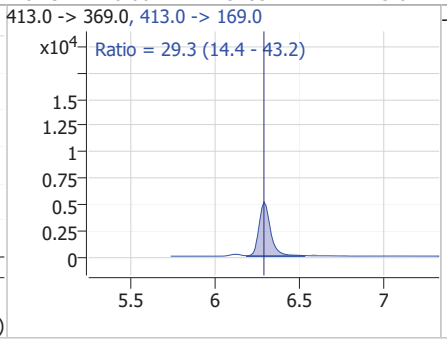


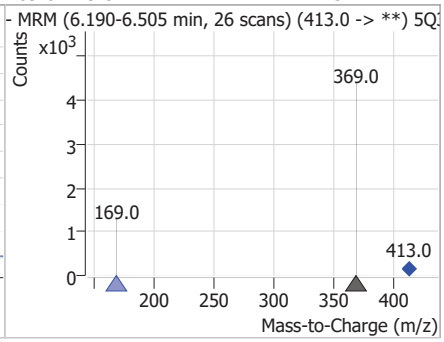




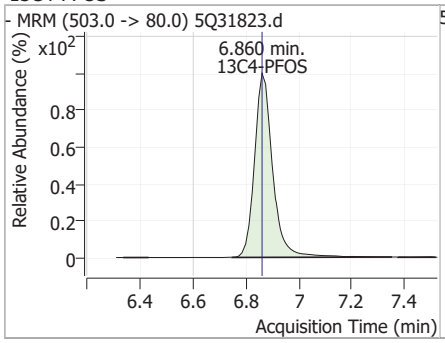
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	4.45	6.29	0.00	84652	413.0 -> 169.0	29.3	14.4	43.2

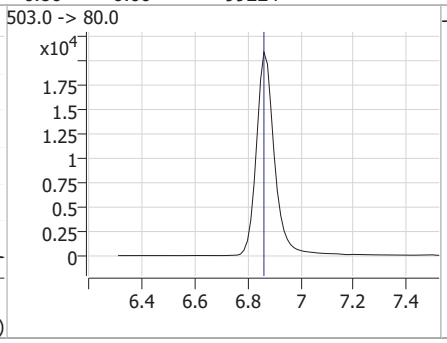


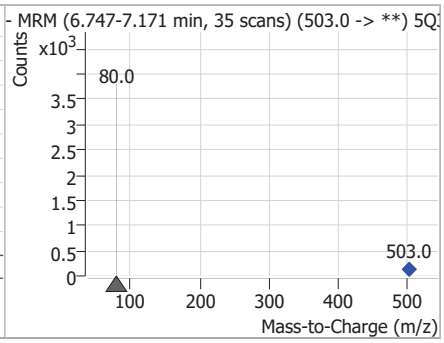




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	99224				

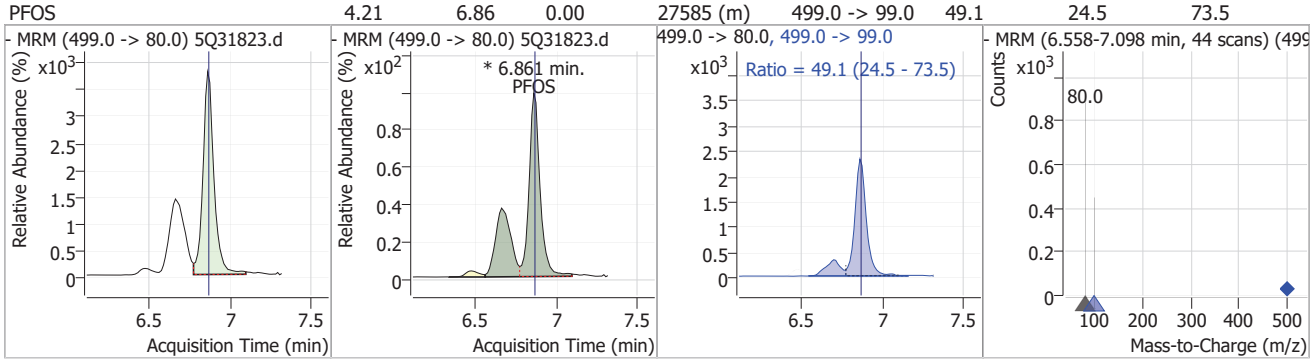




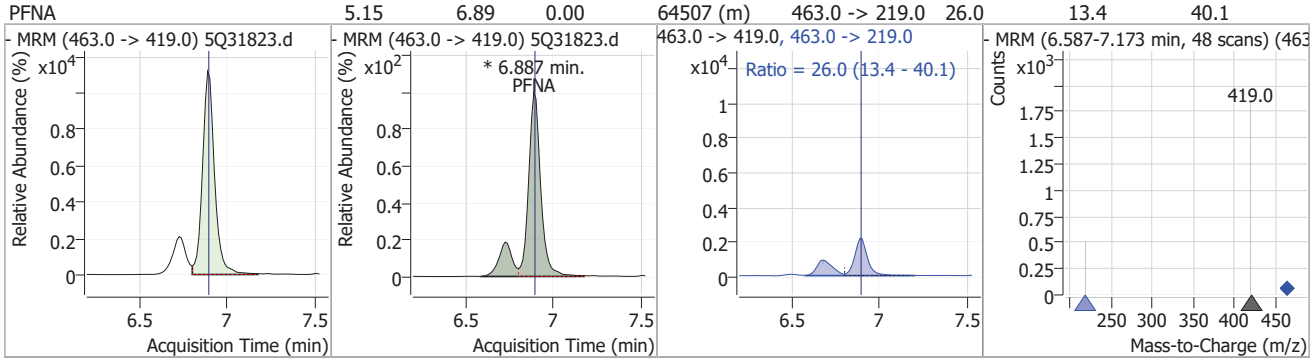


Perfluorinated Compounds by LC/MS/MS

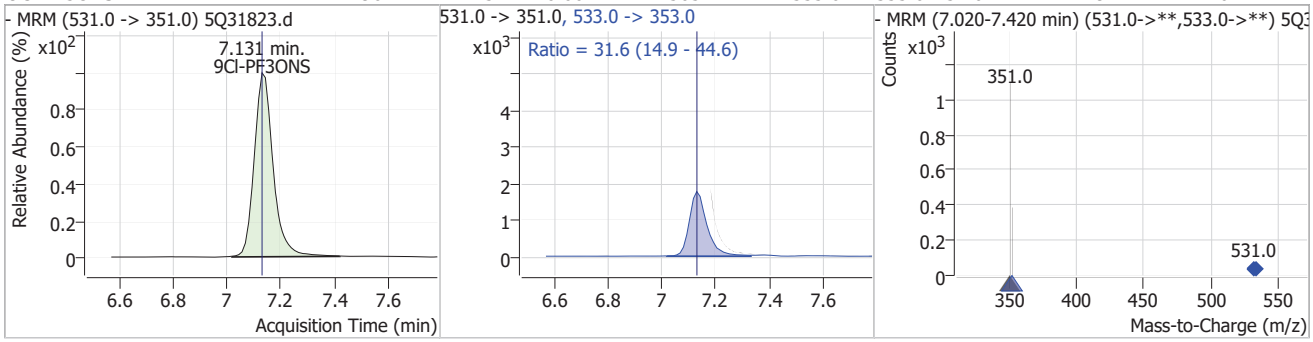
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	4.21	6.86	0.00	27585 (m)	499.0 -> 99.0	49.1	24.5	73.5



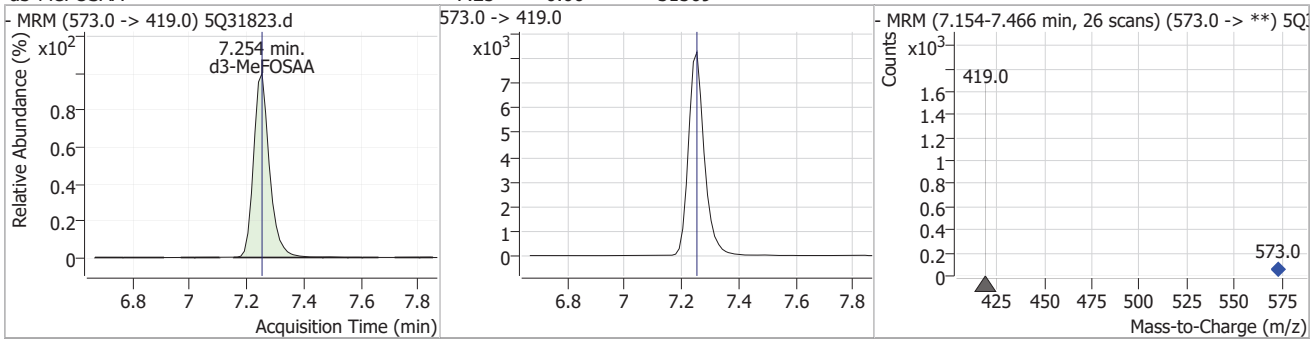
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	5.15	6.89	0.00	64507 (m)	463.0 -> 219.0	26.0	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	4.90	7.13	0.00	25637	533.0 -> 353.0	31.6	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	31569				



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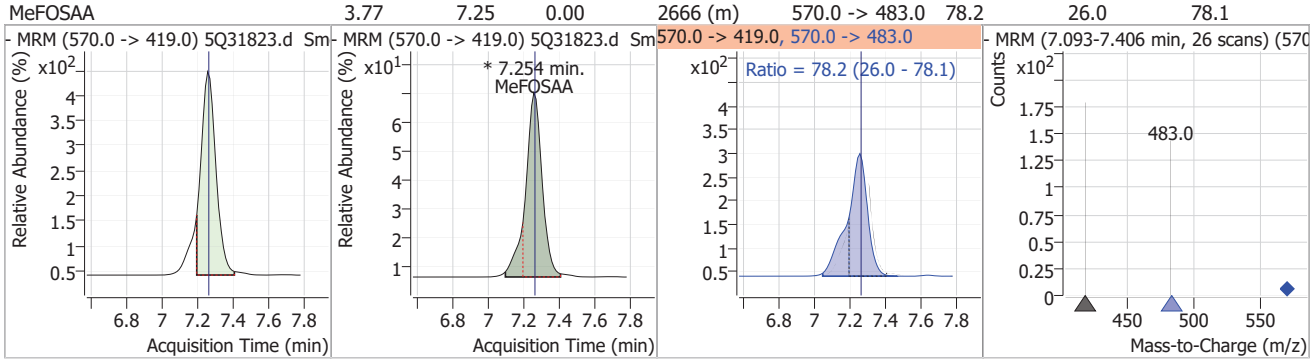
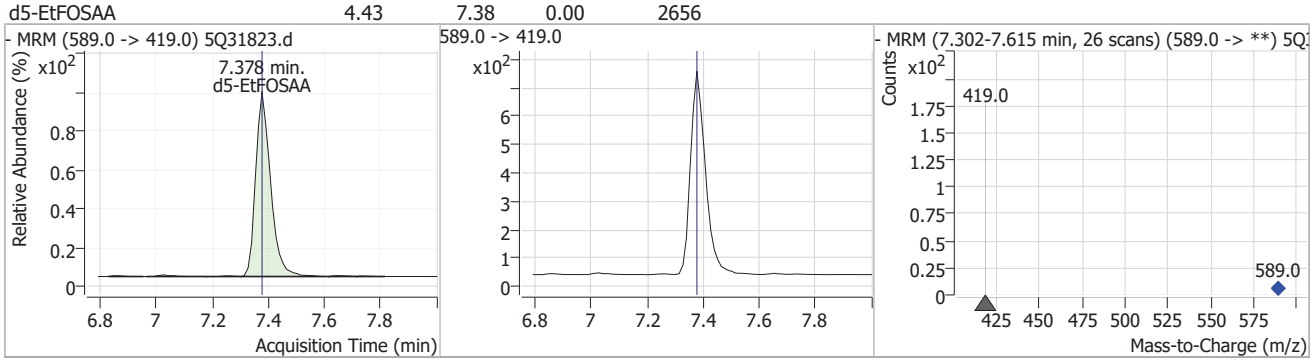
Perfluorinated Compounds by LC/MS/MS

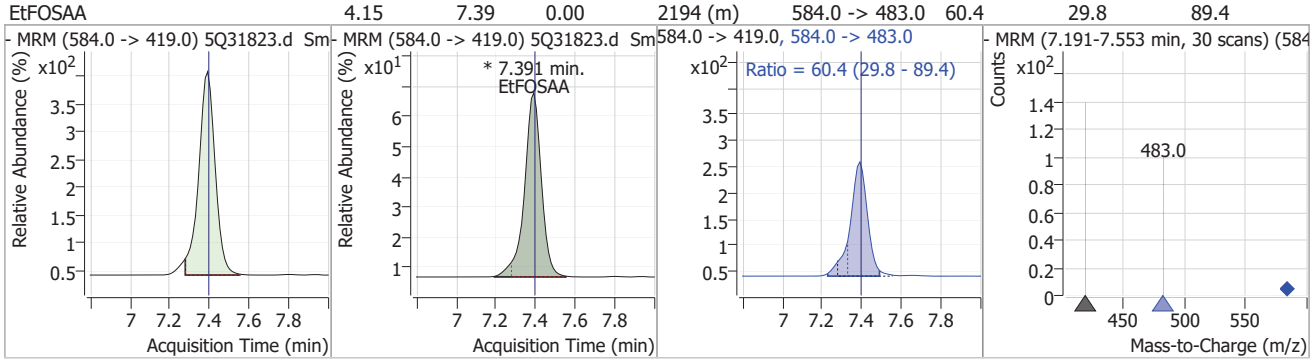
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	3.77	7.25	0.00	2666 (m)	570.0 -> 483.0	78.2	26.0	78.1



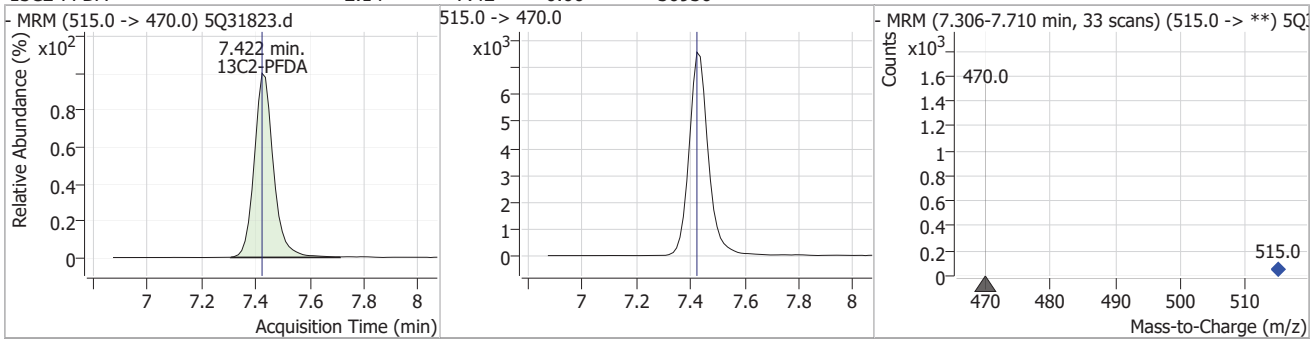
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.43	7.38	0.00	2656				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	4.15	7.39	0.00	2194 (m)	584.0 -> 483.0	60.4	29.8	89.4

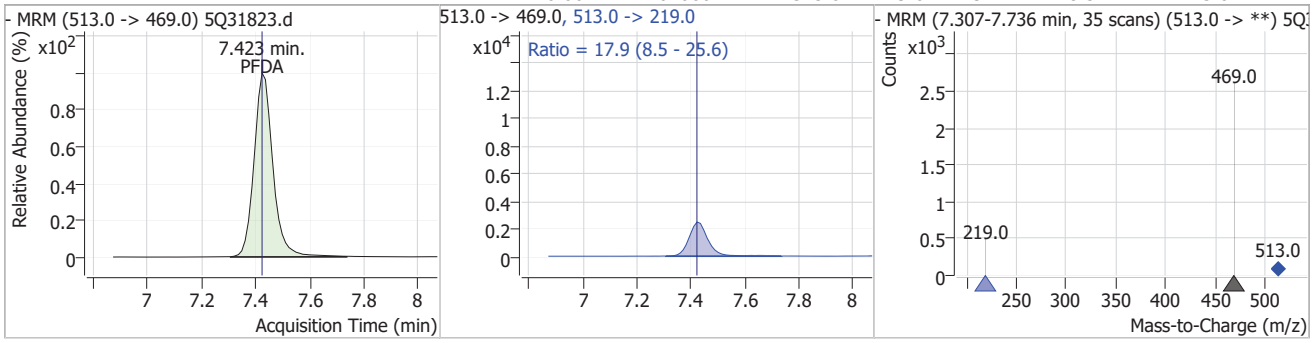


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	2.14	7.42	0.00	36936				

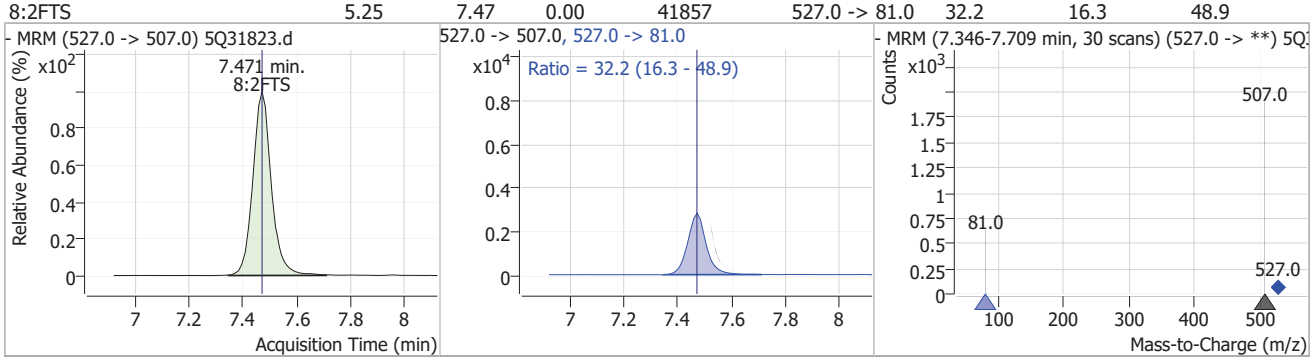


Perfluorinated Compounds by LC/MS/MS

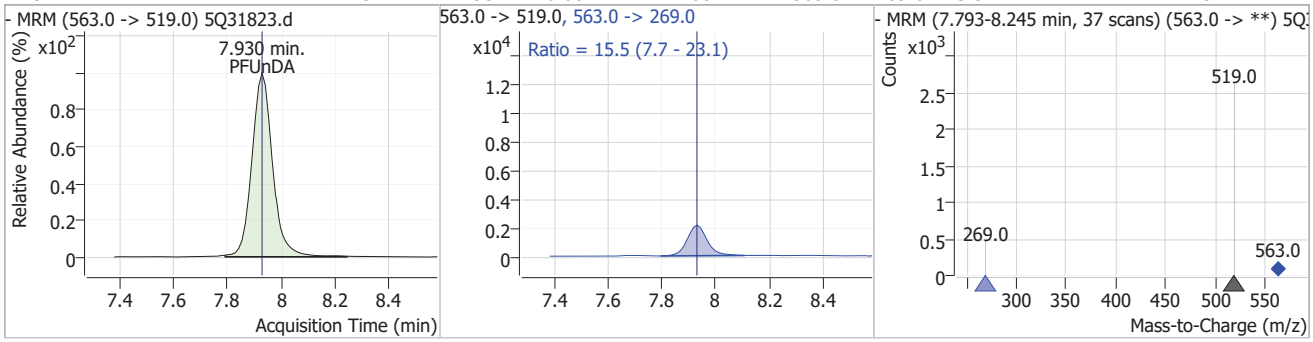
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	4.74	7.42	0.00	67060	513.0 -> 219.0	17.9	8.5	25.6



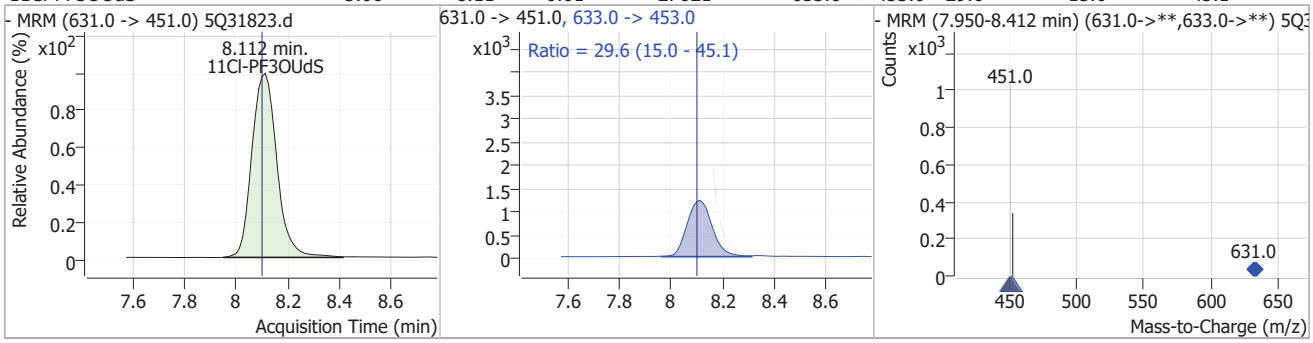
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	5.25	7.47	0.00	41857	527.0 -> 81.0	32.2	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	4.37	7.93	0.00	71206	563.0 -> 269.0	15.5	7.7	23.1

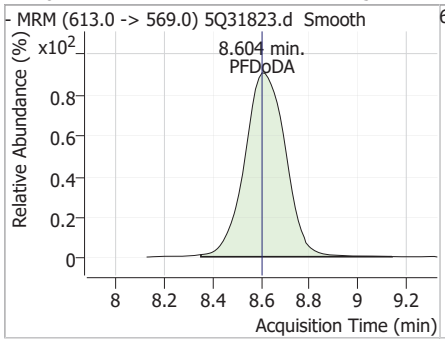


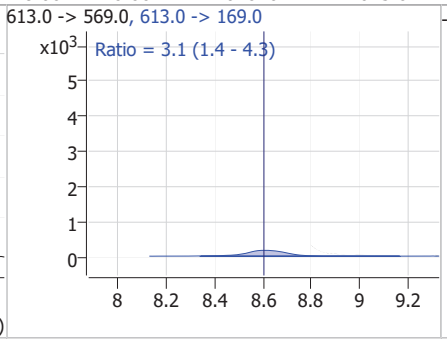
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	5.06	8.11	0.01	27621	633.0 -> 453.0	29.6	15.0	45.1

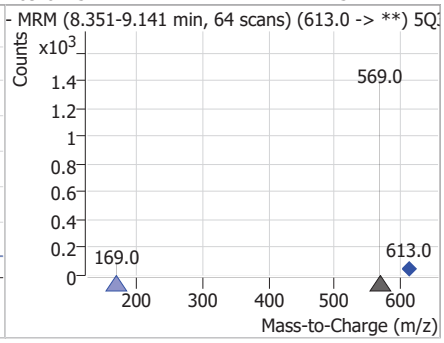


Perfluorinated Compounds by LC/MS/MS

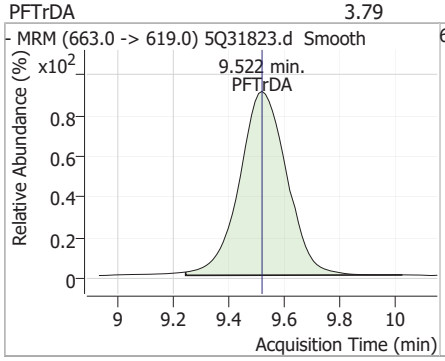
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	4.52	8.60	0.00	64076	613.0 -> 169.0	3.1	1.4	4.3

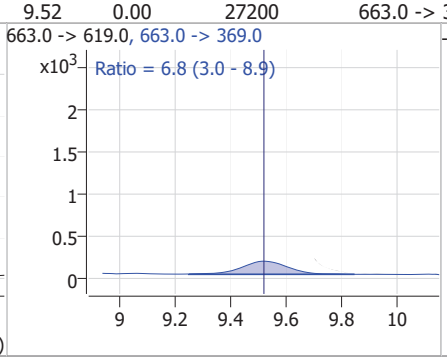


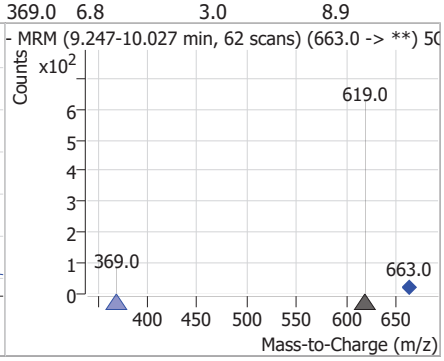




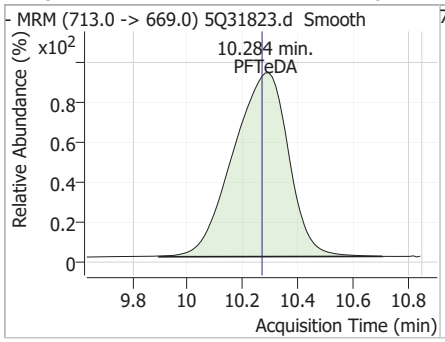
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	3.79	9.52	0.00	27200	663.0 -> 369.0	6.8	3.0	8.9

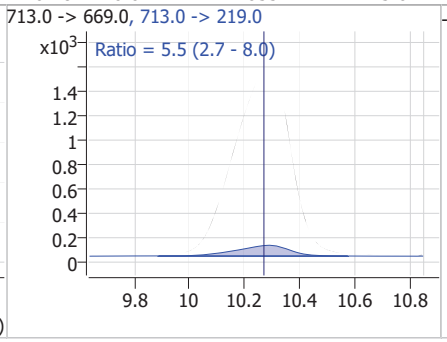


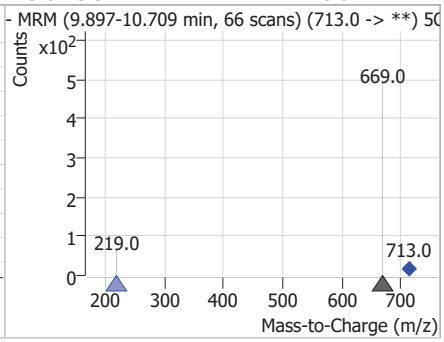




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	4.48	10.28	0.01	22055	713.0 -> 219.0	5.5	2.7	8.0







7.7.43

7

Manual Integration Approval Summary

Sample Number: S5Q523-IC523
Lab FileID: 5Q31823.D
Injection Time: 04/17/25 13:28
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6)
Supervisor approved: 04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

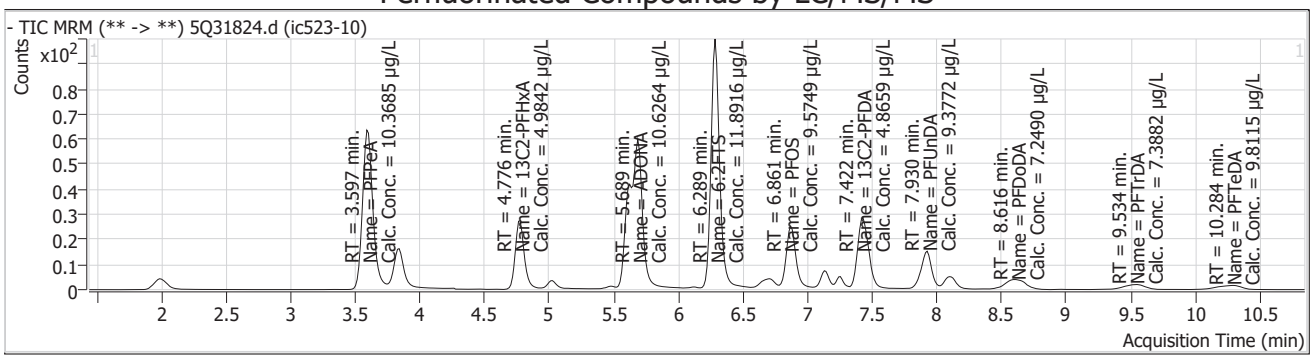
Data File : 5Q31824.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 1:44:57 PM
Sample Name : ic523-10
Vial : P1-A6
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.288	429.0 -> 409.0	203951	20.00	µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	433345	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	542680	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	105701	20.00	µg/L		0.000
d3-MeFOSAA	7.254	573.0 -> 419.0	31471	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.422	515.0 -> 470.0	90239	4.87	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 24.3%			
13C2-PFHxA	4.776	315.0 -> 270.0	136859	4.98	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 24.9%			
d5-EtFOSAA	7.378	589.0 -> 419.0	6164	10.32	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 25.8%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	18304	9.43	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 23.6%			
Target Compounds							QValue
6:2FTS	6.289	427.0 -> 407.0	121557	11.89	µg/L		98
8:2FTS	7.471	527.0 -> 507.0	96381	10.87	µg/L		98
EtFOSAA	7.391	584.0 -> 419.0	6049	11.48	µg/L	m	90
MeFOSAA	7.254	570.0 -> 419.0	7079	10.02	µg/L	m	81
PFBS	3.841	299.0 -> 80.0	143181	10.35	µg/L		97
PFDA	7.423	513.0 -> 469.0	164327	10.72	µg/L		99
PFDoDA	8.616	613.0 -> 569.0	109833	7.25	µg/L		99
PFHpA	5.615	363.0 -> 319.0	377013	10.74	µg/L		100
PFHxA	4.765	313.0 -> 269.0	187789	10.05	µg/L		100
PFHxS	5.648	399.0 -> 80.0	88995	10.42	µg/L	m	99
PFNA	6.887	463.0 -> 419.0	149164	10.92	µg/L	m	99
PFOA	6.291	413.0 -> 369.0	213618	10.41	µg/L		99
PFOS	6.861	499.0 -> 80.0	66764	9.57	µg/L	m	99
PFPeA	3.597	263.0 -> 219.0	360662	10.37	µg/L		100
PFTeDA	10.284	713.0 -> 669.0	52042	9.81	µg/L		99
PFTrDA	9.534	663.0 -> 619.0	56521	7.39	µg/L		98
PFUnDA	7.930	563.0 -> 519.0	162667	9.38	µg/L		100
ADONA	5.689	377.0 -> 251.0	480631	10.63	µg/L		100
9Cl-PF3ONS	7.131	531.0 -> 351.0	60069	10.50	µg/L		98
11Cl-PF3OUdS	8.100	631.0 -> 451.0	59715	9.97	µg/L		98
HFPO-DA	5.035	285.0 -> 169.0	17779	10.66	µg/L		100

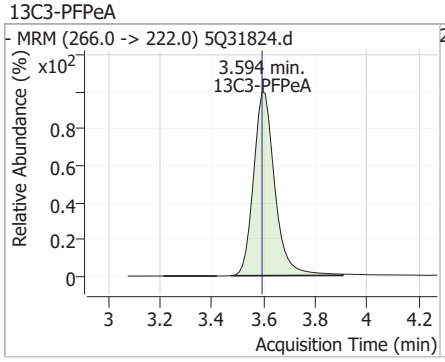
 # = Qualifier out of range, m = manually integrated, + = Area summed

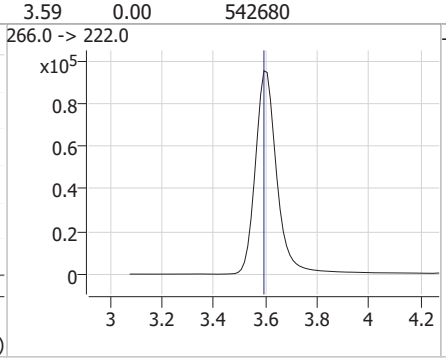
7.7.44
7

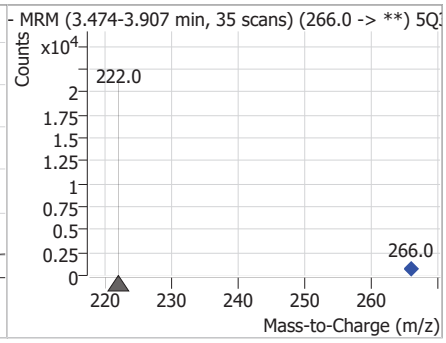
Perfluorinated Compounds by LC/MS/MS



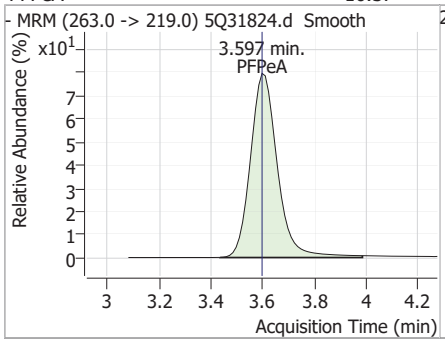
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	542680				

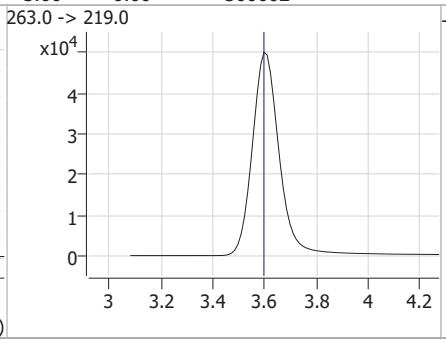


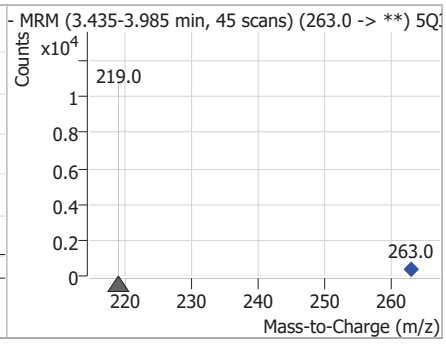




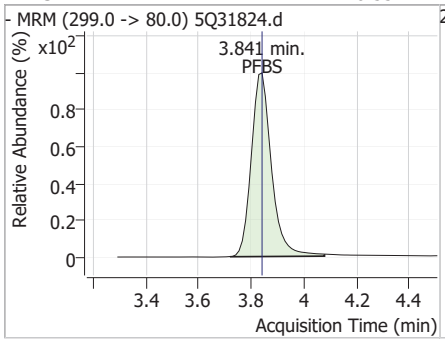
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	10.37	3.60	0.00	360662				

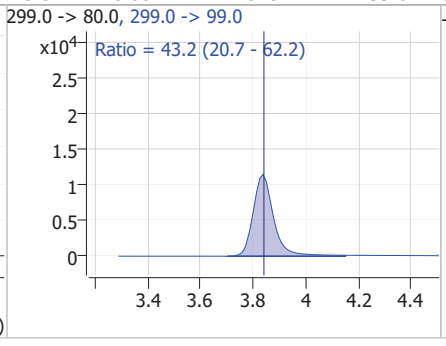


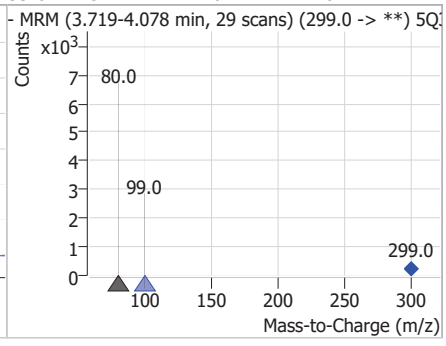




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	10.35	3.84	0.00	143181	299.0 -> 99.0	43.2	20.7	62.2







7.7.44

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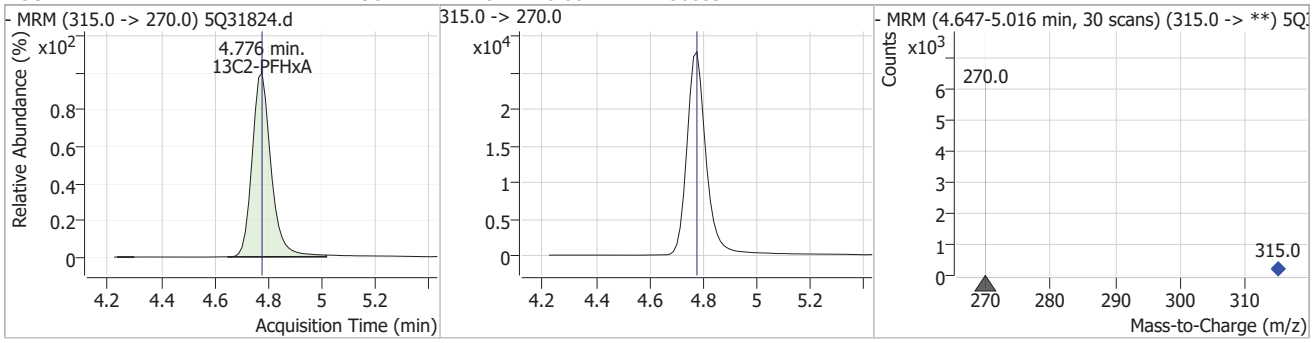
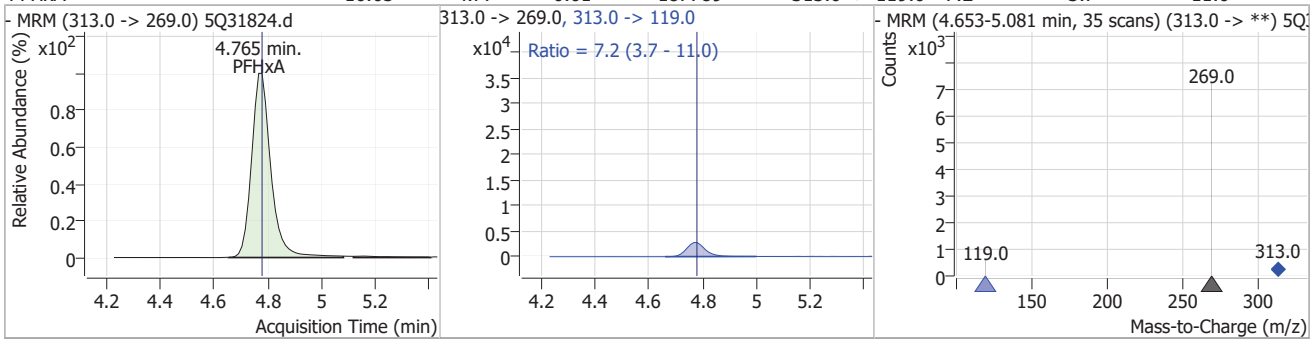
Perfluorinated Compounds by LC/MS/MS

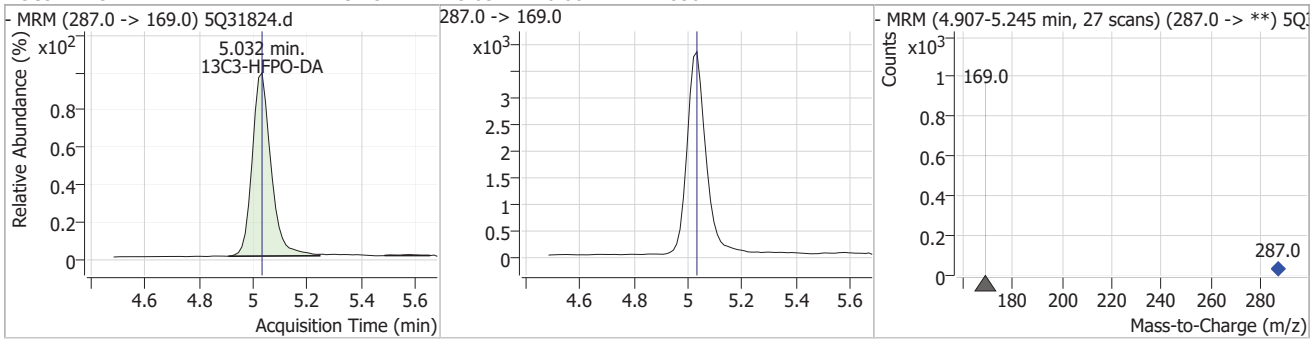
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	4.98	4.78	0.00	136859				



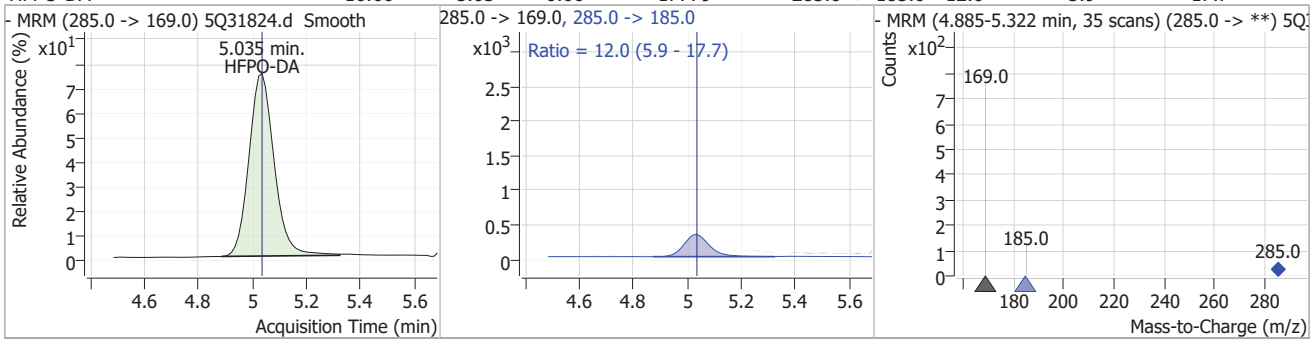
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	10.05	4.77	-0.01	187789	313.0 -> 119.0	7.2	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.43	5.03	0.00	18304				

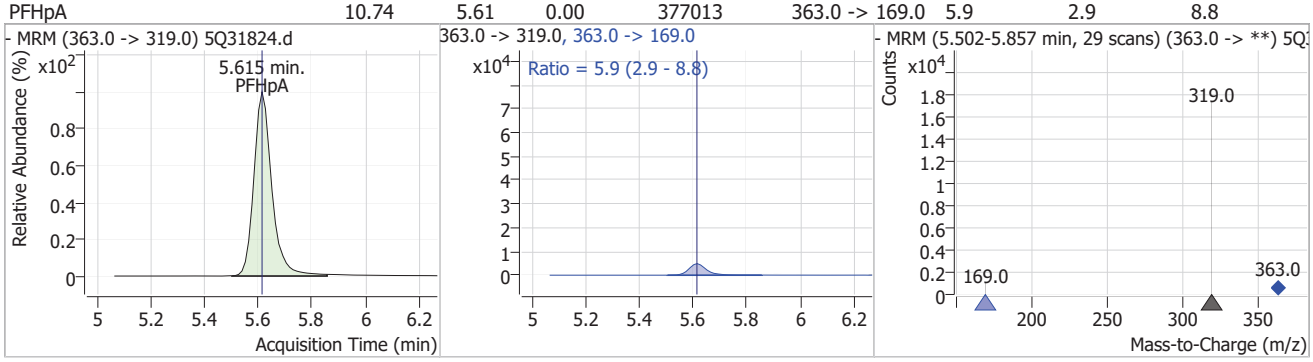


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	10.66	5.03	0.00	17779	285.0 -> 185.0	12.0	5.9	17.7

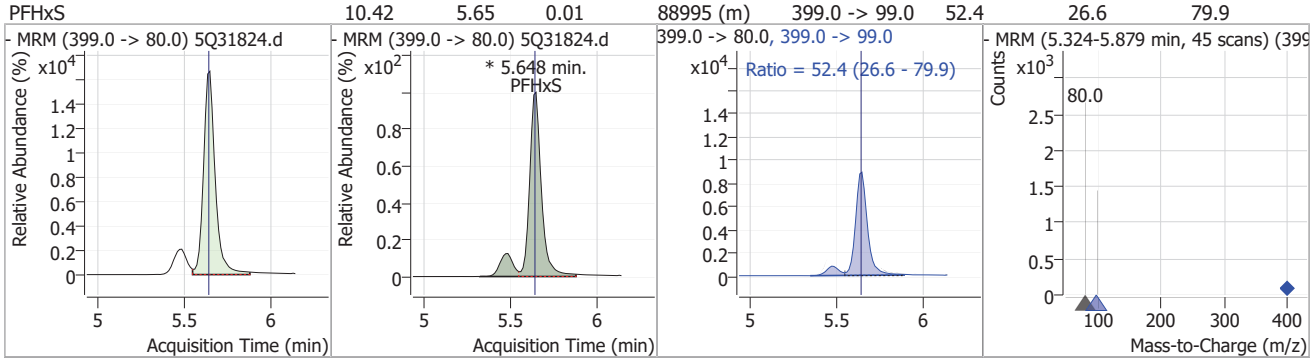


Perfluorinated Compounds by LC/MS/MS

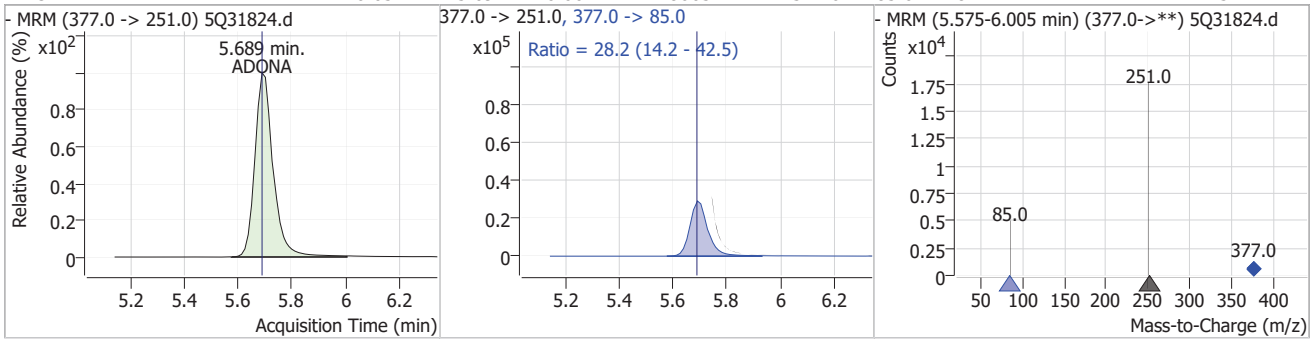
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	10.74	5.61	0.00	377013	363.0 -> 169.0	5.9	2.9	8.8



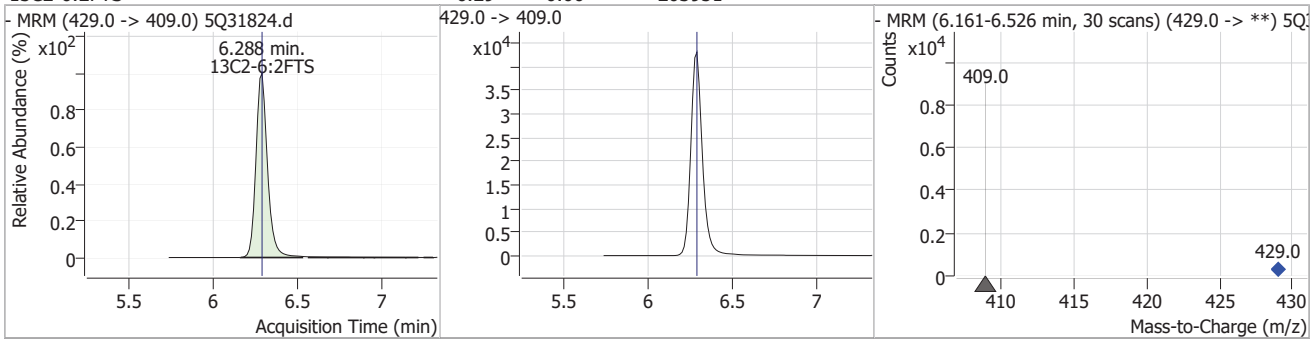
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	10.42	5.65	0.01	88995 (m)	399.0 -> 99.0	52.4	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	10.63	5.69	0.00	480631	377.0 -> 85.0	28.2	14.2	42.5

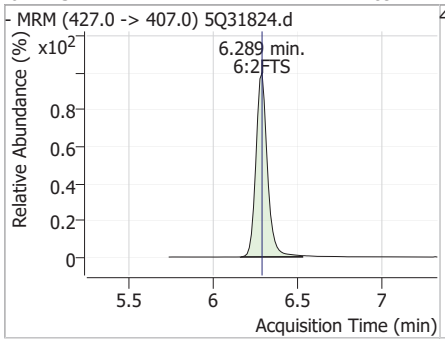


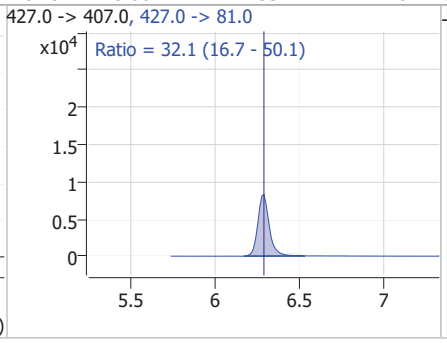
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	203951				

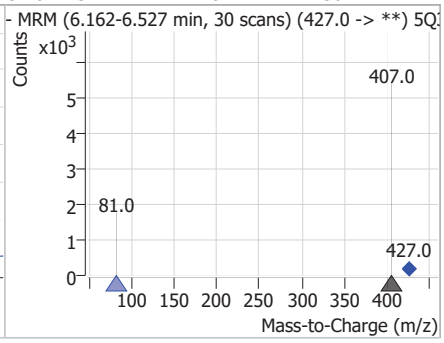


Perfluorinated Compounds by LC/MS/MS

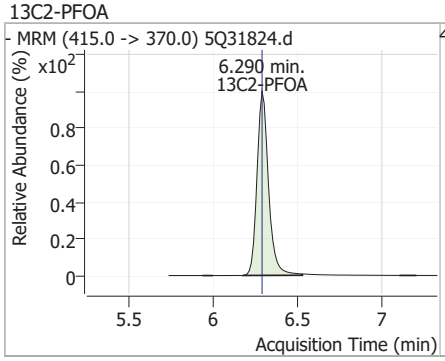
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	11.89	6.29	0.00	121557	427.0 -> 81.0	32.1	16.7	50.1

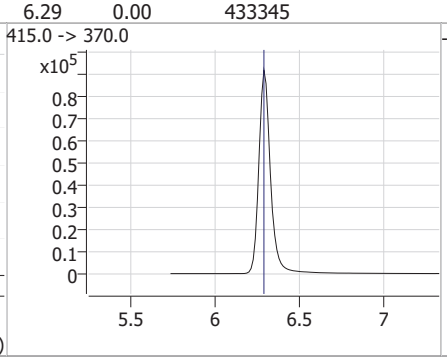


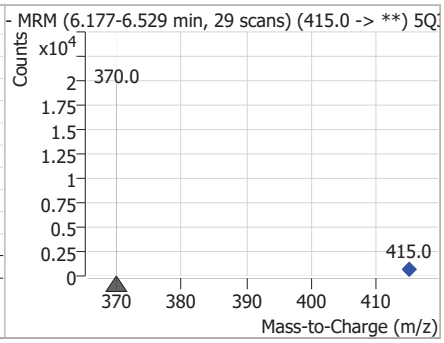




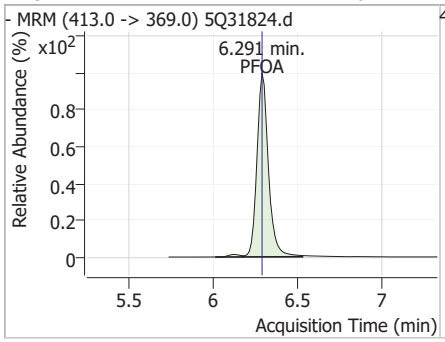
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	433345				

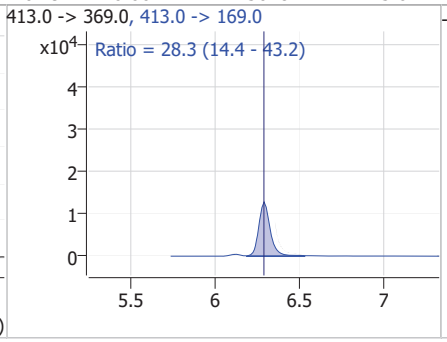


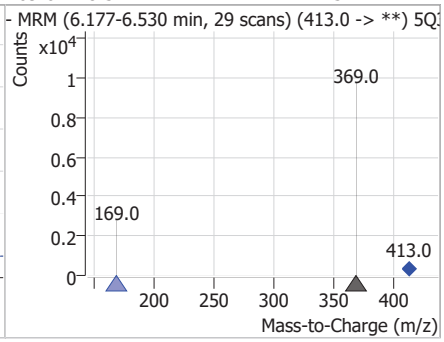




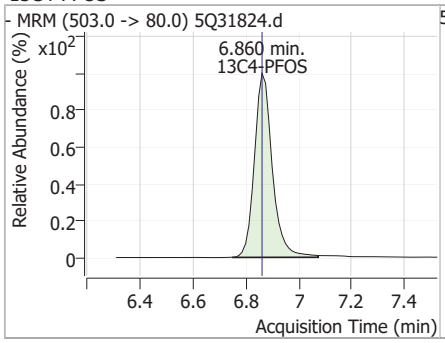
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	10.41	6.29	0.00	213618	413.0 -> 169.0	28.3	14.4	43.2

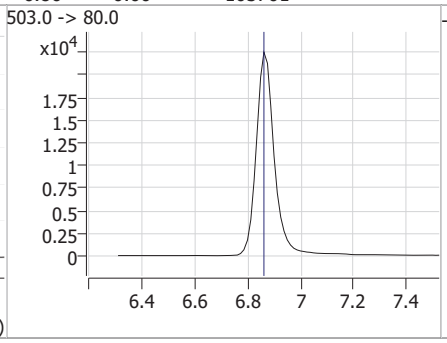


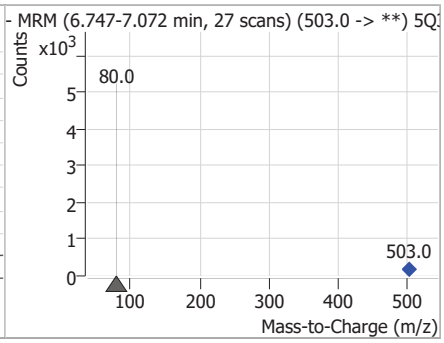




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	105701				

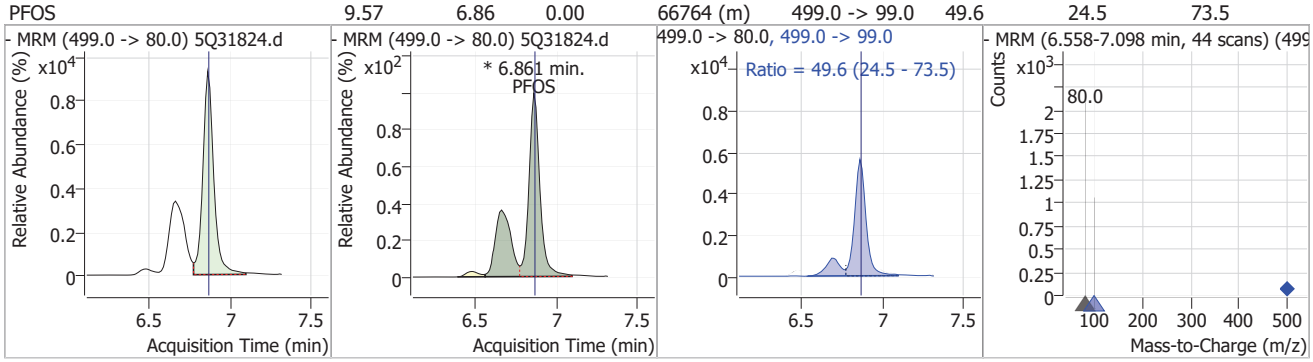




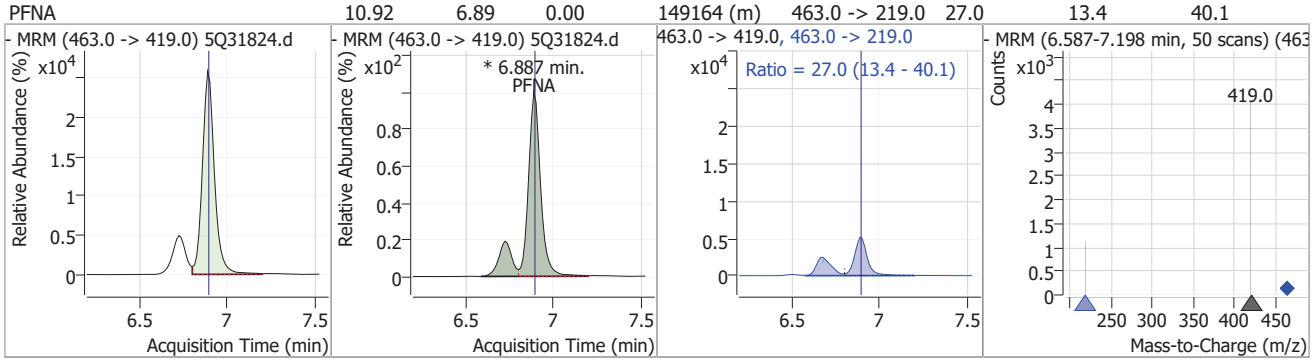


Perfluorinated Compounds by LC/MS/MS

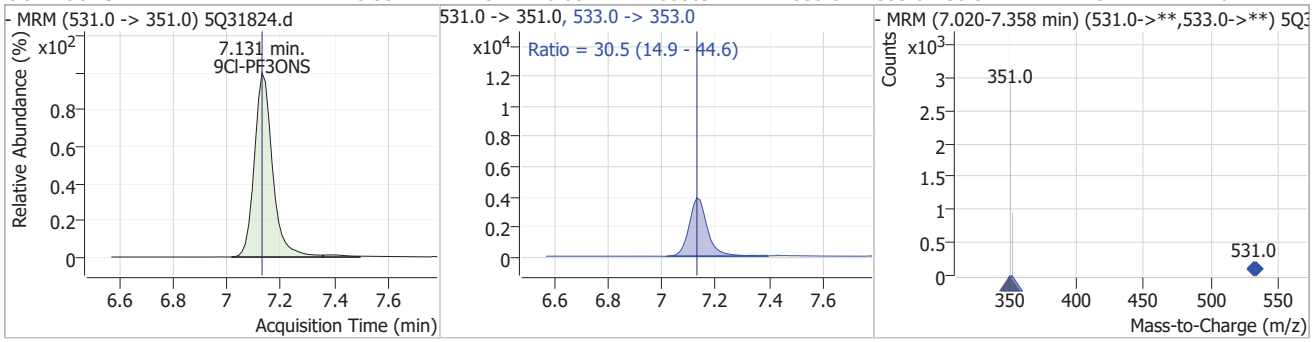
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	9.57	6.86	0.00	66764 (m)	499.0 -> 99.0	49.6	24.5	73.5



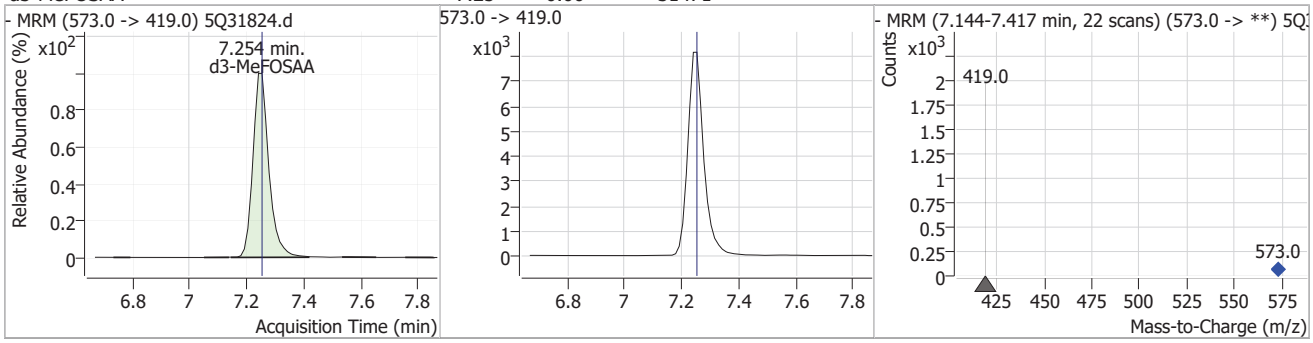
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	10.92	6.89	0.00	149164 (m)	463.0 -> 219.0	27.0	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	10.50	7.13	0.00	60069	533.0 -> 353.0	30.5	14.9	44.6

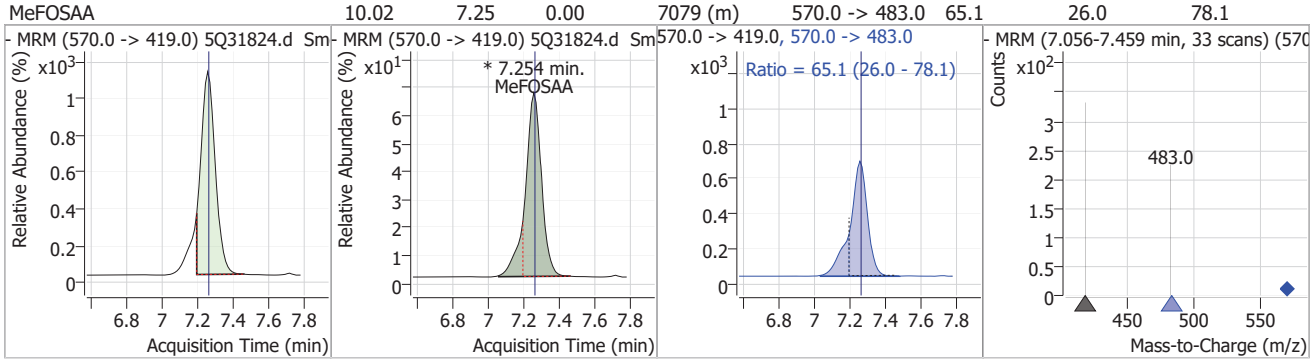


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	31471				

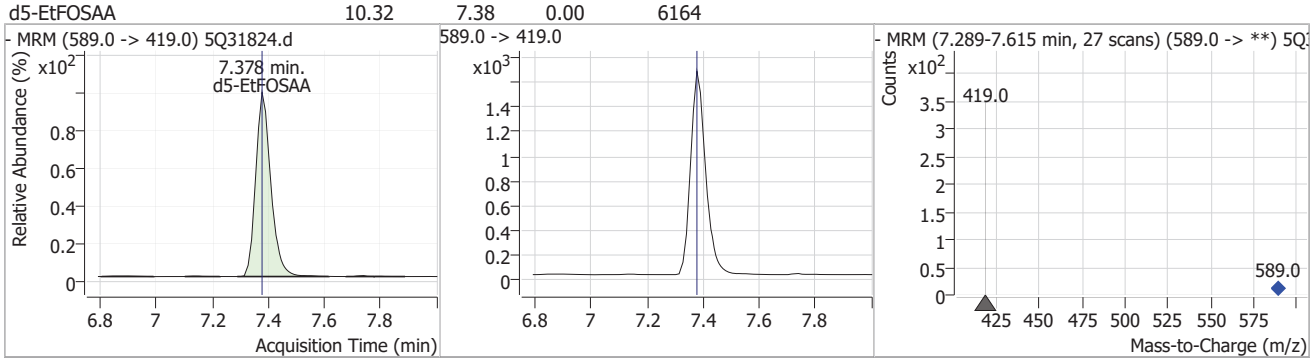


Perfluorinated Compounds by LC/MS/MS

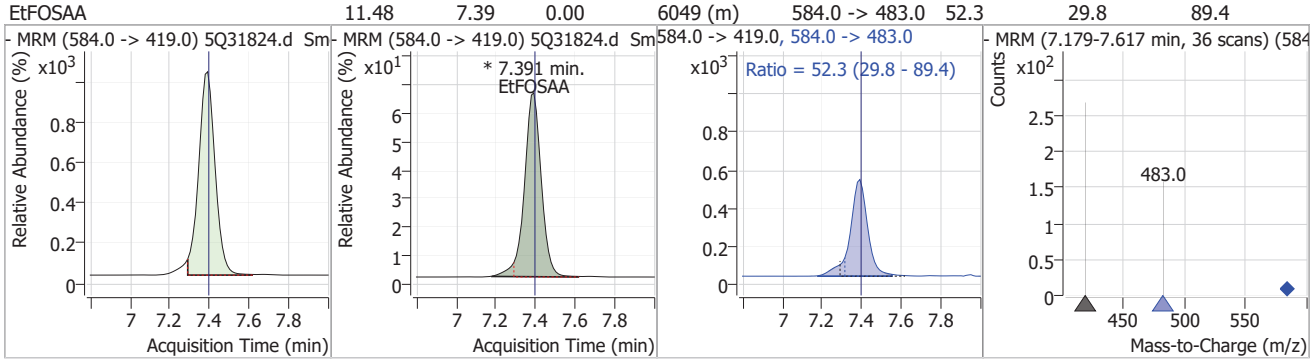
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	10.02	7.25	0.00	7079 (m)	570.0 -> 483.0	65.1	26.0	78.1



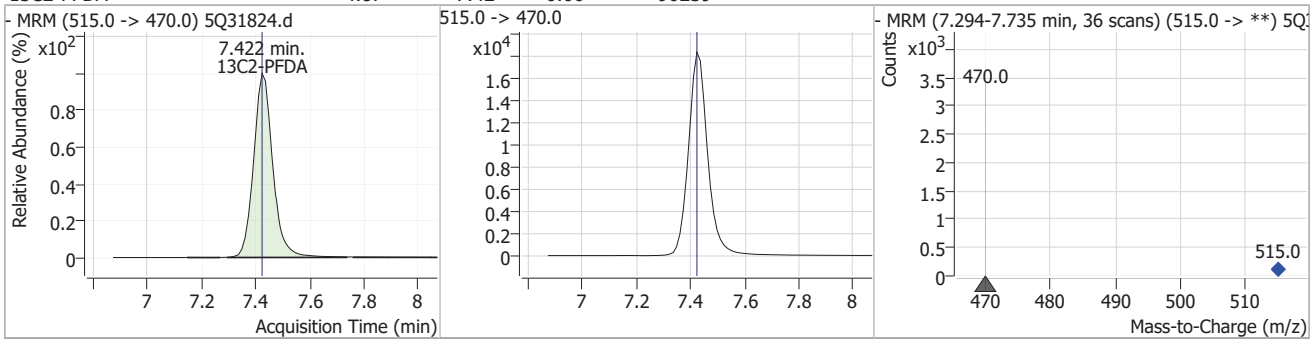
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	10.32	7.38	0.00	6164				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	11.48	7.39	0.00	6049 (m)	584.0 -> 483.0	52.3	29.8	89.4

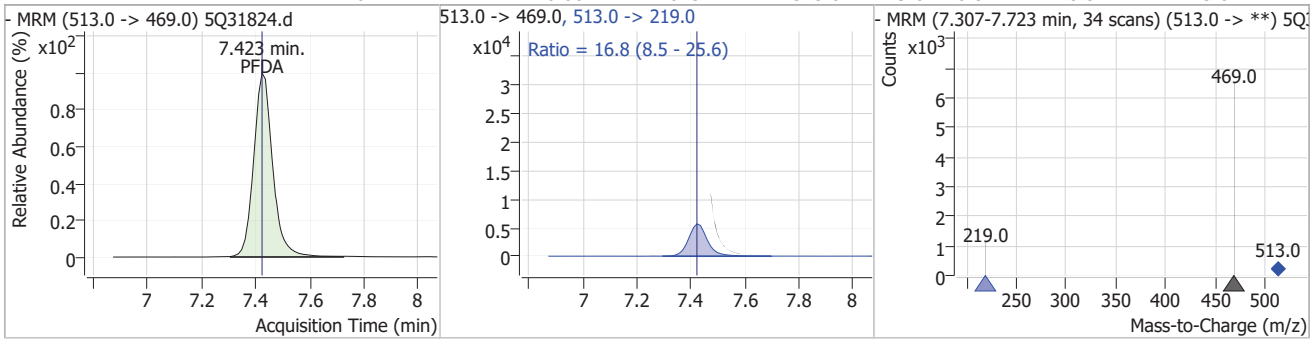


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	4.87	7.42	0.00	90239				

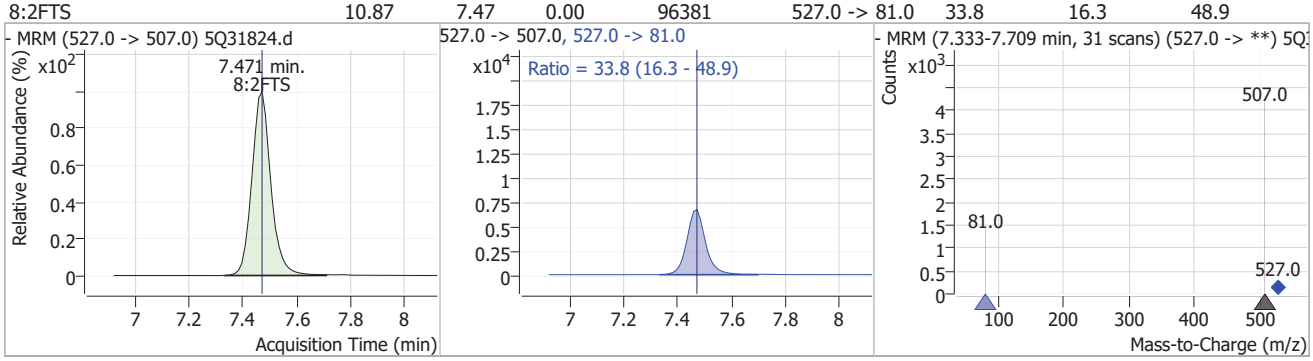


Perfluorinated Compounds by LC/MS/MS

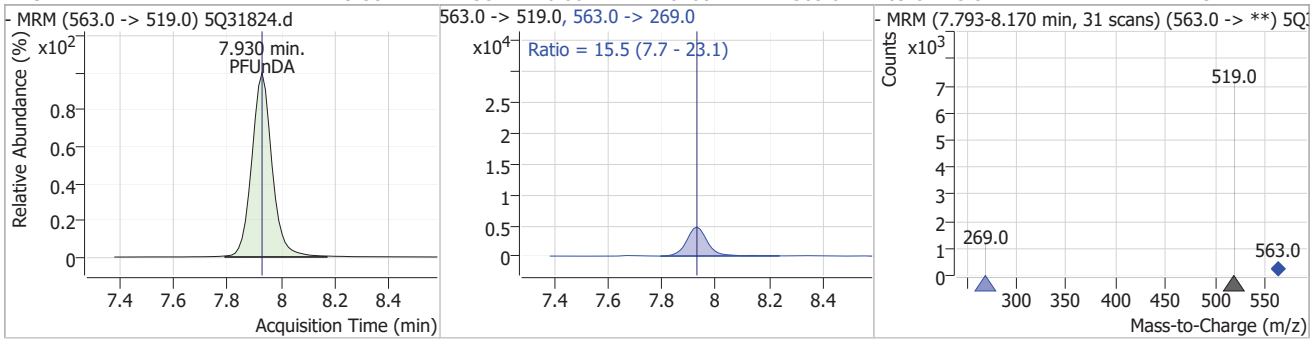
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	10.72	7.42	0.00	164327	513.0 -> 219.0	16.8	8.5	25.6



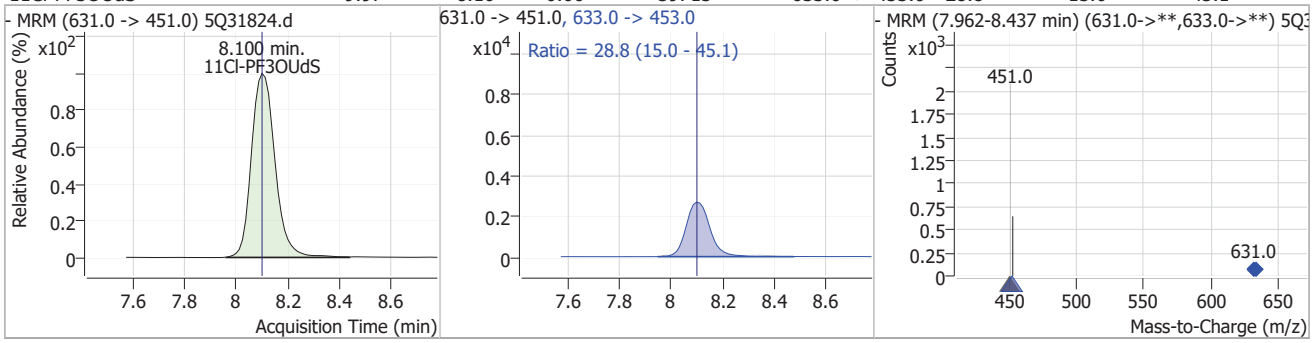
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	10.87	7.47	0.00	96381	527.0 -> 81.0	33.8	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	9.38	7.93	0.00	162667	563.0 -> 269.0	15.5	7.7	23.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	9.97	8.10	0.00	59715	633.0 -> 453.0	28.8	15.0	45.1



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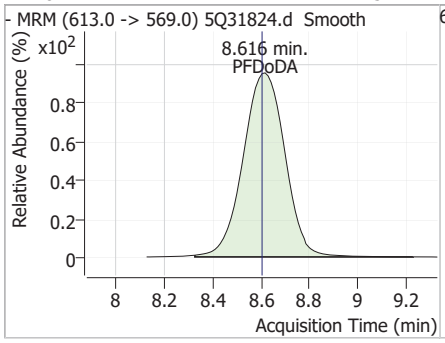
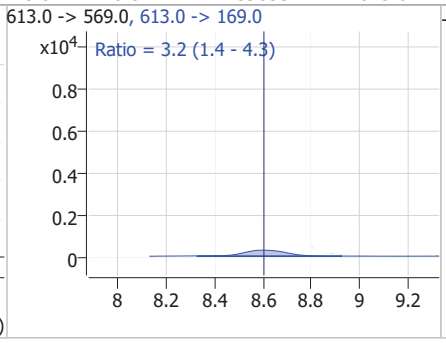
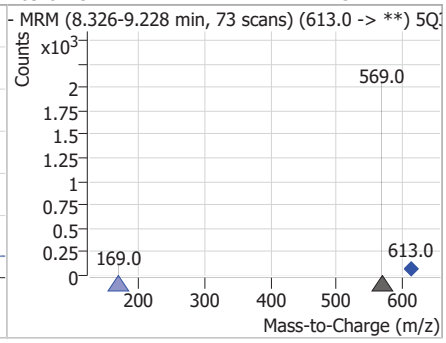
Perfluorinated Compounds by LC/MS/MS

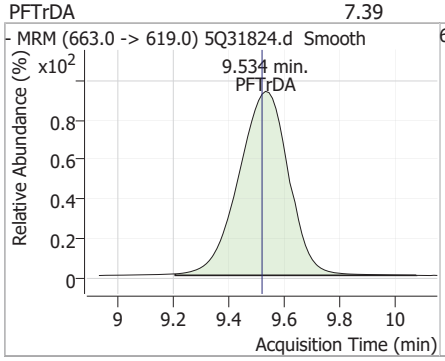
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	7.25	8.62	0.01	109833	613.0 -> 169.0	3.2	1.4	4.3

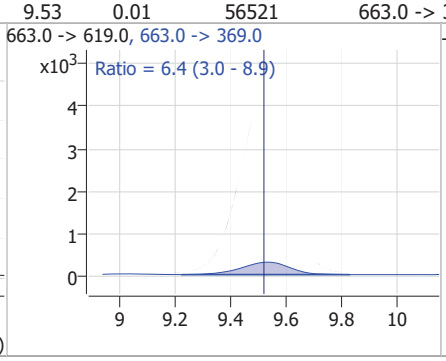


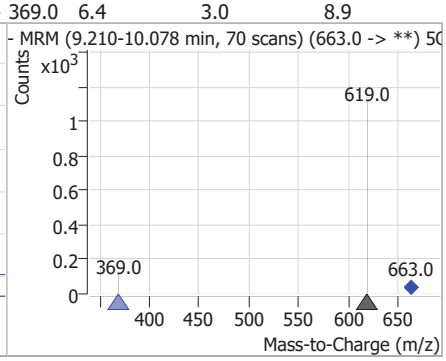




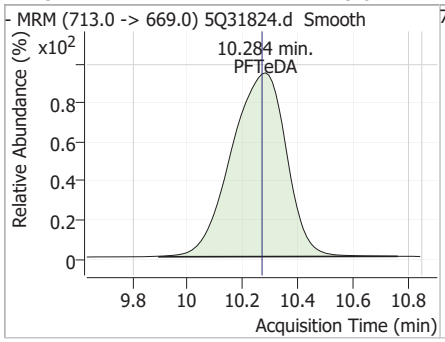
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	7.39	9.53	0.01	56521	663.0 -> 369.0	6.4	3.0	8.9

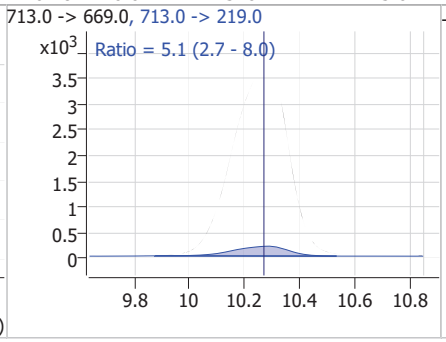


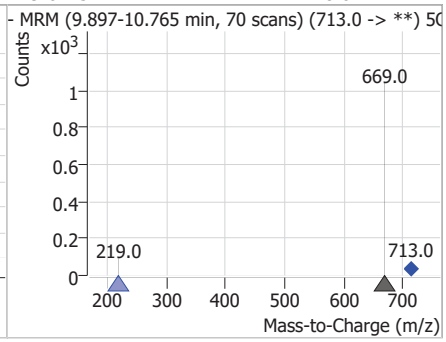




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	9.81	10.28	0.01	52042	713.0 -> 219.0	5.1	2.7	8.0







7.7.44

7

Manual Integration Approval Summary

Sample Number:	S5Q523-IC523	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31824.D	**Analyst approved:**	04/18/25 07:39 (b) (6)
Injection Time:	04/17/25 13:44	**Supervisor approved:**	04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

5Q31825.D

Manual Integrations APPROVED (compounds with "m" flag)

(b) (6)

04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31825.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 2:01:21 PM
Sample Name : icc523-20
Vial : P1-A7
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.288	429.0 -> 409.0	200480	20.00	µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	416202	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	511459	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	97672	20.00	µg/L		0.000
d3-MeFOSAA	7.254	573.0 -> 419.0	29996	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.422	515.0 -> 470.0	163629	9.19	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 45.9%			
13C2-PFHxA	4.776	315.0 -> 270.0	244472	9.27	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 46.4%			
d5-EtFOSAA	7.378	589.0 -> 419.0	12403	21.79	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 54.5%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	32626	17.51	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 43.8%			
Target Compounds							QValue
6:2FTS	6.289	427.0 -> 407.0	228827	22.77	µg/L		100
8:2FTS	7.471	527.0 -> 507.0	188311	21.60	µg/L		100
EtFOSAA	7.391	584.0 -> 419.0	10107	20.13	µg/L	m	100
MeFOSAA	7.254	570.0 -> 419.0	14346	21.19	µg/L	m	100
PFBS	3.841	299.0 -> 80.0	266227	20.83	µg/L		99
PFDA	7.423	513.0 -> 469.0	304299	20.46	µg/L		100
PFDoDA	8.604	613.0 -> 569.0	270954	19.01	µg/L		100
PFHpA	5.615	363.0 -> 319.0	671426	19.69	µg/L		100
PFHxA	4.765	313.0 -> 269.0	338585	18.87	µg/L		100
PFHxS	5.636	399.0 -> 80.0	161508	20.24	µg/L	m	100
PFNA	6.887	463.0 -> 419.0	281368	20.91	µg/L	m	100
PFOA	6.291	413.0 -> 369.0	397717	20.05	µg/L		100
PFOS	6.861	499.0 -> 80.0	122325	18.99	µg/L	m	100
PFPeA	3.597	263.0 -> 219.0	654039	19.86	µg/L		100
PFTeDA	10.284	713.0 -> 669.0	98893	19.73	µg/L		100
PFTrDA	9.522	663.0 -> 619.0	115573	16.35	µg/L		100
PFUnDA	7.930	563.0 -> 519.0	315528	19.68	µg/L		100
ADONA	5.689	377.0 -> 251.0	870356	19.72	µg/L		100
9Cl-PF3ONS	7.131	531.0 -> 351.0	114560	20.27	µg/L		100
11Cl-PF3OUdS	8.100	631.0 -> 451.0	118950	19.91	µg/L		100
HFPO-DA	5.035	285.0 -> 169.0	31778	19.55	µg/L		99

 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.45

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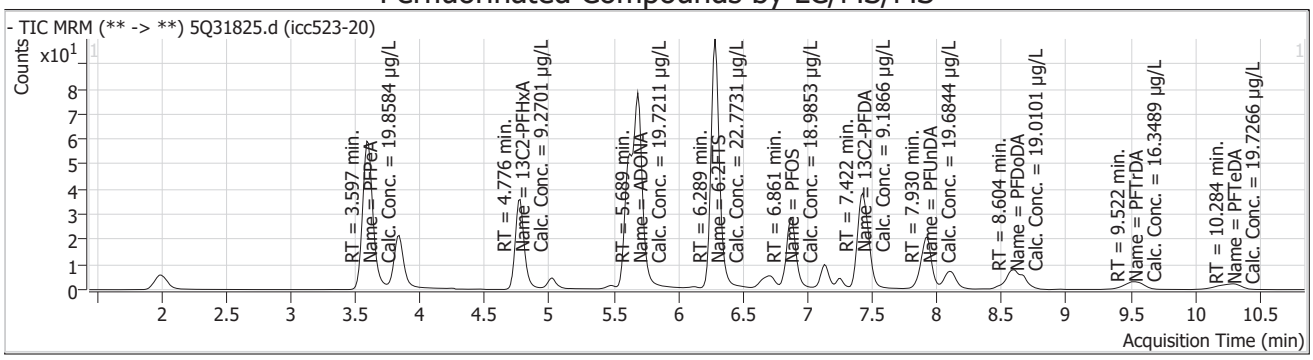
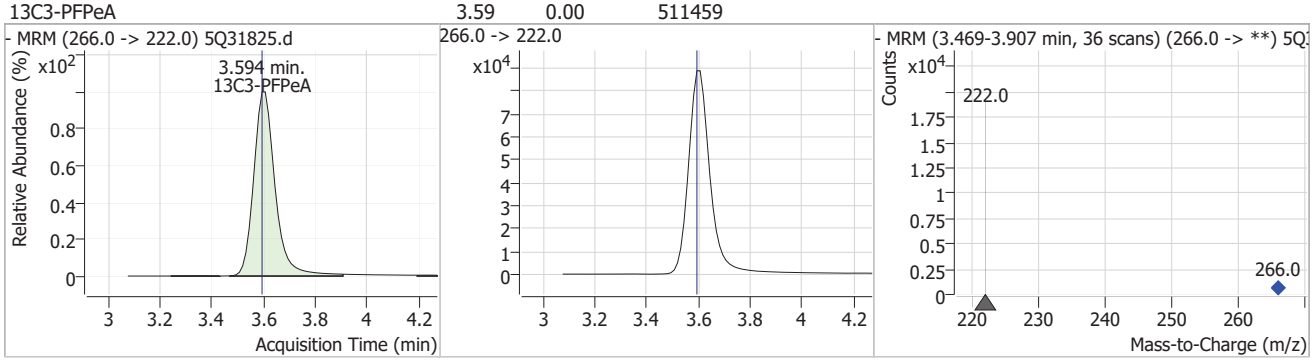
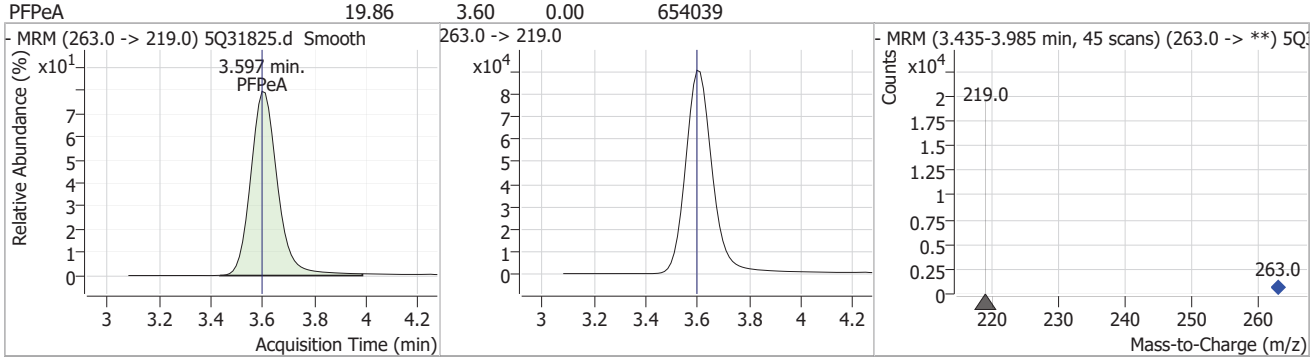
Perfluorinated Compounds by LC/MS/MS



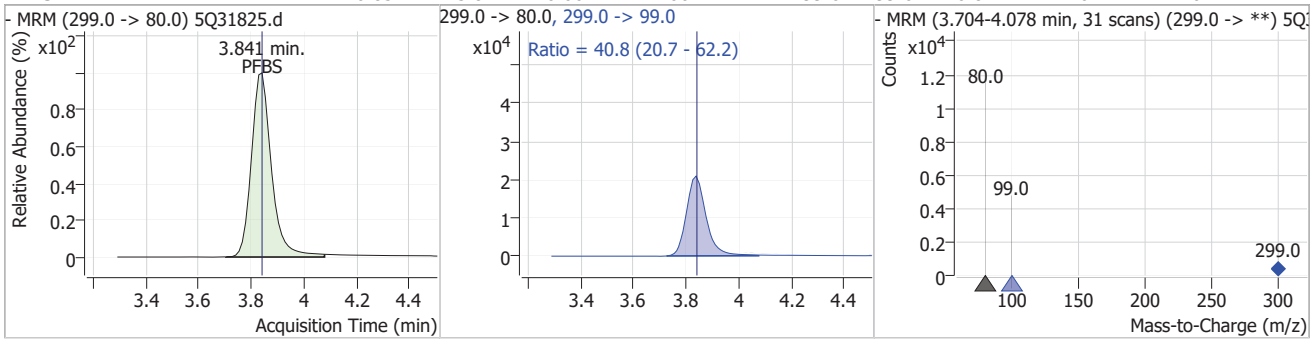
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	511459				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.86	3.60	0.00	654039				

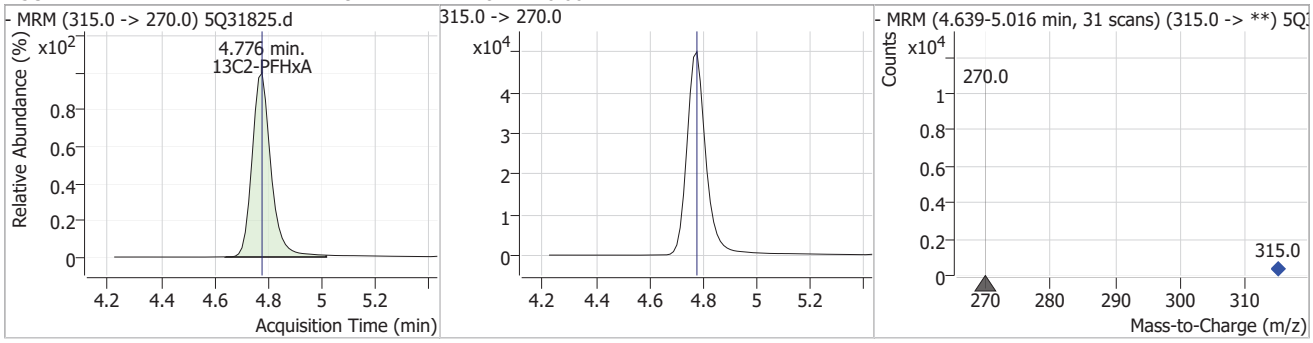


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.83	3.84	0.00	266227	299.0 -> 99.0	40.8	20.7	62.2

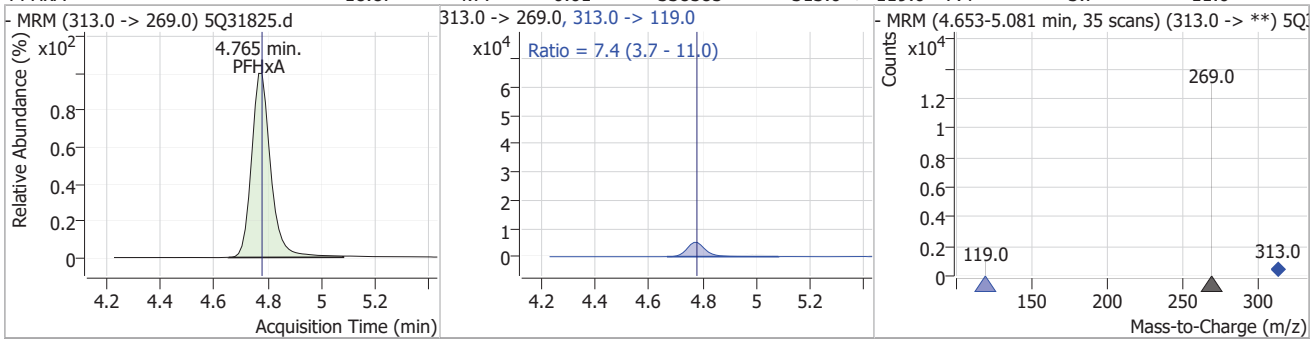


Perfluorinated Compounds by LC/MS/MS

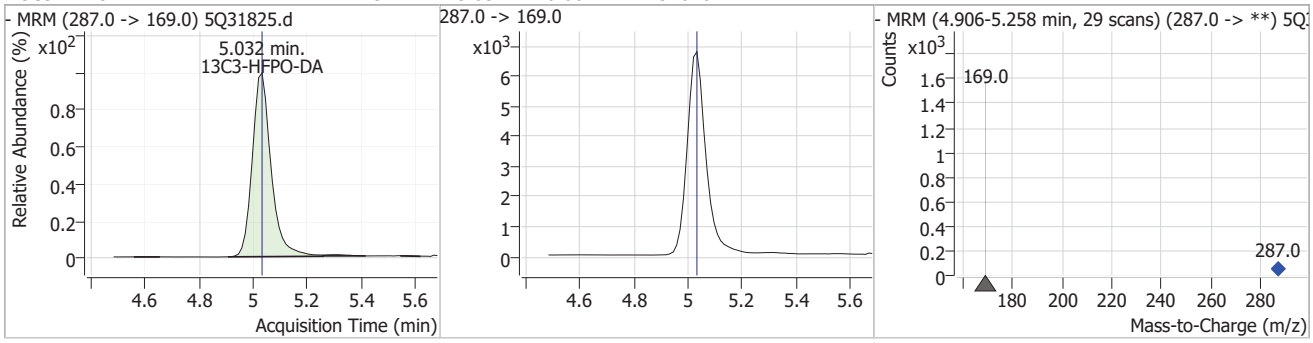
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	9.27	4.78	0.00	244472				



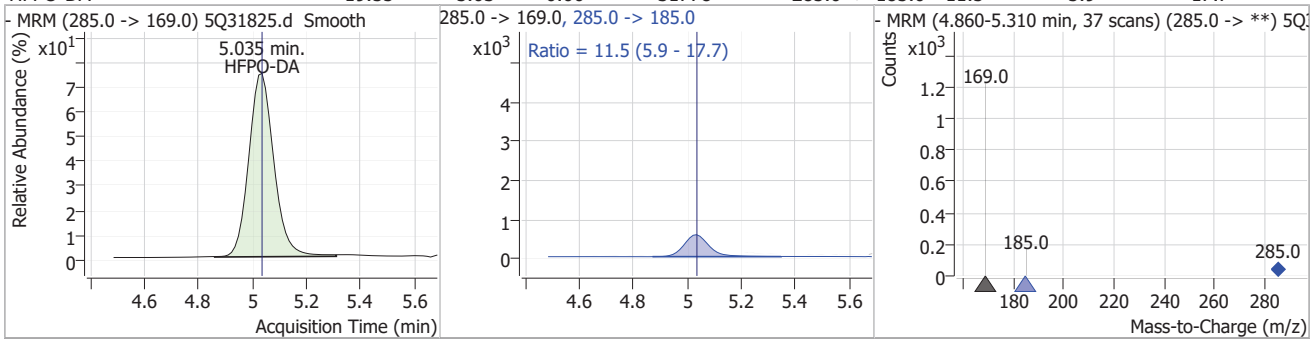
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	18.87	4.77	-0.01	338585	313.0 -> 119.0	7.4	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	17.51	5.03	0.00	32626				

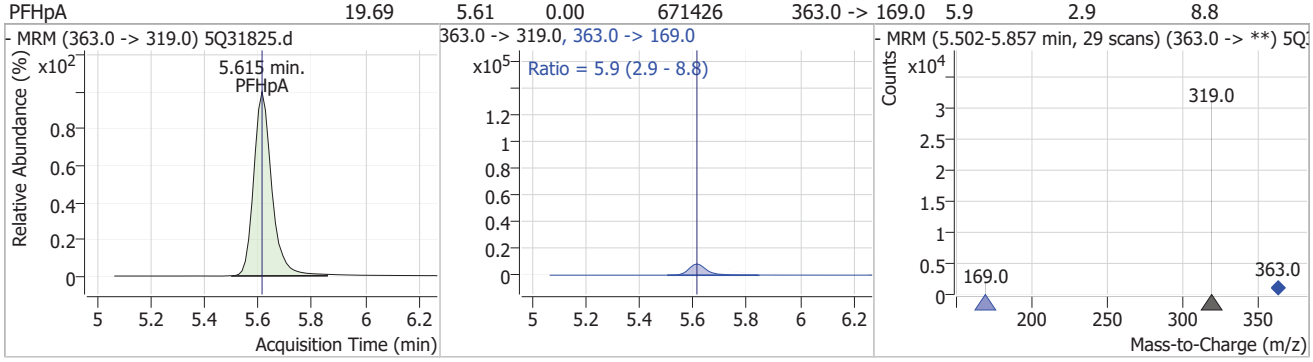


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.55	5.03	0.00	31778	285.0 -> 185.0	11.5	5.9	17.7

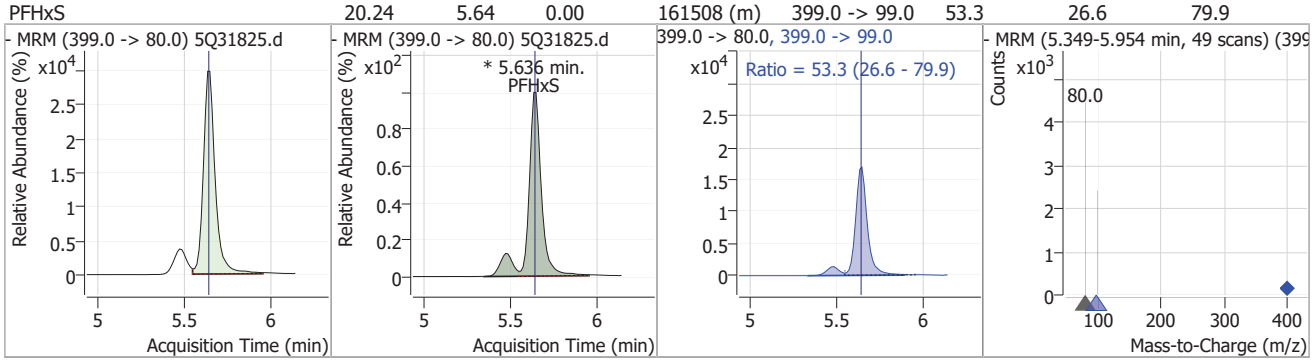


Perfluorinated Compounds by LC/MS/MS

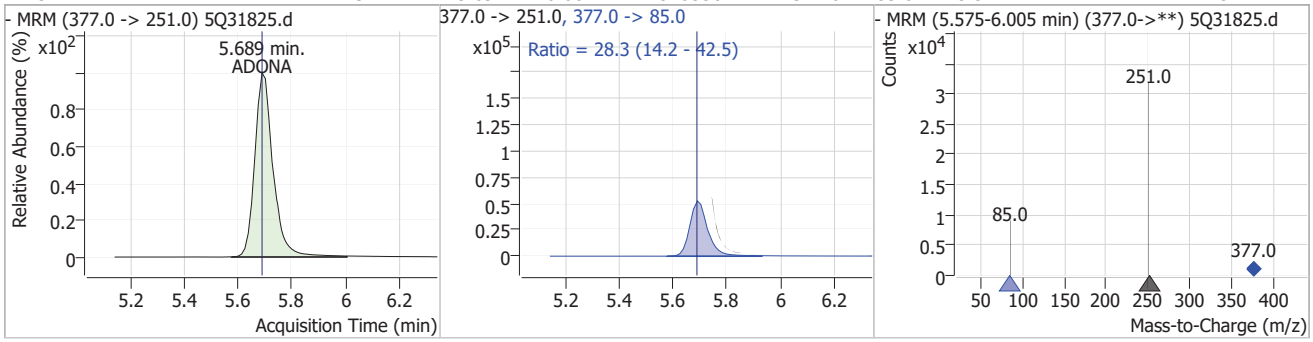
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.69	5.61	0.00	671426	363.0 -> 169.0	5.9	2.9	8.8



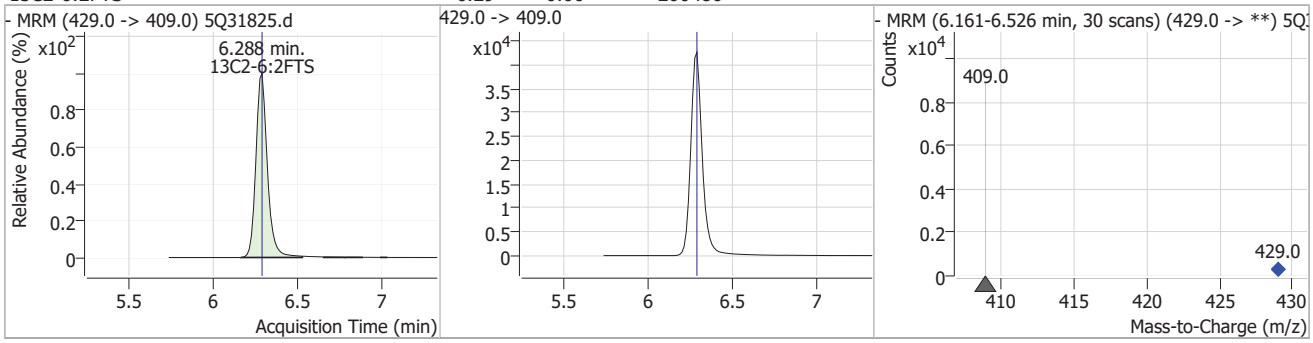
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	20.24	5.64	0.00	161508 (m)	399.0 -> 99.0	53.3	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.72	5.69	0.00	870356	377.0 -> 85.0	28.3	14.2	42.5

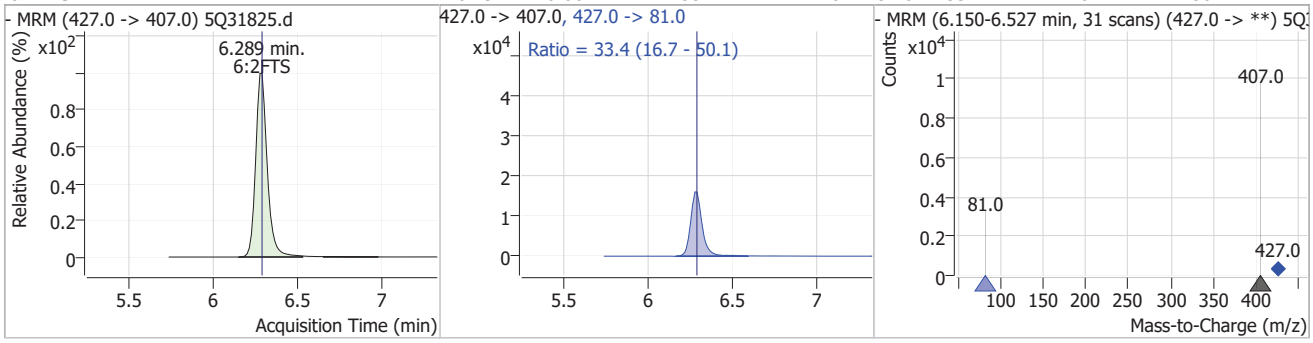


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	200480				

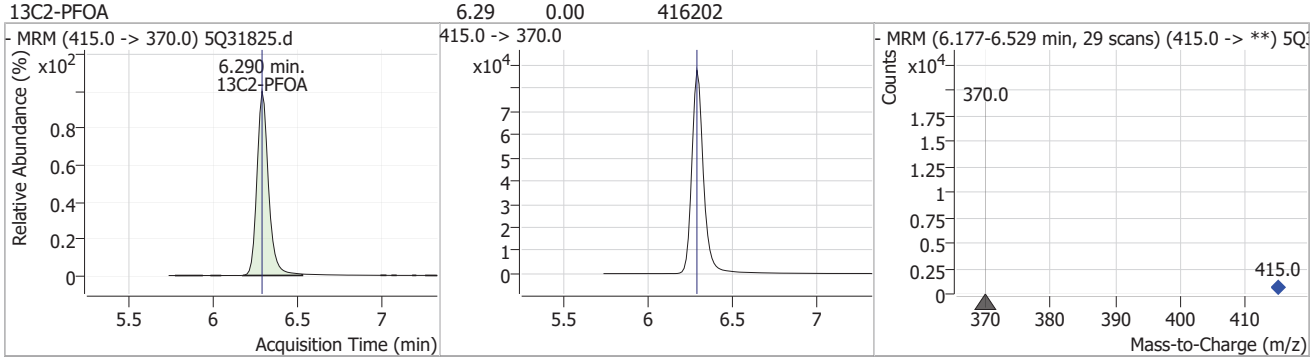


Perfluorinated Compounds by LC/MS/MS

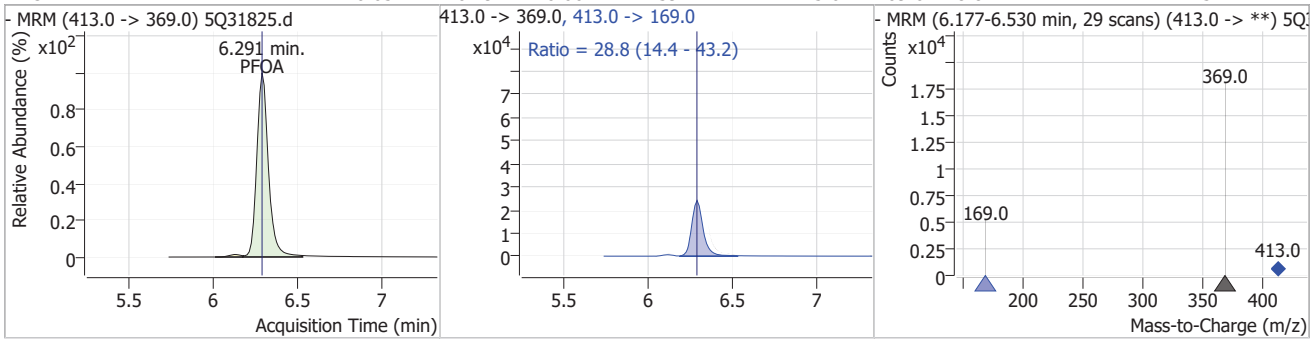
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	22.77	6.29	0.00	228827	427.0 -> 81.0	33.4	16.7	50.1



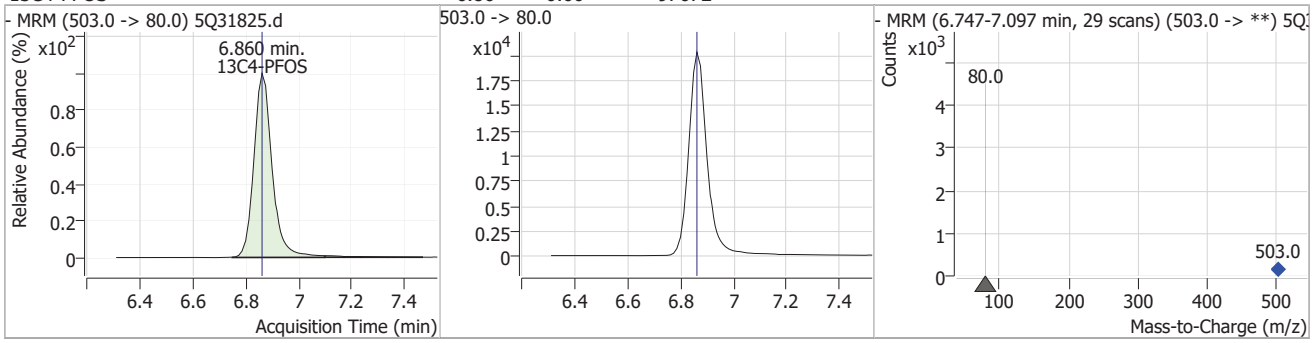
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	416202				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.05	6.29	0.00	397717	413.0 -> 169.0	28.8	14.4	43.2

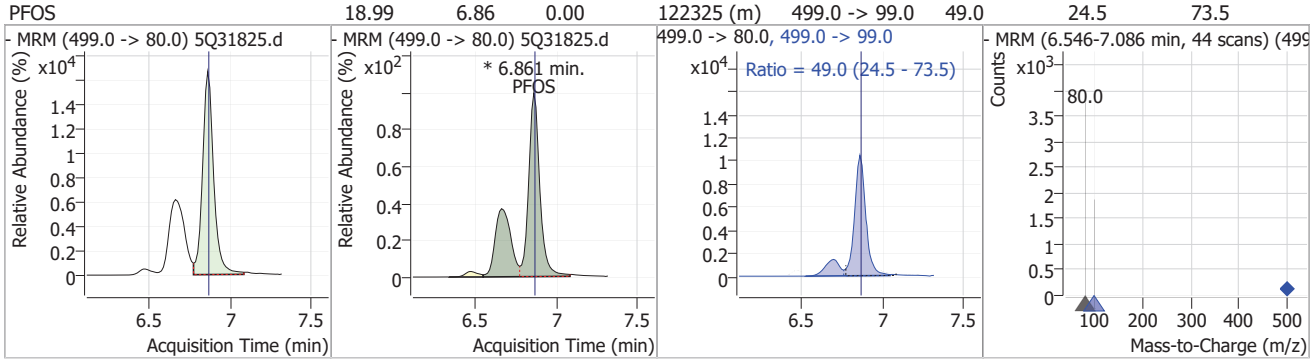


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	97672				

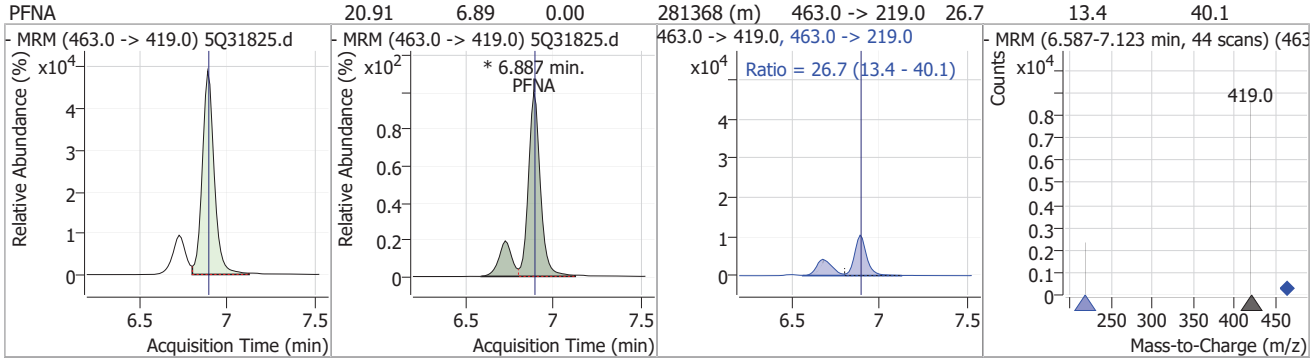


Perfluorinated Compounds by LC/MS/MS

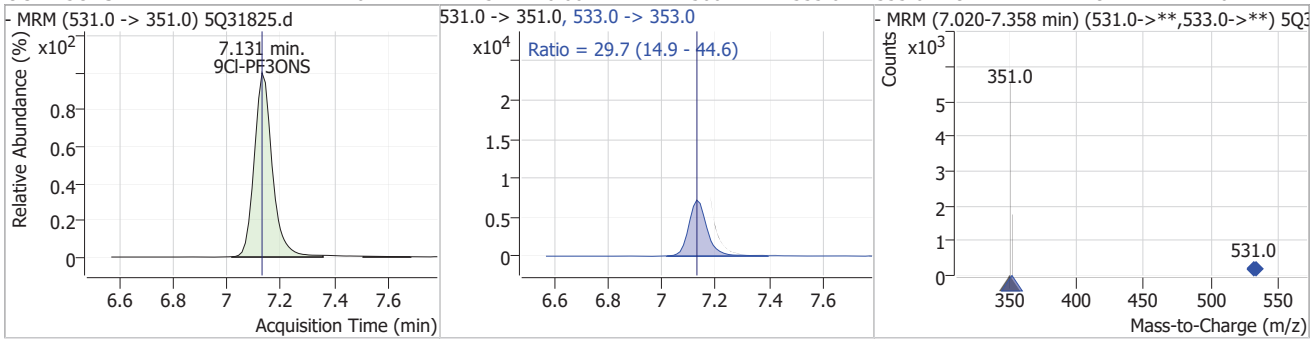
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.99	6.86	0.00	122325 (m)	499.0 -> 99.0	49.0	24.5	73.5



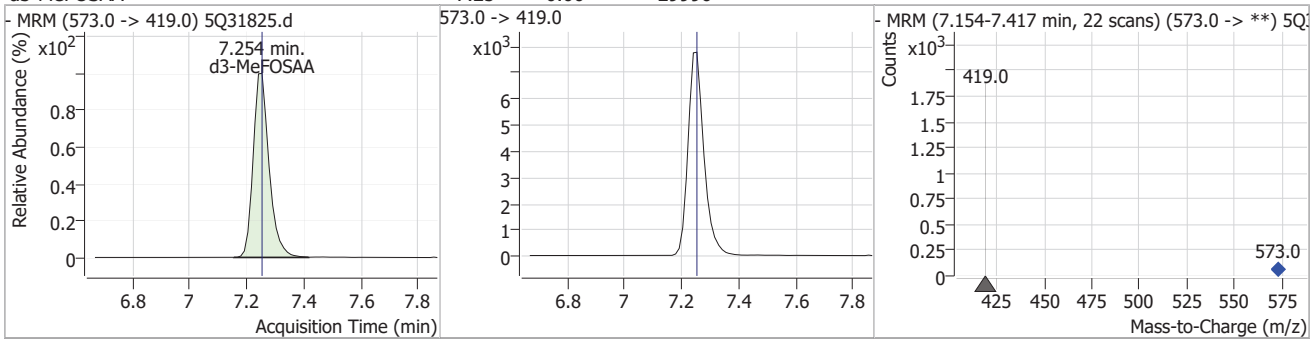
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	20.91	6.89	0.00	281368 (m)	463.0 -> 219.0	26.7	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	20.27	7.13	0.00	114560	533.0 -> 353.0	29.7	14.9	44.6

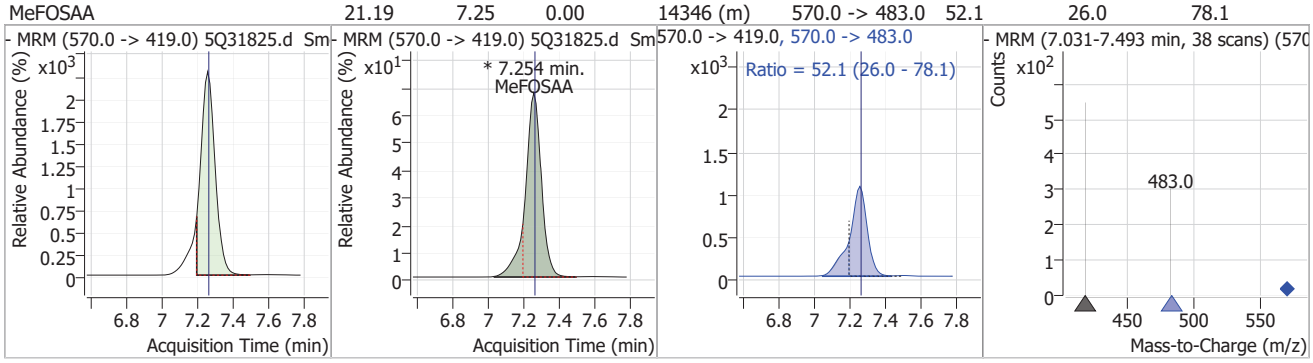


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	29996				

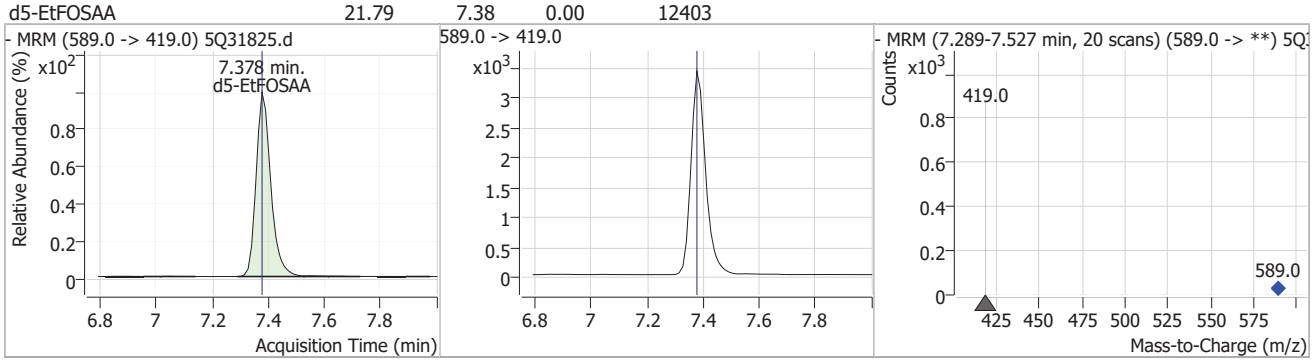


Perfluorinated Compounds by LC/MS/MS

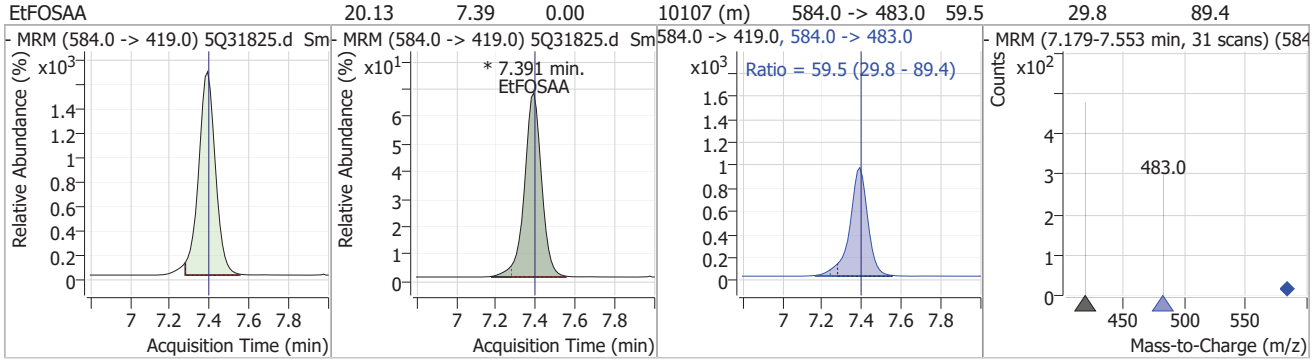
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	21.19	7.25	0.00	14346 (m)	570.0 -> 483.0	52.1	26.0	78.1



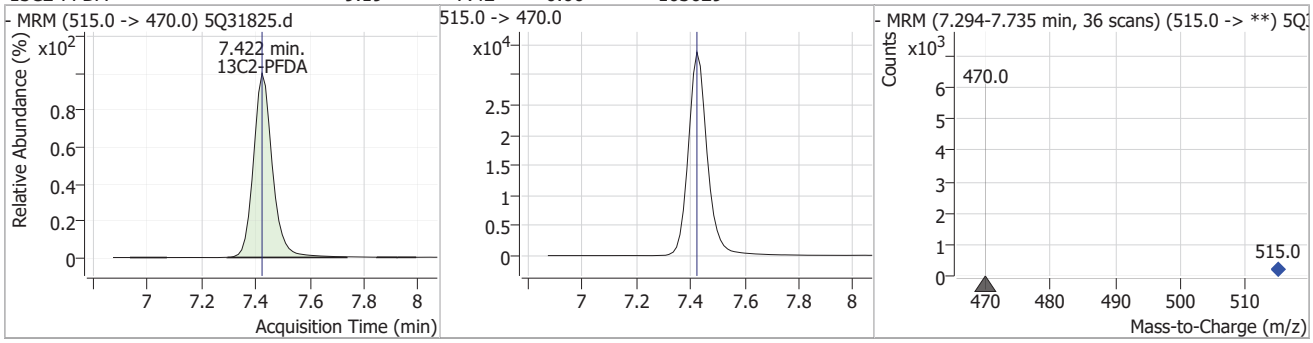
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	21.79	7.38	0.00	12403				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	20.13	7.39	0.00	10107 (m)	584.0 -> 483.0	59.5	29.8	89.4

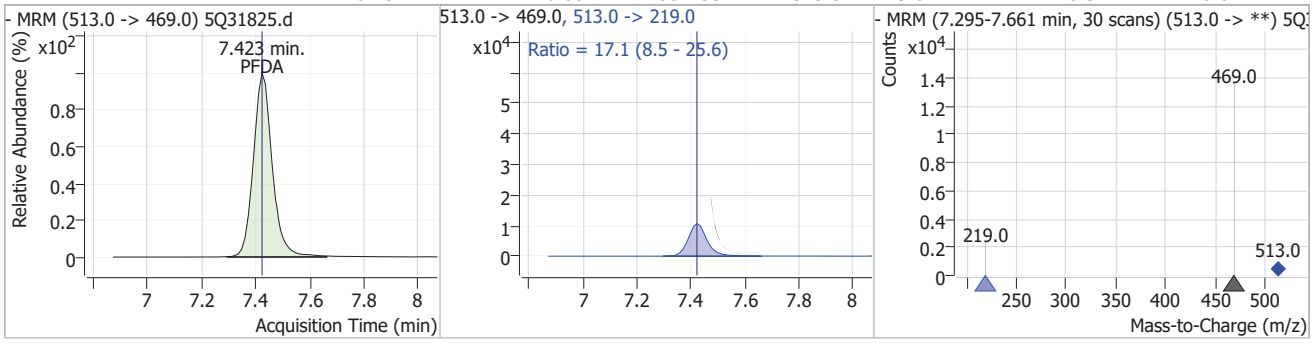


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	9.19	7.42	0.00	163629				

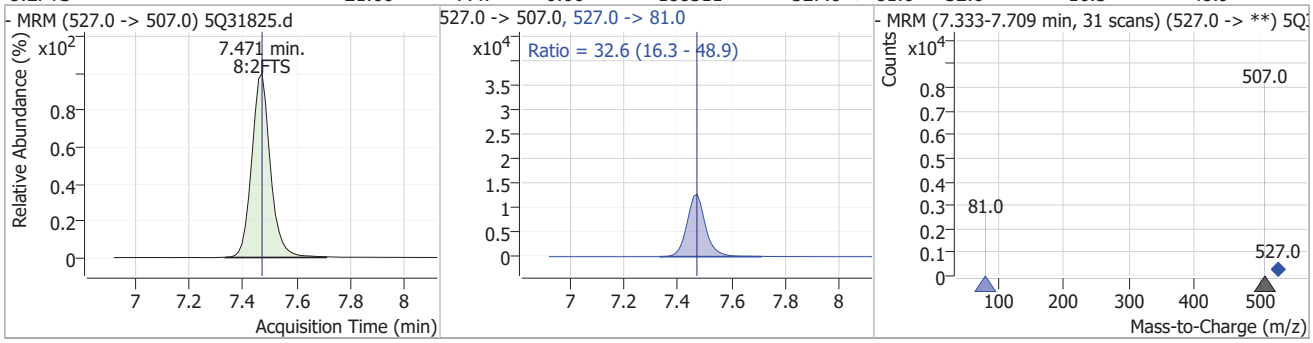


Perfluorinated Compounds by LC/MS/MS

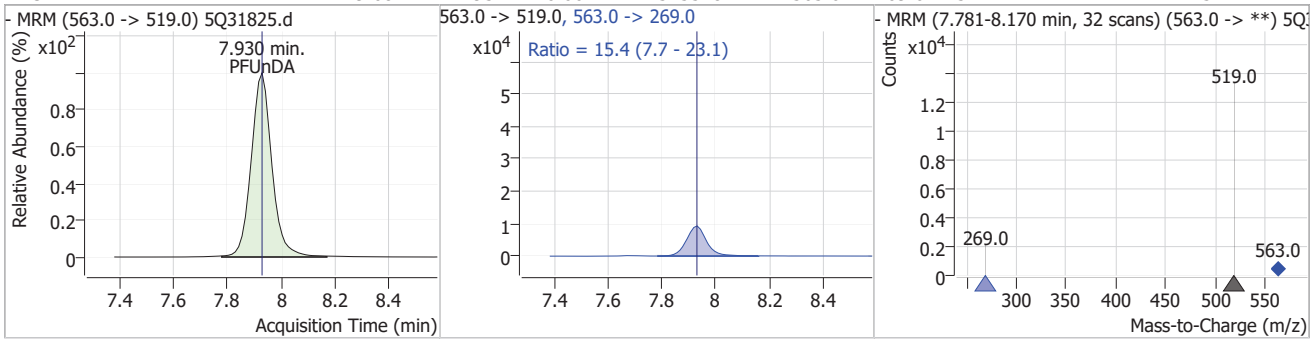
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.46	7.42	0.00	304299	513.0 -> 219.0	17.1	8.5	25.6



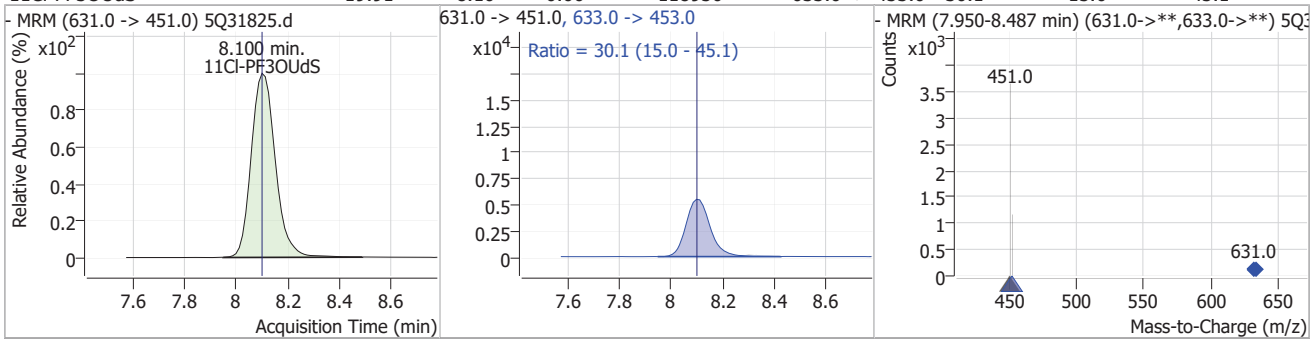
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.60	7.47	0.00	188311	527.0 -> 81.0	32.6	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.68	7.93	0.00	315528	563.0 -> 269.0	15.4	7.7	23.1

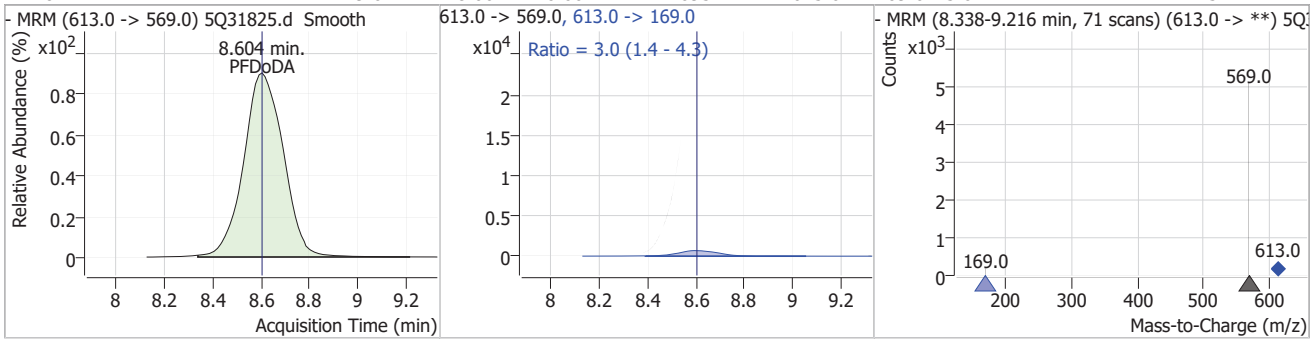


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	19.91	8.10	0.00	118950	633.0 -> 453.0	30.1	15.0	45.1

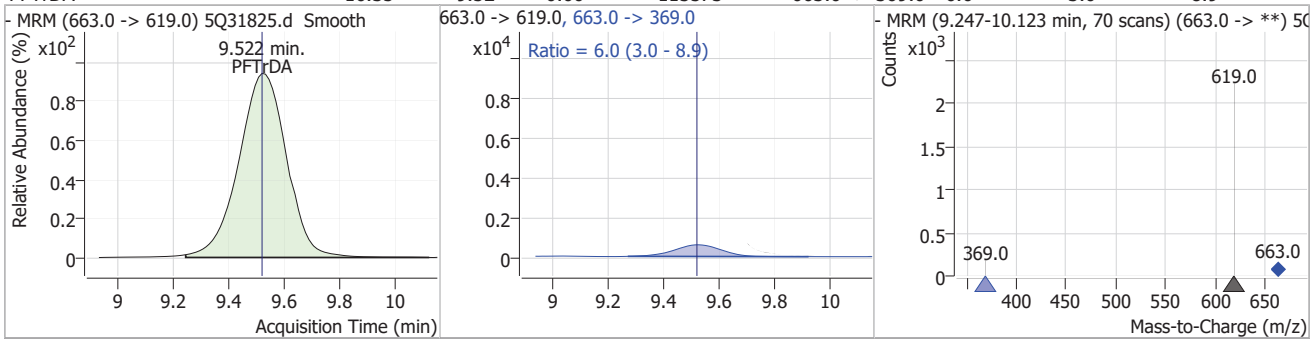


Perfluorinated Compounds by LC/MS/MS

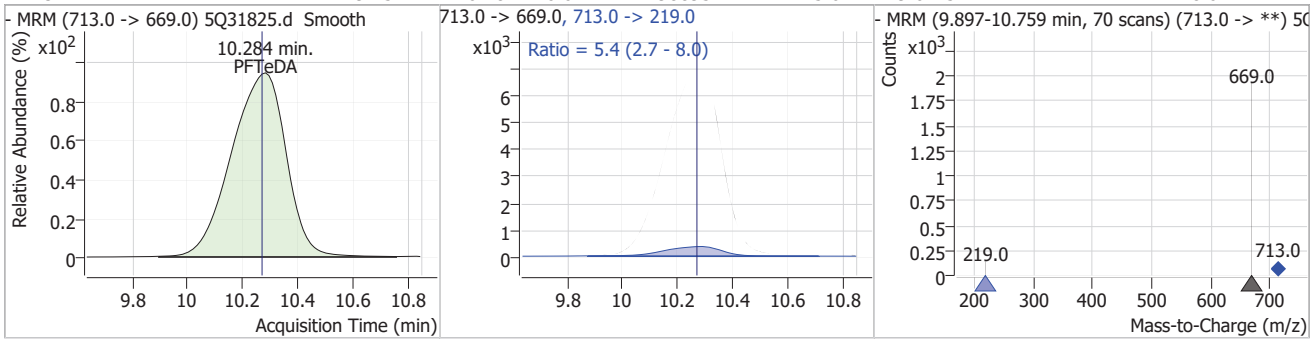
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.01	8.60	0.00	270954	613.0 -> 169.0	3.0	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	16.35	9.52	0.00	115573	663.0 -> 369.0	6.0	3.0	8.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.73	10.28	0.01	98893	713.0 -> 219.0	5.4	2.7	8.0



Manual Integration Approval Summary

Sample Number:	S5Q523-ICC523	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31825.D	**Analyst approved:**	04/18/25 07:39 (b) (6)
Injection Time:	04/17/25 14:01	**Supervisor approved:**	04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

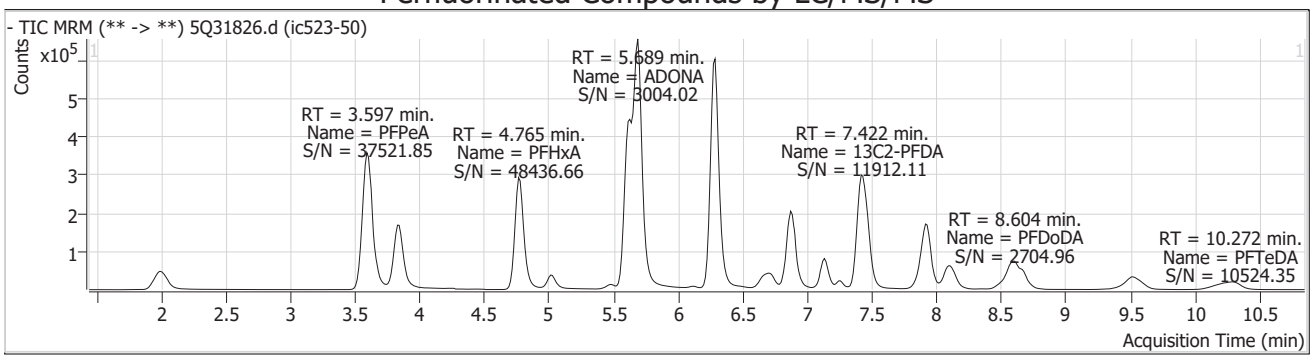
Data File : 5Q31826.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 2:17:47 PM
Sample Name : ic523-50
Vial : P1-A8
DA Method File
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Symmetry	Conc.	Units		Dev(Min)
Internal Standards								
13C2-6:2FTS	6.275	429.0 -> 409.0	201860		20.00	µg/L		-0.012
13C2-PFOA	6.290	415.0 -> 370.0	377955		20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	485159		20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	93502		20.00	µg/L		0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	28275		40.00	µg/L		-0.012
System Monitoring Compounds								
13C2-PFDA	7.422	515.0 -> 470.0	386194		23.88	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%				Recovery = 119.4%			
13C2-PFHxA	4.764	315.0 -> 270.0	593671		24.79	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%				Recovery = 123.9%			
d5-EtFOSAA	7.378	589.0 -> 419.0	26654		49.68	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%				Recovery = 124.2%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	81704		48.28	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%				Recovery = 120.7%			
Target Compounds								QValue
6:2FTS	6.276	427.0 -> 407.0	542260		53.60	µg/L		99
8:2FTS	7.458	527.0 -> 507.0	453875		51.71	µg/L		100
EtFOSAA	7.391	584.0 -> 419.0	24610		52.00	µg/L	m	93
MeFOSAA	7.254	570.0 -> 419.0	33660		51.94	µg/L	m	96
PFBS	3.828	299.0 -> 80.0	623259	1.49	50.94	µg/L		99
PFDA	7.423	513.0 -> 469.0	690275		49.55	µg/L		100
PFDoDA	8.604	613.0 -> 569.0	737874		51.55	µg/L		100
PFHpA	5.615	363.0 -> 319.0	1610575		50.02	µg/L		99
PFHxA	4.765	313.0 -> 269.0	806825	1.43	49.51	µg/L		99
PFHxS	5.636	399.0 -> 80.0	402957		50.89	µg/L	m	98
PFNA	6.887	463.0 -> 419.0	643091		49.20	µg/L	m	97
PFOA	6.291	413.0 -> 369.0	918781		49.96	µg/L		100
PFOS	6.861	499.0 -> 80.0	293796		47.63	µg/L	m	98
PFPeA	3.597	263.0 -> 219.0	1587420		50.08	µg/L		100
PFTeDA	10.272	713.0 -> 669.0	258063		50.31	µg/L		99
PFTrDA	9.522	663.0 -> 619.0	317302		46.89	µg/L		99
PFUnDA	7.930	563.0 -> 519.0	752388		49.03	µg/L		100
ADONA	5.689	377.0 -> 251.0	2110241		50.04	µg/L		99
9Cl-PF3ONS	7.131	531.0 -> 351.0	276506		49.72	µg/L		100
11Cl-PF3OUdS	8.100	631.0 -> 451.0	302523		50.05	µg/L		99
HFPO-DA	5.023	285.0 -> 169.0	77693		50.13	µg/L		100

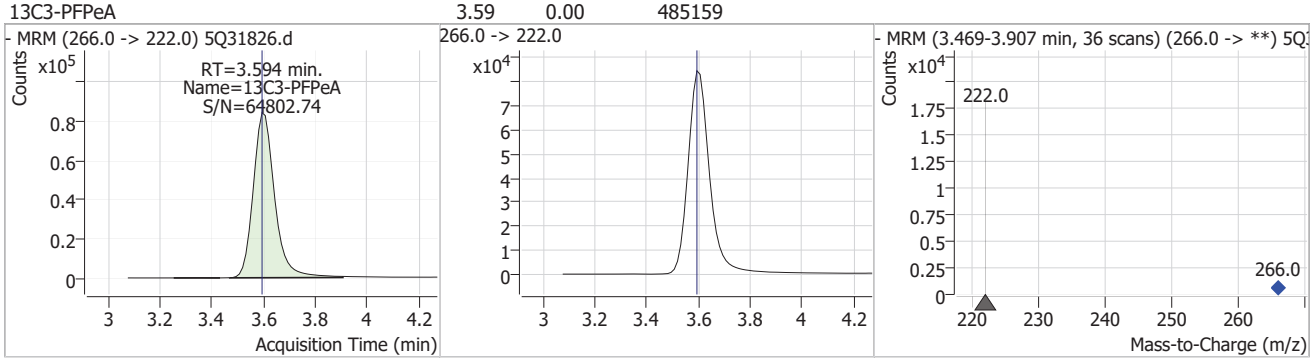
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.46
7

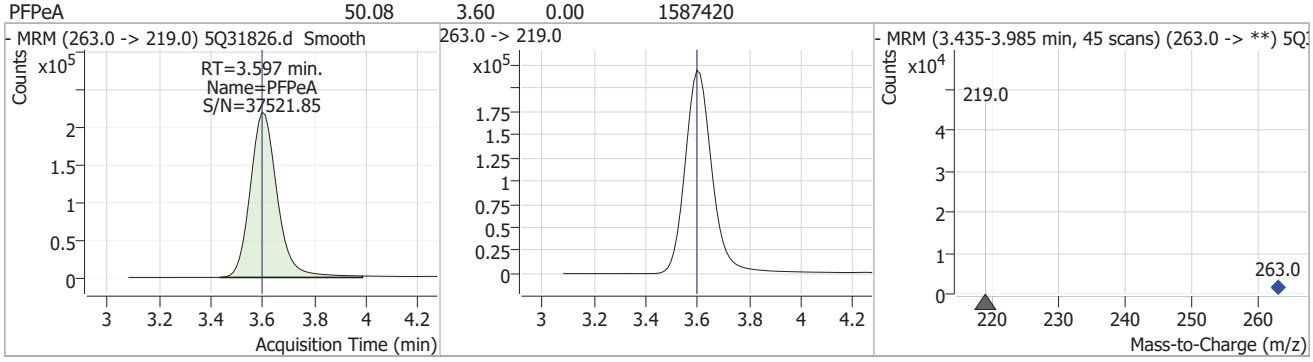
Perfluorinated Compounds by LC/MS/MS



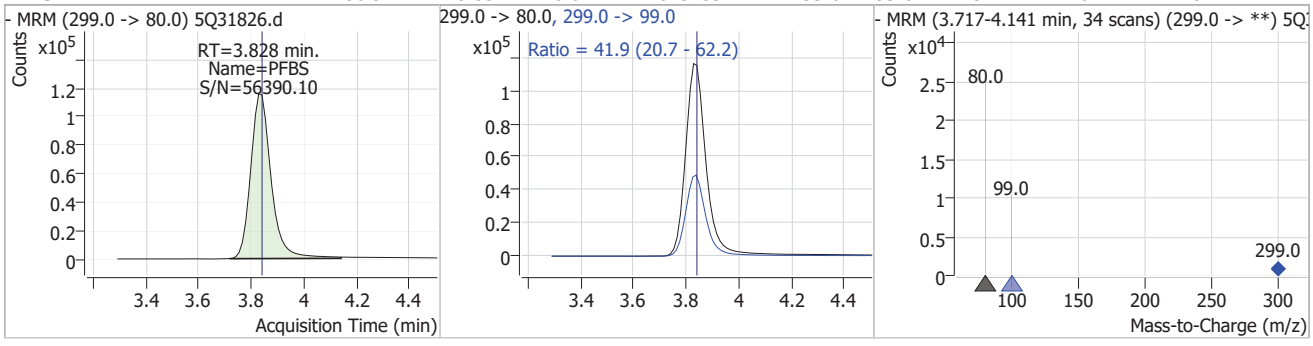
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	485159				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	50.08	3.60	0.00	1587420				

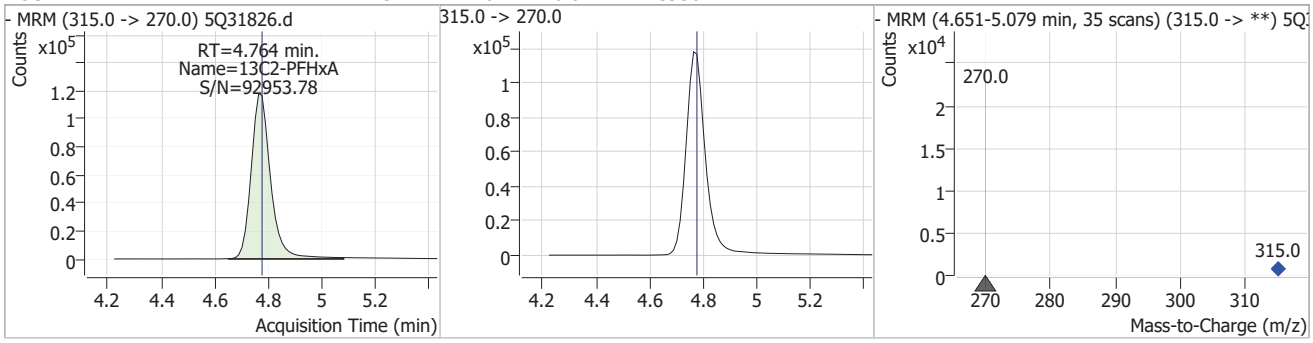


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	50.94	3.83	-0.01	623259	299.0 -> 99.0	41.9	20.7	62.2

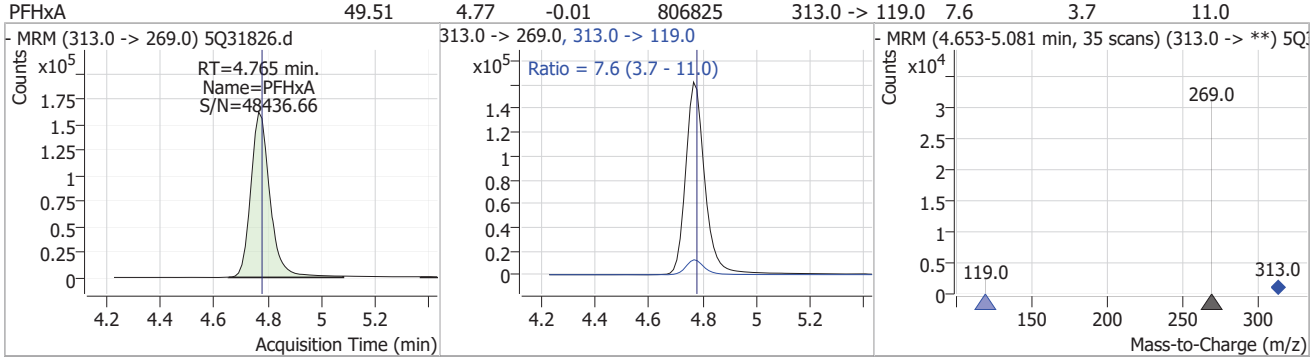


Perfluorinated Compounds by LC/MS/MS

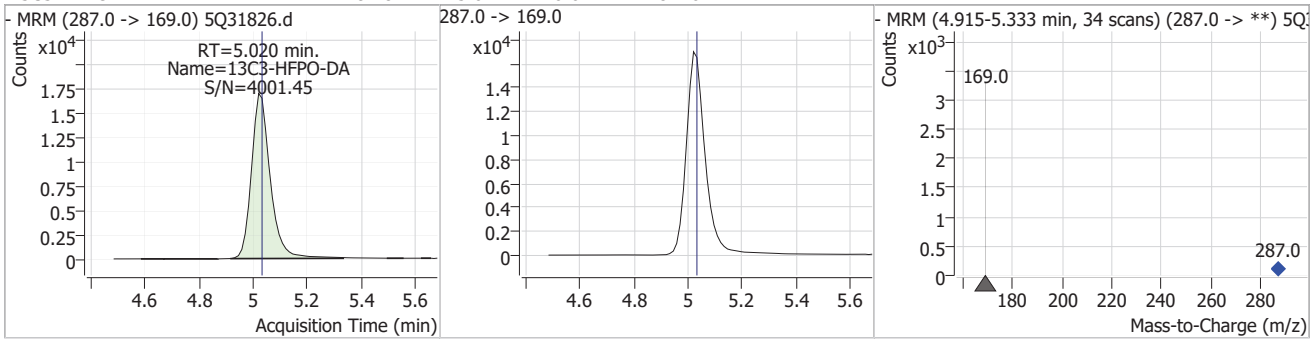
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	24.79	4.76	-0.01	593671				



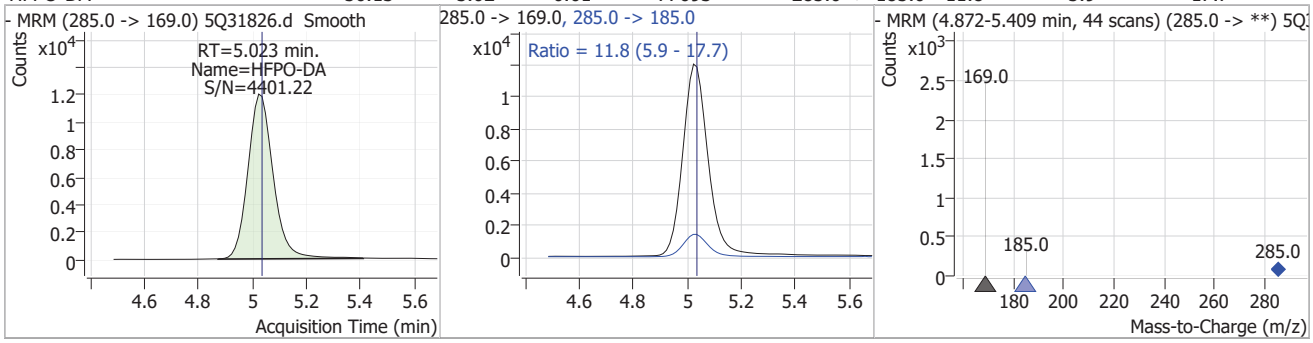
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	49.51	4.77	-0.01	806825	313.0 -> 119.0	7.6	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	48.28	5.02	-0.01	81704				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	50.13	5.02	-0.01	77693	285.0 -> 185.0	11.8	5.9	17.7



7.7.46

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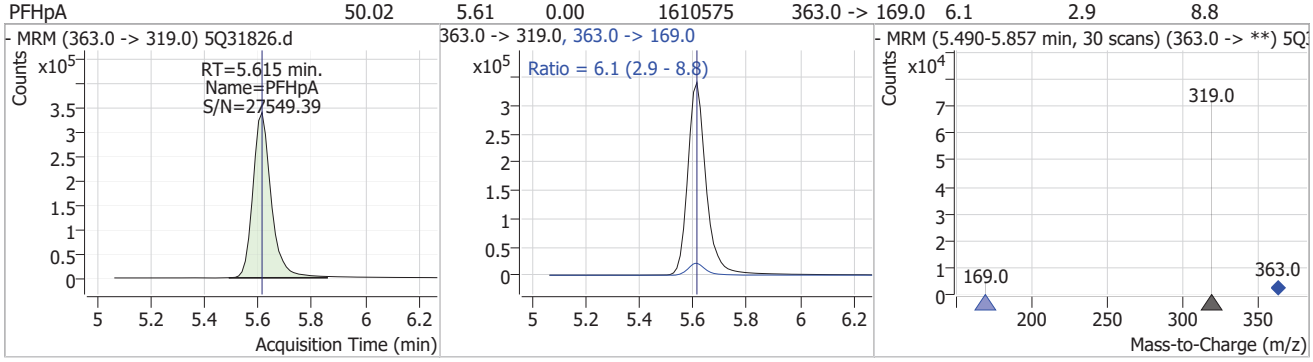
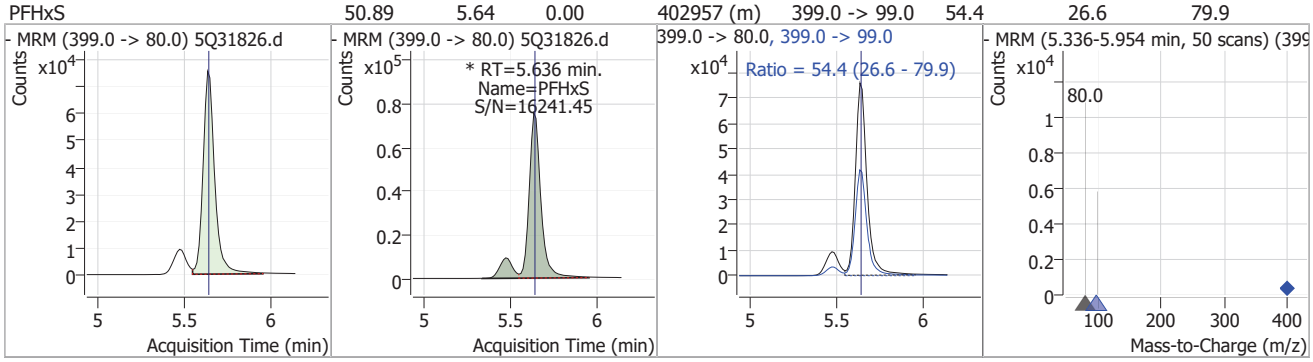
Perfluorinated Compounds by LC/MS/MS

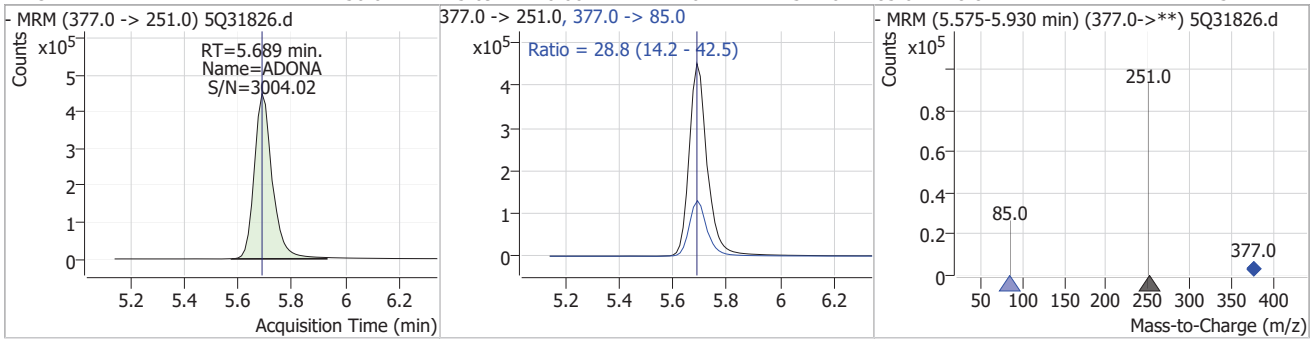
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	50.02	5.61	0.00	1610575	363.0 -> 169.0	6.1	2.9	8.8



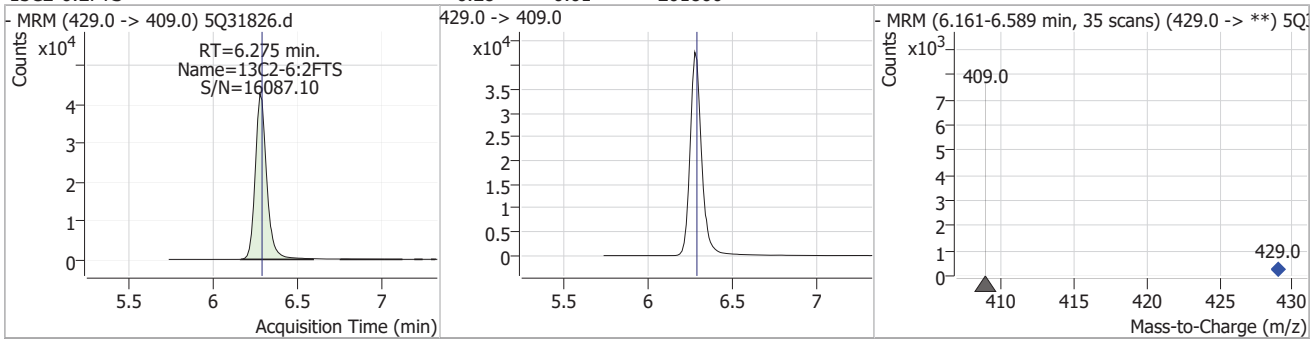
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	50.89	5.64	0.00	402957 (m)	399.0 -> 99.0	54.4	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	50.04	5.69	0.00	2110241	377.0 -> 85.0	28.8	14.2	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	201860				



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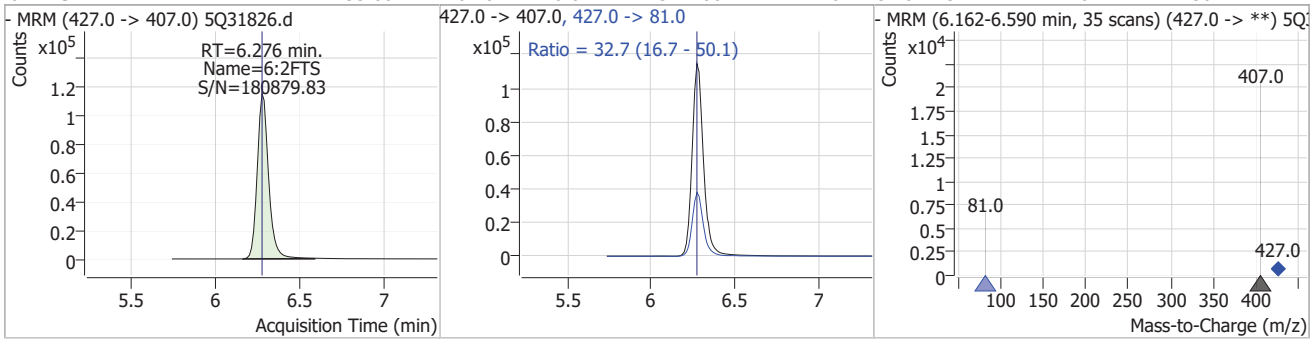
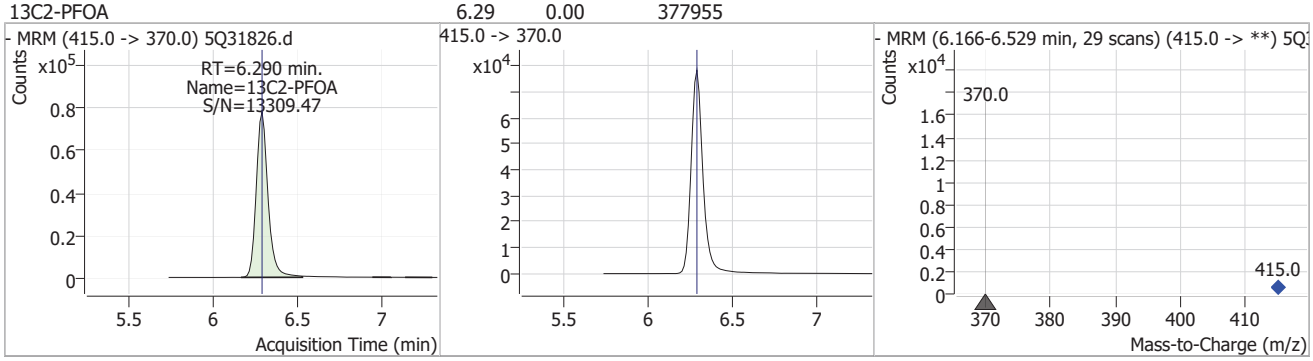
Perfluorinated Compounds by LC/MS/MS

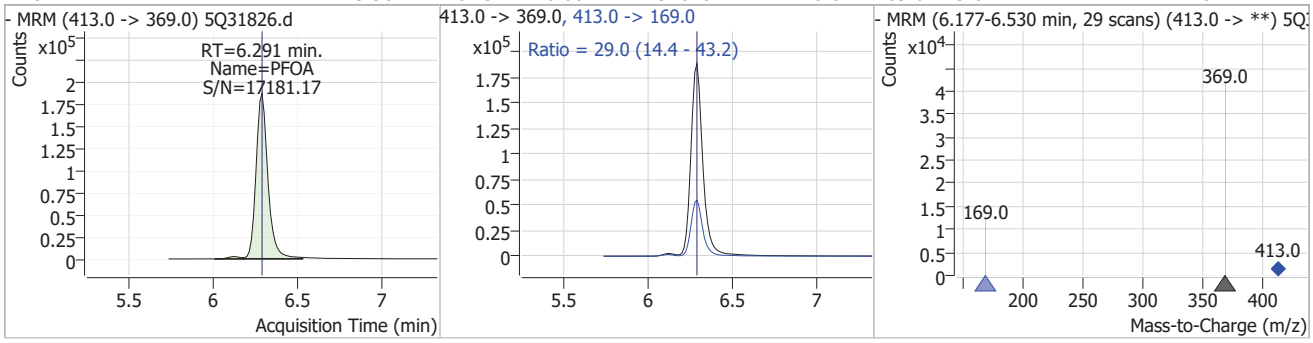
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	53.60	6.28	-0.01	542260	427.0 -> 81.0	32.7	16.7	50.1



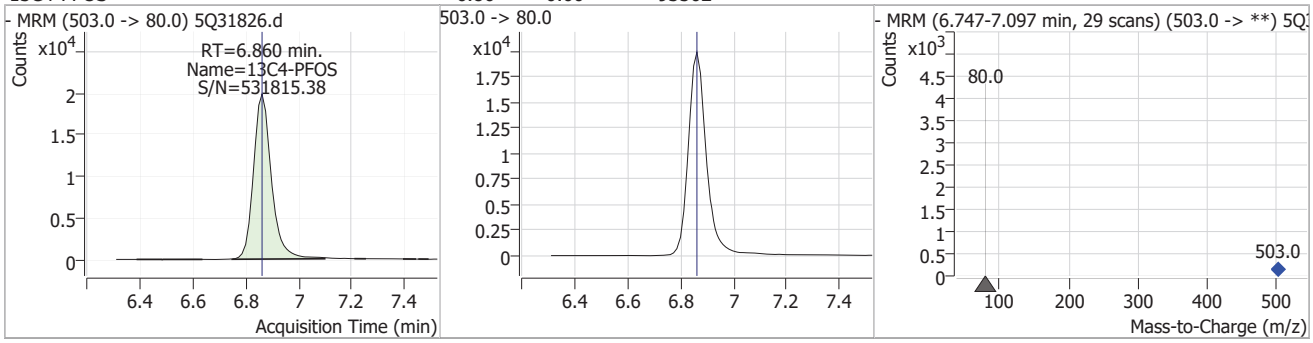
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	377955				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	49.96	6.29	0.00	918781	413.0 -> 169.0	29.0	14.4	43.2

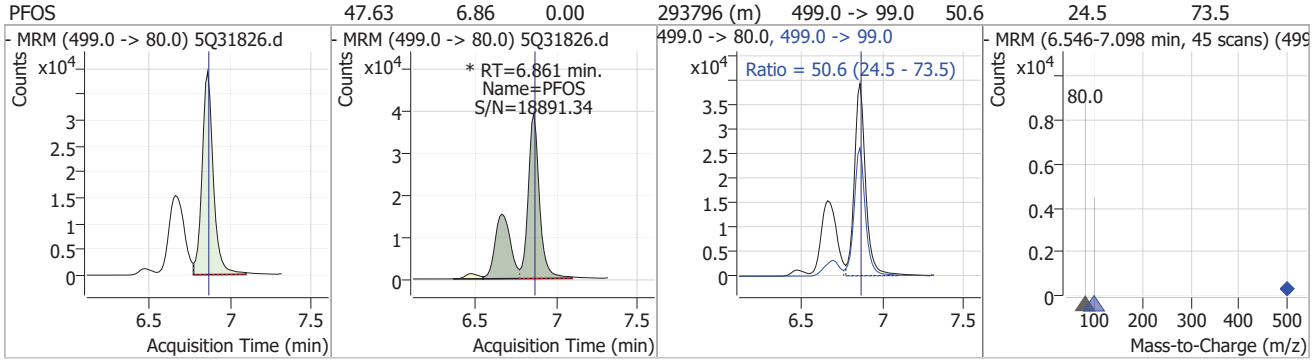


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	93502				

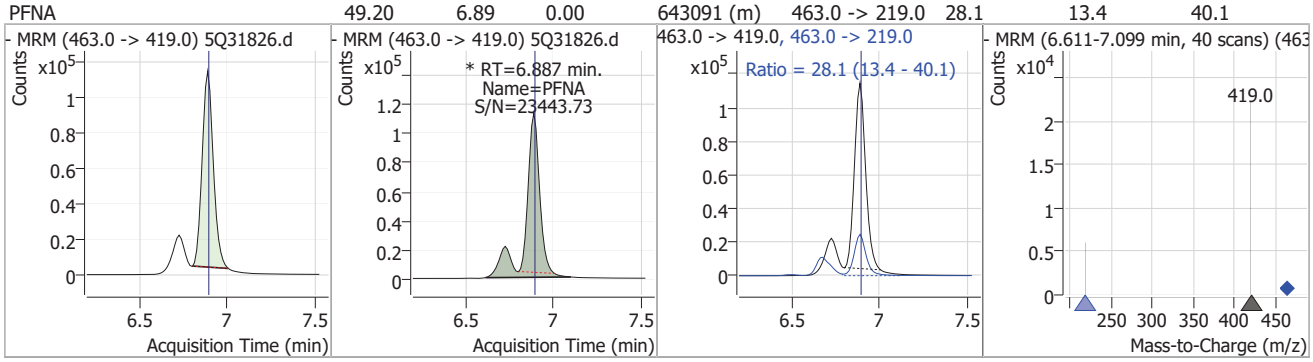


Perfluorinated Compounds by LC/MS/MS

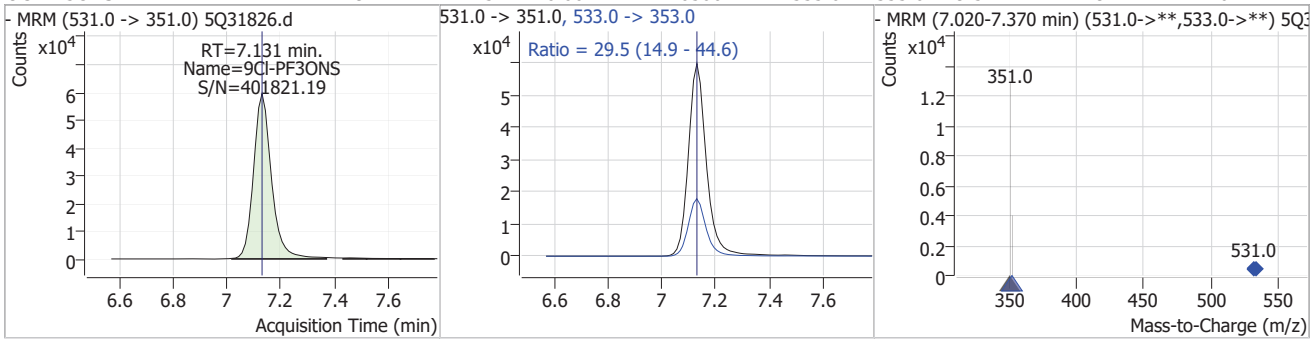
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	47.63	6.86	0.00	293796 (m)	499.0 -> 99.0	50.6	24.5	73.5



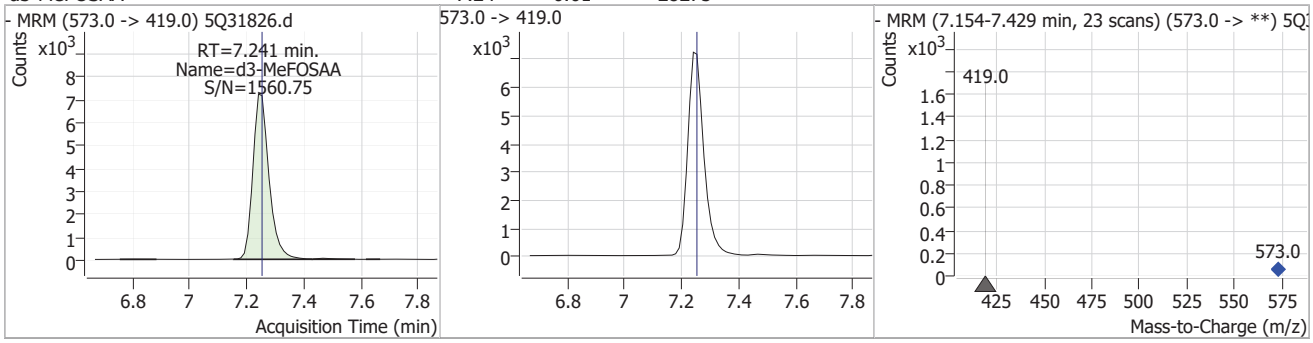
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	49.20	6.89	0.00	643091 (m)	463.0 -> 219.0	28.1	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	49.72	7.13	0.00	276506	533.0 -> 353.0	29.5	14.9	44.6

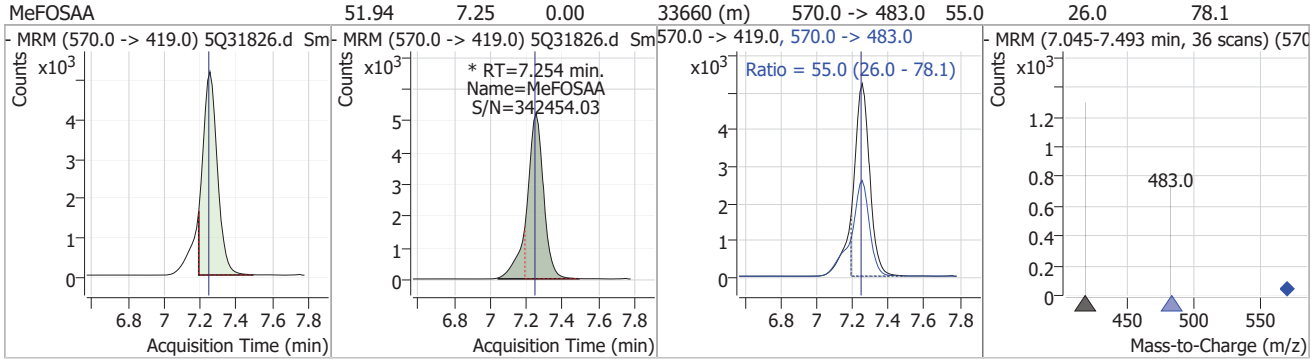


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	28275				

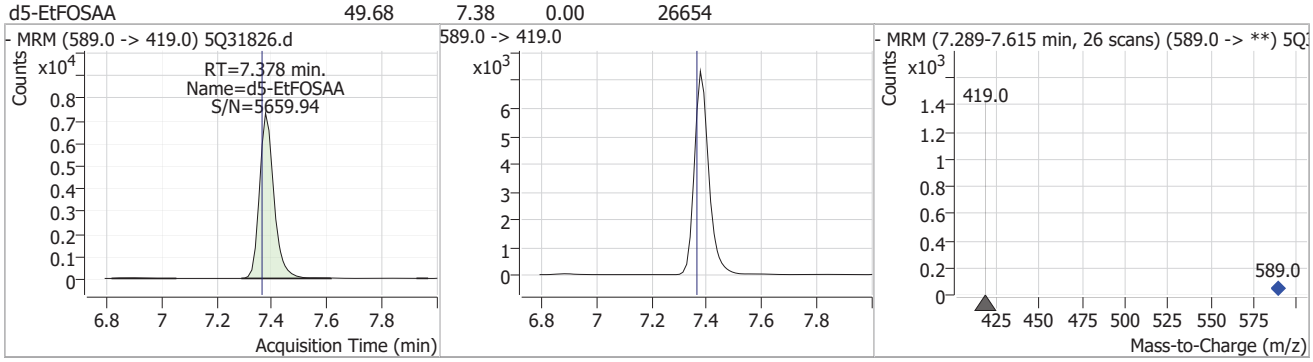


Perfluorinated Compounds by LC/MS/MS

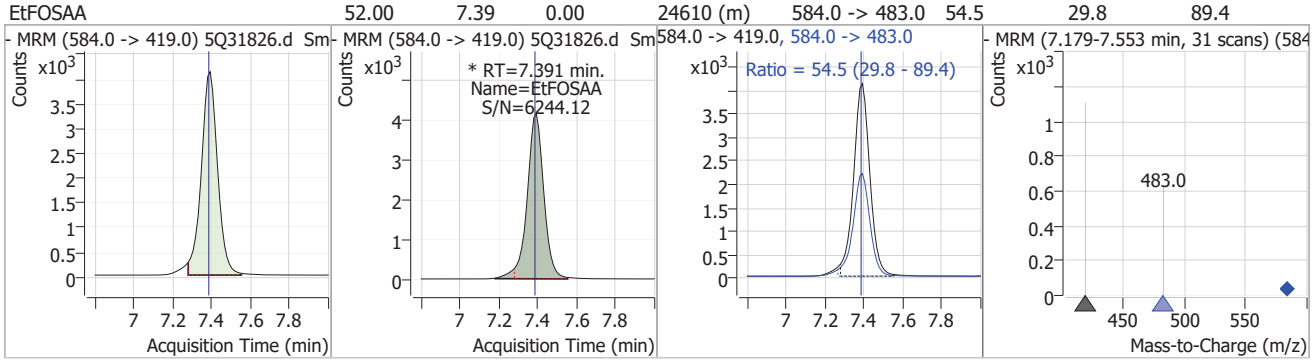
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	51.94	7.25	0.00	33660 (m)	570.0 -> 483.0	55.0	26.0	78.1



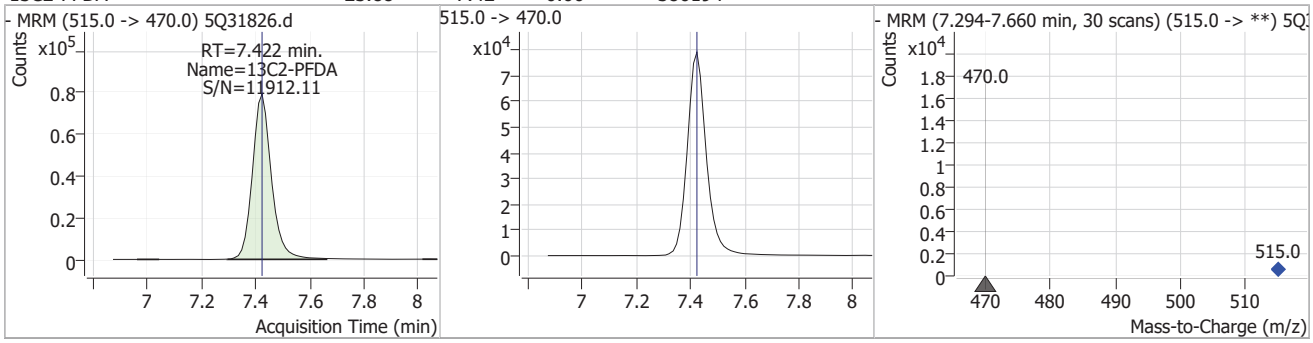
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	49.68	7.38	0.00	26654				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	52.00	7.39	0.00	24610 (m)	584.0 -> 483.0	54.5	29.8	89.4

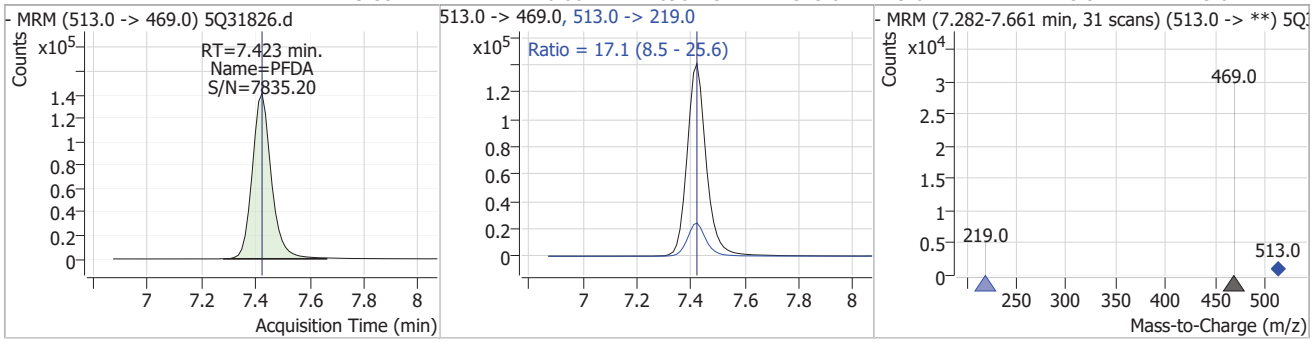


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	23.88	7.42	0.00	386194				

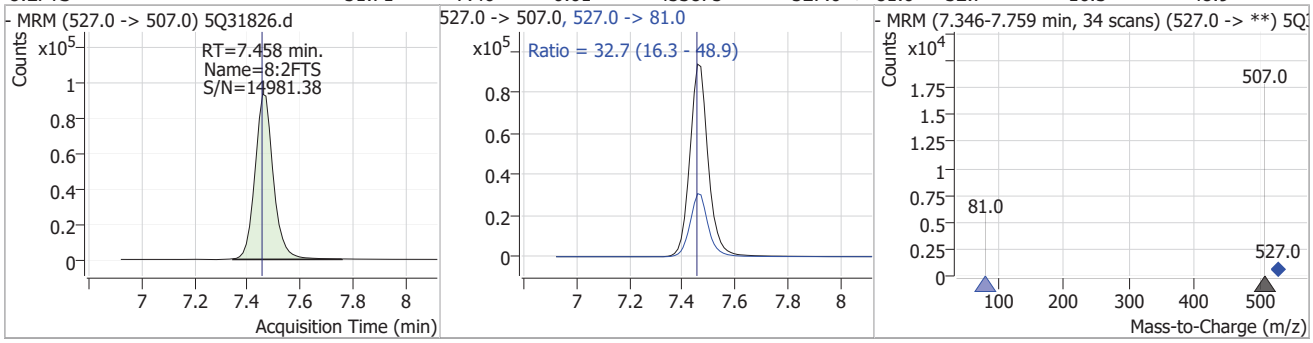


Perfluorinated Compounds by LC/MS/MS

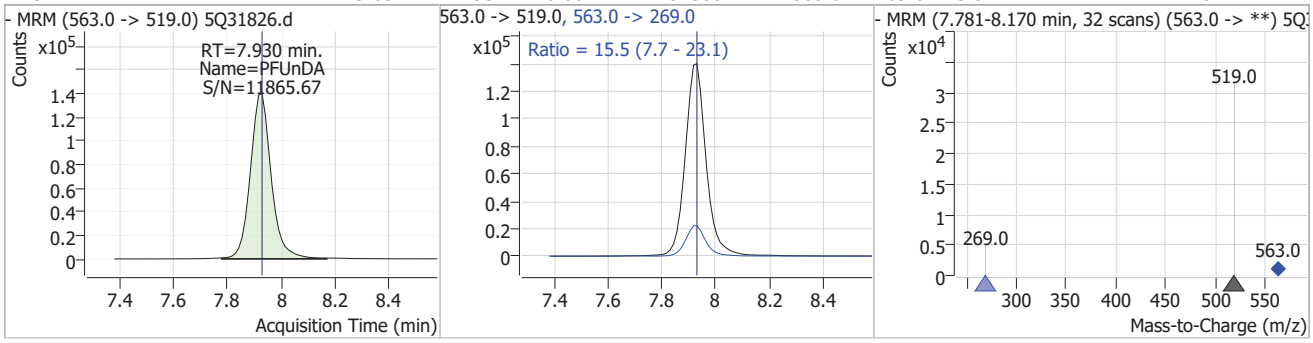
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	49.55	7.42	0.00	690275	513.0 -> 219.0	17.1	8.5	25.6



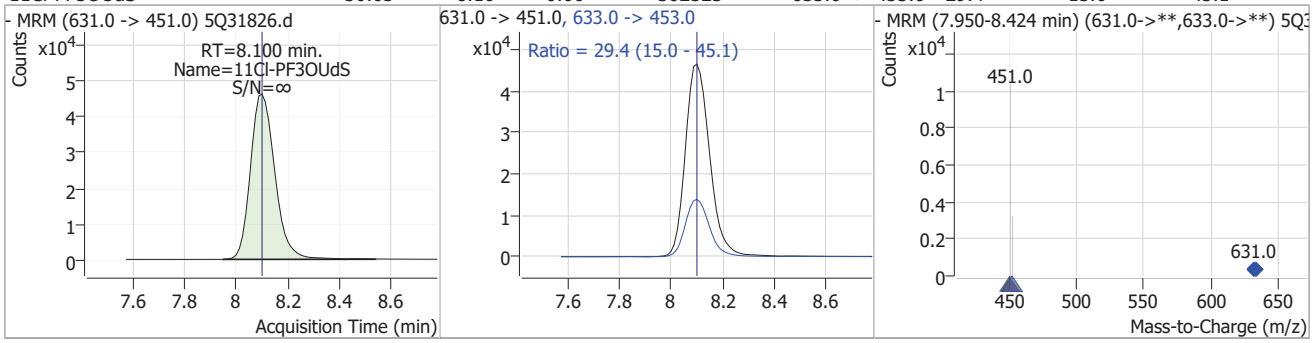
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	51.71	7.46	-0.01	453875	527.0 -> 81.0	32.7	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	49.03	7.93	0.00	752388	563.0 -> 269.0	15.5	7.7	23.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	50.05	8.10	0.00	302523	633.0 -> 453.0	29.4	15.0	45.1



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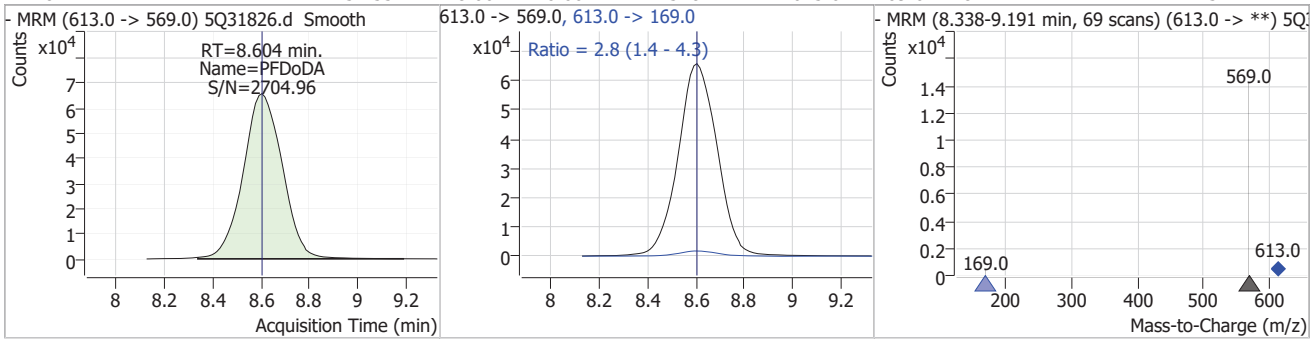
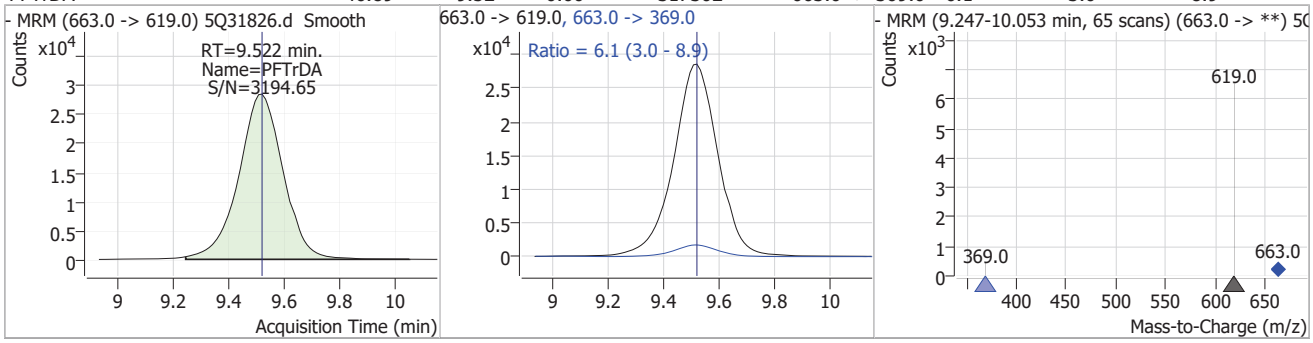
Perfluorinated Compounds by LC/MS/MS

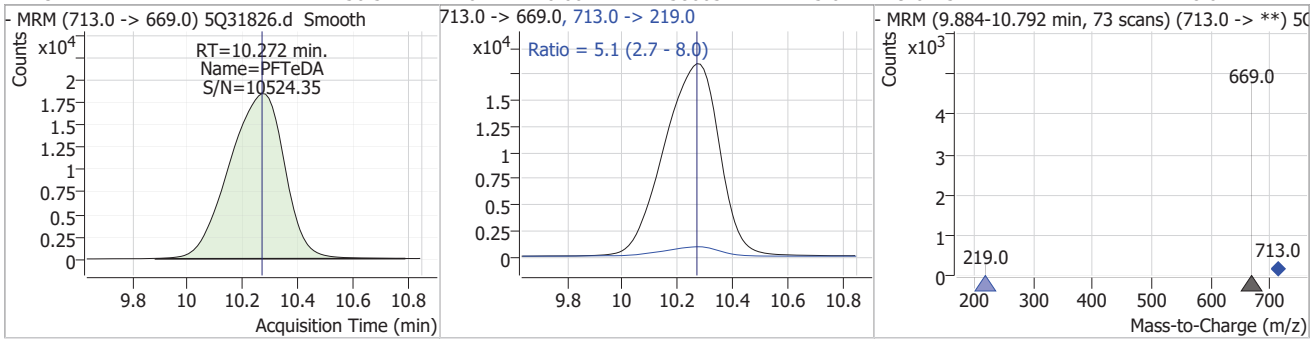
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	51.55	8.60	0.00	737874	613.0 -> 169.0	2.8	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	46.89	9.52	0.00	317302	663.0 -> 369.0	6.1	3.0	8.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	50.31	10.27	0.00	258063	713.0 -> 219.0	5.1	2.7	8.0



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Manual Integration Approval Summary

Sample Number: S5Q523-IC523
Lab FileID: 5Q31826.D
Injection Time: 04/17/25 14:17
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6)
Supervisor approved: 04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31827.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 2:34:12 PM
Sample Name : ic523-100
Vial : P1-A9
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.275	429.0 -> 409.0	236437	20.00 µg/L		-0.012
13C2-PFOA	6.290	415.0 -> 370.0	380493	20.00 µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	519961	20.00 µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	100503	20.00 µg/L		0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	31812	40.00 µg/L		-0.012
System Monitoring Compounds						
13C2-PFDA	7.410	515.0 -> 470.0	826575	50.76 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 253.8%		
13C2-PFHxA	4.764	315.0 -> 270.0	1212107	50.28 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 251.4%		
d5-EtFOSAA	7.378	589.0 -> 419.0	60249	99.81 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 249.5%		
13C3-HFPO-DA	5.020	287.0 -> 169.0	172873	101.47 µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 253.7%		
Target Compounds						QValue
6:2FTS	6.276	427.0 -> 407.0	1154652	97.44 µg/L		99
8:2FTS	7.458	527.0 -> 507.0	1014930	98.72 µg/L		99
EtFOSAA	7.391	584.0 -> 419.0	52646	98.86 µg/L	m	93
MeFOSAA	7.254	570.0 -> 419.0	73828	98.96 µg/L	m	93
PFBS	3.828	299.0 -> 80.0	1306437	99.35 µg/L		99
PFDA	7.411	513.0 -> 469.0	1477844	100.08 µg/L		99
PFDoDA	8.591	613.0 -> 569.0	1640239	99.71 µg/L		100
PFHpA	5.602	363.0 -> 319.0	3444074	100.00 µg/L		100
PFHxA	4.765	313.0 -> 269.0	1648949	100.51 µg/L		99
PFHxS	5.636	399.0 -> 80.0	894508	99.55 µg/L	m	100
PFNA	6.887	463.0 -> 419.0	1472543	100.13 µg/L	m	97
PFOA	6.291	413.0 -> 369.0	1914120	100.01 µg/L		100
PFOS	6.861	499.0 -> 80.0	672807	101.48 µg/L	m	98
PFPeA	3.597	263.0 -> 219.0	3478067	99.98 µg/L		100
PFTeDA	10.272	713.0 -> 669.0	608728	99.95 µg/L		99
PFTrDA	9.509	663.0 -> 619.0	746444	102.62 µg/L		100
PFUnDA	7.917	563.0 -> 519.0	1660110	100.65 µg/L		100
ADONA	5.689	377.0 -> 251.0	4593414	100.00 µg/L		100
9Cl-PF3ONS	7.131	531.0 -> 351.0	633743	100.05 µg/L		99
11Cl-PF3OUdS	8.087	631.0 -> 451.0	711615	99.99 µg/L		98
HFPO-DA	5.023	285.0 -> 169.0	168027	99.98 µg/L		99

 # = Qualifier out of range, m = manually integrated, + = Area summed

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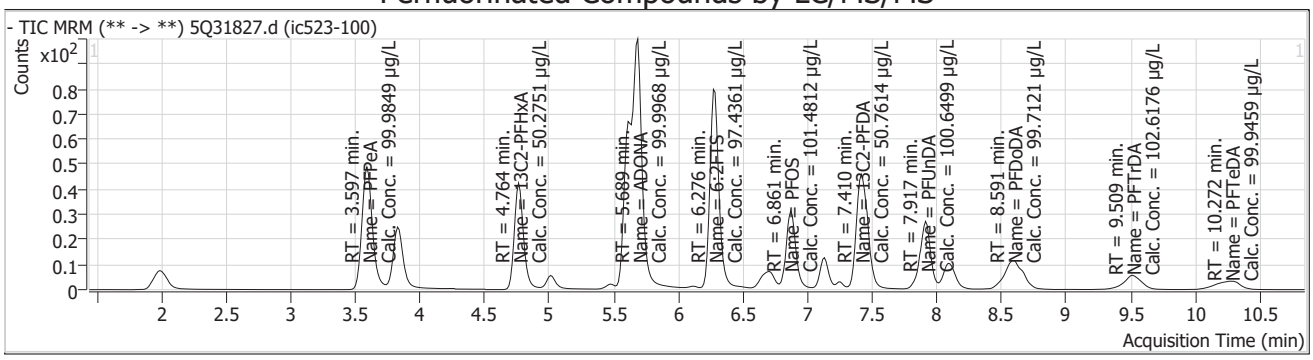
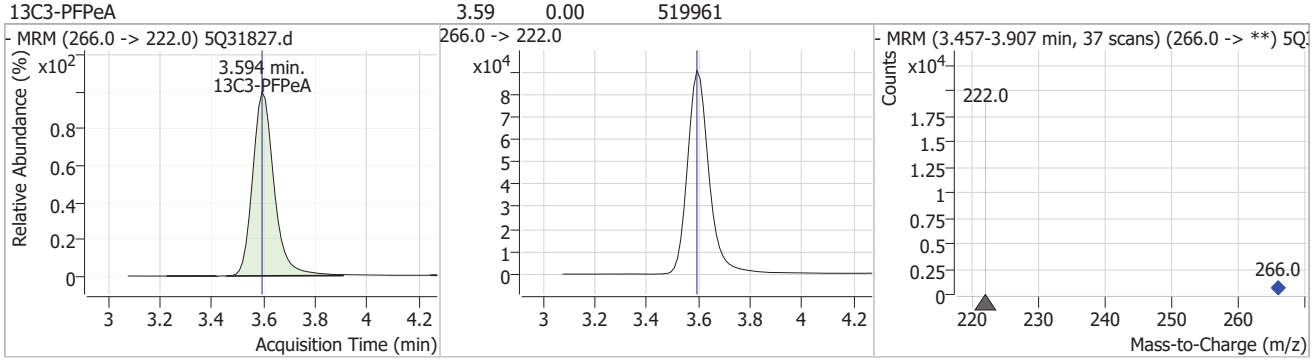
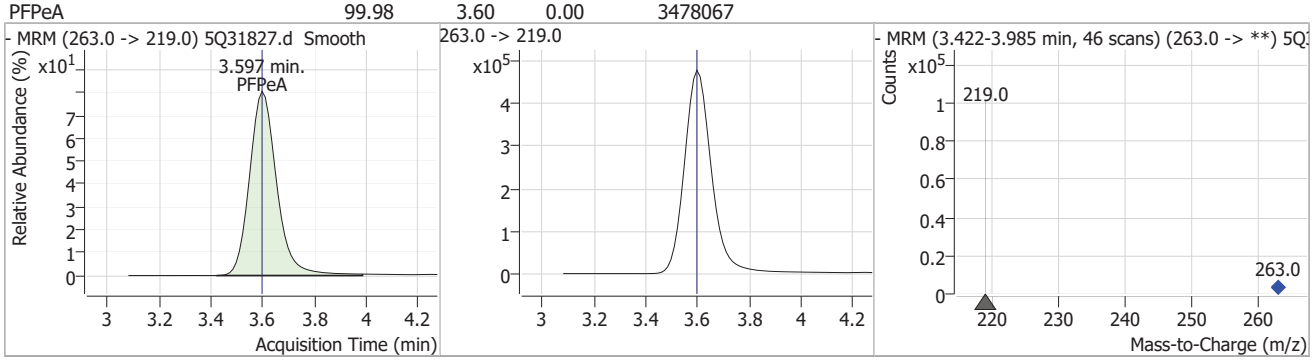
Perfluorinated Compounds by LC/MS/MS



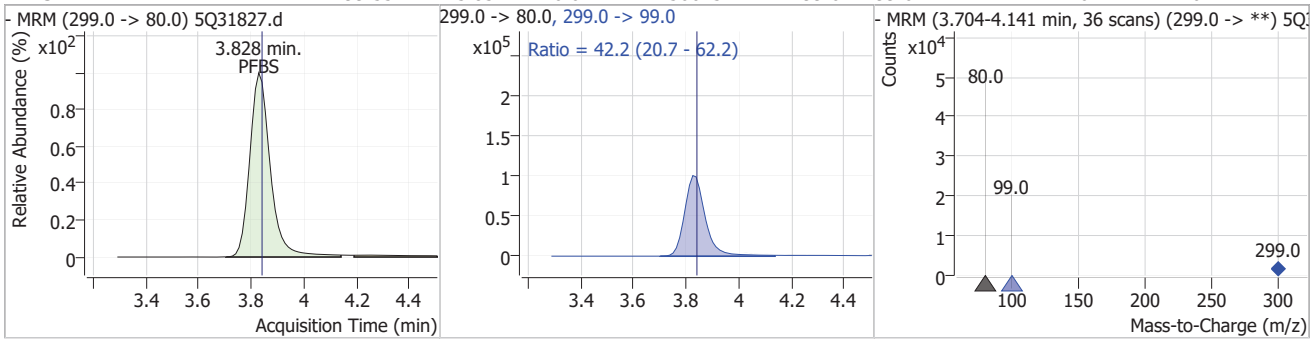
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	519961				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	99.98	3.60	0.00	3478067				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	99.35	3.83	-0.01	1306437	299.0 -> 99.0	42.2	20.7	62.2



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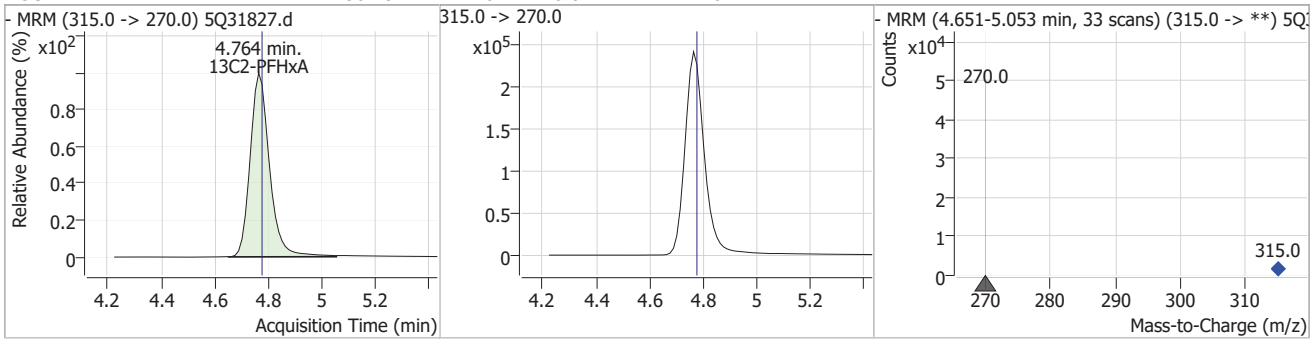
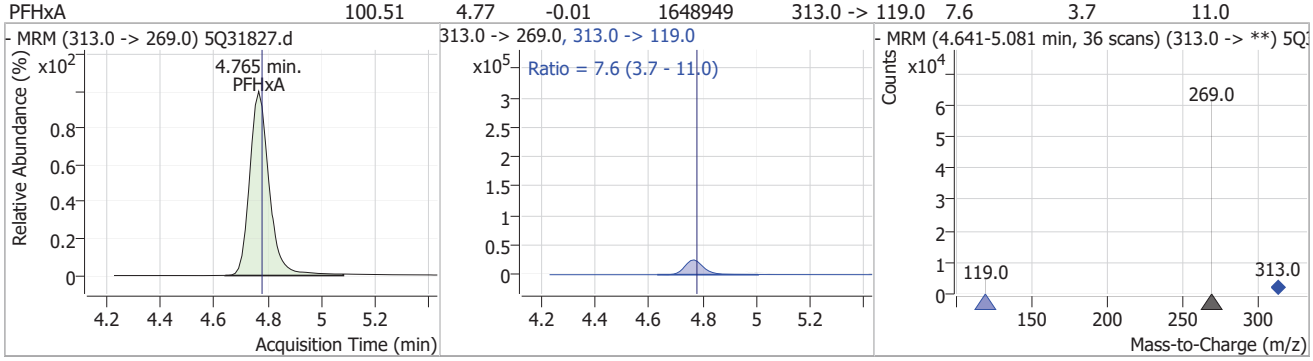
Perfluorinated Compounds by LC/MS/MS

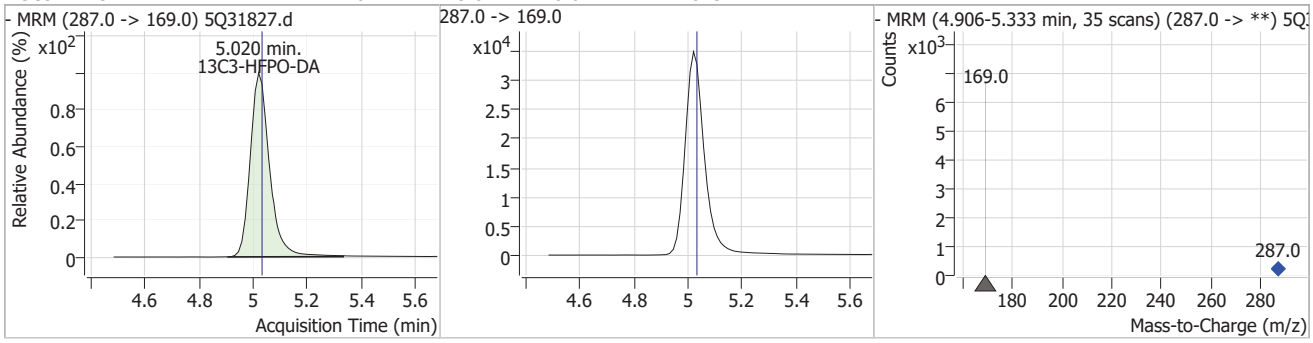
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	50.28	4.76	-0.01	1212107				



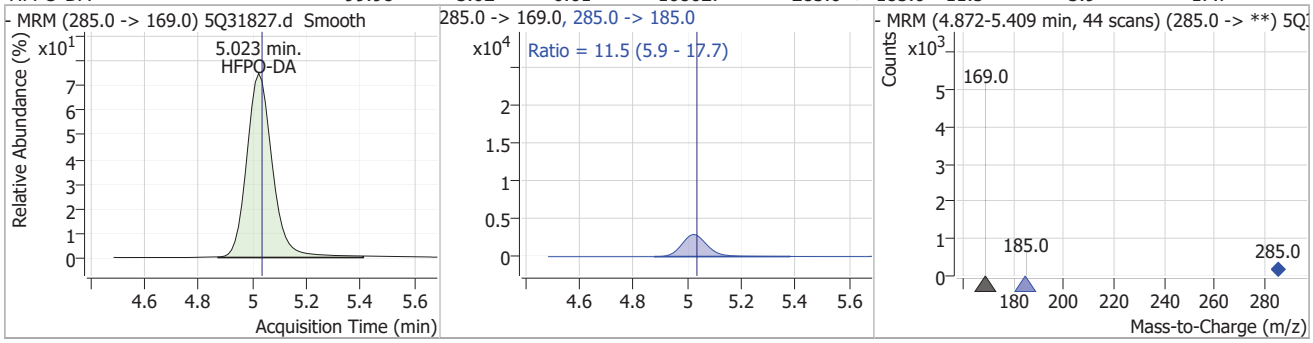
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	100.51	4.77	-0.01	1648949	313.0 -> 119.0	7.6	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	101.47	5.02	-0.01	172873				

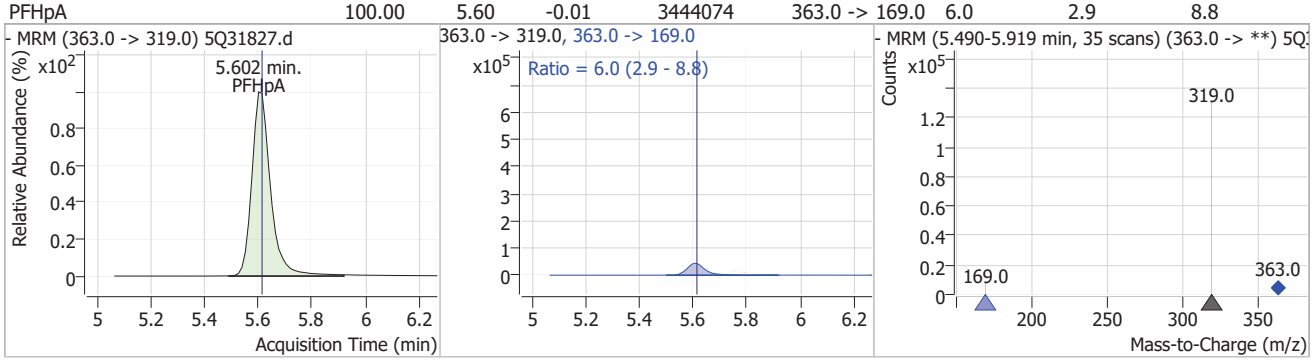


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	99.98	5.02	-0.01	168027	285.0 -> 185.0	11.5	5.9	17.7

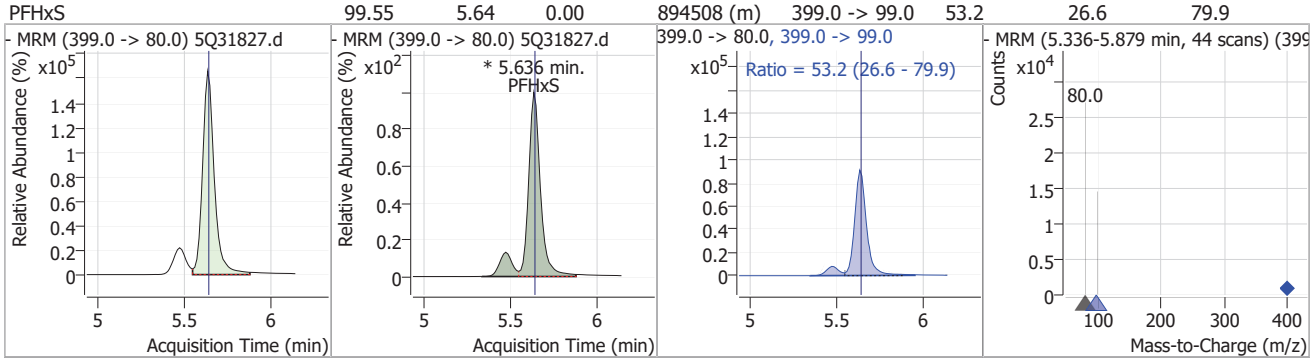


Perfluorinated Compounds by LC/MS/MS

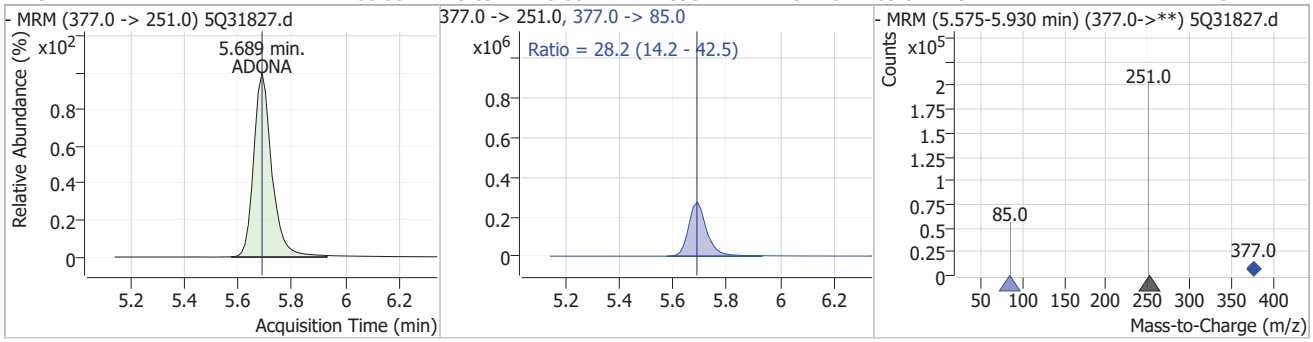
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	100.00	5.60	-0.01	3444074	363.0 -> 169.0	6.0	2.9	8.8



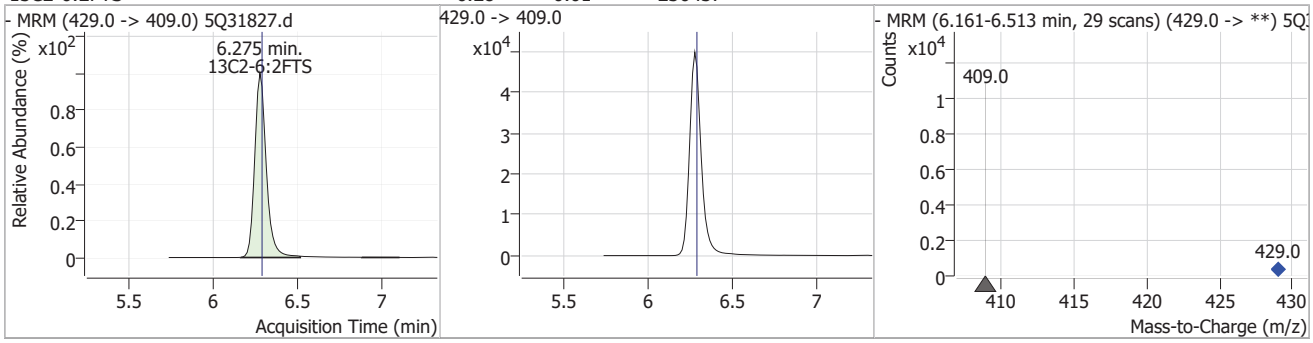
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	99.55	5.64	0.00	894508 (m)	399.0 -> 99.0	53.2	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	100.00	5.69	0.00	4593414	377.0 -> 85.0	28.2	14.2	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	236437				

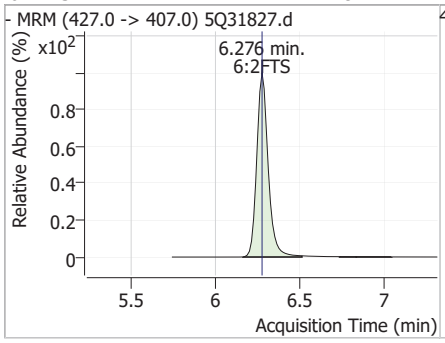


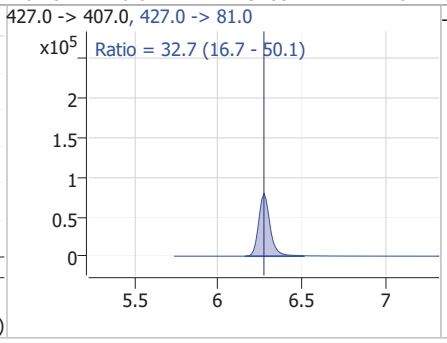
7.7.47

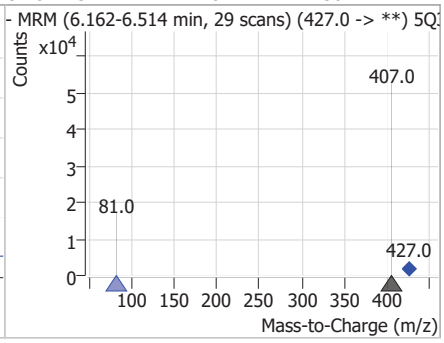
7

Perfluorinated Compounds by LC/MS/MS

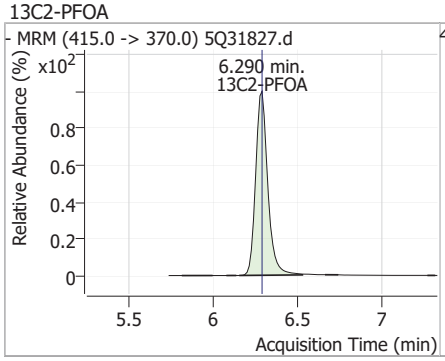
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	97.44	6.28	-0.01	1154652	427.0 -> 81.0	32.7	16.7	50.1

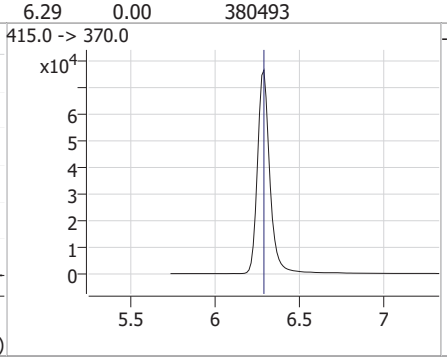


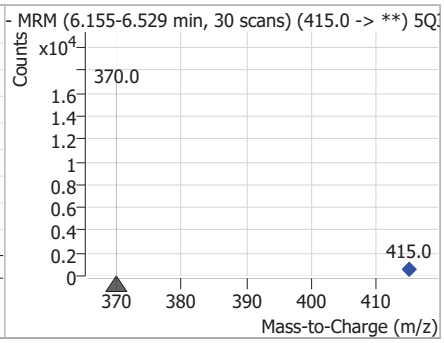




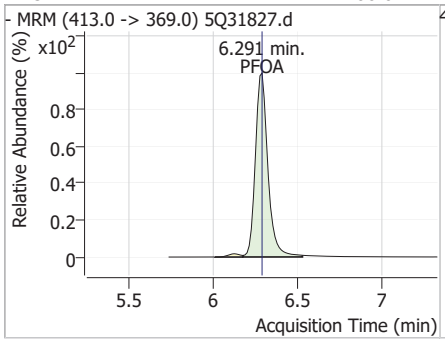
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	380493				

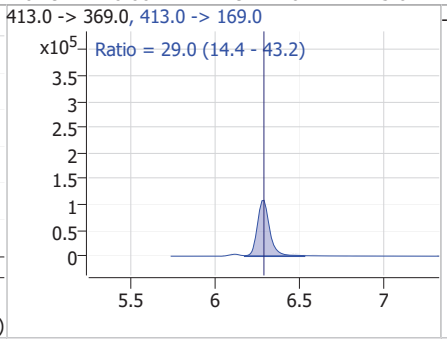


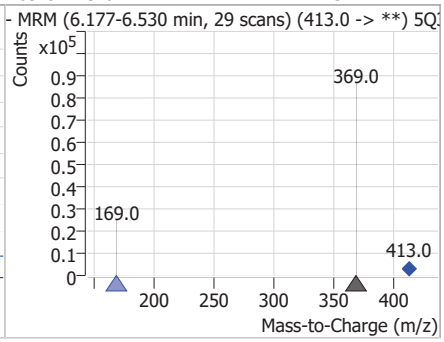




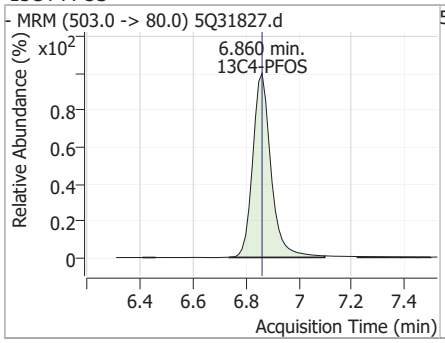
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	100.01	6.29	0.00	1914120	413.0 -> 169.0	29.0	14.4	43.2

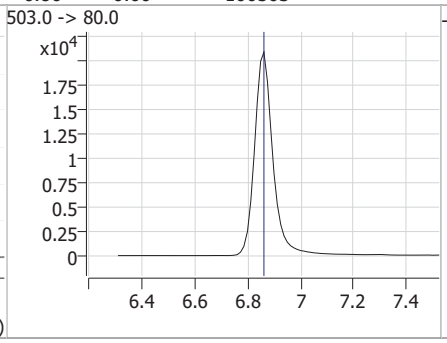


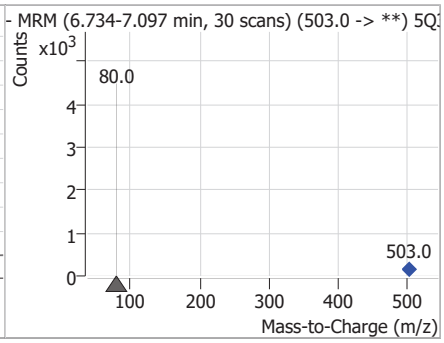




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	100503				

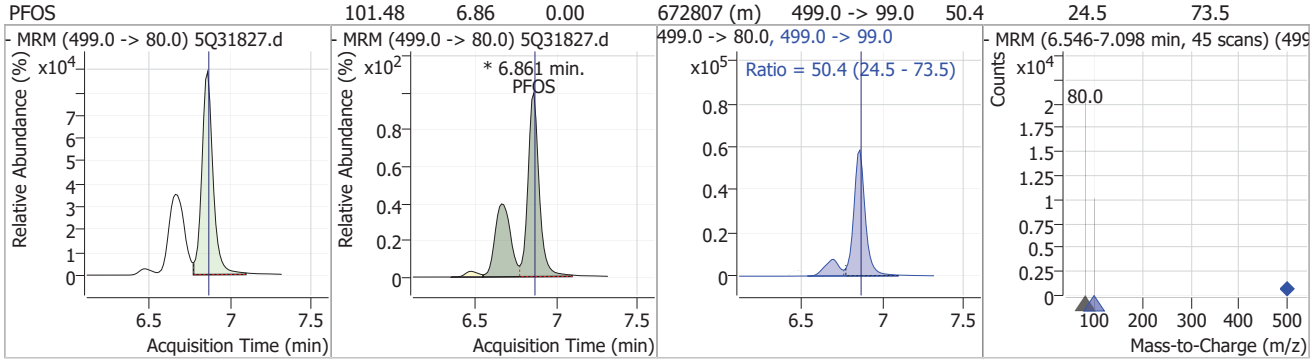




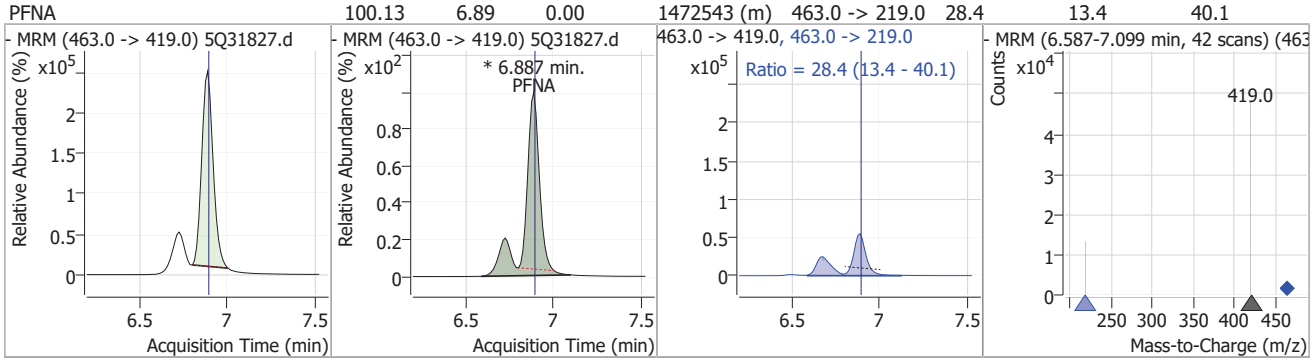


Perfluorinated Compounds by LC/MS/MS

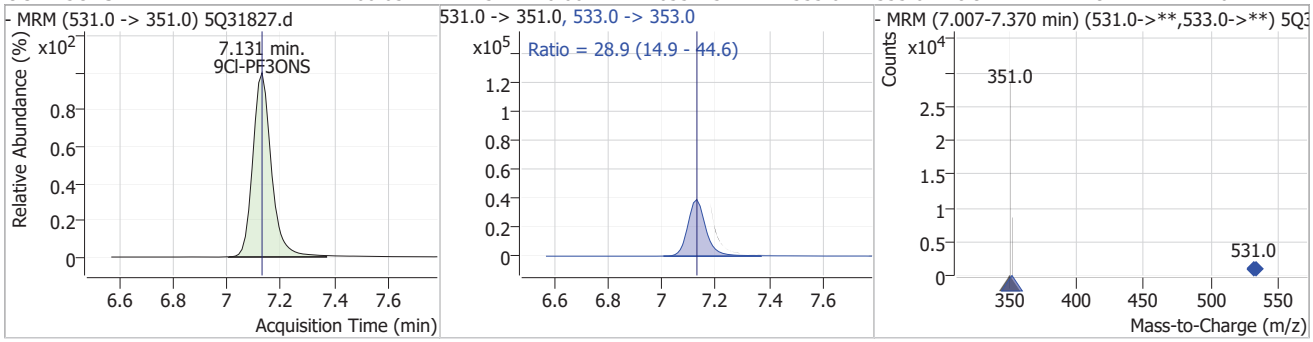
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	101.48	6.86	0.00	672807 (m)	499.0 -> 99.0	50.4	24.5	73.5



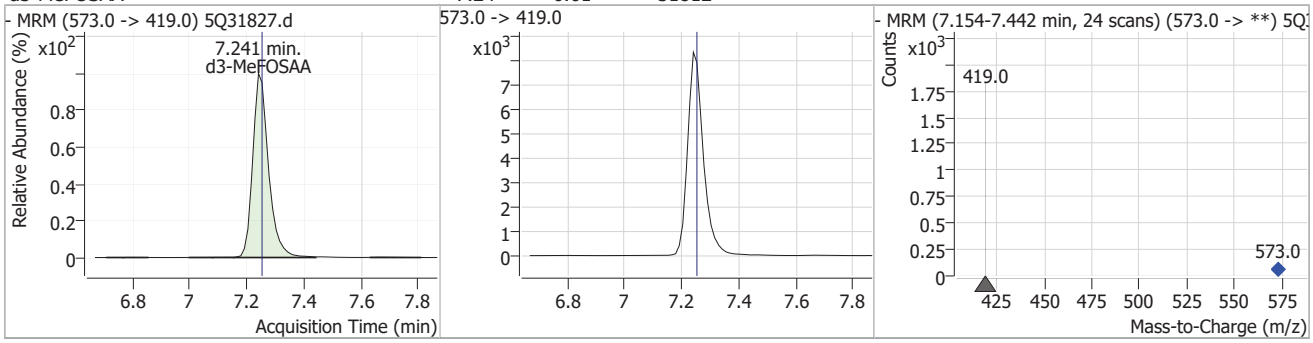
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	100.13	6.89	0.00	1472543 (m)	463.0 -> 219.0	28.4	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	100.05	7.13	0.00	633743	533.0 -> 353.0	28.9	14.9	44.6

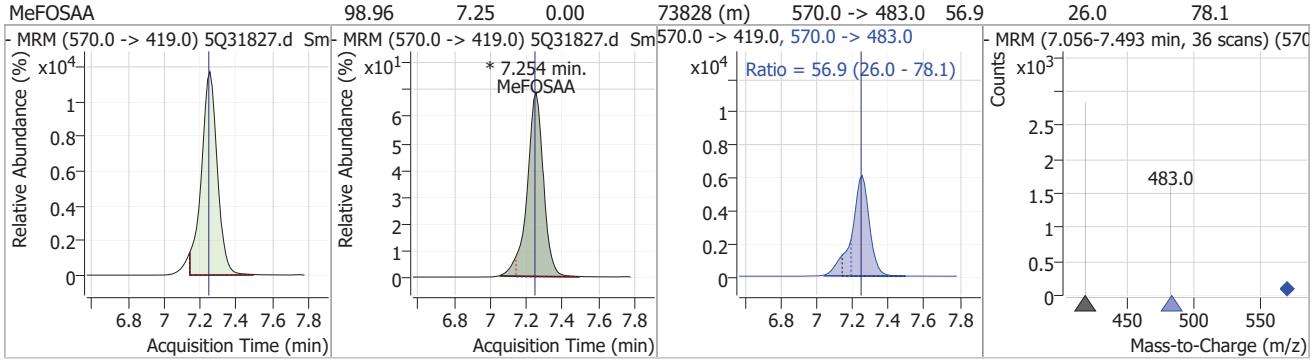


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	31812				

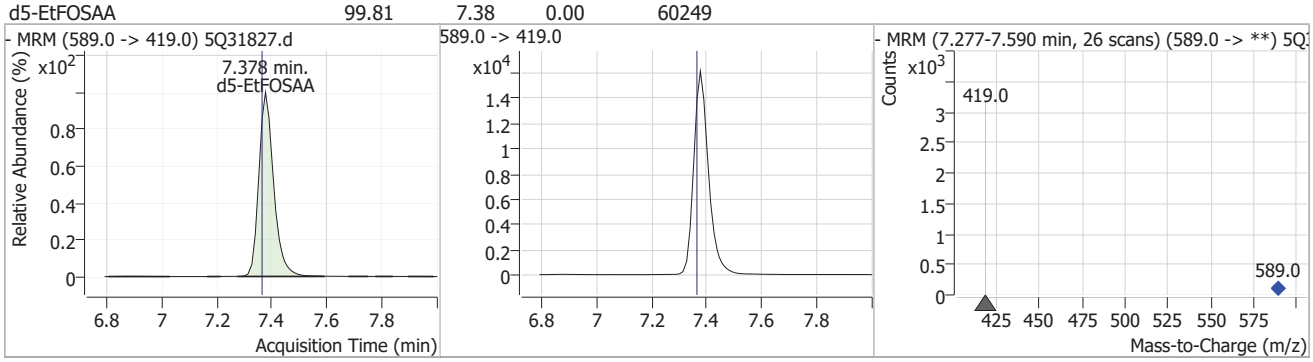


Perfluorinated Compounds by LC/MS/MS

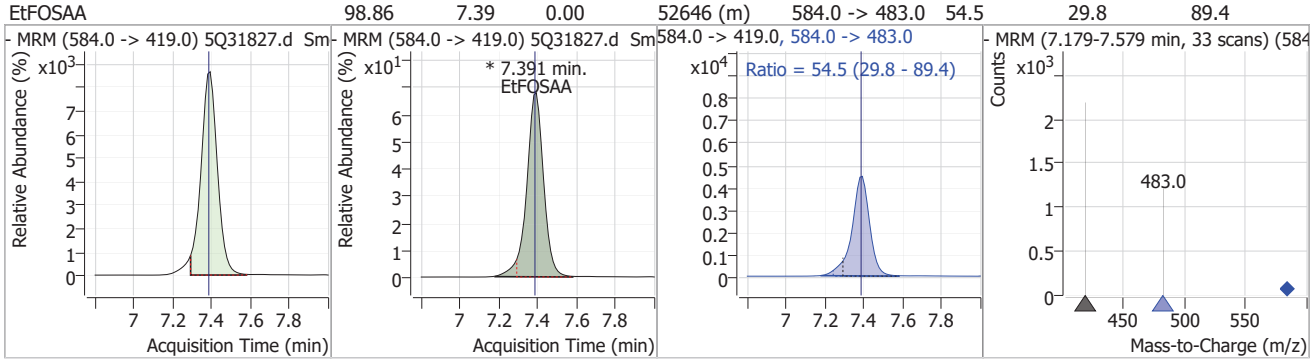
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	98.96	7.25	0.00	73828 (m)	570.0 -> 483.0	56.9	26.0	78.1



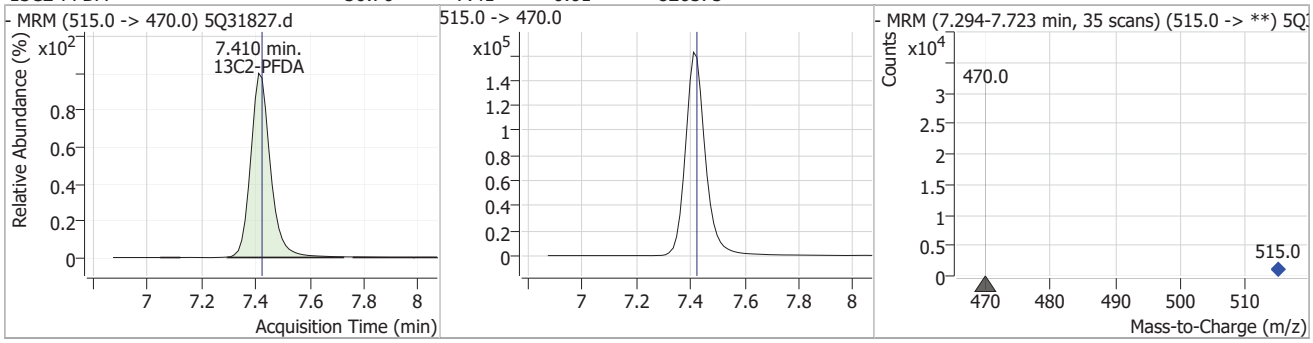
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	99.81	7.38	0.00	60249				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	98.86	7.39	0.00	52646 (m)	584.0 -> 483.0	54.5	29.8	89.4

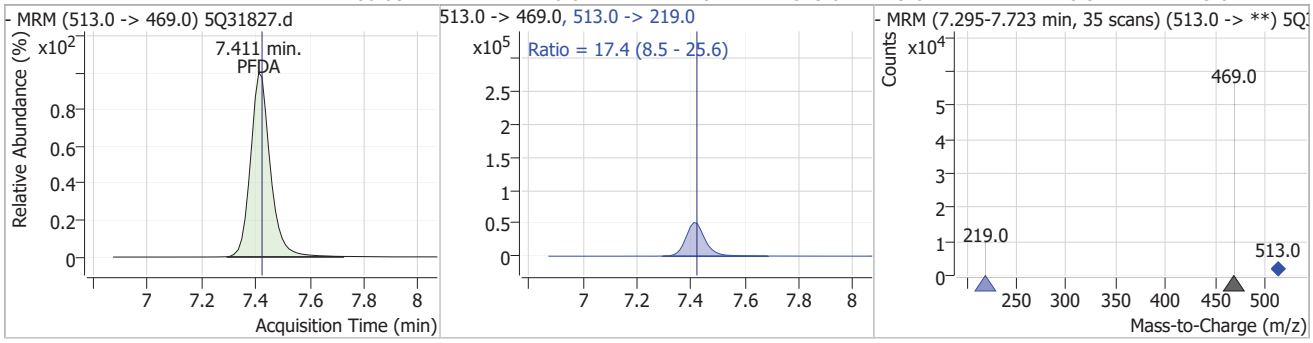


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	50.76	7.41	-0.01	826575				

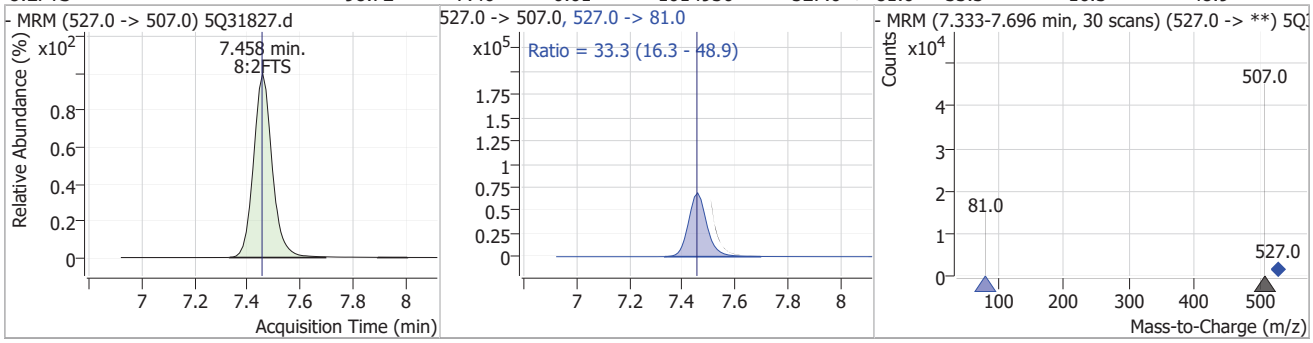


Perfluorinated Compounds by LC/MS/MS

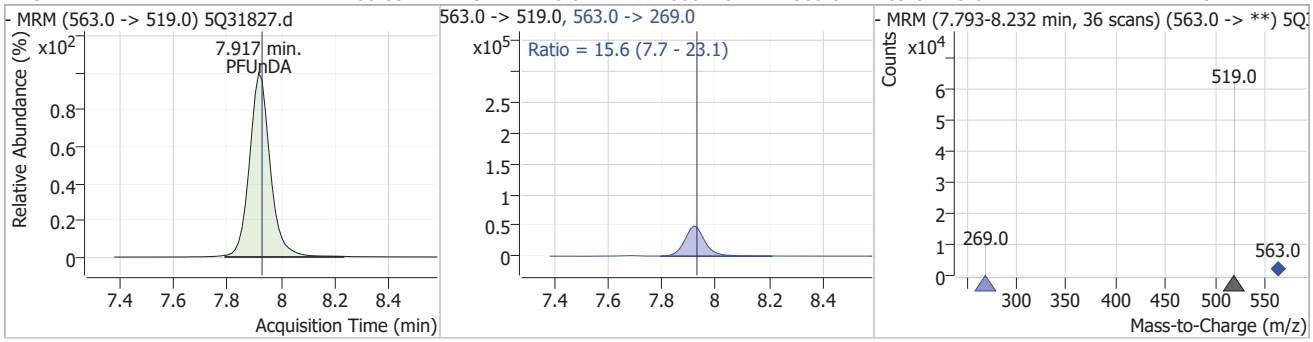
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	100.08	7.41	-0.01	1477844	513.0 -> 219.0	17.4	8.5	25.6



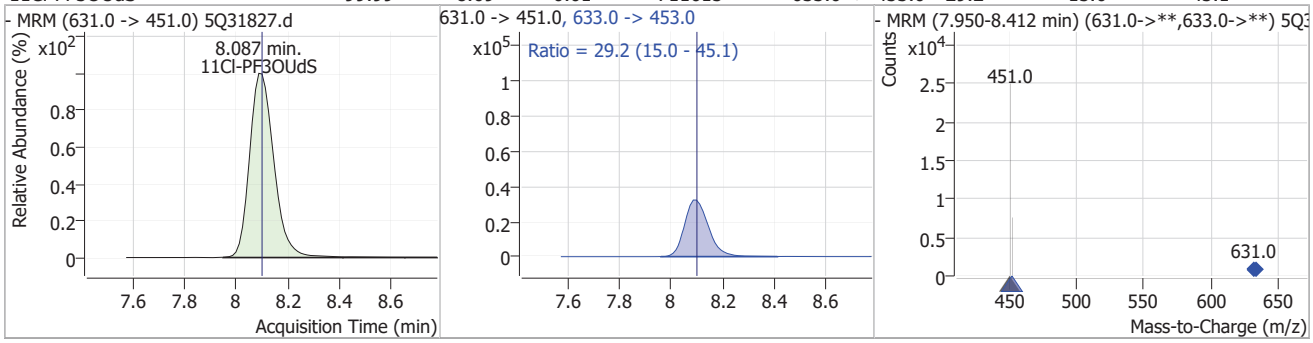
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	98.72	7.46	-0.01	1014930	527.0 -> 81.0	33.3	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	100.65	7.92	-0.01	1660110	563.0 -> 269.0	15.6	7.7	23.1

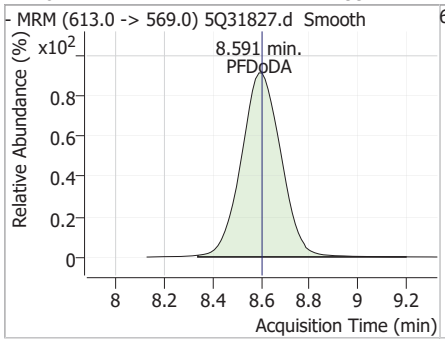


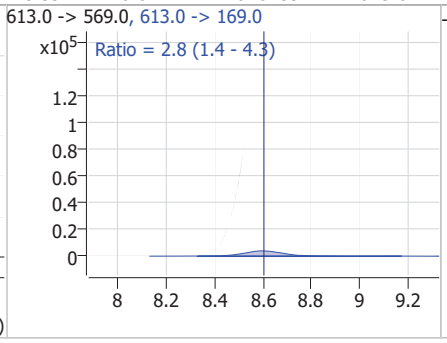
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	99.99	8.09	-0.01	711615	633.0 -> 453.0	29.2	15.0	45.1

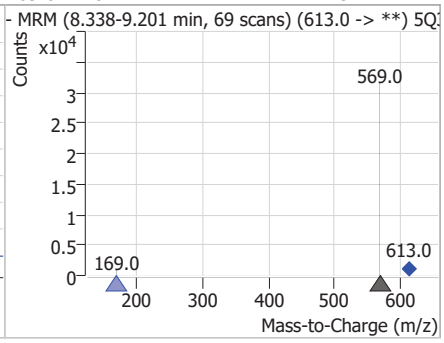


Perfluorinated Compounds by LC/MS/MS

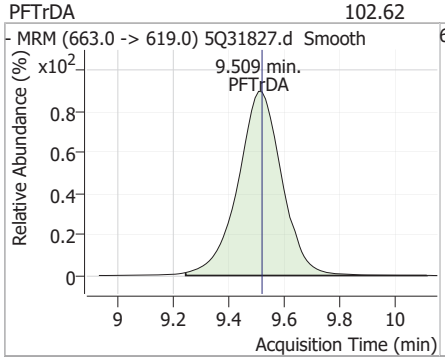
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	99.71	8.59	-0.01	1640239	613.0 -> 169.0	2.8	1.4	4.3

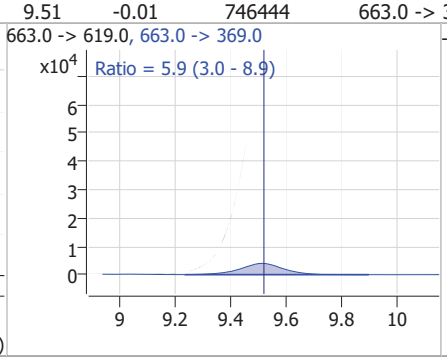


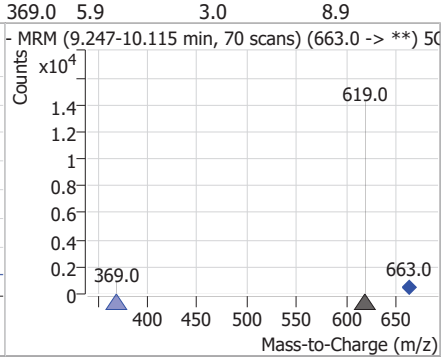




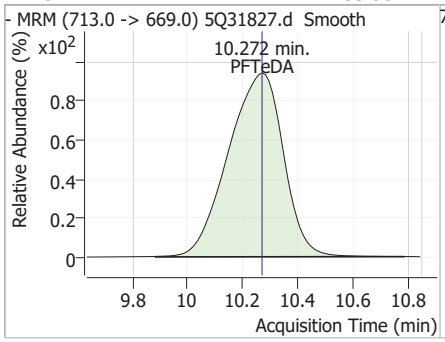
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	102.62	9.51	-0.01	746444	663.0 -> 369.0	5.9	3.0	8.9

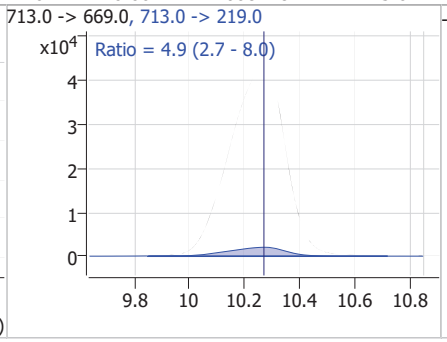


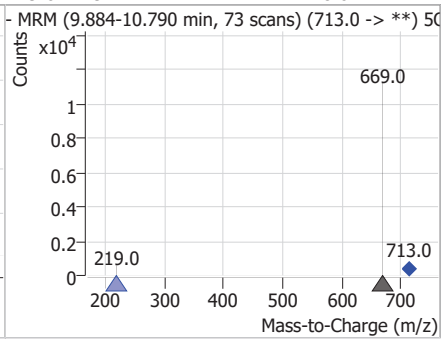




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	99.95	10.27	0.00	608728	713.0 -> 219.0	4.9	2.7	8.0







Manual Integration Approval Summary

Sample Number:	S5Q523-IC523	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31827.D	**Analyst approved:**	04/18/25 07:39 (b) (6)
Injection Time:	04/17/25 14:34	**Supervisor approved:**	04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

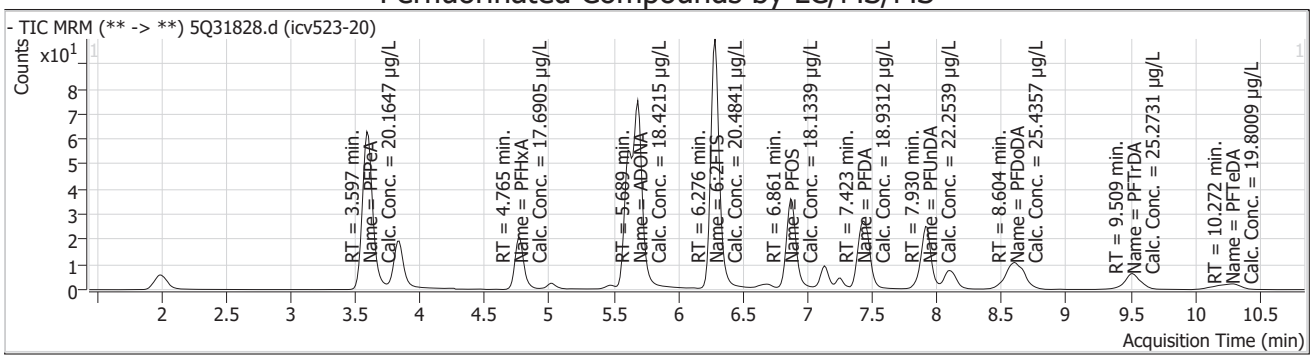
Data File : 5Q31828.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 2:50:37 PM
Sample Name : icv523-20
Vial : P1-B1
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.275	429.0 -> 409.0	199433	20.00	µg/L		-0.012
13C2-PFOA	6.290	415.0 -> 370.0	407022	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	511537	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	96913	20.00	µg/L		0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	30673	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.435	515.0 -> 470.0	0		µg/L	m	0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C2-PFHxA	4.751	315.0 -> 270.0	0		µg/L	m	-0.025
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
d5-EtFOSAA	7.378	589.0 -> 419.0	0		µg/L	m	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	0		µg/L	m	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
Target Compounds							QValue
6:2FTS	6.276	427.0 -> 407.0	204752	20.48	µg/L		99
8:2FTS	7.471	527.0 -> 507.0	178824	20.62	µg/L		100
EtFOSAA	7.391	584.0 -> 419.0	10110	19.69	µg/L	m	96
MeFOSAA	7.254	570.0 -> 419.0	13328	19.27	µg/L	m	99
PFBS	3.828	299.0 -> 80.0	230840	18.20	µg/L		99
PFDA	7.423	513.0 -> 469.0	274943	18.93	µg/L		100
PFDoDA	8.604	613.0 -> 569.0	363204	25.44	µg/L		100
PFHpA	5.615	363.0 -> 319.0	683772	20.48	µg/L		100
PFHxA	4.765	313.0 -> 269.0	310467	17.69	µg/L		100
PFHxS	5.636	399.0 -> 80.0	139365	17.65	µg/L	m	99
PFNA	6.887	463.0 -> 419.0	312100	23.57	µg/L		89
PFOA	6.291	413.0 -> 369.0	396109	20.41	µg/L		98
PFOS	6.861	499.0 -> 80.0	115931	18.13	µg/L	m	92
PFPeA	3.597	263.0 -> 219.0	664327	20.16	µg/L		100
PFTeDA	10.272	713.0 -> 669.0	98511	19.80	µg/L		99
PFTrDA	9.509	663.0 -> 619.0	177271	25.27	µg/L		100
PFUnDA	7.930	563.0 -> 519.0	353943	22.25	µg/L		99
ADONA	5.689	377.0 -> 251.0	793286	18.42	µg/L		99
9Cl-PF3ONS	7.131	531.0 -> 351.0	102524	18.63	µg/L		97
11Cl-PF3OUdS	8.100	631.0 -> 451.0	120882	20.63	µg/L		99
HFPO-DA	5.023	285.0 -> 169.0	31309	19.69	µg/L		99

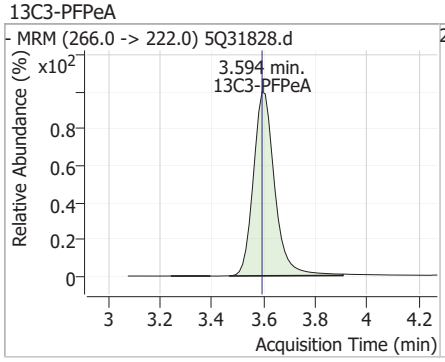
 # = Qualifier out of range, m = manually integrated, + = Area summed

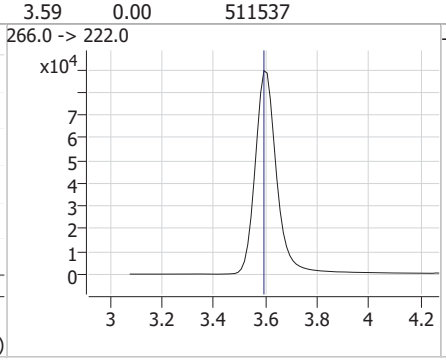
7.7.48
7

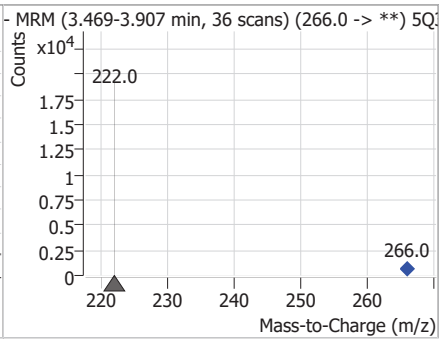
Perfluorinated Compounds by LC/MS/MS



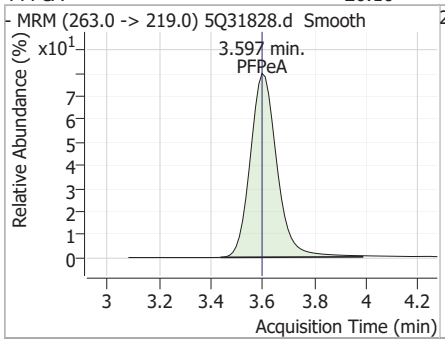
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	511537				

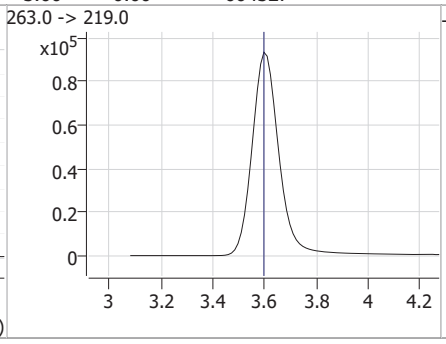


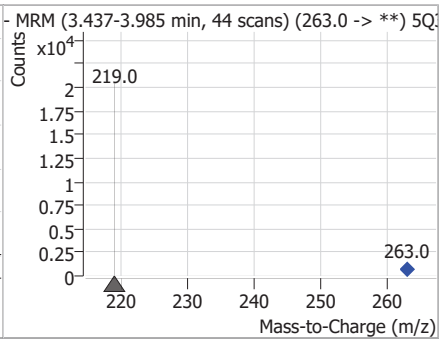




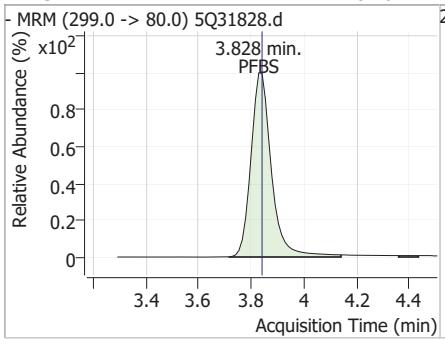
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.16	3.60	0.00	664327				

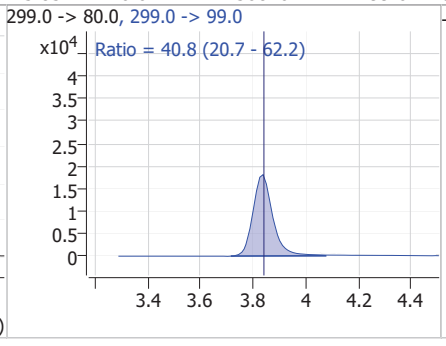


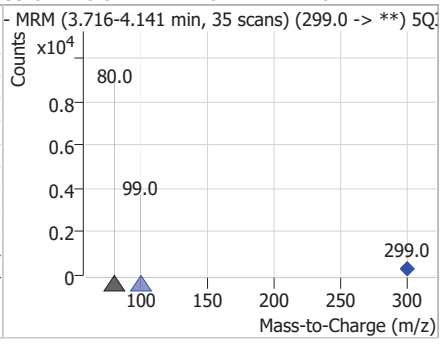




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	18.20	3.83	-0.01	230840	299.0 -> 99.0	40.8	20.7	62.2

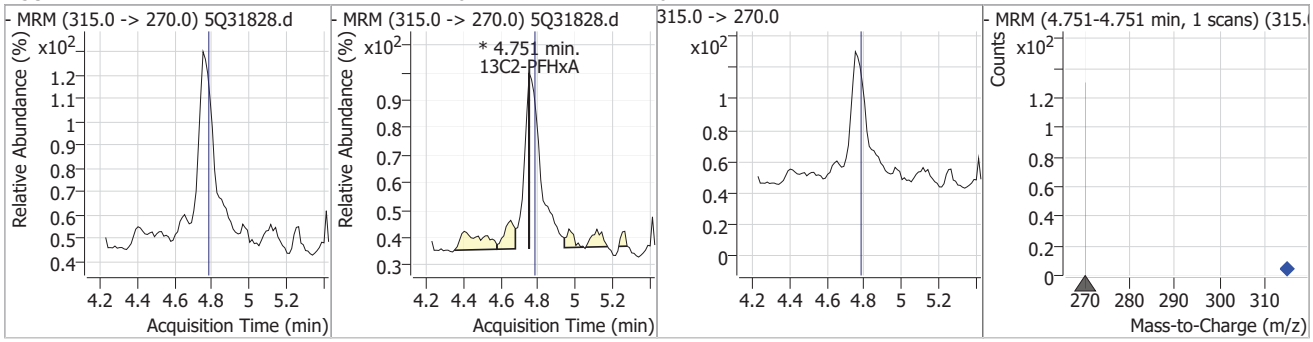




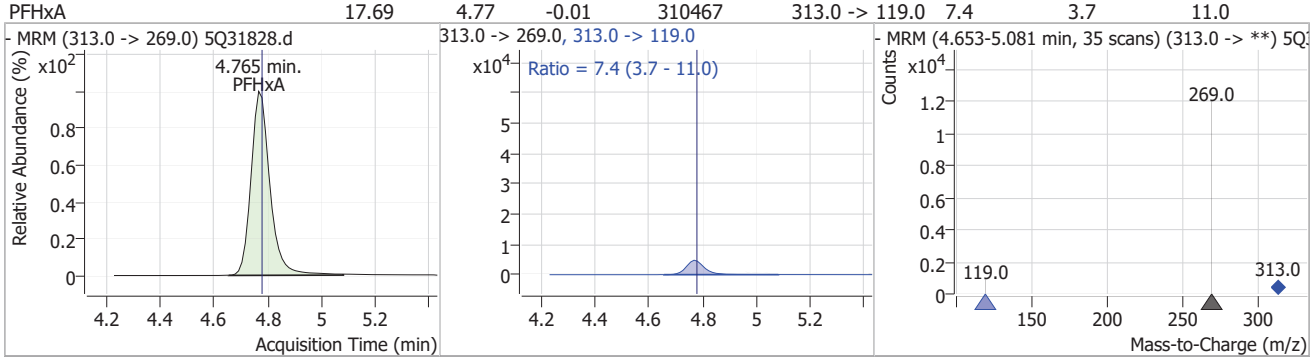


Perfluorinated Compounds by LC/MS/MS

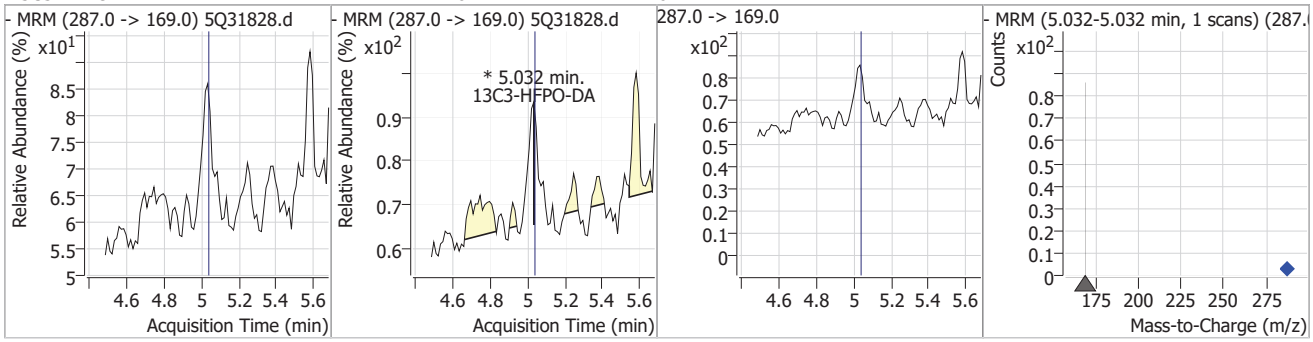
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA		0		0				



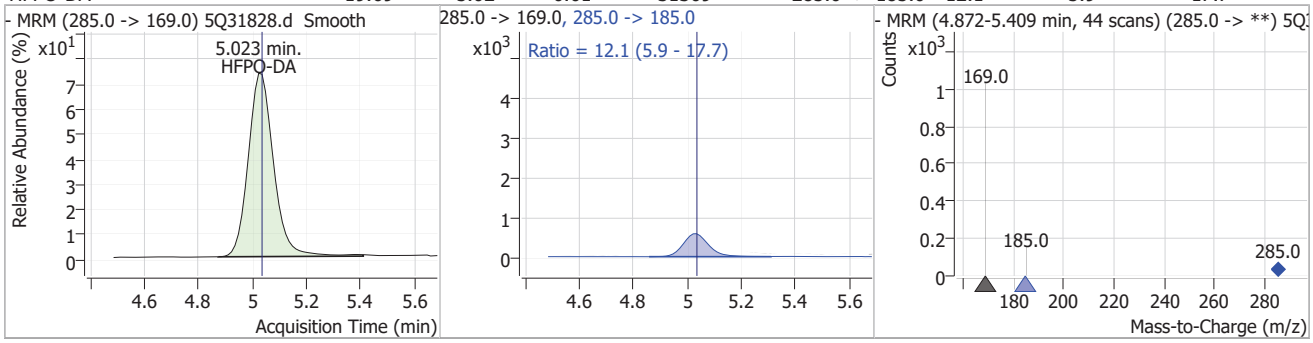
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	17.69	4.77	-0.01	310467	313.0 -> 119.0	7.4	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA		0		0				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.69	5.02	-0.01	31309	285.0 -> 185.0	12.1	5.9	17.7

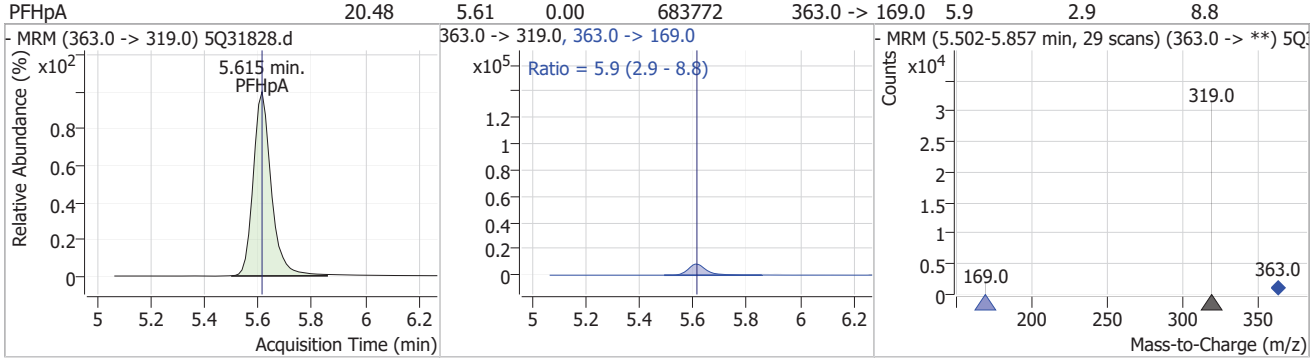


7.7.48

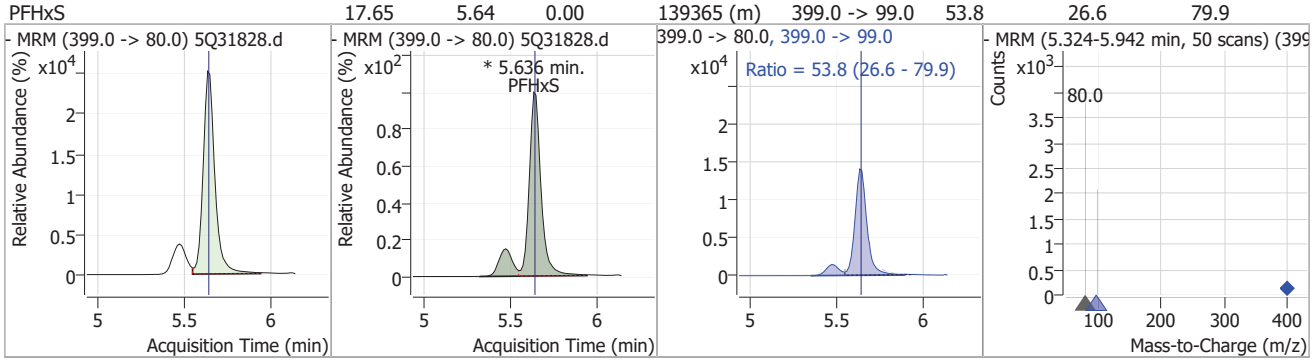
7

Perfluorinated Compounds by LC/MS/MS

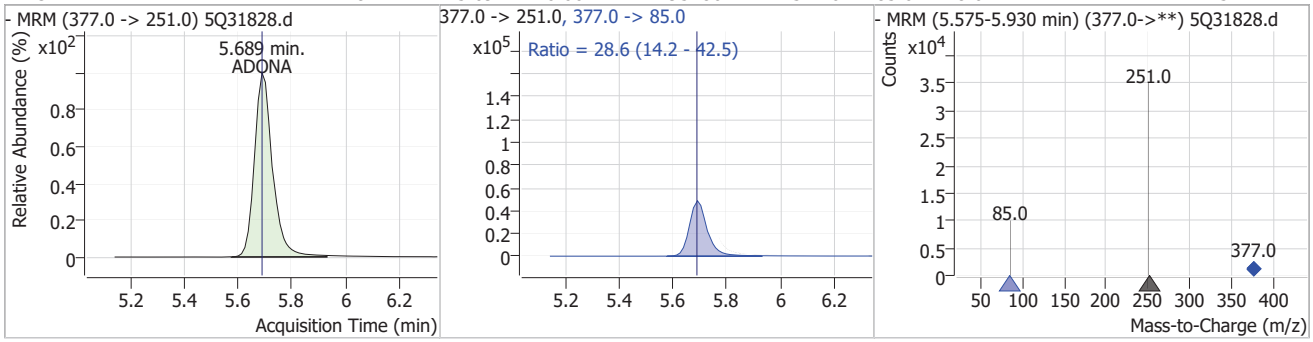
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.48	5.61	0.00	683772	363.0 -> 169.0	5.9	2.9	8.8



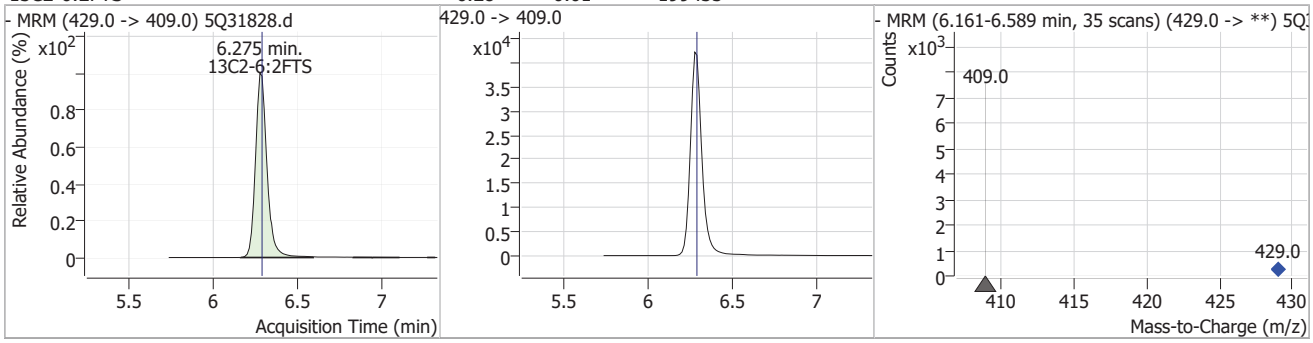
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	17.65	5.64	0.00	139365 (m)	399.0 -> 99.0	53.8	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	18.42	5.69	0.00	793286	377.0 -> 85.0	28.6	14.2	42.5

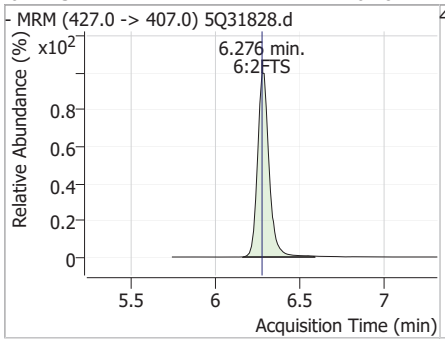


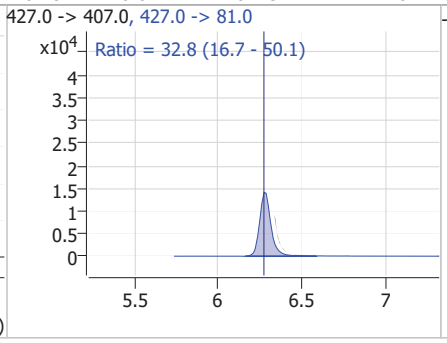
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	199433				

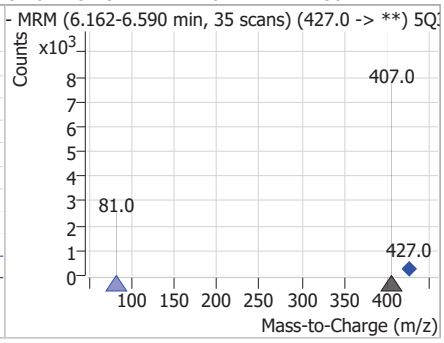


Perfluorinated Compounds by LC/MS/MS

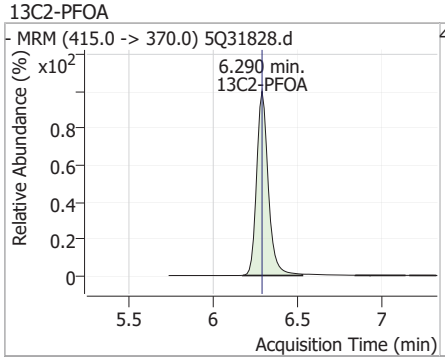
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	20.48	6.28	-0.01	204752	427.0 -> 81.0	32.8	16.7	50.1

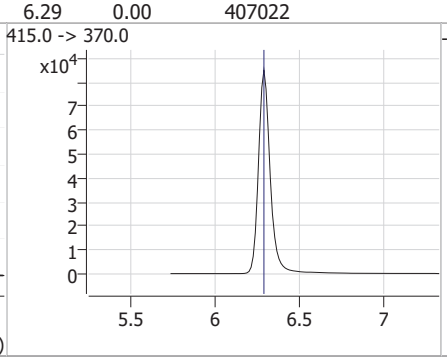


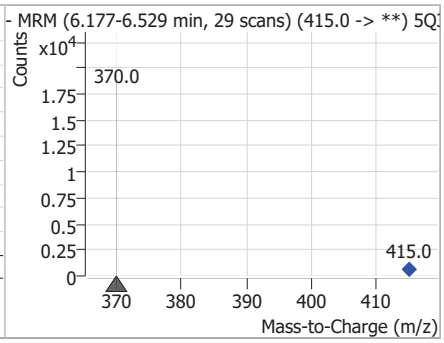




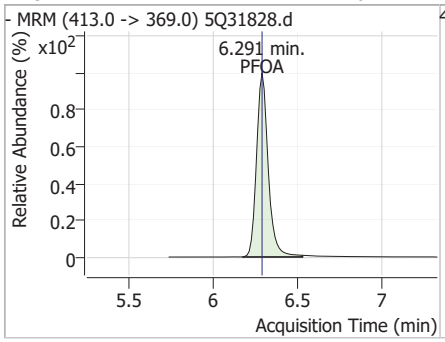
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	407022				

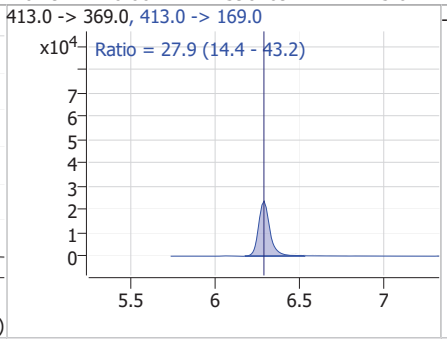


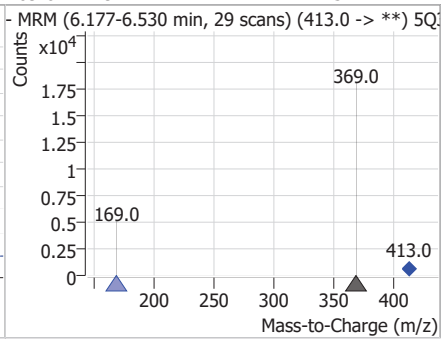




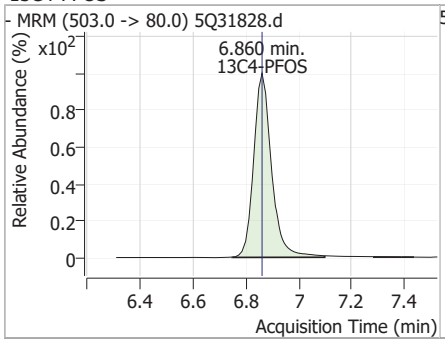
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.41	6.29	0.00	396109	413.0 -> 169.0	27.9	14.4	43.2

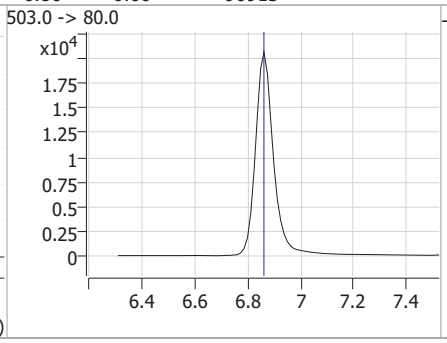


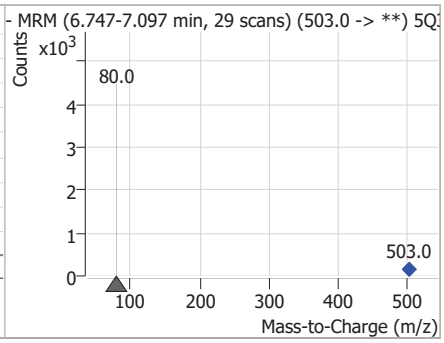




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	96913				

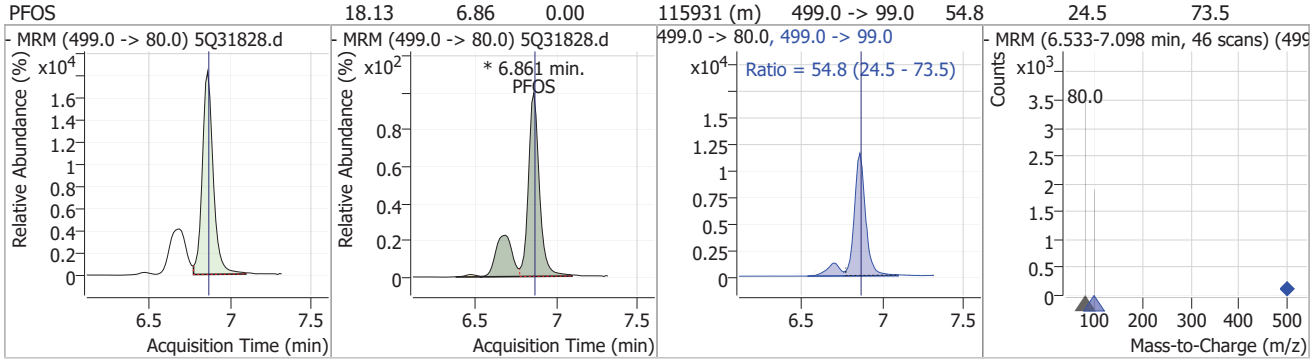




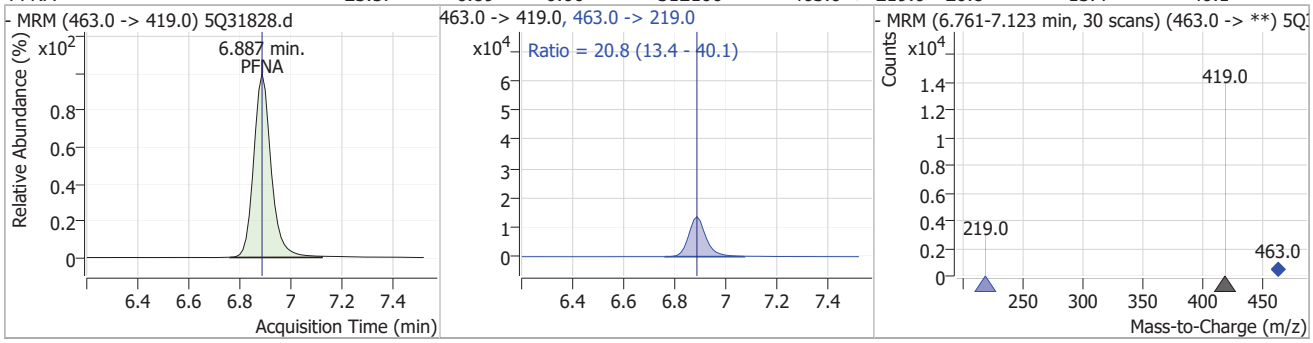


Perfluorinated Compounds by LC/MS/MS

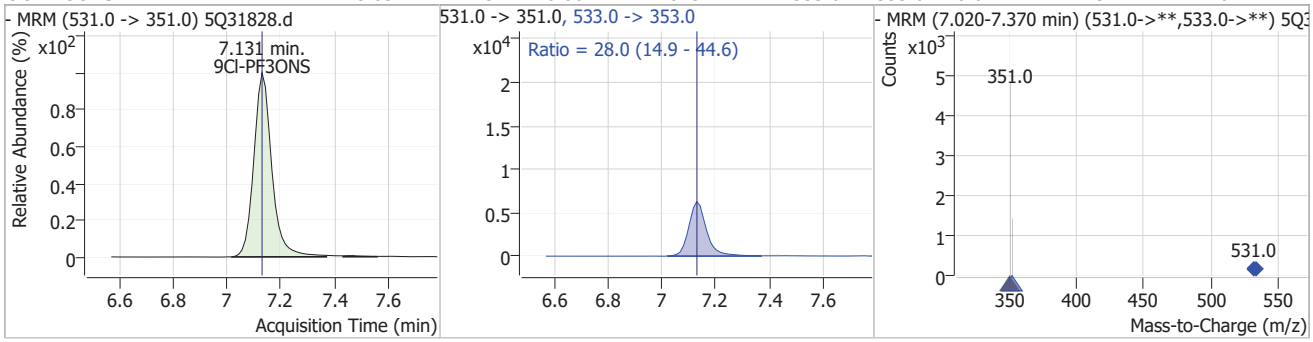
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.13	6.86	0.00	115931 (m)	499.0 -> 99.0	54.8	24.5	73.5



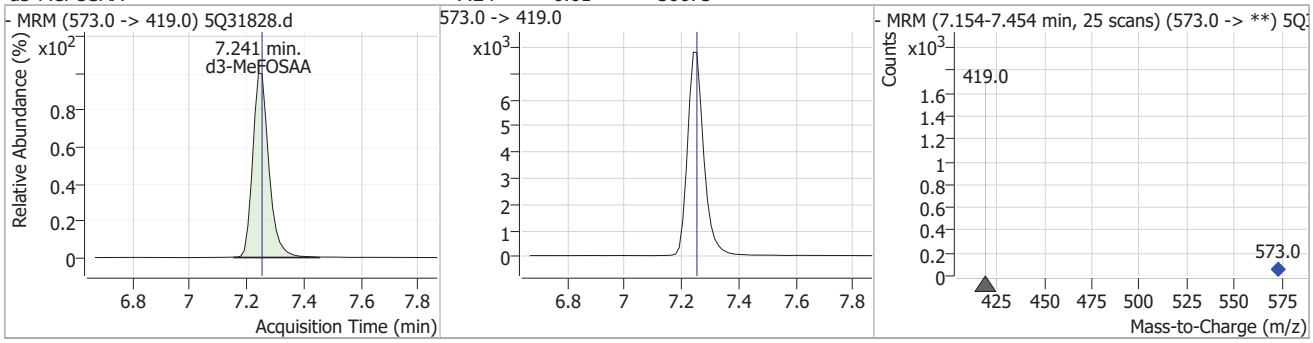
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	23.57	6.89	0.00	312100	463.0 -> 219.0	20.8	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	18.63	7.13	0.00	102524	533.0 -> 353.0	28.0	14.9	44.6

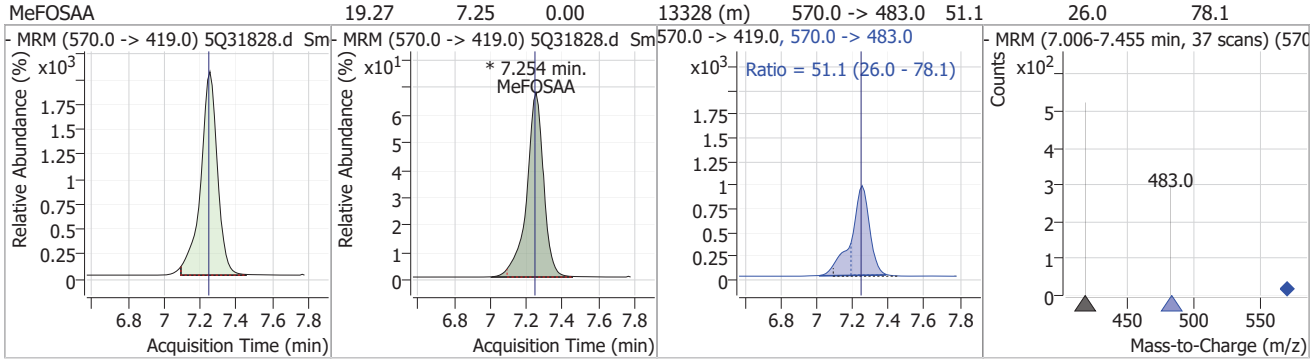


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	30673				

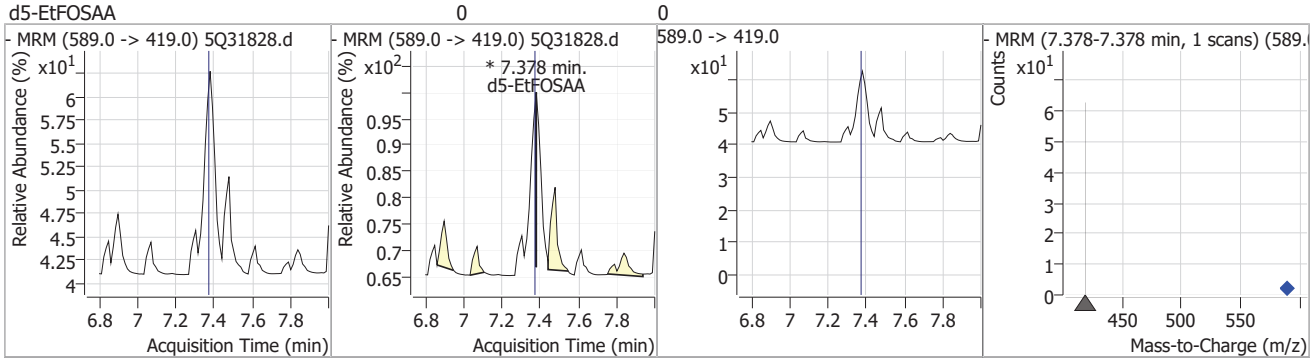


Perfluorinated Compounds by LC/MS/MS

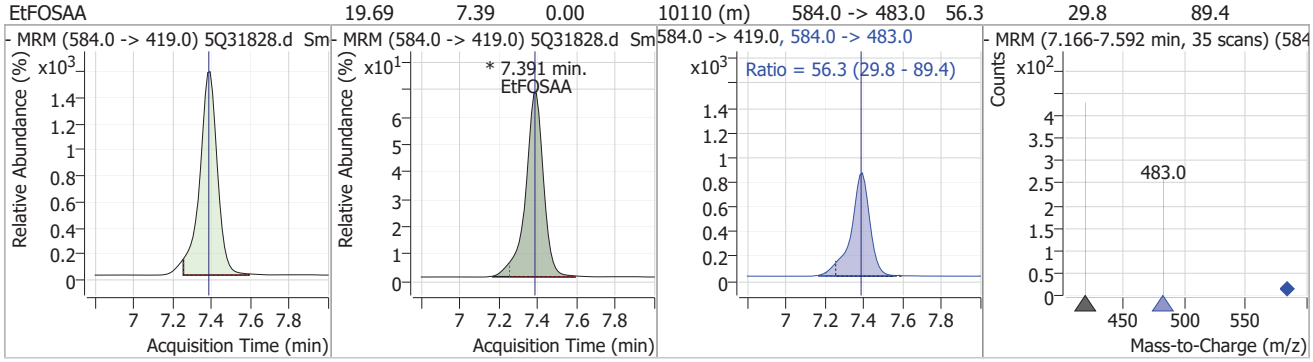
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.27	7.25	0.00	13328 (m)	570.0 -> 483.0	51.1	26.0	78.1



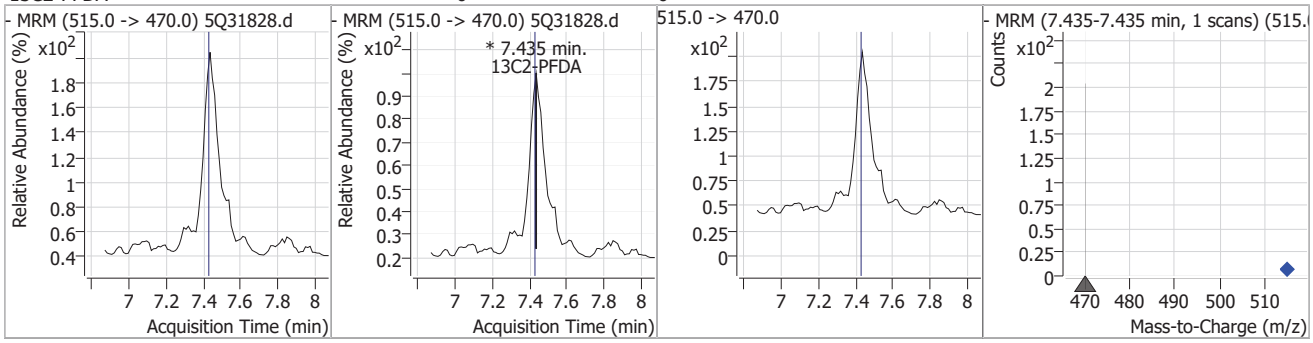
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA		0		0				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.69	7.39	0.00	10110 (m)	584.0 -> 483.0	56.3	29.8	89.4

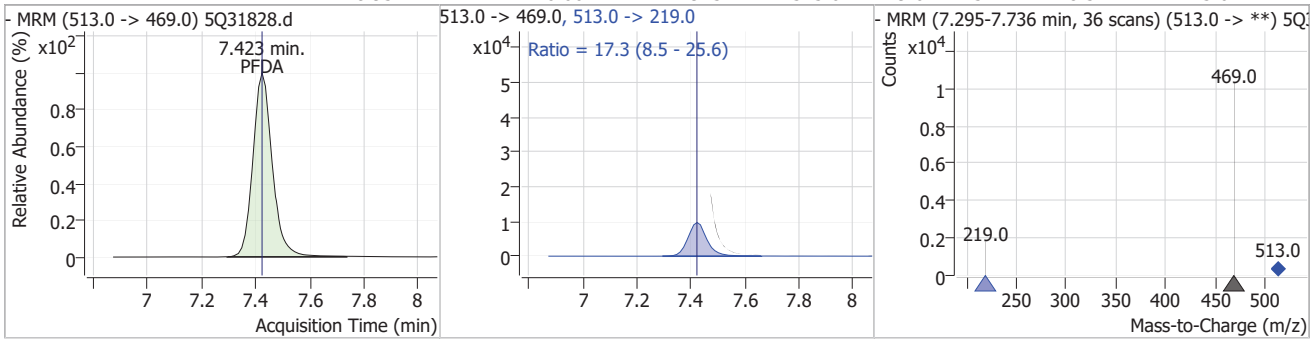


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA		0		0				

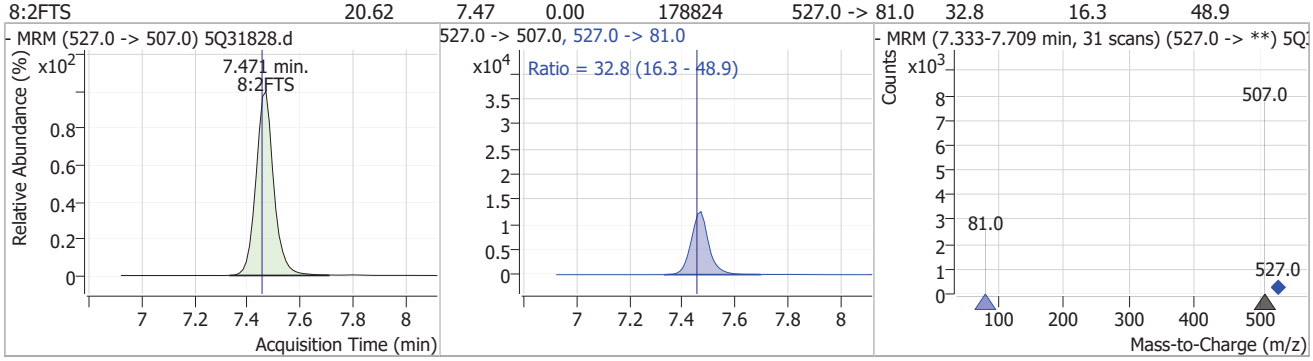


Perfluorinated Compounds by LC/MS/MS

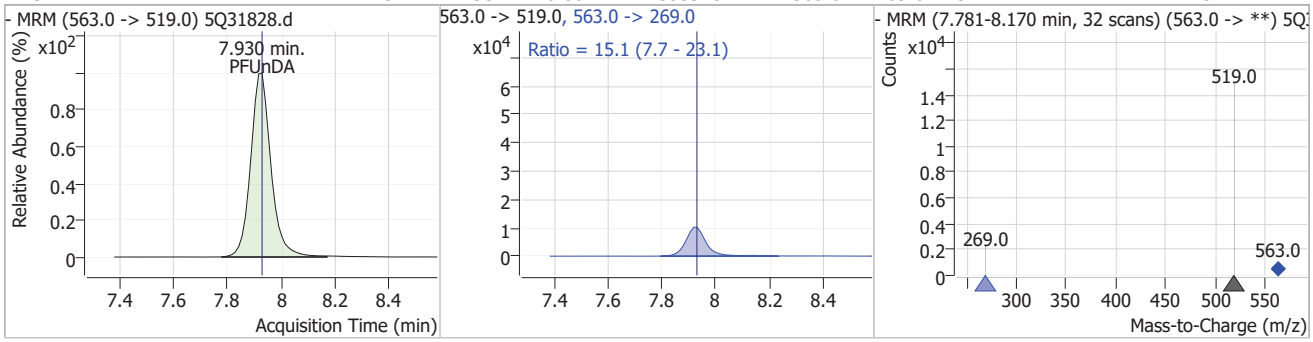
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	18.93	7.42	0.00	274943	513.0 -> 219.0	17.3	8.5	25.6



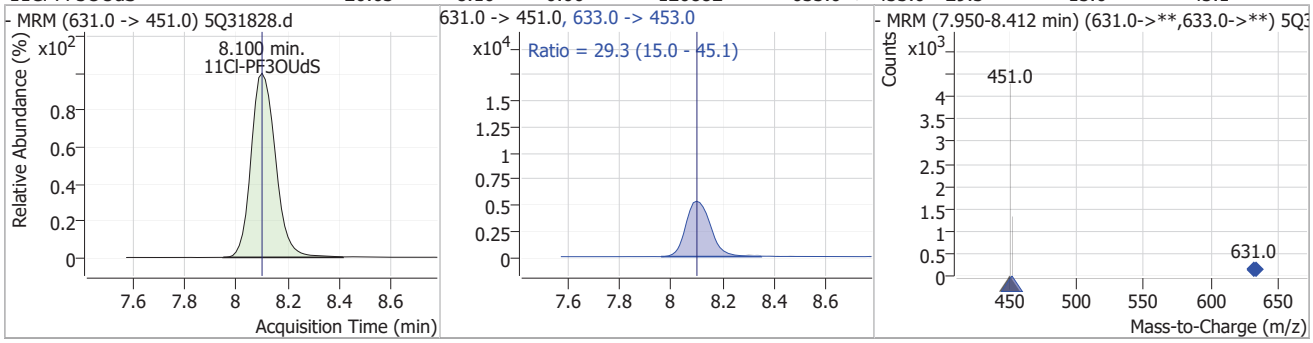
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	20.62	7.47	0.00	178824	527.0 -> 81.0	32.8	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	22.25	7.93	0.00	353943	563.0 -> 269.0	15.1	7.7	23.1

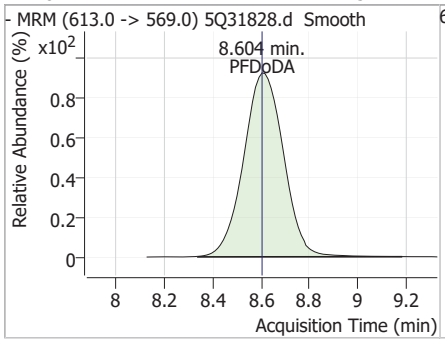


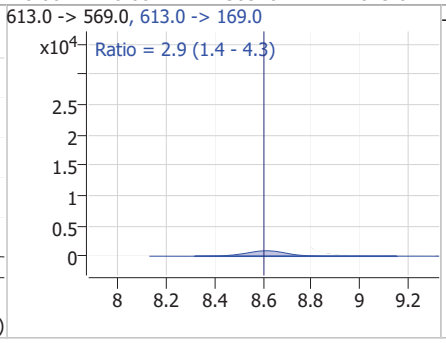
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	20.63	8.10	0.00	120882	633.0 -> 453.0	29.3	15.0	45.1

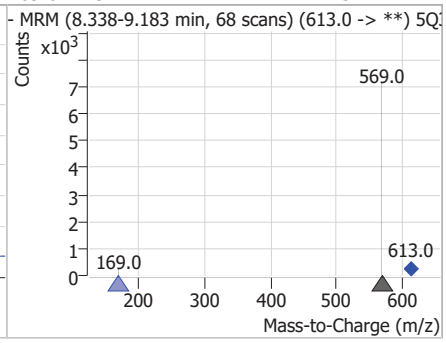


Perfluorinated Compounds by LC/MS/MS

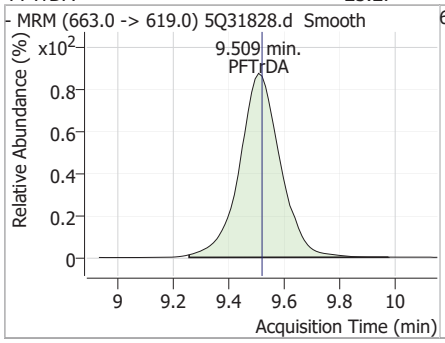
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	25.44	8.60	0.00	363204	613.0 -> 169.0	2.9	1.4	4.3

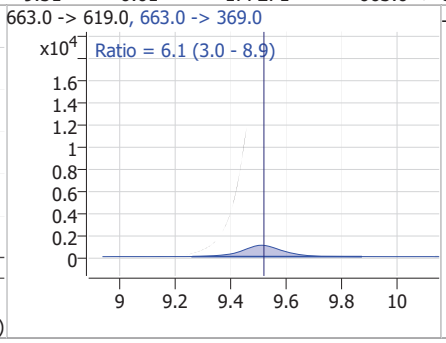


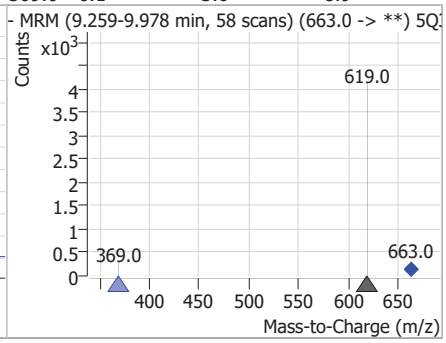




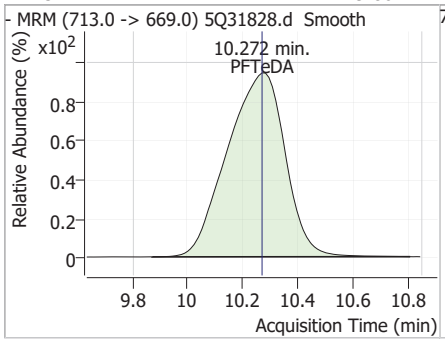
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	25.27	9.51	-0.01	177271	663.0 -> 369.0	6.1	3.0	8.9

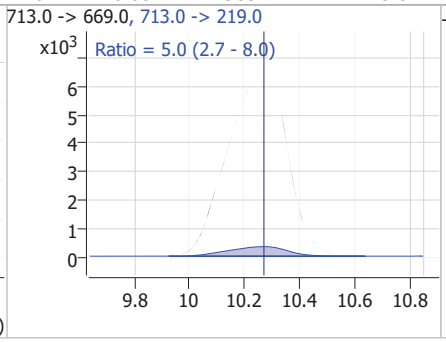


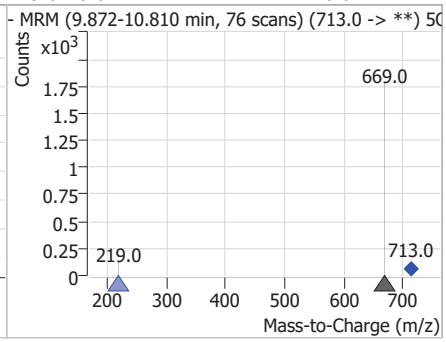




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.80	10.27	0.00	98511	713.0 -> 219.0	5.0	2.7	8.0







Manual Integration Approval Summary

Sample Number: S5Q523-ICV523
Lab FileID: 5Q31828.D
Injection Time: 04/17/25 14:50
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6)
Supervisor approved: 04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31830.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 3:23:28 PM
Sample Name : cc523-20
Vial : P1-A7
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.275	429.0 -> 409.0	201547	20.00 µg/L		-0.012
13C2-PFOA	6.290	415.0 -> 370.0	421900	20.00 µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	512699	20.00 µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	100208	20.00 µg/L		0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	32420	40.00 µg/L		-0.012
System Monitoring Compounds						
13C2-PFDA	7.422	515.0 -> 470.0	165298	9.15 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 45.8%		
13C2-PFHxA	4.764	315.0 -> 270.0	250929	9.39 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 46.9%		
d5-EtFOSAA	7.378	589.0 -> 419.0	11922	19.38 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 48.4%		
13C3-HFPO-DA	5.020	287.0 -> 169.0	33446	17.71 µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 44.3%		
Target Compounds						QValue
6:2FTS	6.276	427.0 -> 407.0	237827	23.54 µg/L		97
8:2FTS	7.458	527.0 -> 507.0	185195	21.13 µg/L		98
EtFOSAA	7.391	584.0 -> 419.0	11244	20.72 µg/L	m	86
MeFOSAA	7.254	570.0 -> 419.0	13703	18.75 µg/L	m	84
PFBS	3.828	299.0 -> 80.0	272245	20.76 µg/L		99
PFDA	7.423	513.0 -> 469.0	308601	20.47 µg/L		99
PFDoDA	8.604	613.0 -> 569.0	290730	19.86 µg/L		99
PFHpA	5.615	363.0 -> 319.0	676030	19.56 µg/L		100
PFHxA	4.765	313.0 -> 269.0	339925	18.69 µg/L		100
PFHxS	5.636	399.0 -> 80.0	164168	20.05 µg/L	m	99
PFNA	6.887	463.0 -> 419.0	293061	21.46 µg/L	m	99
PFOA	6.291	413.0 -> 369.0	408261	20.30 µg/L		99
PFOS	6.861	499.0 -> 80.0	123281	18.65 µg/L	m	97
PFPeA	3.597	263.0 -> 219.0	665277	20.15 µg/L		100
PFTeDA	10.272	713.0 -> 669.0	102020	19.83 µg/L		100
PFTrDA	9.522	663.0 -> 619.0	119168	16.43 µg/L		100
PFUnDA	7.930	563.0 -> 519.0	323403	19.67 µg/L		99
ADONA	5.689	377.0 -> 251.0	877750	19.62 µg/L		98
9Cl-PF3ONS	7.131	531.0 -> 351.0	114980	20.08 µg/L		99
11Cl-PF3OUdS	8.100	631.0 -> 451.0	122027	20.13 µg/L		100
HFPO-DA	5.023	285.0 -> 169.0	32924	19.97 µg/L		98

 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.49
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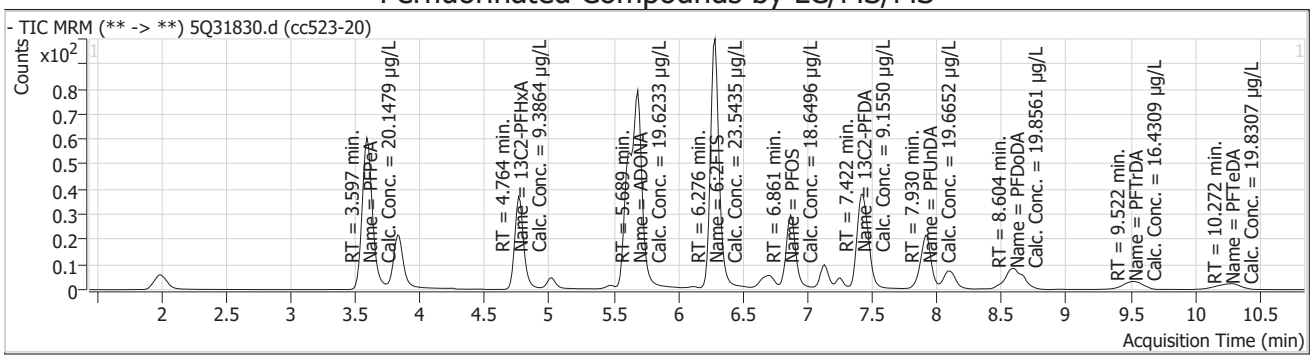
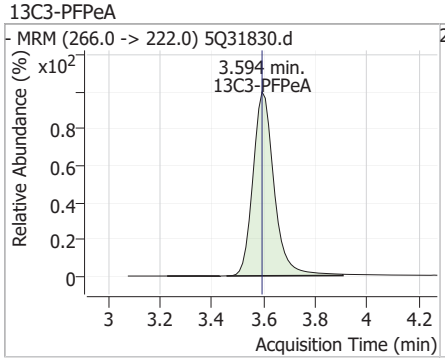
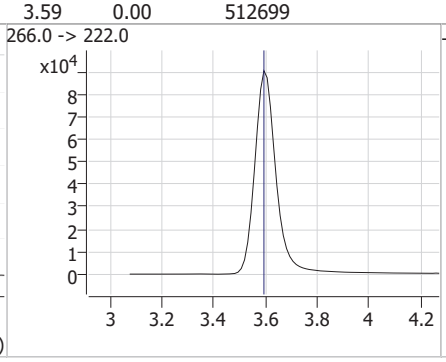
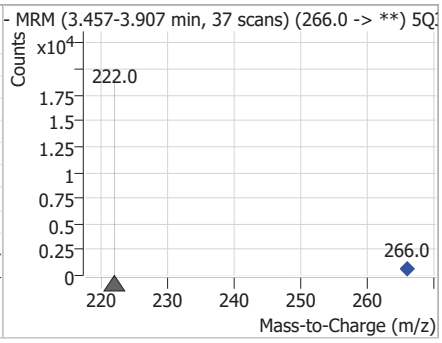
Perfluorinated Compounds by LC/MS/MS



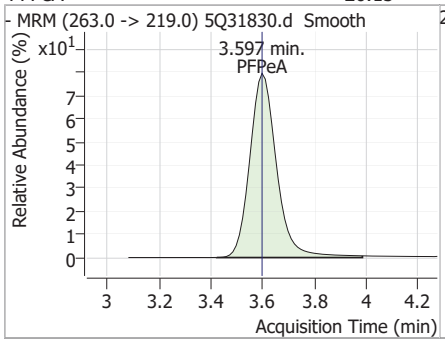
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	512699				

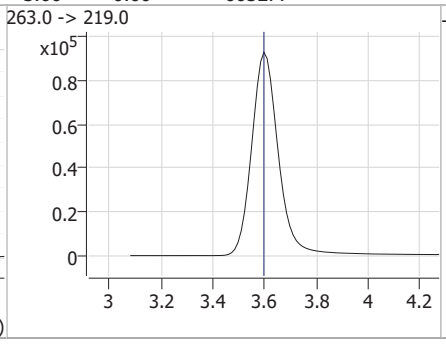


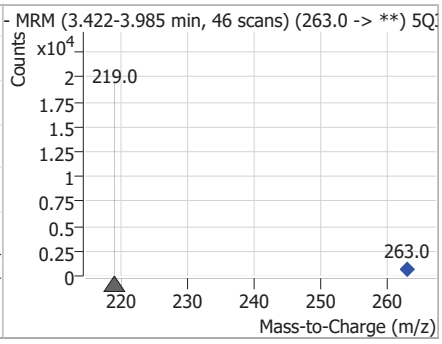




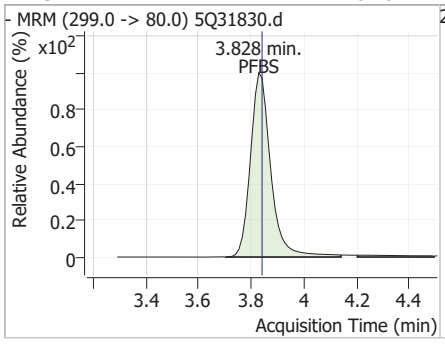
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.15	3.60	0.00	665277				

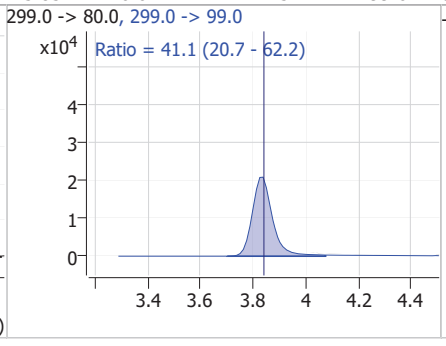


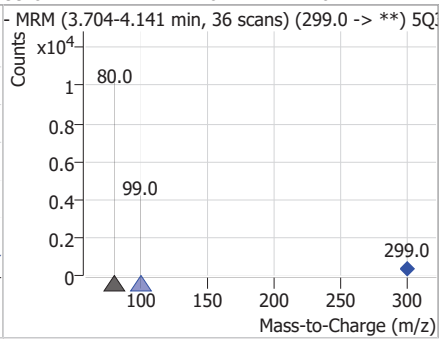




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.76	3.83	-0.01	272245	299.0 -> 99.0	41.1	20.7	62.2







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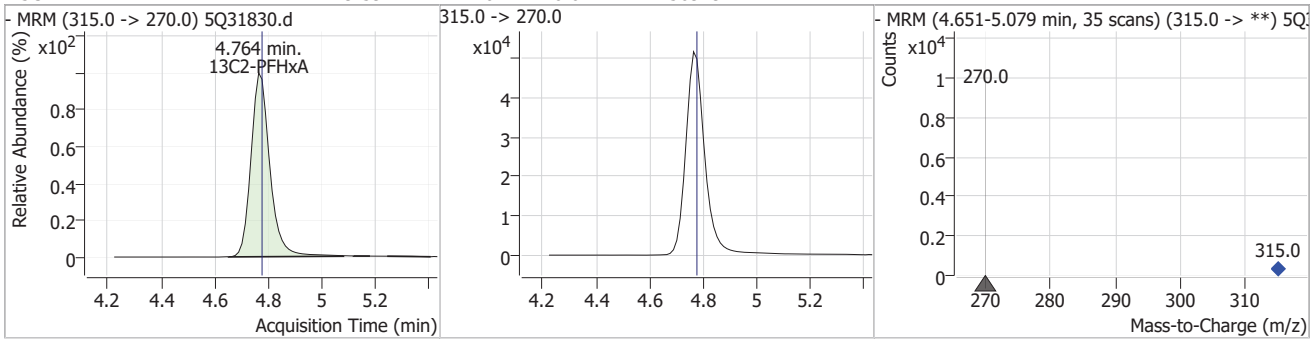
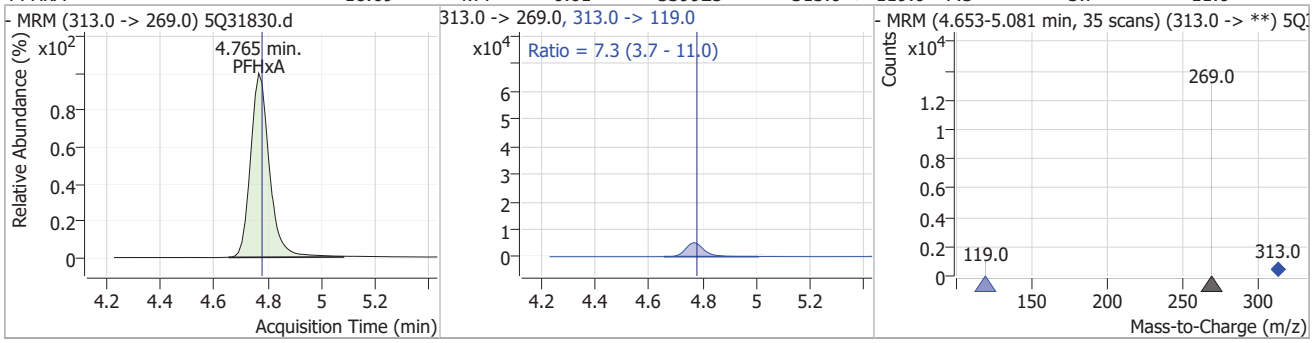
Perfluorinated Compounds by LC/MS/MS

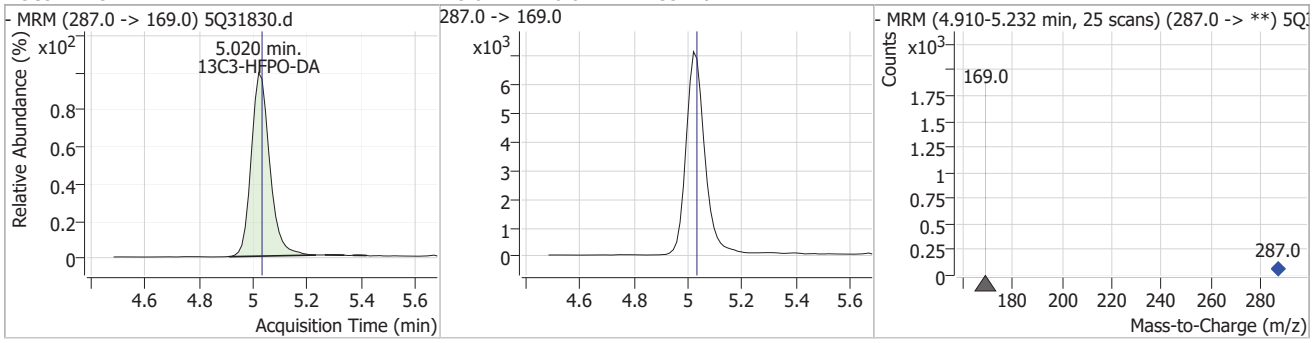
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	9.39	4.76	-0.01	250929				



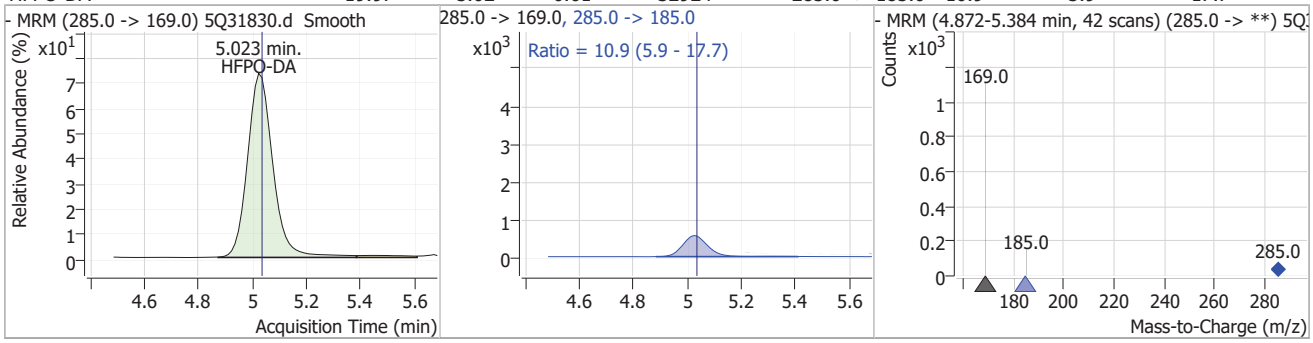
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	18.69	4.77	-0.01	339925	313.0 -> 119.0	7.3	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	17.71	5.02	-0.01	33446				

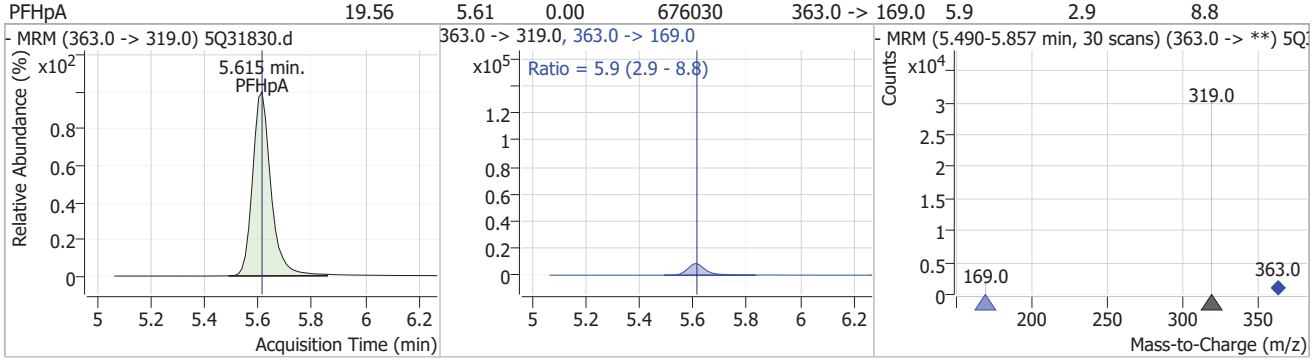


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.97	5.02	-0.01	32924	285.0 -> 185.0	10.9	5.9	17.7

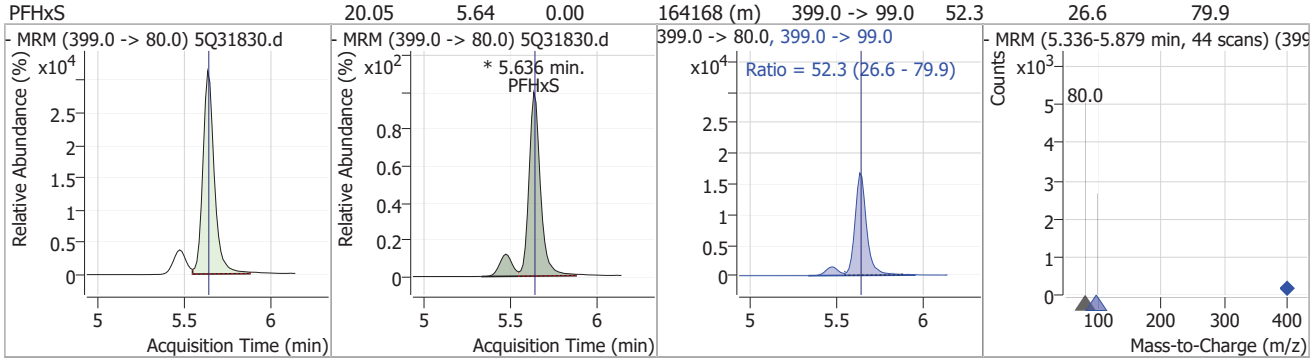


Perfluorinated Compounds by LC/MS/MS

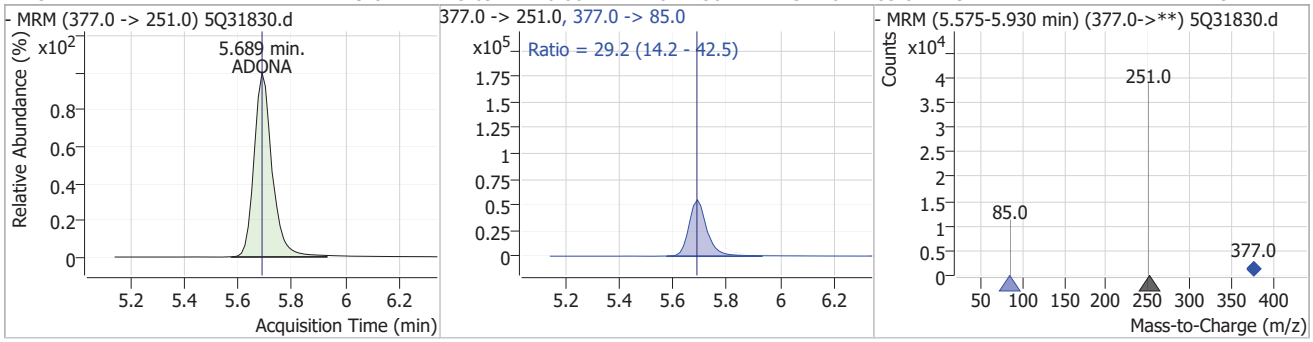
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.56	5.61	0.00	676030	363.0 -> 169.0	5.9	2.9	8.8



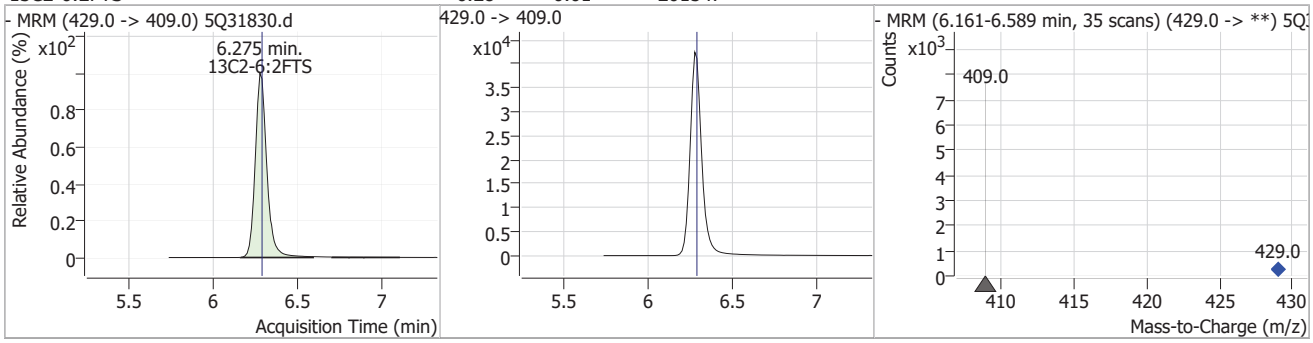
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	20.05	5.64	0.00	164168 (m)	399.0 -> 99.0	52.3	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.62	5.69	0.00	877750	377.0 -> 85.0	29.2	14.2	42.5

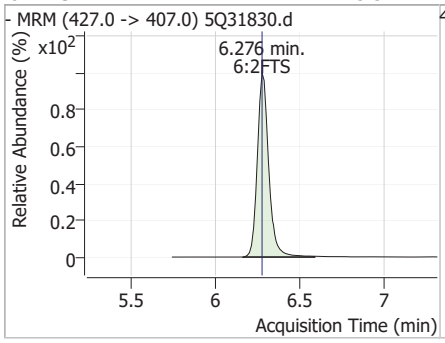


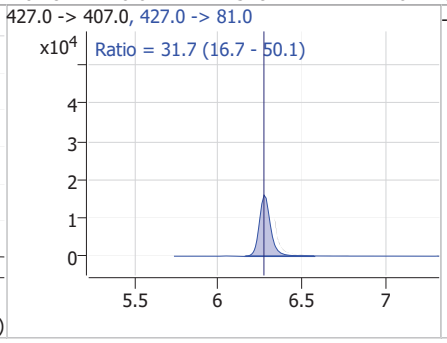
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	201547				

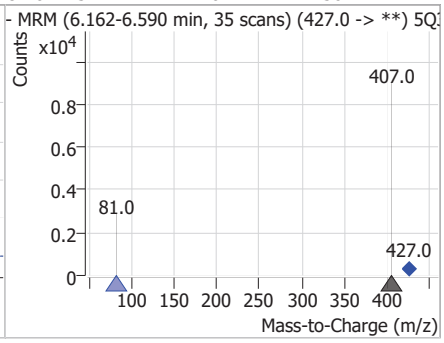


Perfluorinated Compounds by LC/MS/MS

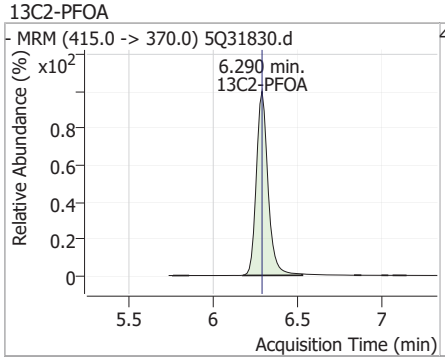
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	23.54	6.28	-0.01	237827	427.0 -> 81.0	31.7	16.7	50.1

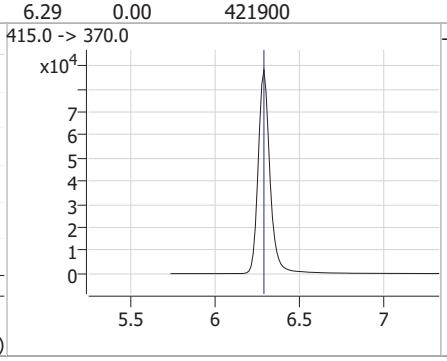


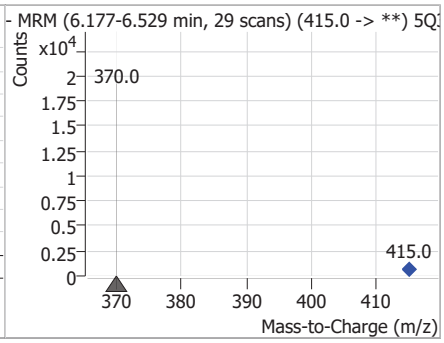




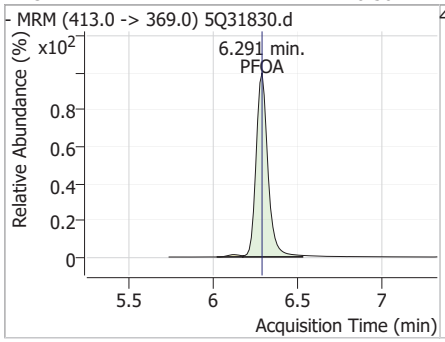
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	421900				

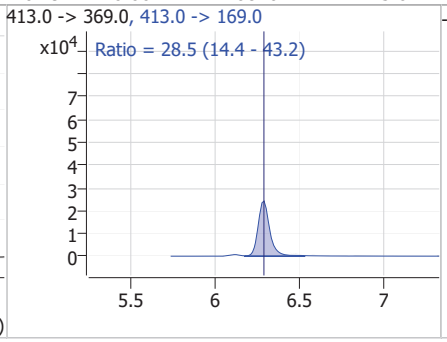


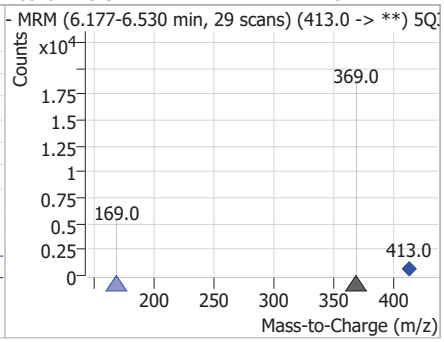




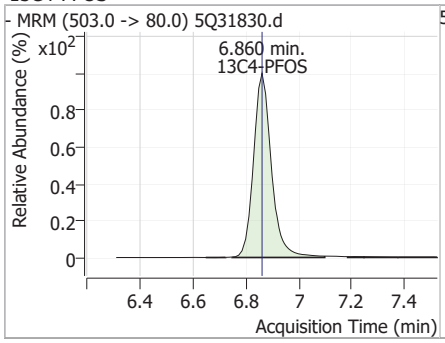
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.30	6.29	0.00	408261	413.0 -> 169.0	28.5	14.4	43.2

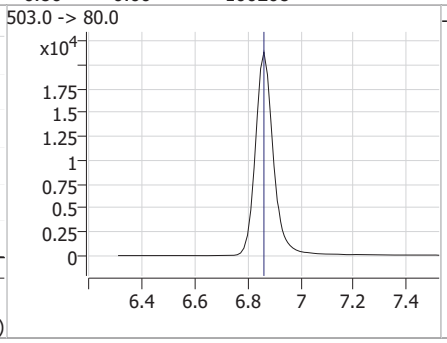


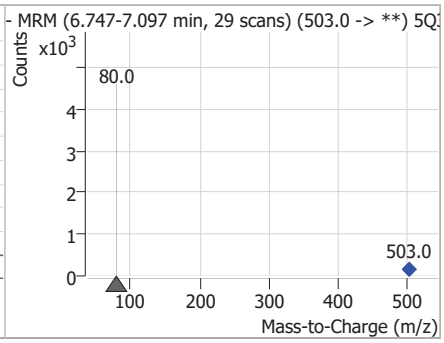




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	100208				

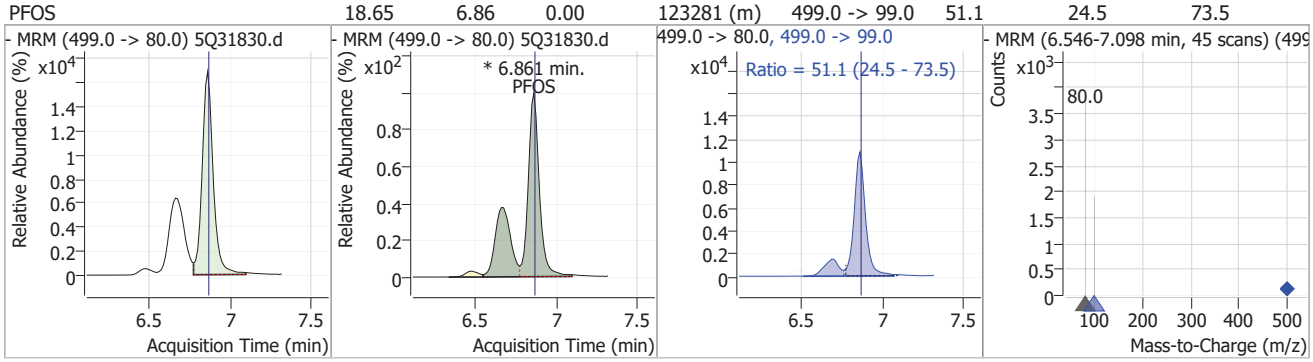




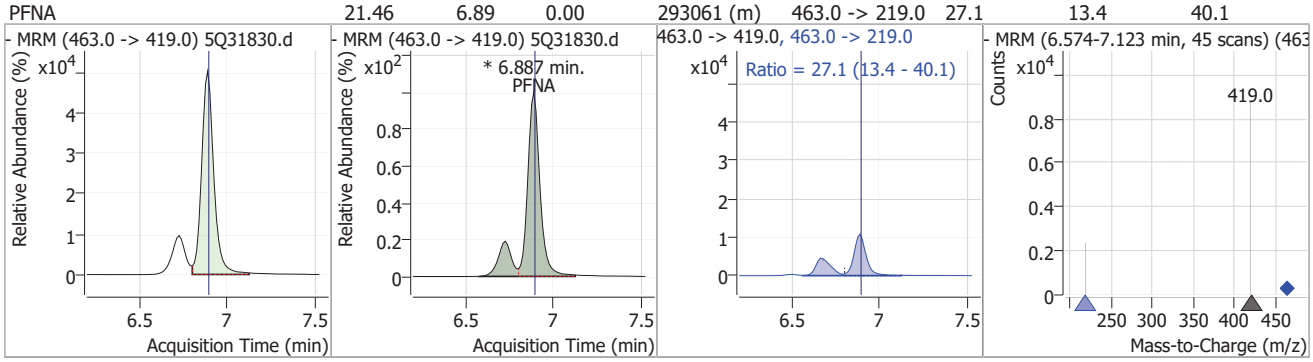


Perfluorinated Compounds by LC/MS/MS

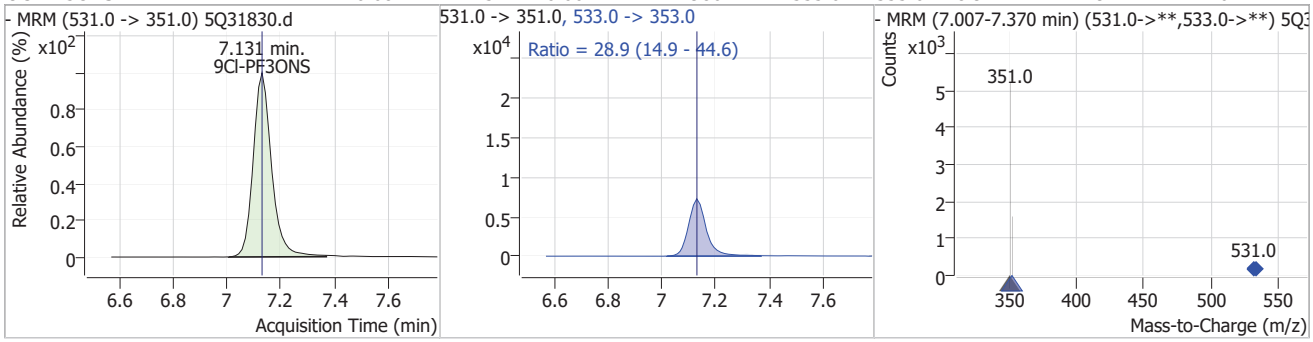
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.65	6.86	0.00	123281 (m)	499.0 -> 99.0	51.1	24.5	73.5



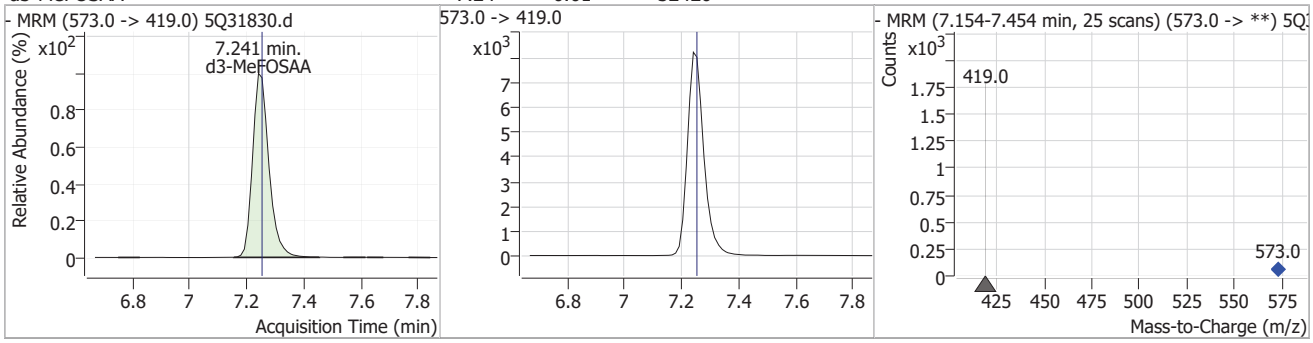
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	21.46	6.89	0.00	293061 (m)	463.0 -> 219.0	27.1	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	20.08	7.13	0.00	114980	533.0 -> 353.0	28.9	14.9	44.6

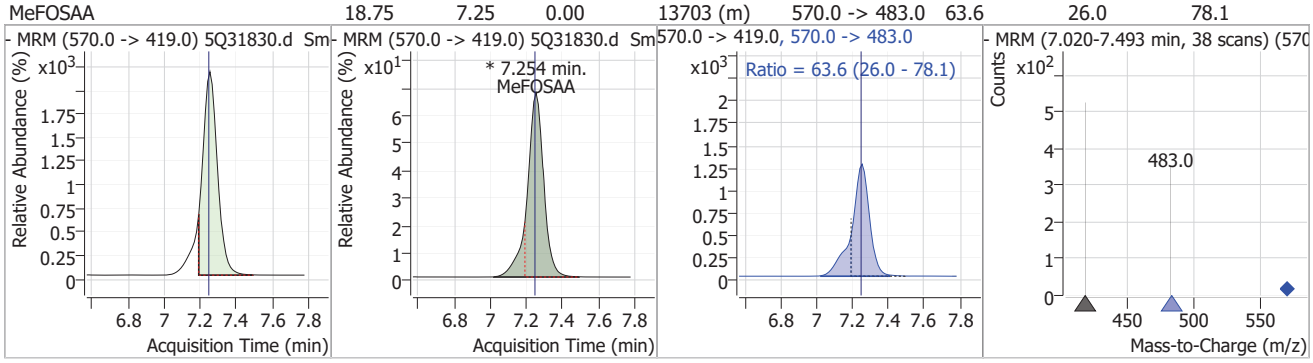


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	32420				

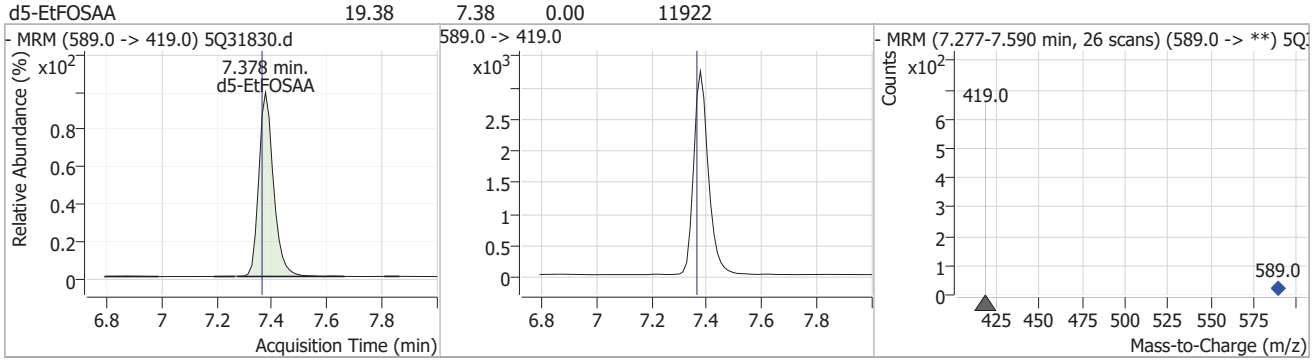


Perfluorinated Compounds by LC/MS/MS

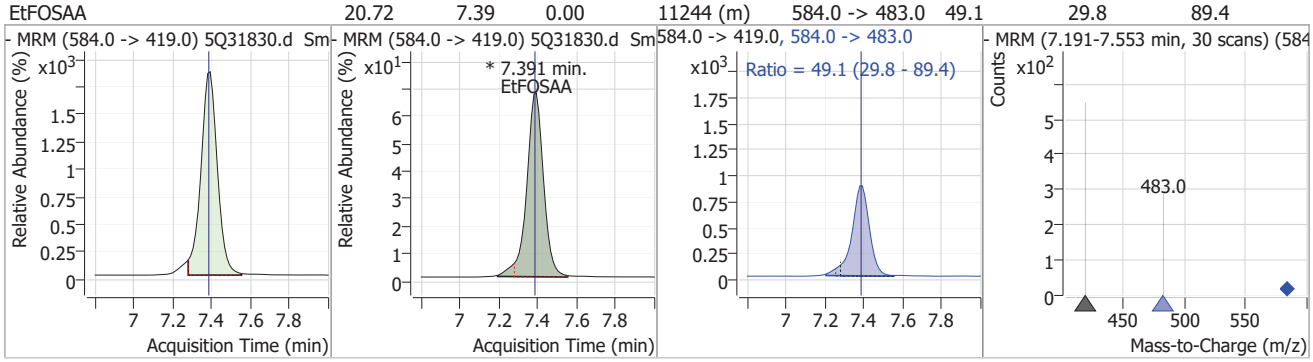
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	18.75	7.25	0.00	13703 (m)	570.0 -> 483.0	63.6	26.0	78.1



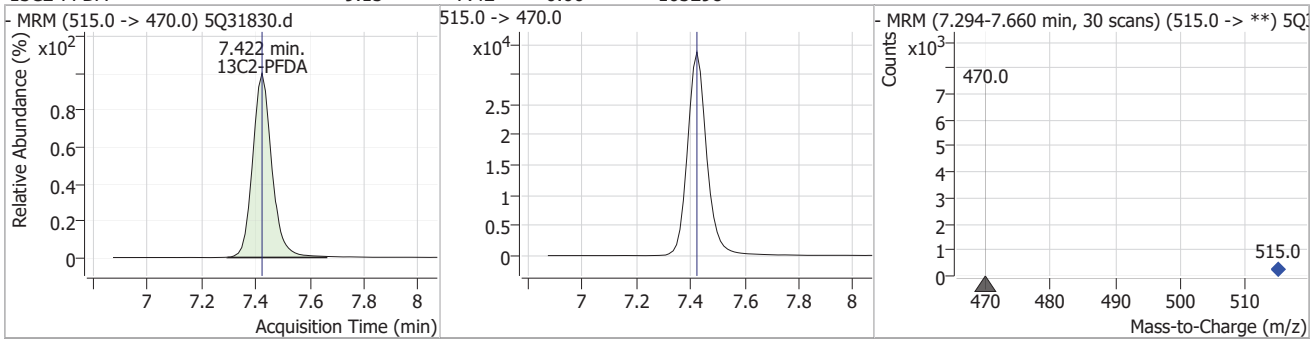
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	19.38	7.38	0.00	11922				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	20.72	7.39	0.00	11244 (m)	584.0 -> 483.0	49.1	29.8	89.4

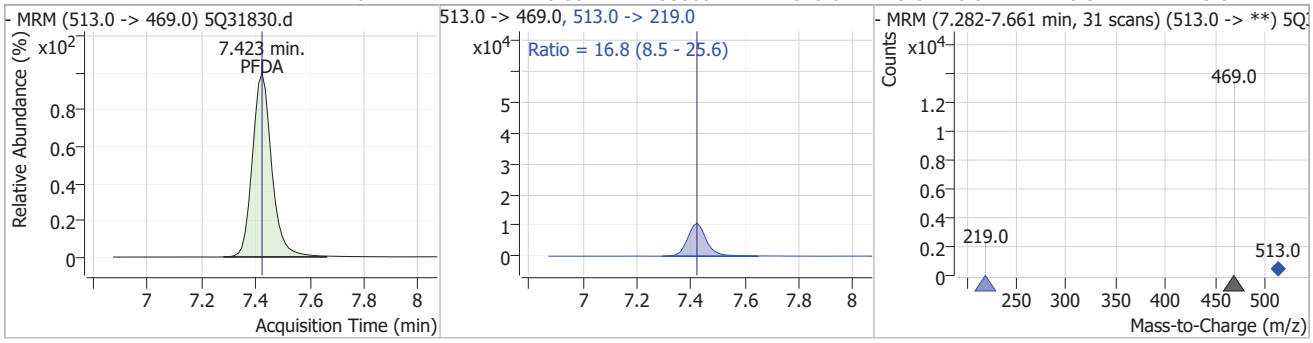


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	9.15	7.42	0.00	165298				

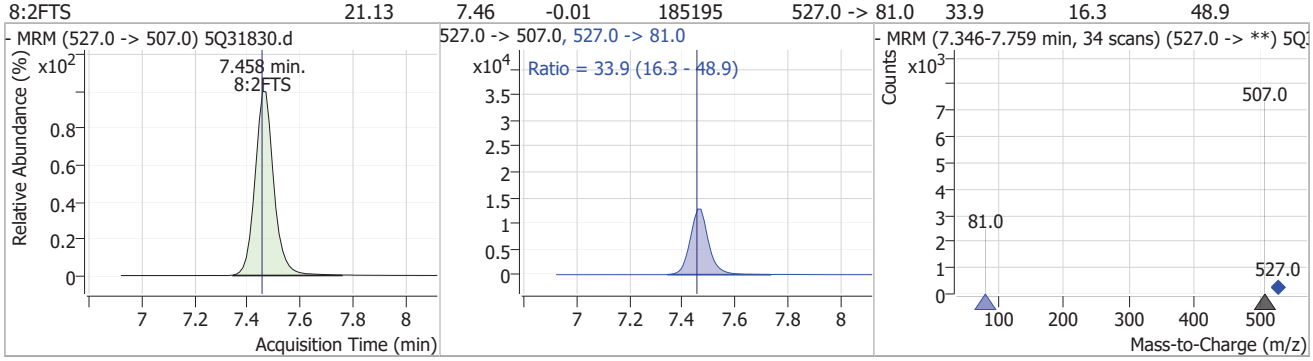


Perfluorinated Compounds by LC/MS/MS

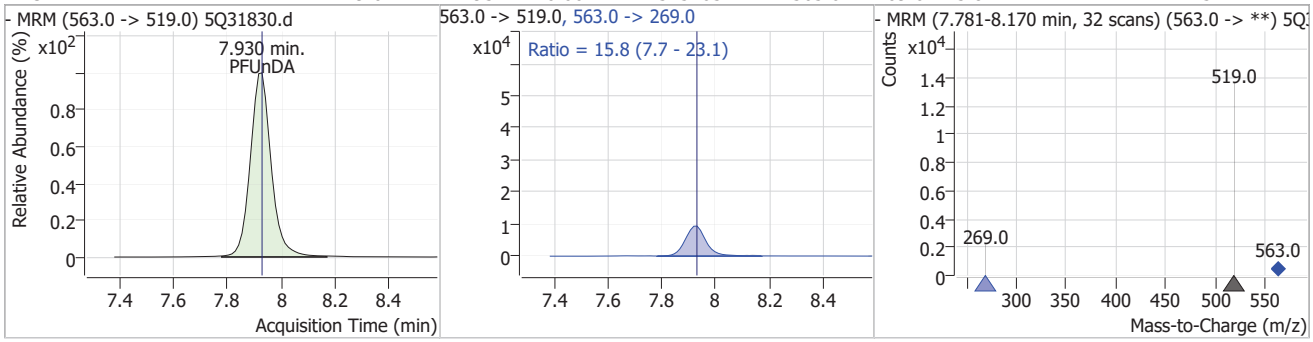
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.47	7.42	0.00	308601	513.0 -> 219.0	16.8	8.5	25.6



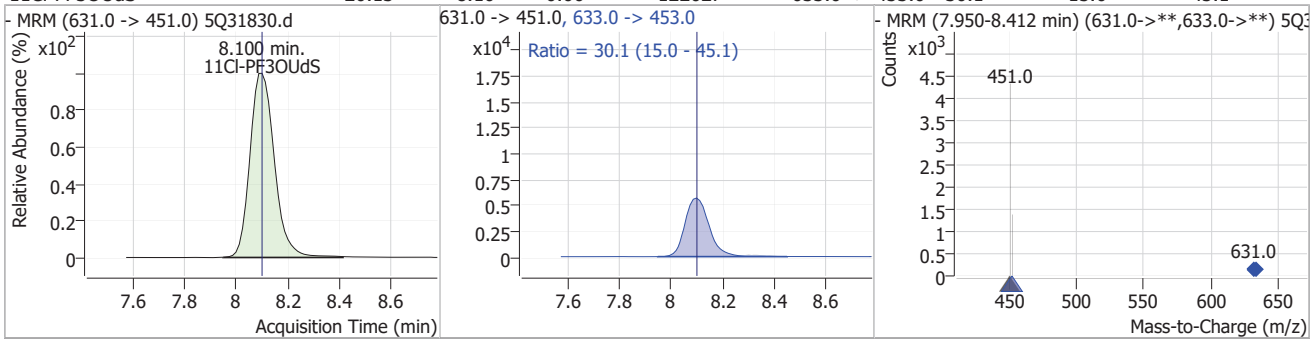
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.13	7.46	-0.01	185195	527.0 -> 81.0	33.9	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.67	7.93	0.00	323403	563.0 -> 269.0	15.8	7.7	23.1

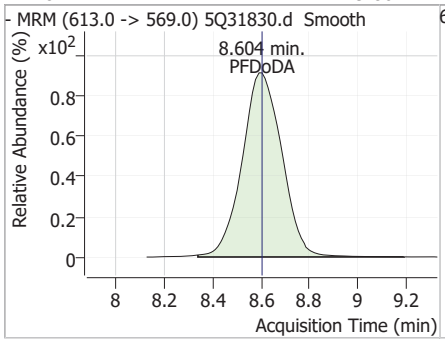


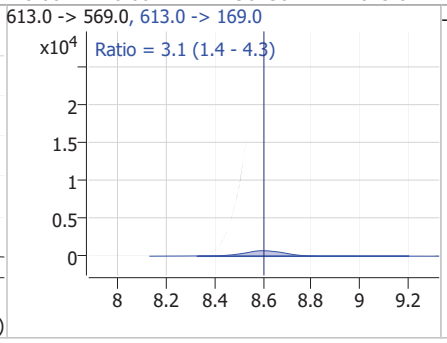
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	20.13	8.10	0.00	122027	633.0 -> 453.0	30.1	15.0	45.1

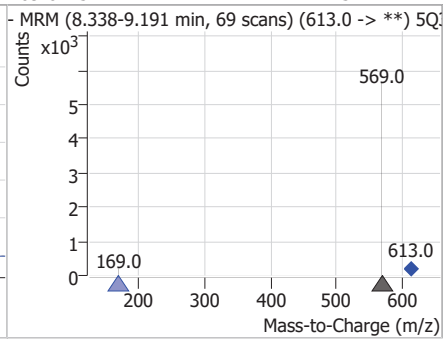


Perfluorinated Compounds by LC/MS/MS

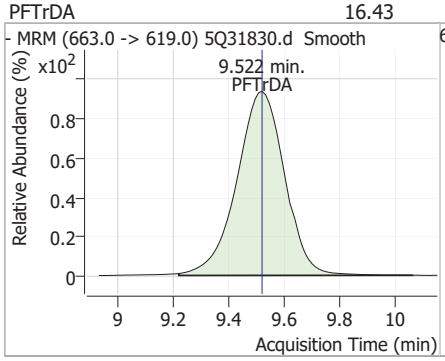
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.86	8.60	0.00	290730	613.0 -> 169.0	3.1	1.4	4.3

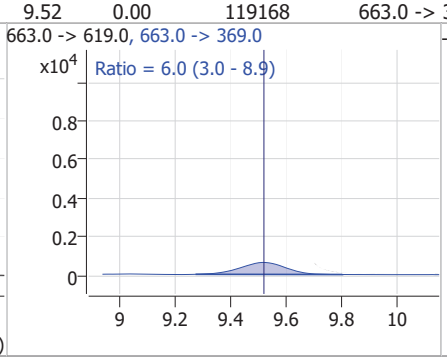


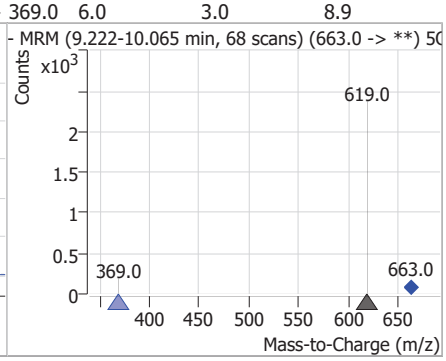




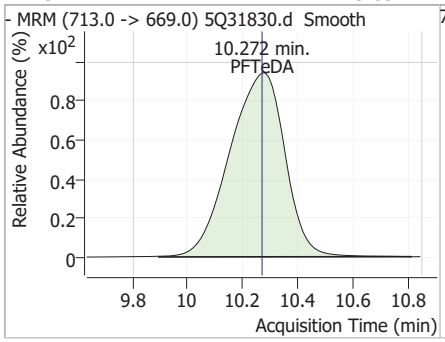
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	16.43	9.52	0.00	119168	663.0 -> 369.0	6.0	3.0	8.9

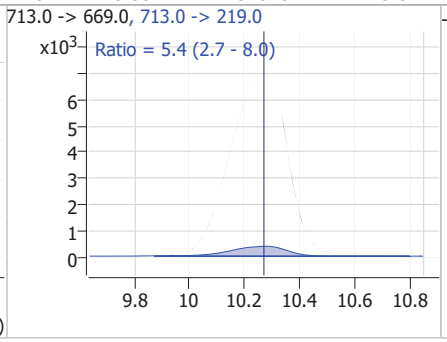


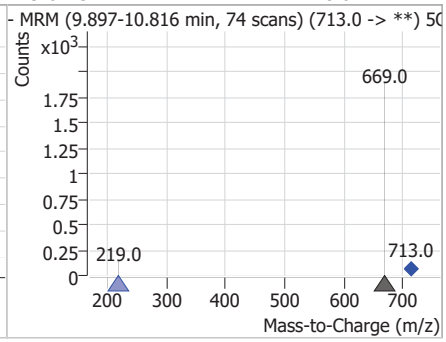




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.83	10.27	0.00	102020	713.0 -> 219.0	5.4	2.7	8.0







7.7.49

7

Manual Integration Approval Summary

Sample Number:	S5Q523-CC523	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31830.D	**Analyst approved:**	04/18/25 07:39 (b) (6)
Injection Time:	04/17/25 15:23	**Supervisor approved:**	04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

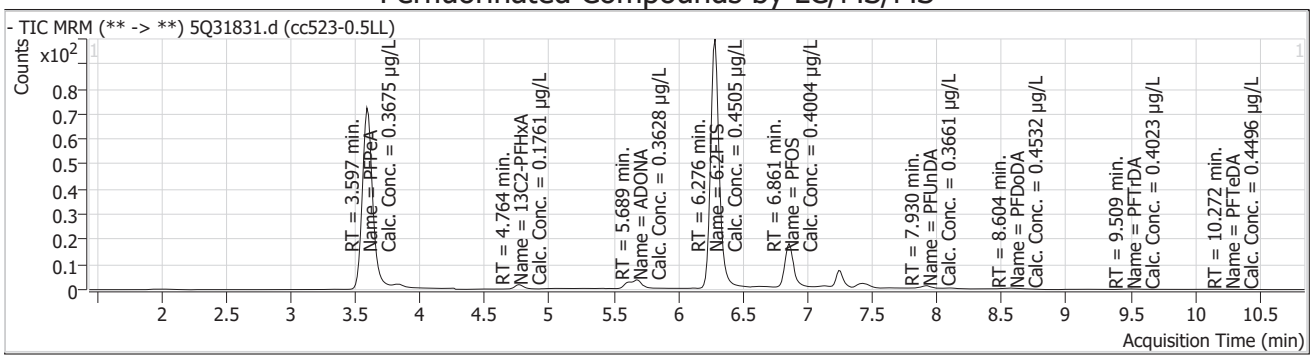
Data File : 5Q31831.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 3:39:53 PM
Sample Name : cc523-0.5LL
Vial : P1-A2
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.275	429.0 -> 409.0	177502	20.00	µg/L		-0.012
13C2-PFOA	6.290	415.0 -> 370.0	388263	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	489132	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	96369	20.00	µg/L		0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	31006	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.422	515.0 -> 470.0	2960	0.18	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 0.9%			
13C2-PFHxA	4.764	315.0 -> 270.0	4331	0.18	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 0.9%			
d5-EtFOSAA	7.378	589.0 -> 419.0	364	0.62	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 1.5%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	609	0.35	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 0.9%			
Target Compounds							QValue
6:2FTS	6.276	427.0 -> 407.0	4008	0.45	µg/L		98
8:2FTS	7.471	527.0 -> 507.0	3279	0.42	µg/L		95
EtFOSAA	7.379	584.0 -> 419.0	237	0.46	µg/L	m	91
MeFOSAA	7.254	570.0 -> 419.0	360	0.52	µg/L	m	92
PFBS	3.828	299.0 -> 80.0	4801	0.38	µg/L		98
PFDA	7.423	513.0 -> 469.0	5091	0.37	µg/L		97
PFDoDA	8.604	613.0 -> 569.0	6195	0.45	µg/L		97
PFHpA	5.615	363.0 -> 319.0	11966	0.39	µg/L		100
PFHxA	4.765	313.0 -> 269.0	6044	0.36	µg/L		98
PFHxS	5.636	399.0 -> 80.0	2767	0.36	µg/L	m	94
PFNA	6.875	463.0 -> 419.0	5158	0.43	µg/L	m	89
PFOA	6.291	413.0 -> 369.0	7061	0.39	µg/L		100
PFOS	6.861	499.0 -> 80.0	2545	0.40	µg/L	m	98
PFPeA	3.597	263.0 -> 219.0	11466	0.37	µg/L		100
PFTeDA	10.272	713.0 -> 669.0	2127	0.45	µg/L		100
PFTrDA	9.509	663.0 -> 619.0	2806	0.40	µg/L		97
PFUnDA	7.930	563.0 -> 519.0	5789	0.37	µg/L		99
ADONA	5.689	377.0 -> 251.0	14437	0.36	µg/L		96
9Cl-PF3ONS	7.131	531.0 -> 351.0	2371	0.48	µg/L		87
11Cl-PF3OUdS	8.100	631.0 -> 451.0	2257	0.44	µg/L		91
HFPO-DA	5.035	285.0 -> 169.0	597	0.41	µg/L	m	89

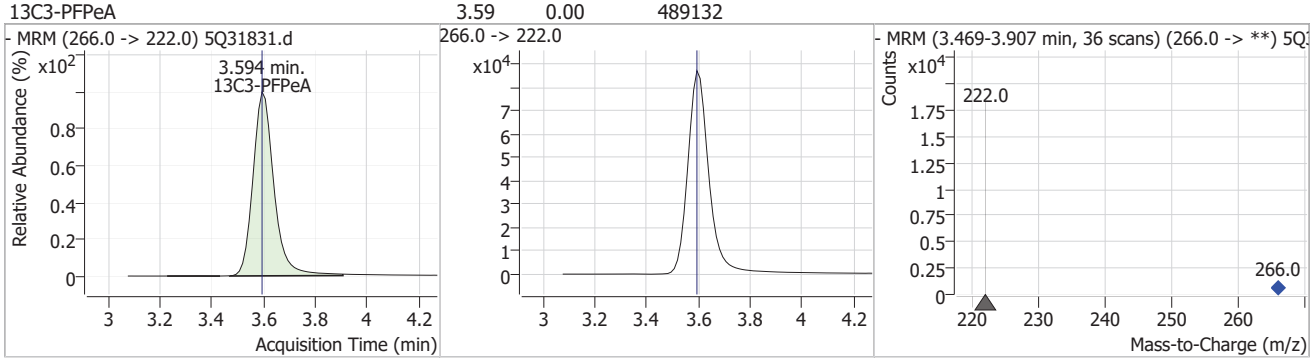
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.50
7

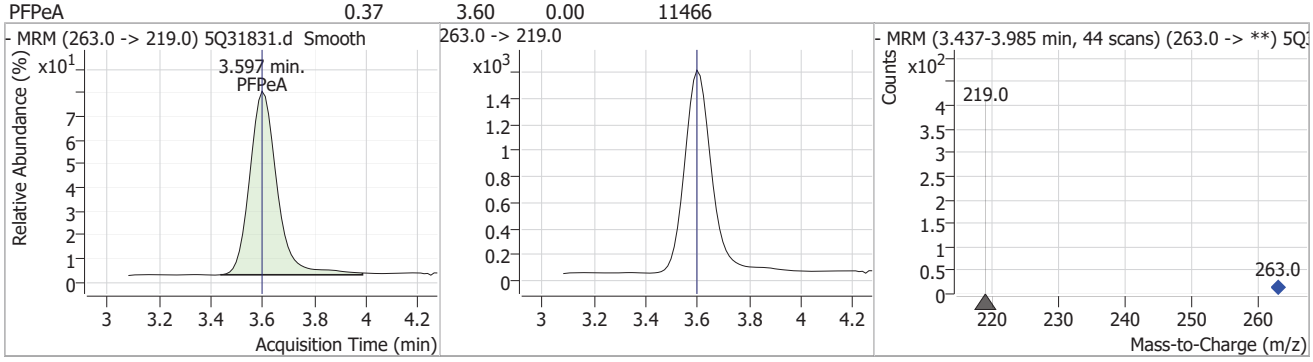
Perfluorinated Compounds by LC/MS/MS



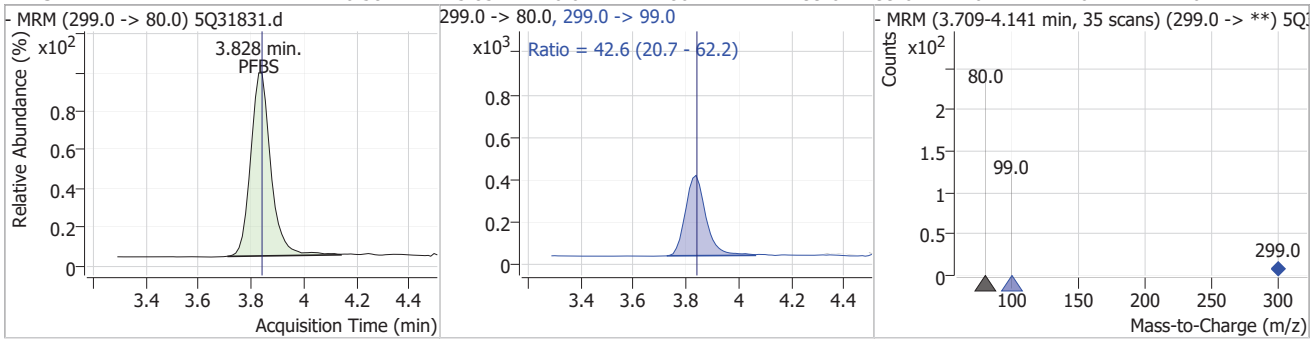
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	489132				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.37	3.60	0.00	11466				

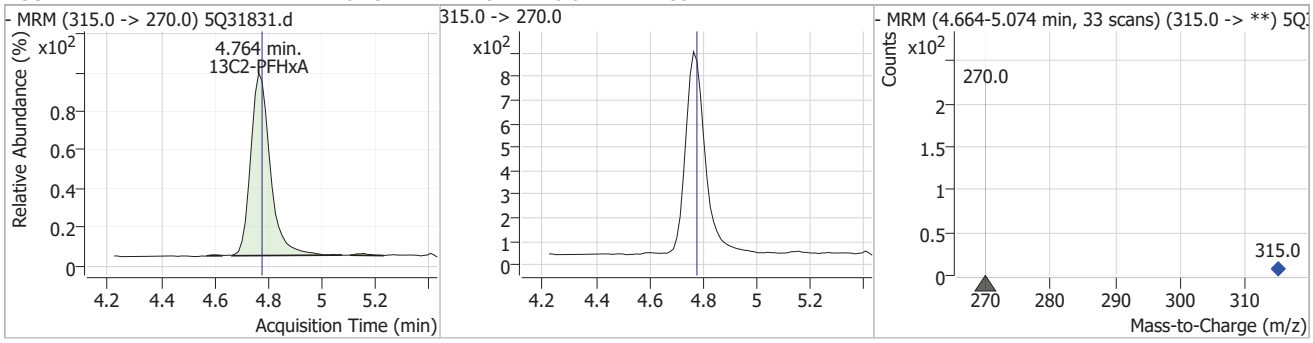


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.38	3.83	-0.01	4801	299.0 -> 99.0	42.6	20.7	62.2

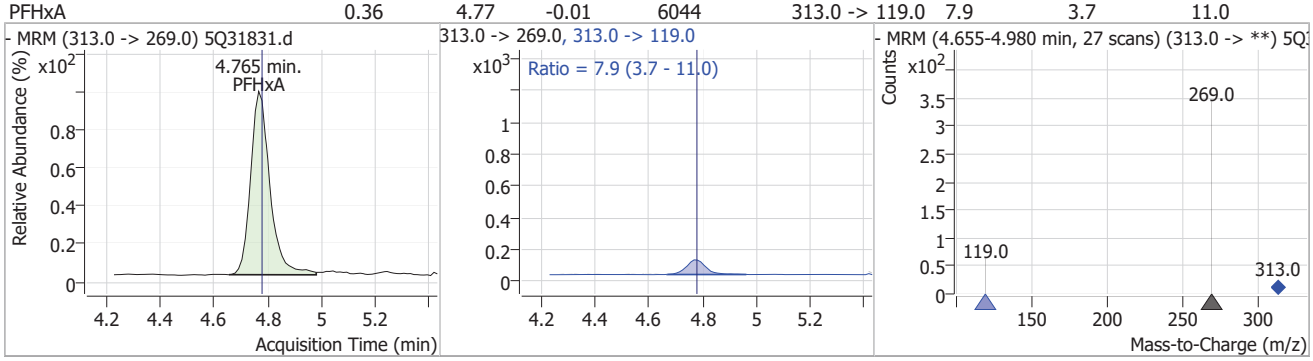


Perfluorinated Compounds by LC/MS/MS

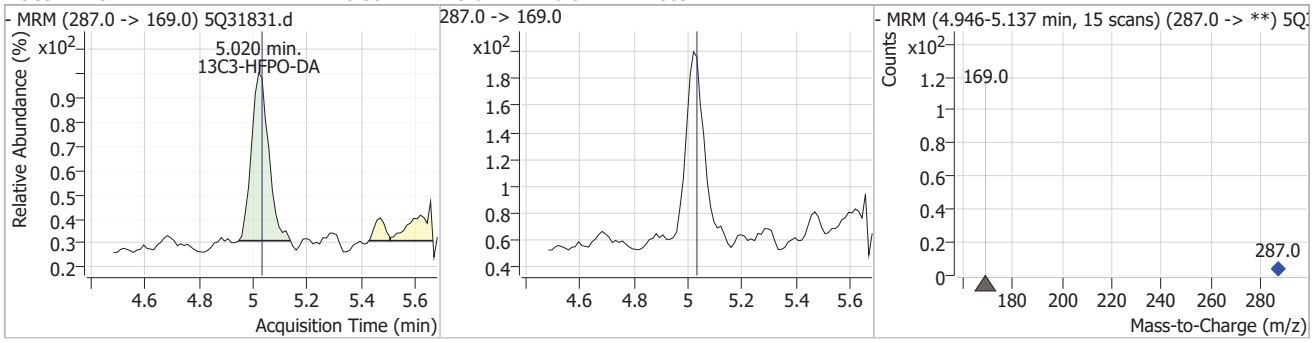
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.18	4.76	-0.01	4331				



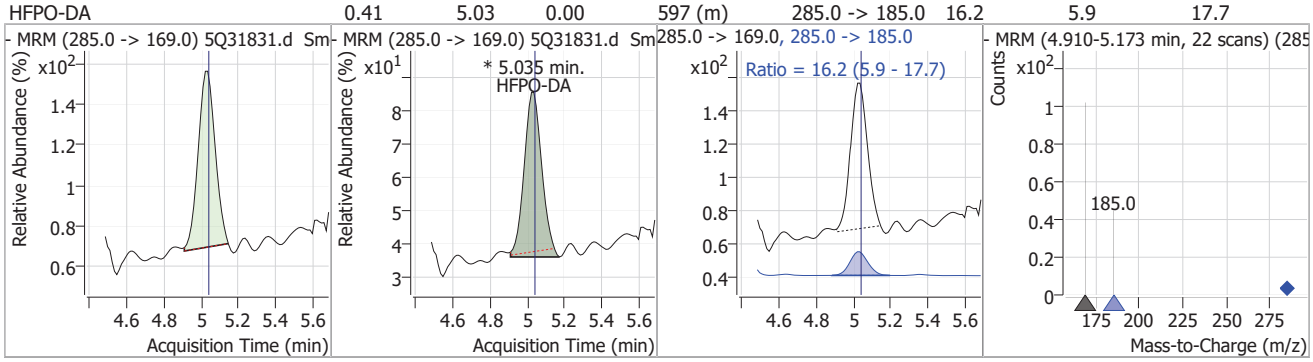
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.36	4.77	-0.01	6044	313.0 -> 119.0	7.9	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.35	5.02	-0.01	609				

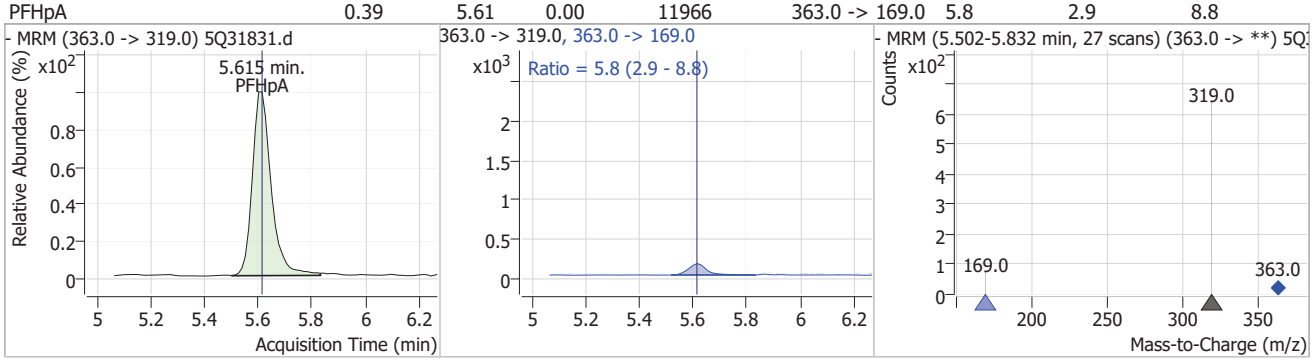


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.41	5.03	0.00	597 (m)	285.0 -> 185.0	16.2	5.9	17.7

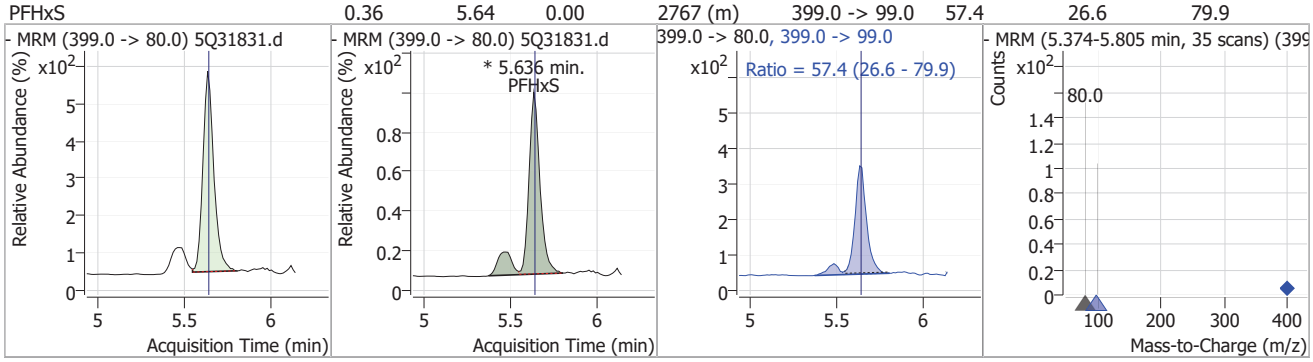


Perfluorinated Compounds by LC/MS/MS

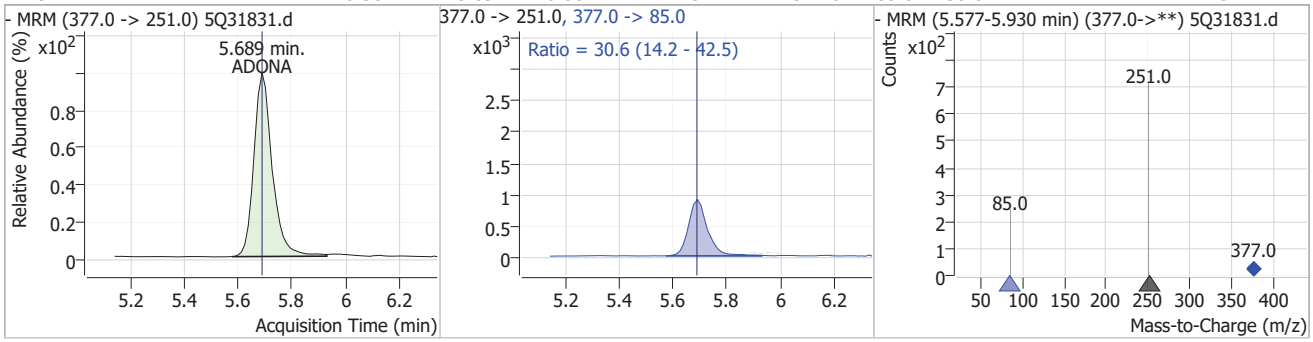
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.39	5.61	0.00	11966	363.0 -> 169.0	5.8	2.9	8.8



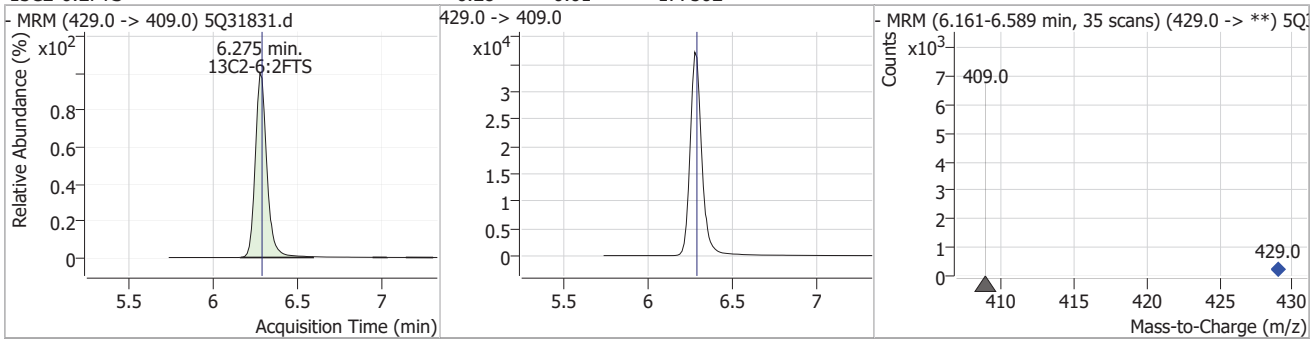
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.36	5.64	0.00	2767 (m)	399.0 -> 99.0	57.4	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.36	5.69	0.00	14437	377.0 -> 85.0	30.6	14.2	42.5

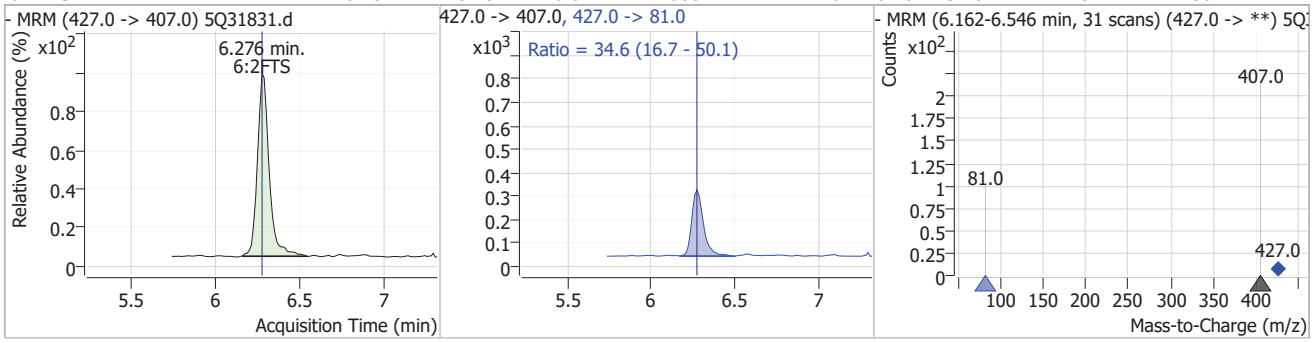


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	177502				

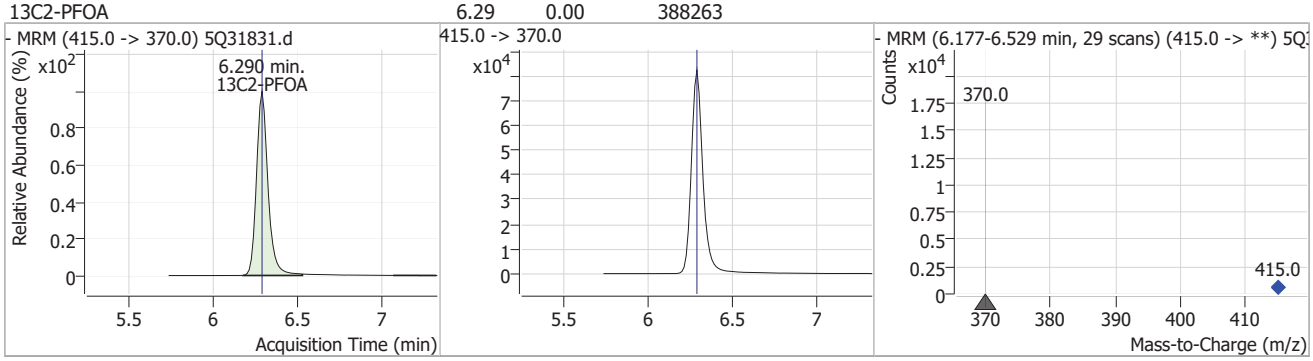


Perfluorinated Compounds by LC/MS/MS

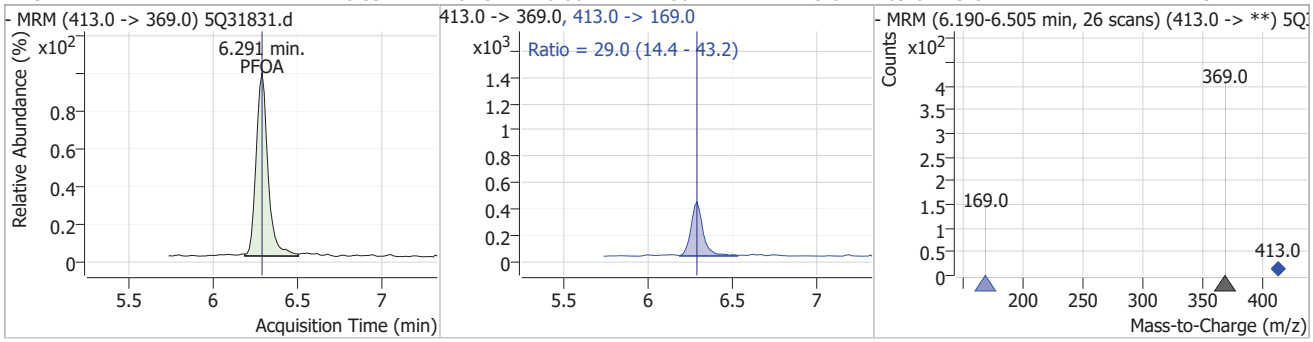
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.45	6.28	-0.01	4008	427.0 -> 81.0	34.6	16.7	50.1



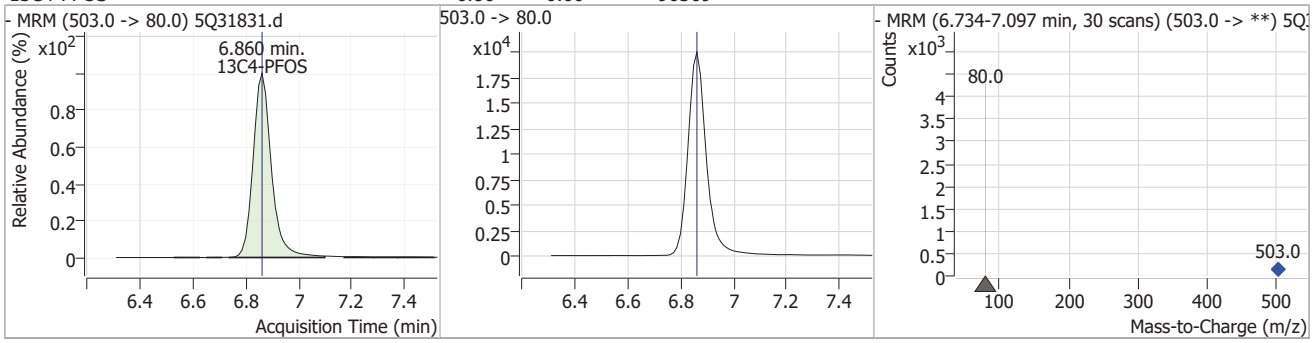
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	388263				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.39	6.29	0.00	7061	413.0 -> 169.0	29.0	14.4	43.2

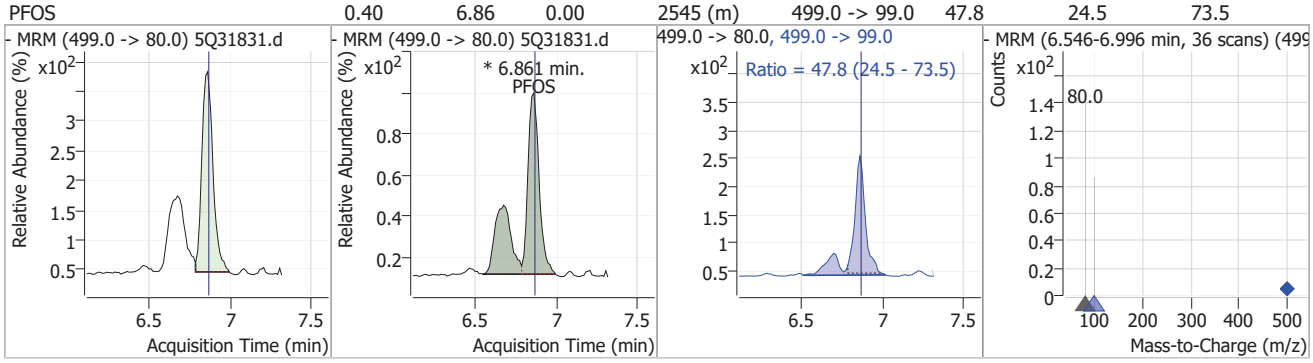


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	96369				

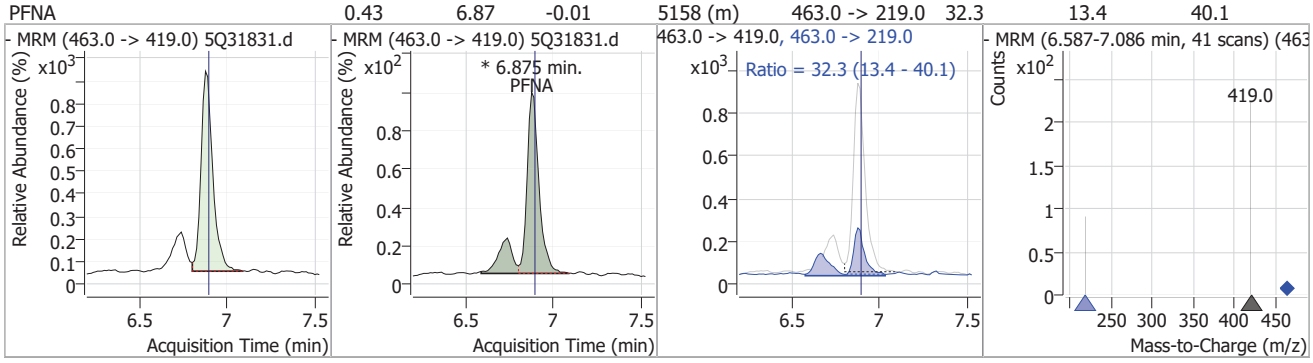


Perfluorinated Compounds by LC/MS/MS

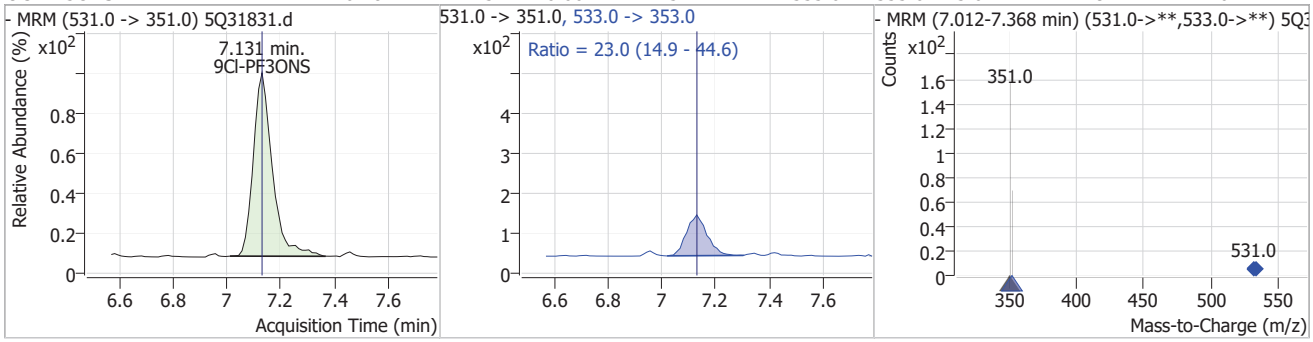
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.40	6.86	0.00	2545 (m)	499.0 -> 99.0	47.8	24.5	73.5



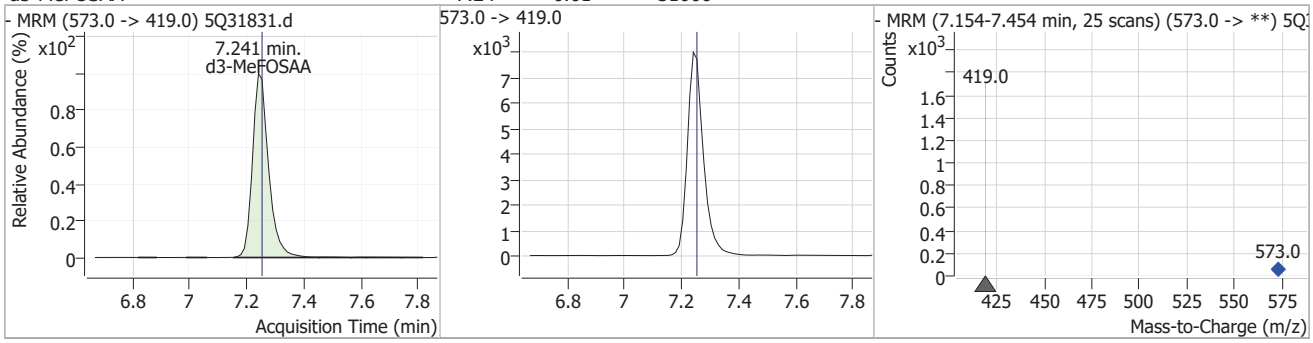
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.43	6.87	-0.01	5158 (m)	463.0 -> 219.0	32.3	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.48	7.13	0.00	2371	533.0 -> 353.0	23.0	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	31006				



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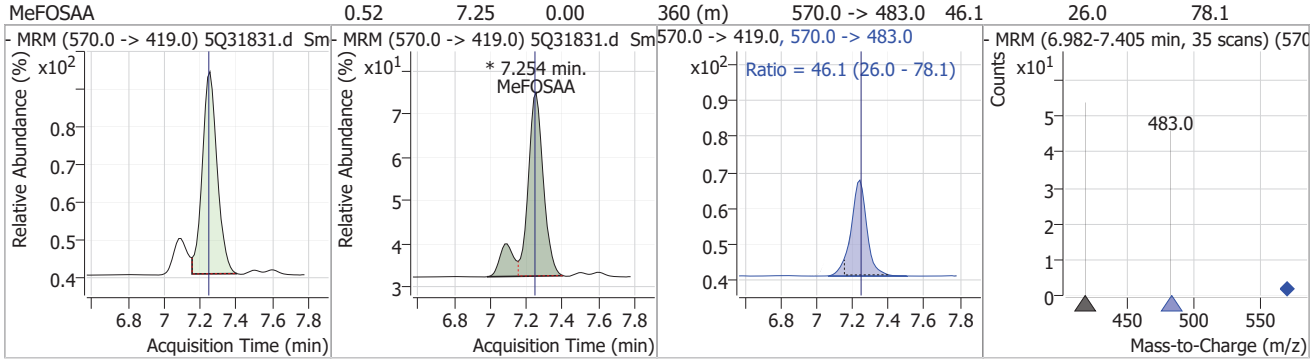
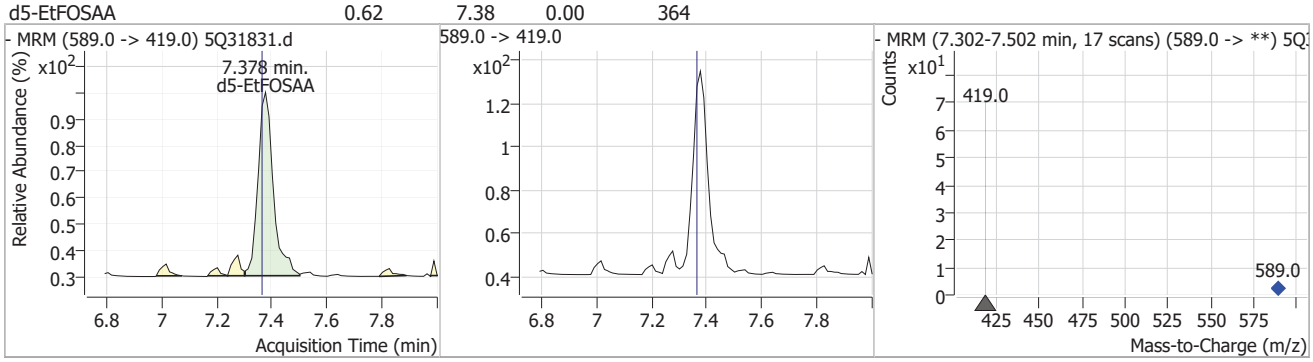
Perfluorinated Compounds by LC/MS/MS

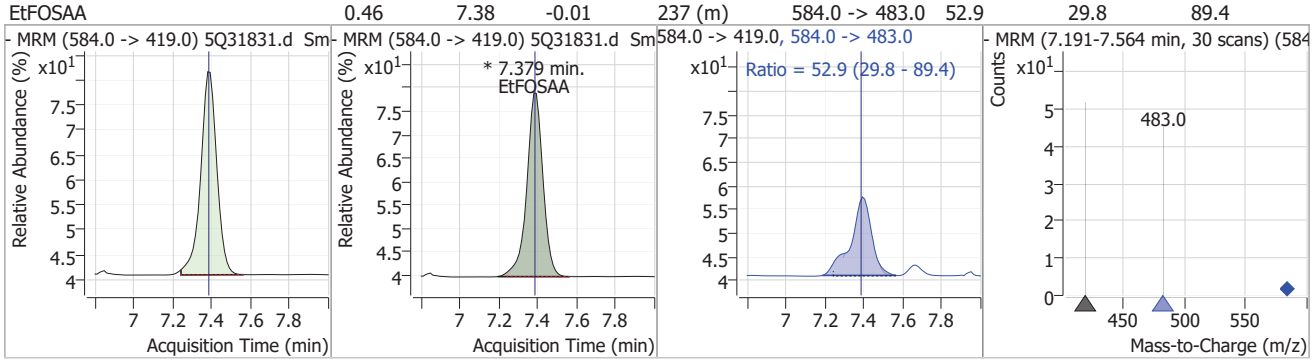
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.52	7.25	0.00	360 (m)	570.0 -> 483.0	46.1	26.0	78.1



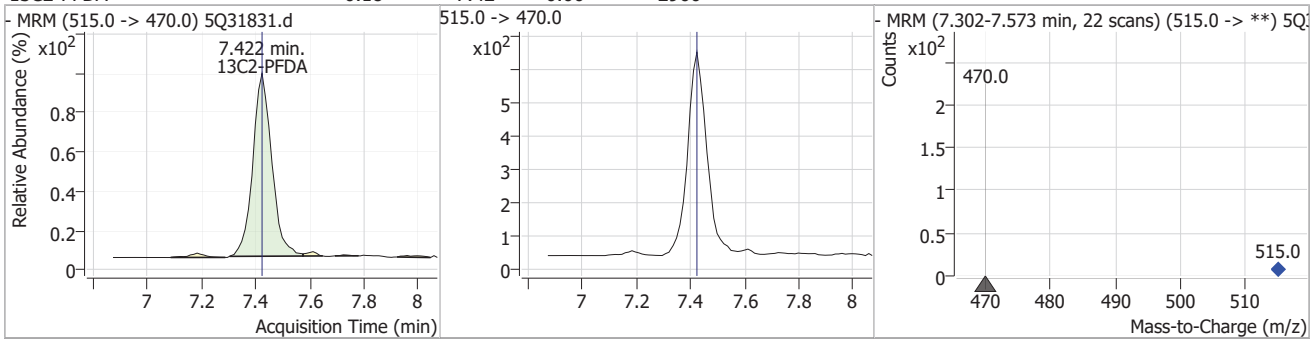
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	0.62	7.38	0.00	364				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.46	7.38	-0.01	237 (m)	584.0 -> 483.0	52.9	29.8	89.4

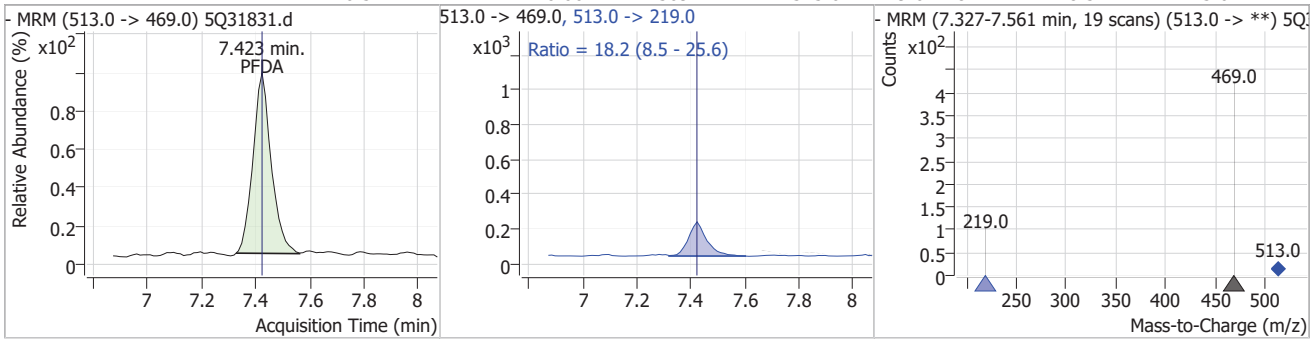


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.18	7.42	0.00	2960				

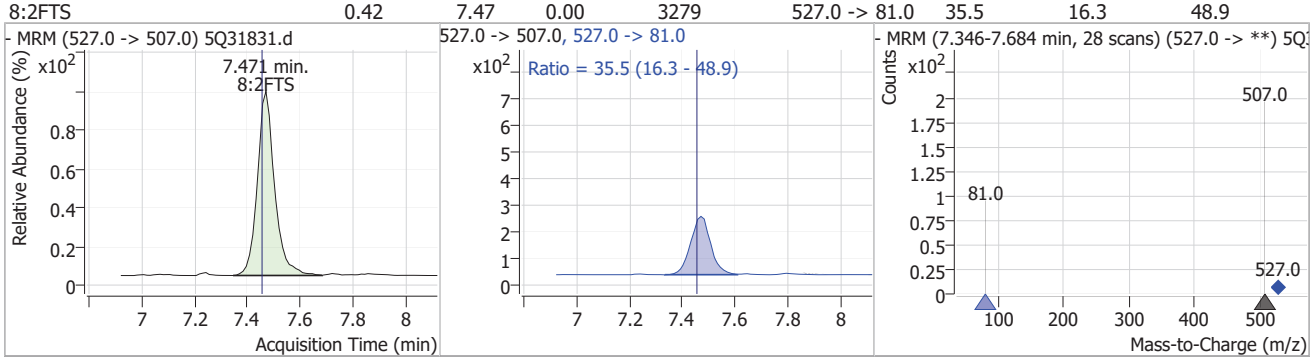


Perfluorinated Compounds by LC/MS/MS

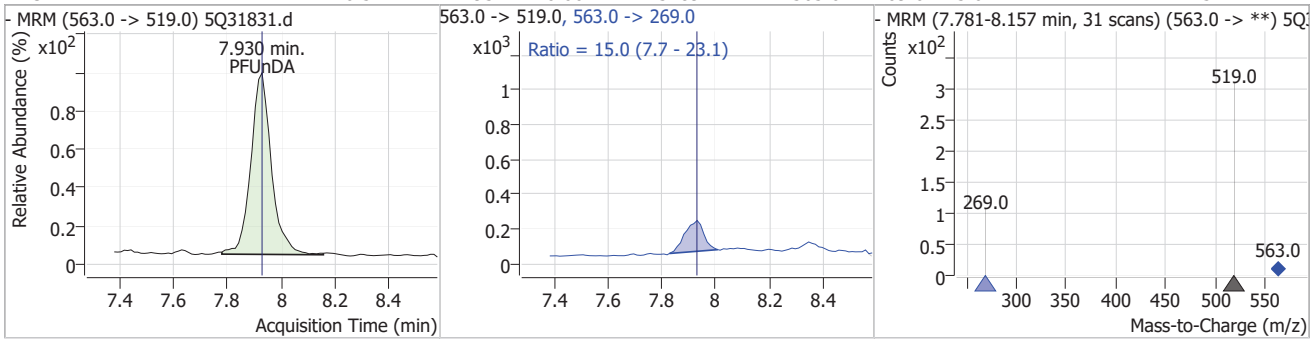
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.37	7.42	0.00	5091	513.0 -> 219.0	18.2	8.5	25.6



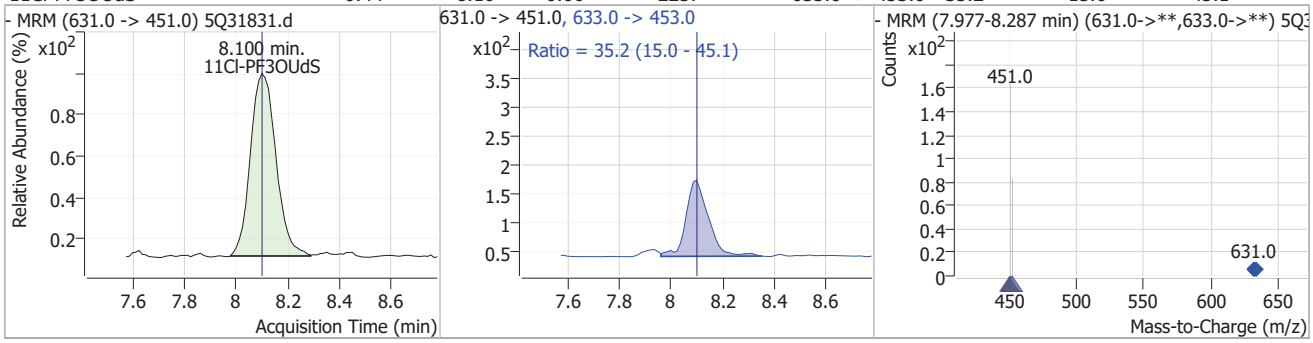
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.42	7.47	0.00	3279	527.0 -> 81.0	35.5	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.37	7.93	0.00	5789	563.0 -> 269.0	15.0	7.7	23.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.44	8.10	0.00	2257	633.0 -> 453.0	35.2	15.0	45.1



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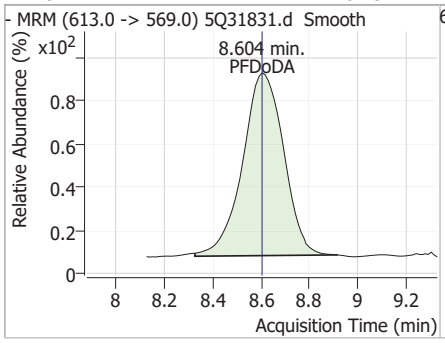
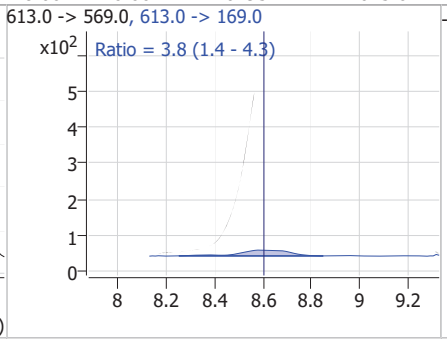
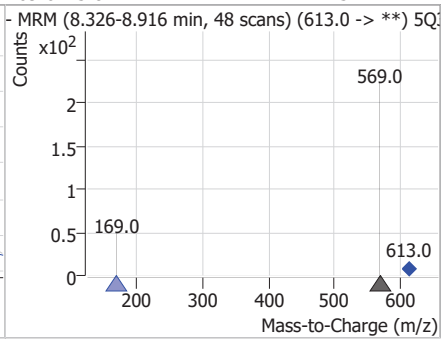
Perfluorinated Compounds by LC/MS/MS

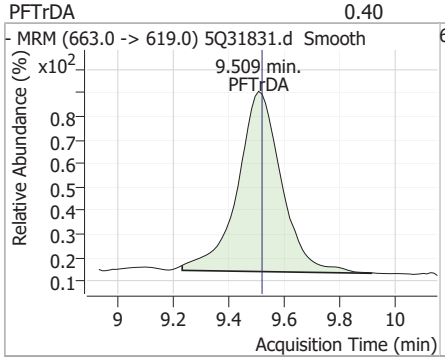
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.45	8.60	0.00	6195	613.0 -> 169.0	3.8	1.4	4.3

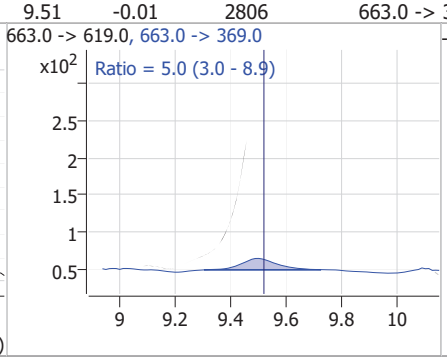


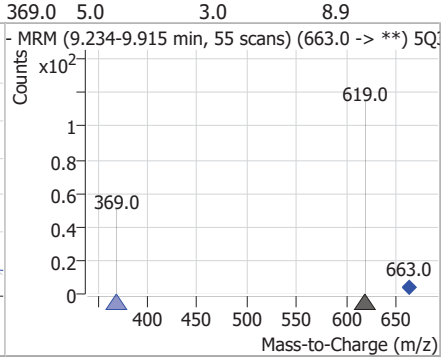




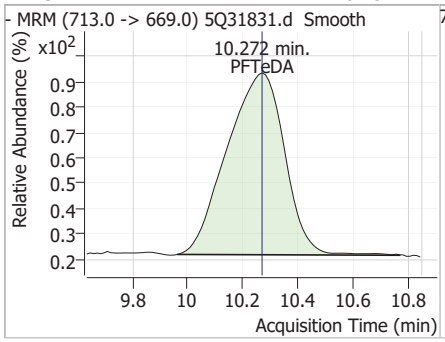
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.40	9.51	-0.01	2806	663.0 -> 369.0	5.0	3.0	8.9

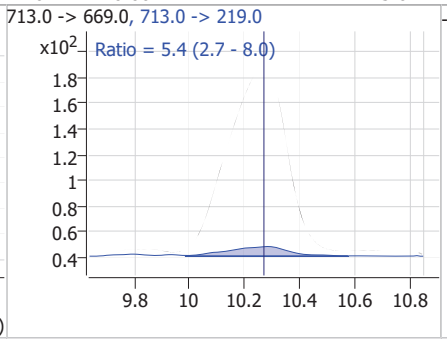


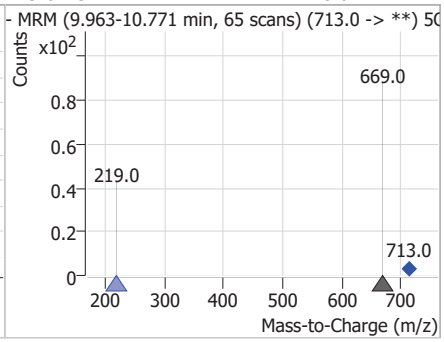




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.45	10.27	0.00	2127	713.0 -> 219.0	5.4	2.7	8.0







Manual Integration Approval Summary

Sample Number: S5Q523-CC523
Lab FileID: 5Q31831.D
Injection Time: 04/17/25 15:39
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6)
Supervisor approved: 04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
HFPO-DA (GenX)	13252-13-6		5.04	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.88	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31842.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 6:40:25 PM
Sample Name : ecc523-20
Vial : P1-A7
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.275	429.0 -> 409.0	197588	20.00	µg/L		-0.012
13C2-PFOA	6.290	415.0 -> 370.0	404862	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	497002	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	97933	20.00	µg/L		0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	33337	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.422	515.0 -> 470.0	166947	9.64	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 48.2%			
13C2-PFHxA	4.764	315.0 -> 270.0	247729	9.66	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 48.3%			
d5-EtFOSAA	7.378	589.0 -> 419.0	12462	19.70	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 49.2%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	32777	18.08	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 45.2%			
Target Compounds							QValue
6:2FTS	6.276	427.0 -> 407.0	230958	23.32	µg/L		98
8:2FTS	7.458	527.0 -> 507.0	183653	21.38	µg/L		100
EtFOSAA	7.391	584.0 -> 419.0	11136	19.96	µg/L	m	94
MeFOSAA	7.254	570.0 -> 419.0	14191	18.88	µg/L		93
PFBS	3.828	299.0 -> 80.0	265650	20.73	µg/L		100
PFDA	7.423	513.0 -> 469.0	296238	20.47	µg/L		99
PFDoDA	8.591	613.0 -> 569.0	285135	19.92	µg/L		100
PFHpA	5.615	363.0 -> 319.0	668358	20.13	µg/L		100
PFHxA	4.765	313.0 -> 269.0	333655	19.11	µg/L		100
PFHxS	5.636	399.0 -> 80.0	163748	20.46	µg/L	m	99
PFNA	6.887	463.0 -> 419.0	275162	21.02	µg/L	m	100
PFOA	6.291	413.0 -> 369.0	391388	20.28	µg/L		99
PFOS	6.861	499.0 -> 80.0	124685	19.30	µg/L	m	100
PFPeA	3.597	263.0 -> 219.0	644765	20.14	µg/L		100
PFTeDA	10.272	713.0 -> 669.0	97867	19.48	µg/L		100
PFTrDA	9.509	663.0 -> 619.0	114462	16.15	µg/L		100
PFUnDA	7.917	563.0 -> 519.0	316212	19.67	µg/L		99
ADONA	5.689	377.0 -> 251.0	861647	20.06	µg/L		99
9Cl-PF3ONS	7.131	531.0 -> 351.0	116332	21.11	µg/L		98
11Cl-PF3OUdS	8.087	631.0 -> 451.0	120637	20.69	µg/L		100
HFPO-DA	5.023	285.0 -> 169.0	31613	19.98	µg/L		99

 # = Qualifier out of range, m = manually integrated, + = Area summed

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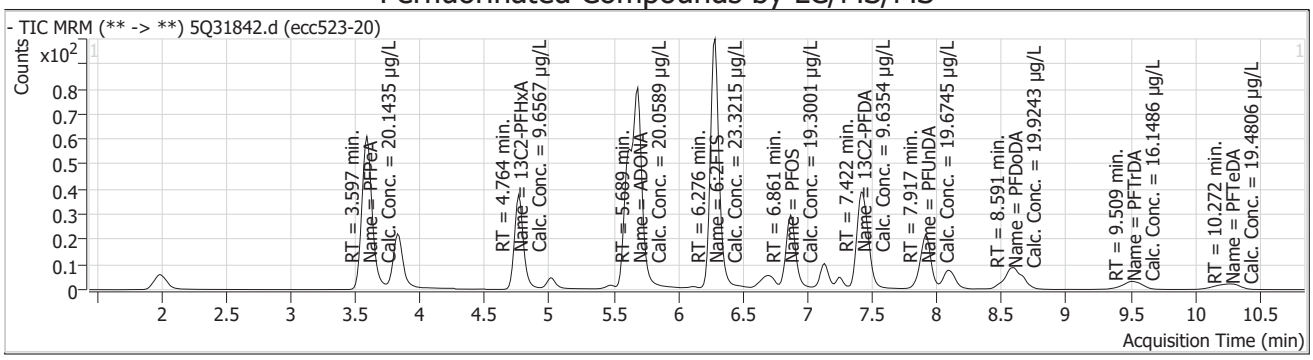
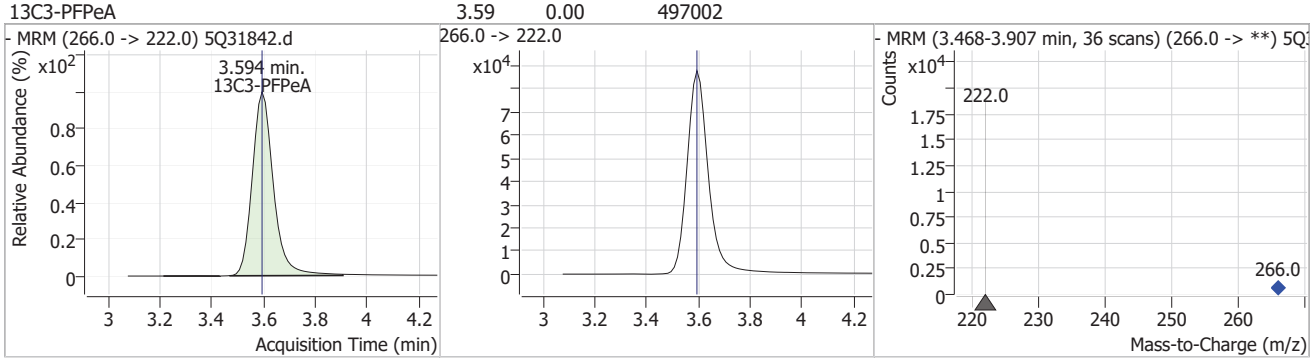
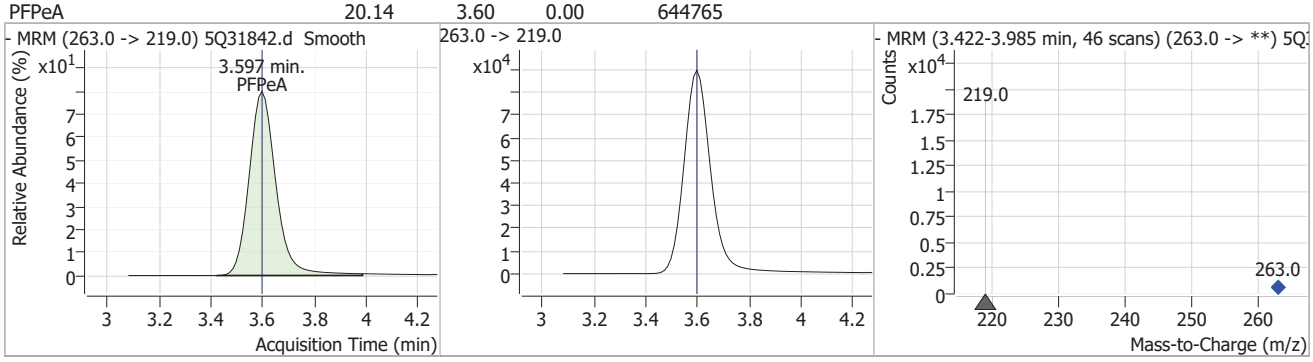
Perfluorinated Compounds by LC/MS/MS



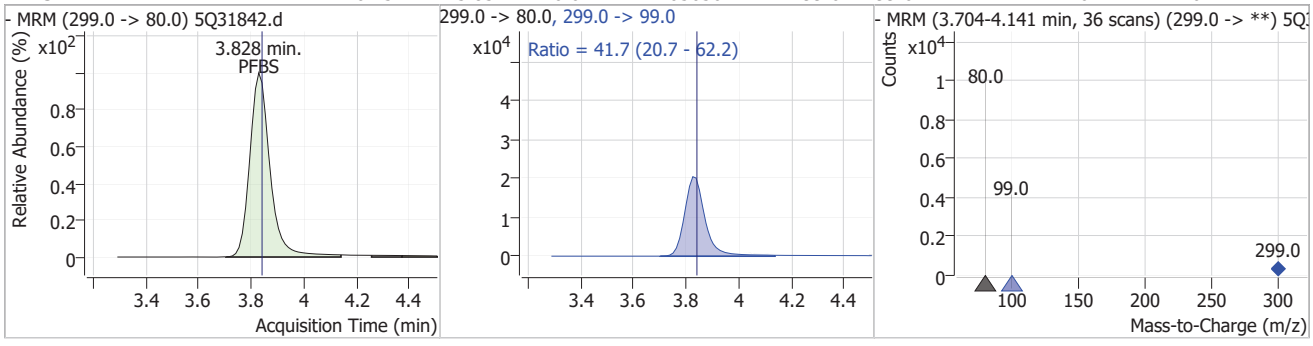
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	497002				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.14	3.60	0.00	644765				

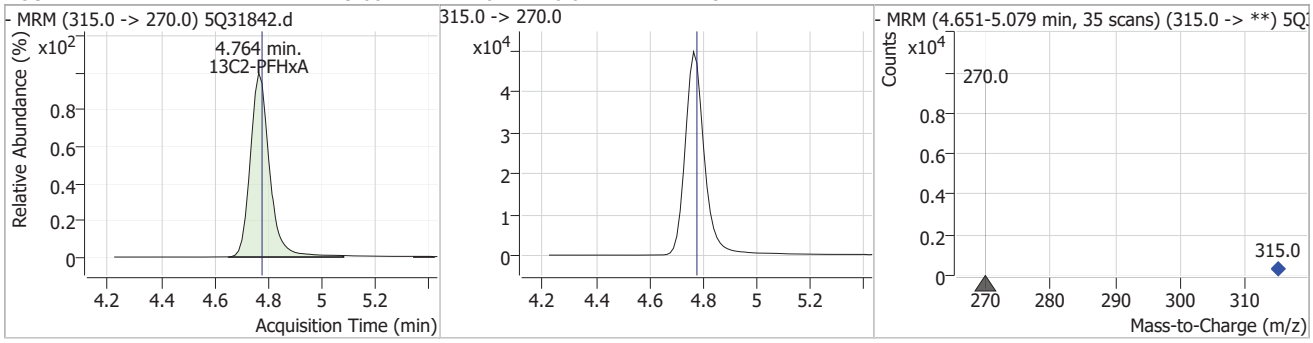


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.73	3.83	-0.01	265650	299.0 -> 99.0	41.7	20.7	62.2

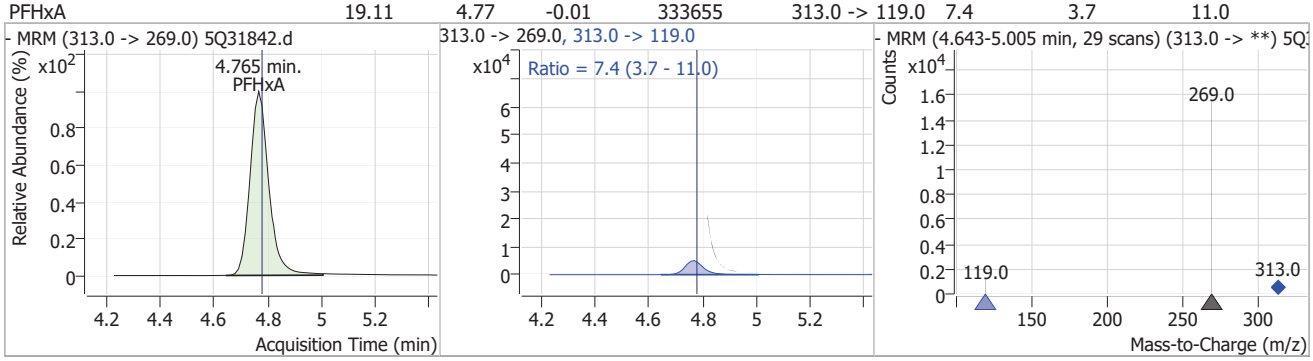


Perfluorinated Compounds by LC/MS/MS

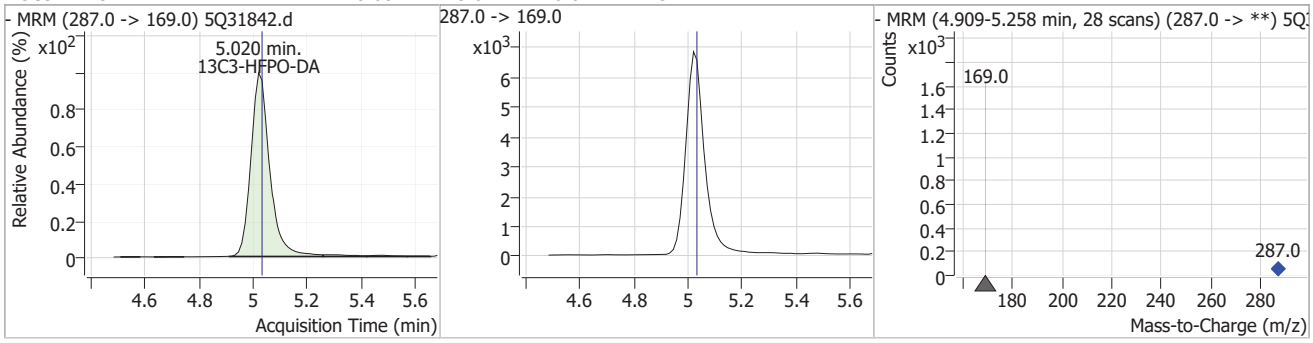
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	9.66	4.76	-0.01	247729				



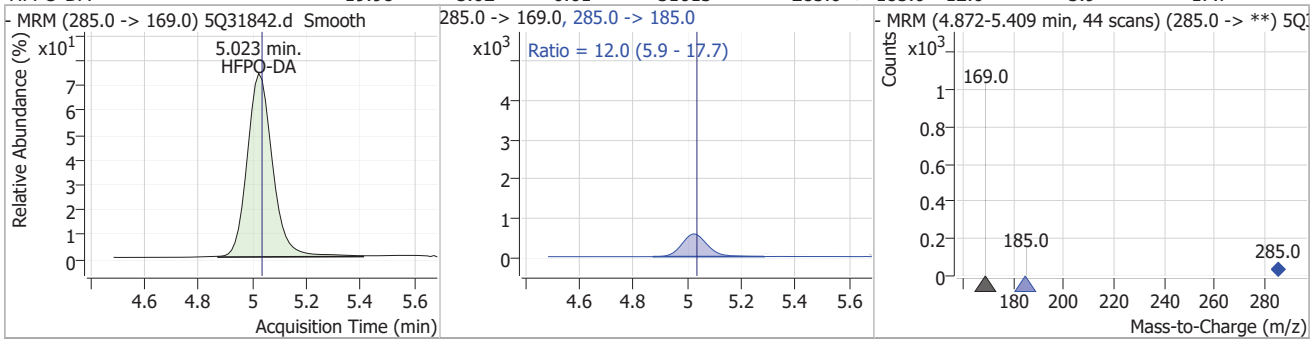
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.11	4.77	-0.01	333655	313.0 -> 119.0	7.4	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	18.08	5.02	-0.01	32777				

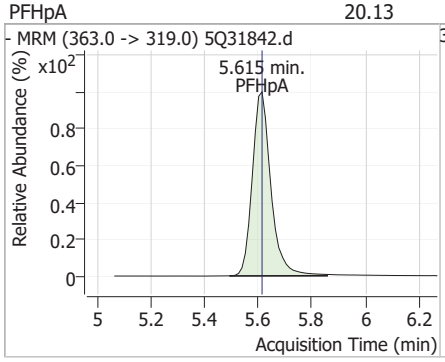


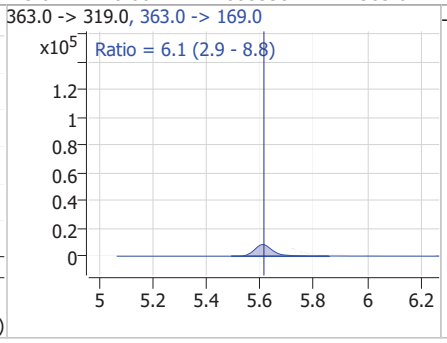
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.98	5.02	-0.01	31613	285.0 -> 185.0	12.0	5.9	17.7

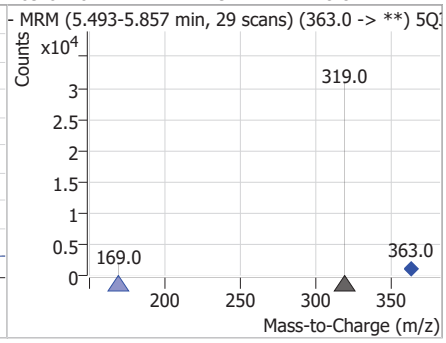


Perfluorinated Compounds by LC/MS/MS

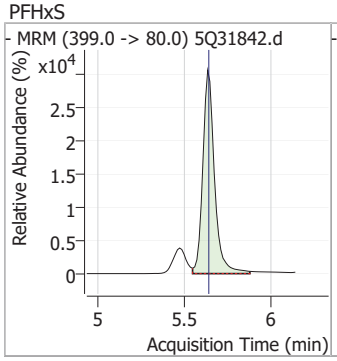
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.13	5.61	0.00	668358	363.0 -> 169.0	6.1	2.9	8.8

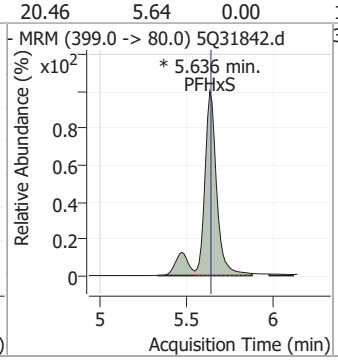


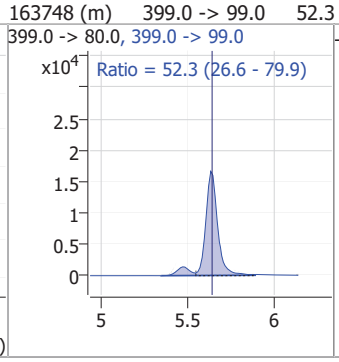


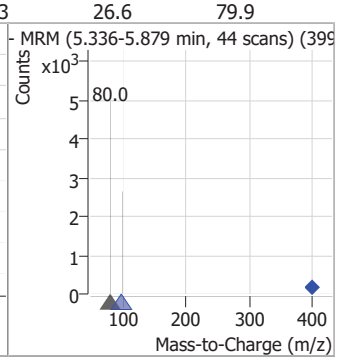


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	20.46	5.64	0.00	163748 (m)	399.0 -> 99.0	52.3	26.6	79.9

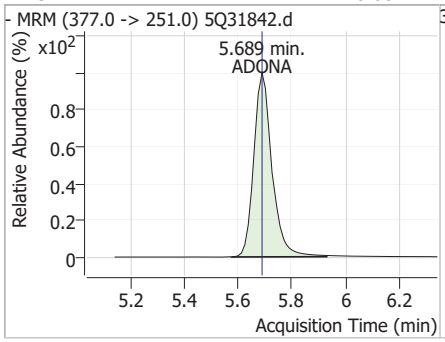


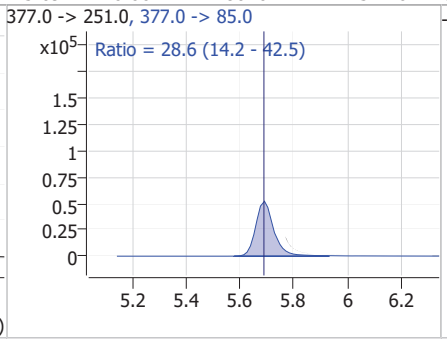


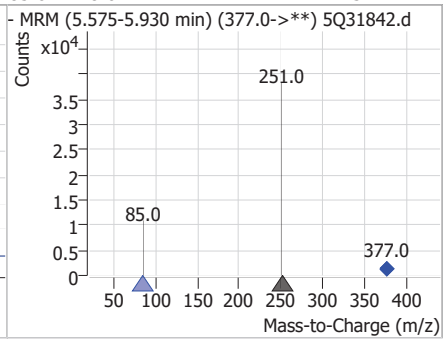




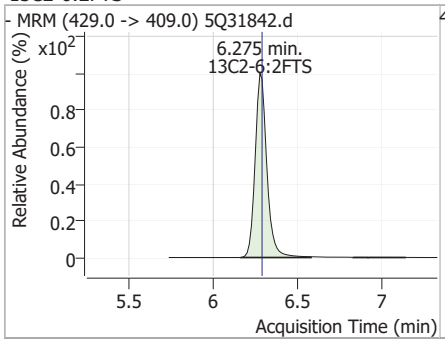
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.06	5.69	0.00	861647	377.0 -> 85.0	28.6	14.2	42.5

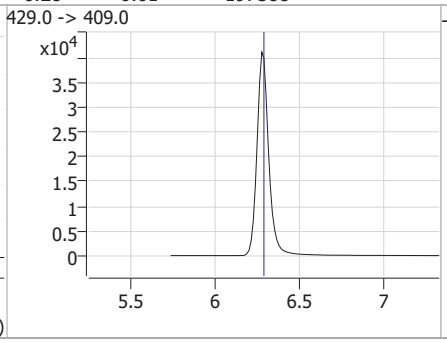


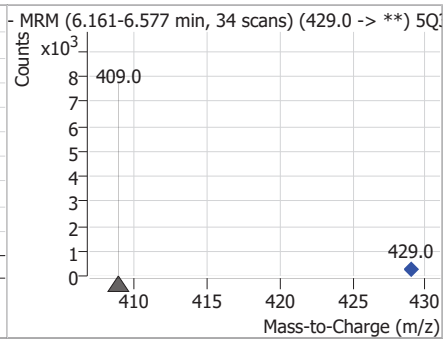




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	197588				

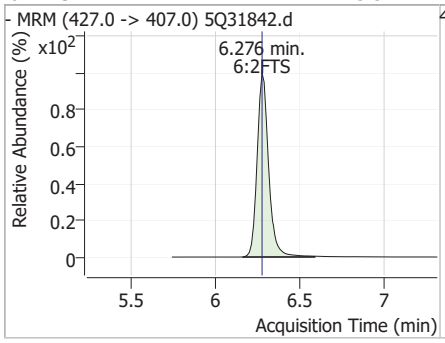


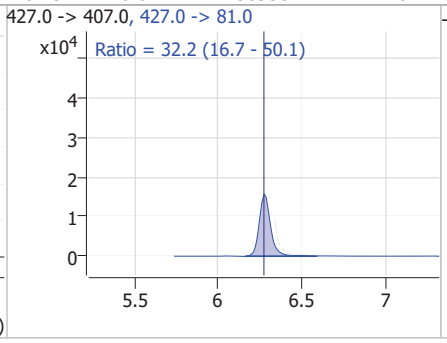


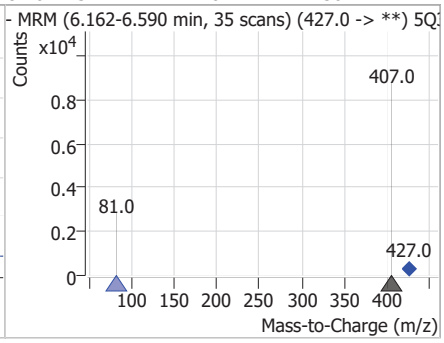


Perfluorinated Compounds by LC/MS/MS

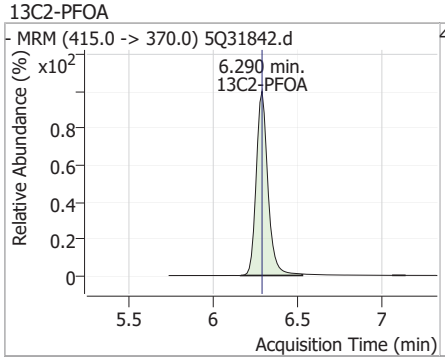
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	23.32	6.28	-0.01	230958	427.0 -> 81.0	32.2	16.7	50.1

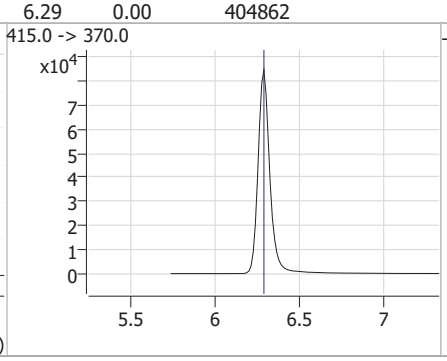


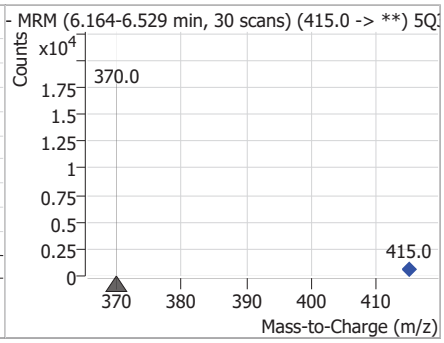




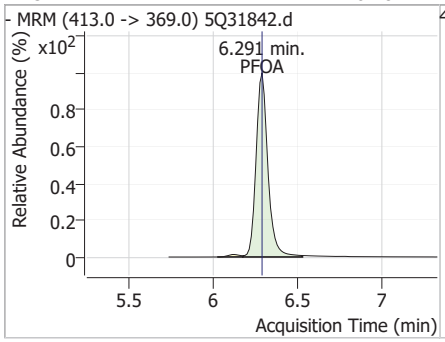
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	404862				

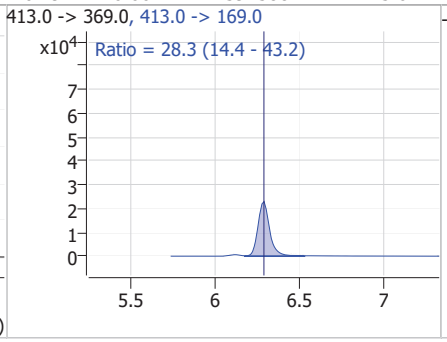


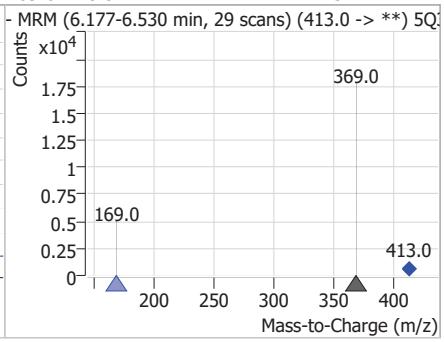




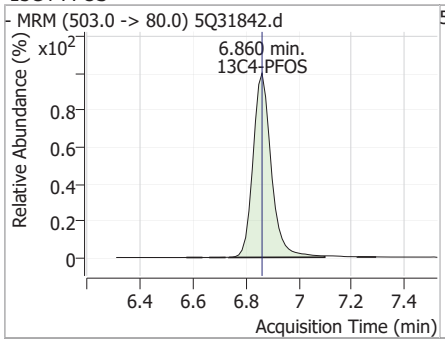
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.28	6.29	0.00	391388	413.0 -> 169.0	28.3	14.4	43.2

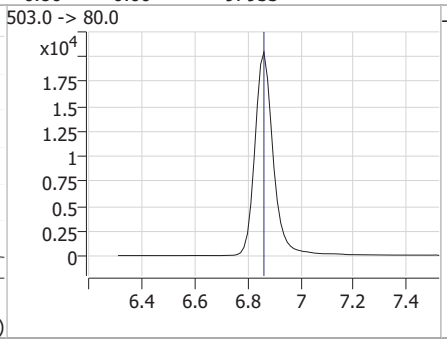


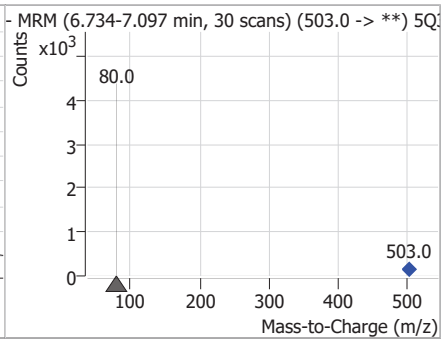




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	97933				

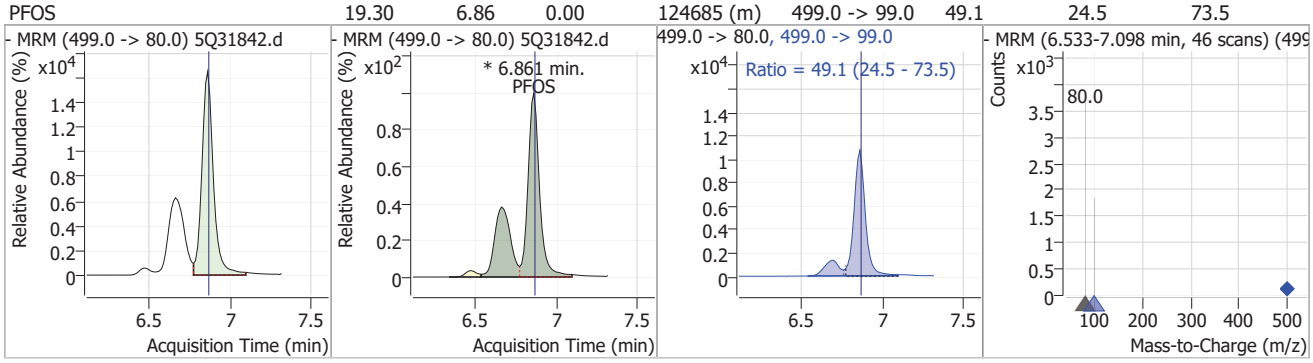




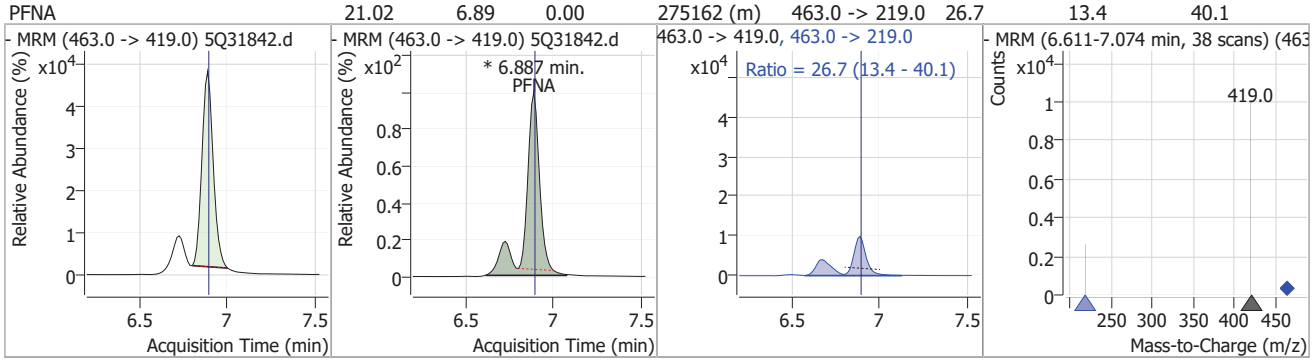


Perfluorinated Compounds by LC/MS/MS

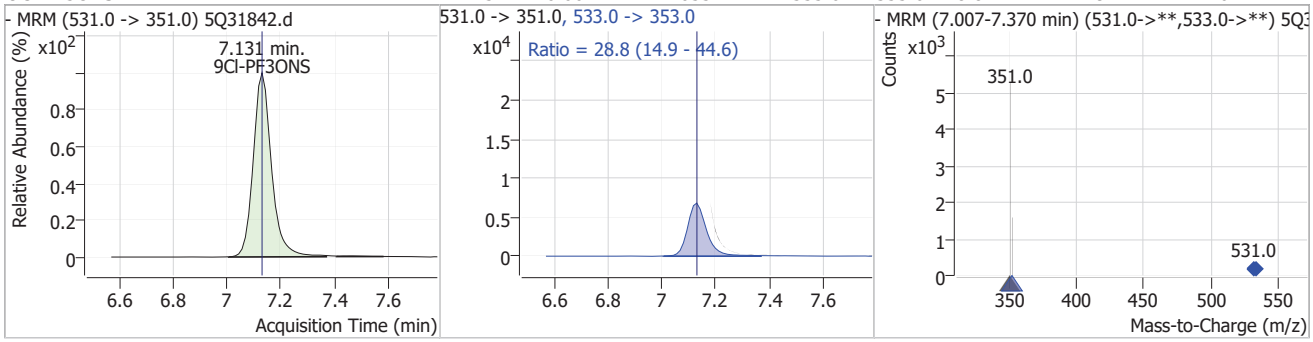
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.30	6.86	0.00	124685 (m)	499.0 -> 99.0	49.1	24.5	73.5



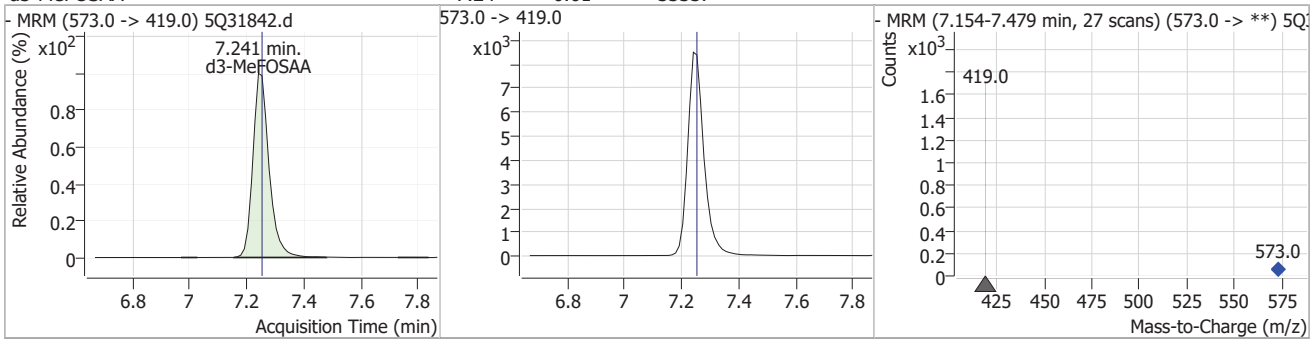
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	21.02	6.89	0.00	275162 (m)	463.0 -> 219.0	26.7	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	21.11	7.13	0.00	116332	533.0 -> 353.0	28.8	14.9	44.6

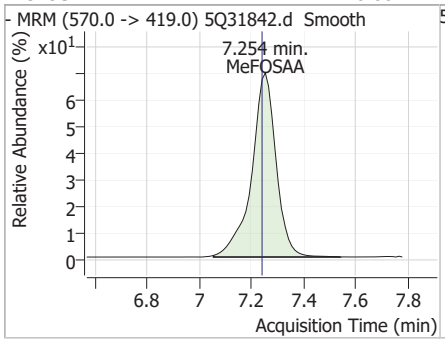


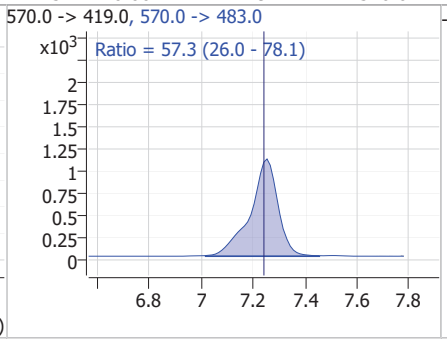
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	33337				

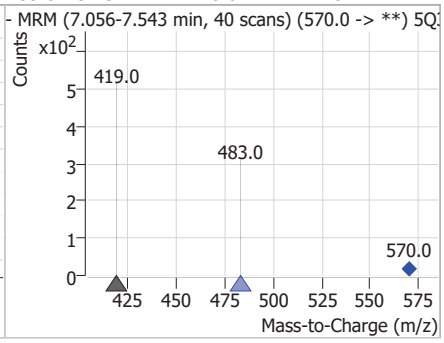


Perfluorinated Compounds by LC/MS/MS

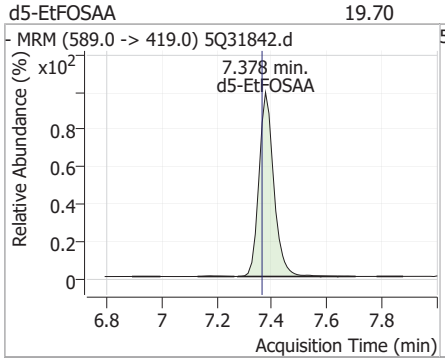
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	18.88	7.25	0.00	14191	570.0 -> 483.0	57.3	26.0	78.1

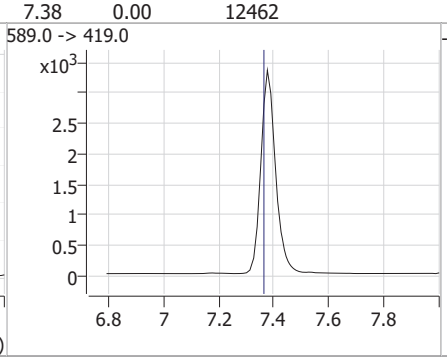


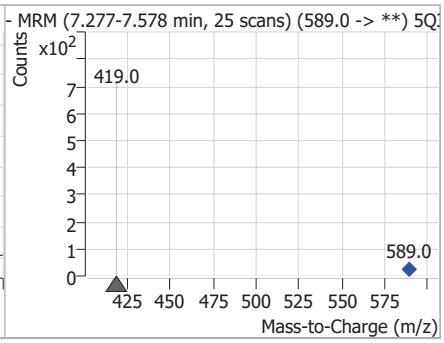




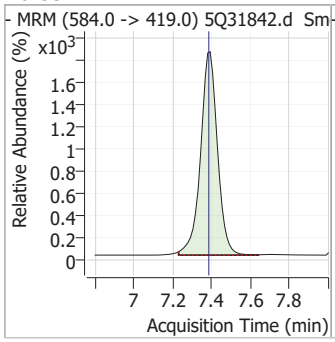
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	19.70	7.38	0.00	12462				

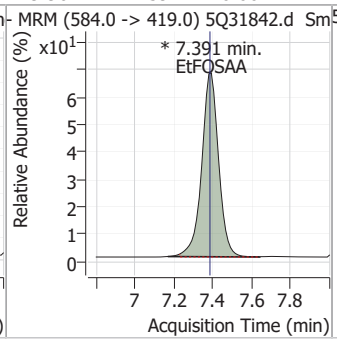


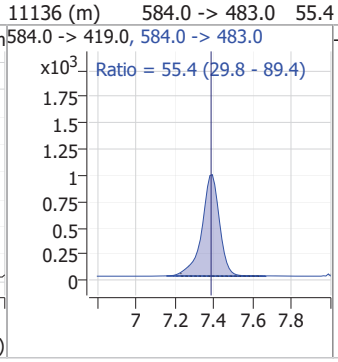


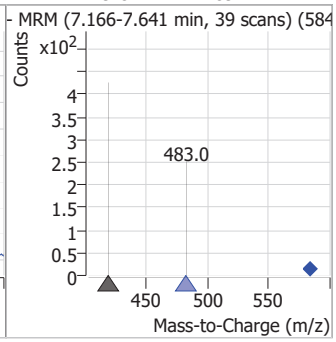


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.96	7.39	0.00	11136 (m)	584.0 -> 483.0	55.4	29.8	89.4

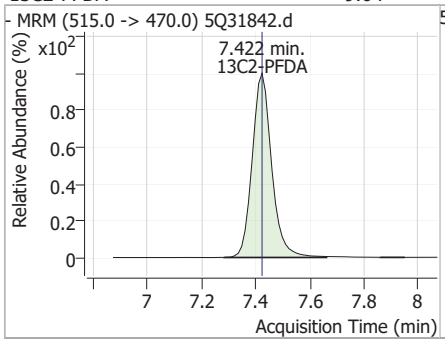


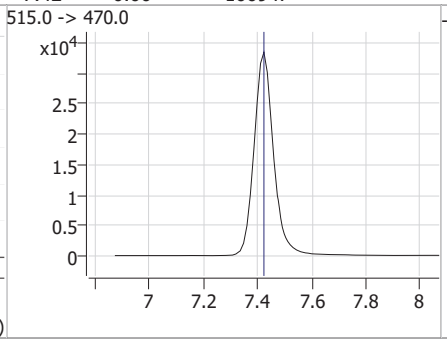


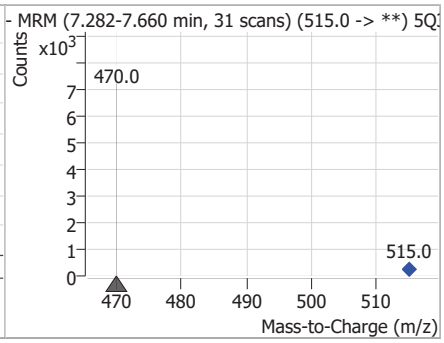




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	9.64	7.42	0.00	166947				





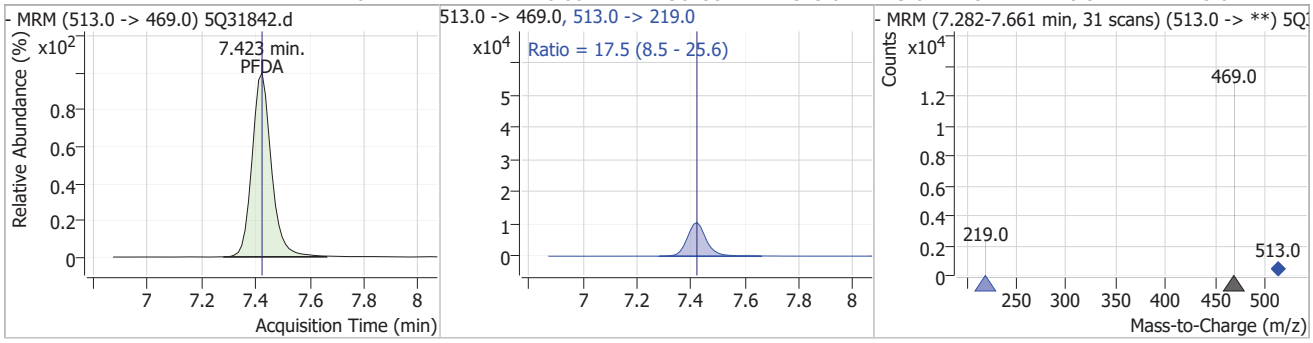


7.7.51

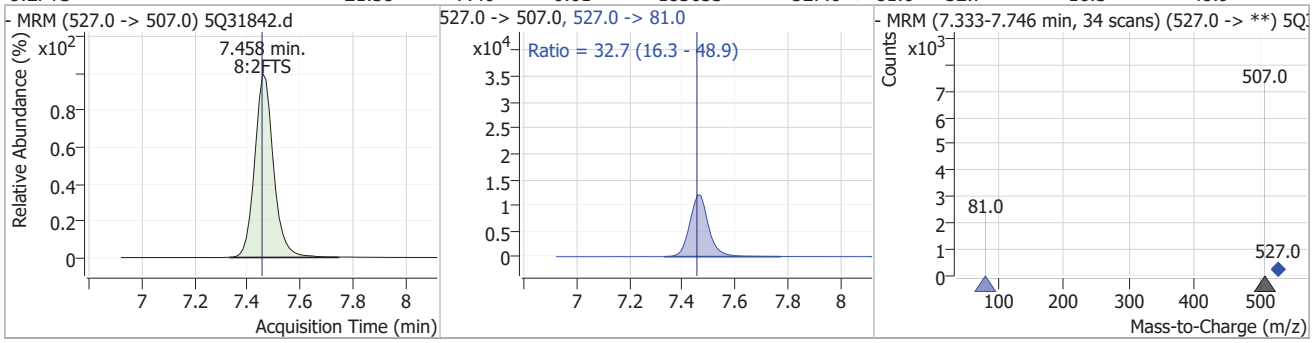
7

Perfluorinated Compounds by LC/MS/MS

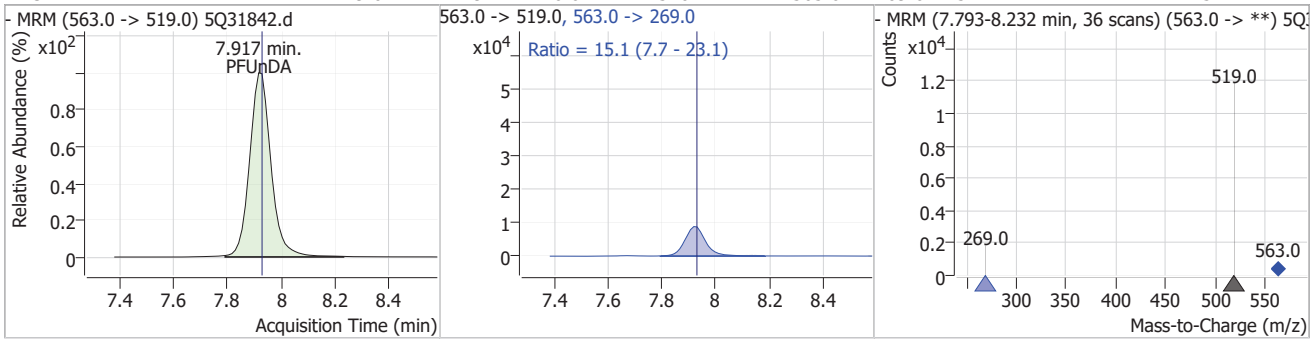
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.47	7.42	0.00	296238	513.0 -> 219.0	17.5	8.5	25.6



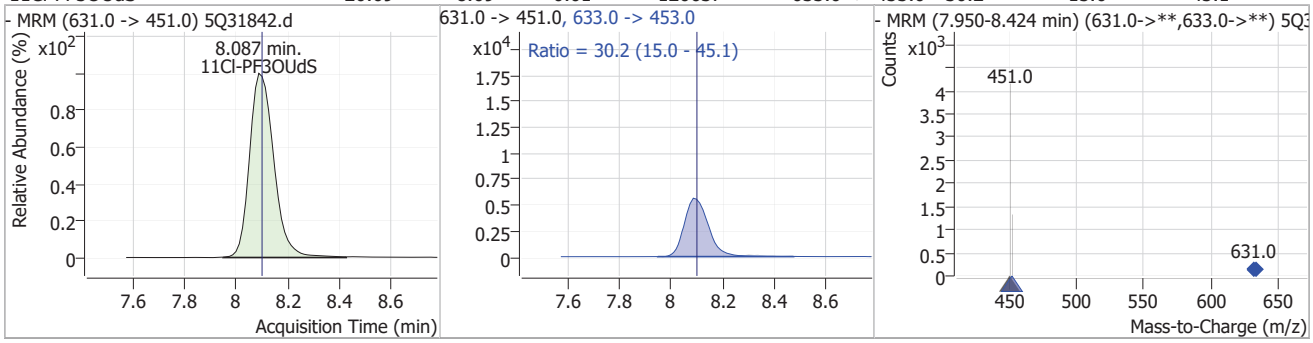
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.38	7.46	-0.01	183653	527.0 -> 81.0	32.7	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.67	7.92	-0.01	316212	563.0 -> 269.0	15.1	7.7	23.1

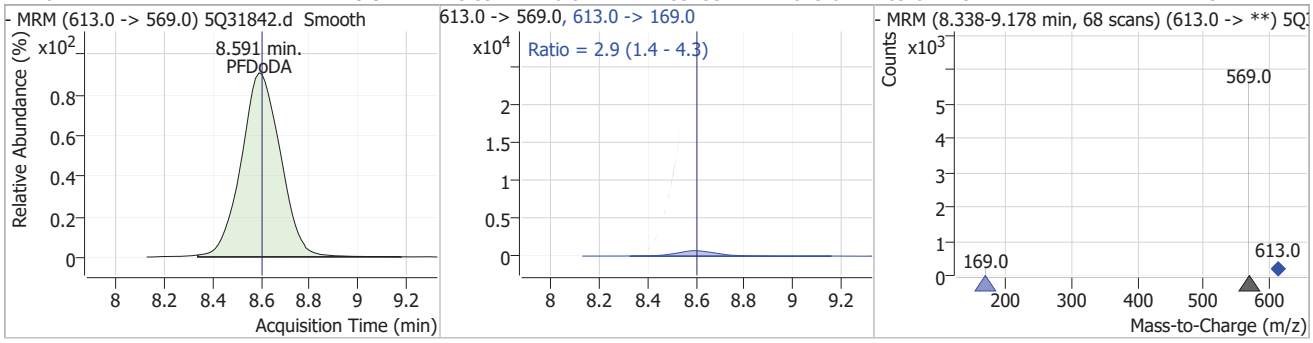


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	20.69	8.09	-0.01	120637	633.0 -> 453.0	30.2	15.0	45.1

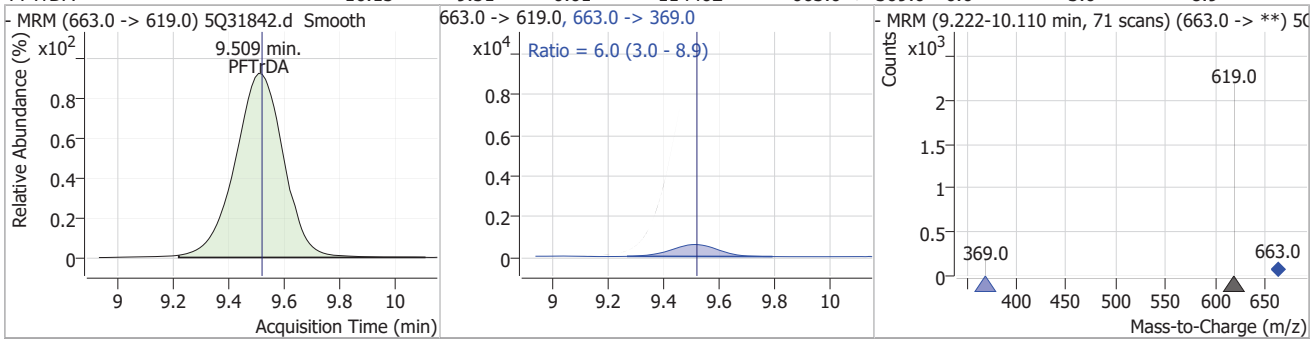


Perfluorinated Compounds by LC/MS/MS

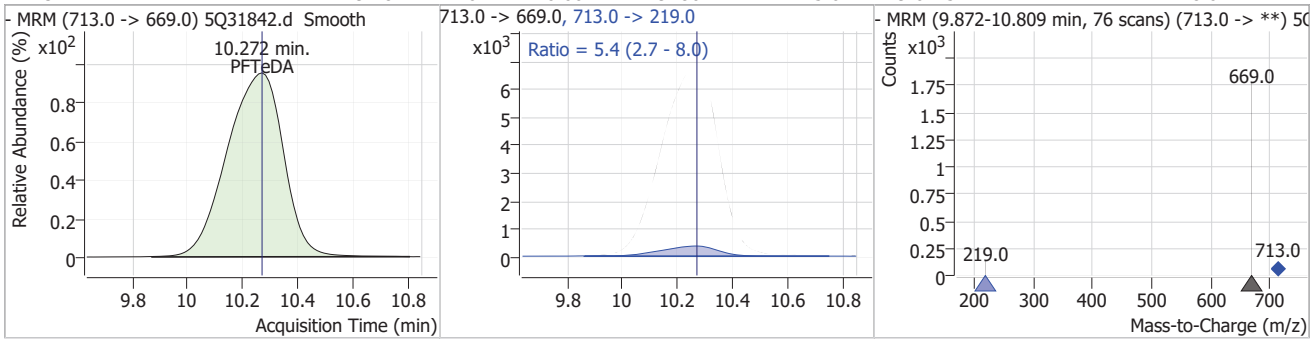
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.92	8.59	-0.01	285135	613.0 -> 169.0	2.9	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	16.15	9.51	-0.01	114462	663.0 -> 369.0	6.0	3.0	8.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.48	10.27	0.00	97867	713.0 -> 219.0	5.4	2.7	8.0



Manual Integration Approval Summary

Sample Number:	S5Q523-ECC523	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31842.D	**Analyst approved:**	04/18/25 07:39 (b) (6)
Injection Time:	04/17/25 18:40	**Supervisor approved:**	04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

[redacted]

LCMS3-3Q ANALYSIS LOG

DATE:	04/11/25
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS3-3Q

METHODS:	533m
PROC. METH:	533_041125_S3Q1459
CAL DATE:	04/11/25
ANALYST:	[redacted]
RUN BATCH:	S3Q1491

ELUENT A LOT #:	225380 W/0.1% AA 224297
ELUENT B LOT #:	224231 W/0.1% AA 224297
IC/CC STD LOT #:	LCMS 2490 / 2486
ICV STD LOT #:	12339
ISTD/ID STD LOT #:	LCMS2466-G

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	-
1	3q101412.d	P1-C9	cond std	533.m	Sample		op8141,S3Q1491,250,,,1,1,water	-
2	3q101413.d	P1-C9	cond std	533.m	Sample		op8141,S3Q1491,250,,,1,1,water	-
3	3q101414.d	P1-C9	cond std	533.m	Sample		op8141,S3Q1491,250,,,1,1,water	-
4	3q101415.d	P1-C9	cond std	533.m	Sample		op8141,S3Q1491,250,,,1,1,water	-
5	3q101416.d	P1-C9	cond std	533.m	Sample		op8141,S3Q1491,250,,,1,1,water	-
6	3q101417.d	P1-C1	ccb	533.m	Sample		op8141,S3Q1491,250,,,1,1,water	-
7	3q101429.d	P1-C1	ic1491-0	533.m	Sample		op8141,S3Q1491,250,,,1,1,water	✓
8	3q101430.d	P1-C2	ic1491-0.5	533.m	Calibration	2.5/500	op8141,S3Q1491,250,,,1,1,water	✓
9	3q101431.d	P1-C3	ic1491-1	533.m	Calibration	5/500	op8141,S3Q1491,250,,,1,1,water	✓
10	3q101432.d	P1-C4	ic1491-2	533.m	Calibration	10/500	op8141,S3Q1491,250,,,1,1,water	✓
11	3q101433.d	P1-C5	ic1491-5	533.m	Calibration	25/500	op8141,S3Q1491,250,,,1,1,water	✓
12	3q101434.d	P1-C6	ic1491-10	533.m	Calibration	50/500	op8141,S3Q1491,250,,,1,1,water	✓
13	3q101435.d	P1-C7	icc1491-20	533.m	Calibration	100/500	op8141,S3Q1491,250,,,1,1,water	✓
14	3q101436.d	P1-C8	ic1491-40	533.m	Calibration	200/500	op8141,S3Q1491,250,,,1,1,water	✓
15	3q101437.d	P1-C9	ic1491-50	533.m	Sample	250/500	op8141,S3Q1491,250,,,1,1,water	dropped, prep incorrectly
16	3q101438.d	P1-C1	iblk	533.m	Sample		op8141,S3Q1491,250,,,1,1,water	✓
17	3q101439.d	P1-D1	icv1491-20	533.m	QC	5/500	op8141,S3Q1491,250,,,1,1,water	phenova✓
18	3q101440.d	P1-D2	rt	533.m	Sample		op8141,S3Q1491,250,,,1,1,water	✓
19	3q101441.d	P1-C7	cc1491-20	533.m	QC	100/500	op8141,S3Q1491,250,,,1,1,water	✓
20	3q101442.d	P1-C2	cc1491-0.5LL	533.m	QC	2.5/500	op8141,S3Q1491,250,,,1,1,water	✓
21	3q101443.d	P3-A1	op8808-bs	533.m	Sample		op8808,S3Q1491,250,,,1,1,water	✓
22	3q101444.d	P3-A2	op8808-mb	533.m	Sample		op8808,S3Q1491,250,,,1,1,water	✓
23	3q101445.d	P3-A3	fc23797-1	533.m	Sample		op8808,S3Q1491,280,,,1,1,water	✓
24	3q101446.d	P3-A4	op8808-ms	533.m	Sample		op8808,S3Q1491,280,,,1,1,water	✓
25	3q101447.d	P3-A5	fc23797-2	533.m	Sample		op8808,S3Q1491,280,,,1,1,water	✓
26	3q101448.d	P3-A6	op8808-dup	533.m	Sample		op8808,S3Q1491,280,,,1,1,water	✓
27	3q101449.d	P3-A7	fc23797-3	533.m	Sample		op8808,S3Q1491,265,,,1,1,water	✓
28	3q101450.d	P3-A8	fc23797-4	533.m	Sample		op8808,S3Q1491,260,,,1,1,water	✓
29	3q101451.d	P1-C7	ecc1491-20	533.m	QC	100/500	op8141,S3Q1491,250,,,1,1,water	✓

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LCMS2-2Q ANALYSIS LOG

DATE:	04/11/25
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS5-5Q

METHODS:	537 DW
PROC. METH:	537_041125_s5q519
CAL DATE:	04/11/25
ANALYST:	[redacted]
RUN BATCH:	S5Q519

ELUENT A LOT #:	H2O lot:225382 w 0.1% A.A lot:194003
ELUENT B LOT #:	MeOH:224231 w 0.1% AA:194003
IC/CC STD LOT #:	LCMS 2484
ICV STD LOT #:	12647A tpfoa:2491
ISTD/ID STD LOT #:	LCMS2492

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	5Q31684.d	P1-A9	cond std	537.m	Sample		OP8806,S5Q519,250,,,1,1,water	-
2	5Q31685.d	P1-A9	cond std	537.m	Sample		OP8806,S5Q519,250,,,1,1,water	-
3	5Q31686.d	P1-A9	cond std	537.m	Sample		OP8806,S5Q519,250,,,1,1,water	-
4	5Q31687.d	P1-A1	ic519-0	537.m	Sample		OP8806,S5Q519,250,,,1,1,water	Tune file✓
5	5Q31688.d	P1-A2	ic519-0.5	537.m	Calibration	2.5/500	OP8806,S5Q519,250,,,1,1,water	pfda, gen x targets low, passes +/-50%✓
6	5Q31689.d	P1-A3	ic519-1	537.m	Calibration	5/500	OP8806,S5Q519,250,,,1,1,water	✓
7	5Q31690.d	P1-A4	ic519-2	537.m	Calibration	10/500	OP8806,S5Q519,250,,,1,1,water	✓
8	5Q31691.d	P1-A5	ic519-5	537.m	Calibration	25/500	OP8806,S5Q519,250,,,1,1,water	✓
9	5Q31692.d	P1-A6	ic519-10	537.m	Calibration	50/500	OP8806,S5Q519,250,,,1,1,water	✓
10	5Q31693.d	P1-A7	icc519-20	537.m	Calibration	100/500	OP8806,S5Q519,250,,,1,1,water	✓
11	5Q31694.d	P1-A8	ic519-50	537.m	Calibration	250/500	OP8806,S5Q519,250,,,1,1,water	✓
12	5Q31695.d	P1-A9	ic519-100	537.m	Calibration	1x	OP8806,S5Q519,250,,,1,1,water	✓
13	5Q31696.d	P1-B1	icv519-20	537.m	QC	10/500	OP8806,S5Q519,250,,,1,1,water	pfdoda target high; par30✓
14	5Q31697.d	P1-B2	rt	537.m	Sample		OP8806,S5Q519,250,,,1,1,water	✓
15	5Q31698.d	P1-A7	cc519-20	537.m	QC	100/500	OP8806,S5Q519,250,,,1,1,water	✓
16	5Q31699.d	P1-A2	cc519-0.5LL	537.m	QC	2.5/500	OP8806,S5Q519,250,,,1,1,water	gen x eis low, passes +/-50%✓
17	5Q31700.d	P2-A1	op8806-bs	537.m	Sample		OP8806,S5Q519,250,,,1,1,water	rr1x eis high
18	5Q31701.d	P2-A2	op8806-mb	537.m	Sample		OP8806,S5Q519,250,,,1,1,water	rr1x eis high
19	5Q31702.d	P2-A3	fc23797-1a	537.m	Sample		OP8806,S5Q519,270,,,1,1,water	rr1x eis high
20	5Q31703.d	P2-A4	fc23797-2a	537.m	Sample		OP8806,S5Q519,285,,,1,1,water	rr1x eis high
21	5Q31704.d	P2-A5	op8806-ms	537.m	Sample		OP8806,S5Q519,285,,,1,1,water	rr1x eis high
22	5Q31705.d	P2-A6	fc23797-3a	537.m	Sample		OP8806,S5Q519,275,,1,1,water	rr1x eis high
23	5Q31706.d	P2-A7	op8806-dup	537.m	Sample		OP8806,S5Q519,285,,,1,1,water	rr1x eis high
24	5Q31707.d	P2-A8	fc23797-4a	537.m	Sample		OP8806,S5Q519,270,,,1,1,water	rr1x eis high
25	5Q31708.d	P1-A7	ecc519-20	537.m	QC	100/500	OP8806,S5Q519,250,,,1,1,water	pfdoda target high✓
26	5Q31709.d	P1-A1	ccb	537.m	Sample		OP8806,S5Q519,250,,,1,1,water	-

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LCMS2-2Q ANALYSIS LOG

DATE:	04/14/25
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS5-5Q

METHODS:	537 DW
PROC. METH:	537_041425_s5q520
CAL DATE:	04/14/25
ANALYST:	[redacted]
RUN BATCH:	S5Q520

ELUENT A LOT #:	H2O lot:225382 w 0.1% A.A lot:194003
ELUENT B LOT #:	MeOH:224231 w 0.1% AA:194003
IC/CC STD LOT #:	LCMS 2484
ICV STD LOT #:	12647A tpfoa:2491
ISTD/ID STD LOT #:	LCMS2492

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	5Q31728.d	P1-A9	cond std	537.m	Sample		OP8806,S5Q520,250,,,1,1,water	-
2	5Q31729.d	P1-A9	cond std	537.m	Sample		OP8806,S5Q520,250,,,1,1,water	-
3	5Q31730.d	P1-A9	cond std	537.m	Sample		OP8806,S5Q520,250,,,1,1,water	-
4	5Q31731.d	P1-A1	ic520-0	537.m	Sample		OP8806,S5Q520,250,,,1,1,water	Tune file✓
5	5Q31732.d	P1-A2	ic520-0.5	537.m	Calibration	2.5/500	OP8806,S5Q520,250,,,1,1,water	etfosaa target low, passes +/-50%✓
6	5Q31733.d	P1-A3	ic520-1	537.m	Calibration	5/500	OP8806,S5Q520,250,,,1,1,water	✓
7	5Q31734.d	P1-A4	ic520-2	537.m	Calibration	10/500	OP8806,S5Q520,250,,,1,1,water	✓
8	5Q31735.d	P1-A5	ic520-5	537.m	Calibration	25/500	OP8806,S5Q520,250,,,1,1,water	✓
9	5Q31736.d	P1-A6	ic520-10	537.m	Calibration	50/500	OP8806,S5Q520,250,,,1,1,water	✓
10	5Q31737.d	P1-A7	icc520-20	537.m	Calibration	100/500	OP8806,S5Q520,250,,,1,1,water	✓
11	5Q31738.d	P1-A8	ic520-50	537.m	Calibration	250/500	OP8806,S5Q520,250,,,1,1,water	✓
12	5Q31739.d	P1-A9	ic520-100	537.m	Calibration	1x	OP8806,S5Q520,250,,,1,1,water	✓
13	5Q31740.d	P1-B1	icv520-20	537.m	QC	10/500	OP8806,S5Q520,250,,,1,1,water	pfdoda, teda target high; par30✓
14	5Q31741.d	P1-B2	rt	537.m	Sample		OP8806,S5Q520,250,,,1,1,water	✓
15	5Q31742.d	P1-A7	cc520-20	537.m	QC	100/500	OP8806,S5Q520,250,,,1,1,water	✓
16	5Q31743.d	P1-A2	cc520-0.5LL	537.m	QC	2.5/500	OP8806,S5Q520,250,,,1,1,water	✓
17	5Q31744.d	P2-A1	op8806-bs	537.m	Sample		OP8806,S5Q520,250,,,1,1,water	✓
18	5Q31745.d	P2-A2	op8806-mb	537.m	Sample		OP8806,S5Q520,250,,,1,1,water	✓
19	5Q31746.d	P2-A3	fc23797-1a	537.m	Sample		OP8806,S5Q520,270,,,1,1,water	✓
20	5Q31747.d	P2-A4	fc23797-2a	537.m	Sample		OP8806,S5Q520,285,,,1,1,water	✓
21	5Q31748.d	P2-A5	op8806-ms	537.m	Sample		OP8806,S5Q520,285,,,1,1,water	✓
22	5Q31749.d	P2-A6	fc23797-3a	537.m	Sample		OP8806,S5Q520,275,,,1,1,water	✓
23	5Q31750.d	P2-A7	op8806-dup	537.m	Sample		OP8806,S5Q520,285,,,1,1,water	✓
24	5Q31751.d	P2-A8	fc23797-4a	537.m	Sample		OP8806,S5Q520,270,,,1,1,water	✓
25	5Q31752.d	P1-A7	ecc520-20	537.m	QC	100/500	OP8806,S5Q520,250,,,1,1,water	✓
26	5Q31753.d	P1-A1	ccb	537.m	Sample		OP8806,S5Q520,250,,,1,1,water	-

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LCMS2-2Q ANALYSIS LOG

DATE:	04/17/25
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS5-5Q

METHODS:	537 DW
PROC. METH:	537_041725_s5q523
CAL DATE:	04/17/25
ANALYST:	[redacted]
RUN BATCH:	S5Q523

ELUENT A LOT #:	H2O lot:250105 w 0.1% A.A lot:224297
ELUENT B LOT #:	MeOH:222643 w 0.1% AA:224297
IC/CC STD LOT #:	LCMS 2484
ICV STD LOT #:	12647A tpfoa:2491
ISTD/ID STD LOT #:	LCMS2492

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	5Q31816.d	P1-A8	cond std	537.m	Sample		OP8882,S5Q523,250,,,1,1,water	-
2	5Q31817.d	P1-A8	cond std	537.m	Sample		OP8882,S5Q523,250,,,1,1,water	-
3	5Q31818.d	P2-F2	bs dw test	537.m	Sample		OP8882,S5Q523,250,,,1,1,water	✓
4	5Q31819.d	P1-A1	ic523-0	537.m	Sample		OP8882,S5Q523,250,,,1,1,water	Tune File
5	5Q31820.d	P1-A2	ic523-0.5	537.m	Calibration	2.5/500	OP8882,S5Q523,250,,,1,1,water	pass +/-50%
6	5Q31821.d	P1-A3	ic523-1	537.m	Calibration	5/500	OP8882,S5Q523,250,,,1,1,water	✓
7	5Q31822.d	P1-A4	ic523-2	537.m	Calibration	10/500	OP8882,S5Q523,250,,,1,1,water	✓
8	5Q31823.d	P1-A5	ic523-5	537.m	Calibration	20/500	OP8882,S5Q523,250,,,1,1,water	✓
9	5Q31824.d	P1-A6	ic523-10	537.m	Calibration	50/500	OP8882,S5Q523,250,,,1,1,water	✓
10	5Q31825.d	P1-A7	icc523-20	537.m	Calibration	100/500	OP8882,S5Q523,250,,,1,1,water	✓
11	5Q31826.d	P1-A8	ic523-50	537.m	Calibration	250/500	OP8882,S5Q523,250,,,1,1,water	✓
12	5Q31827.d	P1-A9	ic523-100	537.m	Calibration	1x	OP8882,S5Q523,250,,,1,1,water	✓
13	5Q31828.d	P1-B1	icv523-20	537.m	QC	10/500	OP8882,S5Q523,250,,,1,1,water	par30✓
14	5Q31829.d	P1-B2	rt	537.m	Sample		OP8882,S5Q523,250,,,1,1,water	✓
15	5Q31830.d	P1-A7	cc523-20	537.m	QC	100/500	OP8882,S5Q523,250,,,1,1,water	✓
16	5Q31831.d	P1-A2	cc523-0.5LL	537.m	QC	2.5/500	OP8882,S5Q523,250,,,1,1,water	✓
17	5Q31832.d	P2-E1	op8904-bs	537.m	Sample		OP8904,S5Q523,250,,,1,1,water	rr1x tri, teda, doda targets low
18	5Q31833.d	P2-E2	op8904-mb	537.m	Sample		OP8904,S5Q523,250,,,1,1,water	rr1x bs targets low
19	5Q31834.d	P2-E3	fc23797-1are	537.m	Sample		OP8904,S5Q523,280,,,1,1,water	✓
20	5Q31835.d	P2-E4	fc23948-1a	537.m	Sample		OP8904,S5Q523,280,,,1,1,water	rr1x bs targets low, sample eis high
21	5Q31836.d	P2-E5	fc23948-2a	537.m	Sample		OP8904,S5Q523,285,,,1,1,water	rr1x bs targets low, sample eis high
22	5Q31837.d	P2-E6	fc23948-3a	537.m	Sample		OP8904,S5Q523,285,,,1,1,water	rr1x bs targets low, sample eis high
23	5Q31838.d	P2-E7	op8904-ms	537.m	Sample		OP8904,S5Q523,280,,,1,1,water	rr1x bs targets low, sample eis high
24	5Q31839.d	P2-E8	fc23948-4a	537.m	Sample		OP8904,S5Q523,280,,,1,1,water	rr1x bs targets low, sample eis high
25	5Q31840.d	P2-E9	op8904-dup	537.m	Sample		OP8904,S5Q523,280,,,1,1,water	rr1x bs targets low, sample eis high
26	5Q31841.d	P2-F1	fc23899-4are	537.m	Sample		OP8904,S5Q523,280,,,1,1,water	✓
27	5Q31842.d	P1-A7	ecc523-20	537.m	QC	100/500	OP8882,S5Q523,250,,,1,1,water	✓
28	5Q31843.d	P1-A1	ccb	537.m	Sample		OP8882,S5Q523,250,,,1,1,water	-

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Organic Standards Preparation Log

[redacted] Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2486	533 Injection STD	12442	M3 PFBA	[redacted]	11/24/26	3/6/26	50 ppm	8 uL	4.0mL	1.0ppm	95% MeOH 5% H2O	3/6/25	9/6/25	[redacted]
↓	↓	104918B	MPFBS		11/2/25	11/2/25	↓	↓	↓	↓	↓	↓	↓	
↓	↓	12421	M2 PFOA		2/21/29	3/6/26	↓	↓	↓	↓	↓	↓	↓	
LCMD 2487A-E	1633 spike Cal std.	LCMD 2463A	Br-EtFOSA/FOSE		—	7/27/25	2/5 ppm	250NL	4mL	125 312.5 ppb	1633 mix (2688NL)	3/9/25	7/27/25	
↓	↓	12952A	PFAC MxH		11-12-29	3-9-26	1-4 ppb	↓	↓	62.5 125 250ppb	↓	↓	↓	
↓	↓	12953A	PFAC MxF		9-6-28	3-9-26	2 ppb	↓	↓	125ppb	↓	↓	↓	
↓	↓	12954A	PFAC MxG		10-2-29	3-9-26	2ppb	↓	↓	125ppb	↓	↓	↓	
↓	↓	12973C 12983A	PFAC MxJ		7-11-29	3-9-26	4-20 ppm	312NL	↓	312 1160ppb	↓	↓	↓	
LCMS 2488	PFC Id std.	12869A	PFOA DOD25		11/15/29	1/14/26	1.0ppm	400µL	4mL	100ppb	95%MeOH 5% H2O	3/11/25	7/17/25	
↓	↓	12816A	N-MeFOSA-M		8/11/28	7/7/25	50 ppm	8 µL	↓	↓	↓	↓	↓	
↓	↓	12920	FBSA1		1/10/29	1/14/26	↓	↓	↓	↓	↓	↓	↓	
↓	↓	12921	FHxSA-1		4/17/29	1/14/26	↓	↓	↓	↓	↓	↓	↓	
↓	↓	12274A	PFECHS		12/5/28	8/12/25	↓	↓	↓	↓	↓	↓	↓	
LCMS 2489	533 STD	12447B	533 cal STD		01/17/29	3/14/26 03/14/26	2ppm	200uL	4mL	100ppb	80% MeOH 20% H2O	3.14.25	9.14.25	
LCMS 2490	533 STD	12447B	533 cal STD		01/17/29	03/14/26	2ppm	200uL	4mL	100 ppb	80% MeOH 20% H2O	3.14.25	9.14.25	
LCMS 2491	T-PFOA STD (RT)	12422	T-PFOA		2/21/29	3/14/26	50 ppm	8uL	4mL	100ppb	95% MeOH 5% H2O	3.14.25	9.14.25	

* based on date opened as specified in each [redacted] SOP.

ORLD-QAC-0017-6-03-FORM-lcms std prep log.xls 030819

[redacted]

FC23797

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Organic Standards Preparation Log

Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMD 2463A-J (mx 1/26)	1633 spike Cal. std.	2453B	Br-LN me-Et FOSA/FOSE	(b) (4)	—	7/2/25	2/5 ppm	250NL	4mL	125 312.5 ppb	1633 mix	1/24/25	7/2/25	(b) (6)
2464A-J		12880B 12909AB	PFAC MxH		4.2.29	1/17/26 1/26/26	1-4 ppm			62.5 125 250 ppb	(2688NL)			
		12866B 12910A-B	PFAC MxF		9.6.28	1/17/26 1/26/26	2 ppb			125ppb				
		12843C 12882A-B	PFAC MxG		10.2.29	1/17/26 1/26/26	2ppb			125ppb				
		12917C 12934A-C	PFAC MxJ		7.11.29	1/21/26 1/26/26	4-20 ppm	312NL		312 1160ppb				
LCMD 2465	Br-LN mix spike me,Et FOSA me,Et FOSE	12546A	br-N MeFOSA		8.23.27	1/3/26	50ppm	200NL	5mL	2ppm	1633 mix (3600NL)	01/27/25	7/27/25	
		12547B	br-N EtFOSA		10.7.27	1/3/26		200NL		2ppm				
		12935B	br-N MeFOSE		4.19.29	1/27/26		500NL		5ppm				
		12936B	br-N EtFOSE		4.19.29	1/27/26		500NL		5ppm				
LCMS 2466A-J	PFC ID Surr	12879 A-J	MPFAC-24ES		05/02/29	~~01/02/25~~ 02/02/26	1.0ppm	1.2mL	~2.5mL	0.5ppm	95% MeOH 5% H_2O	02/24/25	08/22/25	
		12645B	M3HFPO-DA		06/10/27	10/17/25	50ppm	24µL						
		12646A	d-N-MeFOSA-M		06/19/29	09/16/25								

COUT on next page (b) (6) 02/04/25

* based on date opened as specified in each (b) (4) SOP.

ORLD-QAC-0017-6-03-FORM-lcms std prep log.xls 030819

[redacted] (b) (4)

[redacted] (b) (6)

1.	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	4185	11ClPF3OUdS			0.017				
2.	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)		9ClPF3ONS1023	0.043	2.15	0.017				
	Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA1223	0.042	2.12	0.017				
4.	Perfluoro(2-methyl-3-oxahexanoic) acid (HFPO-DA)	99666	121923	0.04	2.00	0.017	50.2	2.00	0.04	
5.	Perfluoro-3,6-dioxaheptanoic acid (NFDHA)	4448	36OPFHpA0323	0.04	2.00	0.017	50.0	2.00	0.04	
	Perfluoro-n-butanoic acid (PFBA)	64459	030720	0.02	1.00	0.004	100.2	2.00	0.04	
7.	Perfluorobutanesulfonic acid (PFBS)	99194	100523	0.04	2.00	0.017	50.2	2.01	0.04	
8.	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	67398	090823	0.040	2.00	0.0				
	Perfluorodecanoic acid (PFDA)	99195	100523	0.04	2.00	0.0				
10.	Perfluorododecanoic acid (PFDoA)	99196	052423	0.04	2.00	0.0				
11.	Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	65587	090723	0.040	2.00	0.0				
	Perfluoro-1-heptanesulfonic acid (PFHpS)	3672	LPFHpS0923	0.042	2.10	0.0				
	Perfluoroheptanoic acid (PFHpA)	99197	110923	0.04	2.00	0.0				
14.	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	65271	063023	0.04	2.00	0.0				
15.	Perfluoro-1-hexanesulfonic acid (br-PFHxS)*	99198								
	Perfluorohexanoic acid (PFHxA)	99199								
17.	Perfluoro-4-oxapentanoic acid (PF4OPaA; PFMPA)	65439								
	Perfluoro-5-oxahexanoic acid (PF5OHxA; PFMBA)	65440								
	Perfluorononanoic acid (PFNA)	99200								
20.	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	65272								
	Heptadecafluorooctanesulfonic acid (br-PFOS)*	99201								
	Perfluorooctanoic acid (br-PFOA)*	64458								
	Perfluoro-n-pentanoic acid (PFPeA)	99543								
	Perfluoro-1-pentanesulfonic acid (PFPeS)									

Perfluoro-1-hexanesulfonic acid (linear)*	[illegible]									
Perfluoro-1-hexanesulfonic acid (branched isomer)*	[illegible]									
Heptadecafluorooctanesulfonic acid (linear)*	99201									
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201									
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201									
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201									

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rec'd: 05/07/24

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

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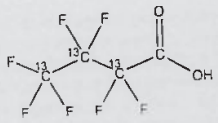
PRODUCT CODE:	M3PFBA	**LOT NUMBER:**	M3PFBA0124
COMPOUND:	Perfluoro-n-(2,3,4-$^{13}C_3$)butanoic acid		
		CAS #:	Not available

STRUCTURE:



MOLECULAR FORMULA:	$^{13}C_3{}^{12}CHF_7O_2$	**MOLECULAR WEIGHT:**	217.02
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C
LAST TESTED: (mm/dd/yyyy)	01/24/2024		
EXPIRY DATE: (mm/dd/yyyy)	01/24/2029		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~0.2% of perfluoro-n-($^{13}C_3$)propanoic acid, and also contains ~1.0% of perfluoro-n-($^{13}C_4$)butanoic acid (MPFBA) due to the naturally occurring isotopic abundance of ^{13}C in the unlabelled carbon atom.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) **Date:** 01/25/2024 (mm/dd/yyyy)

(b) (4)

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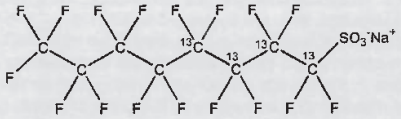
(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFOS	**LOT NUMBER:**	MPFOS1020
COMPOUND:	Sodium perfluoro-1-[1,2,3,4-$^{13}C_4$]octanesulfonate		
STRUCTURE:		**CAS #:**	960315-53-1



MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_4F_{17}SO_3Na$	**MOLECULAR WEIGHT:**	526.08
CONCENTRATION:	50.0 ± 2.5 µg/mL (Na salt) 47.9 ± 2.4 µg/mL (MPFOS acid) 47.8 ± 2.4 µg/mL (MPFOS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2,3,4\text{-}^{13}C_4$)
LAST TESTED: (mm/dd/yyyy)	11/02/2020		
EXPIRY DATE: (mm/dd/yyyy)	11/02/2025		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~0.4% sodium perfluoro-1-[1,2,3-$^{13}C_3$]heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) **Date:** 11/03/2020 (mm/dd/yyyy)

(b) (4)

Form#:27, Issued 2004-11-10
Revision#:8, Revised 2020-09-10

MPFOS1020 (1 of 4)
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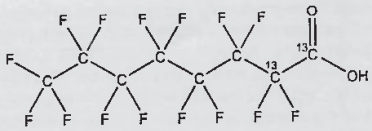
rec'd: 04/25/24

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M2PFOA	**LOT NUMBER:**	M2PFOA0224
COMPOUND:	Perfluoro-n-(1,2-$^{13}C_2$)octanoic acid		
STRUCTURE:		**CAS #:**	864071-08-9



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_6HF_{15}O_2$	**MOLECULAR WEIGHT:**	416.05
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C
LAST TESTED: (mm/dd/yyyy)	02/21/2024		
EXPIRY DATE: (mm/dd/yyyy)	02/21/2029		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) **Date:** 03/06/2024 (mm/dd/yyyy)

(b) (4)

Form#:27, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

M2PFOA0224 (1 of 4)
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rec'd: 11/26/24

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

MPFAC-24ES

Mass-Labelled PFAS
Extraction Standard Solution

PRODUCT CODE:	MPFAC-24ES
LOT NUMBER:	MPFAC24ES0424
SOLVENT(S):	Methanol/Isopropanol (2%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	04/30/2024
LAST TESTED: (mm/dd/yyyy)	05/02/2024
EXPIRY DATE: (mm/dd/yyyy)	05/02/2029
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

MPFAC-24ES is a solution/mixture of mass-labelled (^{13}C) perfluoroalkylcarboxylic acids (C_4-C_{12} and C_{14}), mass-labelled (^{13}C) perfluoroalkanesulfonates (C_4, C_6, and C_8), mass-labelled (^{13}C) telomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (^{2}H) perfluorooctanesulfonamidoacetic acids, and perfluoro-1-($^{13}C_8$)octanesulfonamide. The components and their concentrations are given in Table A.

The individual ^{13}C-labelled perfluoroalkylcarboxylic acids, ^{13}C-labelled perfluoroalkanesulfonates, ^{13}C-labelled telomer sulfonates, and perfluoro-1-($^{13}C_8$)octanesulfonamide all have chemical purities of >98% and isotopic purities of ≥99%. The individual ^{2}H-labelled perfluorooctanesulfonamidoacetic acids all have chemical purities of >98% and isotopic purities of ≥98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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(b) (4)

Table A: **MPFAC-24ES; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))**

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
Perfluoro-n-($^{13}C_4$)butanoic acid	MPFBA	1000		A
Perfluoro-n-($^{13}C_5$)pentanoic acid	M5PFPeA	1000		B
Perfluoro-n-(1,2,3,4,6-$^{13}C_5$)hexanoic acid	M5PFHxA	1000		E
Perfluoro-n-(1,2,3,4-$^{13}C_4$)heptanoic acid	M4PFHpA	1000		F
Perfluoro-n-($^{13}C_8$)octanoic acid	M8PFOA	1000		I
Perfluoro-n-($^{13}C_9$)nonanoic acid	M9PFNA	1000		J
Perfluoro-n-(1,2,3,4,5,6-$^{13}C_6$)decanoic acid	M6PFDA	1000		M
Perfluoro-n-(1,2,3,4,5,6,7-$^{13}C_7$)undecanoic acid	M7PFUdA	1000		Q
Perfluoro-n-(1,2-$^{13}C_2$)dodecanoic acid	MPFDoA	1000		R
Perfluoro-n-(1,2-$^{13}C_2$)tetradecanoic acid	M2PFTeDA	1000		S
Perfluoro-1-($^{13}C_8$)octanesulfonamide	M8FOSA	1000		P
N-Methyl-d_3-perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		N
N-Ethyl-d_5-perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		O
Compound	**Acronym**	**Concentration* (ng/mL)**		**Peak Assignment in Figure 1**
		as the salt	**as the acid**	
Sodium perfluoro-1-(2,3,4-$^{13}C_3$)butanesulfonate	M3PFBS	1000	932	C
Sodium perfluoro-1-(1,2,3-$^{13}C_3$)hexanesulfonate	M3PFHxS	1000	948	G
Sodium perfluoro-1-($^{13}C_8$)octanesulfonate	M8PFOS	1000	959	K
Sodium 1H,1H,2H,2H-perfluoro-1-(1,2-$^{13}C_2$)hexanesulfonate	M2-4:2FTS	1000	938	D
Sodium 1H,1H,2H,2H-perfluoro-1-(1,2-$^{13}C_2$)octanesulfonate	M2-6:2FTS	1000	951	H
Sodium 1H,1H,2H,2H-perfluoro-1-(1,2-$^{13}C_2$)decanesulfonate	M2-8:2FTS	1000	960	L

* Concentrations have been rounded to three significant figures.

Certified By: (b) (6) **Date:** 05/15/2024 (mm/dd/yyyy)

12645A-B
recd: 07/27/24

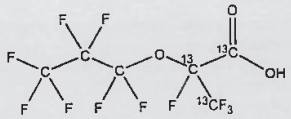
(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M3HFPO-DA
LOT NUMBER: M3HFPODA0624
COMPOUND: $^{13}C_3$-Hexafluoropropylene oxide dimer acid
IUPAC NAME: 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)($^{13}C_3$)propanoic acid

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA:	$^{13}C_3{}^{12}C_3HF_{11}O_3$
CONCENTRATION:	50.0 ± 2.5 µg/mL
CHEMICAL PURITY:	>98%
LAST TESTED: (mm/dd/yyyy)	06/10/2024
EXPIRY DATE: (mm/dd/yyyy)	06/10/2027
RECOMMENDED STORAGE:	Refrigerate ampoule

MOLECULAR WEIGHT:	333.03
SOLVENT(S):	Methanol
ISOTOPIC PURITY:	≥99% ^{13}C

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- This product is commercially known as $^{13}C_3$-GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By (b) (6) **Date:** 06/11/2024 (mm/dd/yyyy)

(b) (4)

Form#:27, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

M3HFPODA0624 (1 of 4)
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recd: 07/27/24

(b) (4)

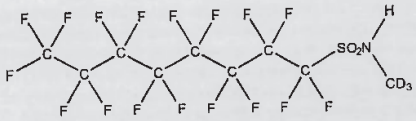
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: d-N-MeFOSA-M
COMPOUND: N-Methyl-d_3-perfluoro-1-octanesulfonamide

LOT NUMBER: dNMeFOSA0624M

CAS #: 936109-37-4

STRUCTURE:



MOLECULAR FORMULA:	$C_8D_3HF_{17}NO_2S$	**MOLECULAR WEIGHT:**	516.19
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥98% ^2H (D)
LAST TESTED: (mm/dd/yyyy)	06/19/2024		
EXPIRY DATE: (mm/dd/yyyy)	06/19/2029		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) **Date:** 06/19/2024 (mm/dd/yyyy)

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Form#:27, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

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Organic Standards Preparation Log

[redacted] Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2481	PFC Id Std.	12869A	P-FOA DOD 28	[redacted]	11/15/29	1/14/26	1.0ppm	400µL	4mL	100pbs	95% MeOH 5% H2O	2/27/25	7/17/25	[redacted]
↓	↓	12186A	N-MeFOSA M		8/11/28	7/17/25	50 ppm	8µL	↓	↓	↓	↓	↓	
		12920	FBSA-1		1/10/29	1/14/26	↓	↓						
		12921	FHxSA-1		4/17/29	1/14/26								
↓	↓	12274A	PFECHS		12/5/28	8/12/25	↓	↓	↓	↓	↓	↓	↓	
LCMS 2482	537.1 DW spike	12709B	P-FOA DOD 28 (comp)		8/2/29	12/18/25	1.0ppm	1.0mL	5mL	200ppb	96% MeOH 4% H2O	2/27/25	8/27/25	
LCMS 2483	537.1 DW SURR	12645B	M3HFDA		6.10.29	10/17/25	50ppm	200uL	5mL	2.0ppm	96% MeOH 4% H2O	2/27/25	5/30/25	
↓	↓	10843	d5-N-EtFOSAA		3/2/26	9/16/25	↓	↓		↓	↓	↓	↓	
		11701	HFPDA		01/18/28	5/30/25		100uL		1.0ppm				
↓	↓	11700	MPFHxA		9/8/27	5/30/25	↓	↓		↓	↓	↓	↓	
LCMS 2484	537.1 DW STD	12709B	P-FOA-DOD 28 (comp)		8/2/29	12/18/25	1.0ppm	400uL	4.0mL	100 ppb	96% MeOH 4% H2O	2/27/25	↓	
↓	↓	LCMS 2483	DW537.1 SURR		—	5/30/25	1.0/2.0 PPm	200uL	↓	50/100 ppb	↓	↓	5/30/25	
LCMS 2485	1633 EL EIS	12979A	1633 EIS		09/26/28	03/03/26	250-5000ppb	—	1.2mL	250-5000ppb	1633 Mix	03/03/25	05/01/25	
↓	↓	11869	M2PF-HXDA		12/30/27	05/01/25	50ppm	6uL	↓	↓	↓	↓	↓	
↓	↓	12473	13C3-PFPrA		08/21/25	06/05/25	50ppm	6uL	↓	↓	↓	↓	↓	
					CONT. ON NEXT PAGE					[redacted]	3/6/25			

* based on date opened as specified in each [redacted] SOP.

ORLD-QAC-0017-6-03-FORM-lcms std prep log.xls 030819

Organic Standards Preparation Log

[redacted] Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
~~LCMS 2492~~	~~S37.1 DW ISTD~~	JL 03/14/25				[redacted]	08/14/25							
LCMS 2492	S37.1 DW ISTD	12441	M3PFPEA	[redacted]	1.24.28	5.16.25	50ppm	80uL	4.0mL	1.0ppm	96/4 MeOH/H2O	3/14/25	5.16.25	
↓	↓	11762	M2i 6:2 FTS		1.24.27	5.16.25	↓	80uL	↓	1.0 ppm	↓	↓	↓	
↓	↓	11345	d3-N-MeFOSAA		9.22.27	9.18.25	↓	160uL	↓	2.0ppm	↓	↓	↓	
↓	↓	10498B	M2PFOS		11.2.25	11.2.25	↓	80uL	↓	1.0ppm	↓	↓	↓	
↓	↓	12421	M2PFOA		2.21.29	3.6.26	↓	80uL	↓	1.0ppm	↓	↓	↓	
LCMS 2493	Br-LN Forspike Me,Et FOSA Me,Et FOSE	12546A	br-N MeFOSA		8.23.27	11.2.26	50ppm	200 NL	5mL	2ppm	1633 mix 3000 NL	3.16.25	9.16.25 NLF	
↓	↓	12547B	br-N EtFOSA		10.7.27	11.2.26	↓	200 NL	↓	2ppm	↓	↓	↓	
↓	↓	12935A 12935B	br-N MeFOSE		4.19.29	1.2.26 1.2.26	↓	500NL	↓	5ppm	↓	↓	↓	
↓	↓	12936 A-B	br-N EtFOSE		4.19.29	1.2.26	↓	500NL	↓	5ppm	↓	↓	↓	
LCMS 2494A-E	1633 spike Cal std.	LCMS 2493	Br-LN Me-Et FOSA-FOSE		—	9.16.25	2/5 ppm	250NL	4mL	125 312.5 ppb	1633 MIX	3.16.25	9.16.25	
↓	↓	12952B	PFAC MXH		11.12.29	3.16.26	1-4 ppm	↓	↓	62.5 125 250ppb	2688NL	↓	↓	
↓	↓	12953B	PFAC MXF		9.6.28	3.16.26	2ppb	↓	↓	125ppb	↓	↓	↓	
↓	↓	12954B	PFAC MXG		10.2.29	3.16.26	2ppb	↓	↓	125ppb	↓	↓	↓	
↓	↓	12983A	PFAC MXJ		7.11.29	3.9.26	4-20 ppm	312NL	↓	312 1160ppb	↓	↓	↓	
—	—					Continue next page				3/16/25	—	—	—	

* based on date opened as specified in each [redacted] SOP.

[redacted]

[redacted]

[redacted] (b) (4)

[redacted] (b) (6)

Methanol (1

Compound	Number		(%)	Factor	Initial Vol. (mL)				xpanded A			
3. Perfluorohexanoic acid (PFHxA)												
4. Perfluoroheptanoic acid (PFHpA)	99197											
5. Perfluorooctanoic acid (br-PFOA)*	99202											
6. Perfluoro-n-nonanoic acid (br-PFNA)*												
10. Perfluorotridecanoic acid (PFTrDA)												
1. Perfluorotetradecanoic acid (PFTe												
Perfluorooctanesulfonamide (br-FOSA)	[illegible]											
3. N-Methylperfluorooctanesulfonamidoacetic acid (br-NMeFOSAA)*	4162	brNMeFOSAA0124	98									
N-Ethylperfluorooctanesulfonamidoacetic acid (br-NEtFOSAA)*	65806	052324	98.5	0.02	2.50	0.017	50.2	1.00				
Perfluorobutanesulfonic acid (PFBS)	99194	061824	99	0.02	2.50	0.017	50.2	1.00	0.02	375-73-5	N/A	
6. Perfluoro-1-pentanesulfonic acid (PFPeS)	99544	061824	99	0.02	2.50	0.017	50.1	1.00	0.02	2706-91-4	N/A	
7. Perfluorohexanesulfonic acid (br-PFHxS)*	99198	030923	99	0.02	2.50	0.017	50.0	1.00	0.02	355-46-4 (L)	N/A	
8. Perfluoroheptanesulfonic acid (PFHpS)	65942	101722	98	0.02	2.50	0.017	50.0	1.00	0.05	375-92-8	N/A	A
19. Heptadecafluorooctanesulfonic acid (br-PFOS)*	99201	110923	99	0.02	2.50	0.017	50.0	1.00				
20. Perfluoro-1-nonanesulfonic acid (PFNS)	3957	LPFNS0124	98	0.021	2.60	0.017	48.0	1.00				
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	[illegible]											
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	65272	120423	99	0.02	2.50							
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	67398	011724	98	0.02	2.50	0.017	50.5	1.01	0.05	39108-34		
2-(Heptafluoropropoxy)-2,3,3,3-tetrafluoropropionic acid (HFPO-DA)	99666	121923	98	0.02	2.50	0.017	50.2	1.00	0.02	13252-13-6	N/A	N/A
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	4165	11ClPF3OUdS0421	98	0.021	2.65	0.017	47.1	1.00	0.05	763051-92-9	N/A	N/A
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	4164	9ClPF3ONS0324	98	0.021	2.68	0.017	46.6	00	0.05	756426-58-1	N/A	N/A
Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA032										
Perfluorooctanoic acid (linear)*	99202	020824		0.02	2.50					(L)		gr-rat 189mg/kg
Perfluorooctanoic acid (branched)*	99202	020824		0.02	2.50	0.004	0.6	0.01	0.001	335-67-1 (L)	N/A	gr-rat 189mg/kg
Perfluorohexanesulfonic acid (linear)*												
Perfluorohexanesulfonic acid (branched)*												
Heptadecafluorooctanesulfonic acid (linear)*	99201	1										
Heptadecafluorooctanesulfonic acid (branched)*	99201	1										
Heptadecafluorooctanesulfonic acid (branched)*	99201	1										
Heptadecafluorooctanesulfonic acid (branched)*												
N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*												
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*												
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*												
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*												
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	658											
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	658											
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	65											
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	65806	[illegible]										
Perfluoro-n-nonanoic acid (linear)*												
Perfluoro-n-nonanoic acid (branched)*												
Perfluoro-n-nonanoic acid (branched)*												
Perfluoro-n-nonanoic acid (branched)*												
Perfluorooctanesulfonamide (linear)*												
Perfluorooctanesulfonamide (branched)*												
Perfluorooctanesulfonamide (branched)*												

*Concentrations for branched and linear isomers are based on LCMS chromatographic analysis only.

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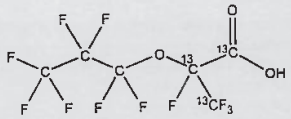
[redacted] (b) (4)

12645A-B
recd: 07/27/24

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M3HFPO-DA
LOT NUMBER:	M3HFPODA0624
COMPOUND:	$^{13}C_3$-Hexafluoropropylene oxide dimer acid
IUPAC NAME:	2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)($^{13}C_3$)propanoic acid
STRUCTURE:	
CAS #:	Not available



MOLECULAR FORMULA:	$^{13}C_3{}^{12}C_3HF_{11}O_3$	**MOLECULAR WEIGHT:**	333.03
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C
LAST TESTED: (mm/dd/yyyy)	06/10/2024		
EXPIRY DATE: (mm/dd/yyyy)	06/10/2027		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- This product is commercially known as $^{13}C_3$-GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By (b) (6) **Date:** 06/11/2024 (mm/dd/yyyy)

(b) (4)

Form#:27, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

M3HFPODA0624 (1 of 4)
rev0

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12441
rec'd: 05/01/24

(b) (4)

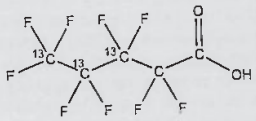
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M3PFPeA
COMPOUND: Perfluoro-n-(3,4,5-$^{13}C_3$)pentanoic acid

LOT NUMBER: M3PFPeA0723

CAS #: Not available

STRUCTURE:



MOLECULAR FORMULA: $^{13}C_3{}^{12}C_2HF_9O_2$
CONCENTRATION: 50.0 ± 2.5 µg/mL

MOLECULAR WEIGHT: 267.02
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/24/2023
EXPIRY DATE: (mm/dd/yyyy) 07/24/2028
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

ISOTOPIC PURITY: ≥99% ^{13}C (3,4,5-$^{13}C_3$)

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~0.9% of perfluoro-n-($^{13}C_3$)butanoic acid (M3PFBA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) **Date:** 01/05/2024 (mm/dd/yyyy)

(b) (4)

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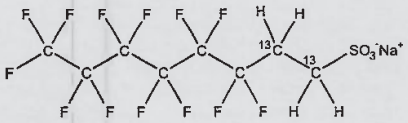
11762 rec'd:04/20/23

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M2-6:2FTS	**LOT NUMBER:**	M262FTS1122
COMPOUND:	Sodium 1H,1H,2H,2H-perfluoro-(1,2-$^{13}C_2$)octanesulfonate		
STRUCTURE:		**CAS #:**	2708218-89-5



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_6H_4F_{13}SO_3Na$	**MOLECULAR WEIGHT:**	452.13
CONCENTRATION:	50.0 ± 2.5 µg/mL (Na salt) 47.6 ± 2.4 µg/mL (M2-6:2FTS acid) 47.5 ± 2.4 µg/mL (M2-6:2FTS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	11/24/2022		
EXPIRY DATE: (mm/dd/yyyy)	11/24/2027		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The native 6:2FTS contains 4.22% of ^{34}S (due to natural isotopic abundance) therefore both native 6:2FTS and M2-6:2FTS will produce signals in the m/z 429 to m/z 409 channel during SRM analysis. We recommend using the m/z 429 to m/z 81 transition to monitor for M2-6:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) **Date:** 12/13/2022 (mm/dd/yyyy)

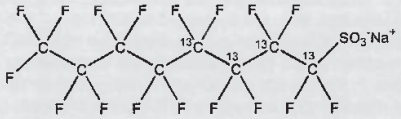
(b) (4)

10498AB

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFOS	**LOT NUMBER:**	MPFOS1020
COMPOUND:	Sodium perfluoro-1-[1,2,3,4-$^{13}C_4$]octanesulfonate		
STRUCTURE:		**CAS #:**	960315-53-1



MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_4F_{17}SO_3Na$	**MOLECULAR WEIGHT:**	526.08
CONCENTRATION:	50.0 ± 2.5 µg/mL (Na salt) 47.9 ± 2.4 µg/mL (MPFOS acid) 47.8 ± 2.4 µg/mL (MPFOS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2,3,4$-$^{13}C_4$)
LAST TESTED: (mm/dd/yyyy)	11/02/2020		
EXPIRY DATE: (mm/dd/yyyy)	11/02/2025		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~0.4% sodium perfluoro-1-[1,2,3-$^{13}C_3$]heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) **Date:** 11/03/2020 (mm/dd/yyyy)

(b) (4)

Form#:27, Issued 2004-11-10
Revision#:8, Revised 2020-09-10

MPFOS1020 (1 of 4)
rev0

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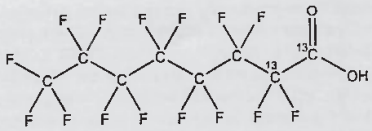
7

12421
recd: 04/25/24

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M2PFOA	**LOT NUMBER:**	M2PFOA0224
COMPOUND:	Perfluoro-n-(1,2-$^{13}C_2$)octanoic acid		
STRUCTURE:		**CAS #:**	864071-08-9



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_6HF_{15}O_2$	**MOLECULAR WEIGHT:**	416.05
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C
LAST TESTED: (mm/dd/yyyy)	02/21/2024		
EXPIRY DATE: (mm/dd/yyyy)	02/21/2029		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) **Date:** 03/06/2024 (mm/dd/yyyy)

(b) (4)

Form#:27, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

M2PFOA0224 (1 of 4)
rev0

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12647A-B
recd:07/27/24

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PFAC30PAR

Native Per- and Polyfluoroalkyl Substance
Precision and Recovery Standard Solution

PRODUCT CODE:	PFAC30PAR
LOT NUMBER:	PFAC301123
SOLVENT(S):	Methanol/Isopropanol (6%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	11/20/2023
LAST TESTED: (mm/dd/yyyy)	11/22/2023
EXPIRY DATE: (mm/dd/yyyy)	11/30/2026
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

PFAC30PAR is a solution/mixture of native linear perfluoroalkylcarboxylic acids (C_4-C_{14}), perfluoroalkanesulfonates (C_4, C_5, C_7, C_9, and C_{10} linear; C_6 and C_8 linear and branched), fluorotelomer sulfonates (4:2, 6:2, and 8:2), linear and branched perfluorooctanesulfonamidoacetic acids, perfluoroalkanesulfonamides (C_4, C_6, and C_8), sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-PF3OUdS), and hexafluoropropylene oxide dimer acid (GenX, HFPO-DA). The components and their concentrations are given in Table A.

The individual components all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Table B: Isomeric Components and Percent Composition of N-MeFOSAA
Table C: Isomeric Components and Percent Composition of N-EtFOSAA
Table D: Isomeric Components and Percent Composition of PFHxSK
Table E: Isomeric Components and Percent Composition of PFOSK
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

(b) (4)

Table A: **PFAC30PAR; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (6%)/water (<1%))**

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
Perfluoro-n-butanoic acid	PFBA	1000		1
Perfluoro-n-pentanoic acid	PFPeA	1000		2
Perfluoro-n-hexanoic acid	PFHxA	1000		5
Perfluoro-n-heptanoic acid	PFHpA	1000		9
Perfluoro-n-octanoic acid	PFOA	1000		14
Perfluoro-n-nonanoic acid	PFNA	1000		18
Perfluoro-n-decanoic acid	PFDA	1000		22
Perfluoro-n-undecanoic acid	PFUdA	1000		29
Perfluoro-n-dodecanoic acid	PFDoA	1000		32
Perfluoro-n-tridecanoic acid	PFTrDA	1000		33
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		34
Perfluoro-1-butanesulfonamide	FBSA	1000		8
Perfluoro-1-hexanesulfonamide	FHxSA	1000		16
Perfluoro-1-octanesulfonamide	FOSA	1000		28
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)propanoic acid	HFPO-DA	1000		7
N-Methylperfluorooctanesulfonamidoacetic acid [a]	N-MeFOSAA: linear isomer	1000	760	25
	N-MeFOSAA: ∑ branched isomers		240	23
N-Ethylperfluorooctanesulfonamidoacetic acid [b]	N-EtFOSAA: linear isomer	1000	775	27
	N-EtFOSAA: ∑ branched isomers		225	26

Compound	Acronym	Concentration* (ng/mL)			Peak Assignment in Figure 1
		as the salt		as the acid	
Potassium perfluoro-1-butanesulfonate	L-PFBS	1000		887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000		941	6
Potassium perfluorohexanesulfonate [c]	PFHxSK: linear isomer	1000	811	741	12
	PFHxSK: ∑ branched isomers		189	173	10
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000		953	15
Potassium perfluorooctanesulfonate [d]	PFOSK: linear isomer	1000	788	732	19
	PFOSK: ∑ branched isomers		211	196	17
Sodium perfluoro-1-nonanesulfonate	L-PFNS	1000		962	24
Sodium perfluoro-1-decanesulfonate	L-PFDS	1000		965	30
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	1000		937	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	1000		951	13
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	1000		960	20
Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	1000		945	11
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	1000		933	21
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	1000		943	31

* Concentrations have been rounded to three significant figures.

[a] See Table B for percent composition of linear and branched N-MeFOSAA isomers.
[b] See Table C for percent composition of linear and branched N-EtFOSAA isomers.
[c] See Table D for percent composition of linear and branched PFHxSK isomers.
[d] See Table E for percent composition of linear and branched PFOSK isomers.

Certified By: (b) (6) **Date:** 11/28/2023 (mm/dd/yyyy)

Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

PFAC301123 (3 of 12) rev0

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Standard Prep Log S5Q520 page 1 of 10

Organic Standards Preparation Log

[redacted] Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2481	PFC Id std.	12869A	P-FOA DOD 28	[redacted]	11/15/29	1/14/26	1.0ppm	400µL	4mL	100pbs	95% MeOH 5% H2O	2/27/25	7/17/25	[redacted]
↓	↓	12186A	N-MeFOSA M		8/11/28	7/17/25	50 ppm	8µL	↓	↓	↓	↓	↓	
		12920	FBSA-1		1/10/29	1/14/26	↓	↓						
		12921	FHxSA-1		4/17/29	1/14/26								
↓	↓	12274A	PFECHS		12/5/28	8/12/25	↓	↓	↓	↓	↓	↓	↓	
LCMS 2482	537.1 DW spike	12709B	P-FOA DOD 28 (comp)		8/2/29	12/18/25	1.0ppm	1.0mL	5mL	200ppb	96% MeOH 4% H2O	2/27/25	8/27/25	
LCMS 2483	537.1 DW SURR	12645B	M3HFDA		6.10.29	10/17/25	50ppm	200uL	5mL	2.0ppm	96% MeOH 4% H2O	2/27/25	5/30/25	
↓	↓	10843	d5-N-EtFOSAA		3/2/26	9/16/25	↓	↓		↓	↓	↓	↓	
		11701	HFPDA		01/18/28	5/30/25		100uL		1.0ppm				
↓	↓	11700	MPFHxA		9/8/27	5/30/25	↓	↓		↓	↓	↓	↓	
LCMS 2484	537.1 DW STD	12709B	P-FOA-DOD 28 (comp)		8/2/29	12/18/25	1.0ppm	400uL	4.0mL	100 ppb	96% MeOH 4% H2O	2/27/25	↓	
↓	↓	LCMS 2483	DW537.1 SURR		—	5/30/25	1.0/2.0 PPm	200uL	↓	50/100 ppb	↓	↓	5/30/25	
LCMS 2485	1633 EL EIS	12979A	1633 EIS		09/26/28	03/03/26	250-5000ppb	—	1.2mL	250-5000ppb	1633 Mix	03/03/25	05/01/25	
↓	↓	11869	M2PF-HXDA		12/30/27	05/01/25	50ppm	6uL	↓	↓	↓	↓	↓	
↓	↓	12473	13C3-PFPrA		08/21/25	06/05/25	50ppm	6uL	↓	↓	↓	↓	↓	
					CONT. ON NEXT PAGE					[redacted]	3/6/25			

* based on date opened as specified in each [redacted] SOP.

ORLD-QAC-0017-6-03-FORM-lcms std prep log.xls 030819

Organic Standards Preparation Log

[redacted] Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
~~LCMS 2492~~	~~537.1 DW STD~~	JL 03/14/25				[redacted]	03/14/25							
LCMS 2492	537.1 DW ISTD	12441	M3PFPEA	[redacted]	7.24.28	5.16.25	50ppm	80uL	4.0mL	1.0ppm	96% MeOH 4% H2O	3/14/25	5.16.25	[redacted]
↓	↓	11762	M2i 6:2 FTS		11.24.27	5.16.25	↓	80uL	↓	1.0 ppm	↓	↓	↓	
↓	↓	11345	d3-N-MeFosa		2.22.27	9.18.25	↓	160uL	↓	2.0ppm	↓	↓	↓	
↓	↓	10498B	MPFOS		11.2.25	11.2.25	↓	80uL	↓	1.0ppm	↓	↓	↓	
↓	↓	12421	M2PFOA		2.21.29	3.6.26	↓	80uL	↓	1.0ppm	↓	↓	↓	
LCMS 2493	Br-LN For spike me, Et FosA Me, Et Fose	12546A	br-N MeFosa		8.23.27	11.2.26	50ppm	200NL	5mL	2ppm	1633 mix 3000NL	3.16.25	9.16.25 ~~MW~~	
↓	↓	12547B	br-N ~~Me~~ etfos		10.7.27	11.2.26	↓	200NL	↓	2ppm	↓	↓	↓	
↓	↓	12935A 12935B	br-N MeFose		4.19.29	1.2.26 1.2.26	↓	500NL	↓	5ppm	↓	↓	↓	
↓	↓	12936 A-B	br-N EtFose		4.19.29	1.2.26	↓	500NL	↓	5ppm	↓	↓	↓	
LCMS 2494A-E	1633 spike Cal std.	LCMS 2493	Br-LN me-Et Fosa-Fos		—	9.16.25	2/5 ppm	250NL	4mL	125 312.5 ppb	1633 MIX	3.16.25	9.16.25	
↓	↓	12952B	PFAC MxH		11.12.29	3.16.26	1-4 ppm	↓	↓	62.5 125 250ppb	2688NL	↓	↓	
↓	↓	12953B	PFAC MxF		9.6.28	3.16.26	2ppb	↓	↓	125ppb	↓	↓	↓	
↓	↓	12954B	PFAC MxG		10.2.29	3.16.26	2ppb	↓	↓	125ppb	↓	↓	↓	
↓	↓	12983A	PFAC MxJ		7.11.29	3.9.26	4-20 ppm	312NL	↓	312 1160ppb	↓	↓	↓	
						Continue next page	[redacted]			/16/25				

* based on date opened as specified in each [redacted] SOP.

ORLD-QAC-0017-6-03-FORM-lcms std prep log.xls 030819

(b) (4)

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(b) (6)

Compound	Number	(%)	Factor	Initial Vol. (mL)
3. Perfluoroheptanoic acid (PFHpA)	99197			
4. Perfluoropentanoic acid (PFPeA)*	99202			
5. Perfluorobutanoic acid (br-PFBA)*	99202			
6. Perfluoro-n-hexanoic acid (br-PFHxA)*				
10. Perfluorododecanoic acid (PFDoA)				
1. Perfluorotetradecanoic acid (PFTA)				
Perfluorotridecanesulfonamide (br-FOSA)				
3. N-Methylperfluorooctanesulfonamidoacetic acid (br-NMeFOSAA)*	4102	mNMeFOSAAC124	98	
N-Ethylperfluorooctanesulfonamidoacetic acid (br-NEtFOSAA)*	60806	D52324	98.5	0.02
Perfluorobutanesulfonic acid (PFBS)	99194	D61824	99	0.02
6. Perfluoro-1-pentanesulfonic acid (PFPeS)	99944	D61824	99	0.02
7. Perfluorohexanesulfonic acid (br-PFHxS)*	99198	D30922	99	0.02
8. Perfluoroheptanesulfonic acid (PFHpS)	60942	101722	98	0.02
19. Hexadecafluorooctanesulfonic acid (br-PFOS)*	99201	110923	99	0.02
20. Perfluoro-1-nonanesulfonic acid (PFNS)	3967	LPFNS0124	98	0.021
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)				
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	65272	120423	99	0.02
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	67208	D11724	98	0.02
2-Hexyldecanoic acid, 2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)- (HFPO-DA)	99868	121923	98	0.02
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	4165	11CPF3OUdSN421	98	0.021
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	4164	9CPF3ONS0324	98	0.021
Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA02(		
Perfluorooctanoic acid (linear)*	99202	D20824	0.02	2.50
Perfluorooctanoic acid (branched)*	99202	D20824	0.02	2.50
Perfluorotetradecanesulfonic acid (linear)*				
Perfluorotetradecanesulfonic acid (branched)*				
Hexadecafluorooctanesulfonic acid (linear)*	99201	1		
Hexadecafluorooctanesulfonic acid (branched)*	99201	1		
Hexadecafluorooctanesulfonic acid (branched)*	99201	1		
Hexadecafluorooctanesulfonic acid (branched)*				
N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*				
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*				
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	656			
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	656			
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	65			
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	65806			
Perfluoro-n-nonanoic acid (linear)*				
Perfluoro-n-nonanoic acid (branched)*				
Perfluoro-n-nonanoic acid (branched)*				
Perfluoro-n-nonanoic acid (branched)*				

*Concentrations for branched and linear isomers are based on LCMS chromatographic analysis only.

Initial	Final	Solvent	Lot #	Exp. Date
0.02	375-73-5	N/A		
0.02	2706-91-4	N/A		
0.02	355-46-4 (L)	N/A		
0.05	375-92-8	N/A		A
0.05	39108-34-4			
0.02	13252-13-6	N/A		
0.05	763051-92-9	N/A		
0.05	756426-58-1	N/A		
0.01	335-67-1 (L)	N/A		

7.9.3

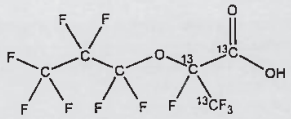
12645A-B
recd: 07/27/24

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M3HFPO-DA
COMPOUND:	$^{13}C_3$-Hexafluoropropylene oxide dimer acid
IUPAC NAME:	2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)($^{13}C_3$)propanoic acid
LOT NUMBER:	M3HFPODA0624
CAS #:	Not available

STRUCTURE:



MOLECULAR FORMULA:	$^{13}C_3{}^{12}C_3HF_{11}O_3$
CONCENTRATION:	50.0 ± 2.5 µg/mL
CHEMICAL PURITY:	>98%
LAST TESTED: (mm/dd/yyyy)	06/10/2024
EXPIRY DATE: (mm/dd/yyyy)	06/10/2027
RECOMMENDED STORAGE:	Refrigerate ampoule
MOLECULAR WEIGHT:	333.03
SOLVENT(S):	Methanol
ISOTOPIC PURITY:	≥99% ^{13}C

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- This product is commercially known as $^{13}C_3$-GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By (b) (6) **Date:** 06/11/2024 (mm/dd/yyyy)

(b) (4)

Form#:27, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

M3HFPODA0624 (1 of 4)
rev0

79.3
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12441
rec'd: 05/01/24

(b) (4)

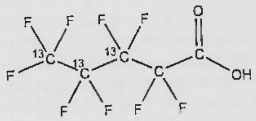
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M3PFPeA
COMPOUND: Perfluoro-n-(3,4,5-$^{13}C_3$)pentanoic acid

LOT NUMBER: M3PFPeA0723

CAS #: Not available

STRUCTURE:



MOLECULAR FORMULA: $^{13}C_3{}^{12}C_2HF_9O_2$
CONCENTRATION: 50.0 ± 2.5 µg/mL

MOLECULAR WEIGHT: 267.02
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/24/2023
EXPIRY DATE: (mm/dd/yyyy) 07/24/2028
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

ISOTOPIC PURITY: ≥99% ^{13}C (3,4,5-$^{13}C_3$)

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~0.9% of perfluoro-n-($^{13}C_3$)butanoic acid (M3PFBA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) **Date:** 01/05/2024 (mm/dd/yyyy)

(b) (4)

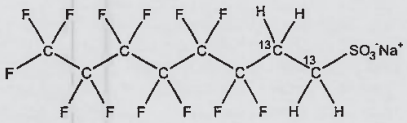
7.9.3 7

11762 rec'd:04/20/23

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M2-6:2FTS	**LOT NUMBER:**	M262FTS1122
COMPOUND:	Sodium 1H,1H,2H,2H-perfluoro-(1,2-$^{13}C_2$)octanesulfonate		
STRUCTURE:		**CAS #:**	2708218-89-5



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_6H_4F_{13}SO_3Na$	**MOLECULAR WEIGHT:**	452.13
CONCENTRATION:	50.0 ± 2.5 µg/mL (Na salt) 47.6 ± 2.4 µg/mL (M2-6:2FTS acid) 47.5 ± 2.4 µg/mL (M2-6:2FTS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	11/24/2022		
EXPIRY DATE: (mm/dd/yyyy)	11/24/2027		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The native 6:2FTS contains 4.22% of ^{34}S (due to natural isotopic abundance) therefore both native 6:2FTS and M2-6:2FTS will produce signals in the m/z 429 to m/z 409 channel during SRM analysis. We recommend using the m/z 429 to m/z 81 transition to monitor for M2-6:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) **Date:** 12/13/2022 (mm/dd/yyyy)

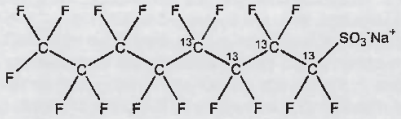
(b) (4)

10498AB

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFOS	**LOT NUMBER:**	MPFOS1020
COMPOUND:	Sodium perfluoro-1-[1,2,3,4-$^{13}C_4$]octanesulfonate		
STRUCTURE:		**CAS #:**	960315-53-1



MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_4F_{17}SO_3Na$	**MOLECULAR WEIGHT:**	526.08
CONCENTRATION:	50.0 ± 2.5 µg/mL (Na salt) 47.9 ± 2.4 µg/mL (MPFOS acid) 47.8 ± 2.4 µg/mL (MPFOS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2,3,4$-$^{13}C_4$)
LAST TESTED: (mm/dd/yyyy)	11/02/2020		
EXPIRY DATE: (mm/dd/yyyy)	11/02/2025		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~0.4% sodium perfluoro-1-[1,2,3-$^{13}C_3$]heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) **Date:** 11/03/2020 (mm/dd/yyyy)

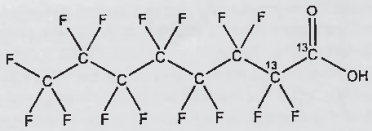
(b) (4)

12421
recd: 04/25/24

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M2PFOA	**LOT NUMBER:**	M2PFOA0224
COMPOUND:	Perfluoro-n-(1,2-$^{13}C_2$)octanoic acid		
STRUCTURE:		**CAS #:**	864071-08-9



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_6HF_{15}O_2$	**MOLECULAR WEIGHT:**	416.05
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C
LAST TESTED: (mm/dd/yyyy)	02/21/2024		
EXPIRY DATE: (mm/dd/yyyy)	02/21/2029		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) **Date:** 03/06/2024 (mm/dd/yyyy)

(b) (4)

Form#:27, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

M2PFOA0224 (1 of 4)
rev0

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recd:07/27/24

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PFAC30PAR

Native Per- and Polyfluoroalkyl Substance
Precision and Recovery Standard Solution

PRODUCT CODE:	PFAC30PAR
LOT NUMBER:	PFAC301123
SOLVENT(S):	Methanol/Isopropanol (6%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	11/20/2023
LAST TESTED: (mm/dd/yyyy)	11/22/2023
EXPIRY DATE: (mm/dd/yyyy)	11/30/2026
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

PFAC30PAR is a solution/mixture of native linear perfluoroalkylcarboxylic acids (C_4-C_{14}), perfluoroalkanesulfonates (C_4, C_5, C_7, C_9, and C_{10} linear; C_6 and C_8 linear and branched), fluorotelomer sulfonates (4:2, 6:2, and 8:2), linear and branched perfluorooctanesulfonamidoacetic acids, perfluoroalkanesulfonamides (C_4, C_6, and C_8), sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-PF3OUdS), and hexafluoropropylene oxide dimer acid (GenX, HFPO-DA). The components and their concentrations are given in Table A.

The individual components all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Table B: Isomeric Components and Percent Composition of N-MeFOSAA
Table C: Isomeric Components and Percent Composition of N-EtFOSAA
Table D: Isomeric Components and Percent Composition of PFHxSK
Table E: Isomeric Components and Percent Composition of PFOSK
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

(b) (4)

Table A: **PFAC30PAR; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (6%)/water (<1%))**

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
Perfluoro-n-butanoic acid	PFBA	1000		1
Perfluoro-n-pentanoic acid	PFPeA	1000		2
Perfluoro-n-hexanoic acid	PFHxA	1000		5
Perfluoro-n-heptanoic acid	PFHpA	1000		9
Perfluoro-n-octanoic acid	PFOA	1000		14
Perfluoro-n-nonanoic acid	PFNA	1000		18
Perfluoro-n-decanoic acid	PFDA	1000		22
Perfluoro-n-undecanoic acid	PFUdA	1000		29
Perfluoro-n-dodecanoic acid	PFDoA	1000		32
Perfluoro-n-tridecanoic acid	PFTrDA	1000		33
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		34
Perfluoro-1-butanesulfonamide	FBSA	1000		8
Perfluoro-1-hexanesulfonamide	FHxSA	1000		16
Perfluoro-1-octanesulfonamide	FOSA	1000		28
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)propanoic acid	HFPO-DA	1000		7
N-Methylperfluorooctanesulfonamidoacetic acid [a]	N-MeFOSAA: linear isomer	1000	760	25
	N-MeFOSAA: ∑ branched isomers		240	23
N-Ethylperfluorooctanesulfonamidoacetic acid [b]	N-EtFOSAA: linear isomer	1000	775	27
	N-EtFOSAA: ∑ branched isomers		225	26

Compound	Acronym	Concentration* (ng/mL)			Peak Assignment in Figure 1
		as the salt		as the acid	
Potassium perfluoro-1-butanesulfonate	L-PFBS	1000		887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000		941	6
Potassium perfluorohexanesulfonate [c]	PFHxSK: linear isomer	1000	811	741	12
	PFHxSK: ∑ branched isomers		189	173	10
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000		953	15
Potassium perfluorooctanesulfonate [d]	PFOSK: linear isomer	1000	788	732	19
	PFOSK: ∑ branched isomers		211	196	17
Sodium perfluoro-1-nonanesulfonate	L-PFNS	1000		962	24
Sodium perfluoro-1-decanesulfonate	L-PFDS	1000		965	30
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	1000		937	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	1000		951	13
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	1000		960	20
Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	1000		945	11
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	1000		933	21
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	1000		943	31

* Concentrations have been rounded to three significant figures.

[a] See Table B for percent composition of linear and branched N-MeFOSAA isomers.
[b] See Table C for percent composition of linear and branched N-EtFOSAA isomers.
[c] See Table D for percent composition of linear and branched PFHxSK isomers.
[d] See Table E for percent composition of linear and branched PFOSK isomers.

Certified By: (b) (6) **Date:** 11/28/2023 (mm/dd/yyyy)

Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

PFAC301123 (3 of 12) rev0

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Organic Standards Preparation Log

[redacted] Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2481	PFC Id Std.	12869A	P-FOA DOD 28	[redacted]	11/15/29	1/14/26	1.0ppm	400µL	4mL	100pbs	95% MeOH 5% H2O	2/27/25	7/17/25	[redacted]
↓	↓	12186A	N-MeFOSA M		8/11/28	7/17/25	50 ppm	8µL	↓	↓	↓	↓	↓	
		12920	FBSA-1		1/10/29	1/14/26	↓	↓						
		12921	FHxSA-1		4/17/29	1/14/26								
↓	↓	12274A	PFECHS		12/5/28	8/12/25	↓	↓	↓	↓	↓	↓	↓	
LCMS 2482	537.1 DW spike	12709B	P-FOA DOD 28 (comp)		8/2/29	12/18/25	1.0ppm	1.0mL	5mL	200ppb	96% MeOH 4% H2O	2/27/25	8/27/2	
LCMS 2483	537.1 DW SURR	12645B	M3HFOA DA		6.10.29	10/17/25	50ppm	200uL	5mL	2.0ppm	96% MeOH 4% H2O	2/27/25	5/30/25	
↓	↓	10843	d5-N-EtFOSAA		3/2/26	9/16/25	↓	↓		↓	↓	↓	↓	
		11701	HFPDA		01/18/28	5/30/25		100uL		1.0ppm				
↓	↓	11700	MPFHxA		9/8/27	5/30/25	↓	↓		↓	↓	↓	↓	
LCMS 2484	537.1 DW STD	12709B	P-FOA-DOD 28 (comp)		8/2/29	12/18/25	1.0ppm	400uL	4.0mL	100 ppb	96% MeOH 4% H2O	2/27/25	↓	
↓	↓	LCMS 2483	DW537.1 SURR		—	5/30/25	1.0/2.0 PPm	200uL	↓	50/100 ppb	↓	↓	5/30/25	
LCMS 2485	1633 EL EIS	12979A	1633 EIS		09/26/28	03/03/26	250-5000ppb	—	1.2mL	250-5000ppb	1633 Mix	03/03/25	05/01/25	
↓	↓	11869	M2PF-HXDA		12/30/27	05/01/25	50ppm	6uL	↓	↓	↓	↓	↓	
↓	↓	12473	13C3-PFPrA		08/21/25	06/05/25	50ppm	6uL	↓	↓	↓	↓	↓	
					CONT. ON NEXT PAGE					[redacted]	3/6/25			

* based on date opened as specified in each [redacted] SOP.

ORLD-QAC-0017-6-03-FORM-lcms std prep log.xls 030819

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Organic Standards Preparation Log

[redacted] Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
~~LCMS 2492~~	~~537.1 DW STD~~	JL 03/14/25				[redacted]	03/14/25							
LCMS 2492	S37.1 DW ISTD	12441	M3PFPE[redacted]	[redacted]	7.24.28	5.16.25	50ppm	80uL	4.0mL	1.0ppm	96% MeOH 4% H2O	3/14/25	5.16.25	[redacted]
↓	↓	11762	M2 6:2 FTS	[redacted]	11.24.27	5.16.25	↓	80uL	↓	1.0 ppm	↓	↓	↓	[redacted]
↓	↓	11345	d3-N-MeFosa	[redacted]	2.22.27	9.18.25	↓	160uL	↓	2.0ppm	↓	↓	↓	[redacted]
↓	↓	10498B	MPFOS	[redacted]	11.2.25	11.2.25	↓	80uL	↓	1.0ppm	↓	↓	↓	[redacted]
↓	↓	12421	M2PFOA	[redacted]	2.21.29	3.6.26	↓	80uL	↓	1.0ppm	↓	↓	↓	[redacted]
LCMS 2493	Br-LN For spike me, Et FosA Me, Et Fose	12546A	br-N MeFosa	[redacted]	8.23.27	11.2.26	50ppm	200NL	5mL	2ppm	1633 mix 3000NL	3.16.25	9.16.25 ~~MW~~	[redacted]
↓	↓	12547B	br-N ~~Me~~ etfos	[redacted]	10.7.27	11.2.26	↓	200NL	↓	2ppm	↓	↓	↓	[redacted]
↓	↓	12935A 12935B	br-N MeFose	[redacted]	4.19.29	1.2.26 1.2.26	↓	500NL	↓	5ppm	↓	↓	↓	[redacted]
↓	↓	12936 A-B	br-N EtFose	[redacted]	4.19.29	1.2.26	↓	500NL	↓	5ppm	↓	↓	↓	[redacted]
LCMS 2494A-E	1633 spike Cal std.	LCMS 2493	Br-LN me-Et Fosa-Fos	[redacted]	—	9.16.25	2/5 ppm	250NL	4mL	125 312.5 ppb	1633 MIX	3.16.25	9.16.25	[redacted]
↓	↓	12952B	PFAC MxH	[redacted]	11.12.29	3.16.26	1-4 ppm	↓	↓	62.5 125 250ppb	2688NL	↓	↓	[redacted]
↓	↓	12953B	PFAC MxF	[redacted]	9.6.28	3.16.26	2ppb	↓	↓	125ppb	↓	↓	↓	[redacted]
↓	↓	12954B	PFAC MxG	[redacted]	10.2.29	3.16.26	2ppb	↓	↓	125ppb	↓	↓	↓	[redacted]
↓	↓	12983A	PFAC MxJ	[redacted]	7.11.29	3.9.26	4-20 ppm	312NL	↓	312 1160ppb	↓	↓	↓	[redacted]

Continue next page [redacted] 3/16/25

* based on date opened as specified in each [redacted] SOP.

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(b) (4)

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(b) (4)

Compound	Number	(%)	Factor	Vol. (mL)
3. Perfluoroheptanoic acid (PFHpA)	99197			
4. Perfluorohexanoic acid (PFHxA)				
5. Perfluorobutanoic acid (br-PFBA)*	99202			
6. Perfluoro-n-hexanoic acid (br-PFNA)*				
10. Perfluorotetradecanoic acid (PFTeDA)				
1. Perfluorotridecanoic acid (PFTrDA)				
Perfluorooctanesulfonamide (br-FOSA)				
3. N-Methylperfluorooctanesulfonamidoacetic acid (br-NMeFOSAA)*	4102	mNMeFOSAAC1924	98	
N-Ethylperfluorooctanesulfonamidoacetic acid (br-NEtFOSAA)*	60806	D52324	98.5	0.02
Perfluorobutanesulfonic acid (PFBS)	99194	D61824	99	0.02
6. Perfluoro-1-pentanesulfonic acid (PFPeS)	99544	D61824	99	0.02
7. Perfluorohexanesulfonic acid (br-PFHxS)*	99198	D30923	99	0.02
8. Perfluoroheptanesulfonic acid (PFHpS)	60942	101722	98	0.02
19. Heptadecafluorooctanesulfonic acid (br-PFOS)*	99201	110923	99	0.02
20. Perfluoro-1-nonanesulfonic acid (PFNS)	3967	LPFNS0124	98	0.021
1H, 1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2 FTS)				
23. 1H, 1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2FTS)	65272	120423	99	0.02
24. 1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	67308	D11724	98	0.02
2,3-dihydro-3-oxo-4,2,3,3-perfluorooxypropene acid (HFPO-DA)	99668	121923	98	0.02
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	4165	11CPF3OUdS1421	98	0.021
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	4164	9CPF3ONS0324	98	0.021
Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA02(		
Perfluorooctanoic acid (linear)*	99202	D20824	0.02	2.50
Perfluorooctanoic acid (branched)*	99202	D20824	0.02	2.50
Perfluorotetradecanesulfonic acid (linear)*				
Perfluorotetradecanesulfonic acid (branched)*				
Heptadecafluorooctanesulfonic acid (linear)*	99201	1		
Heptadecafluorooctanesulfonic acid (branched)*	99201	1		
Heptadecafluorooctanesulfonic acid (branched)*	99201	1		
Heptadecafluorooctanesulfonic acid (branched)*				
N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*				
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*				
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	656			
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	6580			
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	65			
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	65806			
Perfluoro-n-nonanoic acid (linear)*				
Perfluoro-n-nonanoic acid (branched)*				
Perfluoro-n-nonanoic acid (branched)*				
Perfluoro-n-nonanoic acid (branched)*				

*Concentrations for branched and linear isomers are based on LCMS chromatographic analysis only.

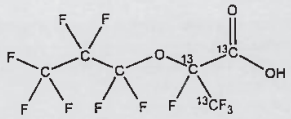
7.9.4

12645A-B
recd: 07/27/24

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M3HFPO-DA
LOT NUMBER:	M3HFPODA0624
COMPOUND:	$^{13}C_3$-Hexafluoropropylene oxide dimer acid
IUPAC NAME:	2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)($^{13}C_3$)propanoic acid
STRUCTURE:	
CAS #:	Not available



MOLECULAR FORMULA:	$^{13}C_3{}^{12}C_3HF_{11}O_3$	**MOLECULAR WEIGHT:**	333.03
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C
LAST TESTED: (mm/dd/yyyy)	06/10/2024		
EXPIRY DATE: (mm/dd/yyyy)	06/10/2027		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- This product is commercially known as $^{13}C_3$-GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By (b) (6) **Date:** 06/11/2024 (mm/dd/yyyy)

(b) (4)

Form#:27, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

M3HFPODA0624 (1 of 4)
rev0

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rec'd: 05/01/24

(b) (4)

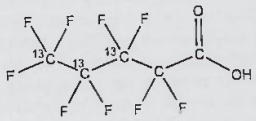
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M3PFPeA
COMPOUND: Perfluoro-n-(3,4,5-$^{13}C_3$)pentanoic acid

LOT NUMBER: M3PFPeA0723

CAS #: Not available

STRUCTURE:



MOLECULAR FORMULA: $^{13}C_3{}^{12}C_2HF_9O_2$
CONCENTRATION: 50.0 ± 2.5 µg/mL

MOLECULAR WEIGHT: 267.02
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/24/2023
EXPIRY DATE: (mm/dd/yyyy) 07/24/2028
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

ISOTOPIC PURITY: ≥99% ^{13}C (3,4,5-$^{13}C_3$)

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~0.9% of perfluoro-n-($^{13}C_3$)butanoic acid (M3PFBA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) **Date:** 01/05/2024 (mm/dd/yyyy)

(b) (4)

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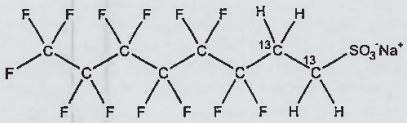
11762 rec'd:04/20/23

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M2-6:2FTS	**LOT NUMBER:**	M262FTS1122
COMPOUND:	Sodium 1H,1H,2H,2H-perfluoro-(1,2-$^{13}C_2$)octanesulfonate		
STRUCTURE:		**CAS #:**	2708218-89-5



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_6H_4F_{13}SO_3Na$	**MOLECULAR WEIGHT:**	452.13
CONCENTRATION:	50.0 ± 2.5 µg/mL (Na salt) 47.6 ± 2.4 µg/mL (M2-6:2FTS acid) 47.5 ± 2.4 µg/mL (M2-6:2FTS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	11/24/2022		
EXPIRY DATE: (mm/dd/yyyy)	11/24/2027		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The native 6:2FTS contains 4.22% of ^{34}S (due to natural isotopic abundance) therefore both native 6:2FTS and M2-6:2FTS will produce signals in the m/z 429 to m/z 409 channel during SRM analysis. We recommend using the m/z 429 to m/z 81 transition to monitor for M2-6:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) **Date:** 12/13/2022 (mm/dd/yyyy)

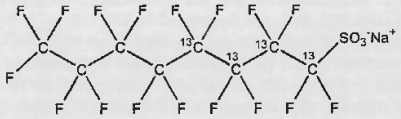
(b) (4)

10498AB

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFOS	**LOT NUMBER:**	MPFOS1020
COMPOUND:	Sodium perfluoro-1-[1,2,3,4-$^{13}C_4$]octanesulfonate		
STRUCTURE:		**CAS #:**	960315-53-1



MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_4F_{17}SO_3Na$	**MOLECULAR WEIGHT:**	526.08
CONCENTRATION:	50.0 ± 2.5 µg/mL (Na salt) 47.9 ± 2.4 µg/mL (MPFOS acid) 47.8 ± 2.4 µg/mL (MPFOS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2,3,4$-$^{13}C_4$)
LAST TESTED: (mm/dd/yyyy)	11/02/2020		
EXPIRY DATE: (mm/dd/yyyy)	11/02/2025		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~0.4% sodium perfluoro-1-[1,2,3-$^{13}C_3$]heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) **Date:** 11/03/2020 (mm/dd/yyyy)

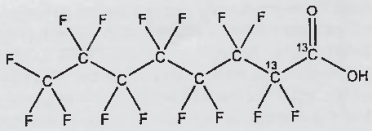
(b) (4)

12421
recd: 04/25/24

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M2PFOA	**LOT NUMBER:**	M2PFOA0224
COMPOUND:	Perfluoro-n-(1,2-$^{13}C_2$)octanoic acid		
STRUCTURE:		**CAS #:**	864071-08-9



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_6HF_{15}O_2$	**MOLECULAR WEIGHT:**	416.05
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C
LAST TESTED: (mm/dd/yyyy)	02/21/2024		
EXPIRY DATE: (mm/dd/yyyy)	02/21/2029		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) **Date:** 03/06/2024 (mm/dd/yyyy)

(b) (4)

Form#:27, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

M2PFOA0224 (1 of 4)
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recd:07/27/24

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PFAC30PAR

Native Per- and Polyfluoroalkyl Substance
Precision and Recovery Standard Solution

PRODUCT CODE:	PFAC30PAR
LOT NUMBER:	PFAC301123
SOLVENT(S):	Methanol/Isopropanol (6%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	11/20/2023
LAST TESTED: (mm/dd/yyyy)	11/22/2023
EXPIRY DATE: (mm/dd/yyyy)	11/30/2026
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

PFAC30PAR is a solution/mixture of native linear perfluoroalkylcarboxylic acids (C_4-C_{14}), perfluoroalkanesulfonates (C_4, C_5, C_7, C_9, and C_{10} linear; C_6 and C_8 linear and branched), fluorotelomer sulfonates (4:2, 6:2, and 8:2), linear and branched perfluorooctanesulfonamidoacetic acids, perfluoroalkanesulfonamides (C_4, C_6, and C_8), sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-PF3OUdS), and hexafluoropropylene oxide dimer acid (GenX, HFPO-DA). The components and their concentrations are given in Table A.

The individual components all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Table B: Isomeric Components and Percent Composition of N-MeFOSAA
Table C: Isomeric Components and Percent Composition of N-EtFOSAA
Table D: Isomeric Components and Percent Composition of PFHxSK
Table E: Isomeric Components and Percent Composition of PFOSK
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

(b) (4)

Table A: **PFAC30PAR; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (6%)/water (<1%))**

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
Perfluoro-n-butanoic acid	PFBA	1000		1
Perfluoro-n-pentanoic acid	PFPeA	1000		2
Perfluoro-n-hexanoic acid	PFHxA	1000		5
Perfluoro-n-heptanoic acid	PFHpA	1000		9
Perfluoro-n-octanoic acid	PFOA	1000		14
Perfluoro-n-nonanoic acid	PFNA	1000		18
Perfluoro-n-decanoic acid	PFDA	1000		22
Perfluoro-n-undecanoic acid	PFUdA	1000		29
Perfluoro-n-dodecanoic acid	PFDoA	1000		32
Perfluoro-n-tridecanoic acid	PFTrDA	1000		33
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		34
Perfluoro-1-butanesulfonamide	FBSA	1000		8
Perfluoro-1-hexanesulfonamide	FHxSA	1000		16
Perfluoro-1-octanesulfonamide	FOSA	1000		28
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)propanoic acid	HFPO-DA	1000		7
N-Methylperfluorooctanesulfonamidoacetic acid [a]	N-MeFOSAA: linear isomer	1000	760	25
	N-MeFOSAA: ∑ branched isomers		240	23
N-Ethylperfluorooctanesulfonamidoacetic acid [b]	N-EtFOSAA: linear isomer	1000	775	27
	N-EtFOSAA: ∑ branched isomers		225	26

Compound	Acronym	Concentration* (ng/mL)			Peak Assignment in Figure 1
		as the salt		as the acid	
Potassium perfluoro-1-butanesulfonate	L-PFBS	1000		887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000		941	6
Potassium perfluorohexanesulfonate [c]	PFHxSK: linear isomer	1000	811	741	12
	PFHxSK: ∑ branched isomers		189	173	10
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000		953	15
Potassium perfluorooctanesulfonate [d]	PFOSK: linear isomer	1000	788	732	19
	PFOSK: ∑ branched isomers		211	196	17
Sodium perfluoro-1-nonanesulfonate	L-PFNS	1000		962	24
Sodium perfluoro-1-decanesulfonate	L-PFDS	1000		965	30
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	1000		937	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	1000		951	13
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	1000		960	20
Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	1000		945	11
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	1000		933	21
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	1000		943	31

* Concentrations have been rounded to three significant figures.

[a] See Table B for percent composition of linear and branched N-MeFOSAA isomers.
[b] See Table C for percent composition of linear and branched N-EtFOSAA isomers.
[c] See Table D for percent composition of linear and branched PFHxSK isomers.
[d] See Table E for percent composition of linear and branched PFOSK isomers.

Certified By: (b) (6) **Date:** 11/28/2023 (mm/dd/yyyy)

Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

PFAC301123 (3 of 12) rev0

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(b) (4)

(b) (6)

04/10/25

Date/Time Started: 04/10/25 09:00 {mm/dd/yy 24:00}

Date/Time Finished: 4/11/25 10:10 {mm/dd/yy 24:00}

Batch#: OP8806 Ext. By: (b) (6) Conc. By: (b) (6) Vialed By:

SPE LIQUID SAMPLE PREP REPORT

Prep Method: 537.1 / 533 (circle one)

Analytical Method: 537 / 533 (circle one)

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Residual CHL, y/n	Surrogate Amount	Spike Amount	Final Volume (ml)	Manifold ID	Comments
OP 8806 MB	/	250	7.6	N/A	n	20		1	P	
OP 8806 BS	/	250	7.6				5			
FC 23797-1A	1	270	7.0							
2A	1	285								
3A	1	275								
4A	1	270	7.0	N/A	n	20		1	P	
FC23797-2AMS	2	285	7.0	N/A	n	20	5	1	P	
MSD										
FC23797-3DUP	2	285	7.0	N/A	n	20		1	P	

(b) (6) 04/10/25

Comments:

Surr.1 ID: LCMS2483 Conc: 1.0/2.0 PPM Exp. Date: 05/30/25 Inj. By: (b) (6) Ver. By (b) (6)

Spk.1 ID: LCMS 2482 Conc: 200 PPB Exp. Date: 08/27/25 Inj. By: (b) (6) Ver. By (b) (6)

TurboVap Temp (Therm ID): Turbo #20

Observed Temp °C: 63 Corr. Temp °C: 60

N-Evap Temp (Therm ID):

Observed Temp °C: Corr. Temp °C:

(b) (6) 04/09/25

Methanol Lot # 242643

Water Lot# DI H2O

PO4 Buffer Lot#

2%MeOH:NH4OH #

Trizma Lot # 6816118-0 6000 357068

Acetic Acid Lot#

AMN Acetate Lot#

Other #

pH Paper # 2117180

CHL Paper # 14860

SPE Lot # 6816118-02

Relinquished (b) (6) Date: 4/11/25

Accepted By: Date: 4/11/25

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(b) (4) [redacted]

SPE LIQUID SAMPLE PREP REPORT

Date/Time Started: 04/10/25 09:00 {mm/dd/yy 24:00}

Date/Time Finished: 4/11/25 7:30 {mm/dd/yy 24:00}

Prep Method: 537.1 / 533 (circle one)

Analytical Method: 537.1 / 533 (circle one)

Batch#: OP8808 Ext. By: (b) (6) Conc. By: (b) (6) Vialed By:

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Residual CHL, y/n	Surrogate Amount	Spike Amount	Final Volume (ml)	Manifold ID	Comments
OP 8808 MB		250	7	N/A	N	20		1	A3	
OP 8808 BS		250	7	↓	↓	↓	200	↓	↓	
FC 23797 -1	3	280	6.4							
-2	3	280	6.4							
-3	3	265	6.4							
-4	2	260	6.0	N/A	N	20		1	A3	
FC23797- 1 MS	4	280	6.4	N/A	N	20	200	1	A3	
MSD										
FC23797- 2 DUP	4	280	6.4	N/A	N	20		1	A3	

(b) (6) [redacted] 04/10/25

Comments:

Surr.1 ID: LCMS 2497-A Conc: 0.5ppm Exp. Date: 09/23/25 Inj. By: (b) (6) [redacted] Ver. By (b) (6) [redacted]

Spk.1 ID: LCMS 2489 Conc: 100 ppb Exp. Date: 09/14/25 Inj. By: [redacted] Ver. By [redacted]

TurboVap Temp (Therm ID): Turbo #20

Observed Temp °C: 63 Corr. Temp °C: 60

N-Evap Temp (Therm ID):

Observed Temp °C: Corr. Temp °C:

Methanol Lot # 242643

Trizma Lot # —

pH Paper # 206724

Water Lot# DI H_2O

Acetic Acid Lot#

CHL Paper # 012P408-HH

PO4 Buffer Lot# PF 2374

AMN Acetate Lot# MKCS1713

SPE Lot # 8437-0007

2%MeOH:NH4OH # PF251S

Other #

Relinquished (b) (6) [redacted] Date: 4/11/25

Accepted By: [redacted] Date: 4/11/25

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Sample Prep Log OP8808 page 1 of 1

(b) (4)

SPE LIQUID SAMPLE PREP REPORT

Date/Time Started: 04/16/25 08:30 {mm/dd/yy 24:00}

Date/Time Finished: 4/17/25 8:55 {mm/dd/yy 24:00}

Batch#: OP8904 Ext. By: (b) (6) Conc. By: (b) (6) Vialed By:

Prep Method: (537.1) / 533 (circle one)

Analytical Method: (537.1) / 533 (circle one)

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Residual CHL, y/n	Surrogate Amount	Spike Amount	Final Volume (ml)	Manifold ID	Comments
OP 8904 MB		250	7.6	N/A	n	20		1	0	
OP 8904 BS		250	7.6	N/A	n	20	100		0	
(b) (6) FC23797-1ARe	2	280	7.0	N/A	n	20			0	
4ARe	—	—	—	—	—	—			—	
04/16/25 FC23948-1A	1	280	7.0	N/A	n	20			0	
2A	1	285	↓	↓	↓	↓			0	
3A	3	285							6	
4A	1	280	7.0	N/A	n	20		1	0	
(b) (6) FC23899-4ARe	4	280	7.0	N/A	n	20			0	
04/16/25										
FC23948-3A MS	4	280	7.0	N/A	n	20	100	1	0	
MSD										
FC23948-4A DUP	2	280	7.0	N/A	n	20		1	0	

(b) (6) 04/16/25

Comments:

Surr.1 ID: LCMS2483 Conc: 1.0/2.0PPM Exp. Date: 05/30/25 Inj. By: (b) (6) Ver. By (b) (6)

Spk.1 ID: LCMS2482 Conc: 200 PPB Exp. Date: 08/27/25 Inj. By: Ver. By

TurboVap Temp (Therm ID): Turbo #20

Observed Temp °C: 63 Corr. Temp °C: 60

N-Evap Temp (Therm ID):

Observed Temp °C: Corr. Temp °C:

Methanol Lot #: 242643 Trizma Lot #: 0000357068 pH Paper #: 206724

Water Lot#: DI H20 Acetic Acid Lot#: CHL Paper #: 14-860

PO4 Buffer Lot#: AMN Acetate Lot#: SPE Lot #: 68 16118-02

2%MeOH:NH4OH #: Other #:

Relinquished (b) (6) Date: 4/17/25

Accepted By: Date: 4/17/25 OS 4/17/25

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Sample Prep Log OP8904 page 1 of 1

(b) (4)

DATA VALIDATION REPORT

Extended Drinking Water Monitoring
NAH Shaft Treatment System Pilot Study

SDG: FC23797

(b) (4)

Prepared by

(b) (4)

Prepared for

AECOM Environmental

Report Released: 04/28/2025

Data Validators and Peer Reviewers:

(b) (6)

(b) (4)

EXECUTIVE NARRATIVE

Sample Delivery Group: FC23797
Laboratory: (b) (4)
Site: Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, Oahu, Hawaii, Extended Drinking Water Monitoring, NAH Shaft Treatment System Pilot Study
Sampling dates: 04/08/2025
Number of Samples: 4
Test Method: USEPA method 533
Analysis: Per-fluorinated Alkyl Substances (PFAS)

Quality Assurance Project Plan: Final Extended Drinking Water Monitoring Plan Joint Base Pearl Harbor-Hickam Public Water System #HI0000360 and Aliamanu Military Reservation PWS #HI0000337 O‘ahu, Hawai‘i, March 2024.

Validation Guidelines: Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537, EPA 910-R-18-001 (November 2018); National Functional Guidelines for High Resolution Superfund Methods Data Review, OLEM 9240.1-65, EPA-542-R-20-007, (November 2020).

Client Sample ID	Laboratory Sample ID	Matrix	Validation Stage
SHAFT-HW-0018384-25098-N	FC23797-1	Drinking Water	S4VEM
SHAFT-HW-0018393-25098-N	FC23797-2	Drinking Water	S4VEM
SHAFT-HW-0018394-25098-N	FC23797-3	Drinking Water	S4VEM
SHAFT-FB-250408-25098-N	FC23797-4	Field blank	S4VEM

Table 1 provides a summary of the major and minor data quality issues identified in this data set. All data are acceptable except those results which have been qualified with “R”, rejected. Data validation qualifiers along with associated descriptions are provided in Table 2. All data qualification related to this group of samples is detailed on the attached sheets.

All data users should note two facts. First, an "R" flag means that the associated value is unusable due to significant quality control (QC) problems, the data is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on any data tables even as a last resort. Second, no analyte concentration, even if it passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data, but any value potentially contains error.

DATA ASSESSMENT

1. NARRATIVE AND COMPLETENESS REVIEW

The case narrative was reviewed, and the data package was checked for completeness. No discrepancies were noted.

2. SAMPLE DELIVERY AND CONDITION

The samples arrived at the laboratory in acceptable condition. Proper custody was documented.

3. HOLDING TIME

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detect results will be flagged as not detected at an estimated quantitation limit, "UJ", unless the holding time is grossly exceeded (by more than two times the holding time specified), in which case non-detect results are flagged "R", rejected. Qualifications were applied to the samples and analytes as shown below.

All sample analyses were within the validation guidance.

4. MASS CALIBRATION

Mass calibration range must bracket the ion masses of interest. The most recent mass calibration must be used for every acquisition in an analytical run. Mass calibration must be verified to be ±0.5 amu of the true value, by acquiring a full scan continuum mass spectrum of a PFAS.

No problems were found for this criterion.

5. CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument can produce acceptable quantitative data. An initial calibration demonstrates that the instrument can give acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is providing satisfactory daily performance. Additionally, a continuing calibration is analyzed at the end of each 12-hour analytical sequence, denoted as a "closing" calibration verification and ascertains acceptable performance at the conclusion of the analytical sequence.

A) Initial Calibration

Percent Relative Standard Deviation (%RSD) is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent RSD must be less than the maximum %RSD, in cases where linear and non-linear regressions are used, linear correlation coefficients must be greater than the minimum requirement. If the %RSD or correlation coefficient do not meet quality control criteria, detects may be qualified as "J" and professional judgement is used to qualify non-detects. Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

B) Continuing Calibration

Percent difference (%D) compares the response factor of the continuing calibration check to mean response factor (RF) from the initial calibration. The %D for all analytes and surrogates in the continuing calibration verifications (CCVs) must be <30%. A value outside of these limits indicates potential detection and quantitation errors. If the %D exceeds quality control criteria, the positive results are flagged as estimated, "J" and non-detects are flagged "UJ". Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

6. BLANKS

Quality assurance (QA) blanks (i.e. method, storage, trip, field, or rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation and analysis or field activity. Method and storage blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. Qualifications were applied to the samples and analytes as shown below.

A) Laboratory Blanks

Method blanks were analyzed with appropriate frequency. No problems were found for this criterion.

B) Equipment / Field Blanks

Sample SHAFT-FB-250408-25098-N was submitted as a field blank in association with this sample delivery group (SDG). No problems were found for this criterion.

7. ISOTOPE DILUTION ANALOGUES

All samples are fortified with isotopically labeled analogues prior to sample preparation and analyses to evaluate overall laboratory performance and efficiency of the analytical technique. The reported project samples and laboratory quality control samples had observed isotope dilution analogue recoveries within the established limits in all cases with the following exceptions.

No problems were found for this criterion.

8. COMPOUND IDENTIFICATION

Compound Identification

The project target analyte compounds are identified on the LC/MS/MS by using the analytes relative retention time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within ±0.06 RRT units of the standard compound and have ion spectra with primary and when available secondary characteristic ions present. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

Target compound identifications were reviewed for samples at the Stage 4 level. No anomalies were identified.

9. MATRIX SPIKE/MATRIX SPIKE DUPLICATE / MATRIX DUPLICATE

Matrix spike/matrix spike duplicate (MS/MSD) data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD data may be used in conjunction with other quality control criteria for additional qualification of data.

Sample SHAFT-HW-0018384-25098-N was submitted for MS evaluation in association with this SDG. Upon evaluation all accuracy indicators were acceptable.

Sample SHAFT-HW-0018393-25098-N was submitted for matrix duplicate evaluation in association with this SDG. Upon evaluation adequate laboratory precision was demonstrated.

10. LABORATORY CONTROL SAMPLE

The Laboratory Control Sample (LCS) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. Aqueous/water, soil/sediment, wipe, and filter LCSs shall be analyzed for each analyte utilizing the same sample preparations, analytical methods, and quality assurance/quality control (QA/QC) procedures as employed for the samples. All LCS percent recoveries must fall within the control limits. Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

11. FIELD DUPLICATE

Field duplicates may be taken and analyzed as an indication of overall precision. These analyses measure both field and laboratory precision. A control limit of 30% for the Relative Percent Difference (RPD) shall be used for original and duplicate sample values greater than or equal to five times the LOQ. A control limit of two times the LOQ shall be used if either the sample or duplicate value is less than five times the LOQ. For field duplicate analyses that do not meet the technical criteria, the action was applied to only the field sample and its duplicate.

No samples were submitted as a field duplicate pair in association with this SDG.

12. DILUTIONS, RE-EXTRACTIONS & REANALYSIS

Samples may be re-analyzed for dilution, re-extraction and for other QC reasons. In such cases, the best result values are used.

No re-extraction and/or reanalyses were provided for data review.

13. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

Overall, the laboratory data generated met the project goals and quality control criteria, with the exceptions identified in this report and as summarized in Table 1.

14. OTHER PROBLEMS

None.

Table 1 Major and Minor Findings

	Were acceptance criteria met?		
	Yes	No	
Per-fluorinated Compounds		Major	Minor
Holding Time/Sample Handling	x		
Method Blanks	x		
Equipment / Field Blanks	x		
Calibration Blanks	x		
Mass Calibration	x		
Calibration Percent Relative Standard Deviation and Percent Difference	x		
Isotope Dilution Analogues	x		
Compound Identification	x		
Matrix Spike/Matrix Spike Duplicate	x		
Matrix Duplicate	x		
Laboratory Control Sample	x		
Other Quality Control Data out of Specification	x		
Field Duplicate	NA		

Major = Major data quality issue identified resulting in rejection of data.
Minor = Minor data quality issue identified resulting in the qualification of data. Data qualification should be used to inform the data users of data limitations.
NA = Not applicable

Table 2 Data Validation Qualifiers

Data Qualifier	Definition
U	The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
NJ	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

Table 3 PFAS Definitions Table

	CAS Number	Compound	Abbreviation(s)
1	151772-58-6	Nonafluoro-3,6-dioxaheptanoic acid	NFDHA, PFECA B
2	113507-82-7	Perfluoro (2-ethoxyethane) sulfonic acid	PFEESA, PES
3	377-73-1	Perfluoro-3-methoxypropanoic acid	PFMPA, PRMOPrA, PFECA F
4	375-73-5	Perfluorobutanesulfonic acid	PFBS
5	863090-89-5	Perfluoro-4-methoxybutanoic acid	PFMBA, PFMOBA, PFECA A
6	13252-13-6	Hexafluoropropylene Oxide Dimer Acid	HFPO-DA, Gen-X, HFPODA
7	375-22-4	Perfluorobutanoic acid	PFBA
8	335-67-1	Perfluorooctanoic acid	PFOA
9	2706-91-4	Perfluoropentanesulfonic acid	PFPeS
10	1763-23-1	Perfluorooctanesulfonic acid	PFOS, PFOSA
11	2706-90-3	Perfluoropentanoic acid	PFPeA
12	2058-94-8	Perfluoroundecanoic acid	PFUnA, PFUnDA
13	375-95-1	Perfluorononanoic acid	PFNA
14	307-55-1	Perfluorododecanoic acid	PFDoA, PFDoDA
15	335-76-2	Perfluorodecanoic acid	PFDA
16	375-92-8	Perfluoroheptanesulfonic Acid	PFHpS
17	307-24-4	Perfluorohexanoic acid	PFHxA
18	375-85-9	Perfluoroheptanoic acid	PFHpA
19	355-46-4	Perfluorohexanesulfonic acid	PFHxS
20	763051-92-9	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11CL-PF3Ouds, F-53 Minor
21	27619-97-2	6:2-Fluorotelomersulfonic acid	6:2 FTS
22	756426-58-1	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9Cl-PF3ONS
23	39108-34-4	8:2-Fluotelomersulfonic acid	8:2 FTS
24	919005-14-4	4,8-Dioxa-3H-perfluorononanoic acid	DONA, ADONA
25	757124-72-4	4:2-Fluorotelomersulfonic acid	4:2 FTS

EXECUTIVE NARRATIVE

Sample Delivery Group: FC23797
Laboratory: (b) (4)
Site: Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, Oahu, Hawaii, EPA Co-Sampling, Extended Drinking Water Monitoring, NAH Shaft Treatment System Pilot Study
Sampling dates: 04/08/2025
Number of Samples: 4
Test Method: USEPA method 537.1
Analysis: Per-fluorinated Alkyl Substances (PFAS)

Quality Assurance Project Plan: Final Extended Drinking Water Monitoring Plan Joint Base Pearl Harbor-Hickam Public Water System #HI0000360 and Aliamanu Military Reservation PWS #HI0000337 O‘ahu, Hawai‘i, March 2024.

Validation Guidelines: Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537, EPA 910-R-18-001 (November 2018).

Client Sample ID	Laboratory Sample ID	Matrix	Validation Stage
SHAFT-HW-0018384-25098-N	FC23797-1A	Drinking Water	S4VEM
SHAFT-HW-0018393-25098-N	FC23797-2A	Drinking Water	S4VEM
SHAFT-HW-0018394-25098-N	FC23797-3A	Drinking Water	S4VEM
SHAFT-FB-250408-25098-N	FC23797-4A	Field blank	S4VEM

Table 1 provides a summary of the major and minor data quality issues identified in this data set. All data are acceptable except those results which have been qualified with “R”, rejected. Data validation qualifiers along with associated descriptions are provided in Table 2. All data qualification related to this group of samples is detailed on the attached sheets.

All data users should note two facts. First, an "R" flag means that the associated value is unusable due to significant quality control (QC) problems, the data is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on any data tables even as a last resort. Second, no analyte concentration, even if it passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data, but any value potentially contains error.

DATA ASSESSMENT

1. NARRATIVE AND COMPLETENESS REVIEW

The case narrative was reviewed, and the data package was checked for completeness. No discrepancies were noted.

2. SAMPLE DELIVERY AND CONDITION

The samples arrived at the laboratory in acceptable condition. Proper custody was documented.

3. HOLDING TIME

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detect results will be flagged as not detected at an estimated quantitation limit, "UJ", unless the holding time is grossly exceeded (by more than two times the holding time specified), in which case non-detect results are flagged "R", rejected. Qualifications were applied to the samples and analytes as shown below.

All sample analyses were within the validation guidance.

4. MASS CALIBRATION

Mass calibration range must bracket the ion masses of interest. The most recent mass calibration must be used for every acquisition in an analytical run. Mass calibration must be verified to be ±0.5 amu of the true value, by acquiring a full scan continuum mass spectrum of a PFAS.

No problems were found for this criterion.

5. CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument can produce acceptable quantitative data. An initial calibration demonstrates that the instrument can give acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is providing satisfactory daily performance. Additionally, a continuing calibration is analyzed at the end of each 12-hour analytical sequence, denoted as a "closing" calibration verification and ascertains acceptable performance at the conclusion of the analytical sequence.

A) Initial Calibration

Percent Relative Standard Deviation (%RSD) is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent RSD must be less than the maximum %RSD, in cases where linear and non-linear regressions are used, linear correlation coefficients must be greater than the minimum requirement. If the %RSD or correlation coefficient do not meet quality control criteria, detects may be qualified as "J" and professional judgement is used to qualify non-detects. Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

B) Continuing Calibration

Percent difference (%D) compares the response factor of the continuing calibration check to mean response factor (RF) from the initial calibration. The %D for all analytes and surrogates in the continuing calibration verifications (CCVs) must be <30%. A value outside of these limits indicates potential detection and quantitation errors. If the %D exceeds quality control criteria, the positive results are flagged as estimated, "J" and non-detects are flagged "UJ". Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion with the following exceptions. The recoveries for PFDoA were outside of acceptance limits for two calibration verifications associated with all samples in this sample delivery group (SDG). All results reported for the impacted analyte in the associated samples have been qualified "UJ" on this basis.

6. BLANKS

Quality assurance (QA) blanks (i.e. method, storage, trip, field, or rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation and analysis or field activity. Method and storage blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. Qualifications were applied to the samples and analytes as shown below.

A) Laboratory Blanks

Method blanks were analyzed with appropriate frequency. No problems were found for this criterion.

B) Equipment / Field Blanks

Sample SHAFT-FB-250408-25098-N was submitted as a field blank in association with this SDG. No problems were found for this criterion.

7. SURROGATES

All samples are spiked with isotopically labeled surrogate compounds prior to sample preparation and analyses to evaluate overall laboratory performance and efficiency of the analytical technique. The reported project samples and laboratory quality control samples had observed surrogate recoveries within the established limits in all cases with the following exceptions.

No problems requiring qualification of sample results were found for this criterion with the following exception. The observed recoveries for surrogates 13C2-PFHxA and d5-EtFOSAA were greater than the upper acceptable limit during the analysis of sample SHAFT-HW-0018394-25098-N. Positive results reported for the impacted sample have been qualified "J" on this basis.

8. INTERNAL STANDARDS PERFORMANCE

Internal standard performance criteria are meant to ensure that the liquid chromatograph/tandem mass spectrometer (LC/MS/MS) sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than +/- 50% from the average peak area calculated during the initial calibration and 70-140% from the most recent continuing calibration standard. The retention time of the internal standard must not vary by more than +/-30 seconds from the associated continuing calibration standard. If area count is greater than the upper acceptance limit, non-detected results are not qualified while positive results are qualified "J," estimated. When an observed area count is less than the lower acceptance limit, results are qualified "J" or "UJ" as appropriate.

No problems were found for this criterion.

9. COMPOUND IDENTIFICATION

Compound Identification

The project target analyte compounds are identified on the LC/MS/MS by using the analytes relative retention time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within ±0.06 RRT units of the standard compound and have ion spectra with primary and when available secondary characteristic ions present. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

Target compound identifications were reviewed for samples at the Stage 4 level. No anomalies were identified.

10. MATRIX SPIKE/MATRIX SPIKE DUPLICATE / MATRIX DUPLICATE

Matrix spike/matrix spike duplicate (MS/MSD) data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD data may be used in conjunction with other quality control criteria for additional qualification of data.

Sample SHAFT-HW-0018393-25098-N was submitted for MS evaluation in association with this SDG. Upon evaluation all accuracy indicators were acceptable with the following exception. The observed MS recoveries for PFTeDA was lower than the lowest acceptable limit. The result reported for the impacted analyte in the parent sample has been qualified "UJ" on this basis.

Sample SHAFT-HW-0018394-25098-N was submitted for matrix duplicate evaluation in association with this SDG. Upon evaluation adequate laboratory precision was demonstrated.

11. LABORATORY CONTROL SAMPLE

The Laboratory Control Sample (LCS) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. Aqueous/water, soil/sediment, wipe, and filter LCSs shall be analyzed for each analyte utilizing the same sample preparations, analytical methods, and quality assurance/quality control (QA/QC) procedures as employed for the samples. All LCS percent recoveries must fall within the control limits. Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion with the following exceptions. The observed recovery for PFTrDA was less than the lowest acceptance limit in the LCS associated with all samples in this SDG. The results reported for the impacted analyte in the associated samples have been qualified "UJ" on this basis.

12. FIELD DUPLICATE

Field duplicates may be taken and analyzed as an indication of overall precision. These analyses measure both field and laboratory precision. A control limit of 30% for the Relative Percent Difference (RPD) shall be used for original and duplicate sample values greater than or equal to five times the LOQ. A control limit of two times the LOQ shall be used if either the sample or duplicate value is less than five times the LOQ. For field duplicate analyses that do not meet the technical criteria, the action was applied to only the field sample and its duplicate.

No samples were submitted as a field duplicate pair in association with this SDG.

13. DILUTIONS, RE-EXTRACTIONS & REANALYSIS

Samples may be re-analyzed for dilution, re-extraction and for other QC reasons. In such cases, the best result values are used.

Samples were re-extracted and/or reanalyzed in several cases to confirm quality control results. Upon review, the laboratory reported the best and final result.

14. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

Overall, the laboratory data generated met the project goals and quality control criteria, with the exceptions identified in this report and as summarized in Table 1.

15. OTHER PROBLEMS

None.

Table 1 Major and Minor Findings

	Were acceptance criteria met?		
	Yes	No	
Per-fluorinated Compounds		Major	Minor
Holding Time/Sample Handling	x		
Method Blanks	x		
Equipment / Field Blanks	x		
Calibration Blanks	x		
Mass Calibration	x		
Calibration Percent Relative Standard Deviation and Percent Difference			x
Surrogates			x
Internal Standards Performance	x		
Compound Identification	x		
Matrix Spike/Matrix Spike Duplicate			x
Matrix Duplicate	x		
Laboratory Control Sample			x
Other Quality Control Data out of Specification	x		
Field Duplicate	NA		

Major = Major data quality issue identified resulting in rejection of data.
Minor = Minor data quality issue identified resulting in the qualification of data. Data qualification should be used to inform the data users of data limitations.
NA = Not applicable

Table 2 Data Validation Qualifiers

Data Qualifier	Definition
U	The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
NJ	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

Table 3 PFAS Definitions Table

NO	CAS #	Target Name	Target Abbreviation
1	307-24-4	Perfluorohexanoic acid	PFHxA
2	375-85-9	Perfluoroheptanoic acid	PFHpA
3	335-67-1	Perfluorooctanoic acid	PFOA
4	375-95-1	Perfluorononanoic acid	PFNA
5	335-76-2	Perfluorodecanoic acid	PFDA
6	2058-94-8	Perfluoroundecanoic acid	PFUnDA
7	307-55-1	Perfluorododecanoic acid	PFDoA
8	72629-94-8	Perfluorotridecanoic acid	PFTrDA
9	376-06-7	Perfluorotetradecanoic acid	PFTeDA
10	375-73-5	Perfluorobutanesulfonic acid	PFBS
11	355-46-4	Perfluorohexanesulfonic acid	PFHxS
12	1763-23-1	Perfluorooctanesulfonic acid	PFOS
13	2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid	NMeFOSAA
14	2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid	NEtFOSAA
15	13252-13-6	2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptapropoxy)-propanoic acid	GenX (HFPODA)
16	919005-14-4(e)	Sodium dodcaefluoro-3H-4, 8-dioxanonanoate	DONA, ADONA, NaDONA
17	756426-58-1	Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS
18	763051-92-9	Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS

Calculation Documentation

Internal Standard Initial Calibration and Calculation Worksheet

Lab: (b) (4)
Method: 533
Instrument: GCMS3Q
Curve Date: 4/11/2025
Compound: PFPeA
Internal Standard: M5-PFPeA

Initial Calibration Model Worksheet

Compound Area Ax	ISTD Area Ais	Compound Conc Cx	ISTD Conc Cis	Y-Values Ax/Ais	X-Values Cx/Cis	X^2 $(Cx/Cis)^2$	RF (Ax*Cis)/(Ais*Cx)
6032	172874	0.5	10	0.034892465	0.05	0.0025	0.698
13602	162762	1	10	0.083569875	0.1	0.01	0.836
25438	162611	2	10	0.156434682	0.2	0.04	0.782
68579	163452	5	10	0.419566601	0.5	0.25	0.839
140653	165199	10	10	0.851415565	1	1	0.851
275629	166682	20	10	1.653621867	2	4	0.827
659386	157685	40	10	4.18166598	4	16	1.045
SUM OF EACH COLUMN :				7.3812	7.85	21.3025	5.8785

CALIBRATION MODELS:

Average Response Factor:
Cx = Ax*Cis/Ais/RF

Average RF	0.840	AVERAGE(RF)	0.8398
RSD	12.5%	STDEV(RF)/(AveRF)	12.494

Linear Regression:

y = mx + b
Cx = (((Ax/Ais)-b)/m)*Cis

Weighting	Equal	1/X	$1/X^2$	Equation
Slope (m)	1.028782265	0.95957	0.89434	SLOPE(RatioY,RatioX)
Intercept (b)	-0.09925	-0.02164	-0.009855	INTERCEPT(RatioY,RatioX)
CC (R)	0.99467	0.99373	0.99473	CORREL(RatioY,RatioX)
COD (R^2)	0.98937	0.98749	0.98950	POWER(R,2)

Quadratic Regression:

y = $ax^2 + bx + c$
Cx=(SQRT(b^2-(4*a*(c-(Ax/Ais))))-b)/(2*a)*Cis

Weighting	Equal	1/X	$1/X^2$	Equation
x^2 Coefficient (a)	0.09563	0.06218	0.07065	LINEST(RatioY,RatioX:RatioX^2,1,1)
x Coefficient (b)	0.65202	0.78382	0.74623	INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),1,2)
Intercept (c)	0.03224	-0.01376	0.00259	INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),1,3)
COD (R^2)	0.99909			INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),3,1)

Sample Concentration Calculations

Sample ID	File ID	Compound Area Ax	ISTD Area Ais	ISTD Conc Cis	Ave RF On-column Conc	Linear Cal On-column Conc Equal Weighting	Linear Cal On-column Conc 1/X Weighting	Linear Cal On-column Conc $1/X^2$ Weighting	Quadratic Cal On-column Conc Equal Weighting	Quadratic Cal On-column Conc 1/X Weighting	Quadratic Cal On-column Conc $1/X^2$ Weighting	
Equations:					Ax*Cis/Ais/RF	((Ax/Ais-b)/m)*Cis			(SQRT(b^2-(4*a*(c-(Ax/Ais))))-b)/(2*a)*Cis			
ICV	3Q101439.D	235431	159577	10	17.568	15.305	15.601	16.607	17.593	16.768	17.000	17.46
CCV	3Q101441.D	272394	163860	10	19.795	17.123	17.549	18.698	19.452	18.631	18.870	19.31
MB	3Q101444.D	0	117400	10	0.000	0.965	0.226	0.110	-0.498	0.175	-0.035	ND
LCS	3Q101443.D	224873	109496	10	24.455	20.927	21.628	23.074	23.146	22.398	22.635	22.99
FC23797-1	3Q101445.D	23257	112981	10	2.451	2.966	2.371	2.412	2.566	2.742	2.657	2.87

Internal Standard Initial Calibration and Calculation Worksheet

Lab: (b) (4)
Method: 533
Instrument: GCMS3Q
Curve Date: 4/11/2025
Compound: 13C5-PFPeA
Internal Standard: 13C3-PFBA

Initial Calibration Model Worksheet

Compound Area Ax	ISTD Area Ais	Compound Conc Cx	ISTD Conc Cis	Y-Values Ax/Ais	X-Values Cx/Cis	X^2 $(Cx/Cis)^2$	RF (Ax*Cis)/(Ais*Cx)
172874	78306	10	10	2.207672464	1	1	2.208
162762	82330	10	10	1.976946435	1	1	1.977
162611	81413	10	10	1.997359144	1	1	1.997
163452	81875	10	10	1.996360305	1	1	1.996
165199	76313	10	10	2.164755677	1	1	2.165
166682	78378	10	10	2.12664268	1	1	2.127
157685	70848	10	10	2.22568033	1	1	2.226
SUM OF EACH COLUMN :				14.6954	7	7	14.6954

CALIBRATION MODELS:

Average Response Factor:
Cx = Ax*Cis/Ais/RF

Average RF	2.099	AVERAGE(RF)	2.0993
RSD	5.1%	STDEV(RF)/(AveRF)	5.097

Linear Regression:

y = mx + b
Cx = (((Ax/Ais)-b)/m)*Cis

Weighting	Equal	1/X	$1/X^2$	Equation
Slope (m)	#DIV/0!	#DIV/0!	#DIV/0!	SLOPE(RatioY,RatioX)
Intercept (b)	#DIV/0!	#DIV/0!	#DIV/0!	INTERCEPT(RatioY,RatioX)
CC (R)	#DIV/0!	#DIV/0!	#DIV/0!	CORREL(RatioY,RatioX)
COD (R^2)	#DIV/0!	#DIV/0!	#DIV/0!	POWER(R,2)

Quadratic Regression:

$y = ax^2 + bx + c$
Cx=(SQRT(b^2-(4*a*(c-(Ax/Ais))))-b)/(2*a)*Cis

Weighting	Equal	1/X	$1/X^2$	Equation
x^2 Coefficient (a)	0.00000	#DIV/0!	#DIV/0!	LINEST(RatioY,RatioX:RatioX^2,1,1)
x Coefficient (b)	0.00000	#DIV/0!	#DIV/0!	INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),1,2)
Intercept (c)	2.09935	#DIV/0!	#DIV/0!	INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),1,3)
COD (R^2)	0.58921			INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),3,1)

Sample Concentration Calculations

Sample ID	File ID	Compound Area Ax	ISTD Area Ais	ISTD Conc Cis	Ave RF On-column Conc	Linear Cal On-column Conc Equal Weighting	Linear Cal On-column Conc 1/X Weighting	Linear Cal On-column Conc $1/X^2$ Weighting	Quadratic Cal On-column Conc Equal Weighting	Quadratic Cal On-column Conc 1/X Weighting	Quadratic Cal On-column Conc $1/X^2$ Weighting	
Equations:					Ax*Cis/Ais/RF	((Ax/Ais-b)/m)*Cis			(SQRT(b^2-(4*a*(c-(Ax/Ais))))-b)/(2*a)*Cis			
ICV	3Q101439.D	159577	86676	10	8.770	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	8.77
CCV	3Q101441.D	163860	77650	10	10.052	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	10.05
MB	3Q101444.D	117400	70154	10	7.971	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	7.97
LCS	3Q101443.D	109496	73375	10	7.108	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	7.11
FC23797-1	3Q101445.D	112981	76190	10	7.064	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	7.06

Internal Standard Initial Calibration and Calculation Worksheet

Lab: (b) (4)
Method: 537.1
Instrument: GCMS5Q
Curve Date: 4/11/2025
Compound: PFOA
Internal Standard: 13C2-PFOA

Initial Calibration Model Worksheet

Compound Area Ax	ISTD Area Ais	Compound Conc Cx	ISTD Conc Cis	Y-Values Ax/Ais	X-Values Cx/Cis	X^2 $(Cx/Cis)^2$	RF (Ax*Cis)/(Ais*Cx)
5887	359355	0.5	20	0.016382129	0.025	0.000625	0.655
14615	384863	1	20	0.037974552	0.05	0.0025	0.759
30166	378403	2	20	0.079719241	0.1	0.01	0.797
85391	397493	5	20	0.214823909	0.25	0.0625	0.859
210824	426732	10	20	0.4940431	0.5	0.25	0.988
403145	418343	20	20	0.963670959	1	1	0.964
997070	407098	50	20	2.449213703	2.5	6.25	0.980
2009280	398617	100	20	5.040627971	5	25	1.008
SUM OF EACH COLUMN :				9.2965	9.425	32.575625	7.0108

CALIBRATION MODELS:

Average Response Factor:
Cx = Ax*Cis/Ais/RF

Average RF	0.876	AVERAGE(RF)
RSD	14.8%	STDEV(RF)/(AveRF)

Linear Regression:

y = mx + b
Cx = (((Ax/Ais)-b)/m)*Cis

Weighting	Equal	1/X	$1/X^2$	Equation
Slope (m)	0.558938	0.99691	0.95901	SLOPE(RatioY,RatioX)
Intercept (b)	0.00000	-0.01243	-0.008521	INTERCEPT(RatioY,RatioX)
CC (R)	0.99991	0.99971	0.99812	CORREL(RatioY,RatioX)
COD (R^2)	0.99982	0.99942	0.99625	POWER(R,2)

Quadratic Regression:

$y = ax^2 + bx + c$
Cx=(SQRT(b^2-(4*a*(c-(Ax/Ais))))-b)/(2*a)*Cis

Weighting	Equal	1/X	$1/X^2$	Equation
x^2 Coefficient (a)	0.00954	0.05211	0.07603	LINEST(RatioY,RatioX:RatioX^2,1,1)
x Coefficient (b)	0.96227	0.75729	0.71750	INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),1,2)
Intercept (c)	-0.01048	0.05766	0.00714	INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),1,3)
COD (R^2)	0.99996			INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),3,1)

Sample Concentration Calculations

Sample ID	File ID	Compound Area Ax	ISTD Area Ais	ISTD Conc Cis	Ave RF On-column Conc	Linear Cal On-column Conc Equal Weighting	Linear Cal On-column Conc 1/X Weighting	Linear Cal On-column Conc $1/X^2$ Weighting	Quadratic Cal On-column Conc Equal Weighting	Quadratic Cal On-column Conc 1/X Weighting	Quadratic Cal On-column Conc $1/X^2$ Weighting	
Equations:					Ax*Cis/Ais/RF	((Ax/Ais-b)/m)*Cis			(SQRT(b^2-(4*a*(c-(Ax/Ais))))-b)/(2*a)*Cis			
ICV	5Q31696.D	429812	443328	20	22.126	34.691	19.700	20.397	20.167	22.361	23.819	20.47
CCV	5Q31698.D	450279	460891	20	22.296	34.958	19.849	20.552	20.319	22.532	23.985	20.63
MB	5Q31701.D	0	462543	20	0.000	0.000	0.249	0.178	0.218	-1.531	-0.199	ND
LCS	5Q31700.D	20373	474314	20	0.980	1.537	1.111	1.073	1.110	-0.389	0.993	0.92
FC23797-1A	5Q31702.D	28378	426304	20	1.519	2.382	1.585	1.566	1.600	0.235	1.642	1.43

Internal Standard Initial Calibration and Calculation Worksheet

Lab: (b) (4)
Method: 537.1
Instrument: GCMS5Q
Curve Date: 4/11/2025
Compound: d5-EtFOSAA
Internal Standard: d3-MeFOSAA

Initial Calibration Model Worksheet

Compound Area Ax	ISTD Area Ais	Compound Conc Cx	ISTD Conc Cis	Y-Values Ax/Ais	X-Values Cx/Cis	X^2 $(Cx/Cis)^2$	RF (Ax*Cis)/(Ais*Cx)
167	23022	0.5	40	0.007253931	0.0125	0.00015625	0.580
426	24632	1	40	0.017294576	0.025	0.000625	0.692
709	25145	2	40	0.028196461	0.05	0.0025	0.564
2127	25732	5	40	0.082659723	0.125	0.015625	0.661
5055	26766	10	40	0.188859	0.25	0.0625	0.755
9174	26542	20	40	0.345640871	0.5	0.25	0.691
23752	28107	50	40	0.845056392	1.25	1.5625	0.676
49575	28349	100	40	1.748738933	2.5	6.25	0.699
SUM OF EACH COLUMN :				3.2637	4.7125	8.14390625	5.3196

CALIBRATION MODELS:

Average Response Factor:
Cx = Ax*Cis/Ais/RF

Average RF	0.665	AVERAGE(RF)
RSD	9.6%	STDEV(RF)/(AveRF)

Linear Regression:

y = mx + b
Cx = (((Ax/Ais)-b)/m)*Cis

Weighting	Equal	1/X	$1/X^2$	Equation
Slope (m)	0.69635	0.69521	0.69085	SLOPE(RatioY,RatioX)
Intercept (b)	-0.00223	-0.00156	-0.001335	INTERCEPT(RatioY,RatioX)
CC (R)	0.99982	0.99947	0.99626	CORREL(RatioY,RatioX)
COD (R^2)	0.99963	0.99894	0.99253	POWER(R,2)

Quadratic Regression:

$y = ax^2 + bx + c$
Cx=(SQRT(b^2-(4*a*(c-(Ax/Ais))))-b)/(2*a)*Cis

Weighting	Equal	1/X	$1/X^2$	Equation
x^2 Coefficient (a)	0.01289	0.02057	0.04335	LINEST(RatioY,RatioX:RatioX^2,1,1)
x Coefficient (b)	0.66530	0.64683	0.61555	INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),1,2)
Intercept (c)	0.00293	0.00600	0.00123	INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),1,3)
COD (R^2)	0.99977			INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),3,1)

Sample Concentration Calculations

Sample ID	File ID	Compound Area Ax	ISTD Area Ais	ISTD Conc Cis	Ave RF On-column Conc	Linear Cal On-column Conc Equal Weighting	Linear Cal On-column Conc 1/X Weighting	Linear Cal On-column Conc $1/X^2$ Weighting	Quadratic Cal On-column Conc Equal Weighting	Quadratic Cal On-column Conc 1/X Weighting	Quadratic Cal On-column Conc $1/X^2$ Weighting	
Equations:					Ax*Cis/Ais/RF	((Ax/Ais-b)/m)*Cis			(SQRT(b^2-(4*a*(c-(Ax/Ais))))-b)/(2*a)*Cis			
ICV	5Q31696.D	0	29373	40	0.000	0.128	0.090	0.077	-0.176	-0.371	-0.080	0
CCV	5Q31698.D	10842	31309	40	20.831	20.020	20.014	20.127	20.441	20.703	21.601	20.46
MB	5Q31701.D	28570	30528	40	56.297	53.887	53.936	54.263	54.644	55.090	55.342	54.55
LCS	5Q31700.D	27752	30618	40	54.524	52.194	52.241	52.557	52.960	53.413	53.735	52.87
FC23797-1A	5Q31702.D	24240	27441	40	53.138	50.870	50.915	51.223	51.641	52.098	52.474	50.54

Data Validation Worksheet

DATA VALIDATION PFAS EPA 533

Using Data Review and Validation Guidelines for Perfluoroalkyl substances (PFASs) Analyzed Using EPA method 537 (EPA 910-R-18-001), November 2018 and); National Functional Guidelines for High Resolution Superfund Methods Data Review, OLEM 9240.1-65, EPA-542-R-20-007, (November 2020).

Validator: GAP

Date Validated: 04/24/2025

Reviewer: DM 4/28/2025

Project: Red Hill Extended Drinking Water

SDG: FC23797

LAB: (b) (4)

Samples Collected: 04/08/2025

4 Samples

SAMPLE RECEIPT AND CASE NARRATIVE REVIEW

- ✓ Traffic reports, chain-of-custody forms or SDG narrative do not indicate any problems with sample receipt, condition of the samples, analytical problems or special circumstances affecting the quality of the data.

  Coolers received on 04/09 at 5C

HOLDING TIMES

- ✓ Water and waste samples must be properly preserved (cooled to 4° +/- 2°), and samples must be extracted within 28 days of the date of collection. Extracts must be analyzed within 28 days of the date of extraction.

  Samples collected on 04/08
  Samples extracted on 04/10
  Samples analyzed on 04/11

  All ok

ISOTOPE DILUTION ANALOGUE

- ✓ LCMS Surrogate Recovery (Form II, Form VIII)
- ✓ Added to all QC and field samples
- ✓ Recoveries are within 50-200%
- ✓ See table 5 in method 533 for extracted internal standard associations

Per NFG:

- ✓ If low qualify J-/UJ
- ✓ If high qualify J+ for positive hits; no qual on ND
- ✓ If <10% qualify J-/R

All ok

LCMS LABORATORY CONTROL SAMPLE

- ✓ LCMS Lab Control Recovery (Form III), Form I, prep log, run log
- ✓ LCS prepared, extracted, analyzed, and reported once for every 20 field samples of a similar matrix, per SDG. Raw data and percent recoveries present for all Laboratory Control samples as required by Method 537 (Table 13).
- ✓ Laboratory Control Samples were analyzed for all the target analytes that the samples are analyzed for.
- ✓ Per method 533: Recoveries 70-130% for medium and high level lab fortified blank or 50-150% for low level lab fortified blank and 70-130 % per EPA 910-R-18-001 (11/2018)

OP8808-BS
All ok

MS/MSD

- ✓ LCMS Matrix Spike Recovery (Form III)
- ✓ The Matrix Spike Samples were spiked and analyzed for all the target analytes that the samples are analyzed for (Same analytes as LCS).
- ✓ Per method 533: Recoveries 70-130% for medium and high level lab fortified sample matrix or 50-150% for low level lab fortified sample matrix and 70-130 % per EPA 910-R-18-001 (11/2018)

- ✓ RPDs must be ≤ 30% and EPA 910-R-18-001 (11/2018)

SHAFT-HW-0018384-25098-N FC23797-1 MS only all ok

Lab Duplicate: SHAFT-HW-0018393-25098-N FC23797-2 all ok

BLANKS

- ✓ LCMS Method Blank Summary (Form IV), method blank Form I, prep log, run log
- ✓ Frequency of Analysis: reagent blank has been analyzed for every 20 (or less) samples of similar matrix or concentration or each extraction batch.
- ✓ Continuing Calibration Blanks (Form I) and run log
- ✓ Frequency of Analysis: immediately following the highest standard analyzed and daily prior to sample analysis.
- ✓ Field/rinse blanks are non-detected for all analytes

✓ evaluate storage, method, field and trip blanks

✓ method blank were prepared and analyzed in association with all samples in SDG

✓ and EPA 910-R-18-001 (11/2018):

Table 9. Blank Actions for PFAS Analysis

Blank Result	Sample Result	Action
Detect	Non-detect	No qualification
< MRL	< MRL	Report at MRL and qualify as non-detect (U)
	≥ 10x Blank Result	No qualification
≥ MRL	< MRL	Report at MRL and qualify as non-detect (U)
	≥ MRL and ≤ 10x Blank Result	Report at sample result and qualify as non-detect (U)
Gross contamination	Detect	Qualify as unusable (R)

OP8808-MB all ND

SHAFT-FB-250408-25098-N All ND

MASS CALIBRATION/TUNE CHECK

- ✓ Bracket ion masses of interest
- ✓ Verified to be ±0.5 amu of true value

passed

ICAL

- ✓ Initial Calibration Data Curve Evaluation (Form VI) and run log
- ✓ Minimum of 5 standard concentration were used
- ✓ %RSD <25% or r2 > 0.99

Note: An RSD value outside the initial calibration limit indicates the potential for quantitation errors. For this reason, all positive and non-detected results are qualified as estimated. Severe performance failures (RSD >90%) requires rejection of non-detected results.

See below

CCAL

- ✓ Continuing Calibration Data (Form VII) and run log
- ✓ Continuing calibration standard analyzed on each working day, prior to sample analyses.
- ✓ Calibration verification/continuing calibration standard been analyzed after every 10 samples and at the end of each analytical sequence
- ✓ The %D for all analytes and surrogates in the continuing calibration 70-130%

Used lab limit of 50% for CCVL

Instrument ID: GCMS3Q 04/11/25 all %RSD<25

S3Q1491-IBLK 3Q101438.D 04/11/25 17:51 n/a Instrument Blank

S3Q1491-ICV1491 3Q101439.D 04/11/25 18:07 n/a Initial cal verification 20

S3Q1491-CC1491 3Q101441.D 04/11/25 18:39 n/a Continuing cal 20
S3Q1491-CC1491 3Q101442.D 04/11/25 18:55 n/a Continuing cal 0.5LL

Samples 1-4

S3Q1491-ECC1491 3Q101451.D 04/11/25 21:20 n/a Ending cal 20

ALL OK

COMPOUND INDENTIFICATION

- ✓ The sample peak must be within ±0.06 RRT units of the standard compound and have ion spectra with primary and when available secondary characteristic ions present
- ✓ Signal to noise ration >10 for positive results
- ✓ Ion ration limits within window

all ok

Calibration Range Exceedance

✓ qualify if analytes reported from exceedance; reject if saturated column

FIELD DUPLICATES

RPD +/- 30%

See field duplicate worksheet

none

DATA VALIDATION PFAS EPA 537.1 mod

Using Data Review and Validation Guidelines for Perfluoroalkyl substances (PFASs) Analyzed Using EPA method 537 (EPA 910-R-18-001); November 2018

Validator: GAP

Date Validated: 04/24/2025

Reviewer: DM 4/28/2025

Project: Red Hill EDWM EPA Co-Sampling

SDG: FC23797

LAB: (b) (4)

Samples Collected: 04/08/2025

4 Samples

SAMPLE RECEIPT AND CASE NARRATIVE REVIEW

- ✓ Traffic reports, chain-of-custody forms or SDG narrative do not indicate any problems with sample receipt, condition of the samples, analytical problems or special circumstances affecting the quality of the data.

  Coolers received on 04/09 at 5 C

HOLDING TIMES

- ✓ Water and waste samples must be properly preserved (cooled to 4° +/- 2°), and samples must be extracted within 14 days of the date of collection. Extracts must be analyzed within 28 days of the date of extraction.

  Samples collected on 04/08
  Samples extracted on 04/10
  Samples analyzed on 04/11

  All ok

SURROGATES

- ✓ LCMS Surrogate Recovery (Form II, Form VIII)
- ✓ Added to all QC and field samples
- ✓ Recoveries are within the 70-130% per EPA 910-R-18-001 (11/2018)

SHAFT-HW-0018384-25098-N FC23797-1A
13C2-PFHxA and 13C2-PFDA ↑ for run 2, reported from run 1; no action required

SHAFT-HW-0018393-25098-N FC23797-2A
d5-EtFOSAA ↑ for run 1, reported from this run but all ND; no action required

SHAFT-HW-0018394-25098-N FC23797-3A
13C2-PFHxA ↑ in both run 1 and run 2
d5-EtFOSAA ↑ in run 1
results reported from run 1 flag positive results J

SHAFT-FB-250408-25098-N FC23797-4A
All ↑ in run 1
3 out of 4 ↑ in run 2
Run 1 reported but all ND; no action required

INTERNAL STANDARDS

- ✓ LCMS Internal Standard Area and Retention Time Summary (Form VIII)
- ✓ Per method 537: Peak area counts within +/- 50% window of average initial calibration (and 70-140% from most recent CCC per EPA 910-R-18-001 (11/2018)
- ✓ All RTs within in established limits
- ✓ Confirmed Lab limits established correct window and used to evaluate

All ok

LCMS LABORATORY CONTROL SAMPLE

- ✓ LCMS Lab Control Recovery (Form III), Form I, prep log, run log
- ✓ LCS prepared, extracted, analyzed, and reported once for every 20 field samples of a similar matrix, per SDG. Raw data and percent recoveries present for all Laboratory Control samples as required by Method 537 (Table 13).

- ✓ Laboratory Control Samples were analyzed for all the target analytes that the samples are analyzed for.

- ✓ Per method 537: Recoveries 70-130% and EPA 910-R-18-001 (11/2018)

OP8806-BS associated with all samples
72629-94-8 PFTrDA ↓ flag UJ

MS/MSD

- ✓ LCMS Matrix Spike Recovery (Form III)

- ✓ The Matrix Spike Samples were spiked and analyzed for all the target analytes that the samples are analyzed for (Same analytes as LCS).

- ✓ Per method 537: Recoveries 70-130% and EPA 910-R-18-001 (11/2018)

- ✓ Per method 537: Method analyte RPDs must be $\leq$ 30% and EPA 910-R-18-001 (11/2018)

FC23797-2A SHAFT-HW-0018393-25098-N

Analyte	MS only
376-06-7 Perfluorotetradecanoic acid	↓

Lab duplicate:
None

FC23797-3A SHAFT-HW-0018394-25098-N

All ok

BLANKS

- ✓ LCMS Method Blank Summary (Form IV), method blank Form I, prep log, run log

- ✓ Frequency of Analysis: reagent blank has been analyzed for every 20 (or less) samples of similar matrix or concentration or each extraction batch.

- ✓ Continuing Calibration Blanks (Form I) and run log
- ✓ Frequency of Analysis: immediately following the highest standard analyzed and daily prior to sample analysis.
- ✓ Field/rinse blanks are non-detected for all analytes

✓ evaluate storage, method, field and trip blanks

✓ method blank were prepared and analyzed in association with all samples in SDG

✓ and EPA 910-R-18-001 (11/2018):

Table 9. Blank Actions for PFAS Analysis

Blank Result	Sample Result	Action
Detect	Non-detect	No qualification
< MRL	< MRL	Report at MRL and qualify as non-detect (U)
	≥ 10x Blank Result	No qualification
≥ MRL	< MRL	Report at MRL and qualify as non-detect (U)
	≥ MRL and ≤ 10x Blank Result	Report at sample result and qualify as non-detect (U)
Gross contamination	Detect	Qualify as unusable (R)

OP8806-MB all ND

SHAFT-FB-250408-25098-N all ND

MASS CALIBRATION/TUNE CHECK

- ✓ Bracket ion masses of interest
- ✓ Verified to be ±0.5 amu of true value

passed

ICAL

- ✓ Initial Calibration Data Curve Evaluation (Form VI) and run log
- ✓ Minimum of 5 standard concentration were used
- ✓ %RSD <25% or r2 > 0.99

Note: An RSD value outside the initial calibration limit indicates the potential for quantitation errors. For this reason, all positive and non-detected results are qualified as estimated. Severe performance failures (RSD >90%) requires rejection of non-detected results.

See below

CCAL

- ✓ Continuing Calibration Data (Form VII) and run log
- ✓ Continuing calibration standard analyzed on each working day, prior to sample analyses.
- ✓ Calibration verification/continuing calibration standard been analyzed after every 10 samples and at the end of each analytical sequence
- ✓ The %D for all analytes and surrogates in the continuing calibration 70-130%

Used lab limit of 50% for CCVL

Instrument ID: GCMS5Q 04/11/25 all %RSD<25

S5Q519-ICV519 5Q31696.D 04/11/25 13:41 n/a Initial cal verification 20

PFDoA Perfluorododecanoic acid out

S5Q519-CC519 5Q31698.D 04/11/25 14:13 n/a Continuing cal 20
S5Q519-CC519 5Q31699.D 04/11/25 14:29 n/a Continuing cal 0.5LL

Samples 1-4

S5Q519-ECC519 5Q31708.D 04/11/25 16:54 n/a Ending cal 20
PFDoA Perfluorododecanoic acid out

Instrument ID: GCMS5Q 04/14/25 all %RSD<25

S5Q520-ICV520 5Q31740.D 04/14/25 12:58 n/a Initial cal verification 20

S5Q520-CC520 5Q31742.D 04/14/25 13:30 n/a Continuing cal 20
S5Q520-CC520 5Q31743.D 04/14/25 13:46 n/a Continuing cal 0.5LL

Samples 2-4 (not reported)

S5Q520-ECC520 5Q31752.D 04/14/25 16:10 n/a Ending cal 20

Instrument ID: GCMS5Q 04/17/25 all %RSD<25

S5Q523-ICV523 5Q31828.D 04/17/25 14:50 n/a Initial cal verification 20
S5Q523-CC523 5Q31830.D 04/17/25 15:23 n/a Continuing cal 20

S5Q523-CC523 5Q31831.D 04/17/25 15:39 n/a Continuing cal 0.5LL

Sample 1 (not reported)

S5Q523-ECC523 5Q31842.D 04/17/25 18:40 n/a Ending cal 20

All ok

COMPOUND INDENTIFICATION

- ✓ The sample peak must be within ±0.06 RRT units of the standard compound and have ion spectra with primary and when available secondary characteristic ions present
- ✓ Signal to noise ration >10 for positive results
- ✓ Ion ration limits within window

all ok

Calibration Range Exceedance

✓ qualify if analytes reported from exceedance; reject if saturated column

FIELD DUPLICATES

RPD +/- 30% per method 537.1

See field duplicate worksheet

none

Data Validation Report for FC23797

Facility:	Drinking Water Sampling, JBPHH, Oahu, Hawaii
Event:	NAH Shaft Treatment System Pilot Study
SDG:	FC23797
Guidance Document:	Extended Drinking Water Monitoring Plan, March 2024
Prime Contractor:	AECOM, Honolulu, HI
Project Manager:	(b) (6)
Contract Laboratory(ies):	(b) (4)
Data Review Contractor:	(b) (4)
Data Review Level:	S4VEM
Primary Data Reviewer:	(b) (6), Technical Specialist
Date Submitted:	April 28, 2025

Field Sample ID	Lab Sample ID	Matrix	Type/Type Code	E533	E537.1
SHAFT-FB-250408-25098-N	FC23797-4	Water	Field Blank/FB	X	
SHAFT-FB-250408-25098-N	FC23797-4A	Water	Field Blank/FB		X
SHAFT-HW-0018384-25098-N	FC23797-1	Water	Field Sample/N	X	
SHAFT-HW-0018384-25098-N	FC23797-1A	Water	Field Sample/N		X
SHAFT-HW-0018393-25098-N	FC23797-2	Water	Field Sample/N	X	
SHAFT-HW-0018393-25098-N	FC23797-2A	Water	Field Sample/N		X
SHAFT-HW-0018394-25098-N	FC23797-3	Water	Field Sample/N	X	
SHAFT-HW-0018394-25098-N	FC23797-3A	Water	Field Sample/N		X

Data Validation Report for FC23797

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page at S4VEM data validation level. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in the Extended Drinking Water Monitoring Plan, March 2024 and the Draft Database Management Plan December 2021, and in accordance with the EPA Drinking Water Methods, the National Functional Guidelines and Department of Defense Data Validation Guidelines as appropriate and in the order of priority listed. Where definitive guidance is not provided, results have been evaluated in a conservative manner using professional judgment.

Sample collection was managed and directed by AECOM, Honolulu, HI; analyses were performed by (b) (4) and were reported under sample delivery group (SDG) FC23797. Data have been evaluated electronically based on electronic data deliverables (EDDs) provided by the laboratory, and hard copy data summary forms have also been reviewed during this effort and compared to the automated review output by the reviewers whose signatures appear on the following page. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative and throughout this report.

All quality control (QC) elements associated with this SDG have been reviewed by a project chemist in accordance with the requirements defined for the project. This review is documented in the attached Data Review Checklists. The QC elements listed below were supported by the electronic deliverable and were evaluated using ADR processes.

- Duplicate Error Ratio (LR)
- Extracted Internal Standard
- Field Blank
- Lab Blank
- Lab Replicate RPD
- LCS Recovery
- MS Recovery
- Prep Hold Time
- Relative Error Ratio (LR)
- Test Hold Time

Results of the ADR process were subsequently reviewed and updated as applicable by the data review chemists identified on the signature page. Quality control elements that were not included in the electronic deliverable were reviewed manually and findings are documented within this report. Summaries of findings and associated qualified results are documented throughout this report.

A total of 10 results (5.81%) out of the 172 results (sample and field QC samples) reported are qualified based on review and 0 results (0.00%) have been rejected. Trace values, defined as results that are qualified as estimated because they fall between the detection limit and the reporting limit/limit of quantitation, are not counted as qualified results in the above count. The qualified results are detailed throughout this report and discussed in the narrative below, where appropriate.

Narrative Comments

Analytical Method	Data Reviewer Comment
E533	No additional comments; see Checklist for detail.
E537.1	No additional comments; see Checklist for detail.

April 28, 2025

Reviewed by (b) (6), Technical Specialist, (b) (4).

As the Reviewer, I certify that I have performed a data review process in accordance with the requirements of the project guidance document, and have compared the electronic data to the laboratory's hard copy report and have verified the consistency of the reported sample results and method quality control data between the two deliverables.

Quality Control Outliers for test method E533, Extracted Internal Standard

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with internal standards compounds prior to sample preparation (EIS). The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. EIS results that were outside of the acceptance criteria are listed below.

Sample ID/ Lab Sample ID	Analyte	Result	Warning Limits	Control Limits	Units	Qualifier	Reason Code	Comment
SHAFT-HW-0018393-25098-N (LR)	Perfluoro-n-[1,2-13C2]dodecanoic acid (13C2-PFDoA)	46.00	50 - 200	50 - 200	percent	R/R	Y5	No Qualifiers Applied

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

Quality Control Outliers for test method E537.1, Extracted Internal Standard

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with internal standards compounds prior to sample preparation (EIS). The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. EIS results that were outside of the acceptance criteria are listed below.

Sample ID/ Lab Sample ID	Analyte	Result	Warning Limits	Control Limits	Units	Qualifier	Reason Code	Comment
LABQC (BS)	d5-N-Ethylperfluoro-1-octanesulfonamido acetic acid	132.0	70 - 130	70 - 130	percent	R/R	Y5	No Qualifiers Applied
LABQC (LB)	d5-N-Ethylperfluoro-1-octanesulfonamido acetic acid	136.0	70 - 130	70 - 130	percent	R/R	Y5	No Qualifiers Applied
LABQC (LB)	Perfluoro-n-[1,2-13C2]decanoic acid (13C2-PFDA)	136.0	70 - 130	70 - 130	percent	R/R	Y5	No Qualifiers Applied
LABQC (BS)	Perfluoro-n-[1,2-13C2]hexanoic acid (13C2-PFHxA)	133.0	70 - 130	70 - 130	percent	R/R	Y5	No Qualifiers Applied
LABQC (LB)	Perfluoro-n-[1,2-13C2]hexanoic acid (13C2-PFHxA)	144.0	70 - 130	70 - 130	percent	R/R	Y5	No Qualifiers Applied
LABQC (LB)	Tetrafluoro-2-heptafluoropropoxy-13C3-propanoic acid (13C3-HFPO-DA)	137.0	70 - 130	70 - 130	percent	R/R	Y5	No Qualifiers Applied
SHAFT-FB-250408-25098-N (FB)	d5-N-Ethylperfluoro-1-octanesulfonamido acetic acid	153.0	70 - 130	70 - 130	percent	R/R	Y5	
SHAFT-FB-250408-25098-N (FB)	Perfluoro-n-[1,2-13C2]decanoic acid (13C2-PFDA)	144.0	70 - 130	70 - 130	percent	R/R	Y5	
SHAFT-FB-250408-25098-N (FB)	Perfluoro-n-[1,2-13C2]hexanoic acid (13C2-PFHxA)	149.0	70 - 130	70 - 130	percent	R/R	Y5	
SHAFT-FB-250408-25098-N (FB)	Tetrafluoro-2-heptafluoropropoxy-13C3-propanoic acid (13C3-HFPO-DA)	143.0	70 - 130	70 - 130	percent	R/R	Y5	
SHAFT-HW-0018393-25098-N (N)	d5-N-Ethylperfluoro-1-octanesulfonamido acetic acid	134.0	70 - 130	70 - 130	percent	R/R	Y5	
SHAFT-HW-0018393-25098-N (MS)	d5-N-Ethylperfluoro-1-octanesulfonamido acetic acid	136.0	70 - 130	70 - 130	percent	R/R	Y5	No Qualifiers Applied
SHAFT-HW-0018394-25098-N (N)	d5-N-Ethylperfluoro-1-octanesulfonamido acetic acid	138.0	70 - 130	70 - 130	percent	R/R	Y5	
SHAFT-HW-0018394-25098-N (LR)	d5-N-Ethylperfluoro-1-octanesulfonamido acetic acid	132.0	70 - 130	70 - 130	percent	R/R	Y5	No Qualifiers Applied

Quality Control Outliers for test method E537.1, Extracted Internal Standard

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with internal standards compounds prior to sample preparation (EIS). The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. EIS results that were outside of the acceptance criteria are listed below.

Sample ID/ Lab Sample ID	Analyte	Result	Warning Limits	Control Limits	Units	Qualifier	Reason Code	Comment
SHAFT-HW-0018394-25098-N (N)	Perfluoro-n-[1,2-13C2]hexanoic acid (13C2-PFHxA)	133.0	70 - 130	70 - 130	percent	R/R	Y5	
SHAFT-HW-0018394-25098-N (LR)	Perfluoro-n-[1,2-13C2]hexanoic acid (13C2-PFHxA)	135.0	70 - 130	70 - 130	percent	R/R	Y5	No Qualifiers Applied
SHAFT-HW-0018394-25098-N (LR)	Tetrafluoro-2-heptafluoropropoxy-13C3-propanoic acid (13C3-HFPO-DA)	132.0	70 - 130	70 - 130	percent	R/R	Y5	No Qualifiers Applied

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

Quality Control Outliers for test method E537.1, Lab Replicate RPD

The objective of duplicate sample (LR) analysis is to demonstrate acceptable method precision by the laboratory at the time of analysis. Duplicate analyses are also performed to generate data that determines the long-term precision of the analytical method on various matrices. Non-homogenous samples can impact the apparent method precision. Summary forms were evaluated and compared to electronic data deliverables. Laboratory duplicate results that were outside of the acceptance criteria are listed below.

Sample ID/ Lab Sample ID	Analyte	Result	Warning Limits	Control Limits	Units	Qualifier	Reason Code	Comment
SHAFT-HW-0018394-25098-N (LR)	Perfluorooctanesulfonic acid (PFOS)	200.0	< 30	< 30	rpd	R/R	D1	

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

Quality Control Outliers for test method E537.1, LCS Recovery

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

Sample ID/ Lab Sample ID	Analyte	Result	Warning Limits	Control Limits	Units	Qualifier	Reason Code	Comment
OP8806-BS (BS)	Perfluorododecanoic acid (PFDoA)	57.00	70 - 130	40 - 130	percent	R/R	C	
OP8806-BS (BS)	Perfluorotetradecanoic acid (PFTeDA)	57.00	70 - 130	40 - 130	percent	R/R	C	

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

Quality Control Outliers for test method E537.1, MS Recovery

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

Sample ID/ Lab Sample ID	Analyte	Result	Warning Limits	Control Limits	Units	Qualifier	Reason Code	Comment
SHAFT-HW-0018393-25098-N (MS)	Perfluorododecanoic acid (PFDoA)	68.00	70 - 130	10 - 130	percent	R/R	M	
SHAFT-HW-0018393-25098-N (MS)	Perfluorotetradecanoic acid (PFTeDA)	34.00	70 - 130	10 - 130	percent	R/R	M	
SHAFT-HW-0018393-25098-N (MS)	Perfluorotridecanoic acid (PFTrDA)	60.00	70 - 130	10 - 130	percent	R/R	M	

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

Qualified Results associated with the MS Recovery for E537.1

FieldSample ID	Type	Analyte	RL	MDL	Lab Result	Qualified Result	Units	Reason
SHAFT-HW-0018393-25098-N FC23797-2A	N	Perfluorotetradecanoic acid (PFTeDA)	1.80	0.700	0.700 U	0.700 UJ	ng/l	M

Analytes not found in project samples are reported as not detected at the method detection limit (MDL) unless blank contamination occurs and then the sample may be reported as not detected at the (RL) or amount found in sample, whichever is greater. Results for PFAS analysis that are associated with blank contamination and are less than the RL will be reported non-detect at the sample concentration.

Table of All Qualified Results

Test Method: E537.1		Extraction Method: METHOD						
FieldSample ID / LabSample ID	Type	Analyte	RL	MDL	Lab Result	Qualified Result	Units	Reason
SHAFT-FB-250408-25098-N FC23797-4A	FB	Perfluorododecanoic acid (PFDoA)	1.90	0.740	0.740 U	0.740 UJ	ng/l	V1/V2
SHAFT-FB-250408-25098-N FC23797-4A	FB	Perfluorotridecanoic acid (PFTrDA)	1.90	0.740	0.740 U	0.740 UJ	ng/l	C
SHAFT-HW-0018384-25098-N FC23797-1A	N	Perfluorododecanoic acid (PFDoA)	1.90	0.740	0.740 U	0.740 UJ	ng/l	V1/V2
SHAFT-HW-0018384-25098-N FC23797-1A	N	Perfluorotridecanoic acid (PFTrDA)	1.90	0.740	0.740 U	0.740 UJ	ng/l	C
SHAFT-HW-0018393-25098-N FC23797-2A	N	Perfluorododecanoic acid (PFDoA)	1.80	0.700	0.700 U	0.700 UJ	ng/l	V1/V2
SHAFT-HW-0018393-25098-N FC23797-2A	N	Perfluorotetradecanoic acid (PFTeDA)	1.80	0.700	0.700 U	0.700 UJ	ng/l	M
SHAFT-HW-0018393-25098-N FC23797-2A	N	Perfluorotridecanoic acid (PFTrDA)	1.80	0.700	0.700 U	0.700 UJ	ng/l	C
SHAFT-HW-0018394-25098-N FC23797-3A	N	Perfluorododecanoic acid (PFDoA)	1.80	0.730	0.730 U	0.730 UJ	ng/l	V1/V2
SHAFT-HW-0018394-25098-N FC23797-3A	N	Perfluorooctanesulfonic acid (PFOS)	1.80	0.730	1.50 J	1.50 J	ng/l	TR/I
SHAFT-HW-0018394-25098-N FC23797-3A	N	Perfluorotridecanoic acid (PFTrDA)	1.80	0.730	0.730 U	0.730 UJ	ng/l	C

Analytes not found in project samples are reported as not detected at the method detection limit (MDL) unless blank contamination occurs and then the sample may be reported as not detected at the (RL) or amount found in sample, whichever is greater.
Trace values are not included in the qualified results table unless additional reason codes are associated.

Table of Results with Modified Qualifiers

Modified Qualifiers for test method E537.1

FieldSample ID / LabSample ID	Type	Analyte	RL	Lab Result	ADR Result	Modified Result	Reason
SHAFT-FB-250408-25098-N FC23797-4A	FB	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	7.40	1.90 U	1.90 R	1.90 U	
SHAFT-FB-250408-25098-N FC23797-4A	FB	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	7.40	1.90 U	1.90 R	1.90 U	
SHAFT-FB-250408-25098-N FC23797-4A	FB	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	7.40	1.90 U	1.90 R	1.90 U	
SHAFT-FB-250408-25098-N FC23797-4A	FB	Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.40	2.80 U	2.80 R	2.80 U	
SHAFT-FB-250408-25098-N FC23797-4A	FB	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.70	0.930 U	0.930 R	0.930 U	
SHAFT-FB-250408-25098-N FC23797-4A	FB	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.70	0.930 U	0.930 R	0.930 U	
SHAFT-FB-250408-25098-N FC23797-4A	FB	Perfluorobutanesulfonic acid (PFBS)	1.90	0.740 U	0.740 R	0.740 U	
SHAFT-FB-250408-25098-N FC23797-4A	FB	Perfluorodecanoic acid (PFDA)	1.90	0.740 U	0.740 R	0.740 U	
SHAFT-FB-250408-25098-N FC23797-4A	FB	Perfluorododecanoic acid (PFDoA)	1.90	0.740 U	0.740 R	0.740 UJ	V1/V2
SHAFT-FB-250408-25098-N FC23797-4A	FB	Perfluoroheptanoic acid (PFHpA)	1.90	0.740 U	0.740 R	0.740 U	
SHAFT-FB-250408-25098-N FC23797-4A	FB	Perfluorohexanesulfonic acid (PFHxS)	1.90	0.740 U	0.740 R	0.740 U	
SHAFT-FB-250408-25098-N FC23797-4A	FB	Perfluorohexanoic acid (PFHxA)	1.90	0.740 U	0.740 R	0.740 U	
SHAFT-FB-250408-25098-N FC23797-4A	FB	Perfluorononanoic acid (PFNA)	1.90	0.740 U	0.740 R	0.740 U	
SHAFT-FB-250408-25098-N FC23797-4A	FB	Perfluorooctanesulfonic acid (PFOS)	1.90	0.740 U	0.740 R	0.740 U	
SHAFT-FB-250408-25098-N FC23797-4A	FB	Perfluorooctanoic acid (PFOA)	1.90	0.740 U	0.740 R	0.740 U	
SHAFT-FB-250408-25098-N FC23797-4A	FB	Perfluorotetradecanoic acid (PFTeDA)	1.90	0.740 U	0.740 R	0.740 U	
SHAFT-FB-250408-25098-N FC23797-4A	FB	Perfluorotridecanoic acid (PFTrDA)	1.90	0.740 U	0.740 R	0.740 UJ	C
SHAFT-FB-250408-25098-N FC23797-4A	FB	Perfluoroundecanoic acid (PFUnA)	1.90	0.740 U	0.740 R	0.740 U	
SHAFT-HW-0018384-25098-N FC23797-1A	N	Perfluorododecanoic acid (PFDoA)	1.90	0.740 U	0.740 R	0.740 UJ	V1/V2
SHAFT-HW-0018384-25098-N FC23797-1A	N	Perfluorotetradecanoic acid (PFTeDA)	1.90	0.740 U	0.740 R	0.740 U	
SHAFT-HW-0018384-25098-N FC23797-1A	N	Perfluorotridecanoic acid (PFTrDA)	1.90	0.740 U	0.740 U	0.740 UJ	C
SHAFT-HW-0018393-25098-N FC23797-2A	N	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.50	0.880 U	0.880 R	0.880 U	

Table of Results with Modified Qualifiers

Modified Qualifiers for test method E537.1

FieldSample ID / LabSample ID	Type	Analyte	RL	Lab Result	ADR Result	Modified Result	Reason
SHAFT-HW-0018393-25098-N FC23797-2A	N	Perfluorododecanoic acid (PFDoA)	1.80	0.700 U	0.700 R	0.700 UJ	V1/V2
SHAFT-HW-0018393-25098-N FC23797-2A	N	Perfluorohexanoic acid (PFHxA)	1.80	0.700 U	0.700 R	0.700 U	
SHAFT-HW-0018393-25098-N FC23797-2A	N	Perfluorotetradecanoic acid (PFTeDA)	1.80	0.700 U	0.700 R	0.700 UJ	M
SHAFT-HW-0018393-25098-N FC23797-2A	N	Perfluorotridecanoic acid (PFTrDA)	1.80	0.700 U	0.700 R	0.700 UJ	C
SHAFT-HW-0018394-25098-N FC23797-3A	N	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.60	0.910 U	0.910 R	0.910 U	
SHAFT-HW-0018394-25098-N FC23797-3A	N	Perfluorobutanesulfonic acid (PFBS)	1.80	0.730 U	0.730 R	0.730 U	
SHAFT-HW-0018394-25098-N FC23797-3A	N	Perfluorododecanoic acid (PFDoA)	1.80	0.730 U	0.730 R	0.730 UJ	V1/V2
SHAFT-HW-0018394-25098-N FC23797-3A	N	Perfluoroheptanoic acid (PFHpA)	1.80	0.730 U	0.730 R	0.730 U	
SHAFT-HW-0018394-25098-N FC23797-3A	N	Perfluorohexanesulfonic acid (PFHxS)	1.80	0.730 U	0.730 R	0.730 U	
SHAFT-HW-0018394-25098-N FC23797-3A	N	Perfluorohexanoic acid (PFHxA)	1.80	0.730 U	0.730 R	0.730 U	
SHAFT-HW-0018394-25098-N FC23797-3A	N	Perfluorooctanesulfonic acid (PFOS)	1.80	1.50 J	1.50 R	1.50 J	TR/I
SHAFT-HW-0018394-25098-N FC23797-3A	N	Perfluorooctanoic acid (PFOA)	1.80	0.730 U	0.730 R	0.730 U	
SHAFT-HW-0018394-25098-N FC23797-3A	N	Perfluorotetradecanoic acid (PFTeDA)	1.80	0.730 U	0.730 R	0.730 U	
SHAFT-HW-0018394-25098-N FC23797-3A	N	Perfluorotridecanoic acid (PFTrDA)	1.80	0.730 U	0.730 U	0.730 UJ	C

Analytes not found in project samples are reported as not detected at the method detection limit (MDL) unless blank contamination occurs and then the sample may be reported as not detected at the (RL) or amount found in sample, whichever is greater.
Trace values are not included in the qualified results table unless additional reason codes are associated.

Reason Code Definitions

Code	Definition
C	LCS Recovery
I	Surrogate recovery outside project limits.
M	MS Recovery
TR	Trace Level Detect

Reason Code Definitions

Code	Definition
V1	ICV
V2	CCV

Flag Code and Definitions

Flag	Definition
J	Estimated Value
N	The analysis indicates the presence of an analyte for which there was presumptive evidence to make a tentative identification.
NJ	The analyte has been tentatively identified or presumptively as present and the associated numerical value was the estimated concentration in the sample.
R	The data are rejected due to deficiencies in meeting QC criteria and may not be used for decision making.
U	Undetected: The analyte was analyzed for, but not detected.
UJ	The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
X	Result may require rejection; PDT attention required

Review Levels

S2AVEM	EPA Stage 2A Validation, Electronic Review supplemented with Manual Review by Chemist
S4VEM	EPA Stage 4 Validation, Electronic Review supplemented with Manual Review by Chemist

(b) (4)

04/21/25

The results set forth herein are provided by (b) (4)

e-Hardcopy 2.0
Automated Report

Technical Report for

AECOM, INC.

N6274224F0139 Extended Drinking Water

60729369

(b) (4) Job Number: FC23899



Sampling Date: 04/11/25

Report to:

AECOM, Inc
7595 Technology Way
Denver, CO 80237
(b) (6)

Total number of pages in report: 66

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

(b) (6)
Technical Director

Client Service contact: (b) (6)
(b) (4)

Test results relate only to samples analyzed.

(b) (4)
(b) (4) is the sole authority for authorizing edits or modifications to this document.
Unauthorized modification of this report is strictly prohibited.
Review standard terms at: (b) (4)
Please share your ideas about how we can serve you better at: (b) (4)

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(b) (4)

Sample Summary

AECOM, INC.

Job No: FC23899

N6274224F0139 Extended Drinking Water
Project No: 60729369

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FC23899-1	04/11/25	08:50	(b) (6)	04/12/25	DW	Drinking Water	SHAFT-HW-0018384-25098-N-R01
FC23899-1A	04/11/25	08:50	(b) (6)	04/12/25	DW	Drinking Water	SHAFT-HW-0018384-25098-N-R01
FC23899-2	04/11/25	08:05	(b) (6)	04/12/25	DW	Drinking Water FB	SHAFT-FB-250411-25098-N
FC23899-2A	04/11/25	08:05	(b) (6)	04/12/25	DW	Drinking Water FB	SHAFT-FB-250411-25098-N
FC23899-3	04/11/25	11:36	(b) (6)	04/12/25	DW	Drinking Water	SHAFT-HW-0018393-25098-N-R01
FC23899-3A	04/11/25	11:36	(b) (6)	04/12/25	DW	Drinking Water	SHAFT-HW-0018393-25098-N-R01
FC23899-4	04/11/25	11:35	(b) (6)	04/12/25	DW	Drinking Water	SHAFT-HW-0018394-25098-N-R01
FC23899-4A	04/11/25	11:35	(b) (6)	04/12/25	DW	Drinking Water	SHAFT-HW-0018394-25098-N-R01

SAMPLE DELIVERY GROUP CASE NARRATIVE

2

Client: AECOM, INC. **Job No:** FC23899

Site: N6274224F0139 Extended Drinking Water **Report Date** 4/21/2025 11:55:21 A

On 04/12/2025, 3 Sample(s), 0 Trip Blank(s), 0 Equip. Blank(s) and 1 Field Blank(s) were received at (b) (4) [redacted] . at a maximum corrected temperature of 3 C. Samples were intact and chemically preserved, unless noted below. A (b) (4) [redacted] Job Number of FC23899 was assigned to the project.

Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section. Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Semi-volatiles By Method EPA 533

Matrix: DW **Batch ID:** OP8883

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) FC23899-1MS, FC23899-3DUP, FC23899-1MS were used as the QC samples indicated.
- Blank Spike Recovery(s) for 8:2 Fluorotelomer sulfonate, HFPO-DA (GenX), Perfluorododecanoic acid, Perfluoroheptanesulfonic acid, Perfluoroundecanoic acid are outside control limits.
- Matrix Spike Recovery(s) for 11Cl-PF3OUdS (F-53B Minor), 8:2 Fluorotelomer sulfonate, HFPO-DA (GenX), Perfluorododecanoic acid, Perfluoroundecanoic acid are outside control limits. Probable cause is due to matrix interference.
- Matrix Spike Recovery(s) for 11Cl-PF3OUdS (F-53B Minor), 8:2 Fluorotelomer sulfonate, HFPO-DA (GenX), Perfluorododecanoic acid, Perfluoroundecanoic acid are outside control limits. Probable cause is due to the ratio of spike to sample concentration < 4.
- Sample(s) FC23899-1, FC23899-2, FC23899-3, FC23899-4 have surrogates outside control limits.
- FC23899-1: Confirmation run.
- FC23899-3: Insufficient sample for re-extraction.
- FC23899-2: Insufficient sample for re-extraction.
- FC23899-2: Confirmation run.
- FC23899-4: Confirmation run.
- FC23899-1: Insufficient sample for re-extraction.
- FC23899-2 for Perfluoroundecanoic acid: Associated BS outside control limits high. Associated EIS outside control limits.
- FC23899-2 for Perfluorododecanoic acid: Associated EIS outside control limits. Associated BS outside control limits high.
- FC23899-3 for 8:2 Fluorotelomer sulfonate: Associated BS outside control limits high.
- FC23899-3 for Perfluorododecanoic acid: Associated BS outside control limits high. Associated EIS outside control limits.
- FC23899-1 for Perfluorododecanoic acid: Associated BS outside control limits high. Associated EIS outside control limits.
- FC23899-2 for 8:2 Fluorotelomer sulfonate: Associated BS outside control limits high.
- OP8883-BS for 13C2-PFDoDA: Outside control limits.
- FC23899-3 for 13C2-PFDoDA: Outside control limits.
- OP8883-BS for 13C2-PFDoDA: Outside control limits.
- OP8883-MB for 13C7-PFUnDA: Outside control limits.
- OP8883-MB for 13C2-PFDoDA: Outside control limits.
- OP8883-MB for 13C7-PFUnDA: Outside control limits.
- OP8883-MB for 13C2-PFDoDA: Outside control limits.

MS Semi-volatiles By Method EPA 533

Matrix: DW **Batch ID:** OP8907

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) FC23948-1MS, FC23948-3DUP were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Matrix Spike Recovery(s) for 11Cl-PF3OUdS (F-53B Minor) are outside control limits. Probable cause is due to matrix interference.
- Matrix Spike Recovery(s) for 11Cl-PF3OUdS (F-53B Minor) are outside control limits. Probable cause is due to the ratio of spike to sample concentration < 4.

MS Semi-volatiles By Method EPA 537.1 REV 2.0

Matrix: DW **Batch ID:** OP8882

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) FC23899-1AMS, FC23899-3ADUP, FC23899-1AMS were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Blank Spike Recovery(s) for 11Cl-PF3OUdS (F-53B Minor), 9Cl-PF3ONS (F-53B Major), EtFOSAA, MeFOSAA, Perfluorododecanoic acid, Perfluorotetradecanoic acid, Perfluorotridecanoic acid, Perfluoroundecanoic acid are outside control limits.
- Matrix Spike Recovery(s) for 11Cl-PF3OUdS (F-53B Minor), EtFOSAA, MeFOSAA, Perfluorododecanoic acid, Perfluorotetradecanoic acid, Perfluorotridecanoic acid, Perfluoroundecanoic acid are outside control limits. Probable cause is due to matrix interference.
- Matrix Spike Recovery(s) for 11Cl-PF3OUdS (F-53B Minor), EtFOSAA, MeFOSAA, Perfluorododecanoic acid, Perfluorotetradecanoic acid, Perfluorotridecanoic acid, Perfluoroundecanoic acid are outside control limits. Probable cause is due to the ratio of spike to sample concentration < 4.
- Sample(s) FC23899-1A, FC23899-2A, FC23899-3A, FC23899-4A have surrogates outside control limits.
- FC23899-2A: Sample received outside the holding time. Insufficient sample for re-extraction.
- FC23899-3A: Sample received outside the holding time. Confirmation run.
- FC23899-1A: Sample received outside the holding time. Insufficient sample for re-extraction.
- FC23899-1A: Sample received outside the holding time. Confirmation run.
- FC23899-3A: Sample received outside the holding time. Insufficient sample for re-extraction.
- FC23899-2A: Sample received outside the holding time. Confirmation run.
- FC23899-1A for Perfluorodecanoic acid: Associated ICV outside control limits high, however sample ND.
- FC23899-1A for EtFOSAA: Associated EIS outside control limits. Associated BS outside of control limits low.
- FC23899-2A for 11Cl-PF3OUdS (F-53B Minor): Associated BS outside of control limits low.
- FC23899-2A for Perfluorododecanoic acid: Associated BS outside of control limits low. Associated ICV outside control limits high.
- FC23899-3A for 11Cl-PF3OUdS (F-53B Minor): Associated BS outside of control limits low.
- FC23899-3A for Perfluorododecanoic acid: Associated BS outside of control limits low. Associated ICV outside control limits high.
- FC23899-1A for 11Cl-PF3OUdS (F-53B Minor): Associated BS outside of control limits low.
- FC23899-4A for 11Cl-PF3OUdS (F-53B Minor): Associated BS outside of control limits low.
- FC23899-4A for Perfluoroundecanoic acid: Associated BS outside of control limits low.
- FC23899-4A for Perfluorododecanoic acid: Associated BS outside of control limits low. Associated ICV outside control limits high.
- FC23899-4A for d5-NEtFOSAA: Outside control limits.
- OP8882-BS for d5-EtFOSAA: Outside control limits.
- FC23899-4A for Perfluorotridecanoic acid: Associated BS outside of control limits low.
- FC23899-4A for Perfluorotetradecanoic acid: Associated BS outside of control limits low.
- FC23899-4A for MeFOSAA: Associated BS outside of control limits low.
- FC23899-4A for 9Cl-PF3ONS (F-53B Major): Associated BS outside of control limits low.
- OP8882-MB for d5-EtFOSAA: Outside control limits.
- OP8882-BS for d5-EtFOSAA: Outside control limits.
- OP8882-MB for d5-EtFOSAA: Outside control limits.
- FC23899-4A for EtFOSAA: Associated BS outside of control limits low.

Matrix: DW **Batch ID:** OP8904

- Sample(s) FC23899-4A have surrogates outside control limits.

MS Semi-volatiles By Method EPA 537.1 REV 2.0

Matrix: DW **Batch ID:** OP8904

- FC23899-4A: Confirmation run.

(b) (4) certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted. Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria. (b) (4) is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety.

Summary of Hits

Job Number: FC23899
Account: AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Collected: 04/11/25

3

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
FC23899-1	**SHAFT-HW-0018384-25098-N-R01**					
Perfluorobutanoic acid [a]		0.0032 J	0.0036	0.0014	ug/l	EPA 533
Perfluoropentanoic acid [a]		0.0085	0.0036	0.0014	ug/l	EPA 533
Perfluorohexanoic acid [a]		0.0064	0.0018	0.0014	ug/l	EPA 533
Perfluoroheptanoic acid [a]		0.0032	0.0018	0.0014	ug/l	EPA 533
Perfluorooctanoic acid [a]		0.0061	0.0018	0.0014	ug/l	EPA 533
Perfluorobutanesulfonic acid [a]		0.0045	0.0018	0.0014	ug/l	EPA 533
Perfluoropentanesulfonic acid [a]		0.00073 J	0.0018	0.0014	ug/l	EPA 533
Perfluorohexanesulfonic acid [a]		0.0061	0.0018	0.0014	ug/l	EPA 533
Perfluorooctanesulfonic acid [a]		0.0104	0.0018	0.0014	ug/l	EPA 533
FC23899-1A	**SHAFT-HW-0018384-25098-N-R01**					
Perfluorohexanoic acid [b]		0.0046	0.0018	0.0014	ug/l	EPA 537.1 REV 2.0
Perfluoroheptanoic acid [b]		0.0022	0.0018	0.0014	ug/l	EPA 537.1 REV 2.0
Perfluorooctanoic acid [b]		0.0039	0.0018	0.0014	ug/l	EPA 537.1 REV 2.0
Perfluorobutanesulfonic acid [b]		0.0037	0.0018	0.0014	ug/l	EPA 537.1 REV 2.0
Perfluorohexanesulfonic acid [b]		0.0044	0.0018	0.0014	ug/l	EPA 537.1 REV 2.0
Perfluorooctanesulfonic acid [b]		0.0060	0.0018	0.0014	ug/l	EPA 537.1 REV 2.0
FC23899-2	**SHAFT-FB-250411-25098-N**					
No hits reported in this sample.						
FC23899-2A	**SHAFT-FB-250411-25098-N**					
No hits reported in this sample.						
FC23899-3	**SHAFT-HW-0018393-25098-N-R01**					
No hits reported in this sample.						
FC23899-3A	**SHAFT-HW-0018393-25098-N-R01**					
No hits reported in this sample.						
FC23899-4	**SHAFT-HW-0018394-25098-N-R01**					
No hits reported in this sample.						
FC23899-4A	**SHAFT-HW-0018394-25098-N-R01**					
No hits reported in this sample.						

Summary of Hits

Job Number: FC23899
Account: AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Collected: 04/11/25

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method

(a) Insufficient sample for re-extraction.
(b) Sample received outside the holding time. Insufficient sample for re-extraction.

Sample Results

Report of Analysis

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018384-25098-N-R01		
Lab Sample ID:	FC23899-1	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water	**Date Received:**	04/12/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	3Q101473.D	1	04/15/25 18:05	(b) (6)	04/15/25 06:30	OP8883	S3Q1492
Run #2 [b]	3Q101495.D	1	04/16/25 13:06	(b) (6)	04/15/25 06:30	OP8883	S3Q1493

	Initial Volume	Final Volume
Run #1	280 ml	1.0 ml
Run #2	280 ml	1.0 ml

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
375-22-4	Perfluorobutanoic acid	0.0032		0.0036	0.0014	0.00054	ug/l	J
2706-90-3	Perfluoropentanoic acid	0.0085		0.0036	0.0014	0.00061	ug/l	
307-24-4	Perfluorohexanoic acid	0.0064		0.0018	0.0014	0.00054	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0032		0.0018	0.0014	0.00061	ug/l	
335-67-1	Perfluorooctanoic acid	0.0061		0.0018	0.0014	0.00054	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00057	ug/l	
2058-94-8	Perfluoroundecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00058	ug/l	
307-55-1	Perfluorododecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00054	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0045		0.0018	0.0014	0.00054	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	0.00073		0.0018	0.0014	0.00069	ug/l	J
355-46-4	Perfluorohexanesulfonic acid	0.0061		0.0018	0.0014	0.00054	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0104		0.0018	0.0014	0.00054	ug/l	
FLUOROTELOMER SULFONATES								
757124-72-4	4:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.00054	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.0010	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.00054	ug/l	
PER and POLYFLUOROETHER CARBOXYLIC and SULFONIC ACIDS								
377-73-1	PFMPA	0.0014 U		0.0036	0.0014	0.00057	ug/l	
863090-89-5	PFMBA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
151772-58-6	NFDHA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
113507-82-7	PFEESA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
13252-13-6	HFPO-DA (GenX)	0.0018 U		0.0036	0.0018	0.00089	ug/l	
919005-14-4	ADONA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0014 U		0.0036	0.0014	0.00054	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0014 U		0.0036	0.0014	0.00061	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 141) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018384-25098-N-R01		
Lab Sample ID:	FC23899-1	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water	**Date Received:**	04/12/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	74%	75%	50-200%
	13C5-PFPeA	75%	77%	50-200%
	13C5-PFHxA	71%	75%	50-200%
	13C4-PFHpA	73%	77%	50-200%
	13C8-PFOA	75%	79%	50-200%
	13C9-PFNA	70%	77%	50-200%
	13C6-PFDA	66%	70%	50-200%
	13C7-PFUnDA	39% [d]	42% [d]	50-200%
	13C2-PFDoDA	24% [d]	27% [d]	50-200%
	13C3-PFBS	76%	73%	50-200%
	13C3-PFHxS	76%	74%	50-200%
	13C8-PFOS	70%	68%	50-200%
	13C2-4:2FTS	68%	72%	50-200%
	13C2-6:2FTS	70%	74%	50-200%
	13C2-8:2FTS	55%	62%	50-200%
	13C3-HFPO-DA	68%	60%	50-200%

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Associated BS outside control limits high. Associated EIS outside control limits.
(d) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018384-25098-N-R01		
Lab Sample ID:	FC23899-1A	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water	**Date Received:**	04/12/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5Q31800.D	1	04/16/25 15:45	(b) (6)	04/15/25 06:30	OP8882	S5Q522
Run #2 [b]	5Q31772.D	1	04/15/25 19:05	(b) (6)	04/15/25 06:30	OP8882	S5Q521

	Initial Volume	Final Volume
Run #1	280 ml	1.0 ml
Run #2	280 ml	1.0 ml

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
307-24-4	Perfluorohexanoic acid	0.0046		0.0018	0.0014	0.00071	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0022		0.0018	0.0014	0.00071	ug/l	
335-67-1	Perfluorooctanoic acid	0.0039		0.0018	0.0014	0.00071	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
335-76-2	Perfluorodecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
2058-94-8	Perfluoroundecanoic acid [d]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
307-55-1	Perfluorododecanoic acid [d]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
72629-94-8	Perfluorotridecanoic acid [d]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
376-06-7	Perfluorotetradecanoic acid [d]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0037		0.0018	0.0014	0.00071	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0044		0.0018	0.0014	0.00071	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0060		0.0018	0.0014	0.00071	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS								
2355-31-9	MeFOSAA [d]	0.0018 U		0.0036	0.0018	0.00089	ug/l	
2991-50-6	EtFOSAA [e]	0.0018 U		0.0036	0.0018	0.00089	ug/l	
NEXT GENERATION PFAS ANALYTES								
13252-13-6	HFPO-DA (GenX)	0.0054 U		0.0071	0.0054	0.0027	ug/l	
919005-14-4	ADONA	0.0036 U		0.0071	0.0036	0.0018	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0036 U		0.0071	0.0036	0.0018	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Mino [d]	0.0036 U		0.0071	0.0036	0.0018	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	101%	106%	70-130%
	13C2-PFDA	82%	78%	70-130%
	d5-EtFOSAA	56% [f]	55% [f]	70-130%
	13C3-HFPO-DA	96%	101%	70-130%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value

MCL = Maximum Contamination Level (40 CFR 141) B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SHAFT-HW-0018384-25098-N-R01		
Lab Sample ID:	FC23899-1A	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water	**Date Received:**	04/12/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q

(a) Sample received outside the holding time. Insufficient sample for re-extraction.
(b) Sample received outside the holding time. Confirmation run.
(c) Associated ICV outside control limits high, however sample ND.
(d) Associated BS outside of control limits low.
(e) Associated EIS outside control limits. Associated BS outside of control limits low.
(f) Outside control limits.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 141) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

4.3.4

Client Sample ID:	SHAFT-FB-250411-25098-N		
Lab Sample ID:	FC23899-2	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water FB	**Date Received:**	04/12/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	3Q101475.D	1	04/15/25 18:37	(b) (6)	04/15/25 06:30	OP8883	S3Q1492
Run #2 [b]	3Q101523.D	1	04/17/25 11:39	(b) (6)	04/15/25 06:30	OP8883	S3Q1494

	Initial Volume	Final Volume
Run #1	280 ml	1.0 ml
Run #2	280 ml	1.0 ml

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
375-22-4	Perfluorobutanoic acid	0.0014 U		0.0036	0.0014	0.00054	ug/l	
2706-90-3	Perfluoropentanoic acid	0.0014 U		0.0036	0.0014	0.00061	ug/l	
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00061	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00057	ug/l	
2058-94-8	Perfluoroundecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00058	ug/l	
307-55-1	Perfluorododecanoic acid [d]	0.0014 U		0.0018	0.0014	0.00054	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	0.0014 U		0.0018	0.0014	0.00069	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
FLUOROTELOMER SULFONATES								
757124-72-4	4:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.00054	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.0010	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate [e]	0.0014 U		0.0036	0.0014	0.00054	ug/l	
PER and POLYFLUOROETHER CARBOXYLIC and SULFONIC ACIDS								
377-73-1	PFMPA	0.0014 U		0.0036	0.0014	0.00057	ug/l	
863090-89-5	PFMBA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
151772-58-6	NFDHA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
113507-82-7	PFEESA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
13252-13-6	HFPO-DA (GenX) [e]	0.0018 U		0.0036	0.0018	0.00089	ug/l	
919005-14-4	ADONA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0014 U		0.0036	0.0014	0.00054	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0014 U		0.0036	0.0014	0.00061	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 141) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SHAFT-FB-250411-25098-N		
Lab Sample ID:	FC23899-2	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water FB	**Date Received:**	04/12/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	69%	69%	50-200%
	13C5-PFPeA	69%	69%	50-200%
	13C5-PFHxA	64%	68%	50-200%
	13C4-PFHpA	65%	69%	50-200%
	13C8-PFOA	69%	72%	50-200%
	13C9-PFNA	62%	69%	50-200%
	13C6-PFDA	59%	67%	50-200%
	13C7-PFUnDA	40% f	43% f	50-200%
	13C2-PFDoDA	27% f	30% f	50-200%
	13C3-PFBS	70%	67%	50-200%
	13C3-PFHxS	68%	68%	50-200%
	13C8-PFOS	64%	65%	50-200%
	13C2-4:2FTS	61%	65%	50-200%
	13C2-6:2FTS	70%	73%	50-200%
	13C2-8:2FTS	53%	59%	50-200%
	13C3-HFPO-DA	61%	62%	50-200%

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Associated BS outside control limits high. Associated EIS outside control limits.
(d) Associated EIS outside control limits. Associated BS outside control limits high.
(e) Associated BS outside control limits high.
(f) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-FB-250411-25098-N		
Lab Sample ID:	FC23899-2A	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water FB	**Date Received:**	04/12/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5Q31774.D	1	04/15/25 19:37	(b) (6)	04/15/25 06:30	OP8882	S5Q521
Run #2 [b]	5Q31802.D	1	04/16/25 16:17	(b) (6)	04/15/25 06:30	OP8882	S5Q522

	Initial Volume	Final Volume
Run #1	280 ml	1.0 ml
Run #2	280 ml	1.0 ml

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
2058-94-8	Perfluoroundecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
307-55-1	Perfluorododecanoic acid [d]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
72629-94-8	Perfluorotridecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
376-06-7	Perfluorotetradecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS								
2355-31-9	MeFOSAA [c]	0.0018 U		0.0036	0.0018	0.00089	ug/l	
2991-50-6	EtFOSAA [c]	0.0018 U		0.0036	0.0018	0.00089	ug/l	
NEXT GENERATION PFAS ANALYTES								
13252-13-6	HFPO-DA (GenX)	0.0054 U		0.0071	0.0054	0.0027	ug/l	
919005-14-4	ADONA	0.0036 U		0.0071	0.0036	0.0018	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major) [c]	0.0036 U		0.0071	0.0036	0.0018	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Mino [c]	0.0036 U		0.0071	0.0036	0.0018	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	102%	101%	70-130%
	13C2-PFDA	85%	85%	70-130%
	d5-EtFOSAA	72%	66% [e]	70-130%
	13C3-HFPO-DA	97%	96%	70-130%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 141) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SHAFT-FB-250411-25098-N		
Lab Sample ID:	FC23899-2A	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water FB	**Date Received:**	04/12/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q

(a) Sample received outside the holding time. Insufficient sample for re-extraction.
(b) Sample received outside the holding time. Confirmation run.
(c) Associated BS outside of control limits low.
(d) Associated BS outside of control limits low. Associated ICV outside control limits high.
(e) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

4.5
4

Client Sample ID:	SHAFT-HW-0018393-25098-N-R01		
Lab Sample ID:	FC23899-3	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water	**Date Received:**	04/12/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	3Q101476.D	1	04/15/25 18:53	(b) (6)	04/15/25 06:30	OP8883	S3Q1492
Run #2	3Q101497.D	1	04/16/25 13:38	(b) (6)	04/15/25 06:30	OP8883	S3Q1493

	Initial Volume	Final Volume
Run #1	280 ml	1.0 ml
Run #2	280 ml	1.0 ml

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
375-22-4	Perfluorobutanoic acid	0.0014 U		0.0036	0.0014	0.00054	ug/l	
2706-90-3	Perfluoropentanoic acid	0.0014 U		0.0036	0.0014	0.00061	ug/l	
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00061	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00057	ug/l	
2058-94-8	Perfluoroundecanoic acid [b]	0.0014 U		0.0018	0.0014	0.00058	ug/l	
307-55-1	Perfluorododecanoic acid [b]	0.0014 U		0.0018	0.0014	0.00054	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	0.0014 U		0.0018	0.0014	0.00069	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
FLUOROTELOMER SULFONATES								
757124-72-4	4:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.00054	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.0010	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate [c]	0.0014 U		0.0036	0.0014	0.00054	ug/l	
PER and POLYFLUOROETHER CARBOXYLIC and SULFONIC ACIDS								
377-73-1	PFMPA	0.0014 U		0.0036	0.0014	0.00057	ug/l	
863090-89-5	PFMBA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
151772-58-6	NFDHA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
113507-82-7	PFEESA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
13252-13-6	HFPO-DA (GenX) [c]	0.0018 U		0.0036	0.0018	0.00089	ug/l	
919005-14-4	ADONA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0014 U		0.0036	0.0014	0.00054	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0014 U		0.0036	0.0014	0.00061	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 141) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SHAFT-HW-0018393-25098-N-R01		
Lab Sample ID:	FC23899-3	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water	**Date Received:**	04/12/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	82%	82%	50-200%
	13C5-PFPeA	84%	84%	50-200%
	13C5-PFHxA	81%	84%	50-200%
	13C4-PFHpA	81%	85%	50-200%
	13C8-PFOA	83%	87%	50-200%
	13C9-PFNA	79%	87%	50-200%
	13C6-PFDA	75%	85%	50-200%
	13C7-PFUnDA	49% d	50%	50-200%
	13C2-PFDoDA	33% d	34% d	50-200%
	13C3-PFBS	82%	83%	50-200%
	13C3-PFHxS	84%	83%	50-200%
	13C8-PFOS	79%	78%	50-200%
	13C2-4:2FTS	82%	88%	50-200%
	13C2-6:2FTS	77%	83%	50-200%
	13C2-8:2FTS	62%	72%	50-200%
	13C3-HFPO-DA	73%	71%	50-200%

(a) Insufficient sample for re-extraction.
(b) Associated BS outside control limits high. Associated EIS outside control limits.
(c) Associated BS outside control limits high.
(d) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018393-25098-N-R01		
Lab Sample ID:	FC23899-3A	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water	**Date Received:**	04/12/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5Q31775.D	1	04/15/25 19:53	(b) (6)	04/15/25 06:30	OP8882	S5Q521
Run #2 [b]	5Q31803.D	1	04/16/25 16:33	(b) (6)	04/15/25 06:30	OP8882	S5Q522

	Initial Volume	Final Volume
Run #1	280 ml	1.0 ml
Run #2	280 ml	1.0 ml

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
2058-94-8	Perfluoroundecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
307-55-1	Perfluorododecanoic acid [d]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
72629-94-8	Perfluorotridecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
376-06-7	Perfluorotetradecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS								
2355-31-9	MeFOSAA [c]	0.0018 U		0.0036	0.0018	0.00089	ug/l	
2991-50-6	EtFOSAA [c]	0.0018 U		0.0036	0.0018	0.00089	ug/l	
NEXT GENERATION PFAS ANALYTES								
13252-13-6	HFPO-DA (GenX)	0.0054 U		0.0071	0.0054	0.0027	ug/l	
919005-14-4	ADONA	0.0036 U		0.0071	0.0036	0.0018	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major) [c]	0.0036 U		0.0071	0.0036	0.0018	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Mino [c]	0.0036 U		0.0071	0.0036	0.0018	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	87%	84%	70-130%
	13C2-PFDA	80%	80%	70-130%
	d5-EtFOSAA	73%	69% [e]	70-130%
	13C3-HFPO-DA	84%	81%	70-130%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SHAFT-HW-0018393-25098-N-R01		
Lab Sample ID:	FC23899-3A	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water	**Date Received:**	04/12/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

4.6
4

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q

(a) Sample received outside the holding time. Insufficient sample for re-extraction.
(b) Sample received outside the holding time. Confirmation run.
(c) Associated BS outside of control limits low.
(d) Associated BS outside of control limits low. Associated ICV outside control limits high.
(e) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018394-25098-N-R01		
Lab Sample ID:	FC23899-4	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water	**Date Received:**	04/12/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3Q101532.D	1	04/17/25 14:04	(b) (6)	04/16/25 09:45	OP8907	S3Q1494
Run #2 [a]	3Q101478.D	1	04/15/25 19:25	(b) (6)	04/15/25 06:30	OP8883	S3Q1492

	Initial Volume	Final Volume
Run #1	285 ml	1.0 ml
Run #2	280 ml	1.0 ml

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
375-22-4	Perfluorobutanoic acid	0.0014 U		0.0035	0.0014	0.00053	ug/l	
2706-90-3	Perfluoropentanoic acid	0.0014 U		0.0035	0.0014	0.00060	ug/l	
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00060	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00056	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0014 U		0.0018	0.0014	0.00057	ug/l	
307-55-1	Perfluorododecanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	0.0014 U		0.0018	0.0014	0.00067	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
FLUOROTELOMER SULFONATES								
757124-72-4	4:2 Fluorotelomer sulfonate	0.0014 U		0.0035	0.0014	0.00053	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0014 U		0.0035	0.0014	0.00098	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0014 U		0.0035	0.0014	0.00053	ug/l	
PER and POLYFLUOROETHER CARBOXYLIC and SULFONIC ACIDS								
377-73-1	PFMPA	0.0014 U		0.0035	0.0014	0.00056	ug/l	
863090-89-5	PFMBA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
151772-58-6	NFDHA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
113507-82-7	PFEESA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
13252-13-6	HFPO-DA (GenX)	0.0018 U		0.0035	0.0018	0.00088	ug/l	
919005-14-4	ADONA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0014 U		0.0035	0.0014	0.00053	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0014 U		0.0035	0.0014	0.00060	ug/l	

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018394-25098-N-R01		
Lab Sample ID:	FC23899-4	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water	**Date Received:**	04/12/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	75%	79%	50-200%
	13C5-PFPeA	77%	80%	50-200%
	13C5-PFHxA	75%	76%	50-200%
	13C4-PFHpA	77%	77%	50-200%
	13C8-PFOA	78%	79%	50-200%
	13C9-PFNA	79%	74%	50-200%
	13C6-PFDA	80%	70%	50-200%
	13C7-PFUnDA	62%	51%	50-200%
	13C2-PFDoDA	53%	34% b	50-200%
	13C3-PFBS	73%	79%	50-200%
	13C3-PFHxS	75%	79%	50-200%
	13C8-PFOS	73%	72%	50-200%
	13C2-4:2FTS	71%	71%	50-200%
	13C2-6:2FTS	74%	73%	50-200%
	13C2-8:2FTS	72%	57%	50-200%
	13C3-HFPO-DA	58%	70%	50-200%

(a) Confirmation run.
(b) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018394-25098-N-R01		
Lab Sample ID:	FC23899-4A	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water	**Date Received:**	04/12/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5Q31777.D	1	04/15/25 20:25	[redacted]	04/15/25 06:30	OP8882	S5Q521
Run #2 [a]	5Q31841.D	1	04/17/25 18:24	[redacted]	04/16/25 08:30	OP8904	S5Q523

	Initial Volume	Final Volume
Run #1	280 ml	1.0 ml
Run #2	280 ml	1.0 ml

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
2058-94-8	Perfluoroundecanoic acid [b]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
307-55-1	Perfluorododecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
72629-94-8	Perfluorotridecanoic acid [b]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
376-06-7	Perfluorotetradecanoic acid [b]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS								
2355-31-9	MeFOSAA [b]	0.0018 U		0.0036	0.0018	0.00089	ug/l	
2991-50-6	EtFOSAA [b]	0.0018 U		0.0036	0.0018	0.00089	ug/l	
NEXT GENERATION PFAS ANALYTES								
13252-13-6	HFPO-DA (GenX)	0.0054 U		0.0071	0.0054	0.0027	ug/l	
919005-14-4	ADONA	0.0036 U		0.0071	0.0036	0.0018	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major) [b]	0.0036 U		0.0071	0.0036	0.0018	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Mino [b]	0.0036 U		0.0071	0.0036	0.0018	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	102%	139% [d]	70-130%
	13C2-PFDA	80%	127%	70-130%
	d5-EtFOSAA	66% [d]	145% [d]	70-130%
	13C3-HFPO-DA	98%	130%	70-130%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 141) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SHAFT-HW-0018394-25098-N-R01		
Lab Sample ID:	FC23899-4A	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water	**Date Received:**	04/12/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q

(a) Confirmation run.
(b) Associated BS outside of control limits low.
(c) Associated BS outside of control limits low. Associated ICV outside control limits high.
(d) Outside control limits.

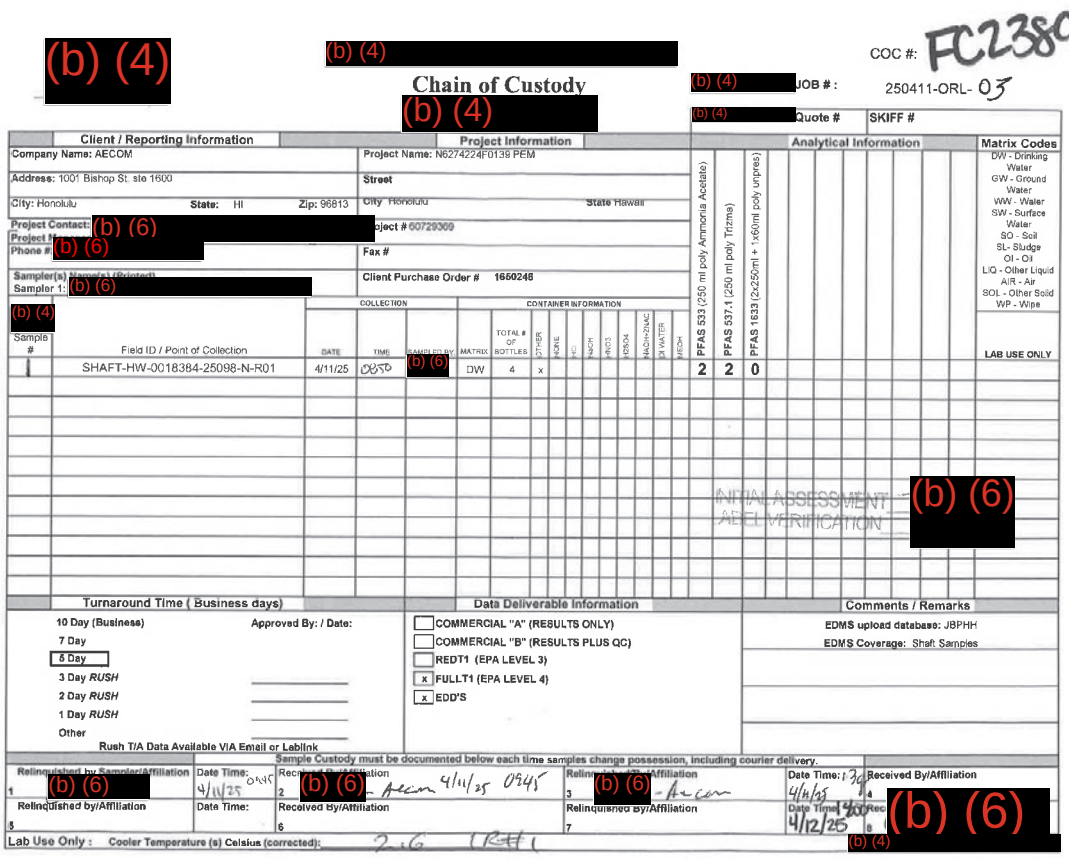
U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5.x Limits



[redacted] (b) (4)

[redacted] (b) (4)

COC #: FC23899

Chain of Custody

[redacted] (b) (4)

[redacted] (b) (4) JOB # : 250411-ORL- 03

[redacted] (b) (4) Quote # SKIFF #

Client / Reporting Information	Project Information
Company Name: AECOM	Project Name: N6274224F0139 PEM
Address: 1001 Bishop St. ste 1600	Street
City: Honolulu State: HI Zip: 96813	City Honolulu State Hawaii
Project Contact: [redacted] (b) (6)	Project # 60729369
Project N[redacted] (b) (6)	
Phone # [redacted]	Fax #
Sampler(s) Name(s) (Printed) Sampler 1: [redacted] (b) (6)	Client Purchase Order # 1650246

[redacted] (b) (4)

Sample #	Field ID / Point of Collection	COLLECTION DATE	TIME	SAMPLED BY	CONTAINER INFORMATION MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZnAc	DI WATER	MEOH	PFAS 533 (250 ml poly Ammonia Acetate)	PFAS 537.1 (250 ml poly Trizma)	PFAS 1633 (2x250ml + 1x60ml poly unpres)	Matrix Codes: DW - Drinking Water, GW - Ground Water, WW - Water, SW - Surface Water, SO - Soil, SL- Sludge, OI - Oil, LIQ - Other Liquid, AIR - Air, SOL - Other Solid, WP - Wipe	LAB USE ONLY
1	SHAFT-HW-0018384-25098-N-R01	4/11/25	0850	[redacted] (b) (6)	DW	4	x									2	2	0		

INITIAL ASSESSMENT [redacted] (b) (6)
ADEL VERIFICATION

Turnaround Time (Business days)	Data Deliverable Information	Comments / Remarks
10 Day (Business) Approved By: / Date:	COMMERCIAL "A" (RESULTS ONLY)	EDMS upload database: JBPHH
7 Day	COMMERCIAL "B" (RESULTS PLUS QC)	EDMS Coverage: Shaft Samples
5 Day	REDT1 (EPA LEVEL 3)	
3 Day *RUSH*	x FULLT1 (EPA LEVEL 4)	
2 Day *RUSH*	x EDD'S	
1 Day *RUSH*		
Other		
Rush T/A Data Available VIA Email or Lablink		

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1 [redacted] (b) (6)	4/11/25 0945	2 [redacted] (b) (6) - Aecom 4/11/25 0945	3 [redacted] (b) (6) - Aecom	4/11/25 1390	4
Relinquished by/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Rec[redacted] (b) (6)
5		6	7	4/12/25 1400	8

Lab Use Only : Cooler Temperature (s) Celsius (corrected): 2.6 IR#1 [redacted] (b) (4)

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5.1

5

FC23899: Chain of Custody
Page 1 of 5

COC #: FC23899

Chain of Custody

JOB #: 250411-ORL- 04

Quote # | SKIFF #

Client / Reporting Information	Project Information
Company Name: AECOM	Project Name: N6274224F0139 PEM
Address: 1001 Bishop St. ste 1600	Street
City: Honolulu State: HI Zip: 96813	City Honolulu State Hawaii
Project Contact: (b) (6)	Project # 60729369
Phone #: (b) (6)	Fax #
Sampler(s): Sampler 1: (b) (6)	Client Purchase Order # 1650246

Analytical Information: PFAS 533 (250 ml poly Ammonia Acetate); PFAS 537.1 (250 ml poly Trizma); PFAS 1633 (2x250ml + 1x60ml poly unpres)

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe

Sample #	Field ID / Point of Collection	COLLECTION DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZnAc	DI WATER	MEOH	PFAS 533	PFAS 537.1	PFAS 1633	LAB USE ONLY
2	SHAFT-FB-250411-25098-N	4/11/25	0935	(b) (6)	DW	2	x									1	1	0	

Turnaround Time (Business days)

10 Day (Business) — Approved By: / Date:
7 Day
5 Day
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH*
Other

Rush T/A Data Available VIA Email or LabLink

Data Deliverable Information

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [x] FULLT1 (EPA LEVEL 4)
- [x] EDD'S

Comments / Remarks

EDMS upload database: JBPHH
EDMS Coverage: Shaft Samples

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1	(b) (6)	4/11/25 0945	2 (b) (6) - Aecom 4/11/25 0945	3 (b) (6) 4/4/25 Aecom	4/4/25 2345	4 (b) (6)
5	Relinquished by/Affiliation	Date Time:	6	7	Date Time: 4/12/25	8 (b) (4)

Lab Use Only : Cooler Temperature (s) Celsius (corrected):

EDWM_COCsandLabels_250411.xlsx Rev 031318

5.1 5

FC23899: Chain of Custody
Page 2 of 5

COC #: FC23899

(b) (4)

(b) (4)

Chain of Custody

(b) (4) JOB #: 250411-ORL-DL

(b) (4)

(b) (4) Quote # SKIFF #

Client / Reporting Information	Project Information
Company Name: AECOM	Project Name: N6274224F0139 PEM
Address: 1001 Bishop St. ste 1600	Street
City: Honolulu State: HI Zip: 96813	City Honolulu State Hawaii
Project Contact: (b) (6)	Project # 60729369
Phone #: (b) (6)	Fax #
Sampler(s) Name(s) (Printed) Sampler 1: (b) (6)	Client Purchase Order # 1650246

(b) (4) Sample #	Field ID / Point of Collection	COLLECTION DATE	COLLECTION TIME	SAMPLED BY	CONTAINER INFORMATION MATRIX	TOTAL # OF BOTTLES	OTHER	HCl	PFAS 533 (250 ml poly Ammonia Acetate)	PFAS 537.1 (250 ml poly Trizma)	PFAS 1633 (2x250ml + 1x60ml poly unpres)	Matrix Codes	LAB USE ONLY
3	SHAFT-HW-0018393-25098-N-R01	4/11/25	1134	(b) (6)	DW	4	x		2	2	0	DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL - Sludge; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe	

Turnaround Time (Business days)

10 Day (Business) Approved By: / Date:
7 Day
[6 Day]
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH*
Other
Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

[ ] COMMERCIAL "A" (RESULTS ONLY)
[ ] COMMERCIAL "B" (RESULTS PLUS QC)
[ ] REDT1 (EPA LEVEL 3)
[x] FULLT1 (EPA LEVEL 4)
[x] EDD'S

Comments / Remarks

EDMS upload database: JBPHH
EDMS Coverage: Shaft Samples

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1	(b) (6)	4/11/25 1225	
2			(b) (6)
3	Relinquished By/Affiliation (b) (6)	Date Time: 4/11/25 1358	Received By/Affiliation
4			
5	Relinquished by/Affiliation	Date Time:	Received By/Affiliation
6			
7	Relinquished By/Affiliation	Date Time: 4/12/25 1400	Received By/Affiliation (b) (6)
8			(b) (4)

Lab Use Only : Cooler Temperature (s) Celsius (corrected):

EDWM_COCsandLabels_250411.xlsx Rev 031316

(b) (4) (b) (4)

COC #: FC23899

Chain of Custody

(b) (4) (b) (4) # : 250411-ORL- 05

(b) (4) Quote # SKIFF #

Client / Reporting Information	Project Information	Analytical Information	Matrix Codes
Company Name: AECOM	Project Name: N6274224F0139 PEM	PFAS 533 (250 ml poly Ammonia Acetate)	DW - Drinking Water
Address: 1001 Bishop St, ste 1600	Street	PFAS 537.1 (250 ml poly Trizma)	GW - Ground Water
City: Honolulu State: HI Zip: 96813	City Honolulu State Hawaii	PFAS 1633 (2x250ml + 1x60ml poly unpres)	WW - Water
Project Contact: (b) (6)	Project # 60729369		SW - Surface Water
Phone # (b) (6)	Fax #		SO - Soil
Sampler(s) Name(s) (Printed)	Client Purchase Order # 1660246		SL - Sludge
Sampler 1: (b) (6)			OI - Oil
			LIQ - Other Liquid
			AIR - Air
			SOL - Other Solid
			WP - Wipe

(b) (4) Sample #	Field ID / Point of Collection	COLLECTION DATE	COLLECTION TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	CONTAINER INFORMATION: OTHER	NONE	HCl	H2SO4	HNO3	NaOH	NaOH+ZnAc	DI WATER	MEOH	PFAS 533	PFAS 537.1	PFAS 1633	LAB USE ONLY
4	SHAFT-HW-0018394-25098-N-R01	4/11/25	1135	(b) (6)	DW	4	x									2	2	0	

Turnaround Time (Business days)	Data Deliverable Information	Comments / Remarks
10 Day (Business) Approved By: / Date:	[ ] COMMERCIAL "A" (RESULTS ONLY)	EDMS upload database: JBPHH
7 Day	[ ] COMMERCIAL "B" (RESULTS PLUS QC)	EDMS Coverage: Shaft Samples
[5 Day]	[ ] REDT1 (EPA LEVEL 3)	
3 Day *RUSH*	[x] FULLT1 (EPA LEVEL 4)	
2 Day *RUSH*	[x] EDD'S	
1 Day *RUSH*		
Other		
Rush T/A Data Available VIA Email or Leblink		

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1	(b) (6)	4/11/25 1225	2 (b) (6)	3 (b) (6)	4/11/25 1308	4
5	Relinquished by/Affiliation	Date Time:	6 Received By/Affiliation	7 Relinquished By/Affiliation	Date Time: 4/12/25 0900	8 (b) (6) (b) (4)

Lab Use Only : Cooler Temperature (s) Celsius (corrected):

EDWM_COCsandLabels_250411.xlsx Rev 031318

FC23899: Chain of Custody
Page 4 of 5

(b) (4) Sample Receipt Summary

Job Number: fc23899 **Client:** AECOM **Project:** N6274224F0139 Extended Drinking Water

Date / Time Received: 4/12/2025 2:00:00 PM **Delivery Method:** United Cargo/Airspace **Airbill #'s:** United Cargo AWB #: 016-71334406

Cooler Temps (Raw Measured) °C: Cooler 1: (2.6);

Cooler Temps (Corrected) °C: Cooler 1: (3.0);

Cooler Informatio	Y	or	N
1. Custody Seals Present:	☑		☐
2. Custody Seals Intact:	☑		☐
3. Temp criteria achieved:	☑		☐
4. Cooler temp verification:	IR Gun		
5. Cooler media:	Ice (Bag)		

Trip Blank Information	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑

	W	or	S	N/A
3. Type of TB Received	☐		☐	☑

Sample Information	Y	or	N	N/A
1. Sample labels present on bottles:	☑		☐	
2. Samples presented properly	☑		☐	
3. Sufficient volume/containers recv'd for analysi	☑		☐	
4. Condition of sample:	Intact			
5. Sample recv'd within HT	☑		☐	
6. Dates/Times/IDs on COC match sample labe	☑		☐	
7. VOCs have headspace	☐		☐	☑
8. Bottles received for unspecified tests	☐		☑	
9. Compositing instructions clear	☐		☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☑
11. % Solids Jar Received?	☐		☐	☑
12. Residual Chlorine Present?	☐		☐	☑

Misc Information

Number of Encores: 25 Gram 5 Gram

Test Strip Lot #s: pH 0-3: 226422 pH 10-12: Number of Lab Filtered Metals

Residual Chlorine Test Strip Lot Other: (Specify) 0-14 210224

Comments

Sample Receipt Summary 112723 EK Technician: (b) (6) Date: 4/12/2025 3:20:39 PM Reviewer: (b) (6) Date: 04/12/25

QC Evaluation: DOD QSM5.x Limits

Job Number: FC23899
Account: AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Collected: 04/11/25

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits

No DOD QSM5.x Limits found for methods in this job.

* Sample used for QC is not from job FC23899

MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Instrument Blank

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q1492-IBLK	3Q101466.D	1	04/15/25	(b) (6)	n/a	n/a	S3Q1492

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2, FC23899-4

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.00060	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.00068	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00060	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00068	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00060	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00060	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00064	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00065	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00060	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.00077	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00060	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.00060	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00060	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0040	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
377-73-1	PFMPA	ND	0.0040	0.00064	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.00060	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.00060	ug/l	
113507-82-7	PFEESA	ND	0.0040	0.00060	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0040	0.00060	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0040	0.00060	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0040	0.00068	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	102%	50-200%
	13C5-PFPeA	103%	50-200%
	13C5-PFHxA	99%	50-200%
	13C4-PFHpA	100%	50-200%
	13C8-PFOA	102%	50-200%
	13C9-PFNA	101%	50-200%
	13C6-PFDA	102%	50-200%

Instrument Blank

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q1492-IBLK	3Q101466.D	1	04/15/25	(b) (6)	n/a	n/a	S3Q1492

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2, FC23899-4

CAS No.	ID Standard Recoveries		Limits
	13C7-PFUnDA	97%	50-200%
	13C2-PFDoDA	99%	50-200%
	13C3-PFBS	99%	50-200%
	13C3-PFHxS	101%	50-200%
	13C8-PFOS	100%	50-200%
	13C2-4:2FTS	93%	50-200%
	13C2-6:2FTS	93%	50-200%
	13C2-8:2FTS	93%	50-200%
	13C3-HFPO-DA	84%	50-200%

Instrument Blank

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q1494-IBLK	3Q101518.D	1	04/17/25	(b) (6)	n/a	n/a	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-4

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.00060	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.00068	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00060	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00068	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00060	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00060	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00064	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00065	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00060	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.00077	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00060	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.00060	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00060	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0040	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
377-73-1	PFMPA	ND	0.0040	0.00064	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.00060	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.00060	ug/l	
113507-82-7	PFEESA	ND	0.0040	0.00060	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0040	0.00060	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0040	0.00060	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0040	0.00068	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	103%	50-200%
	13C5-PFPeA	104%	50-200%
	13C5-PFHxA	106%	50-200%
	13C4-PFHpA	106%	50-200%
	13C8-PFOA	109%	50-200%
	13C9-PFNA	111%	50-200%
	13C6-PFDA	116%	50-200%

Instrument Blank

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q1494-IBLK	3Q101518.D	1	04/17/25	(b) (6)	n/a	n/a	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-4

CAS No.	ID Standard Recoveries		Limits
	13C7-PFUnDA	99%	50-200%
	13C2-PFDoDA	108%	50-200%
	13C3-PFBS	98%	50-200%
	13C3-PFHxS	99%	50-200%
	13C8-PFOS	99%	50-200%
	13C2-4:2FTS	97%	50-200%
	13C2-6:2FTS	101%	50-200%
	13C2-8:2FTS	105%	50-200%
	13C3-HFPO-DA	76%	50-200%

Method Blank Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8883-MB	3Q101471.D	1	04/15/25	(b) (6)	04/15/25	OP8883	S3Q1492

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.00060	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.00068	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00060	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00068	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00060	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00060	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00064	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00065	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00060	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.00077	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00060	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.00060	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00060	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0040	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
377-73-1	PFMPA	ND	0.0040	0.00064	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.00060	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.00060	ug/l	
113507-82-7	PFEESA	ND	0.0040	0.00060	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0040	0.00060	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0040	0.00060	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0040	0.00068	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	87%	50-200%
	13C5-PFPeA	88%	50-200%
	13C5-PFHxA	85%	50-200%
	13C4-PFHpA	87%	50-200%
	13C8-PFOA	88%	50-200%
	13C9-PFNA	84%	50-200%
	13C6-PFDA	75%	50-200%

Method Blank Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8883-MB	3Q101471.D	1	04/15/25	(b) (6)	04/15/25	OP8883	S3Q1492

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2

CAS No.	ID Standard Recoveries		Limits
	13C7-PFUnDA	45%* [a]	50-200%
	13C2-PFDoDA	34%* [a]	50-200%
	13C3-PFBS	89%	50-200%
	13C3-PFHxS	90%	50-200%
	13C8-PFOS	82%	50-200%
	13C2-4:2FTS	80%	50-200%
	13C2-6:2FTS	82%	50-200%
	13C2-8:2FTS	61%	50-200%
	13C3-HFPO-DA	76%	50-200%

(a) Outside control limits.

Method Blank Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8883-MB	3Q101494.D	1	04/16/25	(b) (6)	04/15/25	OP8883	S3Q1493

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.00060	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.00068	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00060	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00068	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00060	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00060	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00064	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00065	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00060	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.00077	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00060	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.00060	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00060	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0040	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
377-73-1	PFMPA	ND	0.0040	0.00064	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.00060	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.00060	ug/l	
113507-82-7	PFEESA	ND	0.0040	0.00060	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0040	0.00060	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0040	0.00060	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0040	0.00068	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	86%	50-200%
	13C5-PFPeA	88%	50-200%
	13C5-PFHxA	88%	50-200%
	13C4-PFHpA	91%	50-200%
	13C8-PFOA	92%	50-200%
	13C9-PFNA	91%	50-200%
	13C6-PFDA	78%	50-200%

Method Blank Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8883-MB	3Q101494.D	1	04/16/25	(b) (6)	04/15/25	OP8883	S3Q1493

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2

CAS No.	ID Standard Recoveries		Limits
	13C7-PFUnDA	47%* [a]	50-200%
	13C2-PFDoDA	36%* [a]	50-200%
	13C3-PFBS	87%	50-200%
	13C3-PFHxS	86%	50-200%
	13C8-PFOS	79%	50-200%
	13C2-4:2FTS	84%	50-200%
	13C2-6:2FTS	85%	50-200%
	13C2-8:2FTS	68%	50-200%
	13C3-HFPO-DA	73%	50-200%

(a) Outside control limits.

Method Blank Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-MB	3Q101525.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-4

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.00060	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.00068	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00060	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00068	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00060	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00060	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00064	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00065	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00060	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.00077	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00060	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.00060	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00060	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0040	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
377-73-1	PFMPA	ND	0.0040	0.00064	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.00060	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.00060	ug/l	
113507-82-7	PFEESA	ND	0.0040	0.00060	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0040	0.00060	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0040	0.00060	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0040	0.00068	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	78%	50-200%
	13C5-PFPeA	78%	50-200%
	13C5-PFHxA	78%	50-200%
	13C4-PFHpA	80%	50-200%
	13C8-PFOA	82%	50-200%
	13C9-PFNA	82%	50-200%
	13C6-PFDA	83%	50-200%

Method Blank Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-MB	3Q101525.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-4

CAS No.	ID Standard Recoveries		Limits
	13C7-PFUnDA	78%	50-200%
	13C2-PFDoDA	69%	50-200%
	13C3-PFBS	76%	50-200%
	13C3-PFHxS	76%	50-200%
	13C8-PFOS	76%	50-200%
	13C2-4:2FTS	74%	50-200%
	13C2-6:2FTS	76%	50-200%
	13C2-8:2FTS	73%	50-200%
	13C3-HFPO-DA	66%	50-200%

Instrument Blank

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q1493-IBLK	3Q101488.D	1	04/16/25	(b) (6)	n/a	n/a	S3Q1493

The QC reported here applies to the following samples: **Method:** EPA 533

OP8883-BS

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.00060	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.00068	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00060	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00068	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00060	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00060	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00064	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00065	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00060	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.00077	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00060	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.00060	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00060	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0040	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
377-73-1	PFMPA	ND	0.0040	0.00064	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.00060	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.00060	ug/l	
113507-82-7	PFEESA	ND	0.0040	0.00060	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0040	0.00060	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0040	0.00060	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0040	0.00068	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	103%	50-200%
	13C5-PFPeA	105%	50-200%
	13C5-PFHxA	106%	50-200%
	13C4-PFHpA	106%	50-200%
	13C8-PFOA	108%	50-200%
	13C9-PFNA	111%	50-200%
	13C6-PFDA	115%	50-200%

Instrument Blank

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q1493-IBLK	3Q101488.D	1	04/16/25	(b) (6)	n/a	n/a	S3Q1493

The QC reported here applies to the following samples: **Method:** EPA 533

OP8883-BS

CAS No.	ID Standard Recoveries		Limits
	13C7-PFUnDA	101%	50-200%
	13C2-PFDoDA	109%	50-200%
	13C3-PFBS	101%	50-200%
	13C3-PFHxS	100%	50-200%
	13C8-PFOS	100%	50-200%
	13C2-4:2FTS	99%	50-200%
	13C2-6:2FTS	102%	50-200%
	13C2-8:2FTS	107%	50-200%
	13C3-HFPO-DA	81%	50-200%

Method Blank Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8882-MB	5Q31771.D	1	04/15/25	(b)(6)	04/15/25	OP8882	S5Q521

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23899-1A, FC23899-2A, FC23899-3A, FC23899-4A

CAS No.	Compound	Result	RL	MDL	Units	Q
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00080	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00080	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00080	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00080	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00080	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00080	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00080	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0020	0.00080	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0020	0.00080	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00080	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00080	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00080	ug/l	
2355-31-9	MeFOSAA	ND	0.0040	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0040	0.0010	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0080	0.0030	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

CAS No.	Surrogate Recoveries		Limits
	13C2-PFHxA	104%	70-130%
	13C2-PFDA	79%	70-130%
	d5-EtFOSAA	53%* [a]	70-130%
	13C3-HFPO-DA	97%	70-130%

(a) Outside control limits.

Method Blank Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8882-MB	5Q31799.D	1	04/16/25	(b) (6)	04/15/25	OP8882	S5Q522

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23899-1A, FC23899-2A, FC23899-3A, FC23899-4A

CAS No.	Compound	Result	RL	MDL	Units	Q
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00080	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00080	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00080	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00080	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00080	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00080	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00080	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0020	0.00080	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0020	0.00080	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00080	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00080	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00080	ug/l	
2355-31-9	MeFOSAA	ND	0.0040	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0040	0.0010	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0080	0.0030	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

CAS No.	Surrogate Recoveries		Limits
	13C2-PFHxA	102%	70-130%
	13C2-PFDA	77%	70-130%
	d5-EtFOSAA	54%* [a]	70-130%
	13C3-HFPO-DA	96%	70-130%

(a) Outside control limits.

Blank Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-BS	3Q101524.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.004	0.0044	110	50-150
2706-90-3	Perfluoropentanoic acid	0.004	0.0043	108	50-150
307-24-4	Perfluorohexanoic acid	0.004	0.0041	103	50-150
375-85-9	Perfluoroheptanoic acid	0.004	0.0040	100	50-150
335-67-1	Perfluorooctanoic acid	0.004	0.0042	105	50-150
375-95-1	Perfluorononanoic acid	0.004	0.0042	105	50-150
335-76-2	Perfluorodecanoic acid	0.004	0.0042	105	50-150
2058-94-8	Perfluoroundecanoic acid	0.004	0.0043	108	50-150
307-55-1	Perfluorododecanoic acid	0.004	0.0043	108	50-150
375-73-5	Perfluorobutanesulfonic acid	0.004	0.0042	105	50-150
2706-91-4	Perfluoropentanesulfonic acid	0.004	0.0043	108	50-150
355-46-4	Perfluorohexanesulfonic acid	0.004	0.0045	113	50-150
375-92-8	Perfluoroheptanesulfonic acid	0.004	0.0046	115	50-150
1763-23-1	Perfluorooctanesulfonic acid	0.004	0.0043	108	50-150
757124-72-4	4:2 Fluorotelomer sulfonate	0.004	0.0040	100	50-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.004	0.0045	113	50-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.004	0.0052	130	50-150
377-73-1	PFMPA	0.004	0.0044	110	50-150
863090-89-5	PFMBA	0.004	0.0042	105	50-150
151772-58-6	NFDHA	0.004	0.0045	113	50-150
113507-82-7	PFEESA	0.004	0.0043	108	50-150
13252-13-6	HFPO-DA (GenX)	0.004	0.0045	113	50-150
919005-14-4	ADONA	0.004	0.0040	100	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.004	0.0040	100	50-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.004	0.0036	90	50-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	80%	50-200%
	13C5-PFPeA	81%	50-200%
	13C5-PFHxA	82%	50-200%
	13C4-PFHpA	84%	50-200%
	13C8-PFOA	85%	50-200%
	13C9-PFNA	86%	50-200%
	13C6-PFDA	93%	50-200%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-BS	3Q101524.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-4

CAS No.	ID Standard Recoveries	BSP	Limits
	13C7-PFUnDA	77%	50-200%
	13C2-PFDoDA	70%	50-200%
	13C3-PFBS	80%	50-200%
	13C3-PFHxS	81%	50-200%
	13C8-PFOS	81%	50-200%
	13C2-4:2FTS	79%	50-200%
	13C2-6:2FTS	80%	50-200%
	13C2-8:2FTS	78%	50-200%
	13C3-HFPO-DA	69%	50-200%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8883-BS	3Q101472.D	1	04/15/25	(b) (6)	04/15/25	OP8883	S3Q1492

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.08	0.104	130	70-130
2706-90-3	Perfluoropentanoic acid	0.08	0.102	128	70-130
307-24-4	Perfluorohexanoic acid	0.08	0.102	128	70-130
375-85-9	Perfluoroheptanoic acid	0.08	0.101	126	70-130
335-67-1	Perfluorooctanoic acid	0.08	0.103	129	70-130
375-95-1	Perfluorononanoic acid	0.08	0.103	129	70-130
335-76-2	Perfluorodecanoic acid	0.08	0.101	126	70-130
2058-94-8	Perfluoroundecanoic acid	0.08	0.109	136*	70-130
307-55-1	Perfluorododecanoic acid	0.08	0.129	161*	70-130
375-73-5	Perfluorobutanesulfonic acid	0.08	0.101	126	70-130
2706-91-4	Perfluoropentanesulfonic acid	0.08	0.103	129	70-130
355-46-4	Perfluorohexanesulfonic acid	0.08	0.101	126	70-130
375-92-8	Perfluoroheptanesulfonic acid	0.08	0.104	130	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.08	0.0996	125	70-130
757124-72-4	4:2 Fluorotelomer sulfonate	0.08	0.102	128	70-130
27619-97-2	6:2 Fluorotelomer sulfonate	0.08	0.101	126	70-130
39108-34-4	8:2 Fluorotelomer sulfonate	0.08	0.113	141*	70-130
377-73-1	PFMPA	0.08	0.103	129	70-130
863090-89-5	PFMBA	0.08	0.102	128	70-130
151772-58-6	NFDHA	0.08	0.103	129	70-130
113507-82-7	PFEESA	0.08	0.101	126	70-130
13252-13-6	HFPO-DA (GenX)	0.08	0.120	150*	70-130
919005-14-4	ADONA	0.08	0.101	126	70-130
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.08	0.0914	114	70-130
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.08	0.0594	74	70-130

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	78%	50-200%
	13C5-PFPeA	78%	50-200%
	13C5-PFHxA	78%	50-200%
	13C4-PFHpA	77%	50-200%
	13C8-PFOA	77%	50-200%
	13C9-PFNA	75%	50-200%
	13C6-PFDA	75%	50-200%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8883-BS	3Q101472.D	1	04/15/25	(b) (6)	04/15/25	OP8883	S3Q1492

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2

CAS No.	ID Standard Recoveries	BSP	Limits
	13C7-PFUnDA	51%	50-200%
	13C2-PFDoDA	36%* [a]	50-200%
	13C3-PFBS	77%	50-200%
	13C3-PFHxS	77%	50-200%
	13C8-PFOS	74%	50-200%
	13C2-4:2FTS	78%	50-200%
	13C2-6:2FTS	78%	50-200%
	13C2-8:2FTS	65%	50-200%
	13C3-HFPO-DA	75%	50-200%

(a) Outside control limits.

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8883-BS	3Q101493.D	1	04/16/25	(b) (6)	04/15/25	OP8883	S3Q1493

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.08	0.103	129	70-130
2706-90-3	Perfluoropentanoic acid	0.08	0.101	126	70-130
307-24-4	Perfluorohexanoic acid	0.08	0.0958	120	70-130
375-85-9	Perfluoroheptanoic acid	0.08	0.0949	119	70-130
335-67-1	Perfluorooctanoic acid	0.08	0.0966	121	70-130
375-95-1	Perfluorononanoic acid	0.08	0.0975	122	70-130
335-76-2	Perfluorodecanoic acid	0.08	0.100	125	70-130
2058-94-8	Perfluoroundecanoic acid	0.08	0.110	138*	70-130
307-55-1	Perfluorododecanoic acid	0.08	0.128	160*	70-130
375-73-5	Perfluorobutanesulfonic acid	0.08	0.101	126	70-130
2706-91-4	Perfluoropentanesulfonic acid	0.08	0.102	128	70-130
355-46-4	Perfluorohexanesulfonic acid	0.08	0.103	129	70-130
375-92-8	Perfluoroheptanesulfonic acid	0.08	0.105	131*	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.08	0.101	126	70-130
757124-72-4	4:2 Fluorotelomer sulfonate	0.08	0.100	125	70-130
27619-97-2	6:2 Fluorotelomer sulfonate	0.08	0.0996	125	70-130
39108-34-4	8:2 Fluorotelomer sulfonate	0.08	0.111	139*	70-130
377-73-1	PFMPA	0.08	0.103	129	70-130
863090-89-5	PFMBA	0.08	0.100	125	70-130
151772-58-6	NFDHA	0.08	0.0968	121	70-130
113507-82-7	PFEESA	0.08	0.103	129	70-130
13252-13-6	HFPO-DA (GenX)	0.08	0.100	125	70-130
919005-14-4	ADONA	0.08	0.0922	115	70-130
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.08	0.0942	118	70-130
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.08	0.0636	80	70-130

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	78%	50-200%
	13C5-PFPeA	79%	50-200%
	13C5-PFHxA	80%	50-200%
	13C4-PFHpA	82%	50-200%
	13C8-PFOA	82%	50-200%
	13C9-PFNA	82%	50-200%
	13C6-PFDA	76%	50-200%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8883-BS	3Q101493.D	1	04/16/25	(b) (6)	04/15/25	OP8883	S3Q1493

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2

CAS No.	ID Standard Recoveries	BSP	Limits
	13C7-PFUnDA	56%	50-200%
	13C2-PFDoDA	39%* [a]	50-200%
	13C3-PFBS	78%	50-200%
	13C3-PFHxS	78%	50-200%
	13C8-PFOS	73%	50-200%
	13C2-4:2FTS	85%	50-200%
	13C2-6:2FTS	84%	50-200%
	13C2-8:2FTS	75%	50-200%
	13C3-HFPO-DA	78%	50-200%

(a) Outside control limits.

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8882-BS	5Q31770.D	1	04/15/25	(b) (4)	04/15/25	OP8882	S5Q521

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23899-1A, FC23899-2A, FC23899-3A, FC23899-4A

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
307-24-4	Perfluorohexanoic acid	0.08	0.0797	100	70-130
375-85-9	Perfluoroheptanoic acid	0.08	0.0769	96	70-130
335-67-1	Perfluorooctanoic acid	0.08	0.0765	96	70-130
375-95-1	Perfluorononanoic acid	0.08	0.0651	81	70-130
335-76-2	Perfluorodecanoic acid	0.08	0.0573	72	70-130
2058-94-8	Perfluoroundecanoic acid	0.08	0.0398	50*	70-130
307-55-1	Perfluorododecanoic acid	0.08	0.0309	39*	70-130
72629-94-8	Perfluorotridecanoic acid	0.08	0.0289	36*	70-130
376-06-7	Perfluorotetradecanoic acid	0.08	0.0343	43*	70-130
375-73-5	Perfluorobutanesulfonic acid	0.08	0.0835	104	70-130
355-46-4	Perfluorohexanesulfonic acid	0.08	0.0736	92	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.08	0.0618	77	70-130
2355-31-9	MeFOSAA	0.08	0.0411	51*	70-130
2991-50-6	EtFOSAA	0.08	0.0475	59*	70-130
13252-13-6	HFPO-DA (GenX)	0.08	0.0765	96	70-130
919005-14-4	ADONA	0.08	0.0741	93	70-130
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.08	0.0514	64*	70-130
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.08	0.0346	43*	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
	13C2-PFHxA	105%	70-130%
	13C2-PFDA	70%	70-130%
	d5-EtFOSAA	43%* [a]	70-130%
	13C3-HFPO-DA	100%	70-130%

(a) Outside control limits.

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8882-BS	5Q31798.D	1	04/16/25	(b) (6)	04/15/25	OP8882	S5Q522

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23899-1A, FC23899-2A, FC23899-3A, FC23899-4A

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
307-24-4	Perfluorohexanoic acid	0.08	0.0812	102	70-130
375-85-9	Perfluoroheptanoic acid	0.08	0.0813	102	70-130
335-67-1	Perfluorooctanoic acid	0.08	0.0794	99	70-130
375-95-1	Perfluorononanoic acid	0.08	0.0768	96	70-130
335-76-2	Perfluorodecanoic acid	0.08	0.0605	76	70-130
2058-94-8	Perfluoroundecanoic acid	0.08	0.0399	50*	70-130
307-55-1	Perfluorododecanoic acid	0.08	0.0280	35*	70-130
72629-94-8	Perfluorotridecanoic acid	0.08	0.0286	36*	70-130
376-06-7	Perfluorotetradecanoic acid	0.08	0.0419	52*	70-130
375-73-5	Perfluorobutanesulfonic acid	0.08	0.0838	105	70-130
355-46-4	Perfluorohexanesulfonic acid	0.08	0.0731	91	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.08	0.0621	78	70-130
2355-31-9	MeFOSAA	0.08	0.0409	51*	70-130
2991-50-6	EtFOSAA	0.08	0.0450	56*	70-130
13252-13-6	HFPO-DA (GenX)	0.08	0.0796	100	70-130
919005-14-4	ADONA	0.08	0.0816	102	70-130
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.08	0.0587	73	70-130
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.08	0.0353	44*	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
	13C2-PFHxA	102%	70-130%
	13C2-PFDA	70%	70-130%
	d5-EtFOSAA	45%* [a]	70-130%
	13C3-HFPO-DA	96%	70-130%

(a) Outside control limits.

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8883-MS	3Q101474.D	1	04/15/25	(b) (6)	04/15/25	OP8883	S3Q1492
FC23899-1 [a]	3Q101473.D	1	04/15/25	(b) (6)	04/15/25	OP8883	S3Q1492
FC23899-1 [b]	3Q101495.D	1	04/16/25	(b) (6)	04/15/25	OP8883	S3Q1493

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2

CAS No.	Compound	FC23899-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.0032	J	0.0714	0.0934	126	70-130
2706-90-3	Perfluoropentanoic acid	0.0085		0.0714	0.0969	124	70-130
307-24-4	Perfluorohexanoic acid	0.0064		0.0714	0.0960	125	70-130
375-85-9	Perfluoroheptanoic acid	0.0032		0.0714	0.0906	122	70-130
335-67-1	Perfluorooctanoic acid	0.0061		0.0714	0.0952	125	70-130
375-95-1	Perfluorononanoic acid	0.0018	U	0.0714	0.0879	123	70-130
335-76-2	Perfluorodecanoic acid	0.0018	U	0.0714	0.0898	126	70-130
2058-94-8	Perfluoroundecanoic acid	0.0018	U	0.0714	0.103	144*	70-130
307-55-1	Perfluorododecanoic acid	0.0018	U	0.0714	0.120	168*	70-130
375-73-5	Perfluorobutanesulfonic acid	0.0045		0.0714	0.0911	121	70-130
2706-91-4	Perfluoropentanesulfonic acid	0.00073	J	0.0714	0.0873	121	70-130
355-46-4	Perfluorohexanesulfonic acid	0.0061		0.0714	0.0933	122	70-130
375-92-8	Perfluoroheptanesulfonic acid	0.0018	U	0.0714	0.0878	123	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.0104		0.0714	0.0981	123	70-130
757124-72-4	4:2 Fluorotelomer sulfonate	0.0036	U	0.0714	0.0872	122	70-130
27619-97-2	6:2 Fluorotelomer sulfonate	0.0036	U	0.0714	0.0884	124	70-130
39108-34-4	8:2 Fluorotelomer sulfonate	0.0036	U	0.0714	0.0991	139*	70-130
377-73-1	PFMPA	0.0036	U	0.0714	0.0898	126	70-130
863090-89-5	PFMBA	0.0036	U	0.0714	0.0878	123	70-130
151772-58-6	NFDHA	0.0036	U	0.0714	0.0883	124	70-130
113507-82-7	PFEESA	0.0036	U	0.0714	0.0867	121	70-130
13252-13-6	HFPO-DA (GenX)	0.0036	U	0.0714	0.0961	135*	70-130
919005-14-4	ADONA	0.0036	U	0.0714	0.0874	122	70-130
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0036	U	0.0714	0.0753	105	70-130
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0036	U	0.0714	0.0444	62*	70-130

CAS No.	ID Standard Recoveries	MS	FC23899-1	FC23899-1	Limits
	13C4-PFBA	77%	74%	75%	50-200%
	13C5-PFPeA	78%	75%	77%	50-200%
	13C5-PFHxA	77%	71%	75%	50-200%
	13C4-PFHpA	77%	73%	77%	50-200%
	13C8-PFOA	78%	75%	79%	50-200%
	13C9-PFNA	74%	70%	77%	50-200%
	13C6-PFDA	69%	66%	70%	50-200%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8883-MS	3Q101474.D	1	04/15/25	(b) (6)	04/15/25	OP8883	S3Q1492
FC23899-1 [a]	3Q101473.D	1	04/15/25	(b) (6)	04/15/25	OP8883	S3Q1492
FC23899-1 [b]	3Q101495.D	1	04/16/25	(b) (6)	04/15/25	OP8883	S3Q1493

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2

CAS No.	ID Standard Recoveries	MS	FC23899-1	FC23899-1	Limits
	13C7-PFUnDA	40%* [c]	39%* [c]	42%* [c]	50-200%
	13C2-PFDoDA	26%* [c]	24%* [c]	27%* [c]	50-200%
	13C3-PFBS	81%	76%	73%	50-200%
	13C3-PFHxS	81%	76%	74%	50-200%
	13C8-PFOS	73%	70%	68%	50-200%
	13C2-4:2FTS	82%	68%	72%	50-200%
	13C2-6:2FTS	81%	70%	74%	50-200%
	13C2-8:2FTS	63%	55%	62%	50-200%
	13C3-HFPO-DA	82%	68%	60%	50-200%

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Outside control limits.

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-MS	3Q101527.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494
FC23948-1	3Q101526.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-4

CAS No.	Compound	FC23948-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.0034	J	0.00351	0.0066	91	50-150
2706-90-3	Perfluoropentanoic acid	0.0089		0.00351	0.0117	80	50-150
307-24-4	Perfluorohexanoic acid	0.0067		0.00351	0.0093	74	50-150
375-85-9	Perfluoroheptanoic acid	0.0035		0.00351	0.0065	86	50-150
335-67-1	Perfluorooctanoic acid	0.0064		0.00351	0.0092	80	50-150
375-95-1	Perfluorononanoic acid	0.0018	U	0.00351	0.0035	100	50-150
335-76-2	Perfluorodecanoic acid	0.0018	U	0.00351	0.0033	94	50-150
2058-94-8	Perfluoroundecanoic acid	0.0013	J	0.00351	0.0032	54	50-150
307-55-1	Perfluorododecanoic acid	0.0012	J	0.00351	0.0032	57	50-150
375-73-5	Perfluorobutanesulfonic acid	0.0051		0.00351	0.0079	80	50-150
2706-91-4	Perfluoropentanesulfonic acid	0.00072	J	0.00351	0.0041	96	50-150
355-46-4	Perfluorohexanesulfonic acid	0.0067		0.00351	0.0099	91	50-150
375-92-8	Perfluoroheptanesulfonic acid	0.0018	U	0.00351	0.0036	103	50-150
1763-23-1	Perfluorooctanesulfonic acid	0.0107		0.00351	0.0137	86	50-150
757124-72-4	4:2 Fluorotelomer sulfonate	0.0035	U	0.00351	0.0031	88	50-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0035	U	0.00351	0.0034	97	50-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0035	U	0.00351	0.0039	111	50-150
377-73-1	PFMPA	0.0035	U	0.00351	0.0034	97	50-150
863090-89-5	PFMBA	0.0035	U	0.00351	0.0033	94	50-150
151772-58-6	NFDHA	0.0035	U	0.00351	0.0032	91	50-150
113507-82-7	PFEESA	0.0035	U	0.00351	0.0033	94	50-150
13252-13-6	HFPO-DA (GenX)	0.0035	U	0.00351	0.0033	94	50-150
919005-14-4	ADONA	0.0035	U	0.00351	0.0030	86	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0035	U	0.00351	0.0029	83	50-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.00087	J	0.00351	0.0024	44*	50-150

CAS No.	ID Standard Recoveries	MS	FC23948-1	Limits
	13C4-PFBA	82%	79%	50-200%
	13C5-PFPeA	84%	81%	50-200%
	13C5-PFHxA	83%	78%	50-200%
	13C4-PFHpA	84%	80%	50-200%
	13C8-PFOA	86%	83%	50-200%
	13C9-PFNA	85%	83%	50-200%
	13C6-PFDA	90%	87%	50-200%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-MS	3Q101527.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494
FC23948-1	3Q101526.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-4

CAS No.	ID Standard Recoveries	MS	FC23948-1	Limits
	13C7-PFUnDA	74%	68%	50-200%
	13C2-PFDoDA	62%	58%	50-200%
	13C3-PFBS	79%	75%	50-200%
	13C3-PFHxS	81%	79%	50-200%
	13C8-PFOS	79%	79%	50-200%
	13C2-4:2FTS	79%	76%	50-200%
	13C2-6:2FTS	80%	78%	50-200%
	13C2-8:2FTS	76%	78%	50-200%
	13C3-HFPO-DA	69%	70%	50-200%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8882-MS	5Q31801.D	1	04/16/25	(b) (6)	04/15/25	OP8882	S5Q522
FC23899-1A [a]	5Q31772.D	1	04/15/25	(b) (6)	04/15/25	OP8882	S5Q521
FC23899-1A [b]	5Q31800.D	1	04/16/25	(b) (6)	04/15/25	OP8882	S5Q522

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23899-1A, FC23899-2A, FC23899-3A, FC23899-4A

CAS No.	Compound	FC23899-1A ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
307-24-4	Perfluorohexanoic acid	0.0046 [c]		0.0714	0.0732	96	70-130
375-85-9	Perfluoroheptanoic acid	0.0022 [c]		0.0714	0.0696	94	70-130
335-67-1	Perfluorooctanoic acid	0.0039 [c]		0.0714	0.0743	99	70-130
375-95-1	Perfluorononanoic acid	0.0018 U [c]		0.0714	0.0670	94	70-130
335-76-2	Perfluorodecanoic acid	0.0018 U [c]		0.0714	0.0571	80	70-130
2058-94-8	Perfluoroundecanoic acid	0.0018 U [c]		0.0714	0.0389	54*	70-130
307-55-1	Perfluorododecanoic acid	0.0018 U [c]		0.0714	0.0237	33*	70-130
72629-94-8	Perfluorotridecanoic acid	0.0018 U [c]		0.0714	0.0222	31*	70-130
376-06-7	Perfluorotetradecanoic acid	0.0018 U [c]		0.0714	0.0322	45*	70-130
375-73-5	Perfluorobutanesulfonic acid	0.0037 [c]		0.0714	0.0769	102	70-130
355-46-4	Perfluorohexanesulfonic acid	0.0044 [c]		0.0714	0.0734	97	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.0060 [c]		0.0714	0.0653	83	70-130
2355-31-9	MeFOSAA	0.0036 U [c]		0.0714	0.0419	59*	70-130
2991-50-6	EtFOSAA	0.0036 U [c]		0.0714	0.0428	60*	70-130
13252-13-6	HFPO-DA (GenX)	0.0071 U [c]		0.0714	0.0686	96	70-130
919005-14-4	ADONA	0.0071 U [c]		0.0714	0.0686	96	70-130
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0071 U [c]		0.0714	0.0520	73	70-130
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0071 U [c]		0.0714	0.0266	37*	70-130

CAS No.	Surrogate Recoveries	MS	FC23899-1A	FC23899-1A	Limits
	13C2-PFHxA	97%	106%	101%	70-130%
	13C2-PFDA	80%	78%	82%	70-130%
	d5-EtFOSAA	53%* [d]	55%* [d]	56%* [d]	70-130%
	13C3-HFPO-DA	94%	101%	96%	70-130%

(a) Sample received outside the holding time. Confirmation run.
(b) Sample received outside the holding time. Insufficient sample for re-extraction.
(c) Result is from Run #2.
(d) Outside control limits.

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8883-DUP	3Q101477.D	1	04/15/25	(b) (6)	04/15/25	OP8883	S3Q1492
FC23899-3 [a]	3Q101476.D	1	04/15/25	(b) (6)	04/15/25	OP8883	S3Q1492
FC23899-3	3Q101497.D	1	04/16/25	(b) (6)	04/15/25	OP8883	S3Q1493

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2

CAS No.	Compound	FC23899-3 ug/l	Q	DUP ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.0036	U	ND		nc	30
2706-90-3	Perfluoropentanoic acid	0.0036	U	ND		nc	30
307-24-4	Perfluorohexanoic acid	0.0018	U	ND		nc	30
375-85-9	Perfluoroheptanoic acid	0.0018	U	ND		nc	30
335-67-1	Perfluorooctanoic acid	0.0018	U	ND		nc	30
375-95-1	Perfluorononanoic acid	0.0018	U	ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0018	U	ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0018	U	ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0018	U	ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0018	U	ND		nc	30
2706-91-4	Perfluoropentanesulfonic acid	0.0018	U	ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0018	U	ND		nc	30
375-92-8	Perfluoroheptanesulfonic acid	0.0018	U	ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0018	U	ND		nc	30
757124-72-4	4:2 Fluorotelomer sulfonate	0.0036	U	ND		nc	30
27619-97-2	6:2 Fluorotelomer sulfonate	0.0036	U	ND		nc	30
39108-34-4	8:2 Fluorotelomer sulfonate	0.0036	U	ND		nc	30
377-73-1	PFMPA	0.0036	U	ND		nc	30
863090-89-5	PFMBA	0.0036	U	ND		nc	30
151772-58-6	NFDHA	0.0036	U	ND		nc	30
113507-82-7	PFEESA	0.0036	U	ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.0036	U	ND		nc	30
919005-14-4	ADONA	0.0036	U	ND		nc	30
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0036	U	ND		nc	30
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0036	U	ND		nc	30

CAS No.	ID Standard Recoveries	DUP	FC23899-3	FC23899-3	Limits
	13C4-PFBA	75%	82%	82%	50-200%
	13C5-PFPeA	76%	84%	84%	50-200%
	13C5-PFHxA	75%	81%	84%	50-200%
	13C4-PFHpA	76%	81%	85%	50-200%
	13C8-PFOA	77%	83%	87%	50-200%
	13C9-PFNA	73%	79%	87%	50-200%
	13C6-PFDA	74%	75%	85%	50-200%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8883-DUP	3Q101477.D	1	04/15/25	(b) (6)	04/15/25	OP8883	S3Q1492
FC23899-3 [a]	3Q101476.D	1	04/15/25	(b) (6)	04/15/25	OP8883	S3Q1492
FC23899-3	3Q101497.D	1	04/16/25	(b) (6)	04/15/25	OP8883	S3Q1493

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2

CAS No.	ID Standard Recoveries	DUP	FC23899-3	FC23899-3	Limits
	13C7-PFUnDA	49%* [b]	49%* [b]	50%	50-200%
	13C2-PFDoDA	34%* [b]	33%* [b]	34%* [b]	50-200%
	13C3-PFBS	77%	82%	83%	50-200%
	13C3-PFHxS	78%	84%	83%	50-200%
	13C8-PFOS	72%	79%	78%	50-200%
	13C2-4:2FTS	76%	82%	88%	50-200%
	13C2-6:2FTS	71%	77%	83%	50-200%
	13C2-8:2FTS	60%	62%	72%	50-200%
	13C3-HFPO-DA	73%	73%	71%	50-200%

(a) Insufficient sample for re-extraction.
(b) Outside control limits.

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-DUP	3Q101530.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494
FC23948-3	3Q101529.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-4

CAS No.	Compound	FC23948-3 ug/l	Q	DUP ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.0035	U	ND		nc	30
2706-90-3	Perfluoropentanoic acid	0.0035	U	ND		nc	30
307-24-4	Perfluorohexanoic acid	0.0018	U	ND		nc	30
375-85-9	Perfluoroheptanoic acid	0.0018	U	ND		nc	30
335-67-1	Perfluorooctanoic acid	0.0018	U	ND		nc	30
375-95-1	Perfluorononanoic acid	0.0018	U	ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0018	U	ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0018	U	ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0018	U	ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0018	U	ND		nc	30
2706-91-4	Perfluoropentanesulfonic acid	0.0018	U	ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0018	U	ND		nc	30
375-92-8	Perfluoroheptanesulfonic acid	0.0018	U	ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0018	U	ND		nc	30
757124-72-4	4:2 Fluorotelomer sulfonate	0.0035	U	ND		nc	30
27619-97-2	6:2 Fluorotelomer sulfonate	0.0035	U	ND		nc	30
39108-34-4	8:2 Fluorotelomer sulfonate	0.0035	U	ND		nc	30
377-73-1	PFMPA	0.0035	U	ND		nc	30
863090-89-5	PFMBA	0.0035	U	ND		nc	30
151772-58-6	NFDHA	0.0035	U	ND		nc	30
113507-82-7	PFEESA	0.0035	U	ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.0035	U	ND		nc	30
919005-14-4	ADONA	0.0035	U	ND		nc	30
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0035	U	ND		nc	30
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0035	U	ND		nc	30

CAS No.	ID Standard Recoveries	DUP	FC23948-3	Limits
	13C4-PFBA	79%	80%	50-200%
	13C5-PFPeA	80%	81%	50-200%
	13C5-PFHxA	81%	82%	50-200%
	13C4-PFHpA	81%	83%	50-200%
	13C8-PFOA	83%	84%	50-200%
	13C9-PFNA	83%	84%	50-200%
	13C6-PFDA	83%	87%	50-200%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-DUP	3Q101530.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494
FC23948-3	3Q101529.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-4

CAS No.	ID Standard Recoveries	DUP	FC23948-3	Limits
	13C7-PFUnDA	71%	67%	50-200%
	13C2-PFDoDA	58%	57%	50-200%
	13C3-PFBS	76%	79%	50-200%
	13C3-PFHxS	78%	80%	50-200%
	13C8-PFOS	79%	76%	50-200%
	13C2-4:2FTS	81%	82%	50-200%
	13C2-6:2FTS	79%	79%	50-200%
	13C2-8:2FTS	75%	72%	50-200%
	13C3-HFPO-DA	65%	66%	50-200%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8882-DUP	5Q31776.D	1	04/15/25	(b) (6)	04/15/25	OP8882	S5Q521
FC23899-3A [a]	5Q31775.D	1	04/15/25	(b) (6)	04/15/25	OP8882	S5Q521
FC23899-3A [b]	5Q31803.D	1	04/16/25	(b) (6)	04/15/25	OP8882	S5Q522

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23899-1A, FC23899-2A, FC23899-3A, FC23899-4A

CAS No.	Compound	FC23899-3A ug/l	Q	DUP ug/l	Q	RPD	Limits
307-24-4	Perfluorohexanoic acid	0.0018	U	ND		nc	30
375-85-9	Perfluoroheptanoic acid	0.0018	U	ND		nc	30
335-67-1	Perfluorooctanoic acid	0.0018	U	ND		nc	30
375-95-1	Perfluorononanoic acid	0.0018	U	ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0018	U	ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0018	U	ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0018	U	ND		nc	30
72629-94-8	Perfluorotridecanoic acid	0.0018	U	ND		nc	30
376-06-7	Perfluorotetradecanoic acid	0.0018	U	ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0018	U	ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0018	U	ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0018	U	ND		nc	30
2355-31-9	MeFOSAA	0.0036	U	ND		nc	30
2991-50-6	EtFOSAA	0.0036	U	ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.0071	U	ND		nc	30
919005-14-4	ADONA	0.0071	U	ND		nc	30
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0071	U	ND		nc	30
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0071	U	ND		nc	30

CAS No.	Surrogate Recoveries	DUP	FC23899-3A	FC23899-3A	Limits
	13C2-PFHxA	87%	87%	84%	70-130%
	13C2-PFDA	73%	80%	80%	70-130%
	d5-EtFOSAA	64%* [c]	73%	69%* [c]	70-130%
	13C3-HFPO-DA	86%	84%	81%	70-130%

(a) Sample received outside the holding time. Insufficient sample for re-extraction.
(b) Sample received outside the holding time. Confirmation run.
(c) Outside control limits.

* = Outside of Control Limits.

(b) (4)

04/21/25

The results set forth herein are provided by (b) (4).

e-Hardcopy 2.0
Automated Report

Technical Report for

AECOM, INC.

N6274224F0139 Extended Drinking Water

60729369

(b) (4) Job Number: FC23899

Sampling Date: 04/11/25



Report to:

AECOM, Inc
7595 Technology Way
Denver, CO 80237
(b) (6)

Total number of pages in report: **1154**

NELAP ACCREDITED TNI LABORATORY

(b) (6)

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

(b) (6)
(b) (4)

Test results relate only to samples analyzed.

(b) (4)

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(b) (4)

Sample Summary

AECOM, INC.

Job No: FC23899

N6274224F0139 Extended Drinking Water
Project No: 60729369

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FC23899-1	04/11/25	08:50	(b) (6)	04/12/25	DW	Drinking Water	SHAFT-HW-0018384-25098-N-R01
FC23899-1A	04/11/25	08:50	(b) (6)	04/12/25	DW	Drinking Water	SHAFT-HW-0018384-25098-N-R01
FC23899-2	04/11/25	08:05	(b) (6)	04/12/25	DW	Drinking Water FB	SHAFT-FB-250411-25098-N
FC23899-2A	04/11/25	08:05	(b) (6)	04/12/25	DW	Drinking Water FB	SHAFT-FB-250411-25098-N
FC23899-3	04/11/25	11:36	(b) (6)	04/12/25	DW	Drinking Water	SHAFT-HW-0018393-25098-N-R01
FC23899-3A	04/11/25	11:36	(b) (6)	04/12/25	DW	Drinking Water	SHAFT-HW-0018393-25098-N-R01
FC23899-4	04/11/25	11:35	(b) (6)	04/12/25	DW	Drinking Water	SHAFT-HW-0018394-25098-N-R01
FC23899-4A	04/11/25	11:35	(b) (6)	04/12/25	DW	Drinking Water	SHAFT-HW-0018394-25098-N-R01

SAMPLE DELIVERY GROUP CASE NARRATIVE

2

Client: AECOM, INC. **Job No:** FC23899

Site: N6274224F0139 Extended Drinking Water **Report Date** 4/21/2025 11:55:21 A

On 04/12/2025, 3 Sample(s), 0 Trip Blank(s), 0 Equip. Blank(s) and 1 Field Blank(s) were received at (b) (4) [redacted], at a maximum corrected temperature of 3 C. Samples were intact and chemically preserved, unless noted below. A (b) (4) [redacted] Job Number of FC23899 was assigned to the project.

Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section. Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Semi-volatiles By Method EPA 533

Matrix: DW **Batch ID:** OP8883

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) FC23899-1MS, FC23899-3DUP, FC23899-1MS were used as the QC samples indicated.
- Blank Spike Recovery(s) for 8:2 Fluorotelomer sulfonate, HFPO-DA (GenX), Perfluorododecanoic acid, Perfluoroheptanesulfonic acid, Perfluoroundecanoic acid are outside control limits.
- Matrix Spike Recovery(s) for 11Cl-PF3OUdS (F-53B Minor), 8:2 Fluorotelomer sulfonate, HFPO-DA (GenX), Perfluorododecanoic acid, Perfluoroundecanoic acid are outside control limits. Probable cause is due to matrix interference.
- Matrix Spike Recovery(s) for 11Cl-PF3OUdS (F-53B Minor), 8:2 Fluorotelomer sulfonate, HFPO-DA (GenX), Perfluorododecanoic acid, Perfluoroundecanoic acid are outside control limits. Probable cause is due to the ratio of spike to sample concentration < 4.
- Sample(s) FC23899-1, FC23899-2, FC23899-3, FC23899-4 have surrogates outside control limits.
- FC23899-1: Confirmation run.
- FC23899-3: Insufficient sample for re-extraction.
- FC23899-2: Insufficient sample for re-extraction.
- FC23899-2: Confirmation run.
- FC23899-4: Confirmation run.
- FC23899-1: Insufficient sample for re-extraction.
- FC23899-2 for Perfluoroundecanoic acid: Associated BS outside control limits high. Associated EIS outside control limits.
- FC23899-2 for Perfluorododecanoic acid: Associated EIS outside control limits. Associated BS outside control limits high.
- FC23899-3 for 8:2 Fluorotelomer sulfonate: Associated BS outside control limits high.
- FC23899-3 for Perfluorododecanoic acid: Associated BS outside control limits high. Associated EIS outside control limits.
- FC23899-1 for Perfluorododecanoic acid: Associated BS outside control limits high. Associated EIS outside control limits.
- FC23899-2 for 8:2 Fluorotelomer sulfonate: Associated BS outside control limits high.
- OP8883-BS for 13C2-PFDoDA: Outside control limits.
- FC23899-3 for 13C2-PFDoDA: Outside control limits.
- OP8883-BS for 13C2-PFDoDA: Outside control limits.
- OP8883-MB for 13C7-PFUnDA: Outside control limits.
- OP8883-MB for 13C2-PFDoDA: Outside control limits.
- OP8883-MB for 13C7-PFUnDA: Outside control limits.
- OP8883-MB for 13C2-PFDoDA: Outside control limits.

MS Semi-volatiles By Method EPA 533

Matrix: DW **Batch ID:** OP8907

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) FC23948-1MS, FC23948-3DUP were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Matrix Spike Recovery(s) for 11Cl-PF3OUdS (F-53B Minor) are outside control limits. Probable cause is due to matrix interference.
- Matrix Spike Recovery(s) for 11Cl-PF3OUdS (F-53B Minor) are outside control limits. Probable cause is due to the ratio of spike to sample concentration < 4.

MS Semi-volatiles By Method EPA 537.1 REV 2.0

Matrix: DW **Batch ID:** OP8882

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) FC23899-1AMS, FC23899-3ADUP, FC23899-1AMS were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Blank Spike Recovery(s) for 11Cl-PF3OUdS (F-53B Minor), 9Cl-PF3ONS (F-53B Major), EtFOSAA, MeFOSAA, Perfluorododecanoic acid, Perfluorotetradecanoic acid, Perfluorotridecanoic acid, Perfluoroundecanoic acid are outside control limits.
- Matrix Spike Recovery(s) for 11Cl-PF3OUdS (F-53B Minor), EtFOSAA, MeFOSAA, Perfluorododecanoic acid, Perfluorotetradecanoic acid, Perfluorotridecanoic acid, Perfluoroundecanoic acid are outside control limits. Probable cause is due to matrix interference.
- Matrix Spike Recovery(s) for 11Cl-PF3OUdS (F-53B Minor), EtFOSAA, MeFOSAA, Perfluorododecanoic acid, Perfluorotetradecanoic acid, Perfluorotridecanoic acid, Perfluoroundecanoic acid are outside control limits. Probable cause is due to the ratio of spike to sample concentration < 4.
- Sample(s) FC23899-1A, FC23899-2A, FC23899-3A, FC23899-4A have surrogates outside control limits.
- FC23899-2A: Sample received outside the holding time. Insufficient sample for re-extraction.
- FC23899-3A: Sample received outside the holding time. Confirmation run.
- FC23899-1A: Sample received outside the holding time. Insufficient sample for re-extraction.
- FC23899-1A: Sample received outside the holding time. Confirmation run.
- FC23899-3A: Sample received outside the holding time. Insufficient sample for re-extraction.
- FC23899-2A: Sample received outside the holding time. Confirmation run.
- FC23899-1A for Perfluorodecanoic acid: Associated ICV outside control limits high, however sample ND.
- FC23899-1A for EtFOSAA: Associated EIS outside control limits. Associated BS outside of control limits low.
- FC23899-2A for 11Cl-PF3OUdS (F-53B Minor): Associated BS outside of control limits low.
- FC23899-2A for Perfluorododecanoic acid: Associated BS outside of control limits low. Associated ICV outside control limits high.
- FC23899-3A for 11Cl-PF3OUdS (F-53B Minor): Associated BS outside of control limits low.
- FC23899-3A for Perfluorododecanoic acid: Associated BS outside of control limits low. Associated ICV outside control limits high.
- FC23899-1A for 11Cl-PF3OUdS (F-53B Minor): Associated BS outside of control limits low.
- FC23899-4A for 11Cl-PF3OUdS (F-53B Minor): Associated BS outside of control limits low.
- FC23899-4A for Perfluoroundecanoic acid: Associated BS outside of control limits low.
- FC23899-4A for Perfluorododecanoic acid: Associated BS outside of control limits low. Associated ICV outside control limits high.
- FC23899-4A for d5-NEtFOSAA: Outside control limits.
- OP8882-BS for d5-EtFOSAA: Outside control limits.
- FC23899-4A for Perfluorotridecanoic acid: Associated BS outside of control limits low.
- FC23899-4A for Perfluorotetradecanoic acid: Associated BS outside of control limits low.
- FC23899-4A for MeFOSAA: Associated BS outside of control limits low.
- FC23899-4A for 9Cl-PF3ONS (F-53B Major): Associated BS outside of control limits low.
- OP8882-MB for d5-EtFOSAA: Outside control limits.
- OP8882-BS for d5-EtFOSAA: Outside control limits.
- OP8882-MB for d5-EtFOSAA: Outside control limits.
- FC23899-4A for EtFOSAA: Associated BS outside of control limits low.

Matrix: DW **Batch ID:** OP8904

- Sample(s) FC23899-4A have surrogates outside control limits.

MS Semi-volatiles By Method EPA 537.1 REV 2.0

Matrix: DW	Batch ID: OP8904

- FC23899-4A: Confirmation run.

[redacted] certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted. Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria. [redacted] is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety.

Summary of Hits

Job Number: FC23899
Account: AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Collected: 04/11/25

3

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
FC23899-1	**SHAFT-HW-0018384-25098-N-R01**					
Perfluorobutanoic acid [a]		0.0032 J	0.0036	0.0014	ug/l	EPA 533
Perfluoropentanoic acid [a]		0.0085	0.0036	0.0014	ug/l	EPA 533
Perfluorohexanoic acid [a]		0.0064	0.0018	0.0014	ug/l	EPA 533
Perfluoroheptanoic acid [a]		0.0032	0.0018	0.0014	ug/l	EPA 533
Perfluorooctanoic acid [a]		0.0061	0.0018	0.0014	ug/l	EPA 533
Perfluorobutanesulfonic acid [a]		0.0045	0.0018	0.0014	ug/l	EPA 533
Perfluoropentanesulfonic acid [a]		0.00073 J	0.0018	0.0014	ug/l	EPA 533
Perfluorohexanesulfonic acid [a]		0.0061	0.0018	0.0014	ug/l	EPA 533
Perfluorooctanesulfonic acid [a]		0.0104	0.0018	0.0014	ug/l	EPA 533
FC23899-1A	**SHAFT-HW-0018384-25098-N-R01**					
Perfluorohexanoic acid [b]		0.0046	0.0018	0.0014	ug/l	EPA 537.1 REV 2.0
Perfluoroheptanoic acid [b]		0.0022	0.0018	0.0014	ug/l	EPA 537.1 REV 2.0
Perfluorooctanoic acid [b]		0.0039	0.0018	0.0014	ug/l	EPA 537.1 REV 2.0
Perfluorobutanesulfonic acid [b]		0.0037	0.0018	0.0014	ug/l	EPA 537.1 REV 2.0
Perfluorohexanesulfonic acid [b]		0.0044	0.0018	0.0014	ug/l	EPA 537.1 REV 2.0
Perfluorooctanesulfonic acid [b]		0.0060	0.0018	0.0014	ug/l	EPA 537.1 REV 2.0
FC23899-2	**SHAFT-FB-250411-25098-N**					
No hits reported in this sample.						
FC23899-2A	**SHAFT-FB-250411-25098-N**					
No hits reported in this sample.						
FC23899-3	**SHAFT-HW-0018393-25098-N-R01**					
No hits reported in this sample.						
FC23899-3A	**SHAFT-HW-0018393-25098-N-R01**					
No hits reported in this sample.						
FC23899-4	**SHAFT-HW-0018394-25098-N-R01**					
No hits reported in this sample.						
FC23899-4A	**SHAFT-HW-0018394-25098-N-R01**					
No hits reported in this sample.						

Summary of Hits

Job Number: FC23899
Account: AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Collected: 04/11/25

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method

(a) Insufficient sample for re-extraction.
(b) Sample received outside the holding time. Insufficient sample for re-extraction.

Sample Results

Report of Analysis

Raw Data: 3Q101473.D 3Q101495.D

(b) (4) .

Report of Analysis

Client Sample ID:	SHAFT-HW-0018384-25098-N-R01		
Lab Sample ID:	FC23899-1	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water	**Date Received:**	04/12/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	3Q101473.D	1	04/15/25 18:05	(b) (6)	04/15/25 06:30	OP8883	S3Q1492
Run #2 [b]	3Q101495.D	1	04/16/25 13:06	(b) (6)	04/15/25 06:30	OP8883	S3Q1493

	Initial Volume	Final Volume
Run #1	280 ml	1.0 ml
Run #2	280 ml	1.0 ml

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
375-22-4	Perfluorobutanoic acid	0.0032		0.0036	0.0014	0.00054	ug/l	J
2706-90-3	Perfluoropentanoic acid	0.0085		0.0036	0.0014	0.00061	ug/l	
307-24-4	Perfluorohexanoic acid	0.0064		0.0018	0.0014	0.00054	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0032		0.0018	0.0014	0.00061	ug/l	
335-67-1	Perfluorooctanoic acid	0.0061		0.0018	0.0014	0.00054	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00057	ug/l	
2058-94-8	Perfluoroundecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00058	ug/l	
307-55-1	Perfluorododecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00054	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0045		0.0018	0.0014	0.00054	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	0.00073		0.0018	0.0014	0.00069	ug/l	J
355-46-4	Perfluorohexanesulfonic acid	0.0061		0.0018	0.0014	0.00054	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0104		0.0018	0.0014	0.00054	ug/l	
FLUOROTELOMER SULFONATES								
757124-72-4	4:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.00054	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.0010	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.00054	ug/l	
PER and POLYFLUOROETHER CARBOXYLIC and SULFONIC ACIDS								
377-73-1	PFMPA	0.0014 U		0.0036	0.0014	0.00057	ug/l	
863090-89-5	PFMBA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
151772-58-6	NFDHA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
113507-82-7	PFEESA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
13252-13-6	HFPO-DA (GenX)	0.0018 U		0.0036	0.0018	0.00089	ug/l	
919005-14-4	ADONA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0014 U		0.0036	0.0014	0.00054	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0014 U		0.0036	0.0014	0.00061	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 141) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018384-25098-N-R01		
Lab Sample ID:	FC23899-1	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water	**Date Received:**	04/12/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	74%	75%	50-200%
	13C5-PFPeA	75%	77%	50-200%
	13C5-PFHxA	71%	75%	50-200%
	13C4-PFHpA	73%	77%	50-200%
	13C8-PFOA	75%	79%	50-200%
	13C9-PFNA	70%	77%	50-200%
	13C6-PFDA	66%	70%	50-200%
	13C7-PFUnDA	39% [d]	42% [d]	50-200%
	13C2-PFDoDA	24% [d]	27% [d]	50-200%
	13C3-PFBS	76%	73%	50-200%
	13C3-PFHxS	76%	74%	50-200%
	13C8-PFOS	70%	68%	50-200%
	13C2-4:2FTS	68%	72%	50-200%
	13C2-6:2FTS	70%	74%	50-200%
	13C2-8:2FTS	55%	62%	50-200%
	13C3-HFPO-DA	68%	60%	50-200%

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Associated BS outside control limits high. Associated EIS outside control limits.
(d) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: 5Q31800.D 5Q31772.D

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018384-25098-N-R01		
Lab Sample ID:	FC23899-1A	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water	**Date Received:**	04/12/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5Q31800.D	1	04/16/25 15:45	(b) (6)	04/15/25 06:30	OP8882	S5Q522
Run #2 [b]	5Q31772.D	1	04/15/25 19:05	(b) (6)	04/15/25 06:30	OP8882	S5Q521

	Initial Volume	Final Volume
Run #1	280 ml	1.0 ml
Run #2	280 ml	1.0 ml

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
307-24-4	Perfluorohexanoic acid	0.0046		0.0018	0.0014	0.00071	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0022		0.0018	0.0014	0.00071	ug/l	
335-67-1	Perfluorooctanoic acid	0.0039		0.0018	0.0014	0.00071	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
335-76-2	Perfluorodecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
2058-94-8	Perfluoroundecanoic acid [d]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
307-55-1	Perfluorododecanoic acid [d]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
72629-94-8	Perfluorotridecanoic acid [d]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
376-06-7	Perfluorotetradecanoic acid [d]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0037		0.0018	0.0014	0.00071	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0044		0.0018	0.0014	0.00071	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0060		0.0018	0.0014	0.00071	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS								
2355-31-9	MeFOSAA [d]	0.0018 U		0.0036	0.0018	0.00089	ug/l	
2991-50-6	EtFOSAA [e]	0.0018 U		0.0036	0.0018	0.00089	ug/l	
NEXT GENERATION PFAS ANALYTES								
13252-13-6	HFPO-DA (GenX)	0.0054 U		0.0071	0.0054	0.0027	ug/l	
919005-14-4	ADONA	0.0036 U		0.0071	0.0036	0.0018	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0036 U		0.0071	0.0036	0.0018	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Mino [d]	0.0036 U		0.0071	0.0036	0.0018	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	101%	106%	70-130%
	13C2-PFDA	82%	78%	70-130%
	d5-EtFOSAA	56% [f]	55% [f]	70-130%
	13C3-HFPO-DA	96%	101%	70-130%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018384-25098-N-R01		
Lab Sample ID:	FC23899-1A	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water	**Date Received:**	04/12/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

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Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q

(a) Sample received outside the holding time. Insufficient sample for re-extraction.
(b) Sample received outside the holding time. Confirmation run.
(c) Associated ICV outside control limits high, however sample ND.
(d) Associated BS outside of control limits low.
(e) Associated EIS outside control limits. Associated BS outside of control limits low.
(f) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: 3Q101475.D 3Q101523.D

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-FB-250411-25098-N		
Lab Sample ID:	FC23899-2	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water FB	**Date Received:**	04/12/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	3Q101475.D	1	04/15/25 18:37	(b) (6)	04/15/25 06:30	OP8883	S3Q1492
Run #2 [b]	3Q101523.D	1	04/17/25 11:39	(b) (6)	04/15/25 06:30	OP8883	S3Q1494

	Initial Volume	Final Volume
Run #1	280 ml	1.0 ml
Run #2	280 ml	1.0 ml

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
375-22-4	Perfluorobutanoic acid	0.0014 U		0.0036	0.0014	0.00054	ug/l	
2706-90-3	Perfluoropentanoic acid	0.0014 U		0.0036	0.0014	0.00061	ug/l	
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00061	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00057	ug/l	
2058-94-8	Perfluoroundecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00058	ug/l	
307-55-1	Perfluorododecanoic acid [d]	0.0014 U		0.0018	0.0014	0.00054	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	0.0014 U		0.0018	0.0014	0.00069	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
FLUOROTELOMER SULFONATES								
757124-72-4	4:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.00054	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.0010	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate [e]	0.0014 U		0.0036	0.0014	0.00054	ug/l	
PER and POLYFLUOROETHER CARBOXYLIC and SULFONIC ACIDS								
377-73-1	PFMPA	0.0014 U		0.0036	0.0014	0.00057	ug/l	
863090-89-5	PFMBA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
151772-58-6	NFDHA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
113507-82-7	PFEESA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
13252-13-6	HFPO-DA (GenX) [e]	0.0018 U		0.0036	0.0018	0.00089	ug/l	
919005-14-4	ADONA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0014 U		0.0036	0.0014	0.00054	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0014 U		0.0036	0.0014	0.00061	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 141) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SHAFT-FB-250411-25098-N		
Lab Sample ID:	FC23899-2	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water FB	**Date Received:**	04/12/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	69%	69%	50-200%
	13C5-PFPeA	69%	69%	50-200%
	13C5-PFHxA	64%	68%	50-200%
	13C4-PFHpA	65%	69%	50-200%
	13C8-PFOA	69%	72%	50-200%
	13C9-PFNA	62%	69%	50-200%
	13C6-PFDA	59%	67%	50-200%
	13C7-PFUnDA	40% f	43% f	50-200%
	13C2-PFDoDA	27% f	30% f	50-200%
	13C3-PFBS	70%	67%	50-200%
	13C3-PFHxS	68%	68%	50-200%
	13C8-PFOS	64%	65%	50-200%
	13C2-4:2FTS	61%	65%	50-200%
	13C2-6:2FTS	70%	73%	50-200%
	13C2-8:2FTS	53%	59%	50-200%
	13C3-HFPO-DA	61%	62%	50-200%

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Associated BS outside control limits high. Associated EIS outside control limits.
(d) Associated EIS outside control limits. Associated BS outside control limits high.
(e) Associated BS outside control limits high.
(f) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: 5Q31774.D 5Q31802.D

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-FB-250411-25098-N		
Lab Sample ID:	FC23899-2A	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water FB	**Date Received:**	04/12/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5Q31774.D	1	04/15/25 19:37	(b) (6)	04/15/25 06:30	OP8882	S5Q521
Run #2 [b]	5Q31802.D	1	04/16/25 16:17	(b) (6)	04/15/25 06:30	OP8882	S5Q522

	Initial Volume	Final Volume
Run #1	280 ml	1.0 ml
Run #2	280 ml	1.0 ml

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
2058-94-8	Perfluoroundecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
307-55-1	Perfluorododecanoic acid [d]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
72629-94-8	Perfluorotridecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
376-06-7	Perfluorotetradecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS								
2355-31-9	MeFOSAA [c]	0.0018 U		0.0036	0.0018	0.00089	ug/l	
2991-50-6	EtFOSAA [c]	0.0018 U		0.0036	0.0018	0.00089	ug/l	
NEXT GENERATION PFAS ANALYTES								
13252-13-6	HFPO-DA (GenX)	0.0054 U		0.0071	0.0054	0.0027	ug/l	
919005-14-4	ADONA	0.0036 U		0.0071	0.0036	0.0018	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major) [c]	0.0036 U		0.0071	0.0036	0.0018	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Mino [c]	0.0036 U		0.0071	0.0036	0.0018	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	102%	101%	70-130%
	13C2-PFDA	85%	85%	70-130%
	d5-EtFOSAA	72%	66% [e]	70-130%
	13C3-HFPO-DA	97%	96%	70-130%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-FB-250411-25098-N		
Lab Sample ID:	FC23899-2A	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water FB	**Date Received:**	04/12/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q

(a) Sample received outside the holding time. Insufficient sample for re-extraction.
(b) Sample received outside the holding time. Confirmation run.
(c) Associated BS outside of control limits low.
(d) Associated BS outside of control limits low. Associated ICV outside control limits high.
(e) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: 3Q101476.D 3Q101497.D

(b) (4) .

Report of Analysis

Client Sample ID:	SHAFT-HW-0018393-25098-N-R01		
Lab Sample ID:	FC23899-3	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water	**Date Received:**	04/12/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	3Q101476.D	1	04/15/25 18:53	(b) (6)	04/15/25 06:30	OP8883	S3Q1492
Run #2	3Q101497.D	1	04/16/25 13:38	(b) (6)	04/15/25 06:30	OP8883	S3Q1493

	Initial Volume	Final Volume
Run #1	280 ml	1.0 ml
Run #2	280 ml	1.0 ml

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
375-22-4	Perfluorobutanoic acid	0.0014 U		0.0036	0.0014	0.00054	ug/l	
2706-90-3	Perfluoropentanoic acid	0.0014 U		0.0036	0.0014	0.00061	ug/l	
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00061	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00057	ug/l	
2058-94-8	Perfluoroundecanoic acid [b]	0.0014 U		0.0018	0.0014	0.00058	ug/l	
307-55-1	Perfluorododecanoic acid [b]	0.0014 U		0.0018	0.0014	0.00054	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	0.0014 U		0.0018	0.0014	0.00069	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00054	ug/l	
FLUOROTELOMER SULFONATES								
757124-72-4	4:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.00054	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0014 U		0.0036	0.0014	0.0010	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate [c]	0.0014 U		0.0036	0.0014	0.00054	ug/l	
PER and POLYFLUOROETHER CARBOXYLIC and SULFONIC ACIDS								
377-73-1	PFMPA	0.0014 U		0.0036	0.0014	0.00057	ug/l	
863090-89-5	PFMBA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
151772-58-6	NFDHA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
113507-82-7	PFEESA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
13252-13-6	HFPO-DA (GenX) [c]	0.0018 U		0.0036	0.0018	0.00089	ug/l	
919005-14-4	ADONA	0.0014 U		0.0036	0.0014	0.00054	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0014 U		0.0036	0.0014	0.00054	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0014 U		0.0036	0.0014	0.00061	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 141) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SHAFT-HW-0018393-25098-N-R01		
Lab Sample ID:	FC23899-3	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water	**Date Received:**	04/12/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	82%	82%	50-200%
	13C5-PFPeA	84%	84%	50-200%
	13C5-PFHxA	81%	84%	50-200%
	13C4-PFHpA	81%	85%	50-200%
	13C8-PFOA	83%	87%	50-200%
	13C9-PFNA	79%	87%	50-200%
	13C6-PFDA	75%	85%	50-200%
	13C7-PFUnDA	49% [d]	50%	50-200%
	13C2-PFDoDA	33% [d]	34% [d]	50-200%
	13C3-PFBS	82%	83%	50-200%
	13C3-PFHxS	84%	83%	50-200%
	13C8-PFOS	79%	78%	50-200%
	13C2-4:2FTS	82%	88%	50-200%
	13C2-6:2FTS	77%	83%	50-200%
	13C2-8:2FTS	62%	72%	50-200%
	13C3-HFPO-DA	73%	71%	50-200%

(a) Insufficient sample for re-extraction.
(b) Associated BS outside control limits high. Associated EIS outside control limits.
(c) Associated BS outside control limits high.
(d) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: 5Q31775.D 5Q31803.D

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018393-25098-N-R01		
Lab Sample ID:	FC23899-3A	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water	**Date Received:**	04/12/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5Q31775.D	1	04/15/25 19:53	(b) (6)	04/15/25 06:30	OP8882	S5Q521
Run #2 [b]	5Q31803.D	1	04/16/25 16:33	(b) (6)	04/15/25 06:30	OP8882	S5Q522

	Initial Volume	Final Volume
Run #1	280 ml	1.0 ml
Run #2	280 ml	1.0 ml

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
2058-94-8	Perfluoroundecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
307-55-1	Perfluorododecanoic acid [d]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
72629-94-8	Perfluorotridecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
376-06-7	Perfluorotetradecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS								
2355-31-9	MeFOSAA [c]	0.0018 U		0.0036	0.0018	0.00089	ug/l	
2991-50-6	EtFOSAA [c]	0.0018 U		0.0036	0.0018	0.00089	ug/l	
NEXT GENERATION PFAS ANALYTES								
13252-13-6	HFPO-DA (GenX)	0.0054 U		0.0071	0.0054	0.0027	ug/l	
919005-14-4	ADONA	0.0036 U		0.0071	0.0036	0.0018	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major) [c]	0.0036 U		0.0071	0.0036	0.0018	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Mino [c]	0.0036 U		0.0071	0.0036	0.0018	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	87%	84%	70-130%
	13C2-PFDA	80%	80%	70-130%
	d5-EtFOSAA	73%	69% [e]	70-130%
	13C3-HFPO-DA	84%	81%	70-130%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

4.6 4

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018393-25098-N-R01		
Lab Sample ID:	FC23899-3A	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water	**Date Received:**	04/12/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

4.6
4

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q

(a) Sample received outside the holding time. Insufficient sample for re-extraction.
(b) Sample received outside the holding time. Confirmation run.
(c) Associated BS outside of control limits low.
(d) Associated BS outside of control limits low. Associated ICV outside control limits high.
(e) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: 3Q101532.D 3Q101478.D

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018394-25098-N-R01		
Lab Sample ID:	FC23899-4	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water	**Date Received:**	04/12/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3Q101532.D	1	04/17/25 14:04	(b) (6)	04/16/25 09:45	OP8907	S3Q1494
Run #2 [a]	3Q101478.D	1	04/15/25 19:25	(b) (6)	04/15/25 06:30	OP8883	S3Q1492

	Initial Volume	Final Volume
Run #1	285 ml	1.0 ml
Run #2	280 ml	1.0 ml

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
375-22-4	Perfluorobutanoic acid	0.0014 U		0.0035	0.0014	0.00053	ug/l	
2706-90-3	Perfluoropentanoic acid	0.0014 U		0.0035	0.0014	0.00060	ug/l	
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00060	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00056	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0014 U		0.0018	0.0014	0.00057	ug/l	
307-55-1	Perfluorododecanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	0.0014 U		0.0018	0.0014	0.00067	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
FLUOROTELOMER SULFONATES								
757124-72-4	4:2 Fluorotelomer sulfonate	0.0014 U		0.0035	0.0014	0.00053	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0014 U		0.0035	0.0014	0.00098	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0014 U		0.0035	0.0014	0.00053	ug/l	
PER and POLYFLUOROETHER CARBOXYLIC and SULFONIC ACIDS								
377-73-1	PFMPA	0.0014 U		0.0035	0.0014	0.00056	ug/l	
863090-89-5	PFMBA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
151772-58-6	NFDHA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
113507-82-7	PFEESA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
13252-13-6	HFPO-DA (GenX)	0.0018 U		0.0035	0.0018	0.00088	ug/l	
919005-14-4	ADONA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0014 U		0.0035	0.0014	0.00053	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0014 U		0.0035	0.0014	0.00060	ug/l	

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

4.7.4

Report of Analysis

Client Sample ID:	SHAFT-HW-0018394-25098-N-R01		
Lab Sample ID:	FC23899-4	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water	**Date Received:**	04/12/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	75%	79%	50-200%
	13C5-PFPeA	77%	80%	50-200%
	13C5-PFHxA	75%	76%	50-200%
	13C4-PFHpA	77%	77%	50-200%
	13C8-PFOA	78%	79%	50-200%
	13C9-PFNA	79%	74%	50-200%
	13C6-PFDA	80%	70%	50-200%
	13C7-PFUnDA	62%	51%	50-200%
	13C2-PFDoDA	53%	34% b	50-200%
	13C3-PFBS	73%	79%	50-200%
	13C3-PFHxS	75%	79%	50-200%
	13C8-PFOS	73%	72%	50-200%
	13C2-4:2FTS	71%	71%	50-200%
	13C2-6:2FTS	74%	73%	50-200%
	13C2-8:2FTS	72%	57%	50-200%
	13C3-HFPO-DA	58%	70%	50-200%

(a) Confirmation run.
(b) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: 5Q31777.D 5Q31841.D

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018394-25098-N-R01		
Lab Sample ID:	FC23899-4A	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water	**Date Received:**	04/12/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5Q31777.D	1	04/15/25 20:25	[redacted]	04/15/25 06:30	OP8882	S5Q521
Run #2 [a]	5Q31841.D	1	04/17/25 18:24	[redacted]	04/16/25 08:30	OP8904	S5Q523

	Initial Volume	Final Volume
Run #1	280 ml	1.0 ml
Run #2	280 ml	1.0 ml

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
2058-94-8	Perfluoroundecanoic acid [b]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
307-55-1	Perfluorododecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
72629-94-8	Perfluorotridecanoic acid [b]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
376-06-7	Perfluorotetradecanoic acid [b]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS								
2355-31-9	MeFOSAA [b]	0.0018 U		0.0036	0.0018	0.00089	ug/l	
2991-50-6	EtFOSAA [b]	0.0018 U		0.0036	0.0018	0.00089	ug/l	
NEXT GENERATION PFAS ANALYTES								
13252-13-6	HFPO-DA (GenX)	0.0054 U		0.0071	0.0054	0.0027	ug/l	
919005-14-4	ADONA	0.0036 U		0.0071	0.0036	0.0018	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major) [b]	0.0036 U		0.0071	0.0036	0.0018	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Mino [b]	0.0036 U		0.0071	0.0036	0.0018	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	102%	139% [d]	70-130%
	13C2-PFDA	80%	127%	70-130%
	d5-EtFOSAA	66% [d]	145% [d]	70-130%
	13C3-HFPO-DA	98%	130%	70-130%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

4.8 4

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018394-25098-N-R01		
Lab Sample ID:	FC23899-4A	**Date Sampled:**	04/11/25
Matrix:	DW - Drinking Water	**Date Received:**	04/12/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

4.8
4

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q

(a) Confirmation run.
(b) Associated BS outside of control limits low.
(c) Associated BS outside of control limits low. Associated ICV outside control limits high.
(d) Outside control limits.

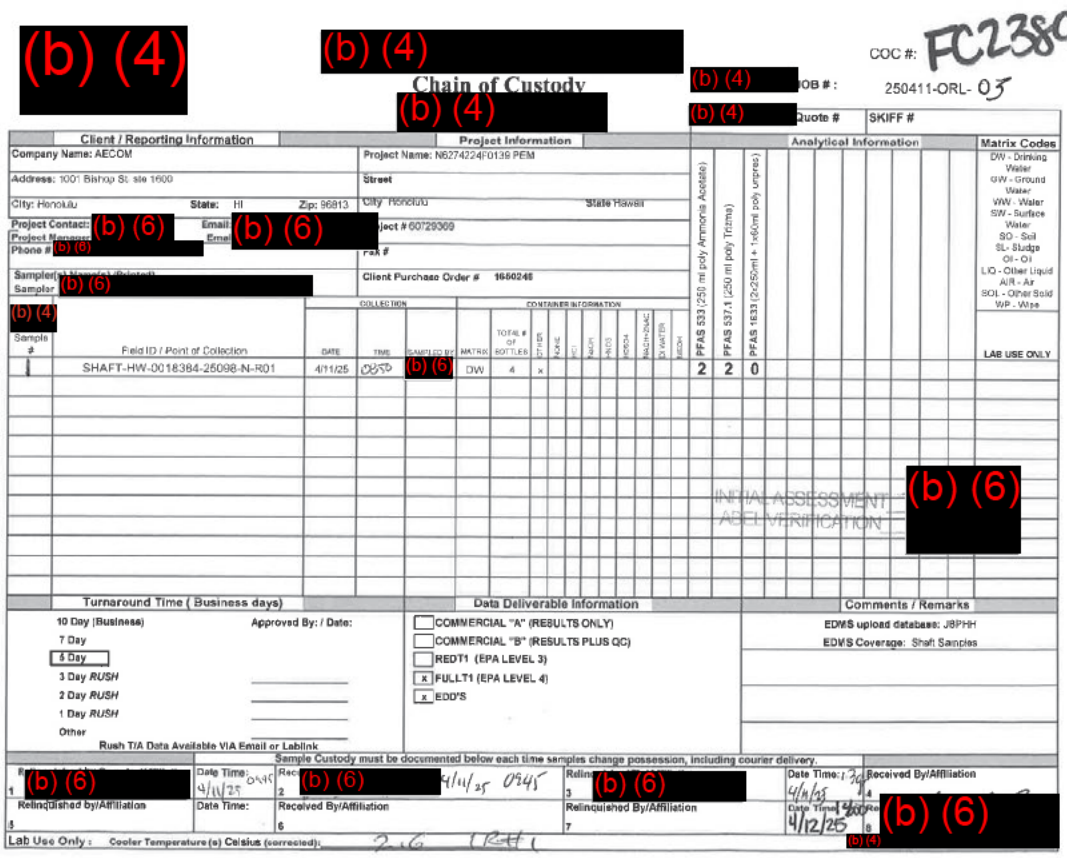
U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5.x Limits



[redacted] (b) (4)

[redacted] (b) (4)

Chain of Custody

[redacted] (b) (4)

COC #: FC23899

[redacted] (b) (4) JOB #: 250411-ORL- 03

[redacted] (b) (4) Quote # SKIFF #

Client / Reporting Information	Project Information	Analytical Information	Matrix Codes
Company Name: AECOM	Project Name: N6274224F0139 PEM		DW - Drinking Water
Address: 1001 Bishop St ste 1600	Street		GW - Ground Water
City: Honolulu State: HI Zip: 96813	City Honolulu State Hawaii		WW - Water
Project Contact: [redacted] (b) (6) Email: [redacted] (b) (6)	Project # 60729369		SW - Surface Water
Project Manager: [redacted] Email: [redacted]	Fax #		SO - Soil
Phone # [redacted] (b) (6)			SL- Sludge
Sampler(s) Name(s) (Printed)	Client Purchase Order # 1650246		OI - Oil
Sampler [redacted] (b) (6)			LIQ - Other Liquid
			AIR - Air
			SOL - Other Solid
			WP - Wipe

Sample # [redacted] (b) (4)	Field ID / Point of Collection	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZnAc	DI WATER	MEOH	PFAS 533 (250 ml poly Ammonia Acetate)	PFAS 537.1 (250 ml poly Trizma)	PFAS 1633 (2x250ml + 1x60ml poly unpres)	LAB USE ONLY
1	SHAFT-HW-0018384-25098-N-R01	4/11/25	0850	[redacted] (b) (6)	DW	4	x									2	2	0	

INITIAL ASSESSMENT [redacted] (b) (6)
ABEL VERIFICATION

Turnaround Time (Business days)	Data Deliverable Information	Comments / Remarks
10 Day (Business) Approved By: / Date:	COMMERCIAL "A" (RESULTS ONLY)	EDMS upload database: J8PHH
7 Day	COMMERCIAL "B" (RESULTS PLUS QC)	EDMS Coverage: Shaft Samples
5 Day	REDT1 (EPA LEVEL 3)	
3 Day *RUSH*	x FULLT1 (EPA LEVEL 4)	
2 Day *RUSH*	x EDD'S	
1 Day *RUSH*		
Other		
Rush T/A Data Available VIA Email or Lablink		

Sample Custody must be documented below each time samples change possession, including courier delivery.

1 [redacted] (b) (6)	Date Time: 4/11/25 0945	2 [redacted] (b) (6) 4/11/25 0945	3 [redacted] (b) (6)	Date Time: 4/11/25 1:30	4 Received By/Affiliation
5 Relinquished by/Affiliation	Date Time:	6 Received By/Affiliation	7 Relinquished By/Affiliation	Date Time: 4/12/25 1:00	8 [redacted] (b) (6)

Lab Use Only : Cooler Temperature (s) Celsius (corrected): 2.6 IR#1 [redacted] (b) (4)

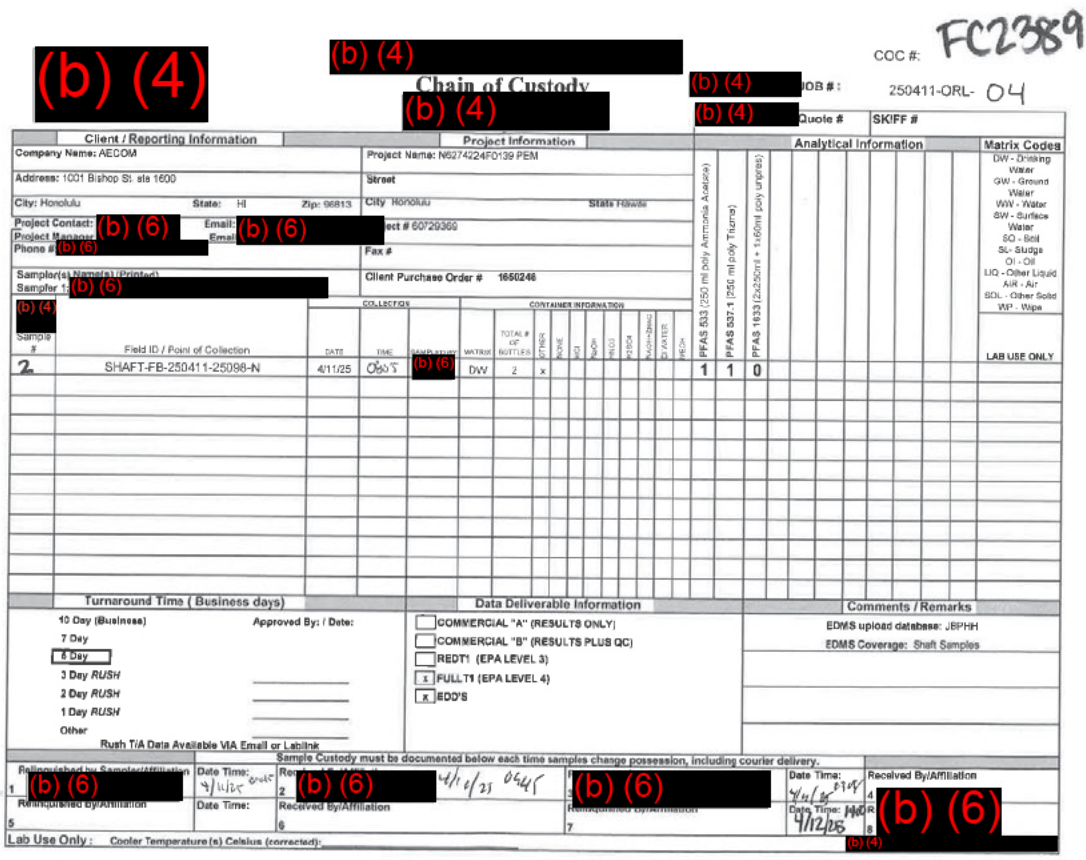
EDWM_COCsandLabels_250411.xlsx Rev 031318

5.1

5

FC23899: Chain of Custody
Page 1 of 5

[redacted] [redacted]



COC #: FC23899

Chain of Custody

[redacted] [redacted] JOB #: 250411-ORL- 04

[redacted] Quote # SKIFF #

Client / Reporting Information	Project Information	Analytical Information	Matrix Codes
Company Name: AECOM	Project Name: N6274224F0139 PEM		DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL- Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe
Address: 1001 Bishop St. ste 1600	Street		
City: Honolulu State: HI Zip: 96813	City Honolulu State Hawaii		
Project Contact: [redacted] Email: [redacted]	ect # 60729369		
Project Manager [redacted] Email			
Phone # [redacted]	Fax #		
Sampler(s) Name(s) (Printed)	Client Purchase Order # 1650246		
Sampler 1: [redacted]			

Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLE BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZnAc	DI WATER	WECH	PFAS 533 (250 ml poly Ammonia Acetate)	PFAS 537.1 (250 ml poly Trizma)	PFAS 1633 (2x250ml + 1x60ml poly unpres)	LAB USE ONLY
2	SHAFT-FB-250411-25098-N	4/11/25	0805	[redacted]	DW	2	x									1	1	0	

Turnaround Time (Business days)	Data Deliverable Information	Comments / Remarks
10 Day (Business) Approved By: / Date: 7 Day 5 Day 3 Day *RUSH* 2 Day *RUSH* 1 Day *RUSH* Other Rush T/A Data Available VIA Email or Lablink	COMMERCIAL "A" (RESULTS ONLY) COMMERCIAL "B" (RESULTS PLUS QC) REDT1 (EPA LEVEL 3) x FULLT1 (EPA LEVEL 4) x EDD'S	EDMS upload database: JBPHH EDMS Coverage: Shaft Samples

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1 [redacted]	4/11/25 0845	2 [redacted] 4/11/25 0845	3 [redacted]	4/11/25 0845	4 [redacted]
5		6	7	4/12/25 1400	8 [redacted]

Lab Use Only : Cooler Temperature (s) Celsius (corrected): [redacted]

EDWM_COCsendLabels_250411.xlsx Rev 031318

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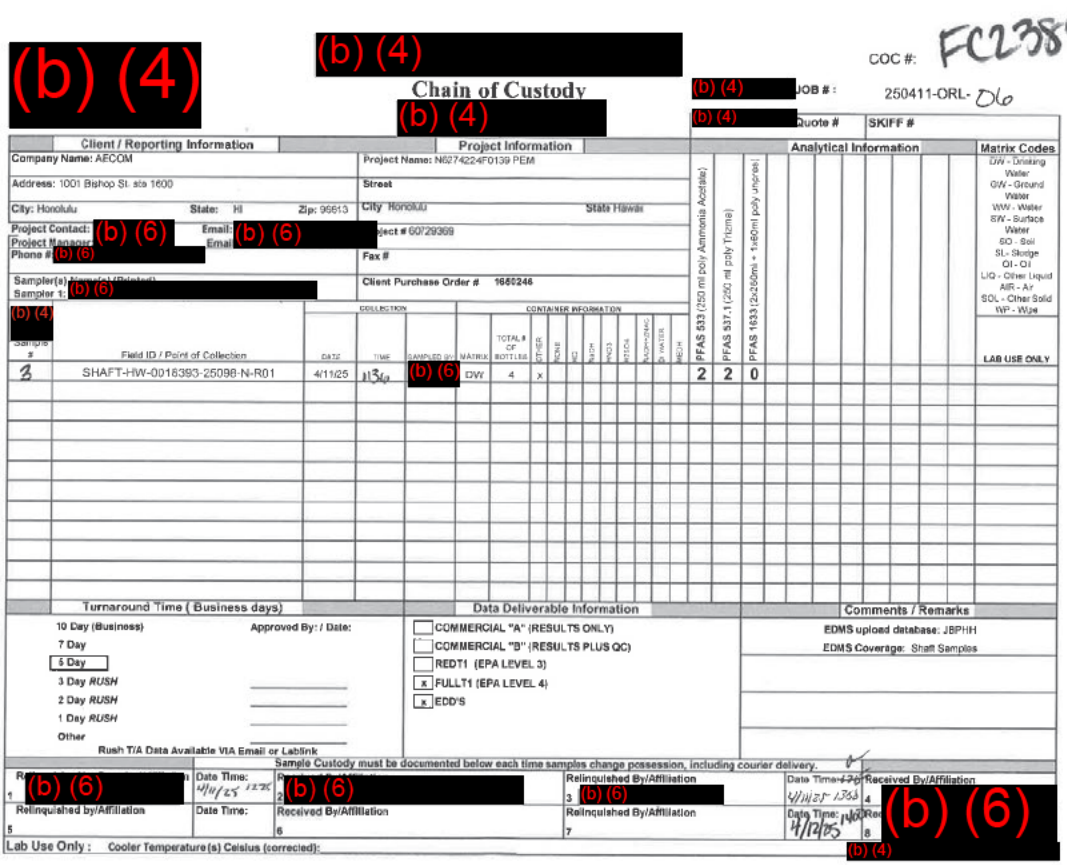
FC23899: Chain of Custody
Page 2 of 5

[redacted] (b) (4)

[redacted] (b) (4)



COC #: FC23899

Chain of Custody

[redacted] (b) (4)

[redacted] (b) (4) JOB #: 250411-ORL-06

[redacted] (b) (4) Quote # SKIFF #

Client / Reporting Information	Project Information	Analytical Information	Matrix Codes
Company Name: AECOM	Project Name: N6274224F0139 PEM		DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe
Address: 1001 Bishop St. ste 1600	Street		
City: Honolulu State: HI Zip: 96813	City Honolulu State Hawaii		
Project Contact: [redacted] (b) (6) Email: [redacted] (b) (6)	[redacted] ject # 60729369		
Project Manager Email			
Phone # [redacted] (b) (6)	Fax #		
Sampler(s) Name(s) (Printed) Sampler 1: [redacted] (b) (6)	Client Purchase Order # 1650246		

Sample # [redacted] (b) (4)	Field ID / Point of Collection	COLLECTION DATE	COLLECTION TIME	SAMPLED BY	CONTAINER INFORMATION MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	NO3	NaOH	HNO3	NaOH+ZnAc	DI WATER	MEOH	PFAS 533 (250 ml poly Ammonia Acetate)	PFAS 537.1 (250 ml poly Trizma)	PFAS 1633 (2x250ml + 1x60ml poly unpres)	LAB USE ONLY
3	SHAFT-HW-0018393-25098-N-R01	4/11/25	1136	[redacted] (b) (6)	DW	4	x								2	2	0	

Turnaround Time (Business days)	Data Deliverable Information	Comments / Remarks
10 Day (Business) Approved By: / Date: 7 Day 5 Day 3 Day *RUSH* 2 Day *RUSH* 1 Day *RUSH* Other Rush T/A Data Available VIA Email or Lablink	[ ] COMMERCIAL "A" (RESULTS ONLY) [ ] COMMERCIAL "B" (RESULTS PLUS QC) [ ] REDT1 (EPA LEVEL 3) [x] FULLT1 (EPA LEVEL 4) [x] EDD'S	EDMS upload database: JBPHH EDMS Coverage: Shaft Samples

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1 [redacted] (b) (6)	4/11/25 1235	2 [redacted] (b) (6)	3 [redacted] (b) (6)	4/11/25 1365	4 [redacted] (b) (6)
5		6	7	4/12/25 1400	8 [redacted] (b) (4)

Lab Use Only : Cooler Temperature(s) Celsius (corrected):

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FC23899: Chain of Custody
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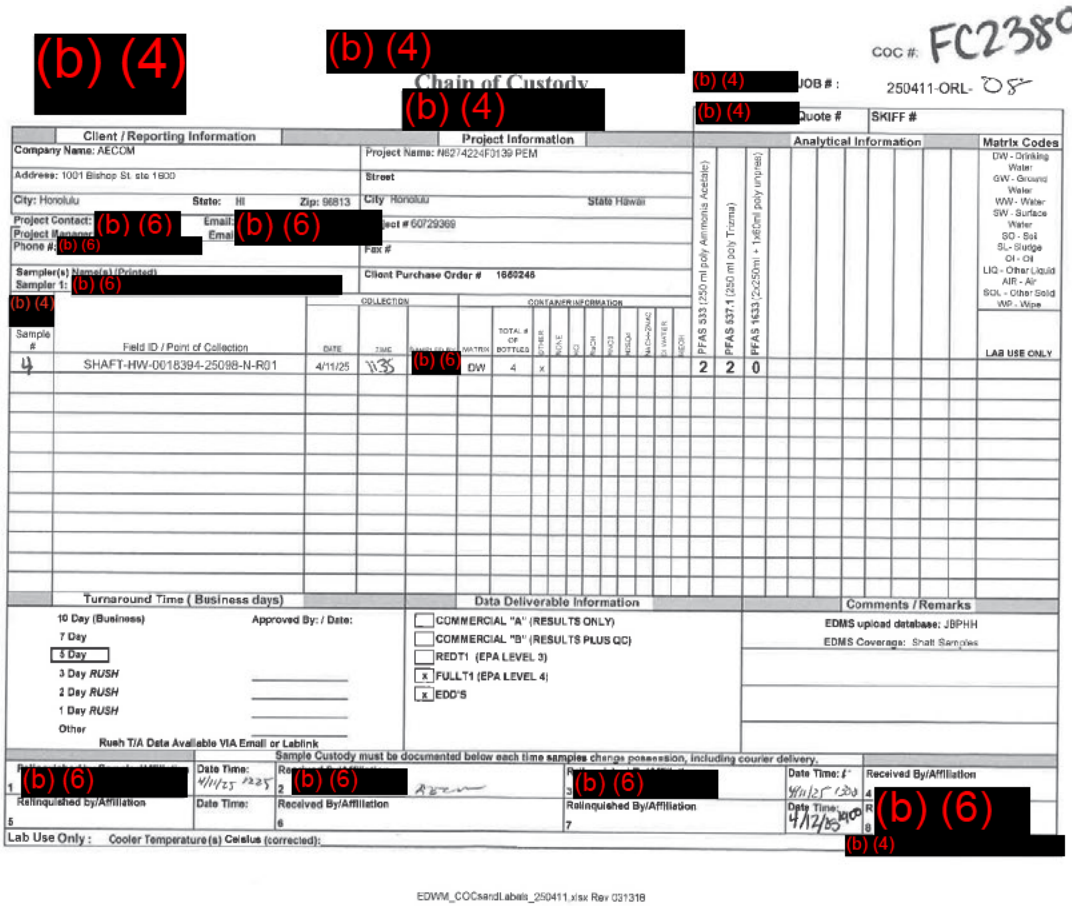
[redacted] (b) (4)

[redacted] (b) (4)



COC #: FC23899

Chain of Custody

[redacted] (b) (4)

[redacted] (b) (4) JOB # : 250411-ORL- 08

[redacted] (b) (4) Quote # SKIFF #

Client / Reporting Information	Project Information	Analytical Information	Matrix Codes
Company Name: AECOM	Project Name: N6274224F0139 PEM		DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe
Address: 1001 Bishop St. ste 1600	Street		
City: Honolulu State: HI Zip: 96813	City Honolulu State Hawaii		
Project Contact: [redacted] (b) (6) Email: [redacted] (b) (6)	[redacted] ject # 60729369		
Project Manager: Email:			
Phone #: [redacted] (b) (6)	Fax #		
Sampler(s) Name(s) (Printed)	Client Purchase Order # 1660246		
Sampler 1: [redacted] (b) (6)			

Sample #	Field ID / Point of Collection	COLLECTION DATE	COLLECTION TIME	SAMPLED BY	CONTAINER INFORMATION MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	RaOH	HNO3	NaOH	NaOH-ZNAC	DI WATER	HEOH	PFAS 533 (250 ml poly Ammonia Acetate)	PFAS 537.1 (250 ml poly Trizma)	PFAS 1633 (2x250ml + 1x60ml poly unpres)	LAB USE ONLY
4	SHAFT-HW-0018394-25098-N-R01	4/11/25	1135	[redacted] (b) (6)	DW	4	x									2	2	0	

Turnaround Time (Business days)	Data Deliverable Information	Comments / Remarks
10 Day (Business) Approved By: / Date: 7 Day 5 Day 3 Day *RUSH* 2 Day *RUSH* 1 Day *RUSH* Other Rush T/A Data Available VIA Email or Lablink	[ ] COMMERCIAL "A" (RESULTS ONLY) [ ] COMMERCIAL "B" (RESULTS PLUS QC) [ ] REDT1 (EPA LEVEL 3) [x] FULLT1 (EPA LEVEL 4) [x] EDD'S	EDMS upload database: JBPHH EDMS Coverage: Shaft Samples

Sample Custody must be documented below each time samples change possession, including courier delivery.

1 [redacted] (b) (6)	Date Time: 4/11/25 1225	2 [redacted] (b) (6)	3 [redacted] (b) (6)	Date Time: 4/11/25 1300	4 Received By/Affiliation
5 Relinquished by/Affiliation	Date Time:	6 Received By/Affiliation	7 Relinquished By/Affiliation	Date Time: 4/12/25 1900	8 R [redacted] (b) (6)

Lab Use Only : Cooler Temperature(s) Celsius (corrected): [redacted] (b) (4)

EDWM_COCsandLabels_250411.xlsx Rev 031318

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FC23899: Chain of Custody
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(b) (4) Sample Receipt Summary

Job Number: fc23899 **Client:** AECOM **Project:** N6274224F0139 Extended Drinking Water

Date / Time Received: 4/12/2025 2:00:00 PM **Delivery Method:** United Cargo/Airspace **Airbill #'s:** United Cargo AWB #: 016-71334406

Cooler Temps (Raw Measured) °C: Cooler 1: (2.6);

Cooler Temps (Corrected) °C: Cooler 1: (3.0);

Cooler Informatio	Y	or	N
1. Custody Seals Present:	☑		☐
2. Custody Seals Intact:	☑		☐
3. Temp criteria achieved:	☑		☐
4. Cooler temp verification:	IR Gun		
5. Cooler media:	Ice (Bag)		

Trip Blank Information	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑

	W	or	S	N/A
3. Type of TB Received	☐		☐	☑

Sample Information	Y	or	N	N/A
1. Sample labels present on bottles:	☑		☐	
2. Samples presented properly	☑		☐	
3. Sufficient volume/containers recv'd for analysi	☑		☐	
4. Condition of sample:	Intact			
5. Sample recv'd within HT	☑		☐	
6. Dates/Times/IDs on COC match sample labe	☑		☐	
7. VOCs have headspace	☐		☐	☑
8. Bottles received for unspecified tests	☐		☑	
9. Compositing instructions clear	☐		☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☑
11. % Solids Jar Received?	☐		☐	☑
12. Residual Chlorine Present?	☐		☐	☑

Misc Information

Number of Encores: 25 Gram 5 Gram

Number of Lab Filtered Metals

Test Strip Lot #s: pH 0-3: 226422 pH 10-12: Other: (Specify) 0-14 210224

Residual Chlorine Test Strip Lot

Comments

Sample Receipt Summary 112723 EK Technician: (b) (6) Date: 4/12/2025 3:20:39 PM Reviewer: (b) (6) Date: 04/12/25

QC Evaluation: DOD QSM5.x Limits

Job Number: FC23899
Account: AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Collected: 04/11/25

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits

No DOD QSM5.x Limits found for methods in this job.

* Sample used for QC is not from job FC23899

MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Injection/Internal Standard Area Summaries
- Isotope Dilution Standard/Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries
- Run Sequence Reports

Raw Data: 3Q101466.D

Instrument Blank

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q1492-IBLK	3Q101466.D	1	04/15/25	(b)(6)	n/a	n/a	S3Q1492

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2, FC23899-4

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.00060	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.00068	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00060	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00068	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00060	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00060	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00064	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00065	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00060	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.00077	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00060	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.00060	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00060	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0040	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
377-73-1	PFMPA	ND	0.0040	0.00064	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.00060	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.00060	ug/l	
113507-82-7	PFEESA	ND	0.0040	0.00060	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0040	0.00060	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0040	0.00060	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0040	0.00068	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	102%	50-200%
	13C5-PFPeA	103%	50-200%
	13C5-PFHxA	99%	50-200%
	13C4-PFHpA	100%	50-200%
	13C8-PFOA	102%	50-200%
	13C9-PFNA	101%	50-200%
	13C6-PFDA	102%	50-200%

Instrument Blank

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q1492-IBLK	3Q101466.D	1	04/15/25	(b)(6)	n/a	n/a	S3Q1492

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2, FC23899-4

CAS No.	ID Standard Recoveries		Limits
	13C7-PFUnDA	97%	50-200%
	13C2-PFDoDA	99%	50-200%
	13C3-PFBS	99%	50-200%
	13C3-PFHxS	101%	50-200%
	13C8-PFOS	100%	50-200%
	13C2-4:2FTS	93%	50-200%
	13C2-6:2FTS	93%	50-200%
	13C2-8:2FTS	93%	50-200%
	13C3-HFPO-DA	84%	50-200%

Raw Data: 3Q101518.D

Instrument Blank

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q1494-IBLK	3Q101518.D	1	04/17/25	(b)(6)	n/a	n/a	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-4

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.00060	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.00068	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00060	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00068	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00060	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00060	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00064	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00065	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00060	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.00077	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00060	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.00060	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00060	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0040	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
377-73-1	PFMPA	ND	0.0040	0.00064	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.00060	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.00060	ug/l	
113507-82-7	PFEESA	ND	0.0040	0.00060	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0040	0.00060	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0040	0.00060	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0040	0.00068	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	103%	50-200%
	13C5-PFPeA	104%	50-200%
	13C5-PFHxA	106%	50-200%
	13C4-PFHpA	106%	50-200%
	13C8-PFOA	109%	50-200%
	13C9-PFNA	111%	50-200%
	13C6-PFDA	116%	50-200%

Instrument Blank

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q1494-IBLK	3Q101518.D	1	04/17/25	(b)(6)	n/a	n/a	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-4

CAS No.	ID Standard Recoveries		Limits
	13C7-PFUnDA	99%	50-200%
	13C2-PFDoDA	108%	50-200%
	13C3-PFBS	98%	50-200%
	13C3-PFHxS	99%	50-200%
	13C8-PFOS	99%	50-200%
	13C2-4:2FTS	97%	50-200%
	13C2-6:2FTS	101%	50-200%
	13C2-8:2FTS	105%	50-200%
	13C3-HFPO-DA	76%	50-200%

Raw Data: 3Q101471.D

Method Blank Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8883-MB	3Q101471.D	1	04/15/25	(b) (6)	04/15/25	OP8883	S3Q1492

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.00060	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.00068	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00060	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00068	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00060	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00060	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00064	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00065	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00060	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.00077	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00060	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.00060	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00060	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0040	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
377-73-1	PFMPA	ND	0.0040	0.00064	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.00060	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.00060	ug/l	
113507-82-7	PFEESA	ND	0.0040	0.00060	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0040	0.00060	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0040	0.00060	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0040	0.00068	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	87%	50-200%
	13C5-PFPeA	88%	50-200%
	13C5-PFHxA	85%	50-200%
	13C4-PFHpA	87%	50-200%
	13C8-PFOA	88%	50-200%
	13C9-PFNA	84%	50-200%
	13C6-PFDA	75%	50-200%

Method Blank Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8883-MB	3Q101471.D	1	04/15/25	(b) (6)	04/15/25	OP8883	S3Q1492

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2

CAS No.	ID Standard Recoveries		Limits
	13C7-PFUnDA	45%* [a]	50-200%
	13C2-PFDoDA	34%* [a]	50-200%
	13C3-PFBS	89%	50-200%
	13C3-PFHxS	90%	50-200%
	13C8-PFOS	82%	50-200%
	13C2-4:2FTS	80%	50-200%
	13C2-6:2FTS	82%	50-200%
	13C2-8:2FTS	61%	50-200%
	13C3-HFPO-DA	76%	50-200%

(a) Outside control limits.

Raw Data: 3Q101494.D

Method Blank Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8883-MB	3Q101494.D	1	04/16/25	(b) (6)	04/15/25	OP8883	S3Q1493

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.00060	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.00068	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00060	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00068	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00060	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00060	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00064	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00065	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00060	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.00077	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00060	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.00060	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00060	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0040	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
377-73-1	PFMPA	ND	0.0040	0.00064	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.00060	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.00060	ug/l	
113507-82-7	PFEESA	ND	0.0040	0.00060	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0040	0.00060	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0040	0.00060	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0040	0.00068	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	86%	50-200%
	13C5-PFPeA	88%	50-200%
	13C5-PFHxA	88%	50-200%
	13C4-PFHpA	91%	50-200%
	13C8-PFOA	92%	50-200%
	13C9-PFNA	91%	50-200%
	13C6-PFDA	78%	50-200%

Method Blank Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8883-MB	3Q101494.D	1	04/16/25	(b) (6)	04/15/25	OP8883	S3Q1493

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2

CAS No.	ID Standard Recoveries		Limits
	13C7-PFUnDA	47%* [a]	50-200%
	13C2-PFDoDA	36%* [a]	50-200%
	13C3-PFBS	87%	50-200%
	13C3-PFHxS	86%	50-200%
	13C8-PFOS	79%	50-200%
	13C2-4:2FTS	84%	50-200%
	13C2-6:2FTS	85%	50-200%
	13C2-8:2FTS	68%	50-200%
	13C3-HFPO-DA	73%	50-200%

(a) Outside control limits.

Raw Data: 3Q101525.D

Method Blank Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-MB	3Q101525.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-4

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.00060	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.00068	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00060	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00068	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00060	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00060	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00064	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00065	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00060	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.00077	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00060	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.00060	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00060	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0040	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
377-73-1	PFMPA	ND	0.0040	0.00064	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.00060	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.00060	ug/l	
113507-82-7	PFEESA	ND	0.0040	0.00060	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0040	0.00060	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0040	0.00060	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0040	0.00068	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	78%	50-200%
	13C5-PFPeA	78%	50-200%
	13C5-PFHxA	78%	50-200%
	13C4-PFHpA	80%	50-200%
	13C8-PFOA	82%	50-200%
	13C9-PFNA	82%	50-200%
	13C6-PFDA	83%	50-200%

Method Blank Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-MB	3Q101525.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-4

CAS No.	ID Standard Recoveries		Limits
	13C7-PFUnDA	78%	50-200%
	13C2-PFDoDA	69%	50-200%
	13C3-PFBS	76%	50-200%
	13C3-PFHxS	76%	50-200%
	13C8-PFOS	76%	50-200%
	13C2-4:2FTS	74%	50-200%
	13C2-6:2FTS	76%	50-200%
	13C2-8:2FTS	73%	50-200%
	13C3-HFPO-DA	66%	50-200%

Raw Data: 3Q101488.D

Instrument Blank

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q1493-IBLK	3Q101488.D	1	04/16/25	(b)(6)	n/a	n/a	S3Q1493

The QC reported here applies to the following samples: **Method:** EPA 533

OP8883-BS

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.00060	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.00068	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00060	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00068	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00060	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00060	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00064	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00065	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00060	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.00077	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00060	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.00060	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00060	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0040	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
377-73-1	PFMPA	ND	0.0040	0.00064	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.00060	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.00060	ug/l	
113507-82-7	PFEESA	ND	0.0040	0.00060	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0040	0.00060	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0040	0.00060	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0040	0.00068	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	103%	50-200%
	13C5-PFPeA	105%	50-200%
	13C5-PFHxA	106%	50-200%
	13C4-PFHpA	106%	50-200%
	13C8-PFOA	108%	50-200%
	13C9-PFNA	111%	50-200%
	13C6-PFDA	115%	50-200%

Instrument Blank

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q1493-IBLK	3Q101488.D	1	04/16/25	(b)(6)	n/a	n/a	S3Q1493

The QC reported here applies to the following samples: **Method:** EPA 533

OP8883-BS

CAS No.	ID Standard Recoveries		Limits
	13C7-PFUnDA	101%	50-200%
	13C2-PFDoDA	109%	50-200%
	13C3-PFBS	101%	50-200%
	13C3-PFHxS	100%	50-200%
	13C8-PFOS	100%	50-200%
	13C2-4:2FTS	99%	50-200%
	13C2-6:2FTS	102%	50-200%
	13C2-8:2FTS	107%	50-200%
	13C3-HFPO-DA	81%	50-200%

Method Blank Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8882-MB	5Q31771.D	1	04/15/25	[redacted]	04/15/25	OP8882	S5Q521

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23899-1A, FC23899-2A, FC23899-3A, FC23899-4A

CAS No.	Compound	Result	RL	MDL	Units	Q
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00080	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00080	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00080	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00080	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00080	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00080	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00080	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0020	0.00080	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0020	0.00080	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00080	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00080	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00080	ug/l	
2355-31-9	MeFOSAA	ND	0.0040	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0040	0.0010	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0080	0.0030	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

CAS No.	Surrogate Recoveries		Limits
	13C2-PFHxA	104%	70-130%
	13C2-PFDA	79%	70-130%
	d5-EtFOSAA	53%* [a]	70-130%
	13C3-HFPO-DA	97%	70-130%

(a) Outside control limits.

Method Blank Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8882-MB	5Q31799.D	1	04/16/25	(b) (6)	04/15/25	OP8882	S5Q522

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23899-1A, FC23899-2A, FC23899-3A, FC23899-4A

CAS No.	Compound	Result	RL	MDL	Units	Q
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00080	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00080	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00080	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00080	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00080	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00080	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00080	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0020	0.00080	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0020	0.00080	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00080	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00080	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00080	ug/l	
2355-31-9	MeFOSAA	ND	0.0040	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0040	0.0010	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0080	0.0030	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

CAS No.	Surrogate Recoveries		Limits
	13C2-PFHxA	102%	70-130%
	13C2-PFDA	77%	70-130%
	d5-EtFOSAA	54%* [a]	70-130%
	13C3-HFPO-DA	96%	70-130%

(a) Outside control limits.

Raw Data: 3Q101524.D

Blank Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-BS	3Q101524.D	1	04/17/25	(b)(6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.004	0.0044	110	50-150
2706-90-3	Perfluoropentanoic acid	0.004	0.0043	108	50-150
307-24-4	Perfluorohexanoic acid	0.004	0.0041	103	50-150
375-85-9	Perfluoroheptanoic acid	0.004	0.0040	100	50-150
335-67-1	Perfluorooctanoic acid	0.004	0.0042	105	50-150
375-95-1	Perfluorononanoic acid	0.004	0.0042	105	50-150
335-76-2	Perfluorodecanoic acid	0.004	0.0042	105	50-150
2058-94-8	Perfluoroundecanoic acid	0.004	0.0043	108	50-150
307-55-1	Perfluorododecanoic acid	0.004	0.0043	108	50-150
375-73-5	Perfluorobutanesulfonic acid	0.004	0.0042	105	50-150
2706-91-4	Perfluoropentanesulfonic acid	0.004	0.0043	108	50-150
355-46-4	Perfluorohexanesulfonic acid	0.004	0.0045	113	50-150
375-92-8	Perfluoroheptanesulfonic acid	0.004	0.0046	115	50-150
1763-23-1	Perfluorooctanesulfonic acid	0.004	0.0043	108	50-150
757124-72-4	4:2 Fluorotelomer sulfonate	0.004	0.0040	100	50-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.004	0.0045	113	50-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.004	0.0052	130	50-150
377-73-1	PFMPA	0.004	0.0044	110	50-150
863090-89-5	PFMBA	0.004	0.0042	105	50-150
151772-58-6	NFDHA	0.004	0.0045	113	50-150
113507-82-7	PFEESA	0.004	0.0043	108	50-150
13252-13-6	HFPO-DA (GenX)	0.004	0.0045	113	50-150
919005-14-4	ADONA	0.004	0.0040	100	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.004	0.0040	100	50-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.004	0.0036	90	50-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	80%	50-200%
	13C5-PFPeA	81%	50-200%
	13C5-PFHxA	82%	50-200%
	13C4-PFHpA	84%	50-200%
	13C8-PFOA	85%	50-200%
	13C9-PFNA	86%	50-200%
	13C6-PFDA	93%	50-200%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-BS	3Q101524.D	1	04/17/25	(b)(6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-4

CAS No.	ID Standard Recoveries	BSP	Limits
	13C7-PFUnDA	77%	50-200%
	13C2-PFDoDA	70%	50-200%
	13C3-PFBS	80%	50-200%
	13C3-PFHxS	81%	50-200%
	13C8-PFOS	81%	50-200%
	13C2-4:2FTS	79%	50-200%
	13C2-6:2FTS	80%	50-200%
	13C2-8:2FTS	78%	50-200%
	13C3-HFPO-DA	69%	50-200%

* = Outside of Control Limits.

Raw Data: 3Q101472.D

Blank Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8883-BS	3Q101472.D	1	04/15/25	(b)(6)	04/15/25	OP8883	S3Q1492

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.08	0.104	130	70-130
2706-90-3	Perfluoropentanoic acid	0.08	0.102	128	70-130
307-24-4	Perfluorohexanoic acid	0.08	0.102	128	70-130
375-85-9	Perfluoroheptanoic acid	0.08	0.101	126	70-130
335-67-1	Perfluorooctanoic acid	0.08	0.103	129	70-130
375-95-1	Perfluorononanoic acid	0.08	0.103	129	70-130
335-76-2	Perfluorodecanoic acid	0.08	0.101	126	70-130
2058-94-8	Perfluoroundecanoic acid	0.08	0.109	136*	70-130
307-55-1	Perfluorododecanoic acid	0.08	0.129	161*	70-130
375-73-5	Perfluorobutanesulfonic acid	0.08	0.101	126	70-130
2706-91-4	Perfluoropentanesulfonic acid	0.08	0.103	129	70-130
355-46-4	Perfluorohexanesulfonic acid	0.08	0.101	126	70-130
375-92-8	Perfluoroheptanesulfonic acid	0.08	0.104	130	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.08	0.0996	125	70-130
757124-72-4	4:2 Fluorotelomer sulfonate	0.08	0.102	128	70-130
27619-97-2	6:2 Fluorotelomer sulfonate	0.08	0.101	126	70-130
39108-34-4	8:2 Fluorotelomer sulfonate	0.08	0.113	141*	70-130
377-73-1	PFMPA	0.08	0.103	129	70-130
863090-89-5	PFMBA	0.08	0.102	128	70-130
151772-58-6	NFDHA	0.08	0.103	129	70-130
113507-82-7	PFEESA	0.08	0.101	126	70-130
13252-13-6	HFPO-DA (GenX)	0.08	0.120	150*	70-130
919005-14-4	ADONA	0.08	0.101	126	70-130
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.08	0.0914	114	70-130
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.08	0.0594	74	70-130

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	78%	50-200%
	13C5-PFPeA	78%	50-200%
	13C5-PFHxA	78%	50-200%
	13C4-PFHpA	77%	50-200%
	13C8-PFOA	77%	50-200%
	13C9-PFNA	75%	50-200%
	13C6-PFDA	75%	50-200%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8883-BS	3Q101472.D	1	04/15/25	(b)(6)	04/15/25	OP8883	S3Q1492

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2

CAS No.	ID Standard Recoveries	BSP	Limits
	13C7-PFUnDA	51%	50-200%
	13C2-PFDoDA	36%* [a]	50-200%
	13C3-PFBS	77%	50-200%
	13C3-PFHxS	77%	50-200%
	13C8-PFOS	74%	50-200%
	13C2-4:2FTS	78%	50-200%
	13C2-6:2FTS	78%	50-200%
	13C2-8:2FTS	65%	50-200%
	13C3-HFPO-DA	75%	50-200%

(a) Outside control limits.

* = Outside of Control Limits.

Raw Data: 3Q101493.D

Blank Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8883-BS	3Q101493.D	1	04/16/25	(b)(6)	04/15/25	OP8883	S3Q1493

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.08	0.103	129	70-130
2706-90-3	Perfluoropentanoic acid	0.08	0.101	126	70-130
307-24-4	Perfluorohexanoic acid	0.08	0.0958	120	70-130
375-85-9	Perfluoroheptanoic acid	0.08	0.0949	119	70-130
335-67-1	Perfluorooctanoic acid	0.08	0.0966	121	70-130
375-95-1	Perfluorononanoic acid	0.08	0.0975	122	70-130
335-76-2	Perfluorodecanoic acid	0.08	0.100	125	70-130
2058-94-8	Perfluoroundecanoic acid	0.08	0.110	138*	70-130
307-55-1	Perfluorododecanoic acid	0.08	0.128	160*	70-130
375-73-5	Perfluorobutanesulfonic acid	0.08	0.101	126	70-130
2706-91-4	Perfluoropentanesulfonic acid	0.08	0.102	128	70-130
355-46-4	Perfluorohexanesulfonic acid	0.08	0.103	129	70-130
375-92-8	Perfluoroheptanesulfonic acid	0.08	0.105	131*	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.08	0.101	126	70-130
757124-72-4	4:2 Fluorotelomer sulfonate	0.08	0.100	125	70-130
27619-97-2	6:2 Fluorotelomer sulfonate	0.08	0.0996	125	70-130
39108-34-4	8:2 Fluorotelomer sulfonate	0.08	0.111	139*	70-130
377-73-1	PFMPA	0.08	0.103	129	70-130
863090-89-5	PFMBA	0.08	0.100	125	70-130
151772-58-6	NFDHA	0.08	0.0968	121	70-130
113507-82-7	PFEESA	0.08	0.103	129	70-130
13252-13-6	HFPO-DA (GenX)	0.08	0.100	125	70-130
919005-14-4	ADONA	0.08	0.0922	115	70-130
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.08	0.0942	118	70-130
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.08	0.0636	80	70-130

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	78%	50-200%
	13C5-PFPeA	79%	50-200%
	13C5-PFHxA	80%	50-200%
	13C4-PFHpA	82%	50-200%
	13C8-PFOA	82%	50-200%
	13C9-PFNA	82%	50-200%
	13C6-PFDA	76%	50-200%

* = Outside of Control Limits.

6.2.3

6

(b) (4)

Blank Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8883-BS	3Q101493.D	1	04/16/25	(b)(6)	04/15/25	OP8883	S3Q1493

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2

CAS No.	ID Standard Recoveries	BSP	Limits
	13C7-PFUnDA	56%	50-200%
	13C2-PFDoDA	39%* [a]	50-200%
	13C3-PFBS	78%	50-200%
	13C3-PFHxS	78%	50-200%
	13C8-PFOS	73%	50-200%
	13C2-4:2FTS	85%	50-200%
	13C2-6:2FTS	84%	50-200%
	13C2-8:2FTS	75%	50-200%
	13C3-HFPO-DA	78%	50-200%

(a) Outside control limits.

* = Outside of Control Limits.

Raw Data: 5Q31770.D

Blank Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8882-BS	5Q31770.D	1	04/15/25	[redacted]	04/15/25	OP8882	S5Q521

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23899-1A, FC23899-2A, FC23899-3A, FC23899-4A

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
307-24-4	Perfluorohexanoic acid	0.08	0.0797	100	70-130
375-85-9	Perfluoroheptanoic acid	0.08	0.0769	96	70-130
335-67-1	Perfluorooctanoic acid	0.08	0.0765	96	70-130
375-95-1	Perfluorononanoic acid	0.08	0.0651	81	70-130
335-76-2	Perfluorodecanoic acid	0.08	0.0573	72	70-130
2058-94-8	Perfluoroundecanoic acid	0.08	0.0398	50*	70-130
307-55-1	Perfluorododecanoic acid	0.08	0.0309	39*	70-130
72629-94-8	Perfluorotridecanoic acid	0.08	0.0289	36*	70-130
376-06-7	Perfluorotetradecanoic acid	0.08	0.0343	43*	70-130
375-73-5	Perfluorobutanesulfonic acid	0.08	0.0835	104	70-130
355-46-4	Perfluorohexanesulfonic acid	0.08	0.0736	92	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.08	0.0618	77	70-130
2355-31-9	MeFOSAA	0.08	0.0411	51*	70-130
2991-50-6	EtFOSAA	0.08	0.0475	59*	70-130
13252-13-6	HFPO-DA (GenX)	0.08	0.0765	96	70-130
919005-14-4	ADONA	0.08	0.0741	93	70-130
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.08	0.0514	64*	70-130
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.08	0.0346	43*	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
	13C2-PFHxA	105%	70-130%
	13C2-PFDA	70%	70-130%
	d5-EtFOSAA	43%* [a]	70-130%
	13C3-HFPO-DA	100%	70-130%

(a) Outside control limits.

* = Outside of Control Limits.

Raw Data: 5Q31798.D

Blank Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8882-BS	5Q31798.D	1	04/16/25	(b) (6)	04/15/25	OP8882	S5Q522

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23899-1A, FC23899-2A, FC23899-3A, FC23899-4A

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
307-24-4	Perfluorohexanoic acid	0.08	0.0812	102	70-130
375-85-9	Perfluoroheptanoic acid	0.08	0.0813	102	70-130
335-67-1	Perfluorooctanoic acid	0.08	0.0794	99	70-130
375-95-1	Perfluorononanoic acid	0.08	0.0768	96	70-130
335-76-2	Perfluorodecanoic acid	0.08	0.0605	76	70-130
2058-94-8	Perfluoroundecanoic acid	0.08	0.0399	50*	70-130
307-55-1	Perfluorododecanoic acid	0.08	0.0280	35*	70-130
72629-94-8	Perfluorotridecanoic acid	0.08	0.0286	36*	70-130
376-06-7	Perfluorotetradecanoic acid	0.08	0.0419	52*	70-130
375-73-5	Perfluorobutanesulfonic acid	0.08	0.0838	105	70-130
355-46-4	Perfluorohexanesulfonic acid	0.08	0.0731	91	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.08	0.0621	78	70-130
2355-31-9	MeFOSAA	0.08	0.0409	51*	70-130
2991-50-6	EtFOSAA	0.08	0.0450	56*	70-130
13252-13-6	HFPO-DA (GenX)	0.08	0.0796	100	70-130
919005-14-4	ADONA	0.08	0.0816	102	70-130
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.08	0.0587	73	70-130
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.08	0.0353	44*	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
	13C2-PFHxA	102%	70-130%
	13C2-PFDA	70%	70-130%
	d5-EtFOSAA	45%* [a]	70-130%
	13C3-HFPO-DA	96%	70-130%

(a) Outside control limits.

* = Outside of Control Limits.

Raw Data: 3Q101474.D

Matrix Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8883-MS	3Q101474.D	1	04/15/25	(b)(6)	04/15/25	OP8883	S3Q1492
FC23899-1 [a]	3Q101473.D	1	04/15/25	(b)(6)	04/15/25	OP8883	S3Q1492
FC23899-1 [b]	3Q101495.D	1	04/16/25	(b)(6)	04/15/25	OP8883	S3Q1493

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2

CAS No.	Compound	FC23899-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.0032	J	0.0714	0.0934	126	70-130
2706-90-3	Perfluoropentanoic acid	0.0085		0.0714	0.0969	124	70-130
307-24-4	Perfluorohexanoic acid	0.0064		0.0714	0.0960	125	70-130
375-85-9	Perfluoroheptanoic acid	0.0032		0.0714	0.0906	122	70-130
335-67-1	Perfluorooctanoic acid	0.0061		0.0714	0.0952	125	70-130
375-95-1	Perfluorononanoic acid	0.0018	U	0.0714	0.0879	123	70-130
335-76-2	Perfluorodecanoic acid	0.0018	U	0.0714	0.0898	126	70-130
2058-94-8	Perfluoroundecanoic acid	0.0018	U	0.0714	0.103	144*	70-130
307-55-1	Perfluorododecanoic acid	0.0018	U	0.0714	0.120	168*	70-130
375-73-5	Perfluorobutanesulfonic acid	0.0045		0.0714	0.0911	121	70-130
2706-91-4	Perfluoropentanesulfonic acid	0.00073	J	0.0714	0.0873	121	70-130
355-46-4	Perfluorohexanesulfonic acid	0.0061		0.0714	0.0933	122	70-130
375-92-8	Perfluoroheptanesulfonic acid	0.0018	U	0.0714	0.0878	123	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.0104		0.0714	0.0981	123	70-130
757124-72-4	4:2 Fluorotelomer sulfonate	0.0036	U	0.0714	0.0872	122	70-130
27619-97-2	6:2 Fluorotelomer sulfonate	0.0036	U	0.0714	0.0884	124	70-130
39108-34-4	8:2 Fluorotelomer sulfonate	0.0036	U	0.0714	0.0991	139*	70-130
377-73-1	PFMPA	0.0036	U	0.0714	0.0898	126	70-130
863090-89-5	PFMBA	0.0036	U	0.0714	0.0878	123	70-130
151772-58-6	NFDHA	0.0036	U	0.0714	0.0883	124	70-130
113507-82-7	PFEESA	0.0036	U	0.0714	0.0867	121	70-130
13252-13-6	HFPO-DA (GenX)	0.0036	U	0.0714	0.0961	135*	70-130
919005-14-4	ADONA	0.0036	U	0.0714	0.0874	122	70-130
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0036	U	0.0714	0.0753	105	70-130
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0036	U	0.0714	0.0444	62*	70-130

CAS No.	ID Standard Recoveries	MS	FC23899-1	FC23899-1	Limits
	13C4-PFBA	77%	74%	75%	50-200%
	13C5-PFPeA	78%	75%	77%	50-200%
	13C5-PFHxA	77%	71%	75%	50-200%
	13C4-PFHpA	77%	73%	77%	50-200%
	13C8-PFOA	78%	75%	79%	50-200%
	13C9-PFNA	74%	70%	77%	50-200%
	13C6-PFDA	69%	66%	70%	50-200%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8883-MS	3Q101474.D	1	04/15/25	(b) (6)	04/15/25	OP8883	S3Q1492
FC23899-1 [a]	3Q101473.D	1	04/15/25	(b) (6)	04/15/25	OP8883	S3Q1492
FC23899-1 [b]	3Q101495.D	1	04/16/25	(b) (6)	04/15/25	OP8883	S3Q1493

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2

CAS No.	ID Standard Recoveries	MS	FC23899-1	FC23899-1	Limits
	13C7-PFUnDA	40%* [c]	39%* [c]	42%* [c]	50-200%
	13C2-PFDoDA	26%* [c]	24%* [c]	27%* [c]	50-200%
	13C3-PFBS	81%	76%	73%	50-200%
	13C3-PFHxS	81%	76%	74%	50-200%
	13C8-PFOS	73%	70%	68%	50-200%
	13C2-4:2FTS	82%	68%	72%	50-200%
	13C2-6:2FTS	81%	70%	74%	50-200%
	13C2-8:2FTS	63%	55%	62%	50-200%
	13C3-HFPO-DA	82%	68%	60%	50-200%

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Outside control limits.

* = Outside of Control Limits.

Raw Data: 3Q101527.D

Matrix Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-MS	3Q101527.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494
FC23948-1	3Q101526.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-4

CAS No.	Compound	FC23948-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.0034	J	0.00351	0.0066	91	50-150
2706-90-3	Perfluoropentanoic acid	0.0089		0.00351	0.0117	80	50-150
307-24-4	Perfluorohexanoic acid	0.0067		0.00351	0.0093	74	50-150
375-85-9	Perfluoroheptanoic acid	0.0035		0.00351	0.0065	86	50-150
335-67-1	Perfluorooctanoic acid	0.0064		0.00351	0.0092	80	50-150
375-95-1	Perfluorononanoic acid	0.0018	U	0.00351	0.0035	100	50-150
335-76-2	Perfluorodecanoic acid	0.0018	U	0.00351	0.0033	94	50-150
2058-94-8	Perfluoroundecanoic acid	0.0013	J	0.00351	0.0032	54	50-150
307-55-1	Perfluorododecanoic acid	0.0012	J	0.00351	0.0032	57	50-150
375-73-5	Perfluorobutanesulfonic acid	0.0051		0.00351	0.0079	80	50-150
2706-91-4	Perfluoropentanesulfonic acid	0.00072	J	0.00351	0.0041	96	50-150
355-46-4	Perfluorohexanesulfonic acid	0.0067		0.00351	0.0099	91	50-150
375-92-8	Perfluoroheptanesulfonic acid	0.0018	U	0.00351	0.0036	103	50-150
1763-23-1	Perfluorooctanesulfonic acid	0.0107		0.00351	0.0137	86	50-150
757124-72-4	4:2 Fluorotelomer sulfonate	0.0035	U	0.00351	0.0031	88	50-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0035	U	0.00351	0.0034	97	50-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0035	U	0.00351	0.0039	111	50-150
377-73-1	PFMPA	0.0035	U	0.00351	0.0034	97	50-150
863090-89-5	PFMBA	0.0035	U	0.00351	0.0033	94	50-150
151772-58-6	NFDHA	0.0035	U	0.00351	0.0032	91	50-150
113507-82-7	PFEESA	0.0035	U	0.00351	0.0033	94	50-150
13252-13-6	HFPO-DA (GenX)	0.0035	U	0.00351	0.0033	94	50-150
919005-14-4	ADONA	0.0035	U	0.00351	0.0030	86	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0035	U	0.00351	0.0029	83	50-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.00087	J	0.00351	0.0024	44*	50-150

CAS No.	ID Standard Recoveries	MS	FC23948-1	Limits
	13C4-PFBA	82%	79%	50-200%
	13C5-PFPeA	84%	81%	50-200%
	13C5-PFHxA	83%	78%	50-200%
	13C4-PFHpA	84%	80%	50-200%
	13C8-PFOA	86%	83%	50-200%
	13C9-PFNA	85%	83%	50-200%
	13C6-PFDA	90%	87%	50-200%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-MS	3Q101527.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494
FC23948-1	3Q101526.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-4

CAS No.	ID Standard Recoveries	MS	FC23948-1	Limits
	13C7-PFUnDA	74%	68%	50-200%
	13C2-PFDoDA	62%	58%	50-200%
	13C3-PFBS	79%	75%	50-200%
	13C3-PFHxS	81%	79%	50-200%
	13C8-PFOS	79%	79%	50-200%
	13C2-4:2FTS	79%	76%	50-200%
	13C2-6:2FTS	80%	78%	50-200%
	13C2-8:2FTS	76%	78%	50-200%
	13C3-HFPO-DA	69%	70%	50-200%

* = Outside of Control Limits.

Raw Data: 5Q31801.D

Matrix Spike Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8882-MS	5Q31801.D	1	04/16/25	(b) (6)	04/15/25	OP8882	S5Q522
FC23899-1A [a]	5Q31772.D	1	04/15/25	(b) (6)	04/15/25	OP8882	S5Q521
FC23899-1A [b]	5Q31800.D	1	04/16/25	(b) (6)	04/15/25	OP8882	S5Q522

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23899-1A, FC23899-2A, FC23899-3A, FC23899-4A

CAS No.	Compound	FC23899-1A ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
307-24-4	Perfluorohexanoic acid	0.0046 [c]		0.0714	0.0732	96	70-130
375-85-9	Perfluoroheptanoic acid	0.0022 [c]		0.0714	0.0696	94	70-130
335-67-1	Perfluorooctanoic acid	0.0039 [c]		0.0714	0.0743	99	70-130
375-95-1	Perfluorononanoic acid	0.0018 U [c]		0.0714	0.0670	94	70-130
335-76-2	Perfluorodecanoic acid	0.0018 U [c]		0.0714	0.0571	80	70-130
2058-94-8	Perfluoroundecanoic acid	0.0018 U [c]		0.0714	0.0389	54*	70-130
307-55-1	Perfluorododecanoic acid	0.0018 U [c]		0.0714	0.0237	33*	70-130
72629-94-8	Perfluorotridecanoic acid	0.0018 U [c]		0.0714	0.0222	31*	70-130
376-06-7	Perfluorotetradecanoic acid	0.0018 U [c]		0.0714	0.0322	45*	70-130
375-73-5	Perfluorobutanesulfonic acid	0.0037 [c]		0.0714	0.0769	102	70-130
355-46-4	Perfluorohexanesulfonic acid	0.0044 [c]		0.0714	0.0734	97	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.0060 [c]		0.0714	0.0653	83	70-130
2355-31-9	MeFOSAA	0.0036 U [c]		0.0714	0.0419	59*	70-130
2991-50-6	EtFOSAA	0.0036 U [c]		0.0714	0.0428	60*	70-130
13252-13-6	HFPO-DA (GenX)	0.0071 U [c]		0.0714	0.0686	96	70-130
919005-14-4	ADONA	0.0071 U [c]		0.0714	0.0686	96	70-130
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0071 U [c]		0.0714	0.0520	73	70-130
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0071 U [c]		0.0714	0.0266	37*	70-130

CAS No.	Surrogate Recoveries	MS	FC23899-1A	FC23899-1A	Limits
	13C2-PFHxA	97%	106%	101%	70-130%
	13C2-PFDA	80%	78%	82%	70-130%
	d5-EtFOSAA	53%* [d]	55%* [d]	56%* [d]	70-130%
	13C3-HFPO-DA	94%	101%	96%	70-130%

(a) Sample received outside the holding time. Confirmation run.
(b) Sample received outside the holding time. Insufficient sample for re-extraction.
(c) Result is from Run #2.
(d) Outside control limits.

* = Outside of Control Limits.

Raw Data: 3Q101477.D

Duplicate Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8883-DUP	3Q101477.D	1	04/15/25	(b) (6)	04/15/25	OP8883	S3Q1492
FC23899-3 [a]	3Q101476.D	1	04/15/25	(b) (6)	04/15/25	OP8883	S3Q1492
FC23899-3	3Q101497.D	1	04/16/25	(b) (6)	04/15/25	OP8883	S3Q1493

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2

CAS No.	Compound	FC23899-3 ug/l	Q	DUP ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.0036	U	ND		nc	30
2706-90-3	Perfluoropentanoic acid	0.0036	U	ND		nc	30
307-24-4	Perfluorohexanoic acid	0.0018	U	ND		nc	30
375-85-9	Perfluoroheptanoic acid	0.0018	U	ND		nc	30
335-67-1	Perfluorooctanoic acid	0.0018	U	ND		nc	30
375-95-1	Perfluorononanoic acid	0.0018	U	ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0018	U	ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0018	U	ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0018	U	ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0018	U	ND		nc	30
2706-91-4	Perfluoropentanesulfonic acid	0.0018	U	ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0018	U	ND		nc	30
375-92-8	Perfluoroheptanesulfonic acid	0.0018	U	ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0018	U	ND		nc	30
757124-72-4	4:2 Fluorotelomer sulfonate	0.0036	U	ND		nc	30
27619-97-2	6:2 Fluorotelomer sulfonate	0.0036	U	ND		nc	30
39108-34-4	8:2 Fluorotelomer sulfonate	0.0036	U	ND		nc	30
377-73-1	PFMPA	0.0036	U	ND		nc	30
863090-89-5	PFMBA	0.0036	U	ND		nc	30
151772-58-6	NFDHA	0.0036	U	ND		nc	30
113507-82-7	PFEESA	0.0036	U	ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.0036	U	ND		nc	30
919005-14-4	ADONA	0.0036	U	ND		nc	30
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0036	U	ND		nc	30
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0036	U	ND		nc	30

CAS No.	ID Standard Recoveries	DUP	FC23899-3	FC23899-3	Limits
	13C4-PFBA	75%	82%	82%	50-200%
	13C5-PFPeA	76%	84%	84%	50-200%
	13C5-PFHxA	75%	81%	84%	50-200%
	13C4-PFHpA	76%	81%	85%	50-200%
	13C8-PFOA	77%	83%	87%	50-200%
	13C9-PFNA	73%	79%	87%	50-200%
	13C6-PFDA	74%	75%	85%	50-200%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8883-DUP	3Q101477.D	1	04/15/25	(b) (6)	04/15/25	OP8883	S3Q1492
FC23899-3 [a]	3Q101476.D	1	04/15/25	(b) (6)	04/15/25	OP8883	S3Q1492
FC23899-3	3Q101497.D	1	04/16/25	(b) (6)	04/15/25	OP8883	S3Q1493

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-1, FC23899-2

CAS No.	ID Standard Recoveries	DUP	FC23899-3	FC23899-3	Limits
	13C7-PFUnDA	49%* [b]	49%* [b]	50%	50-200%
	13C2-PFDoDA	34%* [b]	33%* [b]	34%* [b]	50-200%
	13C3-PFBS	77%	82%	83%	50-200%
	13C3-PFHxS	78%	84%	83%	50-200%
	13C8-PFOS	72%	79%	78%	50-200%
	13C2-4:2FTS	76%	82%	88%	50-200%
	13C2-6:2FTS	71%	77%	83%	50-200%
	13C2-8:2FTS	60%	62%	72%	50-200%
	13C3-HFPO-DA	73%	73%	71%	50-200%

(a) Insufficient sample for re-extraction.
(b) Outside control limits.

* = Outside of Control Limits.

Raw Data: 3Q101530.D

Duplicate Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-DUP	3Q101530.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494
FC23948-3	3Q101529.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-4

CAS No.	Compound	FC23948-3 ug/l	Q	DUP ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.0035	U	ND		nc	30
2706-90-3	Perfluoropentanoic acid	0.0035	U	ND		nc	30
307-24-4	Perfluorohexanoic acid	0.0018	U	ND		nc	30
375-85-9	Perfluoroheptanoic acid	0.0018	U	ND		nc	30
335-67-1	Perfluorooctanoic acid	0.0018	U	ND		nc	30
375-95-1	Perfluorononanoic acid	0.0018	U	ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0018	U	ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0018	U	ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0018	U	ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0018	U	ND		nc	30
2706-91-4	Perfluoropentanesulfonic acid	0.0018	U	ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0018	U	ND		nc	30
375-92-8	Perfluoroheptanesulfonic acid	0.0018	U	ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0018	U	ND		nc	30
757124-72-4	4:2 Fluorotelomer sulfonate	0.0035	U	ND		nc	30
27619-97-2	6:2 Fluorotelomer sulfonate	0.0035	U	ND		nc	30
39108-34-4	8:2 Fluorotelomer sulfonate	0.0035	U	ND		nc	30
377-73-1	PFMPA	0.0035	U	ND		nc	30
863090-89-5	PFMBA	0.0035	U	ND		nc	30
151772-58-6	NFDHA	0.0035	U	ND		nc	30
113507-82-7	PFEESA	0.0035	U	ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.0035	U	ND		nc	30
919005-14-4	ADONA	0.0035	U	ND		nc	30
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0035	U	ND		nc	30
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0035	U	ND		nc	30

CAS No.	ID Standard Recoveries	DUP	FC23948-3	Limits
	13C4-PFBA	79%	80%	50-200%
	13C5-PFPeA	80%	81%	50-200%
	13C5-PFHxA	81%	82%	50-200%
	13C4-PFHpA	81%	83%	50-200%
	13C8-PFOA	83%	84%	50-200%
	13C9-PFNA	83%	84%	50-200%
	13C6-PFDA	83%	87%	50-200%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-DUP	3Q101530.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494
FC23948-3	3Q101529.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23899-4

CAS No.	ID Standard Recoveries	DUP	FC23948-3	Limits
	13C7-PFUnDA	71%	67%	50-200%
	13C2-PFDoDA	58%	57%	50-200%
	13C3-PFBS	76%	79%	50-200%
	13C3-PFHxS	78%	80%	50-200%
	13C8-PFOS	79%	76%	50-200%
	13C2-4:2FTS	81%	82%	50-200%
	13C2-6:2FTS	79%	79%	50-200%
	13C2-8:2FTS	75%	72%	50-200%
	13C3-HFPO-DA	65%	66%	50-200%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8882-DUP	5Q31776.D	1	04/15/25	(b) (6)	04/15/25	OP8882	S5Q521
FC23899-3A [a]	5Q31775.D	1	04/15/25	(b) (6)	04/15/25	OP8882	S5Q521
FC23899-3A [b]	5Q31803.D	1	04/16/25	(b) (6)	04/15/25	OP8882	S5Q522

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23899-1A, FC23899-2A, FC23899-3A, FC23899-4A

CAS No.	Compound	FC23899-3A ug/l	Q	DUP ug/l	Q	RPD	Limits
307-24-4	Perfluorohexanoic acid	0.0018	U	ND		nc	30
375-85-9	Perfluoroheptanoic acid	0.0018	U	ND		nc	30
335-67-1	Perfluorooctanoic acid	0.0018	U	ND		nc	30
375-95-1	Perfluorononanoic acid	0.0018	U	ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0018	U	ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0018	U	ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0018	U	ND		nc	30
72629-94-8	Perfluorotridecanoic acid	0.0018	U	ND		nc	30
376-06-7	Perfluorotetradecanoic acid	0.0018	U	ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0018	U	ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0018	U	ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0018	U	ND		nc	30
2355-31-9	MeFOSAA	0.0036	U	ND		nc	30
2991-50-6	EtFOSAA	0.0036	U	ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.0071	U	ND		nc	30
919005-14-4	ADONA	0.0071	U	ND		nc	30
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0071	U	ND		nc	30
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0071	U	ND		nc	30

CAS No.	Surrogate Recoveries	DUP	FC23899-3A	FC23899-3A	Limits
	13C2-PFHxA	87%	87%	84%	70-130%
	13C2-PFDA	73%	80%	80%	70-130%
	d5-EtFOSAA	64%* [c]	73%	69%* [c]	70-130%
	13C3-HFPO-DA	86%	84%	81%	70-130%

(a) Sample received outside the holding time. Insufficient sample for re-extraction.
(b) Sample received outside the holding time. Confirmation run.
(c) Outside control limits.

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Check Std:	S3Q1492-ICC1492	**Injection Date:**	04/15/25
Lab File ID:	3Q101463.D	**Injection Time:**	15:24
Instrument ID:	GCMS3Q	**Method:**	EPA 533

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT
Initial Cal [a]	84584	2.13	213780	7.43	32371	8.00
Check Std [b]	84034	2.13	208778	7.43	31762	8.00
Upper Limit [c]	126876	3.13	320670	8.43	48557	9.00
Lower Limit [d]	42292	1.13	106890	6.43	16186	7.00

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT
S3Q1492-IBLK	76211	2.34	200621	7.43	29840	7.98
S3Q1492-RT	81790	2.34	212092	7.43	31908	8.00

IS 1 = 13C3-PFBA
IS 2 = 13C2-PFOA
IS 3 = 13C4-PFOS

(a) Initial Cal is: S3Q1492-ICC1492 3Q101463.D 04/15/25 15:24. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +50% of initial standard area; Retention time +1 minutes of check standard.
(d) Lower Limit = -50% of initial standard area; Retention time -1 minutes of check standard.

Injection Standard Area Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Check Std:	S3Q1492-CC1492	**Injection Date:**	04/15/25
Lab File ID:	3Q101469.D	**Injection Time:**	17:00
Instrument ID:	GCMS3Q	**Method:**	EPA 533

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT
Initial Cal [a]	84584	2.13	213780	7.43	32371	8.00
Check Std [b]	83723	2.34	207611	7.43	31995	7.98
Upper Limit [c]	126876	3.34	320670	8.43	48557	8.98
Lower Limit [d]	42292	1.34	106890	6.43	16186	6.98

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT
OP8883-MB	71808	2.32	186364	7.42	26997	7.98
OP8883-BS	80156	2.31	202469	7.42	31155	7.97
FC23899-1 [e]	80392	2.31	213888	7.41	31124	7.97
OP8883-MS	85858	2.31	217661	7.42	32302	7.97
FC23899-2 [e]	86107	2.29	232167	7.42	33133	7.97
FC23899-3 [e]	76198	2.32	203756	7.42	29663	7.97
OP8883-DUP	87349	2.32	229666	7.42	33820	7.98
FC23899-4 [f]	78050	2.32	205394	7.42	30146	7.98
S3Q1492-ECC1492	86322	2.33	209754	7.42	31838	7.97

IS 1 = 13C3-PFBA
IS 2 = 13C2-PFOA
IS 3 = 13C4-PFOS

(a) Initial Cal is: S3Q1492-ICC1492 3Q101463.D 04/15/25 15:24. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +50% of initial standard area; Retention time +1 minutes of check standard.
(d) Lower Limit = -50% of initial standard area; Retention time -1 minutes of check standard.
(e) Insufficient sample for re-extraction.
(f) Confirmation run.

Injection Standard Area Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Check Std:	S3Q1493-CC1492	**Injection Date:**	04/16/25
Lab File ID:	3Q101490.D	**Injection Time:**	11:45
Instrument ID:	GCMS3Q	**Method:**	EPA 533

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT
Initial Cal [a]	84584	2.13	213780	7.43	32371	8.00
Check Std [b]	108653	2.34	275532	7.42	40858	7.97
Upper Limit [c]	126876	3.34	320670	8.42	48557	8.97
Lower Limit [d]	42292	1.34	106890	6.42	16186	6.97

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT
OP8883-BS	102648	2.32	261965	7.43	38488	7.98
OP8883-MB	94042	2.31	243773	7.42	35272	7.98
FC23899-1 [e]	102043	2.32	274376	7.42	39660	7.98
FC23899-3	97275	2.32	259235	7.42	36893	7.97
S3Q1493-ECC1492	107096	2.33	270647	7.42	40595	7.98

IS 1 = 13C3-PFBA
IS 2 = 13C2-PFOA
IS 3 = 13C4-PFOS

(a) Initial Cal is: S3Q1492-ICC1492 3Q101463.D 04/15/25 15:24. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +50% of initial standard area; Retention time +1 minutes of check standard.
(d) Lower Limit = -50% of initial standard area; Retention time -1 minutes of check standard.
(e) Confirmation run.

Injection Standard Area Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Check Std:	S3Q1494-CC1492	**Injection Date:**	04/17/25
Lab File ID:	3Q101520.D	**Injection Time:**	10:51
Instrument ID:	GCMS3Q	**Method:**	EPA 533

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT
Initial Cal [a]	84584	2.13	213780	7.43	32371	8.00
Check Std [b]	102753	2.37	258564	7.45	39230	8.00
Upper Limit [c]	126876	3.37	320670	8.45	48557	9.00
Lower Limit [d]	42292	1.37	106890	6.45	16186	7.00

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT
FC23899-2 [e]	107217	2.34	285429	7.45	40842	8.00
OP8907-BS	98630	2.33	253821	7.45	37068	8.00
OP8907-MB	100121	2.33	260183	7.45	38241	8.01
FC23948-1	92570	2.34	246541	7.45	35910	8.00
OP8907-MS	91913	2.34	243304	7.45	36091	8.01
ZZZZZZ	103324	2.34	270699	7.45	38633	8.00
FC23948-3	98216	2.34	259164	7.45	37905	8.00
OP8907-DUP	92207	2.34	245999	7.45	35936	8.00
ZZZZZZ	99126	2.34	261025	7.45	38104	8.00
FC23899-4	101119	2.34	266608	7.45	38836	8.00

IS 1 = 13C3-PFBA
IS 2 = 13C2-PFOA
IS 3 = 13C4-PFOS

(a) Initial Cal is: S3Q1492-ICC1492 3Q101463.D 04/15/25 15:24. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +50% of initial standard area; Retention time +1 minutes of check standard.
(d) Lower Limit = -50% of initial standard area; Retention time -1 minutes of check standard.
(e) Confirmation run.

Internal Standard Area Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Check Std:	S5Q521-ICC521	**Injection Date:**	04/15/25
Lab File ID:	5Q31763.D	**Injection Time:**	16:41
Instrument ID:	GCMS5Q	**Method:**	EPA 537.1 REV 2.0

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal [a]	535712	3.61	183843	6.29	394351	6.29	95816	6.86	29742	7.25
Check Std [b]	538213	3.61	185189	6.29	401735	6.29	98976	6.86	31819	7.25
Upper Limit [c]	753498	4.61	259265	7.29	562429	7.29	138566	7.86	44547	8.25
Lower Limit [d]	376749	2.61	129632	5.29	281215	5.29	69283	5.86	22273	6.25

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
S5Q521-RT	568496	3.59	182068	6.27	412739	6.29	101534	6.86	30877	7.24

IS 1 = 13C3-PFPeA
IS 2 = 13C2-6:2FTS
IS 3 = 13C2-PFOA
IS 4 = 13C4-PFOS
IS 5 = d3-MeFOSAA

(a) Initial Cal is: S5Q521-ICC521 5Q31763.D 04/15/25 16:41. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +40% of check standard area; Retention time +1 minutes.
(d) Lower Limit = -30% of check standard area; Retention time -1 minutes.

Internal Standard Area Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Check Std:	S5Q521-CC521	**Injection Date:**	04/15/25
Lab File ID:	5Q31768.D	**Injection Time:**	18:01
Instrument ID:	GCMS5Q	**Method:**	EPA 537.1 REV 2.0

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal [a]	535712	3.61	183843	6.29	394351	6.29	95816	6.86	29742	7.25
Check Std [b]	537130	3.59	183585	6.27	401119	6.29	92694	6.86	32175	7.24
Upper Limit [c]	751982	4.59	257019	7.27	561567	7.29	129772	7.86	45045	8.24
Lower Limit [d]	375991	2.59	128510	5.27	280783	5.29	64886	5.86	22523	6.24
Lab Sample ID	**IS 1 AREA**	**RT**	**IS 2 AREA**	**RT**	**IS 3 AREA**	**RT**	**IS 4 AREA**	**RT**	**IS 5 AREA**	**RT**
OP8882-BS	508634	3.59	174572	6.27	377356	6.29	92380	6.86	29331	7.24
OP8882-MB	600099	3.59	191158	6.27	448739	6.29	106108	6.86	35608	7.24
FC23899-1A [e]	465003	3.59	152196	6.27	350061	6.29	81333	6.86	26754	7.24
FC23899-2A [f]	497042	3.59	169845	6.27	381157	6.29	89779	6.86	27564	7.24
FC23899-3A [f]	529278	3.59	238076	6.27	427668	6.29	97442	6.86	28973	7.24
OP8882-DUP	566025	3.59	255582	6.27	462028	6.29	101537	6.86	31364	7.24
FC23899-4A	526396	3.59	171889	6.27	394101	6.29	95909	6.86	28674	7.24
S5Q521-ECC521	519631	3.59	180777	6.27	387719	6.28	92351	6.85	28776	7.24

IS 1 = 13C3-PFPeA
IS 2 = 13C2-6:2FTS
IS 3 = 13C2-PFOA
IS 4 = 13C4-PFOS
IS 5 = d3-MeFOSAA

(a) Initial Cal is: S5Q521-ICC521 5Q31763.D 04/15/25 16:41. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +40% of check standard area; Retention time +1 minutes.
(d) Lower Limit = -30% of check standard area; Retention time -1 minutes.
(e) Sample received outside the holding time. Confirmation run.
(f) Sample received outside the holding time. Insufficient sample for re-extraction.

Internal Standard Area Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Check Std:	S5Q522-ICC522	**Injection Date:**	04/16/25
Lab File ID:	5Q31791.D	**Injection Time:**	13:21
Instrument ID:	GCMS5Q	**Method:**	EPA 537.1 REV 2.0

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal [a]	489642	3.61	167326	6.29	353147	6.29	85707	6.86	28394	7.25
Check Std [b]	493193	3.61	172115	6.29	359027	6.29	88668	6.86	28678	7.25
Upper Limit [c]	690470	4.61	240961	7.29	502638	7.29	124135	7.86	40149	8.25
Lower Limit [d]	345235	2.61	120481	5.29	251319	5.29	62068	5.86	20075	6.25

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
S5Q522-RT	472532	3.61	156280	6.29	352354	6.29	85982	6.86	28662	7.25

IS 1 = 13C3-PFPeA
IS 2 = 13C2-6:2FTS
IS 3 = 13C2-PFOA
IS 4 = 13C4-PFOS
IS 5 = d3-MeFOSAA

(a) Initial Cal is: S5Q522-ICC522 5Q31791.D 04/16/25 13:21. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +40% of check standard area; Retention time +1 minutes.
(d) Lower Limit = -30% of check standard area; Retention time -1 minutes.

6.5.7

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Internal Standard Area Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Check Std:	S5Q522-CC522	**Injection Date:**	04/16/25
Lab File ID:	5Q31796.D	**Injection Time:**	14:41
Instrument ID:	GCMS5Q	**Method:**	EPA 537.1 REV 2.0

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal [a]	489642	3.61	167326	6.29	353147	6.29	85707	6.86	28394	7.25
Check Std [b]	479976	3.61	167177	6.29	356929	6.29	82953	6.86	27606	7.25
Upper Limit [c]	671966	4.61	234048	7.29	499701	7.29	116134	7.86	38648	8.25
Lower Limit [d]	335983	2.61	117024	5.29	249850	5.29	58067	5.86	19324	6.25

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
OP8882-BS	461150	3.61	159366	6.27	341496	6.29	83530	6.86	27541	7.25
OP8882-MB	526863	3.61	174625	6.29	394595	6.29	91374	6.86	30296	7.25
FC23899-1A [e]	410615	3.58	133846	6.22	309052	6.24	73357	6.81	24946	7.22
OP8882-MS	445987	3.58	161191	6.27	343559	6.29	81173	6.86	27196	7.24
FC23899-2A [f]	444423	3.59	148679	6.27	335871	6.29	78065	6.86	26453	7.25
FC23899-3A [f]	477238	3.59	222769	6.27	390232	6.29	87927	6.86	28530	7.24
ZZZZZZ	443466	3.59	161141	6.27	328199	6.29	79498	6.86	26692	7.24
ZZZZZZ	451472	3.59	149236	6.27	330080	6.29	79810	6.86	26870	7.24
S5Q522-ECC522	477446	3.59	170488	6.27	358492	6.29	86095	6.86	29636	7.24

IS 1 = 13C3-PFPeA
IS 2 = 13C2-6:2FTS
IS 3 = 13C2-PFOA
IS 4 = 13C4-PFOS
IS 5 = d3-MeFOSAA

(a) Initial Cal is: S5Q522-ICC522 5Q31791.D 04/16/25 13:21. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +40% of check standard area; Retention time +1 minutes.
(d) Lower Limit = -30% of check standard area; Retention time -1 minutes.
(e) Sample received outside the holding time. Insufficient sample for re-extraction.
(f) Sample received outside the holding time. Confirmation run.

Internal Standard Area Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Check Std:	S5Q523-ICC523	**Injection Date:**	04/17/25
Lab File ID:	5Q31825.D	**Injection Time:**	14:01
Instrument ID:	GCMS5Q	**Method:**	EPA 537.1 REV 2.0

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal [a]	509621	3.59	195166	6.29	399788	6.29	99129	6.86	30580	7.25
Check Std [b]	511459	3.59	200480	6.29	416202	6.29	97672	6.86	29996	7.25
Upper Limit [c]	716043	4.59	280672	7.29	582683	7.29	136741	7.86	41994	8.25
Lower Limit [d]	358021	2.59	140336	5.29	291341	5.29	68370	5.86	20997	6.25

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
S5Q523-RT	488219	3.59	176883	6.29	381361	6.29	97082	6.86	32235	7.25

IS 1 = 13C3-PFPeA
IS 2 = 13C2-6:2FTS
IS 3 = 13C2-PFOA
IS 4 = 13C4-PFOS
IS 5 = d3-MeFOSAA

(a) Initial Cal is: S5Q523-ICC523 5Q31825.D 04/17/25 14:01. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +40% of check standard area; Retention time +1 minutes.
(d) Lower Limit = -30% of check standard area; Retention time -1 minutes.

6.5.9

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Internal Standard Area Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Check Std:	S5Q523-CC523	**Injection Date:**	04/17/25
Lab File ID:	5Q31830.D	**Injection Time:**	15:23
Instrument ID:	GCMS5Q	**Method:**	EPA 537.1 REV 2.0

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal [a]	509621	3.59	195166	6.29	399788	6.29	99129	6.86	30580	7.25
Check Std [b]	512699	3.59	201547	6.28	421900	6.29	100208	6.86	32420	7.24
Upper Limit [c]	717779	4.59	282166	7.28	590660	7.29	140291	7.86	45388	8.24
Lower Limit [d]	358889	2.59	141083	5.28	295330	5.29	70146	5.86	22694	6.24

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
OP8904-BS	502426	3.59	188431	6.28	395007	6.29	92532	6.86	29322	7.24
OP8904-MB	472936	3.59	168937	6.28	371031	6.29	89729	6.86	28755	7.24
ZZZZZZ	431261	3.59	157949	6.28	341170	6.29	85160	6.86	27589	7.24
ZZZZZZ	460853	3.59	167204	6.28	367882	6.29	84634	6.86	26326	7.24
ZZZZZZ	432408	3.59	160632	6.28	353151	6.29	84611	6.86	24398	7.24
FC23948-3A	427851	3.59	179054	6.28	338061	6.29	82874	6.86	25292	7.24
OP8904-MS	489738	3.59	221139	6.28	395329	6.29	98834	6.86	28577	7.24
FC23948-4A	480957	3.59	175185	6.28	391083	6.29	93369	6.86	28966	7.24
OP8904-DUP	454184	3.59	167478	6.28	358687	6.29	83610	6.86	27412	7.24
FC23899-4A [e]	496577	3.59	178520	6.28	394540	6.29	93746	6.86	27054	7.25
S5Q523-ECC523	497002	3.59	197588	6.28	404862	6.29	97933	6.86	33337	7.24

IS 1 = 13C3-PFPeA
IS 2 = 13C2-6:2FTS
IS 3 = 13C2-PFOA
IS 4 = 13C4-PFOS
IS 5 = d3-MeFOSAA

(a) Initial Cal is: S5Q523-ICC523 5Q31825.D 04/17/25 14:01. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +40% of check standard area; Retention time +1 minutes.
(d) Lower Limit = -30% of check standard area; Retention time -1 minutes.
(e) Confirmation run.

Isotope Dilution Standard Recovery Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Method: EPA 533 **Matrix:** DW

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6	S7	S8
FC23899-1	3Q101495.D	75	77	75	77	79	77	70	42* [a]
FC23899-1	3Q101473.D	74	75	71	73	75	70	66	39* [a]
FC23899-2	3Q101523.D	69	69	68	69	72	69	67	43* [a]
FC23899-2	3Q101475.D	69	69	64	65	69	62	59	40* [a]
FC23899-3	3Q101497.D	82	84	84	85	87	87	85	50
FC23899-3	3Q101476.D	82	84	81	81	83	79	75	49* [a]
FC23899-4	3Q101532.D	75	77	75	77	78	79	80	62
FC23899-4	3Q101478.D	79	80	76	77	79	74	70	51
OP8883-BS	3Q101472.D	78	78	78	77	77	75	75	51
OP8883-BS	3Q101493.D	78	79	80	82	82	82	76	56
OP8883-DUP	3Q101477.D	75	76	75	76	77	73	74	49* [a]
OP8883-MB	3Q101471.D	87	88	85	87	88	84	75	45* [a]
OP8883-MB	3Q101494.D	86	88	88	91	92	91	78	47* [a]
OP8883-MS	3Q101474.D	77	78	77	77	78	74	69	40* [a]
OP8907-BS	3Q101524.D	80	81	82	84	85	86	93	77
OP8907-DUP	3Q101530.D	79	80	81	81	83	83	83	71
OP8907-MB	3Q101525.D	78	78	78	80	82	82	83	78
OP8907-MS	3Q101527.D	82	84	83	84	86	85	90	74
S3Q1492-IBLK	3Q101466.D	102	103	99	100	102	101	102	97
S3Q1494-IBLK	3Q101518.D	103	104	106	106	109	111	116	99
S3Q1493-IBLK	3Q101488.D	103	105	106	106	108	111	115	101

Isotope Dilution Standards	Recovery Limits
S1 = 13C4-PFBA	50-200%
S2 = 13C5-PFPeA	50-200%
S3 = 13C5-PFHxA	50-200%
S4 = 13C4-PFHpA	50-200%
S5 = 13C8-PFOA	50-200%
S6 = 13C9-PFNA	50-200%
S7 = 13C6-PFDA	50-200%
S8 = 13C7-PFUnDA	50-200%

(a) Outside control limits.

Isotope Dilution Standard Recovery Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Method: EPA 533 **Matrix:** DW

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S9	S10	S11	S12	S13	S14	S15	S16
FC23899-1	3Q101495.D	27* [a]	73	74	68	72	74	62	60
FC23899-1	3Q101473.D	24* [a]	76	76	70	68	70	55	68
FC23899-2	3Q101523.D	30* [a]	67	68	65	65	73	59	62
FC23899-2	3Q101475.D	27* [a]	70	68	64	61	70	53	61
FC23899-3	3Q101497.D	34* [a]	83	83	78	88	83	72	71
FC23899-3	3Q101476.D	33* [a]	82	84	79	82	77	62	73
FC23899-4	3Q101532.D	53	73	75	73	71	74	72	58
FC23899-4	3Q101478.D	34* [a]	79	79	72	71	73	57	70
OP8883-BS	3Q101472.D	36* [a]	77	77	74	78	78	65	75
OP8883-BS	3Q101493.D	39* [a]	78	78	73	85	84	75	78
OP8883-DUP	3Q101477.D	34* [a]	77	78	72	76	71	60	73
OP8883-MB	3Q101471.D	34* [a]	89	90	82	80	82	61	76
OP8883-MB	3Q101494.D	36* [a]	87	86	79	84	85	68	73
OP8883-MS	3Q101474.D	26* [a]	81	81	73	82	81	63	82
OP8907-BS	3Q101524.D	70	80	81	81	79	80	78	69
OP8907-DUP	3Q101530.D	58	76	78	79	81	79	75	65
OP8907-MB	3Q101525.D	69	76	76	76	74	76	73	66
OP8907-MS	3Q101527.D	62	79	81	79	79	80	76	69
S3Q1492-IBLK	3Q101466.D	99	99	101	100	93	93	93	84
S3Q1494-IBLK	3Q101518.D	108	98	99	99	97	101	105	76
S3Q1493-IBLK	3Q101488.D	109	101	100	100	99	102	107	81

Isotope Dilution Standards	Recovery Limits
S9 = 13C2-PFDoDA	50-200%
S10 = 13C3-PFBS	50-200%
S11 = 13C3-PFHxS	50-200%
S12 = 13C8-PFOS	50-200%
S13 = 13C2-4:2FTS	50-200%
S14 = 13C2-6:2FTS	50-200%
S15 = 13C2-8:2FTS	50-200%
S16 = 13C3-HFPO-DA	50-200%

(a) Outside control limits.

Surrogate Recovery Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Method: EPA 537.1 REV 2.0 **Matrix:** DW

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
FC23899-1A	5Q31800.D	101	82	56* [a]	96
FC23899-1A	5Q31772.D	106	78	55* [a]	101
FC23899-2A	5Q31802.D	101	85	66* [a]	96
FC23899-2A	5Q31774.D	102	85	72	97
FC23899-3A	5Q31803.D	84	80	69* [a]	81
FC23899-3A	5Q31775.D	87	80	73	84
FC23899-4A	5Q31841.D	139* [a]	127	145* [a]	130
FC23899-4A	5Q31777.D	102	80	66* [a]	98
OP8882-BS	5Q31770.D	105	70	43* [a]	100
OP8882-BS	5Q31798.D	102	70	45* [a]	96
OP8882-DUP	5Q31776.D	87	73	64* [a]	86
OP8882-MB	5Q31771.D	104	79	53* [a]	97
OP8882-MB	5Q31799.D	102	77	54* [a]	96
OP8882-MS	5Q31801.D	97	80	53* [a]	94

Surrogate Compounds	Recovery Limits
S1 = 13C2-PFHxA	70-130%
S2 = 13C2-PFDA	70-130%
S3 = d5-EtFOSAA	70-130%
S4 = 13C3-HFPO-DA	70-130%

(a) Outside control limits.

Initial Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1492-ICC1492
Lab FileID: 3Q101463.D

Initial Calibration Report

Method Path	D:\MassHunter\Methods
Method File	533_041525_S3Q1492.quantmethod.xml
Batch Name	D:\MassHunter\Data\041525_533_S3Q1492\QuantResults\s3q1942.batch.bin
Last Calib Update	4/16/2025 8:04:10 AM

Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time
1	D:\MassHunter\Data\041525_533_S3Q1492\3q101458.d	4/15/2025 2:03:57 PM	4/16/2025 8:04:10 AM
2	D:\MassHunter\Data\041525_533_S3Q1492\3q101459.d	4/15/2025 2:20:02 PM	4/16/2025 8:04:10 AM
3	D:\MassHunter\Data\041525_533_S3Q1492\3q101460.d	4/15/2025 2:36:07 PM	4/16/2025 8:04:10 AM
4	D:\MassHunter\Data\041525_533_S3Q1492\3q101461.d	4/15/2025 2:52:12 PM	4/16/2025 8:04:10 AM
5	D:\MassHunter\Data\041525_533_S3Q1492\3q101462.d	4/15/2025 3:08:17 PM	4/16/2025 8:04:10 AM
6	D:\MassHunter\Data\041525_533_S3Q1492\3q101463.d	4/15/2025 3:24:23 PM	4/16/2025 8:04:10 AM
7	D:\MassHunter\Data\041525_533_S3Q1492\3q101464.d	4/15/2025 3:40:29 PM	4/16/2025 8:04:10 AM
8	D:\MassHunter\Data\041525_533_S3Q1492\3q101465.d	4/15/2025 3:56:34 PM	4/16/2025 8:04:10 AM

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I 13C2-PFOA						ISTD					
S 13C5-PFHxA	Avg RF	1.0579	0.9447	0.9470	0.9413	1.0191	1.0854	1.0519	1.0568	1.0130	5.886
S 13C3-HFPO-DA	Avg RF	0.0137	0.0120	0.0118	0.0130	0.0146	0.0157	0.0171	0.0186	0.0146	16.626
S 13C4-PFHpA	Avg RF	0.8843	0.7973	0.7905	0.7945	0.8480	0.9057	0.8731	0.8765	0.8462	5.436
S 13C8-PFOA	Avg RF	1.1591	1.0349	1.0478	1.0428	1.1353	1.1740	1.0966	1.0976	1.0985	4.920
S 13C9-PFNA	Avg RF	1.2523	1.1189	1.1090	1.1273	1.2203	1.2833	1.2275	1.2108	1.1937	5.556
S 13C6-PFDA	Avg RF	1.7017	1.5712	1.5118	1.5762	1.7264	1.8135	1.7499	1.7313	1.6728	6.329
S 13C7-PFUnDA	Avg RF	3.4828	3.0627	3.0343	3.1157	3.5165	3.6363	3.4161	3.4669	3.3414	6.991
S 13C2-PFDoDA	Avg RF	4.4511	3.9627	3.9811	3.9550	4.3202	4.5895	4.3722	4.4295	4.2577	5.950
I 13C3-PFBA						ISTD					
S 13C4-PFBA	Avg RF	1.7900	1.6095	1.6175	1.6093	1.7461	1.7942	1.7119	1.6925	1.6964	4.590
S 13C5-PFPeA	Avg RF	2.1683	1.9449	1.9618	1.9364	2.1413	2.1326	2.0308	2.0430	2.0449	4.569
I 13C4-PFOS						ISTD					
S 13C3-PFBS	Avg RF	0.6441	0.5923	0.5872	0.5799	0.6840	0.6553	0.6327	0.6160	0.6239	5.881
S 13C2-4:2FTS	Avg RF	2.3094	2.1386	2.0730	2.0993	2.4132	2.5823	2.6972	2.7271	2.3800	11.222
S 13C3-PFHxS	Avg RF	0.9271	0.8628	0.8265	0.8378	0.9166	0.9463	0.9110	0.8784	0.8883	4.907
S 13C2-6:2FTS	Avg RF	4.4350	4.0590	4.0217	4.0086	4.6694	4.8307	4.8899	4.8476	4.4702	8.757
S 13C8-PFOS	Avg RF	1.2022	1.0980	1.0701	1.0581	1.1604	1.2311	1.1592	1.1181	1.1372	5.434
S 13C2-8:2FTS	Avg RF	7.2181	6.8418	6.6493	6.8384	7.5673	8.1932	8.3354	8.2707	7.4893	9.374
I M4-PFBA						ISTD					
T PFBA	Linear	0.2509	0.3205	0.2912	0.3063	0.3130	0.2773	0.2730	0.2767	0.2886	8.138
T PFMPA	Linear	0.2914	0.3692	0.3441	0.3616	0.3546	0.3185	0.3208	0.3249	0.3356	7.821
I M5-PFPeA						ISTD					
T PFPeA	Linear	0.6793	0.8425	0.8047	0.8384	0.8602	0.7551	0.7531	0.7501	0.7854	7.834
T PFMBA	Linear	0.3456	0.4203	0.3863	0.4155	0.4057	0.3706	0.3684	0.3666	0.3849	6.924
I M5-PFHxA						ISTD					

Generated at 8:04 AM on 4/16/2025

Initial Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1492-ICC1492
Lab FileID: 3Q101463.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T NFDHA	Linear	0.2470	0.2896	0.2663	0.2774	0.2848	0.2505	0.2461	0.2509	0.2641	6.764
T PFHxA	Linear	0.8405	1.0370	0.9920	1.0514	1.0727	0.9384	0.9357	0.9404	0.9760	7.905
I M4-PFHpA						ISTD					
T PFHpA	Linear	1.2475	1.5757	1.4724	1.5646	1.5885	1.4215	1.3938	1.3971	1.4577	8.031
T ADONA	Linear	1.8989	2.3600	2.2386	2.4034	2.5057	2.1566	2.1529	2.1603	2.2345	8.436
I M8-PFOA						ISTD					
T PFOA	Linear	0.6815	0.8584	0.8105	0.8621	0.8791	0.7670	0.7680	0.7687	0.7994	8.297
I M9-PFNA						ISTD					
T PFNA	Linear	0.7634	0.9358	0.8741	0.9109	0.9300	0.8226	0.8086	0.8198	0.8581	7.423
I M6-PFDA						ISTD					
T PFDA	Linear	0.5008	0.6262	0.5963	0.6325	0.6448	0.5686	0.5542	0.5684	0.5865	8.206
I M7-PFUnDA						ISTD					
T PFUnDA	Linear	0.5769	0.7092	0.6729	0.7151	0.7331	0.6422	0.6384	0.6446	0.6666	7.725
I M2-PFDoDA						ISTD					
T PFDoDA	Linear	0.6002	0.7376	0.6974	0.7423	0.7526	0.6659	0.6579	0.6651	0.6899	7.607
I M3-PFBS						ISTD					
T PFBS	Linear	1.7005	2.2037	1.9926	2.2451	2.2846	2.0342	2.0172	2.0102	2.0610	9.061
T PFEESA	Linear	7.9237	10.08	9.4548	10.09	9.7044	9.2166	8.9355	9.0027	9.3011	7.651
I M3-PFHxS						ISTD					
T PFPeS	Linear	0.8855	1.1480	1.0984	1.1597	1.1574	1.0253	1.0098	1.0210	1.0631	9.012
T PFHxS	Linear	1.7382	2.0113	1.8743	1.9619	2.0205	1.7873	1.7453	1.7525	1.8614	6.551
T PFHpS	Linear	1.6399	2.0838	2.0359	2.0720	2.1436	1.8594	1.8111	1.8242	1.9337	9.064
I M8-PFOS						ISTD					
T PFOS	Linear	1.5579	1.8778	1.7219	1.7935	1.8742	1.5876	1.5874	1.5947	1.6994	7.951
T 9CI-PF3ONS	Linear	2.1859	2.7926	2.6112	2.9034	2.9984	2.5855	2.5674	2.5598	2.6505	9.480
T 11CI-PF3OUdS	Linear	6.5503	7.9514	7.6377	8.2398	8.6272	7.3646	7.3467	7.4319	7.6437	8.309
I M2-4:2FTS						ISTD					
T 4:2FTS	Quadratic	1.0418	1.2954	1.2244	1.2995	1.2654	1.0811	0.9784	0.9415	1.1409	12.874
I M2-6:2FTS						ISTD					
T 6:2FTS	Quadratic	0.7323	0.9347	0.8658	0.9102	0.9013	0.7660	0.7073	0.6849	0.8128	12.404
I M2-8:2FTS						ISTD					
T 8:2FTS	Linear	0.7100	0.8892	0.8278	0.8848	0.8818	0.7479	0.6846	0.6688	0.7869	12.016
I M3-HFPO-DA						ISTD					
T HFPO-DA	Quadratic	0.2700	0.2808	0.2455	0.2865	0.2417	0.2255	0.1838	0.1789	0.2391	17.207

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Generated at 8:04 AM on 4/16/2025

Initial Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1492-ICC1492
Lab FileID: 3Q101463.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	Curve Fit R2
T PFBA	Linear	y = 0.276474 * x	0.999076
T PFMPA	Linear	y = 0.323781 * x	0.999383
T PFPeA	Linear	y = 0.754493 * x	0.999045
T PFBS	Linear	y = 2.021899 * x	0.999160
T PFMBA	Linear	y = 0.368731 * x	0.999391
T PFEESA	Linear	y = 9.019533 * x	0.999486
T NFDHA	Linear	y = 0.250104 * x	0.998931
T 4:2FTS	Quadratic	y = -0.057740 * x ^ 2 + 1.222662 * x	0.999120
T PFHxA	Linear	y = 0.942123 * x	0.999057
T PFPeS	Linear	y = 1.021308 * x	0.999010
T HFPO-DA	Quadratic	y = -0.015333 * x ^ 2 + 0.252255 * x	0.997985
T PFHpA	Linear	y = 1.403226 * x	0.999088
T PFHxS	Linear	y = 1.760093 * x	0.998877
T ADONA	Linear	y = 2.166257 * x	0.998862
T PFHpS	Linear	y = 1.831213 * x	0.998502
T 6:2FTS	Quadratic	y = -0.035883 * x ^ 2 + 0.859316 * x	0.999083
T PFOA	Linear	y = 0.771234 * x	0.999045
T PFOS	Linear	y = 1.598848 * x	0.998597
T PFNA	Linear	y = 0.819077 * x	0.999020
T 9Cl-PF3ONS	Linear	y = 2.576055 * x	0.998712
T PFDA	Linear	y = 0.565531 * x	0.998783
T 8:2FTS	Linear	y = 0.687044 * x	0.993650
T PFUnDA	Linear	y = 0.644606 * x	0.999063
T 11Cl-PF3OUdS	Linear	y = 7.427108 * x	0.998752
T PFDoDA	Linear	y = 0.665040 * x	0.999094

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Generated at 8:04 AM on 4/16/2025

Initial Calibration Verification

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S3Q1492-ICV1492
Lab FileID: 3Q101467.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041525_533_S3Q1492\s3q1942.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041525_533_S3Q1492\3q101458.d
2:D:\MassHunter\Data\041525_533_S3Q1492\3q101459.d
3:D:\MassHunter\Data\041525_533_S3Q1492\3q101460.d
4:D:\MassHunter\Data\041525_533_S3Q1492\3q101461.d
5:D:\MassHunter\Data\041525_533_S3Q1492\3q101462.d
6:D:\MassHunter\Data\041525_533_S3Q1492\3q101463.d
7:D:\MassHunter\Data\041525_533_S3Q1492\3q101464.d
8:D:\MassHunter\Data\041525_533_S3Q1492\3q101465.d

Data File: 3q101467
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	10.000	9.143	-8.6	91.4
13C2-6:2FTS	10.000	9.066	-9.3	90.7
13C2-8:2FTS	10.000	9.291	-7.1	92.9
13C2-PFDoDA	10.000	8.829	-11.7	88.3
13C2-PFOA	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
13C3-PFBS	10.000	9.032	-9.7	90.3
13C3-PFHxS	10.000	9.066	-9.3	90.7
13C4-PFBA	10.000	8.842	-11.6	88.4
13C4-PFHpA	10.000	8.958	-10.4	89.6
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	10.000	8.900	-11.0	89.0
13C5-PFPeA	10.000	8.795	-12.0	88.0
13C6-PFDA	10.000	8.699	-13.0	87.0
13C7-PFUnDA	10.000	8.822	-11.8	88.2
PFMPA	20.000	23.209	16.0	116.0
13C8-PFOA	10.000	8.874	-11.3	88.7
13C8-PFOS	10.000	9.114	-8.9	91.1
13C9-PFNA	10.000	8.882	-11.2	88.8
4:2FTS	20.000	18.957	-5.2	94.8
6:2FTS	20.000	19.241	-3.8	96.2
8:2FTS	20.000	22.818	14.1	114.1
PFMBA	20.000	18.585	-7.1	92.9
PFEESA	20.000	18.282	-8.6	91.4
NFDHA	20.000	19.682	-1.6	98.4
PFBA	20.000	21.759	8.8	108.8
PFBS	20.000	18.622	-6.9	93.1
PFDA	20.000	19.553	-2.2	97.8
PFDoDA	20.000	22.065	10.3	110.3
PFHpA	20.000	20.863	4.3	104.3
PFHpS	20.000	18.660	-6.7	93.3
PFHxA	20.000	19.902	-0.5	99.5
PFHxS	20.000	19.939	-0.3	99.7
PFNA	20.000	19.272	-3.6	96.4
PFOA	20.000	21.590	7.9	107.9
PFOS	20.000	20.947	4.7	104.7
PFPeA	20.000	19.637	-1.8	98.2

Initial Calibration Verification

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1492-ICV1492
Lab FileID: 3Q101467.D

PFPeS	20.000	19.449	-2.8	97.2
PFUnDA	20.000	22.540	12.7	112.7
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
11Cl-PF3OUdS	20.000	19.446	-2.8	97.2
13C3-HFPO-DA	10.000	8.675	-13.3	86.7
9Cl-PF3ONS	20.000	20.112	0.6	100.6
ADONA	20.000	20.934	4.7	104.7
HFPO-DA	20.000	19.187	-4.1	95.9
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S3Q1492-CC1492
Lab FileID: 3Q101469.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041525_533_S3Q1492\s3q1942.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041525_533_S3Q1492\3q101458.d
2:D:\MassHunter\Data\041525_533_S3Q1492\3q101459.d
3:D:\MassHunter\Data\041525_533_S3Q1492\3q101460.d
4:D:\MassHunter\Data\041525_533_S3Q1492\3q101461.d
5:D:\MassHunter\Data\041525_533_S3Q1492\3q101462.d
6:D:\MassHunter\Data\041525_533_S3Q1492\3q101463.d
7:D:\MassHunter\Data\041525_533_S3Q1492\3q101464.d
8:D:\MassHunter\Data\041525_533_S3Q1492\3q101465.d

Data File: 3q101469
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	10.000	10.698	7.0	107.0
13C2-6:2FTS	10.000	10.607	6.1	106.1
13C2-8:2FTS	10.000	10.644	6.4	106.4
13C2-PFDoDA	10.000	10.548	5.5	105.5
13C2-PFOA	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
13C3-PFBS	10.000	10.556	5.6	105.6
13C3-PFHxS	10.000	10.664	6.6	106.6
13C4-PFBA	10.000	10.630	6.3	106.3
13C4-PFHpA	10.000	10.665	6.6	106.6
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	10.000	10.761	7.6	107.6
13C5-PFPeA	10.000	10.463	4.6	104.6
13C6-PFDA	10.000	11.346	13.5	113.5
13C7-PFUnDA	10.000	10.592	5.9	105.9
PFMPA	20.000	19.921	-0.4	99.6
13C8-PFOA	10.000	10.777	7.8	107.8
13C8-PFOS	10.000	10.500	5.0	105.0
13C9-PFNA	10.000	10.767	7.7	107.7
4:2FTS	20.000	19.585	-2.1	97.9
6:2FTS	20.000	19.551	-2.2	97.8
8:2FTS	20.000	21.971	9.9	109.9
PFMBA	20.000	19.867	-0.7	99.3
PFEESA	20.000	19.814	-0.9	99.1
NFDHA	20.000	19.880	-0.6	99.4
PFBA	20.000	19.913	-0.4	99.6
PFBS	20.000	19.790	-1.0	99.0
PFDA	20.000	20.003	0.0	100.0
PFDoDA	20.000	20.155	0.8	100.8
PFHpA	20.000	20.147	0.7	100.7
PFHpS	20.000	20.246	1.2	101.2
PFHxA	20.000	19.965	-0.2	99.8
PFHxS	20.000	19.848	-0.8	99.2
PFNA	20.000	20.082	0.4	100.4
PFOA	20.000	19.920	-0.4	99.6
PFOS	20.000	20.168	0.8	100.8
PFPeA	20.000	20.098	0.5	100.5

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1492-CC1492
Lab FileID: 3Q101469.D

PFPeS	20.000	19.762	-1.2	98.8
PFUnDA	20.000	19.965	-0.2	99.8
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
11Cl-PF3OUdS	20.000	19.776	-1.1	98.9
13C3-HFPO-DA	10.000	10.576	5.8	105.8
9Cl-PF3ONS	20.000	20.115	0.6	100.6
ADONA	20.000	20.059	0.3	100.3
HFPO-DA	20.000	20.000	0.0	100.0
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S3Q1492-CC1492
Lab FileID: 3Q101470.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041525_533_S3Q1492\s3q1942.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041525_533_S3Q1492\3q101458.d
2:D:\MassHunter\Data\041525_533_S3Q1492\3q101459.d
3:D:\MassHunter\Data\041525_533_S3Q1492\3q101460.d
4:D:\MassHunter\Data\041525_533_S3Q1492\3q101461.d
5:D:\MassHunter\Data\041525_533_S3Q1492\3q101462.d
6:D:\MassHunter\Data\041525_533_S3Q1492\3q101463.d
7:D:\MassHunter\Data\041525_533_S3Q1492\3q101464.d
8:D:\MassHunter\Data\041525_533_S3Q1492\3q101465.d

Data File: 3q101470
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	10.000	9.606	-3.9	96.1
13C2-6:2FTS	10.000	10.090	0.9	100.9
13C2-8:2FTS	10.000	9.563	-4.4	95.6
13C2-PFDoDA	10.000	10.258	2.6	102.6
13C2-PFOA	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
13C3-PFBS	10.000	10.521	5.2	105.2
13C3-PFHxS	10.000	10.480	4.8	104.8
13C4-PFBA	10.000	10.510	5.1	105.1
13C4-PFHpA	10.000	10.272	2.7	102.7
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	10.000	10.289	2.9	102.9
13C5-PFPeA	10.000	10.394	3.9	103.9
13C6-PFDA	10.000	11.296	13.0	113.0
13C7-PFUnDA	10.000	10.503	5.0	105.0
PFMPA	0.500	0.458	-8.4	91.6
13C8-PFOA	10.000	10.553	5.5	105.5
13C8-PFOS	10.000	10.575	5.7	105.7
13C9-PFNA	10.000	10.410	4.1	104.1
4:2FTS	0.500	0.434	-13.2	86.8
6:2FTS	0.500	0.428	-14.4	85.6
8:2FTS	0.500	0.530	6.1	106.1
PFMBA	0.500	0.447	-10.5	89.5
PFEESA	0.500	0.434	-13.2	86.8
NFDHA	0.500	0.452	-9.6	90.4
PFBA	0.500	0.462	-7.7	92.3
PFBS	0.500	0.430	-14.1	85.9
PFDA	0.500	0.454	-9.1	90.9
PFDoDA	0.500	0.466	-6.9	93.1
PFHpA	0.500	0.456	-8.8	91.2
PFHpS	0.500	0.490	-2.0	98.0
PFHxA	0.500	0.442	-11.6	88.4
PFHxS	0.500	0.468	-6.4	93.6
PFNA	0.500	0.461	-7.9	92.1
PFOA	0.500	0.449	-10.3	89.7
PFOS	0.500	0.497	-0.6	99.4
PFPeA	0.500	0.451	-9.9	90.1

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1492-CC1492
Lab FileID: 3Q101470.D

PFPeS	0.500	0.460	-8.0	92.0
PFUnDA	0.500	0.450	-10.0	90.0
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
11Cl-PF3OUdS	0.500	0.454	-9.1	90.9
13C3-HFPO-DA	10.000	8.515	-14.9	85.1
9Cl-PF3ONS	0.500	0.445	-10.9	89.1
ADONA	0.500	0.443	-11.4	88.6
HFPO-DA	0.500	0.561	12.2	112.2
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S3Q1492-ECC1492
Lab FileID: 3Q101480.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041525_533_S3Q1492\s3q1942.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041525_533_S3Q1492\3q101458.d
2:D:\MassHunter\Data\041525_533_S3Q1492\3q101459.d
3:D:\MassHunter\Data\041525_533_S3Q1492\3q101460.d
4:D:\MassHunter\Data\041525_533_S3Q1492\3q101461.d
5:D:\MassHunter\Data\041525_533_S3Q1492\3q101462.d
6:D:\MassHunter\Data\041525_533_S3Q1492\3q101463.d
7:D:\MassHunter\Data\041525_533_S3Q1492\3q101464.d
8:D:\MassHunter\Data\041525_533_S3Q1492\3q101465.d

Data File: 3q101480
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	10.000	10.843	8.4	108.4
13C2-6:2FTS	10.000	10.916	9.2	109.2
13C2-8:2FTS	10.000	10.579	5.8	105.8
13C2-PFDoDA	10.000	10.074	0.7	100.7
13C2-PFOA	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
13C3-PFBS	10.000	10.672	6.7	106.7
13C3-PFHxS	10.000	10.653	6.5	106.5
13C4-PFBA	10.000	10.593	5.9	105.9
13C4-PFHpA	10.000	10.584	5.8	105.8
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	10.000	10.779	7.8	107.8
13C5-PFPeA	10.000	10.378	3.8	103.8
13C6-PFDA	10.000	12.488	24.9	124.9
13C7-PFUnDA	10.000	10.129	1.3	101.3
PFMPA	20.000	19.897	-0.5	99.5
13C8-PFOA	10.000	10.700	7.0	107.0
13C8-PFOS	10.000	10.679	6.8	106.8
13C9-PFNA	10.000	10.619	6.2	106.2
4:2FTS	20.000	19.634	-1.8	98.2
6:2FTS	20.000	19.337	-3.3	96.7
8:2FTS	20.000	22.017	10.1	110.1
PFMBA	20.000	19.994	0.0	100.0
PFEESA	20.000	20.047	0.2	100.2
NFDHA	20.000	20.090	0.5	100.5
PFBA	20.000	20.025	0.1	100.1
PFBS	20.000	19.855	-0.7	99.3
PFDA	20.000	20.103	0.5	100.5
PFDoDA	20.000	20.195	1.0	101.0
PFHpA	20.000	19.972	-0.1	99.9
PFHpS	20.000	20.724	3.6	103.6
PFHxA	20.000	19.933	-0.3	99.7
PFHxS	20.000	20.086	0.4	100.4
PFNA	20.000	20.138	0.7	100.7
PFOA	20.000	19.983	-0.1	99.9
PFOS	20.000	20.195	1.0	101.0
PFPeA	20.000	20.148	0.7	100.7

6.7.5 6

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1492-ECC1492
Lab FileID: 3Q101480.D

PFPeS	20.000	20.130	0.7	100.7
PFUnDA	20.000	20.106	0.5	100.5
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
11Cl-PF3OUdS	20.000	19.765	-1.2	98.8
13C3-HFPO-DA	10.000	10.425	4.3	104.3
9Cl-PF3ONS	20.000	20.257	1.3	101.3
ADONA	20.000	20.027	0.1	100.1
HFPO-DA	20.000	21.507	7.5	107.5
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S3Q1493-CC1492
Lab FileID: 3Q101490.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041625_533_S3Q1493\s3q1493.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041525_533_S3Q1492\3q101458.d
2:D:\MassHunter\Data\041525_533_S3Q1492\3q101459.d
3:D:\MassHunter\Data\041525_533_S3Q1492\3q101460.d
4:D:\MassHunter\Data\041525_533_S3Q1492\3q101461.d
5:D:\MassHunter\Data\041525_533_S3Q1492\3q101462.d
6:D:\MassHunter\Data\041525_533_S3Q1492\3q101463.d
7:D:\MassHunter\Data\041525_533_S3Q1492\3q101464.d
8:D:\MassHunter\Data\041525_533_S3Q1492\3q101465.d

Data File: 3q101490
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	10.000	11.594	15.9	115.9
13C2-6:2FTS	10.000	11.541	15.4	115.4
13C2-8:2FTS	10.000	11.993	19.9	119.9
13C2-PFDoDA	10.000	11.461	14.6	114.6
13C2-PFOA	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
13C3-PFBS	10.000	10.520	5.2	105.2
13C3-PFHxS	10.000	10.425	4.3	104.3
13C4-PFBA	10.000	10.642	6.4	106.4
13C4-PFHpA	10.000	11.107	11.1	111.1
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	10.000	11.116	11.2	111.2
13C5-PFPeA	10.000	10.836	8.4	108.4
13C6-PFDA	10.000	11.612	16.1	116.1
13C7-PFUnDA	10.000	11.174	11.7	111.7
PFMPA	20.000	19.976	-0.1	99.9
13C8-PFOA	10.000	11.262	12.6	112.6
13C8-PFOS	10.000	10.587	5.9	105.9
13C9-PFNA	10.000	11.574	15.7	115.7
4:2FTS	20.000	18.842	-5.8	94.2
6:2FTS	20.000	19.266	-3.7	96.3
8:2FTS	20.000	21.795	9.0	109.0
PFMBA	20.000	19.575	-2.1	97.9
PFEESA	20.000	20.295	1.5	101.5
NFDHA	20.000	18.972	-5.1	94.9
PFBA	20.000	19.848	-0.8	99.2
PFBS	20.000	20.130	0.7	100.7
PFDA	20.000	19.880	-0.6	99.4
PFDoDA	20.000	20.060	0.3	100.3
PFHpA	20.000	18.929	-5.4	94.6
PFHpS	20.000	20.958	4.8	104.8
PFHxA	20.000	18.662	-6.7	93.3
PFHxS	20.000	20.744	3.7	103.7
PFNA	20.000	18.853	-5.7	94.3
PFOA	20.000	19.026	-4.9	95.1
PFOS	20.000	19.803	-1.0	99.0
PFPeA	20.000	19.774	-1.1	98.9

6.7.6

6

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1493-CC1492
Lab FileID: 3Q101490.D

PFPeS	20.000	20.433	2.2	102.2
PFUnDA	20.000	20.242	1.2	101.2
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
11Cl-PF3OUdS	20.000	20.909	4.5	104.5
13C3-HFPO-DA	10.000	10.241	2.4	102.4
9Cl-PF3ONS	20.000	20.250	1.3	101.3
ADONA	20.000	18.635	-6.8	93.2
HFPO-DA	20.000	18.765	-6.2	93.8
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S3Q1493-CC1492
Lab FileID: 3Q101491.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041625_533_S3Q1493\s3q1493.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041525_533_S3Q1492\3q101458.d
2:D:\MassHunter\Data\041525_533_S3Q1492\3q101459.d
3:D:\MassHunter\Data\041525_533_S3Q1492\3q101460.d
4:D:\MassHunter\Data\041525_533_S3Q1492\3q101461.d
5:D:\MassHunter\Data\041525_533_S3Q1492\3q101462.d
6:D:\MassHunter\Data\041525_533_S3Q1492\3q101463.d
7:D:\MassHunter\Data\041525_533_S3Q1492\3q101464.d
8:D:\MassHunter\Data\041525_533_S3Q1492\3q101465.d

Data File: 3q101491
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	10.000	10.454	4.5	104.5
13C2-6:2FTS	10.000	10.745	7.5	107.5
13C2-8:2FTS	10.000	10.896	9.0	109.0
13C2-PFDoDA	10.000	11.286	12.9	112.9
13C2-PFOA	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
13C3-PFBS	10.000	10.481	4.8	104.8
13C3-PFHxS	10.000	10.603	6.0	106.0
13C4-PFBA	10.000	10.488	4.9	104.9
13C4-PFHpA	10.000	10.791	7.9	107.9
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	10.000	10.603	6.0	106.0
13C5-PFPeA	10.000	10.614	6.1	106.1
13C6-PFDA	10.000	11.377	13.8	113.8
13C7-PFUnDA	10.000	11.184	11.8	111.8
PFMPA	0.500	0.438	-12.4	87.6
13C8-PFOA	10.000	11.072	10.7	110.7
13C8-PFOS	10.000	10.545	5.4	105.4
13C9-PFNA	10.000	11.338	13.4	113.4
4:2FTS	0.500	0.394	-21.2	78.8
6:2FTS	0.500	0.415	-17.1	82.9
8:2FTS	0.500	0.502	0.4	100.4
PFMBA	0.500	0.437	-12.5	87.5
PFEESA	0.500	0.432	-13.6	86.4
NFDHA	0.500	0.457	-8.6	91.4
PFBA	0.500	0.435	-12.9	87.1
PFBS	0.500	0.438	-12.3	87.7
PFDA	0.500	0.455	-9.1	90.9
PFDoDA	0.500	0.457	-8.5	91.5
PFHpA	0.500	0.417	-16.7	83.3
PFHpS	0.500	0.467	-6.6	93.4
PFHxA	0.500	0.402	-19.7	80.3
PFHxS	0.500	0.452	-9.6	90.4
PFNA	0.500	0.435	-13.0	87.0
PFOA	0.500	0.421	-15.9	84.1
PFOS	0.500	0.488	-2.3	97.7
PFPeA	0.500	0.446	-10.9	89.1

6.7.7

6

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1493-CC1492
Lab FileID: 3Q101491.D

PFPeS	0.500	0.460	-8.0	92.0
PFUnDA	0.500	0.453	-9.3	90.7
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
11Cl-PF3OUdS	0.500	0.471	-5.7	94.3
13C3-HFPO-DA	10.000	8.060	-19.4	80.6
9Cl-PF3ONS	0.500	0.443	-11.4	88.6
ADONA	0.500	0.408	-18.3	81.7
HFPO-DA	0.500	0.431	-13.9	86.1
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S3Q1493-ECC1492
Lab FileID: 3Q101499.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041625_533_S3Q1493\s3q1493.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041525_533_S3Q1492\3q101458.d
2:D:\MassHunter\Data\041525_533_S3Q1492\3q101459.d
3:D:\MassHunter\Data\041525_533_S3Q1492\3q101460.d
4:D:\MassHunter\Data\041525_533_S3Q1492\3q101461.d
5:D:\MassHunter\Data\041525_533_S3Q1492\3q101462.d
6:D:\MassHunter\Data\041525_533_S3Q1492\3q101463.d
7:D:\MassHunter\Data\041525_533_S3Q1492\3q101464.d
8:D:\MassHunter\Data\041525_533_S3Q1492\3q101465.d

Data File: 3q101499
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	10.000	11.258	12.6	112.6
13C2-6:2FTS	10.000	11.362	13.6	113.6
13C2-8:2FTS	10.000	11.626	16.3	116.3
13C2-PFDoDA	10.000	11.203	12.0	112.0
13C2-PFOA	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
13C3-PFBS	10.000	10.364	3.6	103.6
13C3-PFHxS	10.000	10.377	3.8	103.8
13C4-PFBA	10.000	10.652	6.5	106.5
13C4-PFHpA	10.000	11.152	11.5	111.5
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	10.000	11.032	10.3	110.3
13C5-PFPeA	10.000	10.694	6.9	106.9
13C6-PFDA	10.000	11.784	17.8	117.8
13C7-PFUnDA	10.000	11.210	12.1	112.1
PFMPA	20.000	19.977	-0.1	99.9
13C8-PFOA	10.000	11.262	12.6	112.6
13C8-PFOS	10.000	10.383	3.8	103.8
13C9-PFNA	10.000	11.473	14.7	114.7
4:2FTS	20.000	19.032	-4.8	95.2
6:2FTS	20.000	19.268	-3.7	96.3
8:2FTS	20.000	21.723	8.6	108.6
PFMBA	20.000	19.649	-1.8	98.2
PFEESA	20.000	20.283	1.4	101.4
NFDHA	20.000	18.897	-5.5	94.5
PFBA	20.000	19.862	-0.7	99.3
PFBS	20.000	19.998	0.0	100.0
PFDA	20.000	19.688	-1.6	98.4
PFDoDA	20.000	20.126	0.6	100.6
PFHpA	20.000	18.894	-5.5	94.5
PFHpS	20.000	20.776	3.9	103.9
PFHxA	20.000	18.569	-7.2	92.8
PFHxS	20.000	20.481	2.4	102.4
PFNA	20.000	19.156	-4.2	95.8
PFOA	20.000	19.018	-4.9	95.1
PFOS	20.000	20.161	0.8	100.8
PFPeA	20.000	19.856	-0.7	99.3

6.7.8 6

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1493-ECC1492
Lab FileID: 3Q101499.D

PFPeS	20.000	19.947	-0.3	99.7
PFUnDA	20.000	20.136	0.7	100.7
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
11Cl-PF3OUdS	20.000	21.088	5.4	105.4
13C3-HFPO-DA	10.000	9.646	-3.5	96.5
9Cl-PF3ONS	20.000	20.466	2.3	102.3
ADONA	20.000	18.421	-7.9	92.1
HFPO-DA	20.000	20.830	4.1	104.1
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S3Q1494-CC1492
Lab FileID: 3Q101520.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041725_533_S3Q1494\s3q1494.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041525_533_S3Q1492\3q101458.d
2:D:\MassHunter\Data\041525_533_S3Q1492\3q101459.d
3:D:\MassHunter\Data\041525_533_S3Q1492\3q101460.d
4:D:\MassHunter\Data\041525_533_S3Q1492\3q101461.d
5:D:\MassHunter\Data\041525_533_S3Q1492\3q101462.d
6:D:\MassHunter\Data\041525_533_S3Q1492\3q101463.d
7:D:\MassHunter\Data\041525_533_S3Q1492\3q101464.d
8:D:\MassHunter\Data\041525_533_S3Q1492\3q101465.d

Data File: 3q101520
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	10.000	11.406	14.1	114.1
13C2-6:2FTS	10.000	11.290	12.9	112.9
13C2-8:2FTS	10.000	11.774	17.7	117.7
13C2-PFDoDA	10.000	11.287	12.9	112.9
13C2-PFOA	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
13C3-PFBS	10.000	10.491	4.9	104.9
13C3-PFHxS	10.000	10.446	4.5	104.5
13C4-PFBA	10.000	10.743	7.4	107.4
13C4-PFHpA	10.000	11.197	12.0	112.0
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	10.000	11.076	10.8	110.8
13C5-PFPeA	10.000	10.722	7.2	107.2
13C6-PFDA	10.000	11.238	12.4	112.4
13C7-PFUnDA	10.000	11.383	13.8	113.8
PFMPA	20.000	19.865	-0.7	99.3
13C8-PFOA	10.000	11.190	11.9	111.9
13C8-PFOS	10.000	10.450	4.5	104.5
13C9-PFNA	10.000	11.492	14.9	114.9
4:2FTS	20.000	19.035	-4.8	95.2
6:2FTS	20.000	19.358	-3.2	96.8
8:2FTS	20.000	21.723	8.6	108.6
PFMBA	20.000	19.789	-1.1	98.9
PFEESA	20.000	20.215	1.1	101.1
NFDHA	20.000	18.961	-5.2	94.8
PFBA	20.000	19.768	-1.2	98.8
PFBS	20.000	19.733	-1.3	98.7
PFDA	20.000	19.944	-0.3	99.7
PFDoDA	20.000	20.069	0.3	100.3
PFHpA	20.000	18.802	-6.0	94.0
PFHpS	20.000	20.662	3.3	103.3
PFHxA	20.000	18.537	-7.3	92.7
PFHxS	20.000	20.715	3.6	103.6
PFNA	20.000	18.821	-5.9	94.1
PFOA	20.000	19.013	-4.9	95.1
PFOS	20.000	20.418	2.1	102.1
PFPeA	20.000	19.892	-0.5	99.5

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1494-CC1492
Lab FileID: 3Q101520.D

PFPeS	20.000	20.259	1.3	101.3
PFUnDA	20.000	20.259	1.3	101.3
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
11Cl-PF3OUdS	20.000	20.711	3.6	103.6
13C3-HFPO-DA	10.000	9.061	-9.4	90.6
9Cl-PF3ONS	20.000	20.259	1.3	101.3
ADONA	20.000	18.333	-8.3	91.7
HFPO-DA	20.000	23.336	16.7	116.7
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S3Q1494-CC1492
Lab FileID: 3Q101521.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041725_533_S3Q1494\s3q1494.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041525_533_S3Q1492\3q101458.d
2:D:\MassHunter\Data\041525_533_S3Q1492\3q101459.d
3:D:\MassHunter\Data\041525_533_S3Q1492\3q101460.d
4:D:\MassHunter\Data\041525_533_S3Q1492\3q101461.d
5:D:\MassHunter\Data\041525_533_S3Q1492\3q101462.d
6:D:\MassHunter\Data\041525_533_S3Q1492\3q101463.d
7:D:\MassHunter\Data\041525_533_S3Q1492\3q101464.d
8:D:\MassHunter\Data\041525_533_S3Q1492\3q101465.d

Data File: 3q101521
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	10.000	10.060	0.6	100.6
13C2-6:2FTS	10.000	10.446	4.5	104.5
13C2-8:2FTS	10.000	10.601	6.0	106.0
13C2-PFDoDA	10.000	11.106	11.1	111.1
13C2-PFOA	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
13C3-PFBS	10.000	10.039	0.4	100.4
13C3-PFHxS	10.000	10.202	2.0	102.0
13C4-PFBA	10.000	10.651	6.5	106.5
13C4-PFHpA	10.000	10.852	8.5	108.5
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	10.000	10.745	7.4	107.4
13C5-PFPeA	10.000	10.612	6.1	106.1
13C6-PFDA	10.000	10.820	8.2	108.2
13C7-PFUnDA	10.000	11.123	11.2	111.2
PFMPA	0.500	0.443	-11.5	88.5
13C8-PFOA	10.000	11.145	11.5	111.5
13C8-PFOS	10.000	10.298	3.0	103.0
13C9-PFNA	10.000	11.425	14.2	114.2
4:2FTS	0.500	0.431	-13.8	86.2
6:2FTS	0.500	0.427	-14.5	85.5
8:2FTS	0.500	0.511	2.3	102.3
PFMBA	0.500	0.433	-13.4	86.6
PFEESA	0.500	0.446	-10.8	89.2
NFDHA	0.500	0.446	-10.8	89.2
PFBA	0.500	0.425	-15.0	85.0
PFBS	0.500	0.401	-19.7	80.3
PFDA	0.500	0.444	-11.2	88.8
PFDoDA	0.500	0.457	-8.6	91.4
PFHpA	0.500	0.426	-14.8	85.2
PFHpS	0.500	0.471	-5.9	94.1
PFHxA	0.500	0.416	-16.7	83.3
PFHxS	0.500	0.472	-5.6	94.4
PFNA	0.500	0.408	-18.5	81.5
PFOA	0.500	0.425	-14.9	85.1
PFOS	0.500	0.471	-5.7	94.3
PFPeA	0.500	0.442	-11.5	88.5

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1494-CC1492
Lab FileID: 3Q101521.D

PFPeS	0.500	0.451	-9.8	90.2
PFUnDA	0.500	0.444	-11.1	88.9
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
11Cl-PF3OUdS	0.500	0.464	-7.3	92.7
13C3-HFPO-DA	10.000	8.604	-14.0	86.0
9Cl-PF3ONS	0.500	0.446	-10.9	89.1
ADONA	0.500	0.404	-19.3	80.7
HFPO-DA	0.500	0.510	1.9	101.9
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S3Q1494-CC1492
Lab FileID: 3Q101533.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041725_533_S3Q1494\s3q1494.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041525_533_S3Q1492\3q101458.d
2:D:\MassHunter\Data\041525_533_S3Q1492\3q101459.d
3:D:\MassHunter\Data\041525_533_S3Q1492\3q101460.d
4:D:\MassHunter\Data\041525_533_S3Q1492\3q101461.d
5:D:\MassHunter\Data\041525_533_S3Q1492\3q101462.d
6:D:\MassHunter\Data\041525_533_S3Q1492\3q101463.d
7:D:\MassHunter\Data\041525_533_S3Q1492\3q101464.d
8:D:\MassHunter\Data\041525_533_S3Q1492\3q101465.d

Data File: 3q101533
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	10.000	11.569	15.7	115.7
13C2-6:2FTS	10.000	11.407	14.1	114.1
13C2-8:2FTS	10.000	11.748	17.5	117.5
13C2-PFDoDA	10.000	10.922	9.2	109.2
13C2-PFOA	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
13C3-PFBS	10.000	10.277	2.8	102.8
13C3-PFHxS	10.000	10.548	5.5	105.5
13C4-PFBA	10.000	10.757	7.6	107.6
13C4-PFHpA	10.000	11.021	10.2	110.2
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	10.000	10.963	9.6	109.6
13C5-PFPeA	10.000	10.557	5.6	105.6
13C6-PFDA	10.000	11.212	12.1	112.1
13C7-PFUnDA	10.000	11.673	16.7	116.7
PFMPA	20.000	19.738	-1.3	98.7
13C8-PFOA	10.000	11.248	12.5	112.5
13C8-PFOS	10.000	10.693	6.9	106.9
13C9-PFNA	10.000	11.560	15.6	115.6
4:2FTS	20.000	18.830	-5.8	94.2
6:2FTS	20.000	19.552	-2.2	97.8
8:2FTS	20.000	21.734	8.7	108.7
PFMBA	20.000	19.596	-2.0	98.0
PFEESA	20.000	20.550	2.8	102.8
NFDHA	20.000	19.233	-3.8	96.2
PFBA	20.000	19.629	-1.9	98.1
PFBS	20.000	20.179	0.9	100.9
PFDA	20.000	19.694	-1.5	98.5
PFDoDA	20.000	20.011	0.1	100.1
PFHpA	20.000	18.887	-5.6	94.4
PFHpS	20.000	20.851	4.3	104.3
PFHxA	20.000	18.679	-6.6	93.4
PFHxS	20.000	19.794	-1.0	99.0
PFNA	20.000	18.928	-5.4	94.6
PFOA	20.000	18.889	-5.6	94.4
PFOS	20.000	20.113	0.6	100.6
PFPeA	20.000	19.869	-0.7	99.3

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1494-CC1492
Lab FileID: 3Q101533.D

PFPeS	20.000	20.036	0.2	100.2
PFUnDA	20.000	20.173	0.9	100.9
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
11Cl-PF3OUdS	20.000	20.798	4.0	104.0
13C3-HFPO-DA	10.000	9.838	-1.6	98.4
9Cl-PF3ONS	20.000	19.769	-1.2	98.8
ADONA	20.000	18.613	-6.9	93.1
HFPO-DA	20.000	19.514	-2.4	97.6
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Initial Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q521-ICC521
Lab FileID: 5Q31763.D

Initial Calibration Report

Method Path	D:\MassHunter\Methods
Method File	537_041525_S5Q521.quantmethod
Batch Name	D:\MassHunter\Data\041525_DW_S5Q521\QuantResults\s5q521.batch.bin
Last Calib Update	4/16/2025 10:20:23 AM

Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time
1	D:\MassHunter\Data\041525_DW_S5Q521\SQ31758.d	4/15/2025 3:21:28 PM	4/16/2025 10:20:23 AM
2	D:\MassHunter\Data\041525_DW_S5Q521\SQ31759.d	4/15/2025 3:37:31 PM	4/16/2025 10:20:23 AM
3	D:\MassHunter\Data\041525_DW_S5Q521\SQ31760.d	4/15/2025 3:53:32 PM	4/16/2025 10:20:23 AM
4	D:\MassHunter\Data\041525_DW_S5Q521\SQ31761.d	4/15/2025 4:09:33 PM	4/16/2025 10:20:23 AM
5	D:\MassHunter\Data\041525_DW_S5Q521\SQ31762.d	4/15/2025 4:25:34 PM	4/16/2025 10:20:23 AM
6	D:\MassHunter\Data\041525_DW_S5Q521\SQ31763.d	4/15/2025 4:41:34 PM	4/16/2025 10:20:23 AM
7	D:\MassHunter\Data\041525_DW_S5Q521\SQ31764.d	4/15/2025 4:57:36 PM	4/16/2025 10:20:23 AM
8	D:\MassHunter\Data\041525_DW_S5Q521\SQ31765.d	4/15/2025 5:13:37 PM	4/16/2025 10:20:23 AM

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I 13C2-6:2FTS						ISTD					
T 6:2FTS	Linear	0.8932	1.0266	0.9437	1.0857	1.2035	1.1551	1.0687	0.9668	1.0429	10.198
T 8:2FTS	Linear	0.7652	0.7481	0.8473	0.8886	0.9279	0.9606	0.9115	0.8285	0.8597	8.886
I 13C2-PFOA						ISTD					
S 13C2-PFHxA	Linear	0.9528	1.0293	1.0867	1.1696	1.2837	1.2882	1.3281	1.3118	1.1813	12.180
T PFHxA	Linear	0.6424	0.7299	0.7153	0.7926	0.8714	0.8733	0.8869	0.9067	0.8023	12.131
S 13C3-HFPO-DA	Linear	0.0665	0.0710	0.0733	0.0741	0.0834	0.0803	0.0859	0.0908	0.0782	10.588
T HFPO-DA	Linear	0.0645	0.0740	0.0709	0.0711	0.0821	0.0807	0.0833	0.0876	0.0768	10.192
T PFHpA	Linear	1.2957	1.3904	1.4641	1.5478	1.7448	1.7495	1.7695	1.8353	1.5997	12.617
T ADONA	Linear	1.6096	1.7787	1.8614	2.0251	2.2582	2.3083	2.3864	2.5466	2.0968	15.674
T PFOA	Linear	0.7268	0.8081	0.8067	0.8481	0.9774	0.9561	0.9869	1.0077	0.8897	11.808
T PFNA	Linear	0.5134	0.5510	0.5323	0.5776	0.6685	0.6925	0.7127	0.7610	0.6261	14.957
T 9Cl-PF3ONS	Linear	0.2286	0.2216	0.2446	0.2349	0.2733	0.2773	0.2967	0.3158	0.2616	13.120
S 13C2-PFDA	Linear	0.6583	0.6603	0.6785	0.7028	0.8034	0.8145	0.8425	0.8535	0.7517	11.250
T PFDA	Linear	0.5434	0.5559	0.6175	0.6274	0.7259	0.7521	0.7710	0.7716	0.6706	14.262
T 11Cl-PF3OUdS	Quadratic	0.2342	0.2514	0.2611	0.2502	0.2714	0.3026	0.3331	0.3715	0.2844	16.688
I 13C3-PFPeA						ISTD					
T PFPeA	Linear	0.9419	1.0127	1.0771	1.1728	1.3008	1.2695	1.3025	1.3483	1.1782	12.883
I 13C4-PFOS						ISTD					
T PFBS	Linear	2.3241	2.3931	2.6154	2.6407	2.9858	2.8596	2.8365	2.7493	2.6755	8.588
T PFHxS	Linear	1.4021	1.3794	1.5124	1.5434	1.7236	1.7249	1.8078	1.8737	1.6209	11.524
T PFOS	Linear	0.9533	1.0248	1.0571	1.0995	1.2416	1.2224	1.2687	1.3373	1.1506	11.769
T PFUnDA	Linear	2.5657	2.6472	2.8537	2.7751	3.1103	3.2032	3.3077	3.4131	2.9845	10.610
T PFDoDA	Quadratic	2.3901	2.1365	2.7553	2.3364	1.8669	2.6889	2.9456	3.3369	2.5571	18.376
T PFTrDA	Linear	1.1899	1.0223	1.1392	1.0745	1.0341	1.1273	1.3218	1.5039	1.1766	13.881
T PFTeDA	Linear	0.9060	0.8678	0.8942	0.8835	0.9870	0.9916	1.1141	1.2373	0.9852	13.229
I d3-MeFOSAA						ISTD					

Generated at 10:20 AM on 4/16/2025

Initial Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q521-ICC521
Lab FileID: 5Q31763.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T MeFOSAA	Linear	0.6018	0.8005	0.9026	0.8324	0.9688	0.8964	0.9230	0.9746	0.8625	14.063
S d5-EtFOSAA	Linear	0.5910	0.8336	0.6701	0.6681	0.7996	0.7229	0.7589	0.7393	0.7229	10.830
T EtFOSAA	Linear	0.5861	0.7699	0.6157	0.6458	0.7341	0.6863	0.6696	0.6586	0.6707	8.921

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Initial Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q521-ICC521
Lab FileID: 5Q31763.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	Curve Fit R2
T PFPeA	Linear	y = 1.336305 * x	0.999533
T PFBS	Linear	y = 2.770951 * x	0.999635
S 13C2-PFHxA	Linear	y = 1.313601 * x	0.999883
T PFHxA	Linear	y = 0.901277 * x	0.999761
S 13C3-HFPO-DA	Linear	y = 0.089456 * x	0.998642
T HFPO-DA	Linear	y = 0.086500 * x	0.999069
T PFHpA	Linear	y = 1.818678 * x	0.999520
T PFHxS	Linear	y = 1.854577 * x	0.999313
T ADONA	Linear	y = 2.505082 * x	0.998519
T 6:2FTS	Linear	y = 0.994164 * x	0.995574
T PFOA	Linear	y = 1.001510 * x	0.999702
T PFOS	Linear	y = 1.319294 * x	0.998982
T PFNA	Linear	y = 0.748462 * x	0.998464
T 9Cl-PF3ONS	Linear	y = 0.310444 * x	0.998241
T MeFOSAA	Linear	y = 0.961957 * x	0.999060
S d5-EtFOSAA	Linear	y = 0.742862 * x	0.999699
T EtFOSAA	Linear	y = 0.662065 * x	0.999720
S 13C2-PFDA	Linear	y = 0.849445 * x	0.999733
T PFDA	Linear	y = 0.770179 * x	0.999805
T 8:2FTS	Linear	y = 0.849335 * x	0.996755
T PFUnDA	Linear	y = 3.382641 * x	0.999455
T 11Cl-PF3OUdS	Quadratic	y = 0.016799 * x ^ 2 + 0.287826 * x	0.999881
T PFDoDA	Quadratic	y = 0.205072 * x ^ 2 + 2.336012 * x	0.997238
T PFTrDA	Linear	y = 1.452790 * x	0.993096
T PFTeDA	Linear	y = 1.203400 * x	0.995626

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Generated at 10:20 AM on 4/16/2025

Initial Calibration Verification

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q521-ICV521
Lab FileID: 5Q31766.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041525_DW_S5Q521\s5q521.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041525_DW_S5Q521\5Q31758.d
2:D:\MassHunter\Data\041525_DW_S5Q521\5Q31759.d
3:D:\MassHunter\Data\041525_DW_S5Q521\5Q31760.d
4:D:\MassHunter\Data\041525_DW_S5Q521\5Q31761.d
5:D:\MassHunter\Data\041525_DW_S5Q521\5Q31762.d
6:D:\MassHunter\Data\041525_DW_S5Q521\5Q31763.d
7:D:\MassHunter\Data\041525_DW_S5Q521\5Q31764.d
8:D:\MassHunter\Data\041525_DW_S5Q521\5Q31765.d

Data File: 5Q31766
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	0.000	# -100.0	0.0
13C2-PFHxA	10.000	0.000	# -100.0	0.0
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	20.827	4.1	104.1
8:2FTS	20.000	21.112	5.6	105.6
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	0.000	# -100.0	0.0
EtFOSAA	20.000	21.261	6.3	106.3
MeFOSAA	20.000	17.587	-12.1	87.9
PFBS	20.000	17.767	-11.2	88.8
PFDA	20.000	17.468	-12.7	87.3
PFDoDA	20.000	29.005	# 45.0	145.0
PFHpA	20.000	18.319	-8.4	91.6
PFHxA	20.000	17.230	-13.9	86.1
PFHxS	20.000	15.602	-22.0	78.0
PFNA	20.000	19.788	-1.1	98.9
PFOA	20.000	19.366	-3.2	96.8
PFOS	20.000	17.927	-10.4	89.6
PFPeA	20.000	19.589	-2.1	97.9
PFTeDA	20.000	16.780	-16.1	83.9
PFTrDA	20.000	25.084	25.4	125.4
PFUnDA	20.000	21.462	7.3	107.3
ADONA	20.000	16.248	-18.8	81.2
9Cl-PF3ONS	20.000	15.476	-22.6	77.4
11Cl-PF3OUdS	20.000	19.682	-1.6	98.4
13C3-HFPO-DA	20.000	0.000	# -100.0	0.0
HFPO-DA	20.000	17.905	-10.5	89.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q521-CC521
Lab FileID: 5Q31768.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041525_DW_S5Q521\s5q521.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041525_DW_S5Q521\5Q31758.d
2:D:\MassHunter\Data\041525_DW_S5Q521\5Q31759.d
3:D:\MassHunter\Data\041525_DW_S5Q521\5Q31760.d
4:D:\MassHunter\Data\041525_DW_S5Q521\5Q31761.d
5:D:\MassHunter\Data\041525_DW_S5Q521\5Q31762.d
6:D:\MassHunter\Data\041525_DW_S5Q521\5Q31763.d
7:D:\MassHunter\Data\041525_DW_S5Q521\5Q31764.d
8:D:\MassHunter\Data\041525_DW_S5Q521\5Q31765.d

Data File: 5Q31768
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	9.496	-5.0	95.0
13C2-PFHxA	10.000	9.930	-0.7	99.3
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	23.562	17.8	117.8
8:2FTS	20.000	22.327	11.6	111.6
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	18.390	-8.1	91.9
EtFOSAA	20.000	20.585	2.9	102.9
MeFOSAA	20.000	17.088	-14.6	85.4
PFBS	20.000	22.212	11.1	111.1
PFDA	20.000	19.367	-3.2	96.8
PFDoDA	20.000	23.043	15.2	115.2
PFHpA	20.000	18.803	-6.0	94.0
PFHxA	20.000	19.811	-0.9	99.1
PFHxS	20.000	19.507	-2.5	97.5
PFNA	20.000	18.039	-9.8	90.2
PFOA	20.000	19.649	-1.8	98.2
PFOS	20.000	19.326	-3.4	96.6
PFPeA	20.000	19.332	-3.3	96.7
PFTeDA	20.000	17.608	-12.0	88.0
PFTrDA	20.000	16.513	-17.4	82.6
PFUnDA	20.000	19.744	-1.3	98.7
ADONA	20.000	17.983	-10.1	89.9
9Cl-PF3ONS	20.000	17.886	-10.6	89.4
11Cl-PF3OUdS	20.000	20.235	1.2	101.2
13C3-HFPO-DA	20.000	18.588	-7.1	92.9
HFPO-DA	20.000	18.865	-5.7	94.3

CC Criteria: +/- 30%

6.7.14

6

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q521-CC521
Lab FileID: 5Q31769.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041525_DW_S5Q521\s5q521.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041525_DW_S5Q521\5Q31758.d
2:D:\MassHunter\Data\041525_DW_S5Q521\5Q31759.d
3:D:\MassHunter\Data\041525_DW_S5Q521\5Q31760.d
4:D:\MassHunter\Data\041525_DW_S5Q521\5Q31761.d
5:D:\MassHunter\Data\041525_DW_S5Q521\5Q31762.d
6:D:\MassHunter\Data\041525_DW_S5Q521\5Q31763.d
7:D:\MassHunter\Data\041525_DW_S5Q521\5Q31764.d
8:D:\MassHunter\Data\041525_DW_S5Q521\5Q31765.d

Data File: 5Q31769
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	0.250	0.180	-28.0	72.0
13C2-PFHxA	0.250	0.176	-29.4	70.6
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	0.500	0.462	-7.6	92.4
8:2FTS	0.500	0.432	-13.7	86.3
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	0.500	0.441	-11.9	88.1
EtFOSAA	0.500	0.494	-1.3	98.7
MeFOSAA	0.500	0.439	-12.3	87.7
PFBS	0.500	0.390	-21.9	78.1
PFDA	0.500	0.347	-30.6	69.4
PFDoDA	0.500	0.568	13.6	113.6
PFHpA	0.500	0.353	-29.4	70.6
PFHxA	0.500	0.353	-29.3	70.7
PFHxS	0.500	0.366	-26.8	73.2
PFNA	0.500	0.311	-37.7	62.3
PFOA	0.500	0.357	-28.7	71.3
PFOS	0.500	0.354	-29.2	70.8
PFPeA	0.500	0.360	-28.0	72.0
PFTeDA	0.500	0.366	-26.9	73.1
PFTrDA	0.500	0.405	-18.9	81.1
PFUnDA	0.500	0.370	-26.0	74.0
ADONA	0.500	0.312	-37.6	62.4
9Cl-PF3ONS	0.500	0.350	-29.9	70.1
11Cl-PF3OUdS	0.500	0.376	-24.8	75.2
13C3-HFPO-DA	0.500	0.370	-25.9	74.1
HFPO-DA	0.500	0.425	-15.0	85.0

CC Criteria: +/- 50%

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q521-ECC521
Lab FileID: 5Q31780.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041525_DW_S5Q521\s5q521.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041525_DW_S5Q521\5Q31758.d
2:D:\MassHunter\Data\041525_DW_S5Q521\5Q31759.d
3:D:\MassHunter\Data\041525_DW_S5Q521\5Q31760.d
4:D:\MassHunter\Data\041525_DW_S5Q521\5Q31761.d
5:D:\MassHunter\Data\041525_DW_S5Q521\5Q31762.d
6:D:\MassHunter\Data\041525_DW_S5Q521\5Q31763.d
7:D:\MassHunter\Data\041525_DW_S5Q521\5Q31764.d
8:D:\MassHunter\Data\041525_DW_S5Q521\5Q31765.d

Data File: 5Q31780
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	9.423	-5.8	94.2
13C2-PFHxA	10.000	9.731	-2.7	97.3
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	22.983	14.9	114.9
8:2FTS	20.000	21.732	8.7	108.7
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	20.898	4.5	104.5
EtFOSAA	20.000	22.118	10.6	110.6
MeFOSAA	20.000	18.675	-6.6	93.4
PFBS	20.000	21.484	7.4	107.4
PFDA	20.000	18.669	-6.7	93.3
PFDoDA	20.000	21.981	9.9	109.9
PFHpA	20.000	19.775	-1.1	98.9
PFHxA	20.000	19.680	-1.6	98.4
PFHxS	20.000	19.534	-2.3	97.7
PFNA	20.000	18.274	-8.6	91.4
PFOA	20.000	19.278	-3.6	96.4
PFOS	20.000	18.763	-6.2	93.8
PFPeA	20.000	19.274	-3.6	96.4
PFTeDA	20.000	16.969	-15.2	84.8
PFTrDA	20.000	15.808	-21.0	79.0
PFUnDA	20.000	18.915	-5.4	94.6
ADONA	20.000	18.355	-8.2	91.8
9Cl-PF3ONS	20.000	17.902	-10.5	89.5
11Cl-PF3OUdS	20.000	20.238	1.2	101.2
13C3-HFPO-DA	20.000	18.783	-6.1	93.9
HFPO-DA	20.000	18.824	-5.9	94.1

CC Criteria: +/- 30%

Raw Data: 5Q31785.D 5Q31786.D 5Q31787.D 5Q31788.D 5Q31789.D 5Q31790.D 5Q31791.D 5Q31792.D 5Q31793.D

Initial Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q522-ICC522
Lab FileID: 5Q31791.D

Initial Calibration Report

Method Path	D:\MassHunter\Methods
Method File	537_041625_S5Q522.quantmethod
Batch Name	D:\MassHunter\Data\041625_537.1_S5Q522\QuantResults\s5q522.batch.bin
Last Calib Update	4/17/2025 7:20:47 AM

Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time
1	D:\MassHunter\Data\041625_537.1_S5Q522\5Q31786.d	4/16/2025 12:01:05 PM	4/17/2025 7:20:47 AM
2	D:\MassHunter\Data\041625_537.1_S5Q522\5Q31787.d	4/16/2025 12:17:05 PM	4/17/2025 7:20:47 AM
3	D:\MassHunter\Data\041625_537.1_S5Q522\5Q31788.d	4/16/2025 12:33:06 PM	4/17/2025 7:20:47 AM
4	D:\MassHunter\Data\041625_537.1_S5Q522\5Q31789.d	4/16/2025 12:49:09 PM	4/17/2025 7:20:47 AM
5	D:\MassHunter\Data\041625_537.1_S5Q522\5Q31790.d	4/16/2025 1:05:11 PM	4/17/2025 7:20:47 AM
6	D:\MassHunter\Data\041625_537.1_S5Q522\5Q31791.d	4/16/2025 1:21:13 PM	4/17/2025 7:20:47 AM
7	D:\MassHunter\Data\041625_537.1_S5Q522\5Q31792.d	4/16/2025 1:37:13 PM	4/17/2025 7:20:47 AM
8	D:\MassHunter\Data\041625_537.1_S5Q522\5Q31793.d	4/16/2025 1:53:14 PM	4/17/2025 7:20:47 AM

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I 13C2-6:2FTS						ISTD					
T 6:2FTS	Quadratic	1.0070	1.0722	1.0005	1.0764	1.2286	1.1410	1.0870	0.9591	1.0715	8.013
T 8:2FTS	Linear	0.8114	0.8270	0.8910	0.8330	0.9255	0.8938	0.8620	0.8078	0.8564	5.070
I 13C2-PFOA						ISTD					
S 13C2-PFHxA	Linear	0.9562	1.0908	1.0568	1.1616	1.3097	1.2914	1.3253	1.3619	1.1942	12.474
T PFHxA	Quadratic	0.6522	0.7236	0.7414	0.8183	0.8982	0.8877	0.8982	0.9350	0.8193	12.521
S 13C3-HFPO-DA	Linear	0.0744	0.0780	0.0747	0.0751	0.0850	0.0851	0.0879	0.0972	0.0822	9.863
T HFPO-DA	Quadratic	0.0729	0.0746	0.0805	0.0736	0.0846	0.0819	0.0837	0.0914	0.0804	7.993
T PFHpA	Quadratic	1.2121	1.4329	1.4020	1.5982	1.7596	1.7287	1.7815	1.8995	1.6018	14.589
T ADONA	Quadratic	1.6271	1.7825	1.8220	2.0241	2.2656	2.2429	2.3816	2.5776	2.0904	15.784
T PFOA	Quadratic	0.6966	0.7831	0.8127	0.8708	0.9516	0.9899	0.9704	1.0091	0.8855	12.766
T PFNA	Quadratic	0.5083	0.5673	0.5633	0.5962	0.6645	0.6685	0.7001	0.7405	0.6261	12.664
T 9Cl-PF3ONS	Quadratic	0.1968	0.2044	0.2184	0.2467	0.2816	0.2762	0.2919	0.3244	0.2550	17.961
S 13C2-PFDA	Linear	0.6642	0.5938	0.6564	0.6726	0.7603	0.7550	0.7968	0.8353	0.7168	11.466
T PFDA	Quadratic	0.5371	0.5995	0.5721	0.6340	0.7139	0.7112	0.7200	0.7583	0.6558	12.338
T 11Cl-PF3OUdS	Quadratic	0.2549	0.2613	0.2677	0.2553	0.2641	0.2914	0.3163	0.3736	0.2856	14.471
I 13C3-PFPeA						ISTD					
T PFPeA	Quadratic	0.9204	1.0433	1.0628	1.1407	1.2850	1.2749	1.2866	1.3333	1.1684	12.744
I 13C4-PFOS						ISTD					
T PFBS	Linear	2.2320	2.6907	2.5816	2.8552	3.1660	2.9664	2.9377	2.8351	2.7831	10.207
T PFHxS	Quadratic	1.3222	1.4864	1.4077	1.5719	1.7463	1.7078	1.8150	1.9123	1.6212	12.791
T PFOS	Linear	1.0490	1.1197	1.0332	1.1650	1.3087	1.2254	1.2469	1.3382	1.1858	9.586
T PFUnDA	Linear	2.4189	2.5801	2.7302	2.6860	2.9043	2.9611	3.0794	3.1493	2.8136	8.980
T PFDoDA	Quadratic	2.2473	2.4911	2.6288	2.3043	1.7658	2.2959	2.6665	3.0447	2.4306	15.436
T PFTrDA	Linear	1.0371	1.1063	1.2232	1.0513	0.9770	1.0178	1.1857	1.3769	1.1219	11.845
T PFTeDA	Quadratic	0.7987	0.9169	0.8822	0.8624	0.9459	0.9378	1.0440	1.1736	0.9452	12.329
I d3-MeFOSAA						ISTD					

Generated at 7:21 AM on 4/17/2025

9.7.17 9

Initial Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q522-ICC522
Lab FileID: 5Q31791.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T MeFOSAA	Linear	0.7780	0.8253	0.8596	0.8811	0.8392	0.8949	0.9379	1.0199	0.8795	8.447
S d5-EtFOSAA	Quadratic	0.6030	0.5861	0.7296	0.6996	0.7489	0.7513	0.8115	0.8093	0.7174	11.807
T EtFOSAA	Linear	0.7358	0.6933	0.7108	0.6835	0.7126	0.7319	0.7079	0.6871	0.7079	2.736

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Generated at 7:21 AM on 4/17/2025

6.7.17

Initial Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q522-ICC522
Lab FileID: 5Q31791.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	Curve Fit R2
T PFPeA	Quadratic	y = 0.022506 * x ^ 2 + 1.223762 * x	0.999273
T PFBS	Linear	y = 2.861310 * x	0.999489
S 13C2-PFHxA	Linear	y = 1.351779 * x	0.999639
T PFHxA	Quadratic	y = 0.016371 * x ^ 2 + 0.854665 * x	0.999374
S 13C3-HFPO-DA	Linear	y = 0.094906 * x	0.997064
T HFPO-DA	Quadratic	y = 0.002530 * x ^ 2 + 0.078522 * x	0.999620
T PFHpA	Quadratic	y = 0.045237 * x ^ 2 + 1.672898 * x	0.999964
T PFHxS	Quadratic	y = 0.043316 * x ^ 2 + 1.696704 * x	0.999948
T ADONA	Quadratic	y = 0.091387 * x ^ 2 + 2.128271 * x	0.999377
T 6:2FTS	Quadratic	y = -0.043941 * x ^ 2 + 1.182783 * x	0.998943
T PFOA	Quadratic	y = 0.012755 * x ^ 2 + 0.944794 * x	0.999910
T PFOS	Linear	y = 1.316557 * x	0.998613
T PFNA	Quadratic	y = 0.017210 * x ^ 2 + 0.654697 * x	0.999965
T 9Cl-PF3ONS	Quadratic	y = 0.012558 * x ^ 2 + 0.261499 * x	0.999951
T MeFOSAA	Linear	y = 0.998600 * x	0.997623
S d5-EtFOSAA	Quadratic	y = 0.027207 * x ^ 2 + 0.748010 * x	0.999084
T EtFOSAA	Linear	y = 0.692677 * x	0.999622
S 13C2-PFDA	Linear	y = 0.824465 * x	0.998970
T PFDA	Quadratic	y = 0.014212 * x ^ 2 + 0.686974 * x	0.999951
T 8:2FTS	Linear	y = 0.821809 * x	0.998383
T PFUnDA	Linear	y = 3.076065 * x	0.998455
T 11Cl-PF3OUdS	Quadratic	y = 0.022647 * x ^ 2 + 0.260408 * x	0.999872
T PFDoDA	Quadratic	y = 0.173016 * x ^ 2 + 2.184775 * x	0.999565
T PFTrDA	Linear	y = 1.325421 * x	0.992059
T PFTeDA	Quadratic	y = 0.056508 * x ^ 2 + 0.893095 * x	0.999860

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Generated at 7:21 AM on 4/17/2025

6.7.17

Initial Calibration Verification

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q522-ICV522
Lab FileID: 5Q31794.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041625_537.1_S5Q522\s5q522.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31786.d
2:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31787.d
3:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31788.d
4:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31789.d
5:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31790.d
6:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31791.d
7:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31792.d
8:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31793.d

Data File: 5Q31794
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	0.000	# -100.0	0.0
13C2-PFHxA	10.000	0.000	# -100.0	0.0
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	17.810	-10.9	89.1
8:2FTS	20.000	20.936	4.7	104.7
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	0.000	# -100.0	0.0
EtFOSAA	20.000	19.161	-4.2	95.8
MeFOSAA	20.000	17.152	-14.2	85.8
PFBS	20.000	18.100	-9.5	90.5
PFDA	20.000	19.248	-3.8	96.2
PFDoDA	20.000	28.359	# 41.8	141.8
PFHpA	20.000	19.951	-0.2	99.8
PFHxA	20.000	18.714	-6.4	93.6
PFHxS	20.000	16.725	-16.4	83.6
PFNA	20.000	23.025	15.1	115.1
PFOA	20.000	20.477	2.4	102.4
PFOS	20.000	18.271	-8.6	91.4
PFPeA	20.000	20.683	3.4	103.4
PFTeDA	20.000	20.252	1.3	101.3
PFTrDA	20.000	25.687	28.4	128.4
PFUnDA	20.000	22.285	11.4	111.4
ADONA	20.000	18.296	-8.5	91.5
9Cl-PF3ONS	20.000	18.249	-8.8	91.2
11Cl-PF3OUdS	20.000	21.152	5.8	105.8
13C3-HFPO-DA	20.000	0.000	# -100.0	0.0
HFPO-DA	20.000	19.612	-1.9	98.1

CC Criteria: +/- 30%

6.7.18

6

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q522-CC522
Lab FileID: 5Q31796.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041625_537.1_S5Q522\s5q522.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31786.d
2:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31787.d
3:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31788.d
4:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31789.d
5:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31790.d
6:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31791.d
7:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31792.d
8:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31793.d

Data File: 5Q31796
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	9.111	-8.9	91.1
13C2-PFHxA	10.000	9.355	-6.5	93.5
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	20.162	0.8	100.8
8:2FTS	20.000	21.722	8.6	108.6
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	19.533	-2.3	97.7
EtFOSAA	20.000	20.113	0.6	100.6
MeFOSAA	20.000	18.395	-8.0	92.0
PFBS	20.000	21.734	8.7	108.7
PFDA	20.000	19.908	-0.5	99.5
PFDoDA	20.000	20.793	4.0	104.0
PFHpA	20.000	20.091	0.5	100.5
PFHxA	20.000	20.019	0.1	100.1
PFHxS	20.000	21.007	5.0	105.0
PFNA	20.000	19.850	-0.7	99.3
PFOA	20.000	20.200	1.0	101.0
PFOS	20.000	18.843	-5.8	94.2
PFPeA	20.000	20.290	1.4	101.4
PFTeDA	20.000	20.699	3.5	103.5
PFTrDA	20.000	16.421	-17.9	82.1
PFUnDA	20.000	19.967	-0.2	99.8
ADONA	20.000	20.096	0.5	100.5
9Cl-PF3ONS	20.000	19.499	-2.5	97.5
11Cl-PF3OUdS	20.000	20.388	1.9	101.9
13C3-HFPO-DA	20.000	17.926	-10.4	89.6
HFPO-DA	20.000	19.824	-0.9	99.1

CC Criteria: +/- 30%

6.7.19

6

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q522-CC522
Lab FileID: 5Q31797.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041625_537.1_S5Q522\s5q522.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31786.d
2:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31787.d
3:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31788.d
4:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31789.d
5:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31790.d
6:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31791.d
7:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31792.d
8:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31793.d

Data File: 5Q31797
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	0.250	0.181	-27.6	72.4
13C2-PFHxA	0.250	0.181	-27.6	72.4
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	0.500	0.343	-31.3	68.7
8:2FTS	0.500	0.467	-6.7	93.3
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	0.500	0.331	-33.7	66.3
EtFOSAA	0.500	0.480	-4.0	96.0
MeFOSAA	0.500	0.406	-18.7	81.3
PFBS	0.500	0.403	-19.4	80.6
PFDA	0.500	0.395	-20.9	79.1
PFDoDA	0.500	0.533	6.7	106.7
PFHpA	0.500	0.374	-25.1	74.9
PFHxA	0.500	0.351	-29.8	70.2
PFHxS	0.500	0.373	-25.4	74.6
PFNA	0.500	0.368	-26.4	73.6
PFOA	0.500	0.377	-24.7	75.3
PFOS	0.500	0.370	-25.9	74.1
PFPeA	0.500	0.371	-25.9	74.1
PFTeDA	0.500	0.443	-11.4	88.6
PFTrDA	0.500	0.409	-18.1	81.9
PFUnDA	0.500	0.352	-29.6	70.4
ADONA	0.500	0.357	-28.6	71.4
9Cl-PF3ONS	0.500	0.365	-26.9	73.1
11Cl-PF3OUdS	0.500	0.451	-9.8	90.2
13C3-HFPO-DA	0.500	0.373	-25.3	74.7
HFPO-DA	0.500	0.355	-29.0	71.0

CC Criteria: +/- 50%

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q522-ECC522
Lab FileID: 5Q31808.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041625_537.1_S5Q522\s5q522.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31786.d
2:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31787.d
3:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31788.d
4:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31789.d
5:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31790.d
6:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31791.d
7:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31792.d
8:D:\MassHunter\Data\041625_537.1_S5Q522\5Q31793.d

Data File: 5Q31808
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	9.343	-6.6	93.4
13C2-PFHxA	10.000	9.554	-4.5	95.5
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	20.595	3.0	103.0
8:2FTS	20.000	21.448	7.2	107.2
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	19.150	-4.3	95.7
EtFOSAA	20.000	20.260	1.3	101.3
MeFOSAA	20.000	17.373	-13.1	86.9
PFBS	20.000	21.148	5.7	105.7
PFDA	20.000	19.966	-0.2	99.8
PFDoDA	20.000	20.900	4.5	104.5
PFHpA	20.000	20.351	1.8	101.8
PFHxA	20.000	20.399	2.0	102.0
PFHxS	20.000	20.642	3.2	103.2
PFNA	20.000	19.837	-0.8	99.2
PFOA	20.000	20.203	1.0	101.0
PFOS	20.000	18.497	-7.5	92.5
PFPeA	20.000	20.464	2.3	102.3
PFTeDA	20.000	20.289	1.4	101.4
PFTrDA	20.000	15.911	-20.4	79.6
PFUnDA	20.000	19.229	-3.9	96.1
ADONA	20.000	20.366	1.8	101.8
9Cl-PF3ONS	20.000	19.977	-0.1	99.9
11Cl-PF3OUdS	20.000	21.069	5.3	105.3
13C3-HFPO-DA	20.000	17.587	-12.1	87.9
HFPO-DA	20.000	20.018	0.1	100.1

CC Criteria: +/- 30%

6.7.21

6

Initial Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q523-ICC523
Lab FileID: 5Q31825.D

Initial Calibration Report

Method Path	D:\MassHunter\Methods
Method File	537_041725_S5Q523.quantmethod.xml
Batch Name	D:\MassHunter\Data\041725_537.1_S5Q523\QuantResults\s5q523.batch.bin
Last Calib Update	4/18/2025 6:39:14 AM

Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time
1	D:\MassHunter\Data\041725_537.1_S5Q523\SQ31820.d	4/17/2025 12:39:17 PM	4/18/2025 6:39:14 AM
2	D:\MassHunter\Data\041725_537.1_S5Q523\SQ31821.d	4/17/2025 12:55:41 PM	4/18/2025 6:39:14 AM
3	D:\MassHunter\Data\041725_537.1_S5Q523\SQ31822.d	4/17/2025 1:12:06 PM	4/18/2025 6:39:14 AM
4	D:\MassHunter\Data\041725_537.1_S5Q523\SQ31823.d	4/17/2025 1:28:32 PM	4/18/2025 6:39:14 AM
5	D:\MassHunter\Data\041725_537.1_S5Q523\SQ31824.d	4/17/2025 1:44:57 PM	4/18/2025 6:39:14 AM
6	D:\MassHunter\Data\041725_537.1_S5Q523\SQ31825.d	4/17/2025 2:01:21 PM	4/18/2025 6:39:14 AM
7	D:\MassHunter\Data\041725_537.1_S5Q523\SQ31826.d	4/17/2025 2:17:47 PM	4/18/2025 6:39:14 AM
8	D:\MassHunter\Data\041725_537.1_S5Q523\SQ31827.d	4/17/2025 2:34:12 PM	4/18/2025 6:39:14 AM

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I 13C2-6:2FTS						ISTD					
T 6:2FTS	Linear	0.8388	1.0268	1.0401	1.0834	1.1920	1.1414	1.0745	0.9767	1.0467	10.262
T 8:2FTS	Linear	0.7748	0.9260	0.9054	0.9131	0.9451	0.9393	0.8994	0.8585	0.8952	6.215
I 13C2-PFOA						ISTD					
S 13C2-PFHxA	Linear	0.9105	1.0011	1.0179	1.0963	1.2633	1.1748	1.2566	1.2742	1.1243	12.344
T PFHxA	Linear	0.6086	0.6781	0.7124	0.7538	0.8667	0.8135	0.8539	0.8667	0.7692	12.596
S 13C3-HFPO-DA	Linear	0.0726	0.0692	0.0742	0.0731	0.0845	0.0784	0.0865	0.0909	0.0787	9.863
T HFPO-DA	Quadratic	0.0678	0.0670	0.0703	0.0702	0.0821	0.0764	0.0822	0.0883	0.0755	10.485
T PFHpA	Quadratic	1.2192	1.3214	1.4305	1.5035	1.7400	1.6132	1.7045	1.8103	1.5428	13.628
T ADONA	Quadratic	1.4817	1.7026	1.8434	1.9381	2.2182	2.0912	2.2333	2.4145	1.9904	15.507
T PFOA	Quadratic	0.6796	0.7914	0.7981	0.8401	0.9859	0.9556	0.9724	1.0061	0.8787	13.442
T PFNA	Quadratic	0.5135	0.5617	0.5722	0.6402	0.6884	0.6760	0.6806	0.7740	0.6383	13.232
T 9Cl-PF3ONS	Quadratic	0.2183	0.2263	0.2596	0.2544	0.2772	0.2753	0.2926	0.3331	0.2671	13.752
S 13C2-PFDA	Linear	0.6940	0.6614	0.6814	0.7331	0.8330	0.7863	0.8174	0.8690	0.7594	10.219
T PFDA	Quadratic	0.5362	0.6411	0.6496	0.6655	0.7584	0.7311	0.7305	0.7768	0.6862	11.514
T 11Cl-PF3OUdS	Quadratic	0.2336	0.2618	0.2668	0.2741	0.2756	0.2858	0.3202	0.3740	0.2865	14.964
I 13C3-PFPeA						ISTD					
T PFPeA	Quadratic	0.9115	1.0400	1.0824	1.1612	1.3292	1.2788	1.3088	1.3378	1.1812	13.388
I 13C4-PFOS						ISTD					
T PFBS	Linear	2.0308	2.1876	2.3023	2.4836	2.7092	2.7257	2.6663	2.5998	2.4632	10.615
T PFHxS	Quadratic	1.2645	1.2849	1.3422	1.4456	1.6839	1.6536	1.7238	1.7801	1.5223	13.858
T PFOS	Linear	0.9614	1.0956	0.9879	1.1120	1.2633	1.2524	1.2569	1.3389	1.1585	12.034
T PFUnDA	Linear	2.3999	2.5352	2.7972	2.8705	3.0779	3.2305	3.2187	3.3036	2.9292	11.492
T PFDoDA	Quadratic	2.2845	2.4478	2.7257	2.5831	2.0782	2.7741	3.1566	3.2641	2.6643	15.274
T PFTrDA	Linear	1.0471	1.0668	1.2384	1.0965	1.0695	1.1833	1.3574	1.4854	1.1930	13.309
T PFTeDA	Quadratic	0.7320	0.8555	0.9254	0.8891	0.9847	1.0125	1.1040	1.2114	0.9643	15.495
I d3-MeFOSAA						ISTD					

Generated at 6:40 AM on 4/18/2025

Initial Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q523-ICC523
Lab FileID: 5Q31825.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T MeFOSAA	Quadratic	0.5128	0.7923	0.9726	0.6756	0.8997	0.9566	0.9524	0.9283	0.8363	19.773
S d5-EtFOSAA	Linear	0.9104	0.7309	0.6111	0.6732	0.7834	0.8270	0.7542	0.7576	0.7560	12.056
T EtFOSAA	Linear	0.6681	0.5008	0.7935	0.5559	0.7688	0.6739	0.6963	0.6620	0.6649	14.741

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Generated at 6:40 AM on 4/18/2025

6.7.22

6

Initial Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q523-ICC523
Lab FileID: 5Q31825.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	Curve Fit R2
T PFPeA	Quadratic	y = 0.012513 * x ^ 2 + 1.275464 * x	0.999944
T PFBS	Linear	y = 2.616903 * x	0.999732
S 13C2-PFHxA	Linear	y = 1.267277 * x	0.999623
T PFHxA	Linear	y = 0.862359 * x	0.999728
S 13C3-HFPO-DA	Linear	y = 0.089551 * x	0.998564
T HFPO-DA	Quadratic	y = 0.002541 * x ^ 2 + 0.075635 * x	0.999921
T PFHpA	Quadratic	y = 0.042655 * x ^ 2 + 1.597047 * x	0.999919
T PFHxS	Quadratic	y = 0.038761 * x ^ 2 + 1.595147 * x	0.999003
T ADONA	Quadratic	y = 0.073191 * x ^ 2 + 2.048593 * x	0.999941
T 6:2FTS	Linear	y = 1.002409 * x	0.996282
T PFOA	Quadratic	y = 0.013166 * x ^ 2 + 0.940242 * x	0.999937
T PFOS	Linear	y = 1.319338 * x	0.998869
T PFNA	Quadratic	y = 0.031928 * x ^ 2 + 0.613141 * x	0.999771
T 9Cl-PF3ONS	Quadratic	y = 0.015385 * x ^ 2 + 0.256004 * x	0.999963
T MeFOSAA	Quadratic	y = 0.018127 * x ^ 2 + 0.893252 * x	0.995945
S d5-EtFOSAA	Linear	y = 0.759043 * x	0.999540
T EtFOSAA	Linear	y = 0.669574 * x	0.999012
S 13C2-PFDA	Linear	y = 0.855918 * x	0.998768
T PFDA	Quadratic	y = 0.015412 * x ^ 2 + 0.699047 * x	0.999890
T 8:2FTS	Linear	y = 0.869627 * x	0.999058
T PFUnDA	Linear	y = 3.282276 * x	0.999725
T 11Cl-PF3OUdS	Quadratic	y = 0.021715 * x ^ 2 + 0.265508 * x	0.999999
T PFDoDA	Quadratic	y = 0.087957 * x ^ 2 + 2.834969 * x	0.998899
T PFTrDA	Linear	y = 1.447528 * x	0.995753
T PFTeDA	Quadratic	y = 0.046245 * x ^ 2 + 0.980923 * x	0.999954

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Generated at 6:40 AM on 4/18/2025

6.7.22

6

Initial Calibration Verification

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q523-ICV523
Lab FileID: 5Q31828.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041725_537.1_S5Q523\s5q523.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31820.d
2:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31821.d
3:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31822.d
4:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31823.d
5:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31824.d
6:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31825.d
7:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31826.d
8:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31827.d

Data File: 5Q31828
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	0.000	# -100.0	0.0
13C2-PFHxA	10.000	0.000	# -100.0	0.0
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	20.484	2.4	102.4
8:2FTS	20.000	20.622	3.1	103.1
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	0.000	# -100.0	0.0
EtFOSAA	20.000	19.690	-1.6	98.4
MeFOSAA	20.000	19.270	-3.6	96.4
PFBS	20.000	18.204	-9.0	91.0
PFDA	20.000	18.931	-5.3	94.7
PFDoDA	20.000	25.436	27.2	127.2
PFHpA	20.000	20.478	2.4	102.4
PFHxA	20.000	17.690	-11.5	88.5
PFHxS	20.000	17.652	-11.7	88.3
PFNA	20.000	23.566	17.8	117.8
PFOA	20.000	20.409	2.0	102.0
PFOS	20.000	18.134	-9.3	90.7
PFPeA	20.000	20.165	0.8	100.8
PFTeDA	20.000	19.801	-1.0	99.0
PFTrDA	20.000	25.273	26.4	126.4
PFUnDA	20.000	22.254	11.3	111.3
ADONA	20.000	18.422	-7.9	92.1
9Cl-PF3ONS	20.000	18.635	-6.8	93.2
11Cl-PF3OUdS	20.000	20.631	3.2	103.2
13C3-HFPO-DA	20.000	0.000	# -100.0	0.0
HFPO-DA	20.000	19.689	-1.6	98.4

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q523-CC523
Lab FileID: 5Q31830.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041725_537.1_S5Q523\s5q523.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31820.d
2:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31821.d
3:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31822.d
4:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31823.d
5:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31824.d
6:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31825.d
7:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31826.d
8:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31827.d

Data File: 5Q31830
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	9.155	-8.5	91.5
13C2-PFHxA	10.000	9.386	-6.1	93.9
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	23.543	17.7	117.7
8:2FTS	20.000	21.132	5.7	105.7
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	19.379	-3.1	96.9
EtFOSAA	20.000	20.719	3.6	103.6
MeFOSAA	20.000	18.749	-6.3	93.7
PFBS	20.000	20.763	3.8	103.8
PFDA	20.000	20.466	2.3	102.3
PFDoDA	20.000	19.856	-0.7	99.3
PFHpA	20.000	19.556	-2.2	97.8
PFHxA	20.000	18.686	-6.6	93.4
PFHxS	20.000	20.052	0.3	100.3
PFNA	20.000	21.459	7.3	107.3
PFOA	20.000	20.295	1.5	101.5
PFOS	20.000	18.650	-6.8	93.2
PFPeA	20.000	20.148	0.7	100.7
PFTeDA	20.000	19.831	-0.8	99.2
PFTrDA	20.000	16.431	-17.8	82.2
PFUnDA	20.000	19.665	-1.7	98.3
ADONA	20.000	19.623	-1.9	98.1
9Cl-PF3ONS	20.000	20.079	0.4	100.4
11Cl-PF3OUdS	20.000	20.130	0.6	100.6
13C3-HFPO-DA	20.000	17.705	-11.5	88.5
HFPO-DA	20.000	19.965	-0.2	99.8

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q523-CC523
Lab FileID: 5Q31831.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041725_537.1_S5Q523\s5q523.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31820.d
2:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31821.d
3:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31822.d
4:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31823.d
5:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31824.d
6:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31825.d
7:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31826.d
8:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31827.d

Data File: 5Q31831
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	0.250	0.178	-28.8	71.2
13C2-PFHxA	0.250	0.176	-29.6	70.4
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	0.500	0.451	-9.9	90.1
8:2FTS	0.500	0.425	-15.0	85.0
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	0.500	0.618	23.7	123.7
EtFOSAA	0.500	0.457	-8.6	91.4
MeFOSAA	0.500	0.520	3.9	103.9
PFBS	0.500	0.381	-23.9	76.1
PFDA	0.500	0.375	-25.0	75.0
PFDoDA	0.500	0.453	-9.4	90.6
PFHpA	0.500	0.386	-22.8	77.2
PFHxA	0.500	0.361	-27.8	72.2
PFHxS	0.500	0.360	-28.0	72.0
PFNA	0.500	0.433	-13.4	86.6
PFOA	0.500	0.387	-22.7	77.3
PFOS	0.500	0.400	-19.9	80.1
PFPeA	0.500	0.368	-26.5	73.5
PFTeDA	0.500	0.450	-10.1	89.9
PFTrDA	0.500	0.402	-19.5	80.5
PFUnDA	0.500	0.366	-26.8	73.2
ADONA	0.500	0.363	-27.4	72.6
9Cl-PF3ONS	0.500	0.476	-4.7	95.3
11Cl-PF3OUdS	0.500	0.437	-12.6	87.4
13C3-HFPO-DA	0.500	0.350	-29.9	70.1
HFPO-DA	0.500	0.406	-18.7	81.3

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q523-ECC523
Lab FileID: 5Q31842.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041725_537.1_S5Q523\s5q523.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31820.d
2:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31821.d
3:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31822.d
4:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31823.d
5:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31824.d
6:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31825.d
7:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31826.d
8:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31827.d

Data File: 5Q31842
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	9.635	-3.6	96.4
13C2-PFHxA	10.000	9.657	-3.4	96.6
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	23.321	16.6	116.6
8:2FTS	20.000	21.376	6.9	106.9
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	19.700	-1.5	98.5
EtFOSAA	20.000	19.955	-0.2	99.8
MeFOSAA	20.000	18.881	-5.6	94.4
PFBS	20.000	20.731	3.7	103.7
PFDA	20.000	20.472	2.4	102.4
PFDoDA	20.000	19.924	-0.4	99.6
PFHpA	20.000	20.132	0.7	100.7
PFHxA	20.000	19.113	-4.4	95.6
PFHxS	20.000	20.456	2.3	102.3
PFNA	20.000	21.019	5.1	105.1
PFOA	20.000	20.275	1.4	101.4
PFOS	20.000	19.300	-3.5	96.5
PFPeA	20.000	20.143	0.7	100.7
PFTeDA	20.000	19.481	-2.6	97.4
PFTrDA	20.000	16.149	-19.3	80.7
PFUnDA	20.000	19.675	-1.6	98.4
ADONA	20.000	20.059	0.3	100.3
9Cl-PF3ONS	20.000	21.109	5.5	105.5
11Cl-PF3OUdS	20.000	20.694	3.5	103.5
13C3-HFPO-DA	20.000	18.081	-9.6	90.4
HFPO-DA	20.000	19.977	-0.1	99.9

CC Criteria: +/- 30%

Run Sequence Report

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Run ID: S3Q1492	Method: EPA 533	Instrument ID: GCMS3Q

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S3Q1492-IC1492	3Q101457.D	04/15/25 13:47	n/a	Mass Calibration Verification
S3Q1492-IC1492	3Q101458.D	04/15/25 14:03	n/a	Initial cal 0.5
S3Q1492-IC1492	3Q101459.D	04/15/25 14:20	n/a	Initial cal 1
S3Q1492-IC1492	3Q101460.D	04/15/25 14:36	n/a	Initial cal 2
S3Q1492-IC1492	3Q101461.D	04/15/25 14:52	n/a	Initial cal 5
S3Q1492-IC1492	3Q101462.D	04/15/25 15:08	n/a	Initial cal 10
S3Q1492-ICC1492	3Q101463.D	04/15/25 15:24	n/a	Initial cal 20
S3Q1492-IC1492	3Q101464.D	04/15/25 15:40	n/a	Initial cal 40
S3Q1492-IC1492	3Q101465.D	04/15/25 15:56	n/a	Initial cal 50
S3Q1492-IBLK	3Q101466.D	04/15/25 16:12	n/a	Instrument Blank
S3Q1492-ICV1492	3Q101467.D	04/15/25 16:28	n/a	Initial cal verification 20
S3Q1492-RT	3Q101468.D	04/15/25 16:44	n/a	Retention Time Marker
S3Q1492-CC1492	3Q101469.D	04/15/25 17:00	n/a	Continuing cal 20
S3Q1492-CC1492	3Q101470.D	04/15/25 17:16	n/a	Continuing cal 0.5LL
OP8883-MB	3Q101471.D	04/15/25 17:33	OP8883	Method Blank
OP8883-BS	3Q101472.D	04/15/25 17:49	OP8883	Blank Spike
FC23899-1	3Q101473.D	04/15/25 18:05	OP8883	SHAFT-HW-0018384-25098-N-R01
OP8883-MS	3Q101474.D	04/15/25 18:21	OP8883	Matrix Spike
FC23899-2	3Q101475.D	04/15/25 18:37	OP8883	SHAFT-FB-250411-25098-N
FC23899-3	3Q101476.D	04/15/25 18:53	OP8883	SHAFT-HW-0018393-25098-N-R01
OP8883-DUP	3Q101477.D	04/15/25 19:09	OP8883	Duplicate
FC23899-4	3Q101478.D	04/15/25 19:25	OP8883	SHAFT-HW-0018394-25098-N-R01
S3Q1492-ECC1492	3Q101480.D	04/15/25 19:57	n/a	Ending cal 20

Run Sequence Report

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Run ID: S3Q1493	Method: EPA 533	Instrument ID: GCMS3Q

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S3Q1493-IBLK	3Q101488.D	04/16/25 11:13	n/a	Instrument Blank
S3Q1493-RT	3Q101489.D	04/16/25 11:29	n/a	Retention Time Marker
S3Q1493-CC1492	3Q101490.D	04/16/25 11:45	n/a	Continuing cal 20
S3Q1493-CC1492	3Q101491.D	04/16/25 12:01	n/a	Continuing cal 0.5LL
OP8883-BS	3Q101493.D	04/16/25 12:34	OP8883	Blank Spike
OP8883-MB	3Q101494.D	04/16/25 12:50	OP8883	Method Blank
FC23899-1	3Q101495.D	04/16/25 13:06	OP8883	SHAFT-HW-0018384-25098-N-R01
FC23899-3	3Q101497.D	04/16/25 13:38	OP8883	SHAFT-HW-0018393-25098-N-R01
S3Q1493-ECC1492	3Q101499.D	04/16/25 14:10	n/a	Ending cal 20

Run Sequence Report

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Run ID: S3Q1494	Method: EPA 533	Instrument ID: GCMS3Q

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S3Q1494-IBLK	3Q101518.D	04/17/25 10:18	n/a	Instrument Blank
S3Q1494-RT	3Q101519.D	04/17/25 10:35	n/a	Retention Time Marker
S3Q1494-CC1492	3Q101520.D	04/17/25 10:51	n/a	Continuing cal 20
S3Q1494-CC1492	3Q101521.D	04/17/25 11:07	n/a	Continuing cal 0.5LL
FC23899-2	3Q101523.D	04/17/25 11:39	OP8883	SHAFT-FB-250411-25098-N
OP8907-BS	3Q101524.D	04/17/25 11:55	OP8907	Blank Spike
OP8907-MB	3Q101525.D	04/17/25 12:11	OP8907	Method Blank
FC23948-1	3Q101526.D	04/17/25 12:27	OP8907	(used for QC only; not part of job FC23899)
OP8907-MS	3Q101527.D	04/17/25 12:43	OP8907	Matrix Spike
ZZZZZZ	3Q101528.D	04/17/25 12:59	OP8907	(unrelated sample)
FC23948-3	3Q101529.D	04/17/25 13:15	OP8907	(used for QC only; not part of job FC23899)
OP8907-DUP	3Q101530.D	04/17/25 13:31	OP8907	Duplicate
ZZZZZZ	3Q101531.D	04/17/25 13:48	OP8907	(unrelated sample)
FC23899-4	3Q101532.D	04/17/25 14:04	OP8907	SHAFT-HW-0018394-25098-N-R01
S3Q1494-CC1492	3Q101533.D	04/17/25 14:20	n/a	Continuing cal 20
ZZZZZZ	3Q101534.D	04/17/25 14:36	OP8907	(unrelated sample)
ZZZZZZ	3Q101535.D	04/17/25 14:52	OP8907	(unrelated sample)
S3Q1494-ECC1492	3Q101536.D	04/17/25 15:08	n/a	Ending cal 20

Run Sequence Report

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Run ID: S5Q521 **Method:** EPA 537.1 REV 2.0 **Instrument ID:** GCMS5Q

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S5Q521-IC521	5Q31757.D	04/15/25 15:05	n/a	Mass Calibration Verification
S5Q521-IC521	5Q31758.D	04/15/25 15:21	n/a	Initial cal 0.5
S5Q521-IC521	5Q31759.D	04/15/25 15:37	n/a	Initial cal 1
S5Q521-IC521	5Q31760.D	04/15/25 15:53	n/a	Initial cal 2
S5Q521-IC521	5Q31761.D	04/15/25 16:09	n/a	Initial cal 5
S5Q521-IC521	5Q31762.D	04/15/25 16:25	n/a	Initial cal 10
S5Q521-ICC521	5Q31763.D	04/15/25 16:41	n/a	Initial cal 20
S5Q521-IC521	5Q31764.D	04/15/25 16:57	n/a	Initial cal 50
S5Q521-IC521	5Q31765.D	04/15/25 17:13	n/a	Initial cal 100
S5Q521-ICV521	5Q31766.D	04/15/25 17:29	n/a	Initial cal verification 20
S5Q521-RT	5Q31767.D	04/15/25 17:45	n/a	Retention Time Marker
S5Q521-CC521	5Q31768.D	04/15/25 18:01	n/a	Continuing cal 20
S5Q521-CC521	5Q31769.D	04/15/25 18:17	n/a	Continuing cal 0.5LL
OP8882-BS	5Q31770.D	04/15/25 18:33	OP8882	Blank Spike
OP8882-MB	5Q31771.D	04/15/25 18:49	OP8882	Method Blank
FC23899-1A	5Q31772.D	04/15/25 19:05	OP8882	SHAFT-HW-0018384-25098-N-R01
FC23899-2A	5Q31774.D	04/15/25 19:37	OP8882	SHAFT-FB-250411-25098-N
FC23899-3A	5Q31775.D	04/15/25 19:53	OP8882	SHAFT-HW-0018393-25098-N-R01
OP8882-DUP	5Q31776.D	04/15/25 20:09	OP8882	Duplicate
FC23899-4A	5Q31777.D	04/15/25 20:25	OP8882	SHAFT-HW-0018394-25098-N-R01
S5Q521-ECC521	5Q31780.D	04/15/25 21:13	n/a	Ending cal 20

Run Sequence Report

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Run ID: S5Q522 **Method:** EPA 537.1 REV 2.0 **Instrument ID:** GCMS5Q

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S5Q522-IC522	5Q31785.D	04/16/25 11:45	n/a	Mass Calibration Verification
S5Q522-IC522	5Q31786.D	04/16/25 12:01	n/a	Initial cal 0.5
S5Q522-IC522	5Q31787.D	04/16/25 12:17	n/a	Initial cal 1
S5Q522-IC522	5Q31788.D	04/16/25 12:33	n/a	Initial cal 2
S5Q522-IC522	5Q31789.D	04/16/25 12:49	n/a	Initial cal 5
S5Q522-IC522	5Q31790.D	04/16/25 13:05	n/a	Initial cal 10
S5Q522-ICC522	5Q31791.D	04/16/25 13:21	n/a	Initial cal 20
S5Q522-IC522	5Q31792.D	04/16/25 13:37	n/a	Initial cal 50
S5Q522-IC522	5Q31793.D	04/16/25 13:53	n/a	Initial cal 100
S5Q522-ICV522	5Q31794.D	04/16/25 14:09	n/a	Initial cal verification 20
S5Q522-RT	5Q31795.D	04/16/25 14:25	n/a	Retention Time Marker
S5Q522-CC522	5Q31796.D	04/16/25 14:41	n/a	Continuing cal 20
S5Q522-CC522	5Q31797.D	04/16/25 14:57	n/a	Continuing cal 0.5LL
OP8882-BS	5Q31798.D	04/16/25 15:13	OP8882	Blank Spike
OP8882-MB	5Q31799.D	04/16/25 15:29	OP8882	Method Blank
FC23899-1A	5Q31800.D	04/16/25 15:45	OP8882	SHAFT-HW-0018384-25098-N-R01
OP8882-MS	5Q31801.D	04/16/25 16:01	OP8882	Matrix Spike
FC23899-2A	5Q31802.D	04/16/25 16:17	OP8882	SHAFT-FB-250411-25098-N
FC23899-3A	5Q31803.D	04/16/25 16:33	OP8882	SHAFT-HW-0018393-25098-N-R01
ZZZZZZ	5Q31806.D	04/16/25 17:21	OP8882	(unrelated sample)
ZZZZZZ	5Q31807.D	04/16/25 17:37	OP8882	(unrelated sample)
S5Q522-ECC522	5Q31808.D	04/16/25 17:53	n/a	Ending cal 20

Run Sequence Report

Job Number: FC23899
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Run ID: S5Q523 **Method:** EPA 537.1 REV 2.0 **Instrument ID:** GCMS5Q

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S5Q523-IC523	5Q31819.D	04/17/25 12:22	n/a	Mass Calibration Verification
S5Q523-IC523	5Q31820.D	04/17/25 12:39	n/a	Initial cal 0.5
S5Q523-IC523	5Q31821.D	04/17/25 12:55	n/a	Initial cal 1
S5Q523-IC523	5Q31822.D	04/17/25 13:12	n/a	Initial cal 2
S5Q523-IC523	5Q31823.D	04/17/25 13:28	n/a	Initial cal 5
S5Q523-IC523	5Q31824.D	04/17/25 13:44	n/a	Initial cal 10
S5Q523-ICC523	5Q31825.D	04/17/25 14:01	n/a	Initial cal 20
S5Q523-IC523	5Q31826.D	04/17/25 14:17	n/a	Initial cal 50
S5Q523-IC523	5Q31827.D	04/17/25 14:34	n/a	Initial cal 100
S5Q523-ICV523	5Q31828.D	04/17/25 14:50	n/a	Initial cal verification 20
S5Q523-RT	5Q31829.D	04/17/25 15:07	n/a	Retention Time Marker
S5Q523-CC523	5Q31830.D	04/17/25 15:23	n/a	Continuing cal 20
S5Q523-CC523	5Q31831.D	04/17/25 15:39	n/a	Continuing cal 0.5LL
OP8904-BS	5Q31832.D	04/17/25 15:56	OP8904	Blank Spike
OP8904-MB	5Q31833.D	04/17/25 16:12	OP8904	Method Blank
ZZZZZZ	5Q31834.D	04/17/25 16:29	OP8904	(unrelated sample)
ZZZZZZ	5Q31835.D	04/17/25 16:45	OP8904	(unrelated sample)
ZZZZZZ	5Q31836.D	04/17/25 17:01	OP8904	(unrelated sample)
FC23948-3A	5Q31837.D	04/17/25 17:18	OP8904	(used for QC only; not part of job FC23899)
OP8904-MS	5Q31838.D	04/17/25 17:34	OP8904	Matrix Spike
FC23948-4A	5Q31839.D	04/17/25 17:51	OP8904	(used for QC only; not part of job FC23899)
OP8904-DUP	5Q31840.D	04/17/25 18:07	OP8904	Duplicate
FC23899-4A	5Q31841.D	04/17/25 18:24	OP8904	SHAFT-HW-0018394-25098-N-R01
S5Q523-ECC523	5Q31842.D	04/17/25 18:40	n/a	Ending cal 20

MS Semi-volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:46

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101473.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 6:05:15 PM
Sample Name : fc23899-1
Vial : P3-B3
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8883,S3Q1492,280,,,1,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	7.410	415.0 -> 370.0	213888	10.00	µg/L	-0.025
13C3-PFBA	2.307	216.0 -> 172.0	80392	10.00	µg/L	0.175
13C4-PFOS	7.969	503.0 -> 80.0	31124	10.00	µg/L	-0.026
M4-PFBA	2.302	217.0 -> 172.0	101426	10.00	µg/L	0.163
M5-PFPeA	4.388	268.0 -> 223.0	123783	10.00	µg/L	0.050
M5-PFHxA	5.763	318.0 -> 273.0	153933	10.00	µg/L	0.013
M4-PFHpA	6.694	367.0 -> 322.0	131502	10.00	µg/L	-0.013
M8-PFOA	7.409	421.0 -> 376.0	175167	10.00	µg/L	-0.025
M9-PFNA	7.997	472.0 -> 427.0	179069	10.00	µg/L	-0.026
M6-PFDA	8.520	519.0 -> 474.0	234814	10.00	µg/L	-0.025
M7-PFUnDA	9.172	570.0 -> 525.0	279904	10.00	µg/L	-0.052
M2-PFDoDA	10.058	615.0 -> 570.0	219153	10.00	µg/L	-0.075
M3-PFBS	4.696	302.0 -> 99.0	14712	10.00	µg/L	0.050
M3-PFHxS	6.711	402.0 -> 99.0	20957	10.00	µg/L	-0.025
M8-PFOS	7.968	507.0 -> 99.0	24905	10.00	µg/L	-0.026
M2-4:2FTS	5.659	329.0 -> 309.0	50100	10.00	µg/L	0.013
M2-6:2FTS	7.407	429.0 -> 409.0	97377	10.00	µg/L	-0.025
M2-8:2FTS	8.585	529.0 -> 509.0	128239	10.00	µg/L	-0.026
M3-HFPO-DA	6.043	287.0 -> 169.0	2120	10.00	µg/L	-0.013
System Monitoring Compounds						
13C2-4:2FTS	5.659	329.0 -> 309.0	50100	6.76	µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 67.6%		
13C2-6:2FTS	7.407	429.0 -> 409.0	97372	7.00	µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 70.0%		
13C2-8:2FTS	8.585	529.0 -> 509.0	128239	5.50	µg/L	-0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 55.0%		
13C2-PFDoDA	10.058	615.0 -> 570.0	219153	2.41	µg/L	-0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 24.1%		
13C3-PFBS	4.696	302.0 -> 99.0	14712	7.58	µg/L	0.050
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 75.8%		
13C3-PFHxS	6.711	402.0 -> 99.0	20957	7.58	µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 75.8%		
13C4-PFBA	2.302	217.0 -> 172.0	101426	7.44	µg/L	0.163
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 74.4%		
13C4-PFHpA	6.694	367.0 -> 322.0	131502	7.27	µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 72.7%		
13C5-PFHxA	5.763	318.0 -> 273.0	153933	7.10	µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 71.0%		
13C5-PFPeA	4.388	268.0 -> 223.0	123783	7.53	µg/L	0.050
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 75.3%		
13C6-PFDA	8.520	519.0 -> 474.0	234814	6.56	µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 65.6%		
13C7-PFUnDA	9.172	570.0 -> 525.0	279904	3.92	µg/L	-0.052
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 39.2%		
13C8-PFOA	7.409	421.0 -> 376.0	175167	7.46	µg/L	-0.025

Perfluorinated Compounds by LC/MS/MS

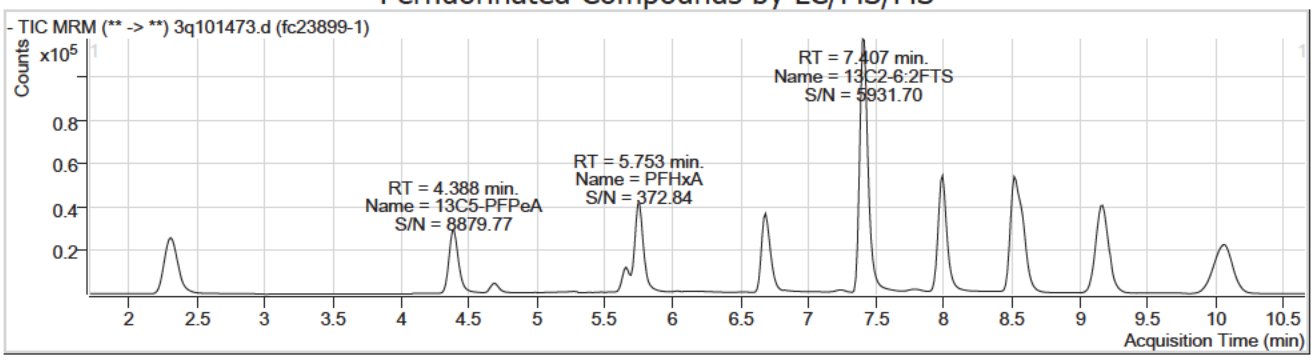
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 74.6%		
13C8-PFOS	7.968	507.0 -> 99.0	24905	7.04 µg/L		-0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 70.4%		
13C9-PFNA	7.997	472.0 -> 427.0	179069	7.01 µg/L		-0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 70.1%		
13C3-HFPO-DA	6.043	287.0 -> 169.0	2120	6.81 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 68.1%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	2.311	213.0 -> 169.0	2478	0.88 µg/L		100
PFBS	4.685	299.0 -> 80.0	3777	1.27 µg/L		99
		299.0 -> 99.0	1605			
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	6.683	363.0 -> 319.0	16724	0.91 µg/L		98
		363.0 -> 169.0	1492			
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	5.753	313.0 -> 269.0	25985	1.79 µg/L		99
		313.0 -> 119.0	988			
PFHxS	6.713	399.0 -> 80.0	6302	1.71 µg/L	m	98
		399.0 -> 99.0	3362			
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	7.410	413.0 -> 369.0	23181	1.72 µg/L	m	93
		413.0 -> 169.0	9534			
PFOS	7.969	499.0 -> 80.0	11591	2.91 µg/L	m	90
		499.0 -> 99.0	5212			
PFPeA	4.390	263.0 -> 219.0	22141	2.37 µg/L		100
PFPeS	5.871	349.0 -> 80.0	437	0.20 µg/L		87
		349.0 -> 99.0	219			
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	6.241	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0	0			

= Qualifier out of range, m = manually integrated, + = Area summed

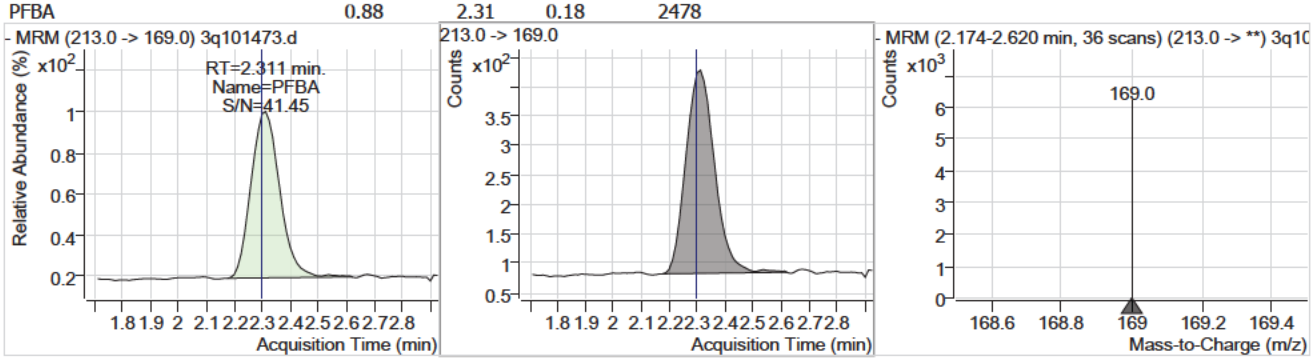
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)

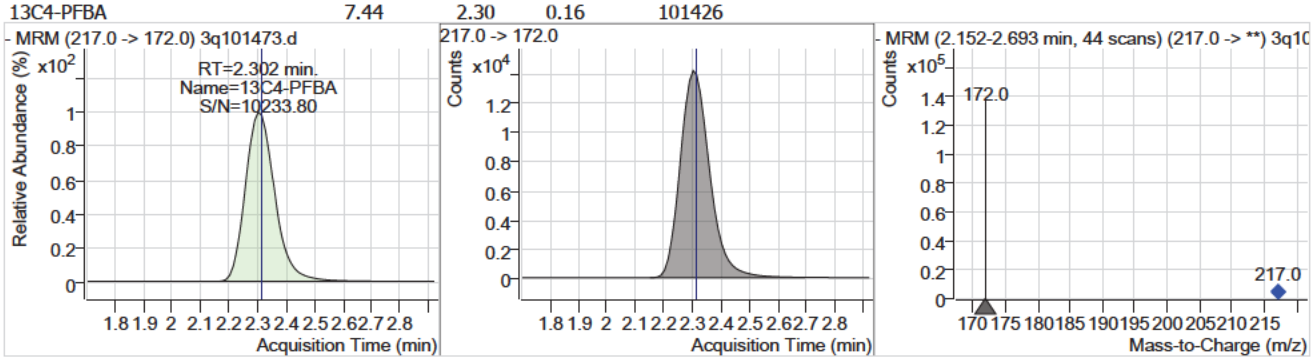
Perfluorinated Compounds by LC/MS/MS



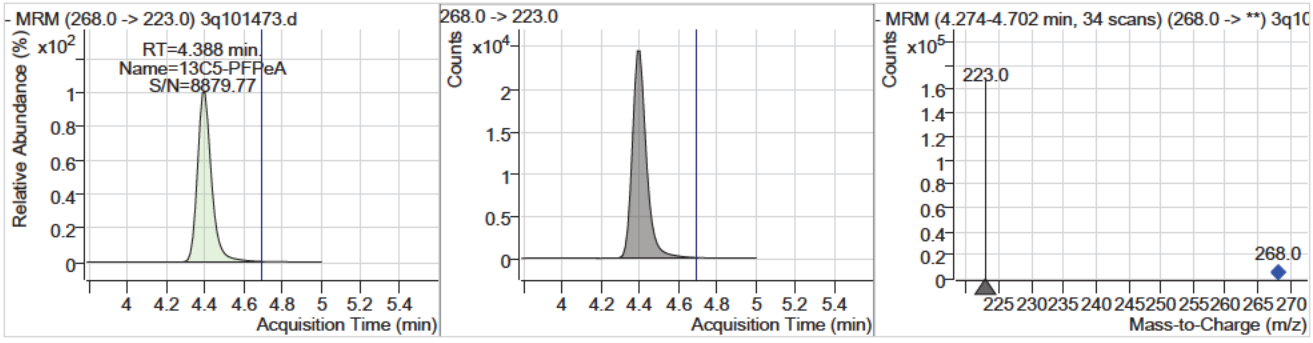
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.88	2.31	0.18	2478				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	7.44	2.30	0.16	101426				

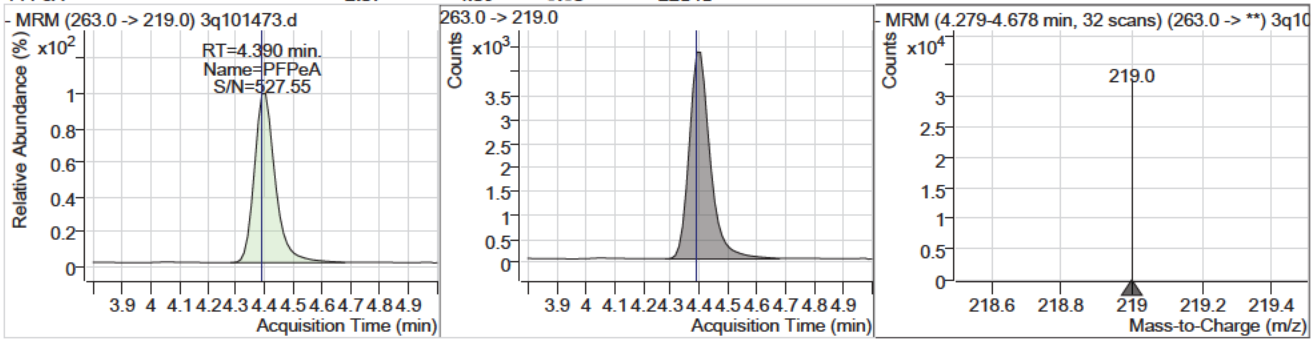


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	7.53	4.39	0.05	123783				

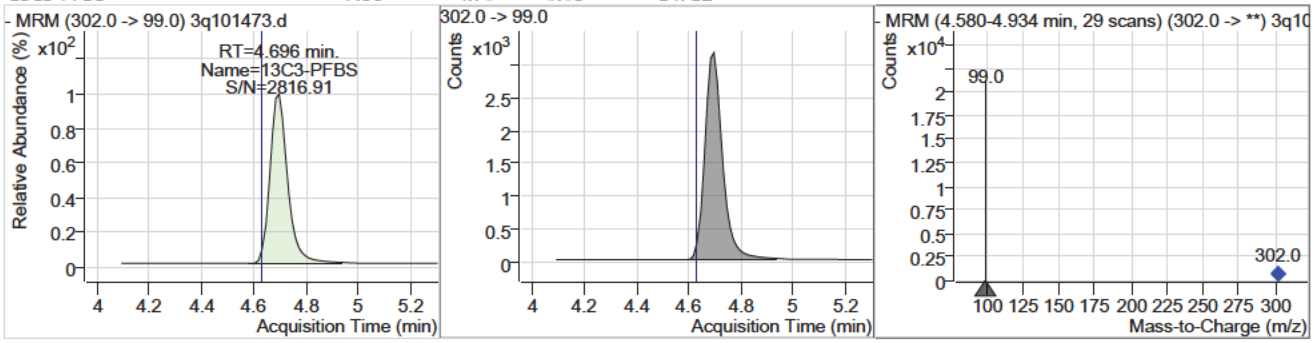


Perfluorinated Compounds by LC/MS/MS

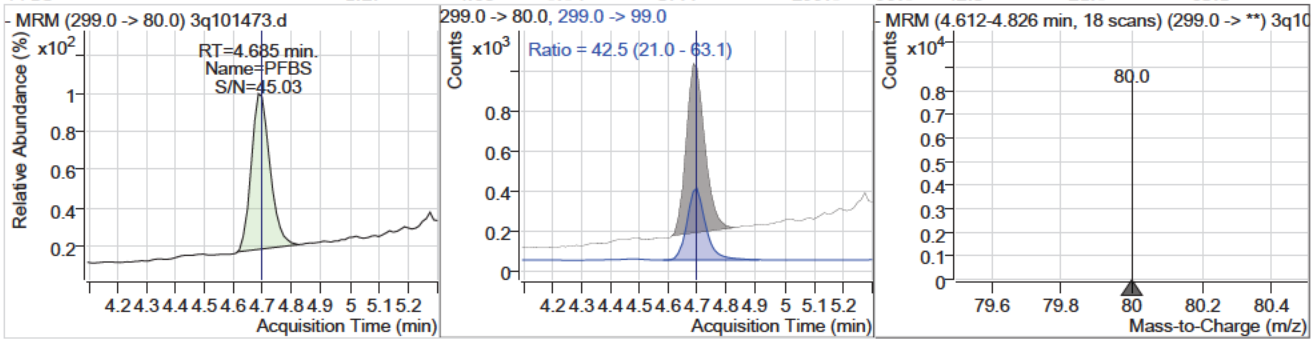
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	2.37	4.39	0.05	22141				



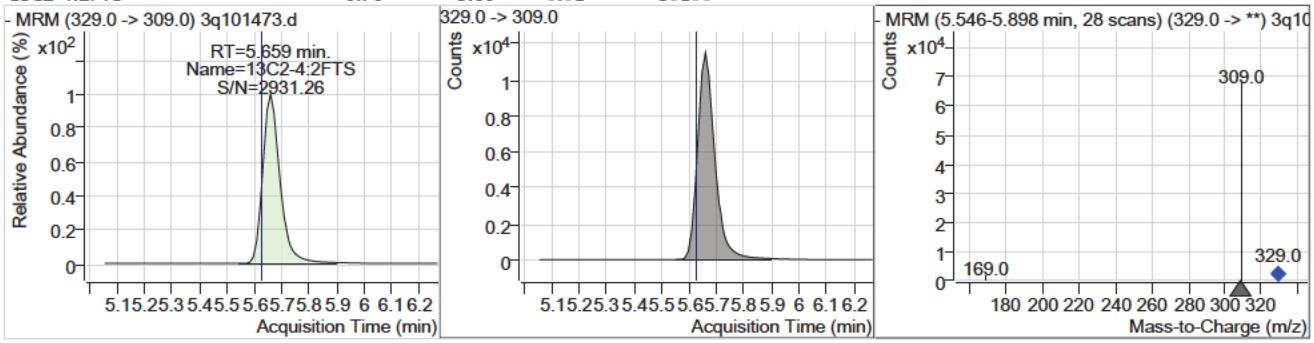
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	7.58	4.70	0.05	14712				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.27	4.68	0.04	3777	299.0 -> 99.0	42.5	21.0	63.1

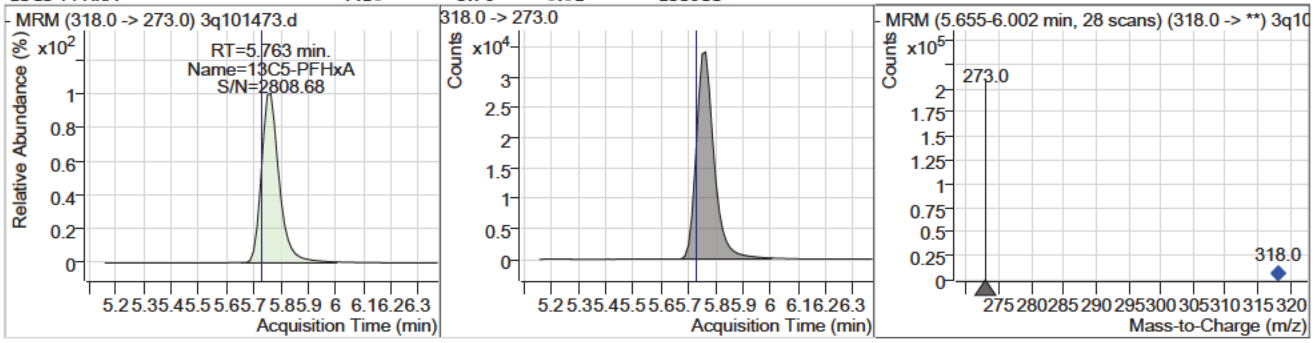


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	6.76	5.66	0.01	50100				

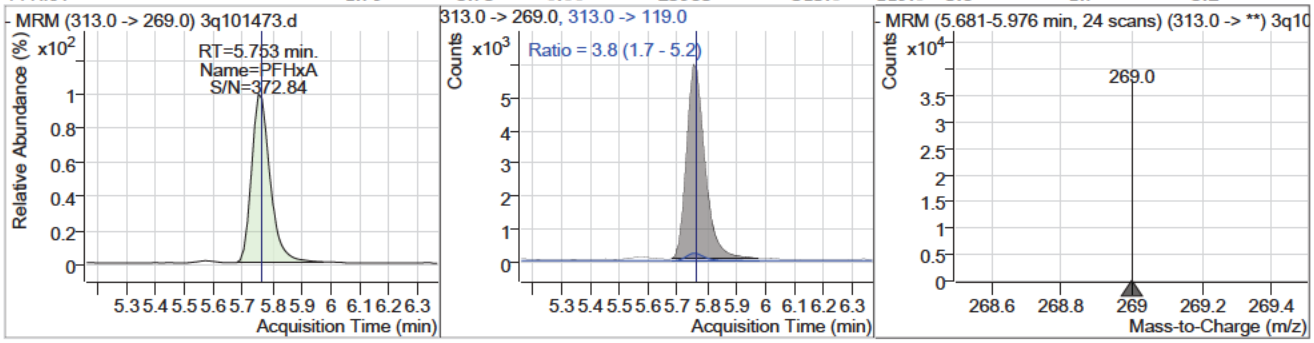


Perfluorinated Compounds by LC/MS/MS

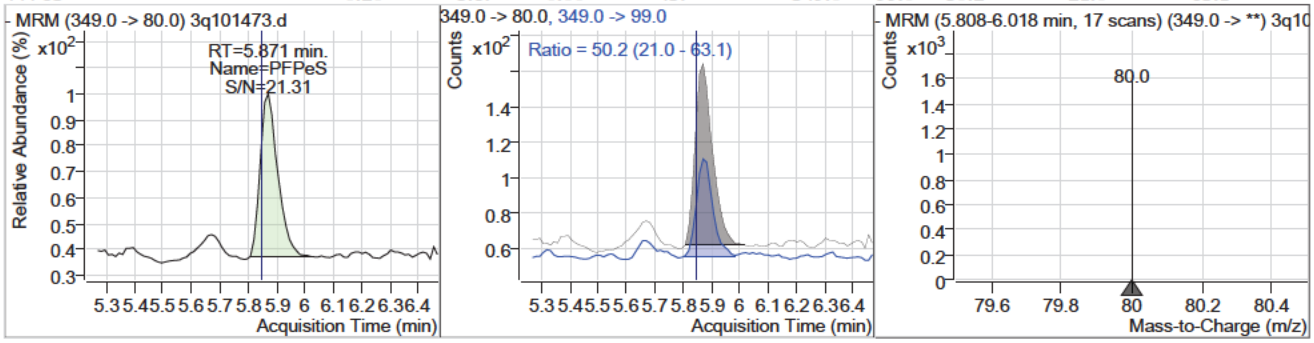
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	7.10	5.76	0.01	153933				



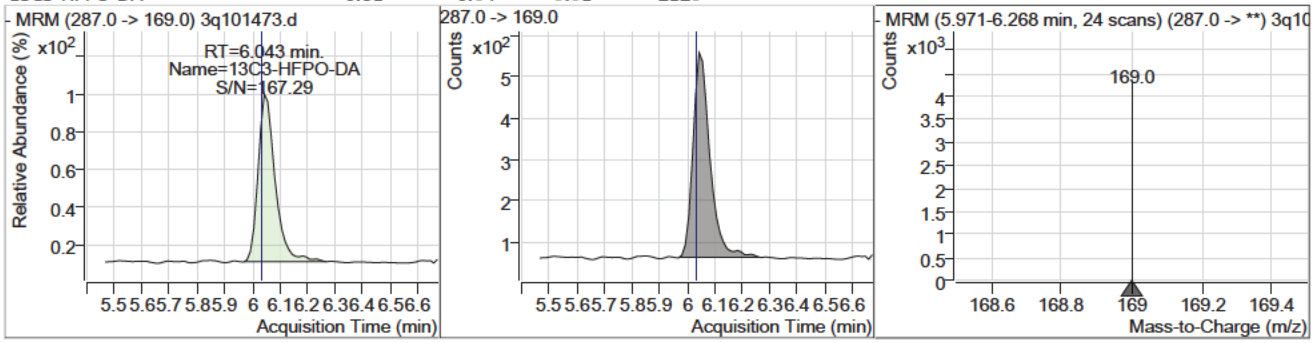
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.79	5.75	0.00	25985	313.0 -> 119.0	3.8	1.7	5.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.20	5.87	0.00	437	349.0 -> 99.0	50.2	21.0	63.1



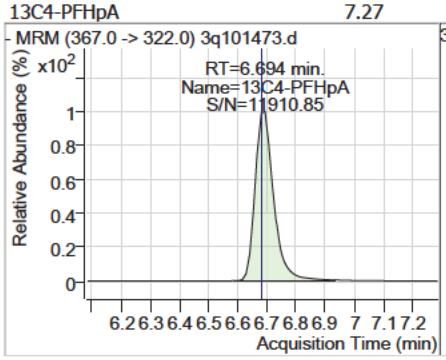
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	6.81	6.04	-0.01	2120				

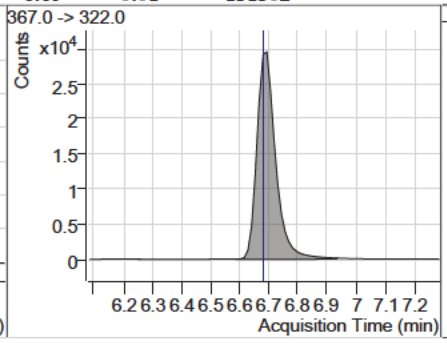


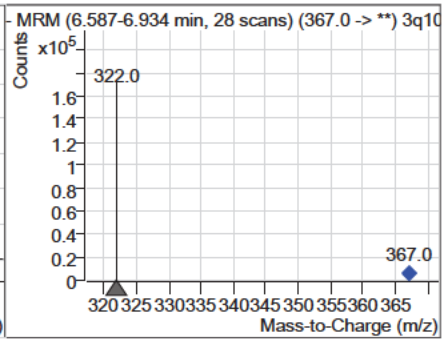
7.1.1 7

Perfluorinated Compounds by LC/MS/MS

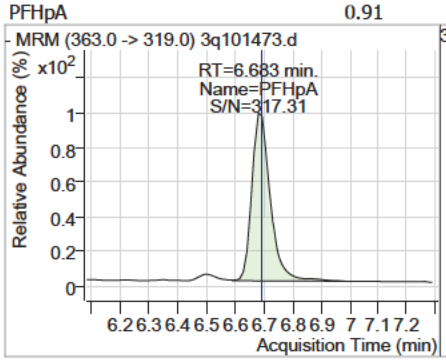
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	7.27	6.69	-0.01	131502				

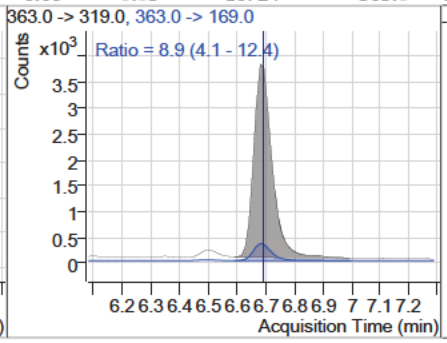


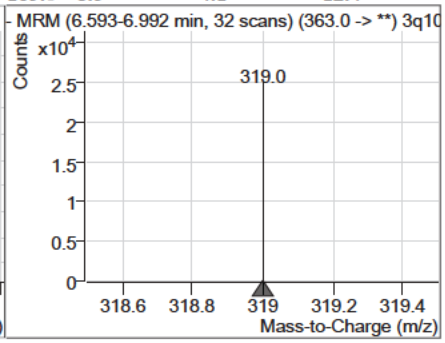




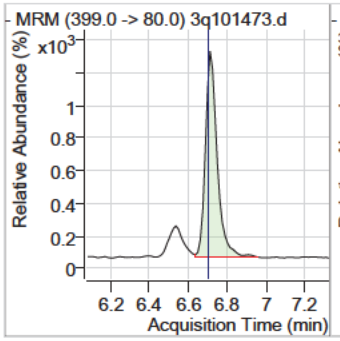
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.91	6.68	-0.03	16724	363.0 -> 169.0	8.9	4.1	12.4

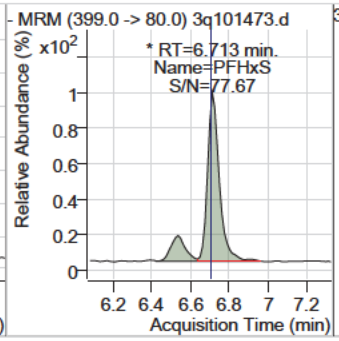


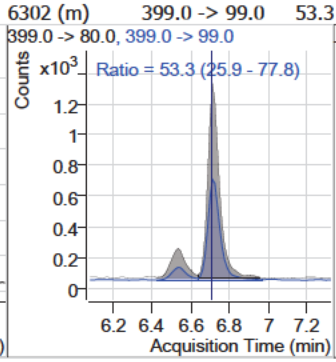


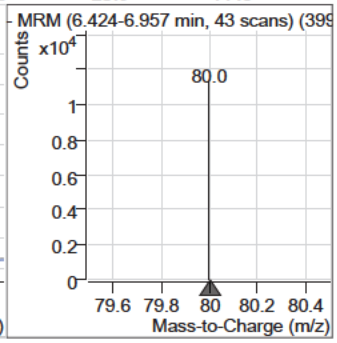


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.71	6.71	-0.01	6302 (m)	399.0 -> 99.0	53.3	25.9	77.8

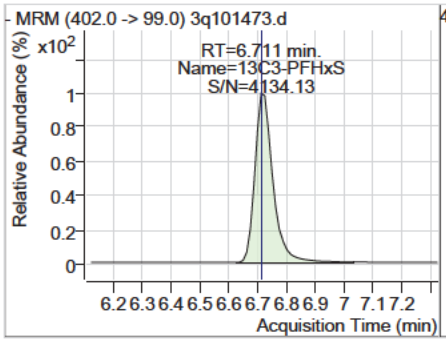


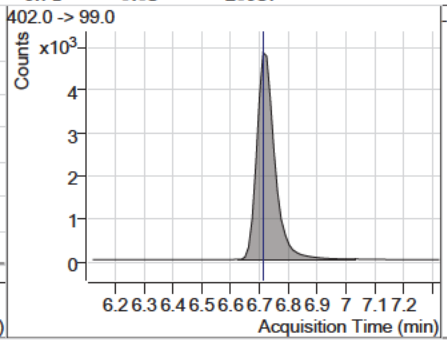


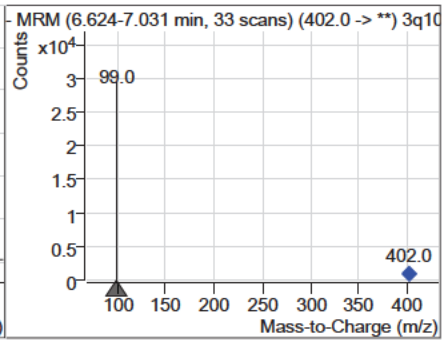




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	7.58	6.71	-0.03	20957				

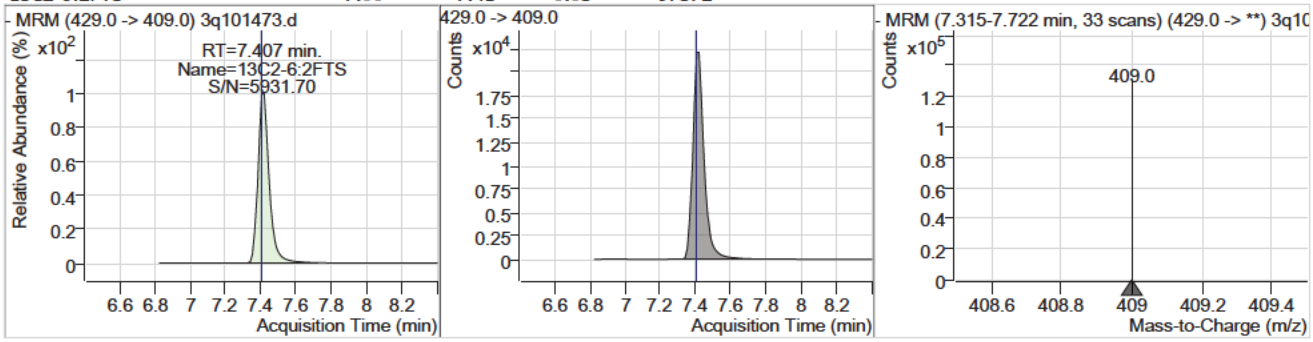




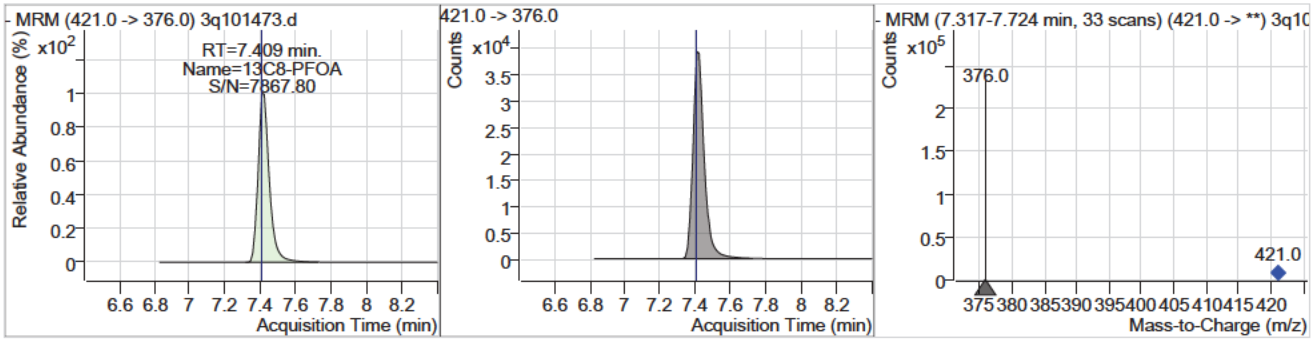


Perfluorinated Compounds by LC/MS/MS

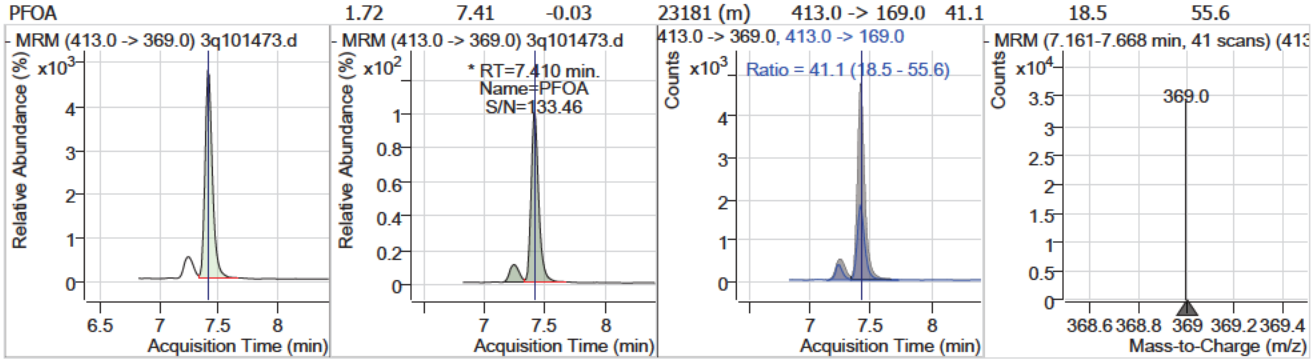
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	7.00	7.41	-0.03	97372				



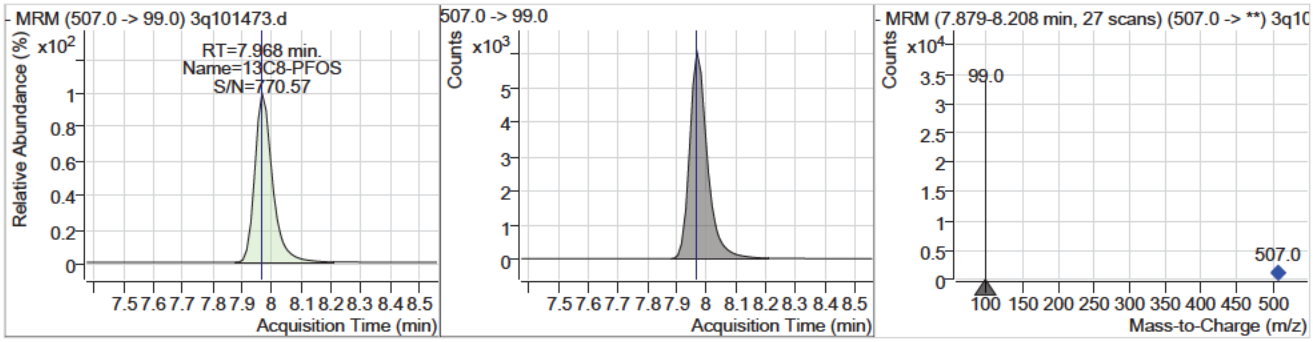
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	7.46	7.41	-0.03	175167				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.72	7.41	-0.03	23181 (m)	413.0 -> 169.0	41.1	18.5	55.6

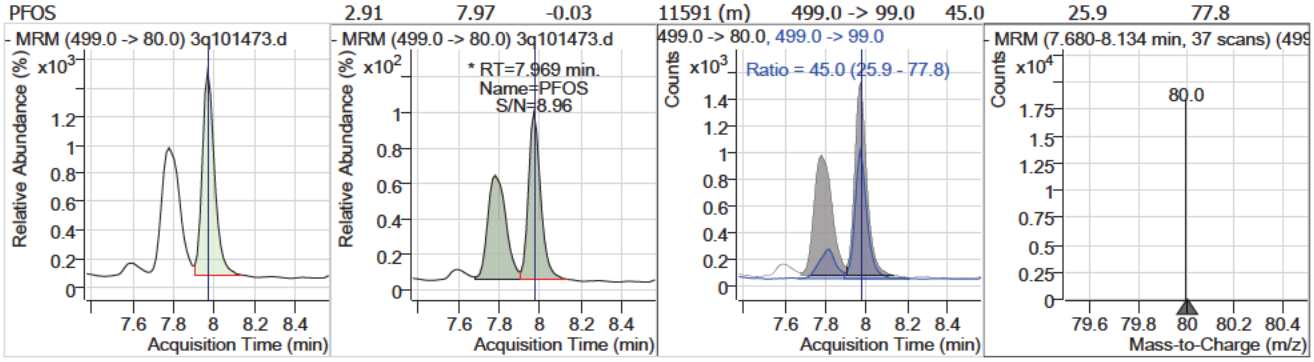


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	7.04	7.97	-0.03	24905				

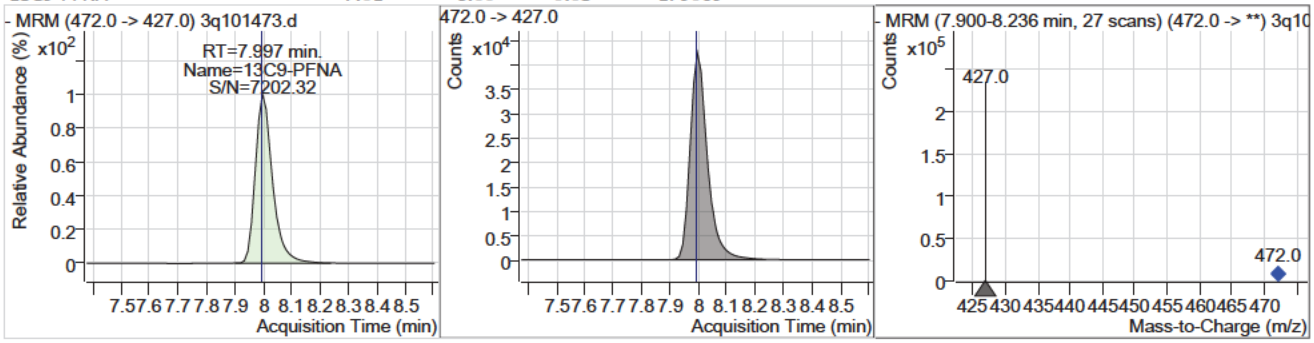


Perfluorinated Compounds by LC/MS/MS

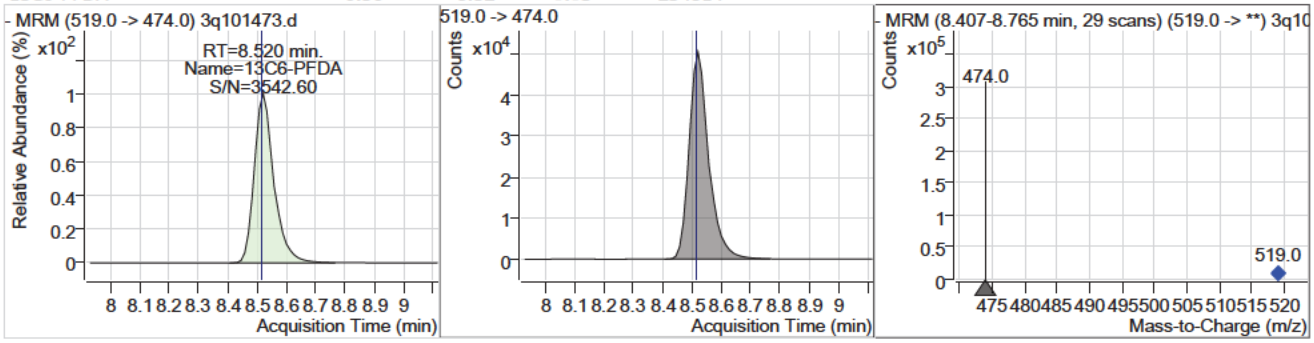
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.91	7.97	-0.03	11591 (m)	499.0 -> 99.0	45.0	25.9	77.8



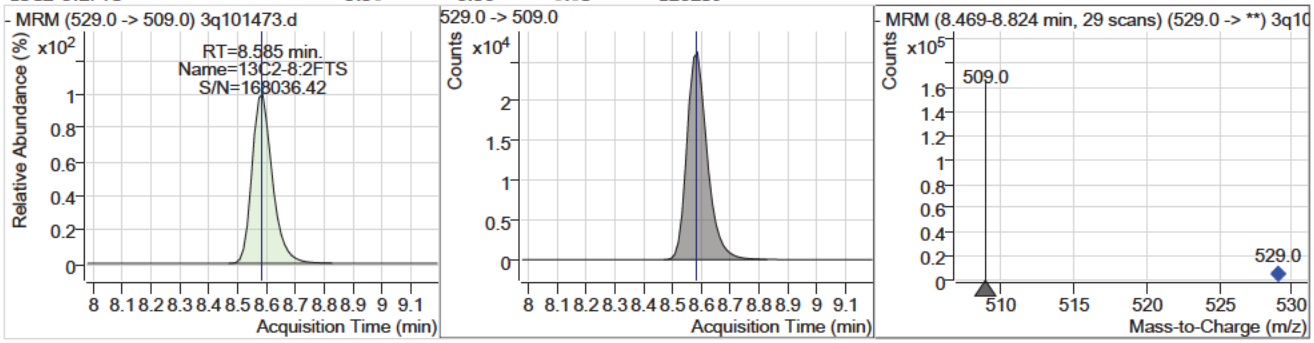
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	7.01	8.00	-0.03	179069				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	6.56	8.52	-0.03	234814				

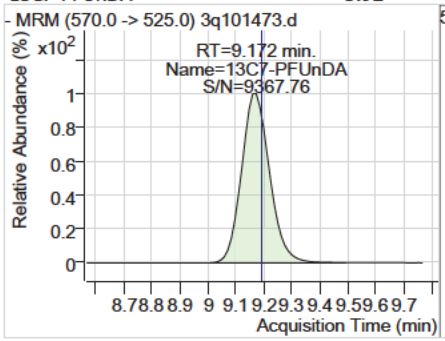


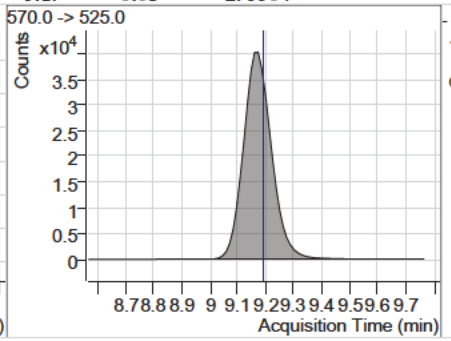
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.50	8.58	-0.03	128239				

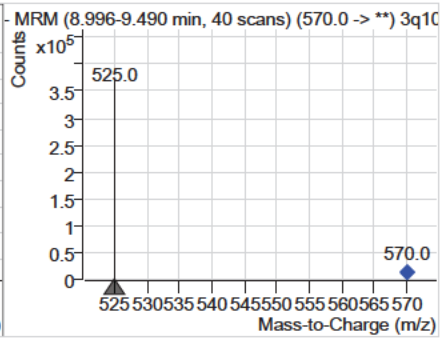


Perfluorinated Compounds by LC/MS/MS

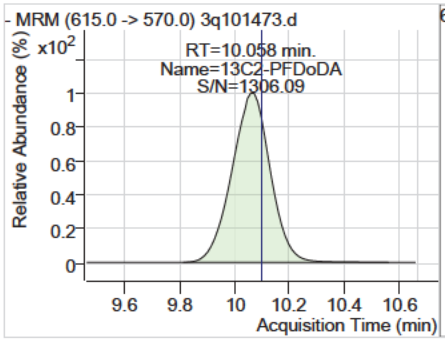
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	3.92	9.17	-0.05	279904				

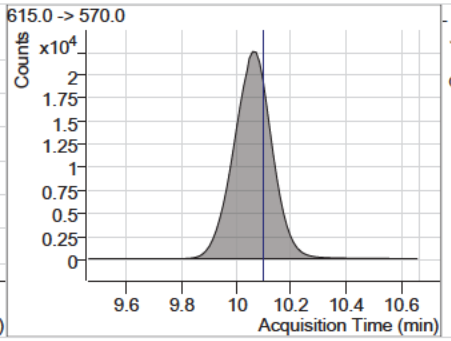


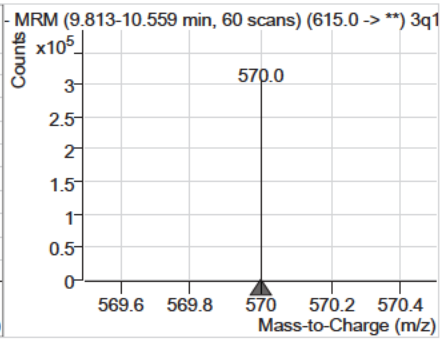




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	2.41	10.06	-0.08	219153				







7.1.1

7

Manual Integration Approval Summary

Sample Number: FC23899-1
Lab FileID: 3Q101473.D
Injection Time: 04/15/25 18:05

Method: EPA 533
Analyst approved: 04/17/25 11:17 (b) (6)
Supervisor approved: 04/17/25 11:46 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.71	Split peak
Perfluorooctanoic acid	335-67-1		7.41	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.97	Split peak

Sample Results: 3Q101495.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:46

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101495.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/16/2025 1:06:09 PM
Sample Name : fc23899-1
Vial : P3-B3
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1493.batch.bin
Sample Information : op8883,S3Q1493,280,,,1,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	7.422	415.0 -> 370.0	274376	10.00	µg/L	0.000
13C3-PFBA	2.319	216.0 -> 172.0	102043	10.00	µg/L	-0.025
13C4-PFOS	7.983	503.0 -> 80.0	39660	10.00	µg/L	0.014
M4-PFBA	2.315	217.0 -> 172.0	129469	10.00	µg/L	-0.025
M5-PFPeA	4.400	268.0 -> 223.0	160280	10.00	µg/L	-0.013
M5-PFHxA	5.763	318.0 -> 273.0	207260	10.00	µg/L	-0.013
M4-PFHpA	6.694	367.0 -> 322.0	179269	10.00	µg/L	0.000
M8-PFOA	7.422	421.0 -> 376.0	236714	10.00	µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	253200	10.00	µg/L	0.013
M6-PFDA	8.533	519.0 -> 474.0	322952	10.00	µg/L	0.013
M7-PFUnDA	9.185	570.0 -> 525.0	389171	10.00	µg/L	0.000
M2-PFDoDA	10.121	615.0 -> 570.0	320284	10.00	µg/L	0.038
M3-PFBS	4.708	302.0 -> 99.0	18024	10.00	µg/L	0.000
M3-PFHxS	6.724	402.0 -> 99.0	26193	10.00	µg/L	0.000
M8-PFOS	7.982	507.0 -> 99.0	30657	10.00	µg/L	0.014
M2-4:2FTS	5.672	329.0 -> 309.0	67851	10.00	µg/L	0.000
M2-6:2FTS	7.420	429.0 -> 409.0	131140	10.00	µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	184387	10.00	µg/L	0.013
M3-HFPO-DA	6.056	287.0 -> 169.0	2398	10.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	5.672	329.0 -> 309.0	67851	7.19	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 71.9%		
13C2-6:2FTS	7.420	429.0 -> 409.0	131140	7.40	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 74.0%		
13C2-8:2FTS	8.597	529.0 -> 509.0	184387	6.21	µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 62.1%		
13C2-PFDoDA	10.121	615.0 -> 570.0	320284	2.74	µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 27.4%		
13C3-PFBS	4.708	302.0 -> 99.0	18024	7.28	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 72.8%		
13C3-PFHxS	6.724	402.0 -> 99.0	26193	7.43	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 74.3%		
13C4-PFBA	2.315	217.0 -> 172.0	129469	7.48	µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 74.8%		
13C4-PFHpA	6.694	367.0 -> 322.0	179269	7.72	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.2%		
13C5-PFHxA	5.763	318.0 -> 273.0	207260	7.46	µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 74.6%		
13C5-PFPeA	4.400	268.0 -> 223.0	160280	7.68	µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.8%		
13C6-PFDA	8.533	519.0 -> 474.0	322952	7.04	µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 70.4%		
13C7-PFUnDA	9.185	570.0 -> 525.0	389171	4.24	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 42.4%		
13C8-PFOA	7.422	421.0 -> 376.0	236714	7.85	µg/L	0.000

7.1.2 7

Perfluorinated Compounds by LC/MS/MS

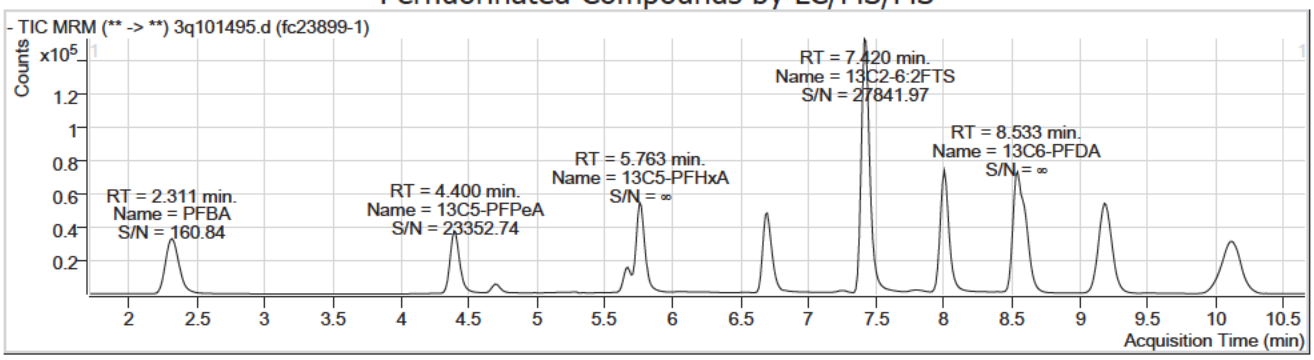
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.5%		
13C8-PFOS	7.982	507.0 -> 99.0	30657	6.80 µg/L		0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 68.0%		
13C9-PFNA	8.010	472.0 -> 427.0	253200	7.73 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.3%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	2398	6.00 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 60.0%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	2.311	213.0 -> 169.0	3091	0.86 µg/L		100
PFBS	4.697	299.0 -> 80.0	4663	1.28 µg/L		96
		299.0 -> 99.0	2081			
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	6.695	363.0 -> 319.0	21001	0.83 µg/L		100
		363.0 -> 169.0	1706			
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	5.765	313.0 -> 269.0	32629	1.67 µg/L		100
		313.0 -> 119.0	1161			
PFHxS	6.725	399.0 -> 80.0	8131	1.76 µg/L	m	98
		399.0 -> 99.0	4125			
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	7.423	413.0 -> 369.0	30221	1.66 µg/L	m	97
		413.0 -> 169.0	11762			
PFOS	7.983	499.0 -> 80.0	13927	2.84 µg/L	m	93
		499.0 -> 99.0	6563			
PFPeA	4.402	263.0 -> 219.0	28219	2.33 µg/L		100
PFPeS	5.883	349.0 -> 80.0	551	0.21 µg/L		82
		349.0 -> 99.0	295			
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	6.127	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0	0			

= Qualifier out of range, m = manually integrated, + = Area summed

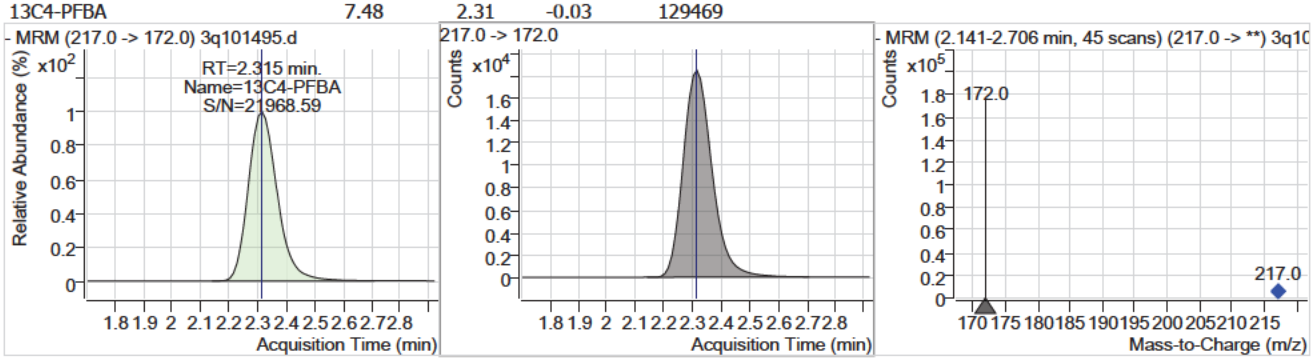
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)

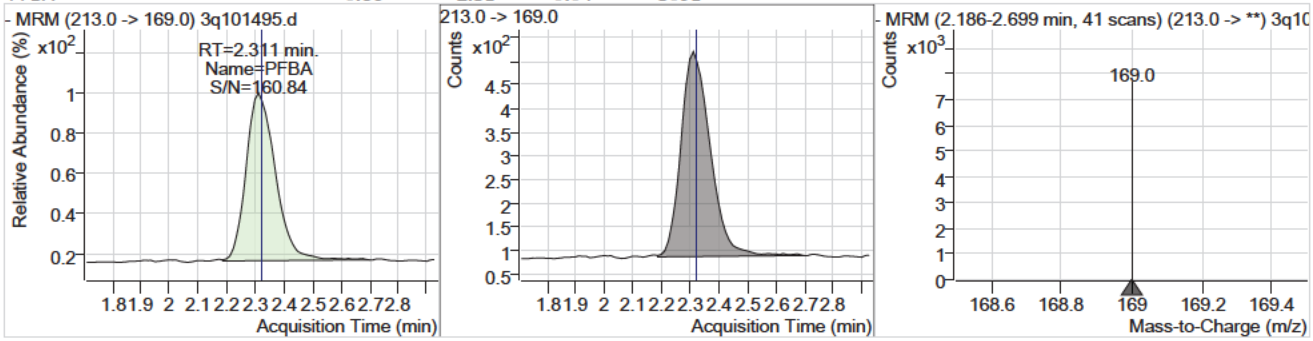
Perfluorinated Compounds by LC/MS/MS



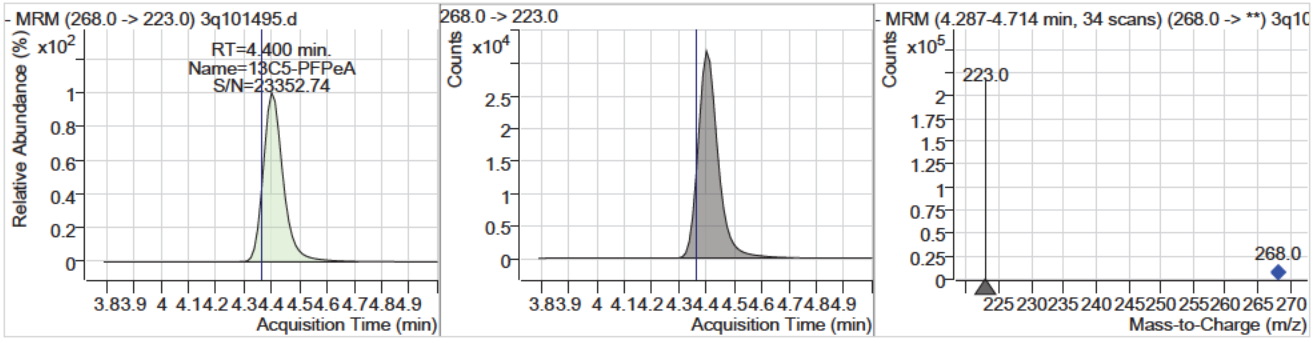
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	7.48	2.31	-0.03	129469				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.86	2.31	-0.04	3091				

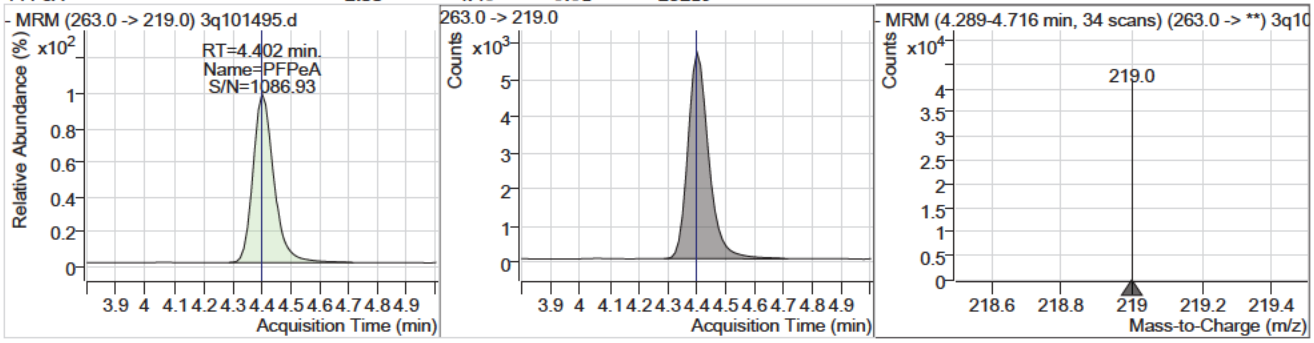


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	7.68	4.40	-0.01	160280				

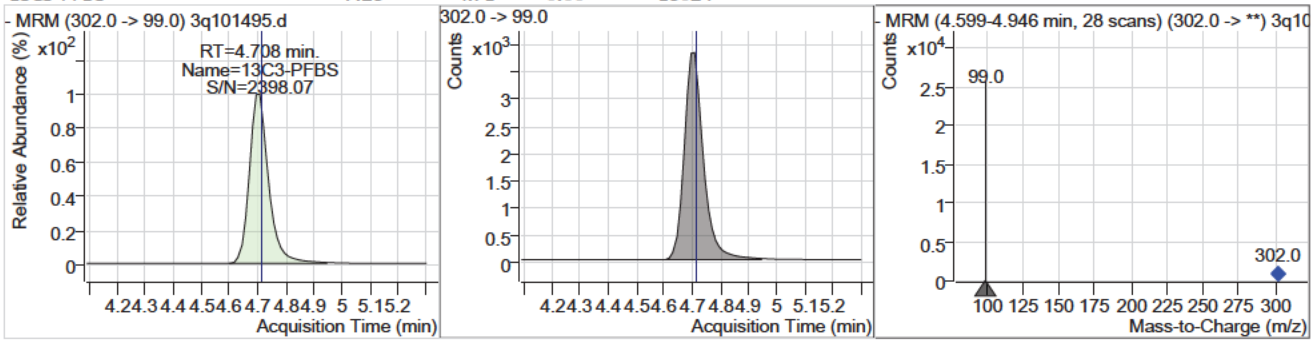


Perfluorinated Compounds by LC/MS/MS

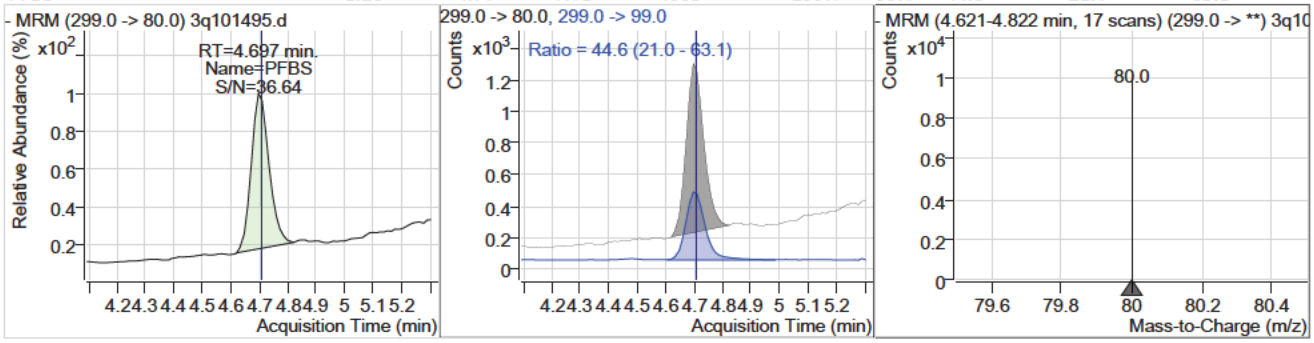
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	2.33	4.40	-0.01	28219				



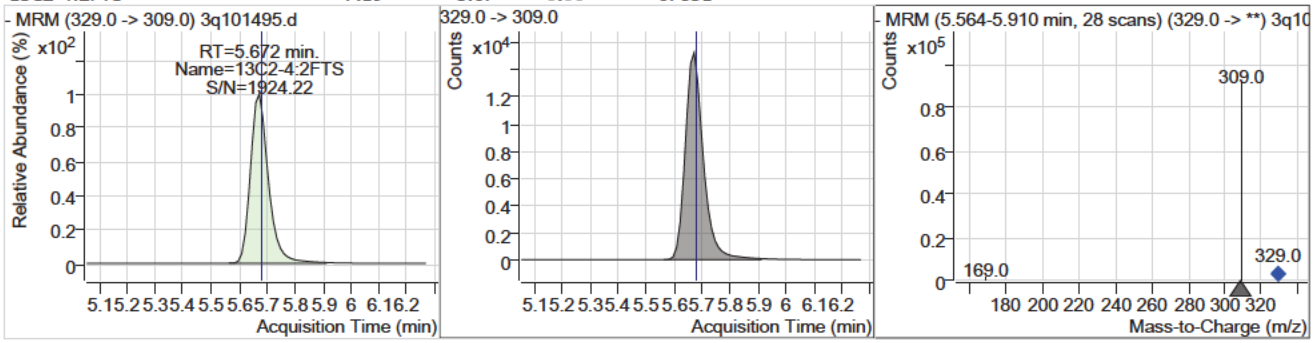
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	7.28	4.71	0.00	18024				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.28	4.70	-0.01	4663	299.0 -> 99.0	44.6	21.0	63.1

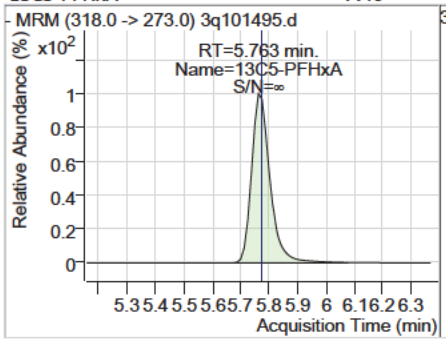


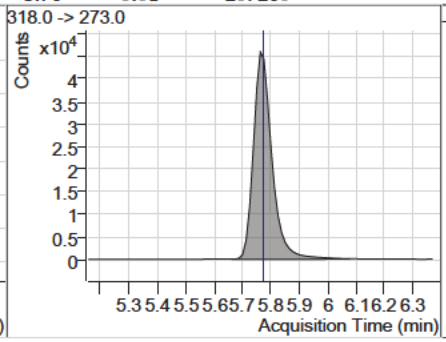
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	7.19	5.67	0.00	67851				

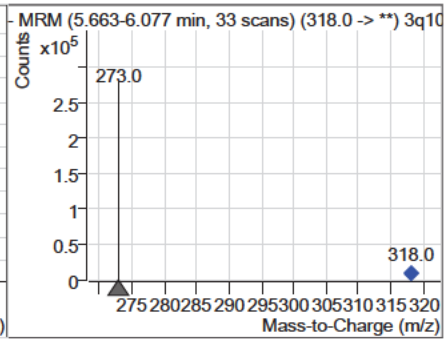


Perfluorinated Compounds by LC/MS/MS

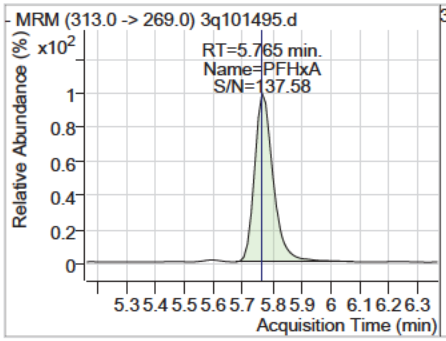
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	7.46	5.76	-0.01	207260				

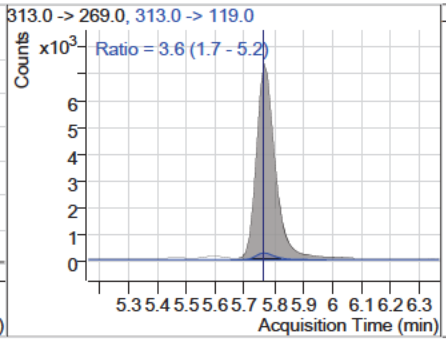


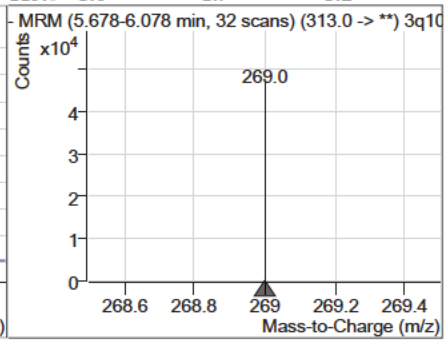




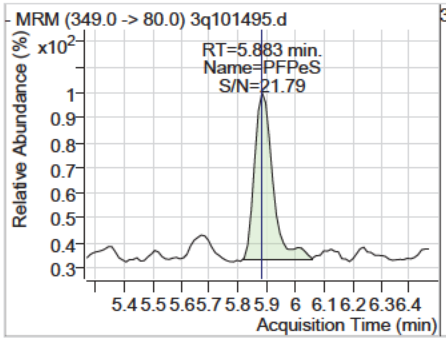
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.67	5.77	-0.01	32629	313.0 -> 119.0	3.6	1.7	5.2

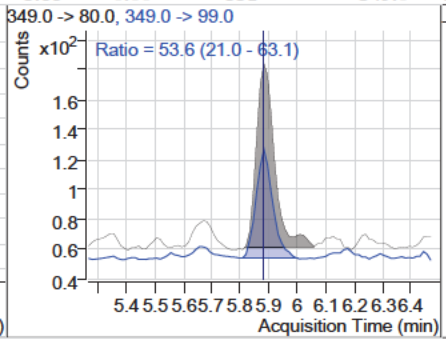


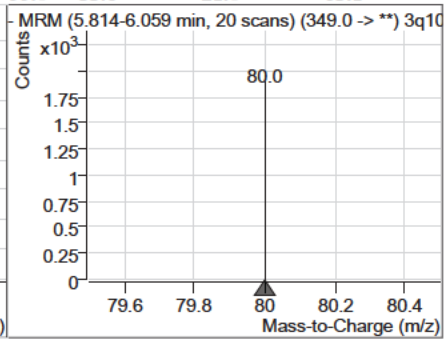




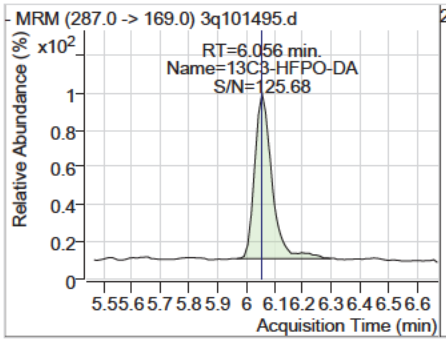
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.21	5.88	0.00	551	349.0 -> 99.0	53.6	21.0	63.1

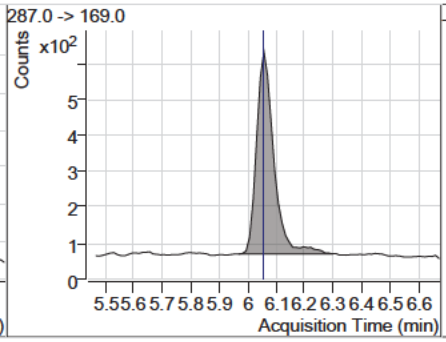


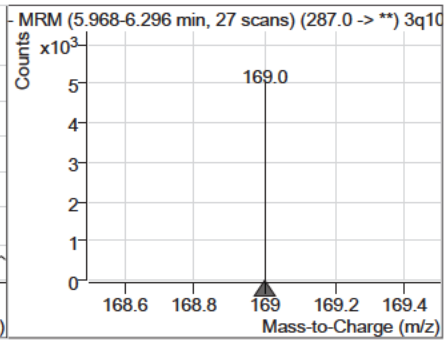




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	6.00	6.06	0.00	2398				

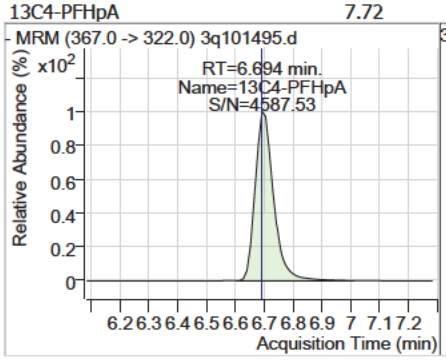


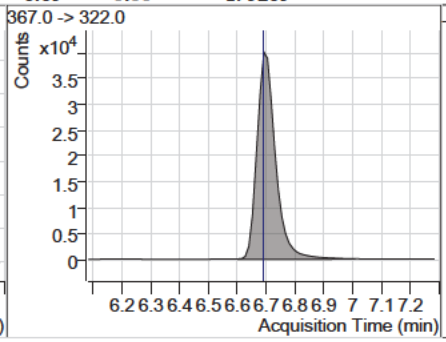


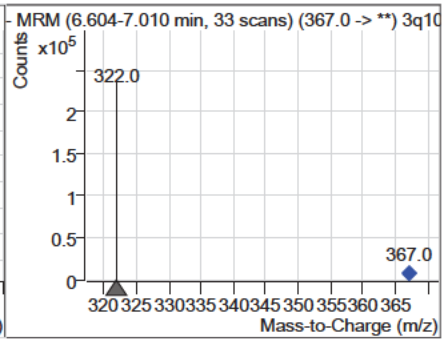


Perfluorinated Compounds by LC/MS/MS

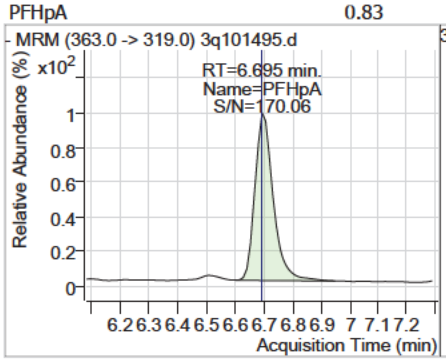
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	7.72	6.69	0.00	179269				

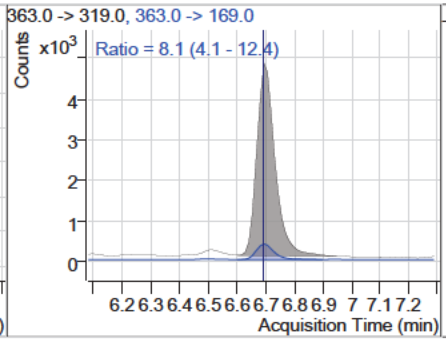


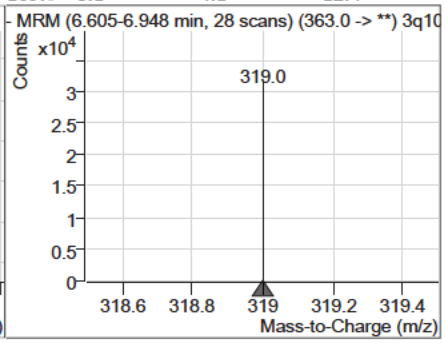




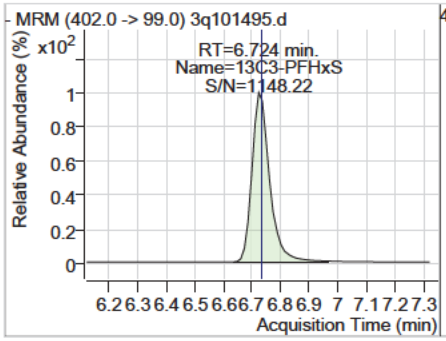
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.83	6.70	0.00	21001	363.0 -> 169.0	8.1	4.1	12.4

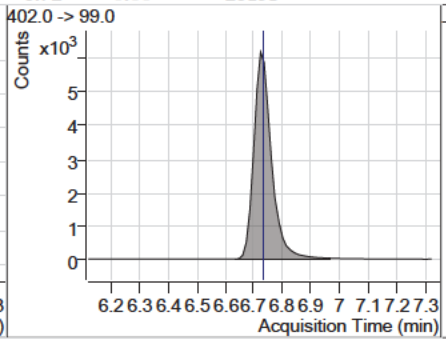


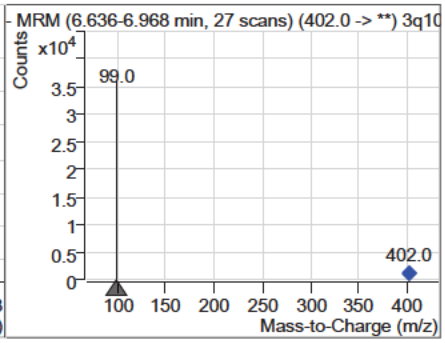




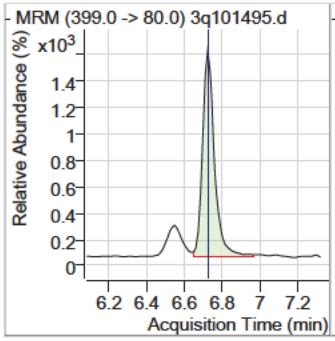
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	7.43	6.72	0.00	26193				

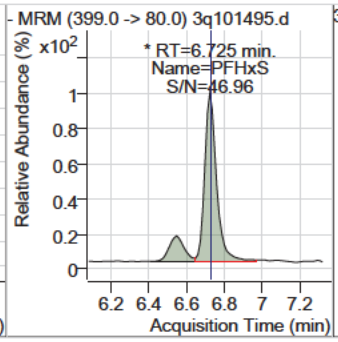


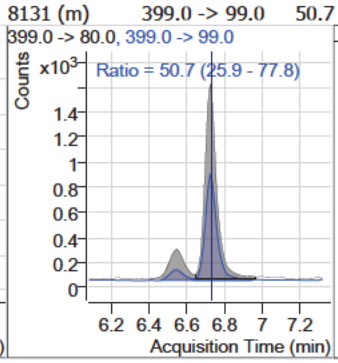


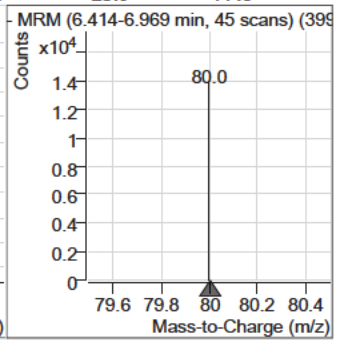


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.76	6.73	0.00	8131 (m)	399.0 -> 99.0	50.7	25.9	77.8



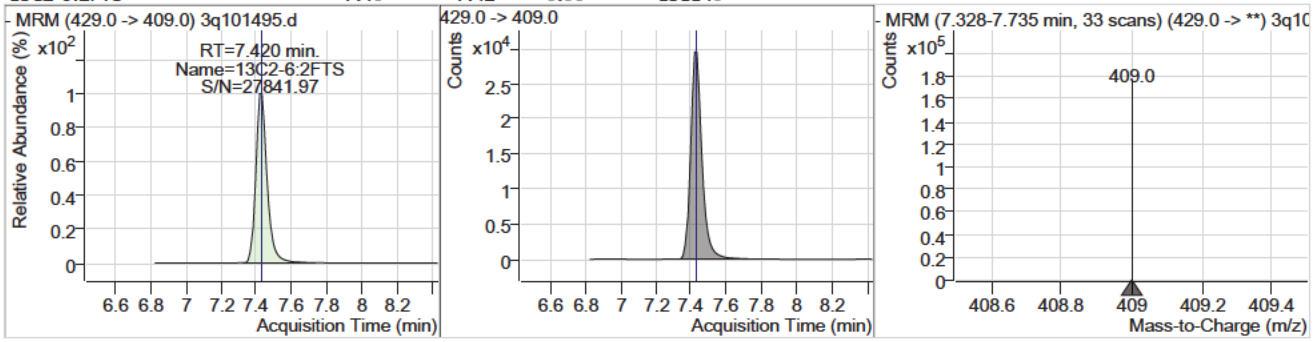




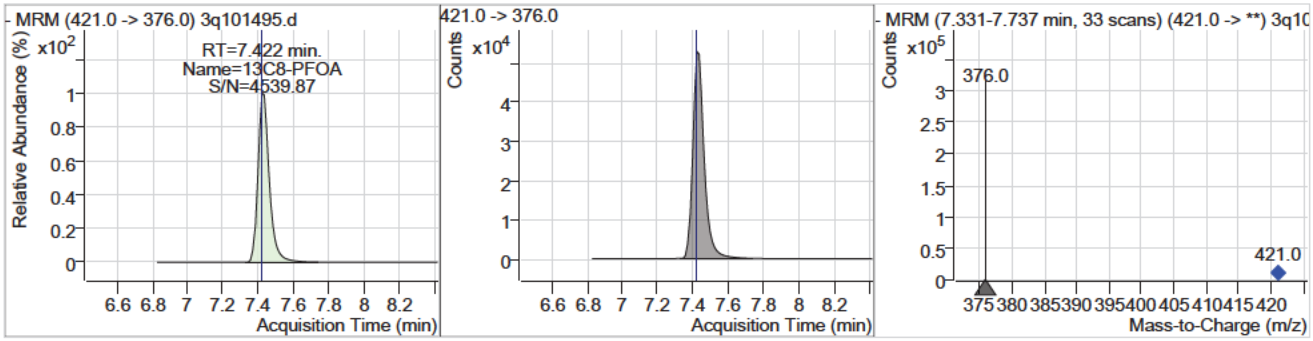


Perfluorinated Compounds by LC/MS/MS

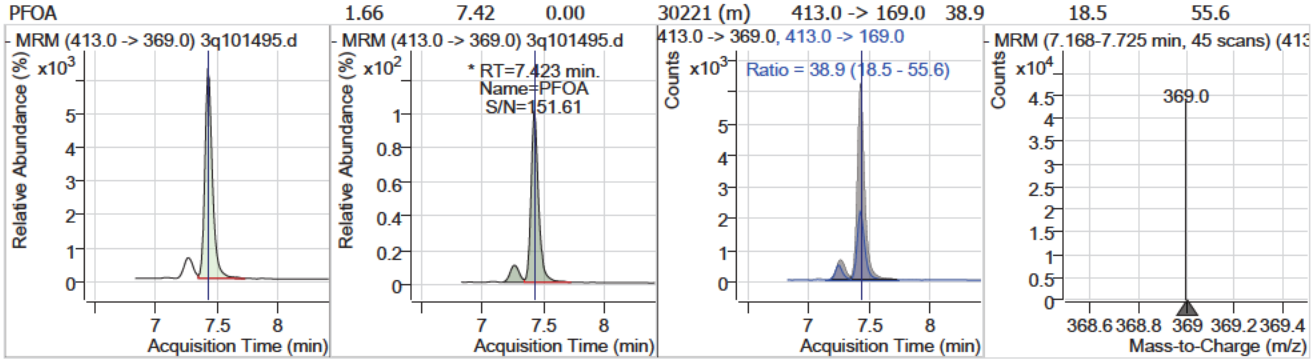
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	7.40	7.42	0.00	131140				



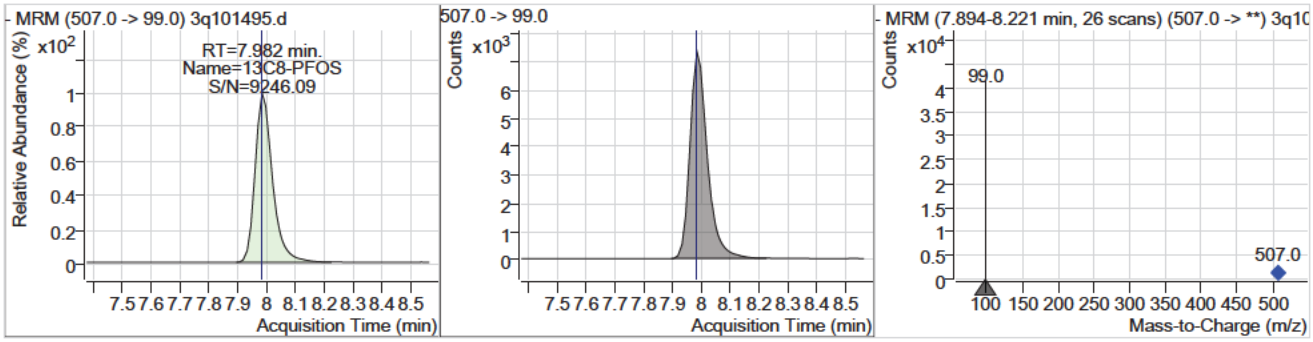
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	7.85	7.42	0.00	236714				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.66	7.42	0.00	30221 (m)	413.0 -> 169.0	38.9	18.5	55.6

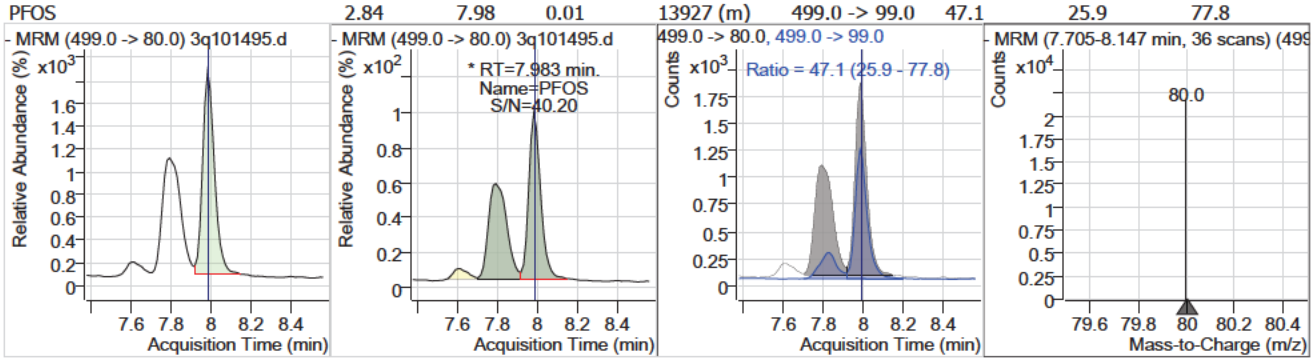


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	6.80	7.98	0.01	30657				

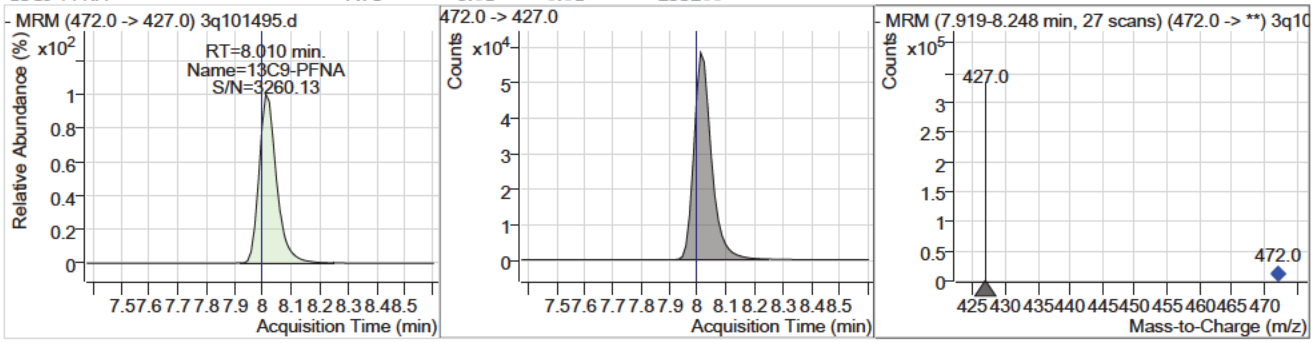


Perfluorinated Compounds by LC/MS/MS

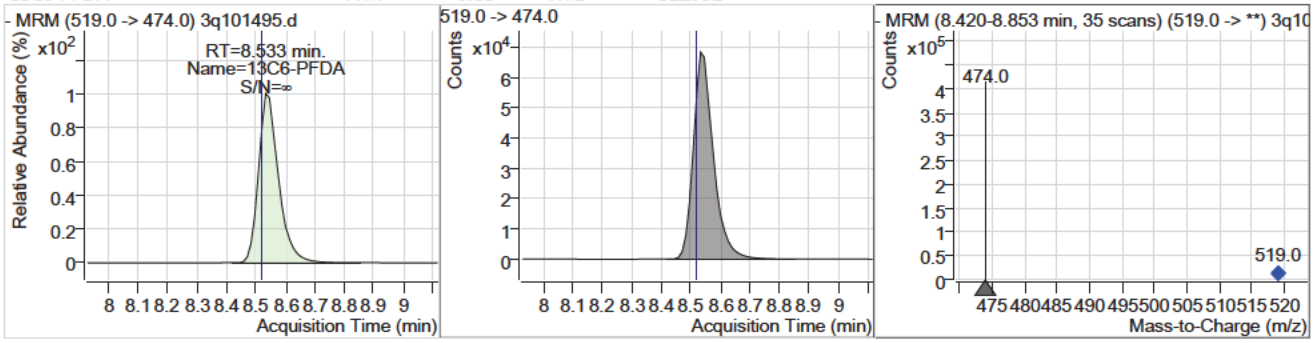
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.84	7.98	0.01	13927 (m)	499.0 -> 99.0	47.1	25.9	77.8



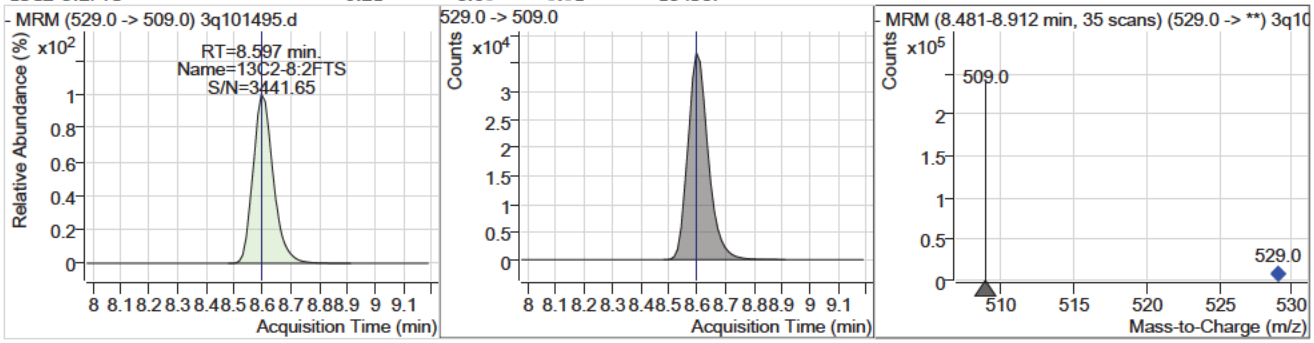
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	7.73	8.01	0.01	253200				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	7.04	8.53	0.01	322952				

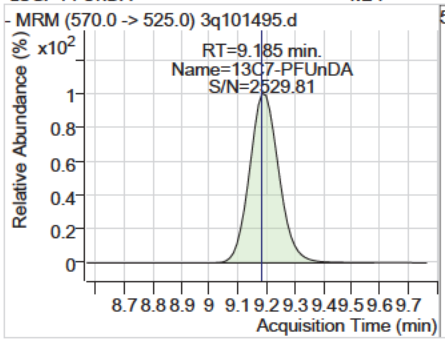


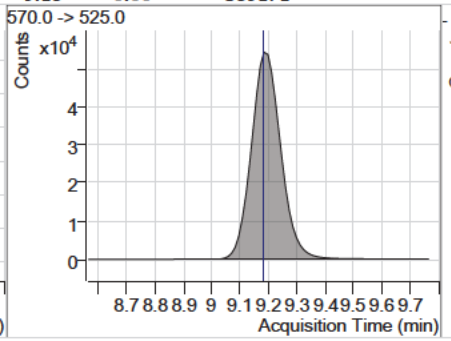
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	6.21	8.60	0.01	184387				

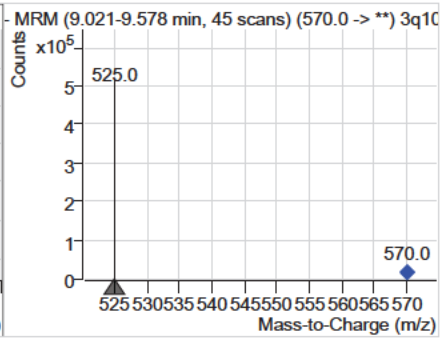


Perfluorinated Compounds by LC/MS/MS

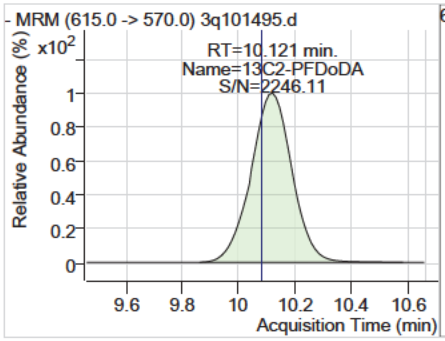
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	4.24	9.18	0.00	389171				

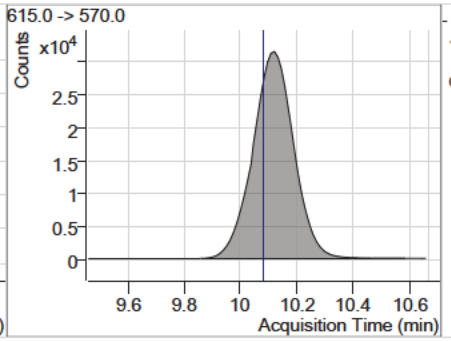


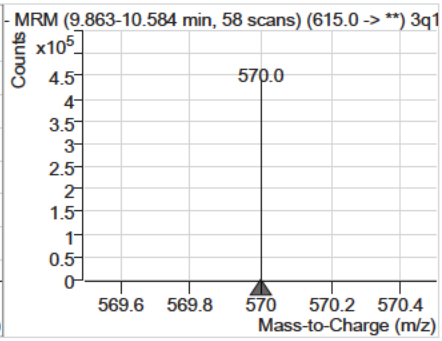




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	2.74	10.12	0.04	320284				







7.1.2 7

Manual Integration Approval Summary

Sample Number: FC23899-1
Lab FileID: 3Q101495.D
Injection Time: 04/16/25 13:06

Method: EPA 533
Analyst approved: 04/17/25 11:17 (b) (6)
Supervisor approved: 04/17/25 11:46 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.72	Split peak
Perfluorooctanoic acid	335-67-1		7.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101475.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 6:37:24 PM
Sample Name : fc23899-2
Vial : P3-B5
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8883,S3Q1492,280,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	232167	10.00 µg/L	-0.013
13C3-PFBA	2.294	216.0 -> 172.0	86107	10.00 µg/L	0.163
13C4-PFOS	7.969	503.0 -> 80.0	33133	10.00 µg/L	-0.026
M4-PFBA	2.302	217.0 -> 172.0	100316	10.00 µg/L	0.163
M5-PFPeA	4.388	268.0 -> 223.0	121538	10.00 µg/L	0.050
M5-PFHxA	5.763	318.0 -> 273.0	150934	10.00 µg/L	0.013
M4-PFHpA	6.694	367.0 -> 322.0	128163	10.00 µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	174843	10.00 µg/L	-0.013
M9-PFNA	7.997	472.0 -> 427.0	172259	10.00 µg/L	-0.026
M6-PFDA	8.520	519.0 -> 474.0	230403	10.00 µg/L	-0.025
M7-PFUnDA	9.160	570.0 -> 525.0	310188	10.00 µg/L	-0.065
M2-PFDoDA	10.058	615.0 -> 570.0	266918	10.00 µg/L	-0.075
M3-PFBS	4.683	302.0 -> 99.0	14389	10.00 µg/L	0.038
M3-PFHxS	6.724	402.0 -> 99.0	20006	10.00 µg/L	-0.013
M8-PFOS	7.968	507.0 -> 99.0	23975	10.00 µg/L	-0.026
M2-4:2FTS	5.659	329.0 -> 309.0	47863	10.00 µg/L	0.013
M2-6:2FTS	7.420	429.0 -> 409.0	103019	10.00 µg/L	-0.013
M2-8:2FTS	8.585	529.0 -> 509.0	131442	10.00 µg/L	-0.026
M3-HFPO-DA	6.056	287.0 -> 169.0	2077	10.00 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.659	329.0 -> 309.0	47863	6.07 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 60.7%	
13C2-6:2FTS	7.420	429.0 -> 409.0	103019	6.96 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 69.6%	
13C2-8:2FTS	8.585	529.0 -> 509.0	131442	5.30 µg/L	-0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 53.0%	
13C2-PFDoDA	10.058	615.0 -> 570.0	266918	2.70 µg/L	-0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 27.0%	
13C3-PFBS	4.683	302.0 -> 99.0	14389	6.96 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 69.6%	
13C3-PFHxS	6.724	402.0 -> 99.0	20006	6.80 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 68.0%	
13C4-PFBA	2.302	217.0 -> 172.0	100316	6.87 µg/L	0.163
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 68.7%	
13C4-PFHpA	6.694	367.0 -> 322.0	128163	6.52 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 65.2%	
13C5-PFHxA	5.763	318.0 -> 273.0	150934	6.42 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 64.2%	
13C5-PFPeA	4.388	268.0 -> 223.0	121538	6.90 µg/L	0.050
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 69.0%	
13C6-PFDA	8.520	519.0 -> 474.0	230403	5.93 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 59.3%	
13C7-PFUnDA	9.160	570.0 -> 525.0	310188	4.00 µg/L	-0.065
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 40.0%	
13C8-PFOA	7.422	421.0 -> 376.0	174843	6.86 µg/L	-0.013

Perfluorinated Compounds by LC/MS/MS

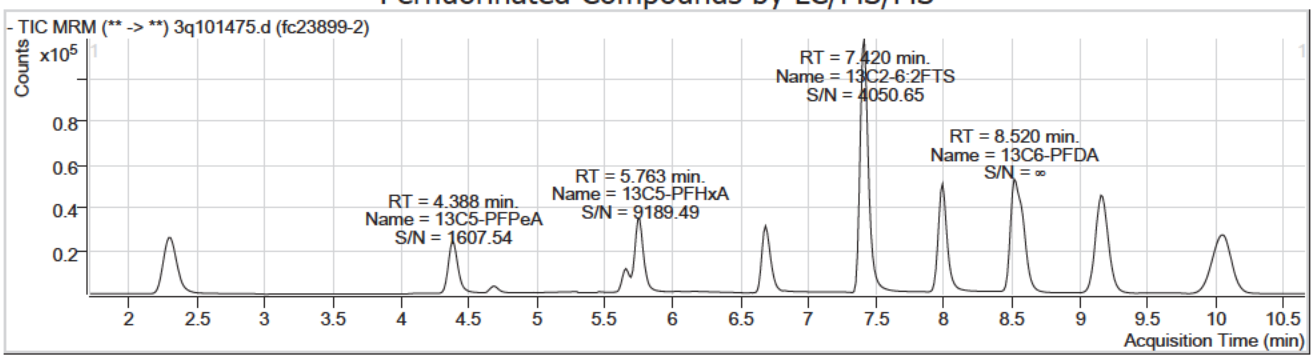
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 68.6%		
13C8-PFOS	7.968	507.0 -> 99.0	23975	6.36 µg/L		-0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 63.6%		
13C9-PFNA	7.997	472.0 -> 427.0	172259	6.22 µg/L		-0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 62.2%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	2077	6.14 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 61.4%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	-	299.0 -> 80.0	-	N.D.		
		299.0 -> 99.0				
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	-	363.0 -> 319.0	-	N.D.		
		363.0 -> 169.0				
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	5.998	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0	0			

= Qualifier out of range, m = manually integrated, + = Area summed

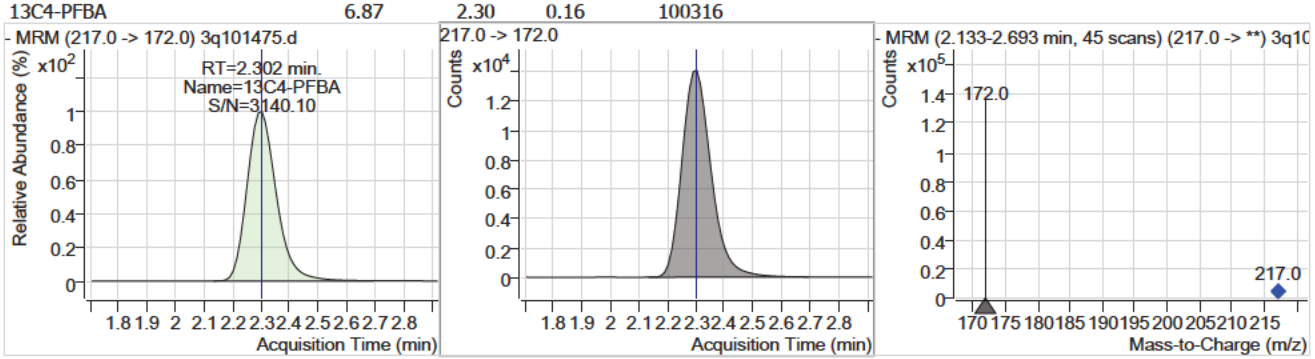
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)

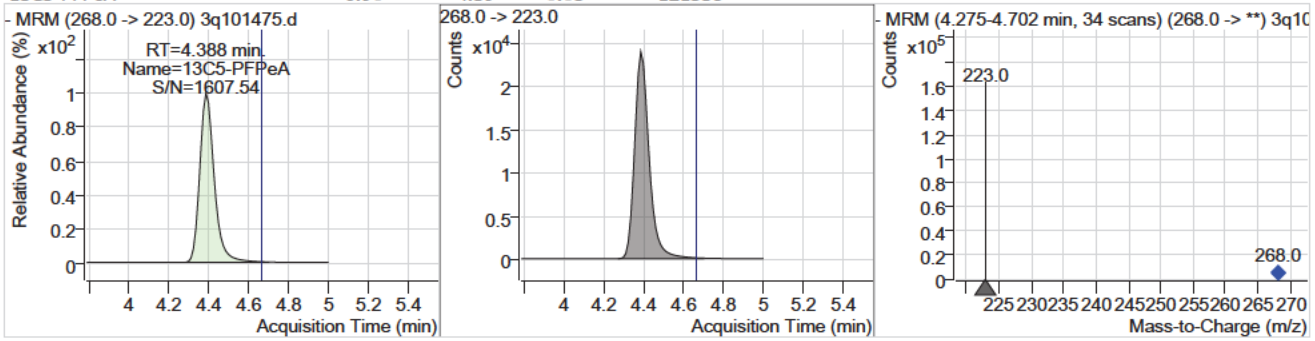
Perfluorinated Compounds by LC/MS/MS



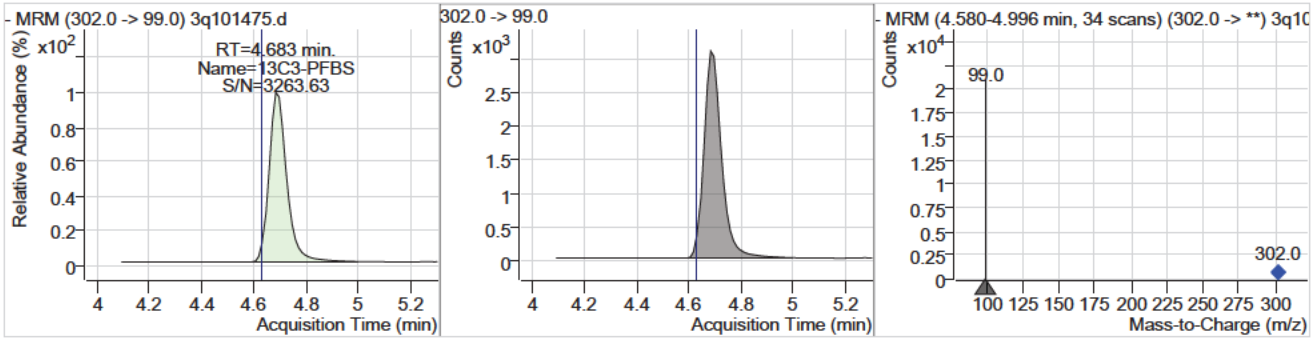
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	6.87	2.30	0.16	100316				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	6.90	4.39	0.05	121538				

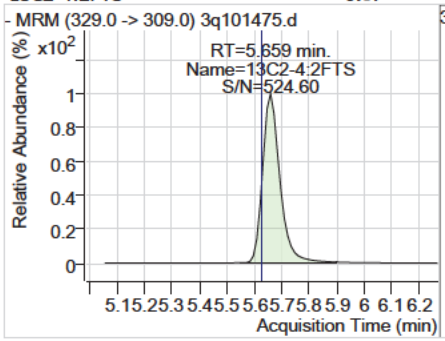


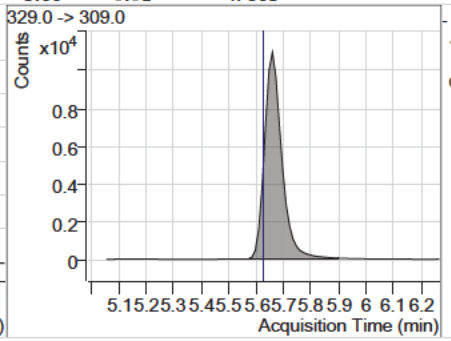
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	6.96	4.68	0.04	14389				

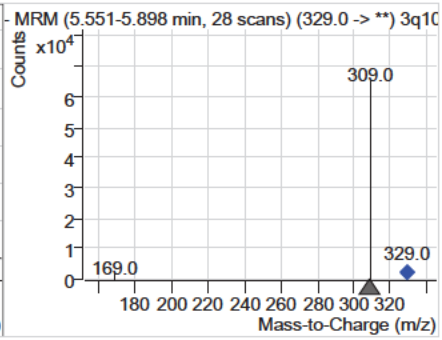


Perfluorinated Compounds by LC/MS/MS

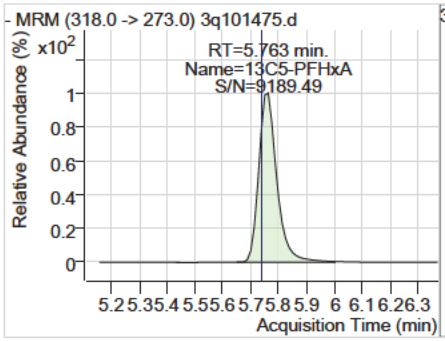
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	6.07	5.66	0.01	47863				

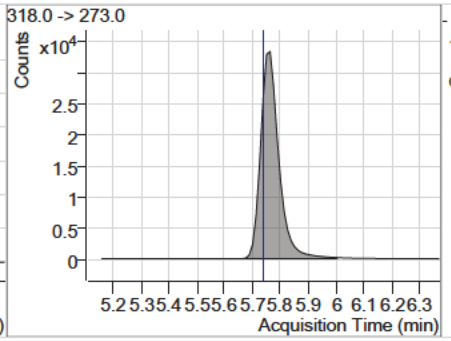


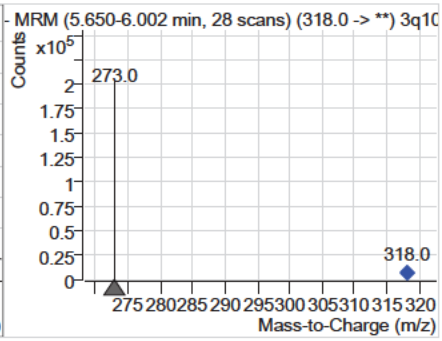




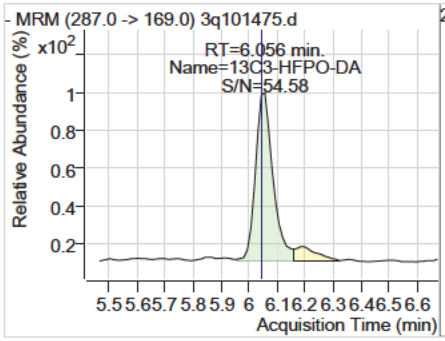
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	6.42	5.76	0.01	150934				

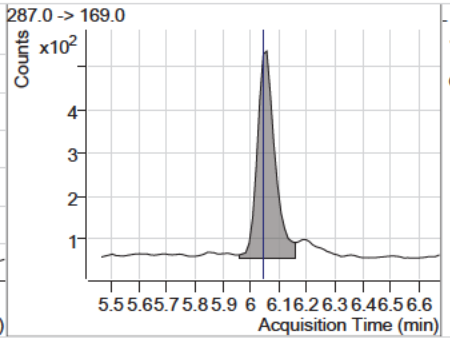


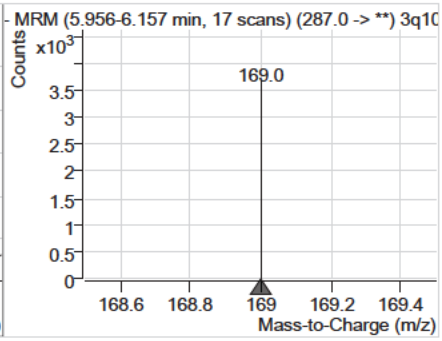




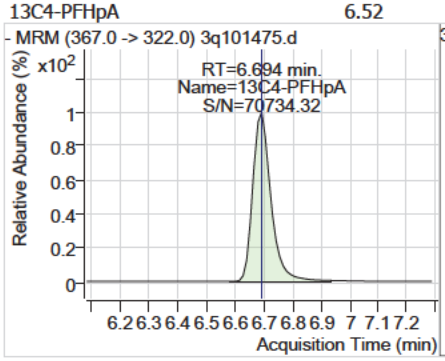
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	6.14	6.06	0.00	2077				

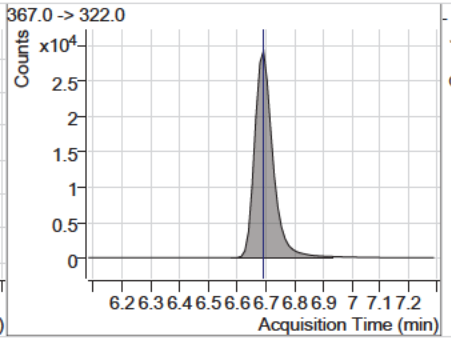


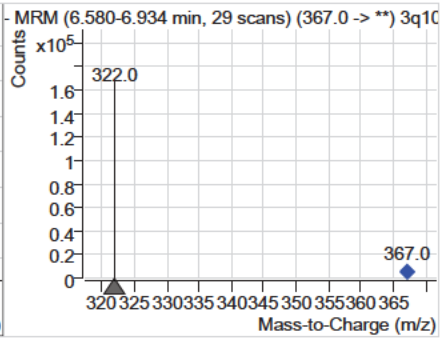




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	6.52	6.69	-0.01	128163				

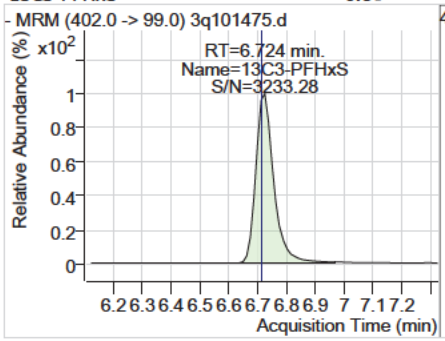


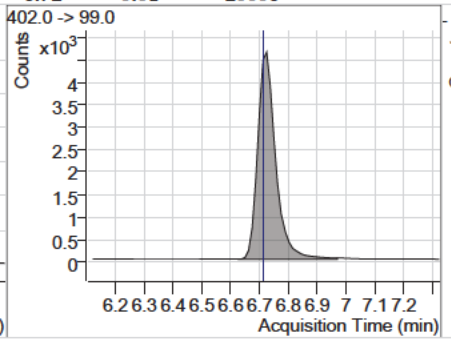


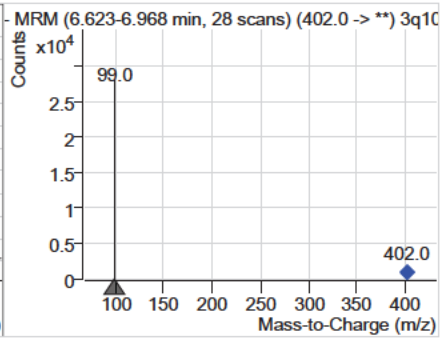


Perfluorinated Compounds by LC/MS/MS

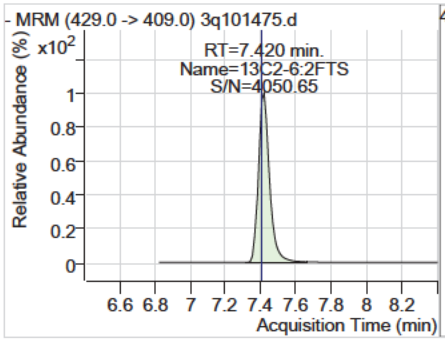
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	6.80	6.72	-0.01	20006				

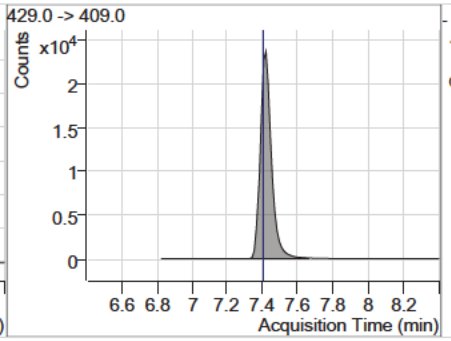


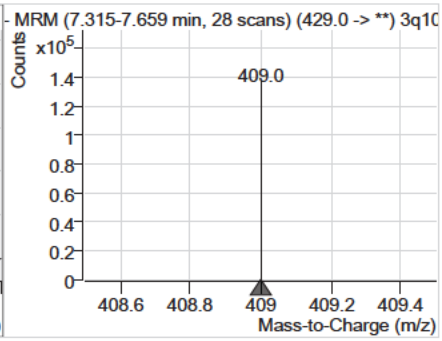




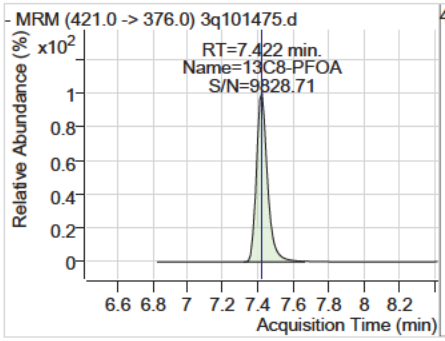
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	6.96	7.42	-0.01	103019				

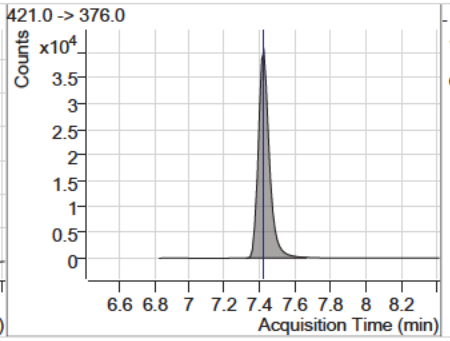


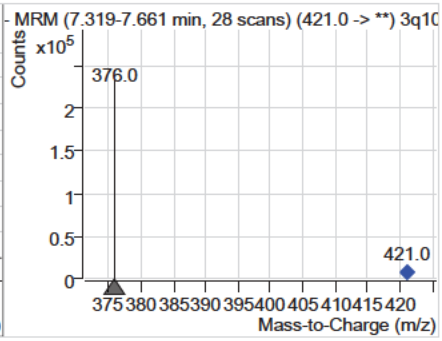




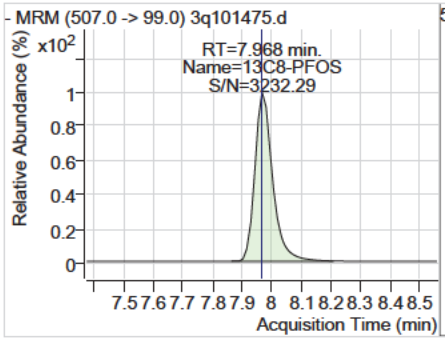
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	6.86	7.42	-0.01	174843				

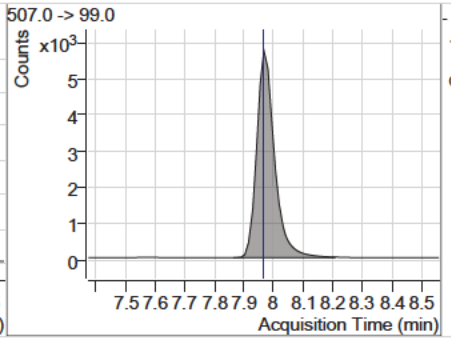


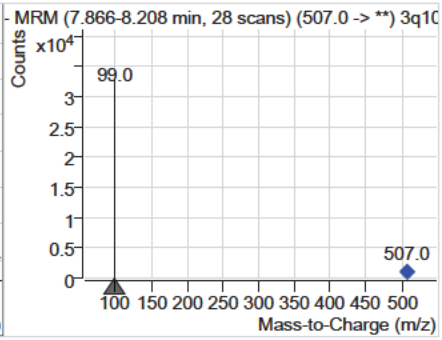




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	6.36	7.97	-0.03	23975				





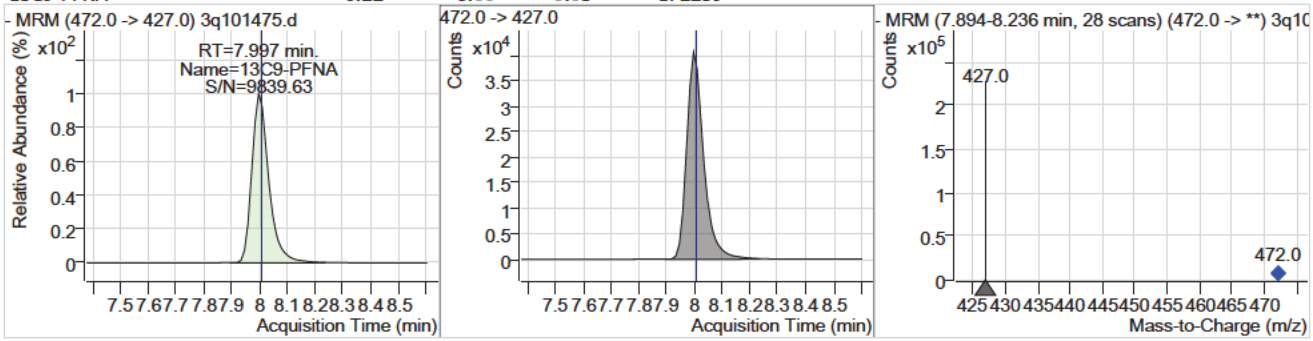


7.1.3

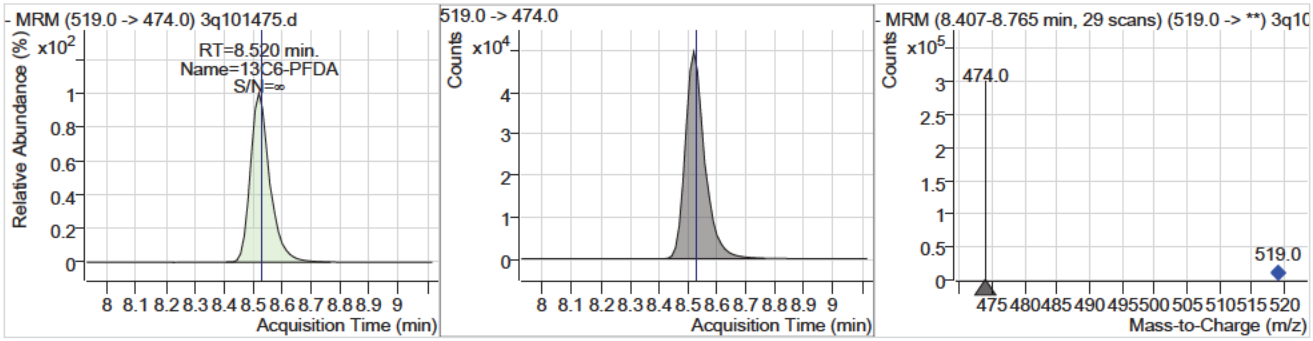
7

Perfluorinated Compounds by LC/MS/MS

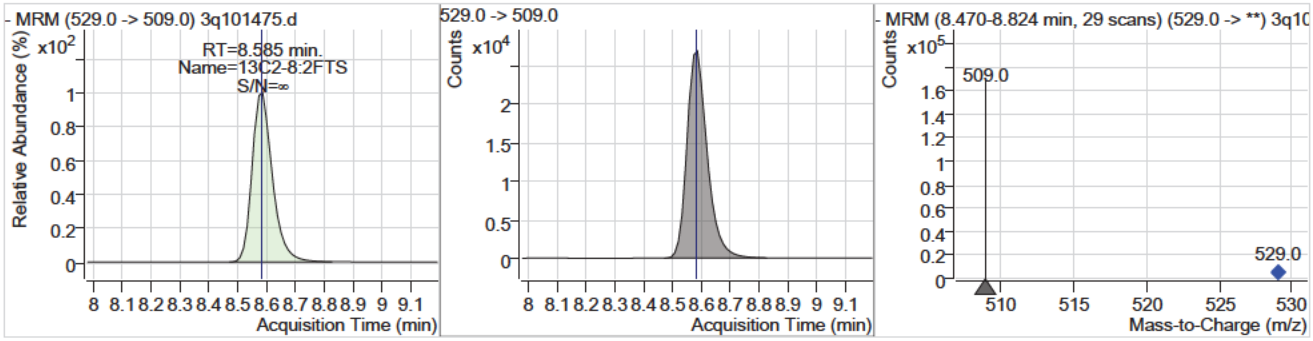
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	6.22	8.00	-0.03	172259				



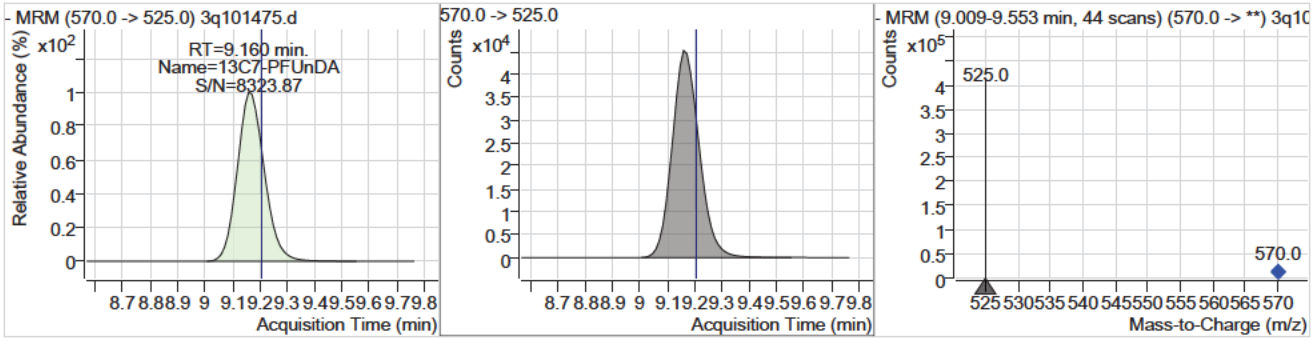
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	5.93	8.52	-0.03	230403				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.30	8.58	-0.03	131442				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	4.00	9.16	-0.06	310188				

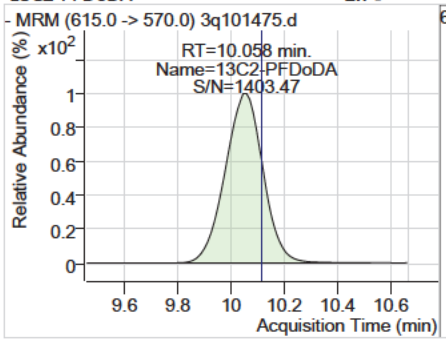


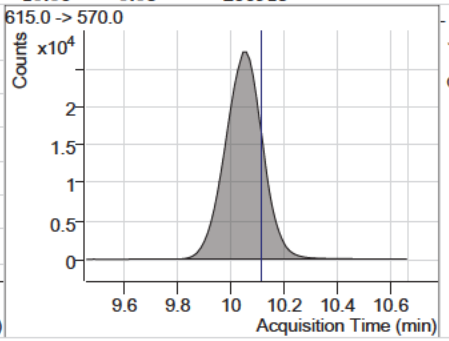
7.1.3

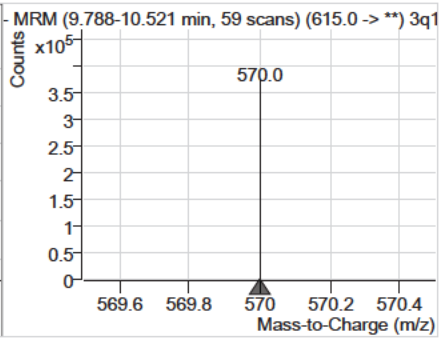
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	2.70	10.06	-0.08	266918				







7.1.3

7

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101523.d
Operator (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/17/2025 11:39:22 AM
Sample Name : fc23899-2
Vial : P3-B5
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1494.batch.bin
Sample Information : op8883,S3Q1494,280,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.447	415.0 -> 370.0	285429	10.00 µg/L	0.025
13C3-PFBA	2.344	216.0 -> 172.0	107217	10.00 µg/L	0.000
13C4-PFOS	7.995	503.0 -> 80.0	40842	10.00 µg/L	0.026
M4-PFBA	2.340	217.0 -> 172.0	126090	10.00 µg/L	0.000
M5-PFPeA	4.438	268.0 -> 223.0	151062	10.00 µg/L	0.025
M5-PFHxA	5.788	318.0 -> 273.0	195890	10.00 µg/L	0.013
M4-PFHpA	6.719	367.0 -> 322.0	166581	10.00 µg/L	0.025
M8-PFOA	7.447	421.0 -> 376.0	224508	10.00 µg/L	0.025
M9-PFNA	8.022	472.0 -> 427.0	235392	10.00 µg/L	0.026
M6-PFDA	8.546	519.0 -> 474.0	320358	10.00 µg/L	0.025
M7-PFUnDA	9.224	570.0 -> 525.0	410904	10.00 µg/L	0.039
M2-PFDoDA	10.121	615.0 -> 570.0	369454	10.00 µg/L	0.038
M3-PFBS	4.733	302.0 -> 99.0	17062	10.00 µg/L	0.025
M3-PFHxS	6.749	402.0 -> 99.0	24567	10.00 µg/L	0.025
M8-PFOS	7.995	507.0 -> 99.0	30239	10.00 µg/L	0.026
M2-4:2FTS	5.697	329.0 -> 309.0	62990	10.00 µg/L	0.025
M2-6:2FTS	7.445	429.0 -> 409.0	132675	10.00 µg/L	0.025
M2-8:2FTS	8.611	529.0 -> 509.0	181886	10.00 µg/L	0.026
M3-HFPO-DA	6.081	287.0 -> 169.0	2575	10.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.697	329.0 -> 309.0	62990	6.48 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 64.8%	
13C2-6:2FTS	7.445	429.0 -> 409.0	132674	7.27 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 72.7%	
13C2-8:2FTS	8.611	529.0 -> 509.0	181886	5.95 µg/L	0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 59.5%	
13C2-PFDoDA	10.121	615.0 -> 570.0	369454	3.04 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 30.4%	
13C3-PFBS	4.733	302.0 -> 99.0	17062	6.70 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 67.0%	
13C3-PFHxS	6.749	402.0 -> 99.0	24567	6.77 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 67.7%	
13C4-PFBA	2.340	217.0 -> 172.0	126090	6.93 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 69.3%	
13C4-PFHpA	6.719	367.0 -> 322.0	166581	6.90 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 69.0%	
13C5-PFHxA	5.788	318.0 -> 273.0	195890	6.77 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 67.7%	
13C5-PFPeA	4.438	268.0 -> 223.0	151062	6.89 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 68.9%	
13C6-PFDA	8.546	519.0 -> 474.0	320358	6.71 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 67.1%	
13C7-PFUnDA	9.224	570.0 -> 525.0	410904	4.31 µg/L	0.039
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 43.1%	
13C8-PFOA	7.447	421.0 -> 376.0	224508	7.16 µg/L	0.025

Perfluorinated Compounds by LC/MS/MS

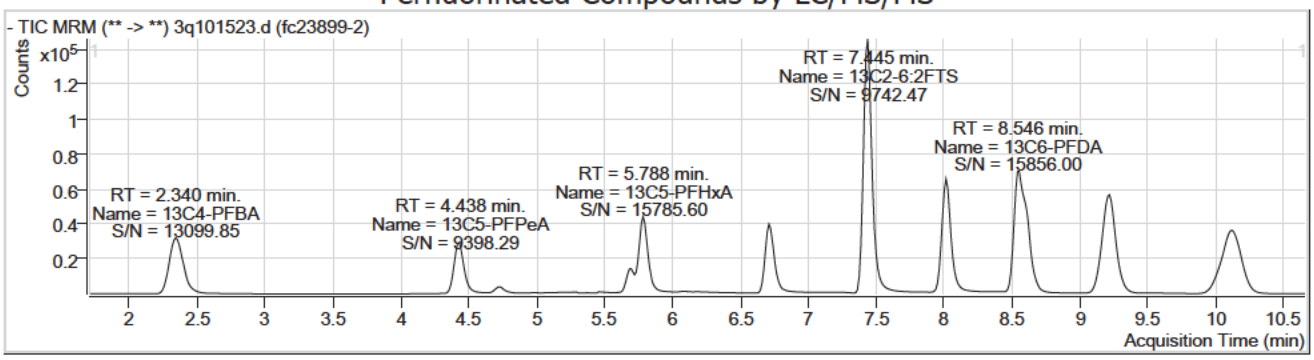
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 71.6%		
13C8-PFOS	7.995	507.0 -> 99.0	30239	6.51 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 65.1%		
13C9-PFNA	8.022	472.0 -> 427.0	235392	6.91 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 69.1%		
13C3-HFPO-DA	6.081	287.0 -> 169.0	2575	6.19 µg/L		0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 61.9%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	-	299.0 -> 80.0	-	N.D.		
		299.0 -> 99.0				
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	-	363.0 -> 319.0	-	N.D.		
		363.0 -> 169.0				
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	6.023	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0	0			

= Qualifier out of range, m = manually integrated, + = Area summed

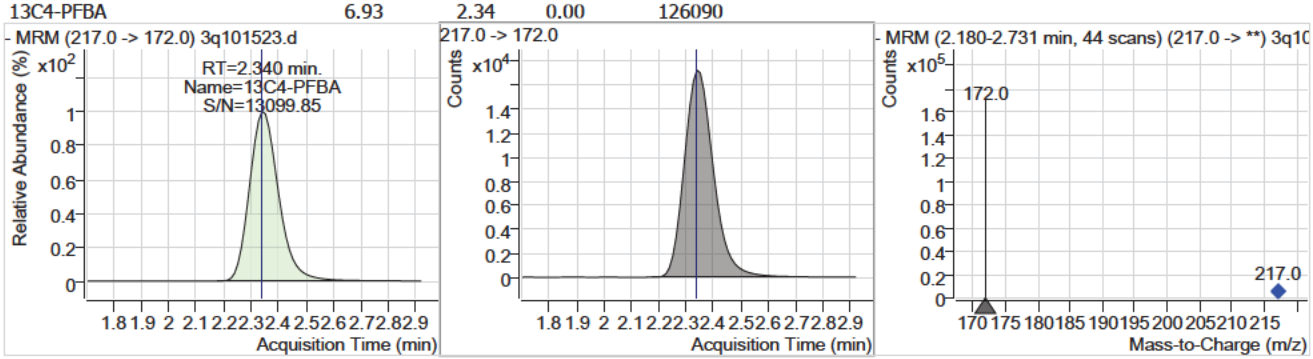
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)

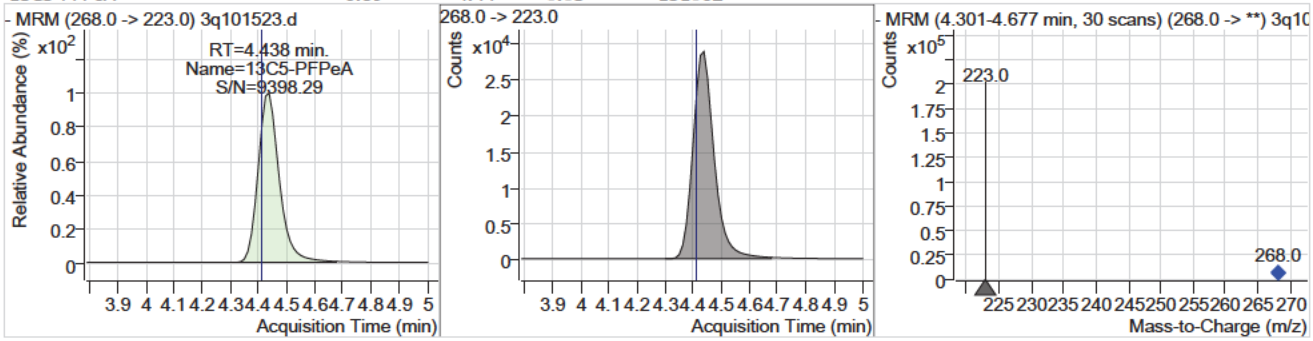
Perfluorinated Compounds by LC/MS/MS



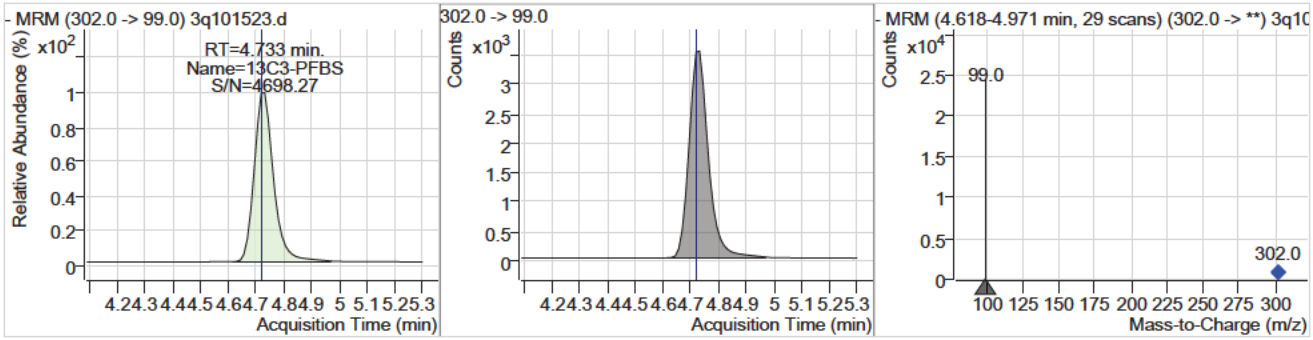
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	6.93	2.34	0.00	126090				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	6.89	4.44	0.03	151062				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	6.70	4.73	0.03	17062				



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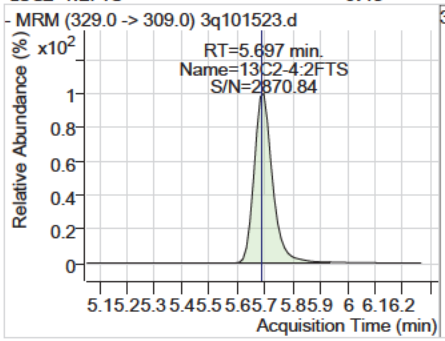
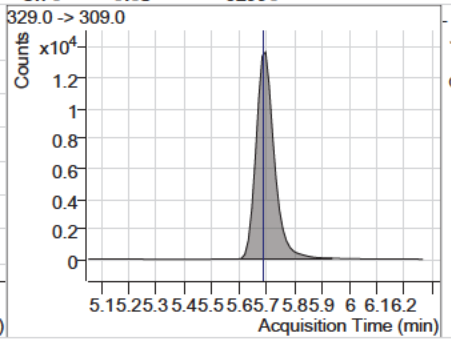
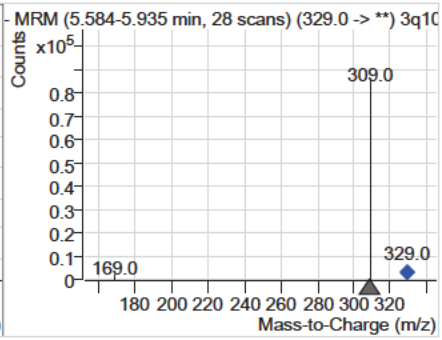
Perfluorinated Compounds by LC/MS/MS

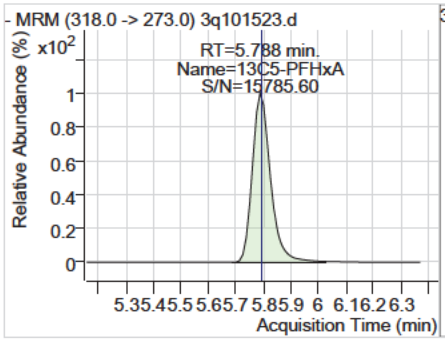
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	6.48	5.70	0.03	62990				

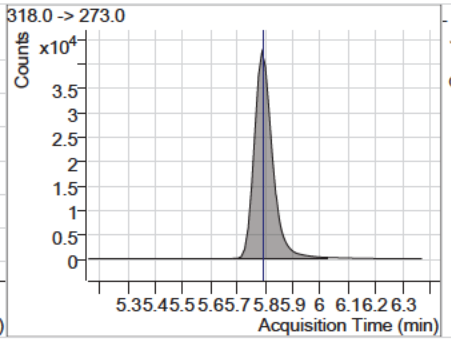


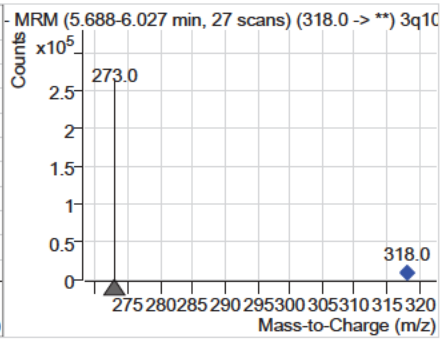




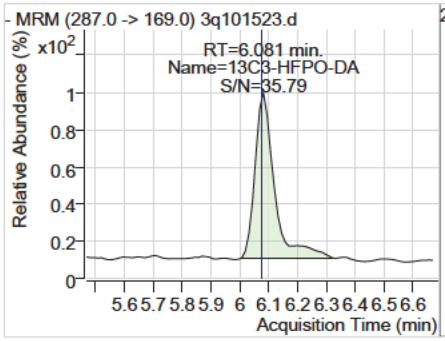
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	6.77	5.79	0.01	195890				

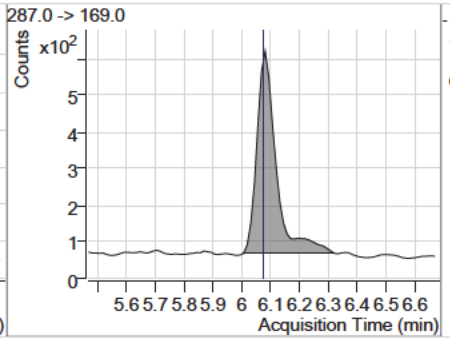


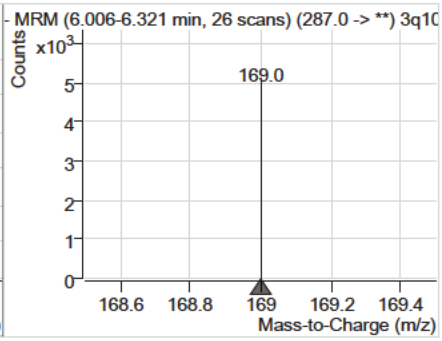




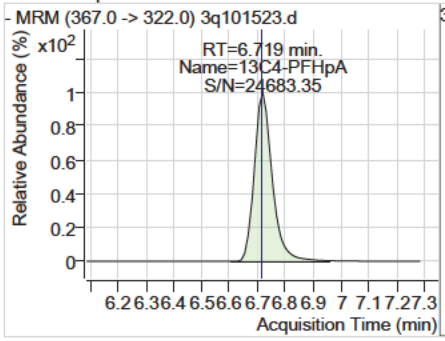
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	6.19	6.08	0.03	2575				

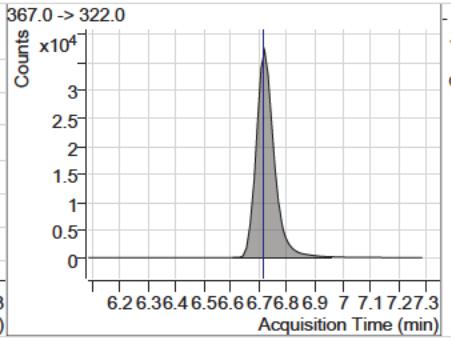


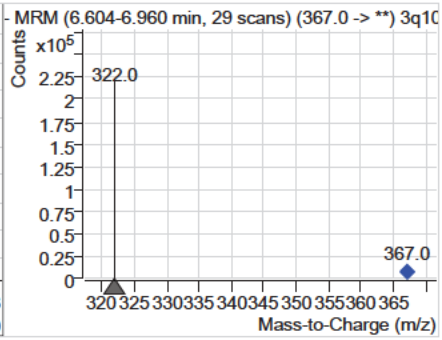




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	6.90	6.72	0.03	166581				

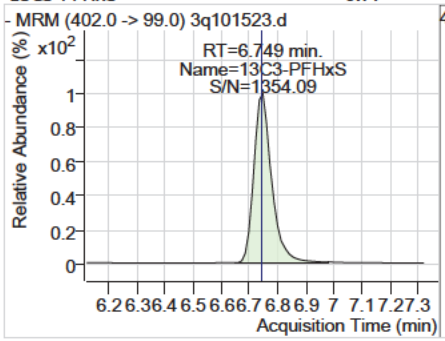


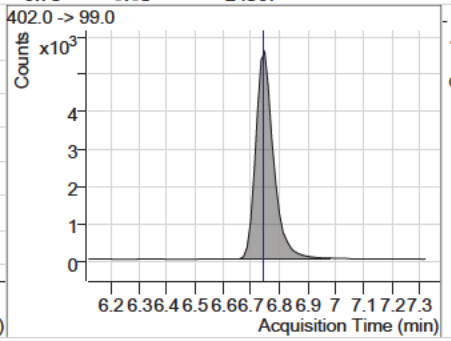


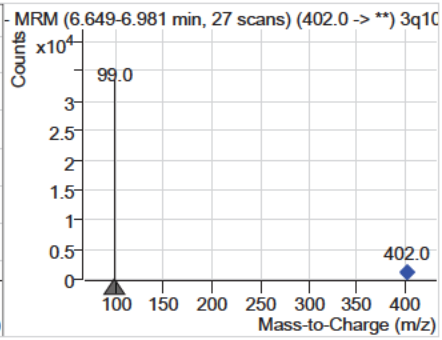


Perfluorinated Compounds by LC/MS/MS

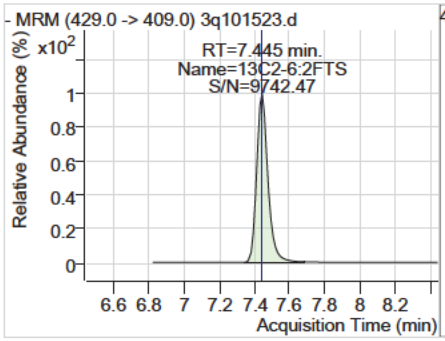
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	6.77	6.75	0.03	24567				

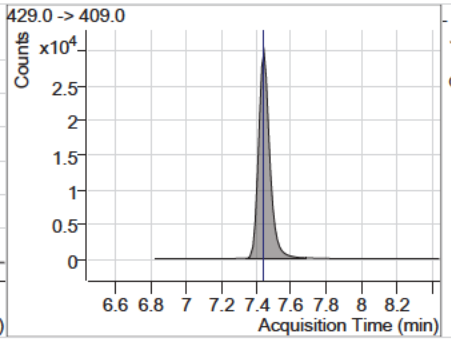


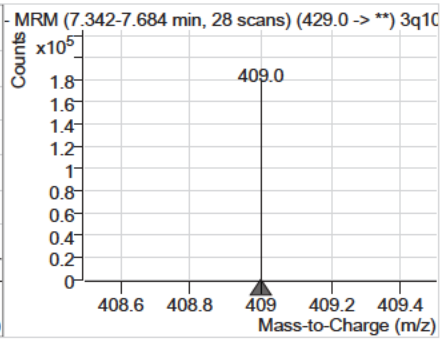




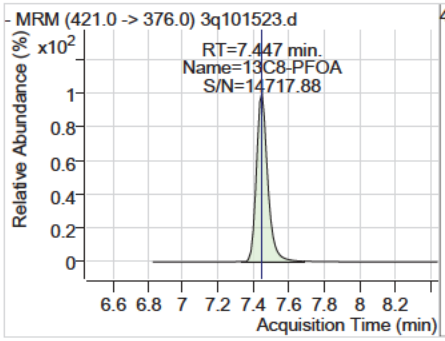
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	7.27	7.44	0.03	132674				

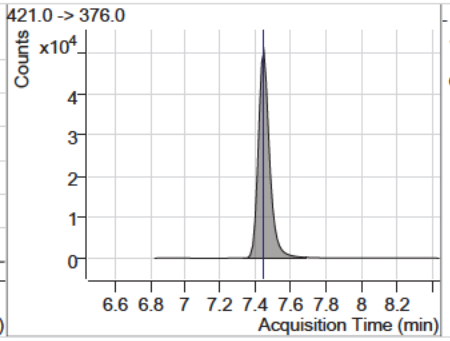


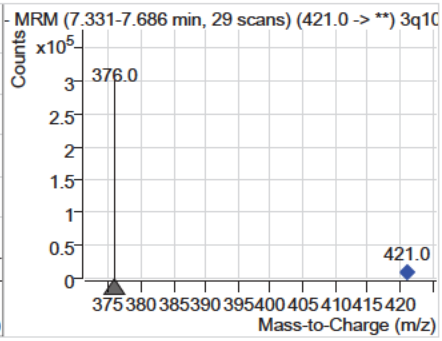




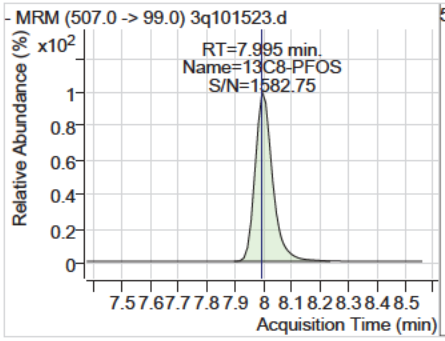
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	7.16	7.45	0.03	224508				

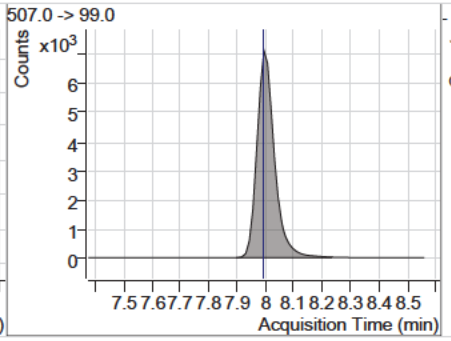


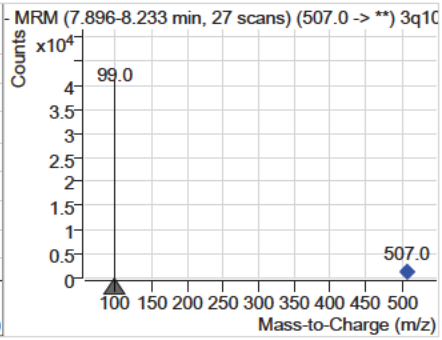




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	6.51	7.99	0.03	30239				

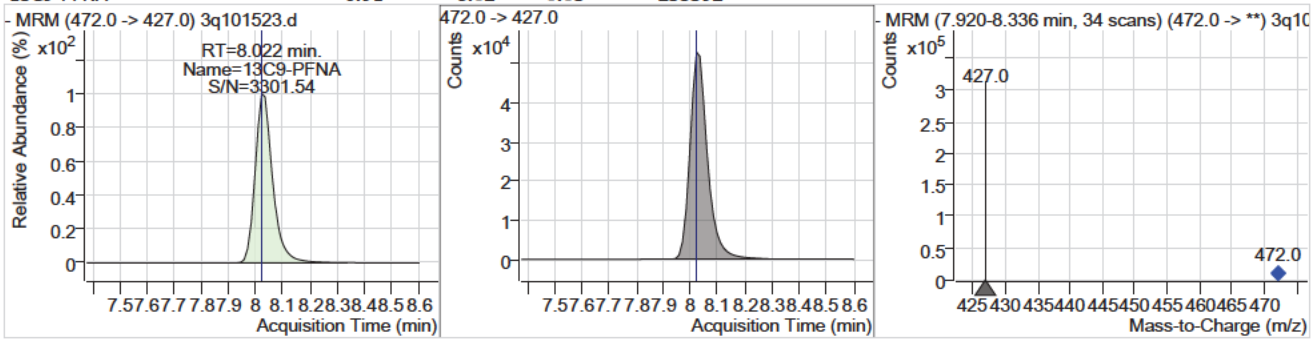




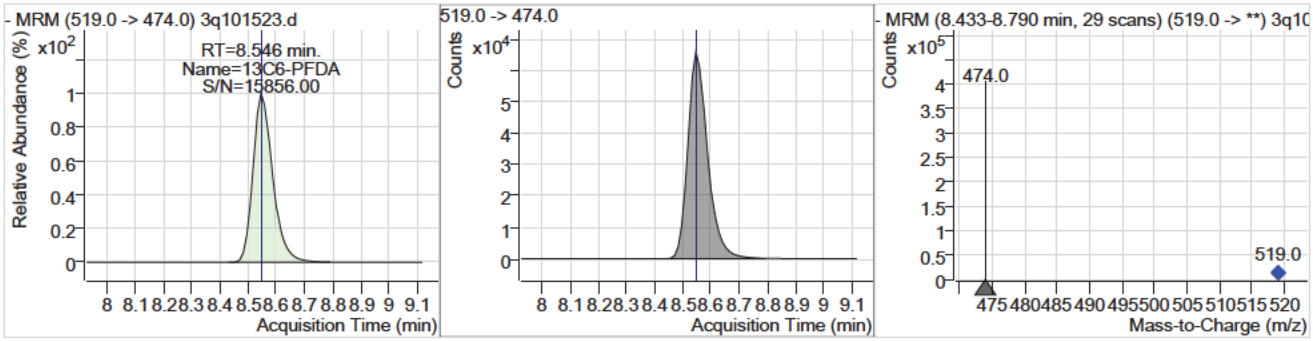


Perfluorinated Compounds by LC/MS/MS

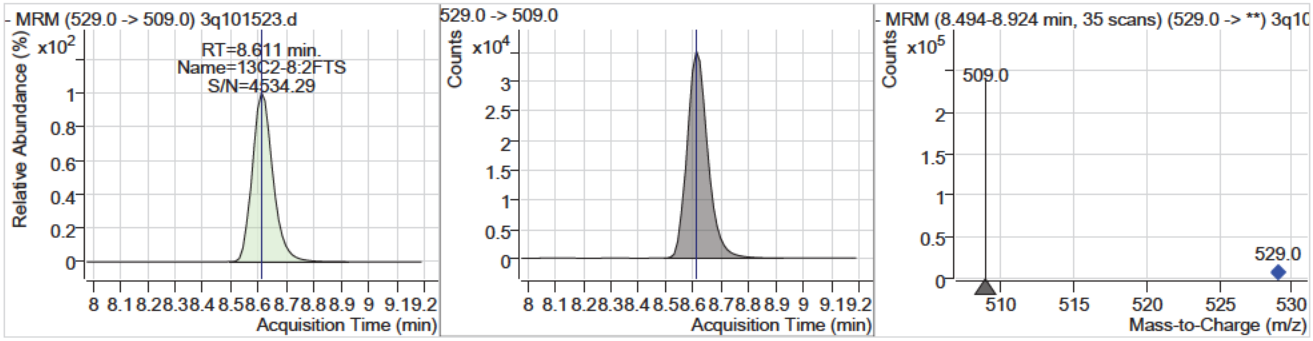
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	6.91	8.02	0.03	235392				



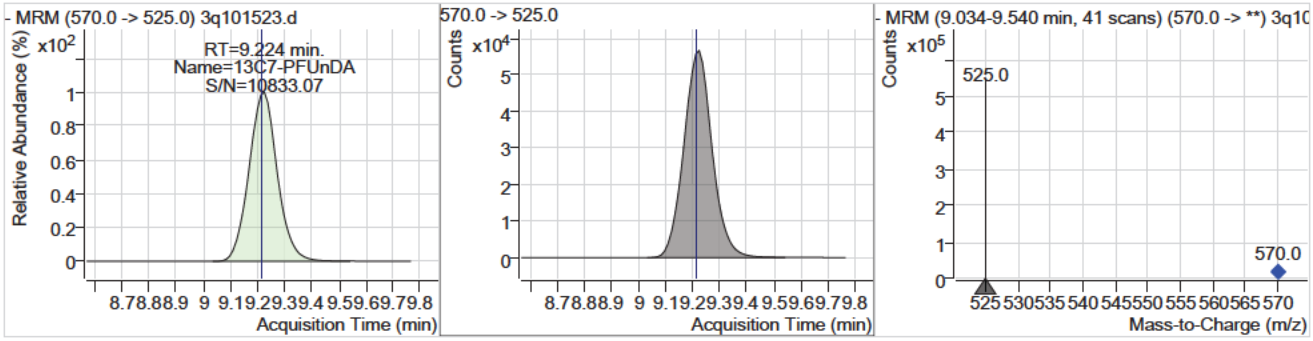
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	6.71	8.55	0.03	320358				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.95	8.61	0.03	181886				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	4.31	9.22	0.04	410904				



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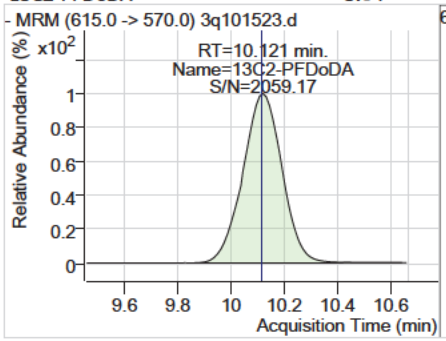
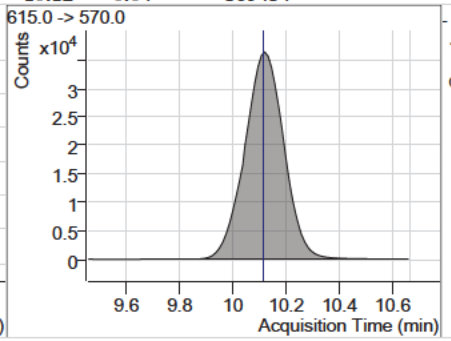
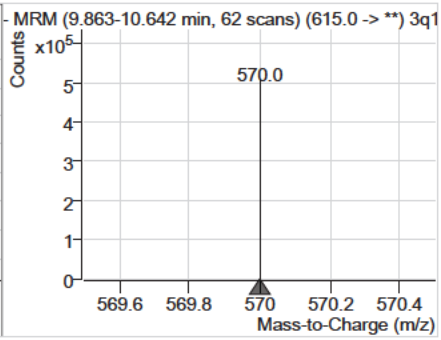
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	3.04	10.12	0.04	369454				







7.1.4

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Perfluorinated Compounds by LC/MS/MS

Data File : 3q101476.d
Operator (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 6:53:29 PM
Sample Name : fc23899-3
Vial : P3-B6
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8883,S3Q1492,280,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	203756	10.00 µg/L	-0.013
13C3-PFBA	2.319	216.0 -> 172.0	76198	10.00 µg/L	0.188
13C4-PFOS	7.969	503.0 -> 80.0	29663	10.00 µg/L	-0.026
M4-PFBA	2.315	217.0 -> 172.0	106597	10.00 µg/L	0.175
M5-PFPeA	4.400	268.0 -> 223.0	130109	10.00 µg/L	0.063
M5-PFHxA	5.763	318.0 -> 273.0	167551	10.00 µg/L	0.013
M4-PFHpA	6.694	367.0 -> 322.0	139443	10.00 µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	184701	10.00 µg/L	-0.013
M9-PFNA	7.997	472.0 -> 427.0	191472	10.00 µg/L	-0.026
M6-PFDA	8.533	519.0 -> 474.0	257122	10.00 µg/L	-0.013
M7-PFUnDA	9.172	570.0 -> 525.0	331220	10.00 µg/L	-0.052
M2-PFDoDA	10.096	615.0 -> 570.0	285949	10.00 µg/L	-0.038
M3-PFBS	4.696	302.0 -> 99.0	15212	10.00 µg/L	0.050
M3-PFHxS	6.711	402.0 -> 99.0	22096	10.00 µg/L	-0.025
M8-PFOS	7.968	507.0 -> 99.0	26782	10.00 µg/L	-0.026
M2-4:2FTS	5.659	329.0 -> 309.0	57902	10.00 µg/L	0.013
M2-6:2FTS	7.420	429.0 -> 409.0	102485	10.00 µg/L	-0.013
M2-8:2FTS	8.585	529.0 -> 509.0	138204	10.00 µg/L	-0.026
M3-HFPO-DA	6.056	287.0 -> 169.0	2176	10.00 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.659	329.0 -> 309.0	57902	8.20 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.0%	
13C2-6:2FTS	7.420	429.0 -> 409.0	102459	7.73 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.3%	
13C2-8:2FTS	8.585	529.0 -> 509.0	138204	6.22 µg/L	-0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 62.2%	
13C2-PFDoDA	10.096	615.0 -> 570.0	285949	3.30 µg/L	-0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 33.0%	
13C3-PFBS	4.696	302.0 -> 99.0	15212	8.22 µg/L	0.050
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.2%	
13C3-PFHxS	6.711	402.0 -> 99.0	22096	8.39 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 83.9%	
13C4-PFBA	2.315	217.0 -> 172.0	106597	8.25 µg/L	0.175
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.5%	
13C4-PFHpA	6.694	367.0 -> 322.0	139443	8.09 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.9%	
13C5-PFHxA	5.763	318.0 -> 273.0	167551	8.12 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.2%	
13C5-PFPeA	4.400	268.0 -> 223.0	130109	8.35 µg/L	0.063
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 83.5%	
13C6-PFDA	8.533	519.0 -> 474.0	257122	7.54 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 75.4%	
13C7-PFUnDA	9.172	570.0 -> 525.0	331220	4.86 µg/L	-0.052
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 48.6%	
13C8-PFOA	7.422	421.0 -> 376.0	184701	8.25 µg/L	-0.013

Perfluorinated Compounds by LC/MS/MS

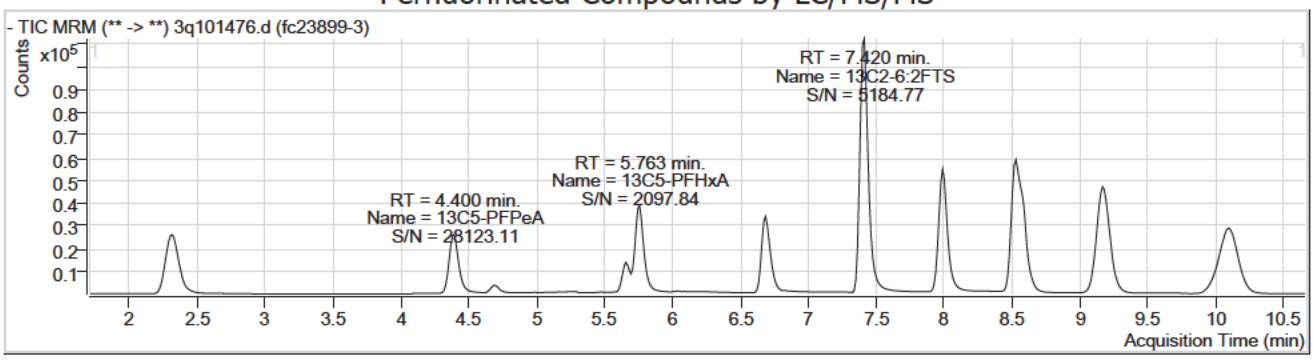
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.5%		
13C8-PFOS	7.968	507.0 -> 99.0	26782	7.94 µg/L		-0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.4%		
13C9-PFNA	7.997	472.0 -> 427.0	191472	7.87 µg/L		-0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.7%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	2176	7.33 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 73.3%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	5.278	299.0 -> 80.0	0	0.00 µg/L	m	1
		299.0 -> 99.0	0			
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	-	363.0 -> 319.0	-	N.D.		
		363.0 -> 169.0				
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	5.659	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0	0			

= Qualifier out of range, m = manually integrated, + = Area summed

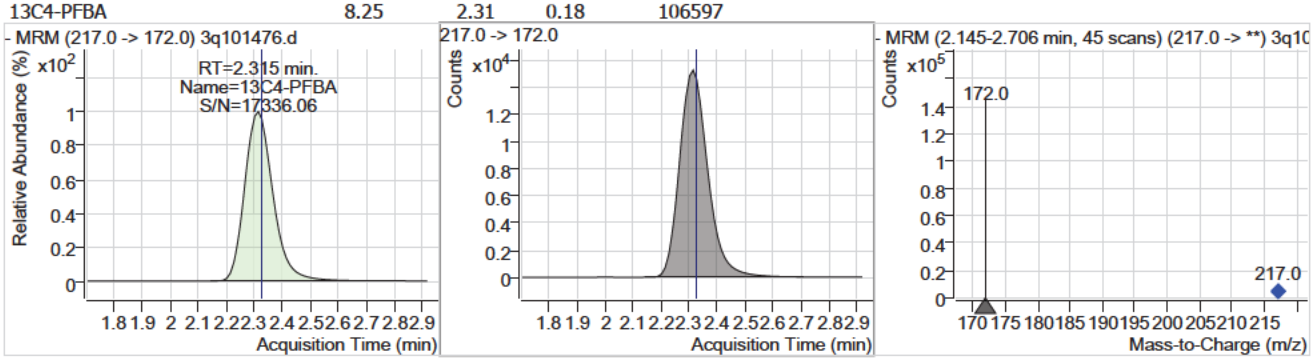
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)

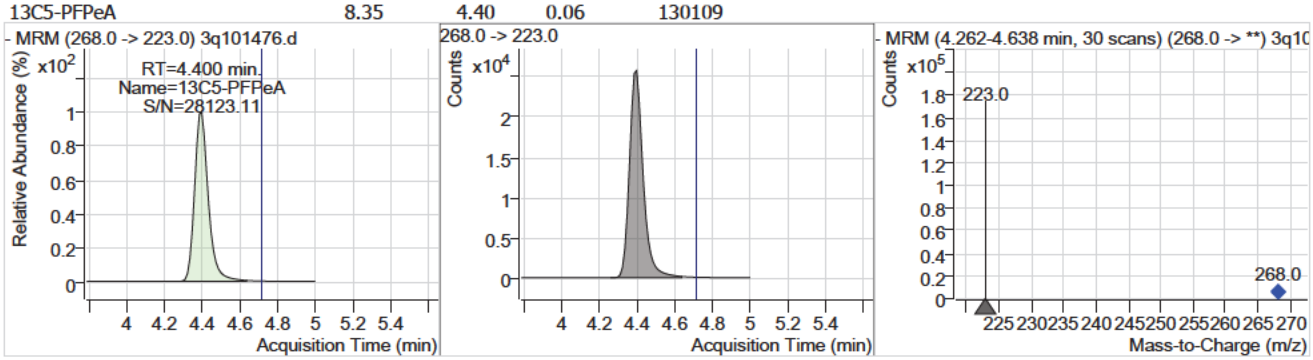
Perfluorinated Compounds by LC/MS/MS



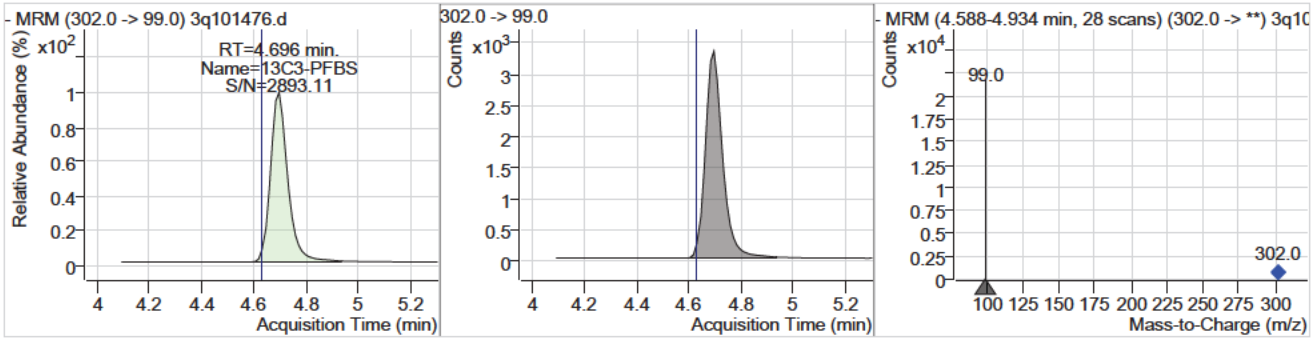
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	8.25	2.31	0.18	106597				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	8.35	4.40	0.06	130109				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	8.22	4.70	0.05	15212				



7.1.5

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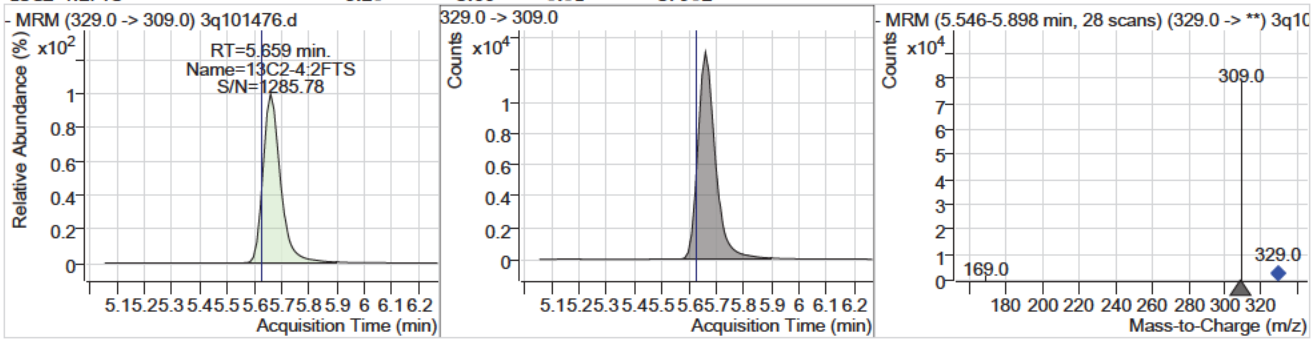
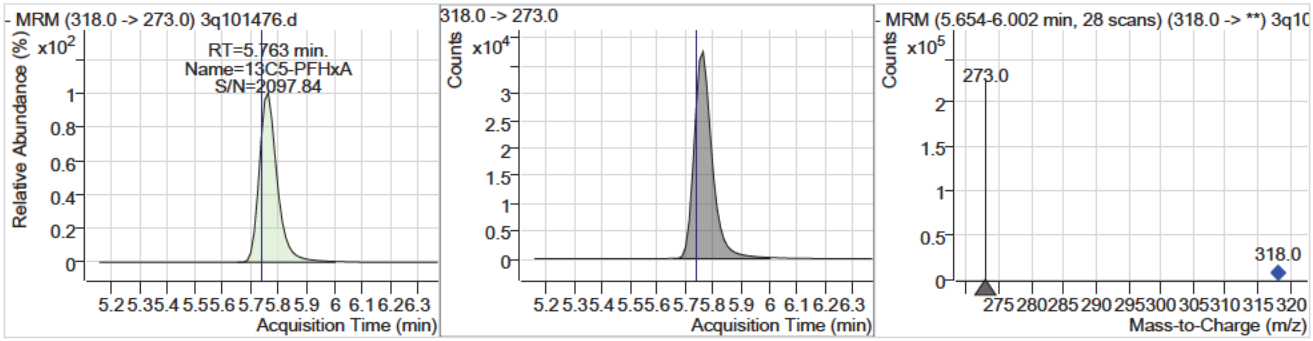
Perfluorinated Compounds by LC/MS/MS

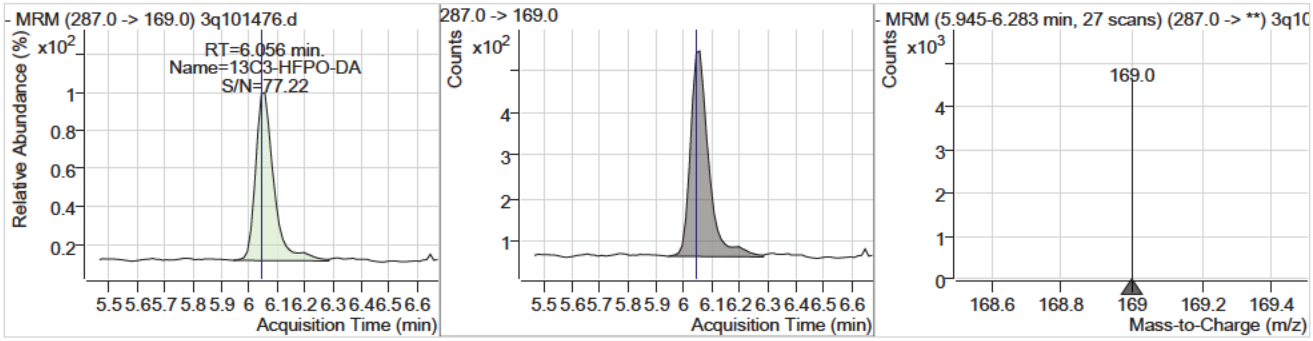
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	8.20	5.66	0.01	57902				



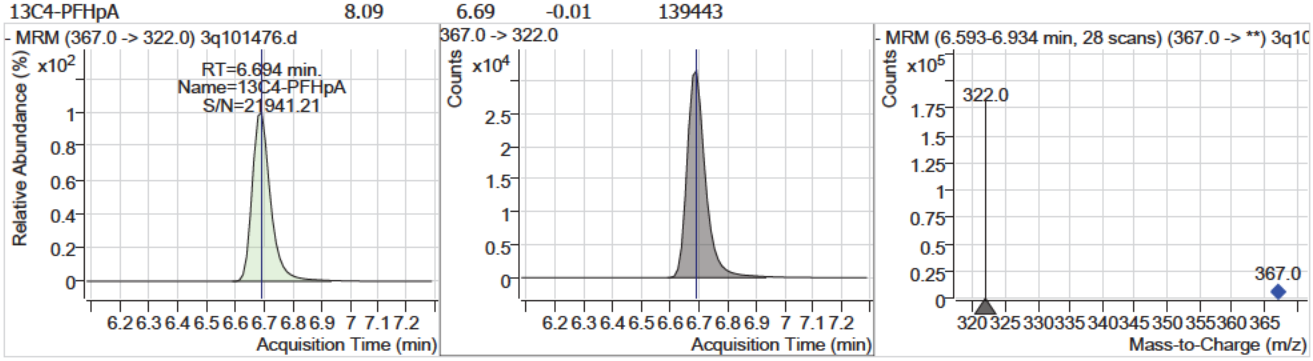
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	8.12	5.76	0.01	167551				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	7.33	6.06	0.00	2176				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	8.09	6.69	-0.01	139443				



7.1.5

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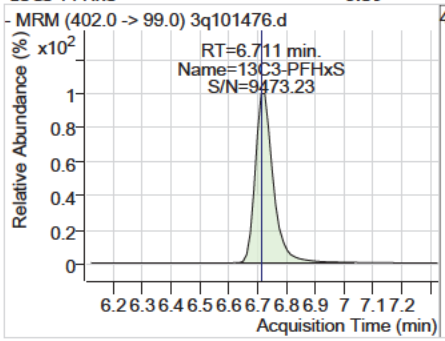
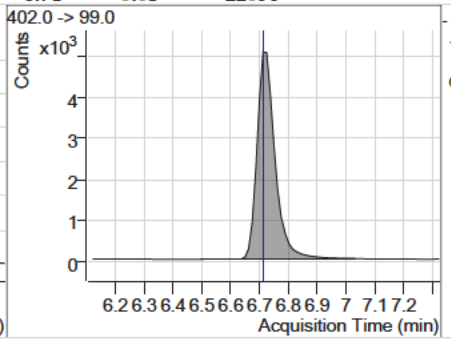
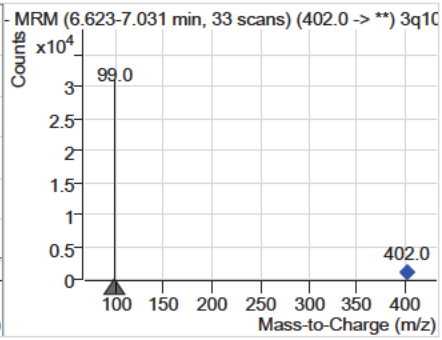
Perfluorinated Compounds by LC/MS/MS

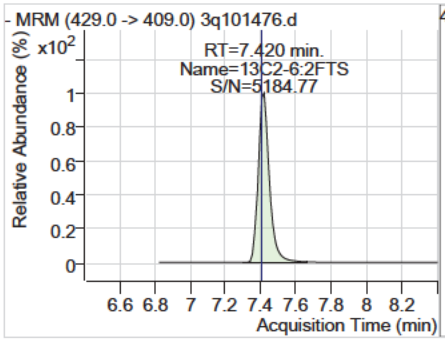
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	8.39	6.71	-0.03	22096				

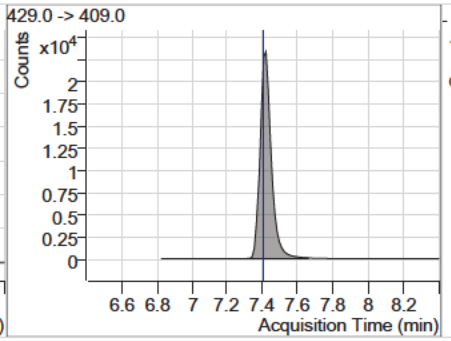


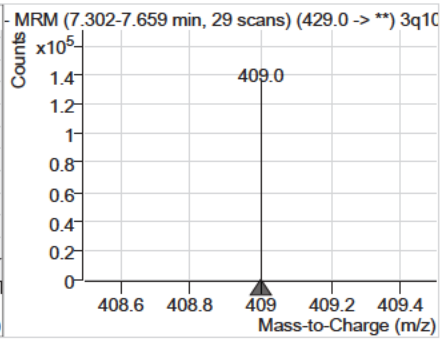




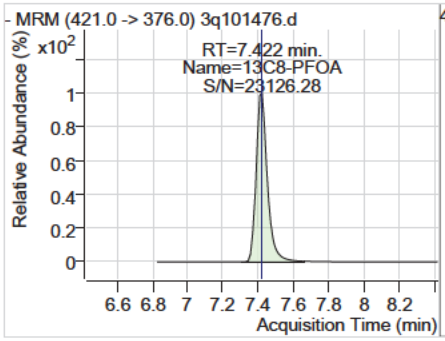
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	7.73	7.42	-0.01	102459				

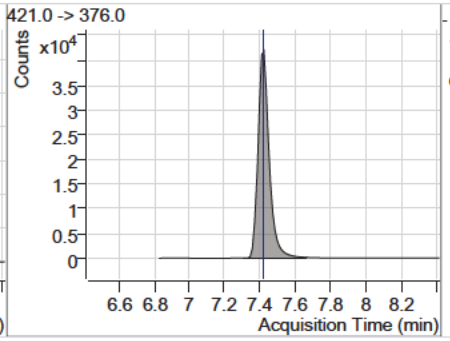


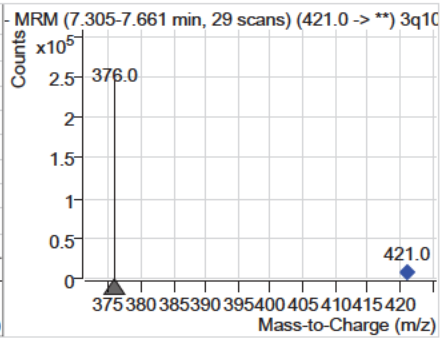




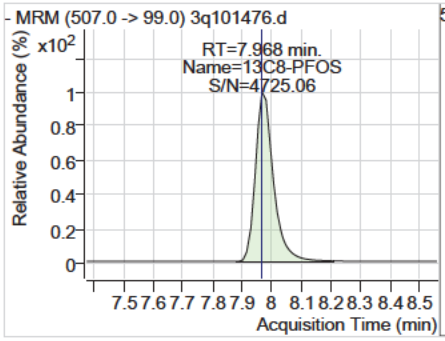
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	8.25	7.42	-0.01	184701				

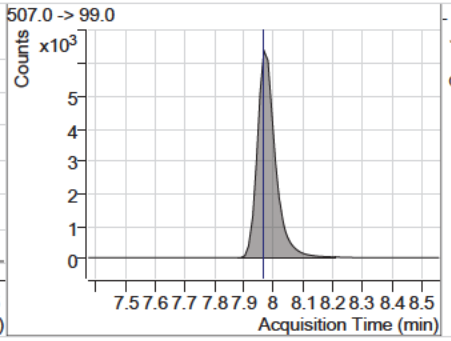


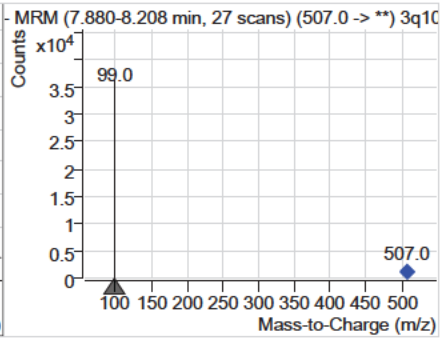




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	7.94	7.97	-0.03	26782				

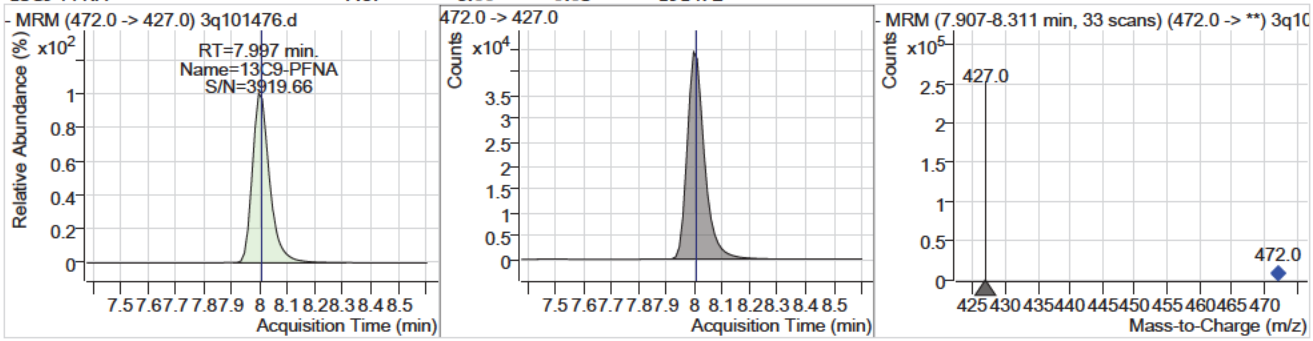




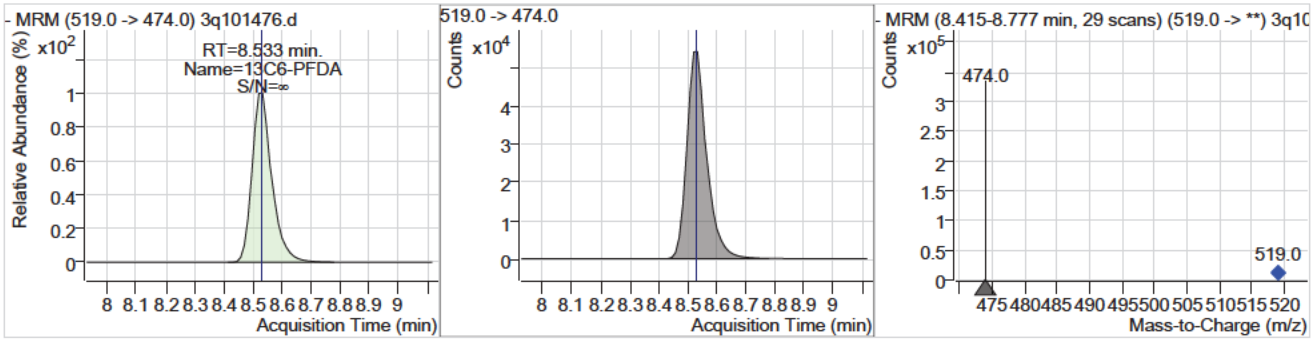


Perfluorinated Compounds by LC/MS/MS

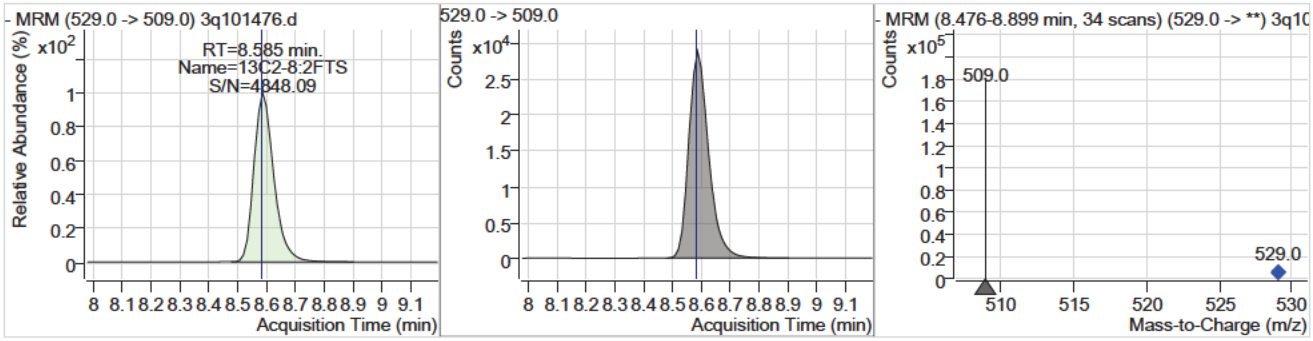
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	7.87	8.00	-0.03	191472				



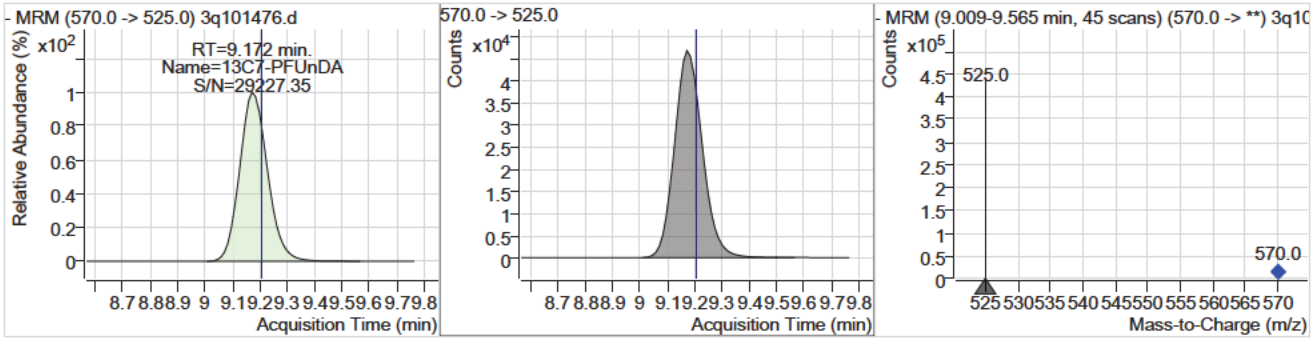
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	7.54	8.53	-0.01	257122				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	6.22	8.58	-0.03	138204				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	4.86	9.17	-0.05	331220				



7.1.5

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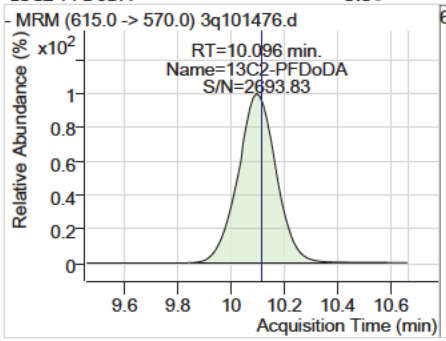
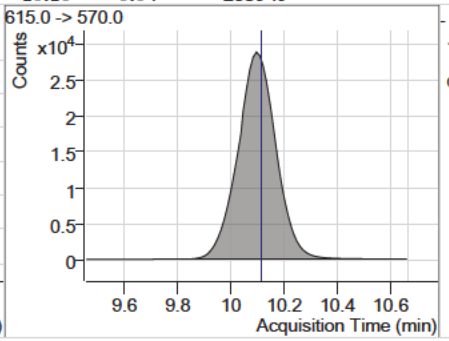
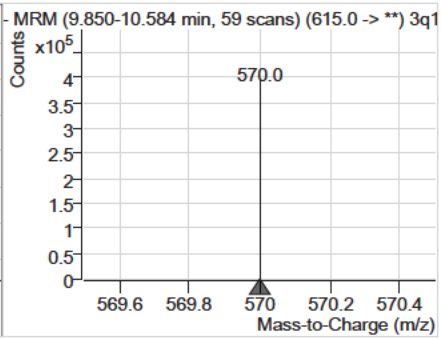
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	3.30	10.10	-0.04	285949				







7.1.5

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Perfluorinated Compounds by LC/MS/MS

Data File : 3q101497.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/16/2025 1:38:21 PM
Sample Name : fc23899-3
Vial : P3-B6
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1493.batch.bin
Sample Information : op8883,S3Q1493,280,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	259235	10.00 µg/L	0.000
13C3-PFBA	2.319	216.0 -> 172.0	97275	10.00 µg/L	-0.025
13C4-PFOS	7.969	503.0 -> 80.0	36893	10.00 µg/L	0.000
M4-PFBA	2.315	217.0 -> 172.0	136000	10.00 µg/L	-0.025
M5-PFPeA	4.400	268.0 -> 223.0	167896	10.00 µg/L	-0.013
M5-PFHxA	5.763	318.0 -> 273.0	221899	10.00 µg/L	-0.013
M4-PFHpA	6.694	367.0 -> 322.0	186327	10.00 µg/L	0.000
M8-PFOA	7.422	421.0 -> 376.0	247827	10.00 µg/L	0.000
M9-PFNA	7.997	472.0 -> 427.0	269003	10.00 µg/L	0.000
M6-PFDA	8.520	519.0 -> 474.0	368833	10.00 µg/L	0.000
M7-PFUnDA	9.160	570.0 -> 525.0	431896	10.00 µg/L	-0.025
M2-PFDoDA	10.038	615.0 -> 570.0	378920	10.00 µg/L	-0.045
M3-PFBS	4.696	302.0 -> 99.0	19026	10.00 µg/L	-0.013
M3-PFHxS	6.723	402.0 -> 99.0	27249	10.00 µg/L	0.000
M8-PFOS	7.968	507.0 -> 99.0	32586	10.00 µg/L	0.000
M2-4:2FTS	5.659	329.0 -> 309.0	76829	10.00 µg/L	-0.013
M2-6:2FTS	7.420	429.0 -> 409.0	137611	10.00 µg/L	0.000
M2-8:2FTS	8.572	529.0 -> 509.0	198972	10.00 µg/L	-0.013
M3-HFPO-DA	6.056	287.0 -> 169.0	2663	10.00 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.659	329.0 -> 309.0	76829	8.75 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 87.5%	
13C2-6:2FTS	7.420	429.0 -> 409.0	137611	8.34 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 83.4%	
13C2-8:2FTS	8.572	529.0 -> 509.0	198972	7.20 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 72.0%	
13C2-PFDoDA	10.038	615.0 -> 570.0	378920	3.43 µg/L	-0.045
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 34.3%	
13C3-PFBS	4.696	302.0 -> 99.0	19026	8.27 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.7%	
13C3-PFHxS	6.723	402.0 -> 99.0	27249	8.31 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 83.1%	
13C4-PFBA	2.315	217.0 -> 172.0	136000	8.24 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.4%	
13C4-PFHpA	6.694	367.0 -> 322.0	186327	8.49 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 84.9%	
13C5-PFHxA	5.763	318.0 -> 273.0	221899	8.45 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 84.5%	
13C5-PFPeA	4.400	268.0 -> 223.0	167896	8.44 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 84.4%	
13C6-PFDA	8.520	519.0 -> 474.0	368833	8.51 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 85.1%	
13C7-PFUnDA	9.160	570.0 -> 525.0	431896	4.99 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 49.9%	
13C8-PFOA	7.422	421.0 -> 376.0	247827	8.70 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

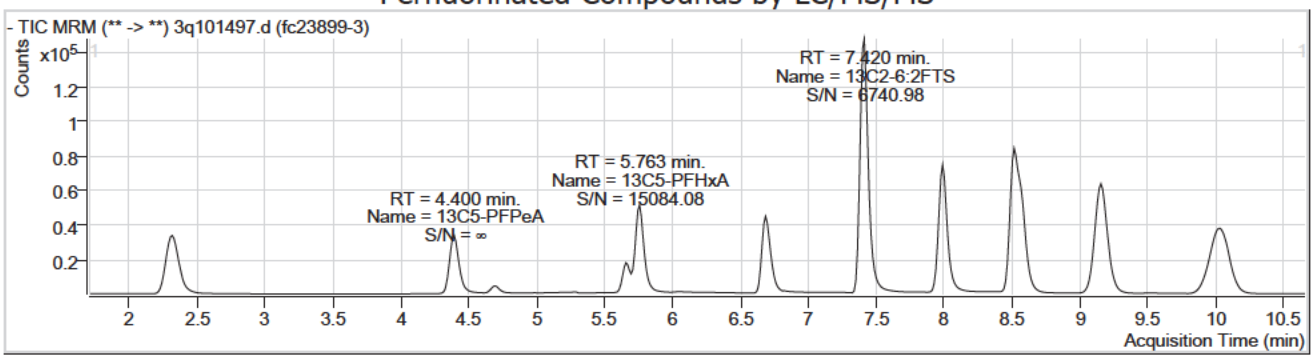
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 87.0%		
13C8-PFOS	7.968	507.0 -> 99.0	32586	7.77 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.7%		
13C9-PFNA	7.997	472.0 -> 427.0	269003	8.69 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 86.9%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	2663	7.05 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 70.5%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	5.278	299.0 -> 80.0	0	0.00 µg/L	m	1
		299.0 -> 99.0	0			
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	-	363.0 -> 319.0	-	N.D.		
		363.0 -> 169.0				
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	6.073	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0	0			

= Qualifier out of range, m = manually integrated, + = Area summed

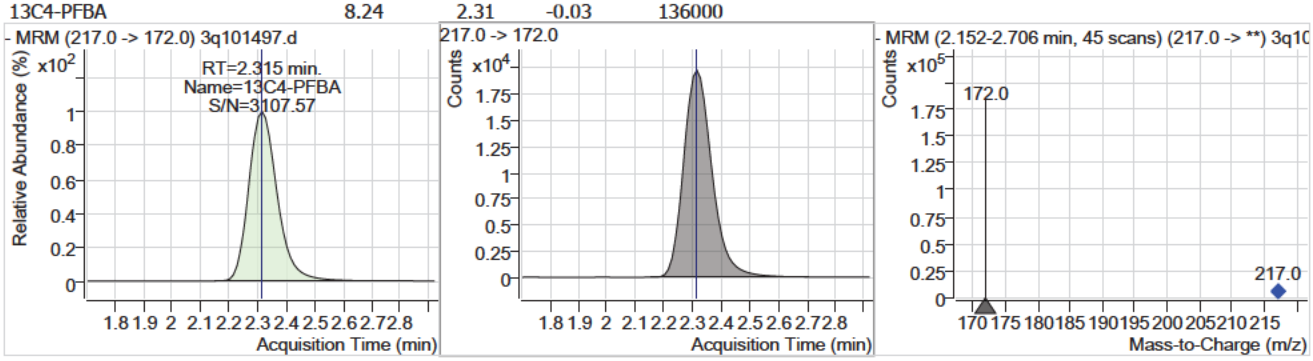
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)

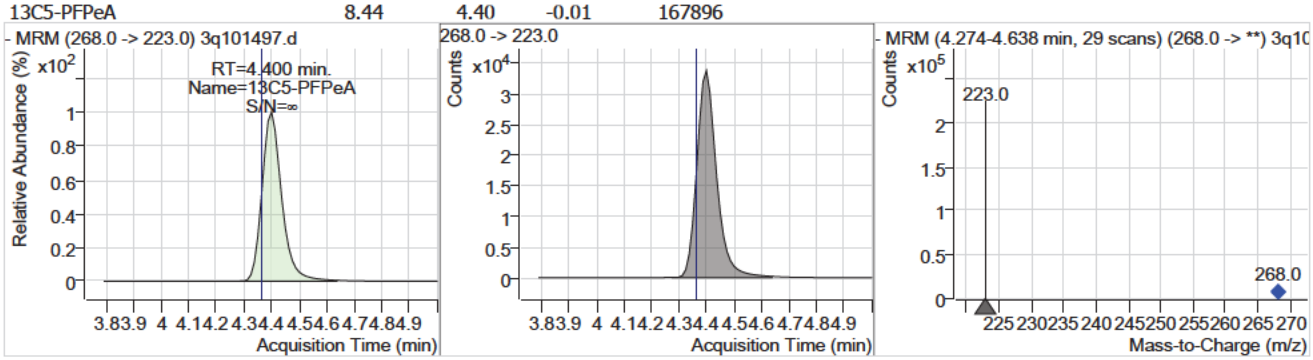
Perfluorinated Compounds by LC/MS/MS



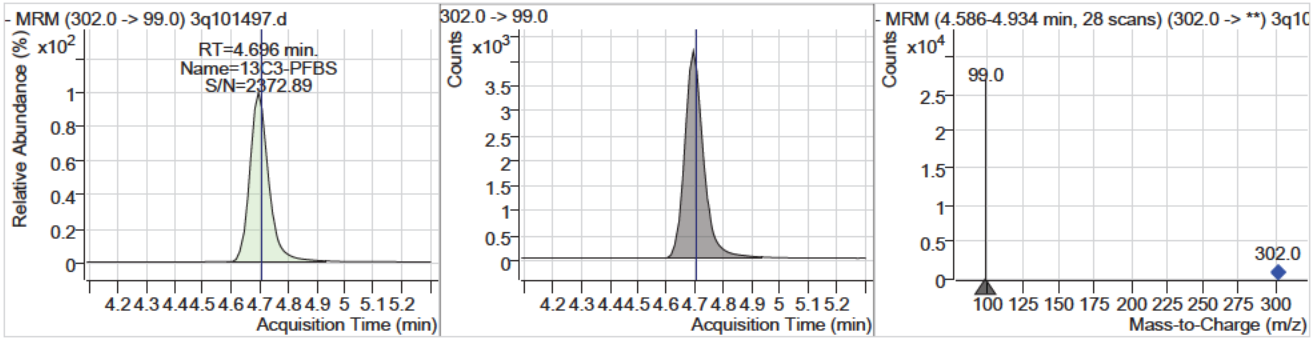
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	8.24	2.31	-0.03	136000				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	8.44	4.40	-0.01	167896				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	8.27	4.70	-0.01	19026				



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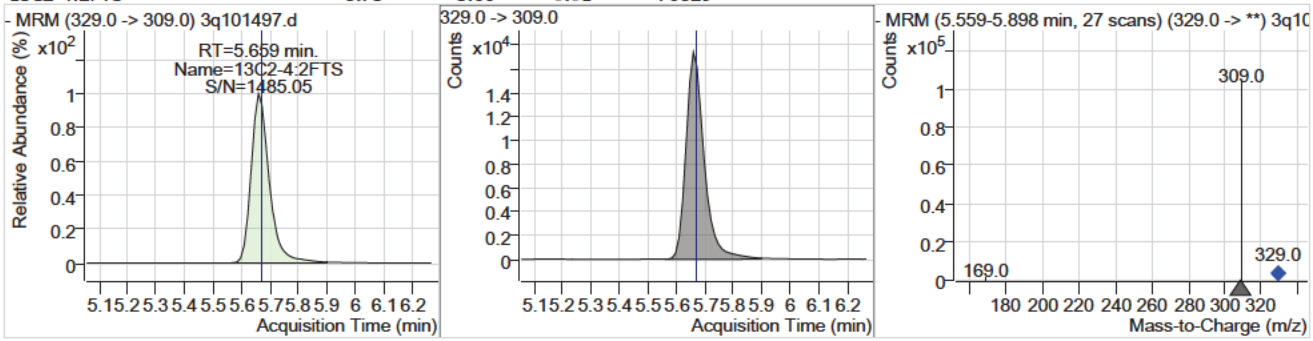
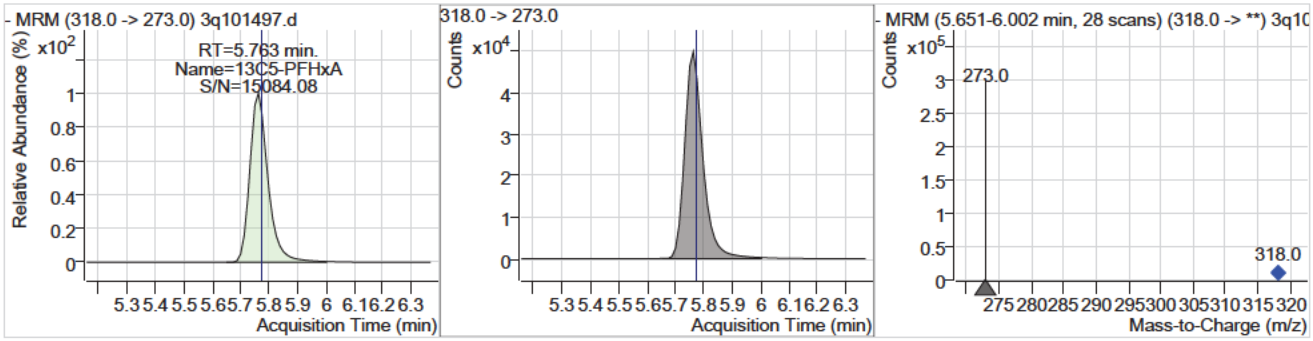
Perfluorinated Compounds by LC/MS/MS

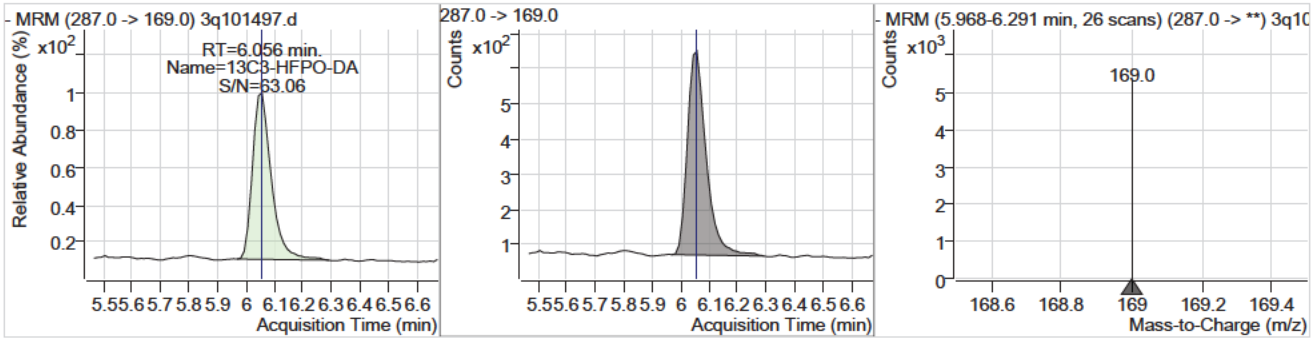
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	8.75	5.66	-0.01	76829				



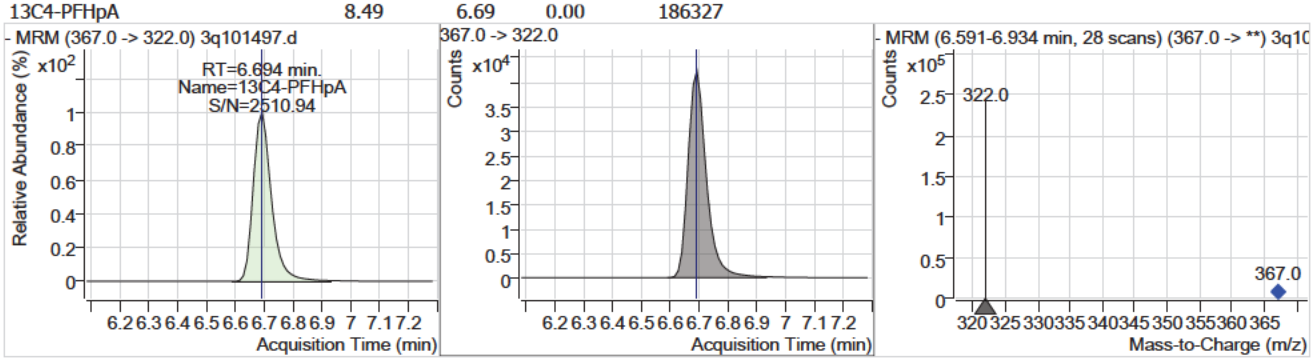
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	8.45	5.76	-0.01	221899				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	7.05	6.06	0.00	2663				

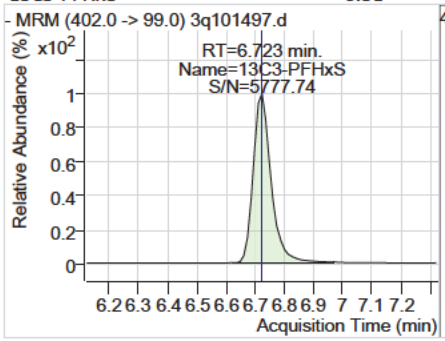


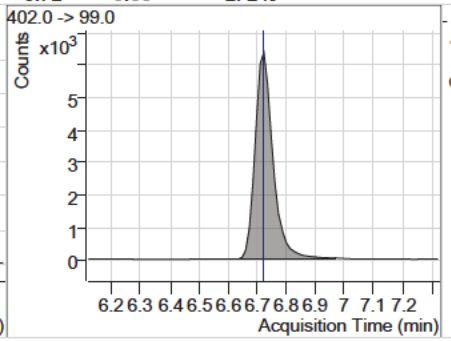
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	8.49	6.69	0.00	186327				

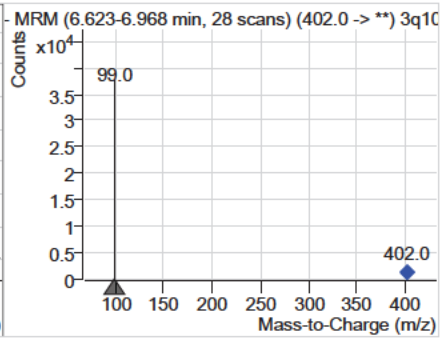


Perfluorinated Compounds by LC/MS/MS

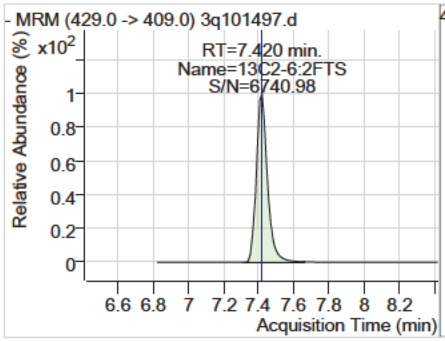
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	8.31	6.72	0.00	27249				

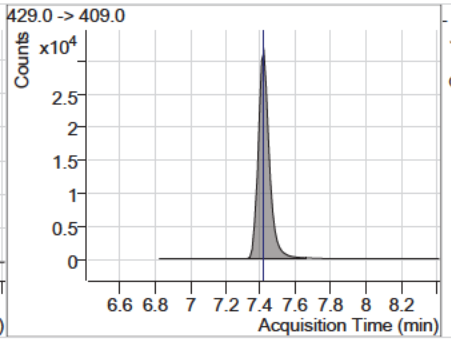


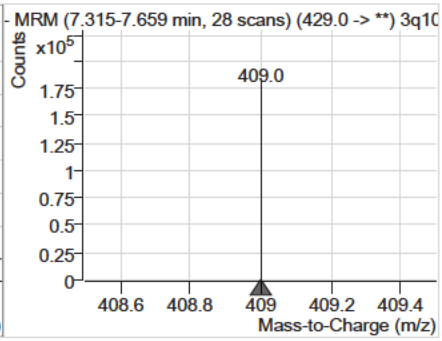




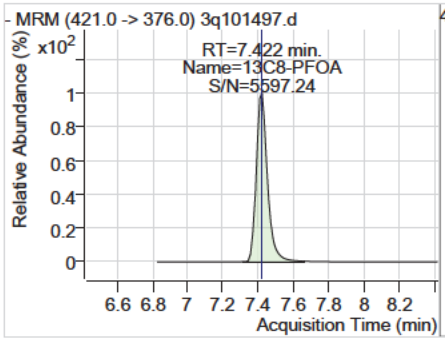
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	8.34	7.42	0.00	137611				

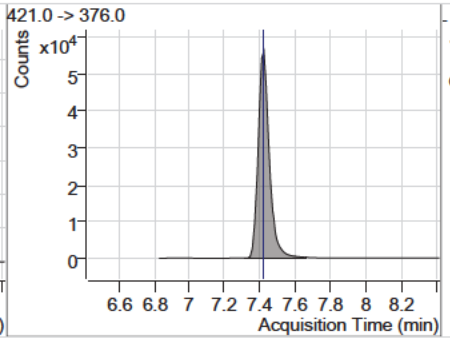


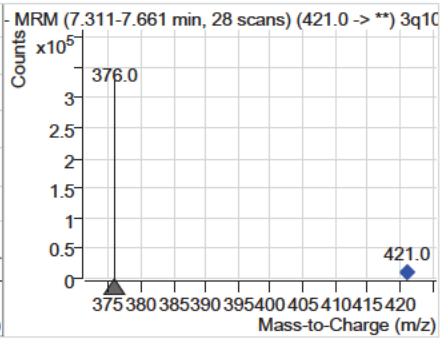




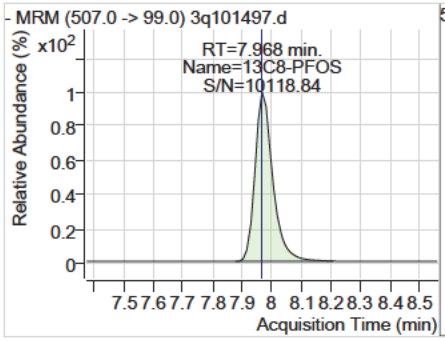
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	8.70	7.42	0.00	247827				

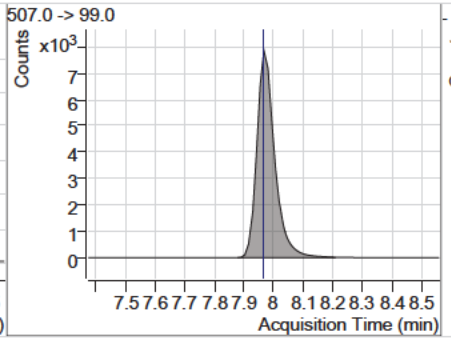


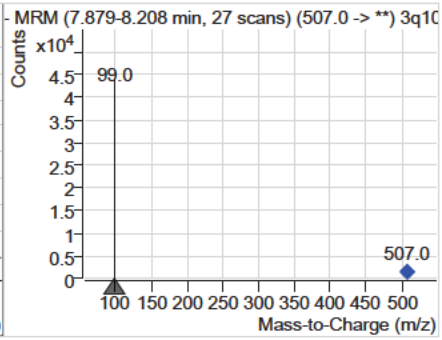




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	7.77	7.97	0.00	32586				







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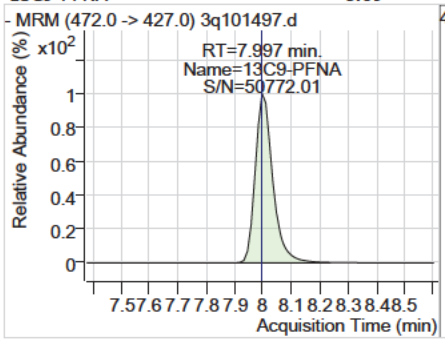
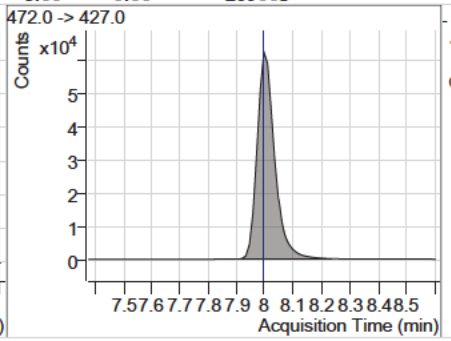
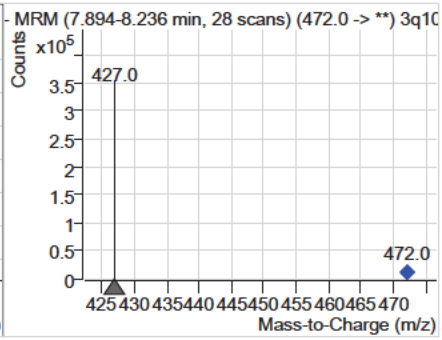
Perfluorinated Compounds by LC/MS/MS

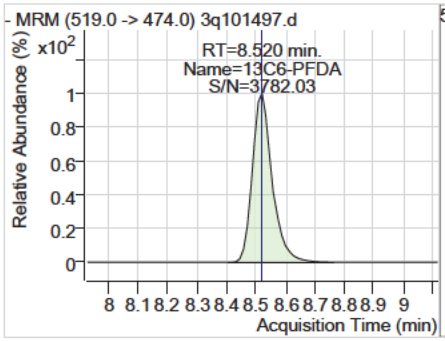
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	8.69	8.00	0.00	269003				

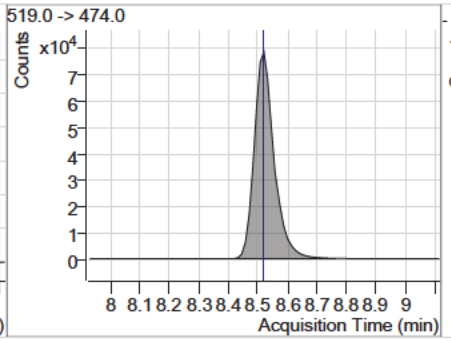


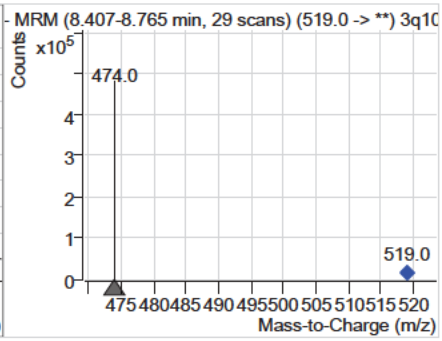




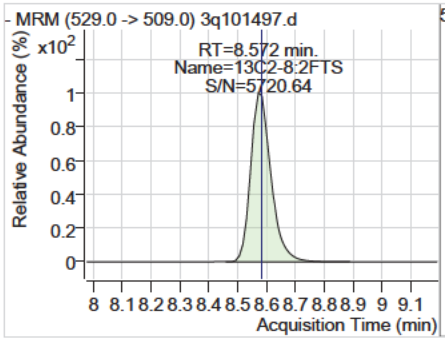
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	8.51	8.52	0.00	368833				

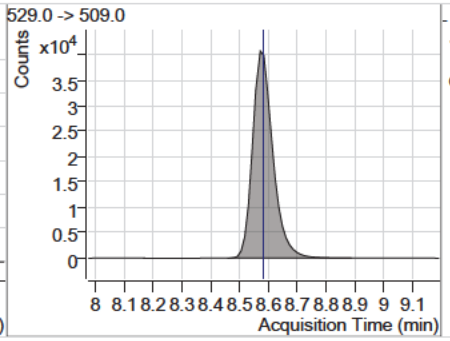


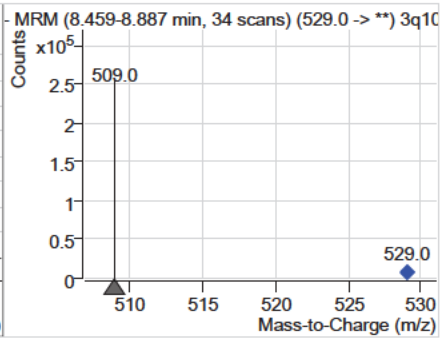




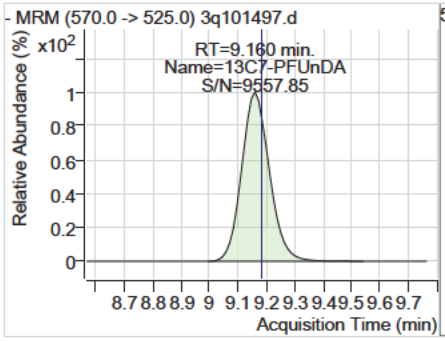
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	7.20	8.57	-0.01	198972				

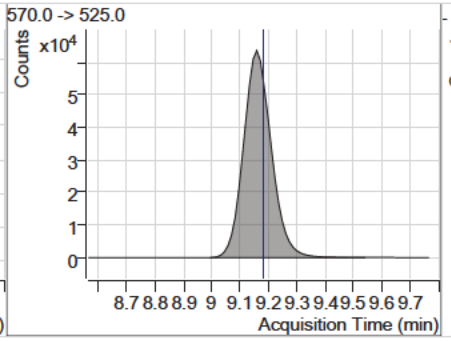


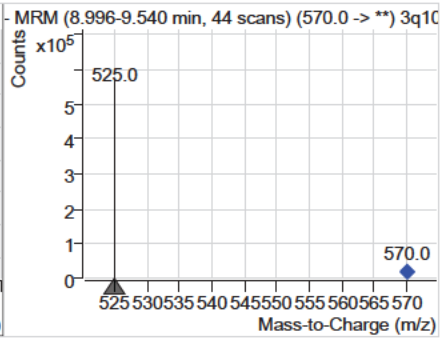




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	4.99	9.16	-0.03	431896				

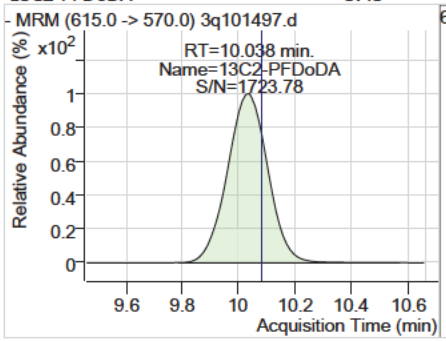


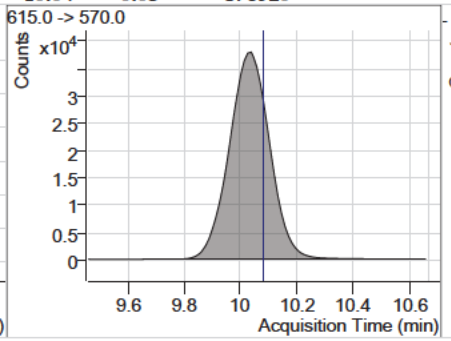


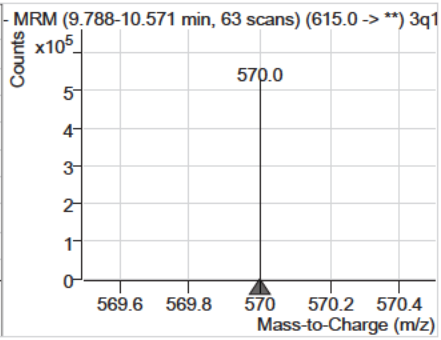


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	3.43	10.04	-0.05	378920				







7.1.6

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Perfluorinated Compounds by LC/MS/MS

Data File : 3q101532.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/17/2025 2:04:10 PM
Sample Name : fc23899-4re
Vial : P3-C9
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1494.batch.bin
Sample Information : op8907,S3Q1494,285,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.447	415.0 -> 370.0	266608	10.00 µg/L	0.025
13C3-PFBA	2.344	216.0 -> 172.0	101119	10.00 µg/L	0.000
13C4-PFOS	7.995	503.0 -> 80.0	38836	10.00 µg/L	0.026
M4-PFBA	2.352	217.0 -> 172.0	128679	10.00 µg/L	0.013
M5-PFPeA	4.425	268.0 -> 223.0	158390	10.00 µg/L	0.013
M5-PFHxA	5.788	318.0 -> 273.0	203271	10.00 µg/L	0.013
M4-PFHpA	6.719	367.0 -> 322.0	173444	10.00 µg/L	0.025
M8-PFOA	7.447	421.0 -> 376.0	228009	10.00 µg/L	0.025
M9-PFNA	8.022	472.0 -> 427.0	252103	10.00 µg/L	0.026
M6-PFDA	8.546	519.0 -> 474.0	357423	10.00 µg/L	0.025
M7-PFUnDA	9.224	570.0 -> 525.0	554305	10.00 µg/L	0.039
M2-PFDoDA	10.121	615.0 -> 570.0	605207	10.00 µg/L	0.038
M3-PFBS	4.721	302.0 -> 99.0	17780	10.00 µg/L	0.013
M3-PFHxS	6.749	402.0 -> 99.0	25876	10.00 µg/L	0.025
M8-PFOS	7.995	507.0 -> 99.0	32080	10.00 µg/L	0.026
M2-4:2FTS	5.697	329.0 -> 309.0	65873	10.00 µg/L	0.025
M2-6:2FTS	7.445	429.0 -> 409.0	127633	10.00 µg/L	0.025
M2-8:2FTS	8.611	529.0 -> 509.0	208096	10.00 µg/L	0.026
M3-HFPO-DA	6.081	287.0 -> 169.0	2235	10.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.697	329.0 -> 309.0	65873	7.13 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 71.3%	
13C2-6:2FTS	7.445	429.0 -> 409.0	127640	7.35 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 73.5%	
13C2-8:2FTS	8.611	529.0 -> 509.0	208096	7.15 µg/L	0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 71.5%	
13C2-PFDoDA	10.121	615.0 -> 570.0	605207	5.33 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 53.3%	
13C3-PFBS	4.721	302.0 -> 99.0	17780	7.34 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 73.4%	
13C3-PFHxS	6.749	402.0 -> 99.0	25876	7.50 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 75.0%	
13C4-PFBA	2.352	217.0 -> 172.0	128679	7.50 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 75.0%	
13C4-PFHpA	6.719	367.0 -> 322.0	173444	7.69 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.9%	
13C5-PFHxA	5.788	318.0 -> 273.0	203271	7.53 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 75.3%	
13C5-PFPeA	4.425	268.0 -> 223.0	158390	7.66 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.6%	
13C6-PFDA	8.546	519.0 -> 474.0	357423	8.01 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.1%	
13C7-PFUnDA	9.224	570.0 -> 525.0	554305	6.22 µg/L	0.039
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 62.2%	
13C8-PFOA	7.447	421.0 -> 376.0	228009	7.79 µg/L	0.025

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Perfluorinated Compounds by LC/MS/MS

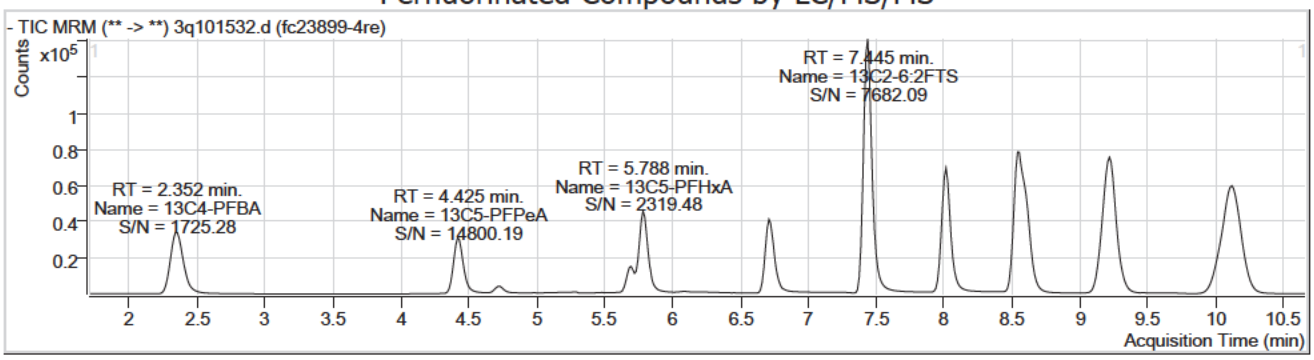
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.9%		
13C8-PFOS	7.995	507.0 -> 99.0	32080	7.26 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 72.6%		
13C9-PFNA	8.022	472.0 -> 427.0	252103	7.92 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.2%		
13C3-HFPO-DA	6.081	287.0 -> 169.0	2235	5.76 µg/L		0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 57.6%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	-	299.0 -> 80.0	-	N.D.		
		299.0 -> 99.0				
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	-	363.0 -> 319.0	-	N.D.		
		363.0 -> 169.0				
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	6.023	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0	0			

= Qualifier out of range, m = manually integrated, + = Area summed

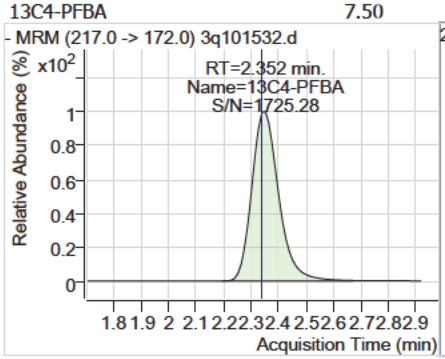
Perfluorinated Compounds by LC/MS/MS

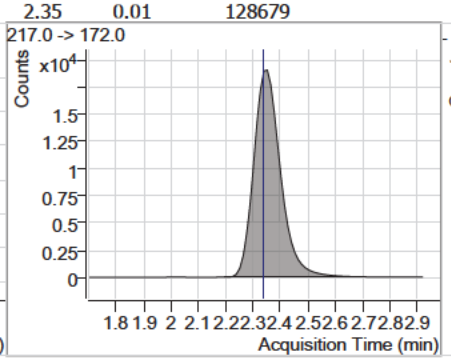
Compound	RT	Transition	Response	Conc. Units	Dev(Min)

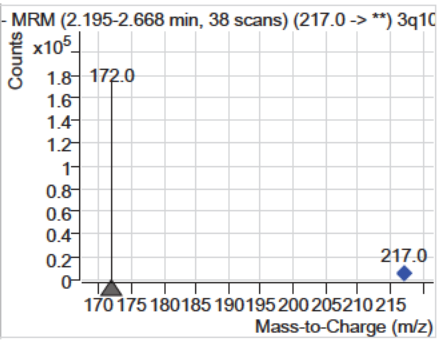
Perfluorinated Compounds by LC/MS/MS



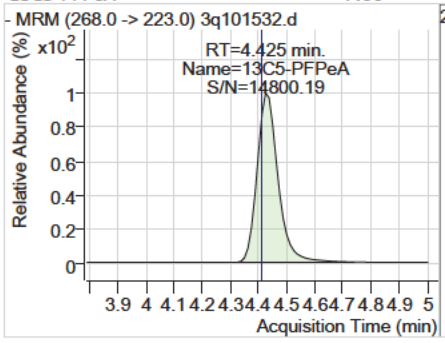
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	7.50	2.35	0.01	128679				

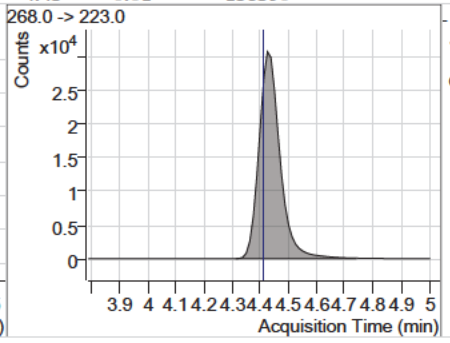


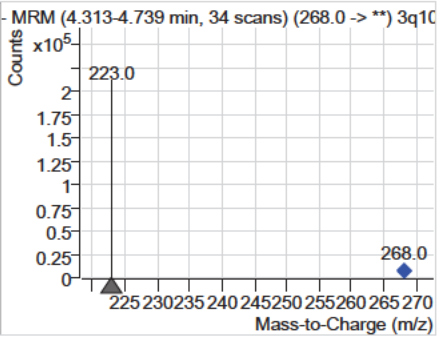




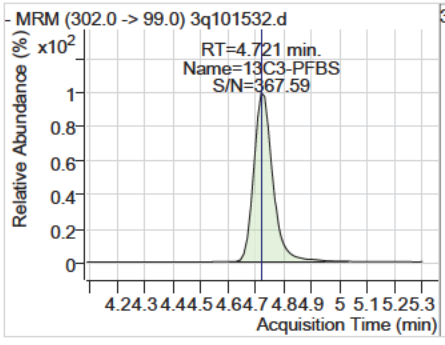
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	7.66	4.43	0.01	158390				

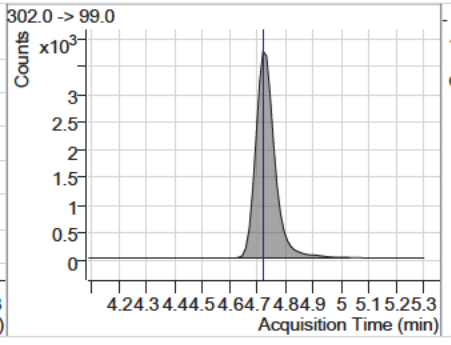


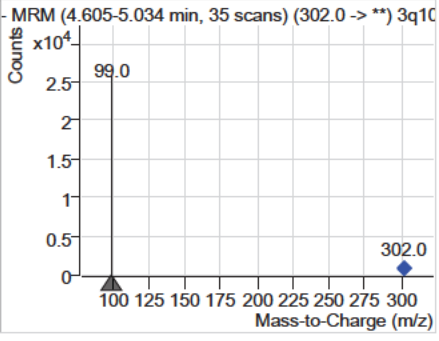




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	7.34	4.72	0.01	17780				

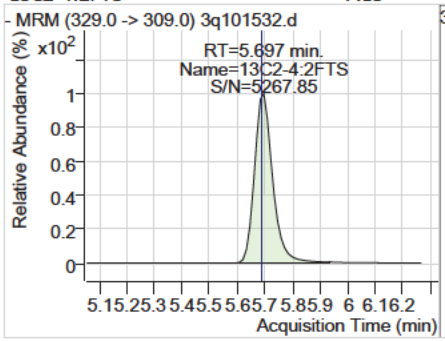


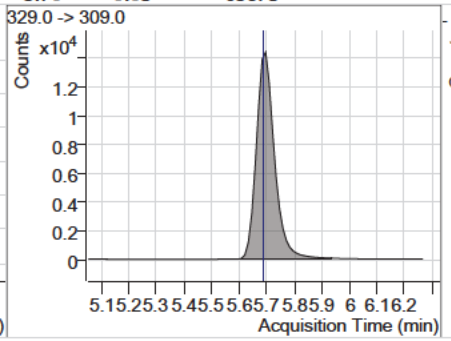


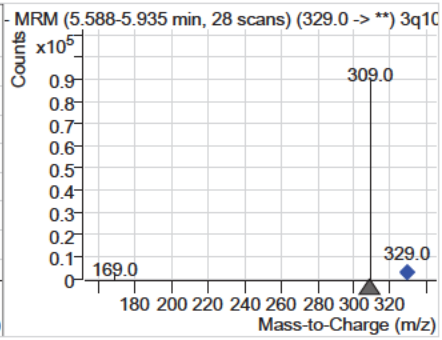


Perfluorinated Compounds by LC/MS/MS

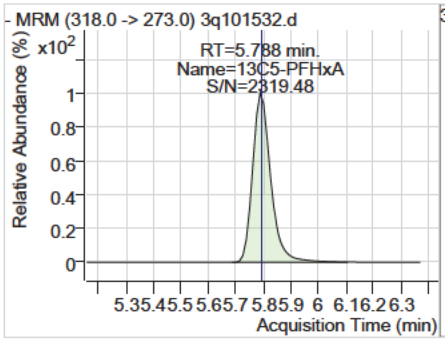
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	7.13	5.70	0.03	65873				

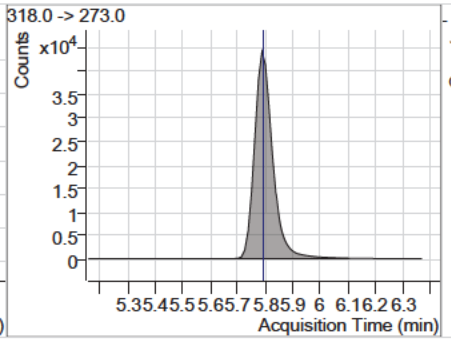


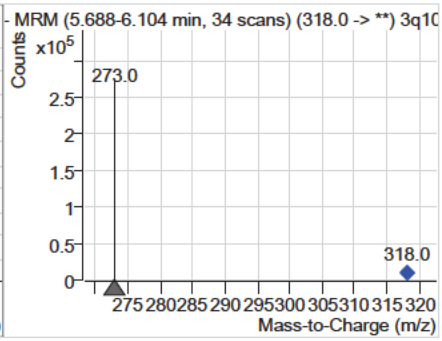




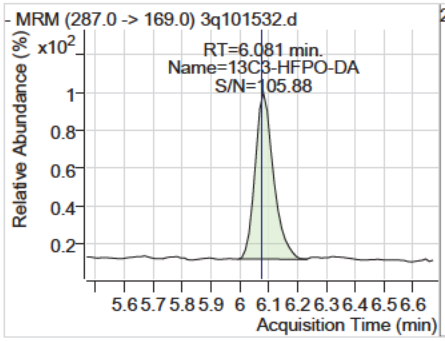
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	7.53	5.79	0.01	203271				

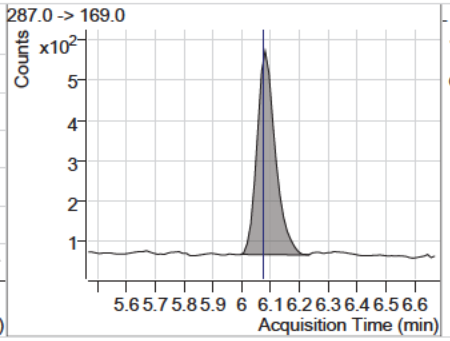


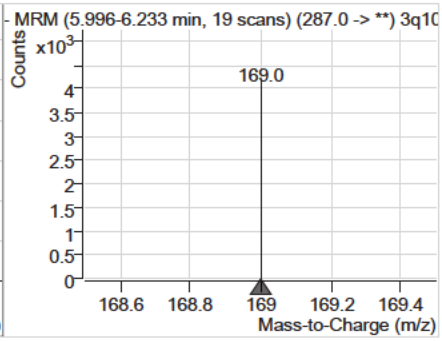




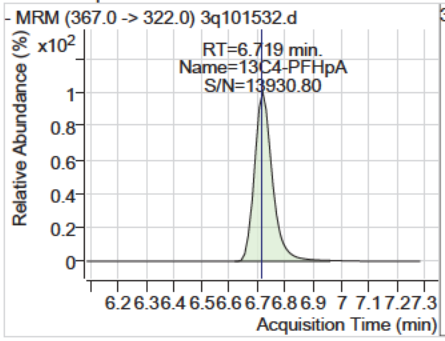
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	5.76	6.08	0.03	2235				

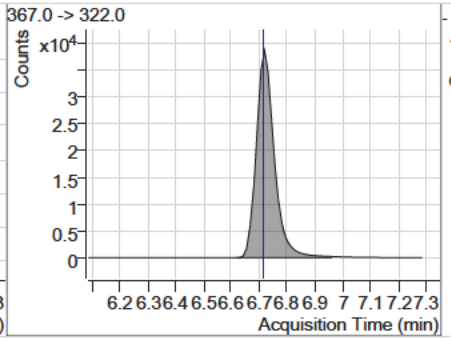


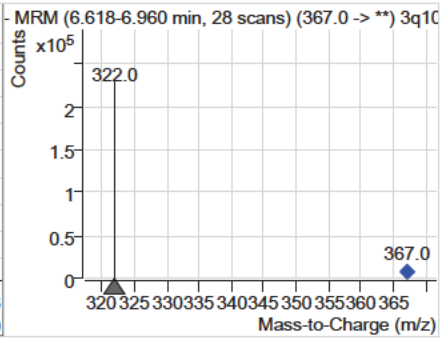




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	7.69	6.72	0.03	173444				



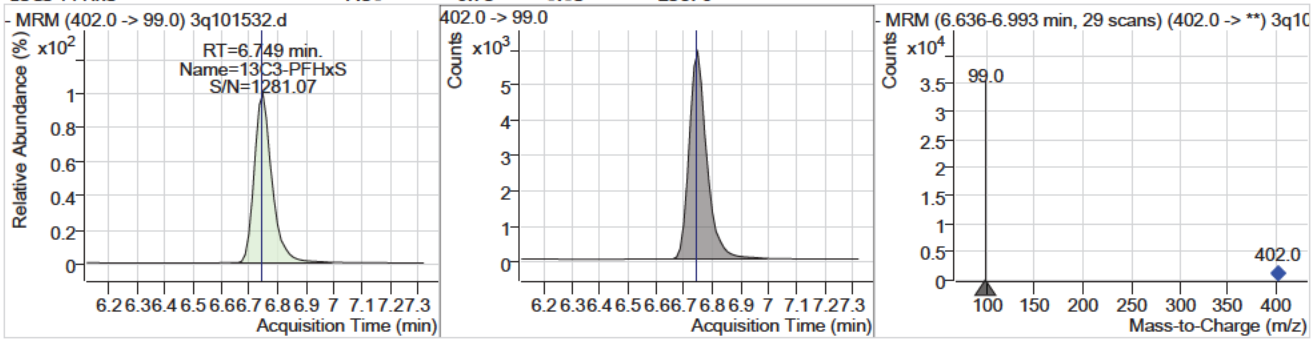




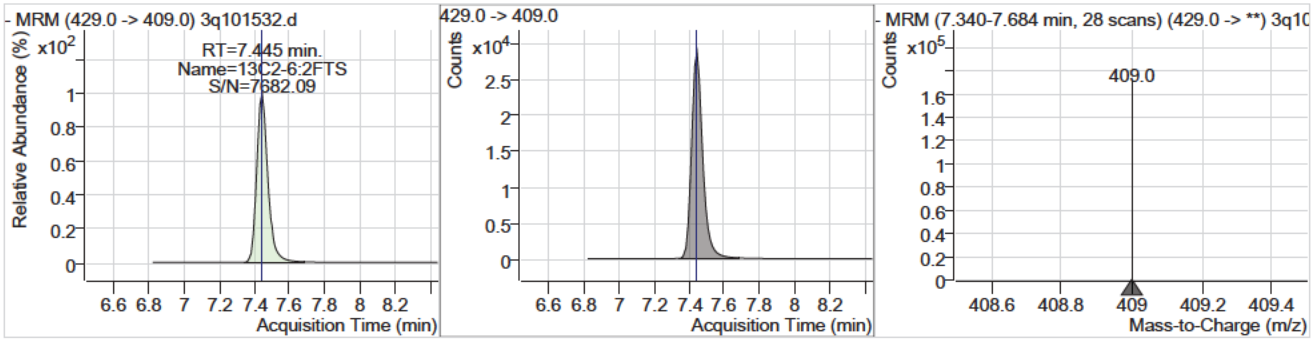
7.1.7

Perfluorinated Compounds by LC/MS/MS

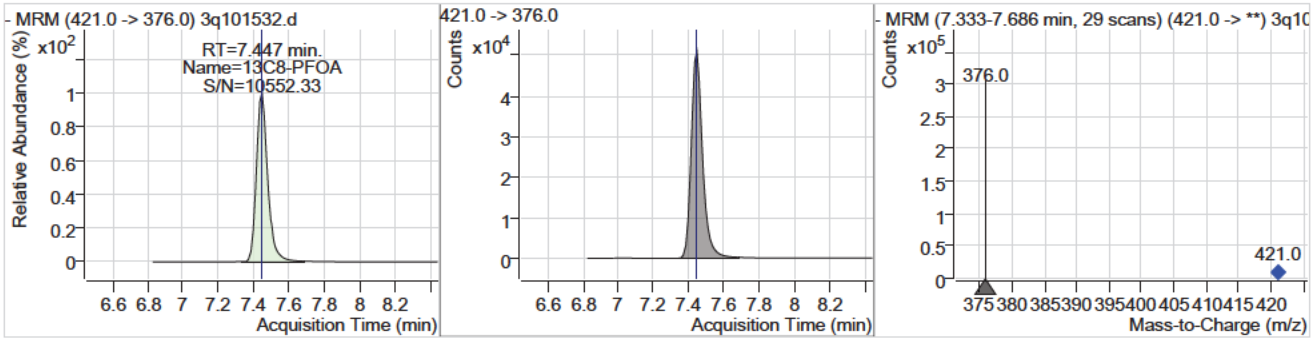
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	7.50	6.75	0.03	25876				



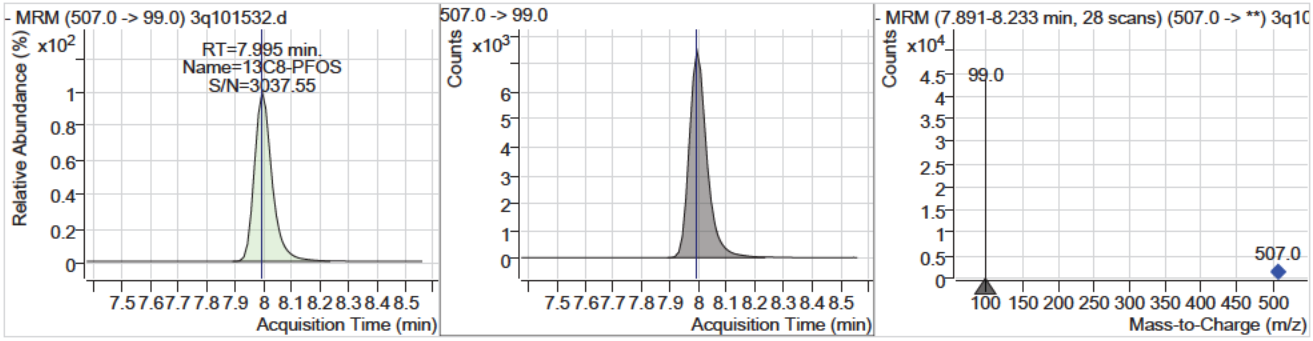
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	7.35	7.44	0.03	127640				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	7.79	7.45	0.03	228009				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	7.26	7.99	0.03	32080				



7.1.7

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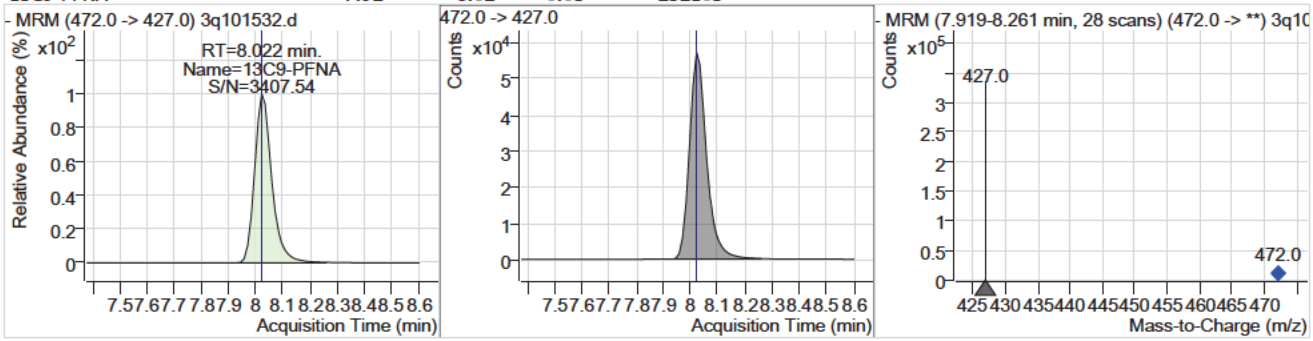
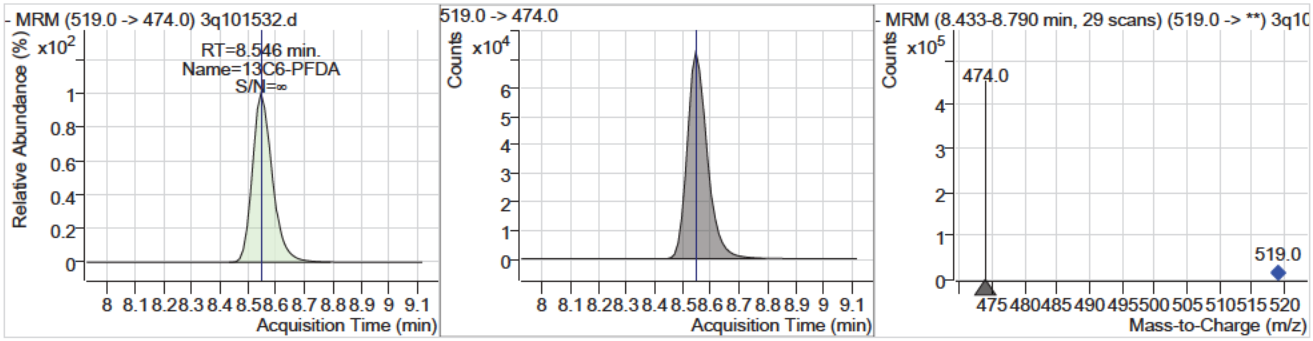
Perfluorinated Compounds by LC/MS/MS

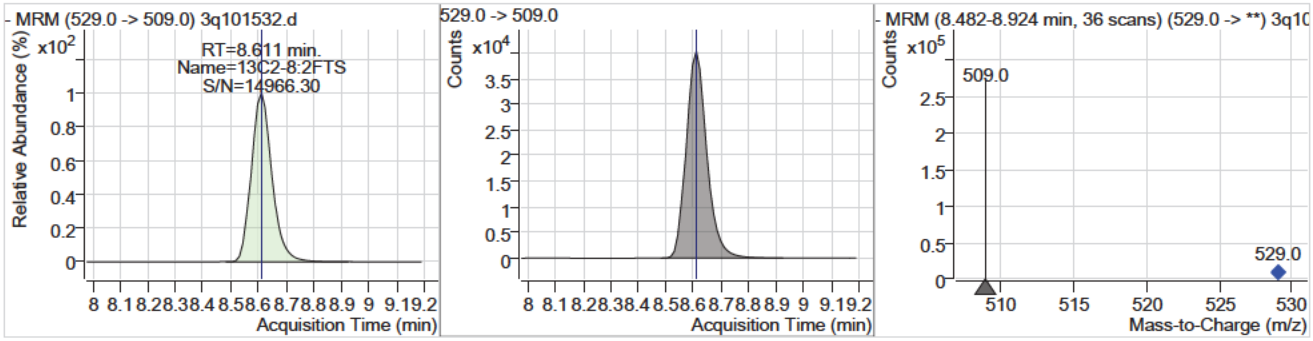
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	7.92	8.02	0.03	252103				



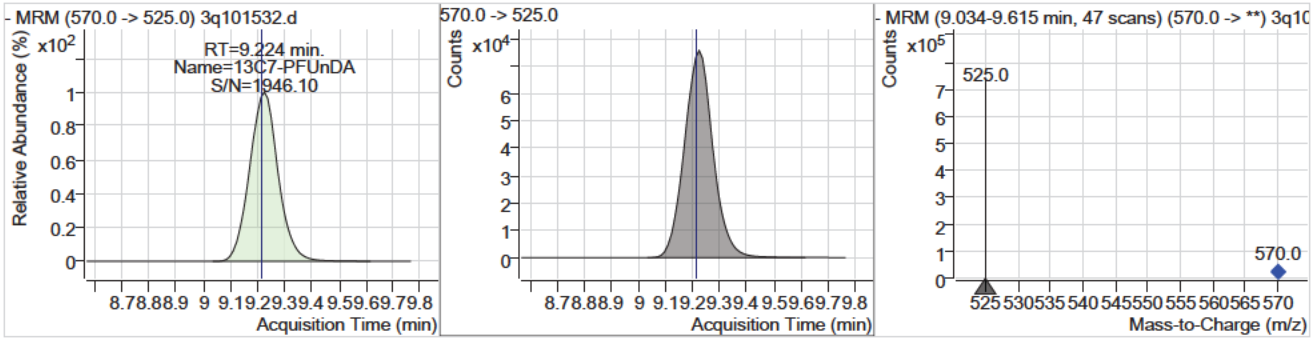
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	8.01	8.55	0.03	357423				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	7.15	8.61	0.03	208096				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	6.22	9.22	0.04	554305				

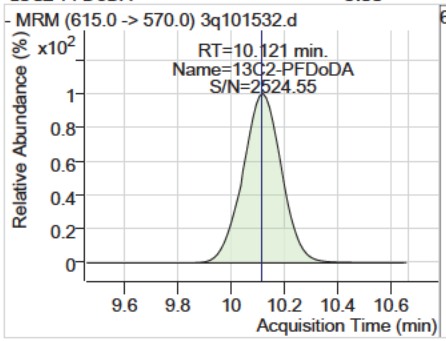


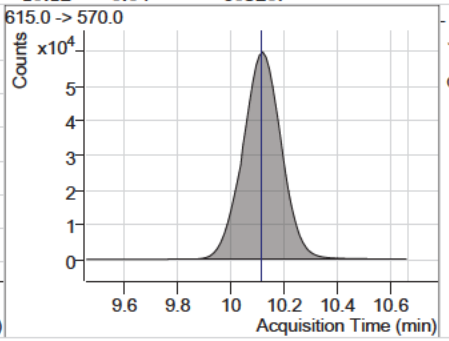
7.1.7

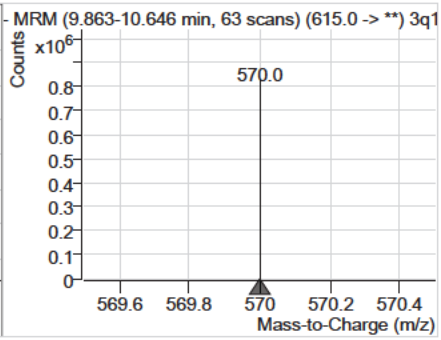
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	5.33	10.12	0.04	605207				







7.1.7

7

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101478.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 7:25:39 PM
Sample Name : fc23899-4
Vial : P3-B8
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8883,S3Q1492,280,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	205394	10.00 µg/L	-0.013
13C3-PFBA	2.319	216.0 -> 172.0	78050	10.00 µg/L	0.188
13C4-PFOS	7.983	503.0 -> 80.0	30146	10.00 µg/L	-0.013
M4-PFBA	2.315	217.0 -> 172.0	104580	10.00 µg/L	0.175
M5-PFPeA	4.400	268.0 -> 223.0	128424	10.00 µg/L	0.063
M5-PFHxA	5.763	318.0 -> 273.0	158928	10.00 µg/L	0.013
M4-PFHpA	6.694	367.0 -> 322.0	134630	10.00 µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	178157	10.00 µg/L	-0.013
M9-PFNA	8.010	472.0 -> 427.0	181202	10.00 µg/L	-0.013
M6-PFDA	8.533	519.0 -> 474.0	242019	10.00 µg/L	-0.013
M7-PFUnDA	9.199	570.0 -> 525.0	349707	10.00 µg/L	-0.025
M2-PFDoDA	10.121	615.0 -> 570.0	295532	10.00 µg/L	-0.013
M3-PFBS	4.696	302.0 -> 99.0	14779	10.00 µg/L	0.050
M3-PFHxS	6.723	402.0 -> 99.0	21217	10.00 µg/L	-0.013
M8-PFOS	7.982	507.0 -> 99.0	24628	10.00 µg/L	-0.013
M2-4:2FTS	5.659	329.0 -> 309.0	51084	10.00 µg/L	0.013
M2-6:2FTS	7.420	429.0 -> 409.0	98233	10.00 µg/L	-0.013
M2-8:2FTS	8.597	529.0 -> 509.0	129537	10.00 µg/L	-0.014
M3-HFPO-DA	6.056	287.0 -> 169.0	2093	10.00 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.659	329.0 -> 309.0	51084	7.12 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 71.2%	
13C2-6:2FTS	7.420	429.0 -> 409.0	98233	7.29 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 72.9%	
13C2-8:2FTS	8.597	529.0 -> 509.0	129537	5.74 µg/L	-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 57.4%	
13C2-PFDoDA	10.121	615.0 -> 570.0	295532	3.38 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 33.8%	
13C3-PFBS	4.696	302.0 -> 99.0	14779	7.86 µg/L	0.050
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.6%	
13C3-PFHxS	6.723	402.0 -> 99.0	21217	7.92 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.2%	
13C4-PFBA	2.315	217.0 -> 172.0	104580	7.90 µg/L	0.175
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.0%	
13C4-PFHpA	6.694	367.0 -> 322.0	134630	7.75 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.5%	
13C5-PFHxA	5.763	318.0 -> 273.0	158928	7.64 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.4%	
13C5-PFPeA	4.400	268.0 -> 223.0	128424	8.05 µg/L	0.063
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.5%	
13C6-PFDA	8.533	519.0 -> 474.0	242019	7.04 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 70.4%	
13C7-PFUnDA	9.199	570.0 -> 525.0	349707	5.10 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 51.0%	
13C8-PFOA	7.422	421.0 -> 376.0	178157	7.90 µg/L	-0.013

Perfluorinated Compounds by LC/MS/MS

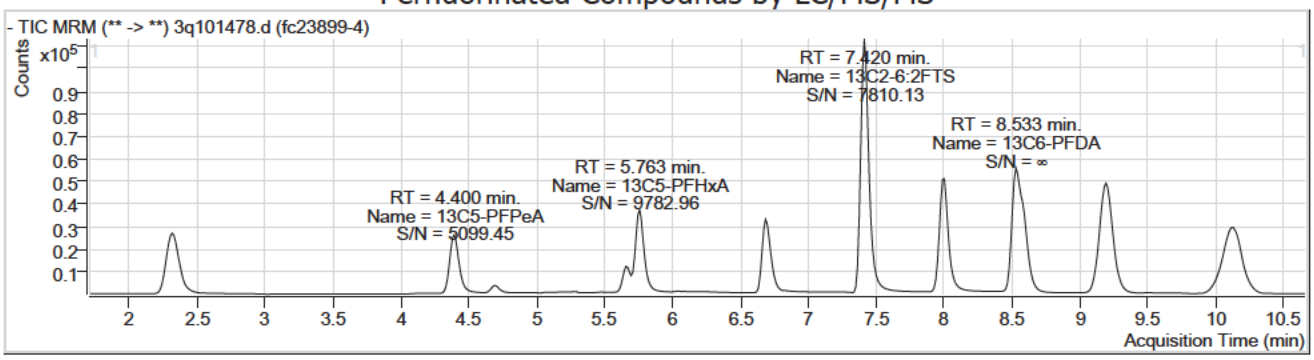
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.0%		
13C8-PFOS	7.982	507.0 -> 99.0	24628	7.18 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 71.8%		
13C9-PFNA	8.010	472.0 -> 427.0	181202	7.39 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 73.9%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	2093	7.00 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 70.0%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	5.189	299.0 -> 80.0	0	0.00 µg/L	m	1
		299.0 -> 99.0	0			
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	-	363.0 -> 319.0	-	N.D.		
		363.0 -> 169.0				
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	6.011	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0	0			

= Qualifier out of range, m = manually integrated, + = Area summed

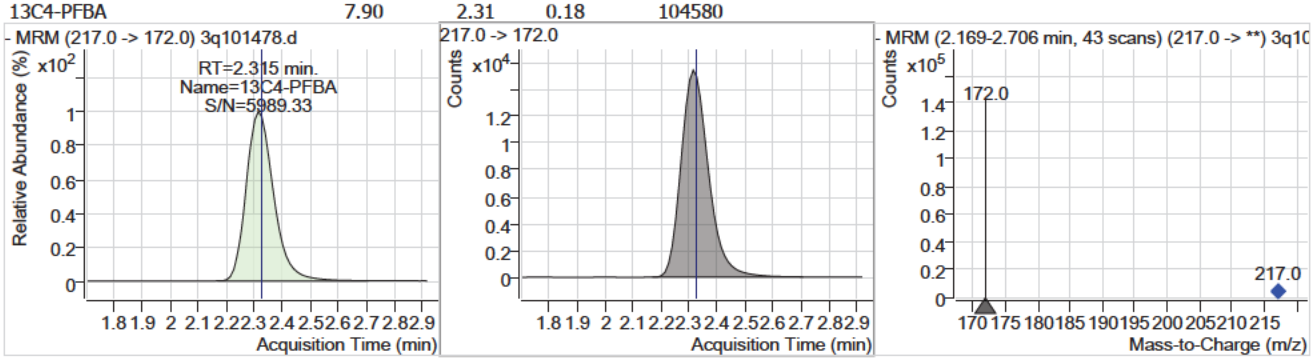
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)

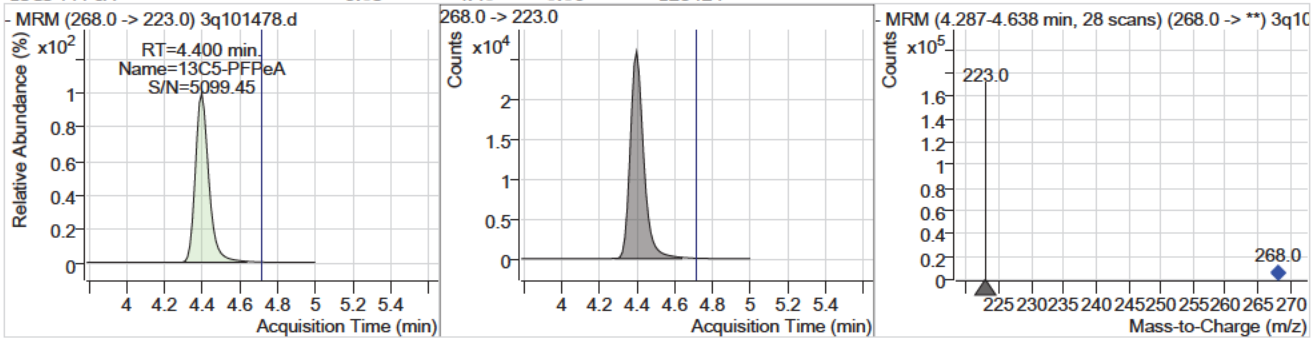
Perfluorinated Compounds by LC/MS/MS



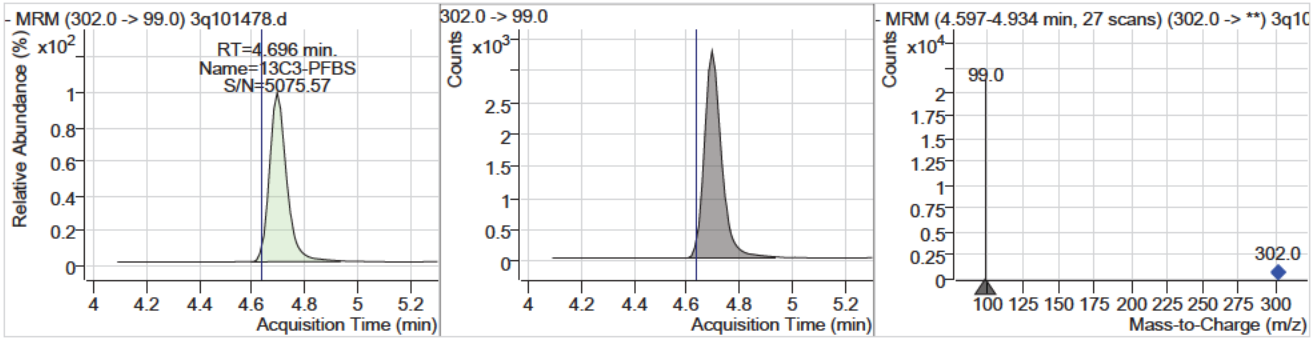
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	7.90	2.31	0.18	104580				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	8.05	4.40	0.06	128424				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	7.86	4.70	0.05	14779				



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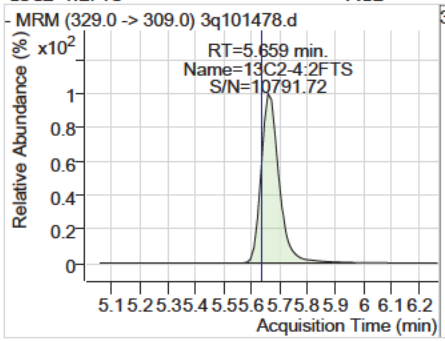
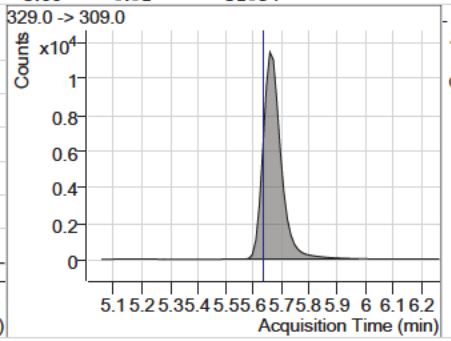
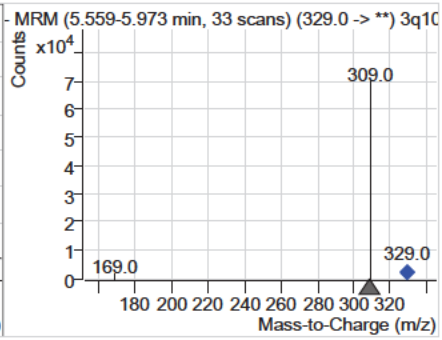
Perfluorinated Compounds by LC/MS/MS

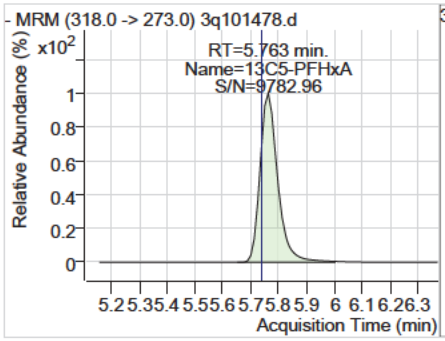
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	7.12	5.66	0.01	51084				

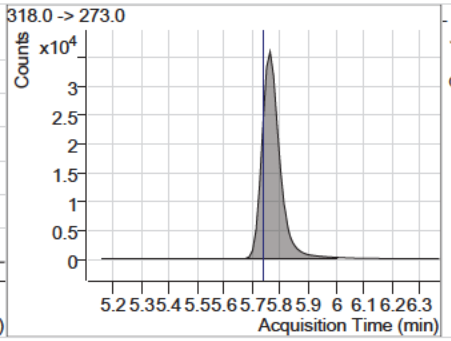


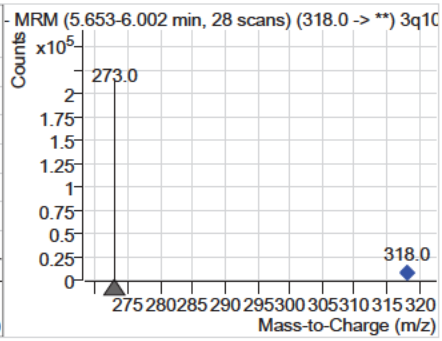




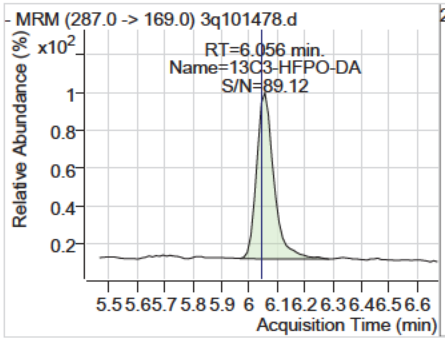
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	7.64	5.76	0.01	158928				

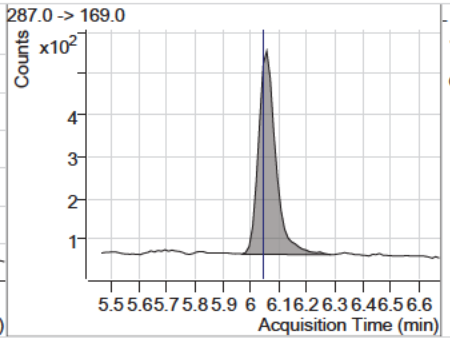


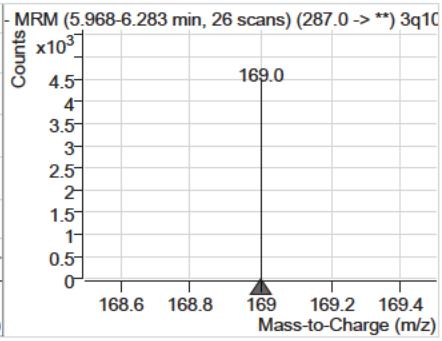




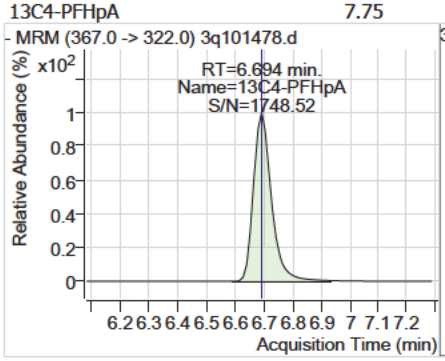
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	7.00	6.06	0.00	2093				

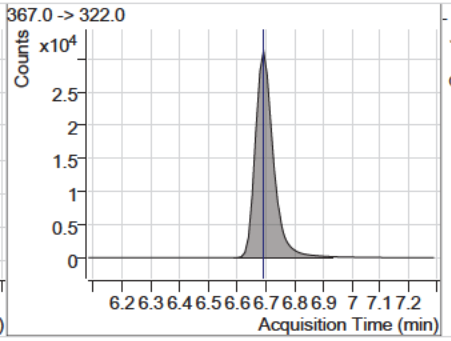


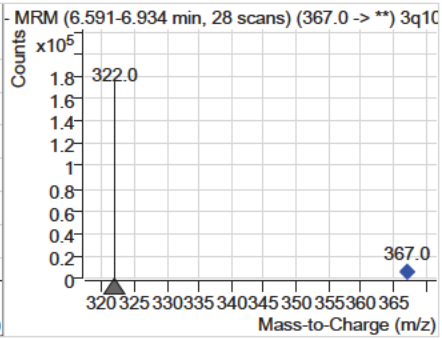




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	7.75	6.69	-0.01	134630				

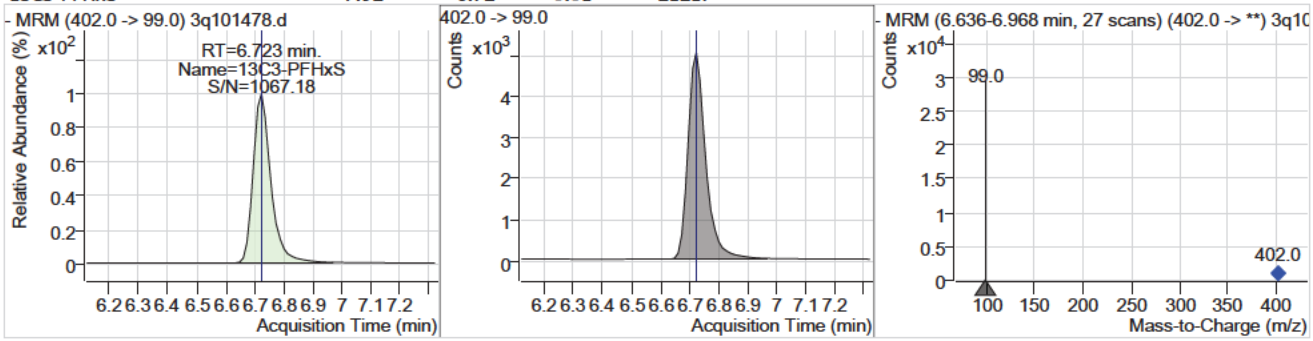




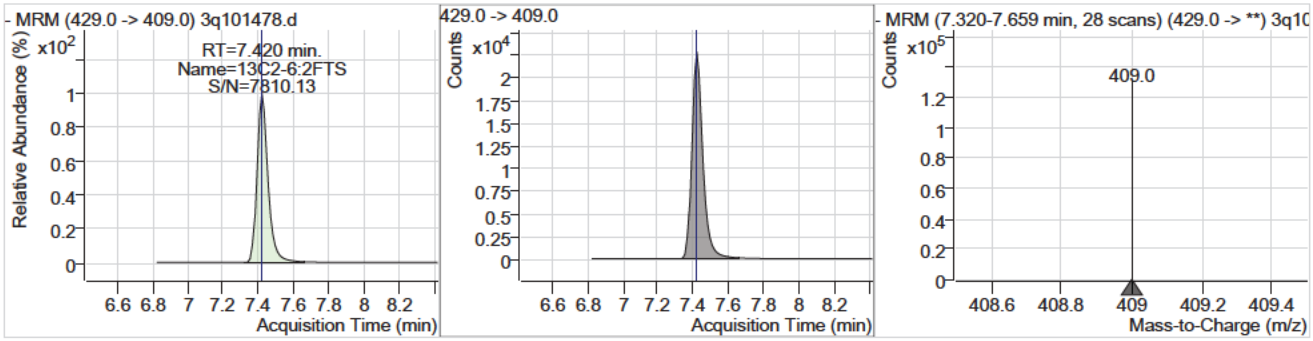


Perfluorinated Compounds by LC/MS/MS

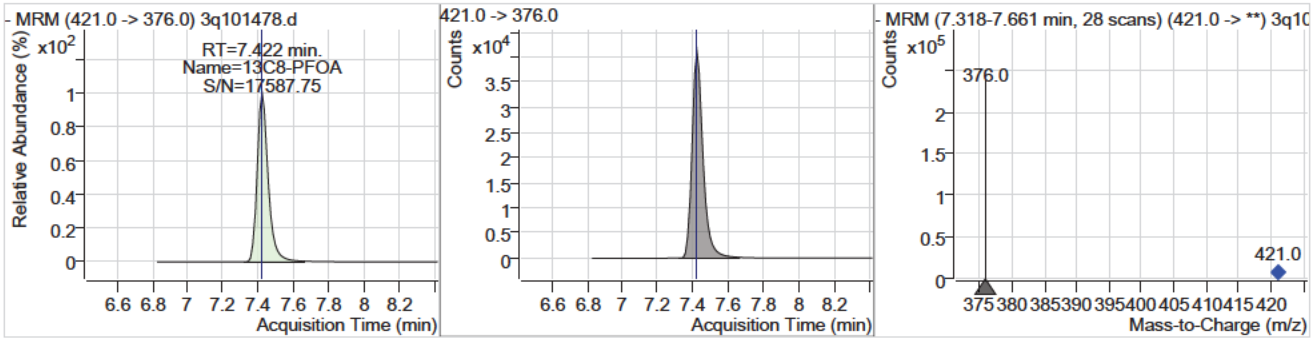
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	7.92	6.72	-0.01	21217				



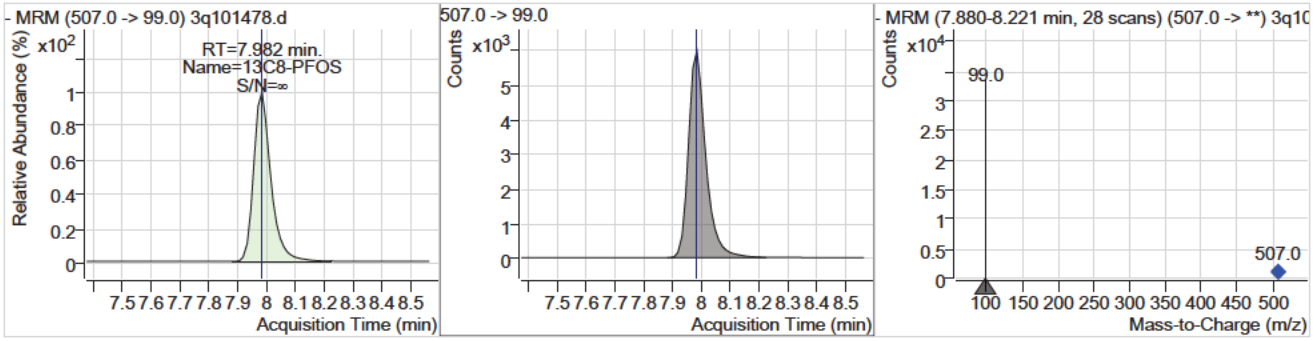
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	7.29	7.42	-0.01	98233				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	7.90	7.42	-0.01	178157				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	7.18	7.98	-0.01	24628				



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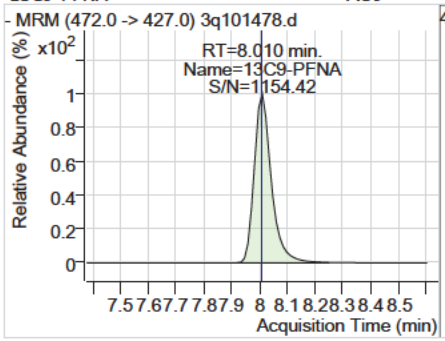
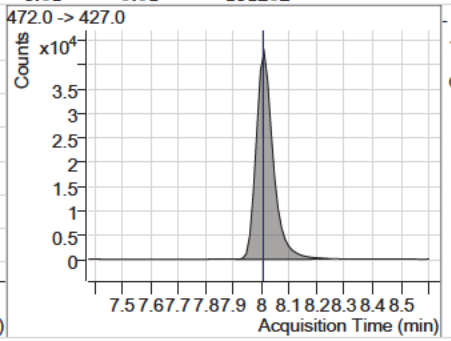
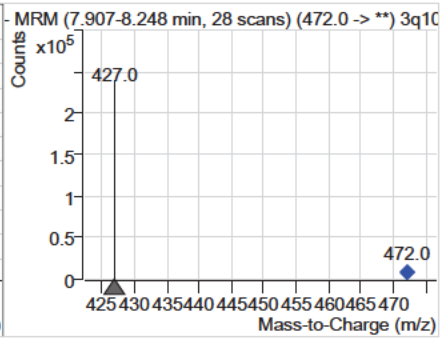
Perfluorinated Compounds by LC/MS/MS

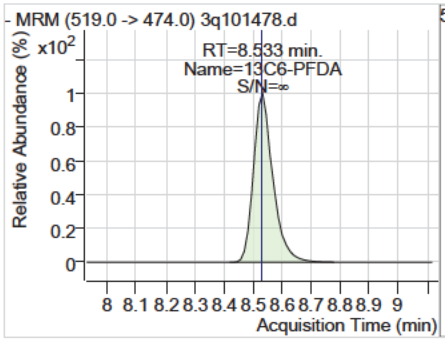
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	7.39	8.01	-0.01	181202				

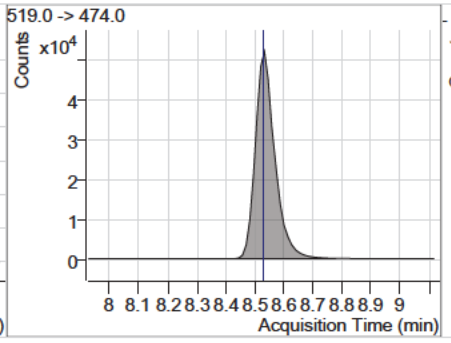


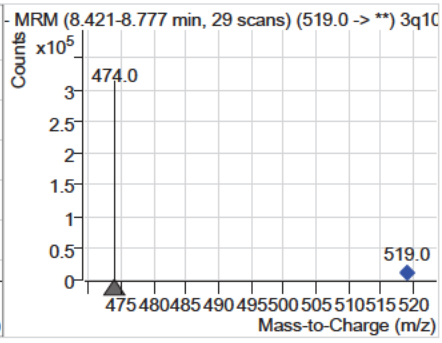




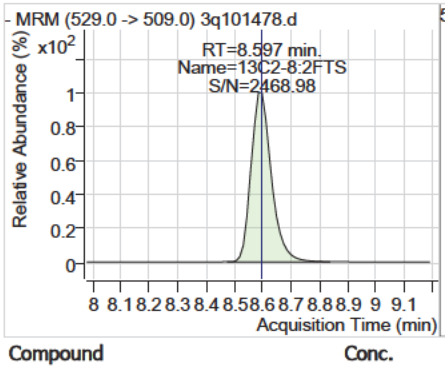
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	7.04	8.53	-0.01	242019				

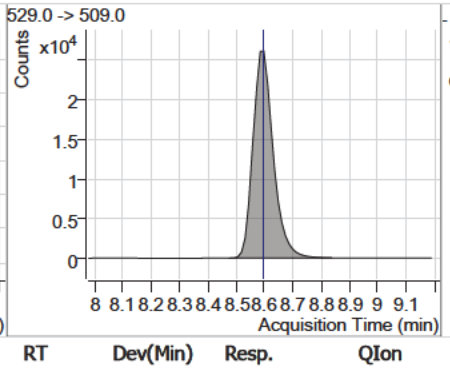


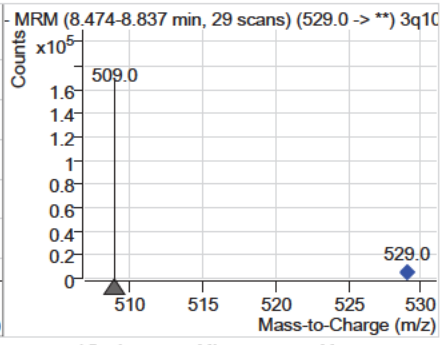




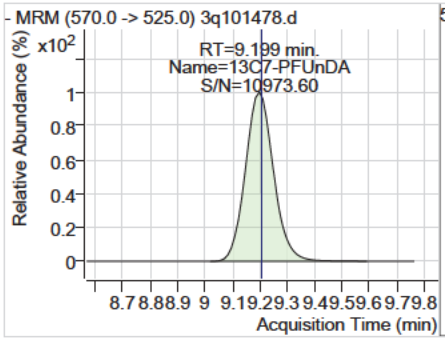
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.74	8.60	-0.01	129537				

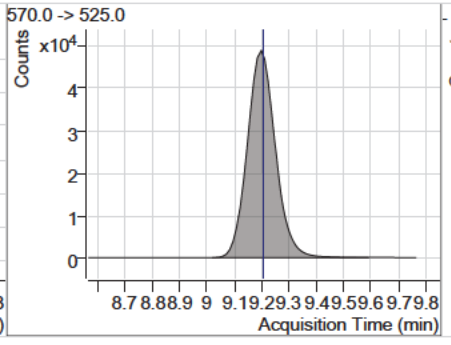


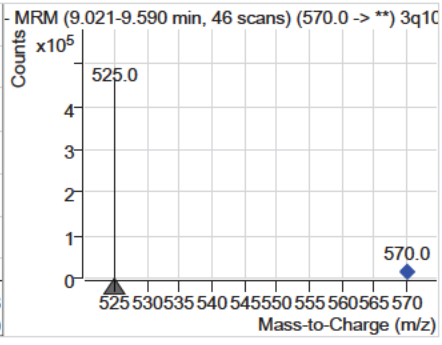




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	5.10	9.20	-0.03	349707				







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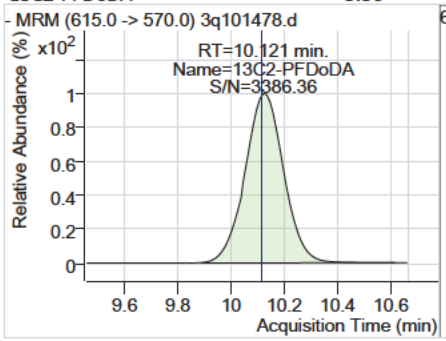
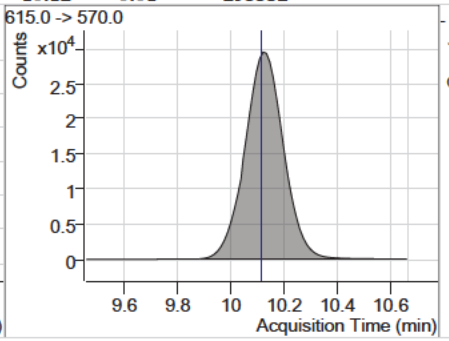
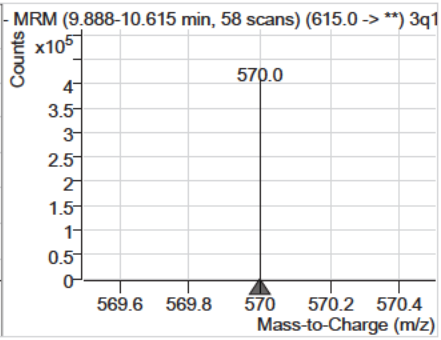
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	3.38	10.12	-0.01	295532				







7.1.8

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Sample Results: 5Q31800.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 09:10

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31800.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/16/2025 3:45:21 PM
Sample Name : fc23899-1a
Vial : P2-C3
DA Method File : 537_041625_S5Q522.quantmethod
Batch Name : s5q522.batch.bin
Sample Information : OP8882,S5Q522,280,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.224	429.0 -> 409.0	133846	20.00	µg/L		-0.062
13C2-PFOA	6.239	415.0 -> 370.0	309052	20.00	µg/L		-0.050
13C3-PFPeA	3.582	266.0 -> 222.0	410615	20.00	µg/L		-0.025
13C4-PFOS	6.809	503.0 -> 80.0	73357	20.00	µg/L		-0.051
d3-MeFOSAA	7.217	573.0 -> 419.0	24946	40.00	µg/L		-0.037
System Monitoring Compounds							
13C2-PFDA	7.373	515.0 -> 470.0	207943	16.32	µg/L		-0.050
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 81.6%			
13C2-PFHxA	4.726	315.0 -> 270.0	422491	20.23	µg/L		-0.050
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 101.1%			
d5-EtFOSAA	7.341	589.0 -> 419.0	10717	22.51	µg/L		-0.037
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 56.3%			
13C3-HFPO-DA	4.982	287.0 -> 169.0	56465	38.50	µg/L		-0.050
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 96.3%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	3.816	299.0 -> 80.0	10975	1.05	µg/L		97
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	5.564	363.0 -> 319.0	15670	0.61	µg/L		100
PFHxA	4.727	313.0 -> 269.0	16855	1.27	µg/L		99
PFHxS	5.585	399.0 -> 80.0	7694	1.23	µg/L	m	96
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	6.240	413.0 -> 369.0	15866	1.09	µg/L	m	94
PFOS	6.810	499.0 -> 80.0	8152	1.69	µg/L	m	90
PFPeA	3.585	263.0 -> 219.0	46293	1.84	µg/L		100
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	5.297	285.0 -> 169.0	0		µg/L	m	1

= Qualifier out of range, m = manually integrated, + = Area summed

7.1.9
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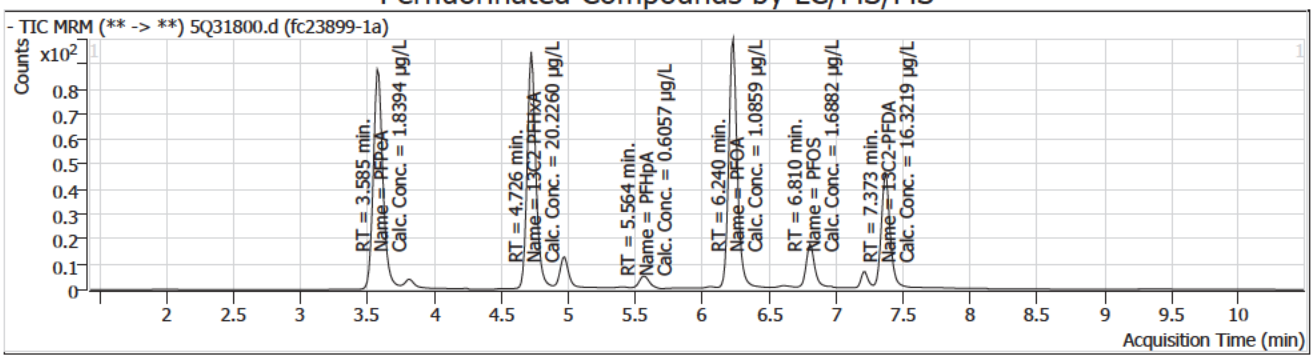
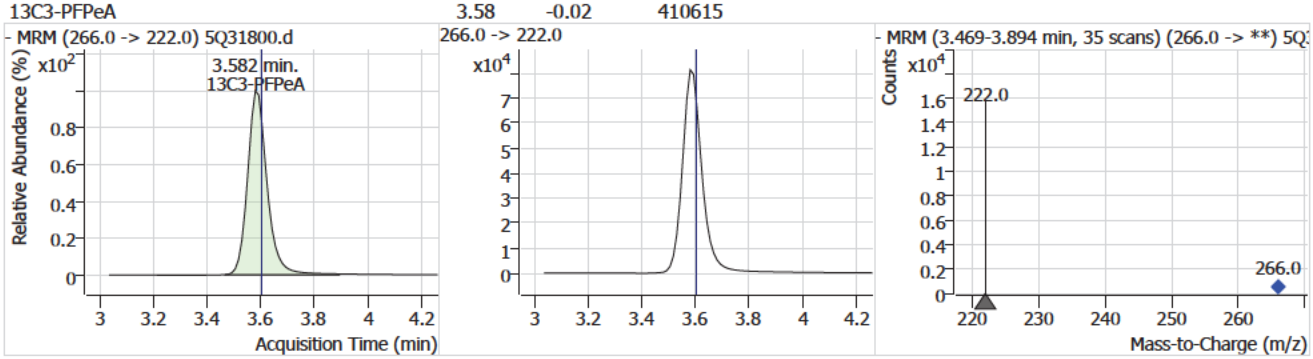
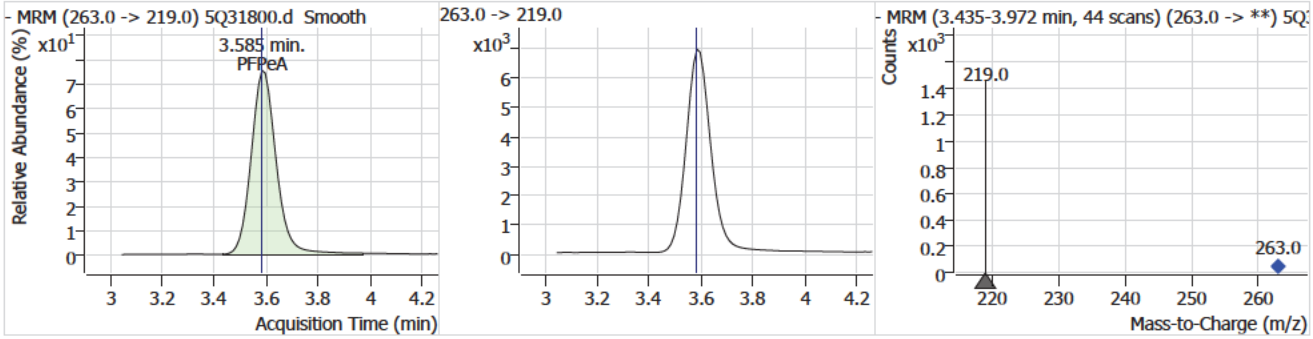
Perfluorinated Compounds by LC/MS/MS



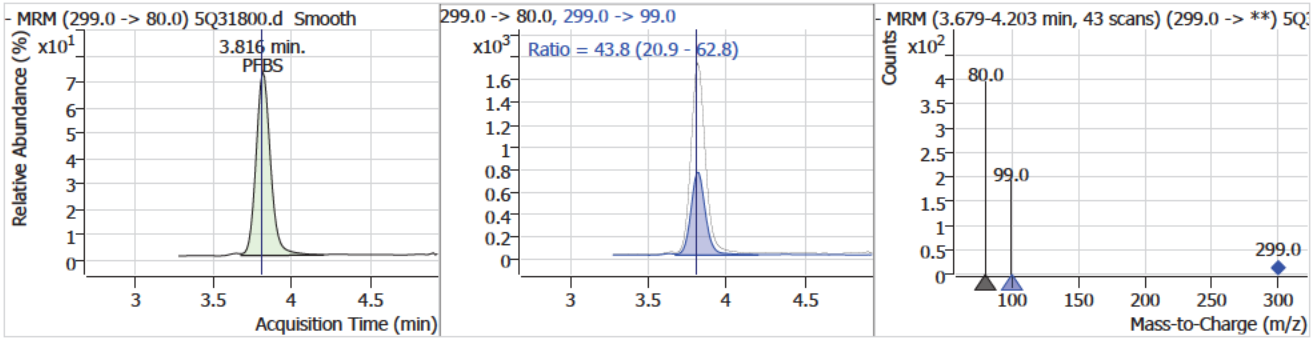
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.58	-0.02	410615				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.84	3.58	-0.02	46293				

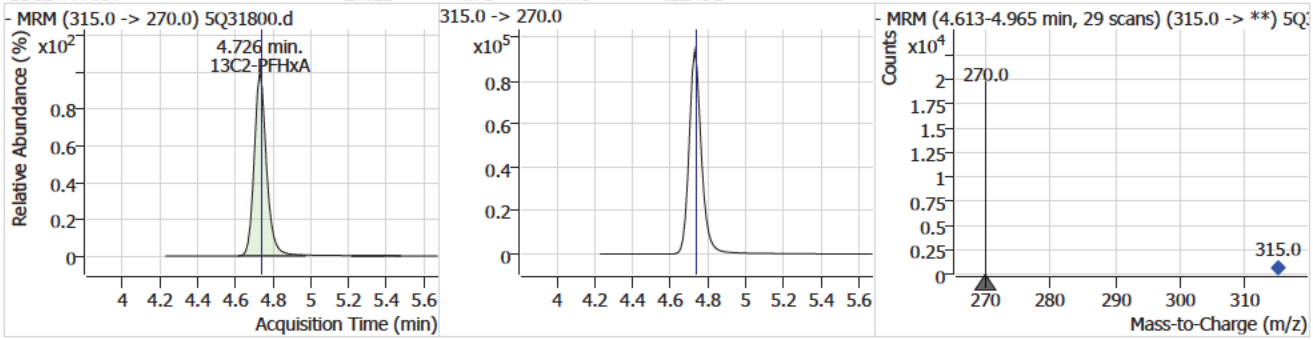


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.05	3.82	-0.02	10975	299.0 -> 99.0	43.8	20.9	62.8

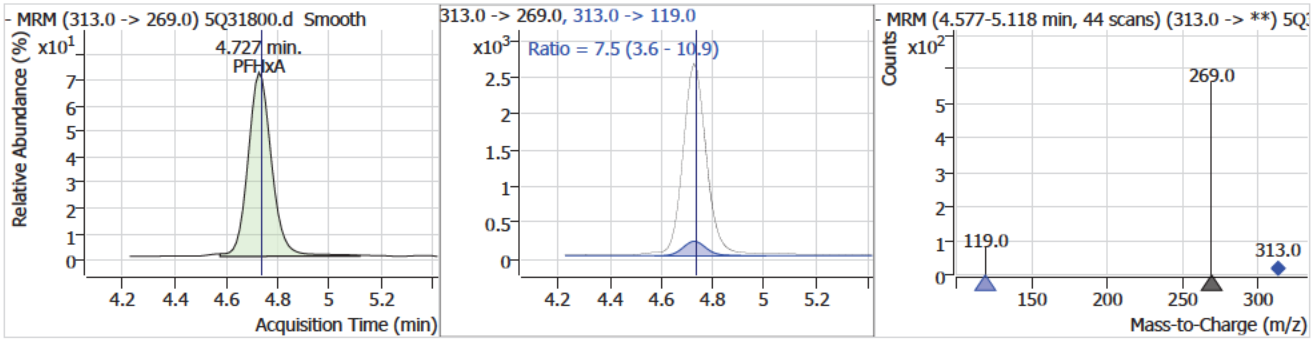


Perfluorinated Compounds by LC/MS/MS

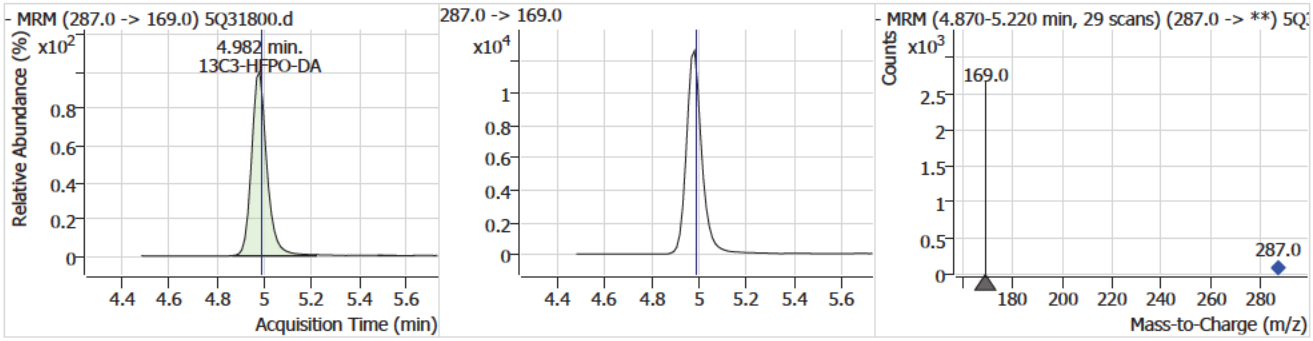
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	20.23	4.73	-0.05	422491				



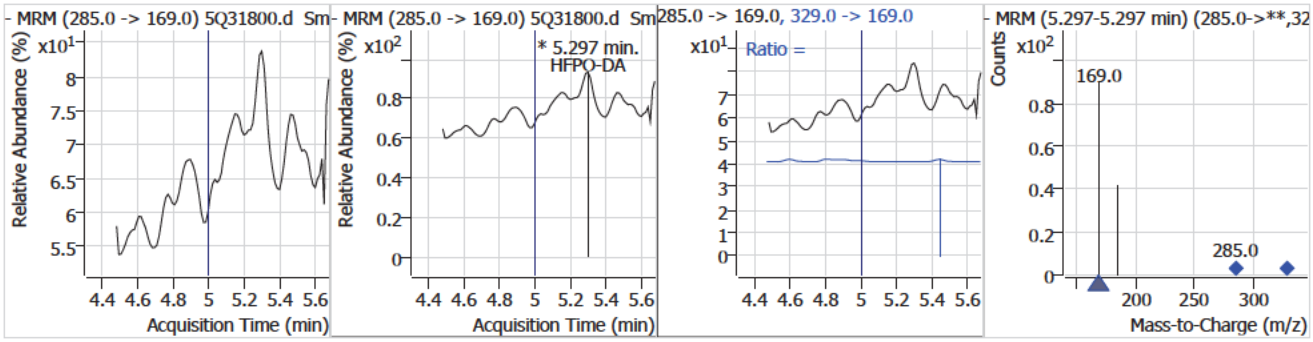
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.27	4.73	-0.05	16855	313.0 -> 119.0	7.5	3.6	10.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	38.50	4.98	-0.05	56465				

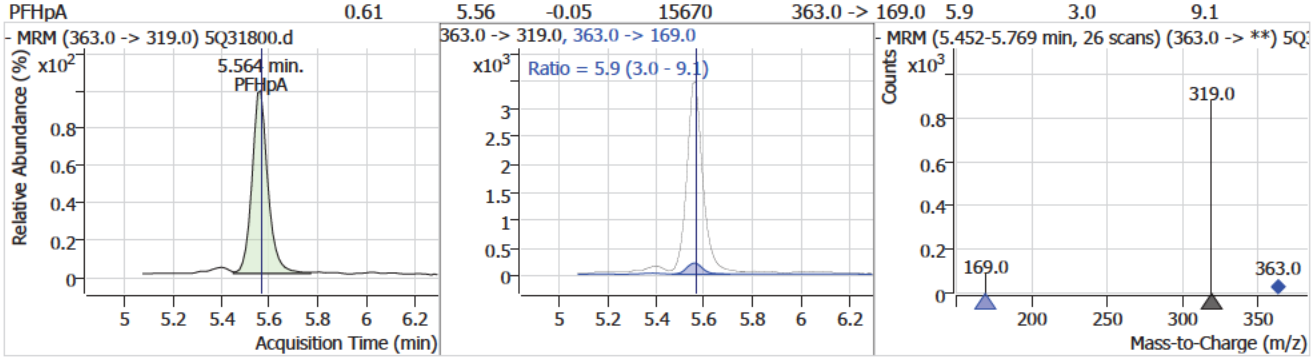


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA		0		0	329.0 -> 169.0		0.4	1.2

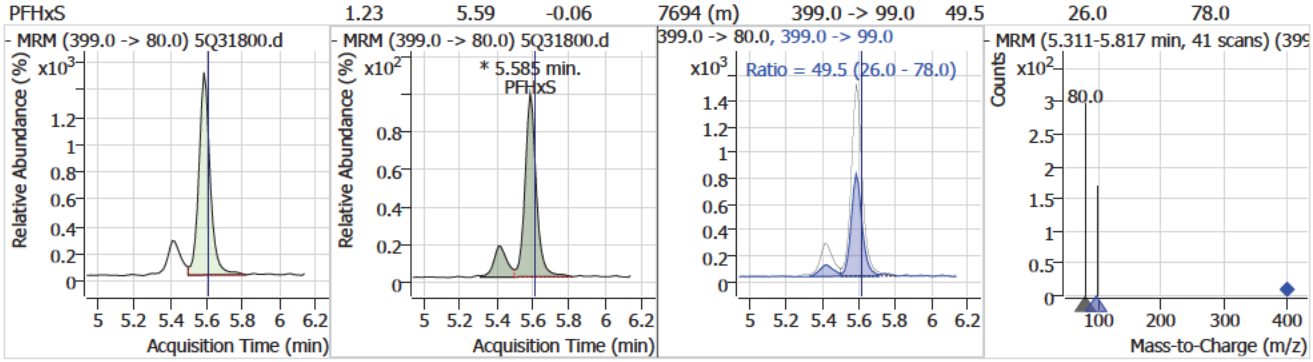


Perfluorinated Compounds by LC/MS/MS

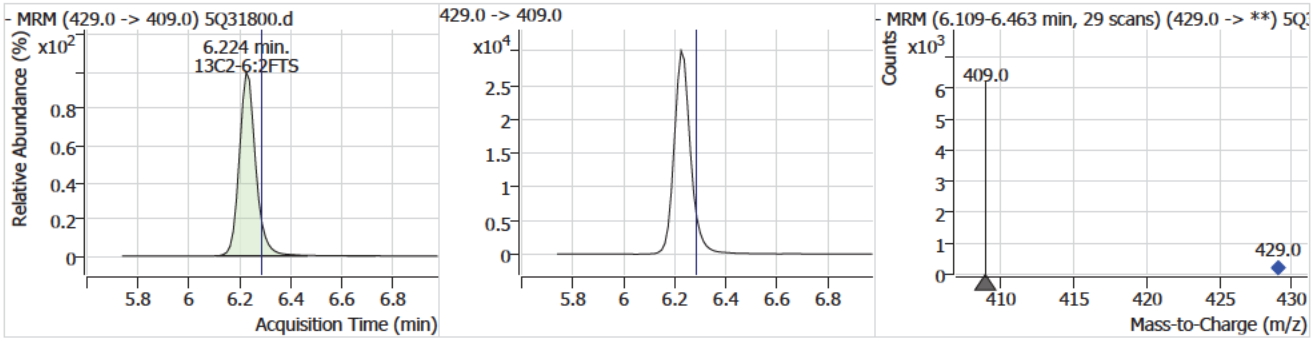
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.61	5.56	-0.05	15670	363.0 -> 169.0	5.9	3.0	9.1



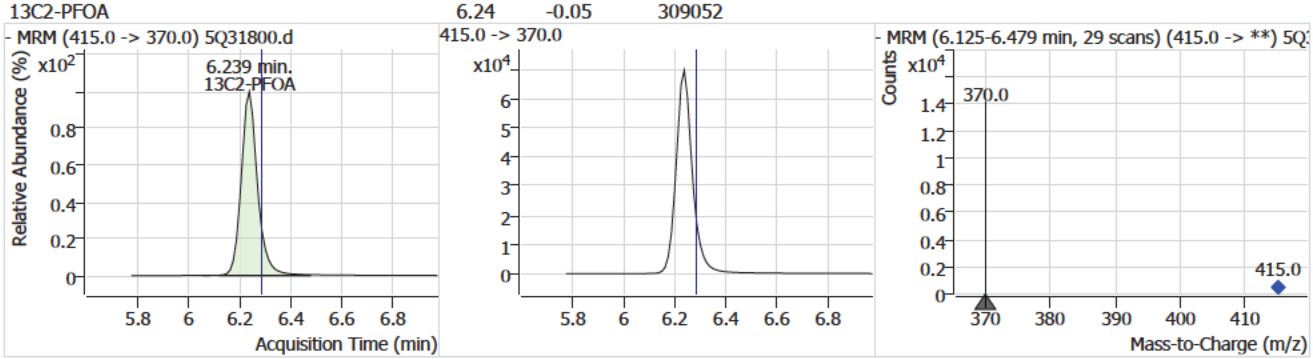
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.23	5.59	-0.06	7694 (m)	399.0 -> 99.0	49.5	26.0	78.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.22	-0.06	133846				

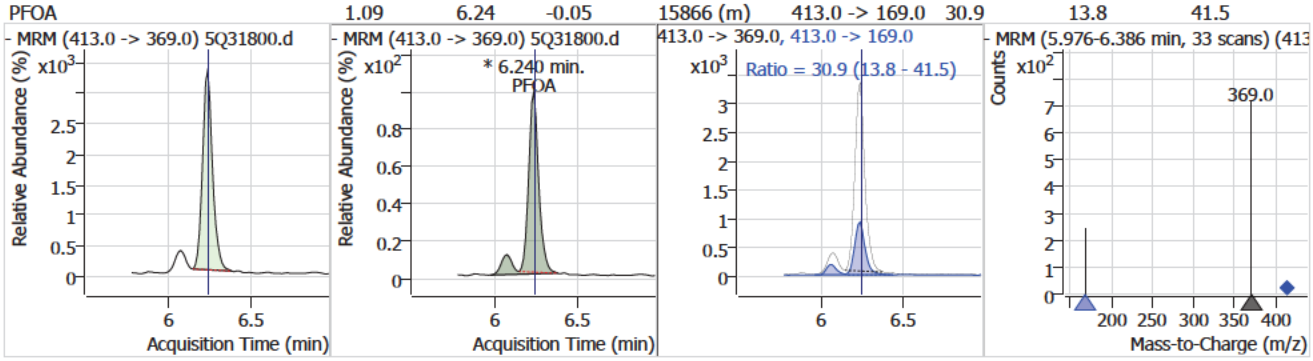


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.24	-0.05	309052				

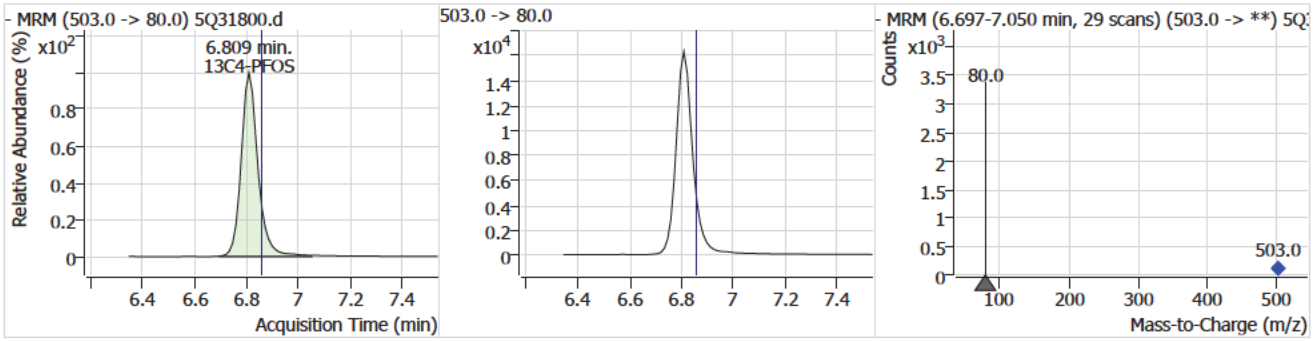


Perfluorinated Compounds by LC/MS/MS

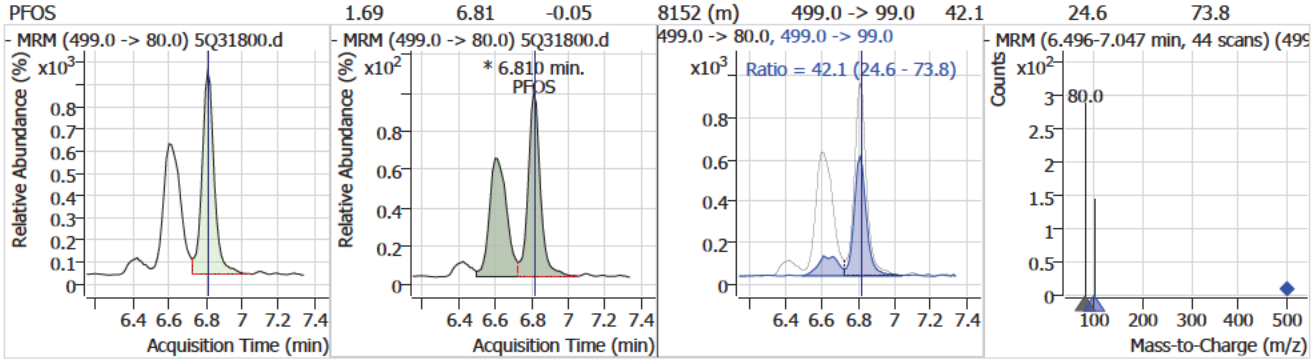
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.09	6.24	-0.05	15866 (m)	413.0 -> 169.0	30.9	13.8	41.5



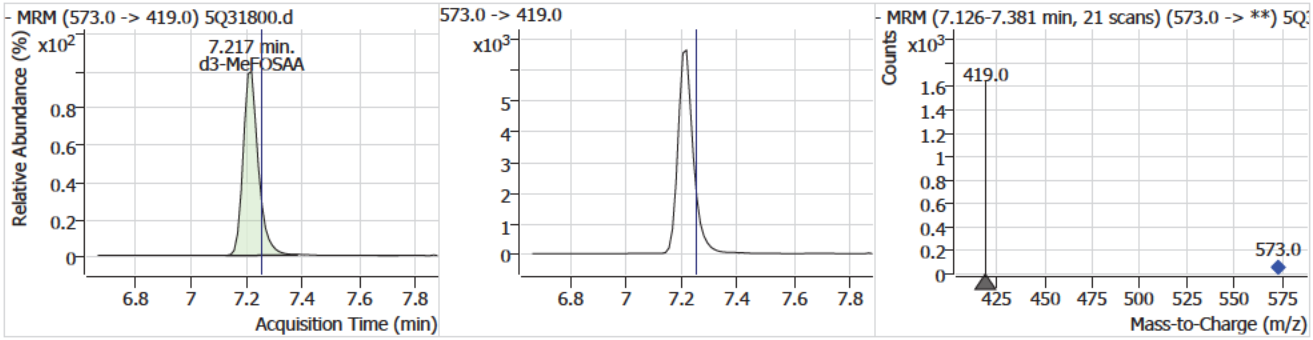
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.81	-0.05	73357				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.69	6.81	-0.05	8152 (m)	499.0 -> 99.0	42.1	24.6	73.8

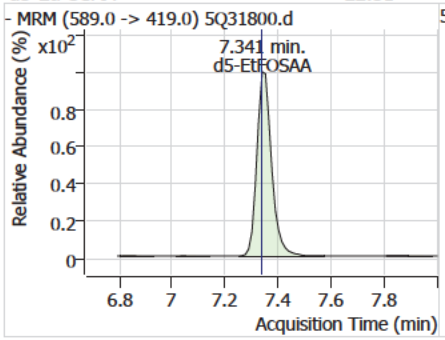


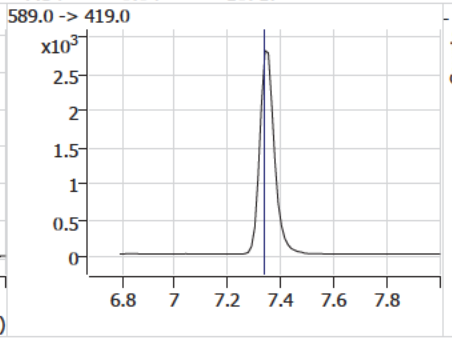
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.22	-0.04	24946				

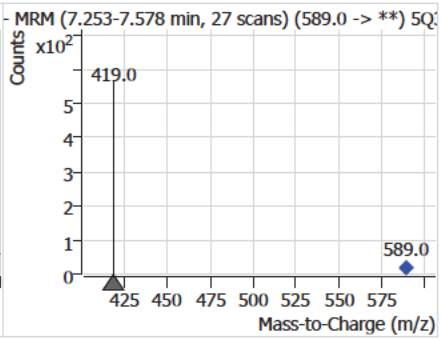


Perfluorinated Compounds by LC/MS/MS

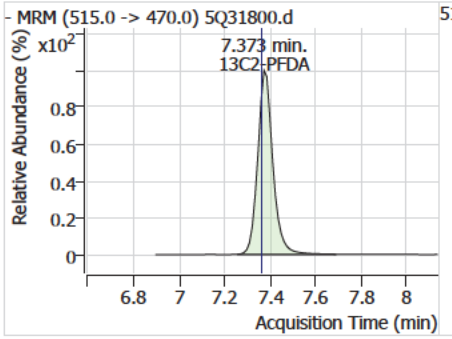
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	22.51	7.34	-0.04	10717				

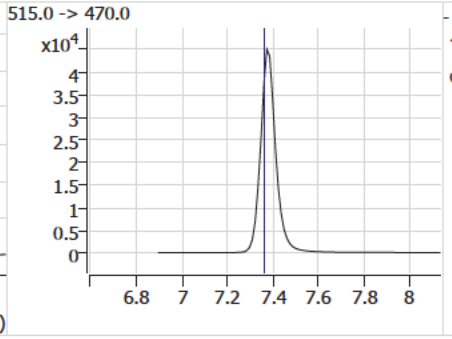


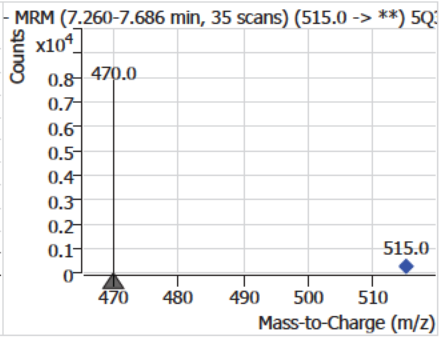




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	16.32	7.37	-0.05	207943				







7.1.9

7

Manual Integration Approval Summary

Sample Number: FC23899-1A
Lab FileID: 5Q31800.D
Injection Time: 04/16/25 15:45
Method: EPA 537.1 REV 2.0
Analyst approved: 04/17/25 08:02 (b) (6) [redacted]
Supervisor approved: 04/17/25 09:10 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.58	Split peak
Perfluorooctanoic acid	335-67-1		6.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.81	Split peak

Sample Results: 5Q31772.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 09:10

Perfluorinated Compounds by LC/MS/MS

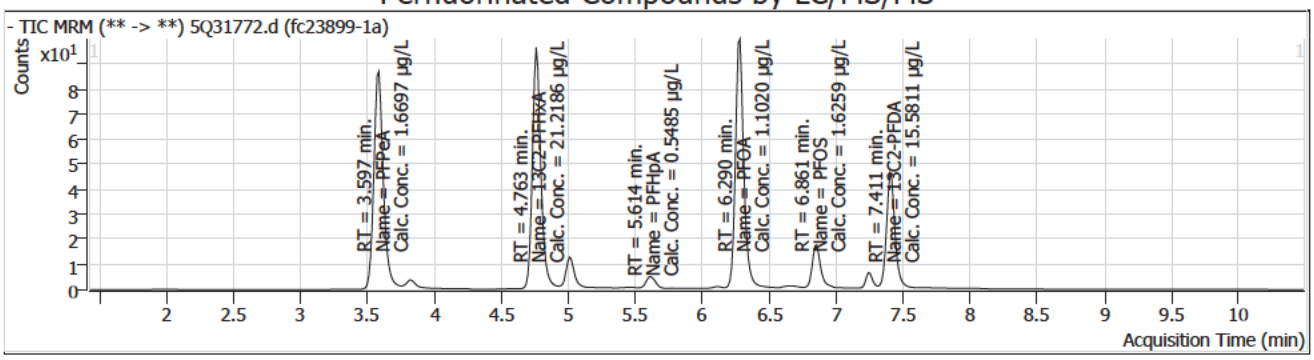
Data File : 5Q31772.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/15/2025 7:05:46 PM
Sample Name : fc23899-1a
Vial : P2-C3
DA Method File : 537_041525_S5Q521.quantmethod
Batch Name : s5q521.batch.bin
Sample Information : OP8882,S5Q521,280,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	152196	20.00	µg/L		-0.012
13C2-PFOA	6.289	415.0 -> 370.0	350061	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	465003	20.00	µg/L		-0.012
13C4-PFOS	6.860	503.0 -> 80.0	81333	20.00	µg/L		0.000
d3-MeFOSAA	7.242	573.0 -> 419.0	26754	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	231658	15.58	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 77.9%			
13C2-PFHxA	4.763	315.0 -> 270.0	487858	21.22	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 106.1%			
d5-EtFOSAA	7.378	589.0 -> 419.0	10881	21.90	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 54.7%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	63095	40.30	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 100.7%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	3.828	299.0 -> 80.0	11896	1.06	µg/L		98
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	5.614	363.0 -> 319.0	17461	0.55	µg/L		98
PFHxA	4.764	313.0 -> 269.0	18554	1.18	µg/L		100
PFHxS	5.635	399.0 -> 80.0	8398	1.11	µg/L	m	97
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	6.290	413.0 -> 369.0	19318	1.10	µg/L	m	96
PFOS	6.861	499.0 -> 80.0	8723	1.63	µg/L	m	76
PFPeA	3.597	263.0 -> 219.0	51875	1.67	µg/L		100
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	-	285.0 -> 169.0	-	N.D.			

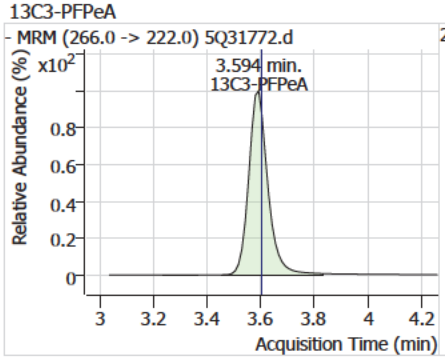
= Qualifier out of range, m = manually integrated, + = Area summed

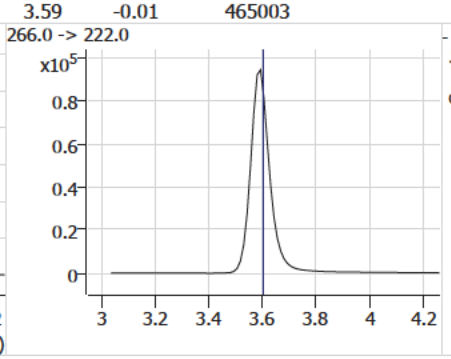
7.1.10
7

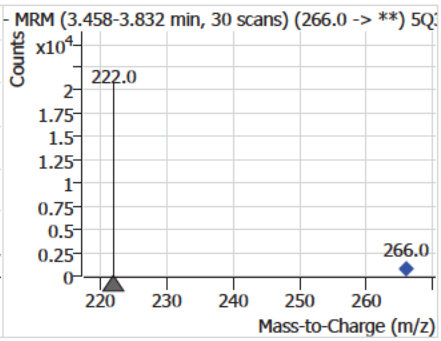
Perfluorinated Compounds by LC/MS/MS



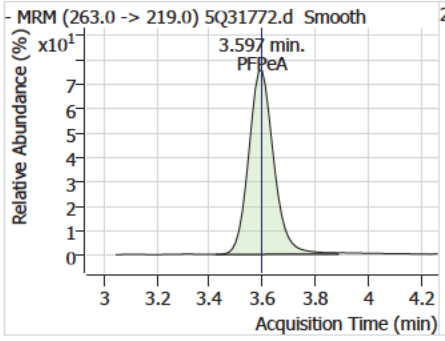
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	465003				

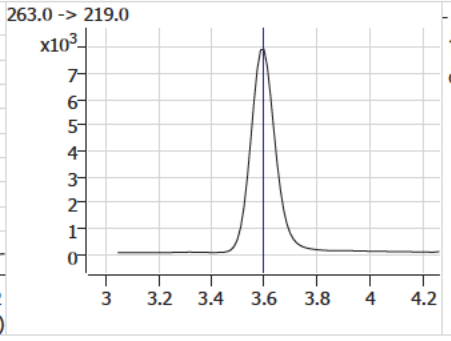


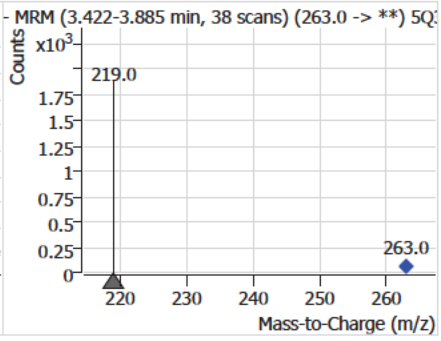




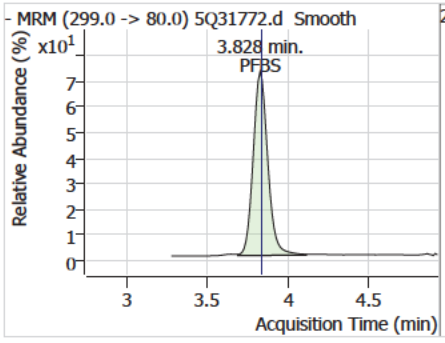
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.67	3.60	-0.01	51875				

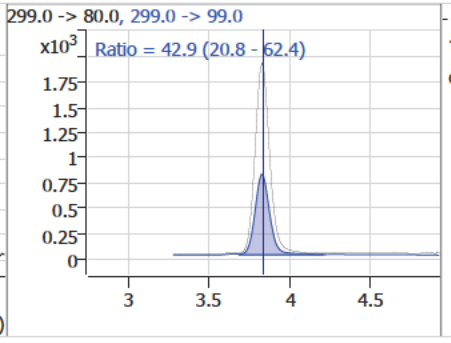


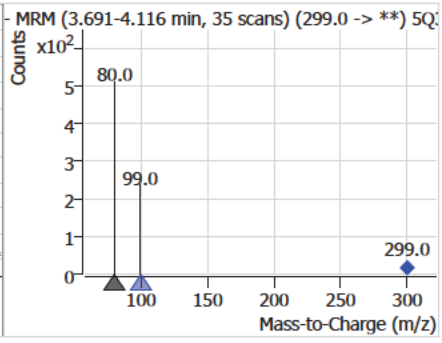




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.06	3.83	-0.01	11896	299.0 -> 99.0	42.9	20.8	62.4

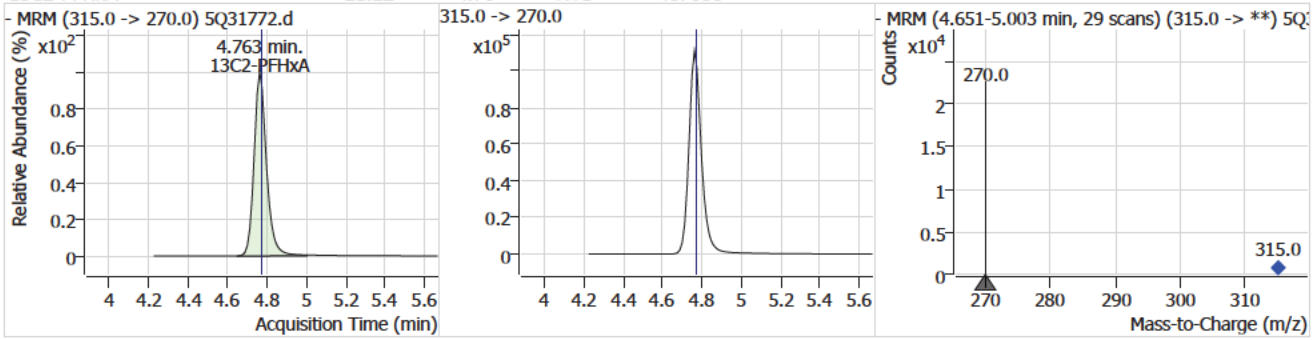




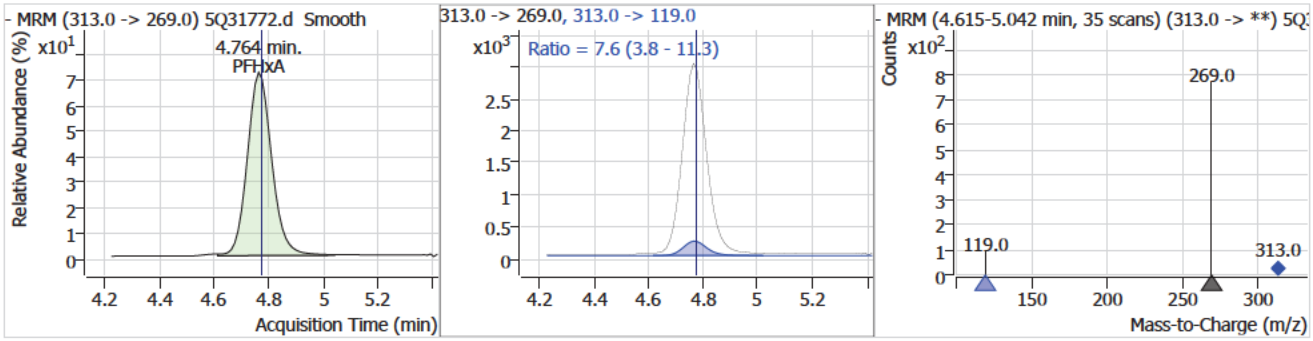


Perfluorinated Compounds by LC/MS/MS

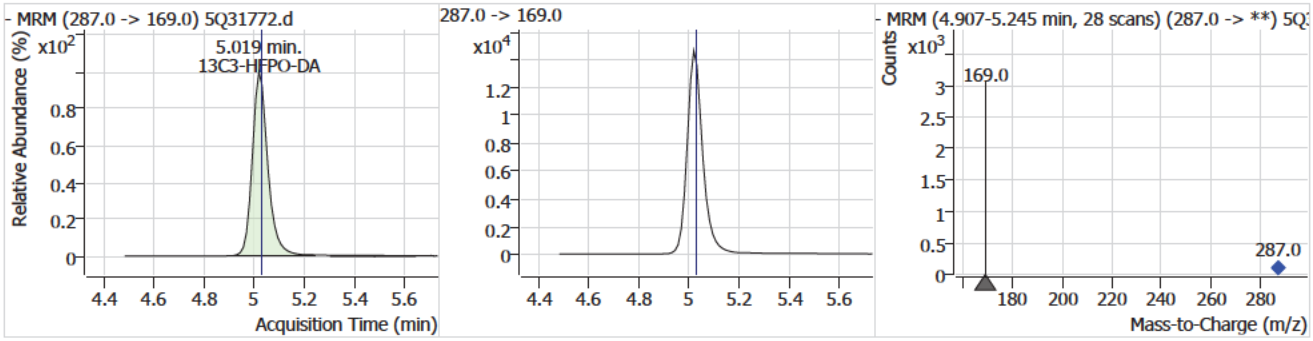
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	21.22	4.76	-0.01	487858				



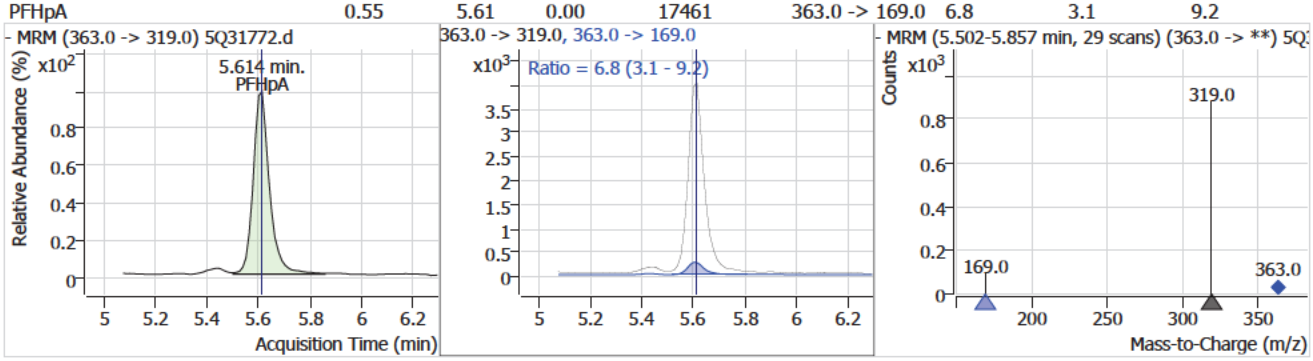
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.18	4.76	-0.01	18554	313.0 -> 119.0	7.6	3.8	11.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	40.30	5.02	-0.01	63095				

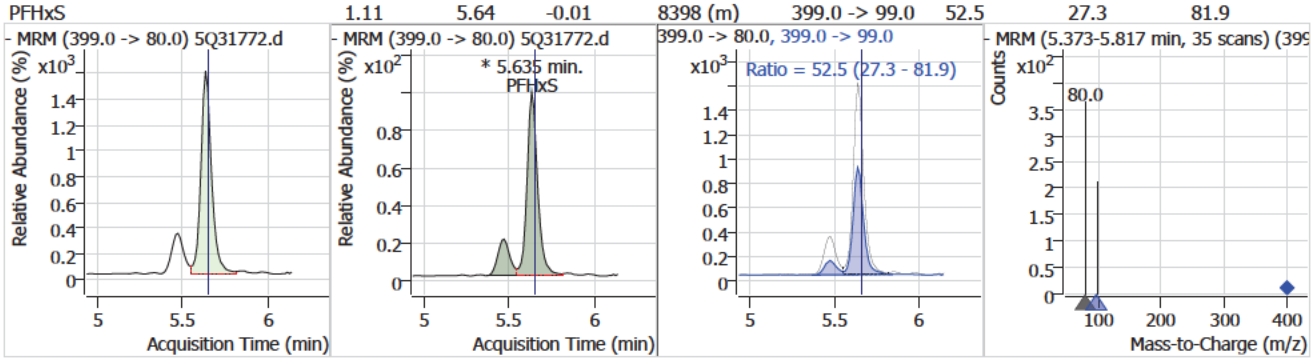


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.55	5.61	0.00	17461	363.0 -> 169.0	6.8	3.1	9.2

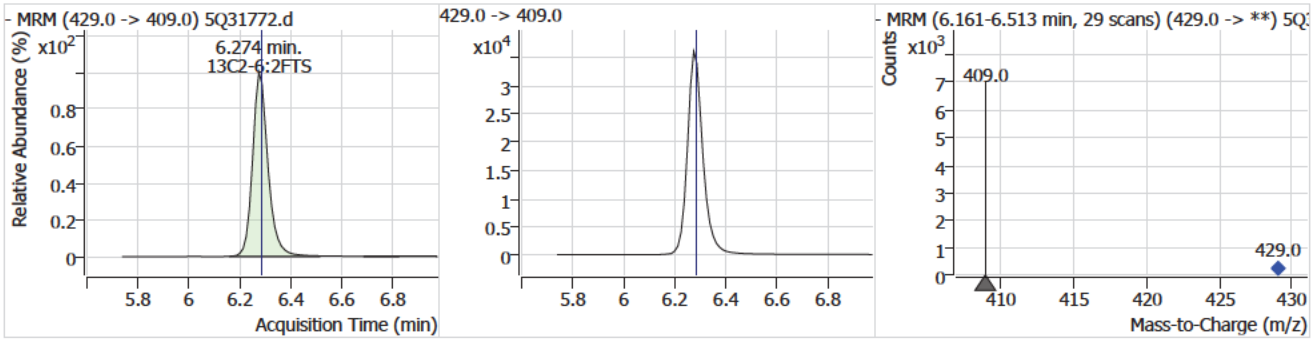


Perfluorinated Compounds by LC/MS/MS

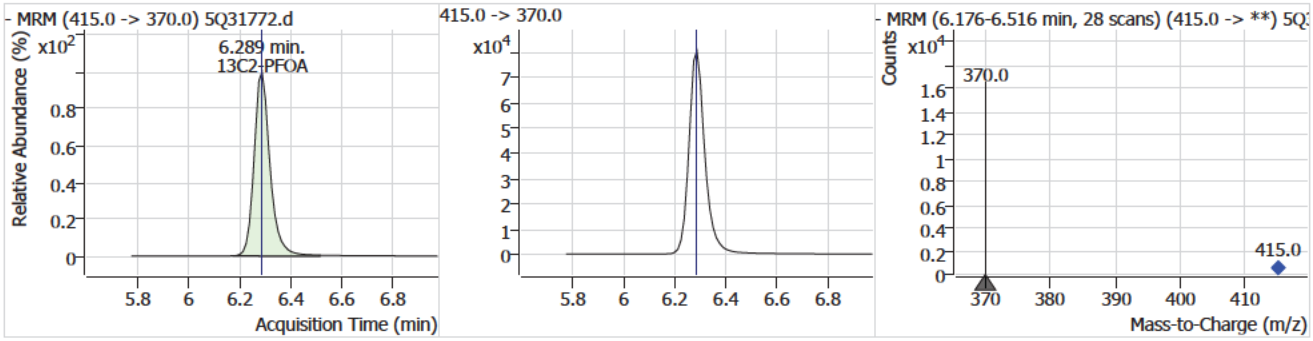
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.11	5.64	-0.01	8398 (m)	399.0 -> 99.0	52.5	27.3	81.9



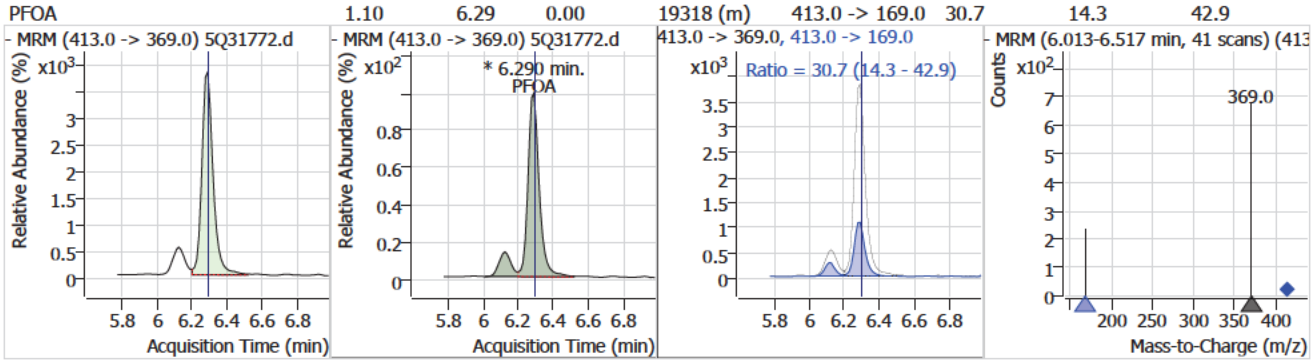
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	152196				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	350061				

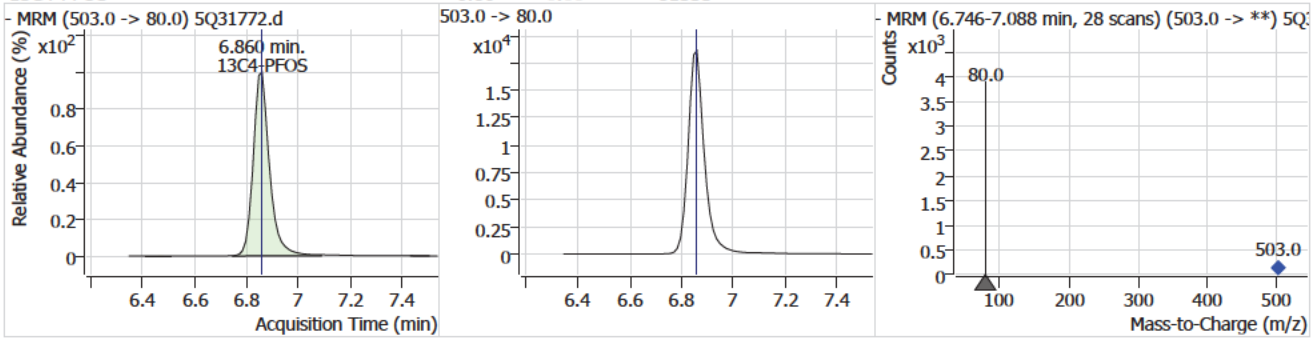


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.10	6.29	0.00	19318 (m)	413.0 -> 169.0	30.7	14.3	42.9

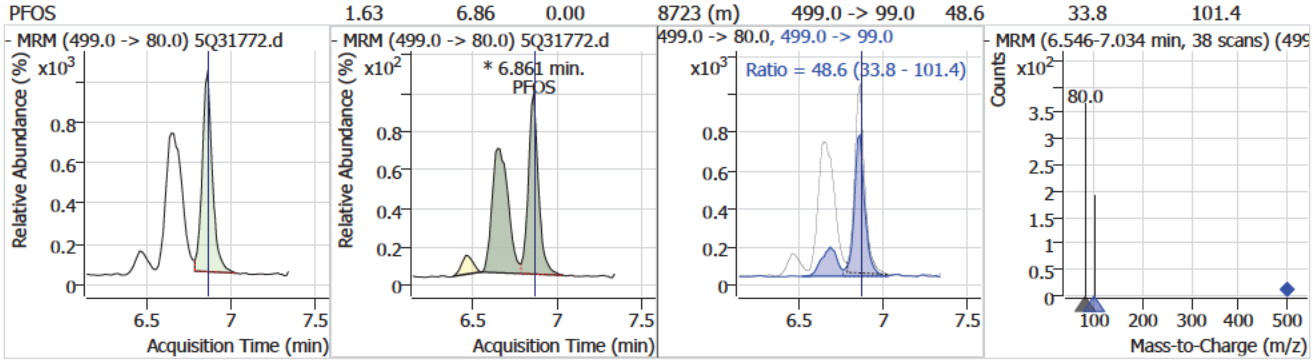


Perfluorinated Compounds by LC/MS/MS

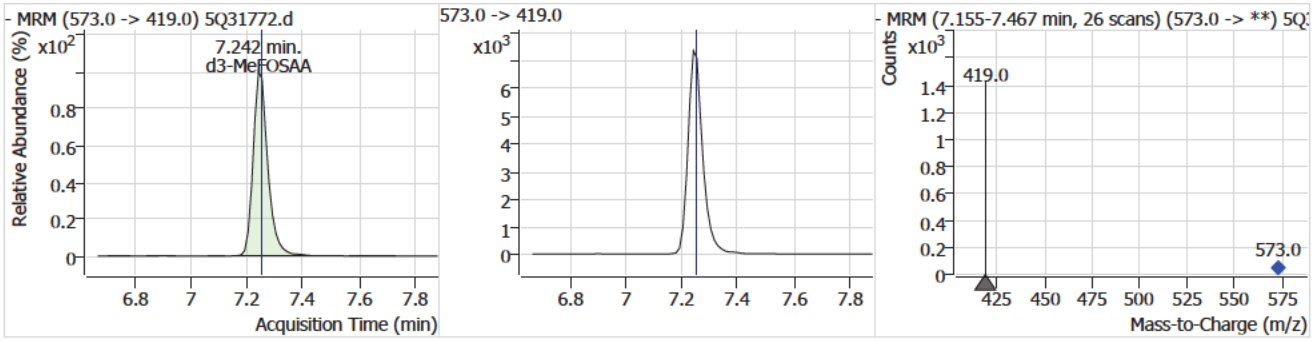
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	81333				



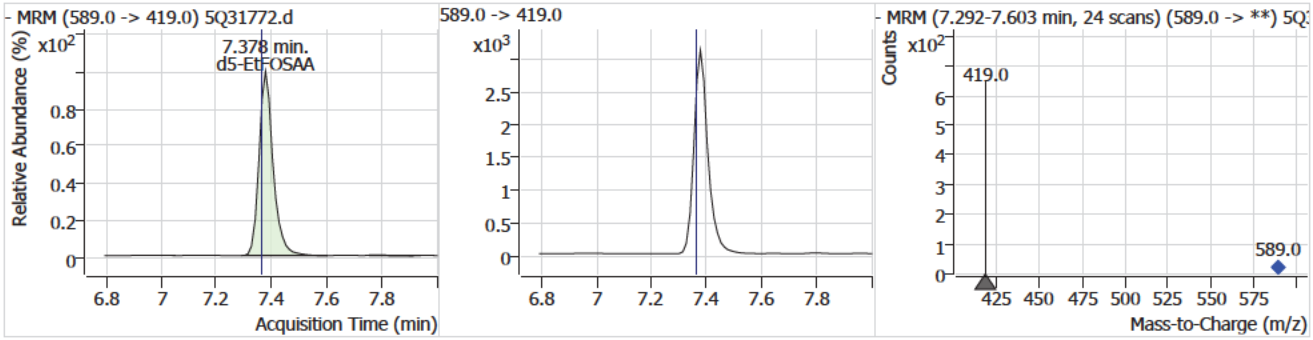
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.63	6.86	0.00	8723 (m)	499.0 -> 99.0	48.6	33.8	101.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	26754				

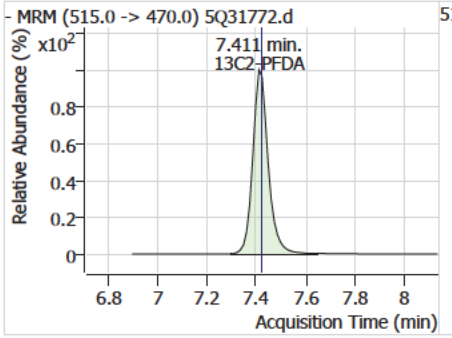


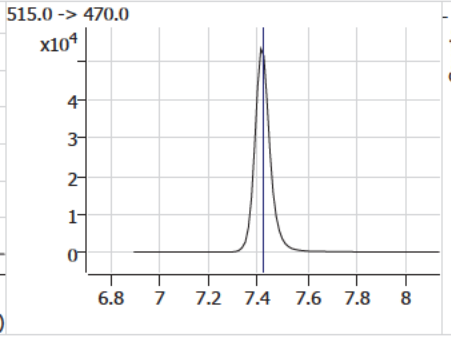
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	21.90	7.38	0.00	10881				

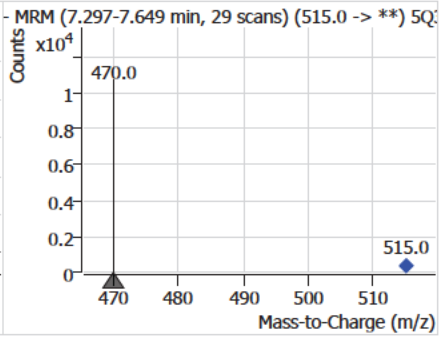


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	15.58	7.41	-0.01	231658				







7.1.10

7

Manual Integration Approval Summary

Sample Number: FC23899-1A
Lab FileID: 5Q31772.D
Injection Time: 04/15/25 19:05
Method: EPA 537.1 REV 2.0
Analyst approved: 04/17/25 08:02 (b) (6) [redacted]
Supervisor approved: 04/17/25 09:10 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanoic acid	335-67-1		6.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak

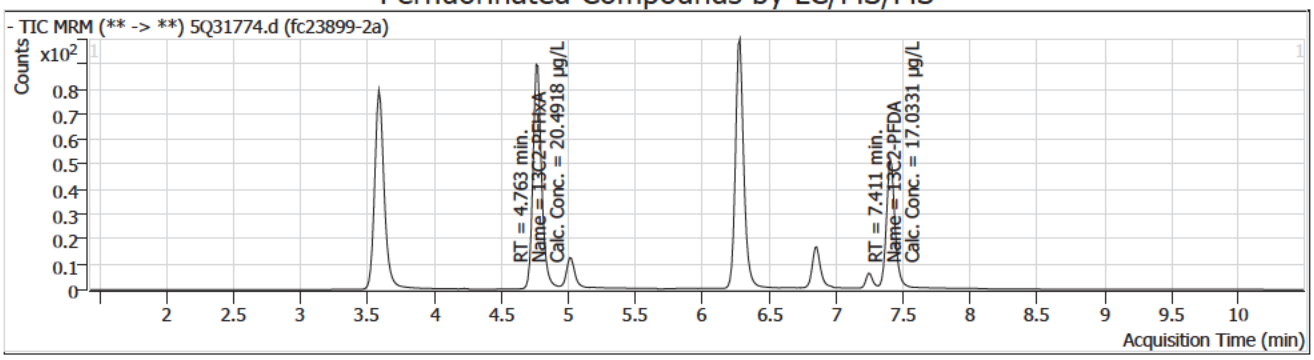
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31774.d
Operator (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/15/2025 7:37:49 PM
Sample Name : fc23899-2a
Vial : P2-C5
DA Method File : 537_041525_S5Q521.quantmethod
Batch Name : s5q521.batch.bin
Sample Information : OP8882,S5Q521,280,,,1,1,water

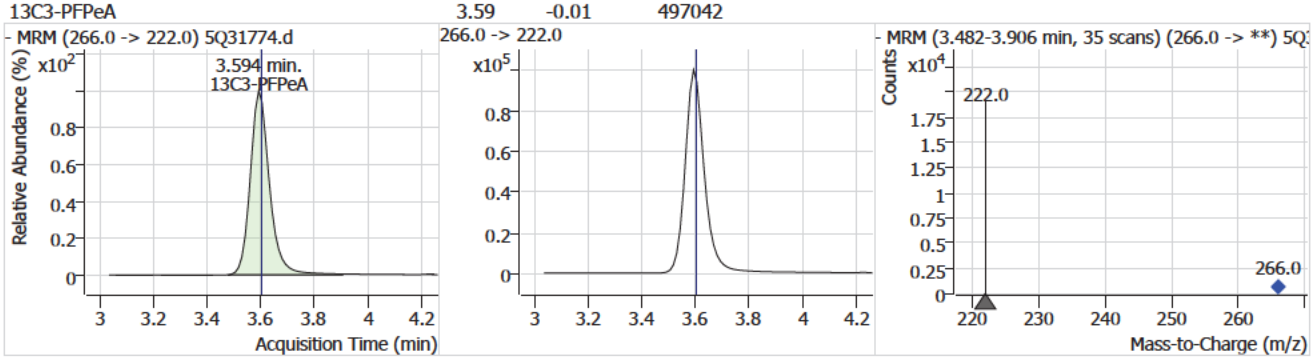
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.274	429.0 -> 409.0	169845	20.00 µg/L	-0.012
13C2-PFOA	6.289	415.0 -> 370.0	381157	20.00 µg/L	0.000
13C3-PFPeA	3.594	266.0 -> 222.0	497042	20.00 µg/L	-0.012
13C4-PFOS	6.860	503.0 -> 80.0	89779	20.00 µg/L	0.000
d3-MeFOSAA	7.242	573.0 -> 419.0	27564	40.00 µg/L	-0.012
System Monitoring Compounds					
13C2-PFDA	7.411	515.0 -> 470.0	275742	17.03 µg/L	-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 85.2%	
13C2-PFHxA	4.763	315.0 -> 270.0	512999	20.49 µg/L	-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 102.5%	
d5-EtFOSAA	7.378	589.0 -> 419.0	14823	28.96 µg/L	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 72.4%	
13C3-HFPO-DA	5.019	287.0 -> 169.0	66394	38.94 µg/L	-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 97.4%	
Target Compounds					QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.	
8:2FTS	-	527.0 -> 507.0	-	N.D.	
EtFOSAA	-	584.0 -> 419.0	-	N.D.	
MeFOSAA	-	570.0 -> 419.0	-	N.D.	
PFBS	-	299.0 -> 80.0	-	N.D.	
PFDA	-	513.0 -> 469.0	-	N.D.	
PFDoDA	-	613.0 -> 569.0	-	N.D.	
PFHpA	-	363.0 -> 319.0	-	N.D.	
PFHxA	-	313.0 -> 269.0	-	N.D.	
PFHxS	-	399.0 -> 80.0	-	N.D.	
PFNA	-	463.0 -> 419.0	-	N.D.	
PFOA	-	413.0 -> 369.0	-	N.D.	
PFOS	-	499.0 -> 80.0	-	N.D.	
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	
ADONA	-	377.0 -> 251.0	-	N.D.	
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
HFPO-DA	-	285.0 -> 169.0	-	N.D.	

= Qualifier out of range, m = manually integrated, + = Area summed

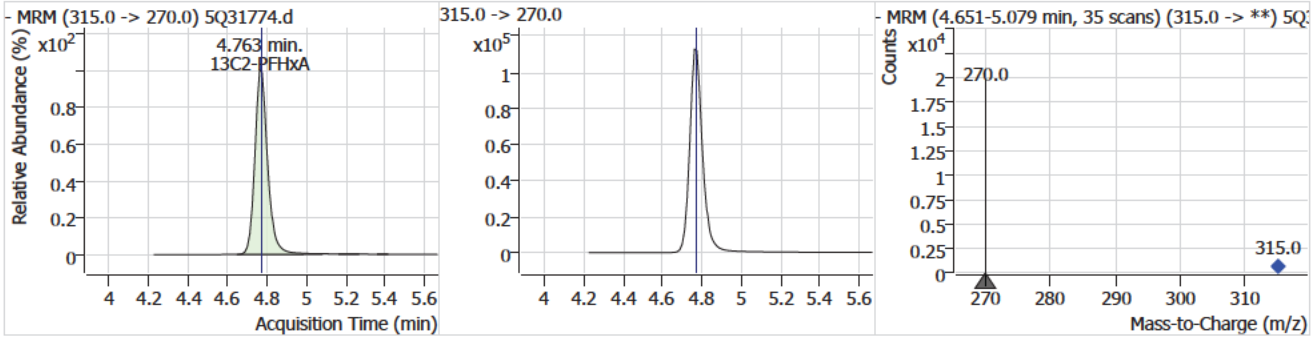
Perfluorinated Compounds by LC/MS/MS



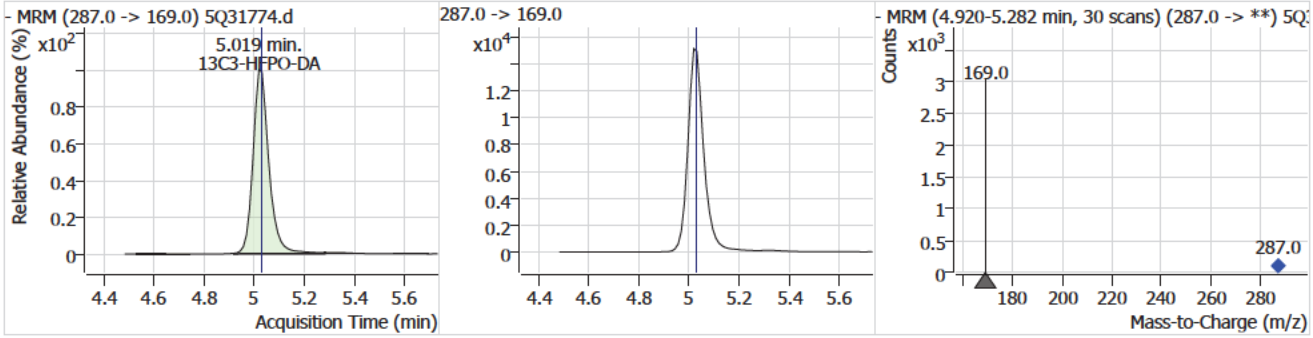
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	497042				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	20.49	4.76	-0.01	512999				

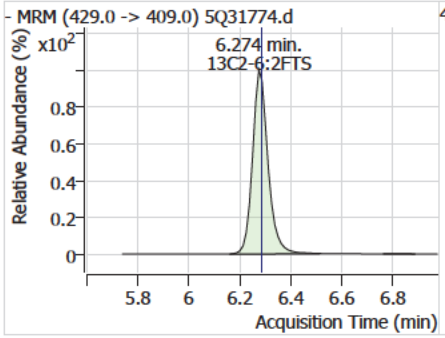


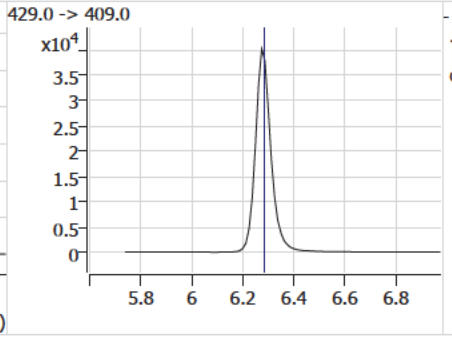
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	38.94	5.02	-0.01	66394				

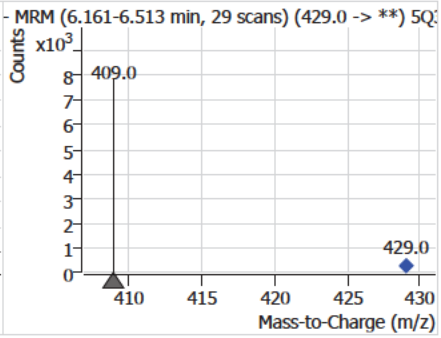


Perfluorinated Compounds by LC/MS/MS

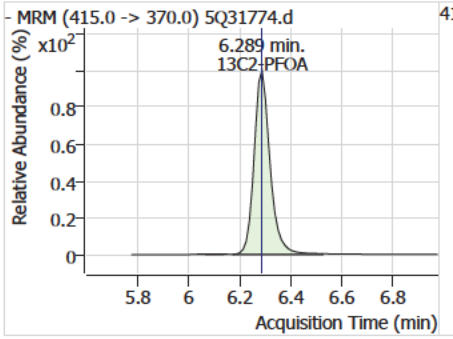
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	169845				

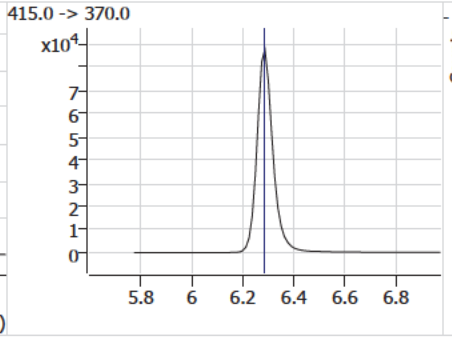


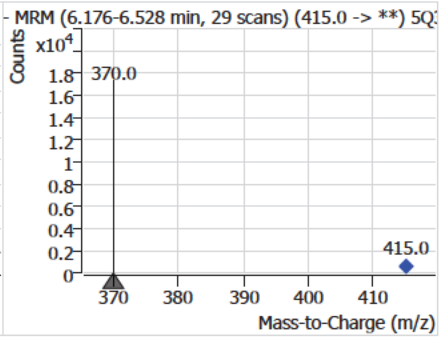




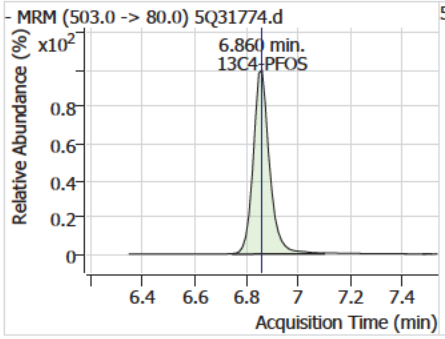
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	381157				

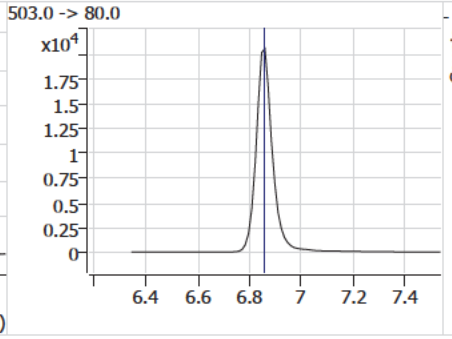


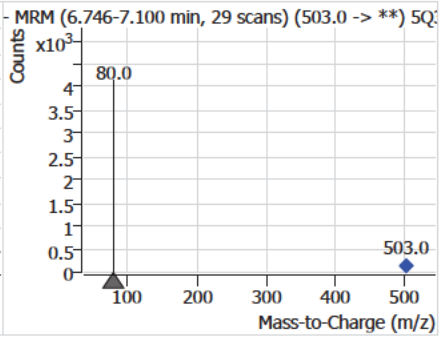




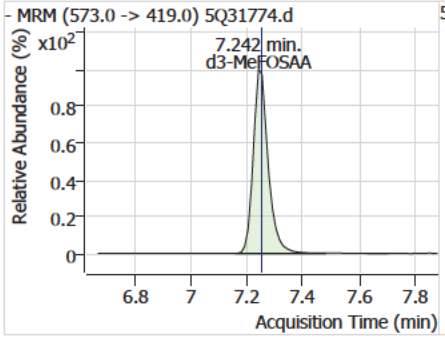
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	89779				

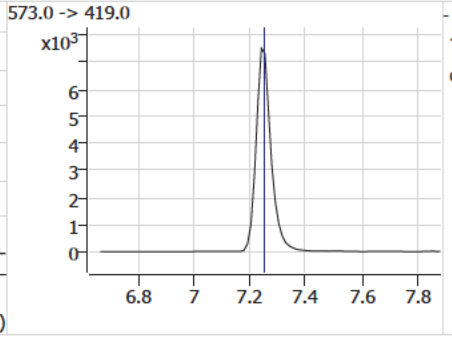


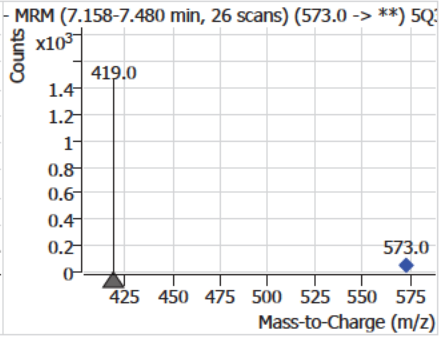




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	27564				

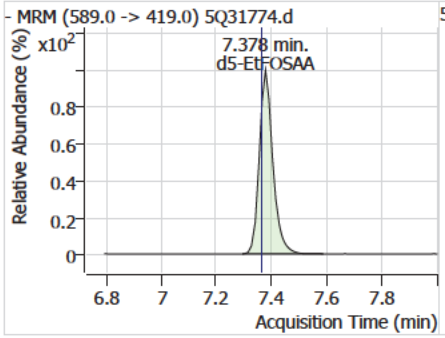


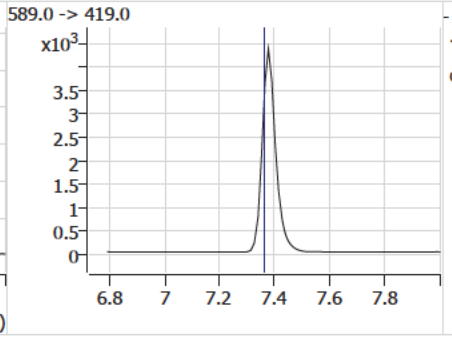


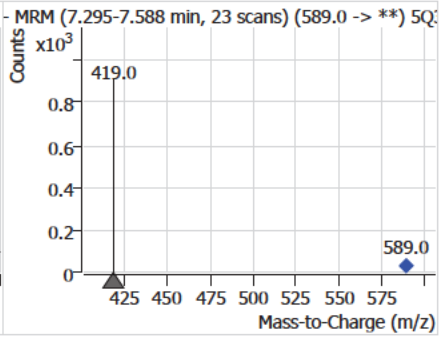


Perfluorinated Compounds by LC/MS/MS

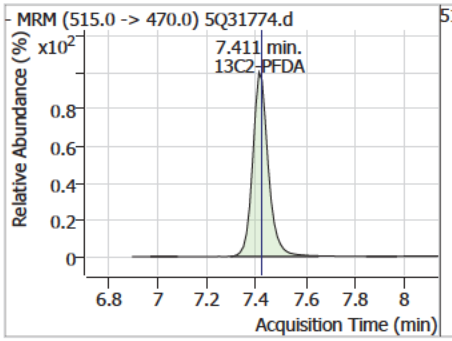
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	28.96	7.38	0.00	14823				

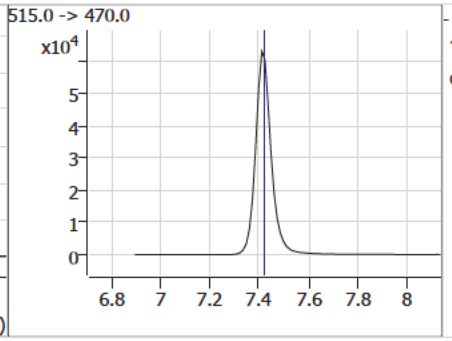


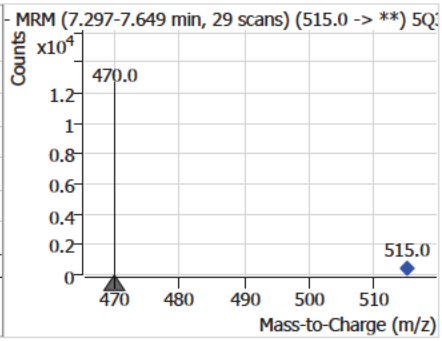




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	17.03	7.41	-0.01	275742				







7.1.11

7

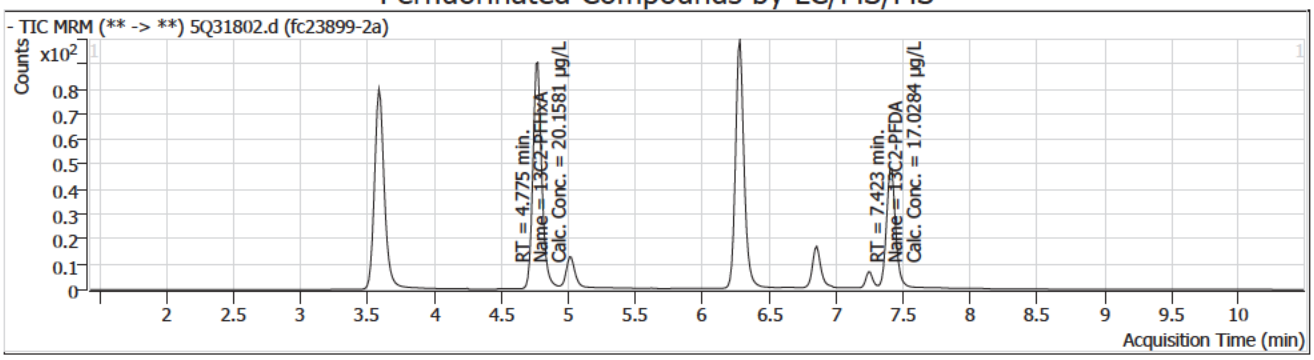
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31802.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/16/2025 4:17:22 PM
Sample Name : fc23899-2a
Vial : P2-C5
DA Method File : 537_041625_S5Q522.quantmethod
Batch Name : s5q522.batch.bin
Sample Information : OP8882,S5Q522,280,,,1,1,water

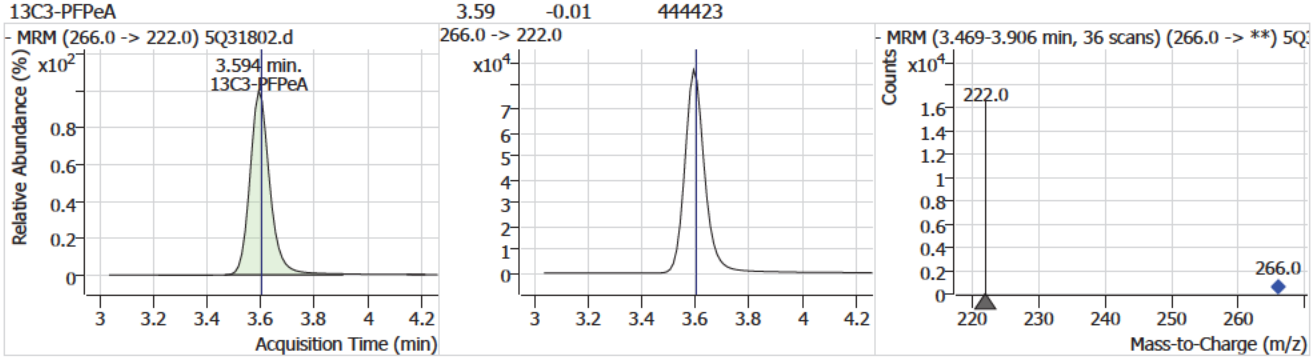
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.274	429.0 -> 409.0	148679	20.00 µg/L	-0.012
13C2-PFOA	6.289	415.0 -> 370.0	335871	20.00 µg/L	0.000
13C3-PFPeA	3.594	266.0 -> 222.0	444423	20.00 µg/L	-0.012
13C4-PFOS	6.860	503.0 -> 80.0	78065	20.00 µg/L	0.000
d3-MeFOSAA	7.255	573.0 -> 419.0	26453	40.00 µg/L	0.000
System Monitoring Compounds					
13C2-PFDA	7.423	515.0 -> 470.0	235771	17.03 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 85.1%	
13C2-PFHxA	4.775	315.0 -> 270.0	457613	20.16 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 100.8%	
d5-EtFOSAA	7.378	589.0 -> 419.0	13317	26.29 µg/L	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 65.7%	
13C3-HFPO-DA	5.019	287.0 -> 169.0	61183	38.39 µg/L	-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 96.0%	
Target Compounds					QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.	
8:2FTS	-	527.0 -> 507.0	-	N.D.	
EtFOSAA	-	584.0 -> 419.0	-	N.D.	
MeFOSAA	-	570.0 -> 419.0	-	N.D.	
PFBS	-	299.0 -> 80.0	-	N.D.	
PFDA	-	513.0 -> 469.0	-	N.D.	
PFDoDA	-	613.0 -> 569.0	-	N.D.	
PFHpA	-	363.0 -> 319.0	-	N.D.	
PFHxA	-	313.0 -> 269.0	-	N.D.	
PFHxS	-	399.0 -> 80.0	-	N.D.	
PFNA	-	463.0 -> 419.0	-	N.D.	
PFOA	-	413.0 -> 369.0	-	N.D.	
PFOS	-	499.0 -> 80.0	-	N.D.	
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	
ADONA	-	377.0 -> 251.0	-	N.D.	
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
HFPO-DA	-	285.0 -> 169.0	-	N.D.	

= Qualifier out of range, m = manually integrated, + = Area summed

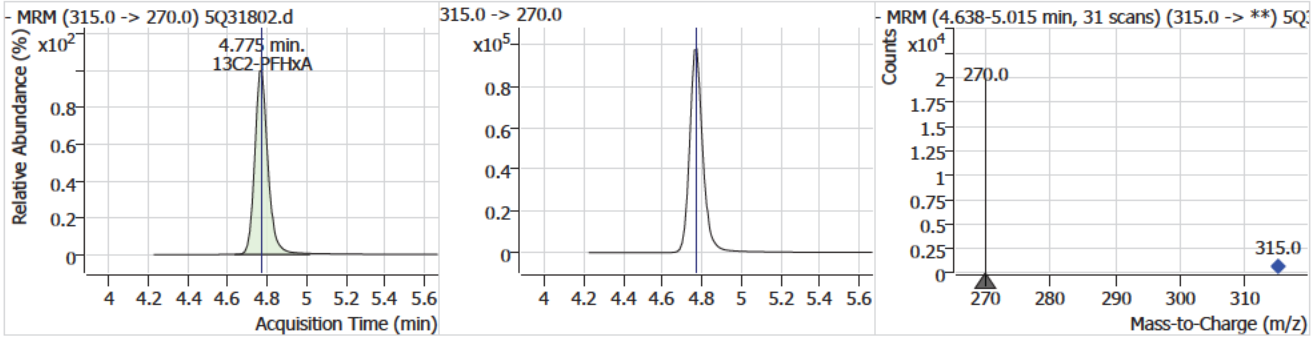
Perfluorinated Compounds by LC/MS/MS



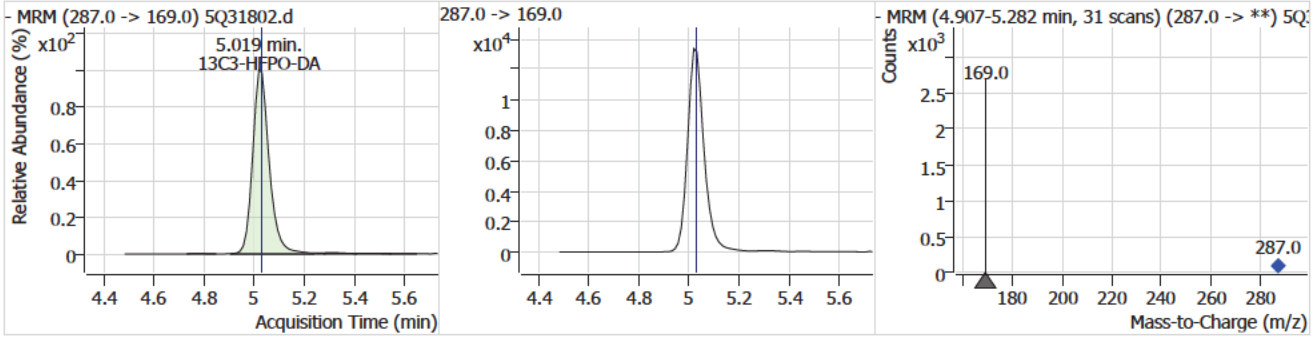
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	444423				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	20.16	4.78	0.00	457613				

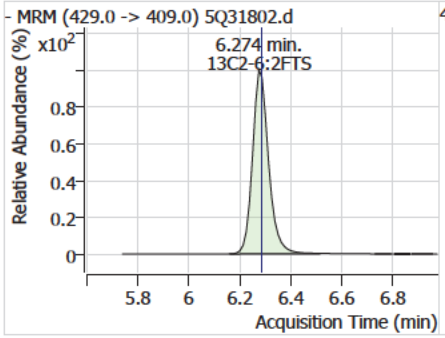


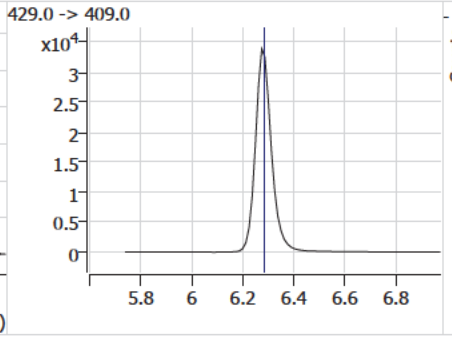
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	38.39	5.02	-0.01	61183				

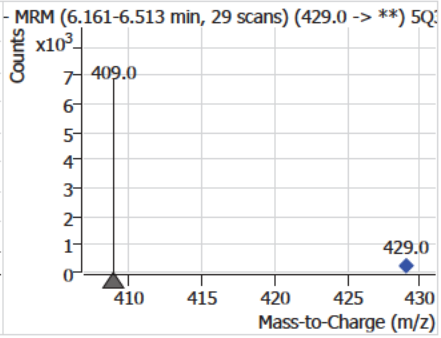


Perfluorinated Compounds by LC/MS/MS

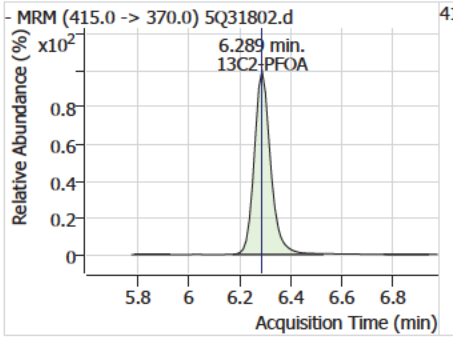
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	148679				

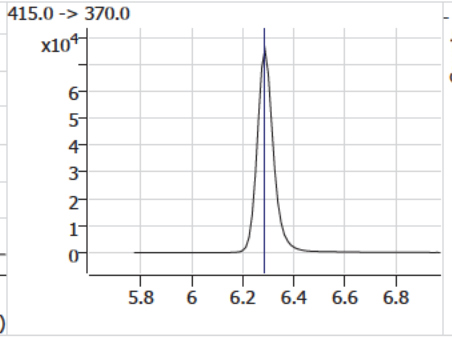


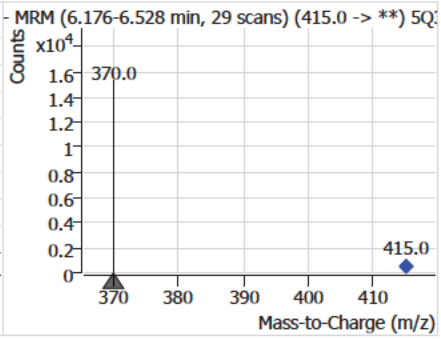




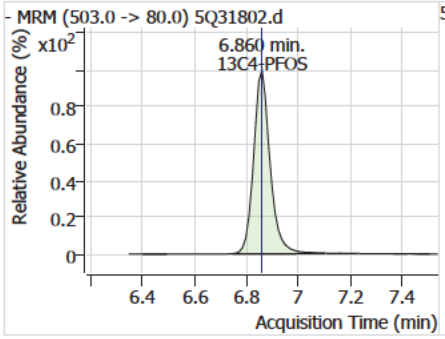
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	335871				

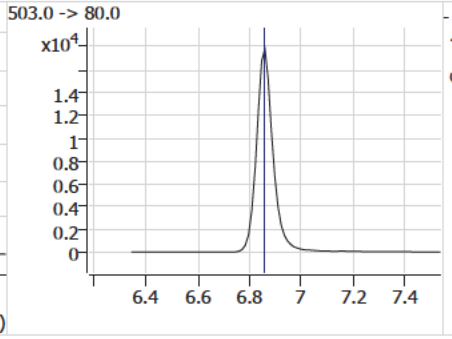


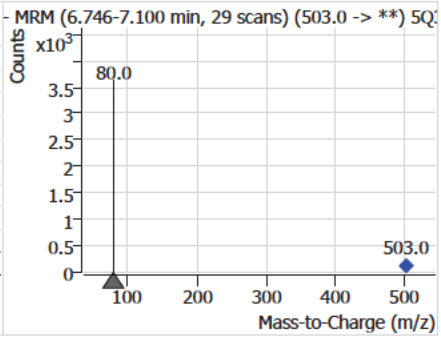




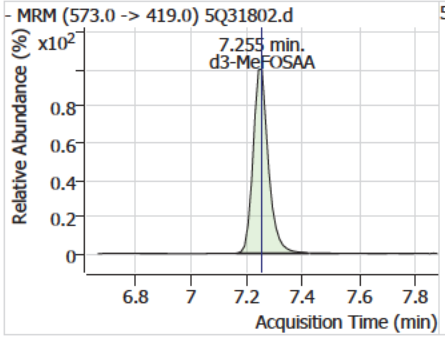
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	78065				

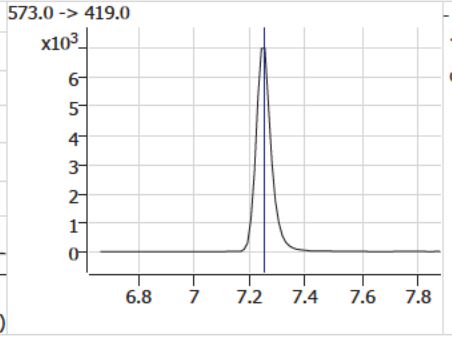


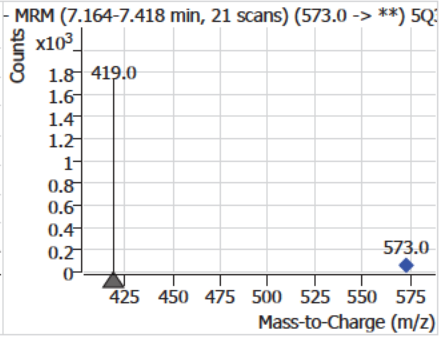




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	26453				

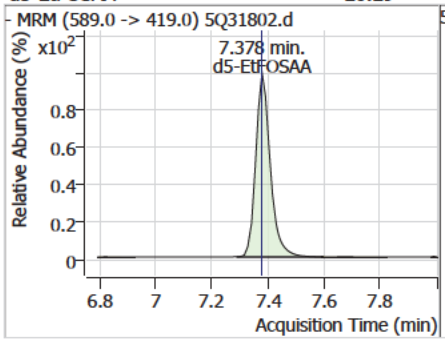


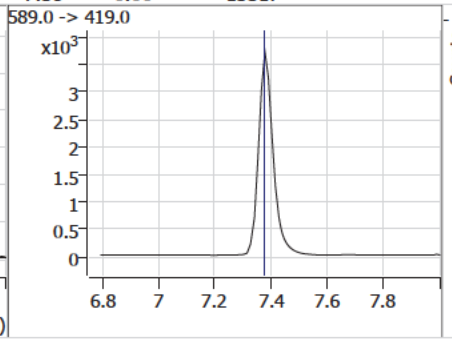


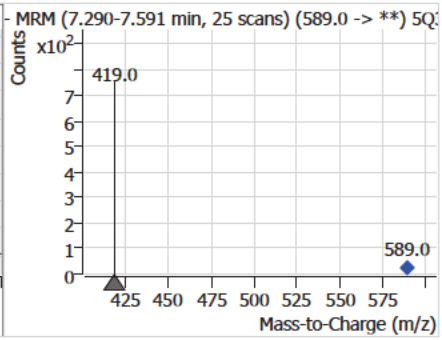


Perfluorinated Compounds by LC/MS/MS

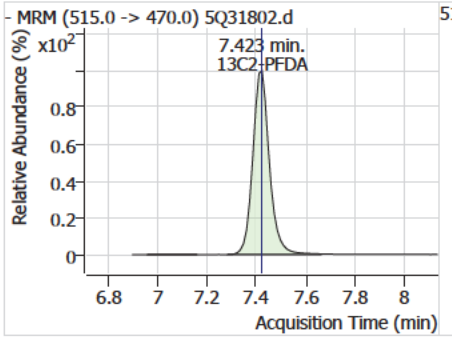
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	26.29	7.38	0.00	13317				

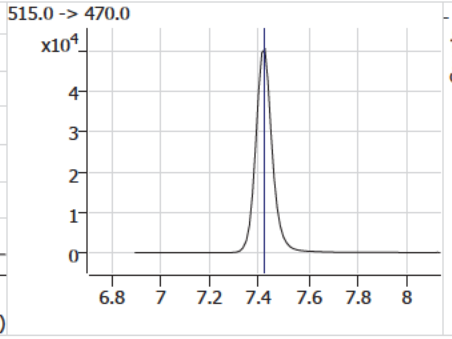


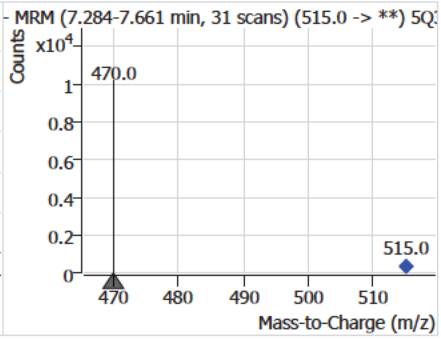




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	17.03	7.42	0.00	235771				







7.1.12

7

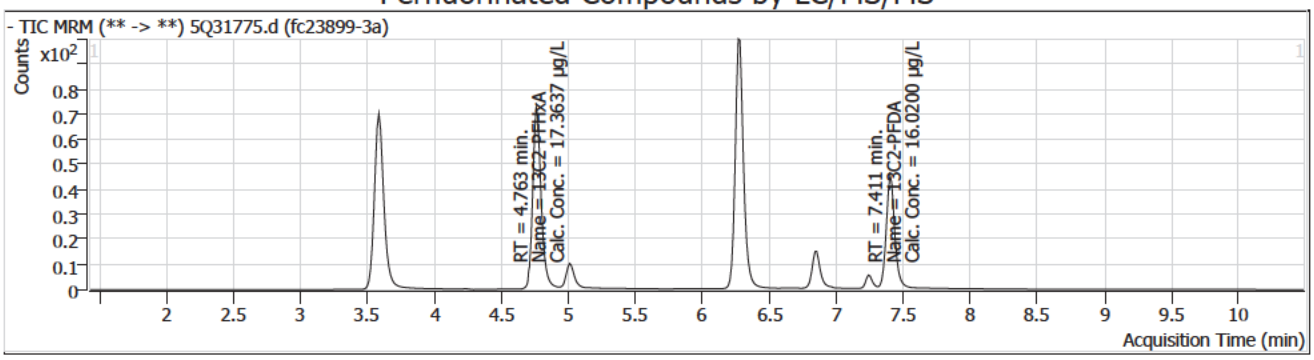
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31775.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/15/2025 7:53:52 PM
Sample Name : fc23899-3a
Vial : P2-C6
DA Method File : 537_041525_S5Q521.quantmethod
Batch Name : s5q521.batch.bin
Sample Information : OP8882,S5Q521,280,,,1,1,water

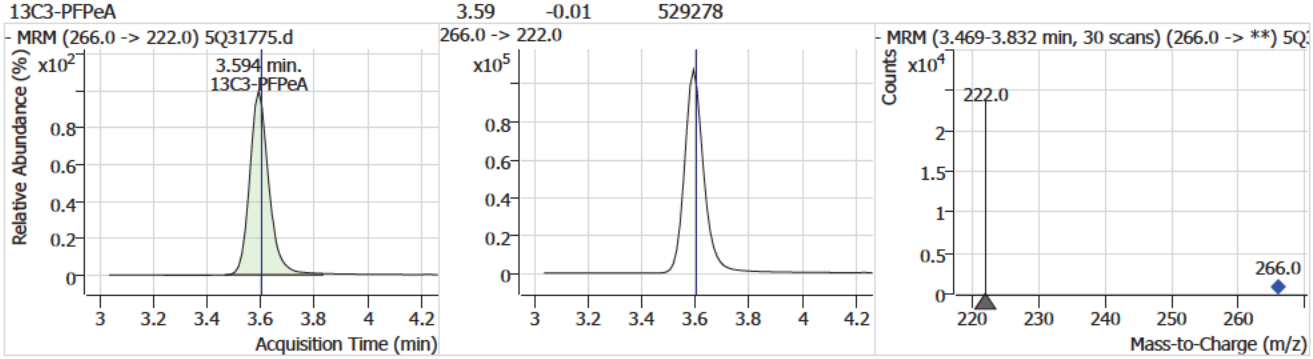
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	238076	20.00	µg/L		-0.012
13C2-PFOA	6.289	415.0 -> 370.0	427668	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	529278	20.00	µg/L		-0.012
13C4-PFOS	6.860	503.0 -> 80.0	97442	20.00	µg/L		0.000
d3-MeFOSAA	7.242	573.0 -> 419.0	28973	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	290988	16.02	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 80.1%			
13C2-PFHxA	4.763	315.0 -> 270.0	487733	17.36	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 86.8%			
d5-EtFOSAA	7.378	589.0 -> 419.0	15719	29.21	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 73.0%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	64563	33.75	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 84.4%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	-	363.0 -> 319.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	-	413.0 -> 369.0	-	N.D.			
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	5.658	285.0 -> 169.0	0		µg/L	m	1

= Qualifier out of range, m = manually integrated, + = Area summed

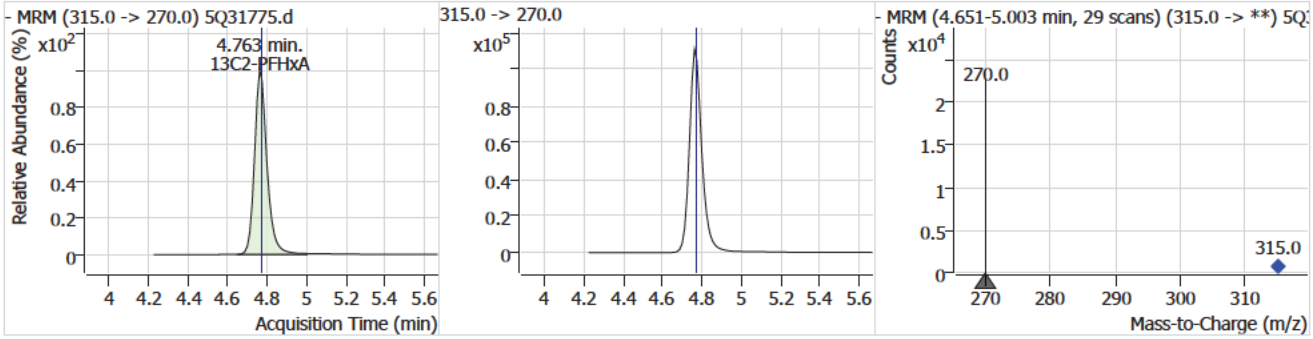
Perfluorinated Compounds by LC/MS/MS



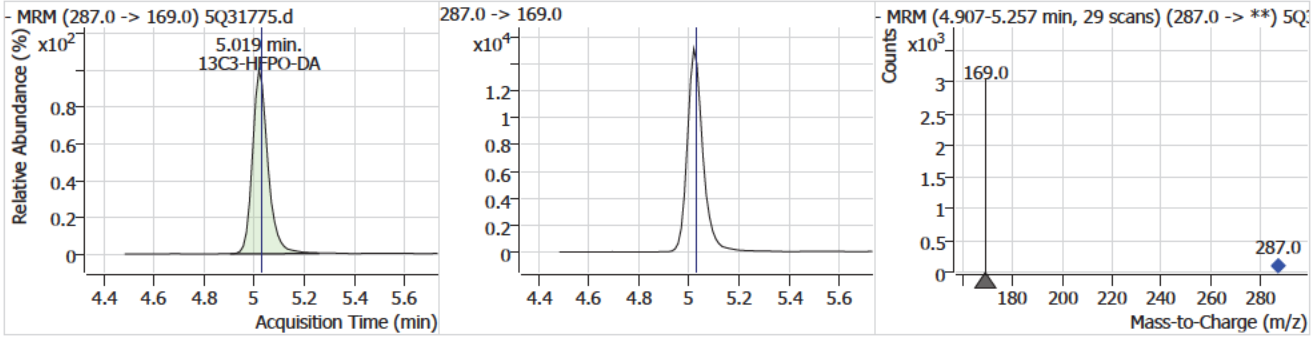
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	529278				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	17.36	4.76	-0.01	487733				

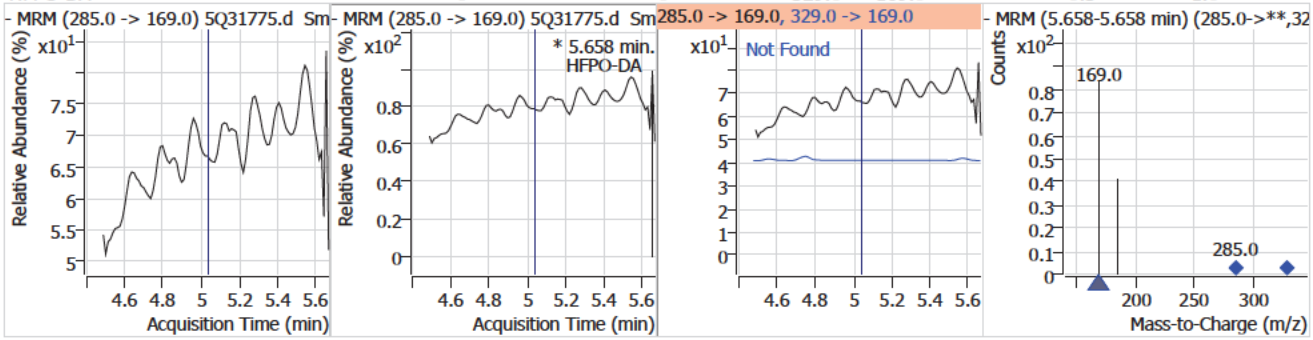


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	33.75	5.02	-0.01	64563				

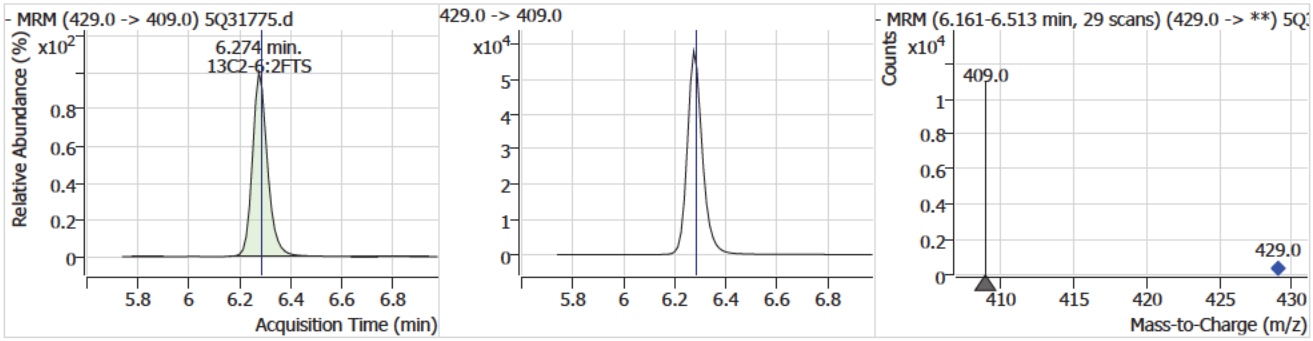


Perfluorinated Compounds by LC/MS/MS

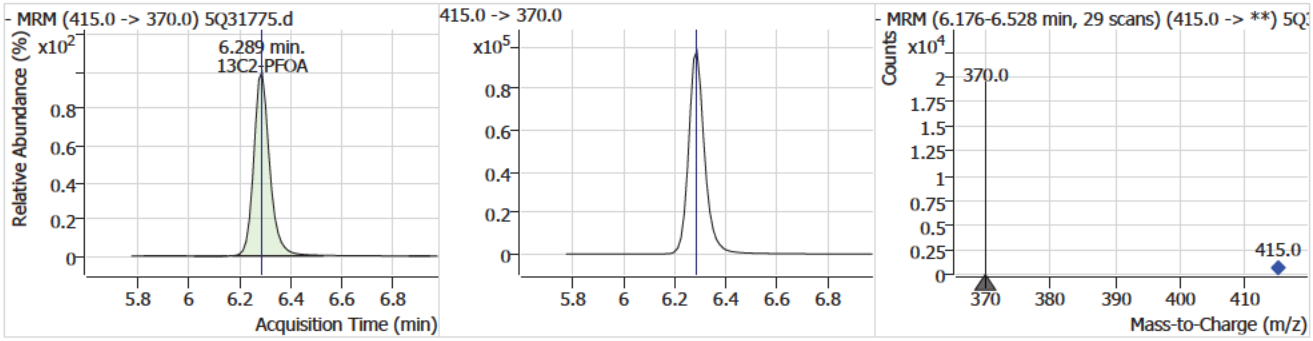
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA		0		0	329.0 -> 169.0		0.3	1.0



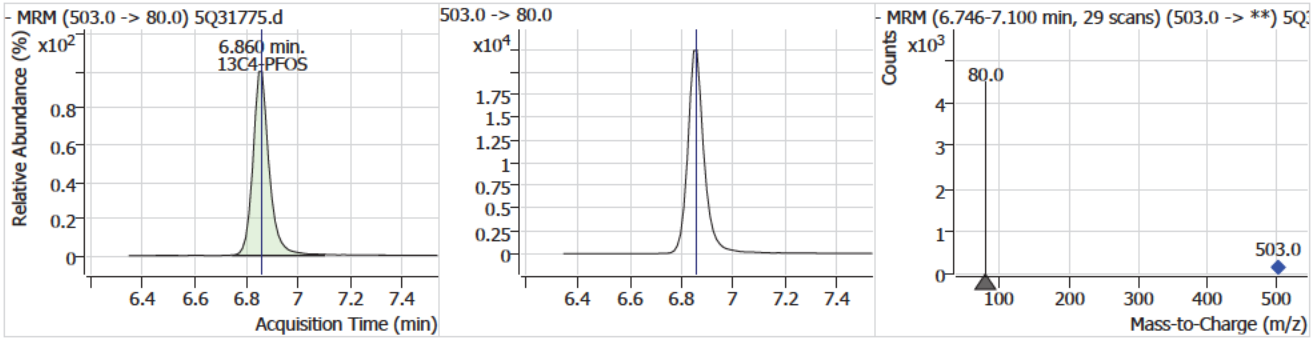
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	238076				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	427668				

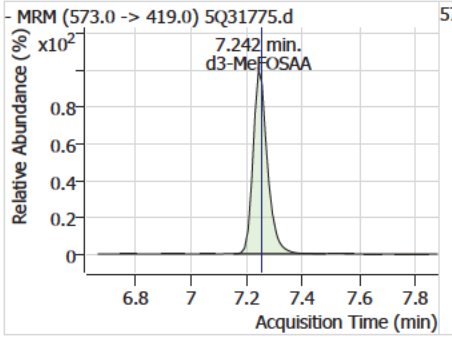


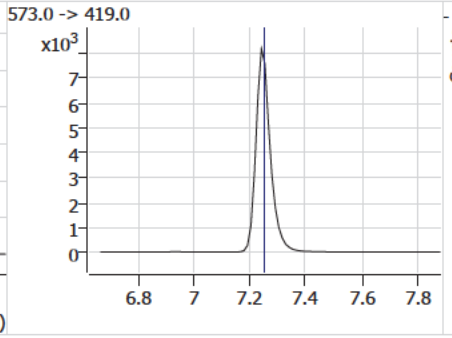
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	97442				

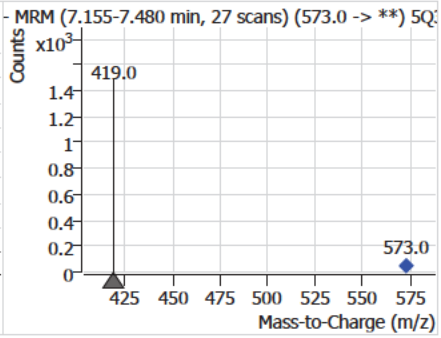


Perfluorinated Compounds by LC/MS/MS

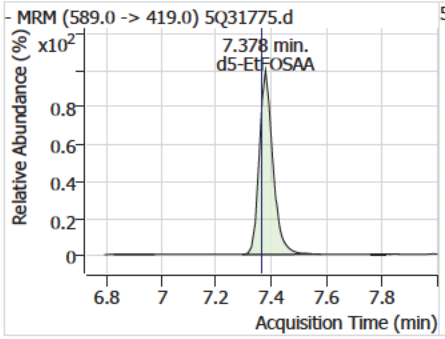
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	28973				

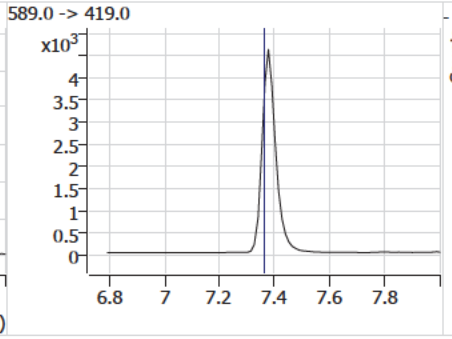


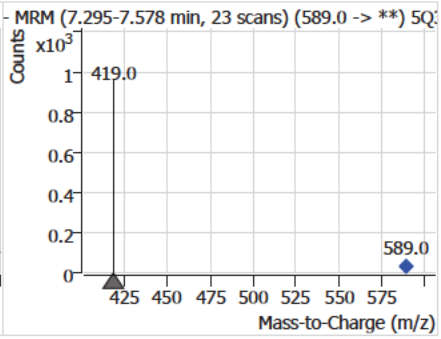




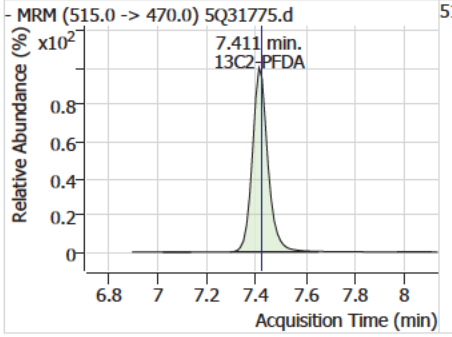
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	29.21	7.38	0.00	15719				

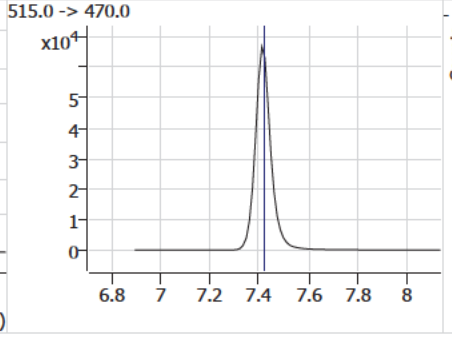


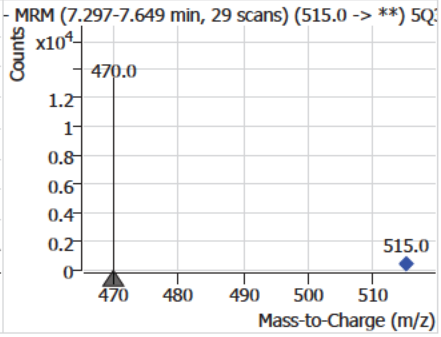




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	16.02	7.41	-0.01	290988				







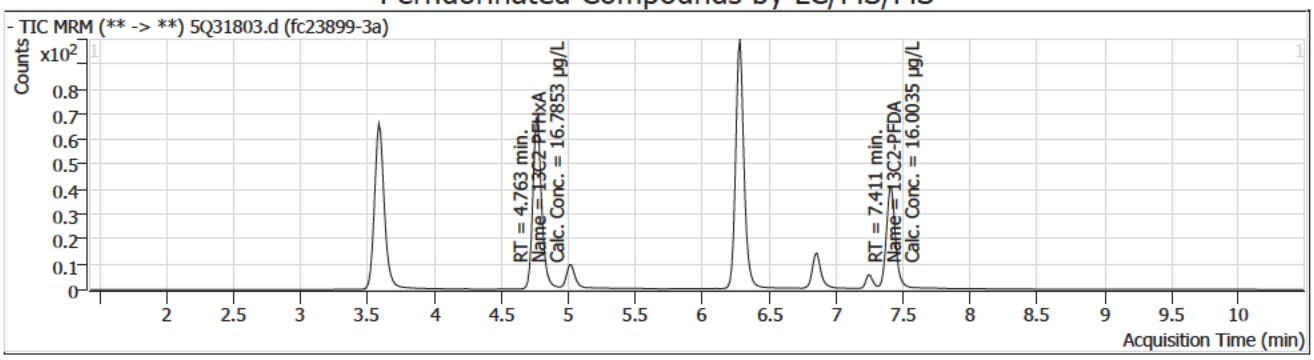
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31803.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/16/2025 4:33:23 PM
Sample Name : fc23899-3a
Vial : P2-C6
DA Method File : 537_041625_S5Q522.quantmethod
Batch Name : s5q522.batch.bin
Sample Information : OP8882,S5Q522,280,,,1,1,water

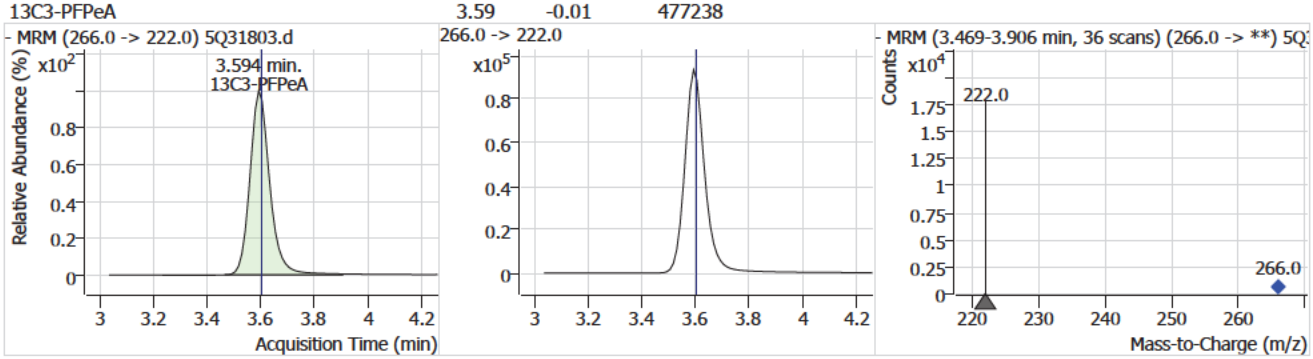
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	222769	20.00	µg/L		-0.012
13C2-PFOA	6.289	415.0 -> 370.0	390232	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	477238	20.00	µg/L		-0.012
13C4-PFOS	6.860	503.0 -> 80.0	87927	20.00	µg/L		0.000
d3-MeFOSAA	7.242	573.0 -> 419.0	28530	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	257442	16.00	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 80.0%			
13C2-PFHxA	4.763	315.0 -> 270.0	442718	16.79	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 83.9%			
d5-EtFOSAA	7.378	589.0 -> 419.0	15052	27.52	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 68.8%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	59912	32.35	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 80.9%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	-	363.0 -> 319.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	-	413.0 -> 369.0	-	N.D.			
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	4.985	285.0 -> 169.0	0		µg/L	m	1

= Qualifier out of range, m = manually integrated, + = Area summed

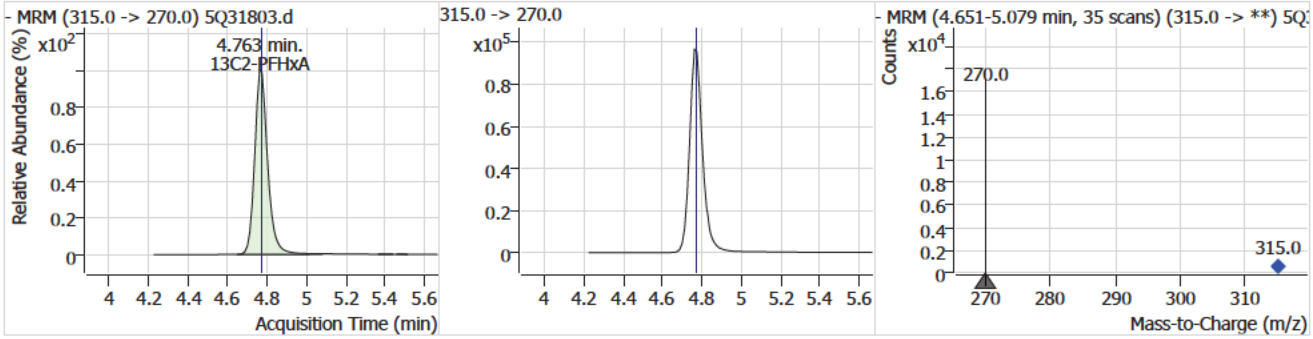
Perfluorinated Compounds by LC/MS/MS



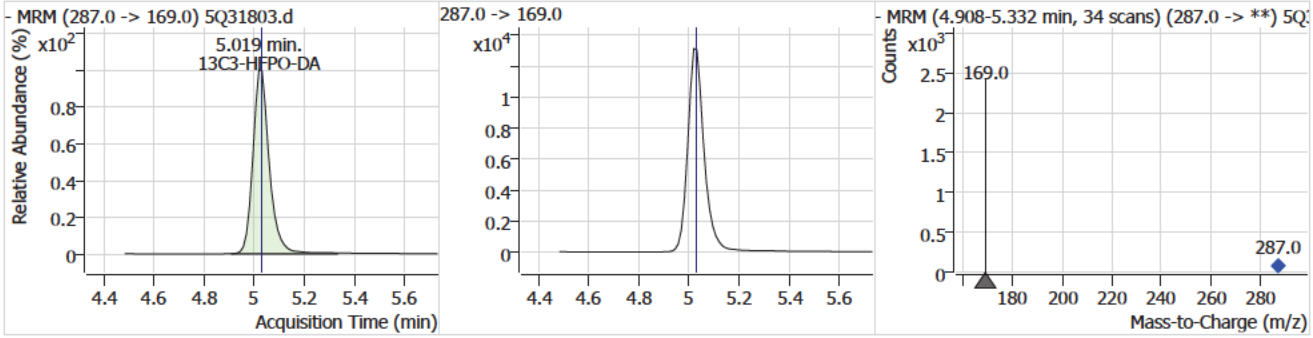
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	477238				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	16.79	4.76	-0.01	442718				

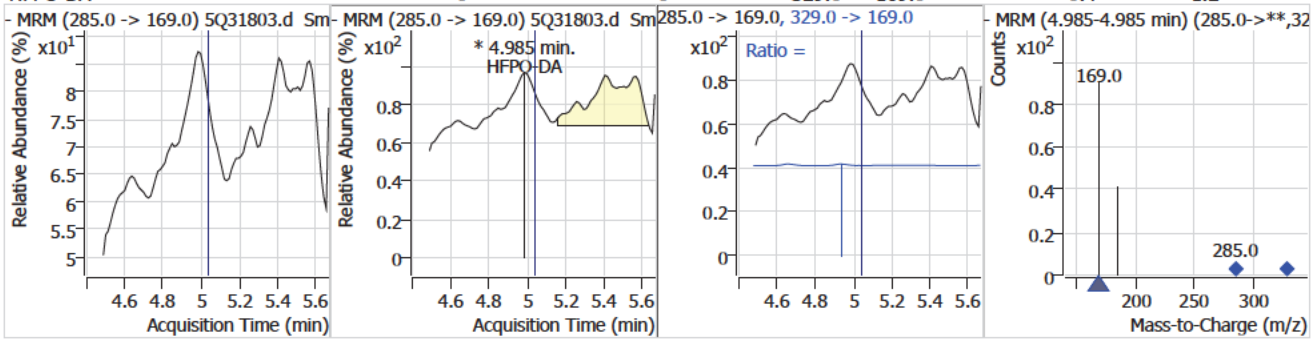


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	32.35	5.02	-0.01	59912				

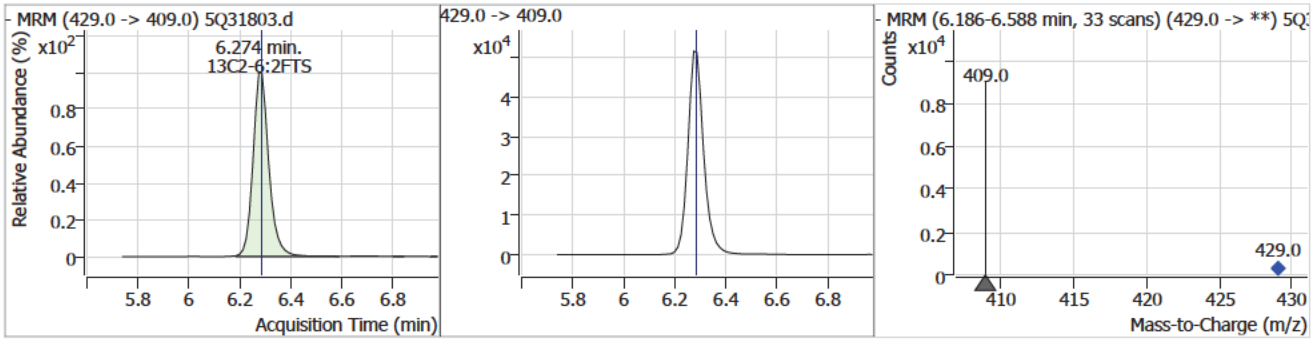


Perfluorinated Compounds by LC/MS/MS

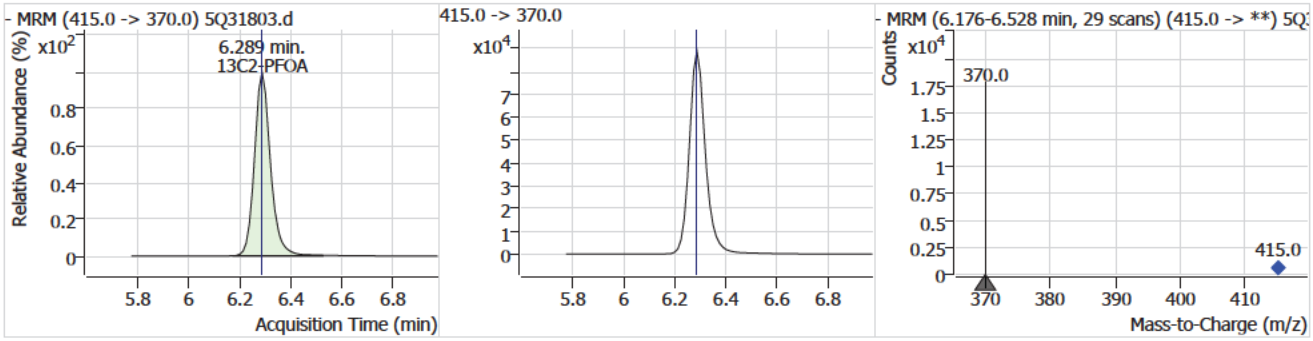
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA		0		0	329.0 -> 169.0		0.4	1.2



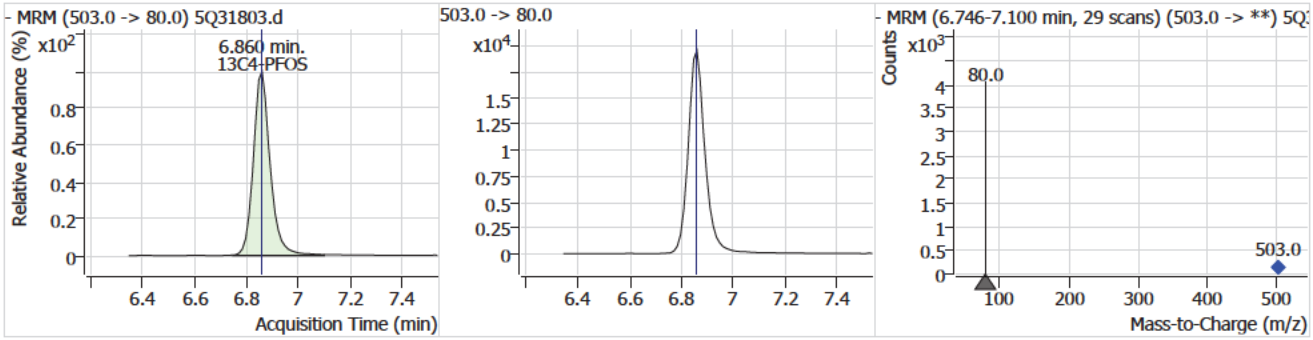
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	222769				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	390232				

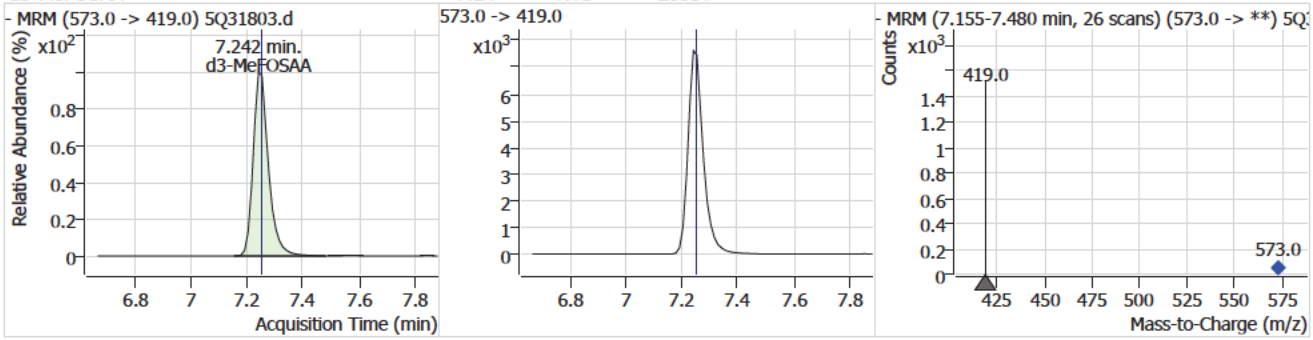


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	87927				

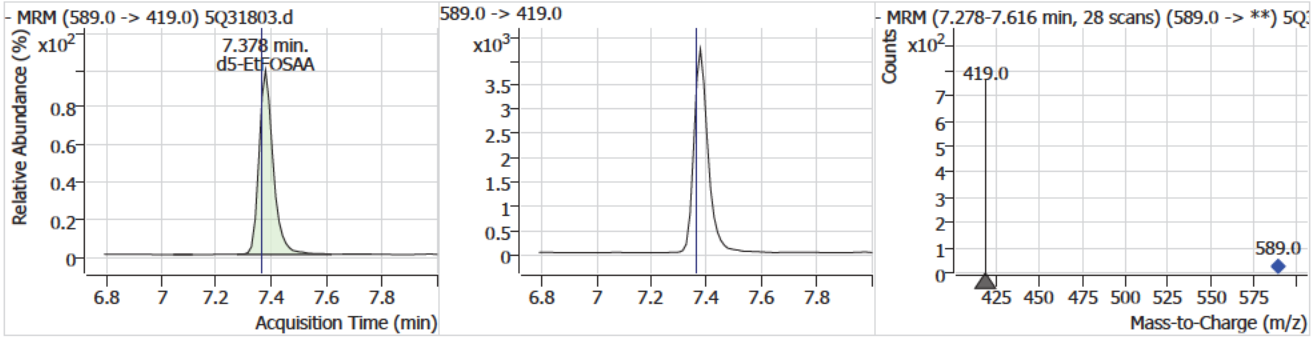


Perfluorinated Compounds by LC/MS/MS

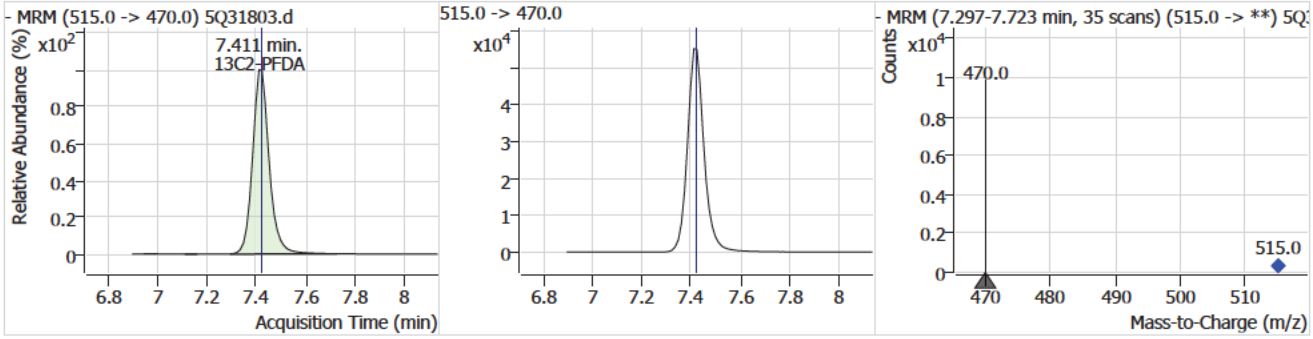
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	28530				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	27.52	7.38	0.00	15052				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	16.00	7.41	-0.01	257442				



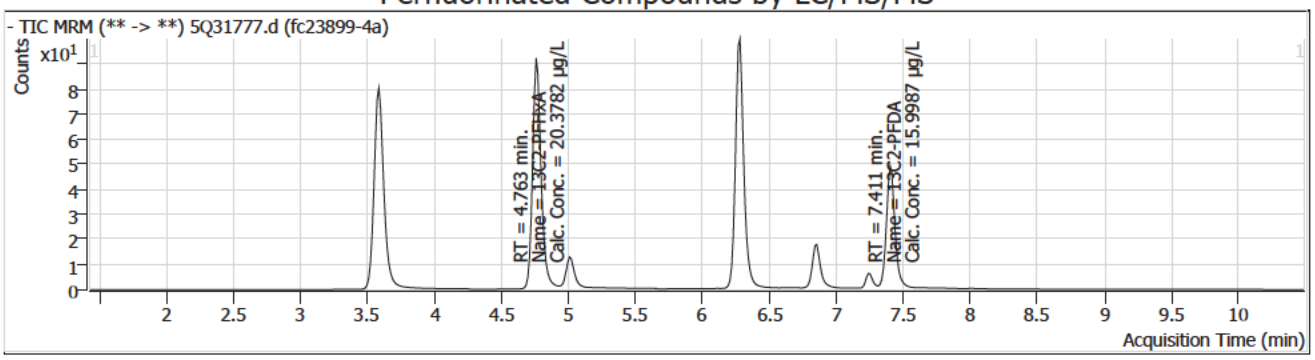
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31777.d
Operator (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/15/2025 8:25:53 PM
Sample Name : fc23899-4a
Vial : P2-C8
DA Method File : 537_041525_S5Q521.quantmethod
Batch Name : s5q521.batch.bin
Sample Information : OP8882,S5Q521,280,,,1,1,water

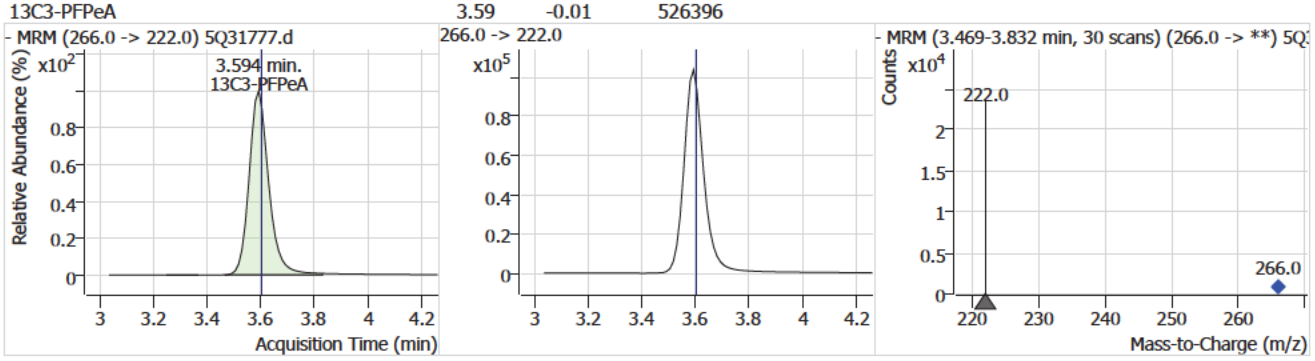
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.274	429.0 -> 409.0	171889	20.00 µg/L	-0.012
13C2-PFOA	6.289	415.0 -> 370.0	394101	20.00 µg/L	0.000
13C3-PFPeA	3.594	266.0 -> 222.0	526396	20.00 µg/L	-0.012
13C4-PFOS	6.860	503.0 -> 80.0	95909	20.00 µg/L	0.000
d3-MeFOSAA	7.242	573.0 -> 419.0	28674	40.00 µg/L	-0.012
System Monitoring Compounds					
13C2-PFDA	7.411	515.0 -> 470.0	267792	16.00 µg/L	-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 80.0%	
13C2-PFHxA	4.763	315.0 -> 270.0	527482	20.38 µg/L	-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 101.9%	
d5-EtFOSAA	7.378	589.0 -> 419.0	14146	26.56 µg/L	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 66.4%	
13C3-HFPO-DA	5.019	287.0 -> 169.0	68790	39.02 µg/L	-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 97.6%	
Target Compounds					QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.	
8:2FTS	-	527.0 -> 507.0	-	N.D.	
EtFOSAA	-	584.0 -> 419.0	-	N.D.	
MeFOSAA	-	570.0 -> 419.0	-	N.D.	
PFBS	-	299.0 -> 80.0	-	N.D.	
PFDA	-	513.0 -> 469.0	-	N.D.	
PFDoDA	-	613.0 -> 569.0	-	N.D.	
PFHpA	-	363.0 -> 319.0	-	N.D.	
PFHxA	-	313.0 -> 269.0	-	N.D.	
PFHxS	-	399.0 -> 80.0	-	N.D.	
PFNA	-	463.0 -> 419.0	-	N.D.	
PFOA	-	413.0 -> 369.0	-	N.D.	
PFOS	-	499.0 -> 80.0	-	N.D.	
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	
ADONA	-	377.0 -> 251.0	-	N.D.	
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
HFPO-DA	-	285.0 -> 169.0	-	N.D.	

= Qualifier out of range, m = manually integrated, + = Area summed

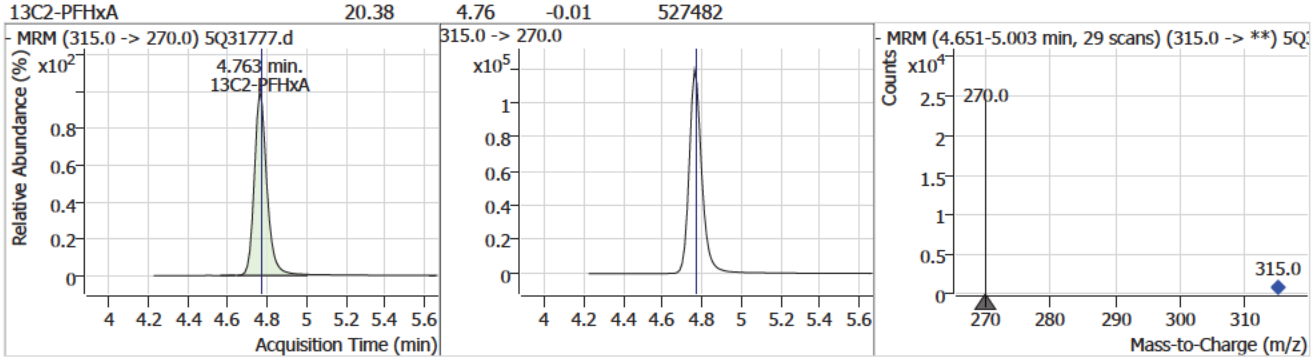
Perfluorinated Compounds by LC/MS/MS



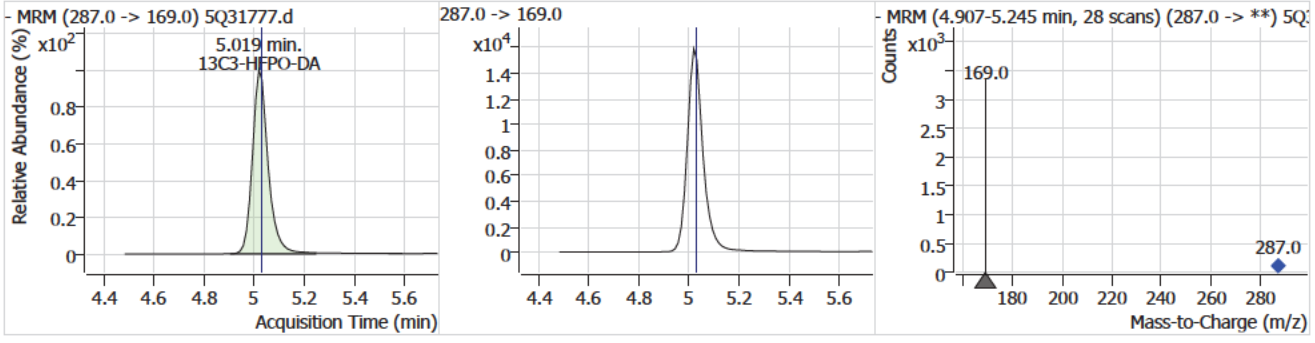
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	526396				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	20.38	4.76	-0.01	527482				

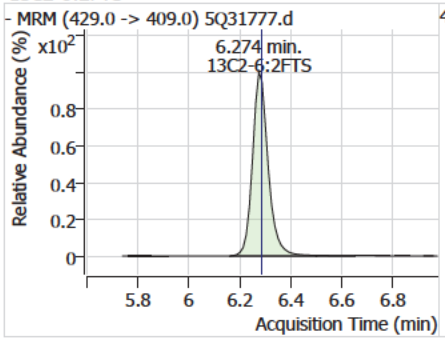


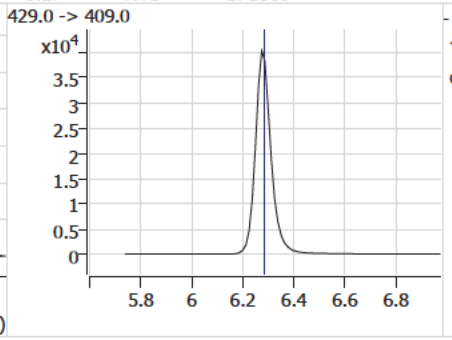
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	39.02	5.02	-0.01	68790				

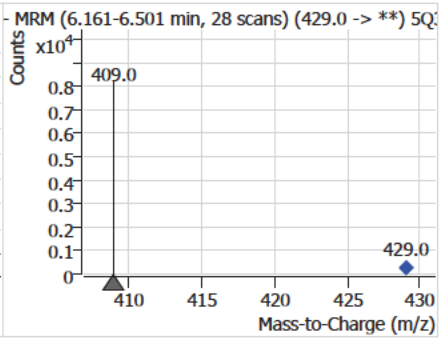


Perfluorinated Compounds by LC/MS/MS

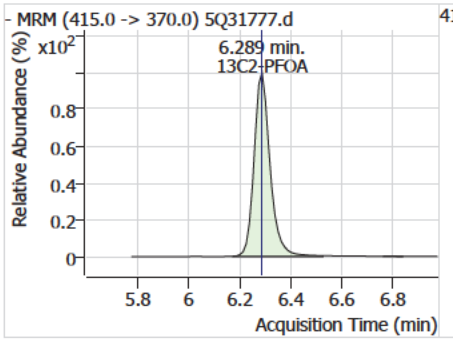
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	171889				

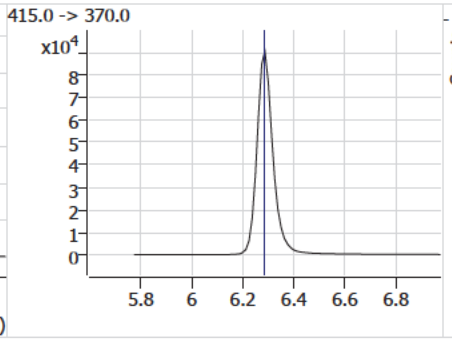


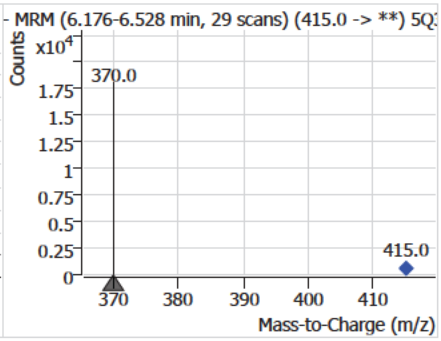




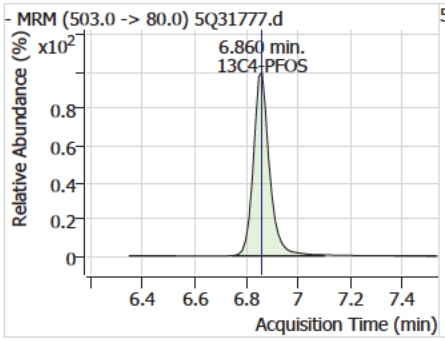
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	394101				

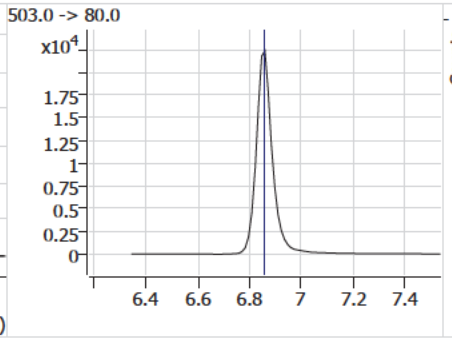


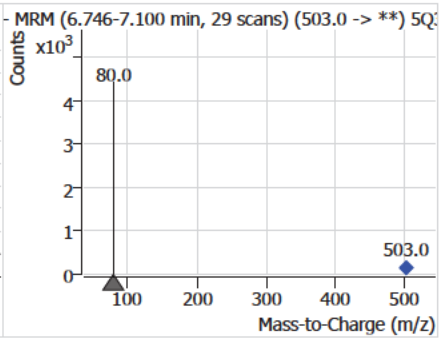




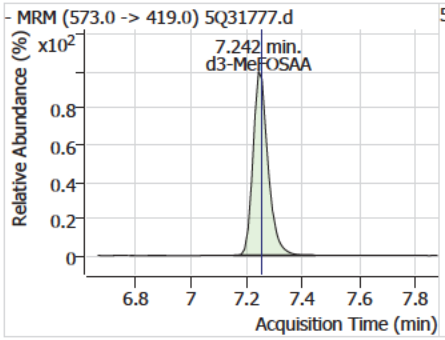
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	95909				

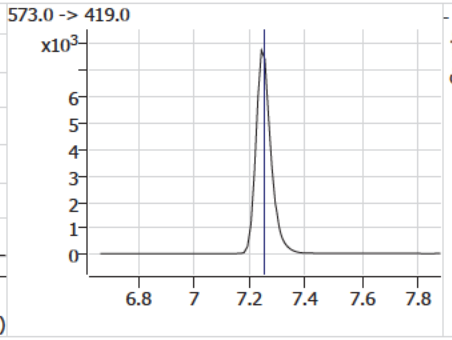


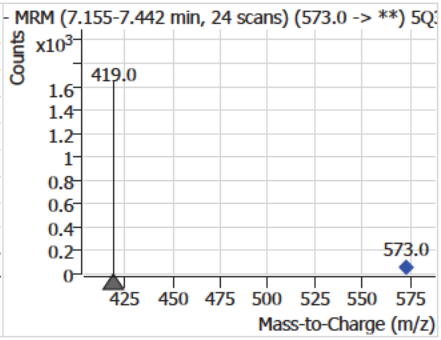




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	28674				

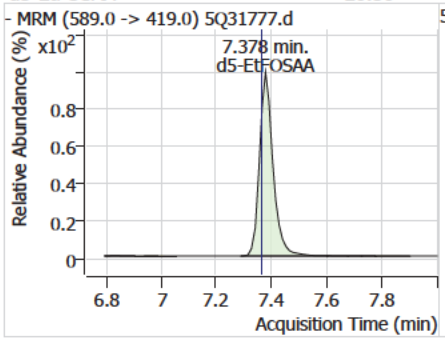


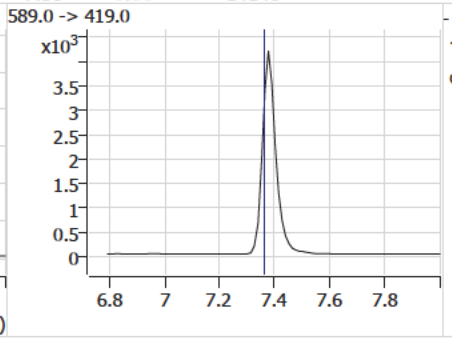


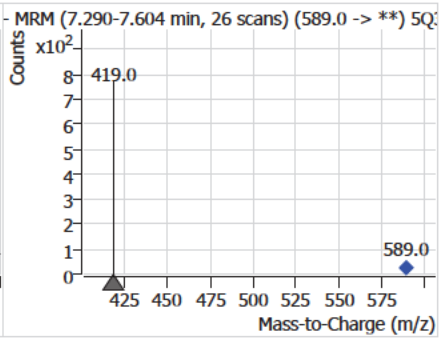


Perfluorinated Compounds by LC/MS/MS

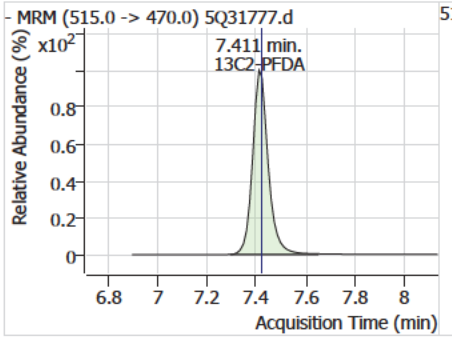
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	26.56	7.38	0.00	14146				

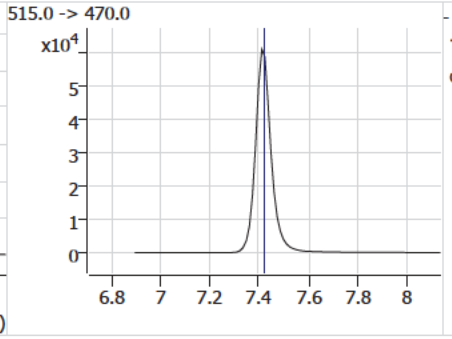


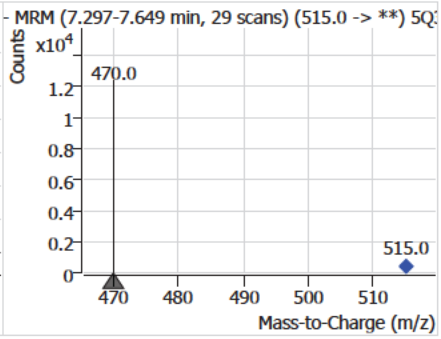




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	16.00	7.41	-0.01	267792				







7.1.15

7

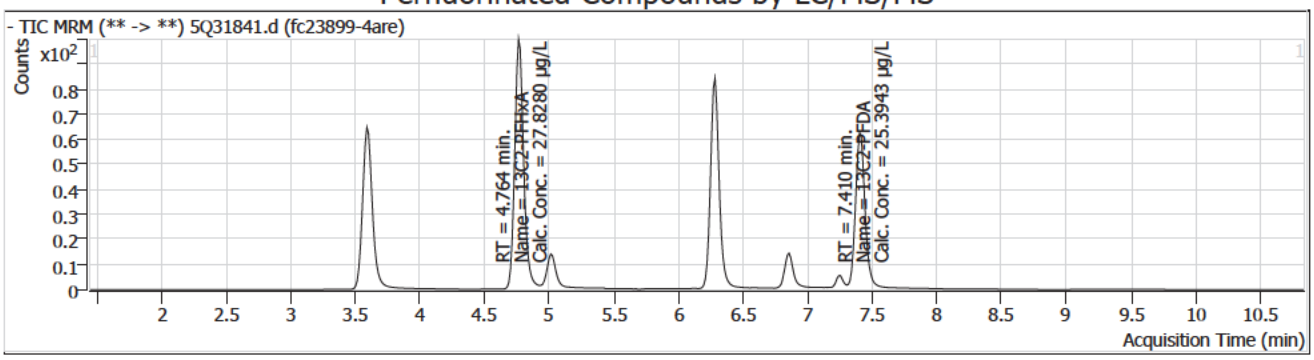
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31841.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 6:24:01 PM
Sample Name : fc23899-4are
Vial : P2-F1
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8904,S5Q523,280,,,1,1,water

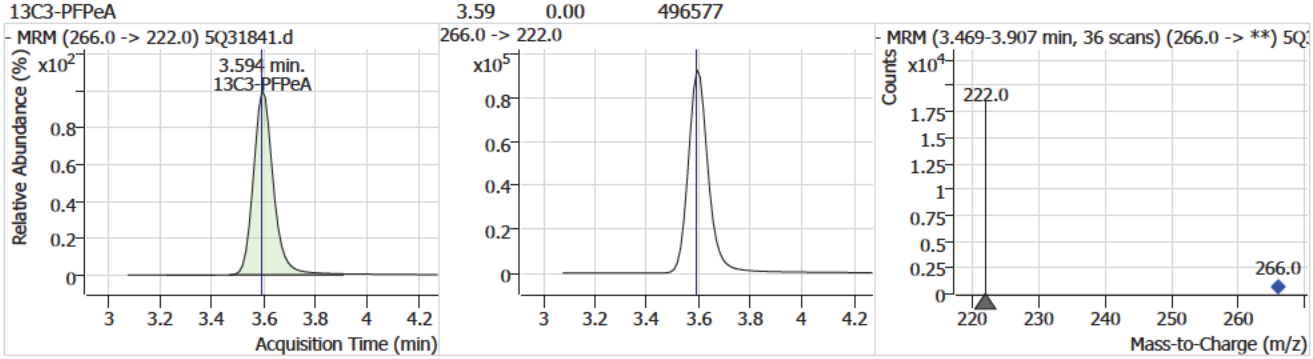
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.275	429.0 -> 409.0	178520	20.00	µg/L		-0.012
13C2-PFOA	6.290	415.0 -> 370.0	394540	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	496577	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	93746	20.00	µg/L		0.000
d3-MeFOSAA	7.254	573.0 -> 419.0	27054	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.410	515.0 -> 470.0	428775	25.39	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 127.0%			
13C2-PFHxA	4.764	315.0 -> 270.0	695688	27.83	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 139.1%			
d5-EtFOSAA	7.378	589.0 -> 419.0	29867	58.18	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 145.4%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	91620	51.86	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 129.7%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	-	363.0 -> 319.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	-	413.0 -> 369.0	-	N.D.			
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	4.998	285.0 -> 169.0	0		µg/L	m	1

= Qualifier out of range, m = manually integrated, + = Area summed

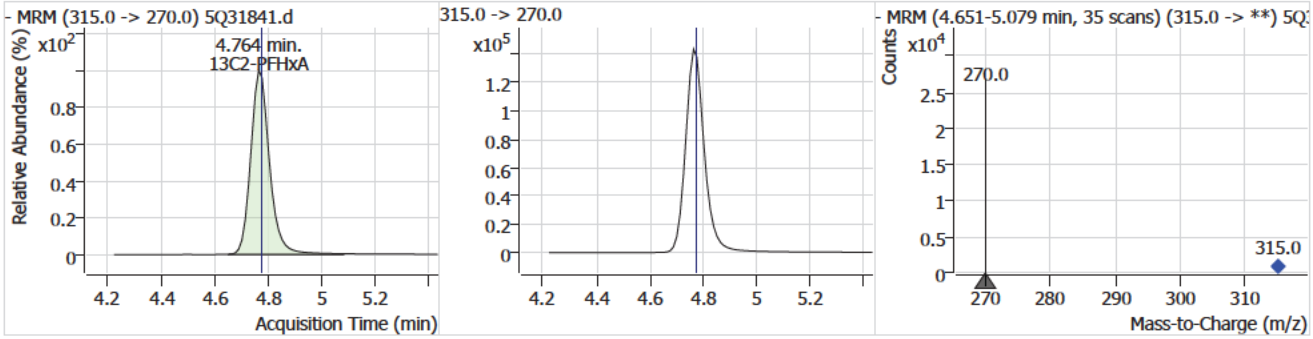
Perfluorinated Compounds by LC/MS/MS



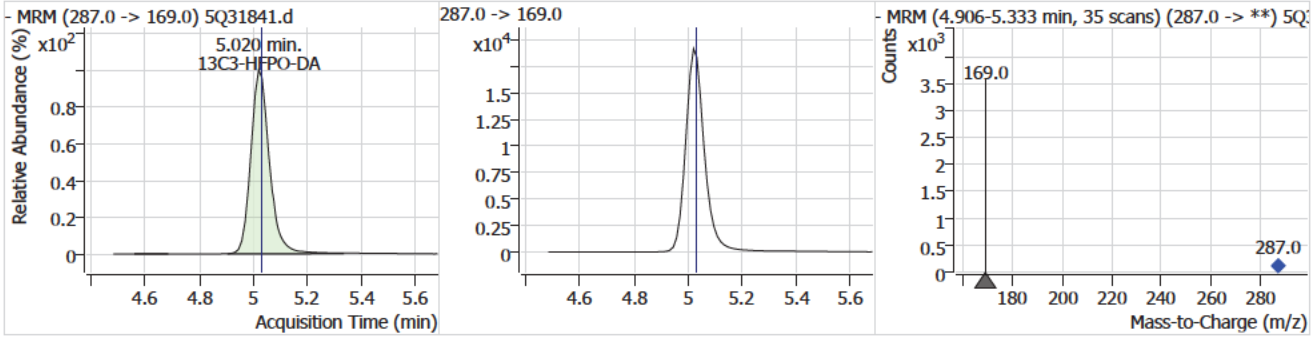
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	496577				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	27.83	4.76	-0.01	695688				

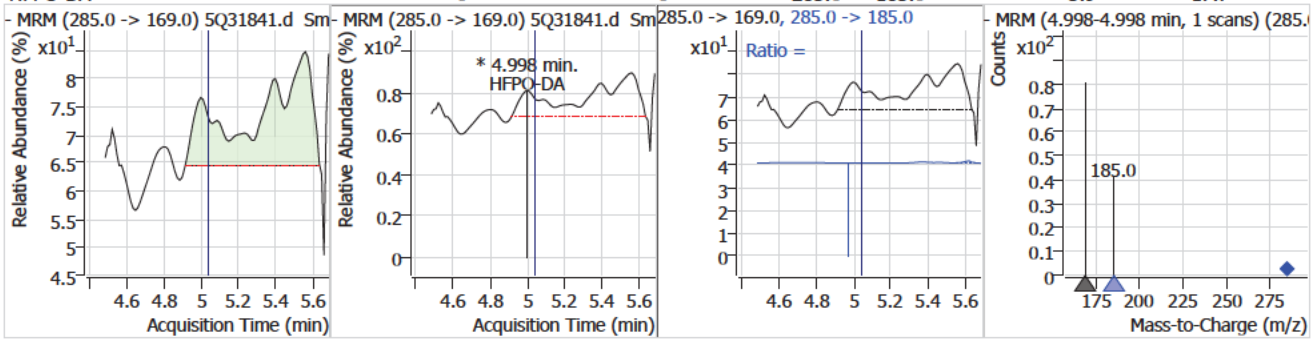


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	51.86	5.02	-0.01	91620				

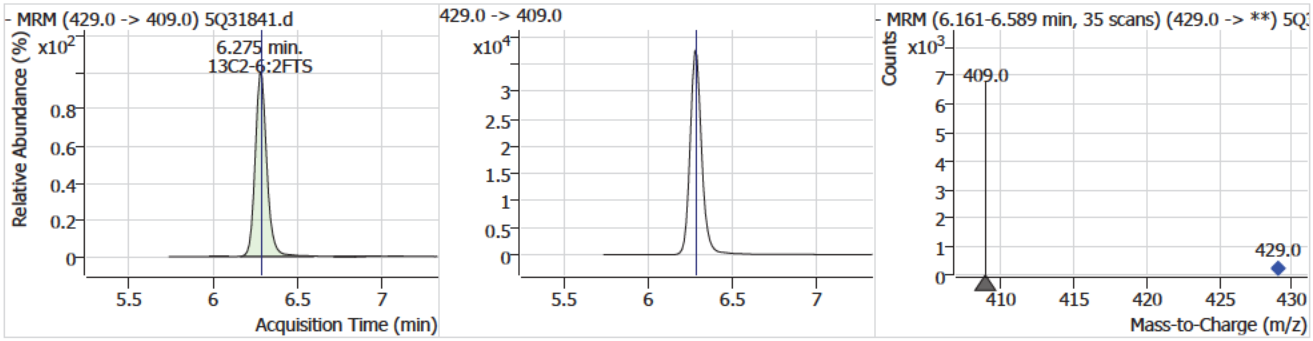


Perfluorinated Compounds by LC/MS/MS

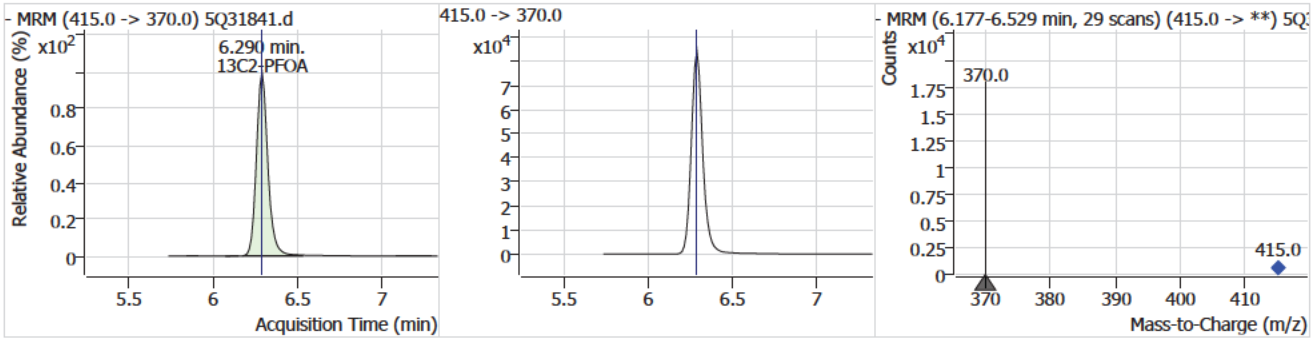
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA		0		0	285.0 -> 185.0		5.9	17.7



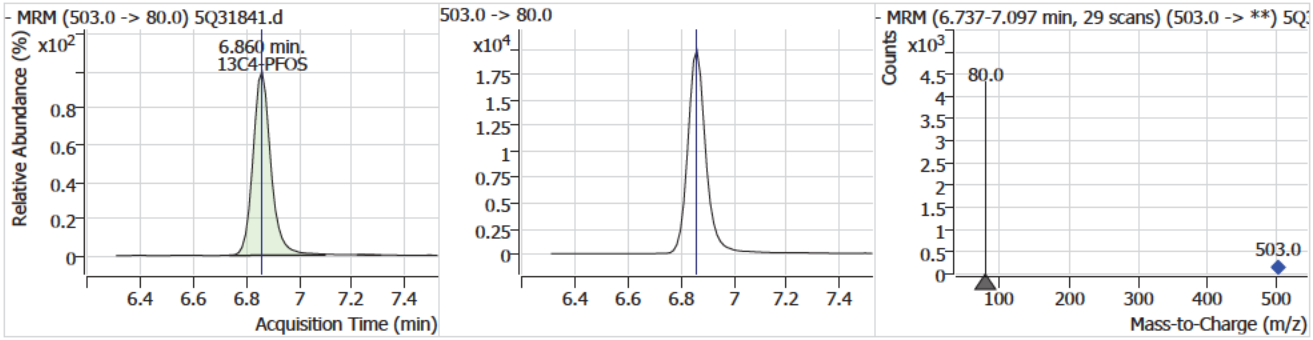
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	178520				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	394540				

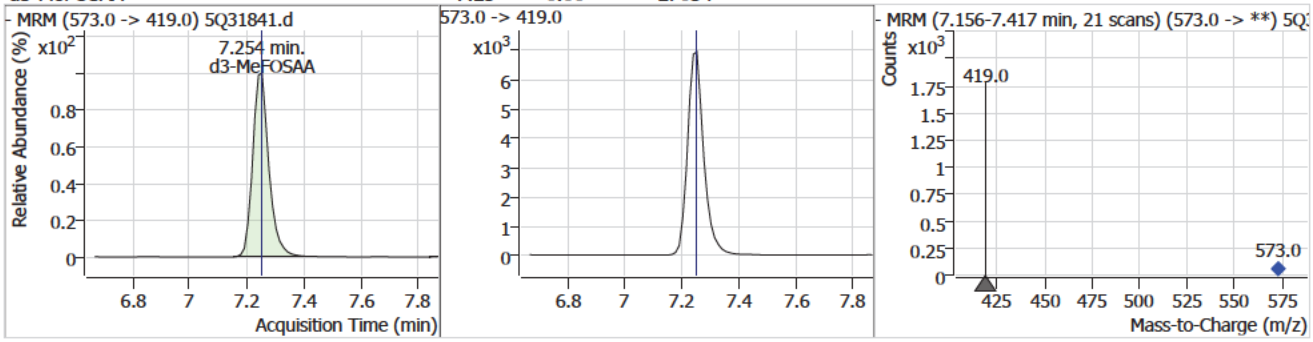


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	93746				

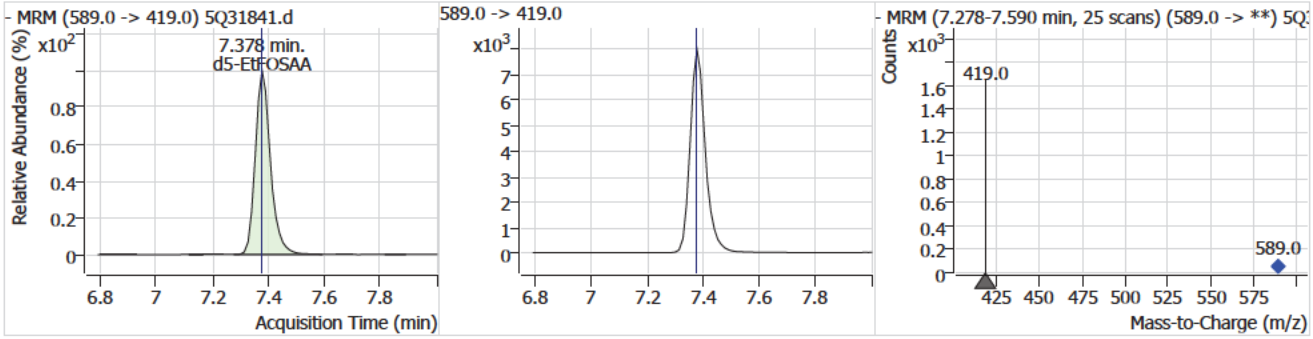


Perfluorinated Compounds by LC/MS/MS

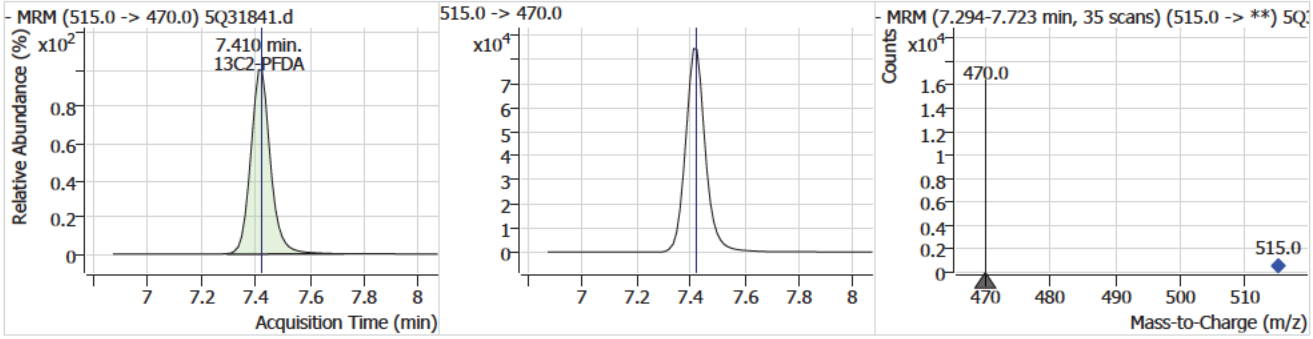
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	27054				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	58.18	7.38	0.00	29867				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	25.39	7.41	-0.01	428775				



7.1.16

7

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101471.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 5:33:04 PM
Sample Name : op8883-mb
Vial : P3-B1
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8883,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	186364	10.00 µg/L	-0.013
13C3-PFBA	2.319	216.0 -> 172.0	71808	10.00 µg/L	0.188
13C4-PFOS	7.983	503.0 -> 80.0	26997	10.00 µg/L	-0.013
M4-PFBA	2.315	217.0 -> 172.0	105420	10.00 µg/L	0.175
M5-PFPeA	4.400	268.0 -> 223.0	128869	10.00 µg/L	0.063
M5-PFHxA	5.763	318.0 -> 273.0	160724	10.00 µg/L	0.013
M4-PFHpA	6.694	367.0 -> 322.0	136469	10.00 µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	180131	10.00 µg/L	-0.013
M9-PFNA	8.010	472.0 -> 427.0	186603	10.00 µg/L	-0.013
M6-PFDA	8.533	519.0 -> 474.0	234155	10.00 µg/L	-0.013
M7-PFUnDA	9.199	570.0 -> 525.0	278732	10.00 µg/L	-0.025
M2-PFDoDA	10.096	615.0 -> 570.0	266640	10.00 µg/L	-0.038
M3-PFBS	4.696	302.0 -> 99.0	14932	10.00 µg/L	0.050
M3-PFHxS	6.724	402.0 -> 99.0	21507	10.00 µg/L	-0.013
M8-PFOS	7.982	507.0 -> 99.0	25164	10.00 µg/L	-0.013
M2-4:2FTS	5.672	329.0 -> 309.0	51335	10.00 µg/L	0.025
M2-6:2FTS	7.420	429.0 -> 409.0	98498	10.00 µg/L	-0.013
M2-8:2FTS	8.585	529.0 -> 509.0	124314	10.00 µg/L	-0.026
M3-HFPO-DA	6.056	287.0 -> 169.0	2071	10.00 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.672	329.0 -> 309.0	51335	7.99 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.9%	
13C2-6:2FTS	7.420	429.0 -> 409.0	98498	8.16 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.6%	
13C2-8:2FTS	8.585	529.0 -> 509.0	124314	6.15 µg/L	-0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 61.5%	
13C2-PFDoDA	10.096	615.0 -> 570.0	266640	3.36 µg/L	-0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 33.6%	
13C3-PFBS	4.696	302.0 -> 99.0	14932	8.86 µg/L	0.050
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.6%	
13C3-PFHxS	6.724	402.0 -> 99.0	21507	8.97 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.7%	
13C4-PFBA	2.315	217.0 -> 172.0	105420	8.65 µg/L	0.175
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 86.5%	
13C4-PFHpA	6.694	367.0 -> 322.0	136469	8.65 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 86.5%	
13C5-PFHxA	5.763	318.0 -> 273.0	160724	8.51 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 85.1%	
13C5-PFPeA	4.400	268.0 -> 223.0	128869	8.78 µg/L	0.063
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 87.8%	
13C6-PFDA	8.533	519.0 -> 474.0	234155	7.51 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 75.1%	
13C7-PFUnDA	9.199	570.0 -> 525.0	278732	4.48 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 44.8%	
13C8-PFOA	7.422	421.0 -> 376.0	180131	8.80 µg/L	-0.013

Perfluorinated Compounds by LC/MS/MS

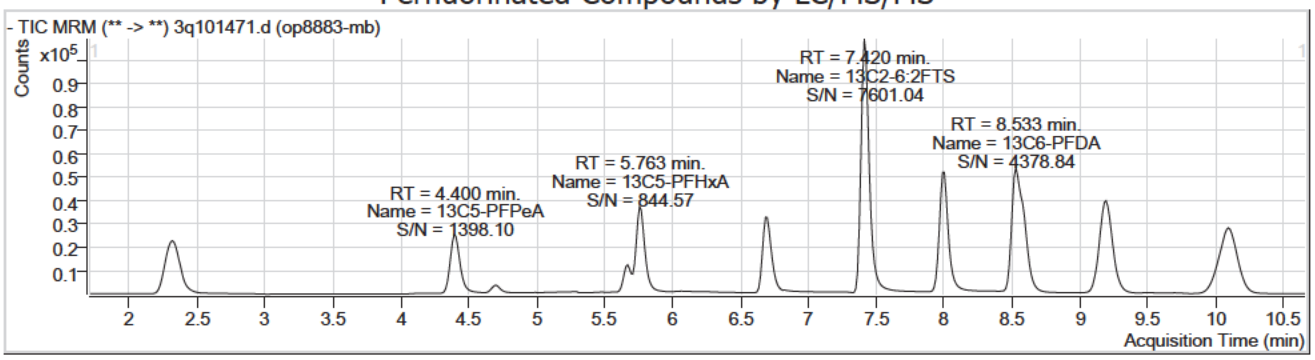
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.0%		
13C8-PFOS	7.982	507.0 -> 99.0	25164	8.20 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.0%		
13C9-PFNA	8.010	472.0 -> 427.0	186603	8.39 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 83.9%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	2071	7.63 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.3%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	-	299.0 -> 80.0	-	N.D.		
		299.0 -> 99.0				
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	-	363.0 -> 319.0	-	N.D.		
		363.0 -> 169.0				
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	6.545	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0	0			

= Qualifier out of range, m = manually integrated, + = Area summed

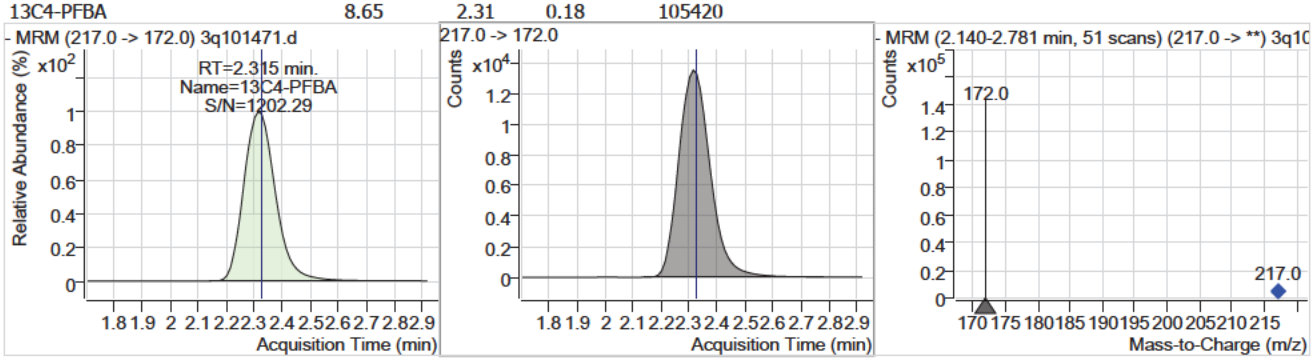
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)

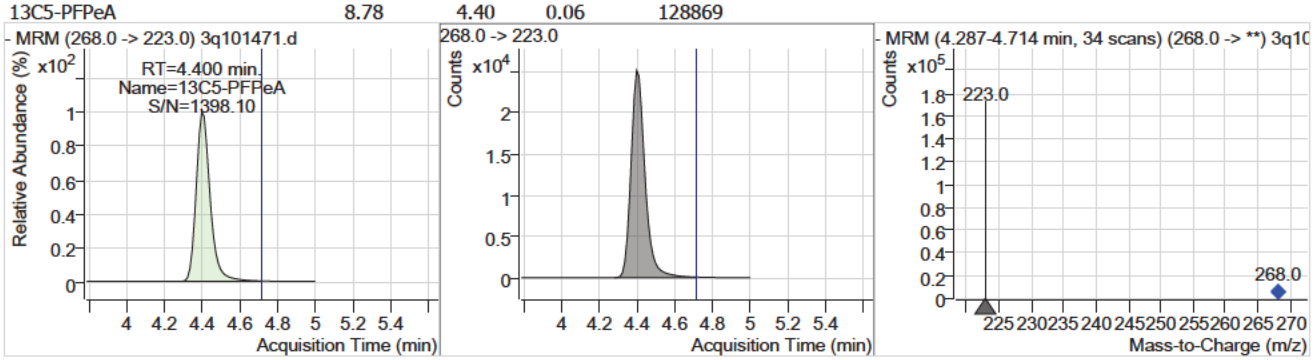
Perfluorinated Compounds by LC/MS/MS



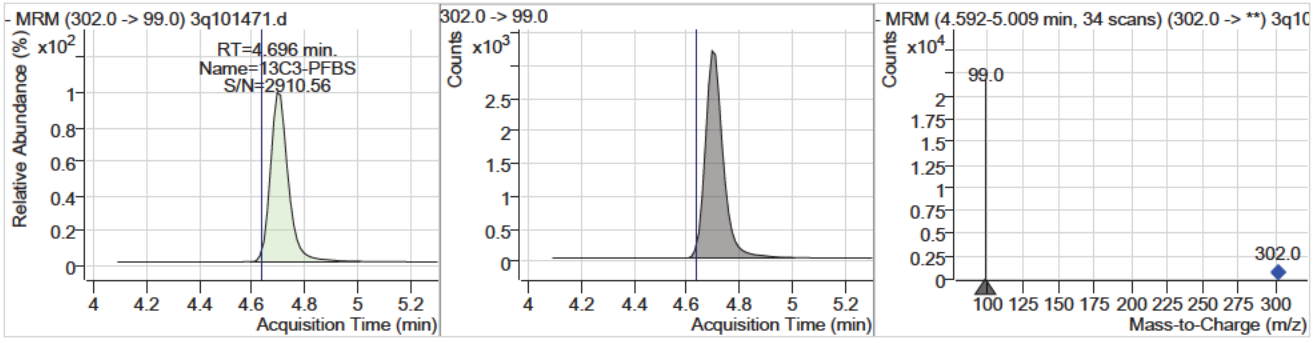
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	8.65	2.31	0.18	105420				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	8.78	4.40	0.06	128869				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	8.86	4.70	0.05	14932				

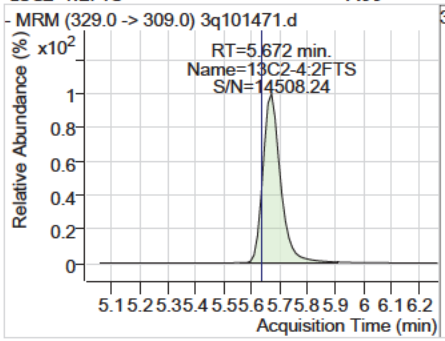


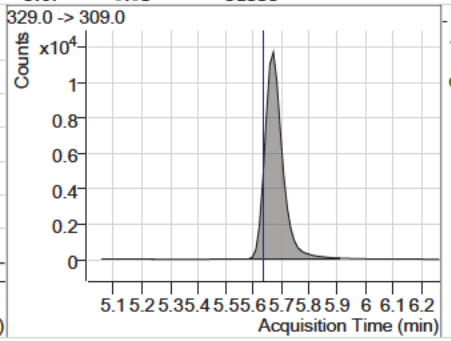
7.2.1

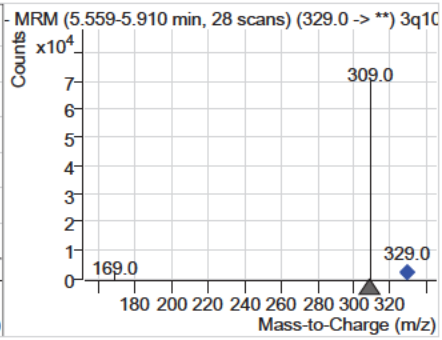
7

Perfluorinated Compounds by LC/MS/MS

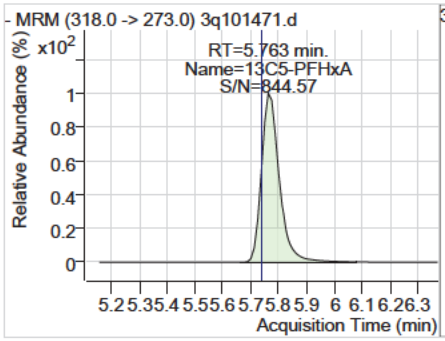
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	7.99	5.67	0.03	51335				

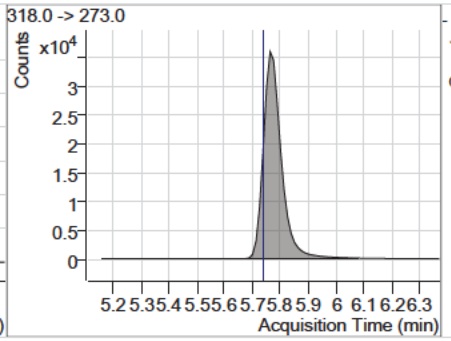


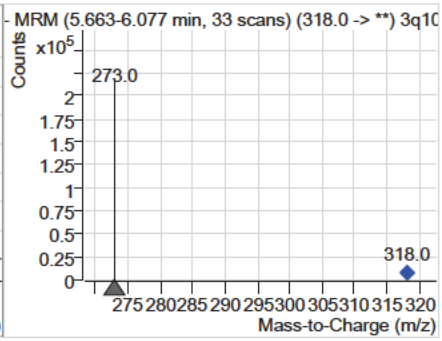




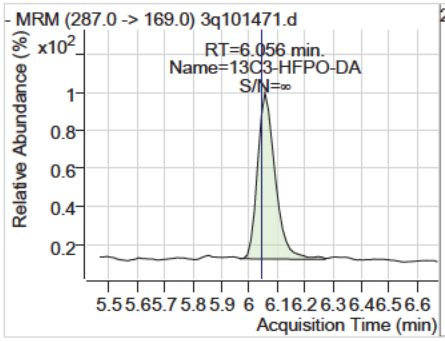
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	8.51	5.76	0.01	160724				

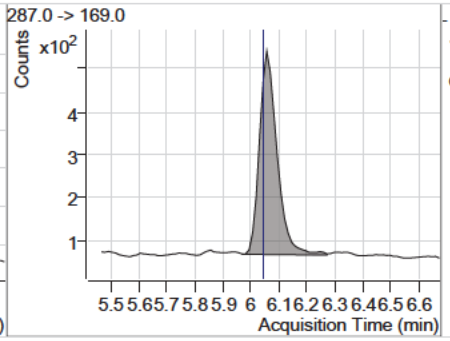


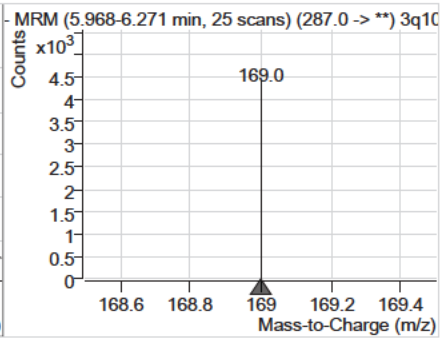




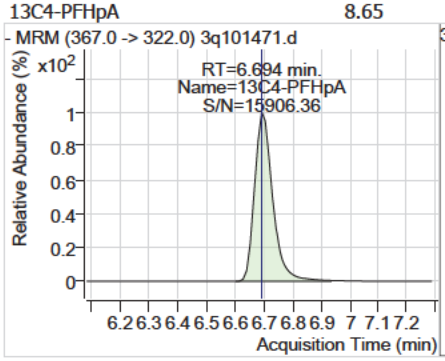
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	7.63	6.06	0.00	2071				

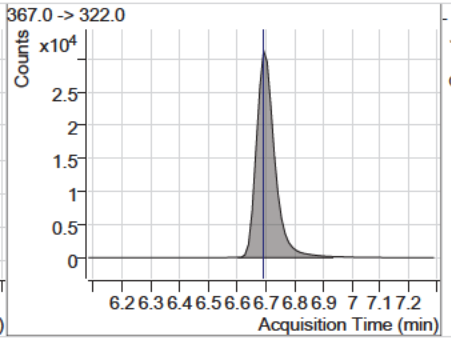


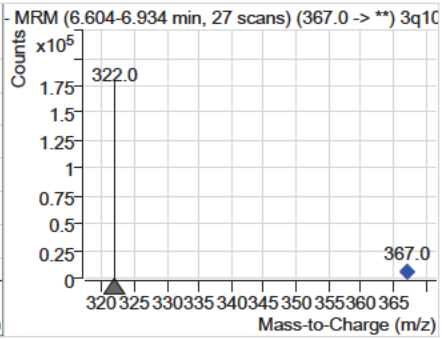




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	8.65	6.69	-0.01	136469				

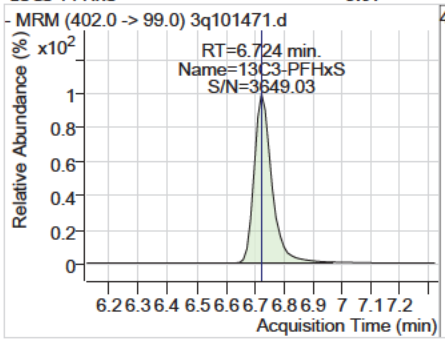


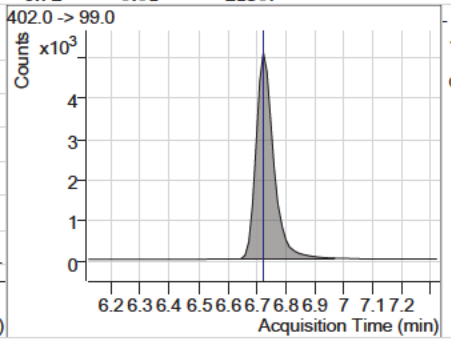


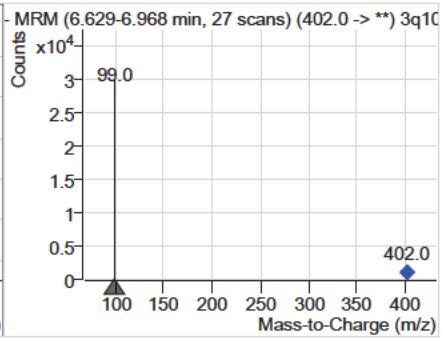


Perfluorinated Compounds by LC/MS/MS

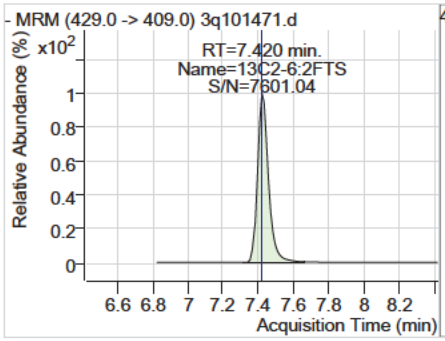
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	8.97	6.72	-0.01	21507				

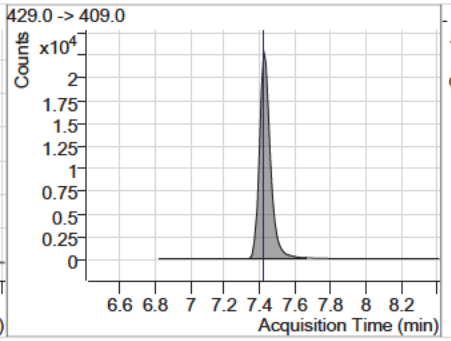


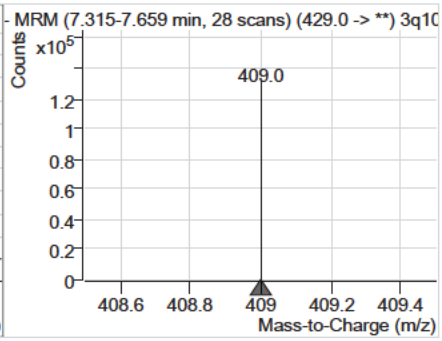




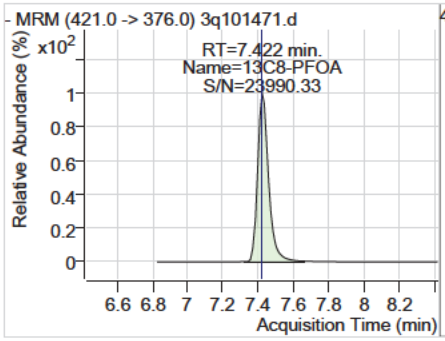
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	8.16	7.42	-0.01	98498				

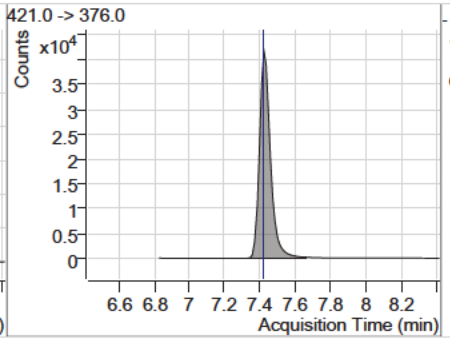


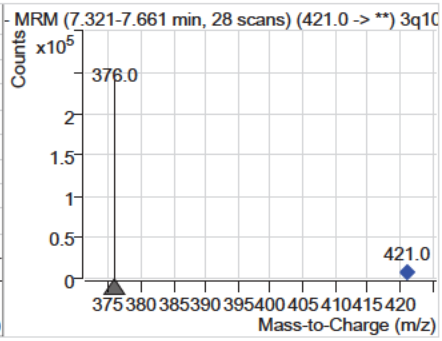




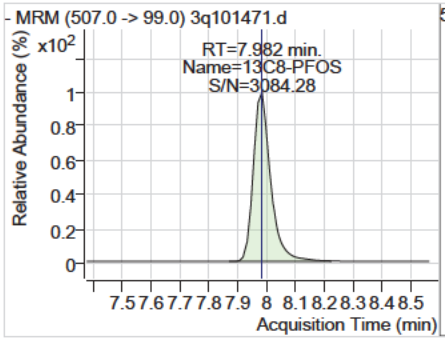
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	8.80	7.42	-0.01	180131				

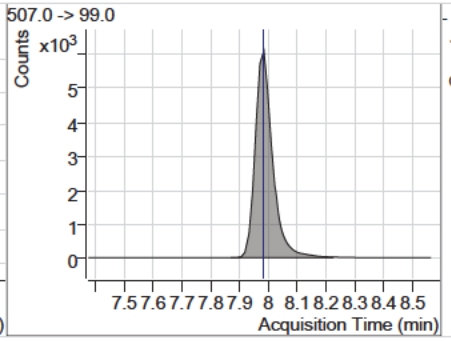


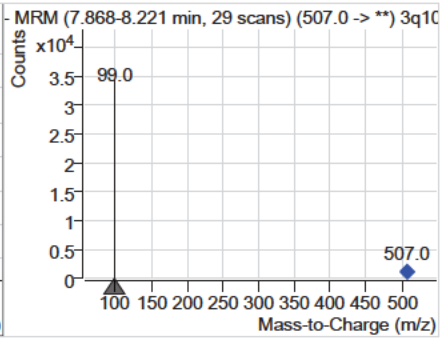




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	8.20	7.98	-0.01	25164				







7.2.1

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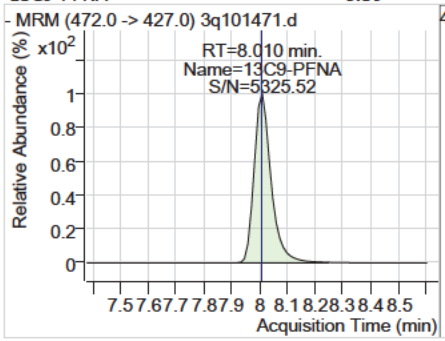
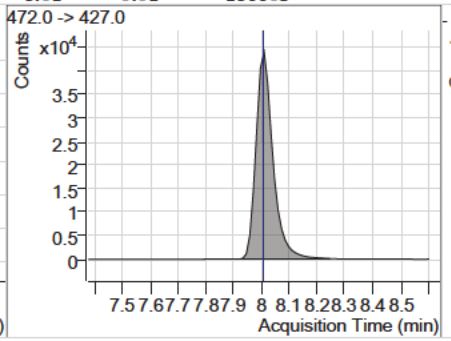
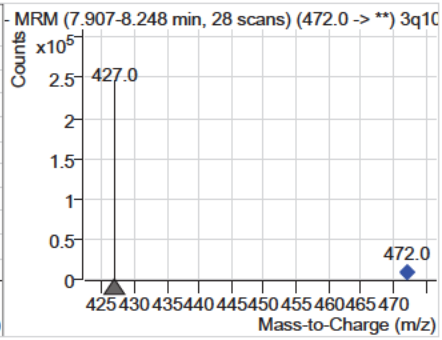
Perfluorinated Compounds by LC/MS/MS

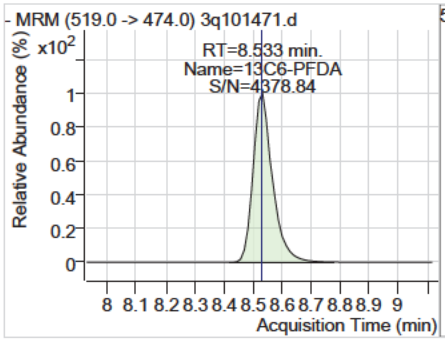
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	8.39	8.01	-0.01	186603				

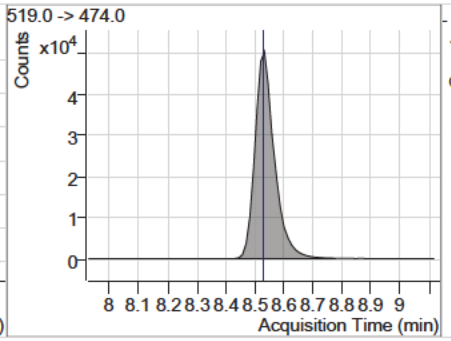


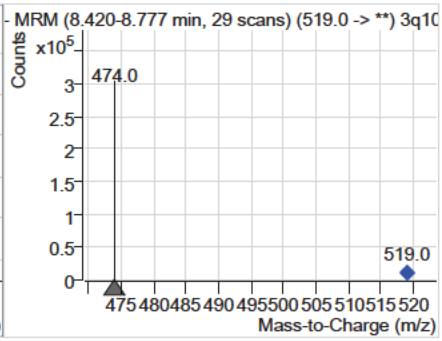




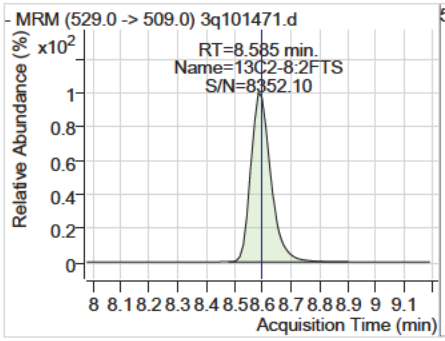
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	7.51	8.53	-0.01	234155				

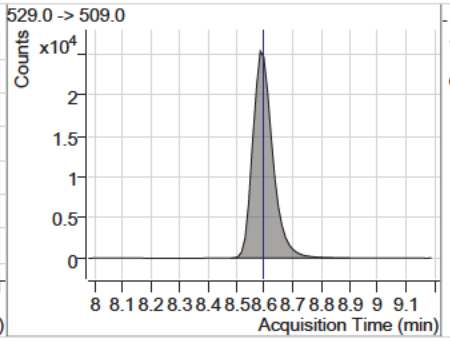


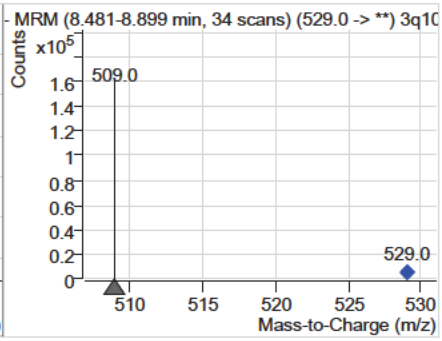




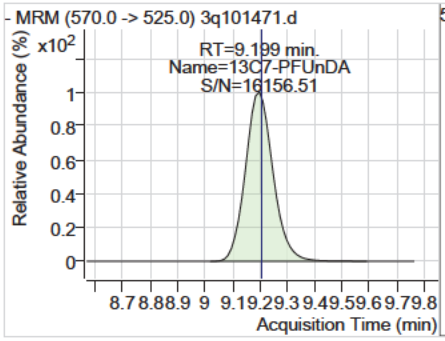
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	6.15	8.58	-0.03	124314				

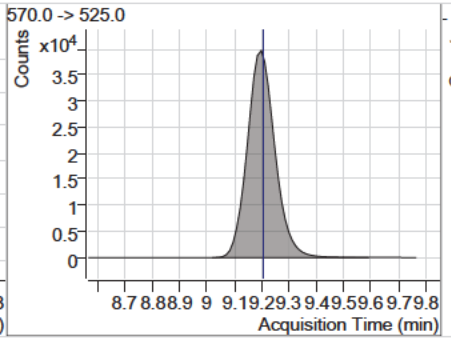


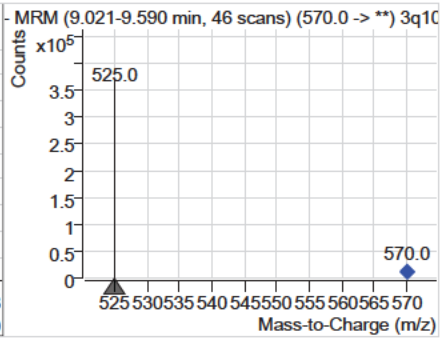




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	4.48	9.20	-0.03	278732				

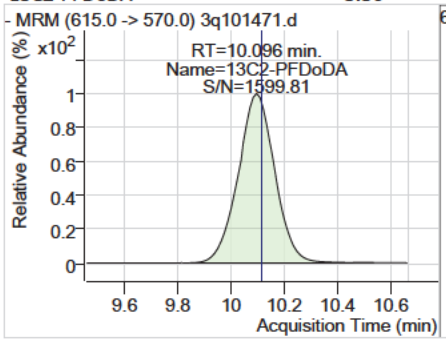


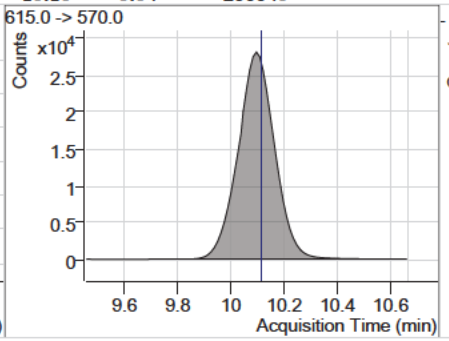


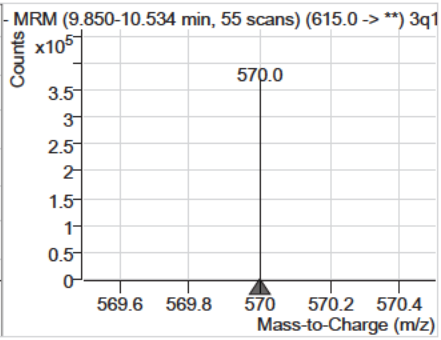


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	3.36	10.10	-0.04	266640				







7.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101494.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/16/2025 12:50:04 PM
Sample Name : op8883-mb
Vial : P3-B1
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1493.batch.bin
Sample Information : op8883,S3Q1493,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	243773	10.00 µg/L	0.000
13C3-PFBA	2.307	216.0 -> 172.0	94042	10.00 µg/L	-0.038
13C4-PFOS	7.983	503.0 -> 80.0	35272	10.00 µg/L	0.014
M4-PFBA	2.302	217.0 -> 172.0	137841	10.00 µg/L	-0.038
M5-PFPeA	4.400	268.0 -> 223.0	169134	10.00 µg/L	-0.013
M5-PFHxA	5.763	318.0 -> 273.0	216399	10.00 µg/L	-0.013
M4-PFHpA	6.694	367.0 -> 322.0	186767	10.00 µg/L	0.000
M8-PFOA	7.422	421.0 -> 376.0	245409	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	265802	10.00 µg/L	0.013
M6-PFDA	8.533	519.0 -> 474.0	318151	10.00 µg/L	0.013
M7-PFUnDA	9.185	570.0 -> 525.0	386335	10.00 µg/L	0.000
M2-PFDoDA	10.083	615.0 -> 570.0	374078	10.00 µg/L	0.000
M3-PFBS	4.696	302.0 -> 99.0	19237	10.00 µg/L	-0.013
M3-PFHxS	6.723	402.0 -> 99.0	26949	10.00 µg/L	0.000
M8-PFOS	7.982	507.0 -> 99.0	31649	10.00 µg/L	0.014
M2-4:2FTS	5.672	329.0 -> 309.0	70541	10.00 µg/L	0.000
M2-6:2FTS	7.420	429.0 -> 409.0	134763	10.00 µg/L	0.000
M2-8:2FTS	8.585	529.0 -> 509.0	179244	10.00 µg/L	0.000
M3-HFPO-DA	6.056	287.0 -> 169.0	2575	10.00 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.672	329.0 -> 309.0	70541	8.40 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 84.0%	
13C2-6:2FTS	7.420	429.0 -> 409.0	134763	8.55 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 85.5%	
13C2-8:2FTS	8.585	529.0 -> 509.0	179244	6.79 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 67.9%	
13C2-PFDoDA	10.083	615.0 -> 570.0	374078	3.60 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 36.0%	
13C3-PFBS	4.696	302.0 -> 99.0	19237	8.74 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 87.4%	
13C3-PFHxS	6.723	402.0 -> 99.0	26949	8.60 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 86.0%	
13C4-PFBA	2.302	217.0 -> 172.0	137841	8.64 µg/L	-0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 86.4%	
13C4-PFHpA	6.694	367.0 -> 322.0	186767	9.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.5%	
13C5-PFHxA	5.763	318.0 -> 273.0	216399	8.76 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 87.6%	
13C5-PFPeA	4.400	268.0 -> 223.0	169134	8.80 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.0%	
13C6-PFDA	8.533	519.0 -> 474.0	318151	7.80 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.0%	
13C7-PFUnDA	9.185	570.0 -> 525.0	386335	4.74 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 47.4%	
13C8-PFOA	7.422	421.0 -> 376.0	245409	9.16 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

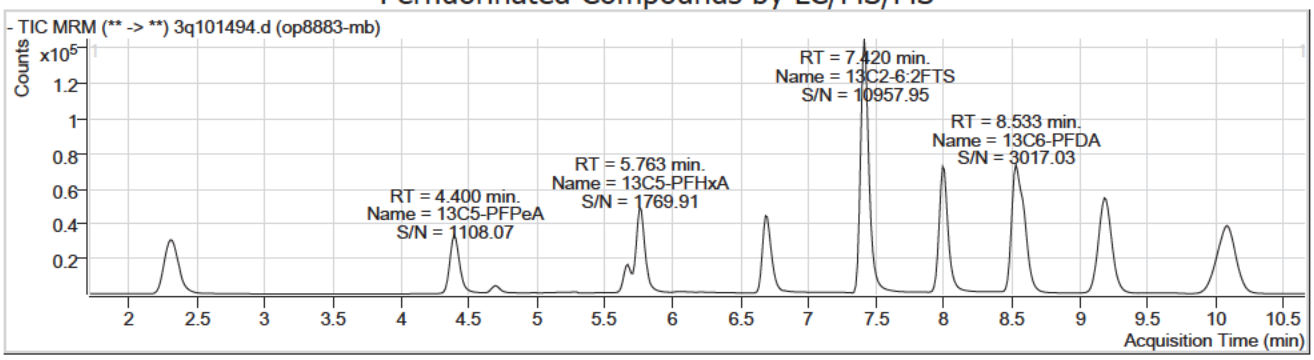
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.6%		
13C8-PFOS	7.982	507.0 -> 99.0	31649	7.89 µg/L		0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.9%		
13C9-PFNA	8.010	472.0 -> 427.0	265802	9.13 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.3%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	2575	7.25 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 72.5%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	-	299.0 -> 80.0	-	N.D.		
		299.0 -> 99.0				
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	-	363.0 -> 319.0	-	N.D.		
		363.0 -> 169.0				
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	6.368	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0	0			

= Qualifier out of range, m = manually integrated, + = Area summed

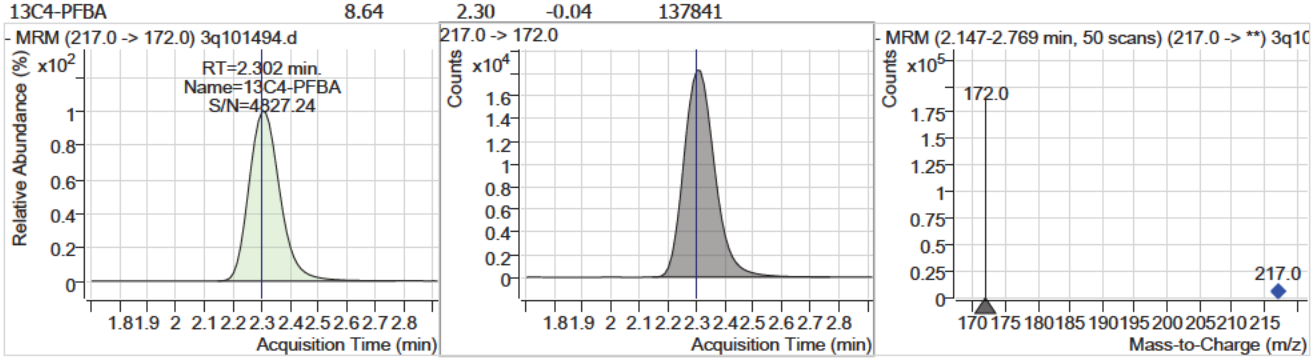
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

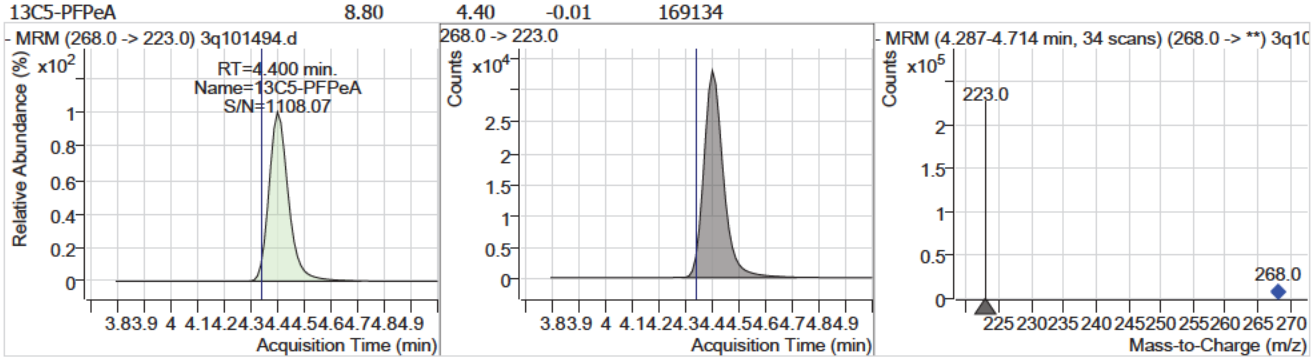
Perfluorinated Compounds by LC/MS/MS



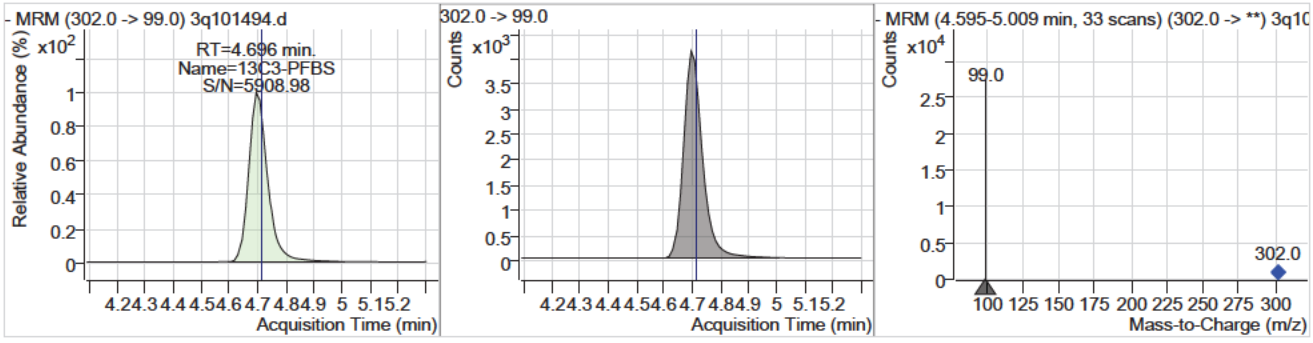
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	8.64	2.30	-0.04	137841				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	8.80	4.40	-0.01	169134				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	8.74	4.70	-0.01	19237				

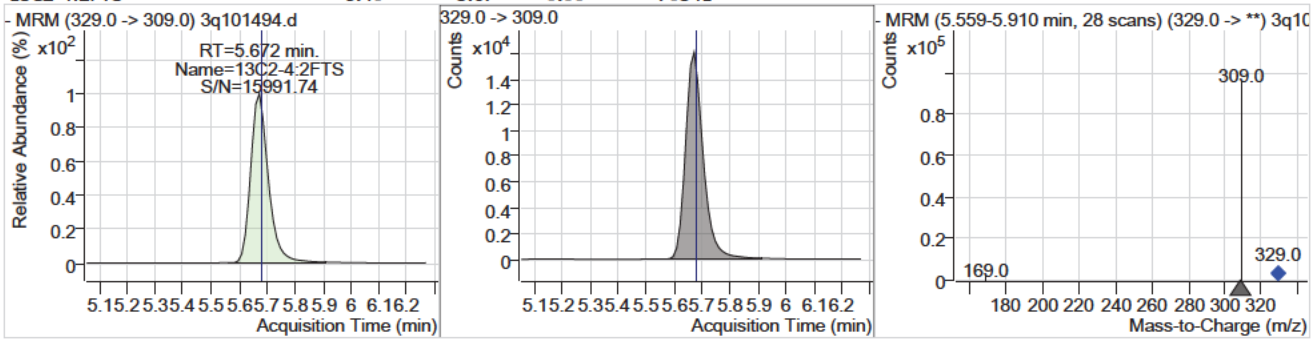


7.2.2

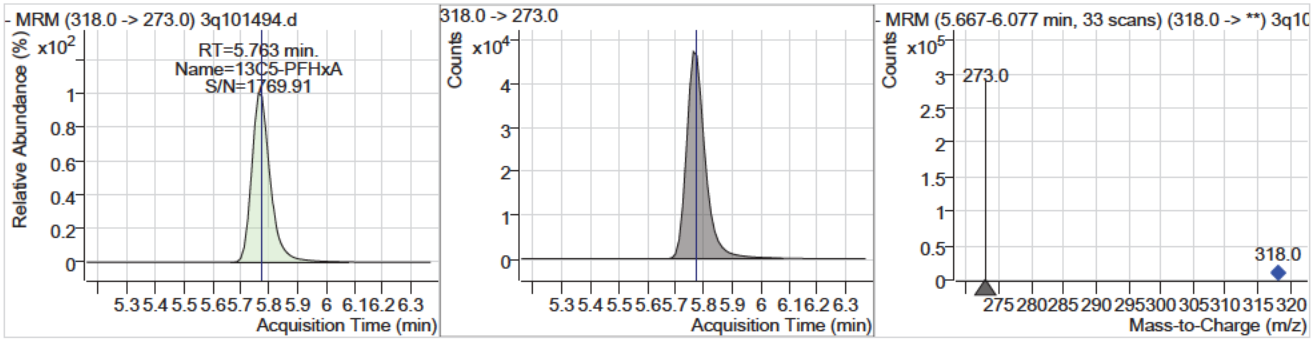
7

Perfluorinated Compounds by LC/MS/MS

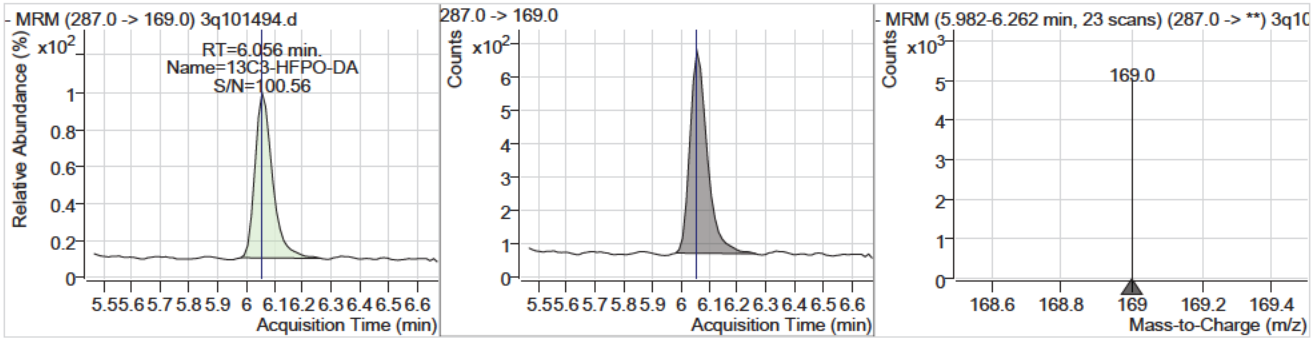
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	8.40	5.67	0.00	70541				



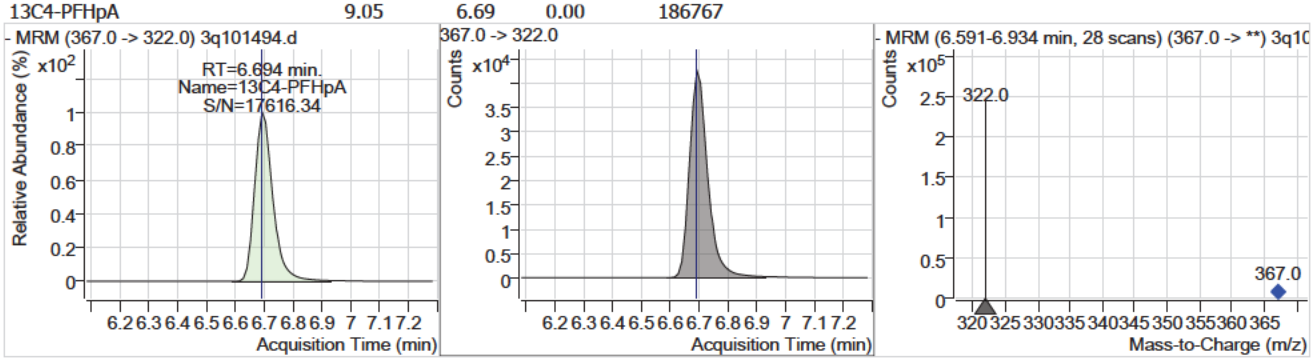
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	8.76	5.76	-0.01	216399				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	7.25	6.06	0.00	2575				

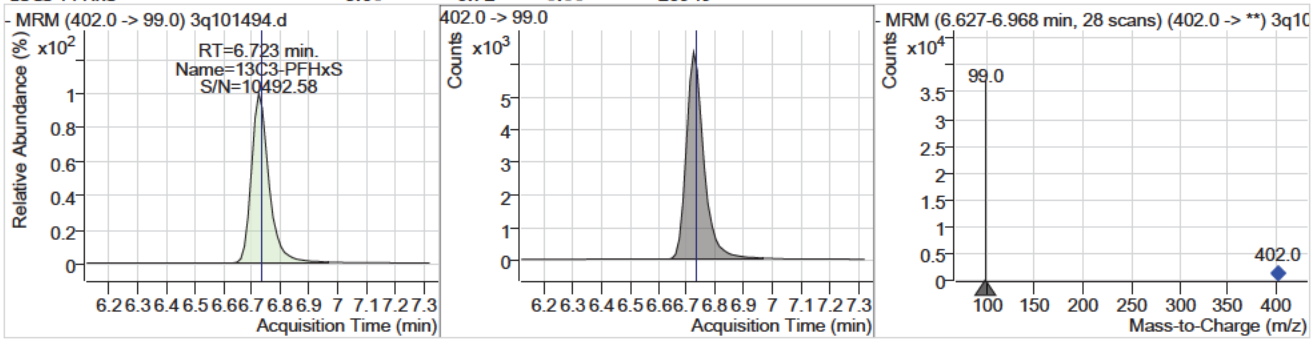


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	9.05	6.69	0.00	186767				

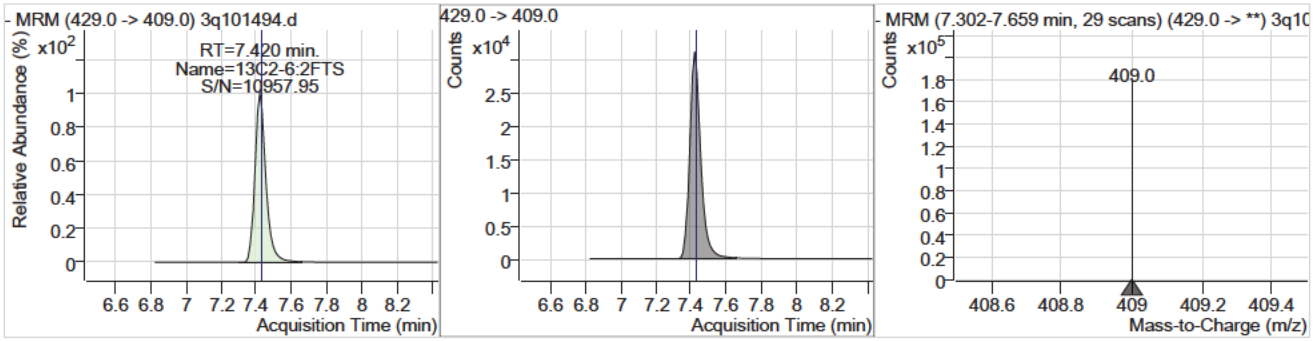


Perfluorinated Compounds by LC/MS/MS

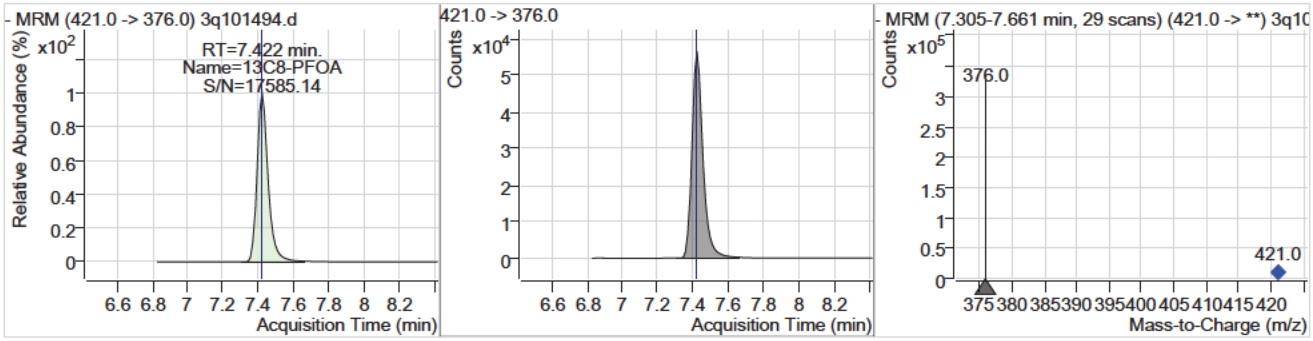
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	8.60	6.72	0.00	26949				



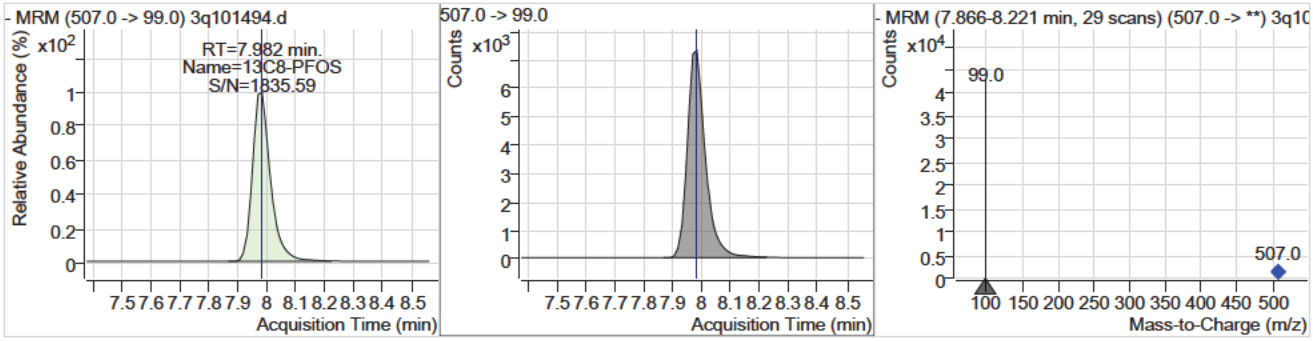
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	8.55	7.42	0.00	134763				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	9.16	7.42	0.00	245409				



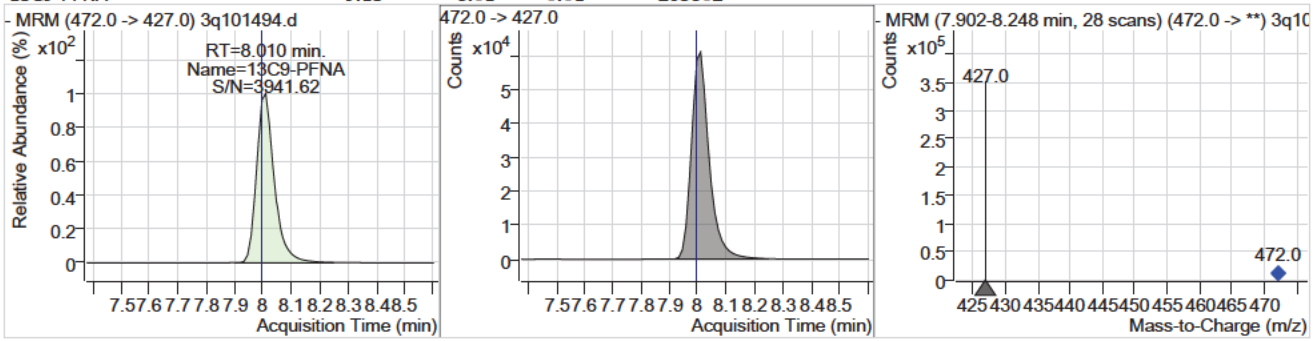
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	7.89	7.98	0.01	31649				



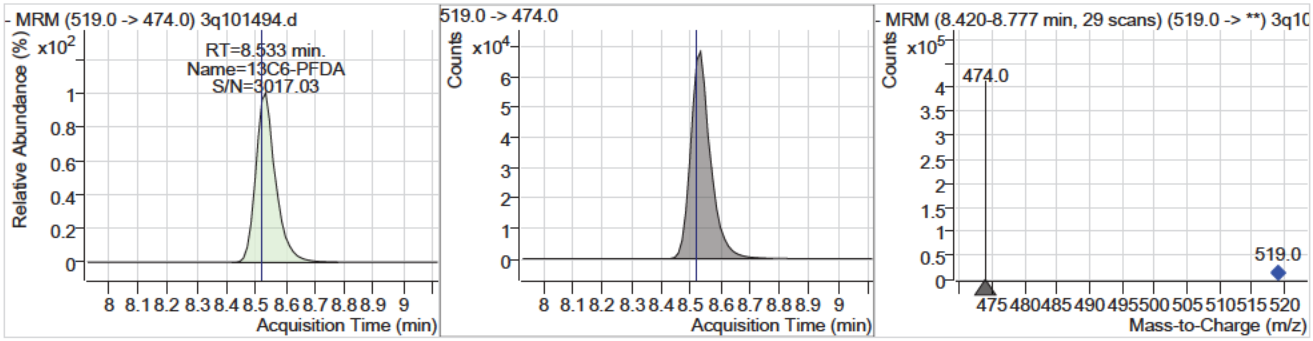
7.2.2 7

Perfluorinated Compounds by LC/MS/MS

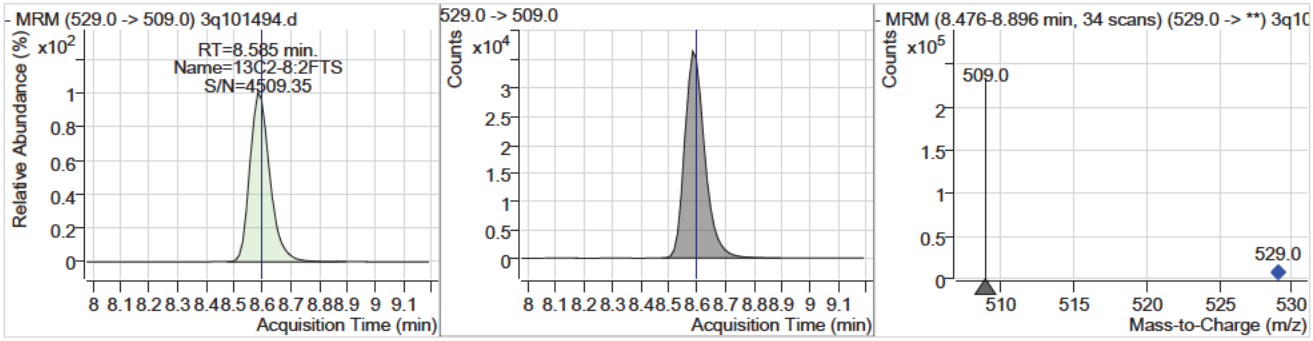
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	9.13	8.01	0.01	265802				



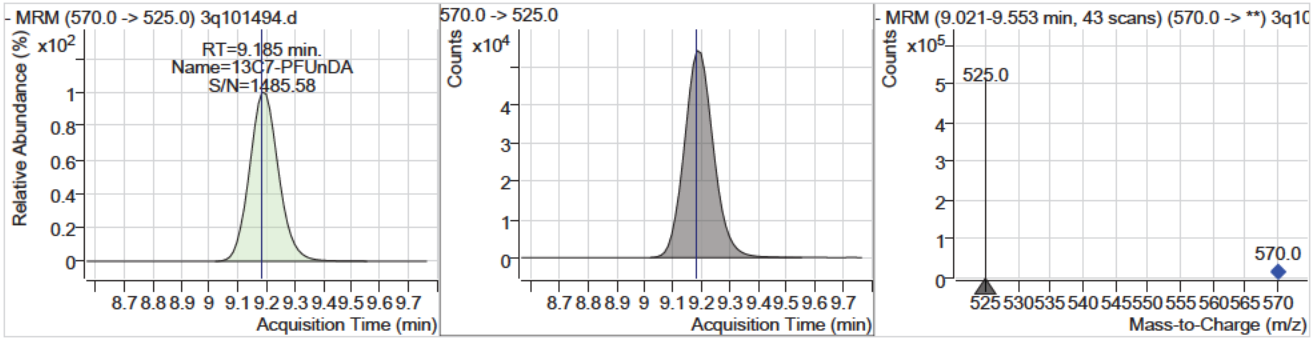
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	7.80	8.53	0.01	318151				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	6.79	8.58	0.00	179244				



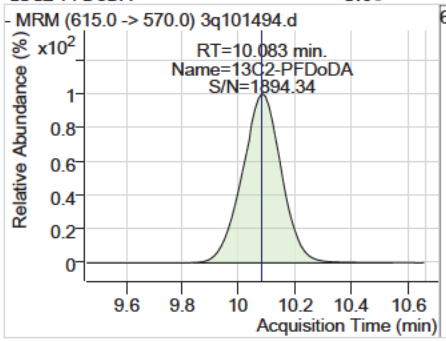
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	4.74	9.18	0.00	386335				

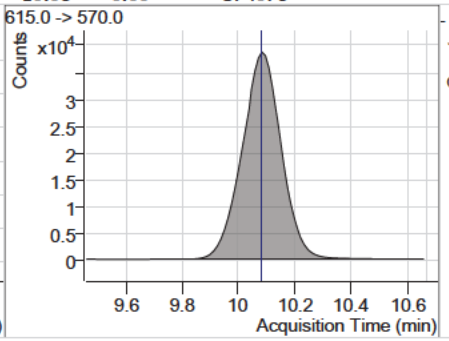


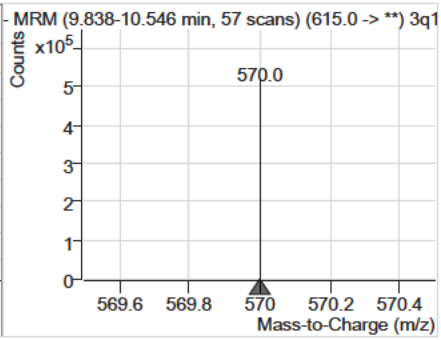
7.2.2 7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	3.60	10.08	0.00	374078				







7.2.2 7

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101525.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/17/2025 12:11:33 PM
Sample Name : op8907-mb
Vial : P3-C2
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1494.batch.bin
Sample Information : op8907,S3Q1494,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.447	415.0 -> 370.0	260183	10.00 µg/L	0.025
13C3-PFBA	2.332	216.0 -> 172.0	100121	10.00 µg/L	-0.013
13C4-PFOS	8.008	503.0 -> 80.0	38241	10.00 µg/L	0.039
M4-PFBA	2.340	217.0 -> 172.0	131952	10.00 µg/L	0.000
M5-PFPeA	4.425	268.0 -> 223.0	160030	10.00 µg/L	0.013
M5-PFHxA	5.788	318.0 -> 273.0	206705	10.00 µg/L	0.013
M4-PFHpA	6.719	367.0 -> 322.0	175589	10.00 µg/L	0.025
M8-PFOA	7.447	421.0 -> 376.0	233309	10.00 µg/L	0.025
M9-PFNA	8.035	472.0 -> 427.0	255021	10.00 µg/L	0.038
M6-PFDA	8.558	519.0 -> 474.0	359705	10.00 µg/L	0.038
M7-PFUnDA	9.249	570.0 -> 525.0	679567	10.00 µg/L	0.064
M2-PFDoDA	10.196	615.0 -> 570.0	763230	10.00 µg/L	0.113
M3-PFBS	4.721	302.0 -> 99.0	18169	10.00 µg/L	0.013
M3-PFHxS	6.749	402.0 -> 99.0	25967	10.00 µg/L	0.025
M8-PFOS	8.008	507.0 -> 99.0	33203	10.00 µg/L	0.039
M2-4:2FTS	5.697	329.0 -> 309.0	67194	10.00 µg/L	0.025
M2-6:2FTS	7.445	429.0 -> 409.0	130215	10.00 µg/L	0.025
M2-8:2FTS	8.624	529.0 -> 509.0	207930	10.00 µg/L	0.039
M3-HFPO-DA	6.081	287.0 -> 169.0	2486	10.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.697	329.0 -> 309.0	67194	7.38 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 73.8%	
13C2-6:2FTS	7.445	429.0 -> 409.0	130199	7.62 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.2%	
13C2-8:2FTS	8.624	529.0 -> 509.0	207930	7.26 µg/L	0.039
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 72.6%	
13C2-PFDoDA	10.196	615.0 -> 570.0	763230	6.89 µg/L	0.113
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 68.9%	
13C3-PFBS	4.721	302.0 -> 99.0	18169	7.62 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.2%	
13C3-PFHxS	6.749	402.0 -> 99.0	25967	7.64 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.4%	
13C4-PFBA	2.340	217.0 -> 172.0	131952	7.77 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.7%	
13C4-PFHpA	6.719	367.0 -> 322.0	175589	7.98 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.8%	
13C5-PFHxA	5.788	318.0 -> 273.0	206705	7.84 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.4%	
13C5-PFPeA	4.425	268.0 -> 223.0	160030	7.82 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.2%	
13C6-PFDA	8.558	519.0 -> 474.0	359705	8.26 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.6%	
13C7-PFUnDA	9.249	570.0 -> 525.0	679567	7.82 µg/L	0.064
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.2%	
13C8-PFOA	7.447	421.0 -> 376.0	233309	8.16 µg/L	0.025

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.6%			
13C8-PFOS	8.008	507.0 -> 99.0	33203	7.64	µg/L		0.039
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.4%			
13C9-PFNA	8.035	472.0 -> 427.0	255021	8.21	µg/L		0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.1%			
13C3-HFPO-DA	6.081	287.0 -> 169.0	2486	6.56	µg/L		0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 65.6%			
Target Compounds							**QValue**
PFMPA	-	229.0 -> 85.0	-	N.D.			
4:2FTS	-	327.0 -> 307.0	-	N.D.			
		327.0 -> 81.0					
6:2FTS	-	427.0 -> 407.0	-	N.D.			
		427.0 -> 81.0					
8:2FTS	-	527.0 -> 507.0	-	N.D.			
		527.0 -> 81.0					
PFMBA	-	279.0 -> 85.0	-	N.D.			
PFEESA	-	315.0 -> 135.0	-	N.D.			
		315.0 -> 69.0					
NFDHA	-	201.0 -> 85.0	-	N.D.			
		295.0 -> 201.0					
PFBA	-	213.0 -> 169.0	-	N.D.			
PFBS	5.278	299.0 -> 80.0	0	0.00	µg/L	m	1
		299.0 -> 99.0	0				
PFDA	-	513.0 -> 469.0	-	N.D.			
		513.0 -> 219.0					
PFDoDA	-	613.0 -> 569.0	-	N.D.			
		613.0 -> 169.0					
PFHpA	-	363.0 -> 319.0	-	N.D.			
		363.0 -> 169.0					
PFHpS	-	449.0 -> 80.0	-	N.D.			
		449.0 -> 99.0					
PFHxA	-	313.0 -> 269.0	-	N.D.			
		313.0 -> 119.0					
PFHxS	-	399.0 -> 80.0	-	N.D.			
		399.0 -> 99.0					
PFNA	-	463.0 -> 419.0	-	N.D.			
		463.0 -> 219.0					
PFOA	-	413.0 -> 369.0	-	N.D.			
		413.0 -> 169.0					
PFOS	-	499.0 -> 80.0	-	N.D.			
		499.0 -> 99.0					
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFPeS	-	349.0 -> 80.0	-	N.D.			
		349.0 -> 99.0					
PFUnDA	-	563.0 -> 519.0	-	N.D.			
		563.0 -> 269.0					
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
		631.0 -> 83.0					
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
		531.0 -> 83.0					
ADONA	-	377.0 -> 251.0	-	N.D.			
		377.0 -> 85.0					
HFPO-DA	6.191	329.0 -> 169.0	0	0.00	µg/L	m	1
		285.0 -> 169.0	0				

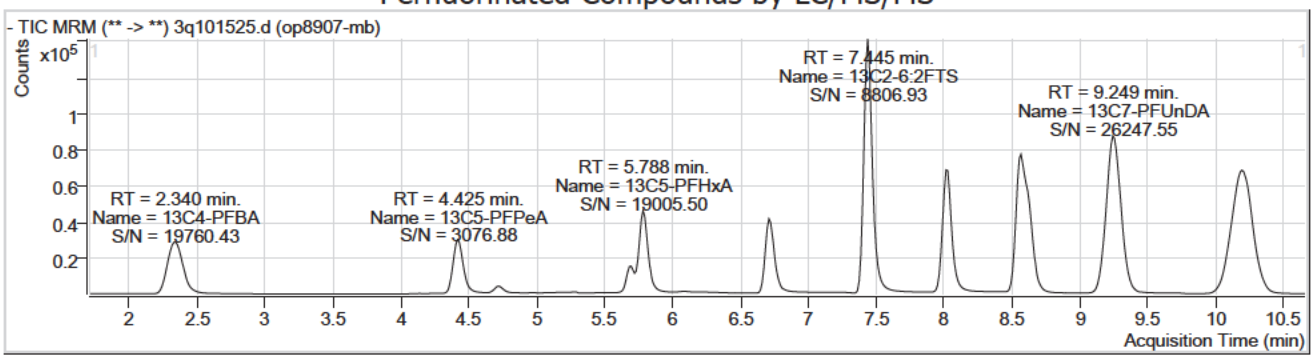
= Qualifier out of range, m = manually integrated, + = Area summed

(b) (4) [redacted] 3q101525.d Page 2 of 8 Generated at 4:0[redacted]/2025
(b) (4) [redacted] 256 of 1154
3Q101525.D: OP8907-MB Method Blank page 2 of 8
FC23899
7.2.3
7

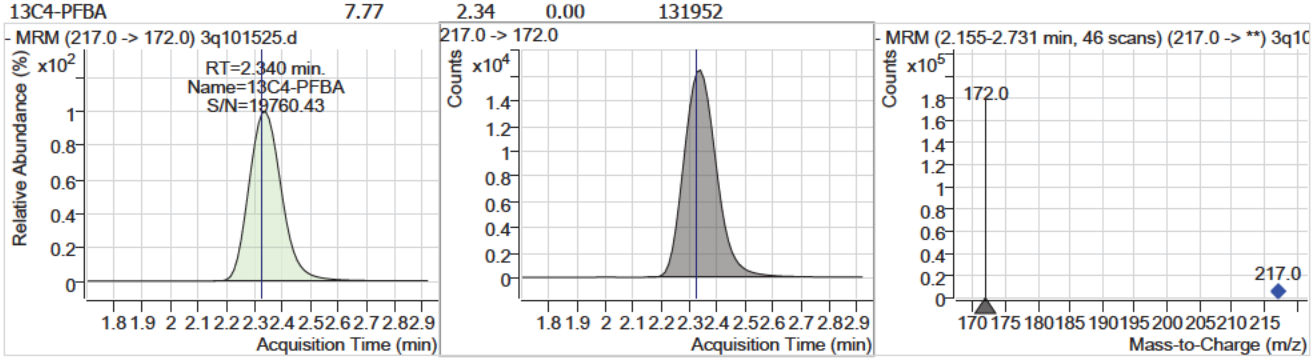
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)

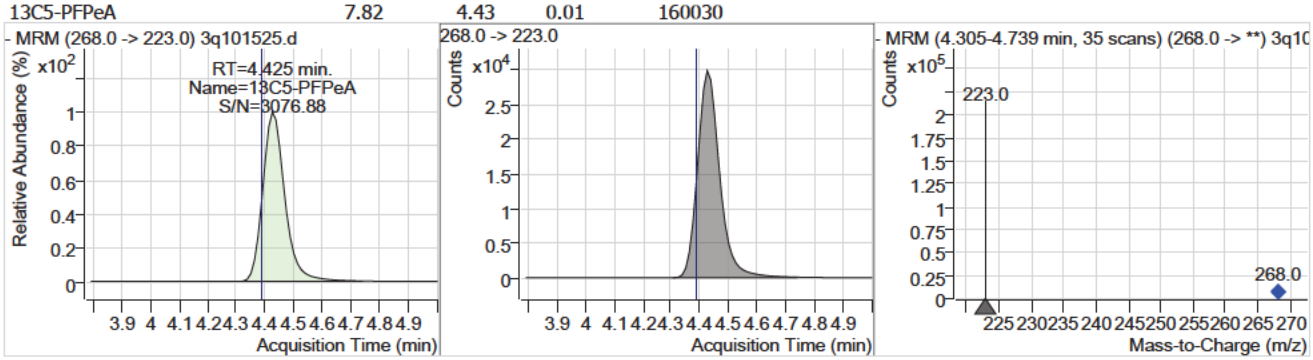
Perfluorinated Compounds by LC/MS/MS



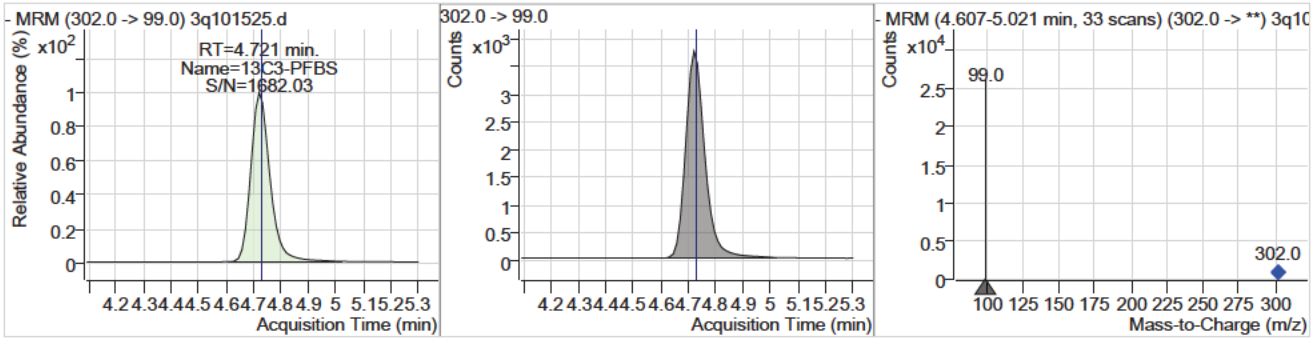
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	7.77	2.34	0.00	131952				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	7.82	4.43	0.01	160030				

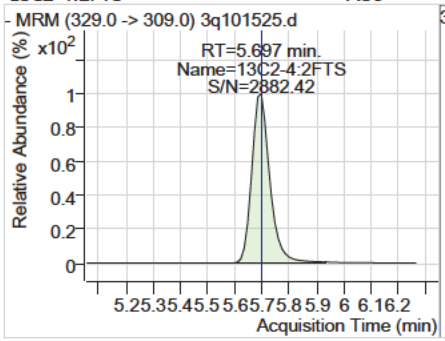


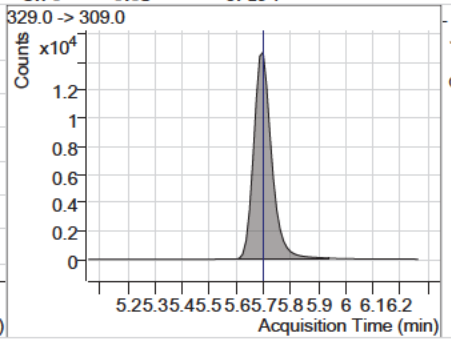
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	7.62	4.72	0.01	18169				

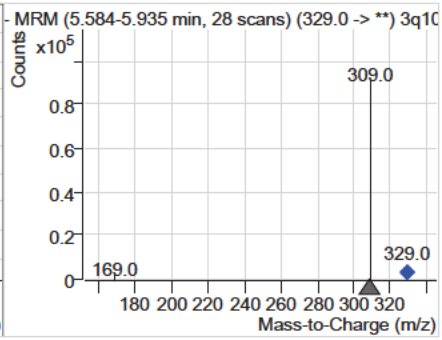


Perfluorinated Compounds by LC/MS/MS

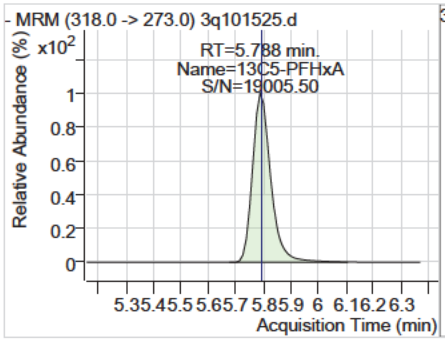
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	7.38	5.70	0.03	67194				

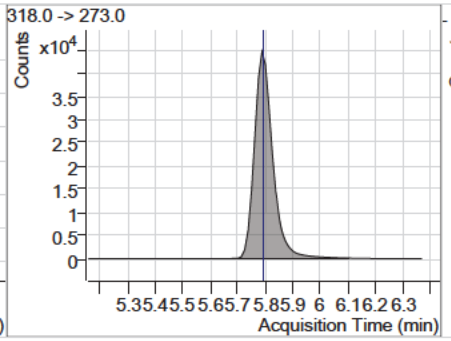


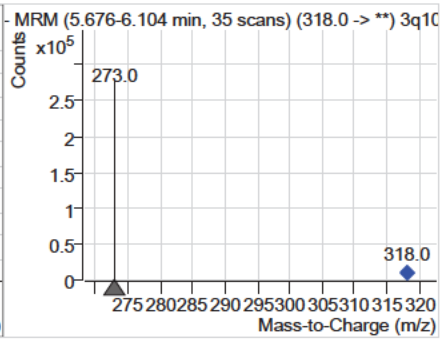




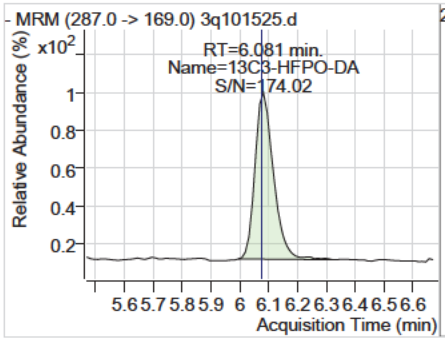
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	7.84	5.79	0.01	206705				

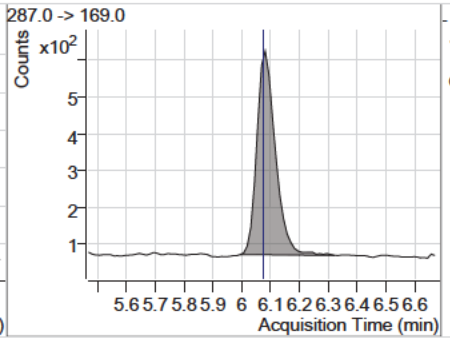


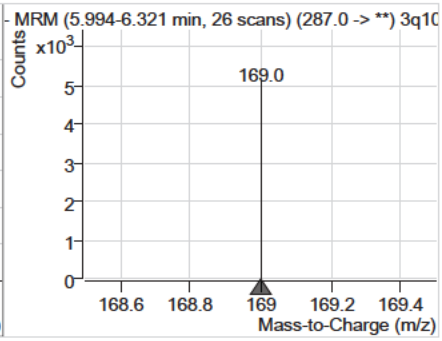




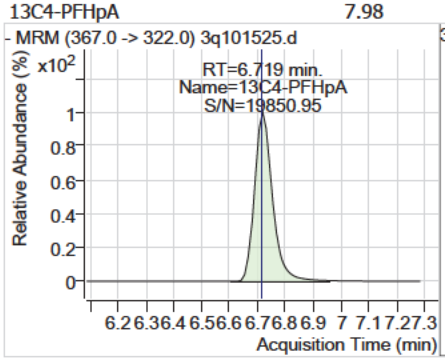
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	6.56	6.08	0.03	2486				

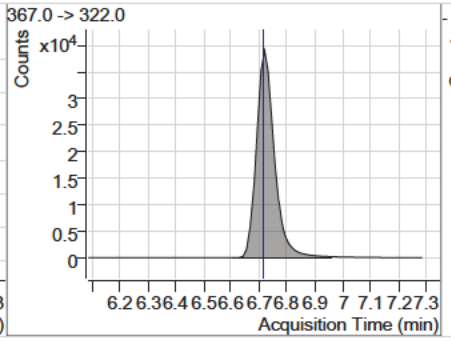


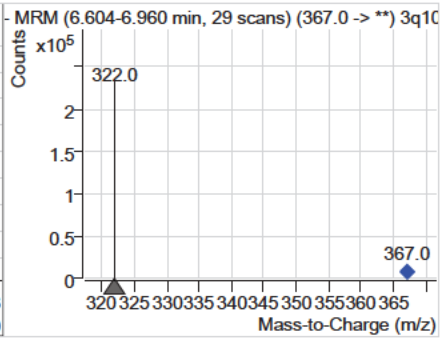




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	7.98	6.72	0.03	175589				







7.2.3

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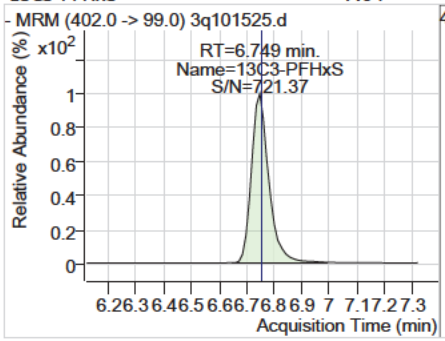
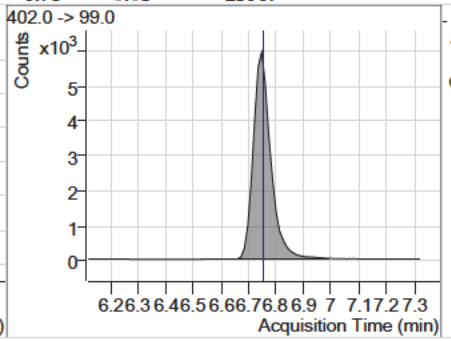
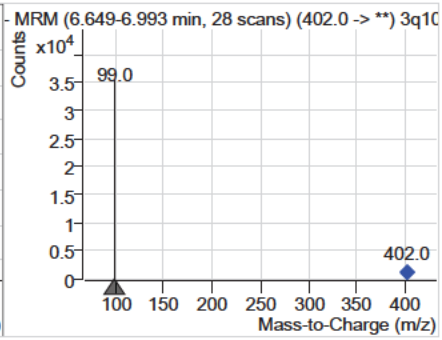
Perfluorinated Compounds by LC/MS/MS

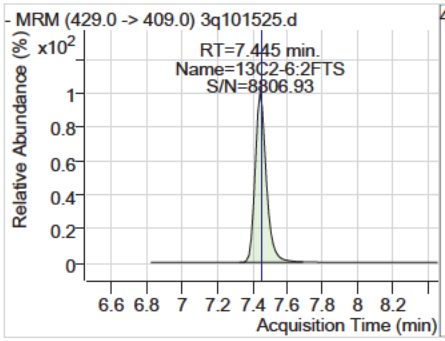
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	7.64	6.75	0.03	25967				

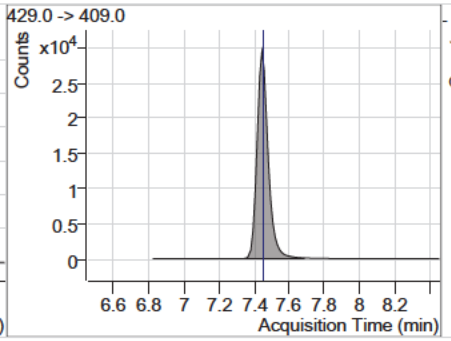


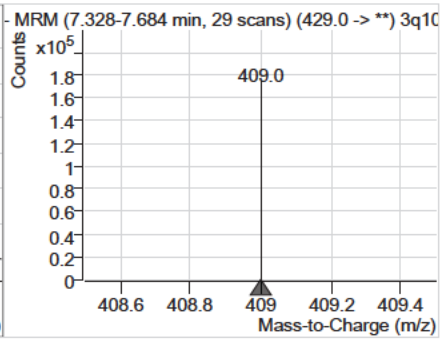




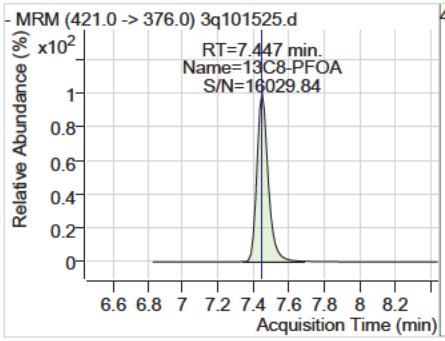
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	7.62	7.44	0.03	130199				

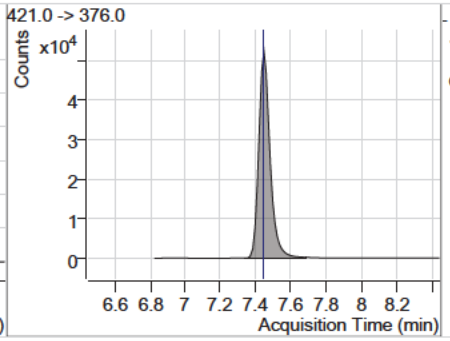


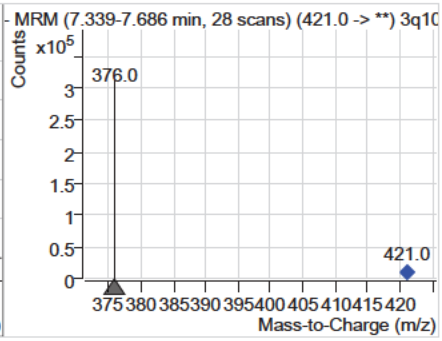




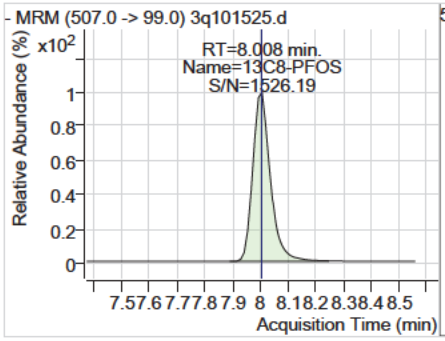
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	8.16	7.45	0.03	233309				

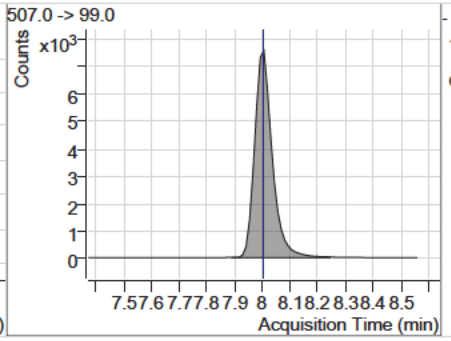


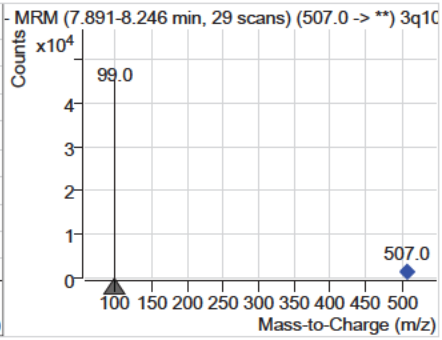




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	7.64	8.01	0.04	33203				

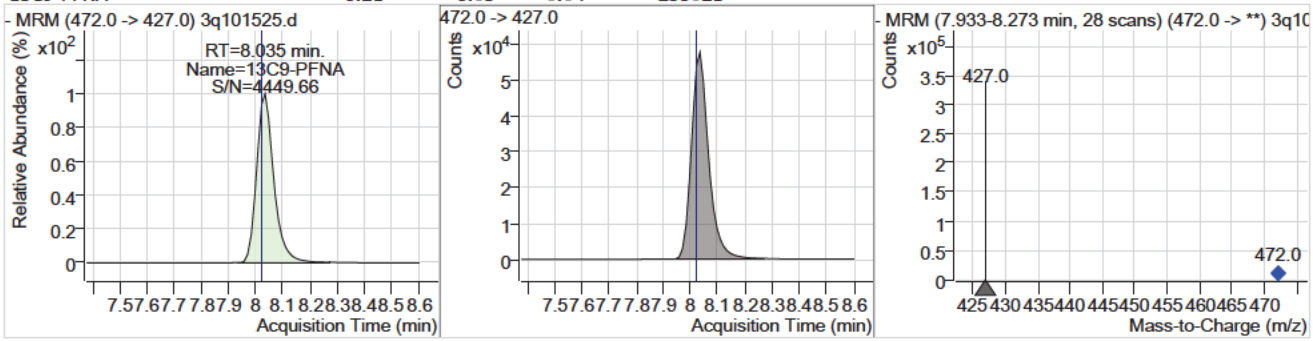




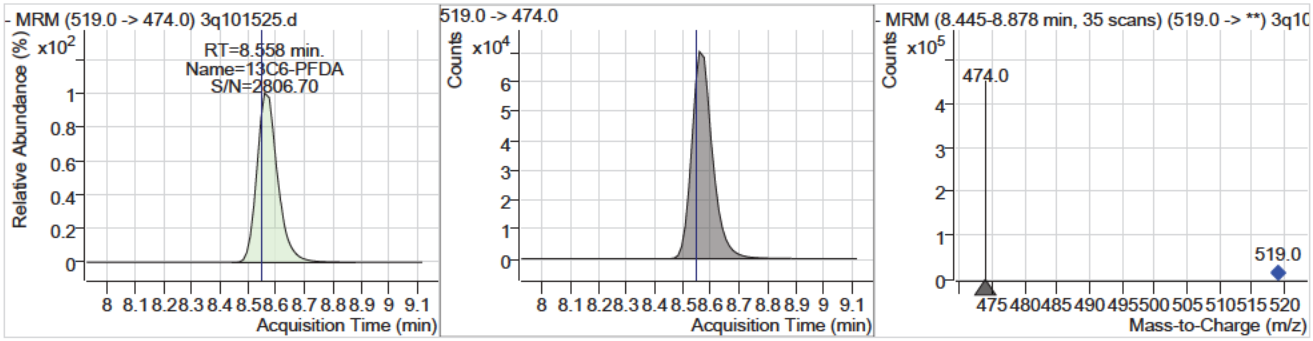


Perfluorinated Compounds by LC/MS/MS

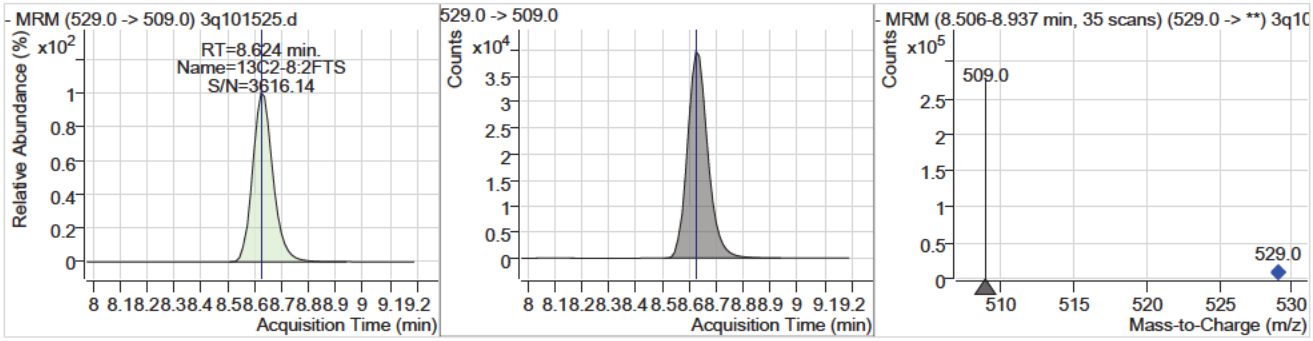
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	8.21	8.03	0.04	255021				



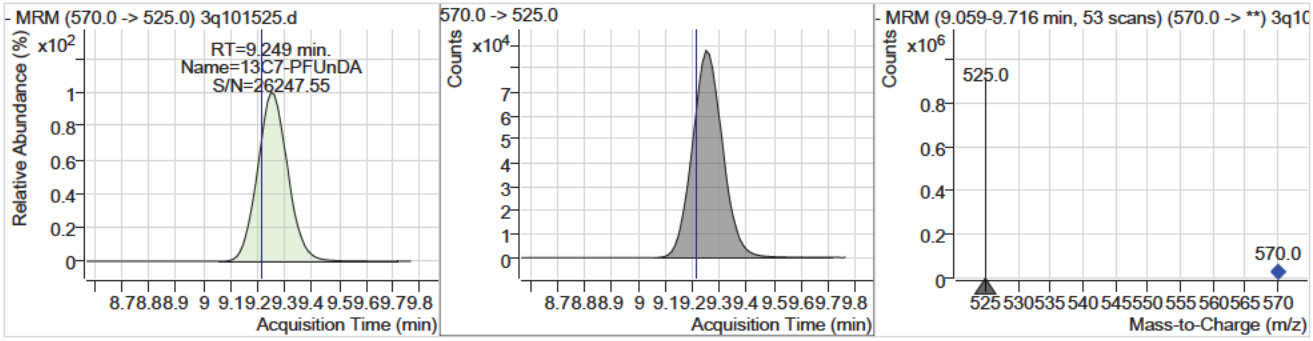
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	8.26	8.56	0.04	359705				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	7.26	8.62	0.04	207930				

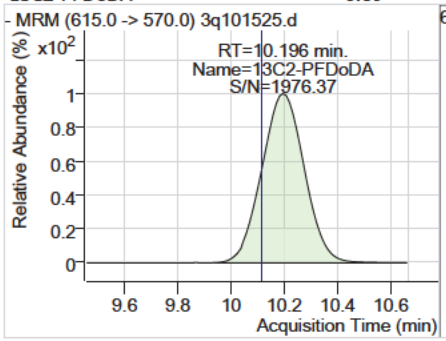


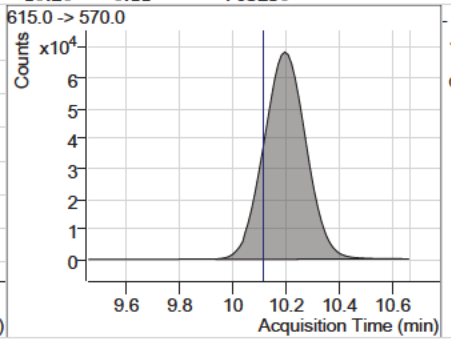
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	7.82	9.25	0.06	679567				

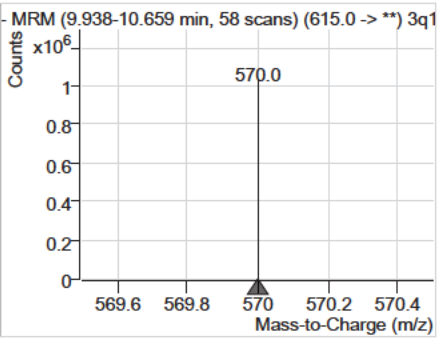


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	6.89	10.20	0.11	763230				







7.2.3

7

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101466.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 4:12:39 PM
Sample Name : iblk
Vial : P1-C1
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.435	415.0 -> 370.0	200621	10.00 µg/L	0.000
13C3-PFBA	2.344	216.0 -> 172.0	76211	10.00 µg/L	0.213
13C4-PFOS	7.983	503.0 -> 80.0	29840	10.00 µg/L	-0.013
M4-PFBA	2.352	217.0 -> 172.0	132075	10.00 µg/L	0.213
M5-PFPeA	4.413	268.0 -> 223.0	159743	10.00 µg/L	0.075
M5-PFHxA	5.776	318.0 -> 273.0	201154	10.00 µg/L	0.025
M4-PFHpA	6.706	367.0 -> 322.0	169654	10.00 µg/L	0.000
M8-PFOA	7.434	421.0 -> 376.0	225689	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	241750	10.00 µg/L	-0.013
M6-PFDA	8.533	519.0 -> 474.0	343547	10.00 µg/L	-0.013
M7-PFUnDA	9.199	570.0 -> 525.0	648324	10.00 µg/L	-0.025
M2-PFDoDA	10.108	615.0 -> 570.0	849541	10.00 µg/L	-0.025
M3-PFBS	4.708	302.0 -> 99.0	18458	10.00 µg/L	0.063
M3-PFHxS	6.736	402.0 -> 99.0	26684	10.00 µg/L	0.000
M8-PFOS	7.982	507.0 -> 99.0	33978	10.00 µg/L	-0.013
M2-4:2FTS	5.672	329.0 -> 309.0	65920	10.00 µg/L	0.025
M2-6:2FTS	7.432	429.0 -> 409.0	123840	10.00 µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	208411	10.00 µg/L	-0.014
M3-HFPO-DA	6.068	287.0 -> 169.0	2455	10.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.672	329.0 -> 309.0	65920	9.28 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.8%	
13C2-6:2FTS	7.432	429.0 -> 409.0	123840	9.28 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.8%	
13C2-8:2FTS	8.597	529.0 -> 509.0	208411	9.33 µg/L	-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.3%	
13C2-PFDoDA	10.108	615.0 -> 570.0	849541	9.95 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C3-PFBS	4.708	302.0 -> 99.0	18458	9.91 µg/L	0.063
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C3-PFHxS	6.736	402.0 -> 99.0	26684	10.07 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C4-PFBA	2.352	217.0 -> 172.0	132075	10.22 µg/L	0.213
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C4-PFHpA	6.706	367.0 -> 322.0	169654	9.99 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C5-PFHxA	5.776	318.0 -> 273.0	201154	9.90 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C5-PFPeA	4.413	268.0 -> 223.0	159743	10.25 µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C6-PFDA	8.533	519.0 -> 474.0	343547	10.24 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C7-PFUnDA	9.199	570.0 -> 525.0	648324	9.67 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C8-PFOA	7.434	421.0 -> 376.0	225689	10.24 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

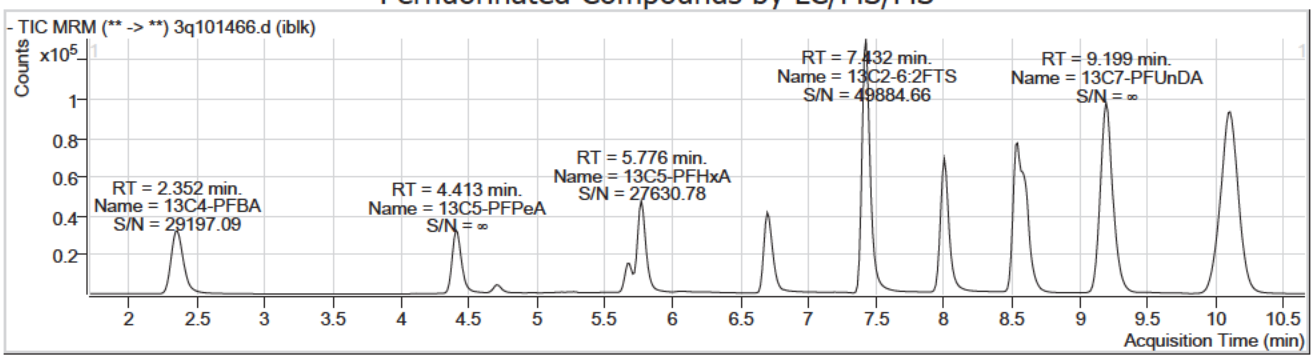
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C8-PFOS	7.982	507.0 -> 99.0	33978	10.01 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C9-PFNA	8.010	472.0 -> 427.0	241750	10.10 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C3-HFPO-DA	6.068	287.0 -> 169.0	2455	8.40 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 84.0%	
Target Compounds					QValue
PFMPA	-	229.0 -> 85.0	-	N.D.	
4:2FTS	-	327.0 -> 307.0	-	N.D.	
		327.0 -> 81.0			
6:2FTS	-	427.0 -> 407.0	-	N.D.	
		427.0 -> 81.0			
8:2FTS	-	527.0 -> 507.0	-	N.D.	
		527.0 -> 81.0			
PFMBA	-	279.0 -> 85.0	-	N.D.	
PFEESA	-	315.0 -> 135.0	-	N.D.	
		315.0 -> 69.0			
NFDHA	-	201.0 -> 85.0	-	N.D.	
		295.0 -> 201.0			
PFBA	-	213.0 -> 169.0	-	N.D.	
PFBS	-	299.0 -> 80.0	-	N.D.	
		299.0 -> 99.0			
PFDA	-	513.0 -> 469.0	-	N.D.	
		513.0 -> 219.0			
PFDoDA	-	613.0 -> 569.0	-	N.D.	
		613.0 -> 169.0			
PFHpA	-	363.0 -> 319.0	-	N.D.	
		363.0 -> 169.0			
PFHpS	-	449.0 -> 80.0	-	N.D.	
		449.0 -> 99.0			
PFHxA	-	313.0 -> 269.0	-	N.D.	
		313.0 -> 119.0			
PFHxS	-	399.0 -> 80.0	-	N.D.	
		399.0 -> 99.0			
PFNA	-	463.0 -> 419.0	-	N.D.	
		463.0 -> 219.0			
PFOA	-	413.0 -> 369.0	-	N.D.	
		413.0 -> 169.0			
PFOS	-	499.0 -> 80.0	-	N.D.	
		499.0 -> 99.0			
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFPeS	-	349.0 -> 80.0	-	N.D.	
		349.0 -> 99.0			
PFUnDA	-	563.0 -> 519.0	-	N.D.	
		563.0 -> 269.0			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
		631.0 -> 83.0			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
		531.0 -> 83.0			
ADONA	-	377.0 -> 251.0	-	N.D.	
		377.0 -> 85.0			
HFPO-DA	-	329.0 -> 169.0	-	N.D.	
		285.0 -> 169.0			

= Qualifier out of range, m = manually integrated, + = Area summed

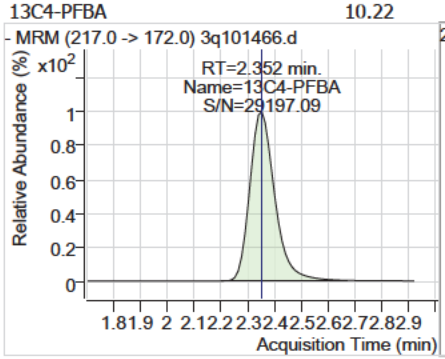
Perfluorinated Compounds by LC/MS/MS

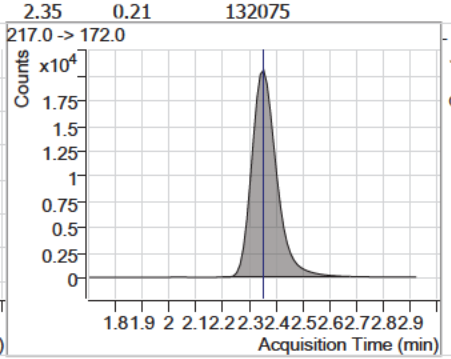
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

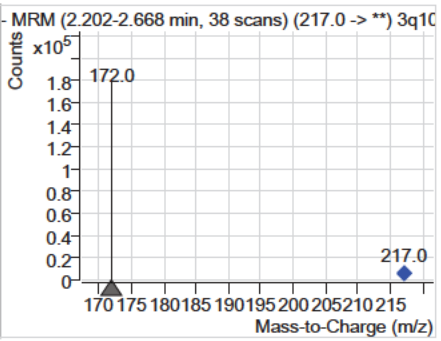
Perfluorinated Compounds by LC/MS/MS



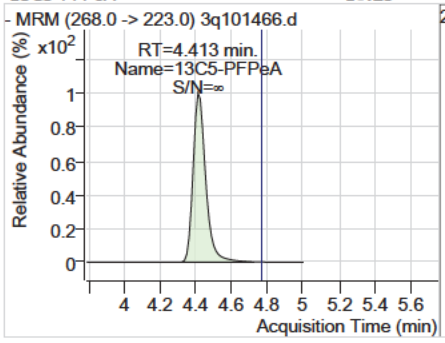
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.22	2.35	0.21	132075				

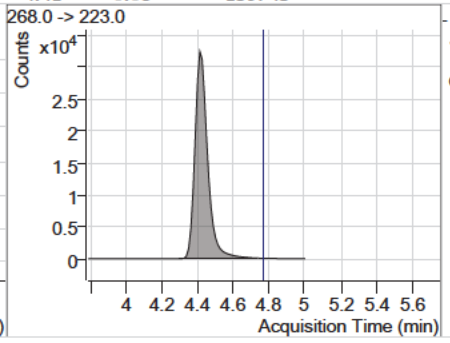


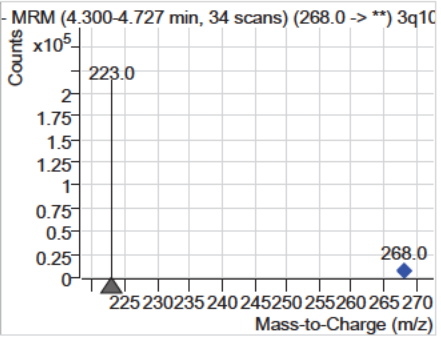




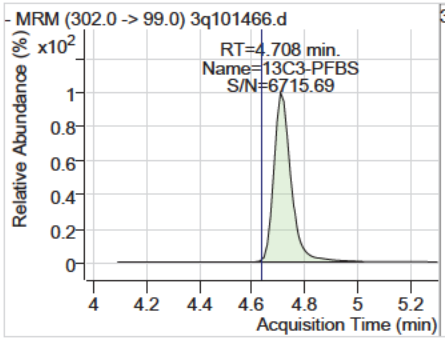
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.25	4.41	0.08	159743				

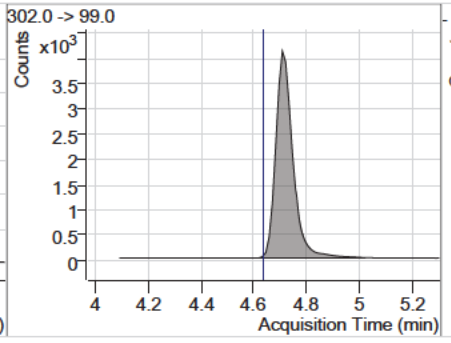


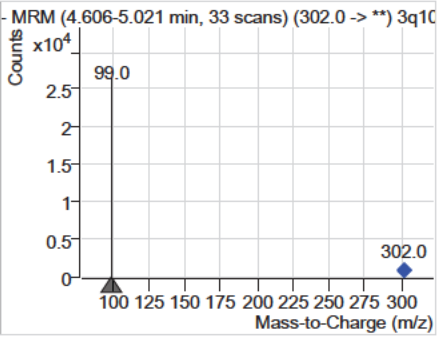




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	9.91	4.71	0.06	18458				







7.2.4

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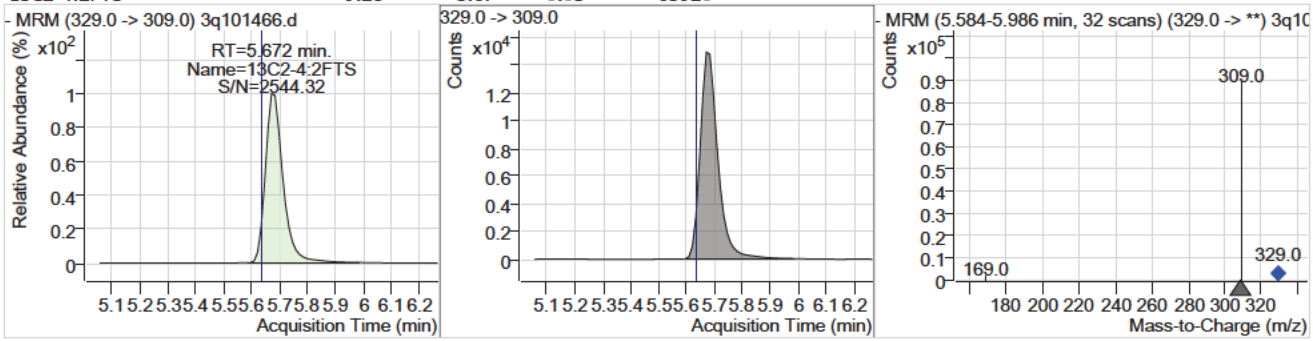
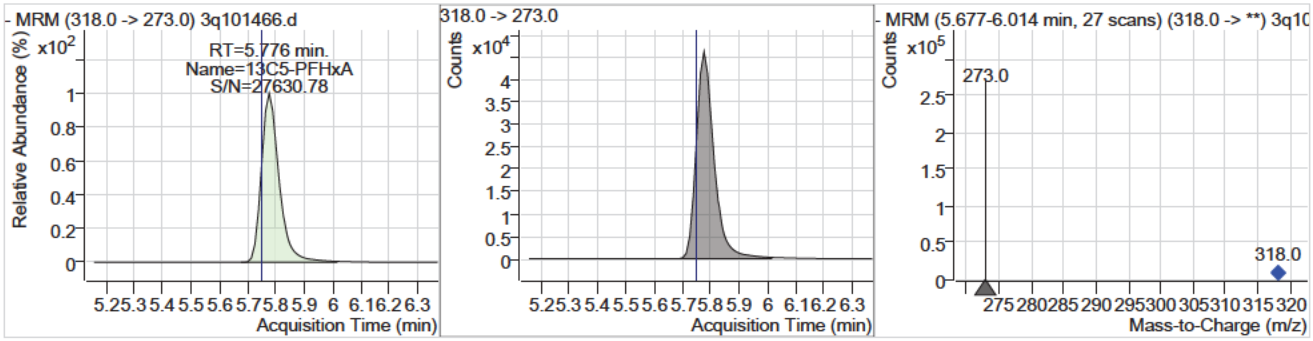
Perfluorinated Compounds by LC/MS/MS

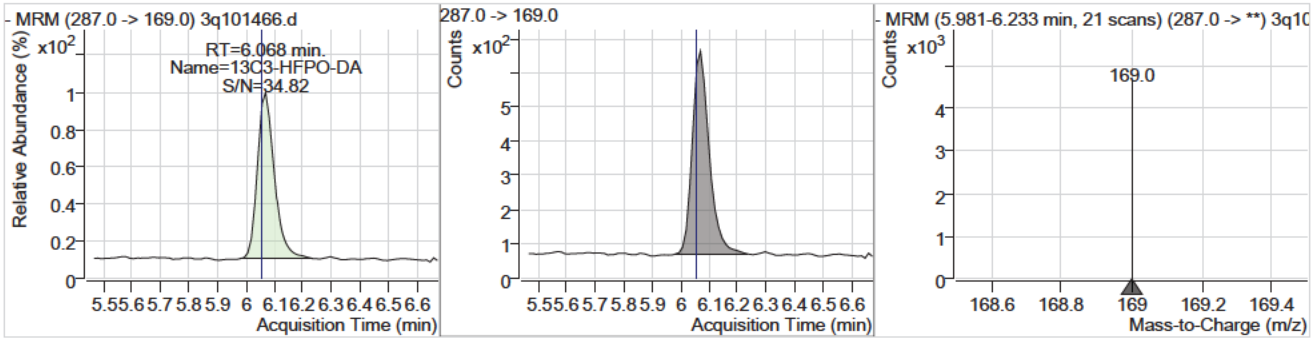
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	9.28	5.67	0.03	65920				



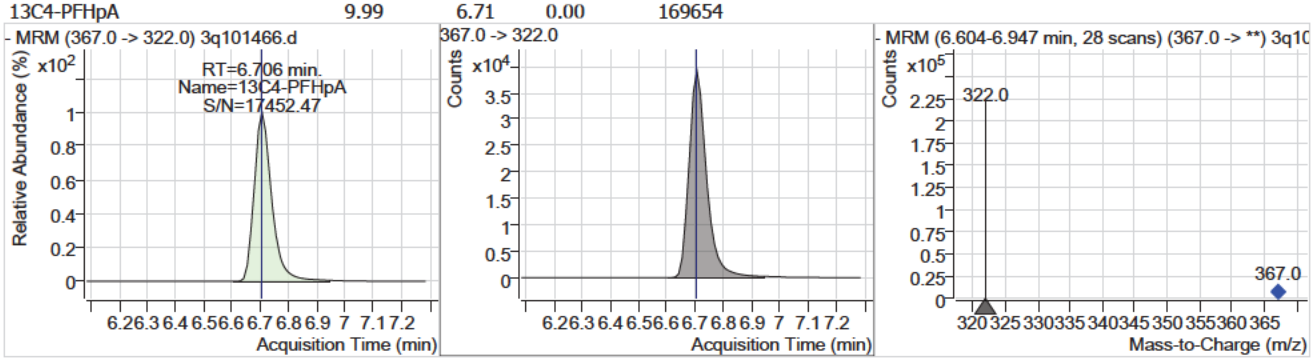
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	9.90	5.78	0.03	201154				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.40	6.07	0.01	2455				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	9.99	6.71	0.00	169654				



7.2.4

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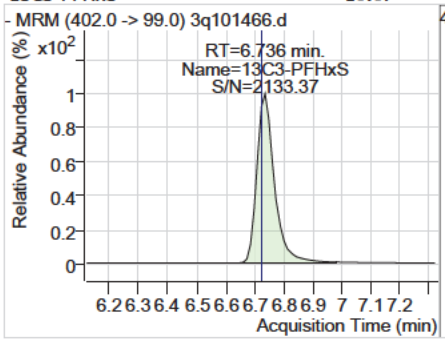
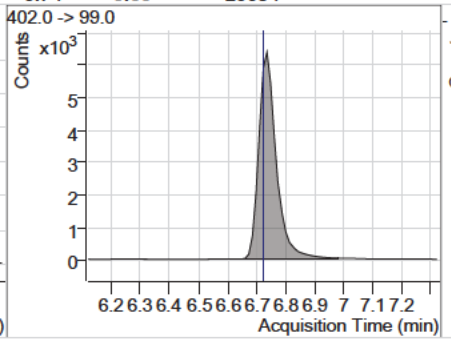
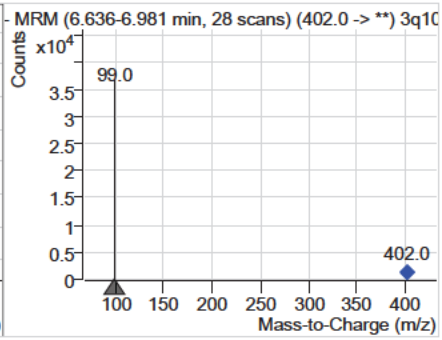
Perfluorinated Compounds by LC/MS/MS

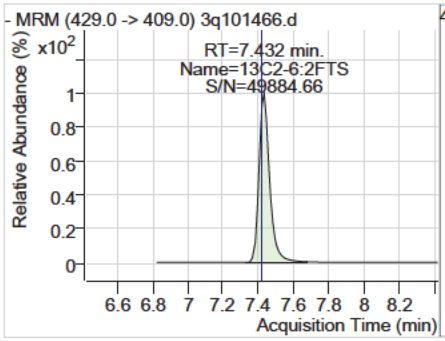
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.07	6.74	0.00	26684				

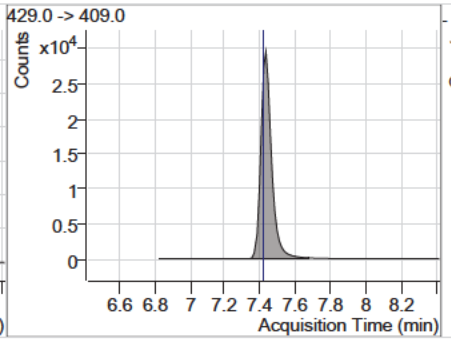


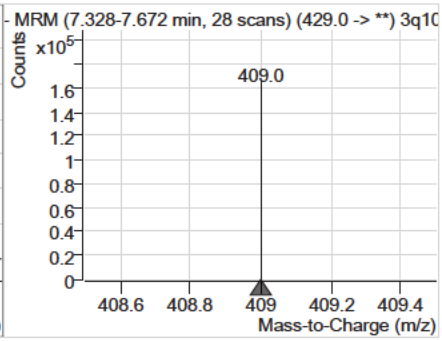




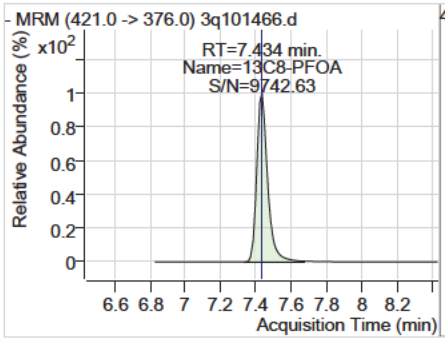
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	9.28	7.43	0.00	123840				

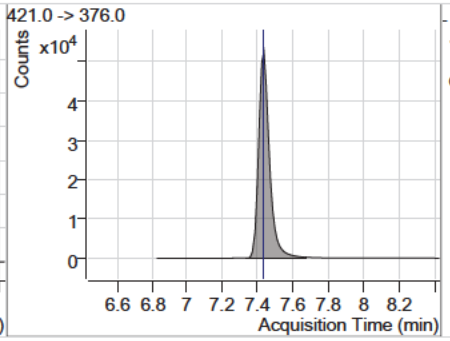


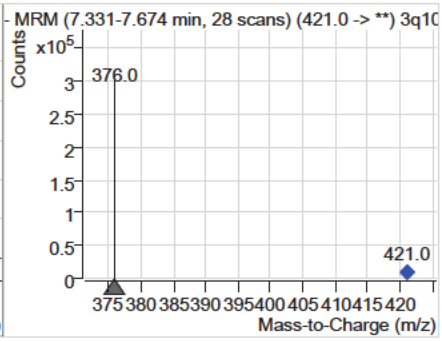




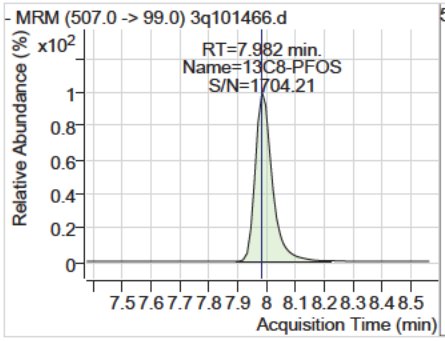
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.24	7.43	0.00	225689				

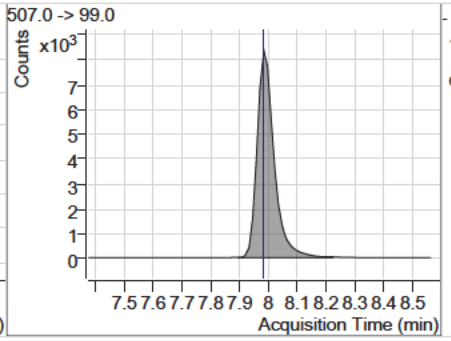


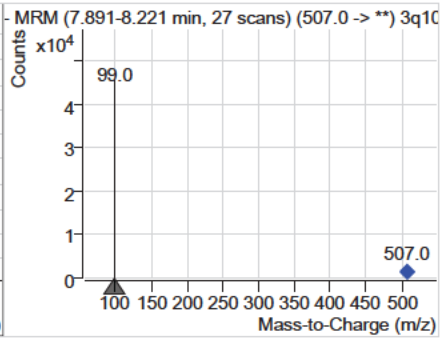




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.01	7.98	-0.01	33978				







7.2.4

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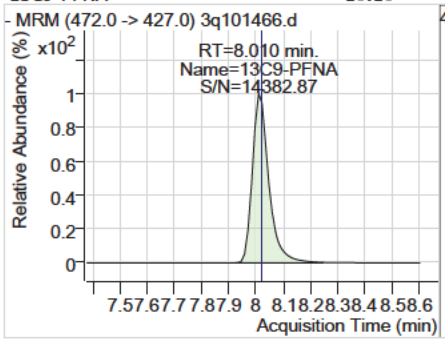
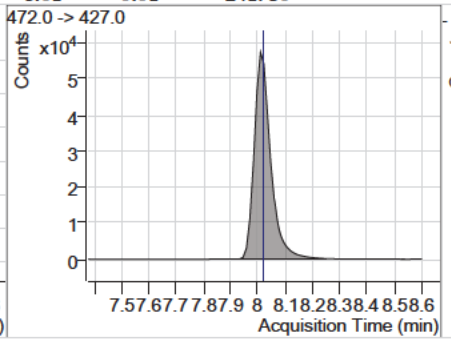
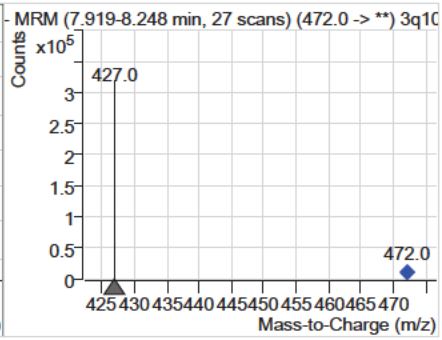
Perfluorinated Compounds by LC/MS/MS

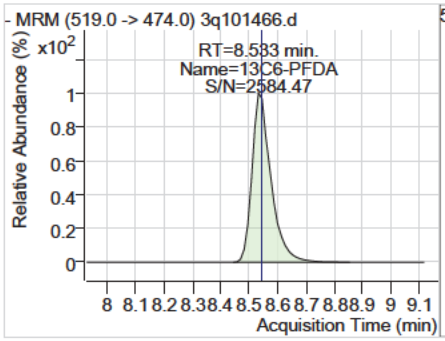
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.10	8.01	-0.01	241750				

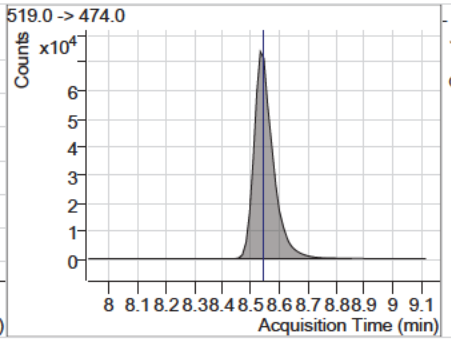


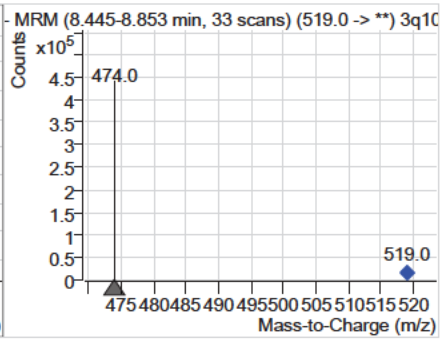




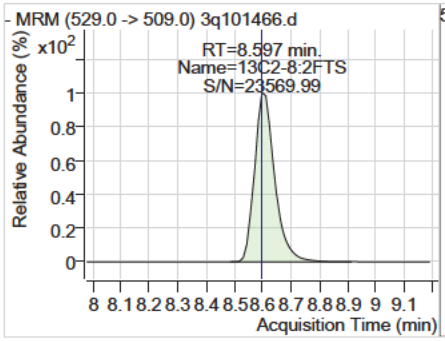
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	10.24	8.53	-0.01	343547				

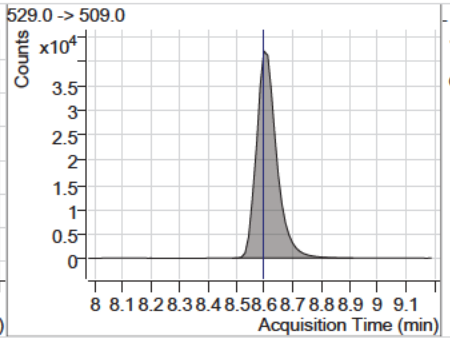


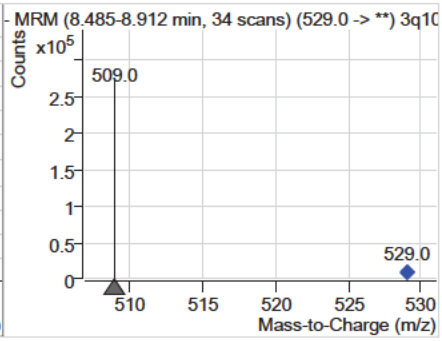




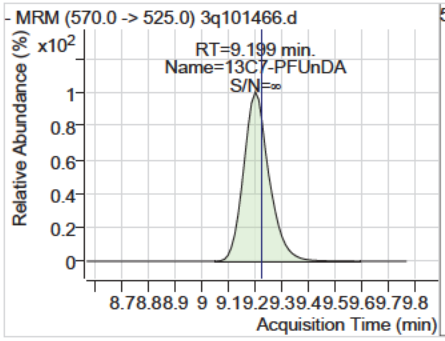
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	9.33	8.60	-0.01	208411				

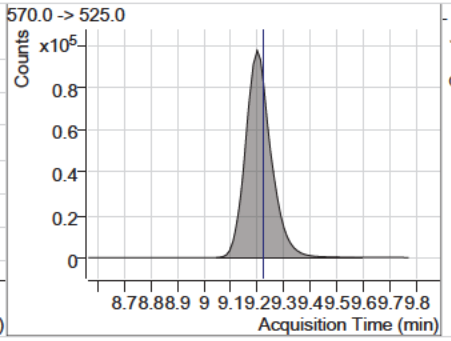


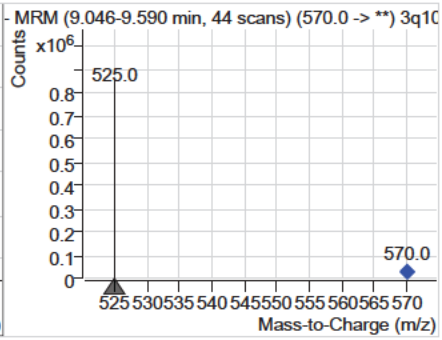




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	9.67	9.20	-0.03	648324				







7.2.4

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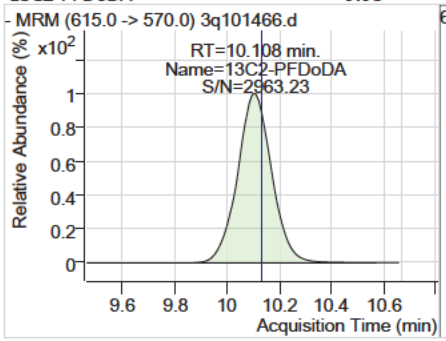
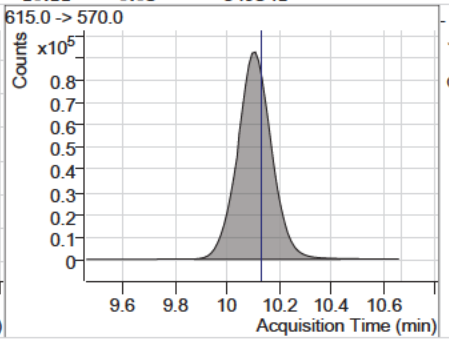
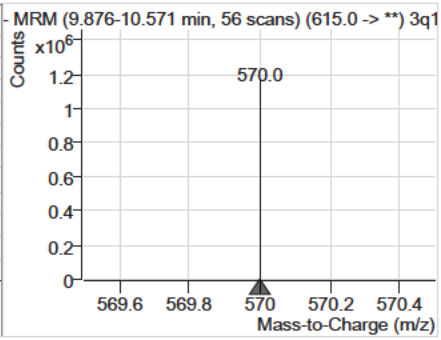
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	9.95	10.11	-0.03	849541				







7.2.4

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Perfluorinated Compounds by LC/MS/MS

Data File : 3q101518.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/17/2025 10:18:55 AM
Sample Name : iblk
Vial : P1-C1
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1494.batch.bin
Sample Information : op8907,S3Q1494,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.447	415.0 -> 370.0	246057	10.00 µg/L	0.025
13C3-PFBA	2.382	216.0 -> 172.0	94154	10.00 µg/L	0.038
13C4-PFOS	7.995	503.0 -> 80.0	37277	10.00 µg/L	0.026
M4-PFBA	2.377	217.0 -> 172.0	165154	10.00 µg/L	0.038
M5-PFPeA	4.438	268.0 -> 223.0	200523	10.00 µg/L	0.025
M5-PFHxA	5.801	318.0 -> 273.0	263888	10.00 µg/L	0.025
M4-PFHpA	6.719	367.0 -> 322.0	221074	10.00 µg/L	0.025
M8-PFOA	7.447	421.0 -> 376.0	294639	10.00 µg/L	0.025
M9-PFNA	8.035	472.0 -> 427.0	325328	10.00 µg/L	0.038
M6-PFDA	8.546	519.0 -> 474.0	478478	10.00 µg/L	0.025
M7-PFUnDA	9.262	570.0 -> 525.0	811128	10.00 µg/L	0.077
M2-PFDoDA	10.158	615.0 -> 570.0	1126354	10.00 µg/L	0.075
M3-PFBS	4.733	302.0 -> 99.0	22795	10.00 µg/L	0.025
M3-PFHxS	6.749	402.0 -> 99.0	32830	10.00 µg/L	0.025
M8-PFOS	8.008	507.0 -> 99.0	42009	10.00 µg/L	0.039
M2-4:2FTS	5.697	329.0 -> 309.0	86074	10.00 µg/L	0.025
M2-6:2FTS	7.445	429.0 -> 409.0	168784	10.00 µg/L	0.025
M2-8:2FTS	8.611	529.0 -> 509.0	292356	10.00 µg/L	0.026
M3-HFPO-DA	6.081	287.0 -> 169.0	2741	10.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.697	329.0 -> 309.0	86074	9.70 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C2-6:2FTS	7.445	429.0 -> 409.0	168790	10.13 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C2-8:2FTS	8.611	529.0 -> 509.0	292356	10.47 µg/L	0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C2-PFDoDA	10.158	615.0 -> 570.0	1126354	10.75 µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.5%	
13C3-PFBS	4.733	302.0 -> 99.0	22795	9.80 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C3-PFHxS	6.749	402.0 -> 99.0	32830	9.91 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C4-PFBA	2.377	217.0 -> 172.0	165154	10.34 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C4-PFHpA	6.719	367.0 -> 322.0	221074	10.62 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.2%	
13C5-PFHxA	5.801	318.0 -> 273.0	263888	10.59 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C5-PFPeA	4.438	268.0 -> 223.0	200523	10.41 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C6-PFDA	8.546	519.0 -> 474.0	478478	11.62 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 116.2%	
13C7-PFUnDA	9.262	570.0 -> 525.0	811128	9.87 µg/L	0.077
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C8-PFOA	7.447	421.0 -> 376.0	294639	10.90 µg/L	0.025

Perfluorinated Compounds by LC/MS/MS

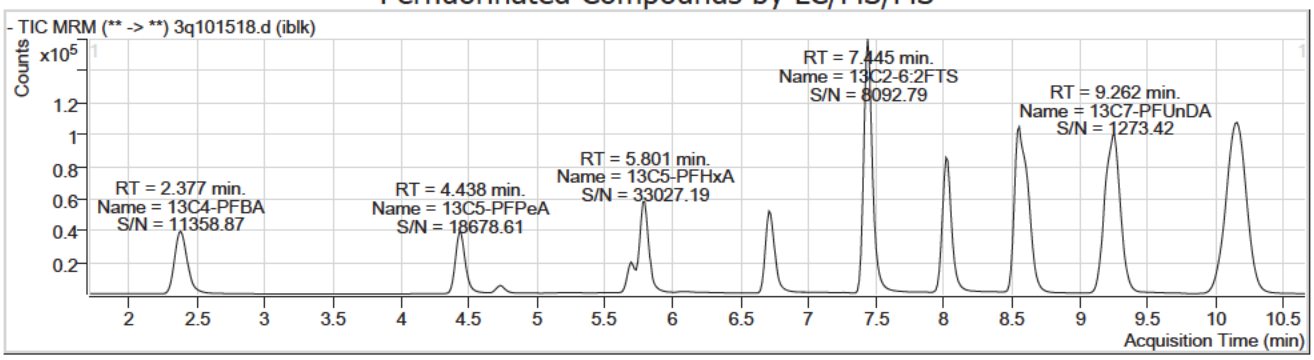
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.0%		
13C8-PFOS	8.008	507.0 -> 99.0	42009	9.91 µg/L		0.039
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%		
13C9-PFNA	8.035	472.0 -> 427.0	325328	11.08 µg/L		0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.8%		
13C3-HFPO-DA	6.081	287.0 -> 169.0	2741	7.65 µg/L		0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.5%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	-	299.0 -> 80.0	-	N.D.		
		299.0 -> 99.0				
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	-	363.0 -> 319.0	-	N.D.		
		363.0 -> 169.0				
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	6.101	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0	0			

= Qualifier out of range, m = manually integrated, + = Area summed

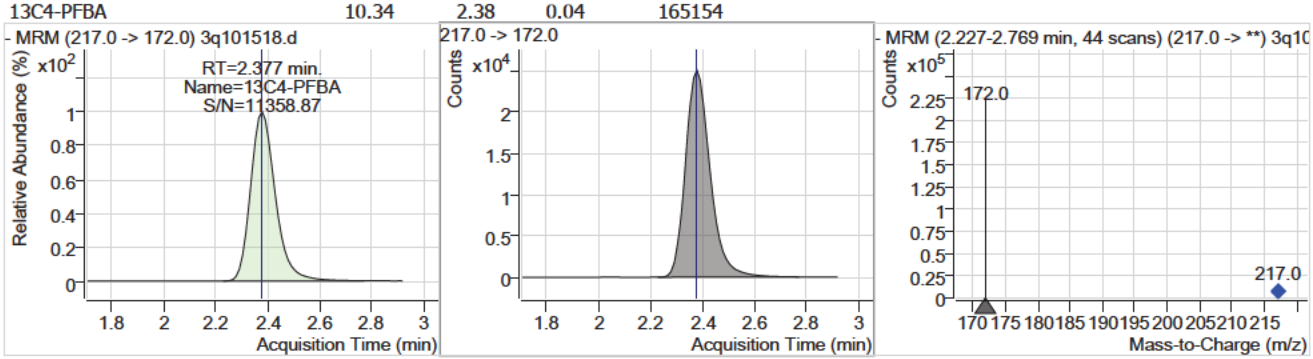
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)

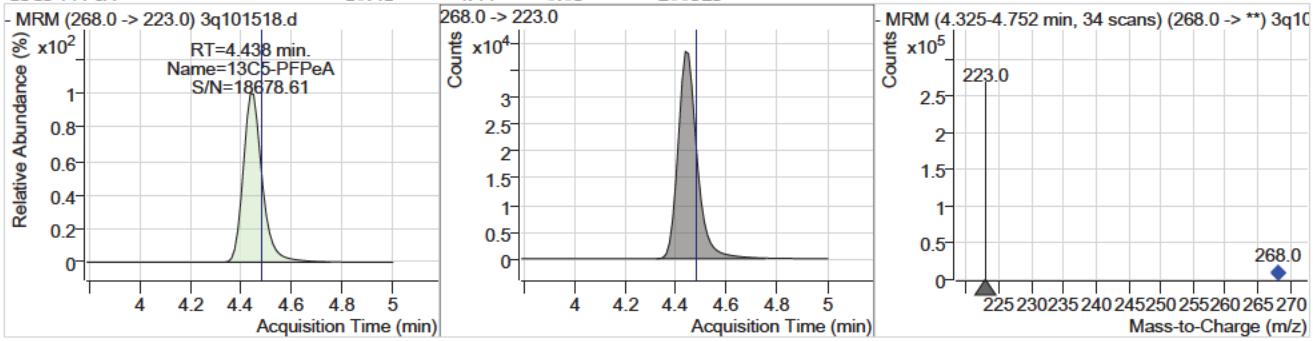
Perfluorinated Compounds by LC/MS/MS



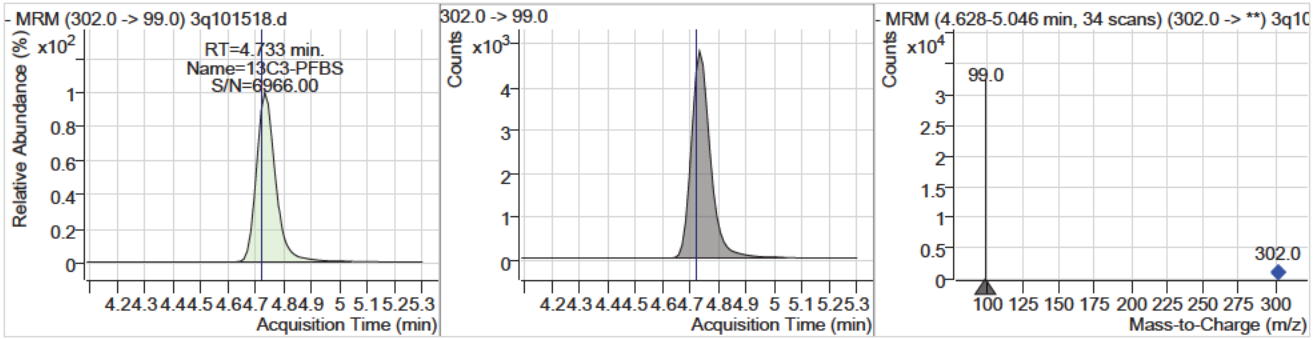
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.34	2.38	0.04	165154				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.41	4.44	0.03	200523				



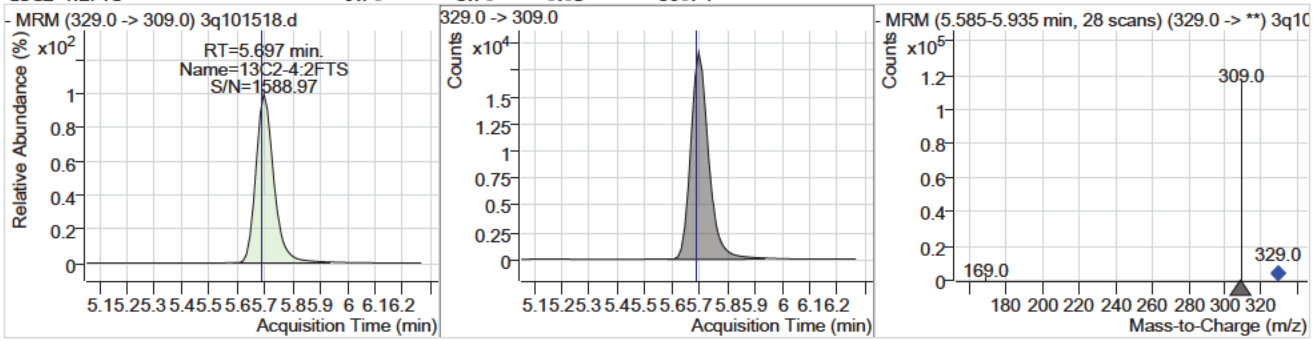
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	9.80	4.73	0.03	22795				



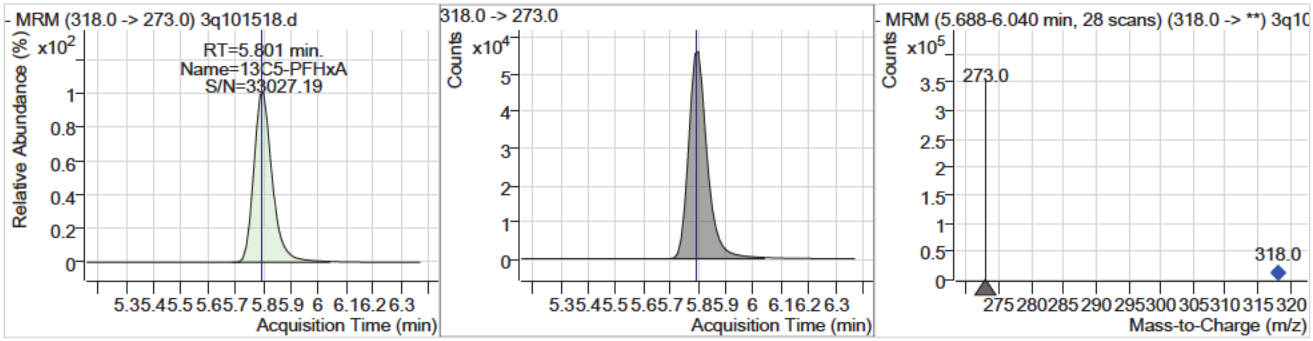
7.2.5 7

Perfluorinated Compounds by LC/MS/MS

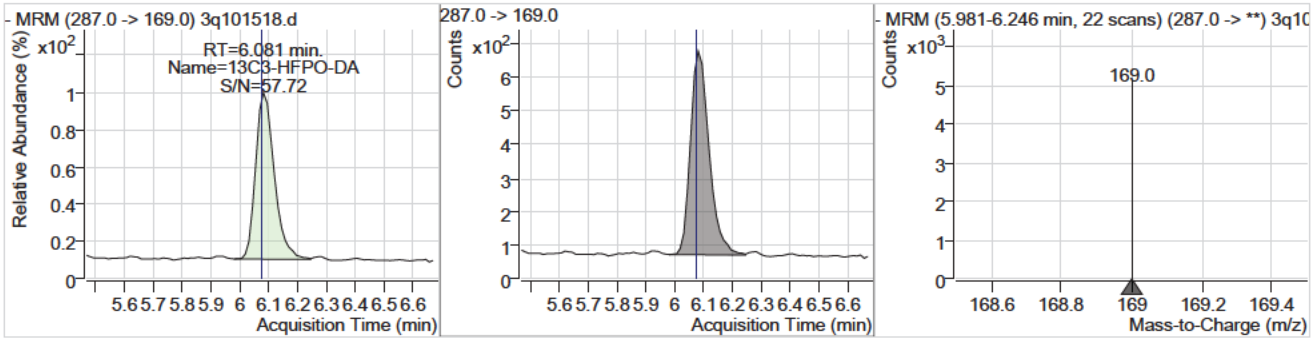
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	9.70	5.70	0.03	86074				



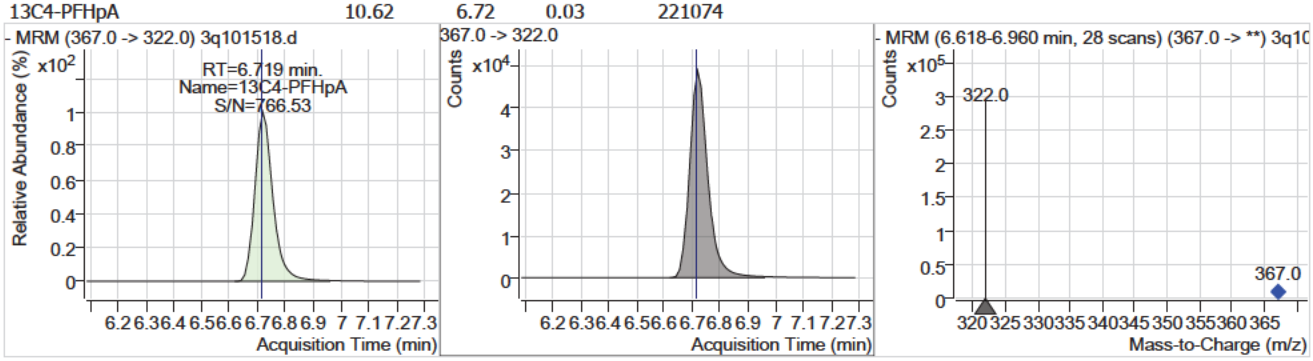
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.59	5.80	0.03	263888				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	7.65	6.08	0.03	2741				

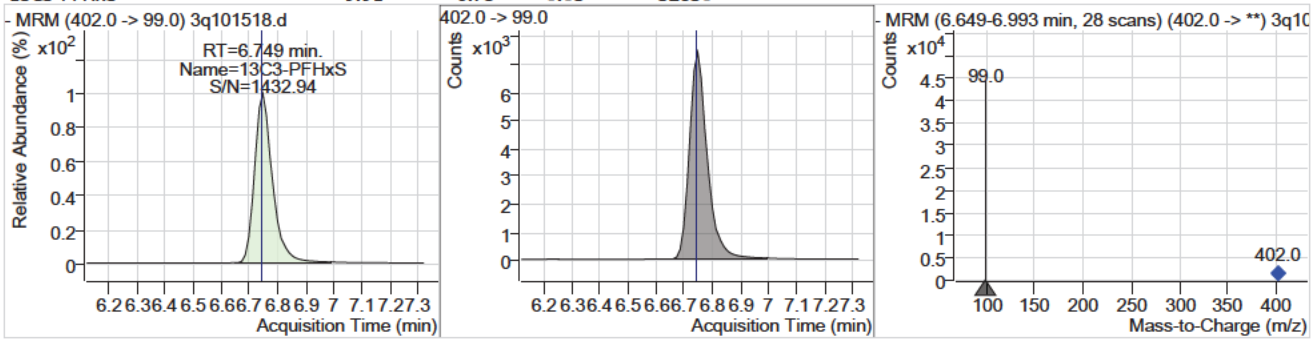


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.62	6.72	0.03	221074				

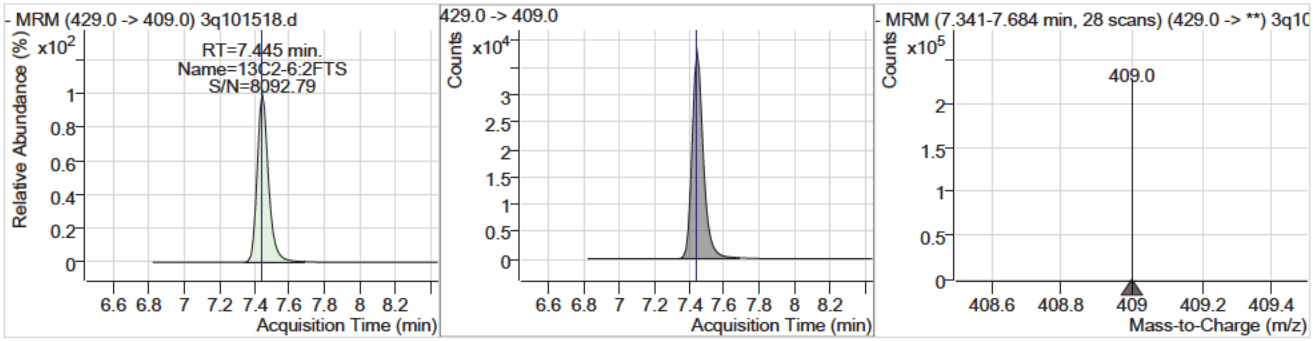


Perfluorinated Compounds by LC/MS/MS

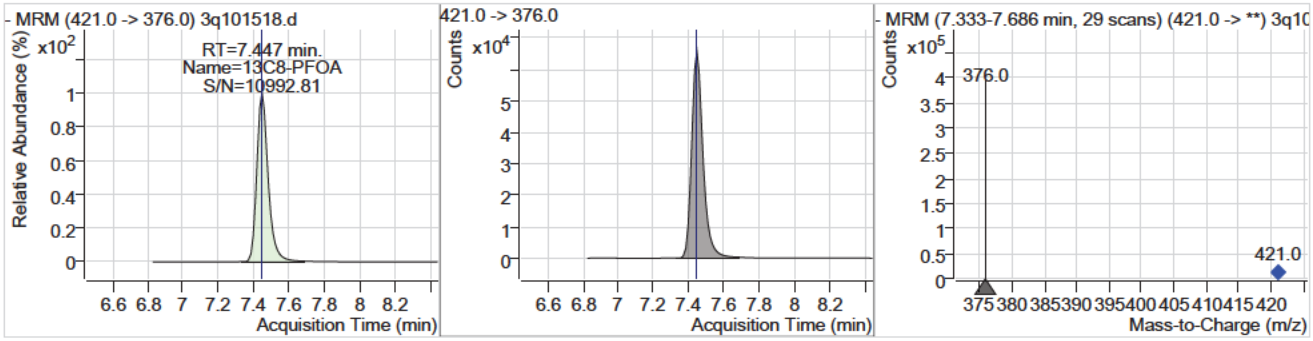
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	9.91	6.75	0.03	32830				



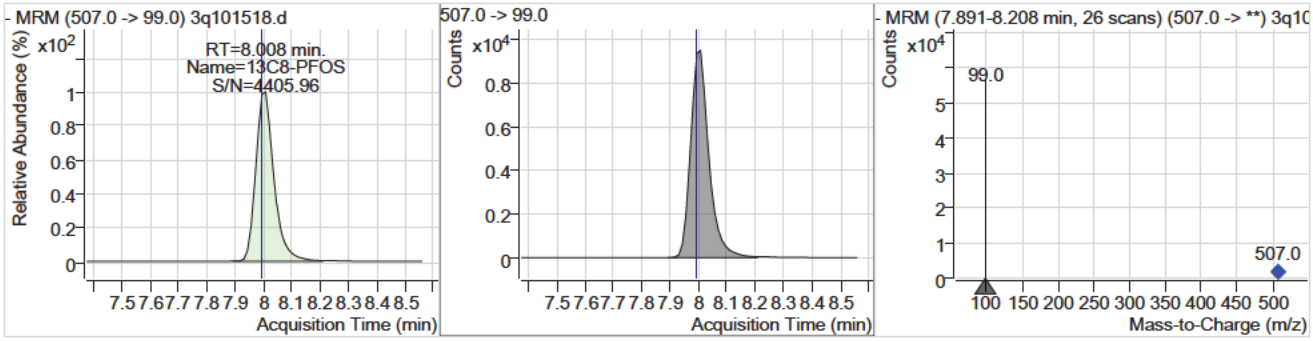
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	10.13	7.44	0.03	168790				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.90	7.45	0.03	294639				



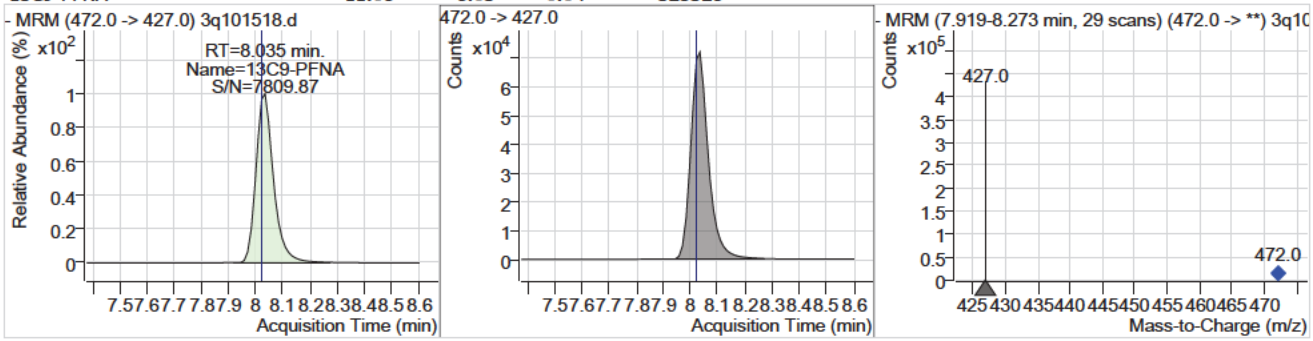
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	9.91	8.01	0.04	42009				



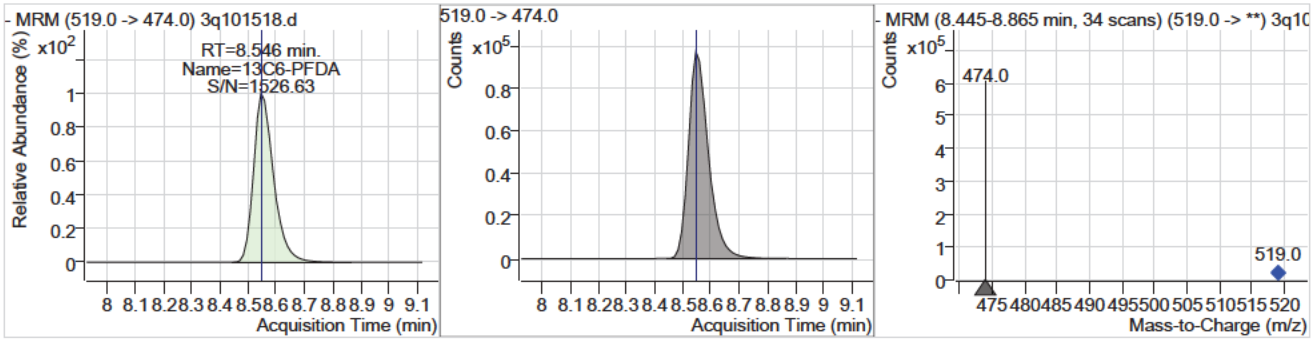
7.2.5 7

Perfluorinated Compounds by LC/MS/MS

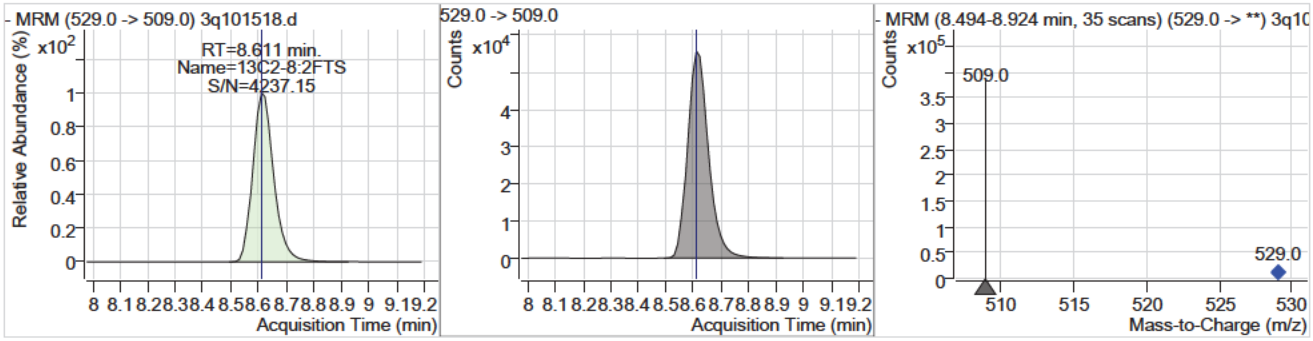
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	11.08	8.03	0.04	325328				



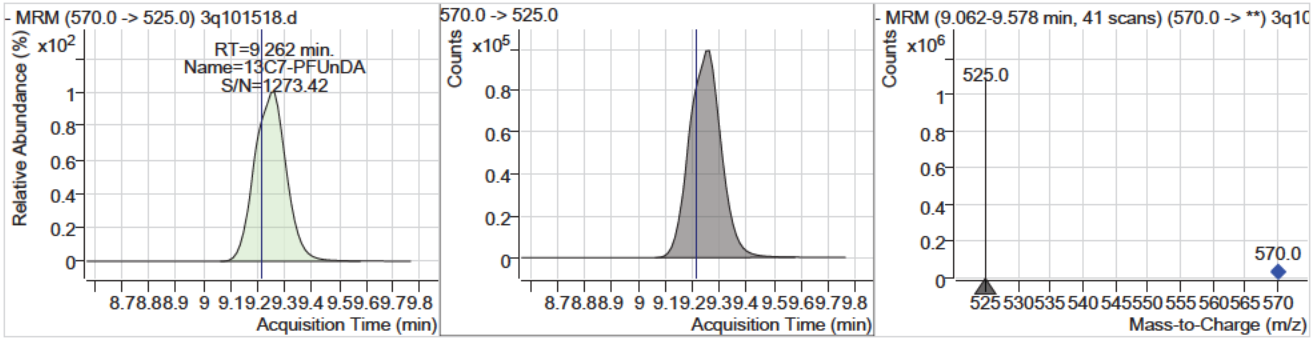
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	11.62	8.55	0.03	478478				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	10.47	8.61	0.03	292356				



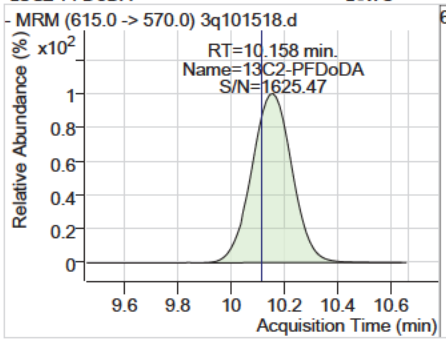
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	9.87	9.26	0.08	811128				

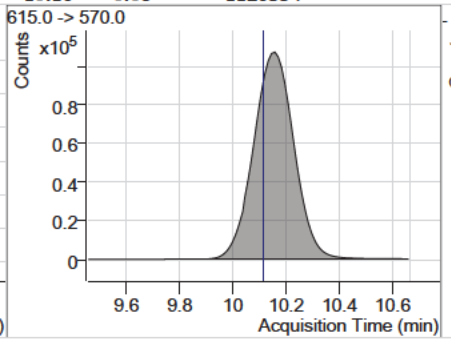


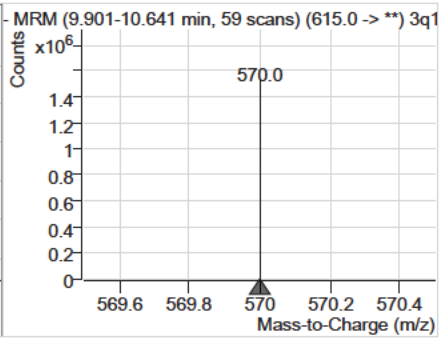
7.2.5 7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.75	10.16	0.08	1126354				







7.2.5

7

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101488.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/16/2025 11:13:34 AM
Sample Name : iblk
Vial : P1-C1
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1493.batch.bin
Sample Information : op8141,S3Q1493,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.435	415.0 -> 370.0	262588	10.00 µg/L	0.013
13C3-PFBA	2.344	216.0 -> 172.0	99776	10.00 µg/L	0.000
13C4-PFOS	7.983	503.0 -> 80.0	38467	10.00 µg/L	0.014
M4-PFBA	2.340	217.0 -> 172.0	174213	10.00 µg/L	0.000
M5-PFPeA	4.413	268.0 -> 223.0	213909	10.00 µg/L	0.000
M5-PFHxA	5.776	318.0 -> 273.0	280711	10.00 µg/L	0.000
M4-PFHpA	6.706	367.0 -> 322.0	234913	10.00 µg/L	0.013
M8-PFOA	7.434	421.0 -> 376.0	312437	10.00 µg/L	0.013
M9-PFNA	8.010	472.0 -> 427.0	347231	10.00 µg/L	0.013
M6-PFDA	8.533	519.0 -> 474.0	507042	10.00 µg/L	0.013
M7-PFUnDA	9.199	570.0 -> 525.0	882942	10.00 µg/L	0.014
M2-PFDoDA	10.108	615.0 -> 570.0	1220806	10.00 µg/L	0.025
M3-PFBS	4.708	302.0 -> 99.0	24128	10.00 µg/L	0.000
M3-PFHxS	6.736	402.0 -> 99.0	34285	10.00 µg/L	0.013
M8-PFOS	7.982	507.0 -> 99.0	43785	10.00 µg/L	0.014
M2-4:2FTS	5.672	329.0 -> 309.0	90366	10.00 µg/L	0.000
M2-6:2FTS	7.432	429.0 -> 409.0	176134	10.00 µg/L	0.013
M2-8:2FTS	8.597	529.0 -> 509.0	307082	10.00 µg/L	0.013
M3-HFPO-DA	6.069	287.0 -> 169.0	3082	10.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.672	329.0 -> 309.0	90366	9.87 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C2-6:2FTS	7.432	429.0 -> 409.0	176134	10.24 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C2-8:2FTS	8.597	529.0 -> 509.0	307082	10.66 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.6%	
13C2-PFDoDA	10.108	615.0 -> 570.0	1220806	10.92 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C3-PFBS	4.708	302.0 -> 99.0	24128	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C3-PFHxS	6.736	402.0 -> 99.0	34285	10.03 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C4-PFBA	2.340	217.0 -> 172.0	174213	10.29 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C4-PFHpA	6.706	367.0 -> 322.0	234913	10.57 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C5-PFHxA	5.776	318.0 -> 273.0	280711	10.55 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C5-PFPeA	4.413	268.0 -> 223.0	213909	10.48 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C6-PFDA	8.533	519.0 -> 474.0	507042	11.54 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 115.4%	
13C7-PFUnDA	9.199	570.0 -> 525.0	882942	10.06 µg/L	0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C8-PFOA	7.434	421.0 -> 376.0	312437	10.83 µg/L	0.013

Perfluorinated Compounds by LC/MS/MS

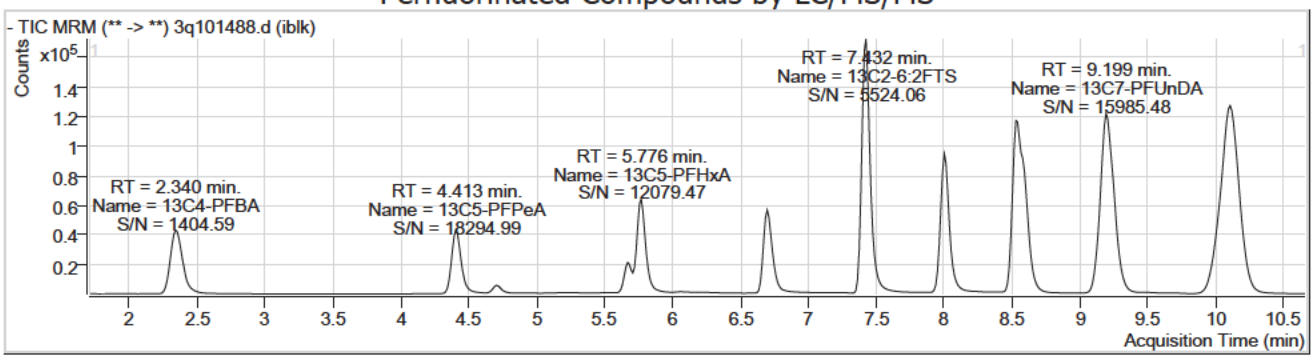
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.3%		
13C8-PFOS	7.982	507.0 -> 99.0	43785	10.01 µg/L		0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%		
13C9-PFNA	8.010	472.0 -> 427.0	347231	11.08 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.8%		
13C3-HFPO-DA	6.069	287.0 -> 169.0	3082	8.06 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.6%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	-	299.0 -> 80.0	-	N.D.		
		299.0 -> 99.0				
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	-	363.0 -> 319.0	-	N.D.		
		363.0 -> 169.0				
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	5.873	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0	0			

= Qualifier out of range, m = manually integrated, + = Area summed

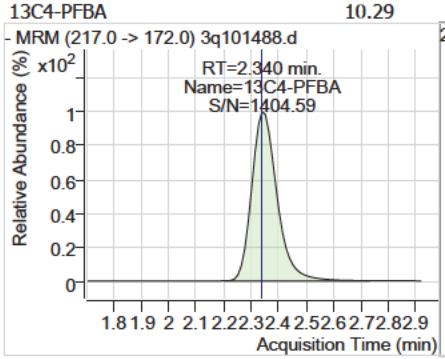
Perfluorinated Compounds by LC/MS/MS

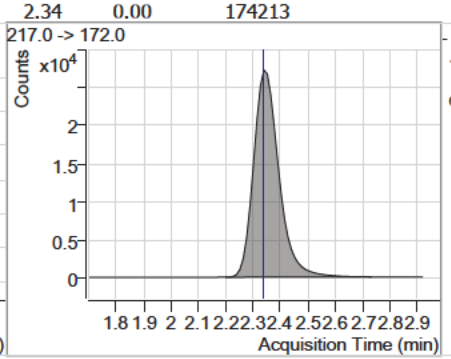
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

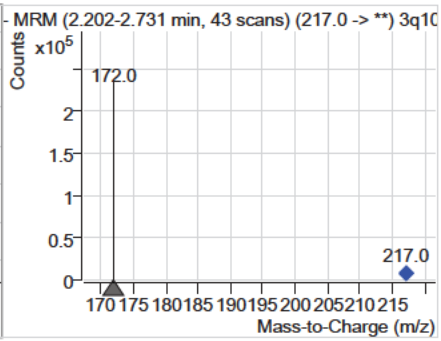
Perfluorinated Compounds by LC/MS/MS



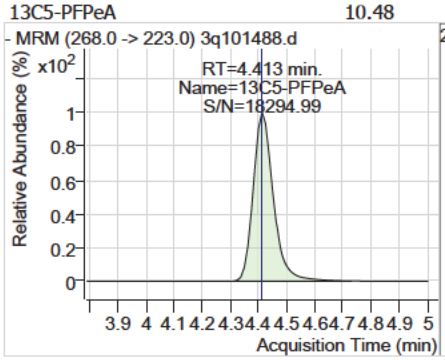
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.29	2.34	0.00	174213				

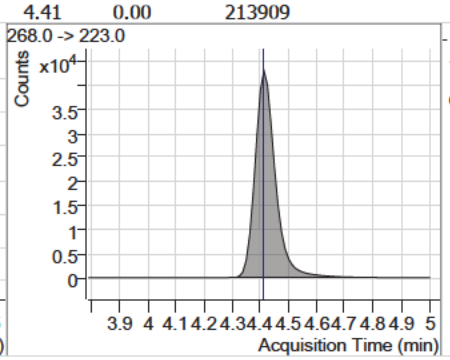


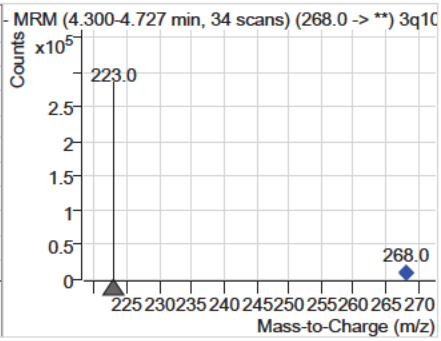




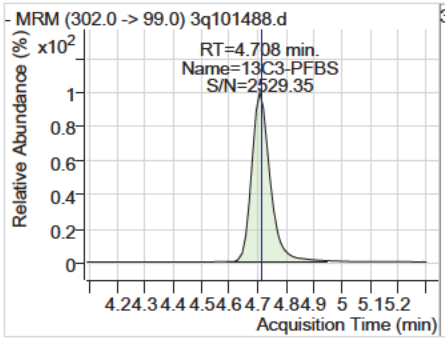
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.48	4.41	0.00	213909				

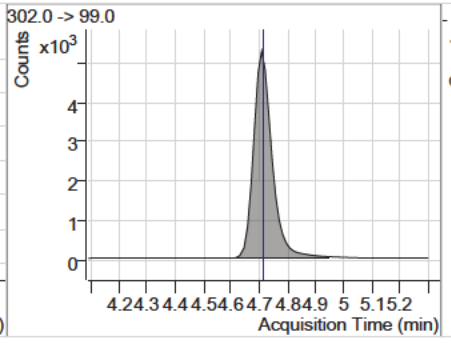


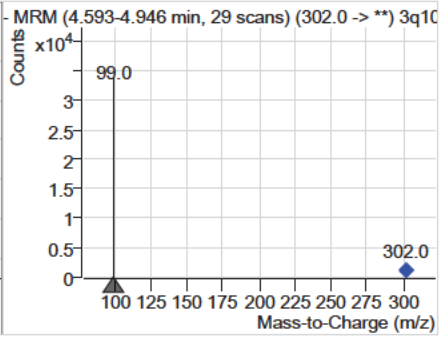




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.05	4.71	0.00	24128				





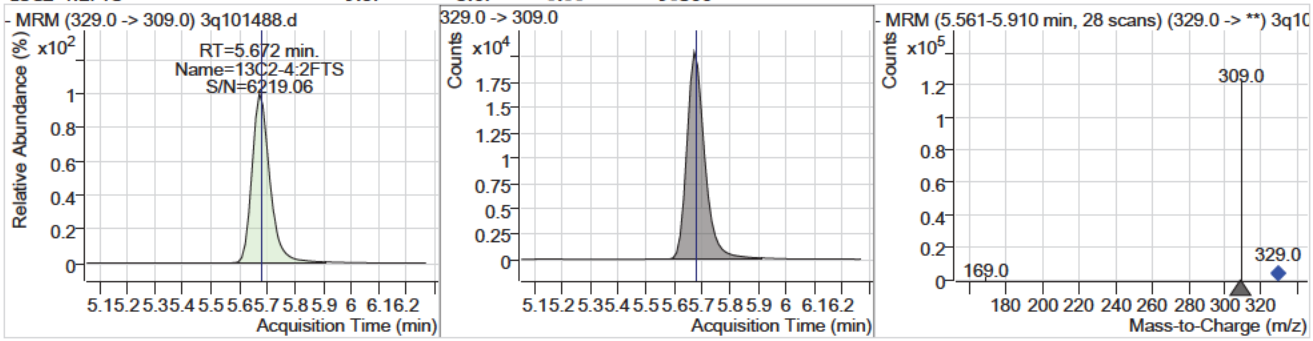


7.2.6

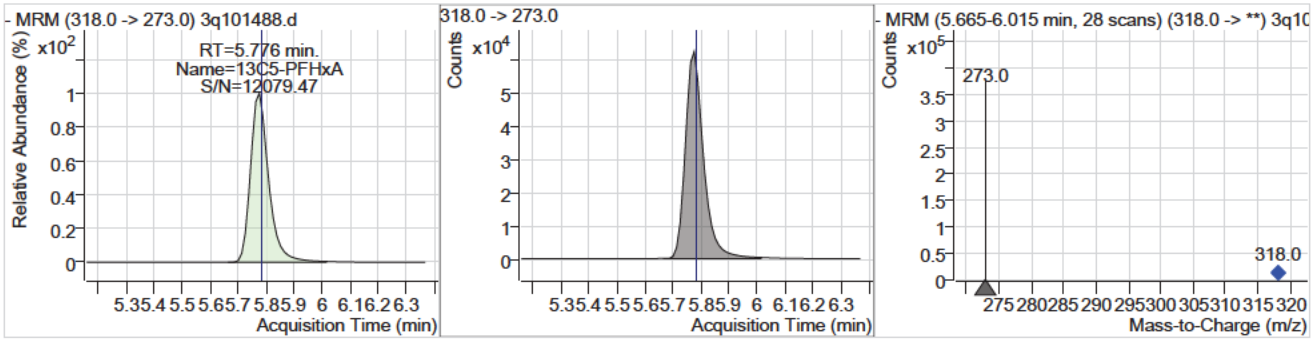
7

Perfluorinated Compounds by LC/MS/MS

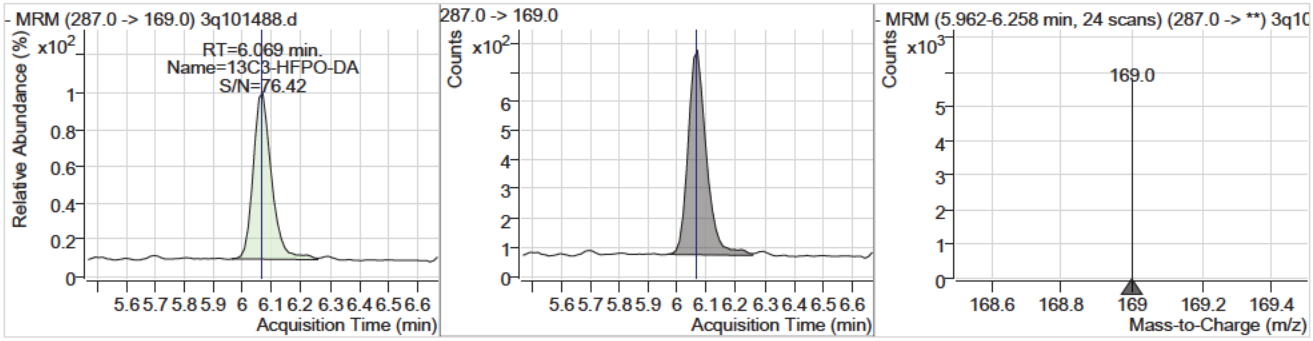
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	9.87	5.67	0.00	90366				



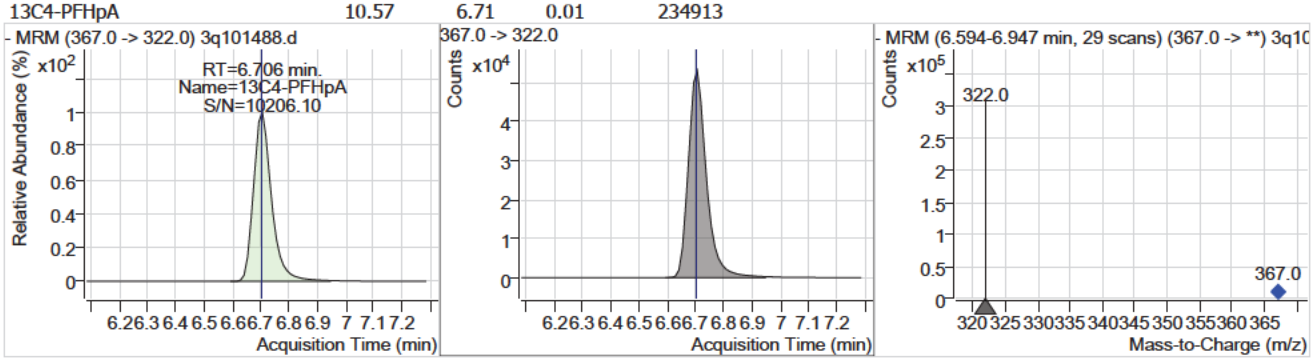
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.55	5.78	0.00	280711				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.06	6.07	0.01	3082				

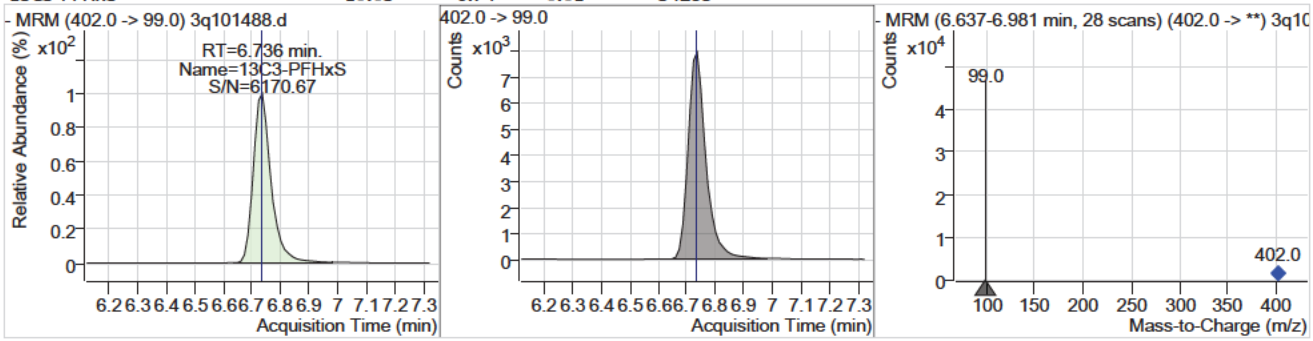


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.57	6.71	0.01	234913				

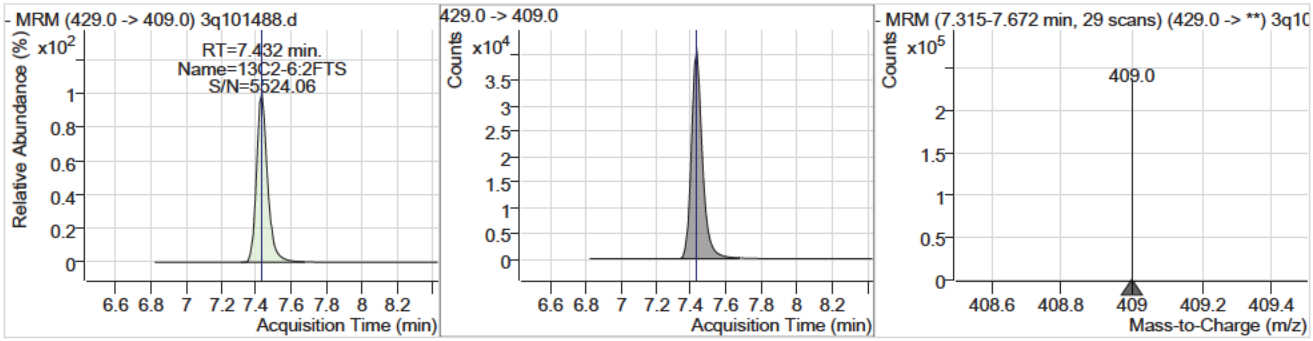


Perfluorinated Compounds by LC/MS/MS

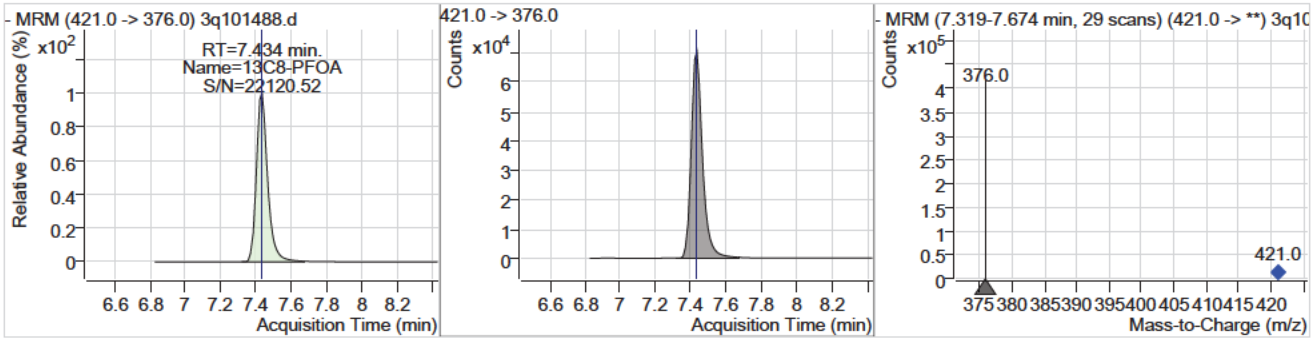
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.03	6.74	0.01	34285				



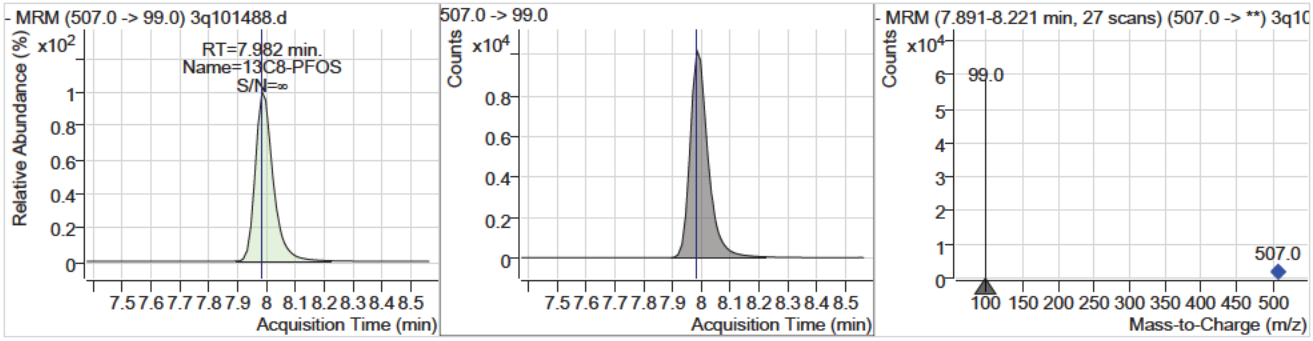
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	10.24	7.43	0.01	176134				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.83	7.43	0.01	312437				



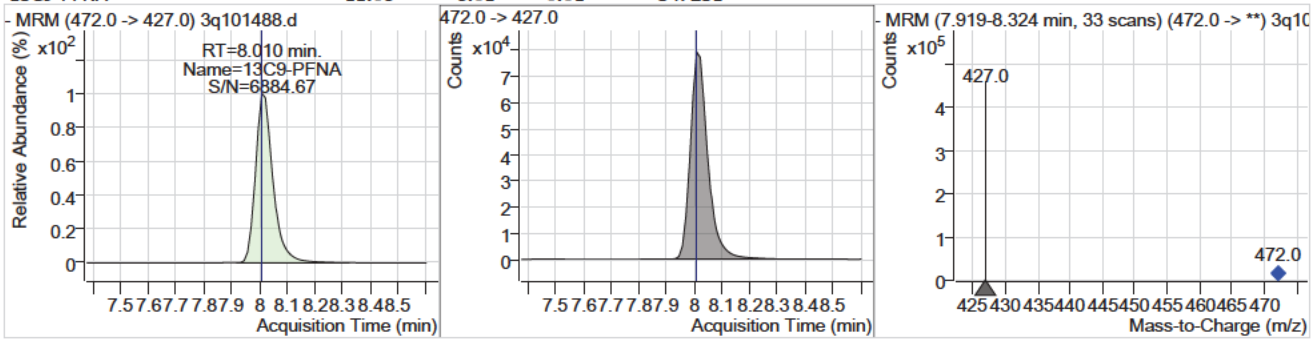
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.01	7.98	0.01	43785				



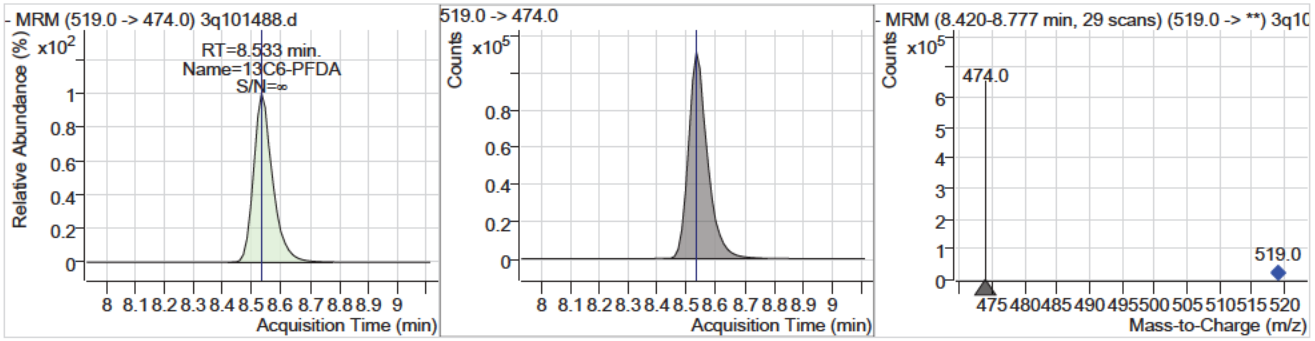
7.2.6 7

Perfluorinated Compounds by LC/MS/MS

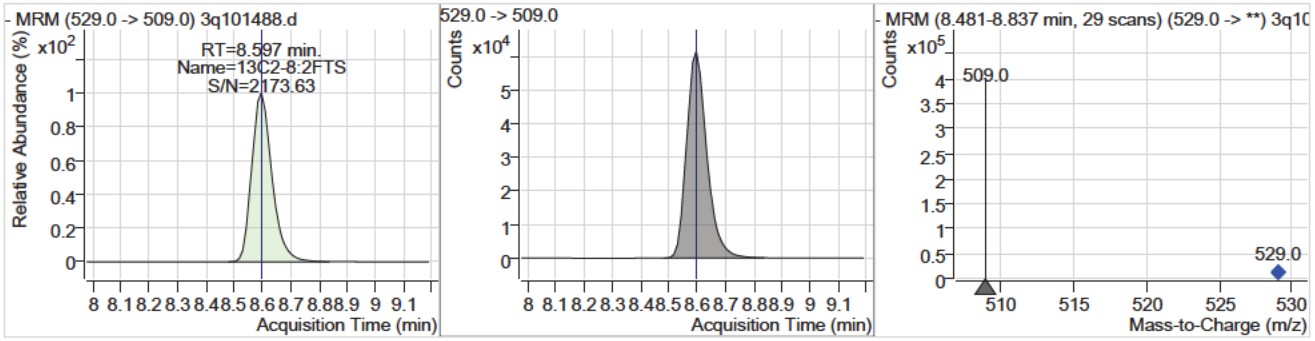
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	11.08	8.01	0.01	347231				



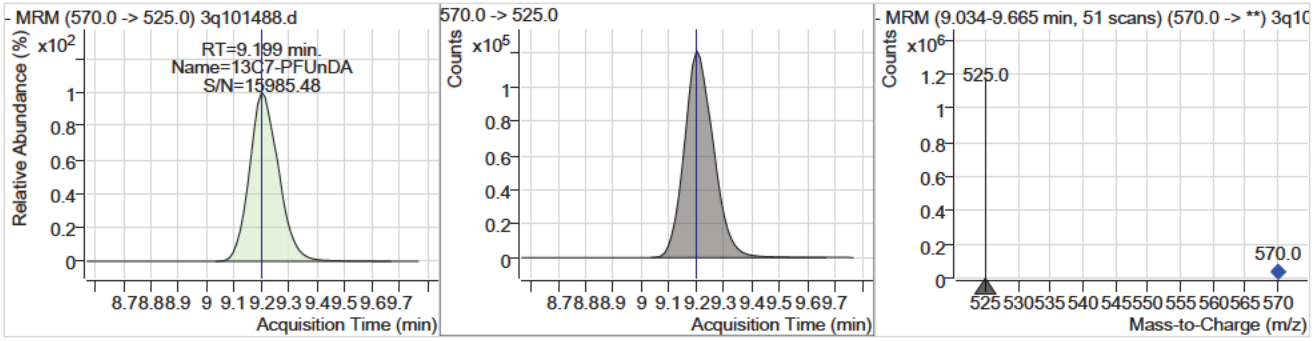
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	11.54	8.53	0.01	507042				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	10.66	8.60	0.01	307082				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	10.06	9.20	0.01	882942				

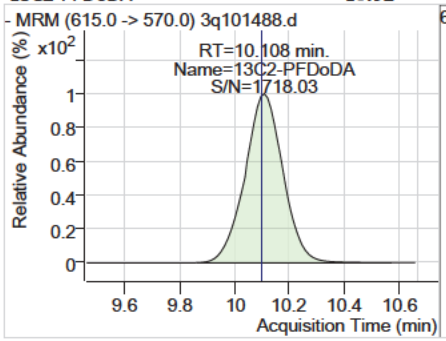


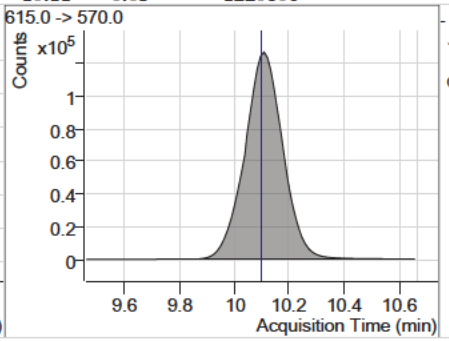
7.2.6

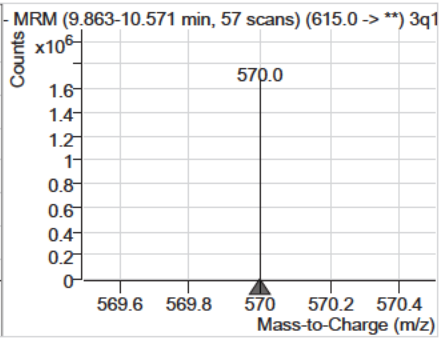
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.92	10.11	0.03	1220806				







7.2.6

7

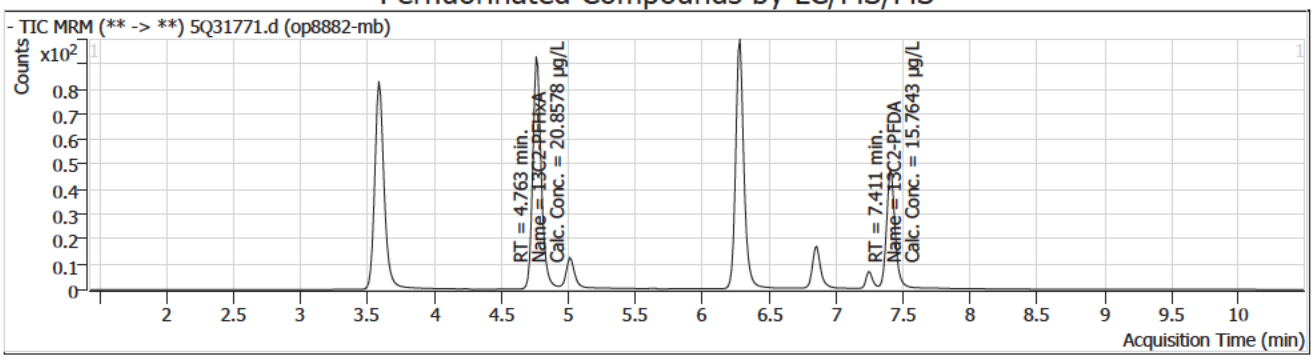
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31771.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/15/2025 6:49:45 PM
Sample Name : op8882-mb
Vial : P2-C2
DA Method File : 537_041525_S5Q521.quantmethod
Batch Name : s5q521.batch.bin
Sample Information : OP8882,S5Q521,250,,,1,1,water

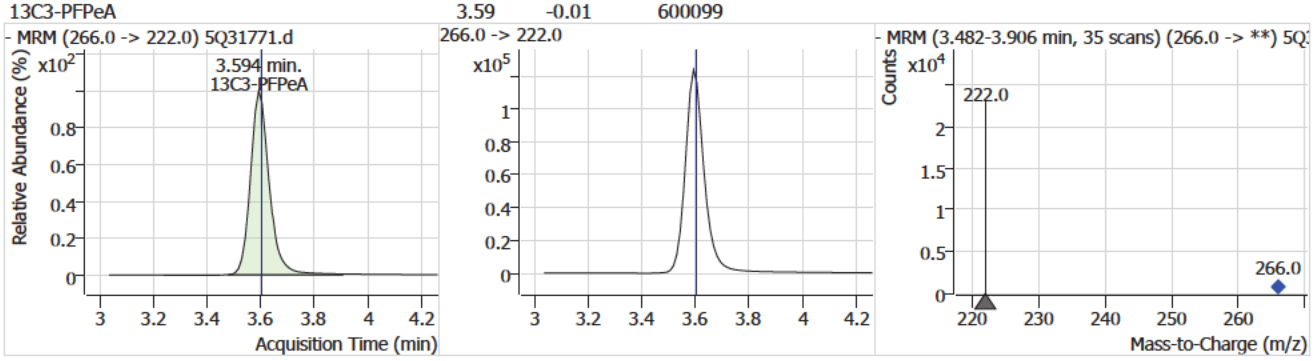
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.274	429.0 -> 409.0	191158	20.00 µg/L	-0.012
13C2-PFOA	6.289	415.0 -> 370.0	448739	20.00 µg/L	0.000
13C3-PFPeA	3.594	266.0 -> 222.0	600099	20.00 µg/L	-0.012
13C4-PFOS	6.860	503.0 -> 80.0	106108	20.00 µg/L	0.000
d3-MeFOSAA	7.242	573.0 -> 419.0	35608	40.00 µg/L	-0.012
System Monitoring Compounds					
13C2-PFDA	7.411	515.0 -> 470.0	300452	15.76 µg/L	-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 78.8%	
13C2-PFHxA	4.763	315.0 -> 270.0	614746	20.86 µg/L	-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 104.3%	
d5-EtFOSAA	7.378	589.0 -> 419.0	14037	21.23 µg/L	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 53.1%	
13C3-HFPO-DA	5.019	287.0 -> 169.0	77724	38.72 µg/L	-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 96.8%	
Target Compounds					QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.	
8:2FTS	-	527.0 -> 507.0	-	N.D.	
EtFOSAA	-	584.0 -> 419.0	-	N.D.	
MeFOSAA	-	570.0 -> 419.0	-	N.D.	
PFBS	-	299.0 -> 80.0	-	N.D.	
PFDA	-	513.0 -> 469.0	-	N.D.	
PFDoDA	-	613.0 -> 569.0	-	N.D.	
PFHpA	-	363.0 -> 319.0	-	N.D.	
PFHxA	-	313.0 -> 269.0	-	N.D.	
PFHxS	-	399.0 -> 80.0	-	N.D.	
PFNA	-	463.0 -> 419.0	-	N.D.	
PFOA	-	413.0 -> 369.0	-	N.D.	
PFOS	-	499.0 -> 80.0	-	N.D.	
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	
ADONA	-	377.0 -> 251.0	-	N.D.	
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
HFPO-DA	-	285.0 -> 169.0	-	N.D.	

= Qualifier out of range, m = manually integrated, + = Area summed

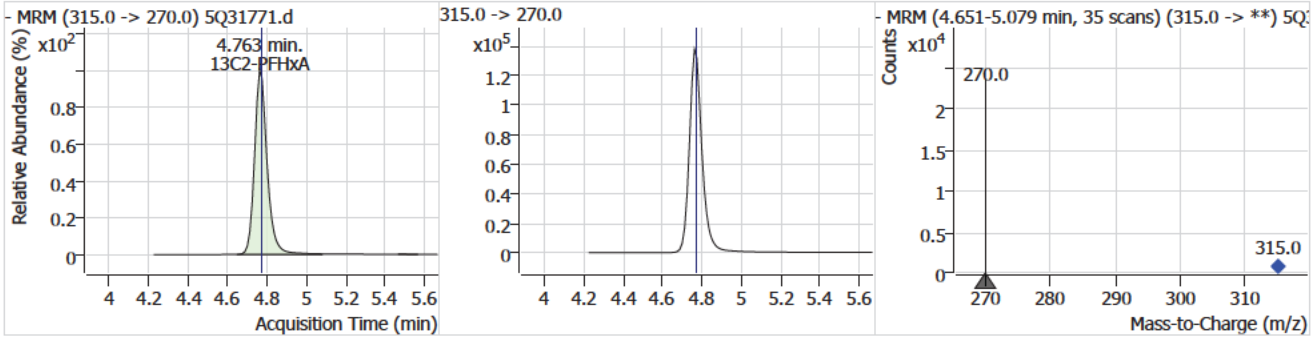
Perfluorinated Compounds by LC/MS/MS



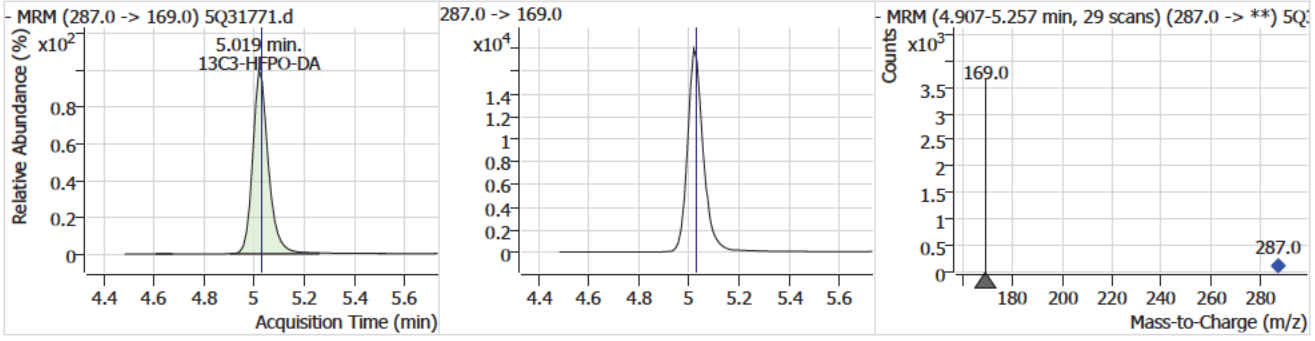
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	600099				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	20.86	4.76	-0.01	614746				

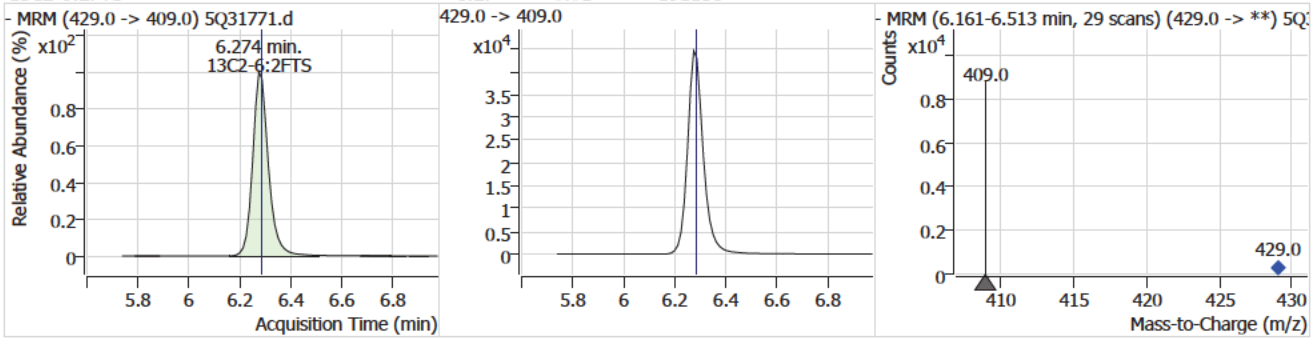


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	38.72	5.02	-0.01	77724				

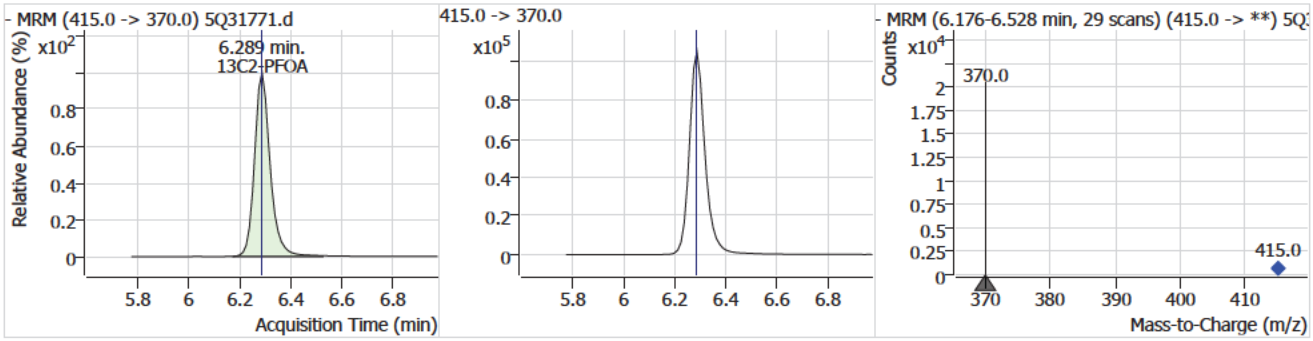


Perfluorinated Compounds by LC/MS/MS

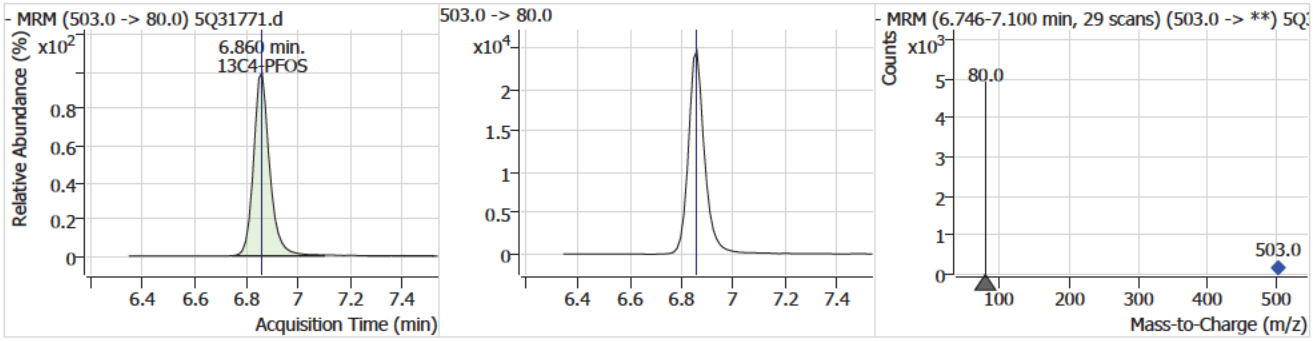
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	191158				



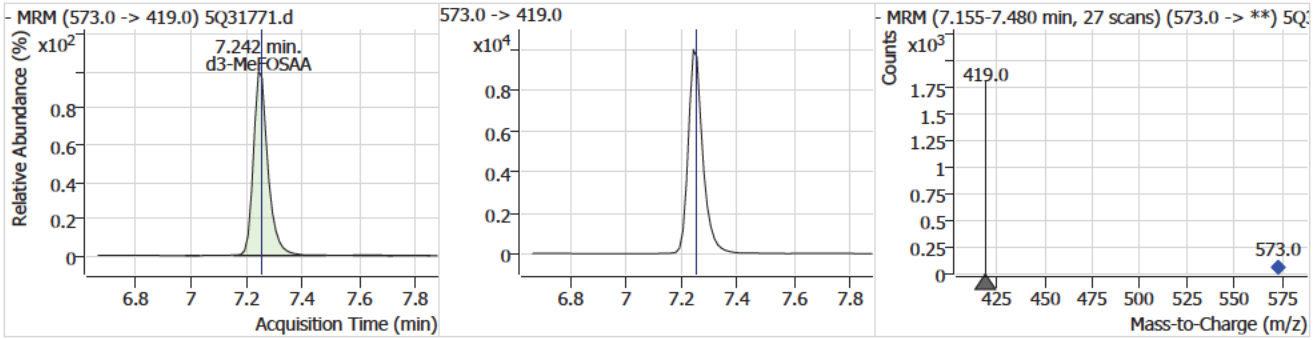
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	448739				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	106108				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	35608				

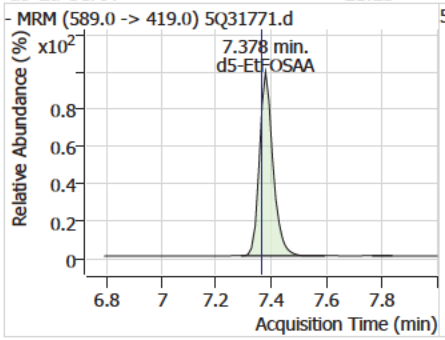


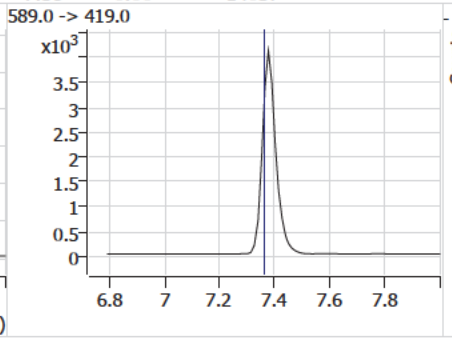
7.2.7

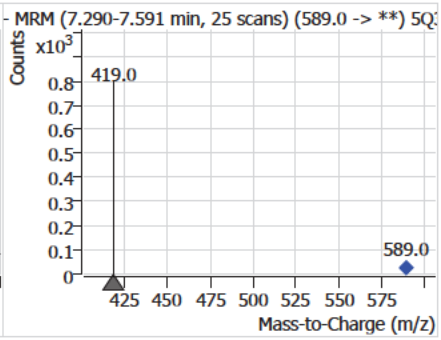
7

Perfluorinated Compounds by LC/MS/MS

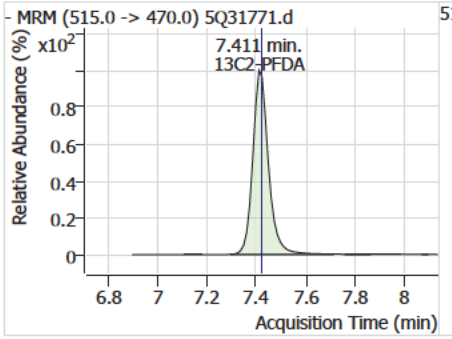
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	21.23	7.38	0.00	14037				

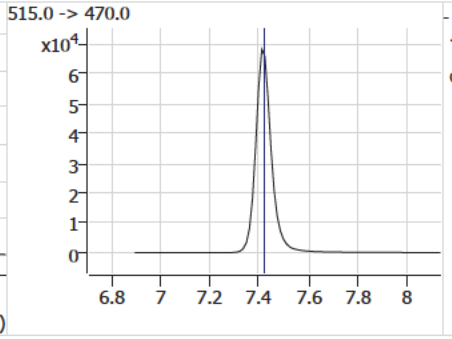


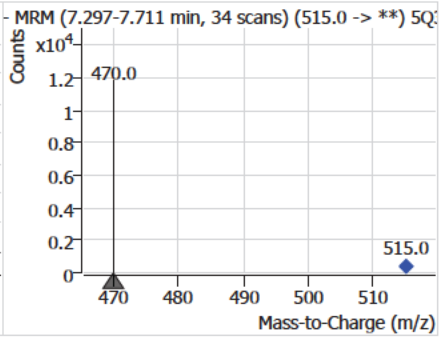




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	15.76	7.41	-0.01	300452				







7.2.7

7

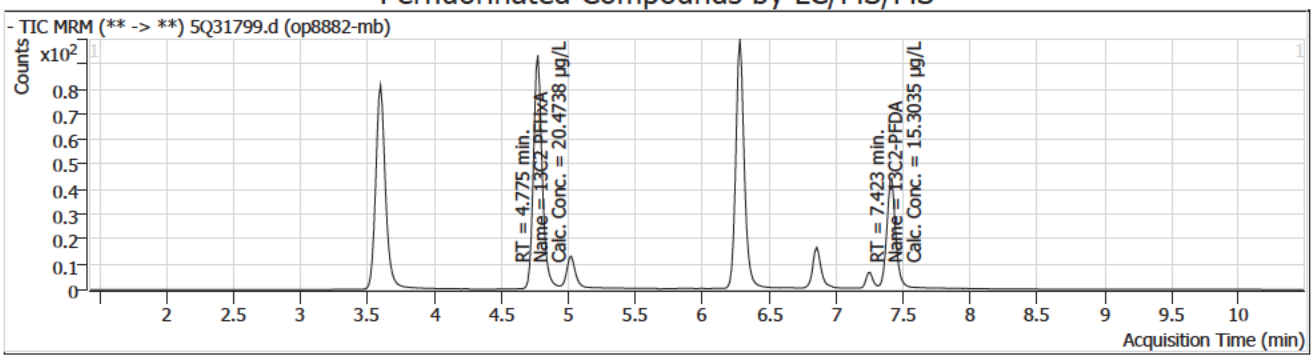
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31799.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/16/2025 3:29:21 PM
Sample Name : op8882-mb
Vial : P2-C2
DA Method File : 537_041625_S5Q522.quantmethod
Batch Name : s5q522.batch.bin
Sample Information : OP8882,S5Q522,250,,,1,1,water

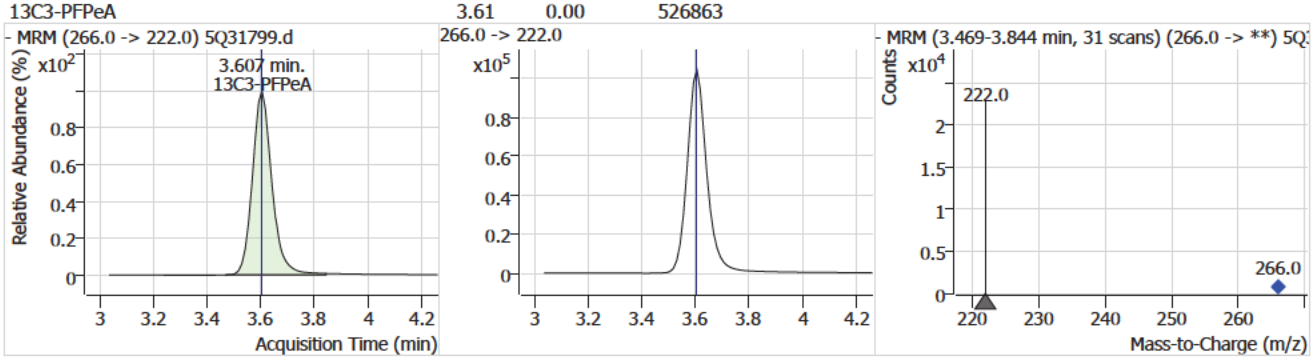
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.287	429.0 -> 409.0	174625	20.00 µg/L	0.000
13C2-PFOA	6.289	415.0 -> 370.0	394595	20.00 µg/L	0.000
13C3-PFPeA	3.607	266.0 -> 222.0	526863	20.00 µg/L	0.000
13C4-PFOS	6.860	503.0 -> 80.0	91374	20.00 µg/L	0.000
d3-MeFOSAA	7.255	573.0 -> 419.0	30296	40.00 µg/L	0.000
System Monitoring Compounds					
13C2-PFDA	7.423	515.0 -> 470.0	248935	15.30 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 76.5%	
13C2-PFHxA	4.775	315.0 -> 270.0	546040	20.47 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 102.4%	
d5-EtFOSAA	7.378	589.0 -> 419.0	12407	21.48 µg/L	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 53.7%	
13C3-HFPO-DA	5.032	287.0 -> 169.0	72255	38.59 µg/L	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 96.5%	
Target Compounds					QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.	
8:2FTS	-	527.0 -> 507.0	-	N.D.	
EtFOSAA	-	584.0 -> 419.0	-	N.D.	
MeFOSAA	-	570.0 -> 419.0	-	N.D.	
PFBS	-	299.0 -> 80.0	-	N.D.	
PFDA	-	513.0 -> 469.0	-	N.D.	
PFDoDA	-	613.0 -> 569.0	-	N.D.	
PFHpA	-	363.0 -> 319.0	-	N.D.	
PFHxA	-	313.0 -> 269.0	-	N.D.	
PFHxS	-	399.0 -> 80.0	-	N.D.	
PFNA	-	463.0 -> 419.0	-	N.D.	
PFOA	-	413.0 -> 369.0	-	N.D.	
PFOS	-	499.0 -> 80.0	-	N.D.	
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	
ADONA	-	377.0 -> 251.0	-	N.D.	
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
HFPO-DA	-	285.0 -> 169.0	-	N.D.	

= Qualifier out of range, m = manually integrated, + = Area summed

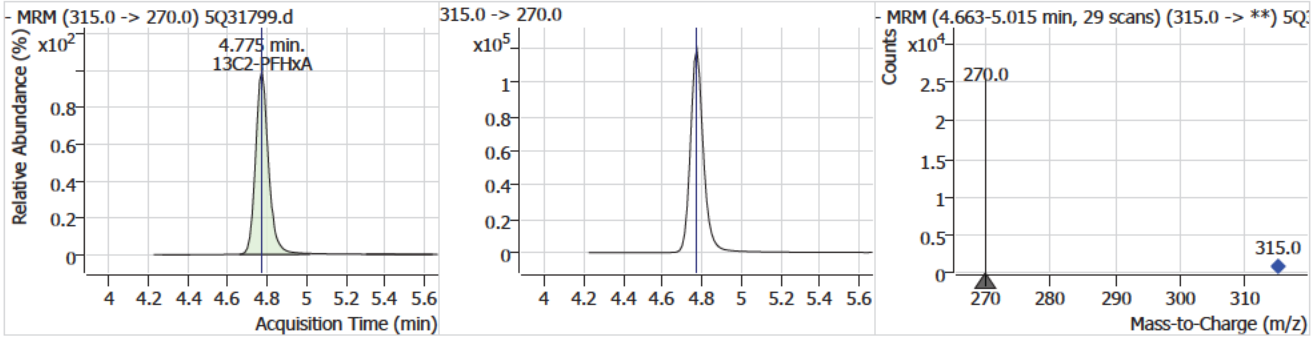
Perfluorinated Compounds by LC/MS/MS



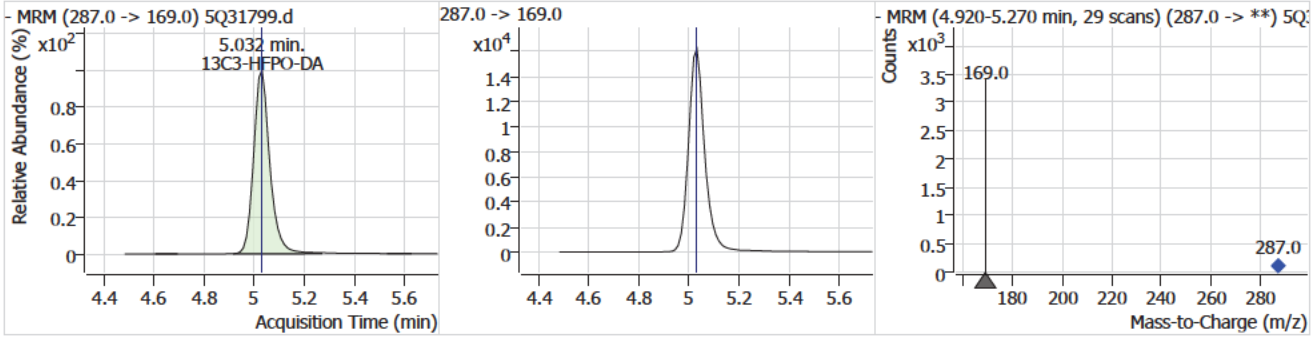
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.00	526863				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	20.47	4.78	0.00	546040				

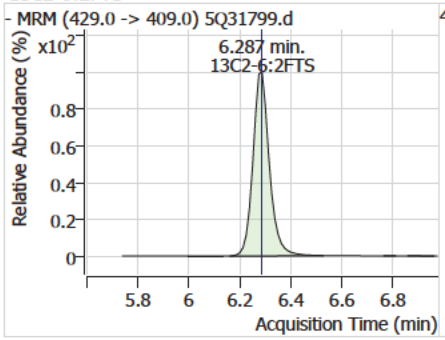


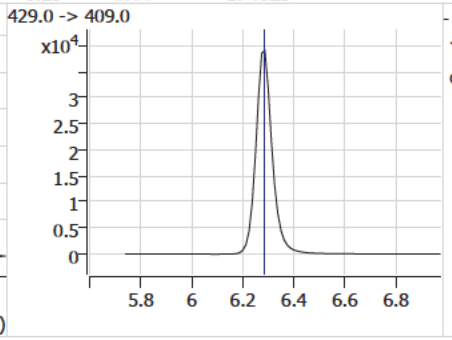
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	38.59	5.03	0.00	72255				

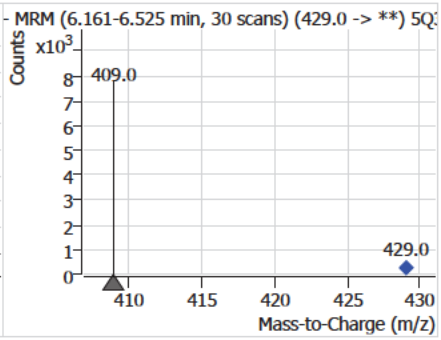


Perfluorinated Compounds by LC/MS/MS

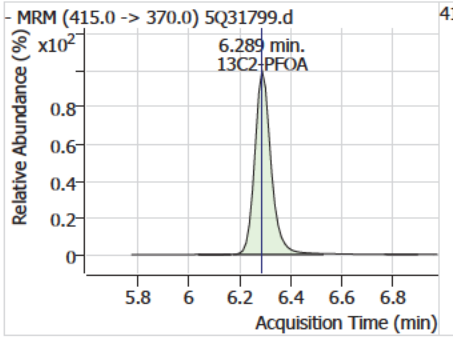
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	174625				

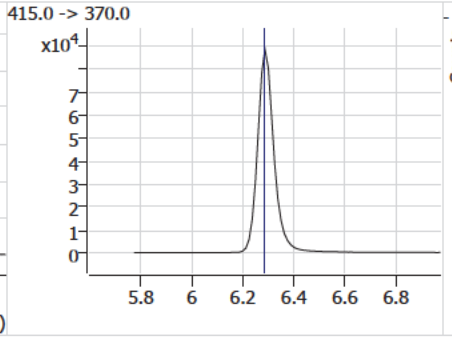


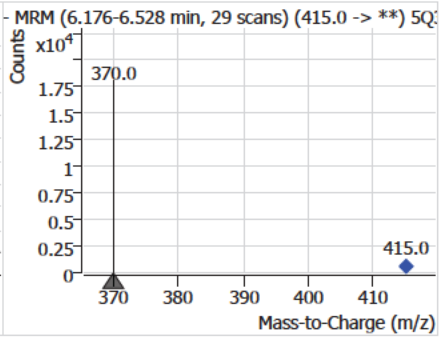




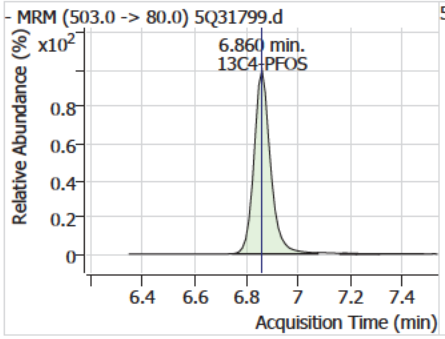
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	394595				

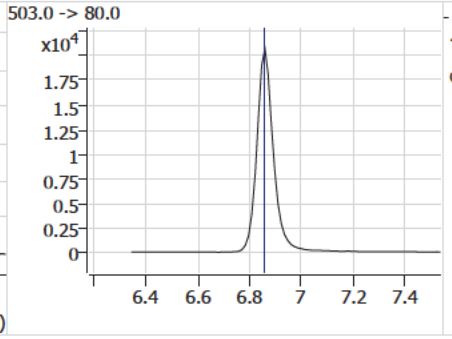


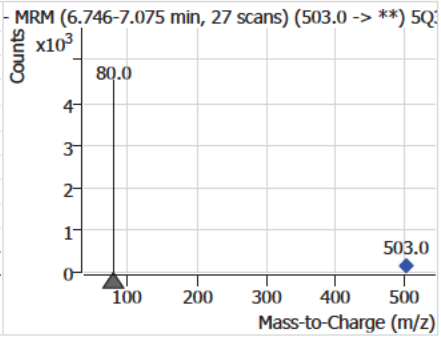




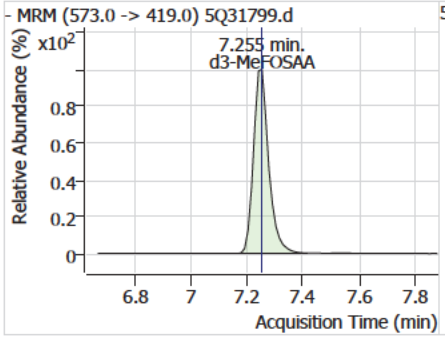
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	91374				

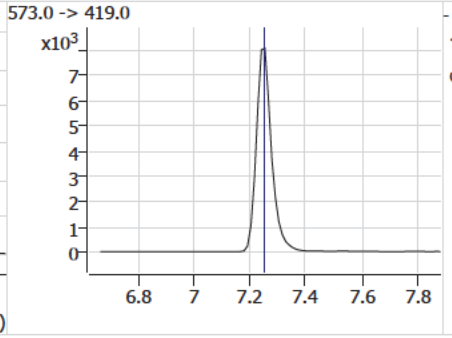


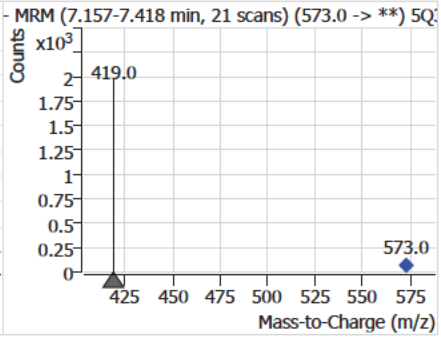




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	30296				

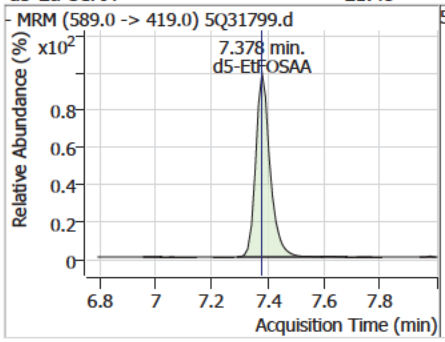


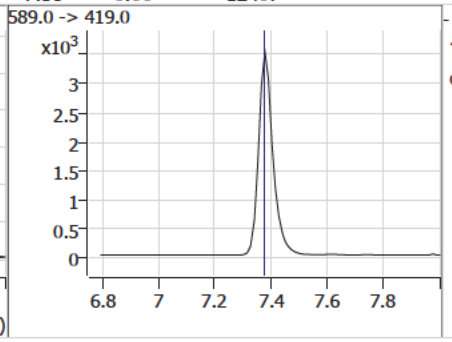


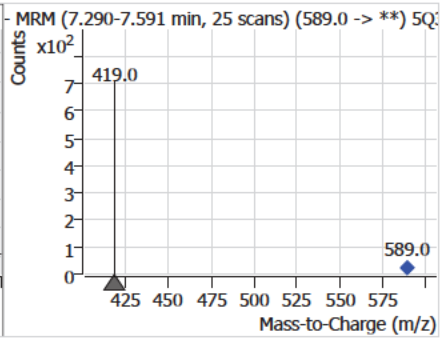


Perfluorinated Compounds by LC/MS/MS

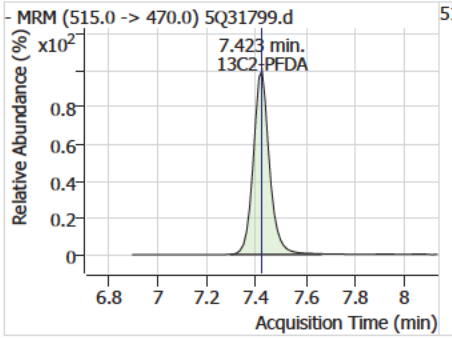
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	21.48	7.38	0.00	12407				

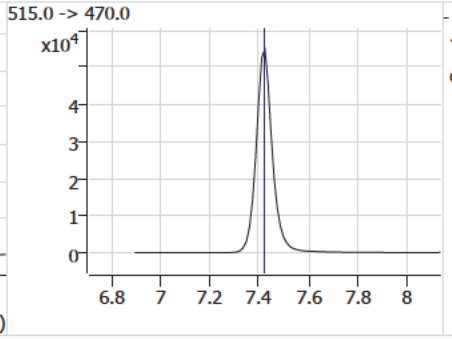


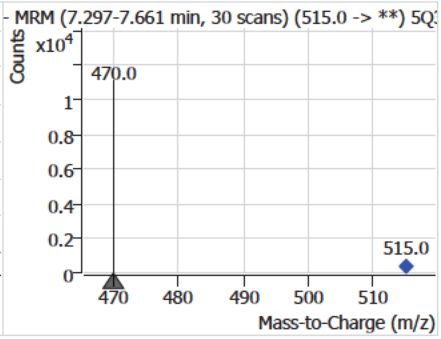




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	15.30	7.42	0.00	248935				







7.2.8

7

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:42

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101472.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 5:49:09 PM
Sample Name : op8883-bs
Vial : P3-B2
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8883,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	7.422	415.0 -> 370.0	202469	10.00	µg/L	-0.013
13C3-PFBA	2.307	216.0 -> 172.0	80156	10.00	µg/L	0.175
13C4-PFOS	7.969	503.0 -> 80.0	31155	10.00	µg/L	-0.026
M4-PFBA	2.302	217.0 -> 172.0	105411	10.00	µg/L	0.163
M5-PFPeA	4.388	268.0 -> 223.0	127967	10.00	µg/L	0.050
M5-PFHxA	5.763	318.0 -> 273.0	159076	10.00	µg/L	0.013
M4-PFHpA	6.694	367.0 -> 322.0	132509	10.00	µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	171463	10.00	µg/L	-0.013
M9-PFNA	8.010	472.0 -> 427.0	181436	10.00	µg/L	-0.013
M6-PFDA	8.520	519.0 -> 474.0	253210	10.00	µg/L	-0.025
M7-PFUnDA	9.172	570.0 -> 525.0	347260	10.00	µg/L	-0.052
M2-PFDoDA	10.096	615.0 -> 570.0	310128	10.00	µg/L	-0.038
M3-PFBS	4.696	302.0 -> 99.0	14958	10.00	µg/L	0.050
M3-PFHxS	6.724	402.0 -> 99.0	21212	10.00	µg/L	-0.013
M8-PFOS	7.982	507.0 -> 99.0	26075	10.00	µg/L	-0.013
M2-4:2FTS	5.659	329.0 -> 309.0	57561	10.00	µg/L	0.013
M2-6:2FTS	7.420	429.0 -> 409.0	109256	10.00	µg/L	-0.013
M2-8:2FTS	8.585	529.0 -> 509.0	151208	10.00	µg/L	-0.026
M3-HFPO-DA	6.056	287.0 -> 169.0	2206	10.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	5.659	329.0 -> 309.0	57561	7.76	µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.6%		
13C2-6:2FTS	7.420	429.0 -> 409.0	109260	7.85	µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.5%		
13C2-8:2FTS	8.585	529.0 -> 509.0	151208	6.48	µg/L	-0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 64.8%		
13C2-PFDoDA	10.096	615.0 -> 570.0	310128	3.60	µg/L	-0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 36.0%		
13C3-PFBS	4.696	302.0 -> 99.0	14958	7.70	µg/L	0.050
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.0%		
13C3-PFHxS	6.724	402.0 -> 99.0	21212	7.66	µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.6%		
13C4-PFBA	2.302	217.0 -> 172.0	105411	7.75	µg/L	0.163
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.5%		
13C4-PFHpA	6.694	367.0 -> 322.0	132509	7.73	µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.3%		
13C5-PFHxA	5.763	318.0 -> 273.0	159076	7.76	µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.6%		
13C5-PFPeA	4.388	268.0 -> 223.0	127967	7.81	µg/L	0.050
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.1%		
13C6-PFDA	8.520	519.0 -> 474.0	253210	7.48	µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 74.8%		
13C7-PFUnDA	9.172	570.0 -> 525.0	347260	5.13	µg/L	-0.052
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 51.3%		
13C8-PFOA	7.422	421.0 -> 376.0	171501	7.71	µg/L	-0.013

Perfluorinated Compounds by LC/MS/MS

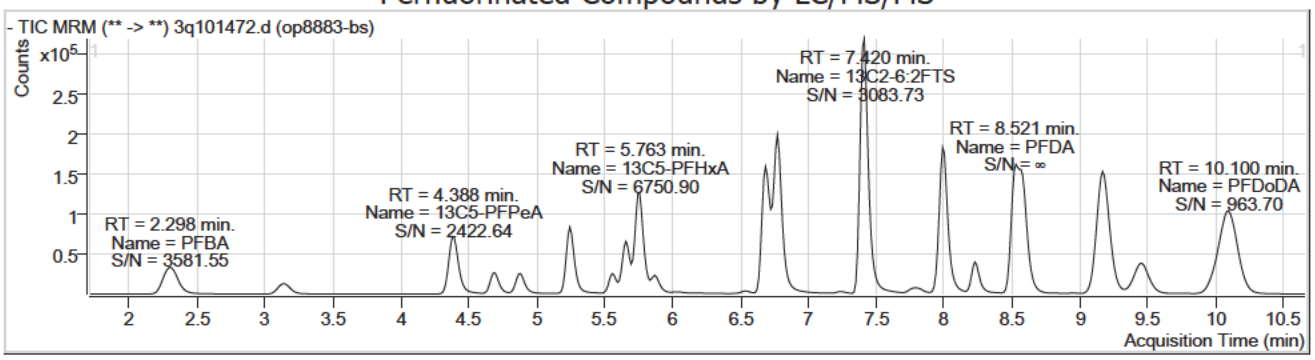
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.1%		
13C8-PFOS	7.982	507.0 -> 99.0	26075	7.36 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 73.6%		
13C9-PFNA	8.010	472.0 -> 427.0	181436	7.51 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 75.1%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	2206	7.48 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 74.8%		
Target Compounds						QValue
PFMPA	3.141	229.0 -> 85.0	88188	25.84 µg/L		100
4:2FTS	5.661	327.0 -> 307.0	157922	25.51 µg/L		99
		327.0 -> 81.0	67468			
6:2FTS	7.420	427.0 -> 407.0	212366	25.29 µg/L		99
		427.0 -> 81.0	92940			
8:2FTS	8.586	527.0 -> 507.0	292490	28.15 µg/L		100
		527.0 -> 81.0	119361			
PFMBA	4.888	279.0 -> 85.0	120281	25.49 µg/L		100
PFEESA	5.247	315.0 -> 135.0	339814	25.19 µg/L		100
		315.0 -> 69.0	25764			
NFDHA	5.569	201.0 -> 85.0	102054	25.65 µg/L		99
		295.0 -> 201.0	6985			
PFBA	2.298	213.0 -> 169.0	76061	26.10 µg/L		100
PFBS	4.685	299.0 -> 80.0	76006	25.13 µg/L		99
		299.0 -> 99.0	32469			
PFDA	8.521	513.0 -> 469.0	361390	25.24 µg/L		100
		513.0 -> 219.0	85006			
PFDoDA	10.100	613.0 -> 569.0	665500	32.27 µg/L		99
		613.0 -> 169.0	70990			
PFHpA	6.695	363.0 -> 319.0	471145	25.34 µg/L		100
		363.0 -> 169.0	38625			
PFHpS	7.406	449.0 -> 80.0	101320	26.08 µg/L		98
		449.0 -> 99.0	55055			
PFHxA	5.765	313.0 -> 269.0	383421	25.58 µg/L		100
		313.0 -> 119.0	13203			
PFHxS	6.713	399.0 -> 80.0	94438	25.29 µg/L	m	100
		399.0 -> 99.0	48957			
PFNA	8.010	463.0 -> 419.0	384227	25.85 µg/L		99
		463.0 -> 219.0	115199			
PFOA	7.423	413.0 -> 369.0	339471	25.67 µg/L		100
		413.0 -> 169.0	125019			
PFOS	7.969	499.0 -> 80.0	103850	24.91 µg/L	m	98
		499.0 -> 99.0	52439			
PFPeA	4.390	263.0 -> 219.0	246077	25.49 µg/L		100
PFPeS	5.871	349.0 -> 80.0	55669	25.70 µg/L		99
		349.0 -> 99.0	23719			
PFUnDA	9.174	563.0 -> 519.0	612211	27.35 µg/L		100
		563.0 -> 269.0	118681			
11Cl-PF3OUdS	9.457	631.0 -> 451.0	287531	14.85 µg/L		100
		631.0 -> 83.0	13827			
9Cl-PF3ONS	8.229	531.0 -> 351.0	153462	22.85 µg/L		100
		531.0 -> 83.0	7883			
ADONA	6.778	377.0 -> 251.0	723503	25.20 µg/L		100
		377.0 -> 85.0	86230			
HFPO-DA	6.048	329.0 -> 169.0	1363	29.95 µg/L		91
		285.0 -> 169.0	3069			

= Qualifier out of range, m = manually integrated, + = Area summed

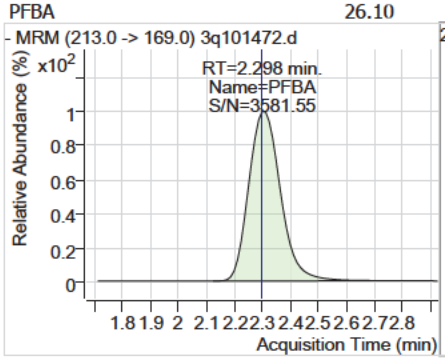
Perfluorinated Compounds by LC/MS/MS

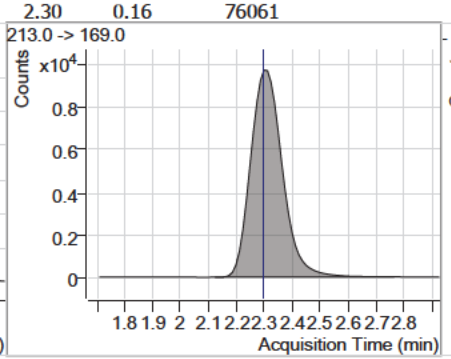
Compound	RT	Transition	Response	Conc. Units	Dev(Min)

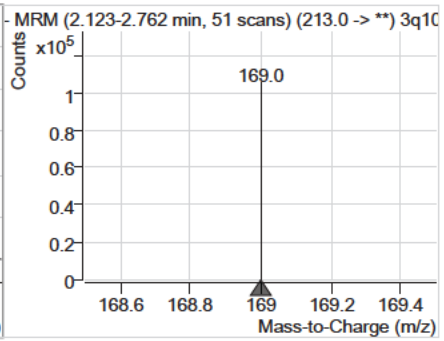
Perfluorinated Compounds by LC/MS/MS



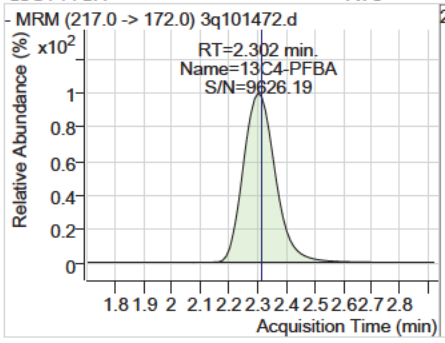
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	26.10	2.30	0.16	76061				

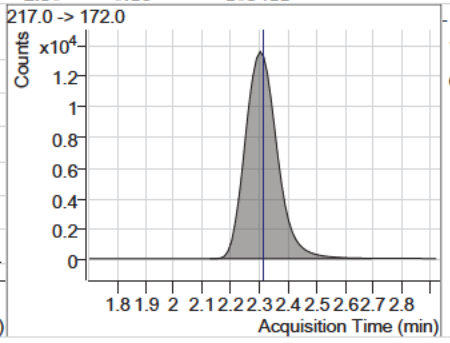


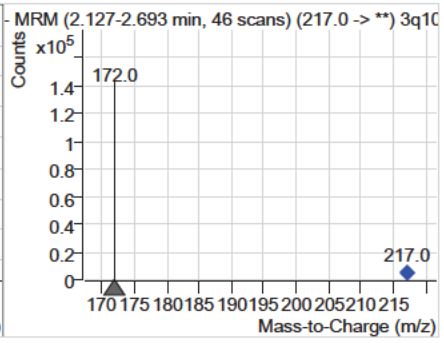




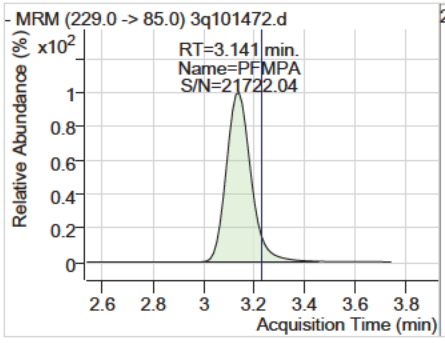
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	7.75	2.30	0.16	105411				

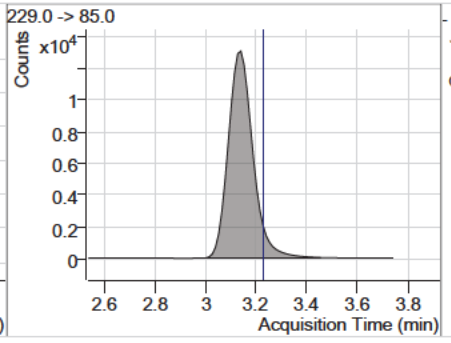


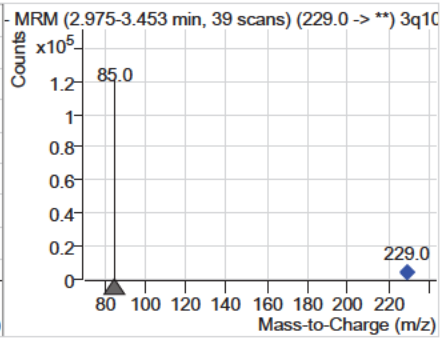




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	25.84	3.14	0.14	88188				

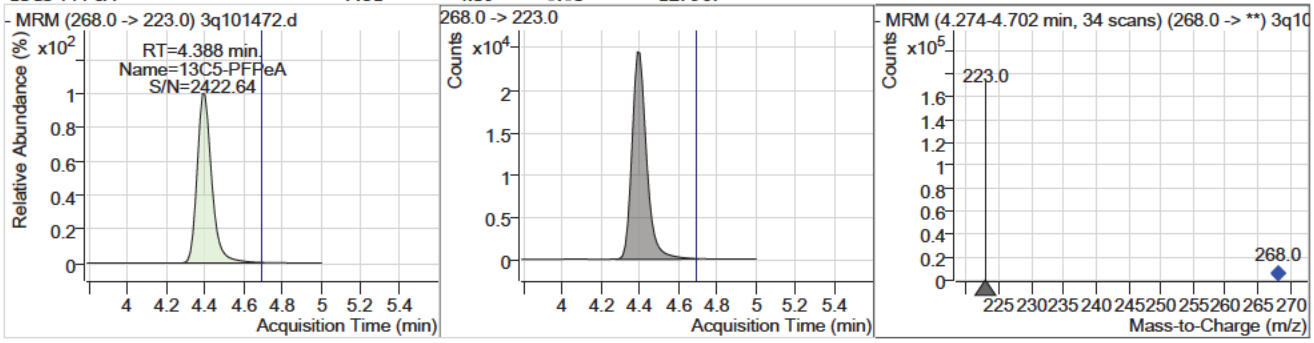




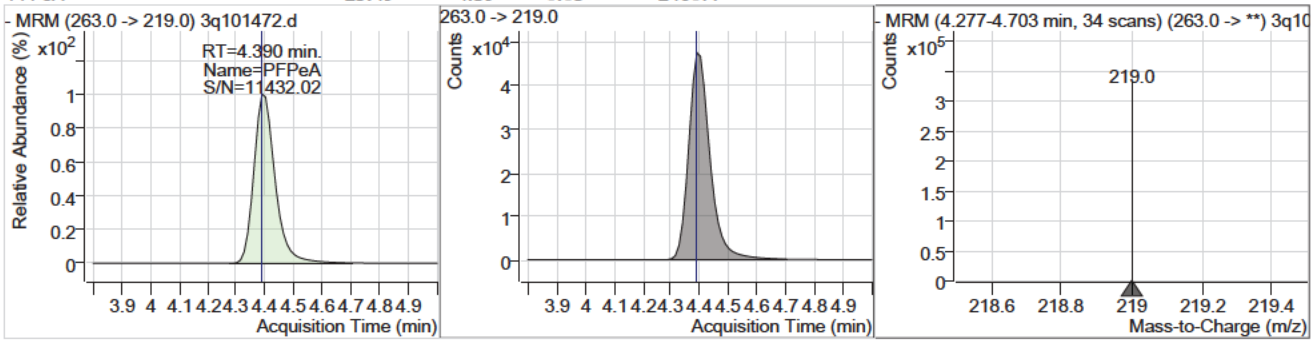


Perfluorinated Compounds by LC/MS/MS

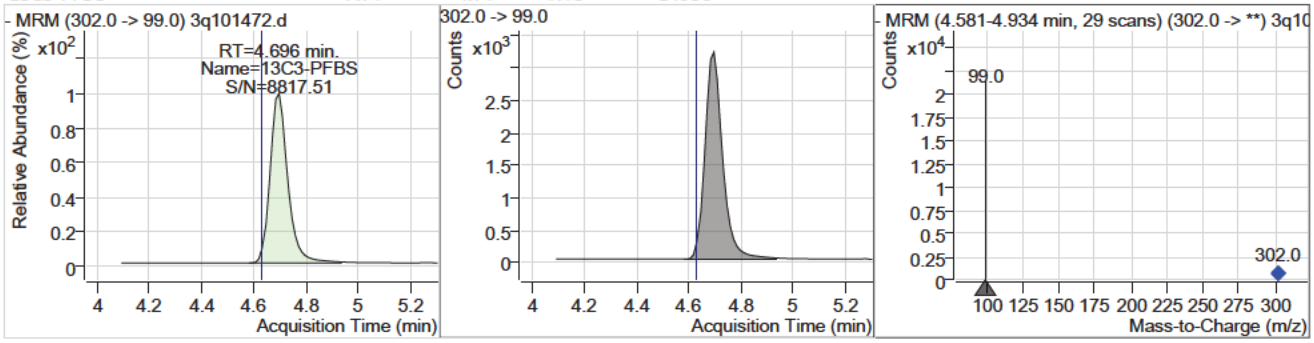
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	7.81	4.39	0.05	127967				



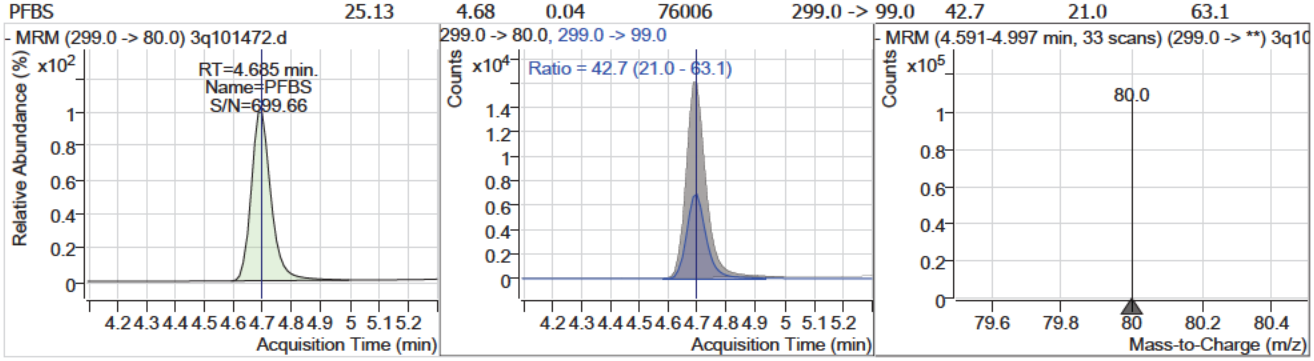
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	25.49	4.39	0.05	246077				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	7.70	4.70	0.05	14958				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	25.13	4.68	0.04	76006	299.0 -> 99.0	42.7	21.0	63.1



7.3.1

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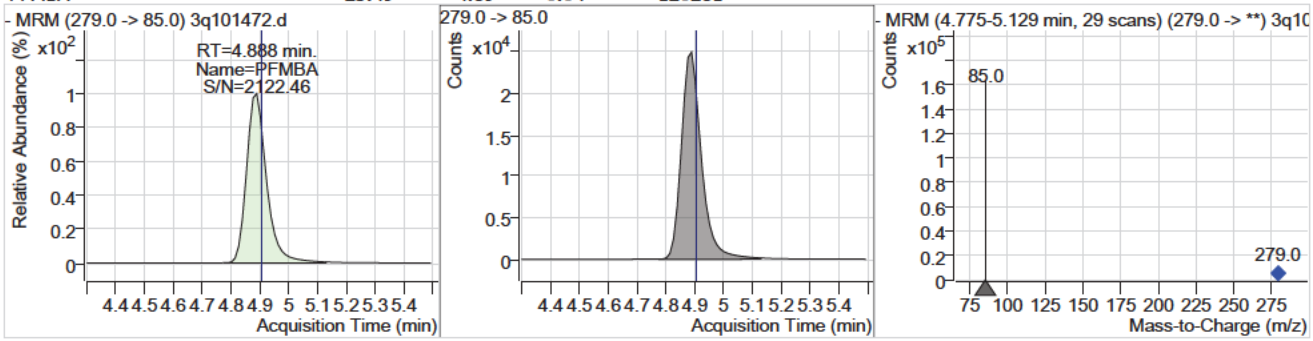
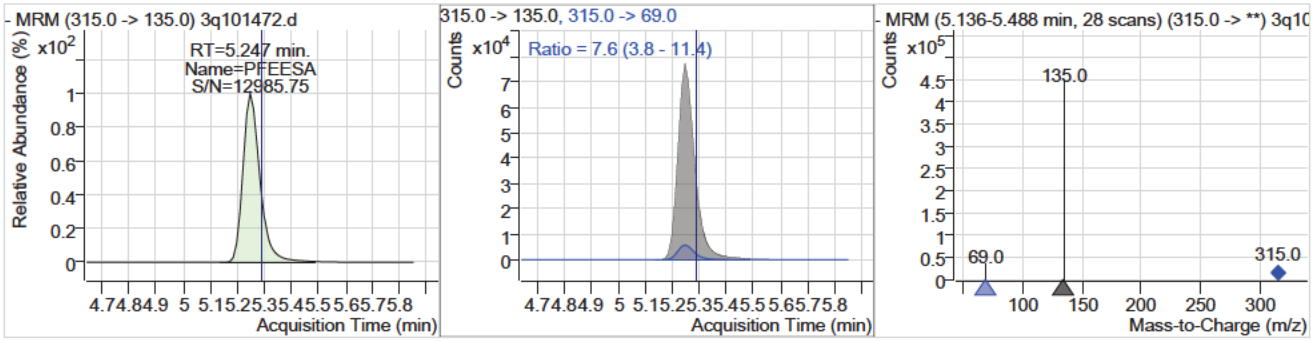
Perfluorinated Compounds by LC/MS/MS

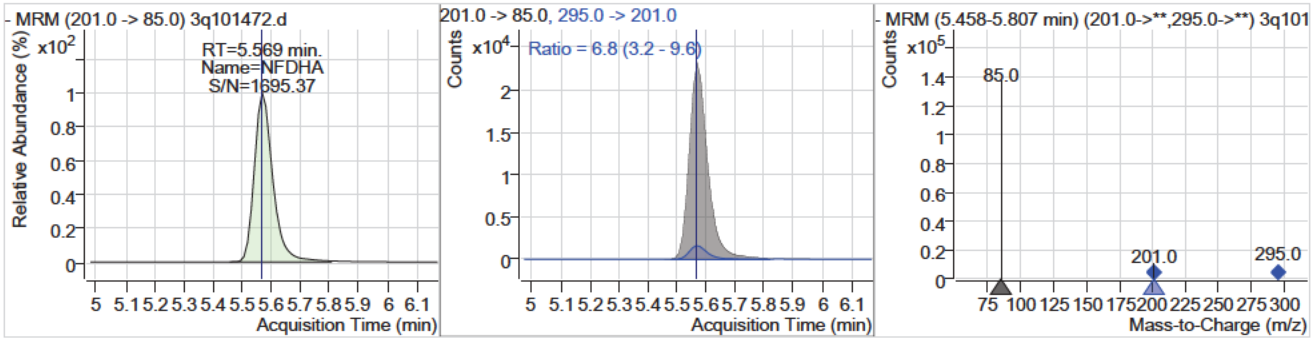
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	25.49	4.89	0.04	120281				



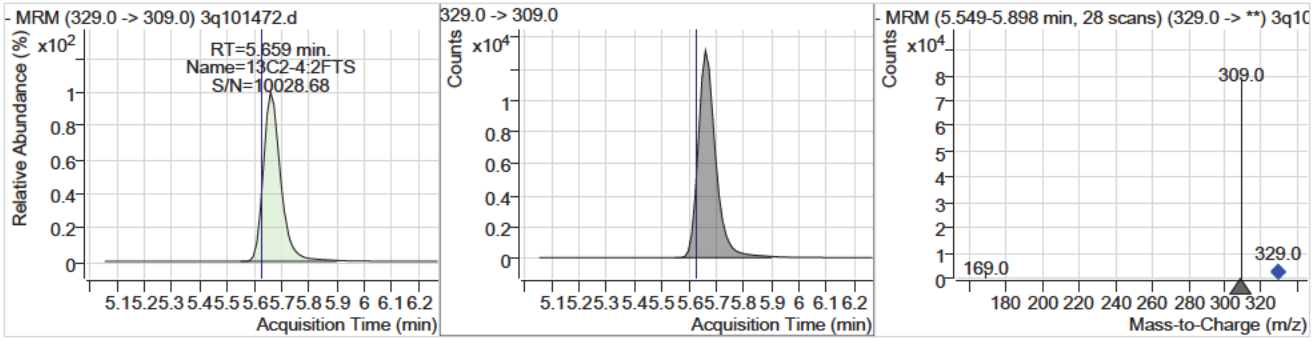
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	25.19	5.25	0.01	339814	315.0 -> 69.0	7.6	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	25.65	5.57	0.01	102054	295.0 -> 201.0	6.8	3.2	9.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	7.76	5.66	0.01	57561				

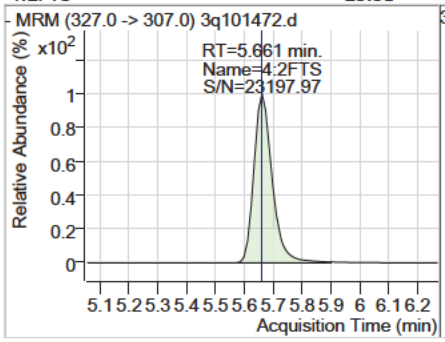


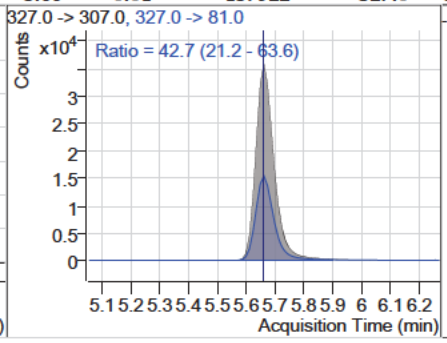
7.3.1

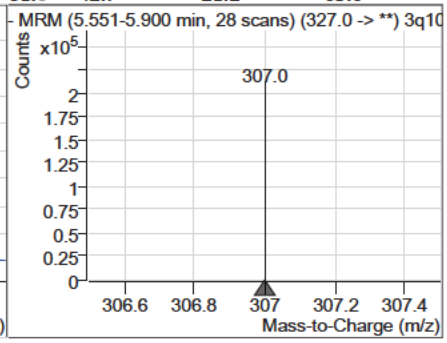
7

Perfluorinated Compounds by LC/MS/MS

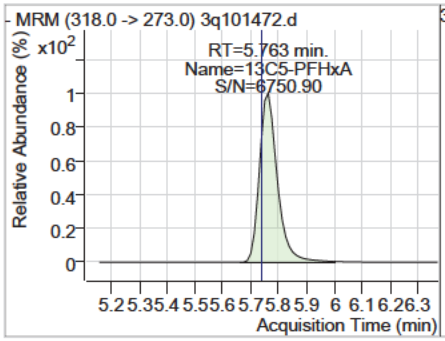
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	25.51	5.66	0.01	157922	327.0 -> 81.0	42.7	21.2	63.6

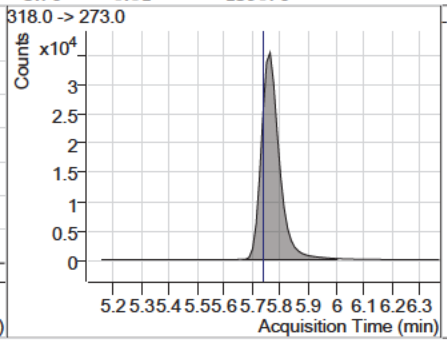


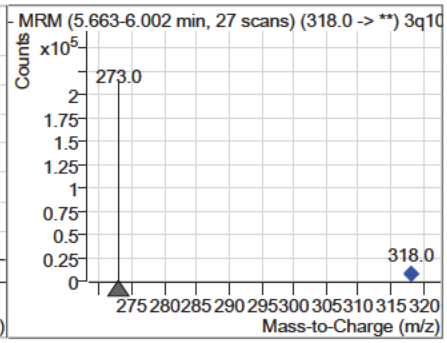




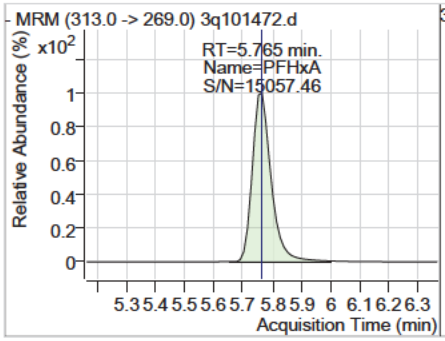
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	7.76	5.76	0.01	159076				

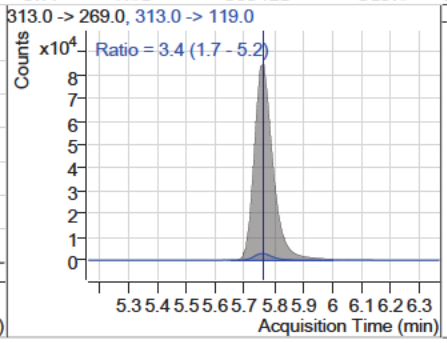


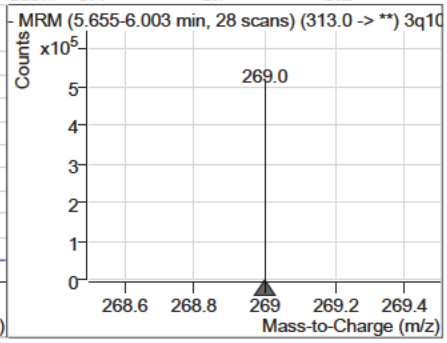




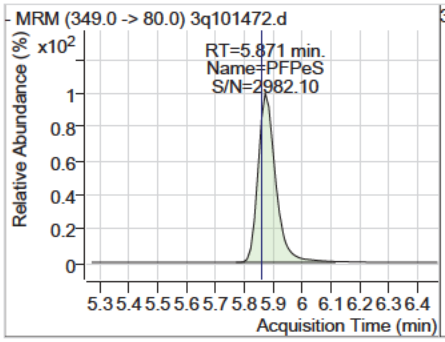
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	25.58	5.77	0.01	383421	313.0 -> 119.0	3.4	1.7	5.2

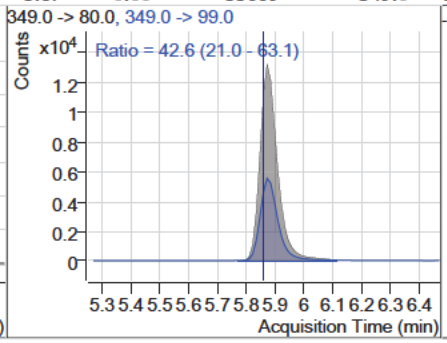


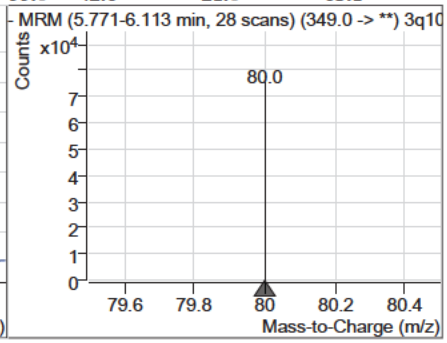




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	25.70	5.87	0.00	55669	349.0 -> 99.0	42.6	21.0	63.1







7.3.1

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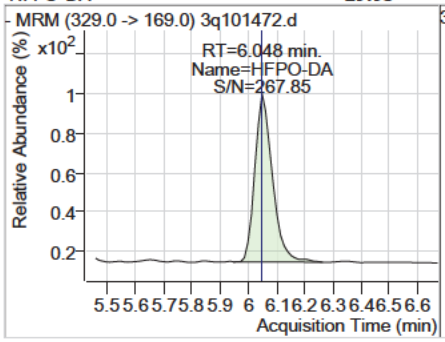
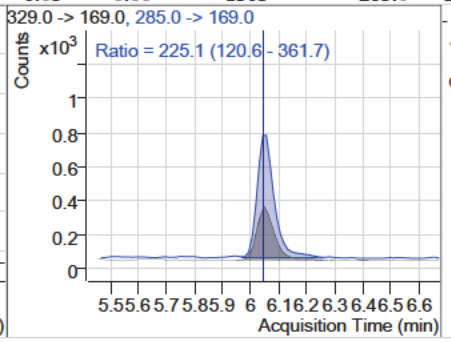
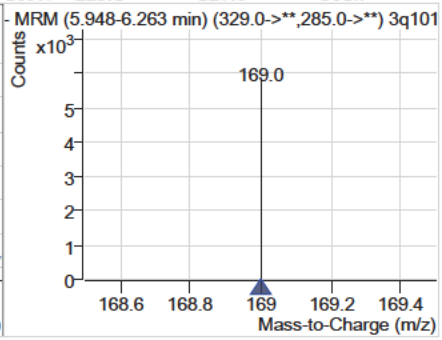
Perfluorinated Compounds by LC/MS/MS

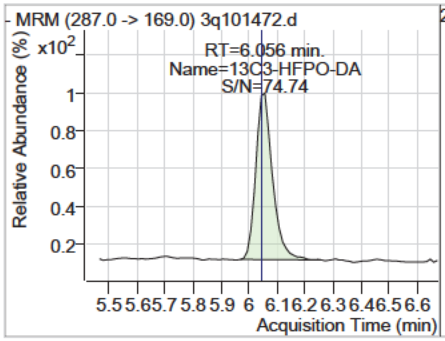
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	29.95	6.05	0.00	1363	285.0 -> 169.0	225.1	120.6	361.7

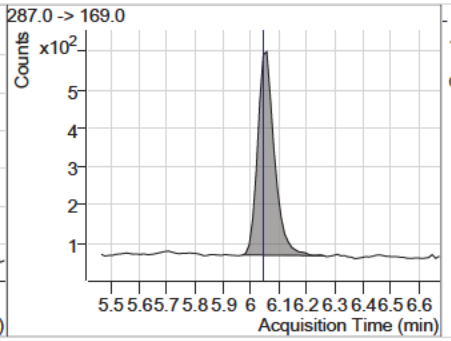


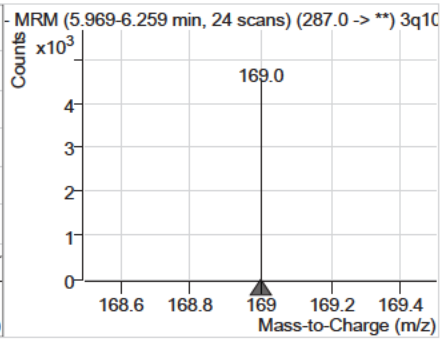




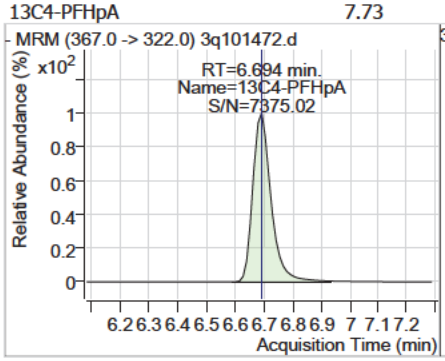
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	7.48	6.06	0.00	2206				

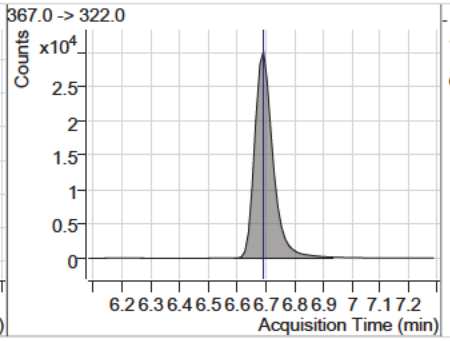


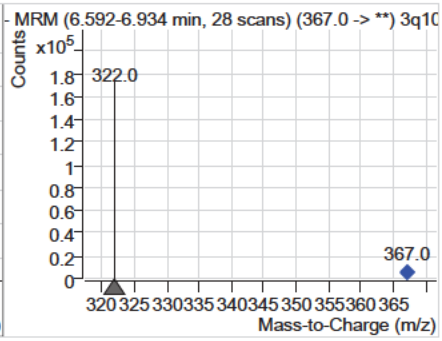




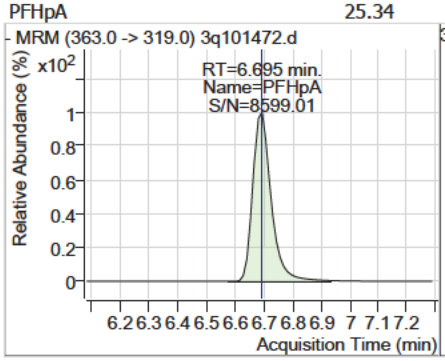
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	7.73	6.69	-0.01	132509				

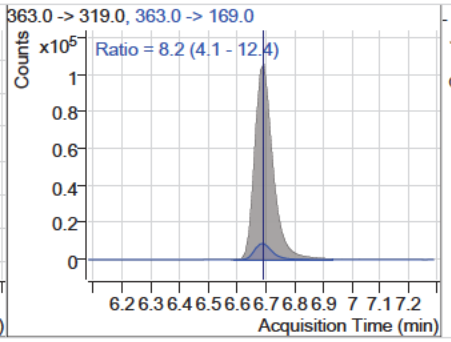


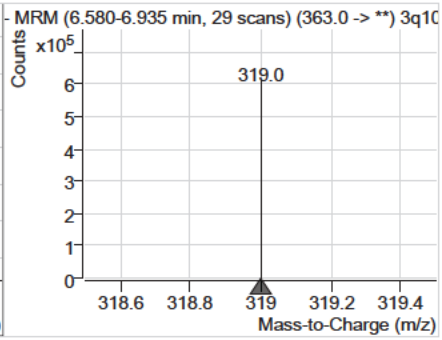




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	25.34	6.70	-0.01	471145	363.0 -> 169.0	8.2	4.1	12.4

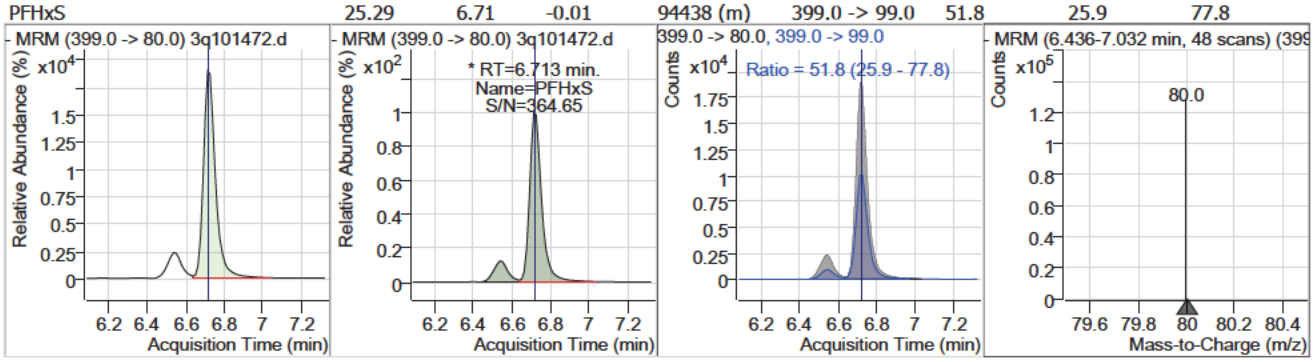




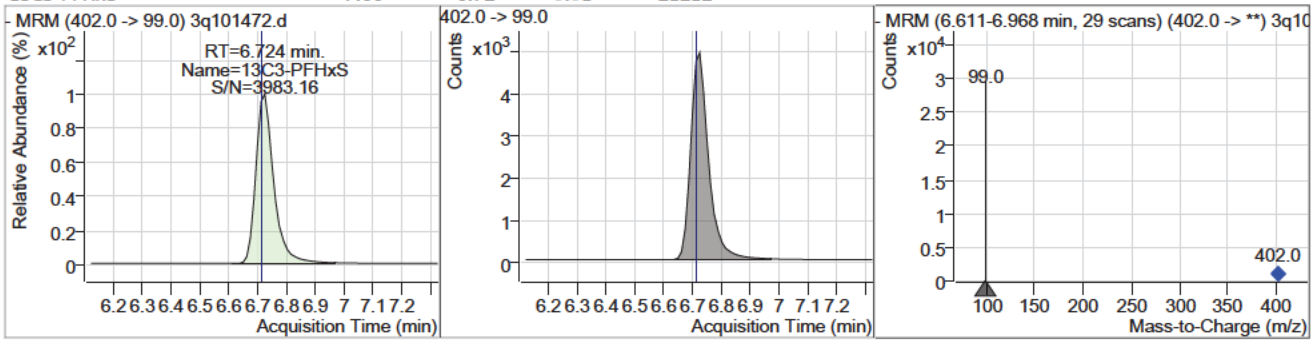


Perfluorinated Compounds by LC/MS/MS

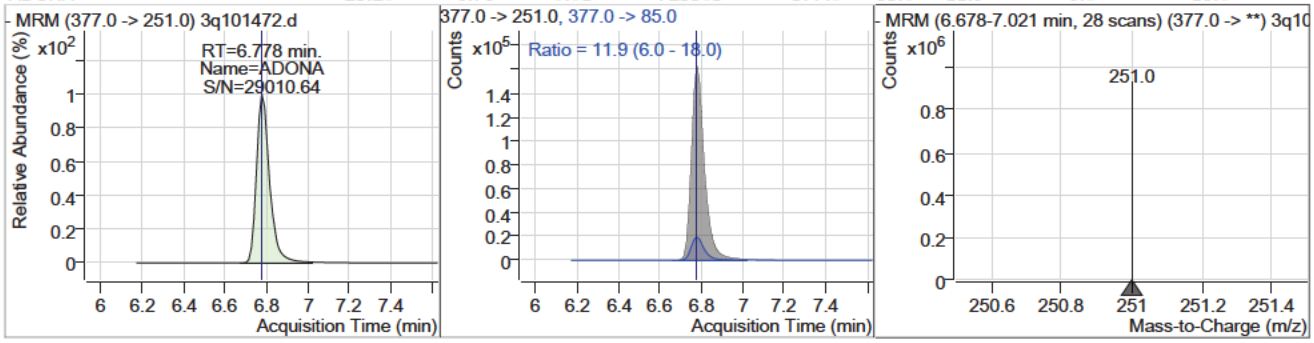
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	25.29	6.71	-0.01	94438 (m)	399.0 -> 99.0	51.8	25.9	77.8



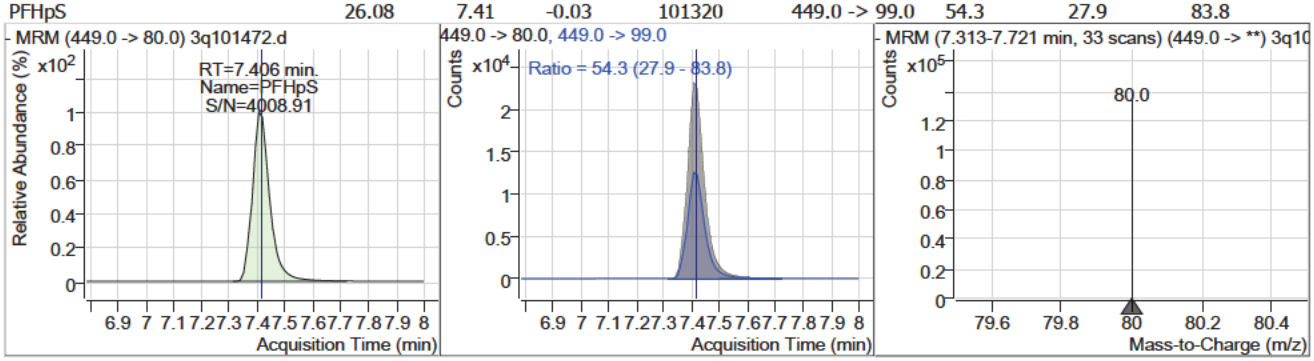
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	7.66	6.72	-0.01	21212				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	25.20	6.78	-0.01	723503	377.0 -> 85.0	11.9	6.0	18.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	26.08	7.41	-0.03	101320	449.0 -> 99.0	54.3	27.9	83.8



7.3.1

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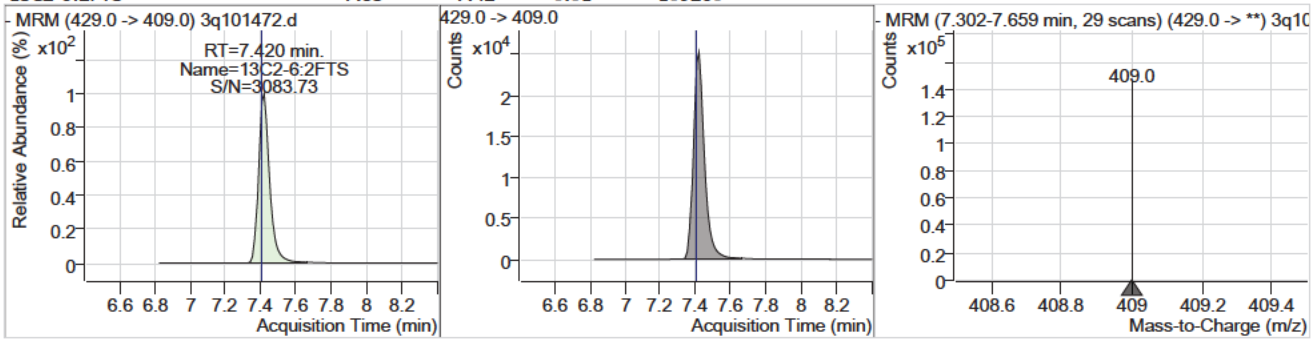
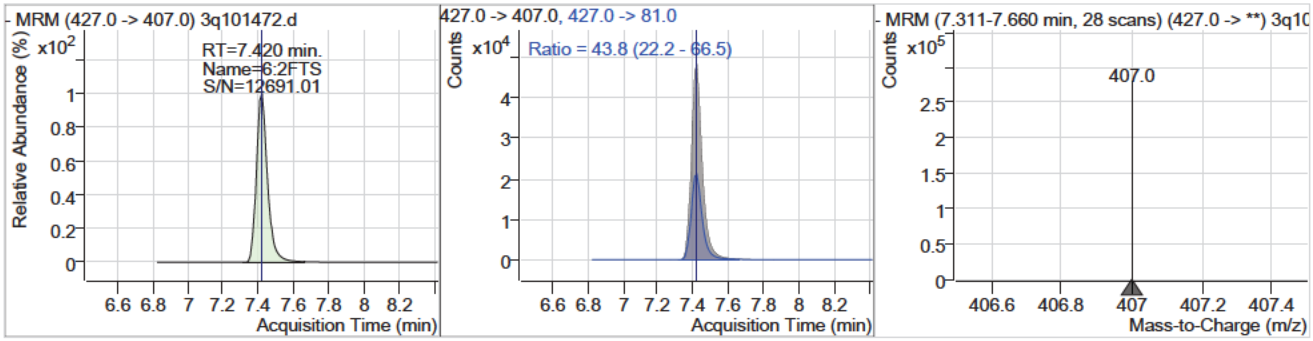
Perfluorinated Compounds by LC/MS/MS

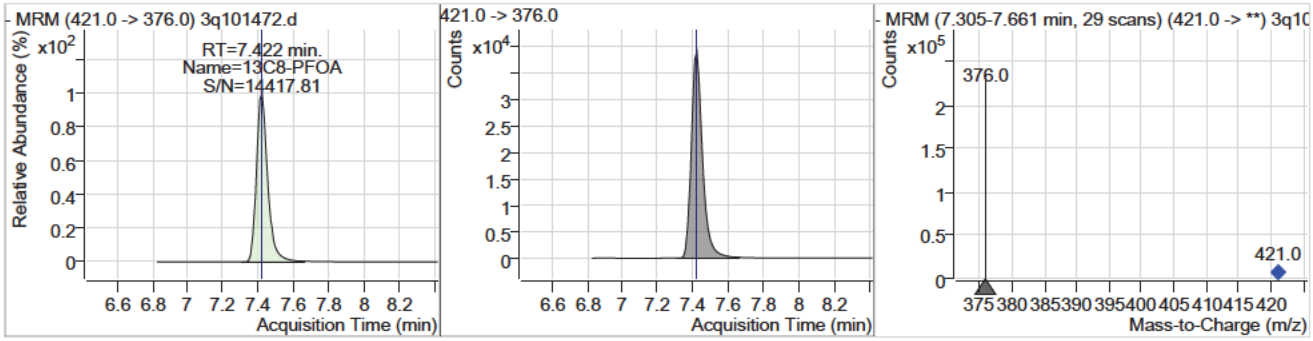
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	7.85	7.42	-0.01	109260				



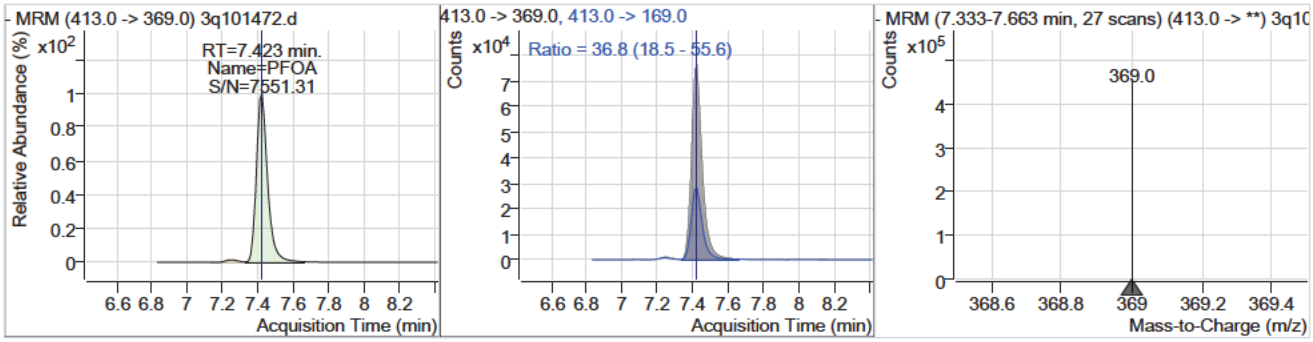
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	25.29	7.42	-0.01	212366	427.0 -> 81.0	43.8	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	7.71	7.42	-0.01	171501				

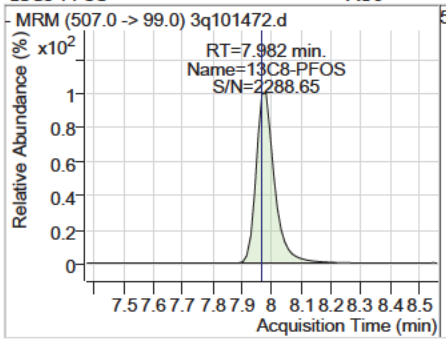


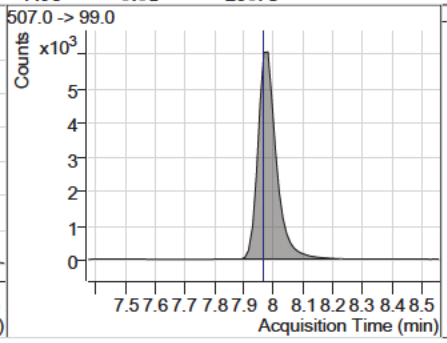
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	25.67	7.42	-0.01	339471	413.0 -> 169.0	36.8	18.5	55.6

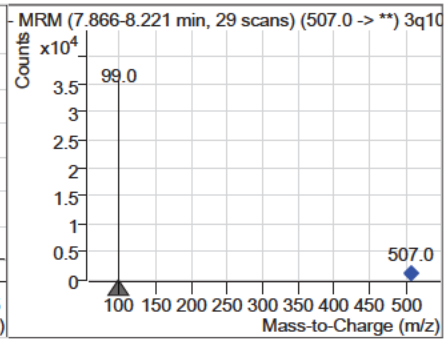


Perfluorinated Compounds by LC/MS/MS

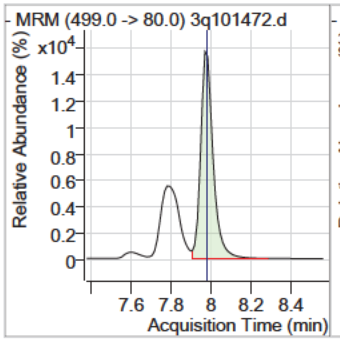
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	7.36	7.98	-0.01	26075				

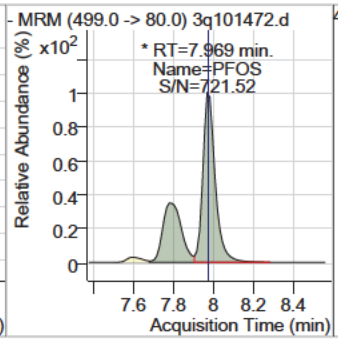


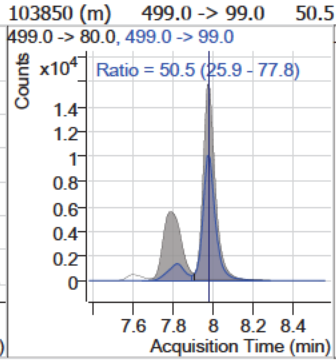


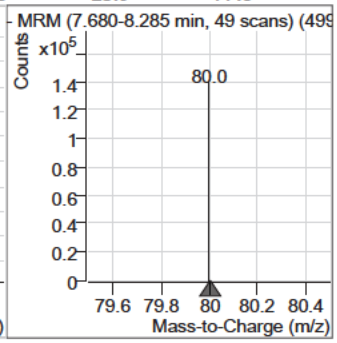


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	24.91	7.97	-0.03	103850 (m)	499.0 -> 99.0	50.5	25.9	77.8

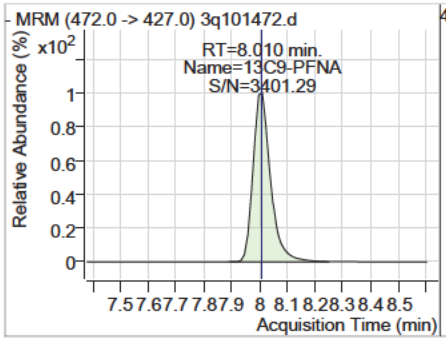


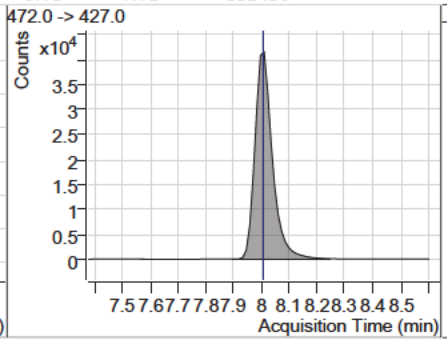


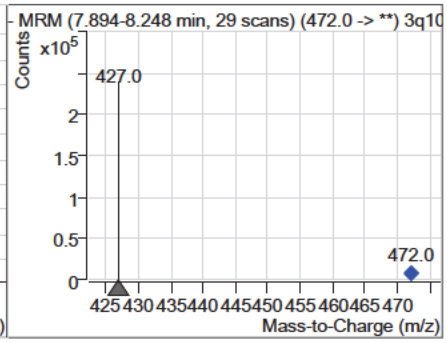




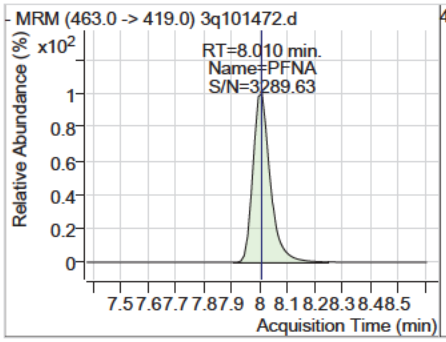
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	7.51	8.01	-0.01	181436				

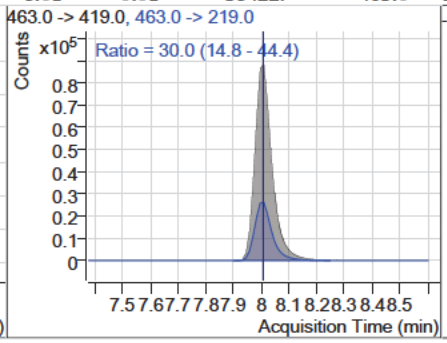


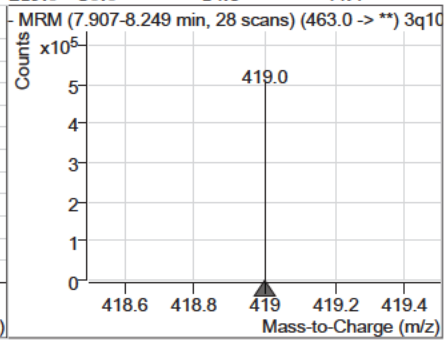




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	25.85	8.01	-0.01	384227	463.0 -> 219.0	30.0	14.8	44.4

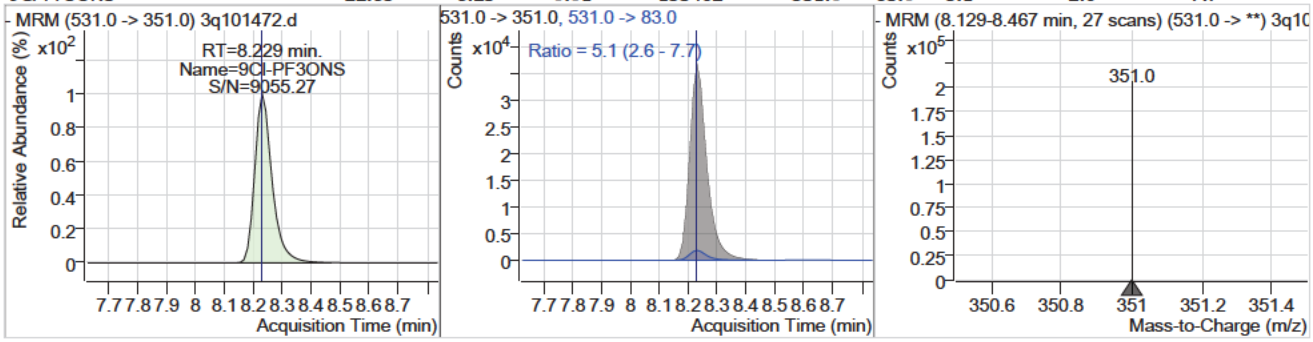




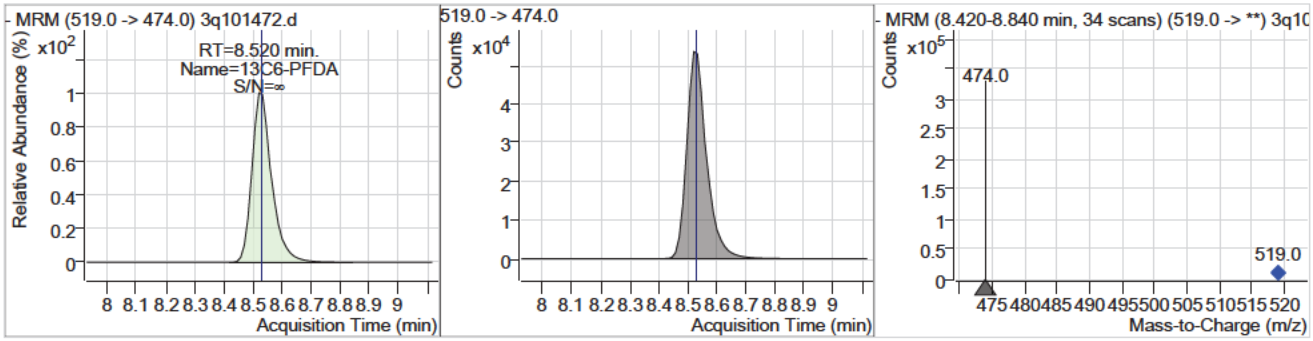


Perfluorinated Compounds by LC/MS/MS

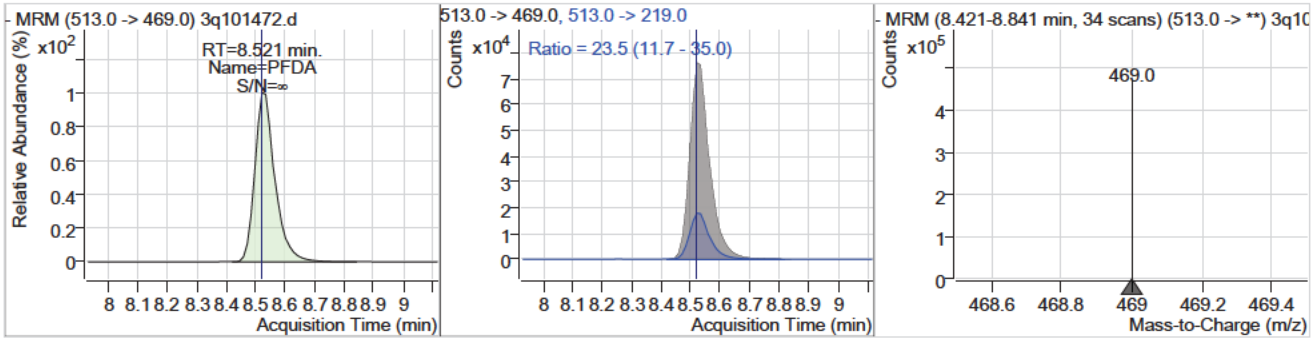
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	22.85	8.23	-0.01	153462	531.0 -> 83.0	5.1	2.6	7.7



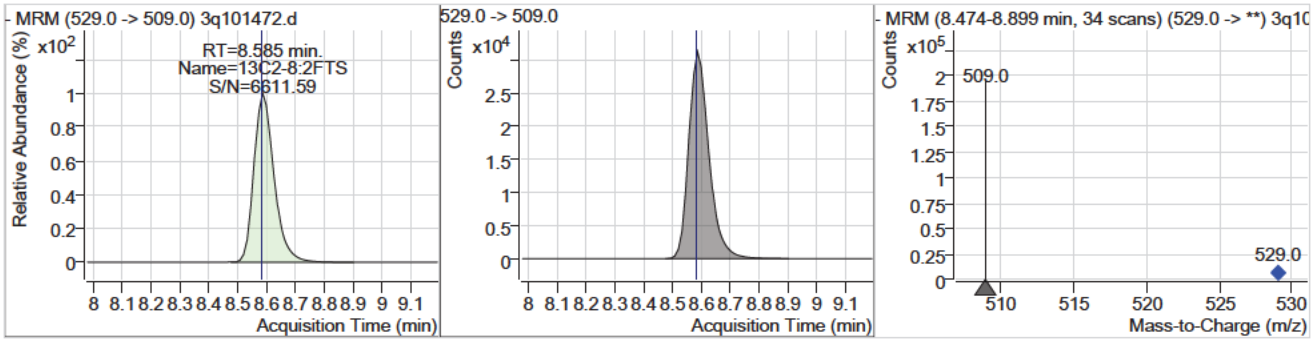
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	7.48	8.52	-0.03	253210				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	25.24	8.52	-0.03	361390	513.0 -> 219.0	23.5	11.7	35.0

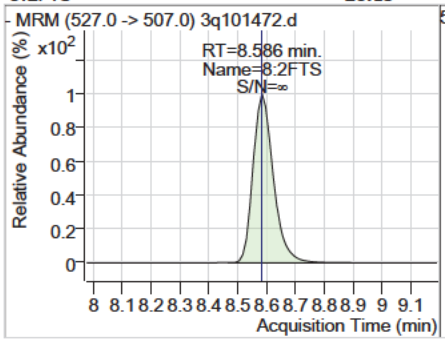


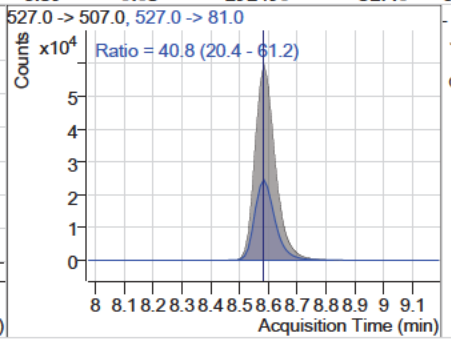
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	6.48	8.58	-0.03	151208				

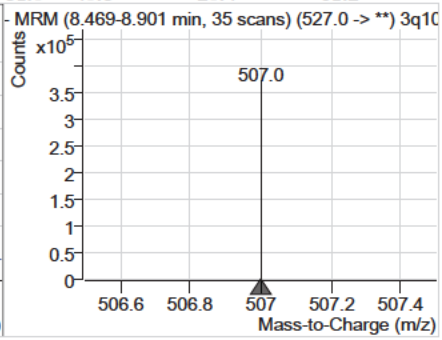


Perfluorinated Compounds by LC/MS/MS

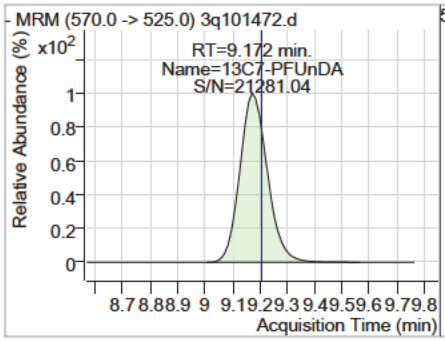
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	28.15	8.59	-0.03	292490	527.0 -> 81.0	40.8	20.4	61.2

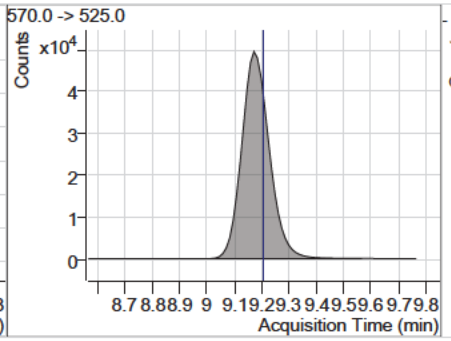


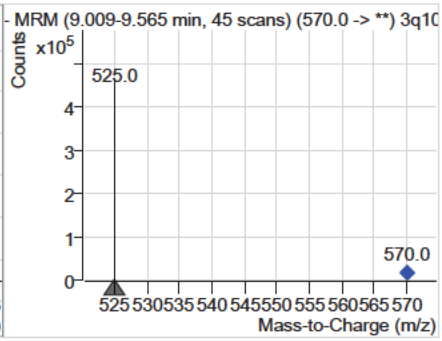




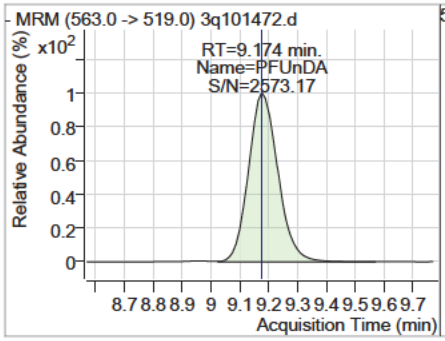
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	5.13	9.17	-0.05	347260				

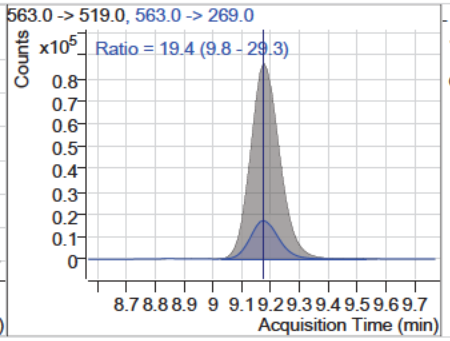


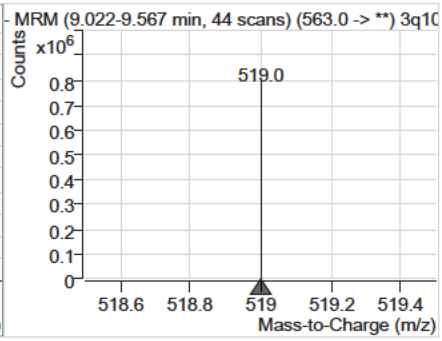




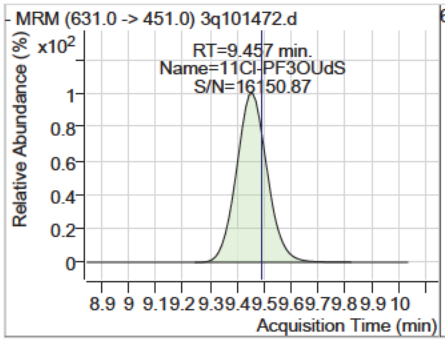
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	27.35	9.17	-0.05	612211	563.0 -> 269.0	19.4	9.8	29.3

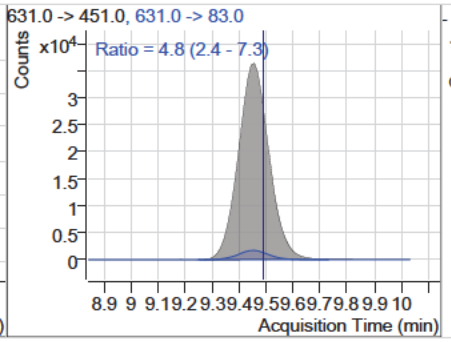


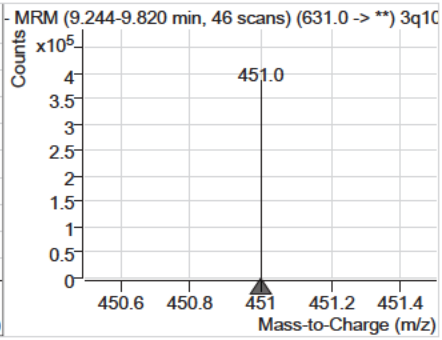




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	14.85	9.46	-0.05	287531	631.0 -> 83.0	4.8	2.4	7.3

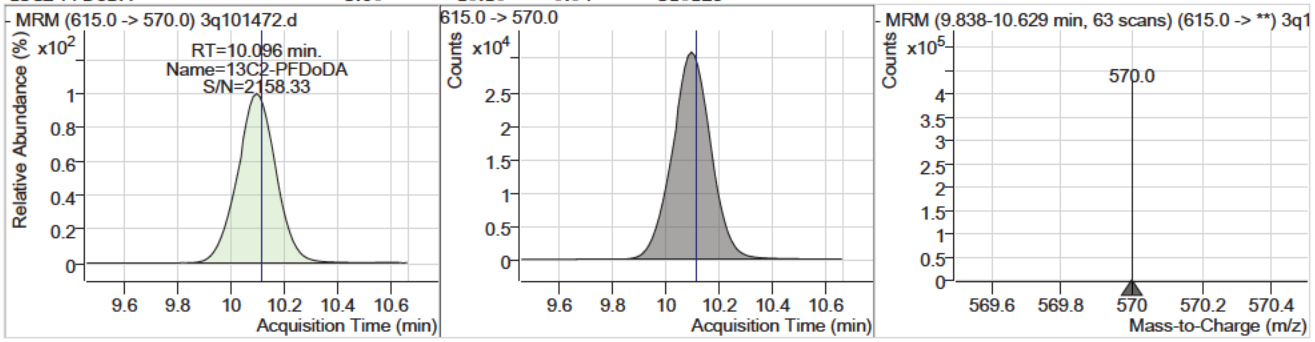




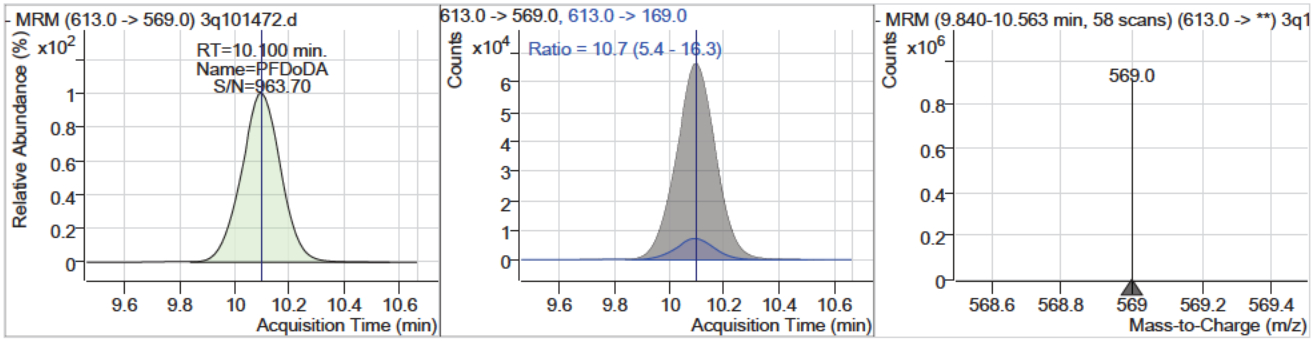


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	3.60	10.10	-0.04	310128				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	32.27	10.10	-0.04	665500	613.0 -> 169.0	10.7	5.4	16.3



Manual Integration Approval Summary

Sample Number:	OP8883-BS	**Method:**	EPA 533
Lab FileID:	3Q101472.D	**Analyst approved:**	04/16/25 08:55 (b) (6) [redacted]
Injection Time:	04/15/25 17:49	**Supervisor approved:**	04/17/25 11:42 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.71	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.97	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:46

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101493.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/16/2025 12:34:00 PM
Sample Name : op8883-bs
Vial : P3-B2
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1493.batch.bin
Sample Information : op8883,S3Q1493,250,,,1,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	7.435	415.0 -> 370.0	261965	10.00	µg/L	0.013
13C3-PFBA	2.319	216.0 -> 172.0	102648	10.00	µg/L	-0.025
13C4-PFOS	7.983	503.0 -> 80.0	38488	10.00	µg/L	0.014
M4-PFBA	2.315	217.0 -> 172.0	135237	10.00	µg/L	-0.025
M5-PFPeA	4.413	268.0 -> 223.0	166252	10.00	µg/L	0.000
M5-PFHxA	5.776	318.0 -> 273.0	212813	10.00	µg/L	0.000
M4-PFHpA	6.706	367.0 -> 322.0	181311	10.00	µg/L	0.013
M8-PFOA	7.434	421.0 -> 376.0	234673	10.00	µg/L	0.013
M9-PFNA	8.010	472.0 -> 427.0	255519	10.00	µg/L	0.013
M6-PFDA	8.533	519.0 -> 474.0	331409	10.00	µg/L	0.013
M7-PFUnDA	9.199	570.0 -> 525.0	492184	10.00	µg/L	0.014
M2-PFDoDA	10.108	615.0 -> 570.0	434559	10.00	µg/L	0.025
M3-PFBS	4.708	302.0 -> 99.0	18838	10.00	µg/L	0.000
M3-PFHxS	6.736	402.0 -> 99.0	26617	10.00	µg/L	0.013
M8-PFOS	7.982	507.0 -> 99.0	32042	10.00	µg/L	0.014
M2-4:2FTS	5.672	329.0 -> 309.0	78191	10.00	µg/L	0.000
M2-6:2FTS	7.432	429.0 -> 409.0	144998	10.00	µg/L	0.013
M2-8:2FTS	8.597	529.0 -> 509.0	216510	10.00	µg/L	0.013
M3-HFPO-DA	6.068	287.0 -> 169.0	2982	10.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.672	329.0 -> 309.0	78191	8.54	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 85.4%		
13C2-6:2FTS	7.432	429.0 -> 409.0	145019	8.43	µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 84.3%		
13C2-8:2FTS	8.597	529.0 -> 509.0	216510	7.51	µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 75.1%		
13C2-PFDoDA	10.108	615.0 -> 570.0	434559	3.90	µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 39.0%		
13C3-PFBS	4.708	302.0 -> 99.0	18838	7.84	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.4%		
13C3-PFHxS	6.736	402.0 -> 99.0	26617	7.79	µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.9%		
13C4-PFBA	2.315	217.0 -> 172.0	135237	7.77	µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.7%		
13C4-PFHpA	6.706	367.0 -> 322.0	181311	8.18	µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.8%		
13C5-PFHxA	5.776	318.0 -> 273.0	212813	8.02	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.2%		
13C5-PFPeA	4.413	268.0 -> 223.0	166252	7.92	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.2%		
13C6-PFDA	8.533	519.0 -> 474.0	331409	7.56	µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 75.6%		
13C7-PFUnDA	9.199	570.0 -> 525.0	492184	5.62	µg/L	0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 56.2%		
13C8-PFOA	7.434	421.0 -> 376.0	234673	8.15	µg/L	0.013

7.3.2 7

Perfluorinated Compounds by LC/MS/MS

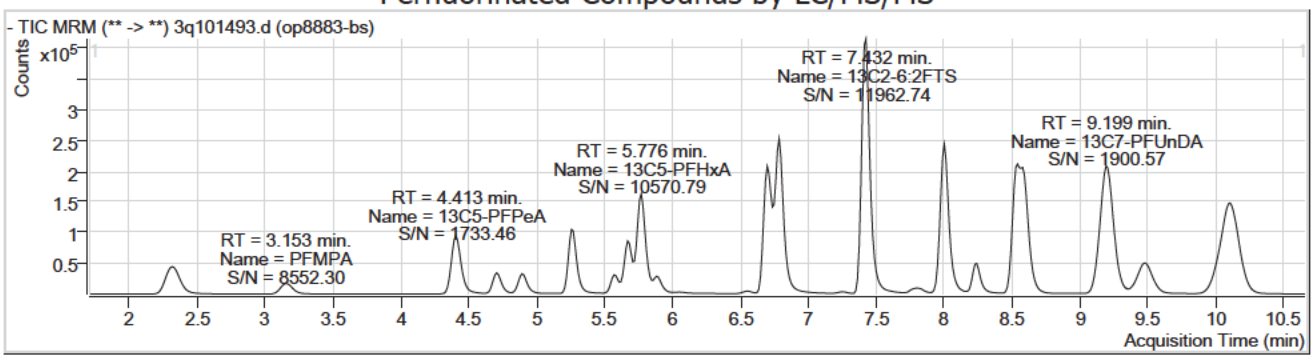
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.5%		
13C8-PFOS	7.982	507.0 -> 99.0	32042	7.32 µg/L		0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 73.2%		
13C9-PFNA	8.010	472.0 -> 427.0	255519	8.17 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.7%		
13C3-HFPO-DA	6.068	287.0 -> 169.0	2982	7.82 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.2%		
Target Compounds						QValue
PFMPA	3.153	229.0 -> 85.0	112638	25.72 µg/L		100
4:2FTS	5.674	327.0 -> 307.0	210772	25.00 µg/L		98
		327.0 -> 81.0	86187			
6:2FTS	7.433	427.0 -> 407.0	277932	24.89 µg/L		97
		427.0 -> 81.0	117511			
8:2FTS	8.598	527.0 -> 507.0	411347	27.65 µg/L		94
		527.0 -> 81.0	152025			
PFMBA	4.901	279.0 -> 85.0	153722	25.08 µg/L		100
PFEESA	5.260	315.0 -> 135.0	437356	25.74 µg/L		100
		315.0 -> 69.0	32849			
NFDHA	5.582	201.0 -> 85.0	128752	24.19 µg/L		100
		295.0 -> 201.0	8409			
PFBA	2.323	213.0 -> 169.0	96187	25.73 µg/L		100
PFBS	4.710	299.0 -> 80.0	96136	25.24 µg/L		98
		299.0 -> 99.0	41290			
PFDA	8.534	513.0 -> 469.0	469989	25.08 µg/L		96
		513.0 -> 219.0	100161			
PFDoDA	10.113	613.0 -> 569.0	927409	32.09 µg/L		96
		613.0 -> 169.0	86208			
PFHpA	6.708	363.0 -> 319.0	603687	23.73 µg/L		100
		363.0 -> 169.0	50014			
PFHpS	7.418	449.0 -> 80.0	127907	26.24 µg/L		97
		449.0 -> 99.0	68814			
PFHxA	5.778	313.0 -> 269.0	480324	23.96 µg/L		100
		313.0 -> 119.0	16786			
PFHxS	6.725	399.0 -> 80.0	121100	25.85 µg/L	m	98
		399.0 -> 99.0	60844			
PFNA	8.010	463.0 -> 419.0	510148	24.38 µg/L		97
		463.0 -> 219.0	142701			
PFOA	7.436	413.0 -> 369.0	437310	24.16 µg/L		99
		413.0 -> 169.0	159849			
PFOS	7.983	499.0 -> 80.0	129615	25.30 µg/L	m	98
		499.0 -> 99.0	65551			
PFPeA	4.415	263.0 -> 219.0	317317	25.30 µg/L		100
PFPeS	5.883	349.0 -> 80.0	69544	25.58 µg/L		99
		349.0 -> 99.0	29531			
PFUnDA	9.202	563.0 -> 519.0	874387	27.56 µg/L		95
		563.0 -> 269.0	152025			
11Cl-PF3OUdS	9.482	631.0 -> 451.0	378522	15.91 µg/L		99
		631.0 -> 83.0	17401			
9Cl-PF3ONS	8.241	531.0 -> 351.0	194324	23.54 µg/L		100
		531.0 -> 83.0	10096			
ADONA	6.792	377.0 -> 251.0	905719	23.06 µg/L		100
		377.0 -> 85.0	110085			
HFPO-DA	6.061	329.0 -> 169.0	1598	25.06 µg/L		90
		285.0 -> 169.0	3578			

= Qualifier out of range, m = manually integrated, + = Area summed

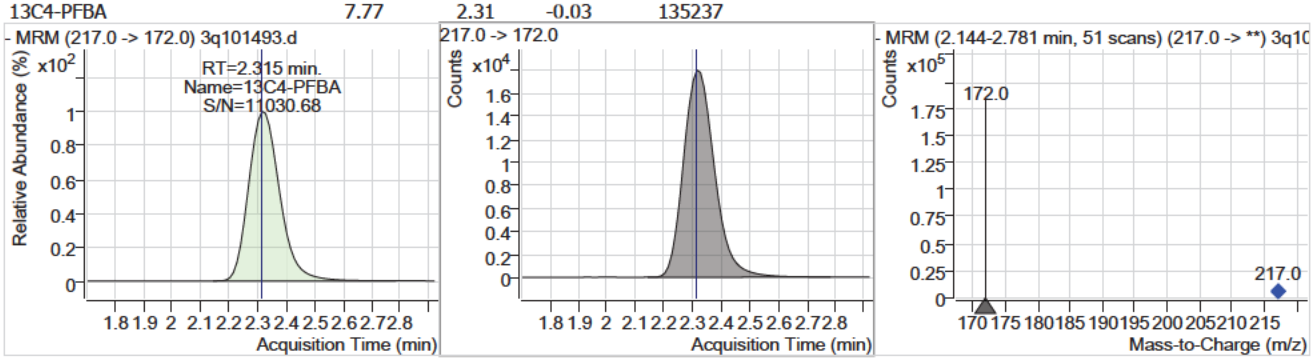
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)

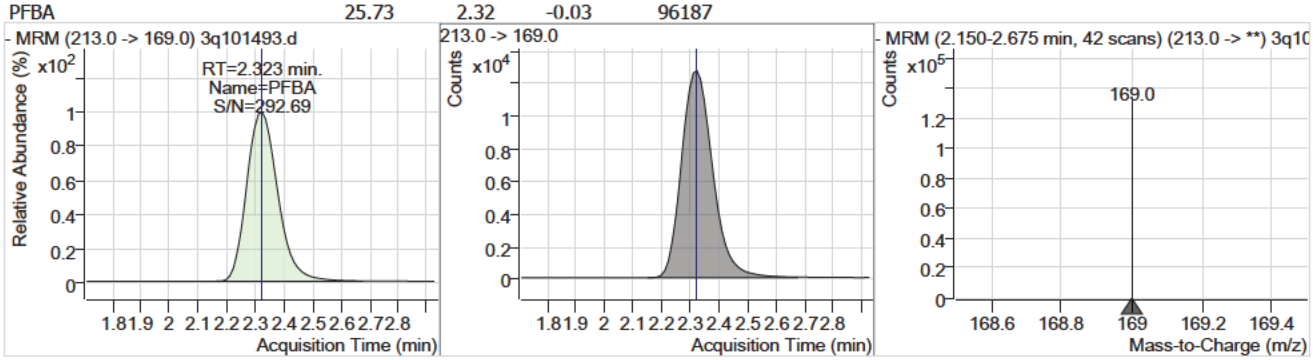
Perfluorinated Compounds by LC/MS/MS



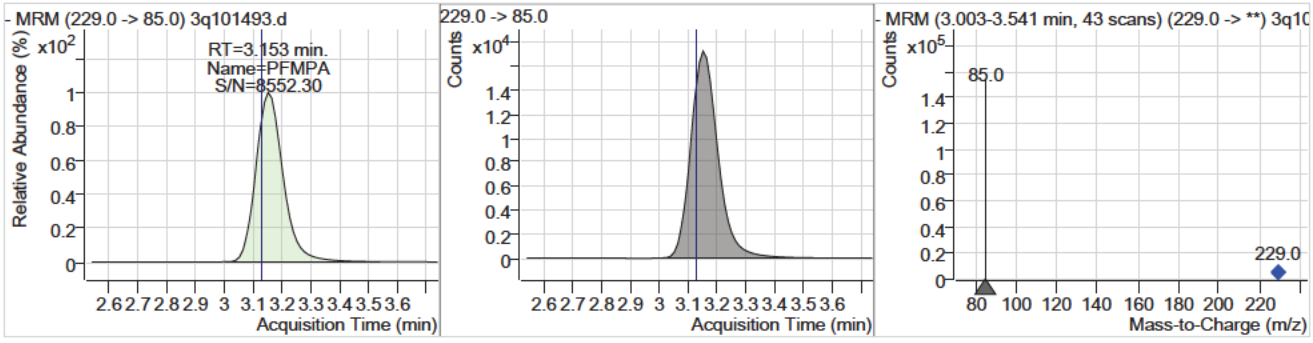
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	7.77	2.31	-0.03	135237				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	25.73	2.32	-0.03	96187				



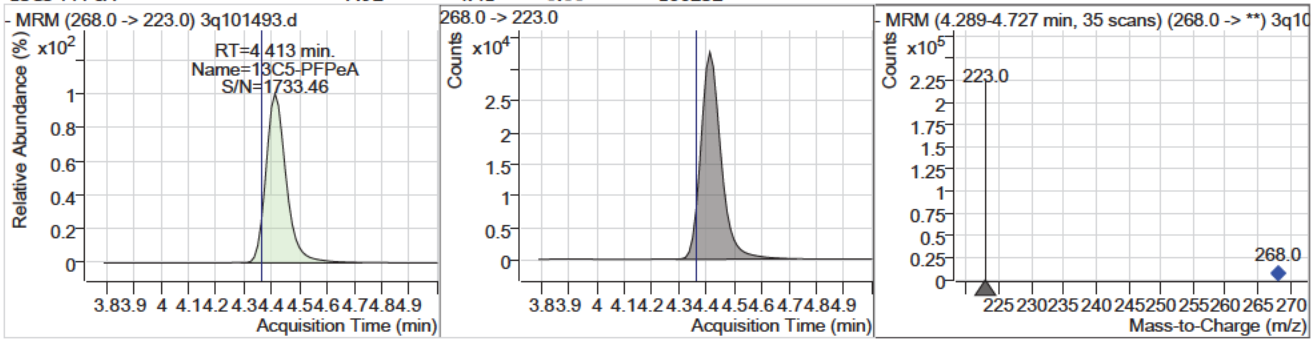
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	25.72	3.15	-0.01	112638				



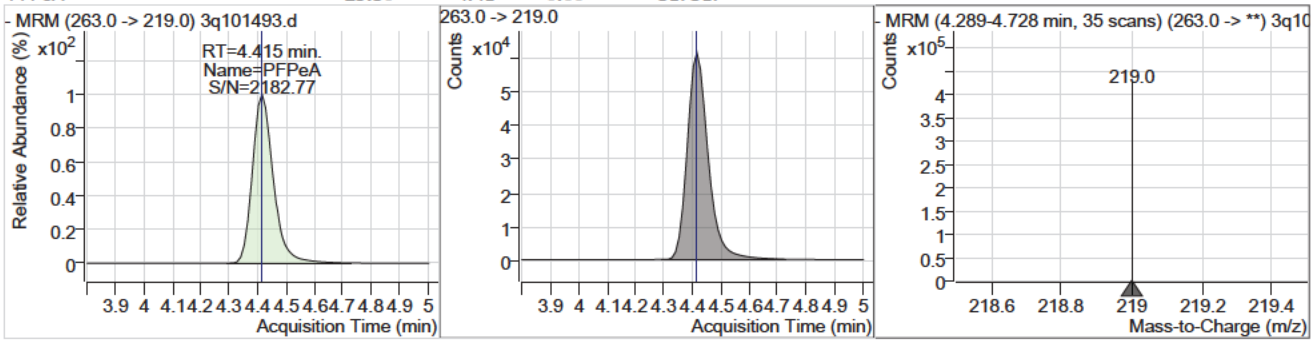
7.3.2
7

Perfluorinated Compounds by LC/MS/MS

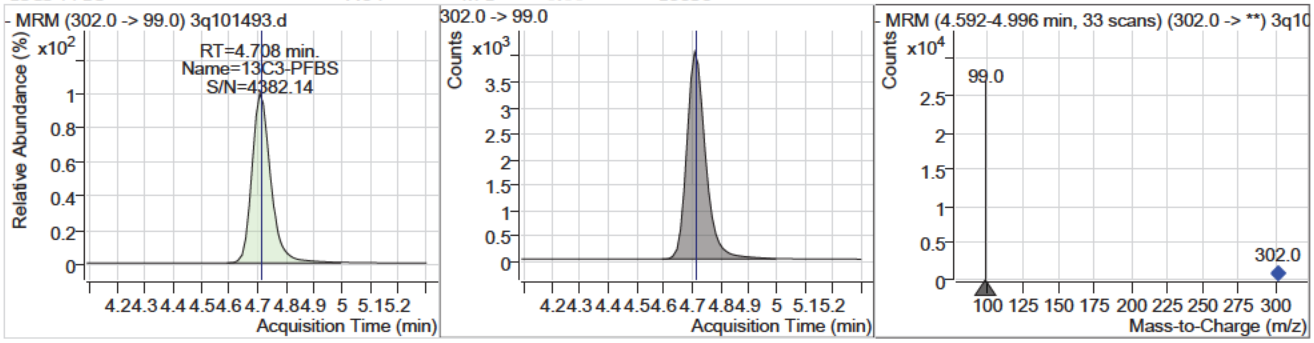
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	7.92	4.41	0.00	166252				



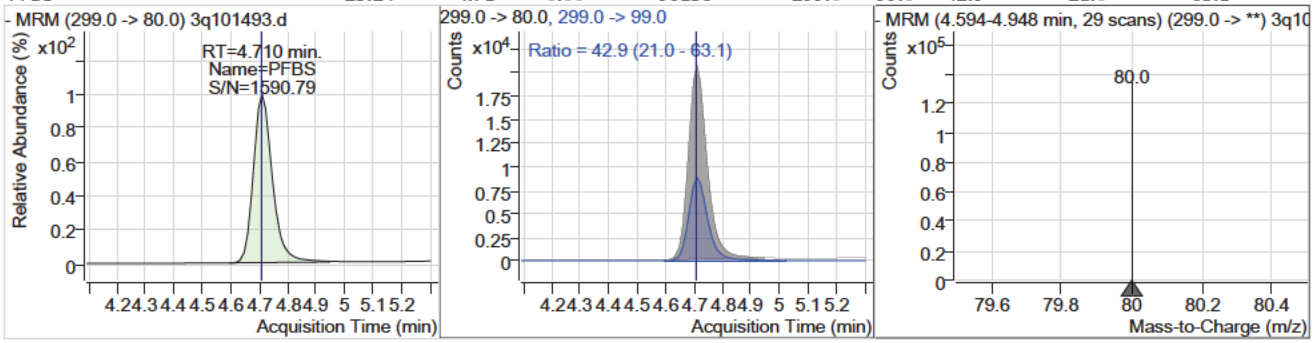
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	25.30	4.41	0.00	317317				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	7.84	4.71	0.00	18838				



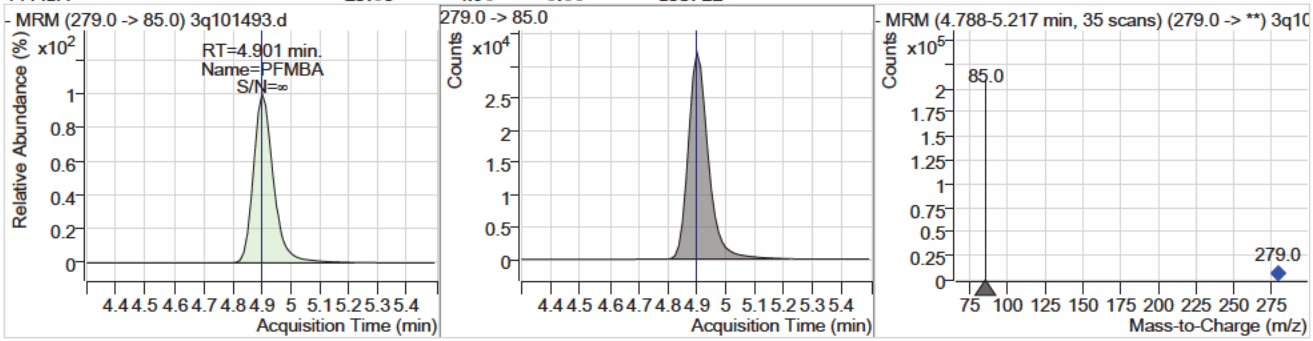
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	25.24	4.71	0.00	96136	299.0 -> 99.0	42.9	21.0	63.1



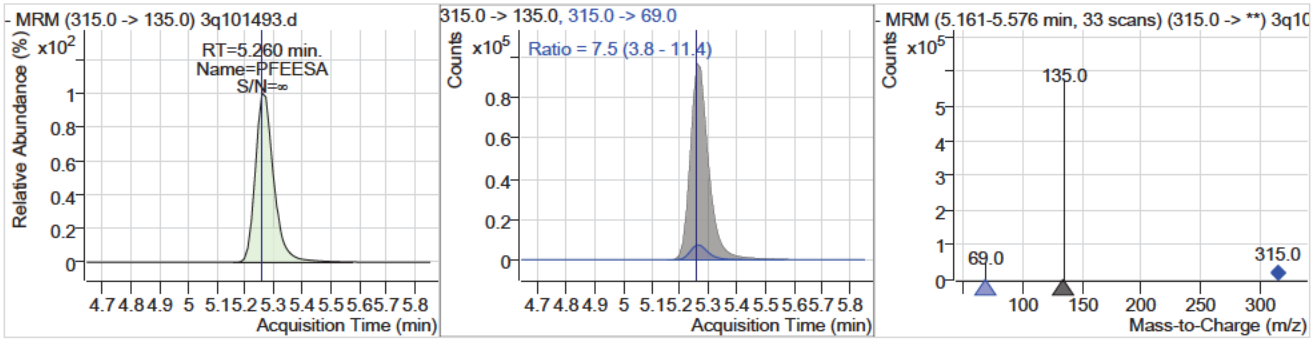
7.3.2 7

Perfluorinated Compounds by LC/MS/MS

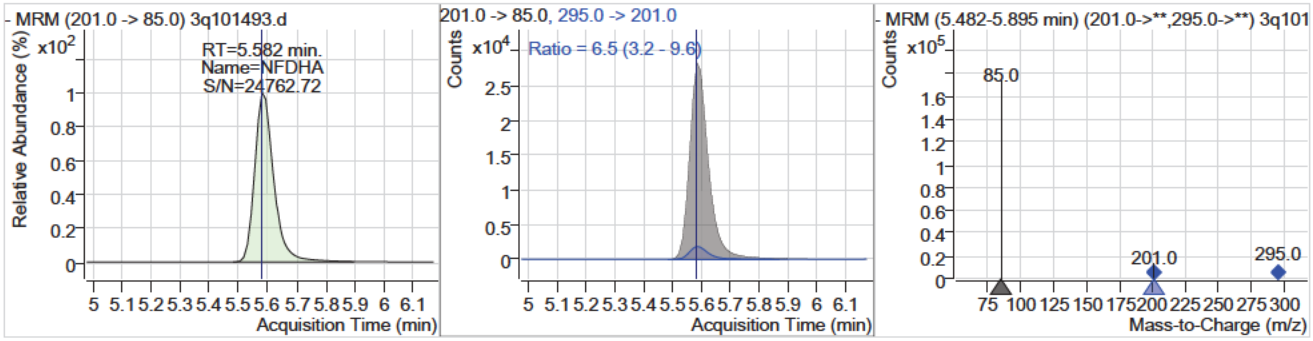
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	25.08	4.90	0.00	153722				



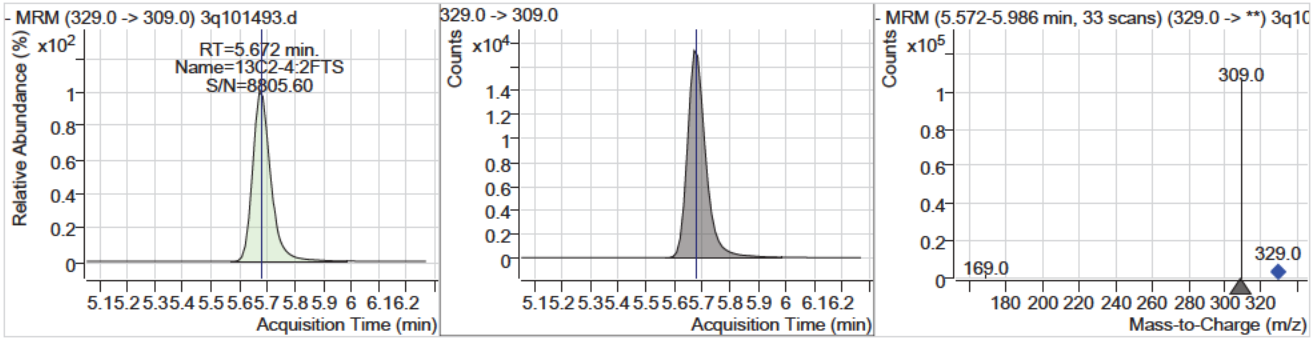
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	25.74	5.26	0.00	437356	315.0 -> 69.0	7.5	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	24.19	5.58	0.00	128752	295.0 -> 201.0	6.5	3.2	9.6

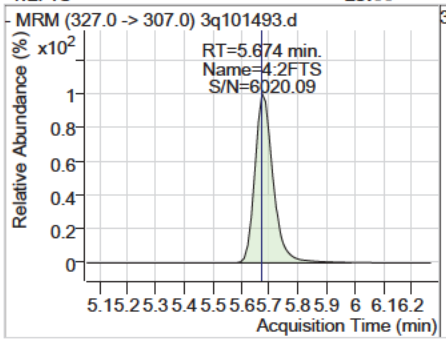


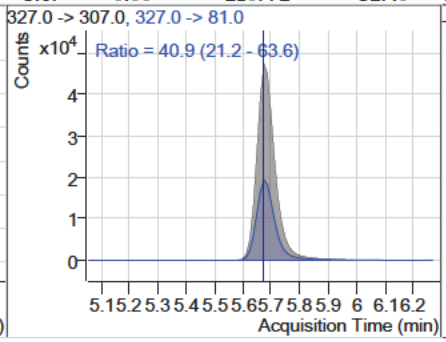
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	8.54	5.67	0.00	78191				

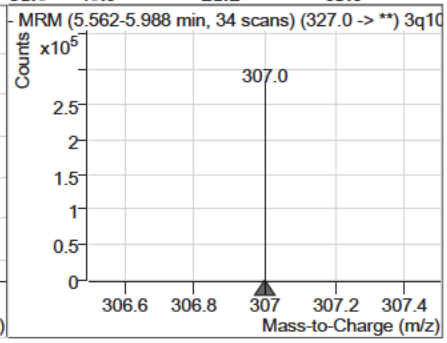


Perfluorinated Compounds by LC/MS/MS

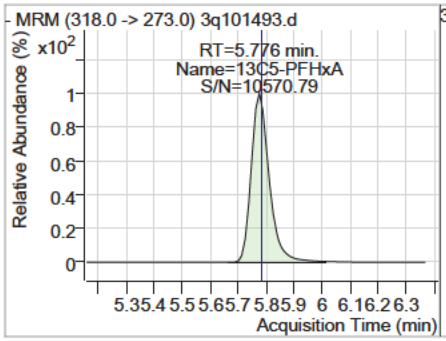
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	25.00	5.67	0.00	210772	327.0 -> 81.0	40.9	21.2	63.6

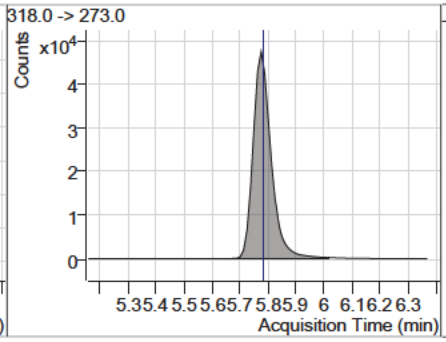


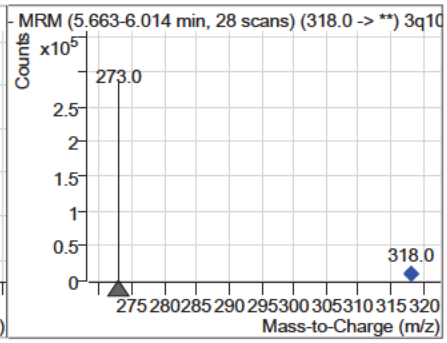




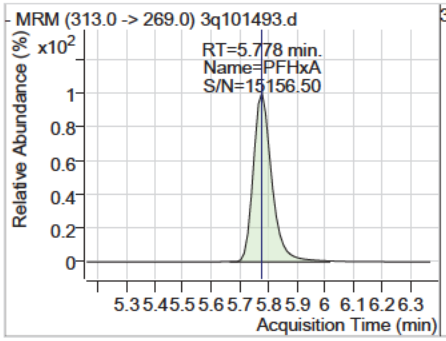
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	8.02	5.78	0.00	212813				

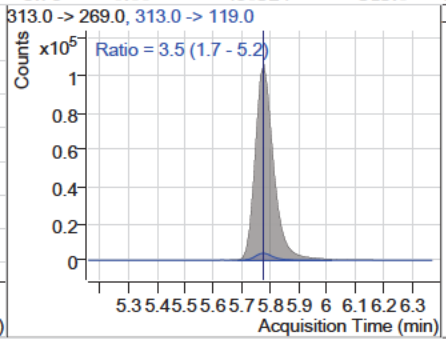


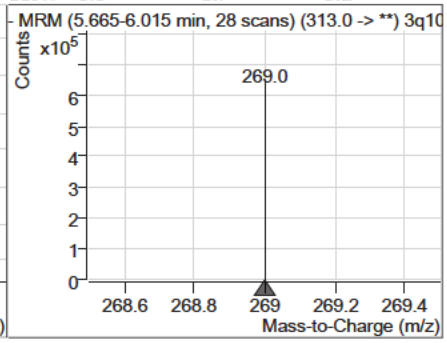




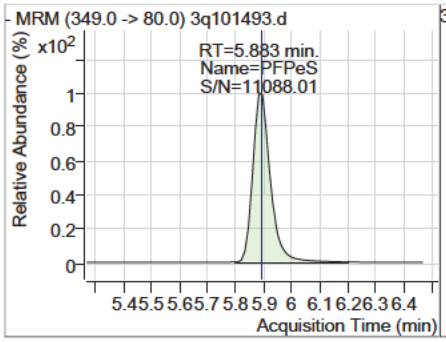
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	23.96	5.78	0.00	480324	313.0 -> 119.0	3.5	1.7	5.2

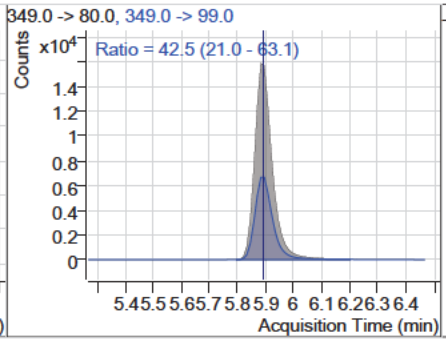


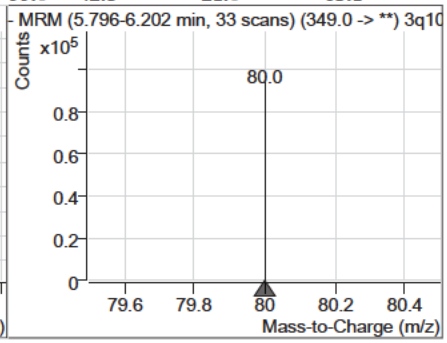




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	25.58	5.88	0.00	69544	349.0 -> 99.0	42.5	21.0	63.1

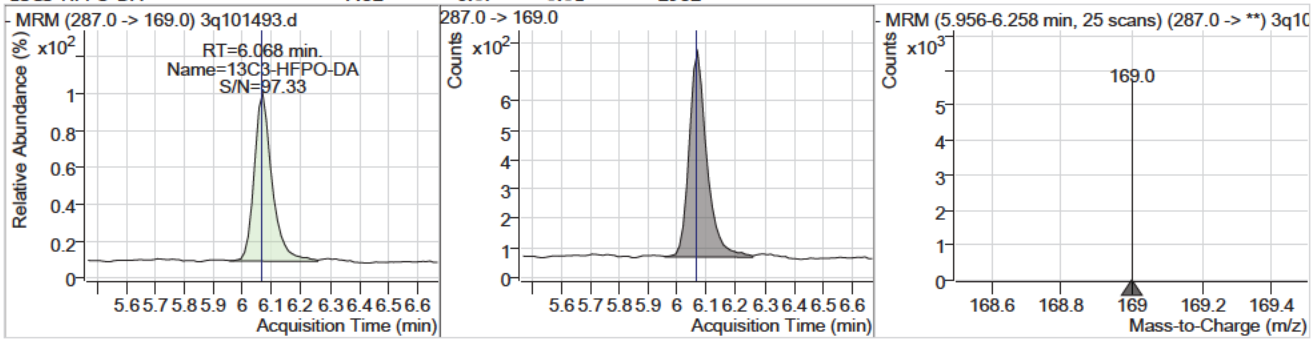




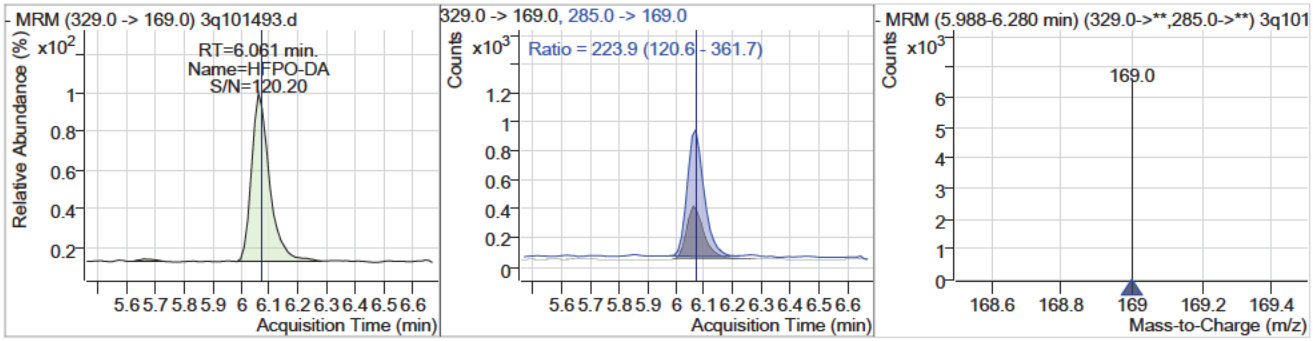


Perfluorinated Compounds by LC/MS/MS

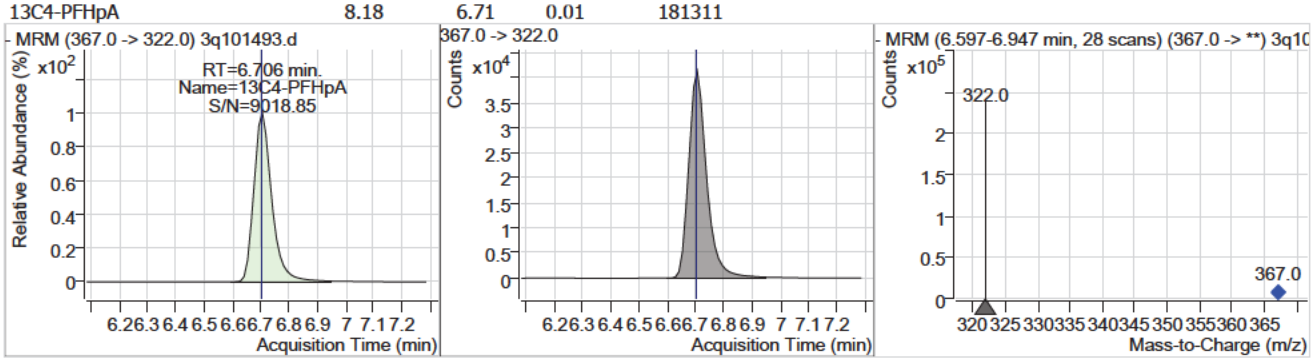
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	7.82	6.07	0.01	2982				



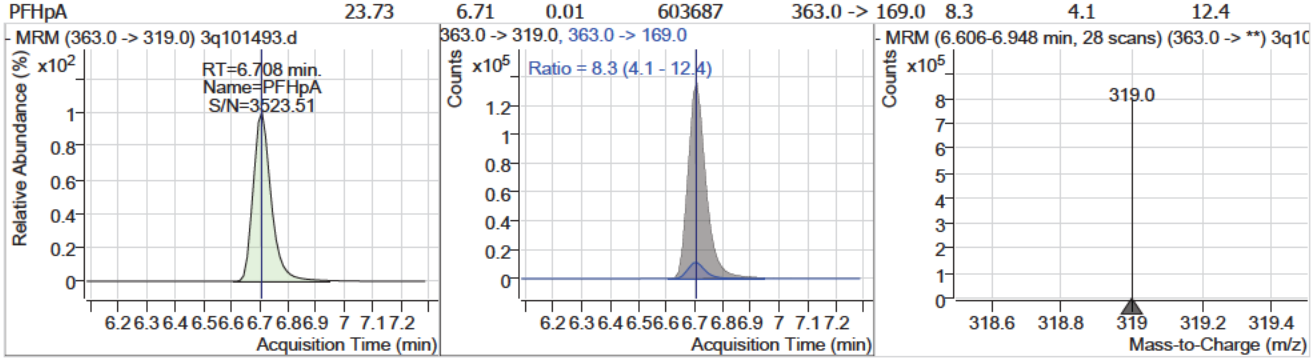
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	25.06	6.06	0.00	1598	285.0 -> 169.0	223.9	120.6	361.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	8.18	6.71	0.01	181311				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	23.73	6.71	0.01	603687	363.0 -> 169.0	8.3	4.1	12.4



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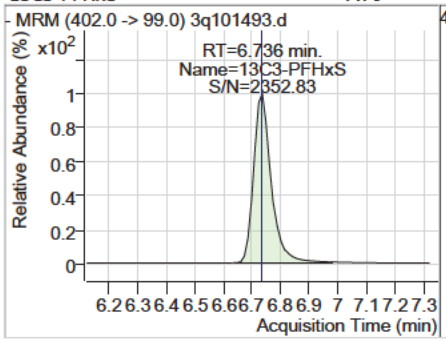
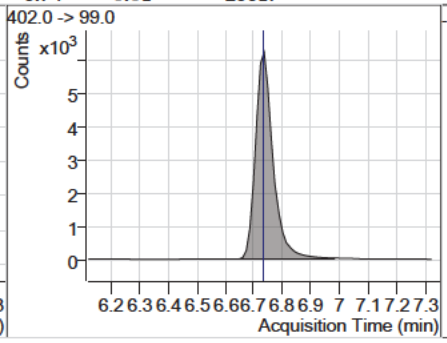
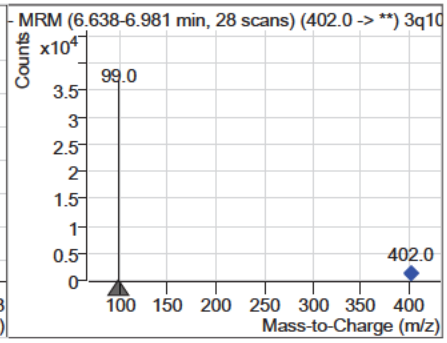
Perfluorinated Compounds by LC/MS/MS

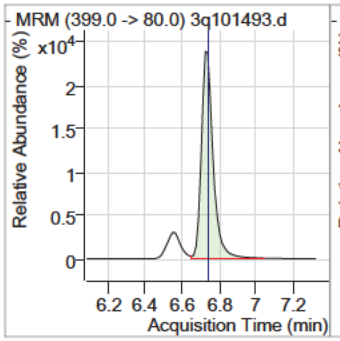
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	7.79	6.74	0.01	26617				

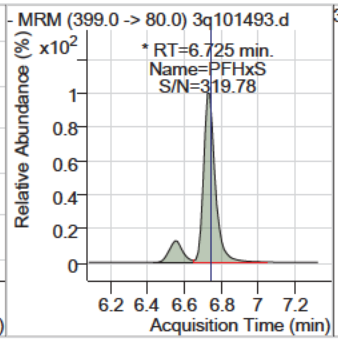


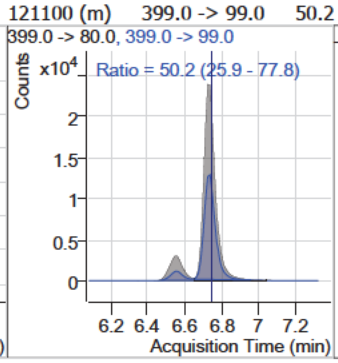


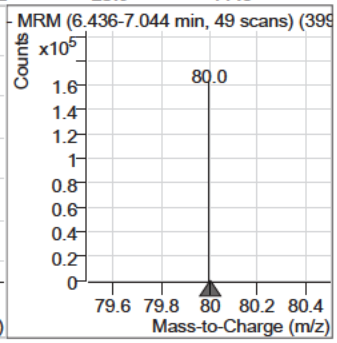


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	25.85	6.73	0.00	121100 (m)	399.0 -> 99.0	50.2	25.9	77.8

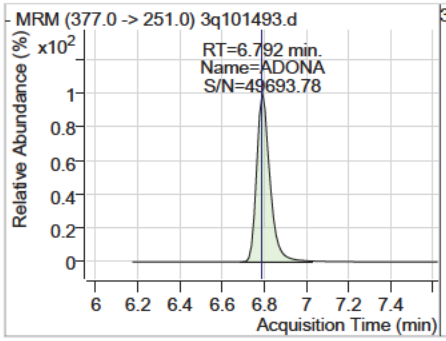


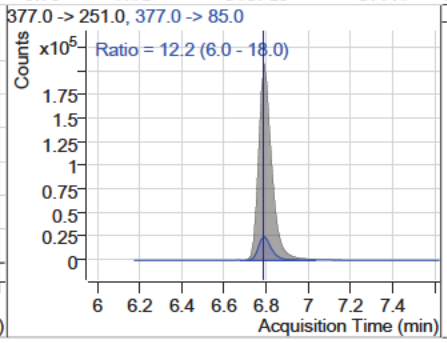


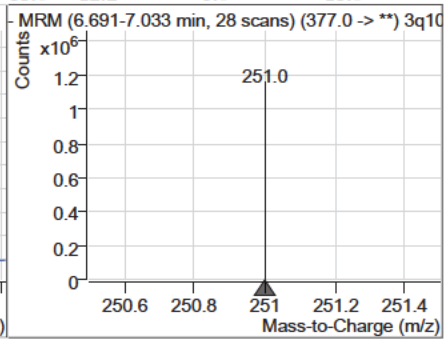




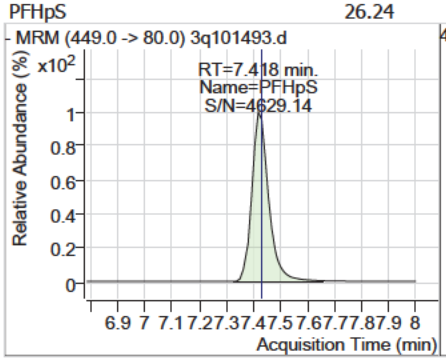
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	23.06	6.79	0.01	905719	377.0 -> 85.0	12.2	6.0	18.0

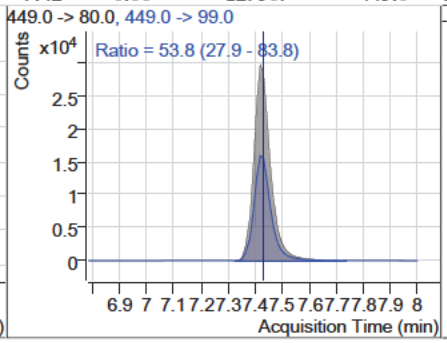


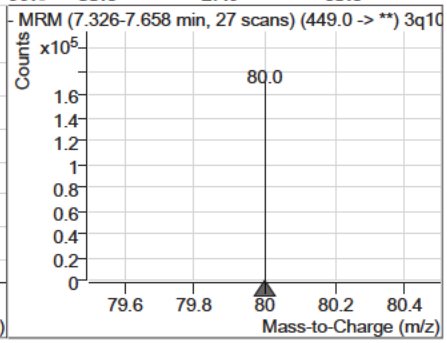




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	26.24	7.42	0.00	127907	449.0 -> 99.0	53.8	27.9	83.8

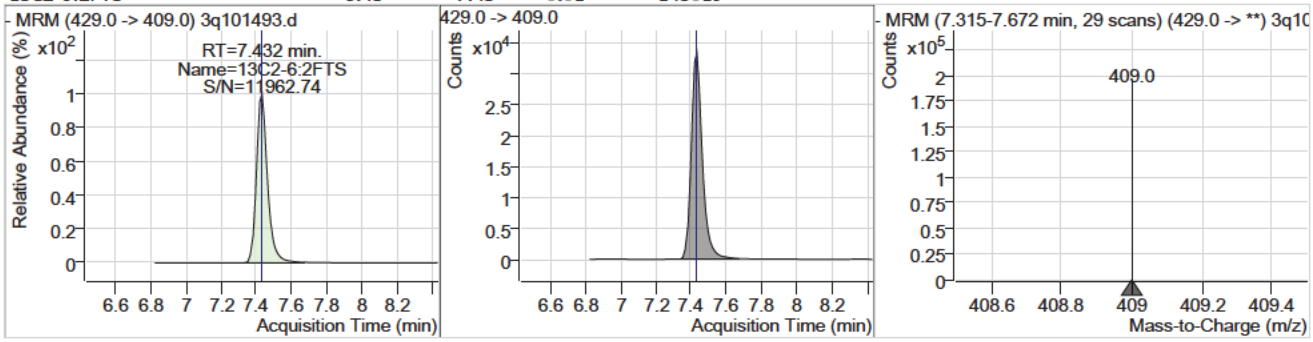




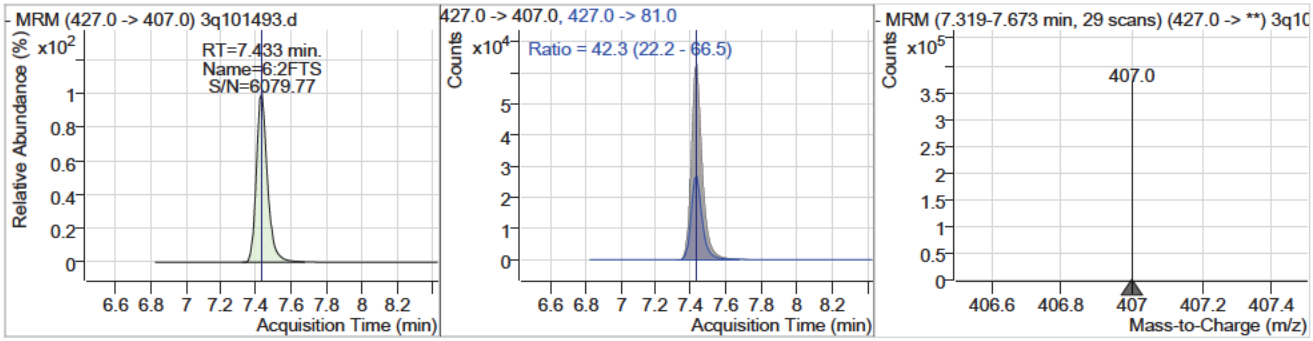


Perfluorinated Compounds by LC/MS/MS

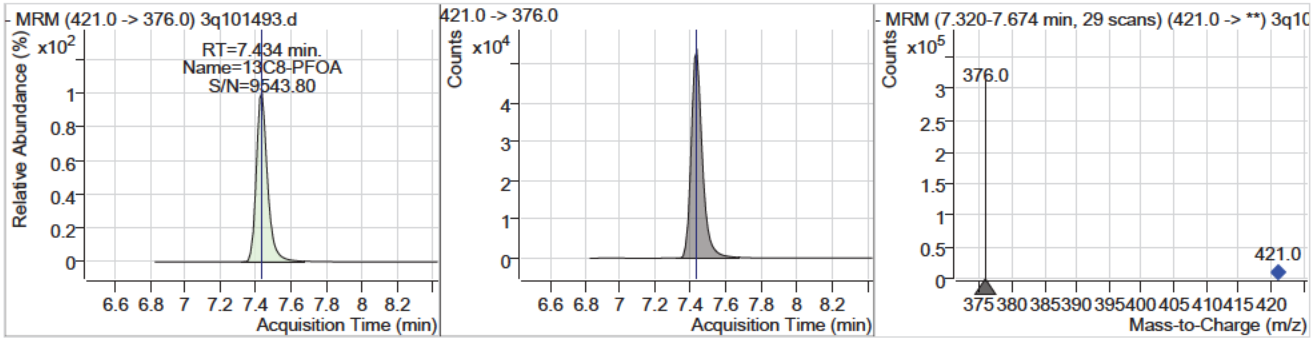
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	8.43	7.43	0.01	145019				



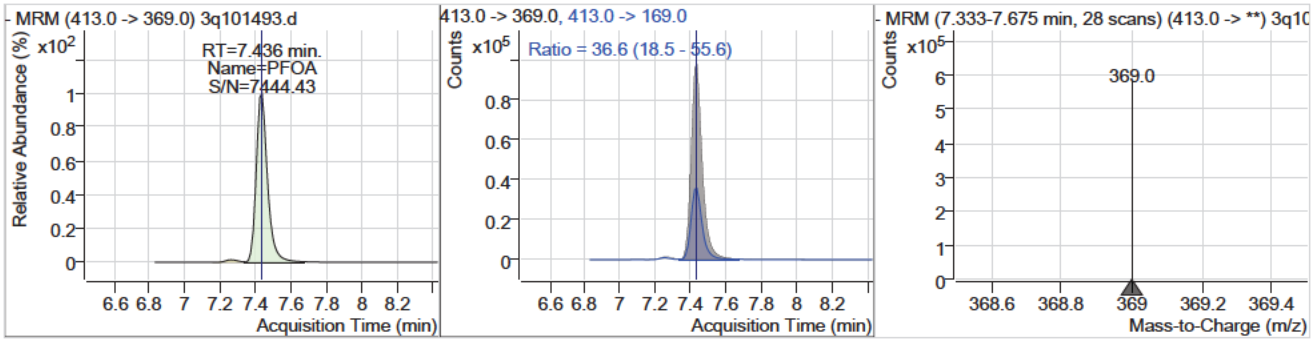
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	24.89	7.43	0.01	277932	427.0 -> 81.0	42.3	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	8.15	7.43	0.01	234673				

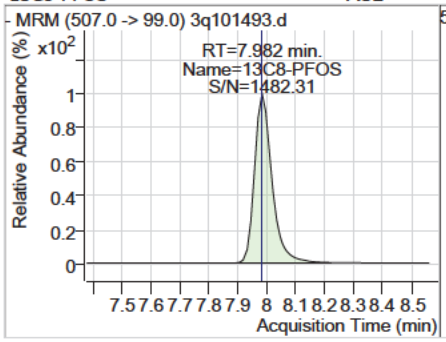


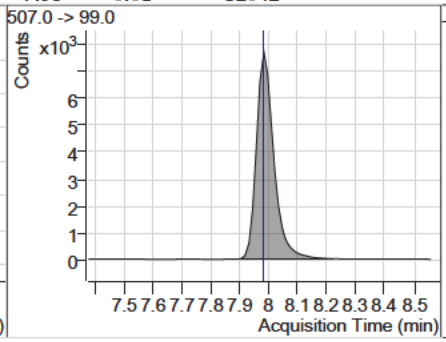
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	24.16	7.44	0.01	437310	413.0 -> 169.0	36.6	18.5	55.6

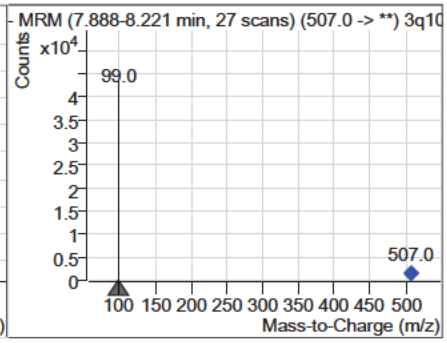


Perfluorinated Compounds by LC/MS/MS

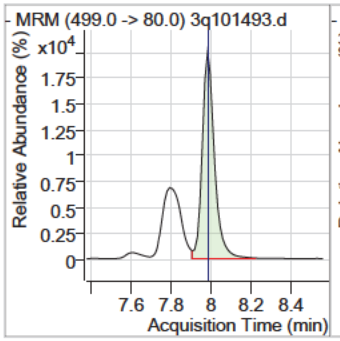
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	7.32	7.98	0.01	32042				

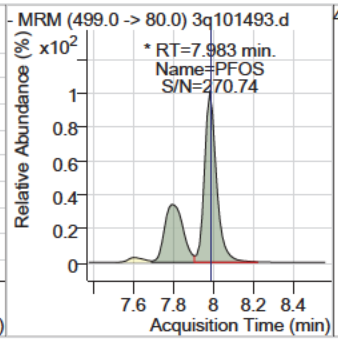


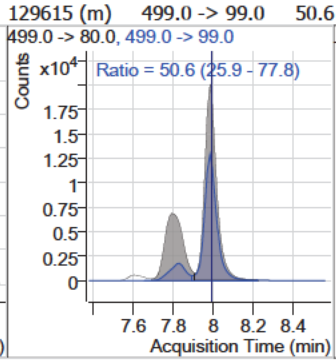


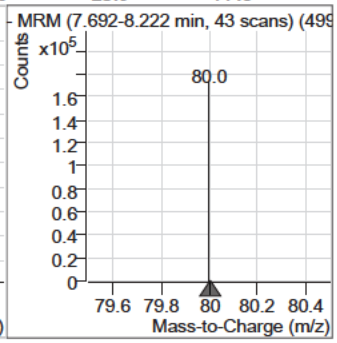


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	25.30	7.98	0.01	129615 (m)	499.0 -> 99.0	50.6	25.9	77.8

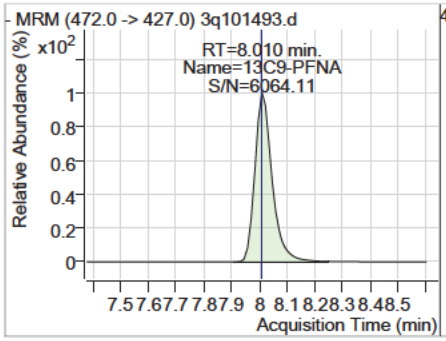


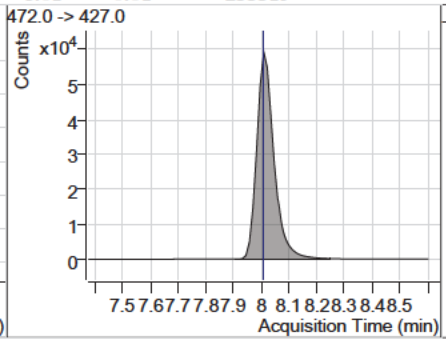


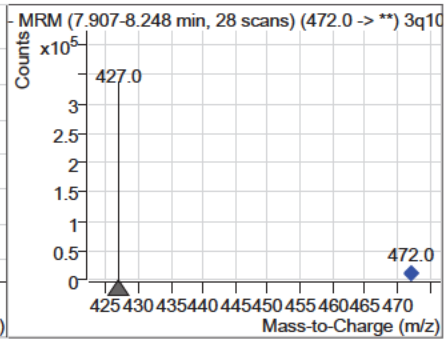




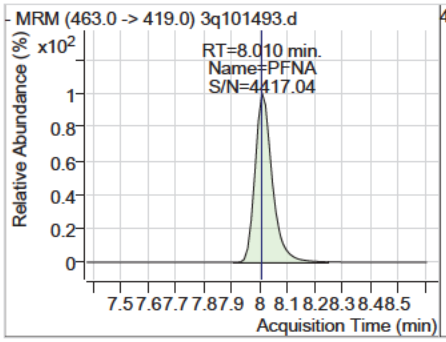
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	8.17	8.01	0.01	255519				

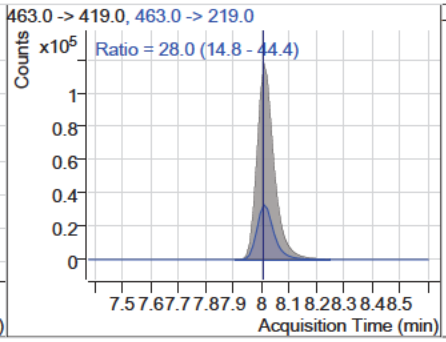


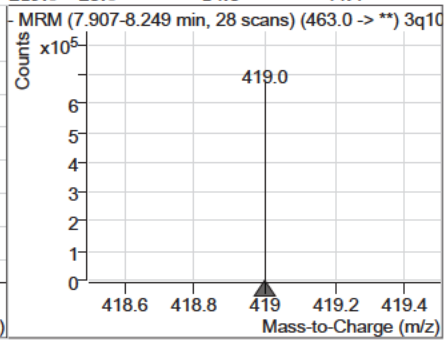




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	24.38	8.01	0.01	510148	463.0 -> 219.0	28.0	14.8	44.4

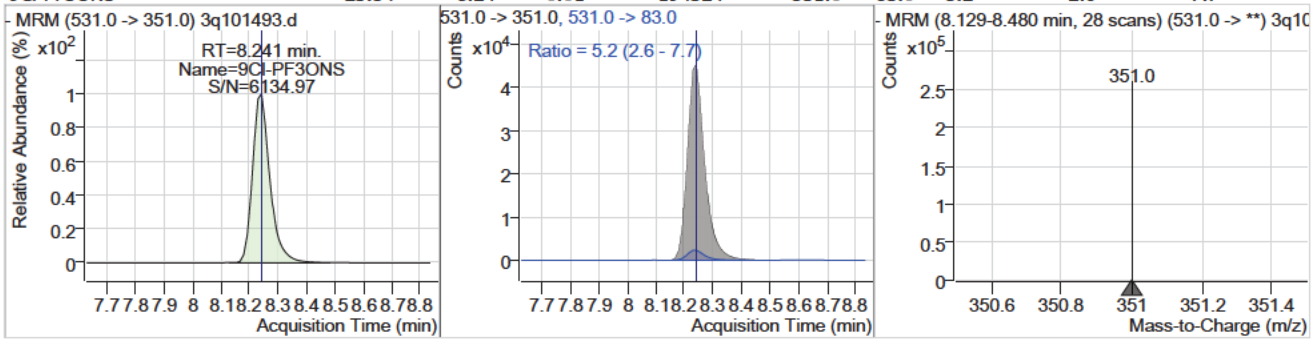




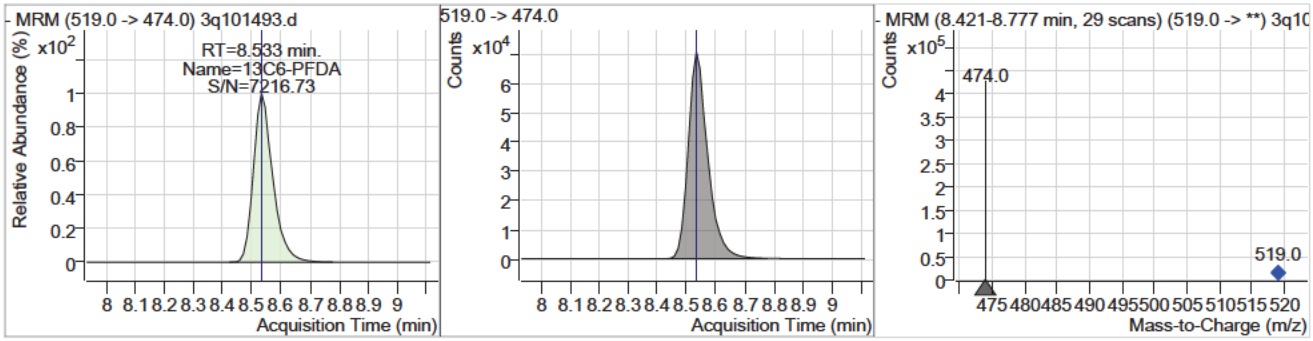


Perfluorinated Compounds by LC/MS/MS

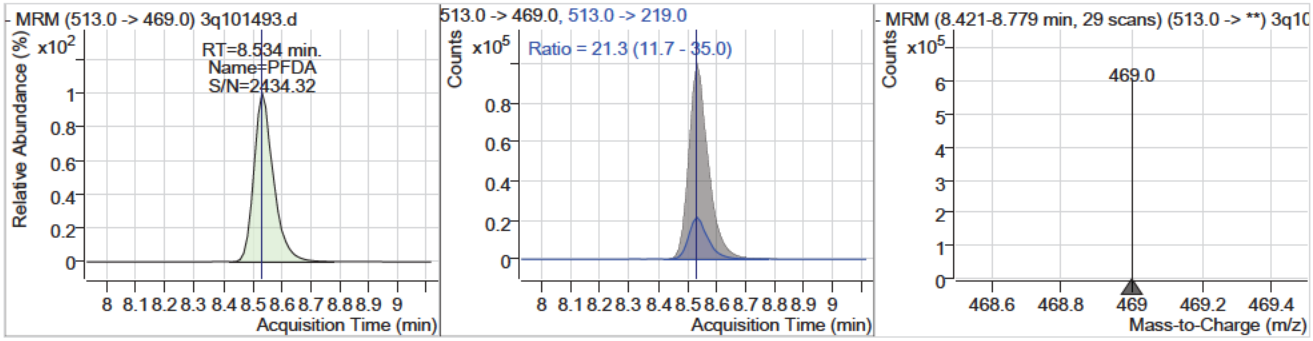
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	23.54	8.24	0.01	194324	531.0 -> 83.0	5.2	2.6	7.7



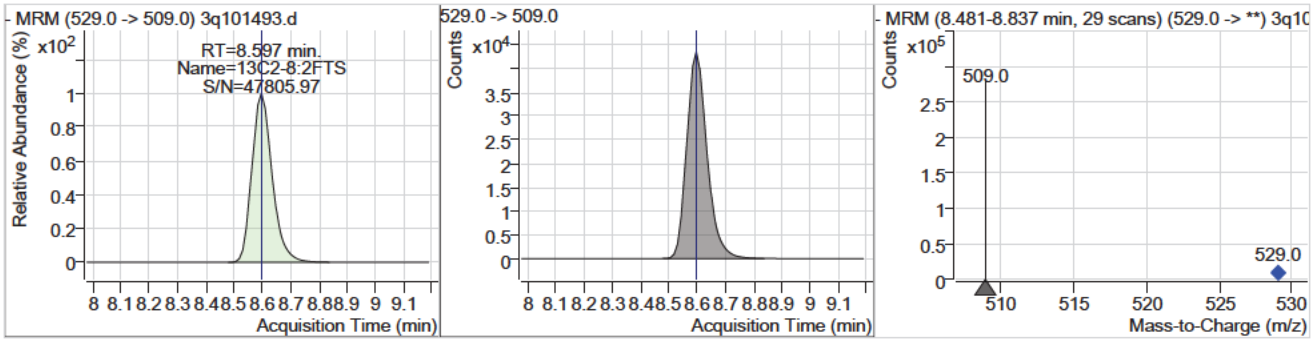
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	7.56	8.53	0.01	331409				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	25.08	8.53	0.01	469989	513.0 -> 219.0	21.3	11.7	35.0



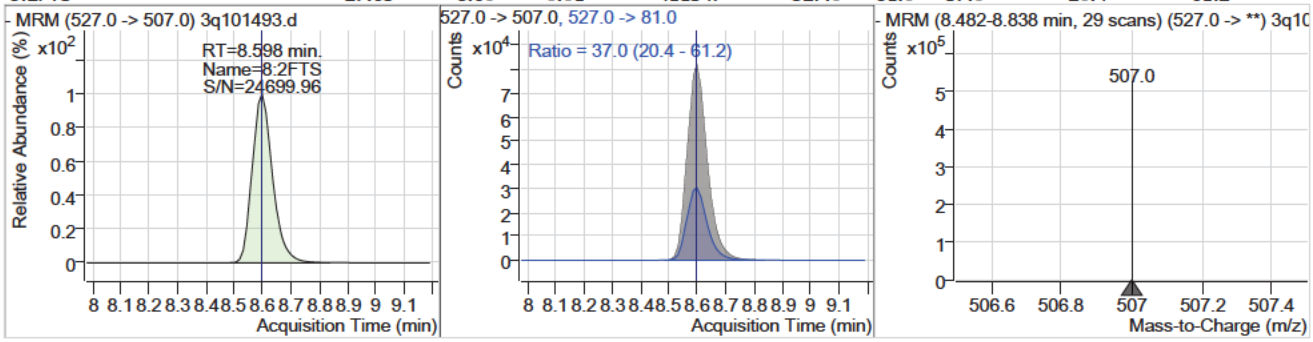
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	7.51	8.60	0.01	216510				



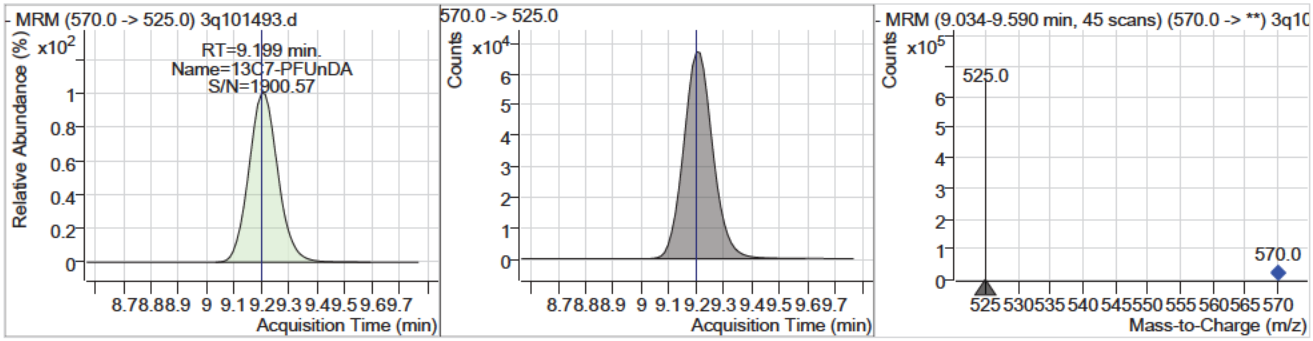
7.3.2 7

Perfluorinated Compounds by LC/MS/MS

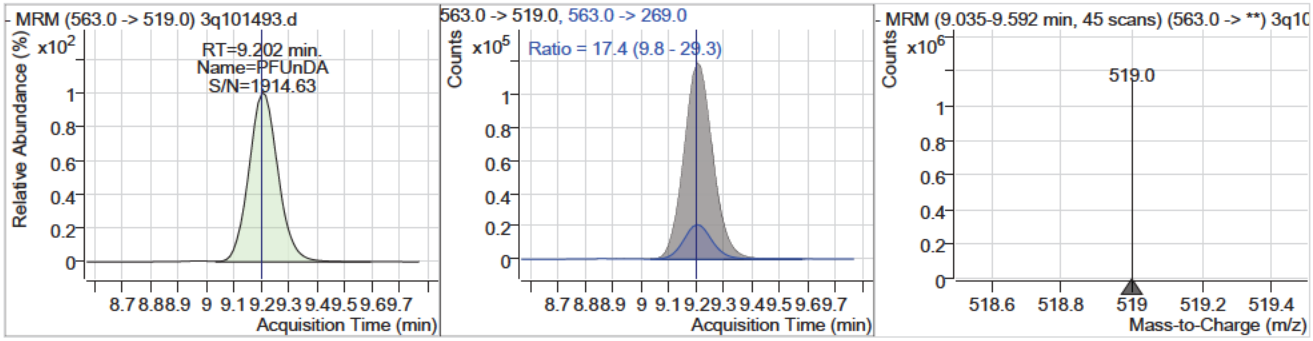
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	27.65	8.60	0.01	411347	527.0 -> 81.0	37.0	20.4	61.2



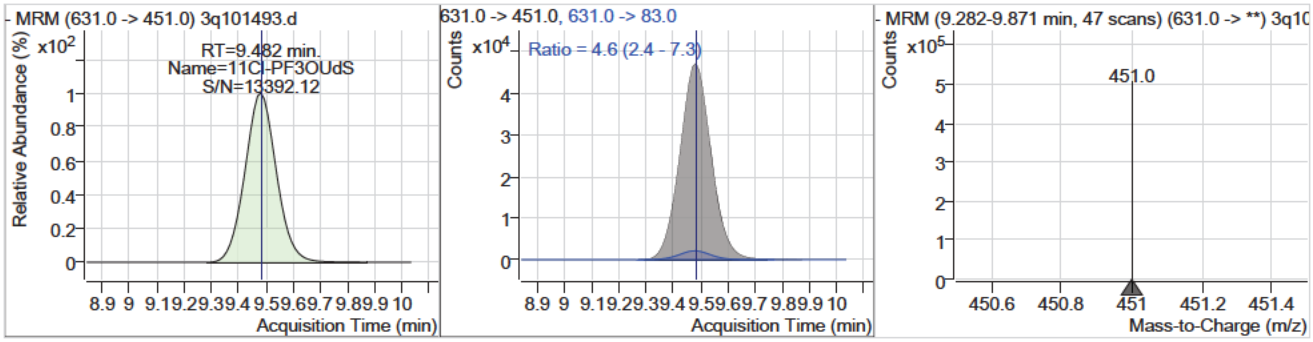
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	5.62	9.20	0.01	492184				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	27.56	9.20	0.02	874387	563.0 -> 269.0	17.4	9.8	29.3

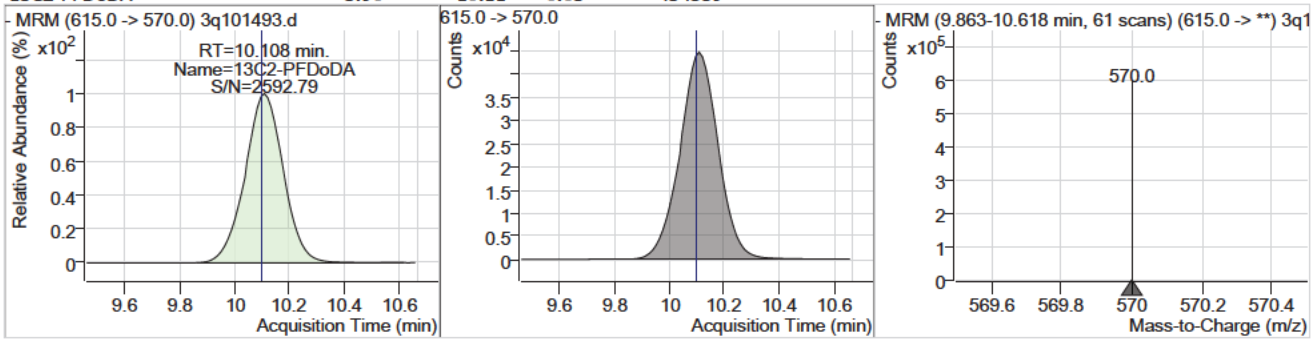


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	15.91	9.48	0.01	378522	631.0 -> 83.0	4.6	2.4	7.3

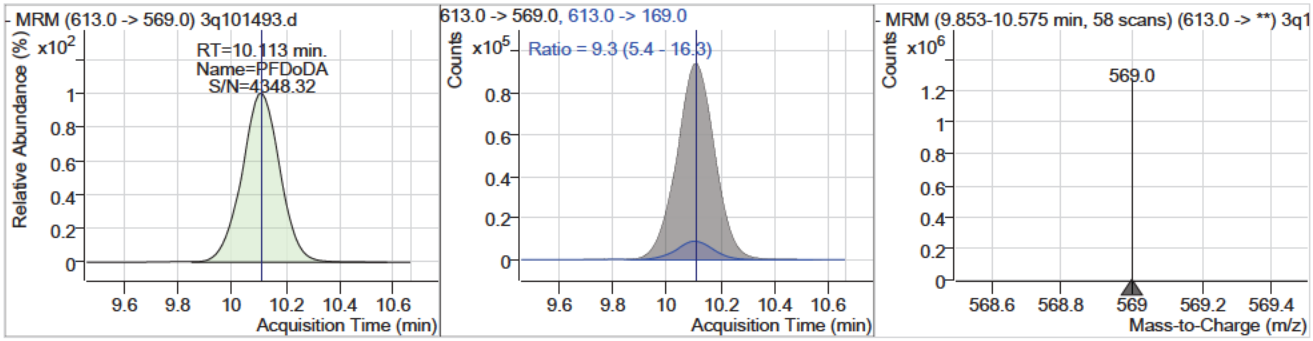


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	3.90	10.11	0.03	434559				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	32.09	10.11	0.03	927409	613.0 -> 169.0	9.3	5.4	16.3



Manual Integration Approval Summary

Sample Number: OP8883-BS
Lab FileID: 3Q101493.D
Injection Time: 04/16/25 12:34
Method: EPA 533
Analyst approved: 04/16/25 15:17 (b) (6) [redacted]
Supervisor approved: 04/17/25 11:46 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.72	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 10:08

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101524.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/17/2025 11:55:29 AM
Sample Name : op8907-bs:1
Vial : P3-C1
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1494.batch.bin
Sample Information : op8907,S3Q1494,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.447	415.0 -> 370.0	253821	10.00 µg/L	0.025
13C3-PFBA	2.332	216.0 -> 172.0	98630	10.00 µg/L	-0.013
13C4-PFOS	7.995	503.0 -> 80.0	37068	10.00 µg/L	0.026
M4-PFBA	2.327	217.0 -> 172.0	134365	10.00 µg/L	-0.013
M5-PFPeA	4.425	268.0 -> 223.0	164014	10.00 µg/L	0.013
M5-PFHxA	5.788	318.0 -> 273.0	211166	10.00 µg/L	0.013
M4-PFHpA	6.719	367.0 -> 322.0	180407	10.00 µg/L	0.025
M8-PFOA	7.447	421.0 -> 376.0	235949	10.00 µg/L	0.025
M9-PFNA	8.022	472.0 -> 427.0	259828	10.00 µg/L	0.026
M6-PFDA	8.546	519.0 -> 474.0	393503	10.00 µg/L	0.025
M7-PFUnDA	9.237	570.0 -> 525.0	652517	10.00 µg/L	0.052
M2-PFDoDA	10.146	615.0 -> 570.0	754564	10.00 µg/L	0.063
M3-PFBS	4.721	302.0 -> 99.0	18590	10.00 µg/L	0.013
M3-PFHxS	6.749	402.0 -> 99.0	26512	10.00 µg/L	0.025
M8-PFOS	7.995	507.0 -> 99.0	34216	10.00 µg/L	0.026
M2-4:2FTS	5.684	329.0 -> 309.0	69805	10.00 µg/L	0.013
M2-6:2FTS	7.445	429.0 -> 409.0	131986	10.00 µg/L	0.025
M2-8:2FTS	8.611	529.0 -> 509.0	216589	10.00 µg/L	0.026
M3-HFPO-DA	6.081	287.0 -> 169.0	2564	10.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.684	329.0 -> 309.0	69805	7.91 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.1%	
13C2-6:2FTS	7.445	429.0 -> 409.0	131986	7.97 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.7%	
13C2-8:2FTS	8.611	529.0 -> 509.0	216589	7.80 µg/L	0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.0%	
13C2-PFDoDA	10.146	615.0 -> 570.0	754564	6.98 µg/L	0.063
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 69.8%	
13C3-PFBS	4.721	302.0 -> 99.0	18590	8.04 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.4%	
13C3-PFHxS	6.749	402.0 -> 99.0	26512	8.05 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.5%	
13C4-PFBA	2.327	217.0 -> 172.0	134365	8.03 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.3%	
13C4-PFHpA	6.719	367.0 -> 322.0	180407	8.40 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 84.0%	
13C5-PFHxA	5.788	318.0 -> 273.0	211166	8.21 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.1%	
13C5-PFPeA	4.425	268.0 -> 223.0	164014	8.13 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.3%	
13C6-PFDA	8.546	519.0 -> 474.0	393503	9.27 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.7%	
13C7-PFUnDA	9.237	570.0 -> 525.0	652517	7.69 µg/L	0.052
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.9%	
13C8-PFOA	7.447	421.0 -> 376.0	235949	8.46 µg/L	0.025

7.3.3
7

Perfluorinated Compounds by LC/MS/MS

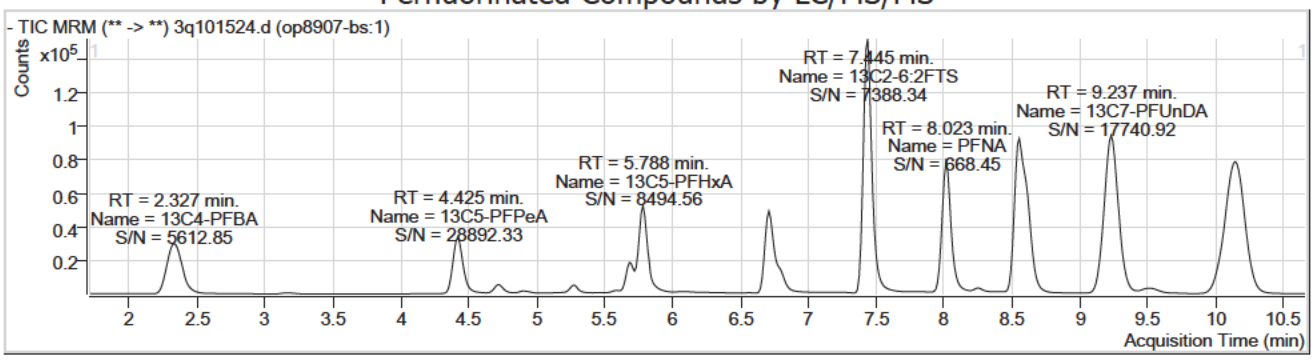
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 84.6%		
13C8-PFOS	7.995	507.0 -> 99.0	34216	8.12 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.2%		
13C9-PFNA	8.022	472.0 -> 427.0	259828	8.58 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 85.8%		
13C3-HFPO-DA	6.081	287.0 -> 169.0	2564	6.94 µg/L		0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 69.4%		
Target Compounds						QValue
PFMPA	3.166	229.0 -> 85.0	4826	1.11 µg/L		100
4:2FTS	5.686	327.0 -> 307.0	8573	1.01 µg/L		91
		327.0 -> 81.0	4144			
6:2FTS	7.445	427.0 -> 407.0	12831	1.14 µg/L		99
		427.0 -> 81.0	5621			
8:2FTS	8.612	527.0 -> 507.0	19400	1.30 µg/L		96
		527.0 -> 81.0	7422			
PFMBA	4.913	279.0 -> 85.0	6414	1.06 µg/L		100
PFEESA	5.274	315.0 -> 135.0	18020	1.07 µg/L		100
		315.0 -> 69.0	1371			
NFDHA	5.594	201.0 -> 85.0	5901	1.12 µg/L		98
		295.0 -> 201.0	338			
PFBA	2.336	213.0 -> 169.0	4127	1.11 µg/L		100
PFBS	4.722	299.0 -> 80.0	3915	1.04 µg/L		95
		299.0 -> 99.0	1756			
PFDA	8.546	513.0 -> 469.0	23193	1.04 µg/L		98
		513.0 -> 219.0	5122			
PFDoDA	10.150	613.0 -> 569.0	54181	1.08 µg/L		97
		613.0 -> 169.0	5256			
PFHpA	6.720	363.0 -> 319.0	25419	1.00 µg/L		99
		363.0 -> 169.0	2160			
PFHpS	7.431	449.0 -> 80.0	5618	1.16 µg/L		98
		449.0 -> 99.0	3047			
PFHxA	5.791	313.0 -> 269.0	20347	1.02 µg/L		99
		313.0 -> 119.0	748			
PFHxS	6.738	399.0 -> 80.0	5198	1.11 µg/L	m	98
		399.0 -> 99.0	2762			
PFNA	8.023	463.0 -> 419.0	22395	1.05 µg/L		98
		463.0 -> 219.0	6445			
PFOA	7.448	413.0 -> 369.0	18905	1.04 µg/L		99
		413.0 -> 169.0	7181			
PFOS	7.996	499.0 -> 80.0	5896	1.08 µg/L	m	96
		499.0 -> 99.0	3215			
PFPeA	4.427	263.0 -> 219.0	13294	1.07 µg/L		100
PFPeS	5.896	349.0 -> 80.0	2916	1.08 µg/L		100
		349.0 -> 99.0	1232			
PFUnDA	9.239	563.0 -> 519.0	45348	1.08 µg/L		95
		563.0 -> 269.0	7878			
11Cl-PF3OUdS	9.520	631.0 -> 451.0	23183	0.91 µg/L		100
		631.0 -> 83.0	1157			
9Cl-PF3ONS	8.254	531.0 -> 351.0	8793	1.00 µg/L		98
		531.0 -> 83.0	520			
ADONA	6.805	377.0 -> 251.0	38726	0.99 µg/L		100
		377.0 -> 85.0	4668			
HFPO-DA	6.073	329.0 -> 169.0	72	1.12 µg/L		71
		285.0 -> 169.0	137			

= Qualifier out of range, m = manually integrated, + = Area summed

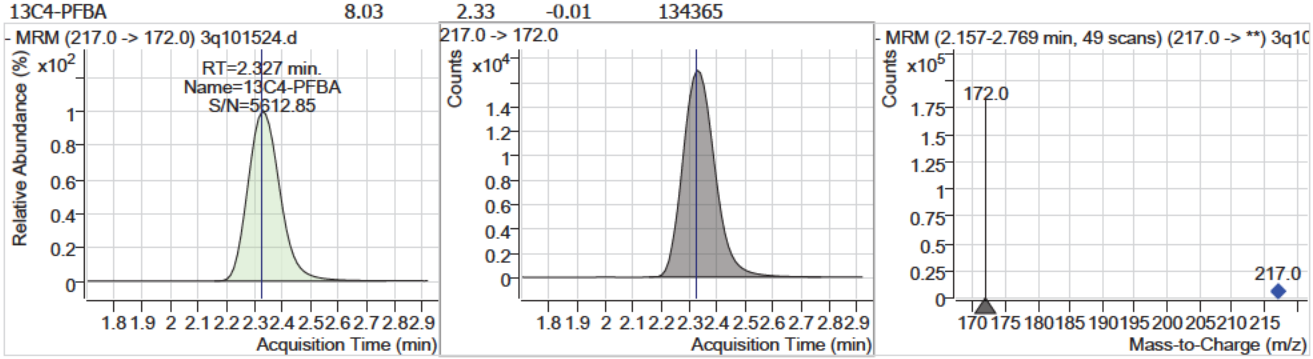
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

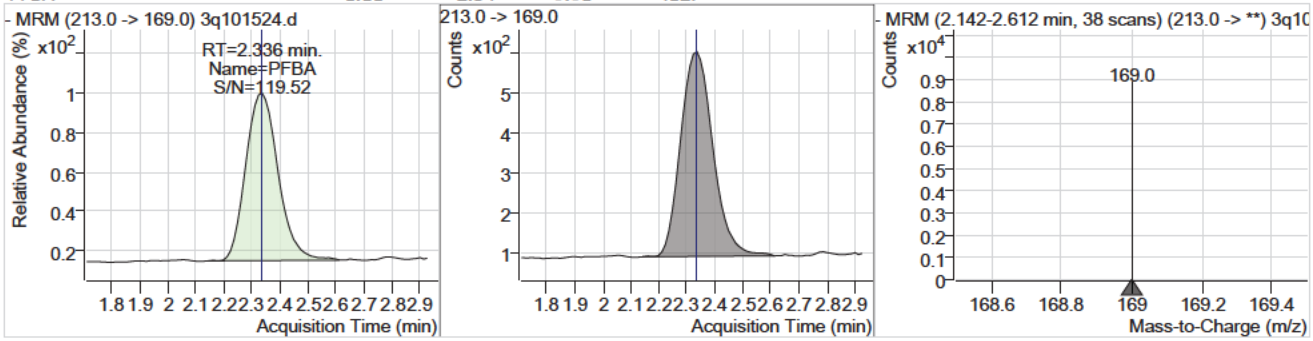
Perfluorinated Compounds by LC/MS/MS



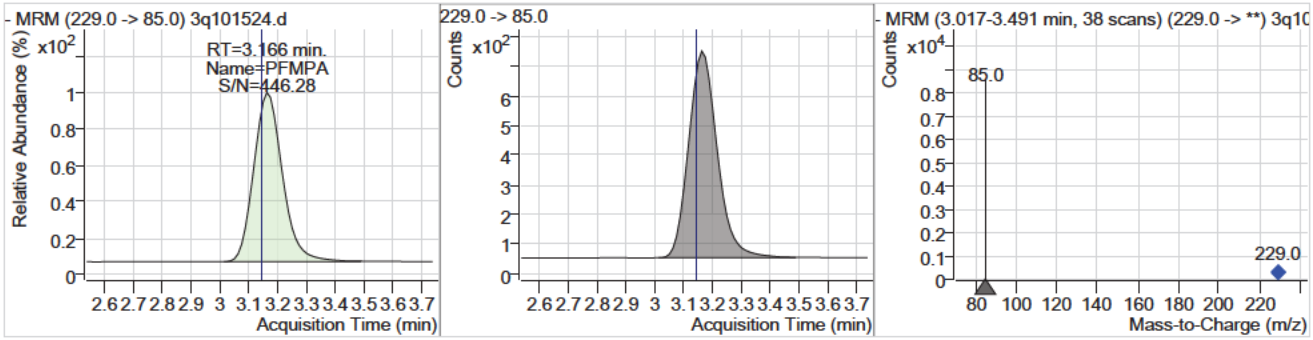
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	8.03	2.33	-0.01	134365				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	1.11	2.34	-0.01	4127				

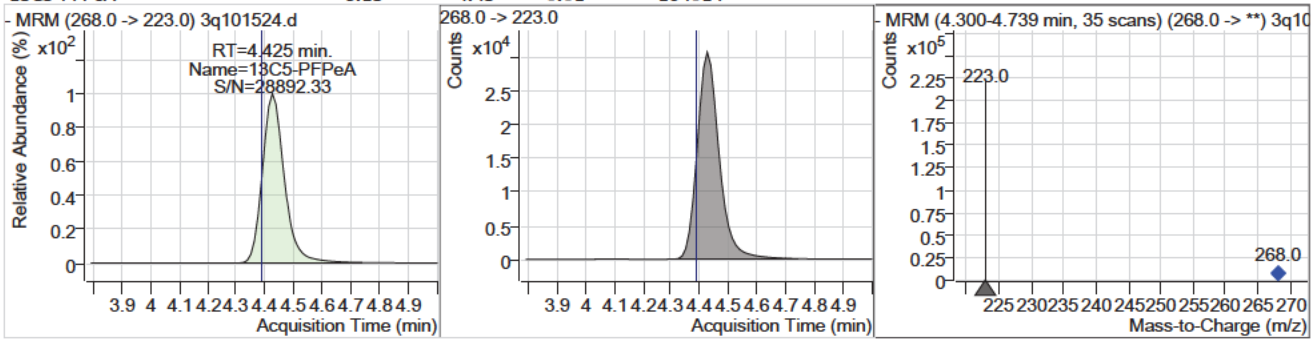


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	1.11	3.17	0.00	4826				

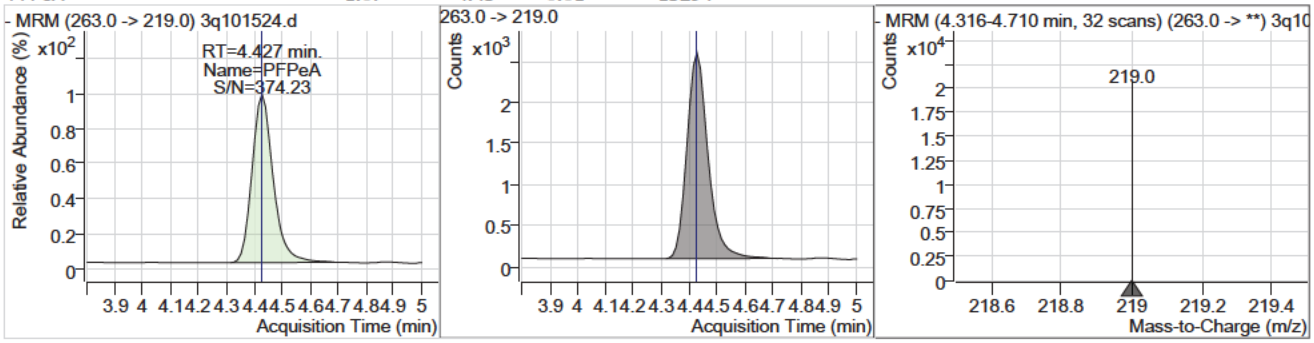


Perfluorinated Compounds by LC/MS/MS

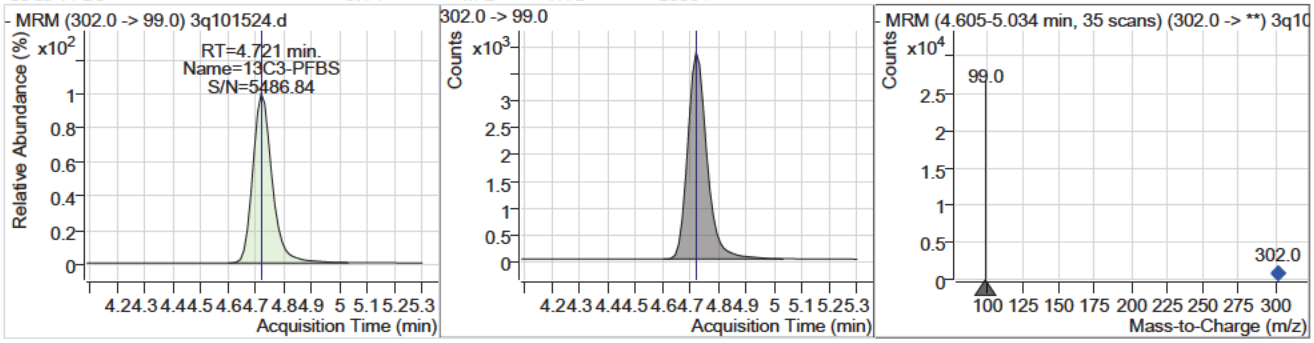
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	8.13	4.43	0.01	164014				



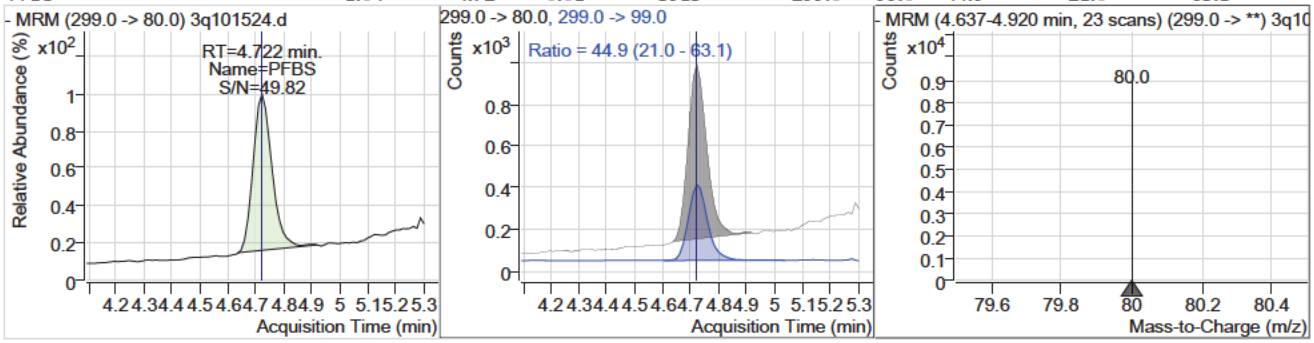
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.07	4.43	0.01	13294				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	8.04	4.72	0.01	18590				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.04	4.72	0.01	3915	299.0 -> 99.0	44.9	21.0	63.1

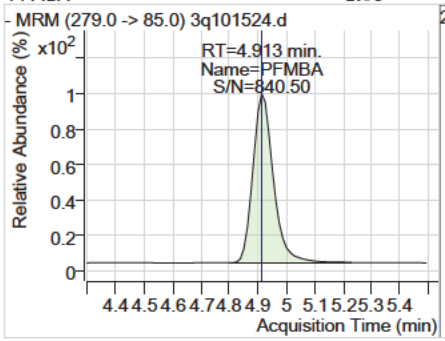


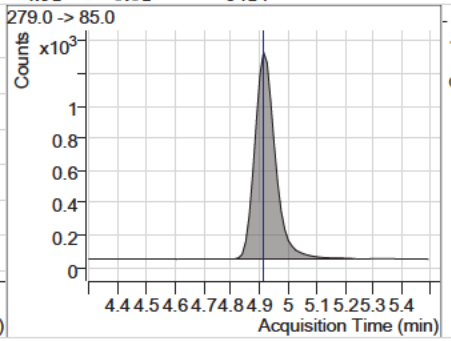
7.3.3

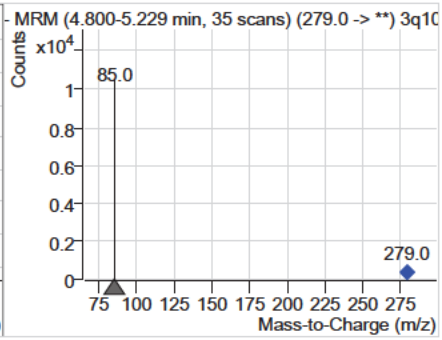
7

Perfluorinated Compounds by LC/MS/MS

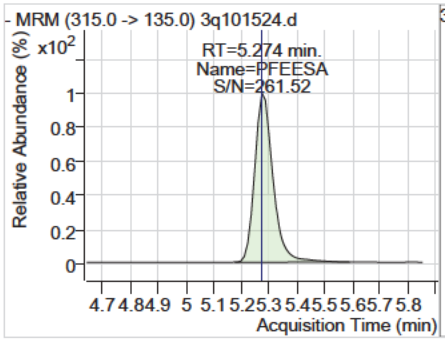
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	1.06	4.91	0.01	6414				

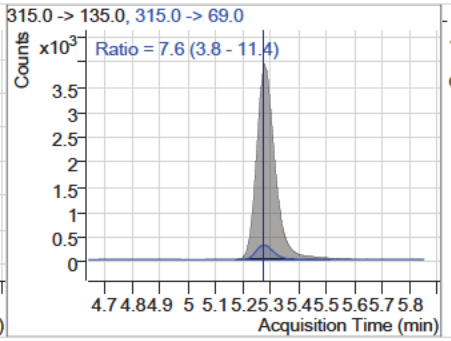


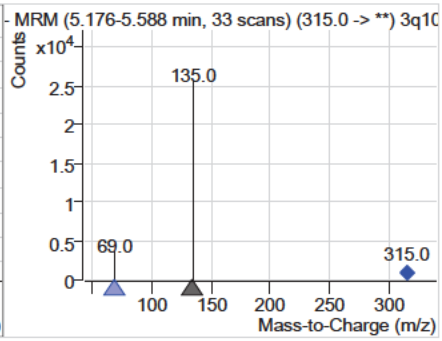




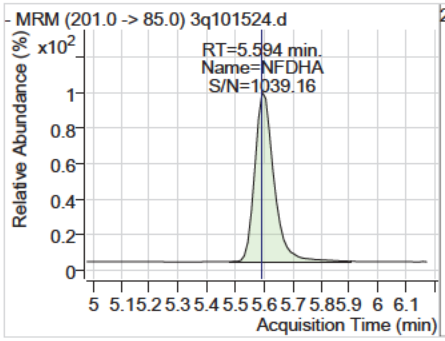
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	1.07	5.27	0.01	18020	315.0 -> 69.0	7.6	3.8	11.4

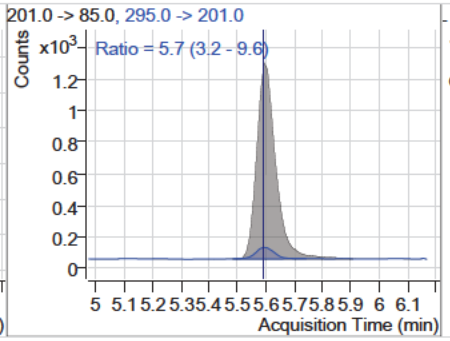


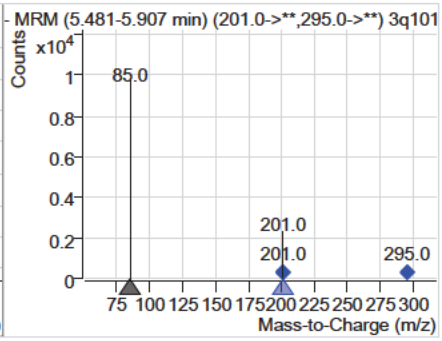




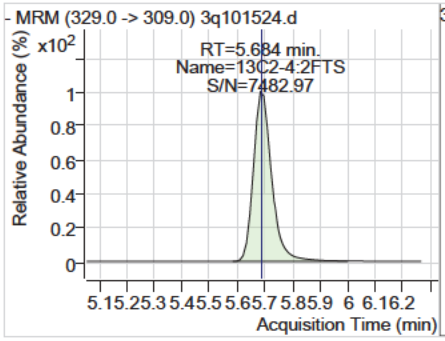
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	1.12	5.59	0.01	5901	295.0 -> 201.0	5.7	3.2	9.6

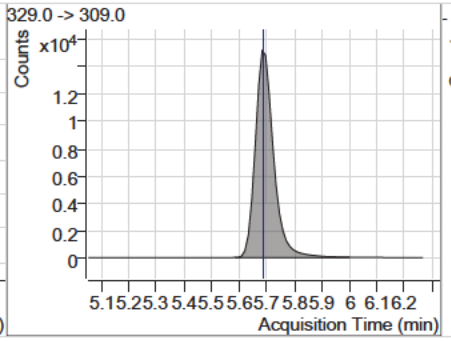


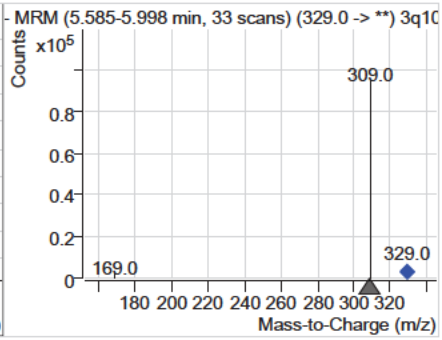




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	7.91	5.68	0.01	69805				

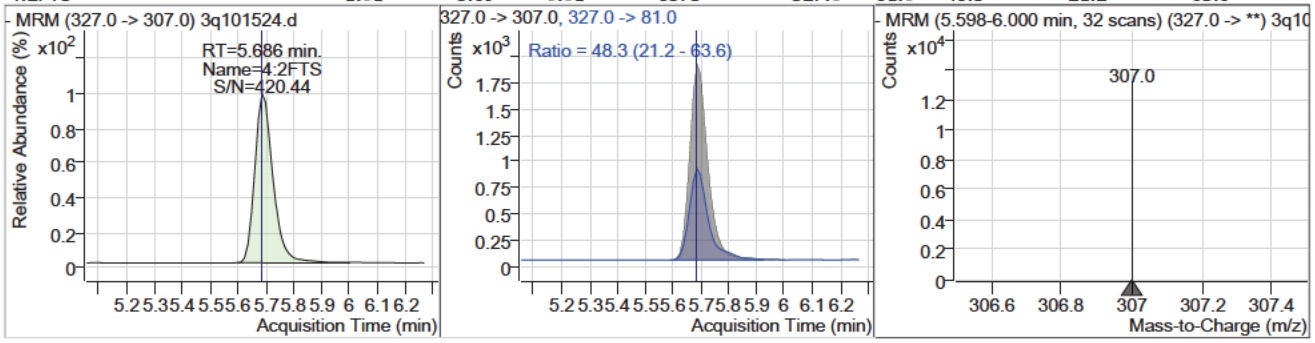




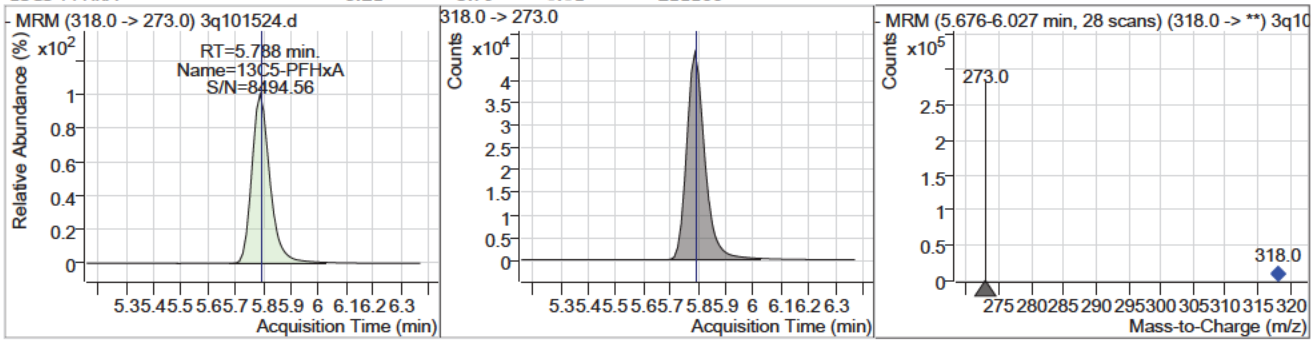


Perfluorinated Compounds by LC/MS/MS

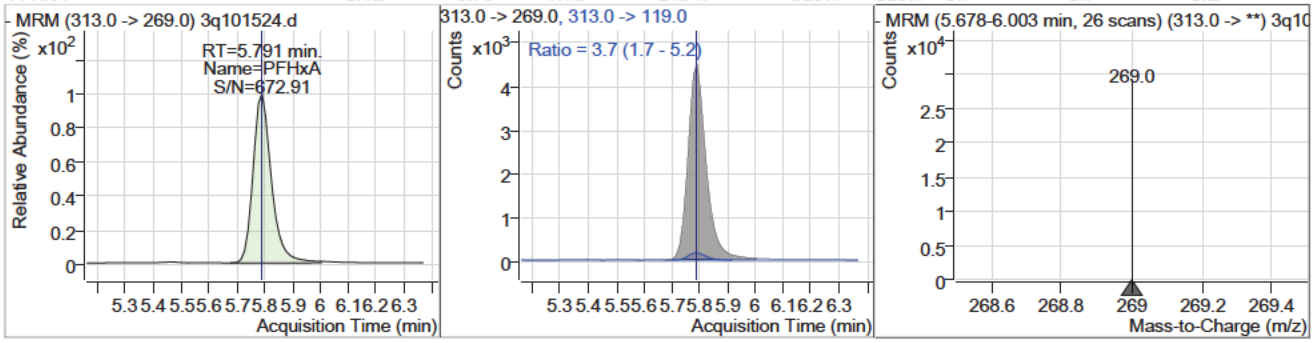
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	1.01	5.69	0.01	8573	327.0 -> 81.0	48.3	21.2	63.6



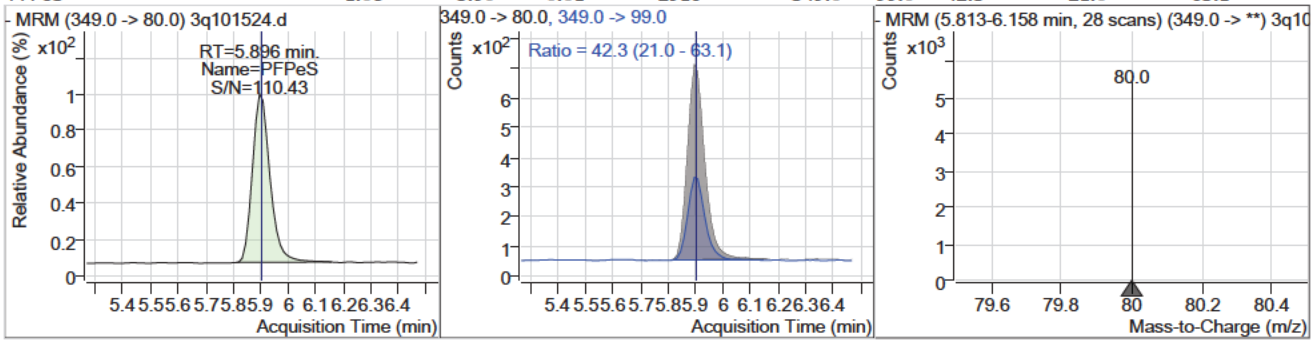
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	8.21	5.79	0.01	211166				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.02	5.79	0.01	20347	313.0 -> 119.0	3.7	1.7	5.2

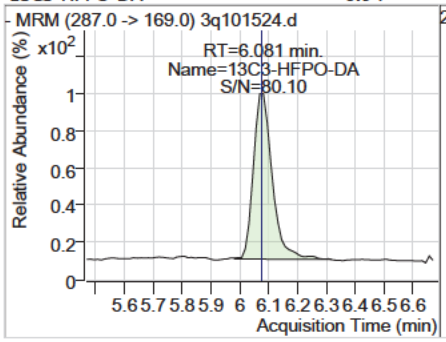


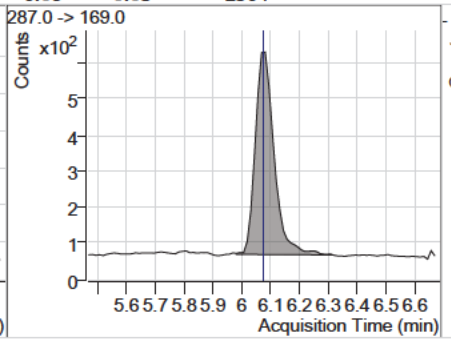
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	1.08	5.90	0.01	2916	349.0 -> 99.0	42.3	21.0	63.1

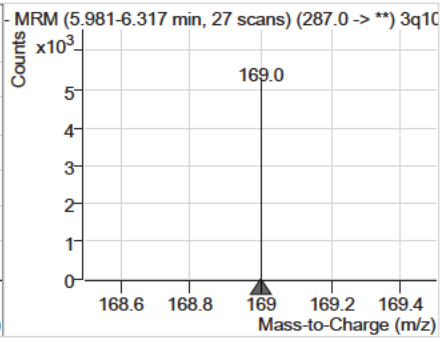


Perfluorinated Compounds by LC/MS/MS

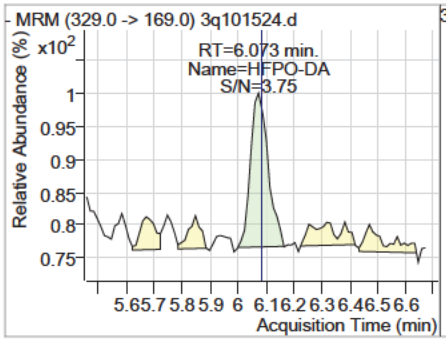
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	6.94	6.08	0.03	2564				

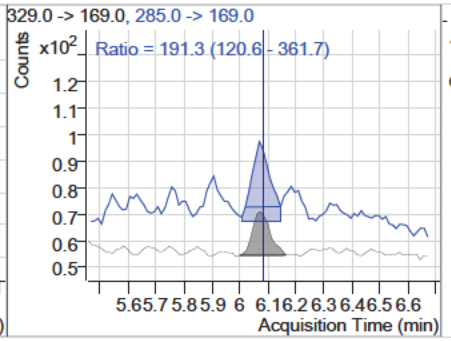


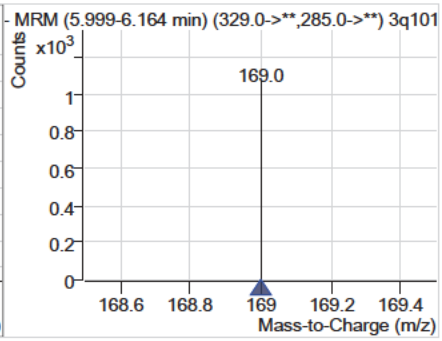




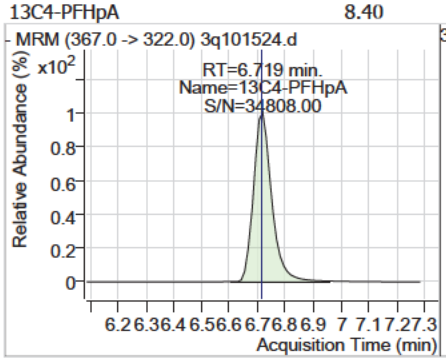
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	1.12	6.07	0.01	72	285.0 -> 169.0	191.3	120.6	361.7

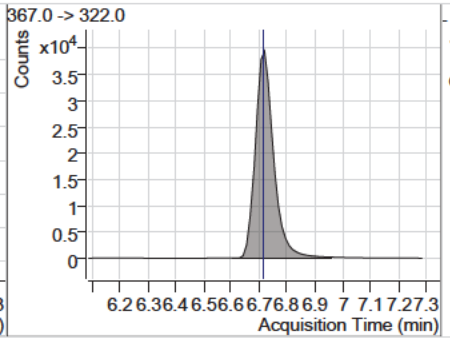


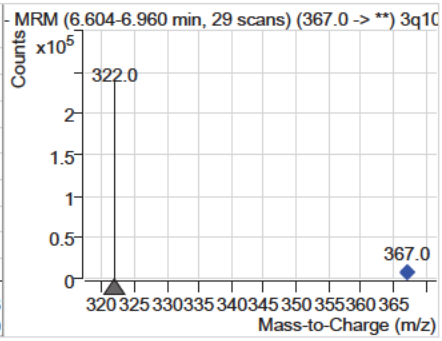




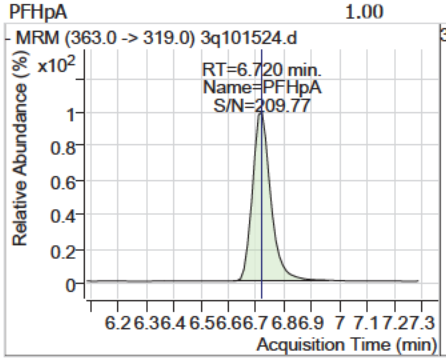
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	8.40	6.72	0.03	180407				

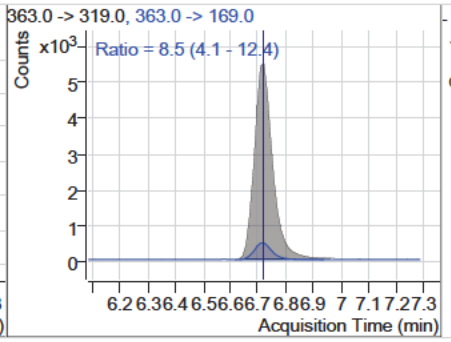


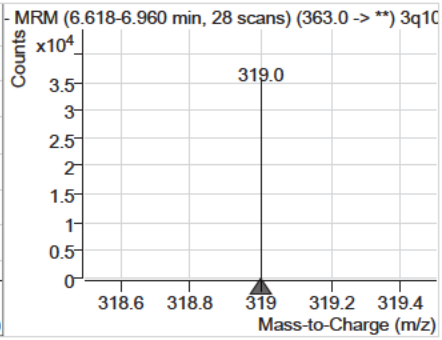




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.00	6.72	0.03	25419	363.0 -> 169.0	8.5	4.1	12.4

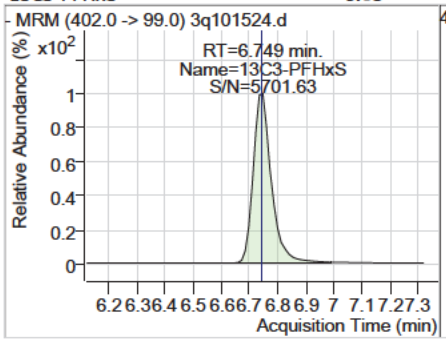


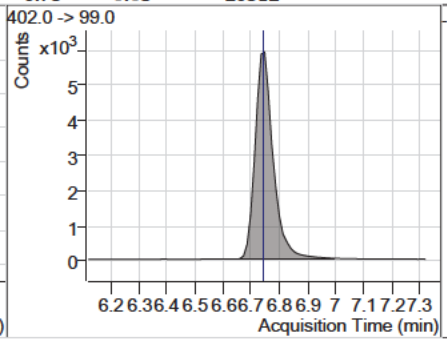


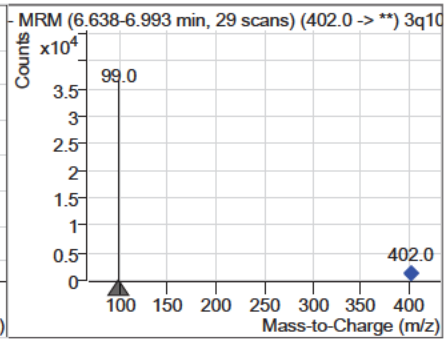


Perfluorinated Compounds by LC/MS/MS

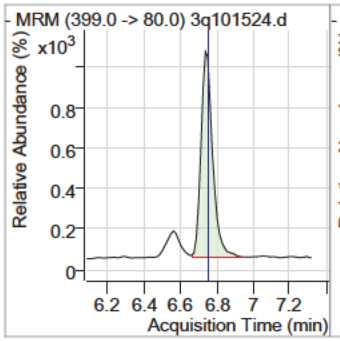
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	8.05	6.75	0.03	26512				

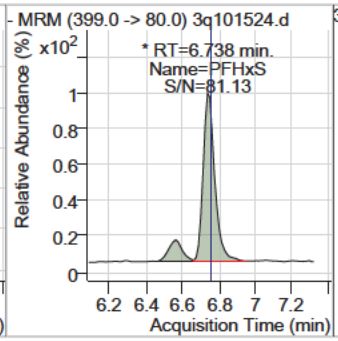


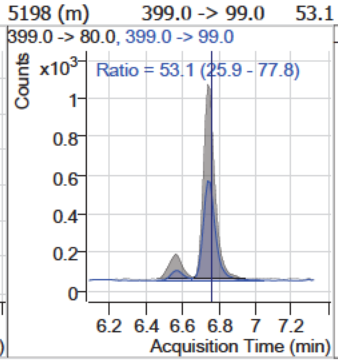


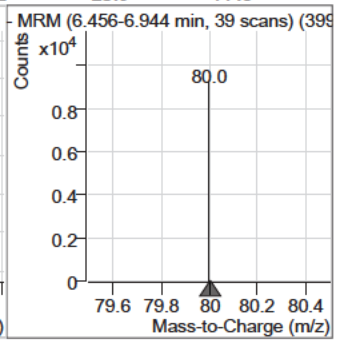


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.11	6.74	0.01	5198 (m)	399.0 -> 99.0	53.1	25.9	77.8

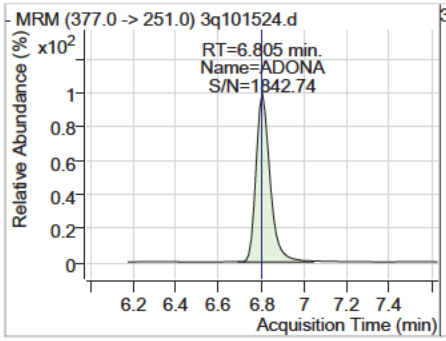


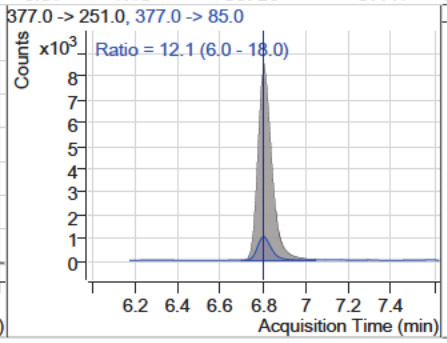


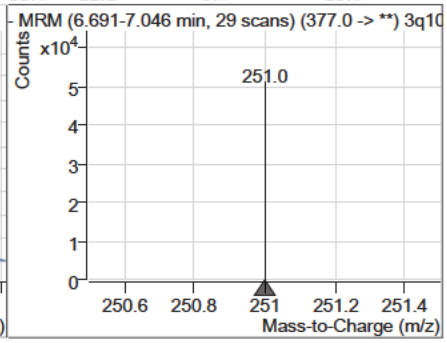




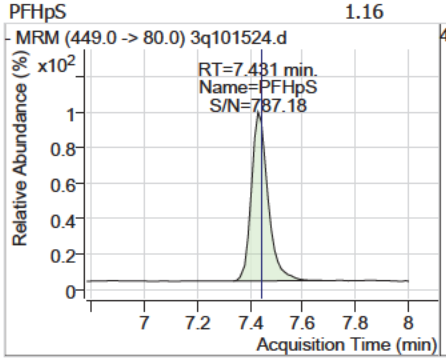
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.99	6.80	0.03	38726	377.0 -> 85.0	12.1	6.0	18.0

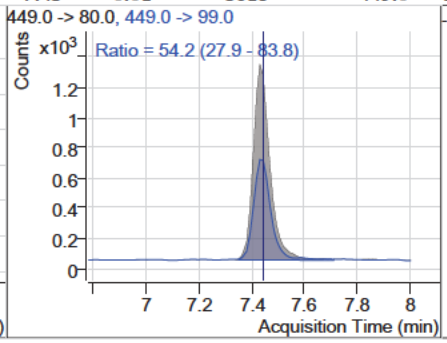


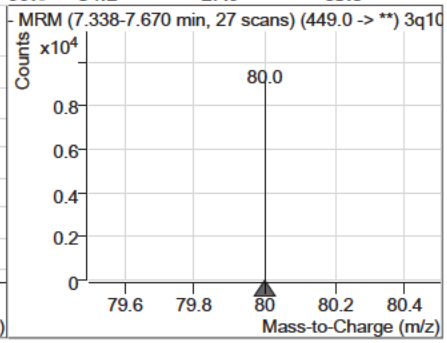




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	1.16	7.43	0.01	5618	449.0 -> 99.0	54.2	27.9	83.8

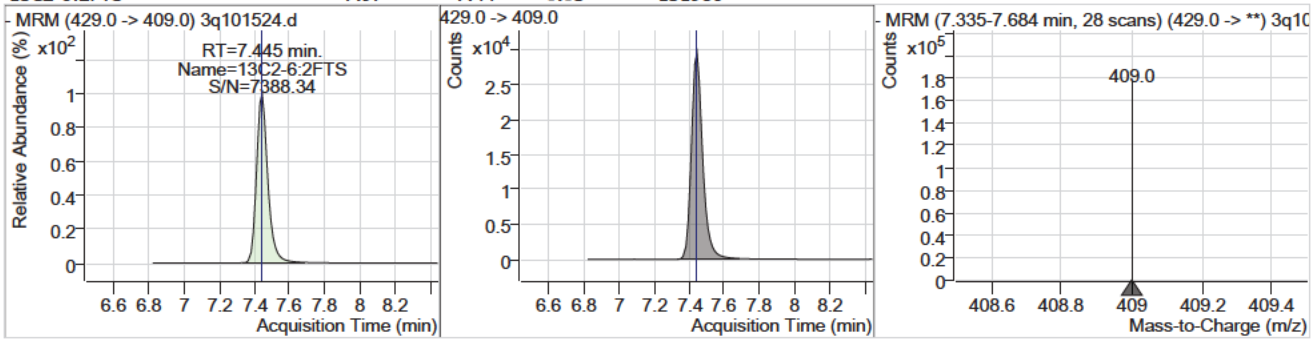




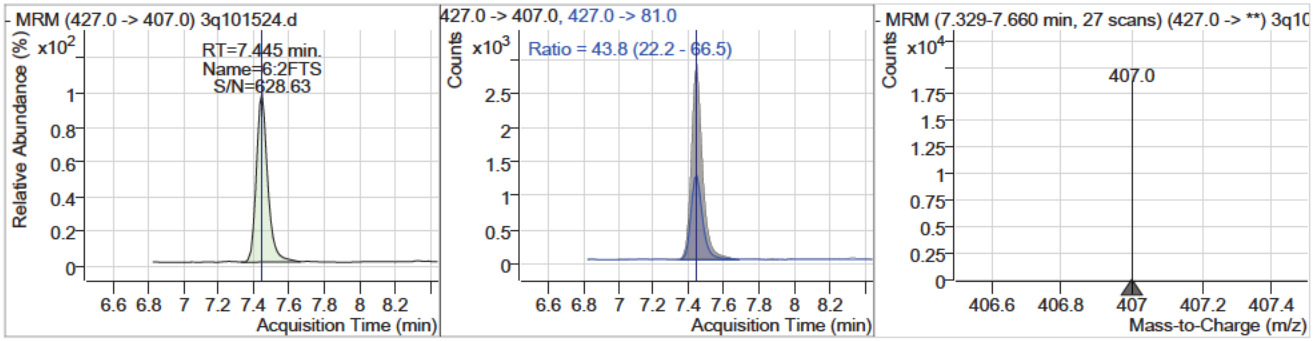


Perfluorinated Compounds by LC/MS/MS

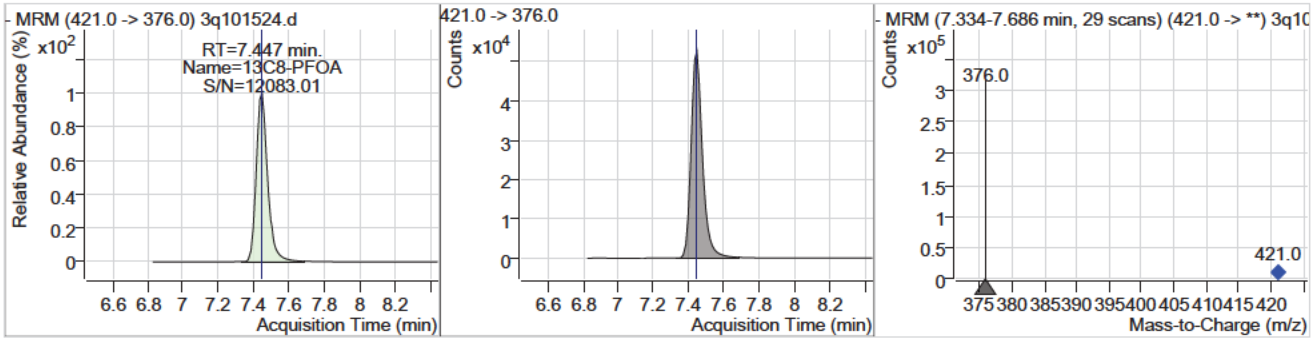
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	7.97	7.44	0.03	131986				



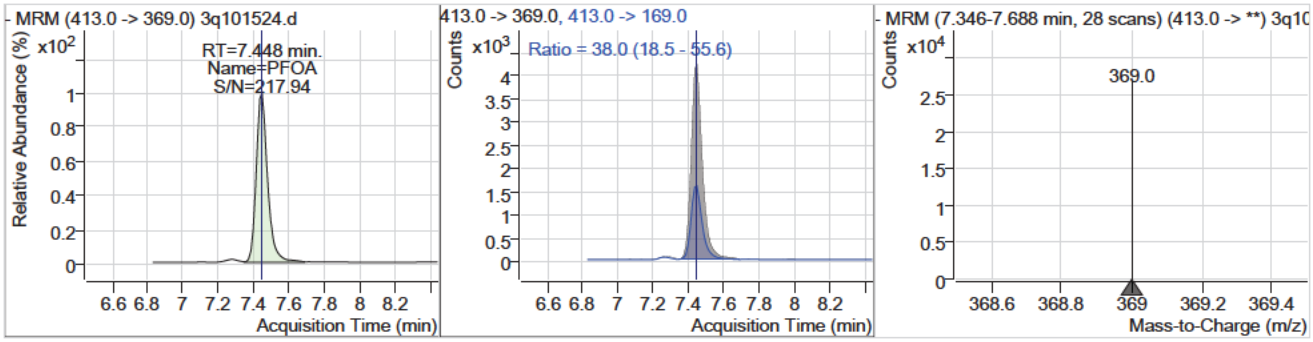
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.14	7.45	0.03	12831	427.0 -> 81.0	43.8	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	8.46	7.45	0.03	235949				

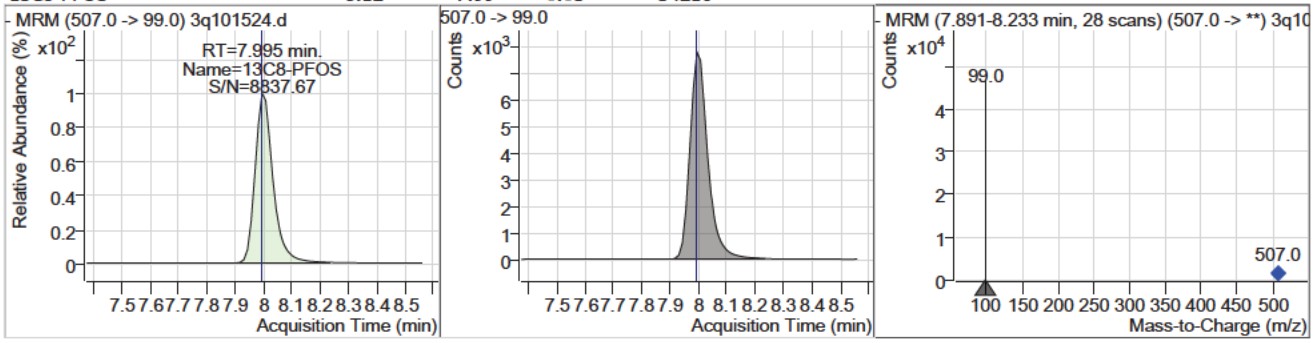


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.04	7.45	0.03	18905	413.0 -> 169.0	38.0	18.5	55.6

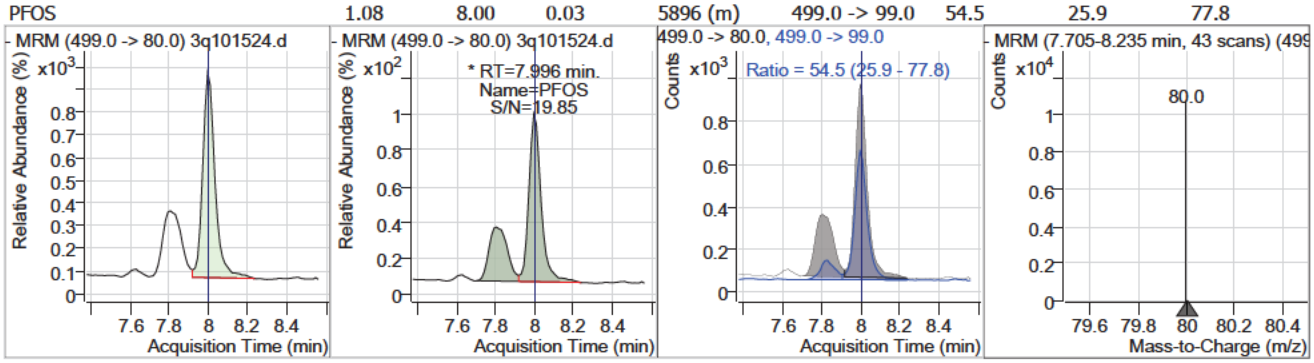


Perfluorinated Compounds by LC/MS/MS

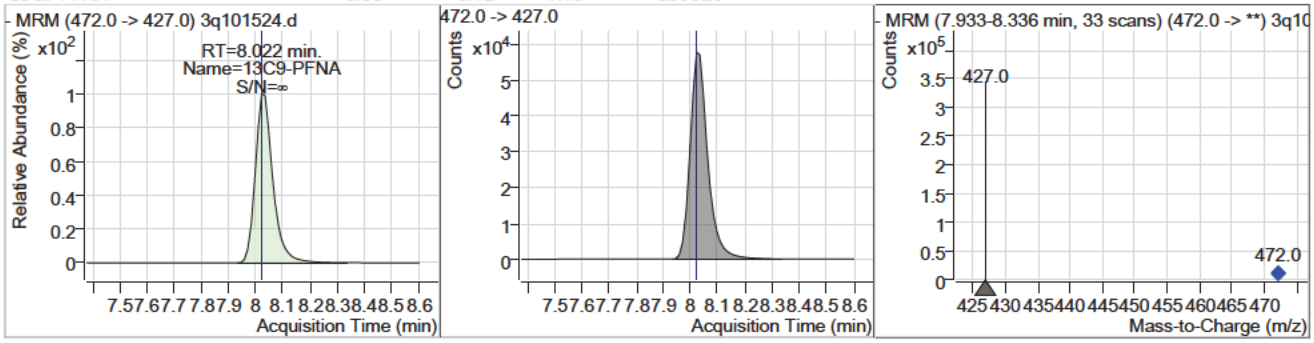
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	8.12	7.99	0.03	34216				



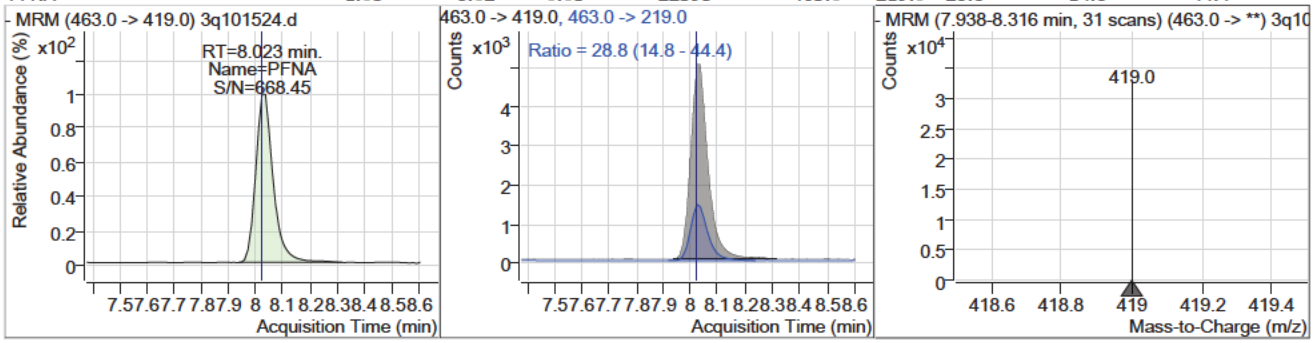
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.08	8.00	0.03	5896 (m)	499.0 -> 99.0	54.5	25.9	77.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	8.58	8.02	0.03	259828				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.05	8.02	0.03	22395	463.0 -> 219.0	28.8	14.8	44.4

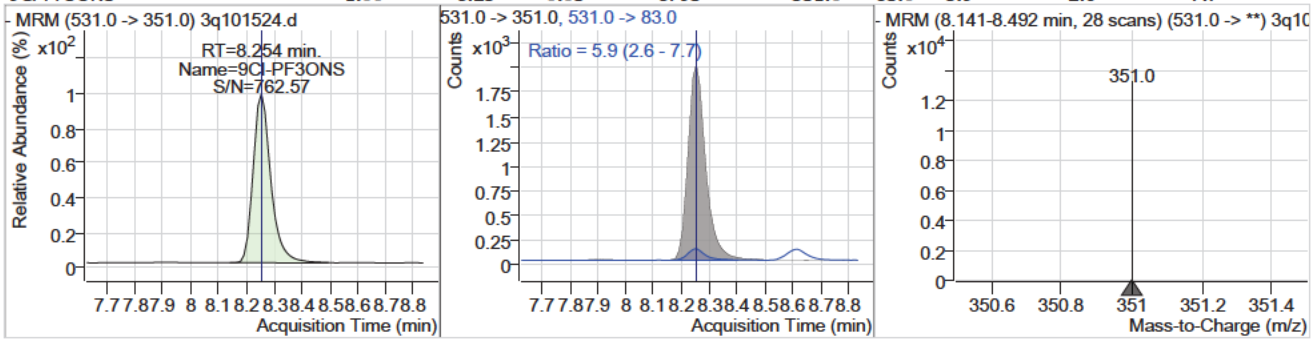


7.3.3

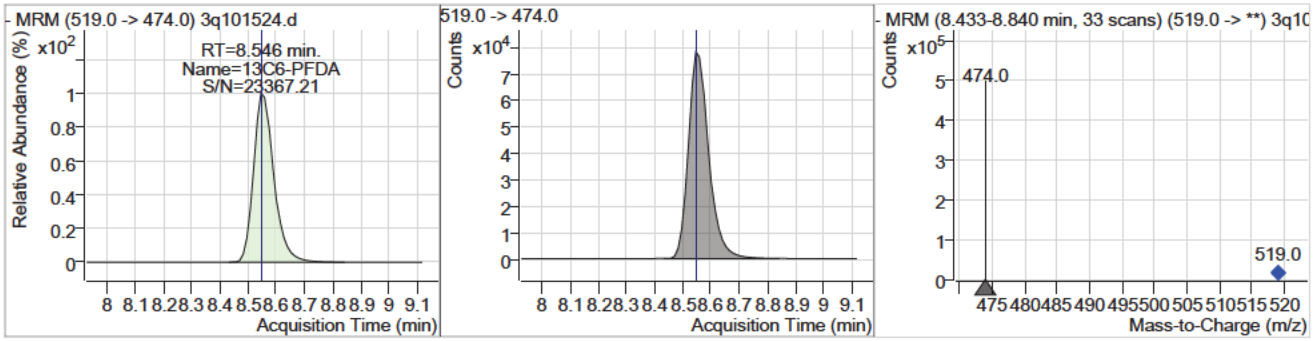
7

Perfluorinated Compounds by LC/MS/MS

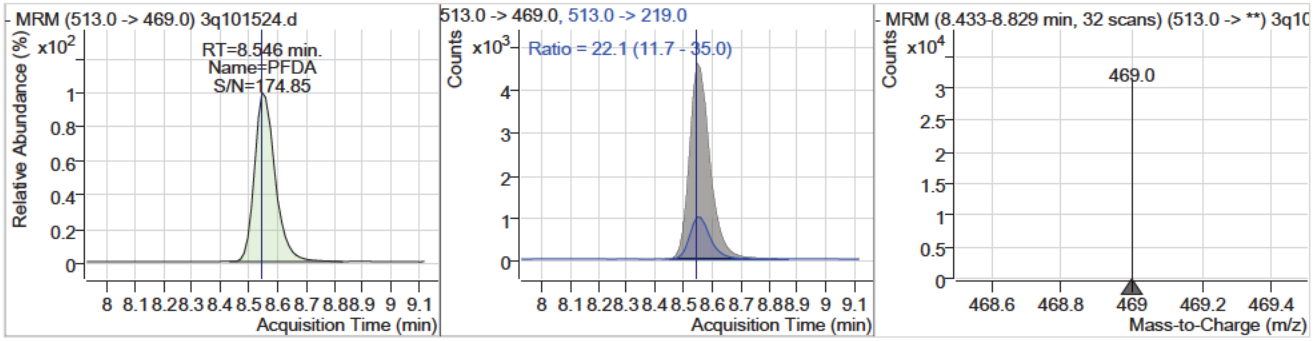
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	1.00	8.25	0.03	8793	531.0 -> 83.0	5.9	2.6	7.7



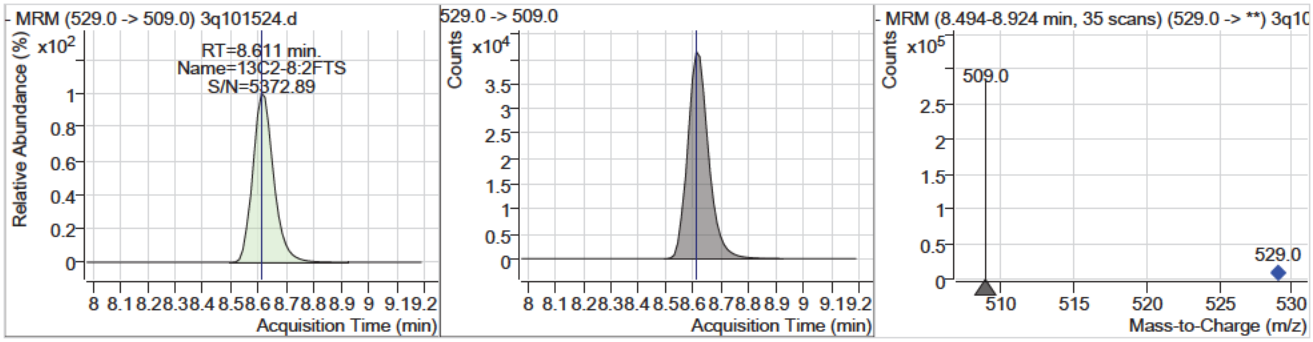
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	9.27	8.55	0.03	393503				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.04	8.55	0.03	23193	513.0 -> 219.0	22.1	11.7	35.0



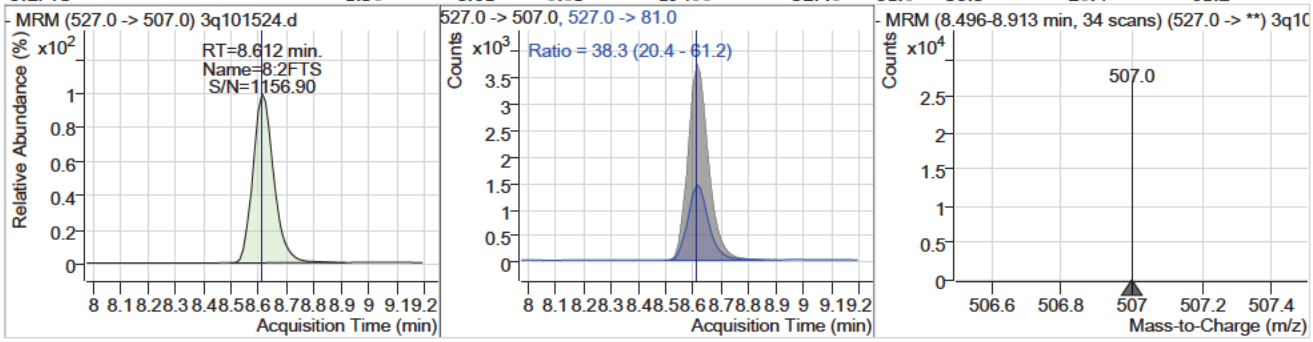
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	7.80	8.61	0.03	216589				



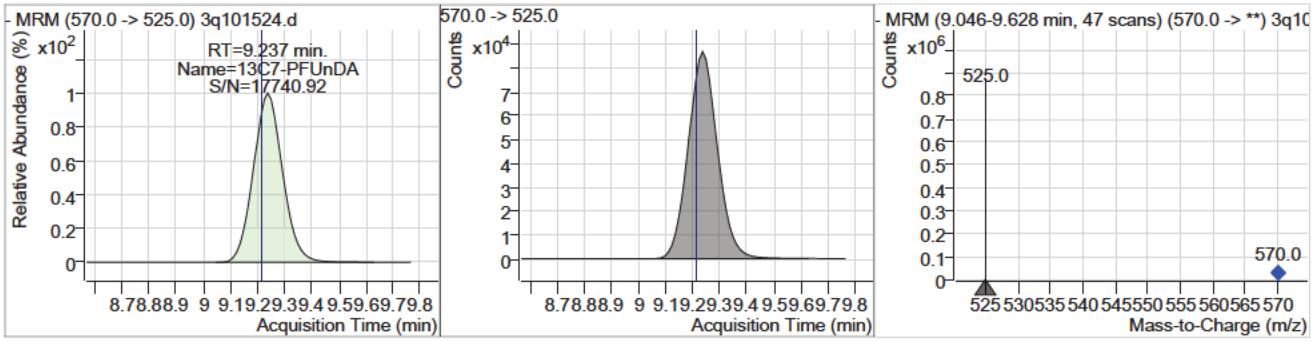
(b) (4) [redacted] 3q101524.d Page 12 of 14 Generated at 8:3 2025
(b) (4) [redacted] 36 of 1154
3Q101524.D: OP8907-BS Blank Spike page 12 of 14
FC23899

Perfluorinated Compounds by LC/MS/MS

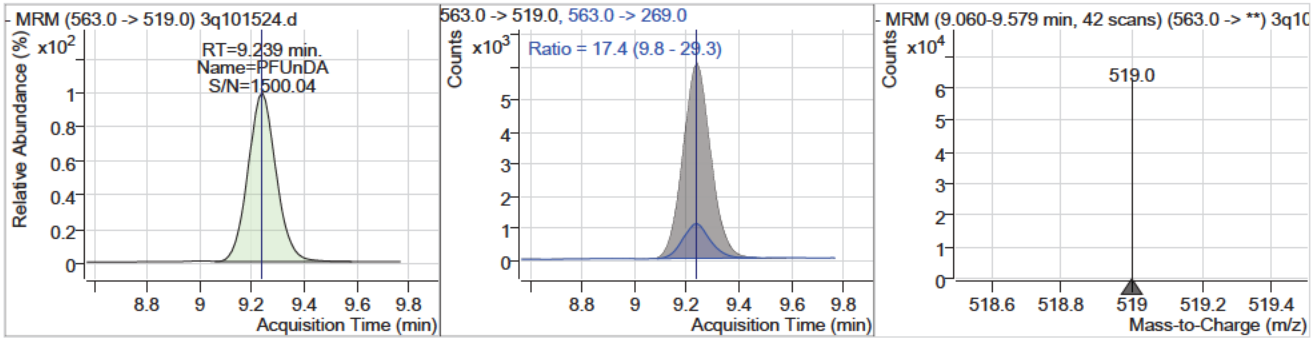
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	1.30	8.61	0.03	19400	527.0 -> 81.0	38.3	20.4	61.2



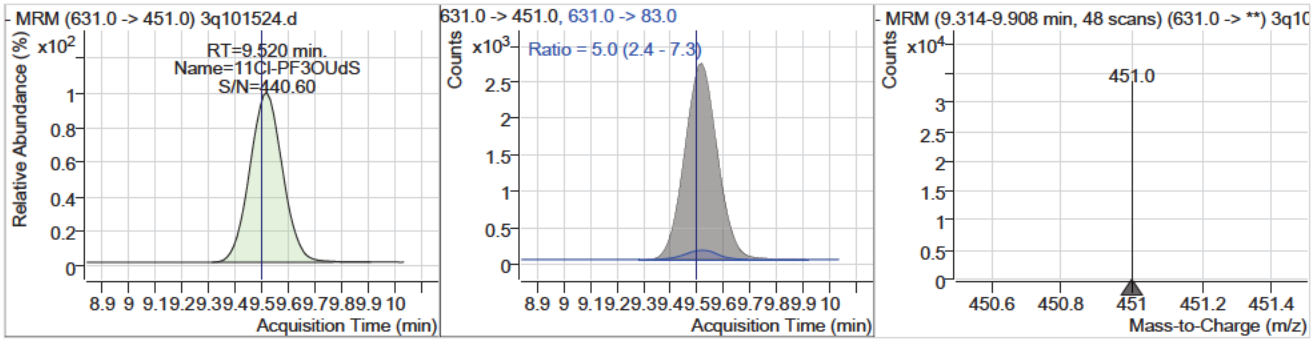
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	7.69	9.24	0.05	652517				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.08	9.24	0.05	45348	563.0 -> 269.0	17.4	9.8	29.3

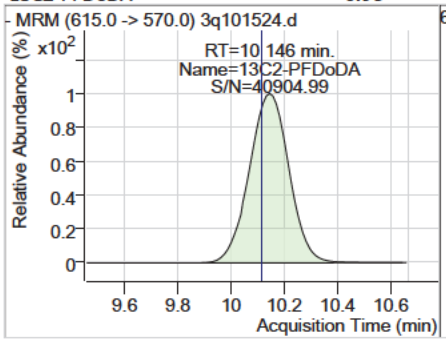


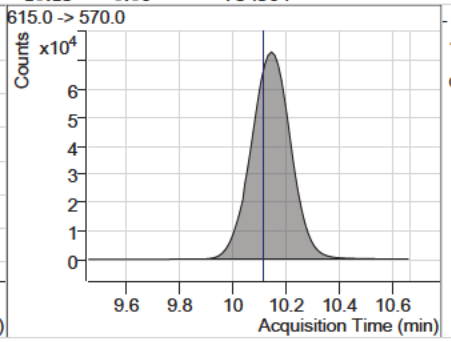
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.91	9.52	0.05	23183	631.0 -> 83.0	5.0	2.4	7.3

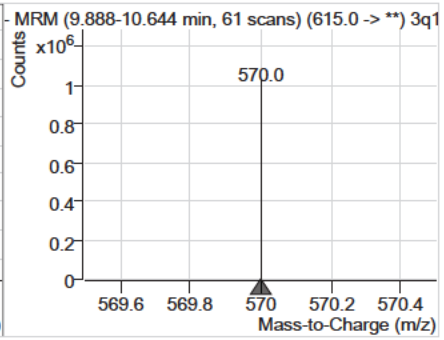


Perfluorinated Compounds by LC/MS/MS

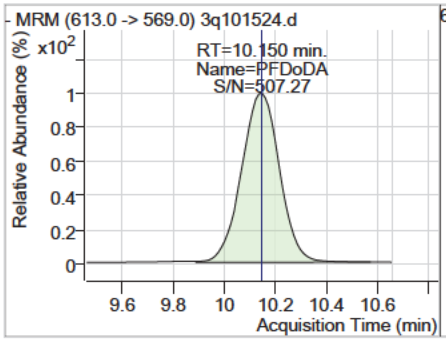
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	6.98	10.15	0.06	754564				

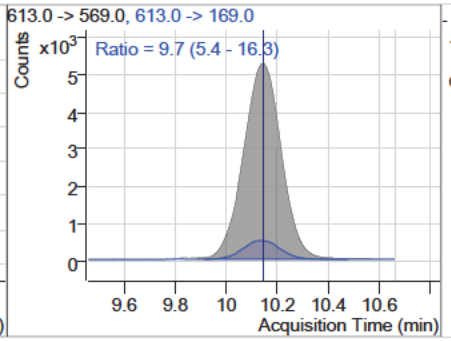


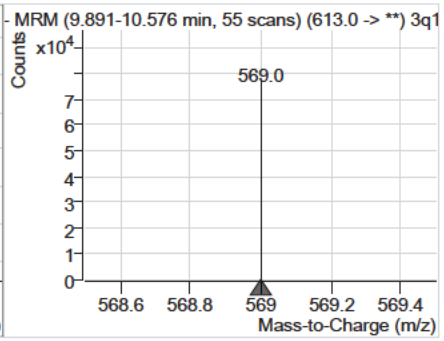




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	1.08	10.15	0.06	54181	613.0 -> 169.0	9.7	5.4	16.3







7.3.3

7

Manual Integration Approval Summary

Sample Number:	OP8907-BS	**Method:**	EPA 533
Lab FileID:	3Q101524.D	**Analyst approved:**	04/18/25 08:34 (b) (6)
Injection Time:	04/17/25 11:55	**Supervisor approved:**	04/18/25 10:08 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.00	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 09:04

Perfluorinated Compounds by LC/MS/MS

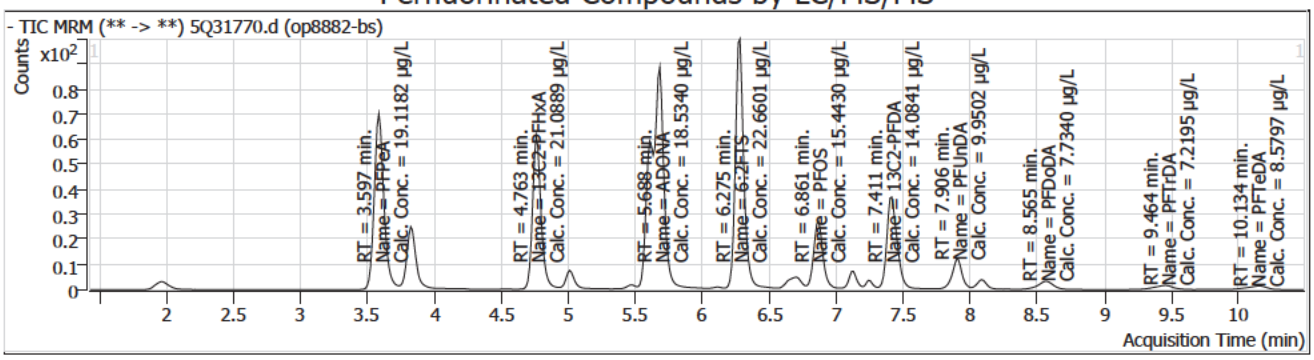
Data File : 5Q31770.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/15/2025 6:33:45 PM
Sample Name : op8882-bs
Vial : P2-C1
DA Method File : 537_041525_S5Q521.quantmethod
Batch Name : s5q521.batch.bin
Sample Information : OP8882,S5Q521,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.274	429.0 -> 409.0	174572	20.00 µg/L		-0.012
13C2-PFOA	6.289	415.0 -> 370.0	377356	20.00 µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	508634	20.00 µg/L		-0.012
13C4-PFOS	6.860	503.0 -> 80.0	92380	20.00 µg/L		0.000
d3-MeFOSAA	7.242	573.0 -> 419.0	29331	40.00 µg/L		-0.012
System Monitoring Compounds						
13C2-PFDA	7.411	515.0 -> 470.0	225728	14.08 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 70.4%		
13C2-PFHxA	4.763	315.0 -> 270.0	522683	21.09 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 105.4%		
d5-EtFOSAA	7.378	589.0 -> 419.0	9353	17.17 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 42.9%		
13C3-HFPO-DA	5.019	287.0 -> 169.0	67713	40.12 µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 100.3%		
Target Compounds						QValue
6:2FTS	6.275	427.0 -> 407.0	196637	22.66 µg/L		100
8:2FTS	7.459	527.0 -> 507.0	116126	15.66 µg/L		98
EtFOSAA	7.380	584.0 -> 419.0	5767	11.88 µg/L	m	87
MeFOSAA	7.256	570.0 -> 419.0	7252	10.28 µg/L	m	76
PFBS	3.828	299.0 -> 80.0	267193	20.88 µg/L		100
PFDA	7.411	513.0 -> 469.0	208166	14.33 µg/L		100
PFDoDA	8.565	613.0 -> 569.0	86283	7.73 µg/L		100
PFHpA	5.614	363.0 -> 319.0	659738	19.23 µg/L		100
PFHxA	4.764	313.0 -> 269.0	338626	19.91 µg/L		99
PFHxS	5.635	399.0 -> 80.0	157684	18.41 µg/L	m	98
PFNA	6.886	463.0 -> 419.0	229874	16.28 µg/L	m	82
PFOA	6.290	413.0 -> 369.0	361462	19.13 µg/L		100
PFOS	6.861	499.0 -> 80.0	94107	15.44 µg/L	m	77
PFPeA	3.597	263.0 -> 219.0	649721	19.12 µg/L		100
PFTeDA	10.134	713.0 -> 669.0	47690	8.58 µg/L		99
PFTrDA	9.464	663.0 -> 619.0	48446	7.22 µg/L		100
PFUnDA	7.906	563.0 -> 519.0	155465	9.95 µg/L		99
ADONA	5.688	377.0 -> 251.0	876019	18.53 µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	75299	12.86 µg/L		99
11Cl-PF3OUdS	8.087	631.0 -> 451.0	48178	8.65 µg/L		99
HFPO-DA	5.022	285.0 -> 169.0	31194	19.11 µg/L		100

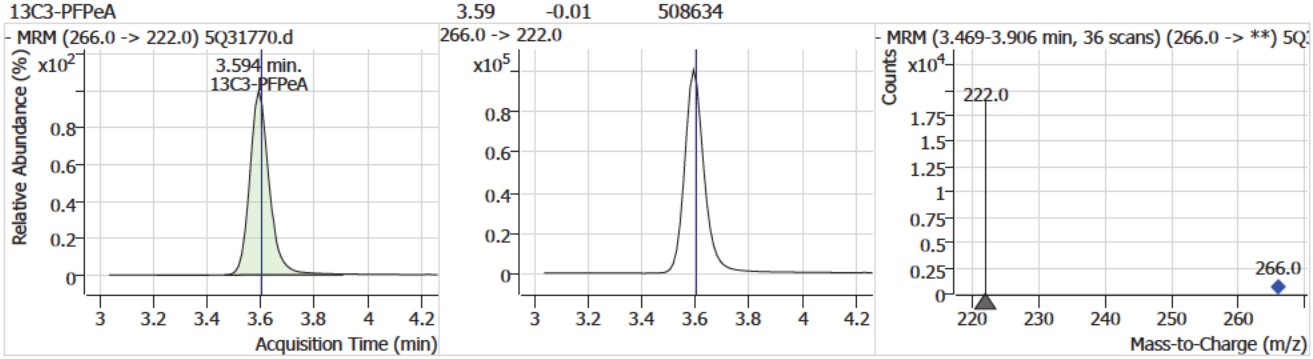
= Qualifier out of range, m = manually integrated, + = Area summed

7.3.4
7

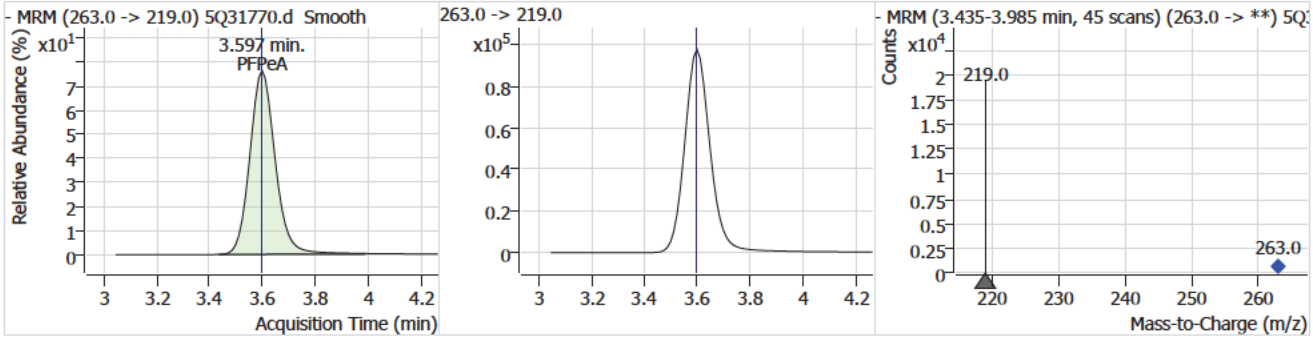
Perfluorinated Compounds by LC/MS/MS



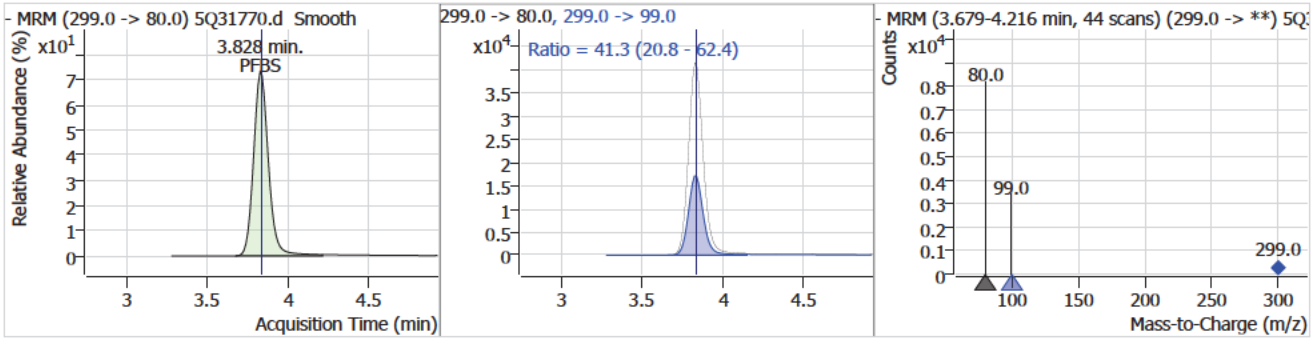
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	508634				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.12	3.60	-0.01	649721				

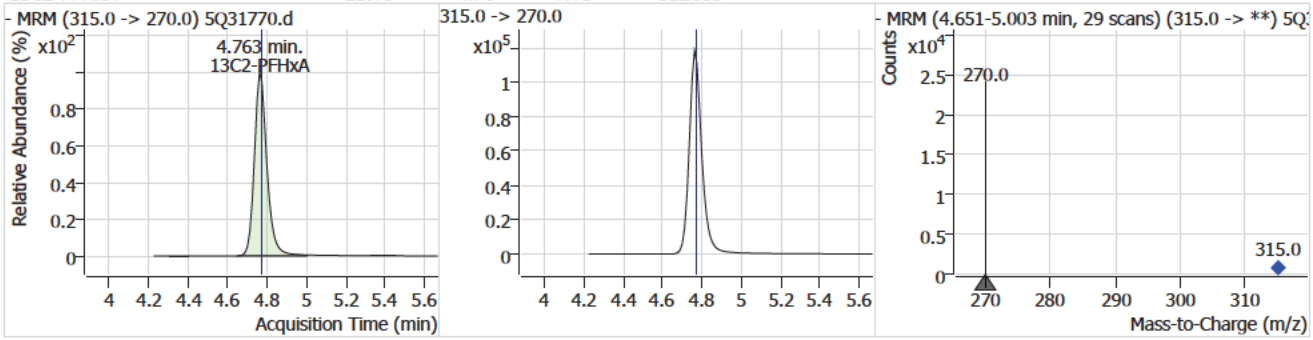


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.88	3.83	-0.01	267193	299.0 -> 99.0	41.3	20.8	62.4

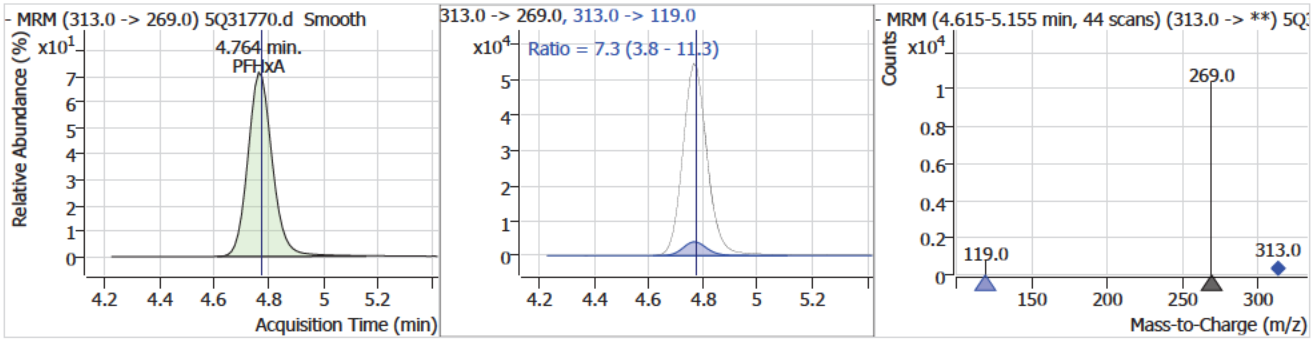


Perfluorinated Compounds by LC/MS/MS

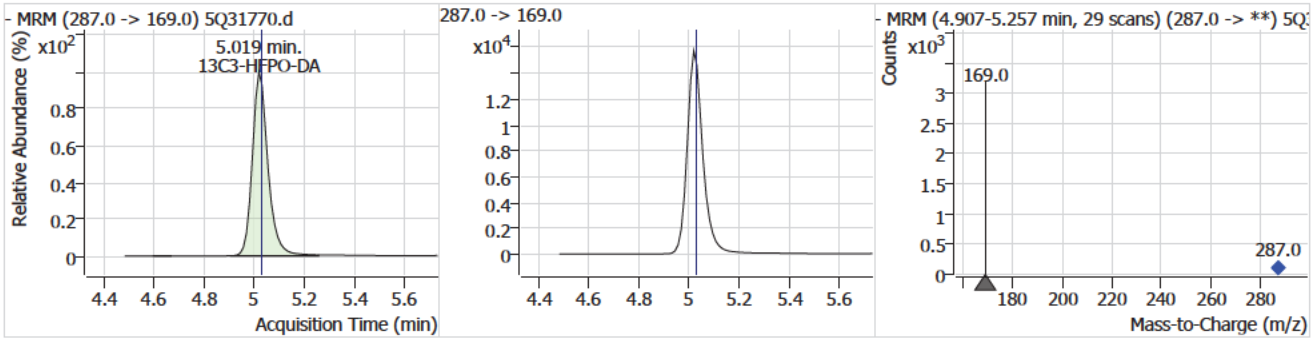
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	21.09	4.76	-0.01	522683				



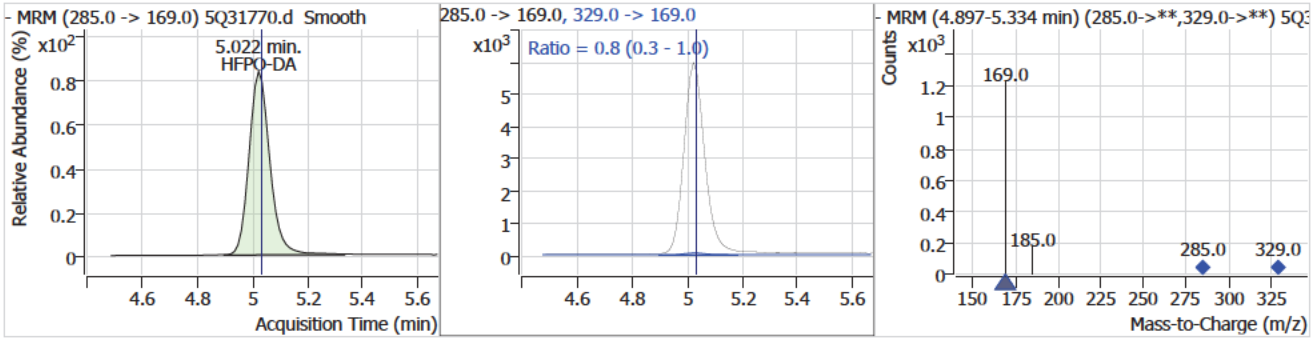
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.91	4.76	-0.01	338626	313.0 -> 119.0	7.3	3.8	11.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	40.12	5.02	-0.01	67713				

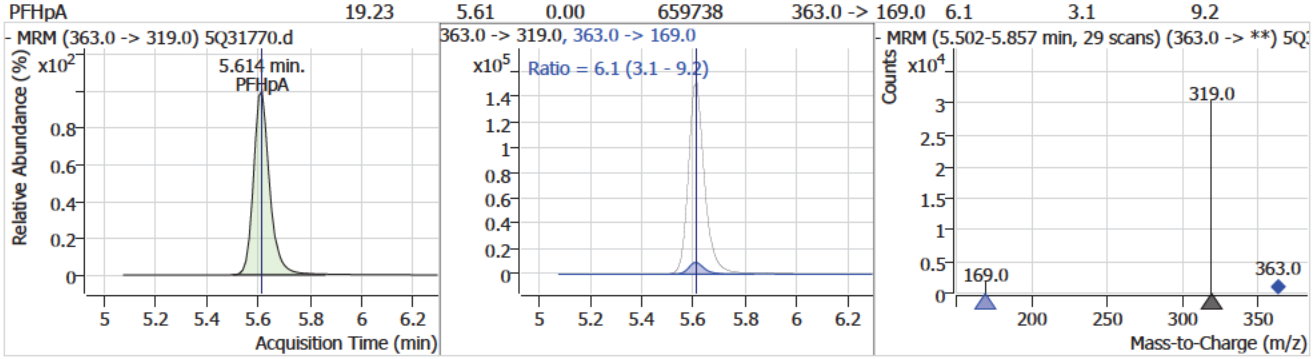


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.11	5.02	-0.01	31194	329.0 -> 169.0	0.8	0.3	1.0

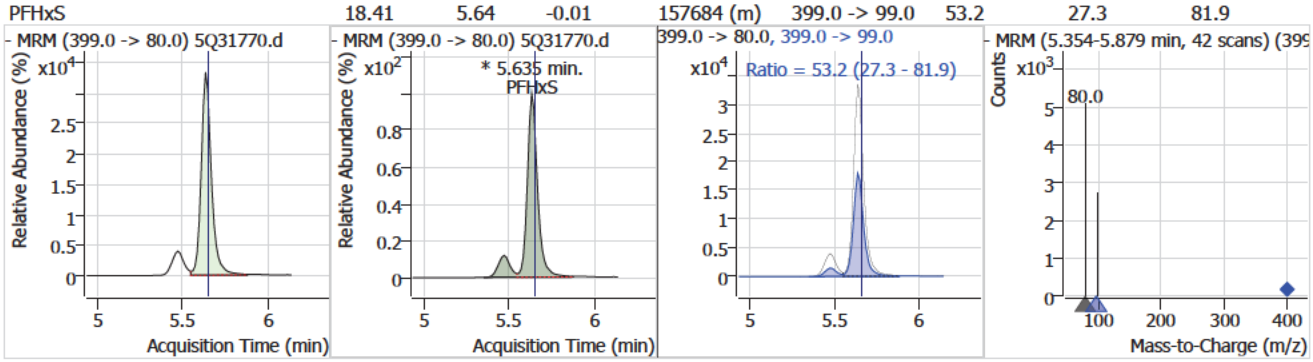


Perfluorinated Compounds by LC/MS/MS

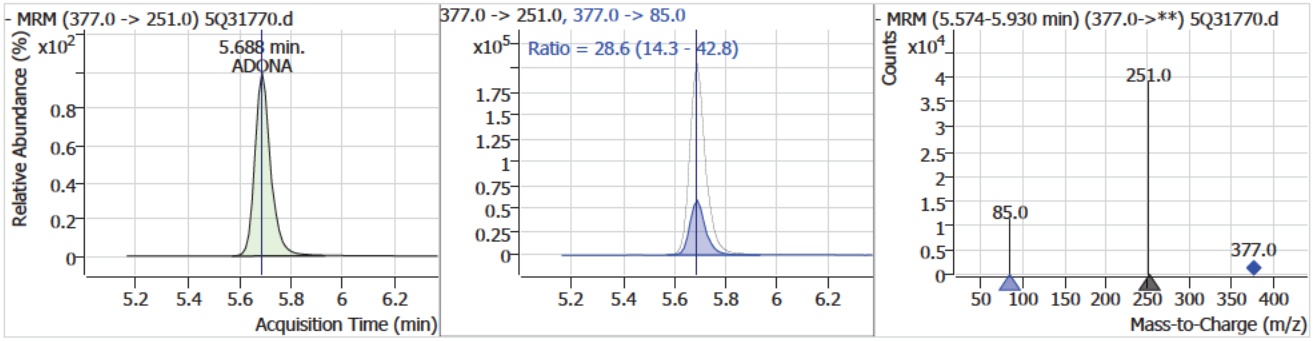
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.23	5.61	0.00	659738	363.0 -> 169.0	6.1	3.1	9.2



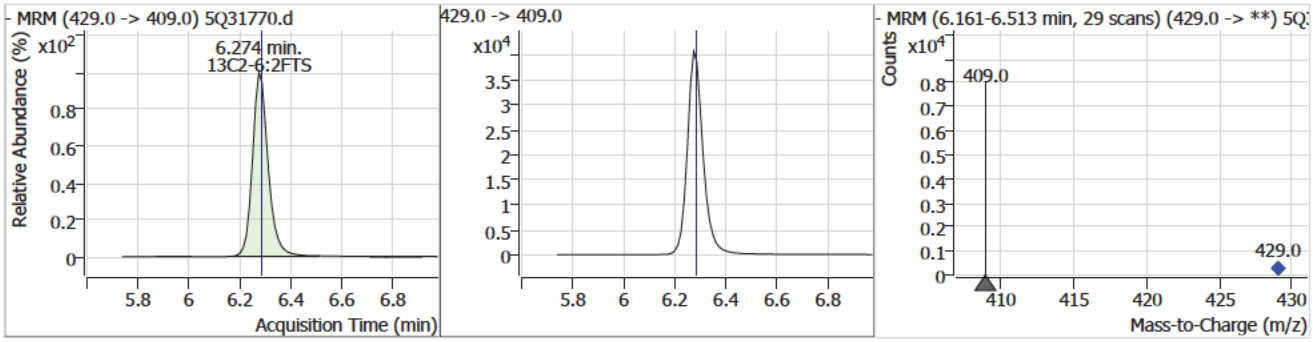
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	18.41	5.64	-0.01	157684 (m)	399.0 -> 99.0	53.2	27.3	81.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	18.53	5.69	0.00	876019	377.0 -> 85.0	28.6	14.3	42.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	174572				

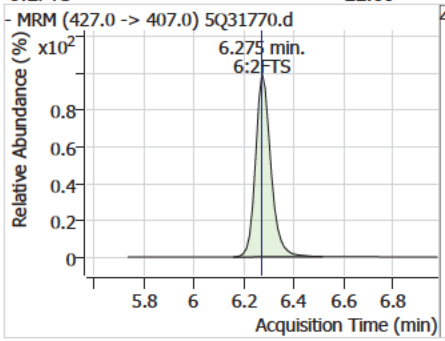


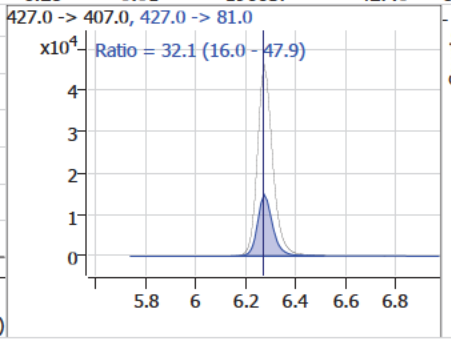
7.3.4

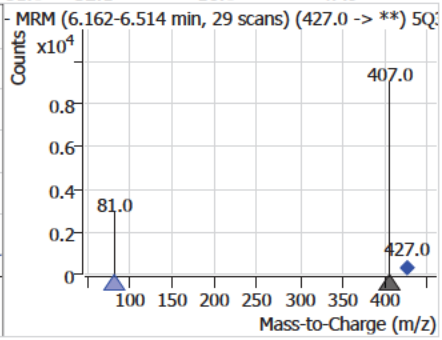
7

Perfluorinated Compounds by LC/MS/MS

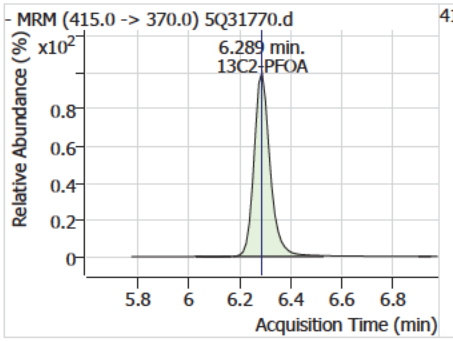
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	22.66	6.28	-0.01	196637	427.0 -> 81.0	32.1	16.0	47.9

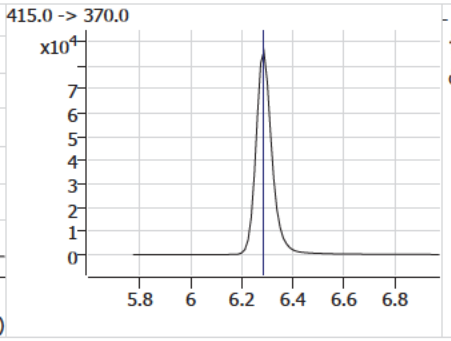


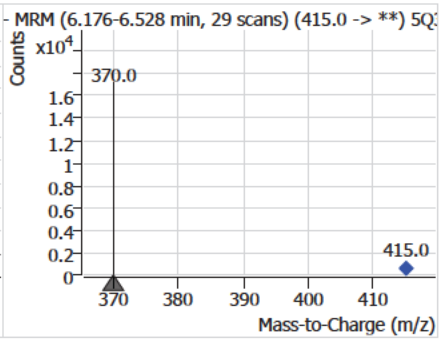




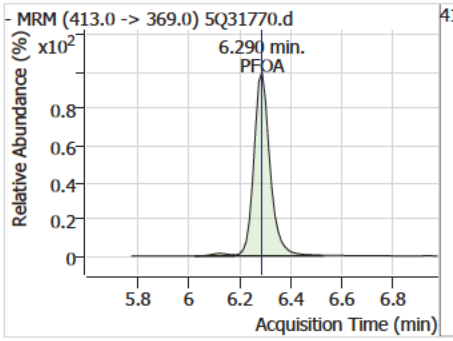
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	377356				

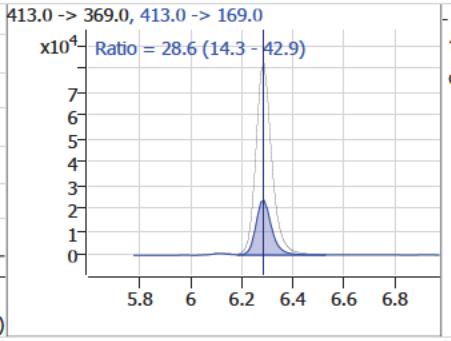


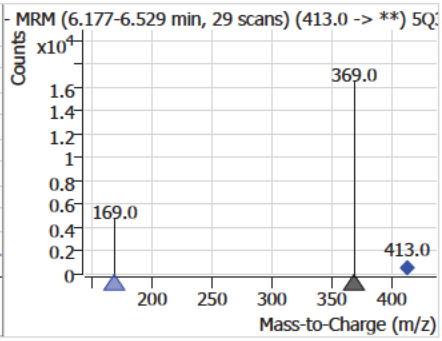




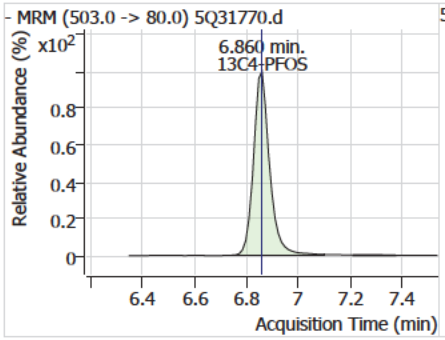
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.13	6.29	0.00	361462	413.0 -> 169.0	28.6	14.3	42.9

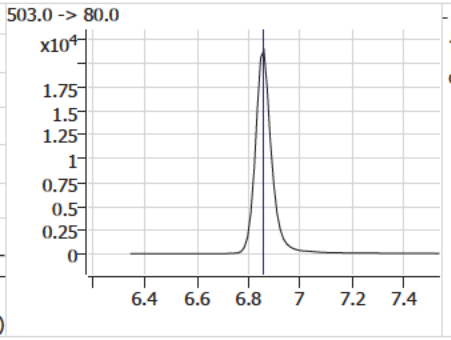


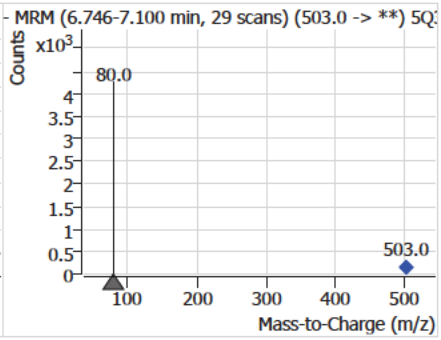




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	92380				

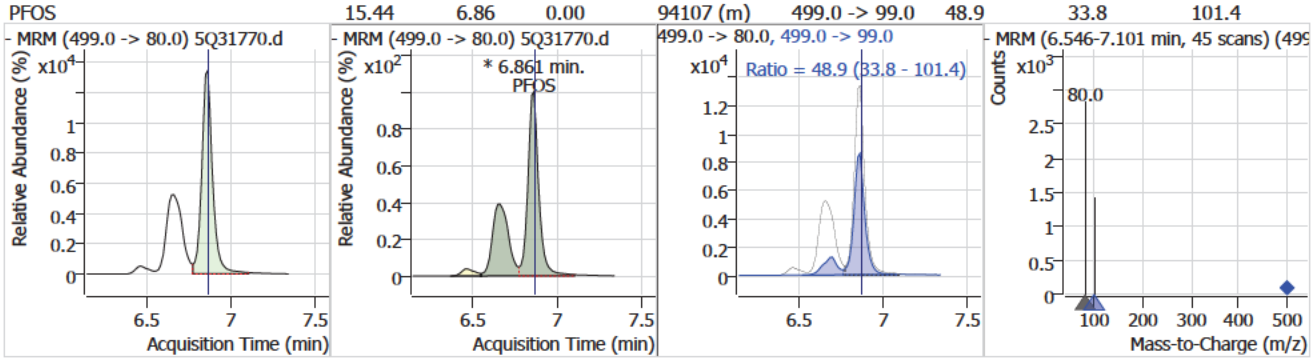




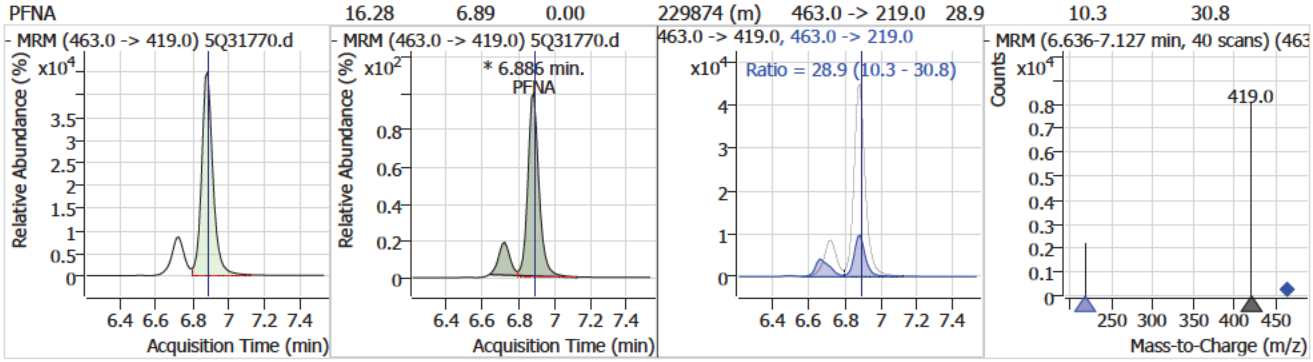


Perfluorinated Compounds by LC/MS/MS

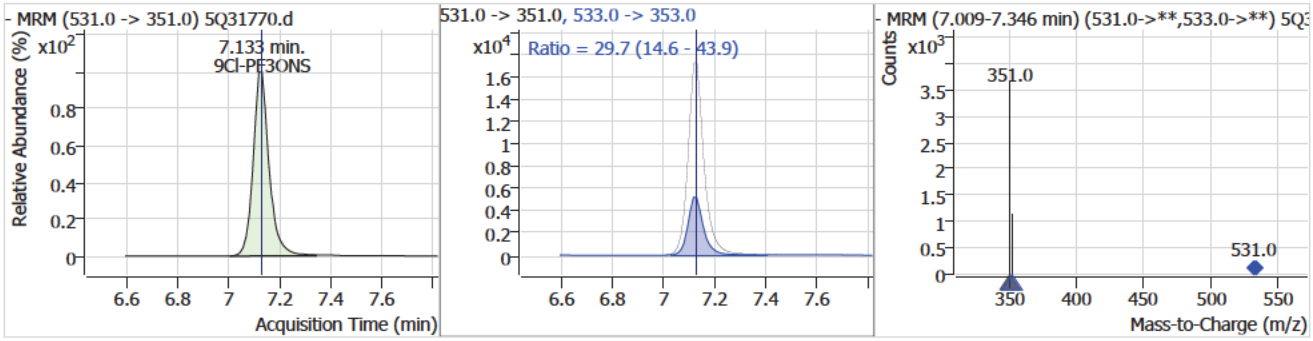
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	15.44	6.86	0.00	94107 (m)	499.0 -> 99.0	48.9	33.8	101.4



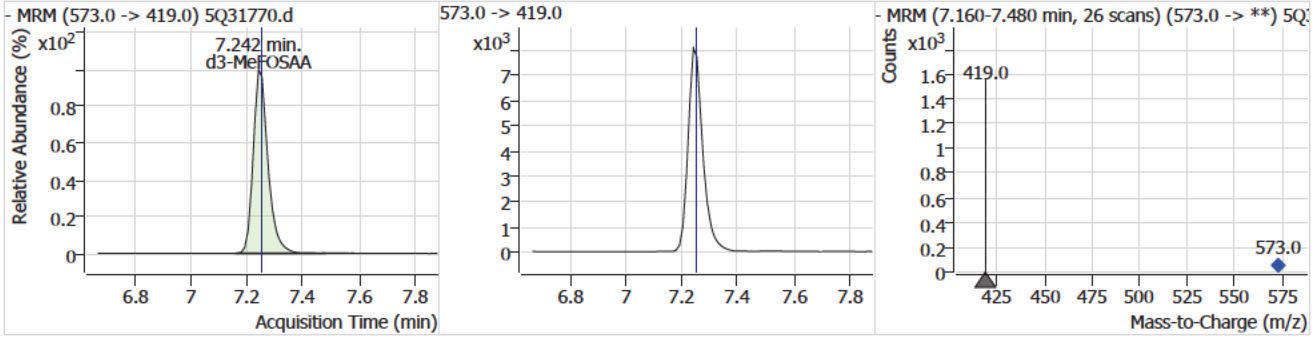
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	16.28	6.89	0.00	229874 (m)	463.0 -> 219.0	28.9	10.3	30.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	12.86	7.13	0.00	75299	533.0 -> 353.0	29.7	14.6	43.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	29331				



7.3.4

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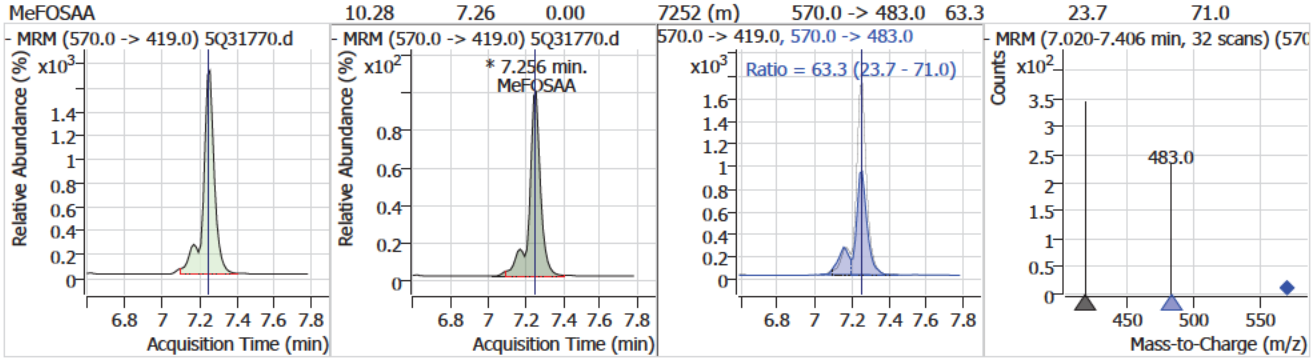
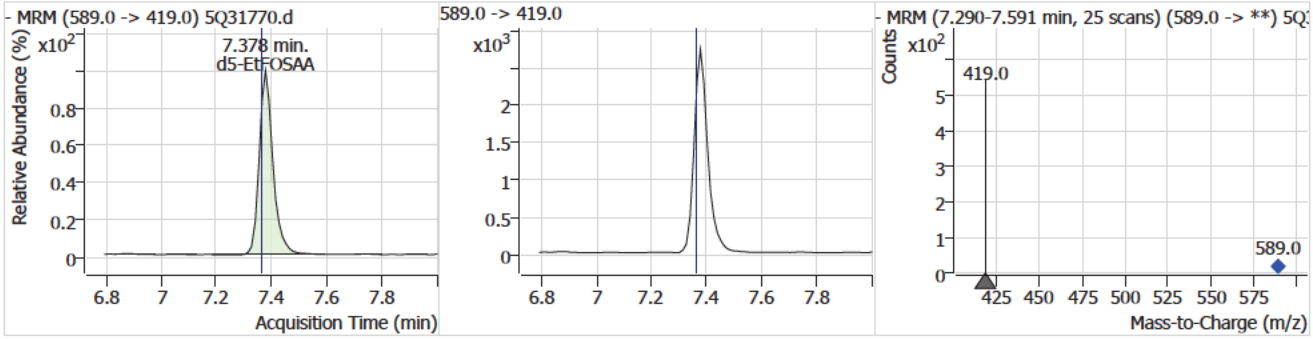
Perfluorinated Compounds by LC/MS/MS

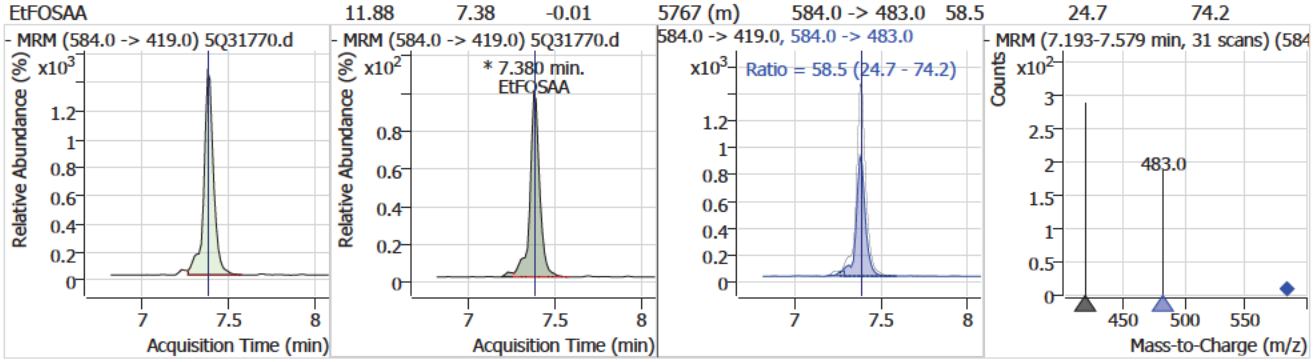
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	10.28	7.26	0.00	7252 (m)	570.0 -> 483.0	63.3	23.7	71.0



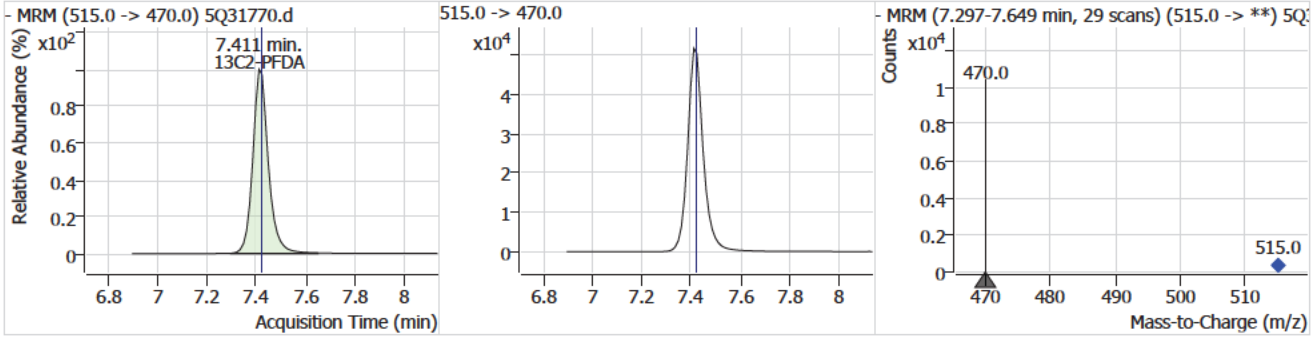
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	17.17	7.38	0.00	9353				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	11.88	7.38	-0.01	5767 (m)	584.0 -> 483.0	58.5	24.7	74.2

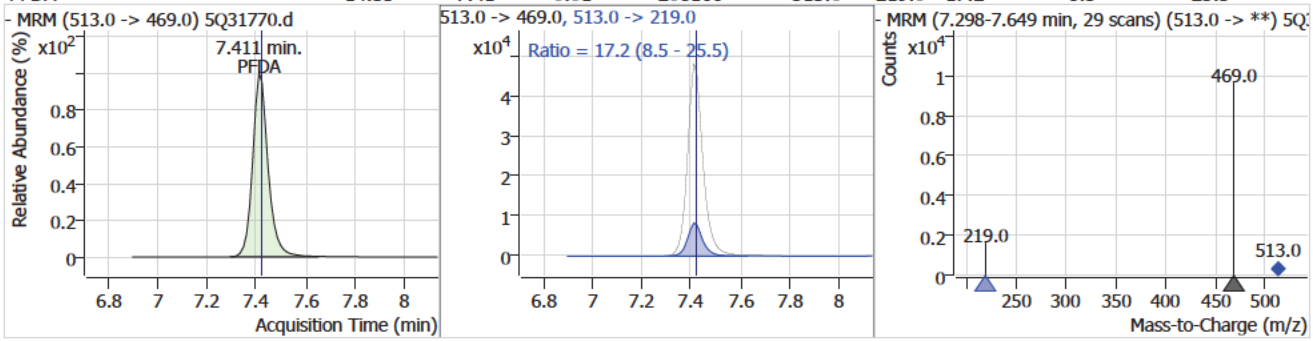


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	14.08	7.41	-0.01	225728				

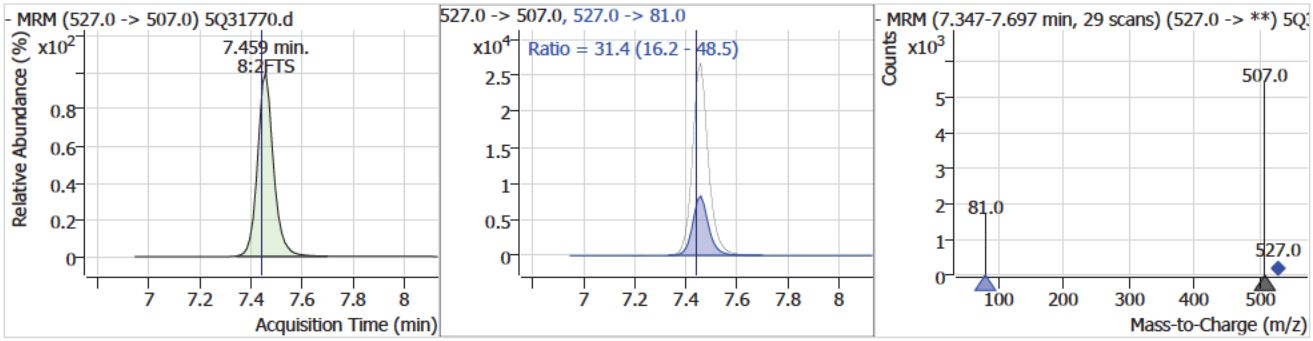


Perfluorinated Compounds by LC/MS/MS

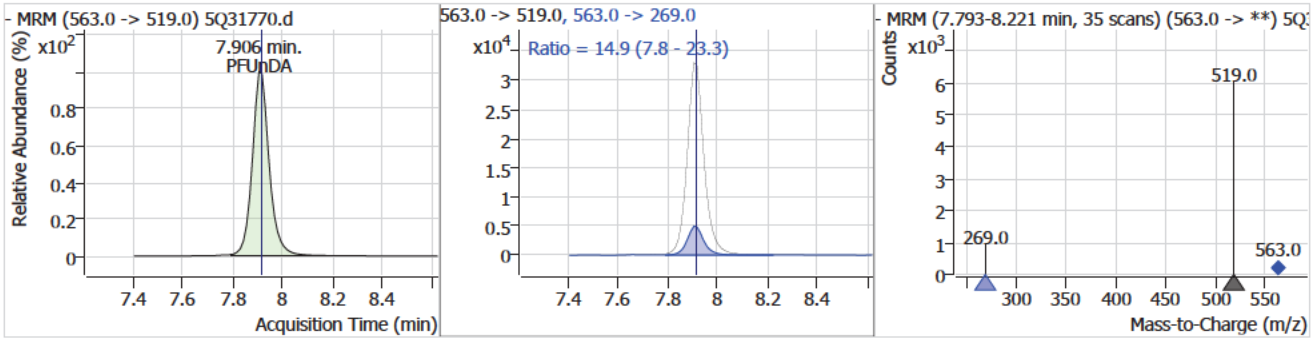
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	14.33	7.41	-0.01	208166	513.0 -> 219.0	17.2	8.5	25.5



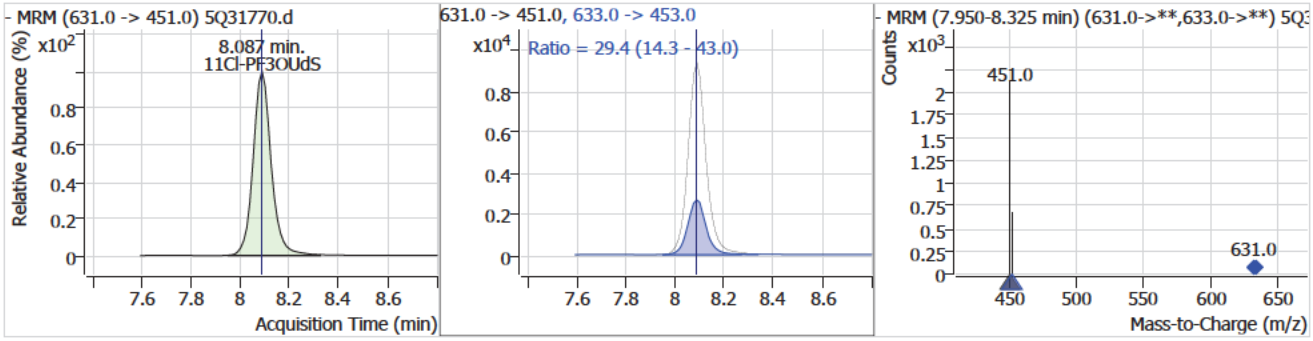
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	15.66	7.46	0.00	116126	527.0 -> 81.0	31.4	16.2	48.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	9.95	7.91	-0.01	155465	563.0 -> 269.0	14.9	7.8	23.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	8.65	8.09	0.00	48178	633.0 -> 453.0	29.4	14.3	43.0

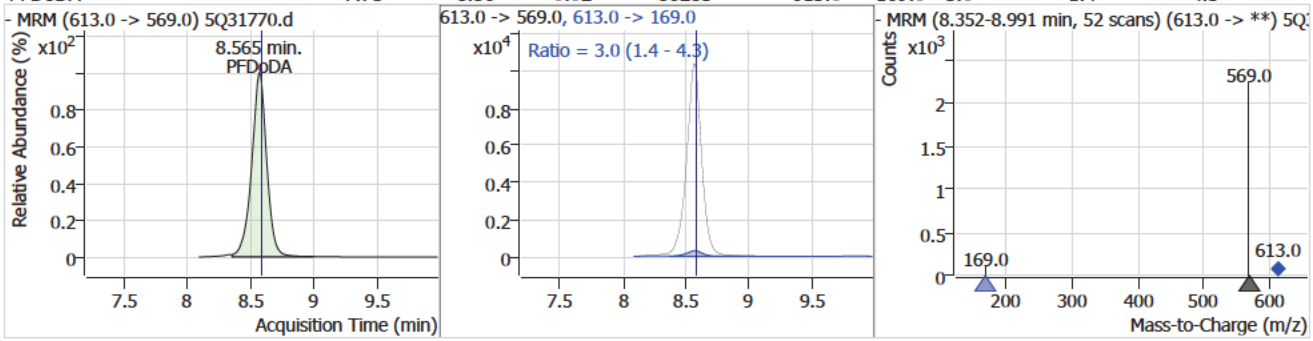


7.3.4

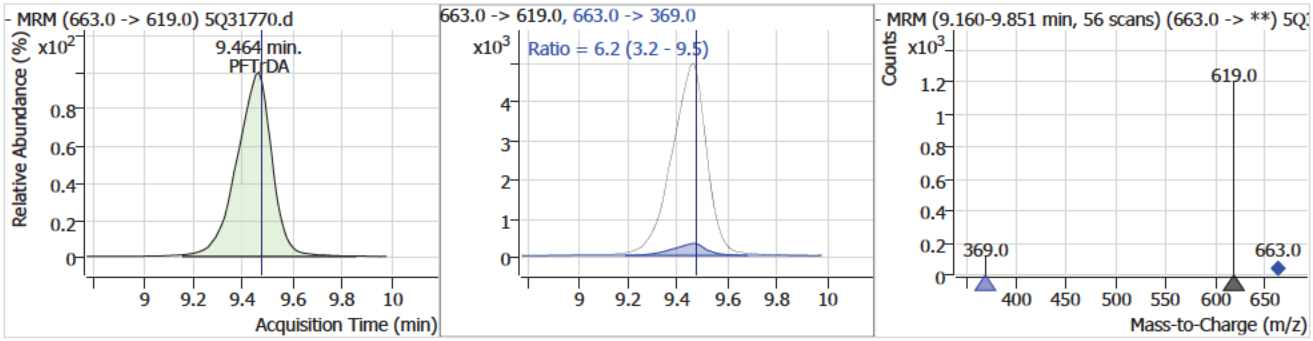
7

Perfluorinated Compounds by LC/MS/MS

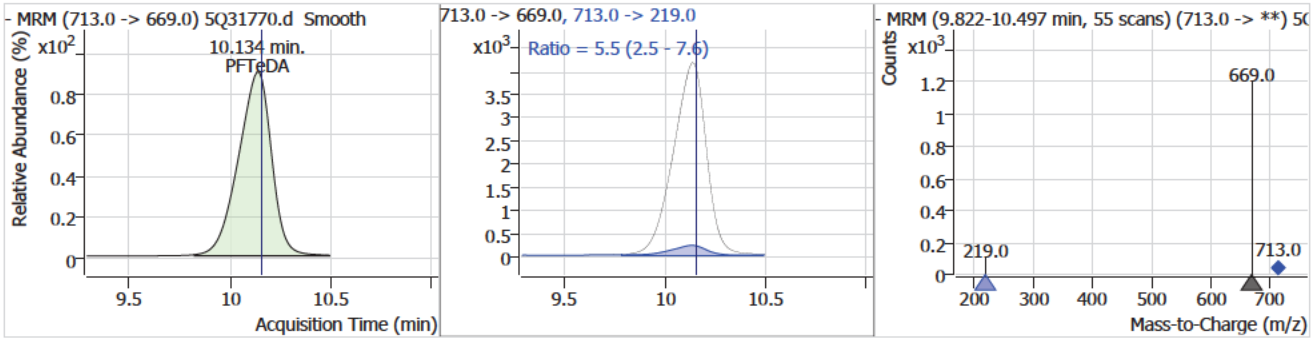
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	7.73	8.56	-0.02	86283	613.0 -> 169.0	3.0	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	7.22	9.46	-0.01	48446	663.0 -> 369.0	6.2	3.2	9.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	8.58	10.13	-0.03	47690	713.0 -> 219.0	5.5	2.5	7.6



7.3.4

7

Manual Integration Approval Summary

Sample Number: OP8882-BS
Lab FileID: 5Q31770.D
Injection Time: 04/15/25 18:33
Method: EPA 537.1 REV 2.0
Analyst approved: 04/16/25 10:55 (b) (6)
Supervisor approved: 04/17/25 09:04 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 09:04

Perfluorinated Compounds by LC/MS/MS

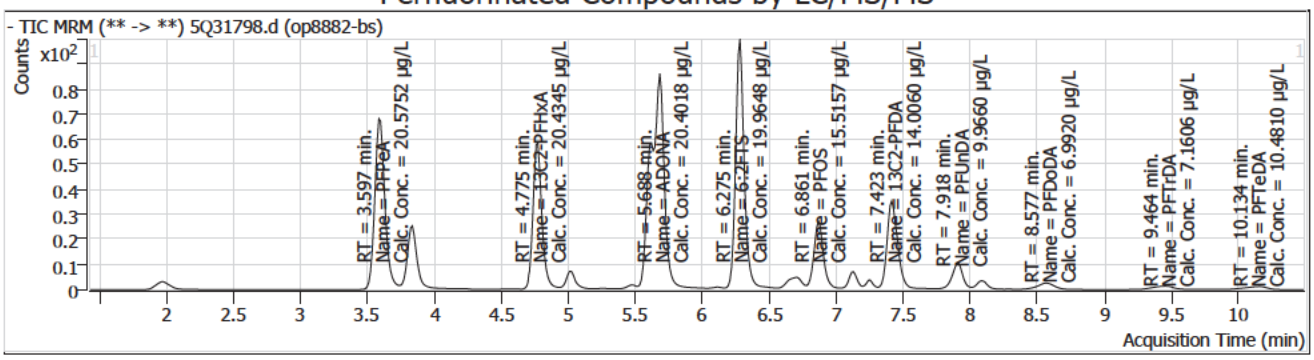
Data File : 5Q31798.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/16/2025 3:13:18 PM
Sample Name : op8882-bs
Vial : P2-C1
DA Method File : 537_041625_S5Q522.quantmethod
Batch Name : s5q522.batch.bin
Sample Information : OP8882,S5Q522,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.274	429.0 -> 409.0	159366	20.00 µg/L		-0.012
13C2-PFOA	6.289	415.0 -> 370.0	341496	20.00 µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	461150	20.00 µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	83530	20.00 µg/L		0.000
d3-MeFOSAA	7.255	573.0 -> 419.0	27541	40.00 µg/L		0.000
System Monitoring Compounds						
13C2-PFDA	7.423	515.0 -> 470.0	197171	14.01 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 70.0%		
13C2-PFHxA	4.775	315.0 -> 270.0	471655	20.43 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 102.2%		
d5-EtFOSAA	7.378	589.0 -> 419.0	9514	18.17 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 45.4%		
13C3-HFPO-DA	5.032	287.0 -> 169.0	62276	38.43 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 96.1%		
Target Compounds						QValue
6:2FTS	6.275	427.0 -> 407.0	181185	19.96 µg/L		98
8:2FTS	7.459	527.0 -> 507.0	104676	15.98 µg/L		99
EtFOSAA	7.380	584.0 -> 419.0	5364	11.25 µg/L	m	99
MeFOSAA	7.256	570.0 -> 419.0	7028	10.22 µg/L	m	95
PFBS	3.841	299.0 -> 80.0	250282	20.94 µg/L		100
PFDA	7.424	513.0 -> 469.0	180163	15.12 µg/L		98
PFDoDA	8.577	613.0 -> 569.0	65566	6.99 µg/L		100
PFHpA	5.614	363.0 -> 319.0	596606	20.33 µg/L		99
PFHxA	4.777	313.0 -> 269.0	302097	20.31 µg/L		99
PFHxS	5.635	399.0 -> 80.0	132457	18.27 µg/L	m	93
PFNA	6.886	463.0 -> 419.0	219975	19.19 µg/L	m	100
PFOA	6.290	413.0 -> 369.0	324396	19.84 µg/L		99
PFOS	6.861	499.0 -> 80.0	85315	15.52 µg/L	m	99
PFPeA	3.597	263.0 -> 219.0	591551	20.58 µg/L		100
PFTeDA	10.134	713.0 -> 669.0	40390	10.48 µg/L		99
PFTrDA	9.464	663.0 -> 619.0	39638	7.16 µg/L		99
PFUnDA	7.918	563.0 -> 519.0	128036	9.97 µg/L		99
ADONA	5.688	377.0 -> 251.0	773872	20.40 µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	67805	14.67 µg/L		100
11Cl-PF3OUdS	8.087	631.0 -> 451.0	40717	8.82 µg/L		100
HFPO-DA	5.022	285.0 -> 169.0	27530	19.90 µg/L		100

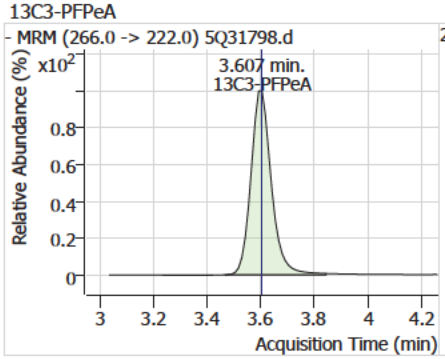
= Qualifier out of range, m = manually integrated, + = Area summed

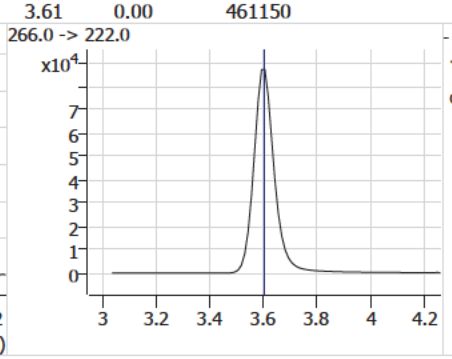
7.3.5 7

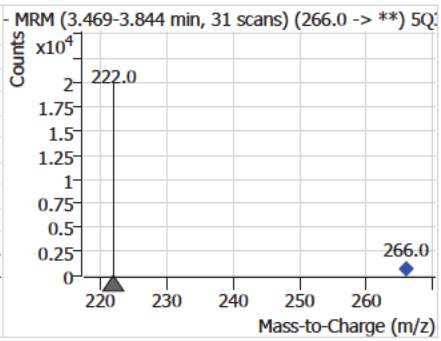
Perfluorinated Compounds by LC/MS/MS



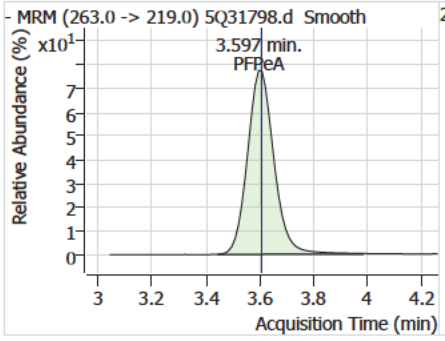
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.00	461150				

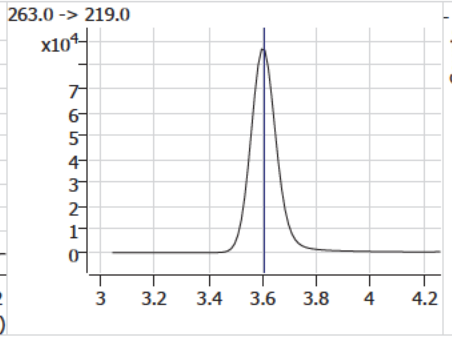


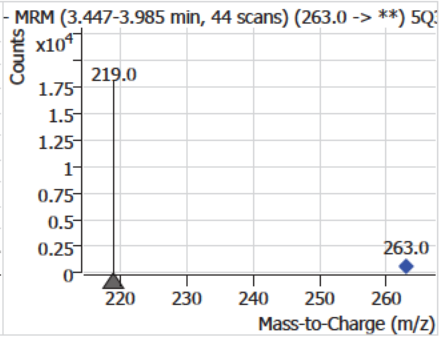




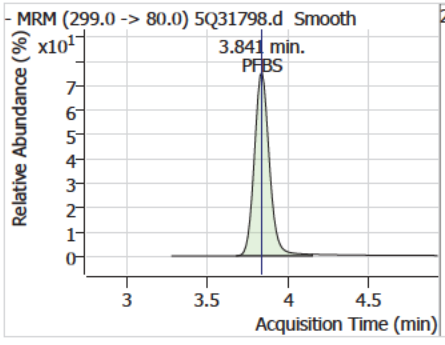
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.58	3.60	-0.01	591551				

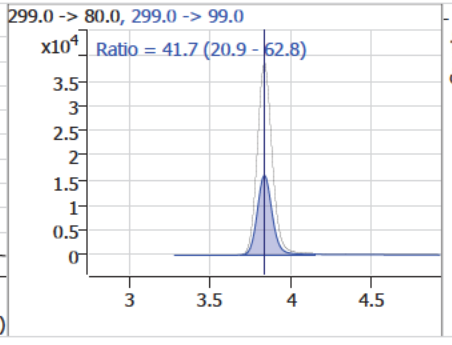


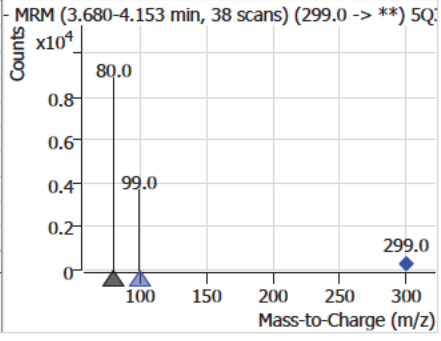




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.94	3.84	0.00	250282	299.0 -> 99.0	41.7	20.9	62.8





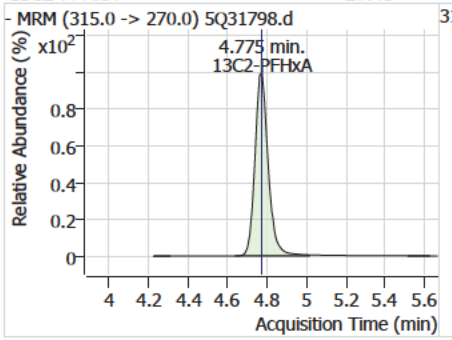


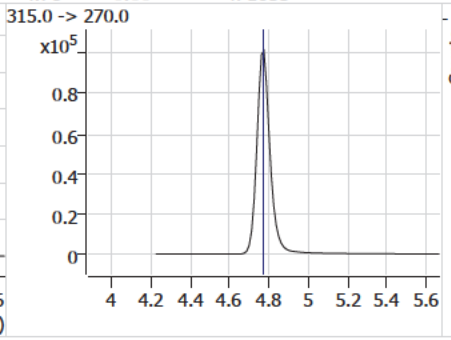
7.3.5

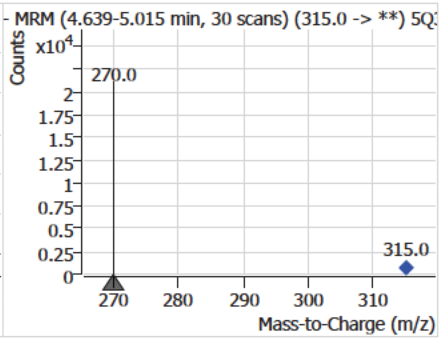
7

Perfluorinated Compounds by LC/MS/MS

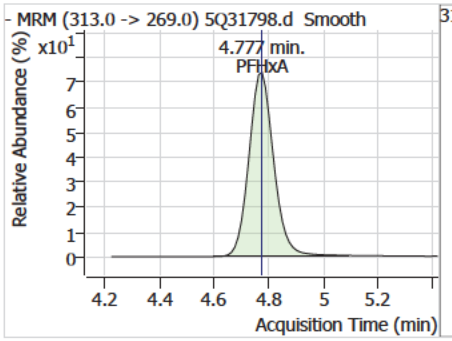
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	20.43	4.78	0.00	471655				

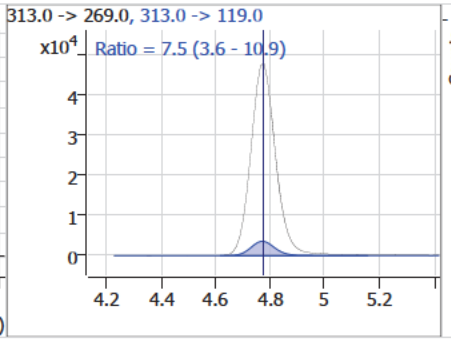


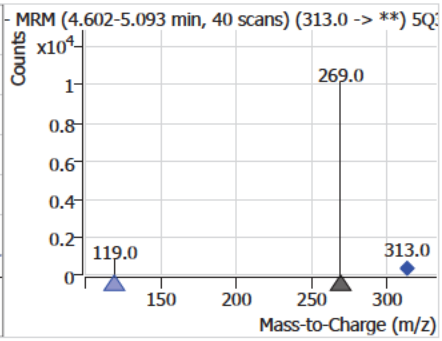




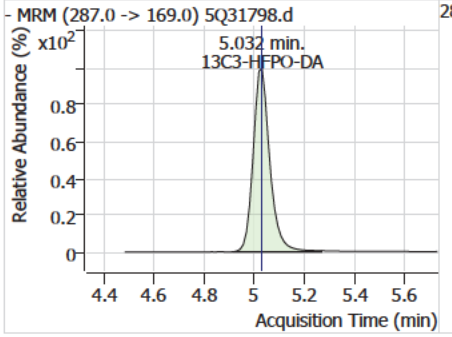
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	20.31	4.78	0.00	302097	313.0 -> 119.0	7.5	3.6	10.9

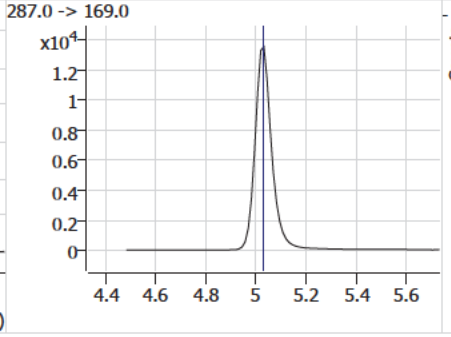


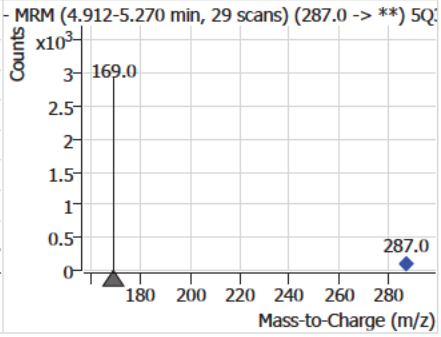




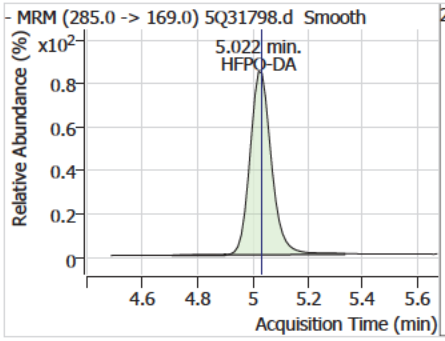
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	38.43	5.03	0.00	62276				

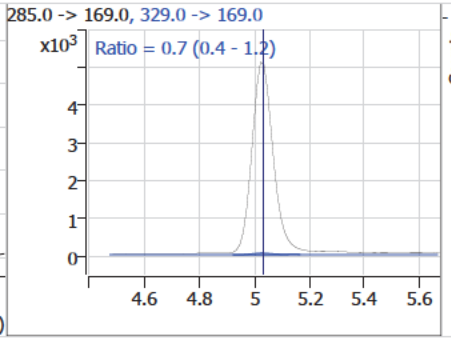


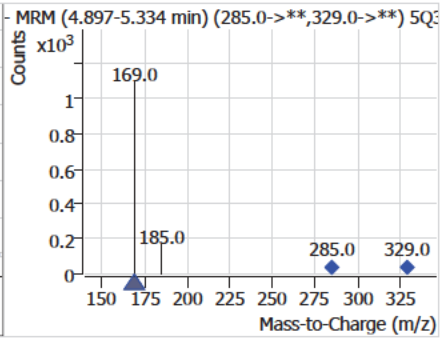




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.90	5.02	-0.01	27530	329.0 -> 169.0	0.7	0.4	1.2

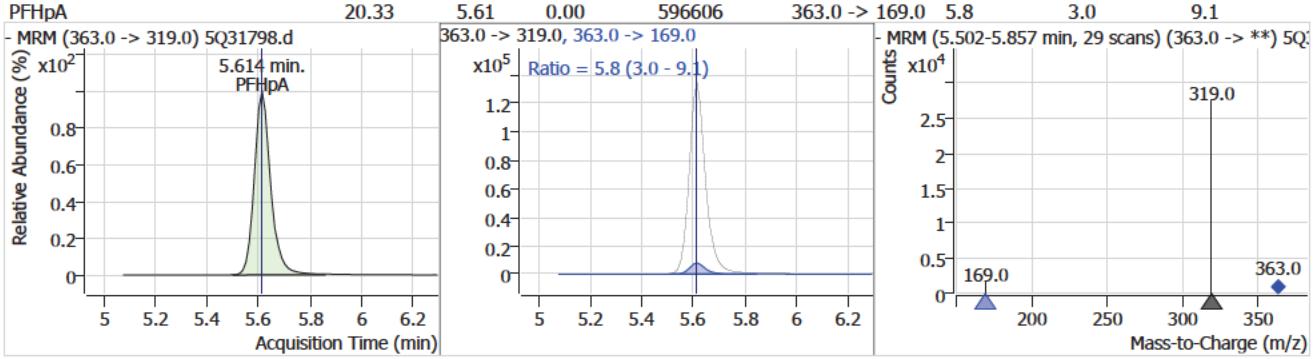




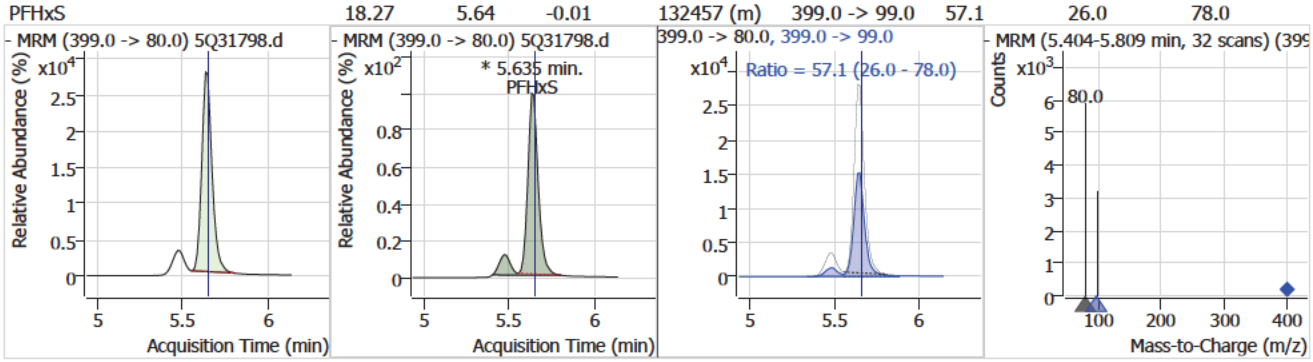


Perfluorinated Compounds by LC/MS/MS

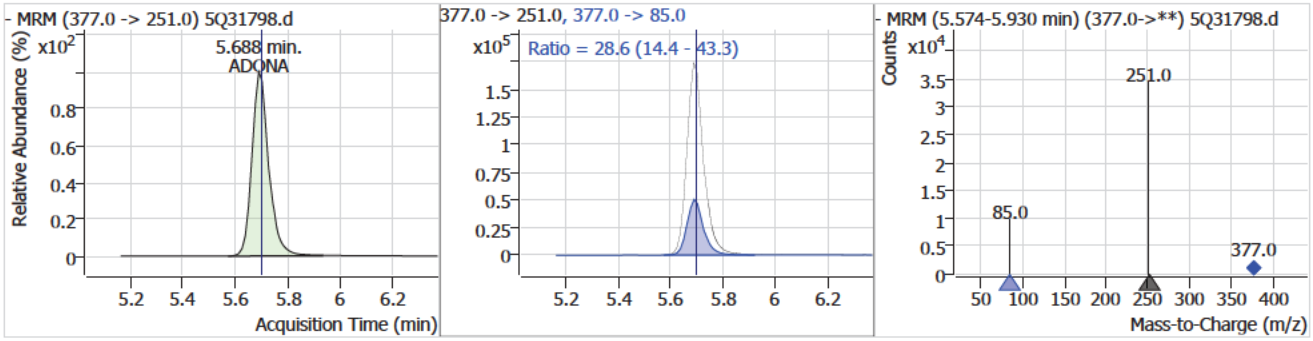
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.33	5.61	0.00	596606	363.0 -> 169.0	5.8	3.0	9.1



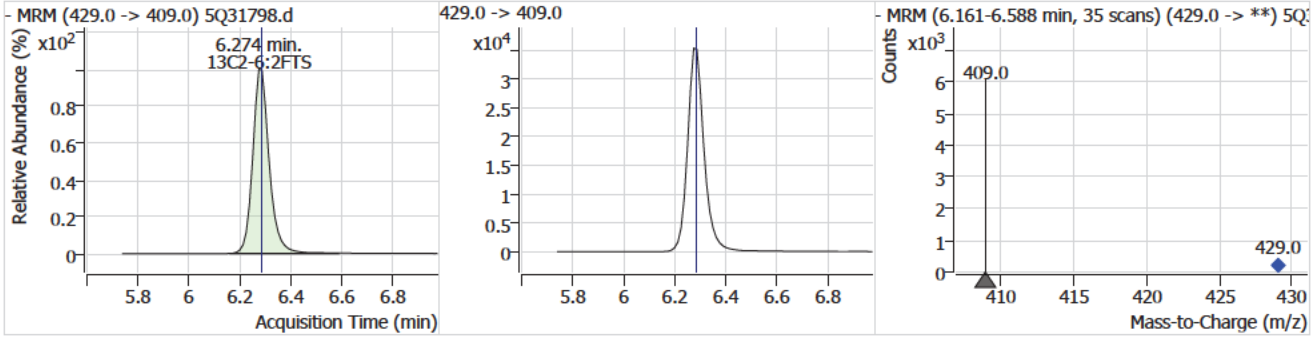
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	18.27	5.64	-0.01	132457 (m)	399.0 -> 99.0	57.1	26.0	78.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.40	5.69	-0.01	773872	377.0 -> 85.0	28.6	14.4	43.3

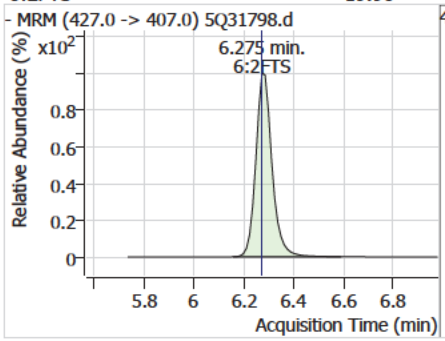


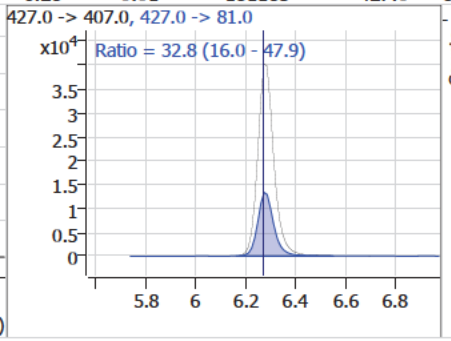
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	159366				

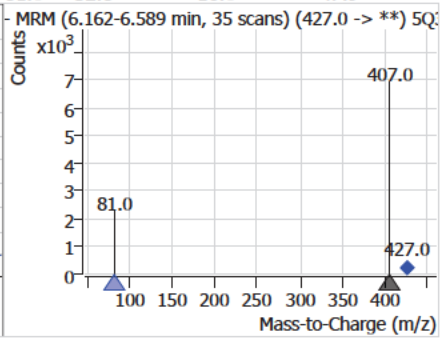


Perfluorinated Compounds by LC/MS/MS

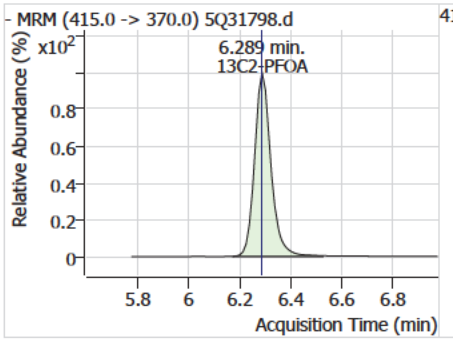
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.96	6.28	-0.01	181185	427.0 -> 81.0	32.8	16.0	47.9

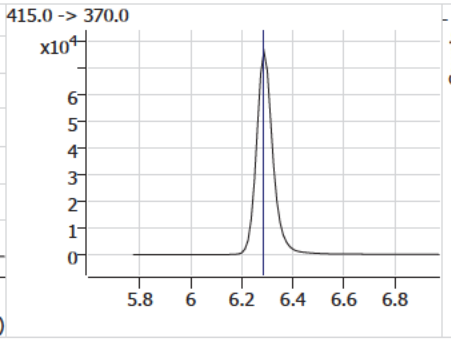


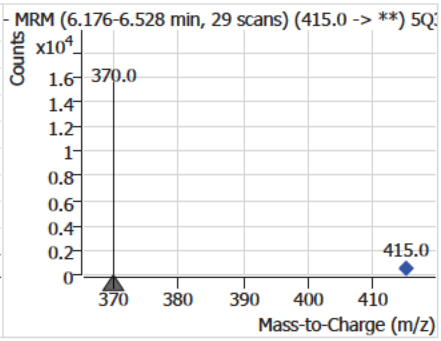




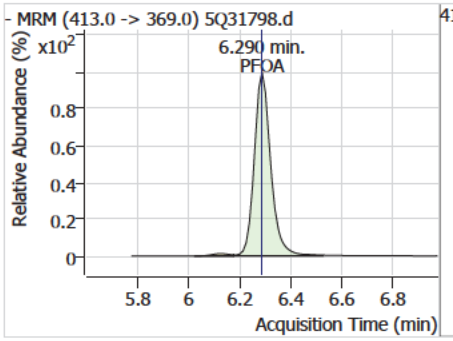
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	341496				

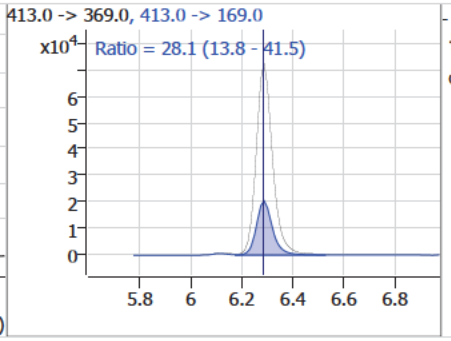


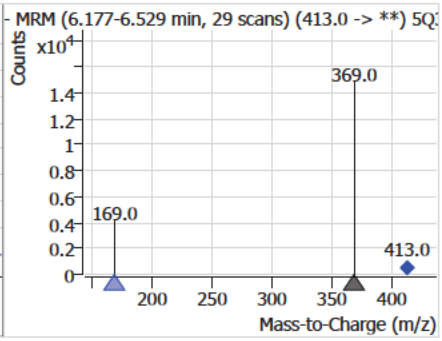




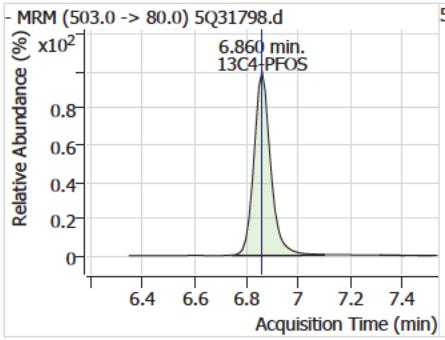
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.84	6.29	0.00	324396	413.0 -> 169.0	28.1	13.8	41.5

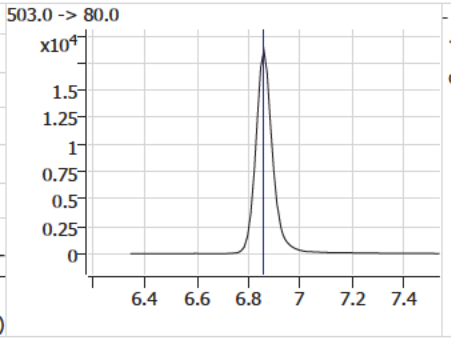


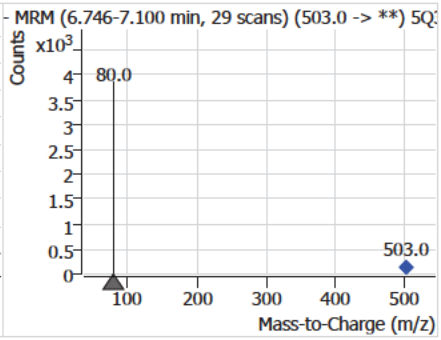




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	83530				







7.3.5

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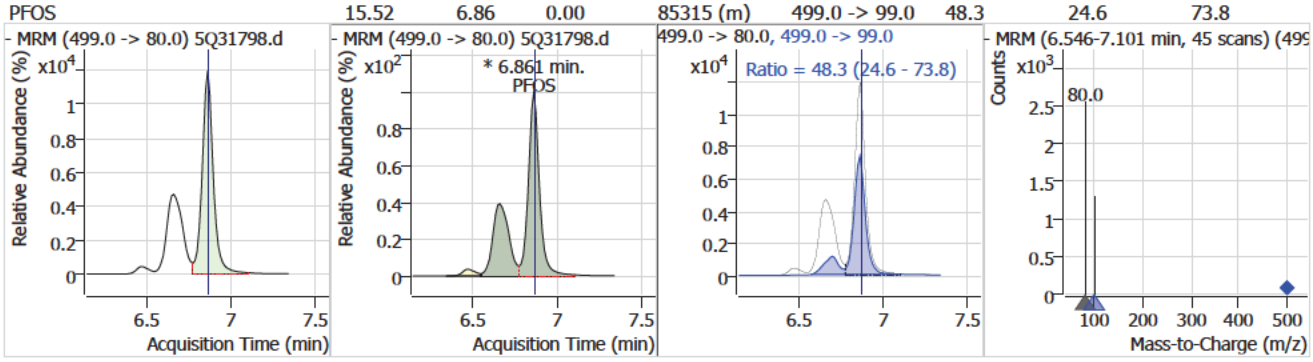
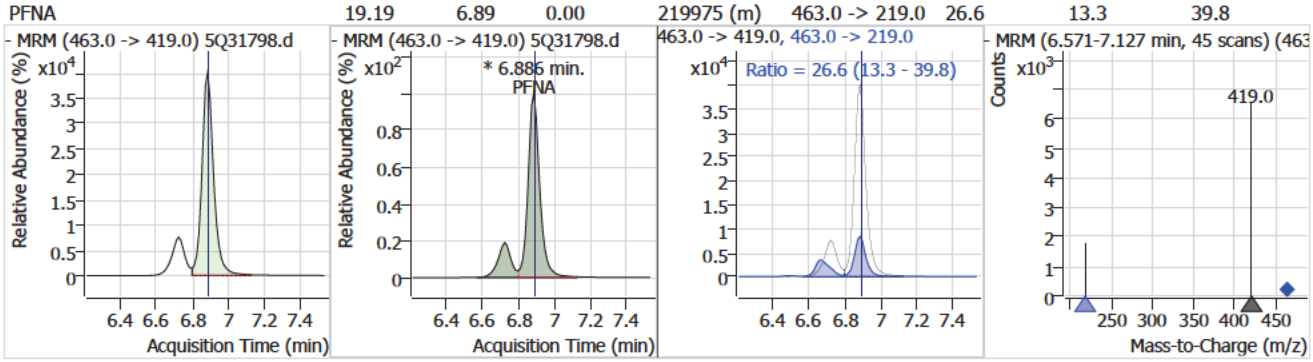
Perfluorinated Compounds by LC/MS/MS

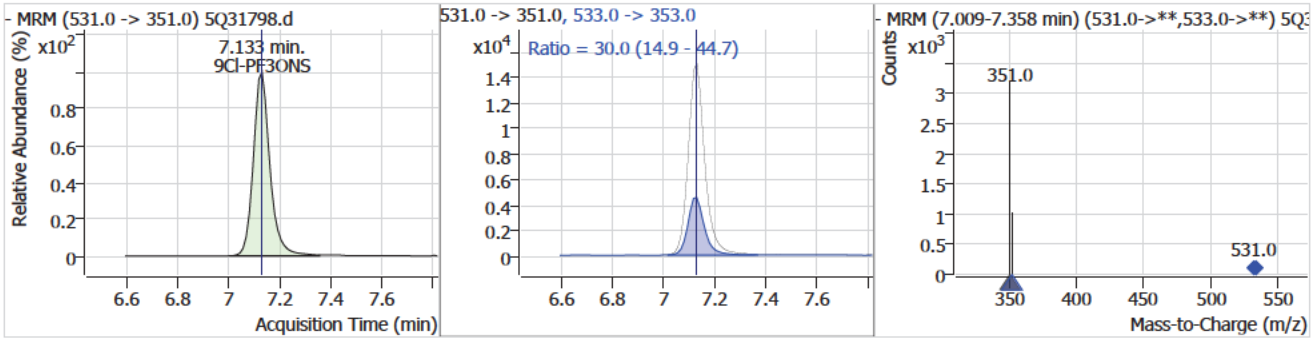
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	15.52	6.86	0.00	85315 (m)	499.0 -> 99.0	48.3	24.6	73.8



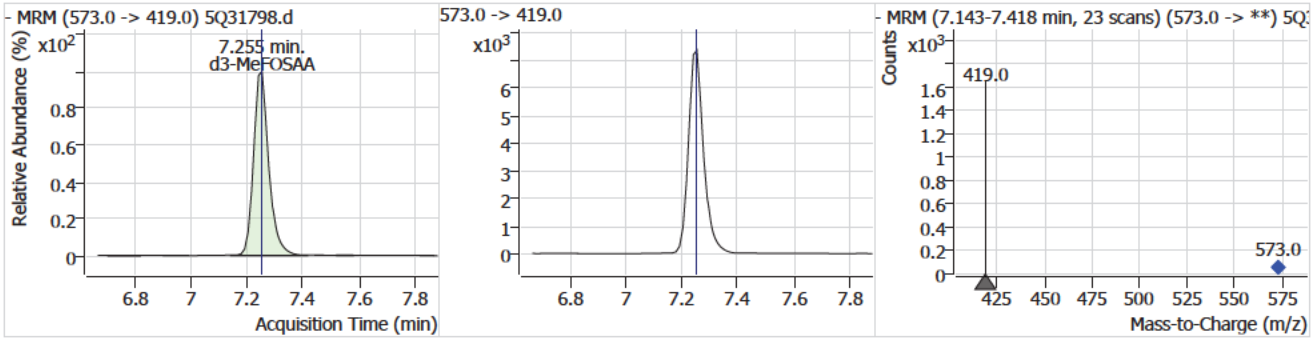
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.19	6.89	0.00	219975 (m)	463.0 -> 219.0	26.6	13.3	39.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	14.67	7.13	0.00	67805	533.0 -> 353.0	30.0	14.9	44.7



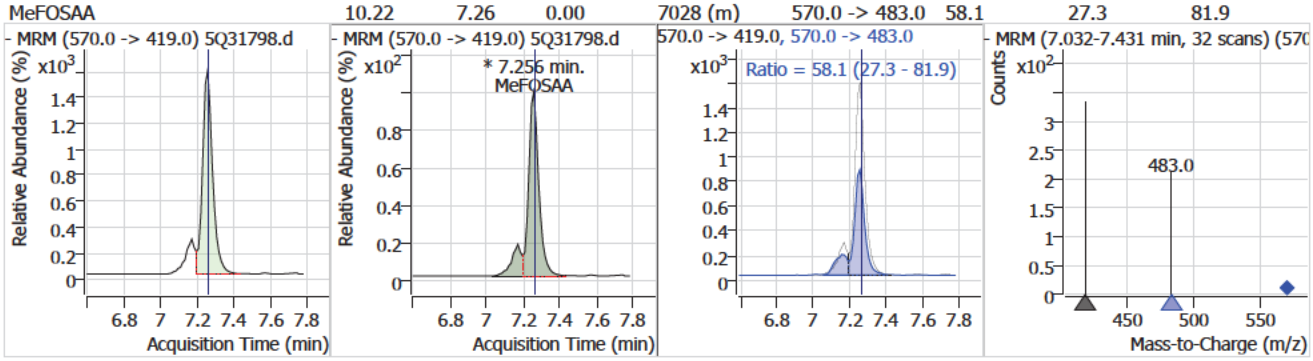
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	27541				



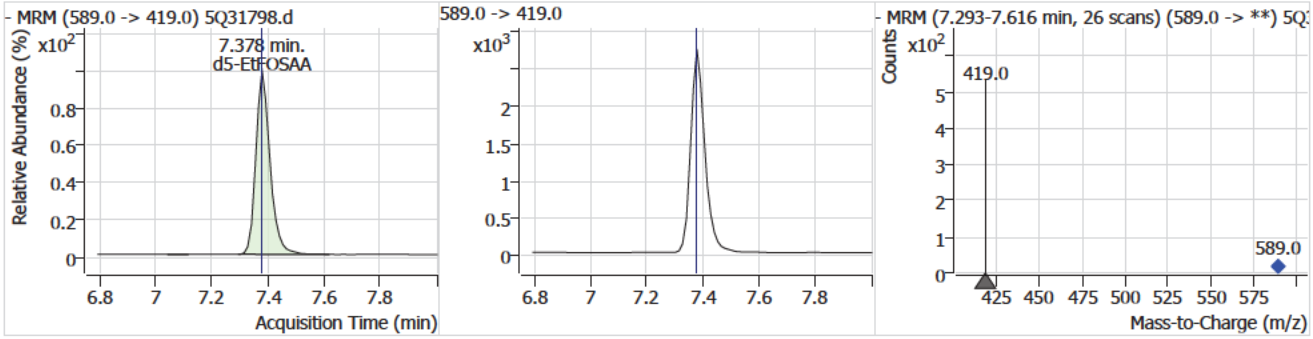
7.3.5 7

Perfluorinated Compounds by LC/MS/MS

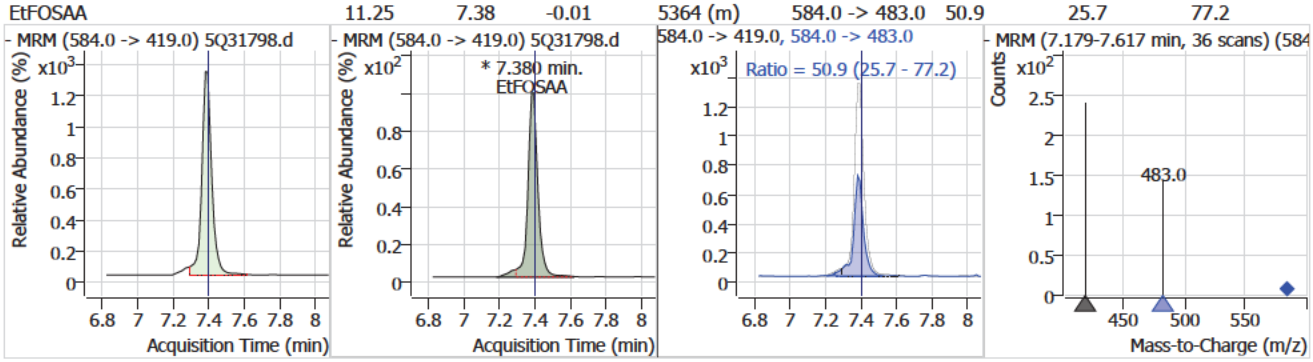
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	10.22	7.26	0.00	7028 (m)	570.0 -> 483.0	58.1	27.3	81.9



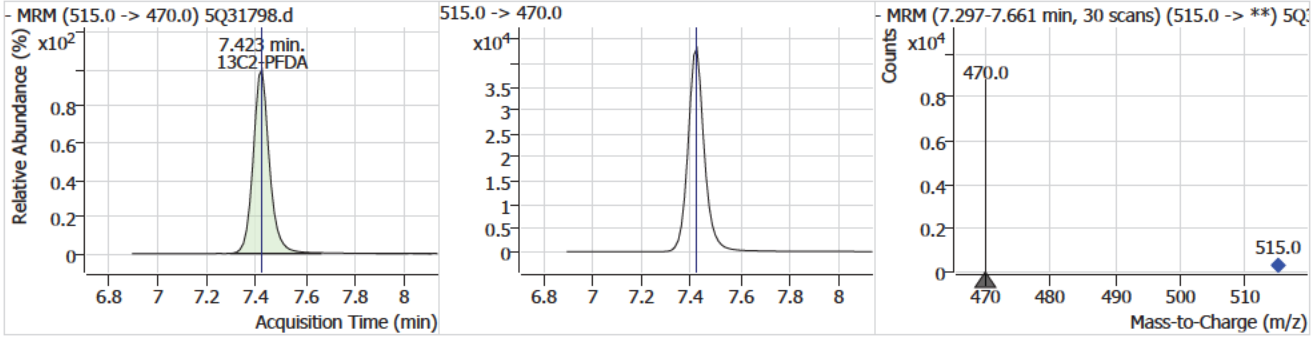
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	18.17	7.38	0.00	9514				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	11.25	7.38	-0.01	5364 (m)	584.0 -> 483.0	50.9	25.7	77.2

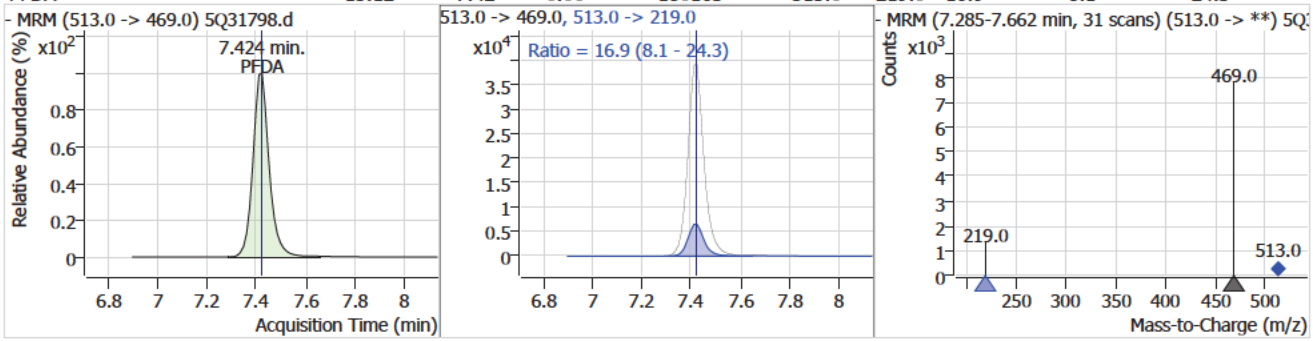


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	14.01	7.42	0.00	197171				

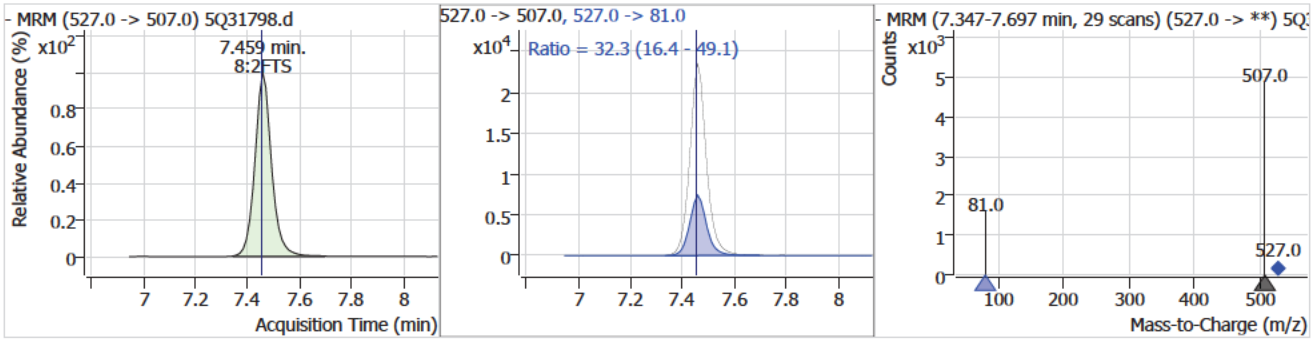


Perfluorinated Compounds by LC/MS/MS

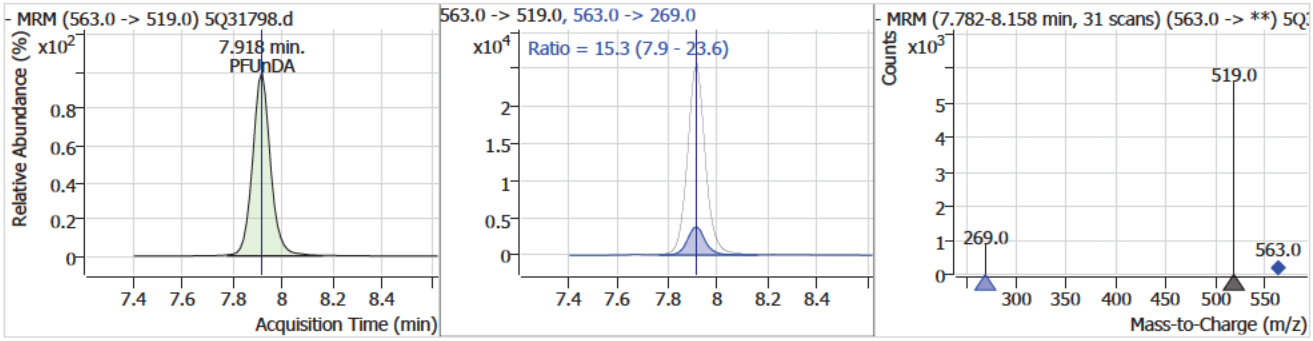
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	15.12	7.42	0.00	180163	513.0 -> 219.0	16.9	8.1	24.3



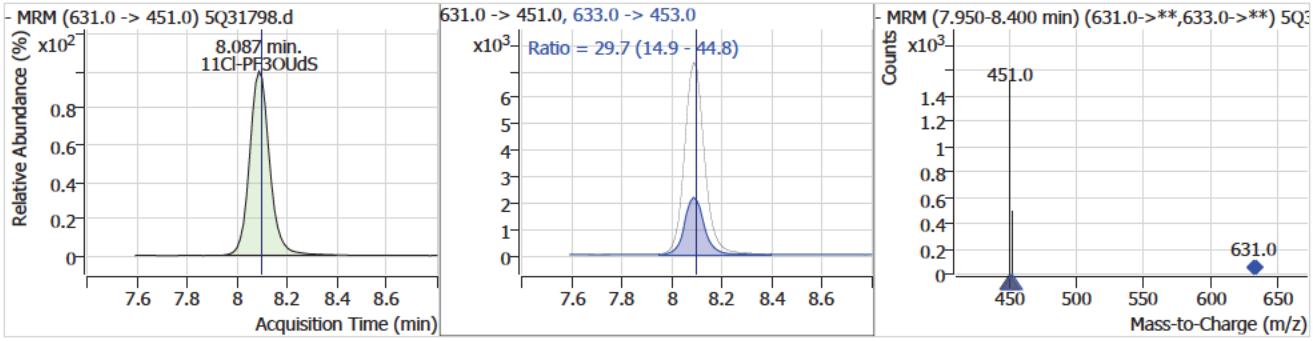
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	15.98	7.46	-0.01	104676	527.0 -> 81.0	32.3	16.4	49.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	9.97	7.92	0.00	128036	563.0 -> 269.0	15.3	7.9	23.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	8.82	8.09	-0.01	40717	633.0 -> 453.0	29.7	14.9	44.8



7.3.5

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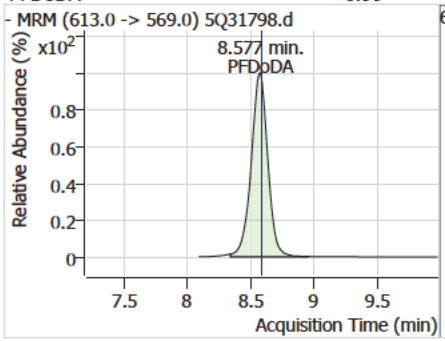
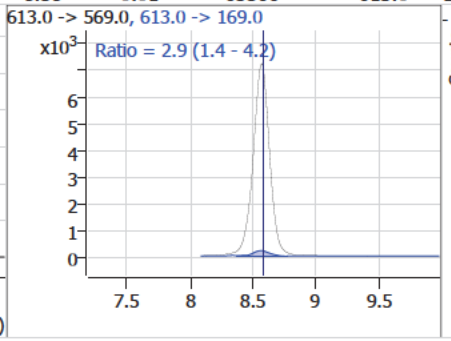
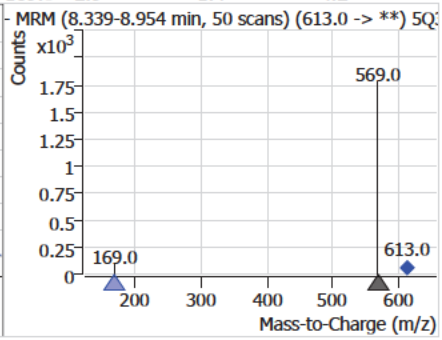
Perfluorinated Compounds by LC/MS/MS

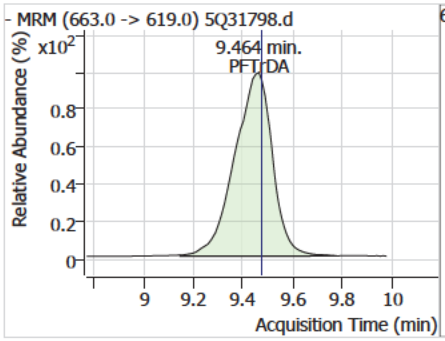
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	6.99	8.58	-0.01	65566	613.0 -> 169.0	2.9	1.4	4.2

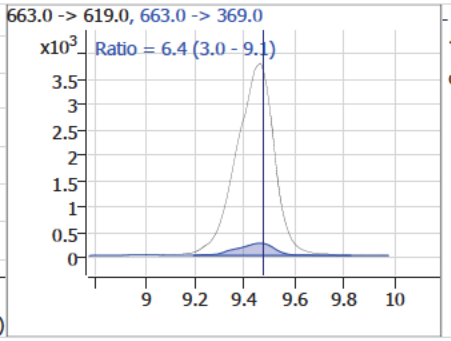


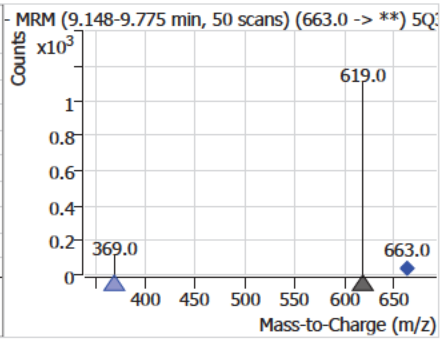




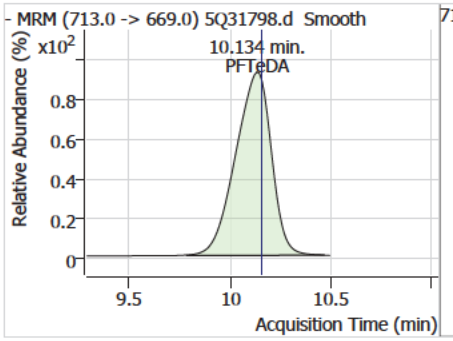
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	7.16	9.46	-0.01	39638	663.0 -> 369.0	6.4	3.0	9.1

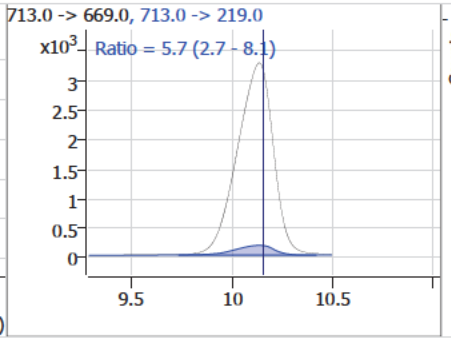


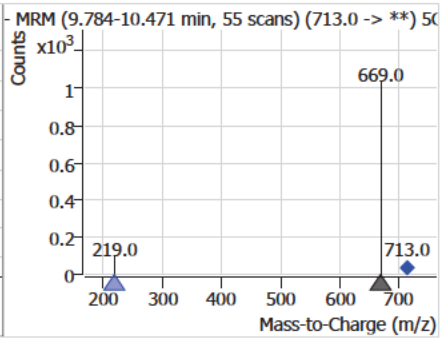




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	10.48	10.13	-0.03	40390	713.0 -> 219.0	5.7	2.7	8.1







7.3.5

7

Manual Integration Approval Summary

Sample Number: OP8882-BS
Lab FileID: 5Q31798.D
Injection Time: 04/16/25 15:13
Method: EPA 537.1 REV 2.0
Analyst approved: 04/17/25 07:52 (b) (6) [redacted]
Supervisor approved: 04/17/25 09:04 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:46

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101474.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 6:21:20 PM
Sample Name : op8883-ms
Vial : P3-B4
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8883,S3Q1492,280,,,1,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	7.422	415.0 -> 370.0	217661	10.00	µg/L	-0.013
13C3-PFBA	2.307	216.0 -> 172.0	85858	10.00	µg/L	0.175
13C4-PFOS	7.969	503.0 -> 80.0	32302	10.00	µg/L	-0.026
M4-PFBA	2.302	217.0 -> 172.0	112465	10.00	µg/L	0.163
M5-PFPeA	4.388	268.0 -> 223.0	137490	10.00	µg/L	0.050
M5-PFHxA	5.750	318.0 -> 273.0	169261	10.00	µg/L	0.000
M4-PFHpA	6.694	367.0 -> 322.0	142537	10.00	µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	186363	10.00	µg/L	-0.013
M9-PFNA	7.997	472.0 -> 427.0	193010	10.00	µg/L	-0.026
M6-PFDA	8.520	519.0 -> 474.0	249929	10.00	µg/L	-0.025
M7-PFUnDA	9.172	570.0 -> 525.0	293895	10.00	µg/L	-0.052
M2-PFDoDA	10.071	615.0 -> 570.0	245079	10.00	µg/L	-0.063
M3-PFBS	4.683	302.0 -> 99.0	16267	10.00	µg/L	0.038
M3-PFHxS	6.711	402.0 -> 99.0	23179	10.00	µg/L	-0.025
M8-PFOS	7.968	507.0 -> 99.0	26711	10.00	µg/L	-0.026
M2-4:2FTS	5.659	329.0 -> 309.0	63379	10.00	µg/L	0.013
M2-6:2FTS	7.420	429.0 -> 409.0	116717	10.00	µg/L	-0.013
M2-8:2FTS	8.585	529.0 -> 509.0	152138	10.00	µg/L	-0.026
M3-HFPO-DA	6.043	287.0 -> 169.0	2611	10.00	µg/L	-0.013
System Monitoring Compounds						
13C2-4:2FTS	5.659	329.0 -> 309.0	63379	8.24	µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.4%		
13C2-6:2FTS	7.420	429.0 -> 409.0	116723	8.08	µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.8%		
13C2-8:2FTS	8.585	529.0 -> 509.0	152138	6.29	µg/L	-0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 62.9%		
13C2-PFDoDA	10.071	615.0 -> 570.0	245079	2.64	µg/L	-0.063
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 26.4%		
13C3-PFBS	4.683	302.0 -> 99.0	16267	8.07	µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.7%		
13C3-PFHxS	6.711	402.0 -> 99.0	23179	8.08	µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.8%		
13C4-PFBA	2.302	217.0 -> 172.0	112465	7.72	µg/L	0.163
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.2%		
13C4-PFHpA	6.694	367.0 -> 322.0	142537	7.74	µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.4%		
13C5-PFHxA	5.750	318.0 -> 273.0	169261	7.68	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.8%		
13C5-PFPeA	4.388	268.0 -> 223.0	137490	7.83	µg/L	0.050
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.3%		
13C6-PFDA	8.520	519.0 -> 474.0	249929	6.86	µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 68.6%		
13C7-PFUnDA	9.172	570.0 -> 525.0	293895	4.04	µg/L	-0.052
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 40.4%		
13C8-PFOA	7.422	421.0 -> 376.0	186363	7.79	µg/L	-0.013

Perfluorinated Compounds by LC/MS/MS

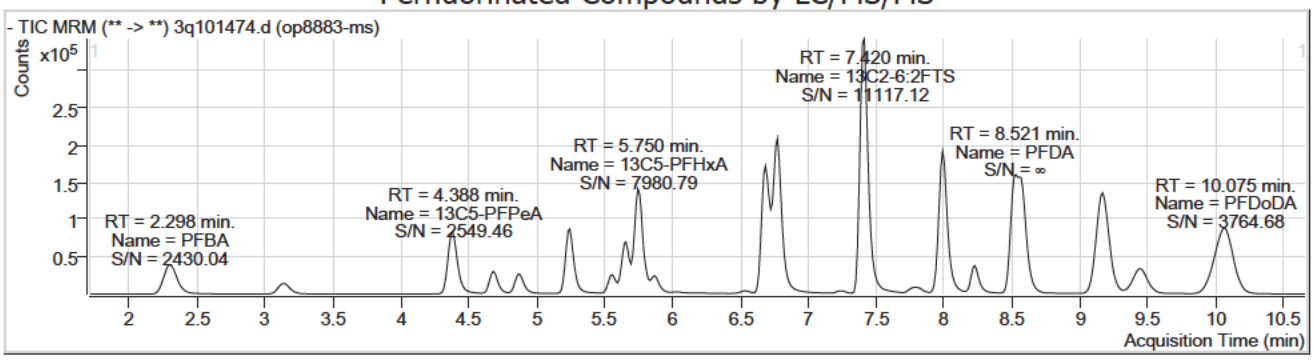
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.9%		
13C8-PFOS	7.968	507.0 -> 99.0	26711	7.27 µg/L		-0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 72.7%		
13C9-PFNA	7.997	472.0 -> 427.0	193010	7.43 µg/L		-0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 74.3%		
13C3-HFPO-DA	6.043	287.0 -> 169.0	2611	8.23 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.3%		
Target Compounds						QValue
PFMPA	3.141	229.0 -> 85.0	91565	25.15 µg/L		100
4:2FTS	5.661	327.0 -> 307.0	167459	24.43 µg/L		100
		327.0 -> 81.0	71449			
6:2FTS	7.420	427.0 -> 407.0	222663	24.76 µg/L		100
		427.0 -> 81.0	98068			
8:2FTS	8.586	527.0 -> 507.0	290180	27.76 µg/L		100
		527.0 -> 81.0	118811			
PFMBA	4.876	279.0 -> 85.0	124624	24.58 µg/L		100
PFEESA	5.247	315.0 -> 135.0	356143	24.27 µg/L		100
		315.0 -> 69.0	27463			
NFDHA	5.569	201.0 -> 85.0	104704	24.73 µg/L		98
		295.0 -> 201.0	7394			
PFBA	2.298	213.0 -> 169.0	81322	26.15 µg/L		100
PFBS	4.685	299.0 -> 80.0	83864	25.50 µg/L		99
		299.0 -> 99.0	35866			
PFDA	8.521	513.0 -> 469.0	355472	25.15 µg/L		100
		513.0 -> 219.0	83318			
PFDoDA	10.075	613.0 -> 569.0	549914	33.74 µg/L		99
		613.0 -> 169.0	57701			
PFHpA	6.683	363.0 -> 319.0	507213	25.36 µg/L	m	100
		363.0 -> 169.0	42284			
PFHpS	7.406	449.0 -> 80.0	104343	24.58 µg/L		98
		449.0 -> 99.0	57186			
PFHxA	5.753	313.0 -> 269.0	428661	26.88 µg/L		100
		313.0 -> 119.0	15138			
PFHxS	6.713	399.0 -> 80.0	106555	26.12 µg/L	m	100
		399.0 -> 99.0	55066			
PFNA	7.997	463.0 -> 419.0	389054	24.61 µg/L		99
		463.0 -> 219.0	116783			
PFOA	7.423	413.0 -> 369.0	383211	26.66 µg/L	m	99
		413.0 -> 169.0	144114			
PFOS	7.969	499.0 -> 80.0	117341	27.48 µg/L	m	97
		499.0 -> 99.0	58255			
PFPeA	4.390	263.0 -> 219.0	281418	27.13 µg/L		100
PFPeS	5.871	349.0 -> 80.0	57856	24.44 µg/L		100
		349.0 -> 99.0	24234			
PFUnDA	9.174	563.0 -> 519.0	545431	28.79 µg/L		100
		563.0 -> 269.0	107003			
11Cl-PF3OUdS	9.445	631.0 -> 451.0	246719	12.44 µg/L		100
		631.0 -> 83.0	12080			
9Cl-PF3ONS	8.229	531.0 -> 351.0	145122	21.09 µg/L		100
		531.0 -> 83.0	7570			
ADONA	6.778	377.0 -> 251.0	755858	24.48 µg/L		100
		377.0 -> 85.0	90145			
HFPO-DA	6.048	329.0 -> 169.0	1483	26.92 µg/L		84
		285.0 -> 169.0	3160			

= Qualifier out of range, m = manually integrated, + = Area summed

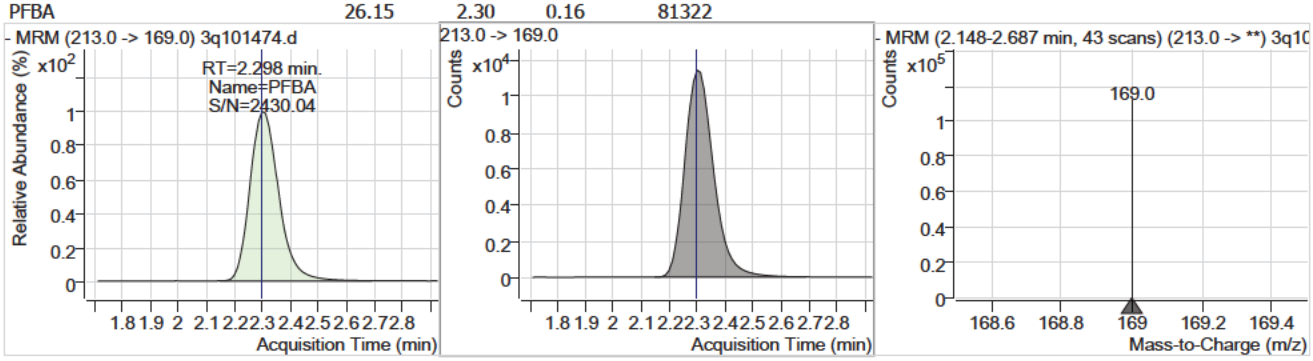
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)

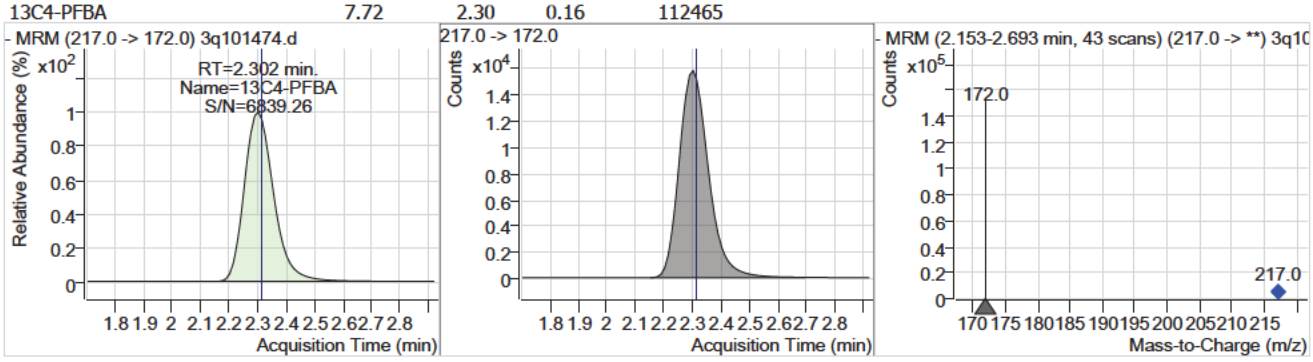
Perfluorinated Compounds by LC/MS/MS



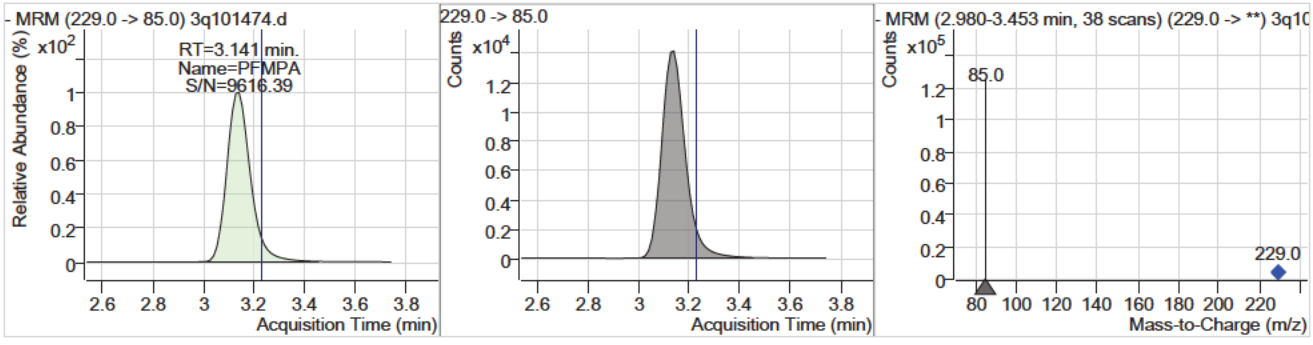
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	26.15	2.30	0.16	81322				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	7.72	2.30	0.16	112465				

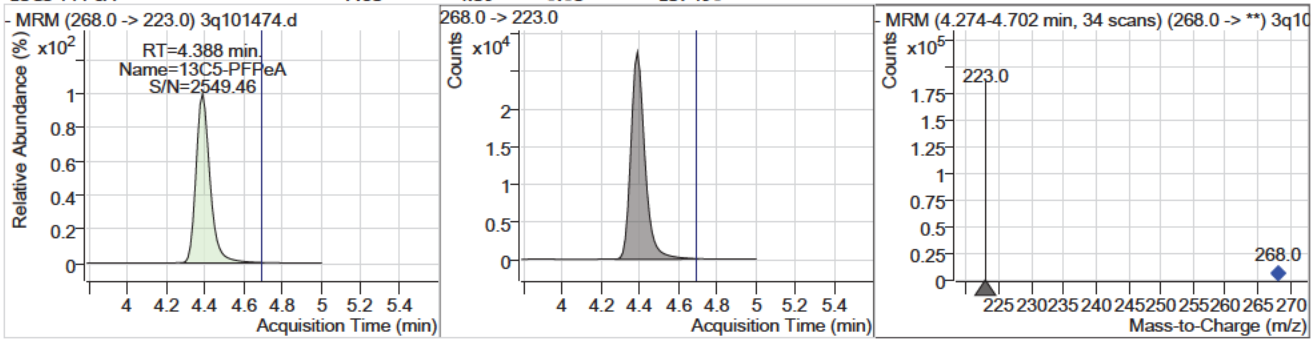


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	25.15	3.14	0.14	91565				

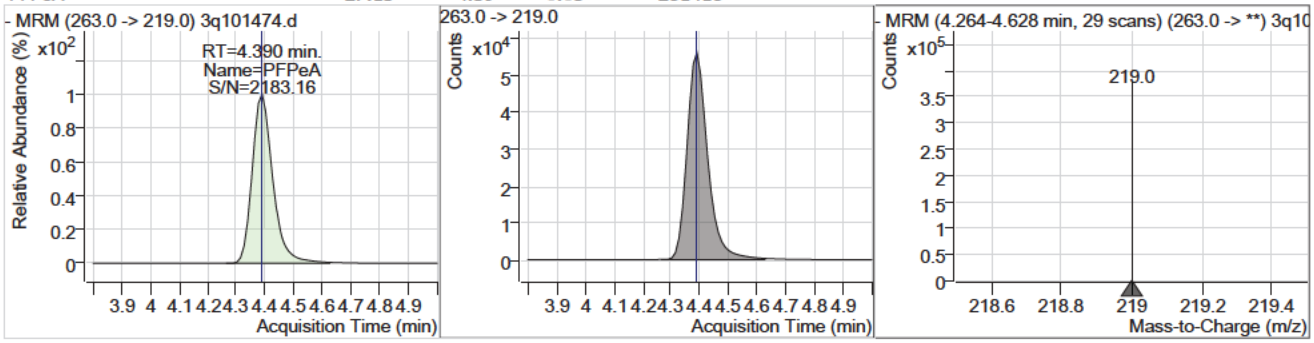


Perfluorinated Compounds by LC/MS/MS

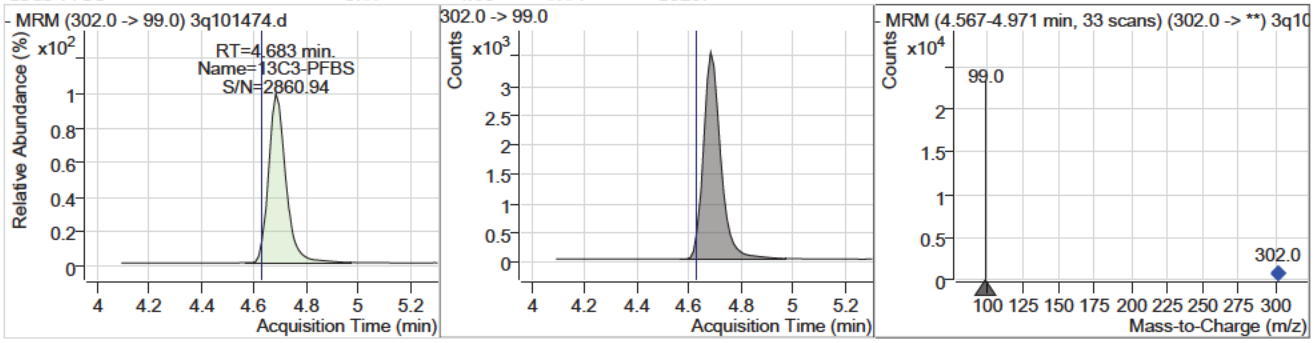
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	7.83	4.39	0.05	137490				



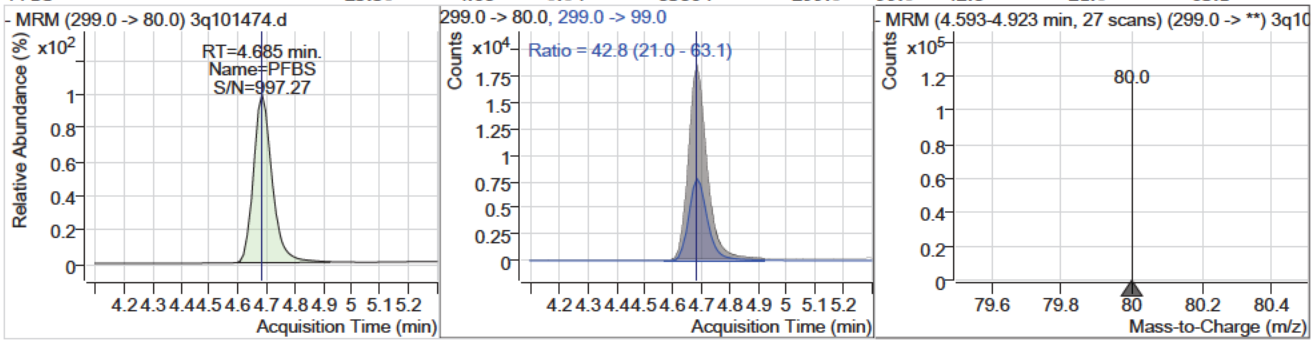
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	27.13	4.39	0.05	281418				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	8.07	4.68	0.04	16267				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	25.50	4.68	0.04	83864	299.0 -> 99.0	42.8	21.0	63.1



7.4.1

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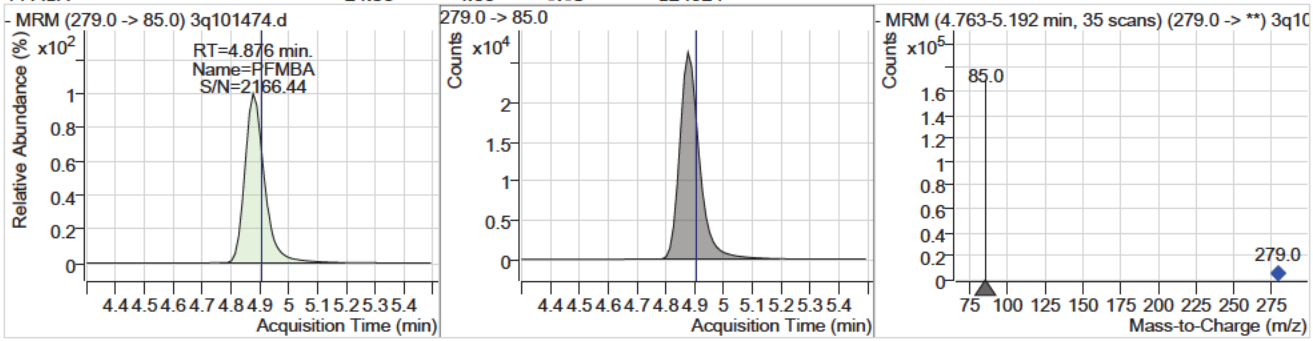
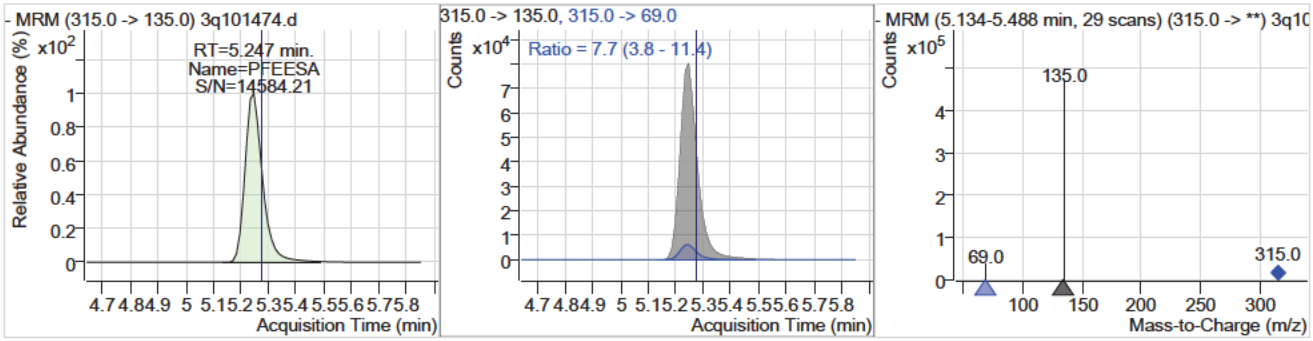
Perfluorinated Compounds by LC/MS/MS

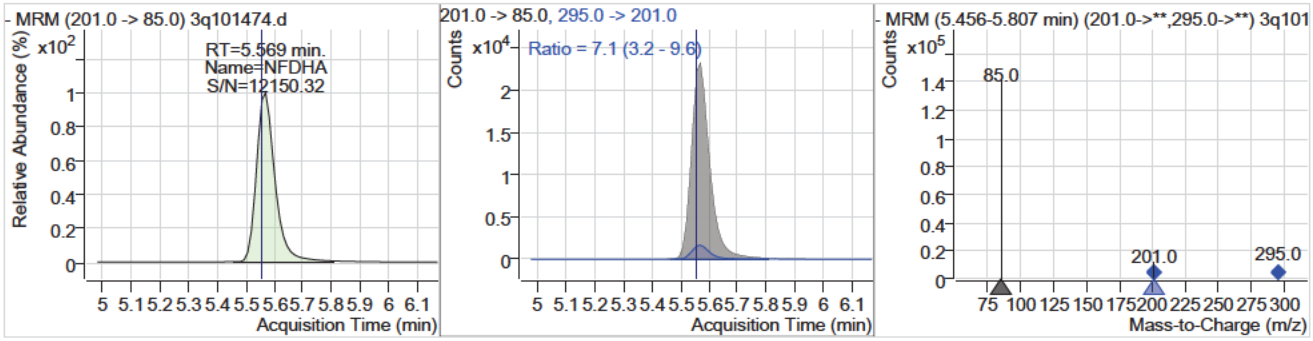
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	24.58	4.88	0.03	124624				



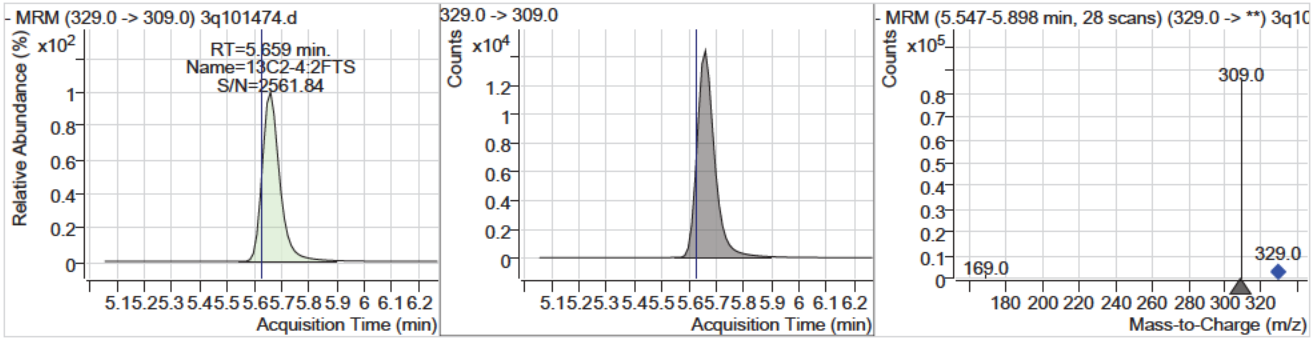
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	24.27	5.25	0.01	356143	315.0 -> 69.0	7.7	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	24.73	5.57	0.01	104704	295.0 -> 201.0	7.1	3.2	9.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	8.24	5.66	0.01	63379				

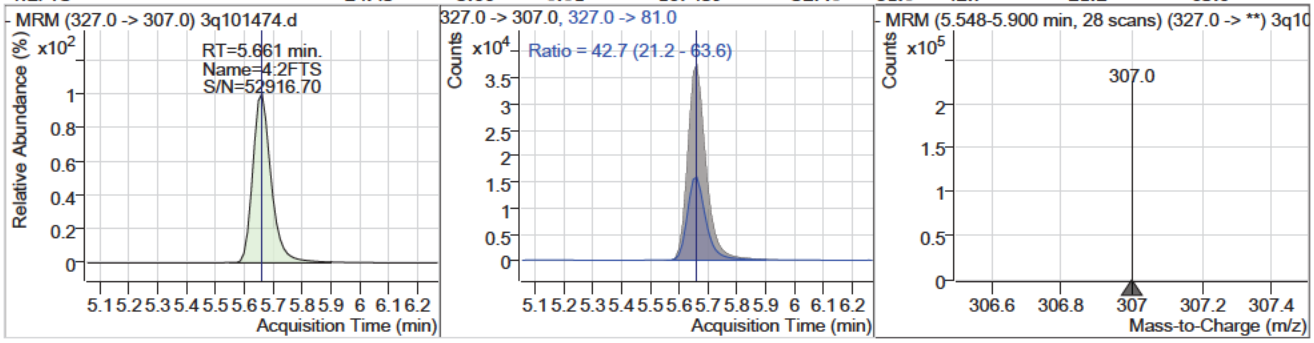


7.4.1

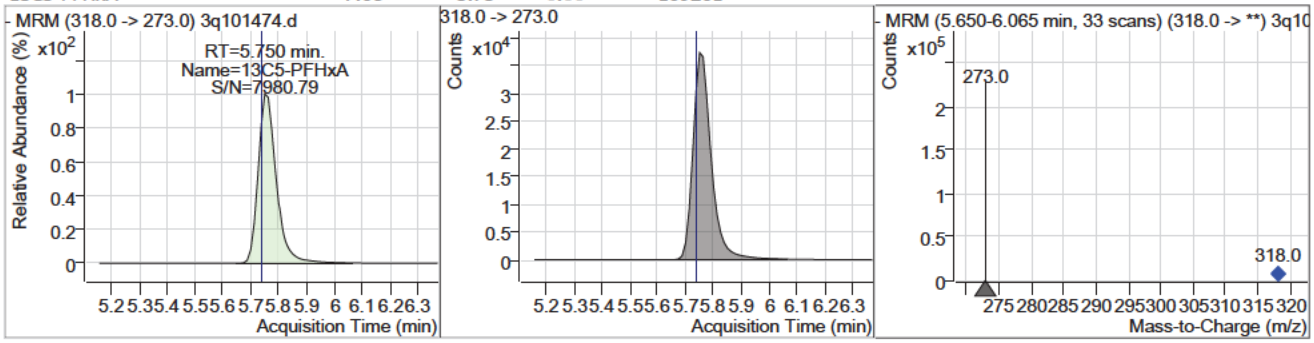
7

Perfluorinated Compounds by LC/MS/MS

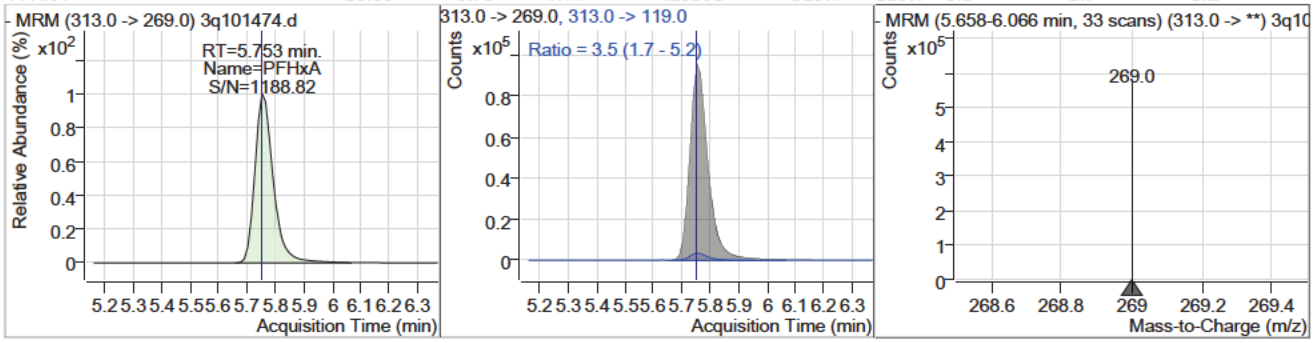
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	24.43	5.66	0.01	167459	327.0 -> 81.0	42.7	21.2	63.6



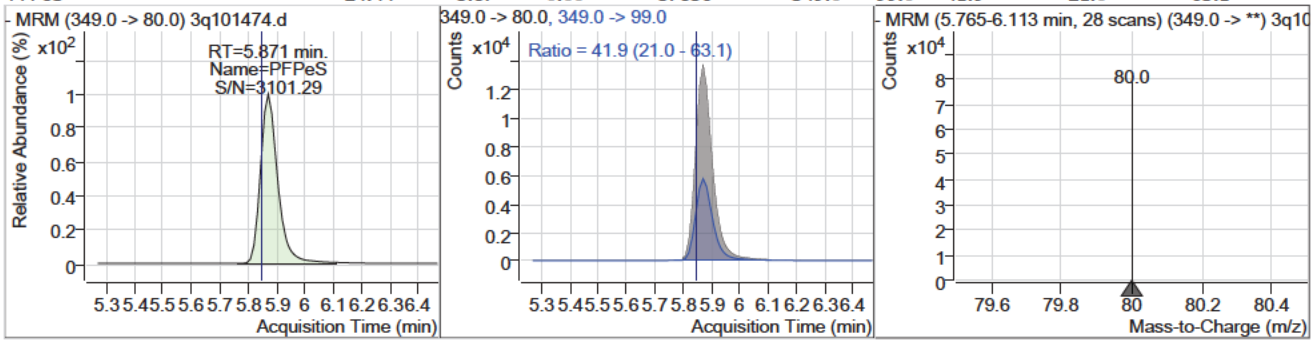
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	7.68	5.75	0.00	169261				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	26.88	5.75	0.00	428661	313.0 -> 119.0	3.5	1.7	5.2

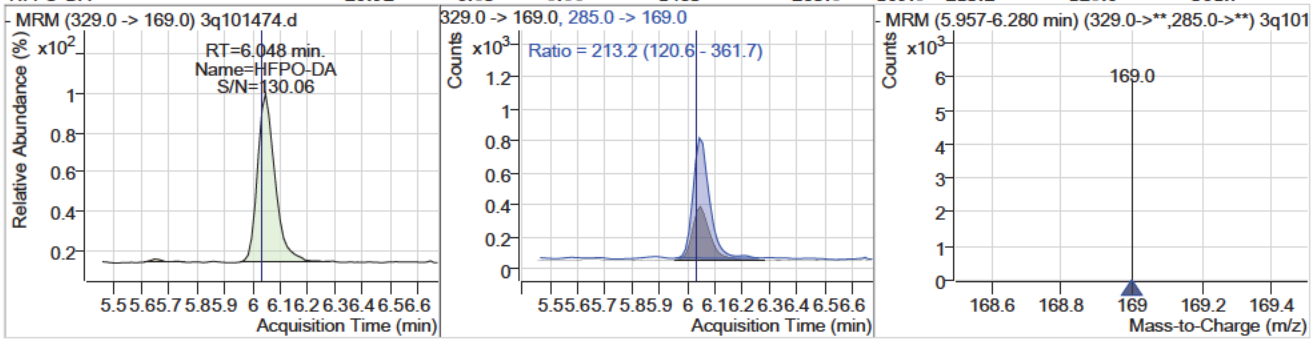


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	24.44	5.87	0.00	57856	349.0 -> 99.0	41.9	21.0	63.1

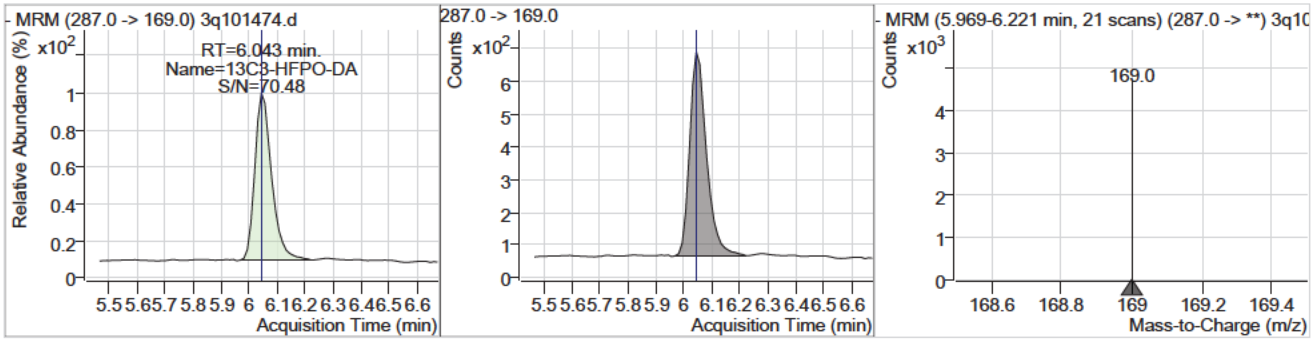


Perfluorinated Compounds by LC/MS/MS

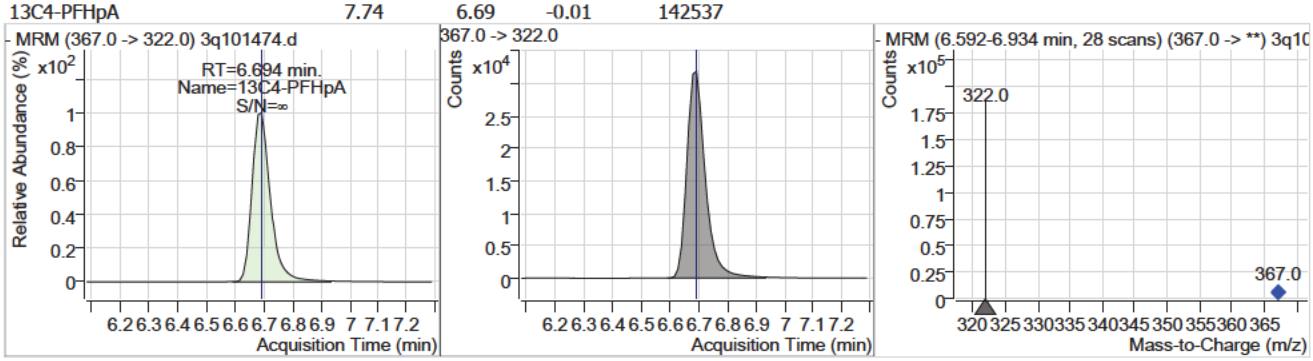
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	26.92	6.05	0.00	1483	285.0 -> 169.0	213.2	120.6	361.7



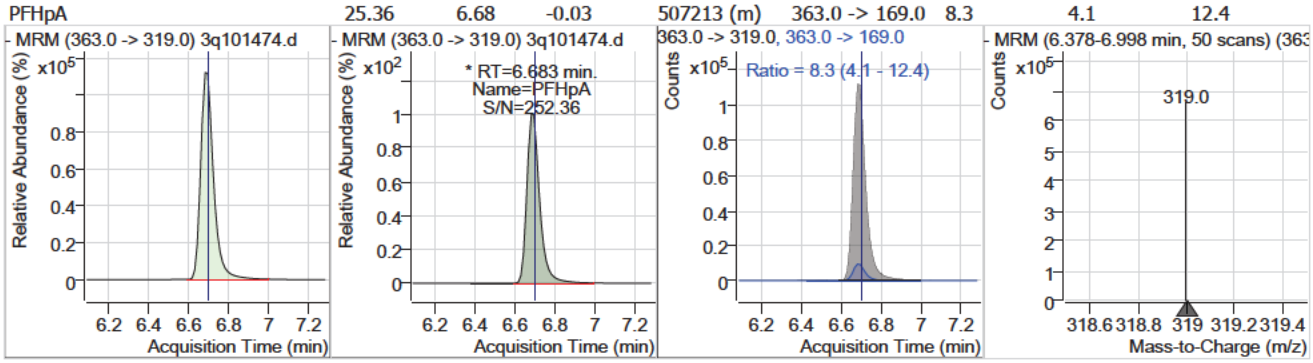
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.23	6.04	-0.01	2611				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	7.74	6.69	-0.01	142537				

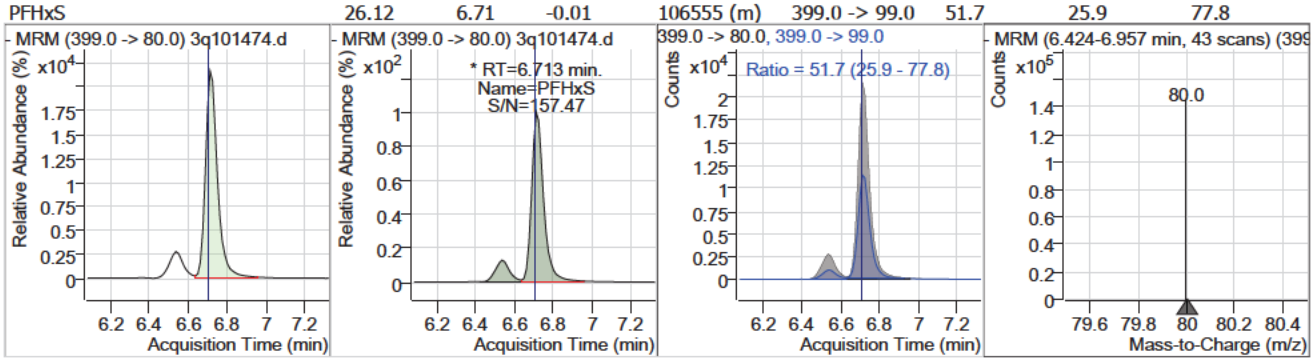


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	25.36	6.68	-0.03	507213 (m)	363.0 -> 169.0	8.3	4.1	12.4

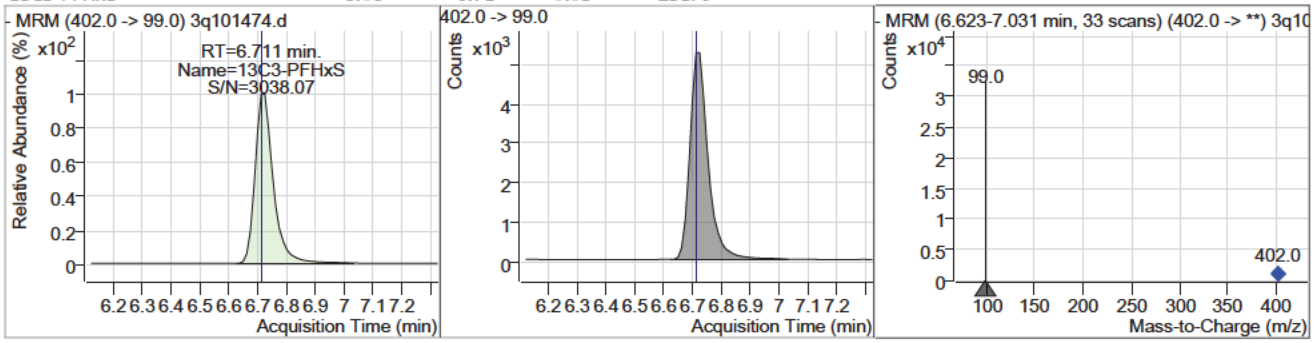


Perfluorinated Compounds by LC/MS/MS

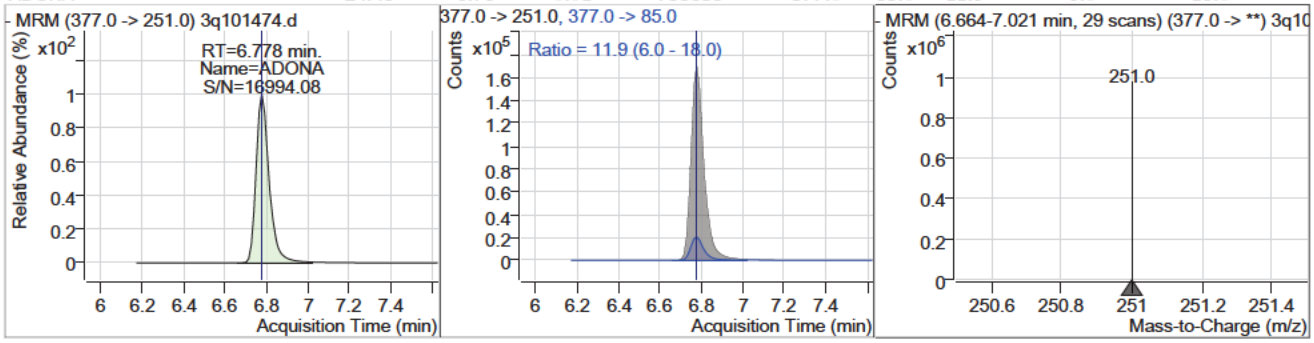
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	26.12	6.71	-0.01	106555 (m)	399.0 -> 99.0	51.7	25.9	77.8



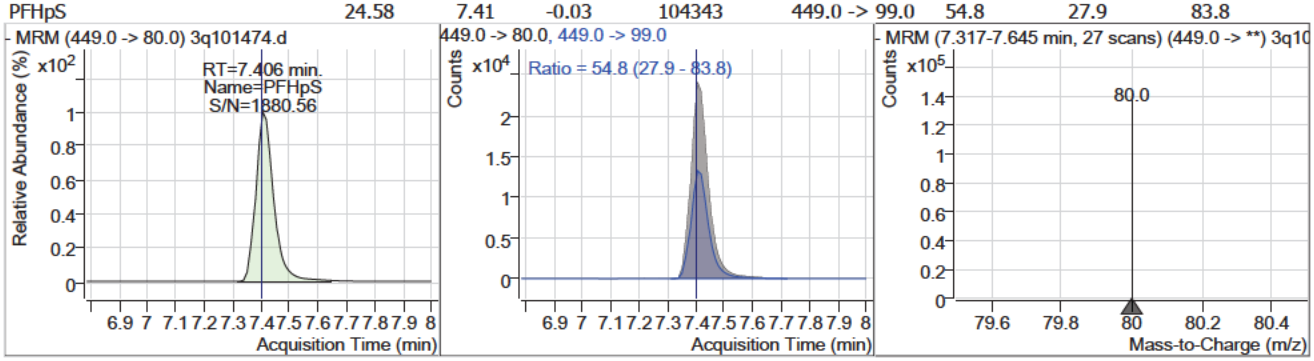
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	8.08	6.71	-0.03	23179				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	24.48	6.78	-0.01	755858	377.0 -> 85.0	11.9	6.0	18.0

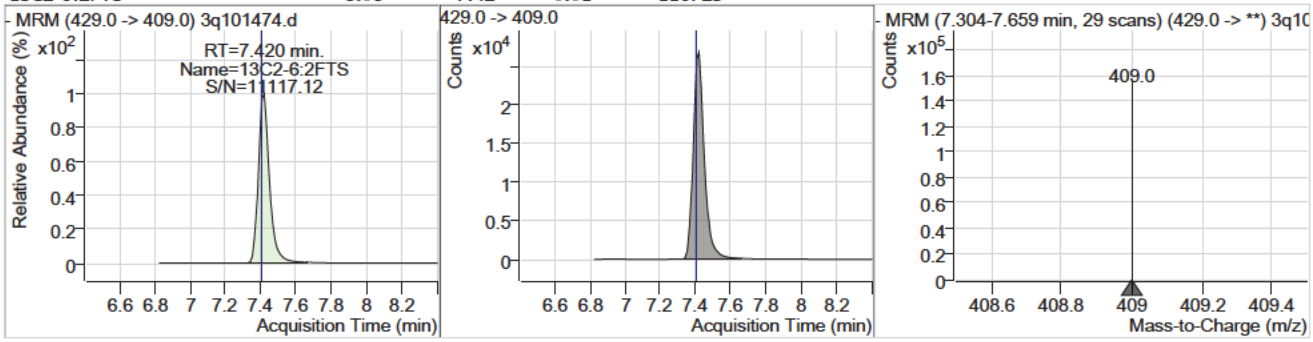


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	24.58	7.41	-0.03	104343	449.0 -> 99.0	54.8	27.9	83.8

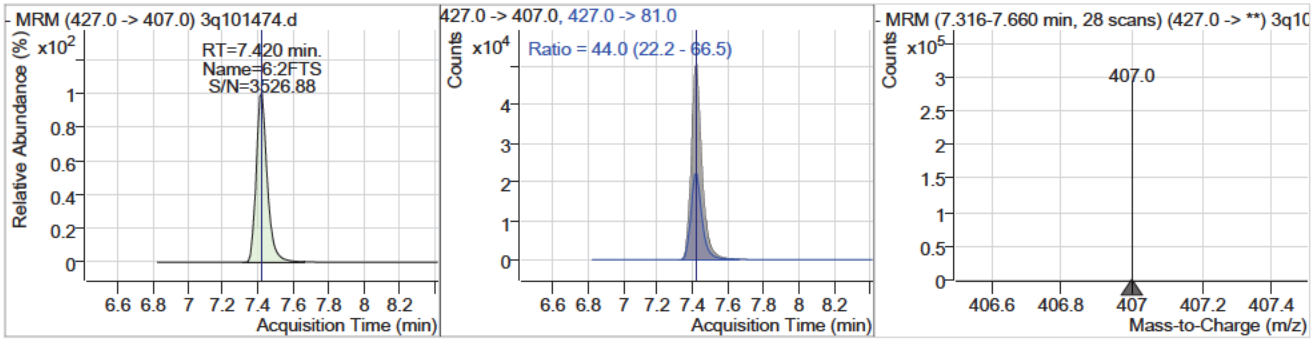


Perfluorinated Compounds by LC/MS/MS

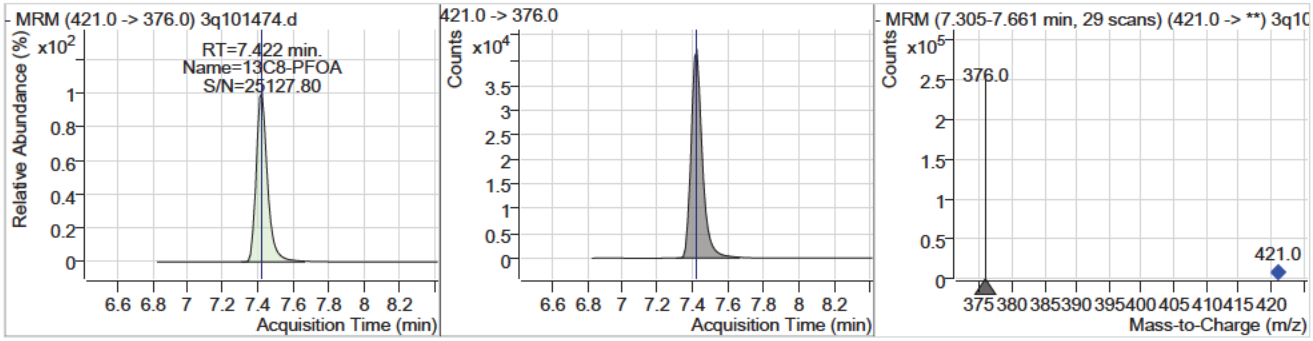
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	8.08	7.42	-0.01	116723				



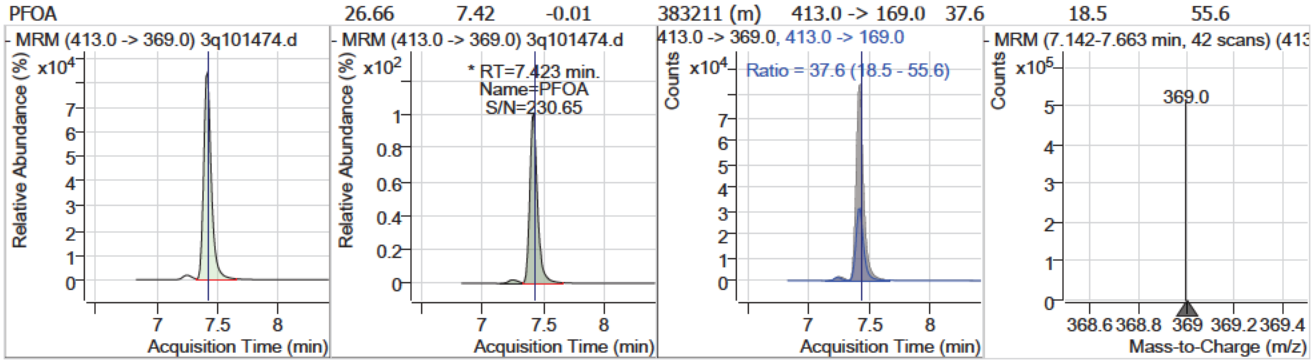
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	24.76	7.42	-0.01	222663	427.0 -> 81.0	44.0	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	7.79	7.42	-0.01	186363				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	26.66	7.42	-0.01	383211 (m)	413.0 -> 169.0	37.6	18.5	55.6



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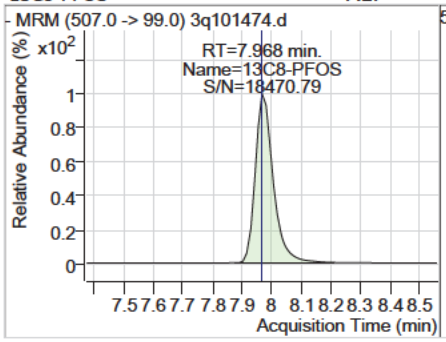
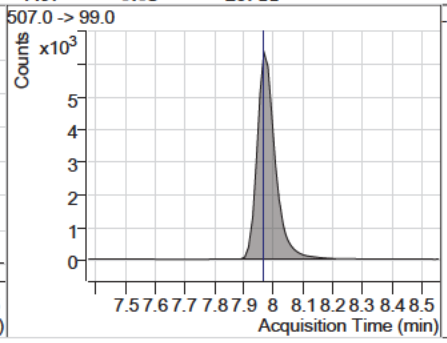
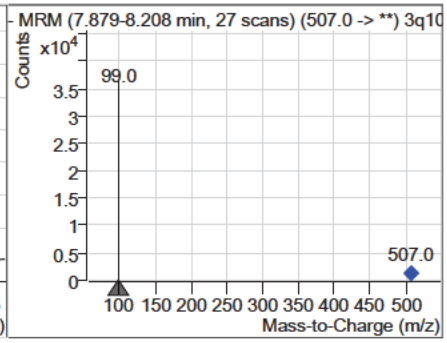
Perfluorinated Compounds by LC/MS/MS

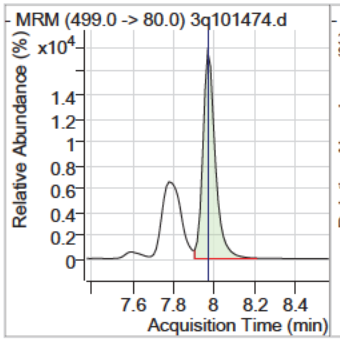
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	7.27	7.97	-0.03	26711				

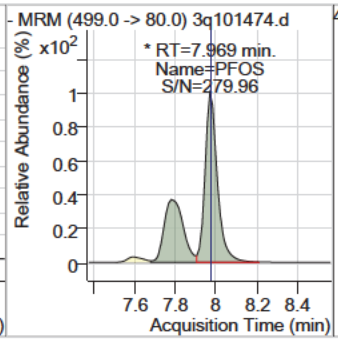


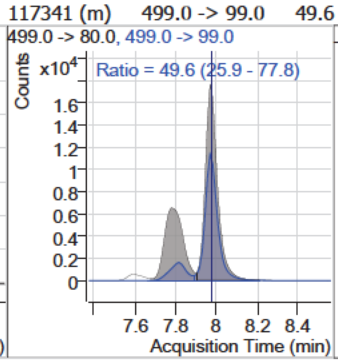


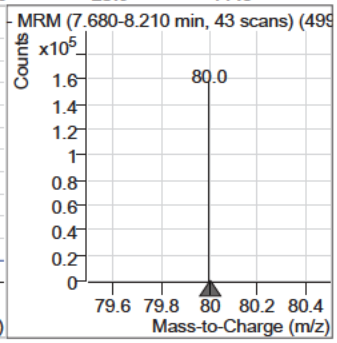


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	27.48	7.97	-0.03	117341 (m)	499.0 -> 99.0	49.6	25.9	77.8

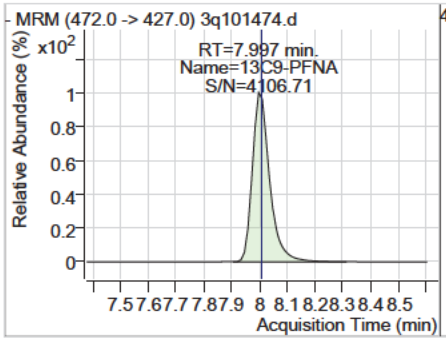


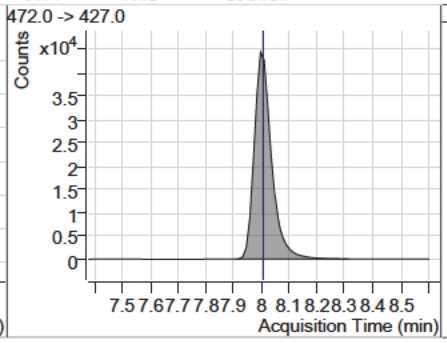


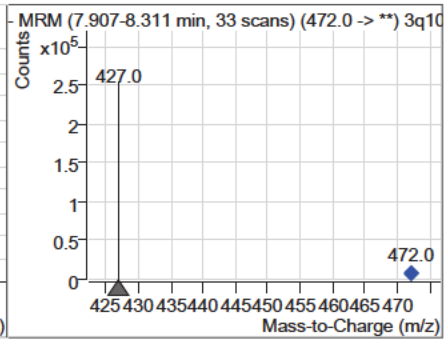




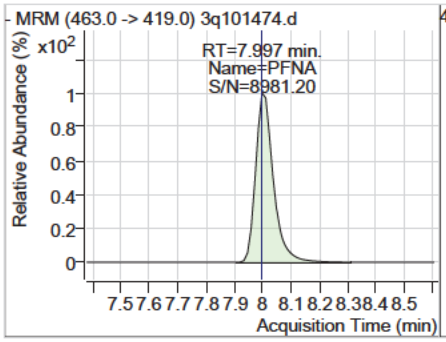
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	7.43	8.00	-0.03	193010				

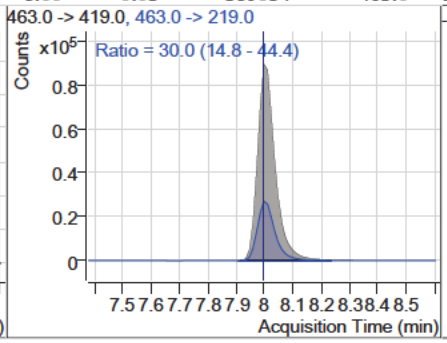


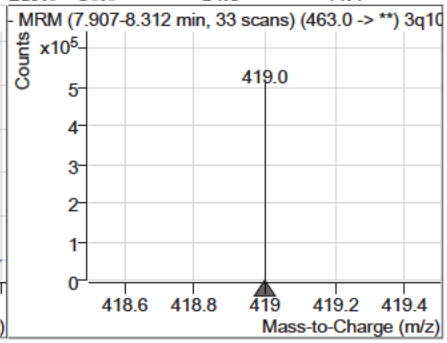




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	24.61	8.00	-0.03	389054	463.0 -> 219.0	30.0	14.8	44.4

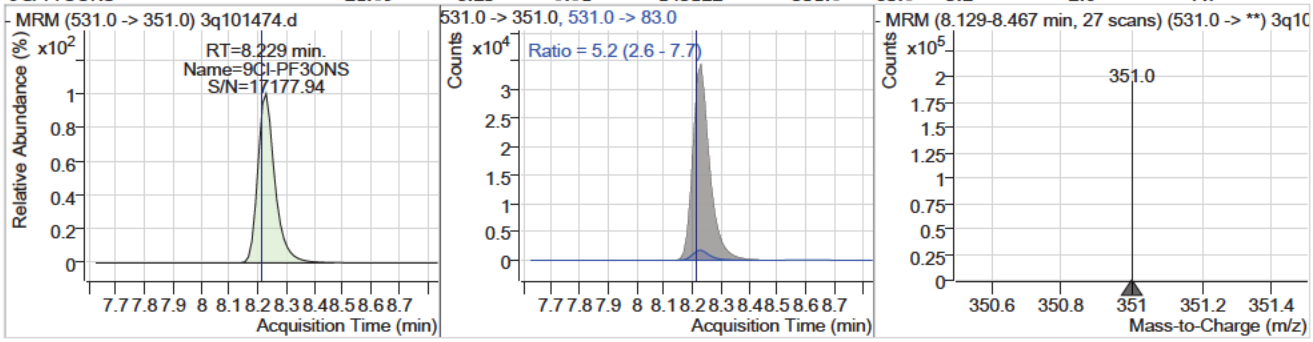




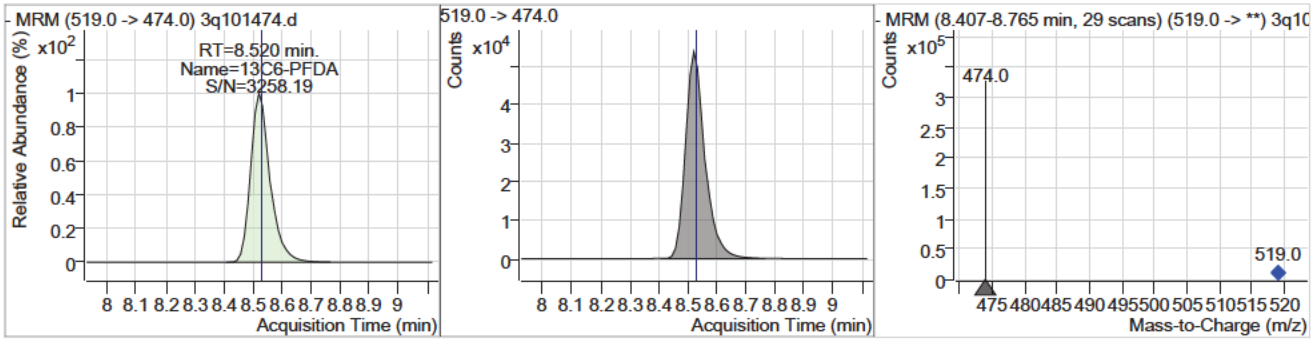


Perfluorinated Compounds by LC/MS/MS

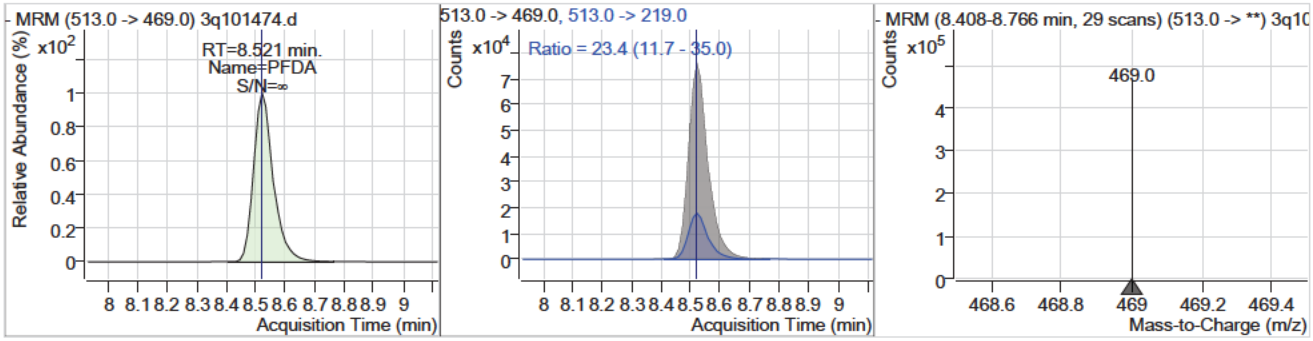
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	21.09	8.23	-0.01	145122	531.0 -> 83.0	5.2	2.6	7.7



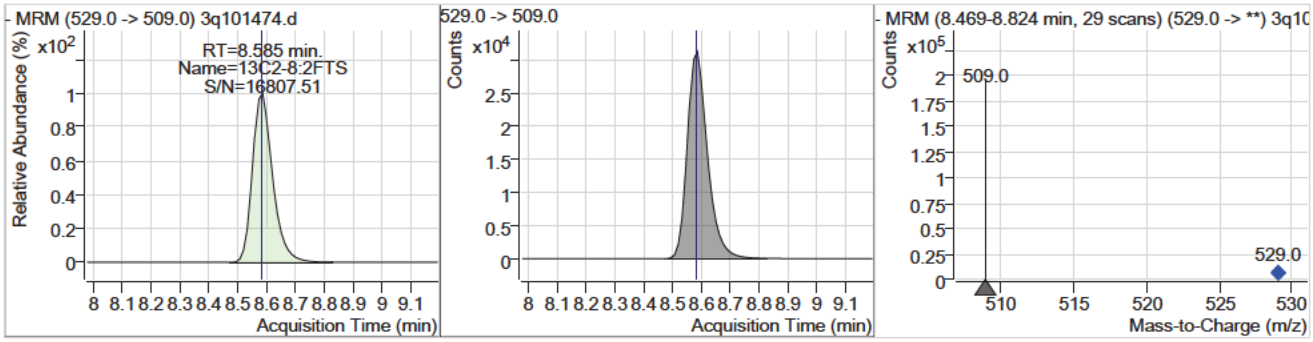
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	6.86	8.52	-0.03	249929				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	25.15	8.52	-0.03	355472	513.0 -> 219.0	23.4	11.7	35.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	6.29	8.58	-0.03	152138				



7.4.1

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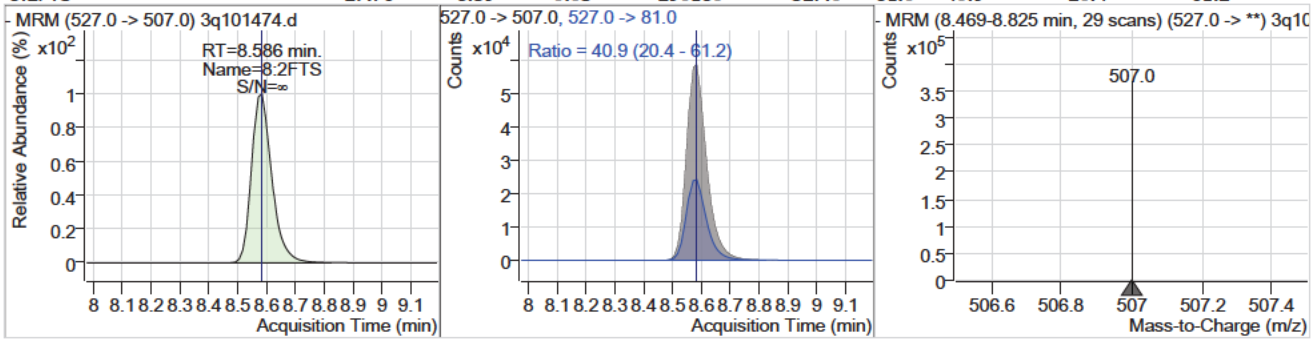
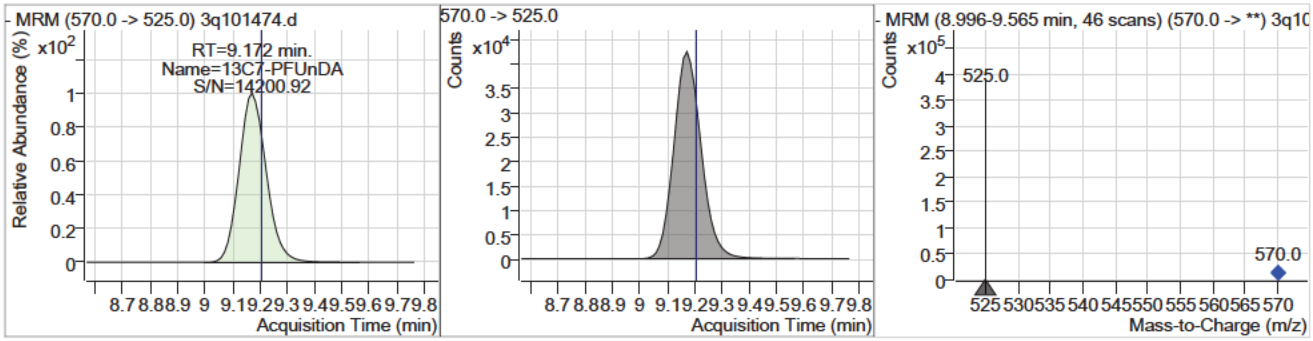
Perfluorinated Compounds by LC/MS/MS

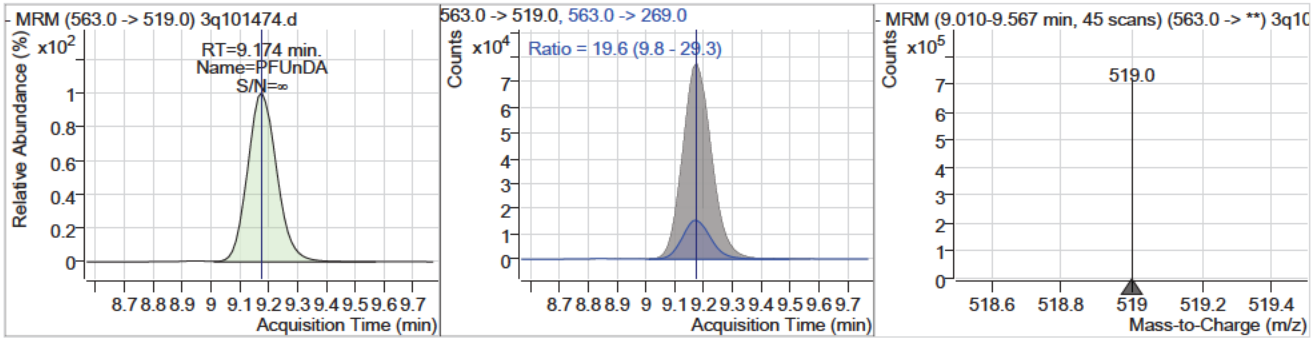
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	27.76	8.59	-0.03	290180	527.0 -> 81.0	40.9	20.4	61.2



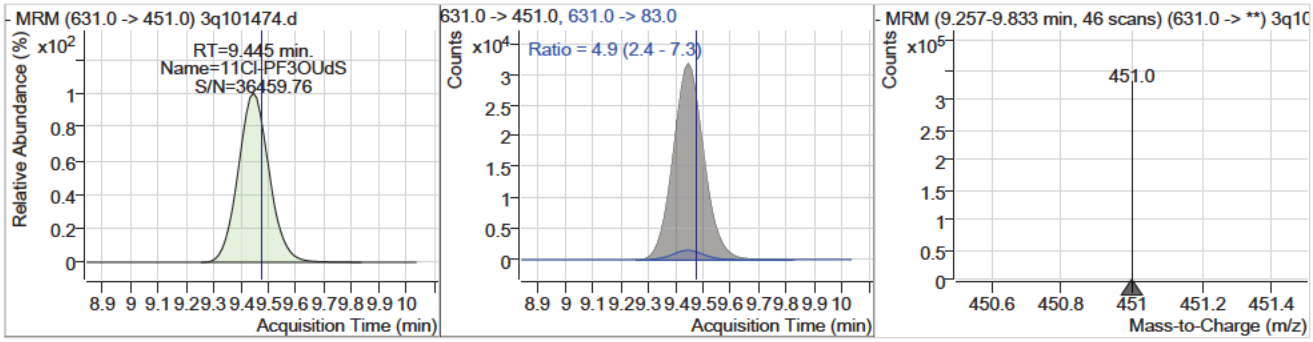
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	4.04	9.17	-0.05	293895				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	28.79	9.17	-0.05	545431	563.0 -> 269.0	19.6	9.8	29.3

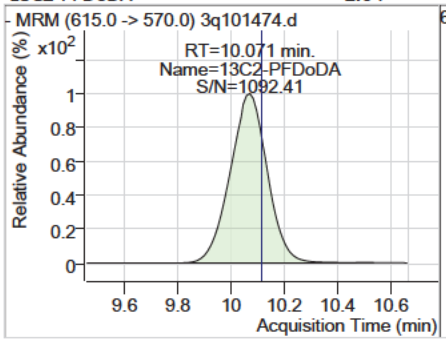


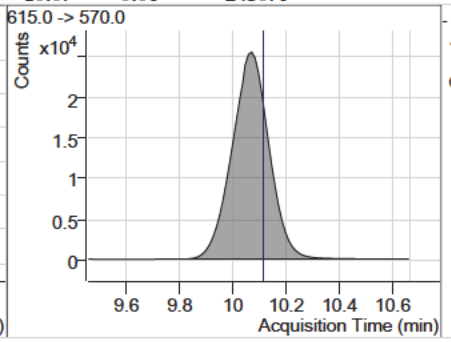
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	12.44	9.44	-0.06	246719	631.0 -> 83.0	4.9	2.4	7.3

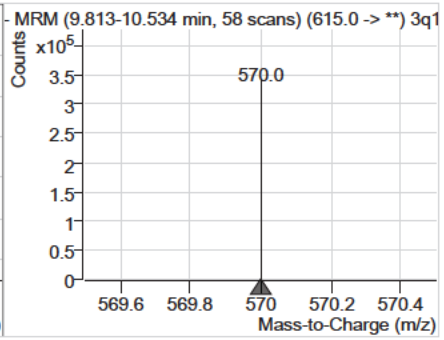


Perfluorinated Compounds by LC/MS/MS

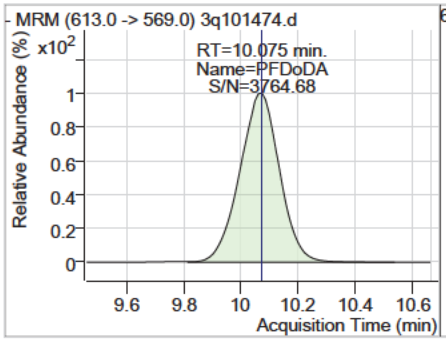
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	2.64	10.07	-0.06	245079				

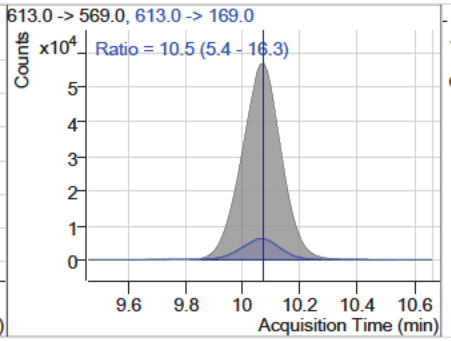


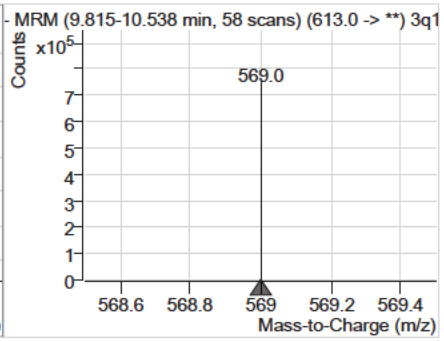




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	33.74	10.07	-0.06	549914	613.0 -> 169.0	10.5	5.4	16.3







7.4.1

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Manual Integration Approval Summary

Sample Number: OP8883-MS
Lab FileID: 3Q101474.D
Injection Time: 04/15/25 18:21

Method: EPA 533
Analyst approved: 04/17/25 11:17 (b) (6)
Supervisor approved: 04/17/25 11:46 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoroheptanoic acid	375-85-9		6.68	Split peak
Perfluorohexanesulfonic acid	355-46-4		6.71	Split peak
Perfluorooctanoic acid	335-67-1		7.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.97	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 10:39

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101527.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/17/2025 12:43:43 PM
Sample Name : op8907-ms:1
Vial : P3-C4
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1494.batch.bin
Sample Information : op8907,S3Q1494,285,,,1,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	7.447	415.0 -> 370.0	243304	10.00	µg/L	0.025
13C3-PFBA	2.344	216.0 -> 172.0	91913	10.00	µg/L	0.000
13C4-PFOS	8.008	503.0 -> 80.0	36091	10.00	µg/L	0.039
M4-PFBA	2.340	217.0 -> 172.0	127892	10.00	µg/L	0.000
M5-PFPeA	4.425	268.0 -> 223.0	157306	10.00	µg/L	0.013
M5-PFHxA	5.788	318.0 -> 273.0	203610	10.00	µg/L	0.013
M4-PFHpA	6.719	367.0 -> 322.0	172504	10.00	µg/L	0.025
M8-PFOA	7.447	421.0 -> 376.0	229733	10.00	µg/L	0.025
M9-PFNA	8.035	472.0 -> 427.0	248086	10.00	µg/L	0.038
M6-PFDA	8.558	519.0 -> 474.0	365271	10.00	µg/L	0.038
M7-PFUnDA	9.249	570.0 -> 525.0	599076	10.00	µg/L	0.064
M2-PFDoDA	10.196	615.0 -> 570.0	637140	10.00	µg/L	0.113
M3-PFBS	4.721	302.0 -> 99.0	17881	10.00	µg/L	0.013
M3-PFHxS	6.749	402.0 -> 99.0	25908	10.00	µg/L	0.025
M8-PFOS	8.008	507.0 -> 99.0	32461	10.00	µg/L	0.039
M2-4:2FTS	5.697	329.0 -> 309.0	67999	10.00	µg/L	0.025
M2-6:2FTS	7.445	429.0 -> 409.0	129668	10.00	µg/L	0.025
M2-8:2FTS	8.624	529.0 -> 509.0	204541	10.00	µg/L	0.039
M3-HFPO-DA	6.081	287.0 -> 169.0	2438	10.00	µg/L	0.025
System Monitoring Compounds						
13C2-4:2FTS	5.697	329.0 -> 309.0	67999	7.92	µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.2%		
13C2-6:2FTS	7.445	429.0 -> 409.0	129668	8.04	µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.4%		
13C2-8:2FTS	8.624	529.0 -> 509.0	204541	7.57	µg/L	0.039
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 75.7%		
13C2-PFDoDA	10.196	615.0 -> 570.0	637140	6.15	µg/L	0.113
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 61.5%		
13C3-PFBS	4.721	302.0 -> 99.0	17881	7.94	µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.4%		
13C3-PFHxS	6.749	402.0 -> 99.0	25908	8.08	µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.8%		
13C4-PFBA	2.340	217.0 -> 172.0	127892	8.20	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.0%		
13C4-PFHpA	6.719	367.0 -> 322.0	172504	8.38	µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 83.8%		
13C5-PFHxA	5.788	318.0 -> 273.0	203610	8.26	µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.6%		
13C5-PFPeA	4.425	268.0 -> 223.0	157306	8.37	µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 83.7%		
13C6-PFDA	8.558	519.0 -> 474.0	365271	8.97	µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.7%		
13C7-PFUnDA	9.249	570.0 -> 525.0	599076	7.37	µg/L	0.064
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 73.7%		
13C8-PFOA	7.447	421.0 -> 376.0	229737	8.60	µg/L	0.025

Perfluorinated Compounds by LC/MS/MS

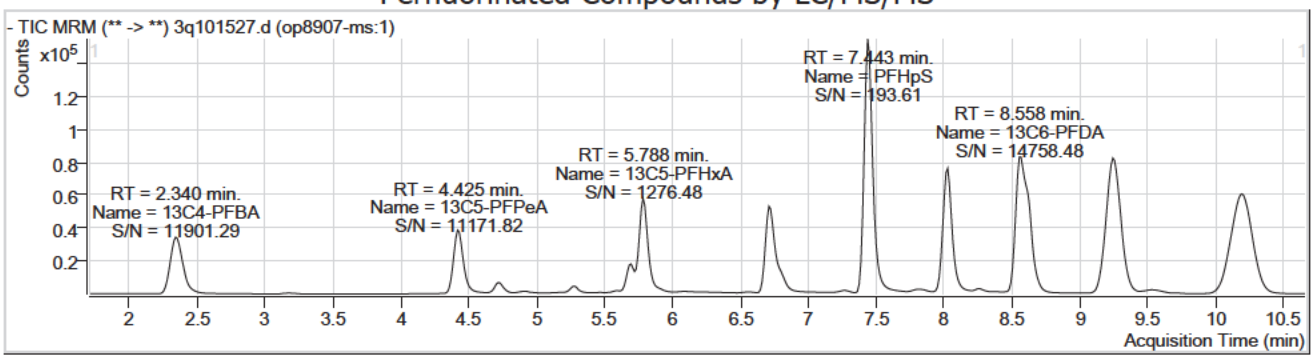
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 86.0%		
13C8-PFOS	8.008	507.0 -> 99.0	32461	7.91 µg/L		0.039
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.1%		
13C9-PFNA	8.035	472.0 -> 427.0	248086	8.54 µg/L		0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 85.4%		
13C3-HFPO-DA	6.081	287.0 -> 169.0	2438	6.88 µg/L		0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 68.8%		
Target Compounds						QValue
PFMPA	3.178	229.0 -> 85.0	4060	0.98 µg/L		100
4:2FTS	5.699	327.0 -> 307.0	7284	0.88 µg/L		96
		327.0 -> 81.0	3251			
6:2FTS	7.445	427.0 -> 407.0	10823	0.98 µg/L		99
		427.0 -> 81.0	4835			
8:2FTS	8.625	527.0 -> 507.0	15466	1.10 µg/L		95
		527.0 -> 81.0	5827			
PFMBA	4.913	279.0 -> 85.0	5517	0.95 µg/L		100
PFEESA	5.274	315.0 -> 135.0	15324	0.95 µg/L		100
		315.0 -> 69.0	1184			
NFDHA	5.607	201.0 -> 85.0	4587	0.90 µg/L		100
		295.0 -> 201.0	296			
PFBA	2.348	213.0 -> 169.0	6662	1.88 µg/L		100
PFBS	4.722	299.0 -> 80.0	8176	2.26 µg/L		95
		299.0 -> 99.0	3690			
PFDA	8.559	513.0 -> 469.0	19178	0.93 µg/L		97
		513.0 -> 219.0	4190			
PFDoDA	10.200	613.0 -> 569.0	38109	0.90 µg/L		97
		613.0 -> 169.0	3709			
PFHpA	6.720	363.0 -> 319.0	44541	1.84 µg/L		100
		363.0 -> 169.0	3726			
PFHpS	7.443	449.0 -> 80.0	4872	1.03 µg/L		99
		449.0 -> 99.0	2703			
PFHxA	5.791	313.0 -> 269.0	51063	2.66 µg/L		99
		313.0 -> 119.0	1895			
PFHxS	6.750	399.0 -> 80.0	12881	2.82 µg/L	m	99
		399.0 -> 99.0	6730			
PFNA	8.036	463.0 -> 419.0	20547	1.01 µg/L		97
		463.0 -> 219.0	5757			
PFOA	7.448	413.0 -> 369.0	46442	2.62 µg/L	m	96
		413.0 -> 169.0	18405			
PFOS	8.009	499.0 -> 80.0	20308	3.91 µg/L	m	90
		499.0 -> 99.0	9153			
PFPeA	4.427	263.0 -> 219.0	39601	3.34 µg/L		100
PFPeS	5.908	349.0 -> 80.0	3057	1.16 µg/L		97
		349.0 -> 99.0	1223			
PFUnDA	9.252	563.0 -> 519.0	35458	0.92 µg/L		96
		563.0 -> 269.0	6228			
11Cl-PF3OUdS	9.545	631.0 -> 451.0	16201	0.67 µg/L		100
		631.0 -> 83.0	816			
9Cl-PF3ONS	8.254	531.0 -> 351.0	6924	0.83 µg/L		99
		531.0 -> 83.0	334			
ADONA	6.805	377.0 -> 251.0	31906	0.85 µg/L		98
		377.0 -> 85.0	4019			
HFPO-DA	6.089	329.0 -> 169.0	57	0.93 µg/L		100
		285.0 -> 169.0	137			

= Qualifier out of range, m = manually integrated, + = Area summed

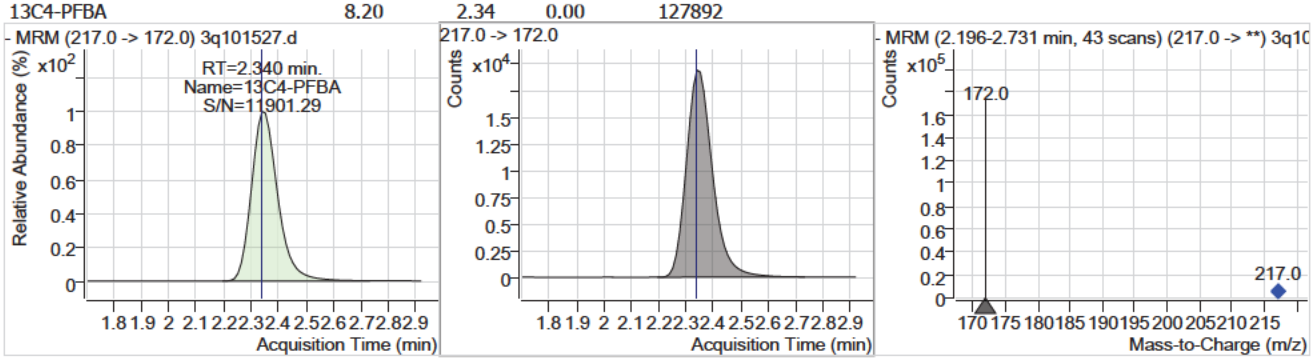
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)

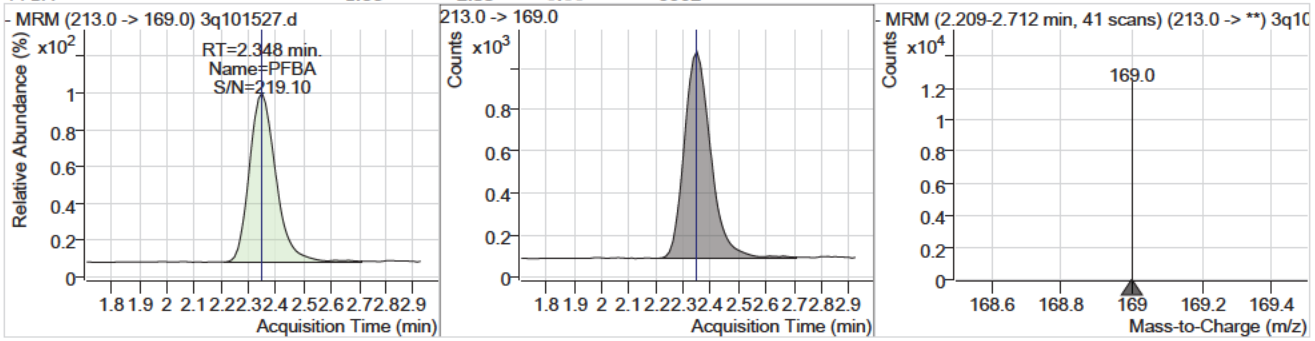
Perfluorinated Compounds by LC/MS/MS



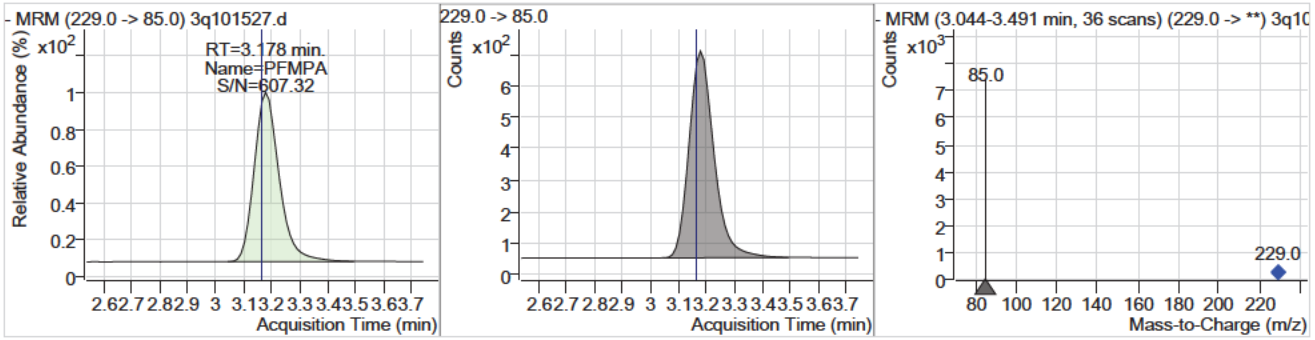
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	8.20	2.34	0.00	127892				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	1.88	2.35	0.00	6662				

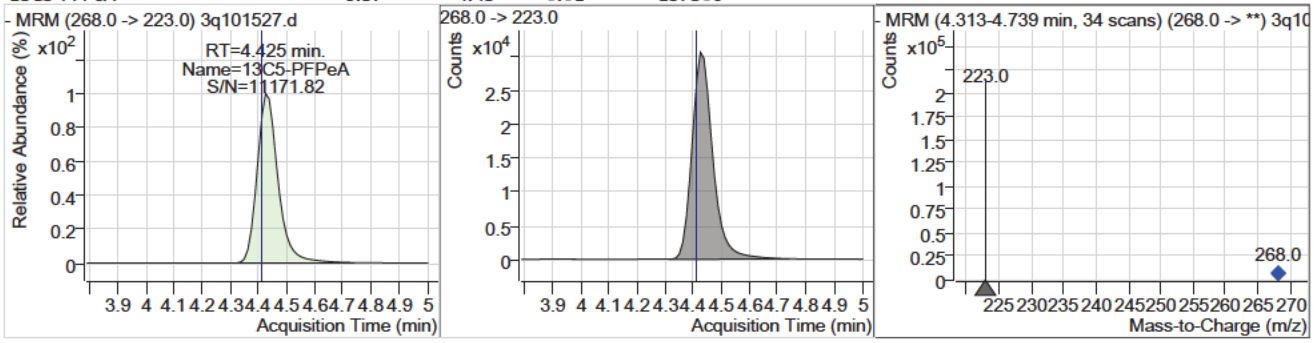


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	0.98	3.18	0.01	4060				

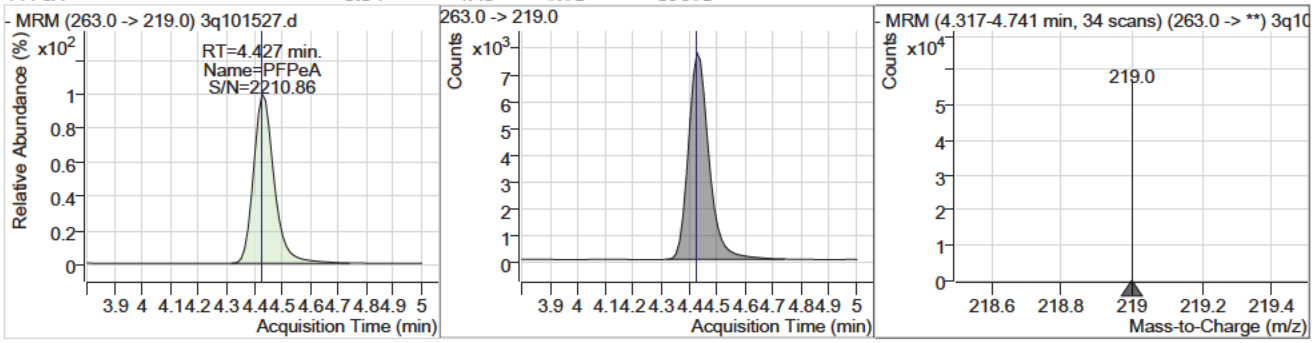


Perfluorinated Compounds by LC/MS/MS

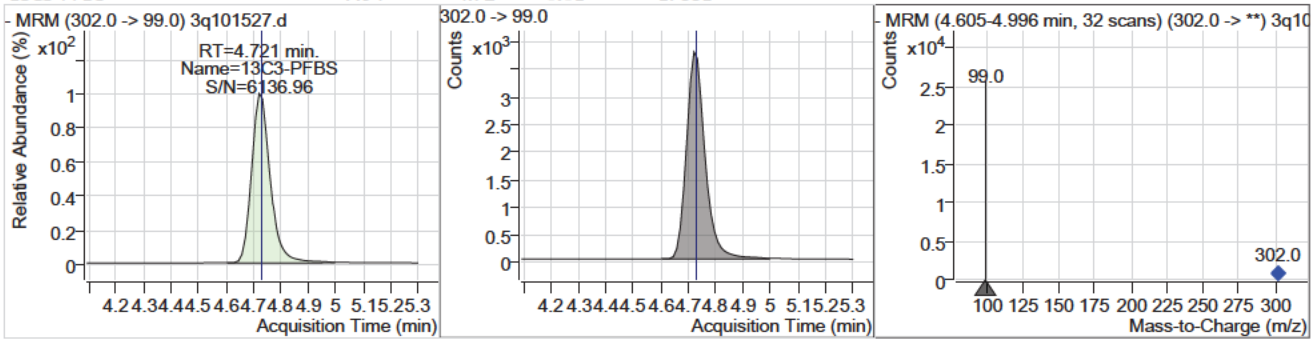
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	8.37	4.43	0.01	157306				



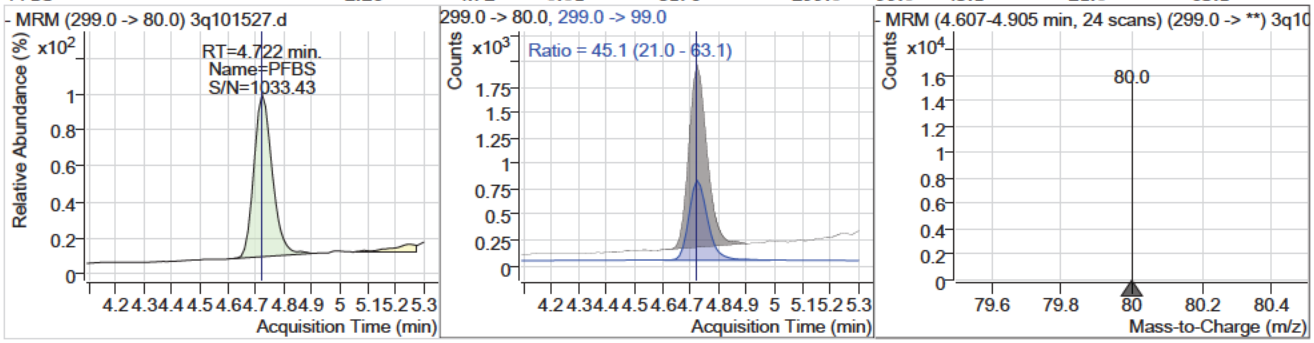
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	3.34	4.43	0.01	39601				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	7.94	4.72	0.01	17881				



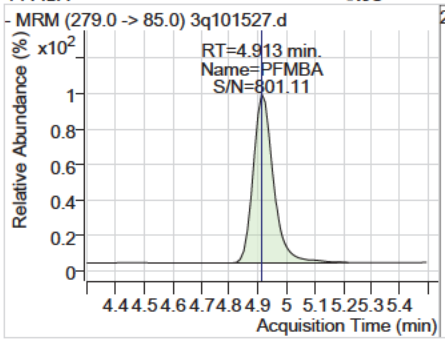
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.26	4.72	0.01	8176	299.0 -> 99.0	45.1	21.0	63.1

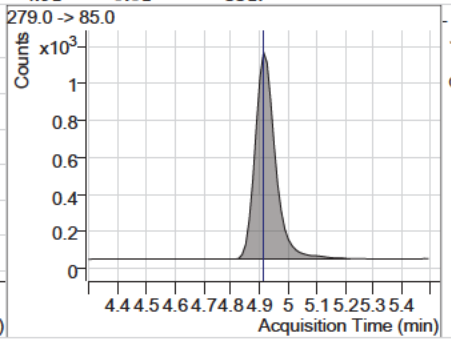


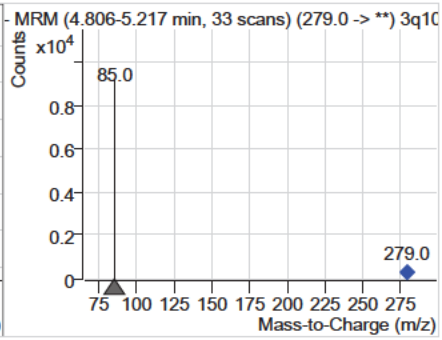
7.4.2 7

Perfluorinated Compounds by LC/MS/MS

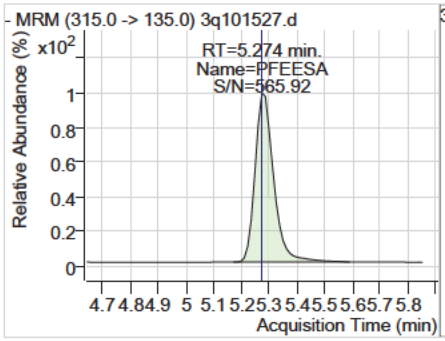
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.95	4.91	0.01	5517				

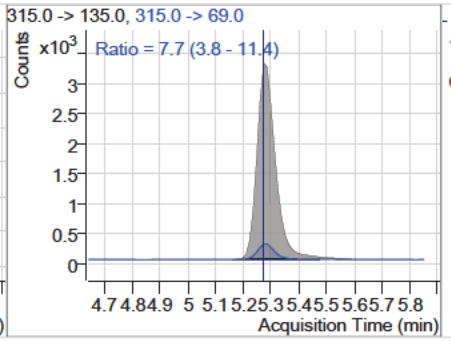


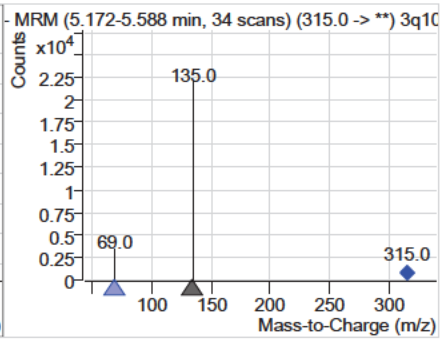




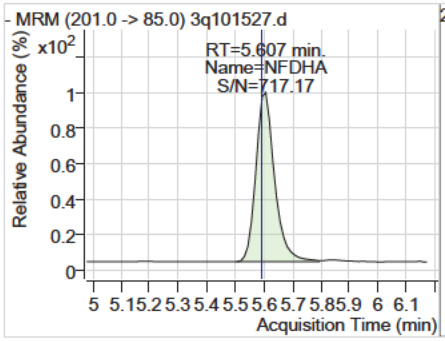
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.95	5.27	0.01	15324	315.0 -> 69.0	7.7	3.8	11.4

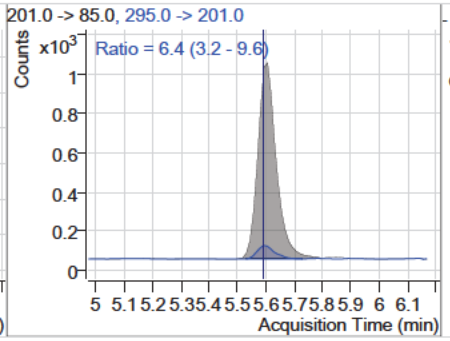


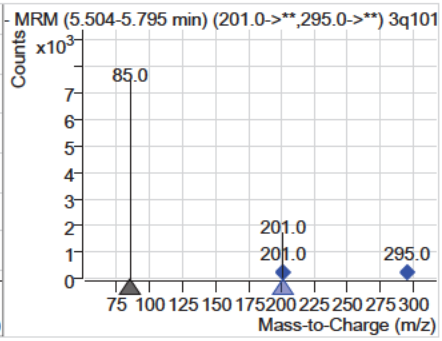




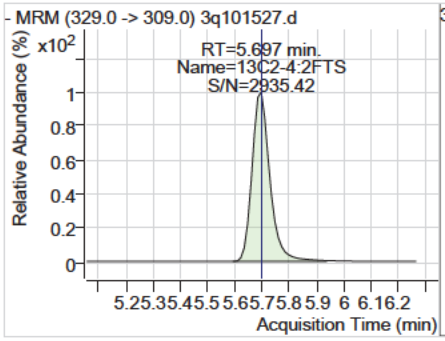
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	0.90	5.61	0.03	4587	295.0 -> 201.0	6.4	3.2	9.6

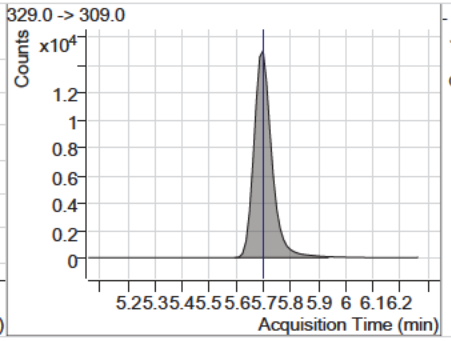


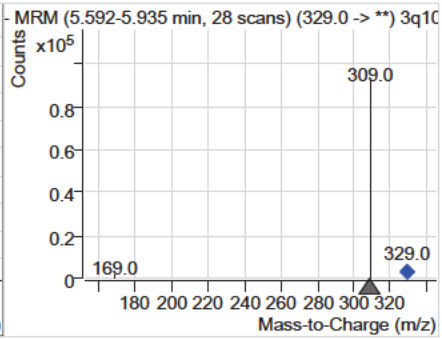




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	7.92	5.70	0.03	67999				



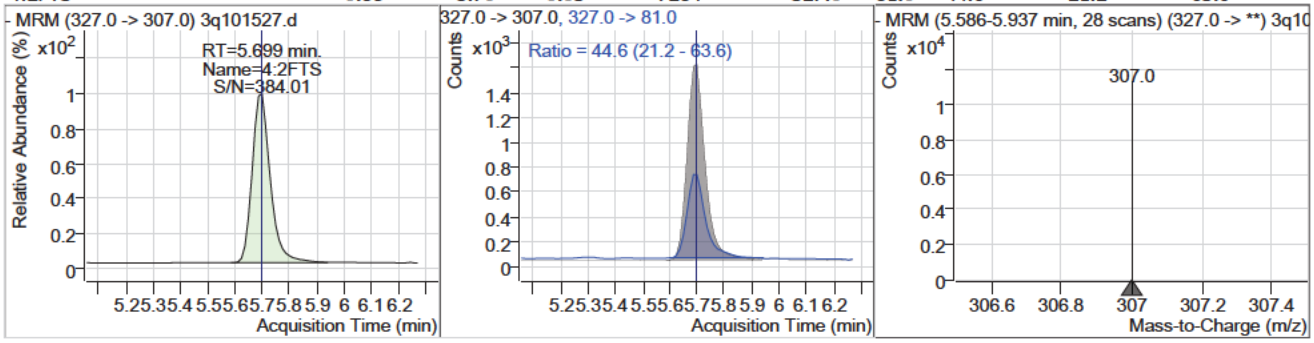




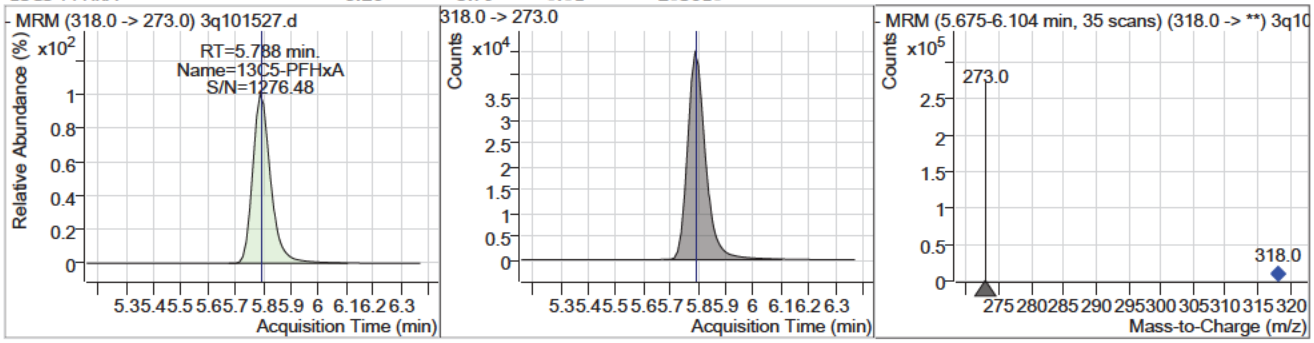
7.4.2 7

Perfluorinated Compounds by LC/MS/MS

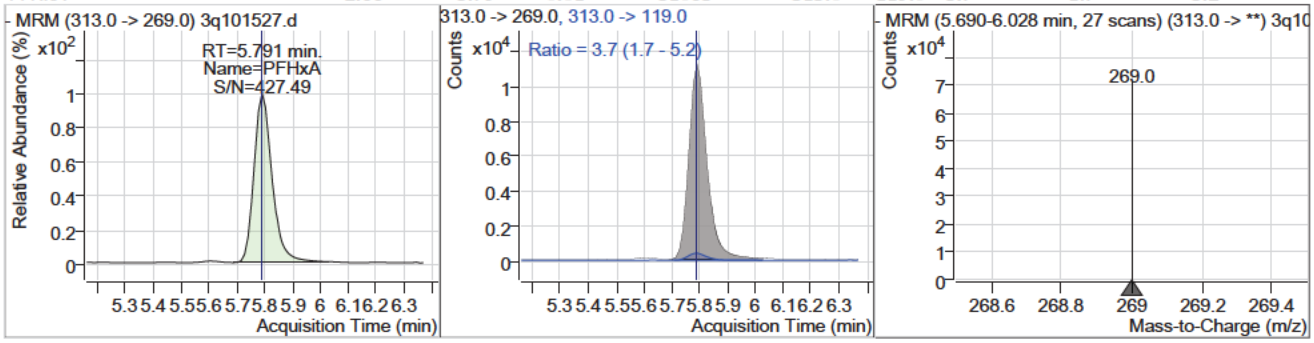
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	0.88	5.70	0.03	7284	327.0 -> 81.0	44.6	21.2	63.6



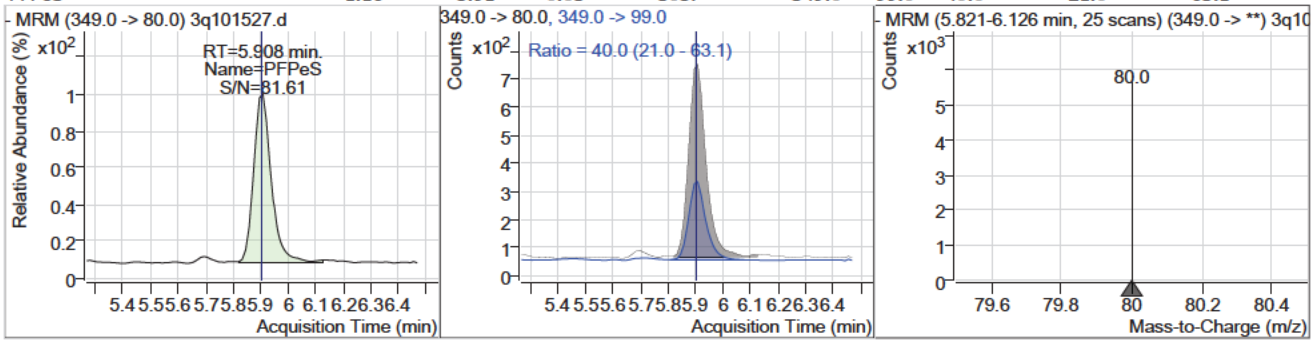
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	8.26	5.79	0.01	203610				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.66	5.79	0.01	51063	313.0 -> 119.0	3.7	1.7	5.2



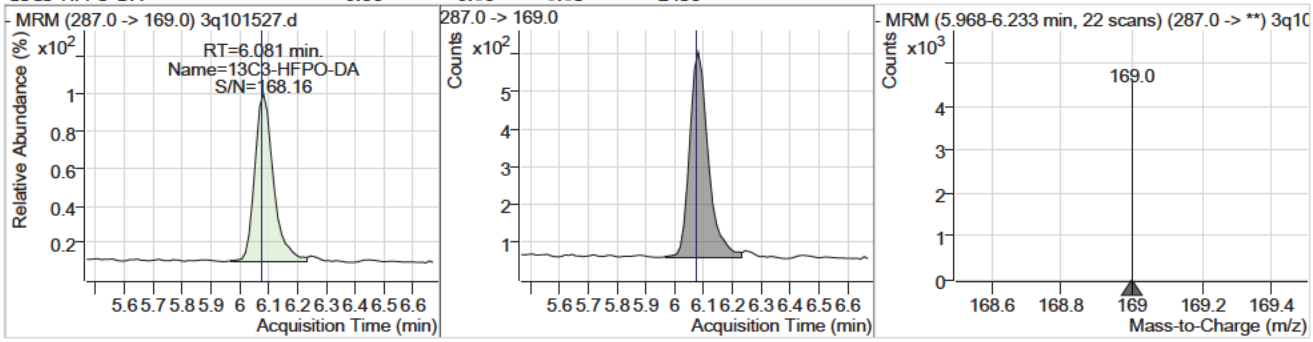
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	1.16	5.91	0.03	3057	349.0 -> 99.0	40.0	21.0	63.1



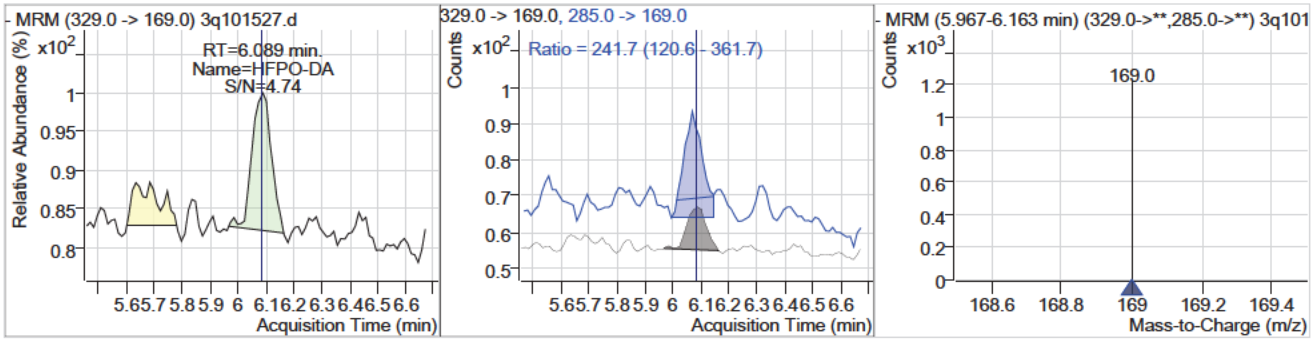
7.4.2 7

Perfluorinated Compounds by LC/MS/MS

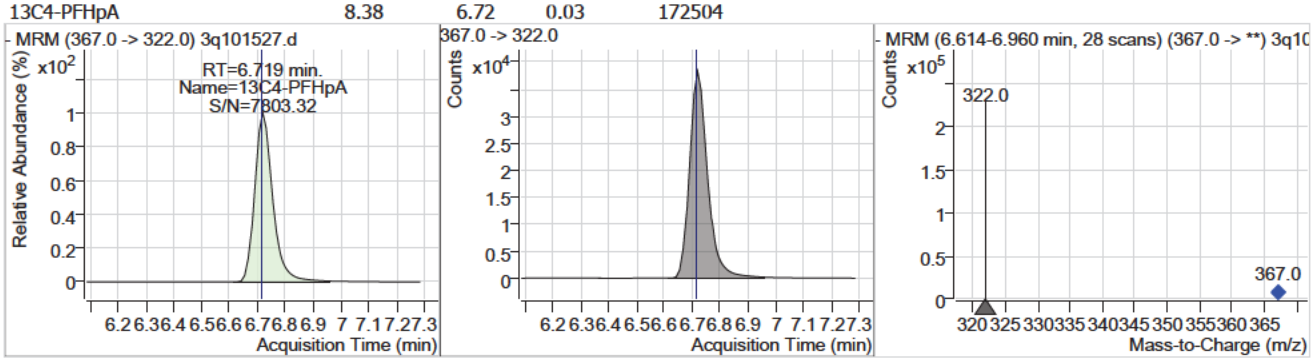
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	6.88	6.08	0.03	2438				



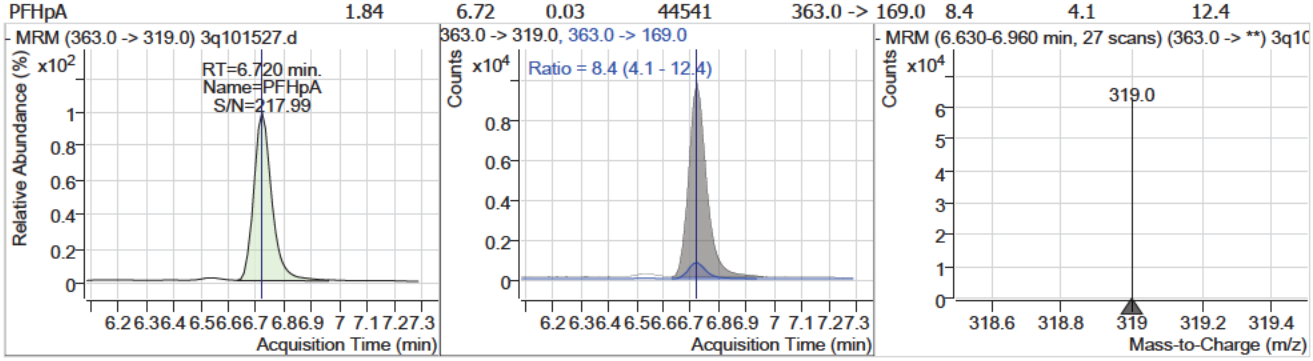
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.93	6.09	0.03	57	285.0 -> 169.0	241.7	120.6	361.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	8.38	6.72	0.03	172504				



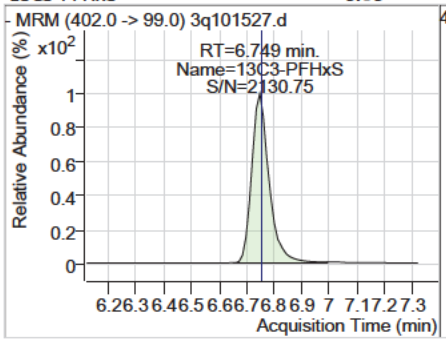
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.84	6.72	0.03	44541	363.0 -> 169.0	8.4	4.1	12.4

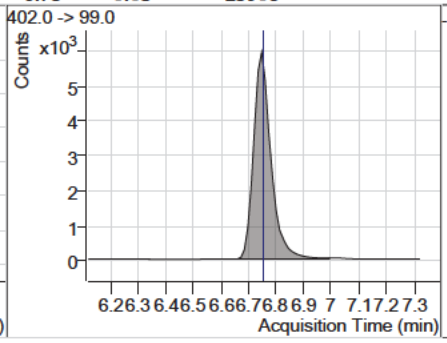


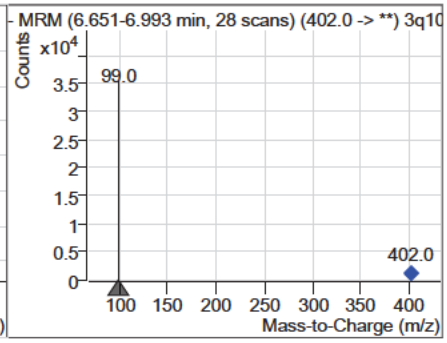
7.4.2 7

Perfluorinated Compounds by LC/MS/MS

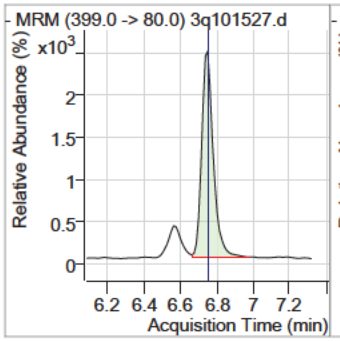
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	8.08	6.75	0.03	25908				

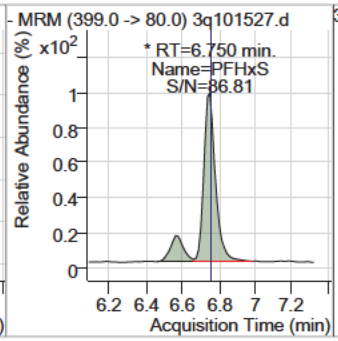


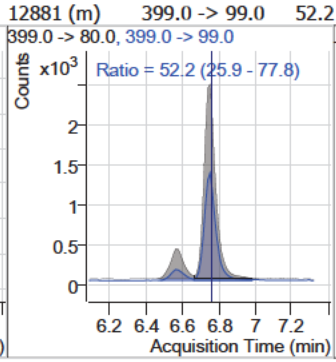


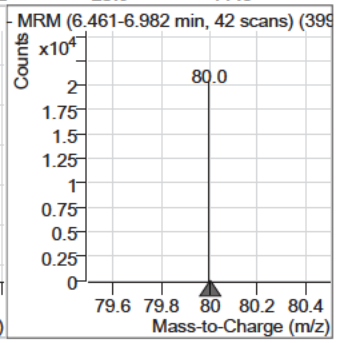


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.82	6.75	0.03	12881 (m)	399.0 -> 99.0	52.2	25.9	77.8

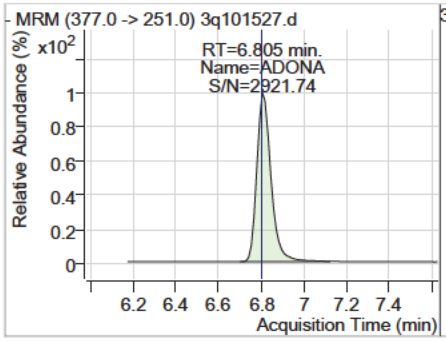


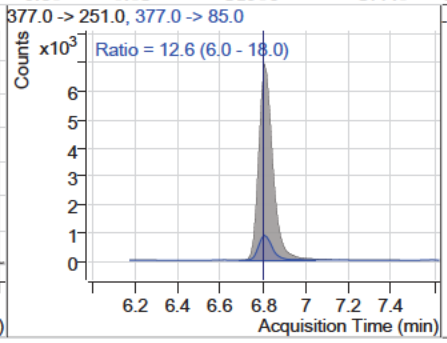


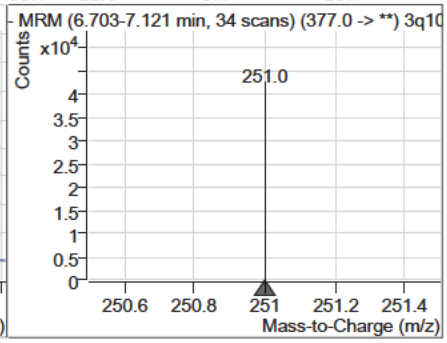




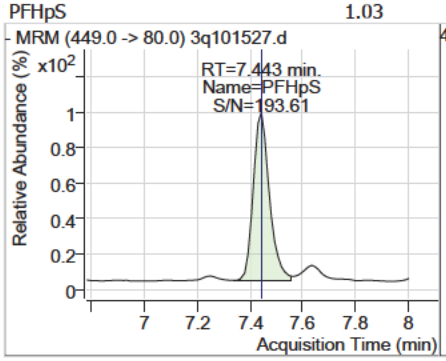
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.85	6.80	0.03	31906	377.0 -> 85.0	12.6	6.0	18.0

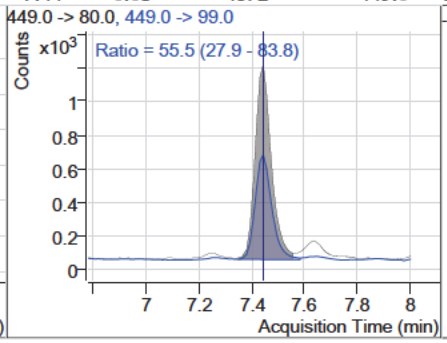


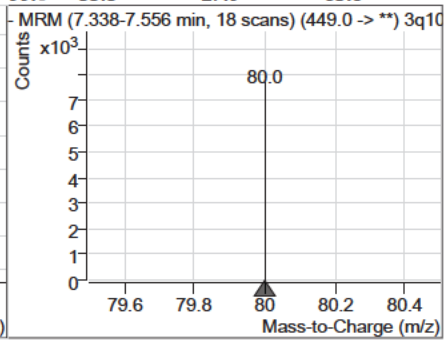




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	1.03	7.44	0.03	4872	449.0 -> 99.0	55.5	27.9	83.8

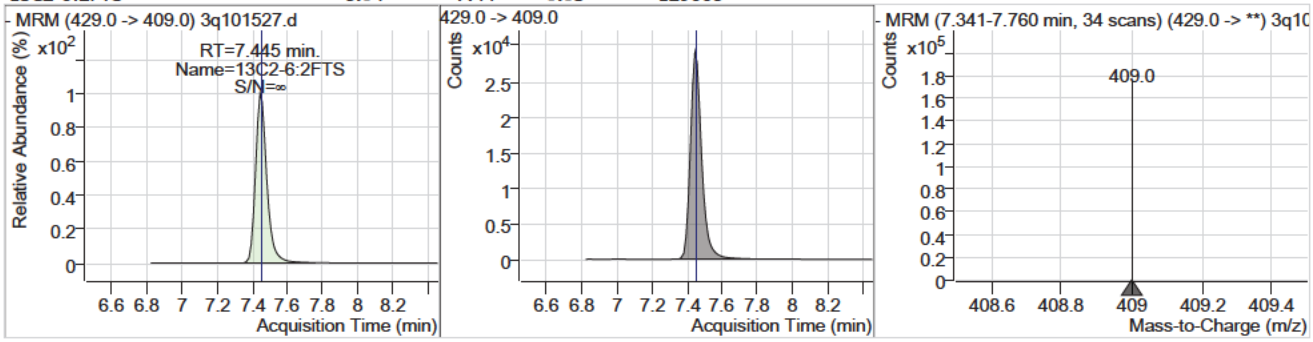




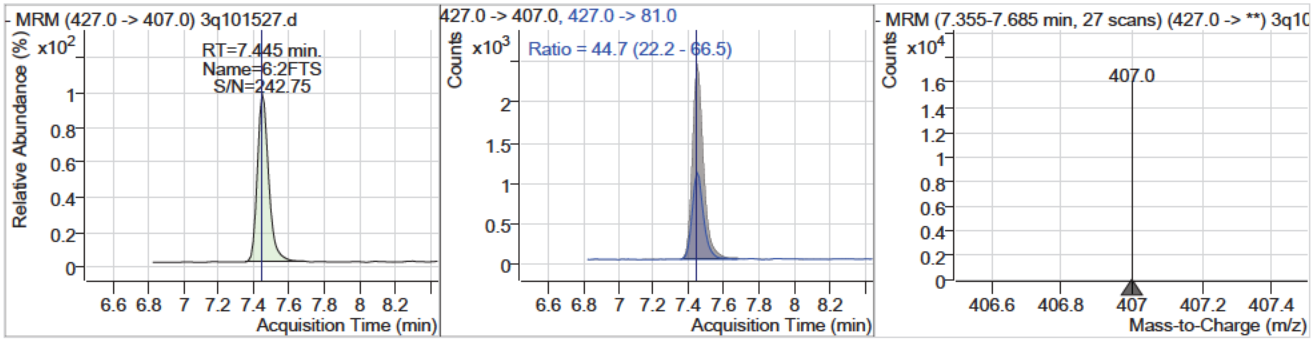


Perfluorinated Compounds by LC/MS/MS

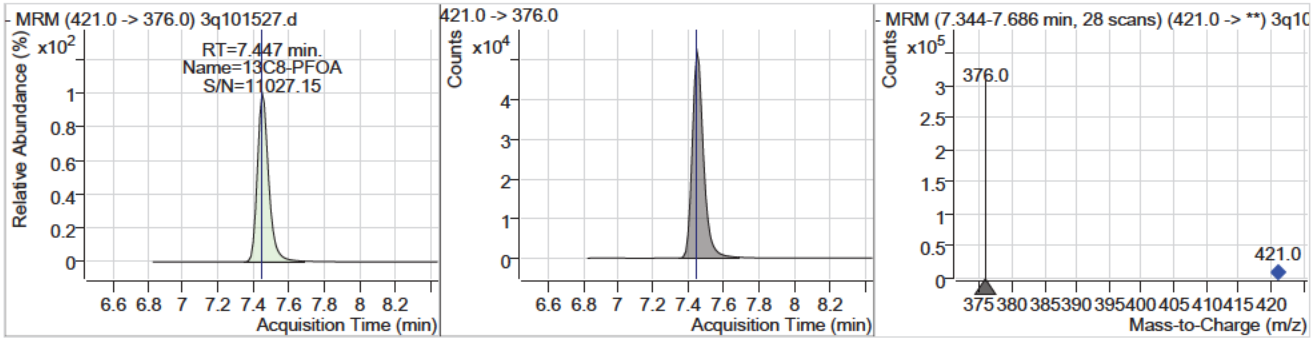
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	8.04	7.44	0.03	129668				



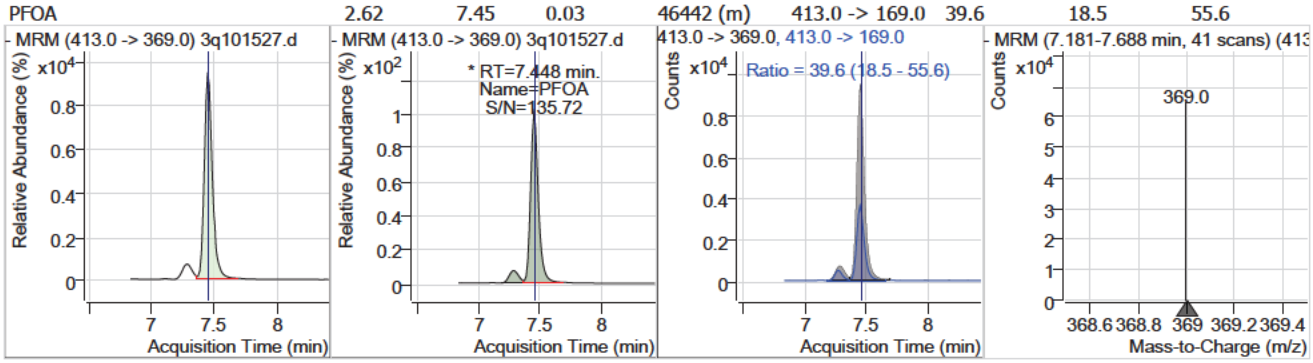
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.98	7.45	0.03	10823	427.0 -> 81.0	44.7	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	8.60	7.45	0.03	229737				

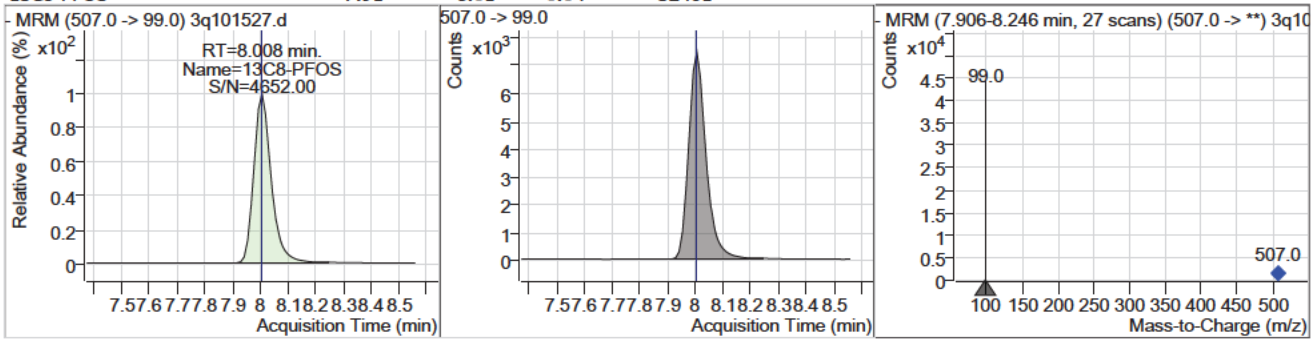


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	2.62	7.45	0.03	46442 (m)	413.0 -> 169.0	39.6	18.5	55.6

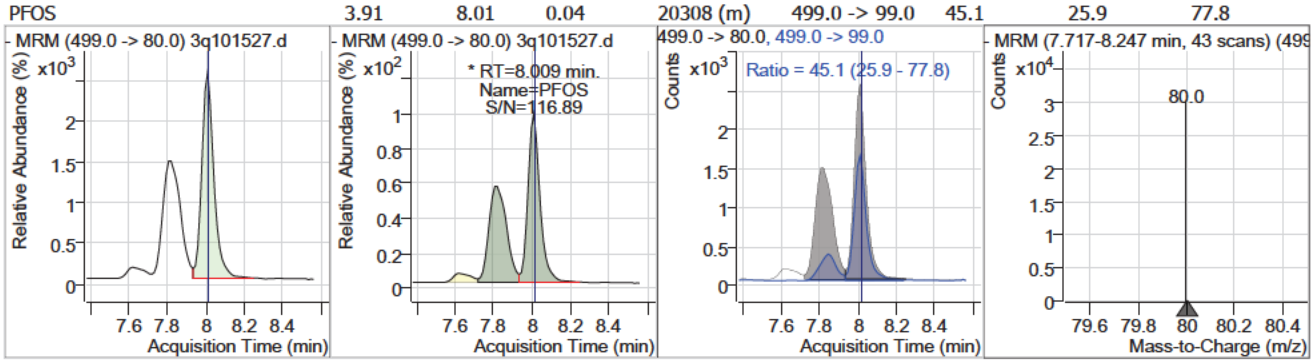


Perfluorinated Compounds by LC/MS/MS

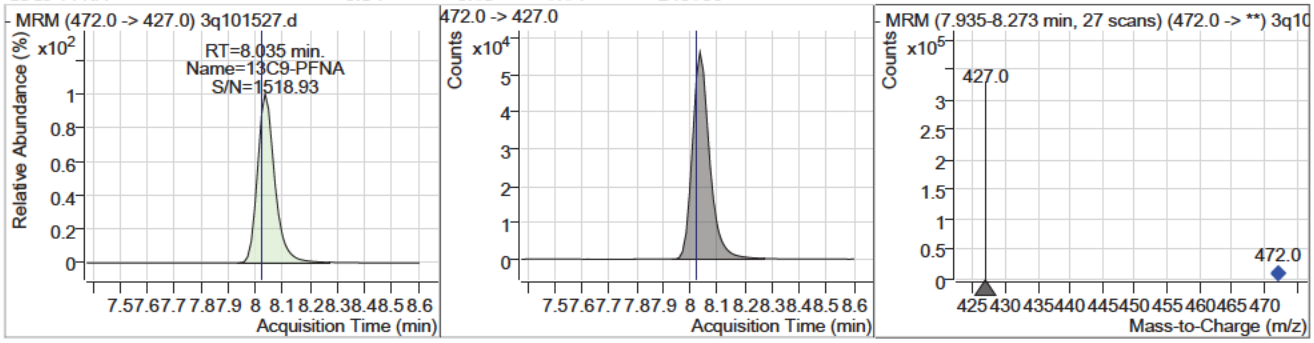
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	7.91	8.01	0.04	32461				



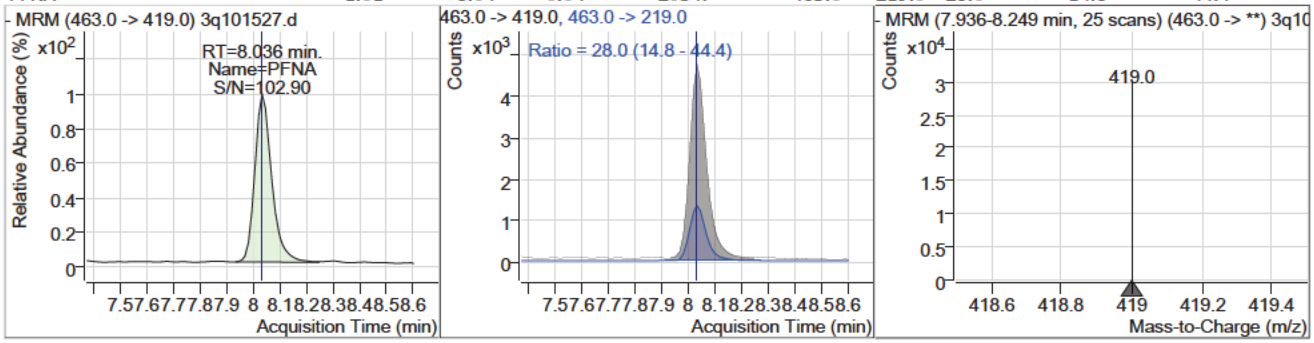
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	3.91	8.01	0.04	20308 (m)	499.0 -> 99.0	45.1	25.9	77.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	8.54	8.03	0.04	248086				



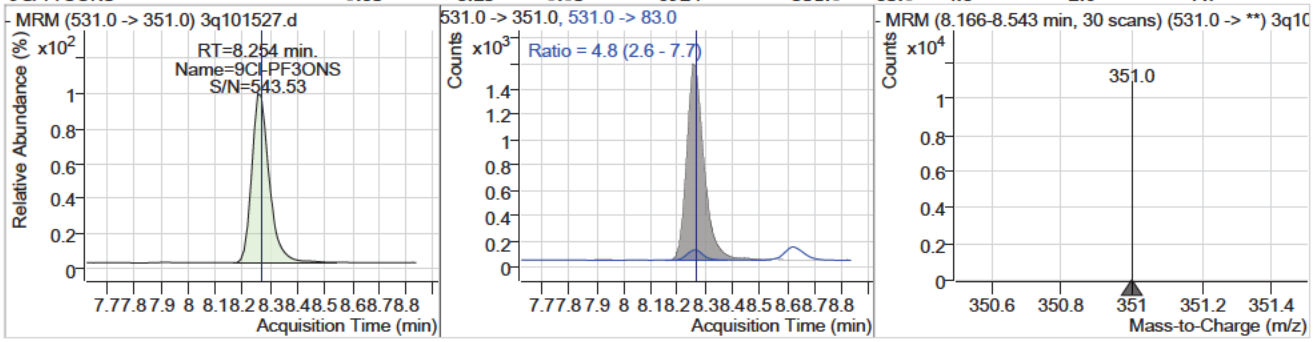
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.01	8.04	0.04	20547	463.0 -> 219.0	28.0	14.8	44.4



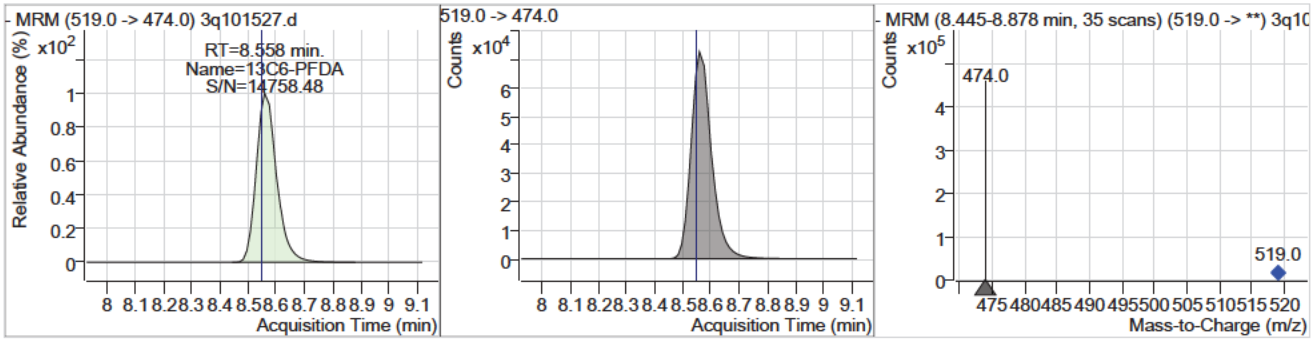
7.4.2 7

Perfluorinated Compounds by LC/MS/MS

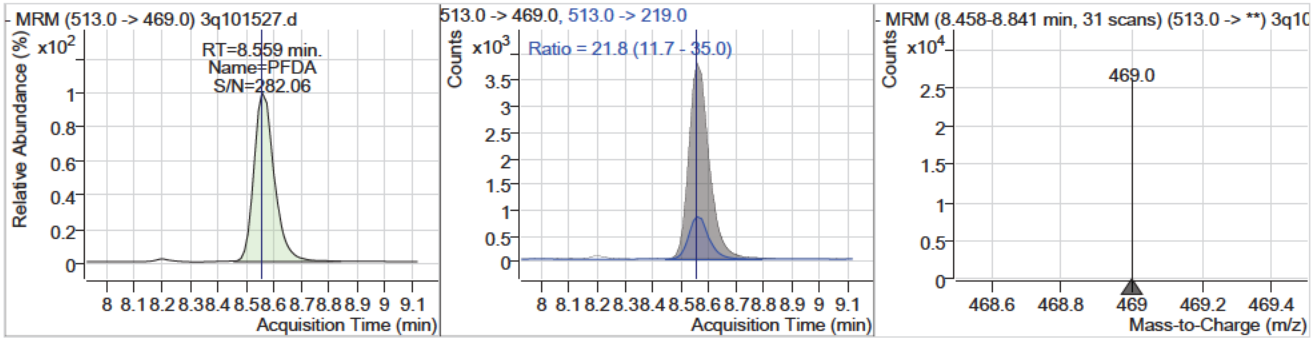
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.83	8.25	0.03	6924	531.0 -> 83.0	4.8	2.6	7.7



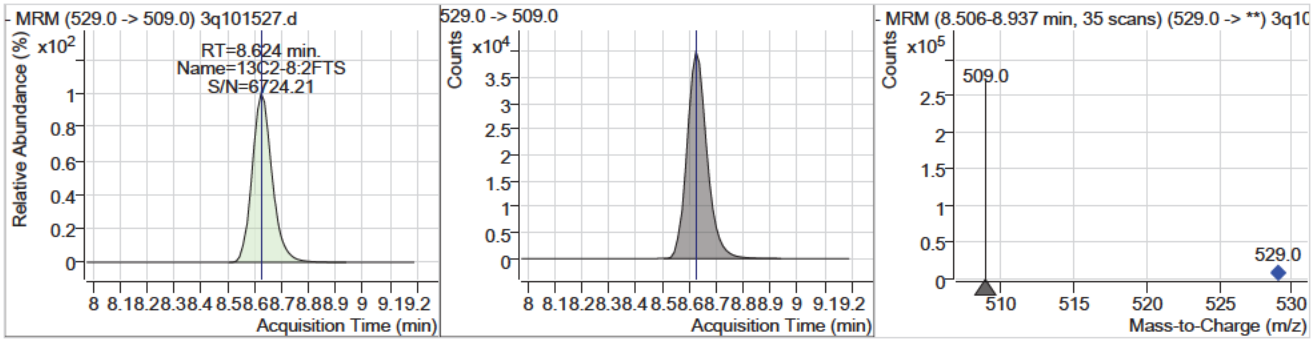
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	8.97	8.56	0.04	365271				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.93	8.56	0.04	19178	513.0 -> 219.0	21.8	11.7	35.0



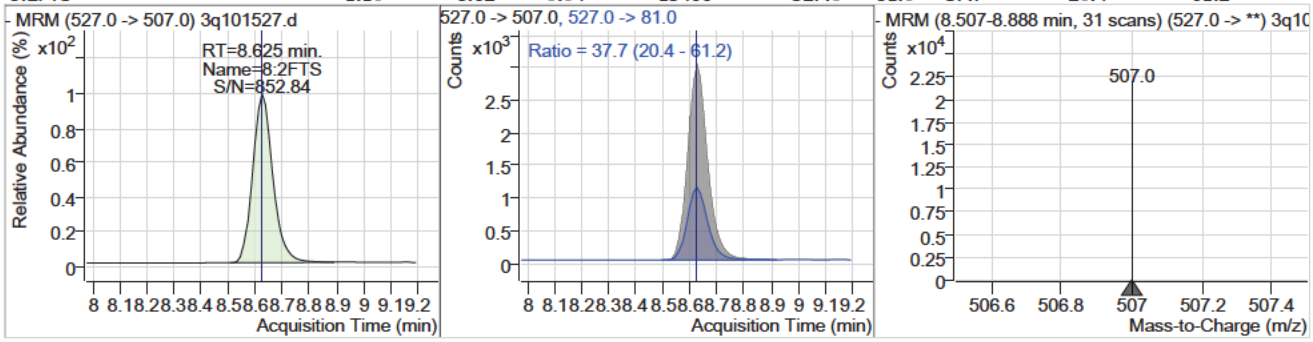
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	7.57	8.62	0.04	204541				



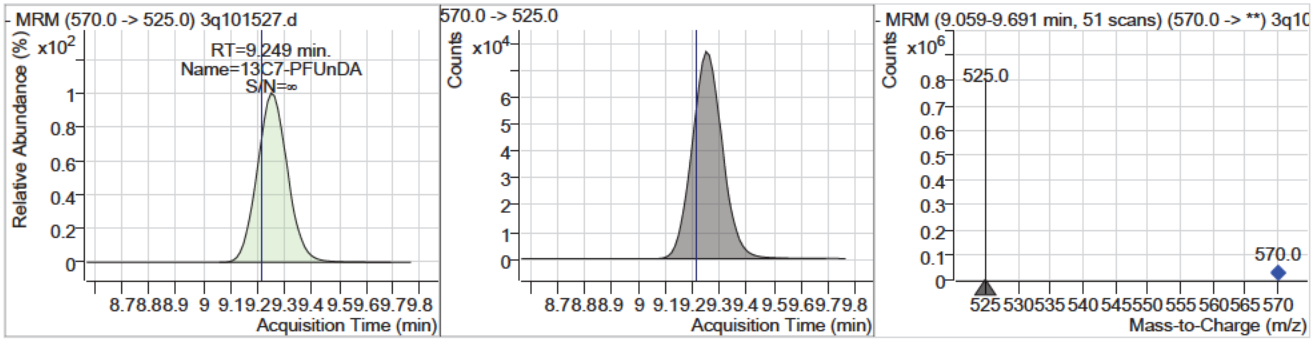
7.4.2 7

Perfluorinated Compounds by LC/MS/MS

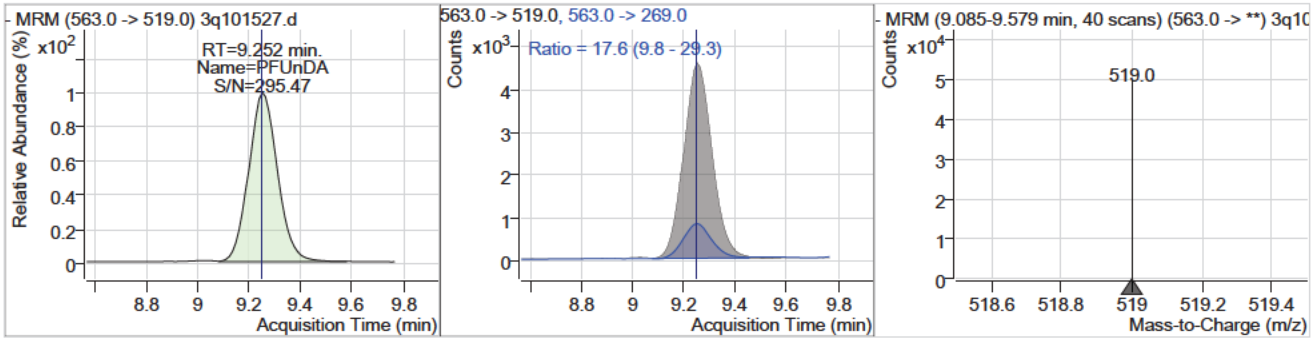
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	1.10	8.62	0.04	15466	527.0 -> 81.0	37.7	20.4	61.2



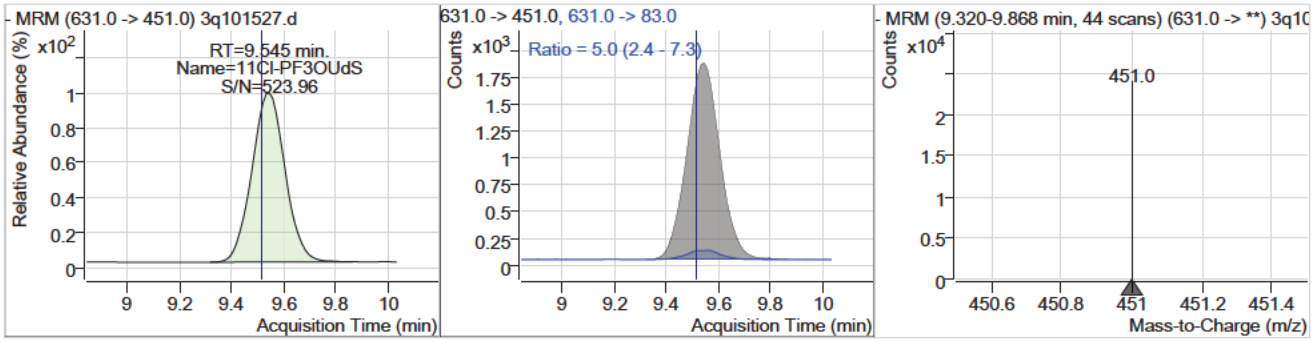
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	7.37	9.25	0.06	599076				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.92	9.25	0.07	35458	563.0 -> 269.0	17.6	9.8	29.3

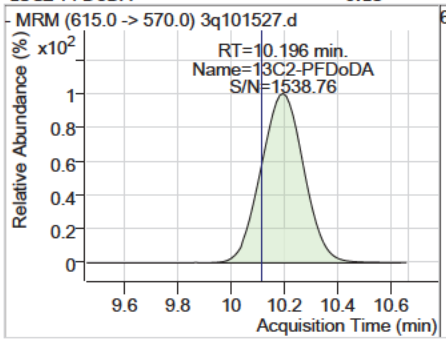


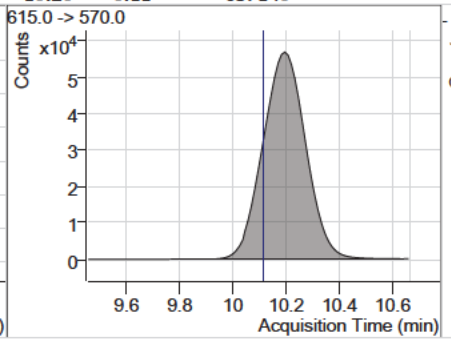
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.67	9.54	0.08	16201	631.0 -> 83.0	5.0	2.4	7.3

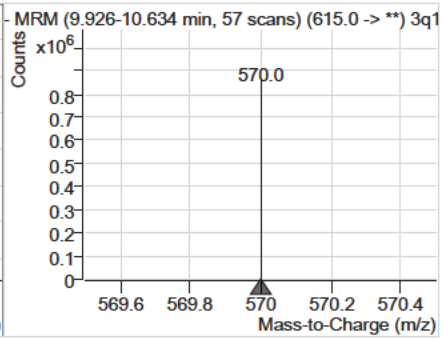


Perfluorinated Compounds by LC/MS/MS

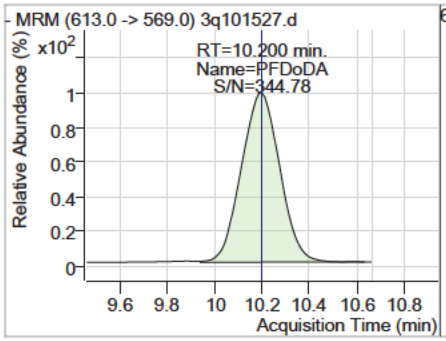
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	6.15	10.20	0.11	637140				

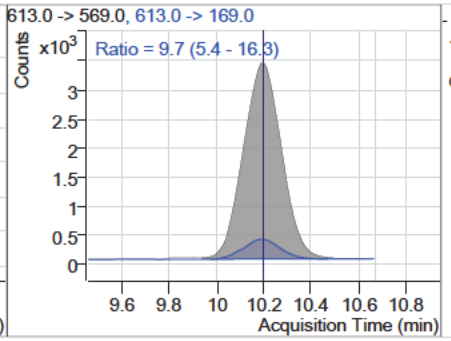


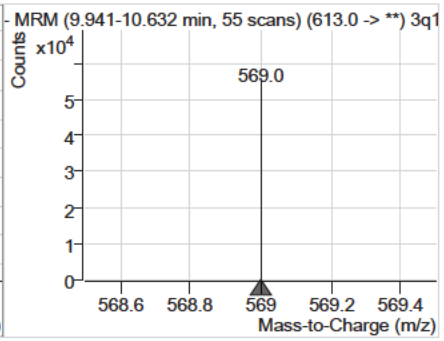




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.90	10.20	0.11	38109	613.0 -> 169.0	9.7	5.4	16.3







7.4.2 7

Manual Integration Approval Summary

Sample Number: OP8907-MS
Lab FileID: 3Q101527.D
Injection Time: 04/17/25 12:43

Method: EPA 533
Analyst approved: 04/18/25 10:32 (b) (6) [redacted]
Supervisor approved: 04/18/25 10:39 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.75	Split peak
Perfluorooctanoic acid	335-67-1		7.45	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.01	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 09:20

Perfluorinated Compounds by LC/MS/MS

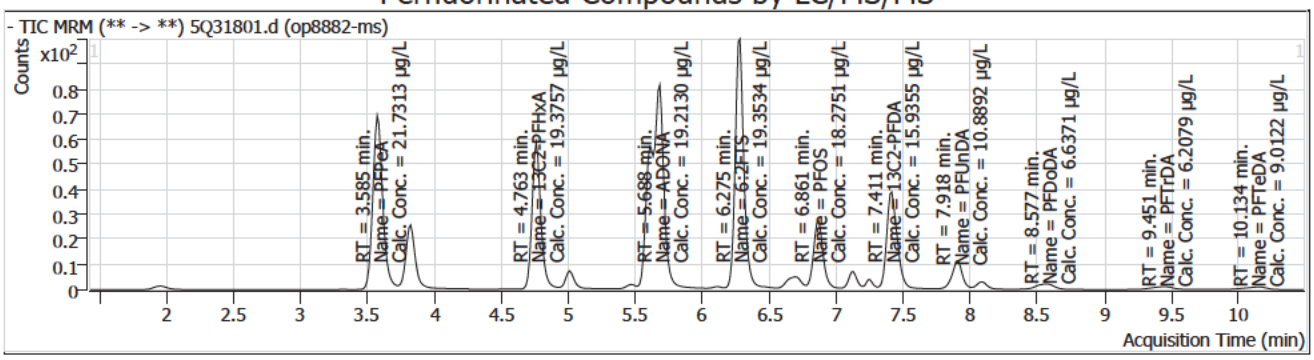
Data File : 5Q31801.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/16/2025 4:01:22 PM
Sample Name : op8882-ms
Vial : P2-C4
DA Method File : 537_041625_S5Q522.quantmethod
Batch Name : s5q522.batch.bin
Sample Information : OP8882,S5Q522,280,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	161191	20.00	µg/L		-0.012
13C2-PFOA	6.289	415.0 -> 370.0	343559	20.00	µg/L		0.000
13C3-PFPeA	3.582	266.0 -> 222.0	445987	20.00	µg/L		-0.025
13C4-PFOS	6.860	503.0 -> 80.0	81173	20.00	µg/L		0.000
d3-MeFOSAA	7.242	573.0 -> 419.0	27196	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	225688	15.94	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 79.7%			
13C2-PFHxA	4.763	315.0 -> 270.0	449919	19.38	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 96.9%			
d5-EtFOSAA	7.378	589.0 -> 419.0	11046	21.31	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 53.3%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	61191	37.53	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 93.8%			
Target Compounds							QValue
6:2FTS	6.275	427.0 -> 407.0	177858	19.35	µg/L		99
8:2FTS	7.459	527.0 -> 507.0	109397	16.52	µg/L		100
EtFOSAA	7.380	584.0 -> 419.0	5650	12.00	µg/L	m	93
MeFOSAA	7.256	570.0 -> 419.0	7968	11.74	µg/L	m	100
PFBS	3.828	299.0 -> 80.0	250141	21.54	µg/L		100
PFDA	7.411	513.0 -> 469.0	191891	16.00	µg/L		99
PFDoDA	8.577	613.0 -> 569.0	60399	6.64	µg/L		99
PFHpA	5.614	363.0 -> 319.0	575019	19.50	µg/L		100
PFHxA	4.764	313.0 -> 269.0	306773	20.49	µg/L		100
PFHxS	5.635	399.0 -> 80.0	145158	20.54	µg/L	m	99
PFNA	6.886	463.0 -> 419.0	216147	18.76	µg/L	m	100
PFOA	6.290	413.0 -> 369.0	342443	20.81	µg/L	m	100
PFOS	6.861	499.0 -> 80.0	97652	18.28	µg/L	m	98
PFPeA	3.585	263.0 -> 219.0	604879	21.73	µg/L		100
PFTeDA	10.134	713.0 -> 669.0	33598	9.01	µg/L		99
PFTrDA	9.451	663.0 -> 619.0	33395	6.21	µg/L		100
PFUnDA	7.918	563.0 -> 519.0	135948	10.89	µg/L		99
ADONA	5.688	377.0 -> 251.0	731389	19.21	µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	67656	14.55	µg/L		99
11Cl-PF3OUdS	8.087	631.0 -> 451.0	34455	7.46	µg/L		99
HFPO-DA	5.022	285.0 -> 169.0	26730	19.22	µg/L		100

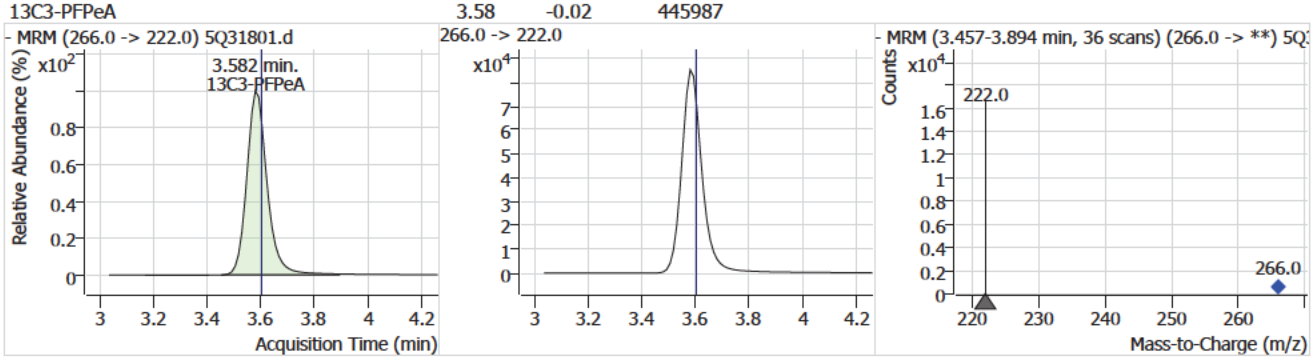
= Qualifier out of range, m = manually integrated, + = Area summed

7.4.3

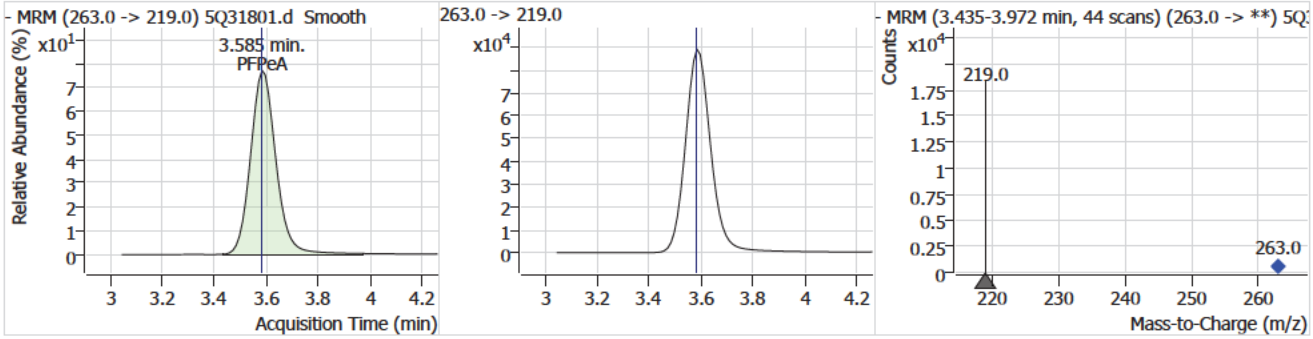
Perfluorinated Compounds by LC/MS/MS



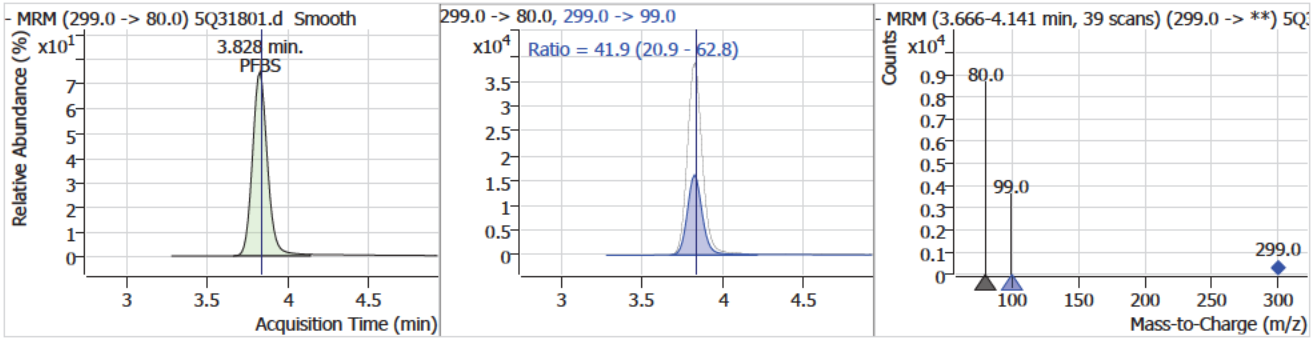
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.58	-0.02	445987				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	21.73	3.58	-0.02	604879				

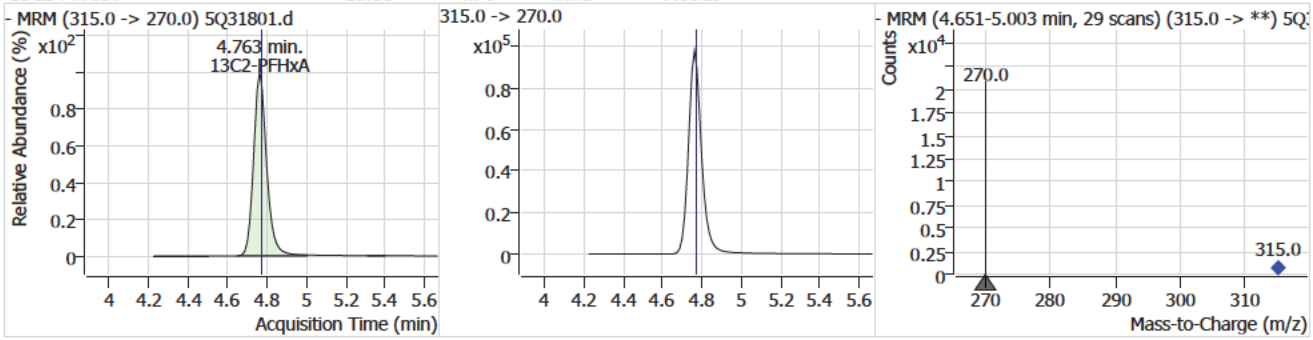


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	21.54	3.83	-0.01	250141	299.0 -> 99.0	41.9	20.9	62.8

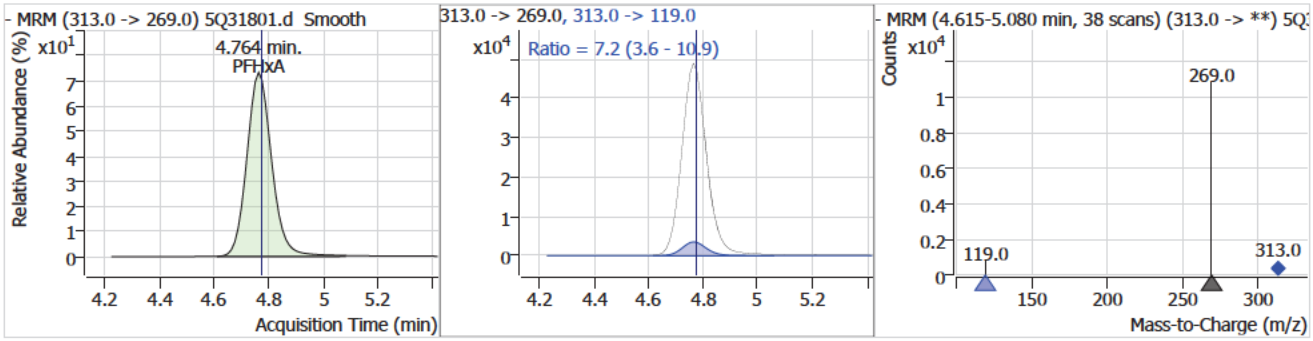


Perfluorinated Compounds by LC/MS/MS

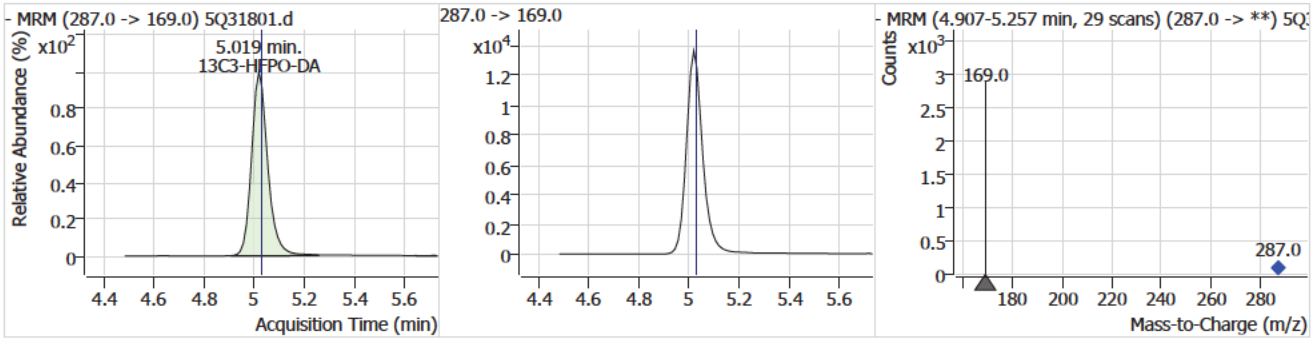
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	19.38	4.76	-0.01	449919				



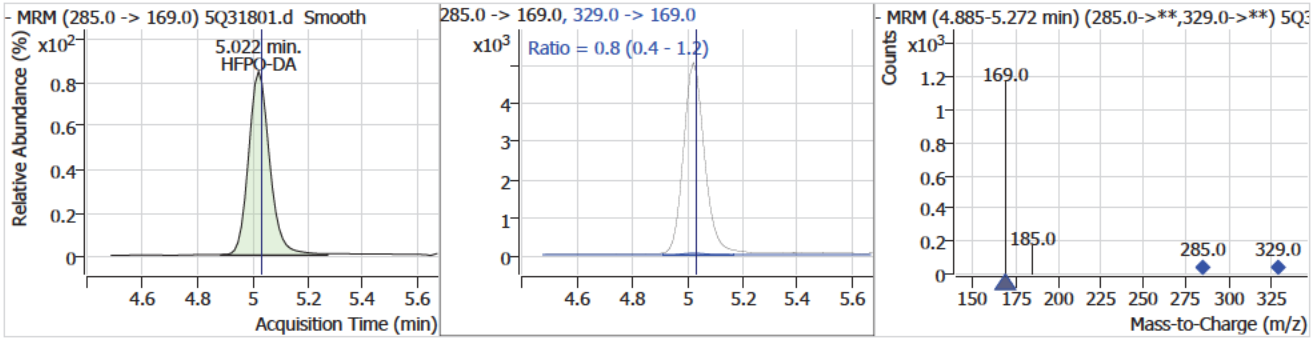
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	20.49	4.76	-0.01	306773	313.0 -> 119.0	7.2	3.6	10.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	37.53	5.02	-0.01	61191				

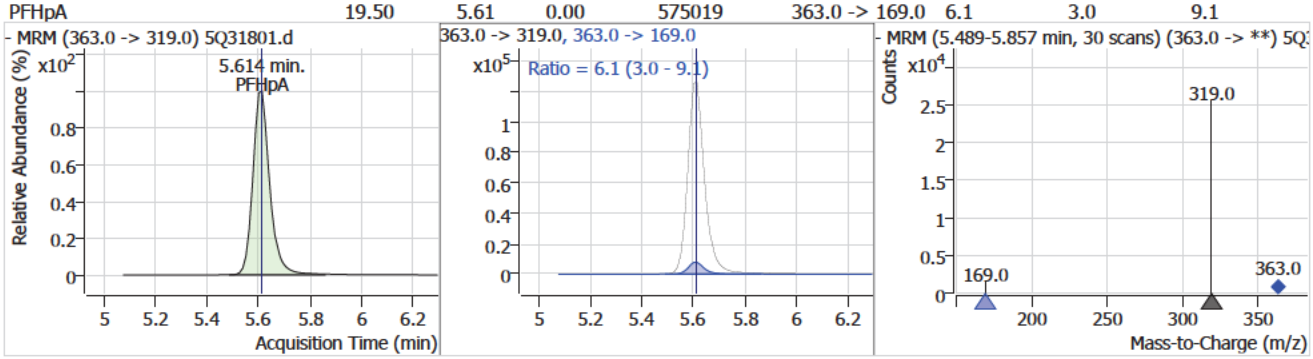


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.22	5.02	-0.01	26730	329.0 -> 169.0	0.8	0.4	1.2

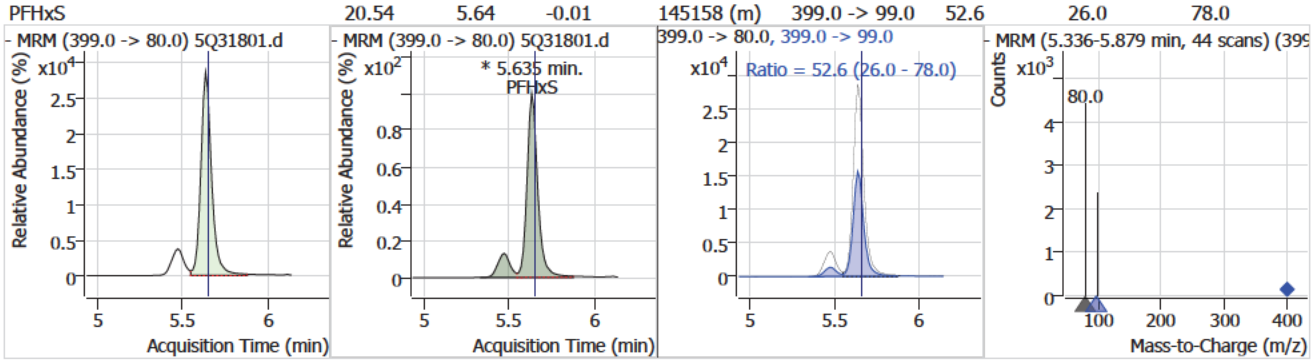


Perfluorinated Compounds by LC/MS/MS

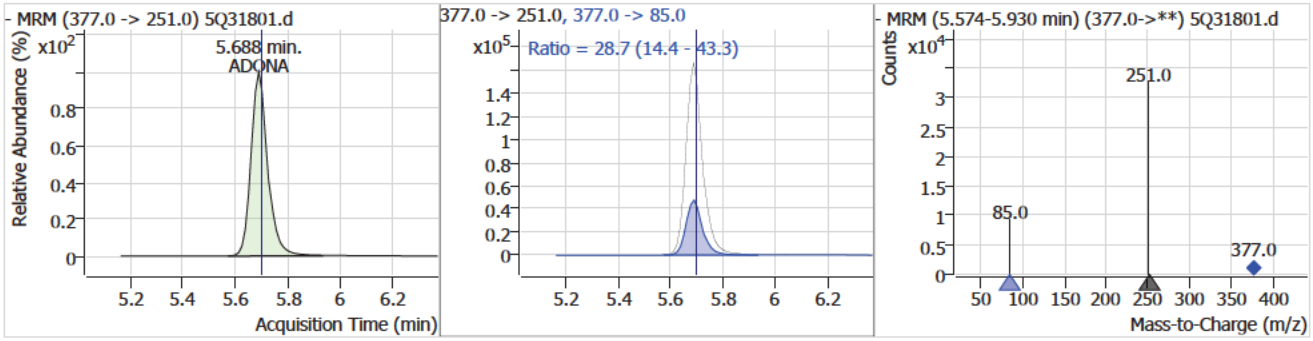
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.50	5.61	0.00	575019	363.0 -> 169.0	6.1	3.0	9.1



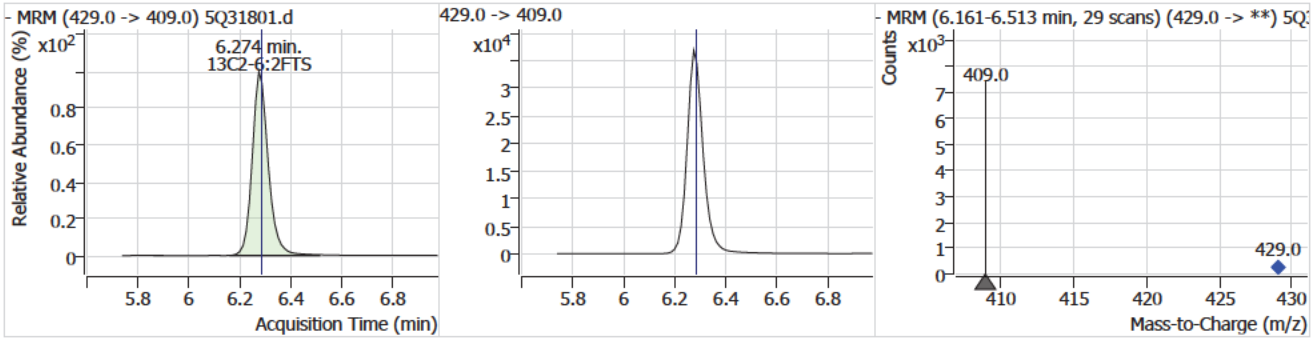
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	20.54	5.64	-0.01	145158 (m)	399.0 -> 99.0	52.6	26.0	78.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.21	5.69	-0.01	731389	377.0 -> 85.0	28.7	14.4	43.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	161191				

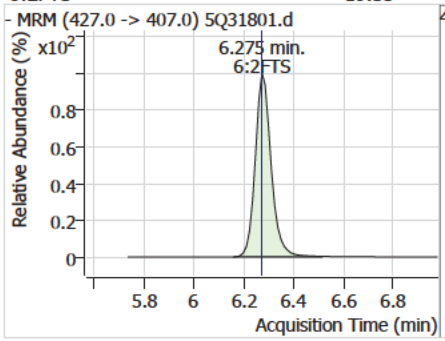


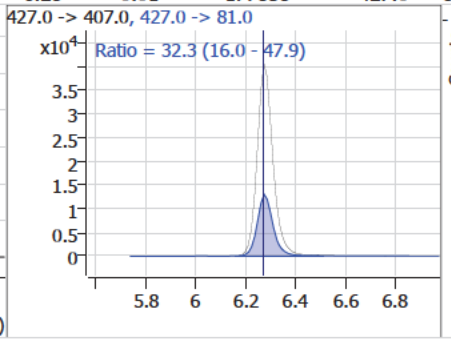
7.4.3

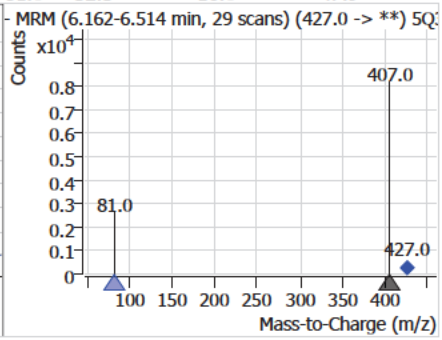
7

Perfluorinated Compounds by LC/MS/MS

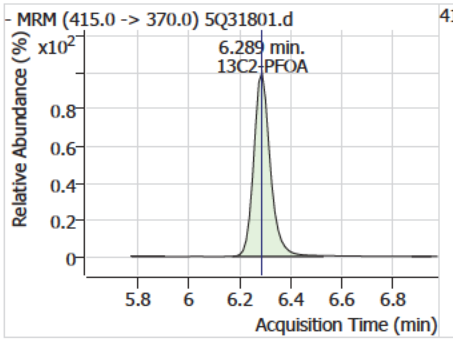
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.35	6.28	-0.01	177858	427.0 -> 81.0	32.3	16.0	47.9

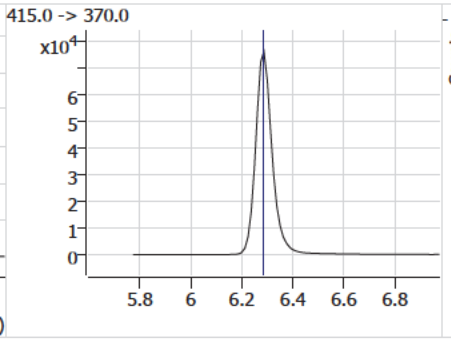


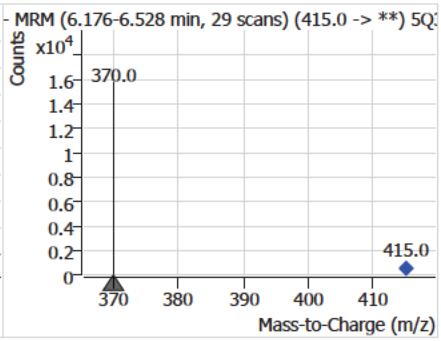




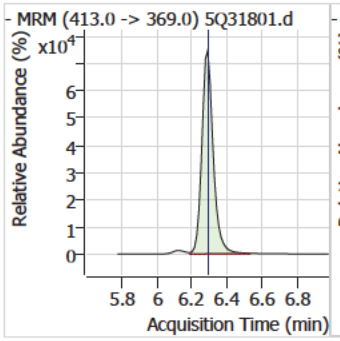
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	343559				

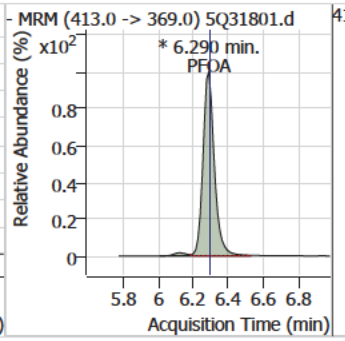


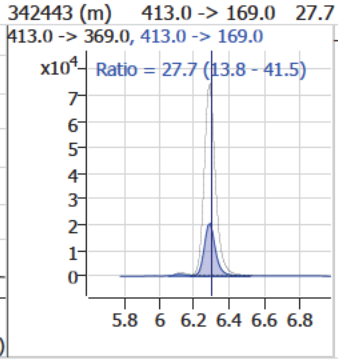


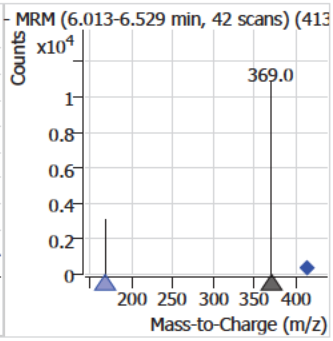


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.81	6.29	0.00	342443 (m)	413.0 -> 169.0	27.7	13.8	41.5

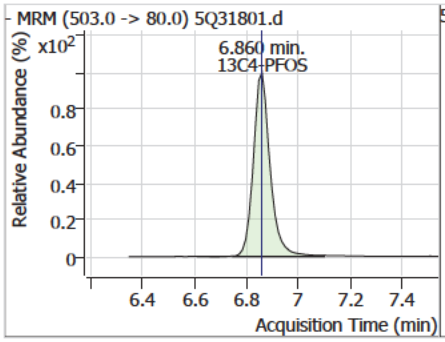


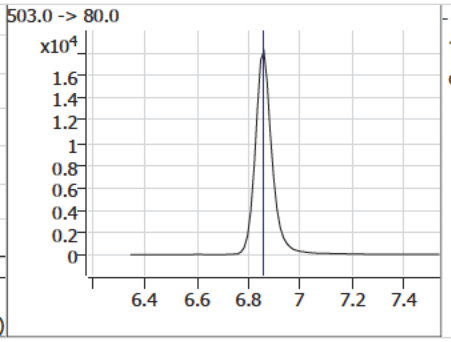


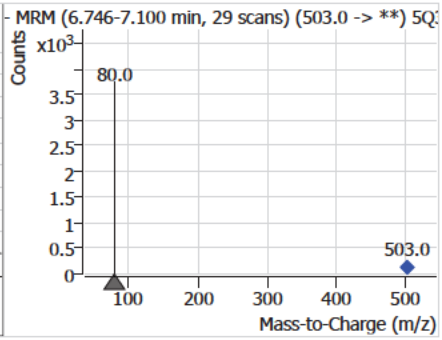




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	81173				

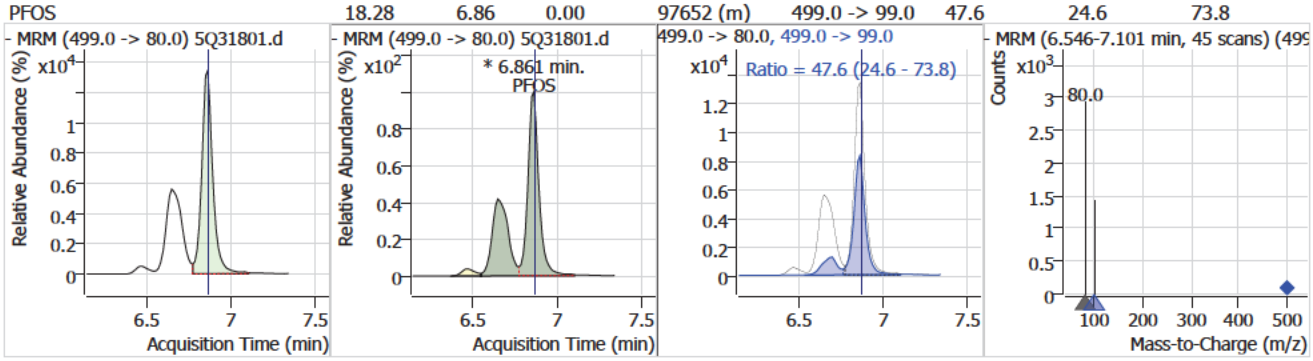




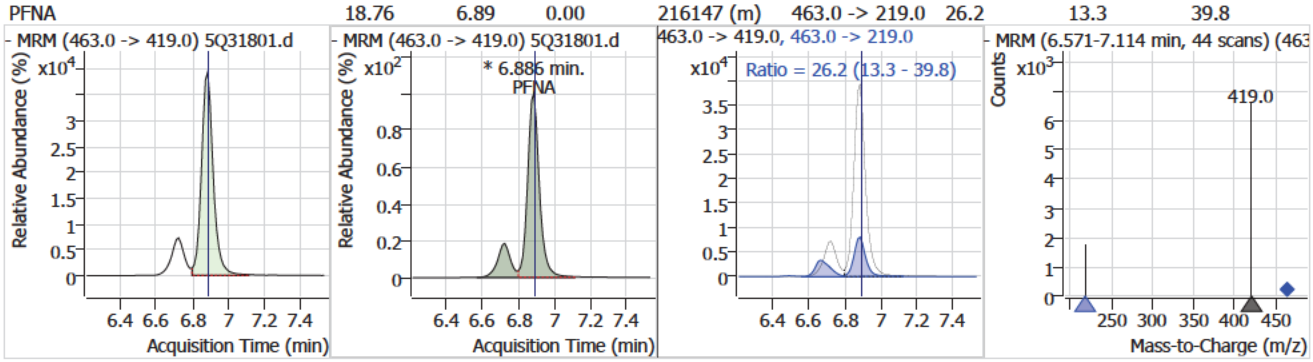


Perfluorinated Compounds by LC/MS/MS

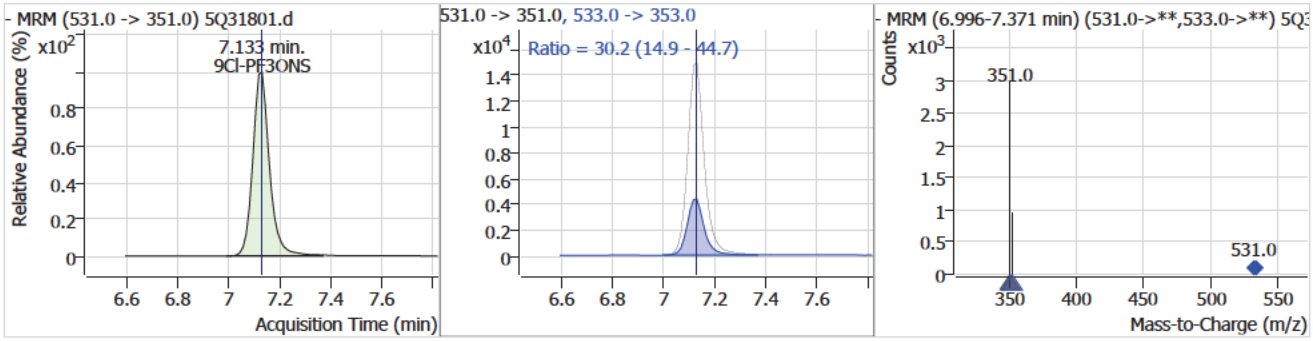
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.28	6.86	0.00	97652 (m)	499.0 -> 99.0	47.6	24.6	73.8



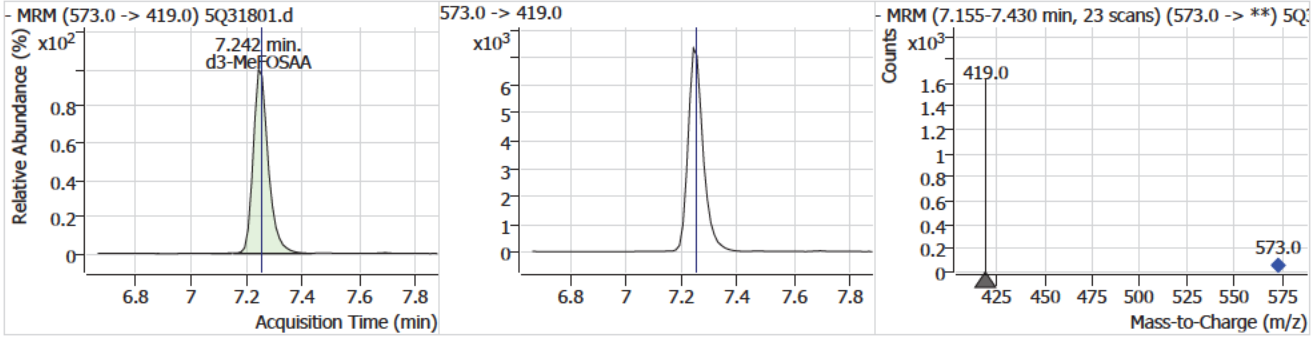
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	18.76	6.89	0.00	216147 (m)	463.0 -> 219.0	26.2	13.3	39.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	14.55	7.13	0.00	67656	533.0 -> 353.0	30.2	14.9	44.7

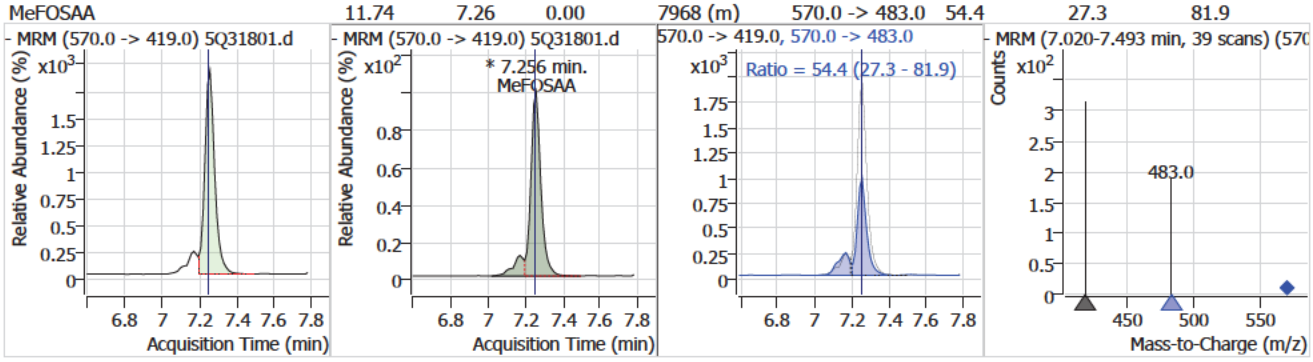


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	27196				

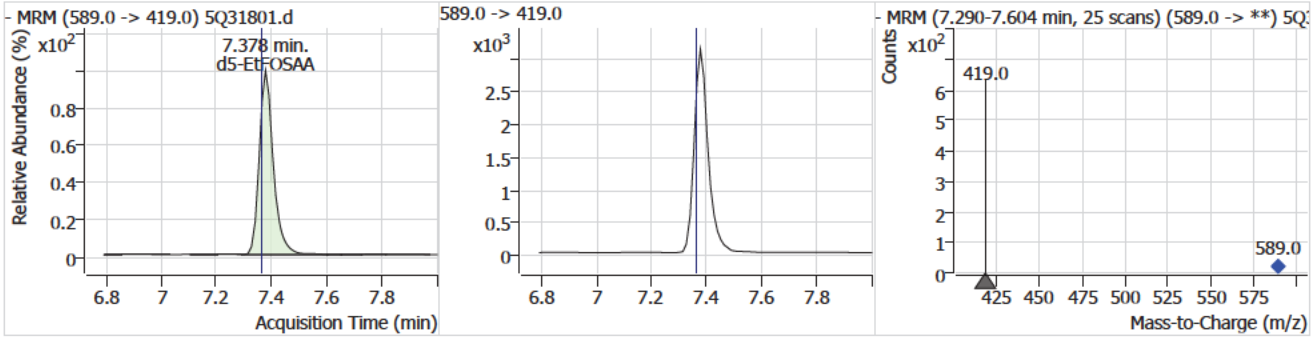


Perfluorinated Compounds by LC/MS/MS

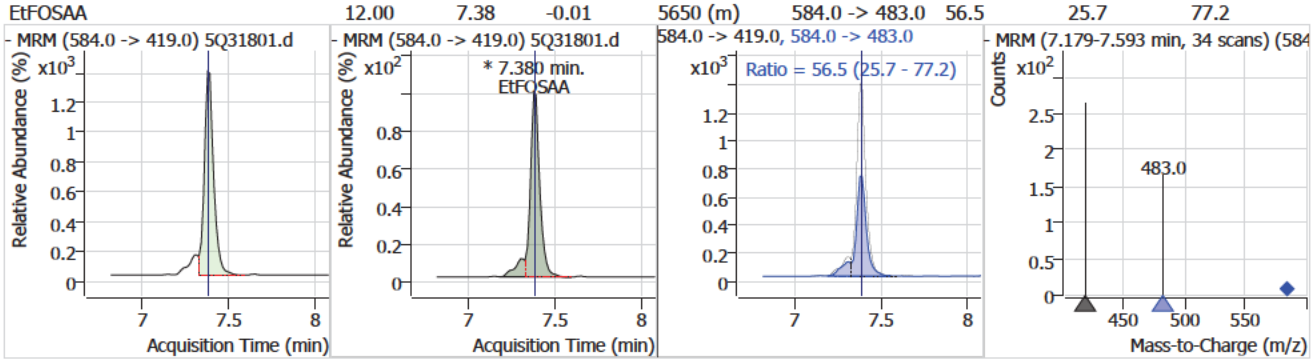
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	11.74	7.26	0.00	7968 (m)	570.0 -> 483.0	54.4	27.3	81.9



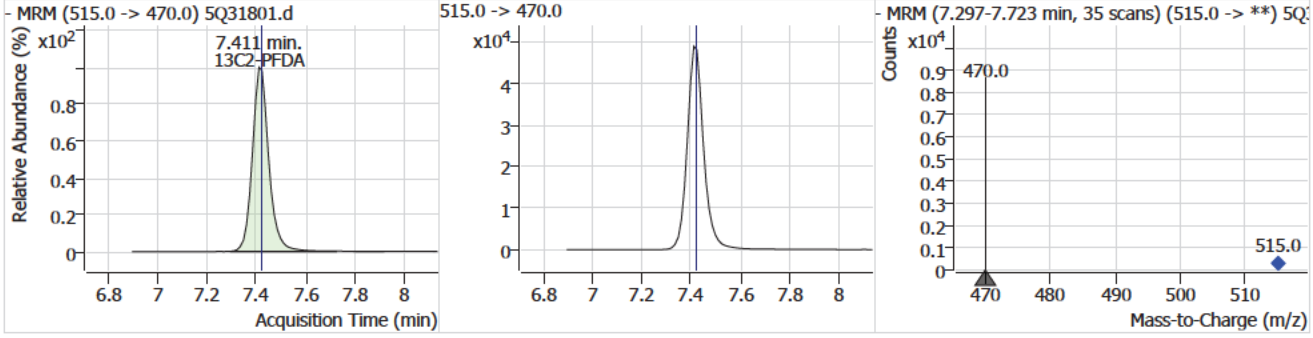
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	21.31	7.38	0.00	11046				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	12.00	7.38	-0.01	5650 (m)	584.0 -> 483.0	56.5	25.7	77.2

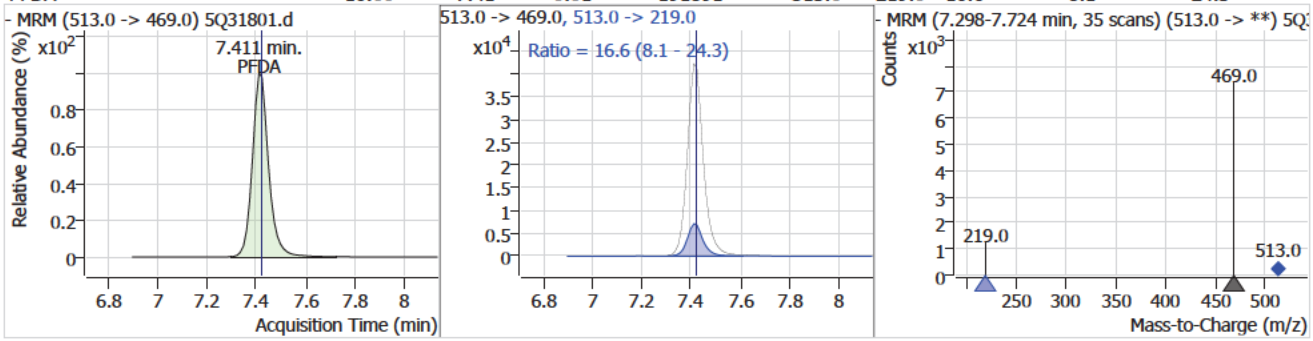


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	15.94	7.41	-0.01	225688				

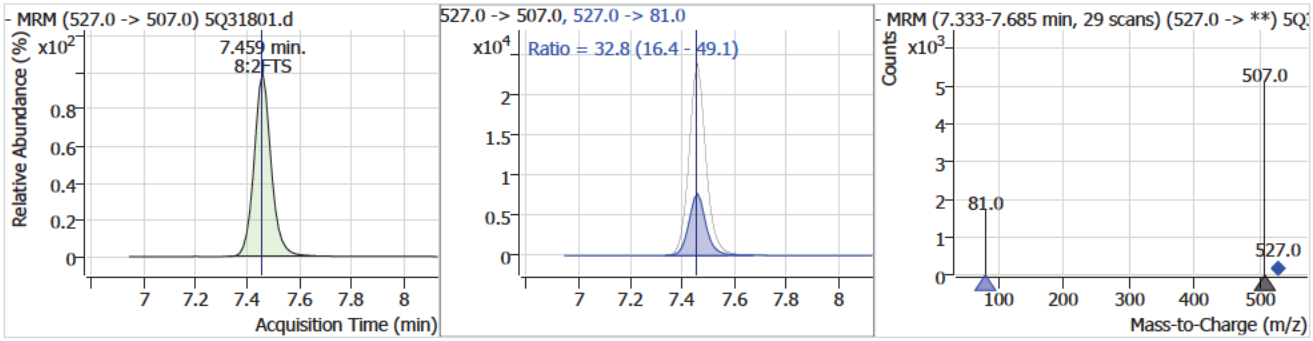


Perfluorinated Compounds by LC/MS/MS

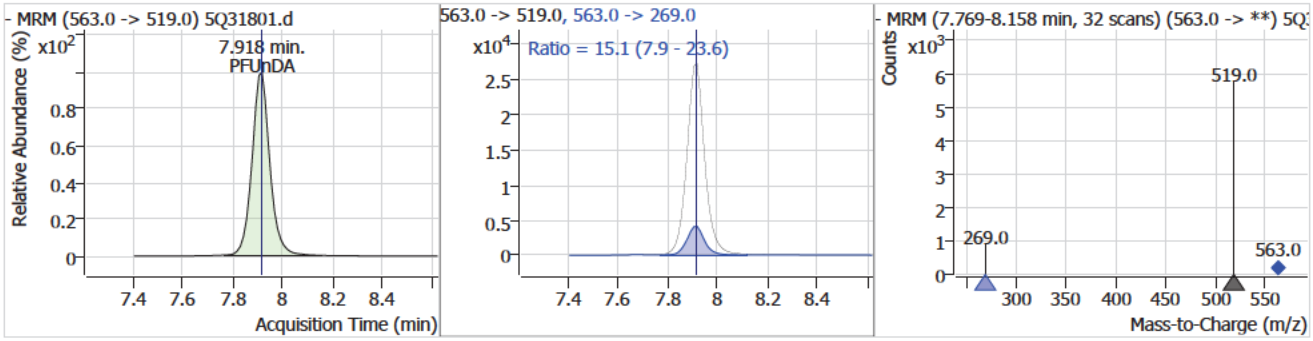
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	16.00	7.41	-0.01	191891	513.0 -> 219.0	16.6	8.1	24.3



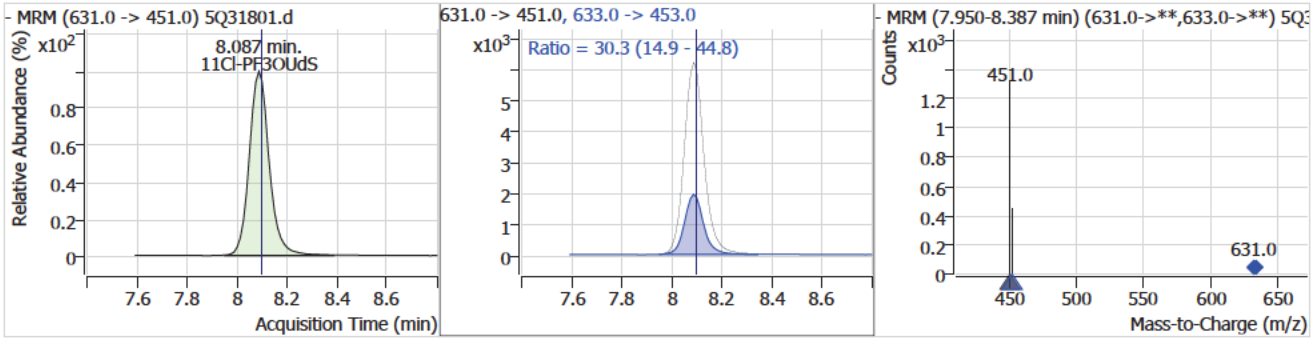
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	16.52	7.46	-0.01	109397	527.0 -> 81.0	32.8	16.4	49.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	10.89	7.92	0.00	135948	563.0 -> 269.0	15.1	7.9	23.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	7.46	8.09	-0.01	34455	633.0 -> 453.0	30.3	14.9	44.8



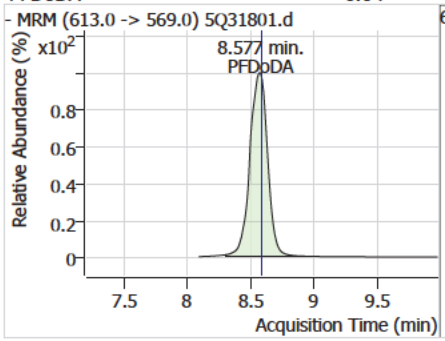
(b) (4)

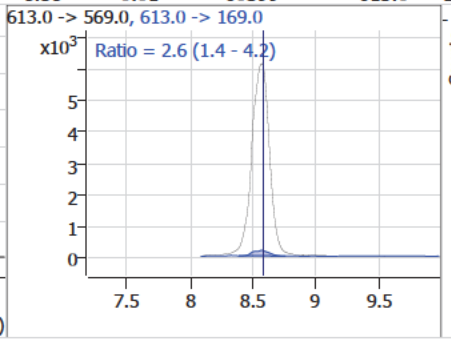
7.4.3

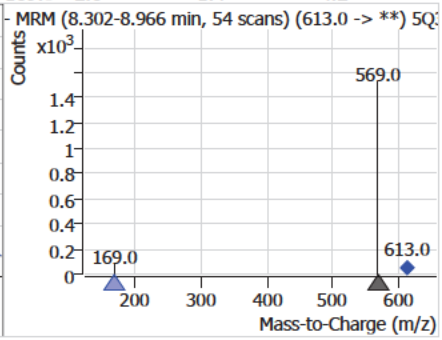
7

Perfluorinated Compounds by LC/MS/MS

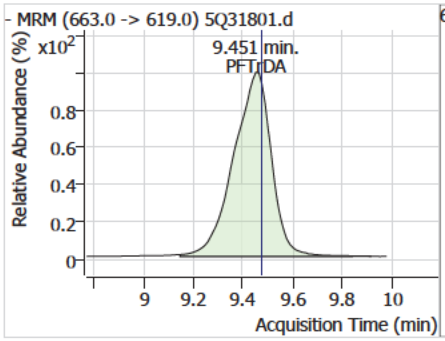
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	6.64	8.58	-0.01	60399	613.0 -> 169.0	2.6	1.4	4.2

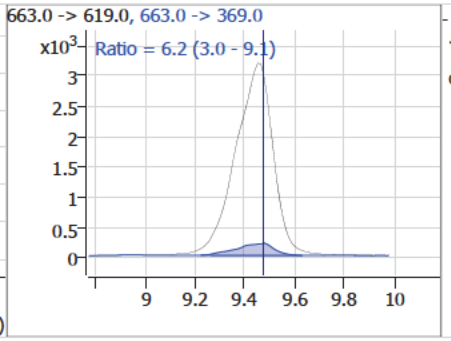


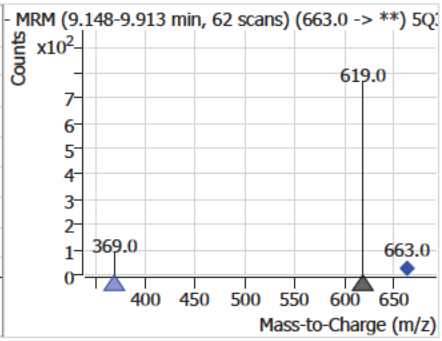




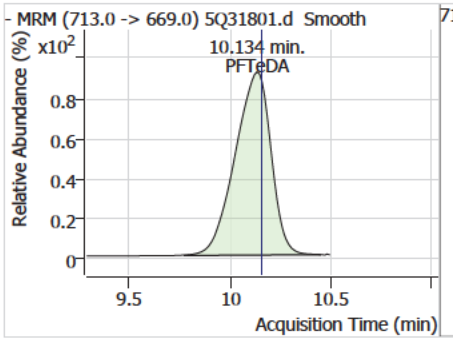
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	6.21	9.45	-0.02	33395	663.0 -> 369.0	6.2	3.0	9.1

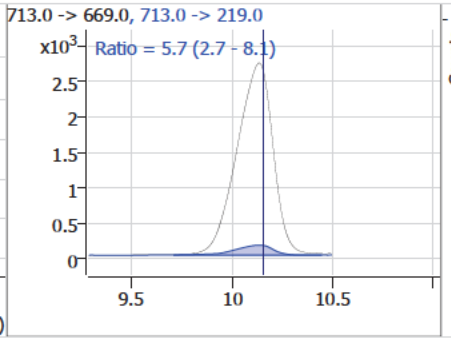


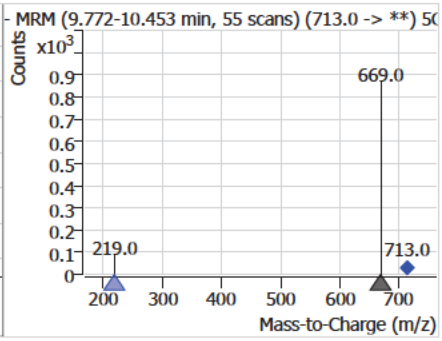




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	9.01	10.13	-0.03	33598	713.0 -> 219.0	5.7	2.7	8.1







Manual Integration Approval Summary

Sample Number: OP8882-MS
Lab FileID: 5Q31801.D
Injection Time: 04/16/25 16:01

Method: EPA 537.1 REV 2.0
Analyst approved: 04/17/25 09:19 (b) (6)
Supervisor approved: 04/17/25 09:20 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanoic acid	335-67-1		6.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Perfluorinated Compounds by LC/MS/MS

Data File	: 3q101477.d
Operator	: (b) (6)
Acq. Method	: 533.m
Acq. Date-Time	: 4/15/2025 7:09:34 PM
Sample Name	: op8883-dup
Vial	: P3-B7
DA Method File	: 533_041525_S3Q1492.quantmethod.xml
Batch Name	: s3q1942.batch.bin
Sample Information	: op8883,S3Q1492,280,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	229666	10.00 µg/L	-0.013
13C3-PFBA	2.319	216.0 -> 172.0	87349	10.00 µg/L	0.188
13C4-PFOS	7.983	503.0 -> 80.0	33820	10.00 µg/L	-0.013
M4-PFBA	2.315	217.0 -> 172.0	111578	10.00 µg/L	0.175
M5-PFPeA	4.400	268.0 -> 223.0	136469	10.00 µg/L	0.063
M5-PFHxA	5.763	318.0 -> 273.0	175453	10.00 µg/L	0.013
M4-PFHpA	6.694	367.0 -> 322.0	147620	10.00 µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	193474	10.00 µg/L	-0.013
M9-PFNA	8.010	472.0 -> 427.0	200157	10.00 µg/L	-0.013
M6-PFDA	8.533	519.0 -> 474.0	284036	10.00 µg/L	-0.013
M7-PFUnDA	9.172	570.0 -> 525.0	376155	10.00 µg/L	-0.052
M2-PFDoDA	10.071	615.0 -> 570.0	328371	10.00 µg/L	-0.063
M3-PFBS	4.696	302.0 -> 99.0	16191	10.00 µg/L	0.050
M3-PFHxS	6.724	402.0 -> 99.0	23562	10.00 µg/L	-0.013
M8-PFOS	7.982	507.0 -> 99.0	27709	10.00 µg/L	-0.013
M2-4:2FTS	5.659	329.0 -> 309.0	61385	10.00 µg/L	0.013
M2-6:2FTS	7.420	429.0 -> 409.0	107276	10.00 µg/L	-0.013
M2-8:2FTS	8.585	529.0 -> 509.0	152483	10.00 µg/L	-0.026
M3-HFPO-DA	6.056	287.0 -> 169.0	2440	10.00 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.659	329.0 -> 309.0	61385	7.63 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.3%	
13C2-6:2FTS	7.420	429.0 -> 409.0	107264	7.09 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 70.9%	
13C2-8:2FTS	8.585	529.0 -> 509.0	152483	6.02 µg/L	-0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 60.2%	
13C2-PFDoDA	10.071	615.0 -> 570.0	328371	3.36 µg/L	-0.063
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 33.6%	
13C3-PFBS	4.696	302.0 -> 99.0	16191	7.67 µg/L	0.050
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.7%	
13C3-PFHxS	6.724	402.0 -> 99.0	23562	7.84 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.4%	
13C4-PFBA	2.315	217.0 -> 172.0	111578	7.53 µg/L	0.175
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 75.3%	
13C4-PFHpA	6.694	367.0 -> 322.0	147620	7.60 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.0%	
13C5-PFHxA	5.763	318.0 -> 273.0	175453	7.54 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 75.4%	
13C5-PFPeA	4.400	268.0 -> 223.0	136469	7.64 µg/L	0.063
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.4%	
13C6-PFDA	8.533	519.0 -> 474.0	284036	7.39 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 73.9%	
13C7-PFUnDA	9.172	570.0 -> 525.0	376155	4.90 µg/L	-0.052
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 49.0%	
13C8-PFOA	7.422	421.0 -> 376.0	193475	7.67 µg/L	-0.013

Perfluorinated Compounds by LC/MS/MS

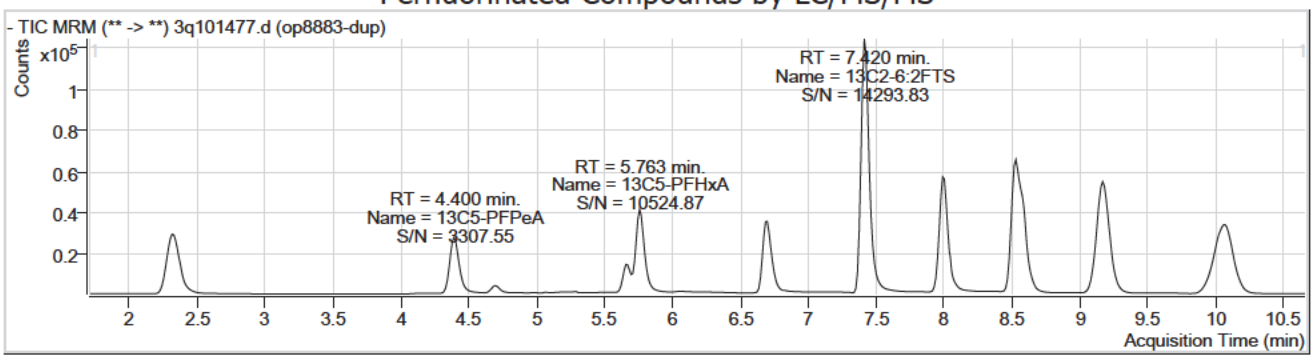
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.7%		
13C8-PFOS	7.982	507.0 -> 99.0	27709	7.20 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 72.0%		
13C9-PFNA	8.010	472.0 -> 427.0	200157	7.30 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 73.0%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	2440	7.29 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 72.9%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	5.088	299.0 -> 80.0	0	0.00 µg/L	m	1
		299.0 -> 99.0	0			
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	-	363.0 -> 319.0	-	N.D.		
		363.0 -> 169.0				
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	5.873	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0				

= Qualifier out of range, m = manually integrated, + = Area summed

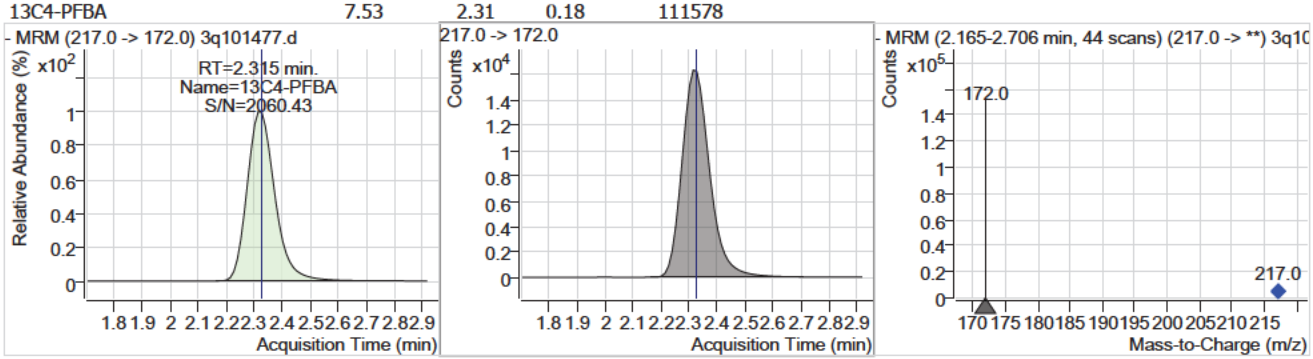
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)

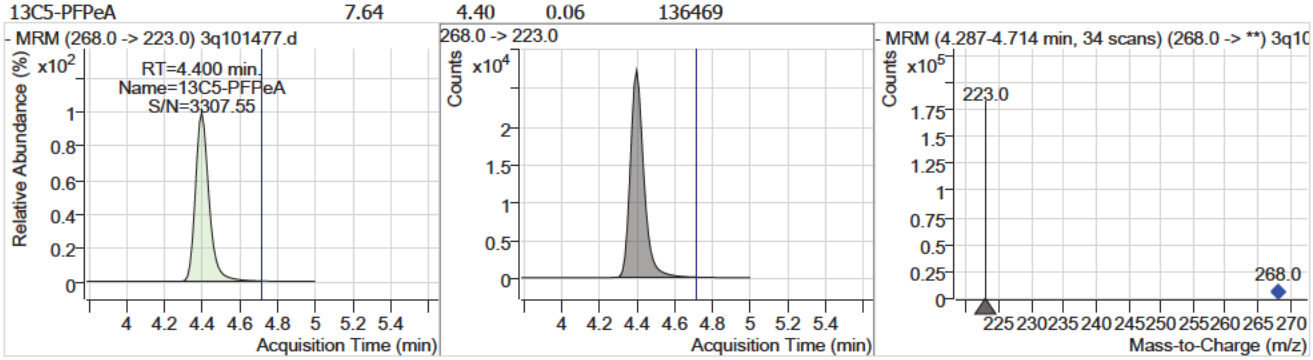
Perfluorinated Compounds by LC/MS/MS



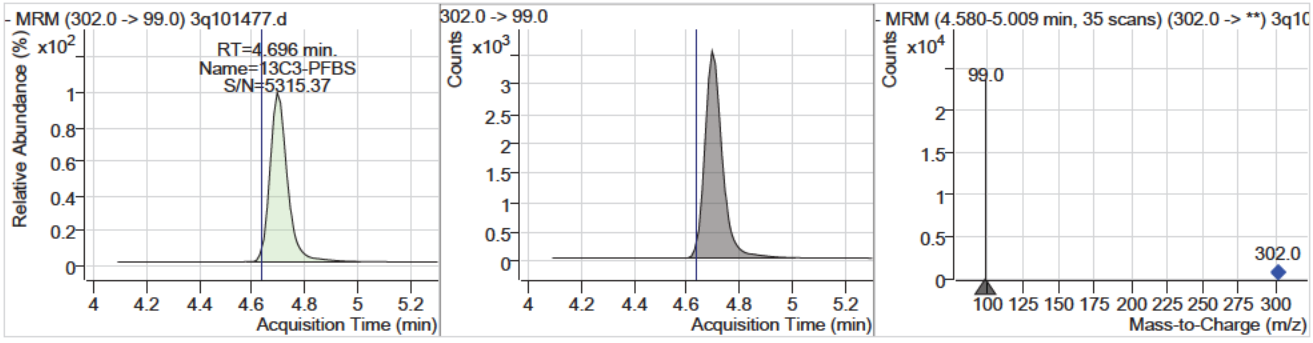
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	7.53	2.31	0.18	111578				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	7.64	4.40	0.06	136469				

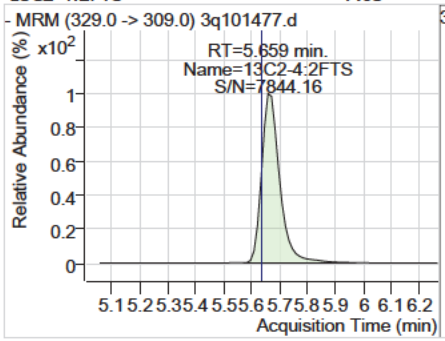


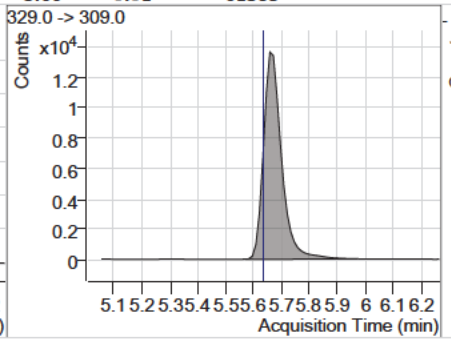
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	7.67	4.70	0.05	16191				

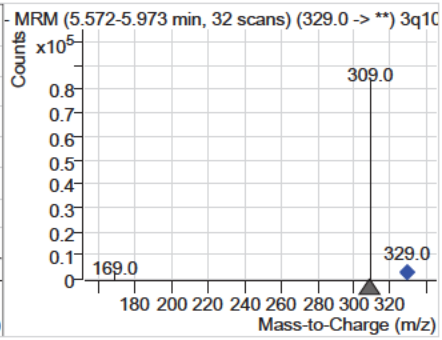


Perfluorinated Compounds by LC/MS/MS

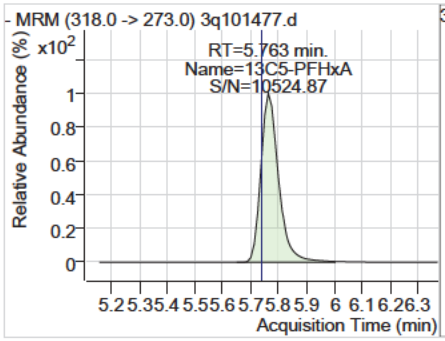
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	7.63	5.66	0.01	61385				

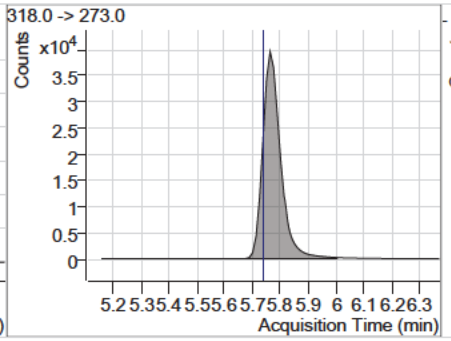


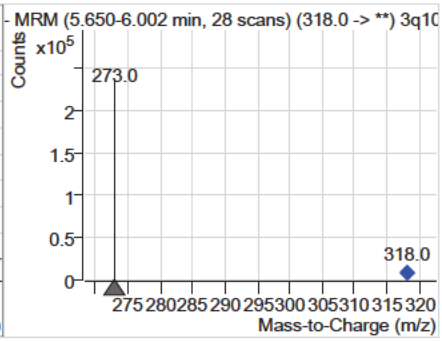




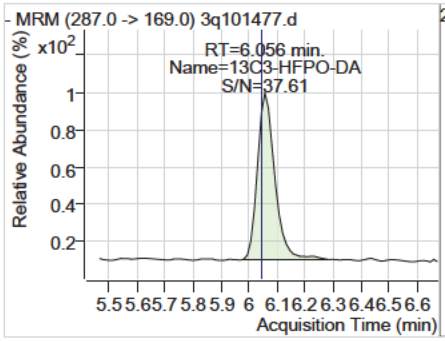
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	7.54	5.76	0.01	175453				

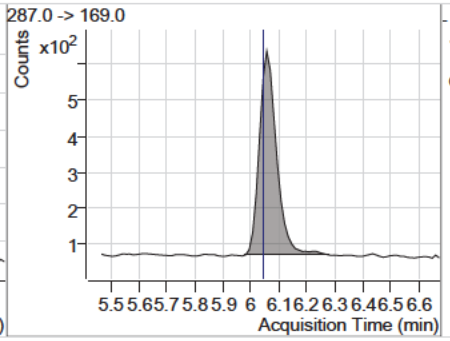


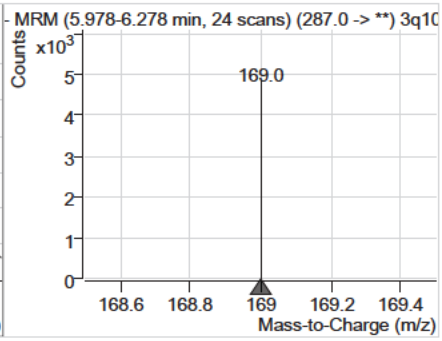




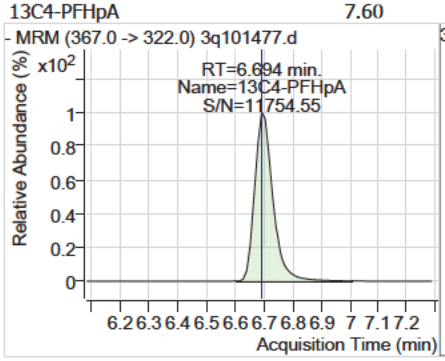
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	7.29	6.06	0.00	2440				

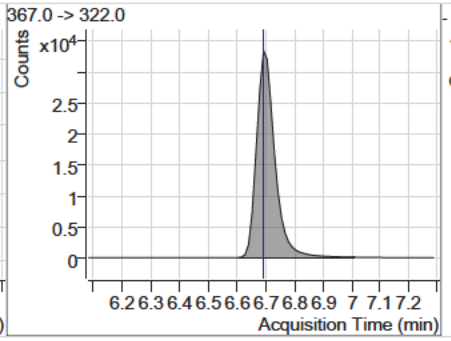


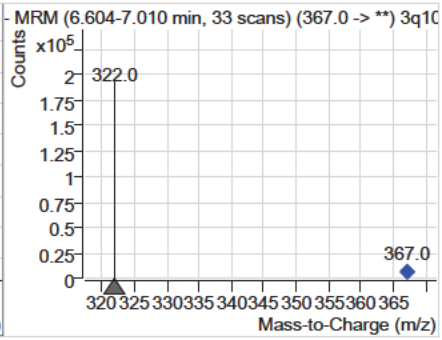




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	7.60	6.69	-0.01	147620				







7.5.1

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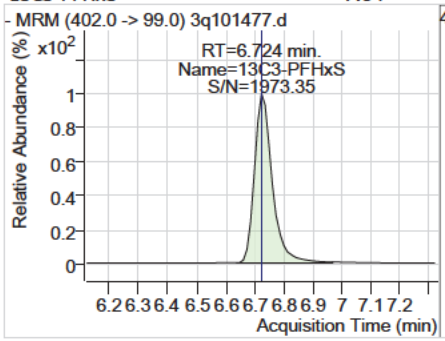
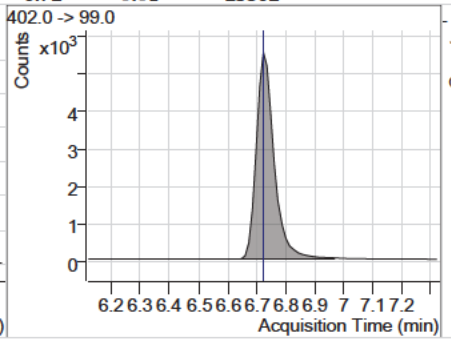
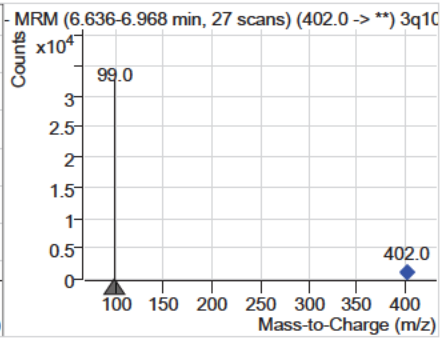
Perfluorinated Compounds by LC/MS/MS

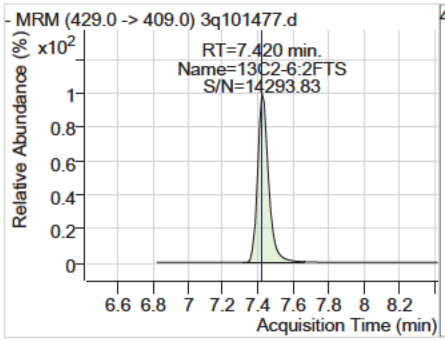
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	7.84	6.72	-0.01	23562				

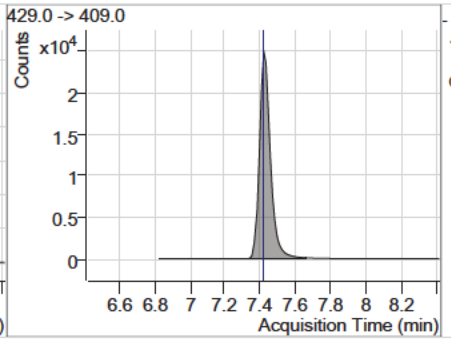


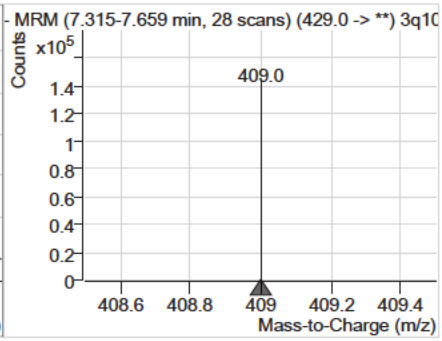




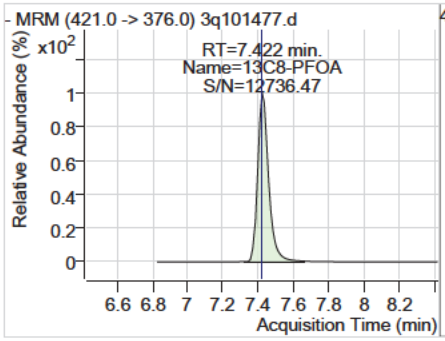
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	7.09	7.42	-0.01	107264				

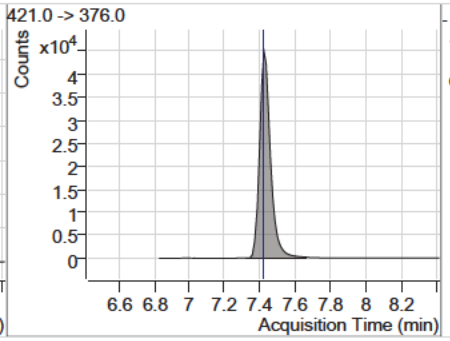


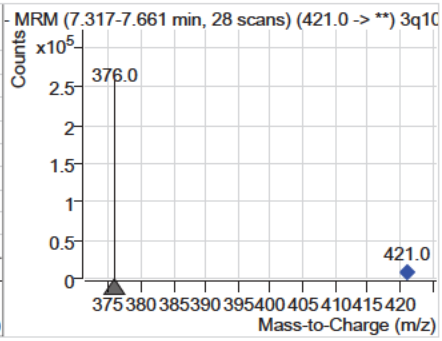




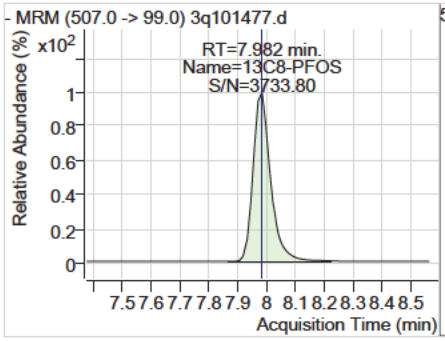
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	7.67	7.42	-0.01	193475				

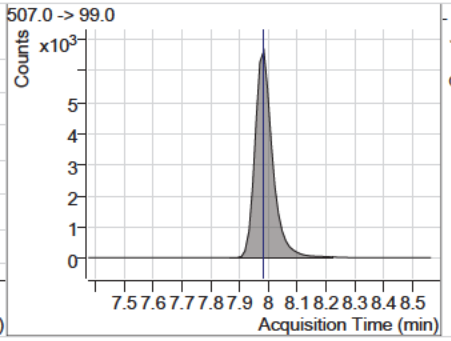


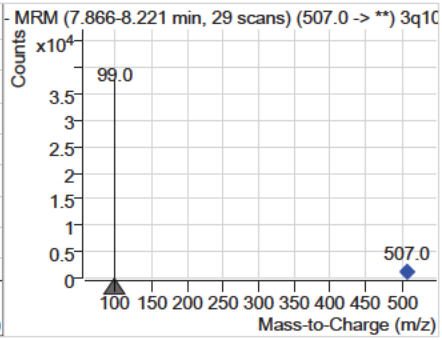




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	7.20	7.98	-0.01	27709				

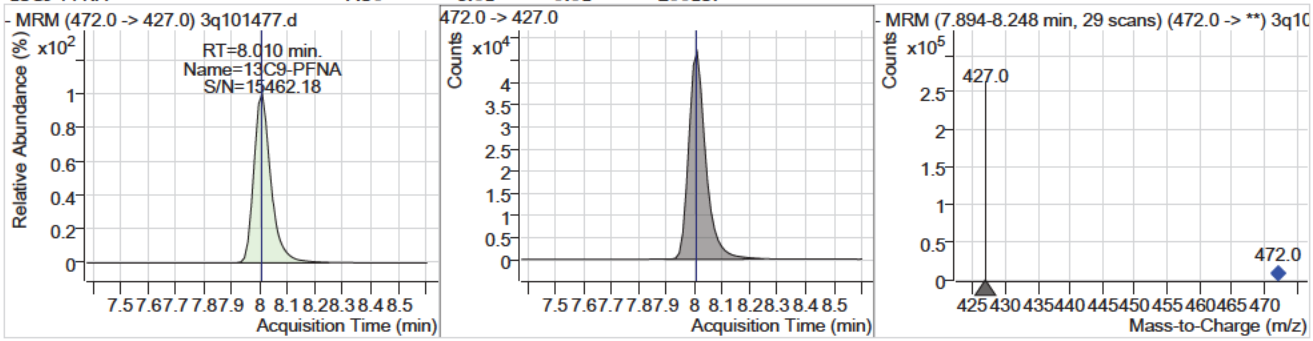




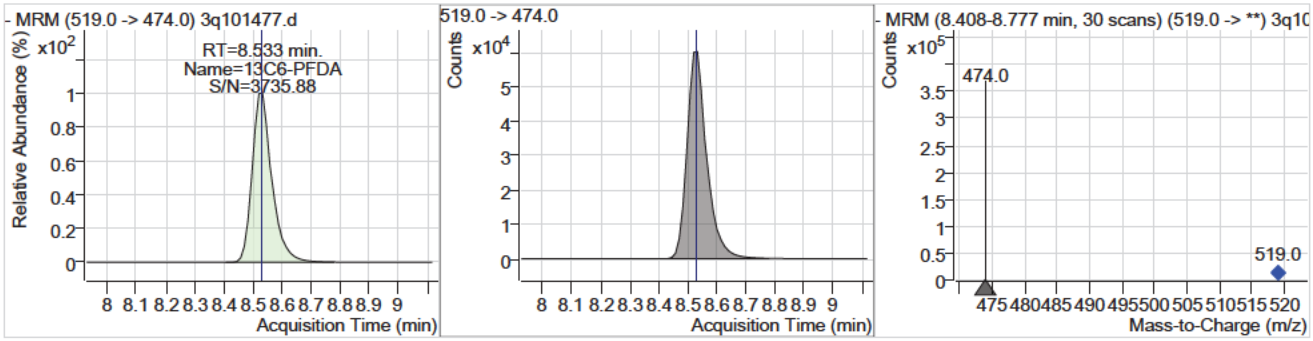


Perfluorinated Compounds by LC/MS/MS

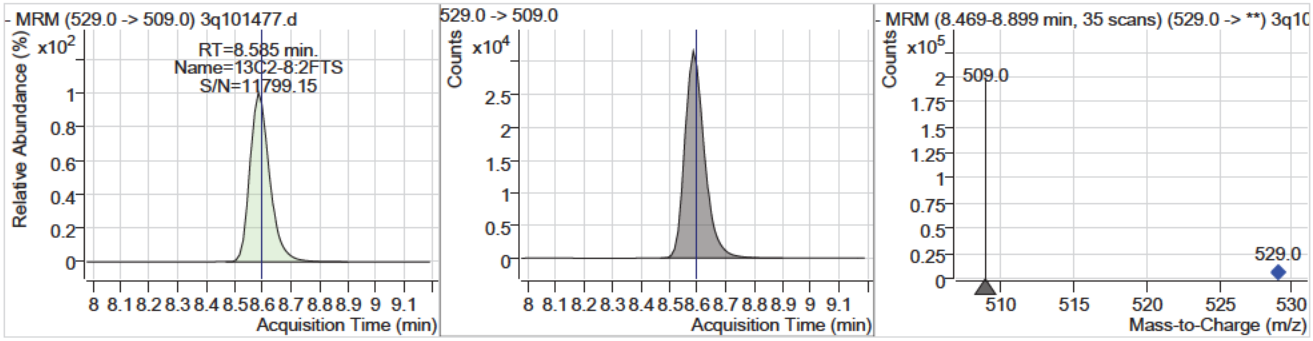
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	7.30	8.01	-0.01	200157				



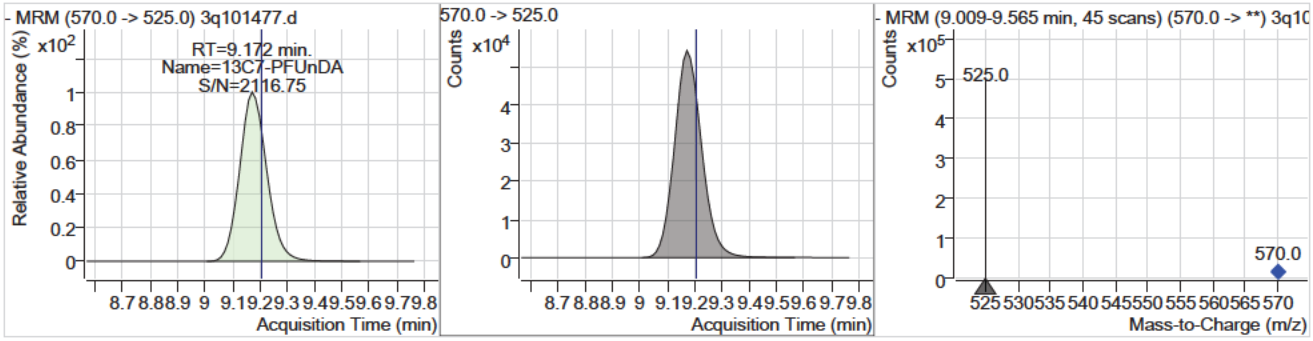
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	7.39	8.53	-0.01	284036				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	6.02	8.58	-0.03	152483				

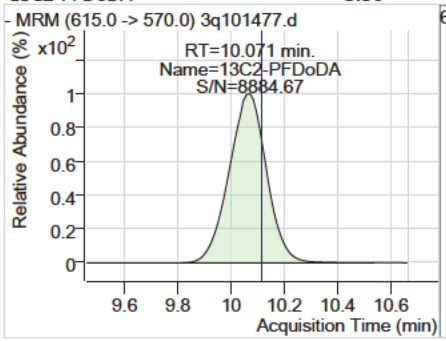


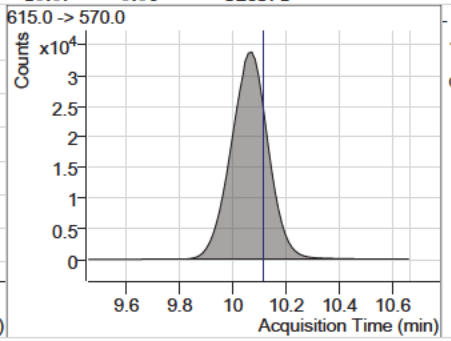
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	4.90	9.17	-0.05	376155				

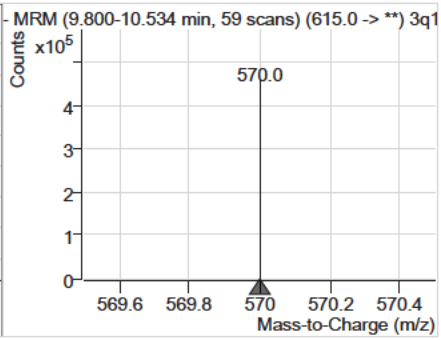


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	3.36	10.07	-0.06	328371				







7.5.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101530.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/17/2025 1:31:59 PM
Sample Name : op8907-dup
Vial : P3-C7
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1494.batch.bin
Sample Information : op8907,S3Q1494,285,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.447	415.0 -> 370.0	245999	10.00 µg/L	0.025
13C3-PFBA	2.344	216.0 -> 172.0	92207	10.00 µg/L	0.000
13C4-PFOS	7.995	503.0 -> 80.0	35936	10.00 µg/L	0.026
M4-PFBA	2.352	217.0 -> 172.0	123934	10.00 µg/L	0.013
M5-PFPeA	4.438	268.0 -> 223.0	151147	10.00 µg/L	0.025
M5-PFHxA	5.788	318.0 -> 273.0	200989	10.00 µg/L	0.013
M4-PFHpA	6.719	367.0 -> 322.0	169607	10.00 µg/L	0.025
M8-PFOA	7.447	421.0 -> 376.0	225200	10.00 µg/L	0.025
M9-PFNA	8.022	472.0 -> 427.0	244891	10.00 µg/L	0.026
M6-PFDA	8.558	519.0 -> 474.0	340875	10.00 µg/L	0.038
M7-PFUnDA	9.212	570.0 -> 525.0	587681	10.00 µg/L	0.027
M2-PFDoDA	10.146	615.0 -> 570.0	608725	10.00 µg/L	0.063
M3-PFBS	4.733	302.0 -> 99.0	17061	10.00 µg/L	0.025
M3-PFHxS	6.749	402.0 -> 99.0	24764	10.00 µg/L	0.025
M8-PFOS	7.995	507.0 -> 99.0	32356	10.00 µg/L	0.026
M2-4:2FTS	5.697	329.0 -> 309.0	69488	10.00 µg/L	0.025
M2-6:2FTS	7.445	429.0 -> 409.0	126572	10.00 µg/L	0.025
M2-8:2FTS	8.611	529.0 -> 509.0	202830	10.00 µg/L	0.026
M3-HFPO-DA	6.081	287.0 -> 169.0	2329	10.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.697	329.0 -> 309.0	69488	8.12 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.2%	
13C2-6:2FTS	7.445	429.0 -> 409.0	126571	7.88 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.8%	
13C2-8:2FTS	8.611	529.0 -> 509.0	202830	7.54 µg/L	0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 75.4%	
13C2-PFDoDA	10.146	615.0 -> 570.0	608725	5.81 µg/L	0.063
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 58.1%	
13C3-PFBS	4.733	302.0 -> 99.0	17061	7.61 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.1%	
13C3-PFHxS	6.749	402.0 -> 99.0	24764	7.76 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.6%	
13C4-PFBA	2.352	217.0 -> 172.0	123934	7.92 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.2%	
13C4-PFHpA	6.719	367.0 -> 322.0	169607	8.15 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.5%	
13C5-PFHxA	5.788	318.0 -> 273.0	200989	8.07 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.7%	
13C5-PFPeA	4.438	268.0 -> 223.0	151147	8.02 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.2%	
13C6-PFDA	8.558	519.0 -> 474.0	340875	8.28 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.8%	
13C7-PFUnDA	9.212	570.0 -> 525.0	587681	7.15 µg/L	0.027
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 71.5%	
13C8-PFOA	7.447	421.0 -> 376.0	225200	8.33 µg/L	0.025

Perfluorinated Compounds by LC/MS/MS

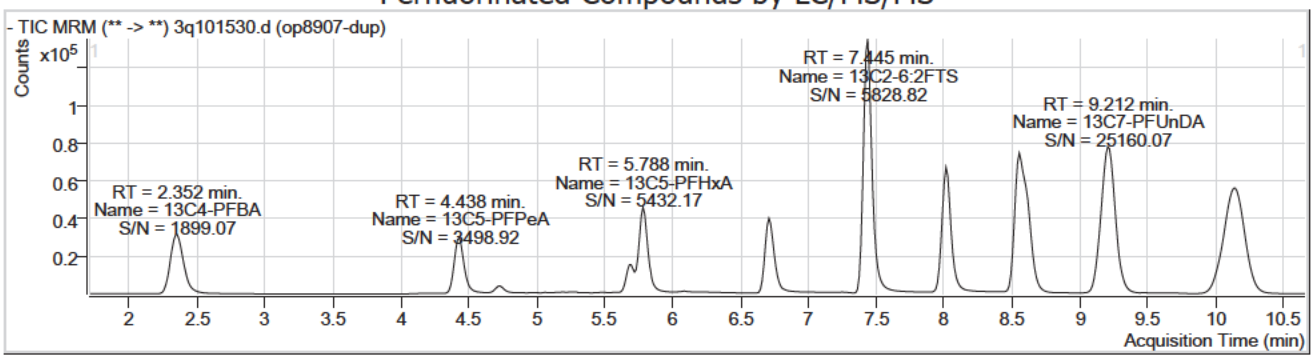
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 83.3%		
13C8-PFOS	7.995	507.0 -> 99.0	32356	7.92 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.2%		
13C9-PFNA	8.022	472.0 -> 427.0	244891	8.34 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 83.4%		
13C3-HFPO-DA	6.081	287.0 -> 169.0	2329	6.50 µg/L		0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 65.0%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	-	299.0 -> 80.0	-	N.D.		
		299.0 -> 99.0				
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	-	363.0 -> 319.0	-	N.D.		
		363.0 -> 169.0				
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	6.152	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0	0			

= Qualifier out of range, m = manually integrated, + = Area summed

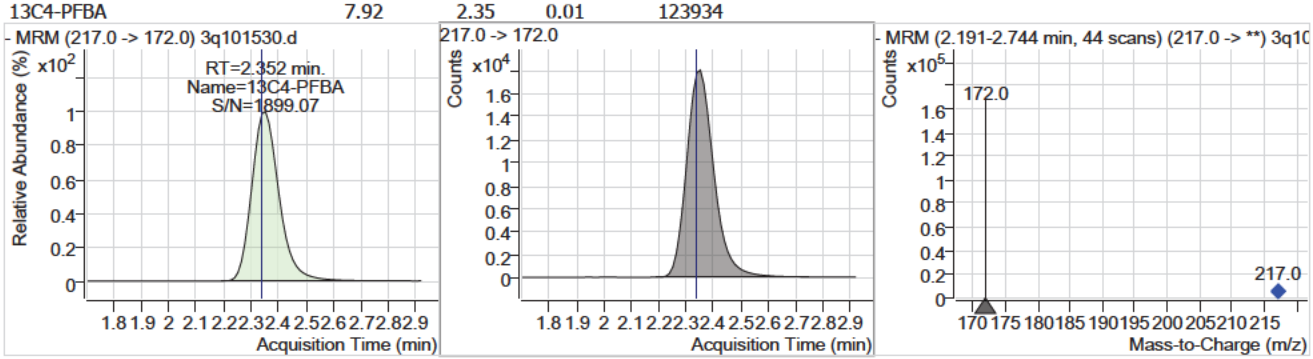
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)

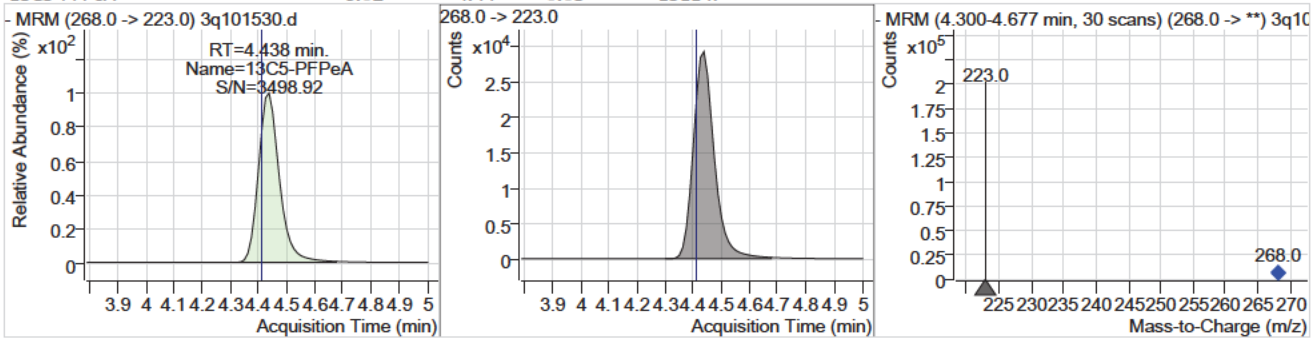
Perfluorinated Compounds by LC/MS/MS



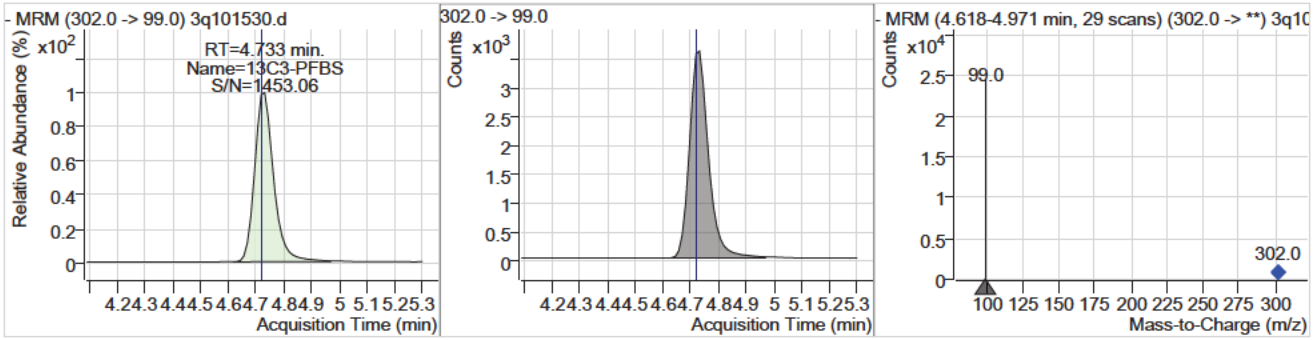
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	7.92	2.35	0.01	123934				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	8.02	4.44	0.03	151147				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	7.61	4.73	0.03	17061				

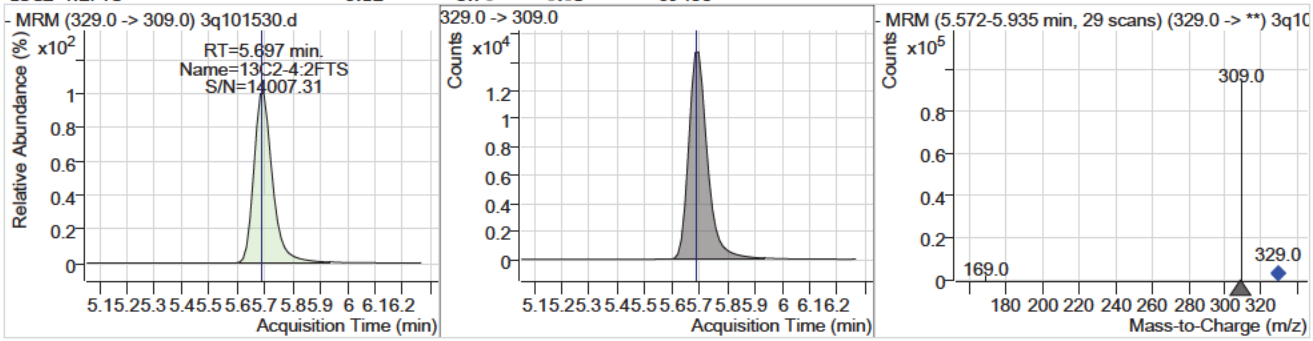


7.5.2

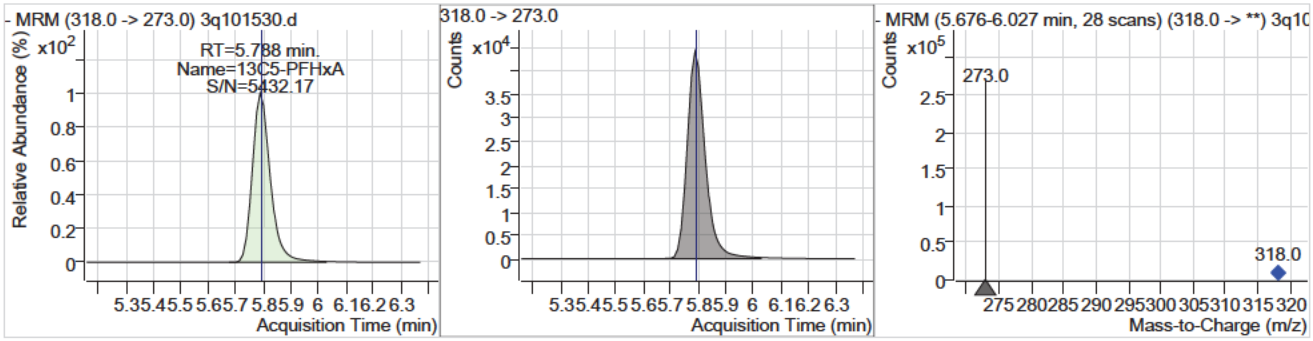
7

Perfluorinated Compounds by LC/MS/MS

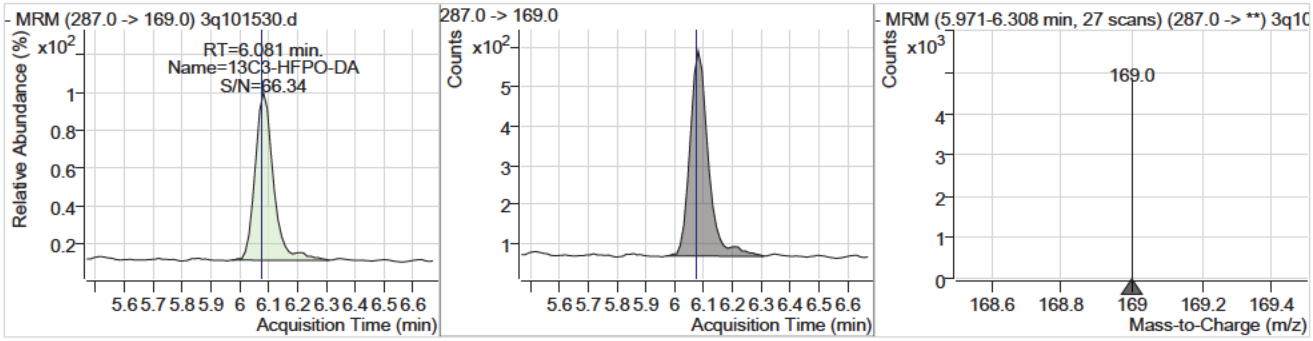
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	8.12	5.70	0.03	69488				



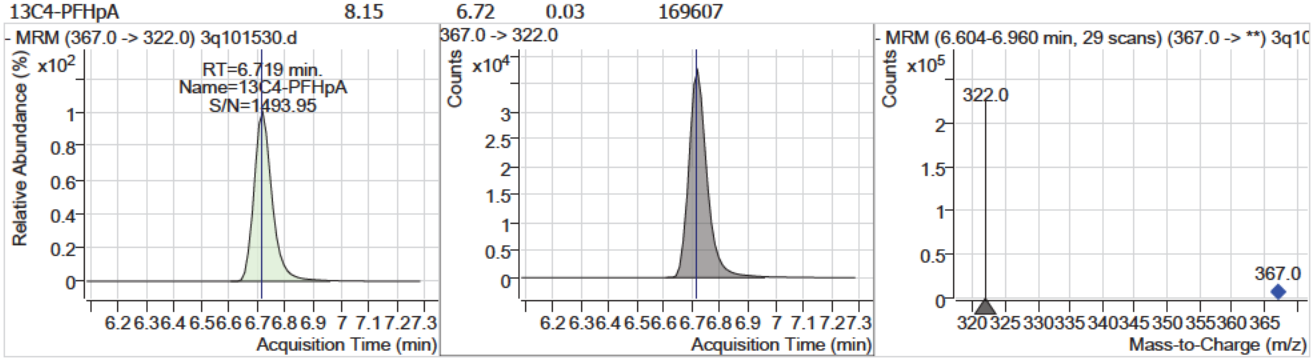
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	8.07	5.79	0.01	200989				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	6.50	6.08	0.03	2329				



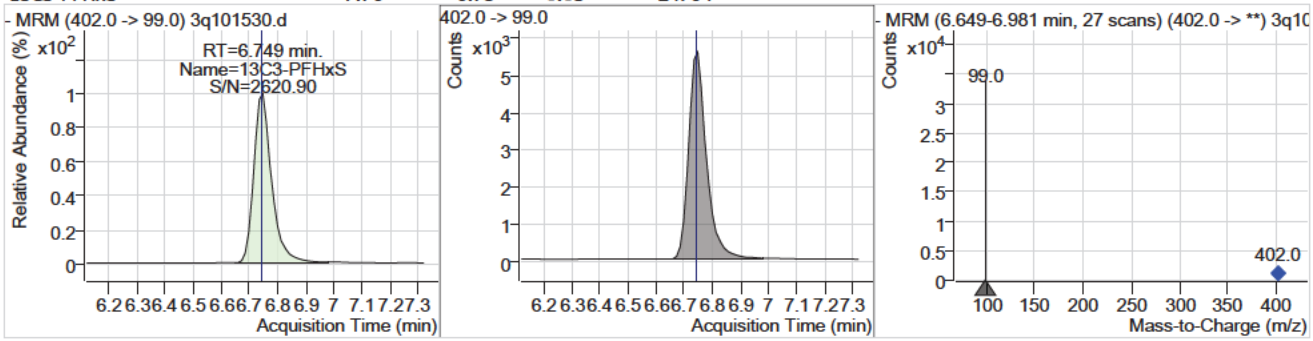
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	8.15	6.72	0.03	169607				



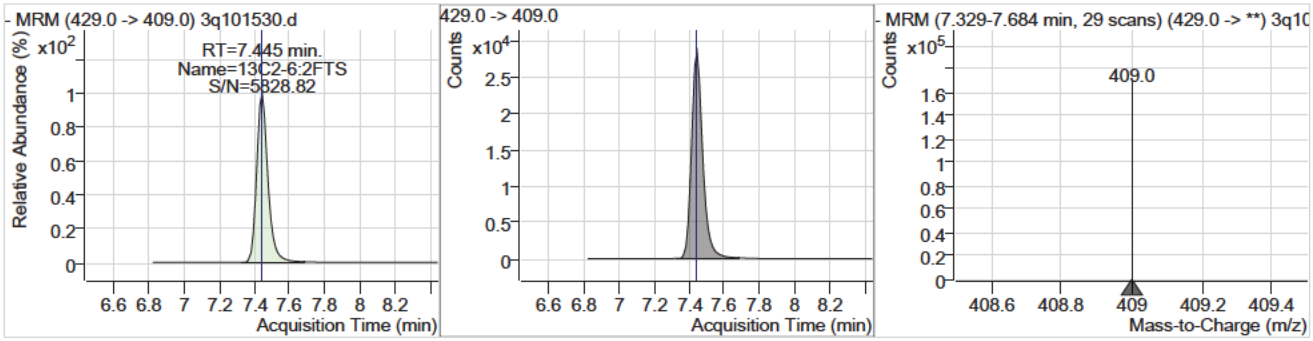
7.5.2 7

Perfluorinated Compounds by LC/MS/MS

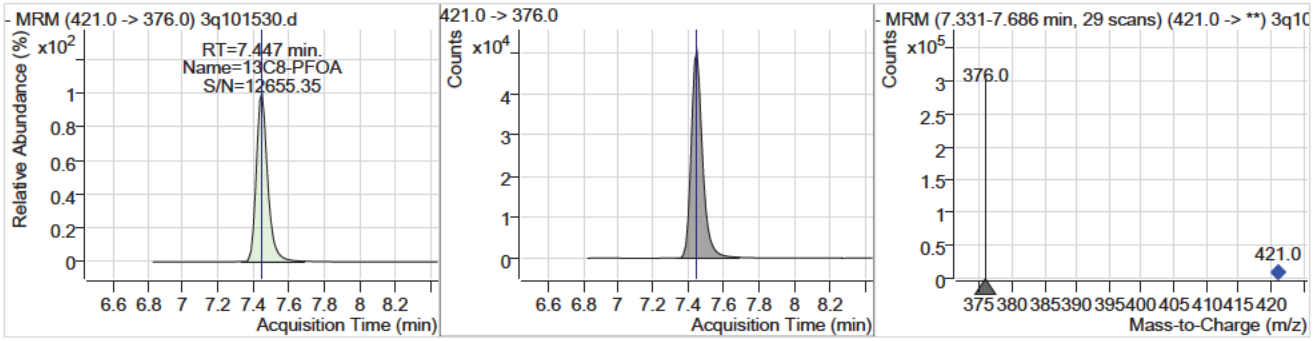
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	7.76	6.75	0.03	24764				



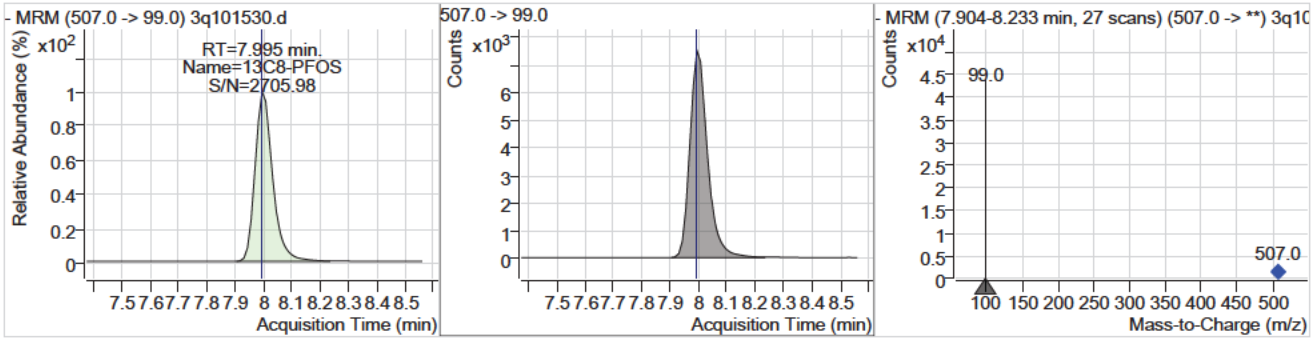
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	7.88	7.44	0.03	126571				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	8.33	7.45	0.03	225200				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	7.92	7.99	0.03	32356				

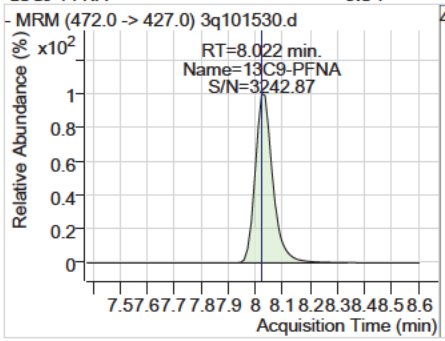


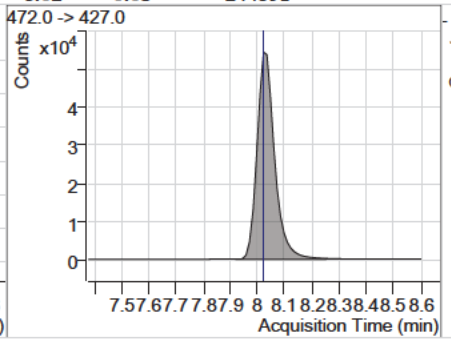
7.5.2

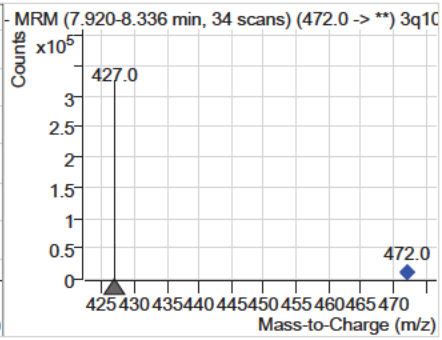
7

Perfluorinated Compounds by LC/MS/MS

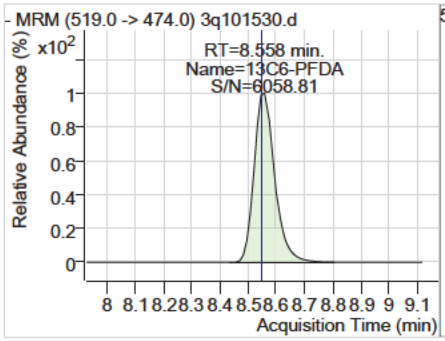
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	8.34	8.02	0.03	244891				

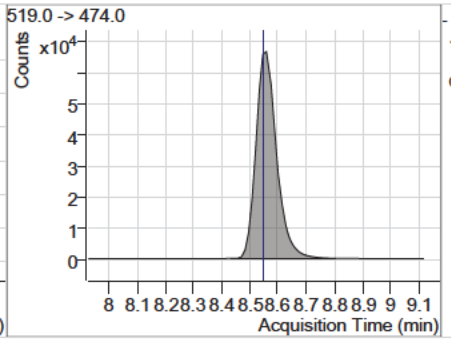


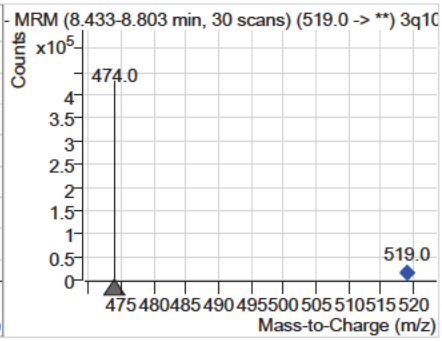




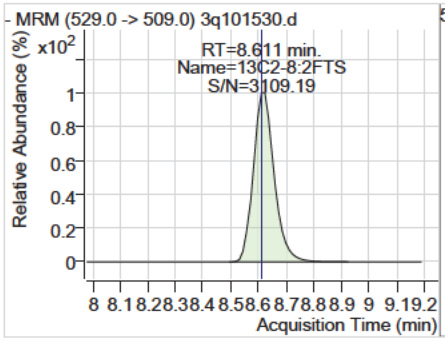
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	8.28	8.56	0.04	340875				

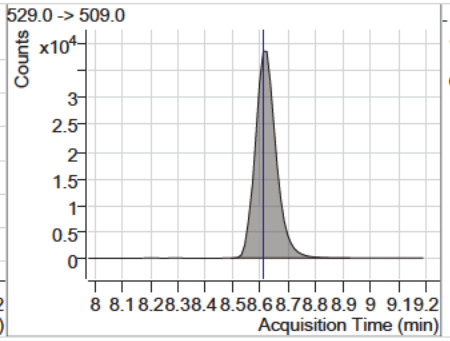


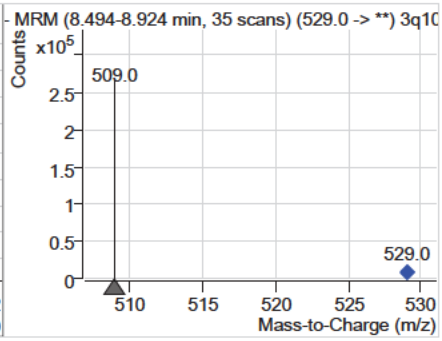




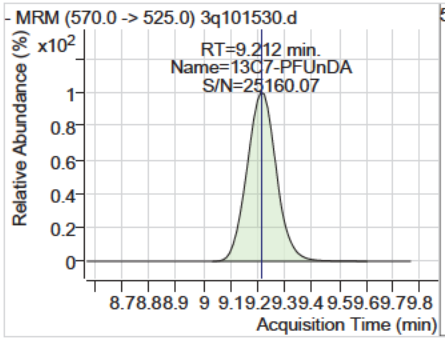
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	7.54	8.61	0.03	202830				

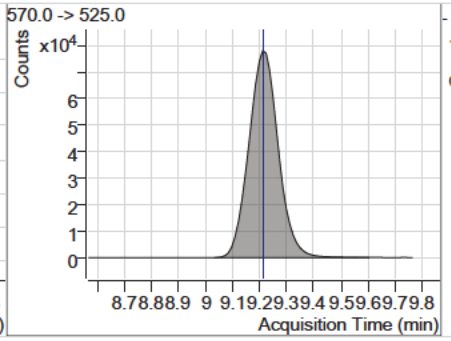


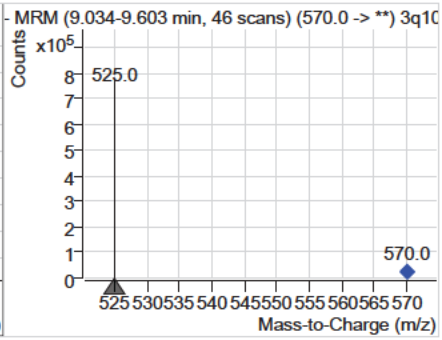




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	7.15	9.21	0.03	587681				

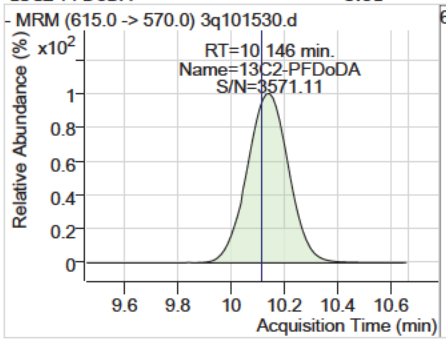


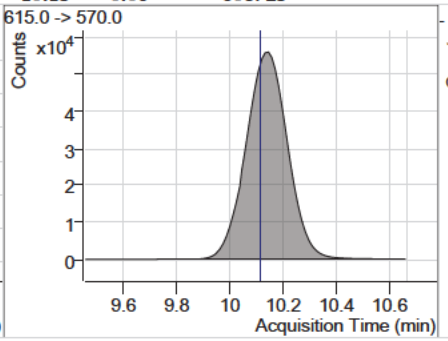


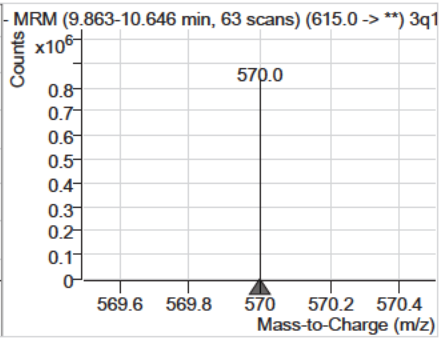


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	5.81	10.15	0.06	608725				







7.5.2

7

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 09:20

Perfluorinated Compounds by LC/MS/MS

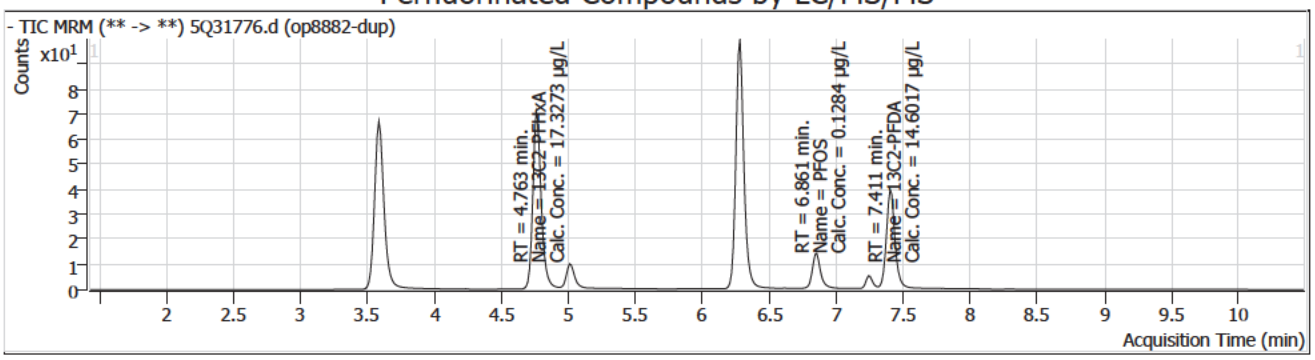
Data File : 5Q31776.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/15/2025 8:09:53 PM
Sample Name : op8882-dup
Vial : P2-C7
DA Method File : 537_041525_S5Q521.quantmethod
Batch Name : s5q521.batch.bin
Sample Information : OP8882,S5Q521,280,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	255582	20.00	µg/L		-0.012
13C2-PFOA	6.289	415.0 -> 370.0	462028	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	566025	20.00	µg/L		-0.012
13C4-PFOS	6.860	503.0 -> 80.0	101537	20.00	µg/L		0.000
d3-MeFOSAA	7.242	573.0 -> 419.0	31364	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	286535	14.60	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 73.0%			
13C2-PFHxA	4.763	315.0 -> 270.0	525815	17.33	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 86.6%			
d5-EtFOSAA	7.378	589.0 -> 419.0	14820	25.44	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 63.6%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	71327	34.51	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 86.3%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	-	363.0 -> 319.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	-	413.0 -> 369.0	-	N.D.			
PFOS	6.861	499.0 -> 80.0	860	0.13	µg/L	m	84
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	4.997	285.0 -> 169.0	0		µg/L	m	1

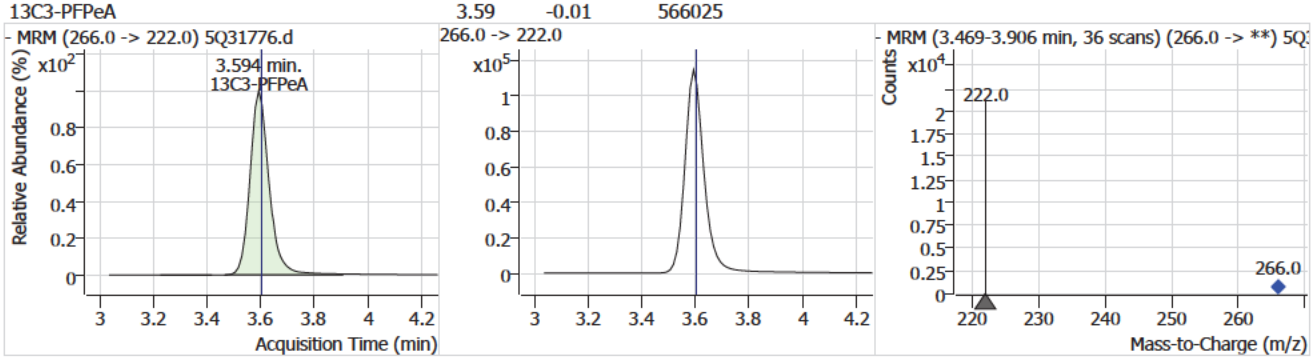
= Qualifier out of range, m = manually integrated, + = Area summed

7.5.3
7

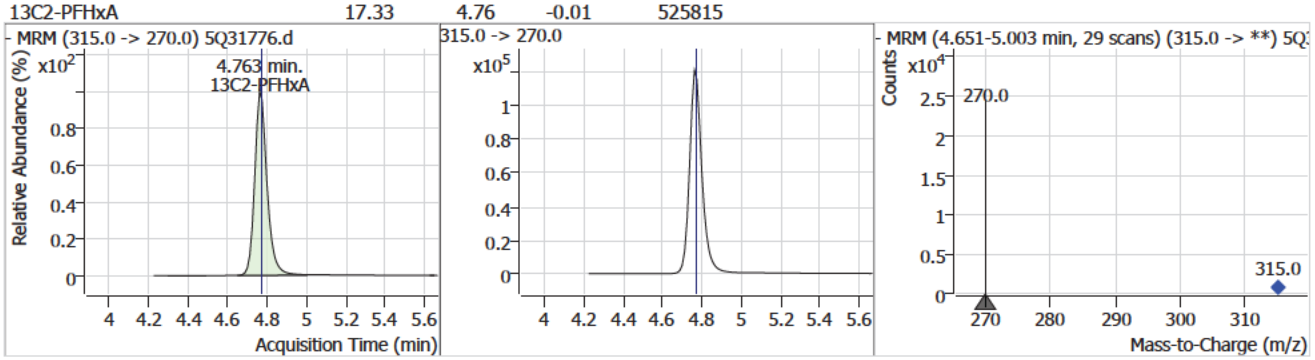
Perfluorinated Compounds by LC/MS/MS



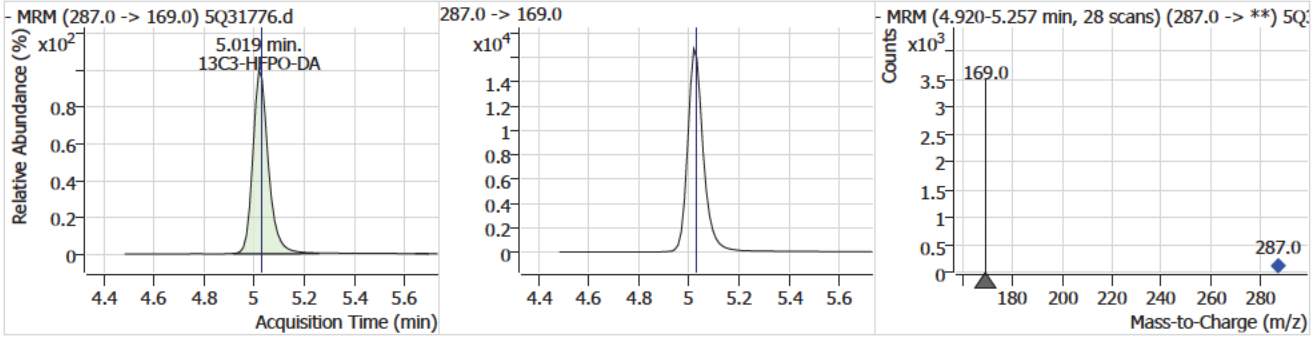
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	566025				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	17.33	4.76	-0.01	525815				

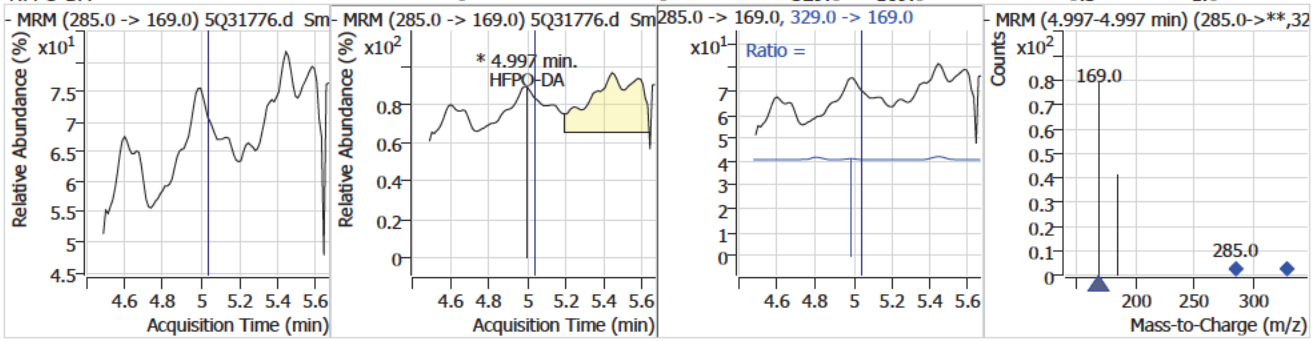


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	34.51	5.02	-0.01	71327				

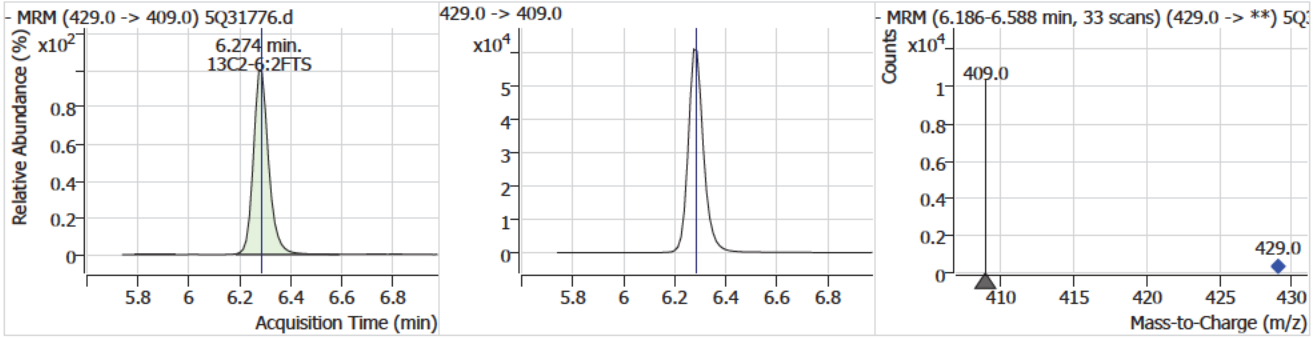


Perfluorinated Compounds by LC/MS/MS

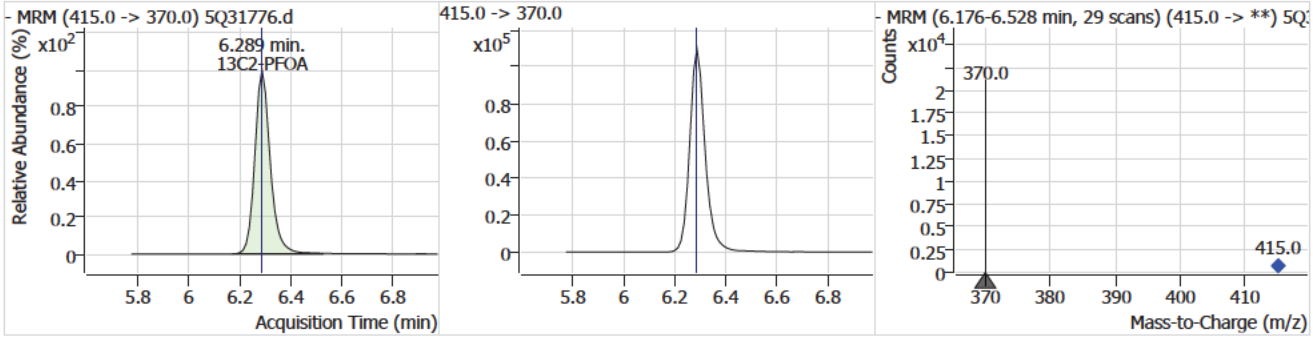
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA		0		0	329.0 -> 169.0		0.3	1.0



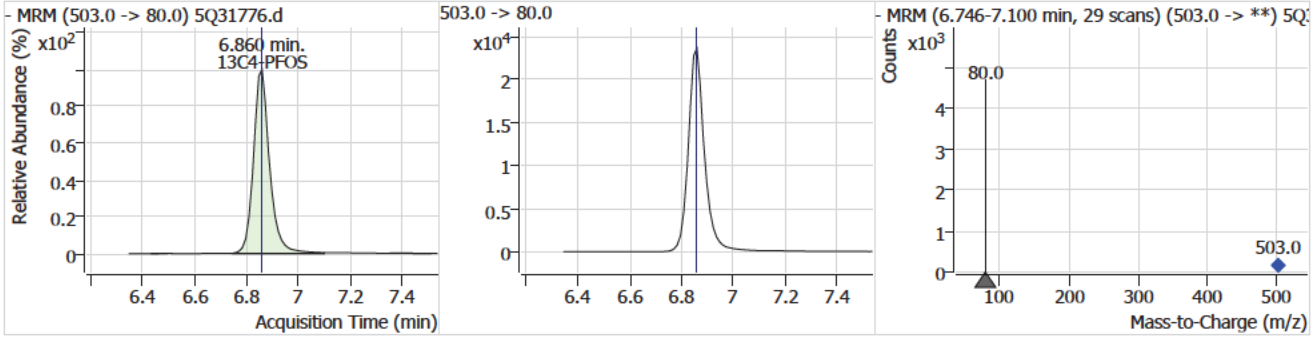
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	255582				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	462028				

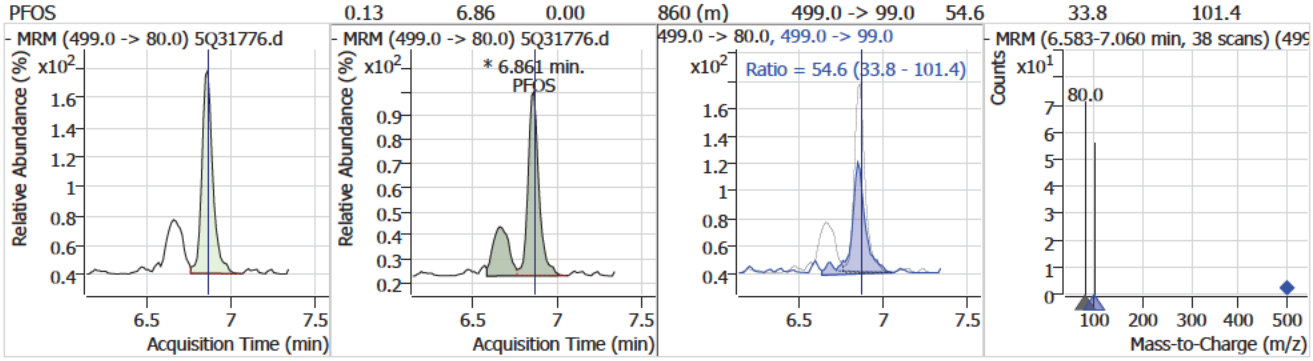


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	101537				

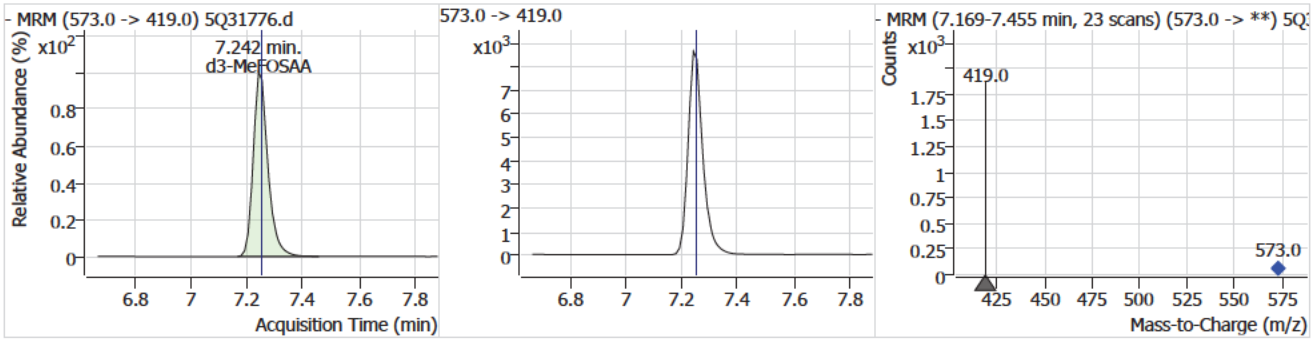


Perfluorinated Compounds by LC/MS/MS

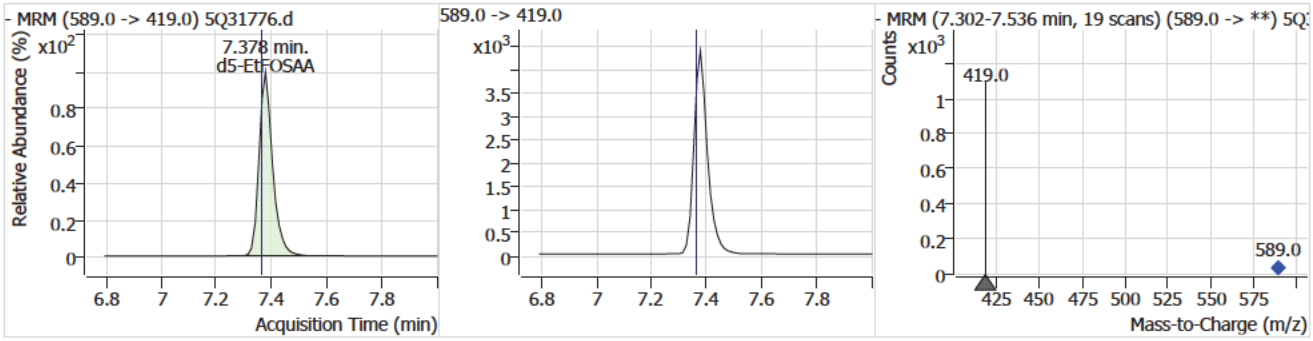
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.13	6.86	0.00	860 (m)	499.0 -> 99.0	54.6	33.8	101.4



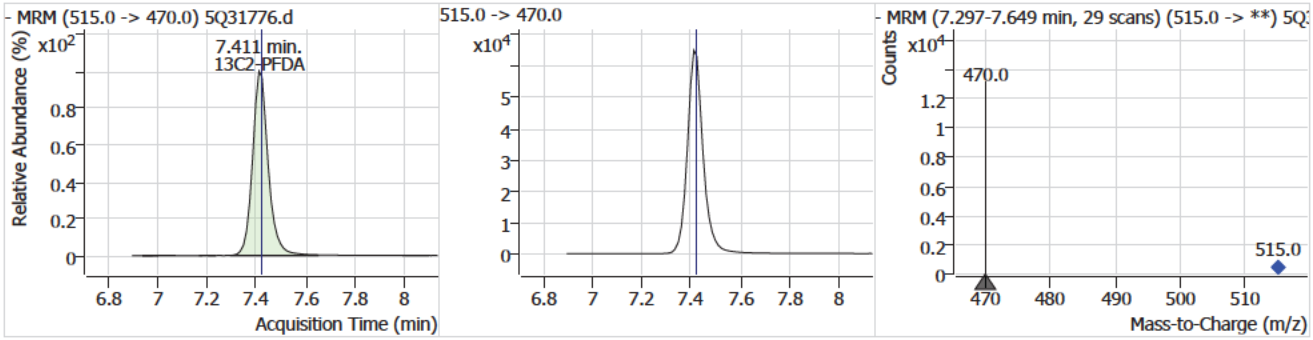
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	31364				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	25.44	7.38	0.00	14820				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	14.60	7.41	-0.01	286535				



Manual Integration Approval Summary

Sample Number:	OP8882-DUP	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31776.D	**Analyst approved:**	04/17/25 09:20 (b) (6)
Injection Time:	04/15/25 20:09	**Supervisor approved:**	04/17/25 09:20 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:42

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101468.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 4:44:49 PM
Sample Name : rt
Vial : P1-D2
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	7.435	415.0 -> 370.0	212092	10.00	µg/L	0.000
13C3-PFBA	2.344	216.0 -> 172.0	81790	10.00	µg/L	0.213
13C4-PFOS	7.995	503.0 -> 80.0	31908	10.00	µg/L	0.000
M4-PFBA	2.340	217.0 -> 172.0	133505	10.00	µg/L	0.200
M5-PFPeA	4.413	268.0 -> 223.0	161700	10.00	µg/L	0.075
M5-PFHxA	5.776	318.0 -> 273.0	203248	10.00	µg/L	0.025
M4-PFHpA	6.706	367.0 -> 322.0	173029	10.00	µg/L	0.000
M8-PFOA	7.434	421.0 -> 376.0	227802	10.00	µg/L	0.000
M9-PFNA	8.022	472.0 -> 427.0	246269	10.00	µg/L	0.000
M6-PFDA	8.546	519.0 -> 474.0	329133	10.00	µg/L	0.000
M7-PFUnDA	9.212	570.0 -> 525.0	671245	10.00	µg/L	-0.013
M2-PFDoDA	10.158	615.0 -> 570.0	873670	10.00	µg/L	0.025
M3-PFBS	4.708	302.0 -> 99.0	18711	10.00	µg/L	0.063
M3-PFHxS	6.736	402.0 -> 99.0	27238	10.00	µg/L	0.000
M8-PFOS	7.995	507.0 -> 99.0	34543	10.00	µg/L	0.000
M2-4:2FTS	5.672	329.0 -> 309.0	66384	10.00	µg/L	0.025
M2-6:2FTS	7.432	429.0 -> 409.0	127587	10.00	µg/L	0.000
M2-8:2FTS	8.611	529.0 -> 509.0	218045	10.00	µg/L	0.000
M3-HFPO-DA	6.068	287.0 -> 169.0	2554	10.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.672	329.0 -> 309.0	66384	8.74	µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 87.4%		
13C2-6:2FTS	7.432	429.0 -> 409.0	127587	8.94	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.4%		
13C2-8:2FTS	8.611	529.0 -> 509.0	218045	9.12	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.2%		
13C2-PFDoDA	10.158	615.0 -> 570.0	873670	9.68	µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.8%		
13C3-PFBS	4.708	302.0 -> 99.0	18711	9.40	µg/L	0.063
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.0%		
13C3-PFHxS	6.736	402.0 -> 99.0	27238	9.61	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.1%		
13C4-PFBA	2.340	217.0 -> 172.0	133505	9.62	µg/L	0.200
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.2%		
13C4-PFHpA	6.706	367.0 -> 322.0	173029	9.64	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.4%		
13C5-PFHxA	5.776	318.0 -> 273.0	203248	9.46	µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.6%		
13C5-PFPeA	4.413	268.0 -> 223.0	161700	9.67	µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.7%		
13C6-PFDA	8.546	519.0 -> 474.0	329133	9.28	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.8%		
13C7-PFUnDA	9.212	570.0 -> 525.0	671245	9.47	µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.7%		
13C8-PFOA	7.434	421.0 -> 376.0	227802	9.78	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

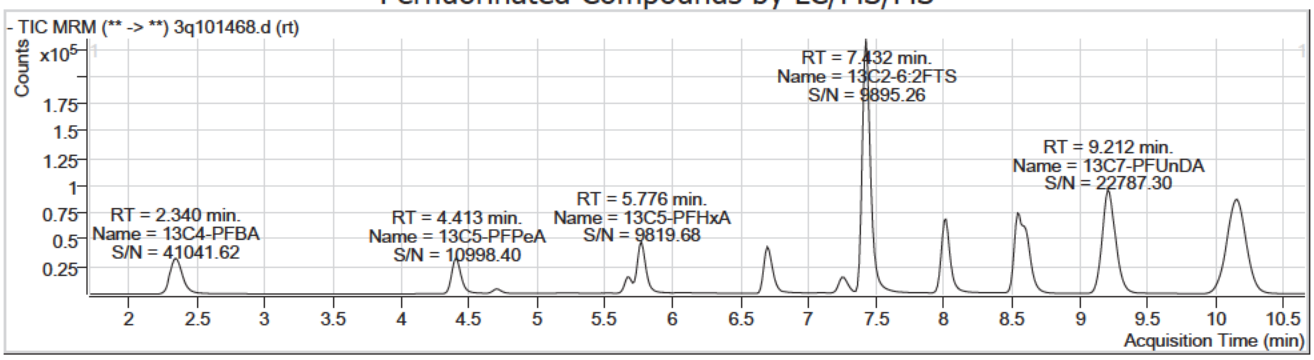
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.8%		
13C8-PFOS	7.995	507.0 -> 99.0	34543	9.52 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.2%		
13C9-PFNA	8.022	472.0 -> 427.0	246269	9.73 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.3%		
13C3-HFPO-DA	6.068	287.0 -> 169.0	2554	8.27 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.7%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	-	299.0 -> 80.0	-	N.D.		
		299.0 -> 99.0				
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	6.708	363.0 -> 319.0	0	0.00 µg/L	m	1
		363.0 -> 169.0	0			
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	7.436	413.0 -> 369.0	363016	20.66 µg/L	m	95
		413.0 -> 169.0	144496			
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	6.330	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0	0			

= Qualifier out of range, m = manually integrated, + = Area summed

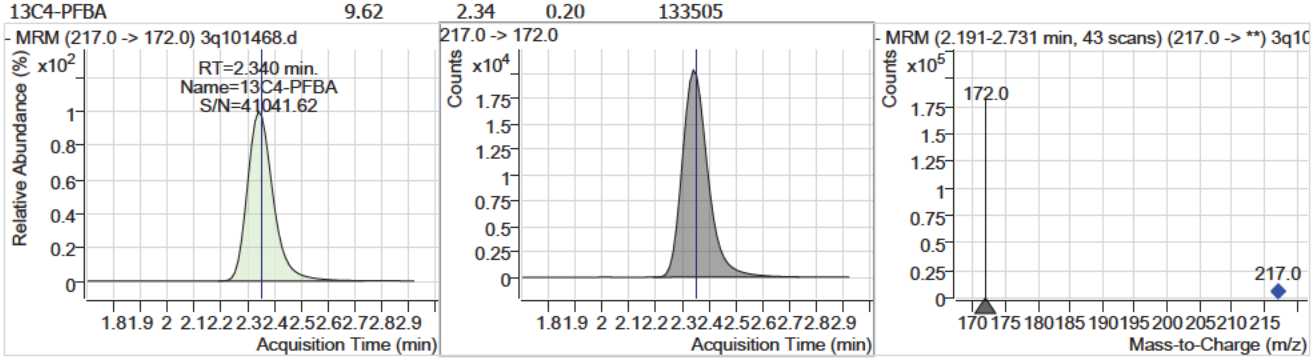
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)

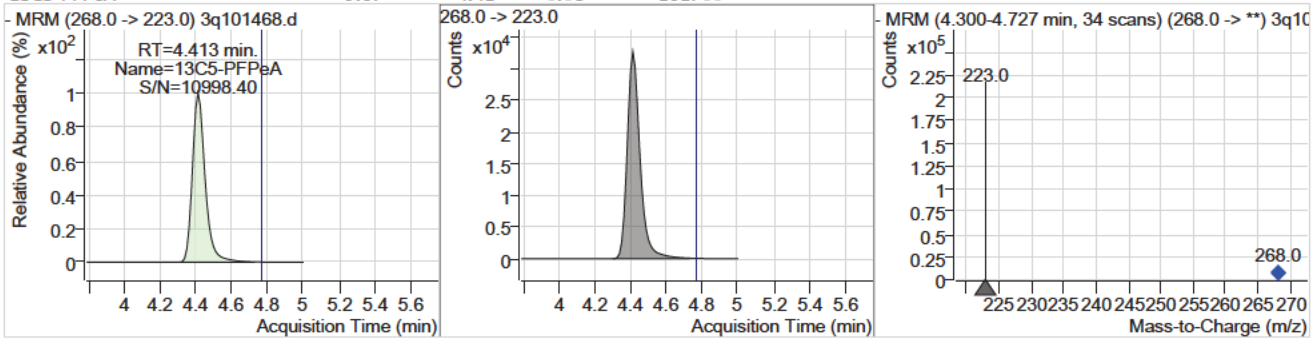
Perfluorinated Compounds by LC/MS/MS



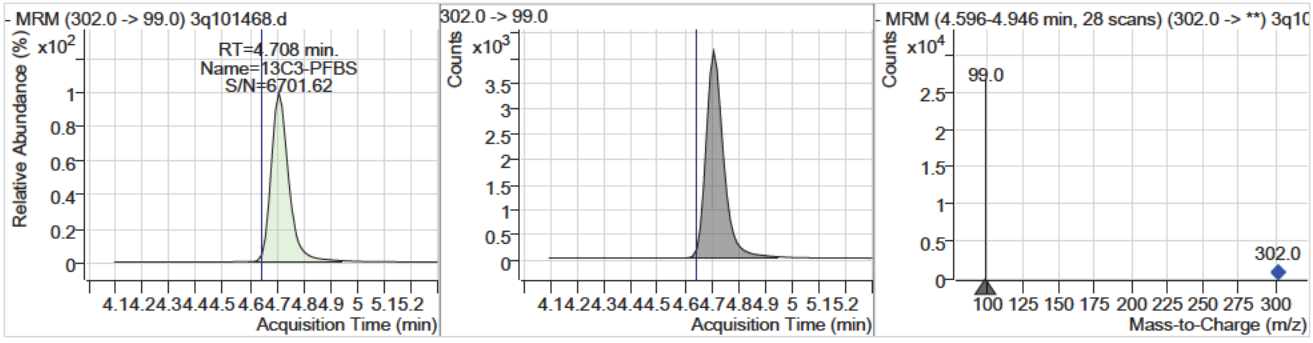
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	9.62	2.34	0.20	133505				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	9.67	4.41	0.08	161700				

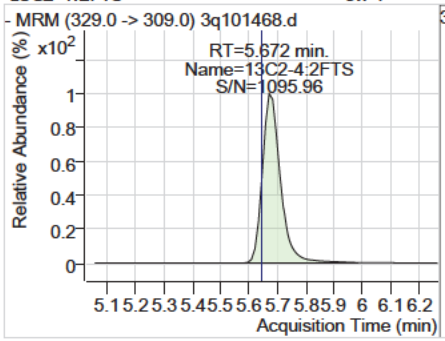


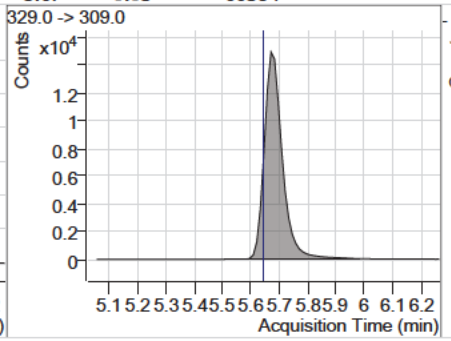
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	9.40	4.71	0.06	18711				

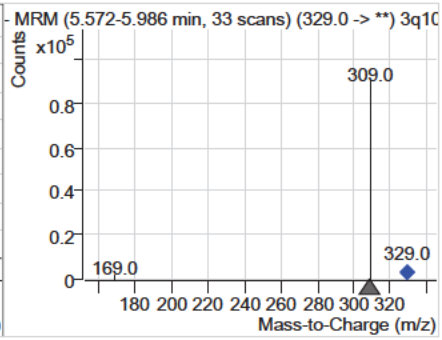


Perfluorinated Compounds by LC/MS/MS

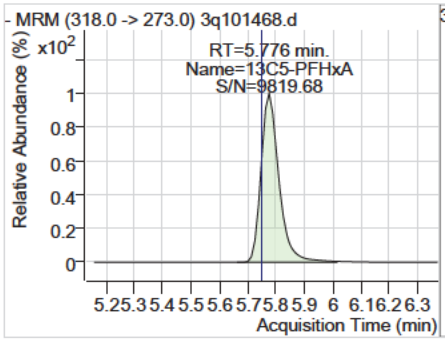
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	8.74	5.67	0.03	66384				

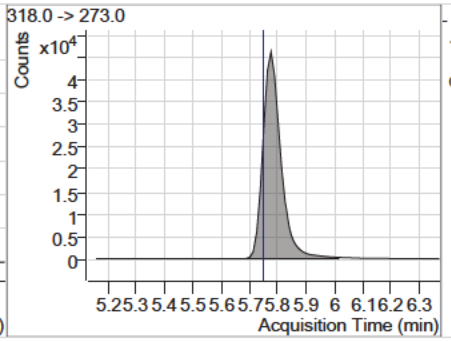


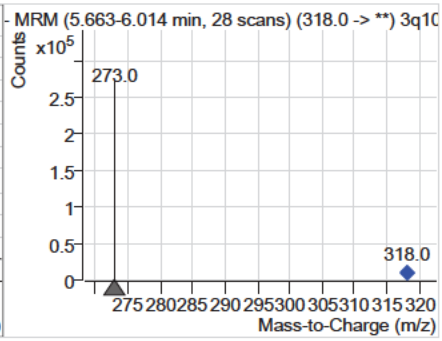




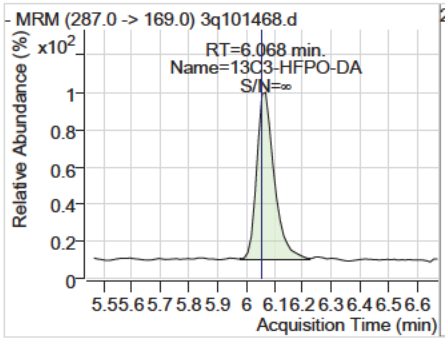
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	9.46	5.78	0.03	203248				

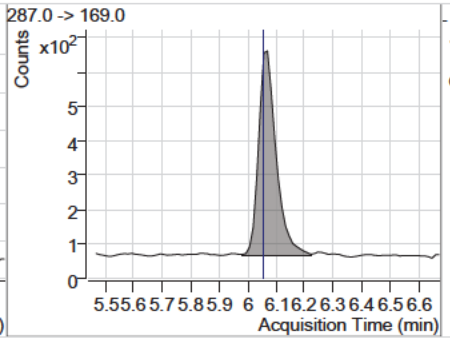


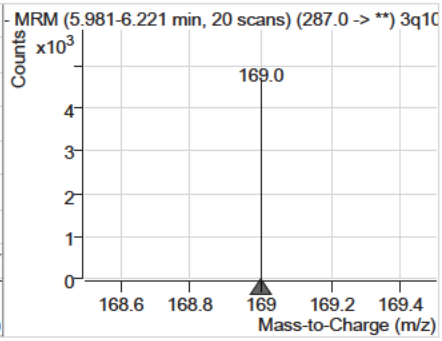




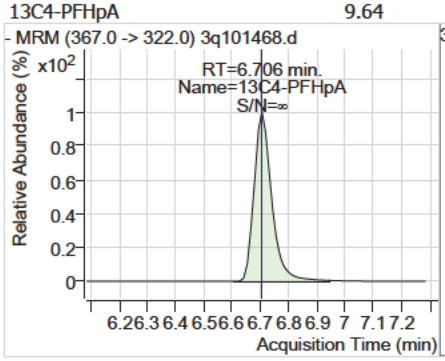
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.27	6.07	0.01	2554				

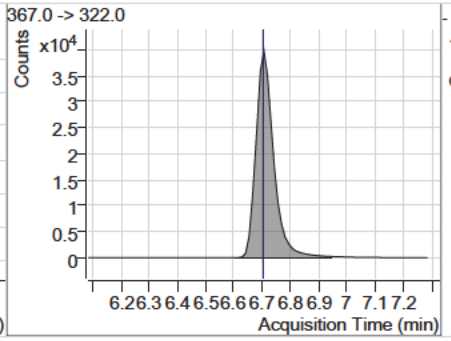


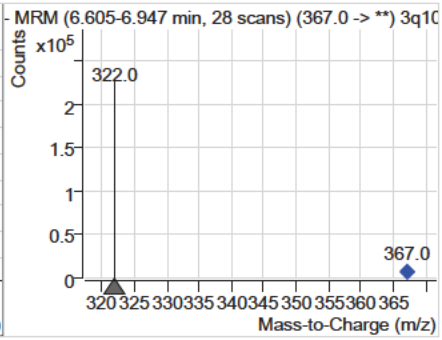




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	9.64	6.71	0.00	173029				

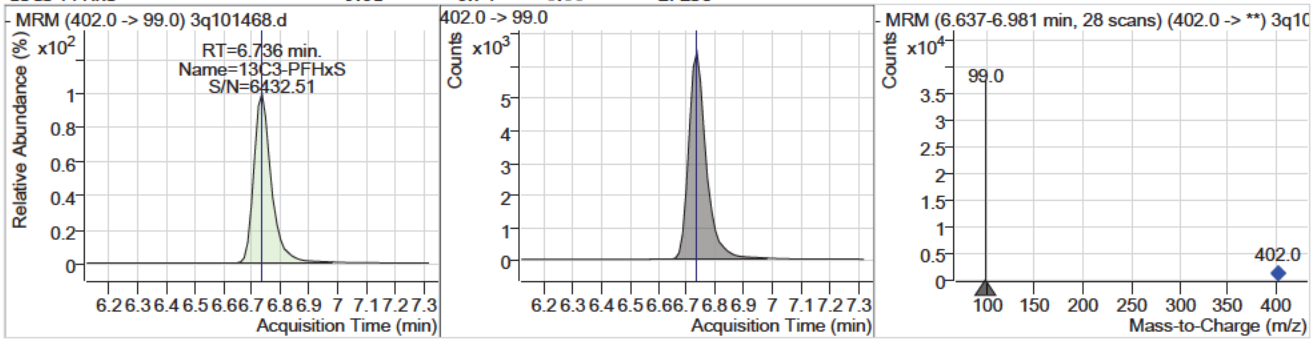




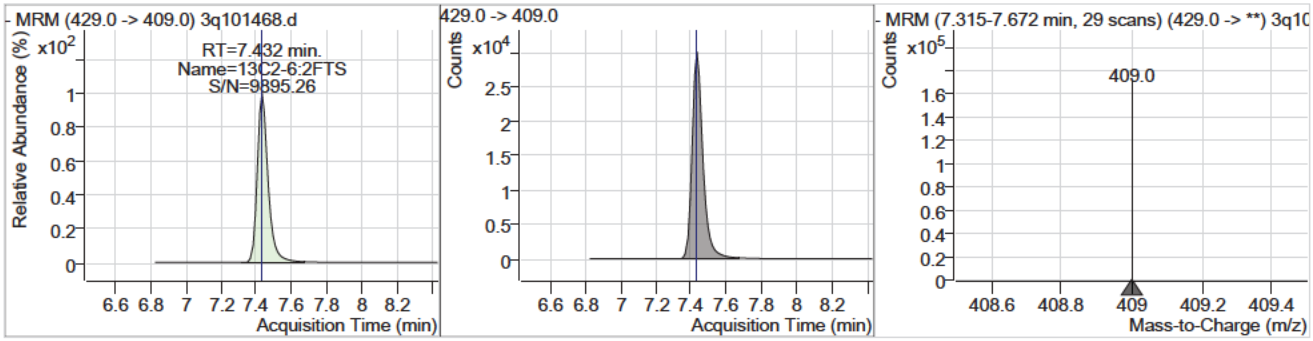


Perfluorinated Compounds by LC/MS/MS

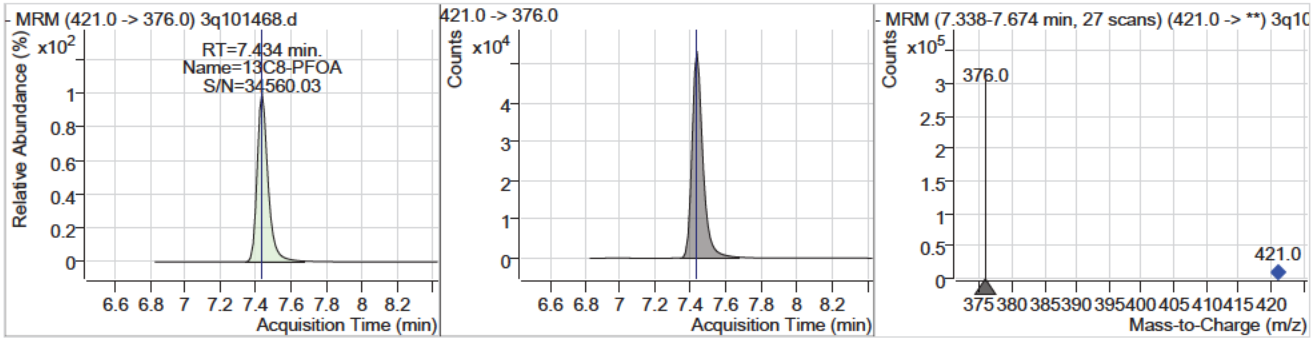
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	9.61	6.74	0.00	27238				



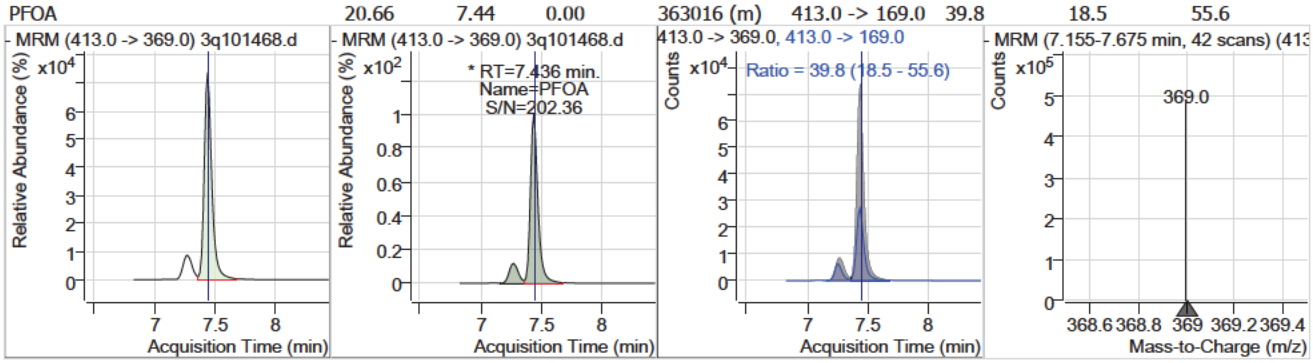
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	8.94	7.43	0.00	127587				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	9.78	7.43	0.00	227802				

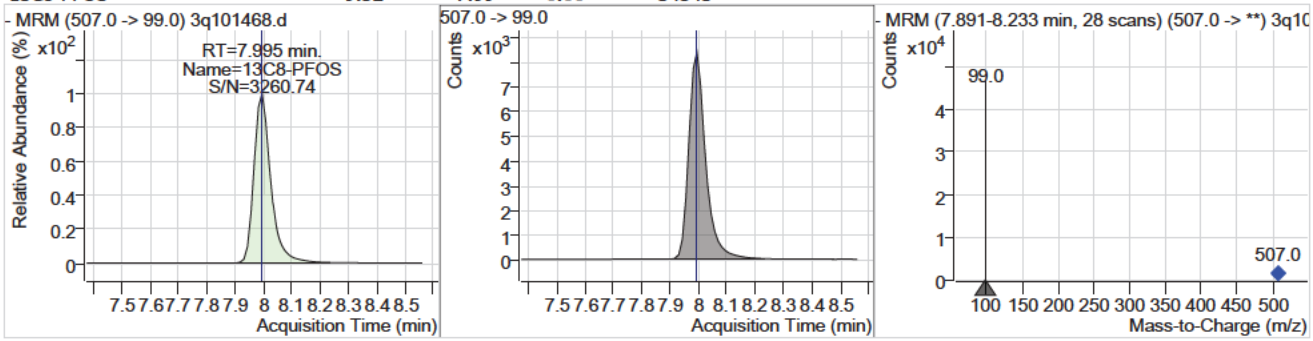


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.66	7.44	0.00	363016 (m)	413.0 -> 169.0	39.8	18.5	55.6

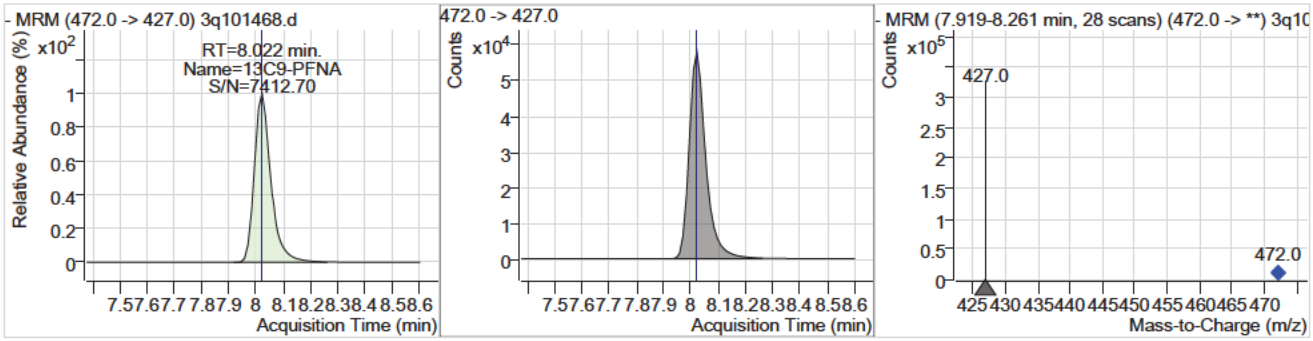


Perfluorinated Compounds by LC/MS/MS

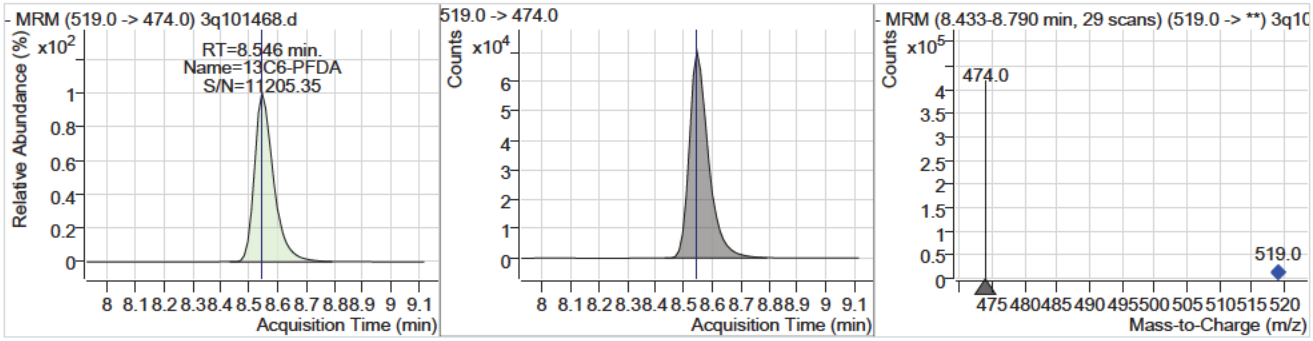
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	9.52	7.99	0.00	34543				



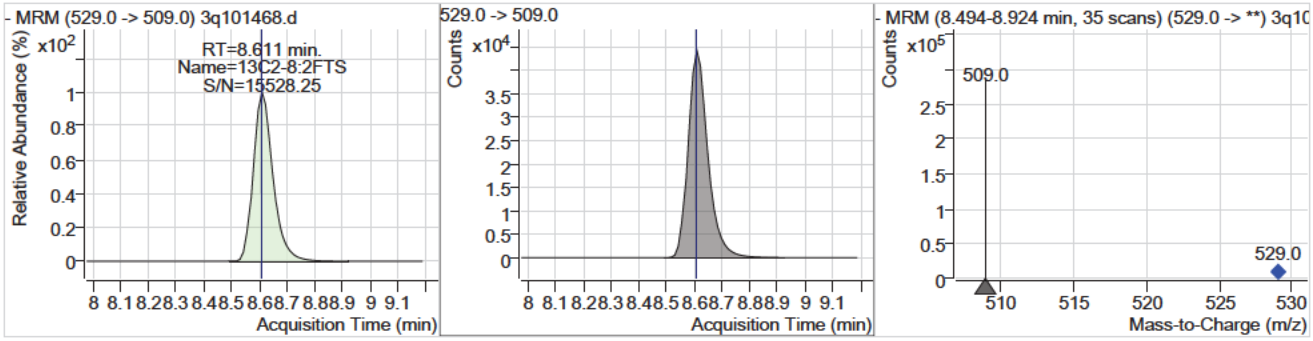
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	9.73	8.02	0.00	246269				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	9.28	8.55	0.00	329133				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	9.12	8.61	0.00	218045				

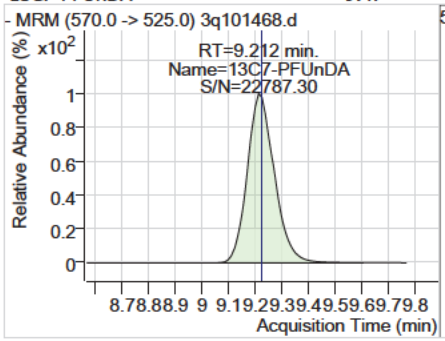


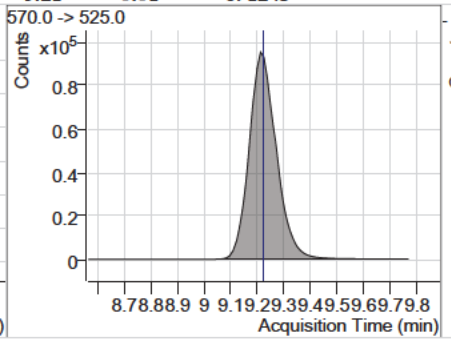
7.6.1

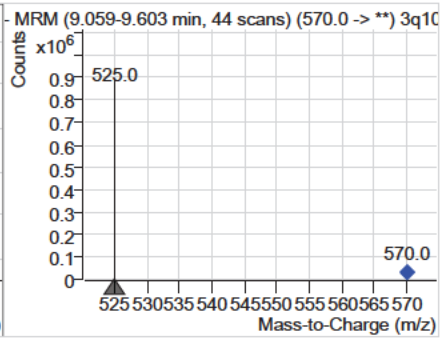
7

Perfluorinated Compounds by LC/MS/MS

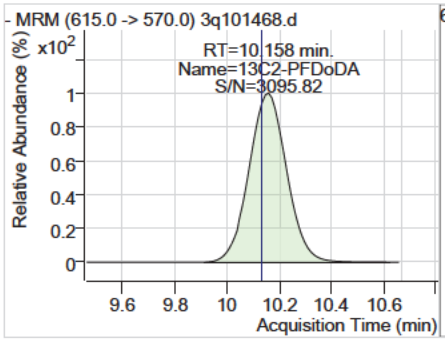
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	9.47	9.21	-0.01	671245				

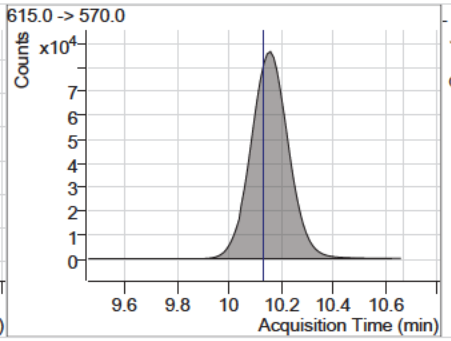


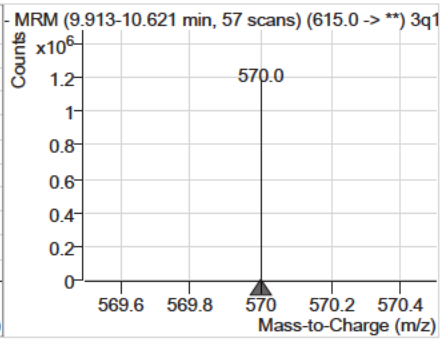




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	9.68	10.16	0.03	873670				







7.6.1

7

Manual Integration Approval Summary

Sample Number:	S3Q1492-RT	**Method:**	EPA 533
Lab FileID:	3Q101468.D	**Analyst approved:**	04/16/25 08:55 (b) (6)
Injection Time:	04/15/25 16:44	**Supervisor approved:**	04/17/25 11:42 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.44	Split peak

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101489.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/16/2025 11:29:39 AM
Sample Name : rt
Vial : P1-D2
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1493.batch.bin
Sample Information : op8141,S3Q1493,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.435	415.0 -> 370.0	279832	10.00 µg/L	0.013
13C3-PFBA	2.344	216.0 -> 172.0	107462	10.00 µg/L	0.000
13C4-PFOS	7.983	503.0 -> 80.0	41104	10.00 µg/L	0.014
M4-PFBA	2.340	217.0 -> 172.0	176474	10.00 µg/L	0.000
M5-PFPeA	4.413	268.0 -> 223.0	217236	10.00 µg/L	0.000
M5-PFHxA	5.776	318.0 -> 273.0	280903	10.00 µg/L	0.000
M4-PFHpA	6.706	367.0 -> 322.0	239787	10.00 µg/L	0.013
M8-PFOA	7.434	421.0 -> 376.0	312996	10.00 µg/L	0.013
M9-PFNA	8.010	472.0 -> 427.0	352520	10.00 µg/L	0.013
M6-PFDA	8.533	519.0 -> 474.0	469835	10.00 µg/L	0.013
M7-PFUnDA	9.199	570.0 -> 525.0	918040	10.00 µg/L	0.014
M2-PFDoDA	10.108	615.0 -> 570.0	1238710	10.00 µg/L	0.025
M3-PFBS	4.708	302.0 -> 99.0	24538	10.00 µg/L	0.000
M3-PFHxS	6.736	402.0 -> 99.0	34811	10.00 µg/L	0.013
M8-PFOS	7.982	507.0 -> 99.0	44888	10.00 µg/L	0.014
M2-4:2FTS	5.672	329.0 -> 309.0	92454	10.00 µg/L	0.000
M2-6:2FTS	7.432	429.0 -> 409.0	179487	10.00 µg/L	0.013
M2-8:2FTS	8.597	529.0 -> 509.0	309909	10.00 µg/L	0.013
M3-HFPO-DA	6.068	287.0 -> 169.0	3144	10.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.672	329.0 -> 309.0	92454	9.45 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.5%	
13C2-6:2FTS	7.432	429.0 -> 409.0	179492	9.77 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C2-8:2FTS	8.597	529.0 -> 509.0	309909	10.07 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C2-PFDoDA	10.108	615.0 -> 570.0	1238710	10.40 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C3-PFBS	4.708	302.0 -> 99.0	24538	9.57 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.7%	
13C3-PFHxS	6.736	402.0 -> 99.0	34811	9.53 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C4-PFBA	2.340	217.0 -> 172.0	176474	9.68 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C4-PFHpA	6.706	367.0 -> 322.0	239787	10.13 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C5-PFHxA	5.776	318.0 -> 273.0	280903	9.91 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C5-PFPeA	4.413	268.0 -> 223.0	217236	9.89 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C6-PFDA	8.533	519.0 -> 474.0	469835	10.04 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C7-PFUnDA	9.199	570.0 -> 525.0	918040	9.82 µg/L	0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C8-PFOA	7.434	421.0 -> 376.0	312996	10.18 µg/L	0.013

Perfluorinated Compounds by LC/MS/MS

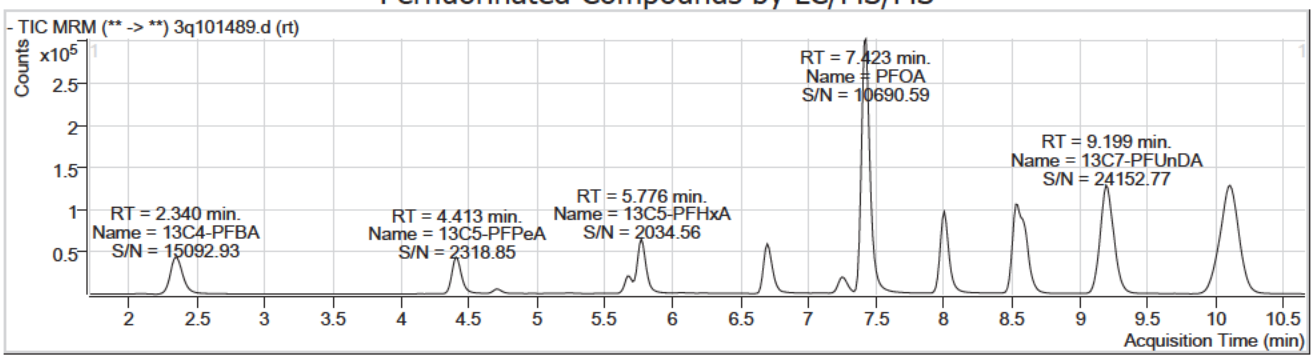
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.8%		
13C8-PFOS	7.982	507.0 -> 99.0	44888	9.60 µg/L		0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.0%		
13C9-PFNA	8.010	472.0 -> 427.0	352520	10.55 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.5%		
13C3-HFPO-DA	6.068	287.0 -> 169.0	3144	7.71 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.1%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	-	299.0 -> 80.0	-	N.D.		
		299.0 -> 99.0				
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	6.708	363.0 -> 319.0	6182	0.18 µg/L		99
		363.0 -> 169.0	545			
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	7.423	413.0 -> 369.0	419313	17.37 µg/L		99
		413.0 -> 169.0	154124			
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	6.023	329.0 -> 169.0	19	0.24 µg/L	#	15
		285.0 -> 169.0	74			

= Qualifier out of range, m = manually integrated, + = Area summed

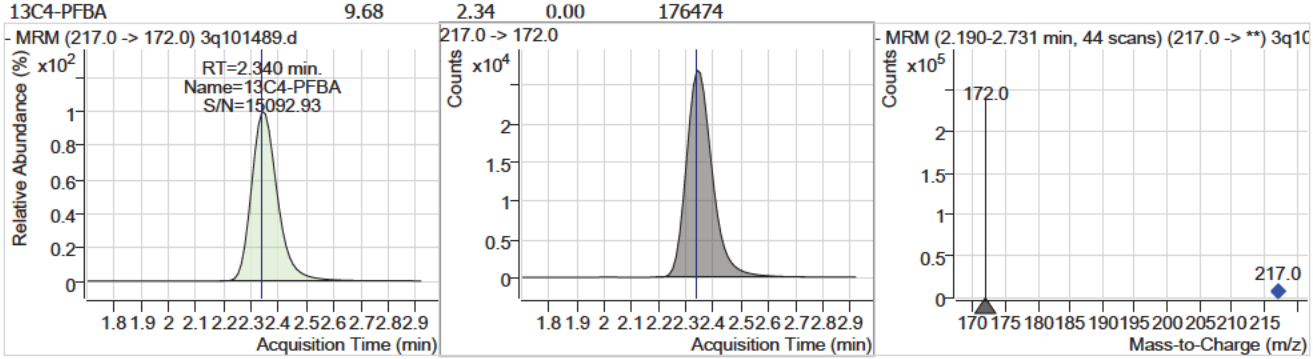
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)

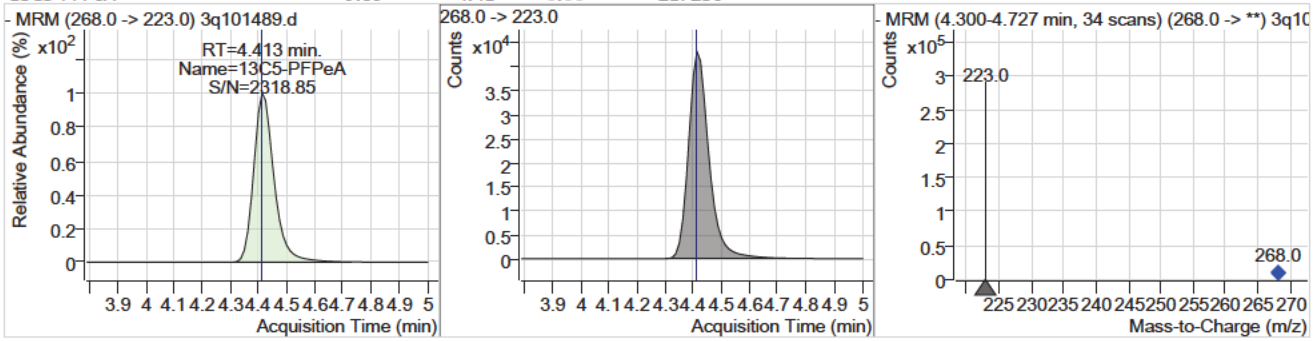
Perfluorinated Compounds by LC/MS/MS



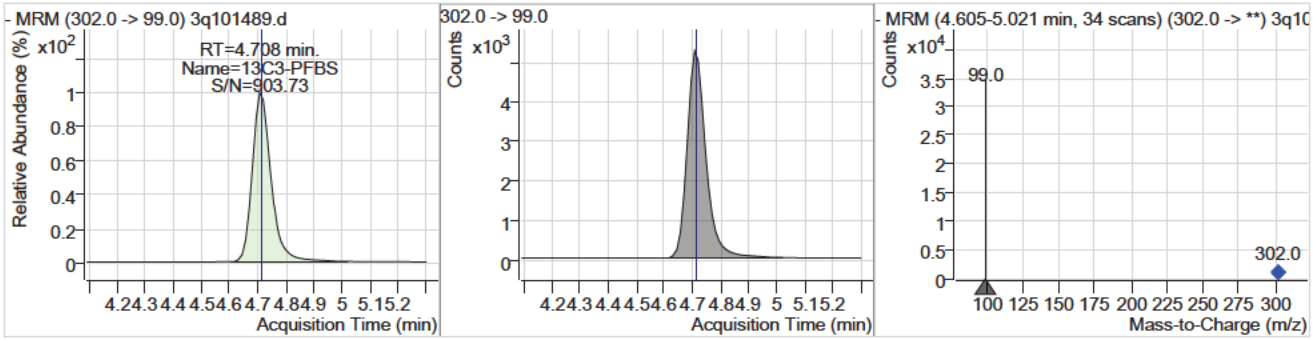
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	9.68	2.34	0.00	176474				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	9.89	4.41	0.00	217236				

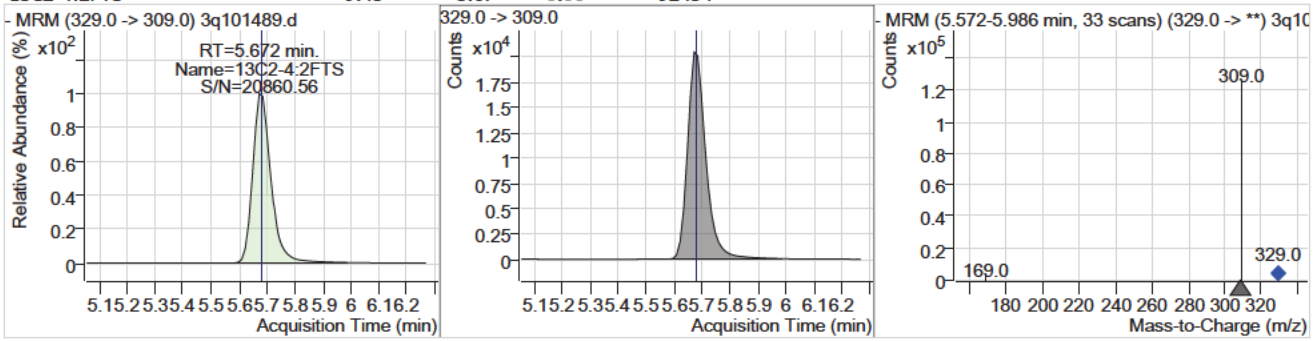


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	9.57	4.71	0.00	24538				

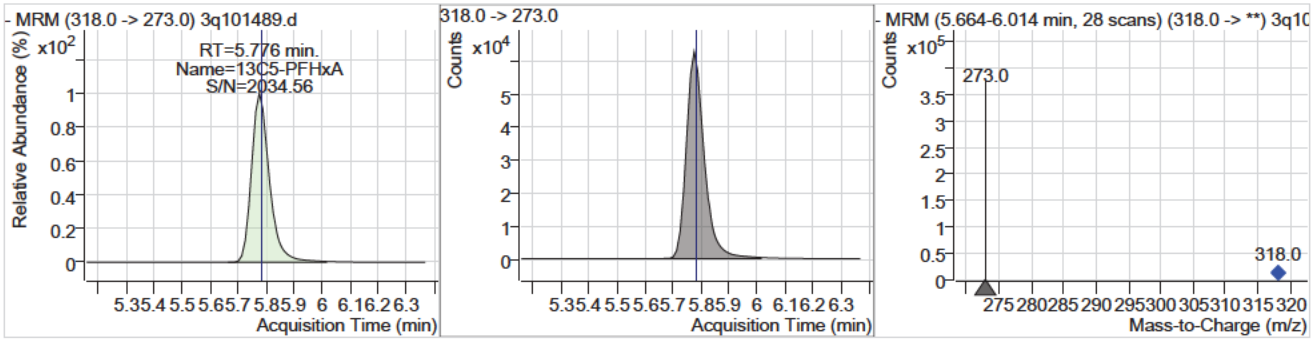


Perfluorinated Compounds by LC/MS/MS

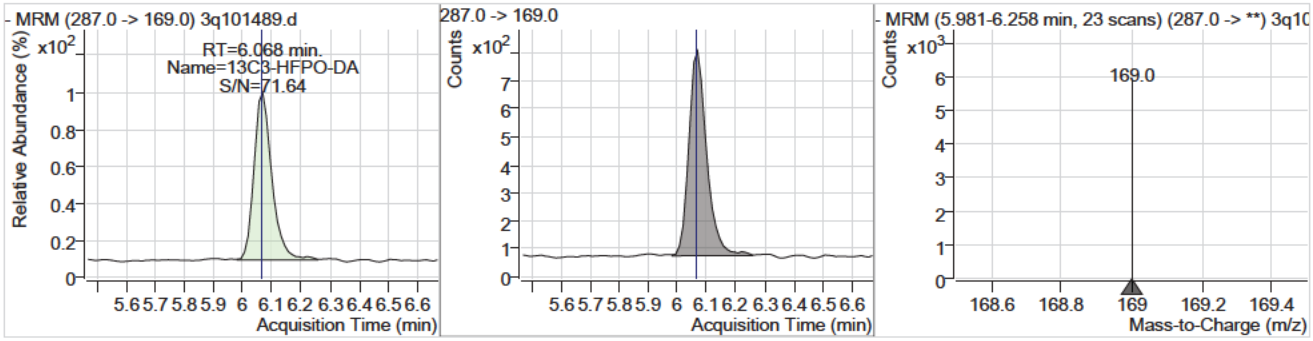
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	9.45	5.67	0.00	92454				



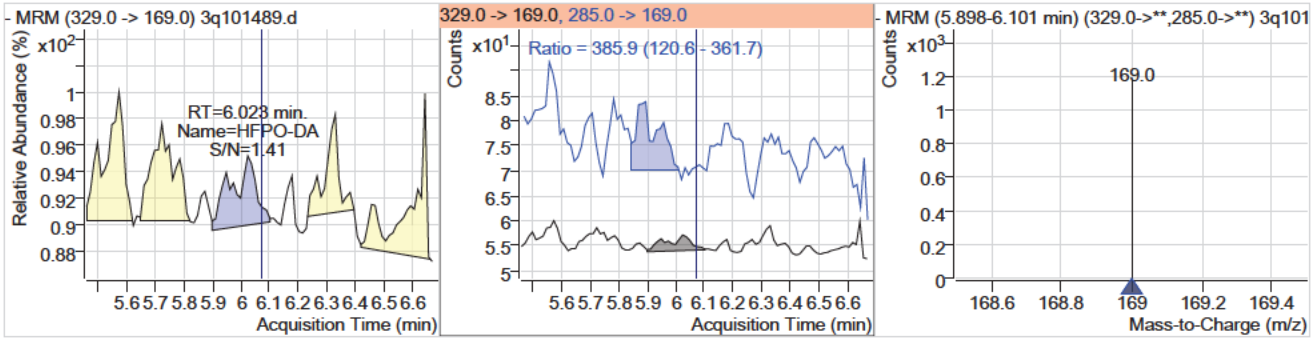
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	9.91	5.78	0.00	280903				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	7.71	6.07	0.01	3144				

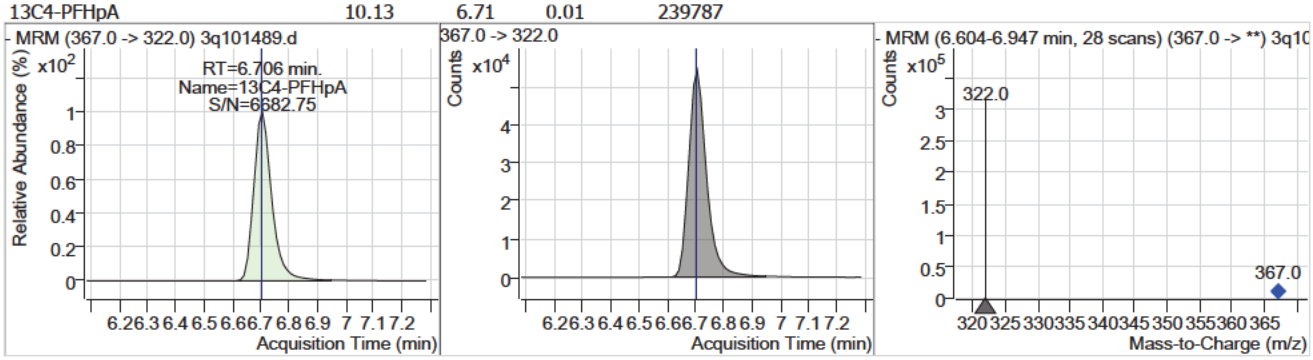


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.24	6.02	-0.04	19	285.0 -> 169.0	385.9	120.6	361.7

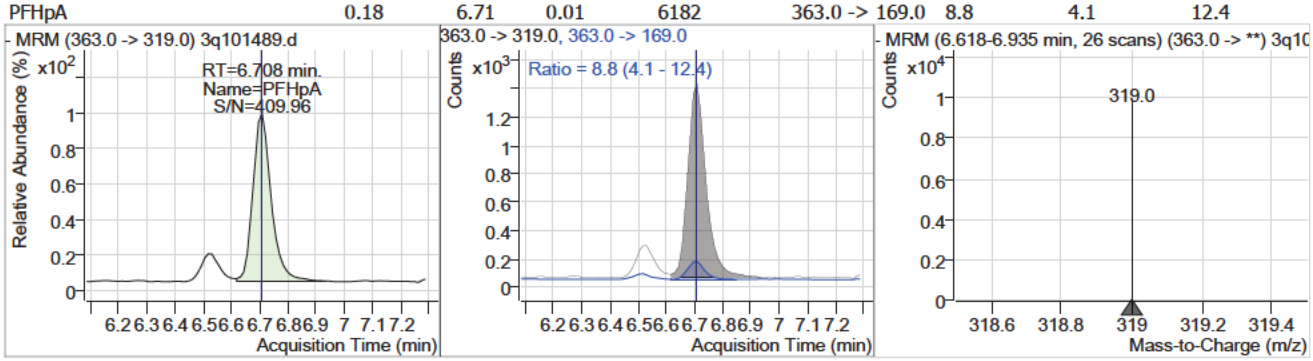


Perfluorinated Compounds by LC/MS/MS

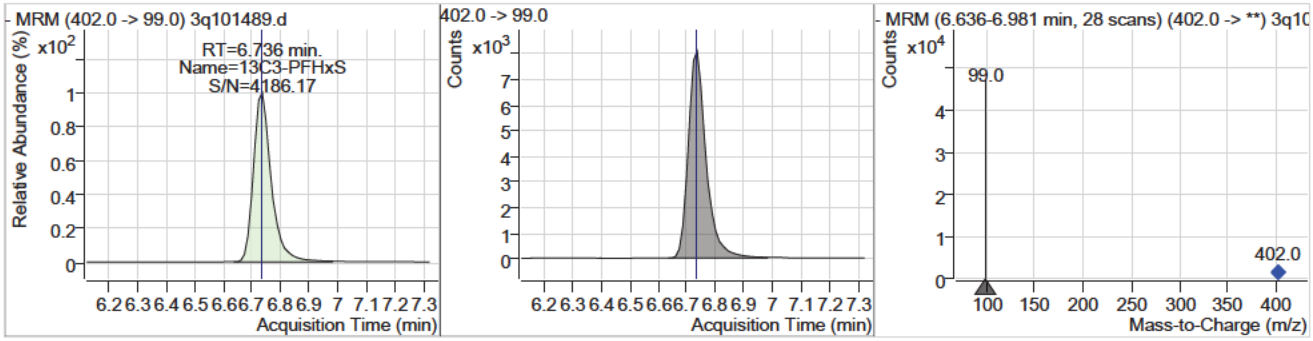
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.13	6.71	0.01	239787				



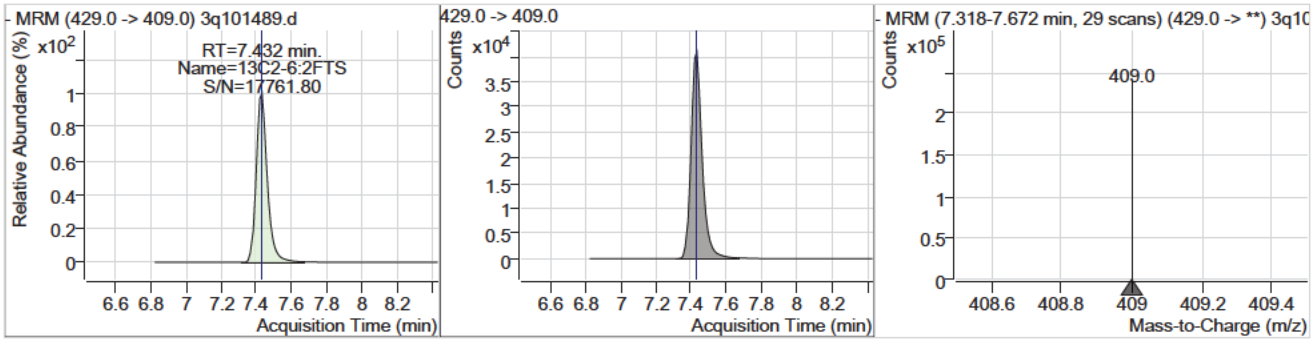
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.18	6.71	0.01	6182	363.0 -> 169.0	8.8	4.1	12.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	9.53	6.74	0.01	34811				



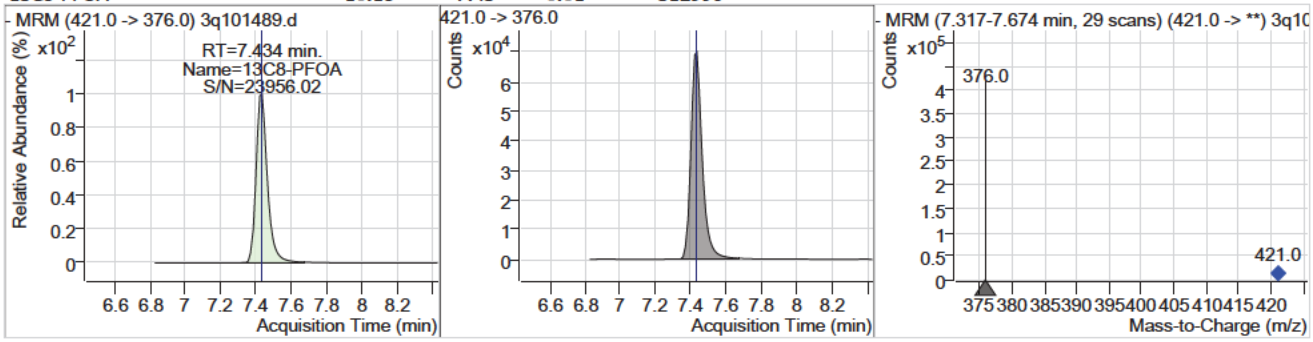
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	9.77	7.43	0.01	179492				



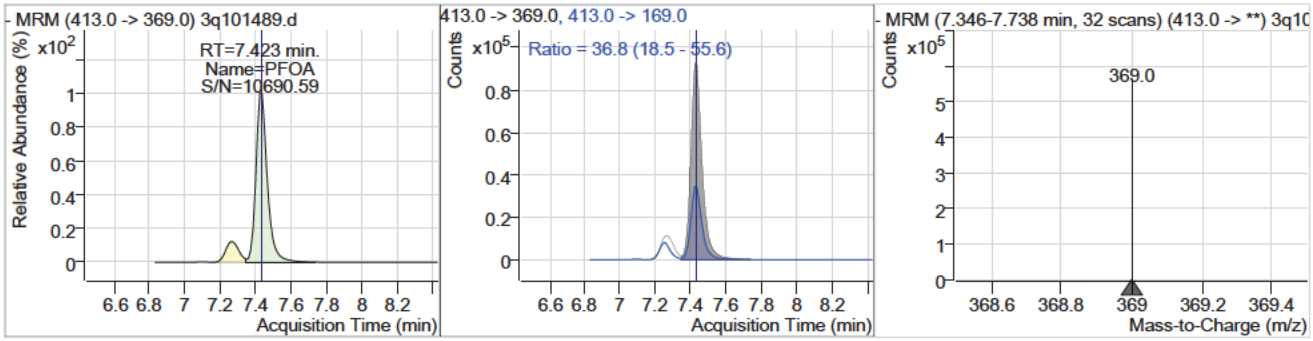
7.6.2 7

Perfluorinated Compounds by LC/MS/MS

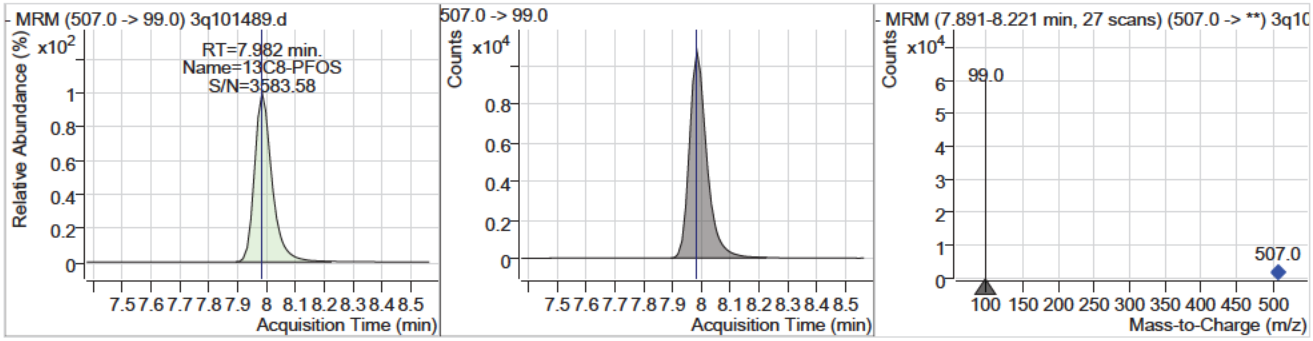
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.18	7.43	0.01	312996				



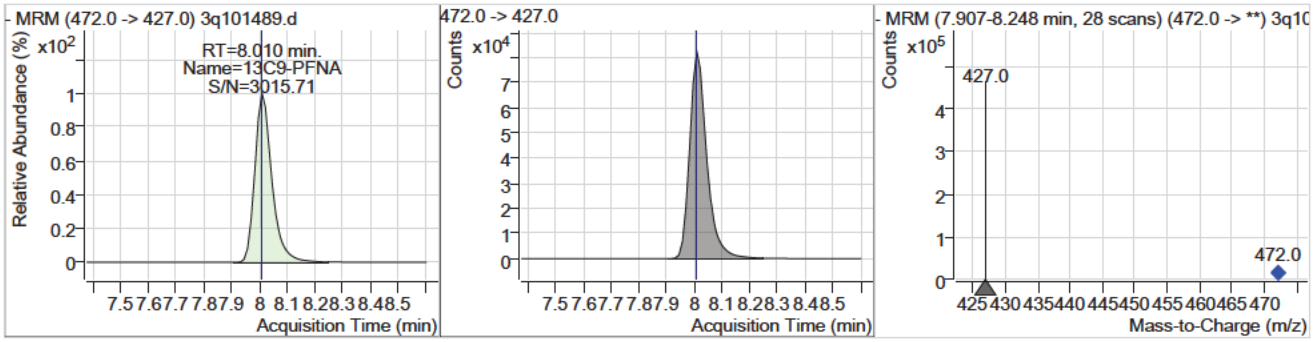
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	17.37	7.42	0.00	419313	413.0 -> 169.0	36.8	18.5	55.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	9.60	7.98	0.01	44888				



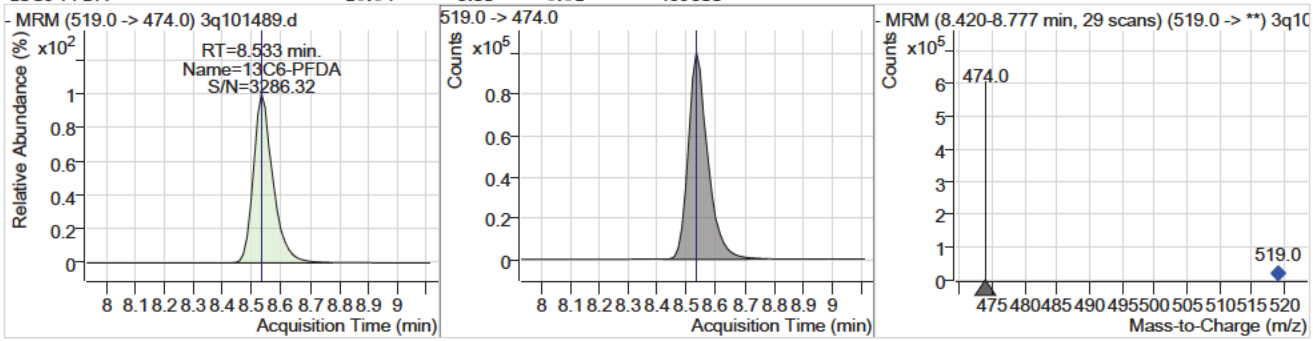
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.55	8.01	0.01	352520				



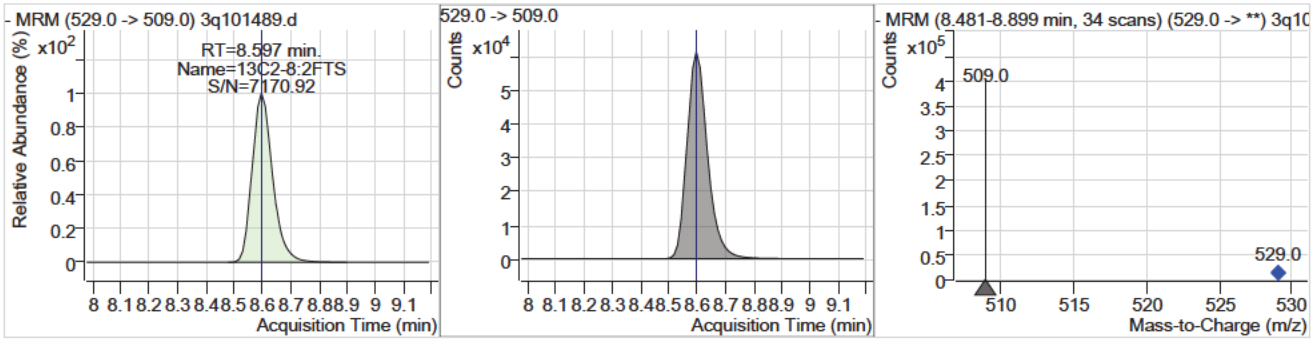
7.6.2 7

Perfluorinated Compounds by LC/MS/MS

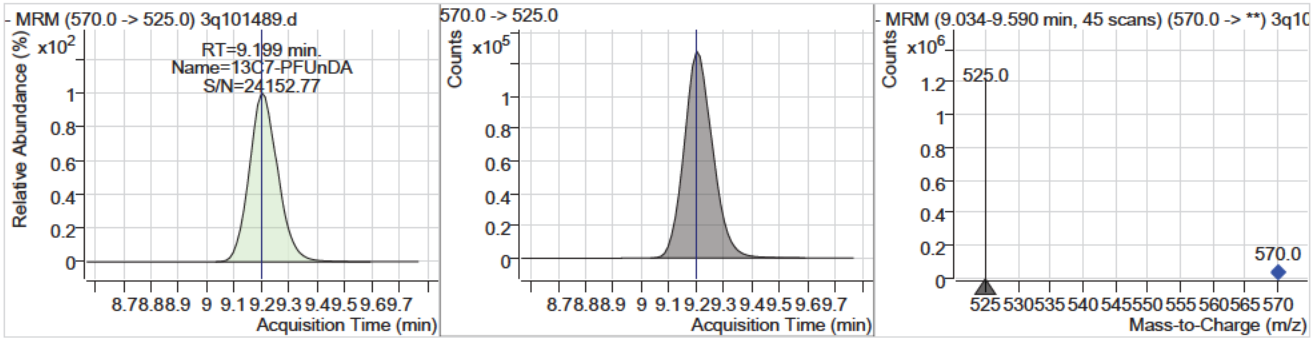
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	10.04	8.53	0.01	469835				



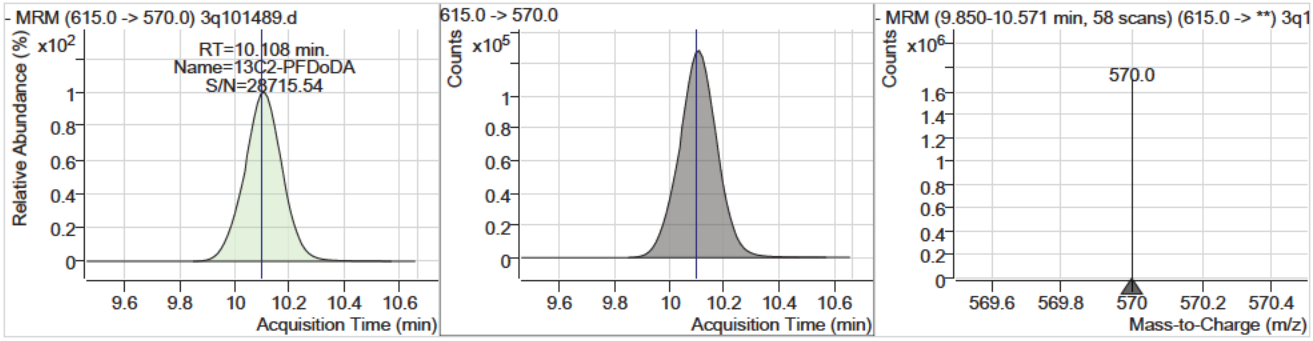
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	10.07	8.60	0.01	309909				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	9.82	9.20	0.01	918040				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.40	10.11	0.03	1238710				



7.6.2 7

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 10:08

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101519.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/17/2025 10:35:00 AM
Sample Name : rt
Vial : P1-D2
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1494.batch.bin
Sample Information : op8907,S3Q1494,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.447	415.0 -> 370.0	266155	10.00 µg/L	0.025
13C3-PFBA	2.369	216.0 -> 172.0	102959	10.00 µg/L	0.025
13C4-PFOS	7.995	503.0 -> 80.0	39865	10.00 µg/L	0.026
M4-PFBA	2.365	217.0 -> 172.0	169350	10.00 µg/L	0.025
M5-PFPeA	4.438	268.0 -> 223.0	205059	10.00 µg/L	0.025
M5-PFHxA	5.788	318.0 -> 273.0	267530	10.00 µg/L	0.013
M4-PFHpA	6.719	367.0 -> 322.0	225191	10.00 µg/L	0.025
M8-PFOA	7.447	421.0 -> 376.0	296139	10.00 µg/L	0.025
M9-PFNA	8.035	472.0 -> 427.0	333581	10.00 µg/L	0.038
M6-PFDA	8.558	519.0 -> 474.0	429017	10.00 µg/L	0.038
M7-PFUnDA	9.237	570.0 -> 525.0	884218	10.00 µg/L	0.052
M2-PFDoDA	10.158	615.0 -> 570.0	1158347	10.00 µg/L	0.075
M3-PFBS	4.733	302.0 -> 99.0	22983	10.00 µg/L	0.025
M3-PFHxS	6.749	402.0 -> 99.0	33503	10.00 µg/L	0.025
M8-PFOS	7.995	507.0 -> 99.0	43971	10.00 µg/L	0.026
M2-4:2FTS	5.697	329.0 -> 309.0	89075	10.00 µg/L	0.025
M2-6:2FTS	7.445	429.0 -> 409.0	172469	10.00 µg/L	0.025
M2-8:2FTS	8.624	529.0 -> 509.0	297321	10.00 µg/L	0.039
M3-HFPO-DA	6.081	287.0 -> 169.0	3143	10.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.697	329.0 -> 309.0	89075	9.39 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.9%	
13C2-6:2FTS	7.445	429.0 -> 409.0	172469	9.68 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C2-8:2FTS	8.624	529.0 -> 509.0	297321	9.96 µg/L	0.039
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C2-PFDoDA	10.158	615.0 -> 570.0	1158347	10.22 µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C3-PFBS	4.733	302.0 -> 99.0	22983	9.24 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.4%	
13C3-PFHxS	6.749	402.0 -> 99.0	33503	9.46 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C4-PFBA	2.365	217.0 -> 172.0	169350	9.70 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C4-PFHpA	6.719	367.0 -> 322.0	225191	10.00 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C5-PFHxA	5.788	318.0 -> 273.0	267530	9.92 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C5-PFPeA	4.438	268.0 -> 223.0	205059	9.74 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C6-PFDA	8.558	519.0 -> 474.0	429017	9.64 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C7-PFUnDA	9.237	570.0 -> 525.0	884218	9.94 µg/L	0.052
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C8-PFOA	7.447	421.0 -> 376.0	296139	10.13 µg/L	0.025

7.6.3

7

Perfluorinated Compounds by LC/MS/MS

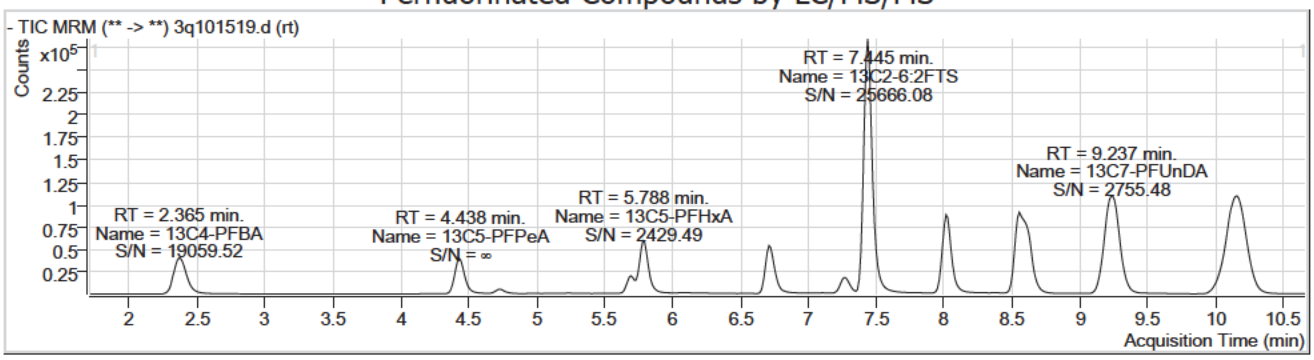
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%		
13C8-PFOS	7.995	507.0 -> 99.0	43971	9.70 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.0%		
13C9-PFNA	8.035	472.0 -> 427.0	333581	10.50 µg/L		0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.0%		
13C3-HFPO-DA	6.081	287.0 -> 169.0	3143	8.11 µg/L		0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.1%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	5.239	299.0 -> 80.0	0	0.00 µg/L	m	1
		299.0 -> 99.0	0			
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	6.720	363.0 -> 319.0	0	0.00 µg/L	m	1
		363.0 -> 169.0	0			
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	7.448	413.0 -> 369.0	453064	19.84 µg/L	m	97
		413.0 -> 169.0	177101			
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	-	329.0 -> 169.0	-	N.D.		
		285.0 -> 169.0				

= Qualifier out of range, m = manually integrated, + = Area summed

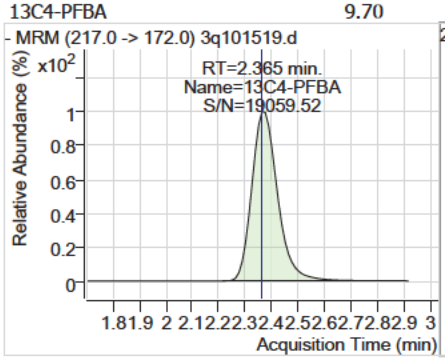
Perfluorinated Compounds by LC/MS/MS

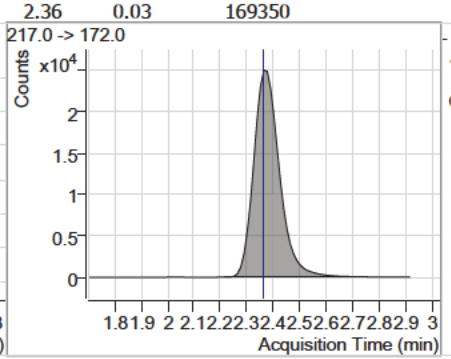
Compound	RT	Transition	Response	Conc. Units	Dev(Min)

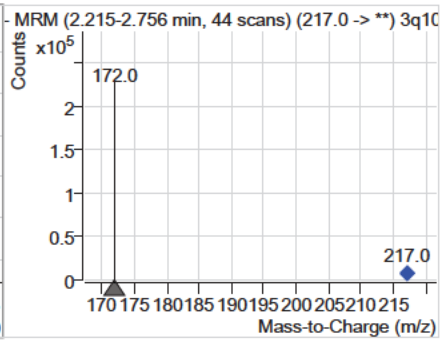
Perfluorinated Compounds by LC/MS/MS



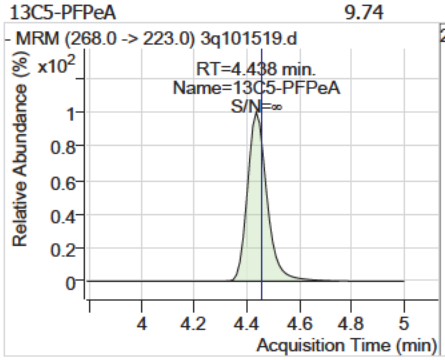
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	9.70	2.36	0.03	169350				

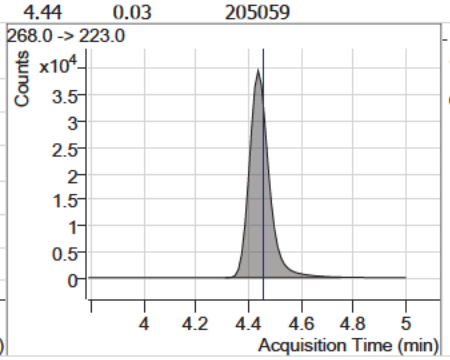


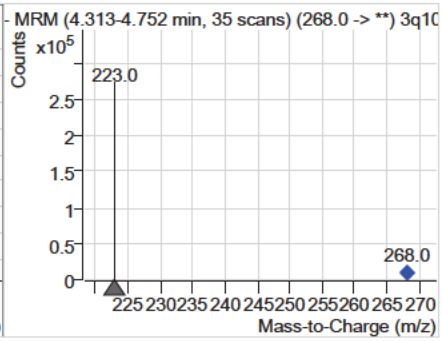




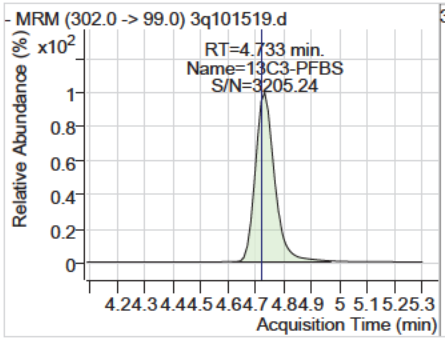
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	9.74	4.44	0.03	205059				

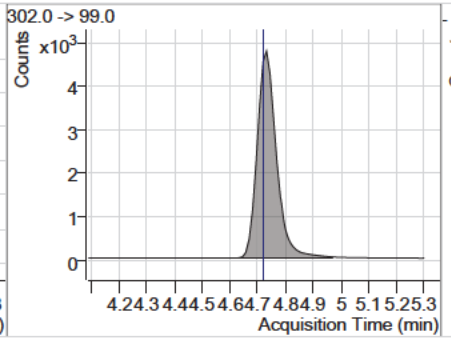


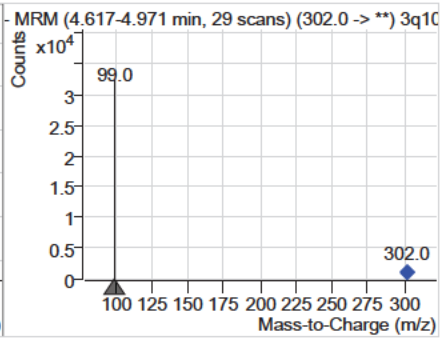




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	9.24	4.73	0.03	22983				

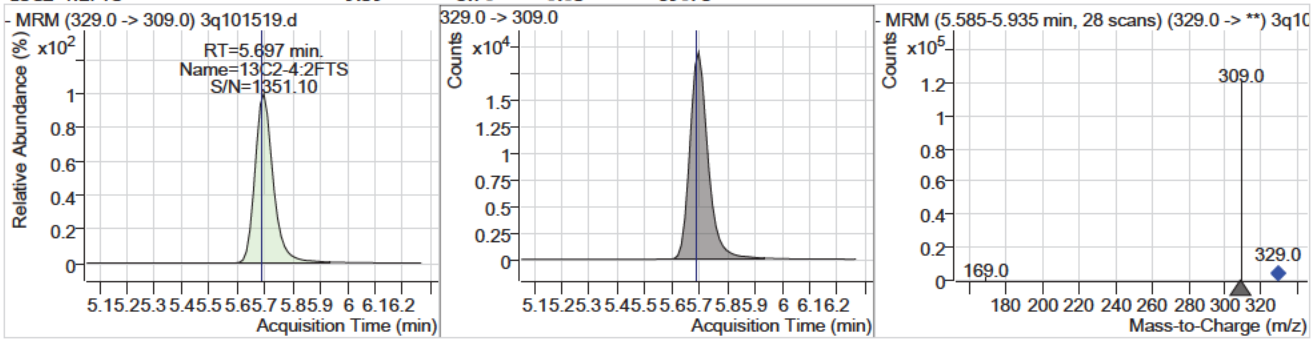




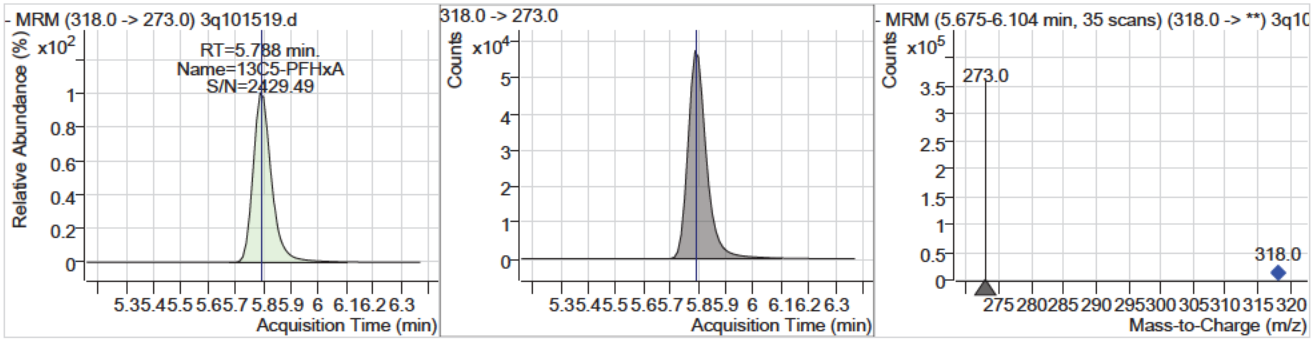


Perfluorinated Compounds by LC/MS/MS

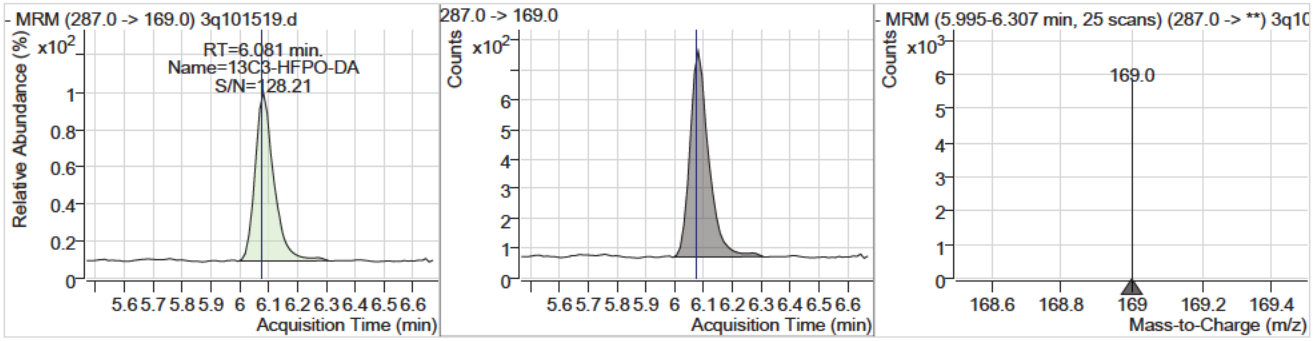
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	9.39	5.70	0.03	89075				



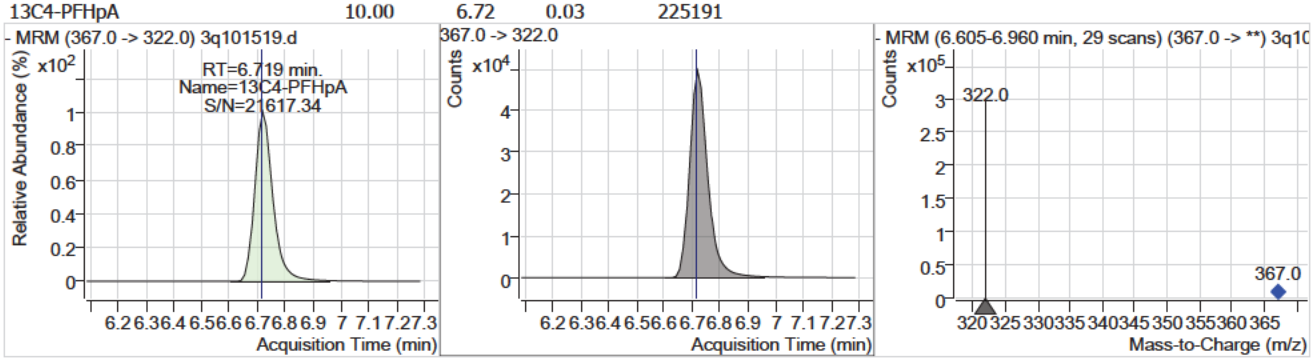
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	9.92	5.79	0.01	267530				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.11	6.08	0.03	3143				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.00	6.72	0.03	225191				



7.6.3

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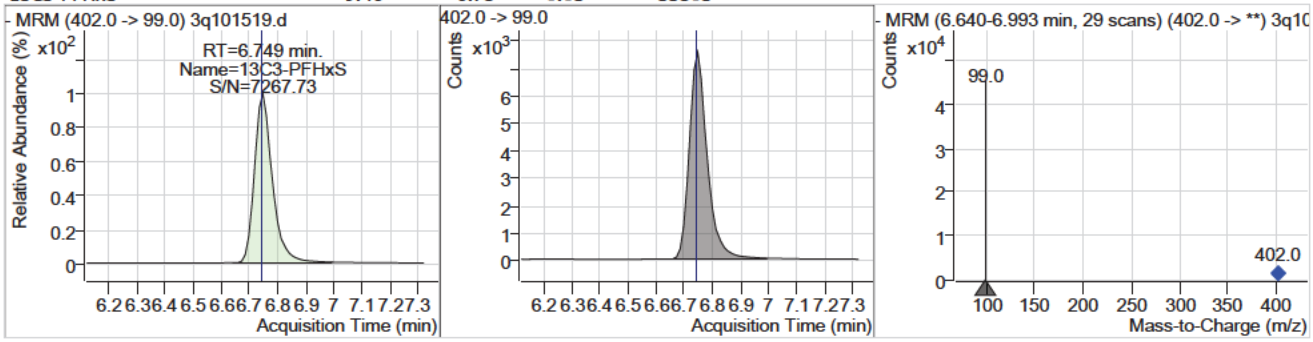
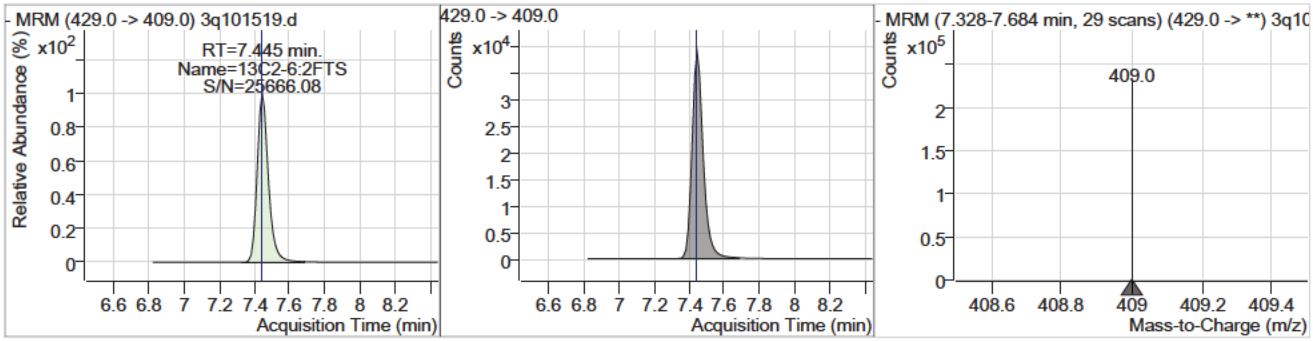
Perfluorinated Compounds by LC/MS/MS

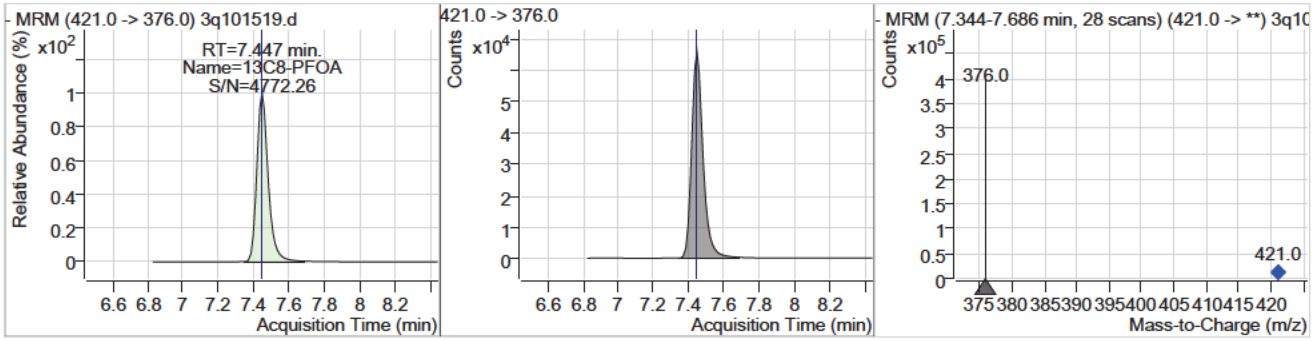
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	9.46	6.75	0.03	33503				



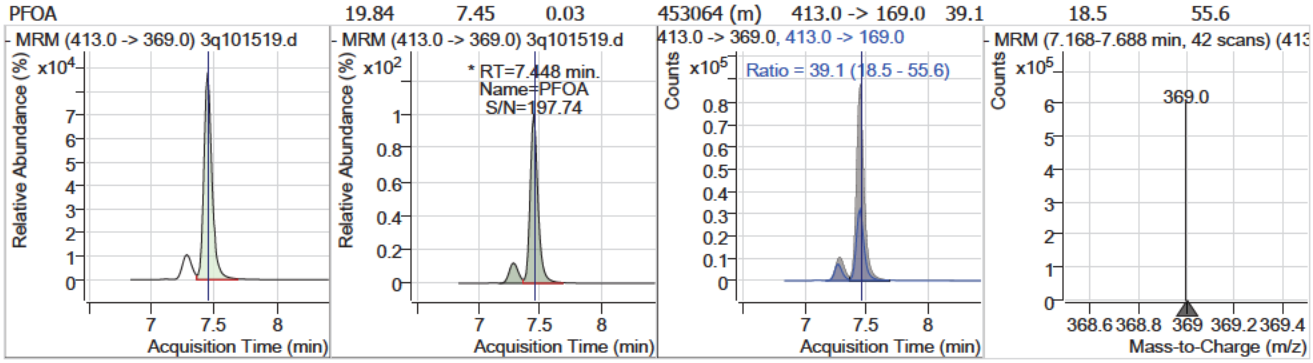
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	9.68	7.44	0.03	172469				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.13	7.45	0.03	296139				

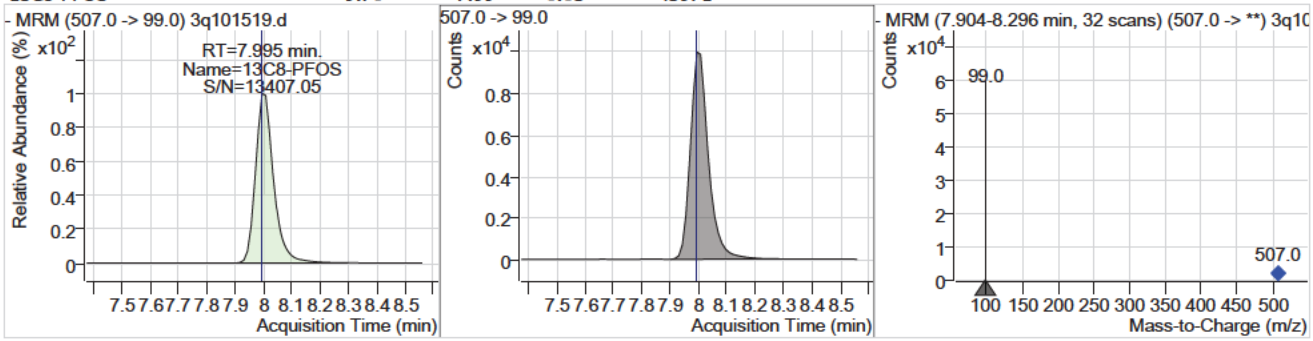


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.84	7.45	0.03	453064 (m)	413.0 -> 169.0	39.1	18.5	55.6

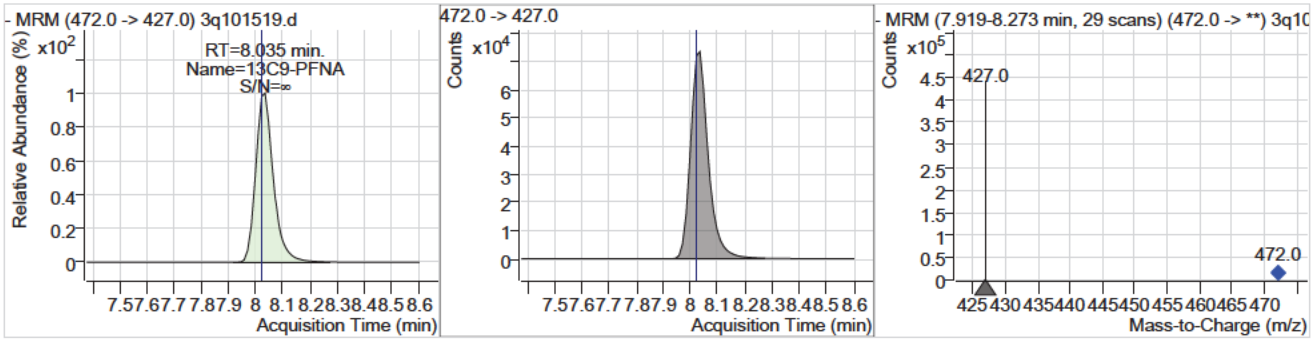


Perfluorinated Compounds by LC/MS/MS

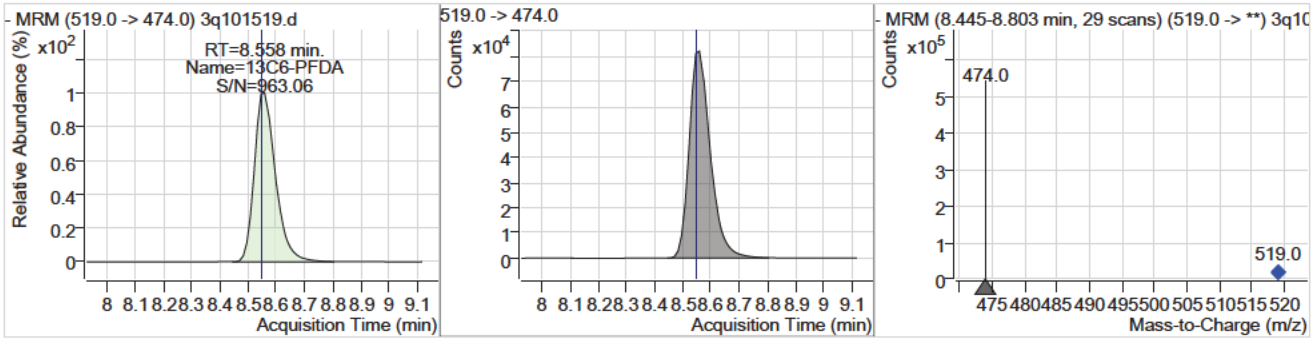
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	9.70	7.99	0.03	43971				



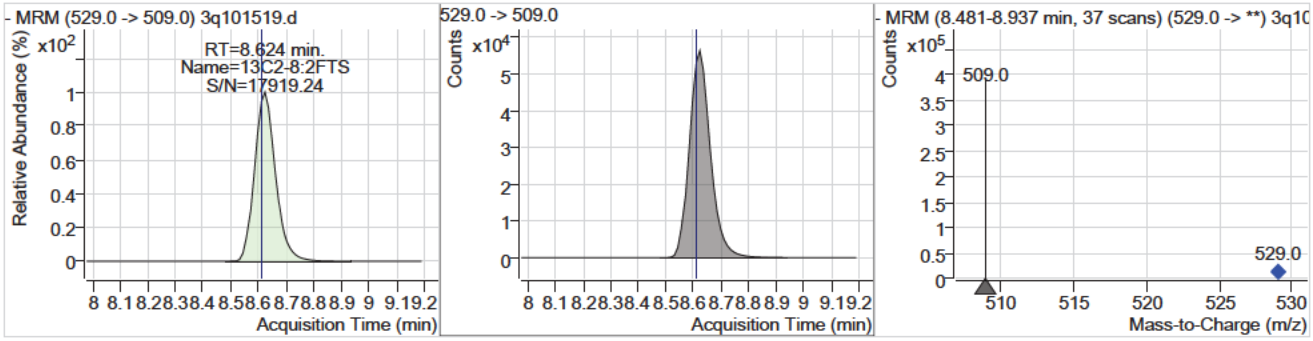
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.50	8.03	0.04	333581				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	9.64	8.56	0.04	429017				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	9.96	8.62	0.04	297321				

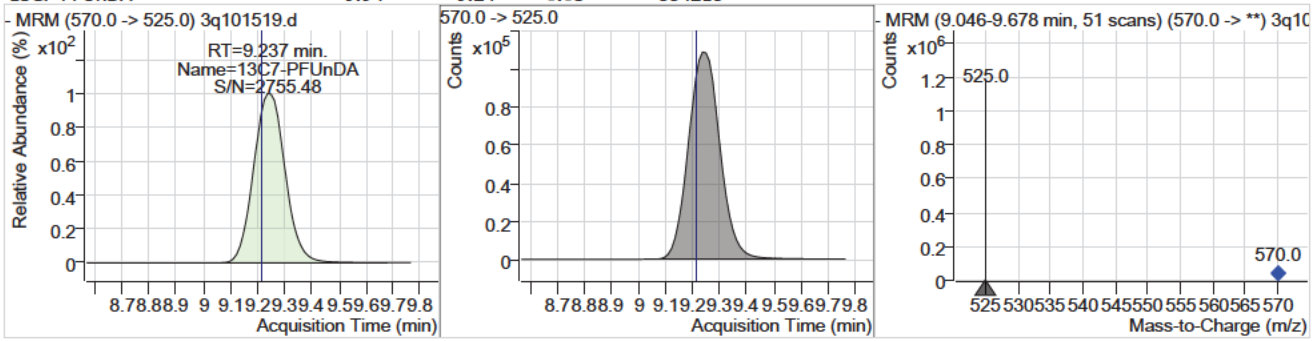


7.6.3

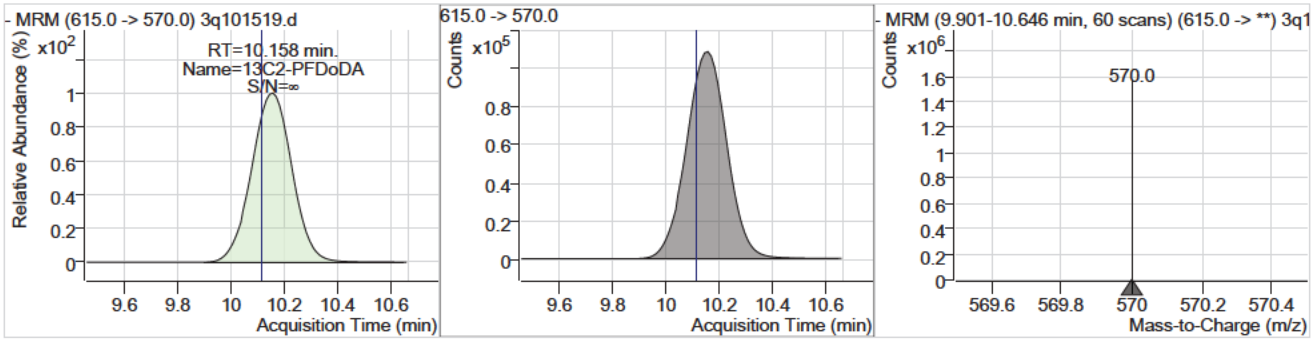
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	9.94	9.24	0.05	884218				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.22	10.16	0.08	1158347				



7.6.3

7

Manual Integration Approval Summary

Sample Number:	S3Q1494-RT	**Method:**	EPA 533
Lab FileID:	3Q101519.D	**Analyst approved:**	04/18/25 08:08 (b) (6)
Injection Time:	04/17/25 10:35	**Supervisor approved:**	04/18/25 10:08 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.45	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/16/25 15:44

Perfluorinated Compounds by LC/MS/MS

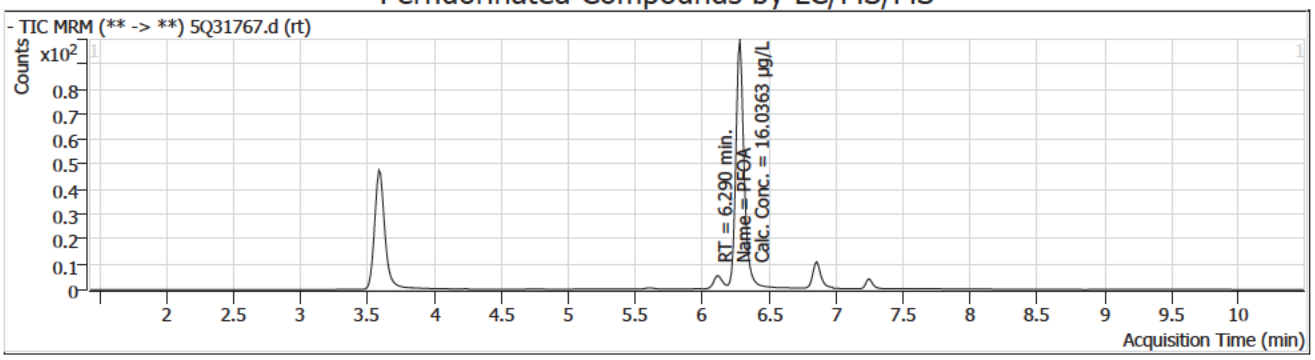
Data File : 5Q31767.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/15/2025 5:45:39 PM
Sample Name : rt
Vial : P1-B2
DA Method File : 537_041525_S5Q521.quantmethod
Batch Name : s5q521.batch.bin
Sample Information : OP8882,S5Q521,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	182068	20.00	µg/L		-0.012
13C2-PFOA	6.289	415.0 -> 370.0	412739	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	568496	20.00	µg/L		-0.012
13C4-PFOS	6.860	503.0 -> 80.0	101534	20.00	µg/L		0.000
d3-MeFOSAA	7.242	573.0 -> 419.0	30877	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.385	515.0 -> 470.0	0		µg/L	m	-0.038
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C2-PFHxA	4.775	315.0 -> 270.0	0		µg/L	m	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
d5-EtFOSAA	7.378	589.0 -> 419.0	0		µg/L	m	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C3-HFPO-DA	5.456	287.0 -> 169.0	0		µg/L	m	0.424
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	7.256	570.0 -> 419.0	0		µg/L	m	1
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	5.614	363.0 -> 319.0	0		µg/L	m	1
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	6.290	413.0 -> 369.0	331441	16.04	µg/L	m	95
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	5.508	285.0 -> 169.0	0		µg/L	m	1

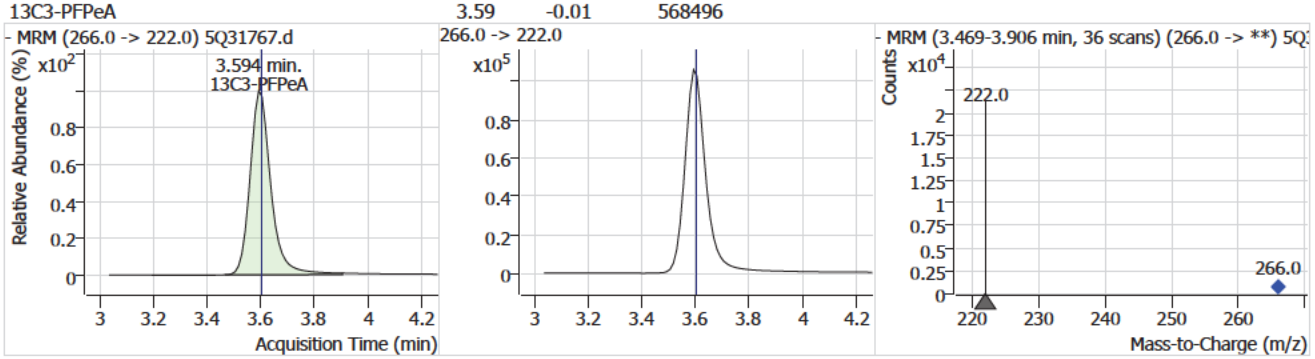
= Qualifier out of range, m = manually integrated, + = Area summed

7.6.4
7

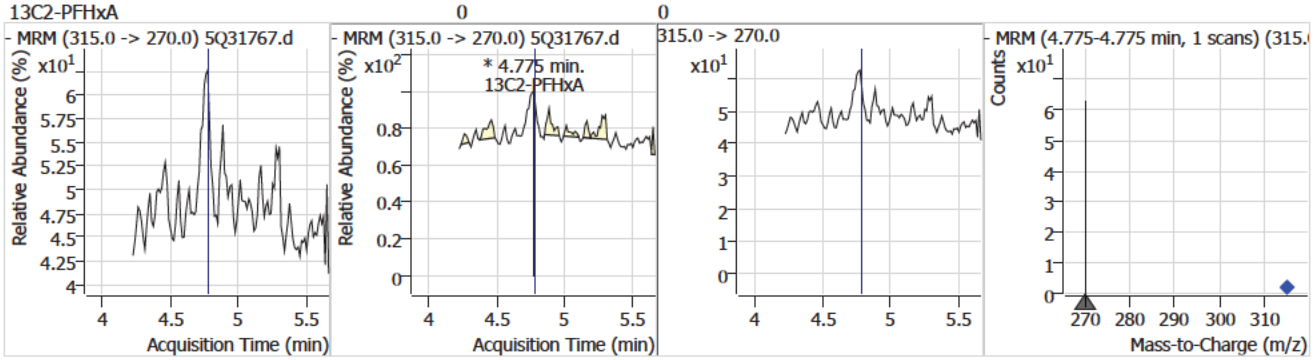
Perfluorinated Compounds by LC/MS/MS



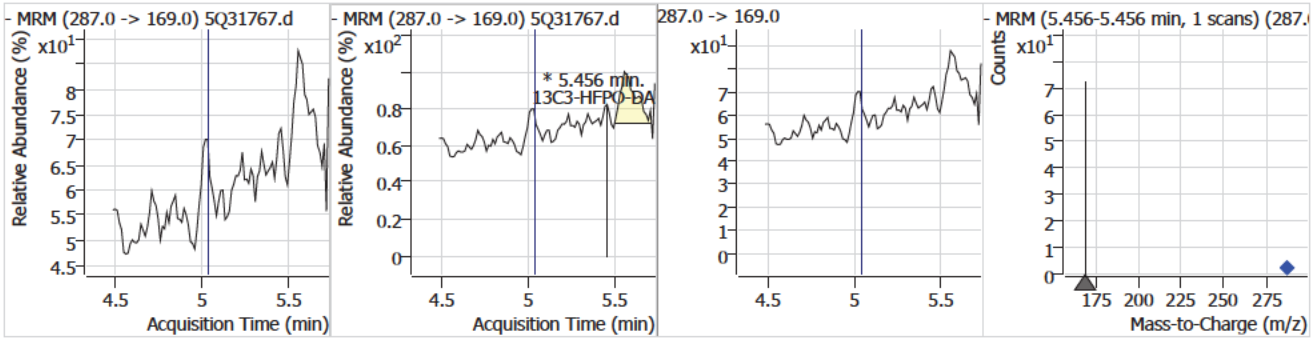
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	568496				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA		0		0				

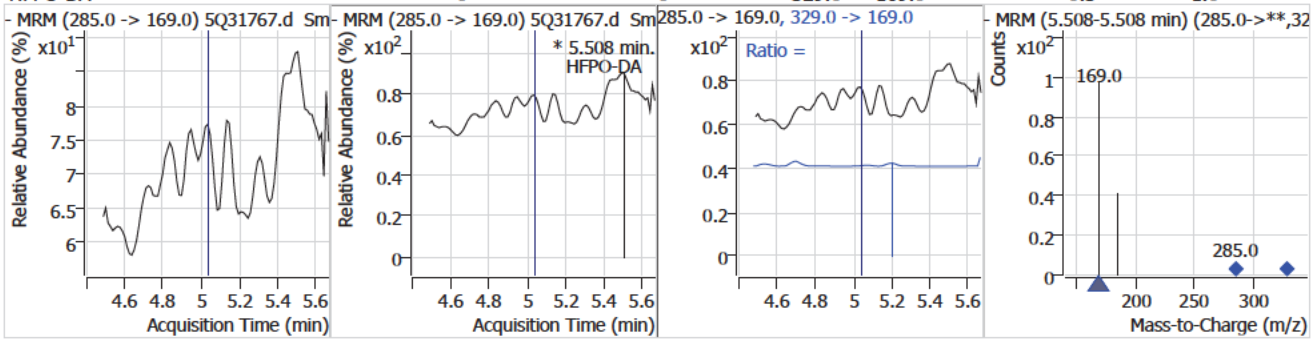


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA		0		0				

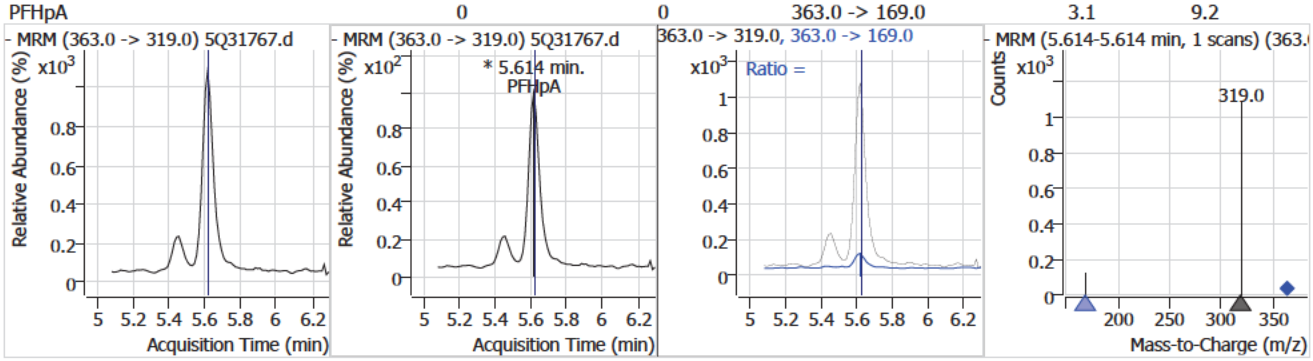


Perfluorinated Compounds by LC/MS/MS

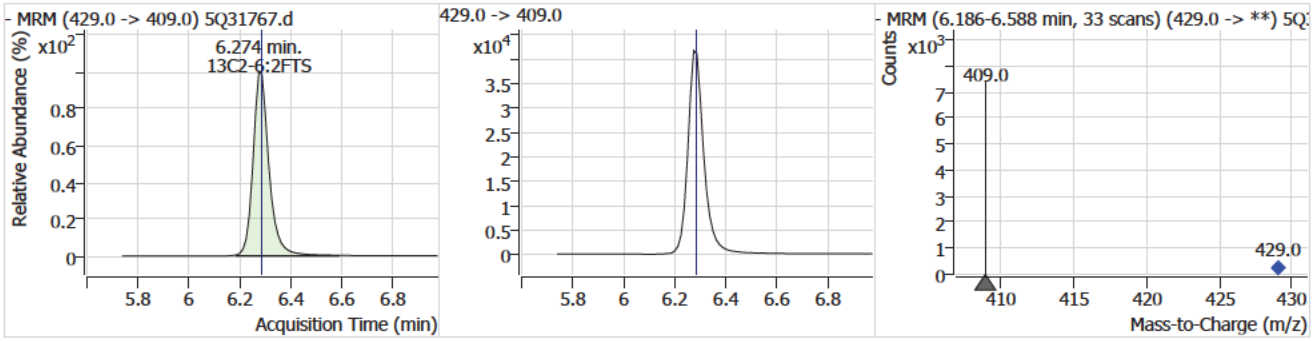
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA		0		0	329.0 -> 169.0		0.3	1.0



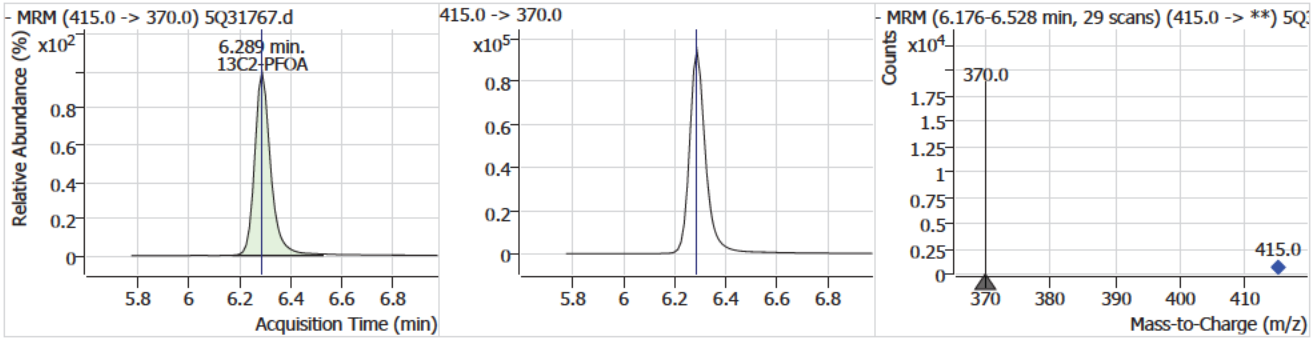
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA		0		0	363.0 -> 169.0		3.1	9.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	182068				

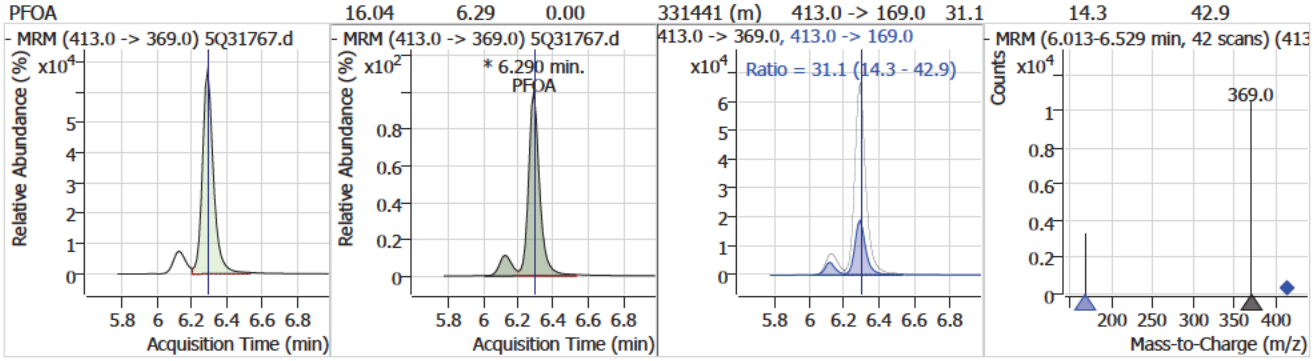


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	412739				

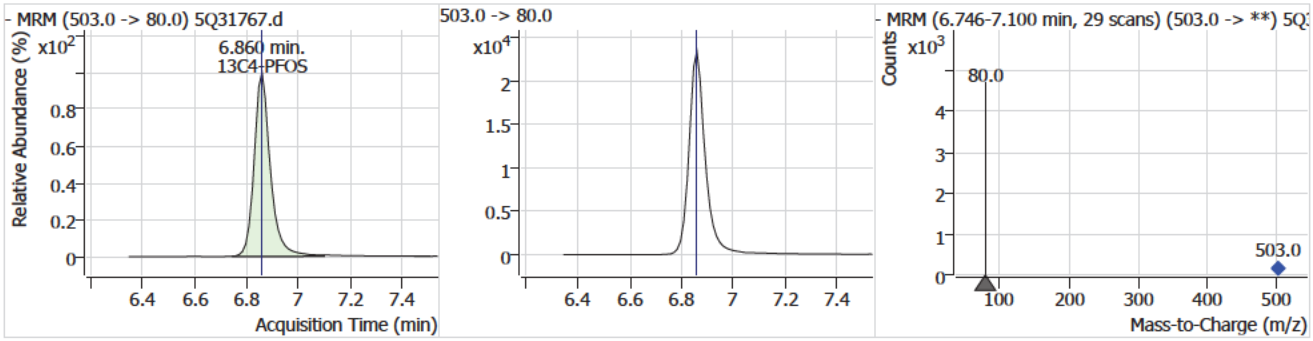


Perfluorinated Compounds by LC/MS/MS

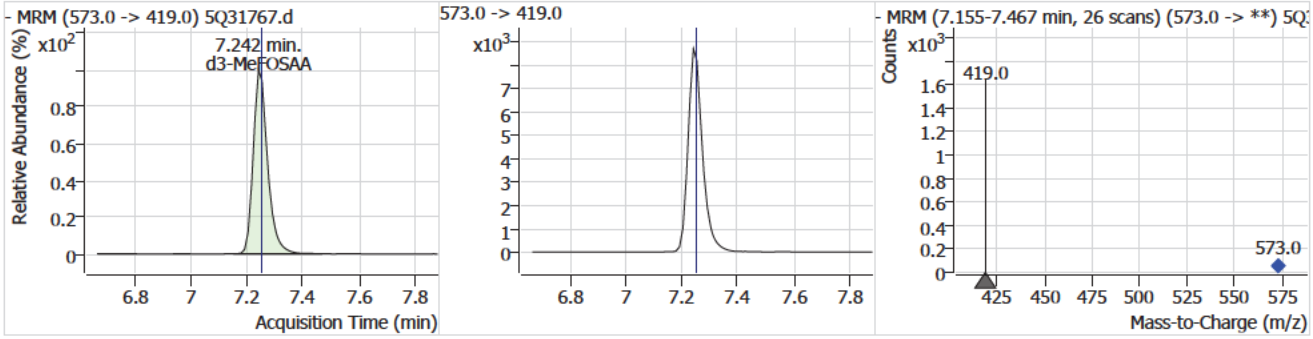
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	16.04	6.29	0.00	331441 (m)	413.0 -> 169.0	31.1	14.3	42.9



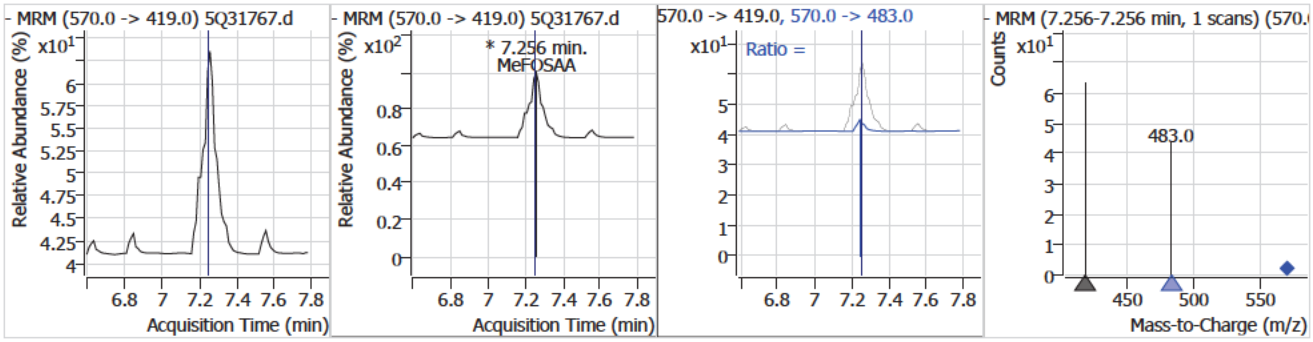
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	101534				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	30877				

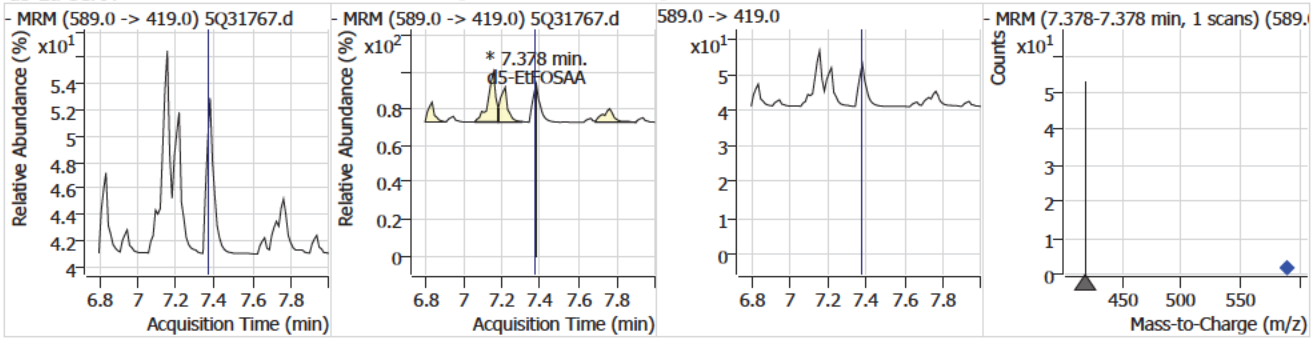


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA		0		0	570.0 -> 483.0		23.7	71.0

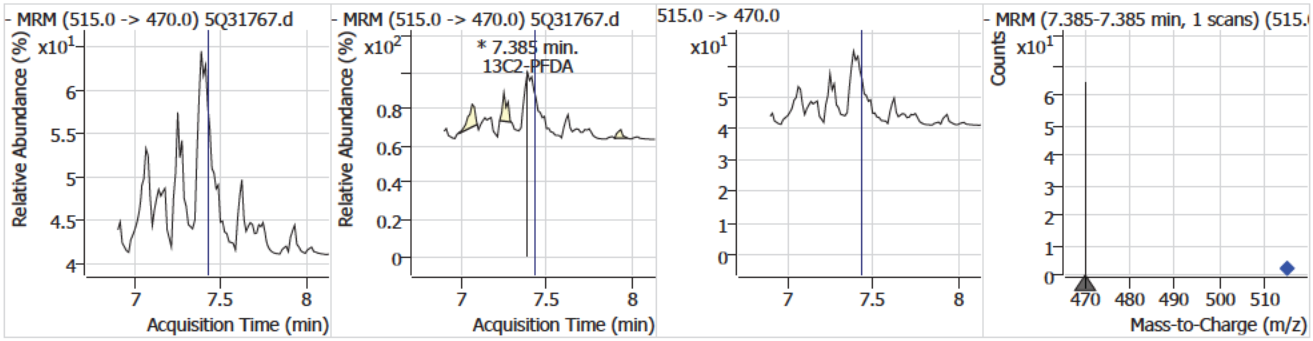


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA		0		0				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA		0		0				



7.6.4

7

Manual Integration Approval Summary

Sample Number: S5Q521-RT
Lab FileID: 5Q31767.D
Injection Time: 04/15/25 17:45
Method: EPA 537.1 REV 2.0
Analyst approved: 04/16/25 10:55 (b) (6)
Supervisor approved: 04/16/25 15:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		6.29	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 09:03

Perfluorinated Compounds by LC/MS/MS

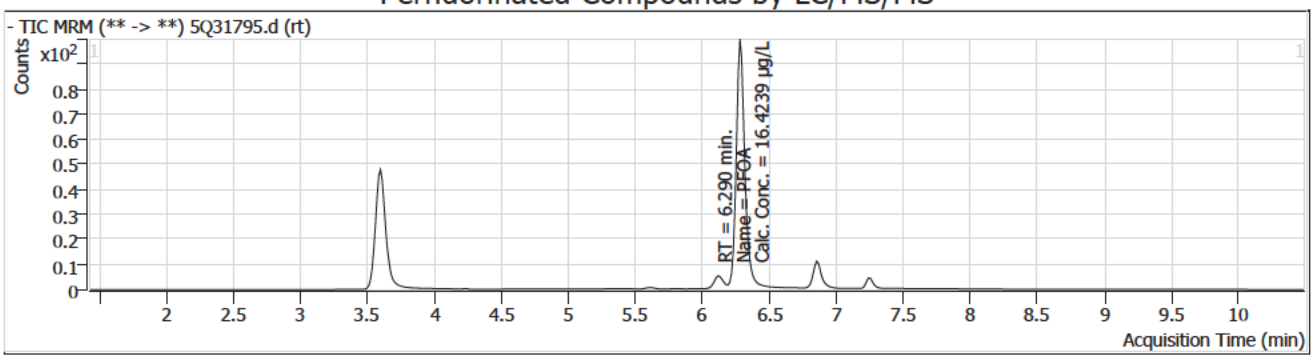
Data File : 5Q31795.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/16/2025 2:25:16 PM
Sample Name : rt
Vial : P1-B2
DA Method File : 537_041625_S5Q522.quantmethod
Batch Name : s5q522.batch.bin
Sample Information : OP8882,S5Q522,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.287	429.0 -> 409.0	156280	20.00	µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	352354	20.00	µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	472532	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	85982	20.00	µg/L		0.000
d3-MeFOSAA	7.255	573.0 -> 419.0	28662	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.460	515.0 -> 470.0	0		µg/L	m	0.037
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C2-PFHxA	4.775	315.0 -> 270.0	0		µg/L	m	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
d5-EtFOSAA	7.366	589.0 -> 419.0	0		µg/L	m	-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C3-HFPO-DA	4.932	287.0 -> 169.0	0		µg/L	m	-0.100
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	7.392	584.0 -> 419.0	0		µg/L	m	1
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	5.614	363.0 -> 319.0	0		µg/L	m	1
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	6.290	413.0 -> 369.0	276408	16.42	µg/L	m	96
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	5.608	285.0 -> 169.0	0		µg/L	m	1

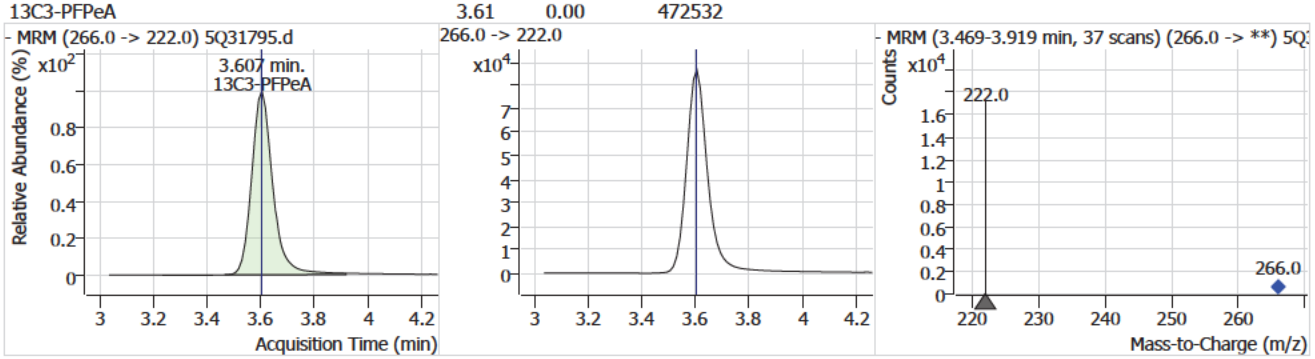
= Qualifier out of range, m = manually integrated, + = Area summed

7.6.5
7

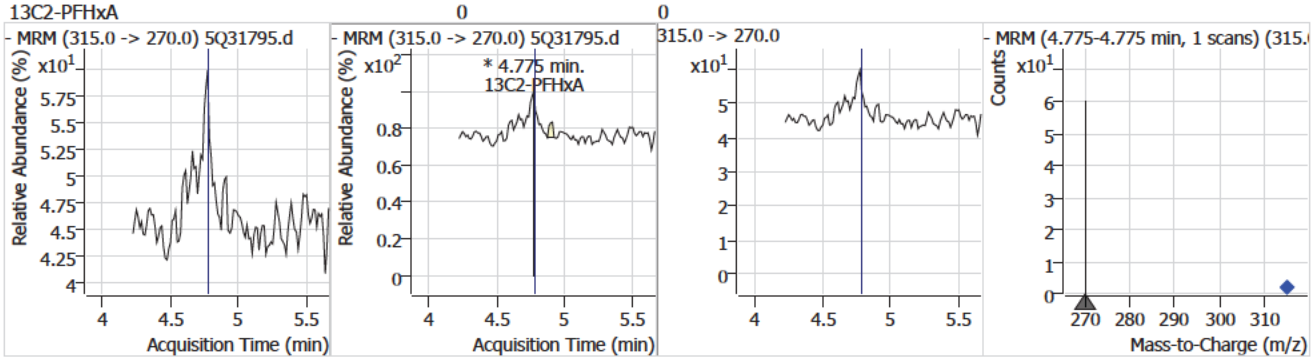
Perfluorinated Compounds by LC/MS/MS



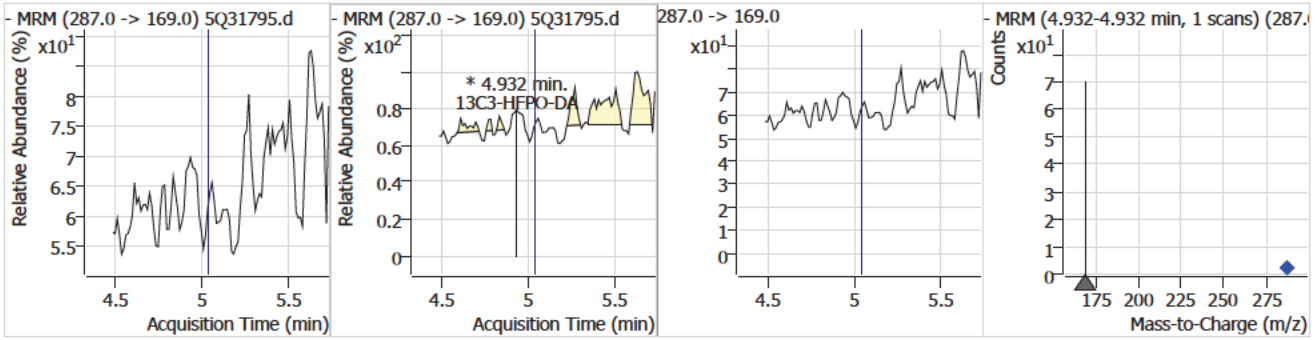
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.00	472532				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA		0		0				

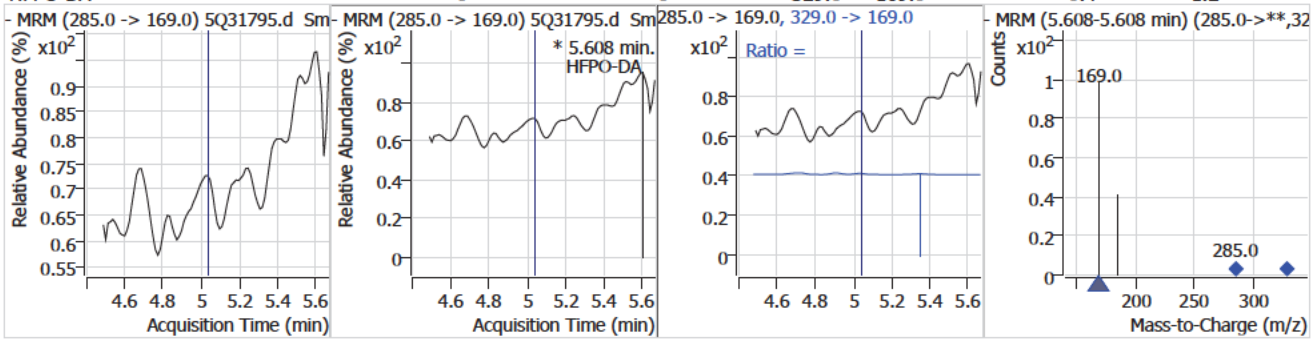


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA		0		0				

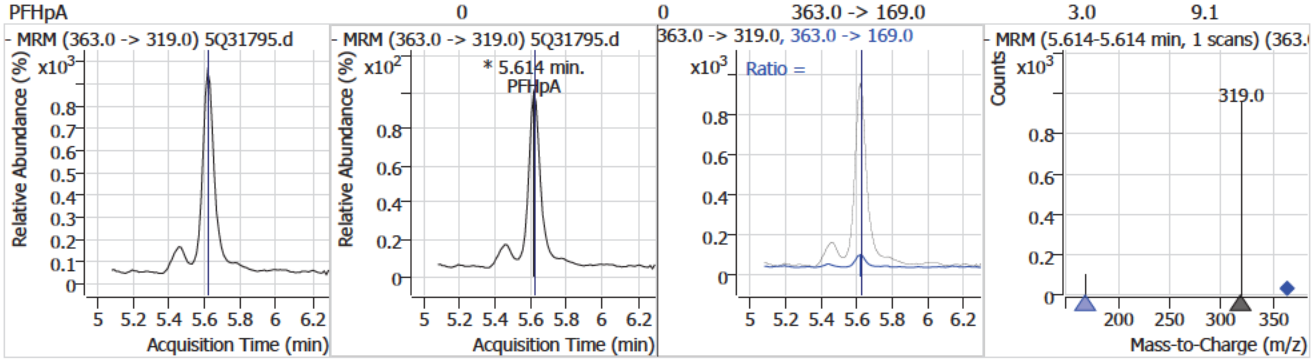


Perfluorinated Compounds by LC/MS/MS

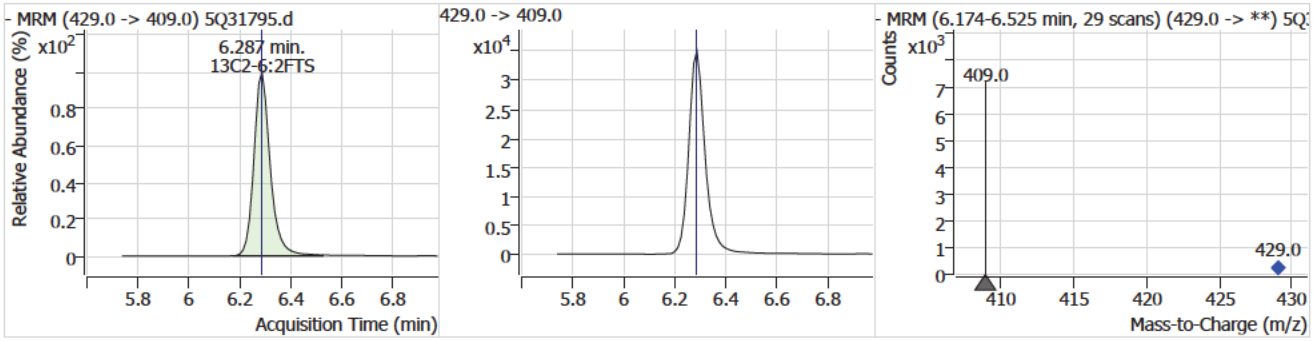
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA		0		0	329.0 -> 169.0		0.4	1.2



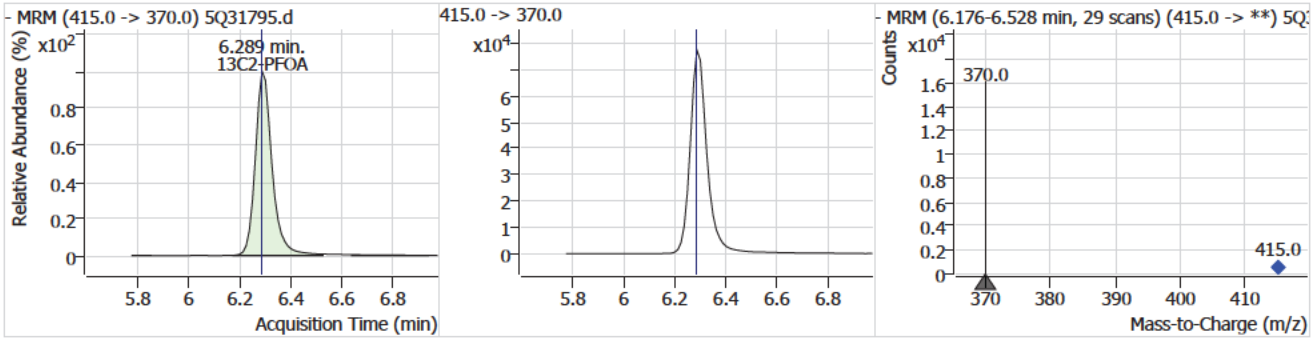
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA		0		0	363.0 -> 169.0		3.0	9.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	156280				

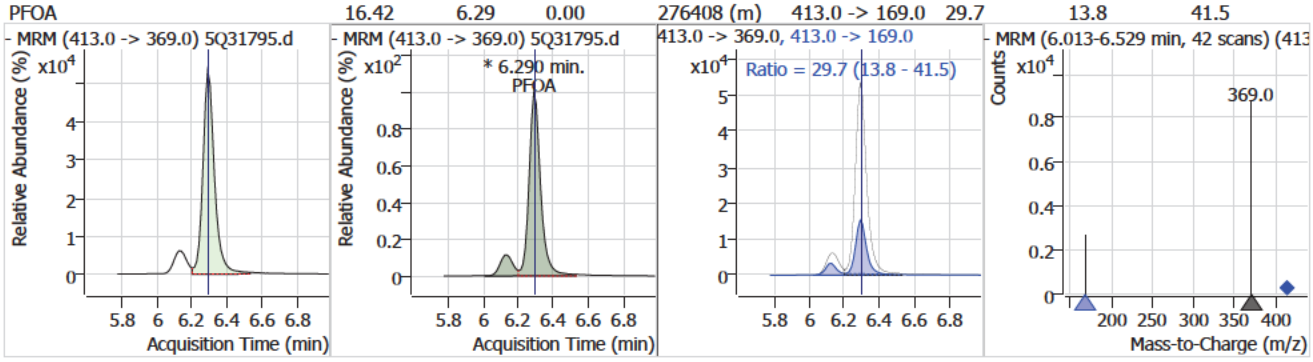


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	352354				

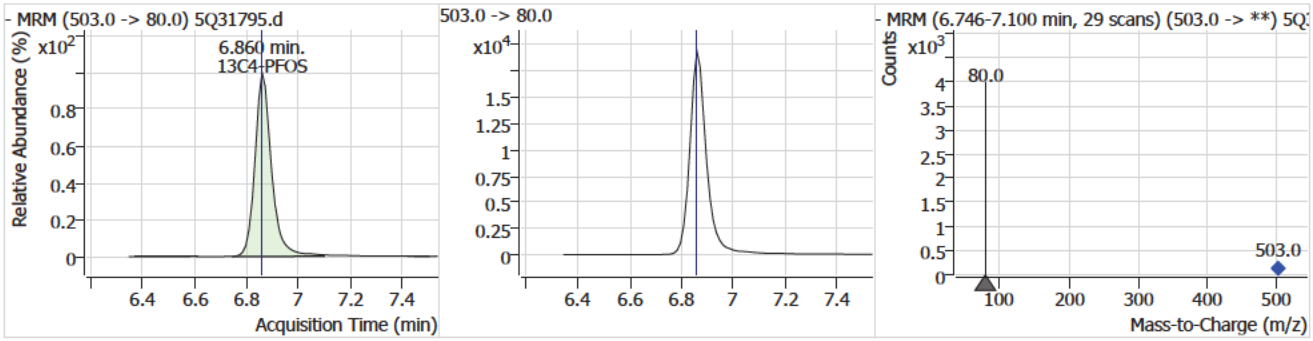


Perfluorinated Compounds by LC/MS/MS

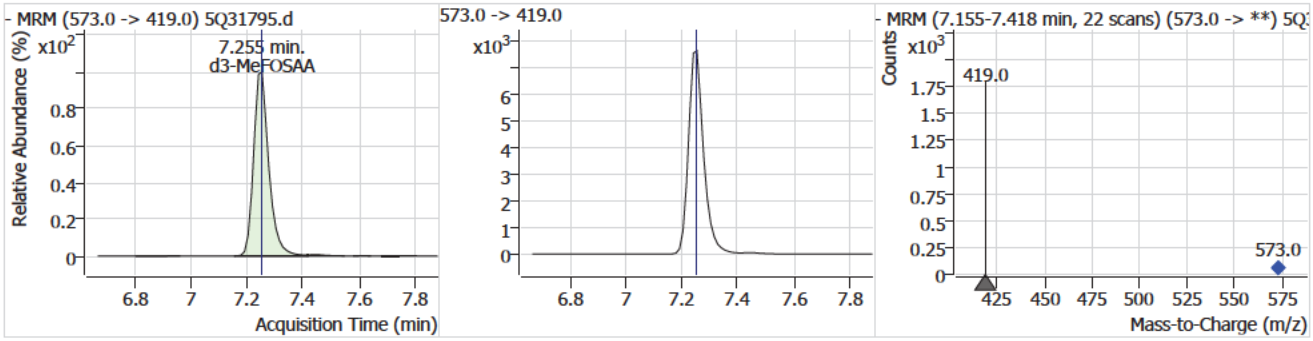
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	16.42	6.29	0.00	276408 (m)	413.0 -> 169.0	29.7	13.8	41.5



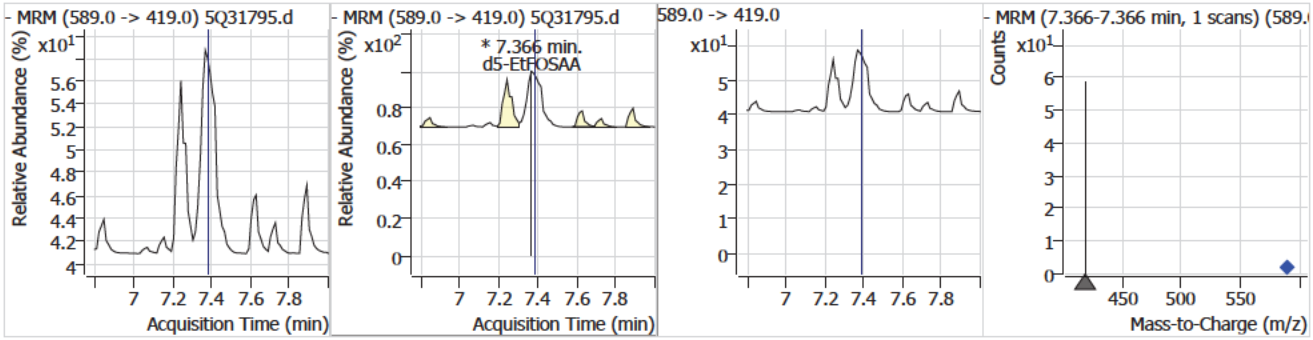
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	85982				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	28662				

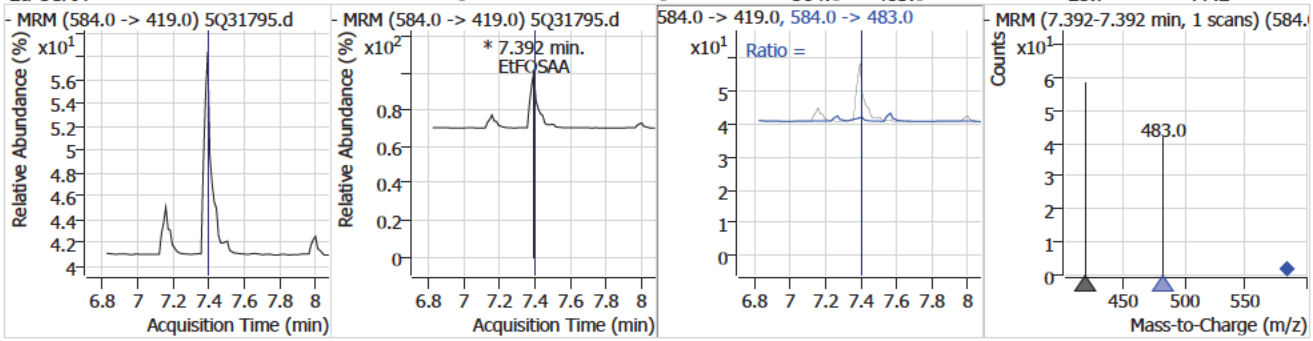


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	0			0				

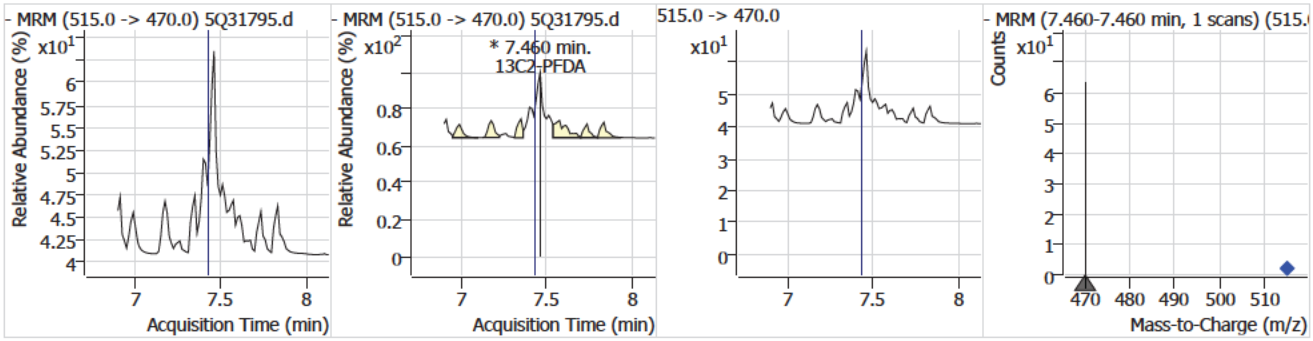


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA		0		0	584.0 -> 483.0		25.7	77.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA		0		0				



7.6.5

7

Manual Integration Approval Summary

Sample Number: S5Q522-RT
Lab FileID: 5Q31795.D
Injection Time: 04/16/25 14:25
Method: EPA 537.1 REV 2.0
Analyst approved: 04/17/25 07:52 (b) (6) [redacted]
Supervisor approved: 04/17/25 09:03 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		6.29	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

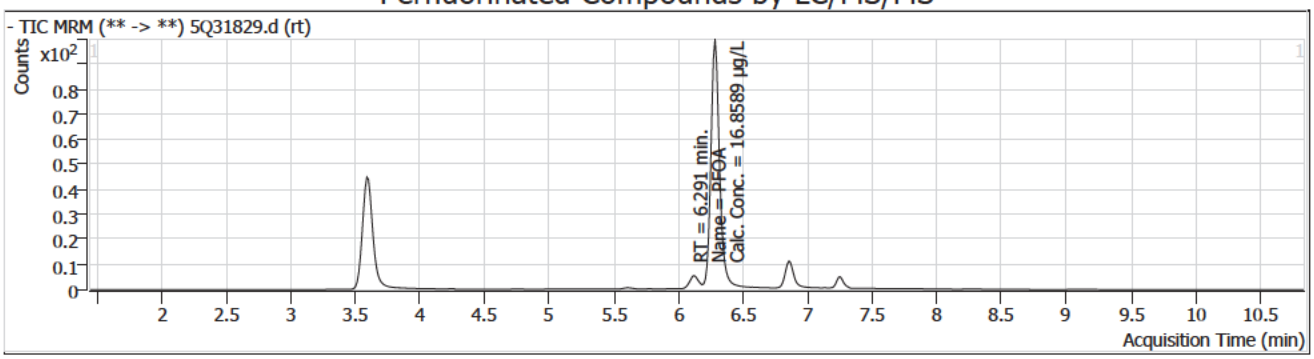
Data File : 5Q31829.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 3:07:04 PM
Sample Name : rt
Vial : P1-B2
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.288	429.0 -> 409.0	176883	20.00	µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	381361	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	488219	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	97082	20.00	µg/L		0.000
d3-MeFOSAA	7.254	573.0 -> 419.0	32235	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.435	515.0 -> 470.0	0		µg/L	m	0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C2-PFHxA	4.764	315.0 -> 270.0	0		µg/L	m	-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
d5-EtFOSAA	7.365	589.0 -> 419.0	0		µg/L	m	-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C3-HFPO-DA	5.070	287.0 -> 169.0	0		µg/L	m	0.038
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	7.254	570.0 -> 419.0	0		µg/L	m	1
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	5.615	363.0 -> 319.0	0		µg/L	m	1
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	6.291	413.0 -> 369.0	305824	16.86	µg/L	m	95
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	-	285.0 -> 169.0	-	N.D.			

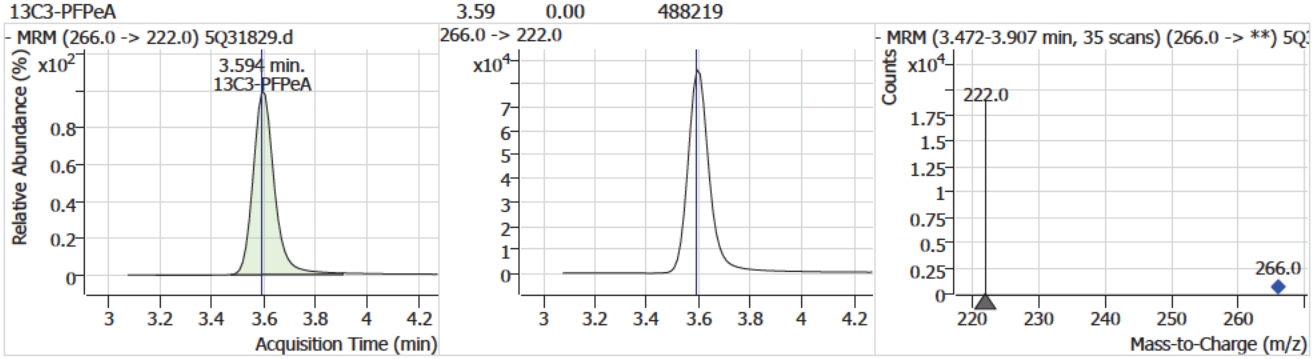
= Qualifier out of range, m = manually integrated, + = Area summed

7.6.6
7

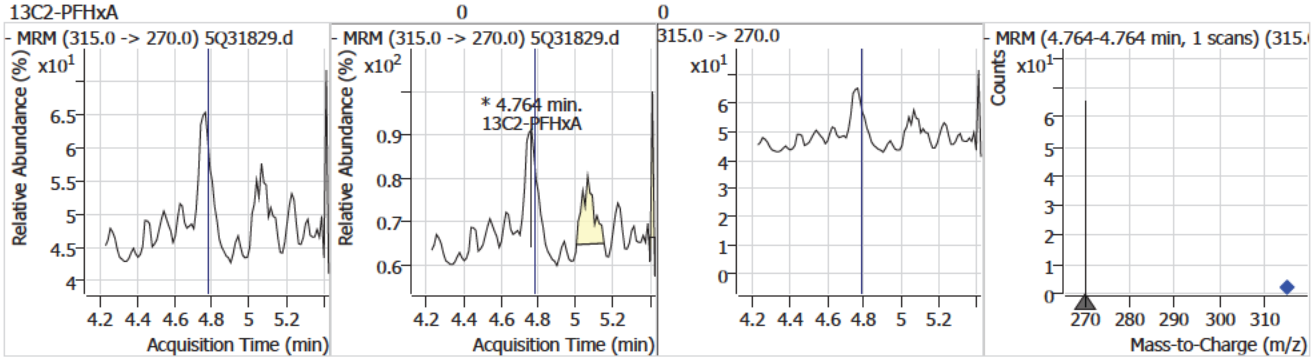
Perfluorinated Compounds by LC/MS/MS



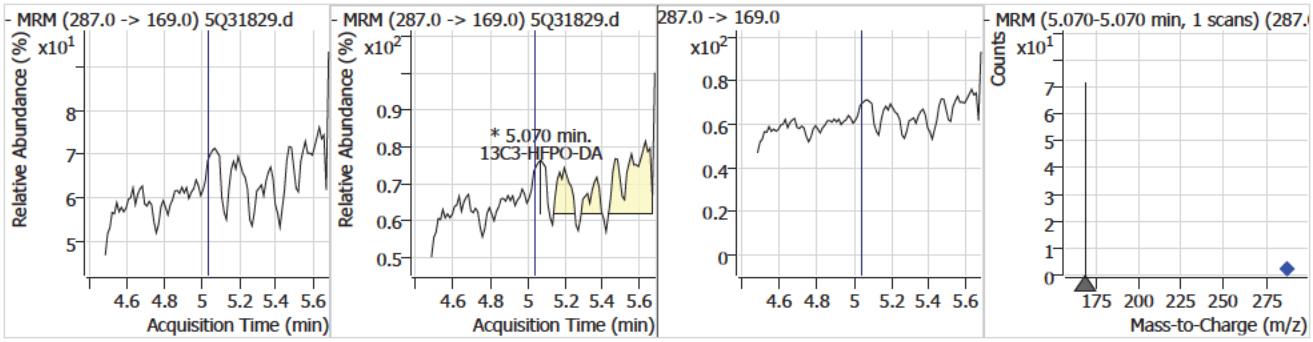
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	488219				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA		0		0				

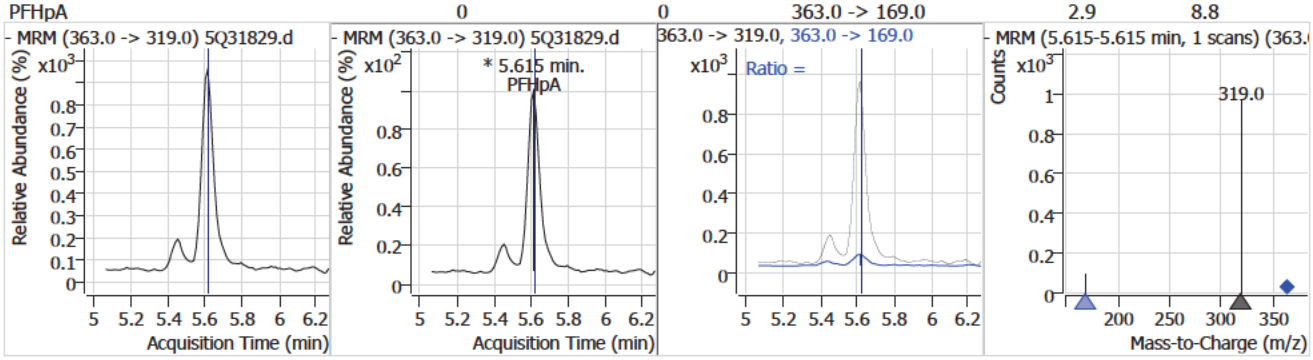


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA		0		0				

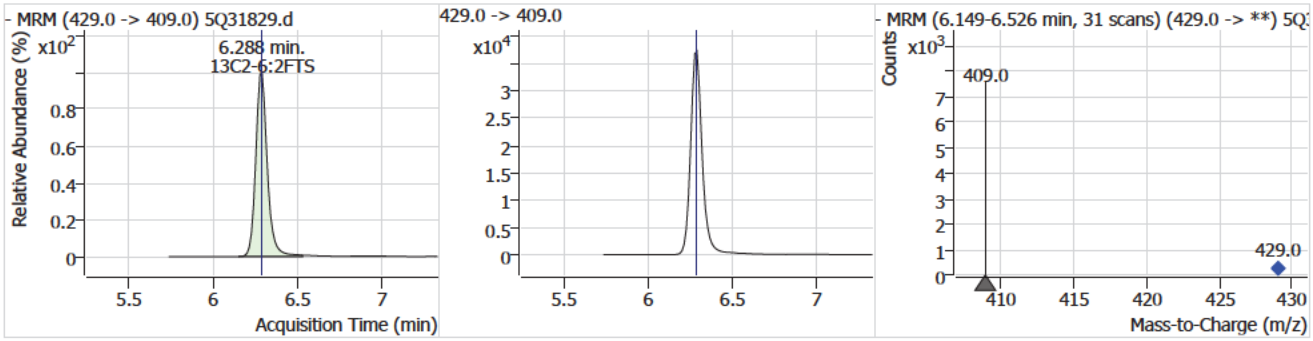


Perfluorinated Compounds by LC/MS/MS

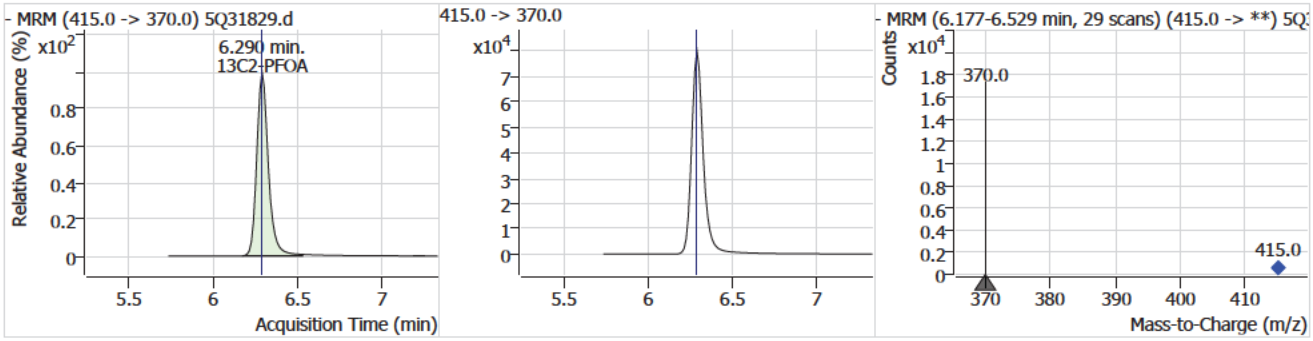
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA		0		0	363.0 -> 169.0		2.9	8.8



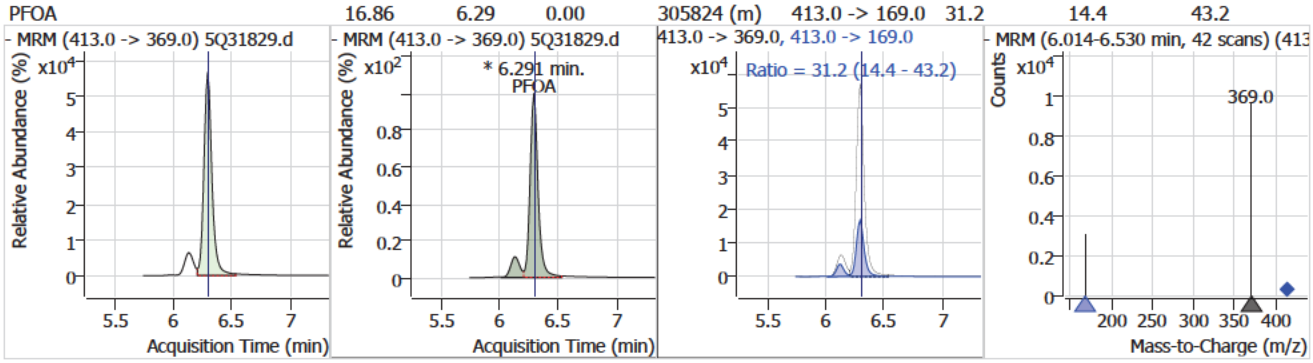
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	176883				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	381361				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	16.86	6.29	0.00	305824 (m)	413.0 -> 169.0	31.2	14.4	43.2

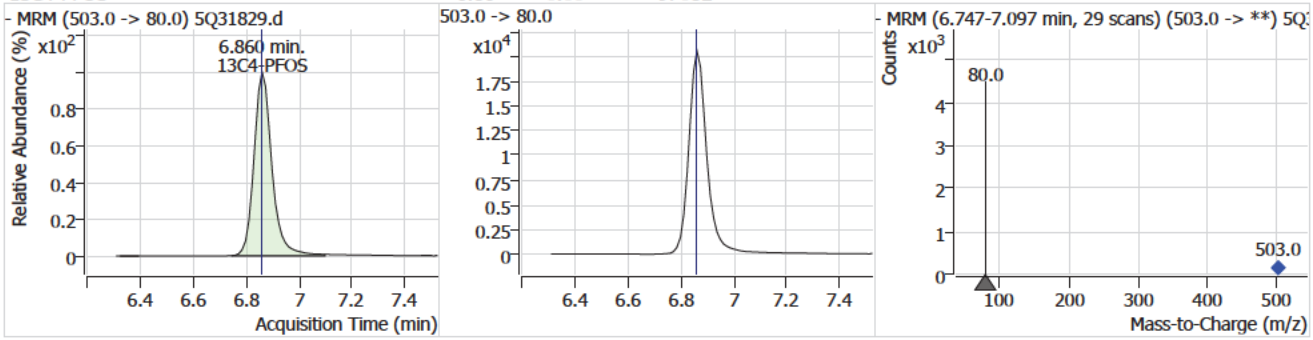


7.6.6

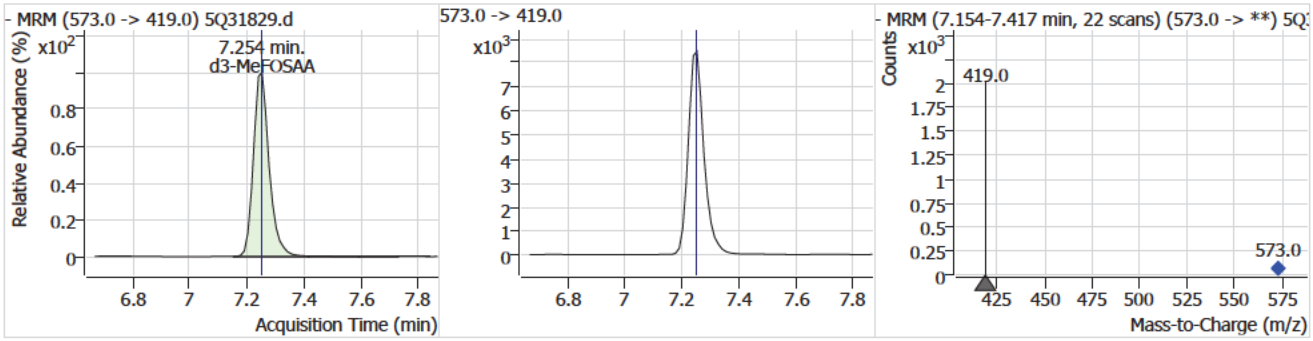
7

Perfluorinated Compounds by LC/MS/MS

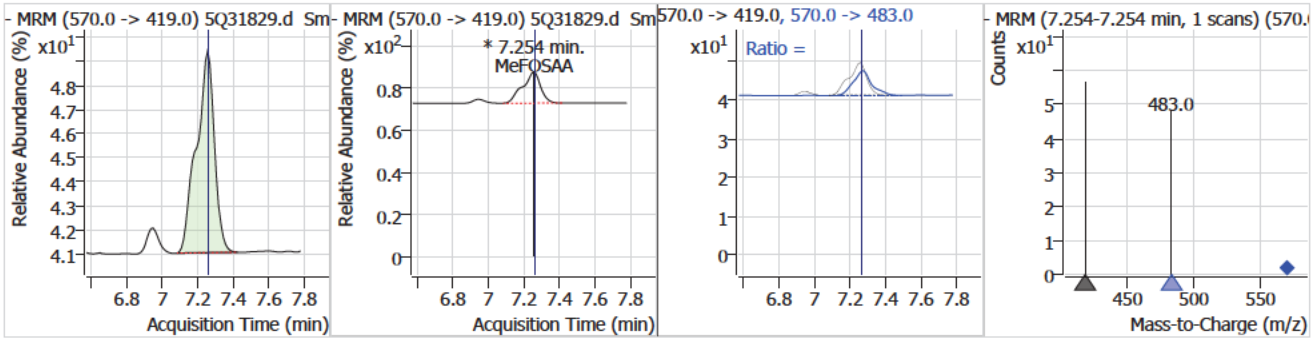
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	97082				



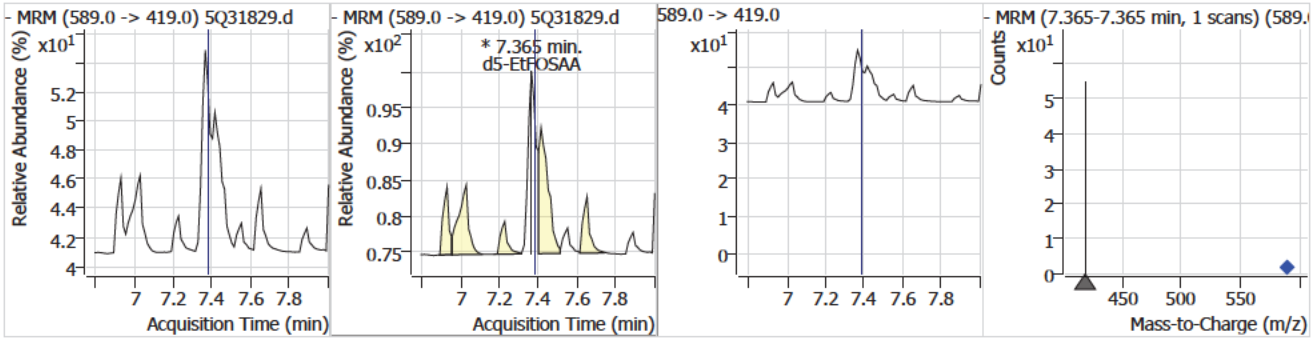
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	32235				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA		0		0	570.0 -> 483.0		26.0	78.1

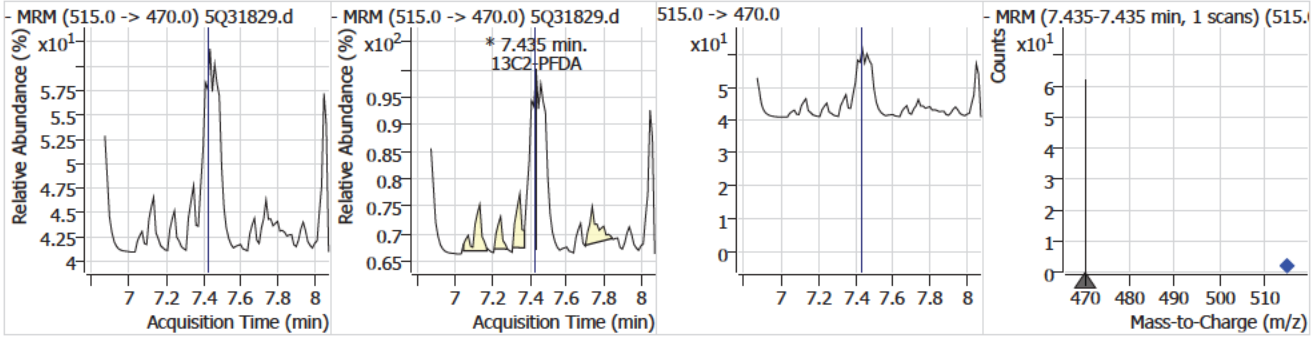


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA		0		0				



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA		0		0				



7.6.6

7

Manual Integration Approval Summary

Sample Number: S5Q523-RT
Lab FileID: 5Q31829.D
Injection Time: 04/17/25 15:07
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6) [redacted]
Supervisor approved: 04/18/25 11:00 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		6.29	Split peak

QQQ Check Tune Report

(b) (4)

Instrument Name	Instrument 1
MS Model	G6470A
MS Instrument Serial	SG1752G107
Software_Firmware Version	B.08.02.B8260.0, FW: A.00.08.62
Tune Date & Time	14 April 2025 09:26:03
Data Path	D:\MassHunter\Tune\QQQ\G6470A\atunes.TUNE.XML
Ion Source	AJS ESI
Ionization Mode	AJS ESI
Tuned Resolution	All
Vacuum Pressure	1.58E+0[R]; 2.57E-5[H]

Source Parameters

Parameter	Value
Gas Temp	300
Gas Flow	8
Nebulizer	15
Capillary	4000
Nozzle Voltage	1500
Sheath Gas Temp	250
Sheath Gas Flow	7

7.7.1

7

QQQ Check Tune Report

(b) (4)

Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.99	0.00	Pass	0.70	0.72	0.02	Pass	209432
302.00	301.99	-0.01	Pass	0.70	0.71	0.01	Pass	200449
601.98	601.99	0.01	Pass	0.70	0.69	-0.01	Pass	282457
1033.99	1034.00	0.01	Pass	0.70	0.69	-0.01	Pass	803006
1633.95	1633.95	0.00	Pass	0.70	0.68	-0.02	Pass	2090450
2233.91	2233.96	0.05	Pass	0.70	0.72	0.02	Pass	1995453

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.06	0.06	Pass	0.70	0.64	-0.06	Pass	44255
112.99	112.98	-0.01	Pass	0.70	0.70	0.00	Pass	158865
302.00	302.00	0.00	Pass	0.70	0.70	0.00	Pass	143803
601.98	602.01	0.03	Pass	0.70	0.68	-0.02	Pass	230520
1033.99	1034.02	0.03	Pass	0.70	0.67	-0.03	Pass	639287
1633.95	1634.01	0.06	Pass	0.70	0.67	-0.03	Pass	1452625
2233.91	2233.98	0.07	Pass	0.70	0.72	0.02	Pass	1440513

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.99	0.00	Pass	1.20	1.34	0.14	Pass	252901
302.00	302.01	0.01	Pass	1.20	1.48	0.28	Pass	251529
601.98	602.03	0.05	Pass	1.20	1.46	0.26	Pass	411399
1033.99	1033.99	0.00	Pass	1.20	1.36	0.16	Pass	1342330
1633.95	1634.02	0.07	Pass	1.20	1.20	0.00	Pass	3190707
2233.91	2233.79	-0.12	Pass	1.20	0.95	-0.25	Pass	2441568

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.08	0.08	Pass	1.20	1.09	-0.11	Pass	51746
112.99	112.98	-0.01	Pass	1.20	1.19	-0.01	Pass	210496
302.00	302.02	0.02	Pass	1.20	1.28	0.08	Pass	205511
601.98	602.02	0.04	Pass	1.20	1.31	0.11	Pass	342867
1033.99	1034.05	0.06	Pass	1.20	1.34	0.14	Pass	1139604
1633.95	1634.01	0.06	Pass	1.20	1.35	0.15	Pass	2186216
2233.91	2233.93	0.02	Pass	1.20	1.11	-0.09	Pass	2399423

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.93	-0.06	Pass	2.50	2.35	-0.15	Pass	318482
302.00	302.00	0.00	Pass	2.50	2.55	0.05	Pass	301393
601.98	602.02	0.04	Pass	2.50	2.65	0.15	Pass	506698
1033.99	1034.03	0.04	Pass	2.50	2.65	0.15	Pass	2232811
1633.95	1633.97	0.02	Pass	2.50	2.72	0.22	Pass	6712137
2233.91	2233.89	-0.02	Pass	2.50	2.78	0.28	Pass	7952976

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.01	0.01	Pass	2.50	2.35	-0.15	Pass	70461
112.99	112.97	-0.02	Pass	2.50	2.43	-0.07	Pass	276344
302.00	301.99	-0.01	Pass	2.50	2.56	0.06	Pass	283568
601.98	601.87	-0.11	Pass	2.50	2.69	0.19	Pass	477110
1033.99	1034.09	0.10	Pass	2.50	2.82	0.32	Pass	1973647
1633.95	1633.99	0.04	Pass	2.50	2.77	0.27	Pass	6872676
2233.91	2233.89	-0.02	Pass	2.50	2.80	0.30	Pass	7795088

7.7.1

7

Cal Report: 3Q101458.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:42

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101458.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 2:03:57 PM
Sample Name : ic1492-0.5
Vial : P1-C2
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.435	415.0 -> 370.0	216973	10.00 µg/L	0.000
13C3-PFBA	2.344	216.0 -> 172.0	82914	10.00 µg/L	0.213
13C4-PFOS	7.983	503.0 -> 80.0	32488	10.00 µg/L	-0.013
M4-PFBA	2.352	217.0 -> 172.0	148420	10.00 µg/L	0.213
M5-PFPeA	4.425	268.0 -> 223.0	179781	10.00 µg/L	0.088
M5-PFHxA	5.788	318.0 -> 273.0	229534	10.00 µg/L	0.038
M4-PFHpA	6.706	367.0 -> 322.0	191869	10.00 µg/L	0.000
M8-PFOA	7.434	421.0 -> 376.0	251483	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	271708	10.00 µg/L	-0.013
M6-PFDA	8.533	519.0 -> 474.0	369231	10.00 µg/L	-0.013
M7-PFUnDA	9.224	570.0 -> 525.0	755683	10.00 µg/L	0.000
M2-PFDoDA	10.133	615.0 -> 570.0	965772	10.00 µg/L	0.000
M3-PFBS	4.721	302.0 -> 99.0	20925	10.00 µg/L	0.075
M3-PFHxS	6.736	402.0 -> 99.0	30119	10.00 µg/L	0.000
M8-PFOS	7.982	507.0 -> 99.0	39058	10.00 µg/L	-0.013
M2-4:2FTS	5.684	329.0 -> 309.0	75029	10.00 µg/L	0.038
M2-6:2FTS	7.432	429.0 -> 409.0	144087	10.00 µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	234502	10.00 µg/L	-0.014
M3-HFPO-DA	6.069	287.0 -> 169.0	2979	10.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.684	329.0 -> 309.0	75029	9.70 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C2-6:2FTS	7.432	429.0 -> 409.0	144087	9.92 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C2-8:2FTS	8.597	529.0 -> 509.0	234502	9.64 µg/L	-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C2-PFDoDA	10.133	615.0 -> 570.0	965772	10.45 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C3-PFBS	4.721	302.0 -> 99.0	20925	10.32 µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C3-PFHxS	6.736	402.0 -> 99.0	30119	10.44 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C4-PFBA	2.352	217.0 -> 172.0	148420	10.55 µg/L	0.213
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C4-PFHpA	6.706	367.0 -> 322.0	191869	10.45 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C5-PFHxA	5.788	318.0 -> 273.0	229534	10.44 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C5-PFPeA	4.425	268.0 -> 223.0	179781	10.60 µg/L	0.088
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C6-PFDA	8.533	519.0 -> 474.0	369231	10.17 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C7-PFUnDA	9.224	570.0 -> 525.0	755683	10.42 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C8-PFOA	7.434	421.0 -> 376.0	251483	10.55 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

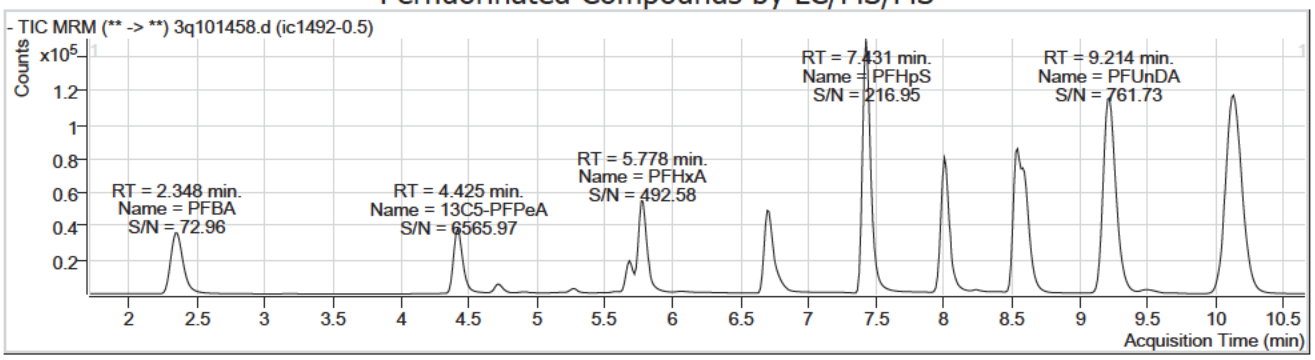
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.5%		
13C8-PFOS	7.982	507.0 -> 99.0	39058	10.57 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.7%		
13C9-PFNA	8.010	472.0 -> 427.0	271708	10.49 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.9%		
13C3-HFPO-DA	6.069	287.0 -> 169.0	2979	9.43 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.3%		
Target Compounds						QValue
PFMPA	3.178	229.0 -> 85.0	2162	0.45 µg/L		100
4:2FTS	5.686	327.0 -> 307.0	3908	0.43 µg/L		99
		327.0 -> 81.0	1638			
6:2FTS	7.433	427.0 -> 407.0	5276	0.43 µg/L		98
		427.0 -> 81.0	2418			
8:2FTS	8.598	527.0 -> 507.0	8325	0.52 µg/L		95
		527.0 -> 81.0	3647			
PFMBA	4.913	279.0 -> 85.0	3107	0.47 µg/L		100
PFEESA	5.274	315.0 -> 135.0	8290	0.44 µg/L		98
		315.0 -> 69.0	686			
NFDHA	5.594	201.0 -> 85.0	2835	0.49 µg/L		100
		295.0 -> 201.0	186			
PFBA	2.348	213.0 -> 169.0	1862	0.45 µg/L		100
PFBS	4.722	299.0 -> 80.0	1779	0.42 µg/L		88
		299.0 -> 99.0	883			
PFDA	8.534	513.0 -> 469.0	9246	0.44 µg/L		98
		513.0 -> 219.0	2252			
PFDoDA	10.138	613.0 -> 569.0	28981	0.45 µg/L		100
		613.0 -> 169.0	3175			
PFHpA	6.708	363.0 -> 319.0	11968	0.44 µg/L		99
		363.0 -> 169.0	1044			
PFHpS	7.431	449.0 -> 80.0	2470	0.45 µg/L		92
		449.0 -> 99.0	1528			
PFHxA	5.778	313.0 -> 269.0	9646	0.45 µg/L		99
		313.0 -> 119.0	313			
PFHxS	6.738	399.0 -> 80.0	2618	0.49 µg/L	m	93
		399.0 -> 99.0	1228			
PFNA	8.023	463.0 -> 419.0	10371	0.47 µg/L		99
		463.0 -> 219.0	2989			
PFOA	7.436	413.0 -> 369.0	8569	0.44 µg/L		97
		413.0 -> 169.0	3312			
PFOS	7.983	499.0 -> 80.0	3042	0.49 µg/L	m	99
		499.0 -> 99.0	1549			
PFPeA	4.427	263.0 -> 219.0	6106	0.45 µg/L		100
PFPeS	5.896	349.0 -> 80.0	1333	0.43 µg/L		95
		349.0 -> 99.0	605			
PFUnDA	9.214	563.0 -> 519.0	21796	0.45 µg/L		98
		563.0 -> 269.0	4426			
11Cl-PF3OUdS	9.507	631.0 -> 451.0	12792	0.44 µg/L		98
		631.0 -> 83.0	717			
9Cl-PF3ONS	8.241	531.0 -> 351.0	4269	0.42 µg/L		98
		531.0 -> 83.0	241			
ADONA	6.792	377.0 -> 251.0	18217	0.44 µg/L		99
		377.0 -> 85.0	2235			
HFPO-DA	6.073	329.0 -> 169.0	40	0.54 µg/L	m	96
		285.0 -> 169.0	94			

= Qualifier out of range, m = manually integrated, + = Area summed

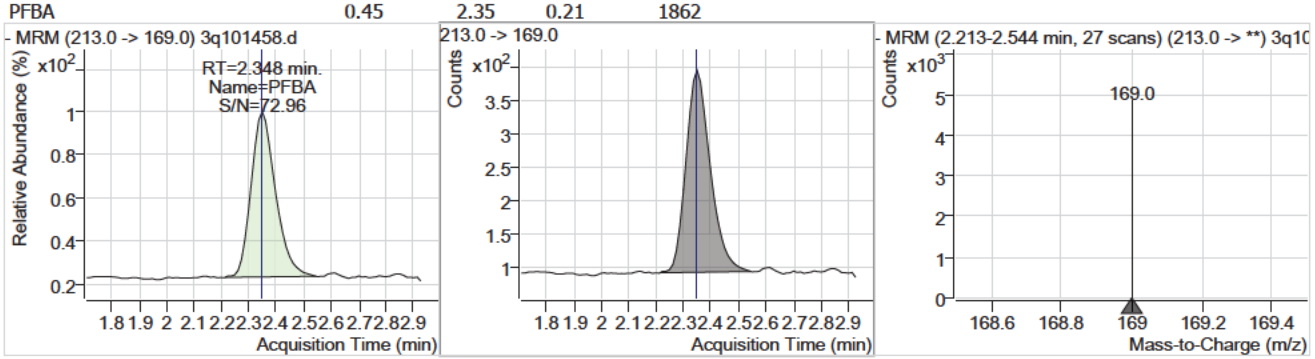
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)

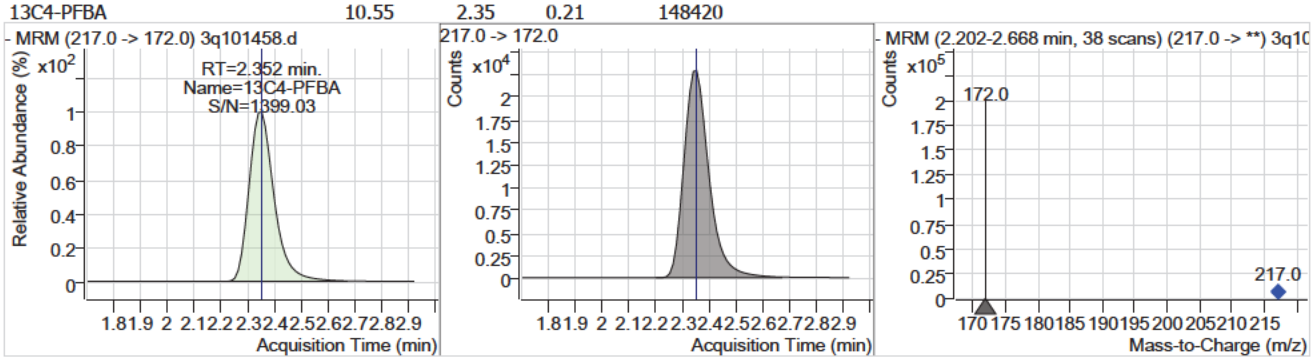
Perfluorinated Compounds by LC/MS/MS



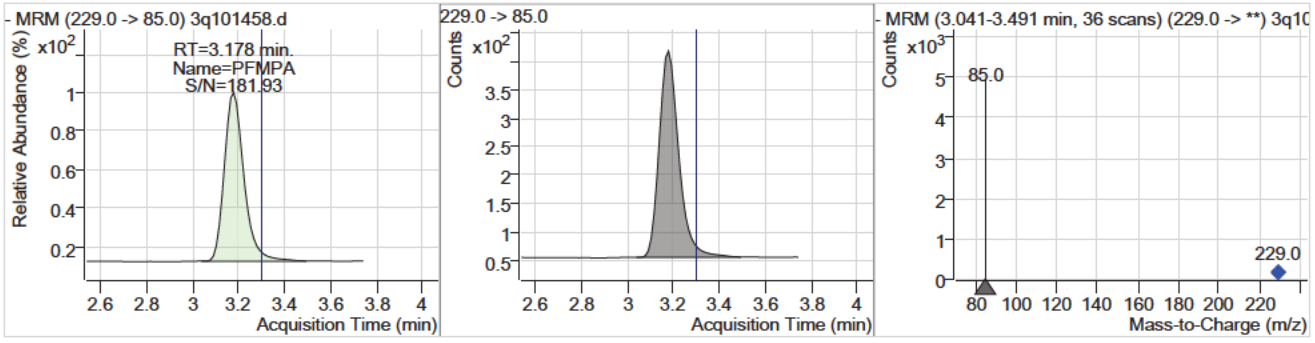
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.45	2.35	0.21	1862				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.55	2.35	0.21	148420				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	0.45	3.18	0.18	2162				



7.7.2

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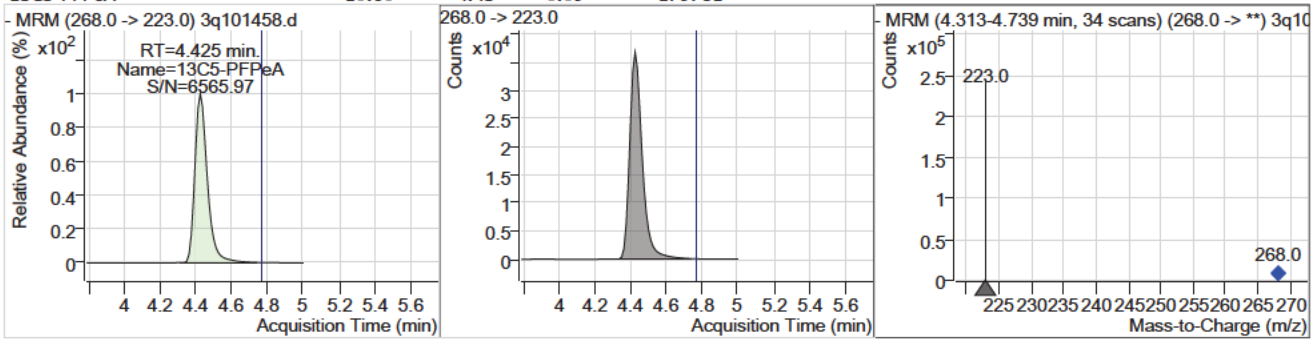
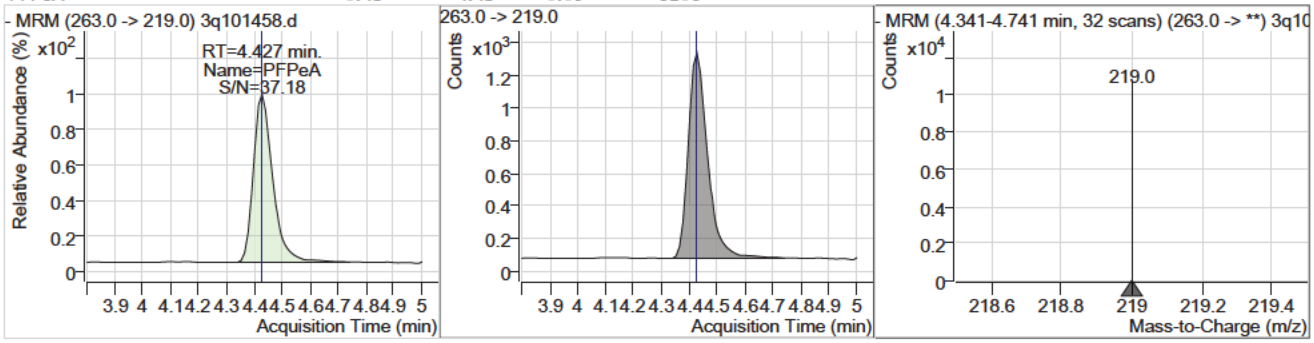
Perfluorinated Compounds by LC/MS/MS

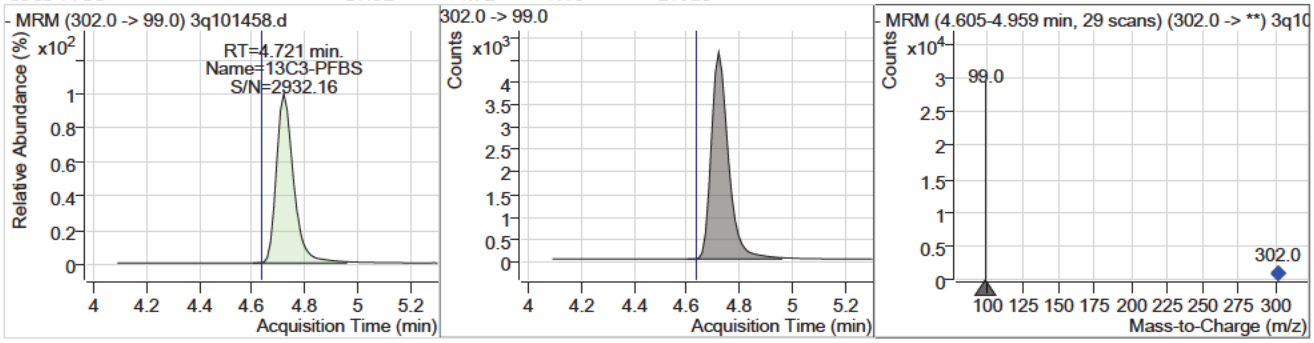
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.60	4.43	0.09	179781				



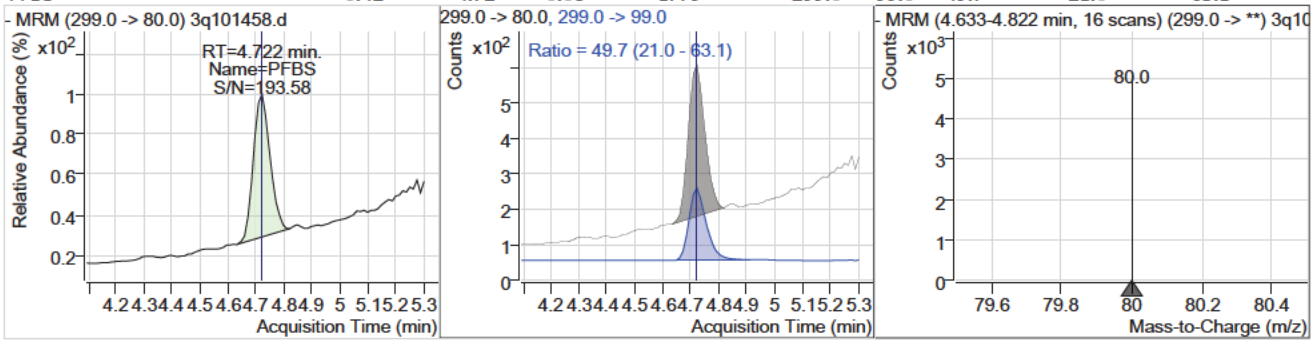
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.45	4.43	0.09	6106				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.32	4.72	0.08	20925				



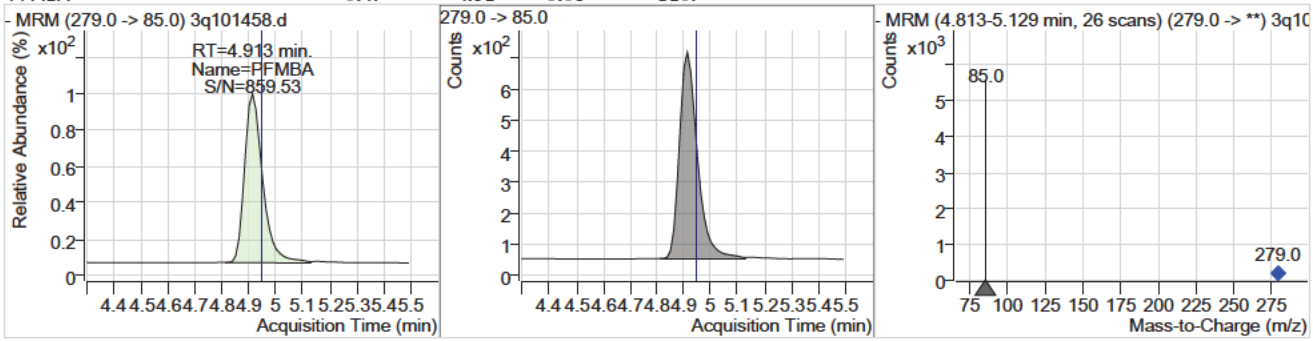
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.42	4.72	0.08	1779	299.0 -> 99.0	49.7	21.0	63.1



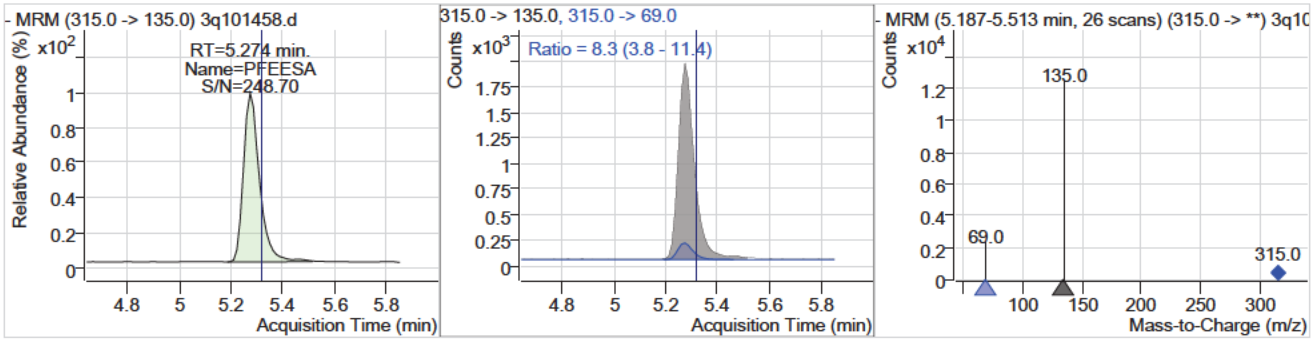
7.7.2 7

Perfluorinated Compounds by LC/MS/MS

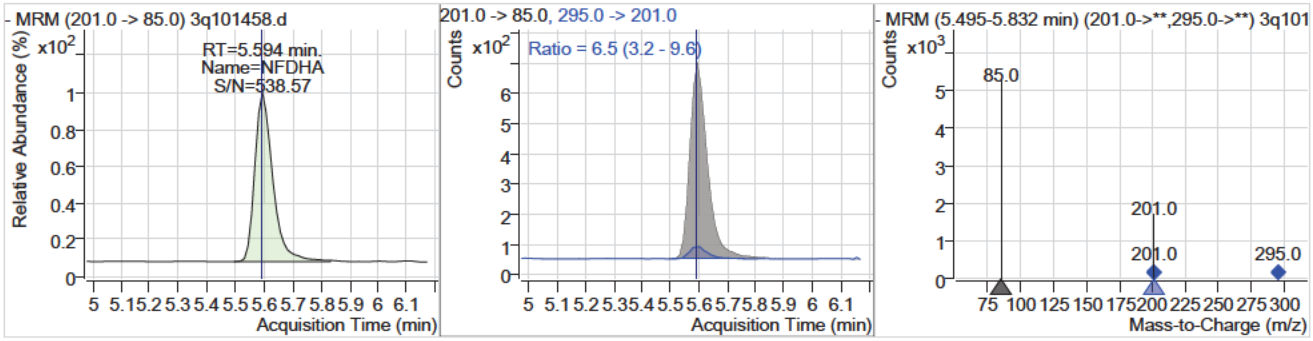
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.47	4.91	0.06	3107				



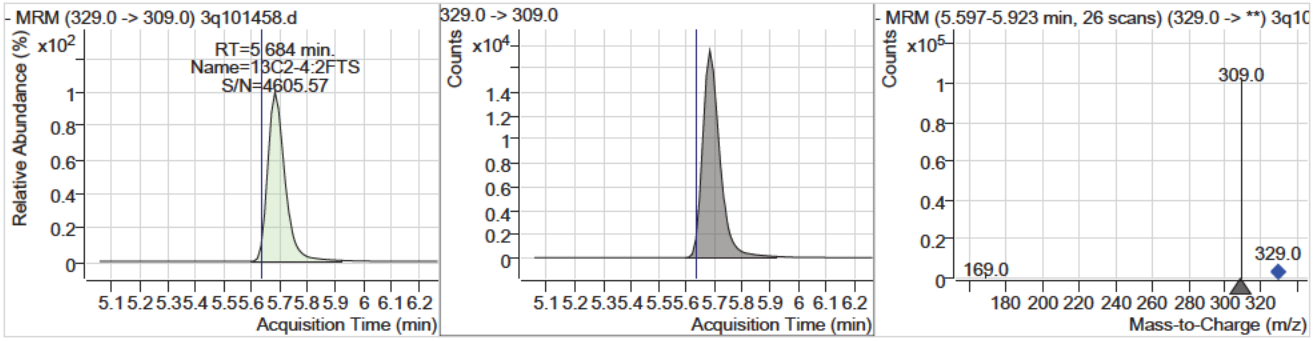
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.44	5.27	0.04	8290	315.0 -> 69.0	8.3	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	0.49	5.59	0.04	2835	295.0 -> 201.0	6.5	3.2	9.6

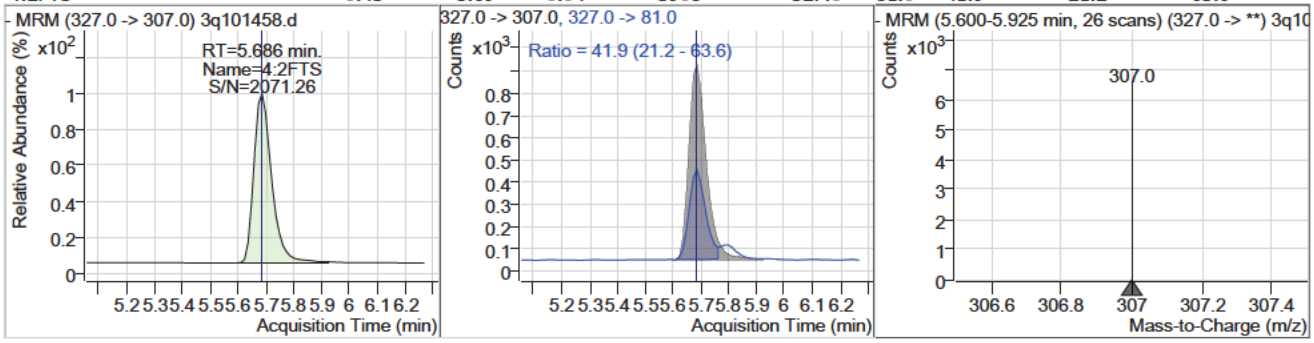


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	9.70	5.68	0.04	75029				

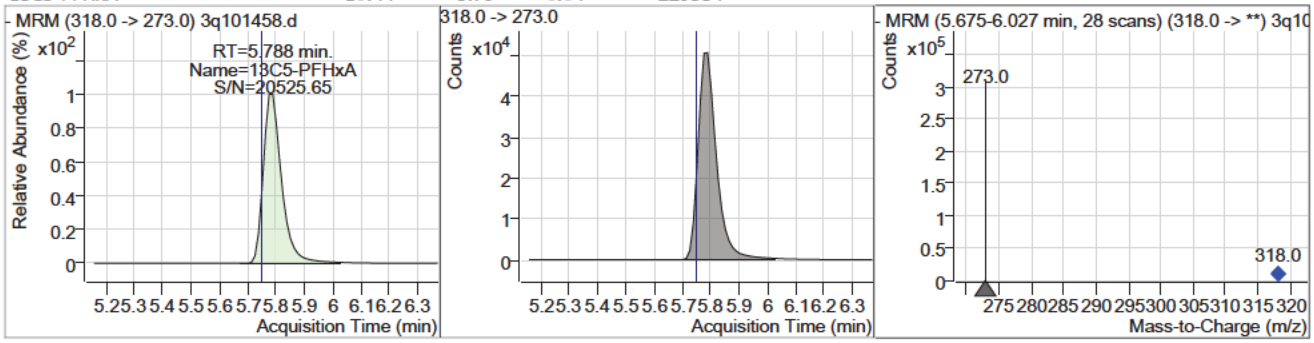


Perfluorinated Compounds by LC/MS/MS

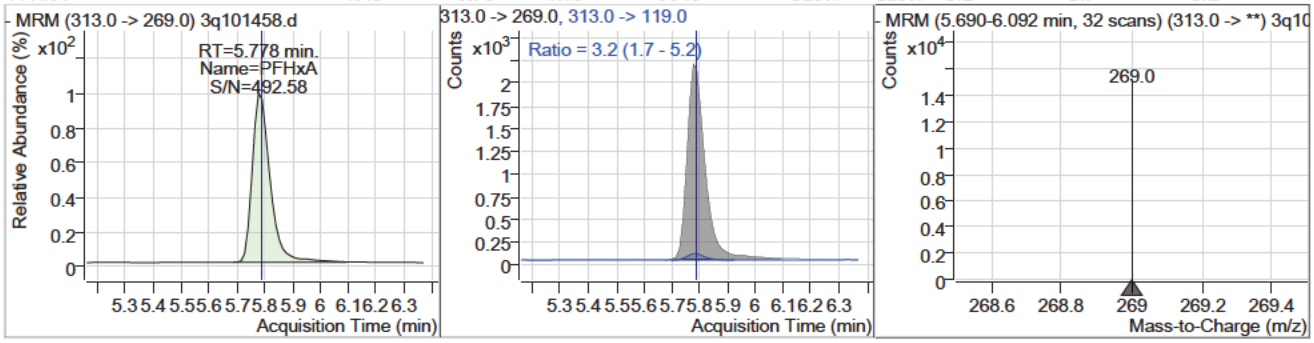
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	0.43	5.69	0.04	3908	327.0 -> 81.0	41.9	21.2	63.6



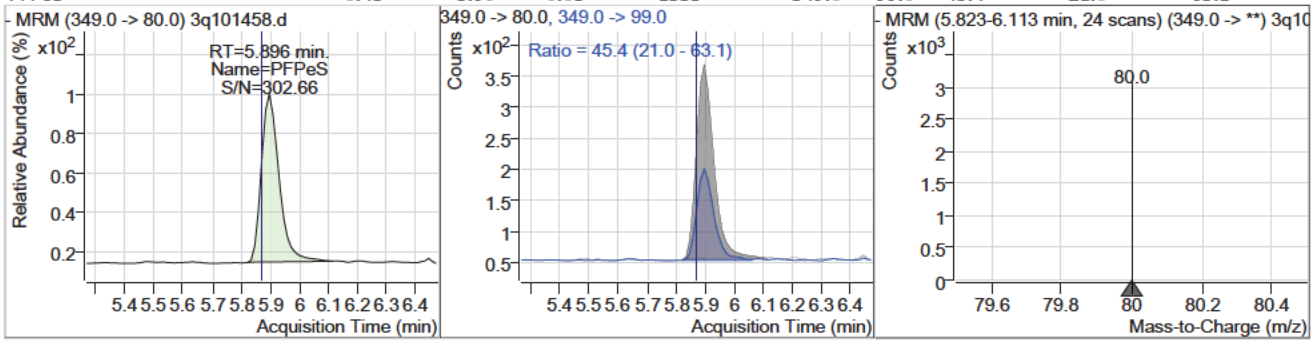
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.44	5.79	0.04	229534				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.45	5.78	0.03	9646	313.0 -> 119.0	3.2	1.7	5.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.43	5.90	0.03	1333	349.0 -> 99.0	45.4	21.0	63.1



7.7.2

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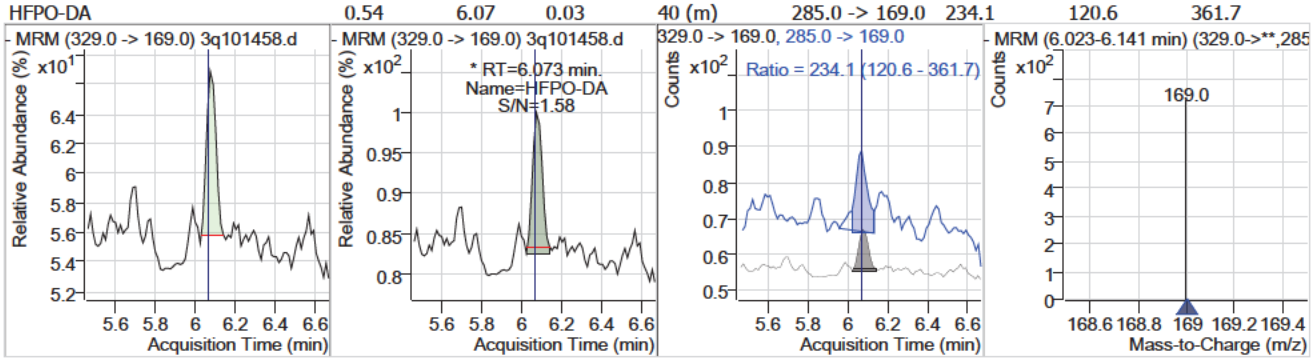
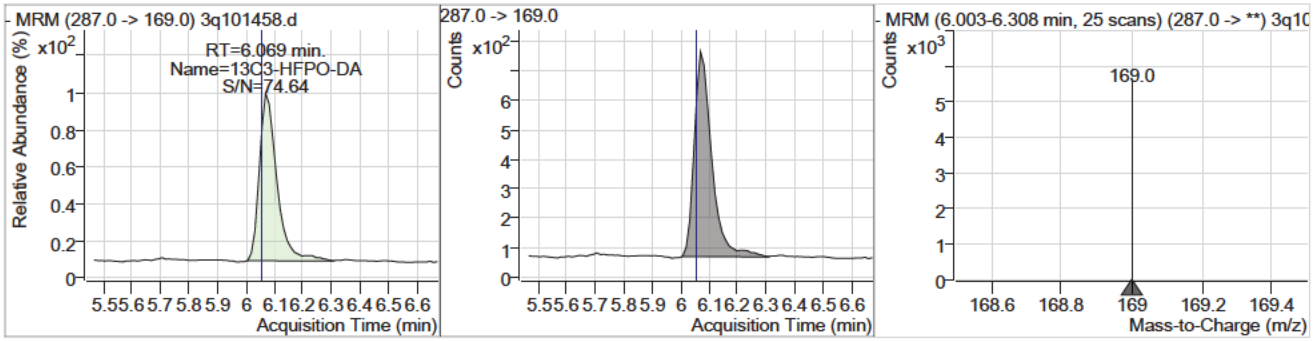
Perfluorinated Compounds by LC/MS/MS

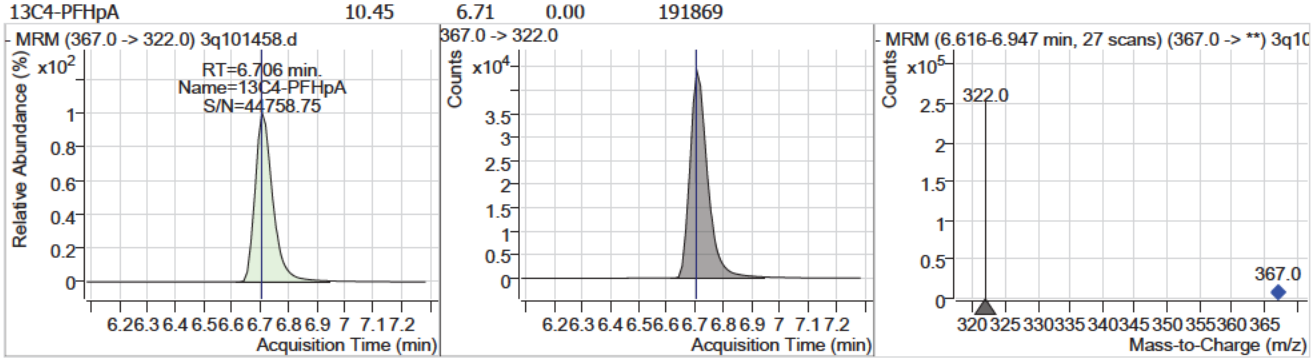
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.54	6.07	0.03	40 (m)	285.0 -> 169.0	234.1	120.6	361.7



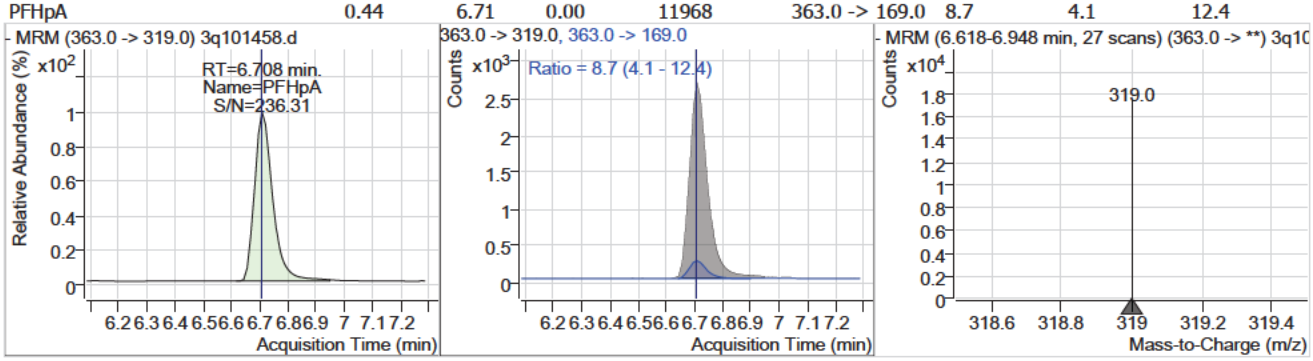
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.43	6.07	0.01	2979				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.45	6.71	0.00	191869				

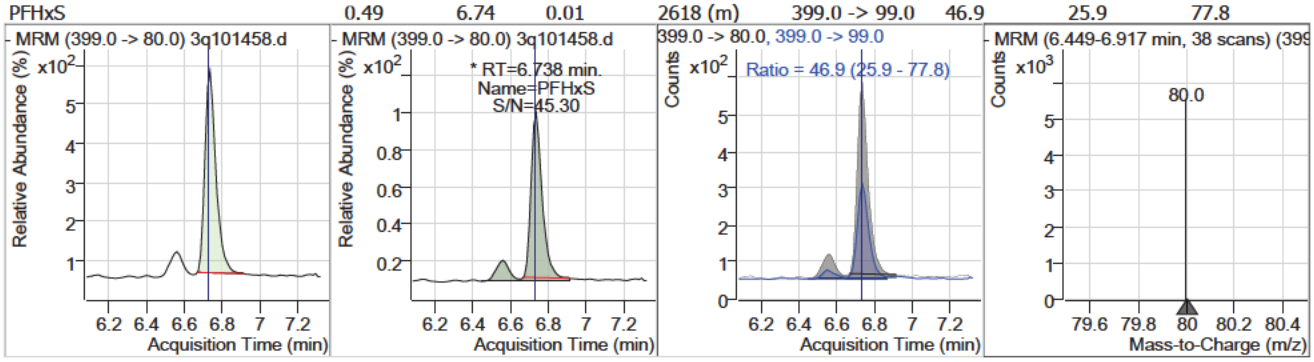


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.44	6.71	0.00	11968	363.0 -> 169.0	8.7	4.1	12.4

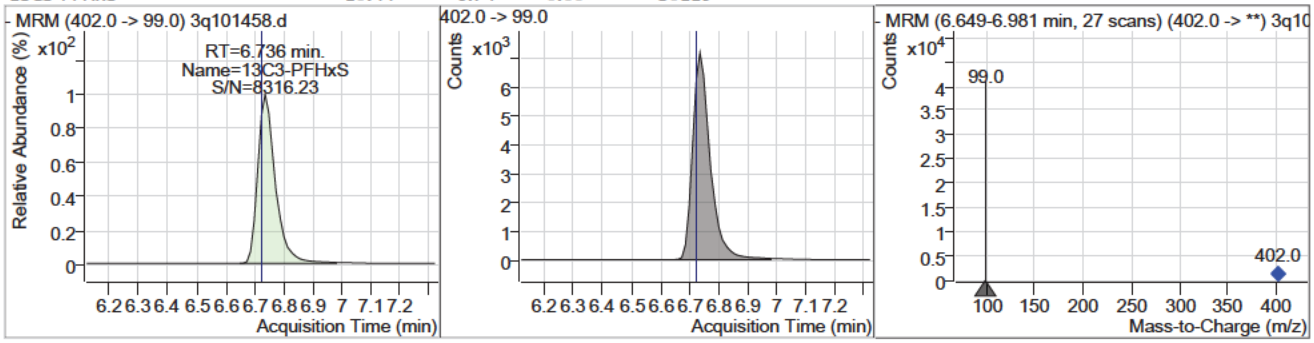


Perfluorinated Compounds by LC/MS/MS

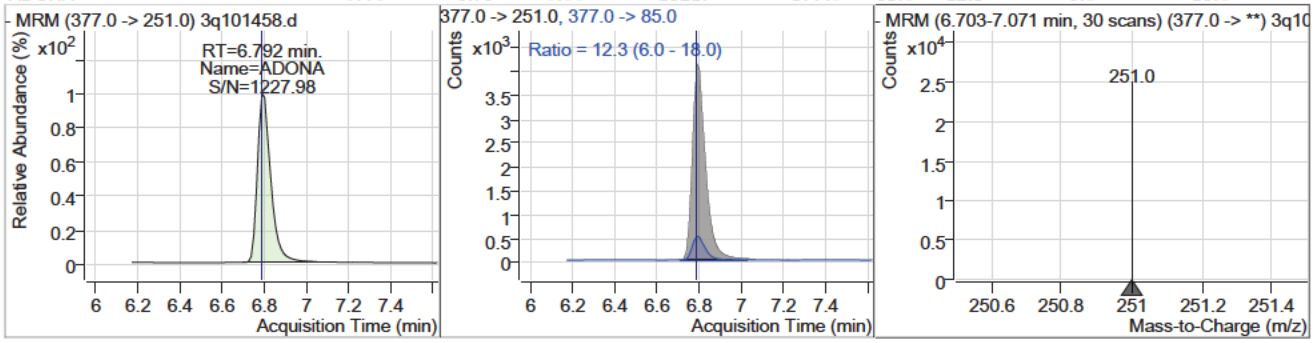
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.49	6.74	0.01	2618 (m)	399.0 -> 99.0	46.9	25.9	77.8



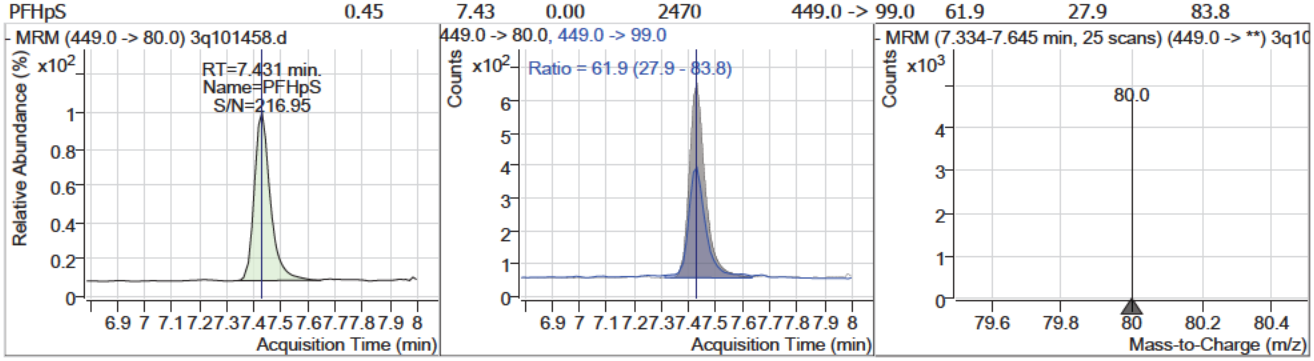
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.44	6.74	0.00	30119				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.44	6.79	0.00	18217	377.0 -> 85.0	12.3	6.0	18.0



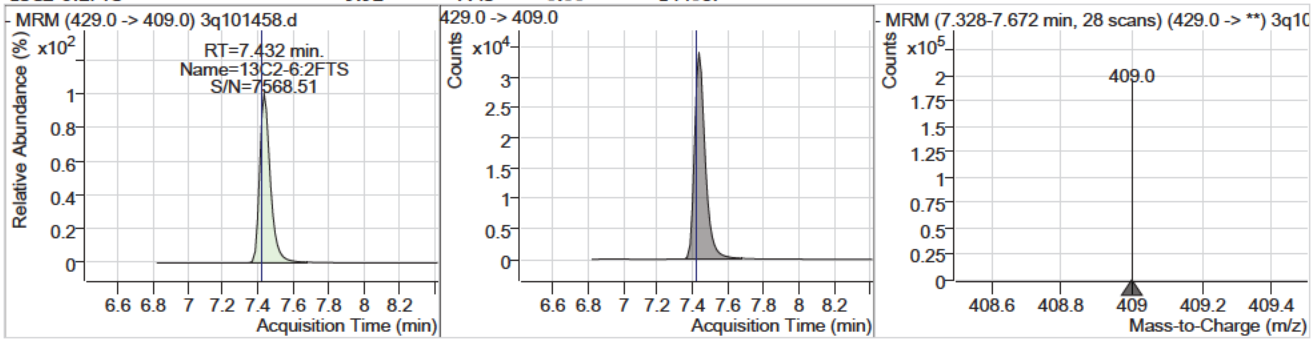
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.45	7.43	0.00	2470	449.0 -> 99.0	61.9	27.9	83.8



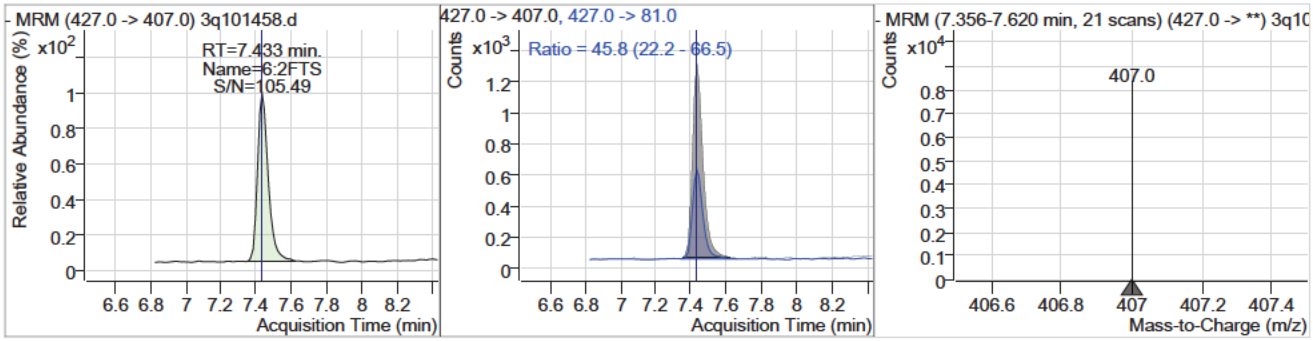
7.7.2 7

Perfluorinated Compounds by LC/MS/MS

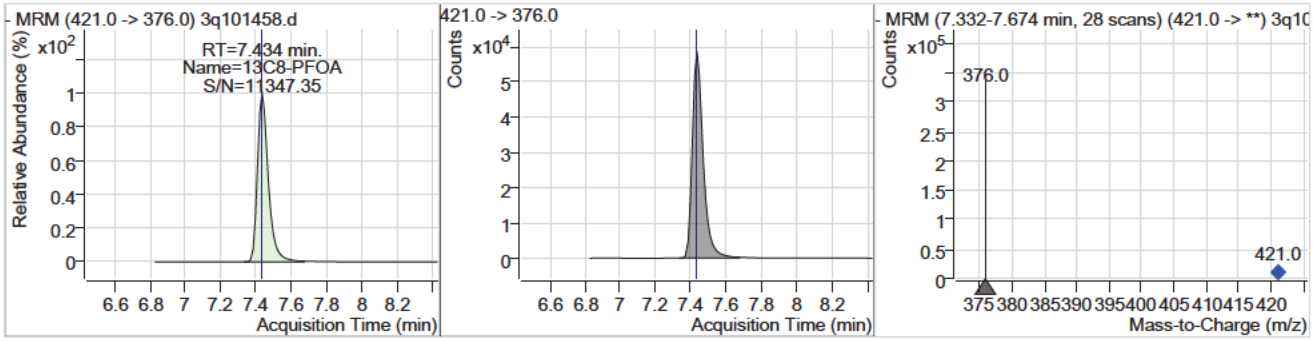
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	9.92	7.43	0.00	144087				



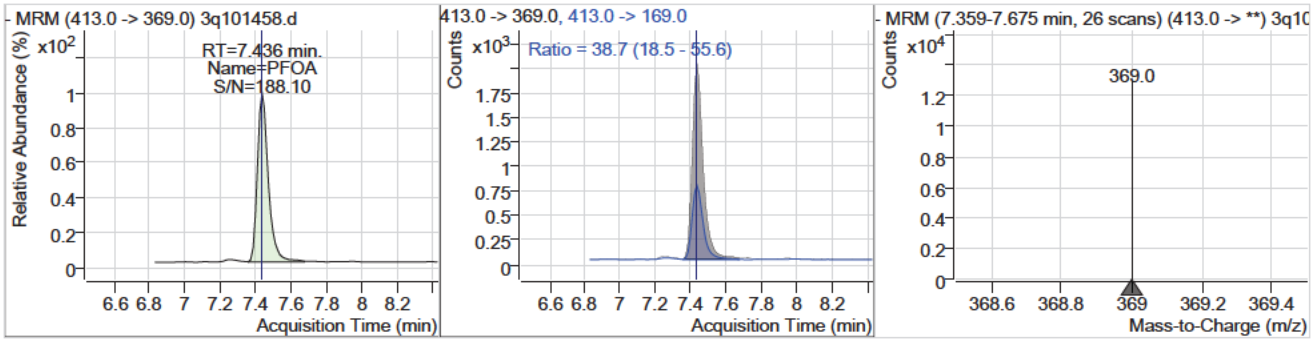
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.43	7.43	0.00	5276	427.0 -> 81.0	45.8	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.55	7.43	0.00	251483				



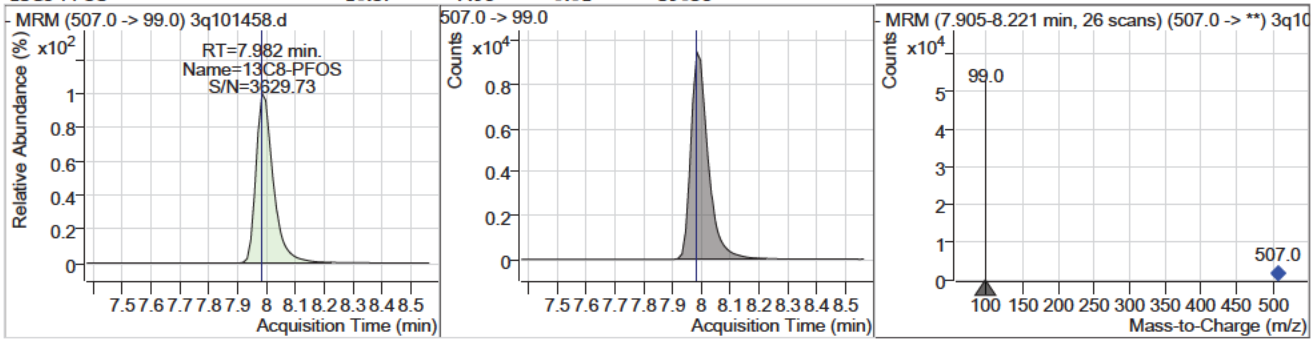
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.44	7.44	0.00	8569	413.0 -> 169.0	38.7	18.5	55.6



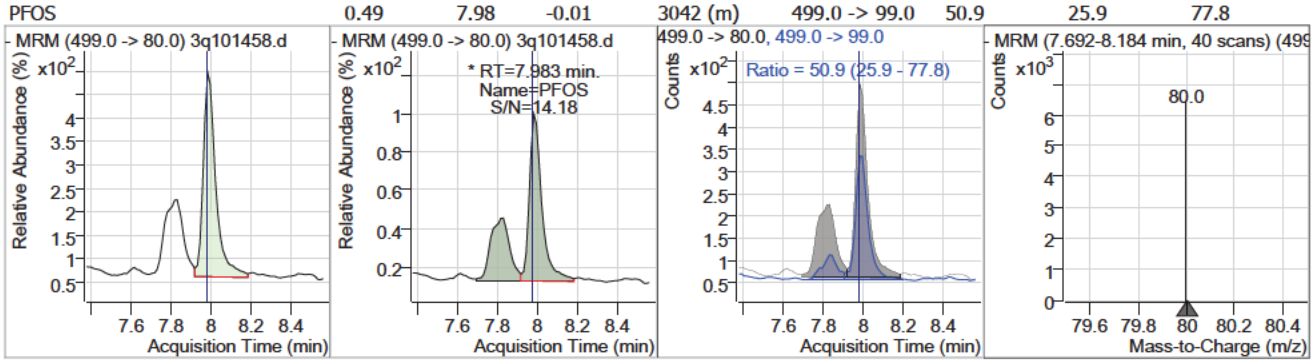
7.7.2 7

Perfluorinated Compounds by LC/MS/MS

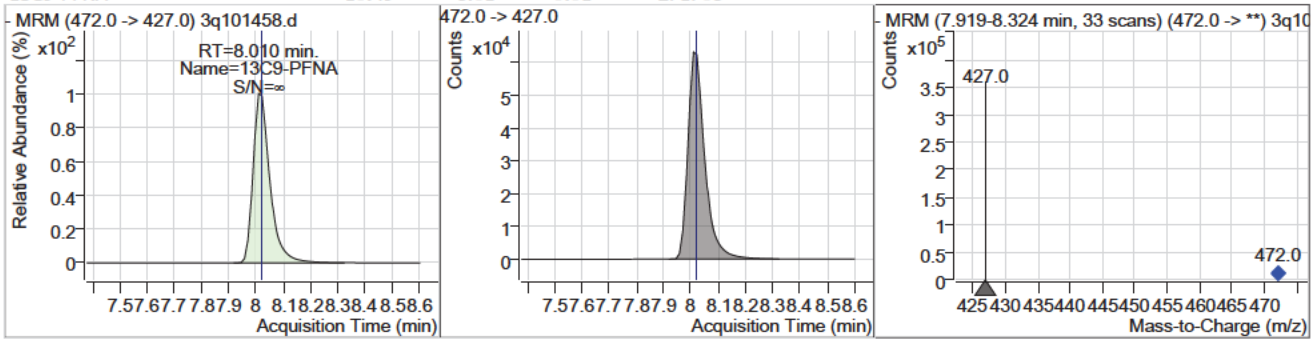
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.57	7.98	-0.01	39058				



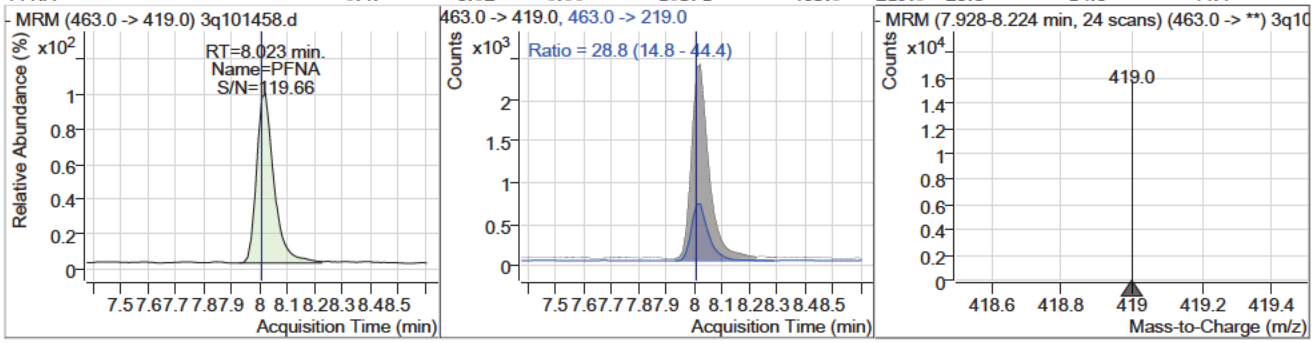
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.49	7.98	-0.01	3042 (m)	499.0 -> 99.0	50.9	25.9	77.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.49	8.01	-0.01	271708				

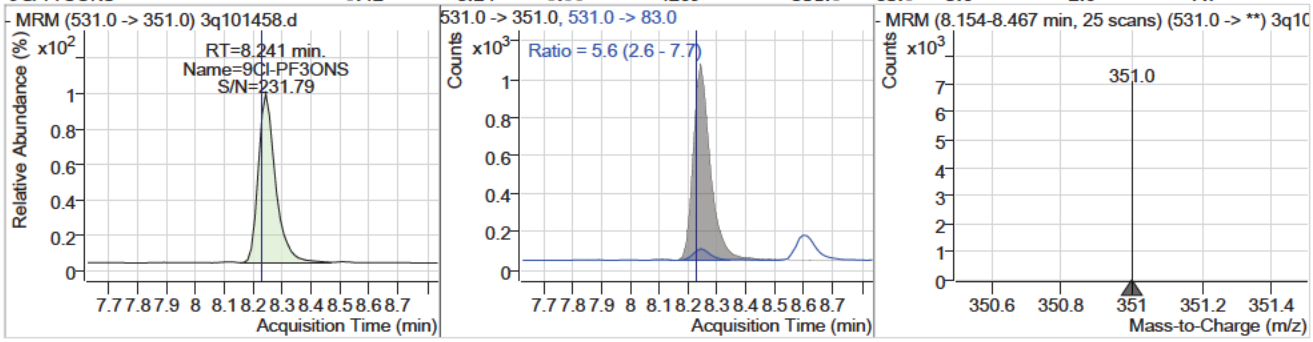


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.47	8.02	0.00	10371	463.0 -> 219.0	28.8	14.8	44.4

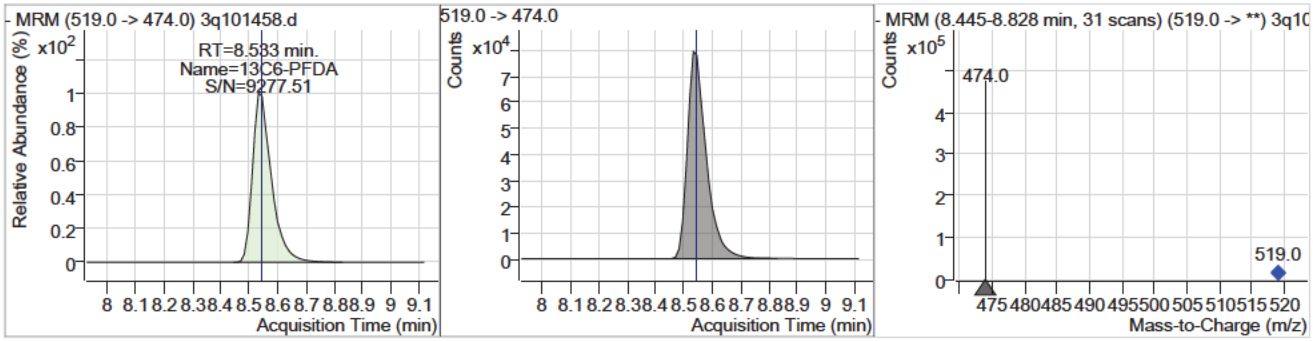


Perfluorinated Compounds by LC/MS/MS

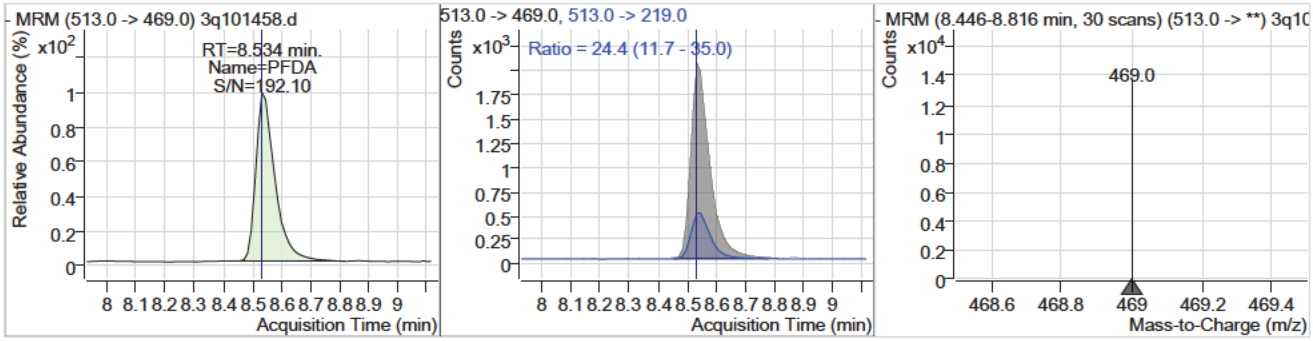
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.42	8.24	0.00	4269	531.0 -> 83.0	5.6	2.6	7.7



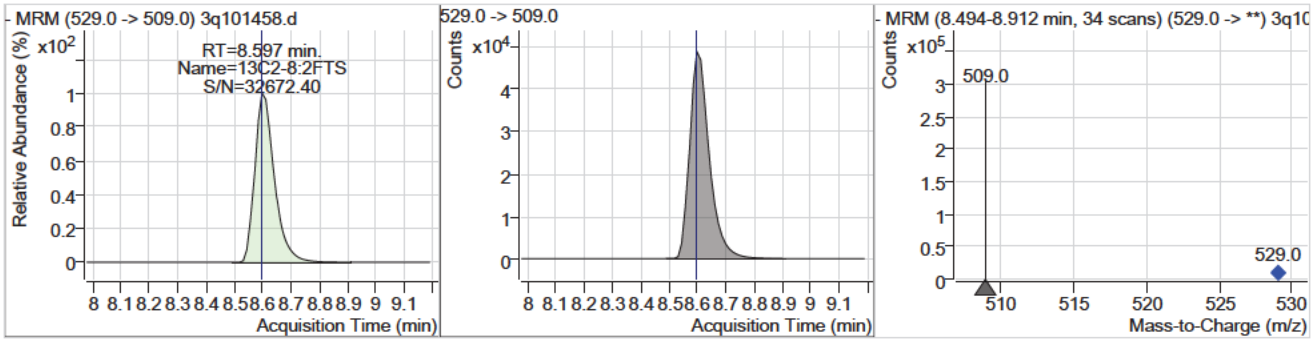
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	10.17	8.53	-0.01	369231				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.44	8.53	-0.01	9246	513.0 -> 219.0	24.4	11.7	35.0

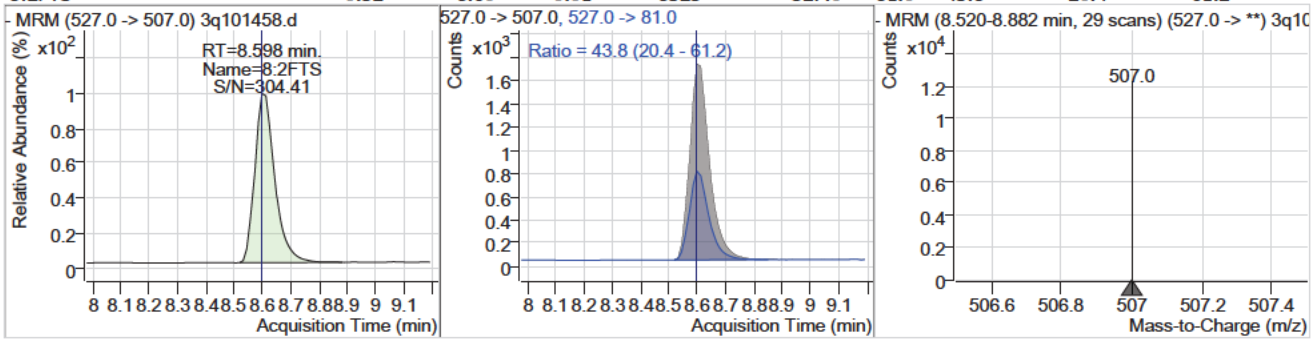


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	9.64	8.60	-0.01	234502				

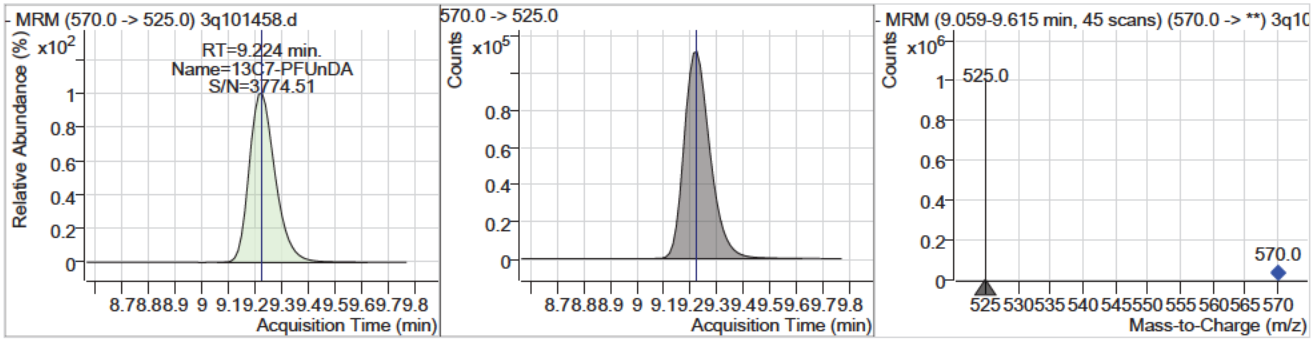


Perfluorinated Compounds by LC/MS/MS

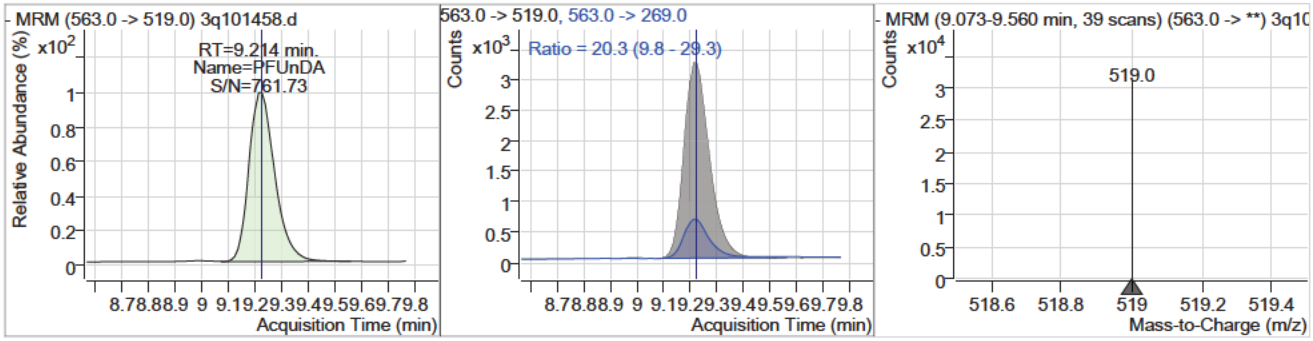
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.52	8.60	-0.01	8325	527.0 -> 81.0	43.8	20.4	61.2



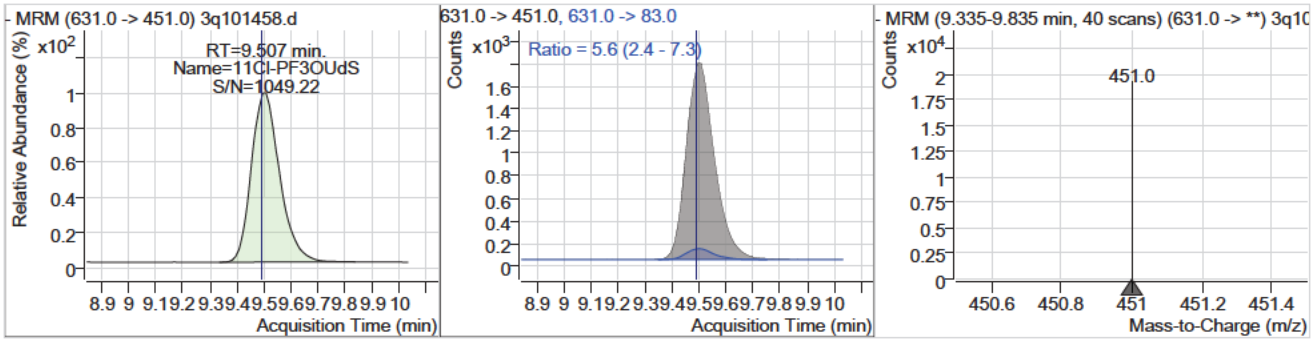
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	10.42	9.22	0.00	755683				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.45	9.21	-0.01	21796	563.0 -> 269.0	20.3	9.8	29.3

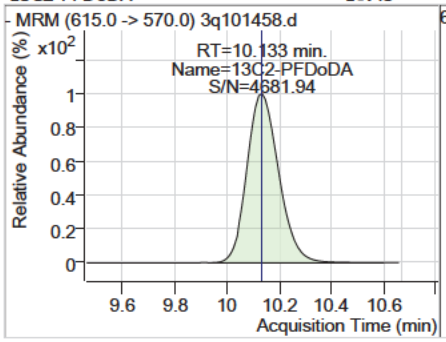


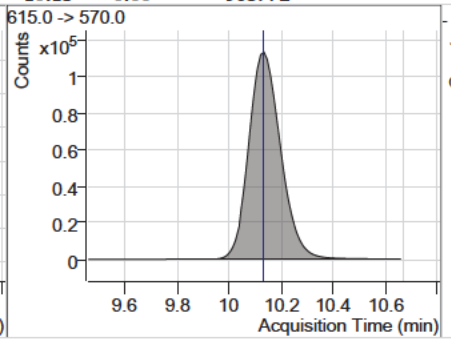
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.44	9.51	0.00	12792	631.0 -> 83.0	5.6	2.4	7.3

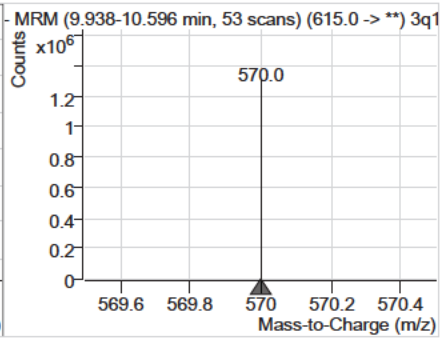


Perfluorinated Compounds by LC/MS/MS

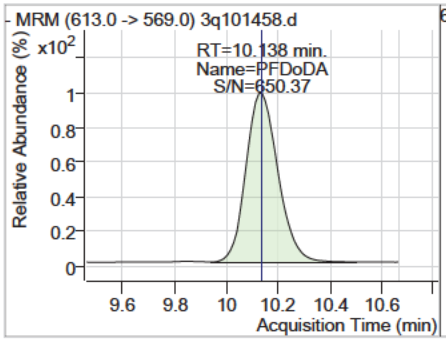
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.45	10.13	0.00	965772				

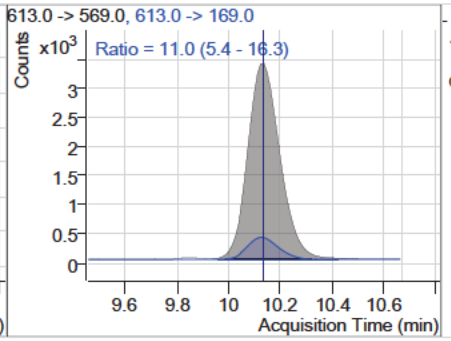


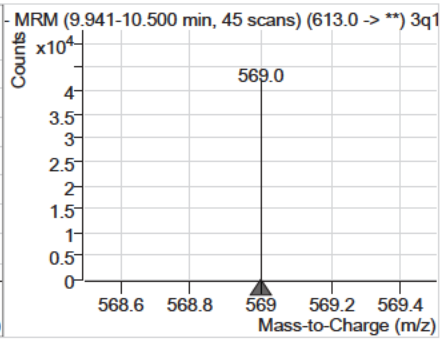




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.45	10.14	0.00	28981	613.0 -> 169.0	11.0	5.4	16.3







7.7.2 7

Manual Integration Approval Summary

Sample Number: S3Q1492-IC1492
Lab FileID: 3Q101458.D
Injection Time: 04/15/25 14:03
Method: EPA 533
Analyst approved: 04/16/25 08:55 (b) (6) [redacted]
Supervisor approved: 04/17/25 11:42 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
HFPO-DA (GenX)	13252-13-6		6.07	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		6.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Cal Report: 3Q101459.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:42

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101459.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 2:20:02 PM
Sample Name : ic1492-1
Vial : P1-C3
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	7.435	415.0 -> 370.0	223145	10.00	µg/L	0.000
13C3-PFBA	2.357	216.0 -> 172.0	85518	10.00	µg/L	0.225
13C4-PFOS	7.983	503.0 -> 80.0	32777	10.00	µg/L	-0.013
M4-PFBA	2.352	217.0 -> 172.0	137639	10.00	µg/L	0.213
M5-PFPeA	4.425	268.0 -> 223.0	166322	10.00	µg/L	0.088
M5-PFHxA	5.788	318.0 -> 273.0	210802	10.00	µg/L	0.038
M4-PFHpA	6.706	367.0 -> 322.0	177903	10.00	µg/L	0.000
M8-PFOA	7.434	421.0 -> 376.0	230930	10.00	µg/L	0.000
M9-PFNA	8.022	472.0 -> 427.0	249672	10.00	µg/L	0.000
M6-PFDA	8.533	519.0 -> 474.0	350615	10.00	µg/L	-0.013
M7-PFUnDA	9.212	570.0 -> 525.0	683421	10.00	µg/L	-0.012
M2-PFDoDA	10.108	615.0 -> 570.0	884250	10.00	µg/L	-0.025
M3-PFBS	4.721	302.0 -> 99.0	19413	10.00	µg/L	0.075
M3-PFHxS	6.736	402.0 -> 99.0	28281	10.00	µg/L	0.000
M8-PFOS	7.982	507.0 -> 99.0	35990	10.00	µg/L	-0.013
M2-4:2FTS	5.684	329.0 -> 309.0	70098	10.00	µg/L	0.038
M2-6:2FTS	7.432	429.0 -> 409.0	133040	10.00	µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	224256	10.00	µg/L	-0.014
M3-HFPO-DA	6.069	287.0 -> 169.0	2688	10.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.684	329.0 -> 309.0	70098	8.99	µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.9%		
13C2-6:2FTS	7.432	429.0 -> 409.0	133042	9.08	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.8%		
13C2-8:2FTS	8.597	529.0 -> 509.0	224256	9.14	µg/L	-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.4%		
13C2-PFDoDA	10.108	615.0 -> 570.0	884250	9.31	µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.1%		
13C3-PFBS	4.721	302.0 -> 99.0	19413	9.49	µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.9%		
13C3-PFHxS	6.736	402.0 -> 99.0	28281	9.71	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.1%		
13C4-PFBA	2.352	217.0 -> 172.0	137639	9.49	µg/L	0.213
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.9%		
13C4-PFHpA	6.706	367.0 -> 322.0	177903	9.42	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.2%		
13C5-PFHxA	5.788	318.0 -> 273.0	210802	9.33	µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.3%		
13C5-PFPeA	4.425	268.0 -> 223.0	166322	9.51	µg/L	0.088
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.1%		
13C6-PFDA	8.533	519.0 -> 474.0	350615	9.39	µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.9%		
13C7-PFUnDA	9.212	570.0 -> 525.0	683421	9.17	µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.7%		
13C8-PFOA	7.434	421.0 -> 376.0	230930	9.42	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

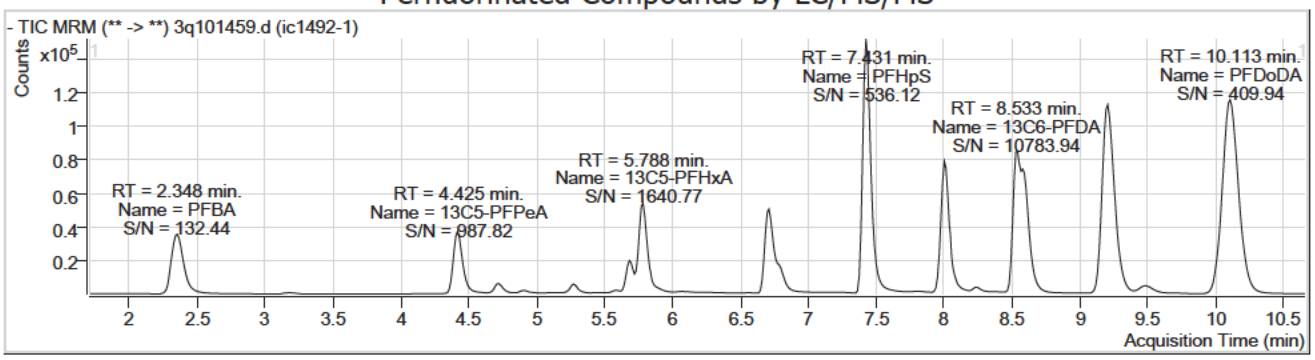
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.2%		
13C8-PFOS	7.982	507.0 -> 99.0	35990	9.66 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.6%		
13C9-PFNA	8.022	472.0 -> 427.0	249672	9.37 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.7%		
13C3-HFPO-DA	6.069	287.0 -> 169.0	2688	8.27 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.7%		
Target Compounds						QValue
PFMPA	3.178	229.0 -> 85.0	5082	1.14 µg/L		100
4:2FTS	5.686	327.0 -> 307.0	9080	1.06 µg/L		94
		327.0 -> 81.0	4221			
6:2FTS	7.433	427.0 -> 407.0	12435	1.09 µg/L		98
		427.0 -> 81.0	5684			
8:2FTS	8.598	527.0 -> 507.0	19942	1.29 µg/L		96
		527.0 -> 81.0	8633			
PFMBA	4.913	279.0 -> 85.0	6990	1.14 µg/L		100
PFEESA	5.274	315.0 -> 135.0	19571	1.12 µg/L		100
		315.0 -> 69.0	1478			
NFDHA	5.594	201.0 -> 85.0	6105	1.16 µg/L		98
		295.0 -> 201.0	424			
PFBA	2.348	213.0 -> 169.0	4411	1.16 µg/L		100
PFBS	4.722	299.0 -> 80.0	4278	1.09 µg/L		91
		299.0 -> 99.0	2028			
PFDA	8.534	513.0 -> 469.0	21954	1.11 µg/L		100
		513.0 -> 219.0	5083			
PFDoDA	10.113	613.0 -> 569.0	65223	1.11 µg/L		100
		613.0 -> 169.0	7140			
PFHpA	6.708	363.0 -> 319.0	28032	1.12 µg/L		99
		363.0 -> 169.0	2414			
PFHpS	7.431	449.0 -> 80.0	5893	1.14 µg/L		97
		449.0 -> 99.0	3172			
PFHxA	5.791	313.0 -> 269.0	21860	1.10 µg/L		100
		313.0 -> 119.0	798			
PFHxS	6.738	399.0 -> 80.0	5688	1.14 µg/L	m	99
		399.0 -> 99.0	2973			
PFNA	8.023	463.0 -> 419.0	23364	1.14 µg/L		99
		463.0 -> 219.0	6808			
PFOA	7.436	413.0 -> 369.0	19824	1.11 µg/L		99
		413.0 -> 169.0	7230			
PFOS	7.983	499.0 -> 80.0	6758	1.17 µg/L	m	98
		499.0 -> 99.0	3388			
PFPeA	4.427	263.0 -> 219.0	14013	1.12 µg/L		100
PFPeS	5.896	349.0 -> 80.0	3247	1.12 µg/L		99
		349.0 -> 99.0	1384			
PFUnDA	9.214	563.0 -> 519.0	48466	1.10 µg/L		99
		563.0 -> 269.0	9318			
11Cl-PF3OUdS	9.482	631.0 -> 451.0	28617	1.07 µg/L		99
		631.0 -> 83.0	1521			
9Cl-PF3ONS	8.241	531.0 -> 351.0	10051	1.08 µg/L		98
		531.0 -> 83.0	572			
ADONA	6.805	377.0 -> 251.0	41986	1.09 µg/L		100
		377.0 -> 85.0	5115			
HFPO-DA	6.073	329.0 -> 169.0	75	1.12 µg/L	m	69
		285.0 -> 169.0	222			

= Qualifier out of range, m = manually integrated, + = Area summed

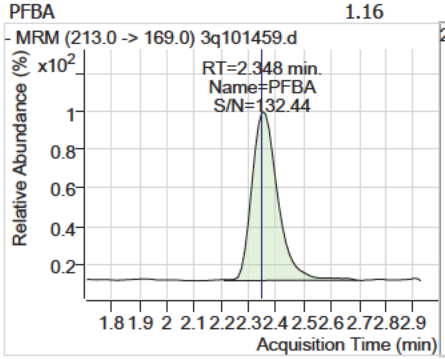
Perfluorinated Compounds by LC/MS/MS

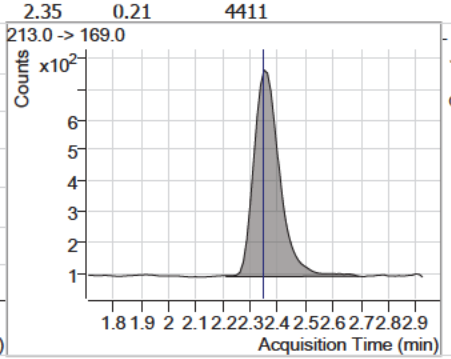
Compound	RT	Transition	Response	Conc. Units	Dev(Min)

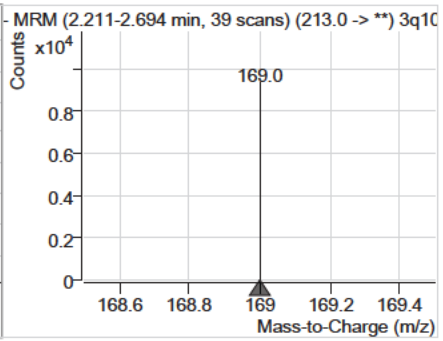
Perfluorinated Compounds by LC/MS/MS



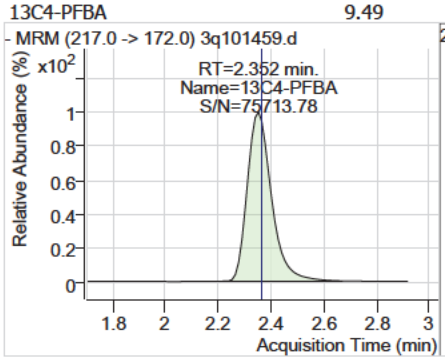
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	1.16	2.35	0.21	4411				

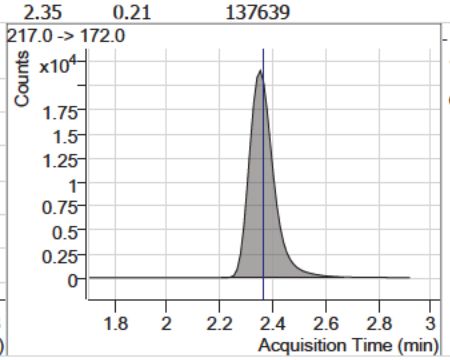


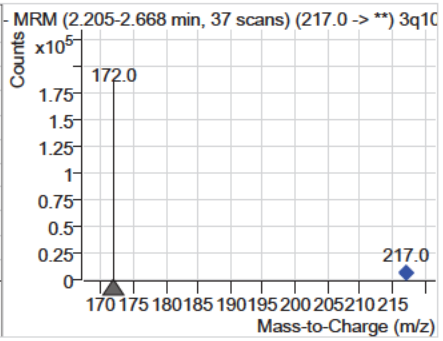




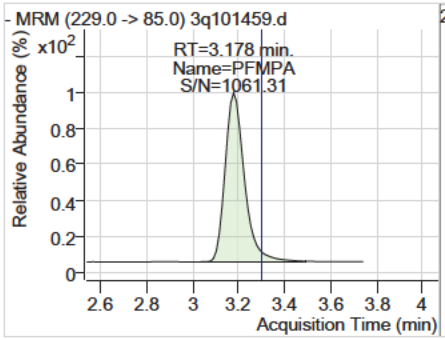
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	9.49	2.35	0.21	137639				

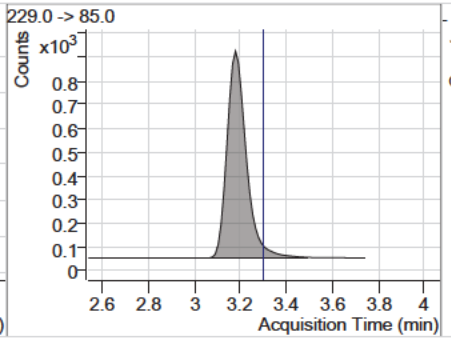


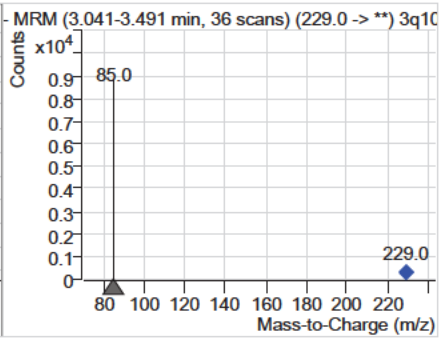




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	1.14	3.18	0.18	5082				







7.7.3

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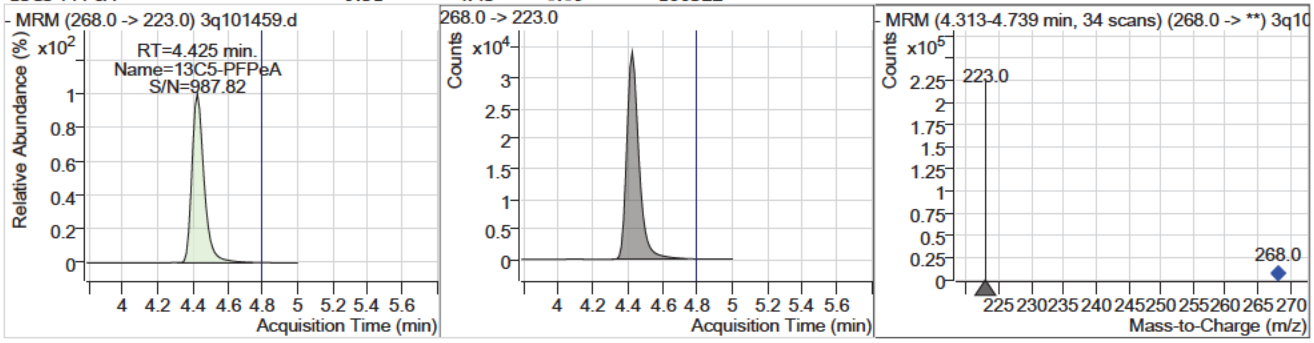
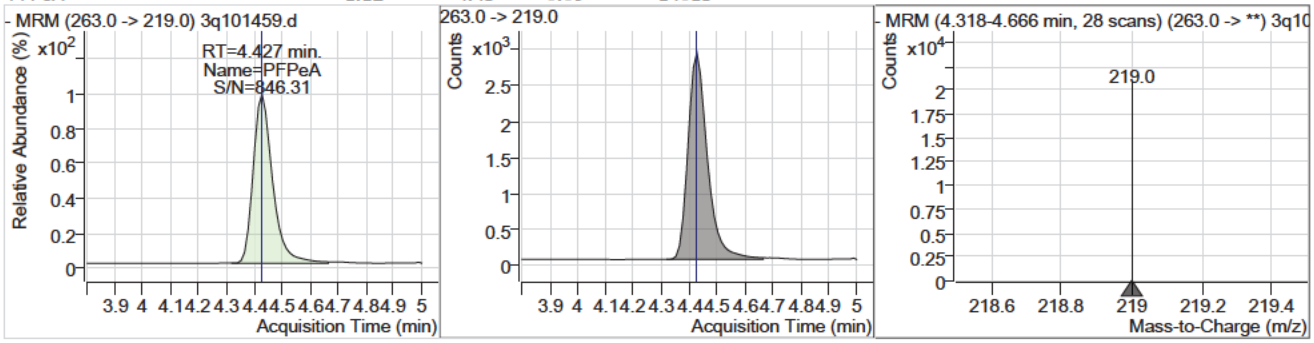
Perfluorinated Compounds by LC/MS/MS

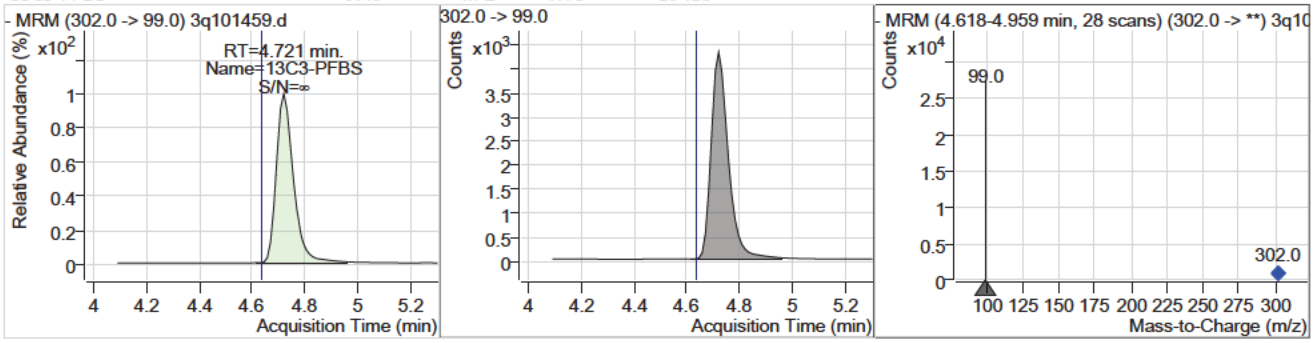
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	9.51	4.43	0.09	166322				



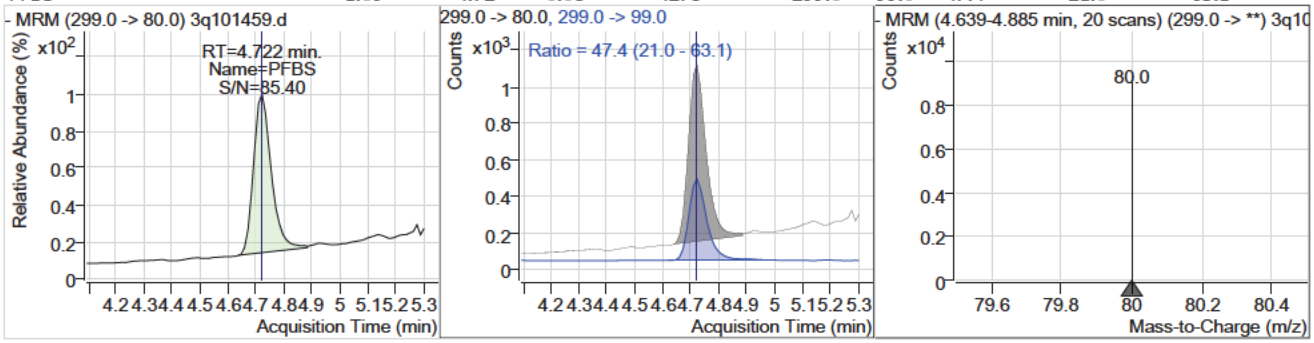
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.12	4.43	0.09	14013				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	9.49	4.72	0.08	19413				

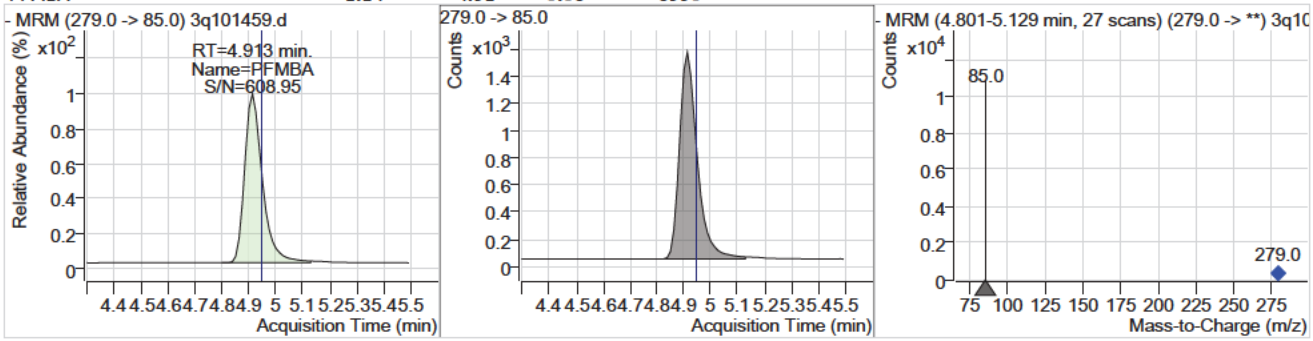


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.09	4.72	0.08	4278	299.0 -> 99.0	47.4	21.0	63.1

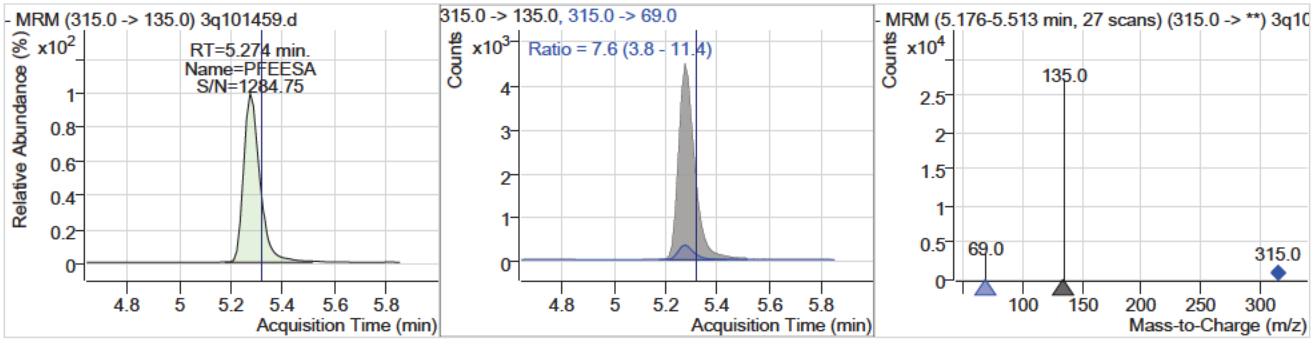


Perfluorinated Compounds by LC/MS/MS

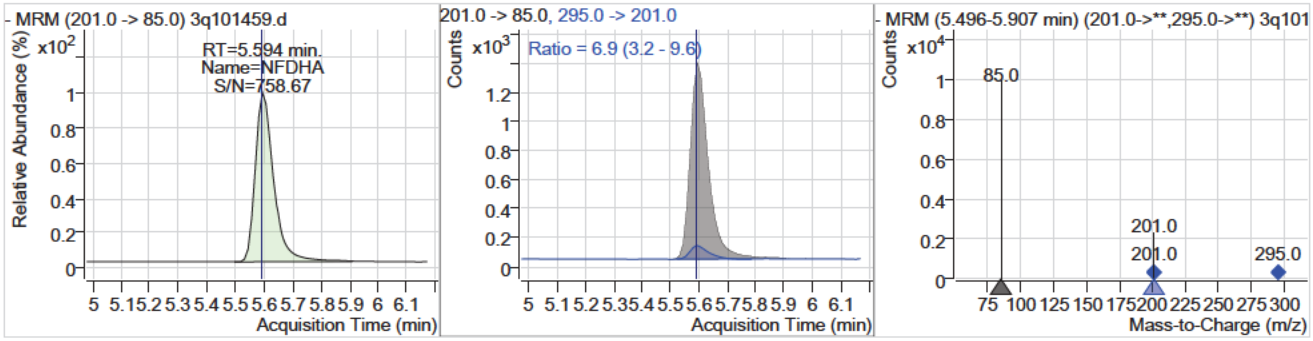
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	1.14	4.91	0.06	6990				



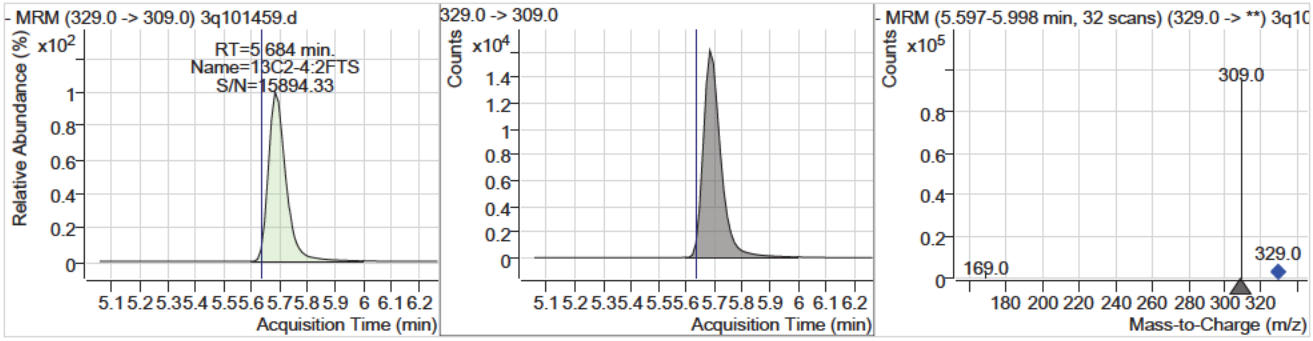
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	1.12	5.27	0.04	19571	315.0 -> 69.0	7.6	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	1.16	5.59	0.04	6105	295.0 -> 201.0	6.9	3.2	9.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	8.99	5.68	0.04	70098				



(b) (4) [redacted] 3q101459.d Page 6 of 14 Generated at 8: [redacted] /2025
(b) (4) [redacted] 487 of 1154
3Q101459.D: S3Q1492-IC1492 Initial Calibration (1) page 6 of 14
FC23899
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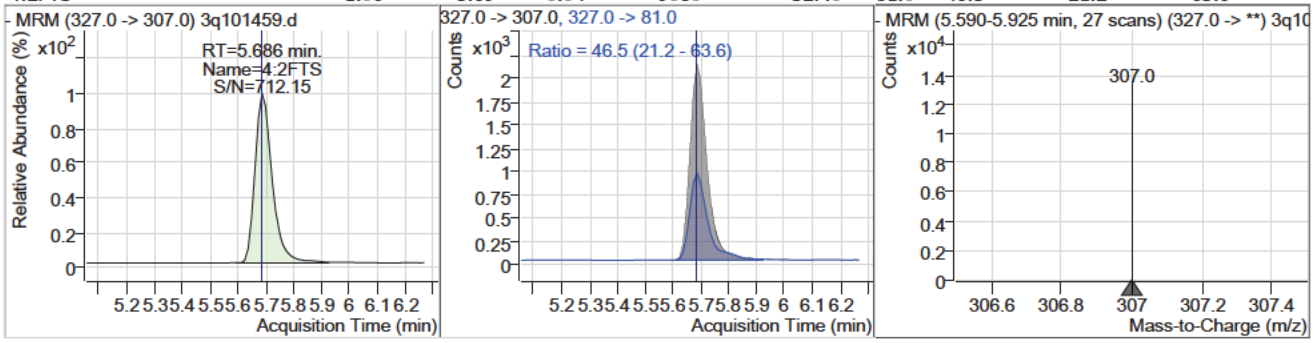
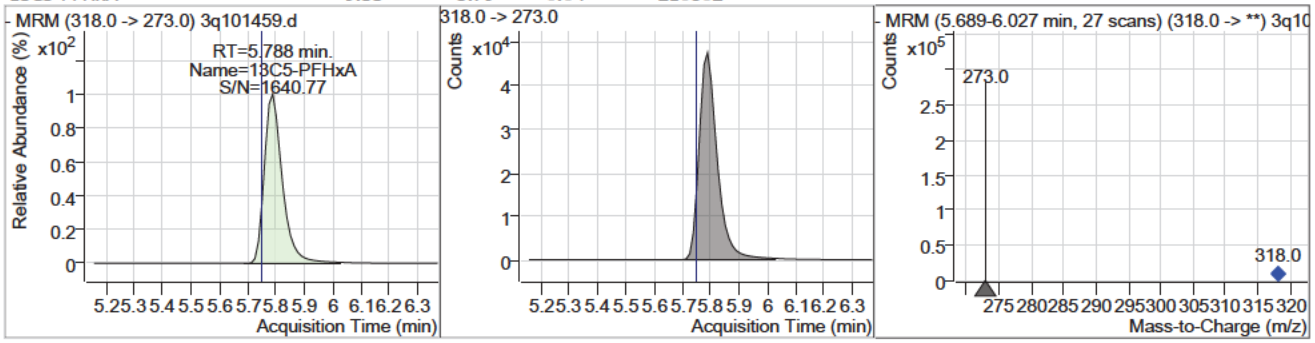
Perfluorinated Compounds by LC/MS/MS

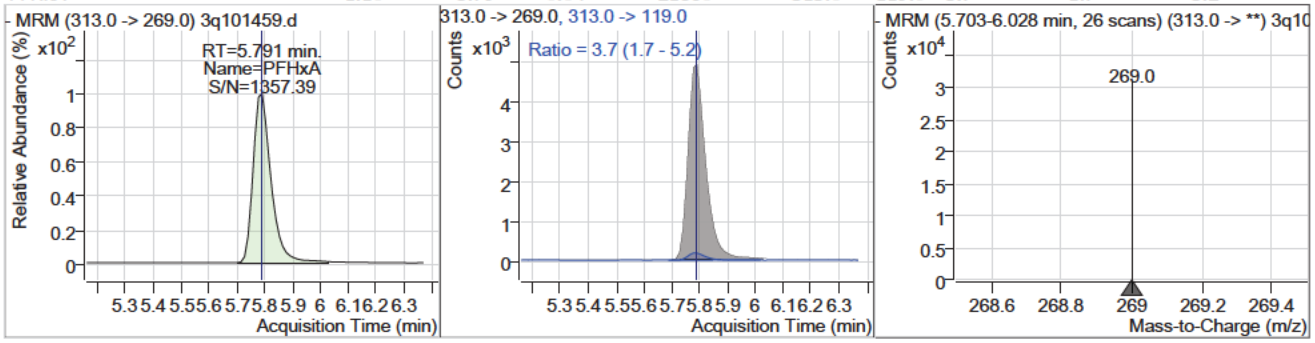
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	1.06	5.69	0.04	9080	327.0 -> 81.0	46.5	21.2	63.6



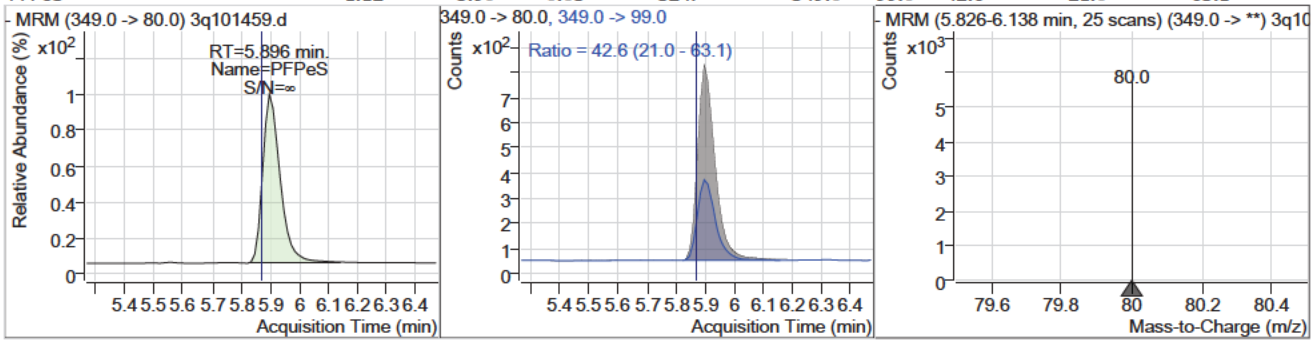
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	9.33	5.79	0.04	210802				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.10	5.79	0.04	21860	313.0 -> 119.0	3.7	1.7	5.2

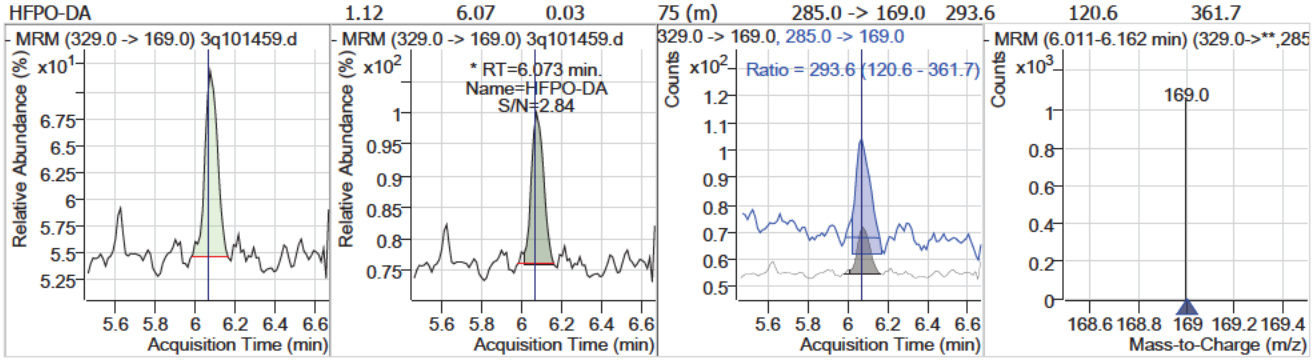


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	1.12	5.90	0.03	3247	349.0 -> 99.0	42.6	21.0	63.1

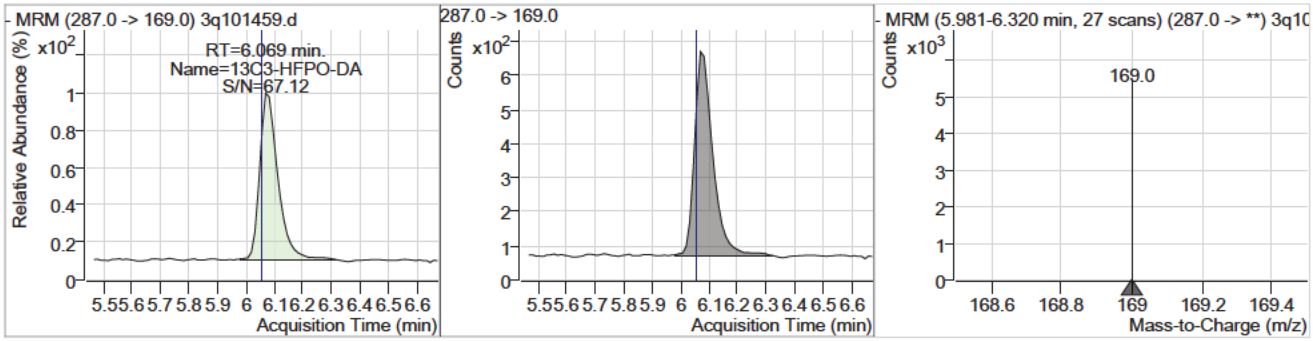


Perfluorinated Compounds by LC/MS/MS

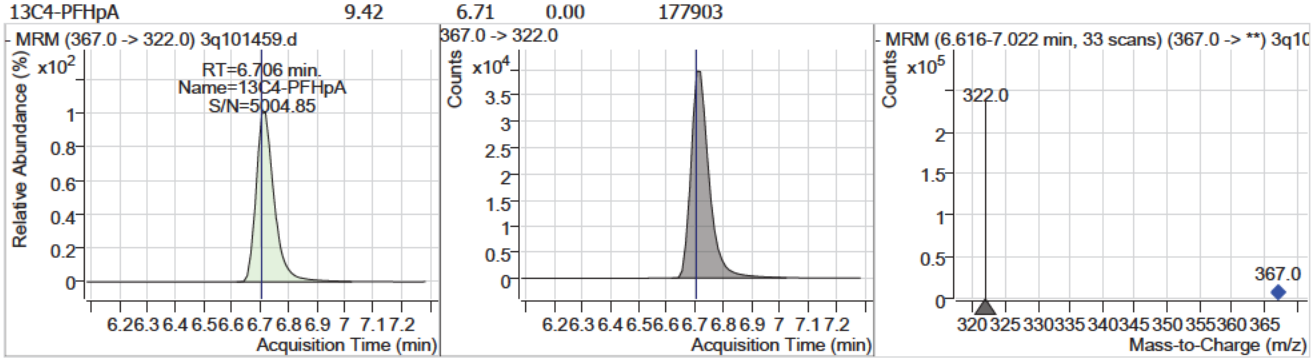
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	1.12	6.07	0.03	75 (m)	285.0 -> 169.0	293.6	120.6	361.7



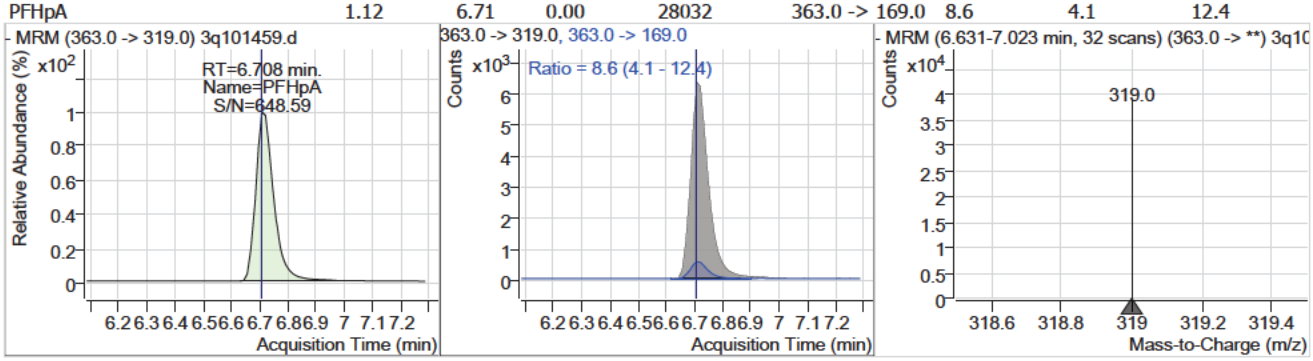
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.27	6.07	0.01	2688				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	9.42	6.71	0.00	177903				

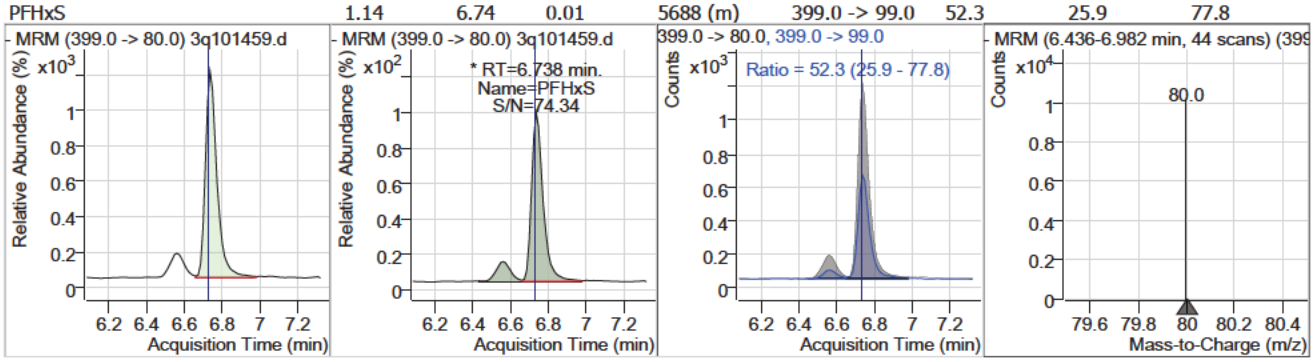


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.12	6.71	0.00	28032	363.0 -> 169.0	8.6	4.1	12.4

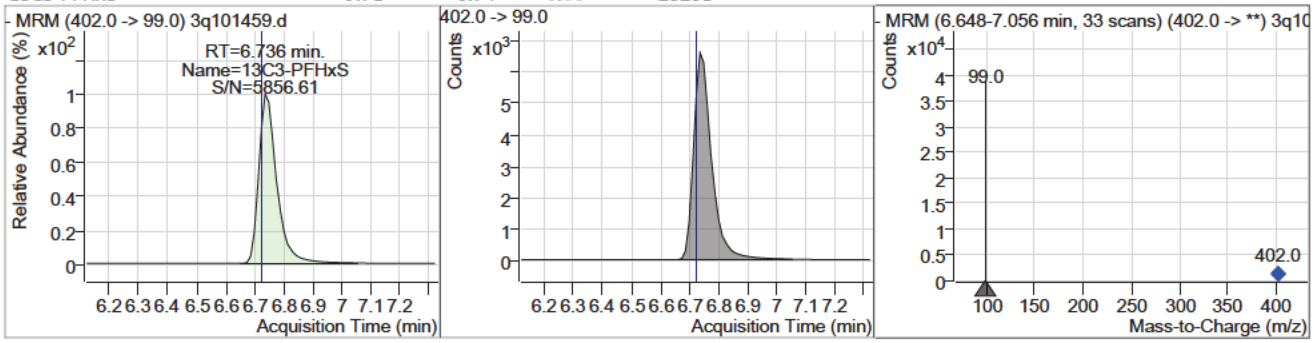


Perfluorinated Compounds by LC/MS/MS

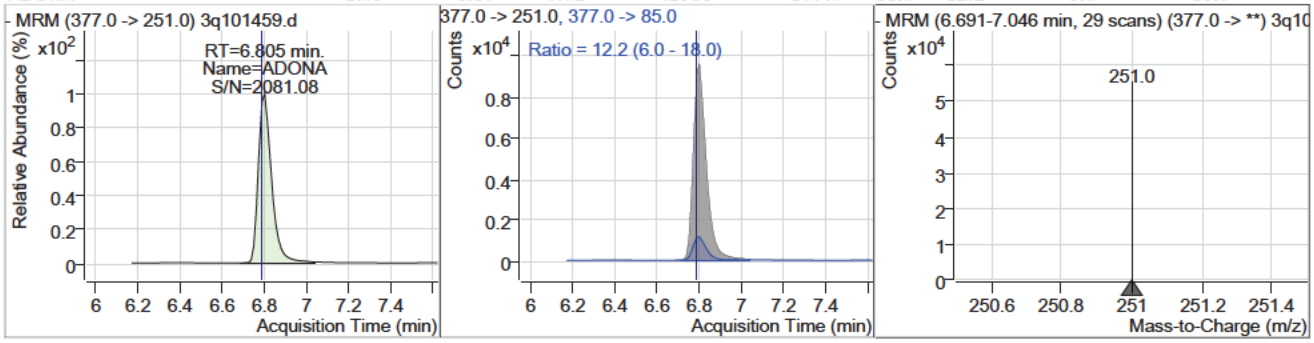
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.14	6.74	0.01	5688 (m)	399.0 -> 99.0	52.3	25.9	77.8



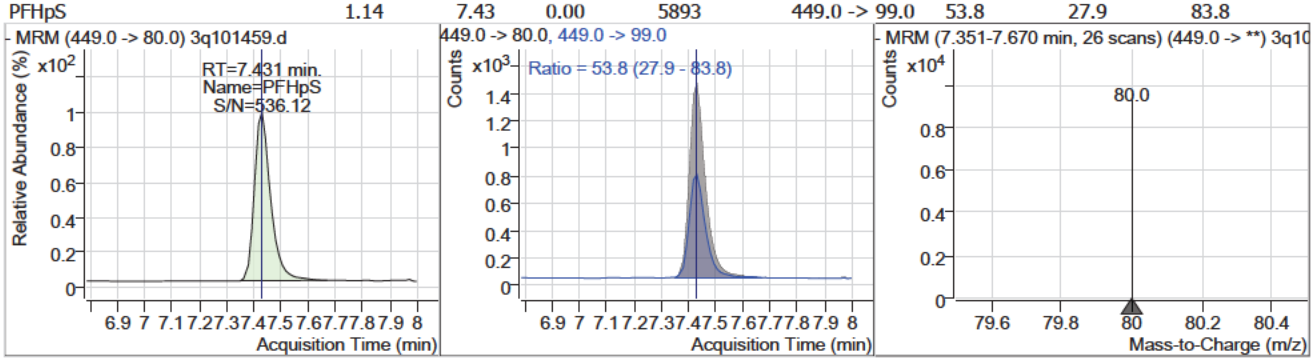
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	9.71	6.74	0.00	28281				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	1.09	6.80	0.01	41986	377.0 -> 85.0	12.2	6.0	18.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	1.14	7.43	0.00	5893	449.0 -> 99.0	53.8	27.9	83.8



7.7.3

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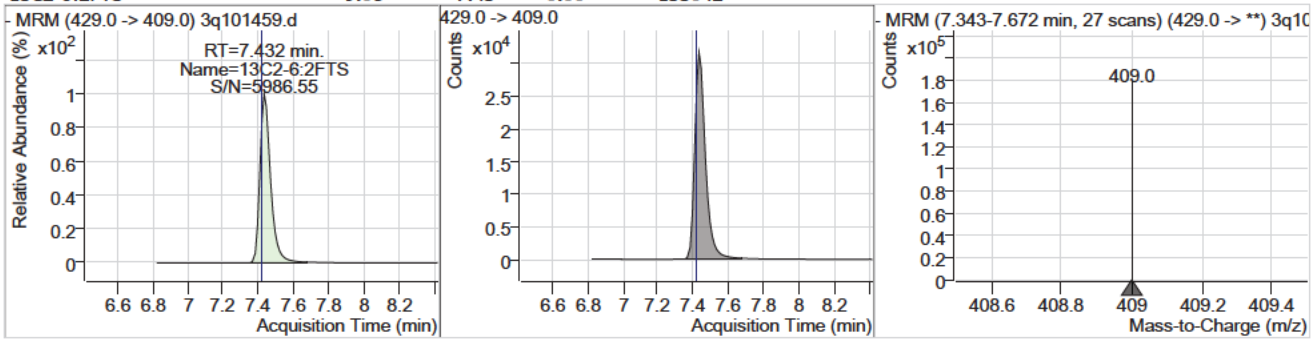
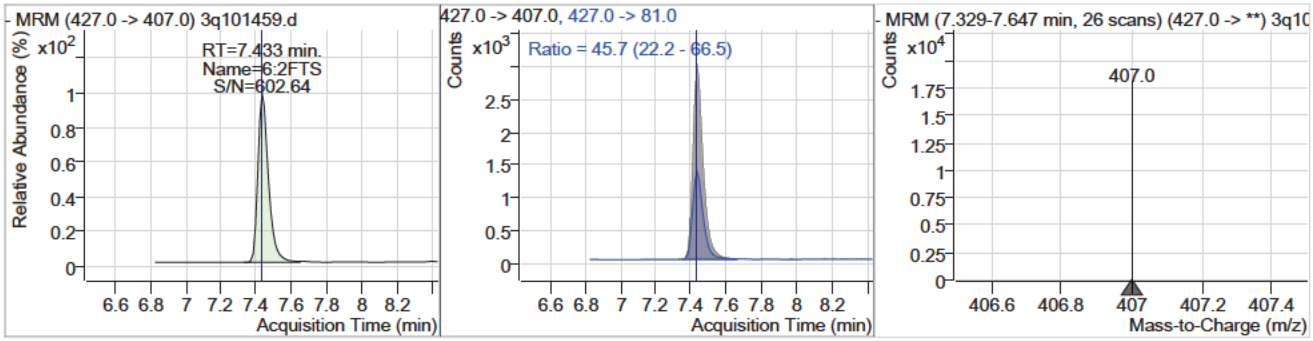
Perfluorinated Compounds by LC/MS/MS

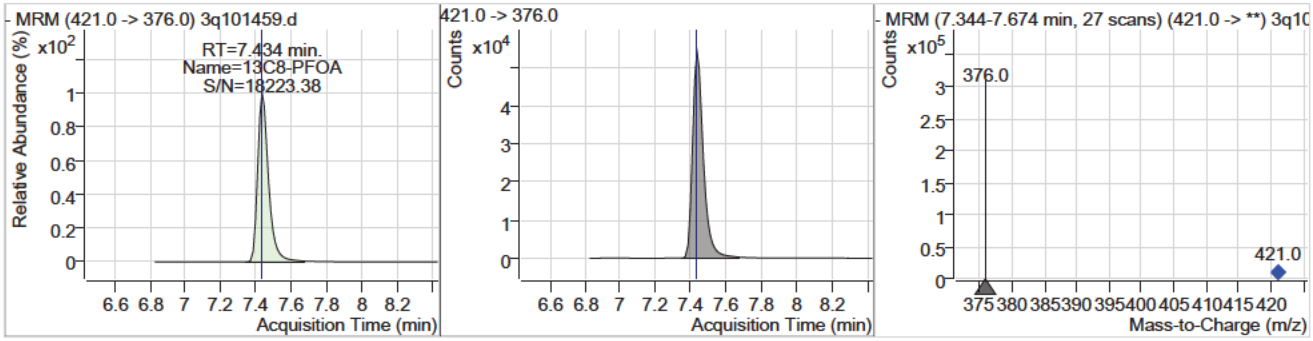
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	9.08	7.43	0.00	133042				



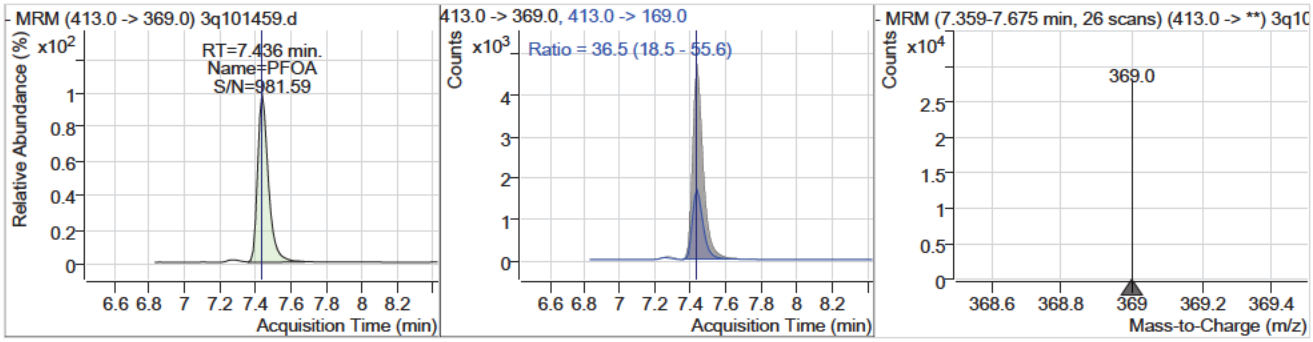
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.09	7.43	0.00	12435	427.0 -> 81.0	45.7	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	9.42	7.43	0.00	230930				

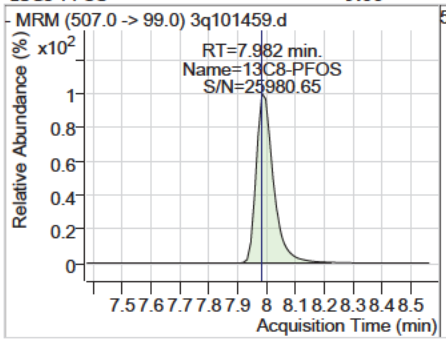


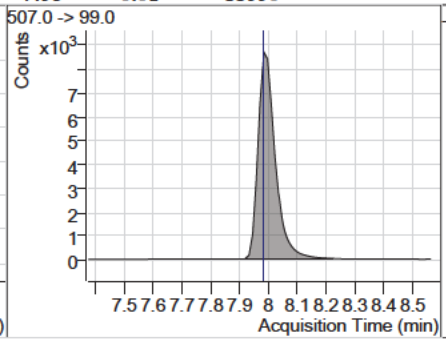
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.11	7.44	0.00	19824	413.0 -> 169.0	36.5	18.5	55.6

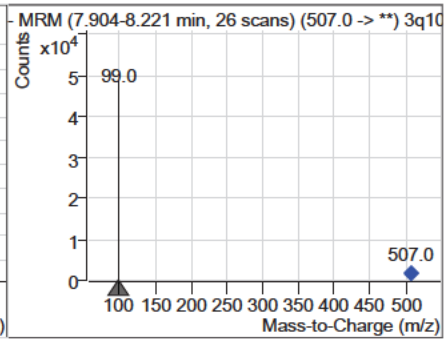


Perfluorinated Compounds by LC/MS/MS

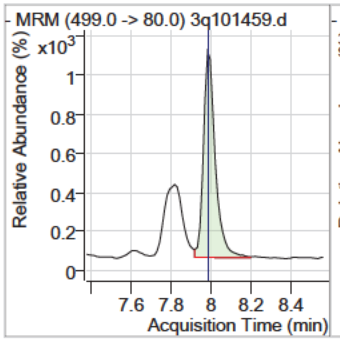
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	9.66	7.98	-0.01	35990				

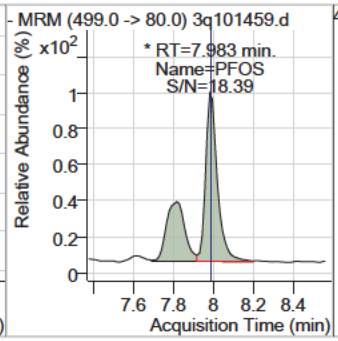


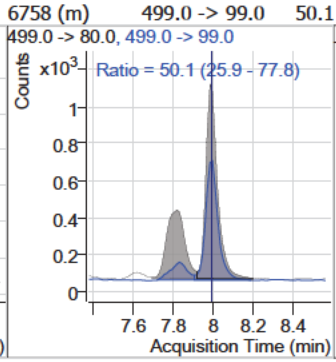


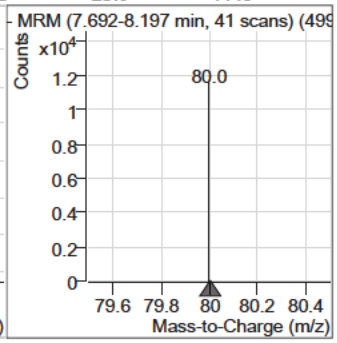


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.17	7.98	-0.01	6758 (m)	499.0 -> 99.0	50.1	25.9	77.8

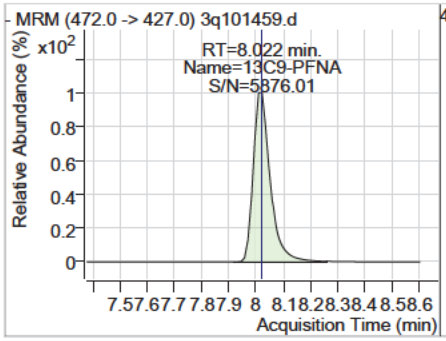


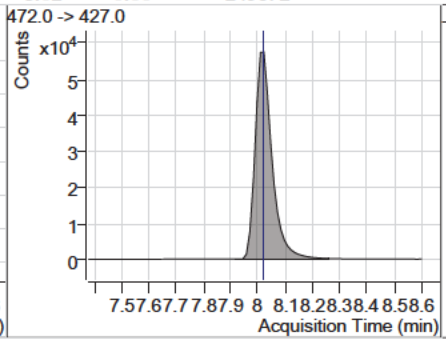


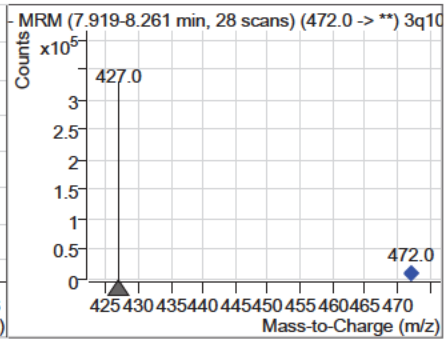




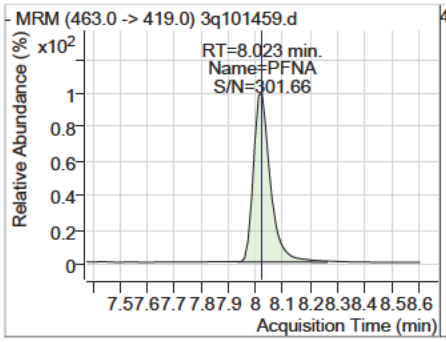
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	9.37	8.02	0.00	249672				

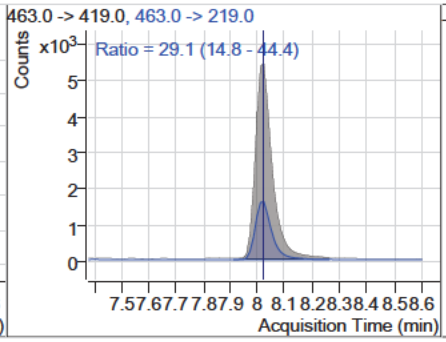


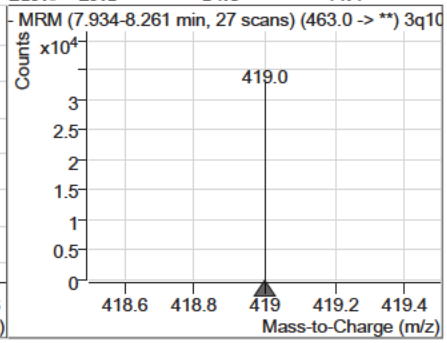




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.14	8.02	0.00	23364	463.0 -> 219.0	29.1	14.8	44.4

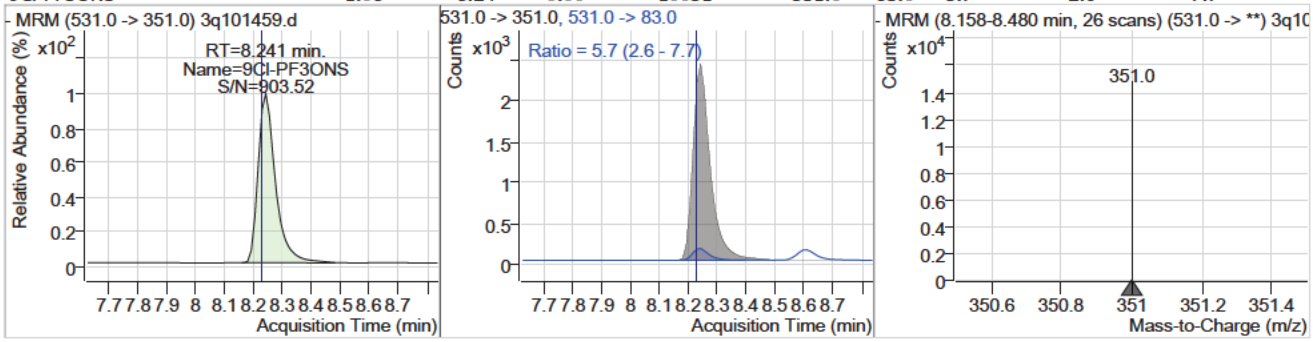




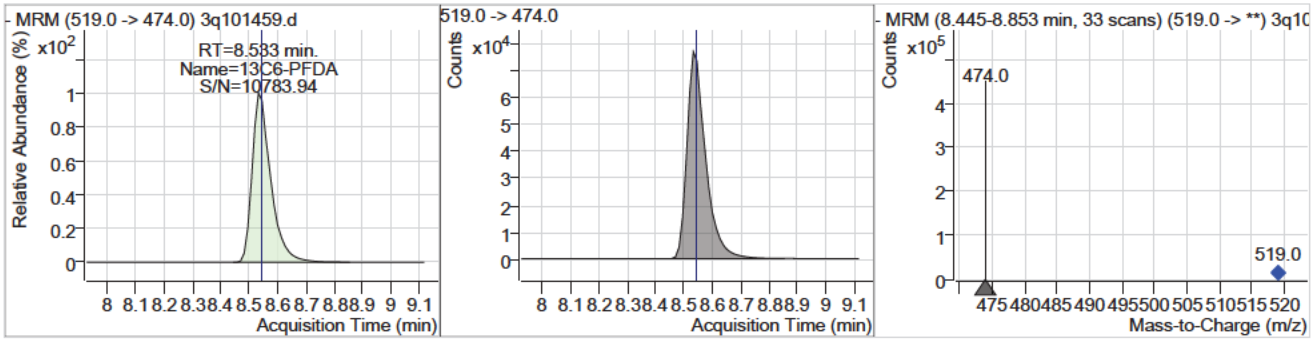


Perfluorinated Compounds by LC/MS/MS

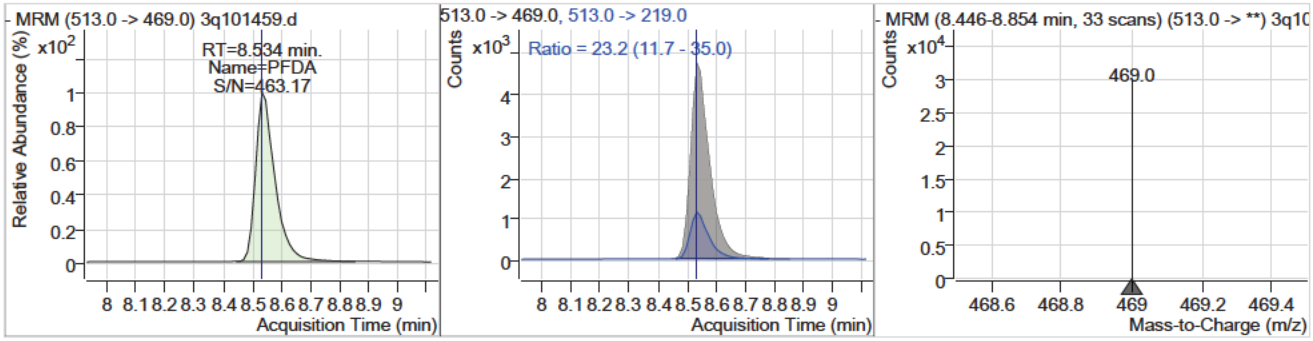
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	1.08	8.24	0.00	10051	531.0 -> 83.0	5.7	2.6	7.7



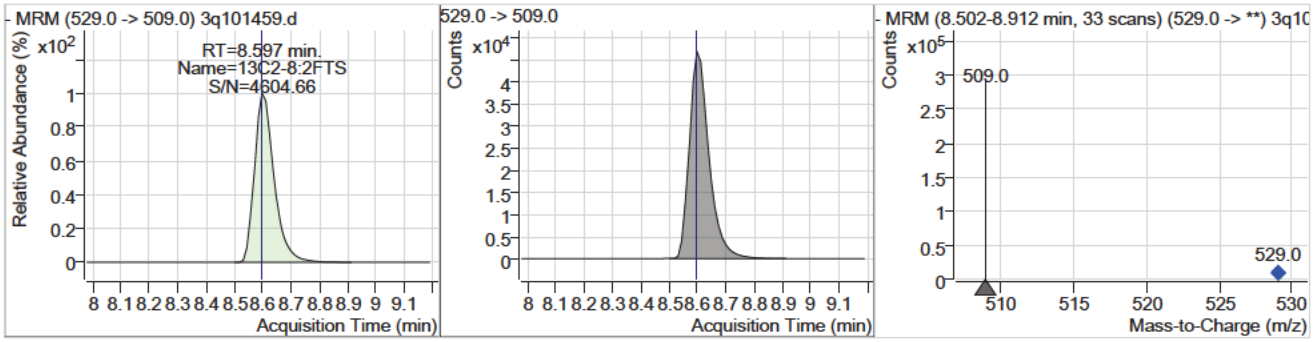
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	9.39	8.53	-0.01	350615				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.11	8.53	-0.01	21954	513.0 -> 219.0	23.2	11.7	35.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	9.14	8.60	-0.01	224256				

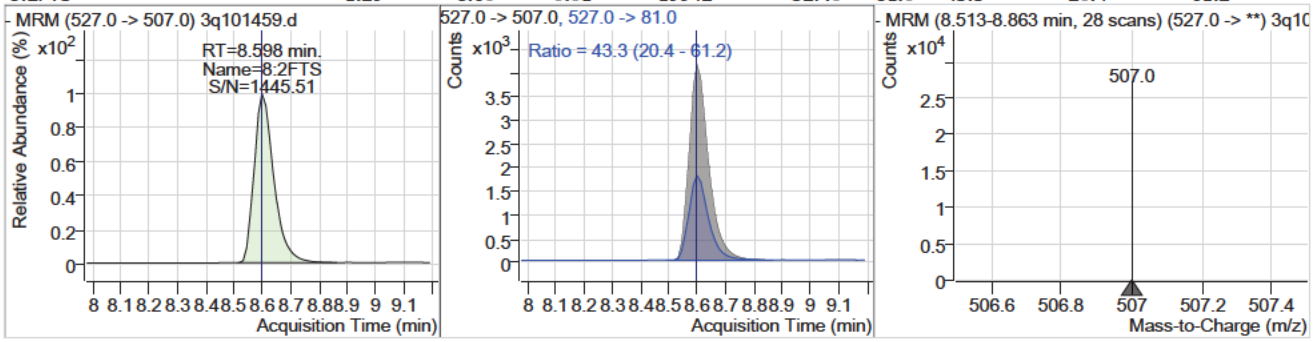


7.7.3

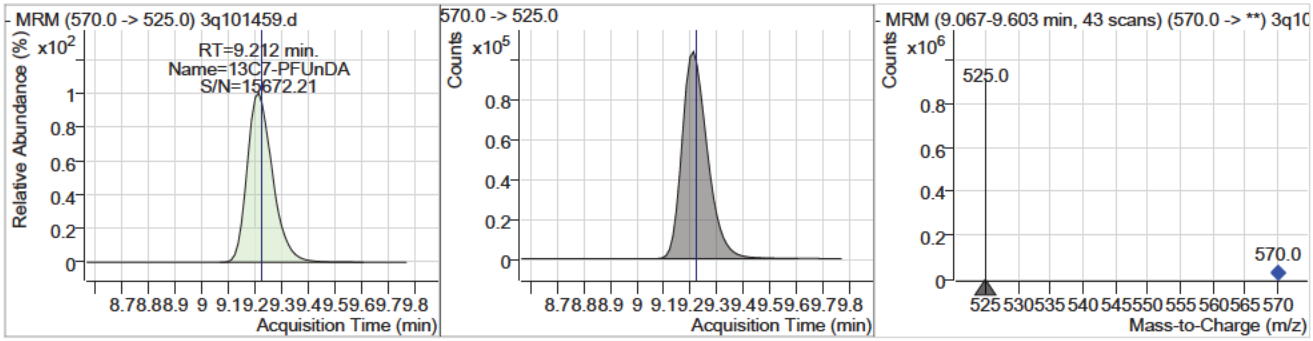
7

Perfluorinated Compounds by LC/MS/MS

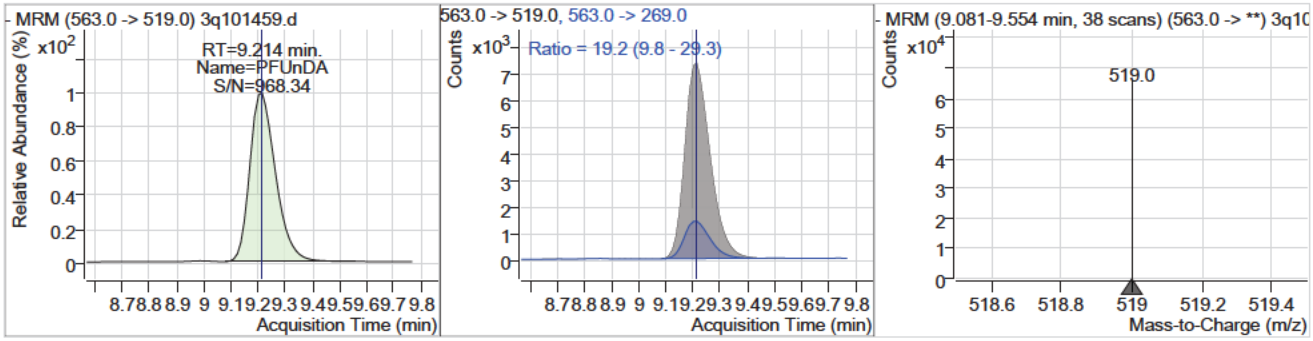
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	1.29	8.60	-0.01	19942	527.0 -> 81.0	43.3	20.4	61.2



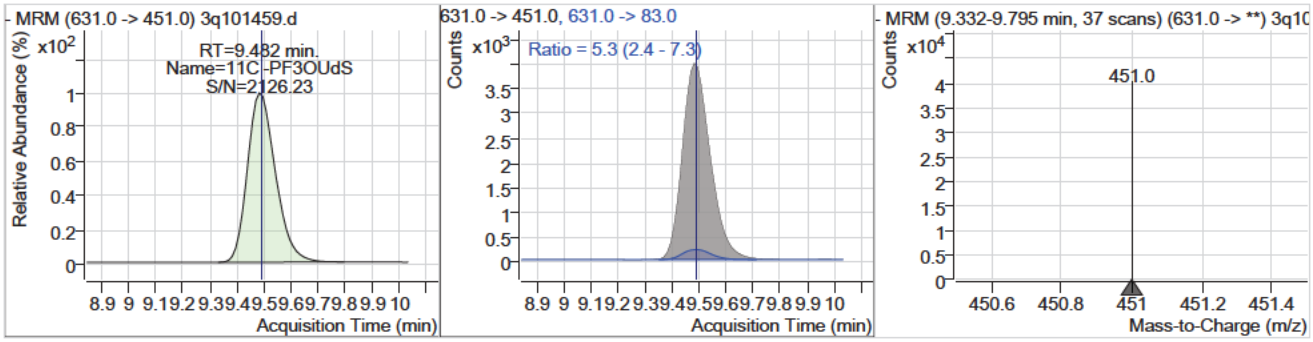
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	9.17	9.21	-0.01	683421				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.10	9.21	-0.01	48466	563.0 -> 269.0	19.2	9.8	29.3

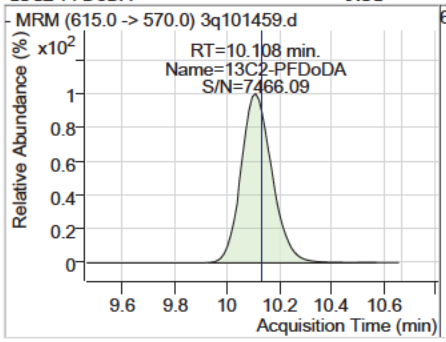


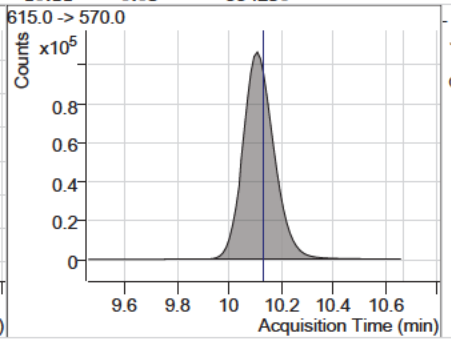
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	1.07	9.48	-0.03	28617	631.0 -> 83.0	5.3	2.4	7.3

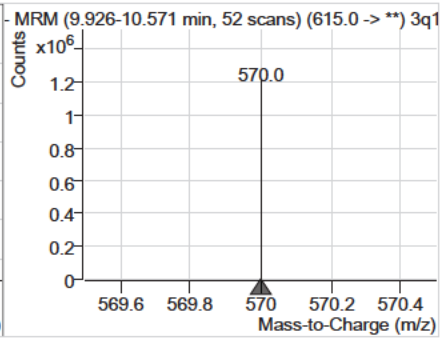


Perfluorinated Compounds by LC/MS/MS

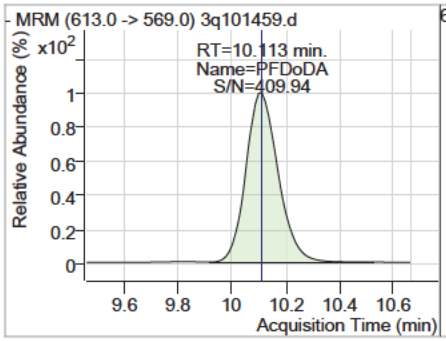
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	9.31	10.11	-0.03	884250				

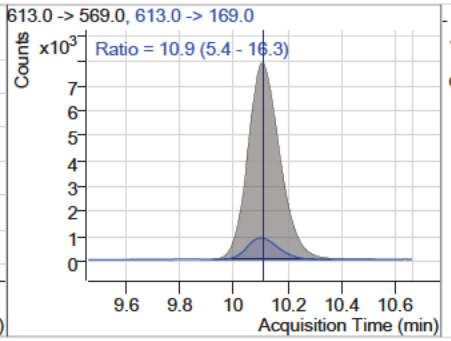


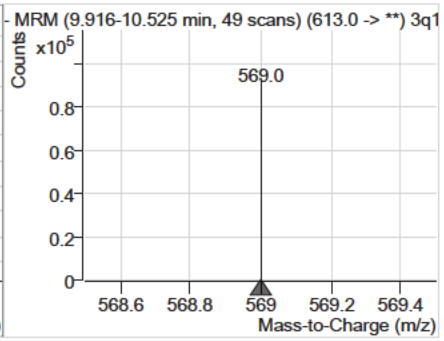




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	1.11	10.11	-0.03	65223	613.0 -> 169.0	10.9	5.4	16.3







7.7.3

7

Manual Integration Approval Summary

Sample Number: S3Q1492-IC1492
Lab FileID: 3Q101459.D
Injection Time: 04/15/25 14:20
Method: EPA 533
Analyst approved: 04/16/25 08:55 (b) (6) [redacted]
Supervisor approved: 04/17/25 11:42 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
HFPO-DA (GenX)	13252-13-6		6.07	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		6.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Cal Report: 3Q101460.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:42

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101460.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 2:36:07 PM
Sample Name : ic1492-2
Vial : P1-C4
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	7.435	415.0 -> 370.0	223241	10.00	µg/L	0.000
13C3-PFBA	2.357	216.0 -> 172.0	85042	10.00	µg/L	0.225
13C4-PFOS	7.983	503.0 -> 80.0	33237	10.00	µg/L	-0.013
M4-PFBA	2.352	217.0 -> 172.0	137554	10.00	µg/L	0.213
M5-PFPeA	4.425	268.0 -> 223.0	166839	10.00	µg/L	0.088
M5-PFHxA	5.776	318.0 -> 273.0	211403	10.00	µg/L	0.025
M4-PFHpA	6.706	367.0 -> 322.0	176464	10.00	µg/L	0.000
M8-PFOA	7.434	421.0 -> 376.0	233908	10.00	µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	247567	10.00	µg/L	-0.013
M6-PFDA	8.533	519.0 -> 474.0	337493	10.00	µg/L	-0.013
M7-PFUnDA	9.212	570.0 -> 525.0	677377	10.00	µg/L	-0.012
M2-PFDoDA	10.133	615.0 -> 570.0	888748	10.00	µg/L	0.000
M3-PFBS	4.721	302.0 -> 99.0	19515	10.00	µg/L	0.075
M3-PFHxS	6.736	402.0 -> 99.0	27470	10.00	µg/L	0.000
M8-PFOS	7.982	507.0 -> 99.0	35567	10.00	µg/L	-0.013
M2-4:2FTS	5.684	329.0 -> 309.0	68901	10.00	µg/L	0.038
M2-6:2FTS	7.432	429.0 -> 409.0	133670	10.00	µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	221002	10.00	µg/L	-0.014
M3-HFPO-DA	6.068	287.0 -> 169.0	2637	10.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.684	329.0 -> 309.0	68901	8.71	µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 87.1%		
13C2-6:2FTS	7.432	429.0 -> 409.0	133670	9.00	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.0%		
13C2-8:2FTS	8.597	529.0 -> 509.0	221002	8.88	µg/L	-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.8%		
13C2-PFDoDA	10.133	615.0 -> 570.0	888748	9.35	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.5%		
13C3-PFBS	4.721	302.0 -> 99.0	19515	9.41	µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.1%		
13C3-PFHxS	6.736	402.0 -> 99.0	27470	9.30	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.0%		
13C4-PFBA	2.352	217.0 -> 172.0	137554	9.53	µg/L	0.213
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.3%		
13C4-PFHpA	6.706	367.0 -> 322.0	176464	9.34	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.4%		
13C5-PFHxA	5.776	318.0 -> 273.0	211403	9.35	µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.5%		
13C5-PFPeA	4.425	268.0 -> 223.0	166839	9.59	µg/L	0.088
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.9%		
13C6-PFDA	8.533	519.0 -> 474.0	337493	9.04	µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.4%		
13C7-PFUnDA	9.212	570.0 -> 525.0	677377	9.08	µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.8%		
13C8-PFOA	7.434	421.0 -> 376.0	233908	9.54	µg/L	0.000

7.7.4

7

Perfluorinated Compounds by LC/MS/MS

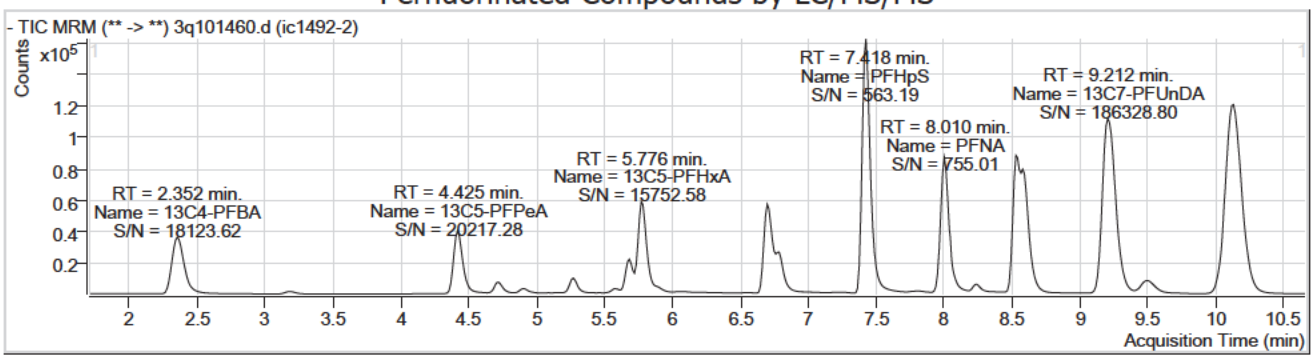
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.4%		
13C8-PFOS	7.982	507.0 -> 99.0	35567	9.41 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.1%		
13C9-PFNA	8.010	472.0 -> 427.0	247567	9.29 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.9%		
13C3-HFPO-DA	6.068	287.0 -> 169.0	2637	8.11 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.1%		
Target Compounds						QValue
PFMPA	3.178	229.0 -> 85.0	9466	2.13 µg/L		100
4:2FTS	5.686	327.0 -> 307.0	16873	2.02 µg/L		97
		327.0 -> 81.0	7524			
6:2FTS	7.433	427.0 -> 407.0	23147	2.03 µg/L		100
		427.0 -> 81.0	10276			
8:2FTS	8.598	527.0 -> 507.0	36588	2.41 µg/L		98
		527.0 -> 81.0	15341			
PFMBA	4.913	279.0 -> 85.0	12890	2.10 µg/L		100
PFEESA	5.274	315.0 -> 135.0	36903	2.10 µg/L		100
		315.0 -> 69.0	2842			
NFDHA	5.594	201.0 -> 85.0	11258	2.13 µg/L		98
		295.0 -> 201.0	809			
PFBA	2.361	213.0 -> 169.0	8011	2.11 µg/L		100
PFBS	4.722	299.0 -> 80.0	7777	1.97 µg/L		94
		299.0 -> 99.0	3565			
PFDA	8.534	513.0 -> 469.0	40246	2.11 µg/L		99
		513.0 -> 219.0	9173			
PFDoDA	10.125	613.0 -> 569.0	123971	2.10 µg/L		100
		613.0 -> 169.0	13284			
PFHpA	6.708	363.0 -> 319.0	51966	2.10 µg/L		100
		363.0 -> 169.0	4317			
PFHpS	7.418	449.0 -> 80.0	11185	2.22 µg/L		97
		449.0 -> 99.0	6007			
PFHxA	5.778	313.0 -> 269.0	41941	2.11 µg/L		99
		313.0 -> 119.0	1548			
PFHxS	6.738	399.0 -> 80.0	10297	2.13 µg/L	m	97
		399.0 -> 99.0	5561			
PFNA	8.010	463.0 -> 419.0	43280	2.13 µg/L		99
		463.0 -> 219.0	12676			
PFOA	7.436	413.0 -> 369.0	37916	2.10 µg/L		98
		413.0 -> 169.0	14411			
PFOS	7.983	499.0 -> 80.0	12249	2.15 µg/L	m	99
		499.0 -> 99.0	6273			
PFPeA	4.427	263.0 -> 219.0	26850	2.13 µg/L		100
PFPeS	5.896	349.0 -> 80.0	6034	2.15 µg/L		98
		349.0 -> 99.0	2627			
PFUnDA	9.214	563.0 -> 519.0	91166	2.09 µg/L		100
		563.0 -> 269.0	17874			
11Cl-PF3OUdS	9.495	631.0 -> 451.0	54331	2.06 µg/L		99
		631.0 -> 83.0	2798			
9Cl-PF3ONS	8.241	531.0 -> 351.0	18575	2.03 µg/L		99
		531.0 -> 83.0	913			
ADONA	6.792	377.0 -> 251.0	79005	2.07 µg/L		99
		377.0 -> 85.0	9674			
HFPO-DA	6.073	329.0 -> 169.0	129	1.97 µg/L	m	85
		285.0 -> 169.0	345			

= Qualifier out of range, m = manually integrated, + = Area summed

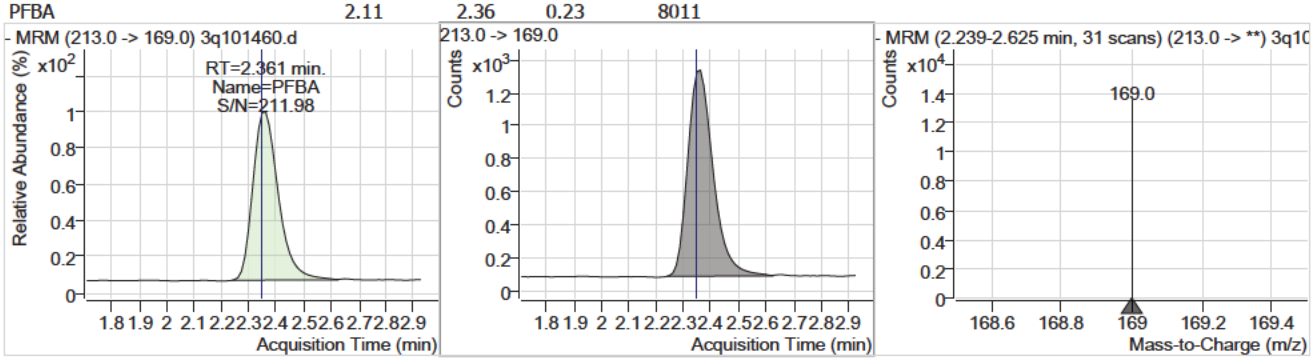
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)

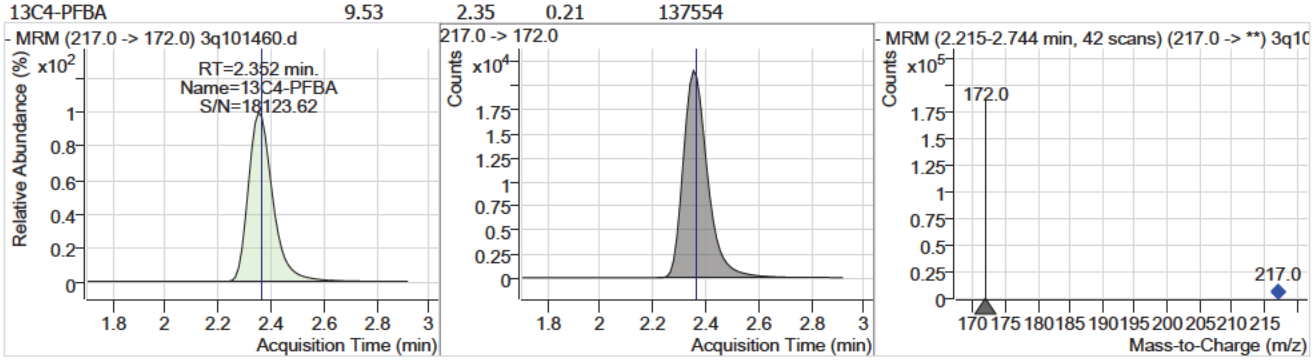
Perfluorinated Compounds by LC/MS/MS



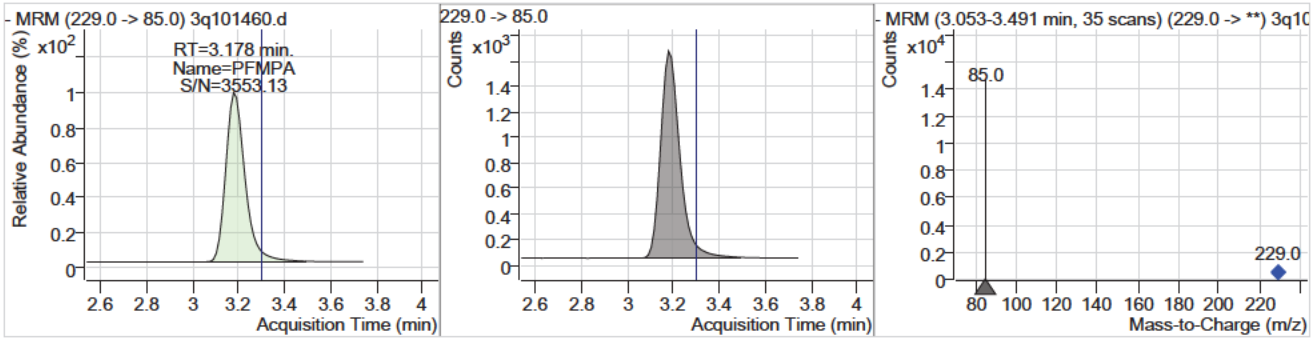
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	2.11	2.36	0.23	8011				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	9.53	2.35	0.21	137554				

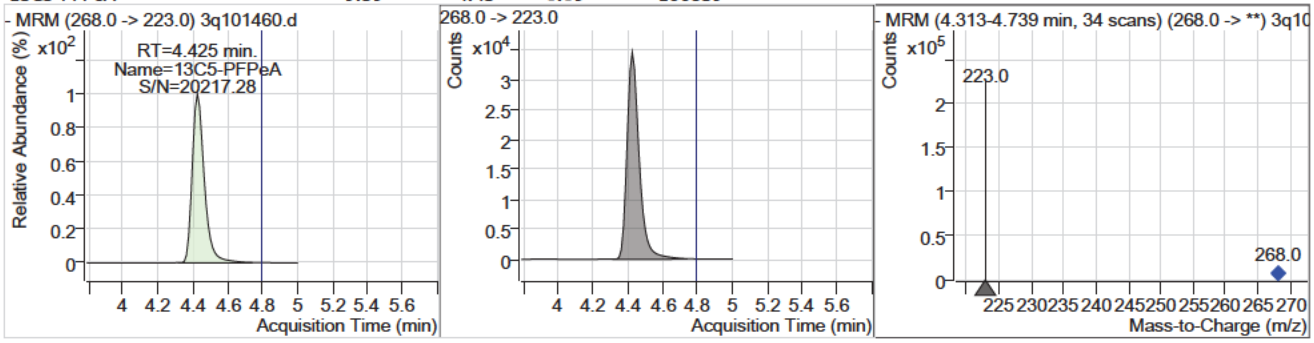


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	2.13	3.18	0.18	9466				

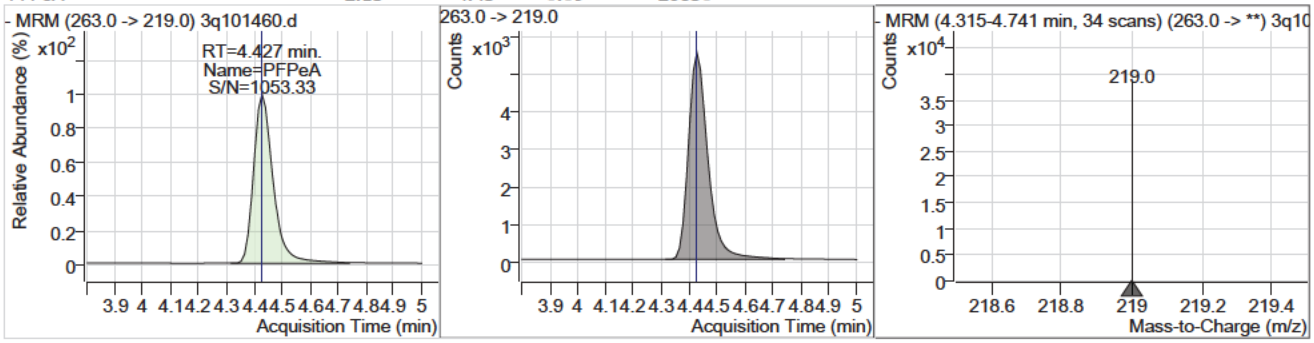


Perfluorinated Compounds by LC/MS/MS

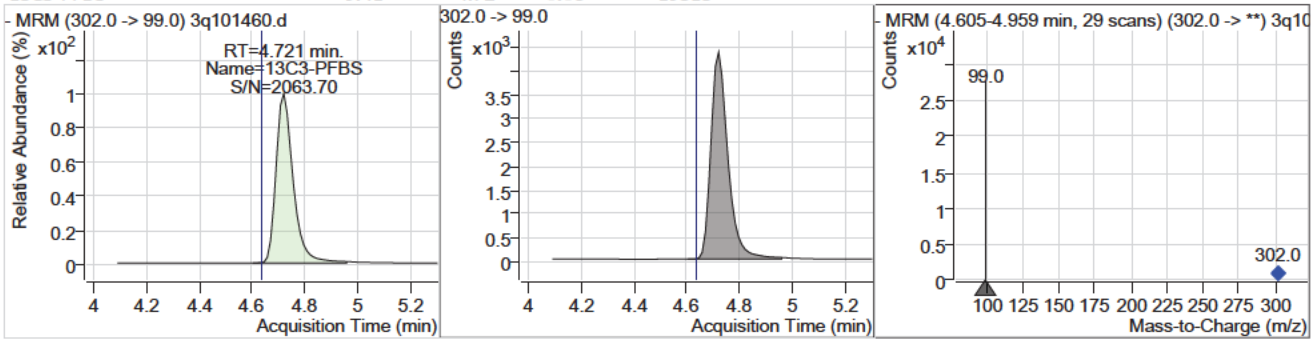
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	9.59	4.43	0.09	166839				



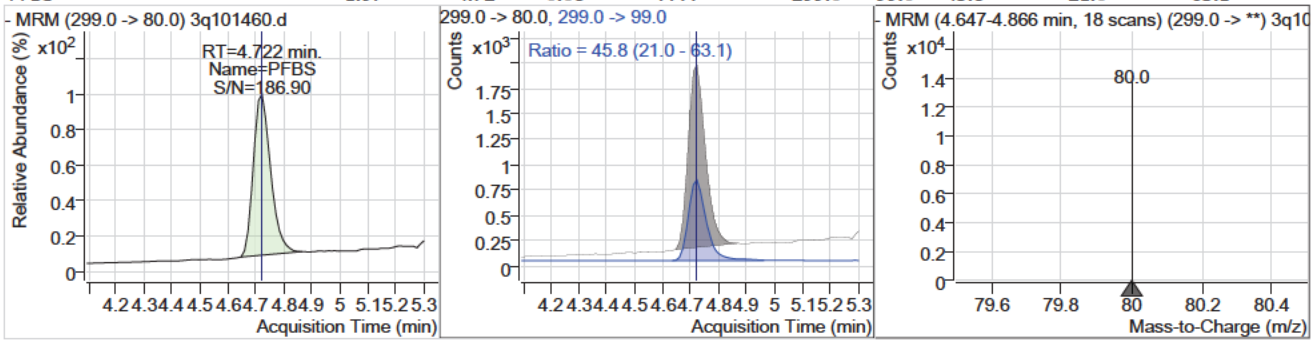
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	2.13	4.43	0.09	26850				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	9.41	4.72	0.08	19515				

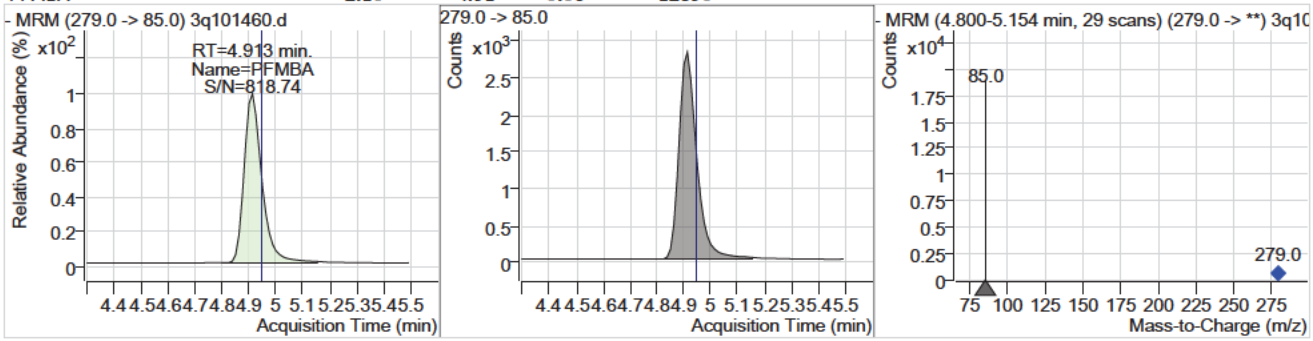


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.97	4.72	0.08	7777	299.0 -> 99.0	45.8	21.0	63.1

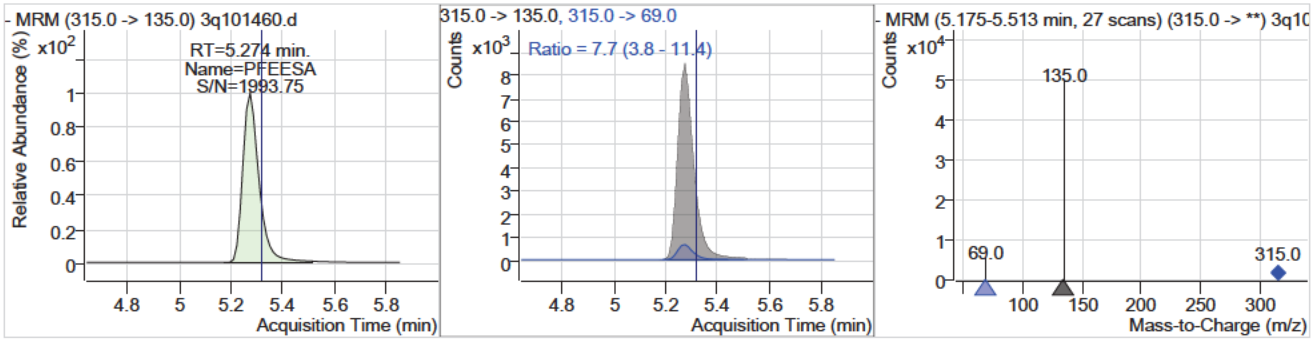


Perfluorinated Compounds by LC/MS/MS

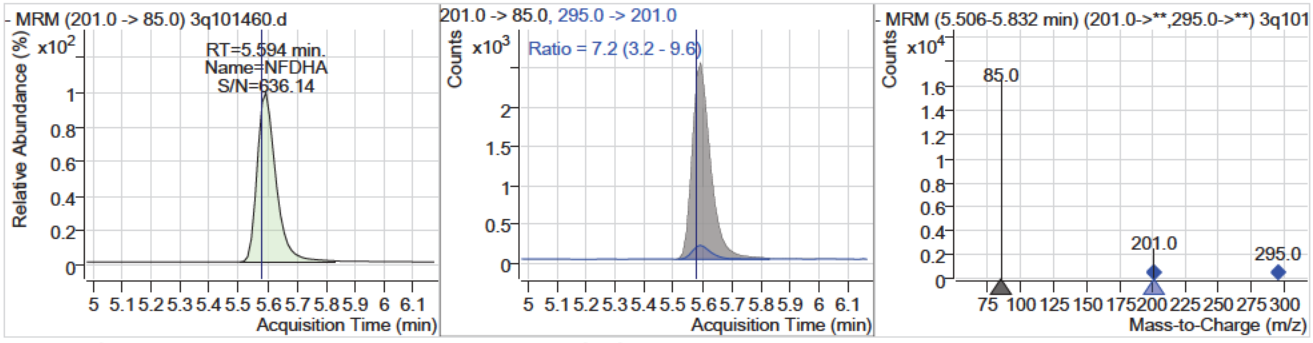
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	2.10	4.91	0.06	12890				



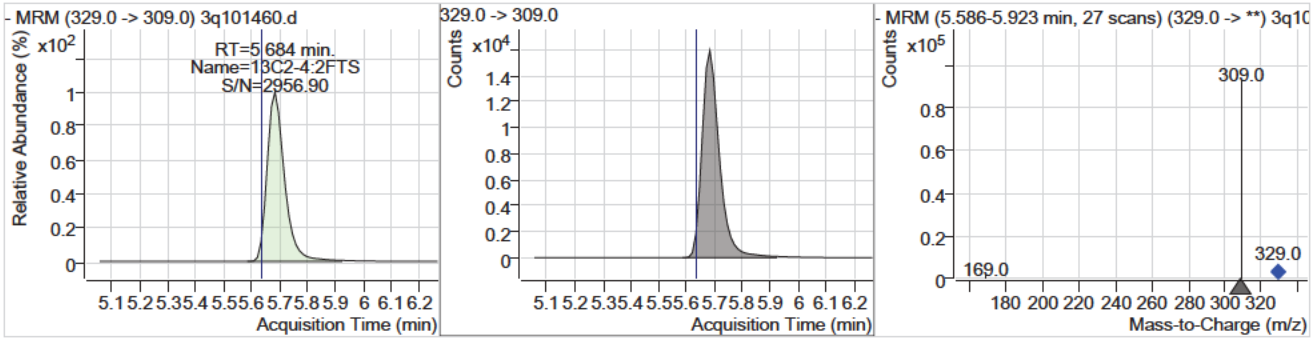
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	2.10	5.27	0.04	36903	315.0 -> 69.0	7.7	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	2.13	5.59	0.04	11258	295.0 -> 201.0	7.2	3.2	9.6

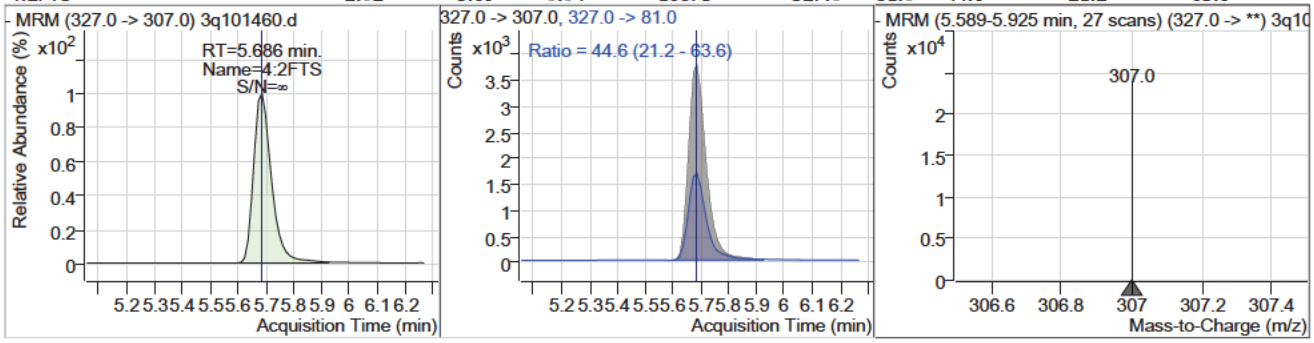


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	8.71	5.68	0.04	68901				

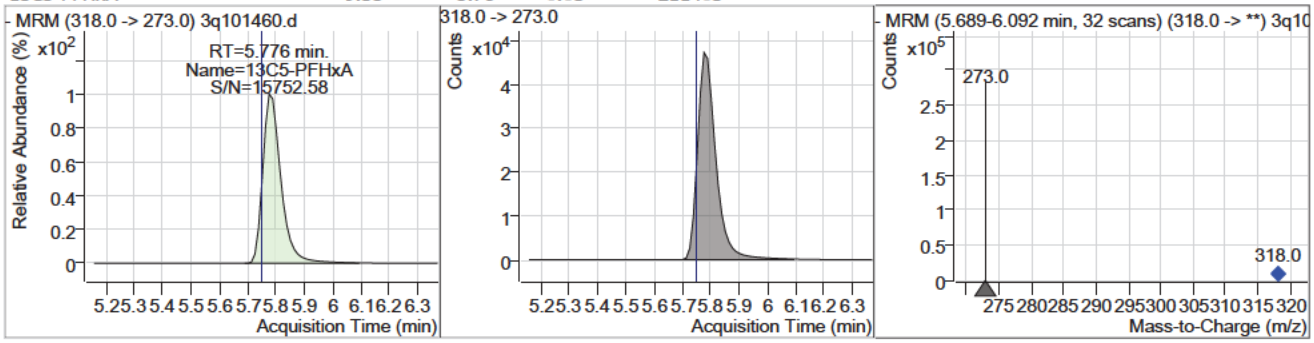


Perfluorinated Compounds by LC/MS/MS

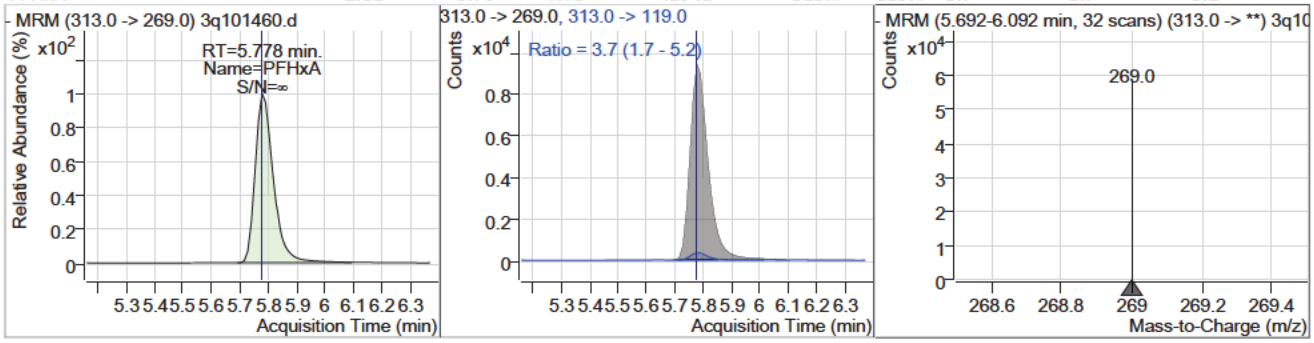
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	2.02	5.69	0.04	16873	327.0 -> 81.0	44.6	21.2	63.6



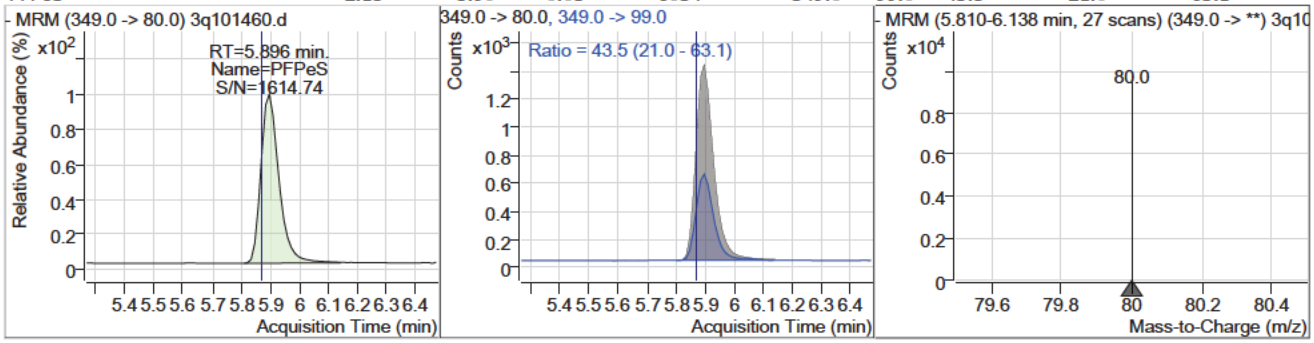
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	9.35	5.78	0.03	211403				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.11	5.78	0.03	41941	313.0 -> 119.0	3.7	1.7	5.2

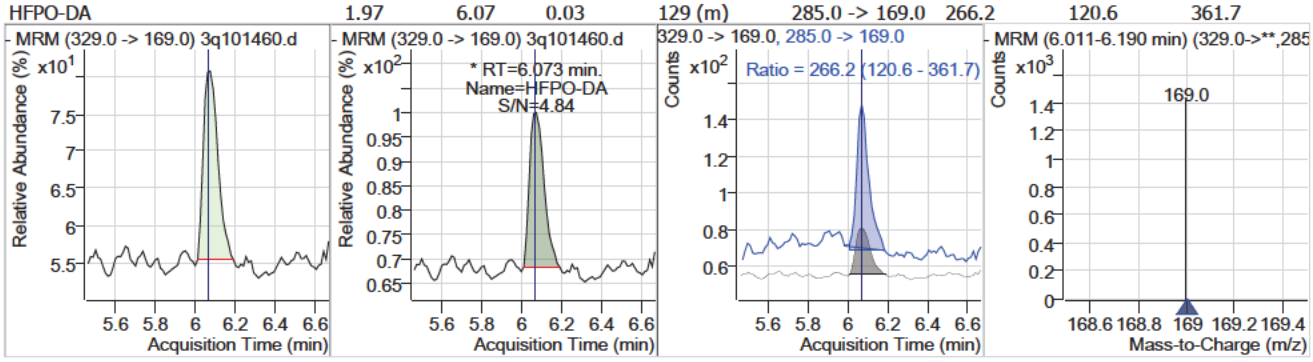


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.15	5.90	0.03	6034	349.0 -> 99.0	43.5	21.0	63.1

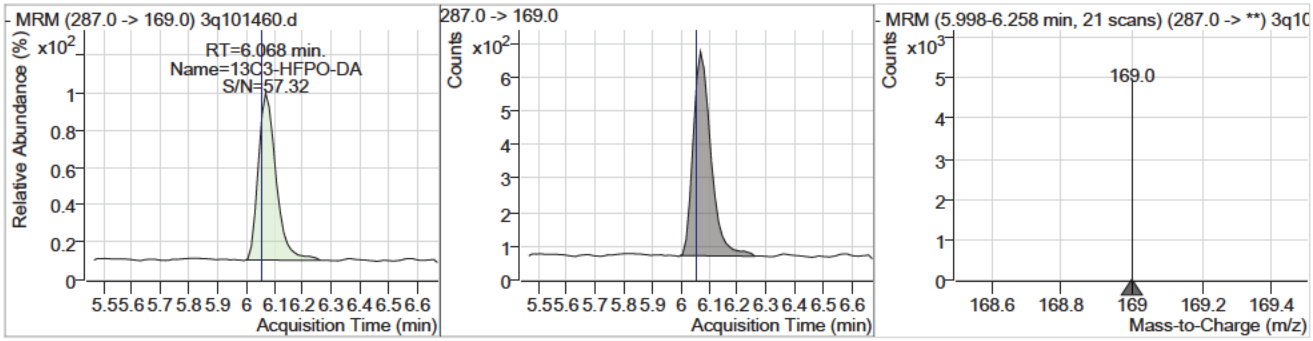


Perfluorinated Compounds by LC/MS/MS

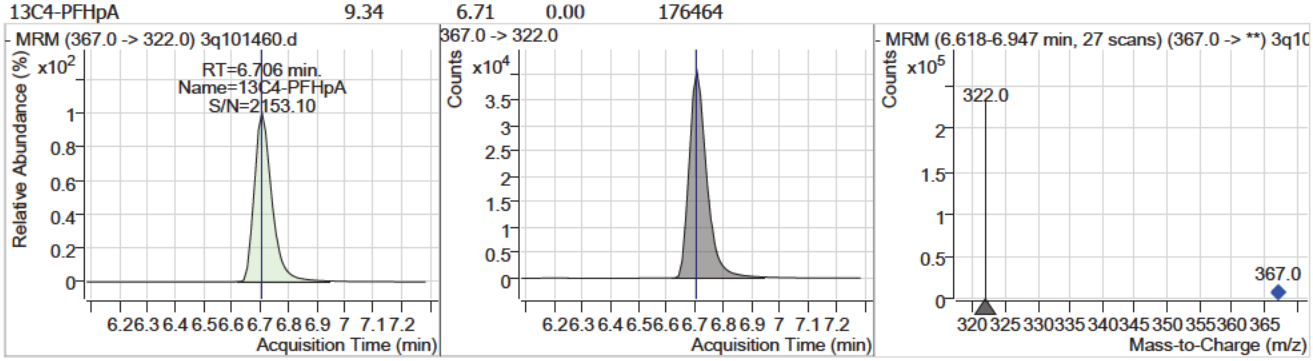
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	1.97	6.07	0.03	129 (m)	285.0 -> 169.0	266.2	120.6	361.7



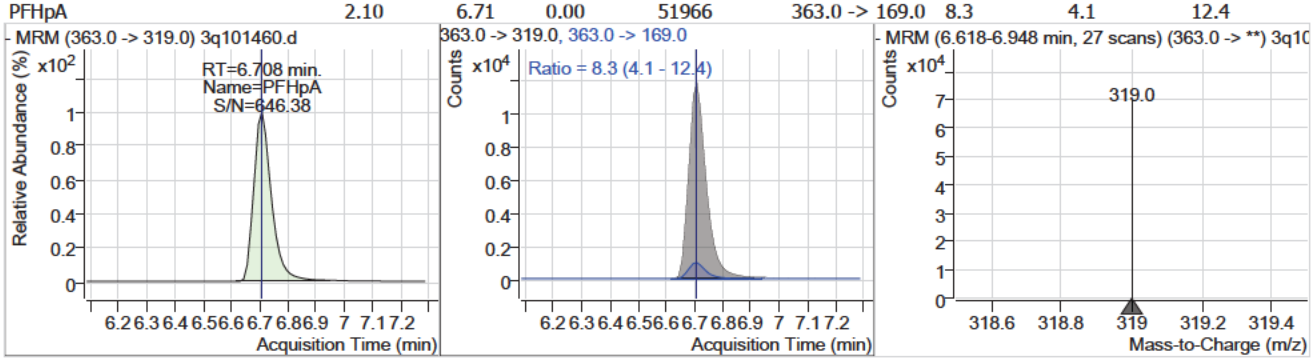
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.11	6.07	0.01	2637				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	9.34	6.71	0.00	176464				

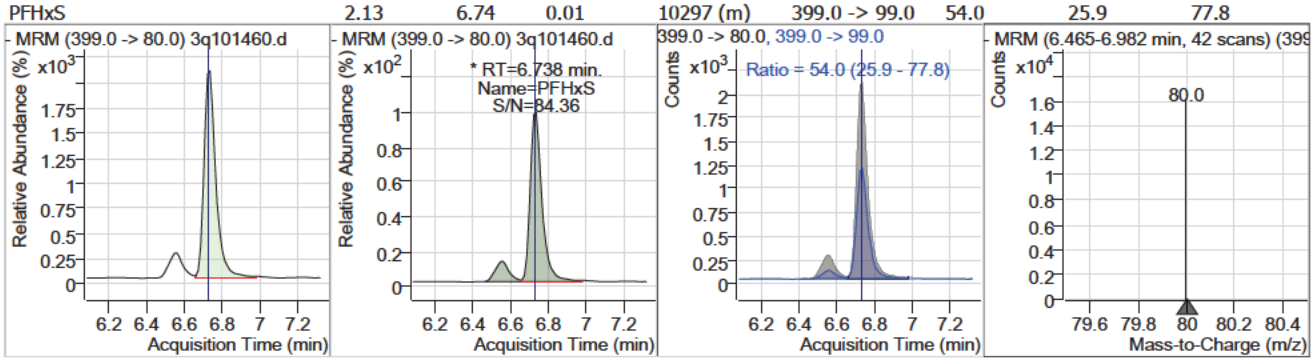


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.10	6.71	0.00	51966	363.0 -> 169.0	8.3	4.1	12.4

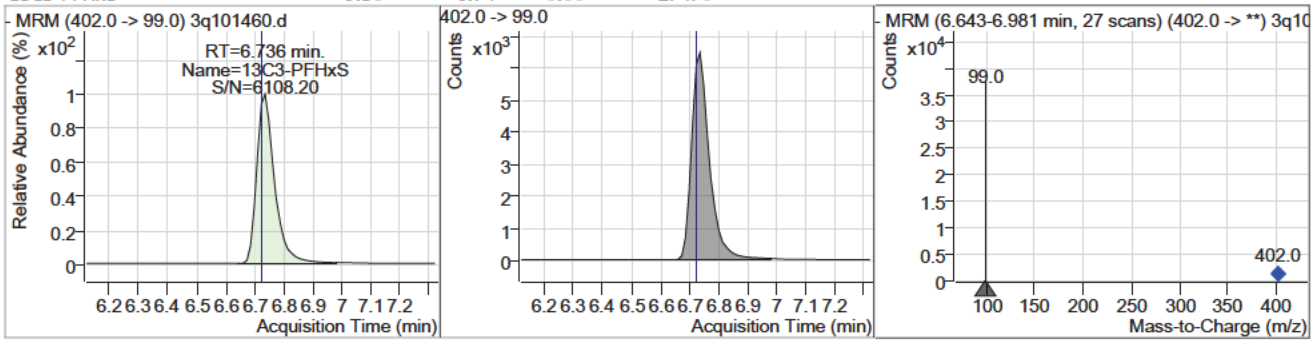


Perfluorinated Compounds by LC/MS/MS

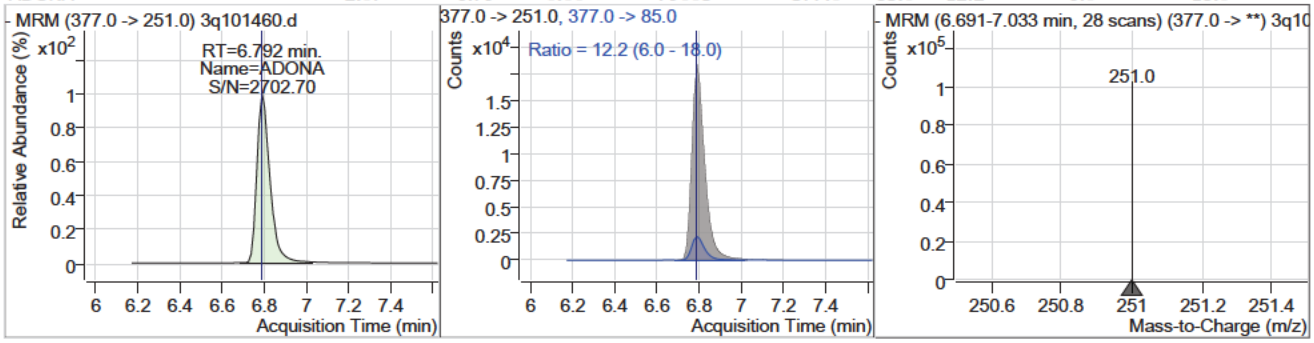
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.13	6.74	0.01	10297 (m)	399.0 -> 99.0	54.0	25.9	77.8



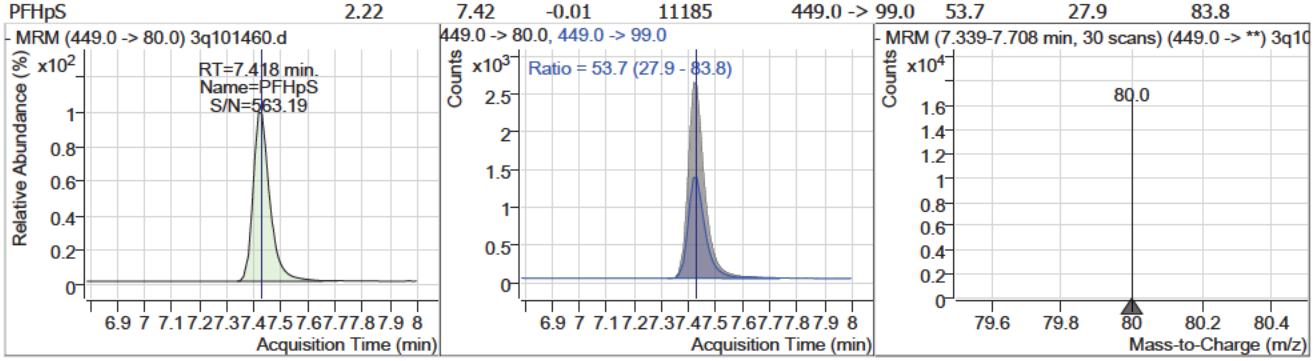
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	9.30	6.74	0.00	27470				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	2.07	6.79	0.00	79005	377.0 -> 85.0	12.2	6.0	18.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.22	7.42	-0.01	11185	449.0 -> 99.0	53.7	27.9	83.8

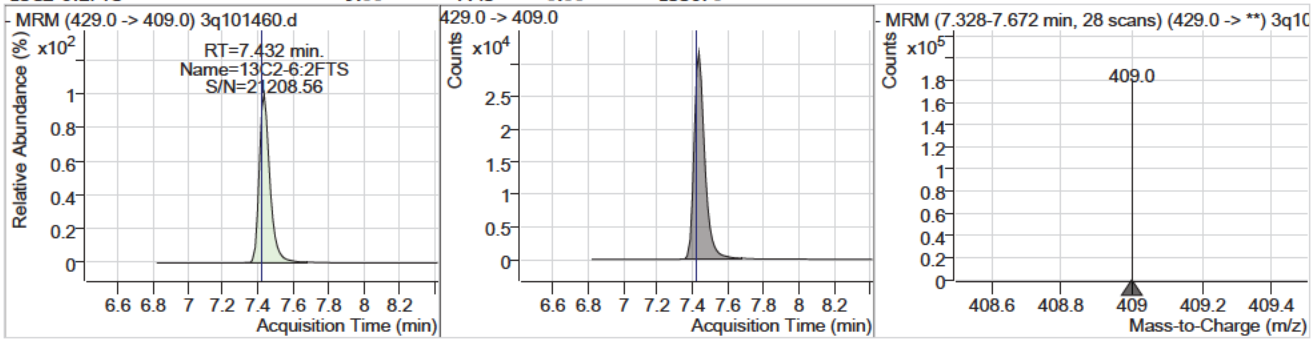


7.7.4

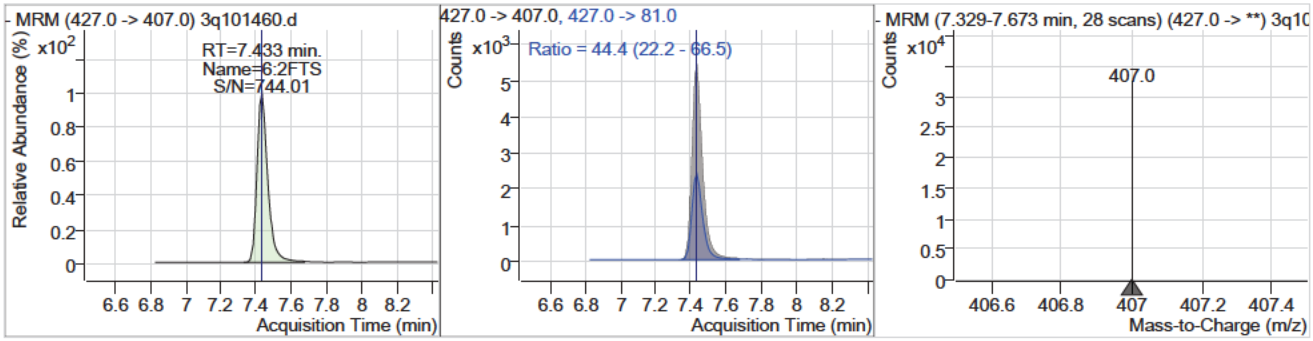
7

Perfluorinated Compounds by LC/MS/MS

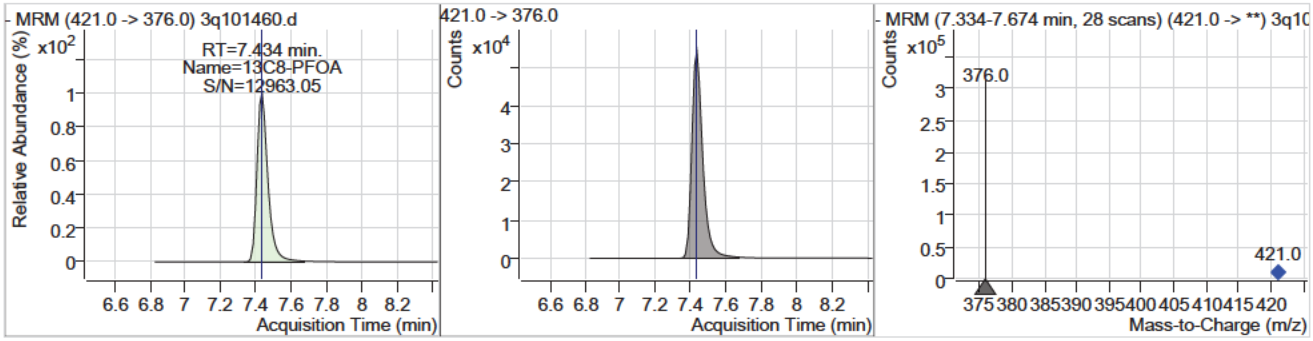
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	9.00	7.43	0.00	133670				



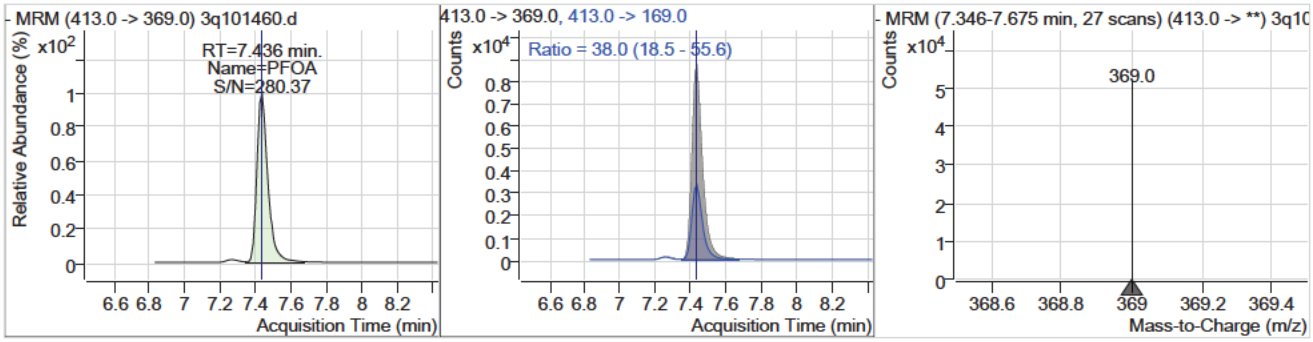
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	2.03	7.43	0.00	23147	427.0 -> 81.0	44.4	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	9.54	7.43	0.00	233908				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	2.10	7.44	0.00	37916	413.0 -> 169.0	38.0	18.5	55.6

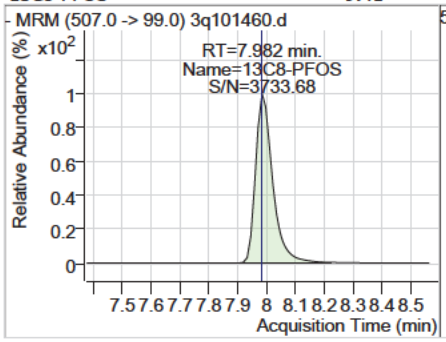


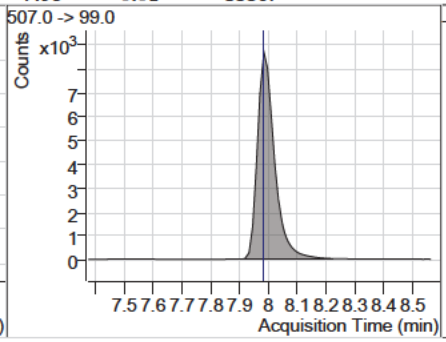
7.7.4

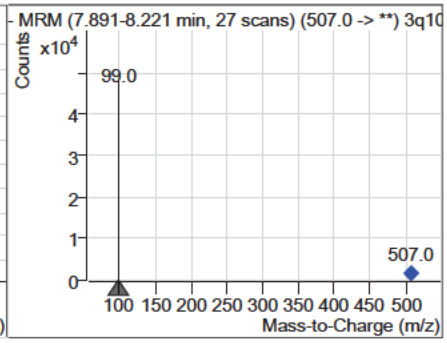
7

Perfluorinated Compounds by LC/MS/MS

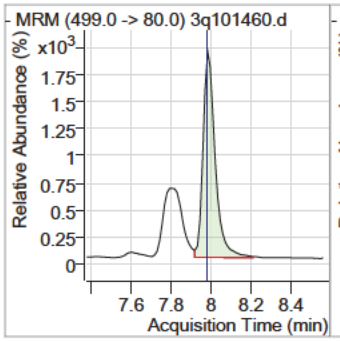
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	9.41	7.98	-0.01	35567				

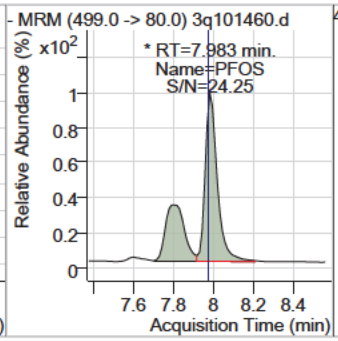


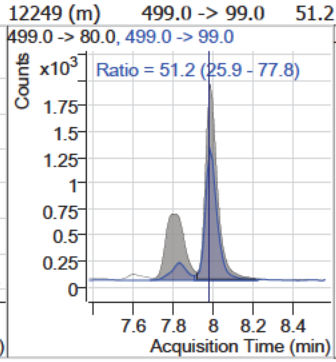


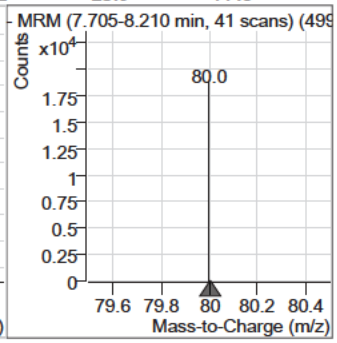


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.15	7.98	-0.01	12249 (m)	499.0 -> 99.0	51.2	25.9	77.8

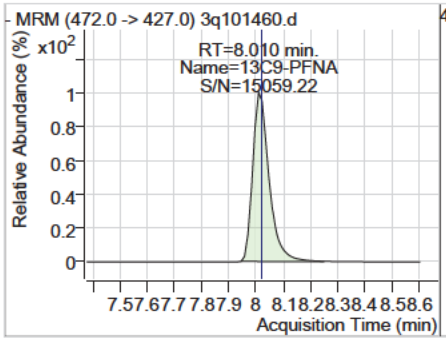


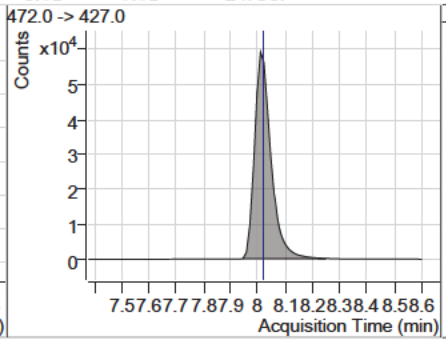


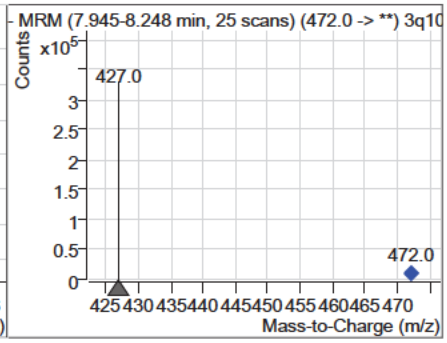




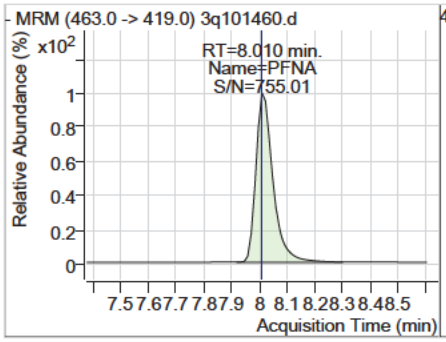
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	9.29	8.01	-0.01	247567				

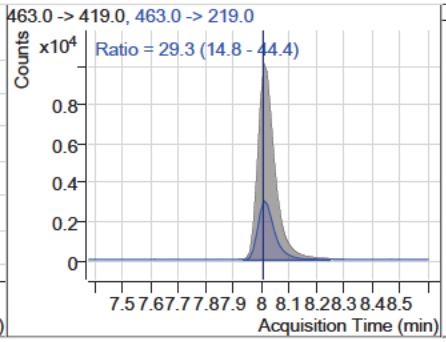


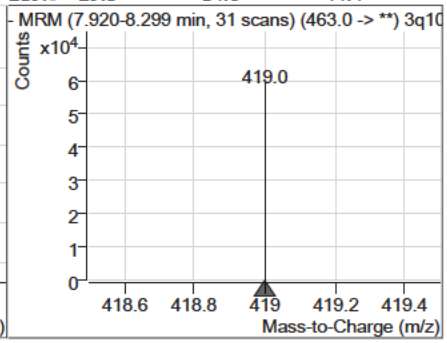




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.13	8.01	-0.01	43280	463.0 -> 219.0	29.3	14.8	44.4

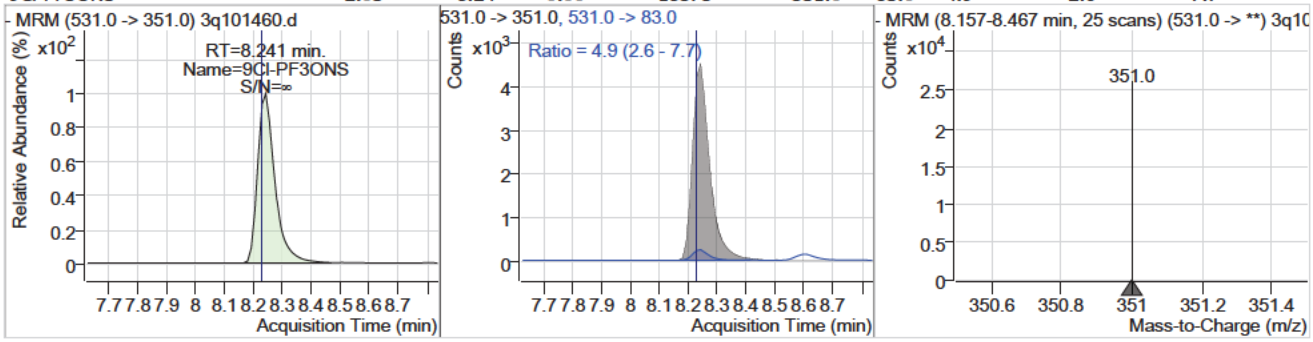




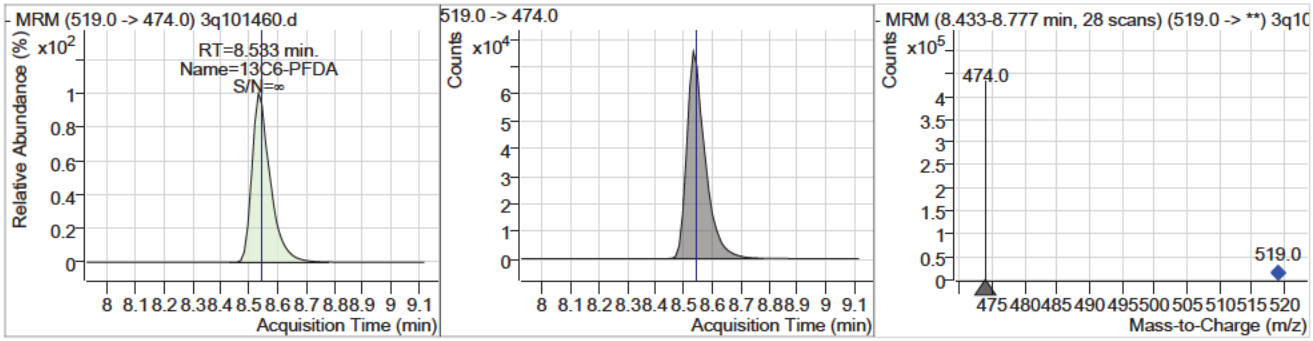


Perfluorinated Compounds by LC/MS/MS

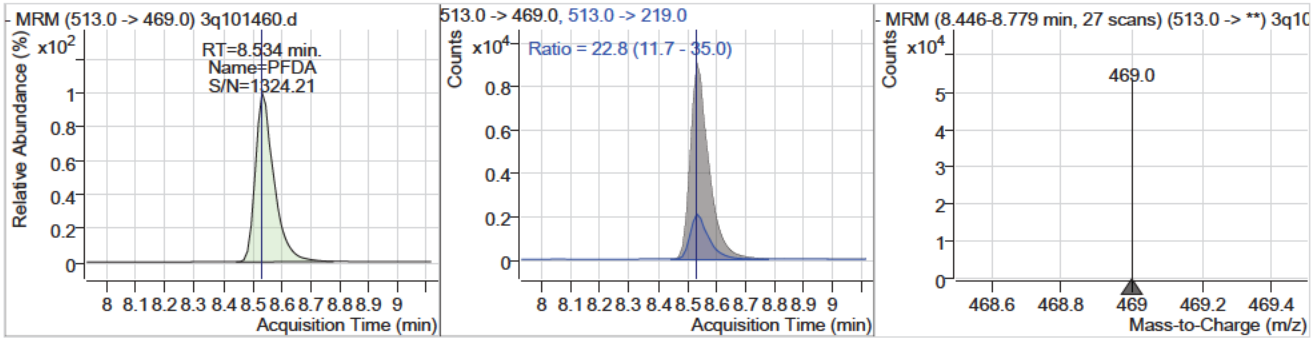
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	2.03	8.24	0.00	18575	531.0 -> 83.0	4.9	2.6	7.7



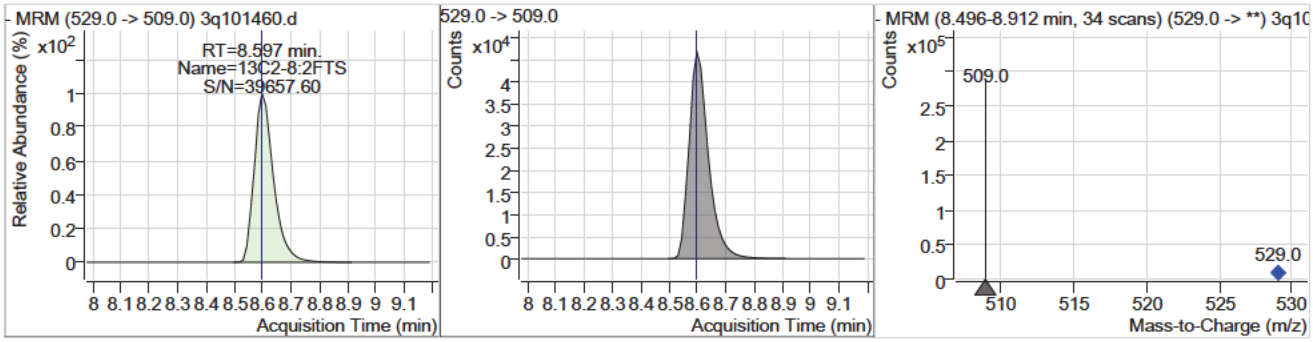
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	9.04	8.53	-0.01	337493				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.11	8.53	-0.01	40246	513.0 -> 219.0	22.8	11.7	35.0

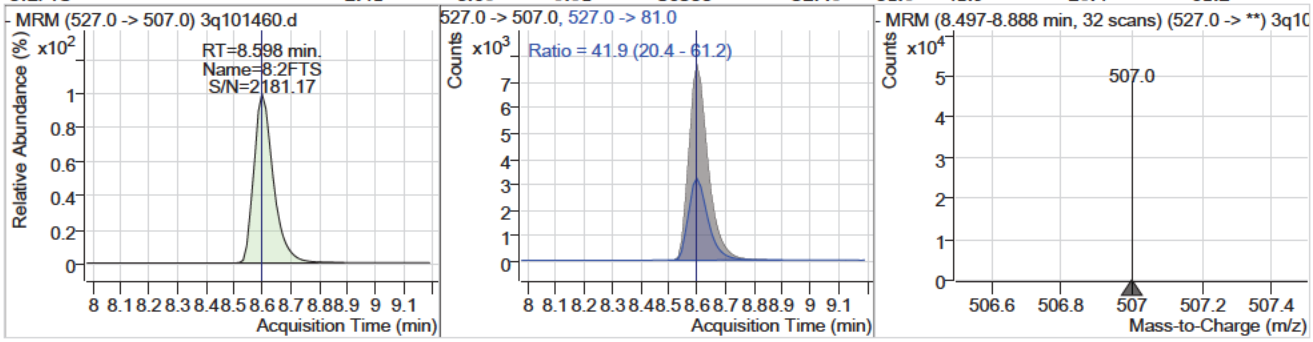


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	8.88	8.60	-0.01	221002				

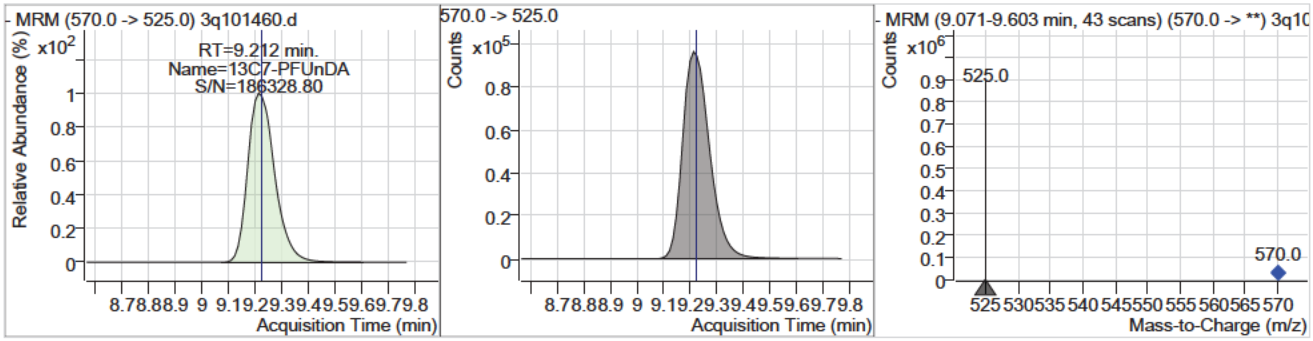


Perfluorinated Compounds by LC/MS/MS

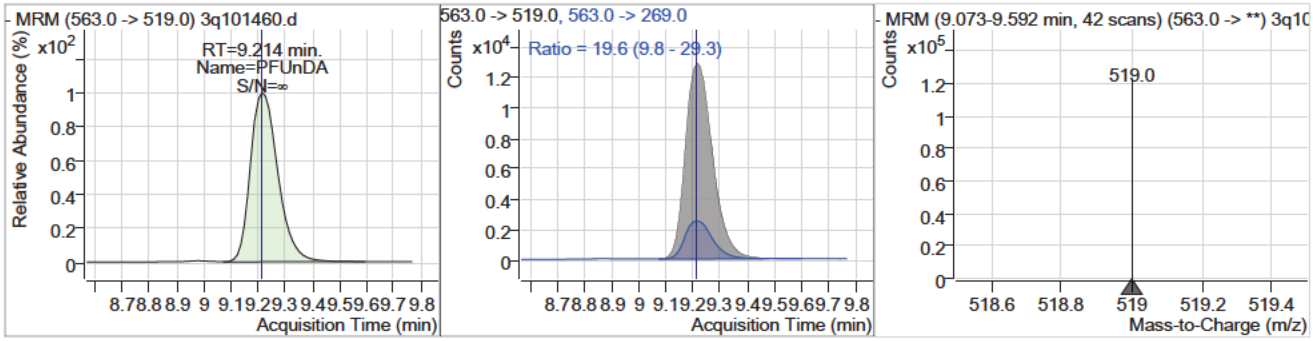
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	2.41	8.60	-0.01	36588	527.0 -> 81.0	41.9	20.4	61.2



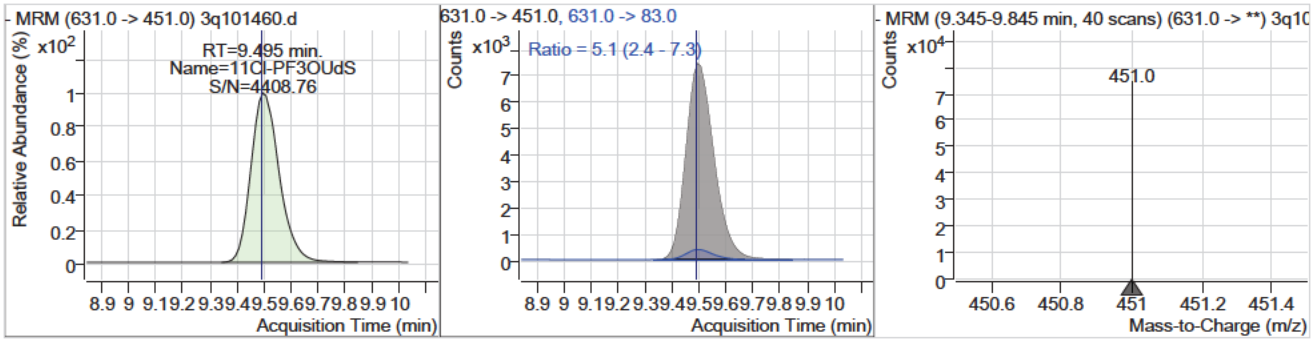
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	9.08	9.21	-0.01	677377				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.09	9.21	-0.01	91166	563.0 -> 269.0	19.6	9.8	29.3

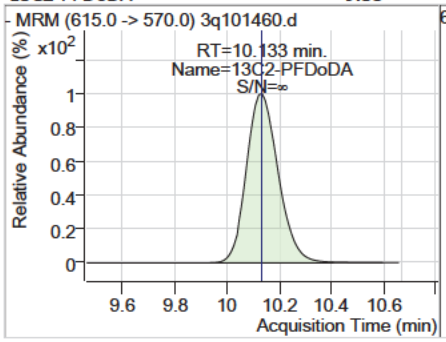


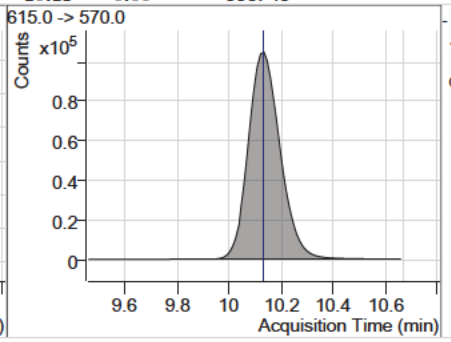
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	2.06	9.49	-0.01	54331	631.0 -> 83.0	5.1	2.4	7.3

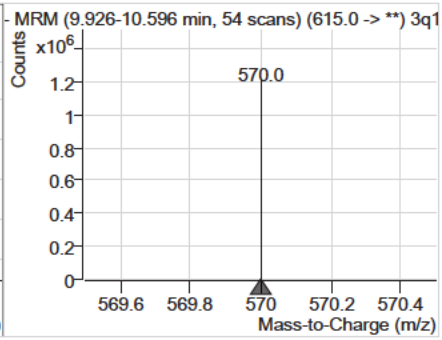


Perfluorinated Compounds by LC/MS/MS

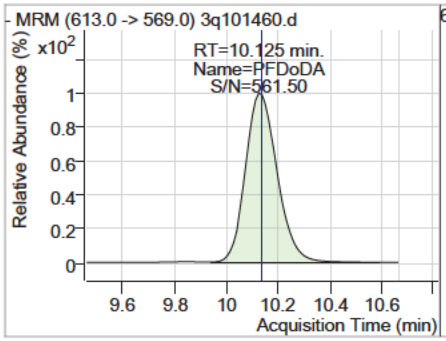
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	9.35	10.13	0.00	888748				

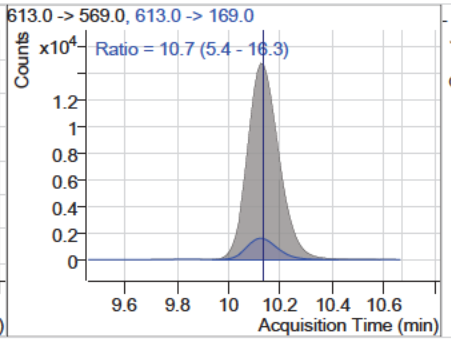


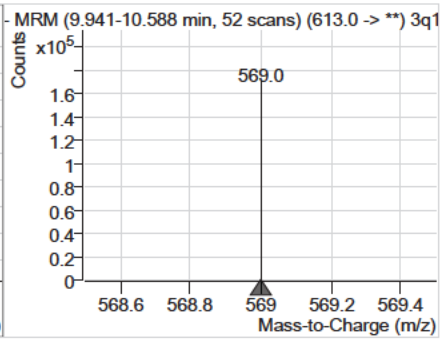




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	2.10	10.13	-0.01	123971	613.0 -> 169.0	10.7	5.4	16.3







7.7.4

7

Manual Integration Approval Summary

Sample Number: S3Q1492-IC1492
Lab FileID: 3Q101460.D
Injection Time: 04/15/25 14:36
Method: EPA 533
Analyst approved: 04/16/25 08:55 (b) (6) [redacted]
Supervisor approved: 04/17/25 11:42 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
HFPO-DA (GenX)	13252-13-6		6.07	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		6.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Cal Report: 3Q101461.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:42

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101461.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 2:52:12 PM
Sample Name : ic1492-5
Vial : P1-C5
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.435	415.0 -> 370.0	220232	10.00 µg/L	0.000
13C3-PFBA	2.344	216.0 -> 172.0	84842	10.00 µg/L	0.213
13C4-PFOS	7.983	503.0 -> 80.0	32903	10.00 µg/L	-0.013
M4-PFBA	2.352	217.0 -> 172.0	136533	10.00 µg/L	0.213
M5-PFPeA	4.425	268.0 -> 223.0	164287	10.00 µg/L	0.088
M5-PFHxA	5.776	318.0 -> 273.0	207309	10.00 µg/L	0.025
M4-PFHpA	6.706	367.0 -> 322.0	174977	10.00 µg/L	0.000
M8-PFOA	7.434	421.0 -> 376.0	229668	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	248260	10.00 µg/L	-0.013
M6-PFDA	8.533	519.0 -> 474.0	347139	10.00 µg/L	-0.013
M7-PFUnDA	9.212	570.0 -> 525.0	686174	10.00 µg/L	-0.013
M2-PFDoDA	10.108	615.0 -> 570.0	871008	10.00 µg/L	-0.025
M3-PFBS	4.721	302.0 -> 99.0	19082	10.00 µg/L	0.075
M3-PFHxS	6.736	402.0 -> 99.0	27566	10.00 µg/L	0.000
M8-PFOS	7.982	507.0 -> 99.0	34814	10.00 µg/L	-0.013
M2-4:2FTS	5.684	329.0 -> 309.0	69072	10.00 µg/L	0.038
M2-6:2FTS	7.432	429.0 -> 409.0	131890	10.00 µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	225003	10.00 µg/L	-0.014
M3-HFPO-DA	6.069	287.0 -> 169.0	2856	10.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.684	329.0 -> 309.0	69072	8.82 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.2%	
13C2-6:2FTS	7.432	429.0 -> 409.0	131895	8.97 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.7%	
13C2-8:2FTS	8.597	529.0 -> 509.0	225003	9.13 µg/L	-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.3%	
13C2-PFDoDA	10.108	615.0 -> 570.0	871008	9.29 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.9%	
13C3-PFBS	4.721	302.0 -> 99.0	19082	9.29 µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.9%	
13C3-PFHxS	6.736	402.0 -> 99.0	27566	9.43 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C4-PFBA	2.352	217.0 -> 172.0	136533	9.49 µg/L	0.213
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.9%	
13C4-PFHpA	6.706	367.0 -> 322.0	174977	9.39 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.9%	
13C5-PFHxA	5.776	318.0 -> 273.0	207309	9.29 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.9%	
13C5-PFPeA	4.425	268.0 -> 223.0	164287	9.47 µg/L	0.088
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.7%	
13C6-PFDA	8.533	519.0 -> 474.0	347139	9.42 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.2%	
13C7-PFUnDA	9.212	570.0 -> 525.0	686174	9.32 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.2%	
13C8-PFOA	7.434	421.0 -> 376.0	229668	9.49 µg/L	0.000

7.7.5 7

Perfluorinated Compounds by LC/MS/MS

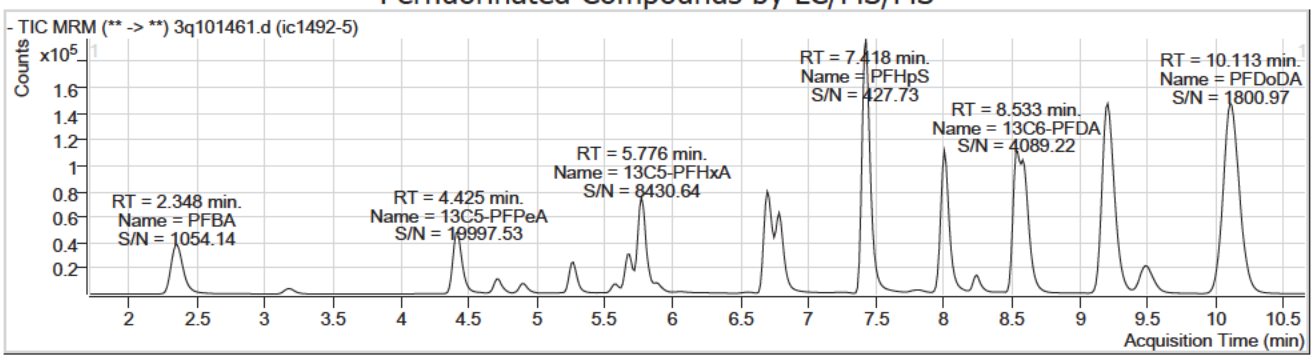
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.9%		
13C8-PFOS	7.982	507.0 -> 99.0	34814	9.30 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.0%		
13C9-PFNA	8.010	472.0 -> 427.0	248260	9.44 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.4%		
13C3-HFPO-DA	6.069	287.0 -> 169.0	2856	8.90 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.0%		
Target Compounds						QValue
PFMPA	3.178	229.0 -> 85.0	24689	5.58 µg/L		100
4:2FTS	5.674	327.0 -> 307.0	44878	5.45 µg/L		99
		327.0 -> 81.0	19175			
6:2FTS	7.433	427.0 -> 407.0	60024	5.42 µg/L		99
		427.0 -> 81.0	26367			
8:2FTS	8.598	527.0 -> 507.0	99543	6.44 µg/L		99
		527.0 -> 81.0	40267			
PFMBA	4.901	279.0 -> 85.0	34128	5.63 µg/L		100
PFEESA	5.274	315.0 -> 135.0	96268	5.59 µg/L		100
		315.0 -> 69.0	7396			
NFDHA	5.594	201.0 -> 85.0	28749	5.54 µg/L		98
		295.0 -> 201.0	2006			
PFBA	2.348	213.0 -> 169.0	20911	5.54 µg/L		100
PFBS	4.710	299.0 -> 80.0	21420	5.55 µg/L		98
		299.0 -> 99.0	9332			
PFDA	8.534	513.0 -> 469.0	109780	5.59 µg/L		100
		513.0 -> 219.0	25774			
PFDoDA	10.113	613.0 -> 569.0	323275	5.58 µg/L		99
		613.0 -> 169.0	34624			
PFHpA	6.708	363.0 -> 319.0	136888	5.58 µg/L		100
		363.0 -> 169.0	11483			
PFHpS	7.418	449.0 -> 80.0	28558	5.66 µg/L		99
		449.0 -> 99.0	15725			
PFHxA	5.778	313.0 -> 269.0	108978	5.58 µg/L		100
		313.0 -> 119.0	3757			
PFHxS	6.738	399.0 -> 80.0	27041	5.57 µg/L	m	99
		399.0 -> 99.0	14241			
PFNA	8.010	463.0 -> 419.0	113072	5.56 µg/L		100
		463.0 -> 219.0	33718			
PFOA	7.436	413.0 -> 369.0	99004	5.59 µg/L		100
		413.0 -> 169.0	36460			
PFOS	7.983	499.0 -> 80.0	31220	5.61 µg/L	m	98
		499.0 -> 99.0	15843			
PFPeA	4.427	263.0 -> 219.0	68867	5.56 µg/L		100
PFPeS	5.883	349.0 -> 80.0	15984	5.68 µg/L		100
		349.0 -> 99.0	6689			
PFUnDA	9.214	563.0 -> 519.0	245356	5.55 µg/L		100
		563.0 -> 269.0	47606			
11Cl-PF3OUdS	9.482	631.0 -> 451.0	143430	5.55 µg/L		100
		631.0 -> 83.0	7175			
9Cl-PF3ONS	8.241	531.0 -> 351.0	50540	5.64 µg/L		99
		531.0 -> 83.0	2690			
ADONA	6.792	377.0 -> 251.0	210272	5.55 µg/L		100
		377.0 -> 85.0	25048			
HFPO-DA	6.073	329.0 -> 169.0	409	5.89 µg/L		72
		285.0 -> 169.0	790			

= Qualifier out of range, m = manually integrated, + = Area summed

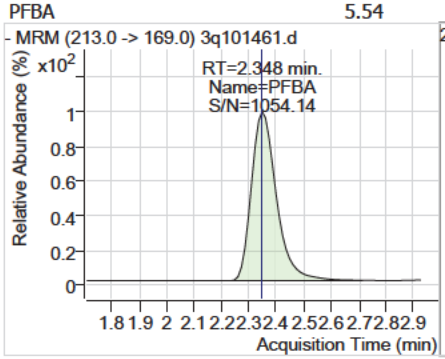
Perfluorinated Compounds by LC/MS/MS

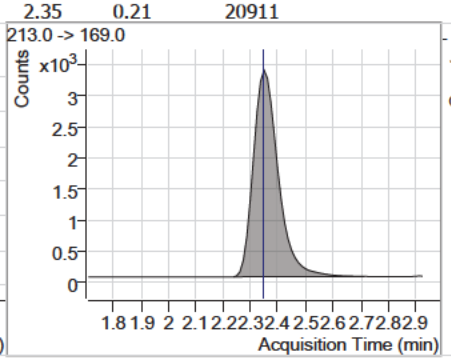
Compound	RT	Transition	Response	Conc. Units	Dev(Min)

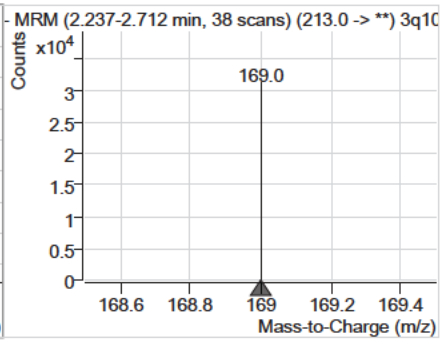
Perfluorinated Compounds by LC/MS/MS



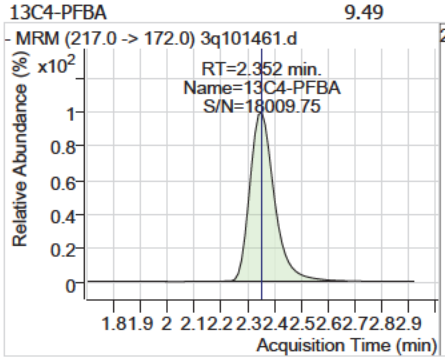
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	5.54	2.35	0.21	20911				

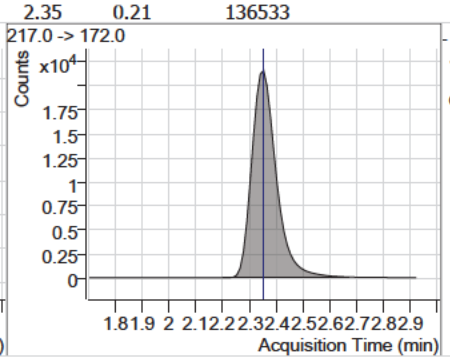


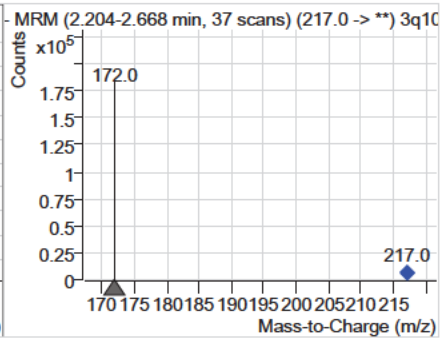




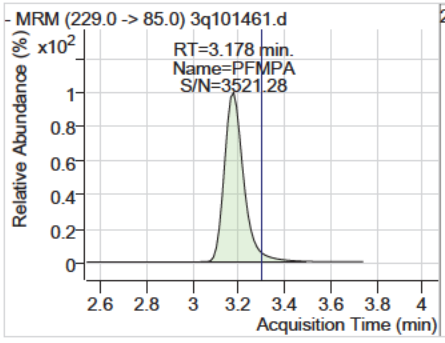
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	9.49	2.35	0.21	136533				

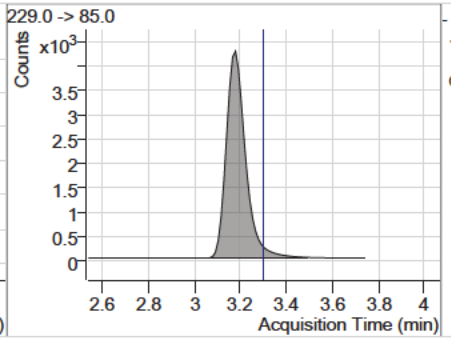


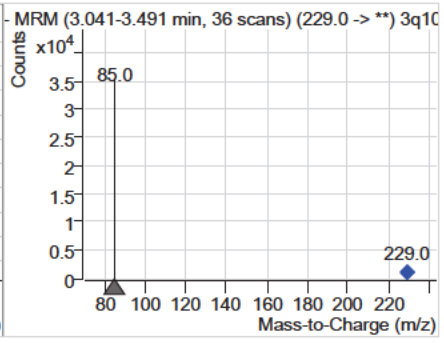




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	5.58	3.18	0.18	24689				

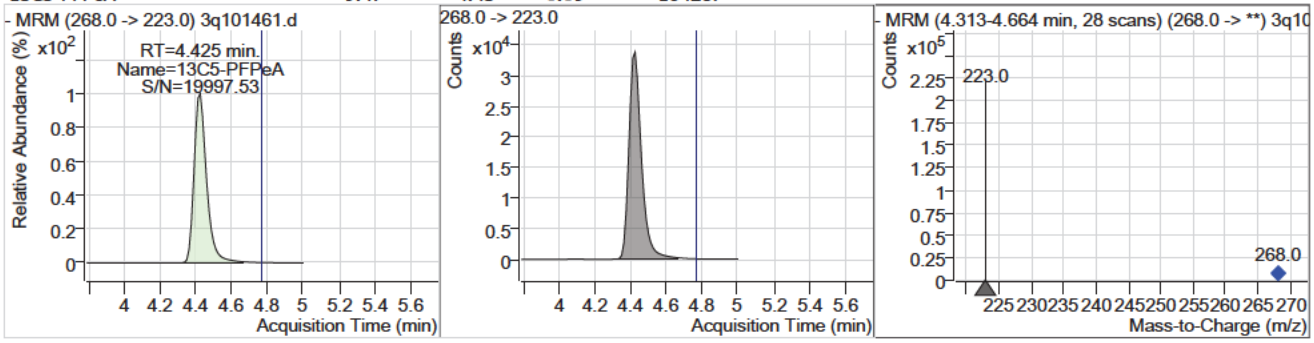




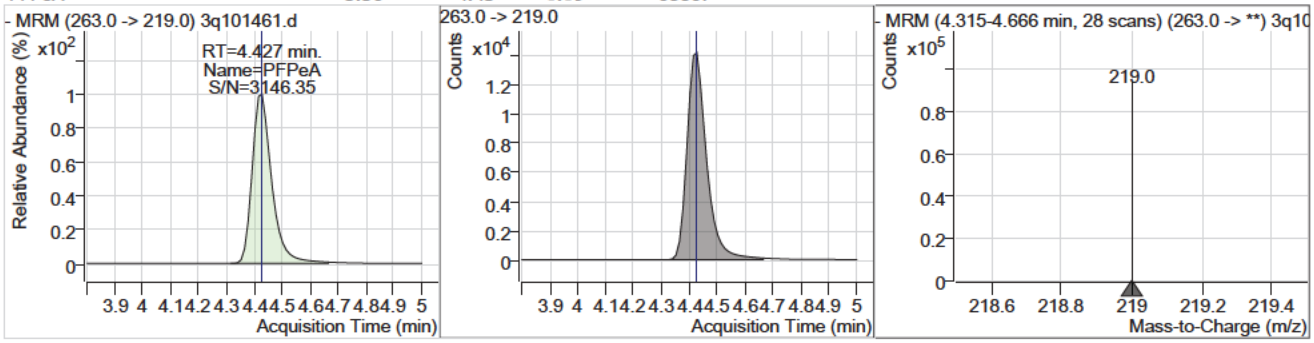


Perfluorinated Compounds by LC/MS/MS

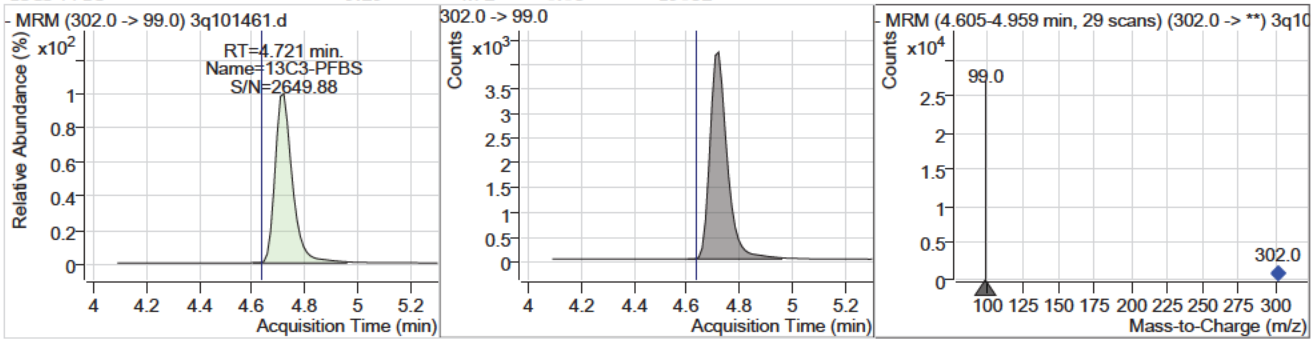
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	9.47	4.43	0.09	164287				



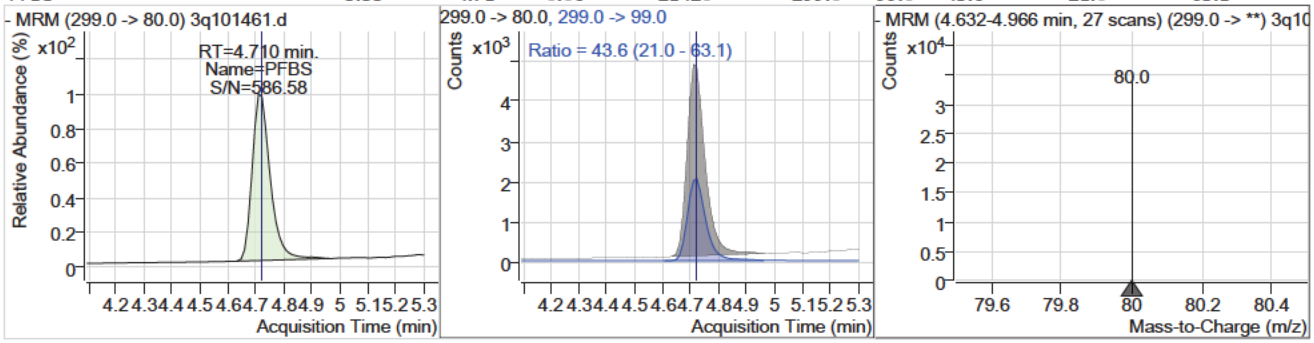
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	5.56	4.43	0.09	68867				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	9.29	4.72	0.08	19082				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	5.55	4.71	0.06	21420	299.0 -> 99.0	43.6	21.0	63.1

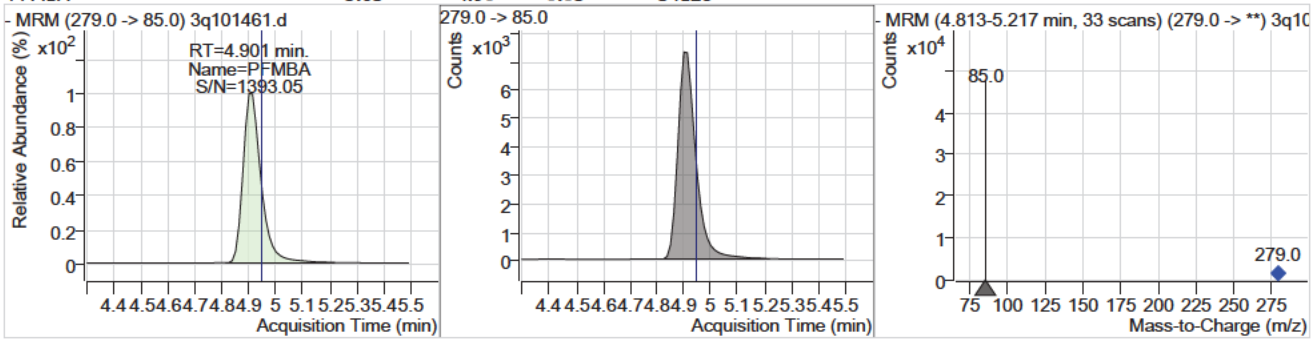


7.7.5

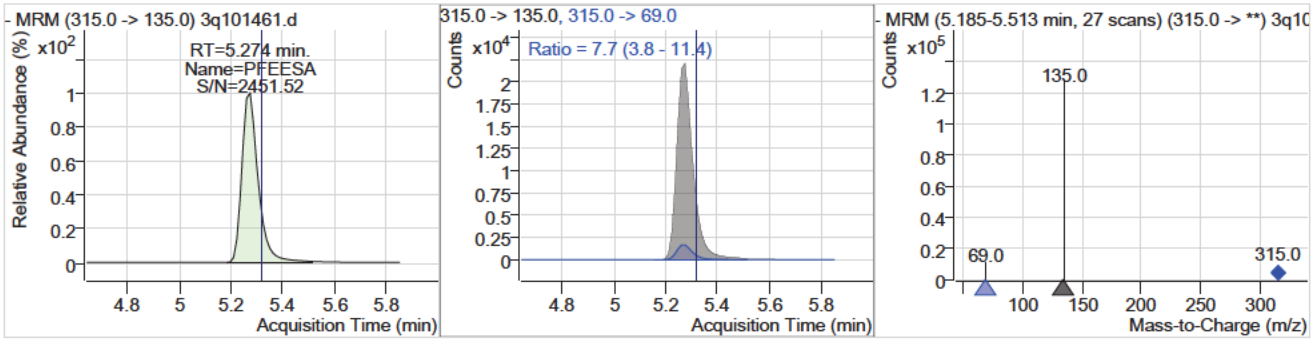
7

Perfluorinated Compounds by LC/MS/MS

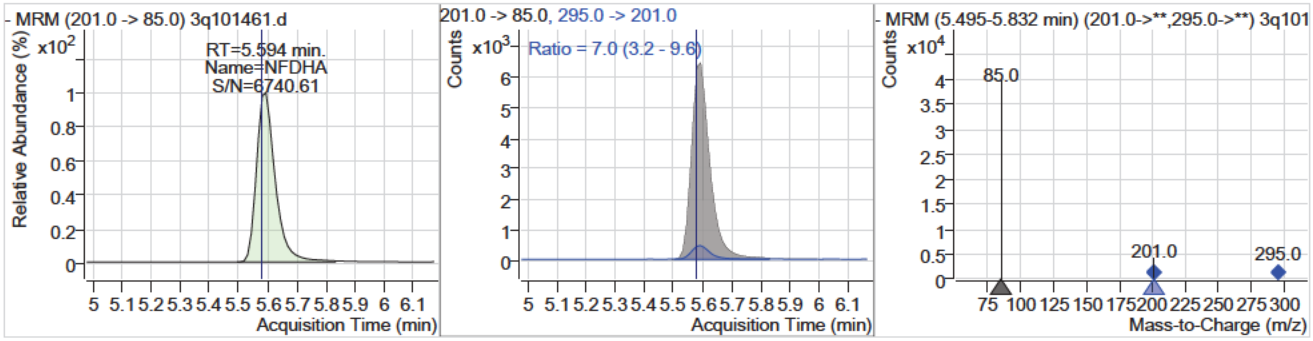
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	5.63	4.90	0.05	34128				



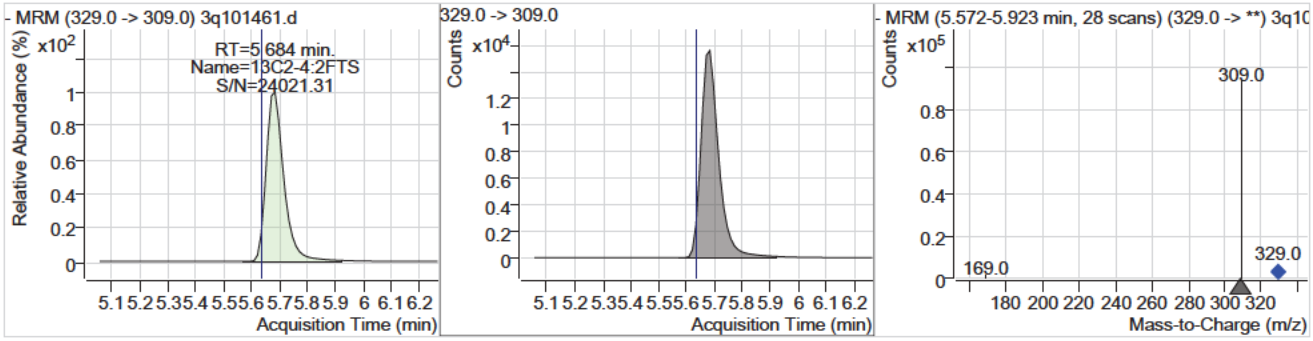
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	5.59	5.27	0.04	96268	315.0 -> 69.0	7.7	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	5.54	5.59	0.04	28749	295.0 -> 201.0	7.0	3.2	9.6

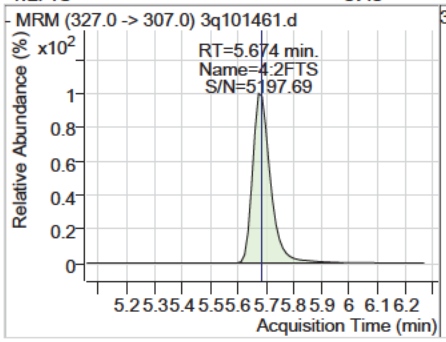


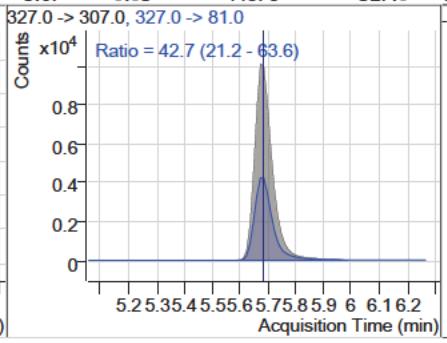
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	8.82	5.68	0.04	69072				

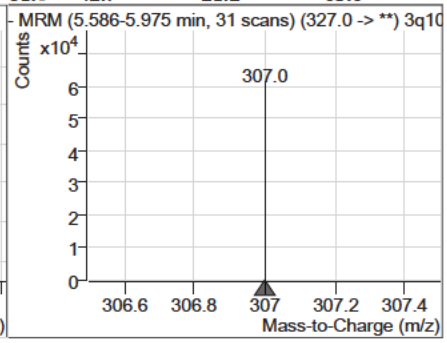


Perfluorinated Compounds by LC/MS/MS

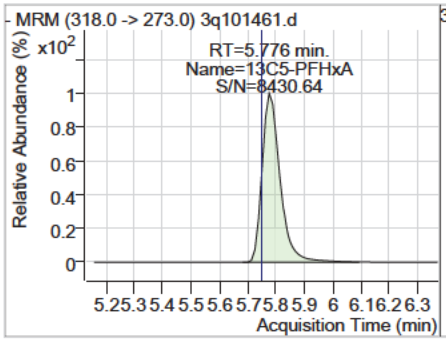
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	5.45	5.67	0.03	44878	327.0 -> 81.0	42.7	21.2	63.6

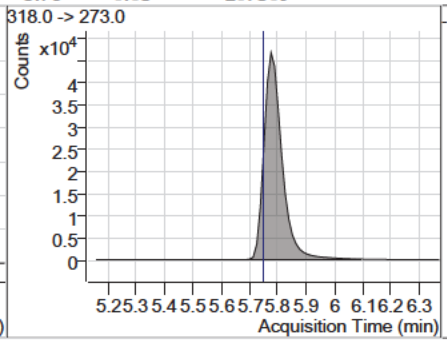


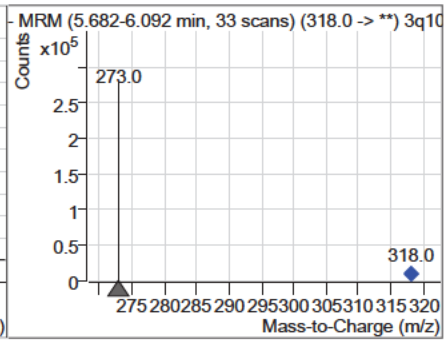




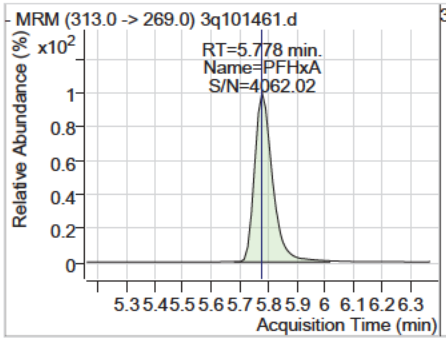
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	9.29	5.78	0.03	207309				

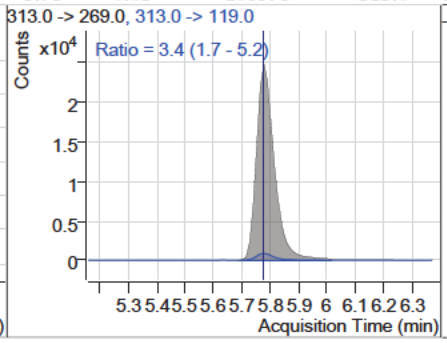


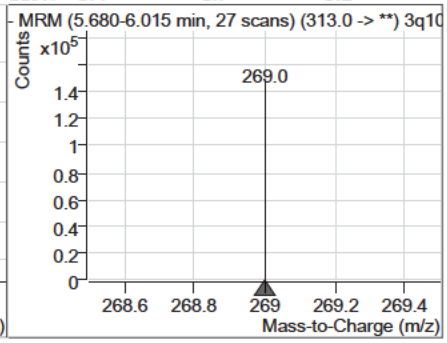




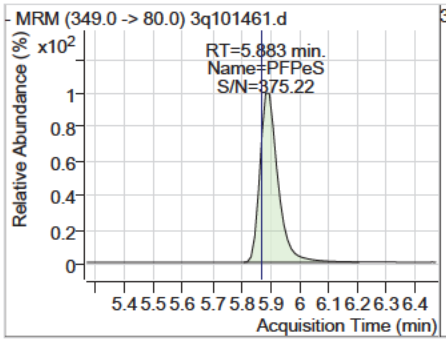
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	5.58	5.78	0.03	108978	313.0 -> 119.0	3.4	1.7	5.2

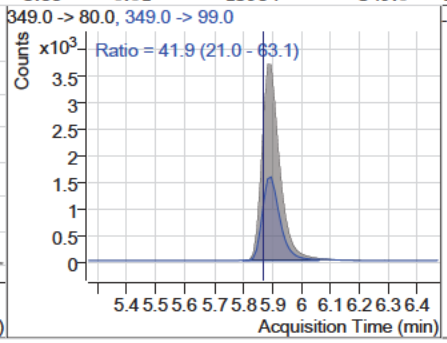


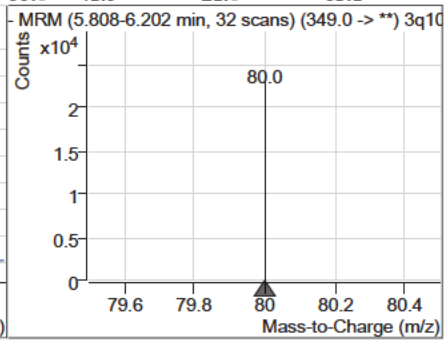




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	5.68	5.88	0.01	15984	349.0 -> 99.0	41.9	21.0	63.1

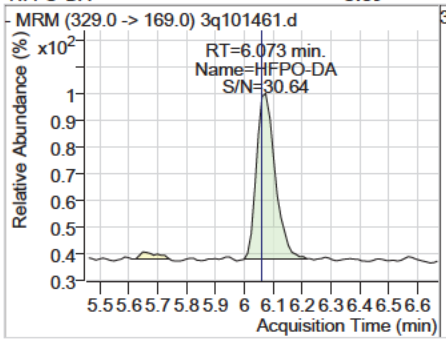


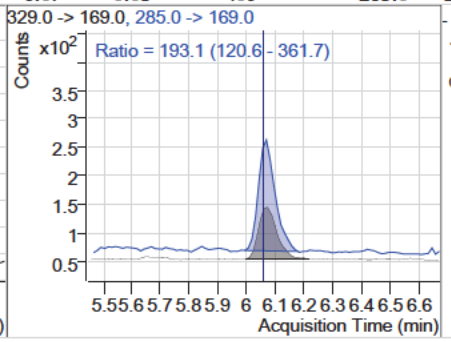


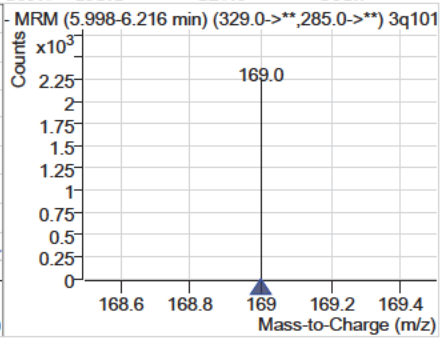


Perfluorinated Compounds by LC/MS/MS

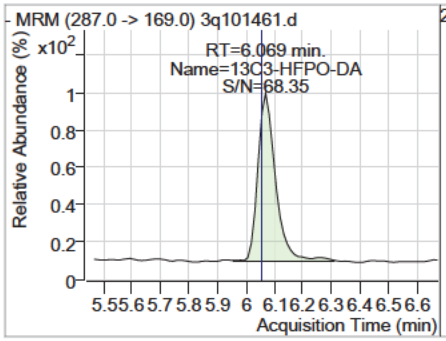
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.89	6.07	0.03	409	285.0 -> 169.0	193.1	120.6	361.7

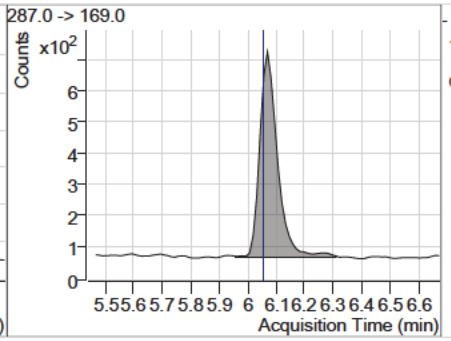


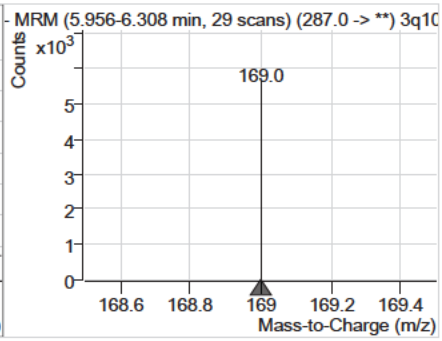




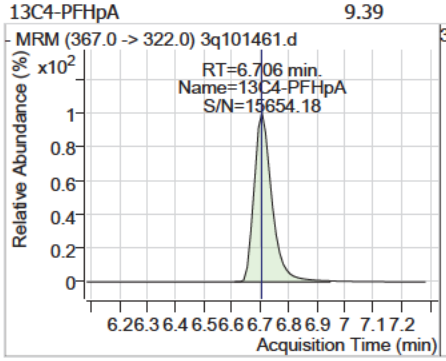
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.90	6.07	0.01	2856				

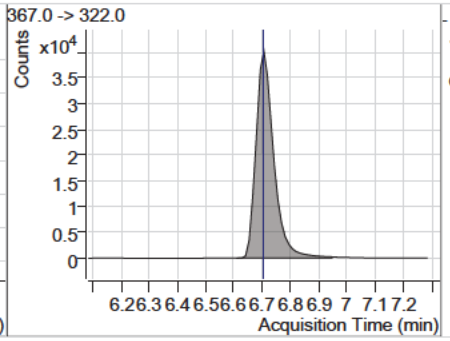


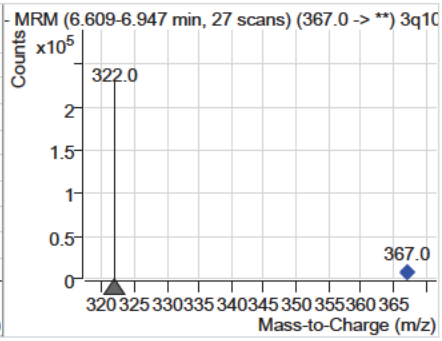




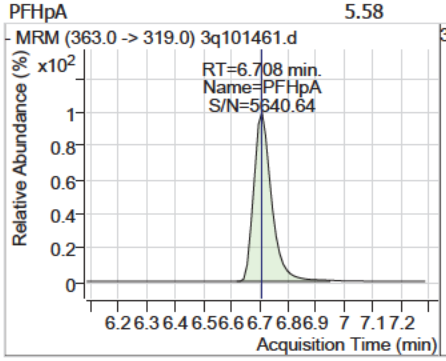
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	9.39	6.71	0.00	174977				

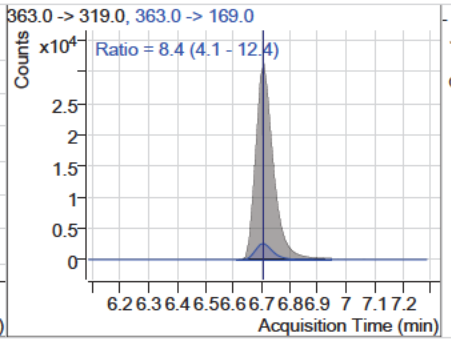


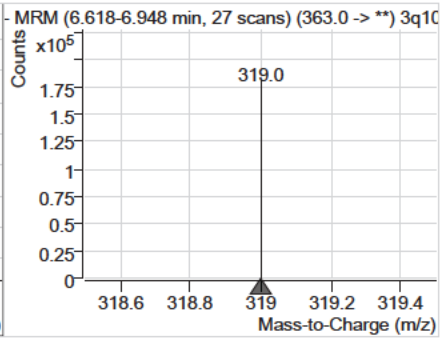




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	5.58	6.71	0.00	136888	363.0 -> 169.0	8.4	4.1	12.4

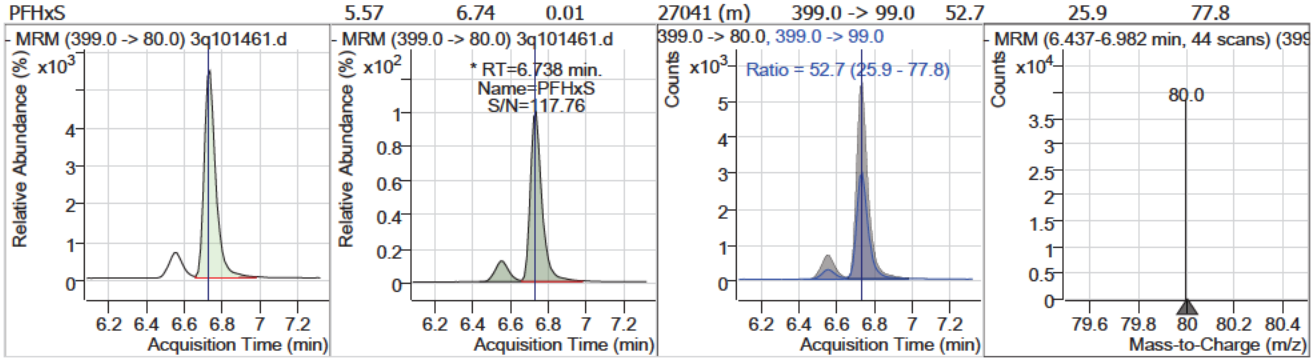




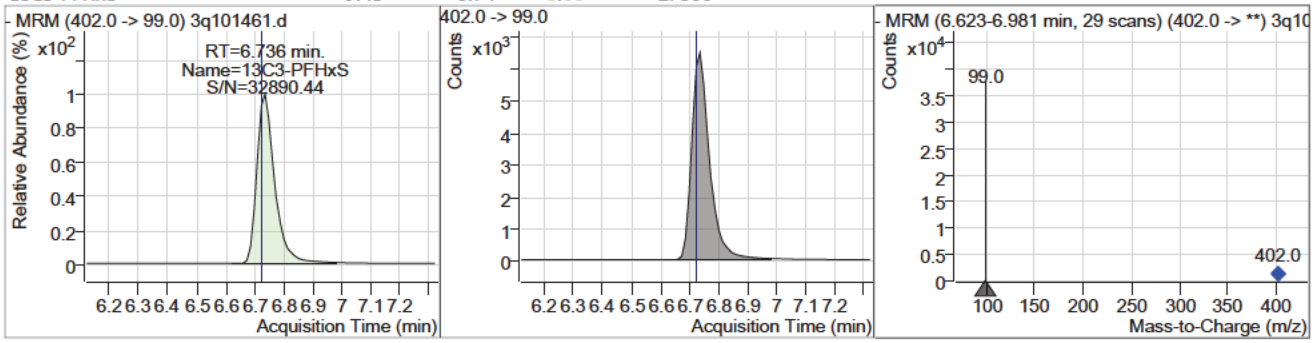


Perfluorinated Compounds by LC/MS/MS

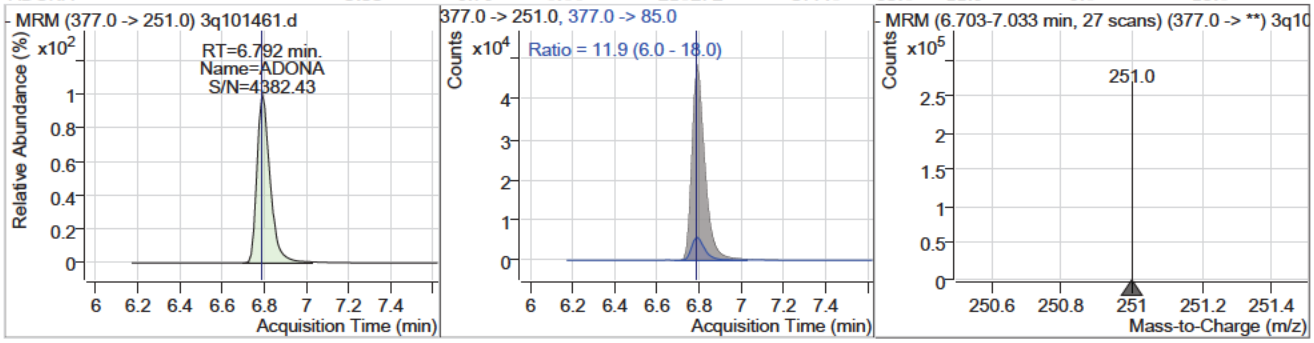
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	5.57	6.74	0.01	27041 (m)	399.0 -> 99.0	52.7	25.9	77.8



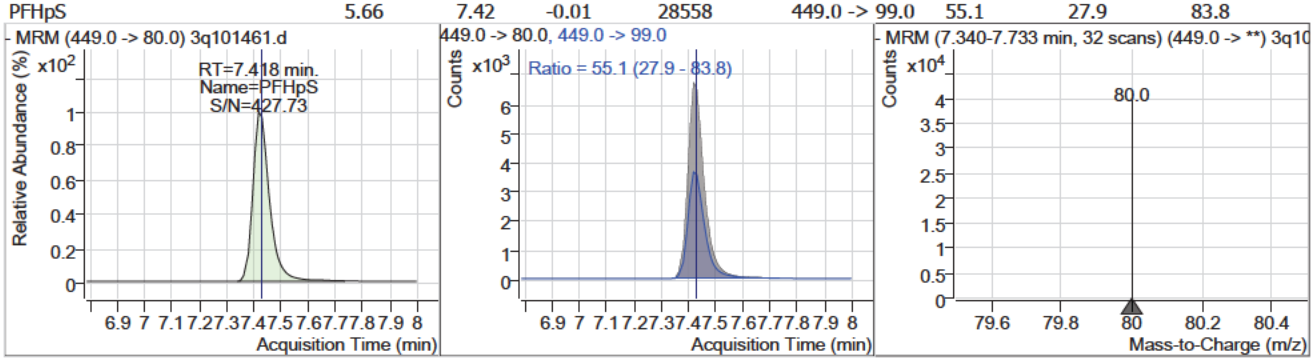
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	9.43	6.74	0.00	27566				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	5.55	6.79	0.00	210272	377.0 -> 85.0	11.9	6.0	18.0

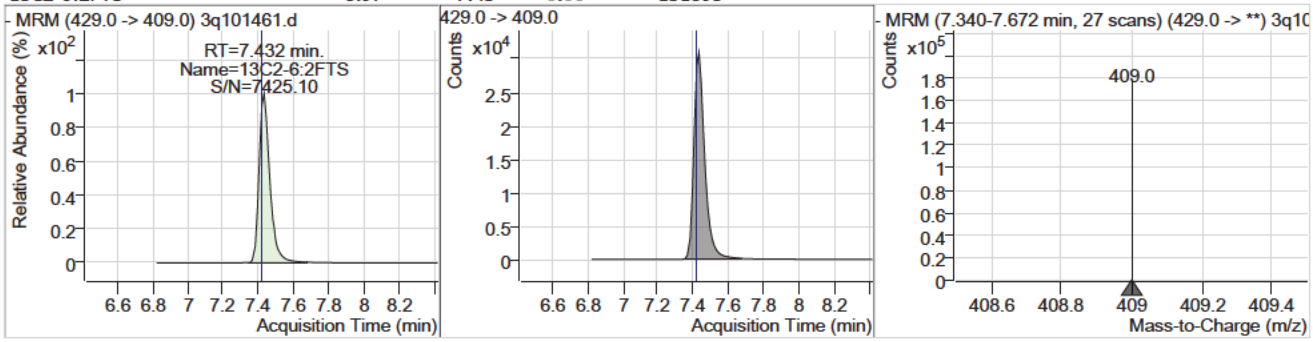


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	5.66	7.42	-0.01	28558	449.0 -> 99.0	55.1	27.9	83.8

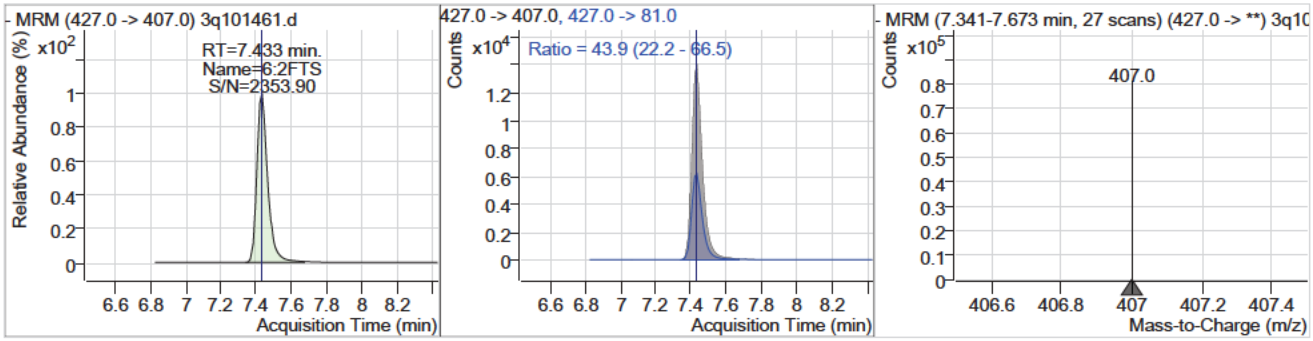


Perfluorinated Compounds by LC/MS/MS

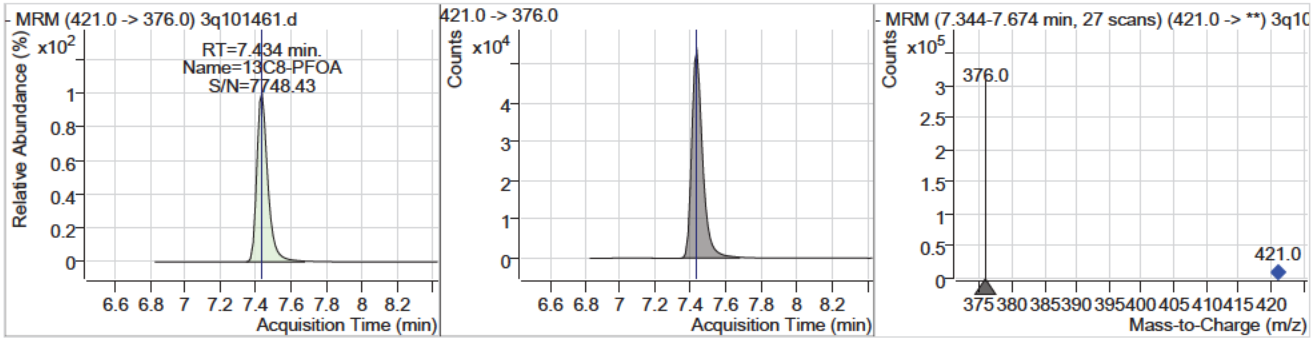
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	8.97	7.43	0.00	131895				



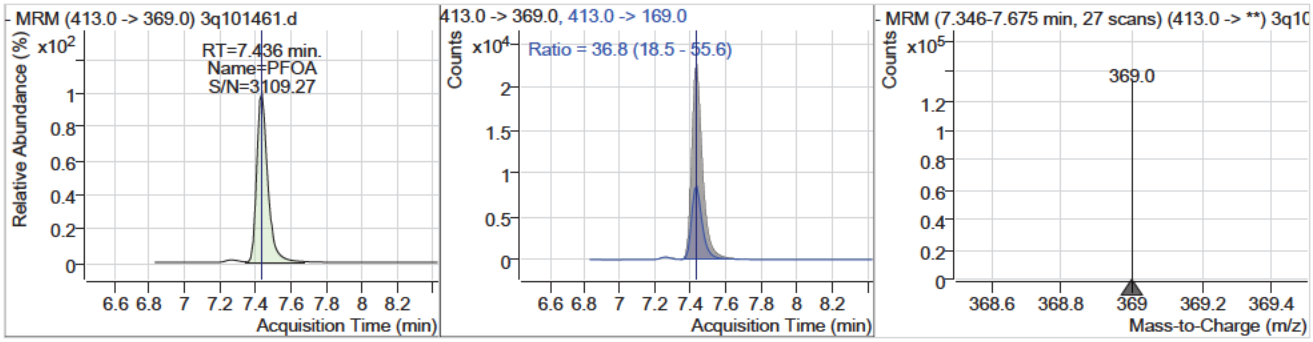
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	5.42	7.43	0.00	60024	427.0 -> 81.0	43.9	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	9.49	7.43	0.00	229668				

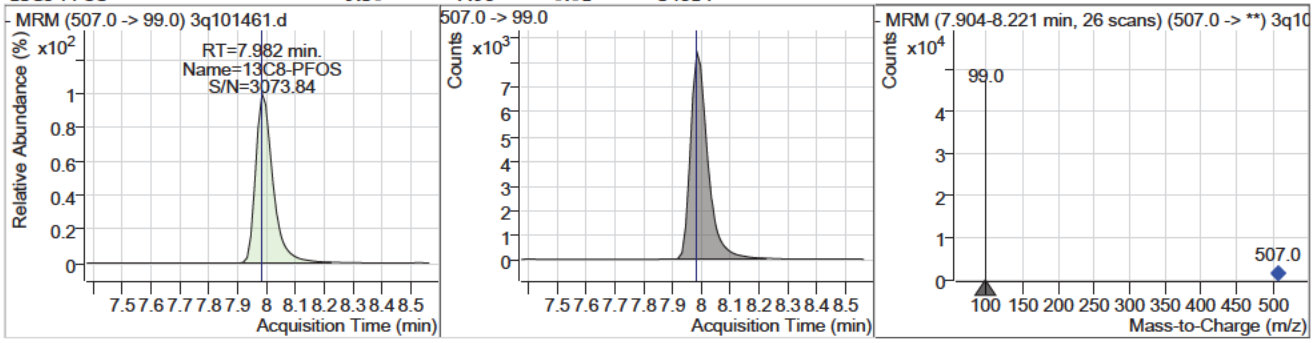


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	5.59	7.44	0.00	99004	413.0 -> 169.0	36.8	18.5	55.6

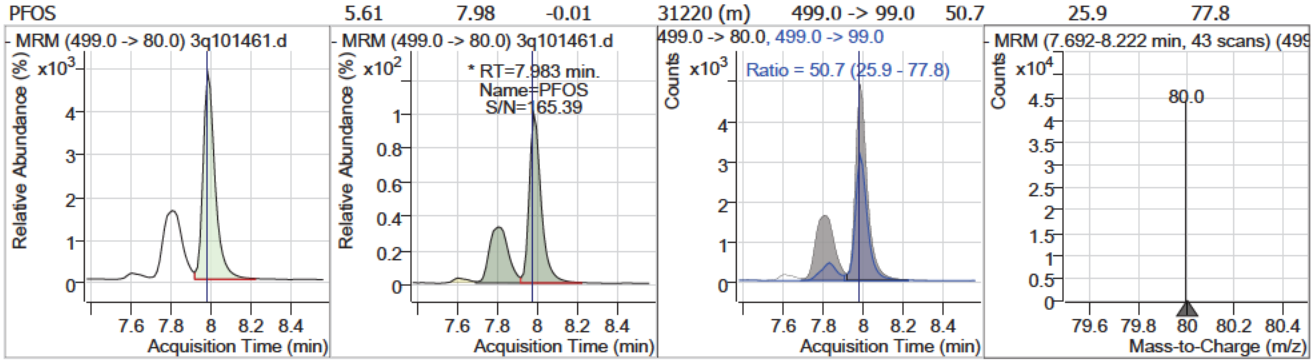


Perfluorinated Compounds by LC/MS/MS

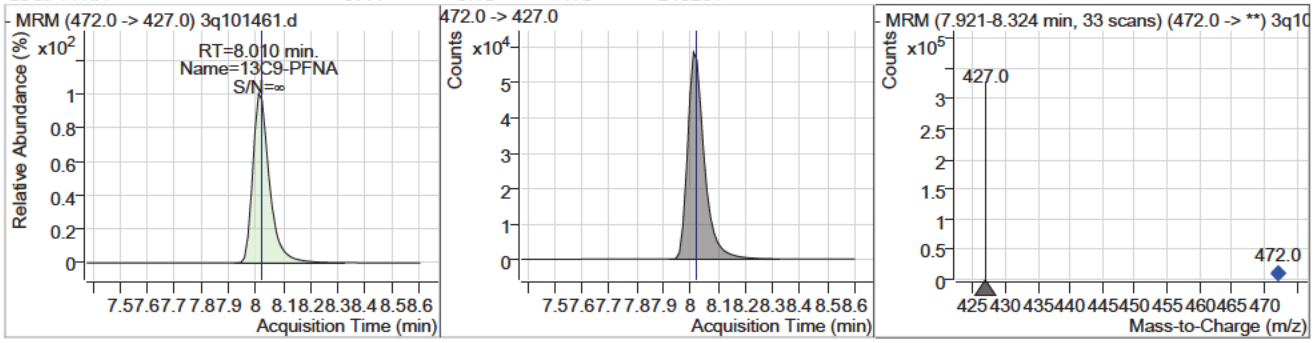
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	9.30	7.98	-0.01	34814				



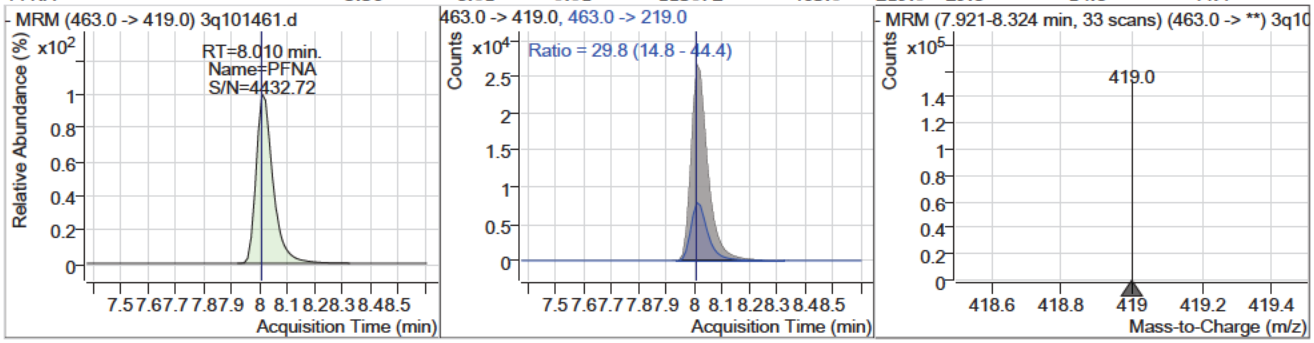
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	5.61	7.98	-0.01	31220 (m)	499.0 -> 99.0	50.7	25.9	77.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	9.44	8.01	-0.01	248260				

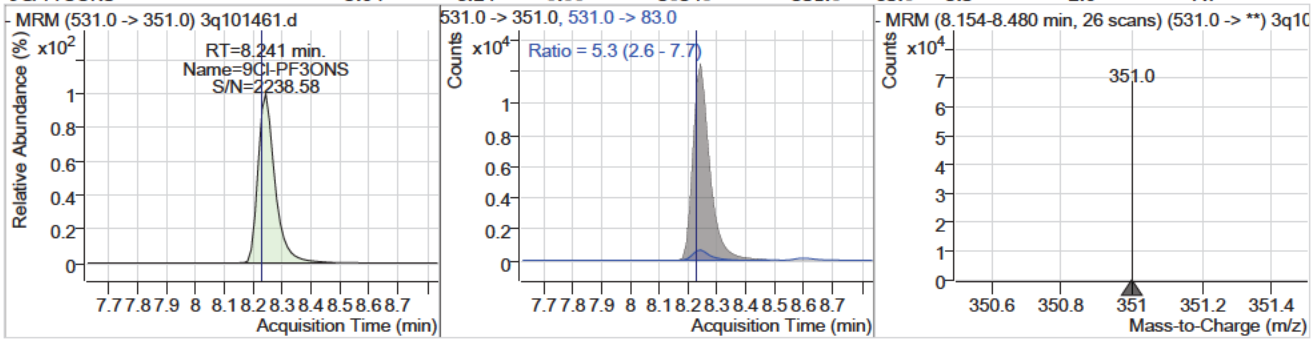


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	5.56	8.01	-0.01	113072	463.0 -> 219.0	29.8	14.8	44.4

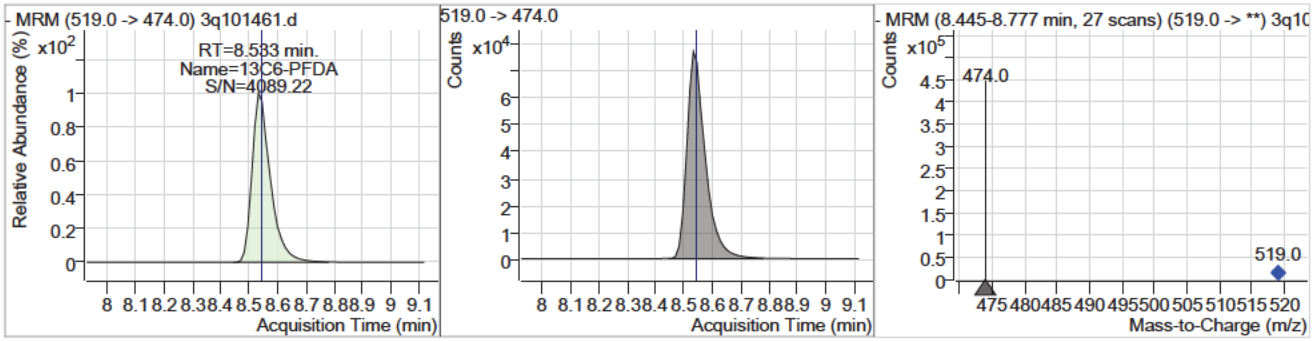


Perfluorinated Compounds by LC/MS/MS

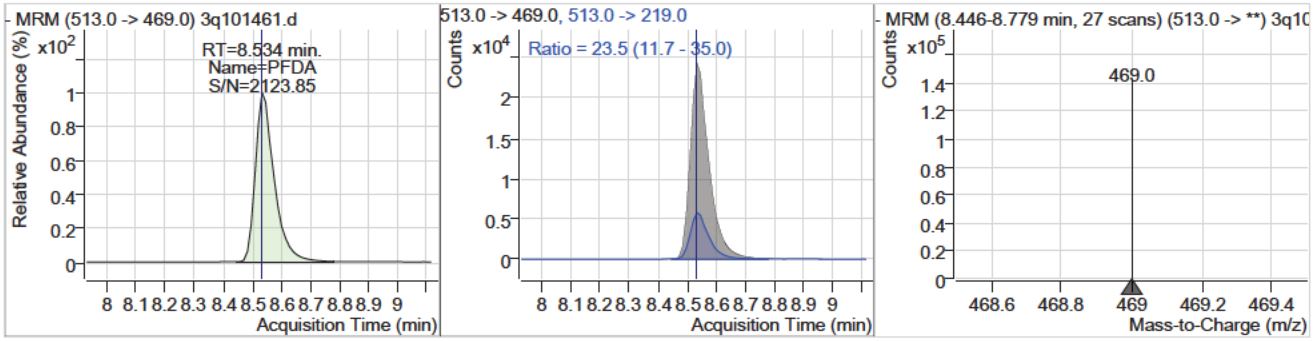
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	5.64	8.24	0.00	50540	531.0 -> 83.0	5.3	2.6	7.7



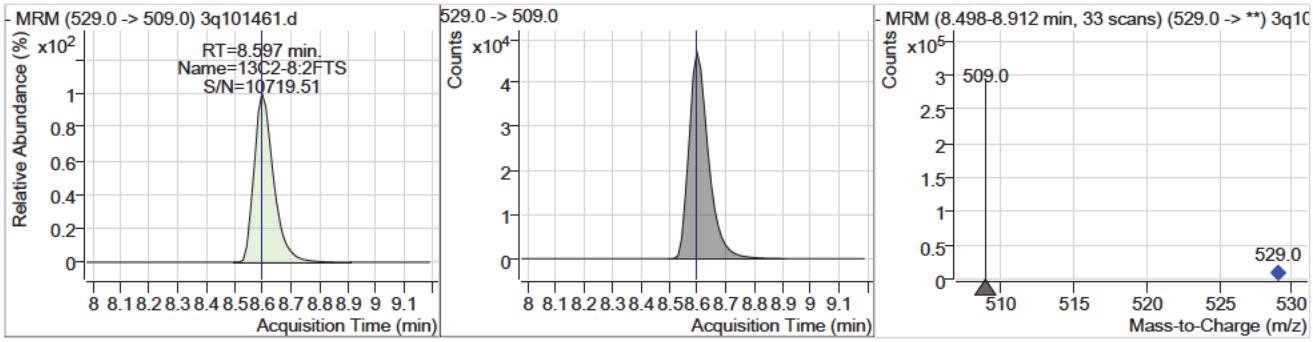
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	9.42	8.53	-0.01	347139				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	5.59	8.53	-0.01	109780	513.0 -> 219.0	23.5	11.7	35.0

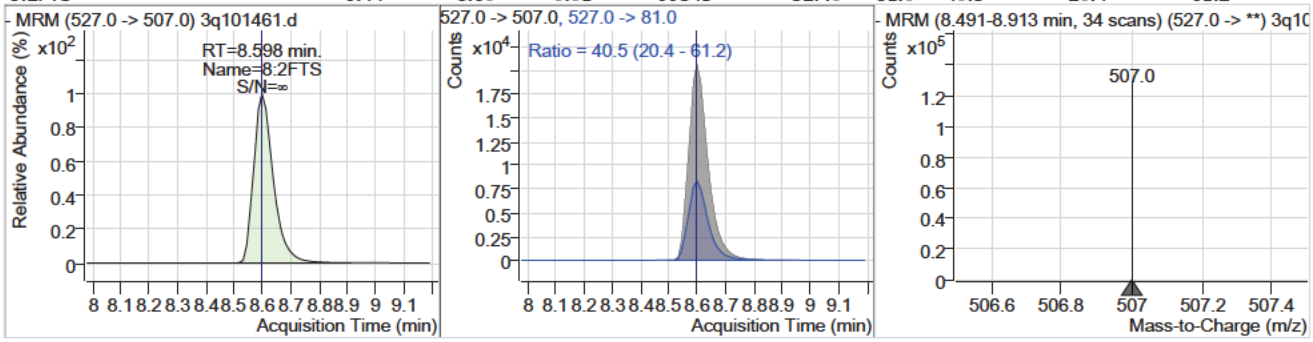


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	9.13	8.60	-0.01	225003				

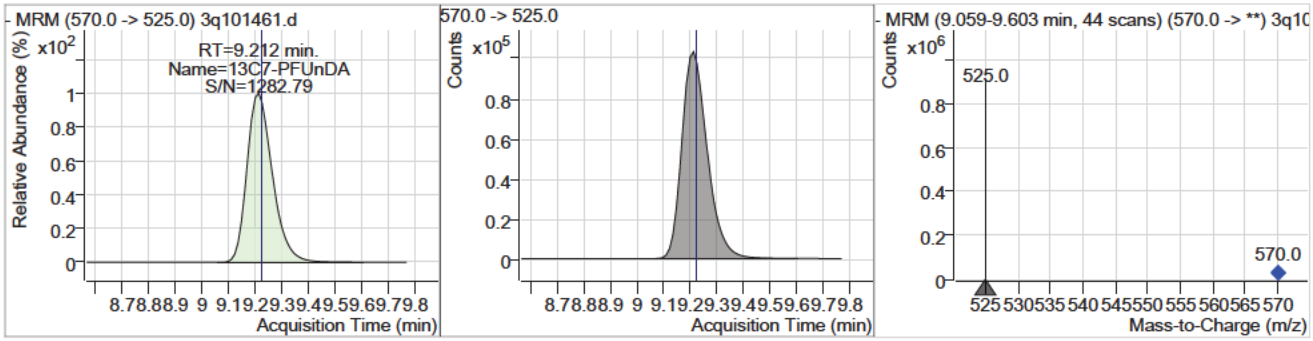


Perfluorinated Compounds by LC/MS/MS

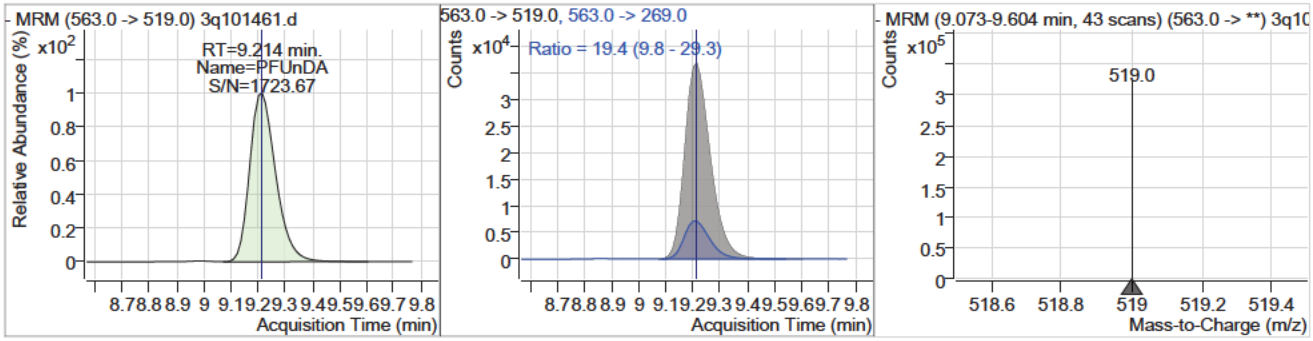
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	6.44	8.60	-0.01	99543	527.0 -> 81.0	40.5	20.4	61.2



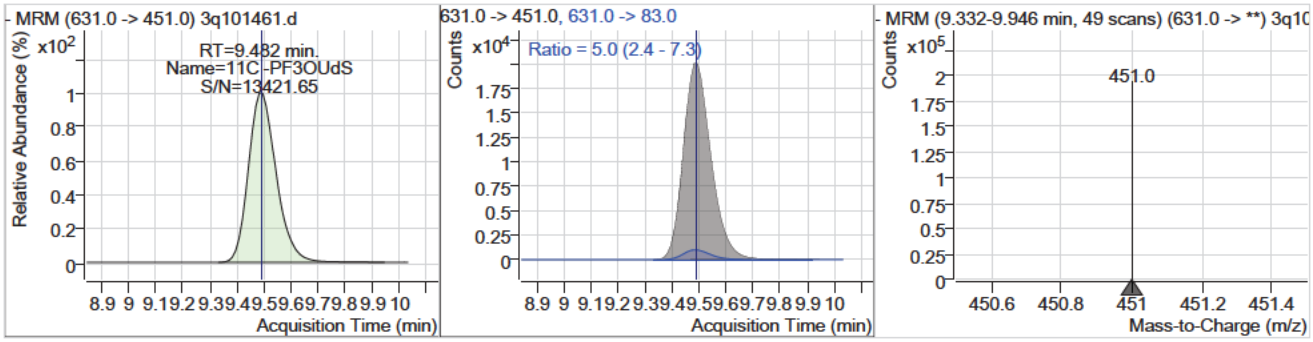
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	9.32	9.21	-0.01	686174				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	5.55	9.21	-0.01	245356	563.0 -> 269.0	19.4	9.8	29.3

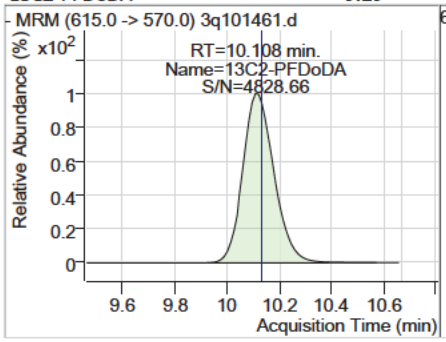


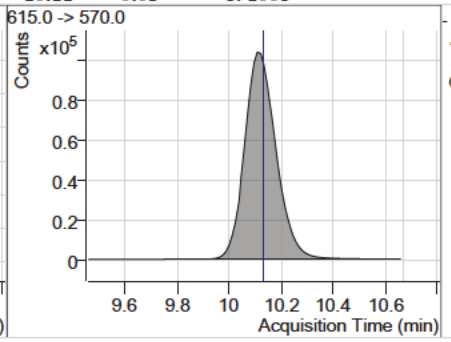
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	5.55	9.48	-0.03	143430	631.0 -> 83.0	5.0	2.4	7.3

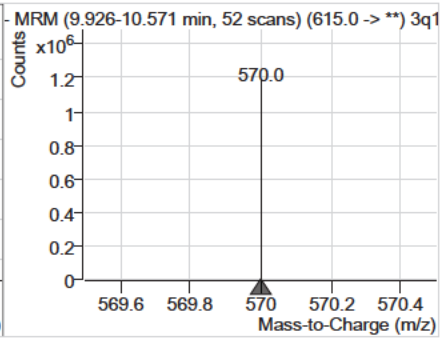


Perfluorinated Compounds by LC/MS/MS

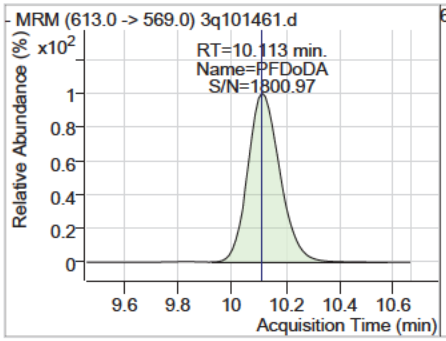
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	9.29	10.11	-0.03	871008				

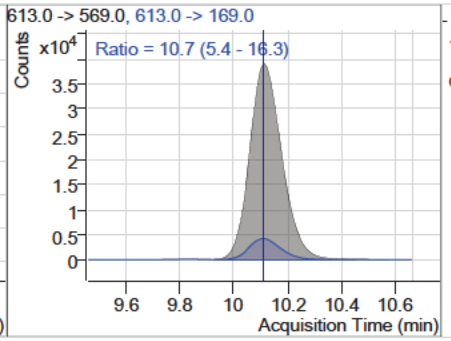


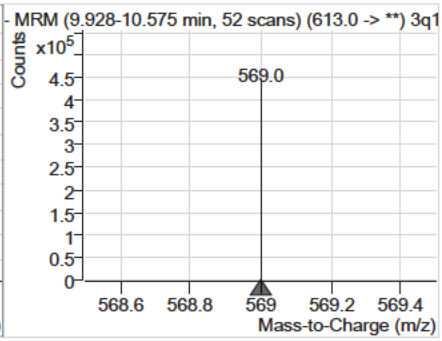




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	5.58	10.11	-0.03	323275	613.0 -> 169.0	10.7	5.4	16.3







7.7.5

7

Manual Integration Approval Summary

Sample Number: S3Q1492-IC1492
Lab FileID: 3Q101461.D
Injection Time: 04/15/25 14:52
Method: EPA 533
Analyst approved: 04/16/25 08:55 (b) (6) [redacted]
Supervisor approved: 04/17/25 11:42 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Cal Report: 3Q101462.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:42

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101462.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 3:08:17 PM
Sample Name : ic1492-10
Vial : P1-C6
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	202891	10.00 µg/L	-0.013
13C3-PFBA	2.394	216.0 -> 172.0	82118	10.00 µg/L	0.263
13C4-PFOS	7.983	503.0 -> 80.0	29957	10.00 µg/L	-0.013
M4-PFBA	2.390	217.0 -> 172.0	143383	10.00 µg/L	0.250
M5-PFPeA	4.425	268.0 -> 223.0	175842	10.00 µg/L	0.088
M5-PFHxA	5.725	318.0 -> 273.0	206776	10.00 µg/L	-0.025
M4-PFHpA	6.681	367.0 -> 322.0	172042	10.00 µg/L	-0.025
M8-PFOA	7.422	421.0 -> 376.0	230351	10.00 µg/L	-0.013
M9-PFNA	8.010	472.0 -> 427.0	247586	10.00 µg/L	-0.013
M6-PFDA	8.533	519.0 -> 474.0	350281	10.00 µg/L	-0.013
M7-PFUnDA	9.224	570.0 -> 525.0	713475	10.00 µg/L	0.000
M2-PFDoDA	10.158	615.0 -> 570.0	876531	10.00 µg/L	0.025
M3-PFBS	4.646	302.0 -> 99.0	20490	10.00 µg/L	0.000
M3-PFHxS	6.698	402.0 -> 99.0	27457	10.00 µg/L	-0.038
M8-PFOS	7.982	507.0 -> 99.0	34763	10.00 µg/L	-0.013
M2-4:2FTS	5.622	329.0 -> 309.0	72292	10.00 µg/L	-0.025
M2-6:2FTS	7.420	429.0 -> 409.0	139880	10.00 µg/L	-0.013
M2-8:2FTS	8.597	529.0 -> 509.0	226689	10.00 µg/L	-0.014
M3-HFPO-DA	6.018	287.0 -> 169.0	2959	10.00 µg/L	-0.038
System Monitoring Compounds					
13C2-4:2FTS	5.622	329.0 -> 309.0	72292	10.14 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C2-6:2FTS	7.420	429.0 -> 409.0	139880	10.45 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C2-8:2FTS	8.597	529.0 -> 509.0	226689	10.10 µg/L	-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C2-PFDoDA	10.158	615.0 -> 570.0	876531	10.15 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C3-PFBS	4.646	302.0 -> 99.0	20490	10.96 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.6%	
13C3-PFHxS	6.698	402.0 -> 99.0	27457	10.32 µg/L	-0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C4-PFBA	2.390	217.0 -> 172.0	143383	10.29 µg/L	0.250
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C4-PFHpA	6.681	367.0 -> 322.0	172042	10.02 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C5-PFHxA	5.725	318.0 -> 273.0	206776	10.06 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C5-PFPeA	4.425	268.0 -> 223.0	175842	10.47 µg/L	0.088
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C6-PFDA	8.533	519.0 -> 474.0	350281	10.32 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C7-PFUnDA	9.224	570.0 -> 525.0	713475	10.52 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C8-PFOA	7.422	421.0 -> 376.0	230351	10.34 µg/L	-0.013

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Perfluorinated Compounds by LC/MS/MS

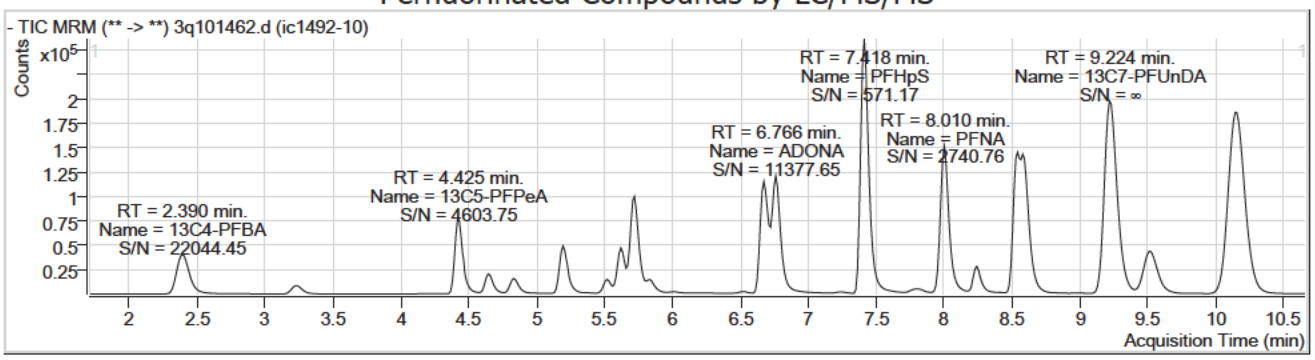
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.4%		
13C8-PFOS	7.982	507.0 -> 99.0	34763	10.20 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.0%		
13C9-PFNA	8.010	472.0 -> 427.0	247586	10.22 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.2%		
13C3-HFPO-DA	6.018	287.0 -> 169.0	2959	10.01 µg/L		-0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%		
Target Compounds						QValue
PFMPA	3.228	229.0 -> 85.0	50843	10.95 µg/L		100
4:2FTS	5.623	327.0 -> 307.0	91478	10.91 µg/L		99
		327.0 -> 81.0	39379			
6:2FTS	7.420	427.0 -> 407.0	126077	10.99 µg/L		100
		427.0 -> 81.0	55627			
8:2FTS	8.598	527.0 -> 507.0	199905	12.84 µg/L		99
		527.0 -> 81.0	82830			
PFMBA	4.838	279.0 -> 85.0	71345	11.00 µg/L		100
PFEESA	5.197	315.0 -> 135.0	198839	10.76 µg/L		100
		315.0 -> 69.0	15091			
NFDHA	5.531	201.0 -> 85.0	58885	11.39 µg/L		98
		295.0 -> 201.0	4080			
PFBA	2.398	213.0 -> 169.0	44873	11.32 µg/L		100
PFBS	4.647	299.0 -> 80.0	46811	11.30 µg/L		99
		299.0 -> 99.0	20004			
PFDA	8.534	513.0 -> 469.0	225848	11.40 µg/L		100
		513.0 -> 219.0	53108			
PFDoDA	10.150	613.0 -> 569.0	659655	11.32 µg/L		100
		613.0 -> 169.0	71443			
PFHpA	6.683	363.0 -> 319.0	273291	11.32 µg/L		100
		363.0 -> 169.0	22418			
PFHpS	7.418	449.0 -> 80.0	58856	11.71 µg/L		100
		449.0 -> 99.0	33014			
PFHxA	5.728	313.0 -> 269.0	221805	11.39 µg/L		100
		313.0 -> 119.0	7631			
PFHxS	6.700	399.0 -> 80.0	55478	11.48 µg/L	m	100
		399.0 -> 99.0	28863			
PFNA	8.010	463.0 -> 419.0	230252	11.35 µg/L		100
		463.0 -> 219.0	68497			
PFOA	7.423	413.0 -> 369.0	202509	11.40 µg/L		99
		413.0 -> 169.0	73952			
PFOS	7.983	499.0 -> 80.0	65152	11.72 µg/L	m	98
		499.0 -> 99.0	32614			
PFPeA	4.427	263.0 -> 219.0	151266	11.40 µg/L		100
PFPeS	5.833	349.0 -> 80.0	31779	11.33 µg/L		98
		349.0 -> 99.0	13673			
PFUnDA	9.227	563.0 -> 519.0	523071	11.37 µg/L		100
		563.0 -> 269.0	102212			
11Cl-PF3OUdS	9.520	631.0 -> 451.0	299903	11.62 µg/L		100
		631.0 -> 83.0	14496			
9Cl-PF3ONS	8.241	531.0 -> 351.0	104233	11.64 µg/L		99
		531.0 -> 83.0	5077			
ADONA	6.766	377.0 -> 251.0	431089	11.57 µg/L		100
		377.0 -> 85.0	51121			
HFPO-DA	6.023	329.0 -> 169.0	715	10.21 µg/L		96
		285.0 -> 169.0	1680			

= Qualifier out of range, m = manually integrated, + = Area summed

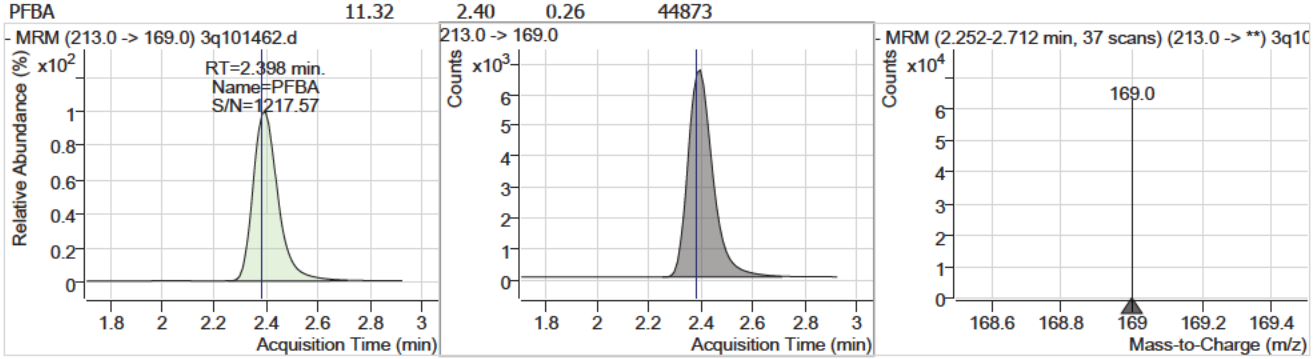
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)

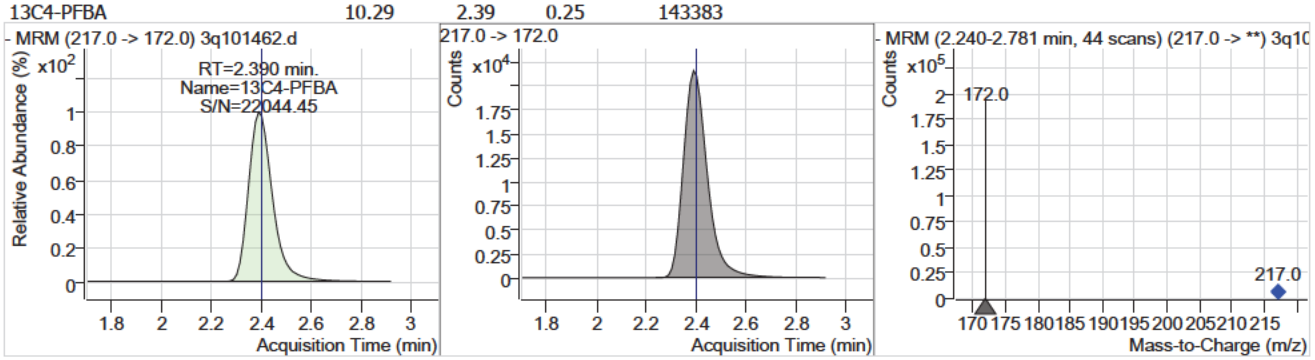
Perfluorinated Compounds by LC/MS/MS



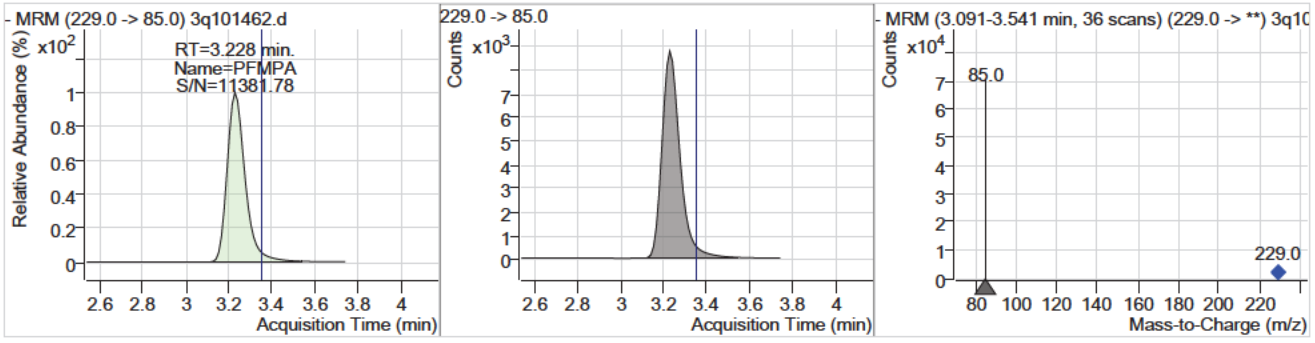
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	11.32	2.40	0.26	44873				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.29	2.39	0.25	143383				

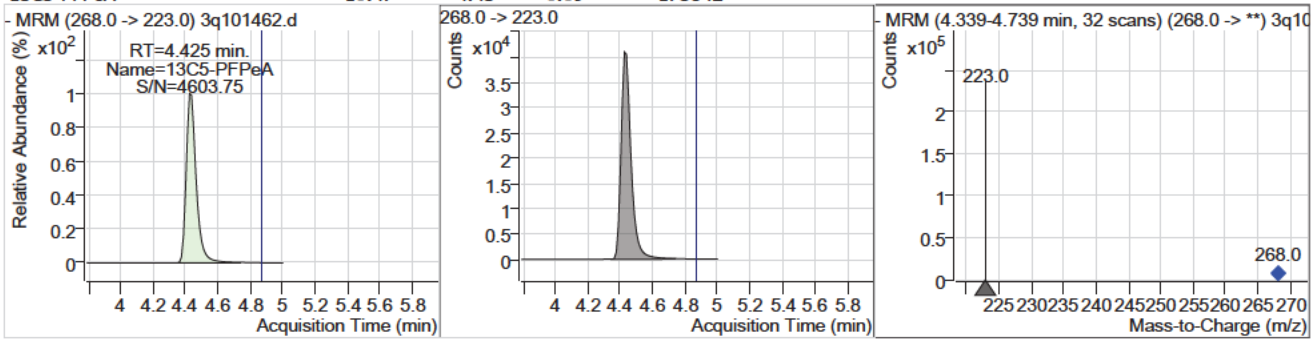


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	10.95	3.23	0.23	50843				

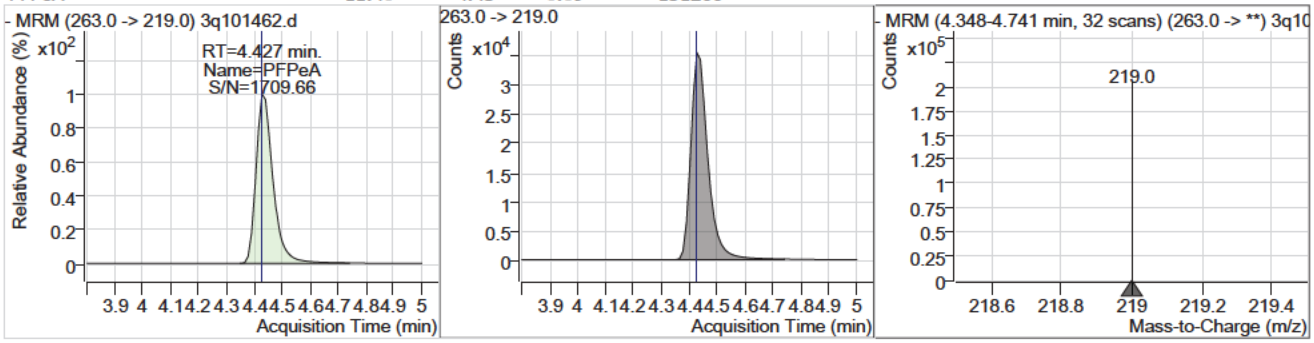


Perfluorinated Compounds by LC/MS/MS

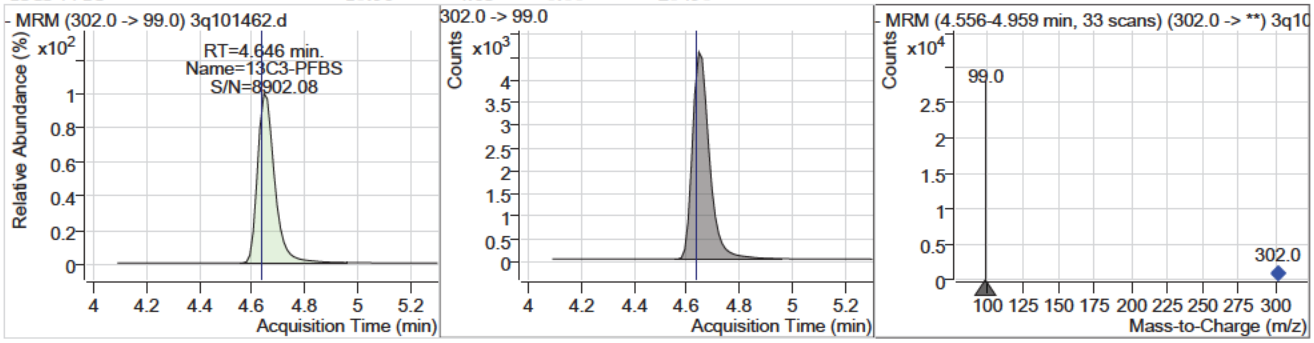
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.47	4.43	0.09	175842				



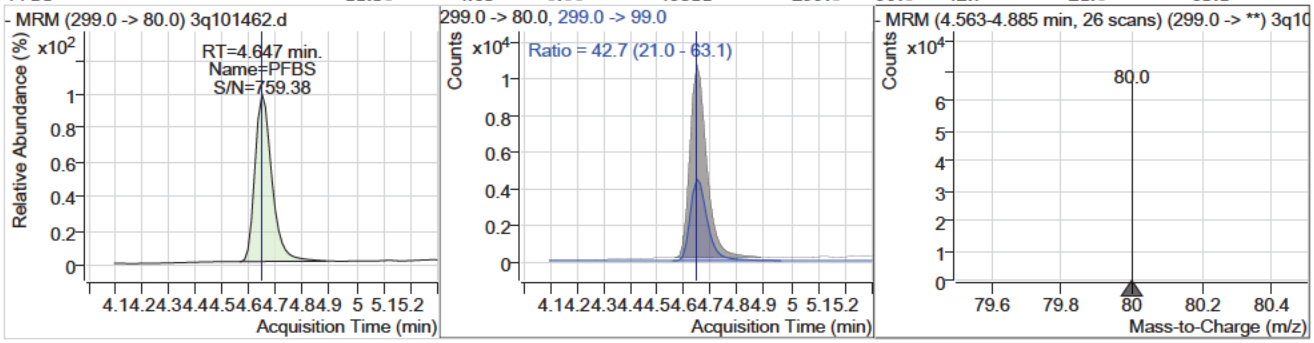
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	11.40	4.43	0.09	151266				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.96	4.65	0.00	20490				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	11.30	4.65	0.00	46811	299.0 -> 99.0	42.7	21.0	63.1



7.7.6

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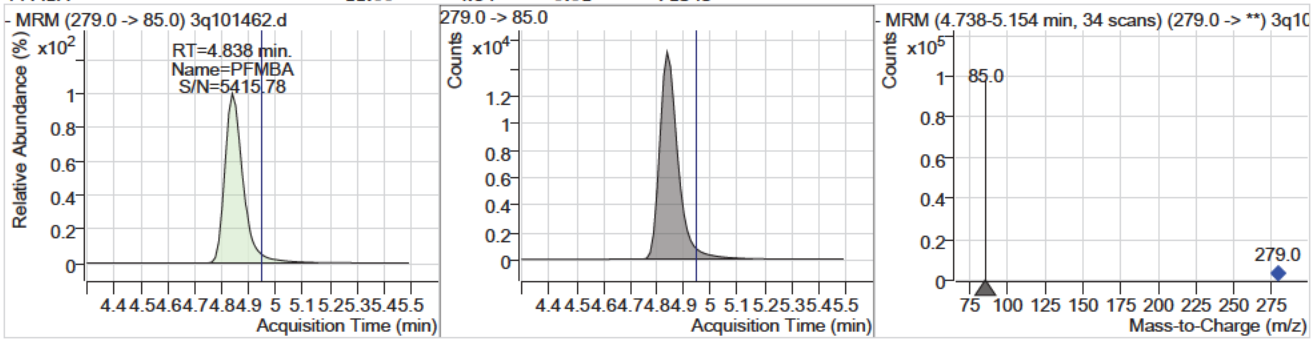
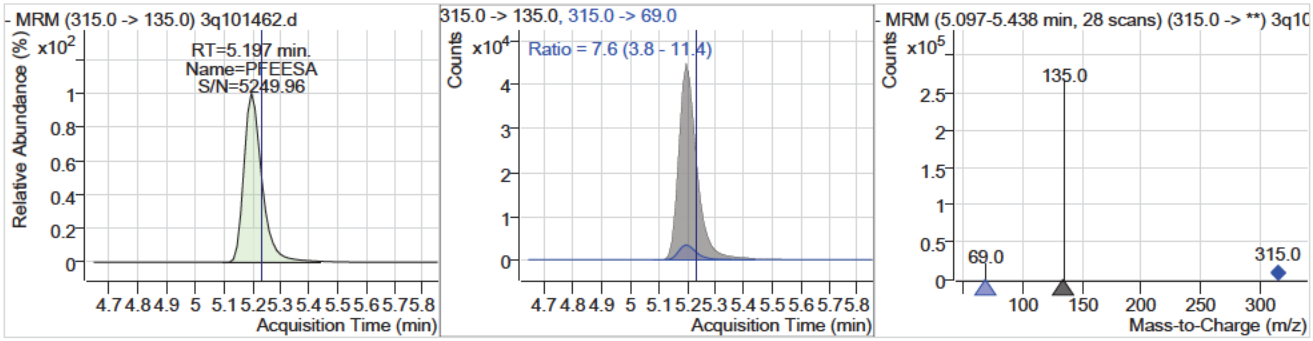
Perfluorinated Compounds by LC/MS/MS

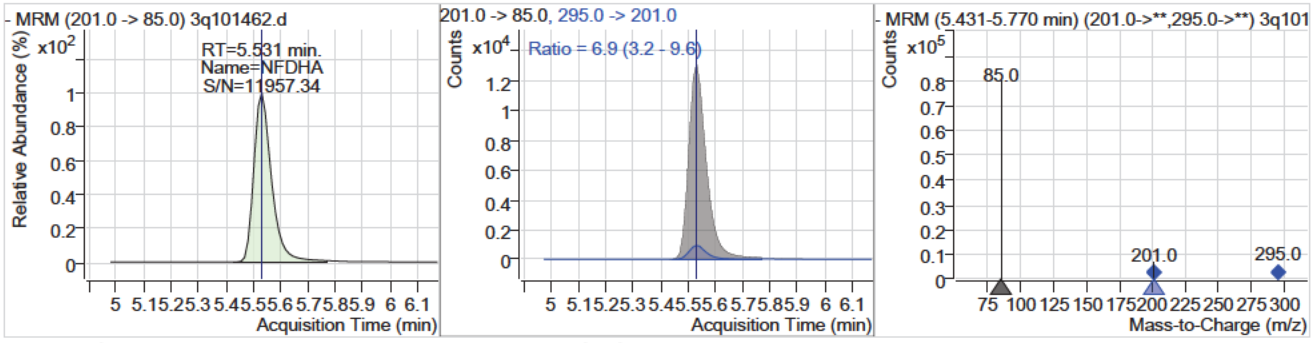
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	11.00	4.84	-0.01	71345				



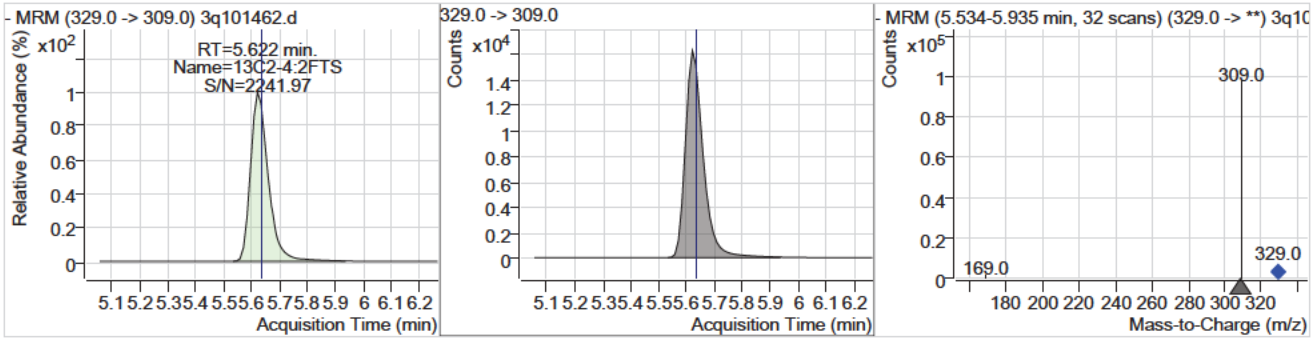
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	10.76	5.20	-0.04	198839	315.0 -> 69.0	7.6	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	11.39	5.53	-0.03	58885	295.0 -> 201.0	6.9	3.2	9.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	10.14	5.62	-0.03	72292				



7.7.6

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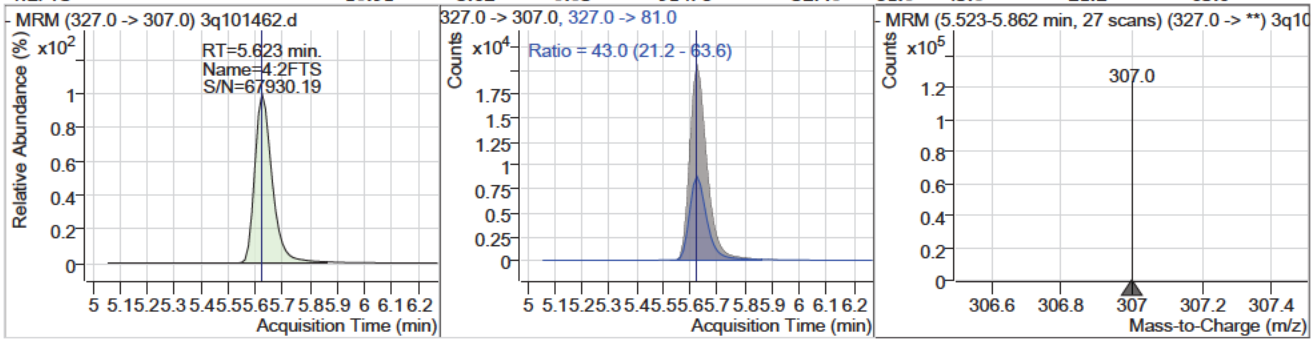
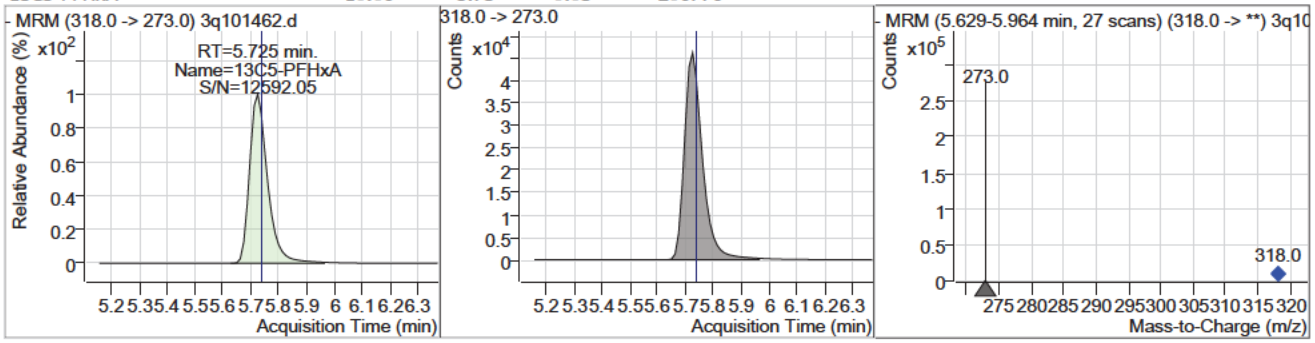
Perfluorinated Compounds by LC/MS/MS

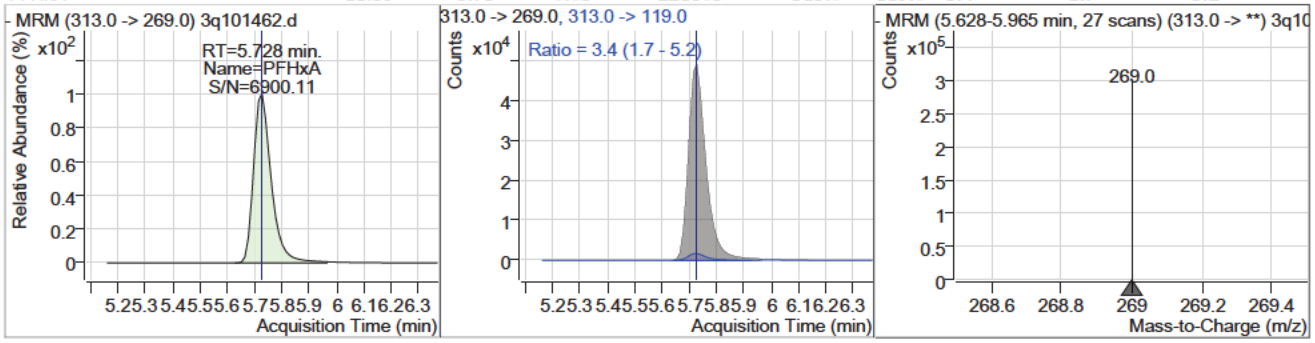
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	10.91	5.62	-0.03	91478	327.0 -> 81.0	43.0	21.2	63.6



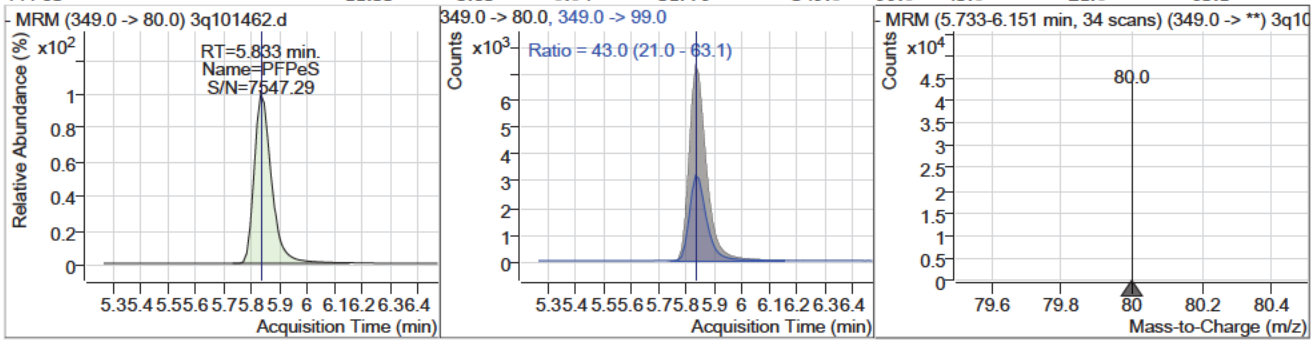
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.06	5.73	-0.03	206776				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	11.39	5.73	-0.03	221805	313.0 -> 119.0	3.4	1.7	5.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	11.33	5.83	-0.04	31779	349.0 -> 99.0	43.0	21.0	63.1



7.7.6

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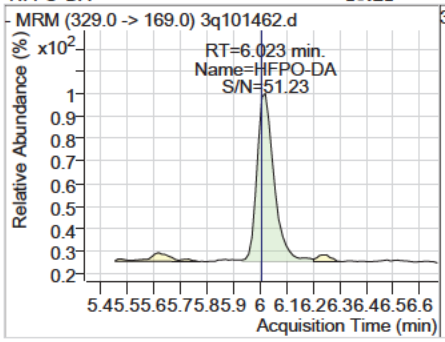
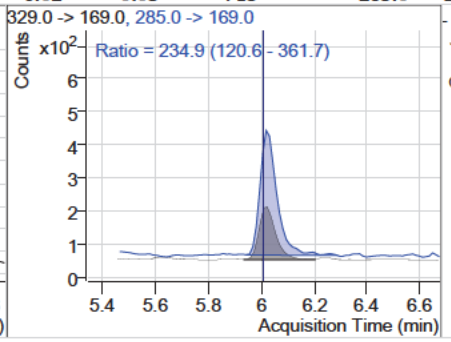
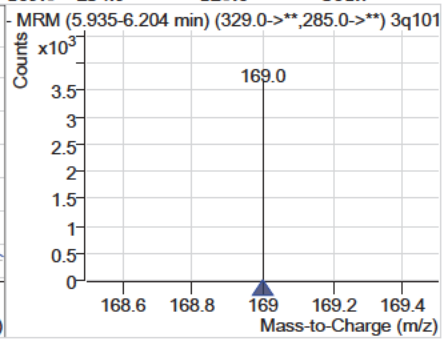
Perfluorinated Compounds by LC/MS/MS

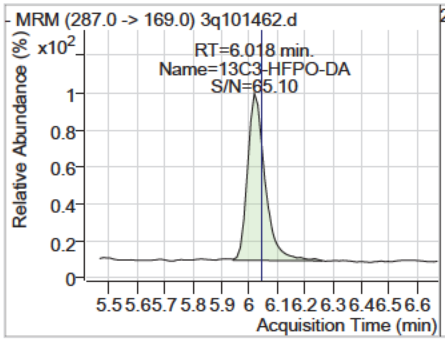
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	10.21	6.02	-0.03	715	285.0 -> 169.0	234.9	120.6	361.7

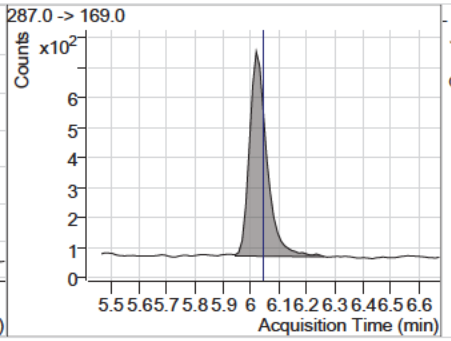


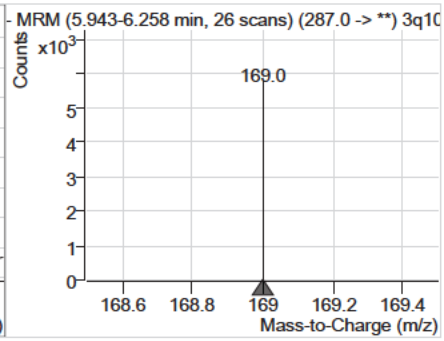




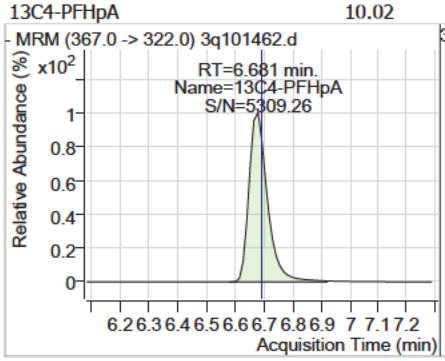
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.01	6.02	-0.04	2959				

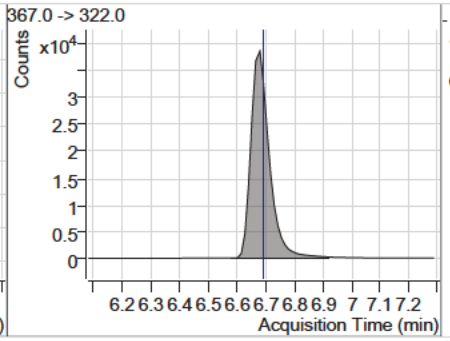


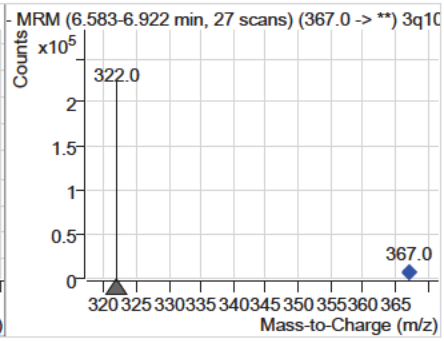




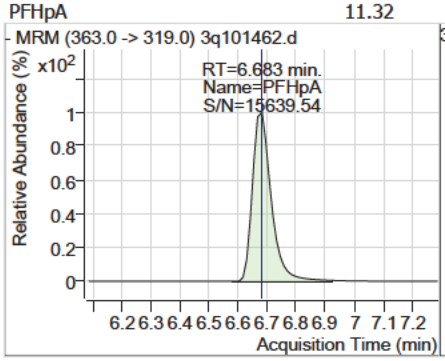
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.02	6.68	-0.03	172042				

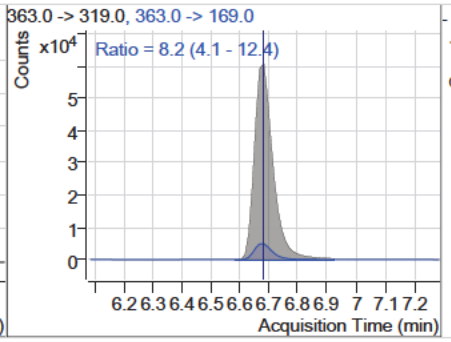


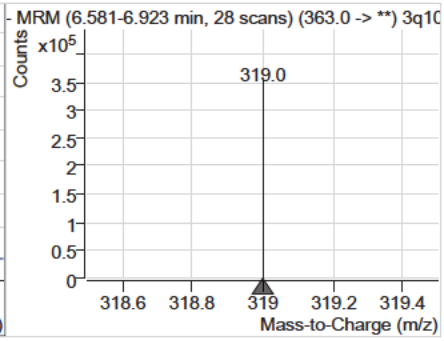




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	11.32	6.68	-0.03	273291	363.0 -> 169.0	8.2	4.1	12.4





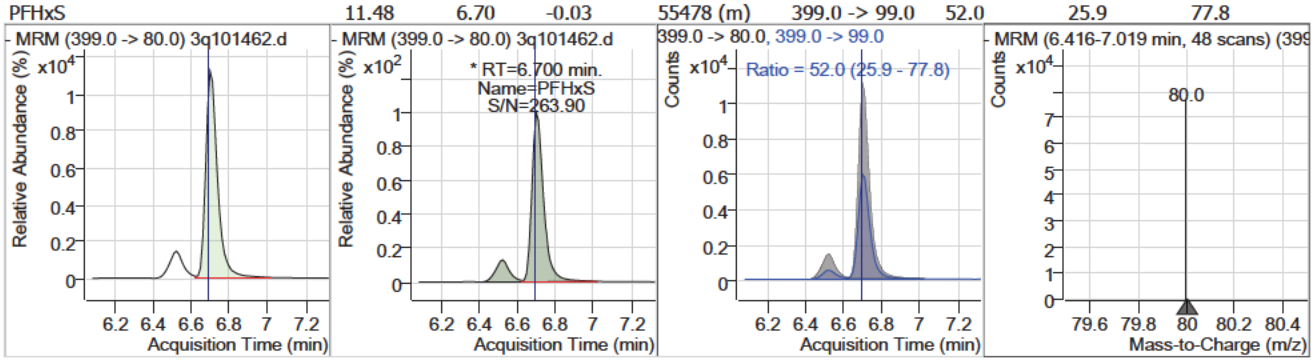


7.7.6

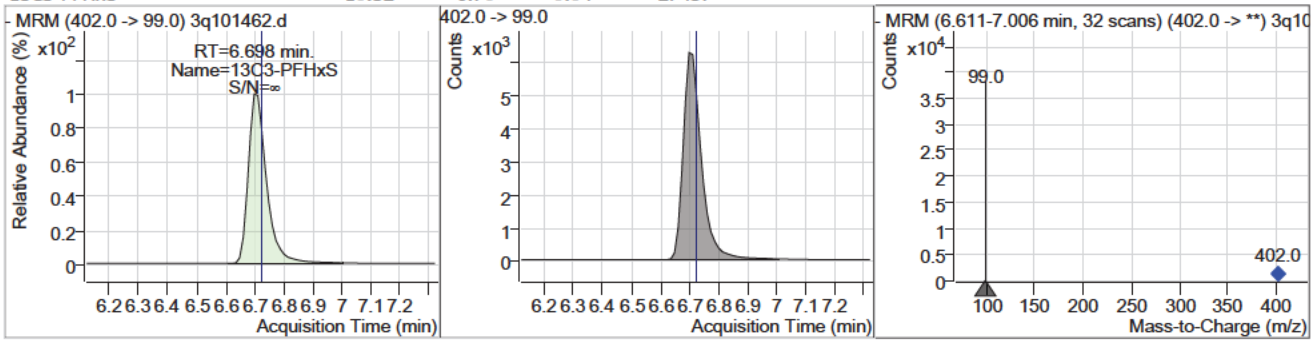
7

Perfluorinated Compounds by LC/MS/MS

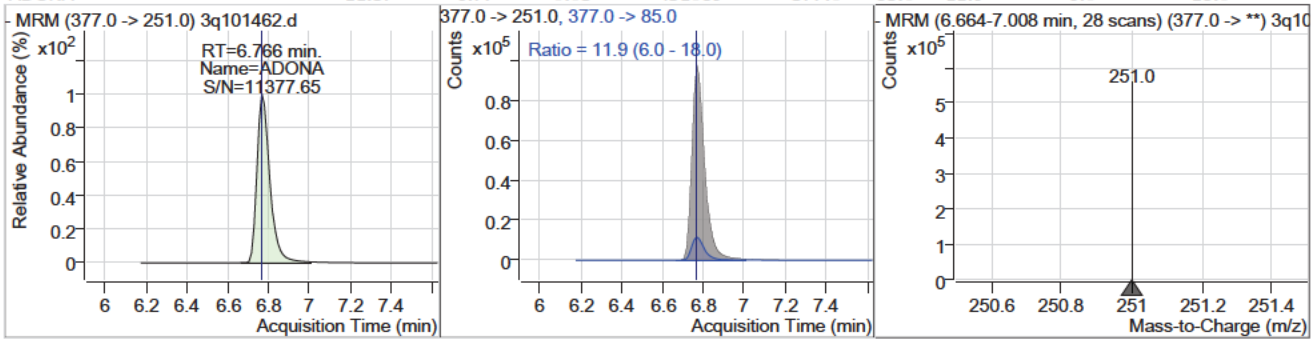
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	11.48	6.70	-0.03	55478 (m)	399.0 -> 99.0	52.0	25.9	77.8



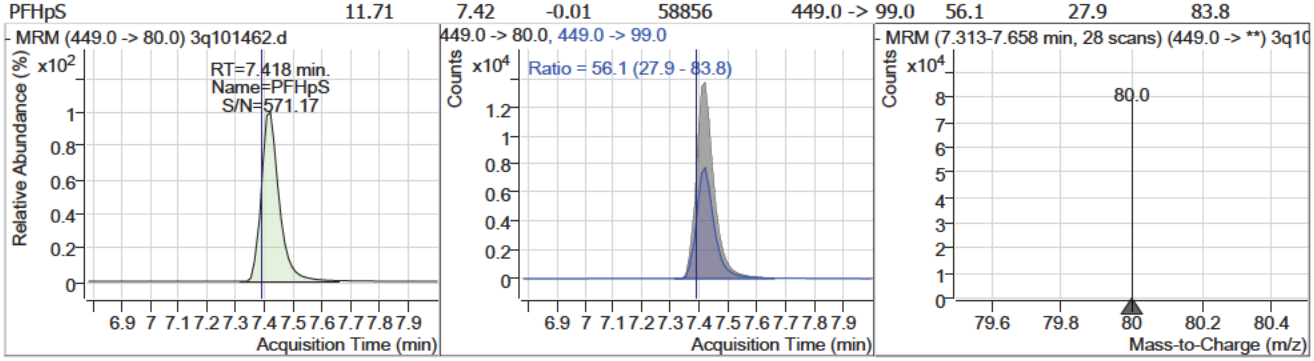
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.32	6.70	-0.04	27457				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	11.57	6.77	-0.03	431089	377.0 -> 85.0	11.9	6.0	18.0

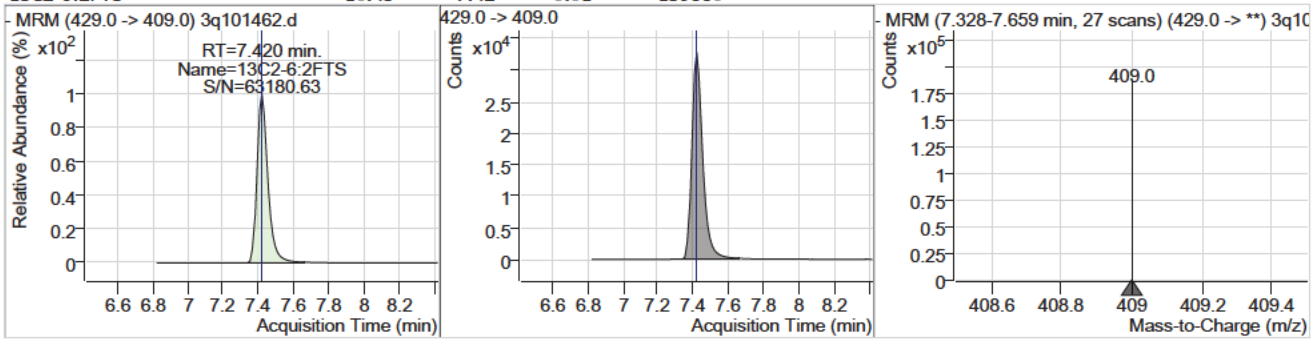


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	11.71	7.42	-0.01	58856	449.0 -> 99.0	56.1	27.9	83.8

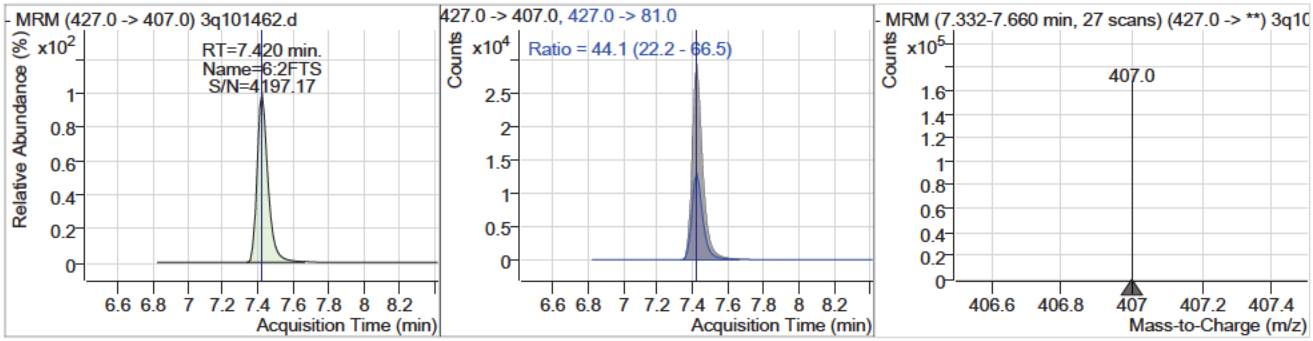


Perfluorinated Compounds by LC/MS/MS

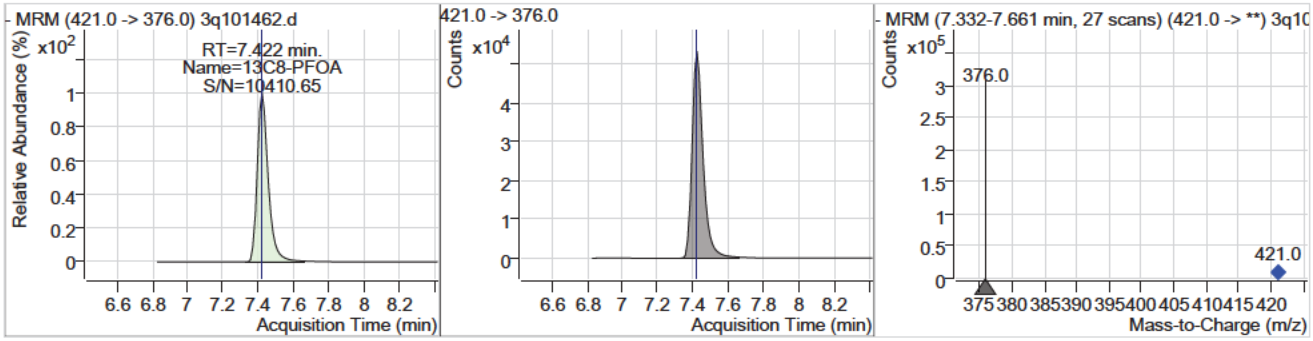
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	10.45	7.42	-0.01	139880				



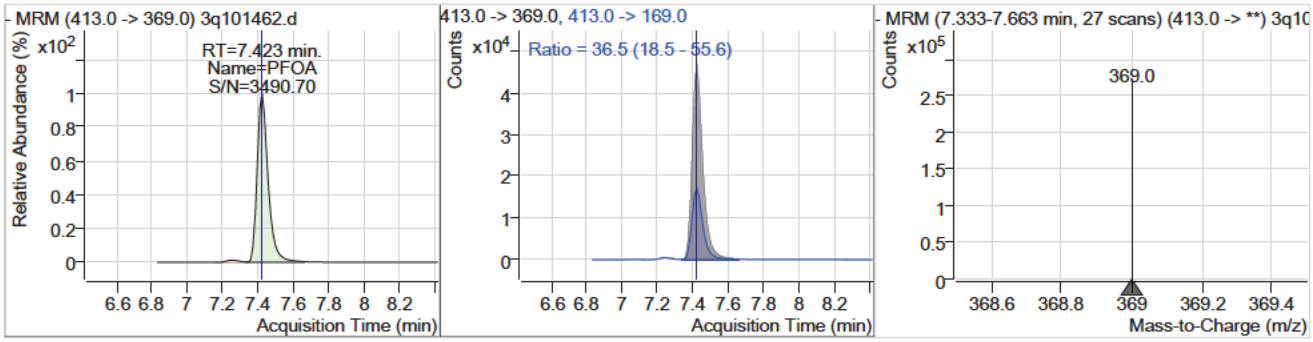
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	10.99	7.42	-0.01	126077	427.0 -> 81.0	44.1	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.34	7.42	-0.01	230351				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	11.40	7.42	-0.01	202509	413.0 -> 169.0	36.5	18.5	55.6

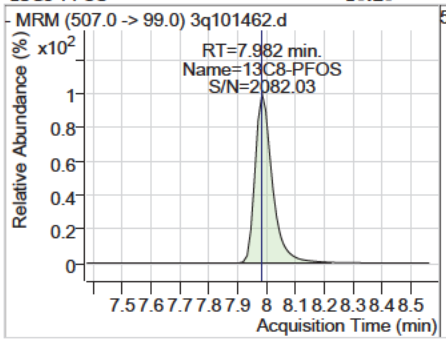


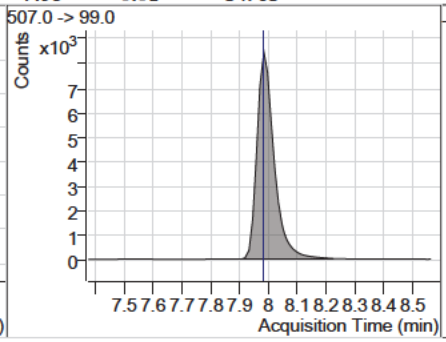
7.7.6

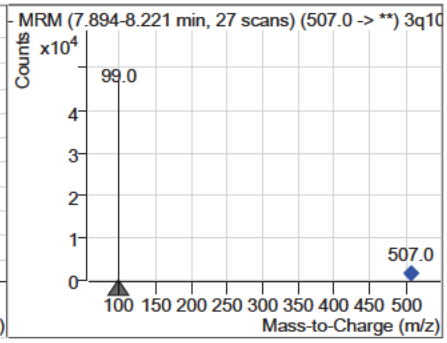
7

Perfluorinated Compounds by LC/MS/MS

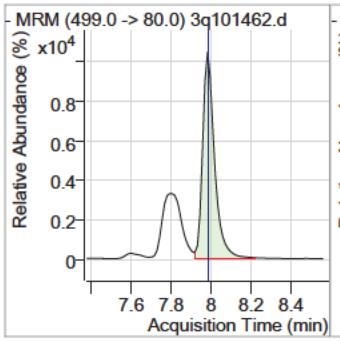
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.20	7.98	-0.01	34763				

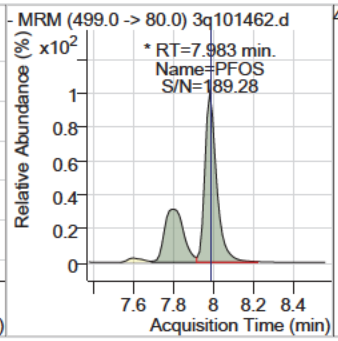


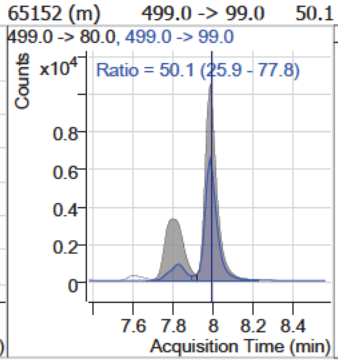


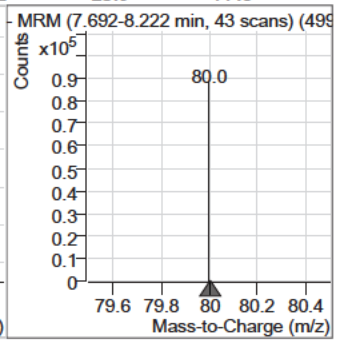


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	11.72	7.98	-0.01	65152 (m)	499.0 -> 99.0	50.1	25.9	77.8

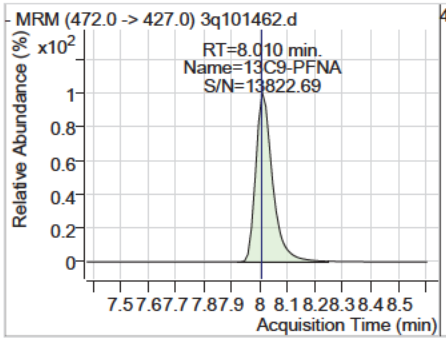


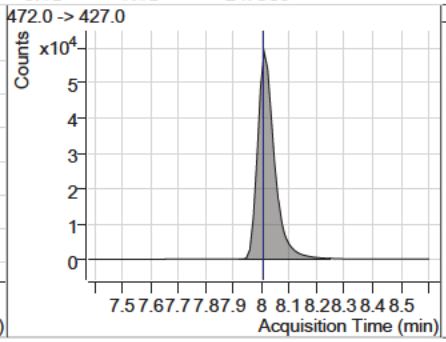


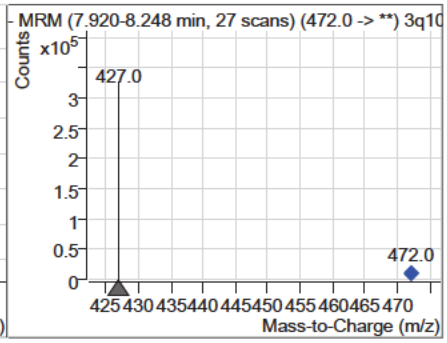




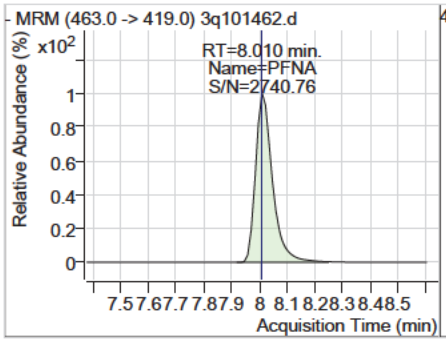
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.22	8.01	-0.01	247586				

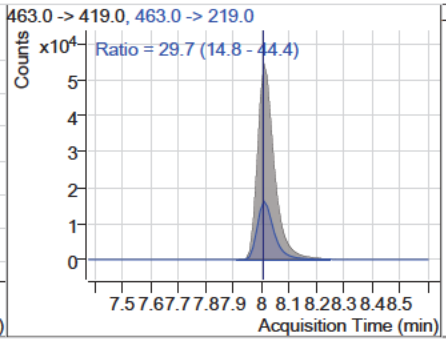


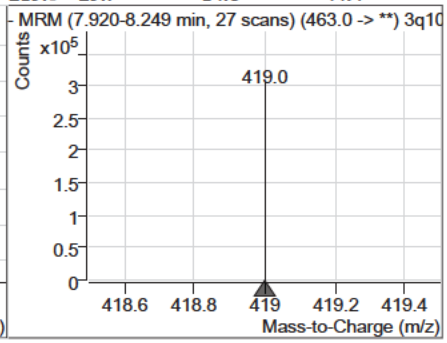




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	11.35	8.01	-0.01	230252	463.0 -> 219.0	29.7	14.8	44.4



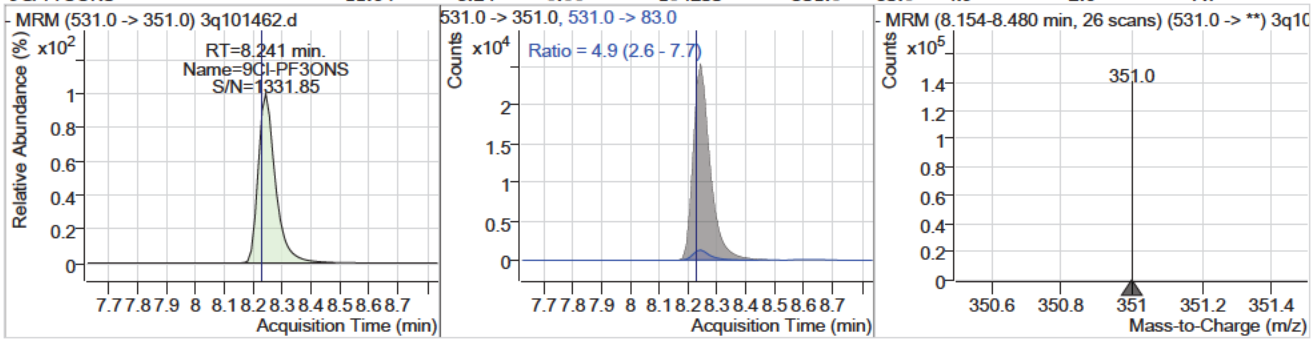




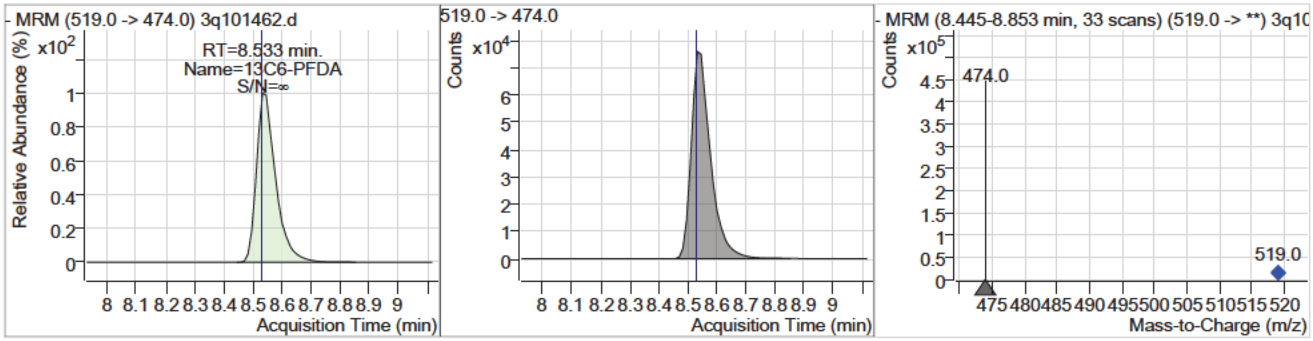
7.7.6

Perfluorinated Compounds by LC/MS/MS

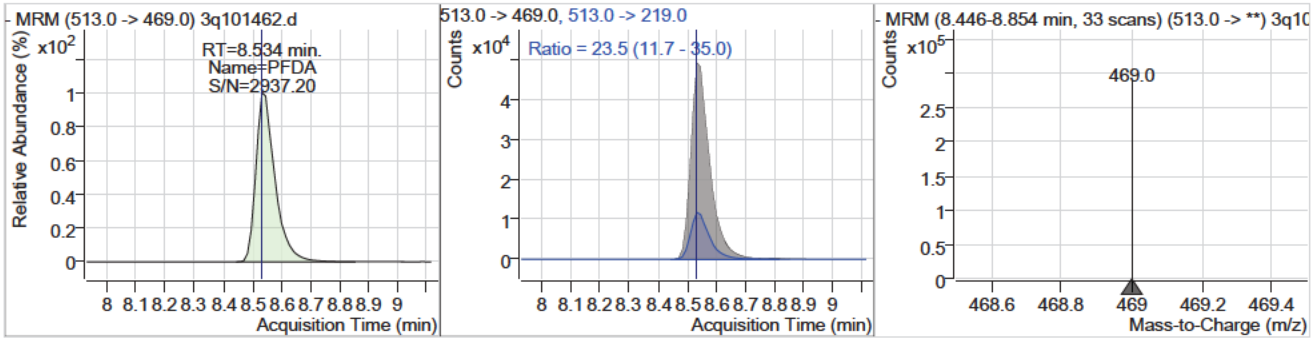
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	11.64	8.24	0.00	104233	531.0 -> 83.0	4.9	2.6	7.7



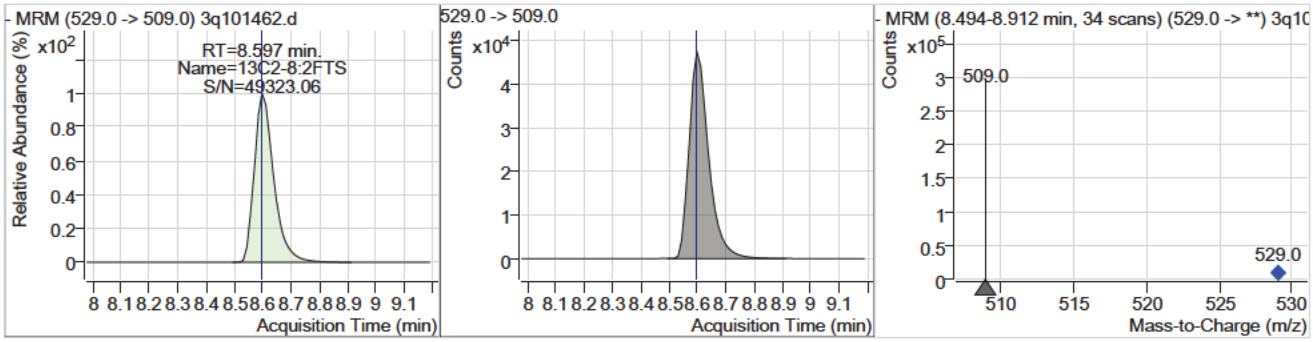
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	10.32	8.53	-0.01	350281				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	11.40	8.53	-0.01	225848	513.0 -> 219.0	23.5	11.7	35.0

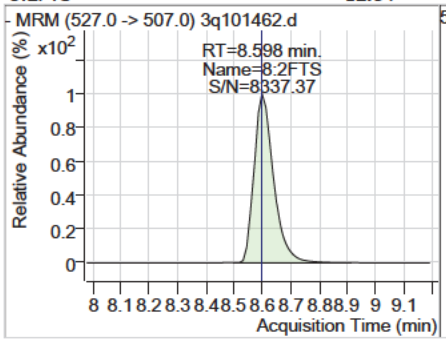


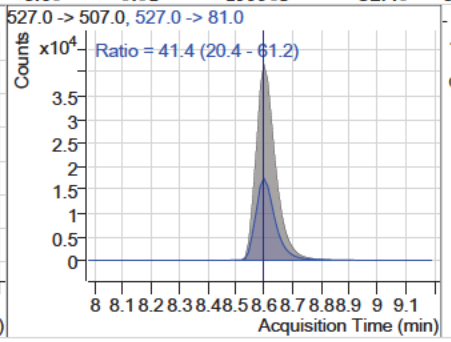
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	10.10	8.60	-0.01	226689				

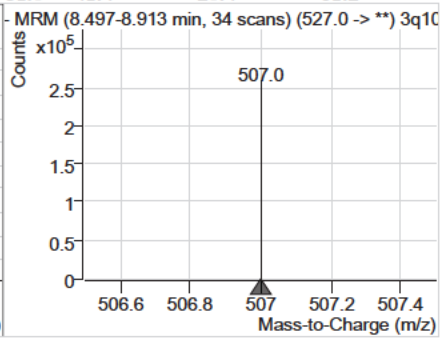


Perfluorinated Compounds by LC/MS/MS

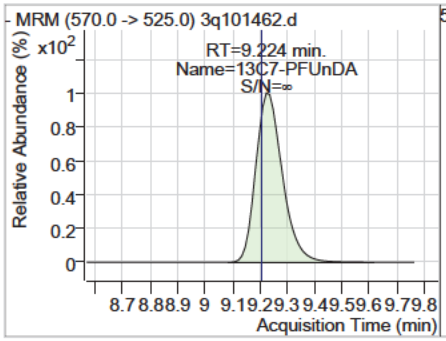
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	12.84	8.60	-0.01	199905	527.0 -> 81.0	41.4	20.4	61.2

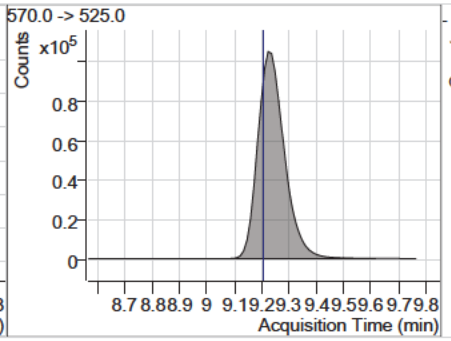


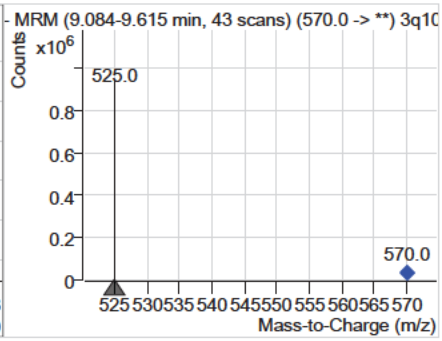




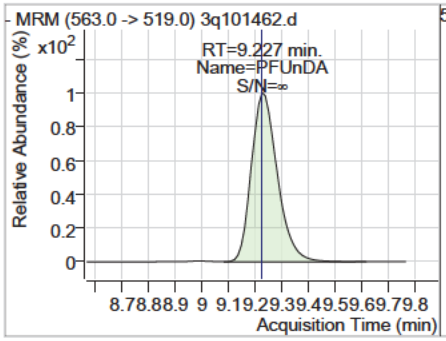
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	10.52	9.22	0.00	713475				

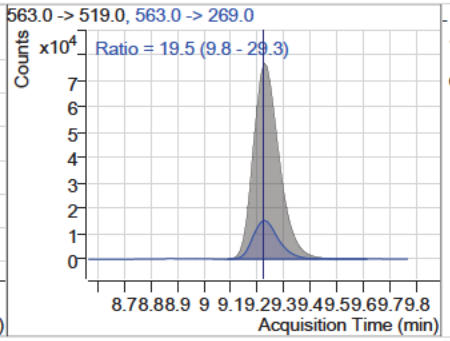


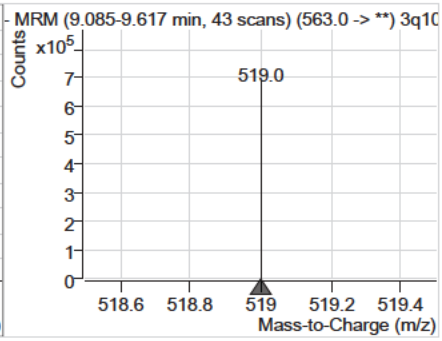




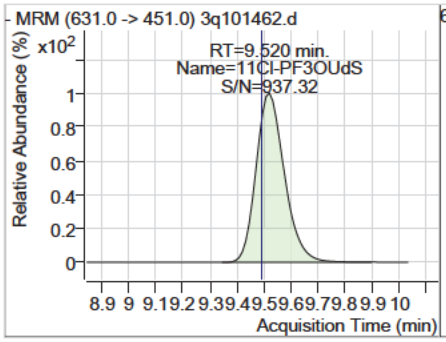
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	11.37	9.23	0.00	523071	563.0 -> 269.0	19.5	9.8	29.3

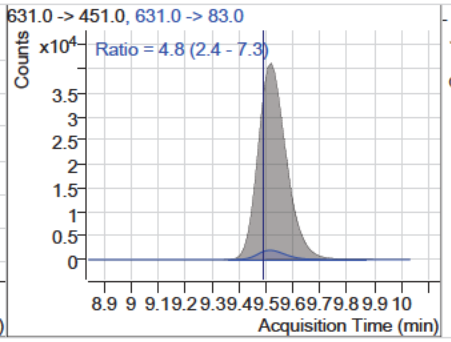


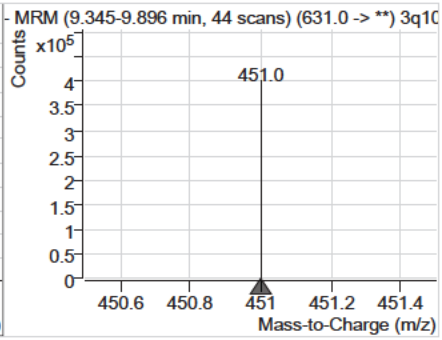




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	11.62	9.52	0.01	299903	631.0 -> 83.0	4.8	2.4	7.3





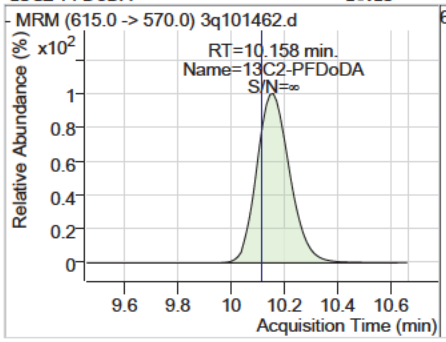


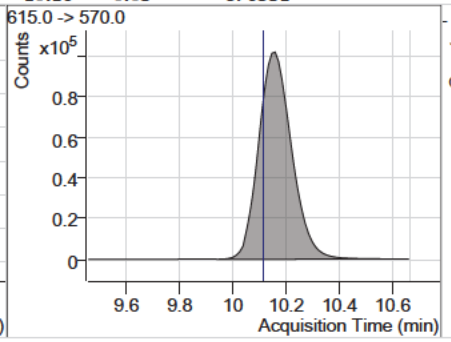
7.7.6

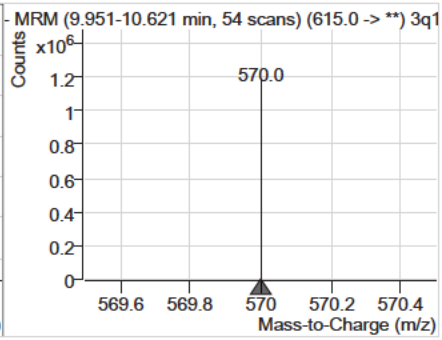
7

Perfluorinated Compounds by LC/MS/MS

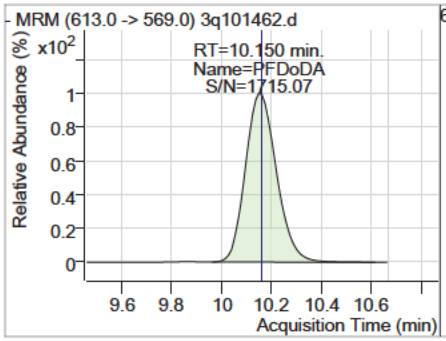
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.15	10.16	0.03	876531				

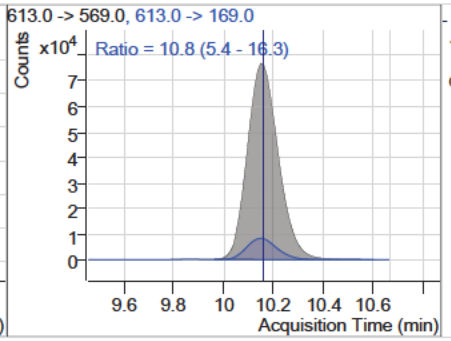


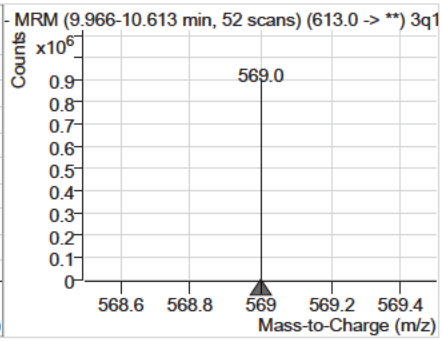




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	11.32	10.15	0.01	659655	613.0 -> 169.0	10.8	5.4	16.3







7.7.6

7

Manual Integration Approval Summary

Sample Number:	S3Q1492-IC1492	**Method:**	EPA 533
Lab FileID:	3Q101462.D	**Analyst approved:**	04/16/25 08:55 (b) (6)
Injection Time:	04/15/25 15:08	**Supervisor approved:**	04/17/25 11:42 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.70	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

3Q101463.D

Manual Integrations APPROVED (compounds with "m" flag)

(b) (6)

04/17/25 11:42

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101463.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 3:24:23 PM
Sample Name : icc1492-20
Vial : P1-C7
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.435	415.0 -> 370.0	208778	10.00 µg/L	0.000
13C3-PFBA	2.131	216.0 -> 172.0	84034	10.00 µg/L	0.000
13C4-PFOS	7.995	503.0 -> 80.0	31762	10.00 µg/L	0.000
M4-PFBA	2.140	217.0 -> 172.0	150771	10.00 µg/L	0.000
M5-PFPeA	4.338	268.0 -> 223.0	179212	10.00 µg/L	0.000
M5-PFHxA	5.750	318.0 -> 273.0	226599	10.00 µg/L	0.000
M4-PFHpA	6.706	367.0 -> 322.0	189090	10.00 µg/L	0.000
M8-PFOA	7.434	421.0 -> 376.0	245108	10.00 µg/L	0.000
M9-PFNA	8.022	472.0 -> 427.0	267922	10.00 µg/L	0.000
M6-PFDA	8.546	519.0 -> 474.0	378628	10.00 µg/L	0.000
M7-PFUnDA	9.224	570.0 -> 525.0	759188	10.00 µg/L	0.000
M2-PFDoDA	10.133	615.0 -> 570.0	958194	10.00 µg/L	0.000
M3-PFBS	4.646	302.0 -> 99.0	20815	10.00 µg/L	0.000
M3-PFHxS	6.736	402.0 -> 99.0	30057	10.00 µg/L	0.000
M8-PFOS	7.995	507.0 -> 99.0	39102	10.00 µg/L	0.000
M2-4:2FTS	5.647	329.0 -> 309.0	82020	10.00 µg/L	0.000
M2-6:2FTS	7.432	429.0 -> 409.0	153435	10.00 µg/L	0.000
M2-8:2FTS	8.611	529.0 -> 509.0	260237	10.00 µg/L	0.000
M3-HFPO-DA	6.056	287.0 -> 169.0	3279	10.00 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.647	329.0 -> 309.0	82020	10.85 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.5%	
13C2-6:2FTS	7.432	429.0 -> 409.0	153435	10.81 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.1%	
13C2-8:2FTS	8.611	529.0 -> 509.0	260237	10.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.4%	
13C2-PFDoDA	10.133	615.0 -> 570.0	958194	10.78 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.8%	
13C3-PFBS	4.646	302.0 -> 99.0	20815	10.50 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C3-PFHxS	6.736	402.0 -> 99.0	30057	10.65 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C4-PFBA	2.140	217.0 -> 172.0	150771	10.58 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.8%	
13C4-PFHpA	6.706	367.0 -> 322.0	189090	10.70 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C5-PFHxA	5.750	318.0 -> 273.0	226599	10.71 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.1%	
13C5-PFPeA	4.338	268.0 -> 223.0	179212	10.43 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C6-PFDA	8.546	519.0 -> 474.0	378628	10.84 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C7-PFUnDA	9.224	570.0 -> 525.0	759188	10.88 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.8%	
13C8-PFOA	7.434	421.0 -> 376.0	245108	10.69 µg/L	0.000

7.7.7

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Perfluorinated Compounds by LC/MS/MS

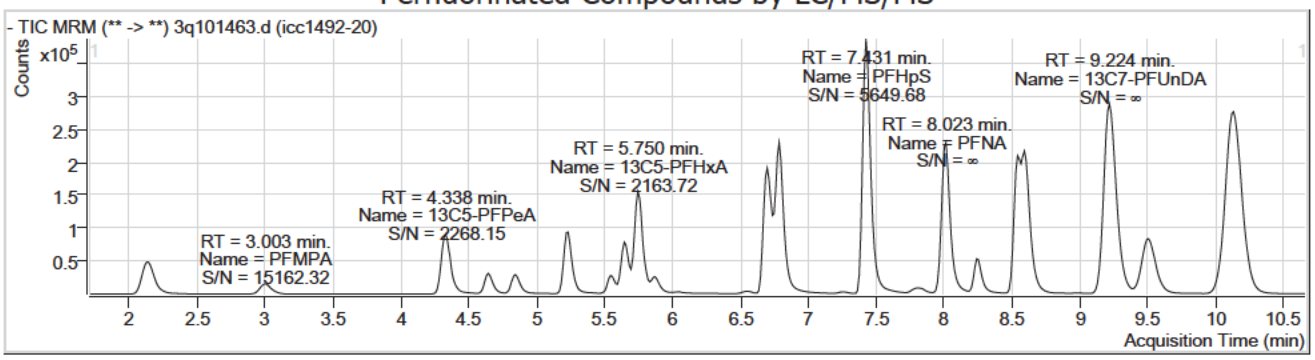
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.9%		
13C8-PFOS	7.995	507.0 -> 99.0	39102	10.83 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.3%		
13C9-PFNA	8.022	472.0 -> 427.0	267922	10.75 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.5%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	3279	10.78 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.8%		
Target Compounds						QValue
PFMPA	3.003	229.0 -> 85.0	96051	19.68 µg/L		100
4:2FTS	5.648	327.0 -> 307.0	177347	19.48 µg/L		100
		327.0 -> 81.0	75159			
6:2FTS	7.433	427.0 -> 407.0	235061	19.40 µg/L		100
		427.0 -> 81.0	104178			
8:2FTS	8.612	527.0 -> 507.0	389254	21.77 µg/L		100
		527.0 -> 81.0	158872			
PFMBA	4.851	279.0 -> 85.0	132841	20.10 µg/L		100
PFEESA	5.235	315.0 -> 135.0	383681	20.44 µg/L		100
		315.0 -> 69.0	29156			
NFDHA	5.556	201.0 -> 85.0	113529	20.03 µg/L		100
		295.0 -> 201.0	7243			
PFBA	2.136	213.0 -> 169.0	83609	20.06 µg/L		100
PFBS	4.647	299.0 -> 80.0	84682	20.12 µg/L		100
		299.0 -> 99.0	35607			
PFDA	8.546	513.0 -> 469.0	430596	20.11 µg/L		100
		513.0 -> 219.0	100409			
PFDoDA	10.138	613.0 -> 569.0	1276051	20.02 µg/L		100
		613.0 -> 169.0	138918			
PFHpA	6.708	363.0 -> 319.0	537593	20.26 µg/L		100
		363.0 -> 169.0	44511			
PFHpS	7.431	449.0 -> 80.0	111774	20.31 µg/L		100
		449.0 -> 99.0	62469			
PFHxA	5.753	313.0 -> 269.0	425272	19.92 µg/L		100
		313.0 -> 119.0	14796			
PFHxS	6.725	399.0 -> 80.0	107439	20.31 µg/L	m	100
		399.0 -> 99.0	55698			
PFNA	8.023	463.0 -> 419.0	440800	20.09 µg/L		100
		463.0 -> 219.0	130376			
PFOA	7.436	413.0 -> 369.0	375976	19.89 µg/L		100
		413.0 -> 169.0	139467			
PFOS	7.996	499.0 -> 80.0	124154	19.86 µg/L	m	100
		499.0 -> 99.0	64369			
PFPeA	4.340	263.0 -> 219.0	270642	20.02 µg/L		100
PFPeS	5.871	349.0 -> 80.0	61635	20.08 µg/L		100
		349.0 -> 99.0	25917			
PFUnDA	9.227	563.0 -> 519.0	975044	19.92 µg/L		100
		563.0 -> 269.0	190388			
11Cl-PF3OUdS	9.507	631.0 -> 451.0	575947	19.83 µg/L		100
		631.0 -> 83.0	28130			
9Cl-PF3ONS	8.241	531.0 -> 351.0	202201	20.07 µg/L		100
		531.0 -> 83.0	10378			
ADONA	6.792	377.0 -> 251.0	815567	19.91 µg/L		100
		377.0 -> 85.0	97597			
HFPO-DA	6.048	329.0 -> 169.0	1479	20.42 µg/L		100
		285.0 -> 169.0	3566			

= Qualifier out of range, m = manually integrated, + = Area summed

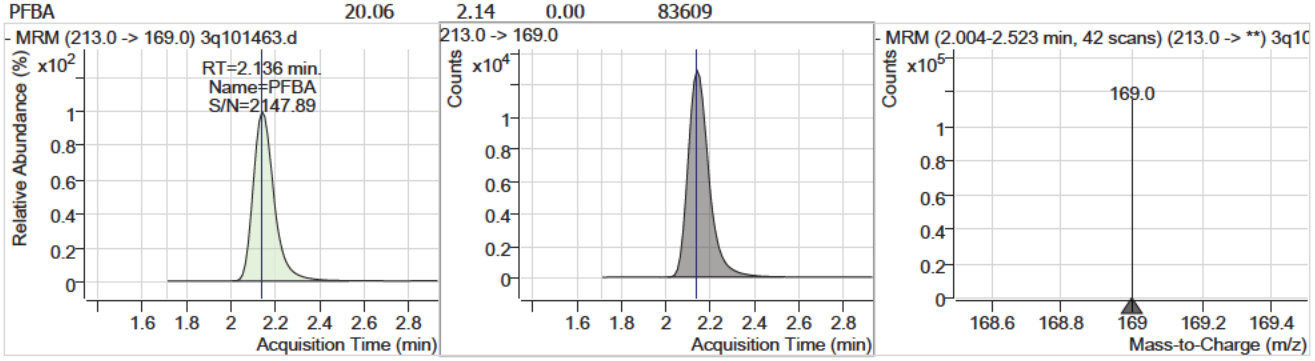
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)

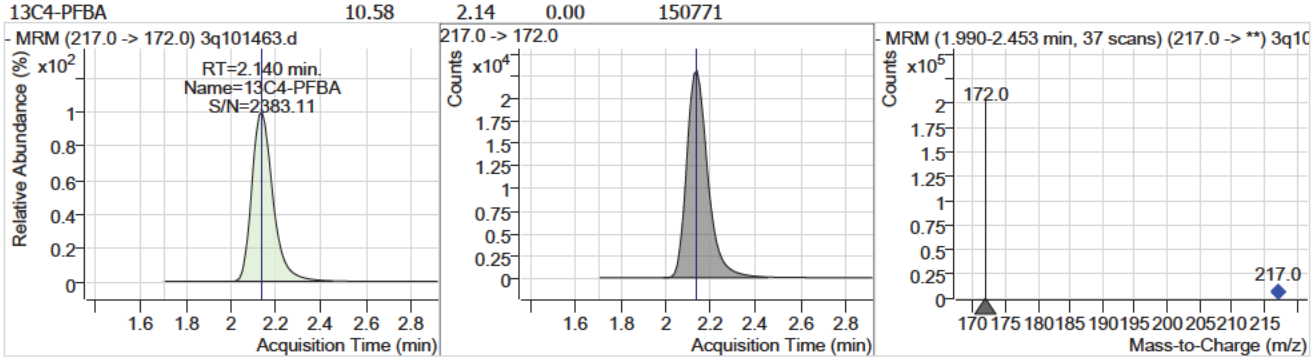
Perfluorinated Compounds by LC/MS/MS



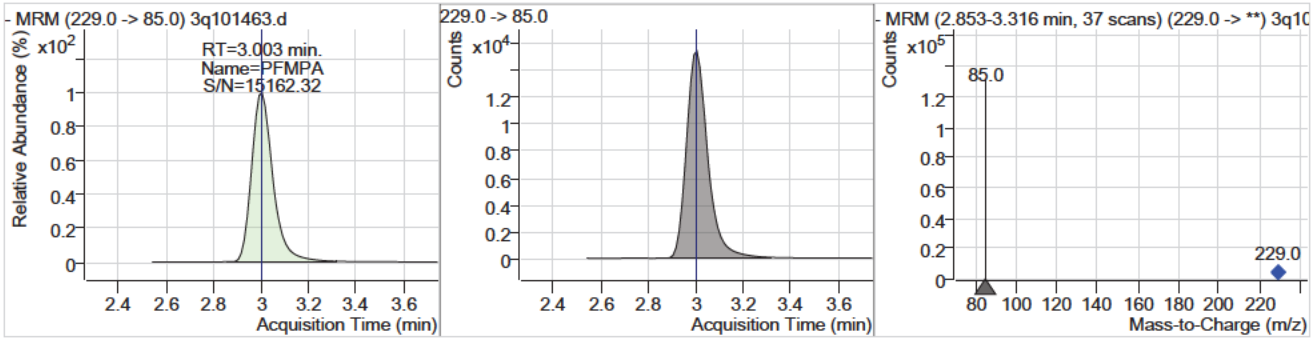
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	20.06	2.14	0.00	83609				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.58	2.14	0.00	150771				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	19.68	3.00	0.00	96051				



7.7.7

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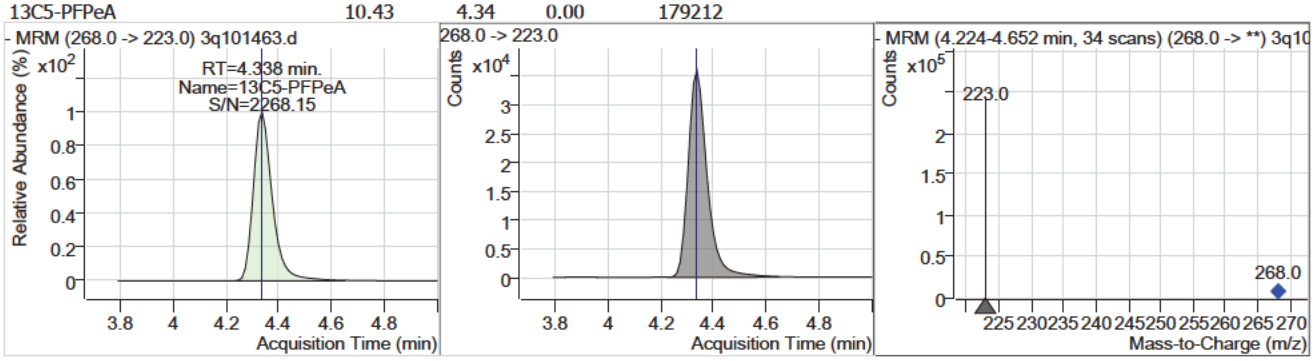
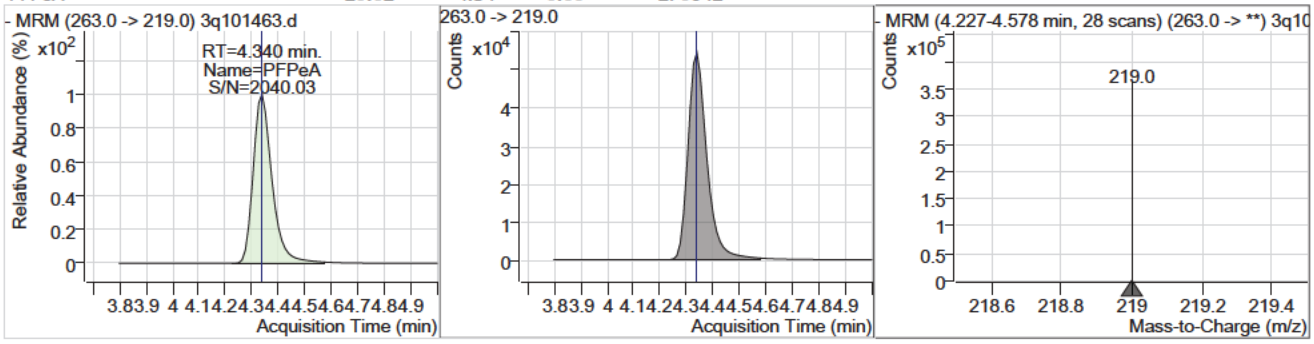
Perfluorinated Compounds by LC/MS/MS

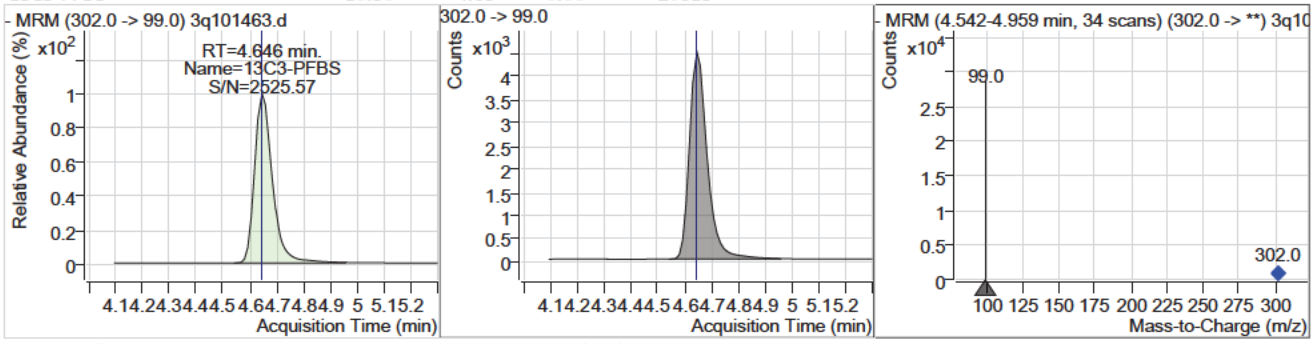
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.43	4.34	0.00	179212				



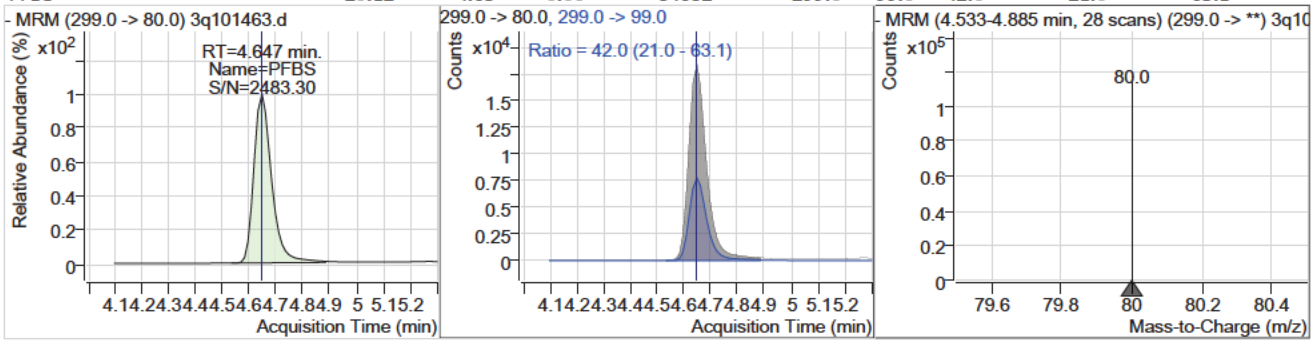
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.02	4.34	0.00	270642				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.50	4.65	0.00	20815				



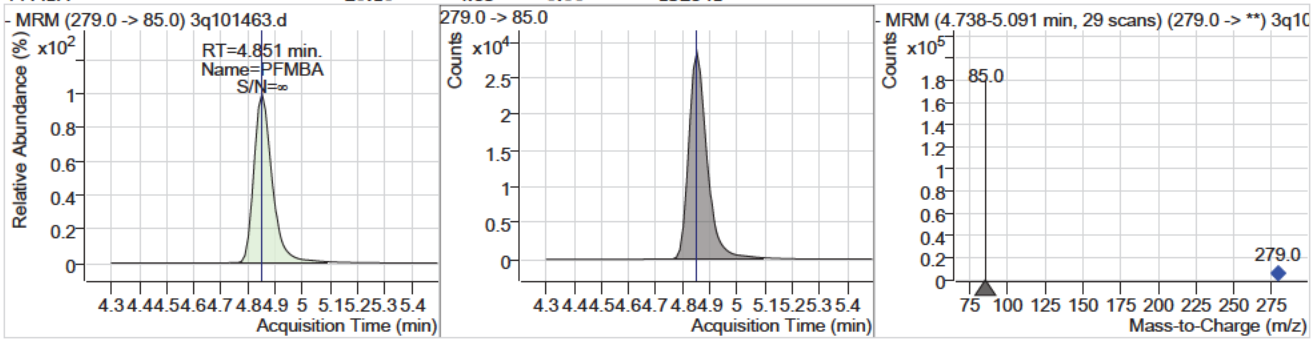
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.12	4.65	0.00	84682	299.0 -> 99.0	42.0	21.0	63.1



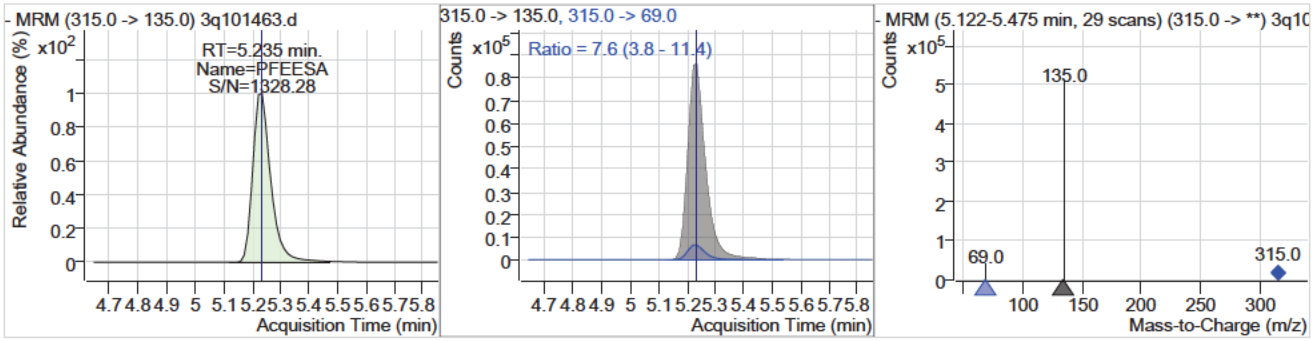
7.7.7

Perfluorinated Compounds by LC/MS/MS

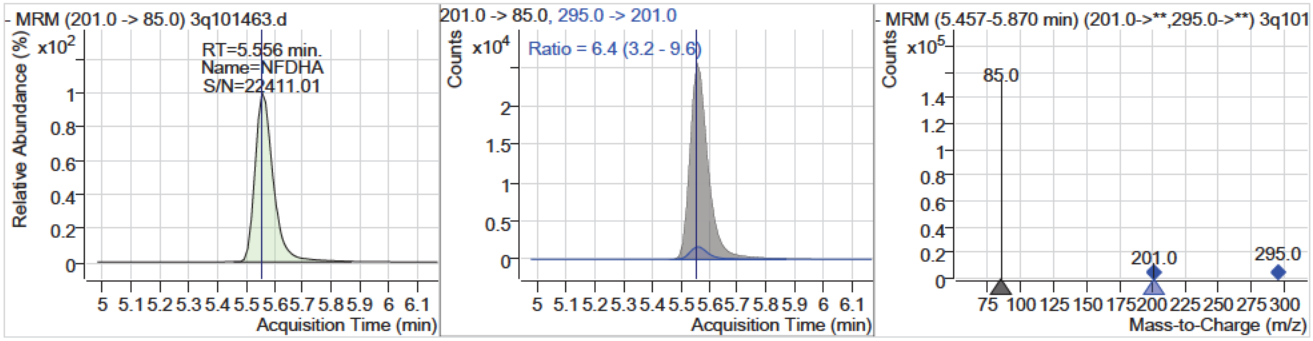
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	20.10	4.85	0.00	132841				



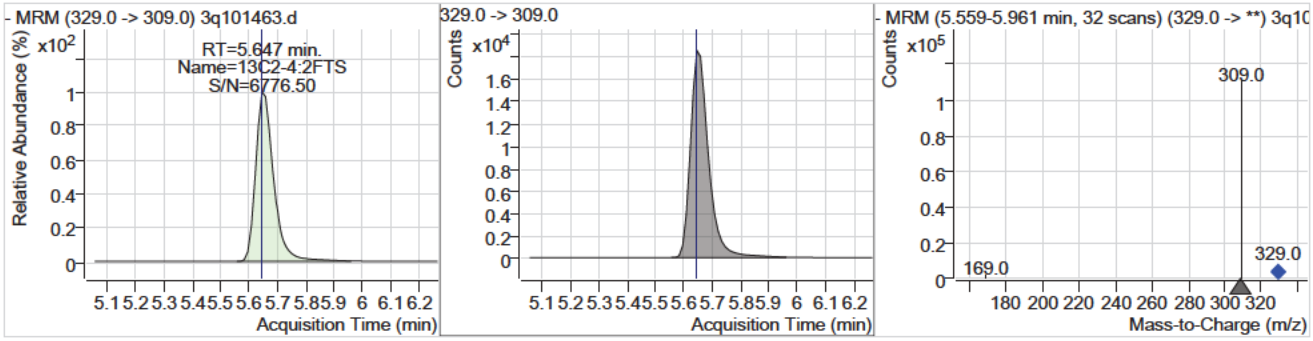
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	20.44	5.23	0.00	383681	315.0 -> 69.0	7.6	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	20.03	5.56	0.00	113529	295.0 -> 201.0	6.4	3.2	9.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	10.85	5.65	0.00	82020				

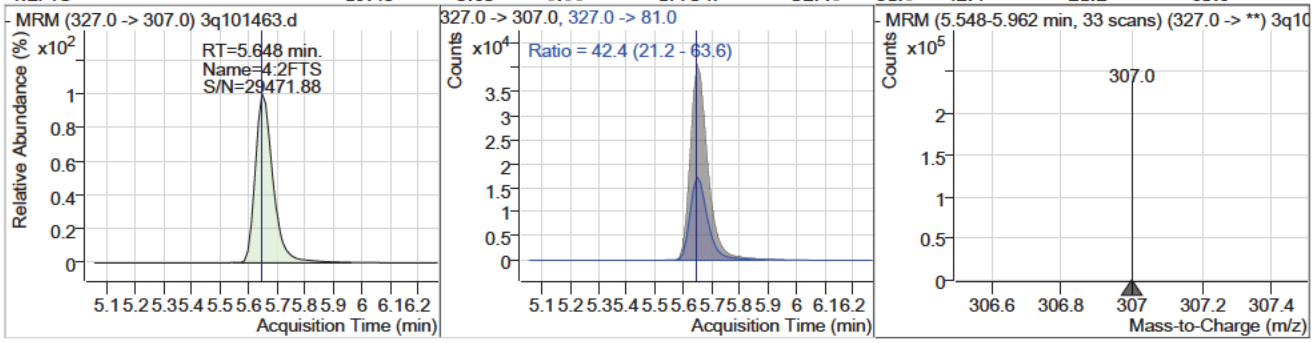


7.7.7

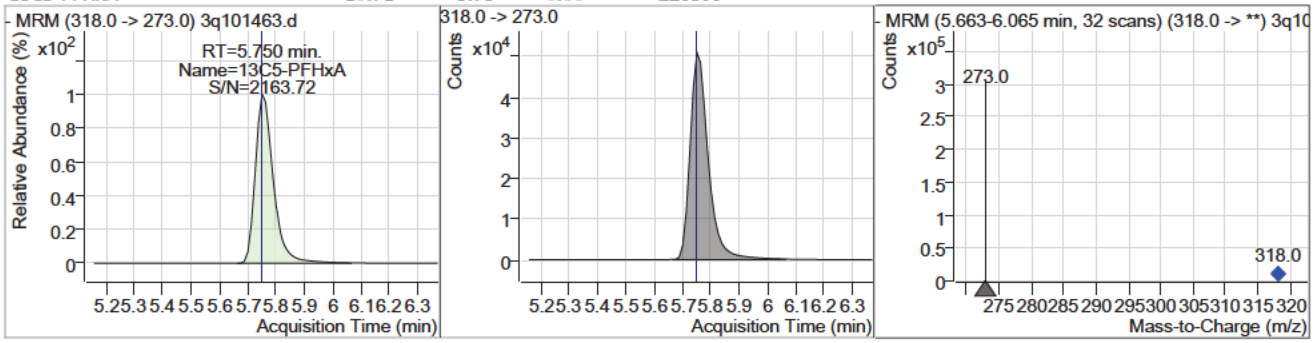
7

Perfluorinated Compounds by LC/MS/MS

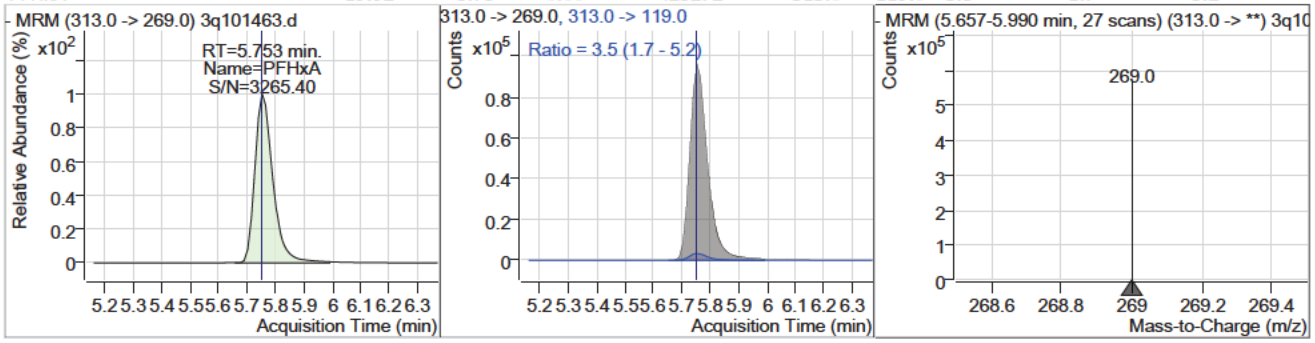
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.48	5.65	0.00	177347	327.0 -> 81.0	42.4	21.2	63.6



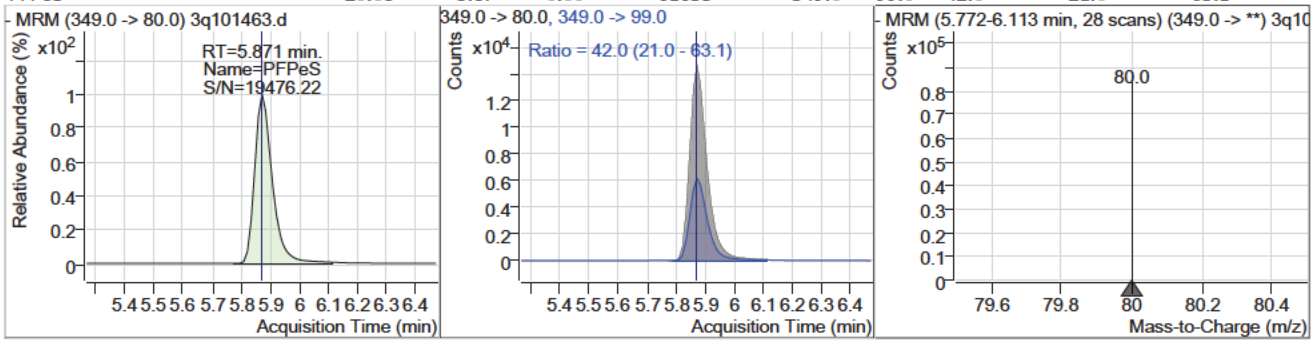
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.71	5.75	0.00	226599				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.92	5.75	0.00	425272	313.0 -> 119.0	3.5	1.7	5.2

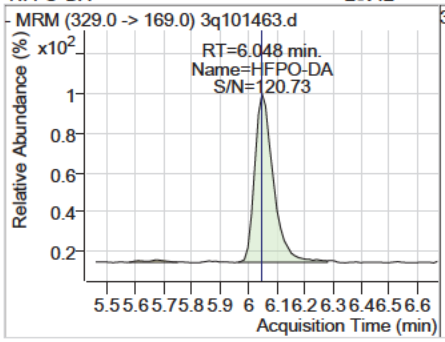


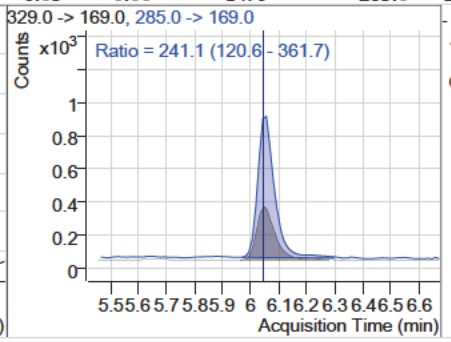
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	20.08	5.87	0.00	61635	349.0 -> 99.0	42.0	21.0	63.1

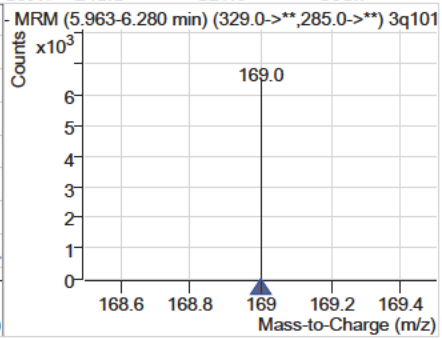


Perfluorinated Compounds by LC/MS/MS

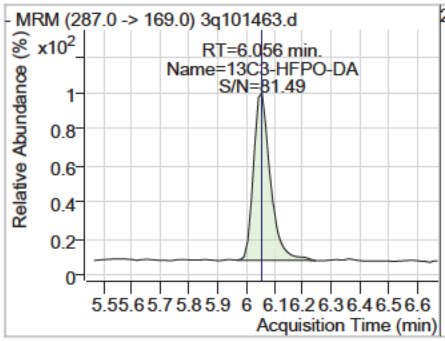
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	20.42	6.05	0.00	1479	285.0 -> 169.0	241.1	120.6	361.7

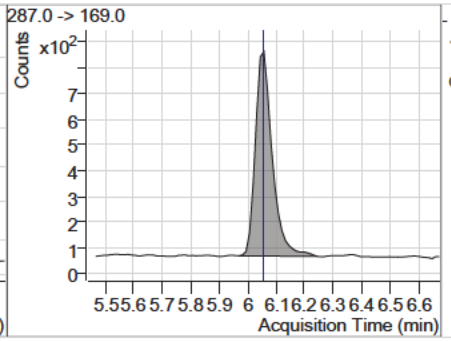


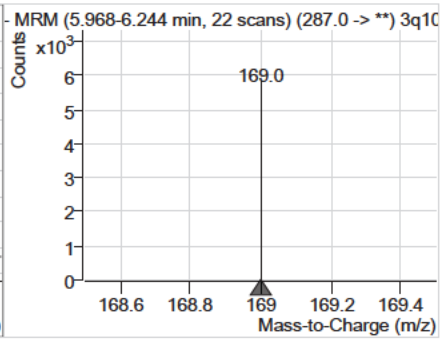




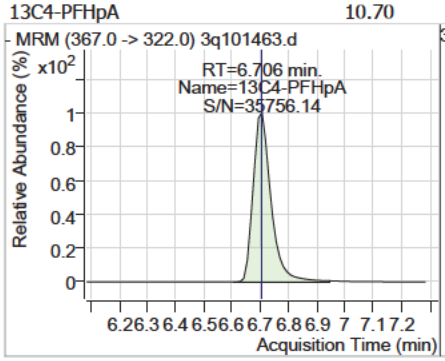
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.78	6.06	0.00	3279				

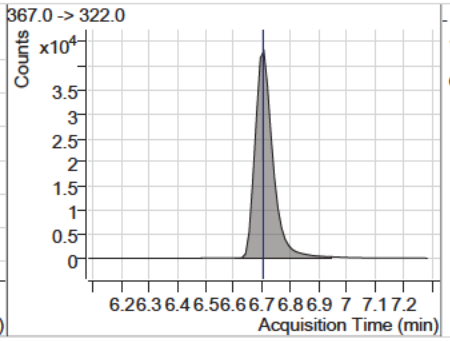


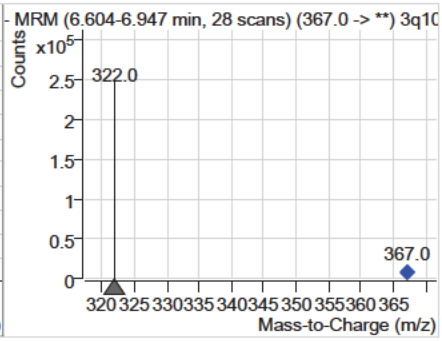




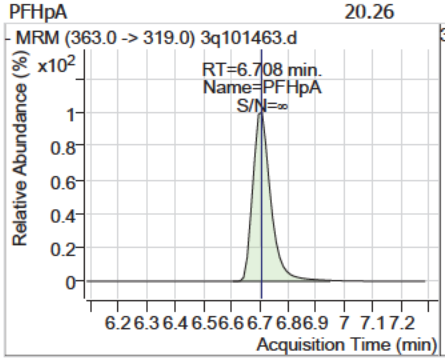
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.70	6.71	0.00	189090				

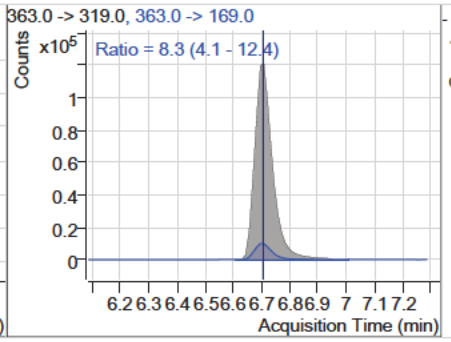


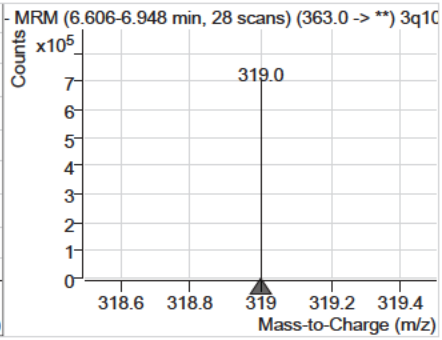




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.26	6.71	0.00	537593	363.0 -> 169.0	8.3	4.1	12.4





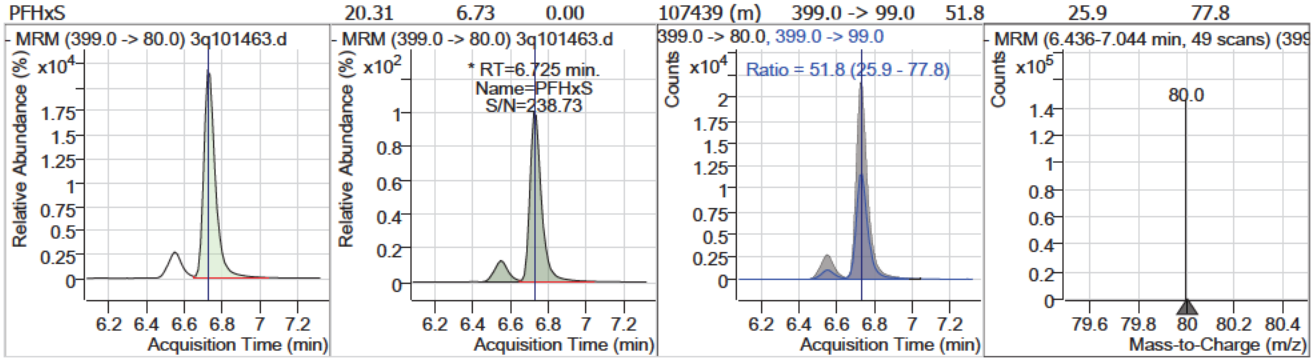


7.7.7

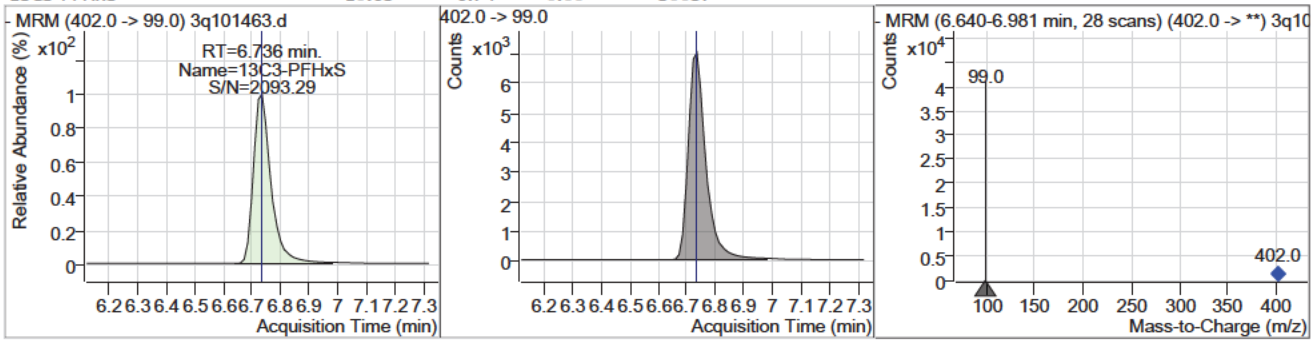
7

Perfluorinated Compounds by LC/MS/MS

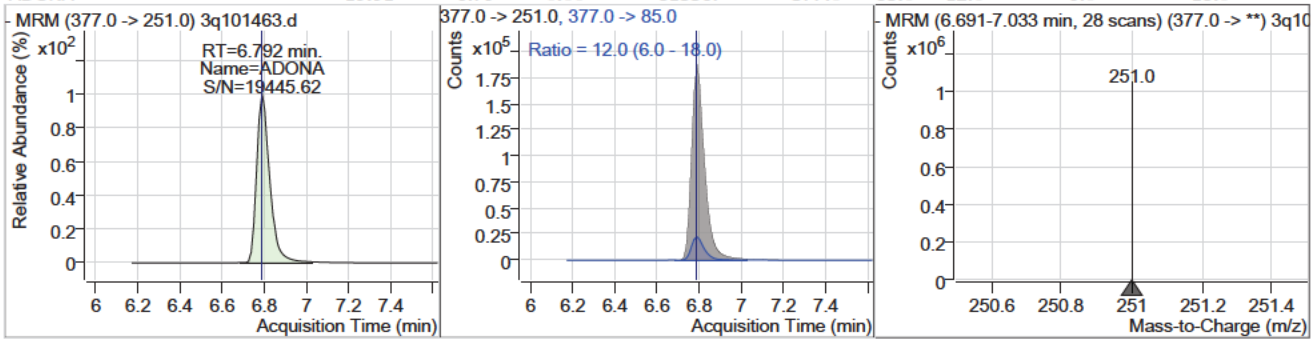
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	20.31	6.73	0.00	107439 (m)	399.0 -> 99.0	51.8	25.9	77.8



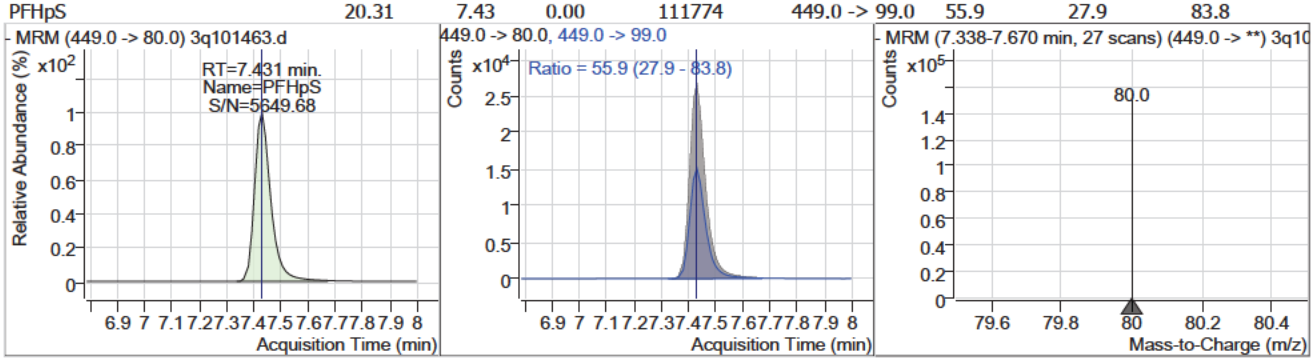
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.65	6.74	0.00	30057				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.91	6.79	0.00	815567	377.0 -> 85.0	12.0	6.0	18.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	20.31	7.43	0.00	111774	449.0 -> 99.0	55.9	27.9	83.8

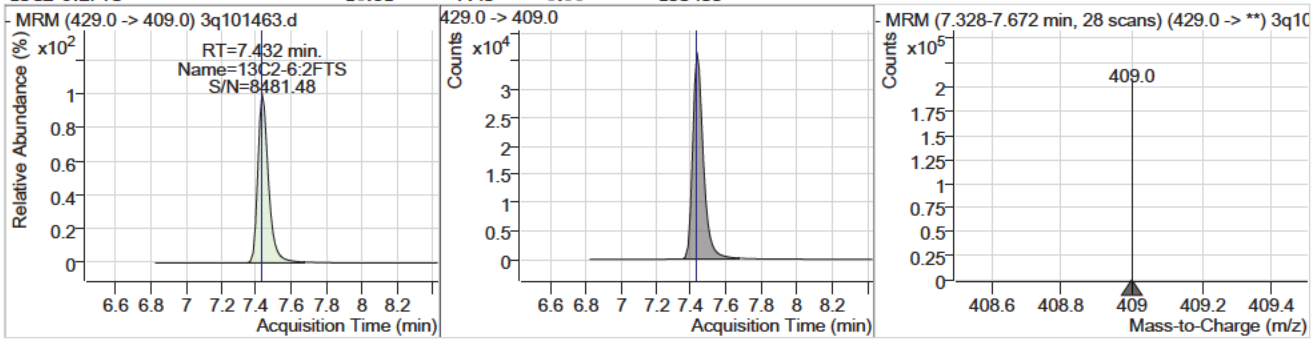


7.7.7

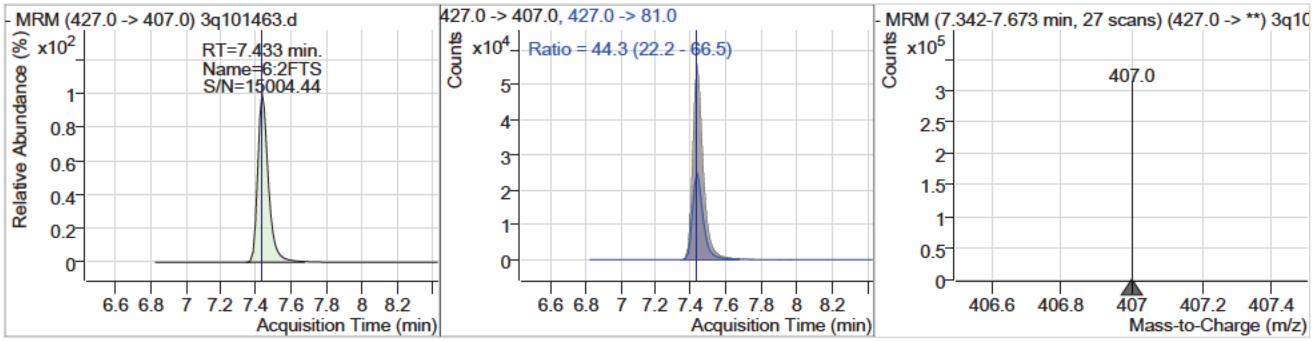
7

Perfluorinated Compounds by LC/MS/MS

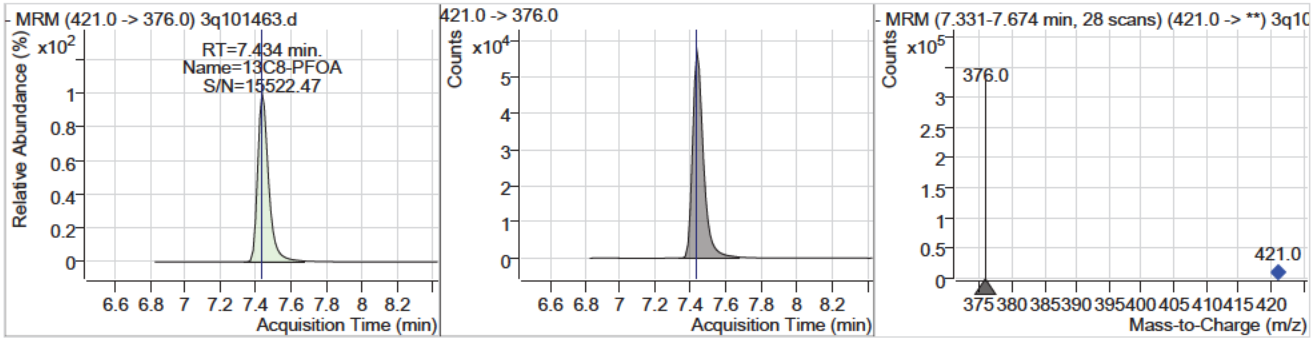
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	10.81	7.43	0.00	153435				



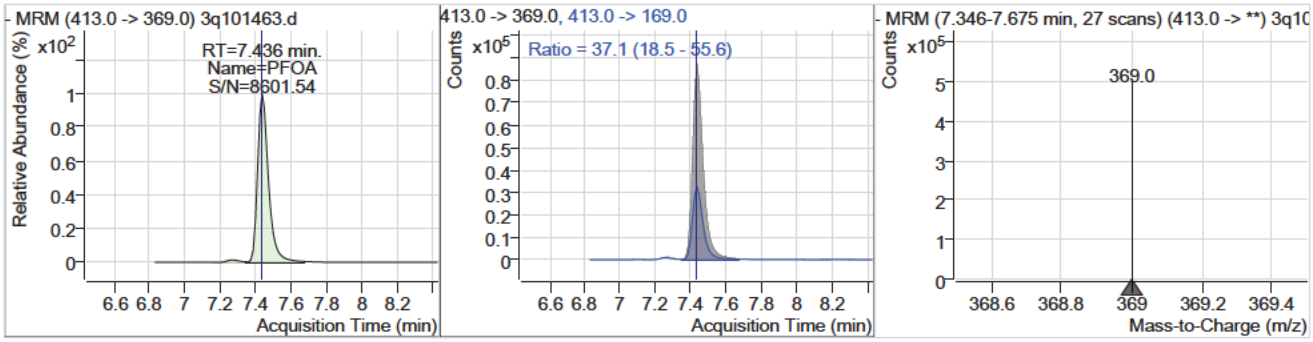
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.40	7.43	0.00	235061	427.0 -> 81.0	44.3	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.69	7.43	0.00	245108				

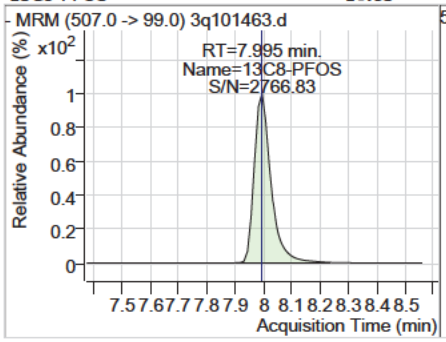


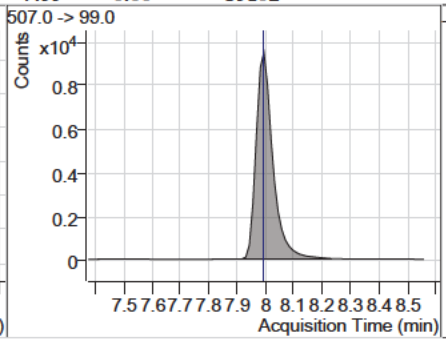
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.89	7.44	0.00	375976	413.0 -> 169.0	37.1	18.5	55.6

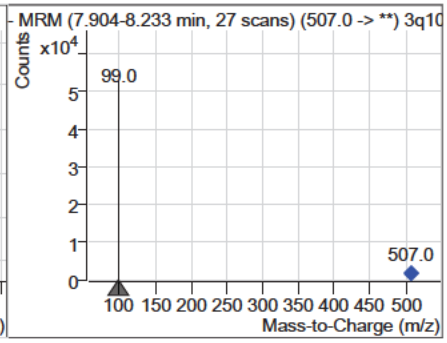


Perfluorinated Compounds by LC/MS/MS

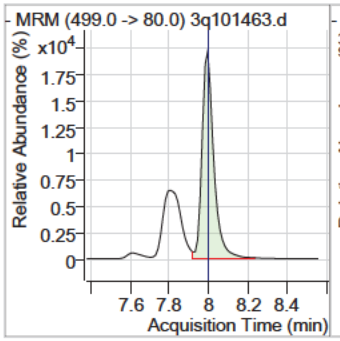
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.83	7.99	0.00	39102				

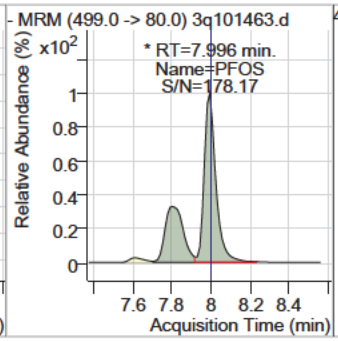


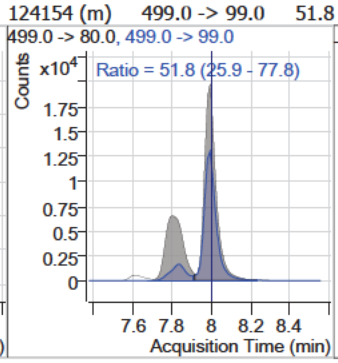


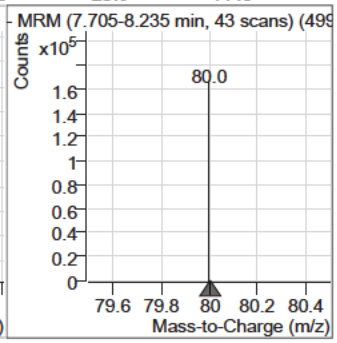


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.86	8.00	0.00	124154 (m)	499.0 -> 99.0	51.8	25.9	77.8

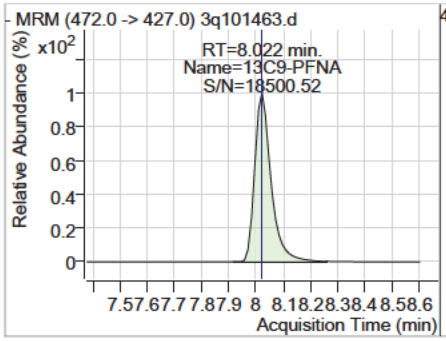


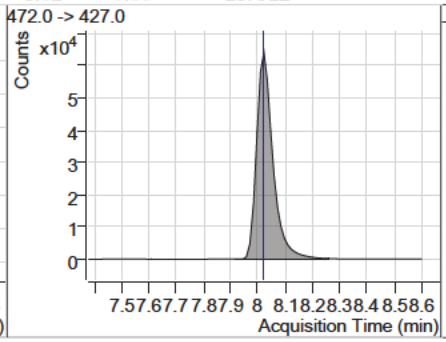


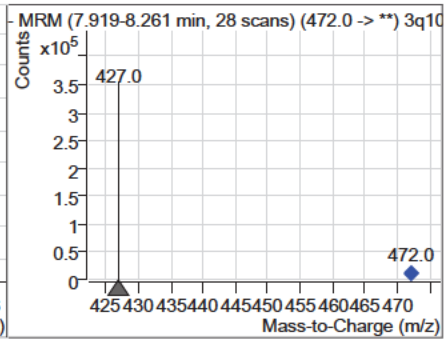




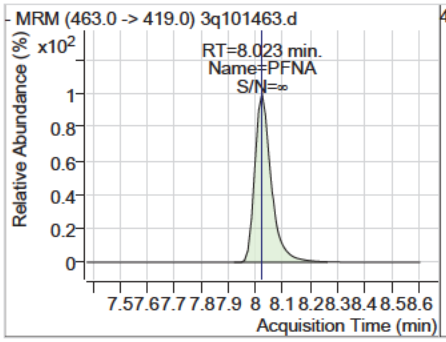
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.75	8.02	0.00	267922				

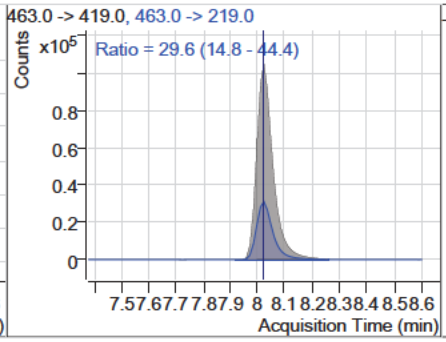


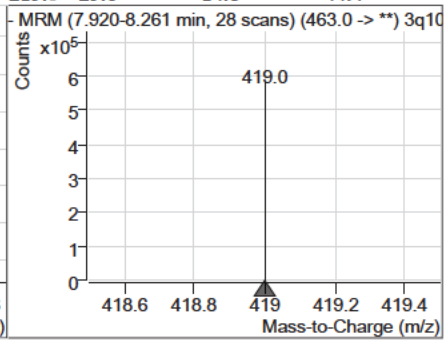




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	20.09	8.02	0.00	440800	463.0 -> 219.0	29.6	14.8	44.4





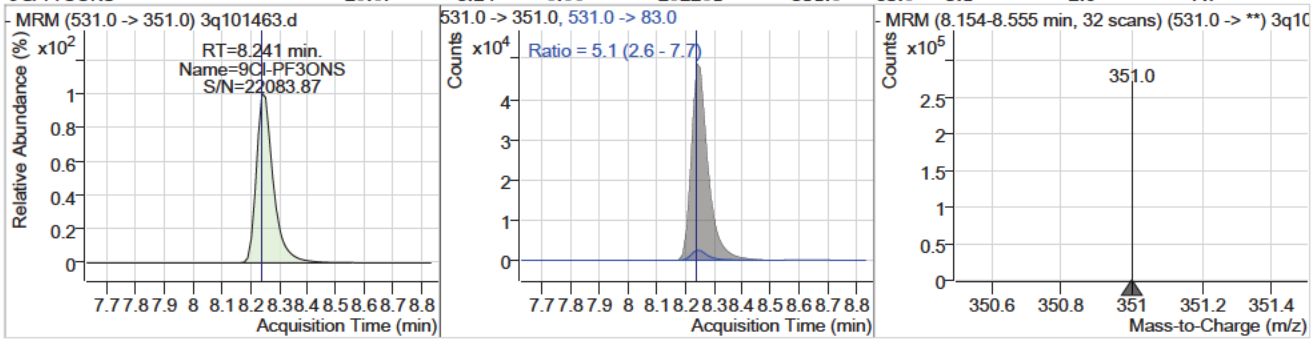


7.7.7

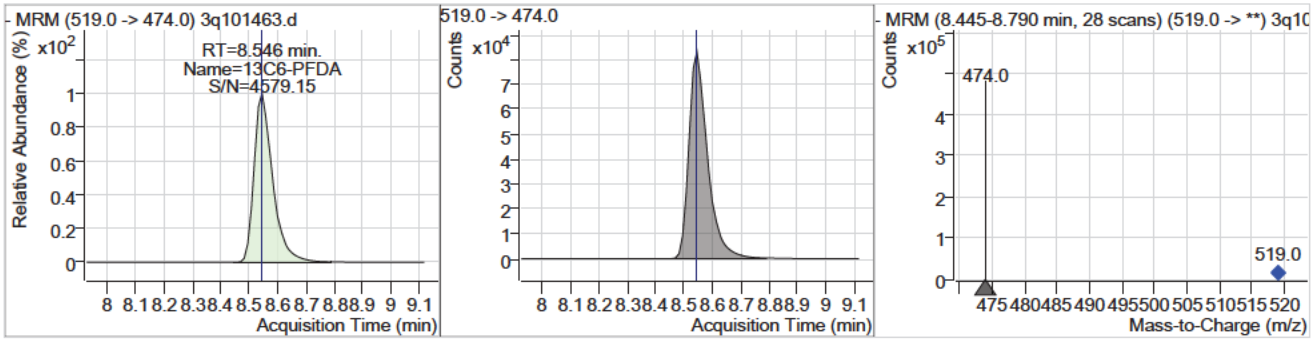
7

Perfluorinated Compounds by LC/MS/MS

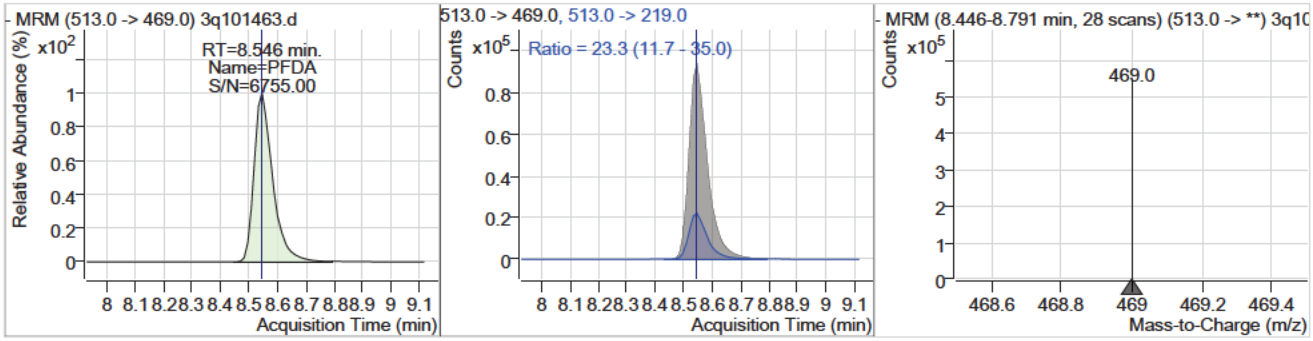
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	20.07	8.24	0.00	202201	531.0 -> 83.0	5.1	2.6	7.7



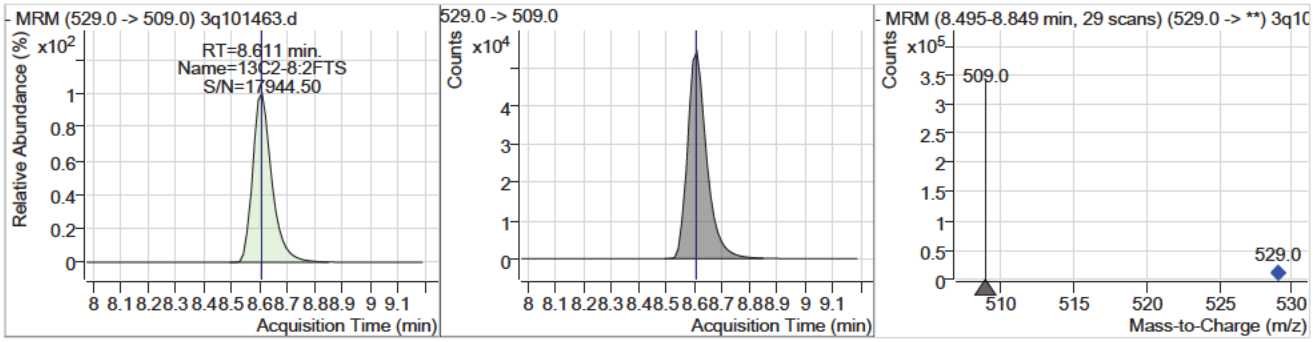
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	10.84	8.55	0.00	378628				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.11	8.55	0.00	430596	513.0 -> 219.0	23.3	11.7	35.0

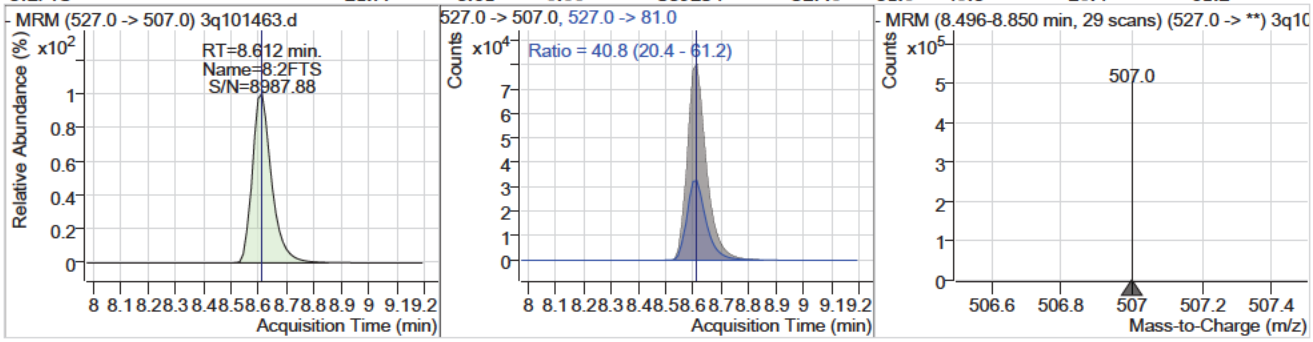


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	10.94	8.61	0.00	260237				

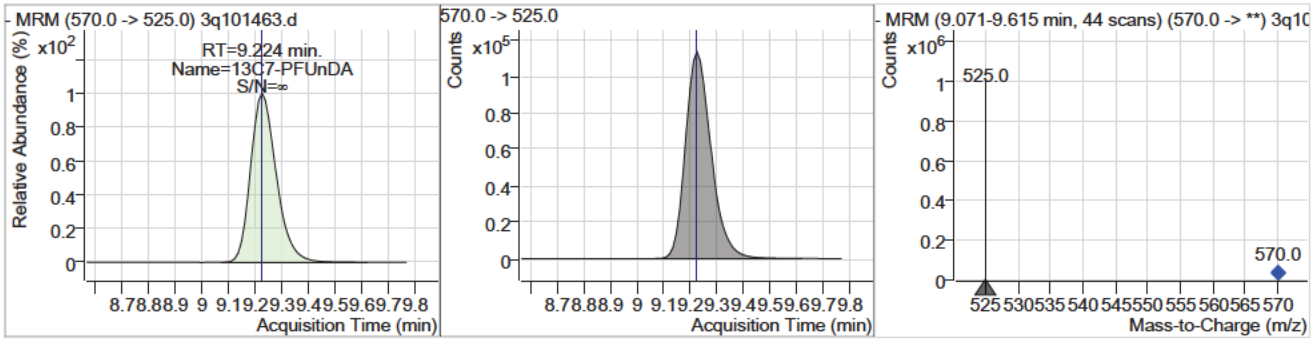


Perfluorinated Compounds by LC/MS/MS

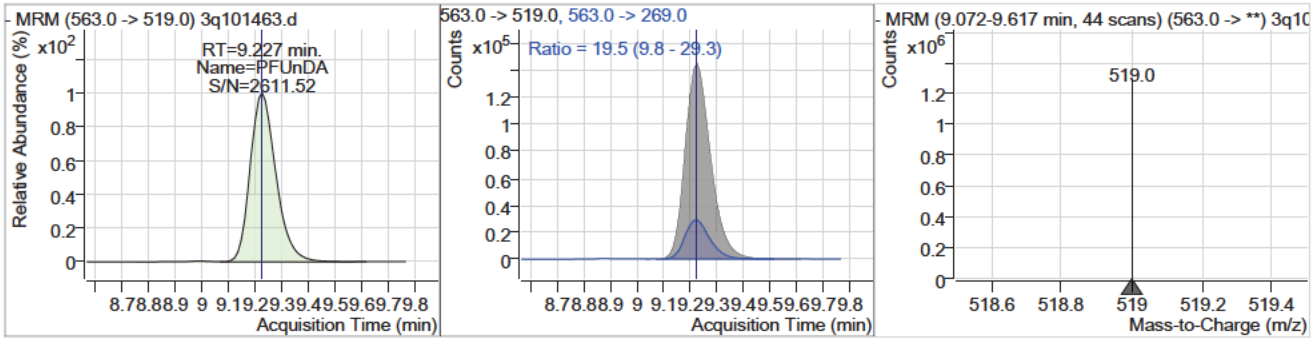
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.77	8.61	0.00	389254	527.0 -> 81.0	40.8	20.4	61.2



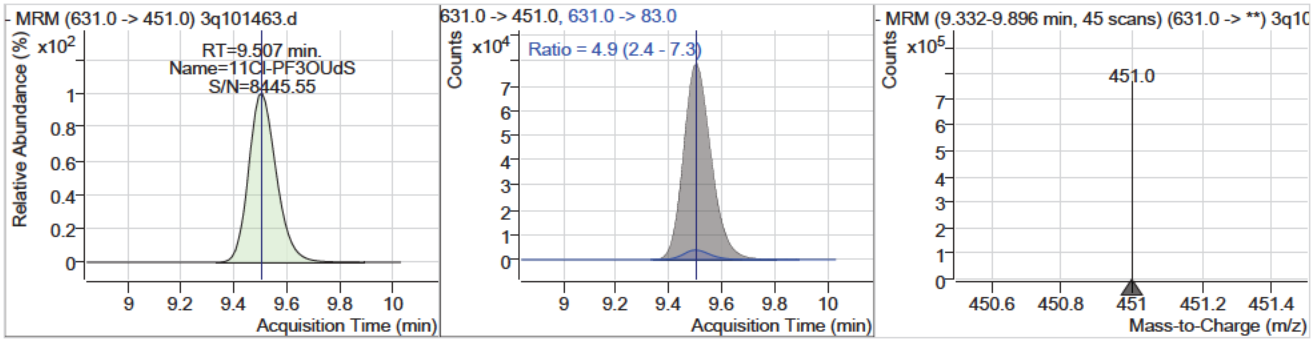
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	10.88	9.22	0.00	759188				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.92	9.23	0.00	975044	563.0 -> 269.0	19.5	9.8	29.3

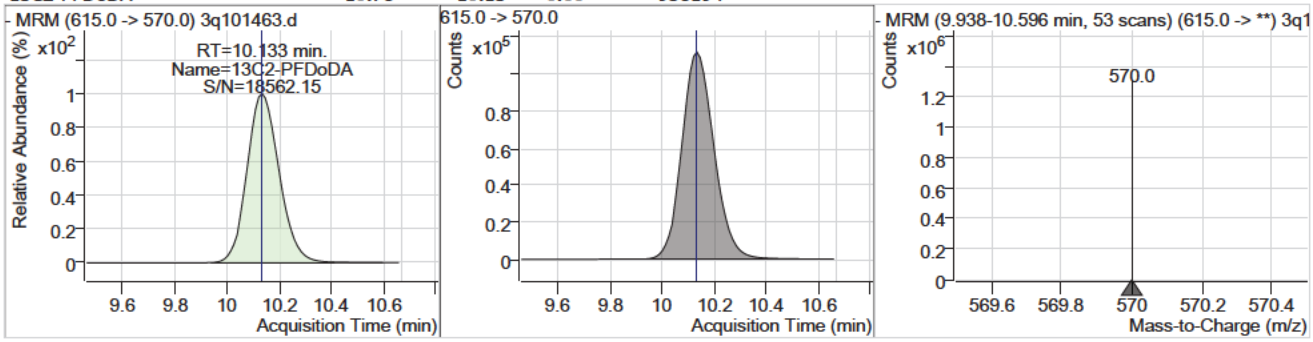


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	19.83	9.51	0.00	575947	631.0 -> 83.0	4.9	2.4	7.3

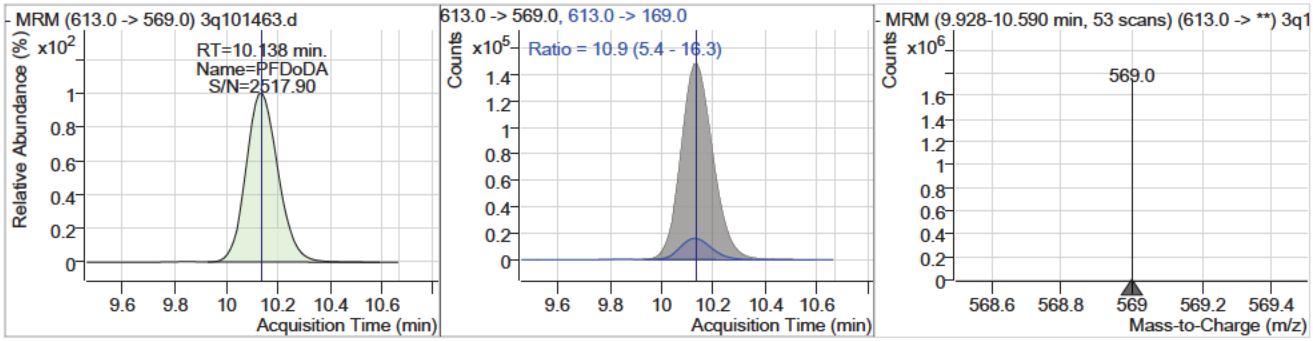


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.78	10.13	0.00	958194				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	20.02	10.14	0.00	1276051	613.0 -> 169.0	10.9	5.4	16.3



7.7.7

7

Manual Integration Approval Summary

Sample Number: S3Q1492-ICC1492
Lab FileID: 3Q101463.D
Injection Time: 04/15/25 15:24
Method: EPA 533
Analyst approved: 04/16/25 08:55 (b) (6) [redacted]
Supervisor approved: 04/17/25 11:42 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.72	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.00	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:42

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101464.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 3:40:29 PM
Sample Name : ic1492-40
Vial : P1-C8
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.435	415.0 -> 370.0	209676	10.00 µg/L	0.000
13C3-PFBA	2.357	216.0 -> 172.0	86424	10.00 µg/L	0.225
13C4-PFOS	7.983	503.0 -> 80.0	32531	10.00 µg/L	-0.013
M4-PFBA	2.352	217.0 -> 172.0	147952	10.00 µg/L	0.213
M5-PFPeA	4.425	268.0 -> 223.0	175506	10.00 µg/L	0.088
M5-PFHxA	5.776	318.0 -> 273.0	220560	10.00 µg/L	0.025
M4-PFHpA	6.706	367.0 -> 322.0	183068	10.00 µg/L	0.000
M8-PFOA	7.434	421.0 -> 376.0	229935	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	257374	10.00 µg/L	-0.013
M6-PFDA	8.533	519.0 -> 474.0	366919	10.00 µg/L	-0.013
M7-PFUnDA	9.212	570.0 -> 525.0	716283	10.00 µg/L	-0.013
M2-PFDoDA	10.108	615.0 -> 570.0	916740	10.00 µg/L	-0.025
M3-PFBS	4.721	302.0 -> 99.0	20582	10.00 µg/L	0.075
M3-PFHxS	6.736	402.0 -> 99.0	29634	10.00 µg/L	0.000
M8-PFOS	7.982	507.0 -> 99.0	37709	10.00 µg/L	-0.013
M2-4:2FTS	5.684	329.0 -> 309.0	87742	10.00 µg/L	0.038
M2-6:2FTS	7.432	429.0 -> 409.0	159072	10.00 µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	271157	10.00 µg/L	-0.014
M3-HFPO-DA	6.068	287.0 -> 169.0	3585	10.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.684	329.0 -> 309.0	87742	11.33 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.3%	
13C2-6:2FTS	7.432	429.0 -> 409.0	159072	10.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.4%	
13C2-8:2FTS	8.597	529.0 -> 509.0	271157	11.13 µg/L	-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.3%	
13C2-PFDoDA	10.108	615.0 -> 570.0	916740	10.27 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C3-PFBS	4.721	302.0 -> 99.0	20582	10.14 µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C3-PFHxS	6.736	402.0 -> 99.0	29634	10.25 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C4-PFBA	2.352	217.0 -> 172.0	147952	10.09 µg/L	0.213
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C4-PFHpA	6.706	367.0 -> 322.0	183068	10.32 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C5-PFHxA	5.776	318.0 -> 273.0	220560	10.38 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C5-PFPeA	4.425	268.0 -> 223.0	175506	9.93 µg/L	0.088
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C6-PFDA	8.533	519.0 -> 474.0	366919	10.46 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C7-PFUnDA	9.212	570.0 -> 525.0	716283	10.22 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C8-PFOA	7.434	421.0 -> 376.0	229935	9.98 µg/L	0.000

7.7.8

7

Perfluorinated Compounds by LC/MS/MS

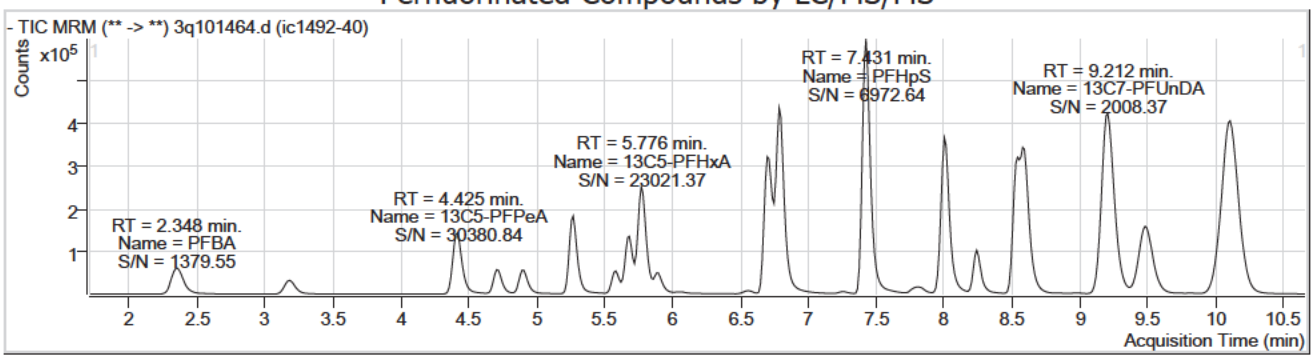
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%		
13C8-PFOS	7.982	507.0 -> 99.0	37709	10.19 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.9%		
13C9-PFNA	8.010	472.0 -> 427.0	257374	10.28 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.8%		
13C3-HFPO-DA	6.068	287.0 -> 169.0	3585	11.74 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 117.4%		
Target Compounds						QValue
PFMPA	3.178	229.0 -> 85.0	189828	39.63 µg/L		100
4:2FTS	5.686	327.0 -> 307.0	343401	39.31 µg/L		100
		327.0 -> 81.0	146459			
6:2FTS	7.433	427.0 -> 407.0	450064	39.41 µg/L		99
		427.0 -> 81.0	197231			
8:2FTS	8.598	527.0 -> 507.0	742583	39.86 µg/L		100
		527.0 -> 81.0	305220			
PFMBA	4.901	279.0 -> 85.0	258637	39.97 µg/L		100
PFEESA	5.274	315.0 -> 135.0	735629	39.63 µg/L		100
		315.0 -> 69.0	55643			
NFDHA	5.594	201.0 -> 85.0	217159	39.37 µg/L		99
		295.0 -> 201.0	14781			
PFBA	2.348	213.0 -> 169.0	161591	39.50 µg/L		100
PFBS	4.710	299.0 -> 80.0	166069	39.91 µg/L		99
		299.0 -> 99.0	70476			
PFDA	8.534	513.0 -> 469.0	813360	39.20 µg/L		99
		513.0 -> 219.0	191875			
PFDoDA	10.113	613.0 -> 569.0	2412423	39.57 µg/L		100
		613.0 -> 169.0	262732			
PFHpA	6.708	363.0 -> 319.0	1020674	39.73 µg/L		100
		363.0 -> 169.0	84472			
PFHpS	7.431	449.0 -> 80.0	214685	39.56 µg/L		99
		449.0 -> 99.0	119034			
PFHxA	5.778	313.0 -> 269.0	825498	39.73 µg/L		100
		313.0 -> 119.0	28618			
PFHxS	6.738	399.0 -> 80.0	206885	39.66 µg/L	m	99
		399.0 -> 99.0	108137			
PFNA	8.023	463.0 -> 419.0	832407	39.49 µg/L		100
		463.0 -> 219.0	246857			
PFOA	7.436	413.0 -> 369.0	706326	39.83 µg/L		100
		413.0 -> 169.0	260183			
PFOS	7.983	499.0 -> 80.0	239440	39.71 µg/L	m	98
		499.0 -> 99.0	121151			
PFPeA	4.427	263.0 -> 219.0	528721	39.93 µg/L		100
PFPeS	5.896	349.0 -> 80.0	119701	39.55 µg/L		98
		349.0 -> 99.0	51478			
PFUnDA	9.214	563.0 -> 519.0	1829143	39.62 µg/L		99
		563.0 -> 269.0	362020			
11Cl-PF3OUdS	9.482	631.0 -> 451.0	1108153	39.57 µg/L		100
		631.0 -> 83.0	54192			
9Cl-PF3ONS	8.241	531.0 -> 351.0	387251	39.87 µg/L		100
		531.0 -> 83.0	20204			
ADONA	6.792	377.0 -> 251.0	1576478	39.75 µg/L		100
		377.0 -> 85.0	187136			
HFPO-DA	6.061	329.0 -> 169.0	2635	37.85 µg/L		79
		285.0 -> 169.0	7280			

= Qualifier out of range, m = manually integrated, + = Area summed

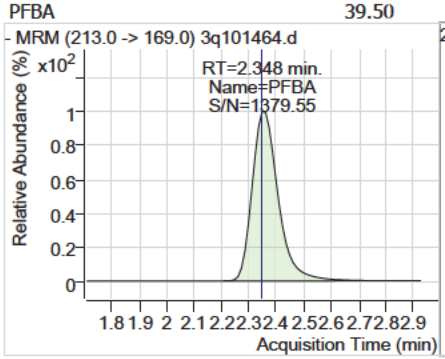
Perfluorinated Compounds by LC/MS/MS

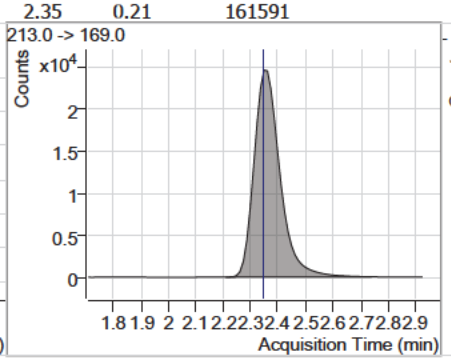
Compound	RT	Transition	Response	Conc. Units	Dev(Min)

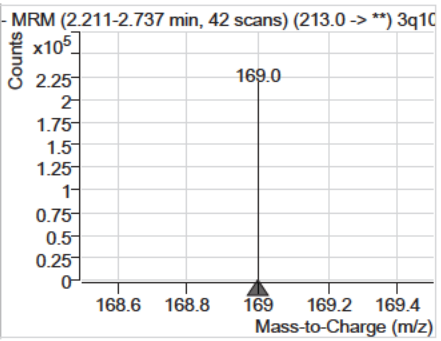
Perfluorinated Compounds by LC/MS/MS



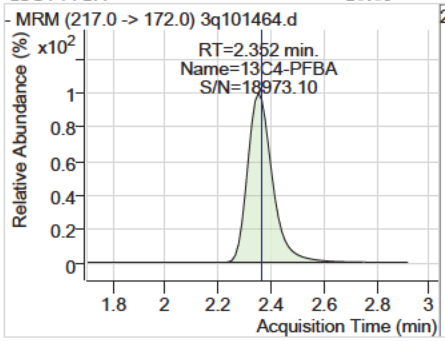
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	39.50	2.35	0.21	161591				

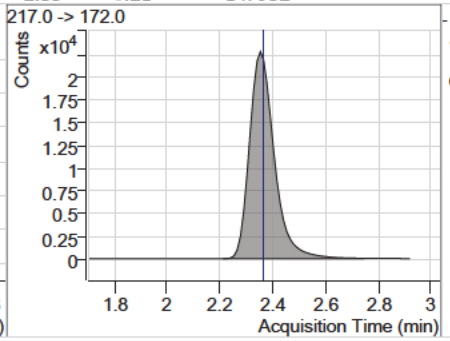


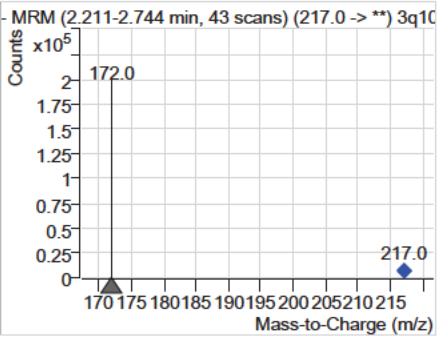




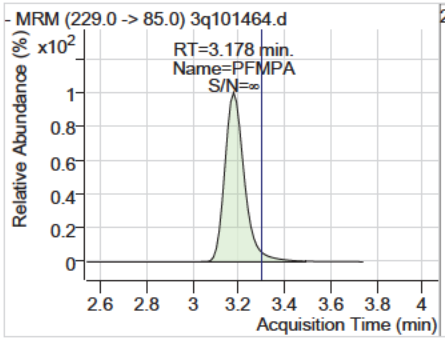
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.09	2.35	0.21	147952				

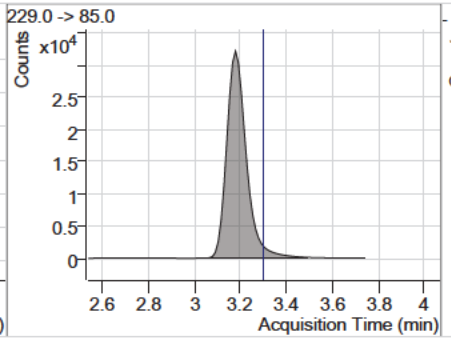


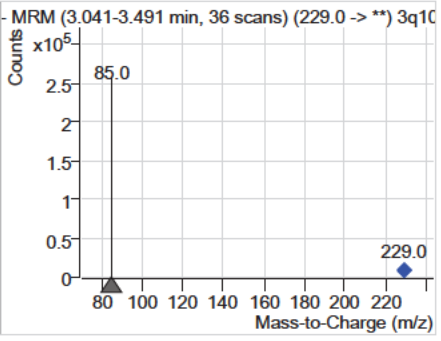




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	39.63	3.18	0.18	189828				







77.8

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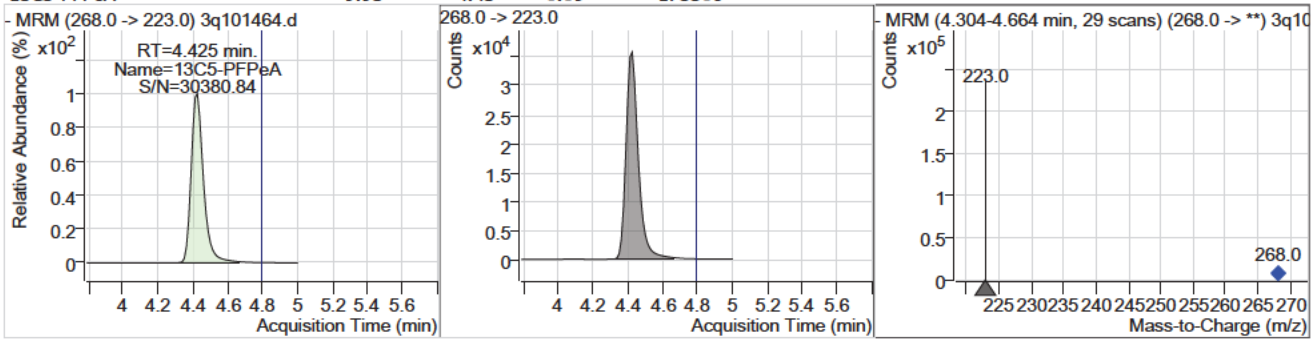
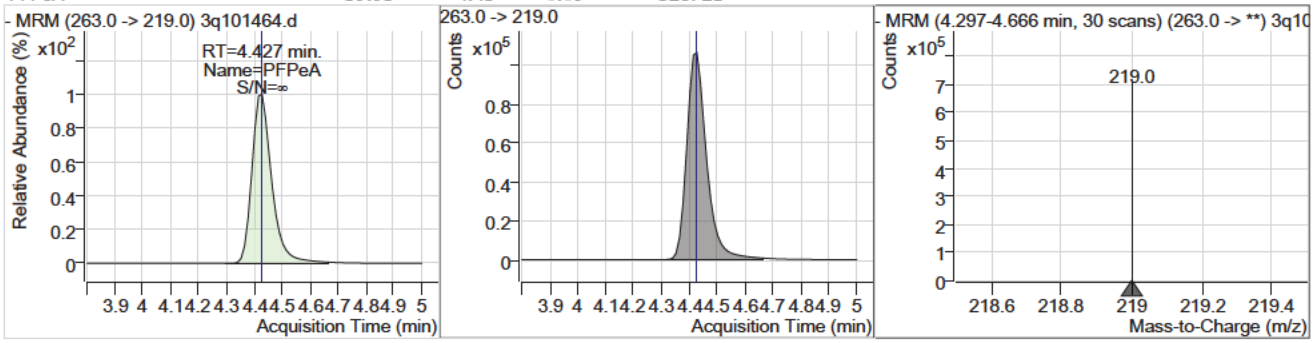
Perfluorinated Compounds by LC/MS/MS

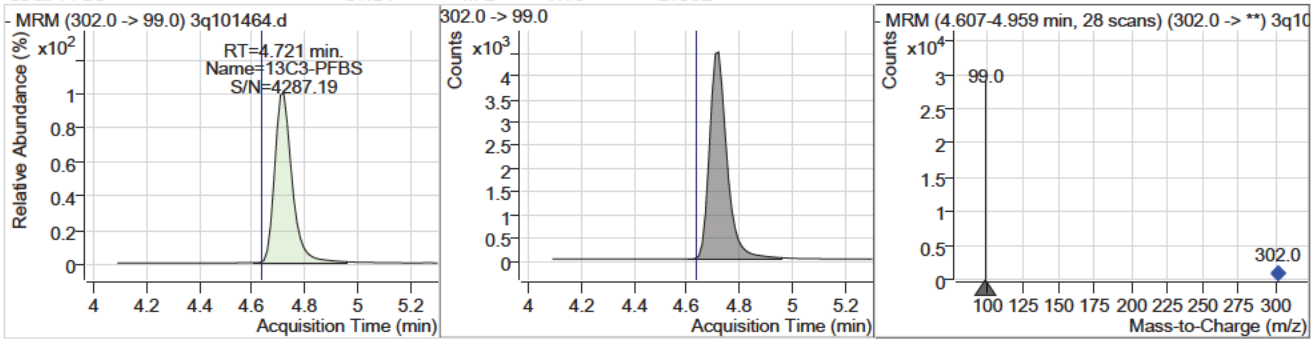
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	9.93	4.43	0.09	175506				



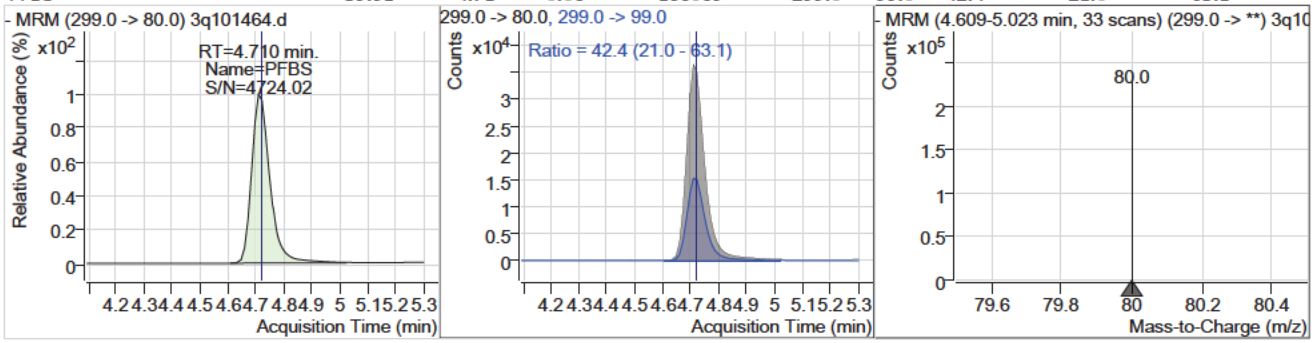
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	39.93	4.43	0.09	528721				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.14	4.72	0.08	20582				

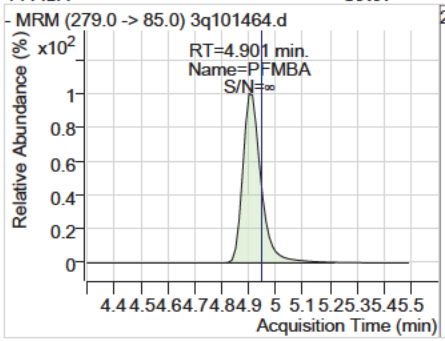


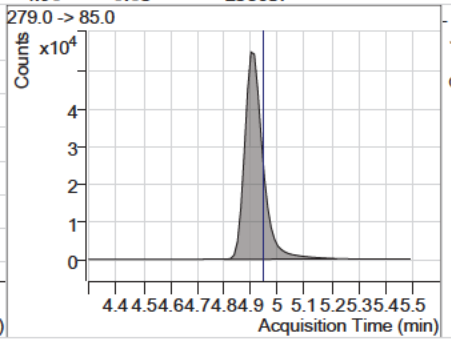
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	39.91	4.71	0.06	166069	299.0 -> 99.0	42.4	21.0	63.1

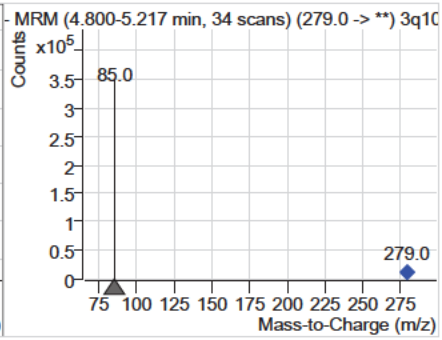


Perfluorinated Compounds by LC/MS/MS

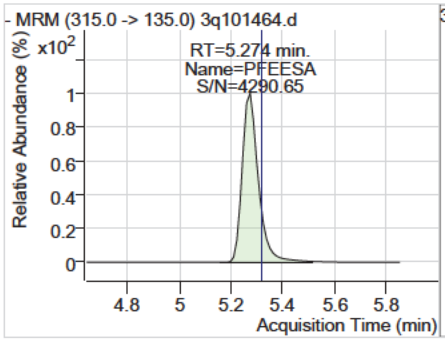
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	39.97	4.90	0.05	258637				

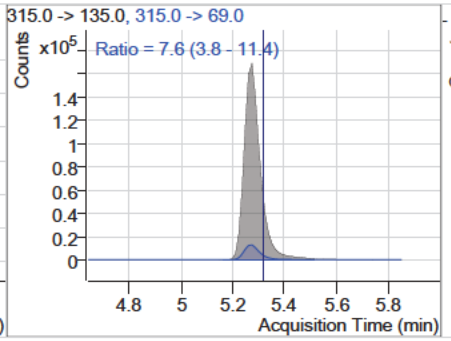


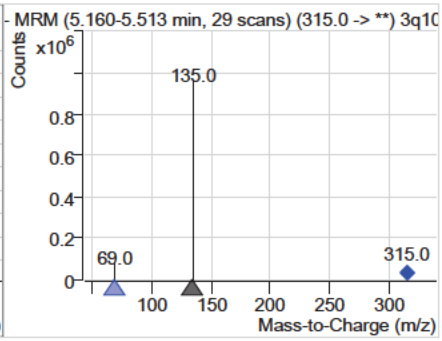




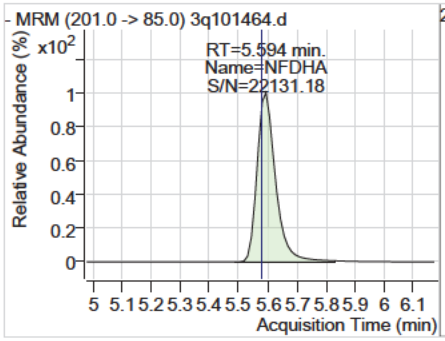
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	39.63	5.27	0.04	735629	315.0 -> 69.0	7.6	3.8	11.4

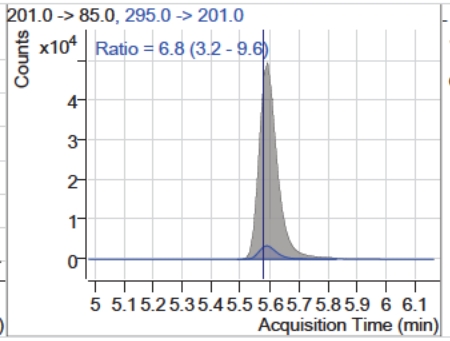


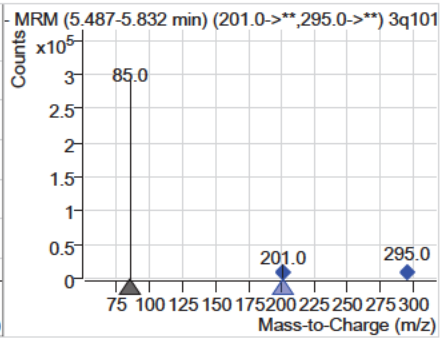




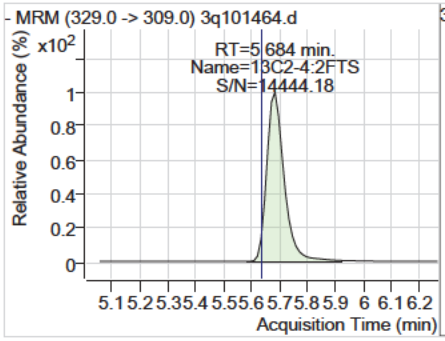
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	39.37	5.59	0.04	217159	295.0 -> 201.0	6.8	3.2	9.6

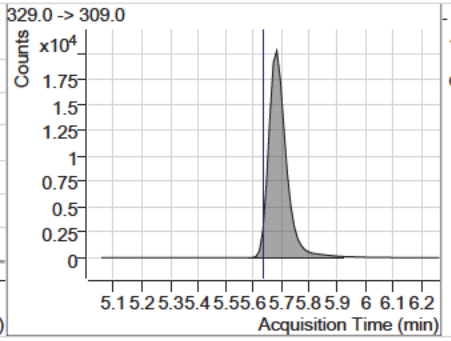


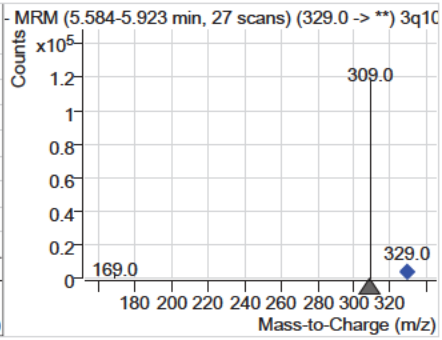




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	11.33	5.68	0.04	87742				





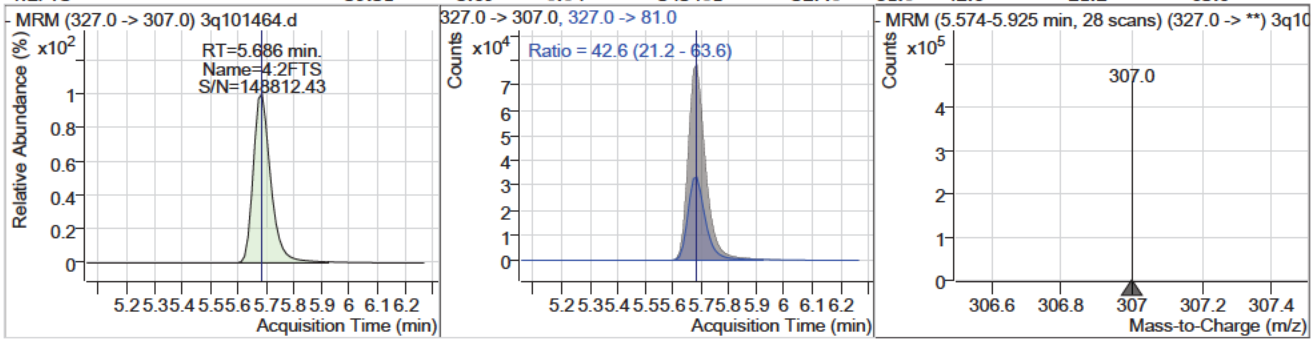


7.7.8

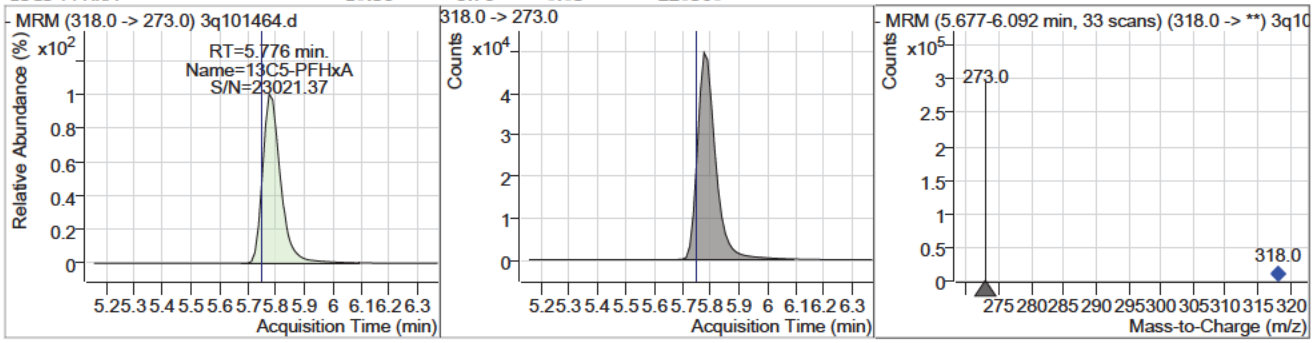
7

Perfluorinated Compounds by LC/MS/MS

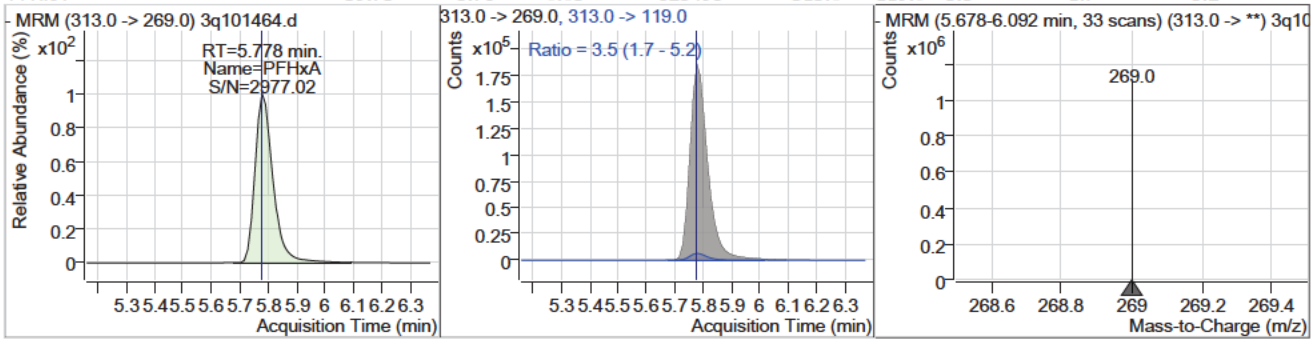
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	39.31	5.69	0.04	343401	327.0 -> 81.0	42.6	21.2	63.6



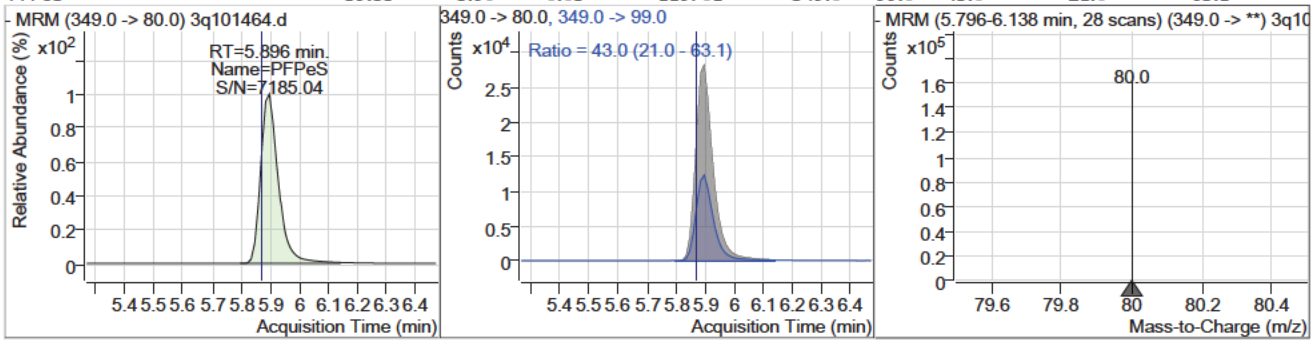
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.38	5.78	0.03	220560				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	39.73	5.78	0.03	825498	313.0 -> 119.0	3.5	1.7	5.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	39.55	5.90	0.03	119701	349.0 -> 99.0	43.0	21.0	63.1

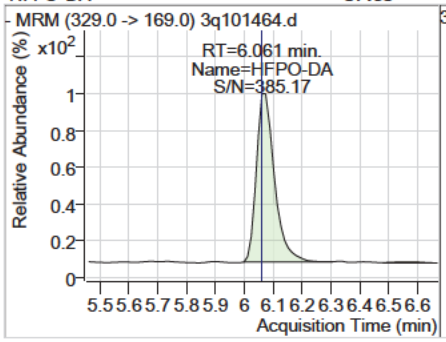


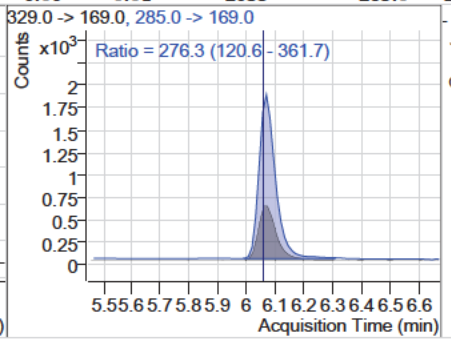
7.7.8

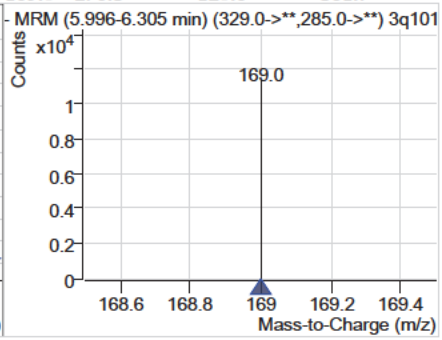
7

Perfluorinated Compounds by LC/MS/MS

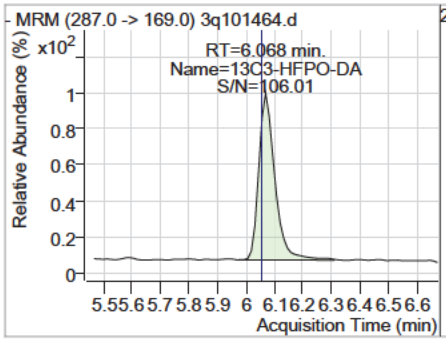
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	37.85	6.06	0.01	2635	285.0 -> 169.0	276.3	120.6	361.7

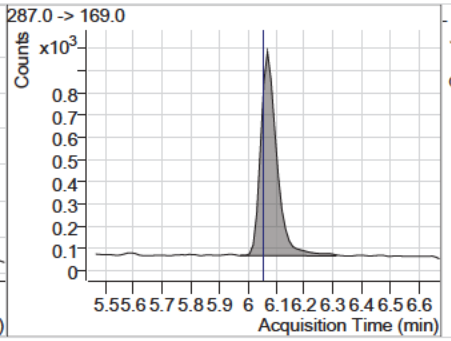


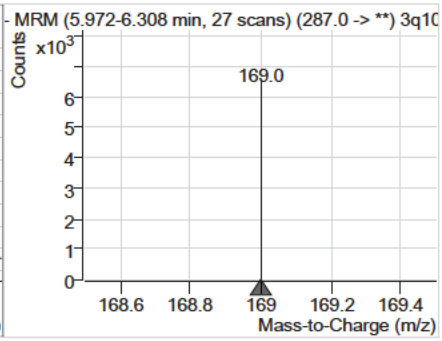




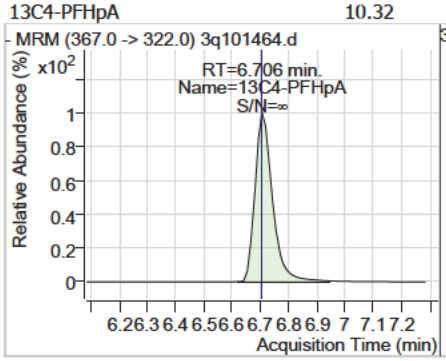
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	11.74	6.07	0.01	3585				

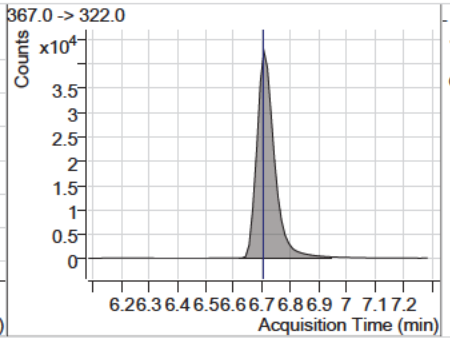


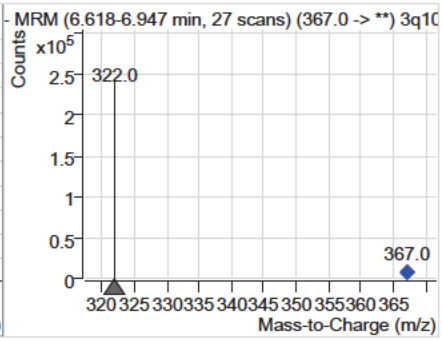




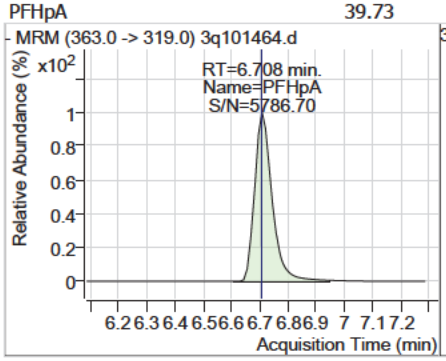
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.32	6.71	0.00	183068				

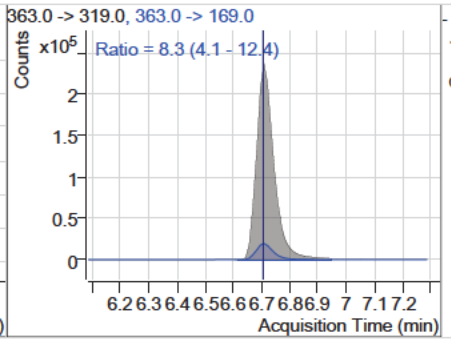


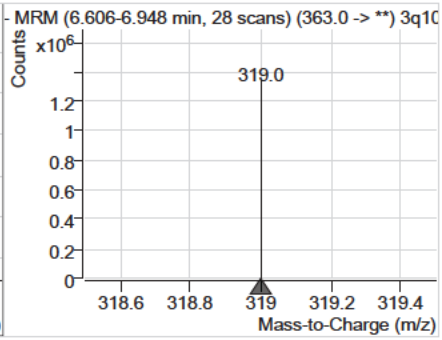




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	39.73	6.71	0.00	1020674	363.0 -> 169.0	8.3	4.1	12.4

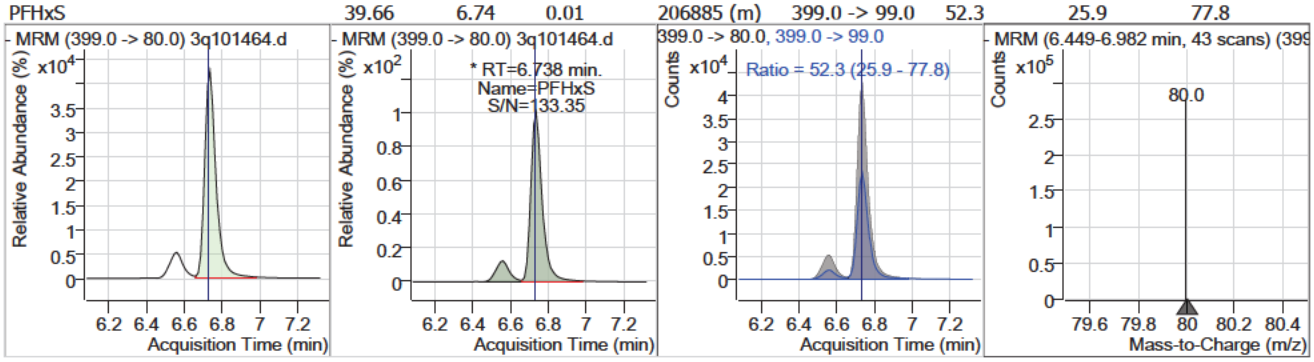




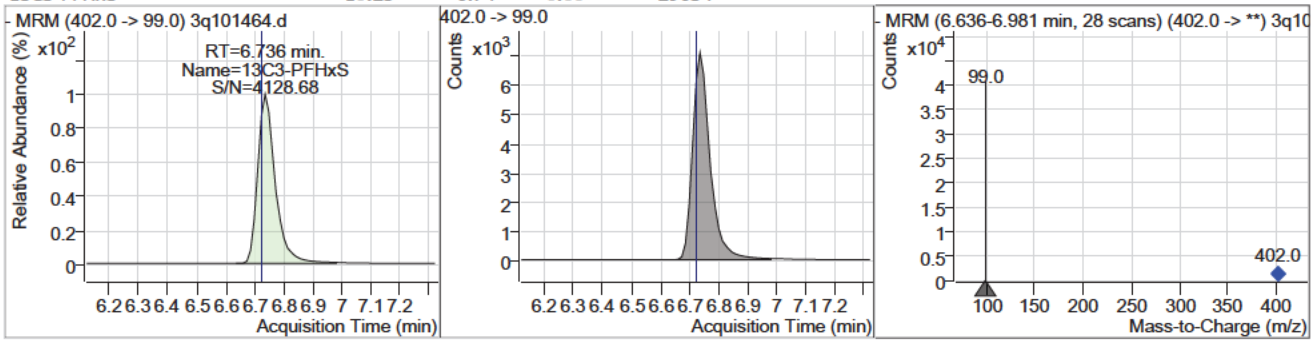


Perfluorinated Compounds by LC/MS/MS

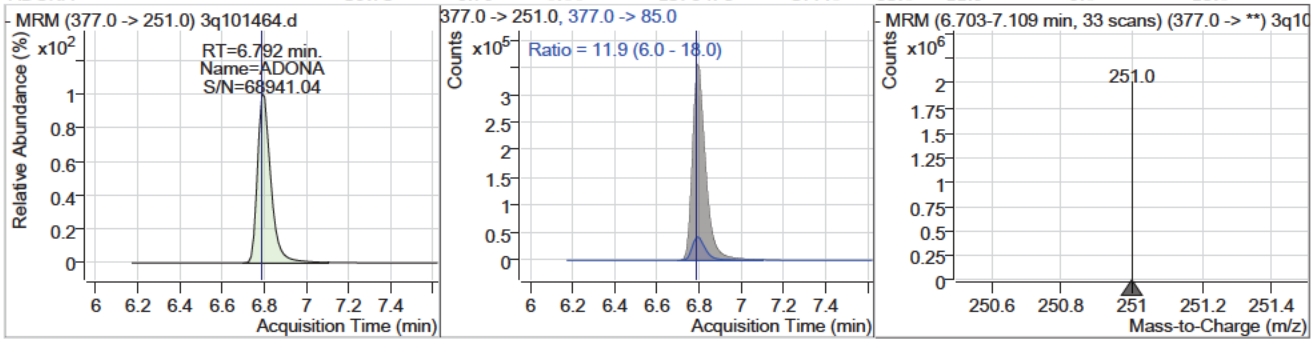
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	39.66	6.74	0.01	206885 (m)	399.0 -> 99.0	52.3	25.9	77.8



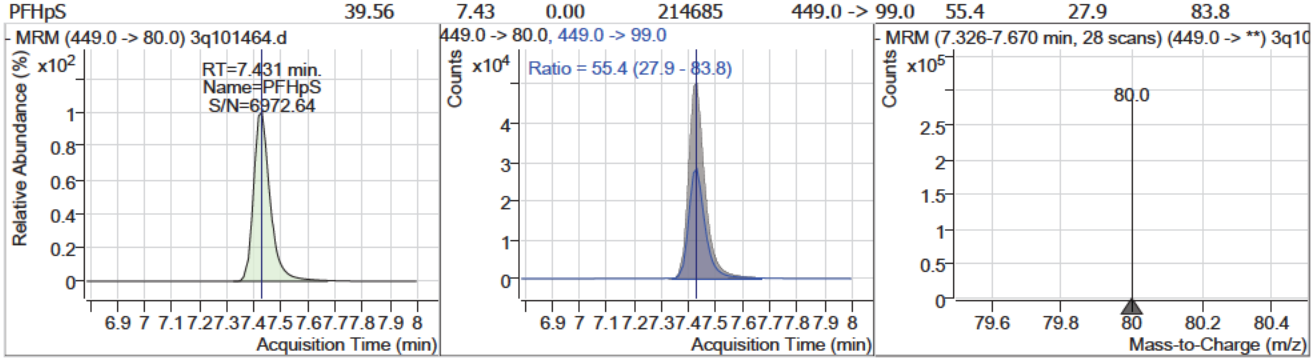
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.25	6.74	0.00	29634				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	39.75	6.79	0.00	1576478	377.0 -> 85.0	11.9	6.0	18.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	39.56	7.43	0.00	214685	449.0 -> 99.0	55.4	27.9	83.8



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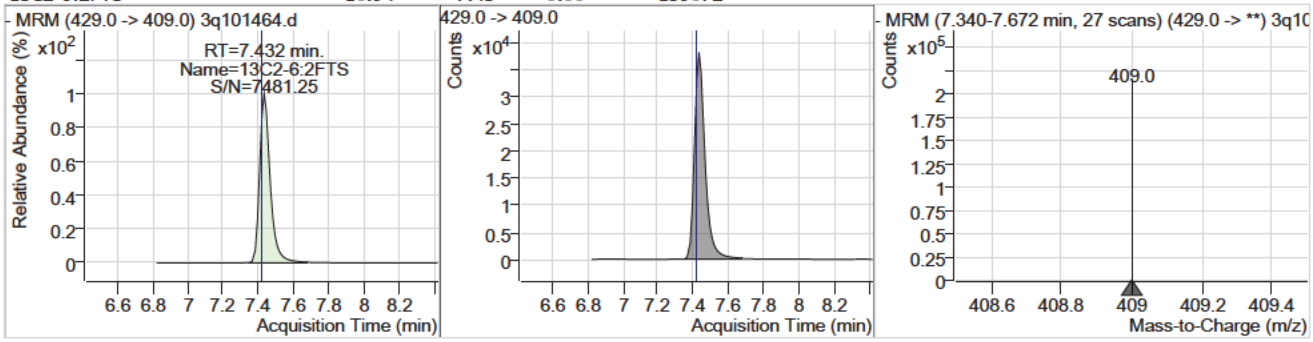
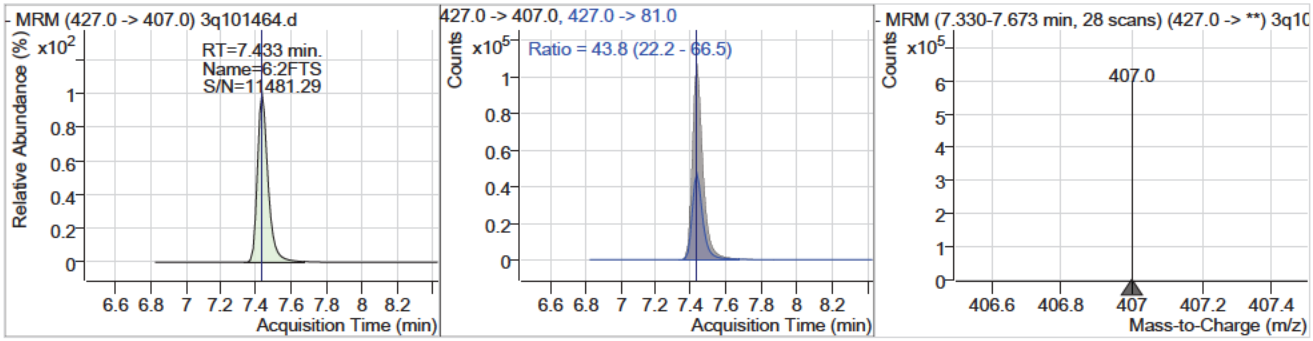
Perfluorinated Compounds by LC/MS/MS

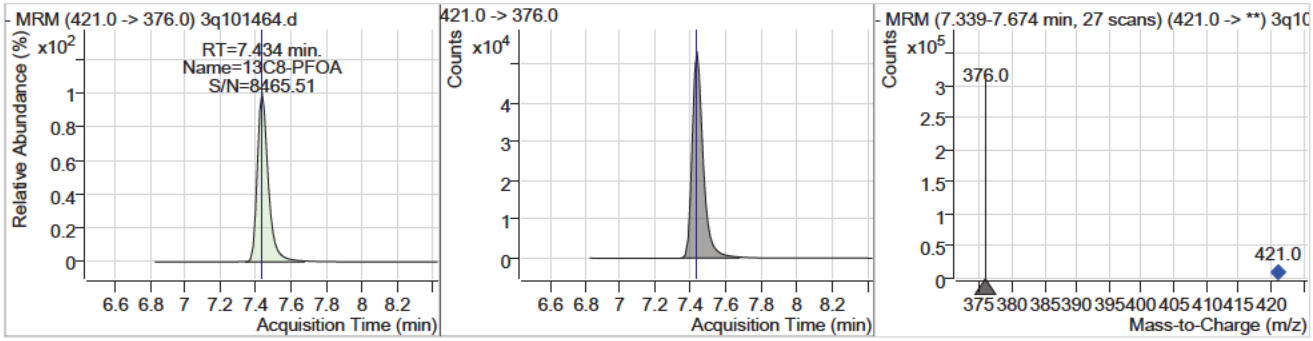
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	10.94	7.43	0.00	159072				



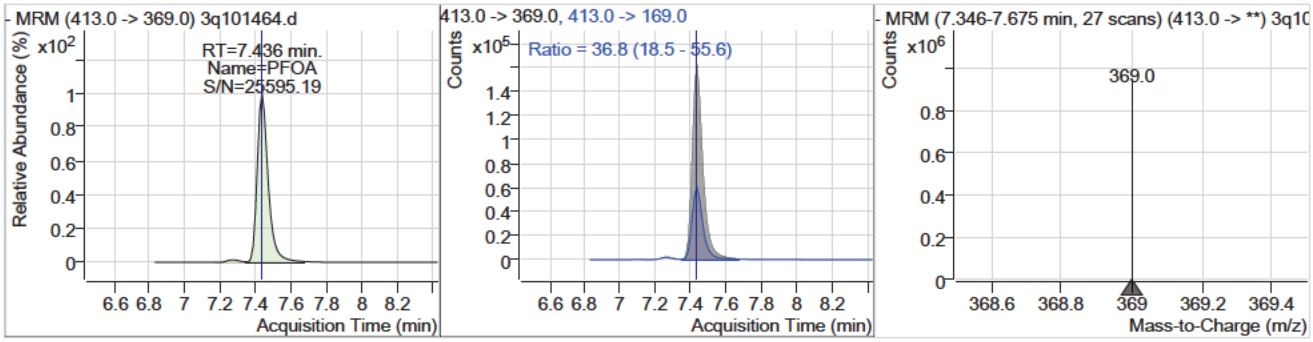
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	39.41	7.43	0.00	450064	427.0 -> 81.0	43.8	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	9.98	7.43	0.00	229935				

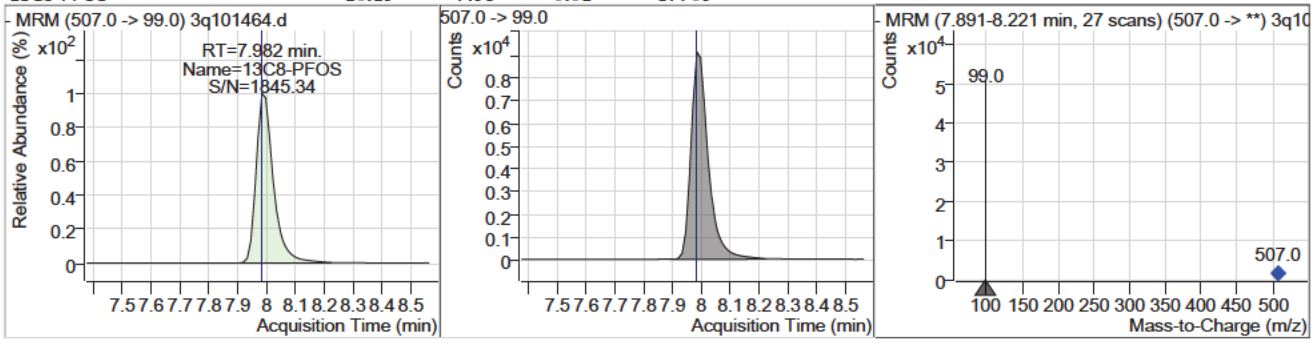


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	39.83	7.44	0.00	706326	413.0 -> 169.0	36.8	18.5	55.6

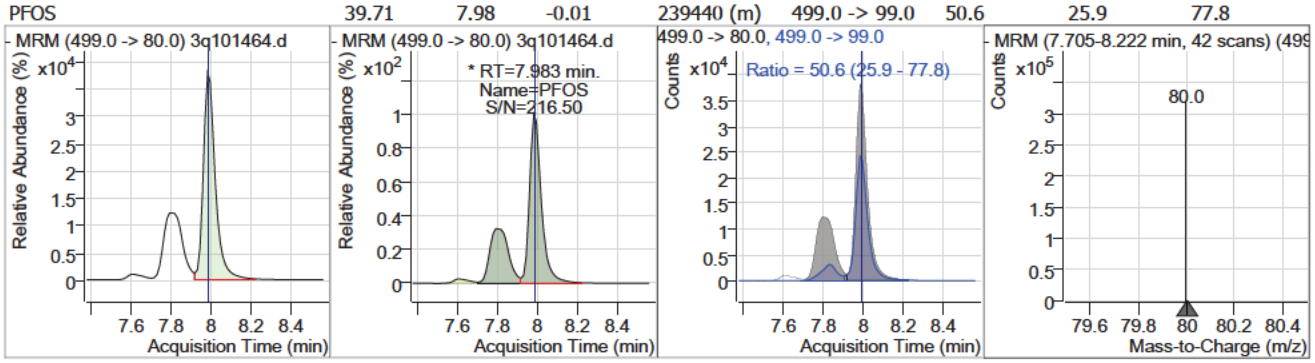


Perfluorinated Compounds by LC/MS/MS

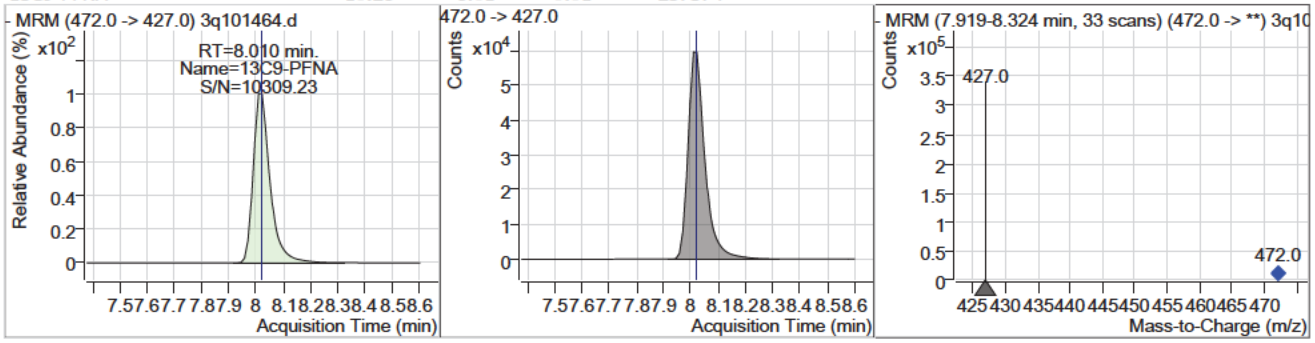
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.19	7.98	-0.01	37709				



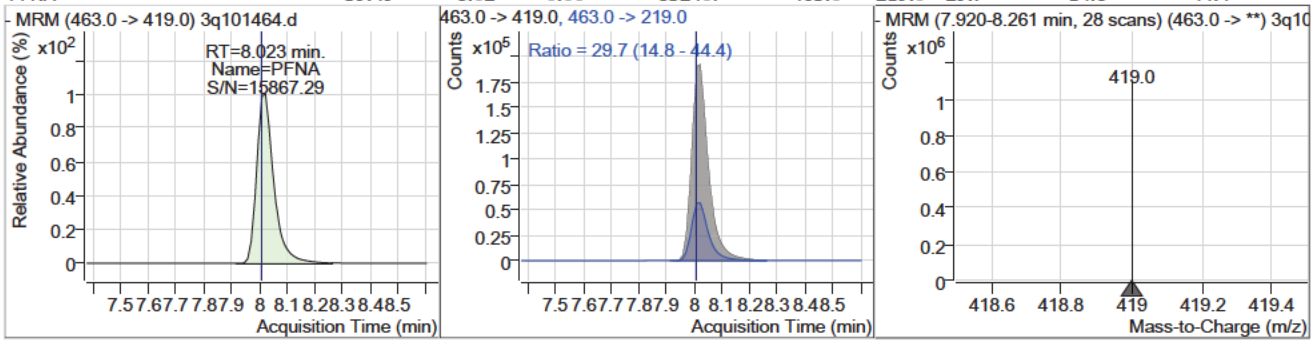
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	39.71	7.98	-0.01	239440 (m)	499.0 -> 99.0	50.6	25.9	77.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.28	8.01	-0.01	257374				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	39.49	8.02	0.00	832407	463.0 -> 219.0	29.7	14.8	44.4



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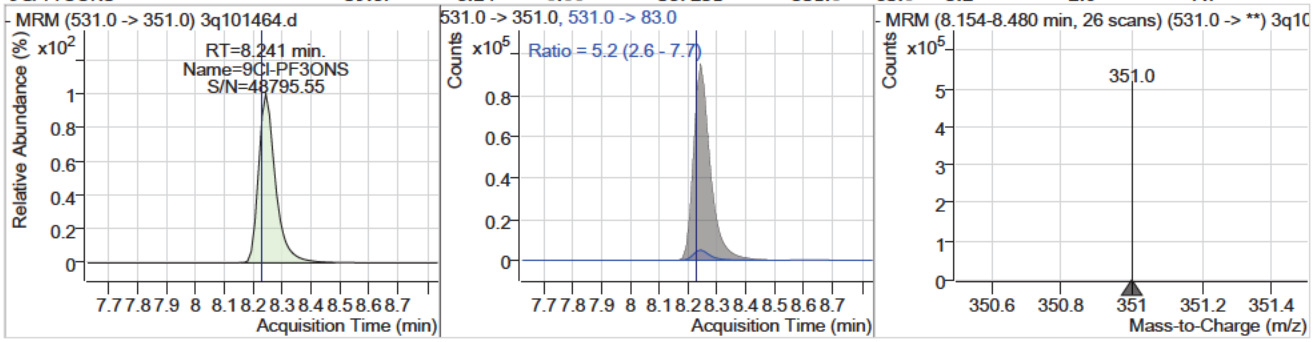
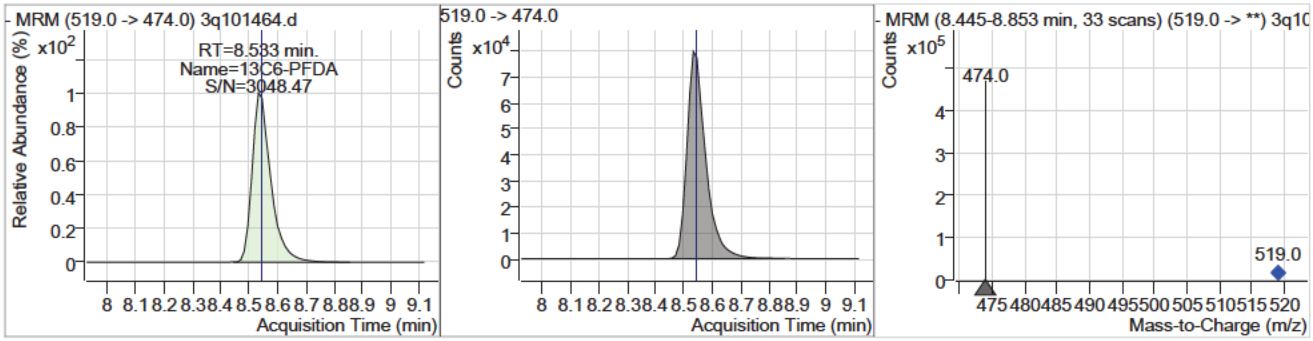
Perfluorinated Compounds by LC/MS/MS

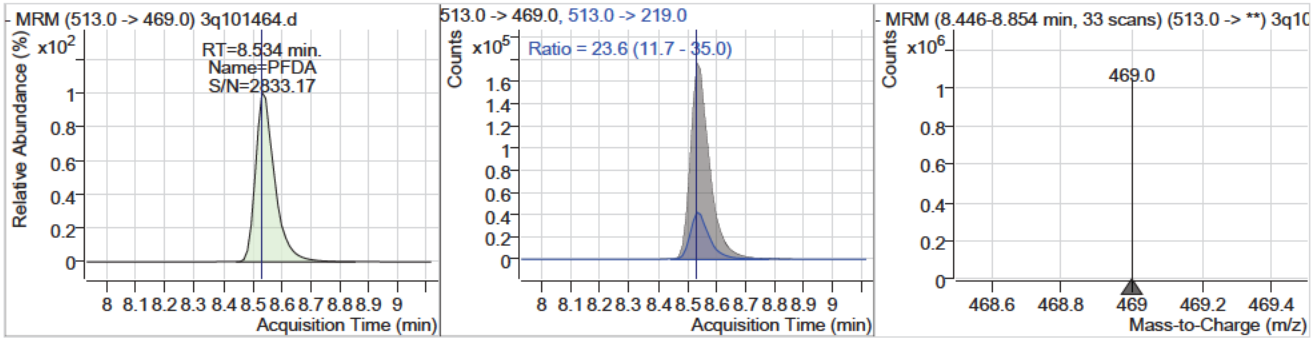
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	39.87	8.24	0.00	387251	531.0 -> 83.0	5.2	2.6	7.7



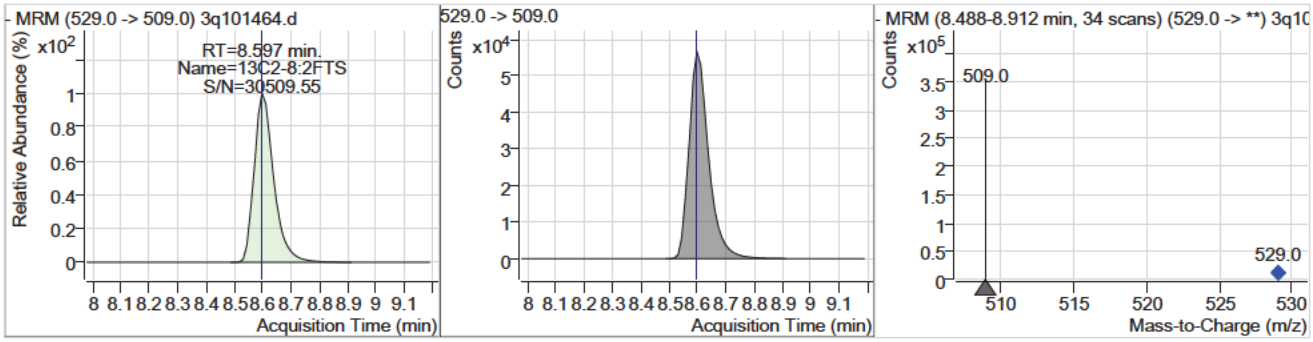
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	10.46	8.53	-0.01	366919				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	39.20	8.53	-0.01	813360	513.0 -> 219.0	23.6	11.7	35.0

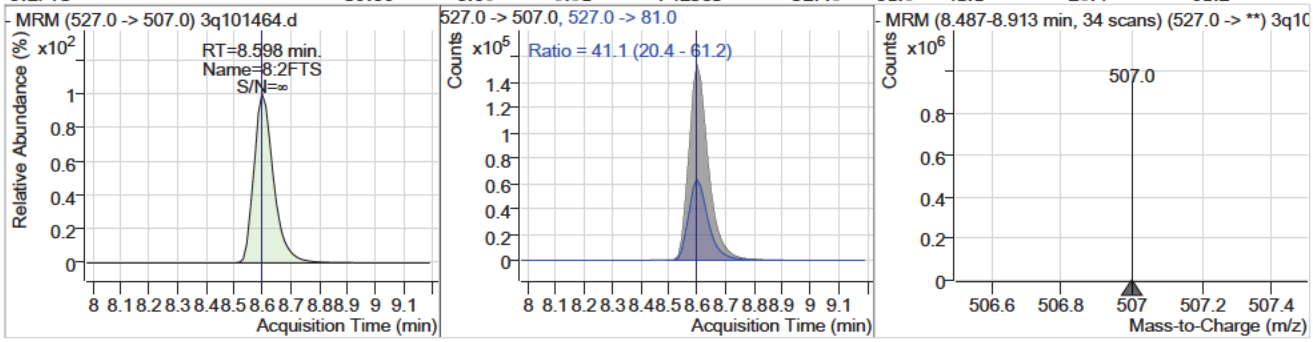


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	11.13	8.60	-0.01	271157				

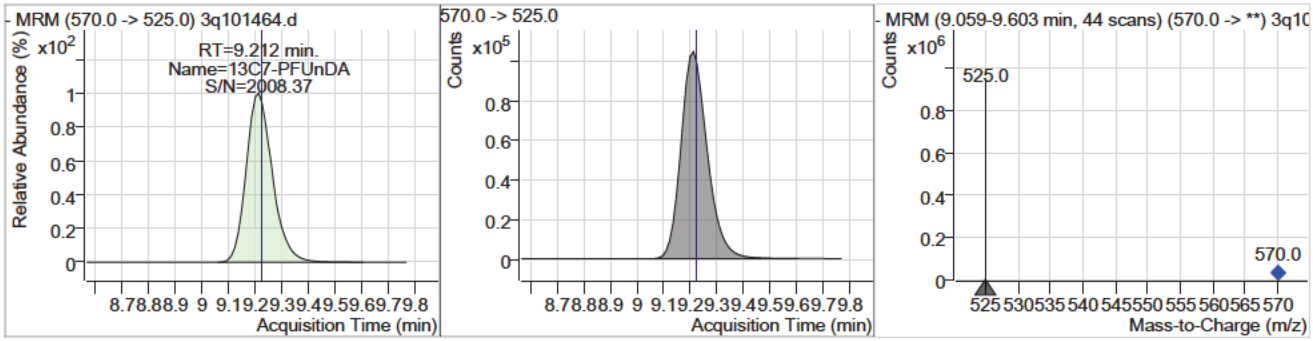


Perfluorinated Compounds by LC/MS/MS

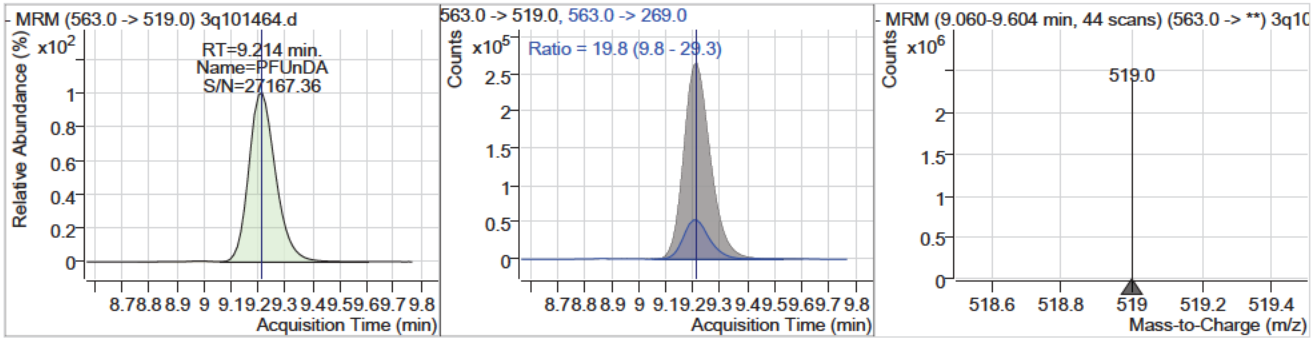
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	39.86	8.60	-0.01	742583	527.0 -> 81.0	41.1	20.4	61.2



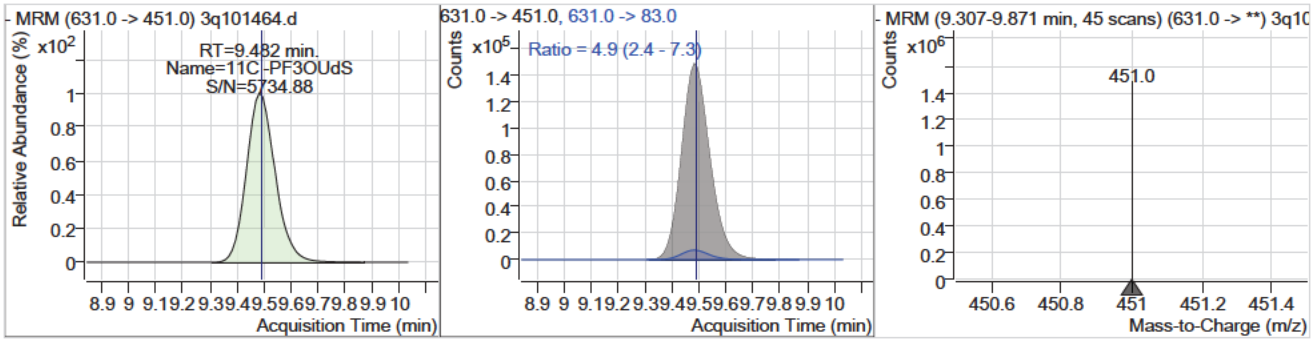
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	10.22	9.21	-0.01	716283				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	39.62	9.21	-0.01	1829143	563.0 -> 269.0	19.8	9.8	29.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	39.57	9.48	-0.03	1108153	631.0 -> 83.0	4.9	2.4	7.3



7.7.8

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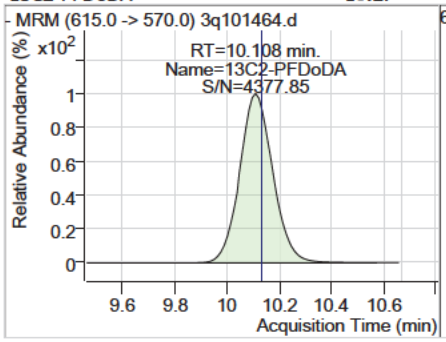
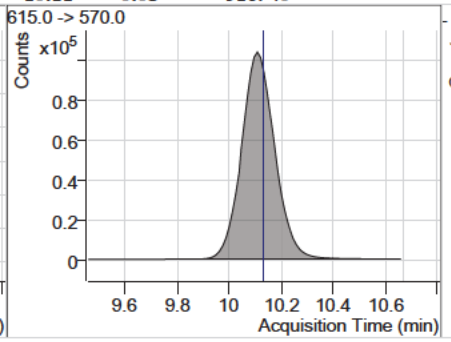
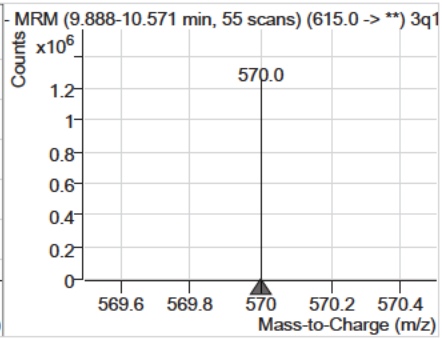
Perfluorinated Compounds by LC/MS/MS

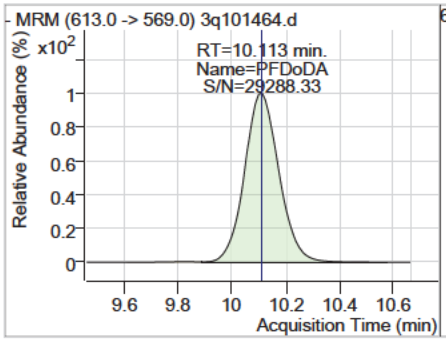
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.27	10.11	-0.03	916740				

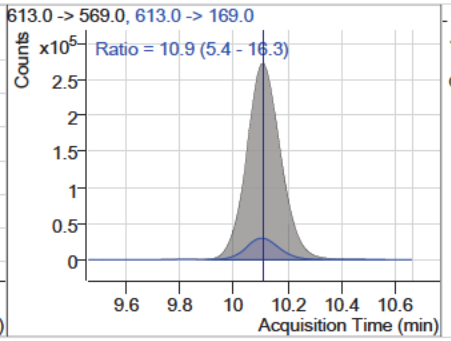


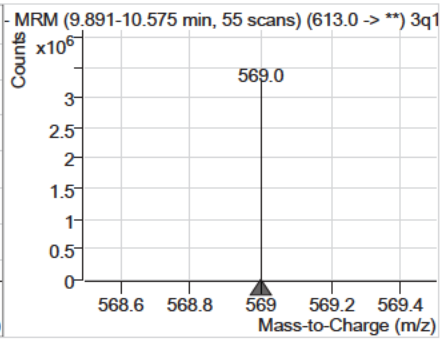




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	39.57	10.11	-0.03	2412423	613.0 -> 169.0	10.9	5.4	16.3







7.7.8

7

Manual Integration Approval Summary

Sample Number: S3Q1492-IC1492
Lab FileID: 3Q101464.D
Injection Time: 04/15/25 15:40
Method: EPA 533
Analyst approved: 04/16/25 08:55 (b) (6) [redacted]
Supervisor approved: 04/17/25 11:42 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Cal Report: 3Q101465.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:42

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101465.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 3:56:34 PM
Sample Name : ic1492-50
Vial : P1-C9
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.435	415.0 -> 370.0	205302	10.00 µg/L	0.000
13C3-PFBA	2.357	216.0 -> 172.0	85777	10.00 µg/L	0.225
13C4-PFOS	7.983	503.0 -> 80.0	33313	10.00 µg/L	-0.013
M4-PFBA	2.352	217.0 -> 172.0	145176	10.00 µg/L	0.213
M5-PFPeA	4.425	268.0 -> 223.0	175238	10.00 µg/L	0.088
M5-PFHxA	5.788	318.0 -> 273.0	216958	10.00 µg/L	0.038
M4-PFHpA	6.706	367.0 -> 322.0	179949	10.00 µg/L	0.000
M8-PFOA	7.434	421.0 -> 376.0	225334	10.00 µg/L	0.000
M9-PFNA	8.022	472.0 -> 427.0	248574	10.00 µg/L	0.000
M6-PFDA	8.546	519.0 -> 474.0	355444	10.00 µg/L	0.000
M7-PFUnDA	9.212	570.0 -> 525.0	711762	10.00 µg/L	-0.013
M2-PFDoDA	10.121	615.0 -> 570.0	909382	10.00 µg/L	-0.013
M3-PFBS	4.721	302.0 -> 99.0	20520	10.00 µg/L	0.075
M3-PFHxS	6.736	402.0 -> 99.0	29264	10.00 µg/L	0.000
M8-PFOS	7.982	507.0 -> 99.0	37248	10.00 µg/L	-0.013
M2-4:2FTS	5.684	329.0 -> 309.0	90848	10.00 µg/L	0.038
M2-6:2FTS	7.432	429.0 -> 409.0	161489	10.00 µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	275525	10.00 µg/L	-0.014
M3-HFPO-DA	6.068	287.0 -> 169.0	3816	10.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.684	329.0 -> 309.0	90848	11.46 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.6%	
13C2-6:2FTS	7.432	429.0 -> 409.0	161489	10.84 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C2-8:2FTS	8.597	529.0 -> 509.0	275525	11.04 µg/L	-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.4%	
13C2-PFDoDA	10.121	615.0 -> 570.0	909382	10.40 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C3-PFBS	4.721	302.0 -> 99.0	20520	9.87 µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C3-PFHxS	6.736	402.0 -> 99.0	29264	9.89 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C4-PFBA	2.352	217.0 -> 172.0	145176	9.98 µg/L	0.213
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFHpA	6.706	367.0 -> 322.0	179949	10.36 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C5-PFHxA	5.788	318.0 -> 273.0	216958	10.43 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C5-PFPeA	4.425	268.0 -> 223.0	175238	9.99 µg/L	0.088
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C6-PFDA	8.546	519.0 -> 474.0	355444	10.35 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C7-PFUnDA	9.212	570.0 -> 525.0	711762	10.38 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C8-PFOA	7.434	421.0 -> 376.0	225334	9.99 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

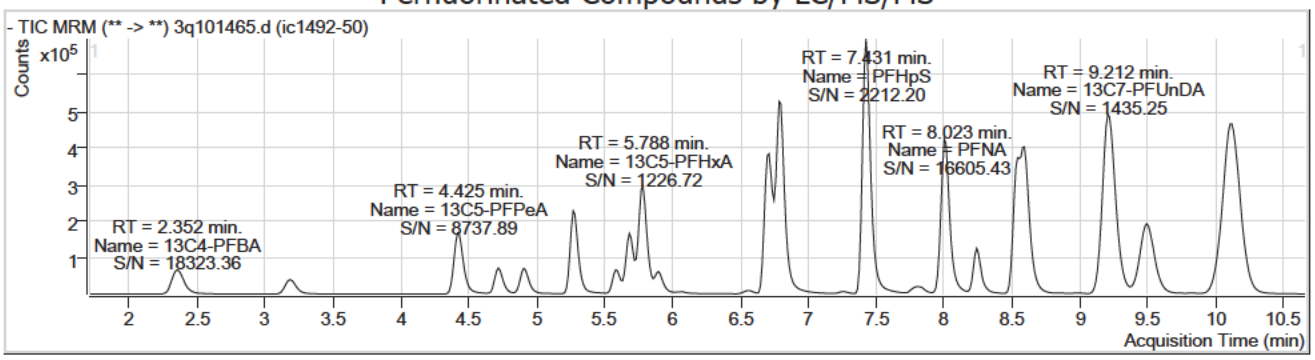
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
13C8-PFOS	7.982	507.0 -> 99.0	37248	9.83 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.3%		
13C9-PFNA	8.022	472.0 -> 427.0	248574	10.14 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.4%		
13C3-HFPO-DA	6.068	287.0 -> 169.0	3816	12.76 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 127.6%		
Target Compounds						QValue
PFMPA	3.178	229.0 -> 85.0	235834	50.17 µg/L		100
4:2FTS	5.686	327.0 -> 307.0	427670	50.59 µg/L		100
		327.0 -> 81.0	182085			
6:2FTS	7.433	427.0 -> 407.0	553031	50.50 µg/L		100
		427.0 -> 81.0	244099			
8:2FTS	8.598	527.0 -> 507.0	921311	48.67 µg/L		100
		527.0 -> 81.0	377754			
PFMBA	4.913	279.0 -> 85.0	321242	49.72 µg/L		100
PFEESA	5.274	315.0 -> 135.0	923699	49.91 µg/L		100
		315.0 -> 69.0	70877			
NFDHA	5.594	201.0 -> 85.0	272145	50.15 µg/L		99
		295.0 -> 201.0	18280			
PFBA	2.361	213.0 -> 169.0	200882	50.05 µg/L		100
PFBS	4.722	299.0 -> 80.0	206253	49.71 µg/L		99
		299.0 -> 99.0	88208			
PFDA	8.546	513.0 -> 469.0	1010157	50.25 µg/L		100
		513.0 -> 219.0	237257			
PFDoDA	10.113	613.0 -> 569.0	3024340	50.01 µg/L		100
		613.0 -> 169.0	329267			
PFHpA	6.708	363.0 -> 319.0	1257040	49.78 µg/L		100
		363.0 -> 169.0	105009			
PFHpS	7.431	449.0 -> 80.0	266922	49.81 µg/L		99
		449.0 -> 99.0	146964			
PFHxA	5.791	313.0 -> 269.0	1020159	49.91 µg/L		100
		313.0 -> 119.0	35386			
PFHxS	6.738	399.0 -> 80.0	256420	49.78 µg/L	m	100
		399.0 -> 99.0	133243			
PFNA	8.023	463.0 -> 419.0	1018849	50.04 µg/L		100
		463.0 -> 219.0	303605			
PFOA	7.436	413.0 -> 369.0	866070	49.84 µg/L		100
		413.0 -> 169.0	319841			
PFOS	7.983	499.0 -> 80.0	296994	49.87 µg/L	m	99
		499.0 -> 99.0	151077			
PFPeA	4.427	263.0 -> 219.0	657220	49.71 µg/L		100
PFPeS	5.896	349.0 -> 80.0	149396	49.99 µg/L		99
		349.0 -> 99.0	63478			
PFUnDA	9.214	563.0 -> 519.0	2294179	50.00 µg/L		99
		563.0 -> 269.0	453005			
11Cl-PF3OUdS	9.495	631.0 -> 451.0	1384109	50.03 µg/L		100
		631.0 -> 83.0	66880			
9Cl-PF3ONS	8.241	531.0 -> 351.0	476737	49.69 µg/L		100
		531.0 -> 83.0	24894			
ADONA	6.805	377.0 -> 251.0	1943684	49.86 µg/L		100
		377.0 -> 85.0	232670			
HFPO-DA	6.073	329.0 -> 169.0	3414	51.73 µg/L		80
		285.0 -> 169.0	9419			

= Qualifier out of range, m = manually integrated, + = Area summed

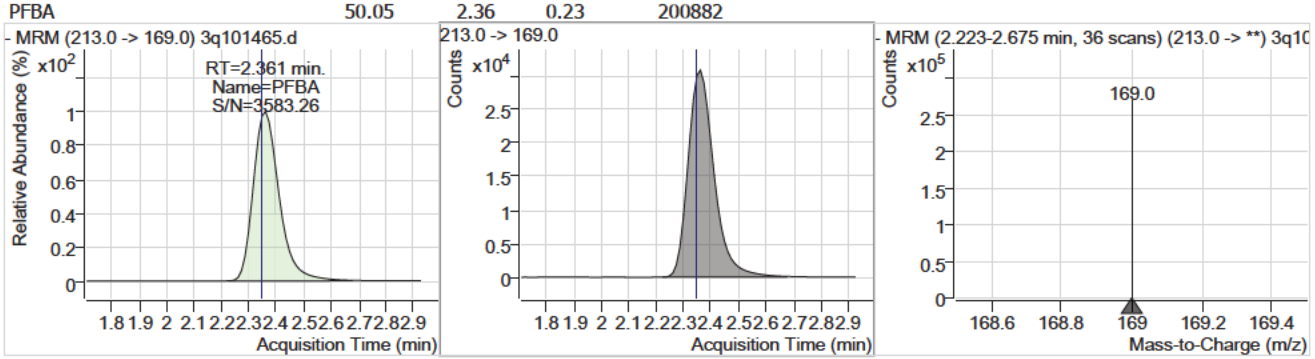
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)

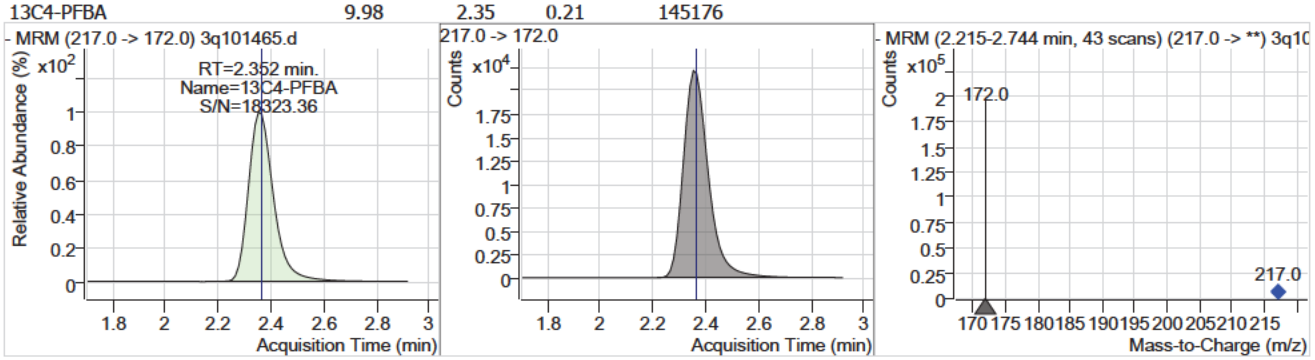
Perfluorinated Compounds by LC/MS/MS



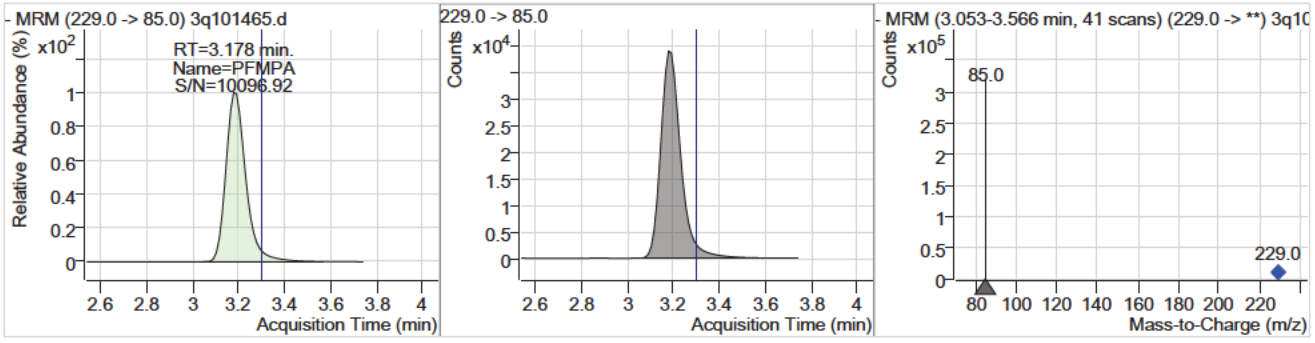
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	50.05	2.36	0.23	200882				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	9.98	2.35	0.21	145176				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	50.17	3.18	0.18	235834				



7.7.9

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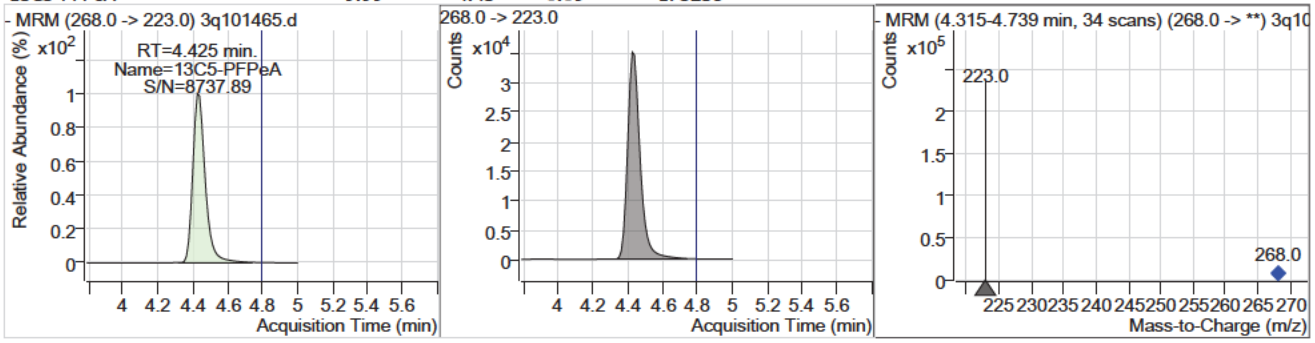
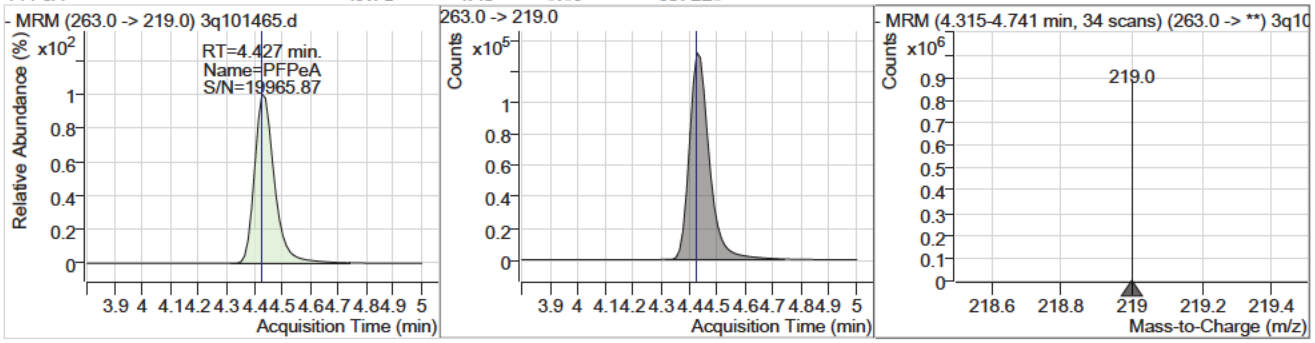
Perfluorinated Compounds by LC/MS/MS

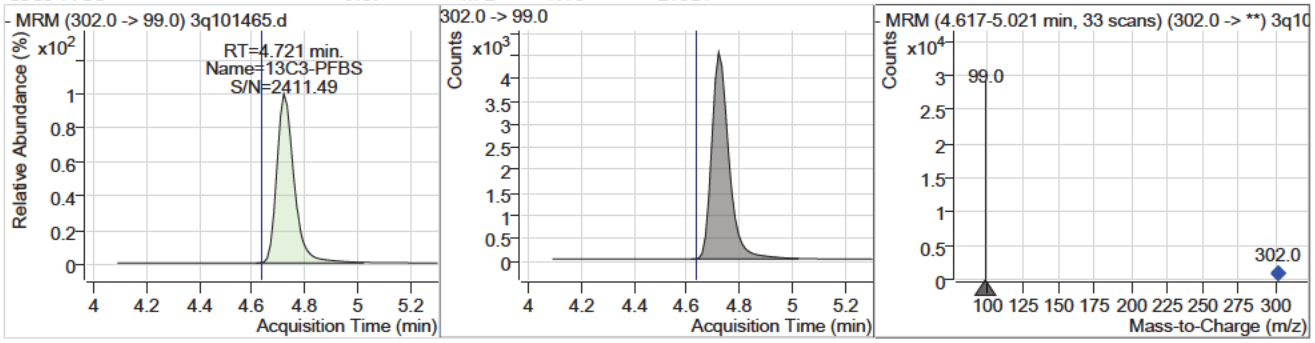
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	9.99	4.43	0.09	175238				



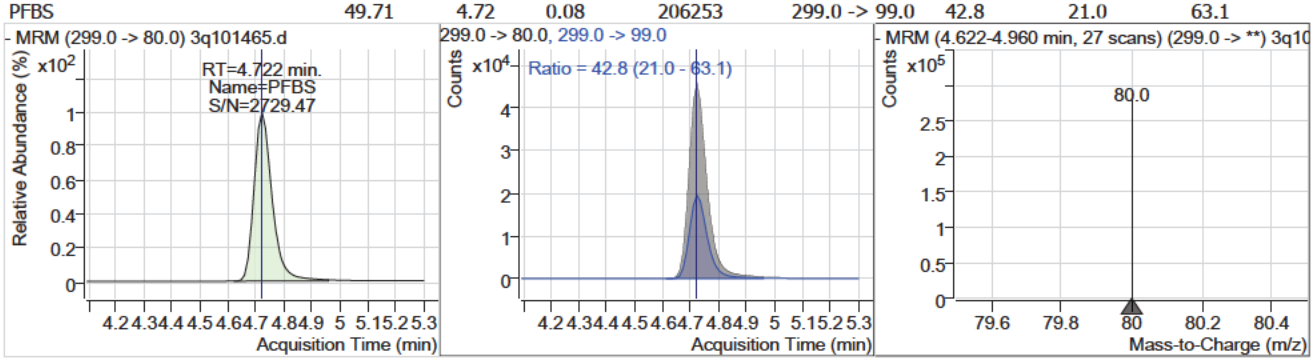
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	49.71	4.43	0.09	657220				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	9.87	4.72	0.08	20520				



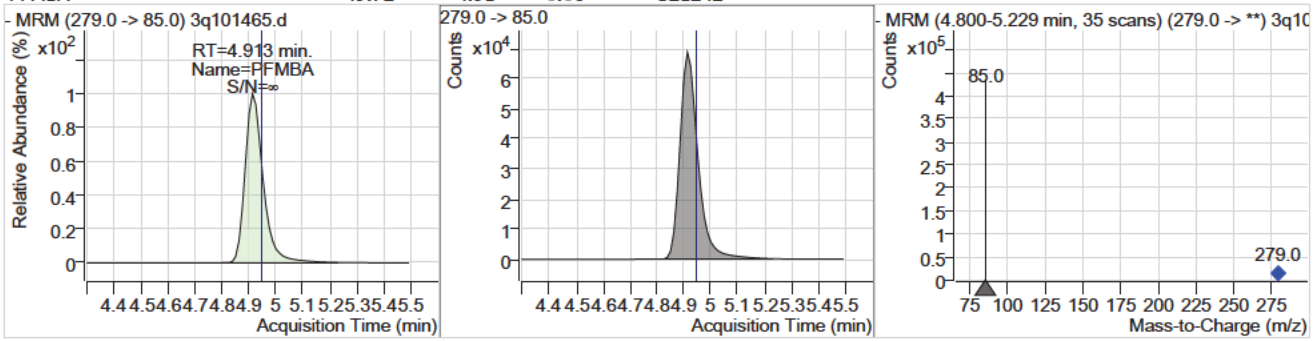
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	49.71	4.72	0.08	206253	299.0 -> 99.0	42.8	21.0	63.1



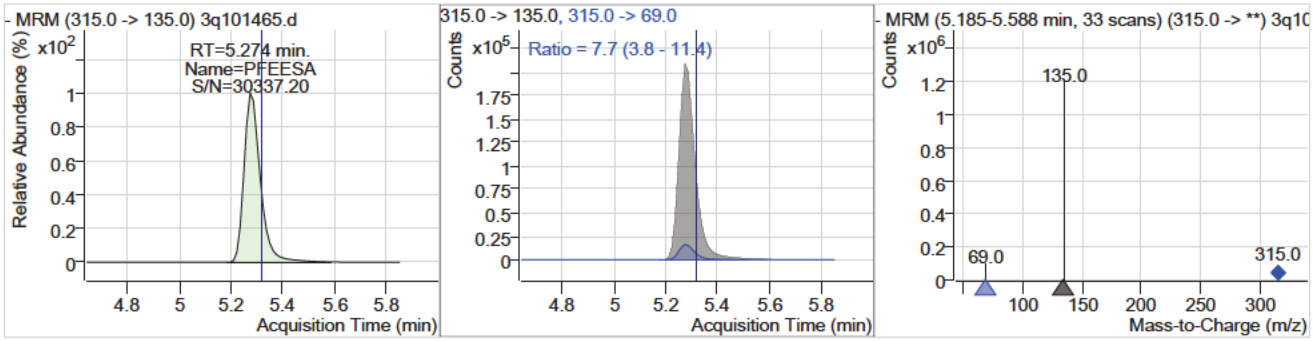
7.7.9

Perfluorinated Compounds by LC/MS/MS

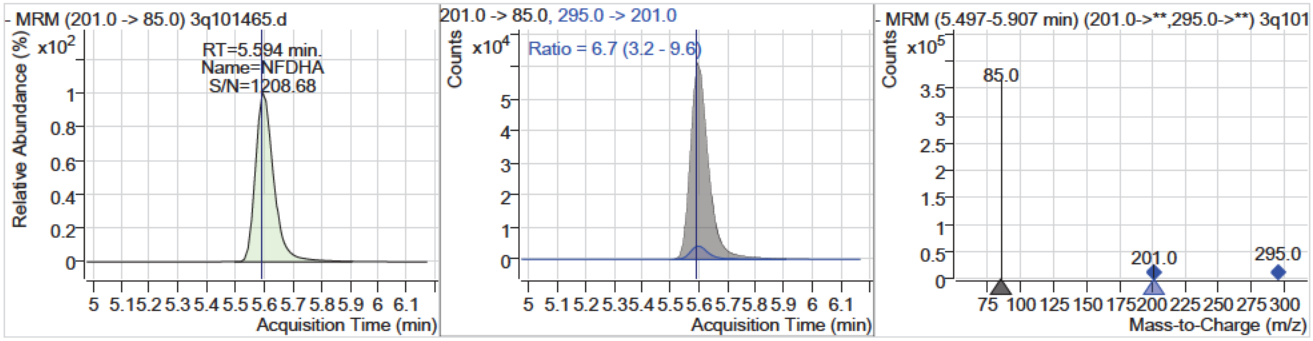
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	49.72	4.91	0.06	321242				



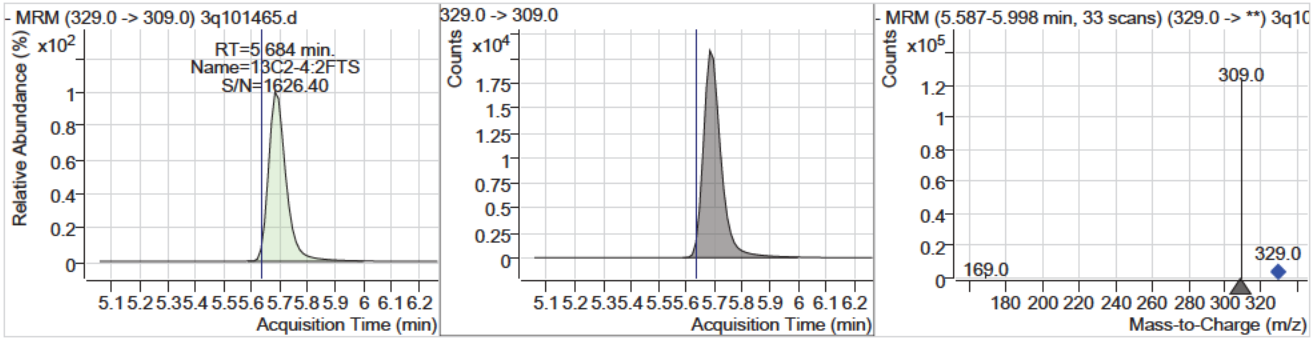
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	49.91	5.27	0.04	923699	315.0 -> 69.0	7.7	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	50.15	5.59	0.04	272145	295.0 -> 201.0	6.7	3.2	9.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	11.46	5.68	0.04	90848				



7.7.9

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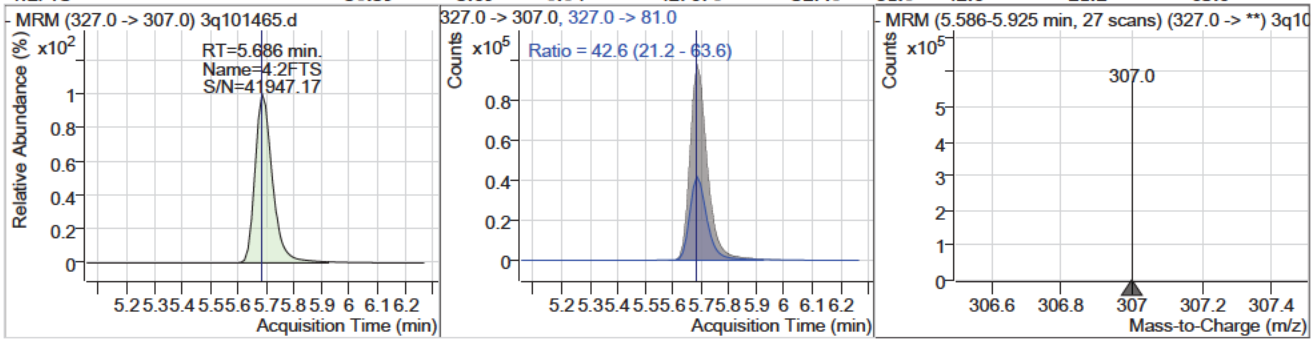
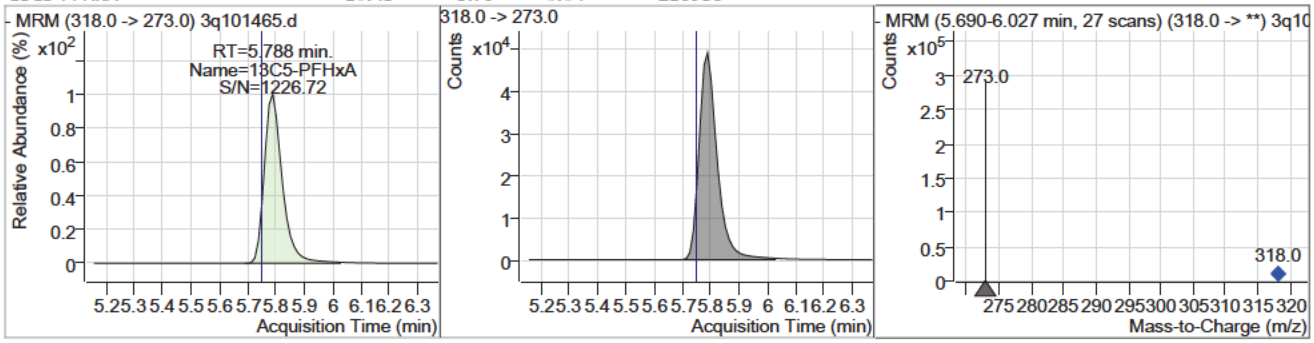
Perfluorinated Compounds by LC/MS/MS

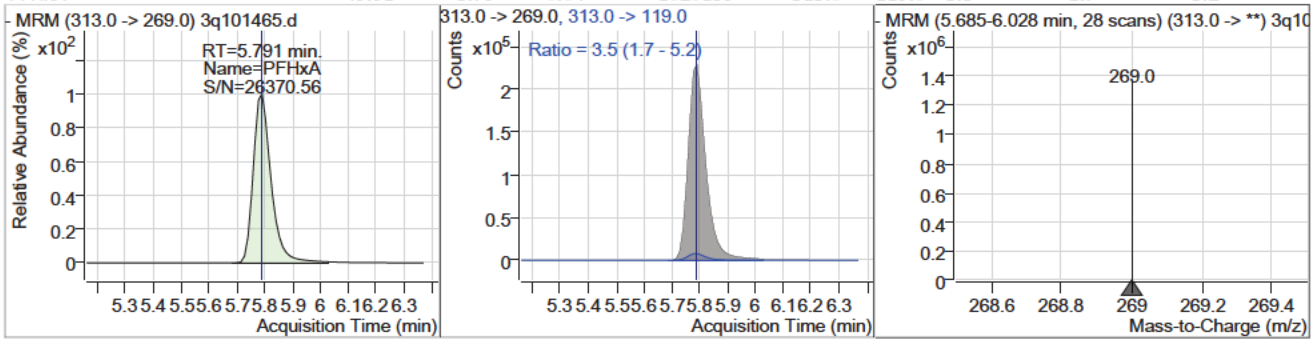
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	50.59	5.69	0.04	427670	327.0 -> 81.0	42.6	21.2	63.6



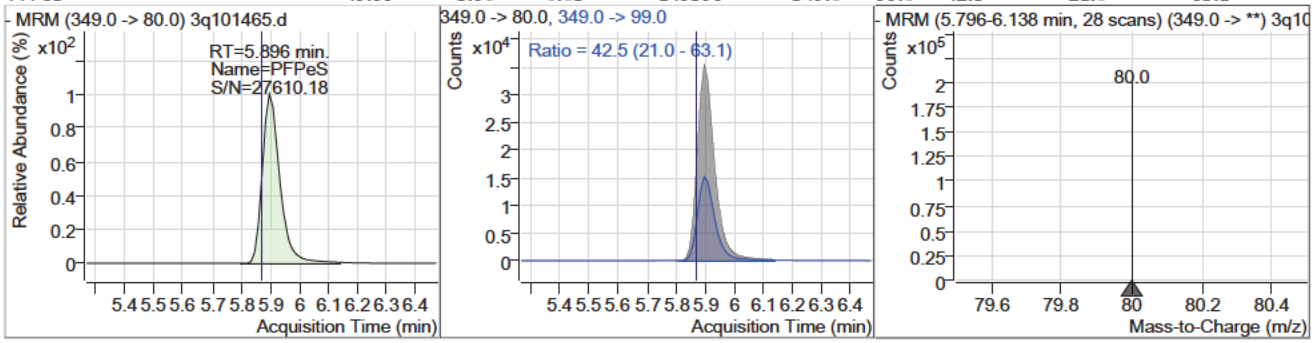
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.43	5.79	0.04	216958				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	49.91	5.79	0.04	1020159	313.0 -> 119.0	3.5	1.7	5.2

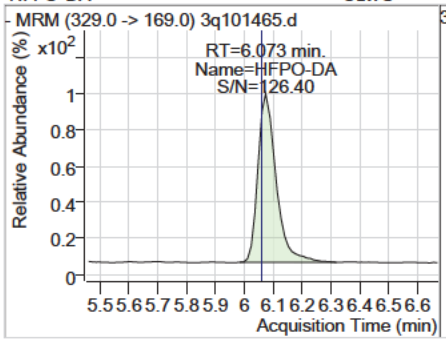


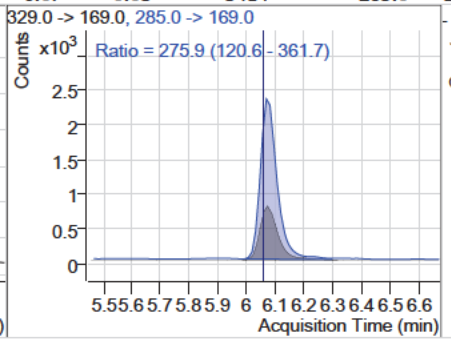
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	49.99	5.90	0.03	149396	349.0 -> 99.0	42.5	21.0	63.1

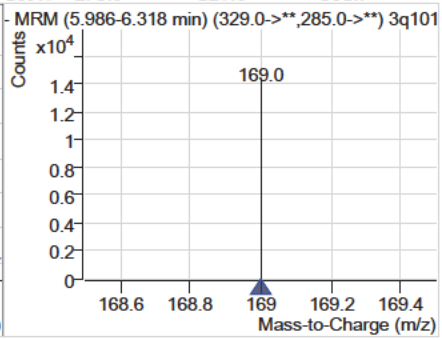


Perfluorinated Compounds by LC/MS/MS

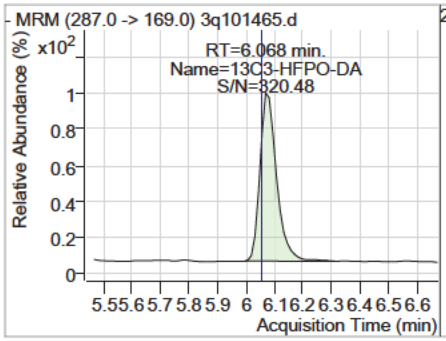
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	51.73	6.07	0.03	3414	285.0 -> 169.0	275.9	120.6	361.7

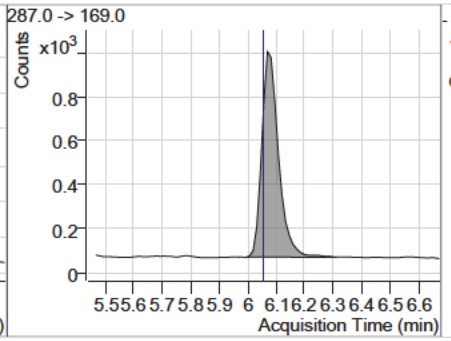


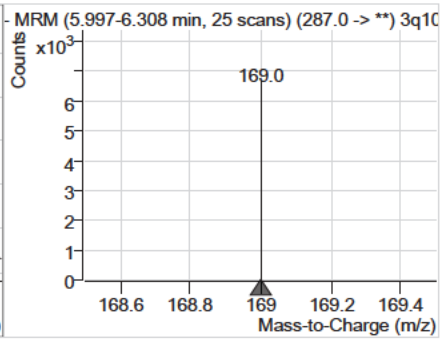




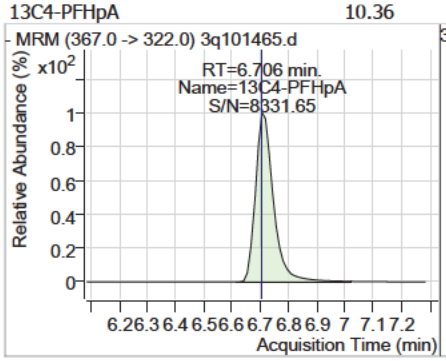
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	12.76	6.07	0.01	3816				

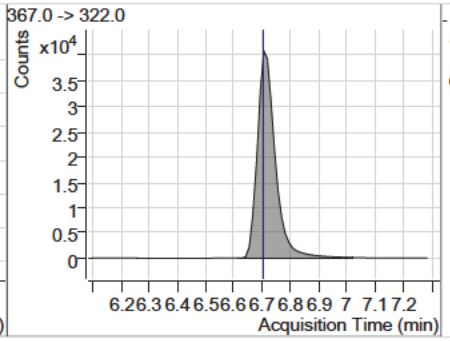


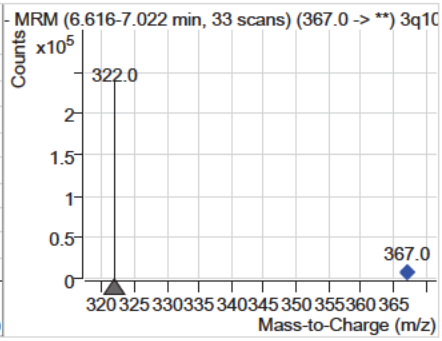




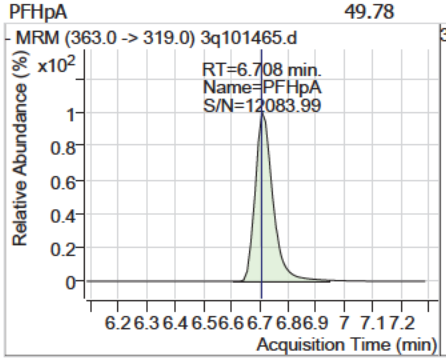
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.36	6.71	0.00	179949				

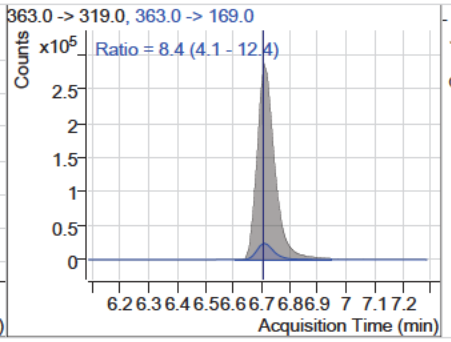


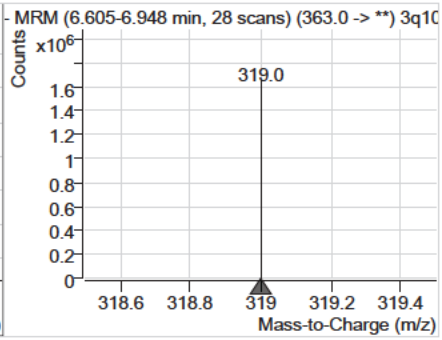




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	49.78	6.71	0.00	1257040	363.0 -> 169.0	8.4	4.1	12.4

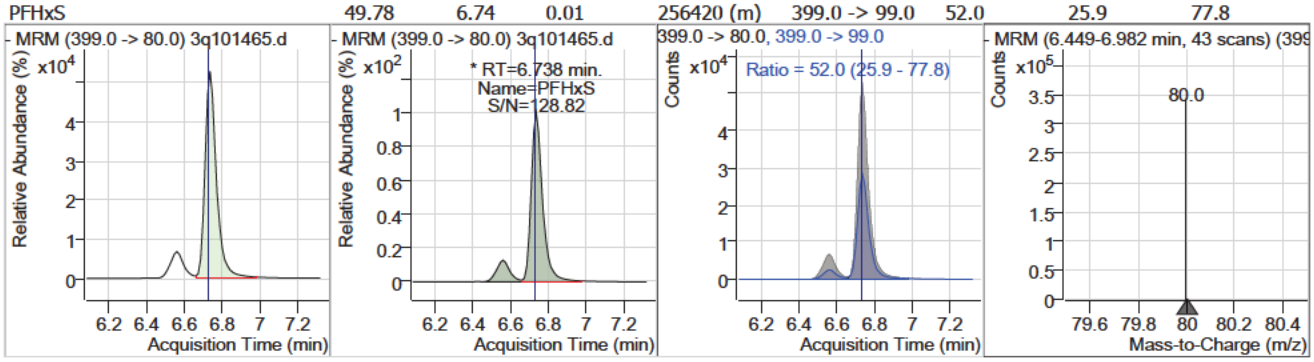




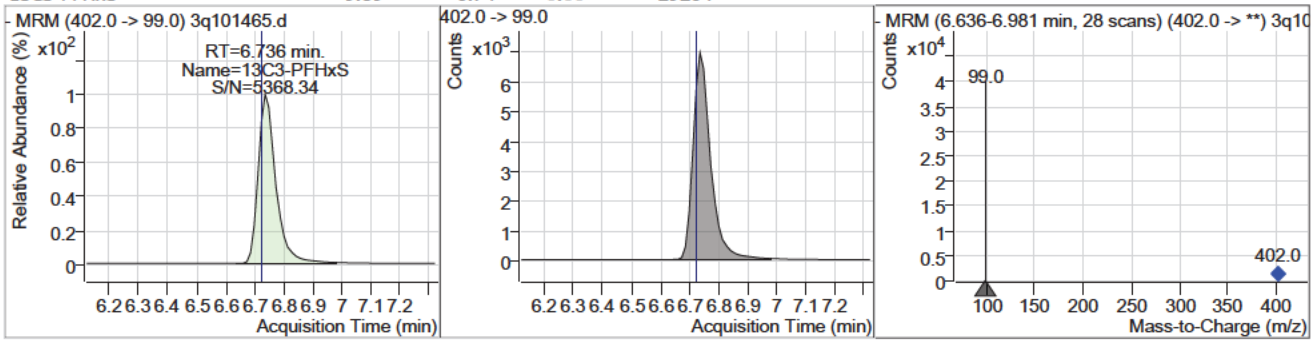


Perfluorinated Compounds by LC/MS/MS

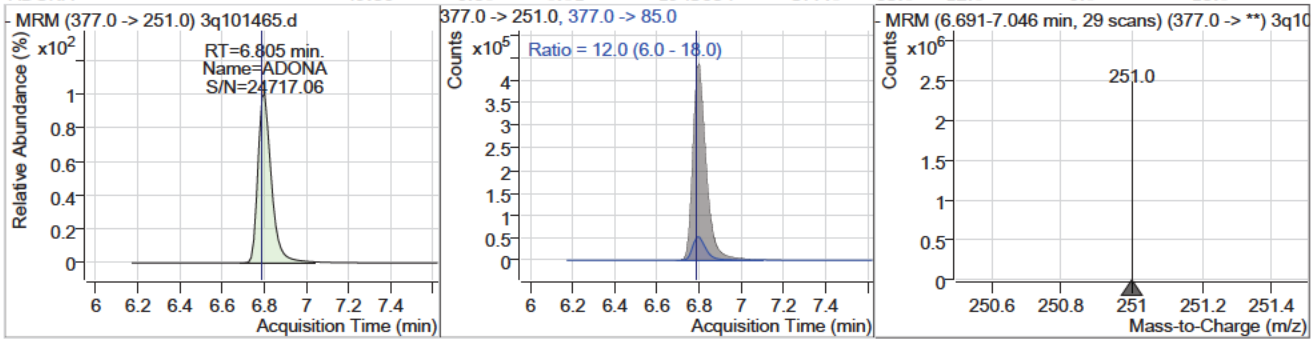
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	49.78	6.74	0.01	256420 (m)	399.0 -> 99.0	52.0	25.9	77.8



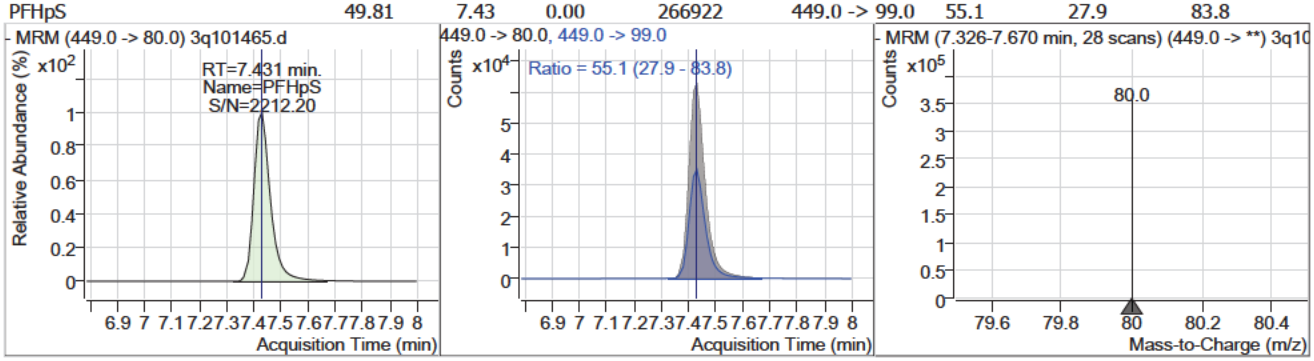
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	9.89	6.74	0.00	29264				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	49.86	6.80	0.01	1943684	377.0 -> 85.0	12.0	6.0	18.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	49.81	7.43	0.00	266922	449.0 -> 99.0	55.1	27.9	83.8



7.7.9

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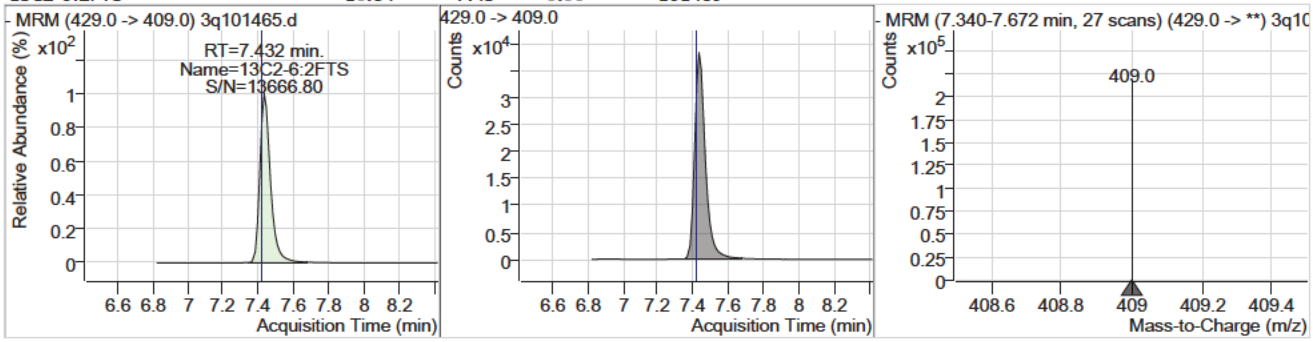
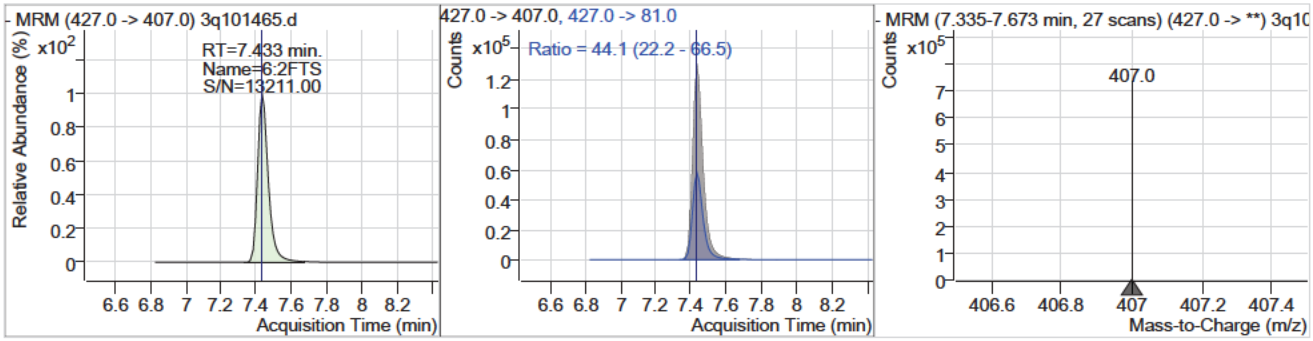
Perfluorinated Compounds by LC/MS/MS

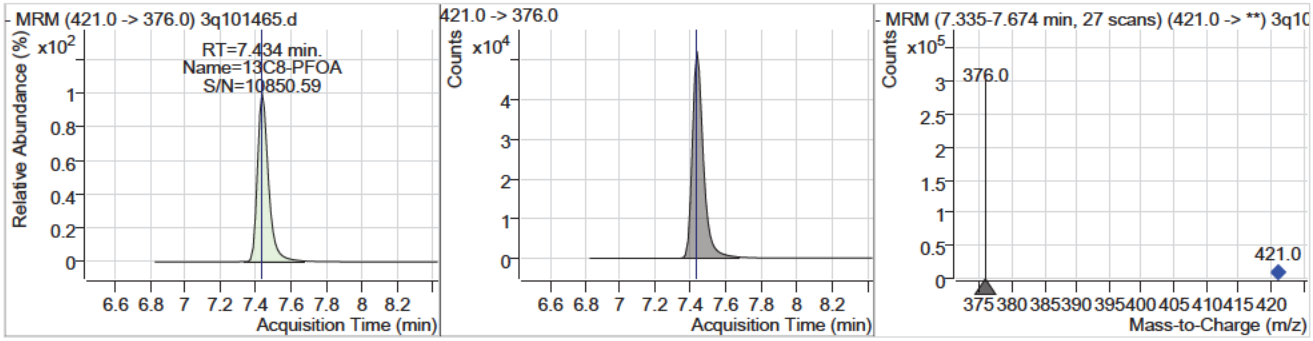
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	10.84	7.43	0.00	161489				



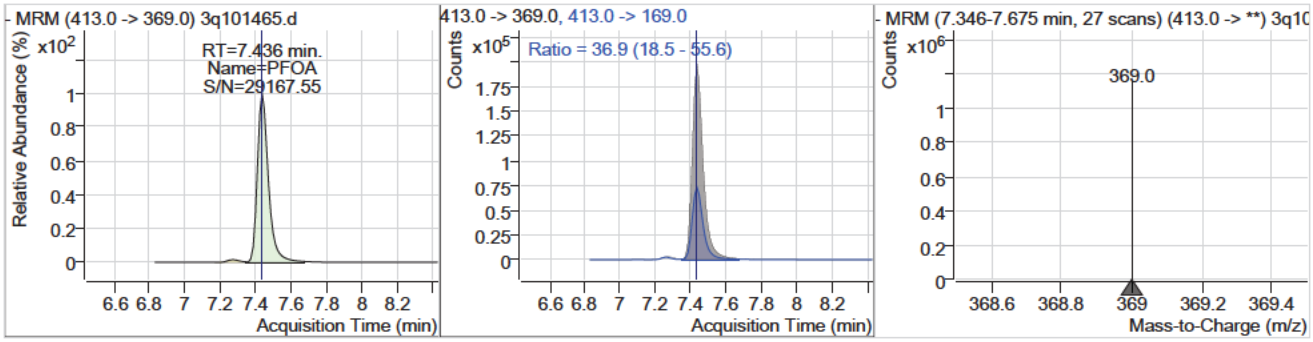
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	50.50	7.43	0.00	553031	427.0 -> 81.0	44.1	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	9.99	7.43	0.00	225334				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	49.84	7.44	0.00	866070	413.0 -> 169.0	36.9	18.5	55.6



7.7.9

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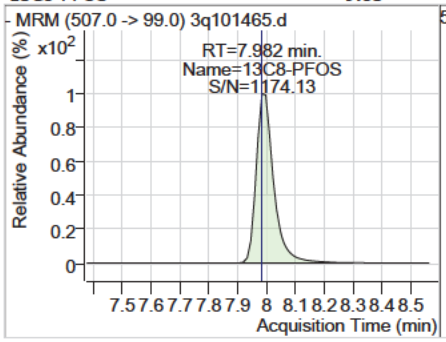
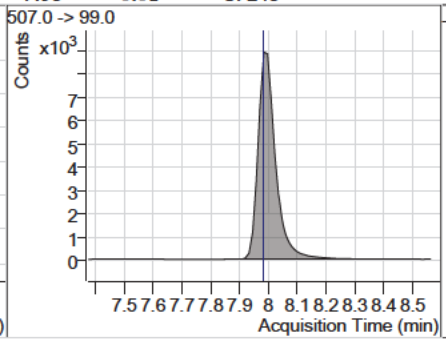
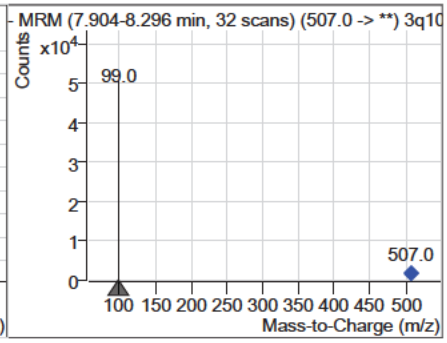
Perfluorinated Compounds by LC/MS/MS

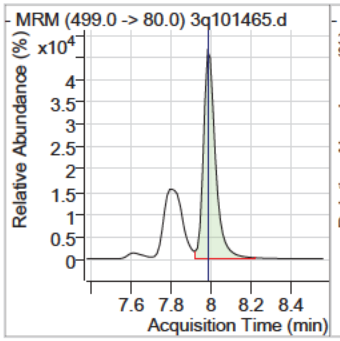
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	9.83	7.98	-0.01	37248				

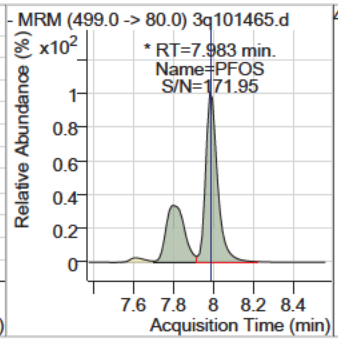


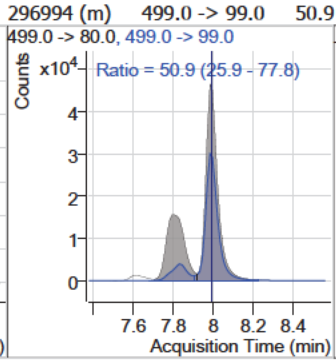


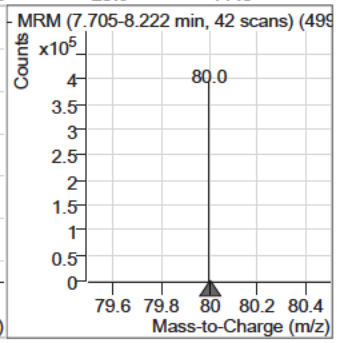


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	49.87	7.98	-0.01	296994 (m)	499.0 -> 99.0	50.9	25.9	77.8

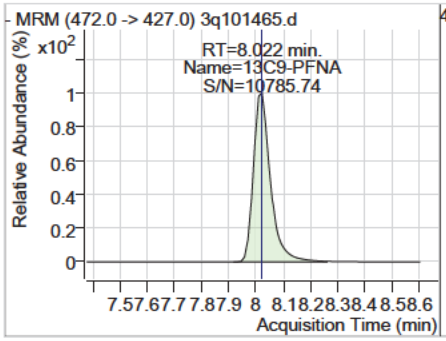


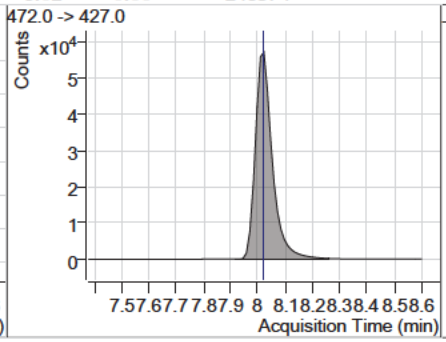


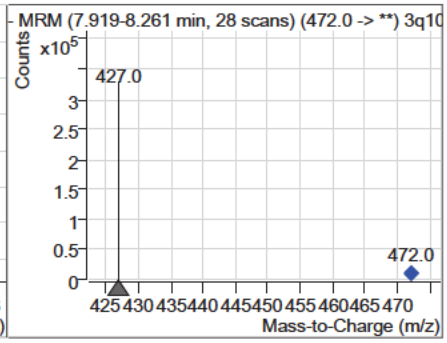




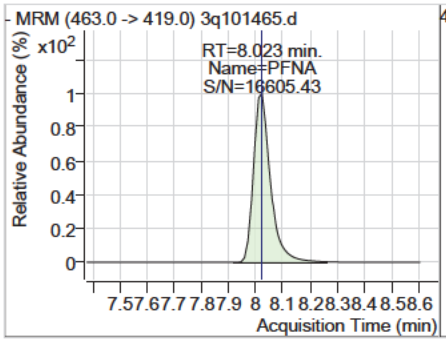
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.14	8.02	0.00	248574				

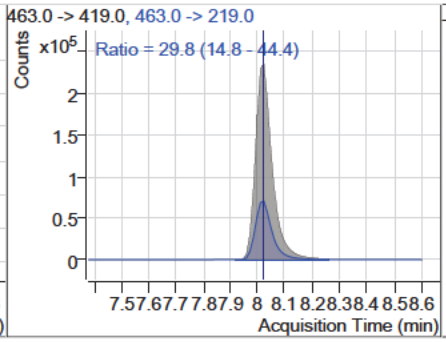


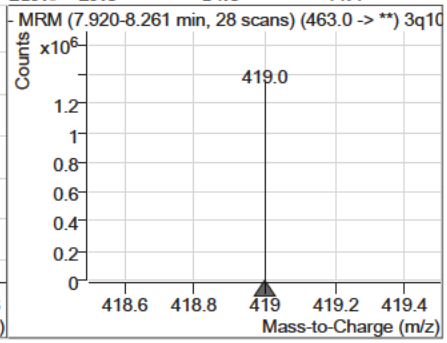




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	50.04	8.02	0.00	1018849	463.0 -> 219.0	29.8	14.8	44.4

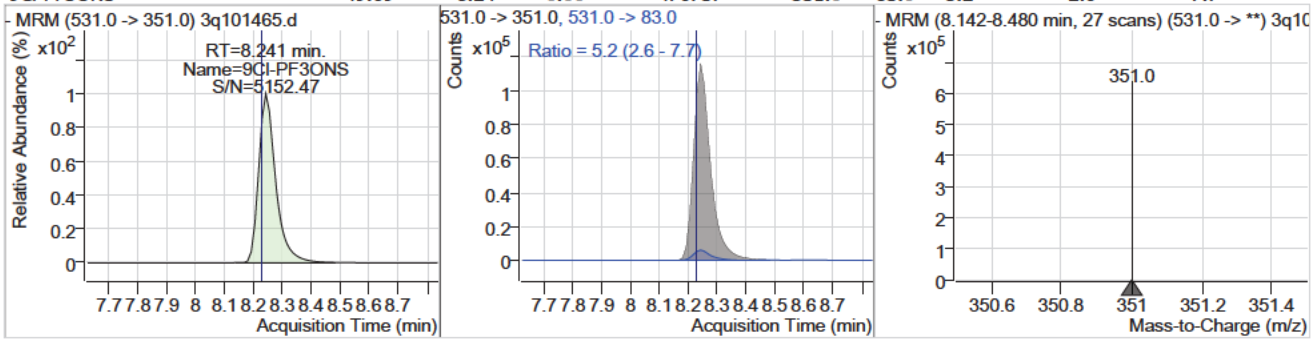




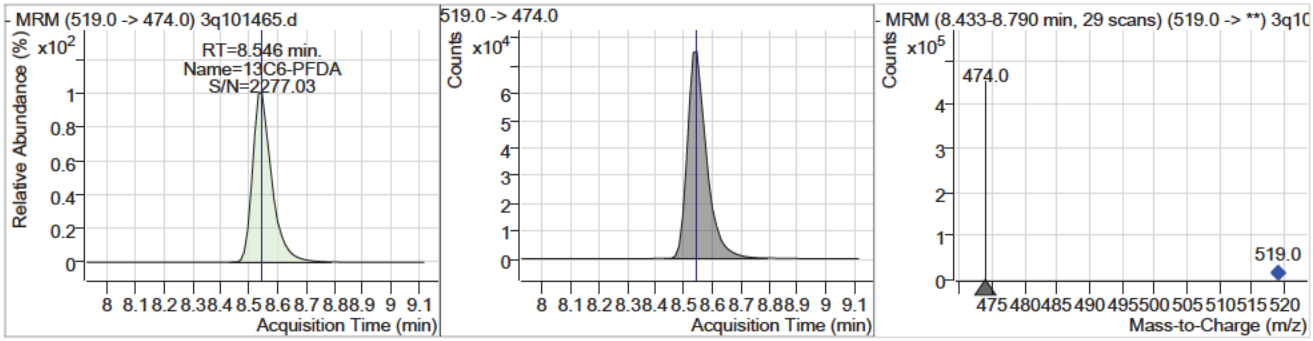


Perfluorinated Compounds by LC/MS/MS

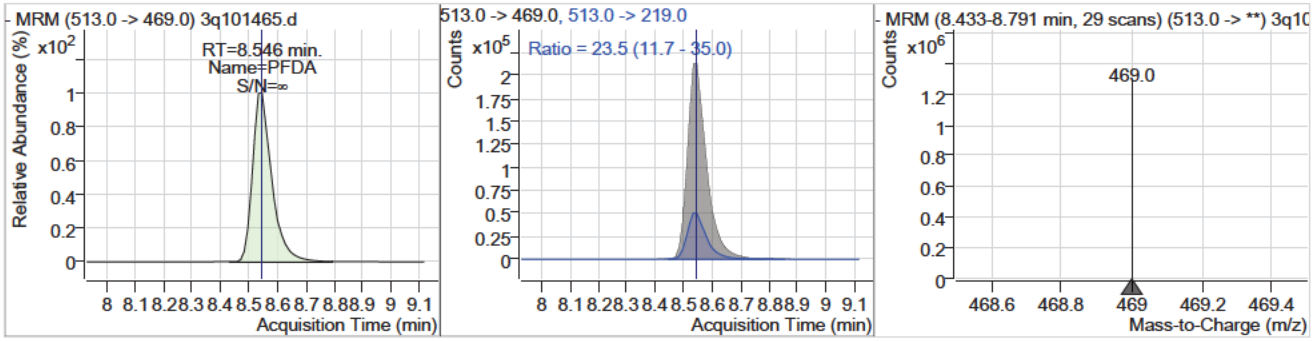
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	49.69	8.24	0.00	476737	531.0 -> 83.0	5.2	2.6	7.7



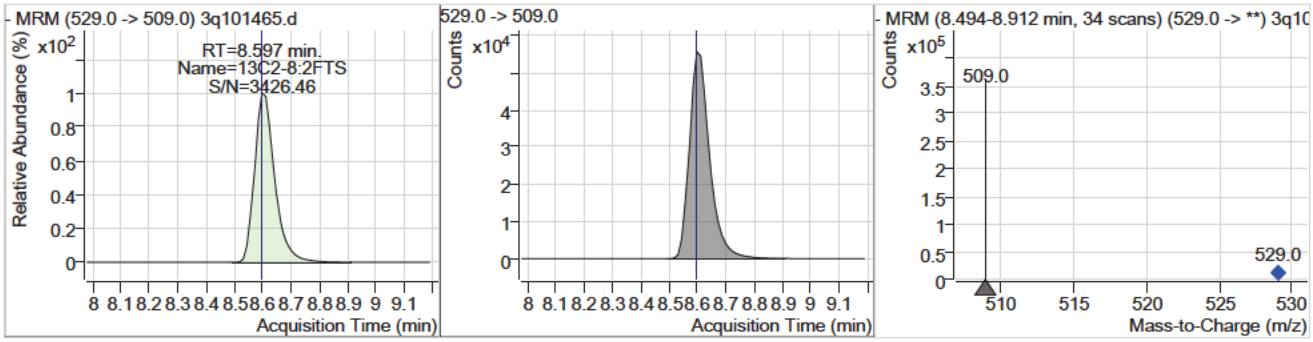
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	10.35	8.55	0.00	355444				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	50.25	8.55	0.00	1010157	513.0 -> 219.0	23.5	11.7	35.0

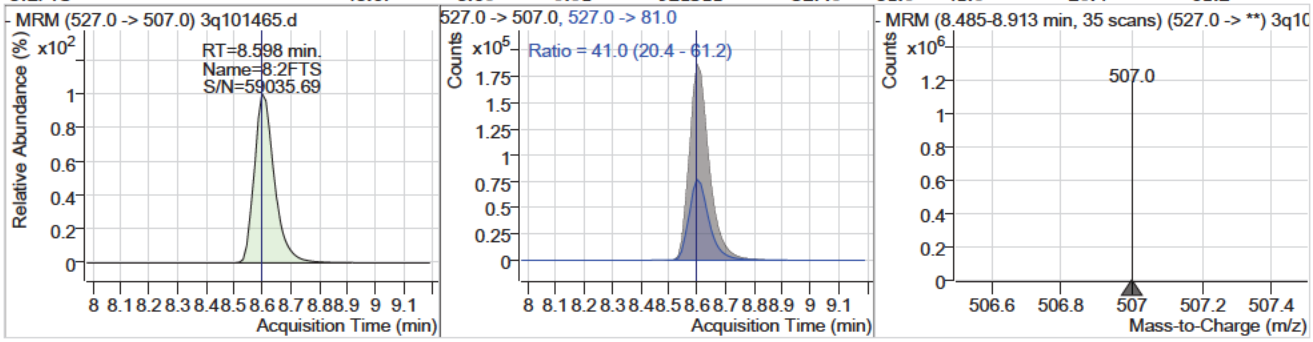


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	11.04	8.60	-0.01	275525				

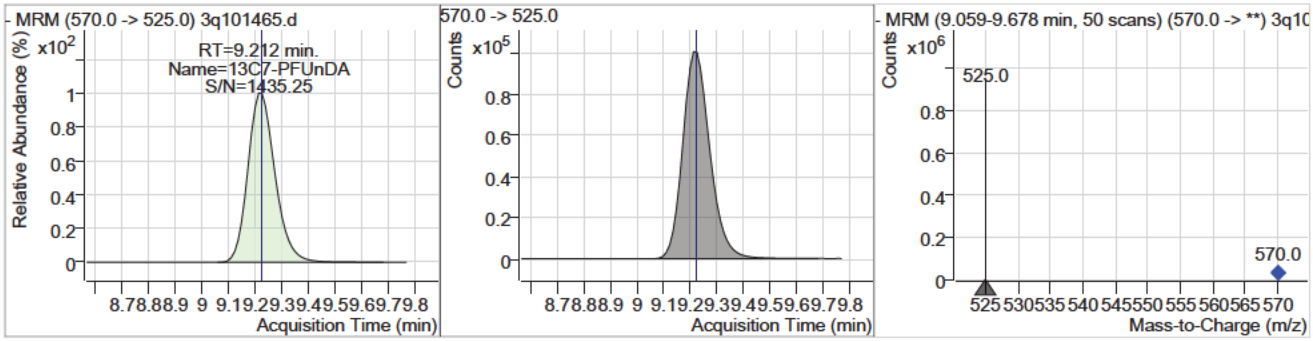


Perfluorinated Compounds by LC/MS/MS

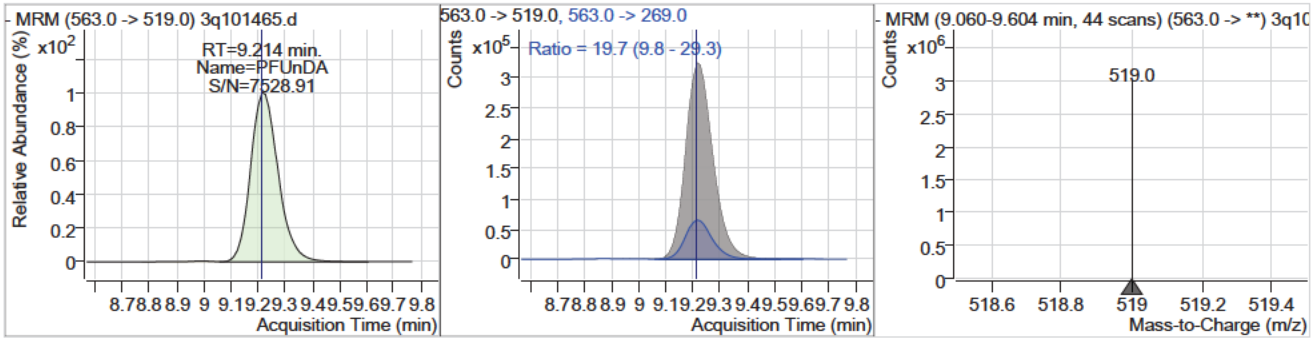
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	48.67	8.60	-0.01	921311	527.0 -> 81.0	41.0	20.4	61.2



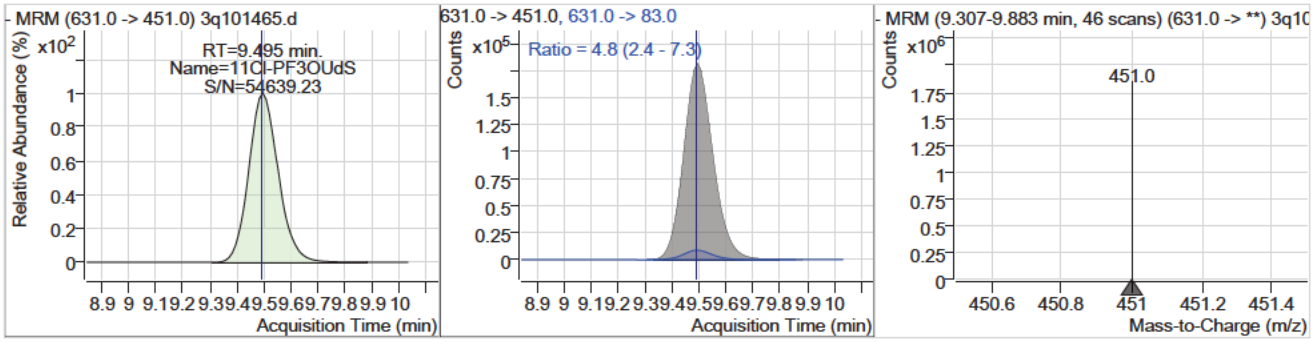
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	10.38	9.21	-0.01	711762				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	50.00	9.21	-0.01	2294179	563.0 -> 269.0	19.7	9.8	29.3

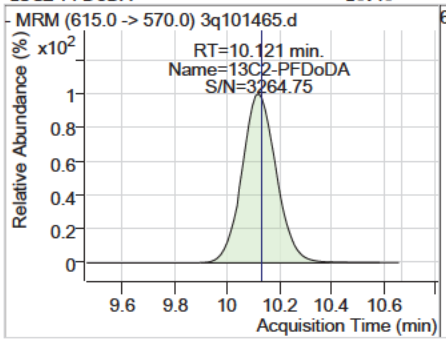


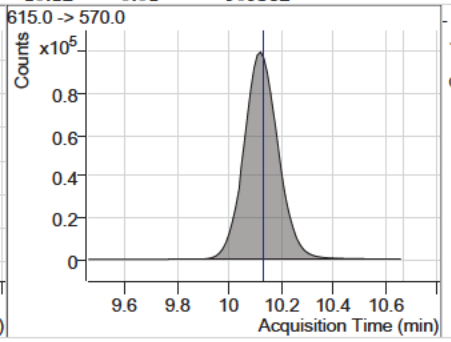
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	50.03	9.49	-0.01	1384109	631.0 -> 83.0	4.8	2.4	7.3

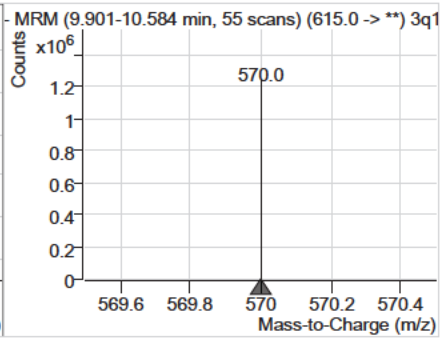


Perfluorinated Compounds by LC/MS/MS

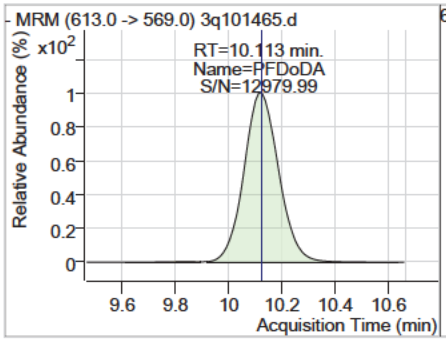
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.40	10.12	-0.01	909382				

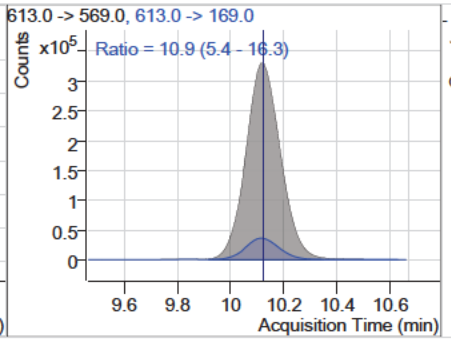


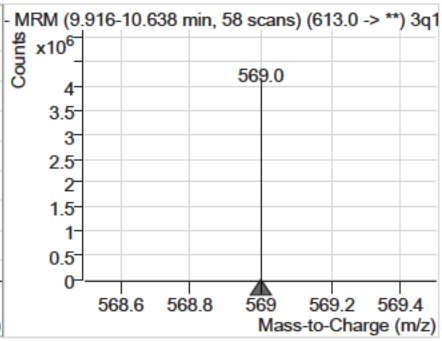




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	50.01	10.11	-0.03	3024340	613.0 -> 169.0	10.9	5.4	16.3







7.7.9

7

Manual Integration Approval Summary

Sample Number: S3Q1492-IC1492
Lab FileID: 3Q101465.D
Injection Time: 04/15/25 15:56
Method: EPA 533
Analyst approved: 04/16/25 08:55 (b) (6) [redacted]
Supervisor approved: 04/17/25 11:42 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

7.7.9.1

7

Cal Report: 3Q101467.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:42

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101467.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 4:28:44 PM
Sample Name : icv1492-20
Vial : P1-D1
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	7.435	415.0 -> 370.0	228363	10.00	µg/L	0.000
13C3-PFBA	2.344	216.0 -> 172.0	91327	10.00	µg/L	0.213
13C4-PFOS	7.983	503.0 -> 80.0	34151	10.00	µg/L	-0.013
M4-PFBA	2.352	217.0 -> 172.0	136986	10.00	µg/L	0.213
M5-PFPeA	4.413	268.0 -> 223.0	164253	10.00	µg/L	0.075
M5-PFHxA	5.776	318.0 -> 273.0	205882	10.00	µg/L	0.025
M4-PFHpA	6.706	367.0 -> 322.0	173109	10.00	µg/L	0.000
M8-PFOA	7.434	421.0 -> 376.0	222617	10.00	µg/L	0.000
M9-PFNA	8.022	472.0 -> 427.0	242123	10.00	µg/L	0.000
M6-PFDA	8.546	519.0 -> 474.0	332312	10.00	µg/L	0.000
M7-PFUnDA	9.212	570.0 -> 525.0	673179	10.00	µg/L	-0.013
M2-PFDoDA	10.121	615.0 -> 570.0	858435	10.00	µg/L	-0.013
M3-PFBS	4.708	302.0 -> 99.0	19244	10.00	µg/L	0.063
M3-PFHxS	6.736	402.0 -> 99.0	27504	10.00	µg/L	0.000
M8-PFOS	7.982	507.0 -> 99.0	35394	10.00	µg/L	-0.013
M2-4:2FTS	5.684	329.0 -> 309.0	74317	10.00	µg/L	0.038
M2-6:2FTS	7.432	429.0 -> 409.0	138412	10.00	µg/L	0.000
M2-8:2FTS	8.611	529.0 -> 509.0	237645	10.00	µg/L	0.000
M3-HFPO-DA	6.068	287.0 -> 169.0	2886	10.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.684	329.0 -> 309.0	74317	9.14	µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.4%		
13C2-6:2FTS	7.432	429.0 -> 409.0	138412	9.07	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.7%		
13C2-8:2FTS	8.611	529.0 -> 509.0	237645	9.29	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.9%		
13C2-PFDoDA	10.121	615.0 -> 570.0	858435	8.83	µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.3%		
13C3-PFBS	4.708	302.0 -> 99.0	19244	9.03	µg/L	0.063
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.3%		
13C3-PFHxS	6.736	402.0 -> 99.0	27504	9.07	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.7%		
13C4-PFBA	2.352	217.0 -> 172.0	136986	8.84	µg/L	0.213
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.4%		
13C4-PFHpA	6.706	367.0 -> 322.0	173109	8.96	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.6%		
13C5-PFHxA	5.776	318.0 -> 273.0	205882	8.90	µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.0%		
13C5-PFPeA	4.413	268.0 -> 223.0	164253	8.80	µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.0%		
13C6-PFDA	8.546	519.0 -> 474.0	332312	8.70	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 87.0%		
13C7-PFUnDA	9.212	570.0 -> 525.0	673179	8.82	µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.2%		
13C8-PFOA	7.434	421.0 -> 376.0	222617	8.87	µg/L	0.000

7.7.10

7

Perfluorinated Compounds by LC/MS/MS

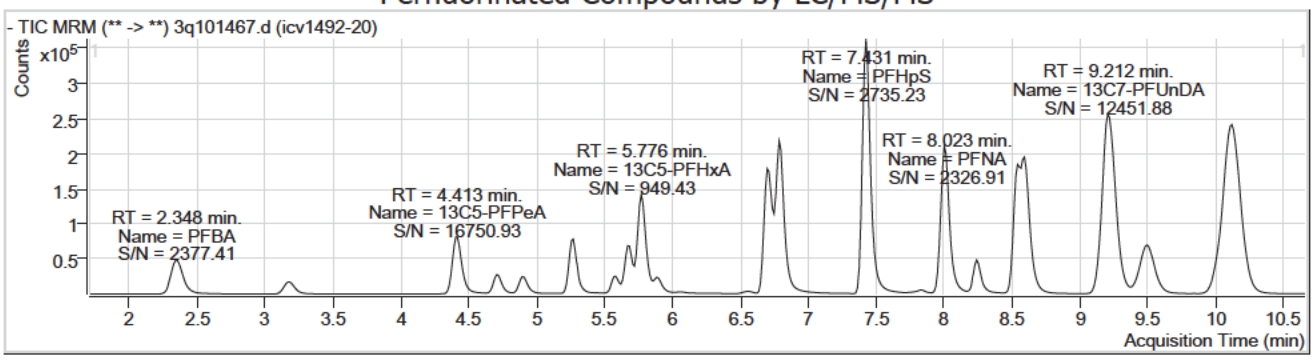
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.7%		
13C8-PFOS	7.982	507.0 -> 99.0	35394	9.11 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.1%		
13C9-PFNA	8.022	472.0 -> 427.0	242123	8.88 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.8%		
13C3-HFPO-DA	6.068	287.0 -> 169.0	2886	8.67 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 86.7%		
Target Compounds						QValue
PFMPA	3.178	229.0 -> 85.0	102941	23.21 µg/L		100
4:2FTS	5.674	327.0 -> 307.0	156834	18.96 µg/L		100
		327.0 -> 81.0	66497			
6:2FTS	7.433	427.0 -> 407.0	210465	19.24 µg/L		99
		427.0 -> 81.0	92147			
8:2FTS	8.598	527.0 -> 507.0	372552	22.82 µg/L		99
		527.0 -> 81.0	153588			
PFMBA	4.901	279.0 -> 85.0	112563	18.59 µg/L		100
PFEESA	5.274	315.0 -> 135.0	317324	18.28 µg/L		100
		315.0 -> 69.0	24363			
NFDHA	5.594	201.0 -> 85.0	101349	19.68 µg/L		99
		295.0 -> 201.0	6707			
PFBA	2.348	213.0 -> 169.0	82409	21.76 µg/L		100
PFBS	4.710	299.0 -> 80.0	72457	18.62 µg/L		99
		299.0 -> 99.0	30872			
PFDA	8.546	513.0 -> 469.0	367468	19.55 µg/L		100
		513.0 -> 219.0	86273			
PFDoDA	10.125	613.0 -> 569.0	1259680	22.07 µg/L		100
		613.0 -> 169.0	134947			
PFHpA	6.708	363.0 -> 319.0	506787	20.86 µg/L		100
		363.0 -> 169.0	42521			
PFHpS	7.431	449.0 -> 80.0	93986	18.66 µg/L		99
		449.0 -> 99.0	51954			
PFHxA	5.778	313.0 -> 269.0	386025	19.90 µg/L		100
		313.0 -> 119.0	13269			
PFHxS	6.738	399.0 -> 80.0	96527	19.94 µg/L	m	99
		399.0 -> 99.0	50615			
PFNA	8.023	463.0 -> 419.0	382196	19.27 µg/L		100
		463.0 -> 219.0	113959			
PFOA	7.436	413.0 -> 369.0	370678	21.59 µg/L		99
		413.0 -> 169.0	135794			
PFOS	7.983	499.0 -> 80.0	118542	20.95 µg/L	m	92
		499.0 -> 99.0	68266			
PFPeA	4.415	263.0 -> 219.0	243359	19.64 µg/L		100
PFPeS	5.896	349.0 -> 80.0	54633	19.45 µg/L		99
		349.0 -> 99.0	23155			
PFUnDA	9.214	563.0 -> 519.0	978109	22.54 µg/L		99
		563.0 -> 269.0	193613			
11Cl-PF3OUdS	9.495	631.0 -> 451.0	511180	19.45 µg/L		100
		631.0 -> 83.0	24817			
9Cl-PF3ONS	8.241	531.0 -> 351.0	183372	20.11 µg/L		100
		531.0 -> 83.0	9480			
ADONA	6.792	377.0 -> 251.0	785030	20.93 µg/L		100
		377.0 -> 85.0	93285			
HFPO-DA	6.061	329.0 -> 169.0	1234	19.19 µg/L		92
		285.0 -> 169.0	2816			

= Qualifier out of range, m = manually integrated, + = Area summed

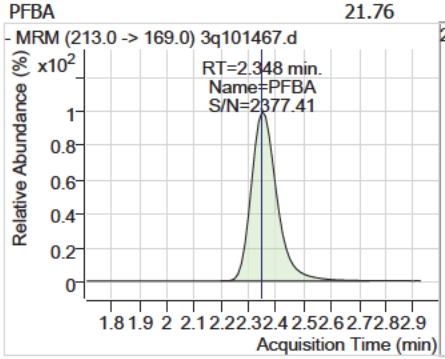
Perfluorinated Compounds by LC/MS/MS

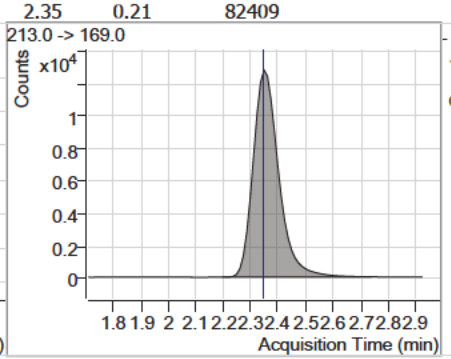
Compound	RT	Transition	Response	Conc. Units	Dev(Min)

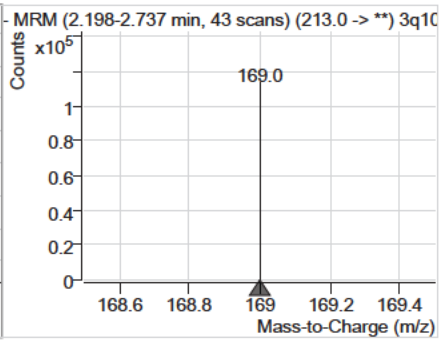
Perfluorinated Compounds by LC/MS/MS



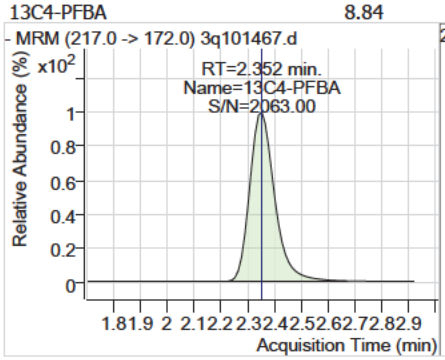
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	21.76	2.35	0.21	82409				

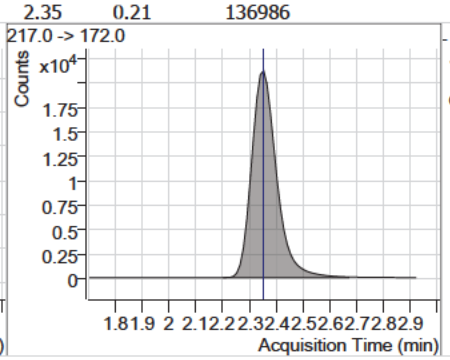


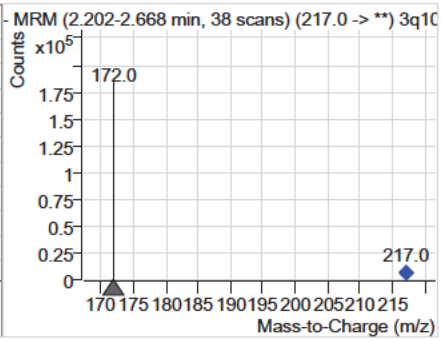




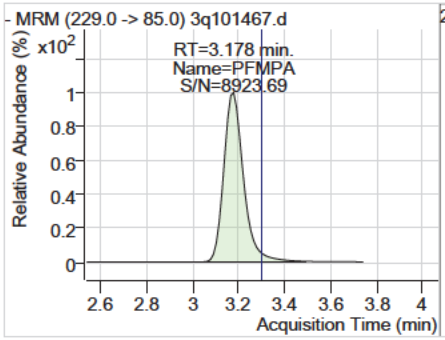
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	8.84	2.35	0.21	136986				

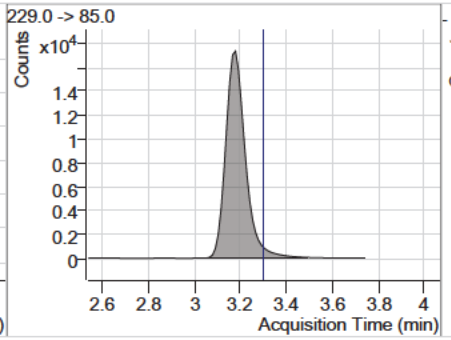


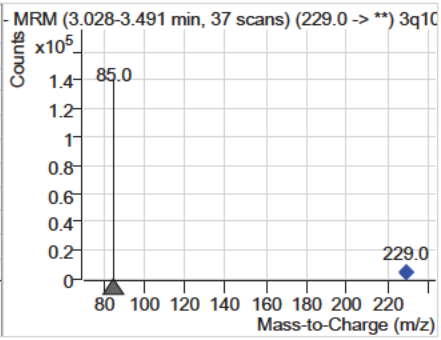




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	23.21	3.18	0.18	102941				







7.7.10

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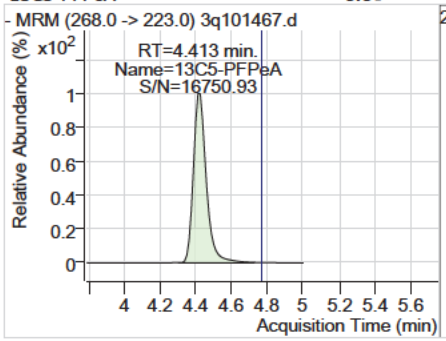
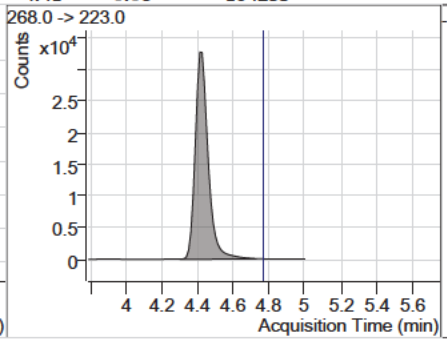
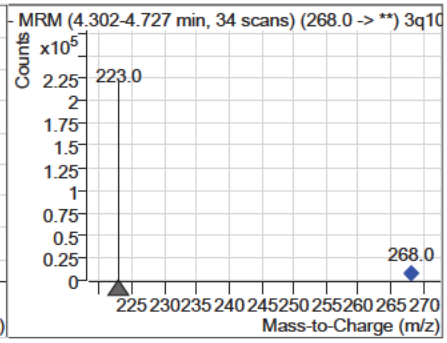
Perfluorinated Compounds by LC/MS/MS

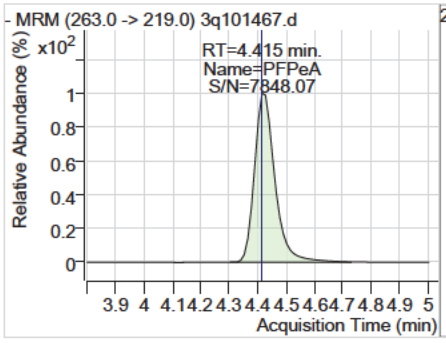
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	8.80	4.41	0.08	164253				

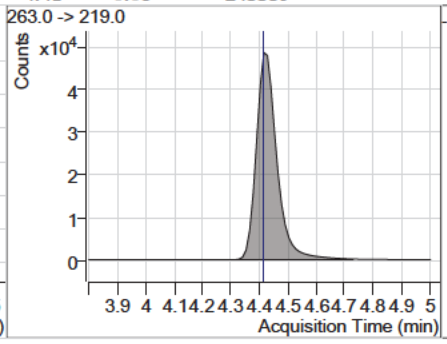


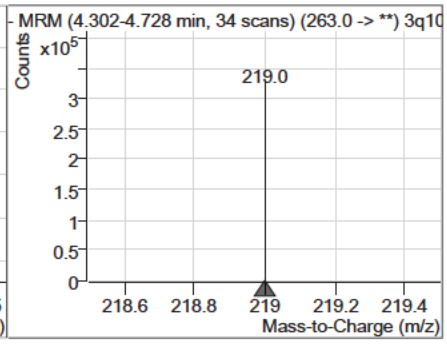




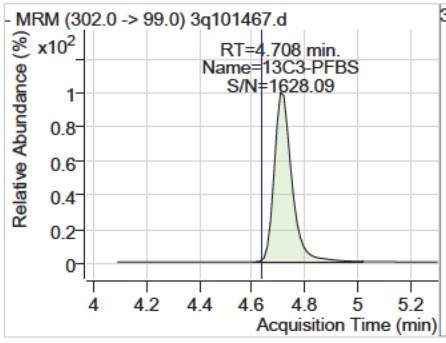
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.64	4.41	0.08	243359				

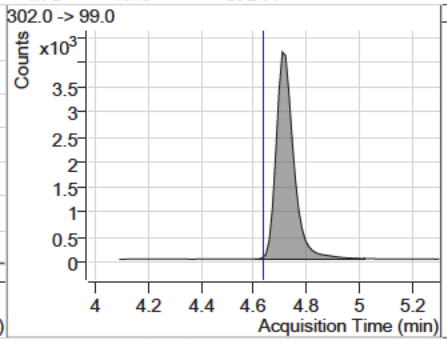


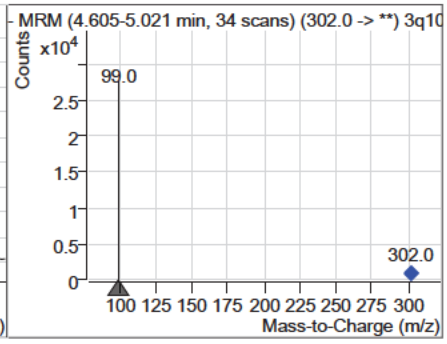




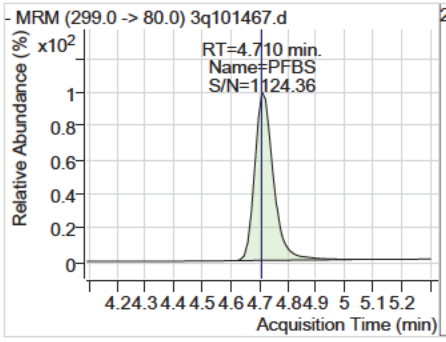
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	9.03	4.71	0.06	19244				

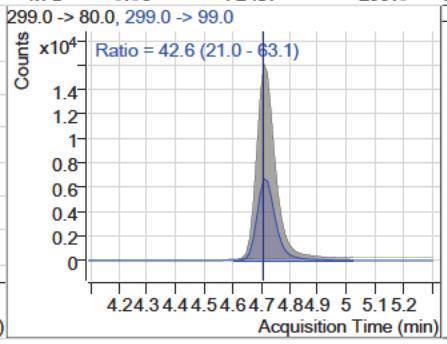


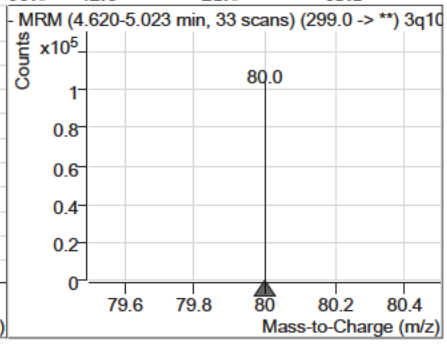




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	18.62	4.71	0.06	72457	299.0 -> 99.0	42.6	21.0	63.1







7.7.10

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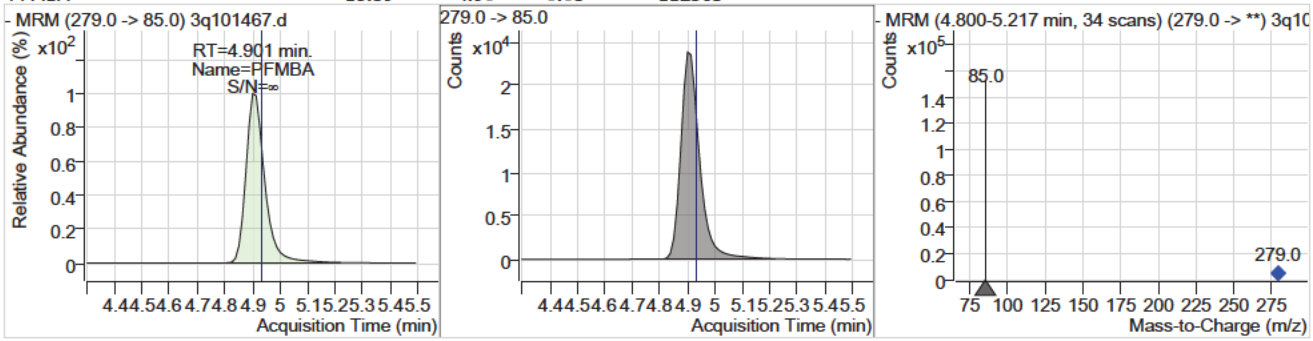
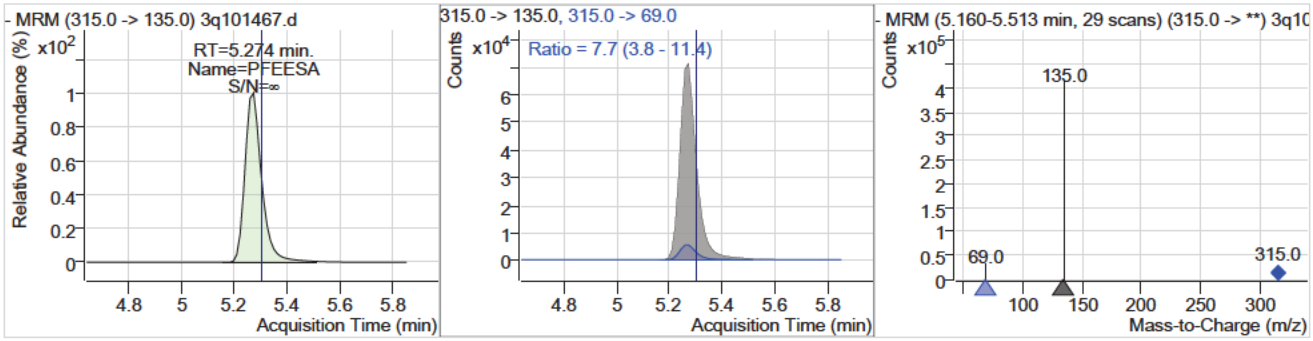
Perfluorinated Compounds by LC/MS/MS

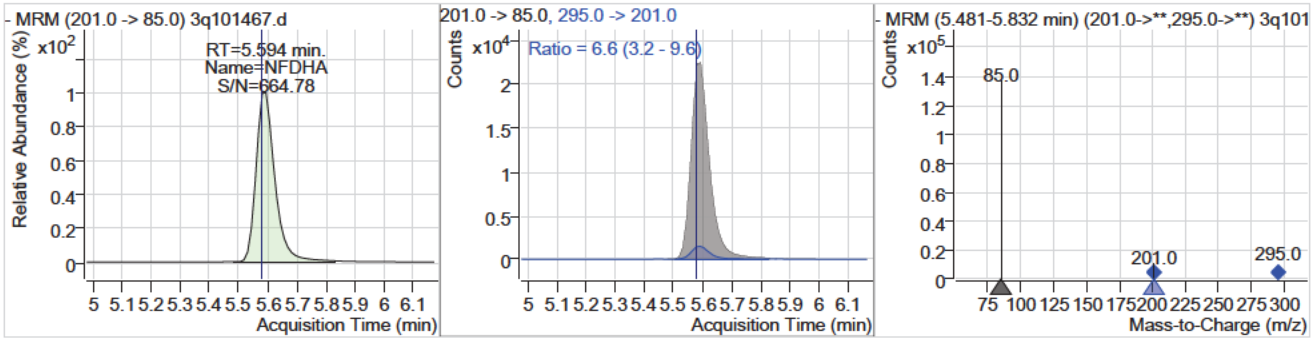
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	18.59	4.90	0.05	112563				



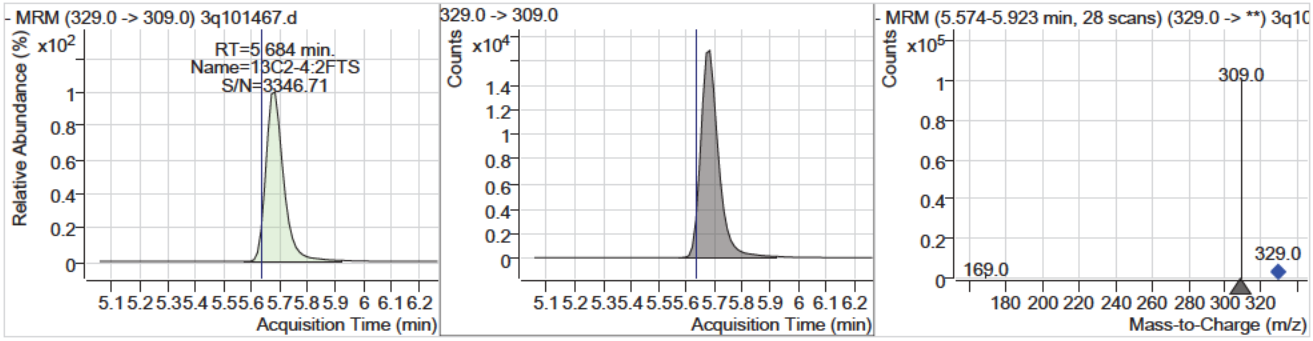
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	18.28	5.27	0.04	317324	315.0 -> 69.0	7.7	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	19.68	5.59	0.04	101349	295.0 -> 201.0	6.6	3.2	9.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	9.14	5.68	0.04	74317				

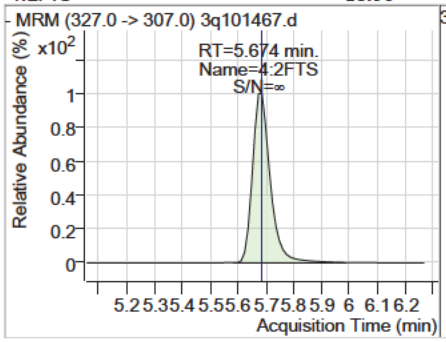


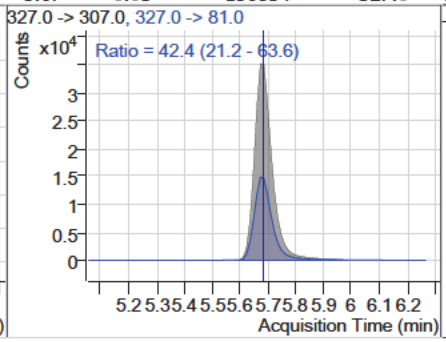
7.7.10

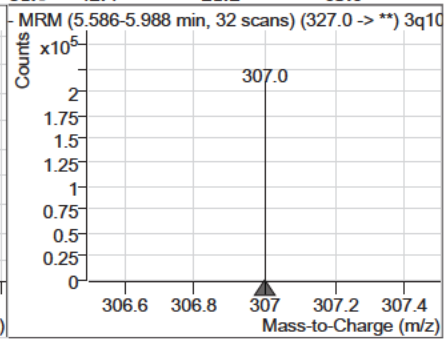
7

Perfluorinated Compounds by LC/MS/MS

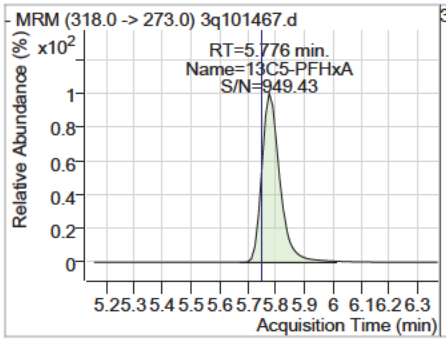
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	18.96	5.67	0.03	156834	327.0 -> 81.0	42.4	21.2	63.6

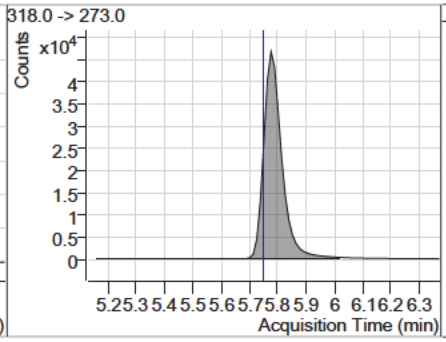


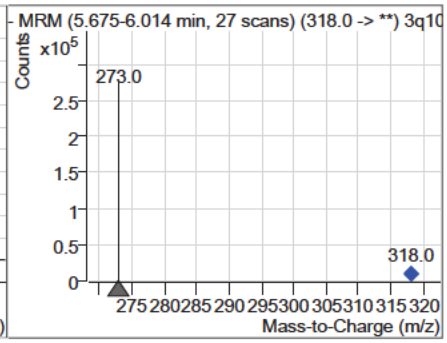




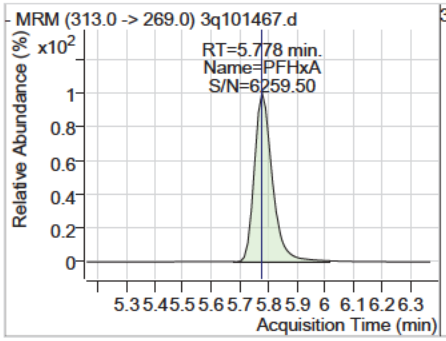
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	8.90	5.78	0.03	205882				

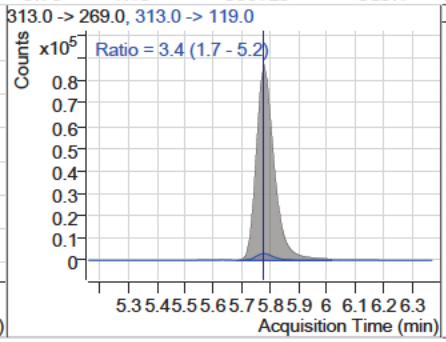


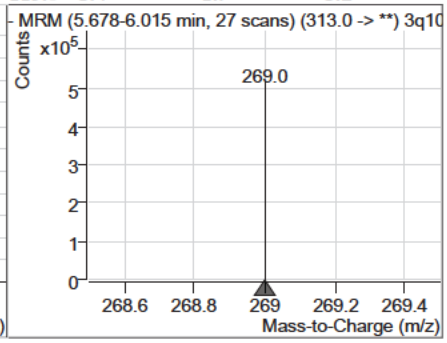




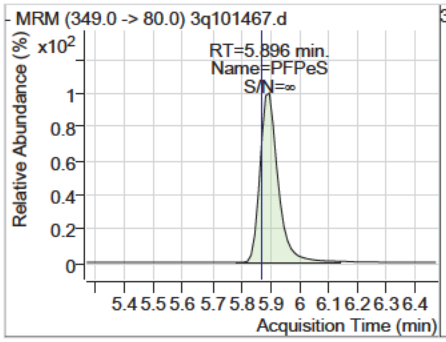
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.90	5.78	0.03	386025	313.0 -> 119.0	3.4	1.7	5.2

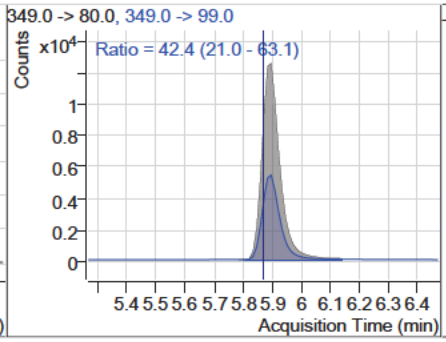


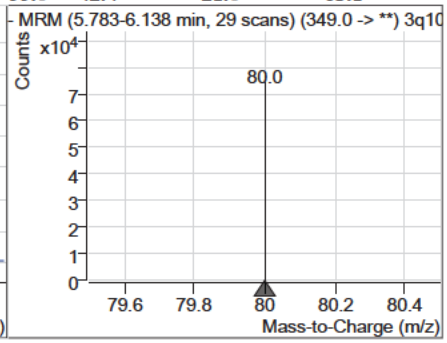




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	19.45	5.90	0.03	54633	349.0 -> 99.0	42.4	21.0	63.1

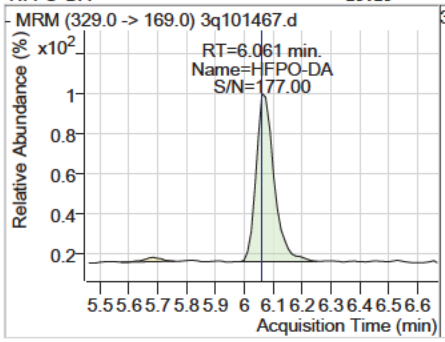


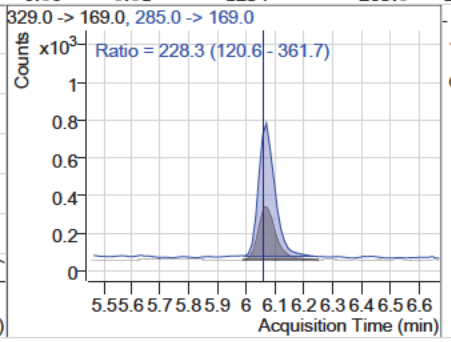


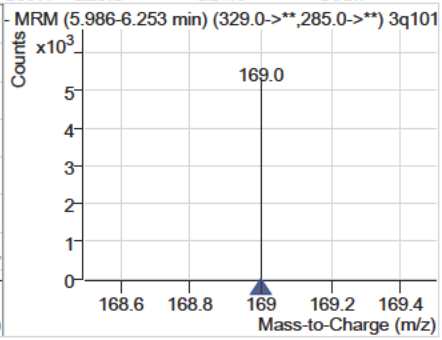


Perfluorinated Compounds by LC/MS/MS

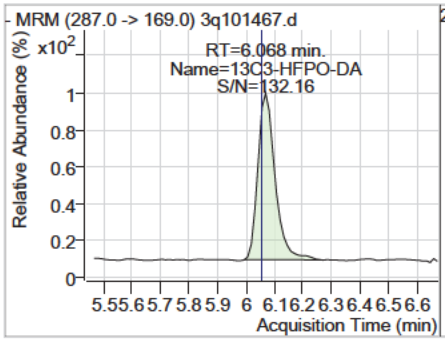
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.19	6.06	0.01	1234	285.0 -> 169.0	228.3	120.6	361.7

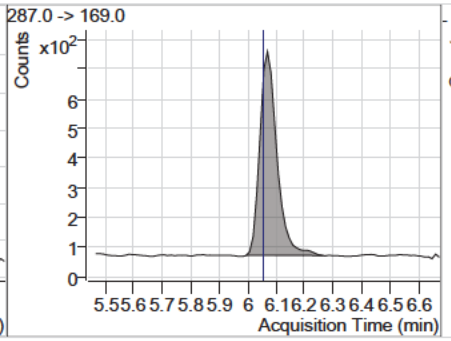


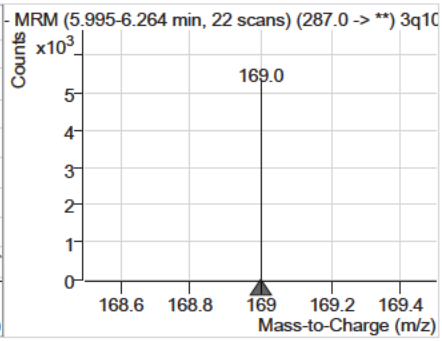




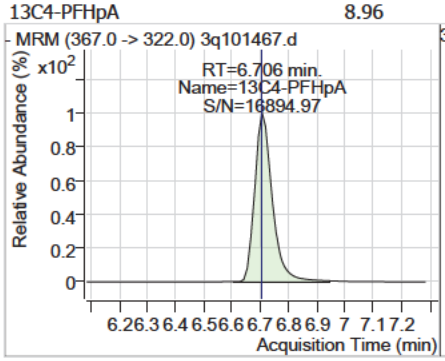
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.67	6.07	0.01	2886				

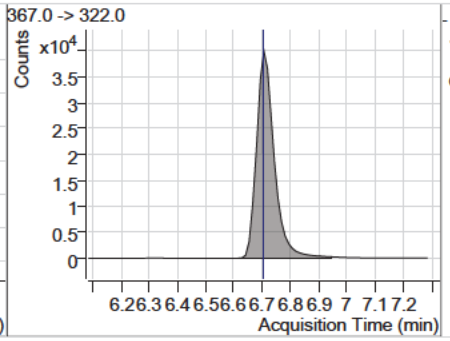


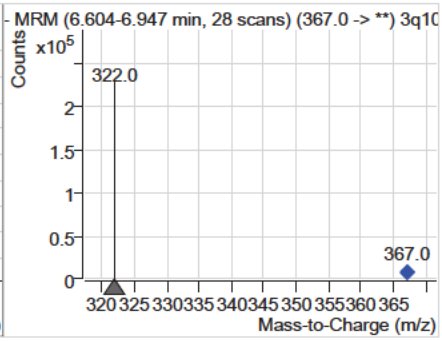




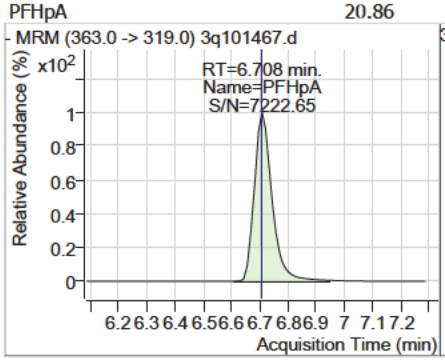
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	8.96	6.71	0.00	173109				

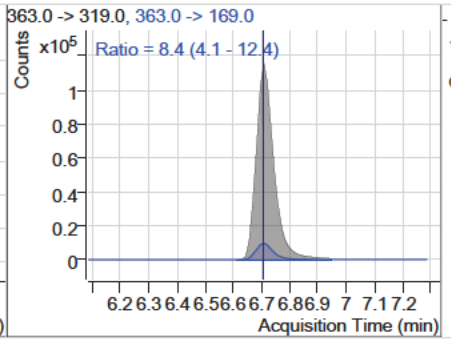


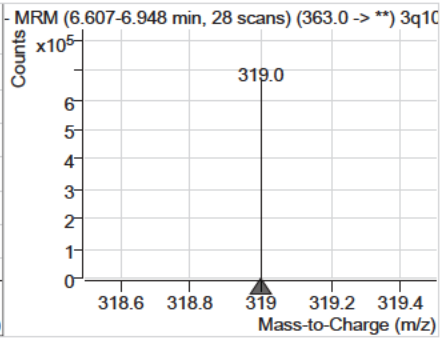




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.86	6.71	0.00	506787	363.0 -> 169.0	8.4	4.1	12.4

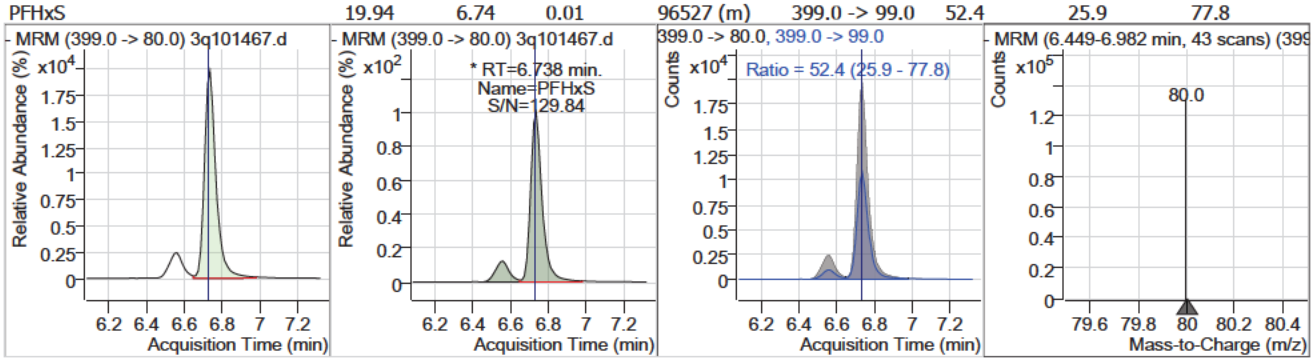




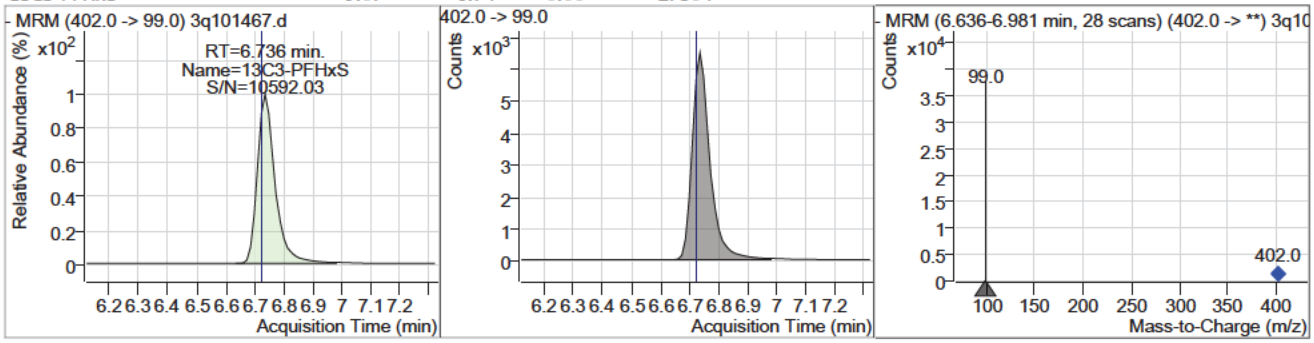


Perfluorinated Compounds by LC/MS/MS

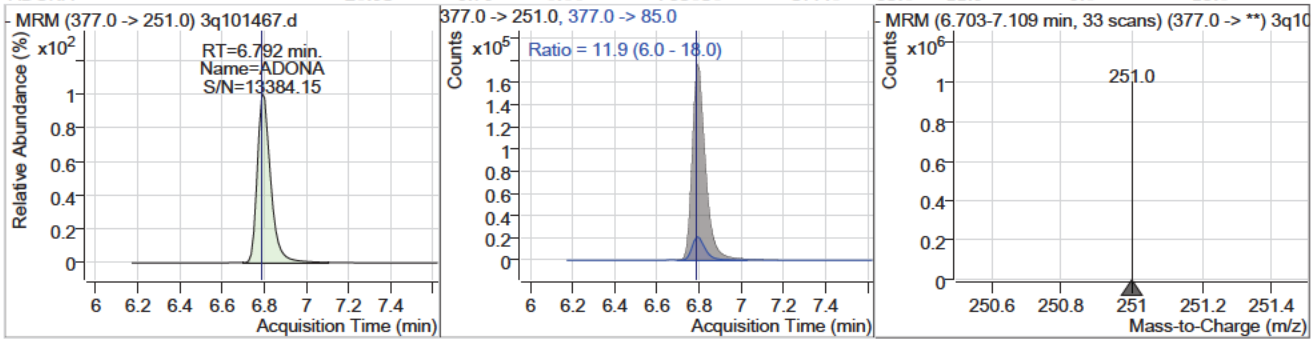
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.94	6.74	0.01	96527 (m)	399.0 -> 99.0	52.4	25.9	77.8



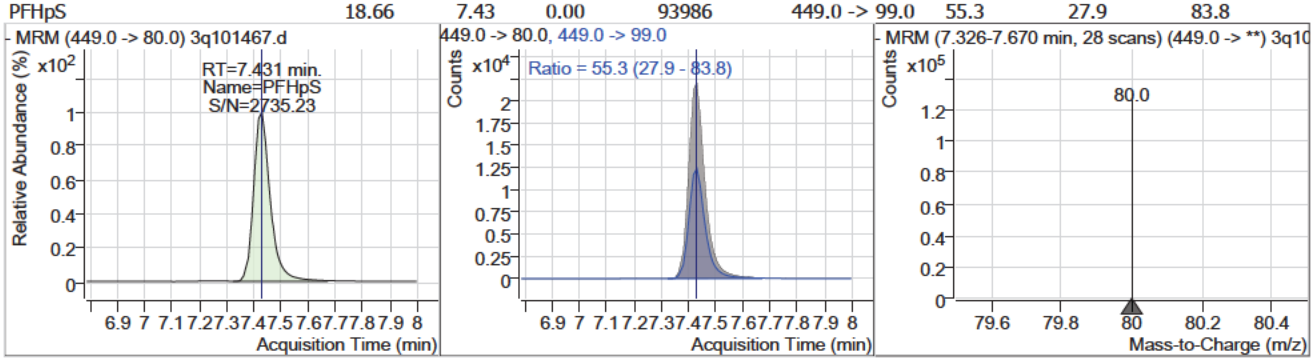
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	9.07	6.74	0.00	27504				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.93	6.79	0.00	785030	377.0 -> 85.0	11.9	6.0	18.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	18.66	7.43	0.00	93986	449.0 -> 99.0	55.3	27.9	83.8



7.7.10

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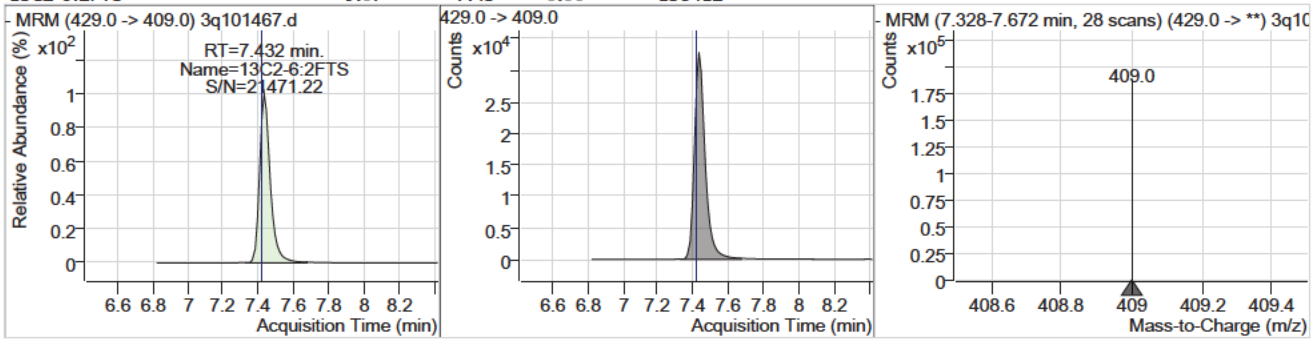
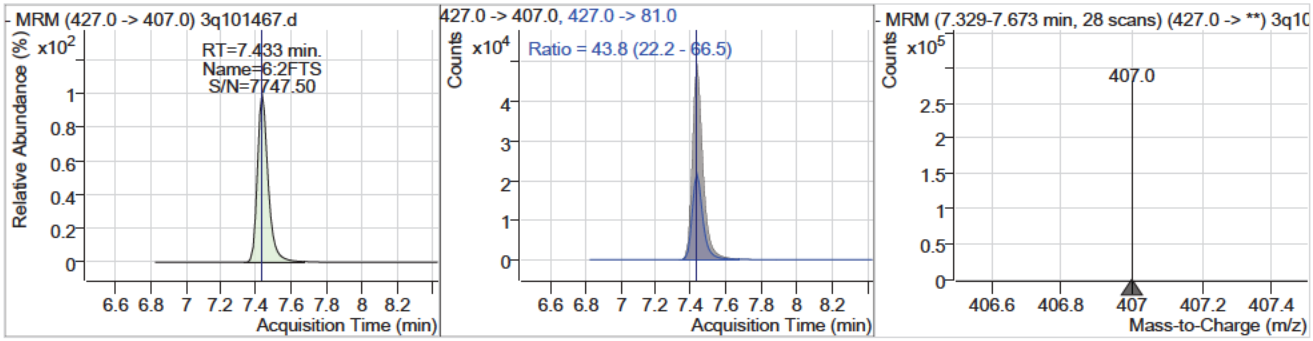
Perfluorinated Compounds by LC/MS/MS

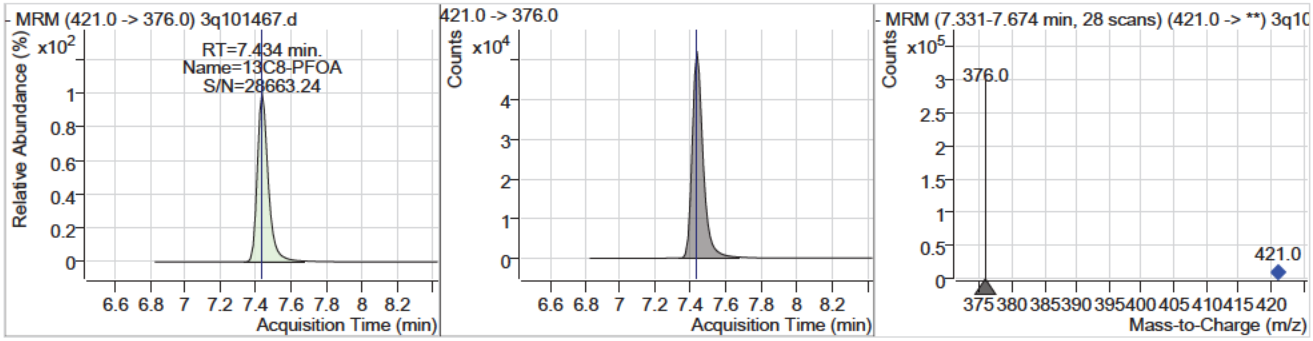
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	9.07	7.43	0.00	138412				



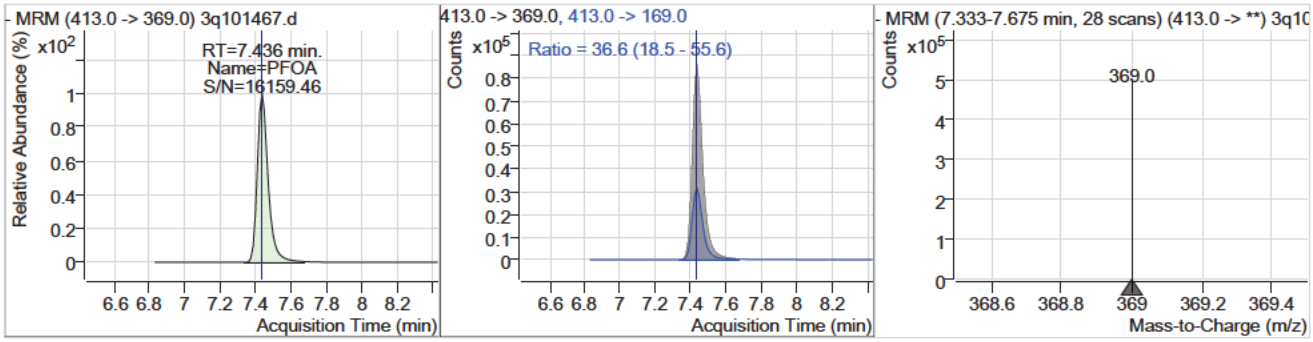
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.24	7.43	0.00	210465	427.0 -> 81.0	43.8	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	8.87	7.43	0.00	222617				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	21.59	7.44	0.00	370678	413.0 -> 169.0	36.6	18.5	55.6



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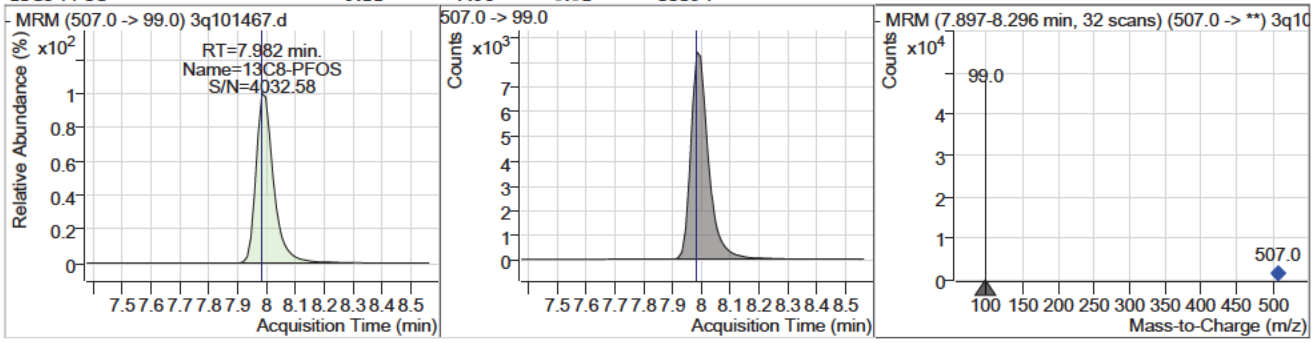
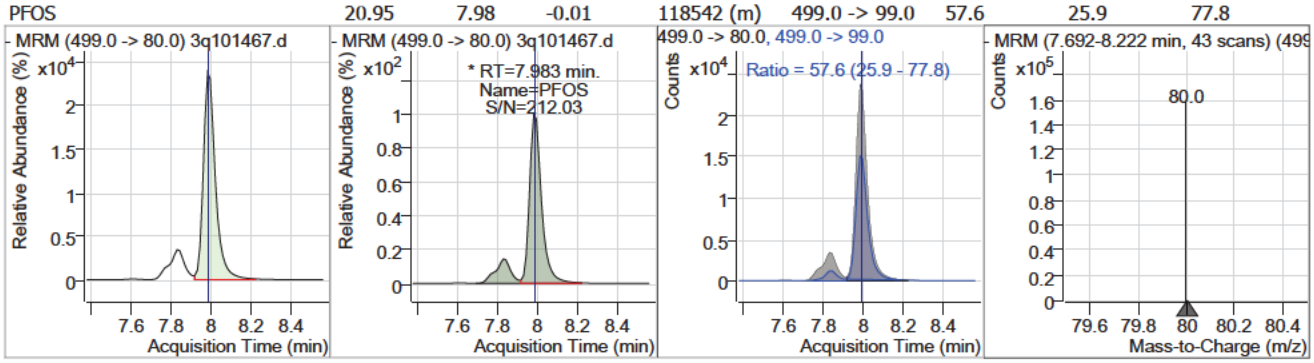
Perfluorinated Compounds by LC/MS/MS

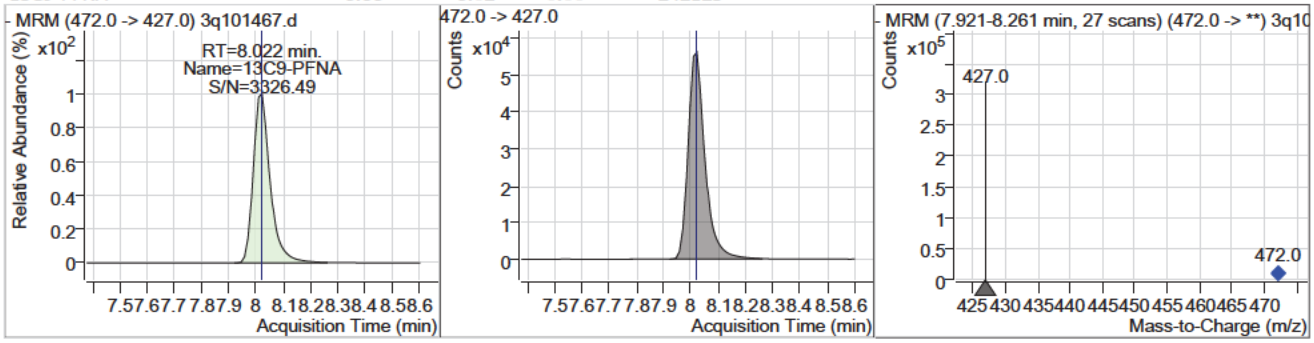
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	9.11	7.98	-0.01	35394				



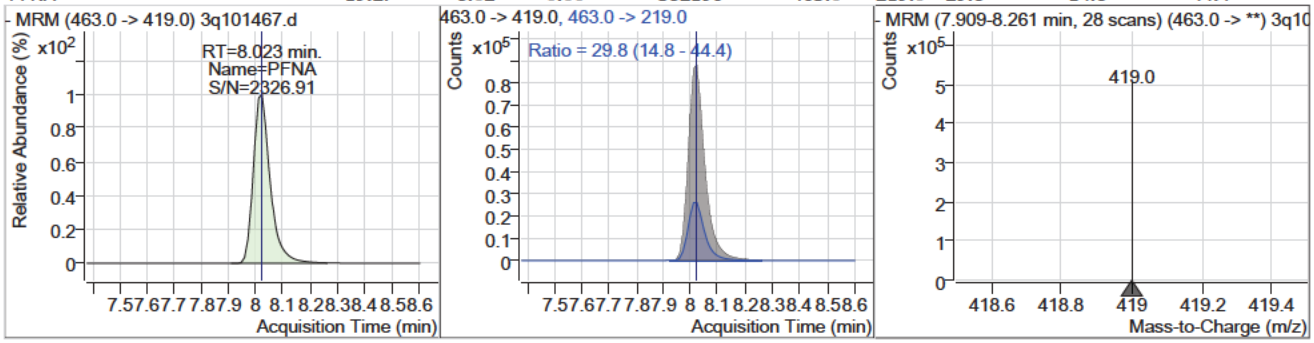
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	20.95	7.98	-0.01	118542 (m)	499.0 -> 99.0	57.6	25.9	77.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	8.88	8.02	0.00	242123				

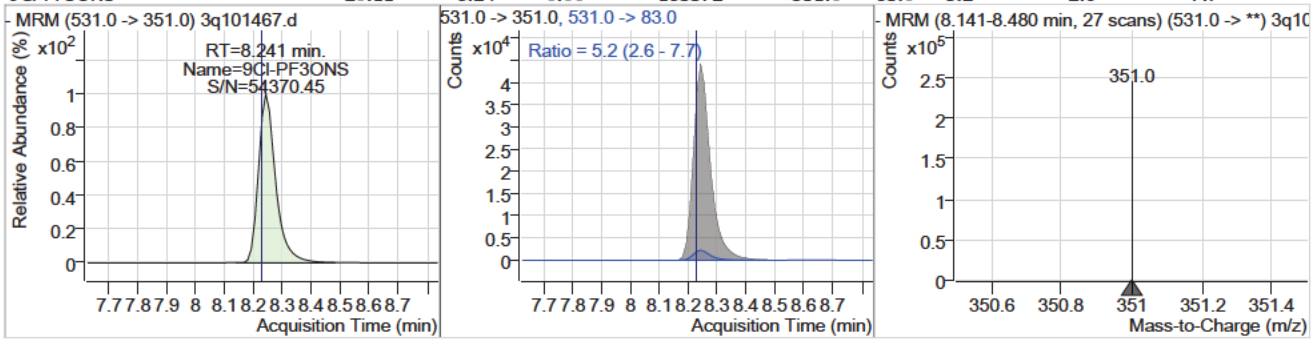


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.27	8.02	0.00	382196	463.0 -> 219.0	29.8	14.8	44.4

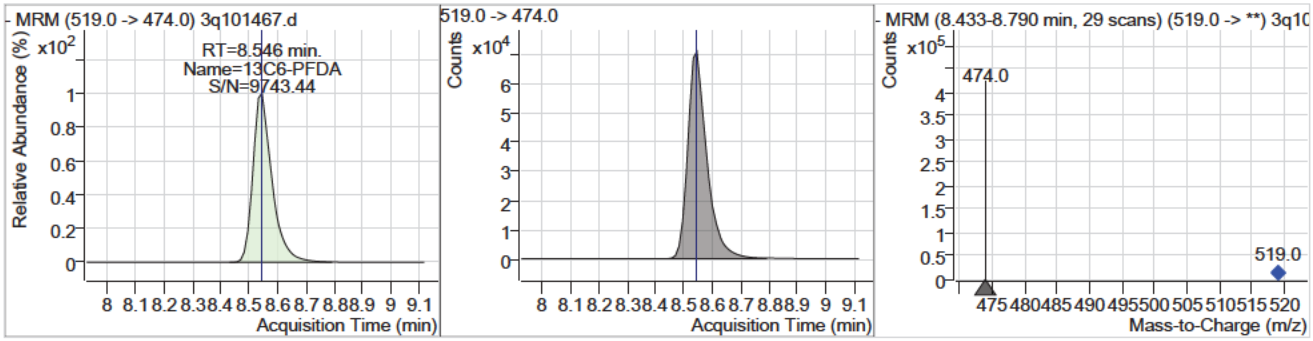


Perfluorinated Compounds by LC/MS/MS

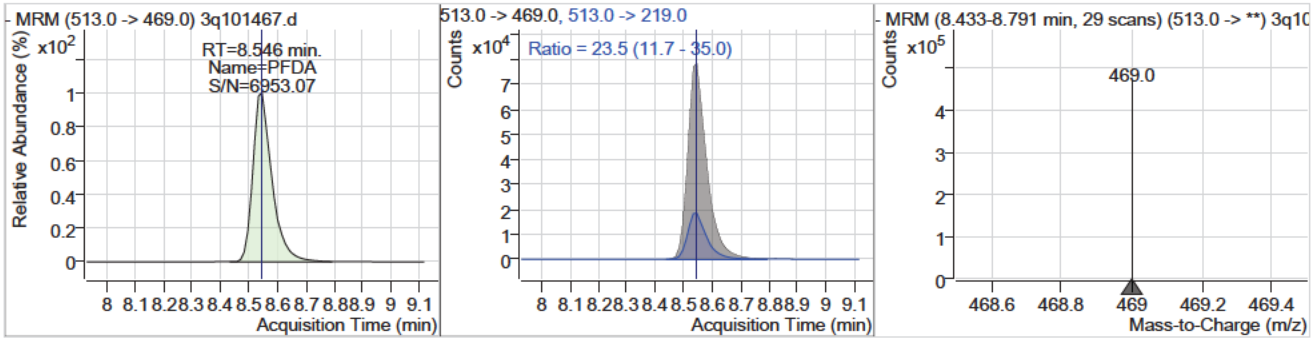
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	20.11	8.24	0.00	183372	531.0 -> 83.0	5.2	2.6	7.7



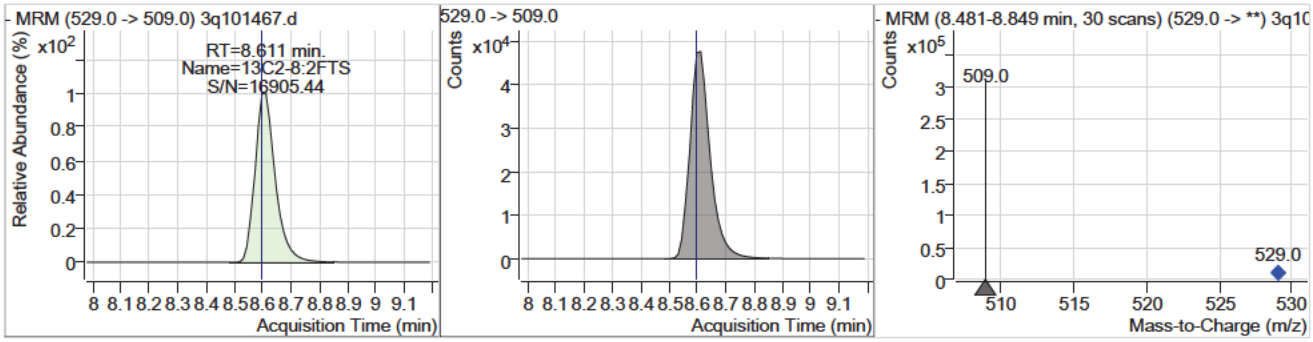
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	8.70	8.55	0.00	332312				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.55	8.55	0.00	367468	513.0 -> 219.0	23.5	11.7	35.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	9.29	8.61	0.00	237645				



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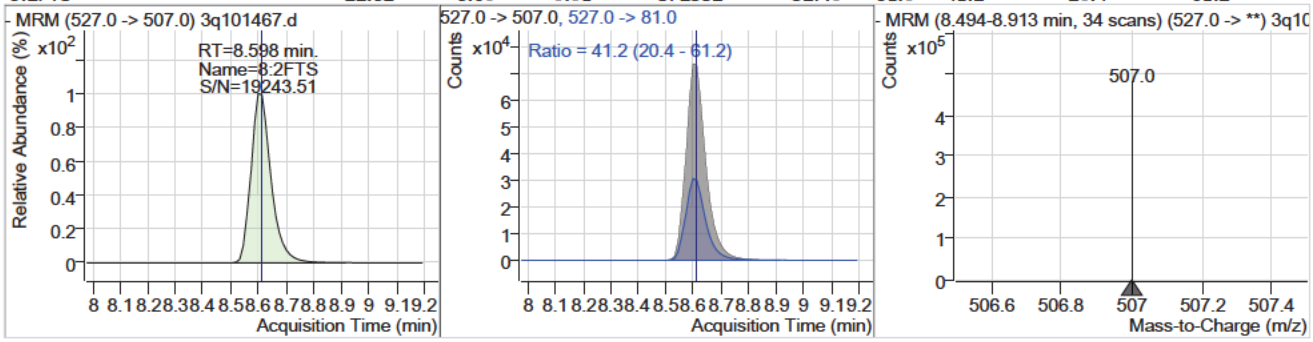
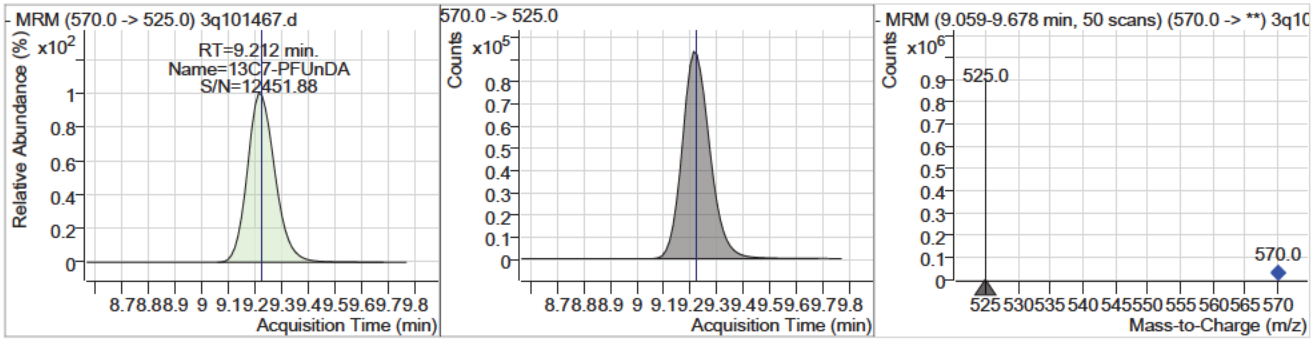
Perfluorinated Compounds by LC/MS/MS

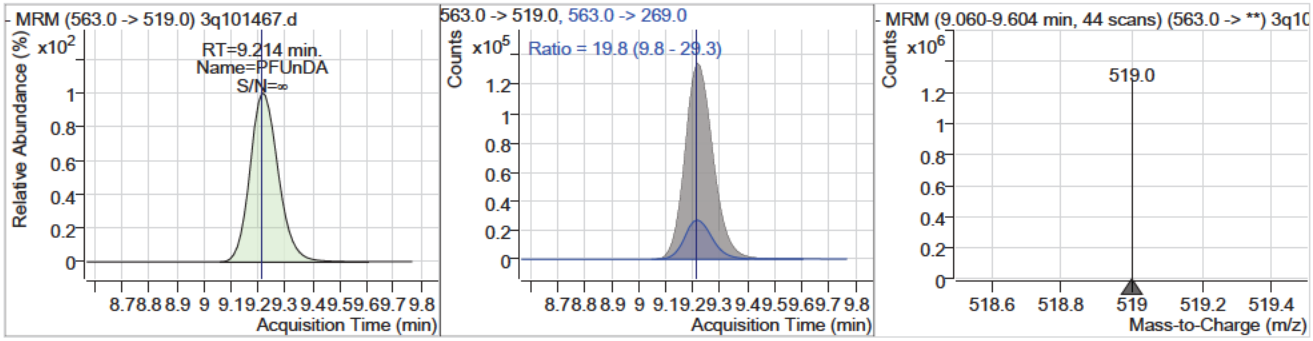
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	22.82	8.60	-0.01	372552	527.0 -> 81.0	41.2	20.4	61.2



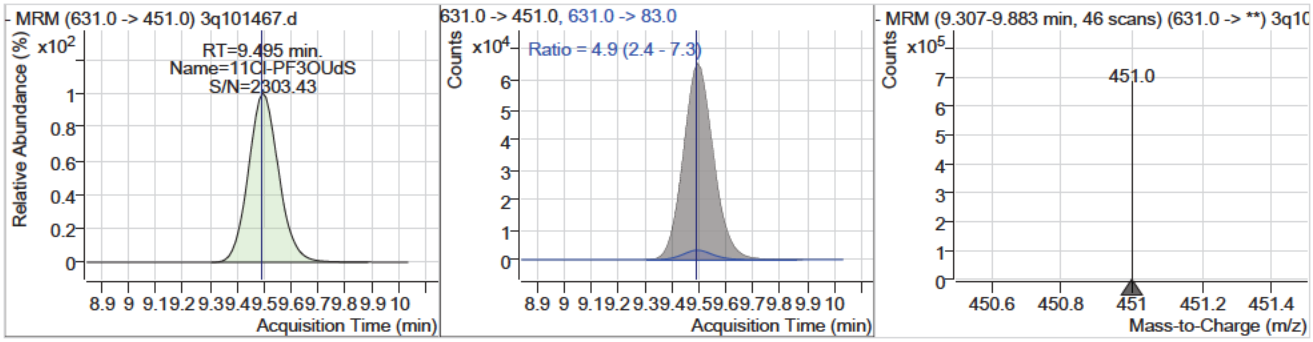
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	8.82	9.21	-0.01	673179				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	22.54	9.21	-0.01	978109	563.0 -> 269.0	19.8	9.8	29.3

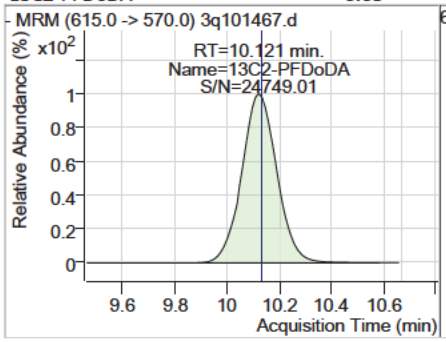


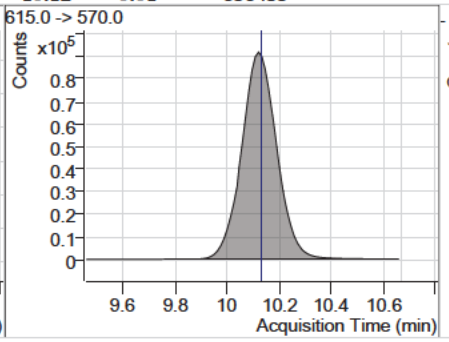
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	19.45	9.49	-0.01	511180	631.0 -> 83.0	4.9	2.4	7.3

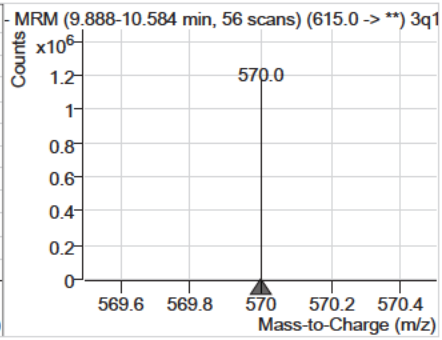


Perfluorinated Compounds by LC/MS/MS

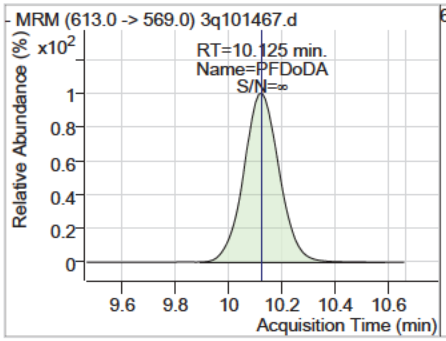
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	8.83	10.12	-0.01	858435				

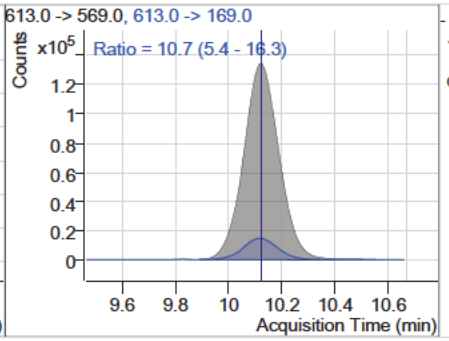


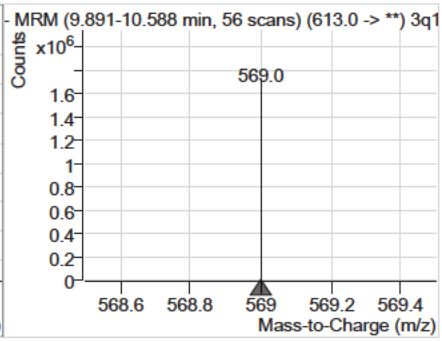




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	22.07	10.13	-0.01	1259680	613.0 -> 169.0	10.7	5.4	16.3







7.7.10

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Manual Integration Approval Summary

Sample Number: S3Q1492-ICV1492
Lab FileID: 3Q101467.D
Injection Time: 04/15/25 16:28
Method: EPA 533
Analyst approved: 04/16/25 08:55 (b) (6) [redacted]
Supervisor approved: 04/17/25 11:42 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:42

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101469.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 5:00:54 PM
Sample Name : cc1492-20
Vial : P1-C7
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.435	415.0 -> 370.0	207611	10.00 µg/L	0.000
13C3-PFBA	2.344	216.0 -> 172.0	83723	10.00 µg/L	0.213
13C4-PFOS	7.983	503.0 -> 80.0	31995	10.00 µg/L	-0.013
M4-PFBA	2.340	217.0 -> 172.0	150975	10.00 µg/L	0.200
M5-PFPeA	4.413	268.0 -> 223.0	179137	10.00 µg/L	0.075
M5-PFHxA	5.776	318.0 -> 273.0	226317	10.00 µg/L	0.025
M4-PFHpA	6.706	367.0 -> 322.0	187360	10.00 µg/L	0.000
M8-PFOA	7.434	421.0 -> 376.0	245778	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	266834	10.00 µg/L	-0.013
M6-PFDA	8.533	519.0 -> 474.0	394032	10.00 µg/L	-0.013
M7-PFUnDA	9.199	570.0 -> 525.0	734816	10.00 µg/L	-0.025
M2-PFDoDA	10.096	615.0 -> 570.0	932334	10.00 µg/L	-0.038
M3-PFBS	4.708	302.0 -> 99.0	21072	10.00 µg/L	0.063
M3-PFHxS	6.736	402.0 -> 99.0	30310	10.00 µg/L	0.000
M8-PFOS	7.982	507.0 -> 99.0	38204	10.00 µg/L	-0.013
M2-4:2FTS	5.672	329.0 -> 309.0	81462	10.00 µg/L	0.025
M2-6:2FTS	7.432	429.0 -> 409.0	151721	10.00 µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	255056	10.00 µg/L	-0.014
M3-HFPO-DA	6.056	287.0 -> 169.0	3198	10.00 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.672	329.0 -> 309.0	81462	10.70 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C2-6:2FTS	7.432	429.0 -> 409.0	151708	10.61 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C2-8:2FTS	8.597	529.0 -> 509.0	255056	10.64 µg/L	-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C2-PFDoDA	10.096	615.0 -> 570.0	932334	10.55 µg/L	-0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C3-PFBS	4.708	302.0 -> 99.0	21072	10.56 µg/L	0.063
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C3-PFHxS	6.736	402.0 -> 99.0	30310	10.66 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.6%	
13C4-PFBA	2.340	217.0 -> 172.0	150975	10.63 µg/L	0.200
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C4-PFHpA	6.706	367.0 -> 322.0	187360	10.66 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.6%	
13C5-PFHxA	5.776	318.0 -> 273.0	226317	10.76 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.6%	
13C5-PFPeA	4.413	268.0 -> 223.0	179137	10.46 µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C6-PFDA	8.533	519.0 -> 474.0	394032	11.35 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.5%	
13C7-PFUnDA	9.199	570.0 -> 525.0	734816	10.59 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C8-PFOA	7.434	421.0 -> 376.0	245778	10.78 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

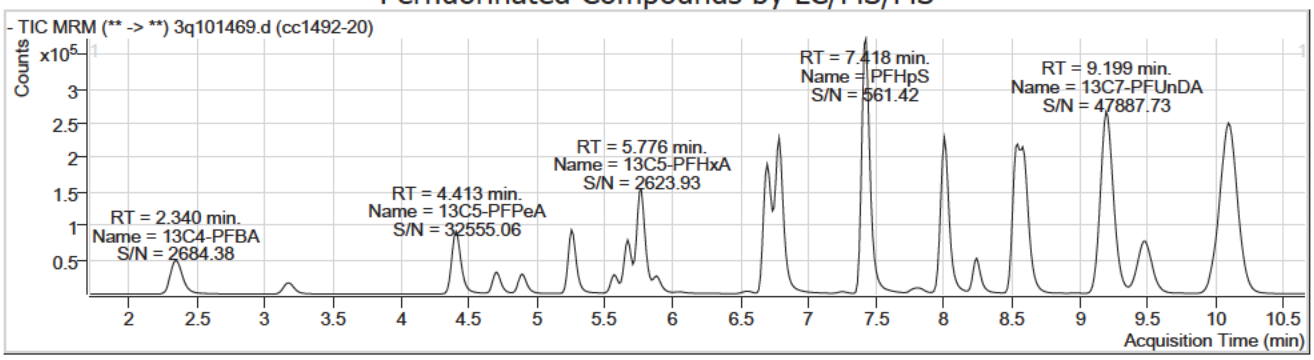
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.8%		
13C8-PFOS	7.982	507.0 -> 99.0	38204	10.50 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.0%		
13C9-PFNA	8.010	472.0 -> 427.0	266834	10.77 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.7%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	3198	10.58 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.8%		
Target Compounds						QValue
PFMPA	3.166	229.0 -> 85.0	97380	19.92 µg/L		100
4:2FTS	5.674	327.0 -> 307.0	177028	19.59 µg/L		100
		327.0 -> 81.0	74524			
6:2FTS	7.433	427.0 -> 407.0	234094	19.55 µg/L		100
		427.0 -> 81.0	103054			
8:2FTS	8.598	527.0 -> 507.0	385017	21.97 µg/L		99
		527.0 -> 81.0	158301			
PFMBA	4.901	279.0 -> 85.0	131229	19.87 µg/L		100
PFEESA	5.260	315.0 -> 135.0	376587	19.81 µg/L		100
		315.0 -> 69.0	28731			
NFDHA	5.582	201.0 -> 85.0	112528	19.88 µg/L		98
		295.0 -> 201.0	7845			
PFBA	2.348	213.0 -> 169.0	83116	19.91 µg/L		100
PFBS	4.710	299.0 -> 80.0	84317	19.79 µg/L		98
		299.0 -> 99.0	36462			
PFDA	8.534	513.0 -> 469.0	445741	20.00 µg/L		99
		513.0 -> 219.0	105347			
PFDoDA	10.100	613.0 -> 569.0	1249699	20.16 µg/L		100
		613.0 -> 169.0	134631			
PFHpA	6.708	363.0 -> 319.0	529672	20.15 µg/L		100
		363.0 -> 169.0	43982			
PFHpS	7.418	449.0 -> 80.0	112373	20.25 µg/L		97
		449.0 -> 99.0	60587			
PFHxA	5.778	313.0 -> 269.0	425695	19.97 µg/L		100
		313.0 -> 119.0	14582			
PFHxS	6.725	399.0 -> 80.0	105886	19.85 µg/L	m	100
		399.0 -> 99.0	55114			
PFNA	8.010	463.0 -> 419.0	438897	20.08 µg/L		100
		463.0 -> 219.0	130577			
PFOA	7.436	413.0 -> 369.0	377583	19.92 µg/L		99
		413.0 -> 169.0	138623			
PFOS	7.983	499.0 -> 80.0	123191	20.17 µg/L	m	98
		499.0 -> 99.0	62436			
PFPeA	4.415	263.0 -> 219.0	271634	20.10 µg/L		100
PFPeS	5.883	349.0 -> 80.0	61174	19.76 µg/L		100
		349.0 -> 99.0	25727			
PFUnDA	9.202	563.0 -> 519.0	945688	19.97 µg/L		100
		563.0 -> 269.0	185045			
11Cl-PF3OUdS	9.482	631.0 -> 451.0	561120	19.78 µg/L		100
		631.0 -> 83.0	27229			
9Cl-PF3ONS	8.241	531.0 -> 351.0	197965	20.12 µg/L		99
		531.0 -> 83.0	10428			
ADONA	6.792	377.0 -> 251.0	814134	20.06 µg/L		100
		377.0 -> 85.0	96924			
HFPO-DA	6.061	329.0 -> 169.0	1417	20.00 µg/L		99
		285.0 -> 169.0	3452			

= Qualifier out of range, m = manually integrated, + = Area summed

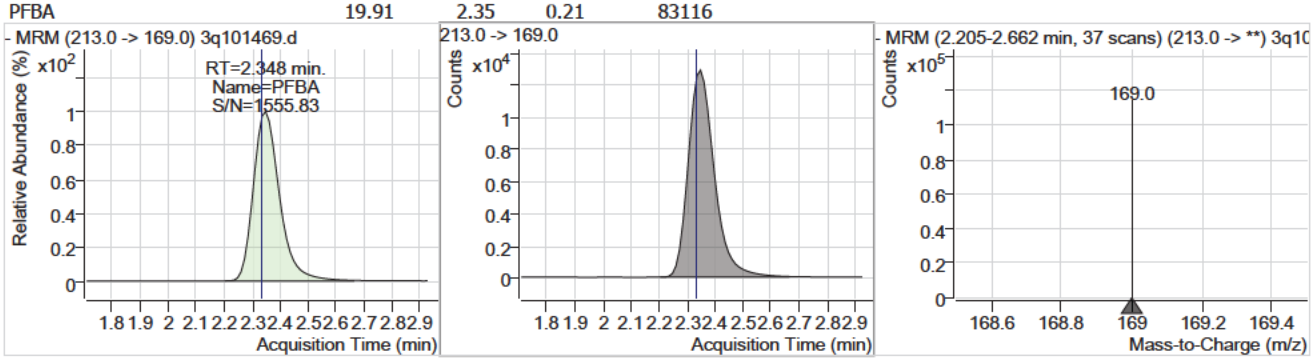
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)

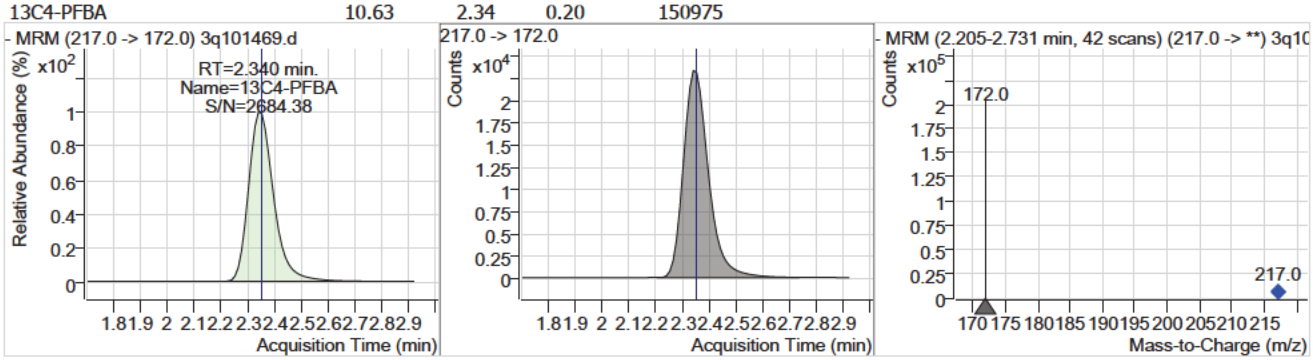
Perfluorinated Compounds by LC/MS/MS



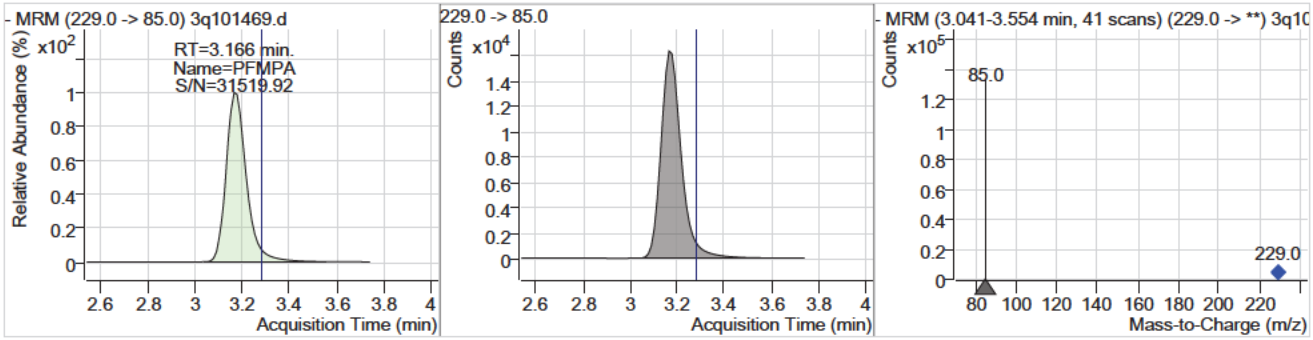
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.91	2.35	0.21	83116				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.63	2.34	0.20	150975				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	19.92	3.17	0.16	97380				



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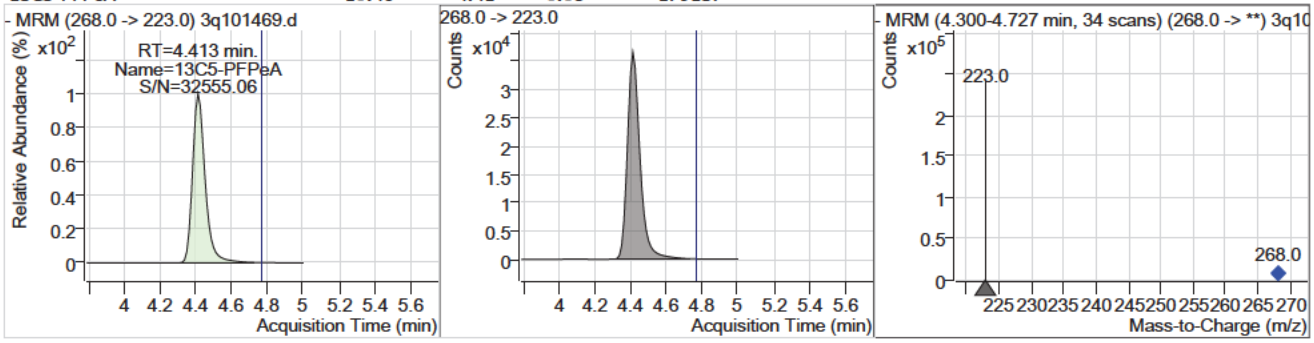
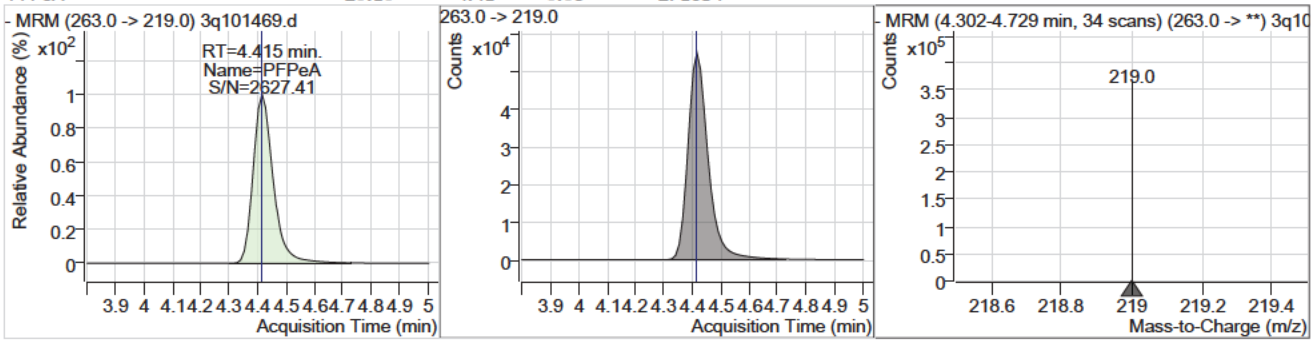
Perfluorinated Compounds by LC/MS/MS

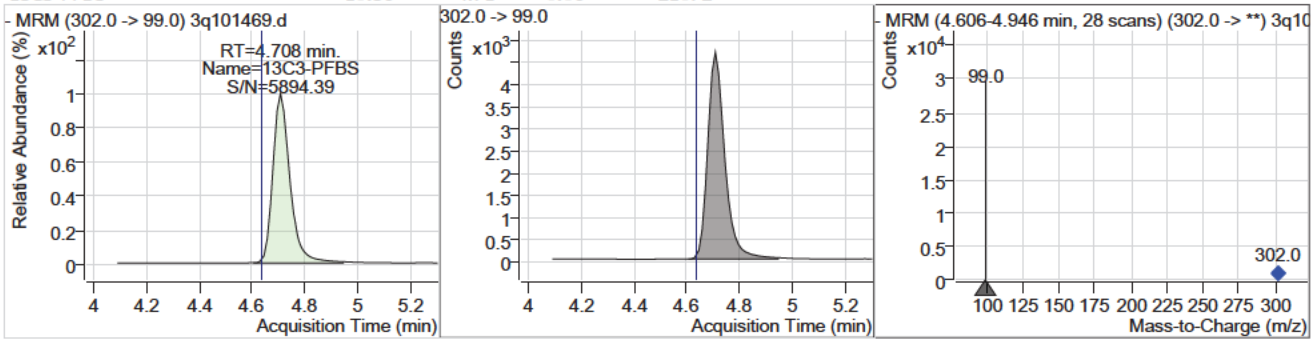
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.46	4.41	0.08	179137				



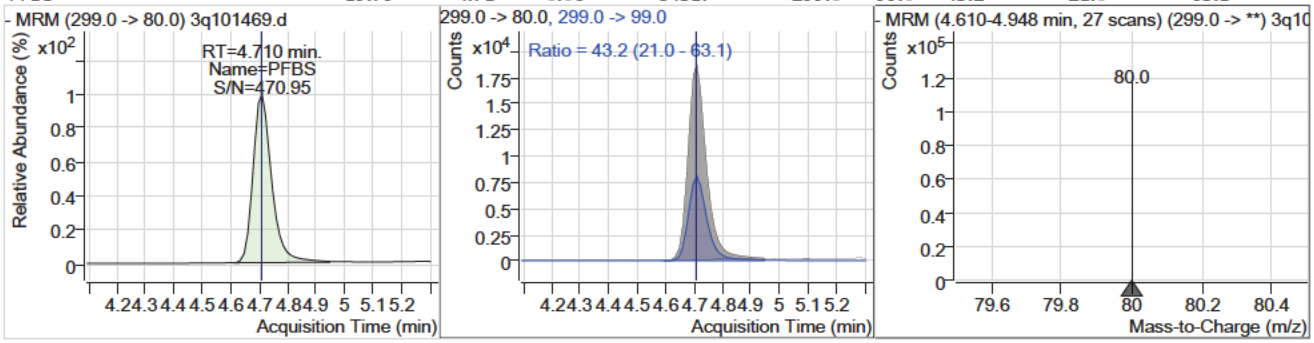
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.10	4.41	0.08	271634				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.56	4.71	0.06	21072				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.79	4.71	0.06	84317	299.0 -> 99.0	43.2	21.0	63.1



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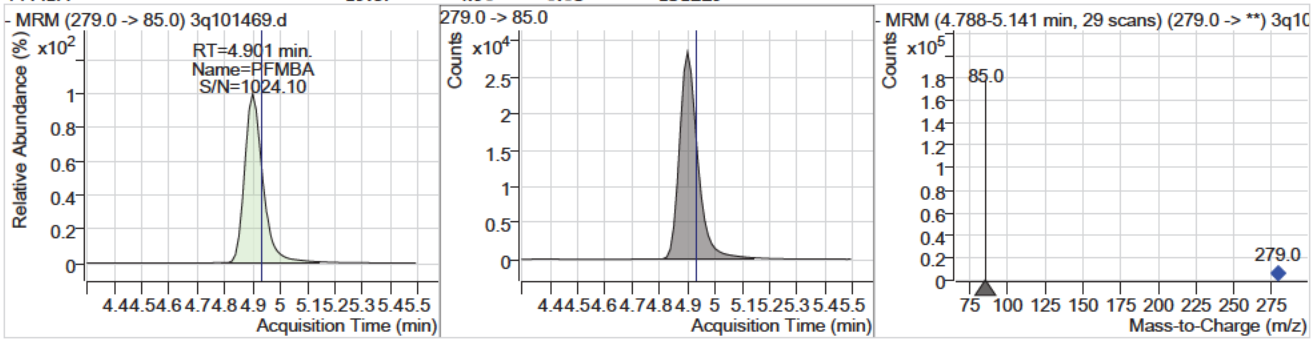
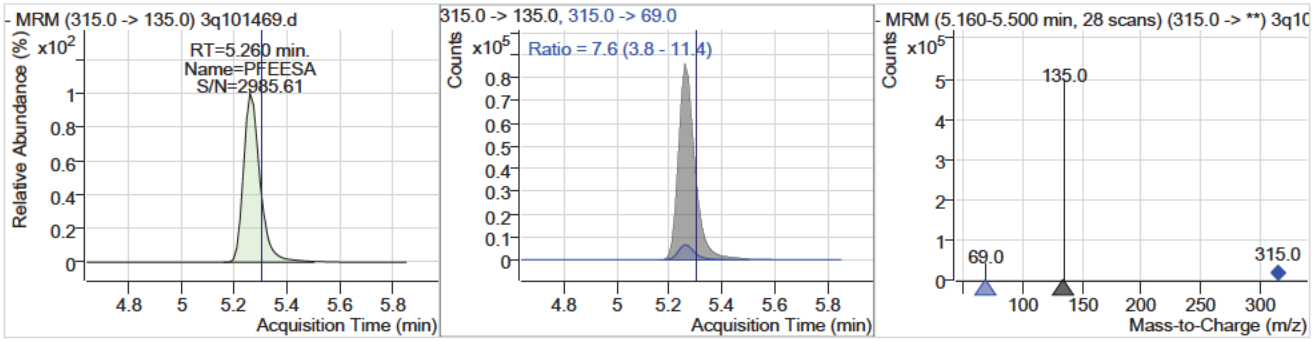
Perfluorinated Compounds by LC/MS/MS

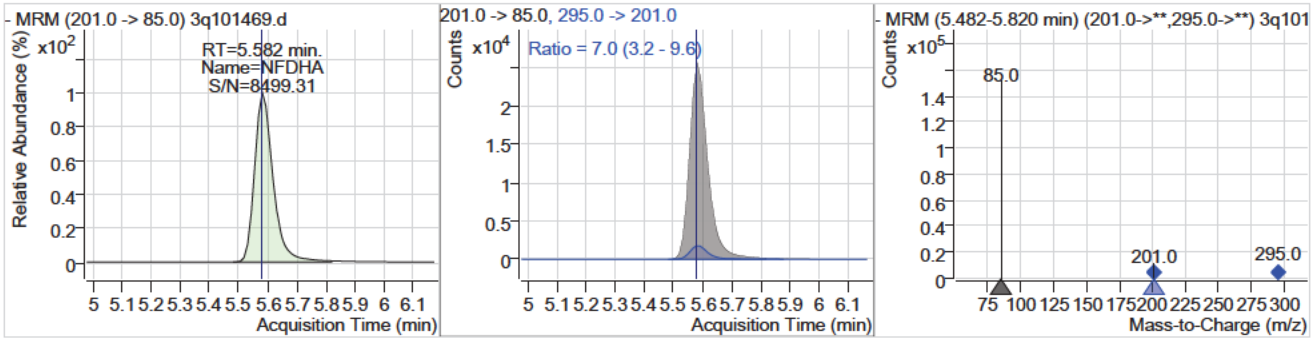
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	19.87	4.90	0.05	131229				



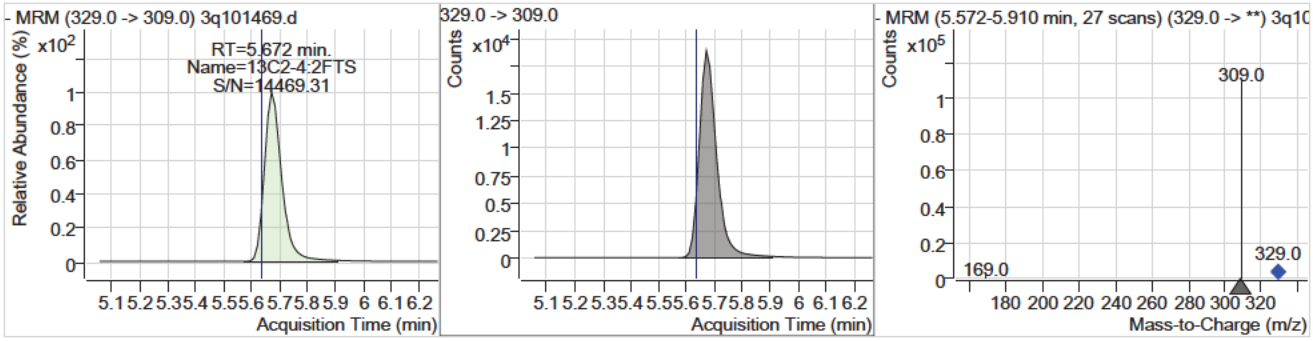
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	19.81	5.26	0.03	376587	315.0 -> 69.0	7.6	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	19.88	5.58	0.03	112528	295.0 -> 201.0	7.0	3.2	9.6

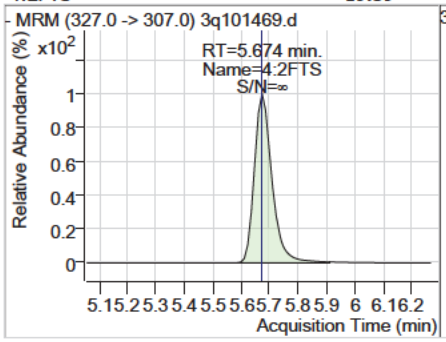


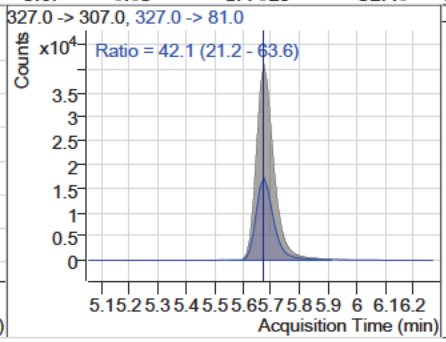
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	10.70	5.67	0.03	81462				

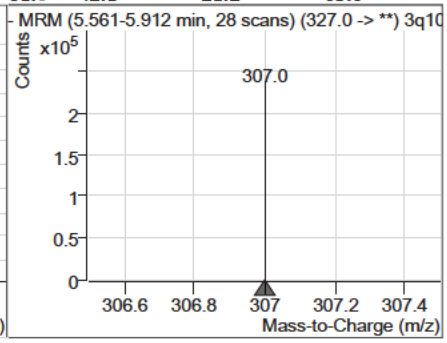


Perfluorinated Compounds by LC/MS/MS

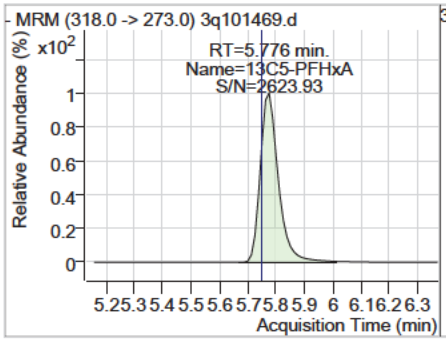
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.59	5.67	0.03	177028	327.0 -> 81.0	42.1	21.2	63.6

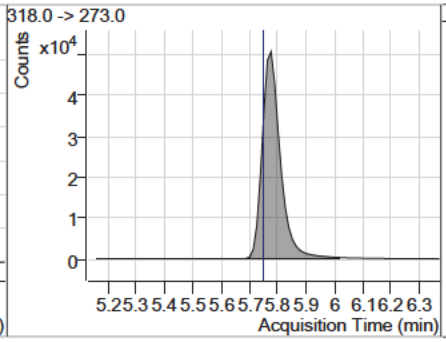


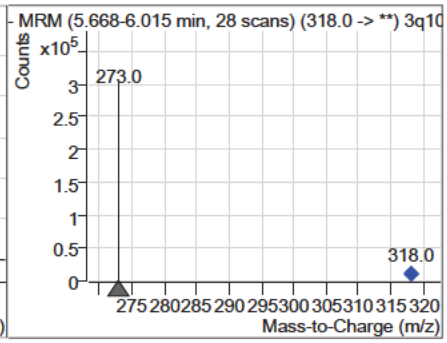




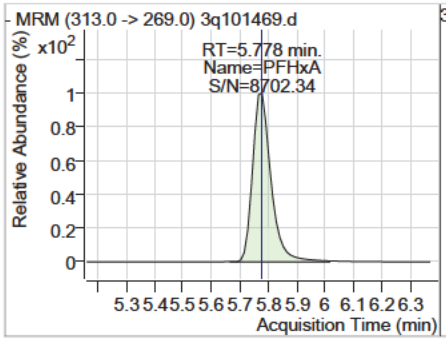
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.76	5.78	0.03	226317				

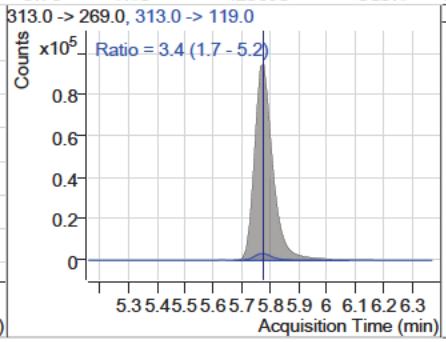


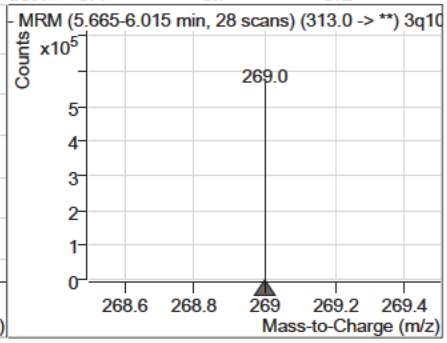




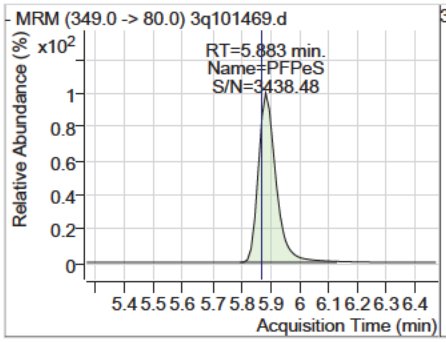
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.97	5.78	0.03	425695	313.0 -> 119.0	3.4	1.7	5.2

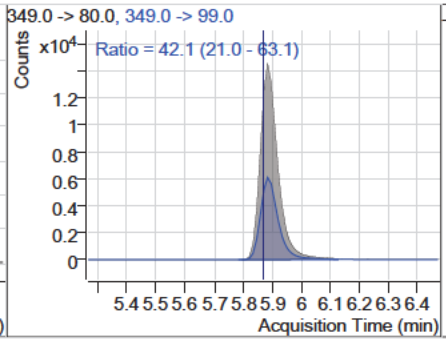


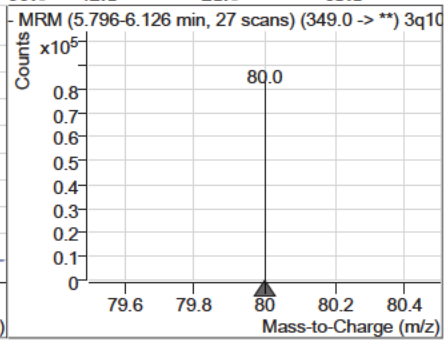




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	19.76	5.88	0.01	61174	349.0 -> 99.0	42.1	21.0	63.1







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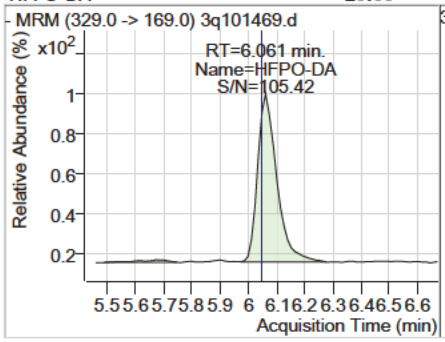
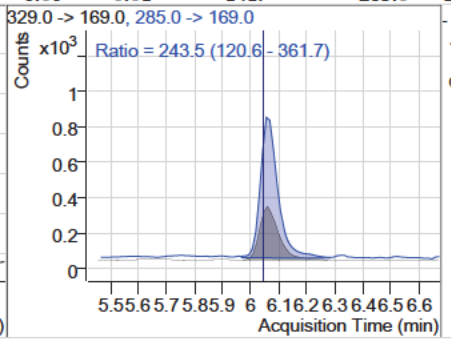
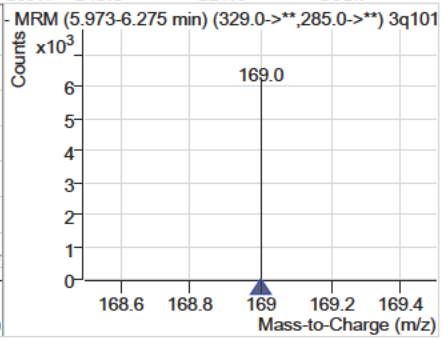
Perfluorinated Compounds by LC/MS/MS

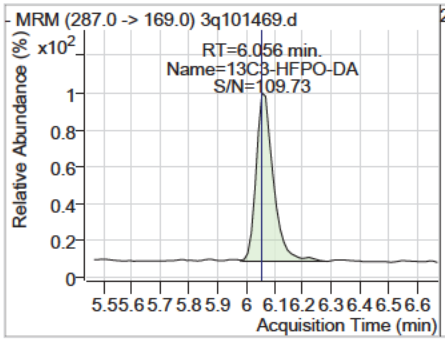
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	20.00	6.06	0.01	1417	285.0 -> 169.0	243.5	120.6	361.7

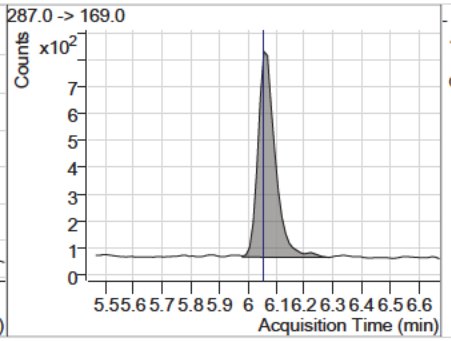


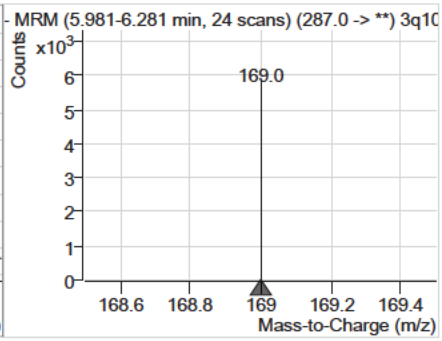




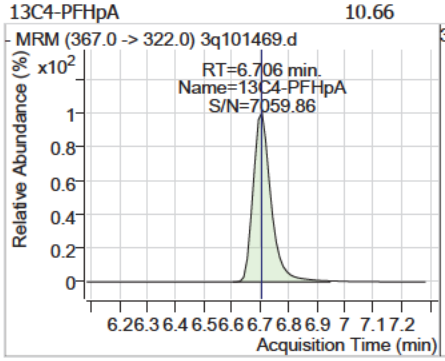
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.58	6.06	0.00	3198				

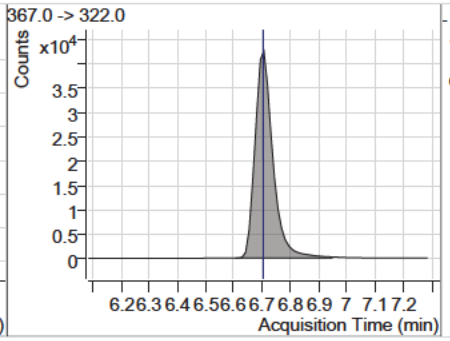


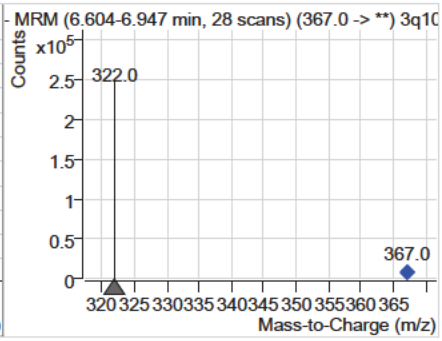




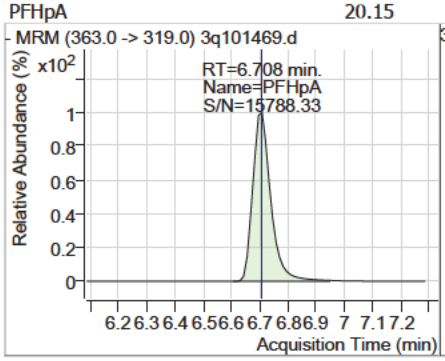
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.66	6.71	0.00	187360				

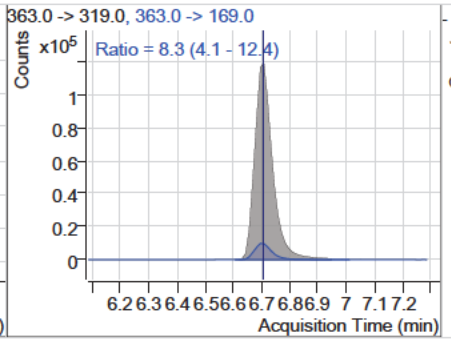


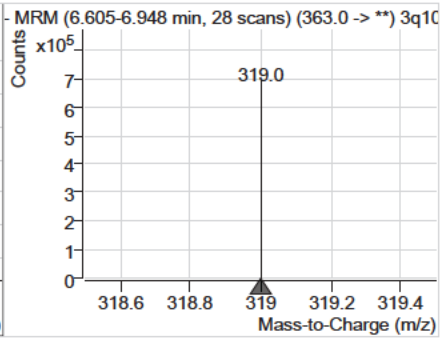




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.15	6.71	0.00	529672	363.0 -> 169.0	8.3	4.1	12.4

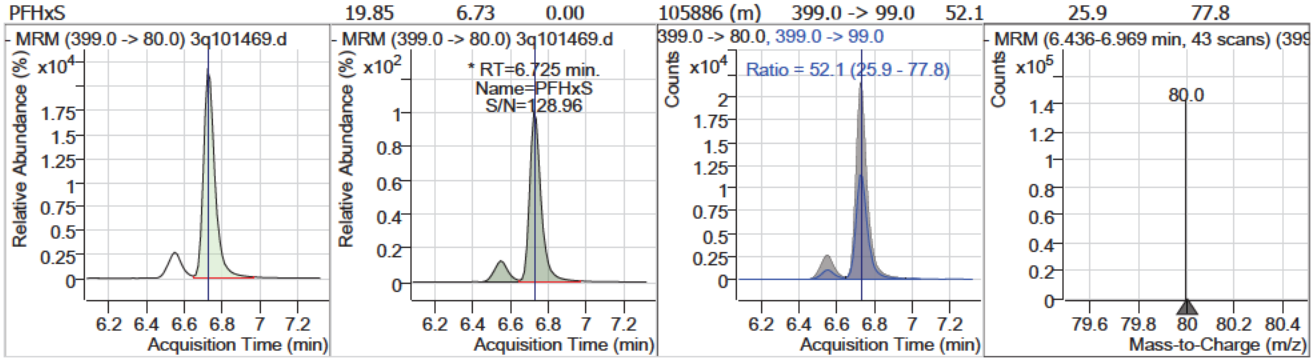




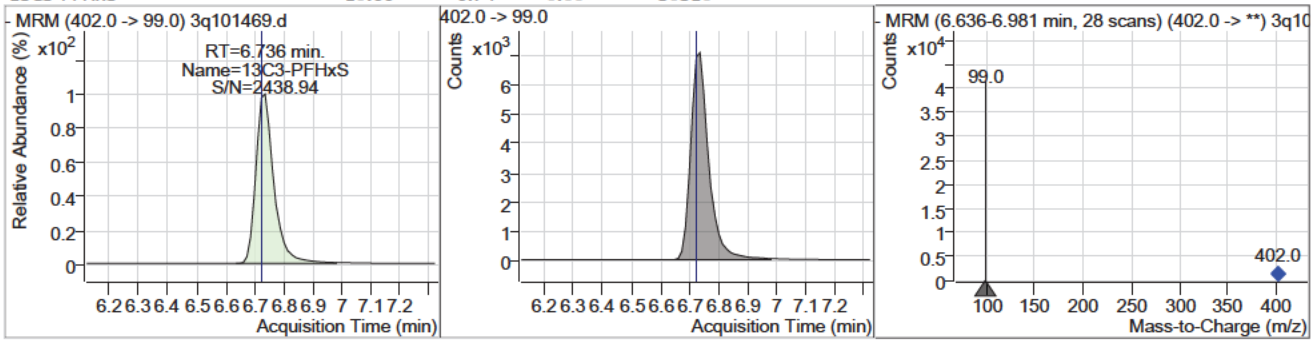


Perfluorinated Compounds by LC/MS/MS

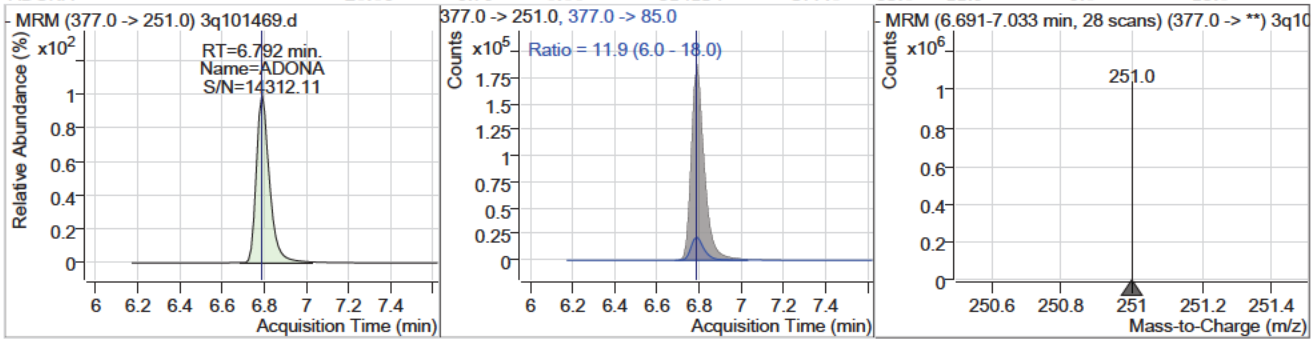
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.85	6.73	0.00	105886 (m)	399.0 -> 99.0	52.1	25.9	77.8



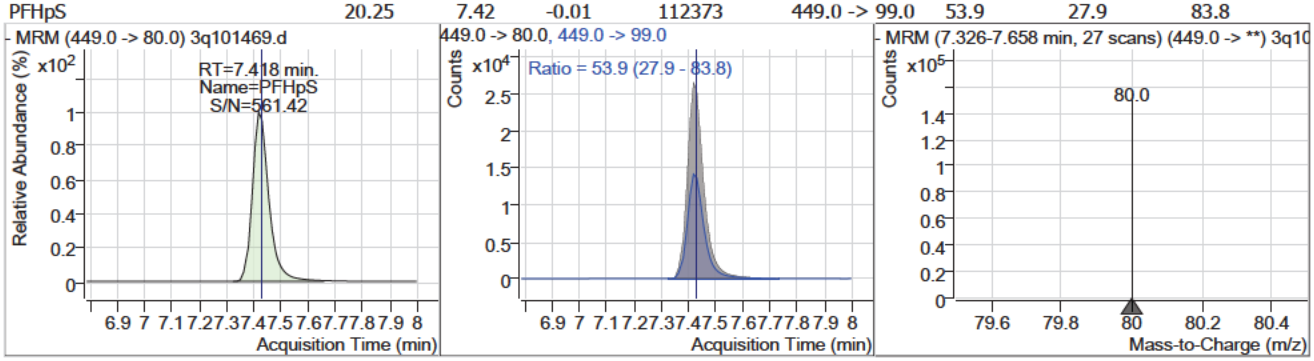
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.66	6.74	0.00	30310				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.06	6.79	0.00	814134	377.0 -> 85.0	11.9	6.0	18.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	20.25	7.42	-0.01	112373	449.0 -> 99.0	53.9	27.9	83.8



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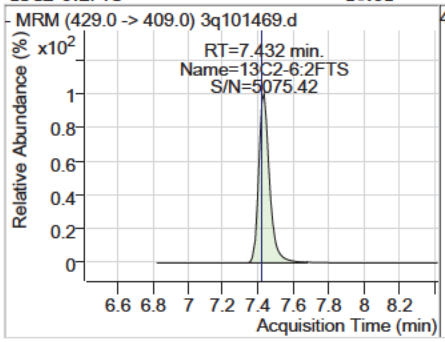
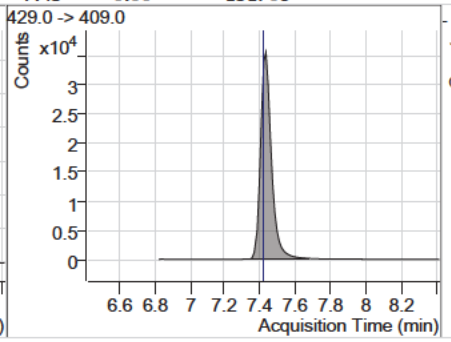
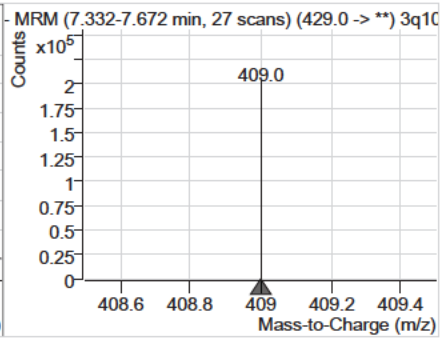
Perfluorinated Compounds by LC/MS/MS

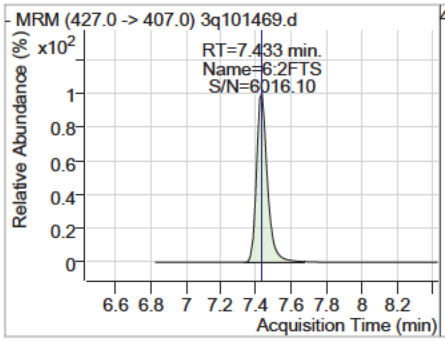
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	10.61	7.43	0.00	151708				

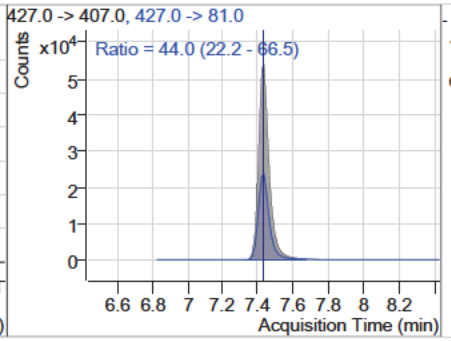


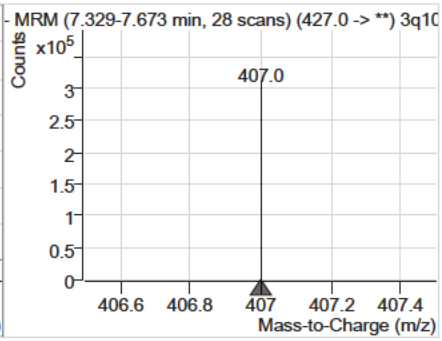




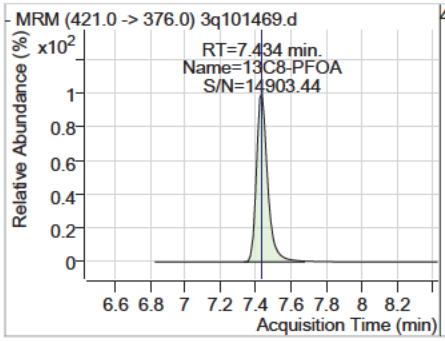
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.55	7.43	0.00	234094	427.0 -> 81.0	44.0	22.2	66.5

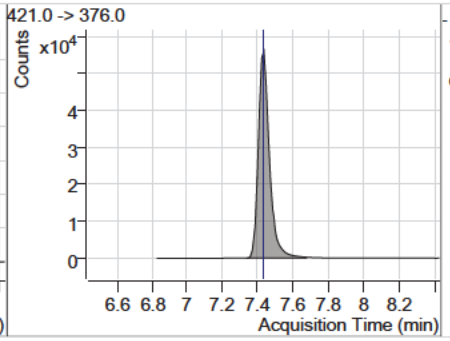


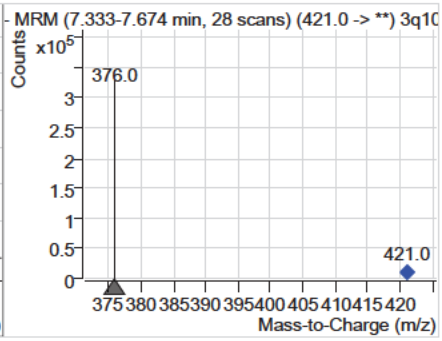




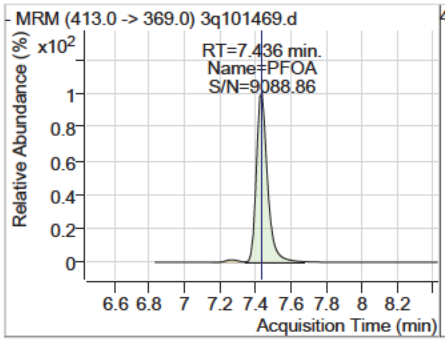
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.78	7.43	0.00	245778				

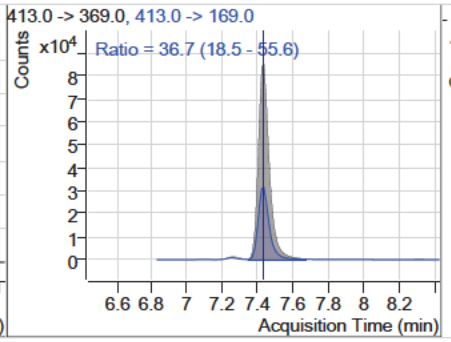


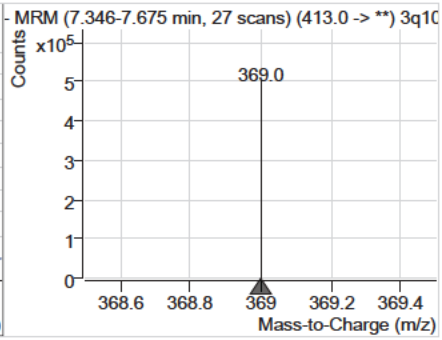




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.92	7.44	0.00	377583	413.0 -> 169.0	36.7	18.5	55.6

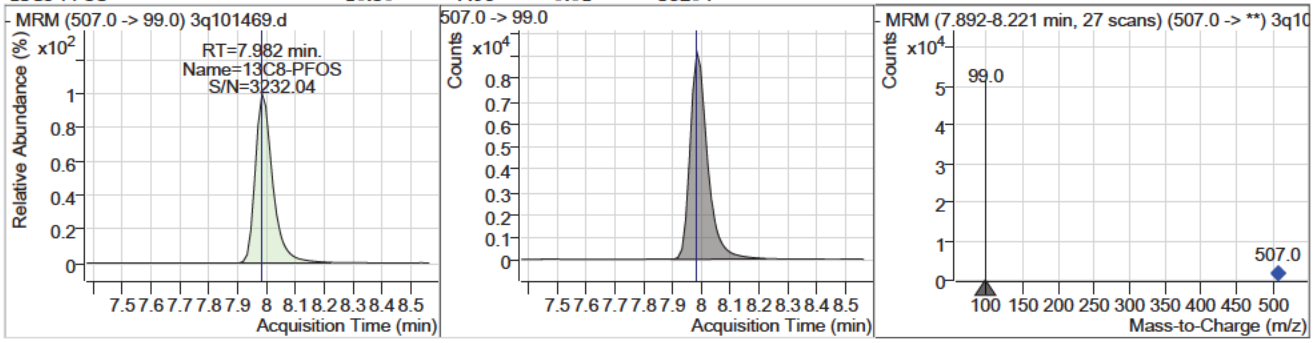




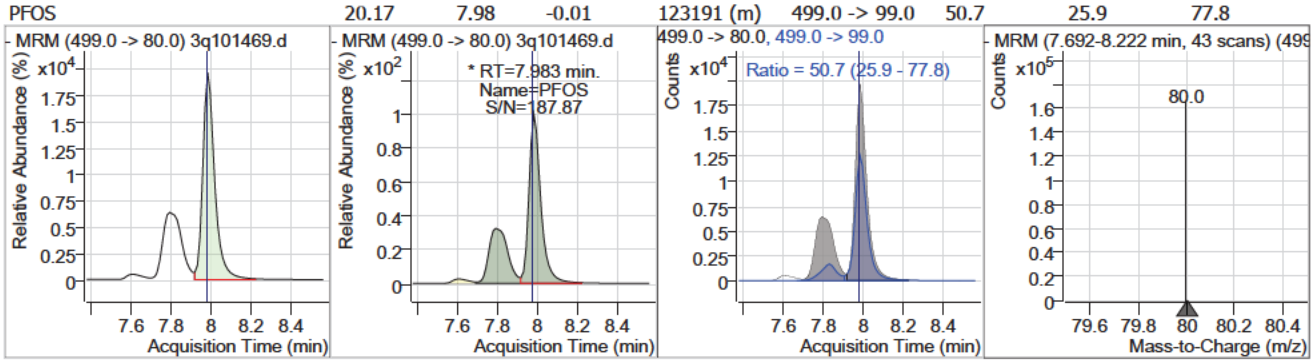


Perfluorinated Compounds by LC/MS/MS

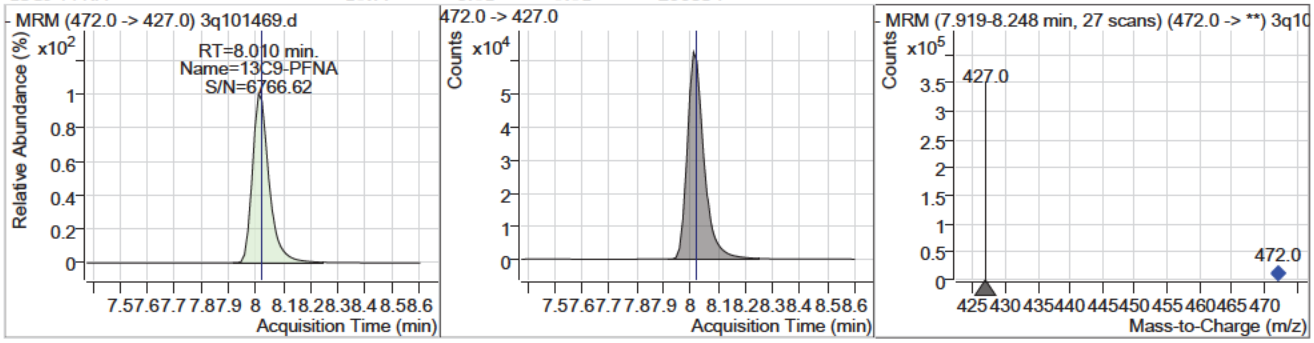
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.50	7.98	-0.01	38204				



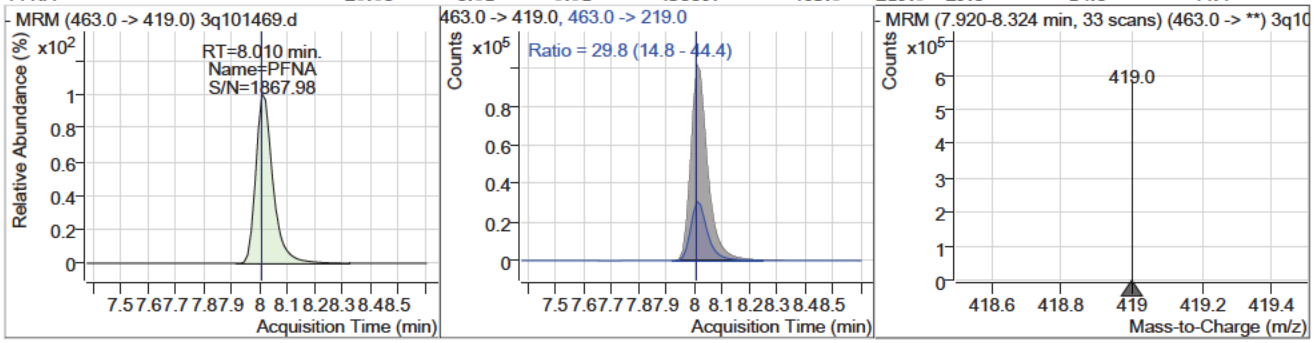
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	20.17	7.98	-0.01	123191 (m)	499.0 -> 99.0	50.7	25.9	77.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.77	8.01	-0.01	266834				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	20.08	8.01	-0.01	438897	463.0 -> 219.0	29.8	14.8	44.4



7.7.11

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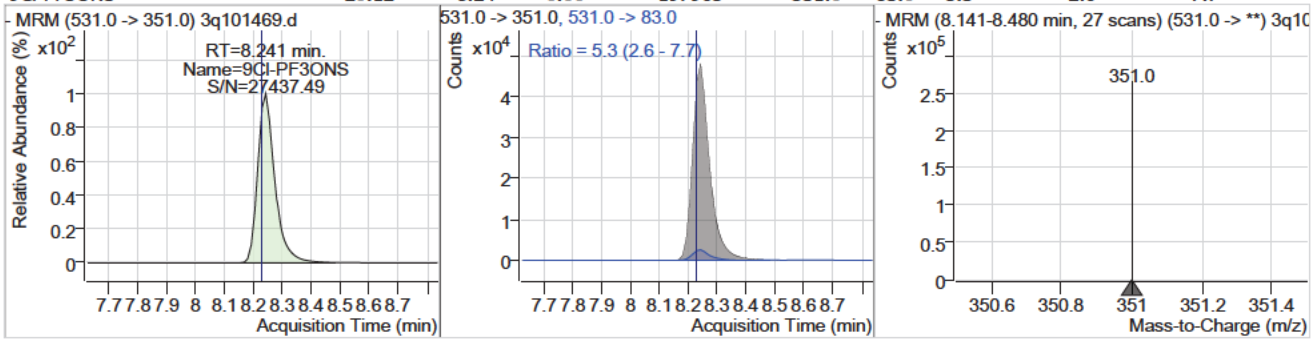
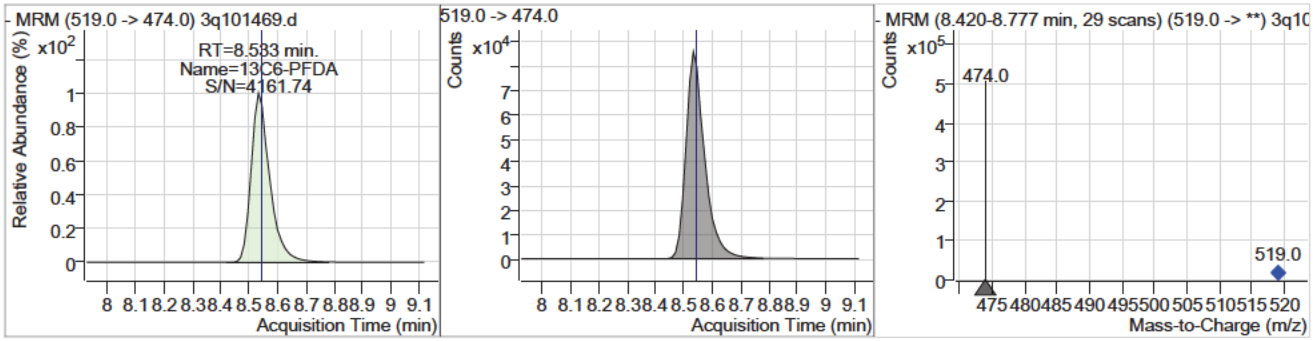
Perfluorinated Compounds by LC/MS/MS

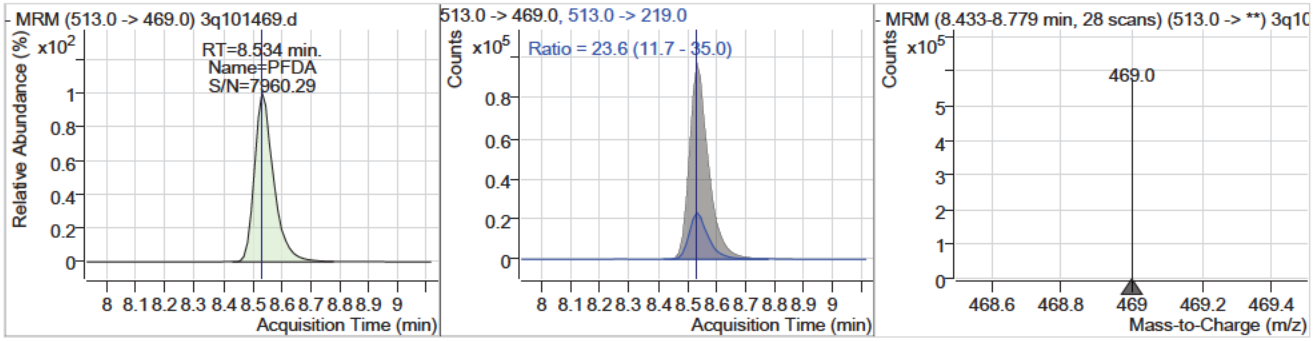
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	20.12	8.24	0.00	197965	531.0 -> 83.0	5.3	2.6	7.7



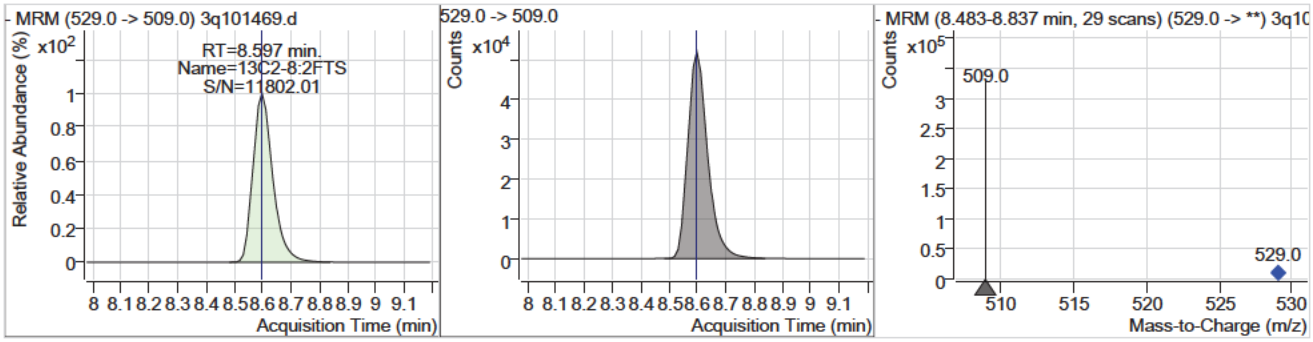
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	11.35	8.53	-0.01	394032				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.00	8.53	-0.01	445741	513.0 -> 219.0	23.6	11.7	35.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	10.64	8.60	-0.01	255056				



7.7.11

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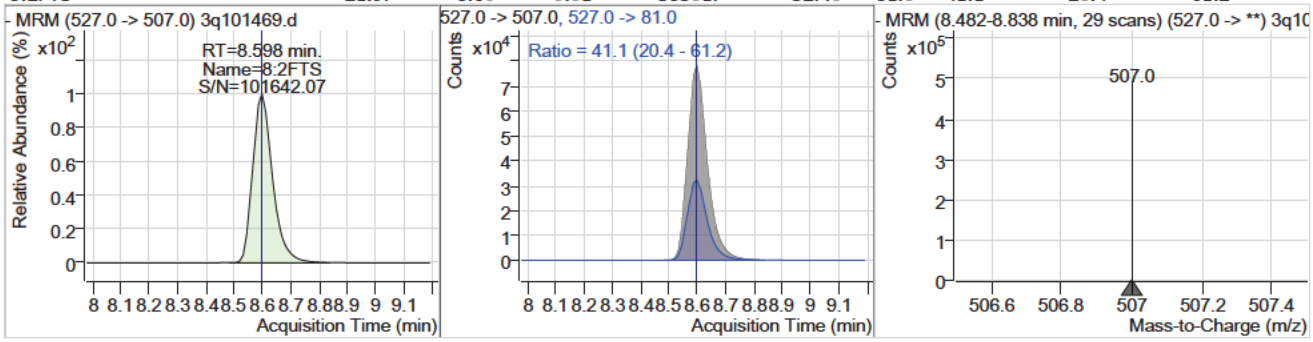
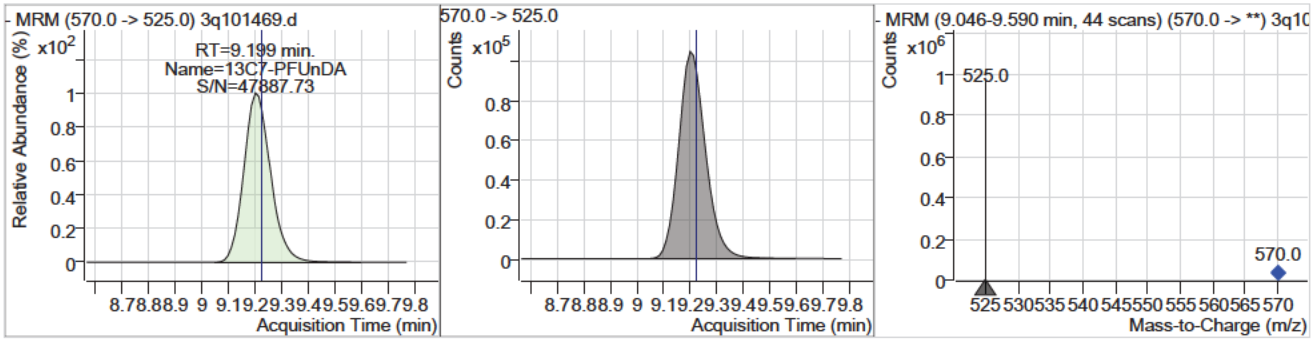
Perfluorinated Compounds by LC/MS/MS

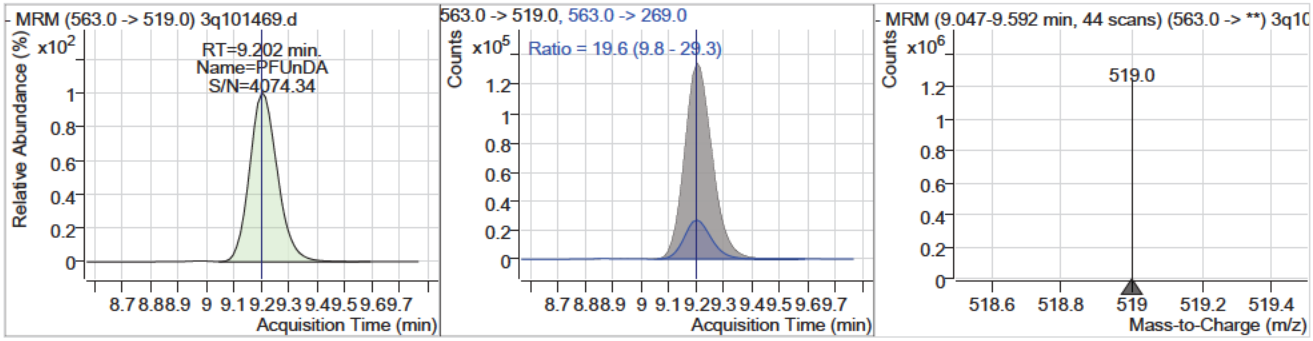
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.97	8.60	-0.01	385017	527.0 -> 81.0	41.1	20.4	61.2



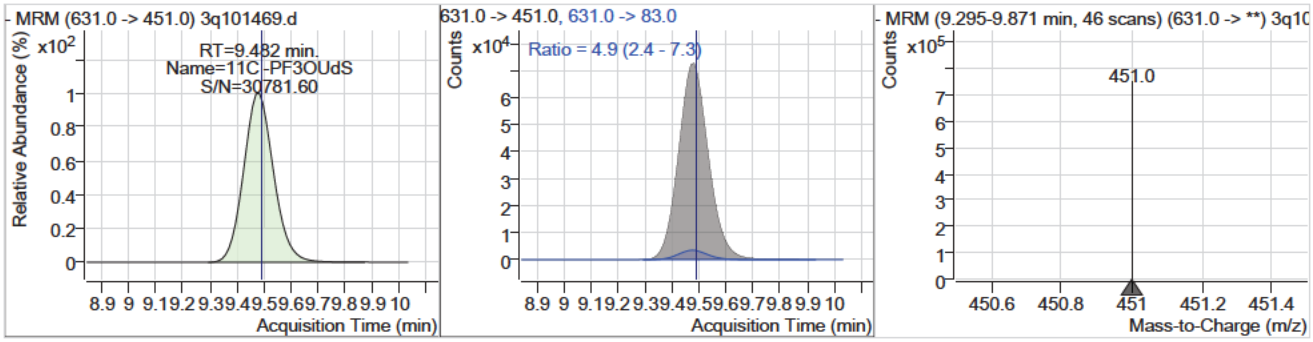
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	10.59	9.20	-0.03	734816				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.97	9.20	-0.03	945688	563.0 -> 269.0	19.6	9.8	29.3

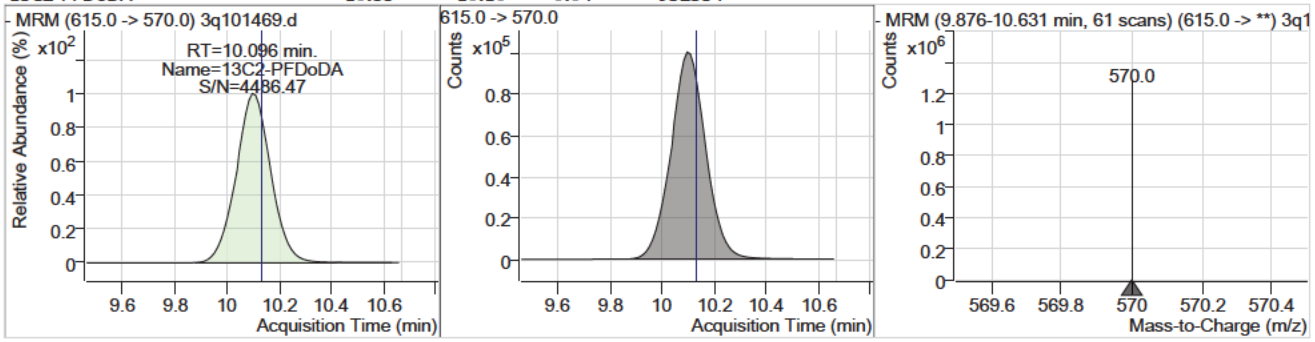


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	19.78	9.48	-0.03	561120	631.0 -> 83.0	4.9	2.4	7.3

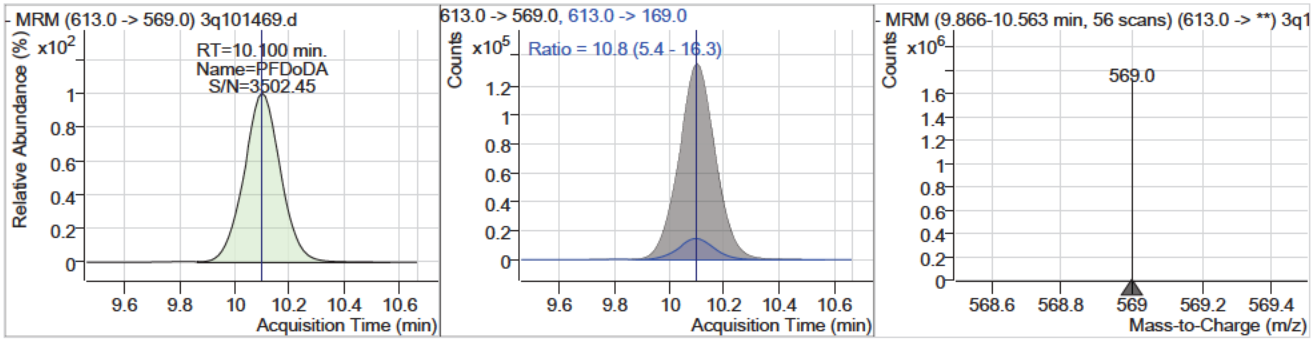


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.55	10.10	-0.04	932334				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	20.16	10.10	-0.04	1249699	613.0 -> 169.0	10.8	5.4	16.3



Manual Integration Approval Summary

Sample Number: S3Q1492-CC1492
Lab FileID: 3Q101469.D
Injection Time: 04/15/25 17:00
Method: EPA 533
Analyst approved: 04/16/25 08:55 (b) (6) [redacted]
Supervisor approved: 04/17/25 11:42 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.72	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:42

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101470.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 5:16:59 PM
Sample Name : cc1492-0.5LL
Vial : P1-C2
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.435	415.0 -> 370.0	215453	10.00 µg/L	0.000
13C3-PFBA	2.344	216.0 -> 172.0	82751	10.00 µg/L	0.213
13C4-PFOS	7.983	503.0 -> 80.0	31565	10.00 µg/L	-0.013
M4-PFBA	2.340	217.0 -> 172.0	147527	10.00 µg/L	0.200
M5-PFPeA	4.413	268.0 -> 223.0	175889	10.00 µg/L	0.075
M5-PFHxA	5.776	318.0 -> 273.0	224566	10.00 µg/L	0.025
M4-PFHpA	6.694	367.0 -> 322.0	187283	10.00 µg/L	-0.013
M8-PFOA	7.434	421.0 -> 376.0	249764	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	267714	10.00 µg/L	-0.013
M6-PFDA	8.546	519.0 -> 474.0	407127	10.00 µg/L	0.000
M7-PFUnDA	9.224	570.0 -> 525.0	756108	10.00 µg/L	0.000
M2-PFDoDA	10.171	615.0 -> 570.0	940947	10.00 µg/L	0.038
M3-PFBS	4.708	302.0 -> 99.0	20720	10.00 µg/L	0.063
M3-PFHxS	6.723	402.0 -> 99.0	29386	10.00 µg/L	-0.013
M8-PFOS	7.982	507.0 -> 99.0	37957	10.00 µg/L	-0.013
M2-4:2FTS	5.672	329.0 -> 309.0	72162	10.00 µg/L	0.025
M2-6:2FTS	7.432	429.0 -> 409.0	142366	10.00 µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	226063	10.00 µg/L	-0.014
M3-HFPO-DA	6.056	287.0 -> 169.0	2672	10.00 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.672	329.0 -> 309.0	72162	9.61 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C2-6:2FTS	7.432	429.0 -> 409.0	142366	10.09 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C2-8:2FTS	8.597	529.0 -> 509.0	226063	9.56 µg/L	-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C2-PFDoDA	10.171	615.0 -> 570.0	940947	10.26 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C3-PFBS	4.708	302.0 -> 99.0	20720	10.52 µg/L	0.063
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C3-PFHxS	6.723	402.0 -> 99.0	29386	10.48 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C4-PFBA	2.340	217.0 -> 172.0	147527	10.51 µg/L	0.200
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.1%	
13C4-PFHpA	6.694	367.0 -> 322.0	187283	10.27 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C5-PFHxA	5.776	318.0 -> 273.0	224566	10.29 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C5-PFPeA	4.413	268.0 -> 223.0	175889	10.39 µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C6-PFDA	8.546	519.0 -> 474.0	407127	11.30 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.0%	
13C7-PFUnDA	9.224	570.0 -> 525.0	756108	10.50 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C8-PFOA	7.434	421.0 -> 376.0	249764	10.55 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

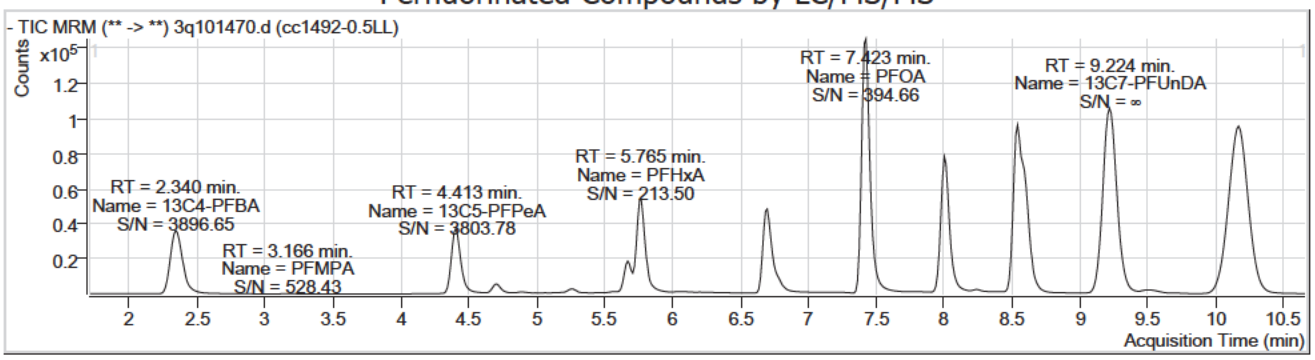
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.5%		
13C8-PFOS	7.982	507.0 -> 99.0	37957	10.57 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.7%		
13C9-PFNA	8.010	472.0 -> 427.0	267714	10.41 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.1%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	2672	8.51 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 85.1%		
Target Compounds						QValue
PFMPA	3.166	229.0 -> 85.0	2187	0.46 µg/L		100
4:2FTS	5.674	327.0 -> 307.0	3819	0.43 µg/L		95
		327.0 -> 81.0	1741			
6:2FTS	7.433	427.0 -> 407.0	5224	0.43 µg/L		96
		427.0 -> 81.0	2442			
8:2FTS	8.598	527.0 -> 507.0	8239	0.53 µg/L		98
		527.0 -> 81.0	3464			
PFMBA	4.901	279.0 -> 85.0	2902	0.45 µg/L		100
PFEESA	5.260	315.0 -> 135.0	8106	0.43 µg/L		99
		315.0 -> 69.0	585			
NFDHA	5.582	201.0 -> 85.0	2539	0.45 µg/L		100
		295.0 -> 201.0	165			
PFBA	2.348	213.0 -> 169.0	1883	0.46 µg/L		100
PFBS	4.710	299.0 -> 80.0	1800	0.43 µg/L		96
		299.0 -> 99.0	799			
PFDA	8.546	513.0 -> 469.0	10462	0.45 µg/L		99
		513.0 -> 219.0	2480			
PFDoDA	10.175	613.0 -> 569.0	29141	0.47 µg/L		100
		613.0 -> 169.0	3191			
PFHpA	6.695	363.0 -> 319.0	11981	0.46 µg/L		100
		363.0 -> 169.0	1002			
PFHpS	7.418	449.0 -> 80.0	2637	0.49 µg/L		97
		449.0 -> 99.0	1415			
PFHxA	5.765	313.0 -> 269.0	9355	0.44 µg/L		99
		313.0 -> 119.0	350			
PFHxS	6.725	399.0 -> 80.0	2420	0.47 µg/L	m	98
		399.0 -> 99.0	1286			
PFNA	8.023	463.0 -> 419.0	10101	0.46 µg/L		98
		463.0 -> 219.0	3104			
PFOA	7.423	413.0 -> 369.0	8640	0.45 µg/L		98
		413.0 -> 169.0	3329			
PFOS	7.983	499.0 -> 80.0	3015	0.50 µg/L	m	95
		499.0 -> 99.0	1453			
PFPeA	4.415	263.0 -> 219.0	5981	0.45 µg/L		100
PFPeS	5.883	349.0 -> 80.0	1381	0.46 µg/L		98
		349.0 -> 99.0	599			
PFUnDA	9.227	563.0 -> 519.0	21939	0.45 µg/L		98
		563.0 -> 269.0	4477			
11Cl-PF3OUdS	9.520	631.0 -> 451.0	12809	0.45 µg/L		99
		631.0 -> 83.0	659			
9Cl-PF3ONS	8.241	531.0 -> 351.0	4354	0.45 µg/L		99
		531.0 -> 83.0	203			
ADONA	6.792	377.0 -> 251.0	17971	0.44 µg/L		100
		377.0 -> 85.0	2161			
HFPO-DA	6.048	329.0 -> 169.0	38	0.56 µg/L		82
		285.0 -> 169.0	79			

= Qualifier out of range, m = manually integrated, + = Area summed

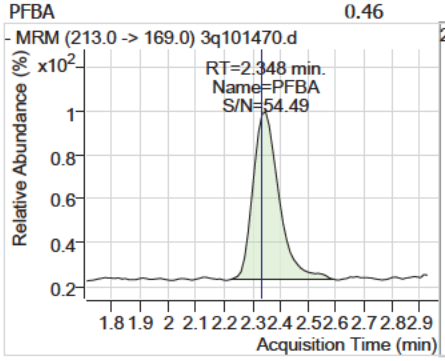
Perfluorinated Compounds by LC/MS/MS

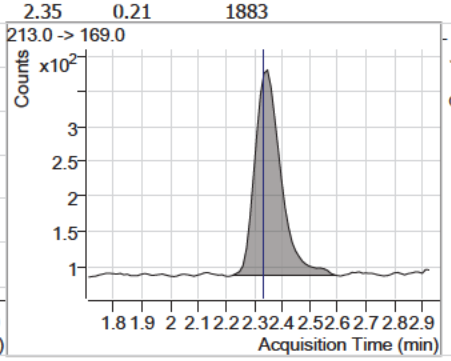
Compound	RT	Transition	Response	Conc. Units	Dev(Min)

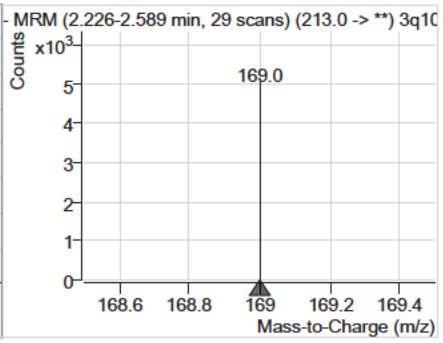
Perfluorinated Compounds by LC/MS/MS



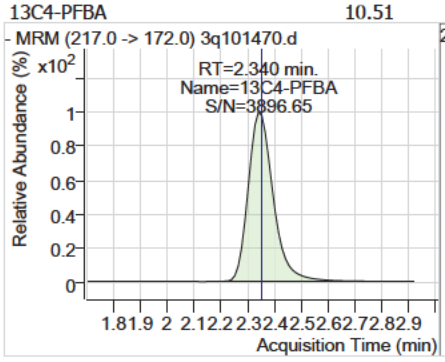
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.46	2.35	0.21	1883				

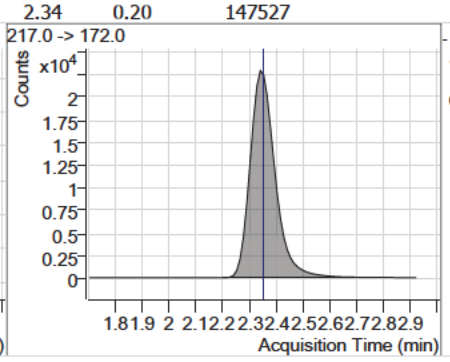


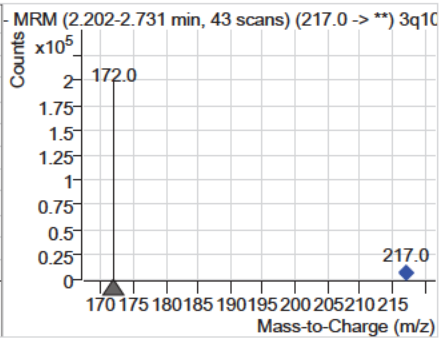




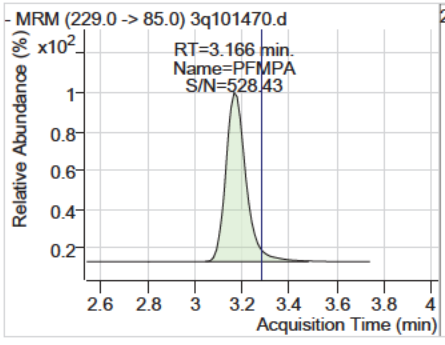
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.51	2.34	0.20	147527				

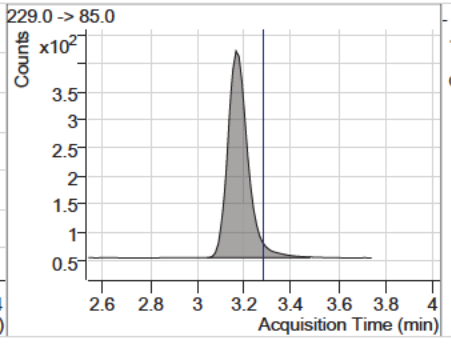


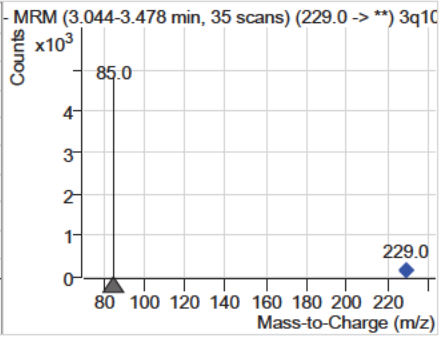




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	0.46	3.17	0.16	2187				

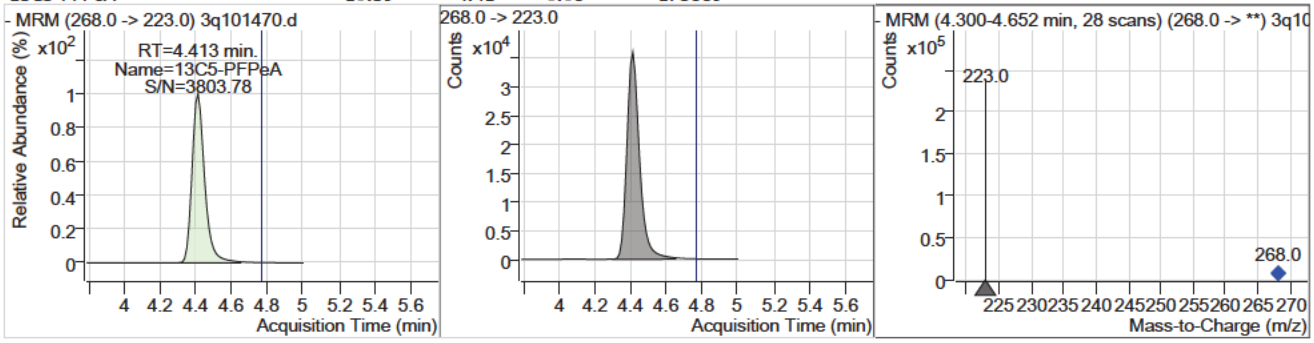




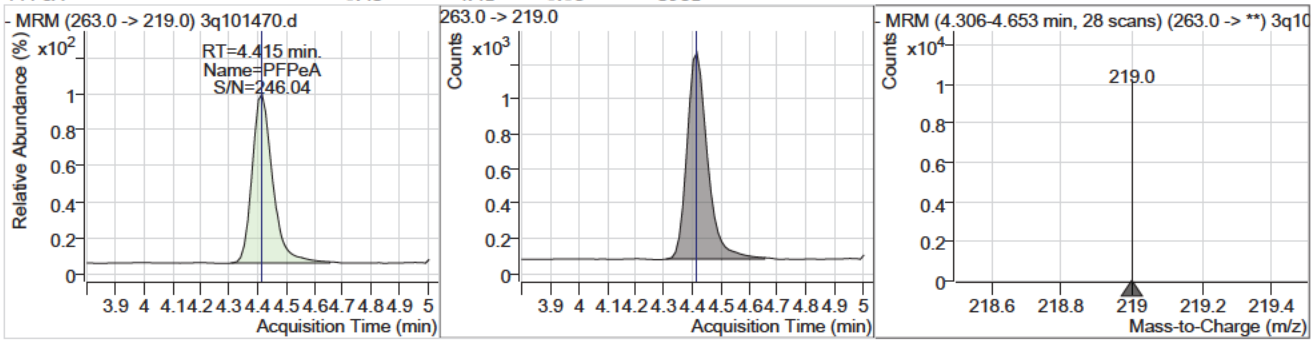


Perfluorinated Compounds by LC/MS/MS

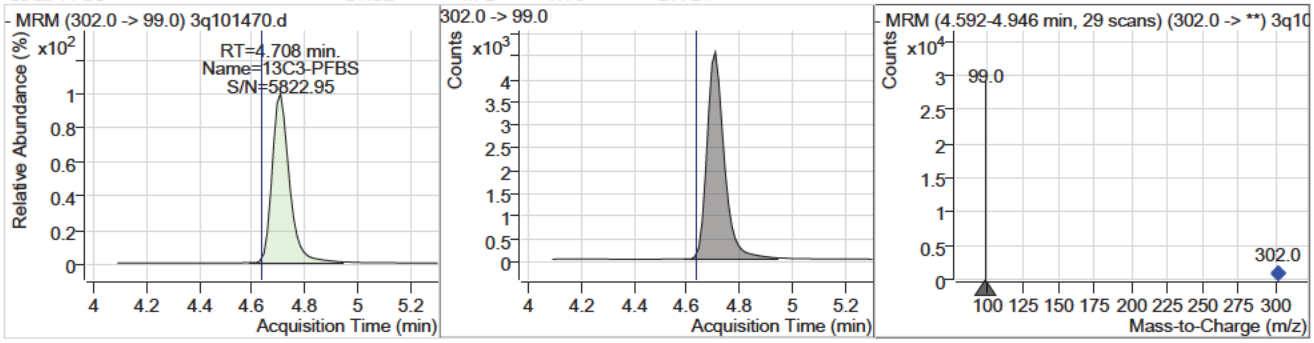
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.39	4.41	0.08	175889				



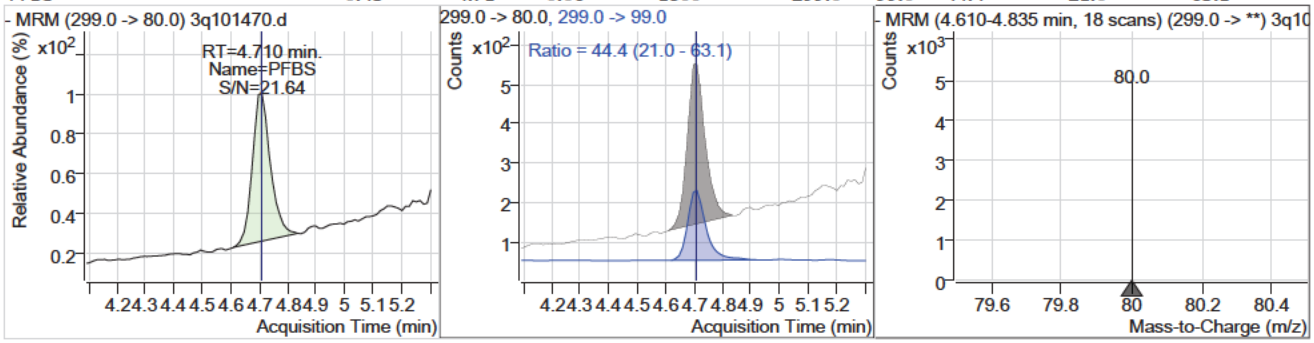
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.45	4.41	0.08	5981				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.52	4.71	0.06	20720				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.43	4.71	0.06	1800	299.0 -> 99.0	44.4	21.0	63.1



7.7.12

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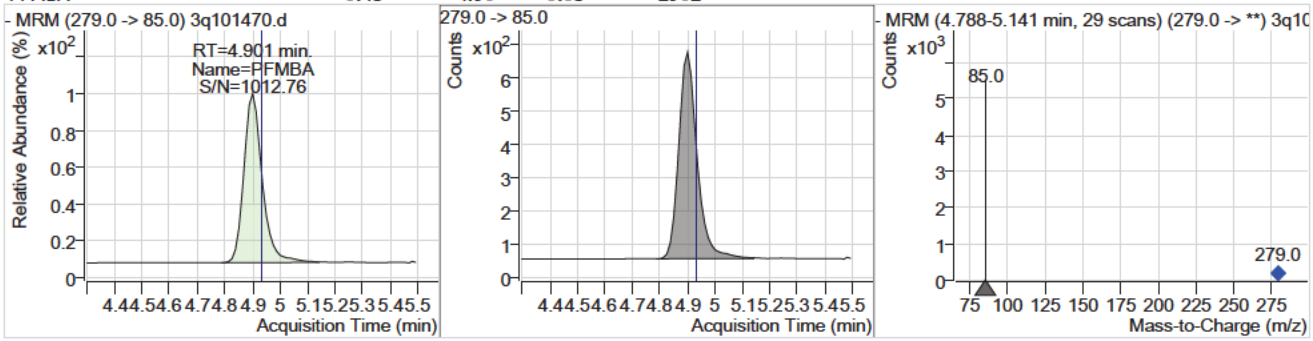
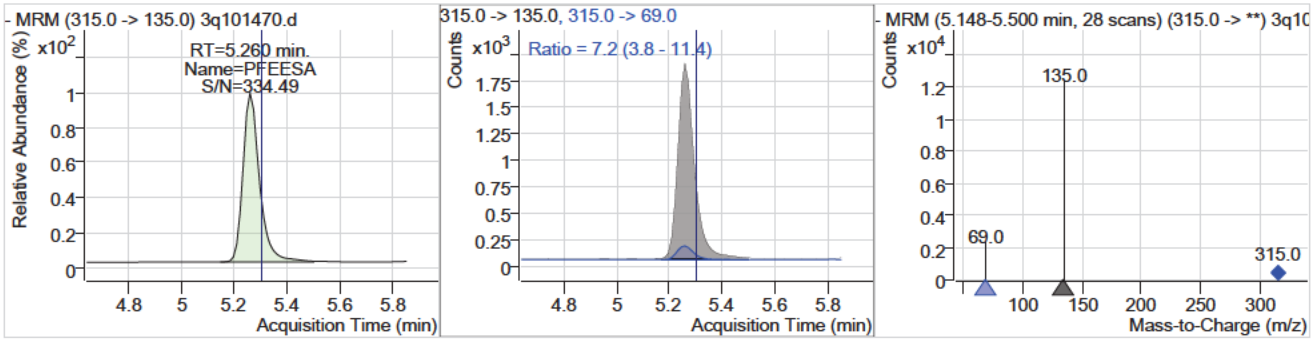
Perfluorinated Compounds by LC/MS/MS

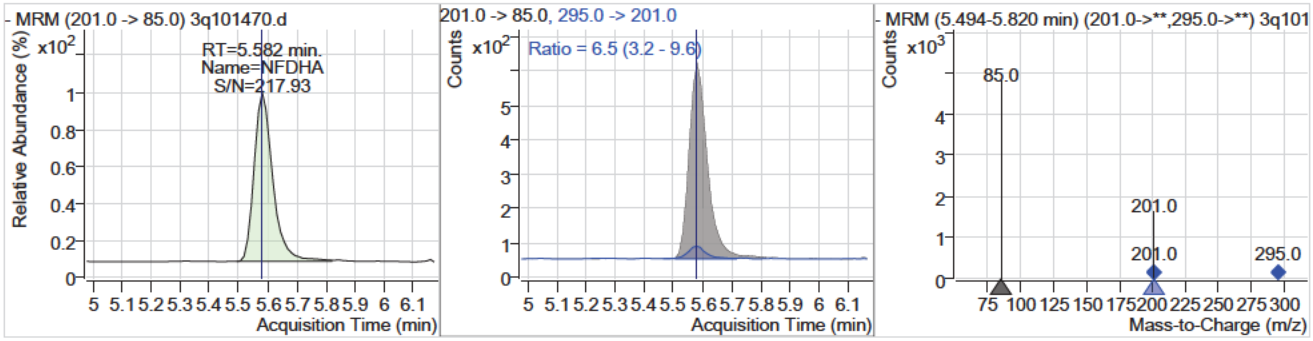
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.45	4.90	0.05	2902				



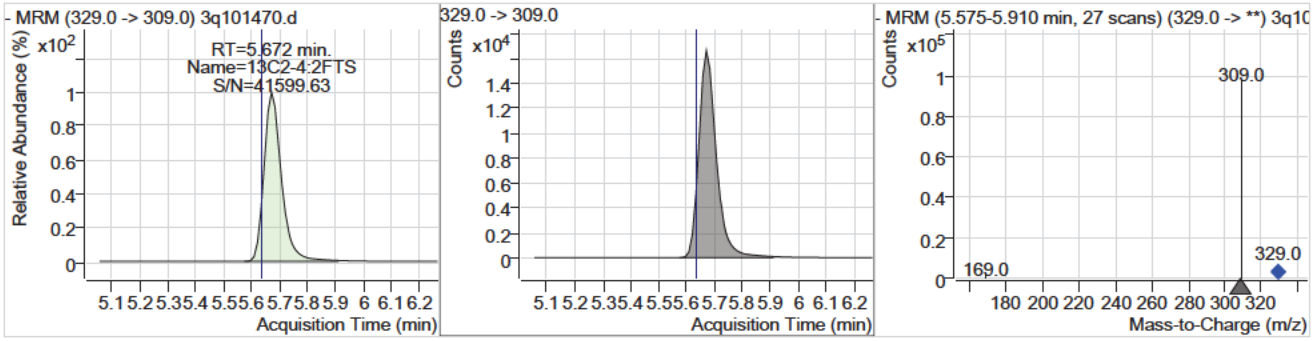
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.43	5.26	0.03	8106	315.0 -> 69.0	7.2	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	0.45	5.58	0.03	2539	295.0 -> 201.0	6.5	3.2	9.6

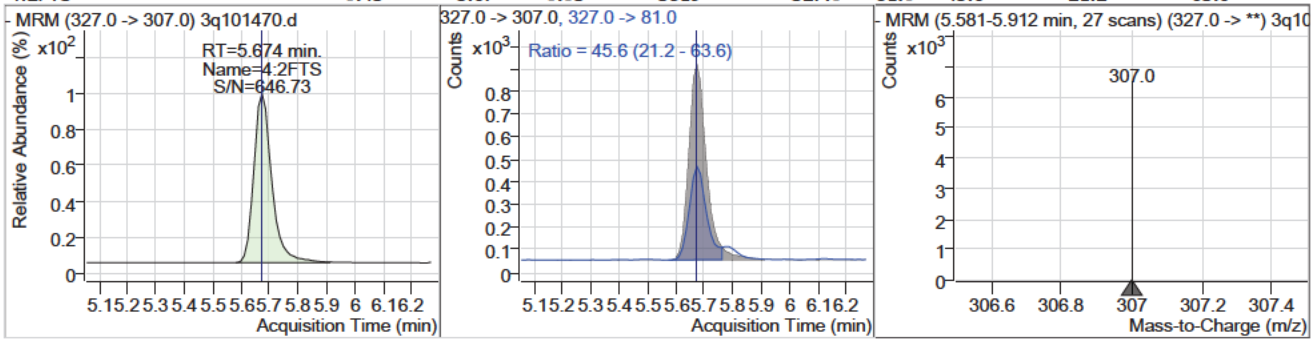


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	9.61	5.67	0.03	72162				

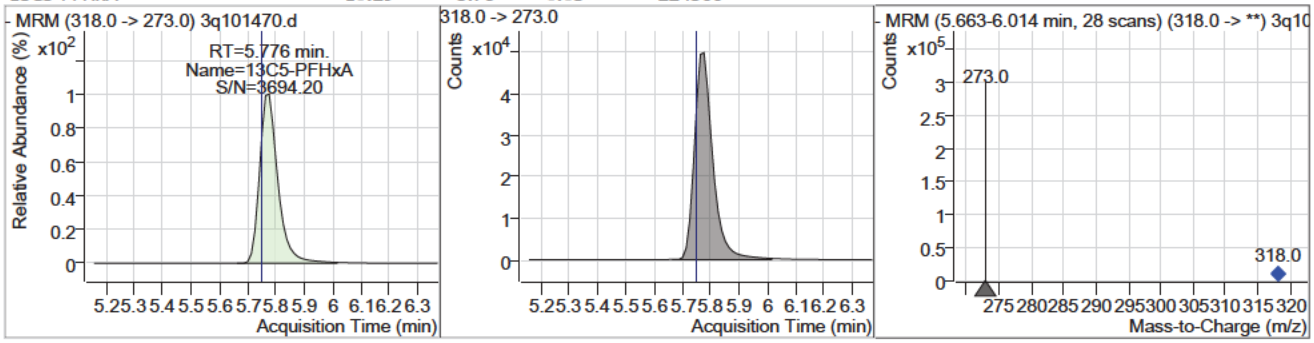


Perfluorinated Compounds by LC/MS/MS

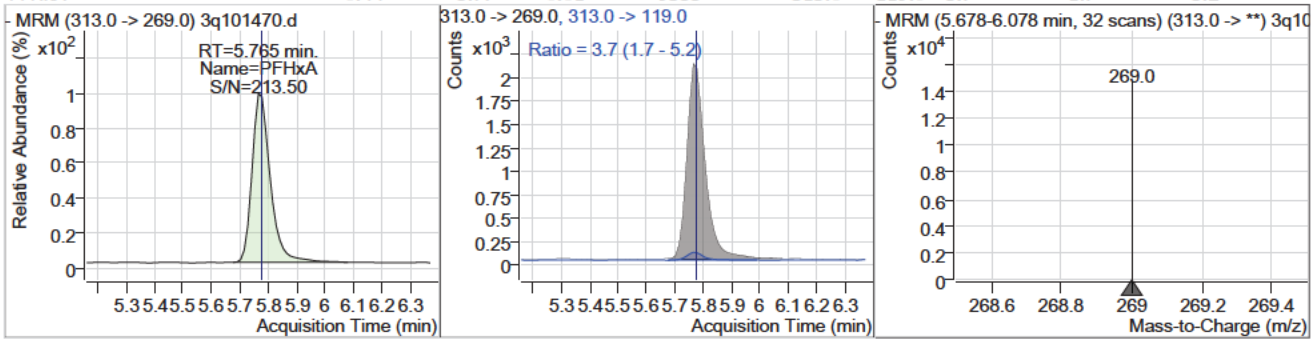
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	0.43	5.67	0.03	3819	327.0 -> 81.0	45.6	21.2	63.6



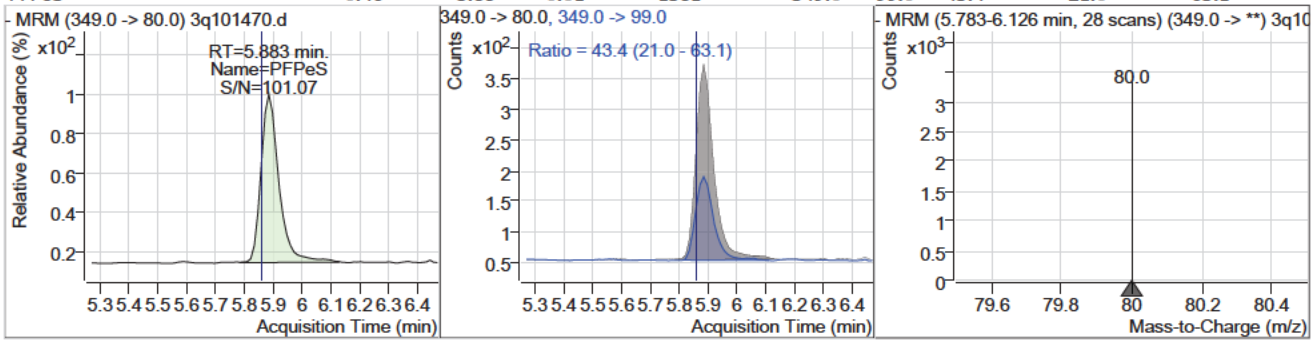
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.29	5.78	0.03	224566				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.44	5.77	0.01	9355	313.0 -> 119.0	3.7	1.7	5.2

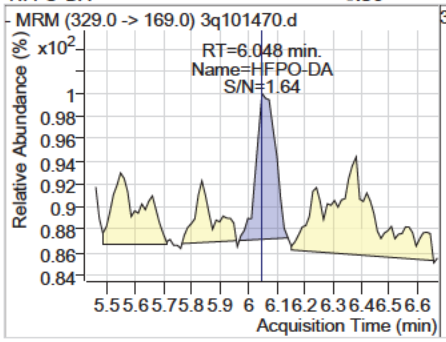


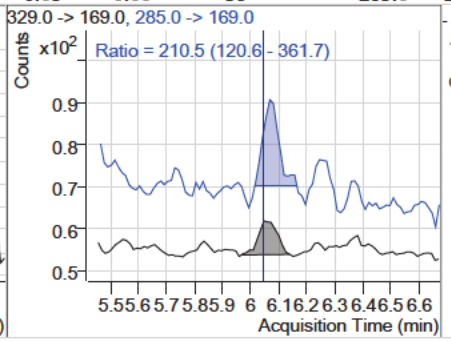
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.46	5.88	0.01	1381	349.0 -> 99.0	43.4	21.0	63.1

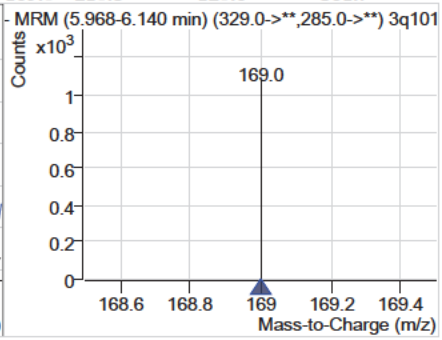


Perfluorinated Compounds by LC/MS/MS

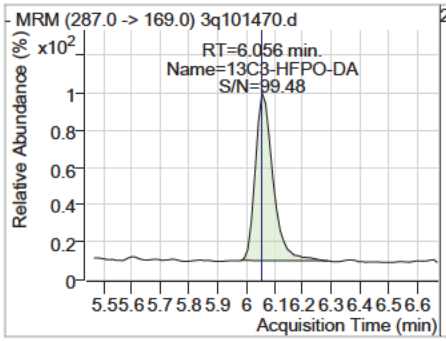
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.56	6.05	0.00	38	285.0 -> 169.0	210.5	120.6	361.7

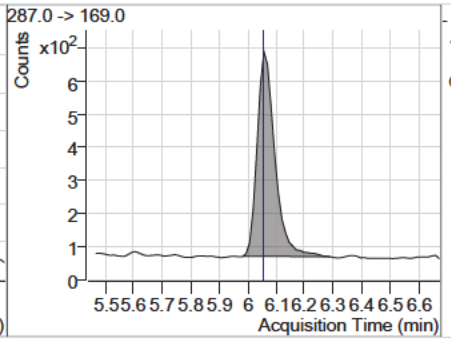


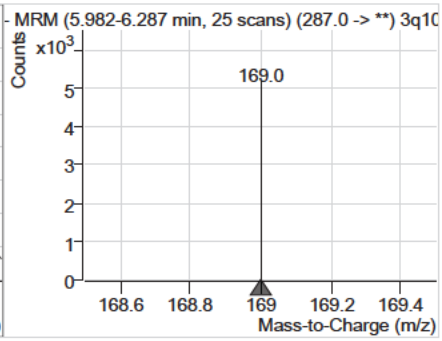




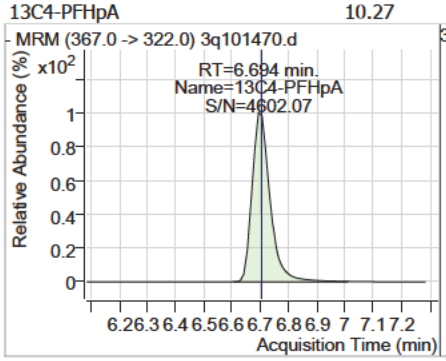
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.51	6.06	0.00	2672				

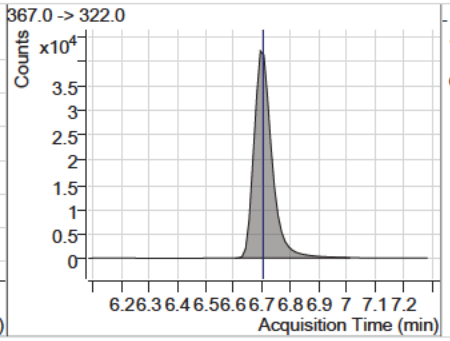


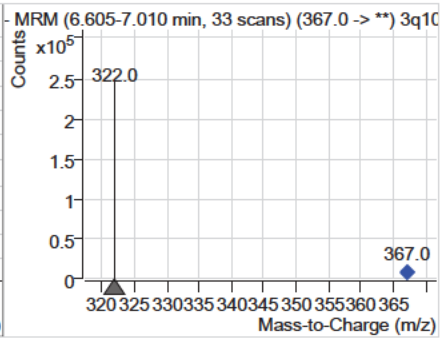




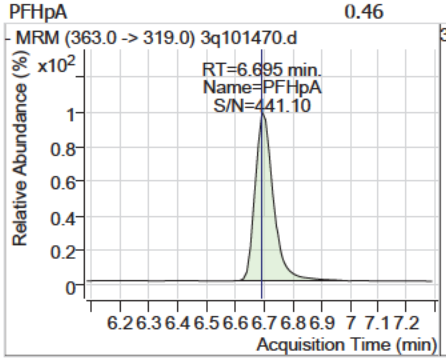
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.27	6.69	-0.01	187283				

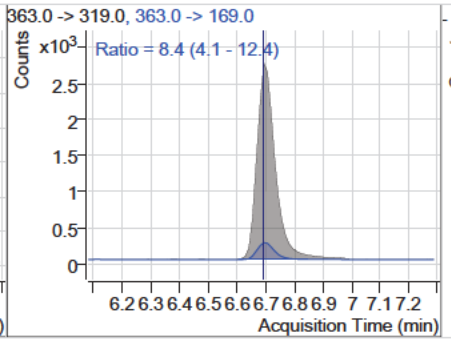


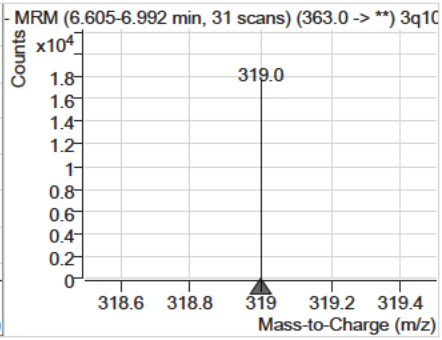




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.46	6.70	-0.01	11981	363.0 -> 169.0	8.4	4.1	12.4

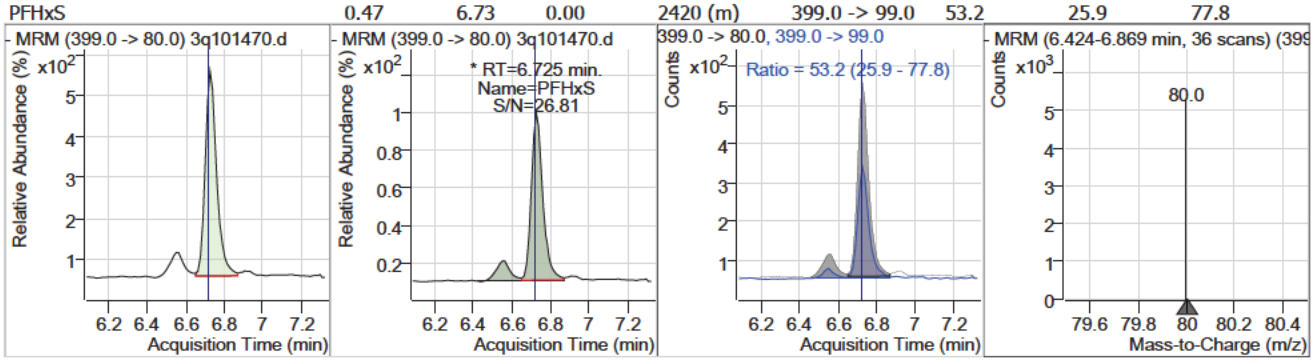




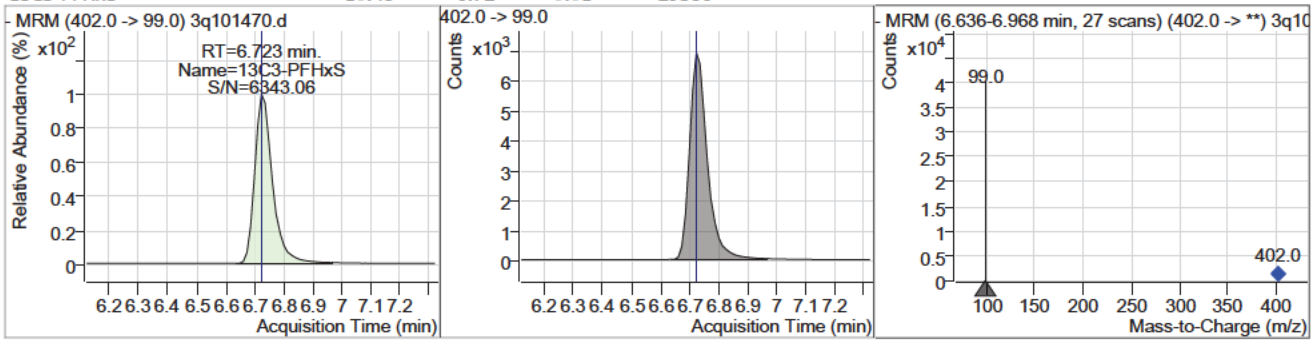


Perfluorinated Compounds by LC/MS/MS

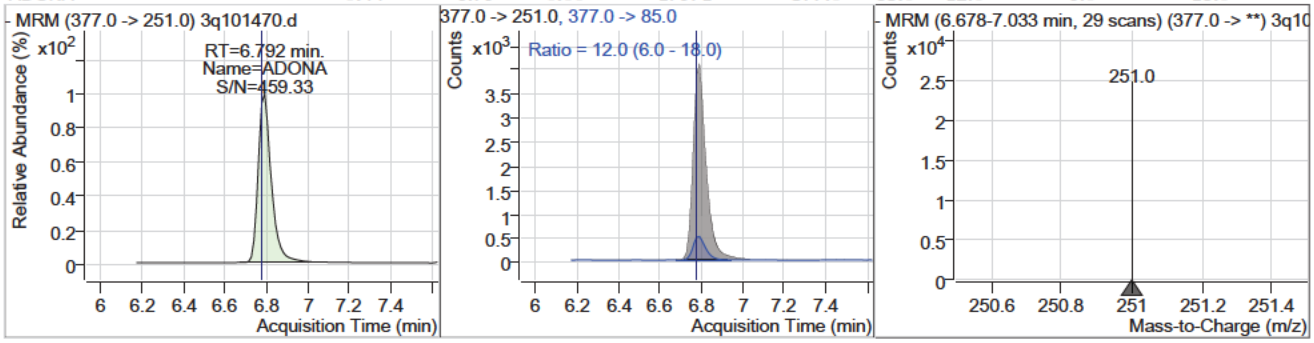
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.47	6.73	0.00	2420 (m)	399.0 -> 99.0	53.2	25.9	77.8



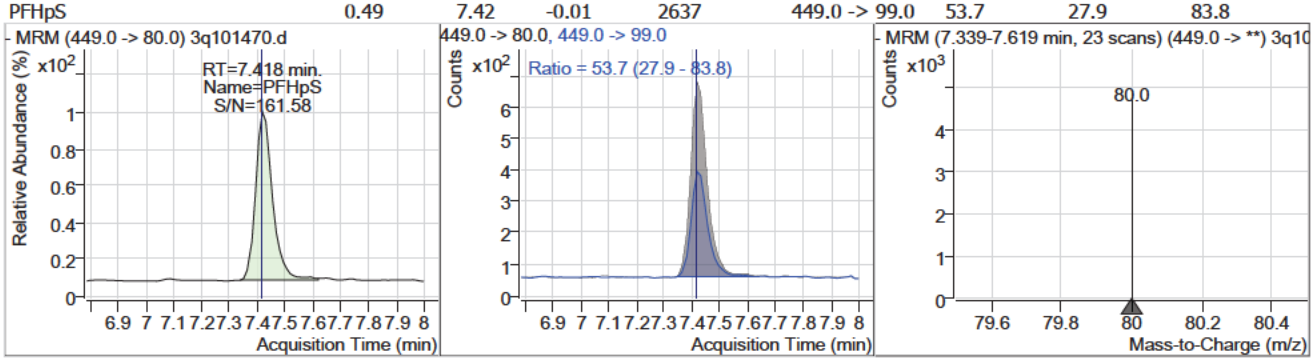
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.48	6.72	-0.01	29386				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.44	6.79	0.00	17971	377.0 -> 85.0	12.0	6.0	18.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.49	7.42	-0.01	2637	449.0 -> 99.0	53.7	27.9	83.8



7.7.12

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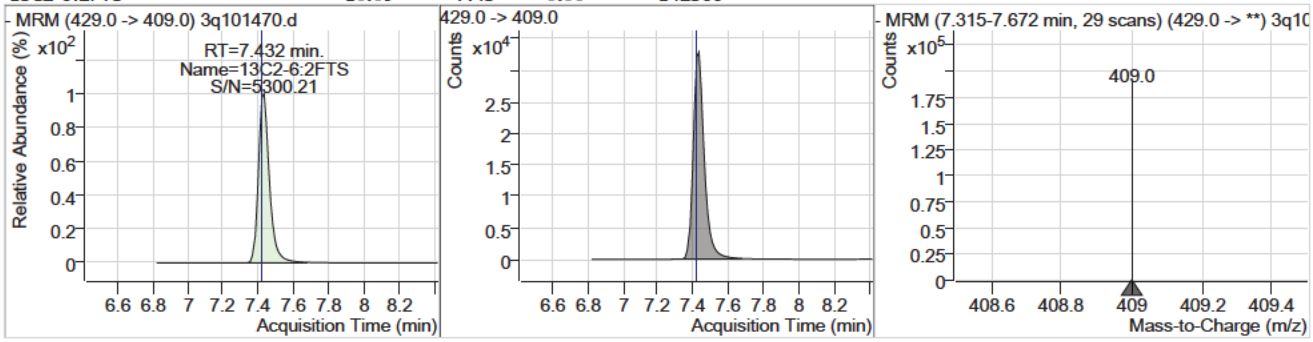
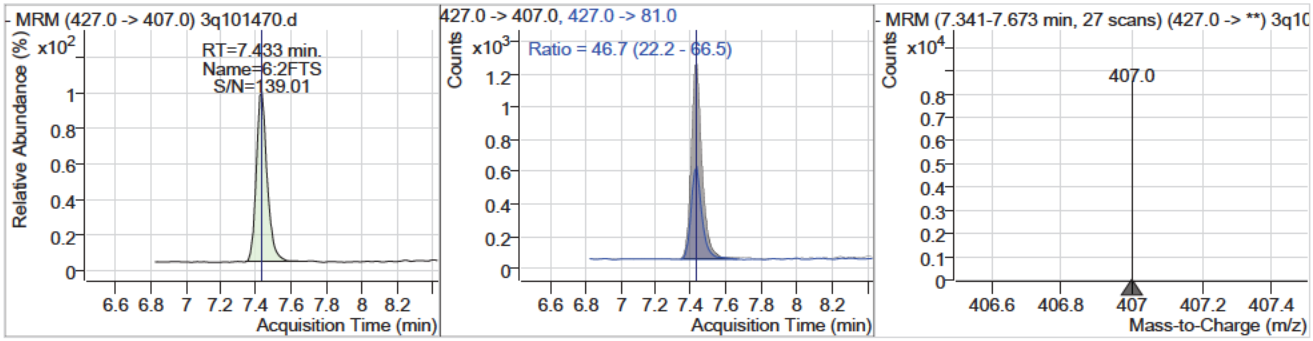
Perfluorinated Compounds by LC/MS/MS

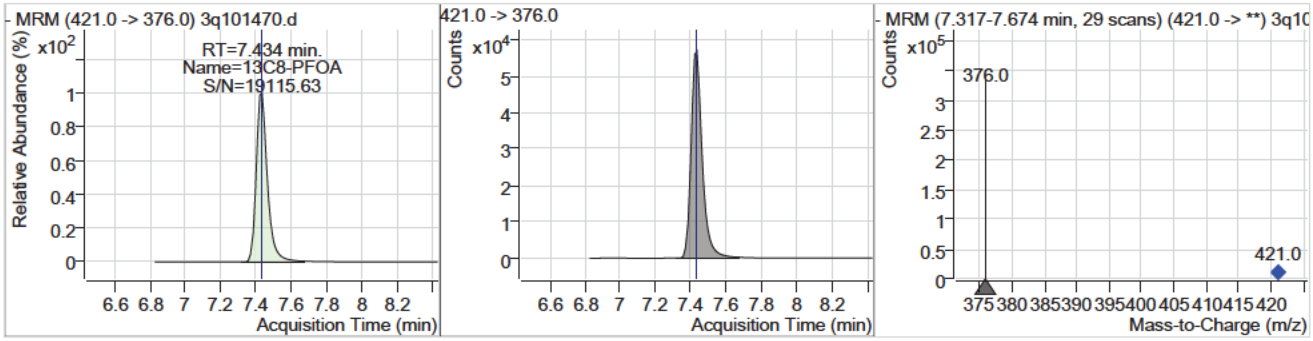
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	10.09	7.43	0.00	142366				



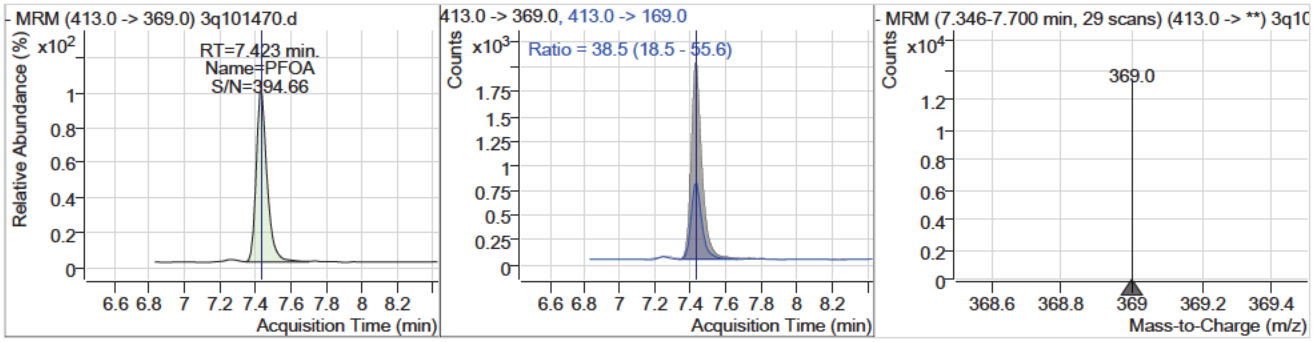
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.43	7.43	0.00	5224	427.0 -> 81.0	46.7	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.55	7.43	0.00	249764				

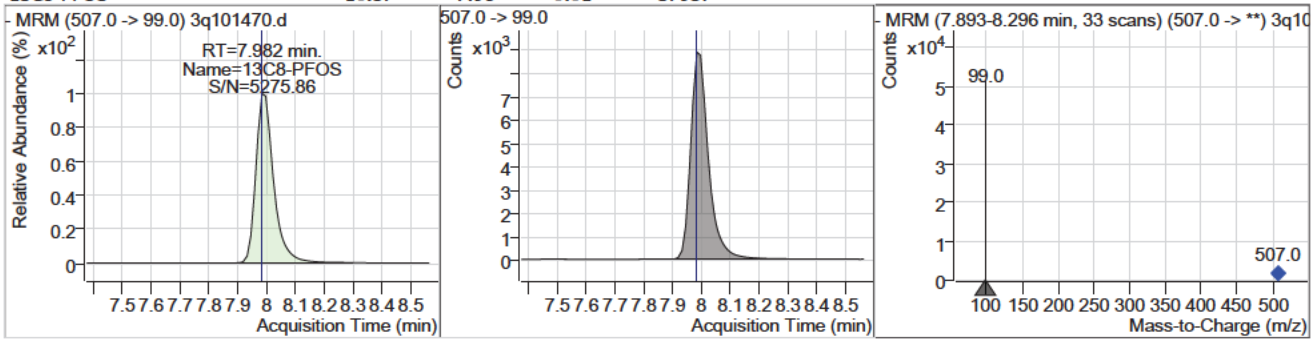


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.45	7.42	-0.01	8640	413.0 -> 169.0	38.5	18.5	55.6

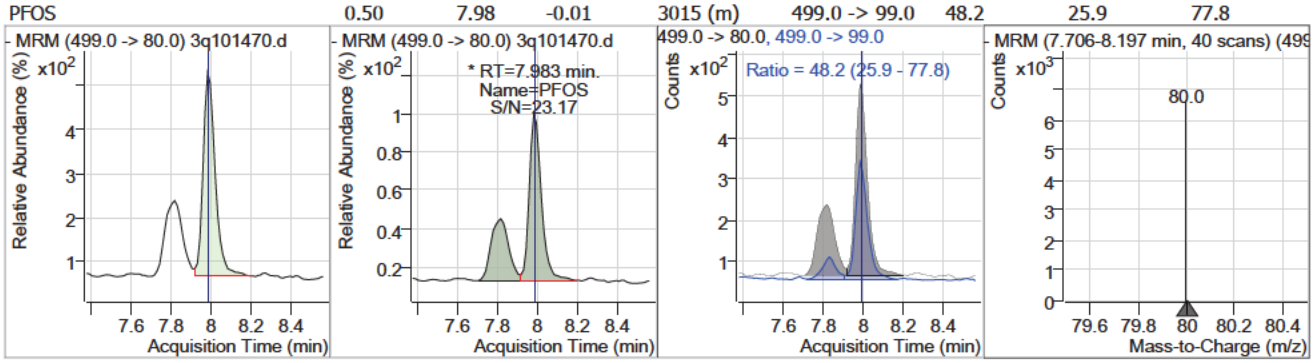


Perfluorinated Compounds by LC/MS/MS

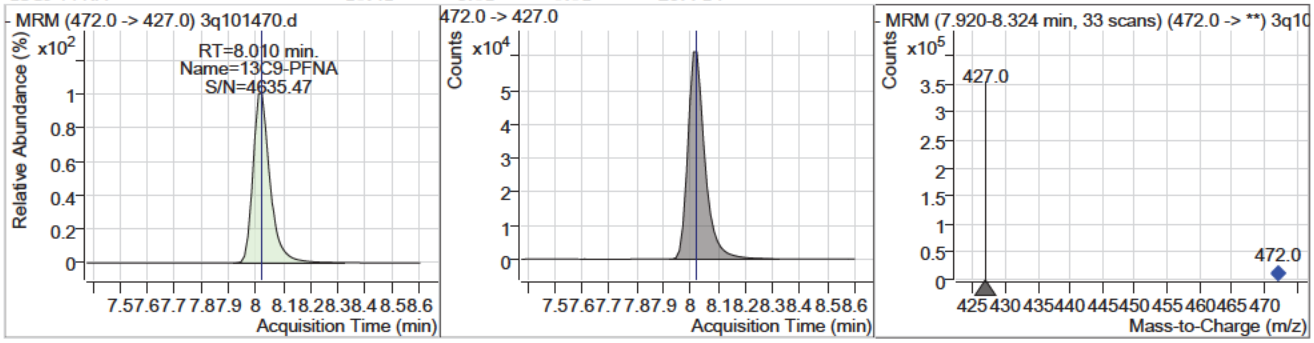
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.57	7.98	-0.01	37957				



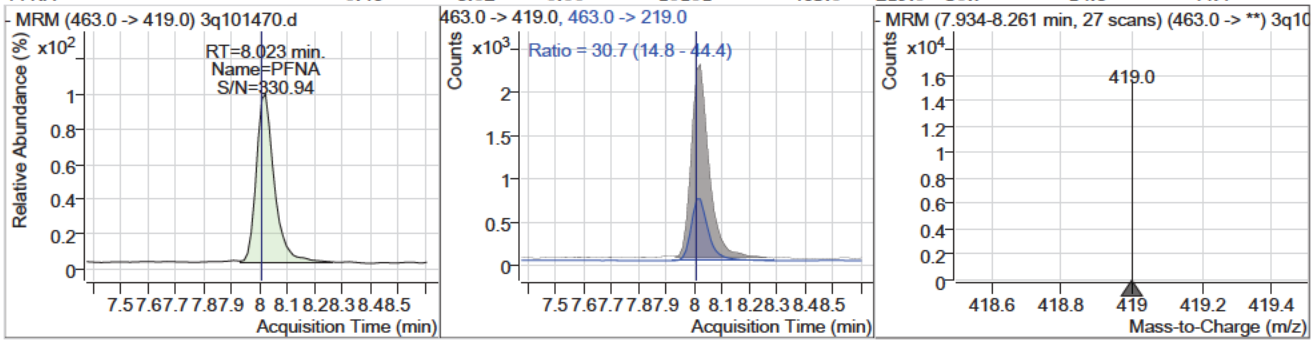
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.50	7.98	-0.01	3015 (m)	499.0 -> 99.0	48.2	25.9	77.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.41	8.01	-0.01	267714				

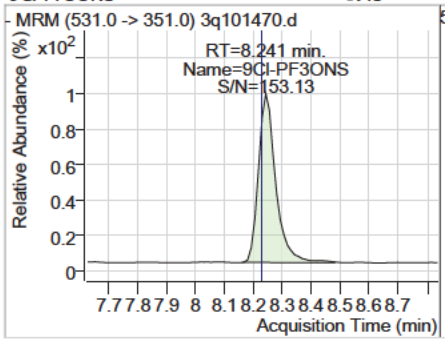


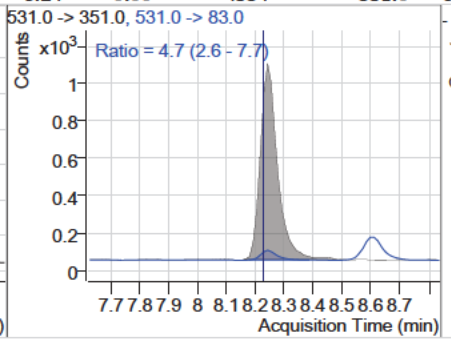
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.46	8.02	0.00	10101	463.0 -> 219.0	30.7	14.8	44.4

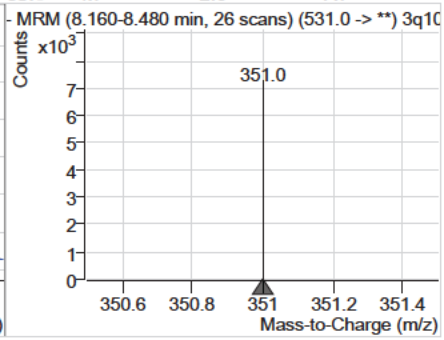


Perfluorinated Compounds by LC/MS/MS

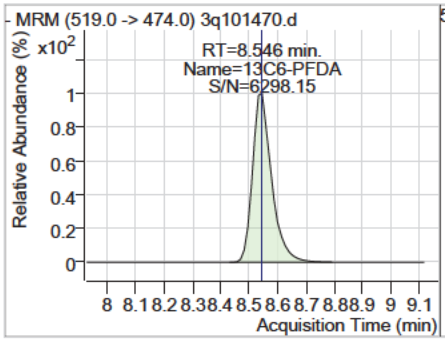
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.45	8.24	0.00	4354	531.0 -> 83.0	4.7	2.6	7.7

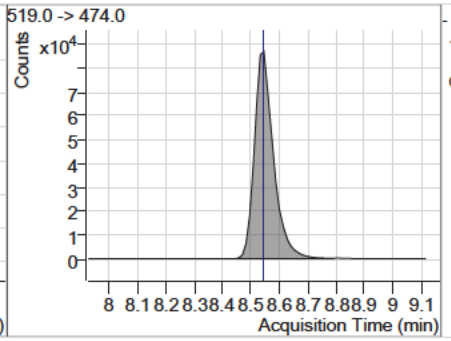


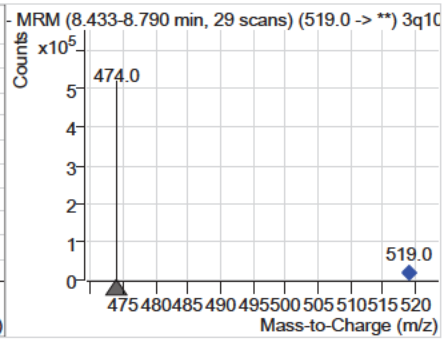




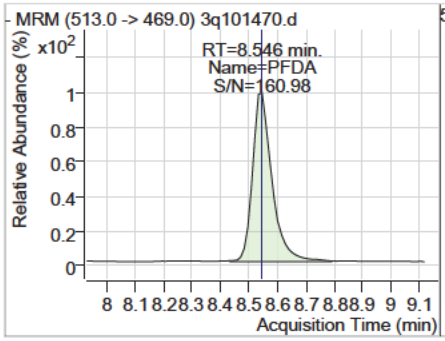
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	11.30	8.55	0.00	407127				

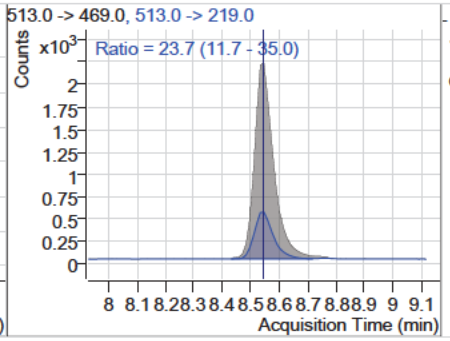


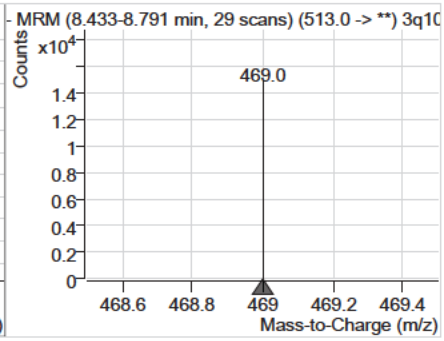




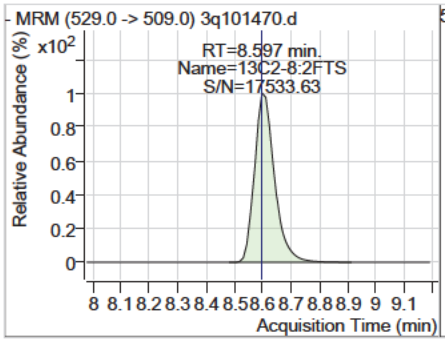
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.45	8.55	0.00	10462	513.0 -> 219.0	23.7	11.7	35.0

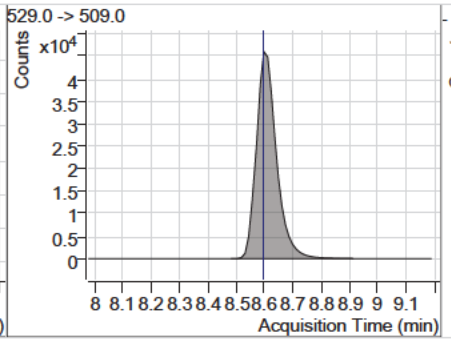


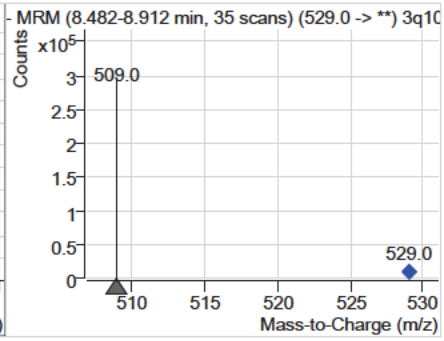




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	9.56	8.60	-0.01	226063				

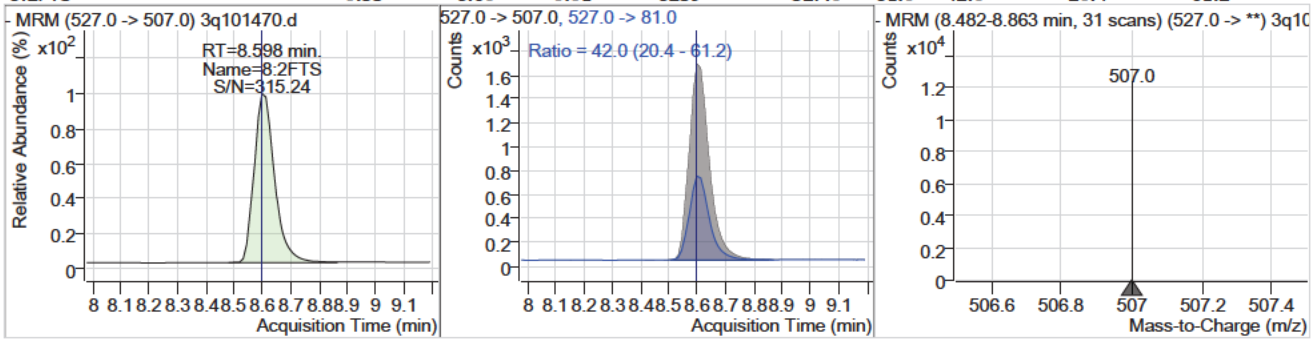




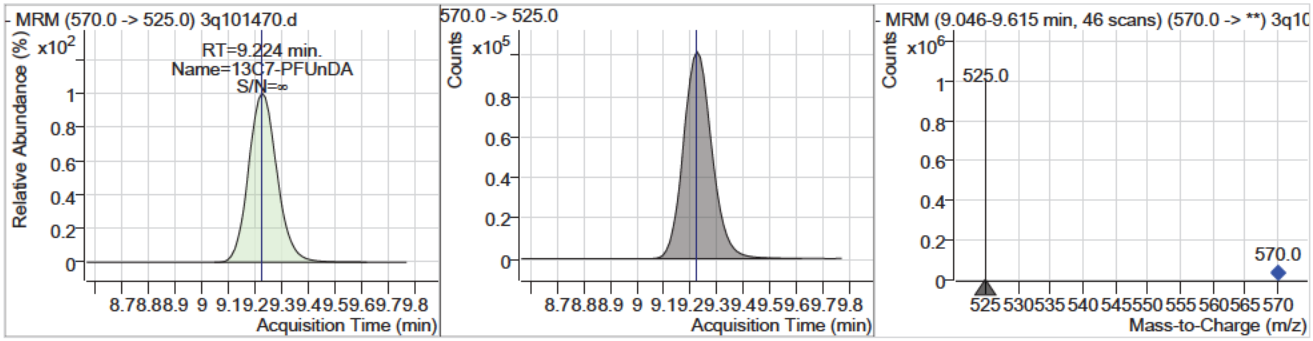


Perfluorinated Compounds by LC/MS/MS

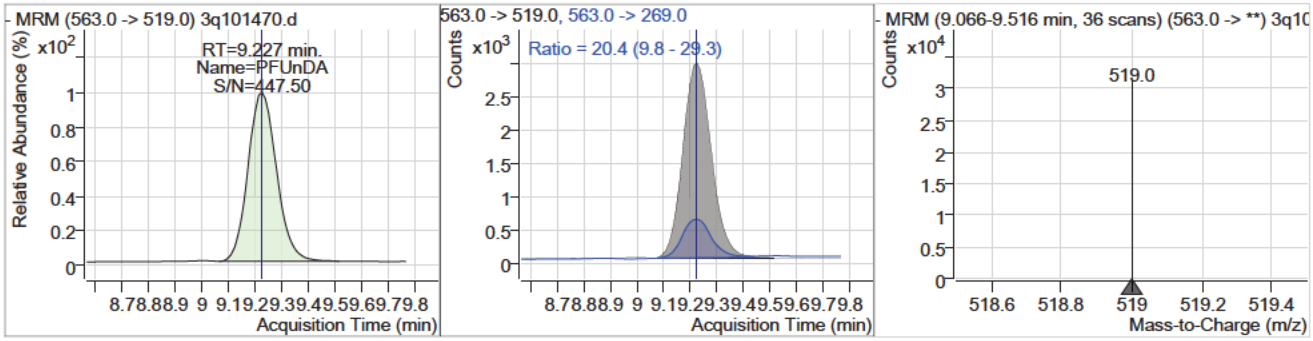
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.53	8.60	-0.01	8239	527.0 -> 81.0	42.0	20.4	61.2



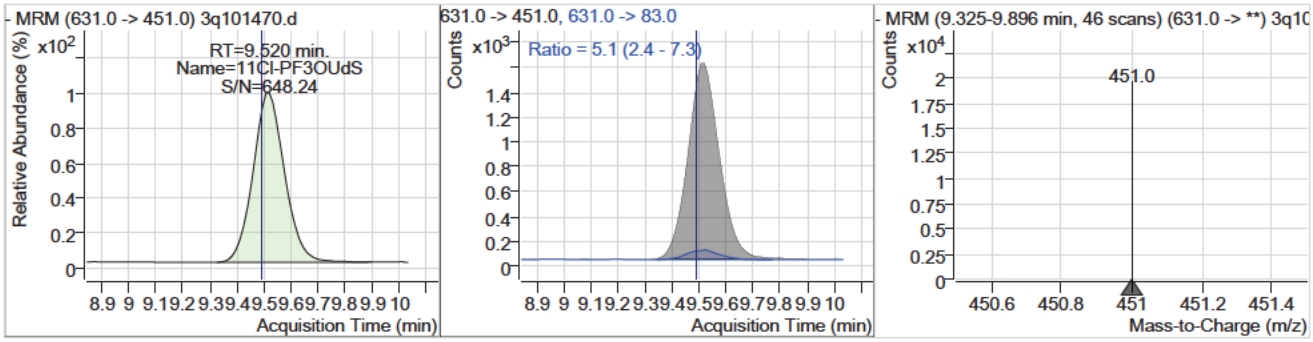
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	10.50	9.22	0.00	756108				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.45	9.23	0.00	21939	563.0 -> 269.0	20.4	9.8	29.3

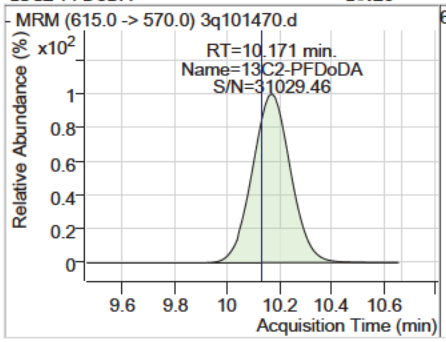


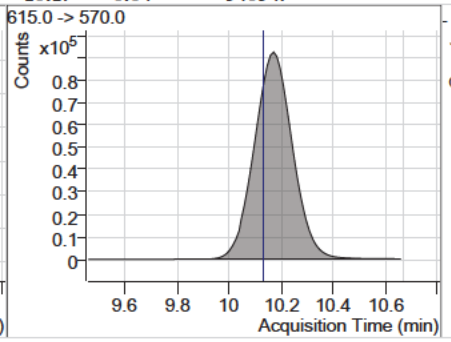
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.45	9.52	0.01	12809	631.0 -> 83.0	5.1	2.4	7.3

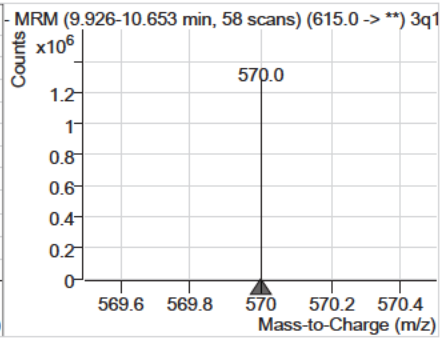


Perfluorinated Compounds by LC/MS/MS

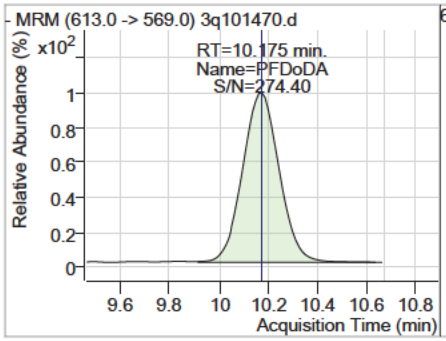
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.26	10.17	0.04	940947				

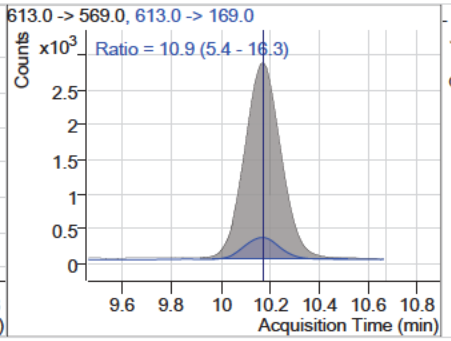


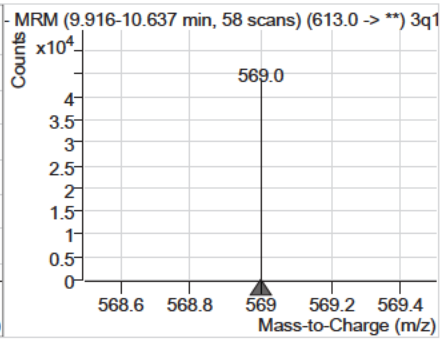




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.47	10.18	0.04	29141	613.0 -> 169.0	10.9	5.4	16.3







7.7.12

7

Manual Integration Approval Summary

Sample Number:	S3Q1492-CC1492	**Method:**	EPA 533
Lab FileID:	3Q101470.D	**Analyst approved:**	04/16/25 08:55 (b) (6) [redacted]
Injection Time:	04/15/25 17:16	**Supervisor approved:**	04/17/25 11:42 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.72	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:42

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101480.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 7:57:51 PM
Sample Name : ecc1492-20
Vial : P1-C7
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	209754	10.00 µg/L	-0.013
13C3-PFBA	2.332	216.0 -> 172.0	86322	10.00 µg/L	0.200
13C4-PFOS	7.969	503.0 -> 80.0	31838	10.00 µg/L	-0.026
M4-PFBA	2.327	217.0 -> 172.0	155120	10.00 µg/L	0.188
M5-PFPeA	4.400	268.0 -> 223.0	183190	10.00 µg/L	0.063
M5-PFHxA	5.763	318.0 -> 273.0	229035	10.00 µg/L	0.013
M4-PFHpA	6.694	367.0 -> 322.0	187873	10.00 µg/L	-0.013
M8-PFOA	7.422	421.0 -> 376.0	246556	10.00 µg/L	-0.013
M9-PFNA	7.997	472.0 -> 427.0	265878	10.00 µg/L	-0.026
M6-PFDA	8.520	519.0 -> 474.0	438171	10.00 µg/L	-0.025
M7-PFUnDA	9.172	570.0 -> 525.0	709885	10.00 µg/L	-0.052
M2-PFDoDA	10.071	615.0 -> 570.0	899708	10.00 µg/L	-0.063
M3-PFBS	4.696	302.0 -> 99.0	21200	10.00 µg/L	0.050
M3-PFHxS	6.724	402.0 -> 99.0	30128	10.00 µg/L	-0.013
M8-PFOS	7.968	507.0 -> 99.0	38664	10.00 µg/L	-0.026
M2-4:2FTS	5.659	329.0 -> 309.0	82162	10.00 µg/L	0.013
M2-6:2FTS	7.420	429.0 -> 409.0	155364	10.00 µg/L	-0.013
M2-8:2FTS	8.585	529.0 -> 509.0	252262	10.00 µg/L	-0.026
M3-HFPO-DA	6.056	287.0 -> 169.0	3185	10.00 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.659	329.0 -> 309.0	82162	10.84 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C2-6:2FTS	7.420	429.0 -> 409.0	155367	10.92 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C2-8:2FTS	8.585	529.0 -> 509.0	252262	10.58 µg/L	-0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.8%	
13C2-PFDoDA	10.071	615.0 -> 570.0	899708	10.07 µg/L	-0.063
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C3-PFBS	4.696	302.0 -> 99.0	21200	10.67 µg/L	0.050
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.7%	
13C3-PFHxS	6.724	402.0 -> 99.0	30128	10.65 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C4-PFBA	2.327	217.0 -> 172.0	155120	10.59 µg/L	0.188
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C4-PFHpA	6.694	367.0 -> 322.0	187873	10.58 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.8%	
13C5-PFHxA	5.763	318.0 -> 273.0	229035	10.78 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.8%	
13C5-PFPeA	4.400	268.0 -> 223.0	183190	10.38 µg/L	0.063
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C6-PFDA	8.520	519.0 -> 474.0	438171	12.49 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 124.9%	
13C7-PFUnDA	9.172	570.0 -> 525.0	709885	10.13 µg/L	-0.052
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C8-PFOA	7.422	421.0 -> 376.0	246556	10.70 µg/L	-0.013

Perfluorinated Compounds by LC/MS/MS

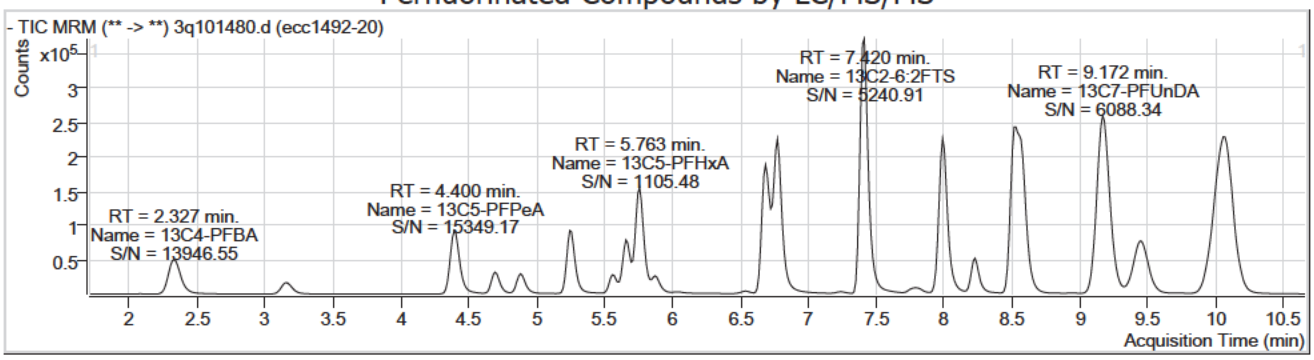
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.0%		
13C8-PFOS	7.968	507.0 -> 99.0	38664	10.68 µg/L		-0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.8%		
13C9-PFNA	7.997	472.0 -> 427.0	265878	10.62 µg/L		-0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.2%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	3185	10.43 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.3%		
Target Compounds						QValue
PFMPA	3.153	229.0 -> 85.0	99933	19.90 µg/L		100
4:2FTS	5.661	327.0 -> 307.0	178945	19.63 µg/L		100
		327.0 -> 81.0	76286			
6:2FTS	7.420	427.0 -> 407.0	237314	19.34 µg/L		100
		427.0 -> 81.0	104460			
8:2FTS	8.573	527.0 -> 507.0	381592	22.02 µg/L		100
		527.0 -> 81.0	156141			
PFMBA	4.888	279.0 -> 85.0	135057	19.99 µg/L		100
PFEESA	5.247	315.0 -> 135.0	383327	20.05 µg/L		100
		315.0 -> 69.0	29411			
NFDHA	5.569	201.0 -> 85.0	115081	20.09 µg/L		99
		295.0 -> 201.0	7638			
PFBA	2.336	213.0 -> 169.0	85879	20.02 µg/L		100
PFBS	4.697	299.0 -> 80.0	85110	19.86 µg/L		98
		299.0 -> 99.0	36653			
PFDA	8.521	513.0 -> 469.0	498143	20.10 µg/L		99
		513.0 -> 219.0	118171			
PFDoDA	10.062	613.0 -> 569.0	1208376	20.20 µg/L		99
		613.0 -> 169.0	129303			
PFHpA	6.695	363.0 -> 319.0	526505	19.97 µg/L		100
		363.0 -> 169.0	43789			
PFHpS	7.406	449.0 -> 80.0	114335	20.72 µg/L		99
		449.0 -> 99.0	62852			
PFHxA	5.765	313.0 -> 269.0	430115	19.93 µg/L		100
		313.0 -> 119.0	15138			
PFHxS	6.713	399.0 -> 80.0	106514	20.09 µg/L	m	99
		399.0 -> 99.0	55853			
PFNA	7.997	463.0 -> 419.0	438556	20.14 µg/L		99
		463.0 -> 219.0	131808			
PFOA	7.423	413.0 -> 369.0	379985	19.98 µg/L		99
		413.0 -> 169.0	139747			
PFOS	7.969	499.0 -> 80.0	124841	20.20 µg/L	m	99
		499.0 -> 99.0	63419			
PFPeA	4.402	263.0 -> 219.0	278476	20.15 µg/L		100
PFPeS	5.871	349.0 -> 80.0	61940	20.13 µg/L		99
		349.0 -> 99.0	26363			
PFUnDA	9.174	563.0 -> 519.0	920050	20.11 µg/L		100
		563.0 -> 269.0	180823			
11Cl-PF3OUdS	9.445	631.0 -> 451.0	567566	19.76 µg/L		100
		631.0 -> 83.0	27514			
9Cl-PF3ONS	8.229	531.0 -> 351.0	201756	20.26 µg/L		100
		531.0 -> 83.0	10304			
ADONA	6.778	377.0 -> 251.0	815053	20.03 µg/L		100
		377.0 -> 85.0	97064			
HFPO-DA	6.048	329.0 -> 169.0	1502	21.51 µg/L		86
		285.0 -> 169.0	3255			

= Qualifier out of range, m = manually integrated, + = Area summed

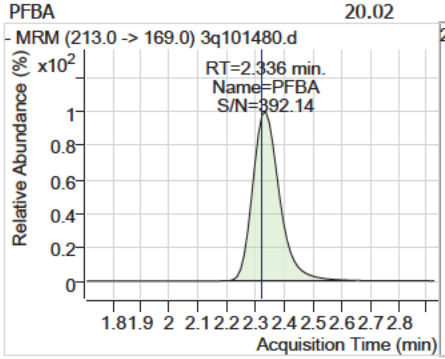
Perfluorinated Compounds by LC/MS/MS

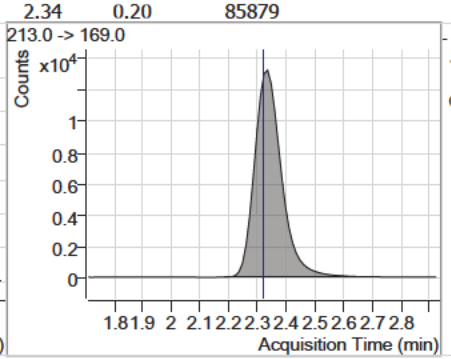
Compound	RT	Transition	Response	Conc. Units	Dev(Min)

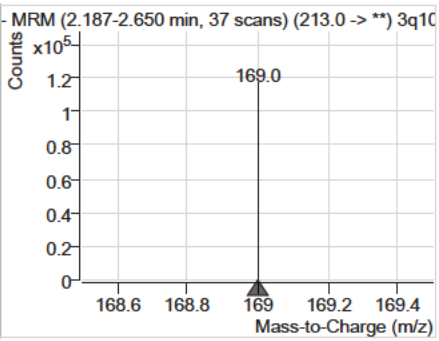
Perfluorinated Compounds by LC/MS/MS



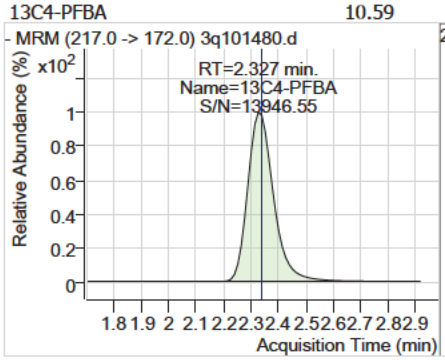
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	20.02	2.34	0.20	85879				

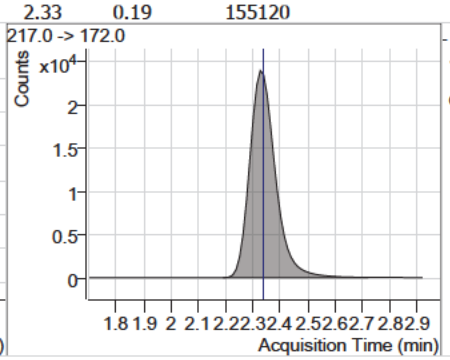


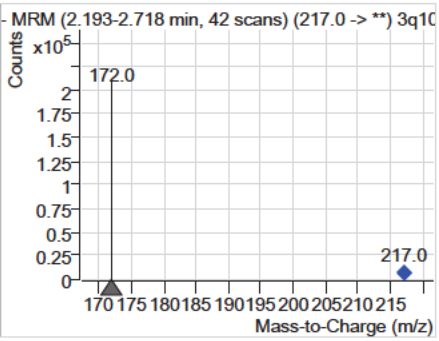




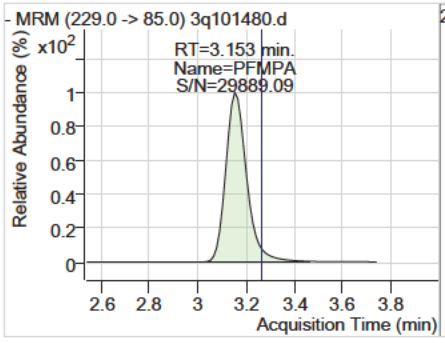
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.59	2.33	0.19	155120				

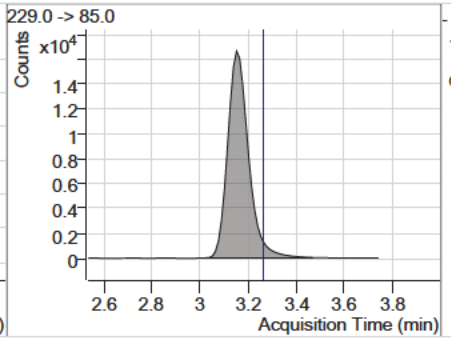


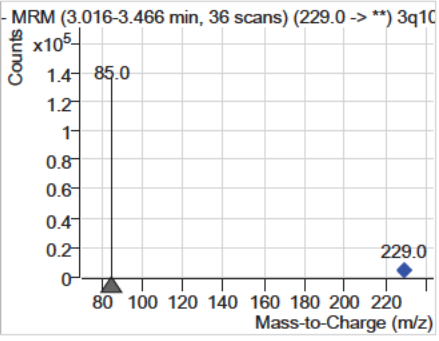




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	19.90	3.15	0.15	99933				

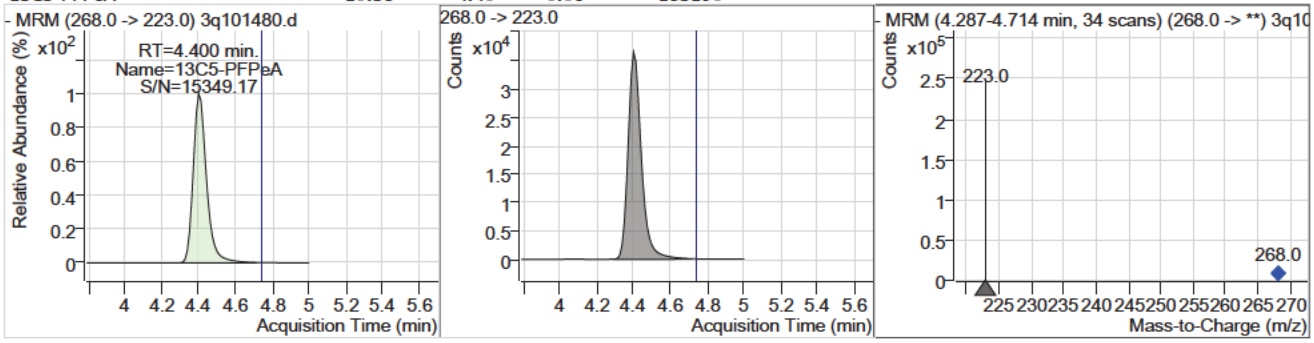




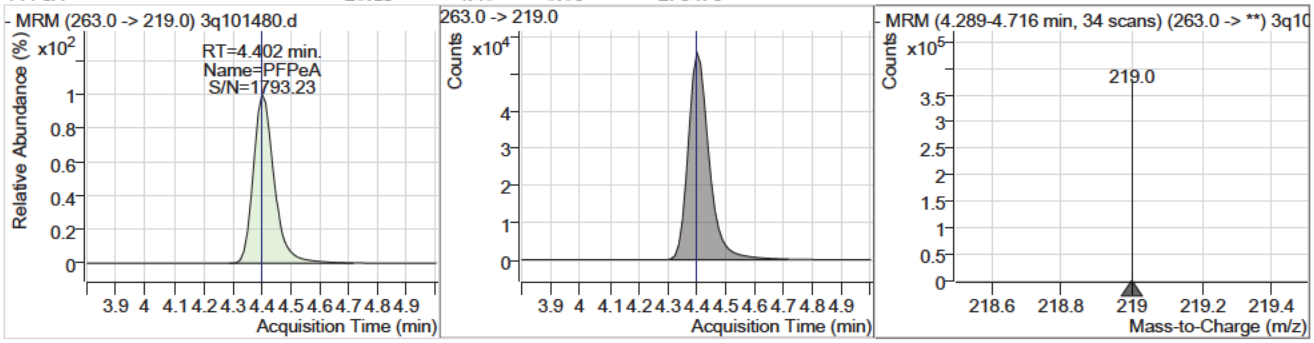


Perfluorinated Compounds by LC/MS/MS

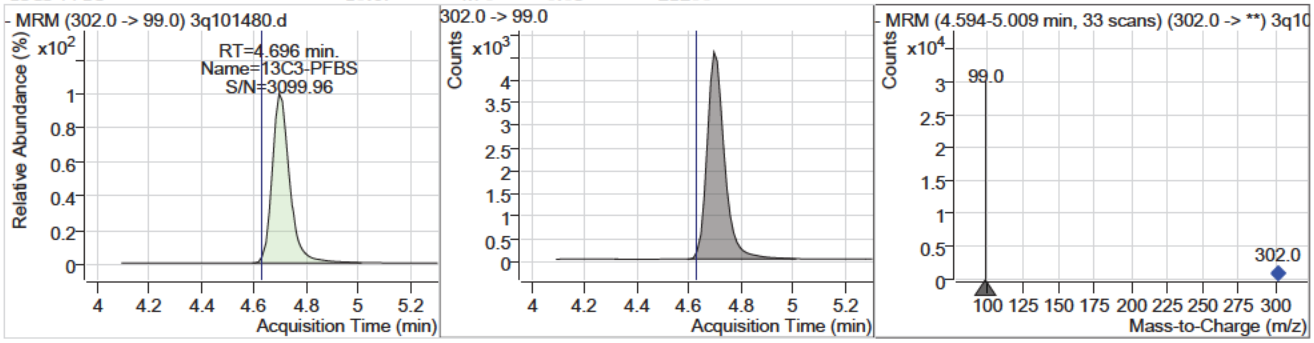
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.38	4.40	0.06	183190				



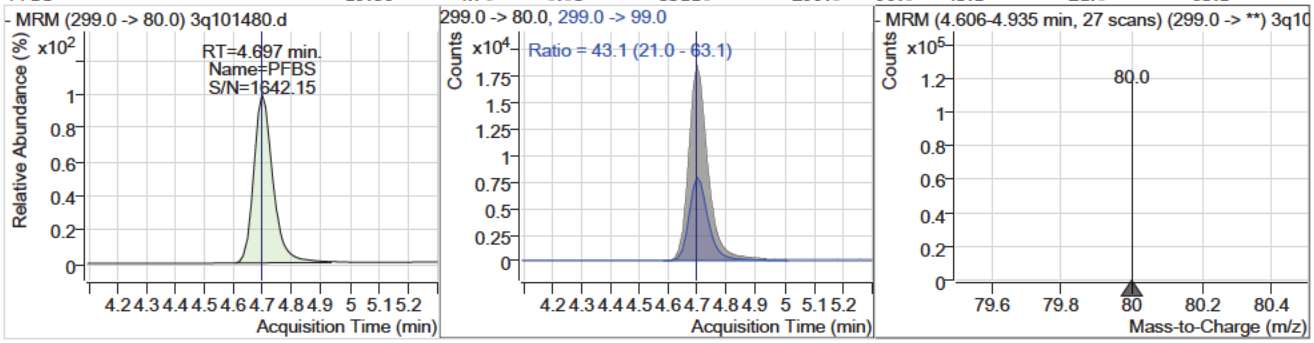
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.15	4.40	0.06	278476				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.67	4.70	0.05	21200				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.86	4.70	0.05	85110	299.0 -> 99.0	43.1	21.0	63.1



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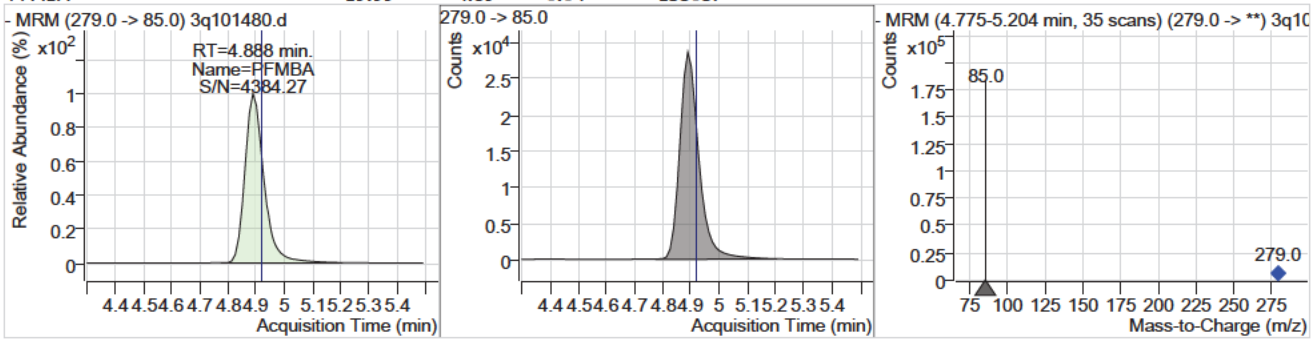
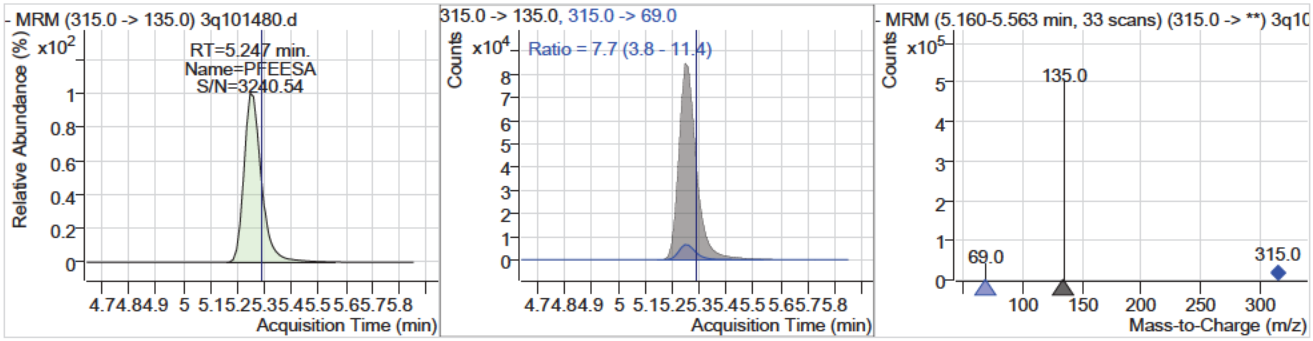
Perfluorinated Compounds by LC/MS/MS

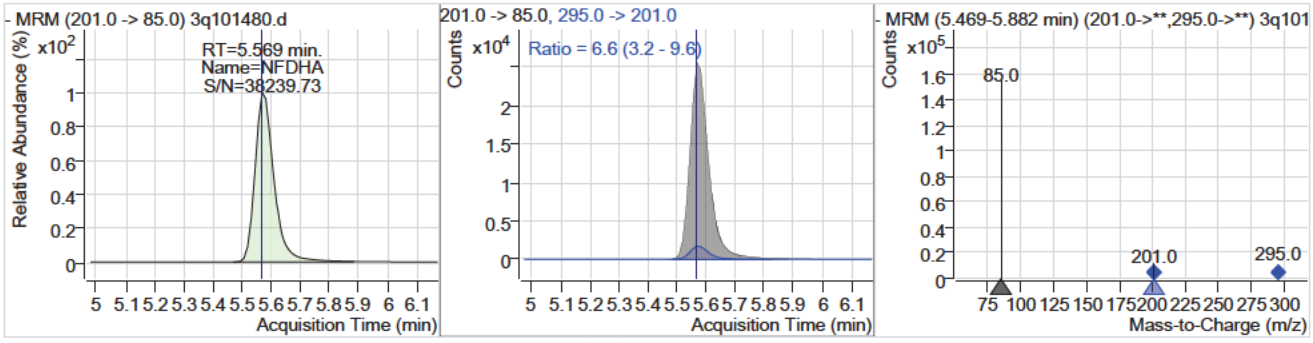
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	19.99	4.89	0.04	135057				



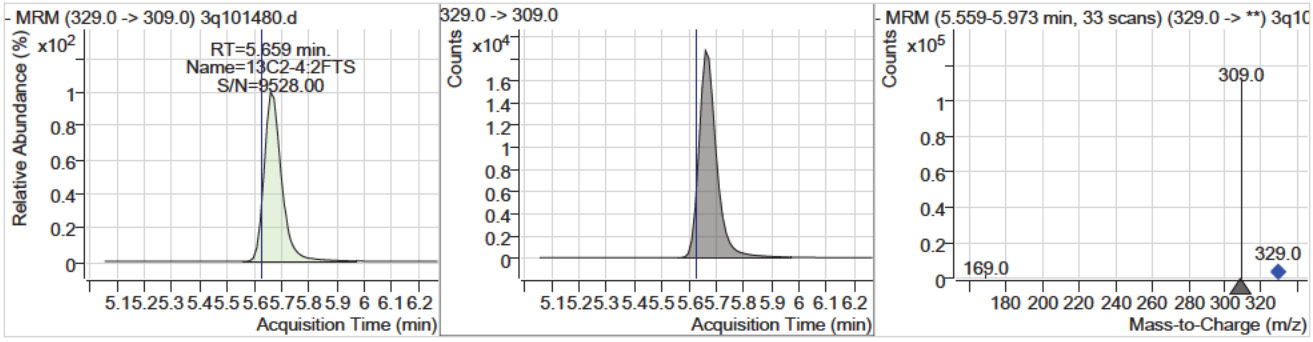
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	20.05	5.25	0.01	383327	315.0 -> 69.0	7.7	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	20.09	5.57	0.01	115081	295.0 -> 201.0	6.6	3.2	9.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	10.84	5.66	0.01	82162				



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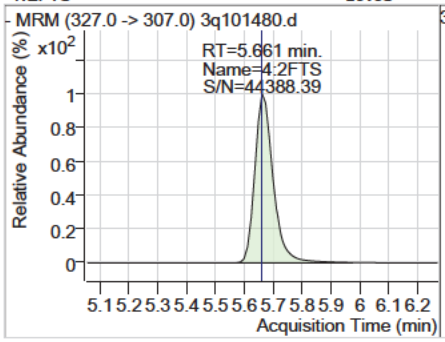
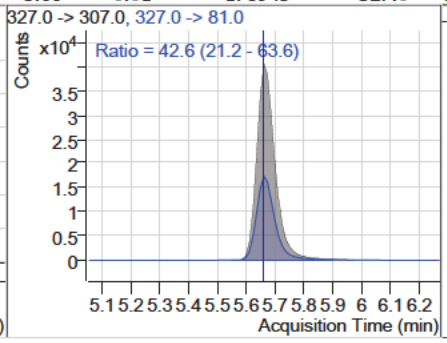
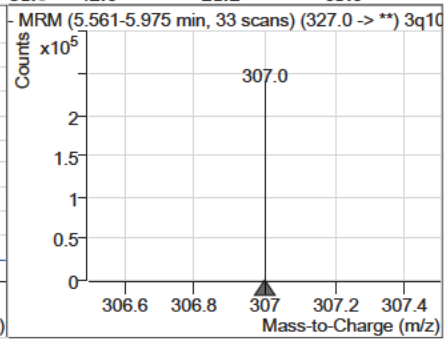
Perfluorinated Compounds by LC/MS/MS

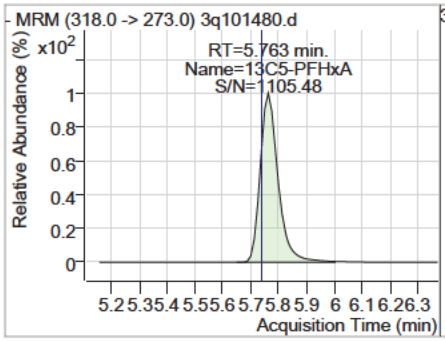
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.63	5.66	0.01	178945	327.0 -> 81.0	42.6	21.2	63.6

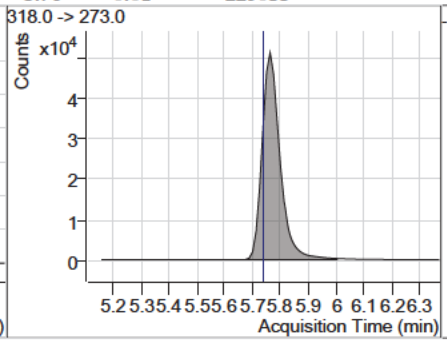


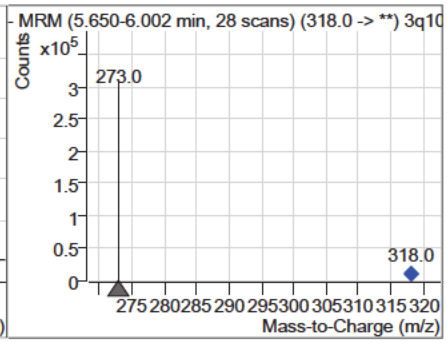




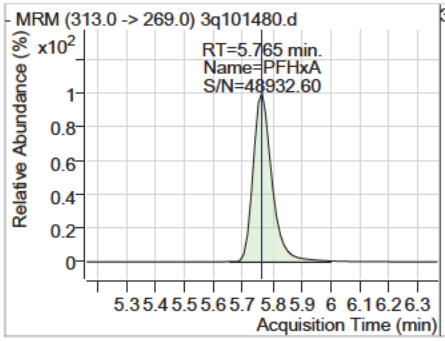
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.78	5.76	0.01	229035				

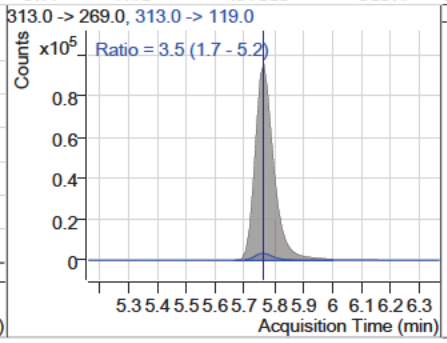


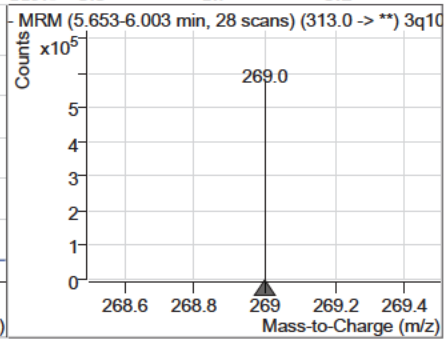




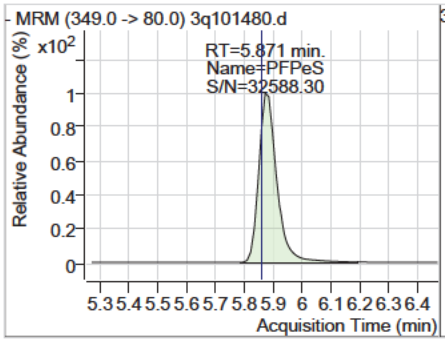
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.93	5.77	0.01	430115	313.0 -> 119.0	3.5	1.7	5.2

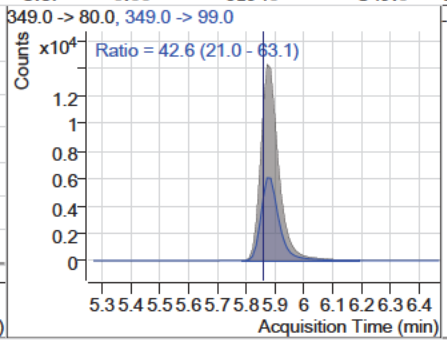


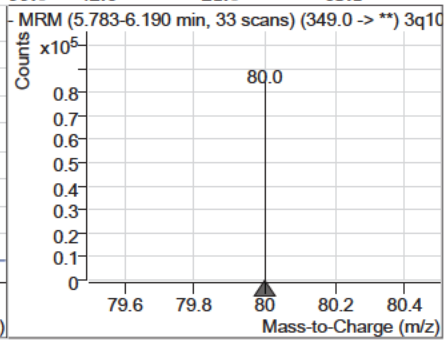




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	20.13	5.87	0.00	61940	349.0 -> 99.0	42.6	21.0	63.1







7.7.13

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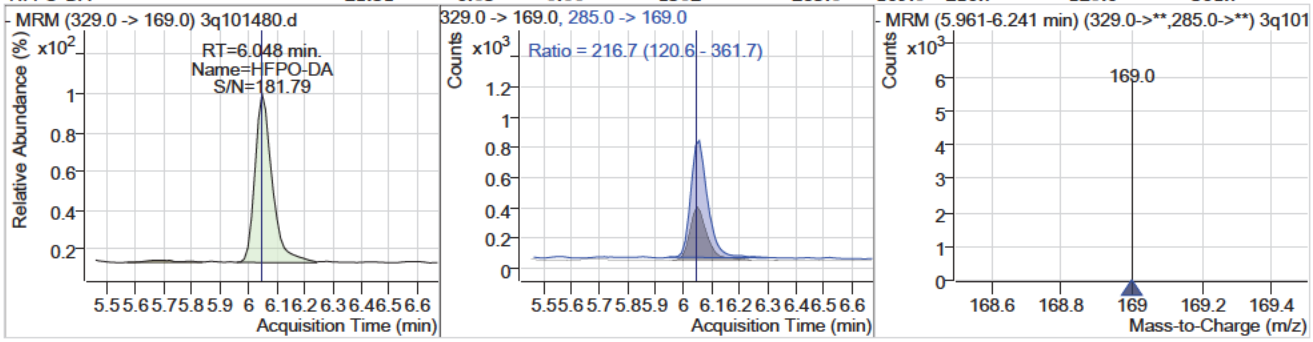
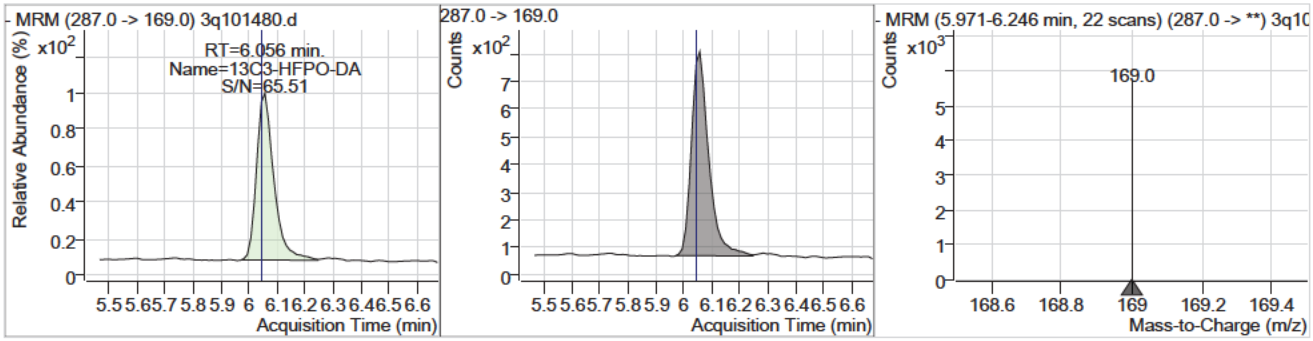
Perfluorinated Compounds by LC/MS/MS

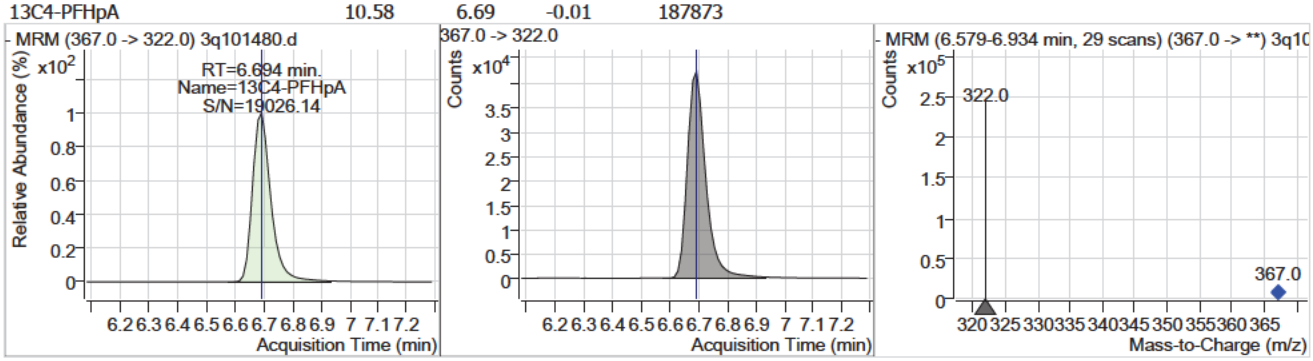
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	21.51	6.05	0.00	1502	285.0 -> 169.0	216.7	120.6	361.7



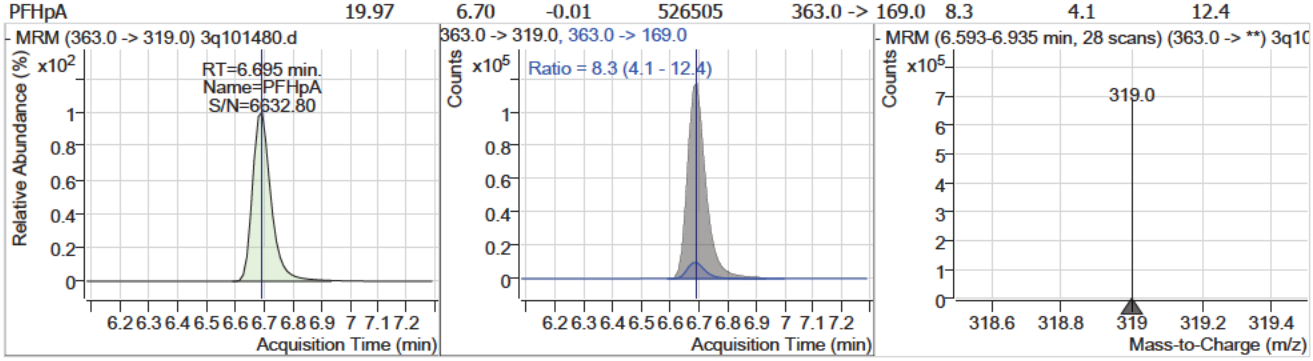
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.43	6.06	0.00	3185				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.58	6.69	-0.01	187873				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.97	6.70	-0.01	526505	363.0 -> 169.0	8.3	4.1	12.4



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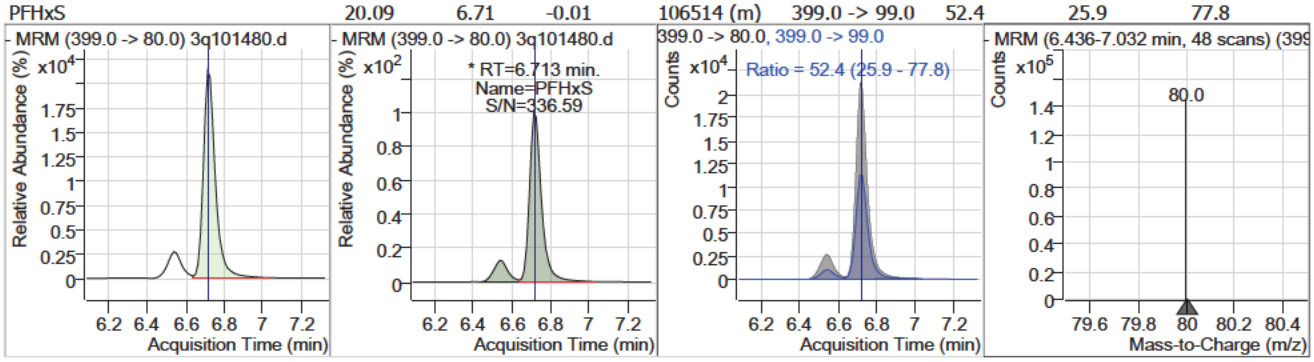
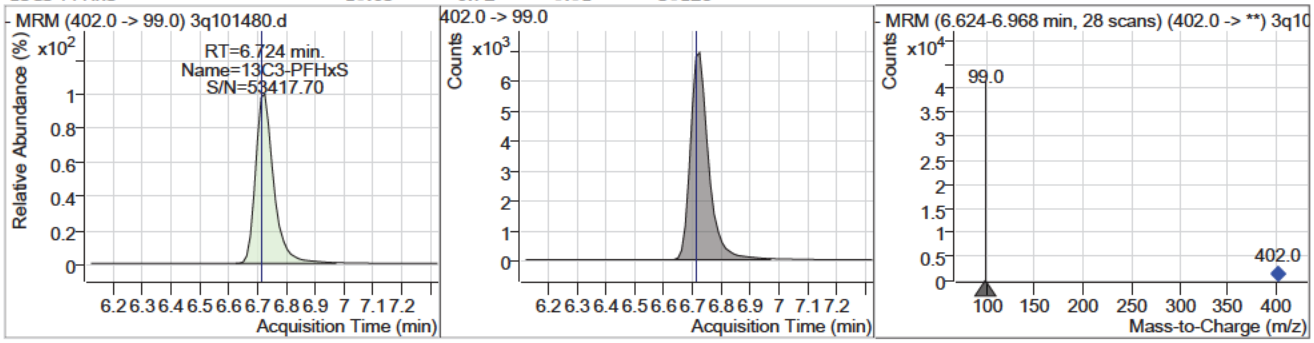
Perfluorinated Compounds by LC/MS/MS

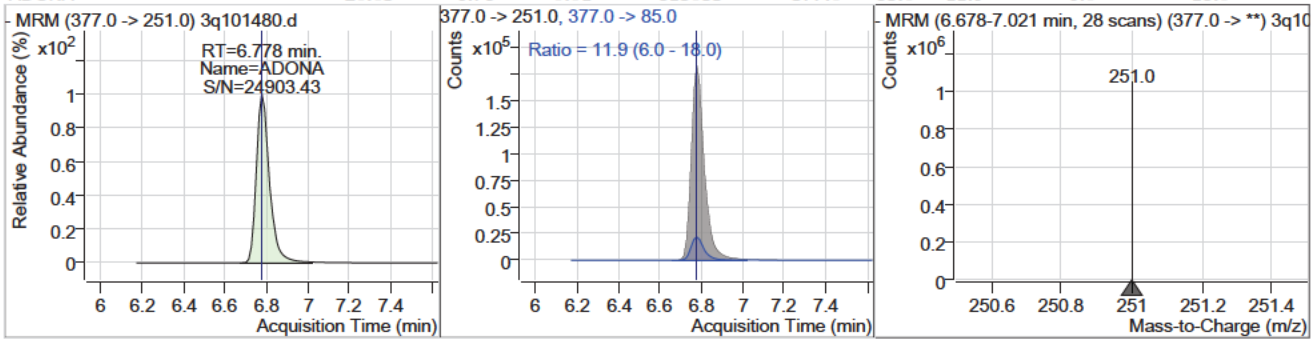
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	20.09	6.71	-0.01	106514 (m)	399.0 -> 99.0	52.4	25.9	77.8



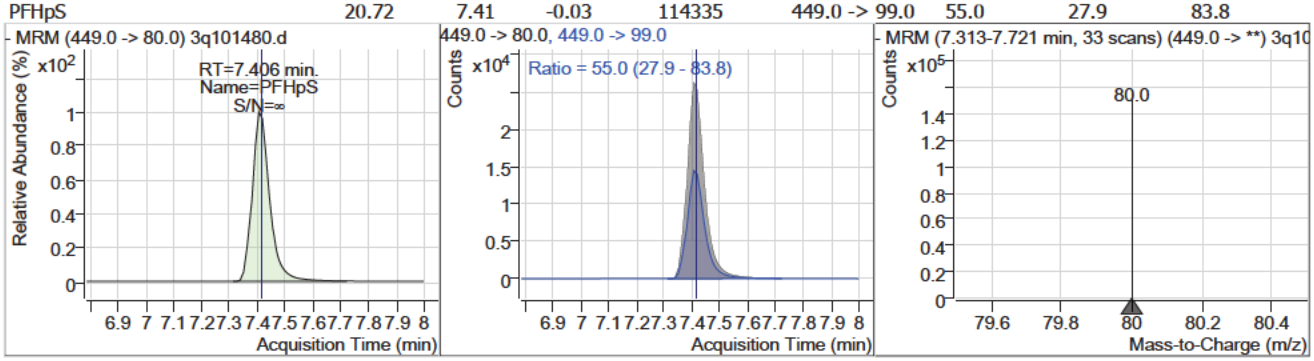
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.65	6.72	-0.01	30128				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.03	6.78	-0.01	815053	377.0 -> 85.0	11.9	6.0	18.0

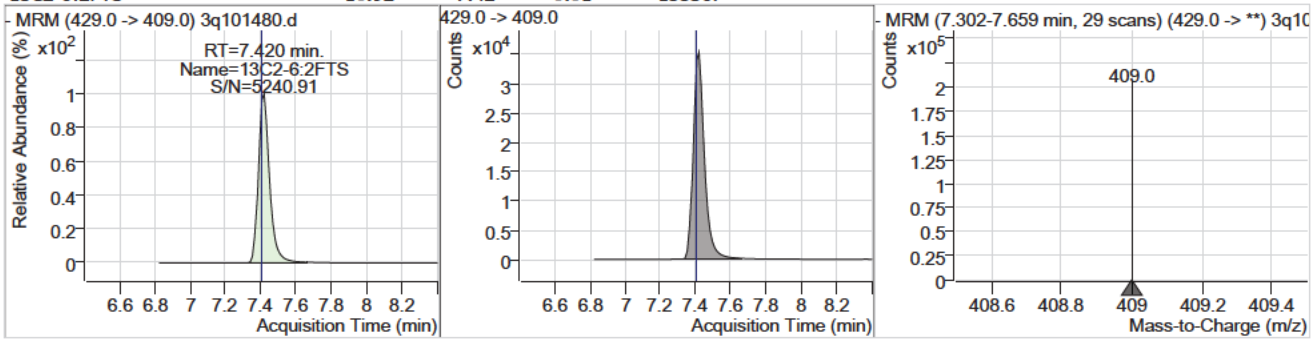


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	20.72	7.41	-0.03	114335	449.0 -> 99.0	55.0	27.9	83.8

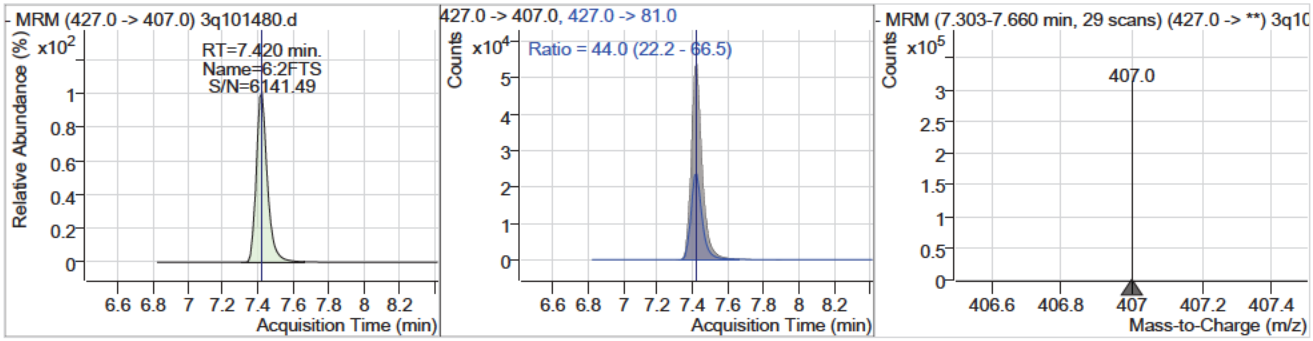


Perfluorinated Compounds by LC/MS/MS

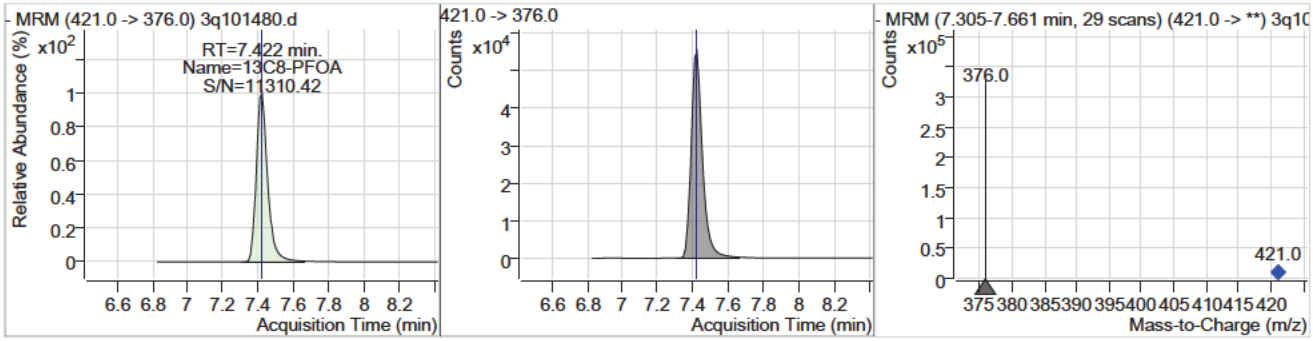
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	10.92	7.42	-0.01	155367				



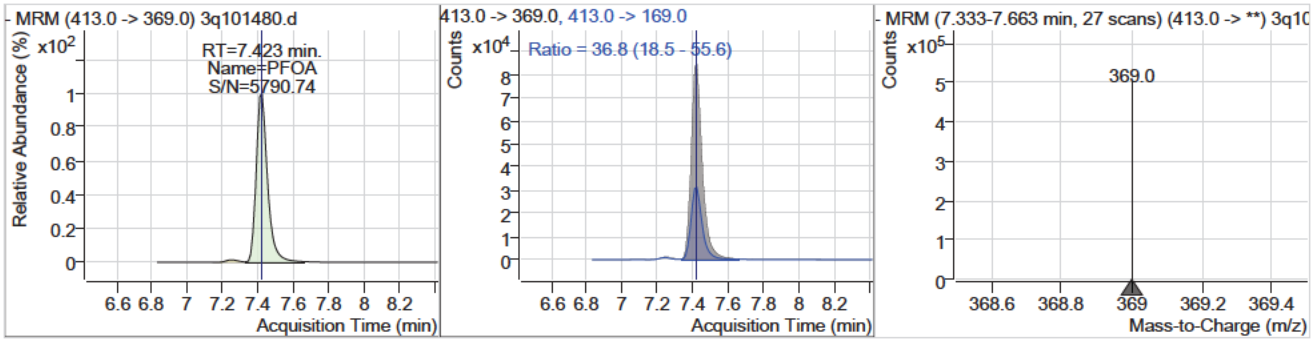
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.34	7.42	-0.01	237314	427.0 -> 81.0	44.0	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.70	7.42	-0.01	246556				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.98	7.42	-0.01	379985	413.0 -> 169.0	36.8	18.5	55.6



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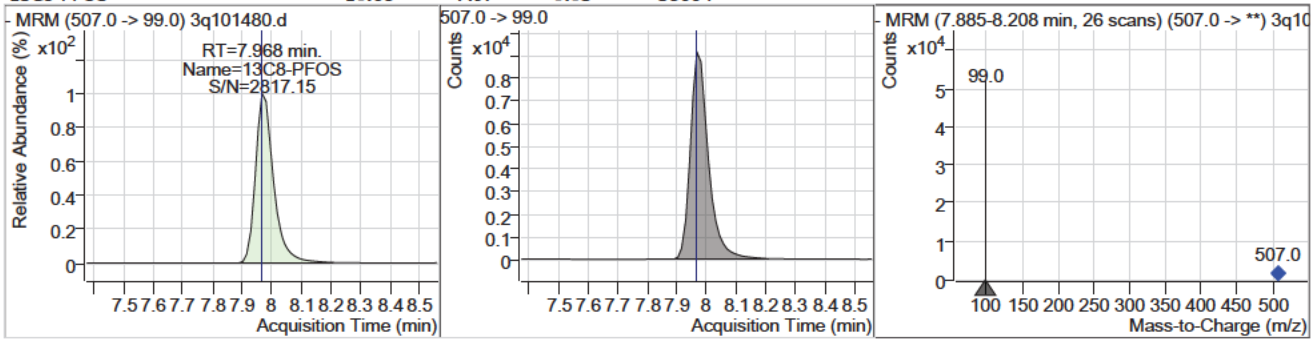
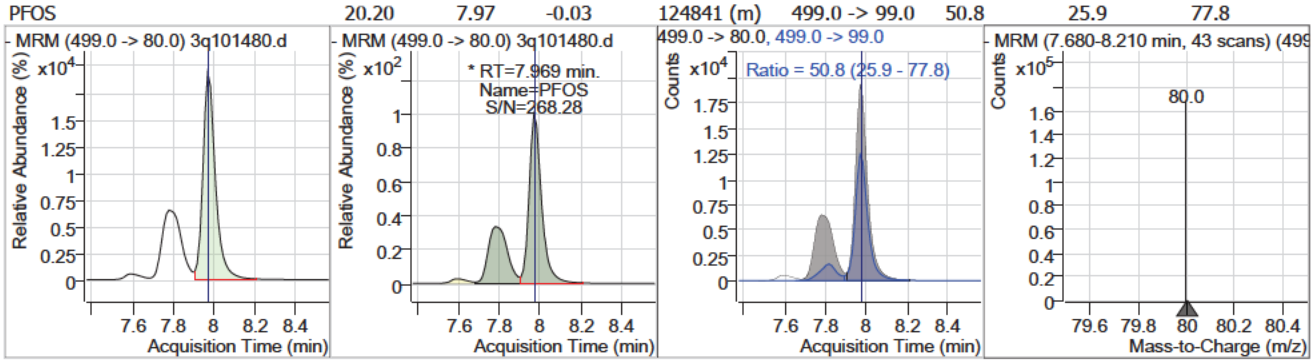
Perfluorinated Compounds by LC/MS/MS

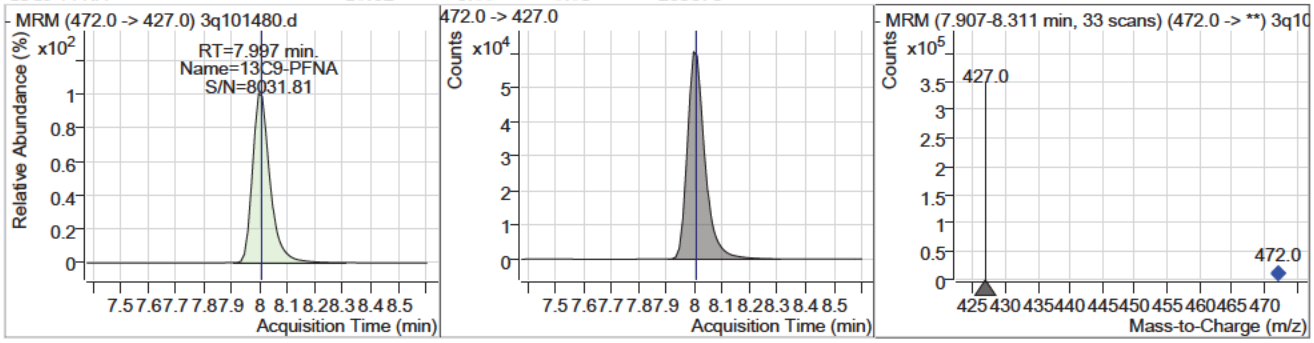
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.68	7.97	-0.03	38664				



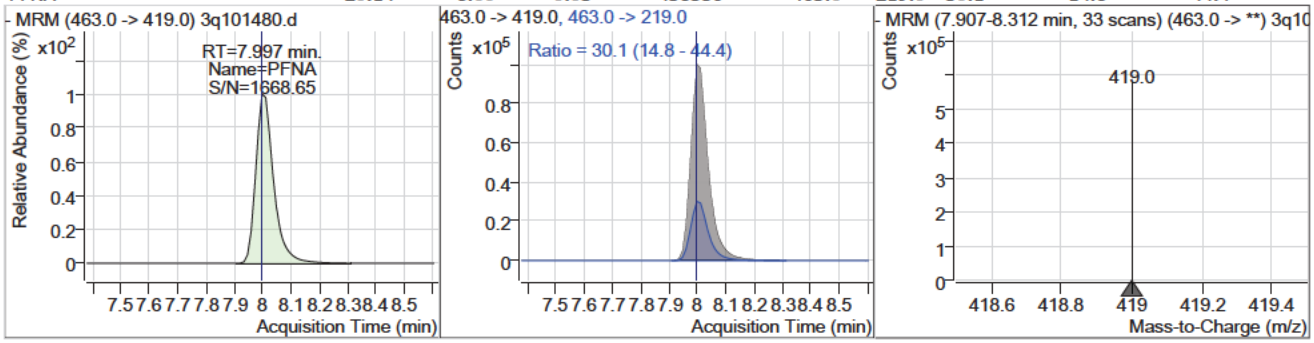
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	20.20	7.97	-0.03	124841 (m)	499.0 -> 99.0	50.8	25.9	77.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.62	8.00	-0.03	265878				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	20.14	8.00	-0.03	438556	463.0 -> 219.0	30.1	14.8	44.4



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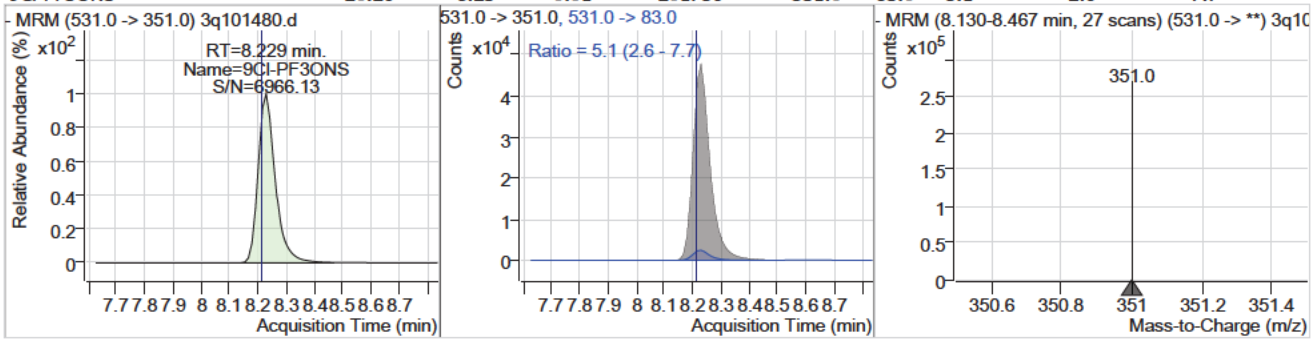
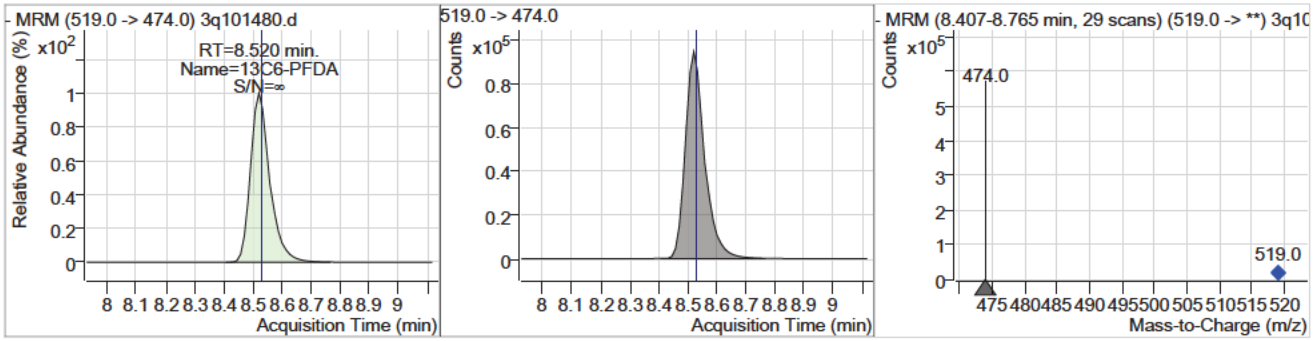
Perfluorinated Compounds by LC/MS/MS

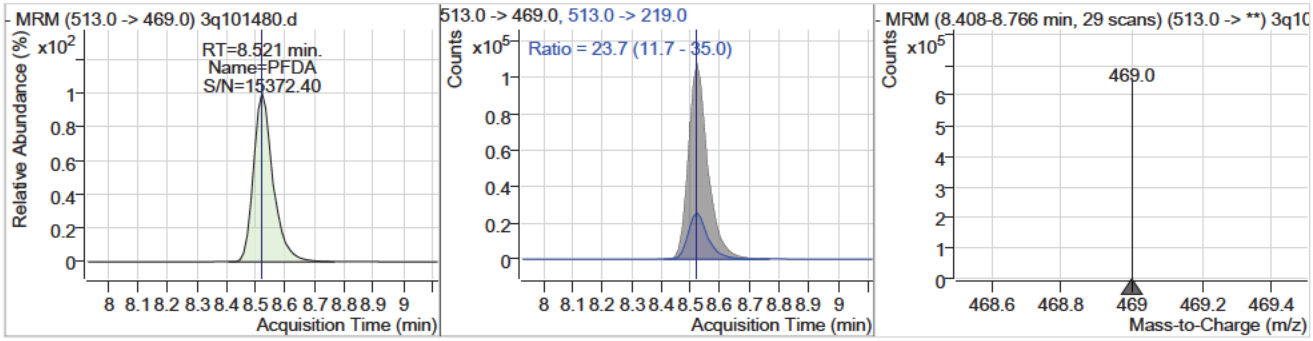
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	20.26	8.23	-0.01	201756	531.0 -> 83.0	5.1	2.6	7.7



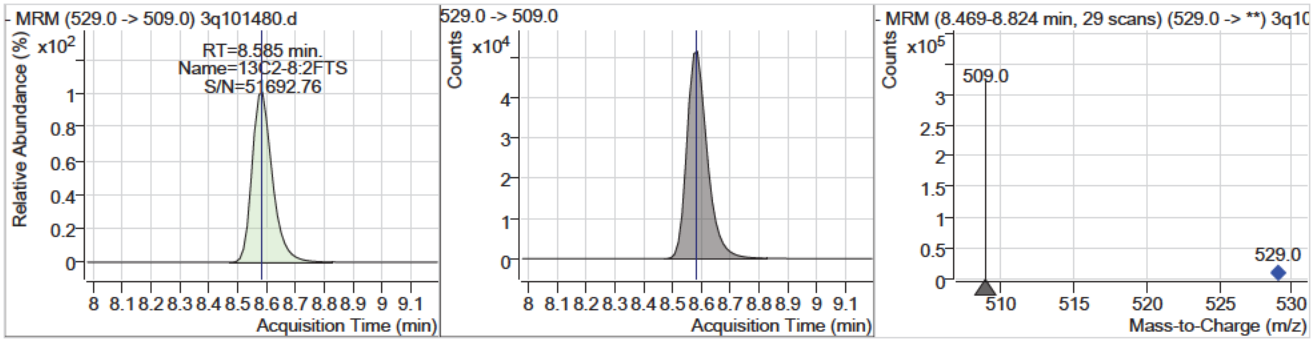
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	12.49	8.52	-0.03	438171				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.10	8.52	-0.03	498143	513.0 -> 219.0	23.7	11.7	35.0

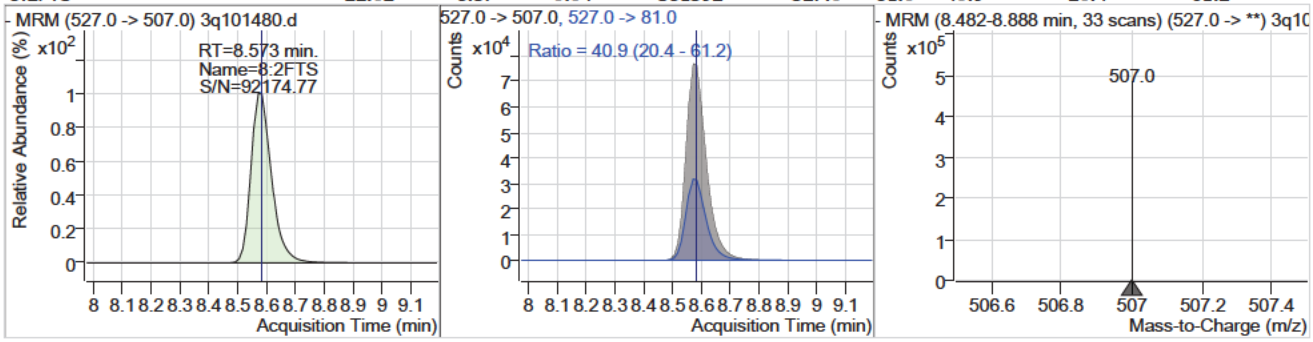


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	10.58	8.58	-0.03	252262				

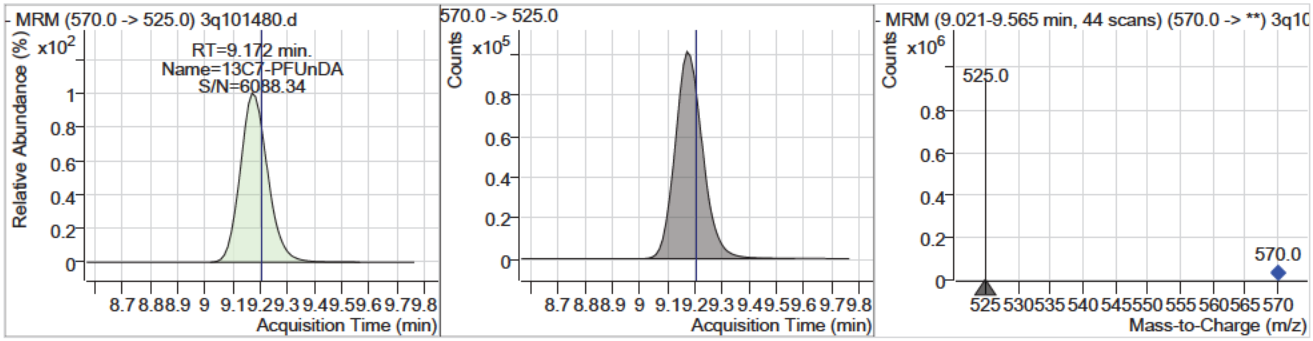


Perfluorinated Compounds by LC/MS/MS

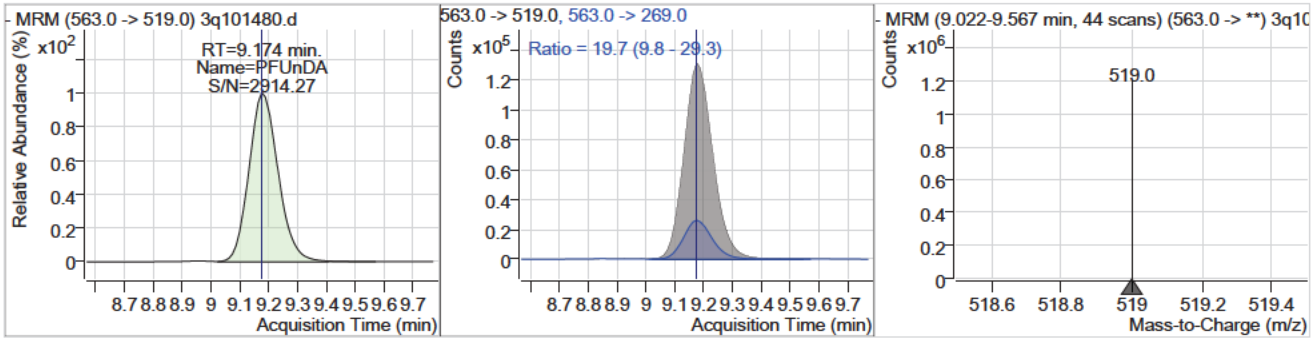
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	22.02	8.57	-0.04	381592	527.0 -> 81.0	40.9	20.4	61.2



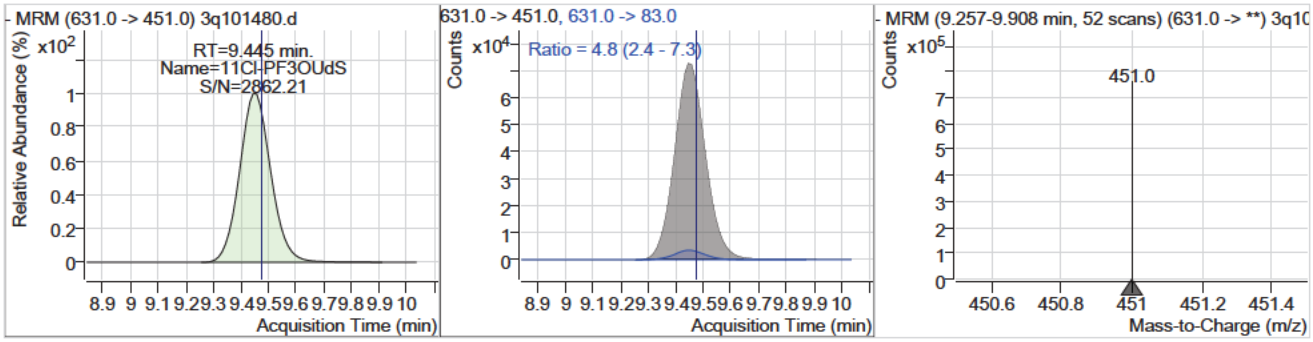
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	10.13	9.17	-0.05	709885				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	20.11	9.17	-0.05	920050	563.0 -> 269.0	19.7	9.8	29.3

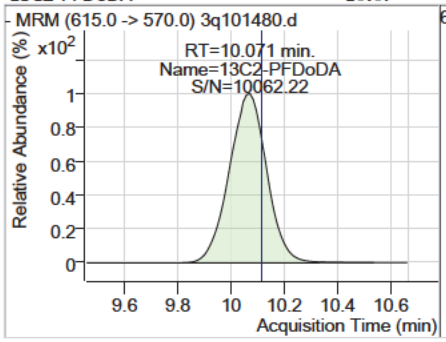


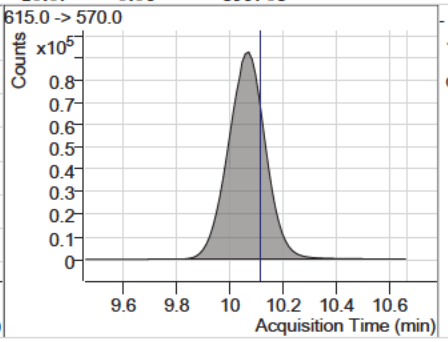
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	19.76	9.44	-0.06	567566	631.0 -> 83.0	4.8	2.4	7.3

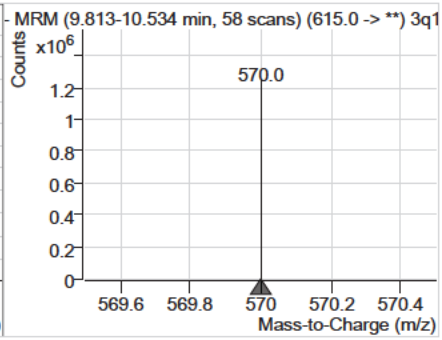


Perfluorinated Compounds by LC/MS/MS

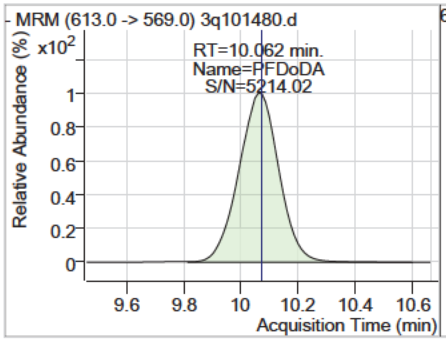
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.07	10.07	-0.06	899708				

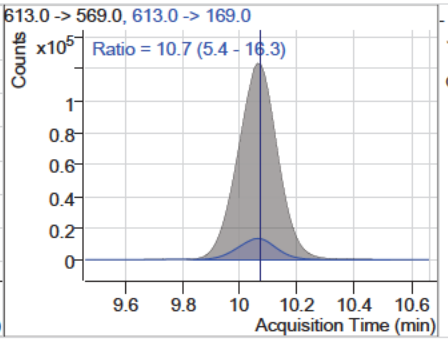


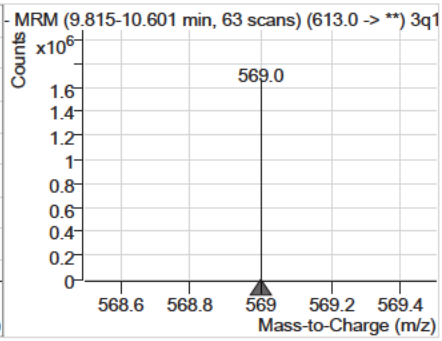




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	20.20	10.06	-0.08	1208376	613.0 -> 169.0	10.7	5.4	16.3







Manual Integration Approval Summary

Sample Number: S3Q1492-ECC1492
Lab FileID: 3Q101480.D
Injection Time: 04/15/25 19:57
Method: EPA 533
Analyst approved: 04/16/25 08:55 (b) (6) [redacted]
Supervisor approved: 04/17/25 11:42 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.71	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.97	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:46

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101490.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/16/2025 11:45:44 AM
Sample Name : cc1492-20
Vial : P1-C7
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1493.batch.bin
Sample Information : op8141,S3Q1493,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	275532	10.00 µg/L	0.000
13C3-PFBA	2.344	216.0 -> 172.0	108653	10.00 µg/L	0.000
13C4-PFOS	7.969	503.0 -> 80.0	40858	10.00 µg/L	0.000
M4-PFBA	2.340	217.0 -> 172.0	196147	10.00 µg/L	0.000
M5-PFPeA	4.413	268.0 -> 223.0	240765	10.00 µg/L	0.000
M5-PFHxA	5.776	318.0 -> 273.0	310258	10.00 µg/L	0.000
M4-PFHpA	6.694	367.0 -> 322.0	258970	10.00 µg/L	0.000
M8-PFOA	7.422	421.0 -> 376.0	340881	10.00 µg/L	0.000
M9-PFNA	7.997	472.0 -> 427.0	380666	10.00 µg/L	0.000
M6-PFDA	8.520	519.0 -> 474.0	535182	10.00 µg/L	0.000
M7-PFUnDA	9.185	570.0 -> 525.0	1028784	10.00 µg/L	0.000
M2-PFDoDA	10.083	615.0 -> 570.0	1344483	10.00 µg/L	0.000
M3-PFBS	4.708	302.0 -> 99.0	26818	10.00 µg/L	0.000
M3-PFHxS	6.724	402.0 -> 99.0	37838	10.00 µg/L	0.000
M8-PFOS	7.968	507.0 -> 99.0	49190	10.00 µg/L	0.000
M2-4:2FTS	5.672	329.0 -> 309.0	112740	10.00 µg/L	0.000
M2-6:2FTS	7.420	429.0 -> 409.0	210797	10.00 µg/L	0.000
M2-8:2FTS	8.585	529.0 -> 509.0	366995	10.00 µg/L	0.000
M3-HFPO-DA	6.056	287.0 -> 169.0	4110	10.00 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.672	329.0 -> 309.0	112740	11.59 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 115.9%	
13C2-6:2FTS	7.420	429.0 -> 409.0	210797	11.54 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 115.4%	
13C2-8:2FTS	8.585	529.0 -> 509.0	366995	11.99 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 119.9%	
13C2-PFDoDA	10.083	615.0 -> 570.0	1344483	11.46 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.6%	
13C3-PFBS	4.708	302.0 -> 99.0	26818	10.52 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C3-PFHxS	6.724	402.0 -> 99.0	37838	10.43 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C4-PFBA	2.340	217.0 -> 172.0	196147	10.64 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C4-PFHpA	6.694	367.0 -> 322.0	258970	11.11 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.1%	
13C5-PFHxA	5.776	318.0 -> 273.0	310258	11.12 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.2%	
13C5-PFPeA	4.413	268.0 -> 223.0	240765	10.84 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C6-PFDA	8.520	519.0 -> 474.0	535182	11.61 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 116.1%	
13C7-PFUnDA	9.185	570.0 -> 525.0	1028784	11.17 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.7%	
13C8-PFOA	7.422	421.0 -> 376.0	340881	11.26 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.6%		
13C8-PFOS	7.968	507.0 -> 99.0	49190	10.59 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.9%		
13C9-PFNA	7.997	472.0 -> 427.0	380666	11.57 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 115.7%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	4110	10.24 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.4%		
Target Compounds						**QValue**
PFMPA	3.166	229.0 -> 85.0	126863	19.98 µg/L		100
4:2FTS	5.674	327.0 -> 307.0	236609	18.84 µg/L		98
		327.0 -> 81.0	97815			
6:2FTS	7.420	427.0 -> 407.0	320912	19.27 µg/L		96
		427.0 -> 81.0	133823			
8:2FTS	8.586	527.0 -> 507.0	549532	21.79 µg/L		94
		527.0 -> 81.0	202387			
PFMBA	4.901	279.0 -> 85.0	173783	19.58 µg/L		100
PFEESA	5.260	315.0 -> 135.0	490921	20.30 µg/L		100
		315.0 -> 69.0	37059			
NFDHA	5.582	201.0 -> 85.0	147221	18.97 µg/L		99
		295.0 -> 201.0	9859			
PFBA	2.348	213.0 -> 169.0	107635	19.85 µg/L		100
PFBS	4.710	299.0 -> 80.0	109153	20.13 µg/L		99
		299.0 -> 99.0	46551			
PFDA	8.521	513.0 -> 469.0	601695	19.88 µg/L		96
		513.0 -> 219.0	129148			
PFDoDA	10.087	613.0 -> 569.0	1793623	20.06 µg/L		96
		613.0 -> 169.0	167400			
PFHpA	6.695	363.0 -> 319.0	687880	18.93 µg/L		100
		363.0 -> 169.0	56293			
PFHpS	7.418	449.0 -> 80.0	145216	20.96 µg/L		99
		449.0 -> 99.0	80388			
PFHxA	5.778	313.0 -> 269.0	545491	18.66 µg/L		100
		313.0 -> 119.0	18833			
PFHxS	6.725	399.0 -> 80.0	138154	20.74 µg/L	m	100
		399.0 -> 99.0	71485			
PFNA	7.997	463.0 -> 419.0	587841	18.85 µg/L		97
		463.0 -> 219.0	164594			
PFOA	7.423	413.0 -> 369.0	500192	19.03 µg/L		99
		413.0 -> 169.0	182331			
PFOS	7.969	499.0 -> 80.0	155748	19.80 µg/L	m	100
		499.0 -> 99.0	80395			
PFPeA	4.415	263.0 -> 219.0	359201	19.77 µg/L		100
PFPeS	5.883	349.0 -> 80.0	78961	20.43 µg/L		98
		349.0 -> 99.0	33993			
PFUnDA	9.187	563.0 -> 519.0	1342386	20.24 µg/L		96
		563.0 -> 269.0	235942			
11Cl-PF3OUdS	9.470	631.0 -> 451.0	763900	20.91 µg/L		99
		631.0 -> 83.0	35412			
9Cl-PF3ONS	8.229	531.0 -> 351.0	256600	20.25 µg/L		100
		531.0 -> 83.0	13510			
ADONA	6.778	377.0 -> 251.0	1045430	18.64 µg/L		100
		377.0 -> 85.0	126075			
HFPO-DA	6.061	329.0 -> 169.0	1724	18.76 µg/L		98
		285.0 -> 169.0	4104			

= Qualifier out of range, m = manually integrated, + = Area summed

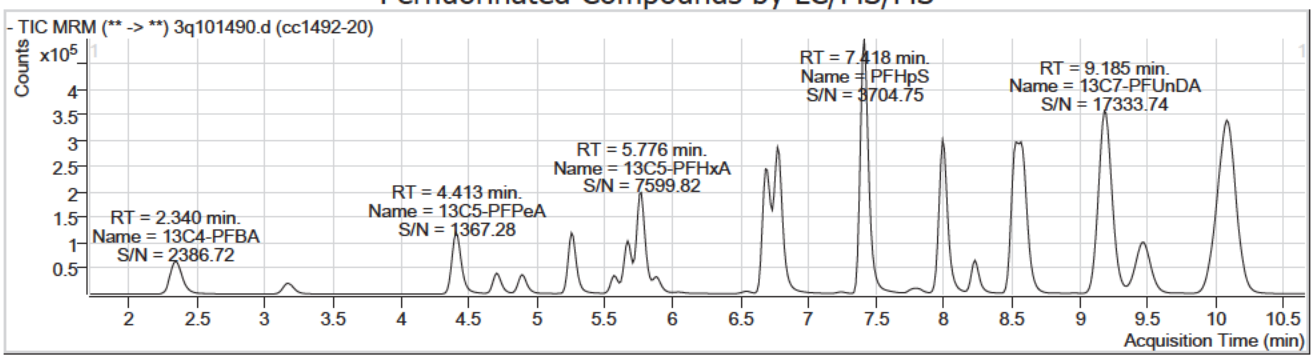
7.7.14

7

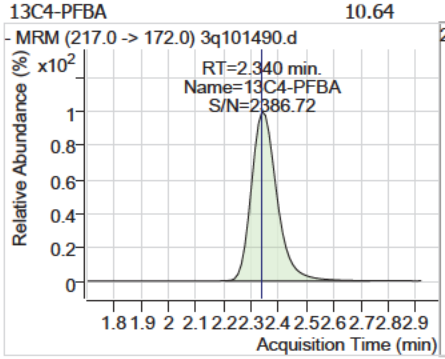
Perfluorinated Compounds by LC/MS/MS

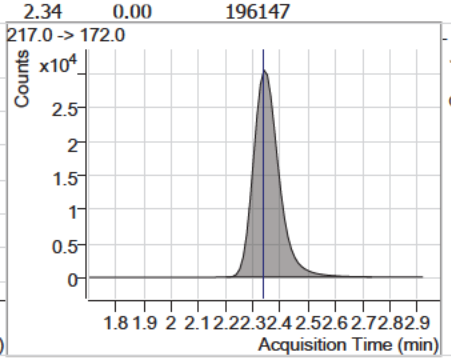
Compound	RT	Transition	Response	Conc. Units	Dev(Min)

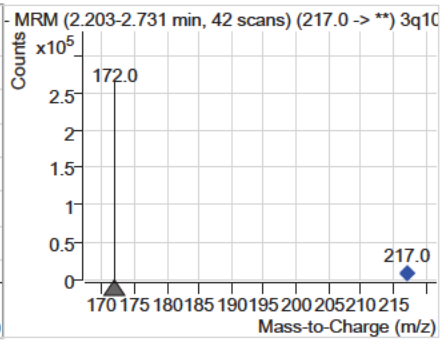
Perfluorinated Compounds by LC/MS/MS



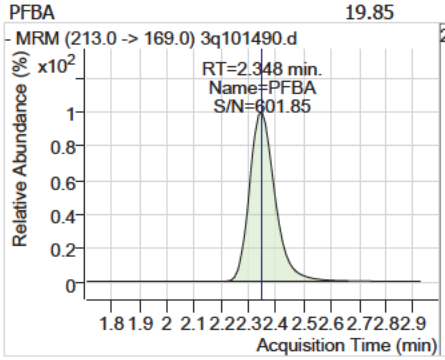
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.64	2.34	0.00	196147				

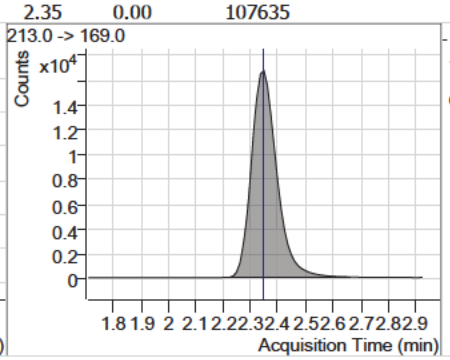


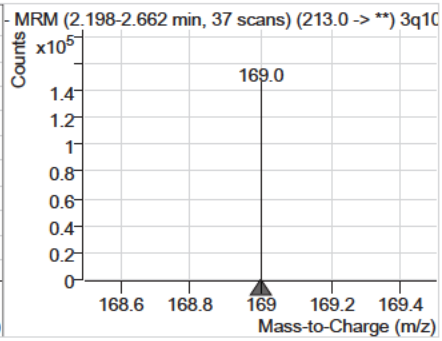




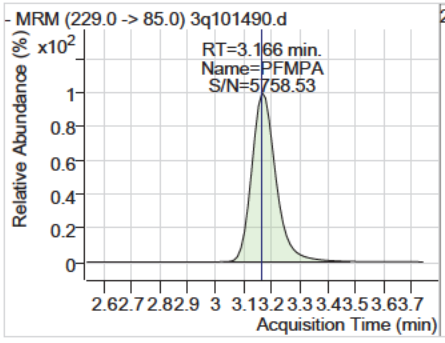
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.85	2.35	0.00	107635				

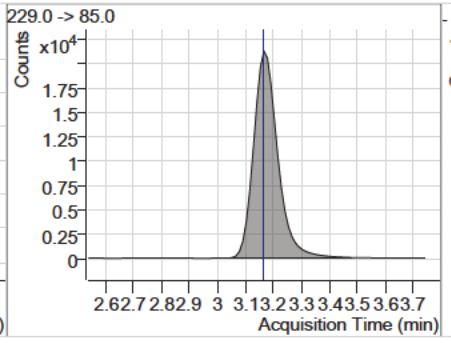


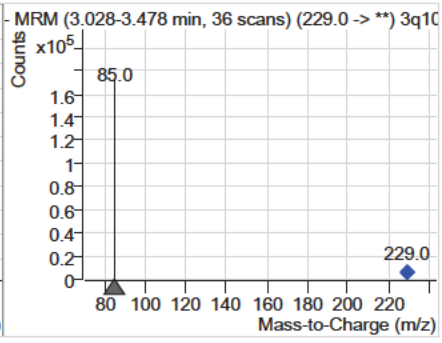




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	19.98	3.17	0.00	126863				

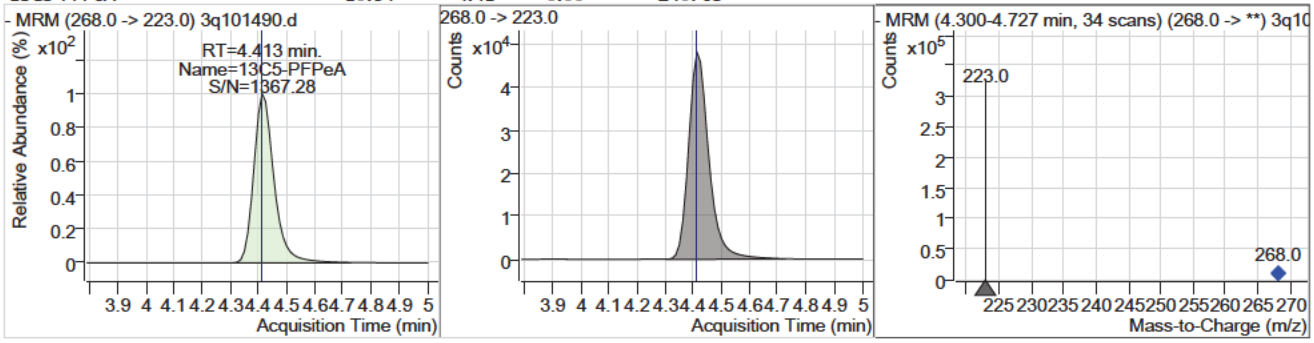




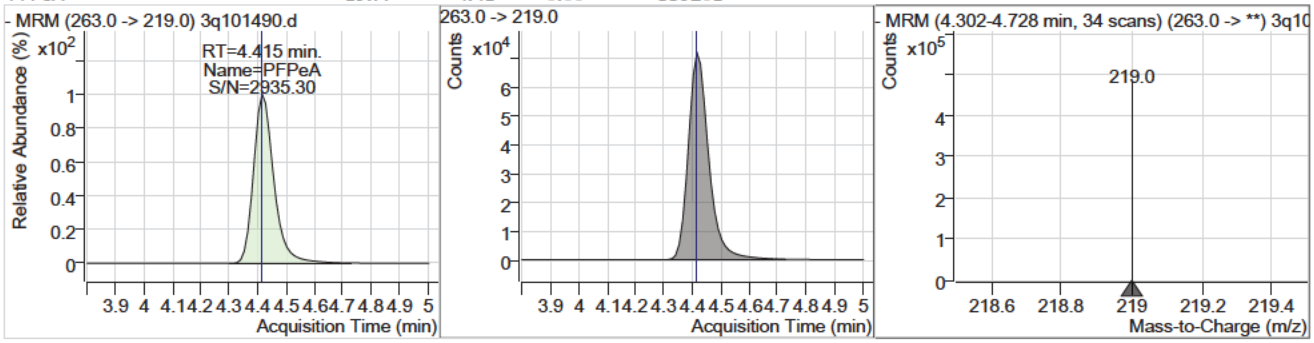


Perfluorinated Compounds by LC/MS/MS

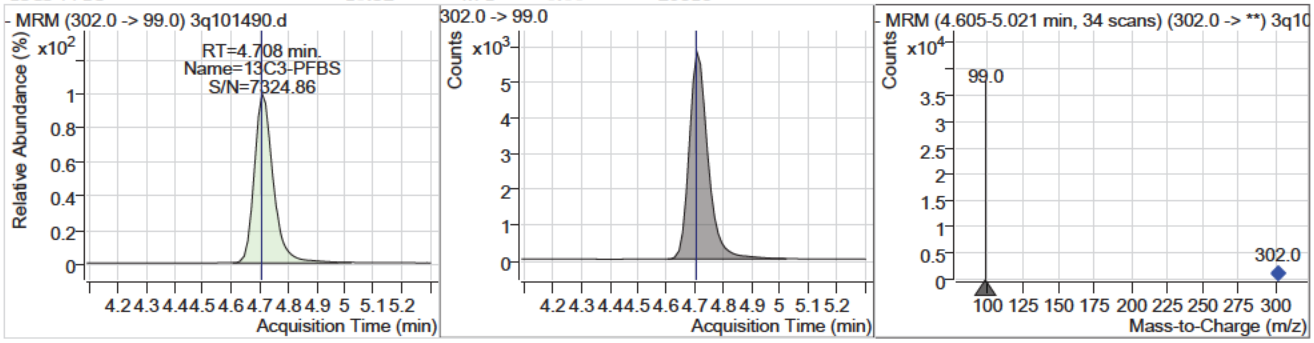
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.84	4.41	0.00	240765				



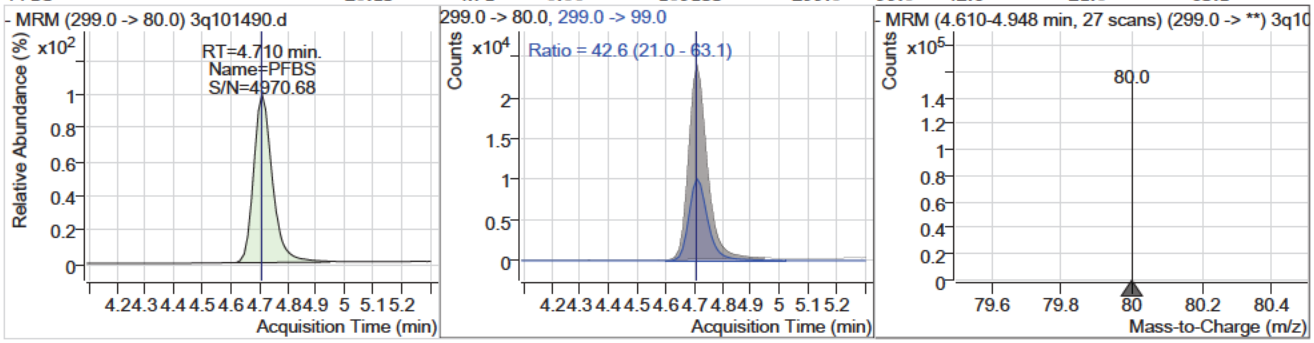
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.77	4.41	0.00	359201				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.52	4.71	0.00	26818				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.13	4.71	0.00	109153	299.0 -> 99.0	42.6	21.0	63.1



7.7.14

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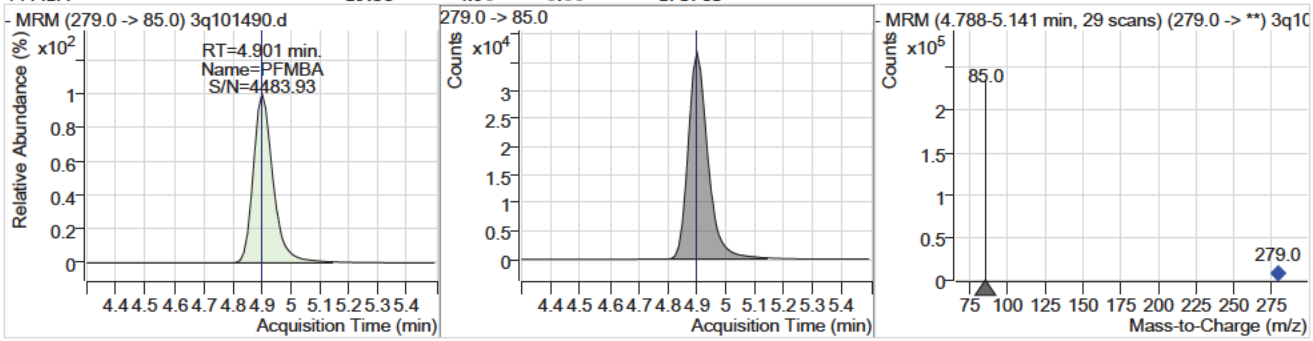
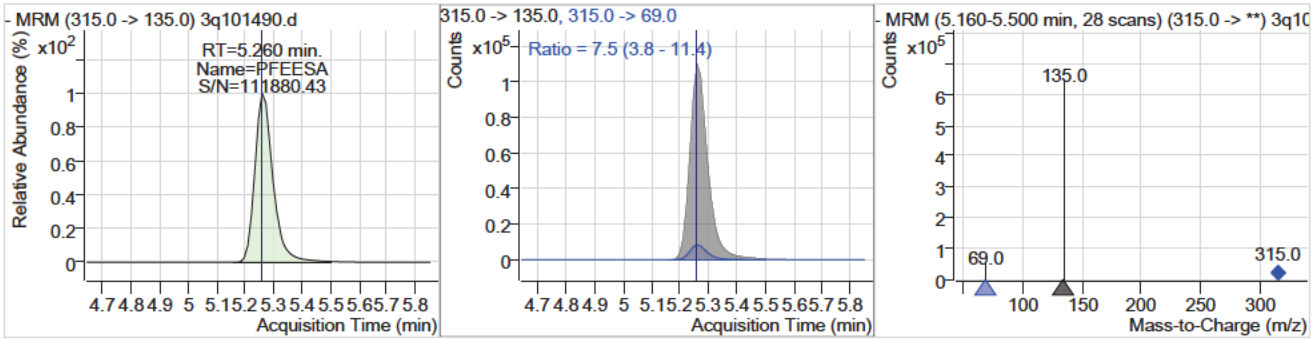
Perfluorinated Compounds by LC/MS/MS

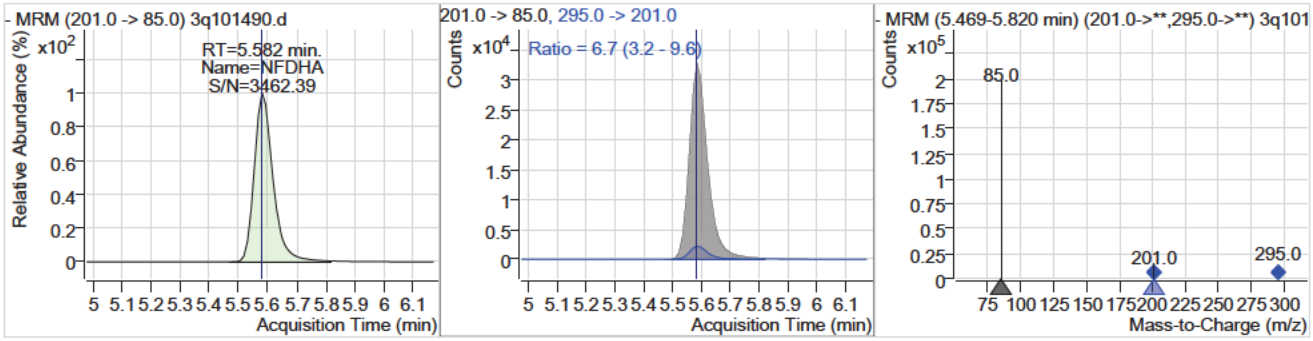
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	19.58	4.90	0.00	173783				



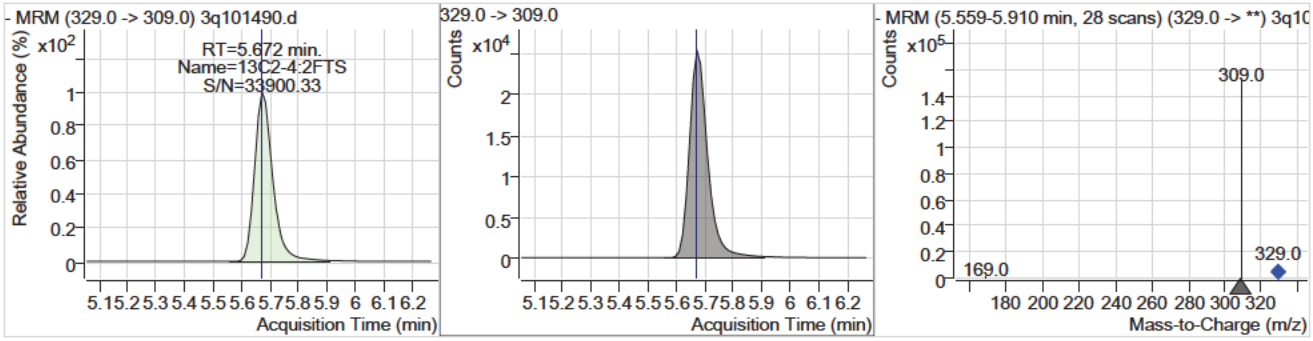
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	20.30	5.26	0.00	490921	315.0 -> 69.0	7.5	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	18.97	5.58	0.00	147221	295.0 -> 201.0	6.7	3.2	9.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	11.59	5.67	0.00	112740				



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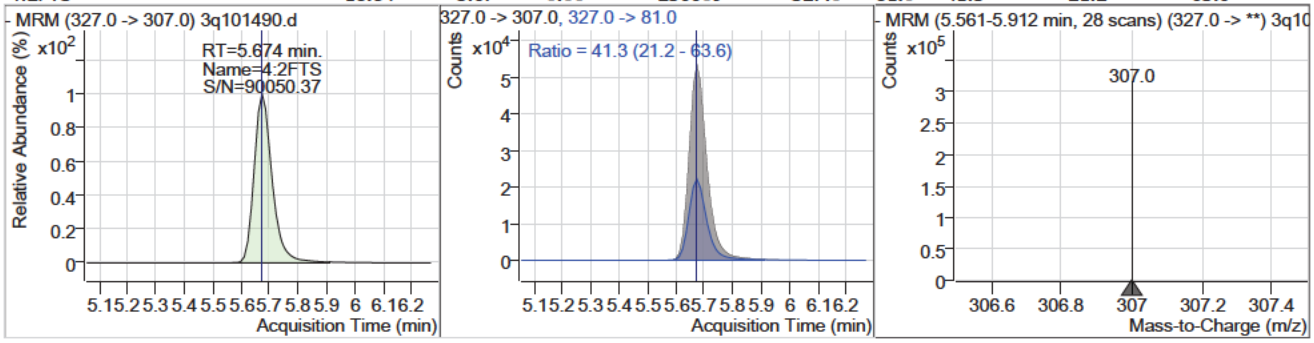
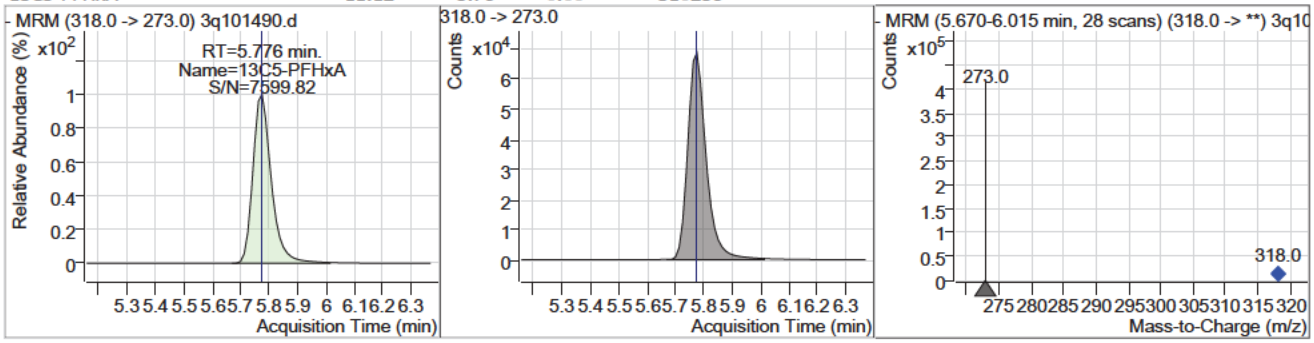
Perfluorinated Compounds by LC/MS/MS

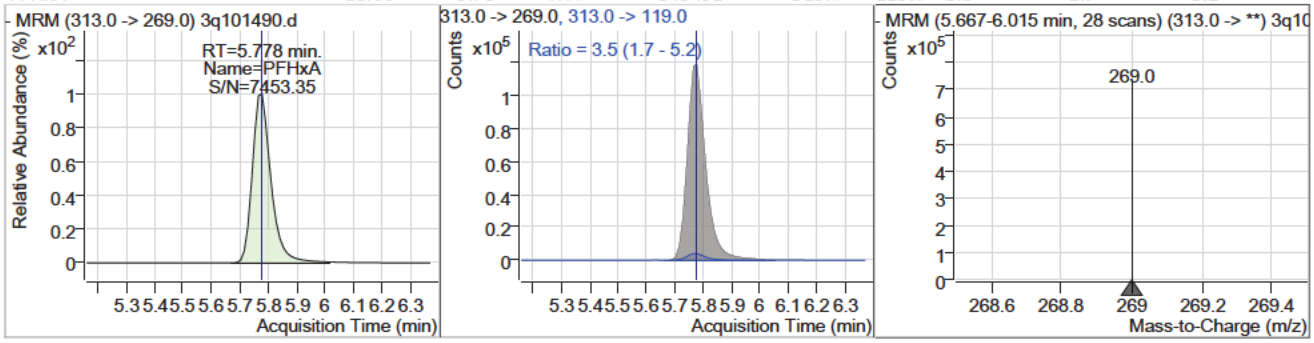
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	18.84	5.67	0.00	236609	327.0 -> 81.0	41.3	21.2	63.6



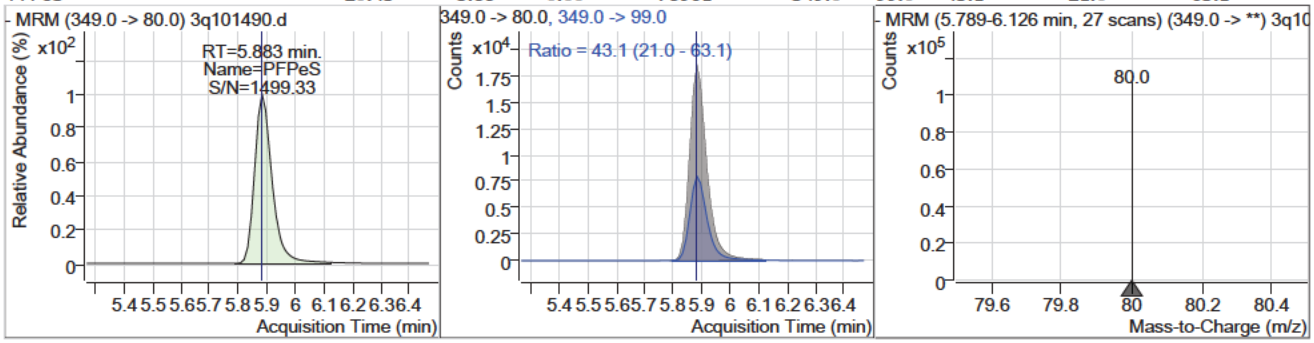
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	11.12	5.78	0.00	310258				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	18.66	5.78	0.00	545491	313.0 -> 119.0	3.5	1.7	5.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	20.43	5.88	0.00	78961	349.0 -> 99.0	43.1	21.0	63.1



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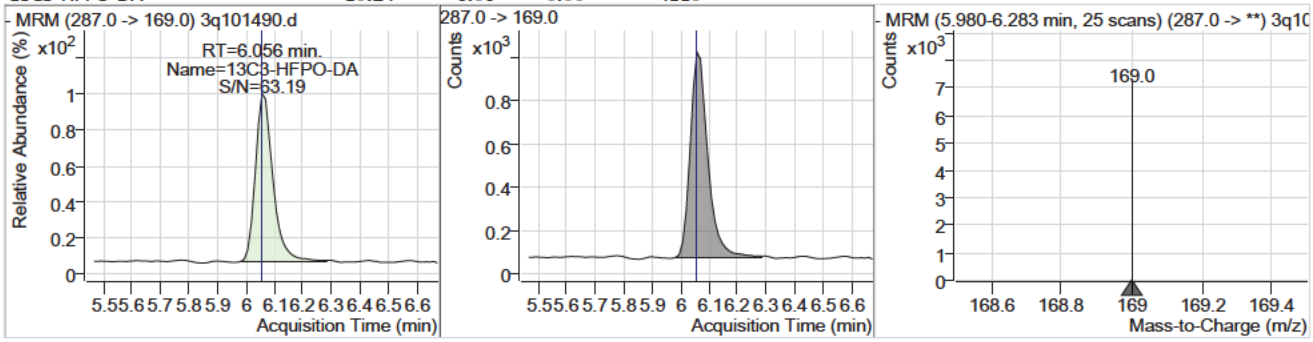
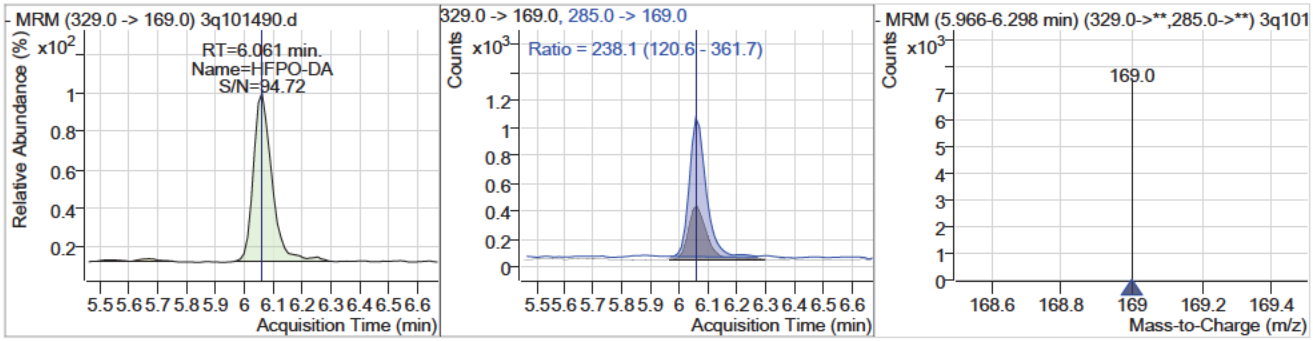
Perfluorinated Compounds by LC/MS/MS

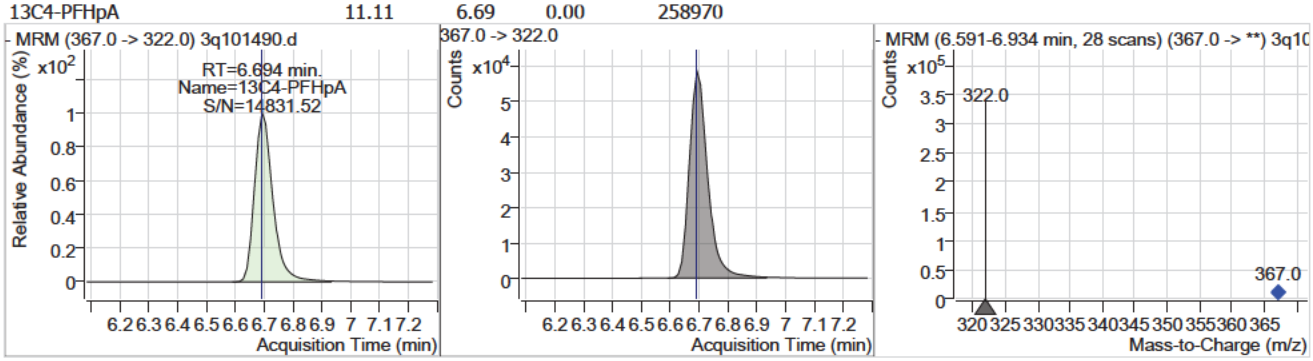
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.24	6.06	0.00	4110				



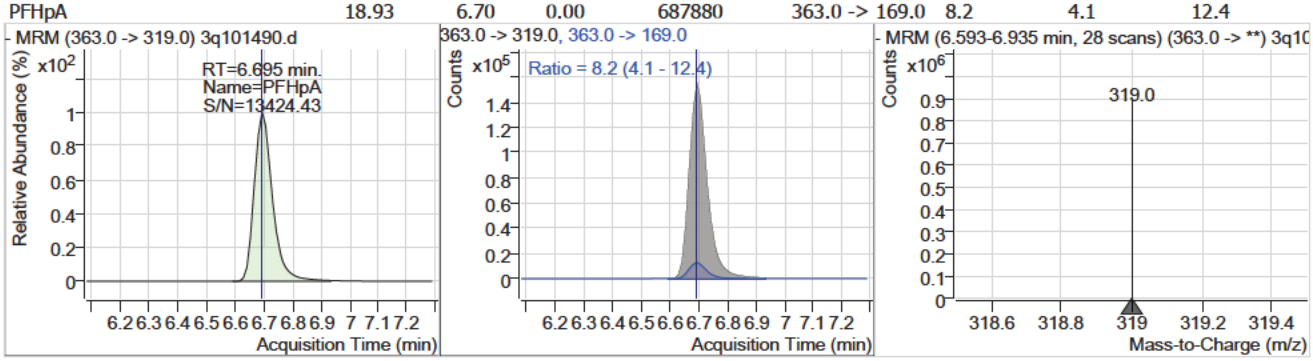
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	18.76	6.06	0.00	1724	285.0 -> 169.0	238.1	120.6	361.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	11.11	6.69	0.00	258970				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	18.93	6.70	0.00	687880	363.0 -> 169.0	8.2	4.1	12.4



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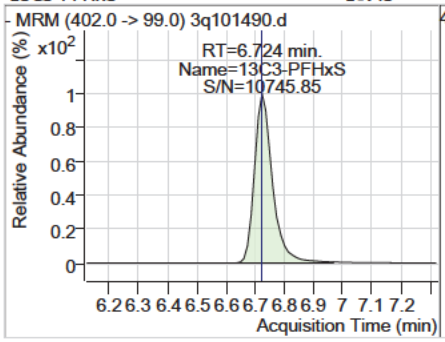
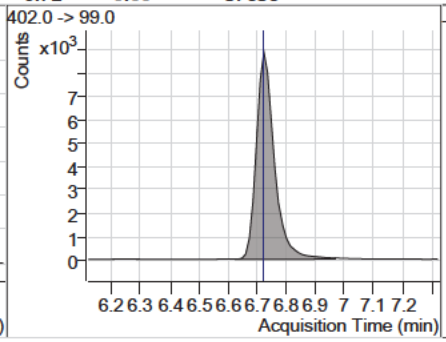
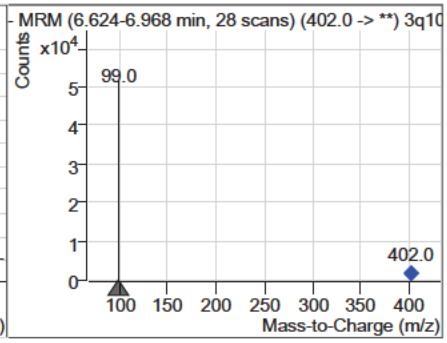
Perfluorinated Compounds by LC/MS/MS

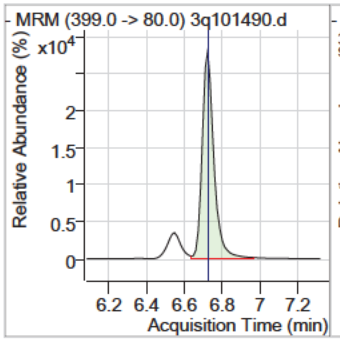
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.43	6.72	0.00	37838				

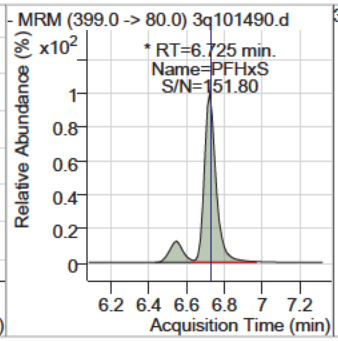


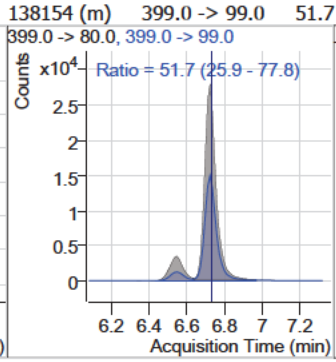


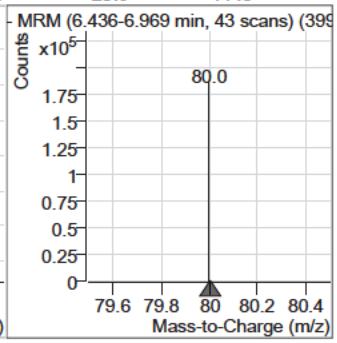


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	20.74	6.73	0.00	138154 (m)	399.0 -> 99.0	51.7	25.9	77.8

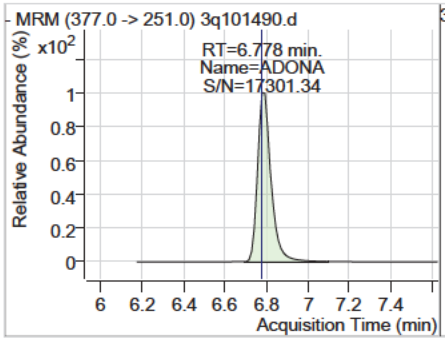


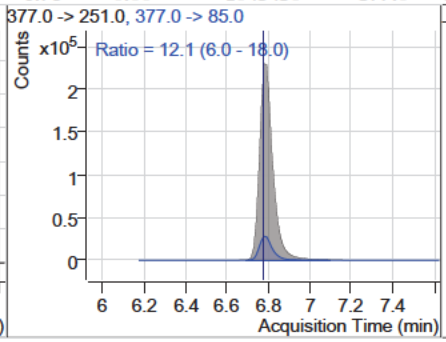


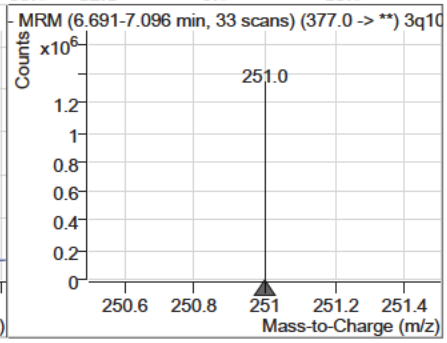




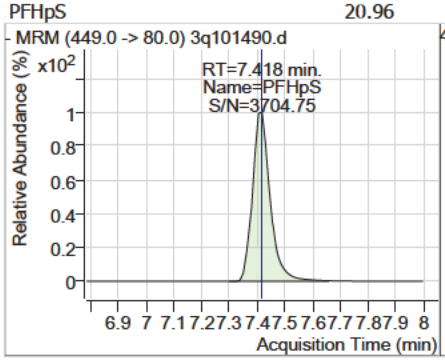
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	18.64	6.78	0.00	1045430	377.0 -> 85.0	12.1	6.0	18.0

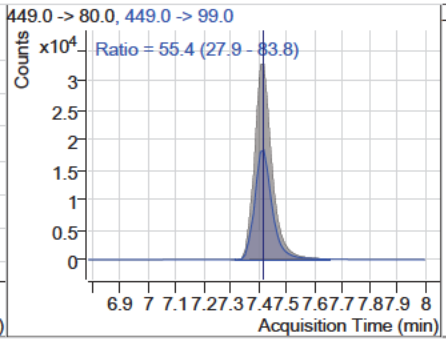


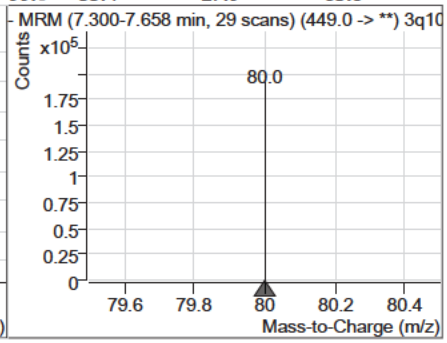




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	20.96	7.42	0.00	145216	449.0 -> 99.0	55.4	27.9	83.8

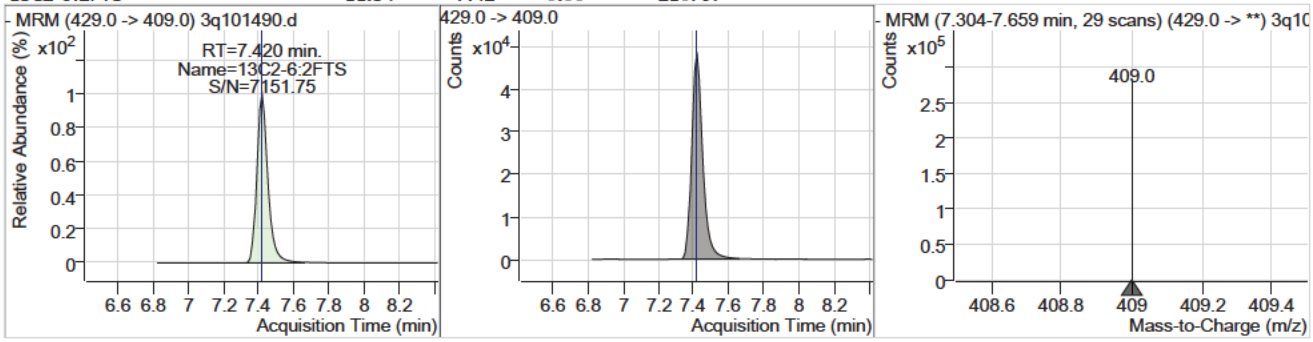




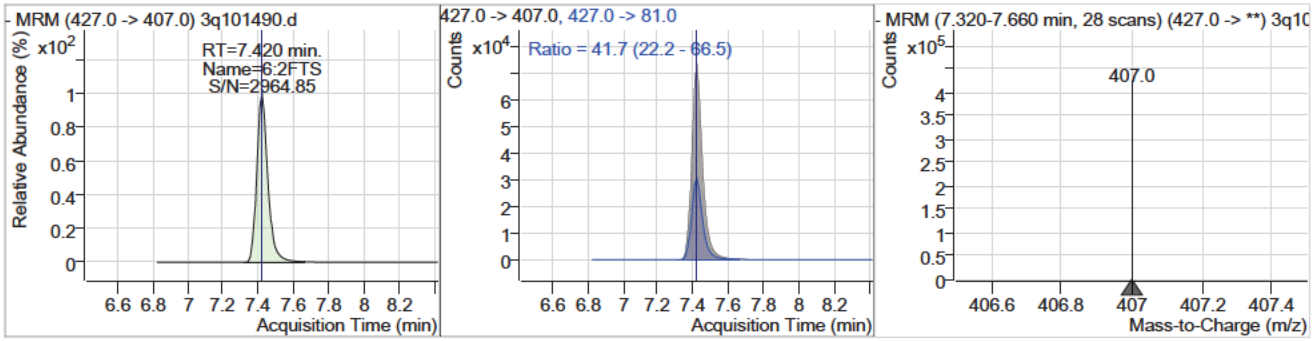


Perfluorinated Compounds by LC/MS/MS

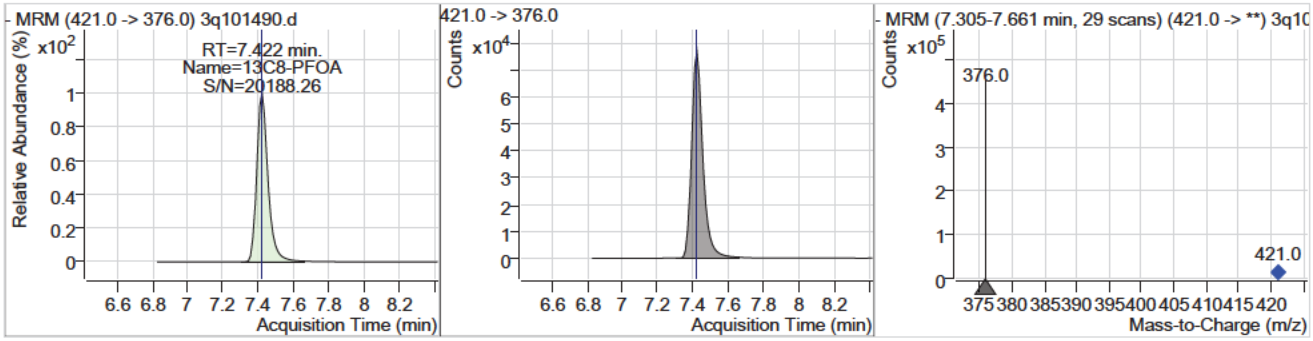
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	11.54	7.42	0.00	210797				



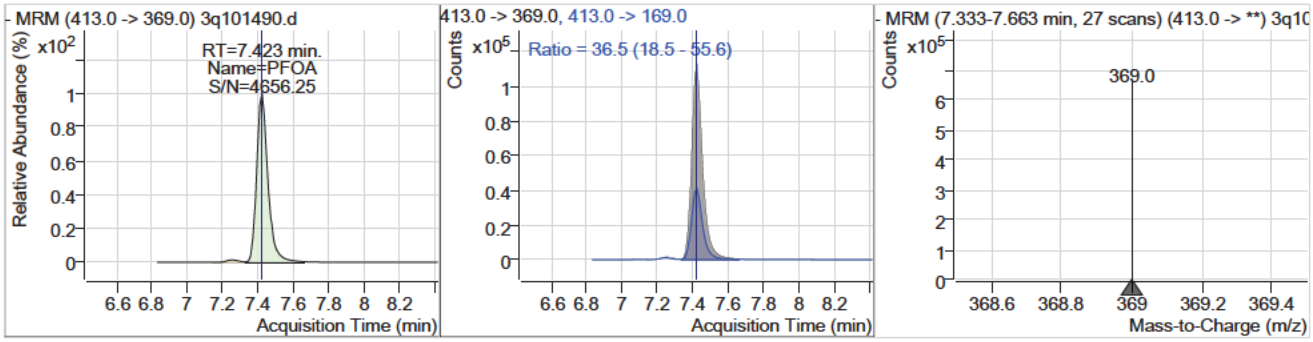
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.27	7.42	0.00	320912	427.0 -> 81.0	41.7	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	11.26	7.42	0.00	340881				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.03	7.42	0.00	500192	413.0 -> 169.0	36.5	18.5	55.6



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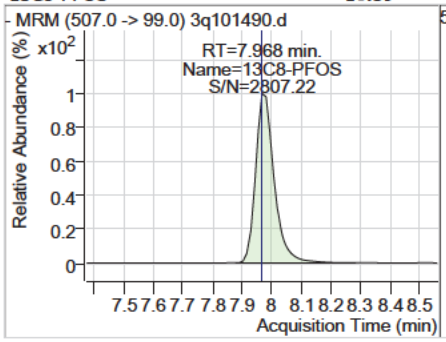
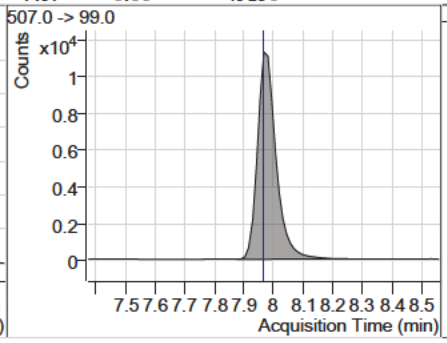
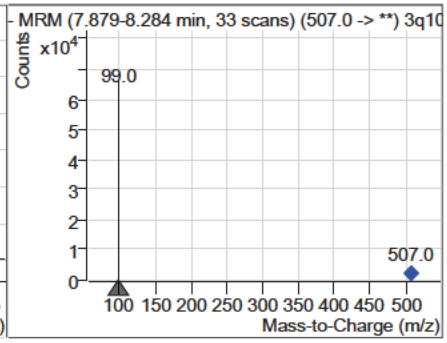
Perfluorinated Compounds by LC/MS/MS

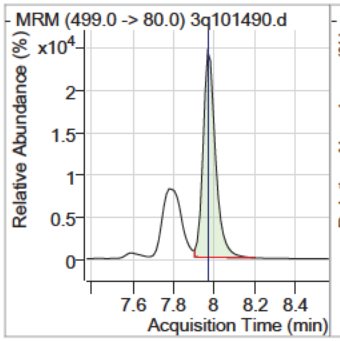
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.59	7.97	0.00	49190				

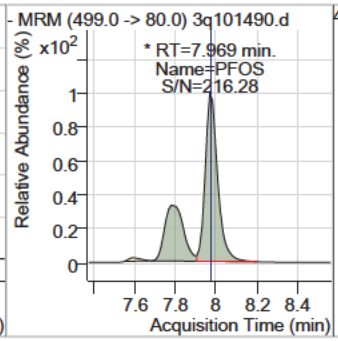


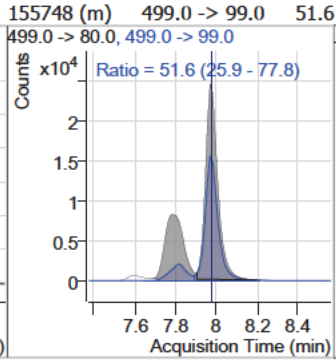


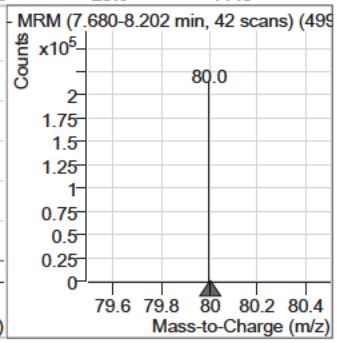


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.80	7.97	0.00	155748 (m)	499.0 -> 99.0	51.6	25.9	77.8

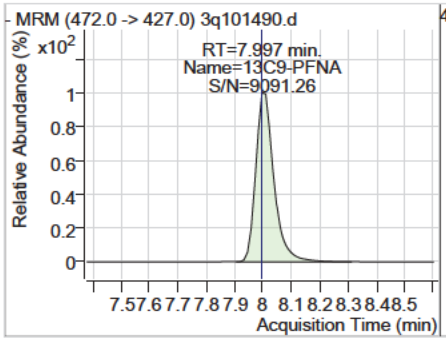


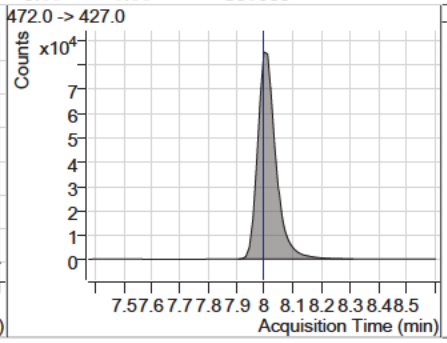


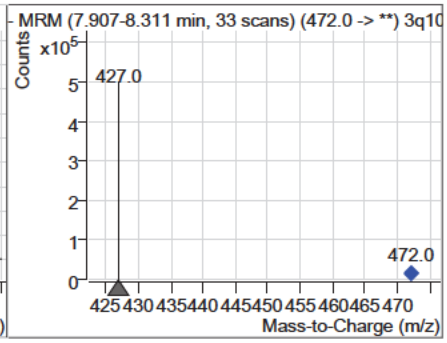




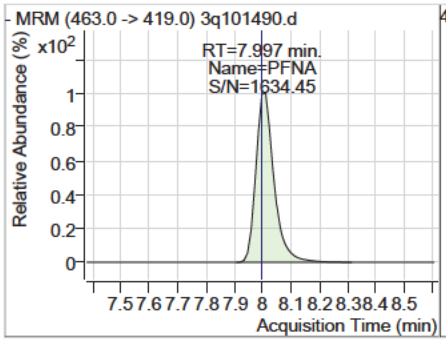
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	11.57	8.00	0.00	380666				

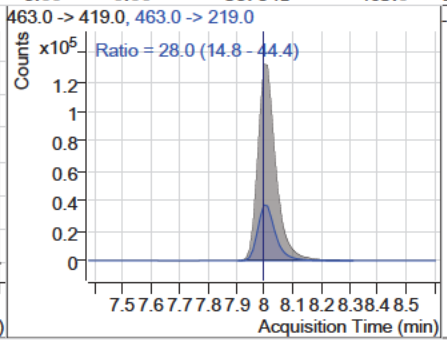


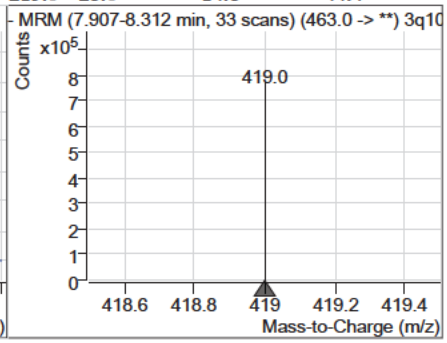




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	18.85	8.00	0.00	587841	463.0 -> 219.0	28.0	14.8	44.4







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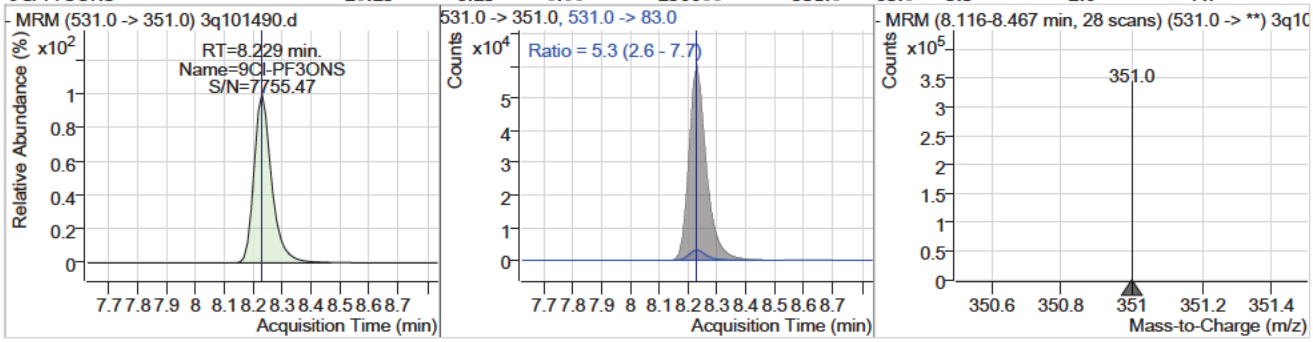
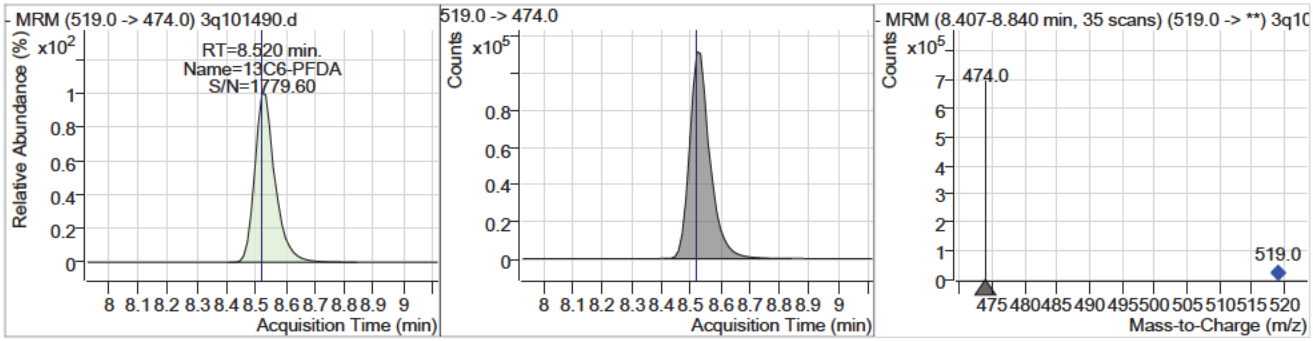
Perfluorinated Compounds by LC/MS/MS

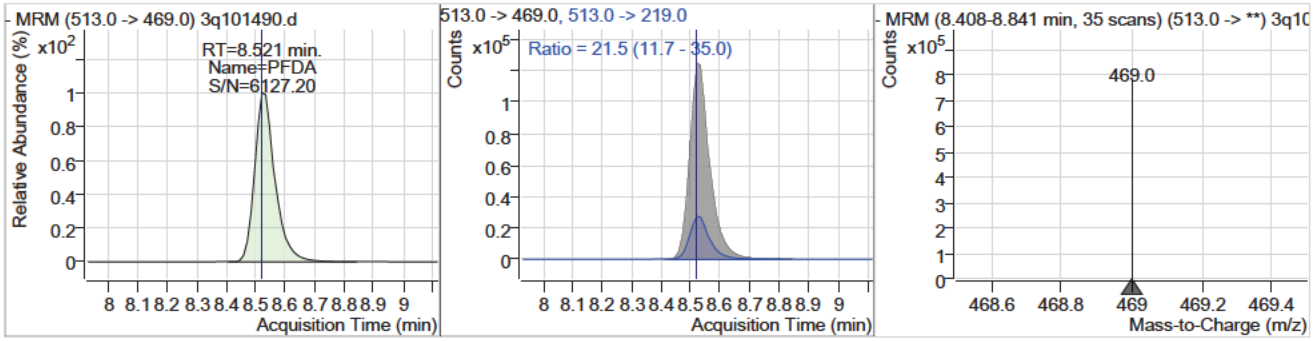
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	20.25	8.23	0.00	256600	531.0 -> 83.0	5.3	2.6	7.7



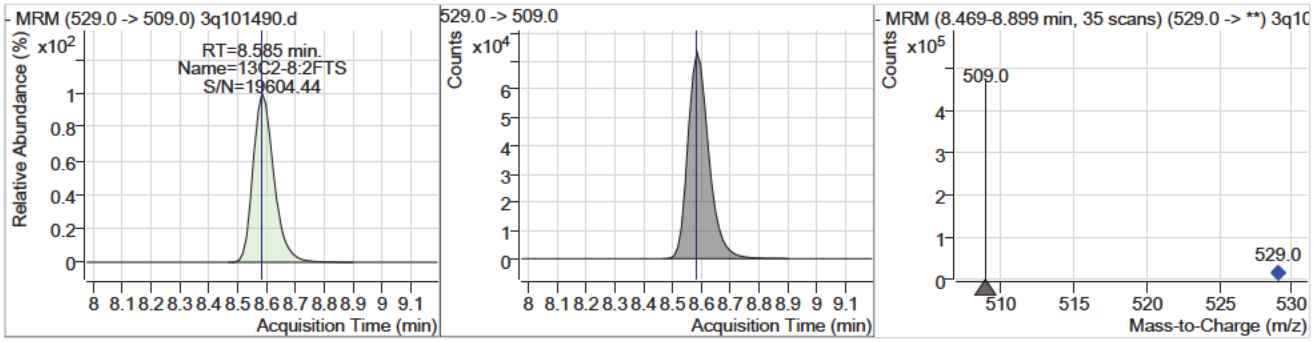
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	11.61	8.52	0.00	535182				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.88	8.52	0.00	601695	513.0 -> 219.0	21.5	11.7	35.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	11.99	8.58	0.00	366995				



7.7.14

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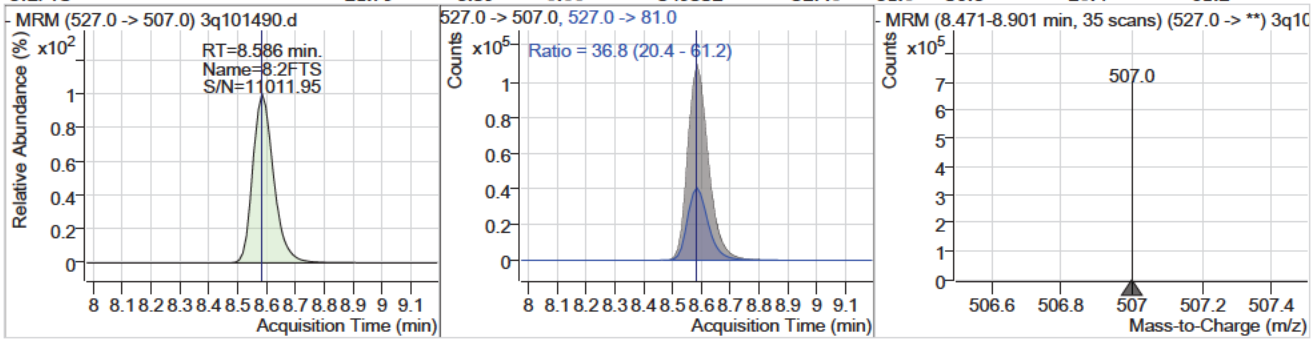
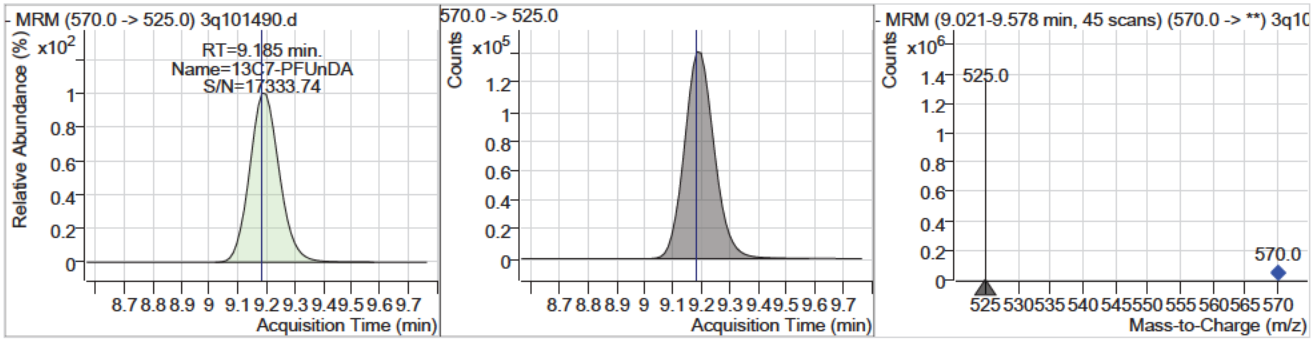
Perfluorinated Compounds by LC/MS/MS

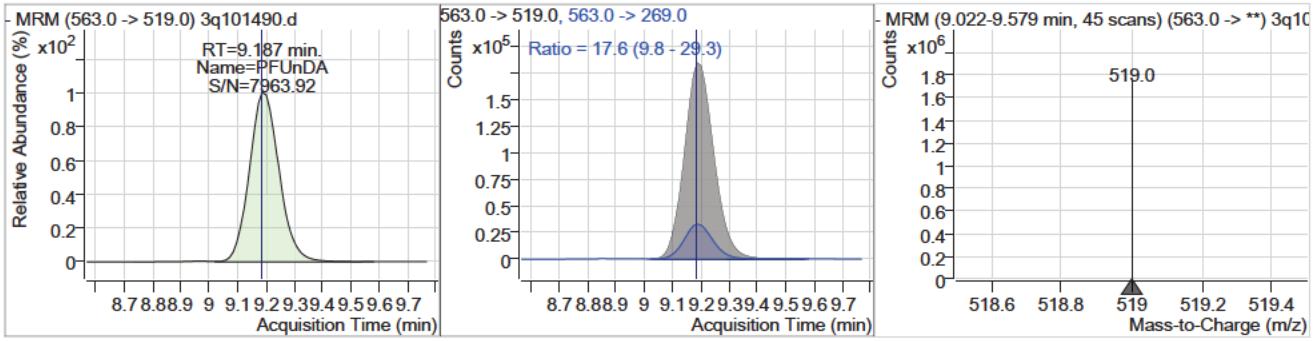
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.79	8.59	0.00	549532	527.0 -> 81.0	36.8	20.4	61.2



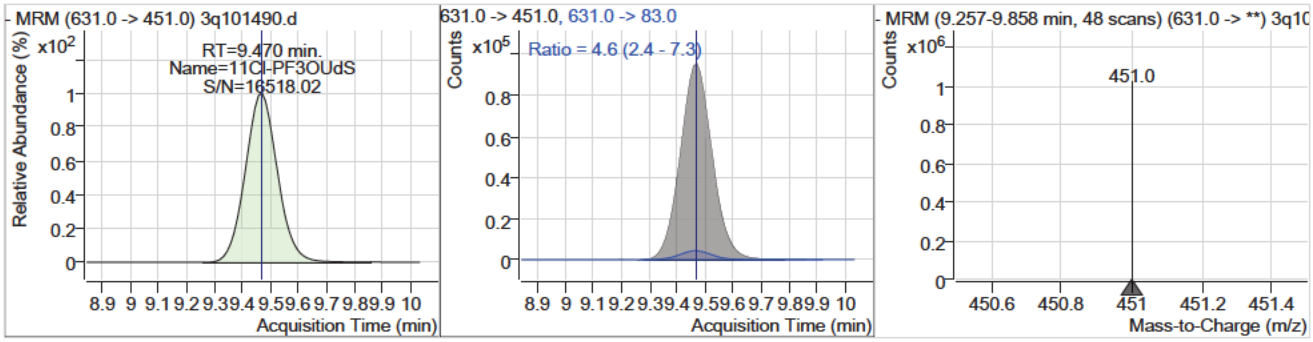
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	11.17	9.18	0.00	1028784				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	20.24	9.19	0.00	1342386	563.0 -> 269.0	17.6	9.8	29.3

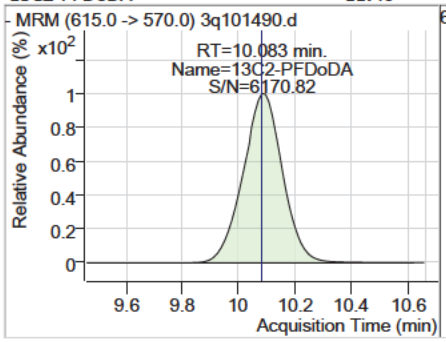


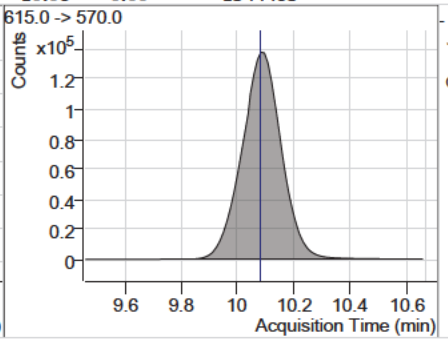
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	20.91	9.47	0.00	763900	631.0 -> 83.0	4.6	2.4	7.3

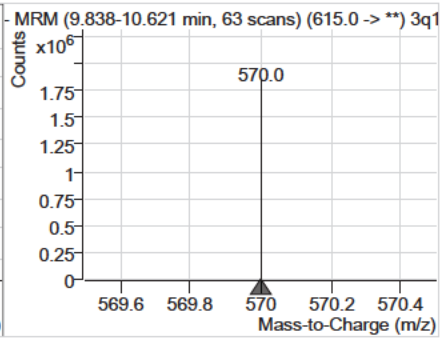


Perfluorinated Compounds by LC/MS/MS

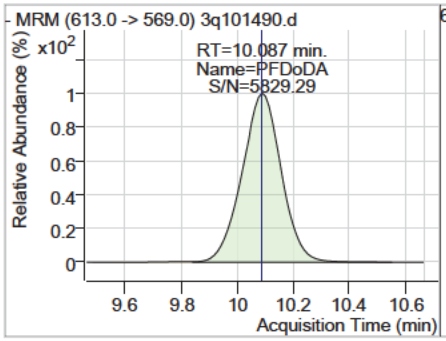
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	11.46	10.08	0.00	1344483				

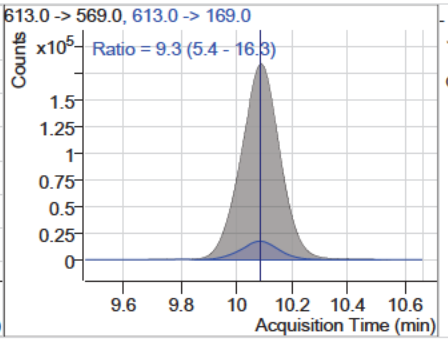


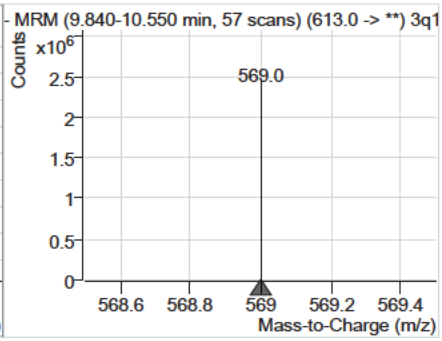




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	20.06	10.09	0.00	1793623	613.0 -> 169.0	9.3	5.4	16.3







Manual Integration Approval Summary

Sample Number: S3Q1493-CC1492
Lab FileID: 3Q101490.D
Injection Time: 04/16/25 11:45
Method: EPA 533
Analyst approved: 04/16/25 15:17 (b) (6) [redacted]
Supervisor approved: 04/17/25 11:46 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.72	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.97	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:46

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101491.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/16/2025 12:01:49 PM
Sample Name : cc1492-0.5LL
Vial : P1-C2
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1493.batch.bin
Sample Information : op8141,S3Q1493,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	283525	10.00 µg/L	0.000
13C3-PFBA	2.319	216.0 -> 172.0	108723	10.00 µg/L	-0.025
13C4-PFOS	7.969	503.0 -> 80.0	40737	10.00 µg/L	0.000
M4-PFBA	2.327	217.0 -> 172.0	193439	10.00 µg/L	-0.013
M5-PFPeA	4.400	268.0 -> 223.0	235976	10.00 µg/L	-0.013
M5-PFHxA	5.763	318.0 -> 273.0	304538	10.00 µg/L	-0.013
M4-PFHpA	6.694	367.0 -> 322.0	258900	10.00 µg/L	0.000
M8-PFOA	7.422	421.0 -> 376.0	344836	10.00 µg/L	0.000
M9-PFNA	7.997	472.0 -> 427.0	383718	10.00 µg/L	0.000
M6-PFDA	8.533	519.0 -> 474.0	539586	10.00 µg/L	0.013
M7-PFUnDA	9.199	570.0 -> 525.0	1059506	10.00 µg/L	0.014
M2-PFDoDA	10.108	615.0 -> 570.0	1362440	10.00 µg/L	0.025
M3-PFBS	4.696	302.0 -> 99.0	26638	10.00 µg/L	-0.013
M3-PFHxS	6.724	402.0 -> 99.0	38370	10.00 µg/L	0.000
M8-PFOS	7.968	507.0 -> 99.0	48849	10.00 µg/L	0.000
M2-4:2FTS	5.659	329.0 -> 309.0	101358	10.00 µg/L	-0.013
M2-6:2FTS	7.420	429.0 -> 409.0	195674	10.00 µg/L	0.000
M2-8:2FTS	8.585	529.0 -> 509.0	332422	10.00 µg/L	0.000
M3-HFPO-DA	6.056	287.0 -> 169.0	3328	10.00 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.659	329.0 -> 309.0	101358	10.45 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C2-6:2FTS	7.420	429.0 -> 409.0	195674	10.75 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.5%	
13C2-8:2FTS	8.585	529.0 -> 509.0	332422	10.90 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.0%	
13C2-PFDoDA	10.108	615.0 -> 570.0	1362440	11.29 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.9%	
13C3-PFBS	4.696	302.0 -> 99.0	26638	10.48 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C3-PFHxS	6.724	402.0 -> 99.0	38370	10.60 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C4-PFBA	2.327	217.0 -> 172.0	193439	10.49 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C4-PFHpA	6.694	367.0 -> 322.0	258900	10.79 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.9%	
13C5-PFHxA	5.763	318.0 -> 273.0	304538	10.60 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C5-PFPeA	4.400	268.0 -> 223.0	235976	10.61 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C6-PFDA	8.533	519.0 -> 474.0	539586	11.38 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.8%	
13C7-PFUnDA	9.199	570.0 -> 525.0	1059506	11.18 µg/L	0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.8%	
13C8-PFOA	7.422	421.0 -> 376.0	344836	11.07 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

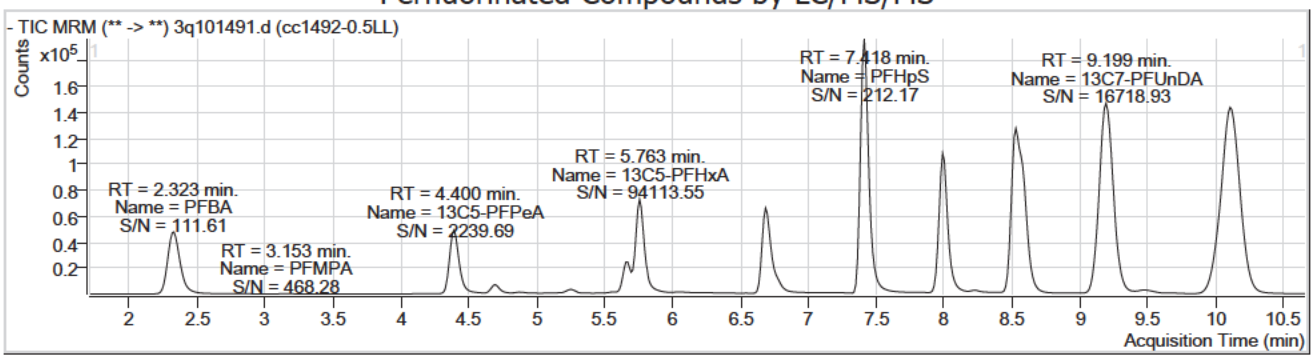
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.7%		
13C8-PFOS	7.968	507.0 -> 99.0	48849	10.54 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.4%		
13C9-PFNA	7.997	472.0 -> 427.0	383718	11.34 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.4%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	3328	8.06 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.6%		
Target Compounds						QValue
PFMPA	3.153	229.0 -> 85.0	2744	0.44 µg/L		100
4:2FTS	5.661	327.0 -> 307.0	4873	0.39 µg/L		96
		327.0 -> 81.0	2175			
6:2FTS	7.420	427.0 -> 407.0	6961	0.41 µg/L		99
		427.0 -> 81.0	3122			
8:2FTS	8.586	527.0 -> 507.0	11470	0.50 µg/L		99
		527.0 -> 81.0	4587			
PFMBA	4.888	279.0 -> 85.0	3805	0.44 µg/L		100
PFEESA	5.247	315.0 -> 135.0	10379	0.43 µg/L		99
		315.0 -> 69.0	837			
NFDHA	5.569	201.0 -> 85.0	3481	0.46 µg/L		98
		295.0 -> 201.0	203			
PFBA	2.323	213.0 -> 169.0	2328	0.44 µg/L		100
PFBS	4.697	299.0 -> 80.0	2361	0.44 µg/L		98
		299.0 -> 99.0	1023			
PFDA	8.534	513.0 -> 469.0	13870	0.45 µg/L		98
		513.0 -> 219.0	3079			
PFDoDA	10.113	613.0 -> 569.0	41440	0.46 µg/L		98
		613.0 -> 169.0	4174			
PFHpA	6.695	363.0 -> 319.0	15132	0.42 µg/L		98
		363.0 -> 169.0	1343			
PFHpS	7.418	449.0 -> 80.0	3282	0.47 µg/L		97
		449.0 -> 99.0	1906			
PFHxA	5.765	313.0 -> 269.0	11523	0.40 µg/L		98
		313.0 -> 119.0	463			
PFHxS	6.725	399.0 -> 80.0	3051	0.45 µg/L	m	98
		399.0 -> 99.0	1629			
PFNA	8.010	463.0 -> 419.0	13669	0.43 µg/L		98
		463.0 -> 219.0	3880			
PFOA	7.423	413.0 -> 369.0	11185	0.42 µg/L		99
		413.0 -> 169.0	4206			
PFOS	7.969	499.0 -> 80.0	3813	0.49 µg/L	m	98
		499.0 -> 99.0	2036			
PFPeA	4.402	263.0 -> 219.0	7935	0.45 µg/L		100
PFPeS	5.883	349.0 -> 80.0	1802	0.46 µg/L		99
		349.0 -> 99.0	771			
PFUnDA	9.202	563.0 -> 519.0	30961	0.45 µg/L		93
		563.0 -> 269.0	5101			
11Cl-PF3OUdS	9.482	631.0 -> 451.0	17103	0.47 µg/L		99
		631.0 -> 83.0	803			
9Cl-PF3ONS	8.229	531.0 -> 351.0	5573	0.44 µg/L		95
		531.0 -> 83.0	370			
ADONA	6.778	377.0 -> 251.0	22902	0.41 µg/L		99
		377.0 -> 85.0	2866			
HFPO-DA	6.048	329.0 -> 169.0	36	0.43 µg/L		97
		285.0 -> 169.0	89			

= Qualifier out of range, m = manually integrated, + = Area summed

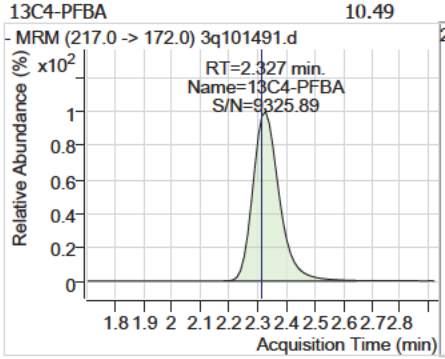
Perfluorinated Compounds by LC/MS/MS

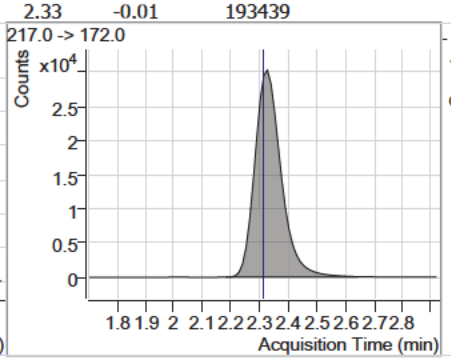
Compound	RT	Transition	Response	Conc. Units	Dev(Min)

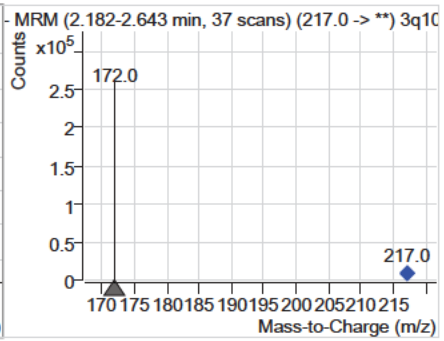
Perfluorinated Compounds by LC/MS/MS



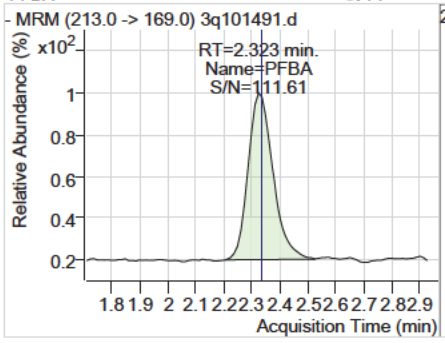
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.49	2.33	-0.01	193439				

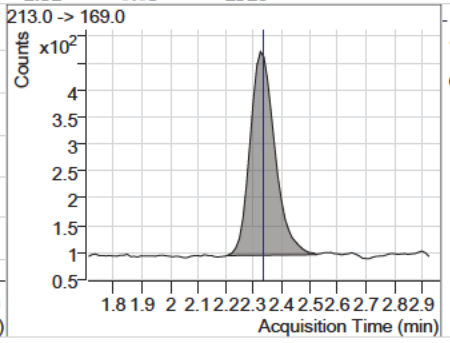


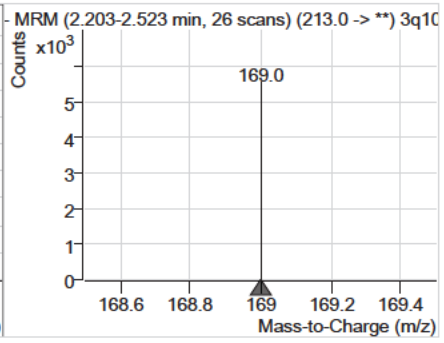




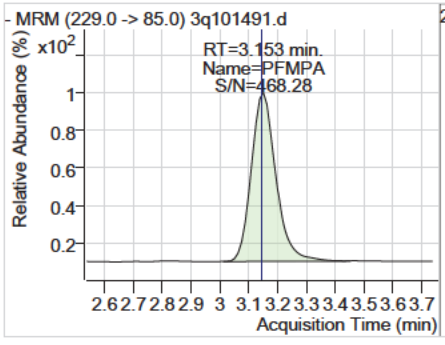
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.44	2.32	-0.03	2328				

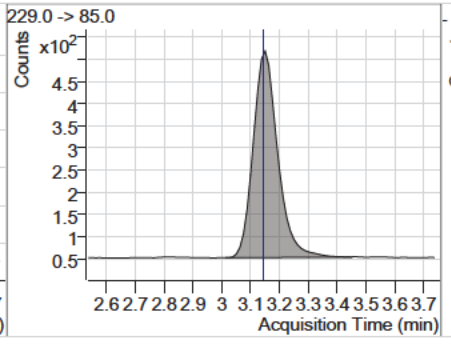


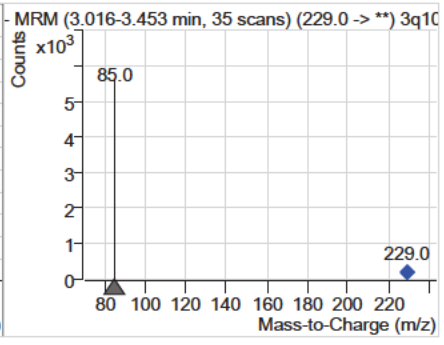




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	0.44	3.15	-0.01	2744				







7.7.15

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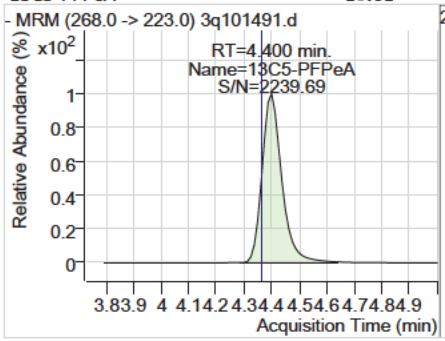
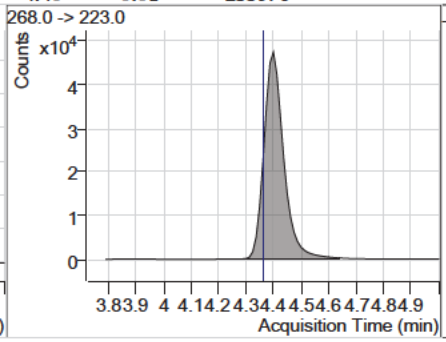
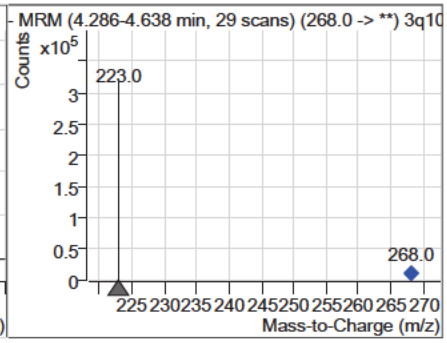
Perfluorinated Compounds by LC/MS/MS

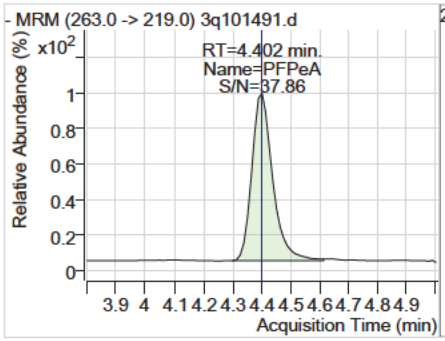
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.61	4.40	-0.01	235976				

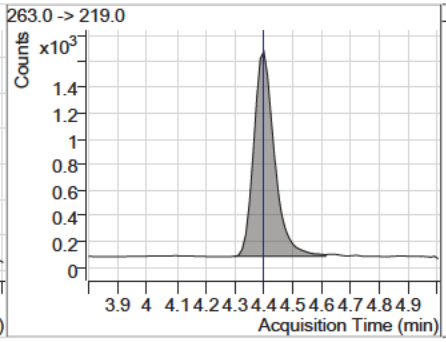


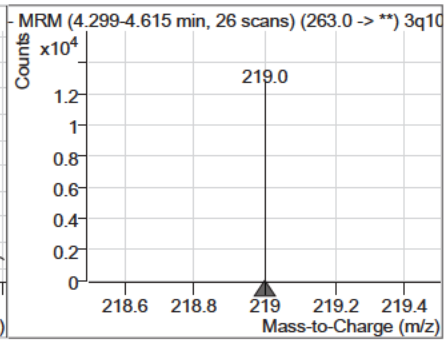




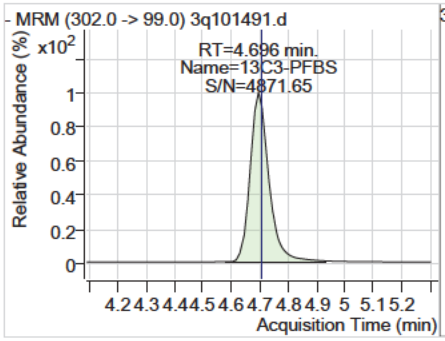
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.45	4.40	-0.01	7935				

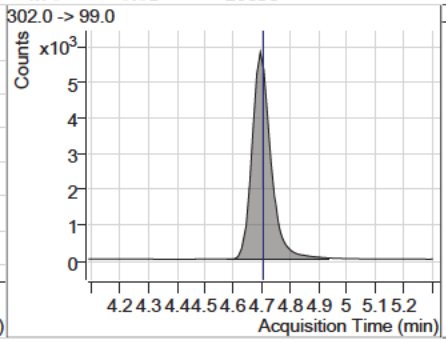


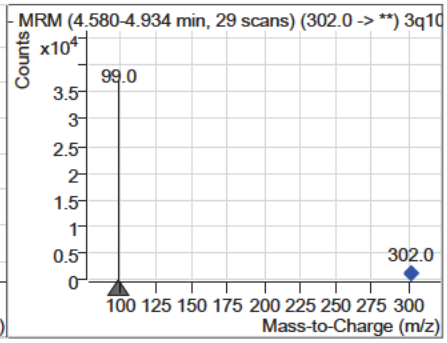




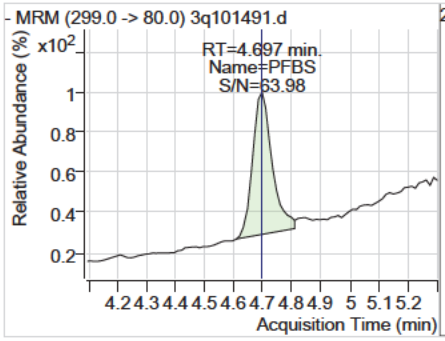
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.48	4.70	-0.01	26638				

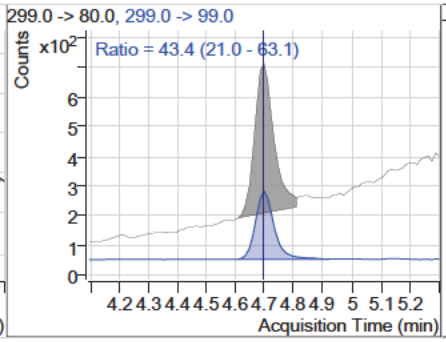


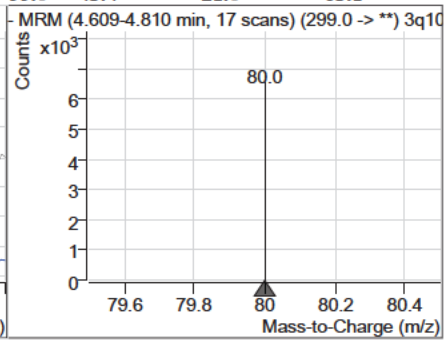




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.44	4.70	-0.01	2361	299.0 -> 99.0	43.4	21.0	63.1

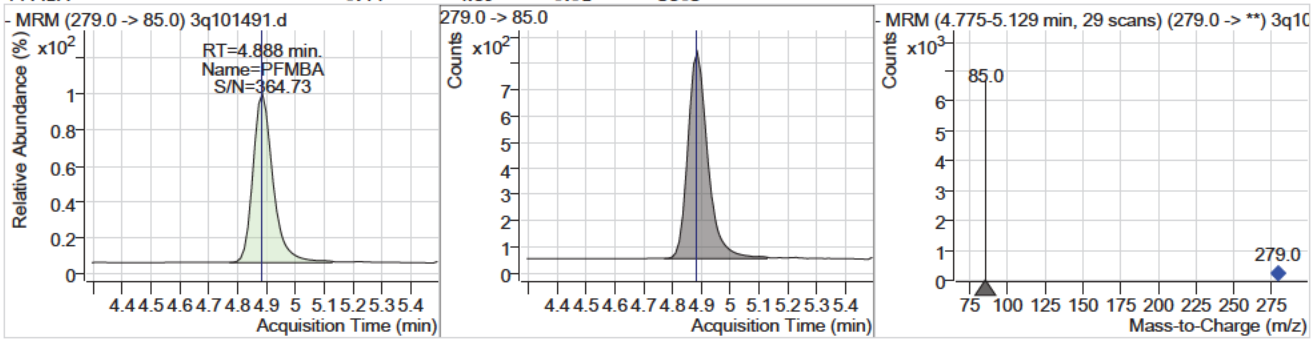




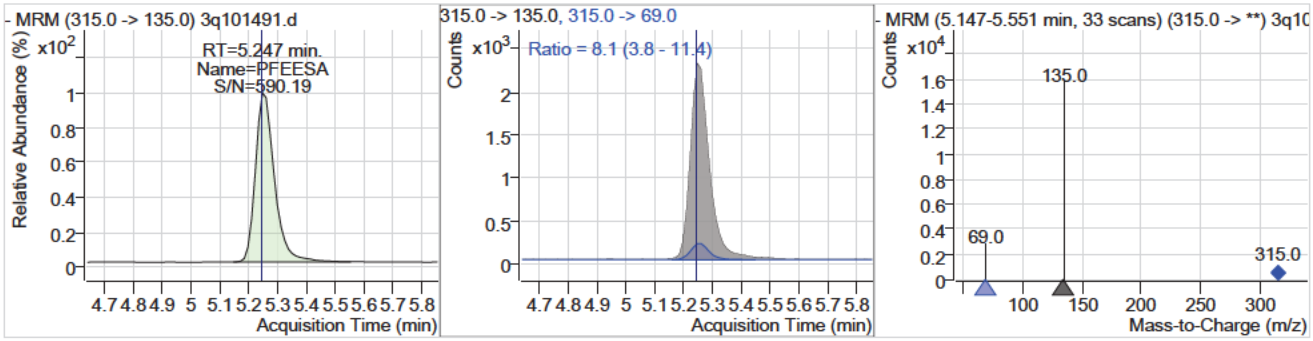


Perfluorinated Compounds by LC/MS/MS

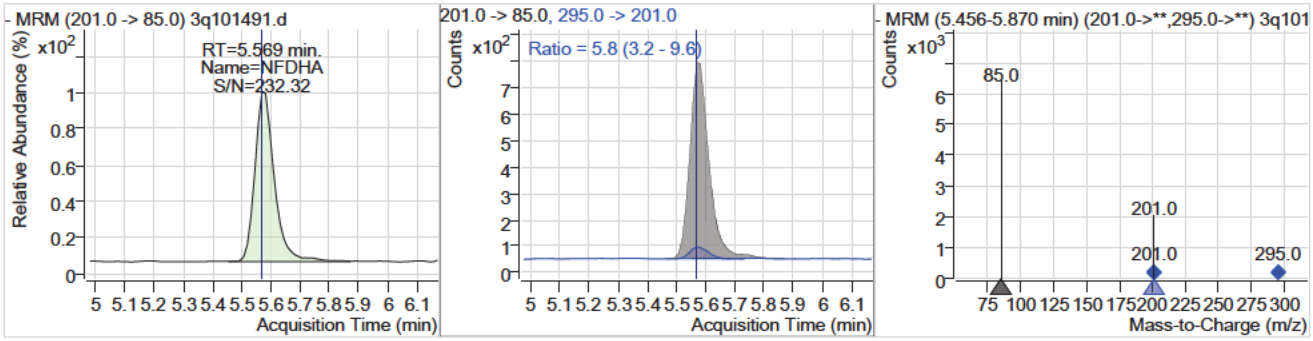
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.44	4.89	-0.01	3805				



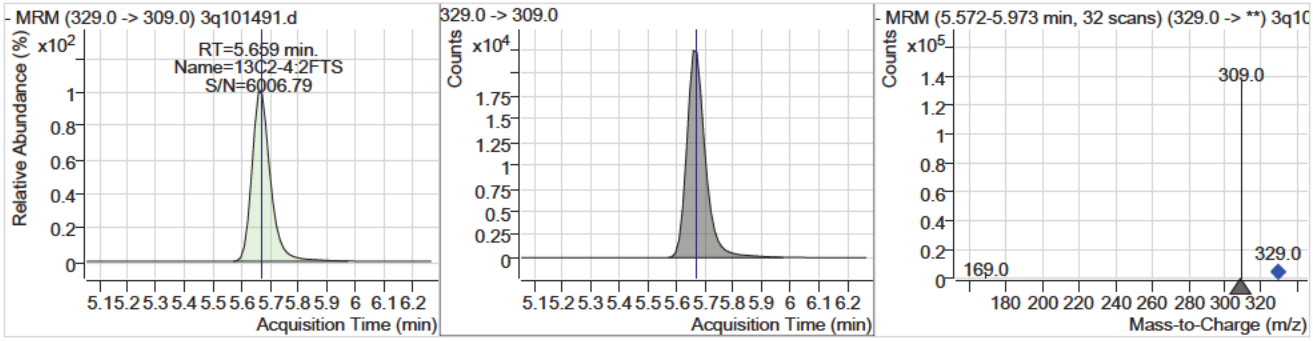
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.43	5.25	-0.01	10379	315.0 -> 69.0	8.1	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	0.46	5.57	-0.01	3481	295.0 -> 201.0	5.8	3.2	9.6

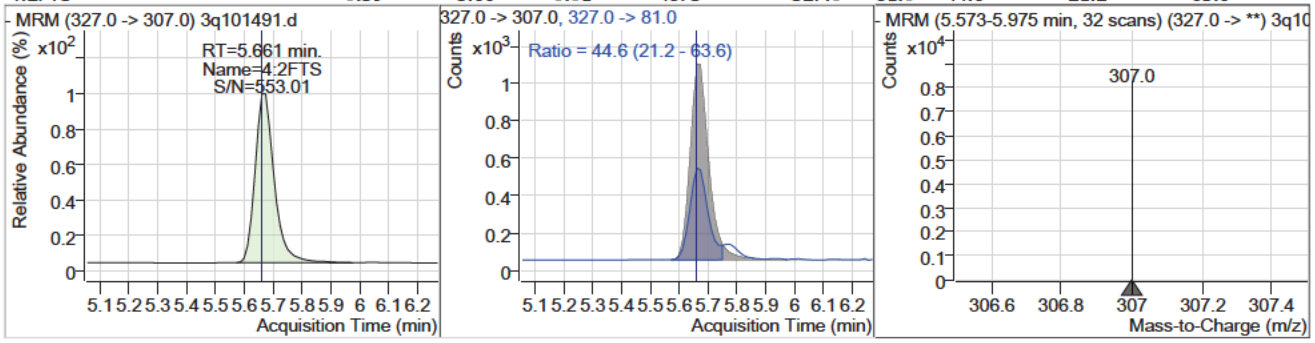


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	10.45	5.66	-0.01	101358				

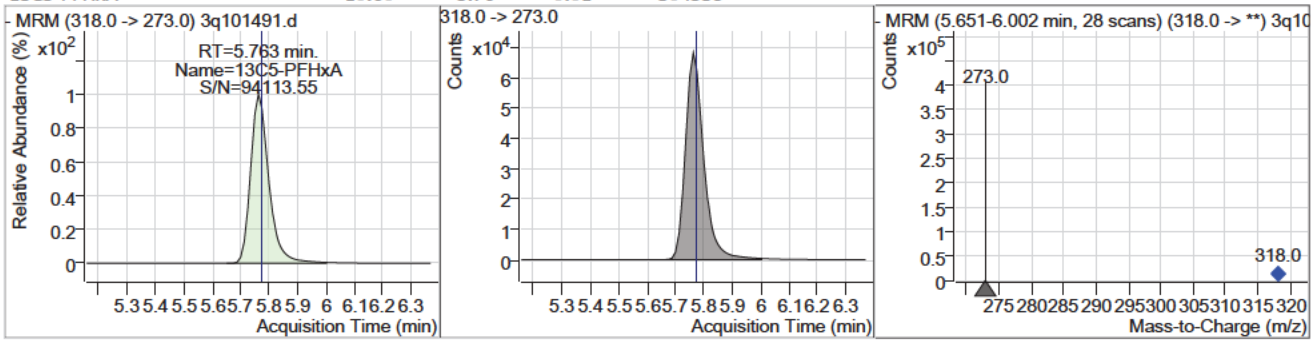


Perfluorinated Compounds by LC/MS/MS

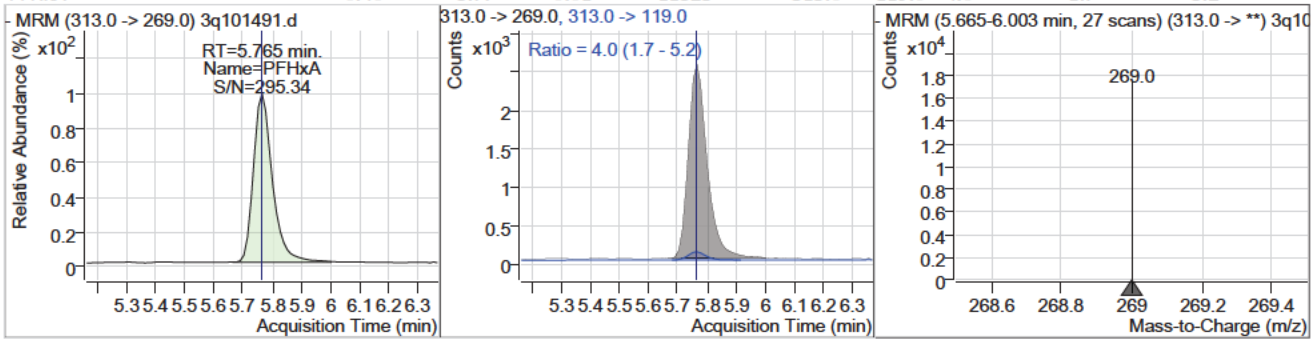
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	0.39	5.66	-0.01	4873	327.0 -> 81.0	44.6	21.2	63.6



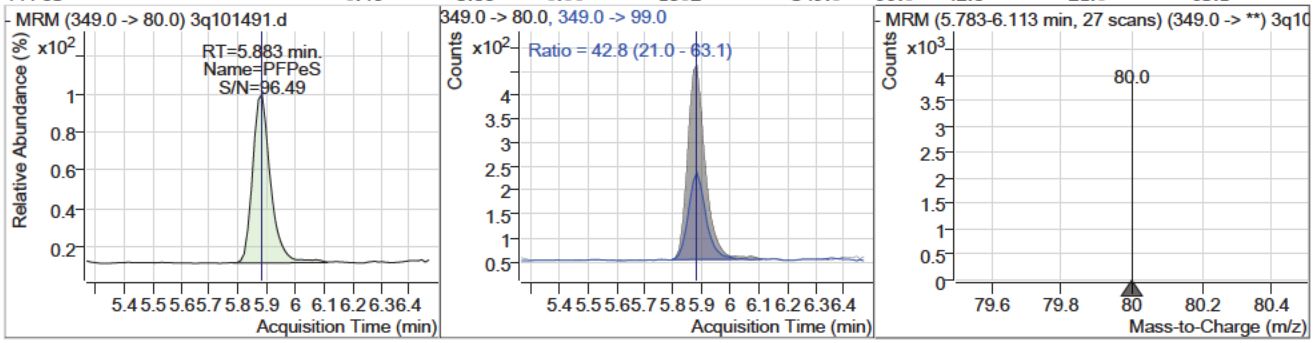
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.60	5.76	-0.01	304538				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.40	5.77	-0.01	11523	313.0 -> 119.0	4.0	1.7	5.2

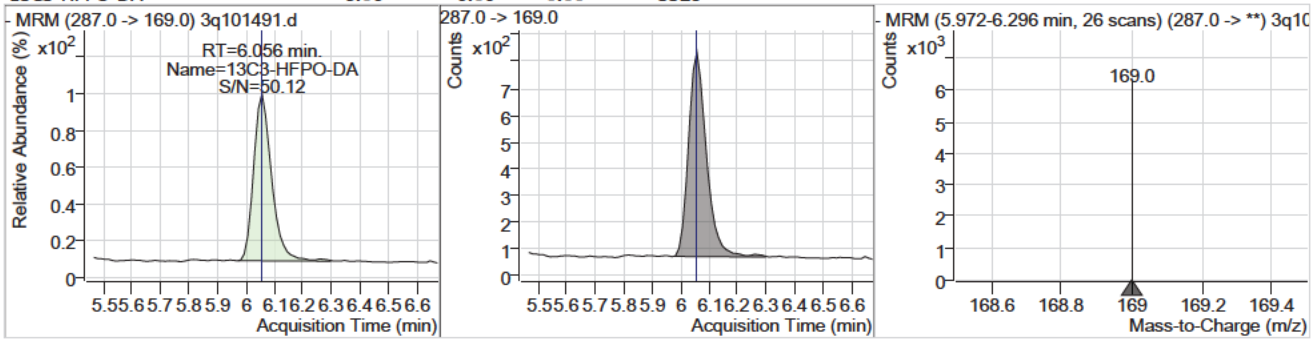


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.46	5.88	0.00	1802	349.0 -> 99.0	42.8	21.0	63.1

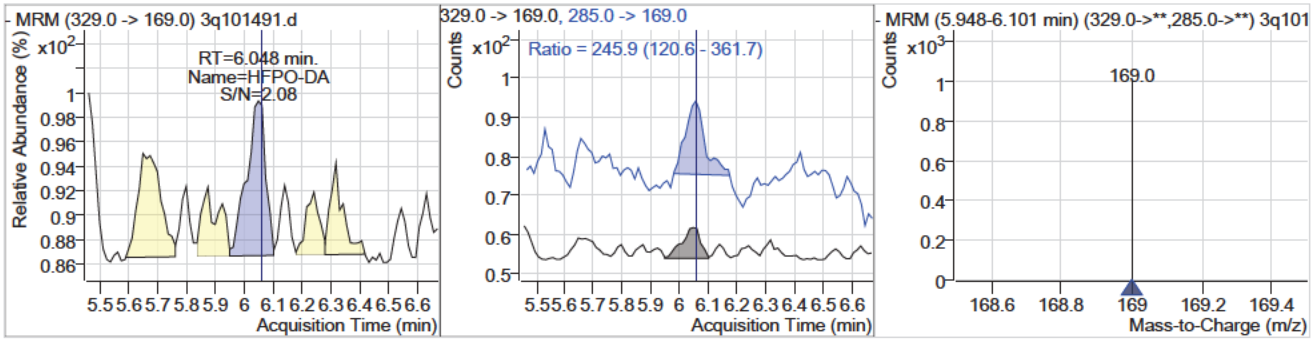


Perfluorinated Compounds by LC/MS/MS

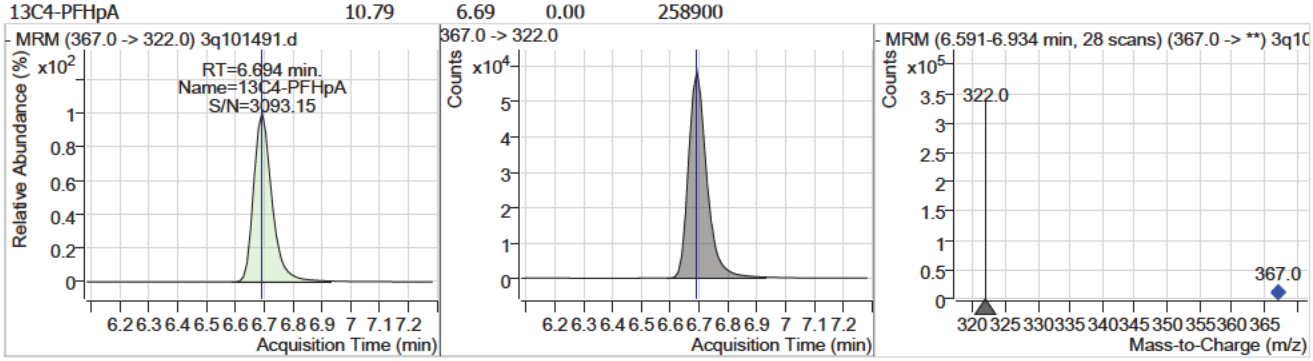
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.06	6.06	0.00	3328				



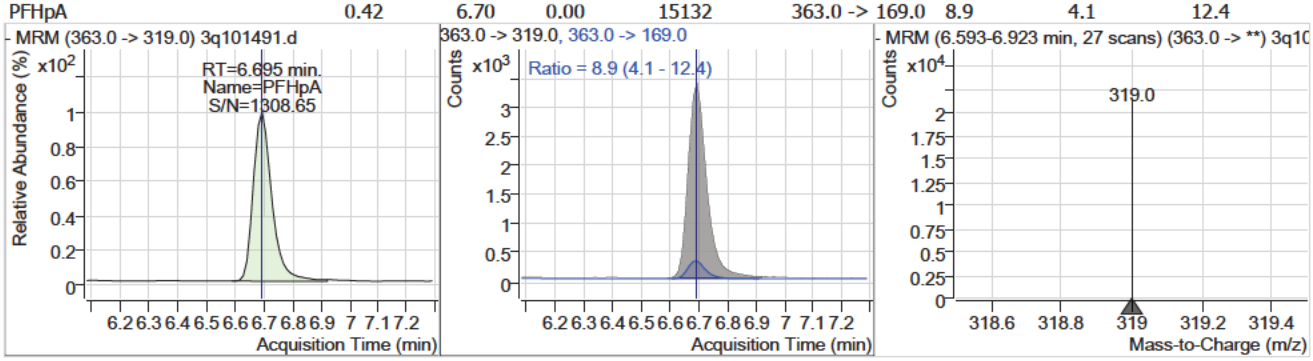
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.43	6.05	-0.01	36	285.0 -> 169.0	245.9	120.6	361.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.79	6.69	0.00	258900				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.42	6.70	0.00	15132	363.0 -> 169.0	8.9	4.1	12.4



7.7.15

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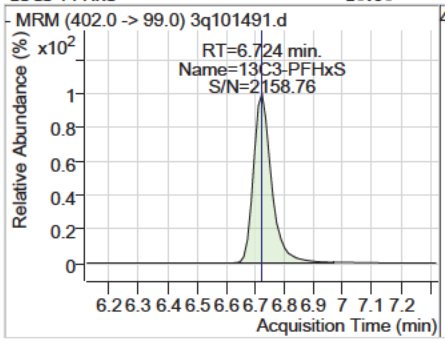
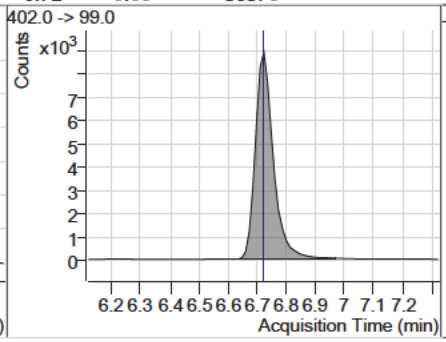
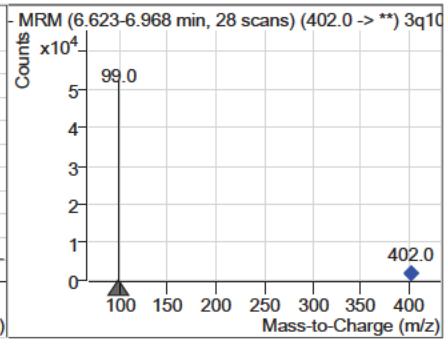
Perfluorinated Compounds by LC/MS/MS

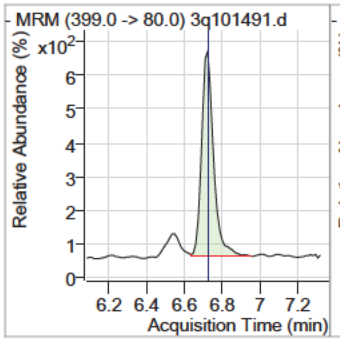
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.60	6.72	0.00	38370				

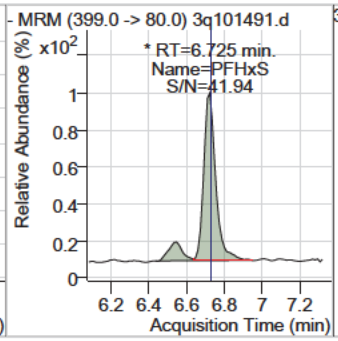


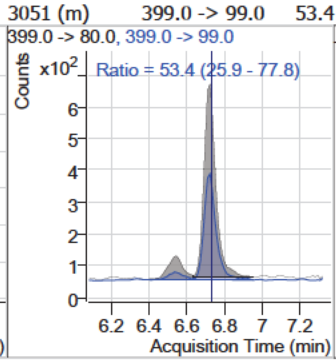


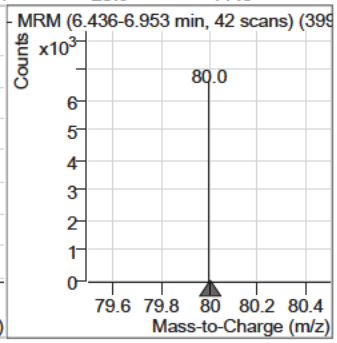


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.45	6.73	0.00	3051 (m)	399.0 -> 99.0	53.4	25.9	77.8

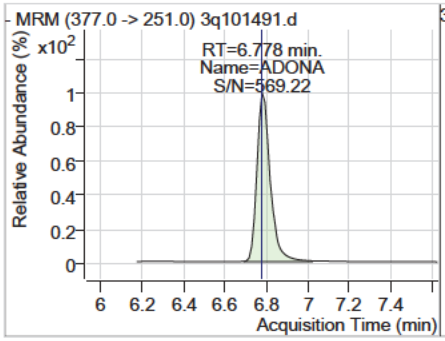


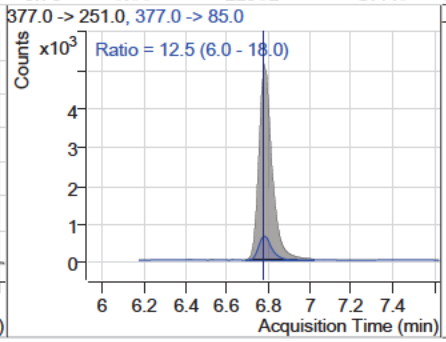


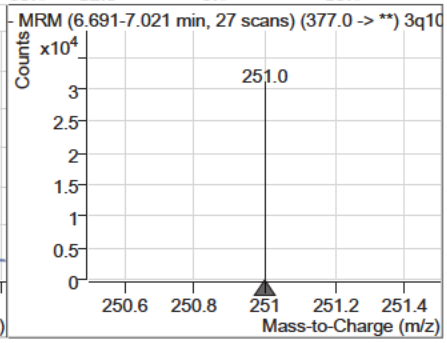




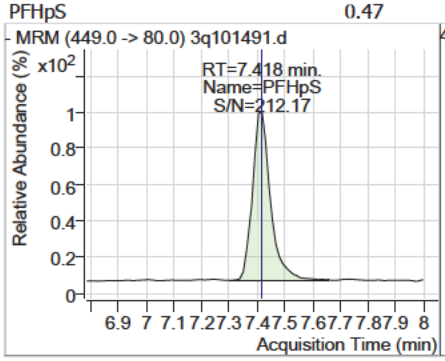
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.41	6.78	0.00	22902	377.0 -> 85.0	12.5	6.0	18.0

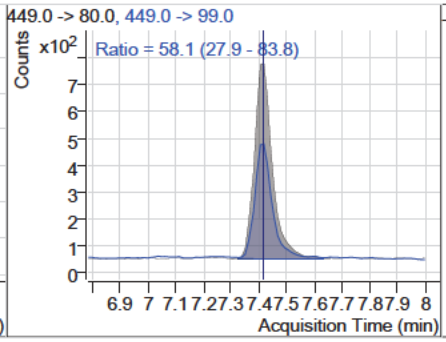


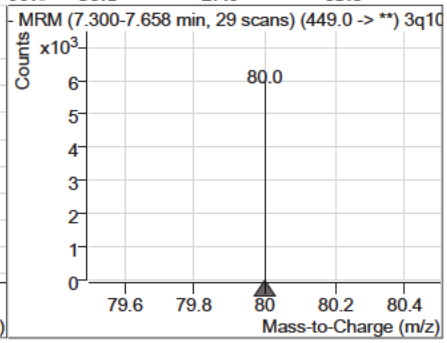




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.47	7.42	0.00	3282	449.0 -> 99.0	58.1	27.9	83.8







7.7.15

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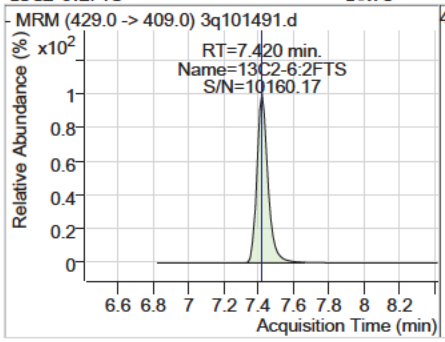
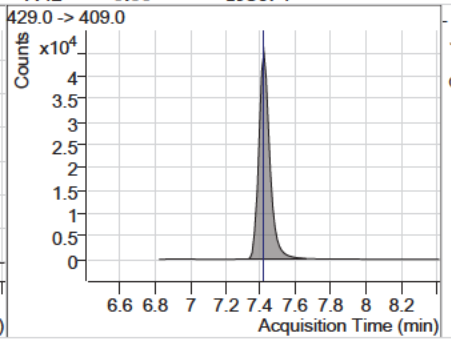
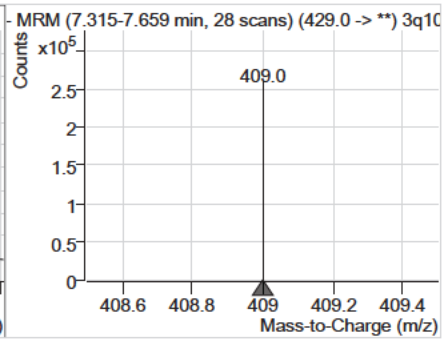
Perfluorinated Compounds by LC/MS/MS

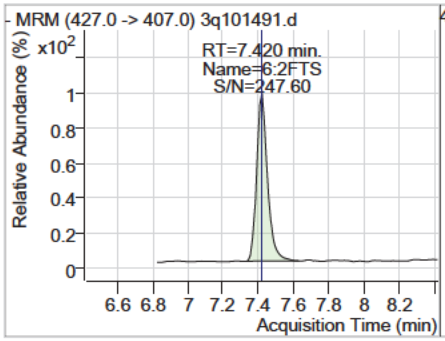
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	10.75	7.42	0.00	195674				

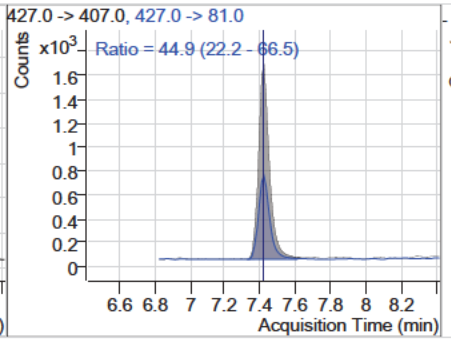


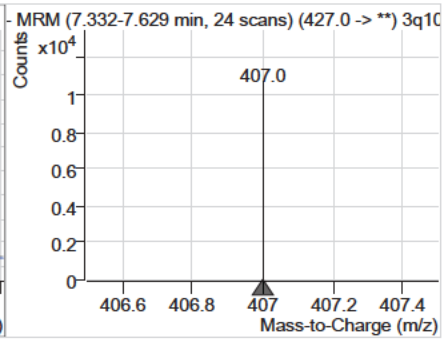




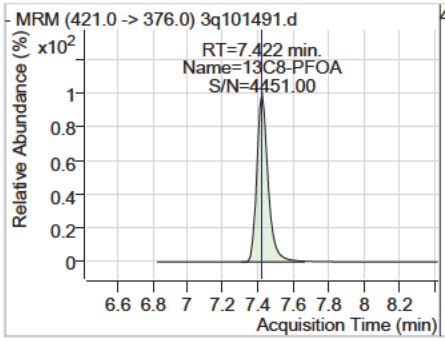
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.41	7.42	0.00	6961	427.0 -> 81.0	44.9	22.2	66.5

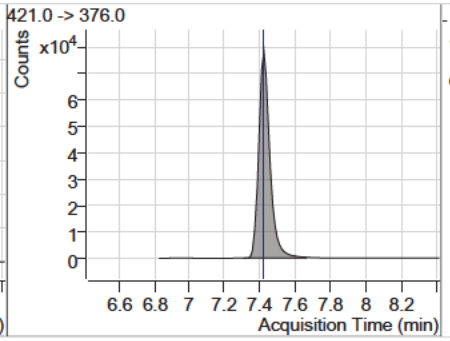


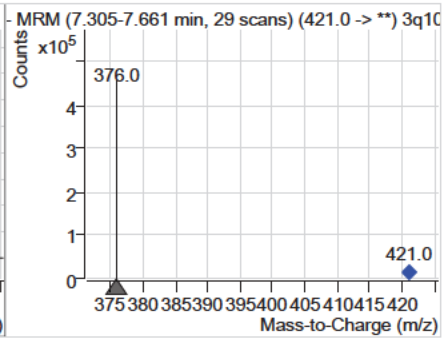




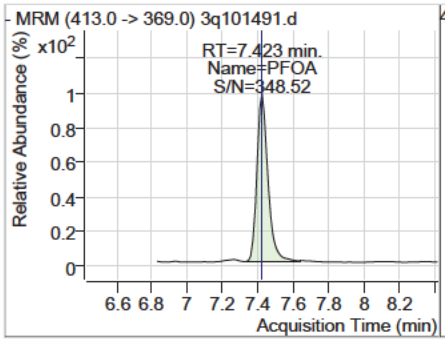
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	11.07	7.42	0.00	344836				

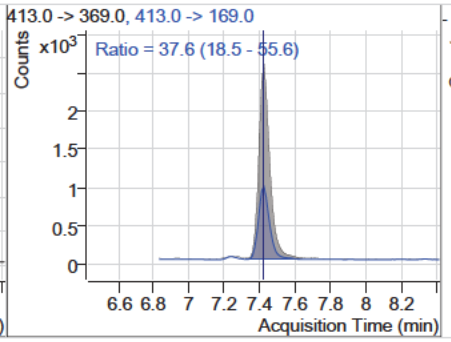


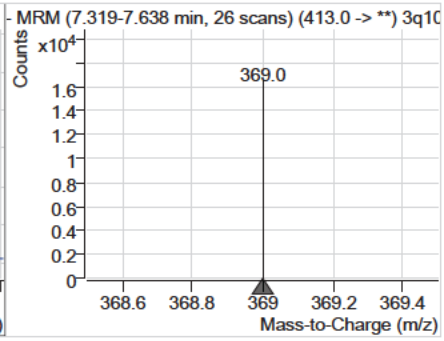




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.42	7.42	0.00	11185	413.0 -> 169.0	37.6	18.5	55.6

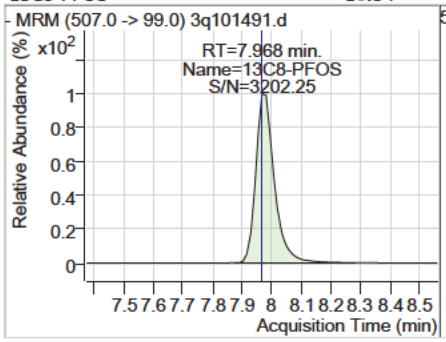


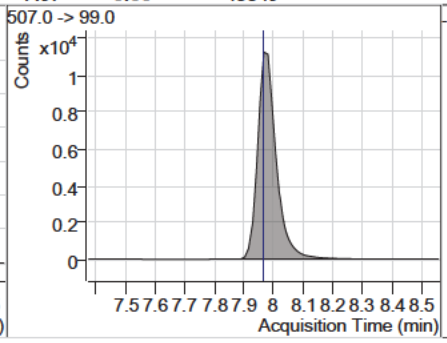


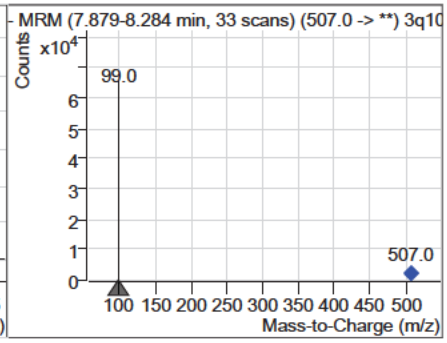


Perfluorinated Compounds by LC/MS/MS

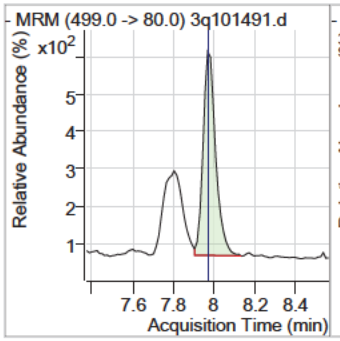
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.54	7.97	0.00	48849				

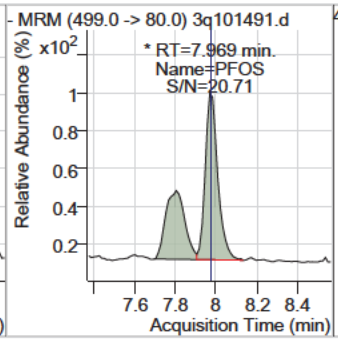


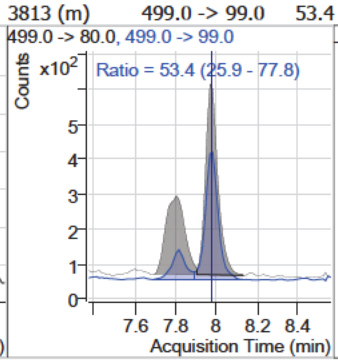


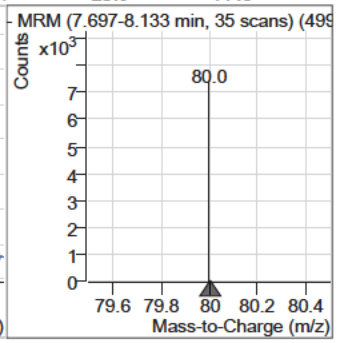


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.49	7.97	0.00	3813 (m)	499.0 -> 99.0	53.4	25.9	77.8

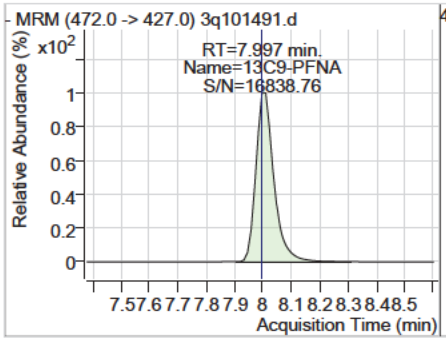


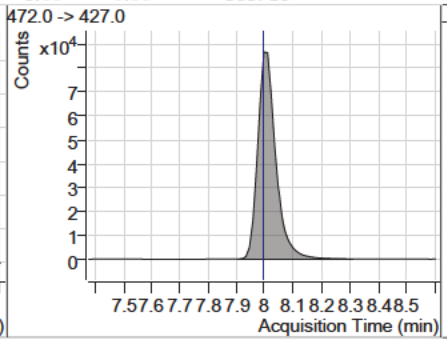


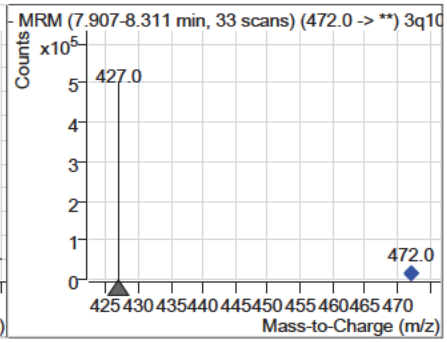




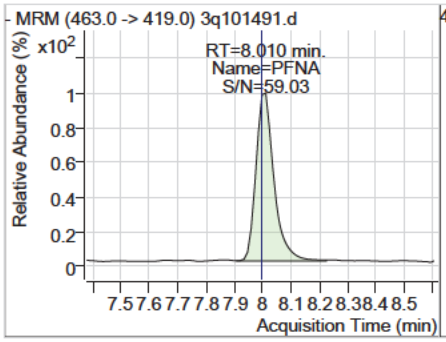
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	11.34	8.00	0.00	383718				

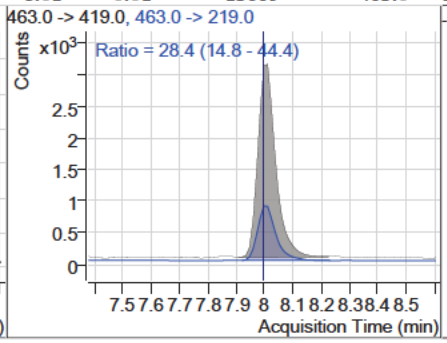


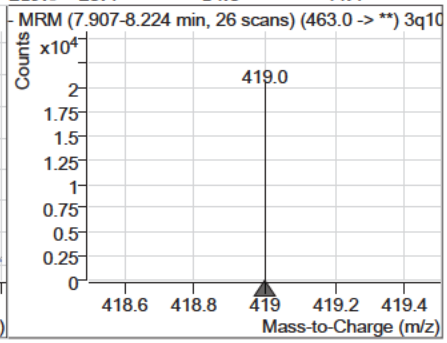




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.43	8.01	0.01	13669	463.0 -> 219.0	28.4	14.8	44.4

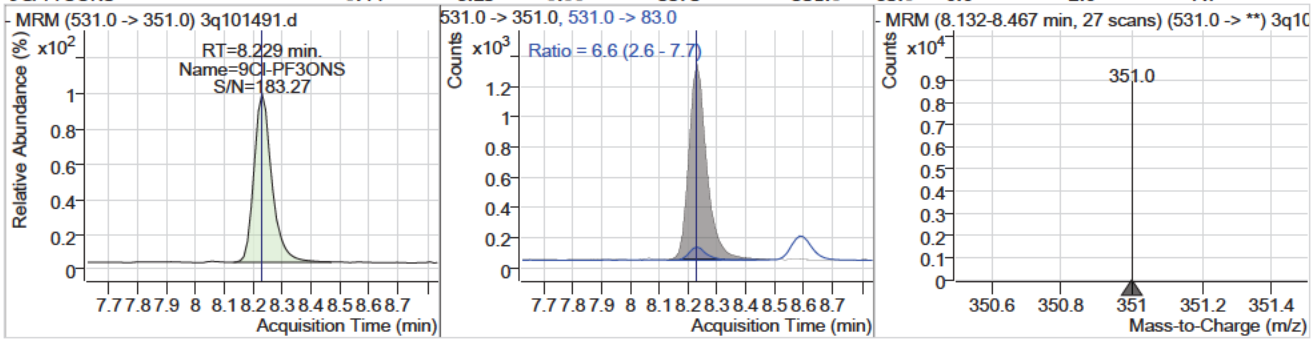




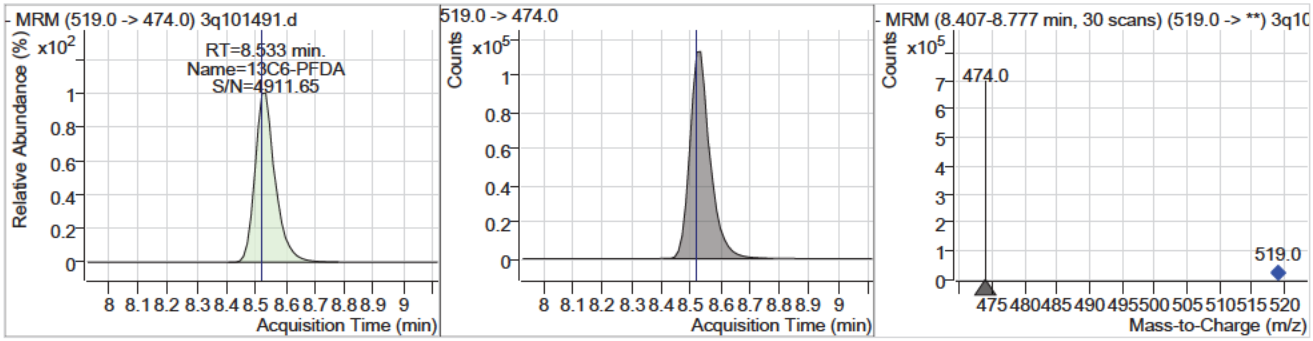


Perfluorinated Compounds by LC/MS/MS

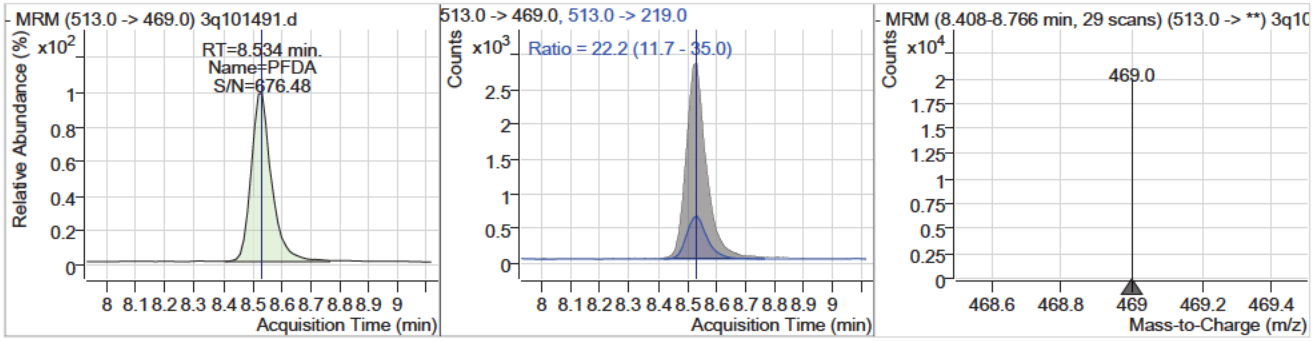
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.44	8.23	0.00	5573	531.0 -> 83.0	6.6	2.6	7.7



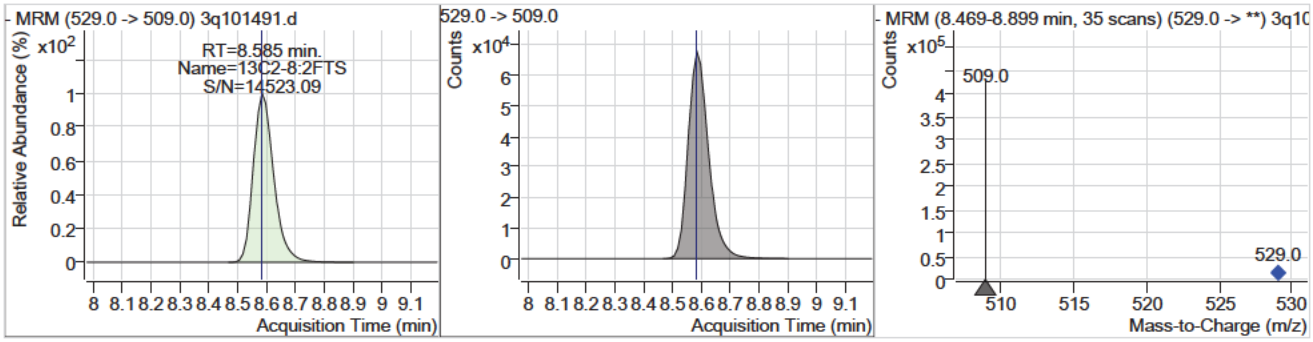
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	11.38	8.53	0.01	539586				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.45	8.53	0.01	13870	513.0 -> 219.0	22.2	11.7	35.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	10.90	8.58	0.00	332422				



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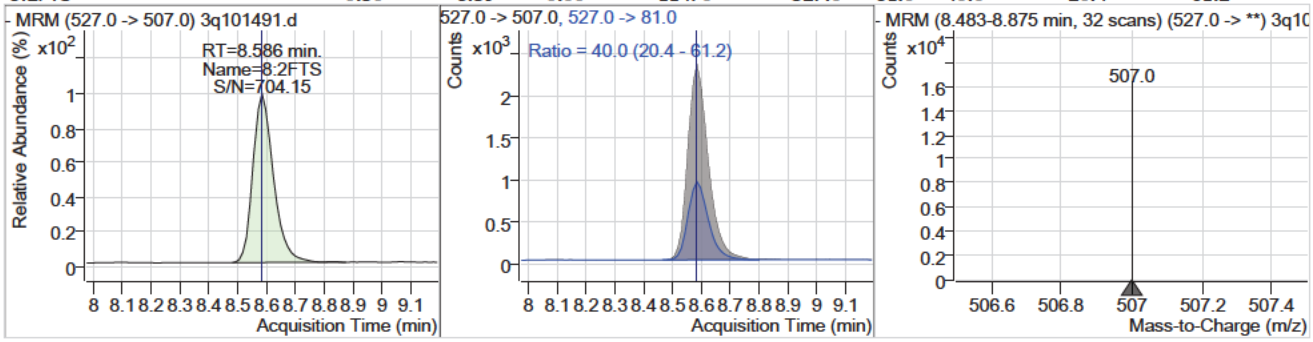
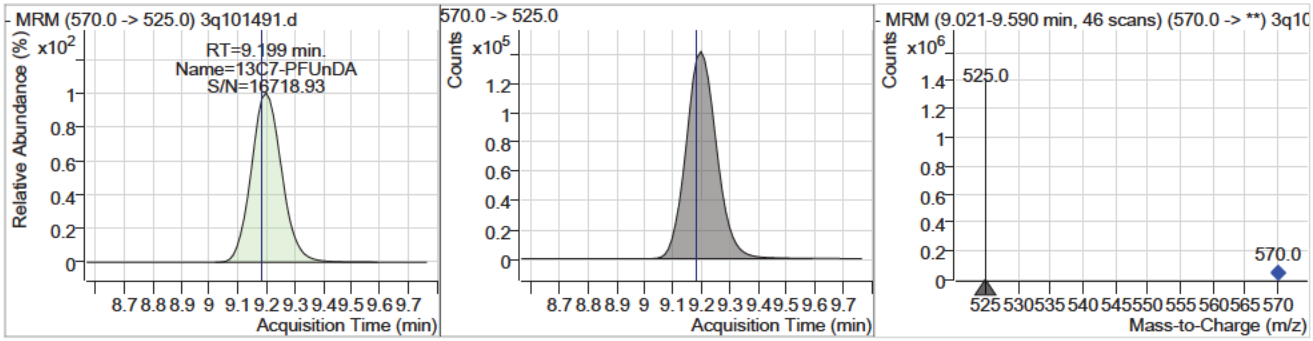
Perfluorinated Compounds by LC/MS/MS

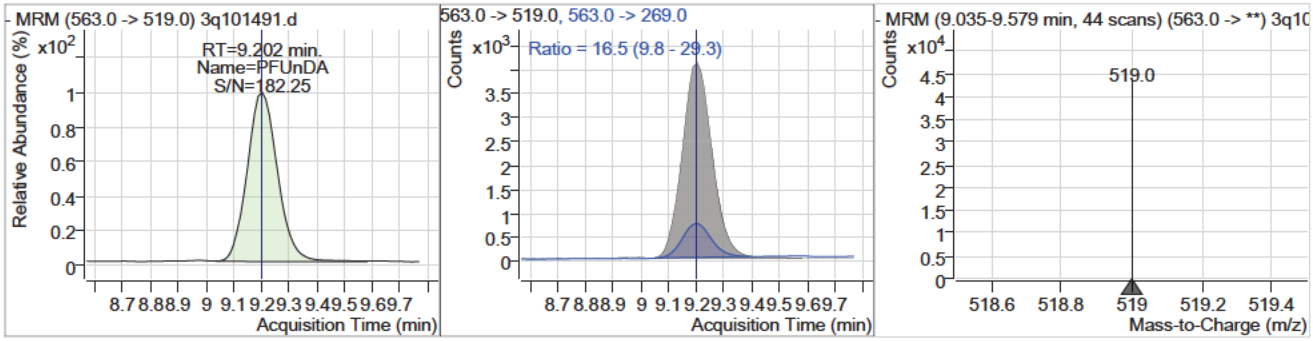
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.50	8.59	0.00	11470	527.0 -> 81.0	40.0	20.4	61.2



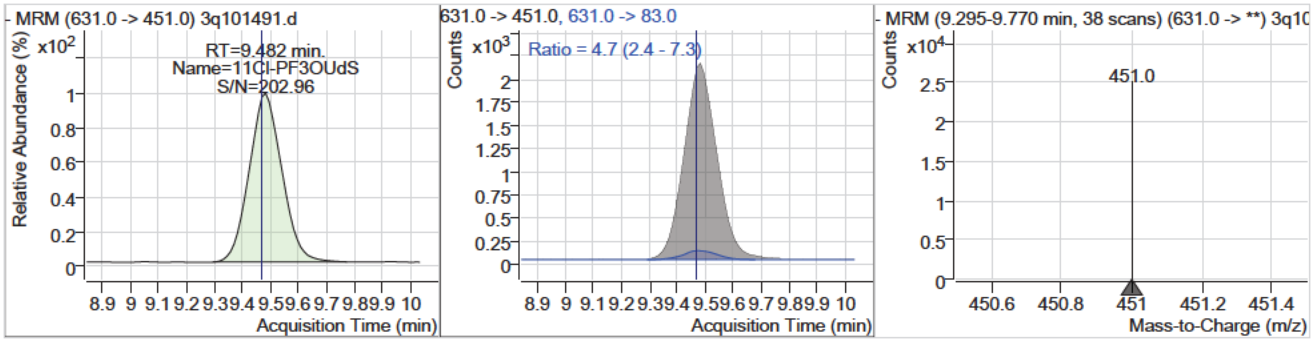
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	11.18	9.20	0.01	1059506				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.45	9.20	0.02	30961	563.0 -> 269.0	16.5	9.8	29.3

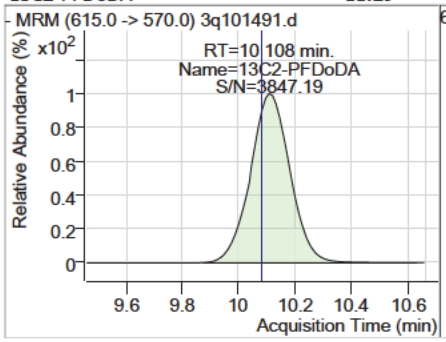


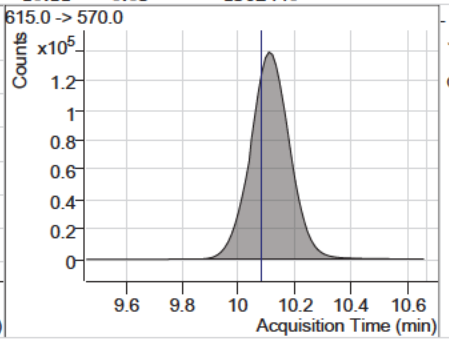
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.47	9.48	0.01	17103	631.0 -> 83.0	4.7	2.4	7.3

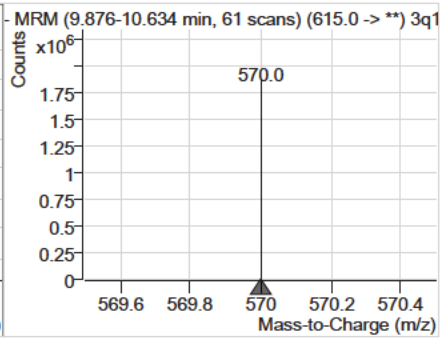


Perfluorinated Compounds by LC/MS/MS

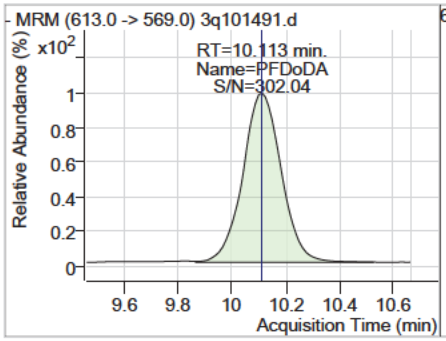
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	11.29	10.11	0.03	1362440				

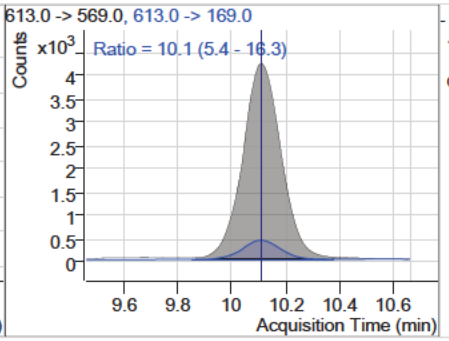


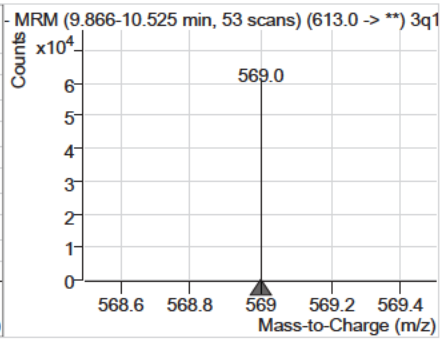




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.46	10.11	0.03	41440	613.0 -> 169.0	10.1	5.4	16.3







7.7.15

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Manual Integration Approval Summary

Sample Number: S3Q1493-CC1492
Lab FileID: 3Q101491.D
Injection Time: 04/16/25 12:01
Method: EPA 533
Analyst approved: 04/16/25 15:17 (b) (6) [redacted]
Supervisor approved: 04/17/25 11:46 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.72	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.97	Split peak

Cal Report: 3Q101499.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:46

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101499.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/16/2025 2:10:33 PM
Sample Name : ecc1492-20
Vial : P1-C7
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1493.batch.bin
Sample Information : op8141,S3Q1493,250,,,1,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	7.422	415.0 -> 370.0	270647	10.00	µg/L	0.000
13C3-PFBA	2.332	216.0 -> 172.0	107096	10.00	µg/L	-0.013
13C4-PFOS	7.983	503.0 -> 80.0	40595	10.00	µg/L	0.014
M4-PFBA	2.340	217.0 -> 172.0	193515	10.00	µg/L	0.000
M5-PFPeA	4.413	268.0 -> 223.0	234193	10.00	µg/L	0.000
M5-PFHxA	5.776	318.0 -> 273.0	302457	10.00	µg/L	0.000
M4-PFHpA	6.694	367.0 -> 322.0	255419	10.00	µg/L	0.000
M8-PFOA	7.422	421.0 -> 376.0	334842	10.00	µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	370650	10.00	µg/L	0.013
M6-PFDA	8.533	519.0 -> 474.0	533486	10.00	µg/L	0.013
M7-PFUnDA	9.185	570.0 -> 525.0	1013771	10.00	µg/L	0.000
M2-PFDoDA	10.083	615.0 -> 570.0	1290991	10.00	µg/L	0.000
M3-PFBS	4.708	302.0 -> 99.0	26251	10.00	µg/L	0.000
M3-PFHxS	6.724	402.0 -> 99.0	37421	10.00	µg/L	0.000
M8-PFOS	7.982	507.0 -> 99.0	47932	10.00	µg/L	0.014
M2-4:2FTS	5.672	329.0 -> 309.0	108771	10.00	µg/L	0.000
M2-6:2FTS	7.420	429.0 -> 409.0	206187	10.00	µg/L	0.000
M2-8:2FTS	8.585	529.0 -> 509.0	353464	10.00	µg/L	0.000
M3-HFPO-DA	6.056	287.0 -> 169.0	3803	10.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	5.672	329.0 -> 309.0	108771	11.26	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.6%		
13C2-6:2FTS	7.420	429.0 -> 409.0	206187	11.36	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.6%		
13C2-8:2FTS	8.585	529.0 -> 509.0	353464	11.63	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 116.3%		
13C2-PFDoDA	10.083	615.0 -> 570.0	1290991	11.20	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.0%		
13C3-PFBS	4.708	302.0 -> 99.0	26251	10.36	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.6%		
13C3-PFHxS	6.724	402.0 -> 99.0	37421	10.38	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.8%		
13C4-PFBA	2.340	217.0 -> 172.0	193515	10.65	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.5%		
13C4-PFHpA	6.694	367.0 -> 322.0	255419	11.15	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.5%		
13C5-PFHxA	5.776	318.0 -> 273.0	302457	11.03	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.3%		
13C5-PFPeA	4.413	268.0 -> 223.0	234193	10.69	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.9%		
13C6-PFDA	8.533	519.0 -> 474.0	533486	11.78	µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 117.8%		
13C7-PFUnDA	9.185	570.0 -> 525.0	1013771	11.21	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.1%		
13C8-PFOA	7.422	421.0 -> 376.0	334842	11.26	µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

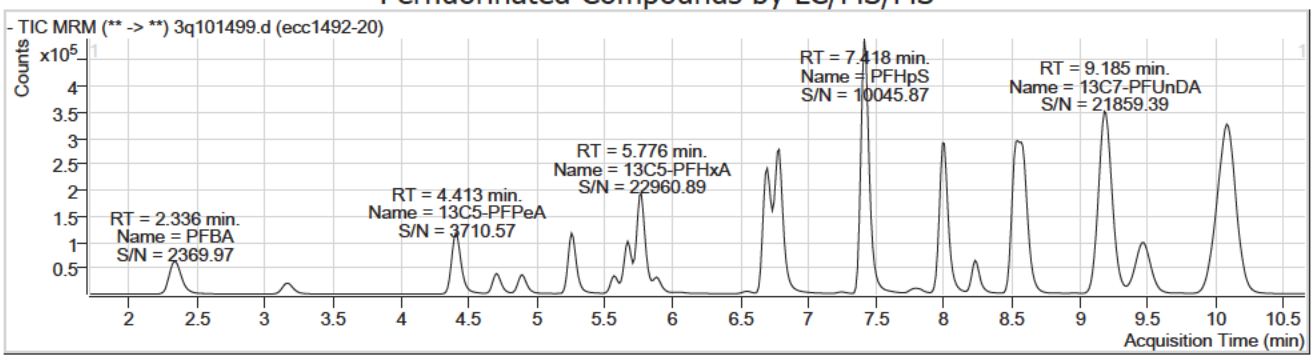
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.6%		
13C8-PFOS	7.982	507.0 -> 99.0	47932	10.38 µg/L		0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.8%		
13C9-PFNA	8.010	472.0 -> 427.0	370650	11.47 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.7%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	3803	9.65 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.5%		
Target Compounds						QValue
PFMPA	3.166	229.0 -> 85.0	125170	19.98 µg/L		100
4:2FTS	5.674	327.0 -> 307.0	230354	19.03 µg/L		99
		327.0 -> 81.0	95816			
6:2FTS	7.420	427.0 -> 407.0	313924	19.27 µg/L		96
		427.0 -> 81.0	131498			
8:2FTS	8.586	527.0 -> 507.0	527526	21.72 µg/L		94
		527.0 -> 81.0	195372			
PFMBA	4.901	279.0 -> 85.0	169677	19.65 µg/L		100
PFEESA	5.260	315.0 -> 135.0	480244	20.28 µg/L		100
		315.0 -> 69.0	36664			
NFDHA	5.582	201.0 -> 85.0	142946	18.90 µg/L		99
		295.0 -> 201.0	9497			
PFBA	2.336	213.0 -> 169.0	106265	19.86 µg/L		100
PFBS	4.710	299.0 -> 80.0	106147	20.00 µg/L		99
		299.0 -> 99.0	45330			
PFDA	8.534	513.0 -> 469.0	593986	19.69 µg/L		96
		513.0 -> 219.0	128051			
PFDoDA	10.087	613.0 -> 569.0	1727904	20.13 µg/L		96
		613.0 -> 169.0	160873			
PFHpA	6.695	363.0 -> 319.0	677190	18.89 µg/L		100
		363.0 -> 169.0	55630			
PFHpS	7.418	449.0 -> 80.0	142367	20.78 µg/L		99
		449.0 -> 99.0	78281			
PFHxA	5.778	313.0 -> 269.0	529131	18.57 µg/L		100
		313.0 -> 119.0	18454			
PFHxS	6.725	399.0 -> 80.0	134894	20.48 µg/L	m	99
		399.0 -> 99.0	70383			
PFNA	8.010	463.0 -> 419.0	581546	19.16 µg/L		97
		463.0 -> 219.0	161310			
PFOA	7.423	413.0 -> 369.0	491123	19.02 µg/L		99
		413.0 -> 169.0	179271			
PFOS	7.983	499.0 -> 80.0	154507	20.16 µg/L	m	99
		499.0 -> 99.0	79174			
PFPeA	4.415	263.0 -> 219.0	350847	19.86 µg/L		100
PFPeS	5.883	349.0 -> 80.0	76234	19.95 µg/L		99
		349.0 -> 99.0	32373			
PFUnDA	9.187	563.0 -> 519.0	1315847	20.14 µg/L		96
		563.0 -> 269.0	230460			
11Cl-PF3OUdS	9.470	631.0 -> 451.0	750730	21.09 µg/L		99
		631.0 -> 83.0	34933			
9Cl-PF3ONS	8.229	531.0 -> 351.0	252706	20.47 µg/L		99
		531.0 -> 83.0	13408			
ADONA	6.792	377.0 -> 251.0	1019264	18.42 µg/L		100
		377.0 -> 85.0	123294			
HFPO-DA	6.061	329.0 -> 169.0	1745	20.83 µg/L		94
		285.0 -> 169.0	4043			

= Qualifier out of range, m = manually integrated, + = Area summed

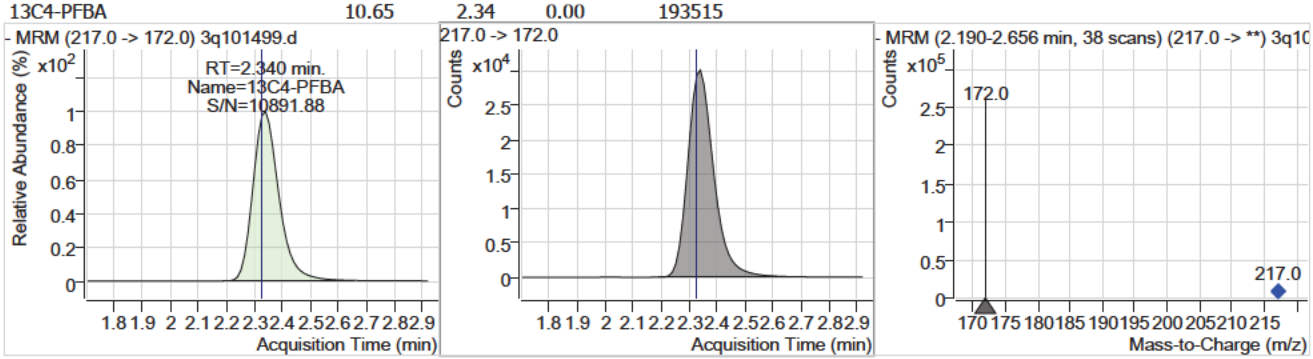
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)

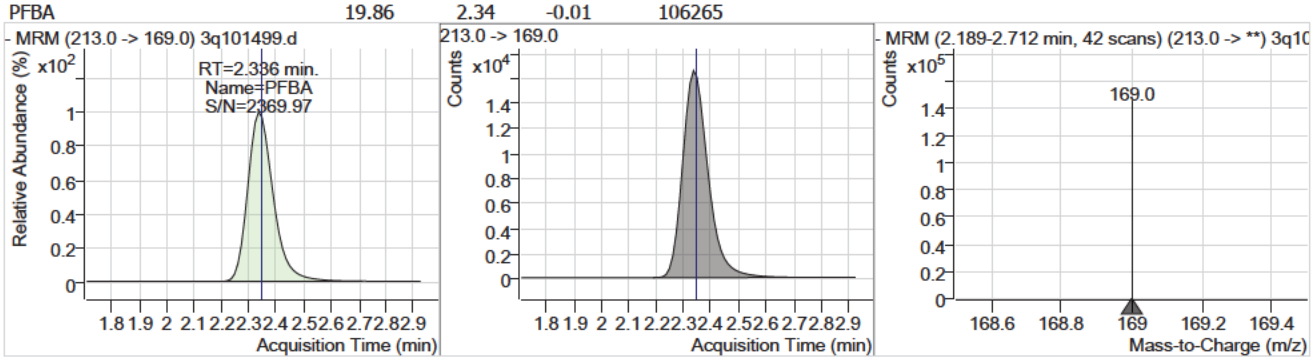
Perfluorinated Compounds by LC/MS/MS



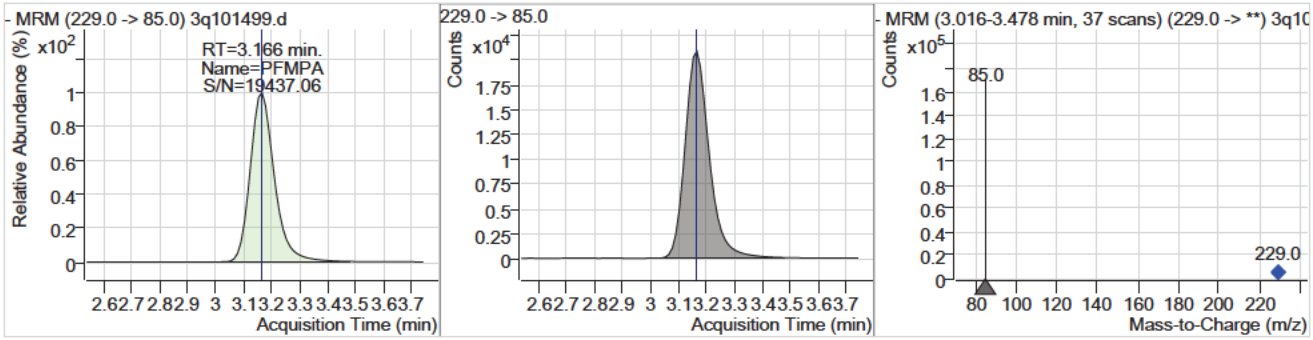
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.65	2.34	0.00	193515				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.86	2.34	-0.01	106265				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	19.98	3.17	0.00	125170				



7.7.16

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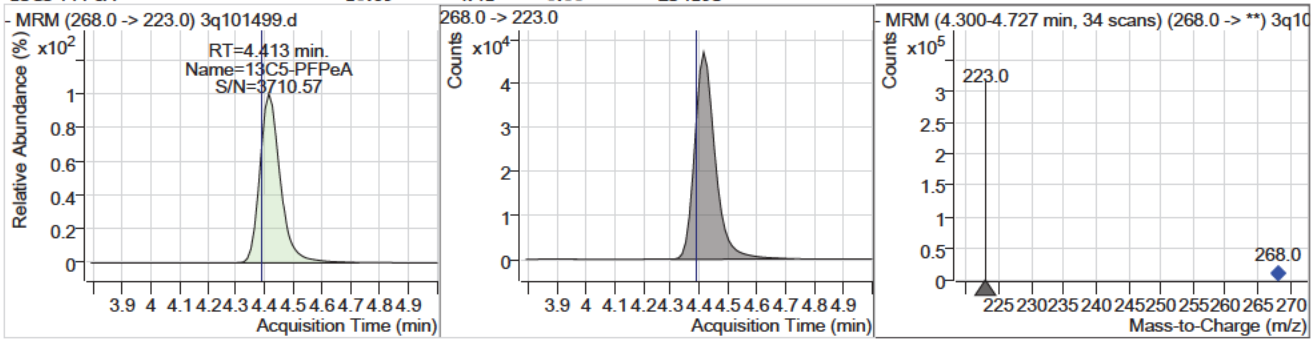
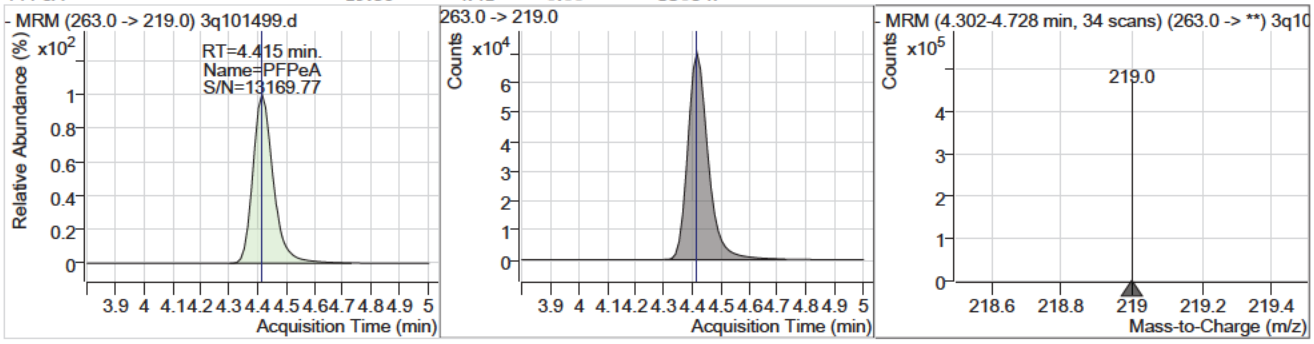
Perfluorinated Compounds by LC/MS/MS

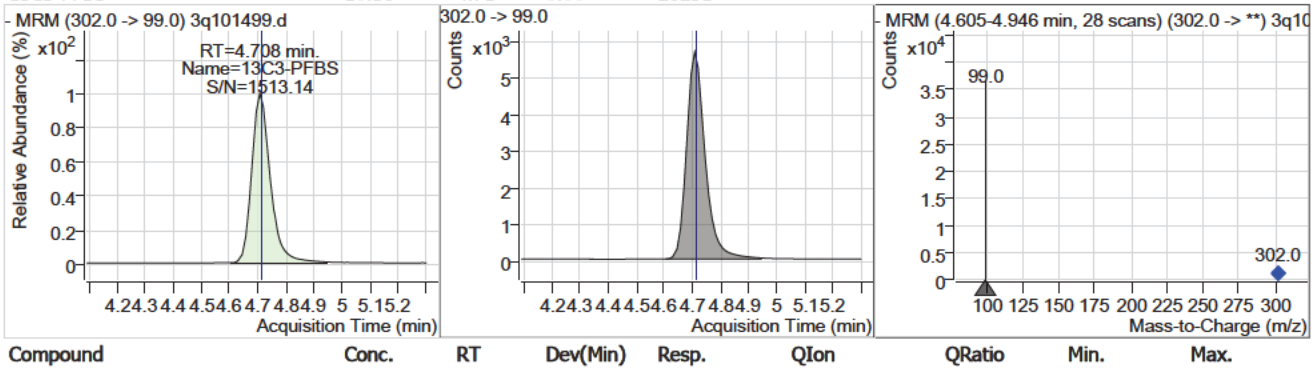
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.69	4.41	0.00	234193				



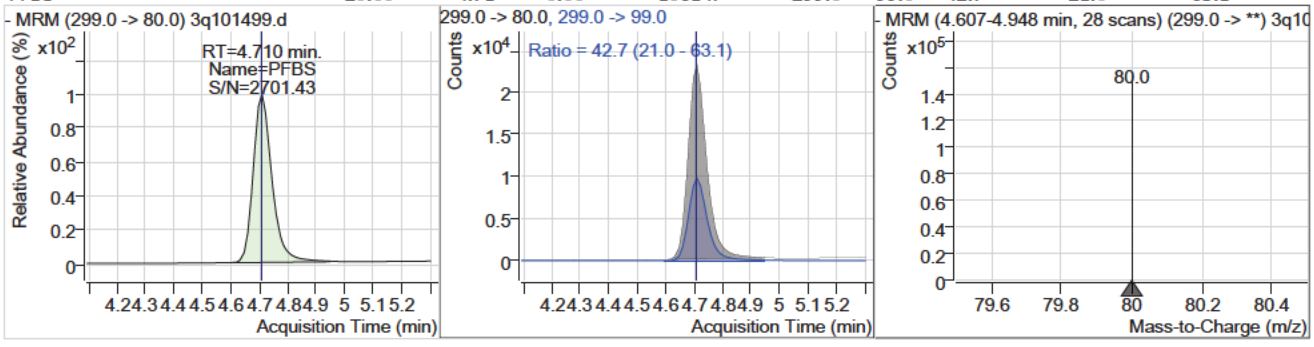
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.86	4.41	0.00	350847				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.36	4.71	0.00	26251				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.00	4.71	0.00	106147	299.0 -> 99.0	42.7	21.0	63.1



7.7.16

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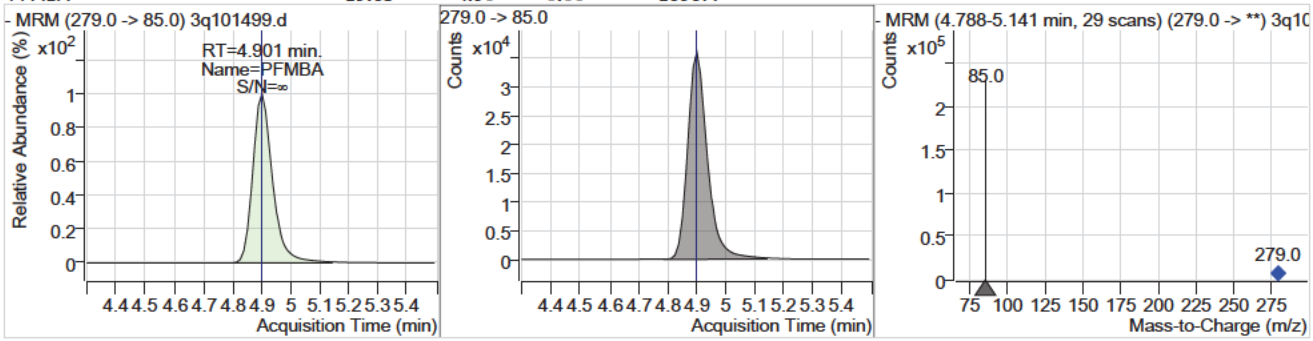
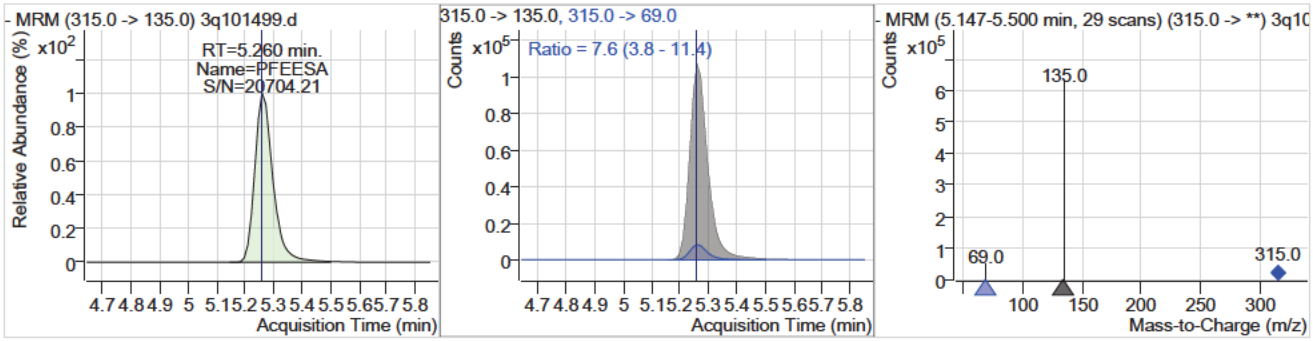
Perfluorinated Compounds by LC/MS/MS

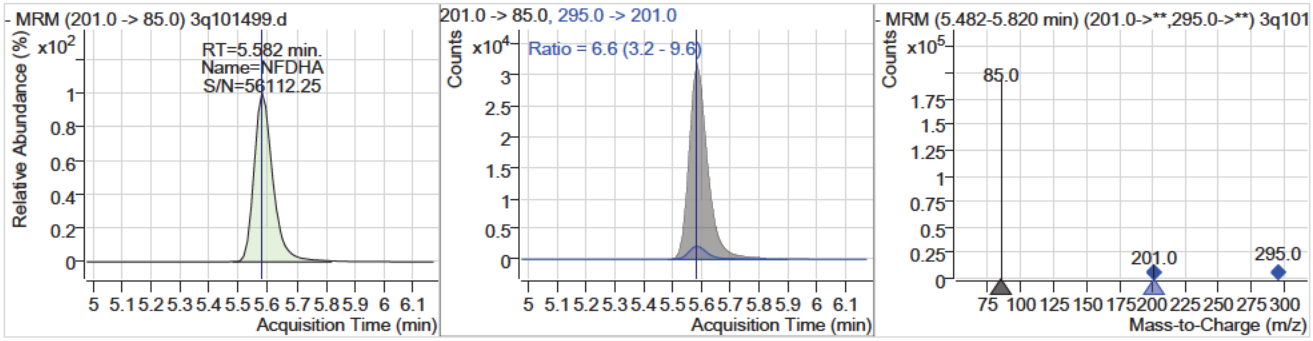
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	19.65	4.90	0.00	169677				



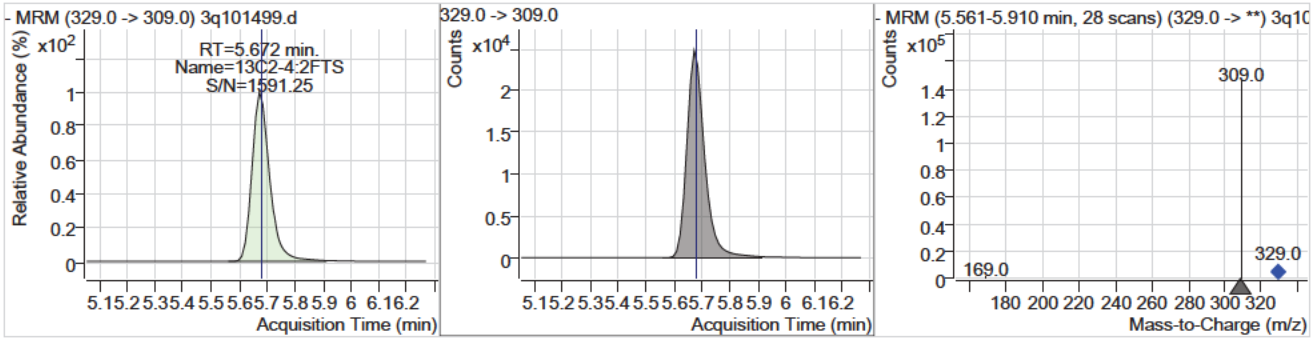
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	20.28	5.26	0.00	480244	315.0 -> 69.0	7.6	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	18.90	5.58	0.00	142946	295.0 -> 201.0	6.6	3.2	9.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	11.26	5.67	0.00	108771				



7.7.16

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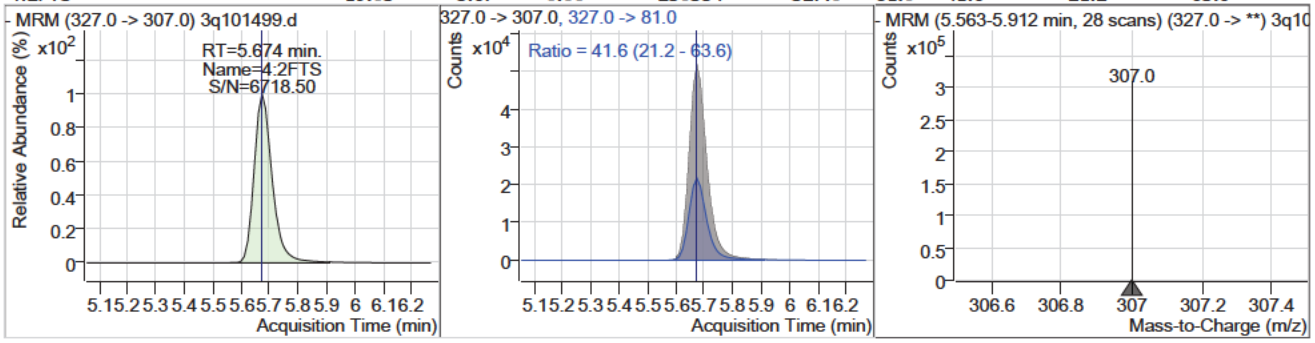
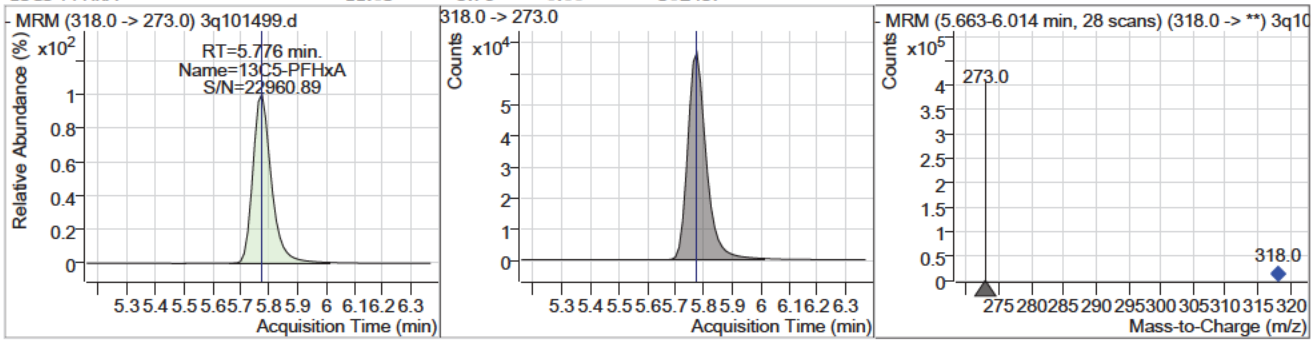
Perfluorinated Compounds by LC/MS/MS

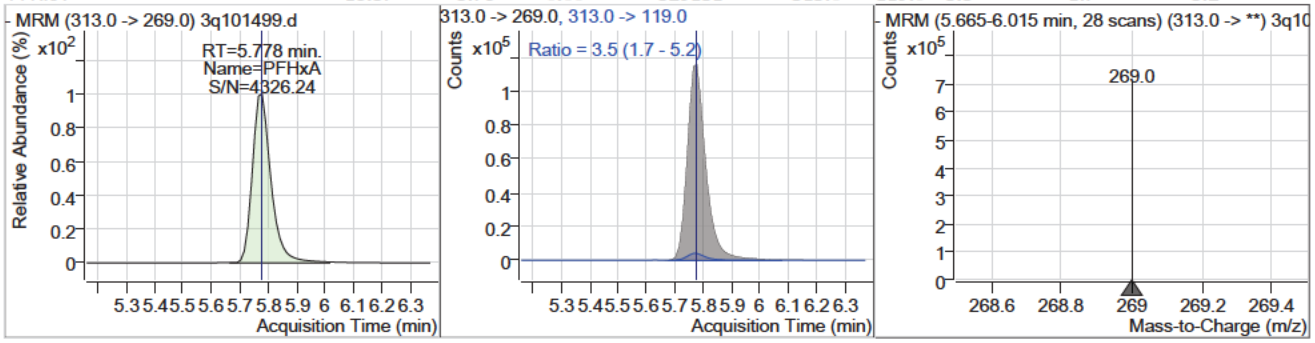
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.03	5.67	0.00	230354	327.0 -> 81.0	41.6	21.2	63.6



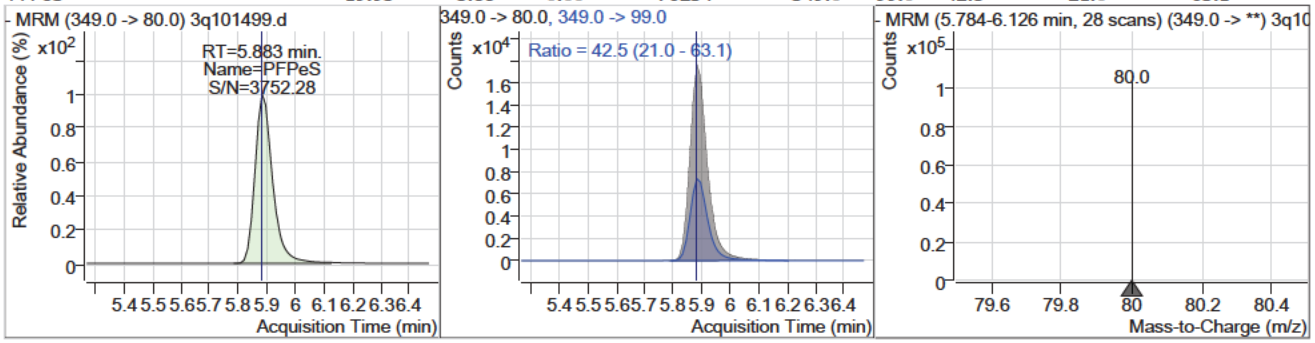
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	11.03	5.78	0.00	302457				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	18.57	5.78	0.00	529131	313.0 -> 119.0	3.5	1.7	5.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	19.95	5.88	0.00	76234	349.0 -> 99.0	42.5	21.0	63.1



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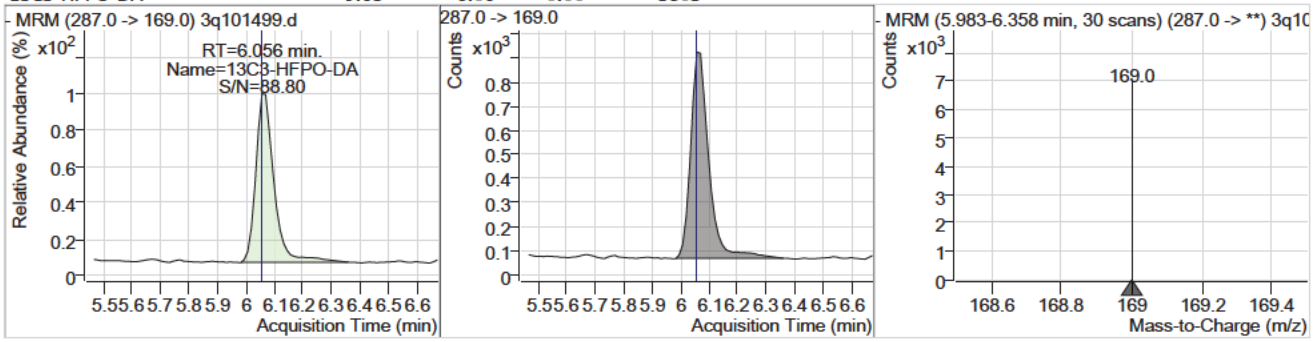
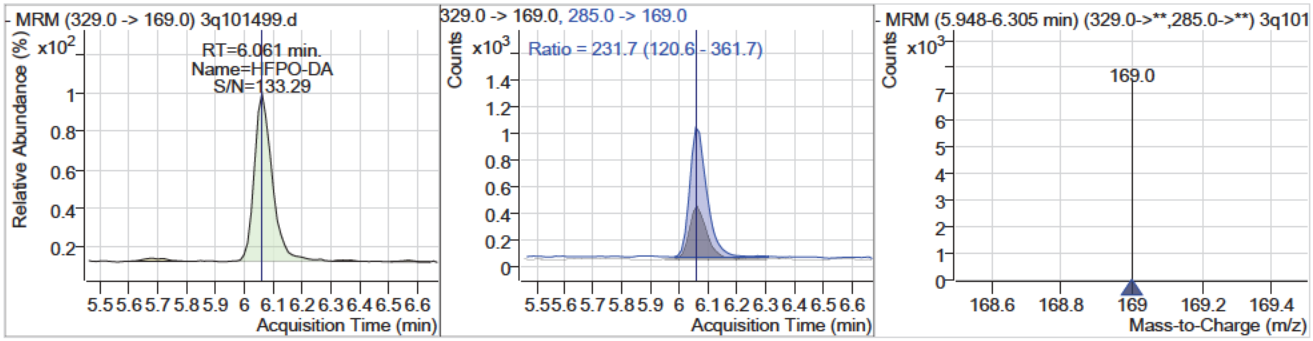
Perfluorinated Compounds by LC/MS/MS

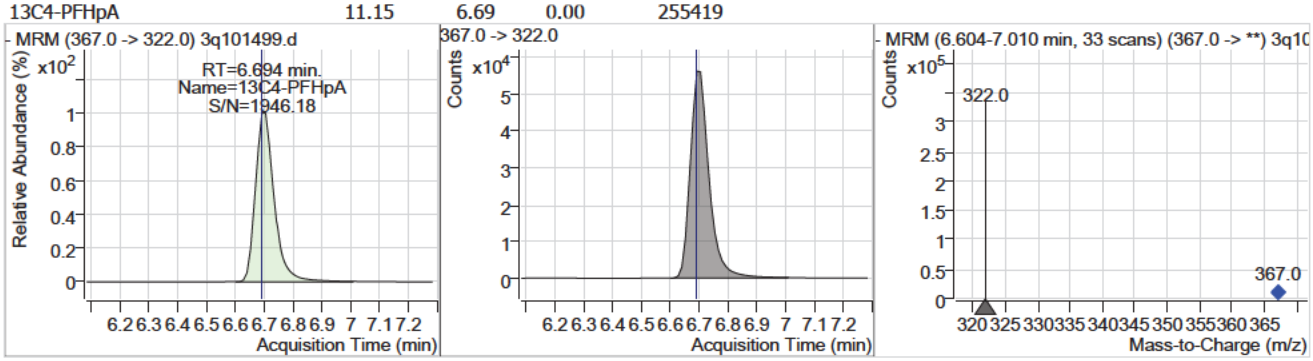
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.65	6.06	0.00	3803				



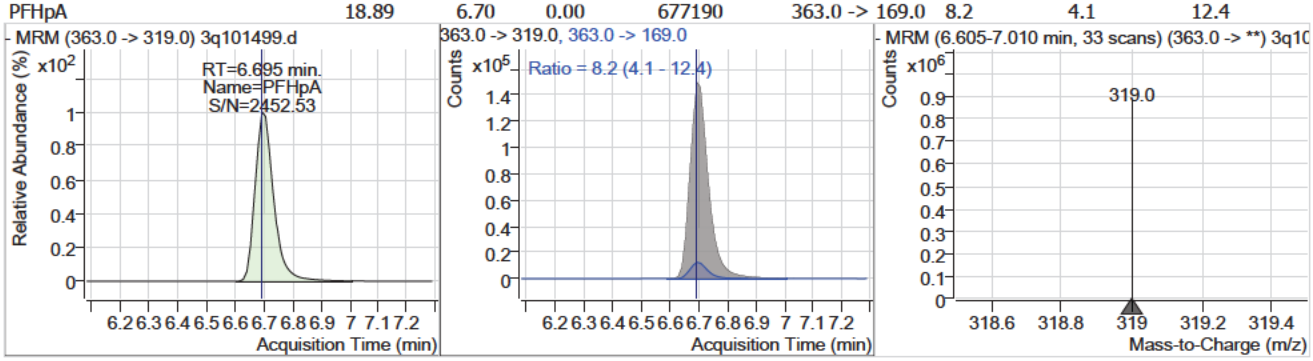
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	20.83	6.06	0.00	1745	285.0 -> 169.0	231.7	120.6	361.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	11.15	6.69	0.00	255419				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	18.89	6.70	0.00	677190	363.0 -> 169.0	8.2	4.1	12.4



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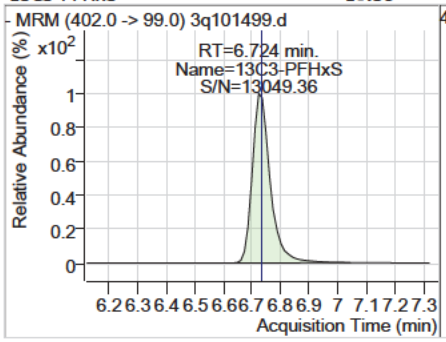
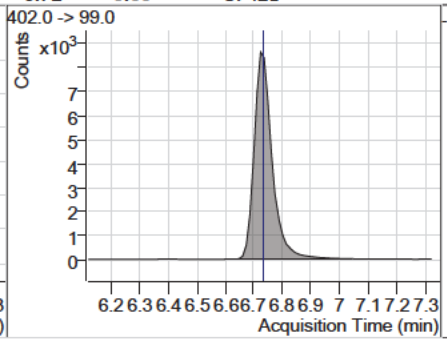
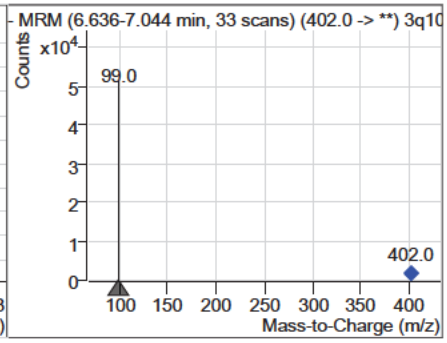
Perfluorinated Compounds by LC/MS/MS

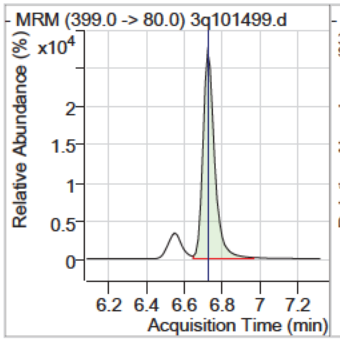
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.38	6.72	0.00	37421				

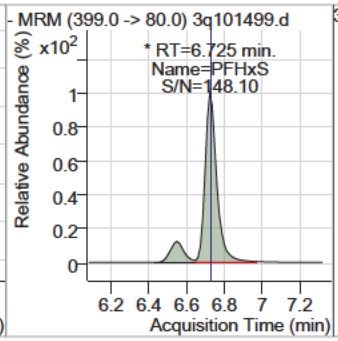


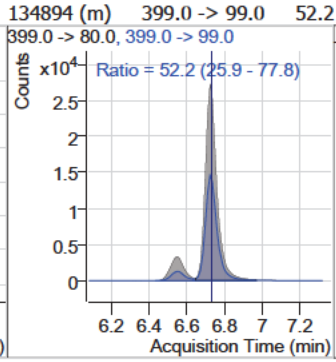


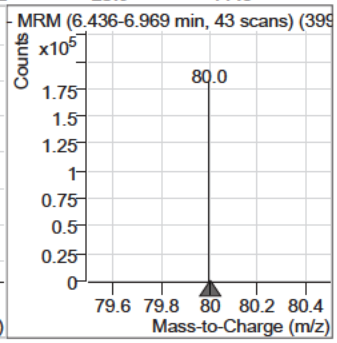


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	20.48	6.73	0.00	134894 (m)	399.0 -> 99.0	52.2	25.9	77.8

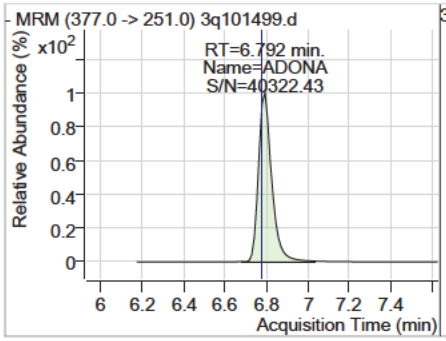


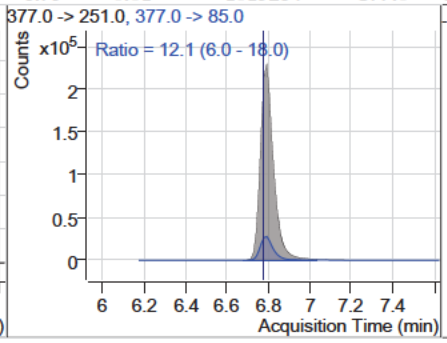


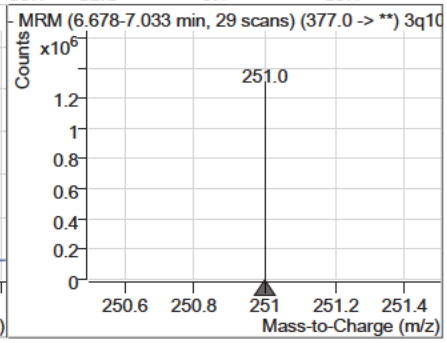




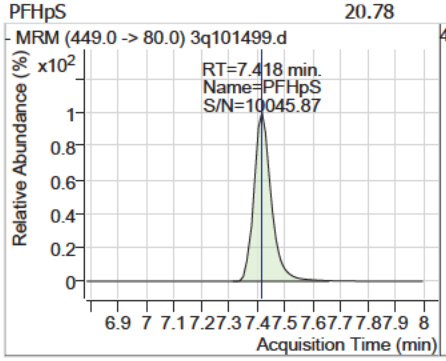
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	18.42	6.79	0.01	1019264	377.0 -> 85.0	12.1	6.0	18.0

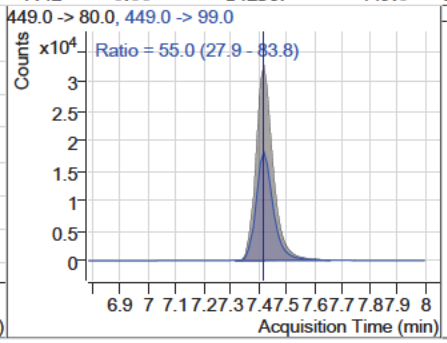


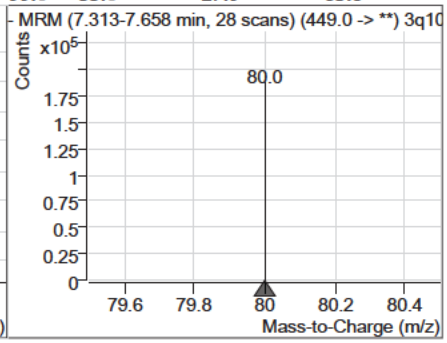




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	20.78	7.42	0.00	142367	449.0 -> 99.0	55.0	27.9	83.8

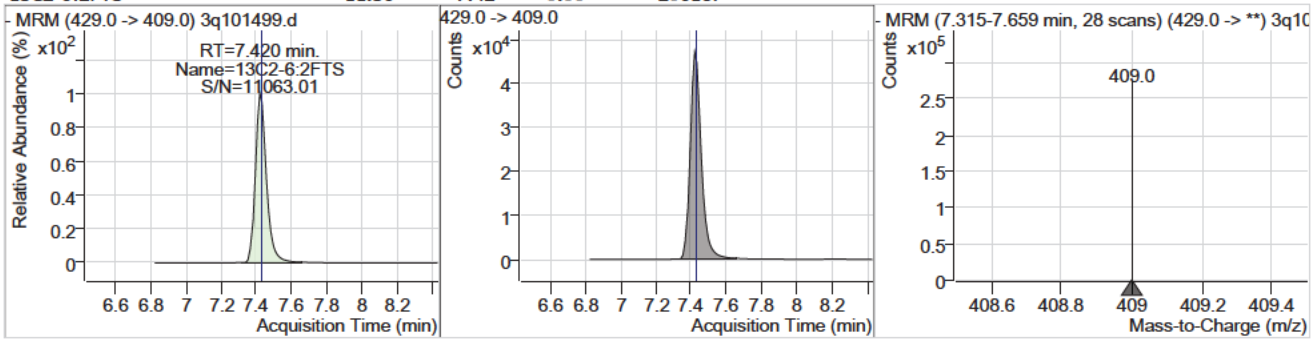




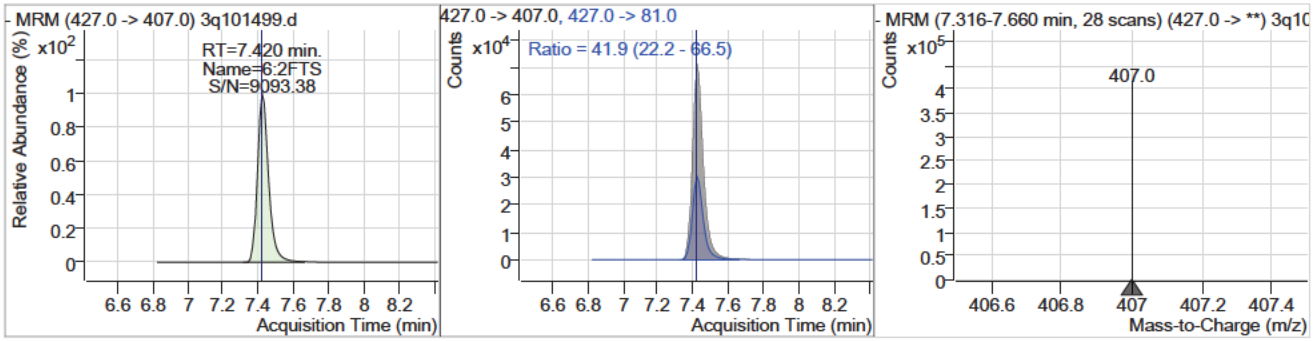


Perfluorinated Compounds by LC/MS/MS

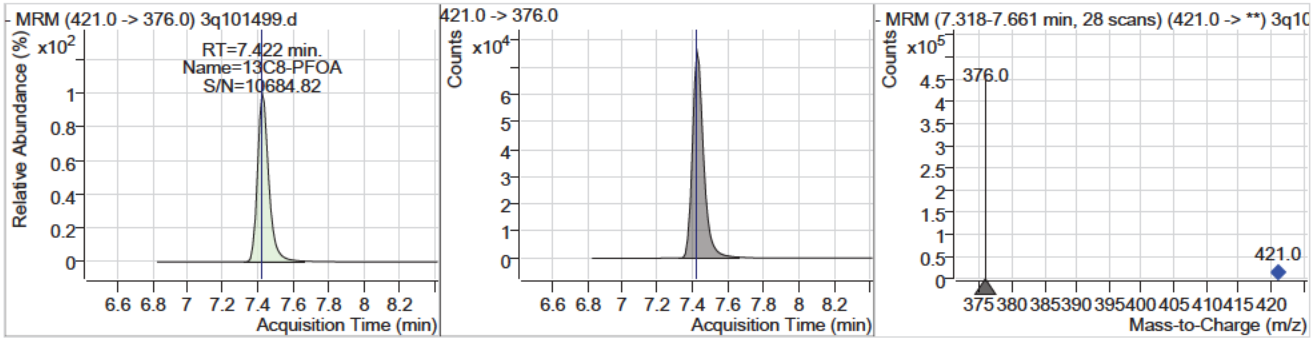
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	11.36	7.42	0.00	206187				



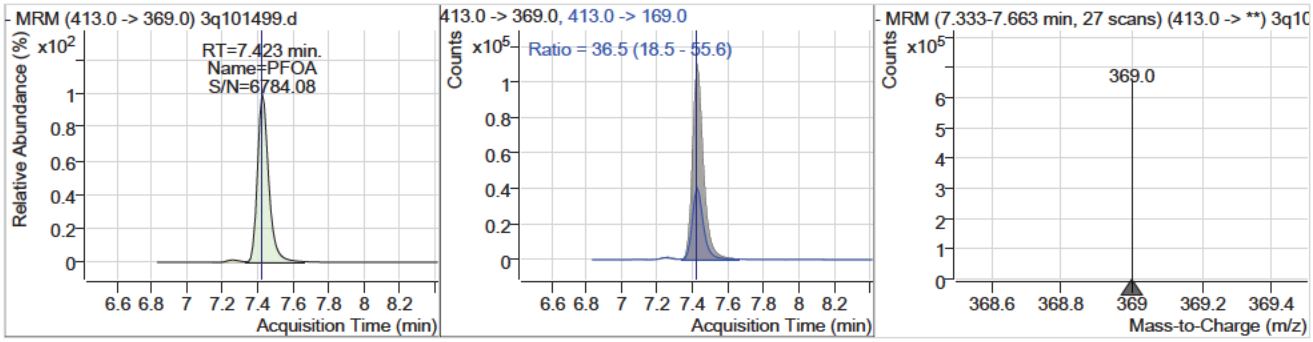
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.27	7.42	0.00	313924	427.0 -> 81.0	41.9	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	11.26	7.42	0.00	334842				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.02	7.42	0.00	491123	413.0 -> 169.0	36.5	18.5	55.6



7.7.16

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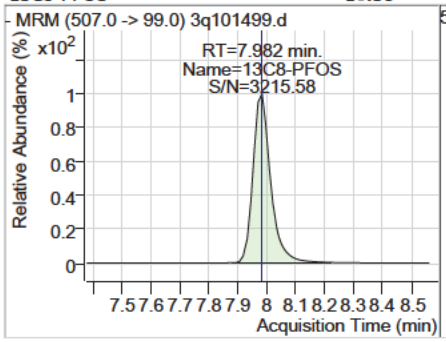
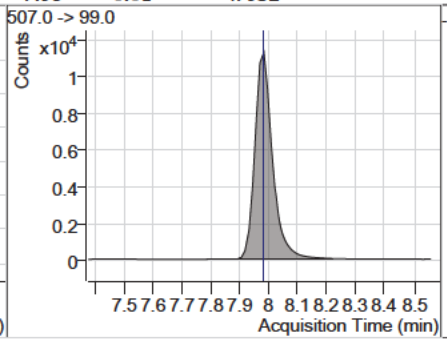
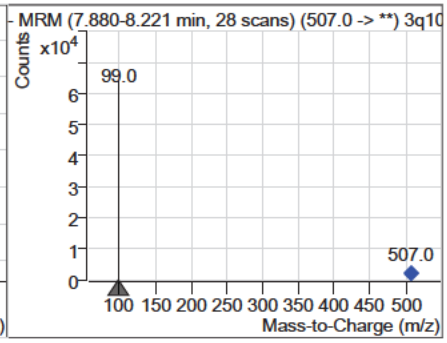
Perfluorinated Compounds by LC/MS/MS

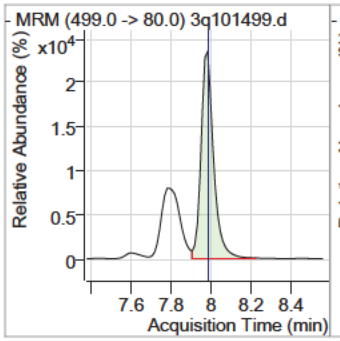
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.38	7.98	0.01	47932				

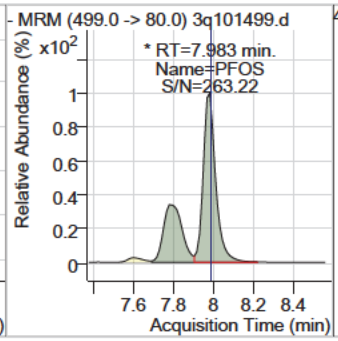


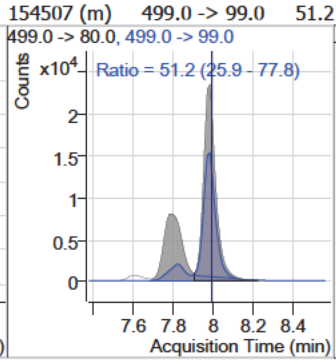


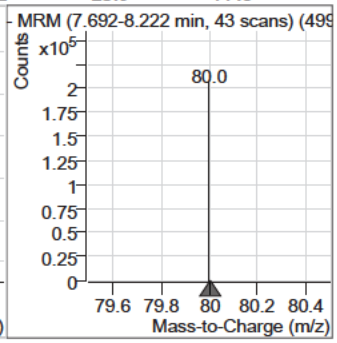


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	20.16	7.98	0.01	154507 (m)	499.0 -> 99.0	51.2	25.9	77.8

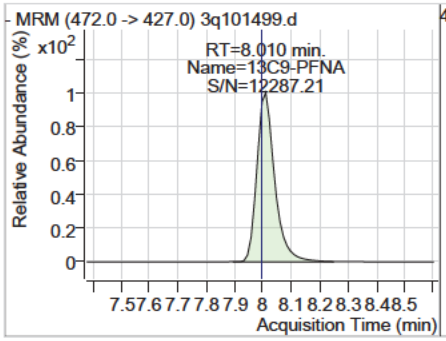


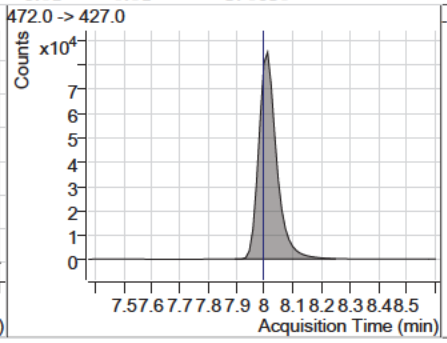


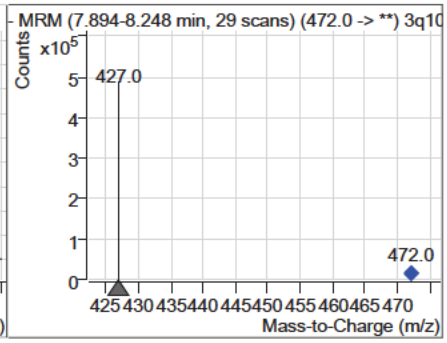




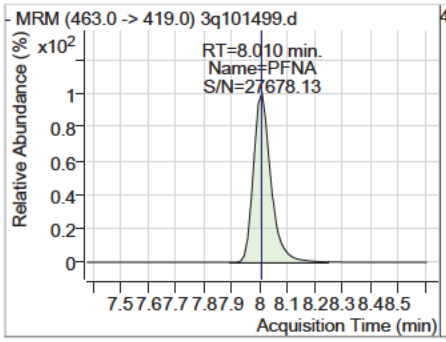
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	11.47	8.01	0.01	370650				

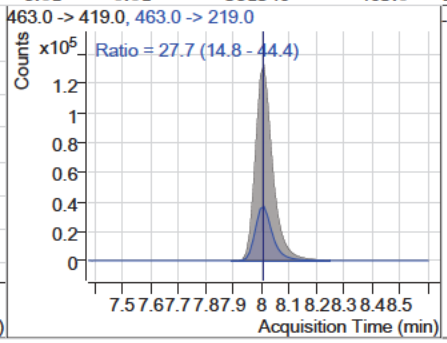


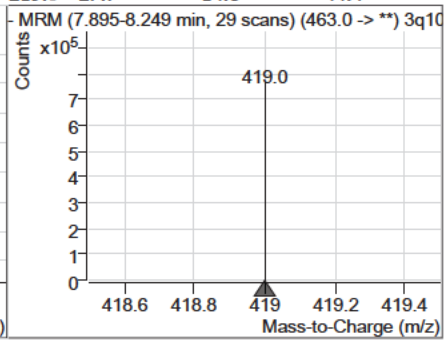




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.16	8.01	0.01	581546	463.0 -> 219.0	27.7	14.8	44.4

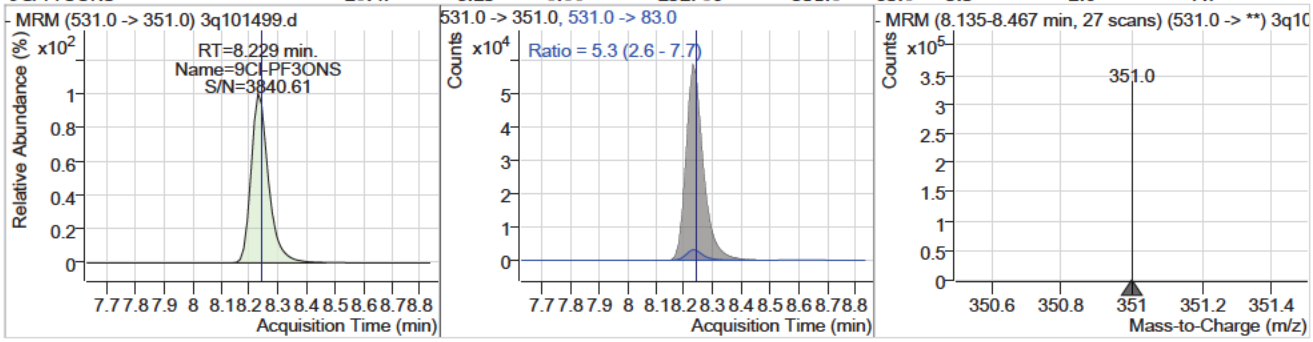




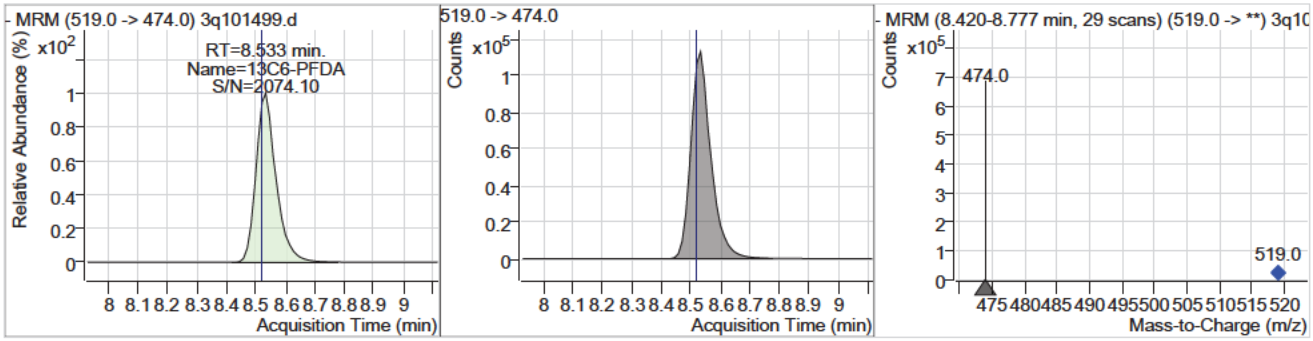


Perfluorinated Compounds by LC/MS/MS

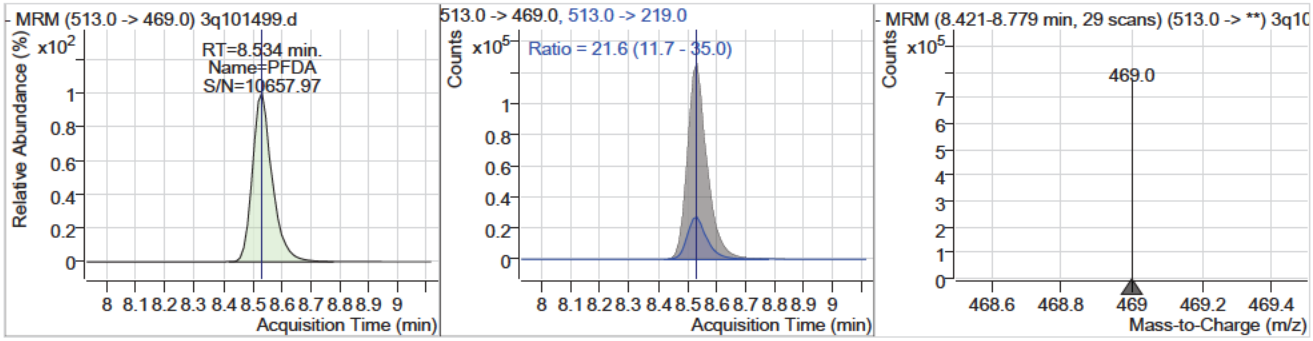
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	20.47	8.23	0.00	252706	531.0 -> 83.0	5.3	2.6	7.7



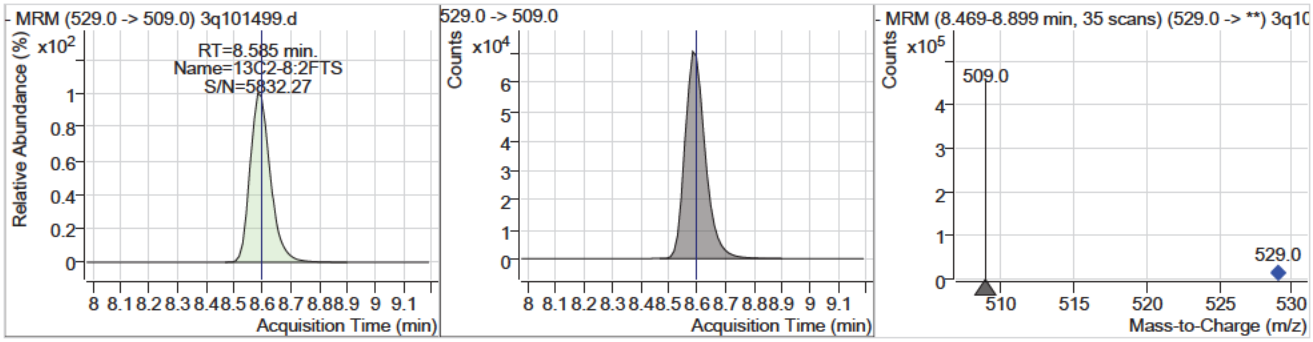
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	11.78	8.53	0.01	533486				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.69	8.53	0.01	593986	513.0 -> 219.0	21.6	11.7	35.0

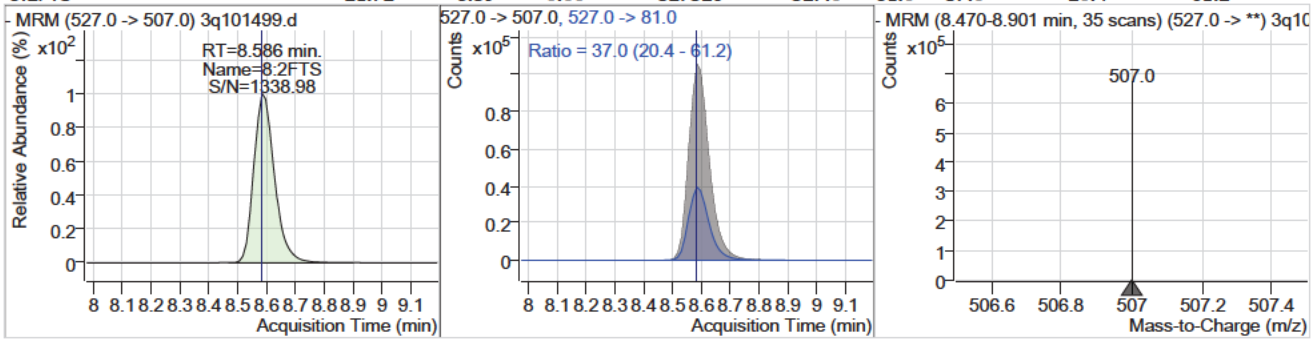


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	11.63	8.58	0.00	353464				

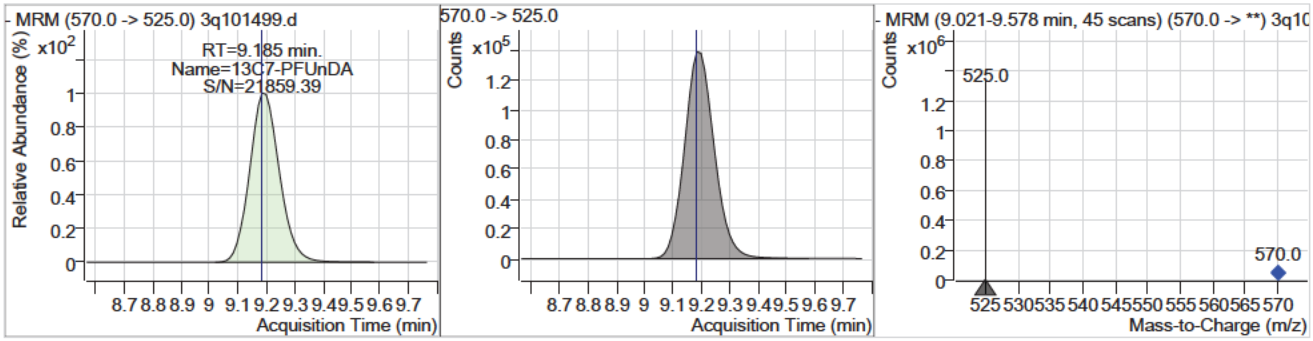


Perfluorinated Compounds by LC/MS/MS

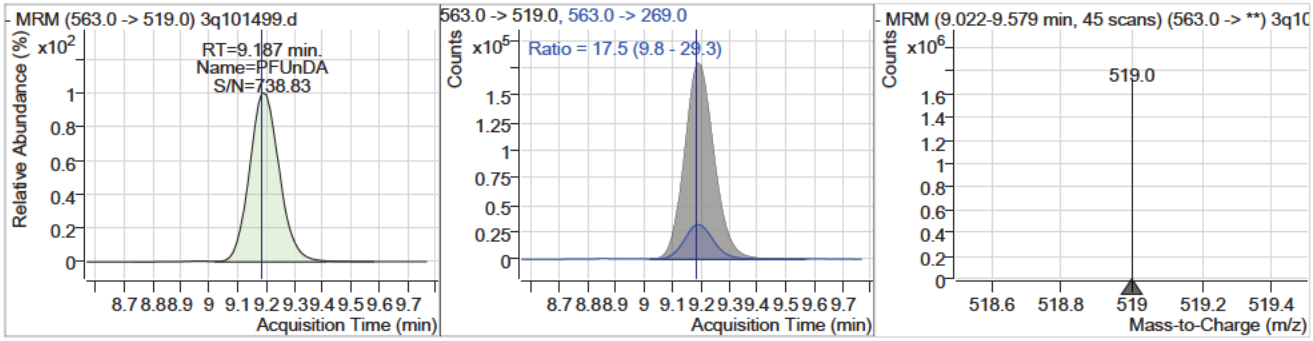
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.72	8.59	0.00	527526	527.0 -> 81.0	37.0	20.4	61.2



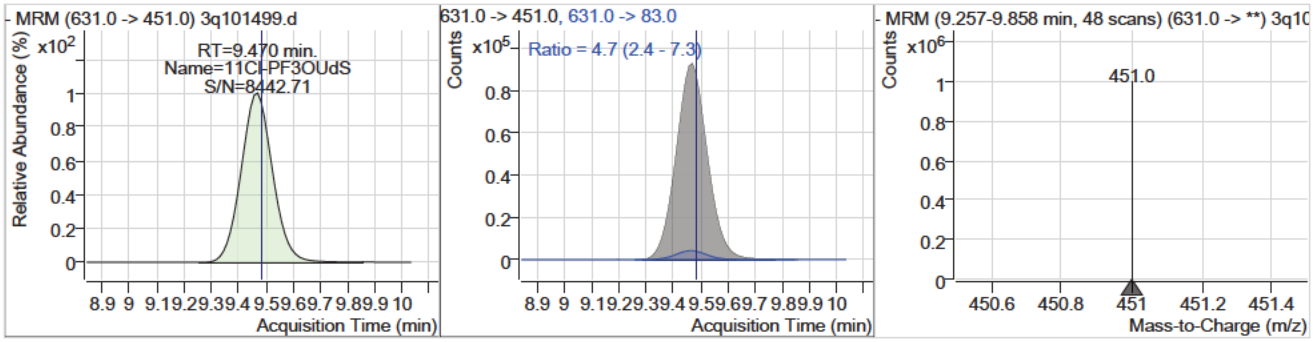
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	11.21	9.18	0.00	1013771				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	20.14	9.19	0.00	1315847	563.0 -> 269.0	17.5	9.8	29.3

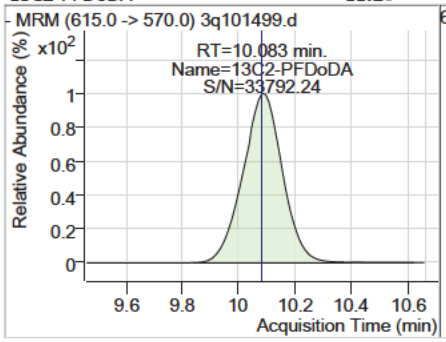


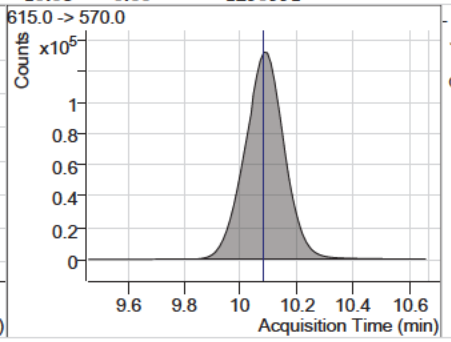
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	21.09	9.47	0.00	750730	631.0 -> 83.0	4.7	2.4	7.3

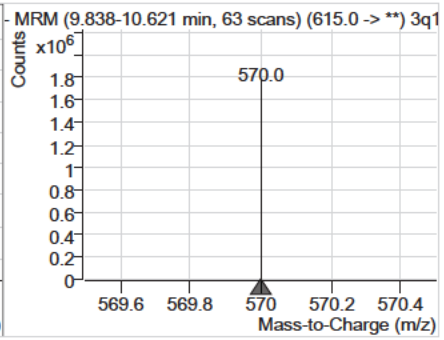


Perfluorinated Compounds by LC/MS/MS

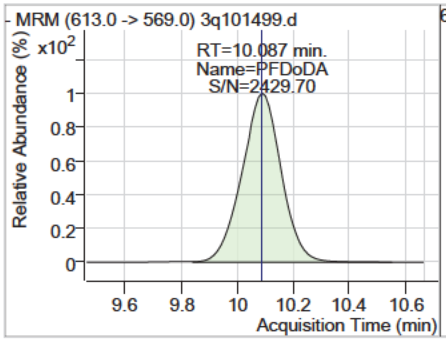
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	11.20	10.08	0.00	1290991				

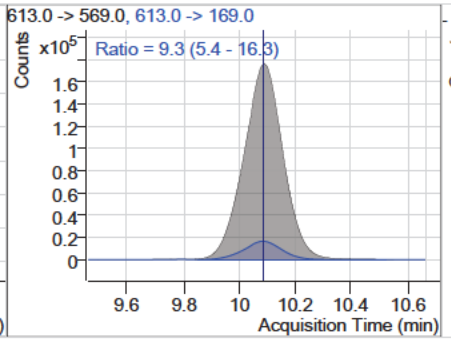


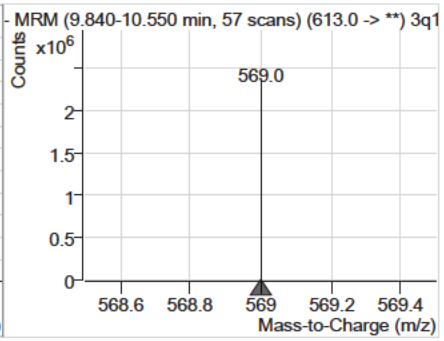




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	20.13	10.09	0.00	1727904	613.0 -> 169.0	9.3	5.4	16.3







7.7.16

7

Manual Integration Approval Summary

Sample Number: S3Q1493-ECC1492
Lab FileID: 3Q101499.D
Injection Time: 04/16/25 14:10
Method: EPA 533
Analyst approved: 04/16/25 15:17 (b) (6) [redacted]
Supervisor approved: 04/17/25 11:46 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.72	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Cal Report: 3Q101520.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 10:08

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101520.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/17/2025 10:51:06 AM
Sample Name : cc1492-20
Vial : P1-C7
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1494.batch.bin
Sample Information : op8907,S3Q1494,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.447	415.0 -> 370.0	258564	10.00 µg/L	0.025
13C3-PFBA	2.369	216.0 -> 172.0	102753	10.00 µg/L	0.025
13C4-PFOS	7.995	503.0 -> 80.0	39230	10.00 µg/L	0.026
M4-PFBA	2.365	217.0 -> 172.0	187266	10.00 µg/L	0.025
M5-PFPeA	4.438	268.0 -> 223.0	225283	10.00 µg/L	0.025
M5-PFHxA	5.801	318.0 -> 273.0	290103	10.00 µg/L	0.025
M4-PFHpA	6.719	367.0 -> 322.0	244995	10.00 µg/L	0.025
M8-PFOA	7.447	421.0 -> 376.0	317834	10.00 µg/L	0.025
M9-PFNA	8.022	472.0 -> 427.0	354687	10.00 µg/L	0.026
M6-PFDA	8.558	519.0 -> 474.0	486060	10.00 µg/L	0.038
M7-PFUnDA	9.249	570.0 -> 525.0	983488	10.00 µg/L	0.064
M2-PFDoDA	10.158	615.0 -> 570.0	1242577	10.00 µg/L	0.075
M3-PFBS	4.733	302.0 -> 99.0	25677	10.00 µg/L	0.025
M3-PFHxS	6.749	402.0 -> 99.0	36401	10.00 µg/L	0.025
M8-PFOS	7.995	507.0 -> 99.0	46618	10.00 µg/L	0.026
M2-4:2FTS	5.697	329.0 -> 309.0	106490	10.00 µg/L	0.025
M2-6:2FTS	7.445	429.0 -> 409.0	197980	10.00 µg/L	0.025
M2-8:2FTS	8.624	529.0 -> 509.0	345911	10.00 µg/L	0.039
M3-HFPO-DA	6.081	287.0 -> 169.0	3413	10.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.697	329.0 -> 309.0	106490	11.41 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.1%	
13C2-6:2FTS	7.445	429.0 -> 409.0	197980	11.29 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.9%	
13C2-8:2FTS	8.624	529.0 -> 509.0	345911	11.77 µg/L	0.039
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 117.7%	
13C2-PFDoDA	10.158	615.0 -> 570.0	1242577	11.29 µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.9%	
13C3-PFBS	4.733	302.0 -> 99.0	25677	10.49 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C3-PFHxS	6.749	402.0 -> 99.0	36401	10.45 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C4-PFBA	2.365	217.0 -> 172.0	187266	10.74 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C4-PFHpA	6.719	367.0 -> 322.0	244995	11.20 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.0%	
13C5-PFHxA	5.801	318.0 -> 273.0	290103	11.08 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.8%	
13C5-PFPeA	4.438	268.0 -> 223.0	225283	10.72 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.2%	
13C6-PFDA	8.558	519.0 -> 474.0	486060	11.24 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.4%	
13C7-PFUnDA	9.249	570.0 -> 525.0	983488	11.38 µg/L	0.064
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.8%	
13C8-PFOA	7.447	421.0 -> 376.0	317840	11.19 µg/L	0.025

7.7.17
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.9%		
13C8-PFOS	7.995	507.0 -> 99.0	46618	10.45 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.5%		
13C9-PFNA	8.022	472.0 -> 427.0	354687	11.49 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.9%		
13C3-HFPO-DA	6.081	287.0 -> 169.0	3413	9.06 µg/L		0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.6%		
Target Compounds						**QValue**
PFMPA	3.203	229.0 -> 85.0	120446	19.86 µg/L		100
4:2FTS	5.699	327.0 -> 307.0	225563	19.04 µg/L		99
		327.0 -> 81.0	93832			
6:2FTS	7.445	427.0 -> 407.0	302705	19.36 µg/L		96
		427.0 -> 81.0	126922			
8:2FTS	8.625	527.0 -> 507.0	516254	21.72 µg/L		94
		527.0 -> 81.0	192721			
PFMBA	4.926	279.0 -> 85.0	164385	19.79 µg/L		100
PFEESA	5.286	315.0 -> 135.0	468166	20.21 µg/L		100
		315.0 -> 69.0	35057			
NFDHA	5.607	201.0 -> 85.0	137571	18.96 µg/L		98
		295.0 -> 201.0	9521			
PFBA	2.373	213.0 -> 169.0	102350	19.77 µg/L		100
PFBS	4.735	299.0 -> 80.0	102449	19.73 µg/L		98
		299.0 -> 99.0	44239			
PFDA	8.559	513.0 -> 469.0	548220	19.94 µg/L		96
		513.0 -> 219.0	116605			
PFDoDA	10.150	613.0 -> 569.0	1658408	20.07 µg/L		96
		613.0 -> 169.0	156799			
PFHpA	6.720	363.0 -> 319.0	646369	18.80 µg/L		100
		363.0 -> 169.0	53122			
PFHpS	7.443	449.0 -> 80.0	137724	20.66 µg/L		98
		449.0 -> 99.0	75358			
PFHxA	5.803	313.0 -> 269.0	506649	18.54 µg/L		100
		313.0 -> 119.0	17688			
PFHxS	6.750	399.0 -> 80.0	132721	20.72 µg/L	m	100
		399.0 -> 99.0	68316			
PFNA	8.036	463.0 -> 419.0	546787	18.82 µg/L		98
		463.0 -> 219.0	155882			
PFOA	7.448	413.0 -> 369.0	466064	19.01 µg/L		99
		413.0 -> 169.0	170126			
PFOS	7.996	499.0 -> 80.0	152187	20.42 µg/L	m	99
		499.0 -> 99.0	77912			
PFPeA	4.440	263.0 -> 219.0	338115	19.89 µg/L		100
PFPeS	5.908	349.0 -> 80.0	75315	20.26 µg/L		100
		349.0 -> 99.0	31444			
PFUnDA	9.252	563.0 -> 519.0	1284335	20.26 µg/L		96
		563.0 -> 269.0	225502			
11Cl-PF3OUdS	9.520	631.0 -> 451.0	717072	20.71 µg/L		99
		631.0 -> 83.0	33566			
9Cl-PF3ONS	8.254	531.0 -> 351.0	243287	20.26 µg/L		99
		531.0 -> 83.0	12825			
ADONA	6.817	377.0 -> 251.0	972973	18.33 µg/L		99
		377.0 -> 85.0	119661			
HFPO-DA	6.089	329.0 -> 169.0	1724	23.34 µg/L		84
		285.0 -> 169.0	3675			

= Qualifier out of range, m = manually integrated, + = Area summed

7.7.17

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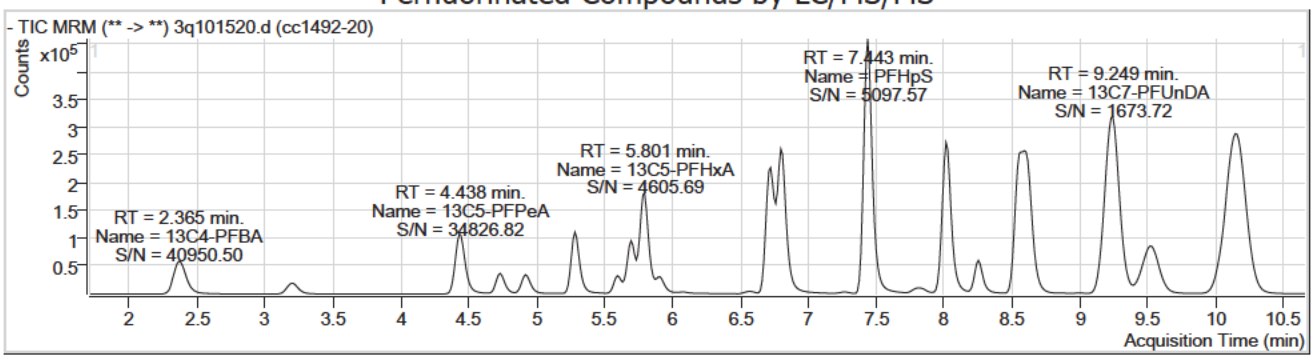
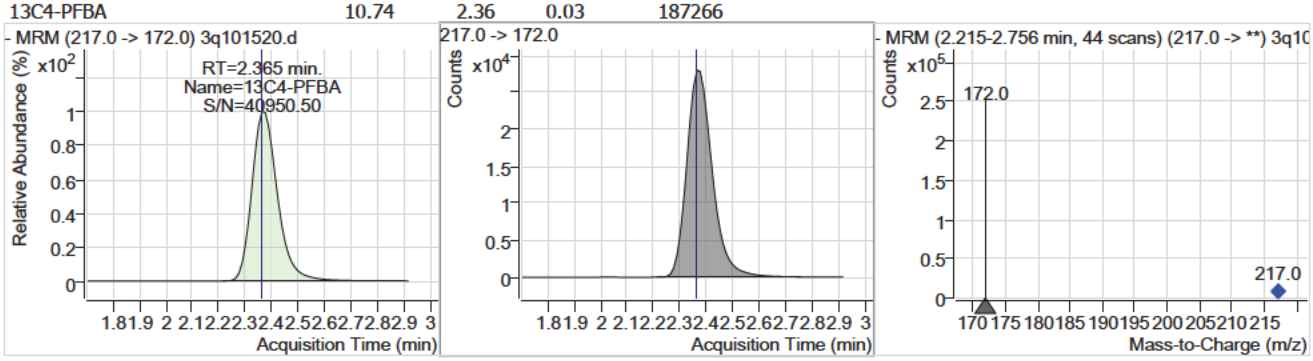
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)

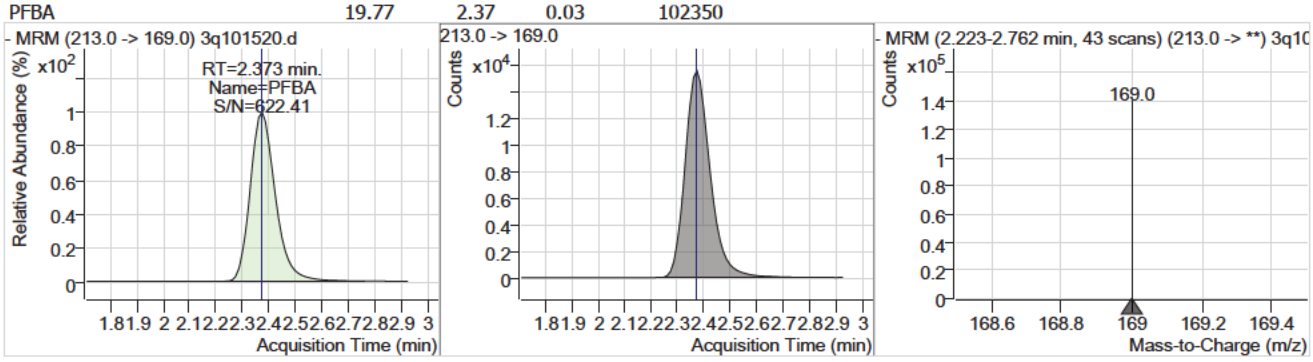
Perfluorinated Compounds by LC/MS/MS



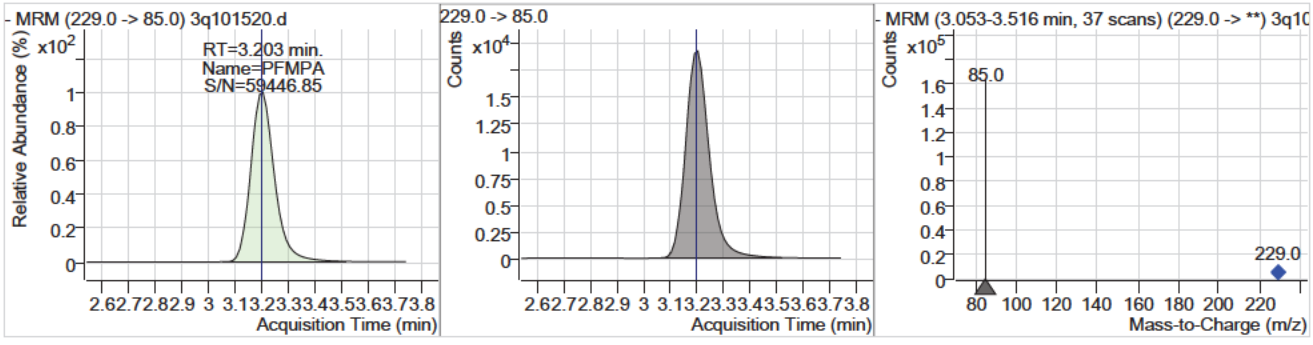
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.74	2.36	0.03	187266				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.77	2.37	0.03	102350				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	19.86	3.20	0.04	120446				



7.7.17

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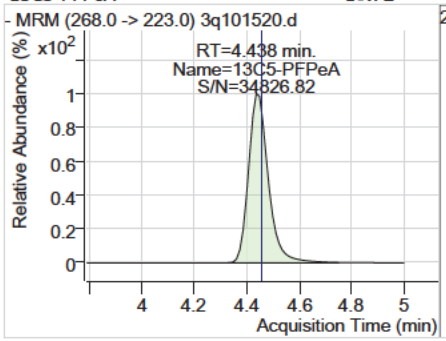
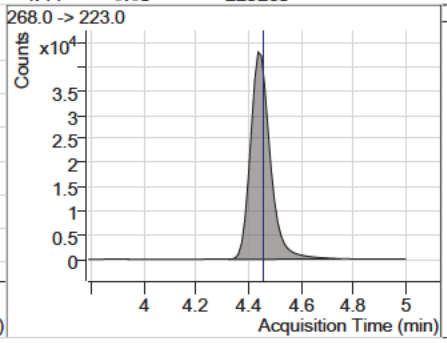
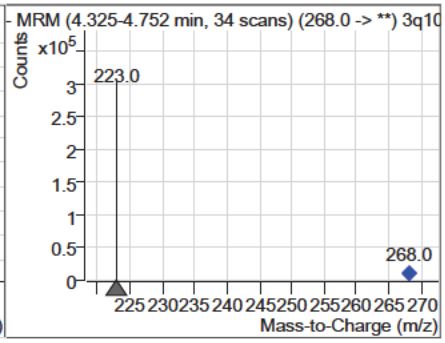
Perfluorinated Compounds by LC/MS/MS

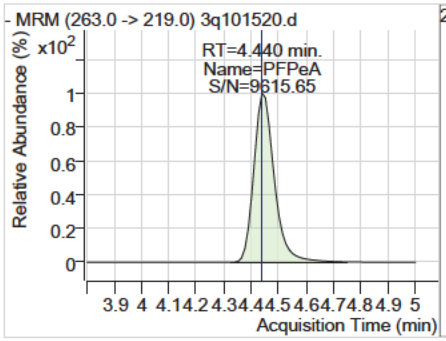
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.72	4.44	0.03	225283				

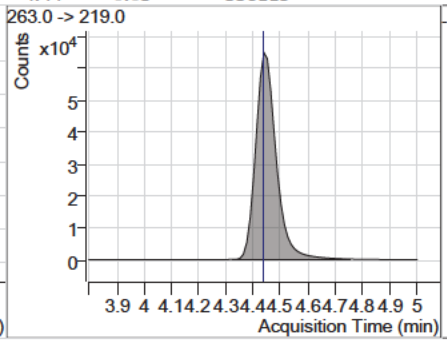


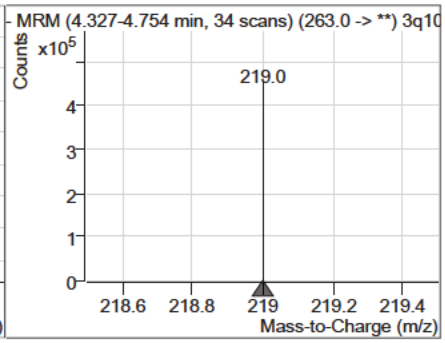




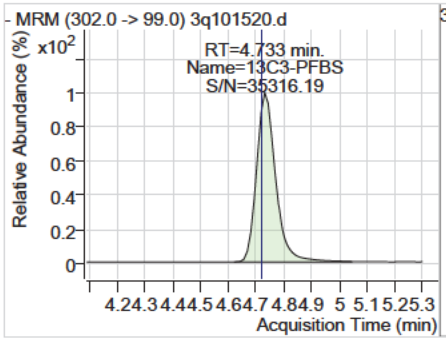
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.89	4.44	0.03	338115				

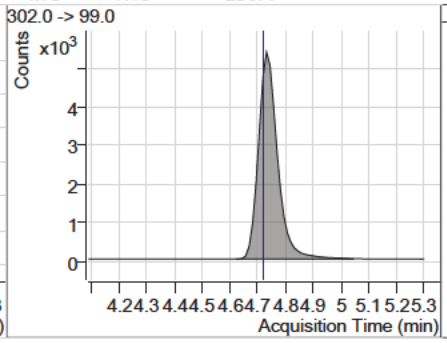


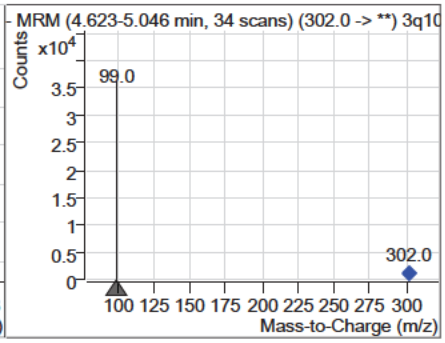




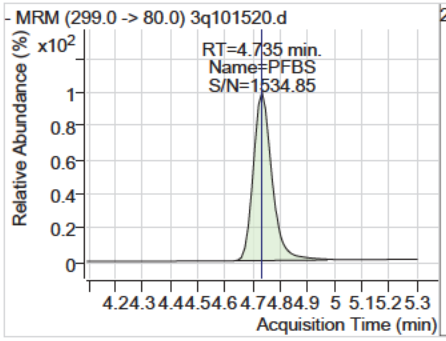
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.49	4.73	0.03	25677				

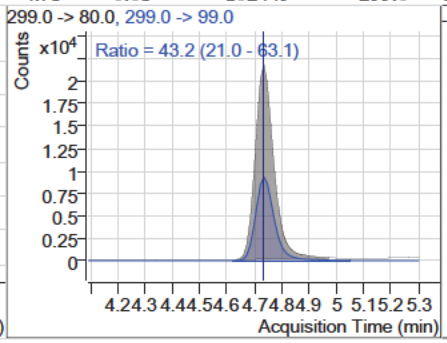


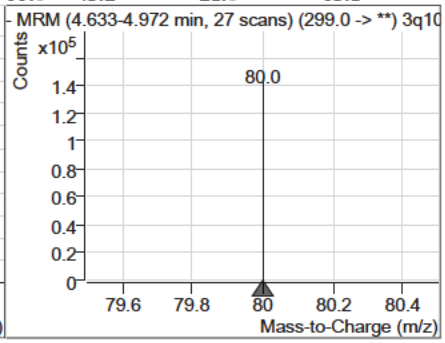




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.73	4.73	0.03	102449	299.0 -> 99.0	43.2	21.0	63.1







7.7.17

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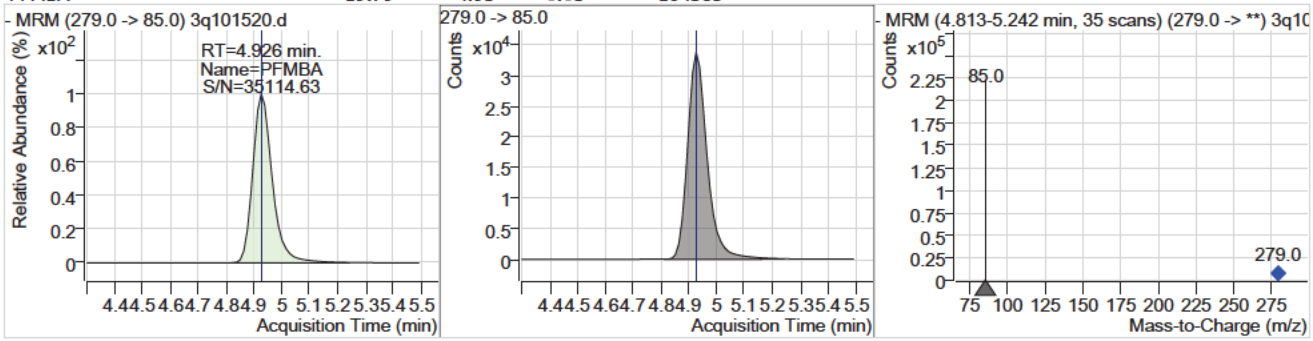
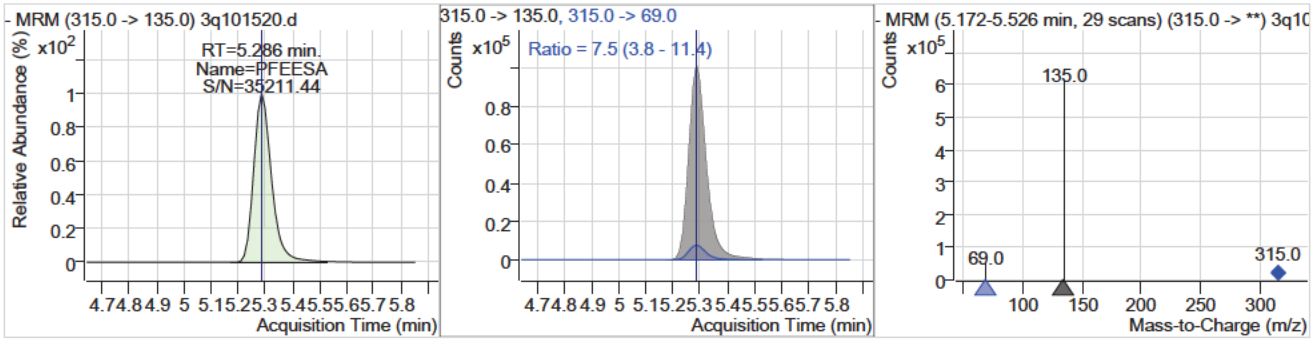
Perfluorinated Compounds by LC/MS/MS

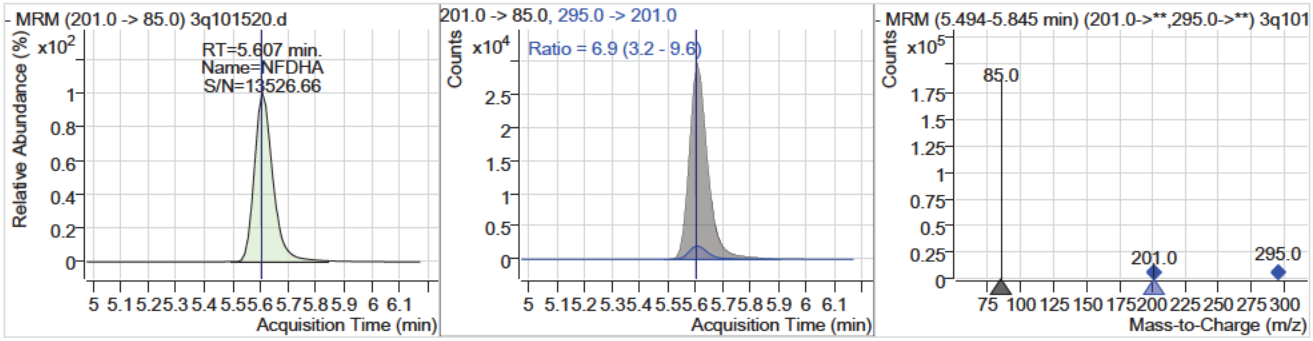
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	19.79	4.93	0.03	164385				



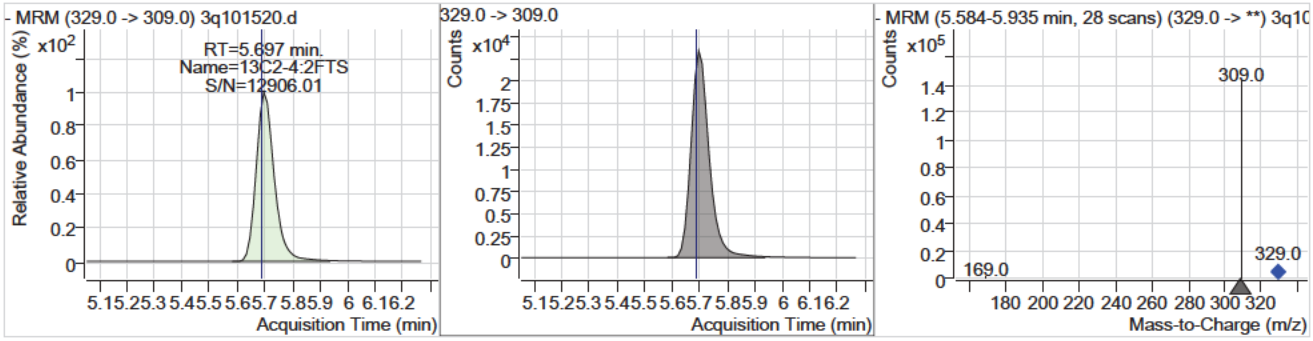
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	20.21	5.29	0.03	468166	315.0 -> 69.0	7.5	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	18.96	5.61	0.03	137571	295.0 -> 201.0	6.9	3.2	9.6



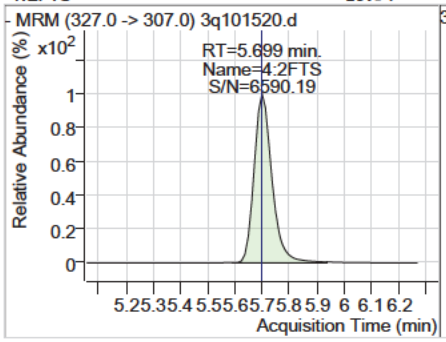
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	11.41	5.70	0.03	106490				

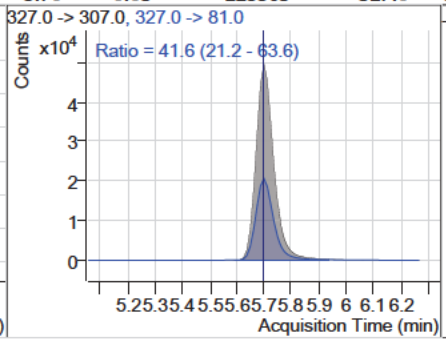


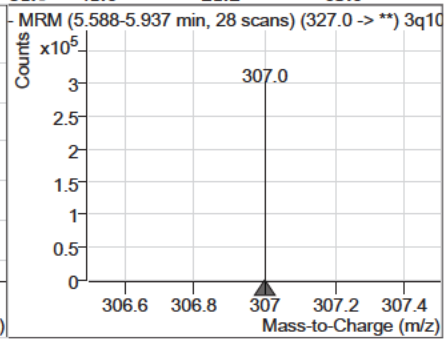
7.7.17
7

Perfluorinated Compounds by LC/MS/MS

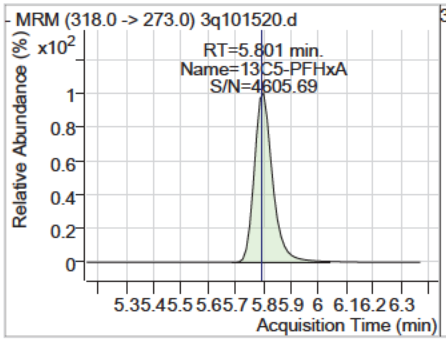
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.04	5.70	0.03	225563	327.0 -> 81.0	41.6	21.2	63.6

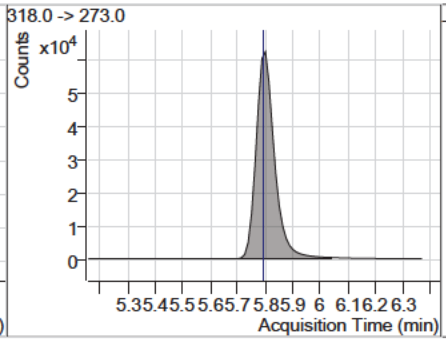


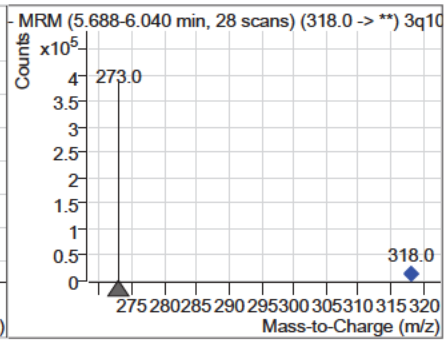




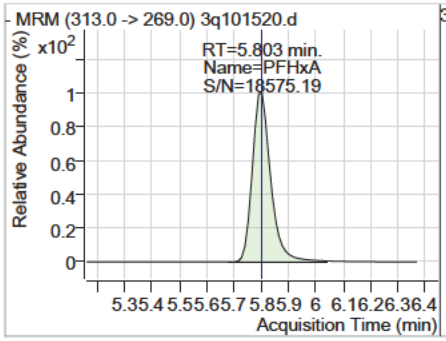
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	11.08	5.80	0.03	290103				

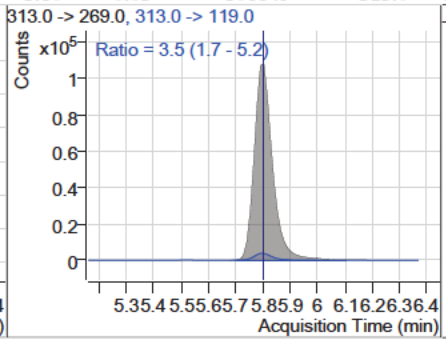


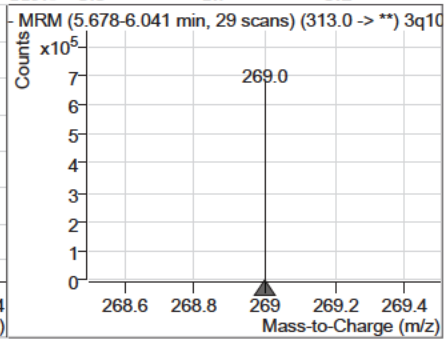




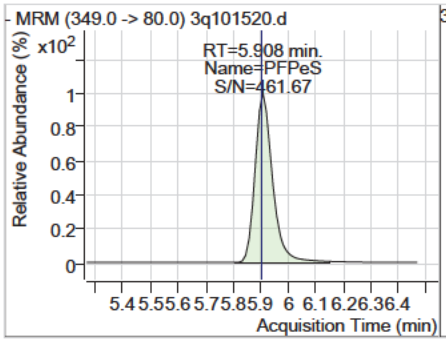
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	18.54	5.80	0.03	506649	313.0 -> 119.0	3.5	1.7	5.2

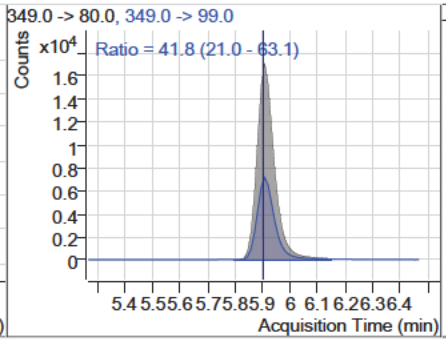


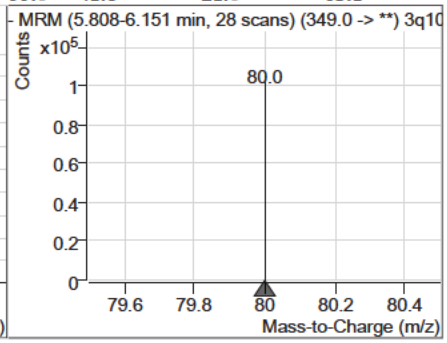




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	20.26	5.91	0.03	75315	349.0 -> 99.0	41.8	21.0	63.1







7.7.17

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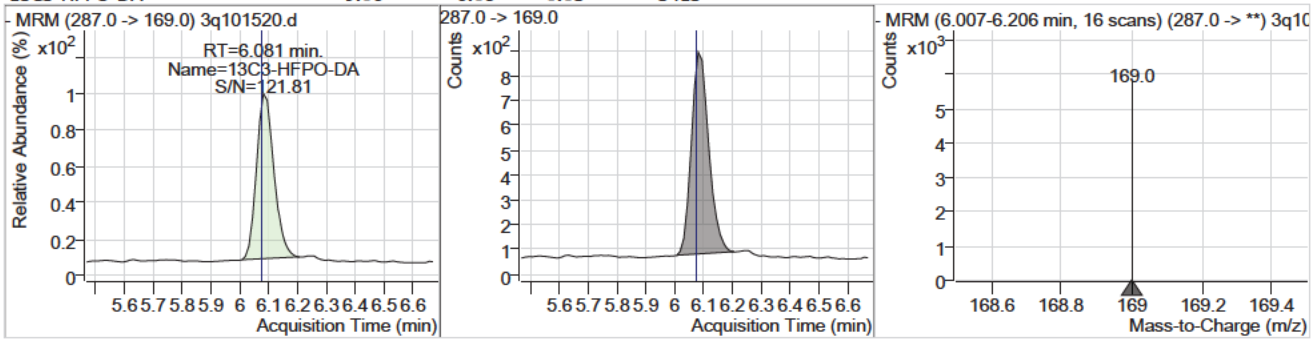
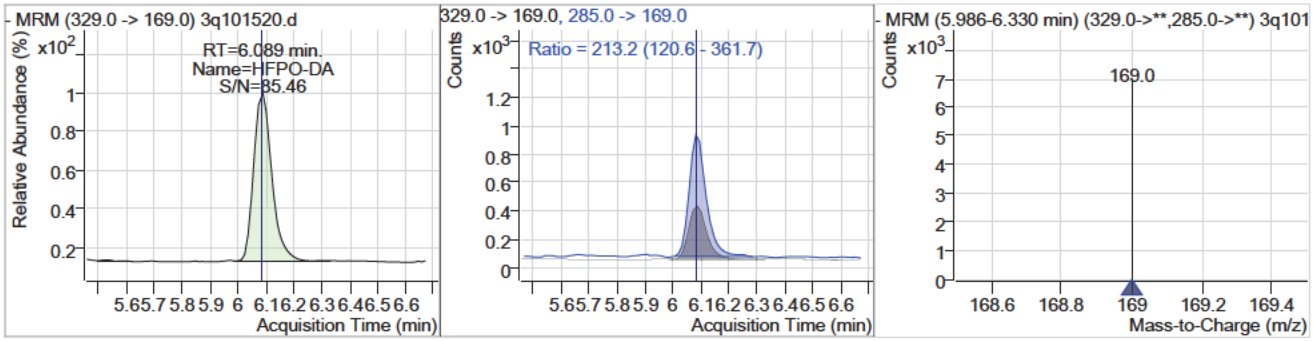
Perfluorinated Compounds by LC/MS/MS

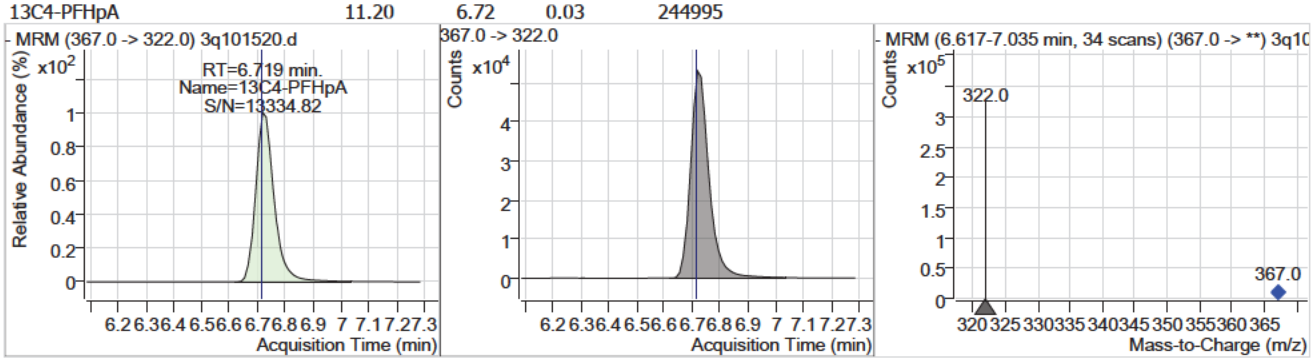
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.06	6.08	0.03	3413				



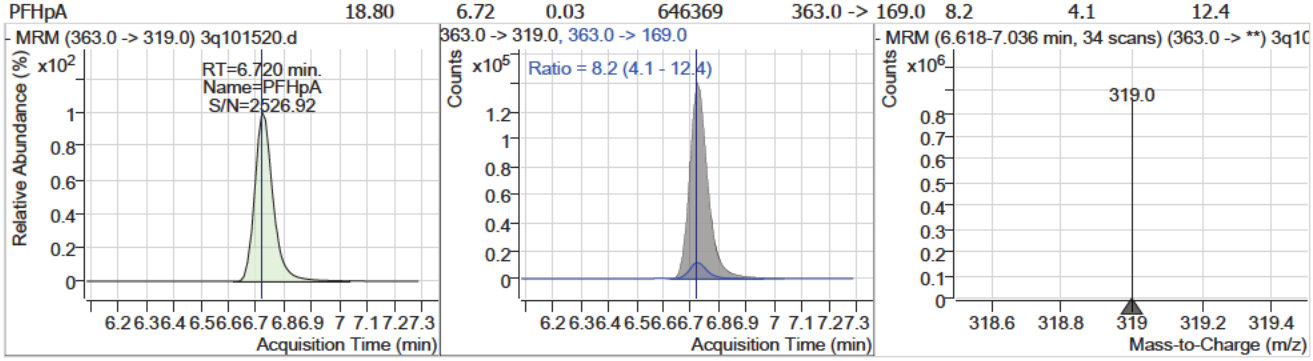
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	23.34	6.09	0.03	1724	285.0 -> 169.0	213.2	120.6	361.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	11.20	6.72	0.03	244995				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	18.80	6.72	0.03	646369	363.0 -> 169.0	8.2	4.1	12.4



7.7.17

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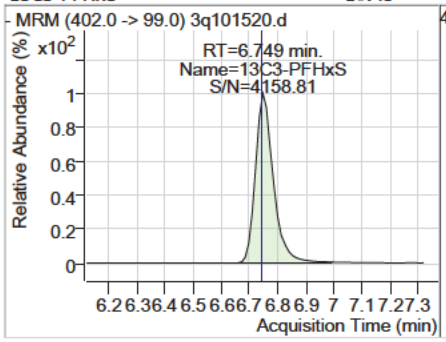
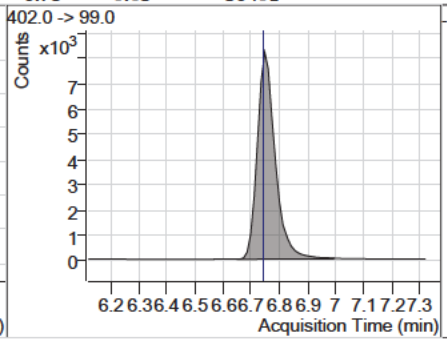
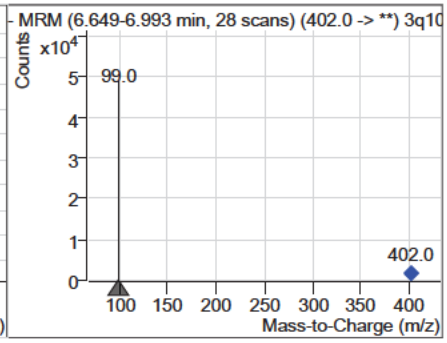
Perfluorinated Compounds by LC/MS/MS

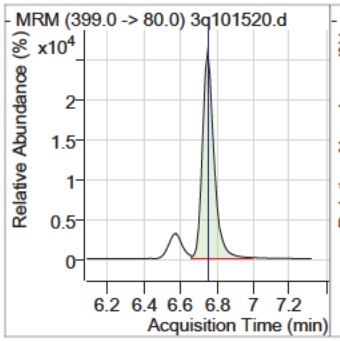
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.45	6.75	0.03	36401				

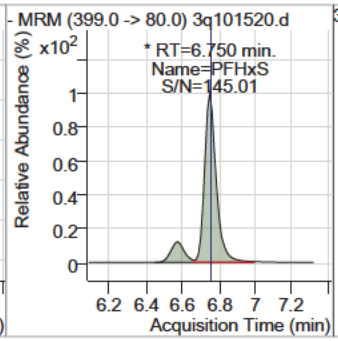


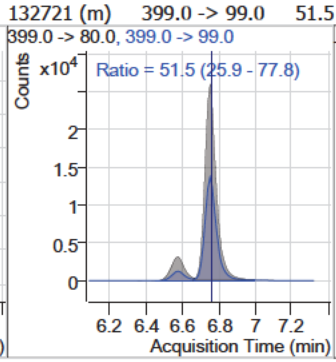


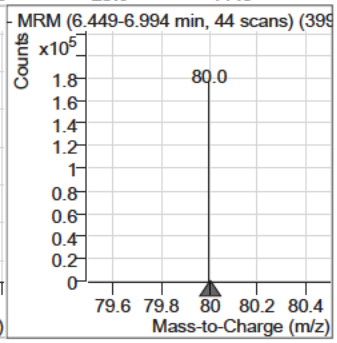


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	20.72	6.75	0.03	132721 (m)	399.0 -> 99.0	51.5	25.9	77.8

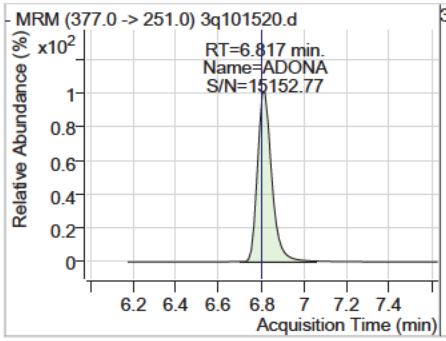


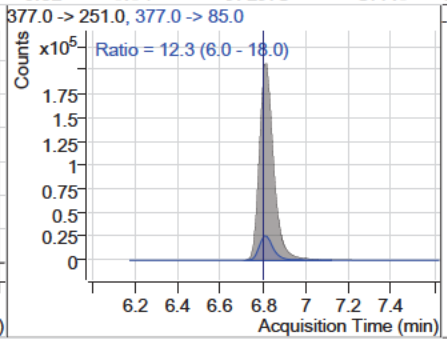


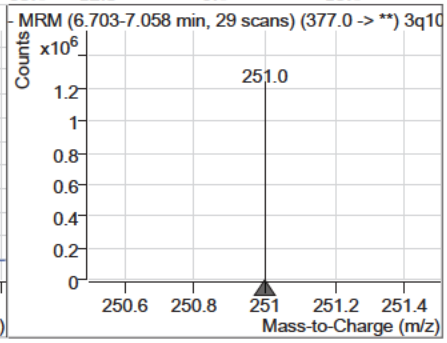




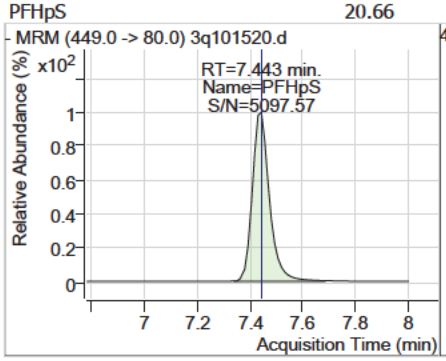
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	18.33	6.82	0.04	972973	377.0 -> 85.0	12.3	6.0	18.0

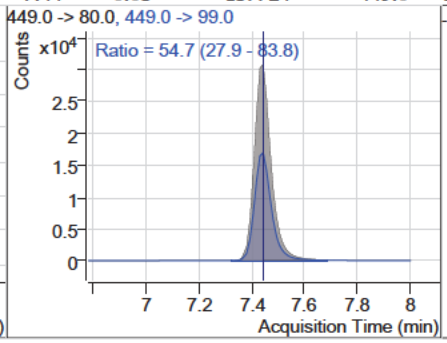


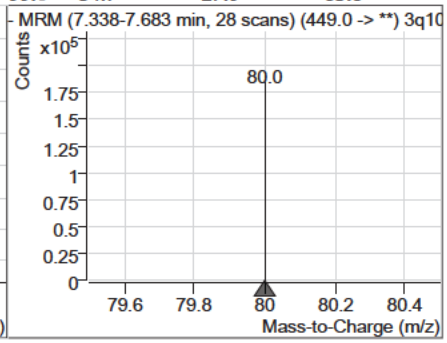




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	20.66	7.44	0.03	137724	449.0 -> 99.0	54.7	27.9	83.8

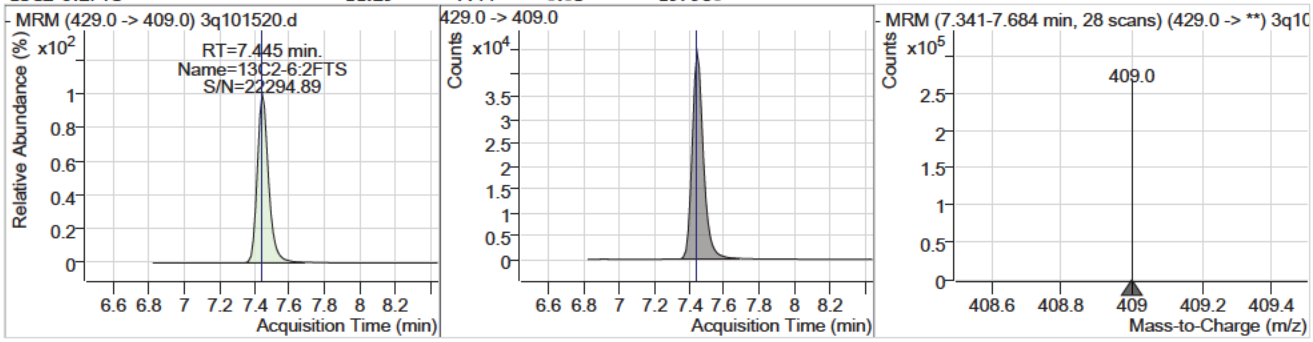




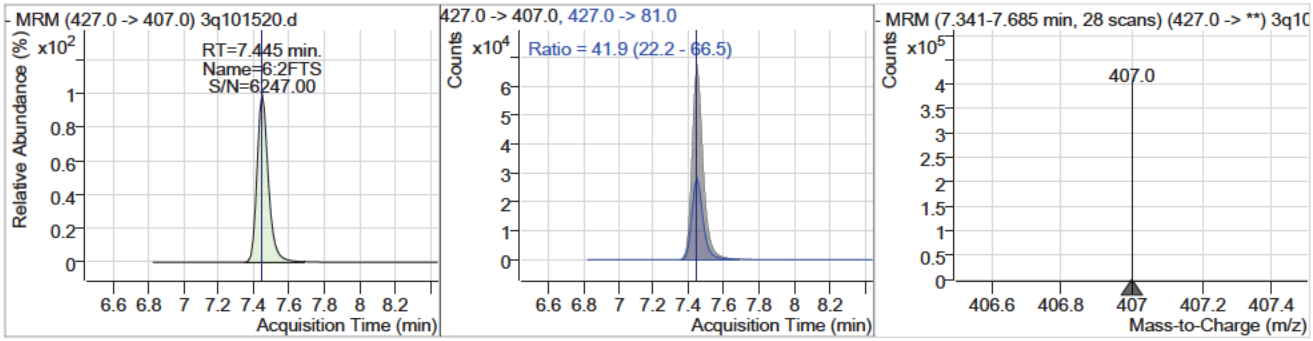


Perfluorinated Compounds by LC/MS/MS

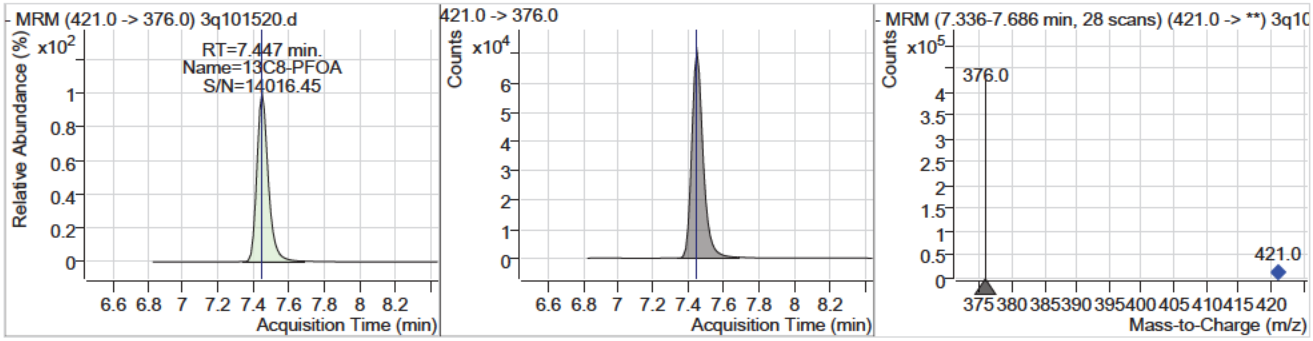
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	11.29	7.44	0.03	197980				



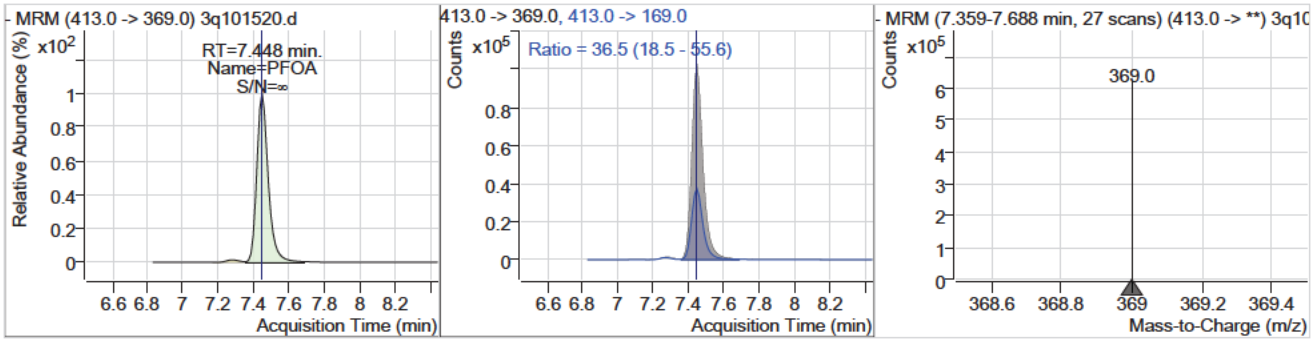
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.36	7.45	0.03	302705	427.0 -> 81.0	41.9	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	11.19	7.45	0.03	317840				

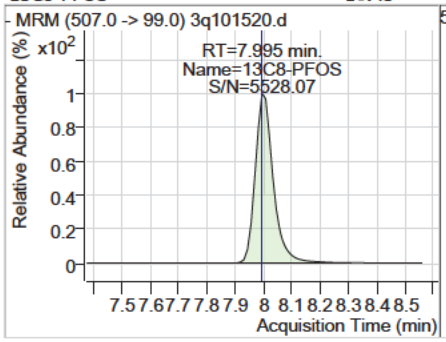


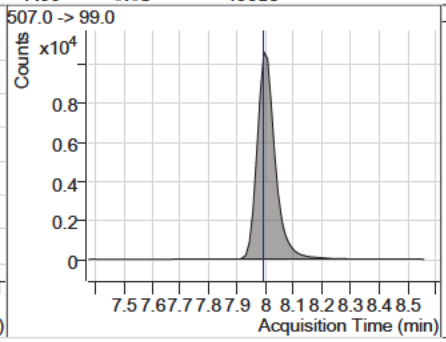
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.01	7.45	0.03	466064	413.0 -> 169.0	36.5	18.5	55.6

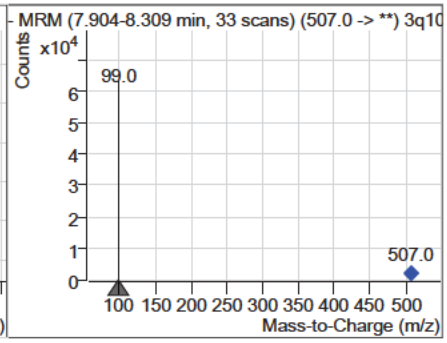


Perfluorinated Compounds by LC/MS/MS

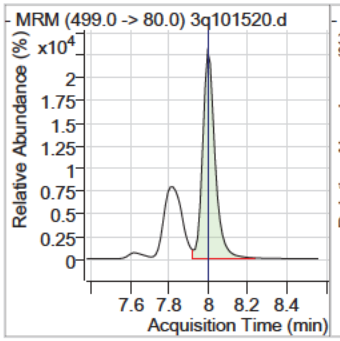
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.45	7.99	0.03	46618				

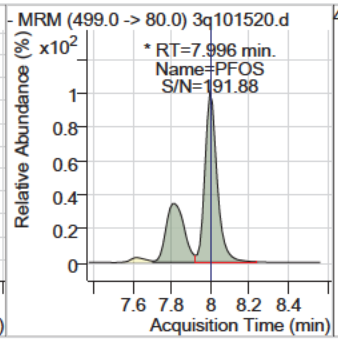


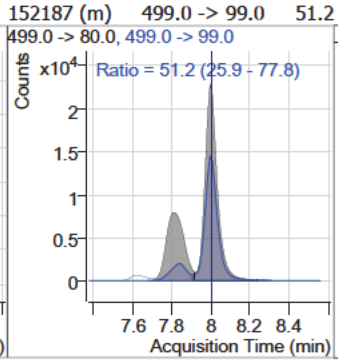


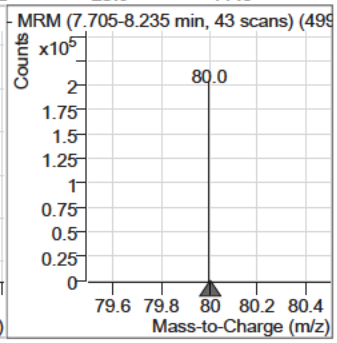


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	20.42	8.00	0.03	152187 (m)	499.0 -> 99.0	51.2	25.9	77.8

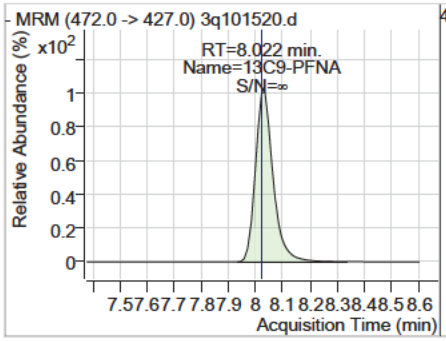


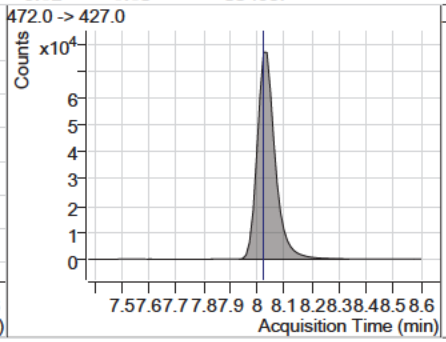


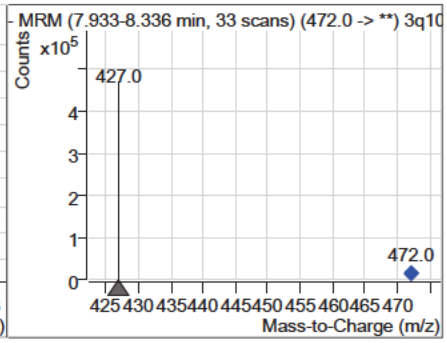




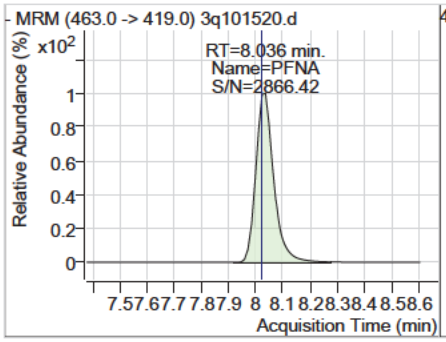
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	11.49	8.02	0.03	354687				

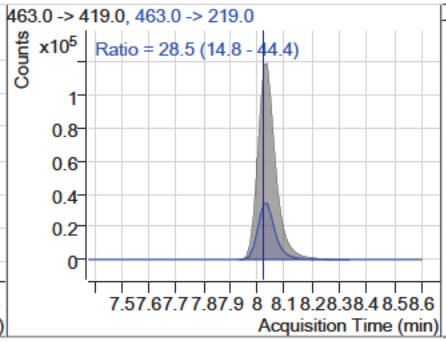


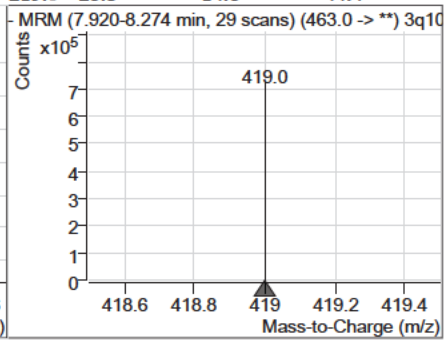




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	18.82	8.04	0.04	546787	463.0 -> 219.0	28.5	14.8	44.4

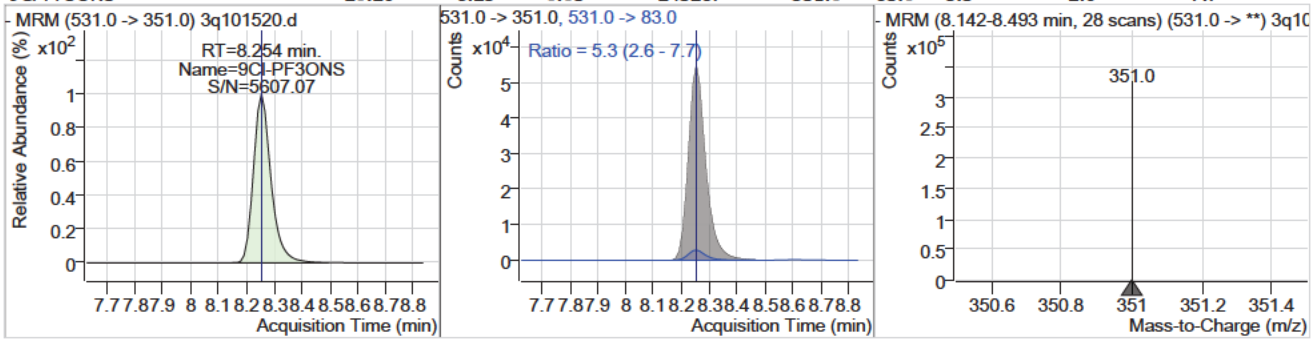




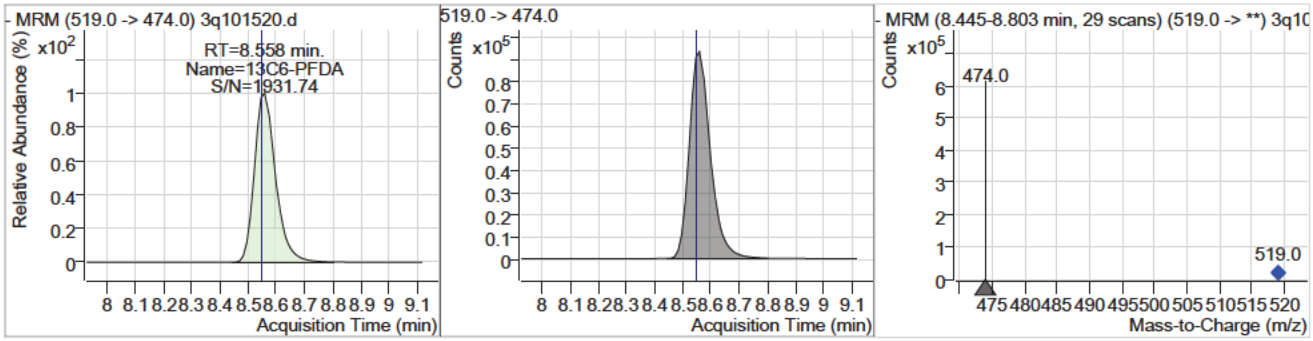


Perfluorinated Compounds by LC/MS/MS

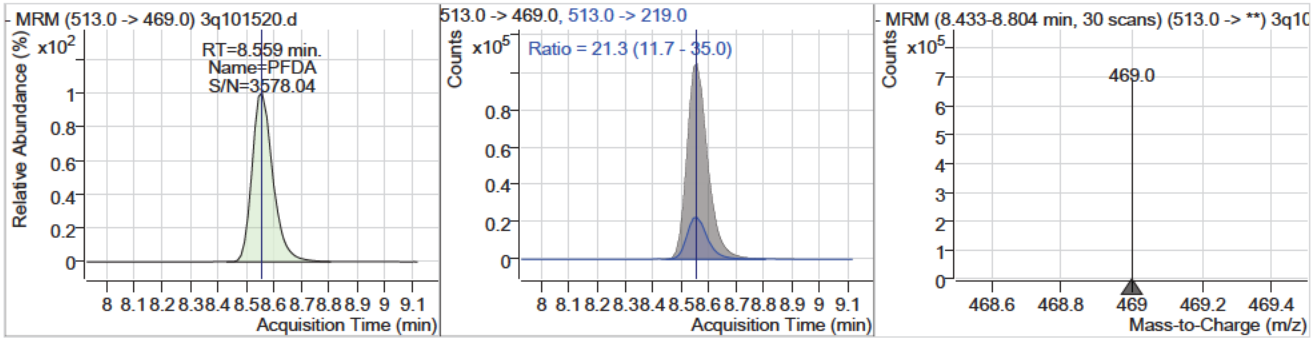
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	20.26	8.25	0.03	243287	531.0 -> 83.0	5.3	2.6	7.7



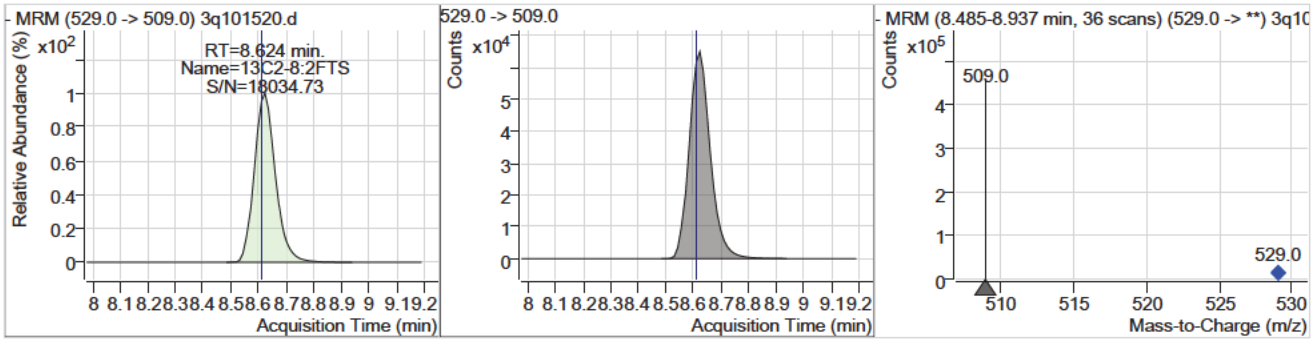
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	11.24	8.56	0.04	486060				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.94	8.56	0.04	548220	513.0 -> 219.0	21.3	11.7	35.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	11.77	8.62	0.04	345911				



7.7.17

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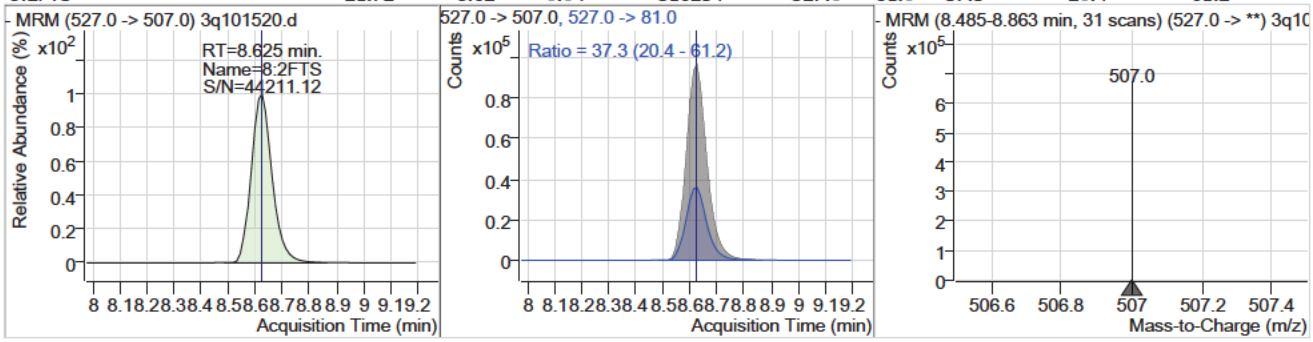
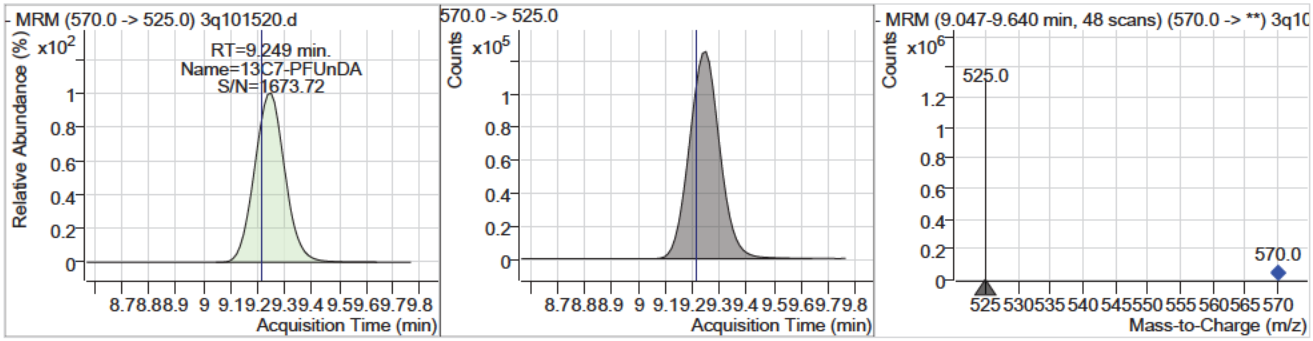
Perfluorinated Compounds by LC/MS/MS

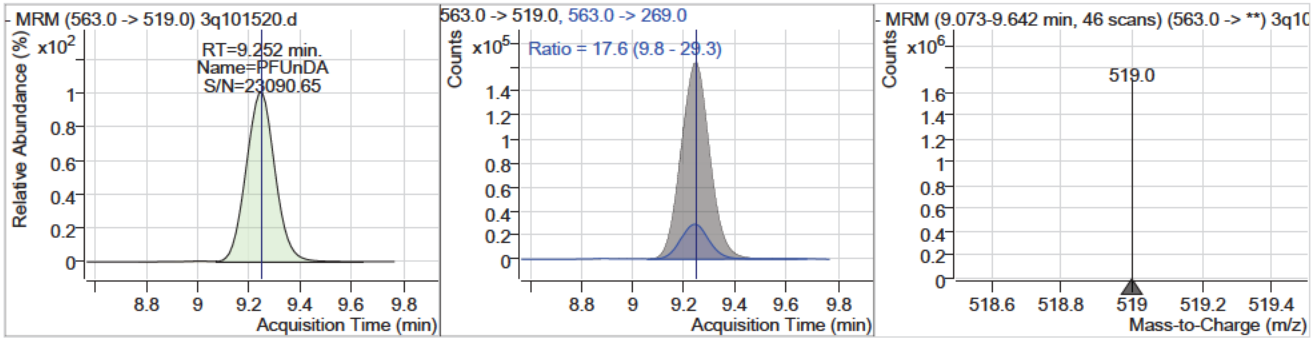
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.72	8.62	0.04	516254	527.0 -> 81.0	37.3	20.4	61.2



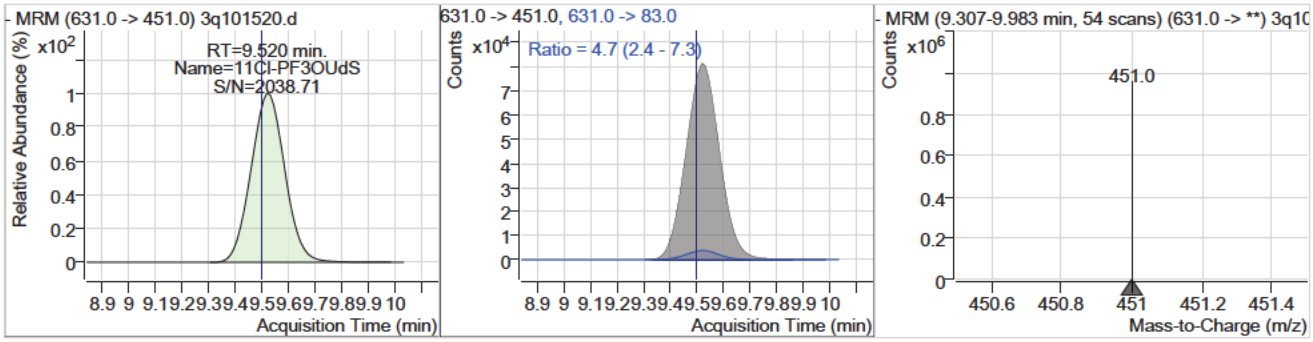
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	11.38	9.25	0.06	983488				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	20.26	9.25	0.07	1284335	563.0 -> 269.0	17.6	9.8	29.3

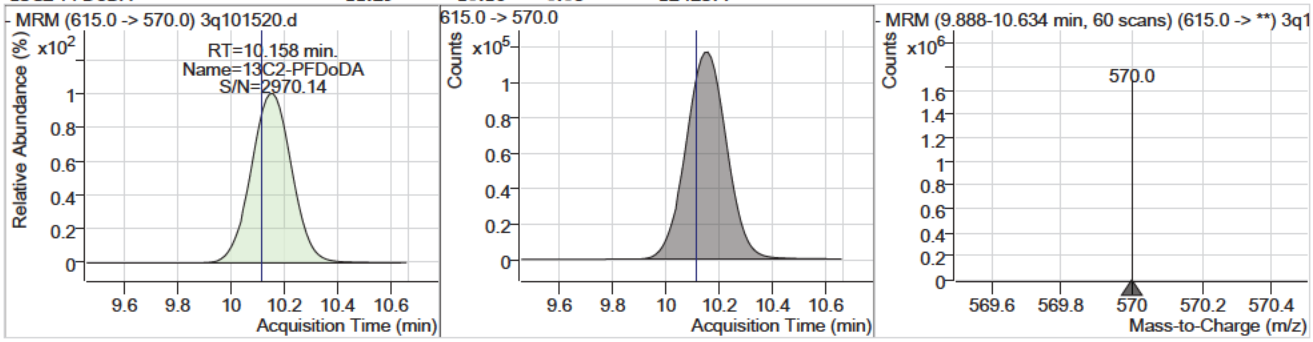


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	20.71	9.52	0.05	717072	631.0 -> 83.0	4.7	2.4	7.3

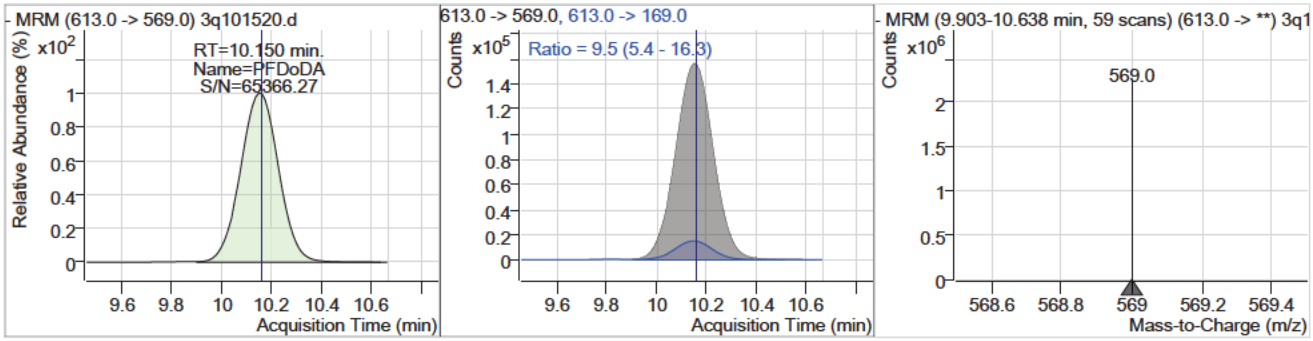


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	11.29	10.16	0.08	1242577				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	20.07	10.15	0.06	1658408	613.0 -> 169.0	9.5	5.4	16.3



7.7.17

7

Manual Integration Approval Summary

Sample Number: S3Q1494-CC1492
Lab FileID: 3Q101520.D
Injection Time: 04/17/25 10:51
Method: EPA 533
Analyst approved: 04/18/25 08:08 (b) (6) [redacted]
Supervisor approved: 04/18/25 10:08 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.75	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.00	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 10:08

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101521.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/17/2025 11:07:11 AM
Sample Name : cc1492-0.5LL
Vial : P1-C2
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1494.batch.bin
Sample Information : op8907,S3Q1494,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.447	415.0 -> 370.0	270585	10.00 µg/L	0.025
13C3-PFBA	2.369	216.0 -> 172.0	104981	10.00 µg/L	0.025
13C4-PFOS	7.995	503.0 -> 80.0	40958	10.00 µg/L	0.026
M4-PFBA	2.365	217.0 -> 172.0	189674	10.00 µg/L	0.025
M5-PFPeA	4.438	268.0 -> 223.0	227822	10.00 µg/L	0.025
M5-PFHxA	5.801	318.0 -> 273.0	294517	10.00 µg/L	0.025
M4-PFHpA	6.719	367.0 -> 322.0	248477	10.00 µg/L	0.025
M8-PFOA	7.447	421.0 -> 376.0	331277	10.00 µg/L	0.025
M9-PFNA	8.035	472.0 -> 427.0	368996	10.00 µg/L	0.038
M6-PFDA	8.558	519.0 -> 474.0	489752	10.00 µg/L	0.038
M7-PFUnDA	9.249	570.0 -> 525.0	1005710	10.00 µg/L	0.064
M2-PFDoDA	10.158	615.0 -> 570.0	1279429	10.00 µg/L	0.075
M3-PFBS	4.733	302.0 -> 99.0	25653	10.00 µg/L	0.025
M3-PFHxS	6.749	402.0 -> 99.0	37117	10.00 µg/L	0.025
M8-PFOS	8.008	507.0 -> 99.0	47962	10.00 µg/L	0.039
M2-4:2FTS	5.697	329.0 -> 309.0	98069	10.00 µg/L	0.025
M2-6:2FTS	7.445	429.0 -> 409.0	191245	10.00 µg/L	0.025
M2-8:2FTS	8.624	529.0 -> 509.0	325180	10.00 µg/L	0.039
M3-HFPO-DA	6.081	287.0 -> 169.0	3391	10.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.697	329.0 -> 309.0	98069	10.06 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C2-6:2FTS	7.445	429.0 -> 409.0	191249	10.45 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C2-8:2FTS	8.624	529.0 -> 509.0	325180	10.60 µg/L	0.039
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C2-PFDoDA	10.158	615.0 -> 570.0	1279429	11.11 µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.1%	
13C3-PFBS	4.733	302.0 -> 99.0	25653	10.04 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C3-PFHxS	6.749	402.0 -> 99.0	37117	10.20 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C4-PFBA	2.365	217.0 -> 172.0	189674	10.65 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C4-PFHpA	6.719	367.0 -> 322.0	248477	10.85 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.5%	
13C5-PFHxA	5.801	318.0 -> 273.0	294517	10.74 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C5-PFPeA	4.438	268.0 -> 223.0	227822	10.61 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C6-PFDA	8.558	519.0 -> 474.0	489752	10.82 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.2%	
13C7-PFUnDA	9.249	570.0 -> 525.0	1005710	11.12 µg/L	0.064
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.2%	
13C8-PFOA	7.447	421.0 -> 376.0	331277	11.15 µg/L	0.025

Perfluorinated Compounds by LC/MS/MS

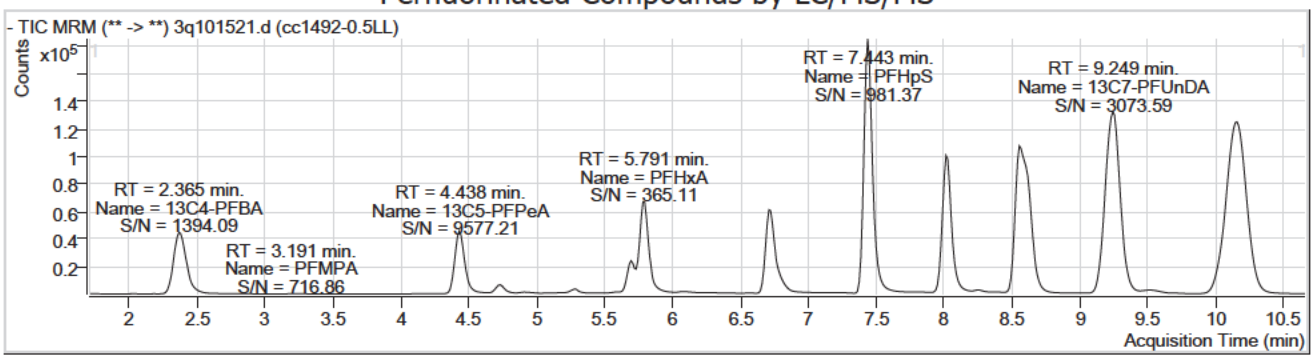
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.5%		
13C8-PFOS	8.008	507.0 -> 99.0	47962	10.30 µg/L		0.039
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.0%		
13C9-PFNA	8.035	472.0 -> 427.0	368996	11.42 µg/L		0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.2%		
13C3-HFPO-DA	6.081	287.0 -> 169.0	3391	8.60 µg/L		0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 86.0%		
Target Compounds						QValue
PFMPA	3.191	229.0 -> 85.0	2719	0.44 µg/L		100
4:2FTS	5.699	327.0 -> 307.0	5156	0.43 µg/L		98
		327.0 -> 81.0	2130			
6:2FTS	7.445	427.0 -> 407.0	7009	0.43 µg/L		98
		427.0 -> 81.0	3028			
8:2FTS	8.625	527.0 -> 507.0	11423	0.51 µg/L		99
		527.0 -> 81.0	4556			
PFMBA	4.926	279.0 -> 85.0	3638	0.43 µg/L		100
PFEESA	5.286	315.0 -> 135.0	10320	0.45 µg/L		99
		315.0 -> 69.0	761			
NFDHA	5.607	201.0 -> 85.0	3285	0.45 µg/L		99
		295.0 -> 201.0	200			
PFBA	2.373	213.0 -> 169.0	2229	0.43 µg/L		100
PFBS	4.735	299.0 -> 80.0	2082	0.40 µg/L		90
		299.0 -> 99.0	1012			
PFDA	8.559	513.0 -> 469.0	12293	0.44 µg/L		97
		513.0 -> 219.0	2700			
PFDoDA	10.150	613.0 -> 569.0	38885	0.46 µg/L		97
		613.0 -> 169.0	3794			
PFHpA	6.720	363.0 -> 319.0	14847	0.43 µg/L		100
		363.0 -> 169.0	1223			
PFHpS	7.443	449.0 -> 80.0	3199	0.47 µg/L		98
		449.0 -> 99.0	1833			
PFHxA	5.791	313.0 -> 269.0	11554	0.42 µg/L		99
		313.0 -> 119.0	437			
PFHxS	6.750	399.0 -> 80.0	3084	0.47 µg/L	m	96
		399.0 -> 99.0	1681			
PFNA	8.036	463.0 -> 419.0	12321	0.41 µg/L		100
		463.0 -> 219.0	3624			
PFOA	7.448	413.0 -> 369.0	10869	0.43 µg/L		98
		413.0 -> 169.0	4187			
PFOS	7.996	499.0 -> 80.0	3615	0.47 µg/L	m	98
		499.0 -> 99.0	1930			
PFPeA	4.440	263.0 -> 219.0	7604	0.44 µg/L		100
PFPeS	5.908	349.0 -> 80.0	1710	0.45 µg/L		99
		349.0 -> 99.0	729			
PFUnDA	9.252	563.0 -> 519.0	28808	0.44 µg/L		98
		563.0 -> 269.0	5862			
11Cl-PF3OUdS	9.532	631.0 -> 451.0	16517	0.46 µg/L		99
		631.0 -> 83.0	844			
9Cl-PF3ONS	8.254	531.0 -> 351.0	5506	0.45 µg/L		99
		531.0 -> 83.0	298			
ADONA	6.805	377.0 -> 251.0	21723	0.40 µg/L		99
		377.0 -> 85.0	2714			
HFPO-DA	6.073	329.0 -> 169.0	43	0.51 µg/L		92
		285.0 -> 169.0	99			

= Qualifier out of range, m = manually integrated, + = Area summed

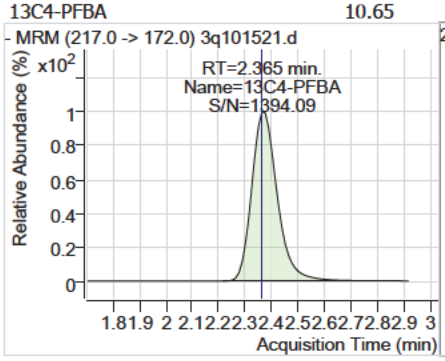
Perfluorinated Compounds by LC/MS/MS

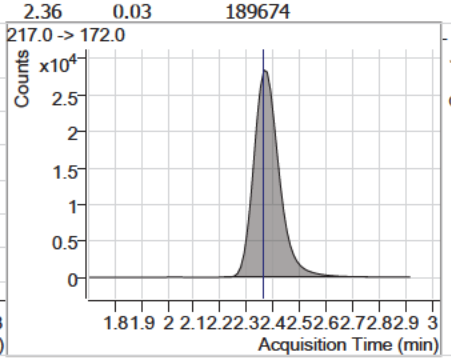
Compound	RT	Transition	Response	Conc. Units	Dev(Min)

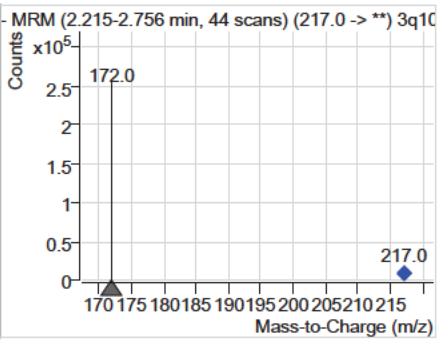
Perfluorinated Compounds by LC/MS/MS



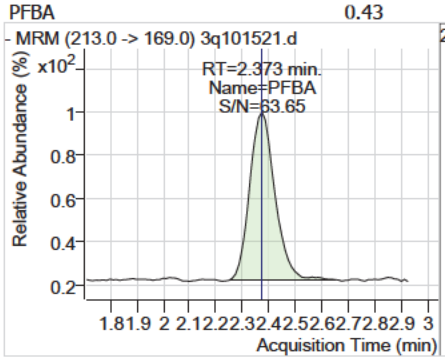
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.65	2.36	0.03	189674				

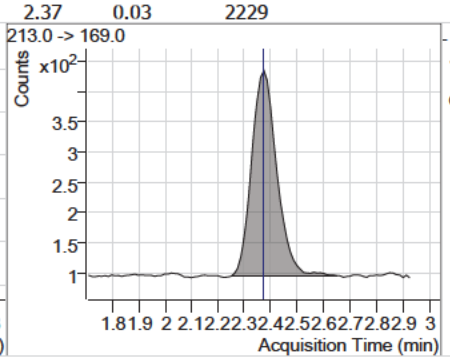


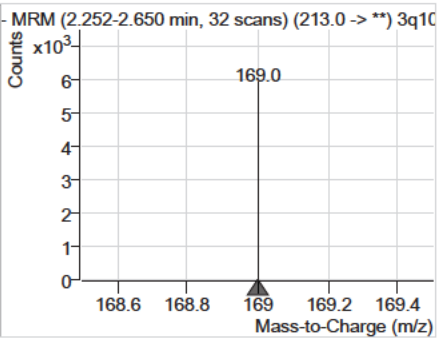




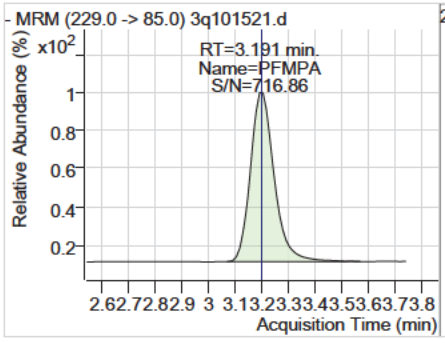
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.43	2.37	0.03	2229				

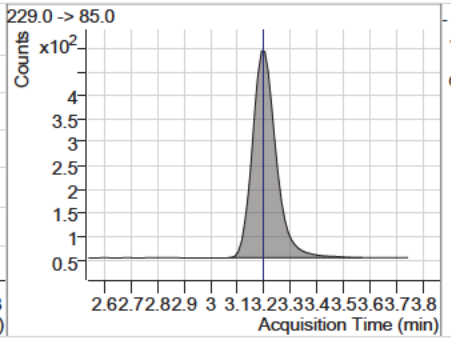


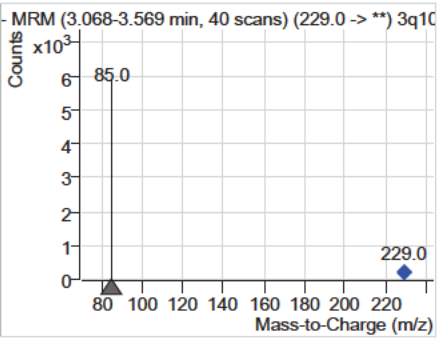




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	0.44	3.19	0.03	2719				





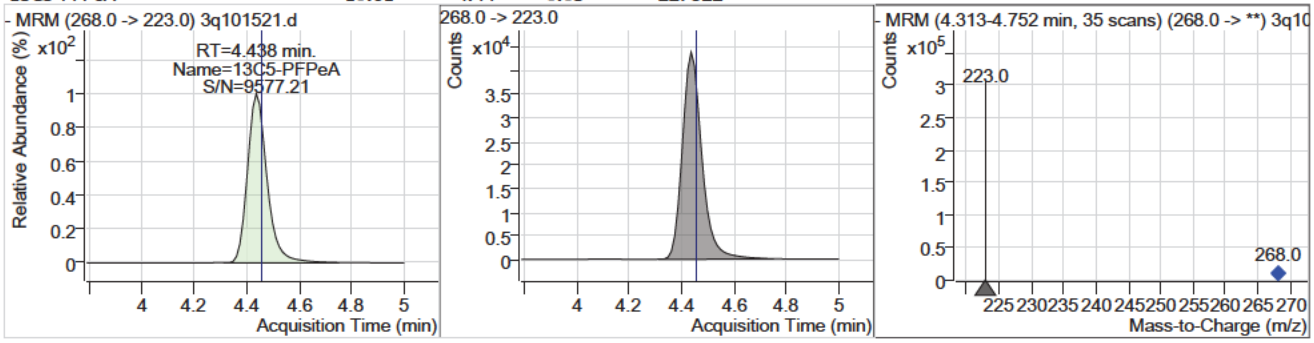


7.7.18

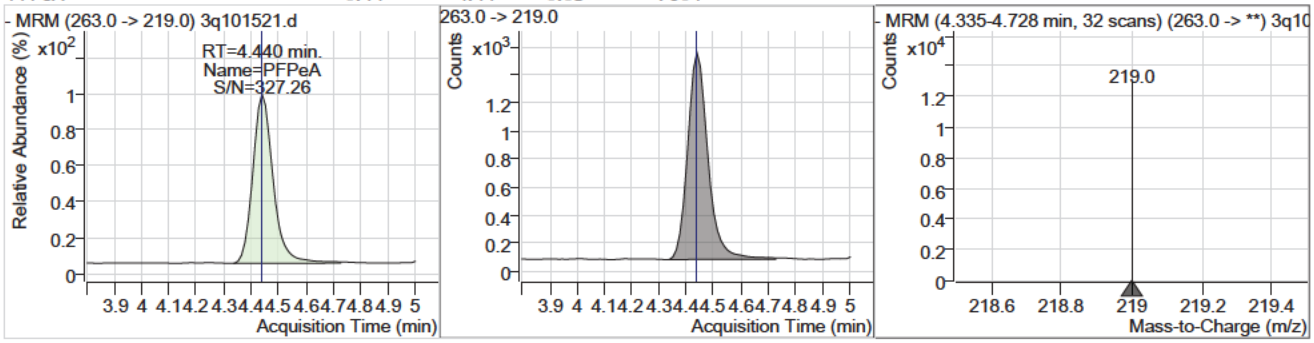
7

Perfluorinated Compounds by LC/MS/MS

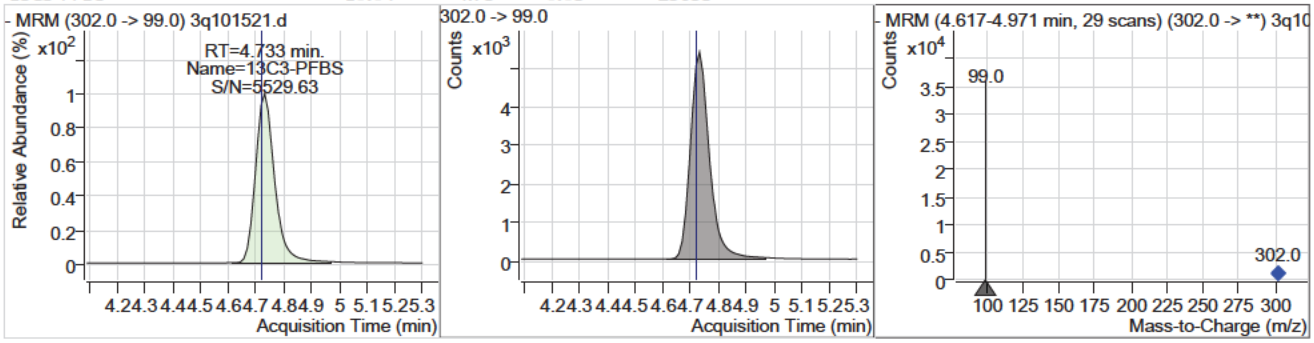
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.61	4.44	0.03	227822				



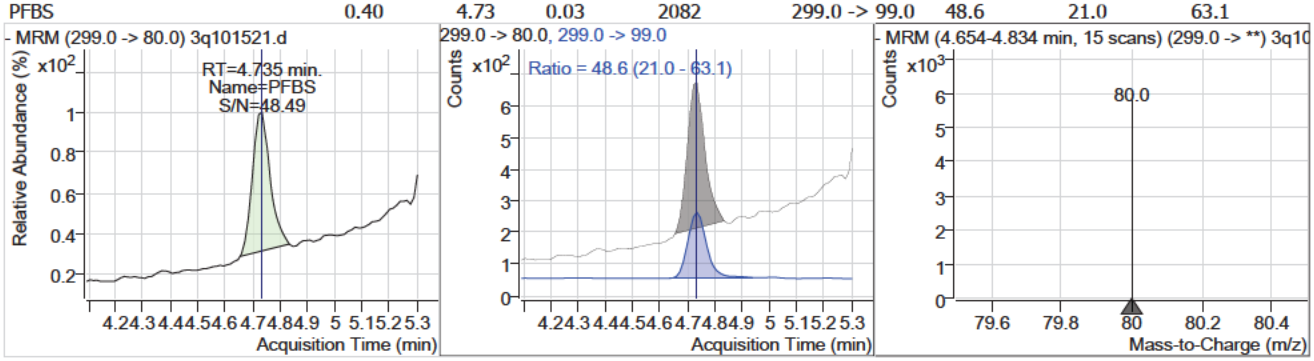
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.44	4.44	0.03	7604				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.04	4.73	0.03	25653				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.40	4.73	0.03	2082	299.0 -> 99.0	48.6	21.0	63.1

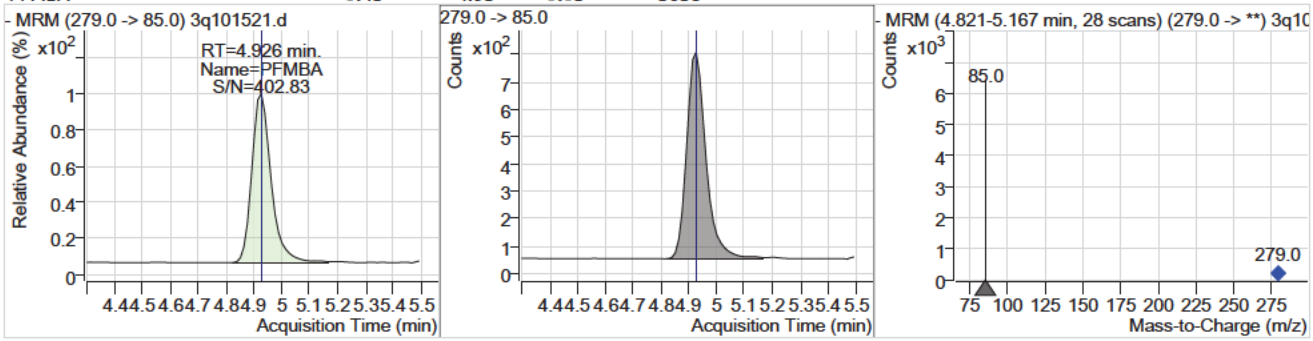


7.7.18

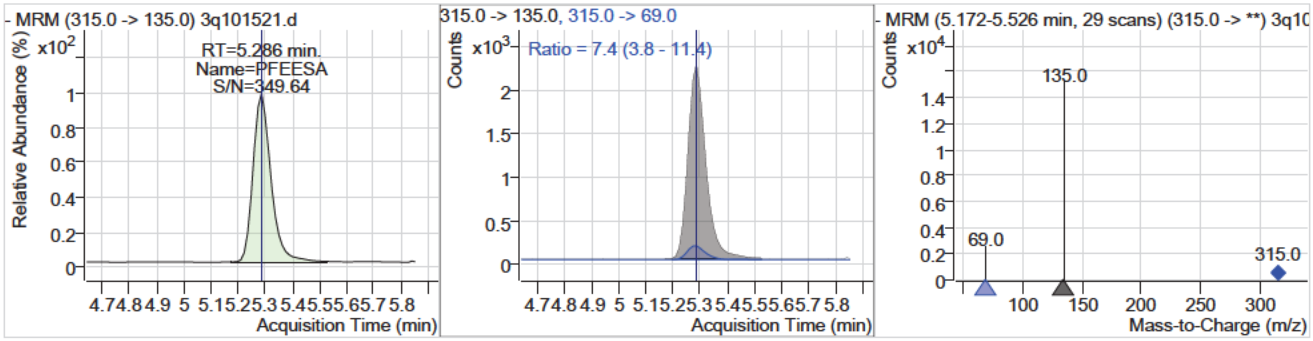
7

Perfluorinated Compounds by LC/MS/MS

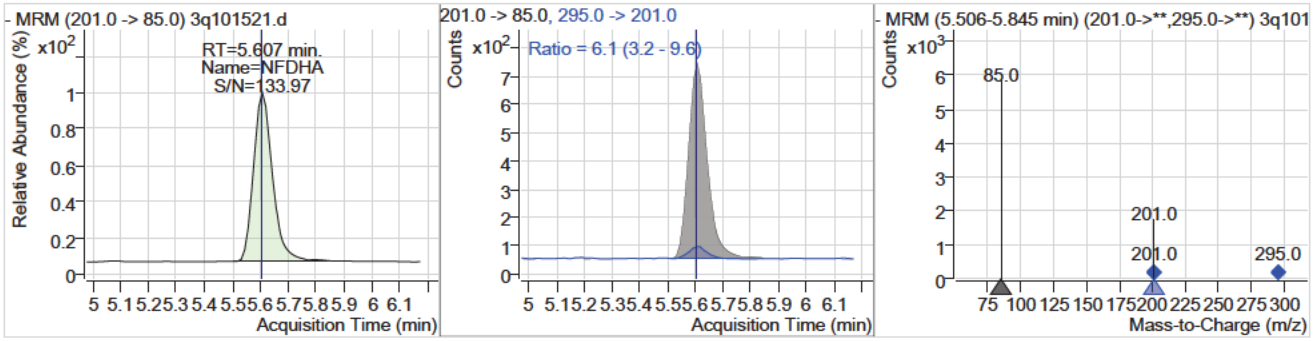
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.43	4.93	0.03	3638				



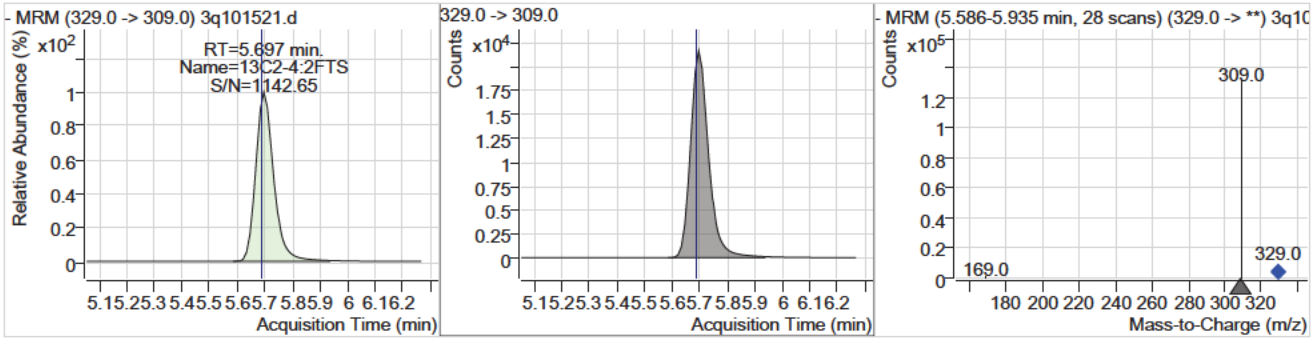
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.45	5.29	0.03	10320	315.0 -> 69.0	7.4	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	0.45	5.61	0.03	3285	295.0 -> 201.0	6.1	3.2	9.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	10.06	5.70	0.03	98069				

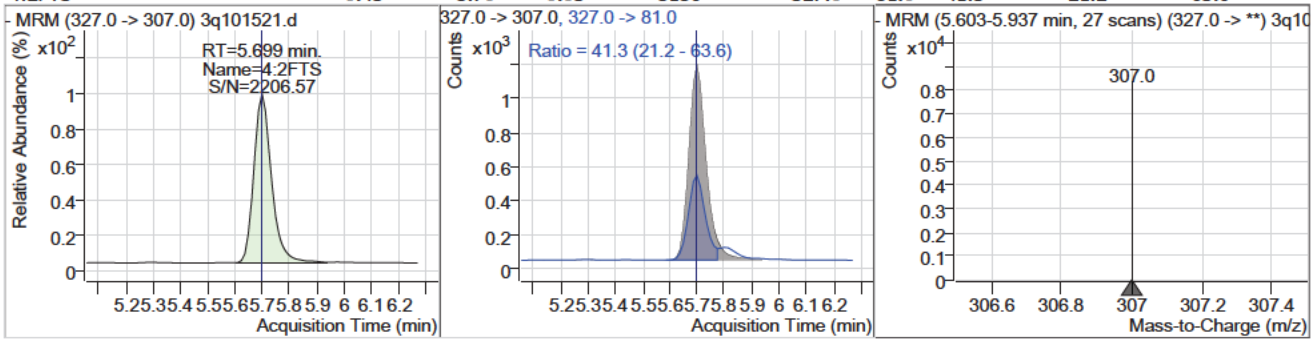


7.7.18

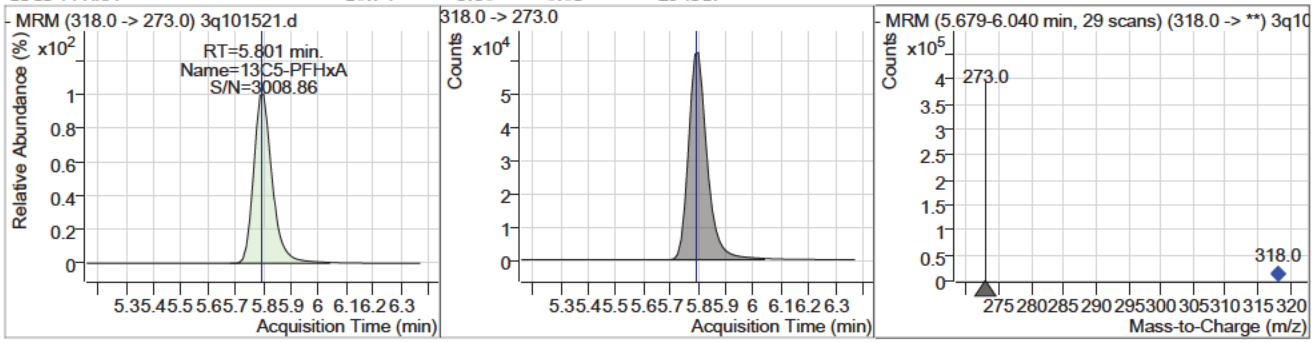
7

Perfluorinated Compounds by LC/MS/MS

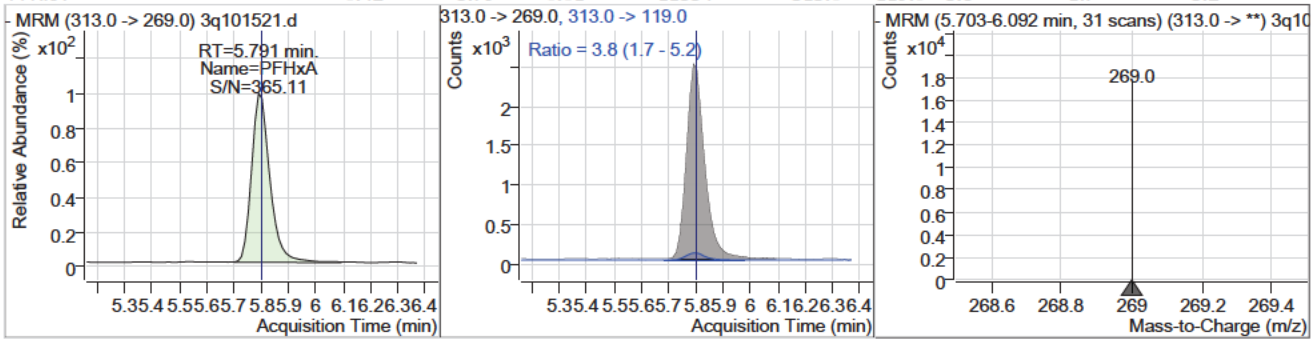
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	0.43	5.70	0.03	5156	327.0 -> 81.0	41.3	21.2	63.6



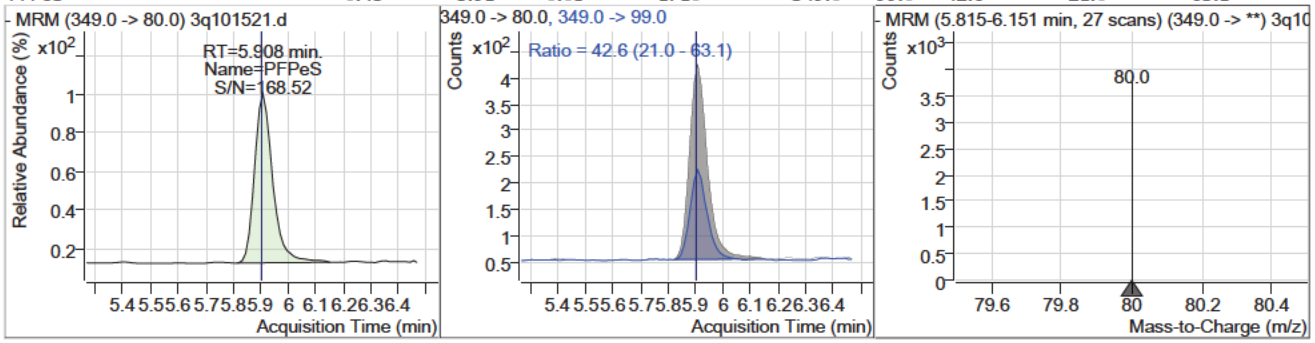
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.74	5.80	0.03	294517				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.42	5.79	0.01	11554	313.0 -> 119.0	3.8	1.7	5.2

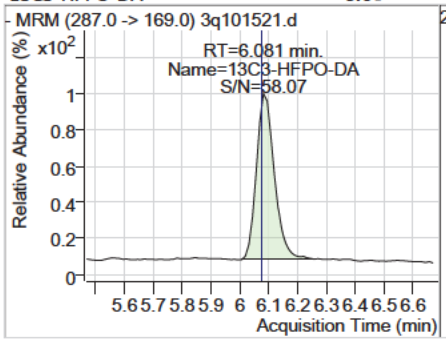


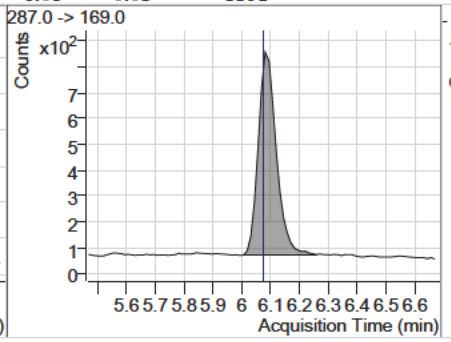
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.45	5.91	0.03	1710	349.0 -> 99.0	42.6	21.0	63.1

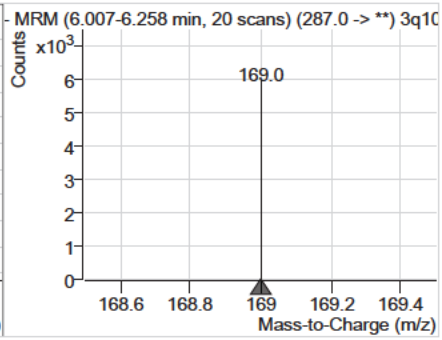


Perfluorinated Compounds by LC/MS/MS

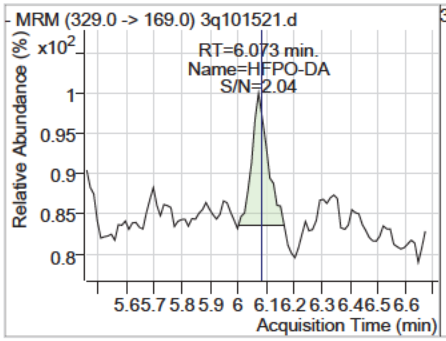
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.60	6.08	0.03	3391				

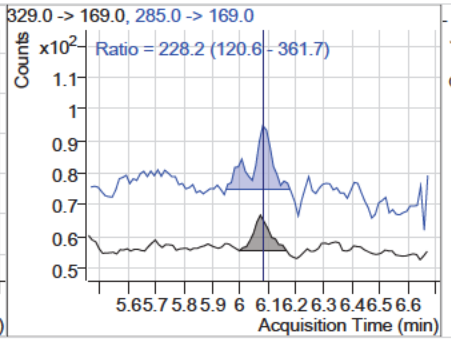


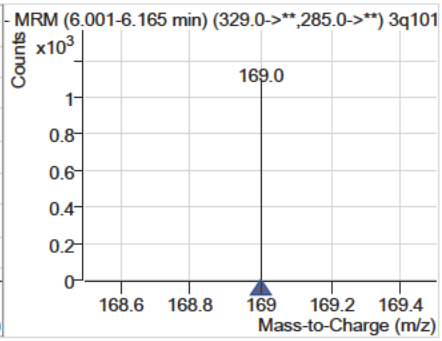




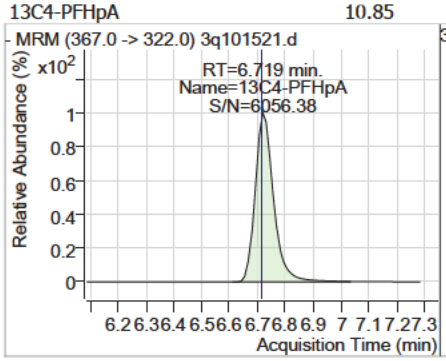
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.51	6.07	0.01	43	285.0 -> 169.0	228.2	120.6	361.7

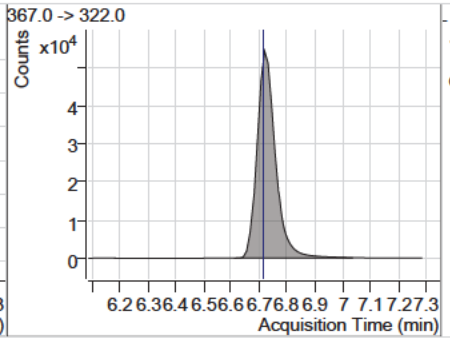


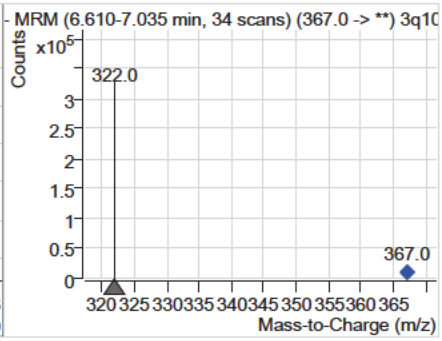




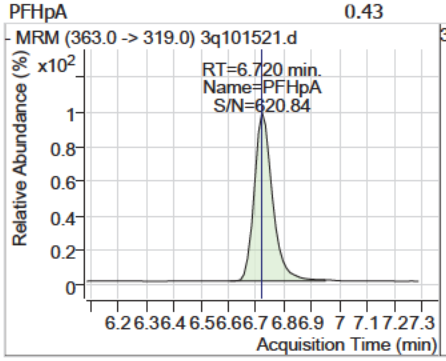
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.85	6.72	0.03	248477				

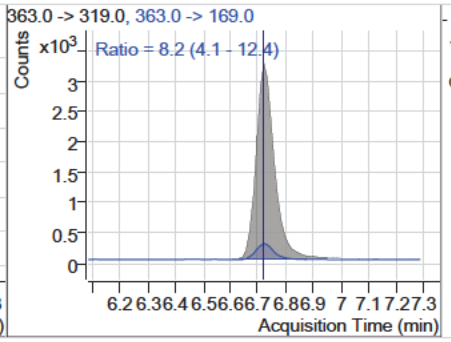


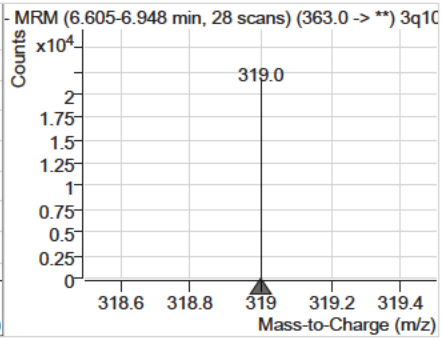




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.43	6.72	0.03	14847	363.0 -> 169.0	8.2	4.1	12.4

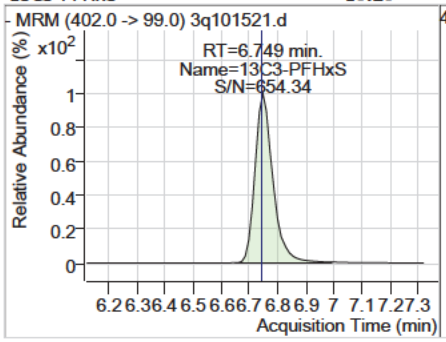


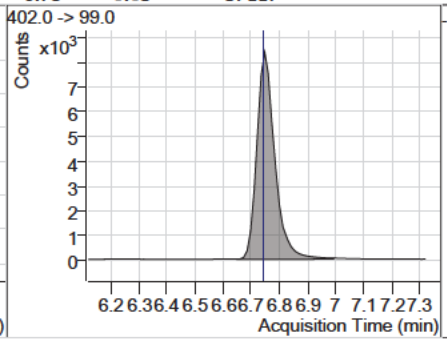


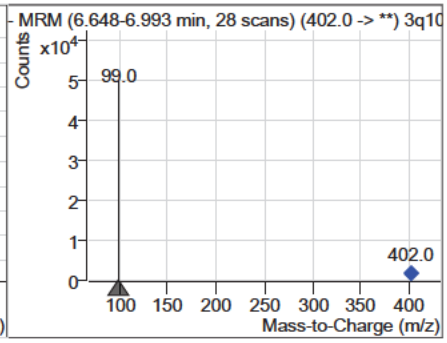


Perfluorinated Compounds by LC/MS/MS

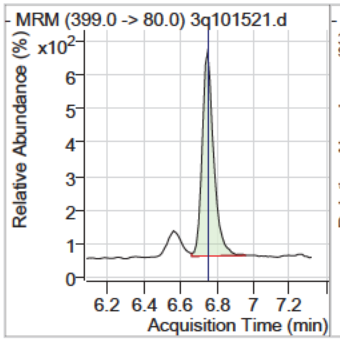
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.20	6.75	0.03	37117				

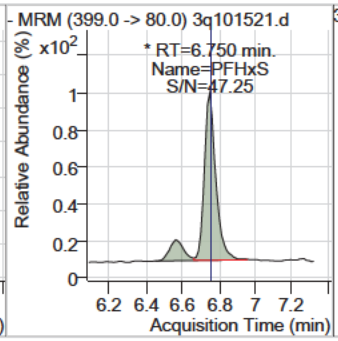


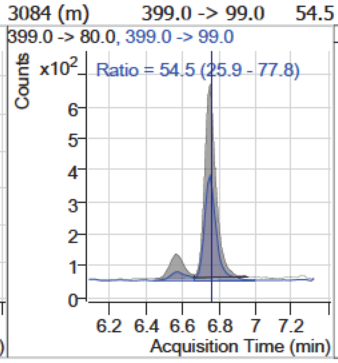


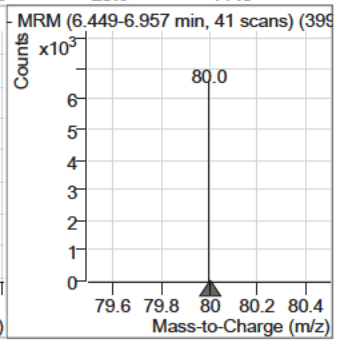


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.47	6.75	0.03	3084 (m)	399.0 -> 99.0	54.5	25.9	77.8

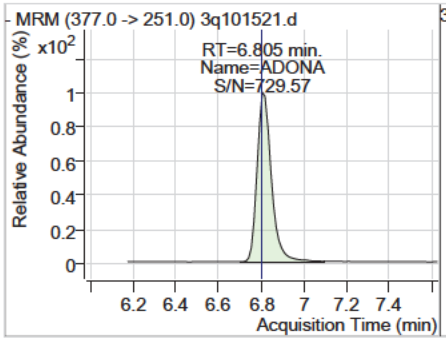


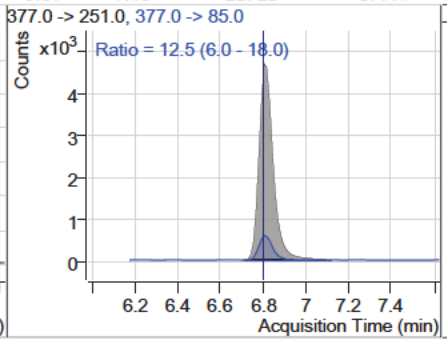


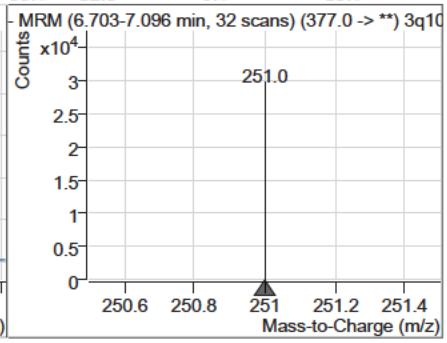




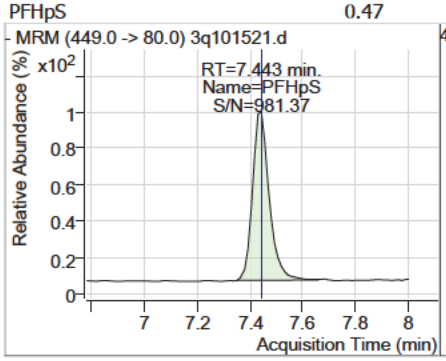
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.40	6.80	0.03	21723	377.0 -> 85.0	12.5	6.0	18.0

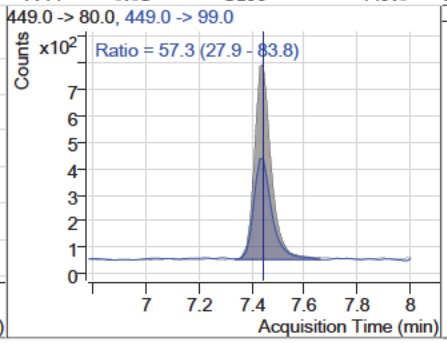


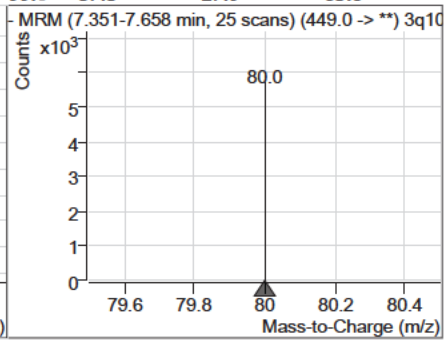




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.47	7.44	0.03	3199	449.0 -> 99.0	57.3	27.9	83.8

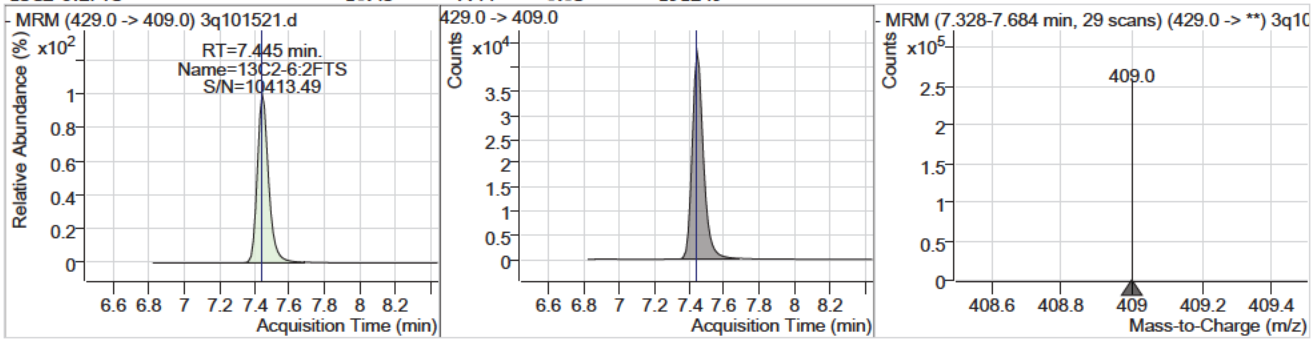




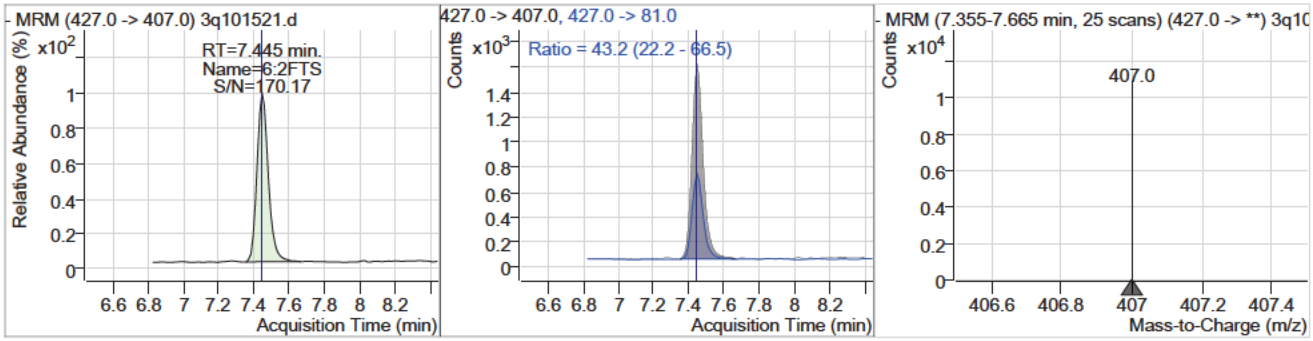


Perfluorinated Compounds by LC/MS/MS

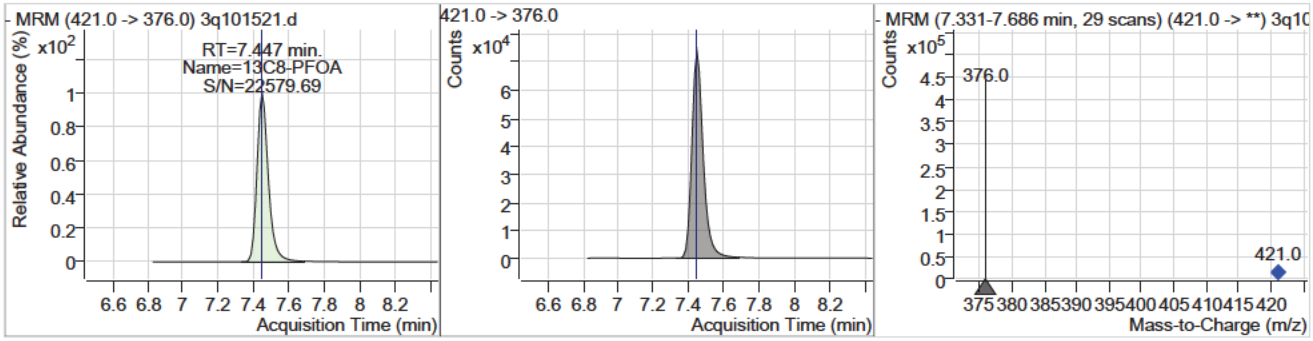
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	10.45	7.44	0.03	191249				



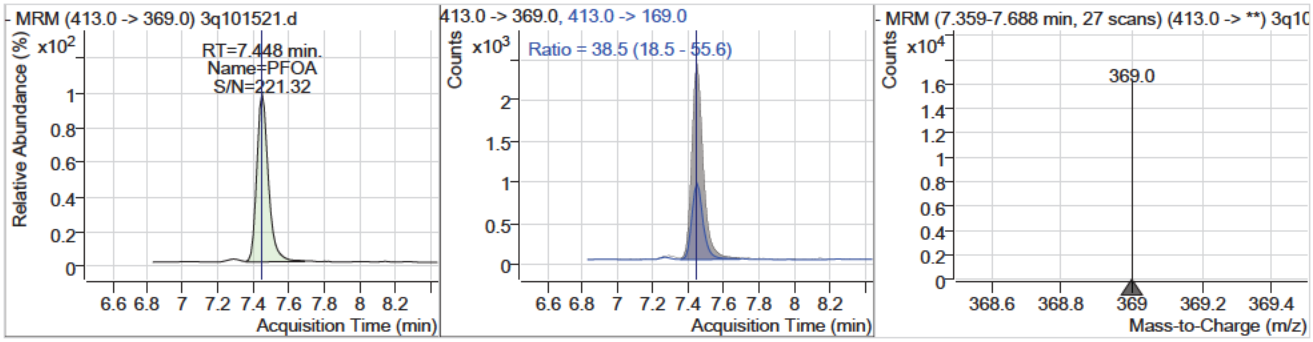
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.43	7.45	0.03	7009	427.0 -> 81.0	43.2	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	11.15	7.45	0.03	331277				

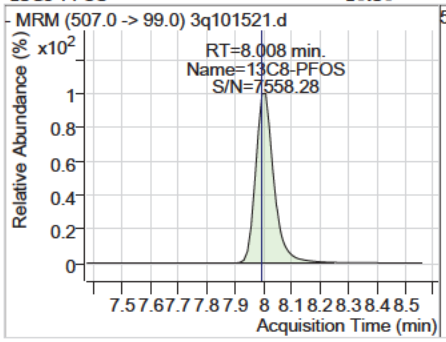


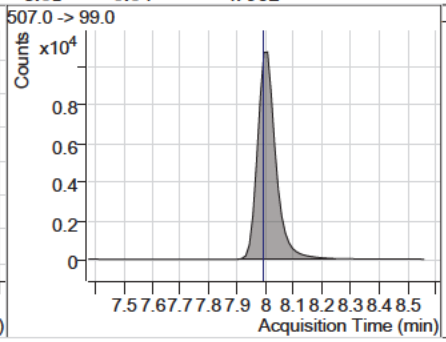
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.43	7.45	0.03	10869	413.0 -> 169.0	38.5	18.5	55.6

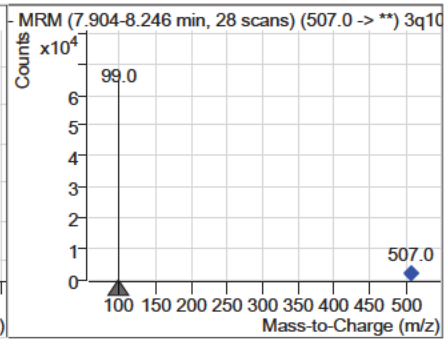


Perfluorinated Compounds by LC/MS/MS

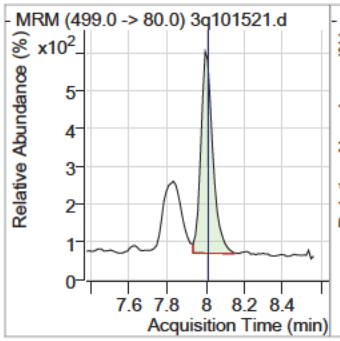
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.30	8.01	0.04	47962				

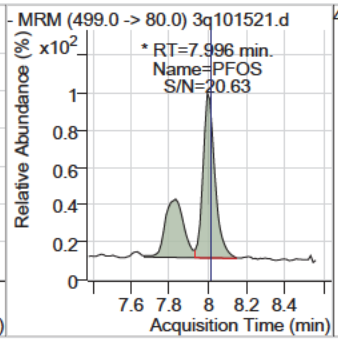


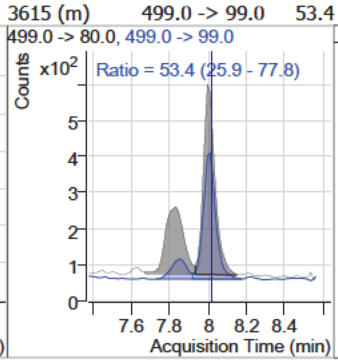


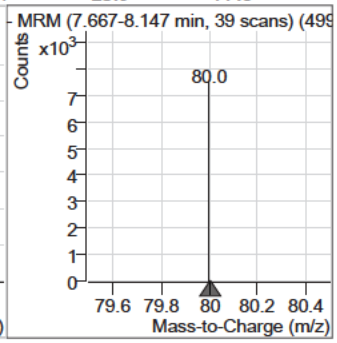


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.47	8.00	0.03	3615 (m)	499.0 -> 99.0	53.4	25.9	77.8

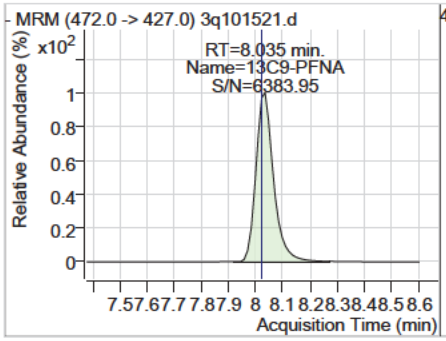


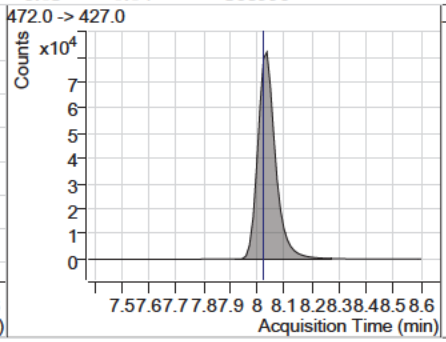


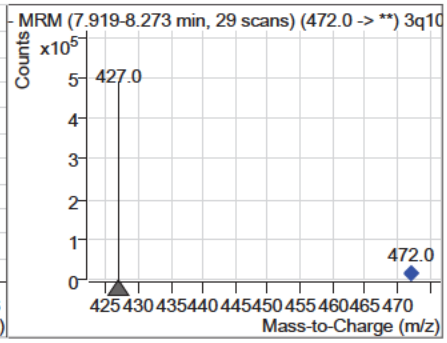




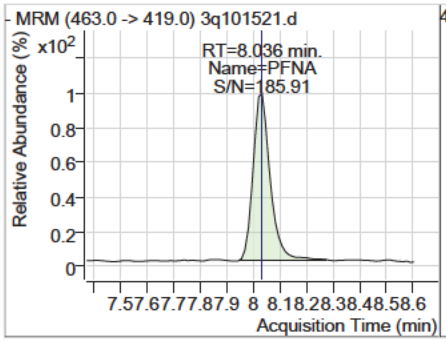
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	11.42	8.03	0.04	368996				

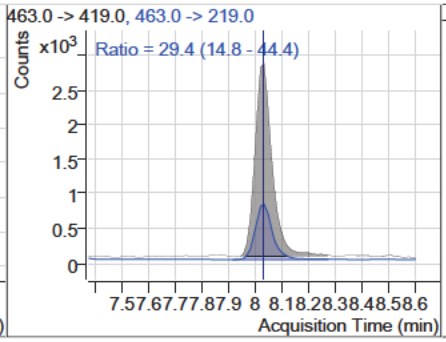


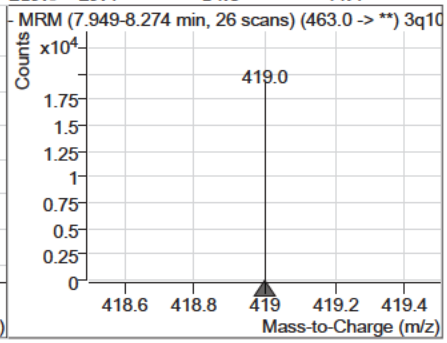




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.41	8.04	0.04	12321	463.0 -> 219.0	29.4	14.8	44.4

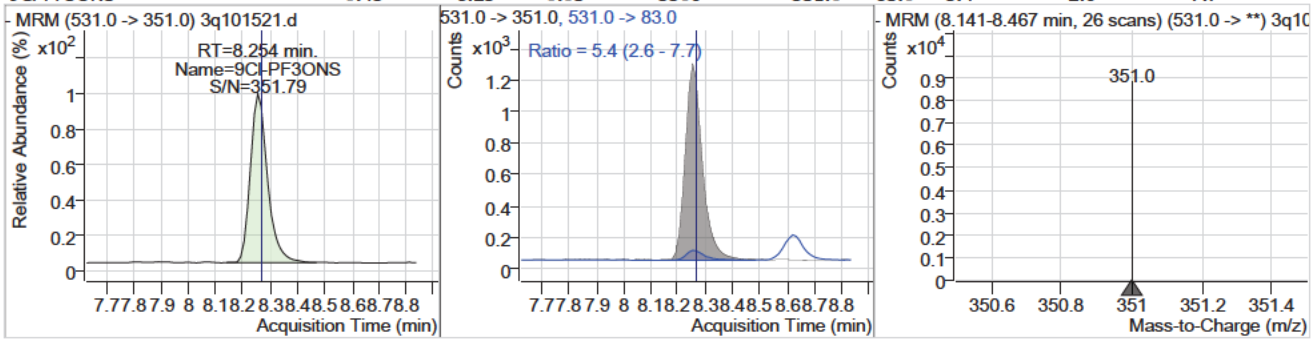




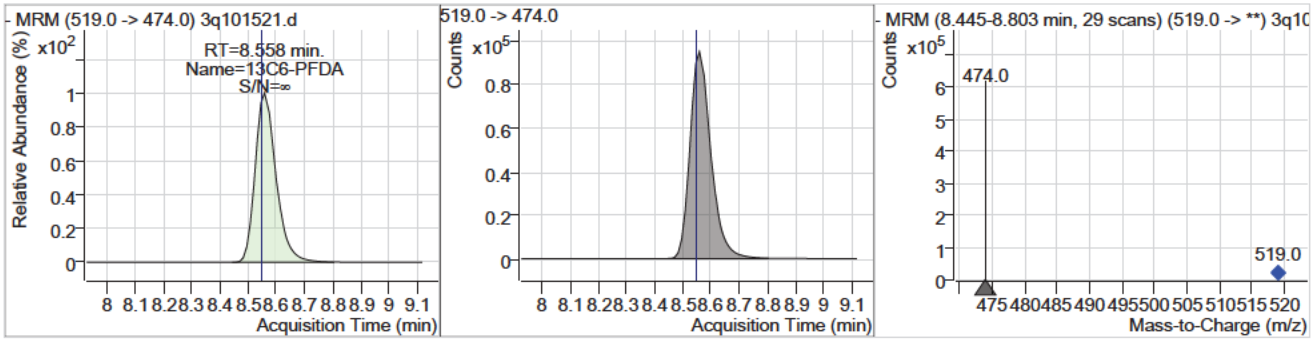


Perfluorinated Compounds by LC/MS/MS

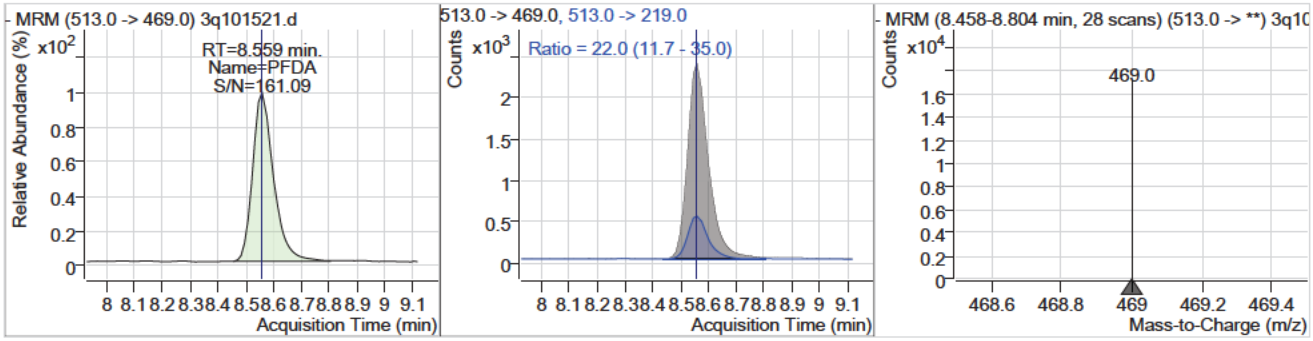
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.45	8.25	0.03	5506	531.0 -> 83.0	5.4	2.6	7.7



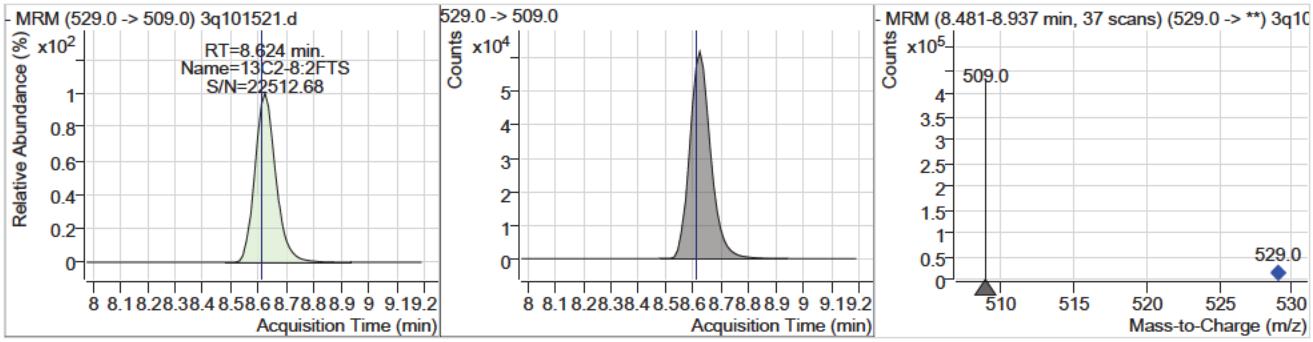
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	10.82	8.56	0.04	489752				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.44	8.56	0.04	12293	513.0 -> 219.0	22.0	11.7	35.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	10.60	8.62	0.04	325180				



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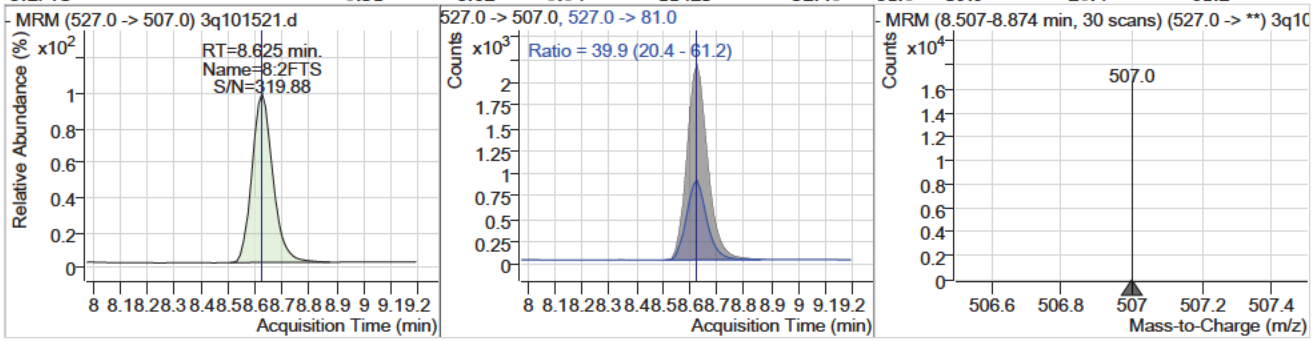
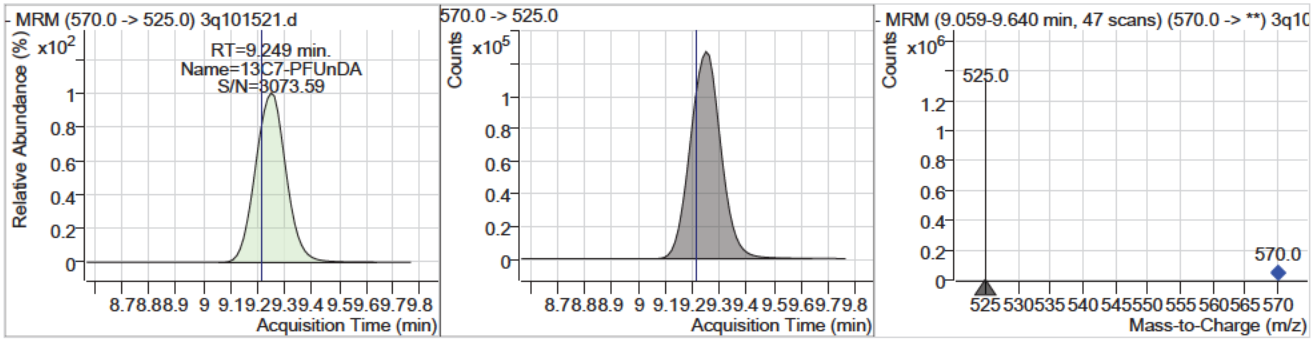
Perfluorinated Compounds by LC/MS/MS

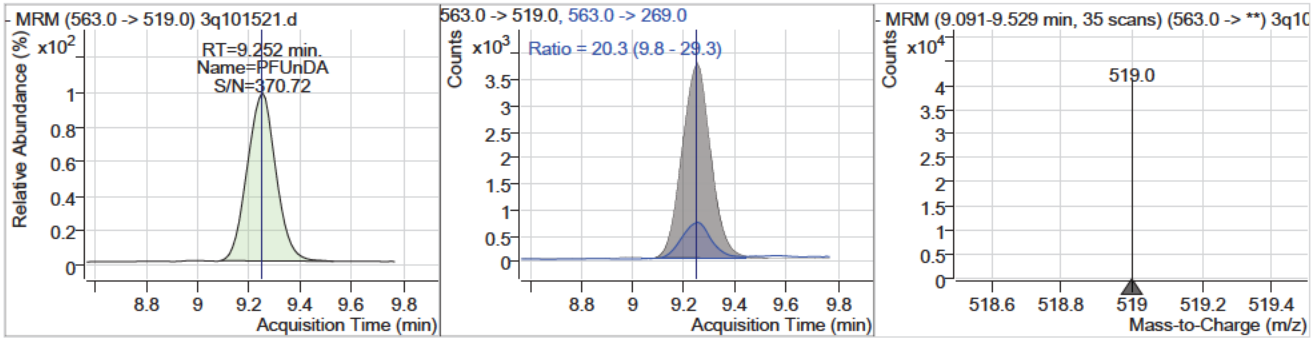
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.51	8.62	0.04	11423	527.0 -> 81.0	39.9	20.4	61.2



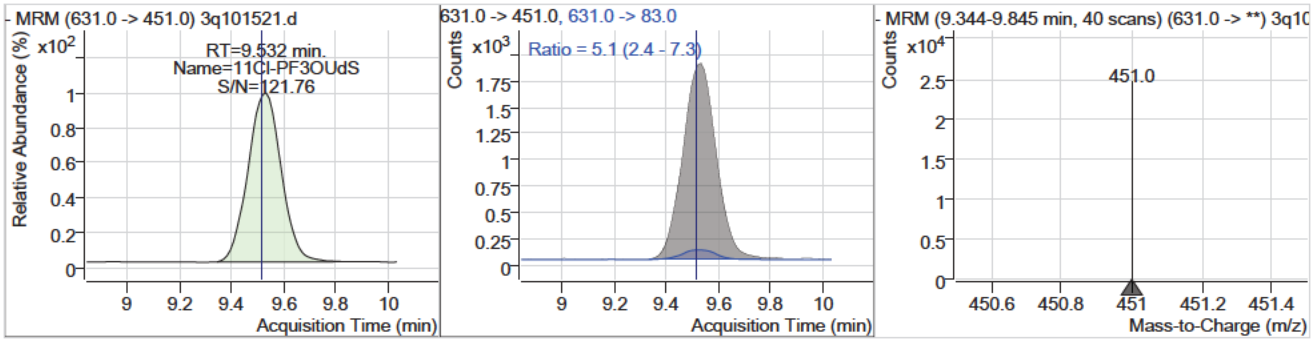
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	11.12	9.25	0.06	1005710				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.44	9.25	0.07	28808	563.0 -> 269.0	20.3	9.8	29.3

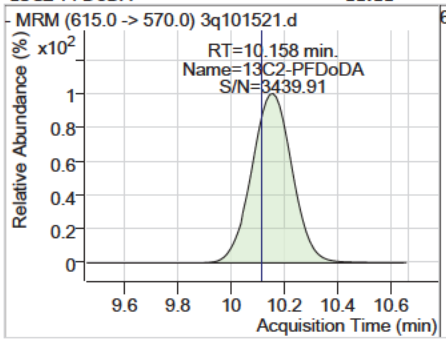


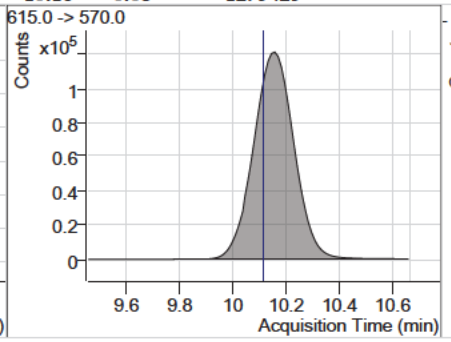
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.46	9.53	0.06	16517	631.0 -> 83.0	5.1	2.4	7.3

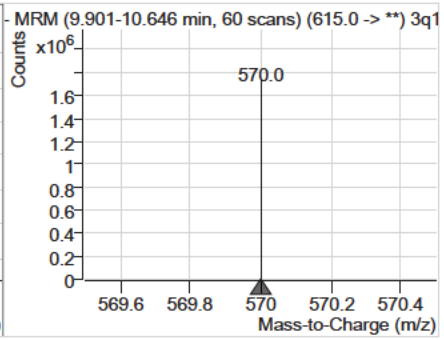


Perfluorinated Compounds by LC/MS/MS

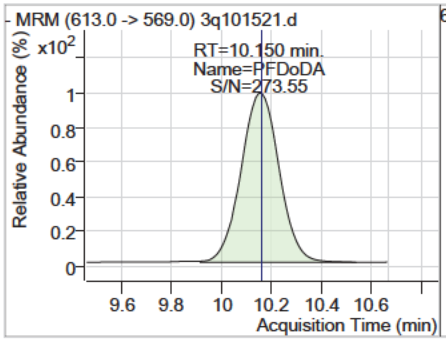
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	11.11	10.16	0.08	1279429				

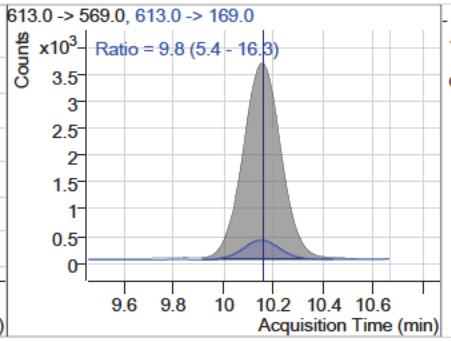


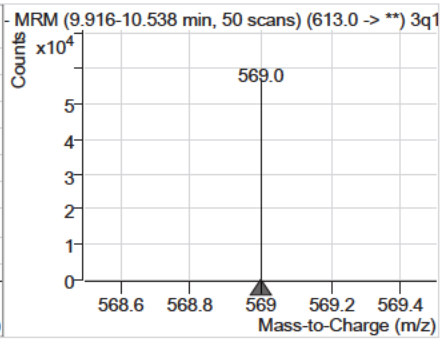




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.46	10.15	0.06	38885	613.0 -> 169.0	9.8	5.4	16.3







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Manual Integration Approval Summary

Sample Number: S3Q1494-CC1492
Lab FileID: 3Q101521.D
Injection Time: 04/17/25 11:07
Method: EPA 533
Analyst approved: 04/18/25 08:08 (b) (6) [redacted]
Supervisor approved: 04/18/25 10:08 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.75	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.00	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 10:08

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101533.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/17/2025 2:20:15 PM
Sample Name : cc1492-20
Vial : P1-C7
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1494.batch.bin
Sample Information : op8907,S3Q1494,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.447	415.0 -> 370.0	257894	10.00 µg/L	0.025
13C3-PFBA	2.357	216.0 -> 172.0	104192	10.00 µg/L	0.013
13C4-PFOS	7.995	503.0 -> 80.0	38759	10.00 µg/L	0.026
M4-PFBA	2.352	217.0 -> 172.0	190123	10.00 µg/L	0.013
M5-PFPeA	4.425	268.0 -> 223.0	224937	10.00 µg/L	0.013
M5-PFHxA	5.788	318.0 -> 273.0	286412	10.00 µg/L	0.013
M4-PFHpA	6.719	367.0 -> 322.0	240523	10.00 µg/L	0.025
M8-PFOA	7.447	421.0 -> 376.0	318657	10.00 µg/L	0.025
M9-PFNA	8.035	472.0 -> 427.0	355866	10.00 µg/L	0.038
M6-PFDA	8.558	519.0 -> 474.0	483696	10.00 µg/L	0.038
M7-PFUnDA	9.249	570.0 -> 525.0	1005909	10.00 µg/L	0.064
M2-PFDoDA	10.196	615.0 -> 570.0	1199293	10.00 µg/L	0.113
M3-PFBS	4.721	302.0 -> 99.0	24853	10.00 µg/L	0.013
M3-PFHxS	6.736	402.0 -> 99.0	36316	10.00 µg/L	0.013
M8-PFOS	7.995	507.0 -> 99.0	47130	10.00 µg/L	0.026
M2-4:2FTS	5.684	329.0 -> 309.0	106719	10.00 µg/L	0.013
M2-6:2FTS	7.445	429.0 -> 409.0	197647	10.00 µg/L	0.025
M2-8:2FTS	8.624	529.0 -> 509.0	341028	10.00 µg/L	0.039
M3-HFPO-DA	6.068	287.0 -> 169.0	3696	10.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.684	329.0 -> 309.0	106719	11.57 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 115.7%	
13C2-6:2FTS	7.445	429.0 -> 409.0	197649	11.41 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.1%	
13C2-8:2FTS	8.624	529.0 -> 509.0	341028	11.75 µg/L	0.039
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 117.5%	
13C2-PFDoDA	10.196	615.0 -> 570.0	1199293	10.92 µg/L	0.113
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C3-PFBS	4.721	302.0 -> 99.0	24853	10.28 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C3-PFHxS	6.736	402.0 -> 99.0	36316	10.55 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C4-PFBA	2.352	217.0 -> 172.0	190123	10.76 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.6%	
13C4-PFHpA	6.719	367.0 -> 322.0	240523	11.02 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.2%	
13C5-PFHxA	5.788	318.0 -> 273.0	286412	10.96 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.6%	
13C5-PFPeA	4.425	268.0 -> 223.0	224937	10.56 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C6-PFDA	8.558	519.0 -> 474.0	483696	11.21 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.1%	
13C7-PFUnDA	9.249	570.0 -> 525.0	1005909	11.67 µg/L	0.064
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 116.7%	
13C8-PFOA	7.447	421.0 -> 376.0	318657	11.25 µg/L	0.025

Perfluorinated Compounds by LC/MS/MS

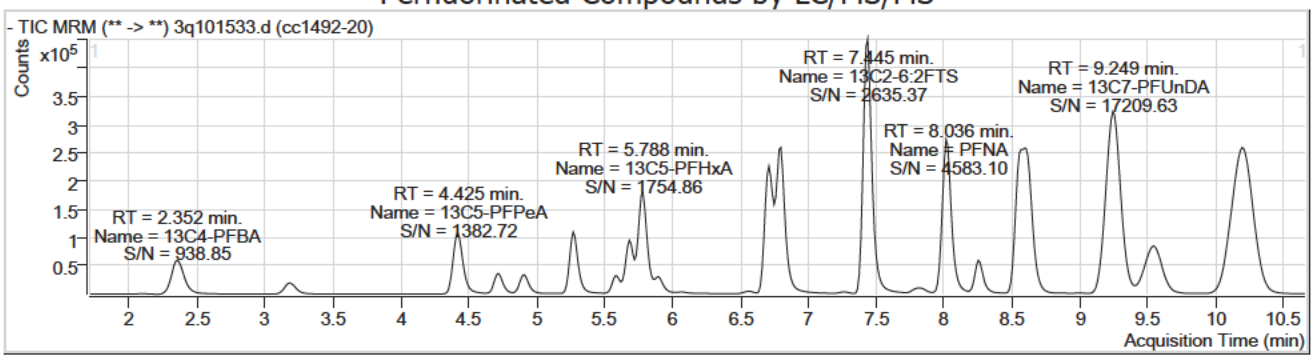
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.5%		
13C8-PFOS	7.995	507.0 -> 99.0	47130	10.69 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.9%		
13C9-PFNA	8.035	472.0 -> 427.0	355866	11.56 µg/L		0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 115.6%		
13C3-HFPO-DA	6.068	287.0 -> 169.0	3696	9.84 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.4%		
Target Compounds						QValue
PFMPA	3.178	229.0 -> 85.0	121504	19.74 µg/L		100
4:2FTS	5.686	327.0 -> 307.0	223849	18.83 µg/L		98
		327.0 -> 81.0	92608			
6:2FTS	7.445	427.0 -> 407.0	304966	19.55 µg/L		95
		427.0 -> 81.0	126154			
8:2FTS	8.625	527.0 -> 507.0	509229	21.73 µg/L		95
		527.0 -> 81.0	190902			
PFMBA	4.913	279.0 -> 85.0	162534	19.60 µg/L		100
PFEESA	5.274	315.0 -> 135.0	460653	20.55 µg/L		99
		315.0 -> 69.0	34119			
NFDHA	5.594	201.0 -> 85.0	137771	19.23 µg/L		100
		295.0 -> 201.0	8953			
PFBA	2.361	213.0 -> 169.0	103177	19.63 µg/L		100
PFBS	4.722	299.0 -> 80.0	101401	20.18 µg/L		99
		299.0 -> 99.0	43011			
PFDA	8.559	513.0 -> 469.0	538723	19.69 µg/L		96
		513.0 -> 219.0	115380			
PFDoDA	10.200	613.0 -> 569.0	1596028	20.01 µg/L		96
		613.0 -> 169.0	152000			
PFHpA	6.720	363.0 -> 319.0	637441	18.89 µg/L		100
		363.0 -> 169.0	52843			
PFHpS	7.431	449.0 -> 80.0	138662	20.85 µg/L		99
		449.0 -> 99.0	76119			
PFHxA	5.791	313.0 -> 269.0	504035	18.68 µg/L		100
		313.0 -> 119.0	17907			
PFHxS	6.738	399.0 -> 80.0	126520	19.79 µg/L	m	97
		399.0 -> 99.0	67997			
PFNA	8.036	463.0 -> 419.0	551727	18.93 µg/L		97
		463.0 -> 219.0	153222			
PFOA	7.448	413.0 -> 369.0	464211	18.89 µg/L		99
		413.0 -> 169.0	170693			
PFOS	7.996	499.0 -> 80.0	151556	20.11 µg/L	m	99
		499.0 -> 99.0	77784			
PFPeA	4.427	263.0 -> 219.0	337210	19.87 µg/L		100
PFPeS	5.896	349.0 -> 80.0	74315	20.04 µg/L		100
		349.0 -> 99.0	31285			
PFUnDA	9.252	563.0 -> 519.0	1308030	20.17 µg/L		96
		563.0 -> 269.0	230648			
11Cl-PF3OUdS	9.545	631.0 -> 451.0	728022	20.80 µg/L		99
		631.0 -> 83.0	34337			
9Cl-PF3ONS	8.254	531.0 -> 351.0	240010	19.77 µg/L		100
		531.0 -> 83.0	12534			
ADONA	6.805	377.0 -> 251.0	969819	18.61 µg/L		99
		377.0 -> 85.0	118493			
HFPO-DA	6.073	329.0 -> 169.0	1603	19.51 µg/L		94
		285.0 -> 169.0	3714			

= Qualifier out of range, m = manually integrated, + = Area summed

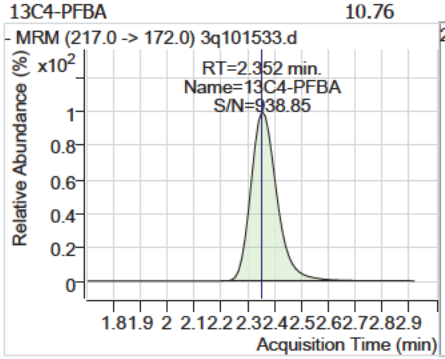
Perfluorinated Compounds by LC/MS/MS

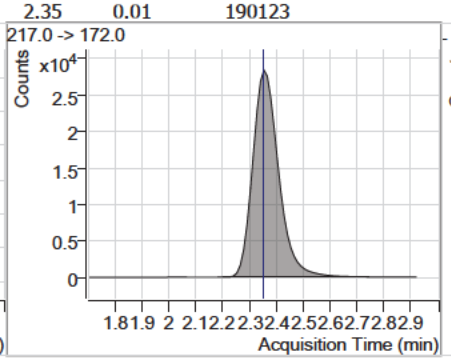
Compound	RT	Transition	Response	Conc. Units	Dev(Min)

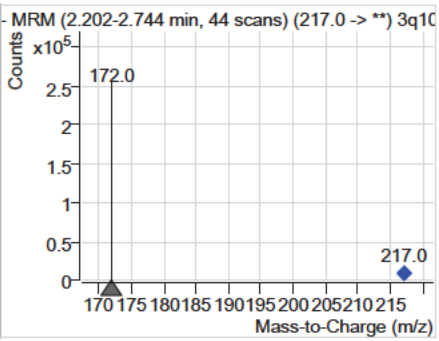
Perfluorinated Compounds by LC/MS/MS



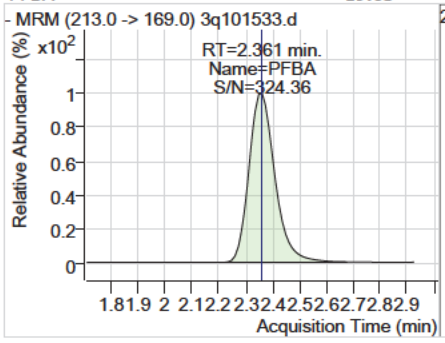
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.76	2.35	0.01	190123				

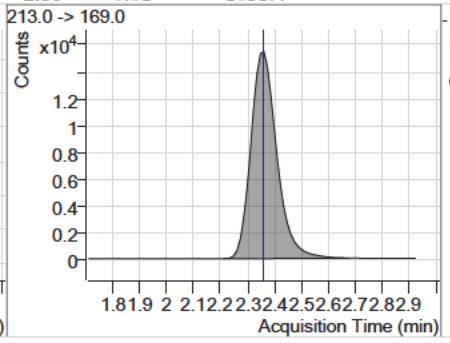


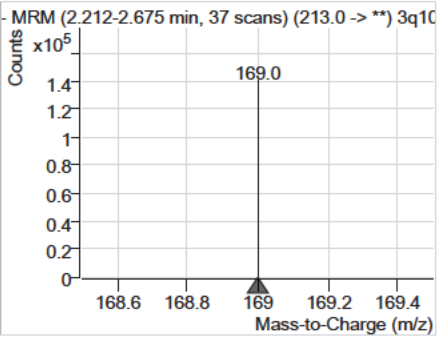




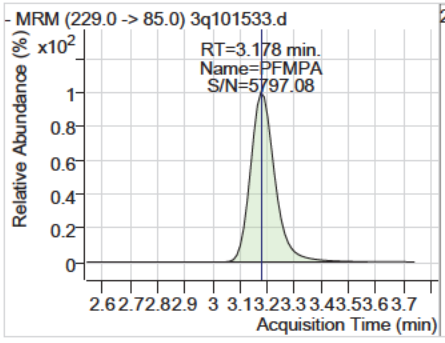
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.63	2.36	0.01	103177				

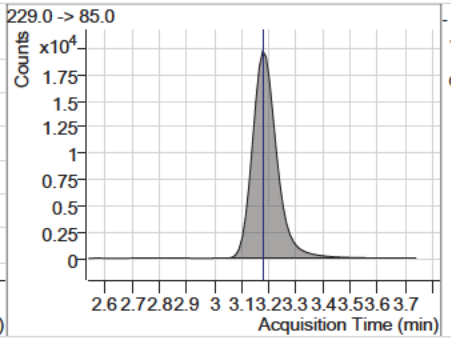


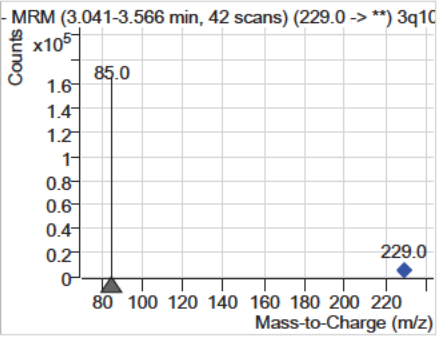




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	19.74	3.18	0.01	121504				







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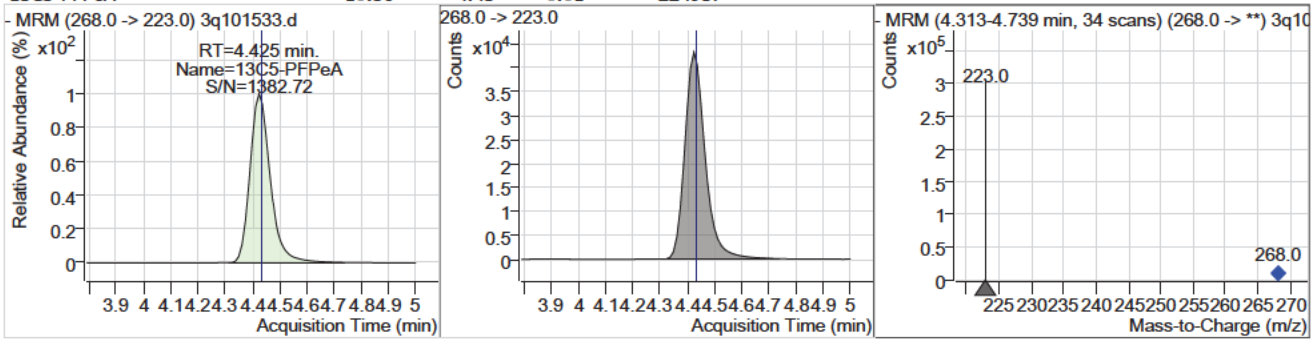
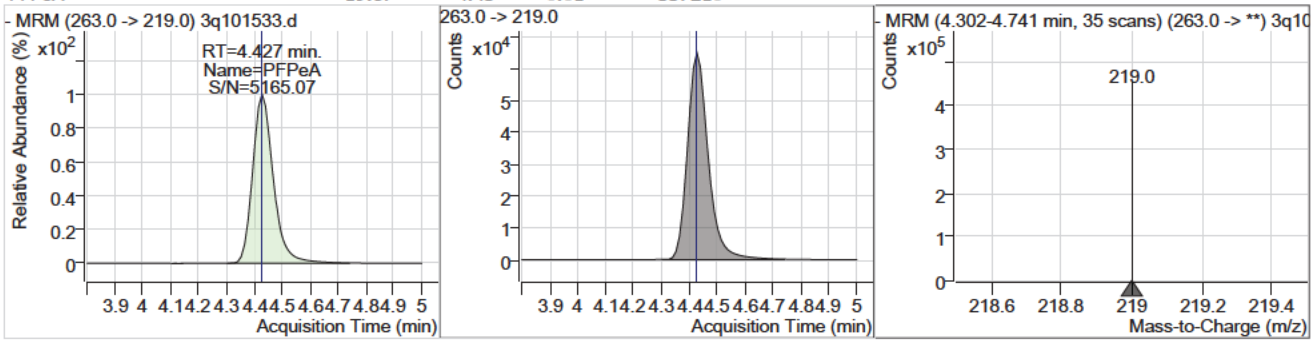
Perfluorinated Compounds by LC/MS/MS

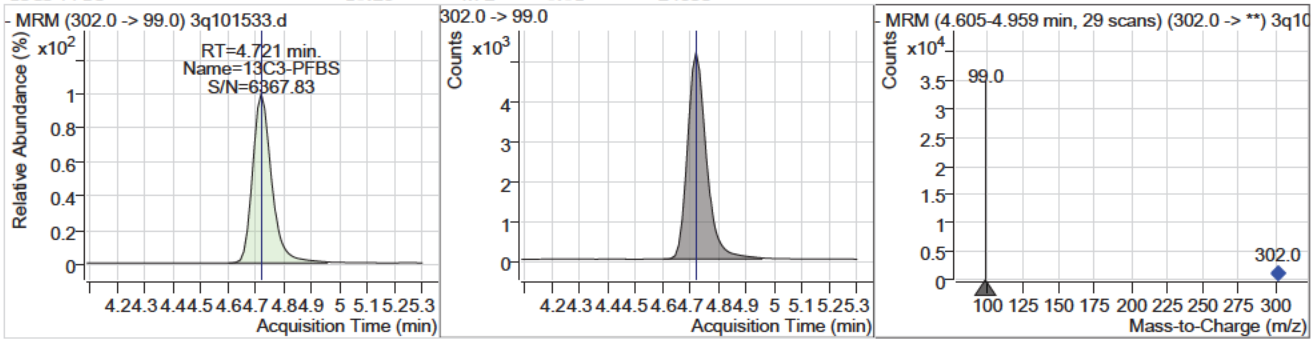
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.56	4.43	0.01	224937				



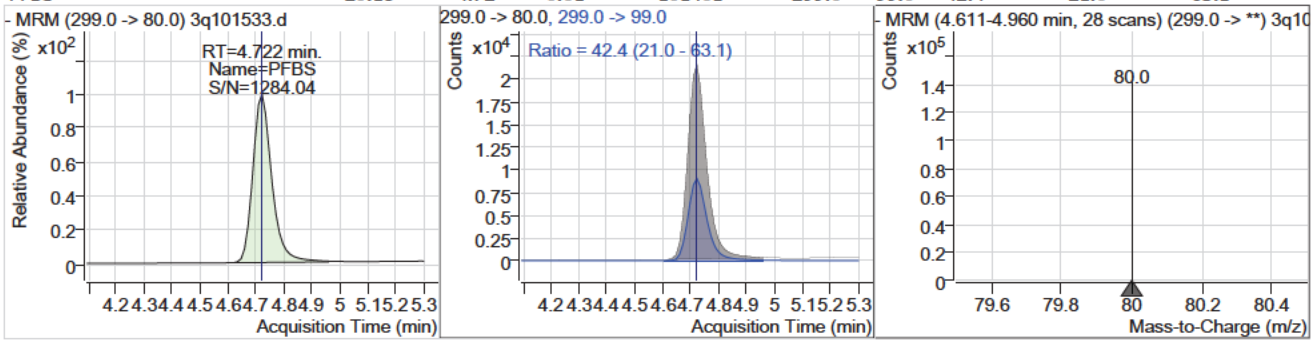
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.87	4.43	0.01	337210				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.28	4.72	0.01	24853				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.18	4.72	0.01	101401	299.0 -> 99.0	42.4	21.0	63.1



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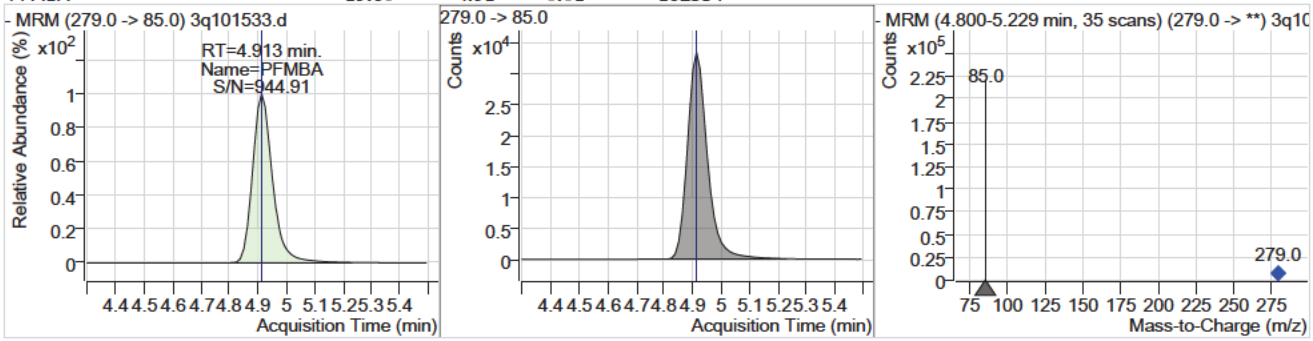
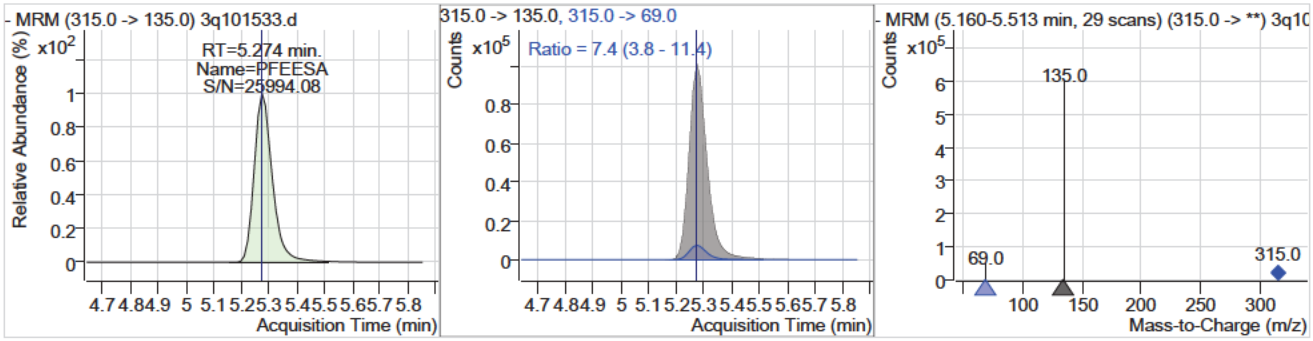
Perfluorinated Compounds by LC/MS/MS

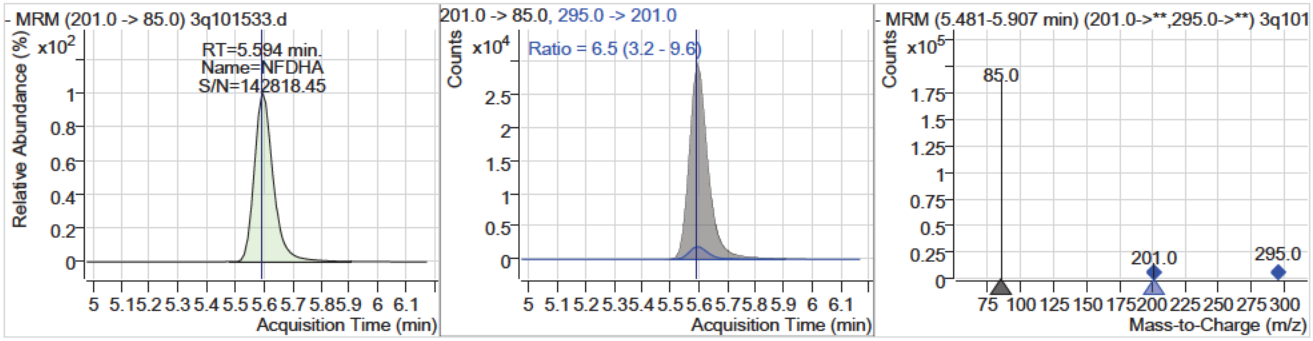
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	19.60	4.91	0.01	162534				



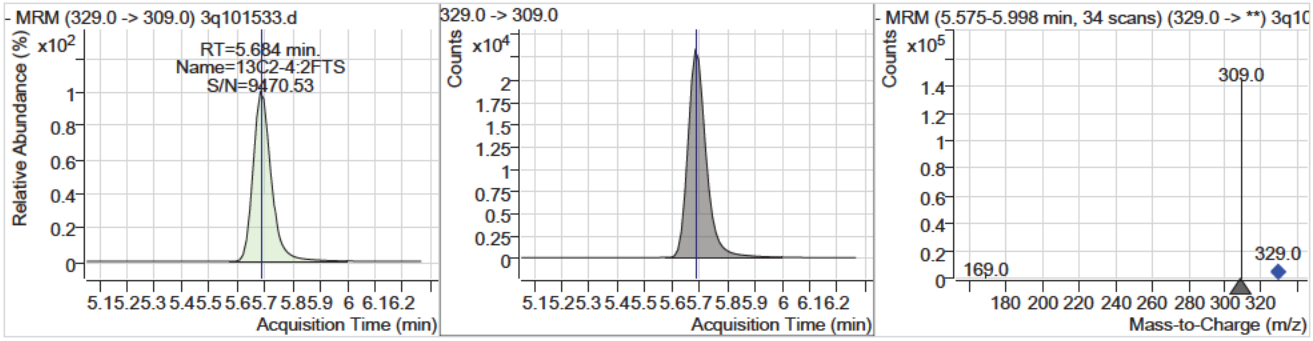
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	20.55	5.27	0.01	460653	315.0 -> 69.0	7.4	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	19.23	5.59	0.01	137771	295.0 -> 201.0	6.5	3.2	9.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	11.57	5.68	0.01	106719				



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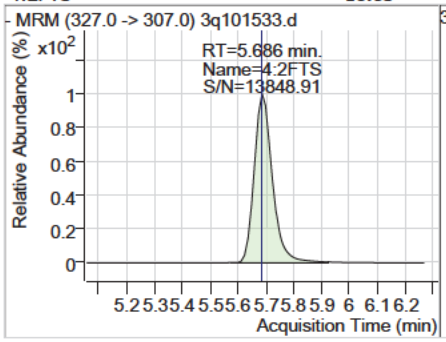
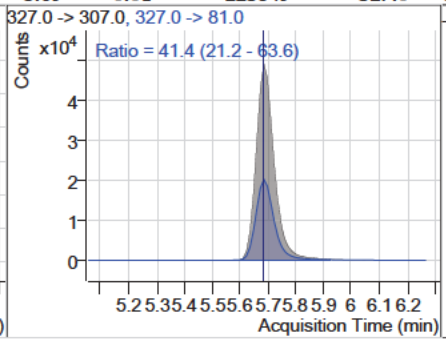
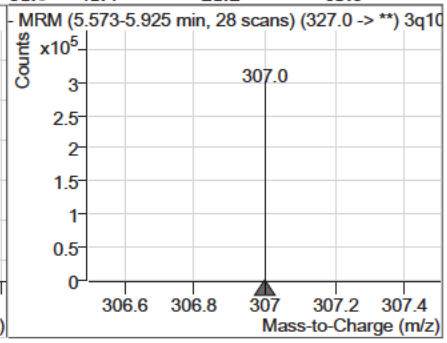
Perfluorinated Compounds by LC/MS/MS

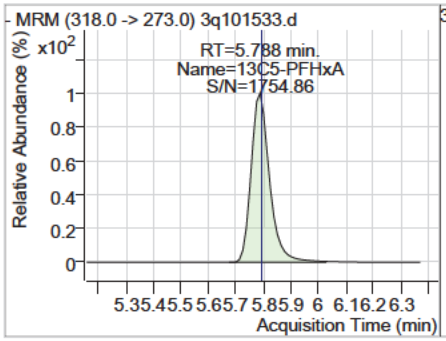
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	18.83	5.69	0.01	223849	327.0 -> 81.0	41.4	21.2	63.6

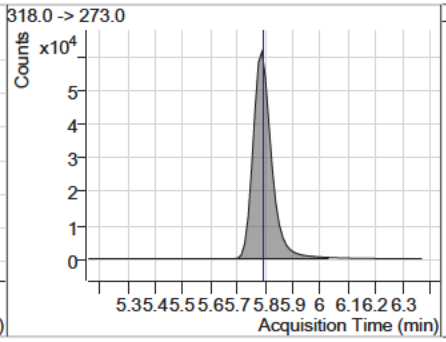


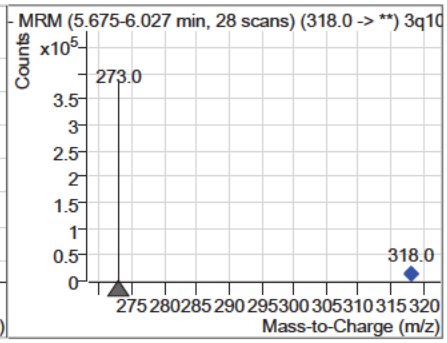




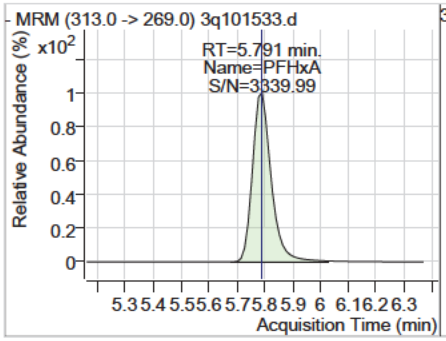
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.96	5.79	0.01	286412				

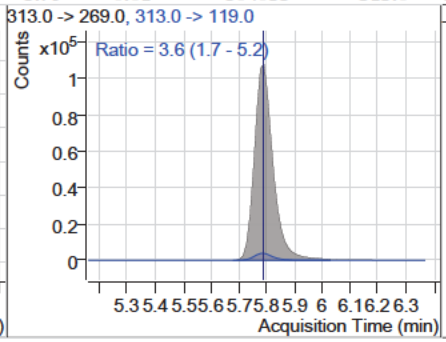


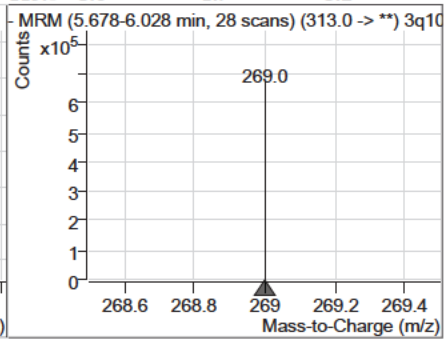




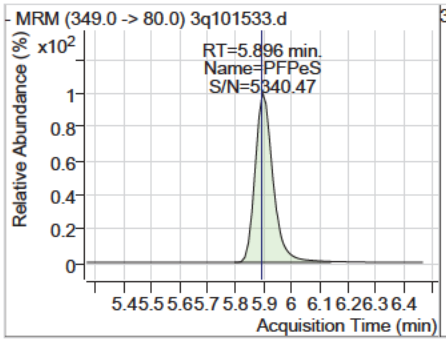
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	18.68	5.79	0.01	504035	313.0 -> 119.0	3.6	1.7	5.2

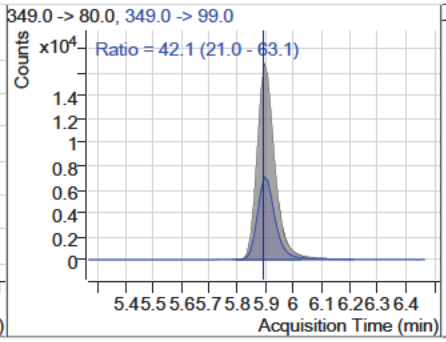


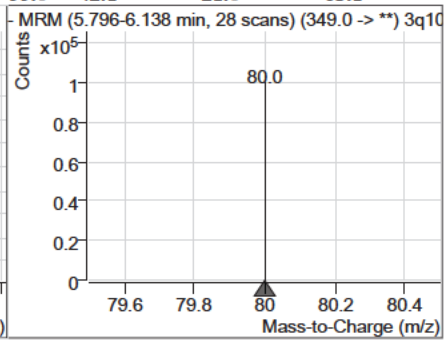




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	20.04	5.90	0.01	74315	349.0 -> 99.0	42.1	21.0	63.1







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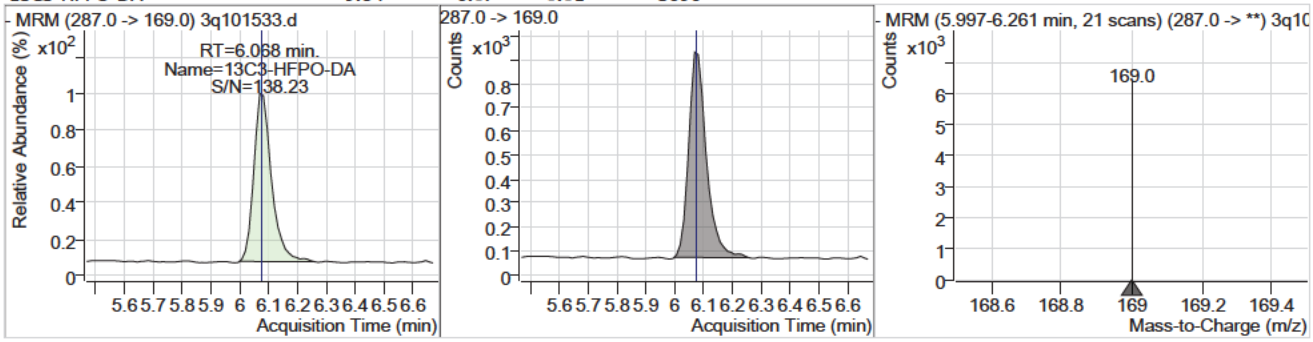
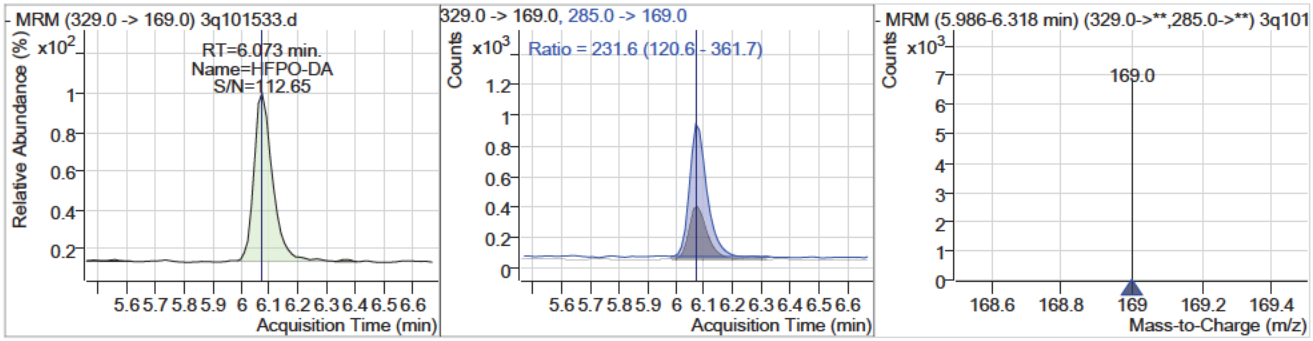
Perfluorinated Compounds by LC/MS/MS

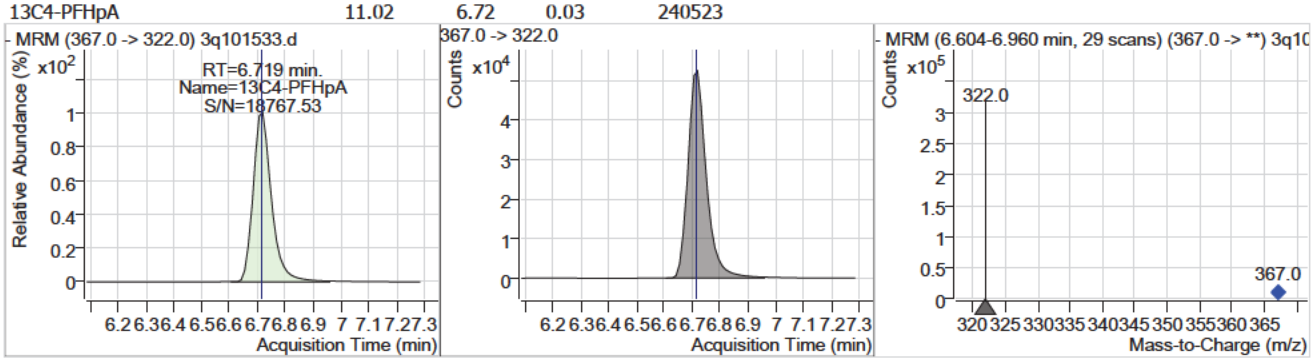
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.84	6.07	0.01	3696				



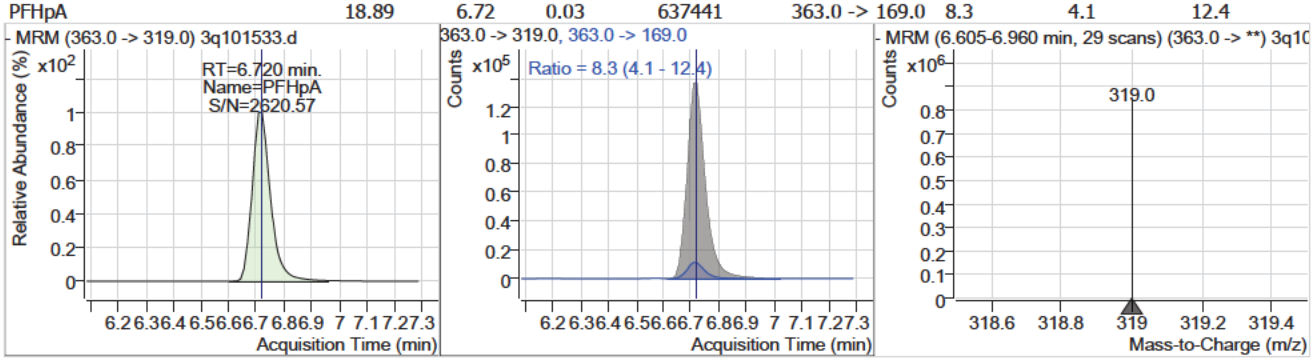
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.51	6.07	0.01	1603	285.0 -> 169.0	231.6	120.6	361.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	11.02	6.72	0.03	240523				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	18.89	6.72	0.03	637441	363.0 -> 169.0	8.3	4.1	12.4



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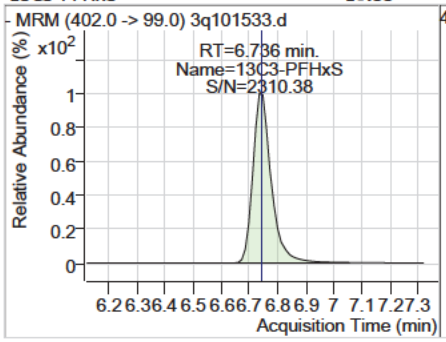
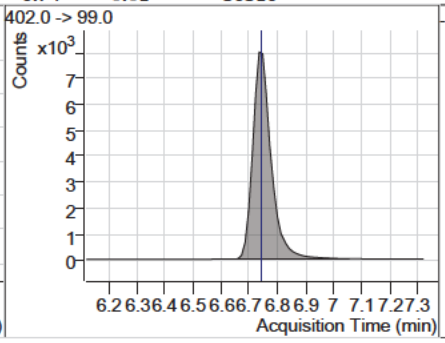
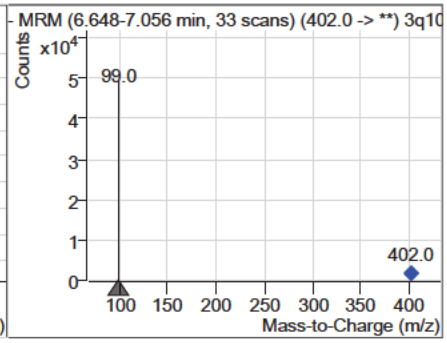
Perfluorinated Compounds by LC/MS/MS

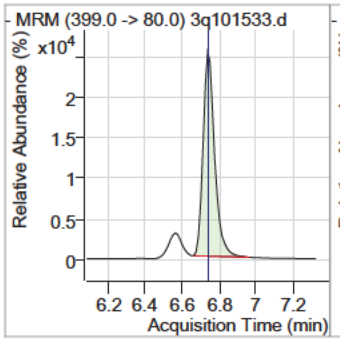
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.55	6.74	0.01	36316				

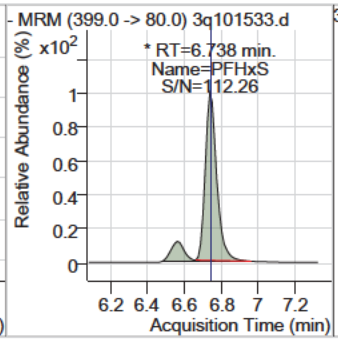


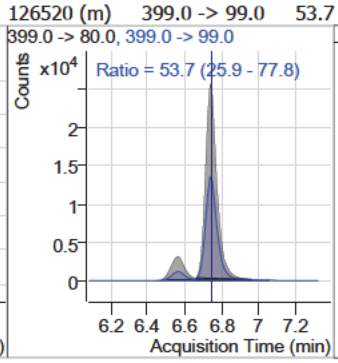


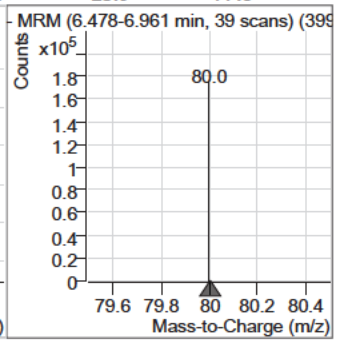


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.79	6.74	0.01	126520 (m)	399.0 -> 99.0	53.7	25.9	77.8

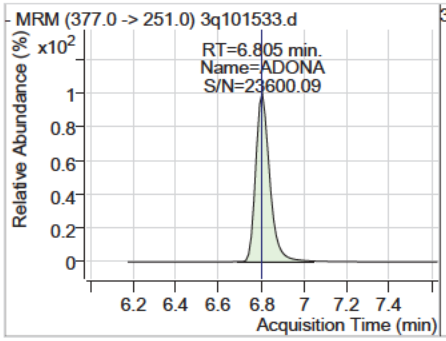


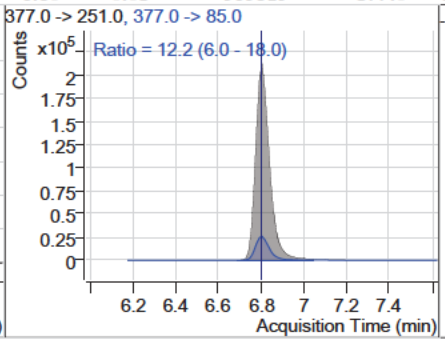


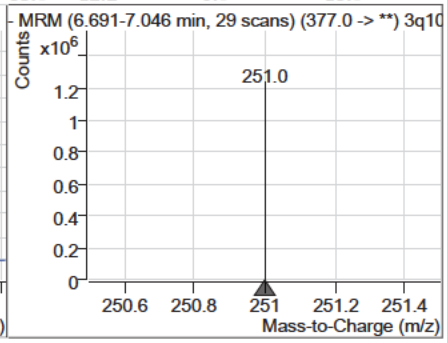




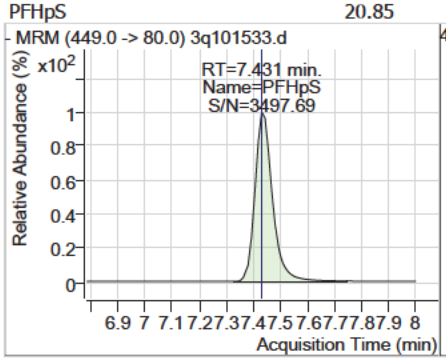
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	18.61	6.80	0.03	969819	377.0 -> 85.0	12.2	6.0	18.0

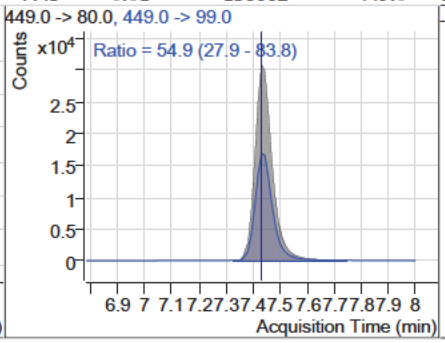


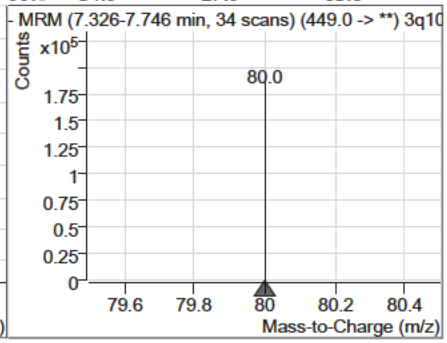




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	20.85	7.43	0.01	138662	449.0 -> 99.0	54.9	27.9	83.8







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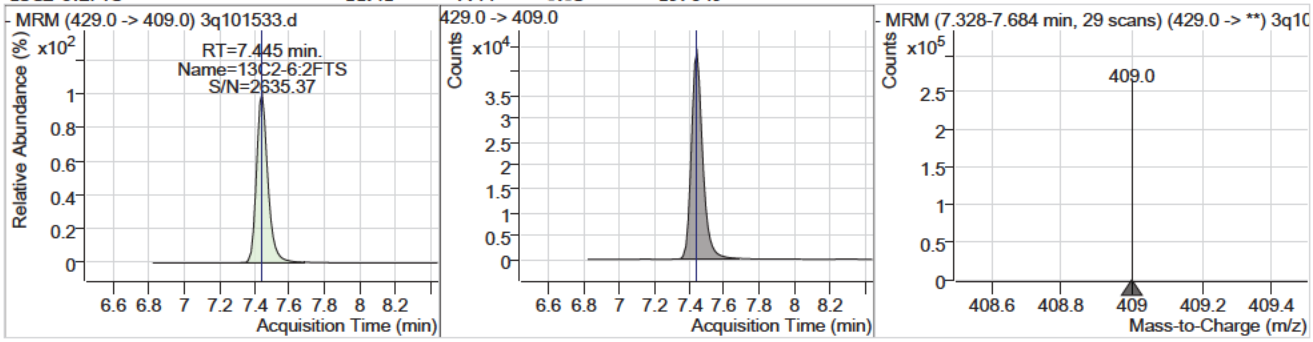
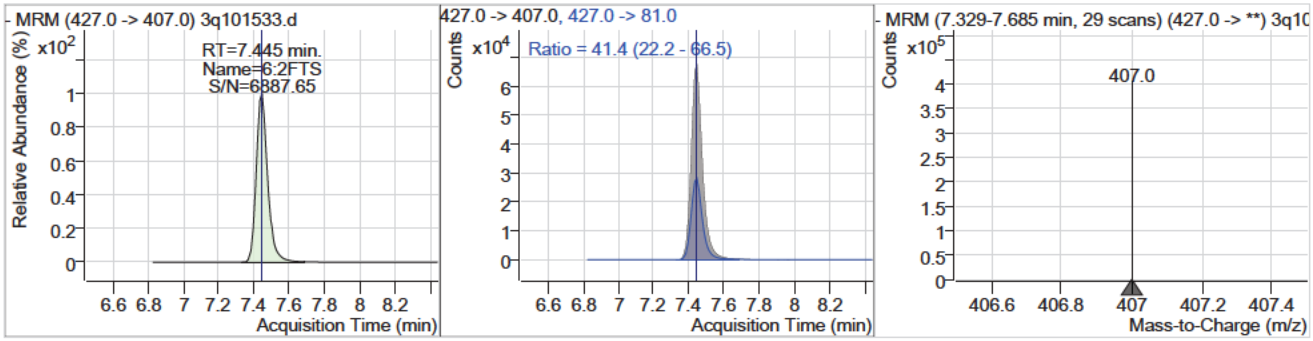
Perfluorinated Compounds by LC/MS/MS

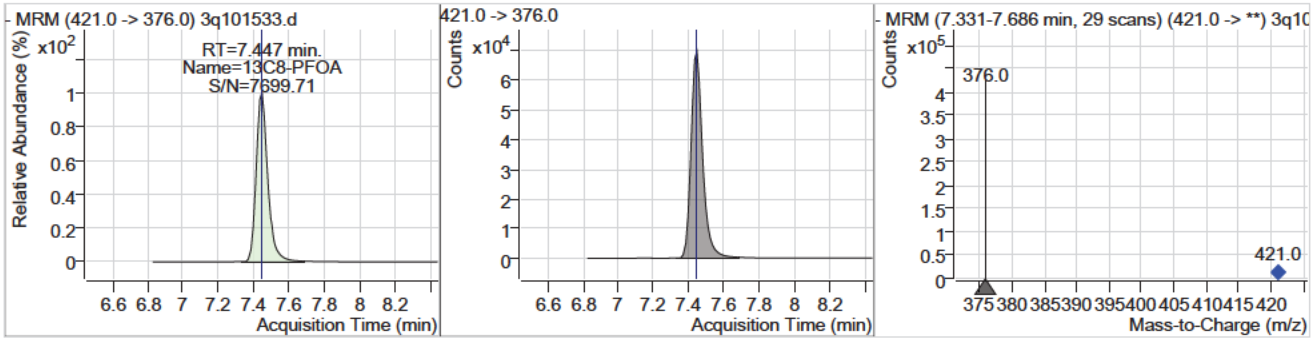
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	11.41	7.44	0.03	197649				



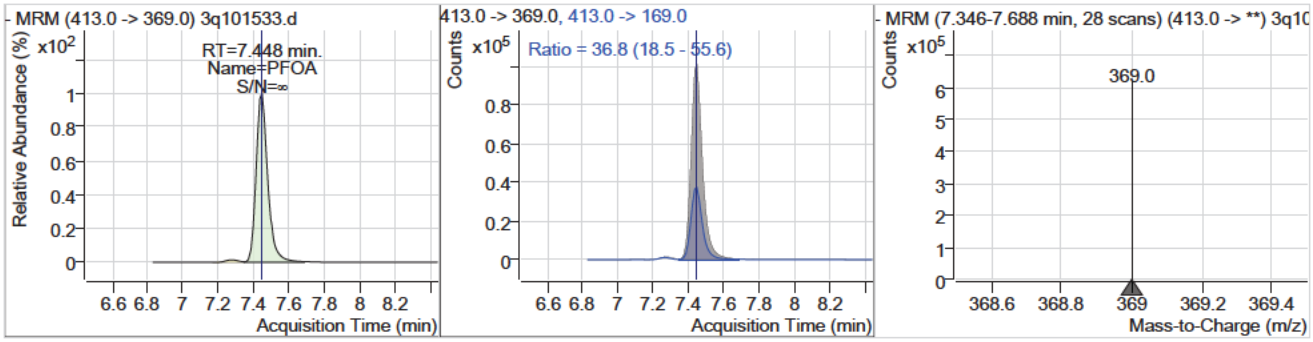
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.55	7.45	0.03	304966	427.0 -> 81.0	41.4	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	11.25	7.45	0.03	318657				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	18.89	7.45	0.03	464211	413.0 -> 169.0	36.8	18.5	55.6



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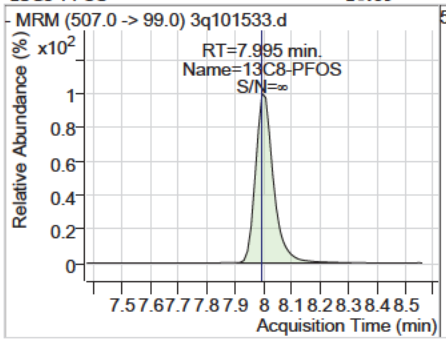
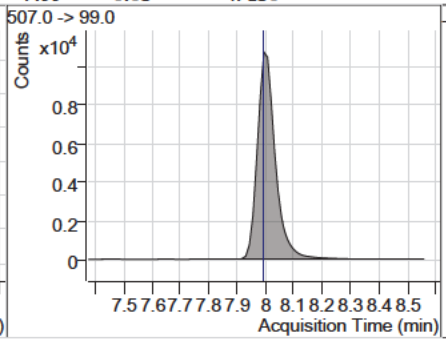
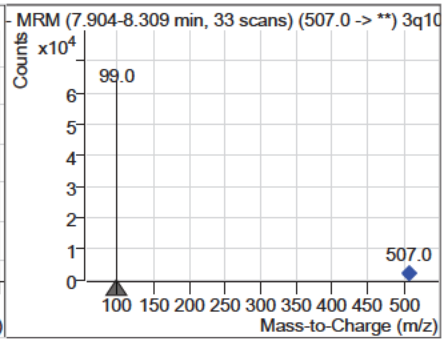
Perfluorinated Compounds by LC/MS/MS

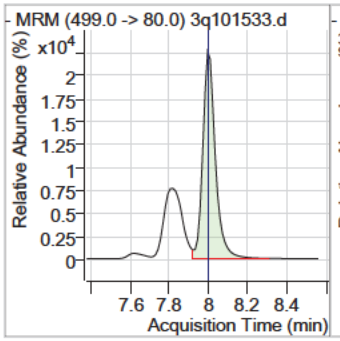
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.69	7.99	0.03	47130				

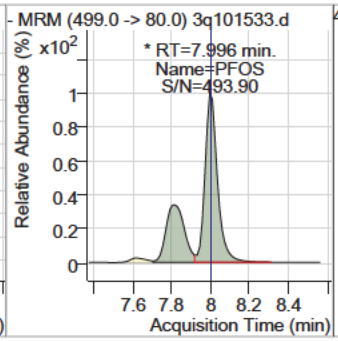


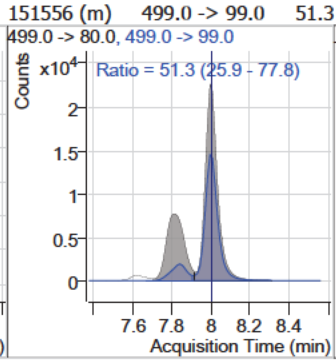


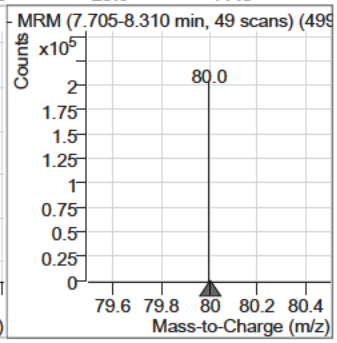


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	20.11	8.00	0.03	151556 (m)	499.0 -> 99.0	51.3	25.9	77.8

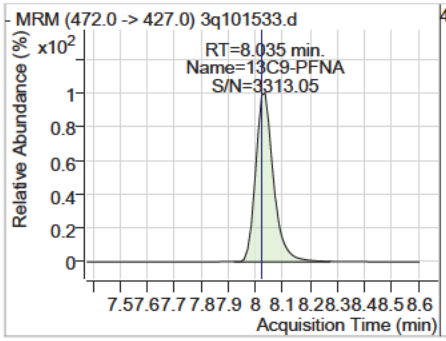


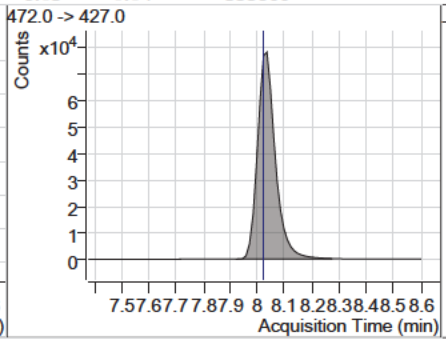


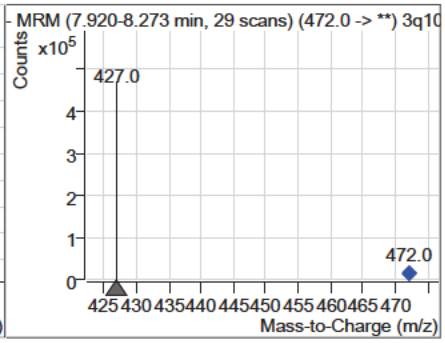




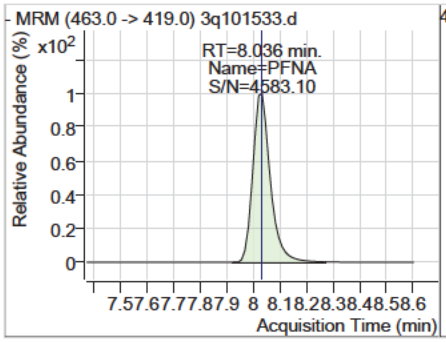
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	11.56	8.03	0.04	355866				

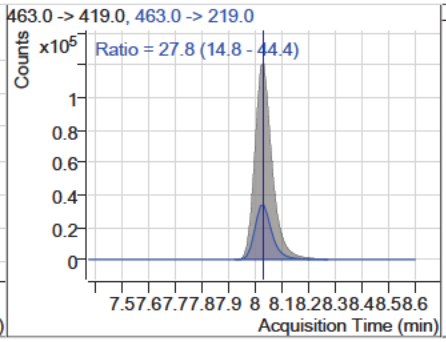


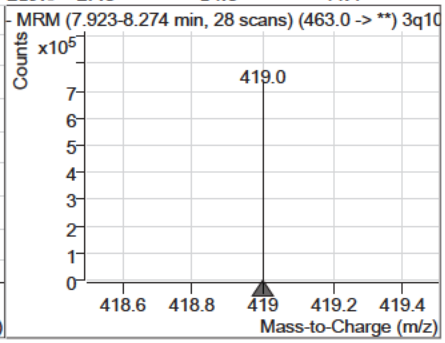




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	18.93	8.04	0.04	551727	463.0 -> 219.0	27.8	14.8	44.4







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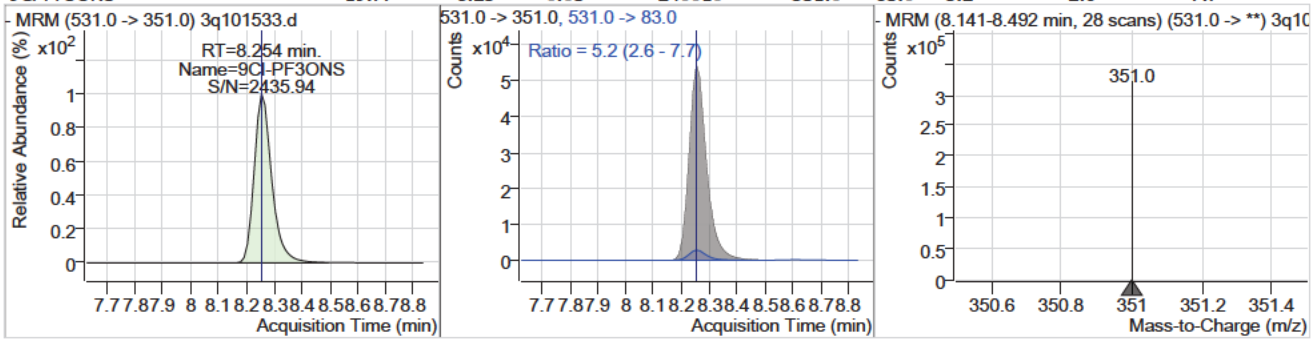
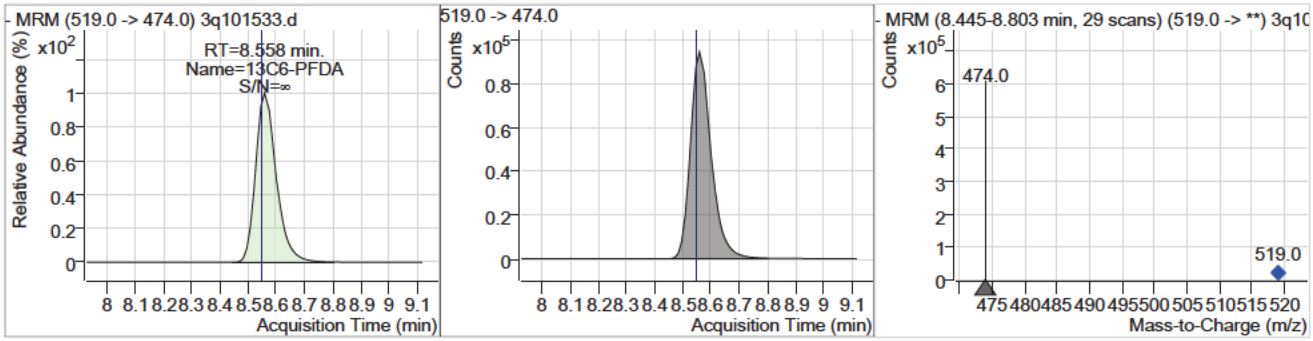
Perfluorinated Compounds by LC/MS/MS

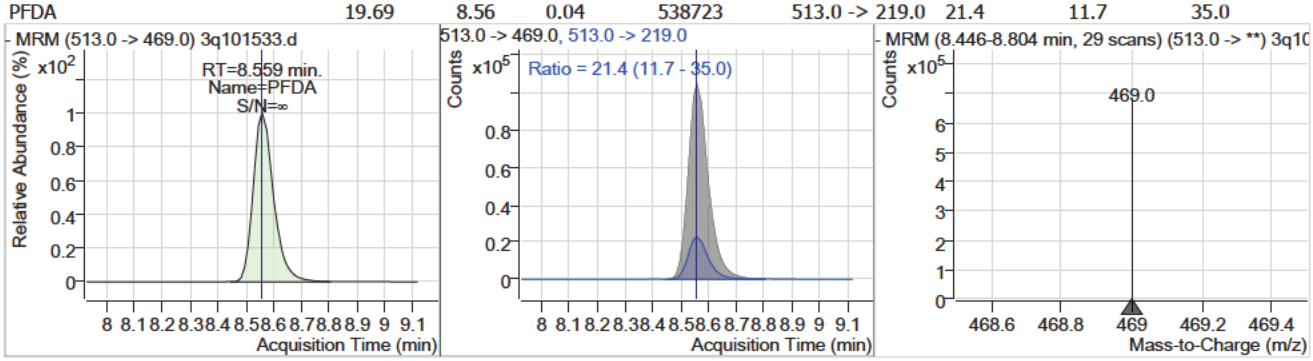
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	19.77	8.25	0.03	240010	531.0 -> 83.0	5.2	2.6	7.7



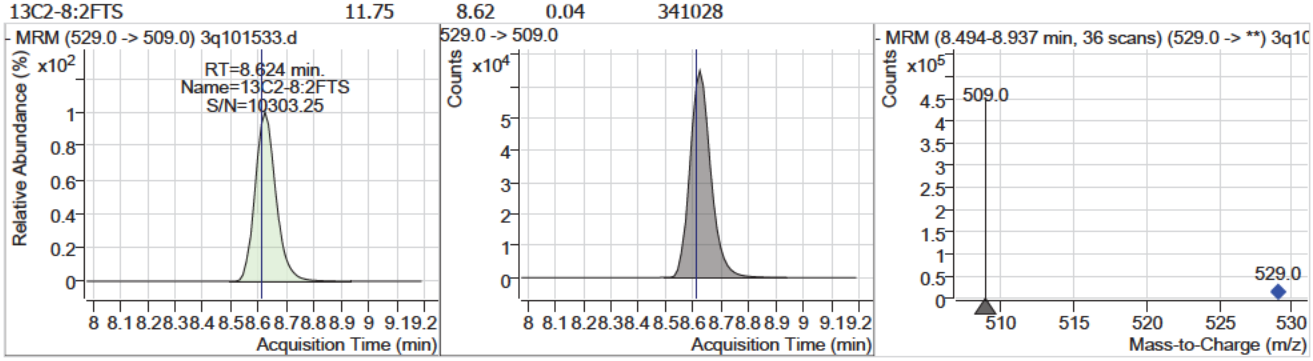
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	11.21	8.56	0.04	483696				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.69	8.56	0.04	538723	513.0 -> 219.0	21.4	11.7	35.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	11.75	8.62	0.04	341028				



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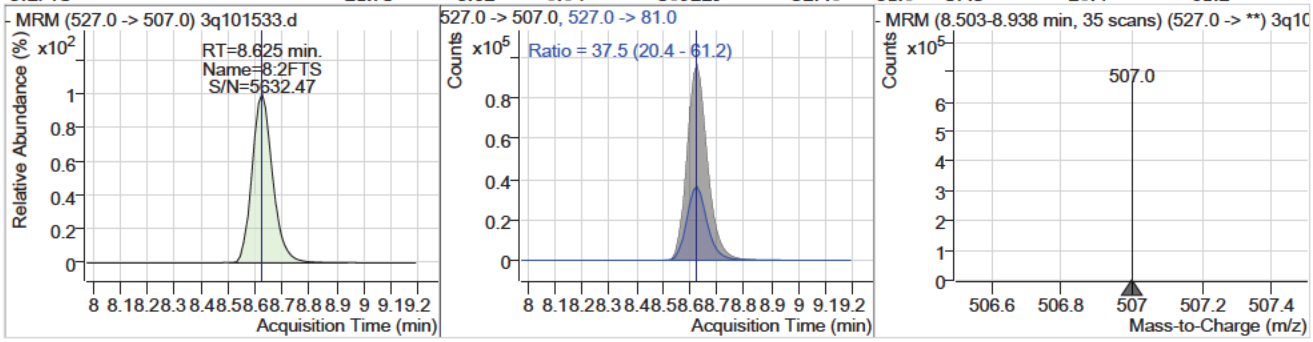
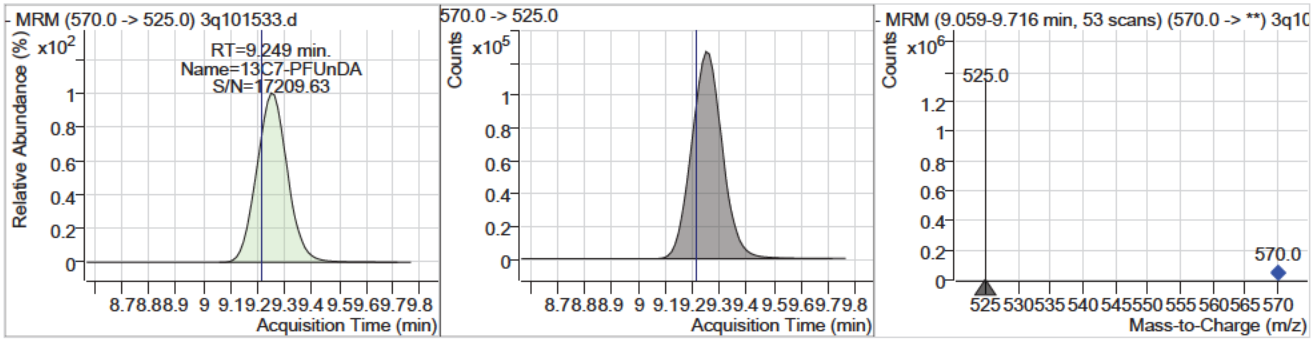
Perfluorinated Compounds by LC/MS/MS

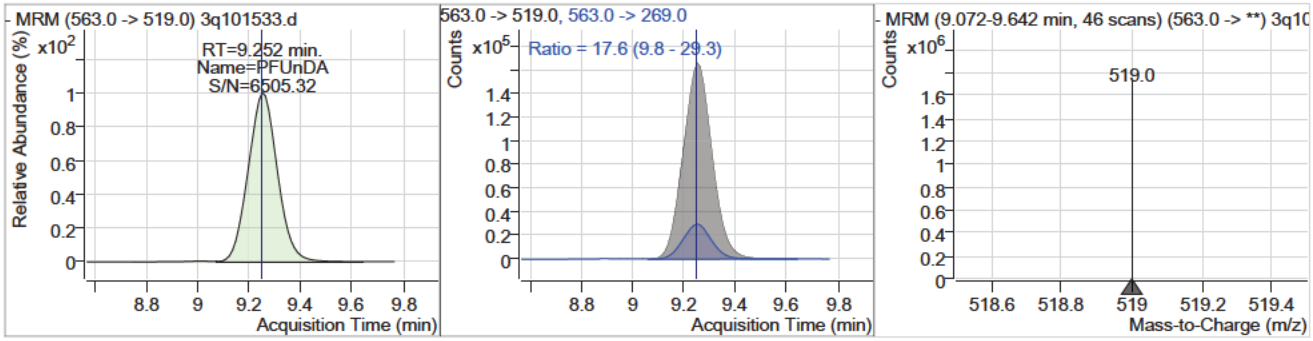
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.73	8.62	0.04	509229	527.0 -> 81.0	37.5	20.4	61.2



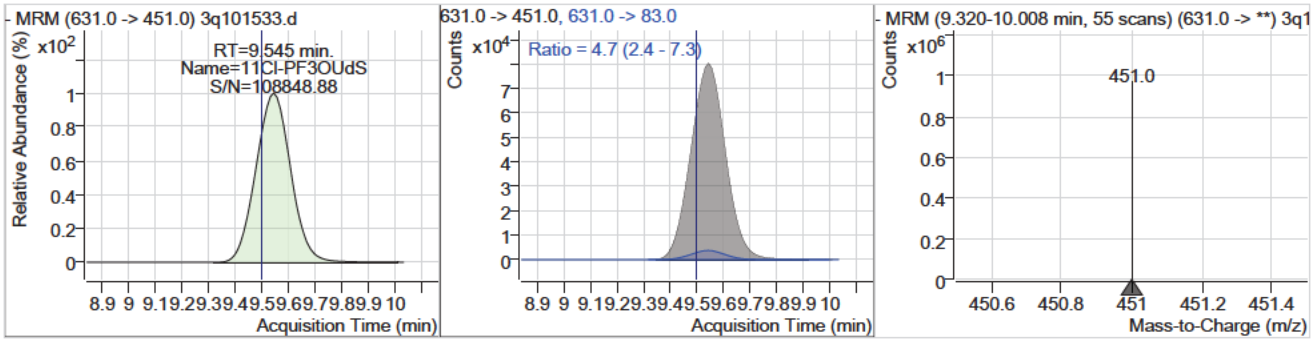
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	11.67	9.25	0.06	1005909				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	20.17	9.25	0.07	1308030	563.0 -> 269.0	17.6	9.8	29.3

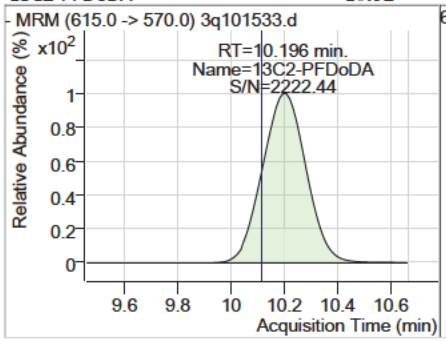


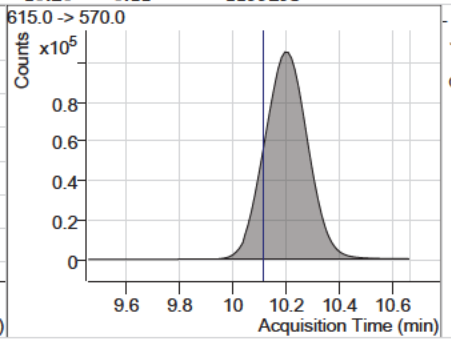
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	20.80	9.54	0.08	728022	631.0 -> 83.0	4.7	2.4	7.3

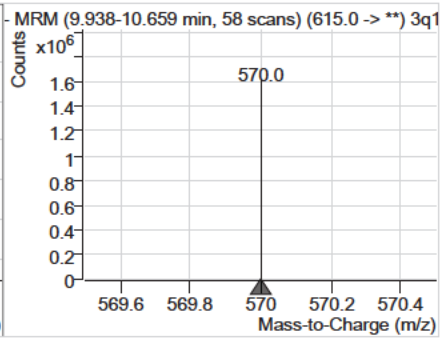


Perfluorinated Compounds by LC/MS/MS

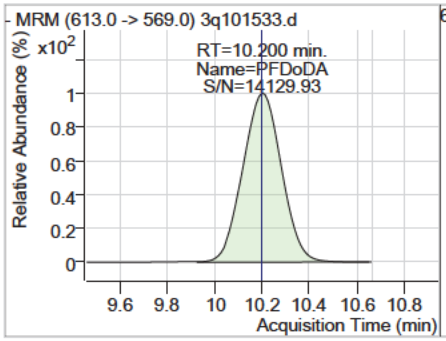
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.92	10.20	0.11	1199293				

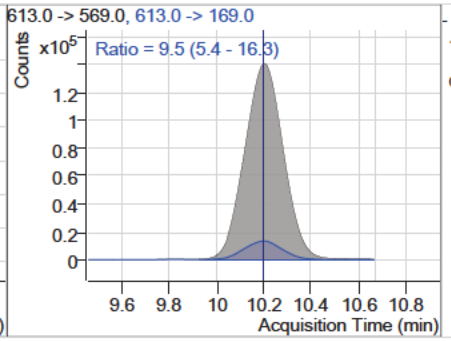


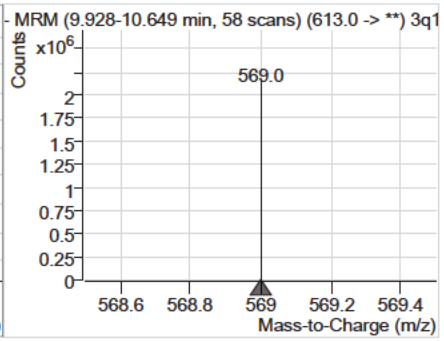




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	20.01	10.20	0.11	1596028	613.0 -> 169.0	9.5	5.4	16.3







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Manual Integration Approval Summary

Sample Number:	S3Q1494-CC1492	**Method:**	EPA 533
Lab FileID:	3Q101533.D	**Analyst approved:**	04/18/25 08:08 (b) (6)
Injection Time:	04/17/25 14:20	**Supervisor approved:**	04/18/25 10:08 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.00	Split peak

QQQ Check Tune Report

(b) (4)

Instrument Name	LCMS5Q
MS Model	G6470B
MS Instrument Serial	SG2221G211
Software_Firmware Version	10.1.67, FW: A.00.08.112
Tune Date & Time	14 April 2025 09:23:21
File Path	D:\MassHunter\Tune\QQQ\G6470B\atunes.TUNE.XML
Ion Source	AJS ESI
Ionization Mode	AJS ESI
Tuned Resolution	All
Vacuum Pressure	1.29E+0 [R] (Torr); 3.37E-5 [H] (Torr)

Source Parameters

Parameter	Negative
Gas Temp (°C)	300
Gas Flow (l/min)	8
Nebulizer (psi)	15
Capillary (V)	3500
Nozzle Voltage (V)	1500
Sheath Gas Temp (°C)	250
Sheath Gas Flow (l/min)	7

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QQQ Check Tune Report

(b) (4)

Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.99	0.00	Pass	0.70	0.68	-0.02	Pass	63164
302.00	302.07	0.07	Pass	0.70	0.71	0.01	Pass	46772
601.98	602.03	0.05	Pass	0.70	0.70	0.00	Pass	106524
1033.99	1034.06	0.07	Pass	0.70	0.68	-0.02	Pass	168600
1633.95	1634.05	0.10	Pass	0.70	0.64	-0.06	Pass	576560
2233.91	2234.00	0.09	Pass	0.70	0.58	-0.12	Pass	230330

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.98	-0.02	Pass	0.70	0.66	-0.04	Pass	14469
112.99	112.99	0.00	Pass	0.70	0.70	0.00	Pass	45487
302.00	302.00	0.00	Pass	0.70	0.70	0.00	Pass	38497
601.98	601.92	-0.06	Pass	0.70	0.74	0.04	Pass	82452
1033.99	1033.95	-0.04	Pass	0.70	0.74	0.04	Pass	150073
1633.95	1633.90	-0.05	Pass	0.70	0.75	0.05	Pass	482147
2233.91	2233.91	0.00	Pass	0.70	0.73	0.03	Pass	204643

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	113.00	0.01	Pass	1.20	1.28	0.08	Pass	76882
302.00	302.02	0.02	Pass	1.20	1.42	0.22	Pass	60436
601.98	602.02	0.04	Pass	1.20	1.51	0.31	Pass	169034
1033.99	1034.04	0.05	Pass	1.20	1.49	0.29	Pass	303637
1633.95	1634.01	0.06	Pass	1.20	1.40	0.20	Pass	895413
2233.91	2233.93	0.02	Pass	1.20	1.09	-0.11	Pass	499569

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.94	-0.06	Pass	1.20	1.28	0.08	Pass	17547
112.99	112.98	-0.01	Pass	1.20	1.24	0.04	Pass	71681
302.00	301.96	-0.04	Pass	1.20	1.15	-0.05	Pass	46328
601.98	601.90	-0.08	Pass	1.20	1.08	-0.12	Pass	100357
1033.99	1033.91	-0.08	Pass	1.20	1.14	-0.06	Pass	212087
1633.95	1633.85	-0.10	Pass	1.20	1.30	0.10	Pass	824024
2233.91	2233.95	0.04	Pass	1.20	1.35	0.15	Pass	396130

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.98	-0.01	Pass	2.50	2.47	-0.03	Pass	96749
302.00	302.03	0.03	Pass	2.50	2.71	0.21	Pass	70573
601.98	602.02	0.04	Pass	2.50	2.86	0.36	Pass	189021
1033.99	1034.01	0.02	Pass	2.50	2.93	0.43	Pass	591197
1633.95	1633.96	0.01	Pass	2.50	2.77	0.27	Pass	2441107
2233.91	2233.80	-0.11	Pass	2.50	2.89	0.39	Pass	1642805

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.95	-0.05	Pass	2.50	2.40	-0.10	Pass	22938
112.99	112.98	-0.01	Pass	2.50	2.44	-0.06	Pass	88146
302.00	301.97	-0.03	Pass	2.50	2.29	-0.21	Pass	64094
601.98	601.92	-0.06	Pass	2.50	2.30	-0.20	Pass	163732
1033.99	1033.91	-0.08	Pass	2.50	2.26	-0.24	Pass	434415
1633.95	1633.91	-0.04	Pass	2.50	2.40	-0.10	Pass	1901064
2233.91	2233.85	-0.06	Pass	2.50	2.47	-0.03	Pass	1169263

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Cal Report: 5Q31758.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/16/25 15:44

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31758.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/15/2025 3:21:28 PM
Sample Name : ic521-0.5
Vial : P1-A2
DA Method File : 537_041525_S5Q521.quantmethod
Batch Name : s5q521.batch.bin
Sample Information : OP8882,S5Q521,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.300	429.0 -> 409.0	161139	20.00	µg/L		0.013
13C2-PFOA	6.315	415.0 -> 370.0	378764	20.00	µg/L		0.026
13C3-PFPeA	3.632	266.0 -> 222.0	518379	20.00	µg/L		0.025
13C4-PFOS	6.872	503.0 -> 80.0	87844	20.00	µg/L		0.012
d3-MeFOSAA	7.255	573.0 -> 419.0	27832	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.436	515.0 -> 470.0	3117	0.19	µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 1.0%			
13C2-PFHxA	4.788	315.0 -> 270.0	4511	0.18	µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 0.9%			
d5-EtFOSAA	7.391	589.0 -> 419.0	206	0.40	µg/L		0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 1.0%			
13C3-HFPO-DA	5.057	287.0 -> 169.0	630	0.37	µg/L		0.025
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 0.9%			
Target Compounds							QValue
6:2FTS	6.301	427.0 -> 407.0	3598	0.45	µg/L		95
8:2FTS	7.484	527.0 -> 507.0	3083	0.45	µg/L		95
EtFOSAA	7.392	584.0 -> 419.0	204	0.44	µg/L	m	99
MeFOSAA	7.256	570.0 -> 419.0	209	0.31	µg/L	#m	35
PFBS	3.866	299.0 -> 80.0	5104	0.42	µg/L		100
PFDA	7.436	513.0 -> 469.0	5145	0.35	µg/L		94
PFDoDA	8.654	613.0 -> 569.0	5249	0.51	µg/L		98
PFHpA	5.639	363.0 -> 319.0	12269	0.36	µg/L		100
PFHxA	4.802	313.0 -> 269.0	6083	0.36	µg/L		98
PFHxS	5.660	399.0 -> 80.0	3079	0.38	µg/L	m	92
PFNA	6.899	463.0 -> 419.0	4861	0.34	µg/L	m	84
PFOA	6.316	413.0 -> 369.0	6882	0.36	µg/L		99
PFOS	6.873	499.0 -> 80.0	2093	0.36	µg/L	m	83
PFPeA	3.622	263.0 -> 219.0	12206	0.35	µg/L		100
PFTeDA	10.184	713.0 -> 669.0	1990	0.38	µg/L		98
PFTrDA	9.501	663.0 -> 619.0	2613	0.41	µg/L		100
PFUnDA	7.943	563.0 -> 519.0	5635	0.38	µg/L		95
ADONA	5.713	377.0 -> 251.0	15241	0.32	µg/L		97
9Cl-PF3ONS	7.146	531.0 -> 351.0	2165	0.37	µg/L		95
11Cl-PF3OUdS	8.112	631.0 -> 451.0	2218	0.41	µg/L		99
HFPO-DA	5.047	285.0 -> 169.0	611	0.37	µg/L	#m	99

= Qualifier out of range, m = manually integrated, + = Area summed

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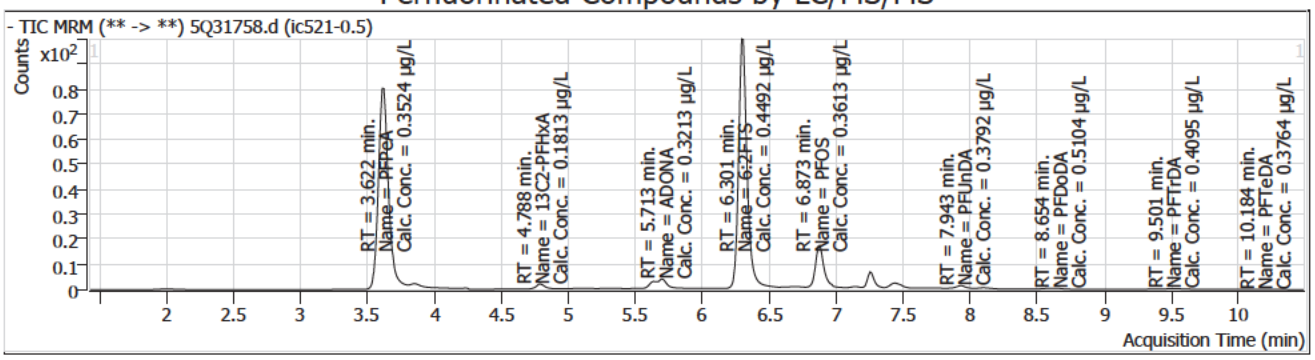
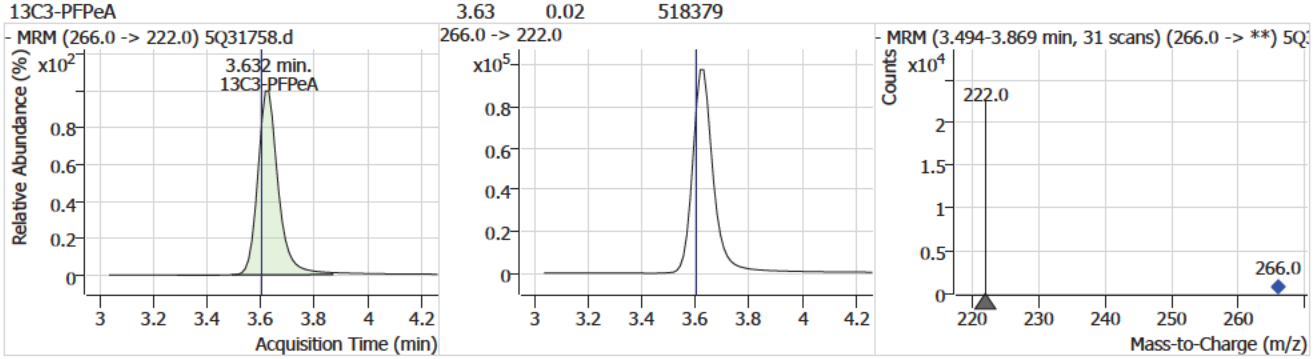
7

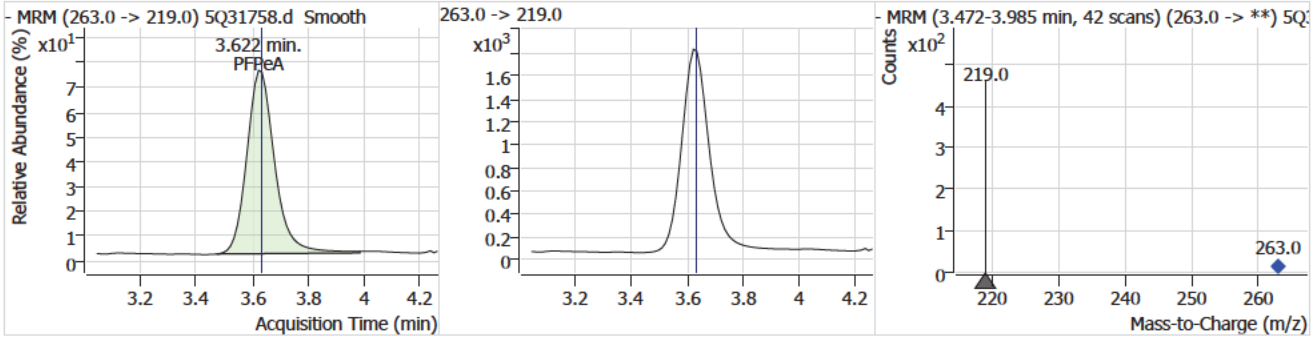
Perfluorinated Compounds by LC/MS/MS



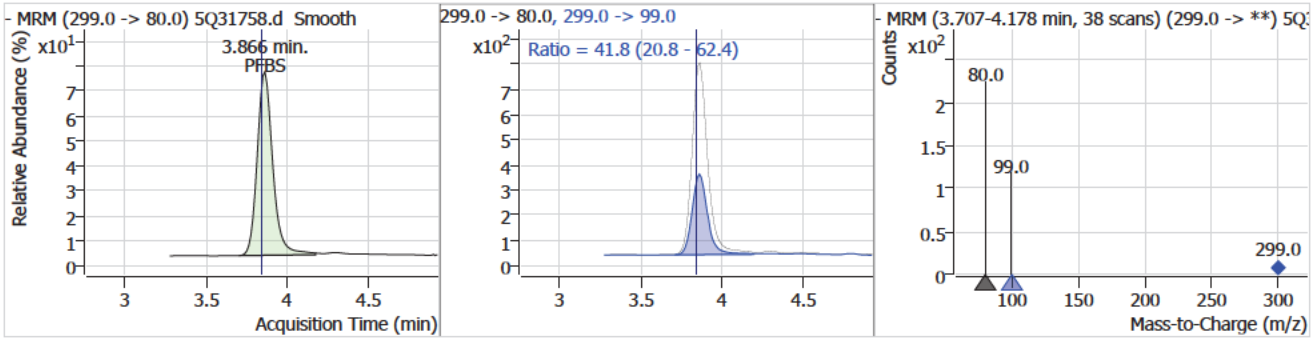
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.63	0.02	518379				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.35	3.62	0.01	12206				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.42	3.87	0.02	5104	299.0 -> 99.0	41.8	20.8	62.4



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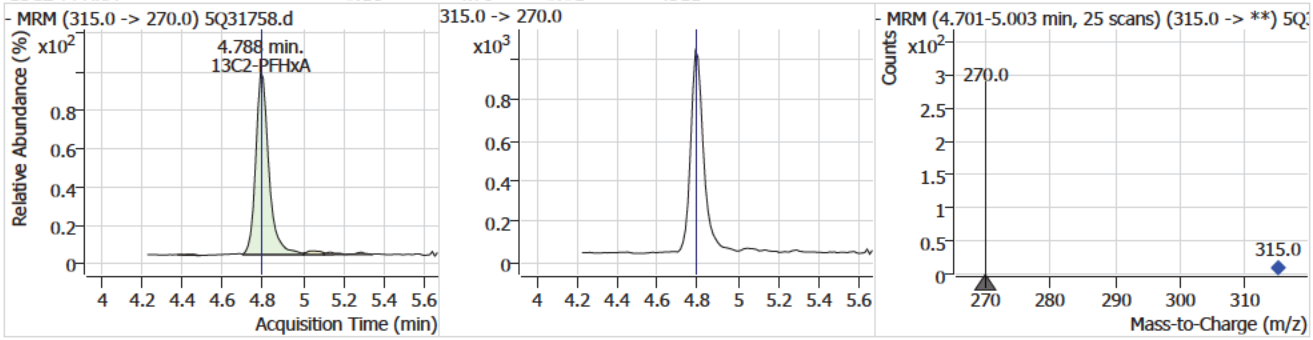
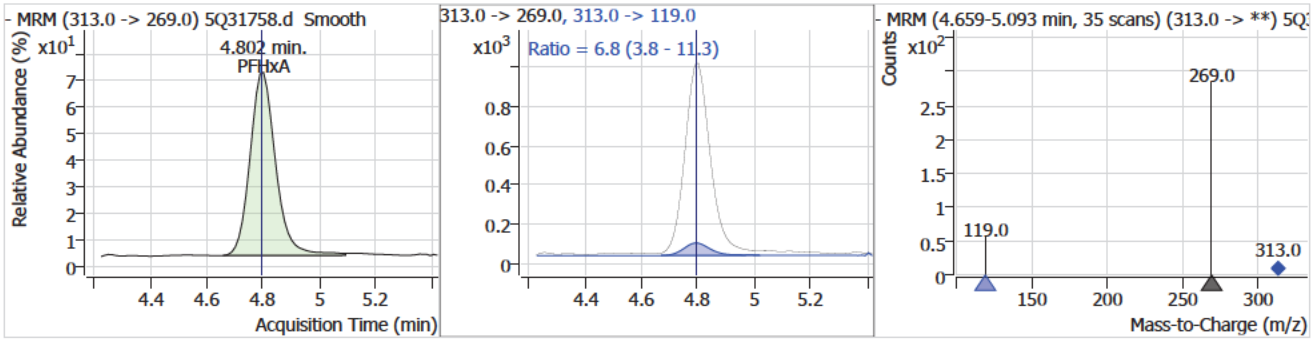
Perfluorinated Compounds by LC/MS/MS

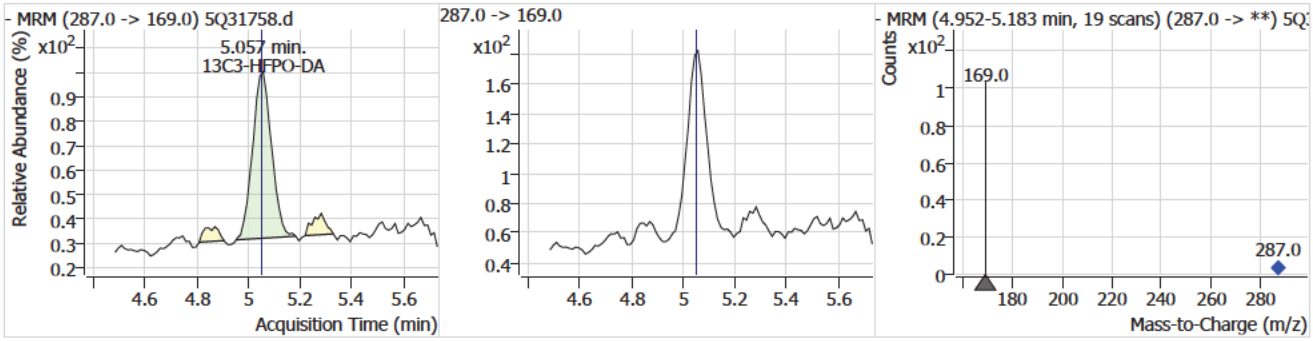
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.18	4.79	0.01	4511				



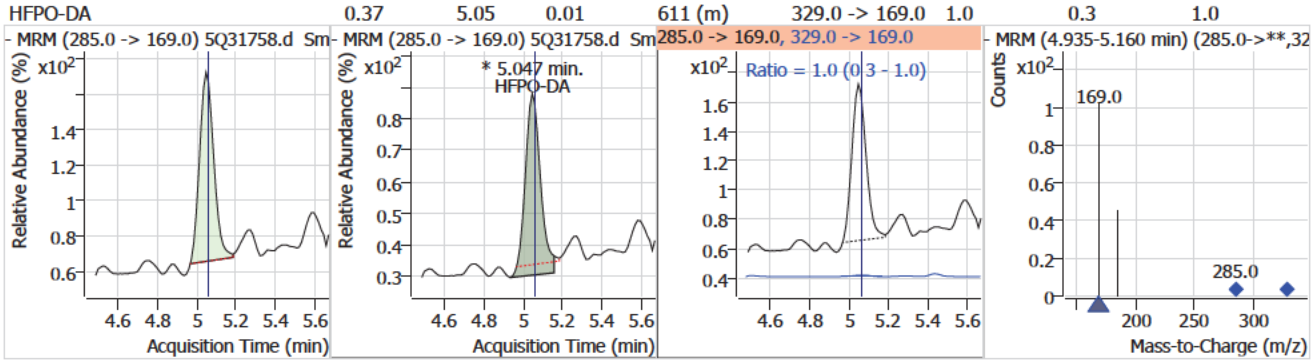
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.36	4.80	0.02	6083	313.0 -> 119.0	6.8	3.8	11.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.37	5.06	0.02	630				

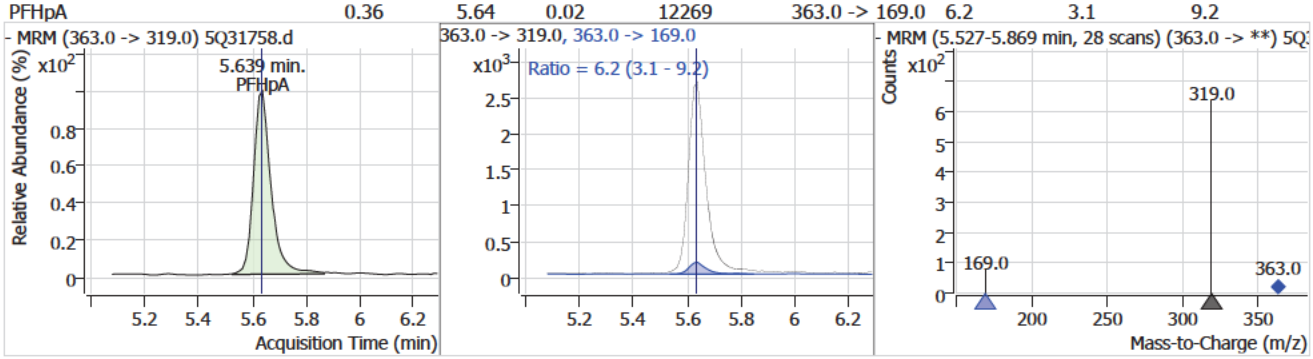


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.37	5.05	0.01	611 (m)	329.0 -> 169.0	1.0	0.3	1.0

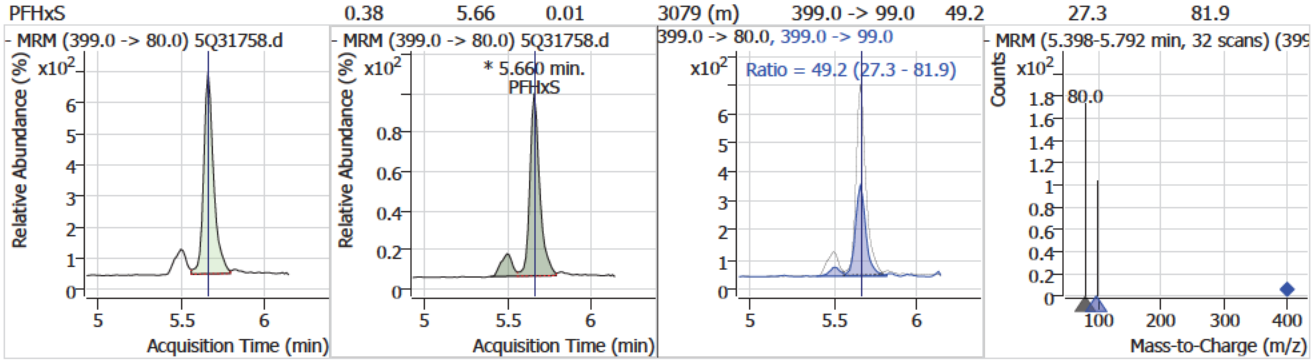


Perfluorinated Compounds by LC/MS/MS

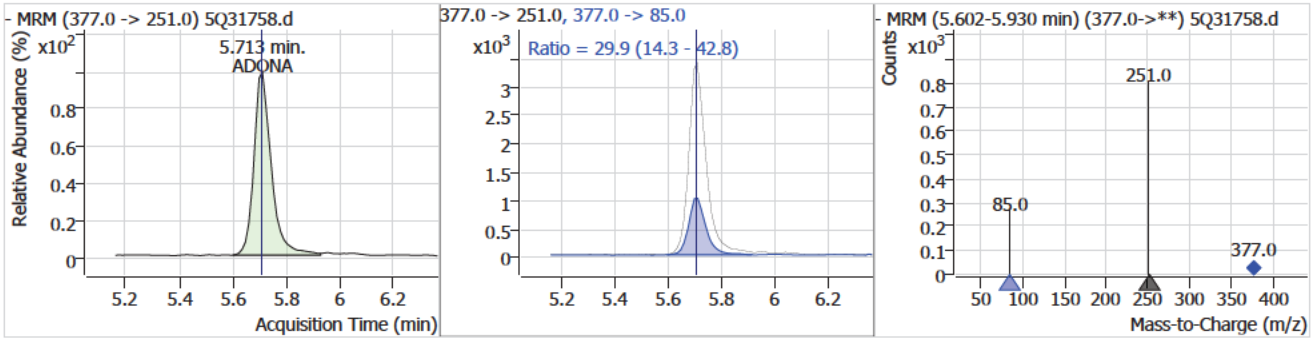
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.36	5.64	0.02	12269	363.0 -> 169.0	6.2	3.1	9.2



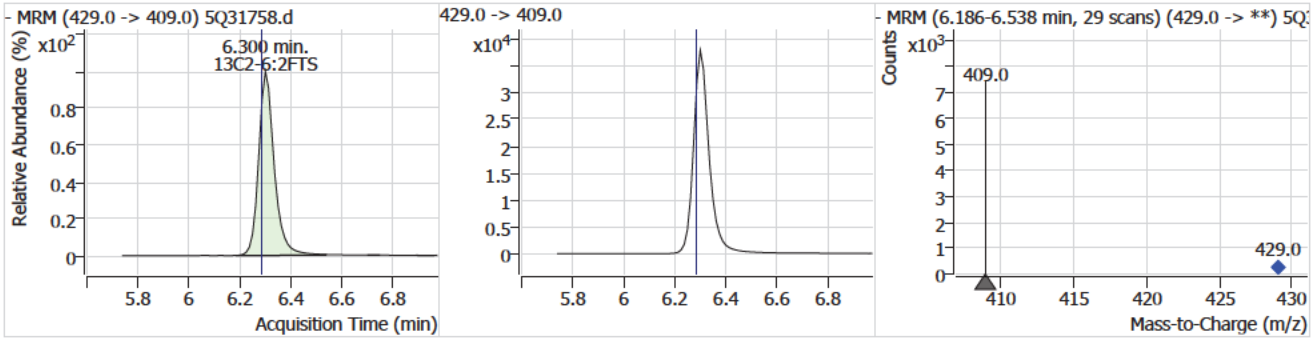
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.38	5.66	0.01	3079 (m)	399.0 -> 99.0	49.2	27.3	81.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.32	5.71	0.02	15241	377.0 -> 85.0	29.9	14.3	42.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.30	0.01	161139				



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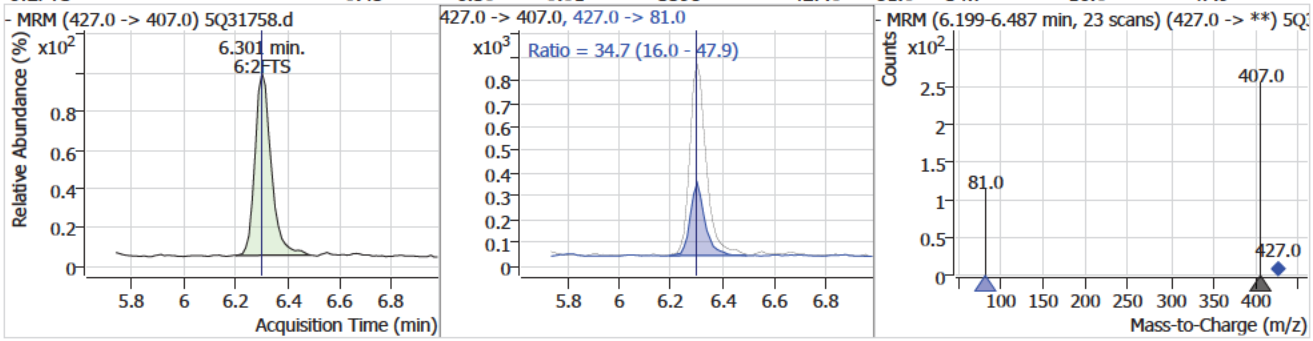
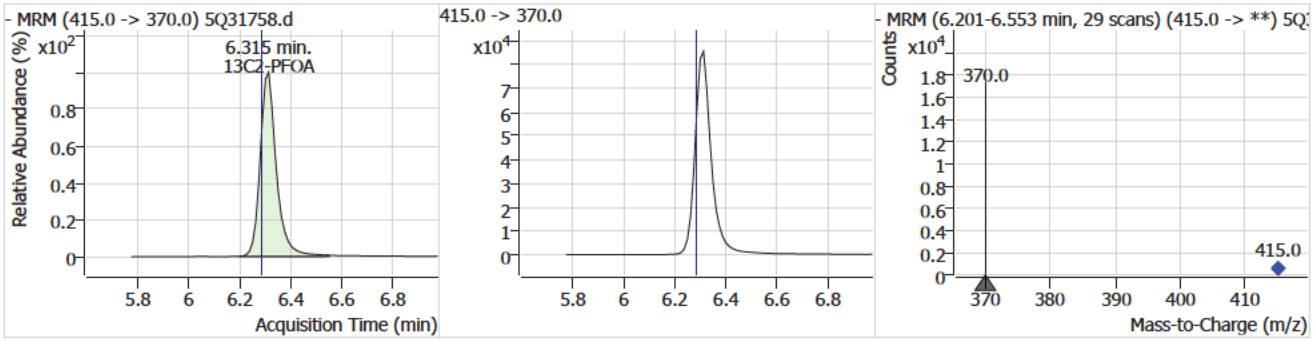
Perfluorinated Compounds by LC/MS/MS

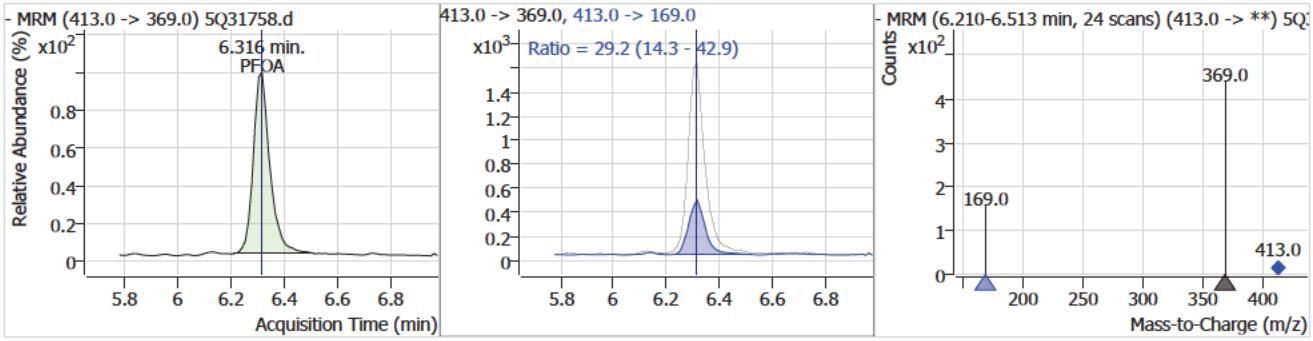
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.45	6.30	0.01	3598	427.0 -> 81.0	34.7	16.0	47.9



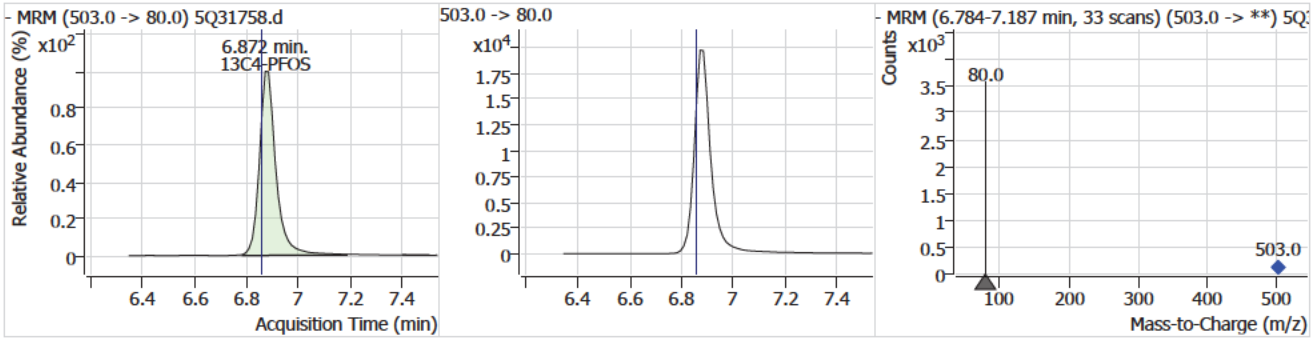
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.31	0.03	378764				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.36	6.32	0.03	6882	413.0 -> 169.0	29.2	14.3	42.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.87	0.01	87844				



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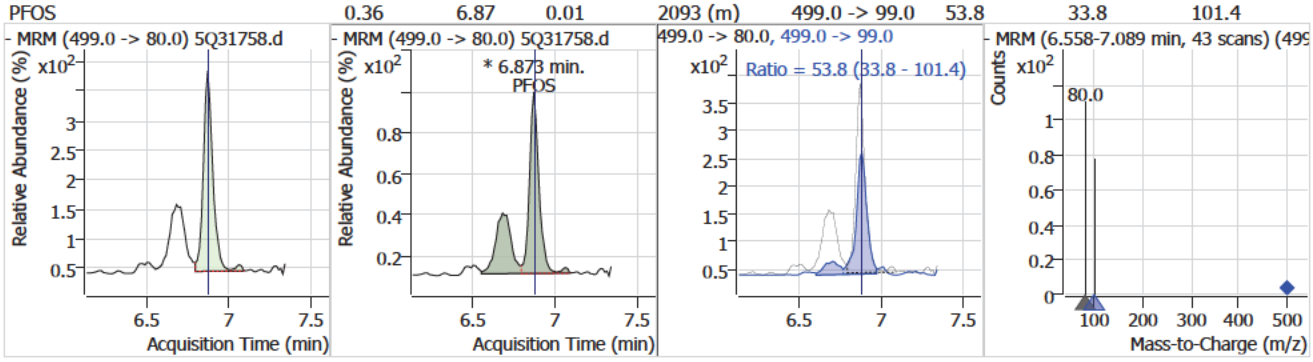
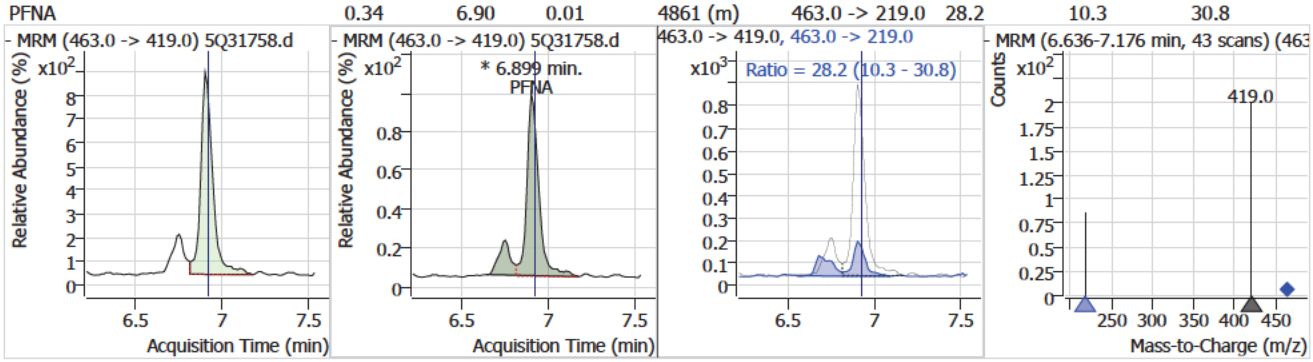
Perfluorinated Compounds by LC/MS/MS

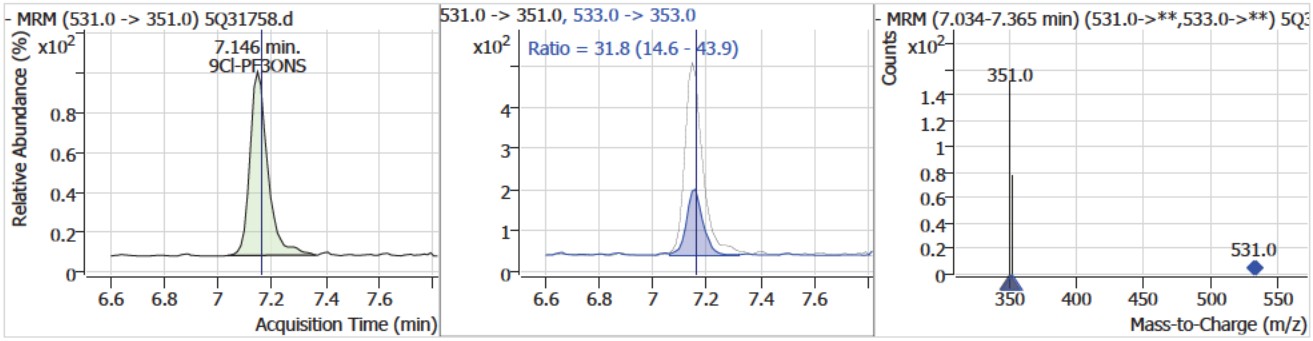
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.36	6.87	0.01	2093 (m)	499.0 -> 99.0	53.8	33.8	101.4



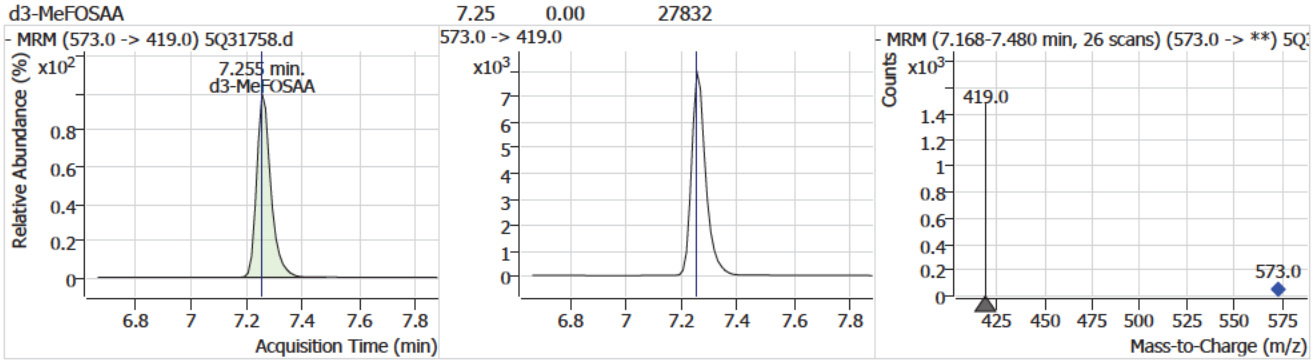
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.34	6.90	0.01	4861 (m)	463.0 -> 219.0	28.2	10.3	30.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.37	7.15	0.01	2165	533.0 -> 353.0	31.8	14.6	43.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	27832				



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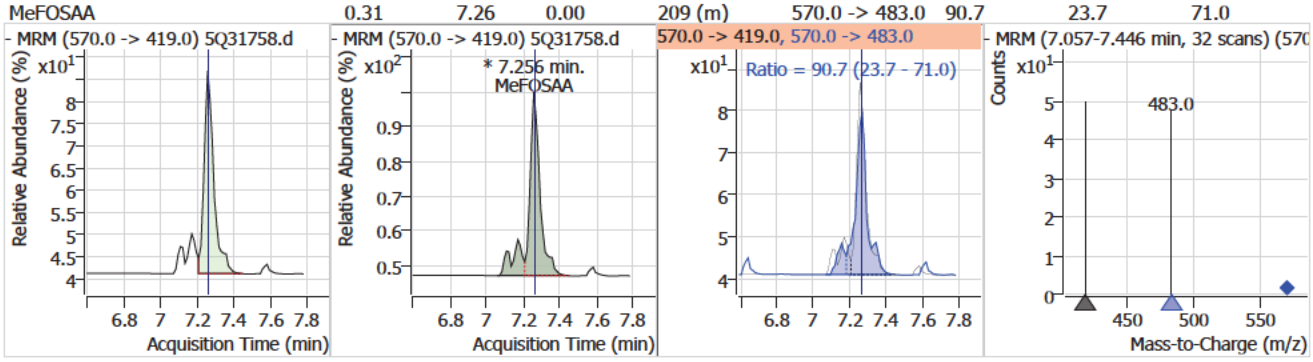
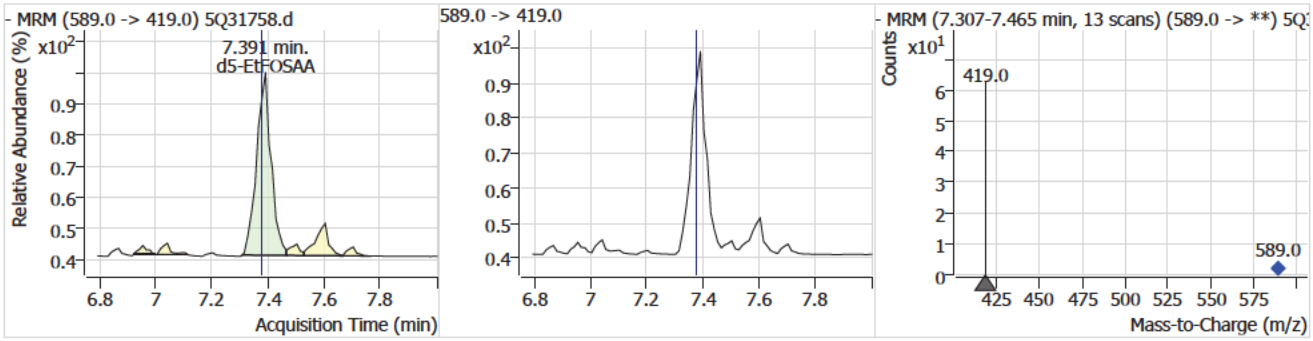
Perfluorinated Compounds by LC/MS/MS

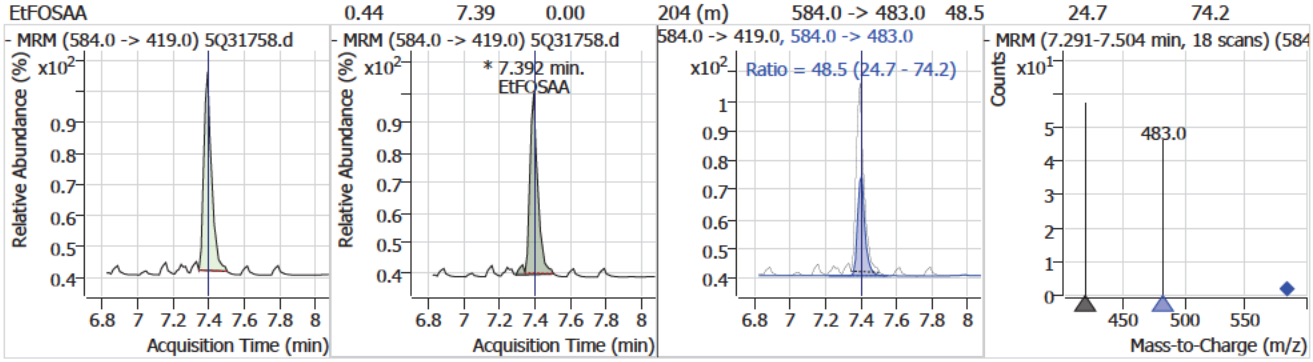
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.31	7.26	0.00	209 (m)	570.0 -> 483.0	90.7	23.7	71.0



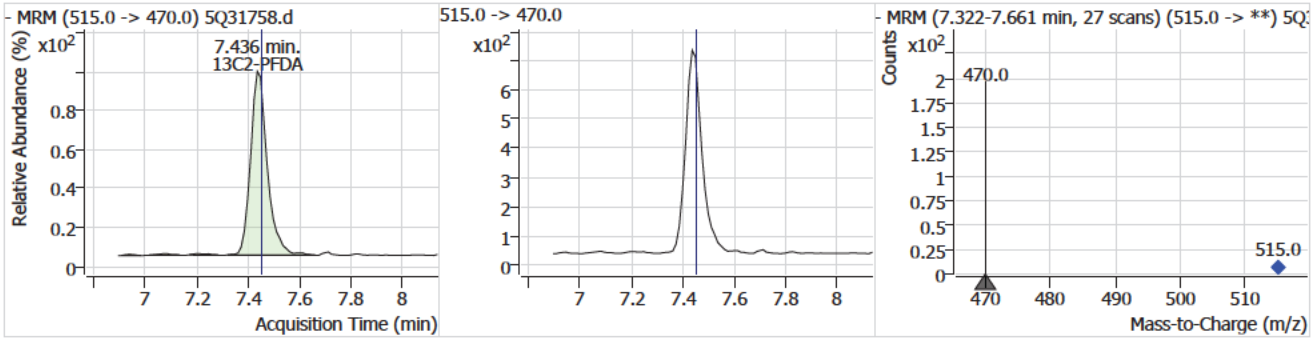
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	0.40	7.39	0.01	206				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.44	7.39	0.00	204 (m)	584.0 -> 483.0	48.5	24.7	74.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.19	7.44	0.01	3117				



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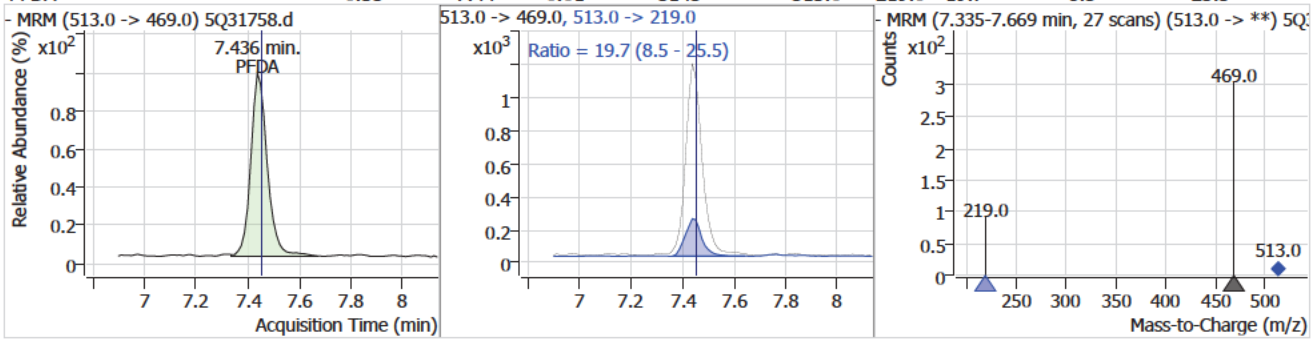
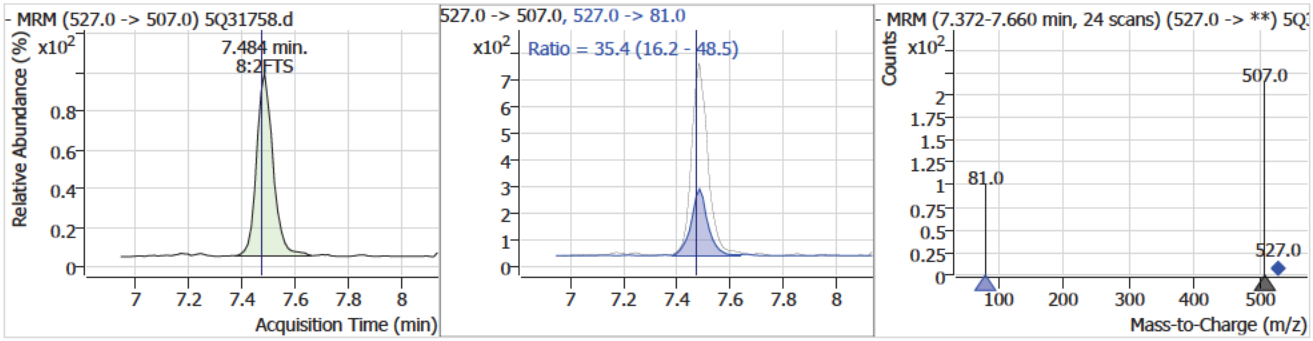
Perfluorinated Compounds by LC/MS/MS

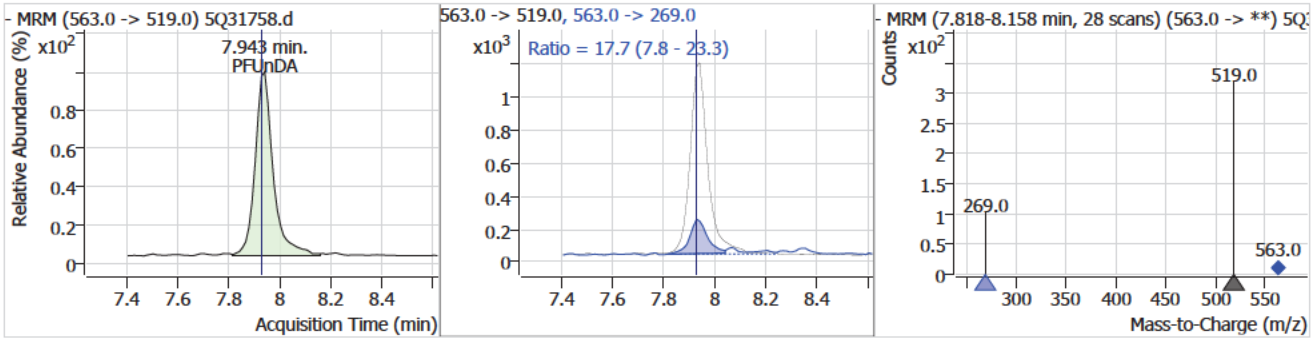
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.35	7.44	0.01	5145	513.0 -> 219.0	19.7	8.5	25.5



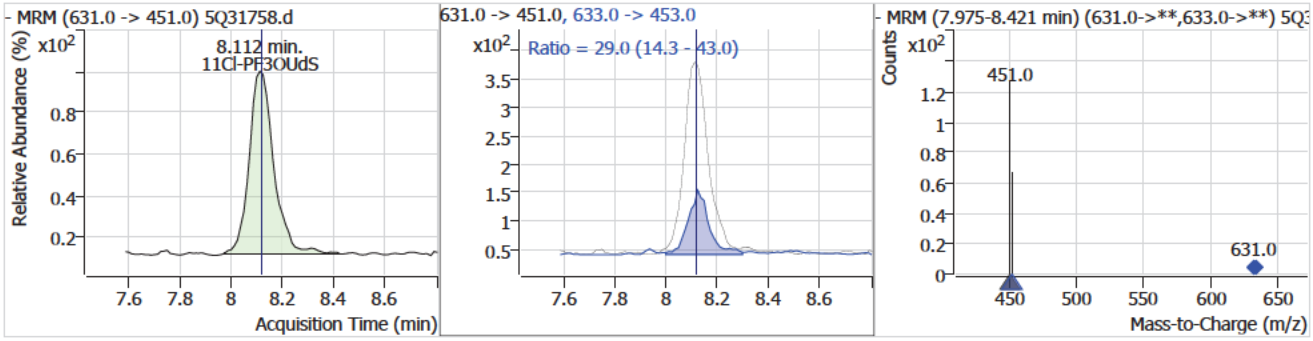
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.45	7.48	0.02	3083	527.0 -> 81.0	35.4	16.2	48.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.38	7.94	0.02	5635	563.0 -> 269.0	17.7	7.8	23.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.41	8.11	0.02	2218	633.0 -> 453.0	29.0	14.3	43.0



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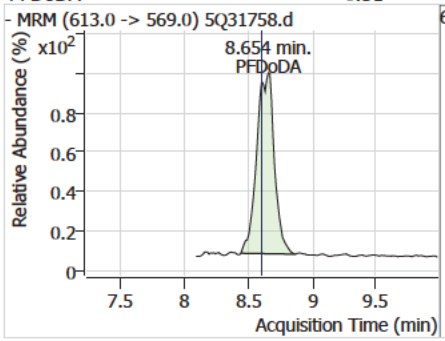
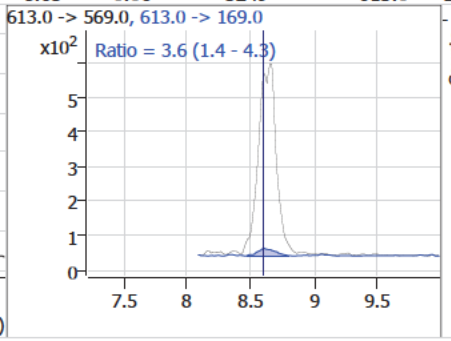
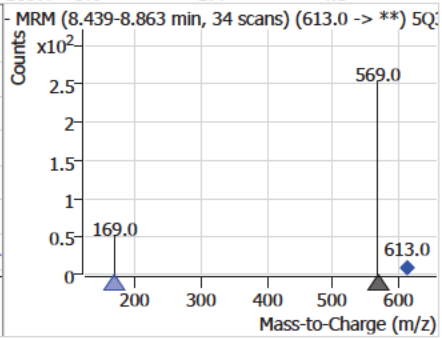
Perfluorinated Compounds by LC/MS/MS

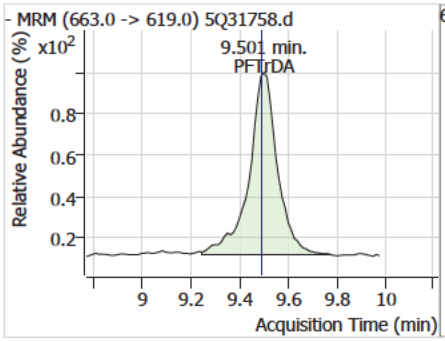
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.51	8.65	0.06	5249	613.0 -> 169.0	3.6	1.4	4.3

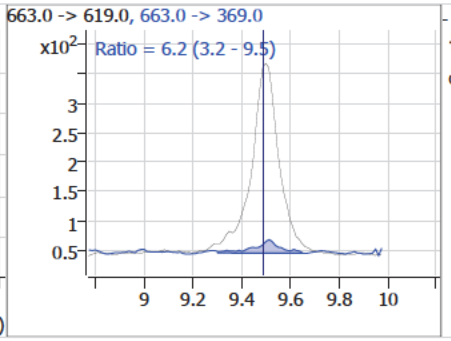


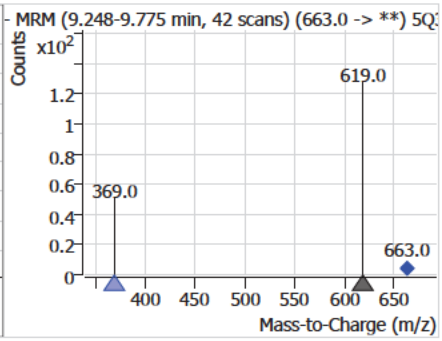




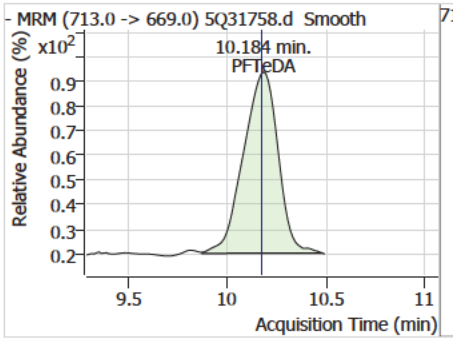
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.41	9.50	0.02	2613	663.0 -> 369.0	6.2	3.2	9.5

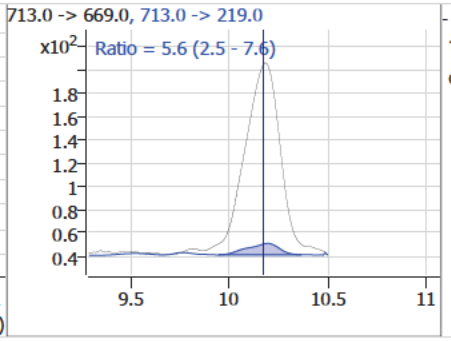


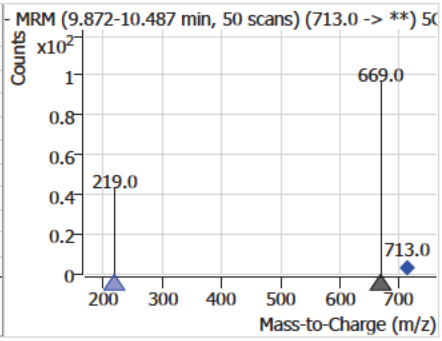




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.38	10.18	0.02	1990	713.0 -> 219.0	5.6	2.5	7.6







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Manual Integration Approval Summary

Sample Number: S5Q521-IC521
Lab FileID: 5Q31758.D
Injection Time: 04/15/25 15:21
Method: EPA 537.1 REV 2.0
Analyst approved: 04/16/25 10:55 (b) (6)
Supervisor approved: 04/16/25 15:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
HFPO-DA (GenX)	13252-13-6		5.05	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		5.66	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.87	Split peak
Perfluorononanoic acid	375-95-1		6.90	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Cal Report: 5Q31759.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/16/25 15:44

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31759.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/15/2025 3:37:31 PM
Sample Name : ic521-1
Vial : P1-A3
DA Method File : 537_041525_S5Q521.quantmethod
Batch Name : s5q521.batch.bin
Sample Information : OP8882,S5Q521,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.300	429.0 -> 409.0	171689	20.00 µg/L		0.013
13C2-PFOA	6.303	415.0 -> 370.0	393299	20.00 µg/L		0.013
13C3-PFPeA	3.619	266.0 -> 222.0	546300	20.00 µg/L		0.013
13C4-PFOS	6.872	503.0 -> 80.0	97577	20.00 µg/L		0.012
d3-MeFOSAA	7.255	573.0 -> 419.0	29198	40.00 µg/L		0.000
System Monitoring Compounds						
13C2-PFDA	7.436	515.0 -> 470.0	6492	0.39 µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 1.9%		
13C2-PFHxA	4.788	315.0 -> 270.0	10121	0.39 µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 2.0%		
d5-EtFOSAA	7.378	589.0 -> 419.0	608	1.12 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 2.8%		
13C3-HFPO-DA	5.044	287.0 -> 169.0	1396	0.79 µg/L		0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 2.0%		
Target Compounds						QValue
6:2FTS	6.301	427.0 -> 407.0	8813	1.03 µg/L		98
8:2FTS	7.472	527.0 -> 507.0	6422	0.88 µg/L		96
EtFOSAA	7.392	584.0 -> 419.0	562	1.16 µg/L	m	86
MeFOSAA	7.256	570.0 -> 419.0	584	0.83 µg/L	m	95
PFBS	3.853	299.0 -> 80.0	11676	0.86 µg/L		97
PFDA	7.436	513.0 -> 469.0	10931	0.72 µg/L		96
PFDoDA	8.602	613.0 -> 569.0	10424	0.91 µg/L		96
PFHpA	5.626	363.0 -> 319.0	27342	0.76 µg/L		99
PFHxA	4.789	313.0 -> 269.0	14354	0.81 µg/L		100
PFHxS	5.660	399.0 -> 80.0	6730	0.74 µg/L	m	98
PFNA	6.899	463.0 -> 419.0	10835	0.74 µg/L	m	80
PFOA	6.303	413.0 -> 369.0	15892	0.81 µg/L		99
PFOS	6.873	499.0 -> 80.0	5000	0.78 µg/L	m	75
PFPeA	3.622	263.0 -> 219.0	27661	0.76 µg/L		100
PFTeDA	10.184	713.0 -> 669.0	4234	0.72 µg/L		100
PFTrDA	9.489	663.0 -> 619.0	4987	0.70 µg/L	m	97
PFUnDA	7.931	563.0 -> 519.0	12915	0.78 µg/L		98
ADONA	5.700	377.0 -> 251.0	34978	0.71 µg/L		99
9Cl-PF3ONS	7.146	531.0 -> 351.0	4358	0.71 µg/L		94
11Cl-PF3OUdS	8.112	631.0 -> 451.0	4943	0.87 µg/L		96
HFPO-DA	5.047	285.0 -> 169.0	1454	0.86 µg/L		100

= Qualifier out of range, m = manually integrated, + = Area summed

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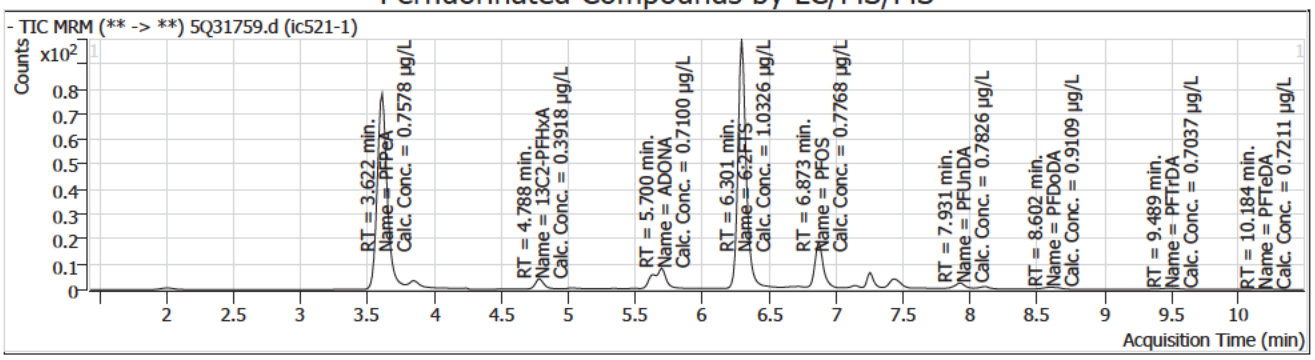
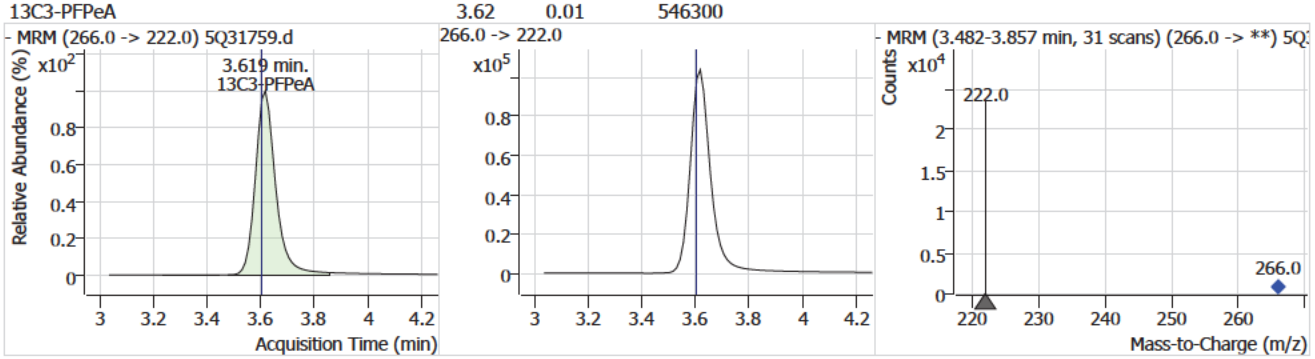
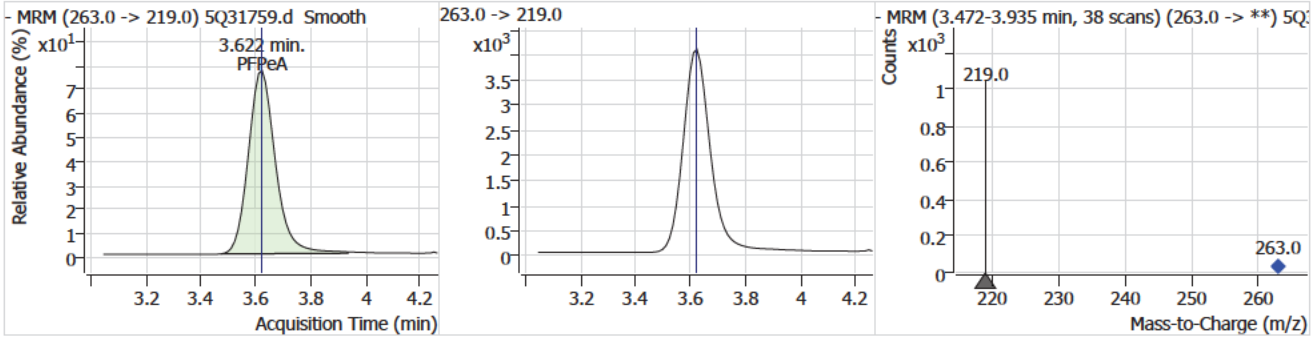
Perfluorinated Compounds by LC/MS/MS



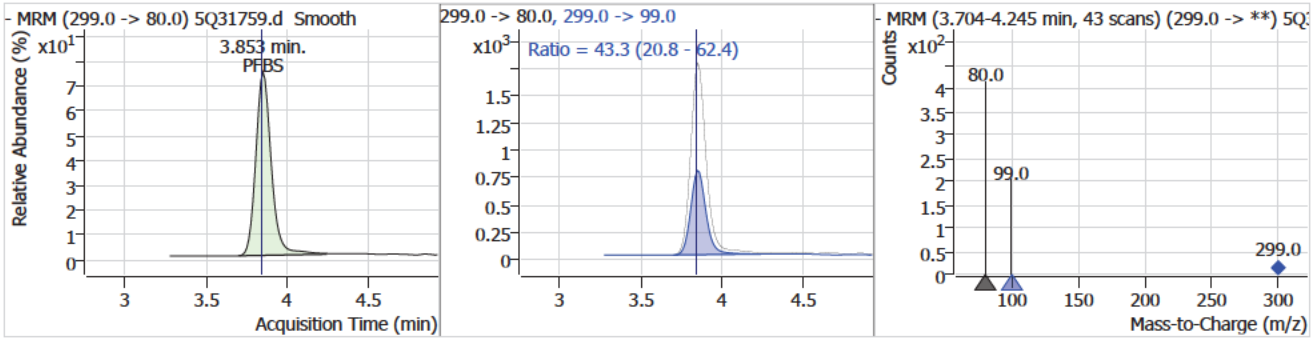
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.62	0.01	546300				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.76	3.62	0.01	27661				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.86	3.85	0.01	11676	299.0 -> 99.0	43.3	20.8	62.4



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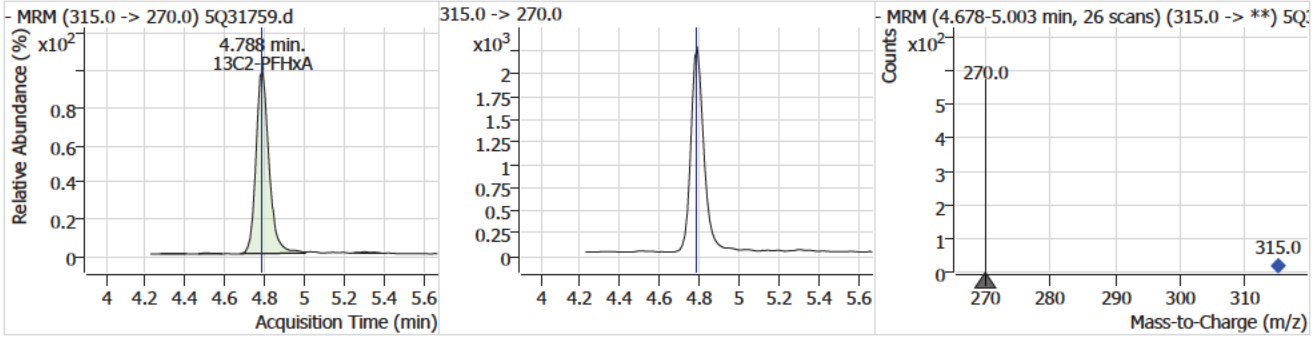
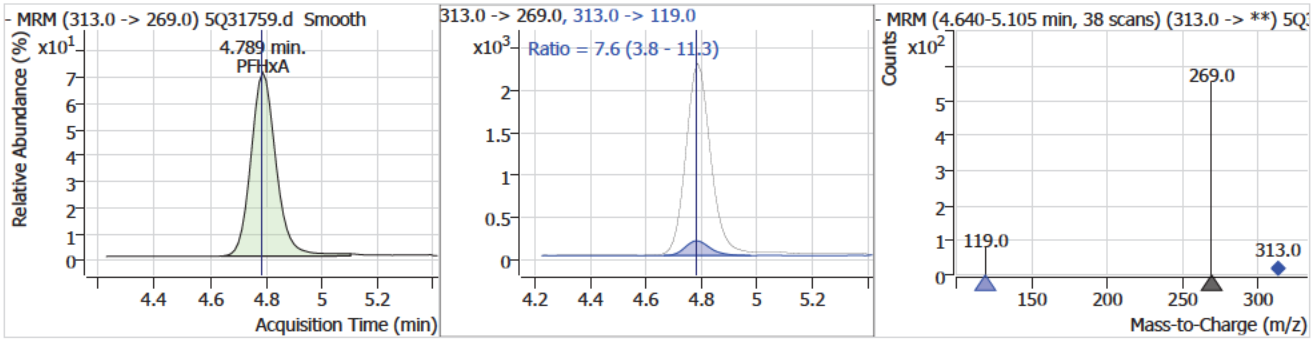
Perfluorinated Compounds by LC/MS/MS

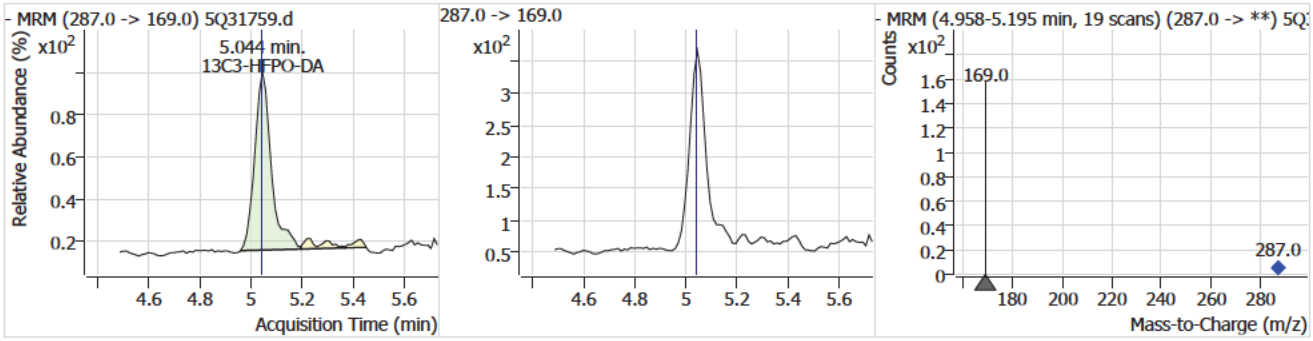
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.39	4.79	0.01	10121				



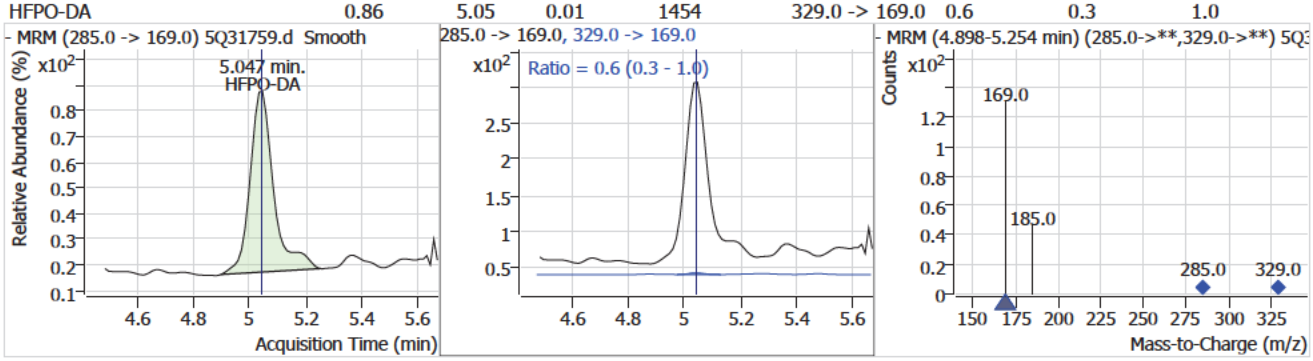
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.81	4.79	0.01	14354	313.0 -> 119.0	7.6	3.8	11.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.79	5.04	0.01	1396				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.86	5.05	0.01	1454	329.0 -> 169.0	0.6	0.3	1.0



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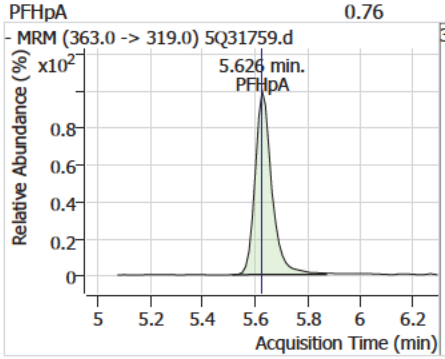
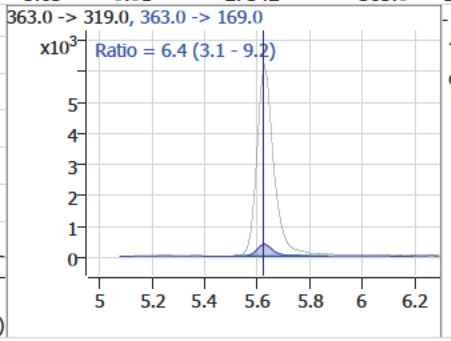
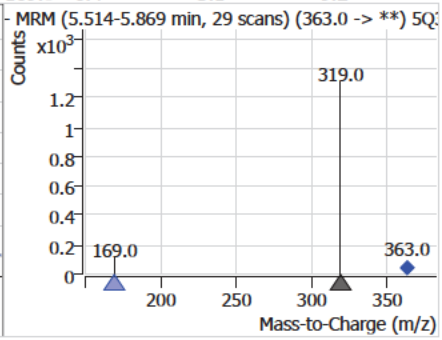
Perfluorinated Compounds by LC/MS/MS

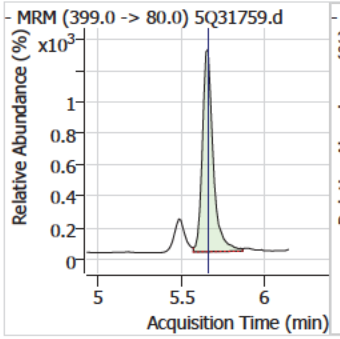
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.76	5.63	0.01	27342	363.0 -> 169.0	6.4	3.1	9.2

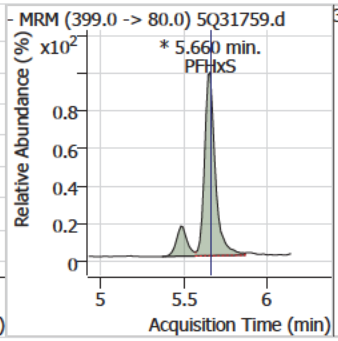


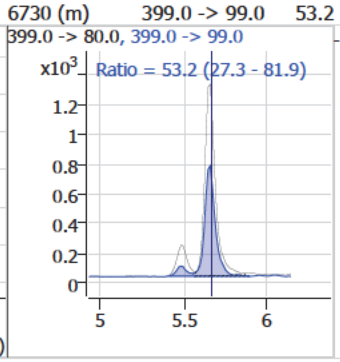


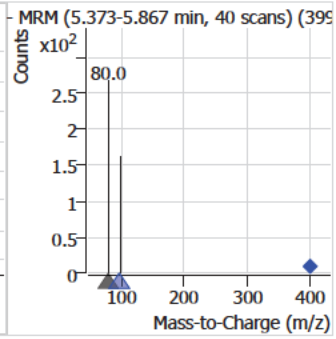


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.74	5.66	0.01	6730 (m)	399.0 -> 99.0	53.2	27.3	81.9

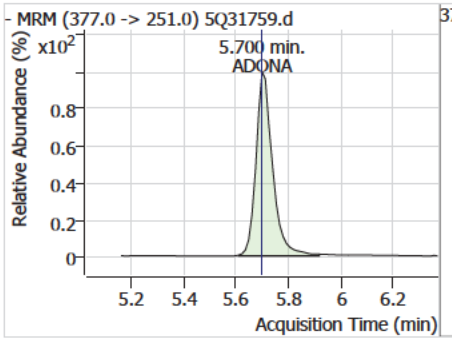


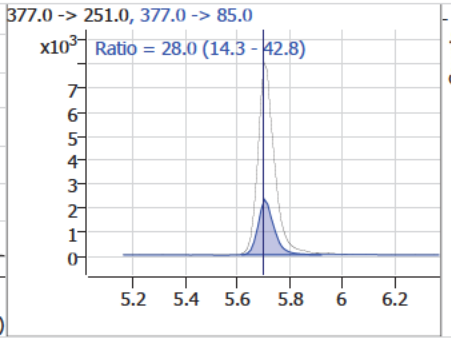


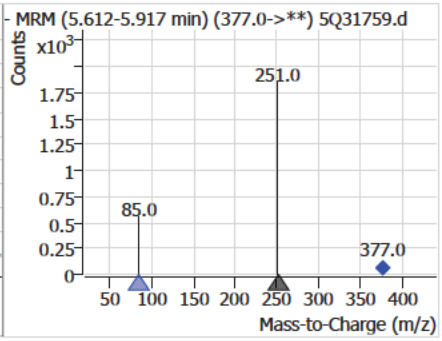




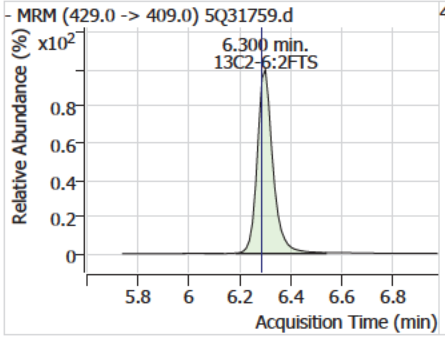
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.71	5.70	0.01	34978	377.0 -> 85.0	28.0	14.3	42.8

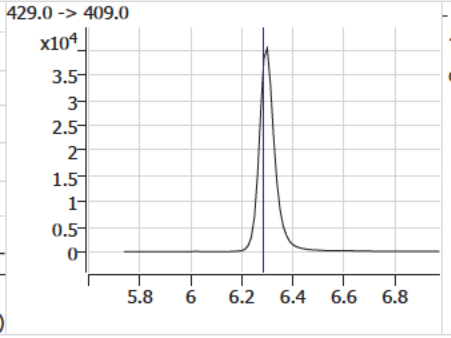


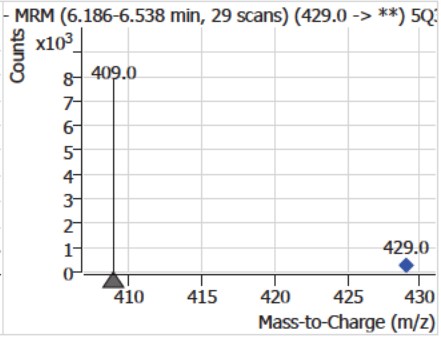




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.30	0.01	171689				







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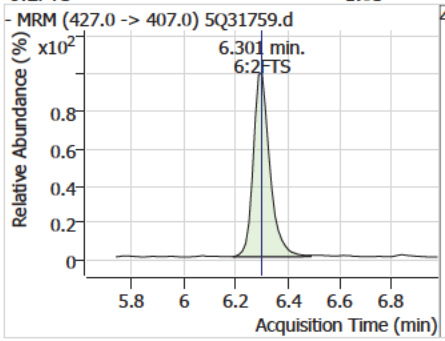
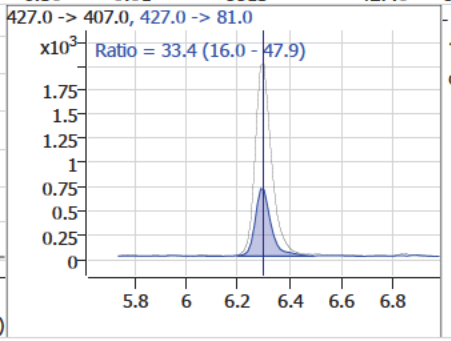
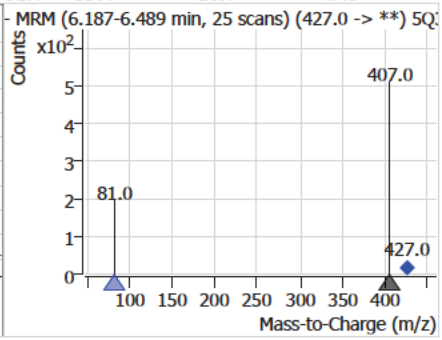
Perfluorinated Compounds by LC/MS/MS

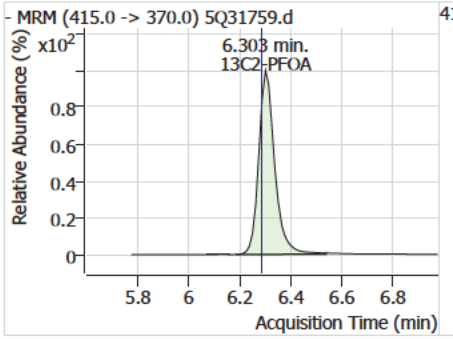
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.03	6.30	0.01	8813	427.0 -> 81.0	33.4	16.0	47.9

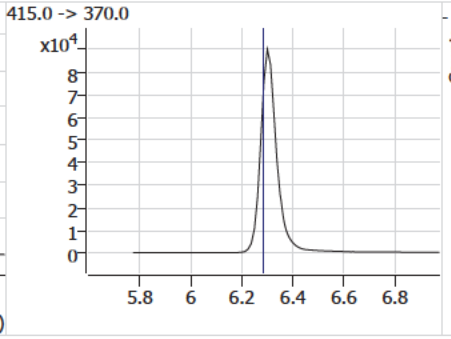


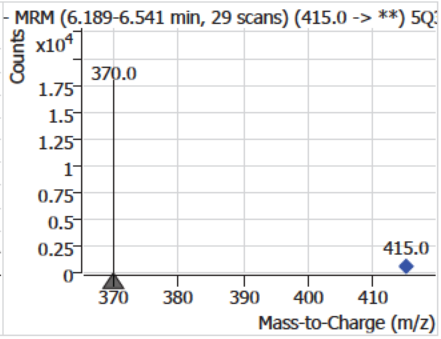




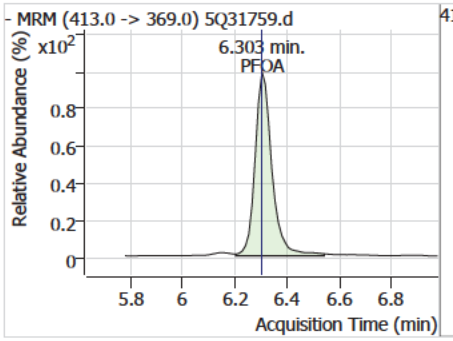
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.30	0.01	393299				

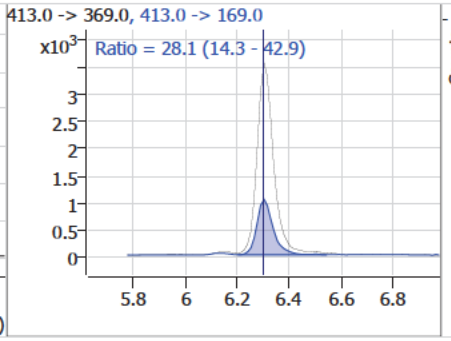


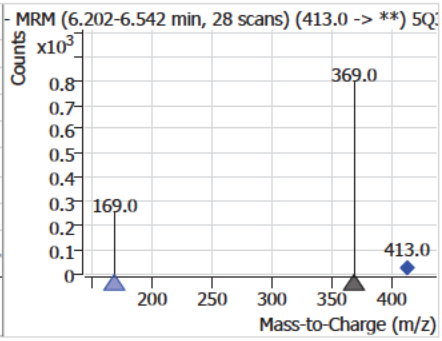




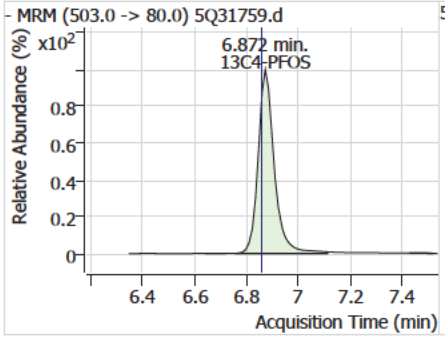
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.81	6.30	0.01	15892	413.0 -> 169.0	28.1	14.3	42.9

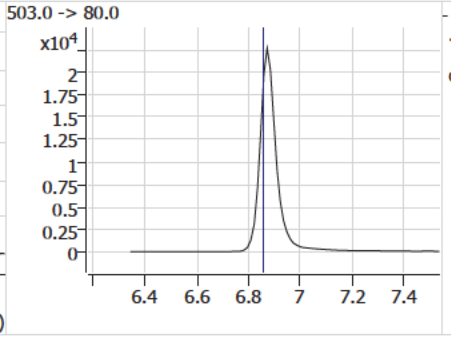


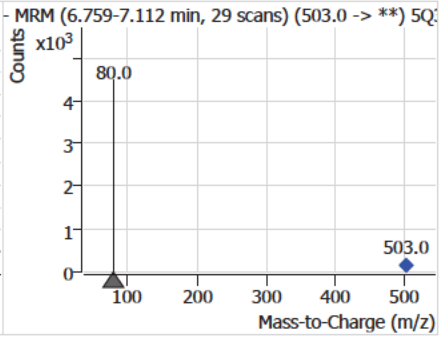




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.87	0.01	97577				







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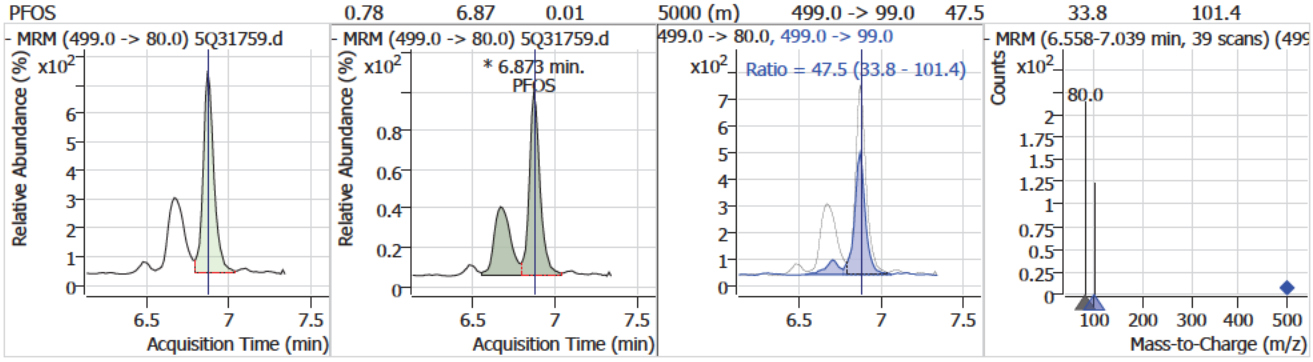
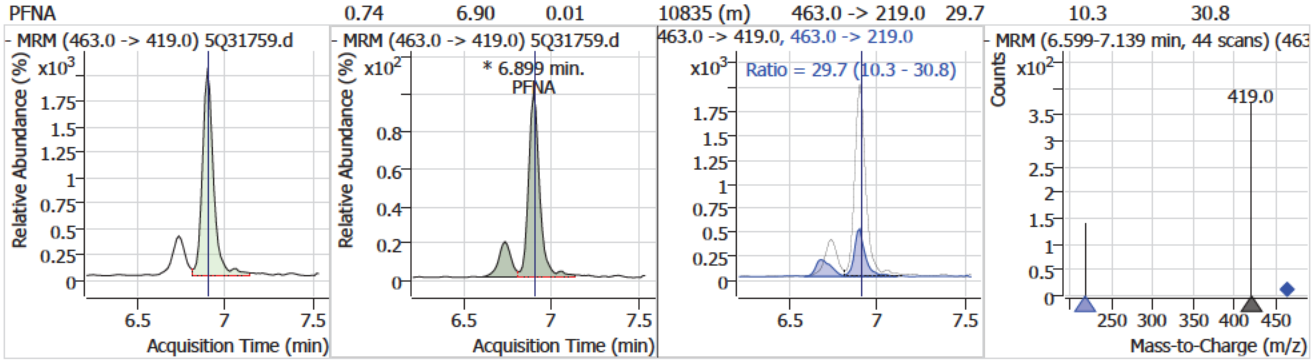
Perfluorinated Compounds by LC/MS/MS

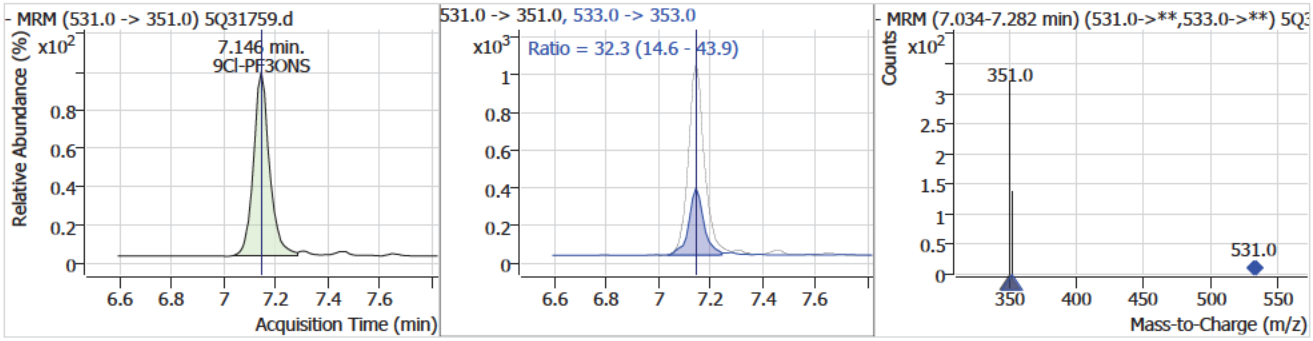
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.78	6.87	0.01	5000 (m)	499.0 -> 99.0	47.5	33.8	101.4



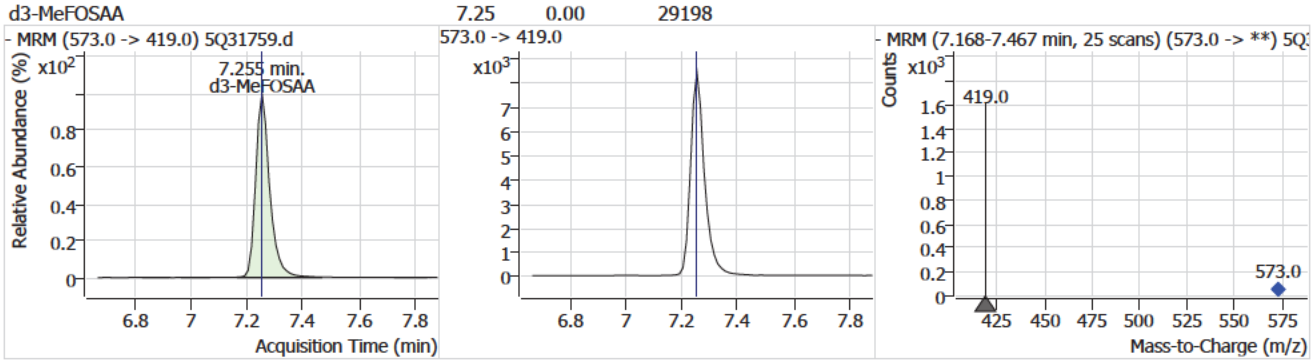
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.74	6.90	0.01	10835 (m)	463.0 -> 219.0	29.7	10.3	30.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.71	7.15	0.01	4358	533.0 -> 353.0	32.3	14.6	43.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	29198				



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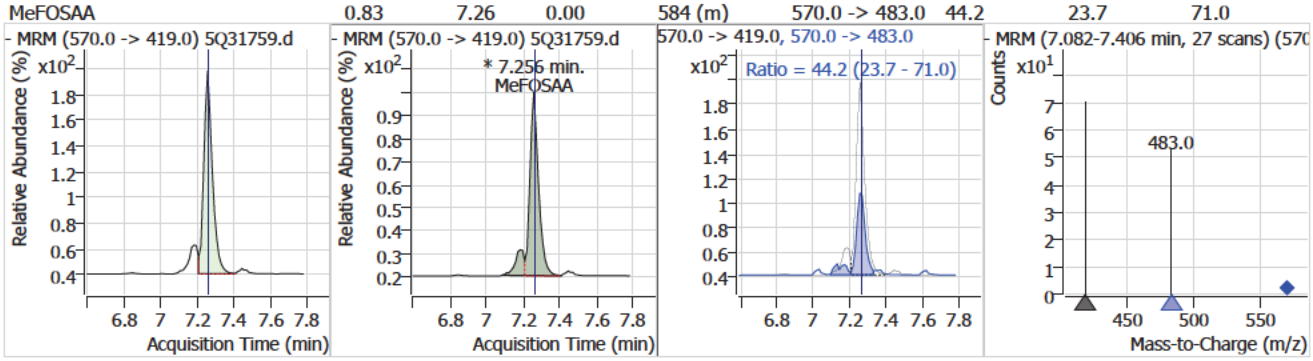
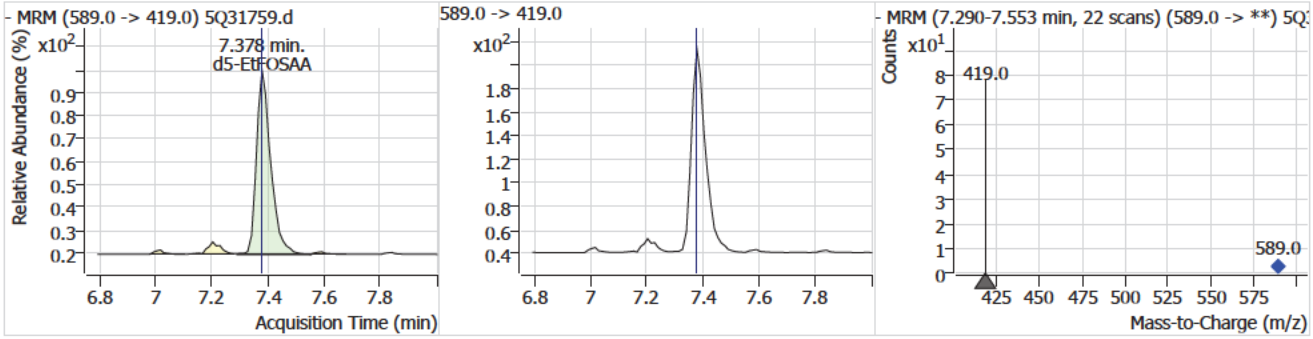
Perfluorinated Compounds by LC/MS/MS

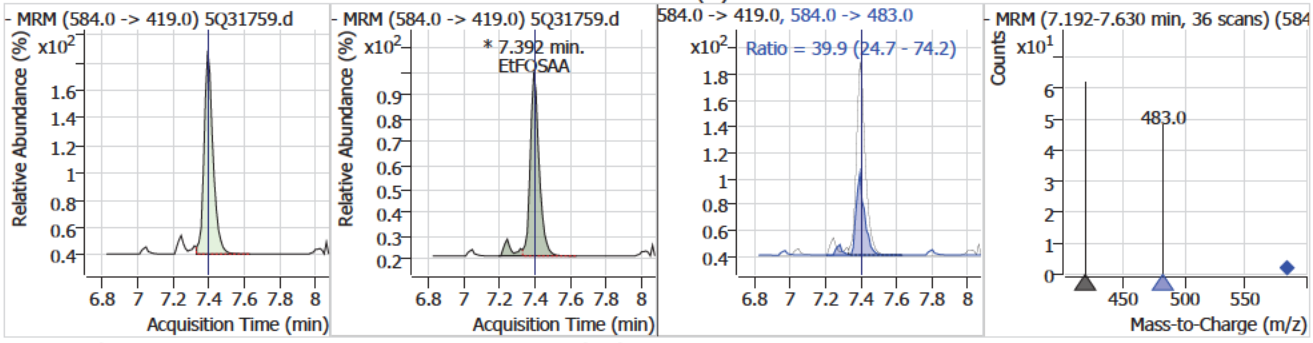
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.83	7.26	0.00	584 (m)	570.0 -> 483.0	44.2	23.7	71.0



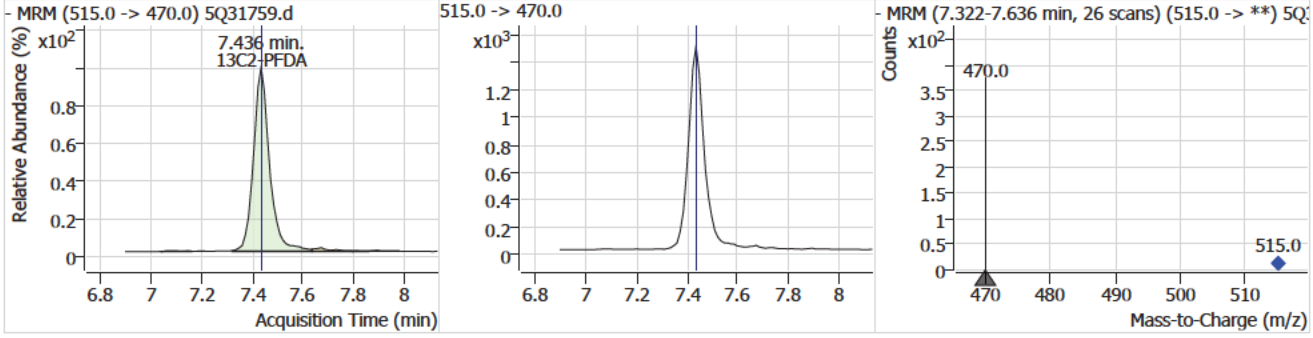
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	1.12	7.38	0.00	608				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.16	7.39	0.00	562 (m)	584.0 -> 483.0	39.9	24.7	74.2

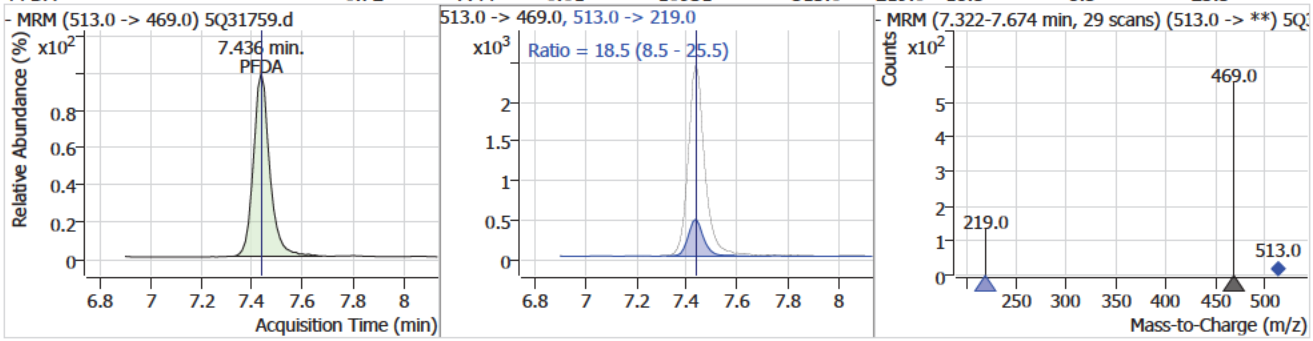


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.39	7.44	0.01	6492				

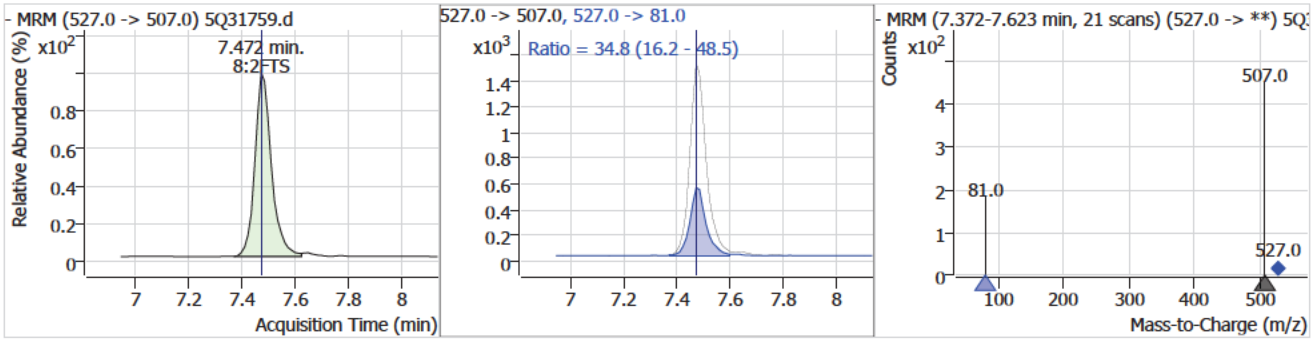


Perfluorinated Compounds by LC/MS/MS

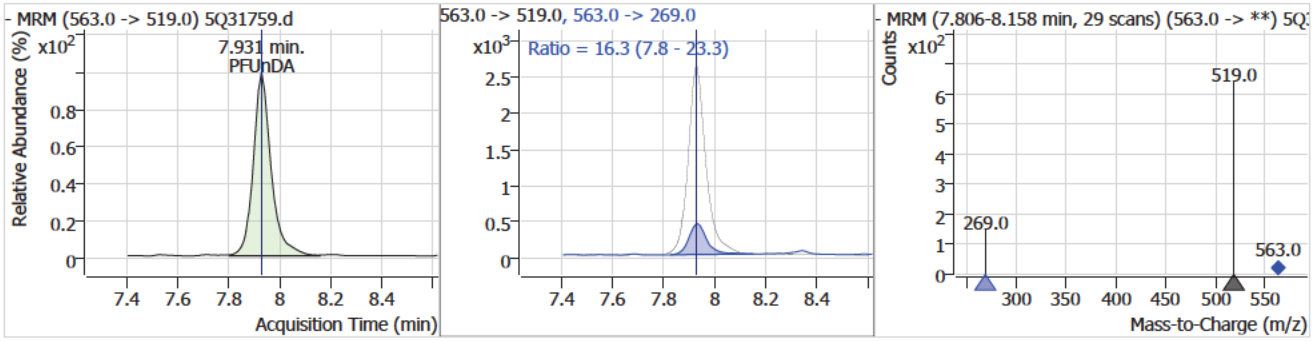
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.72	7.44	0.01	10931	513.0 -> 219.0	18.5	8.5	25.5



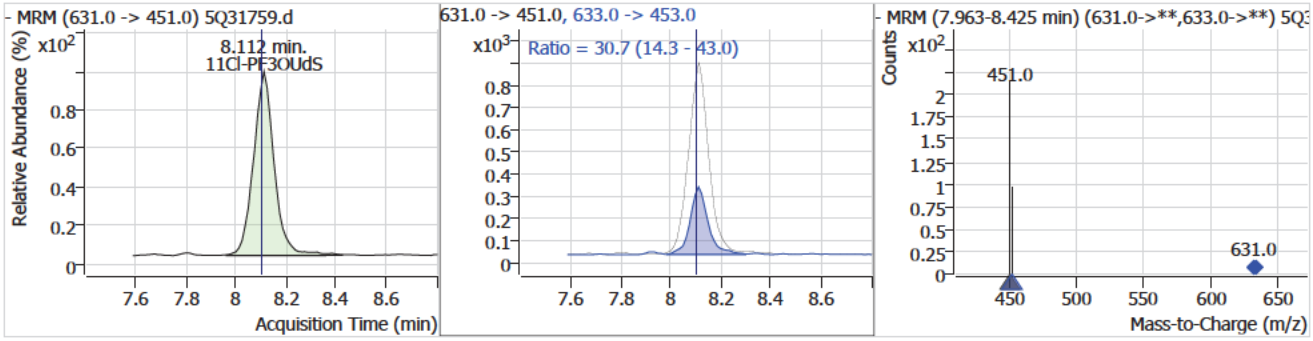
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.88	7.47	0.01	6422	527.0 -> 81.0	34.8	16.2	48.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.78	7.93	0.01	12915	563.0 -> 269.0	16.3	7.8	23.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.87	8.11	0.02	4943	633.0 -> 453.0	30.7	14.3	43.0



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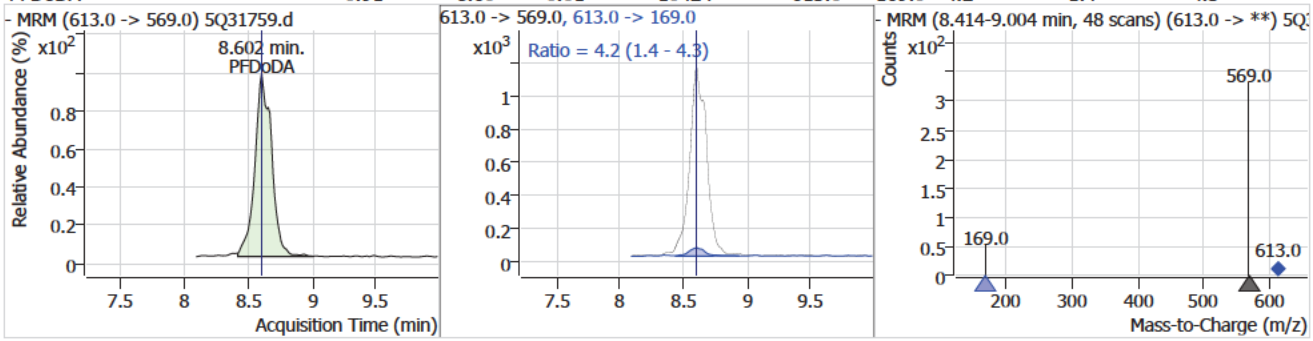
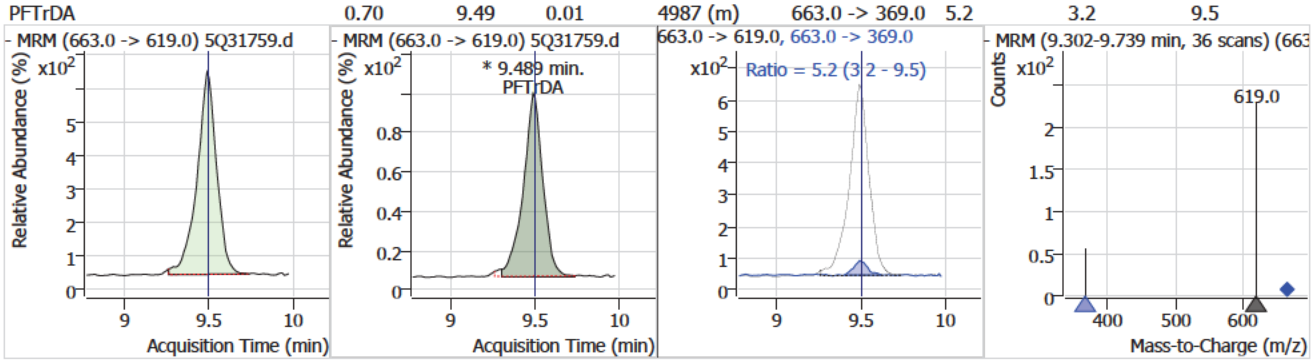
Perfluorinated Compounds by LC/MS/MS

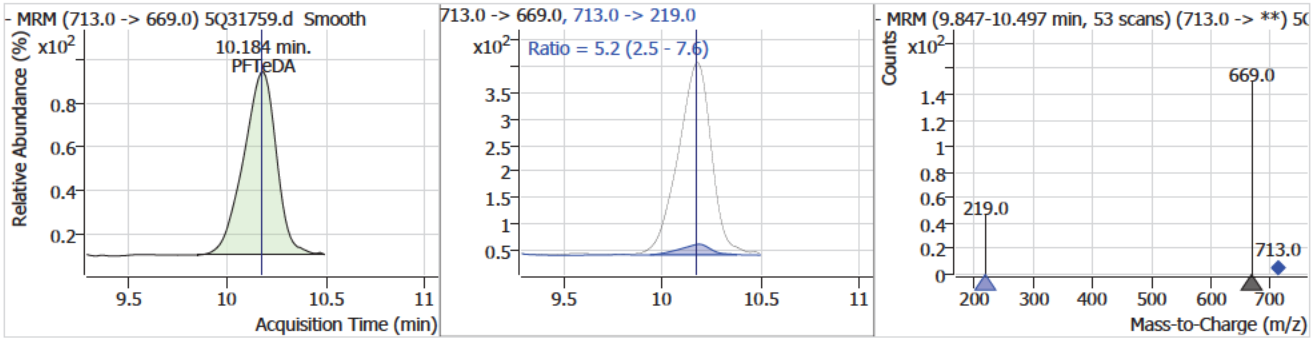
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.91	8.60	0.01	10424	613.0 -> 169.0	4.2	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.70	9.49	0.01	4987 (m)	663.0 -> 369.0	5.2	3.2	9.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.72	10.18	0.02	4234	713.0 -> 219.0	5.2	2.5	7.6



7.7.22

7

Manual Integration Approval Summary

Sample Number: S5Q521-IC521
Lab FileID: 5Q31759.D
Injection Time: 04/15/25 15:37
Method: EPA 537.1 REV 2.0
Analyst approved: 04/16/25 10:55 (b) (6)
Supervisor approved: 04/16/25 15:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.66	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.87	Split peak
Perfluorononanoic acid	375-95-1		6.90	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.39	Split peak
Perfluorotridecanoic acid	72629-94-8		9.49	Poor instrument integration

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/16/25 15:44

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31760.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/15/2025 3:53:32 PM
Sample Name : ic521-2
Vial : P1-A4
DA Method File : 537_041525_S5Q521.quantmethod
Batch Name : s5q521.batch.bin
Sample Information : OP8882,S5Q521,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.287	429.0 -> 409.0	175840	20.00 µg/L		0.000
13C2-PFOA	6.303	415.0 -> 370.0	400836	20.00 µg/L		0.013
13C3-PFPeA	3.607	266.0 -> 222.0	537720	20.00 µg/L		0.000
13C4-PFOS	6.872	503.0 -> 80.0	93820	20.00 µg/L		0.012
d3-MeFOSAA	7.255	573.0 -> 419.0	29453	40.00 µg/L		0.000
System Monitoring Compounds						
13C2-PFDA	7.436	515.0 -> 470.0	13599	0.80 µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 4.0%		
13C2-PFHxA	4.788	315.0 -> 270.0	21780	0.83 µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 4.1%		
d5-EtFOSAA	7.378	589.0 -> 419.0	987	1.80 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 4.5%		
13C3-HFPO-DA	5.044	287.0 -> 169.0	2939	1.64 µg/L		0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 4.1%		
Target Compounds						QValue
6:2FTS	6.287	427.0 -> 407.0	16595	1.90 µg/L		94
8:2FTS	7.472	527.0 -> 507.0	14900	2.00 µg/L		94
EtFOSAA	7.392	584.0 -> 419.0	907	1.86 µg/L		89
MeFOSAA	7.256	570.0 -> 419.0	1329	1.88 µg/L		96
PFBS	3.853	299.0 -> 80.0	24537	1.89 µg/L		100
PFDA	7.436	513.0 -> 469.0	24751	1.60 µg/L		98
PFDoDA	8.602	613.0 -> 569.0	25850	2.34 µg/L		99
PFHpA	5.626	363.0 -> 319.0	58687	1.61 µg/L		98
PFHxA	4.789	313.0 -> 269.0	28673	1.59 µg/L		99
PFHxS	5.648	399.0 -> 80.0	14189	1.63 µg/L	m	93
PFNA	6.899	463.0 -> 419.0	21338	1.42 µg/L	m	87
PFOA	6.303	413.0 -> 369.0	32337	1.61 µg/L		99
PFOS	6.873	499.0 -> 80.0	9917	1.60 µg/L	m	85
PFPeA	3.610	263.0 -> 219.0	57915	1.61 µg/L		100
PFTeDA	10.172	713.0 -> 669.0	8389	1.49 µg/L		100
PFTrDA	9.489	663.0 -> 619.0	10688	1.57 µg/L	m	98
PFUnDA	7.931	563.0 -> 519.0	26774	1.69 µg/L		98
ADONA	5.700	377.0 -> 251.0	74612	1.49 µg/L		99
9Cl-PF3ONS	7.146	531.0 -> 351.0	9803	1.58 µg/L		99
11Cl-PF3OUdS	8.112	631.0 -> 451.0	10466	1.80 µg/L		98
HFPO-DA	5.047	285.0 -> 169.0	2841	1.64 µg/L		100

= Qualifier out of range, m = manually integrated, + = Area summed

7.7.23
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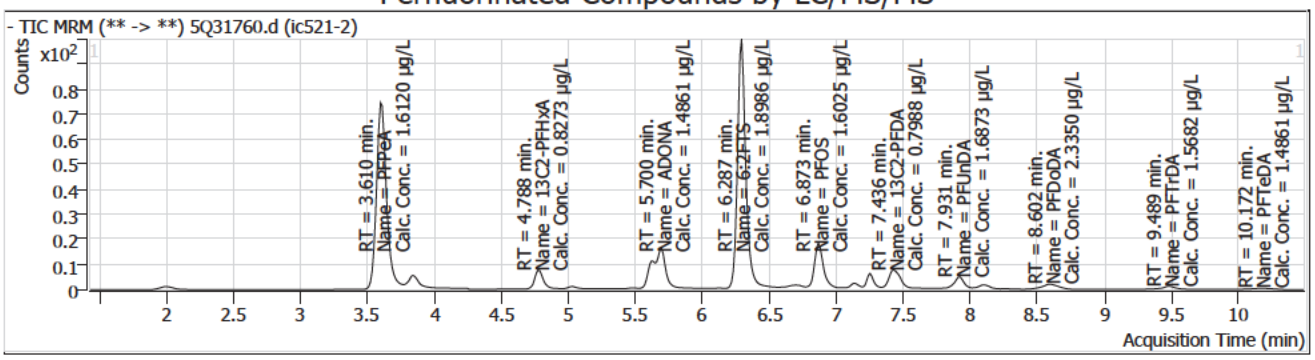
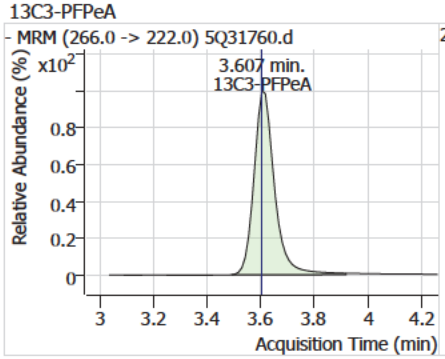
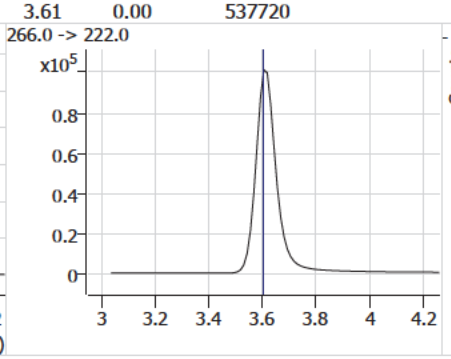
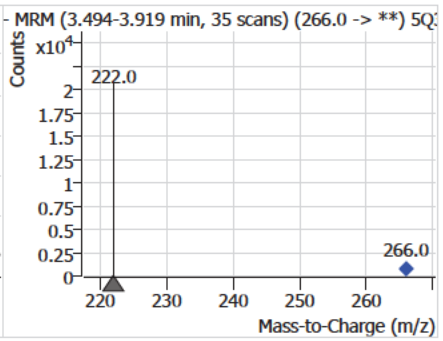
Perfluorinated Compounds by LC/MS/MS



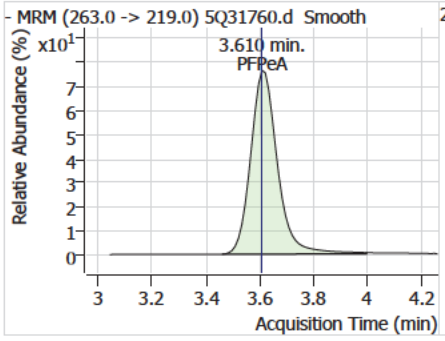
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.00	537720				

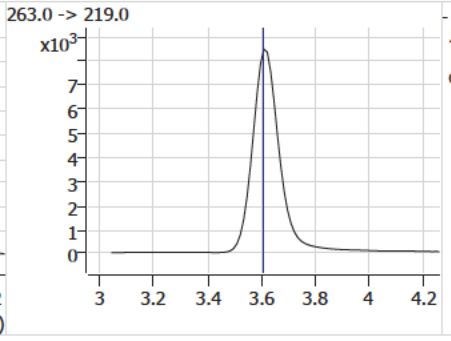


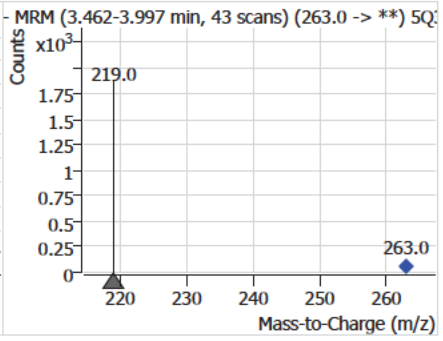




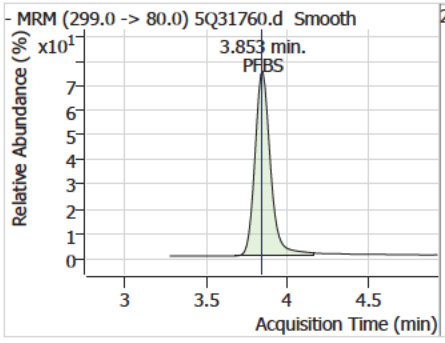
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.61	3.61	0.00	57915				

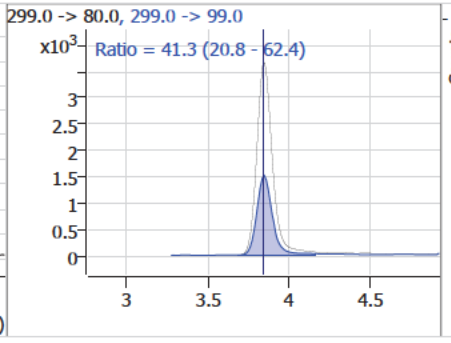


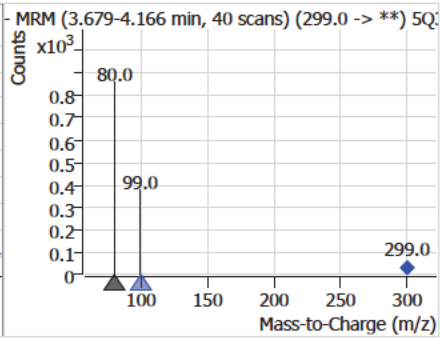




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.89	3.85	0.01	24537	299.0 -> 99.0	41.3	20.8	62.4







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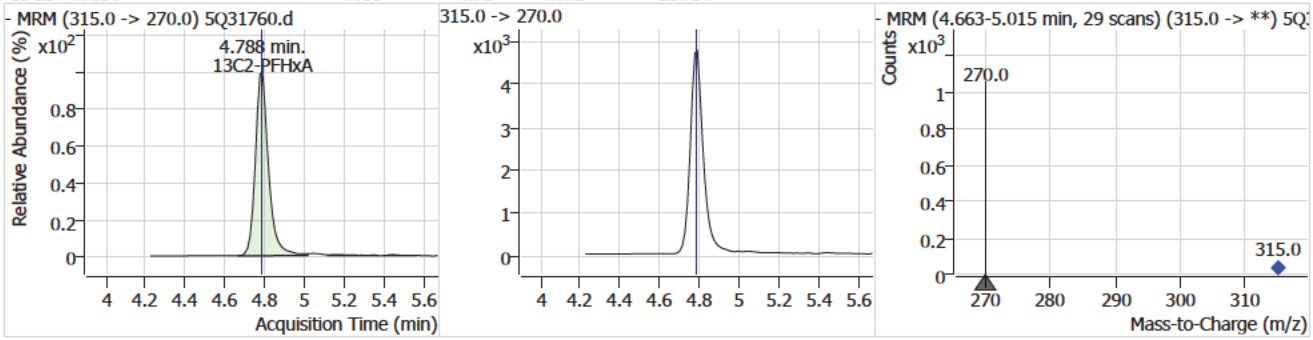
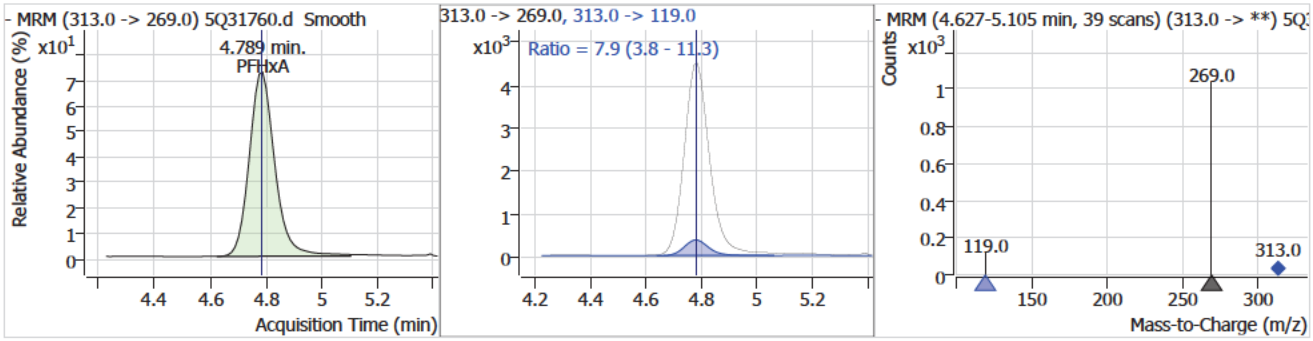
Perfluorinated Compounds by LC/MS/MS

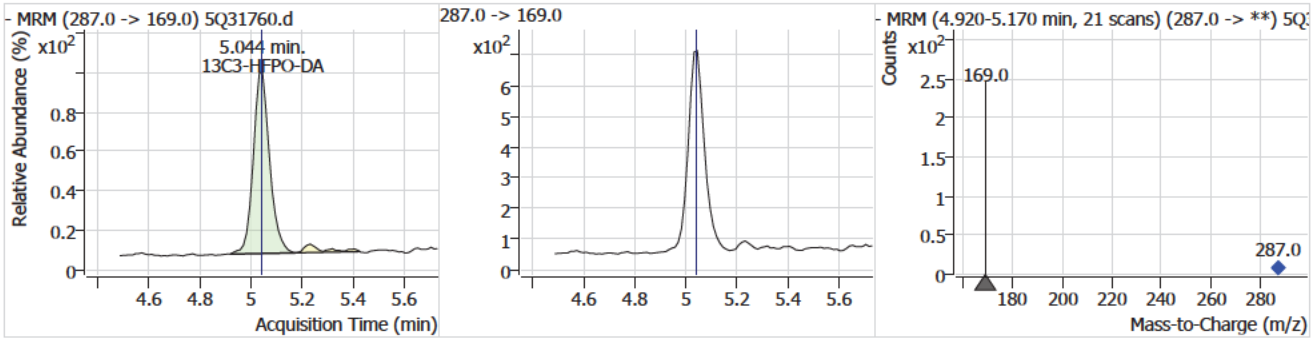
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.83	4.79	0.01	21780				



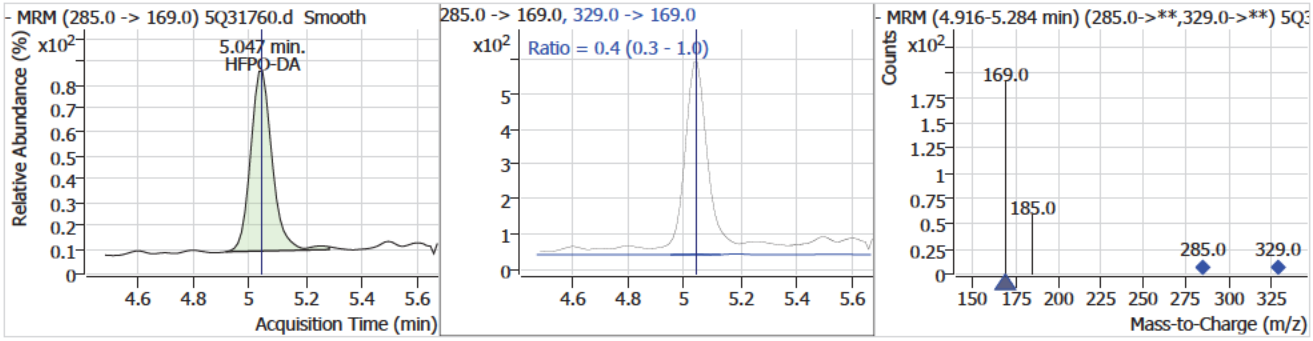
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.59	4.79	0.01	28673	313.0 -> 119.0	7.9	3.8	11.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	1.64	5.04	0.01	2939				

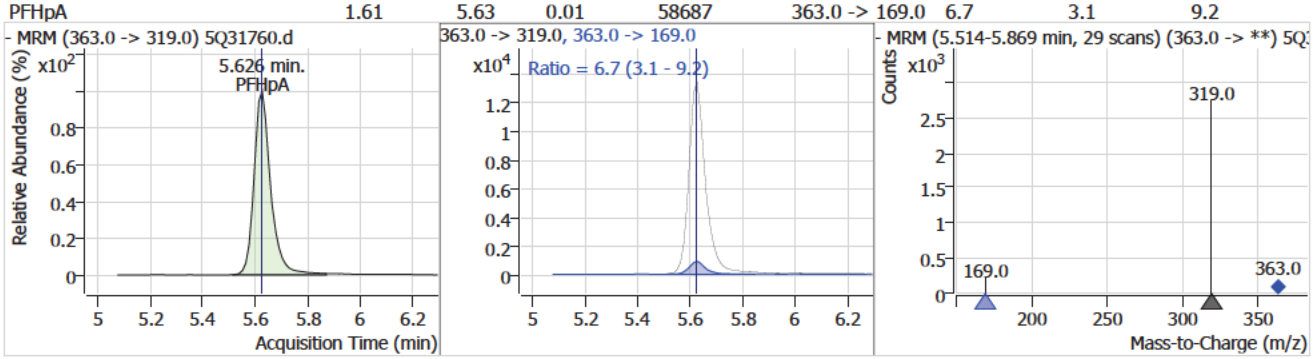


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	1.64	5.05	0.01	2841	329.0 -> 169.0	0.4	0.3	1.0

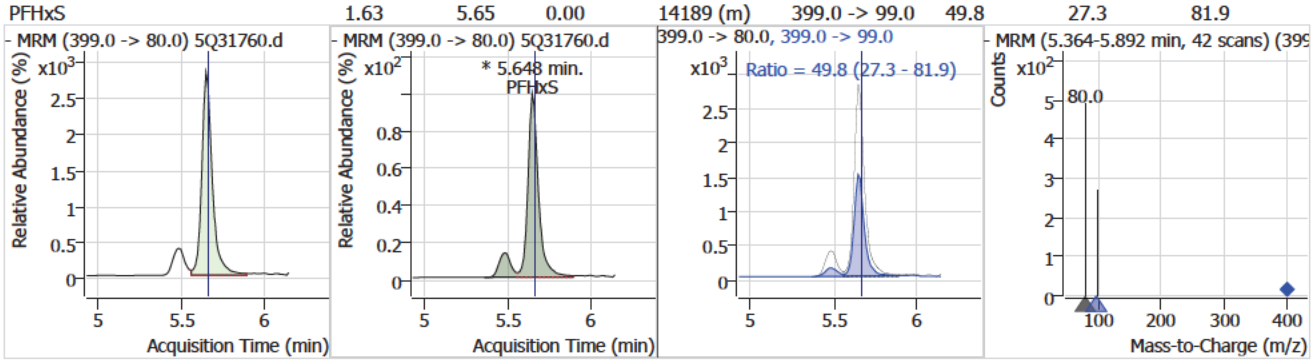


Perfluorinated Compounds by LC/MS/MS

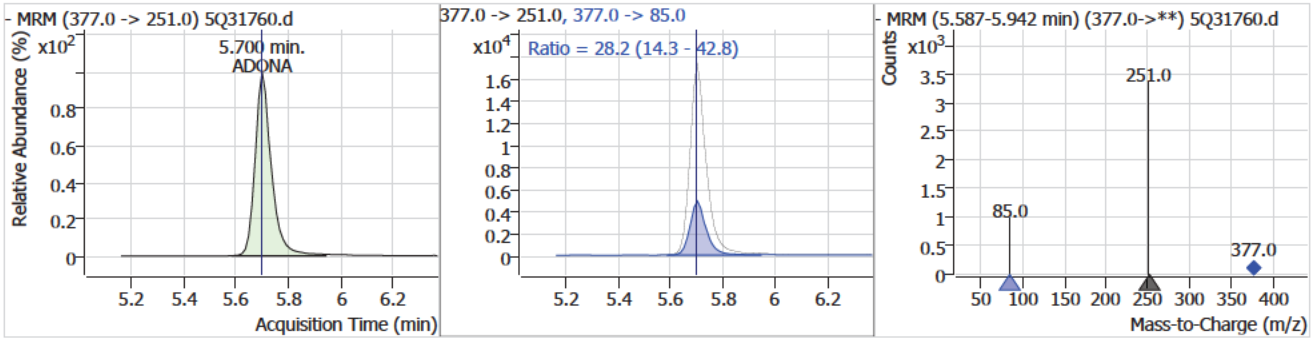
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.61	5.63	0.01	58687	363.0 -> 169.0	6.7	3.1	9.2



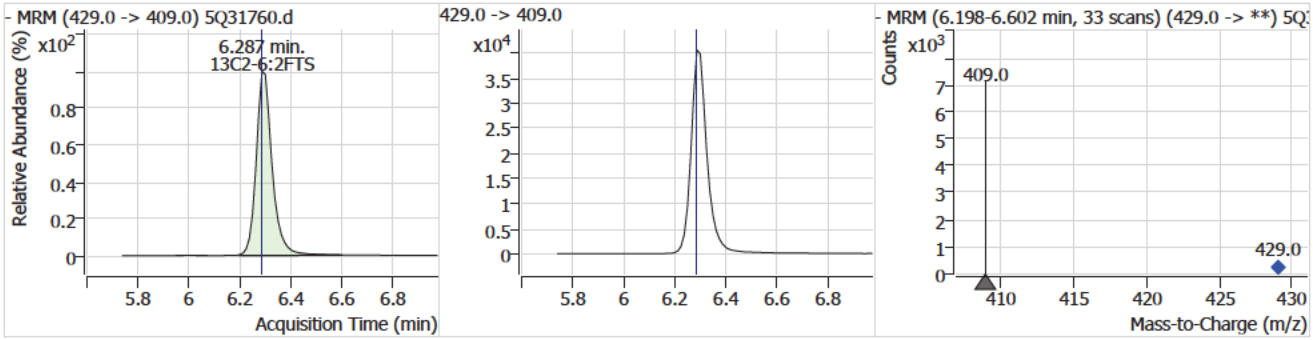
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.63	5.65	0.00	14189 (m)	399.0 -> 99.0	49.8	27.3	81.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	1.49	5.70	0.01	74612	377.0 -> 85.0	28.2	14.3	42.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	175840				



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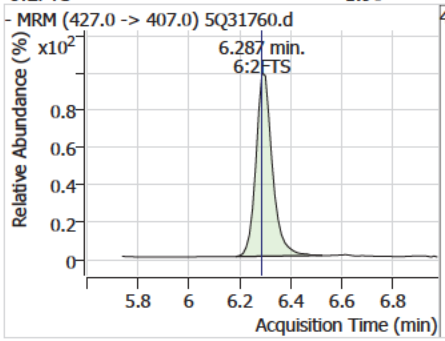
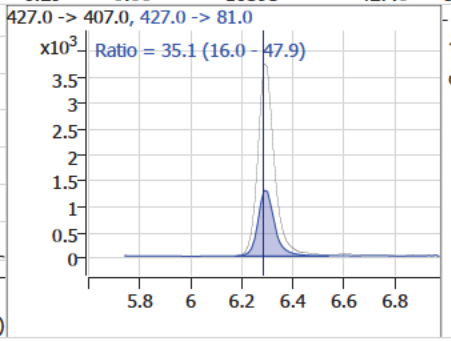
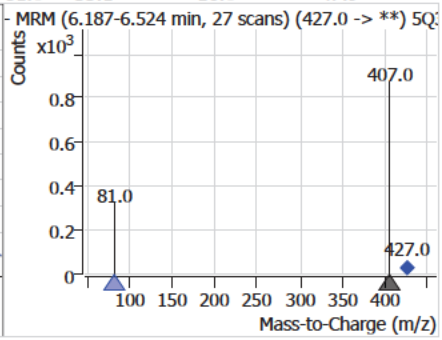
Perfluorinated Compounds by LC/MS/MS

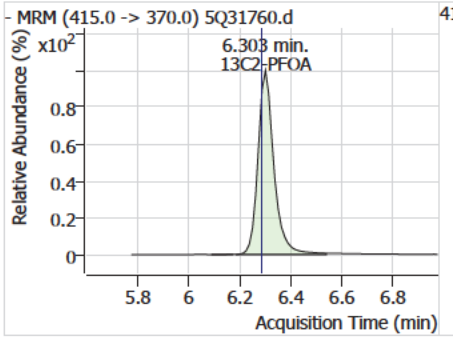
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.90	6.29	0.00	16595	427.0 -> 81.0	35.1	16.0	47.9

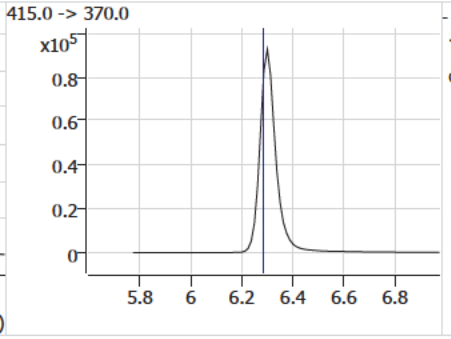


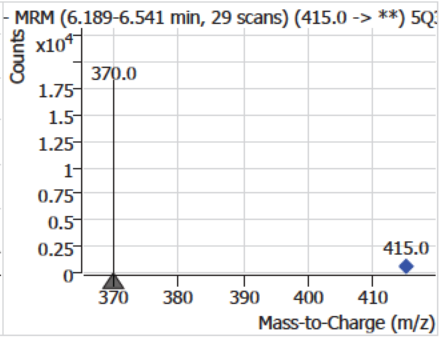




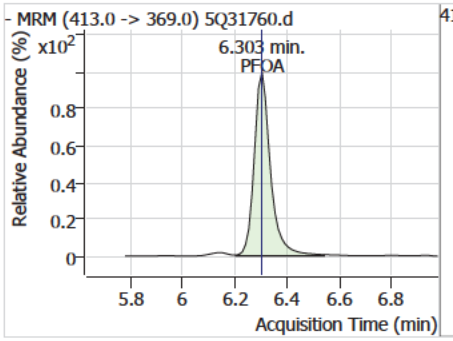
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.30	0.01	400836				

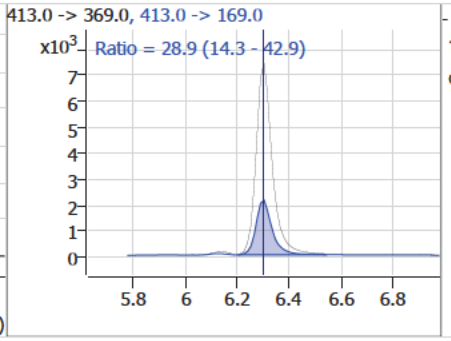


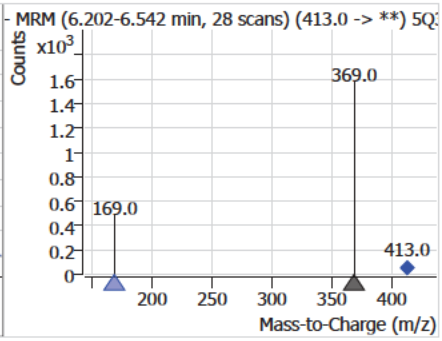




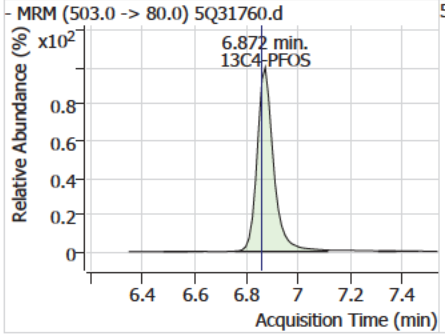
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.61	6.30	0.01	32337	413.0 -> 169.0	28.9	14.3	42.9

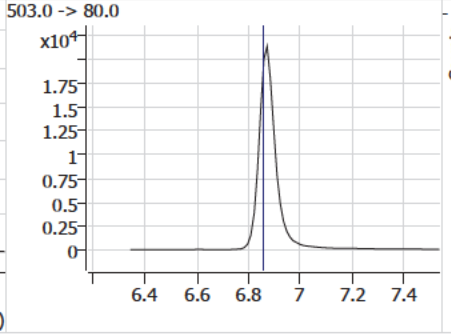


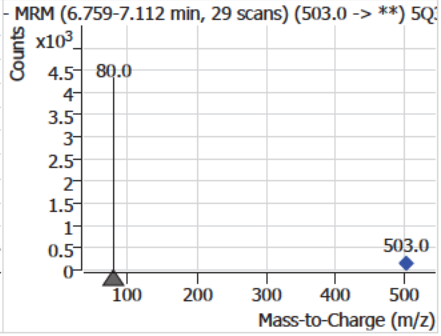




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.87	0.01	93820				







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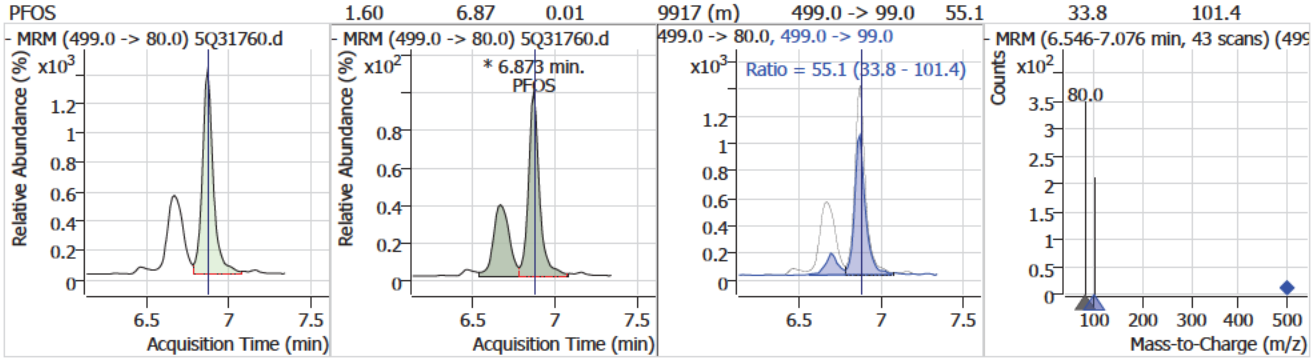
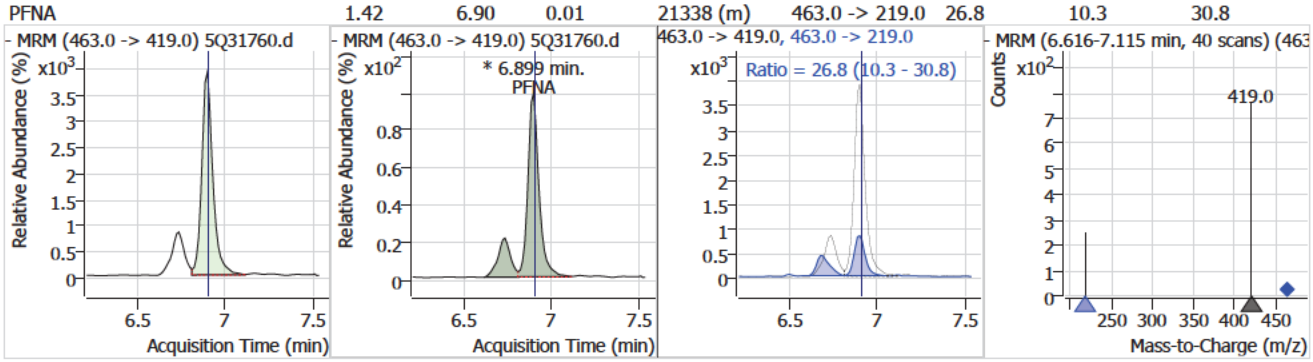
Perfluorinated Compounds by LC/MS/MS

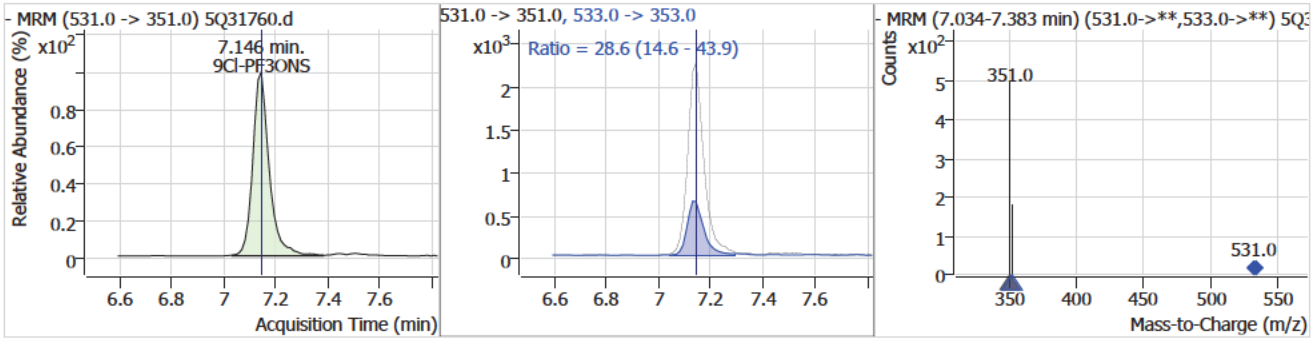
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.60	6.87	0.01	9917 (m)	499.0 -> 99.0	55.1	33.8	101.4



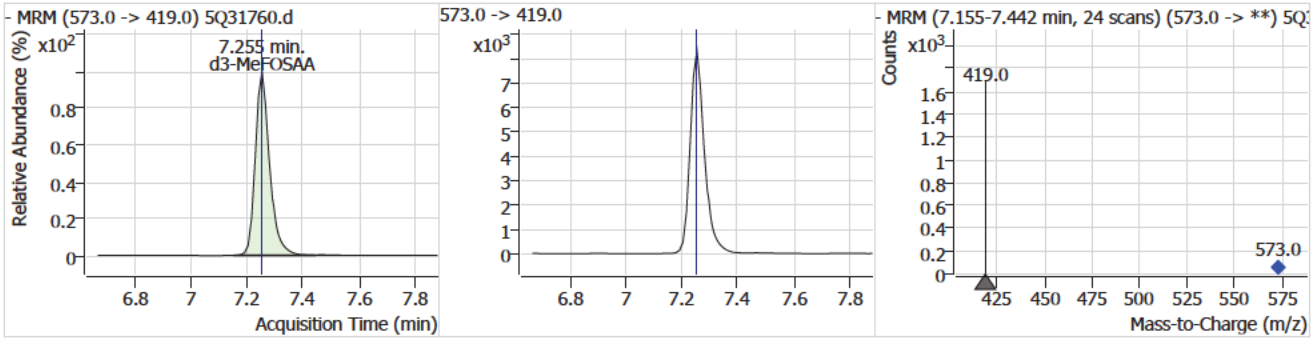
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.42	6.90	0.01	21338 (m)	463.0 -> 219.0	26.8	10.3	30.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	1.58	7.15	0.01	9803	533.0 -> 353.0	28.6	14.6	43.9

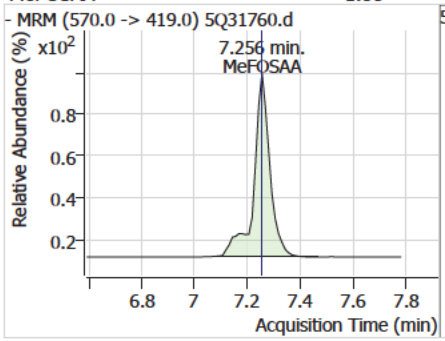


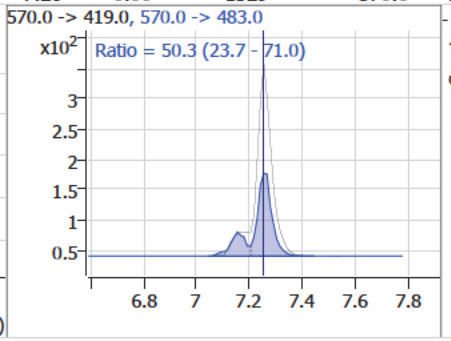
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	29453				

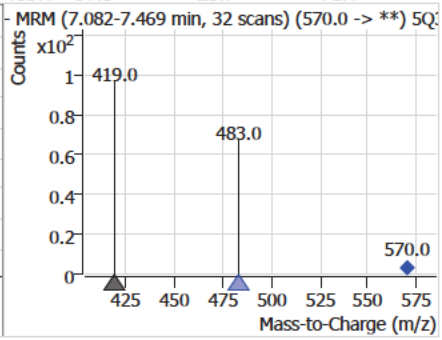


Perfluorinated Compounds by LC/MS/MS

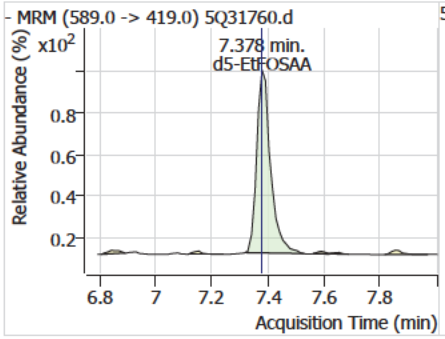
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	1.88	7.26	0.00	1329	570.0 -> 483.0	50.3	23.7	71.0

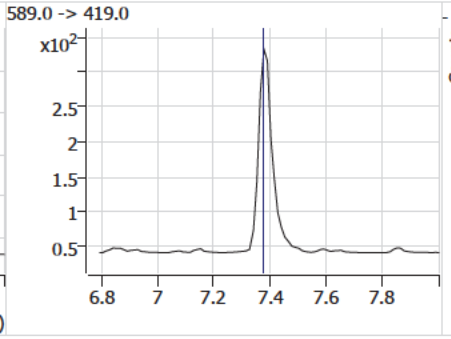


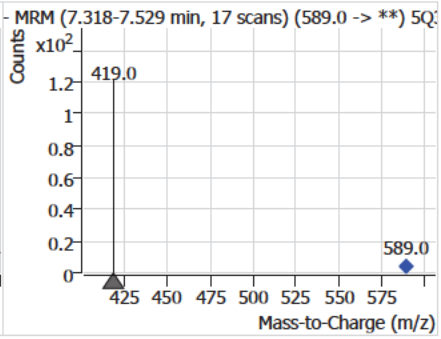




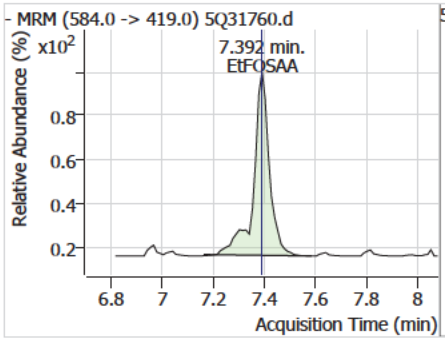
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	1.80	7.38	0.00	987				

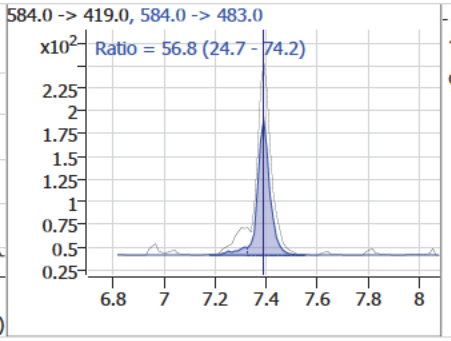


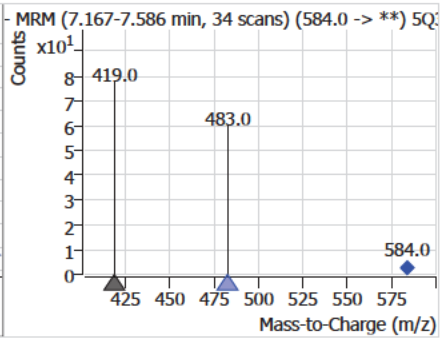




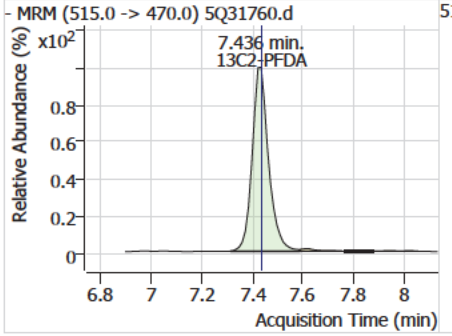
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.86	7.39	0.00	907	584.0 -> 483.0	56.8	24.7	74.2

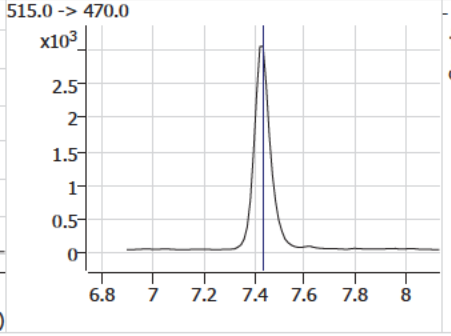


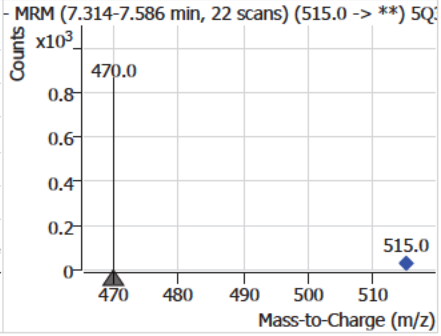




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.80	7.44	0.01	13599				







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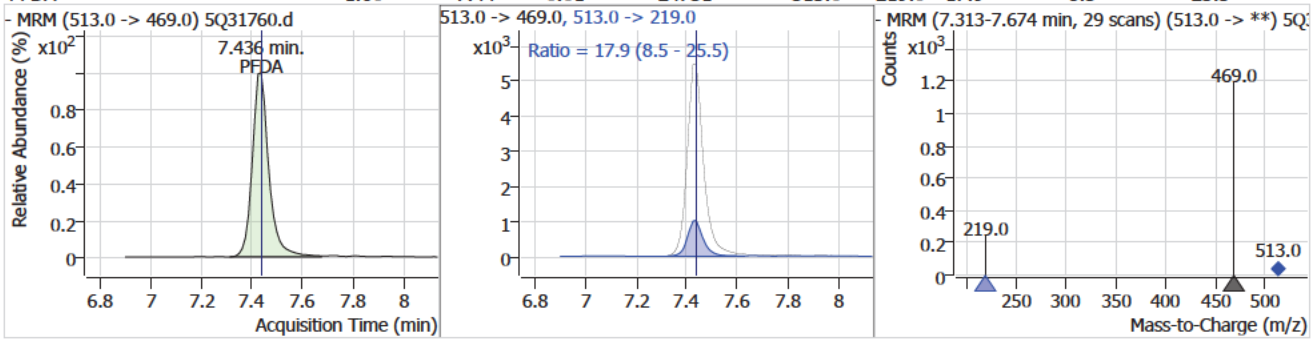
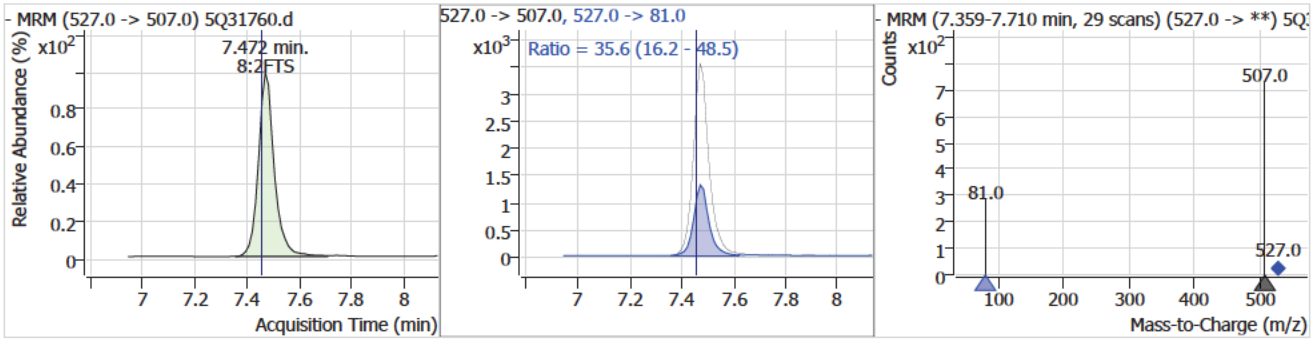
Perfluorinated Compounds by LC/MS/MS

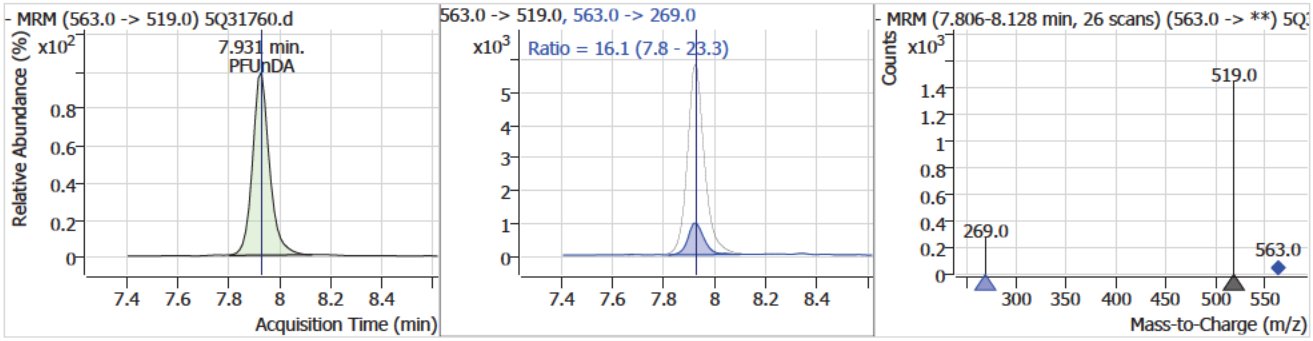
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.60	7.44	0.01	24751	513.0 -> 219.0	17.9	8.5	25.5



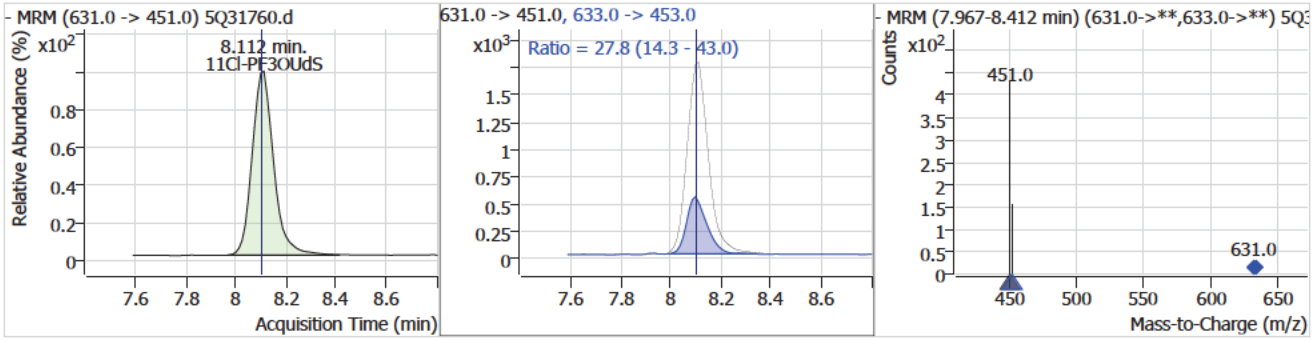
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	2.00	7.47	0.01	14900	527.0 -> 81.0	35.6	16.2	48.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.69	7.93	0.01	26774	563.0 -> 269.0	16.1	7.8	23.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	1.80	8.11	0.02	10466	633.0 -> 453.0	27.8	14.3	43.0



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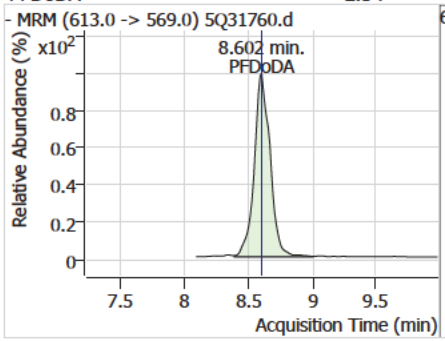
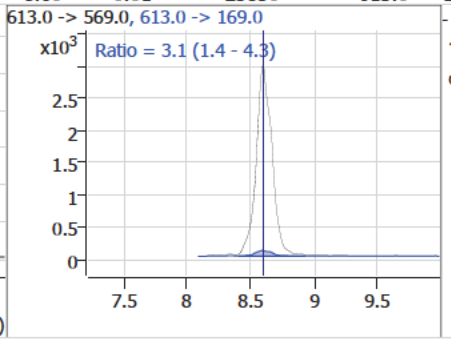
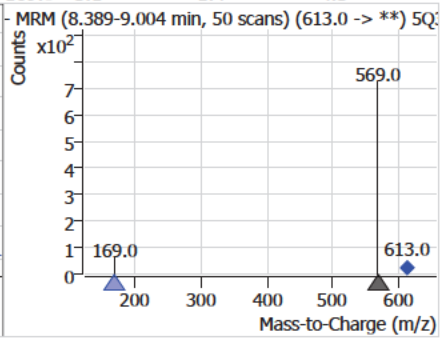
Perfluorinated Compounds by LC/MS/MS

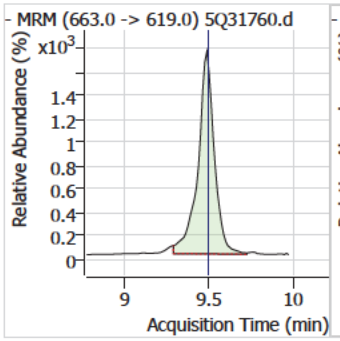
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	2.34	8.60	0.01	25850	613.0 -> 169.0	3.1	1.4	4.3

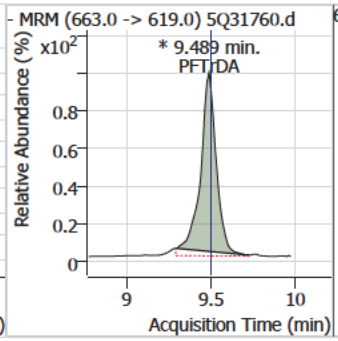


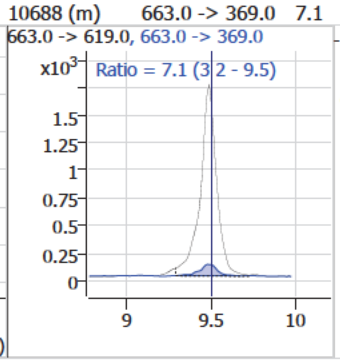


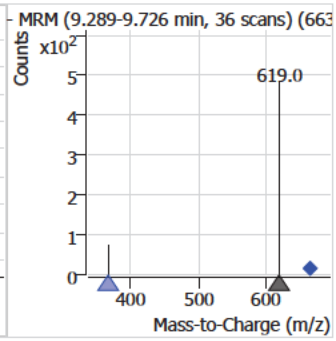


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	1.57	9.49	0.01	10688 (m)	663.0 -> 369.0	7.1	3.2	9.5

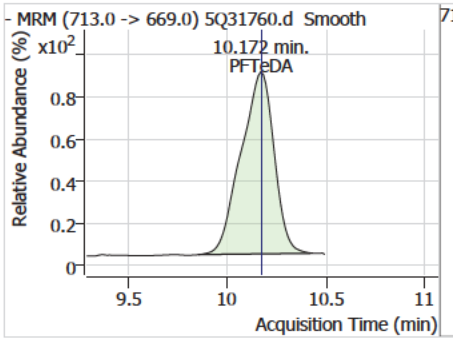


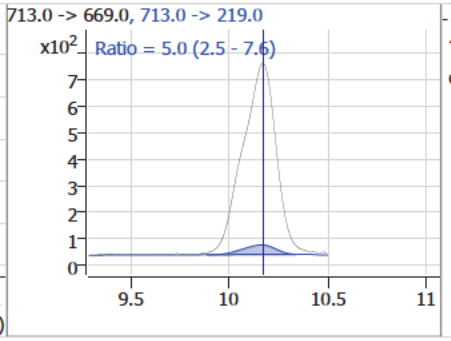


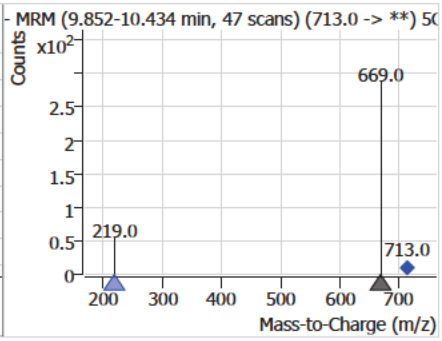




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.49	10.17	0.01	8389	713.0 -> 219.0	5.0	2.5	7.6







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Manual Integration Approval Summary

Sample Number: S5Q521-IC521
Lab FileID: 5Q31760.D
Injection Time: 04/15/25 15:53
Method: EPA 537.1 REV 2.0
Analyst approved: 04/16/25 10:55 (b) (6)
Supervisor approved: 04/16/25 15:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.87	Split peak
Perfluorononanoic acid	375-95-1		6.90	Split peak
Perfluorotridecanoic acid	72629-94-8		9.49	Poor instrument integration

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/16/25 15:44

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31761.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/15/2025 4:09:33 PM
Sample Name : ic521-5
Vial : P1-A5
DA Method File : 537_041525_S5Q521.quantmethod
Batch Name : s5q521.batch.bin
Sample Information : OP8882,S5Q521,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.287	429.0 -> 409.0	173320	20.00	µg/L		0.000
13C2-PFOA	6.303	415.0 -> 370.0	400284	20.00	µg/L		0.013
13C3-PFPeA	3.607	266.0 -> 222.0	530440	20.00	µg/L		0.000
13C4-PFOS	6.872	503.0 -> 80.0	96419	20.00	µg/L		0.012
d3-MeFOSAA	7.255	573.0 -> 419.0	29556	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.423	515.0 -> 470.0	35165	2.07	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 10.3%			
13C2-PFHxA	4.775	315.0 -> 270.0	58522	2.23	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 11.1%			
d5-EtFOSAA	7.391	589.0 -> 419.0	2468	4.50	µg/L		0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 11.2%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	7416	4.14	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 10.4%			
Target Compounds							QValue
6:2FTS	6.287	427.0 -> 407.0	47042	5.46	µg/L		99
8:2FTS	7.472	527.0 -> 507.0	38503	5.23	µg/L		96
EtFOSAA	7.392	584.0 -> 419.0	2386	4.88	µg/L	m	86
MeFOSAA	7.256	570.0 -> 419.0	3075	4.33	µg/L	m	91
PFBS	3.841	299.0 -> 80.0	63653	4.76	µg/L		100
PFDA	7.424	513.0 -> 469.0	62786	4.07	µg/L		99
PFDoDA	8.590	613.0 -> 569.0	56318	4.90	µg/L		100
PFHpA	5.626	363.0 -> 319.0	154892	4.26	µg/L		100
PFHxA	4.777	313.0 -> 269.0	79313	4.40	µg/L		100
PFHxS	5.648	399.0 -> 80.0	37202	4.16	µg/L	m	96
PFNA	6.899	463.0 -> 419.0	57805	3.86	µg/L	m	82
PFOA	6.303	413.0 -> 369.0	84872	4.23	µg/L		99
PFOS	6.861	499.0 -> 80.0	26502	4.17	µg/L	m	78
PFPeA	3.610	263.0 -> 219.0	155521	4.39	µg/L		100
PFTeDA	10.172	713.0 -> 669.0	21297	3.67	µg/L		99
PFTrDA	9.476	663.0 -> 619.0	25900	3.70	µg/L		98
PFUnDA	7.931	563.0 -> 519.0	66894	4.10	µg/L		99
ADONA	5.700	377.0 -> 251.0	202652	4.04	µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	23502	3.78	µg/L		97
11Cl-PF3OUdS	8.100	631.0 -> 451.0	25038	4.29	µg/L		97
HFPO-DA	5.035	285.0 -> 169.0	7113	4.11	µg/L		100

= Qualifier out of range, m = manually integrated, + = Area summed

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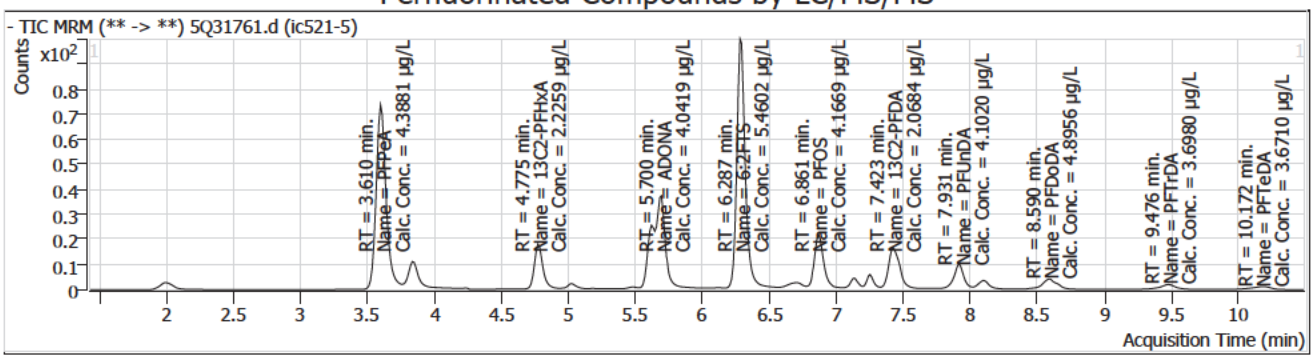
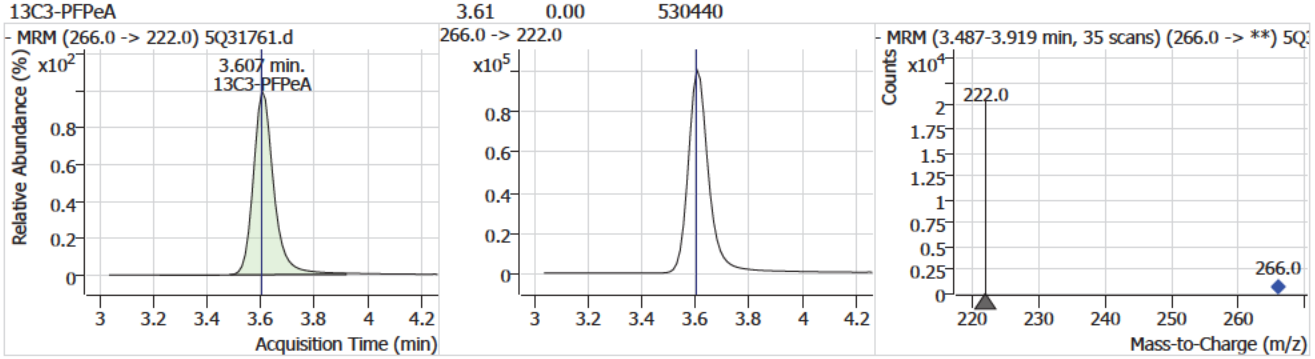
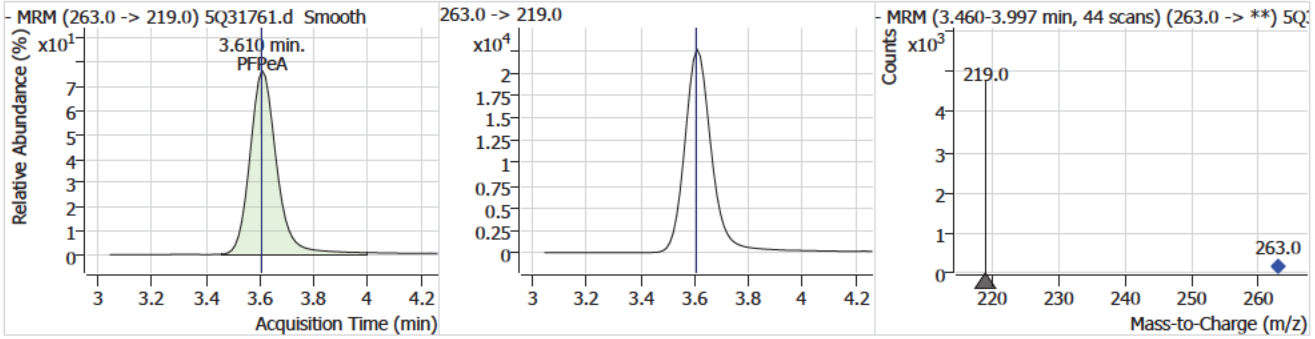
Perfluorinated Compounds by LC/MS/MS



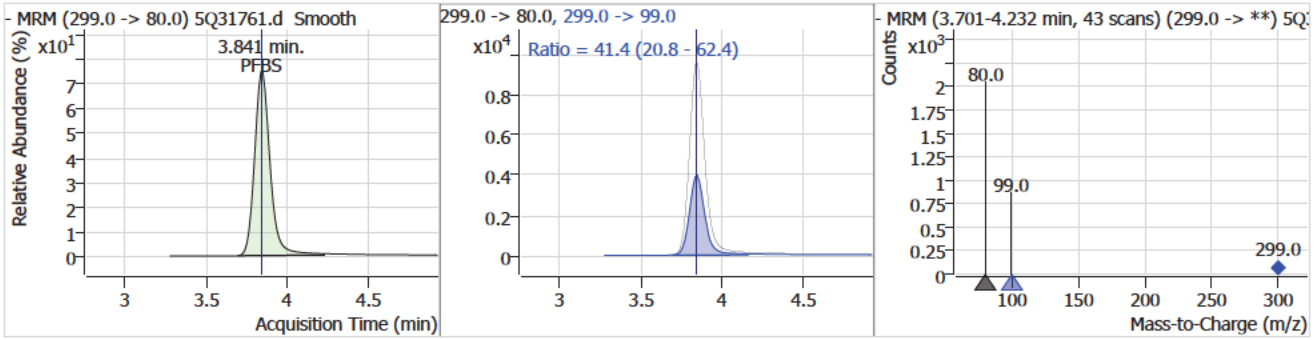
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.00	530440				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.39	3.61	0.00	155521				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	4.76	3.84	0.00	63653	299.0 -> 99.0	41.4	20.8	62.4



7.7.24

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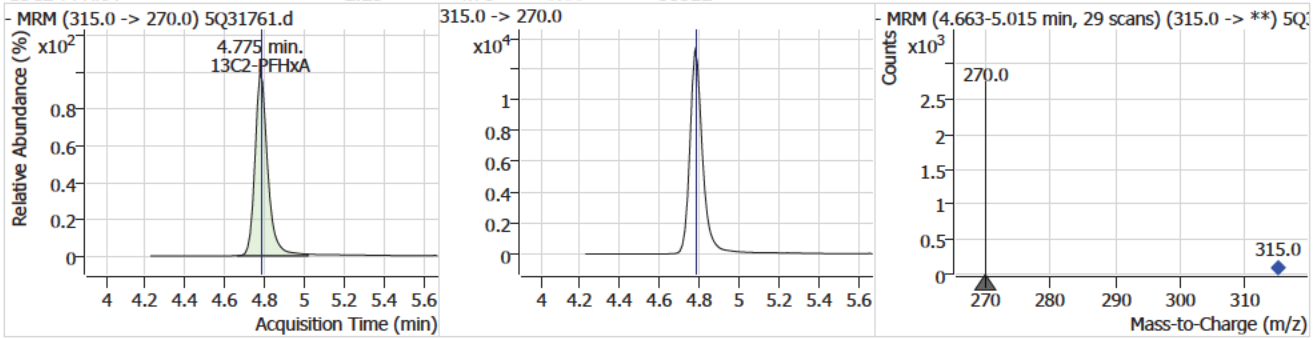
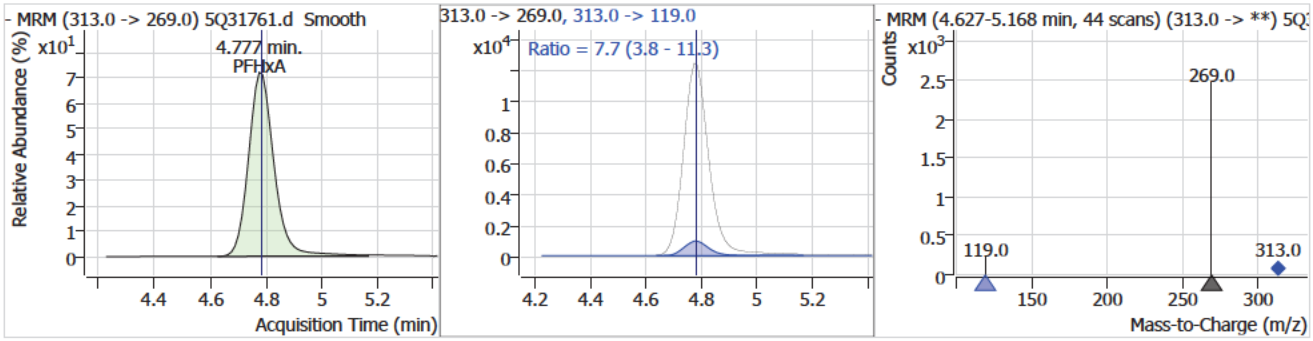
Perfluorinated Compounds by LC/MS/MS

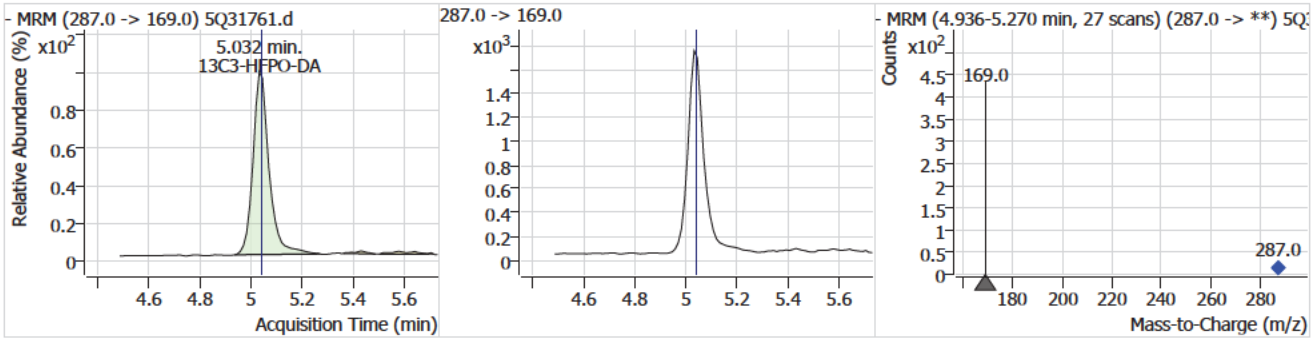
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	2.23	4.78	0.00	58522				



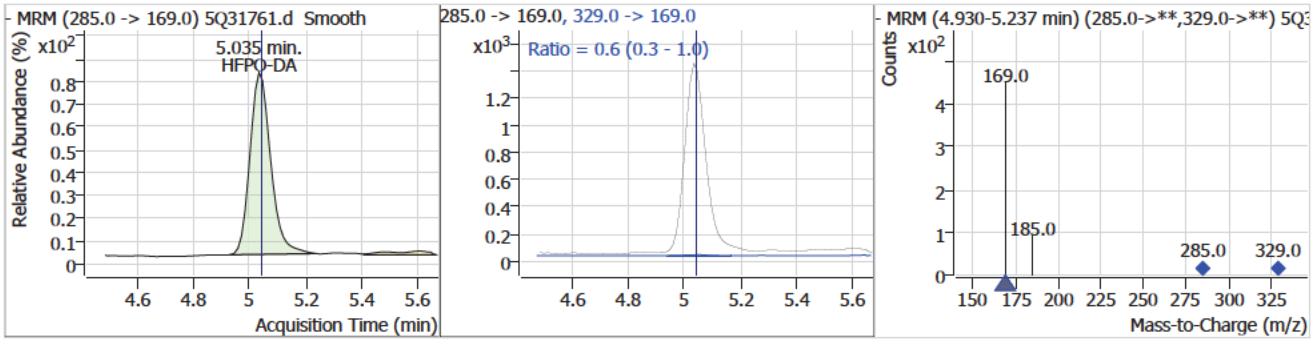
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	4.40	4.78	0.00	79313	313.0 -> 119.0	7.7	3.8	11.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	4.14	5.03	0.00	7416				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.11	5.03	0.00	7113	329.0 -> 169.0	0.6	0.3	1.0



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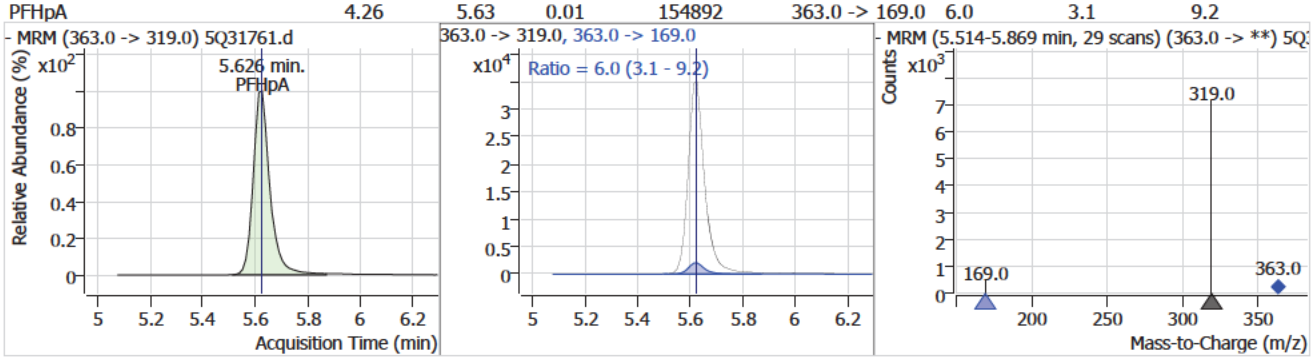
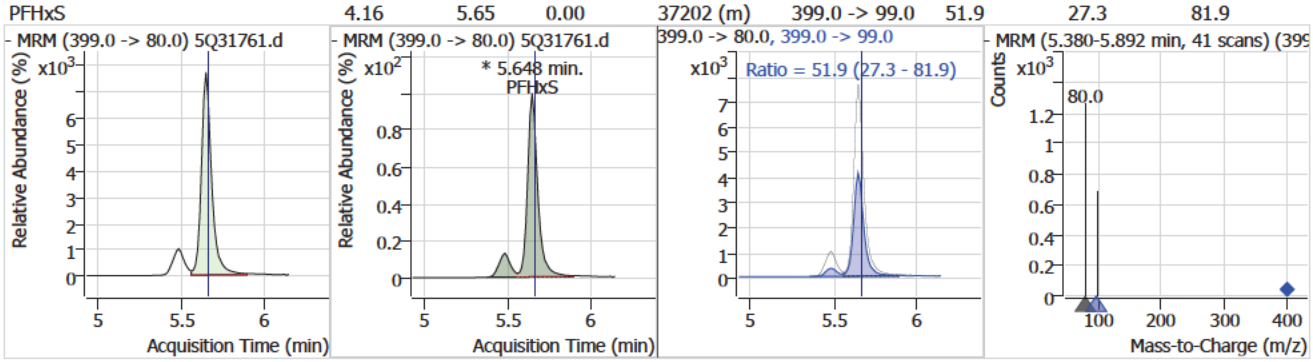
Perfluorinated Compounds by LC/MS/MS

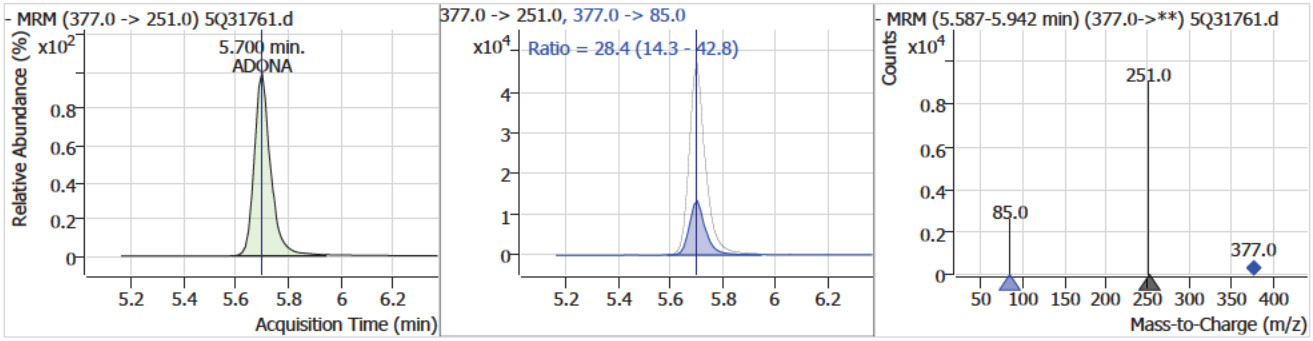
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	4.26	5.63	0.01	154892	363.0 -> 169.0	6.0	3.1	9.2



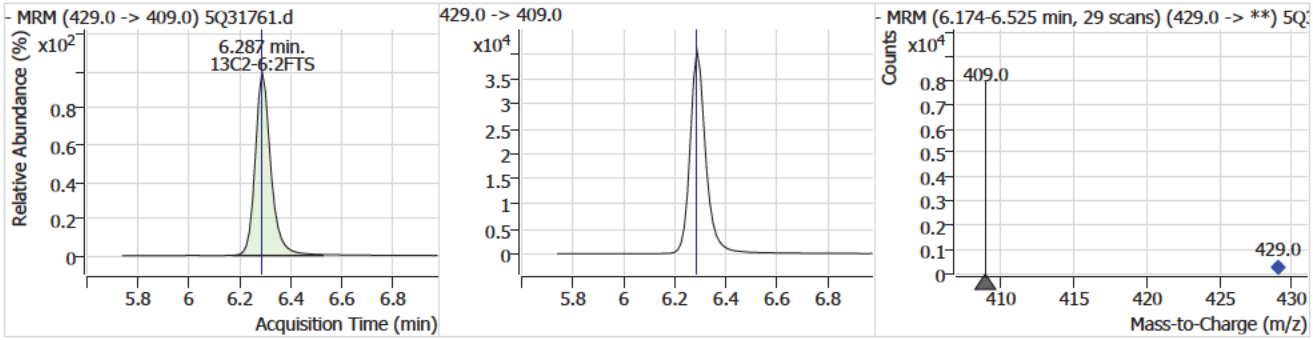
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	4.16	5.65	0.00	37202 (m)	399.0 -> 99.0	51.9	27.3	81.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	4.04	5.70	0.01	202652	377.0 -> 85.0	28.4	14.3	42.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	173320				



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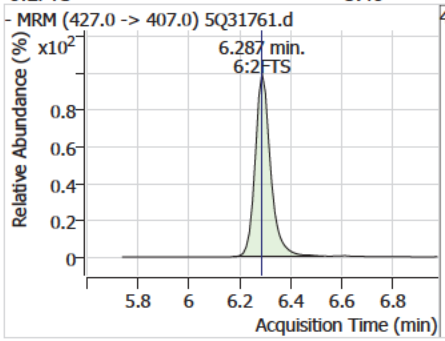
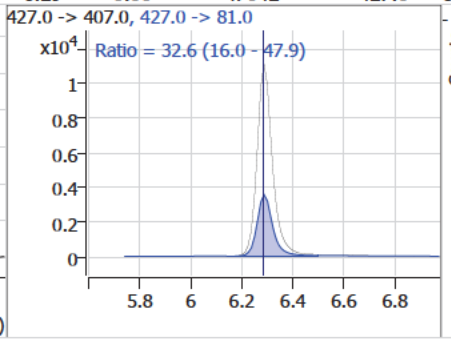
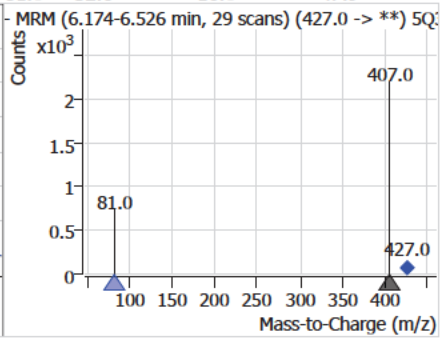
Perfluorinated Compounds by LC/MS/MS

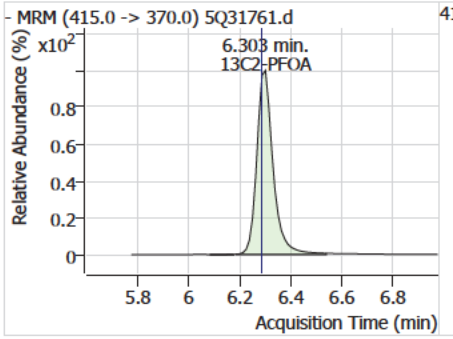
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	5.46	6.29	0.00	47042	427.0 -> 81.0	32.6	16.0	47.9

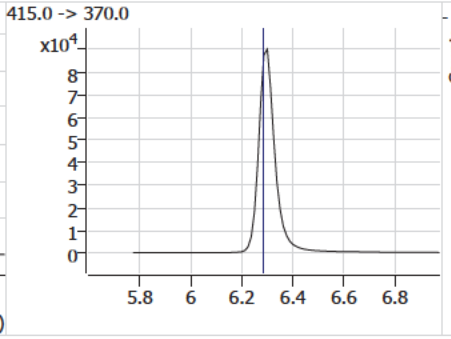


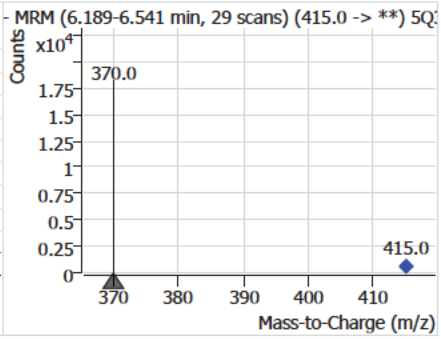




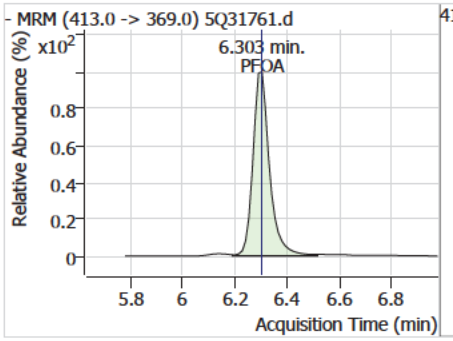
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.30	0.01	400284				

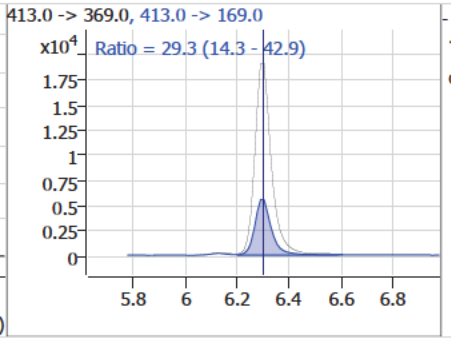


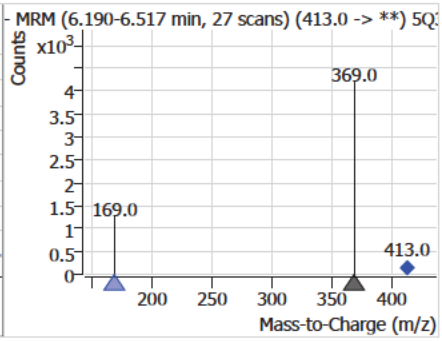




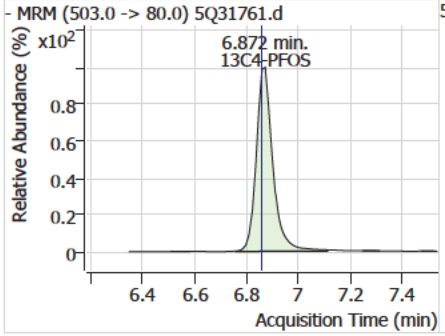
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	4.23	6.30	0.01	84872	413.0 -> 169.0	29.3	14.3	42.9

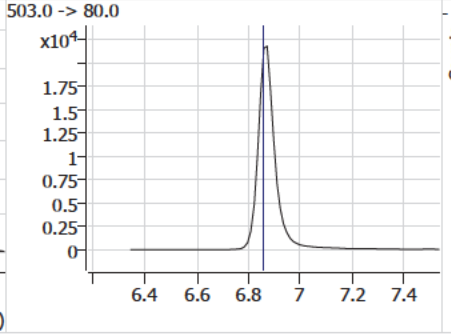


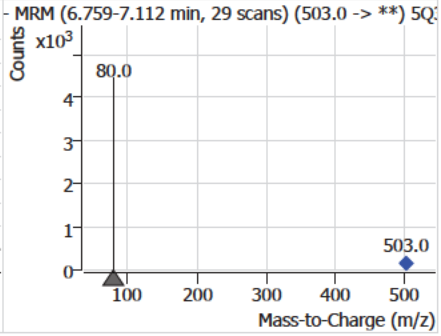




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.87	0.01	96419				







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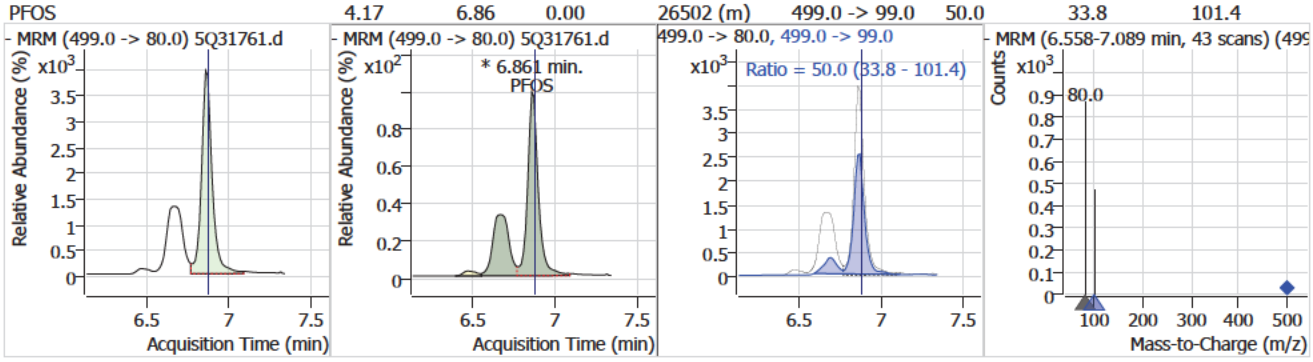
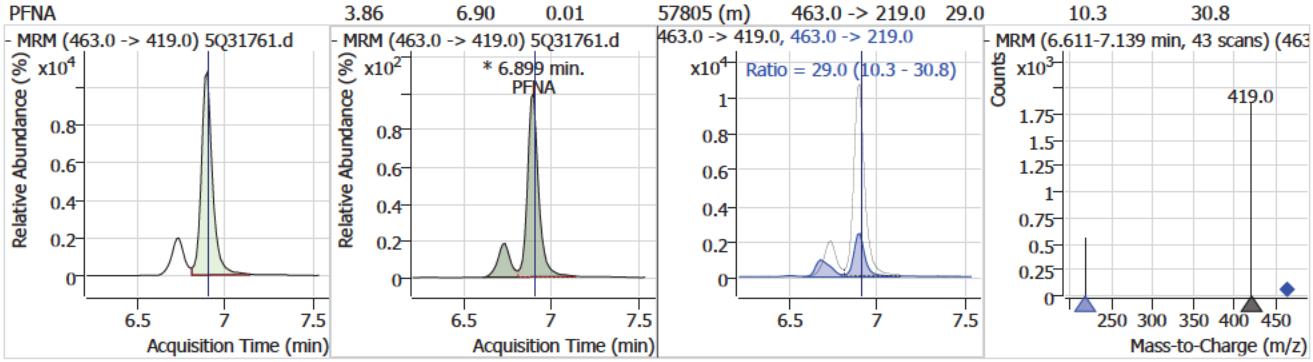
Perfluorinated Compounds by LC/MS/MS

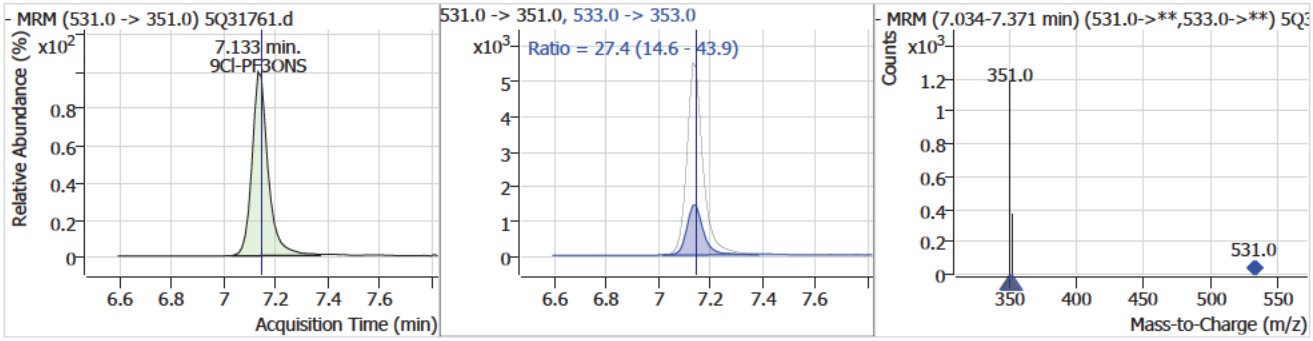
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	4.17	6.86	0.00	26502 (m)	499.0 -> 99.0	50.0	33.8	101.4



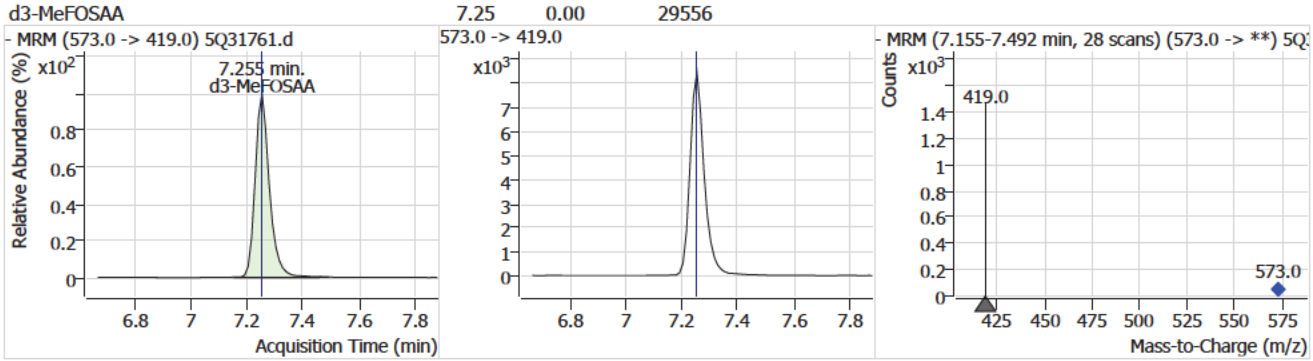
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	3.86	6.90	0.01	57805 (m)	463.0 -> 219.0	29.0	10.3	30.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	3.78	7.13	0.00	23502	533.0 -> 353.0	27.4	14.6	43.9

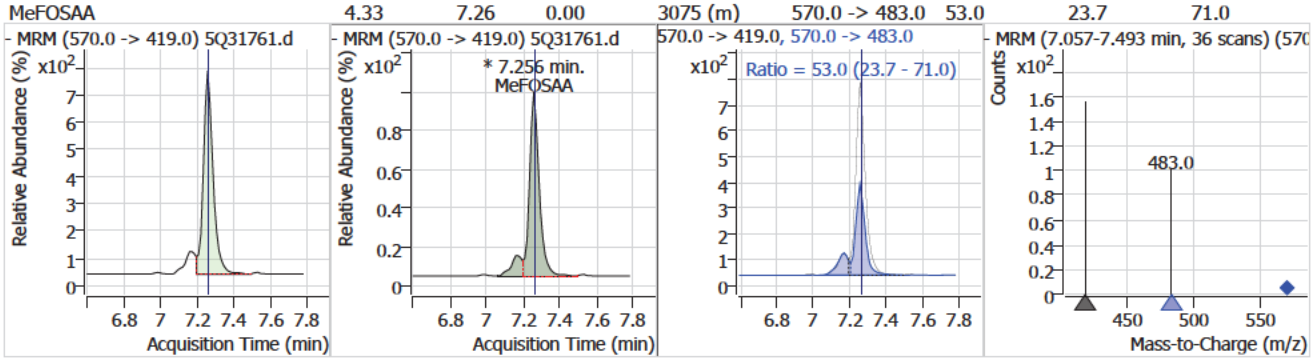


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	29556				

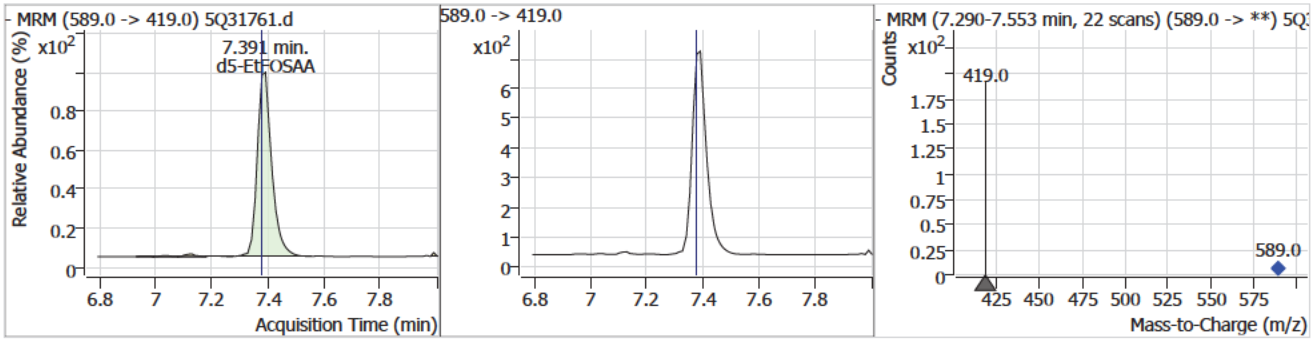


Perfluorinated Compounds by LC/MS/MS

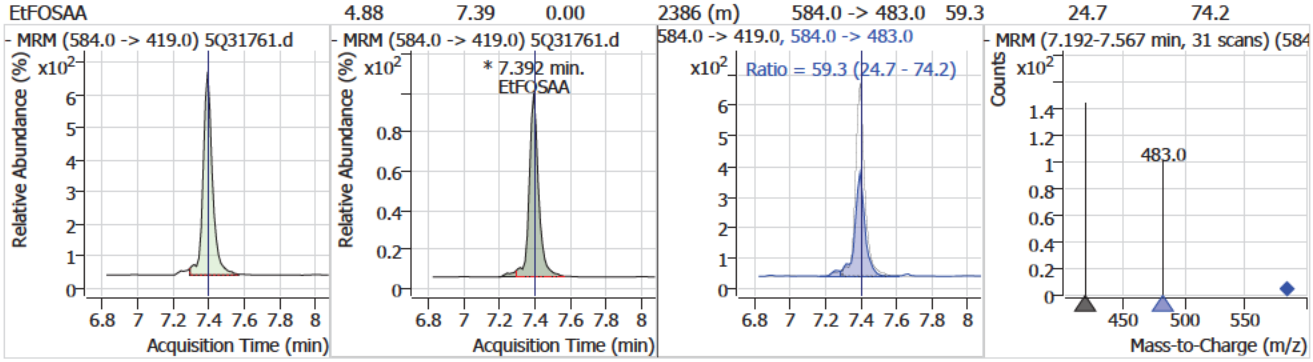
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	4.33	7.26	0.00	3075 (m)	570.0 -> 483.0	53.0	23.7	71.0



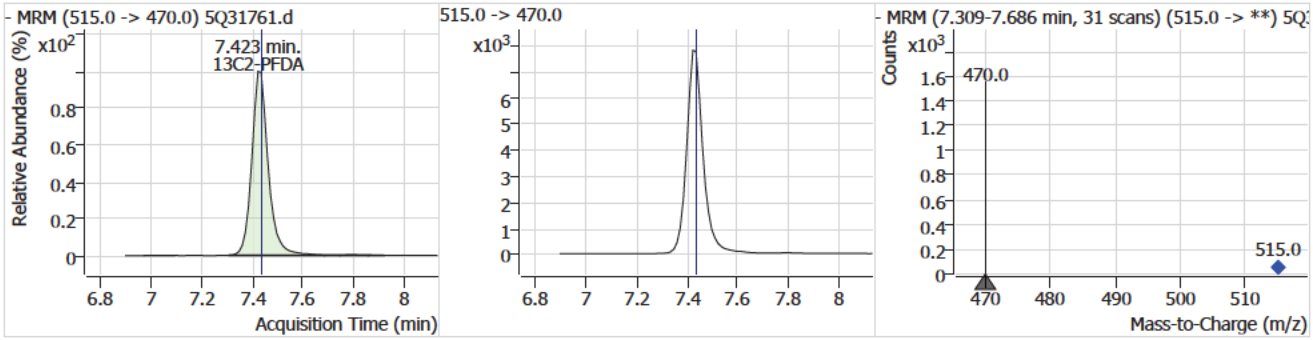
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.50	7.39	0.01	2468				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	4.88	7.39	0.00	2386 (m)	584.0 -> 483.0	59.3	24.7	74.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	2.07	7.42	0.00	35165				



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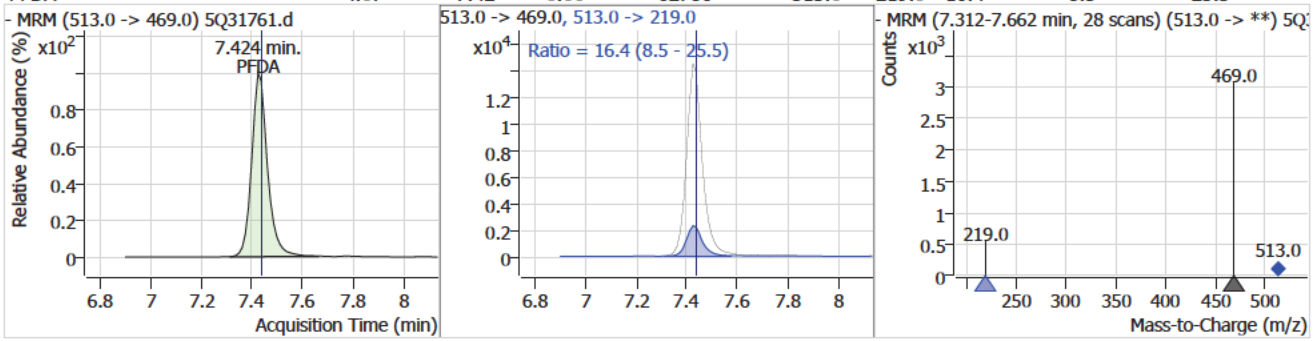
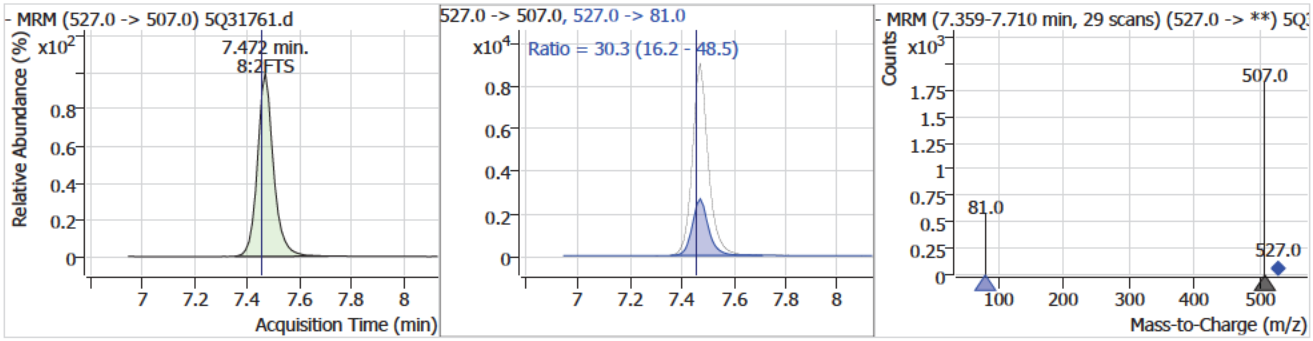
Perfluorinated Compounds by LC/MS/MS

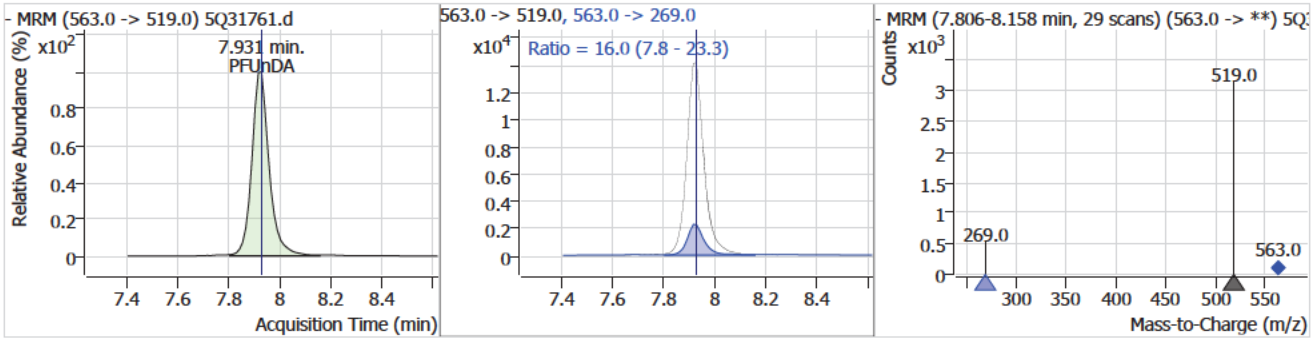
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	4.07	7.42	0.00	62786	513.0 -> 219.0	16.4	8.5	25.5



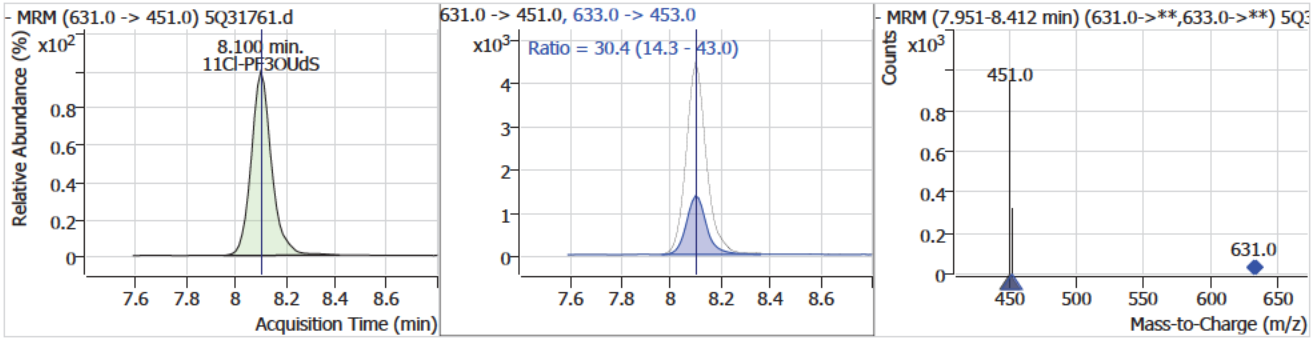
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	5.23	7.47	0.01	38503	527.0 -> 81.0	30.3	16.2	48.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	4.10	7.93	0.01	66894	563.0 -> 269.0	16.0	7.8	23.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	4.29	8.10	0.01	25038	633.0 -> 453.0	30.4	14.3	43.0



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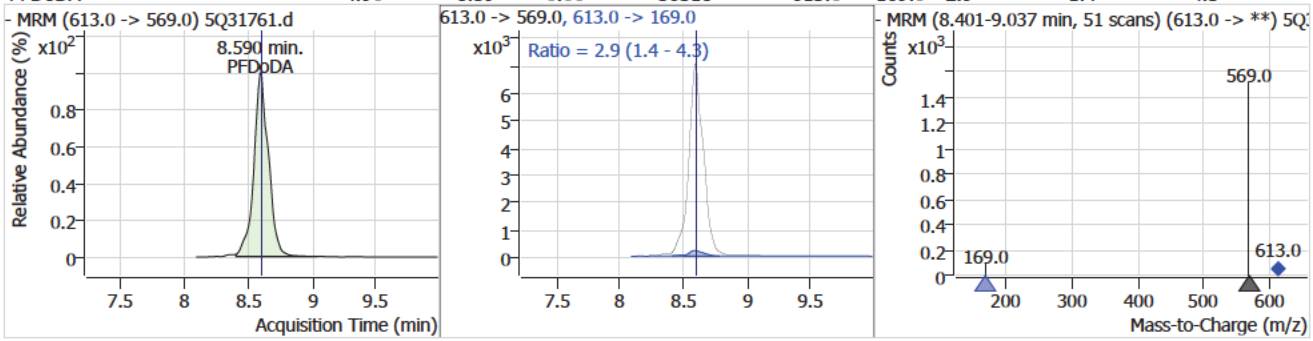
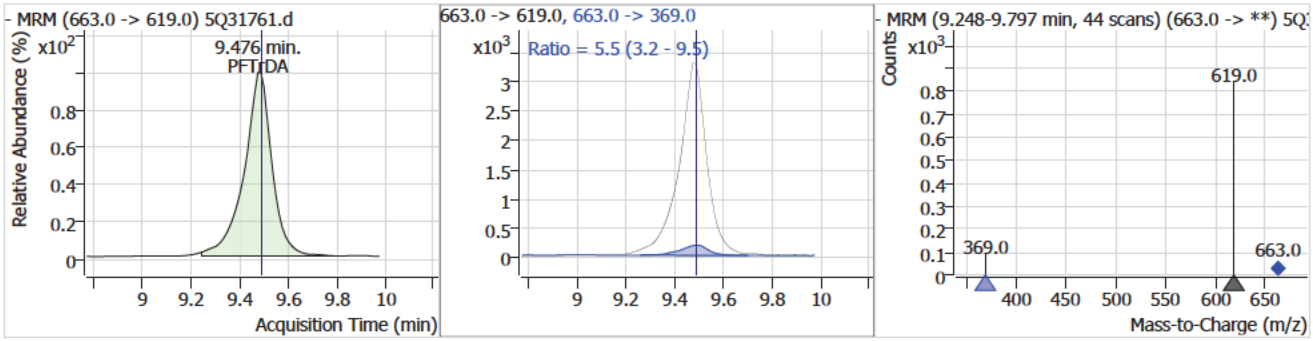
Perfluorinated Compounds by LC/MS/MS

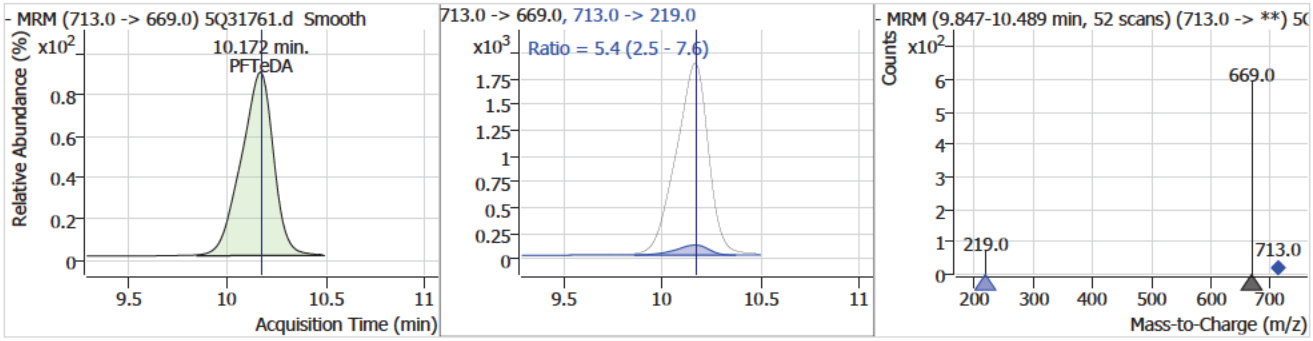
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	4.90	8.59	0.00	56318	613.0 -> 169.0	2.9	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	3.70	9.48	0.00	25900	663.0 -> 369.0	5.5	3.2	9.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	3.67	10.17	0.01	21297	713.0 -> 219.0	5.4	2.5	7.6



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Manual Integration Approval Summary

Sample Number: S5Q521-IC521
Lab FileID: 5Q31761.D
Injection Time: 04/15/25 16:09
Method: EPA 537.1 REV 2.0
Analyst approved: 04/16/25 10:55 (b) (6)
Supervisor approved: 04/16/25 15:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.90	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/16/25 15:44

Perfluorinated Compounds by LC/MS/MS

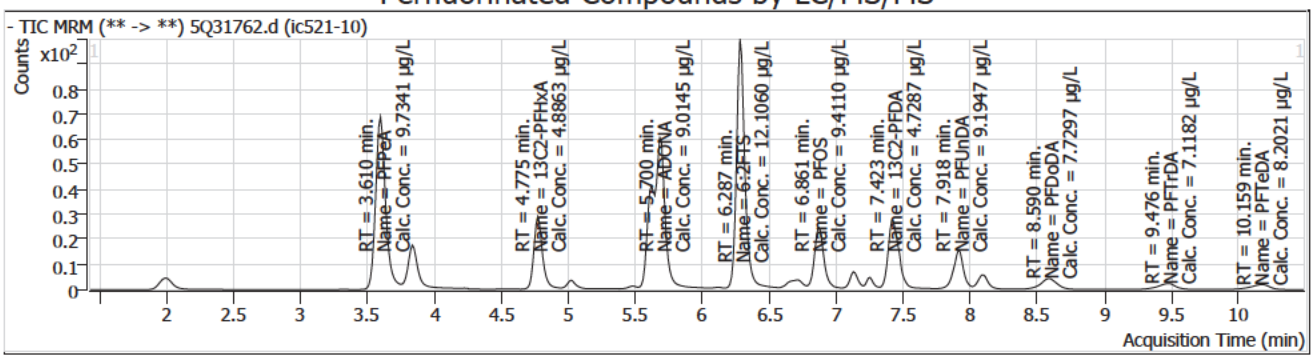
Data File : 5Q31762.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/15/2025 4:25:34 PM
Sample Name : ic521-10
Vial : P1-A6
DA Method File : 537_041525_S5Q521.quantmethod
Batch Name : s5q521.batch.bin
Sample Information : OP8882,S5Q521,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.287	429.0 -> 409.0	188571	20.00	µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	428195	20.00	µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	575793	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	102262	20.00	µg/L		0.000
d3-MeFOSAA	7.255	573.0 -> 419.0	30074	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.423	515.0 -> 470.0	85998	4.73	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 23.6%			
13C2-PFHxA	4.775	315.0 -> 270.0	137422	4.89	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 24.4%			
d5-EtFOSAA	7.378	589.0 -> 419.0	6012	10.76	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 26.9%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	17852	9.32	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 23.3%			
Target Compounds							QValue
6:2FTS	6.287	427.0 -> 407.0	113476	12.11	µg/L		100
8:2FTS	7.472	527.0 -> 507.0	87488	10.93	µg/L		99
EtFOSAA	7.392	584.0 -> 419.0	5519	11.09	µg/L	m	88
MeFOSAA	7.256	570.0 -> 419.0	7284	10.07	µg/L	m	92
PFBS	3.841	299.0 -> 80.0	152667	10.78	µg/L		99
PFDA	7.424	513.0 -> 469.0	155418	9.43	µg/L		100
PFDoDA	8.590	613.0 -> 569.0	95458	7.73	µg/L	m	100
PFHpA	5.614	363.0 -> 319.0	373563	9.59	µg/L		100
PFHxA	4.777	313.0 -> 269.0	186556	9.67	µg/L		100
PFHxS	5.648	399.0 -> 80.0	88129	9.29	µg/L	m	93
PFNA	6.886	463.0 -> 419.0	143127	8.93	µg/L	m	88
PFOA	6.290	413.0 -> 369.0	209254	9.76	µg/L		98
PFOS	6.861	499.0 -> 80.0	63484	9.41	µg/L	m	78
PFPeA	3.610	263.0 -> 219.0	374489	9.73	µg/L		100
PFTeDA	10.159	713.0 -> 669.0	50468	8.20	µg/L		99
PFTrDA	9.476	663.0 -> 619.0	52876	7.12	µg/L		100
PFUnDA	7.918	563.0 -> 519.0	159031	9.19	µg/L		98
ADONA	5.700	377.0 -> 251.0	483475	9.01	µg/L		99
9Cl-PF3ONS	7.133	531.0 -> 351.0	58518	8.80	µg/L		99
11Cl-PF3OUdS	8.100	631.0 -> 451.0	58101	9.18	µg/L		97
HFPO-DA	5.035	285.0 -> 169.0	17572	9.49	µg/L		99

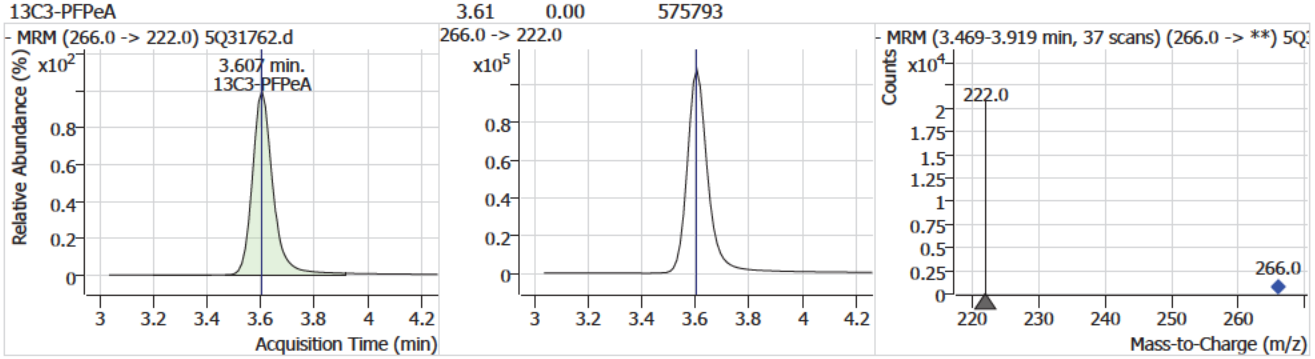
= Qualifier out of range, m = manually integrated, + = Area summed

7.7.25
7

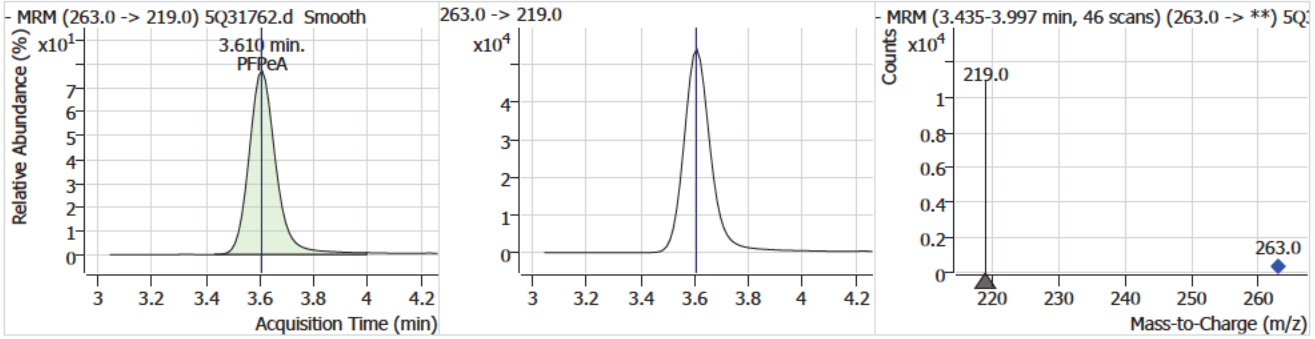
Perfluorinated Compounds by LC/MS/MS



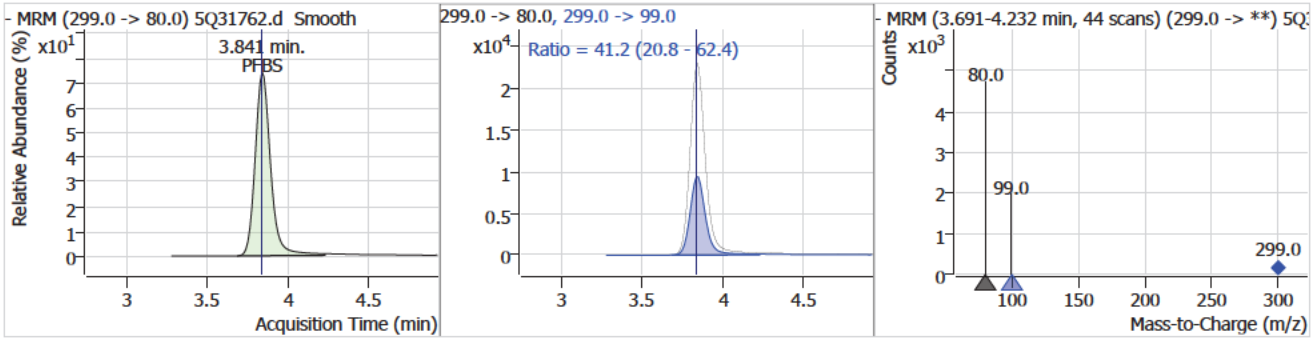
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.00	575793				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	9.73	3.61	0.00	374489				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	10.78	3.84	0.00	152667	299.0 -> 99.0	41.2	20.8	62.4



7.7.25

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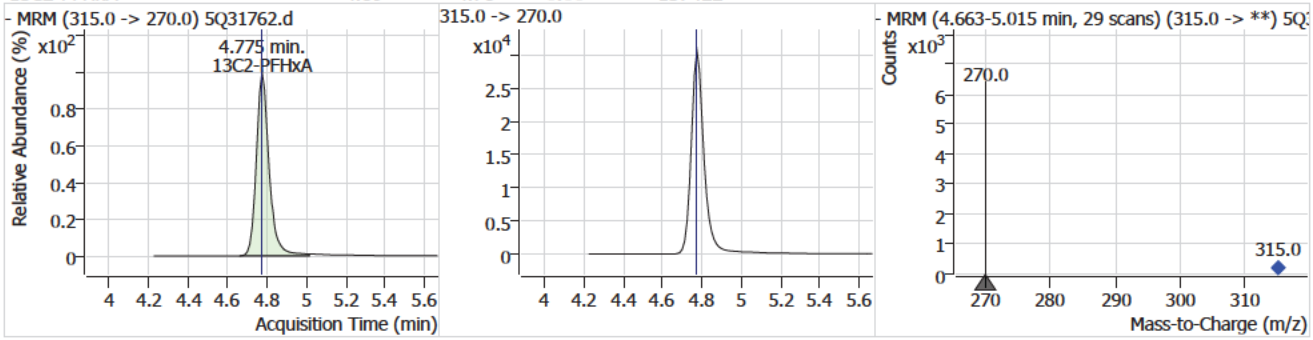
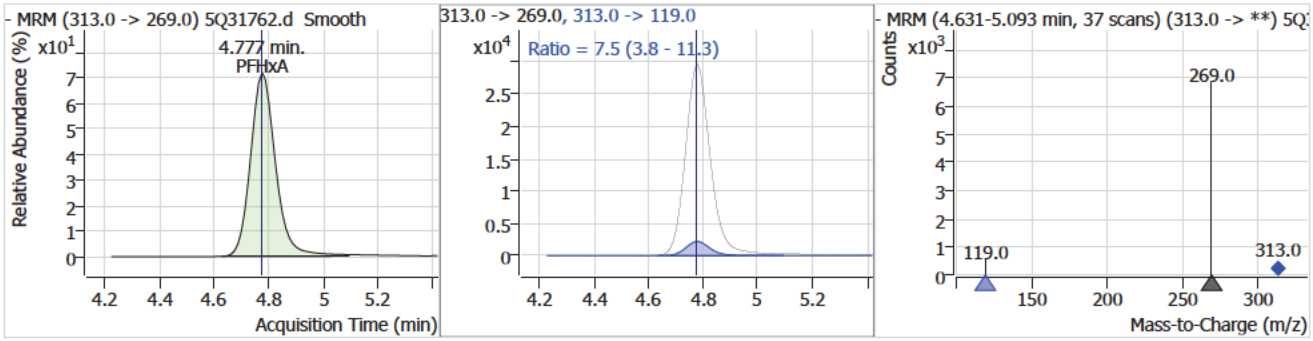
Perfluorinated Compounds by LC/MS/MS

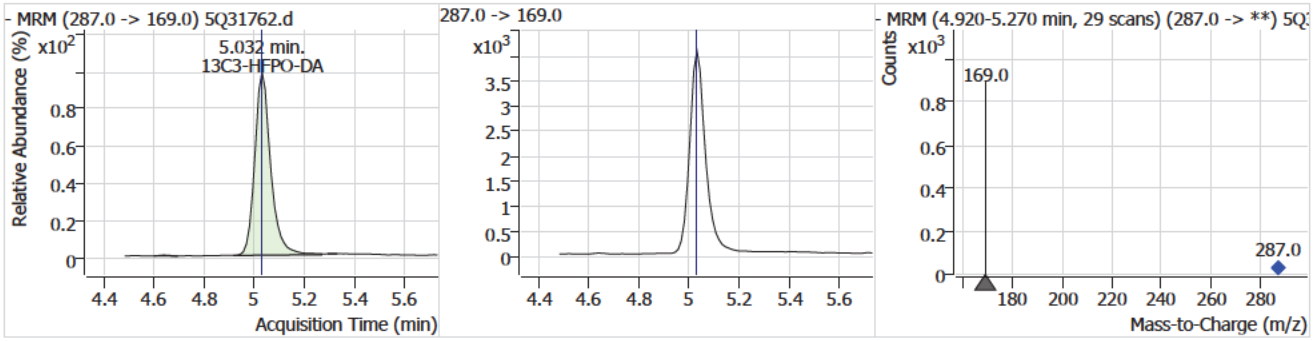
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	4.89	4.78	0.00	137422				



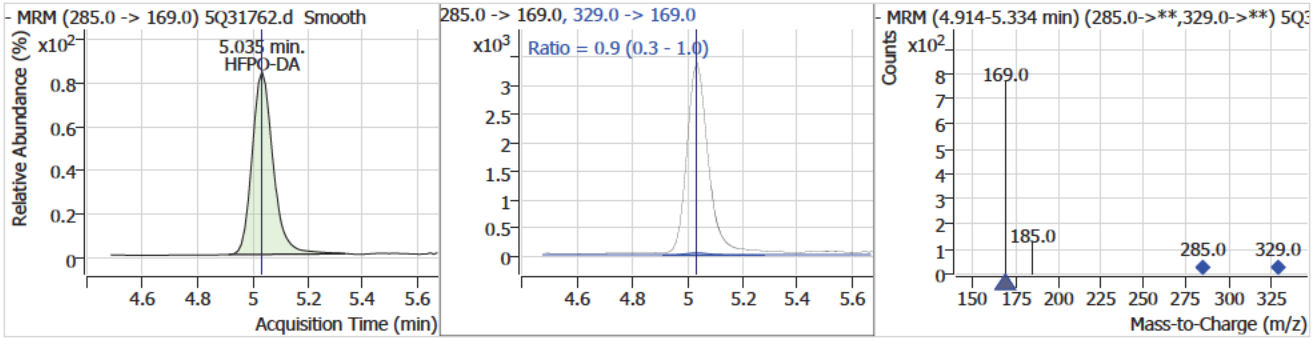
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	9.67	4.78	0.00	186556	313.0 -> 119.0	7.5	3.8	11.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.32	5.03	0.00	17852				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.49	5.03	0.00	17572	329.0 -> 169.0	0.9	0.3	1.0



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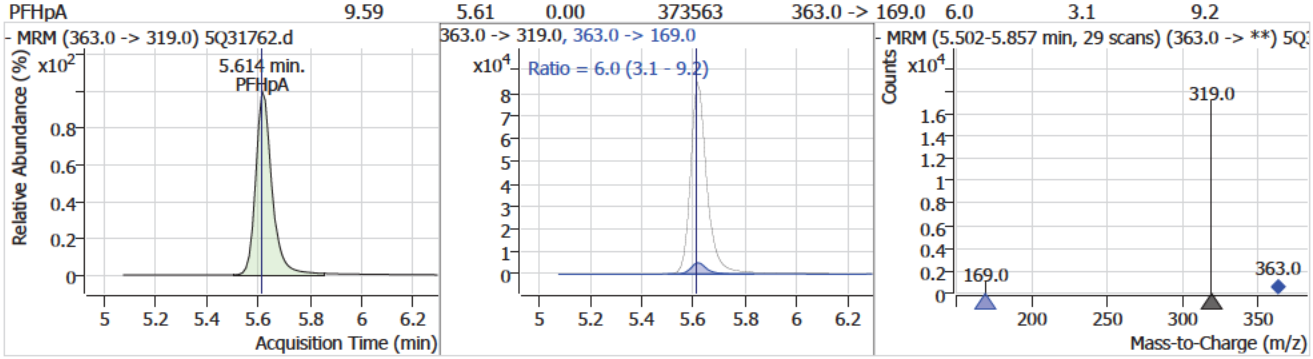
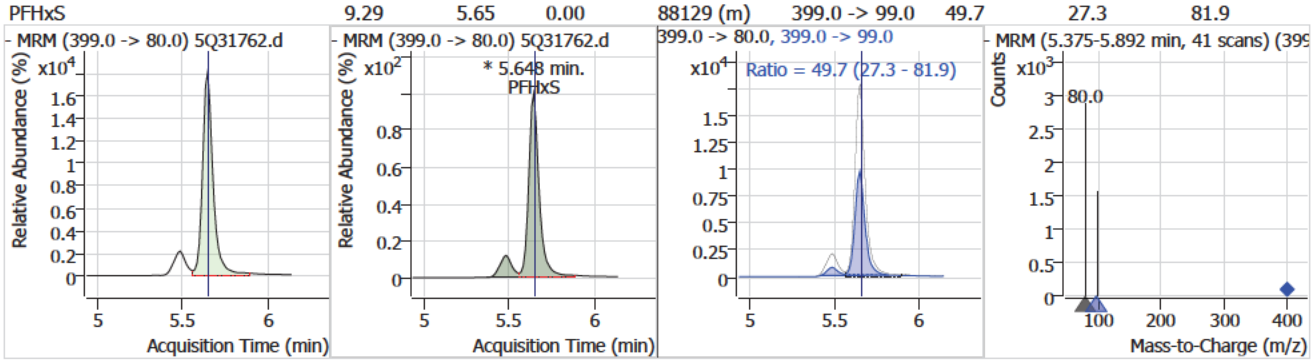
Perfluorinated Compounds by LC/MS/MS

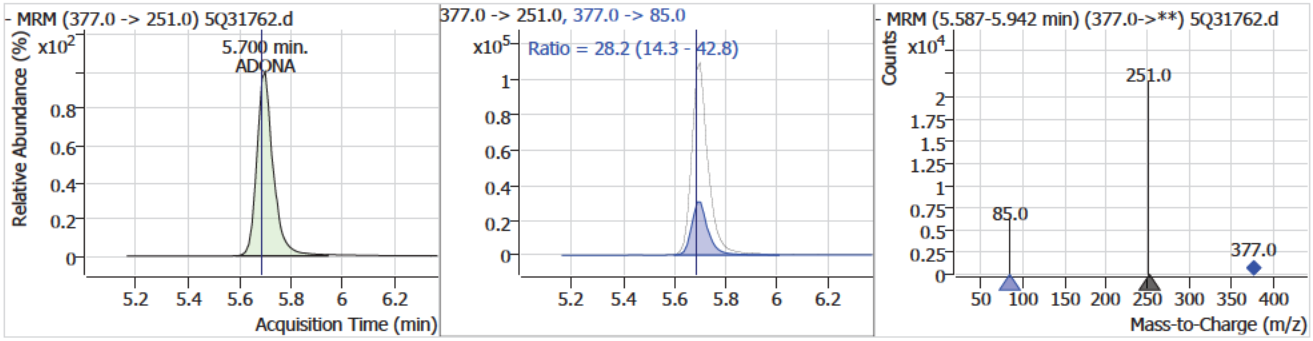
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	9.59	5.61	0.00	373563	363.0 -> 169.0	6.0	3.1	9.2



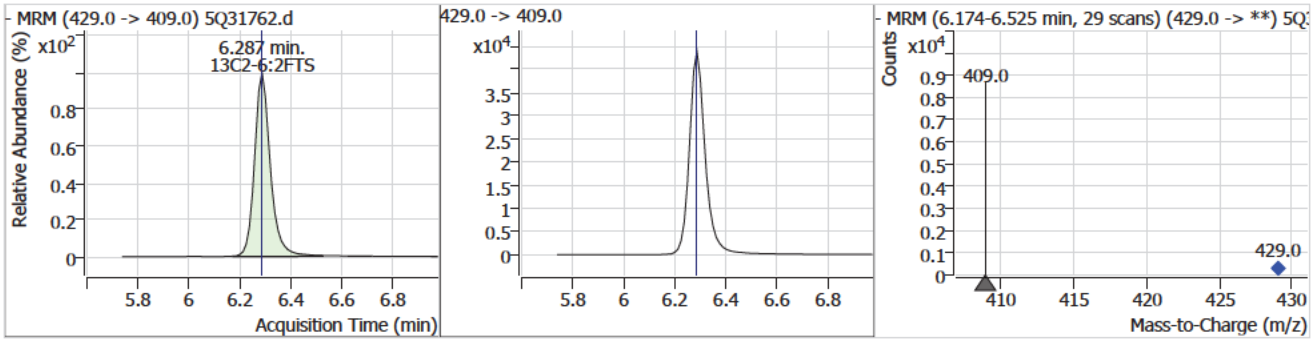
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	9.29	5.65	0.00	88129 (m)	399.0 -> 99.0	49.7	27.3	81.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	9.01	5.70	0.01	483475	377.0 -> 85.0	28.2	14.3	42.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	188571				



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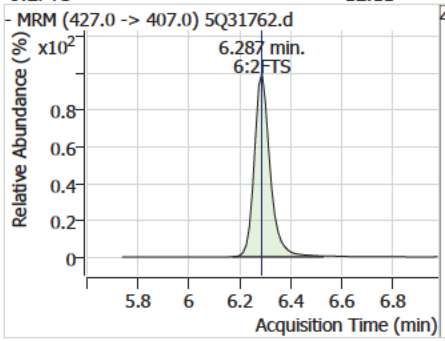
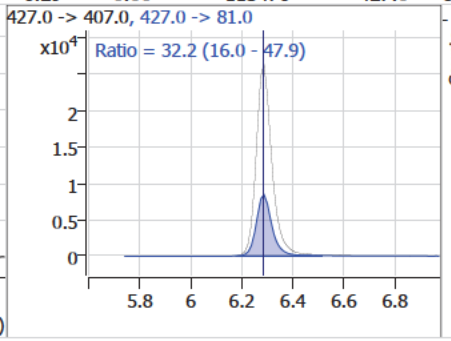
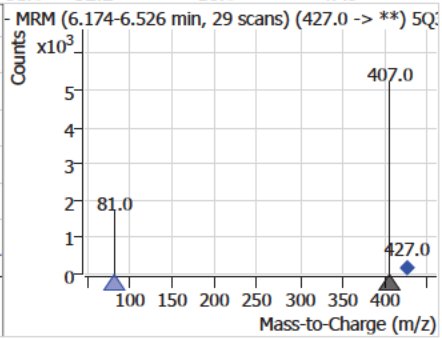
Perfluorinated Compounds by LC/MS/MS

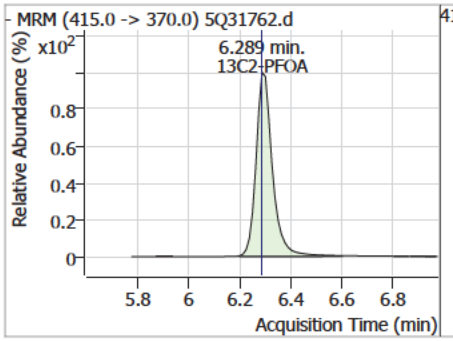
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	12.11	6.29	0.00	113476	427.0 -> 81.0	32.2	16.0	47.9

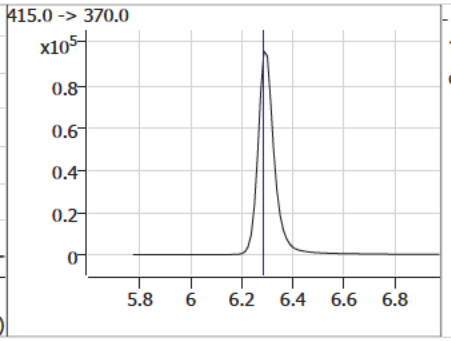


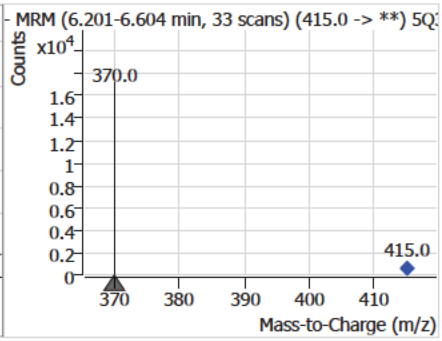




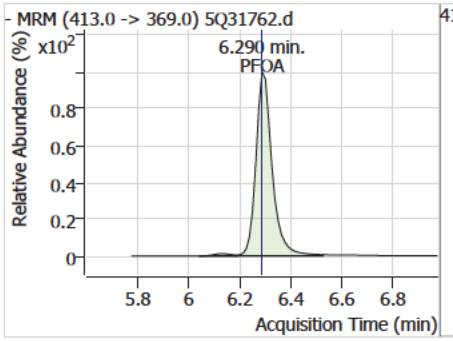
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	428195				

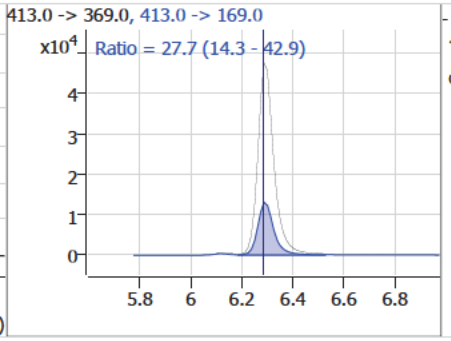


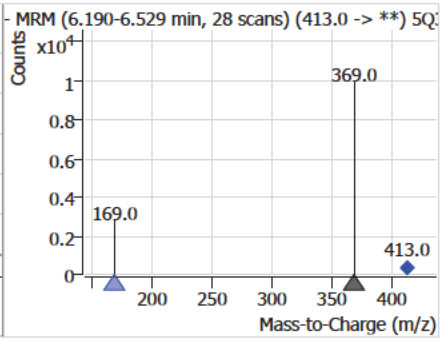




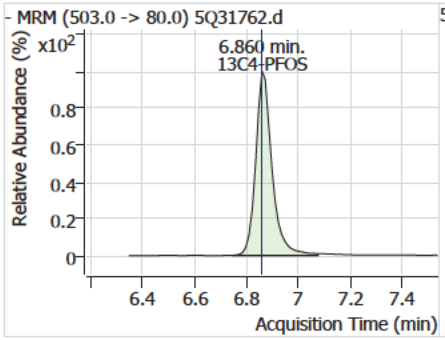
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	9.76	6.29	0.00	209254	413.0 -> 169.0	27.7	14.3	42.9

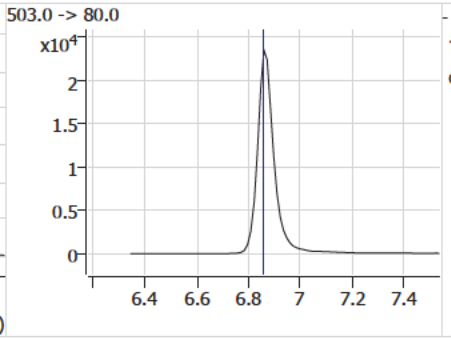


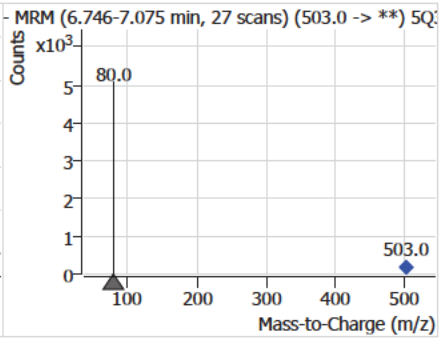




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	102262				





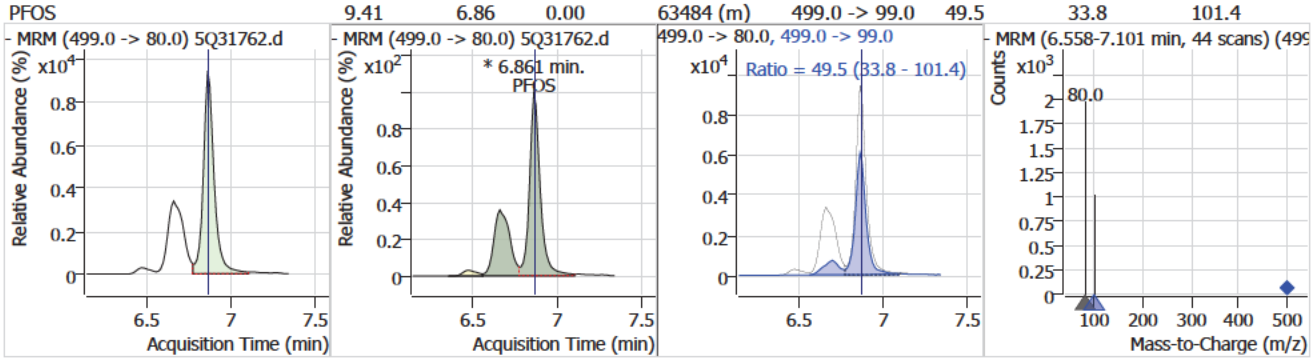


7.7.25

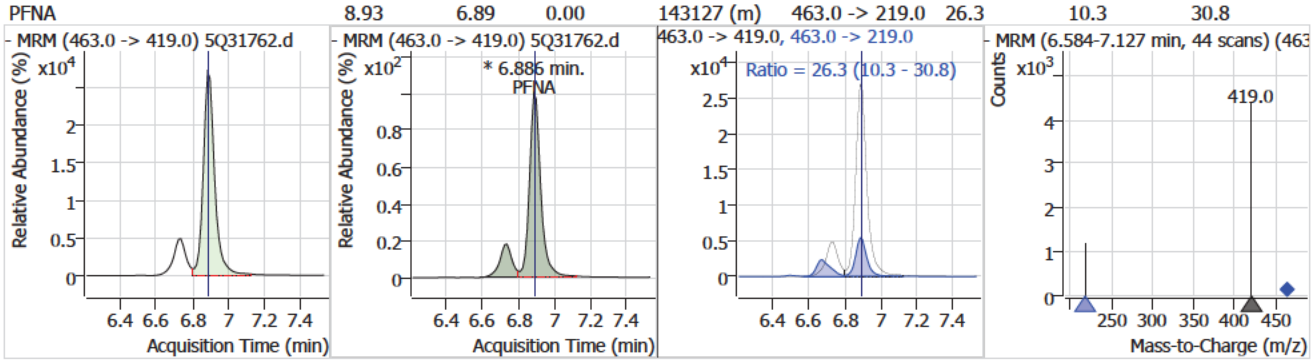
7

Perfluorinated Compounds by LC/MS/MS

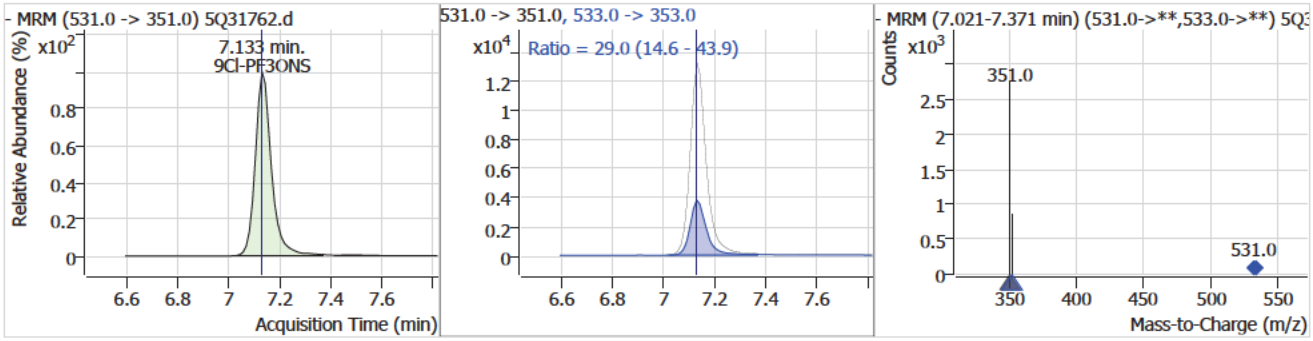
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	9.41	6.86	0.00	63484 (m)	499.0 -> 99.0	49.5	33.8	101.4



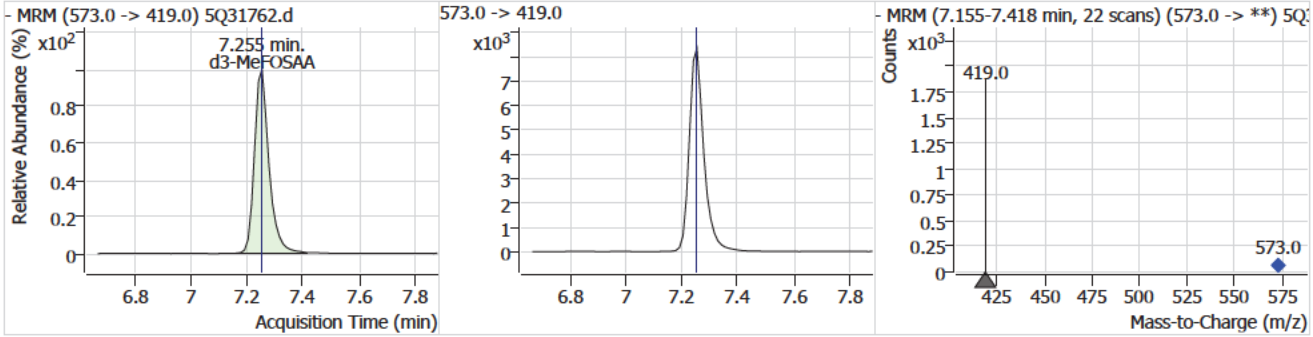
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	8.93	6.89	0.00	143127 (m)	463.0 -> 219.0	26.3	10.3	30.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	8.80	7.13	0.00	58518	533.0 -> 353.0	29.0	14.6	43.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	30074				



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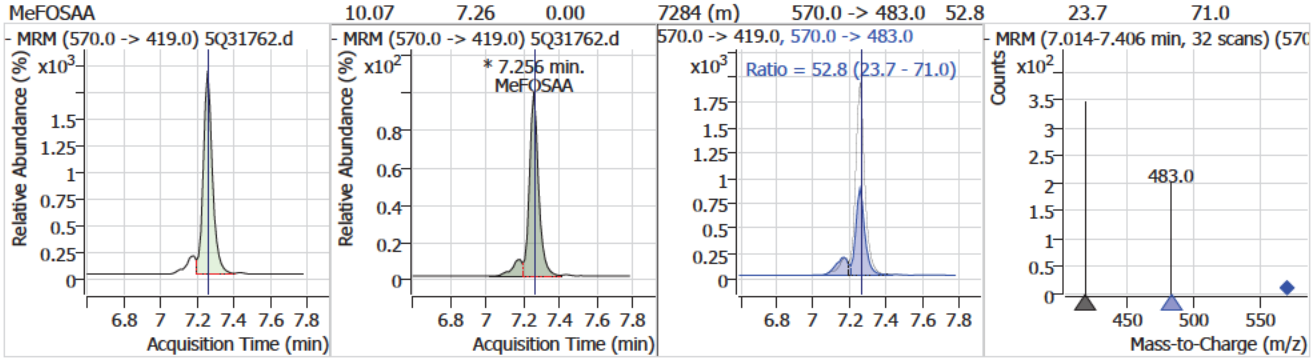
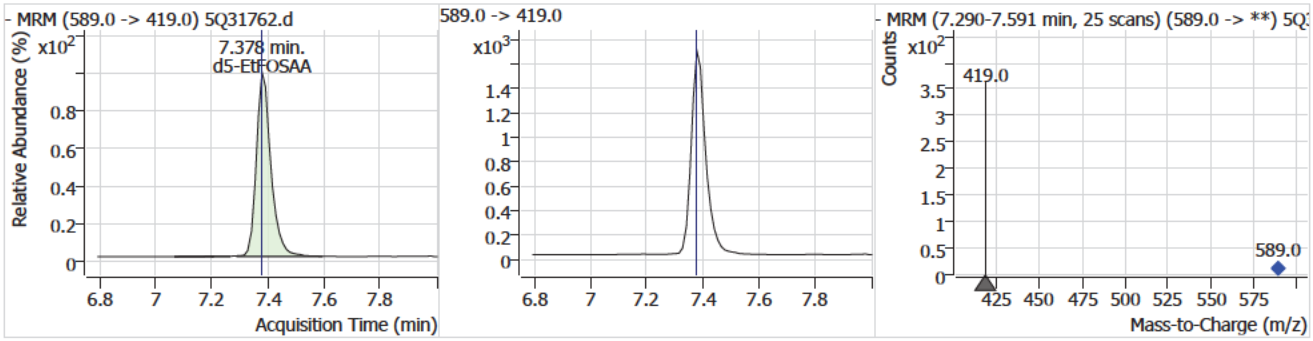
Perfluorinated Compounds by LC/MS/MS

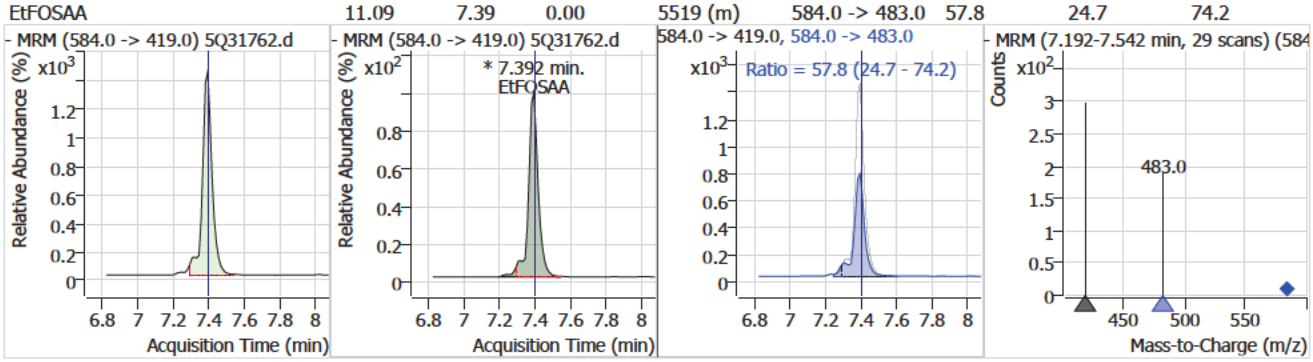
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	10.07	7.26	0.00	7284 (m)	570.0 -> 483.0	52.8	23.7	71.0



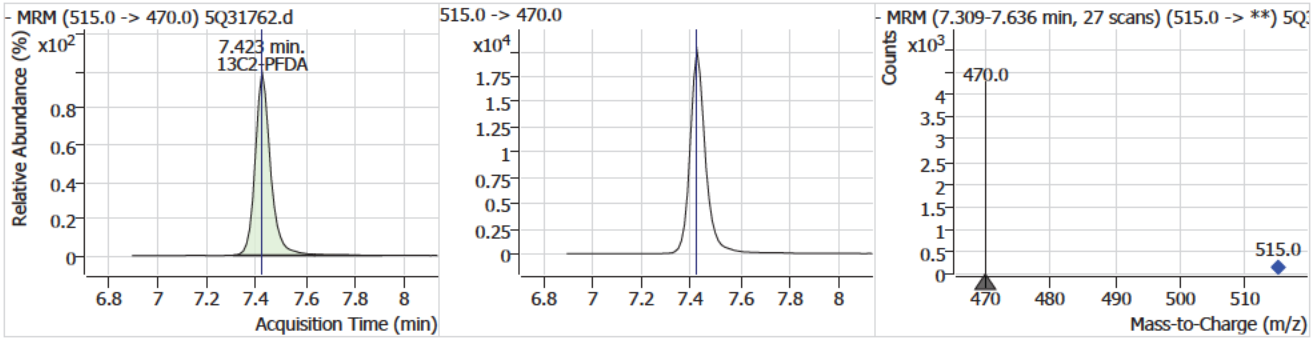
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	10.76	7.38	0.00	6012				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	11.09	7.39	0.00	5519 (m)	584.0 -> 483.0	57.8	24.7	74.2

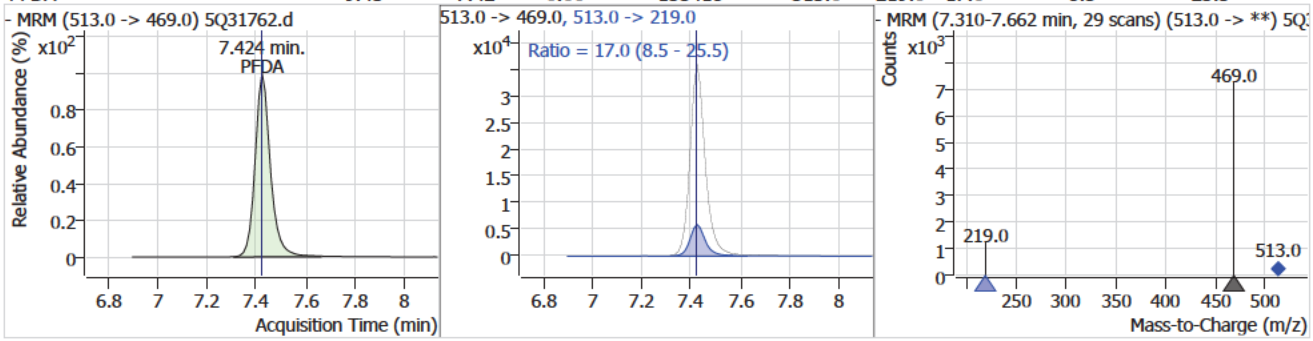


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	4.73	7.42	0.00	85998				

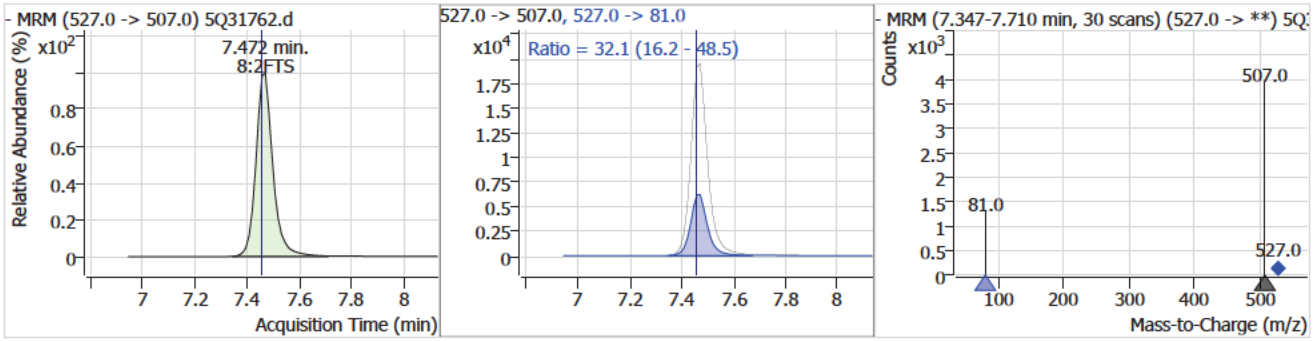


Perfluorinated Compounds by LC/MS/MS

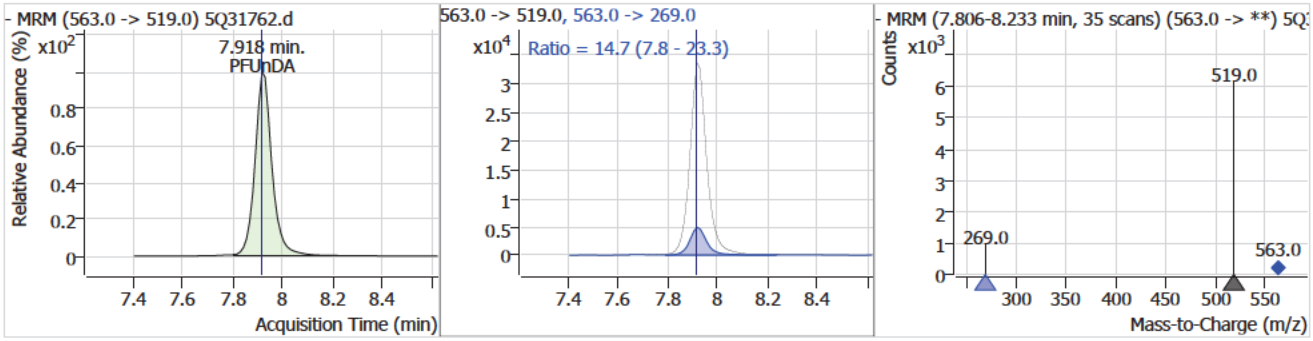
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	9.43	7.42	0.00	155418	513.0 -> 219.0	17.0	8.5	25.5



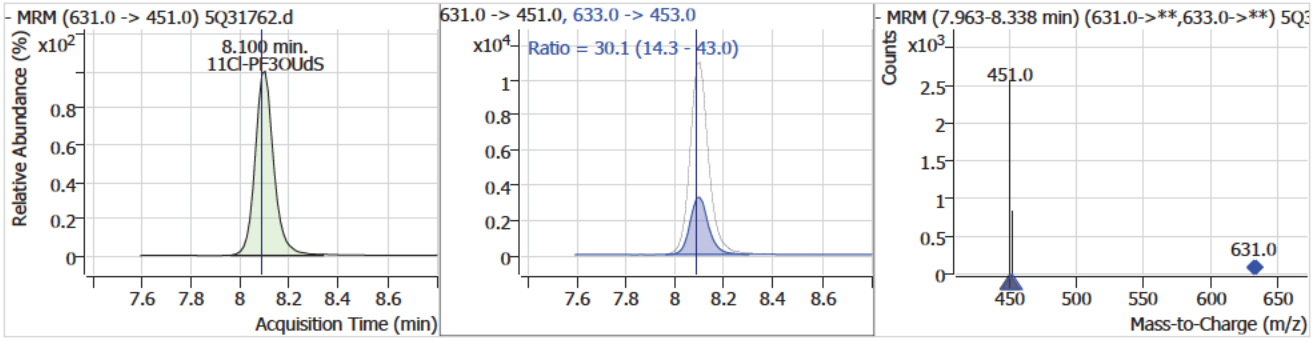
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	10.93	7.47	0.01	87488	527.0 -> 81.0	32.1	16.2	48.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	9.19	7.92	0.00	159031	563.0 -> 269.0	14.7	7.8	23.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	9.18	8.10	0.01	58101	633.0 -> 453.0	30.1	14.3	43.0



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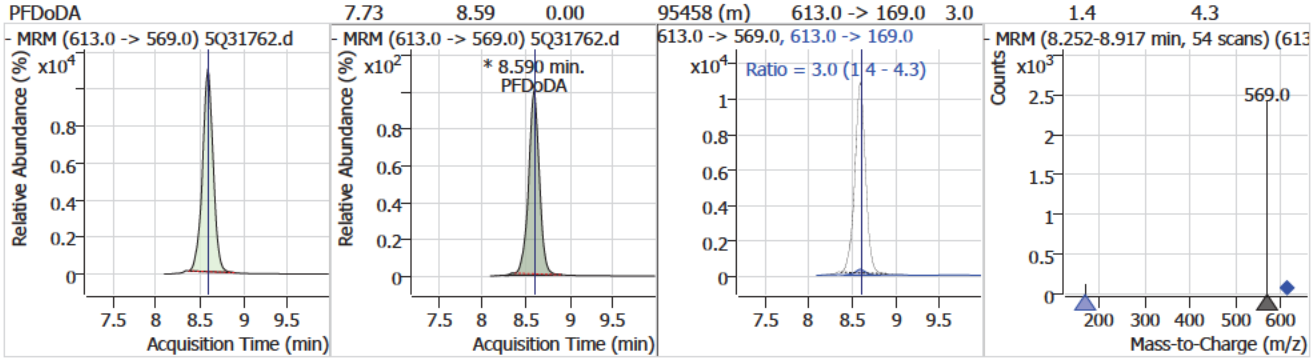
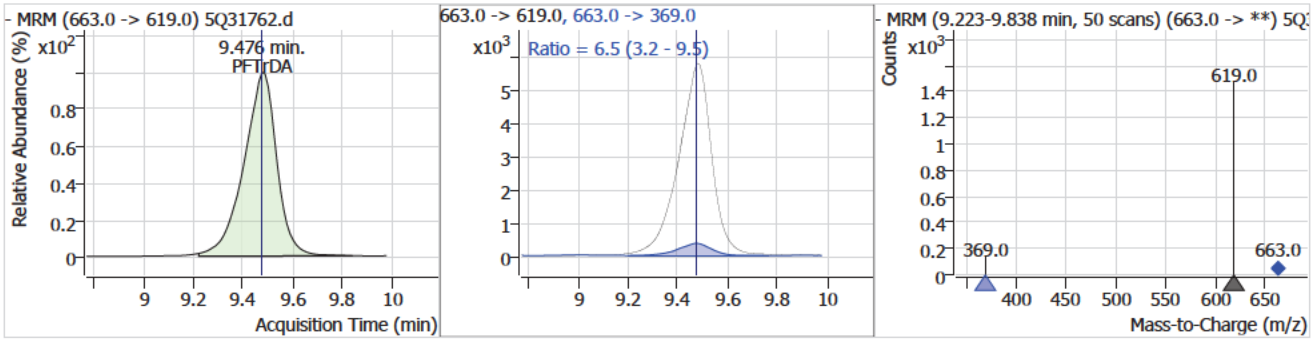
Perfluorinated Compounds by LC/MS/MS

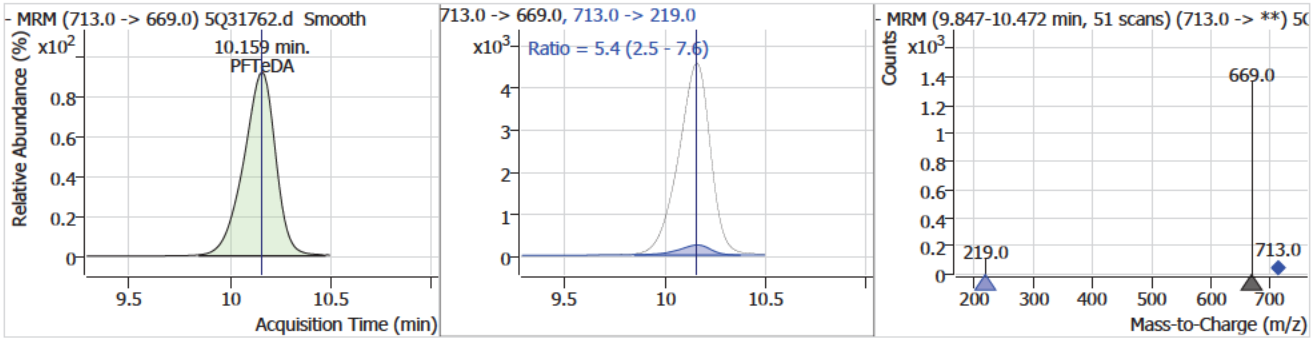
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	7.73	8.59	0.00	95458 (m)	613.0 -> 169.0	3.0	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	7.12	9.48	0.00	52876	663.0 -> 369.0	6.5	3.2	9.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	8.20	10.16	0.00	50468	713.0 -> 219.0	5.4	2.5	7.6



7.7.25

7

Manual Integration Approval Summary

Sample Number: S5Q521-IC521
Lab FileID: 5Q31762.D
Injection Time: 04/15/25 16:25
Method: EPA 537.1 REV 2.0
Analyst approved: 04/16/25 10:55 (b) (6)
Supervisor approved: 04/16/25 15:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.39	Split peak
Perfluorododecanoic acid	307-55-1		8.59	Poor instrument integration

5Q31763.D

Manual Integrations APPROVED (compounds with "m" flag)

(b) (6)

04/16/25 15:44

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31763.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/15/2025 4:41:34 PM
Sample Name : icc521-20
Vial : P1-A7
DA Method File : 537_041525_S5Q521.quantmethod
Batch Name : s5q521.batch.bin
Sample Information : OP8882,S5Q521,250,,,1,1,water

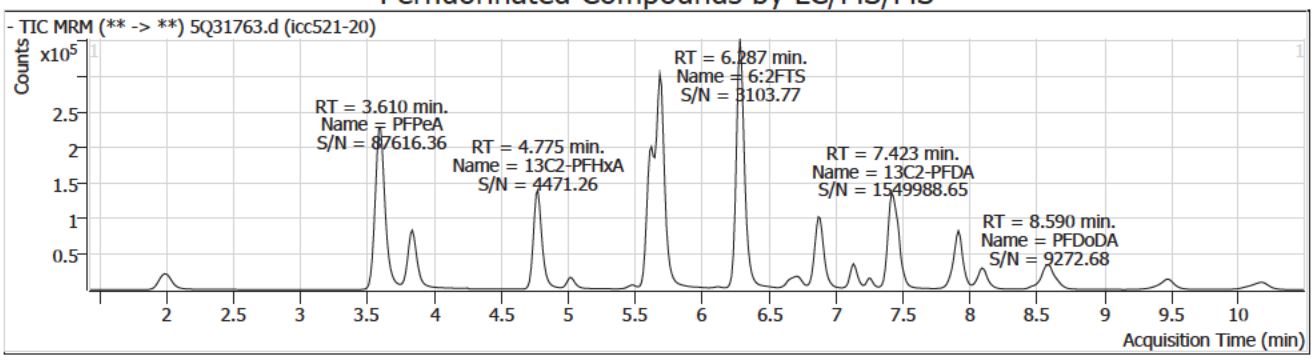
Compound	RT	QIon	Resp.	Symmetry	Conc.	Units		Dev(Min)
Internal Standards								
13C2-6:2FTS	6.287	429.0 -> 409.0	185189		20.00	µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	401735		20.00	µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	538213		20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	98976		20.00	µg/L		0.000
d3-MeFOSAA	7.255	573.0 -> 419.0	31819		40.00	µg/L		0.000
System Monitoring Compounds								
13C2-PFDA	7.423	515.0 -> 470.0	163603		9.59	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%				Recovery = 47.9%			
13C2-PFHxA	4.775	315.0 -> 270.0	258757		9.81	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%				Recovery = 49.0%			
d5-EtFOSAA	7.378	589.0 -> 419.0	11502		19.46	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%				Recovery = 48.7%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	32253		17.95	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%				Recovery = 44.9%			
Target Compounds								QValue
6:2FTS	6.287	427.0 -> 407.0	213905		23.24	µg/L		100
8:2FTS	7.459	527.0 -> 507.0	177895		22.62	µg/L		100
EtFOSAA	7.392	584.0 -> 419.0	10919		20.73	µg/L	m	98
MeFOSAA	7.256	570.0 -> 419.0	14262		18.64	µg/L	m	91
PFBS	3.841	299.0 -> 80.0	283028	1.20	20.64	µg/L		100
PFDA	7.424	513.0 -> 469.0	302161		19.53	µg/L		100
PFDoDA	8.590	613.0 -> 569.0	266135		21.07	µg/L		100
PFHpA	5.614	363.0 -> 319.0	702822		19.24	µg/L		100
PFHxA	4.777	313.0 -> 269.0	350829	1.14	19.38	µg/L		100
PFHxS	5.648	399.0 -> 80.0	170727		18.60	µg/L	m	97
PFNA	6.886	463.0 -> 419.0	278219		18.51	µg/L	m	88
PFOA	6.290	413.0 -> 369.0	384083		19.09	µg/L		100
PFOS	6.861	499.0 -> 80.0	120986		18.53	µg/L	m	80
PFPeA	3.610	263.0 -> 219.0	683276		19.00	µg/L		100
PFTeDA	10.159	713.0 -> 669.0	98142		16.48	µg/L		100
PFTrDA	9.476	663.0 -> 619.0	111579		15.52	µg/L		100
PFUnDA	7.918	563.0 -> 519.0	317041		18.94	µg/L		100
ADONA	5.688	377.0 -> 251.0	927337		18.43	µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	111388		17.86	µg/L		100
11Cl-PF3OUdS	8.087	631.0 -> 451.0	121547		19.87	µg/L		100
HFPO-DA	5.035	285.0 -> 169.0	32426		18.66	µg/L		100

= Qualifier out of range, m = manually integrated, + = Area summed

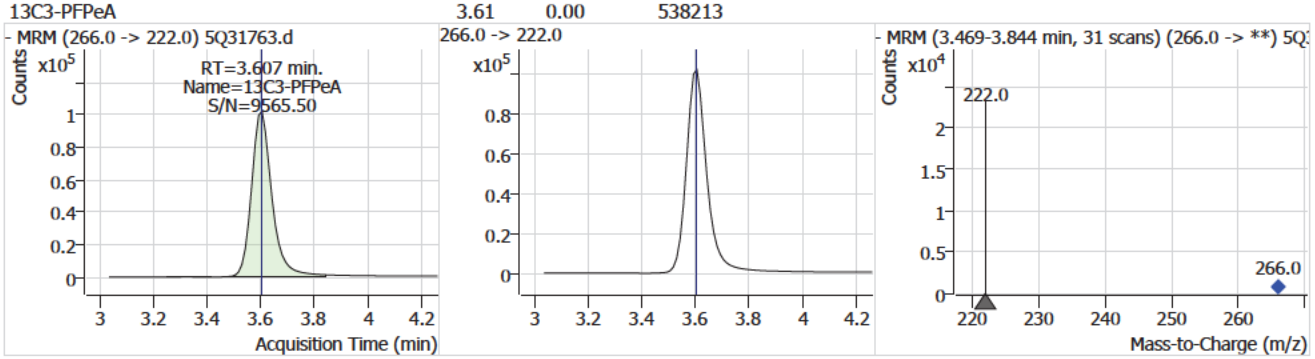
7.7.26

7

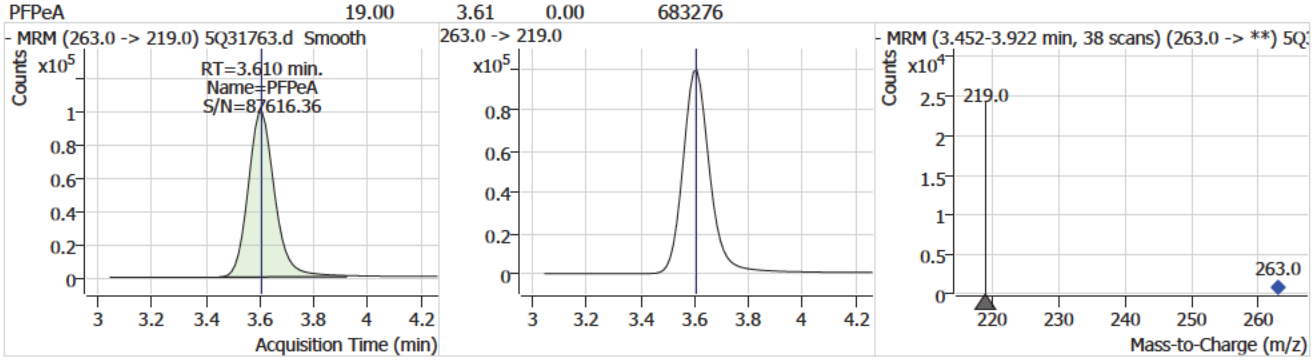
Perfluorinated Compounds by LC/MS/MS



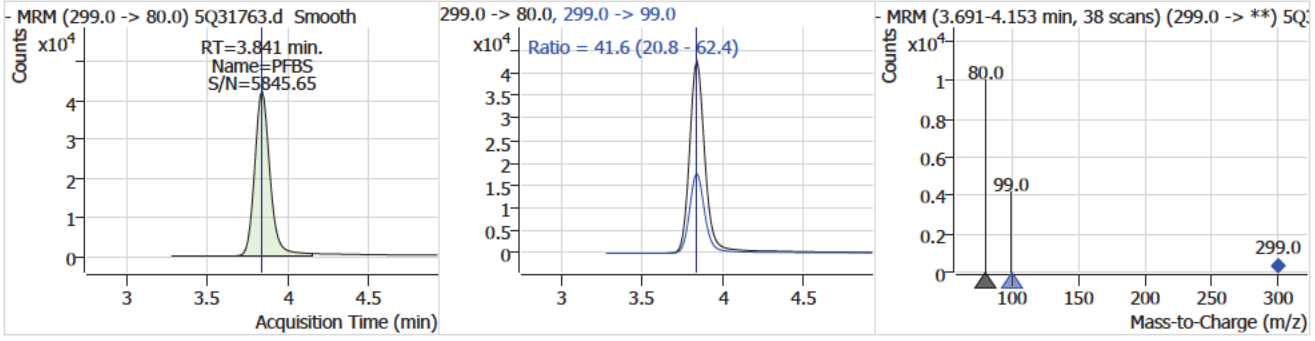
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.00	538213				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.00	3.61	0.00	683276				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.64	3.84	0.00	283028	299.0 -> 99.0	41.6	20.8	62.4



7.7.26

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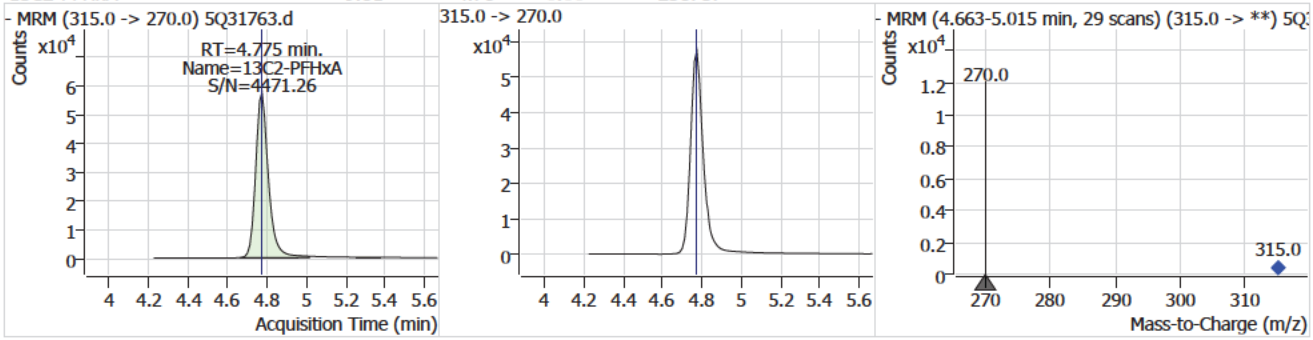
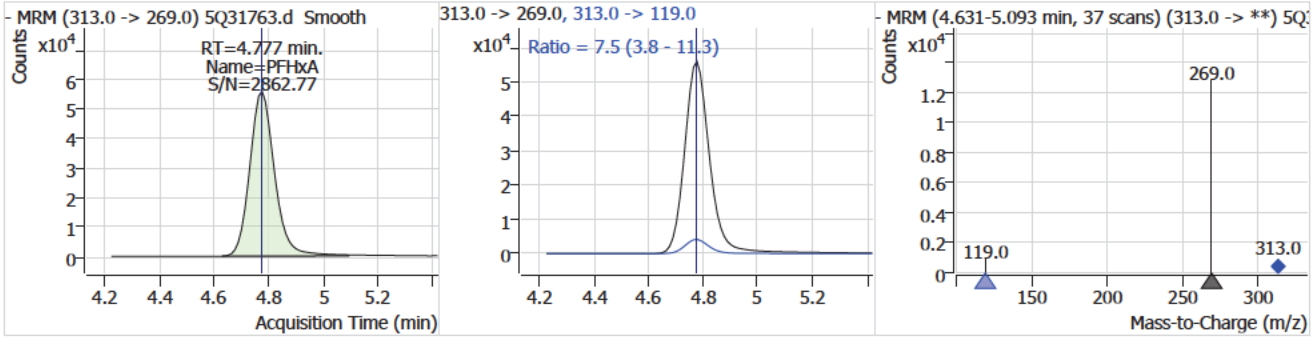
Perfluorinated Compounds by LC/MS/MS

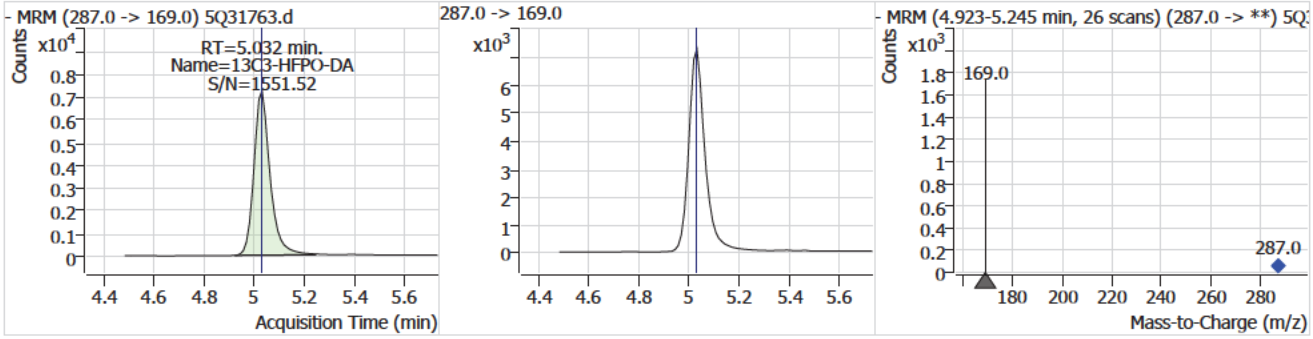
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	9.81	4.78	0.00	258757				



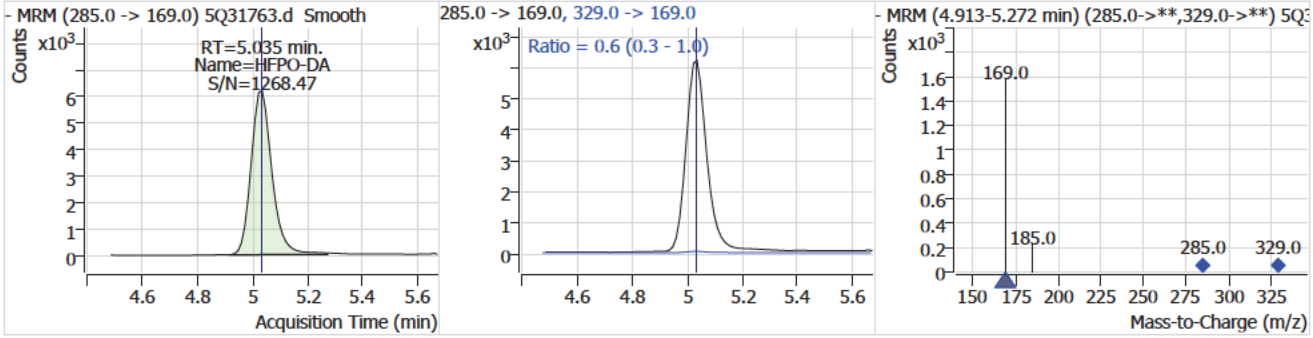
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.38	4.78	0.00	350829	313.0 -> 119.0	7.5	3.8	11.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	17.95	5.03	0.00	32253				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	18.66	5.03	0.00	32426	329.0 -> 169.0	0.6	0.3	1.0



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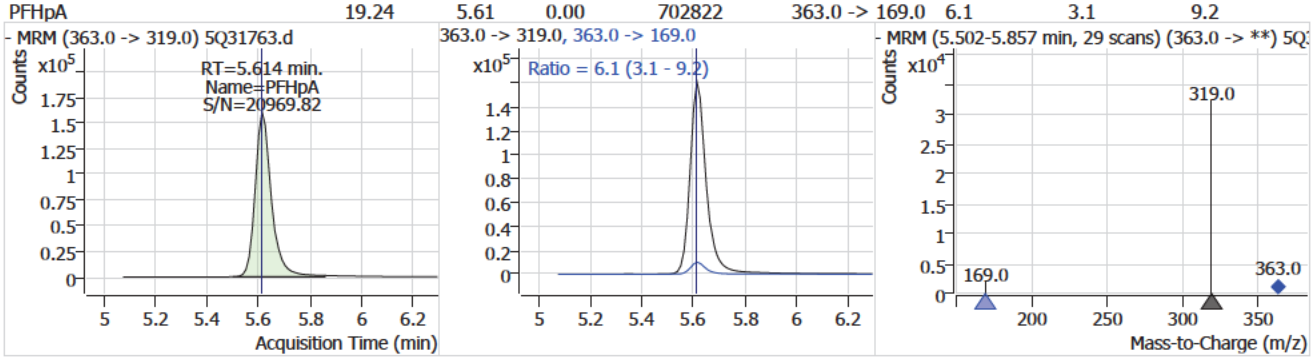
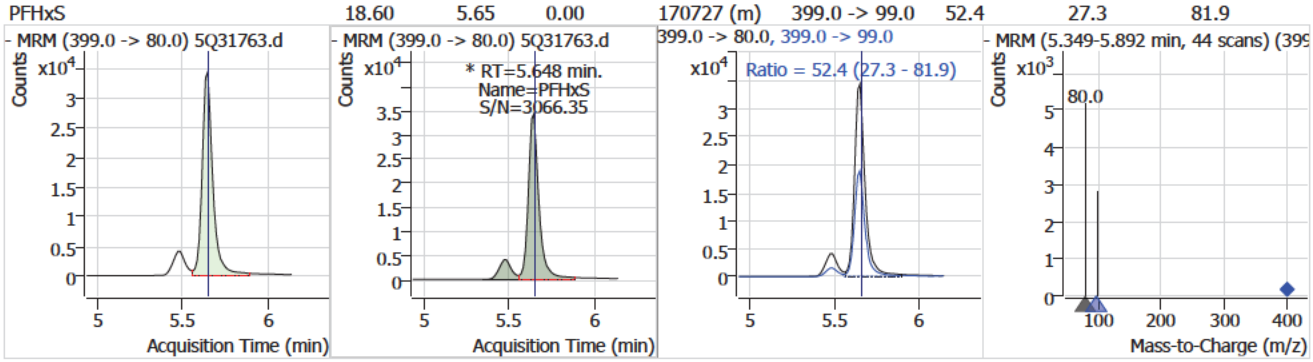
Perfluorinated Compounds by LC/MS/MS

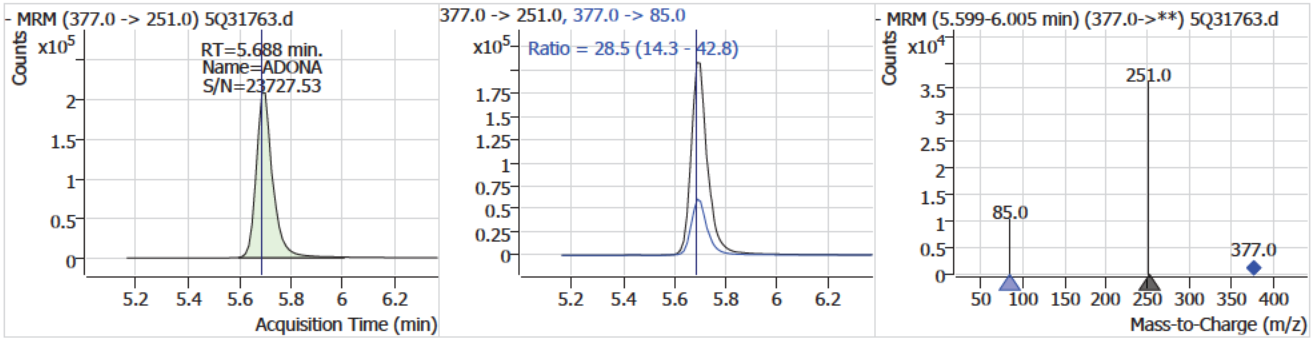
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.24	5.61	0.00	702822	363.0 -> 169.0	6.1	3.1	9.2



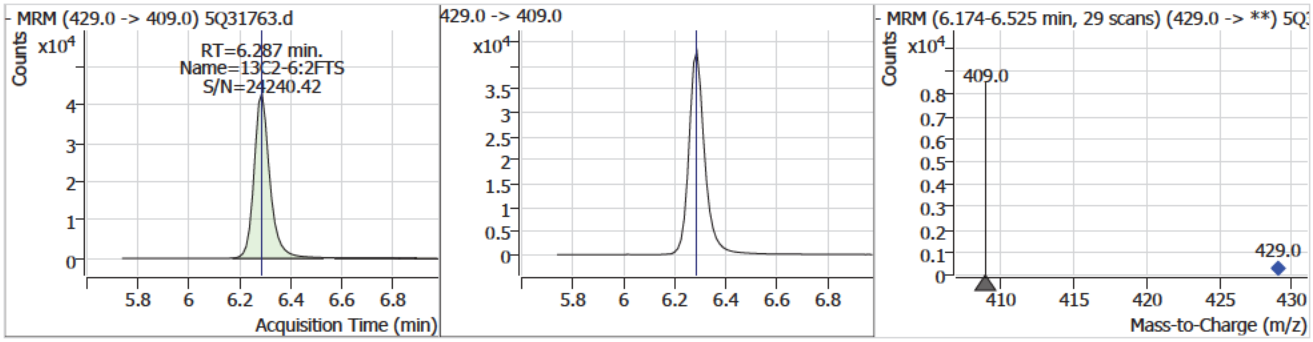
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	18.60	5.65	0.00	170727 (m)	399.0 -> 99.0	52.4	27.3	81.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	18.43	5.69	0.00	927337	377.0 -> 85.0	28.5	14.3	42.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	185189				



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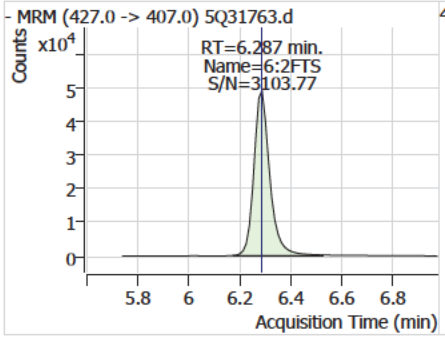
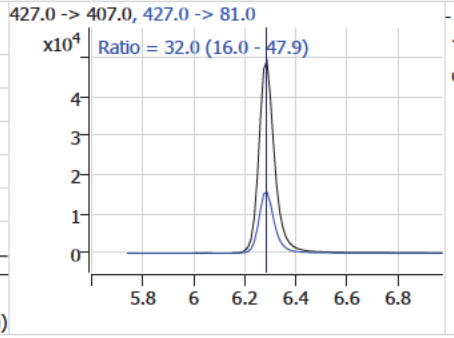
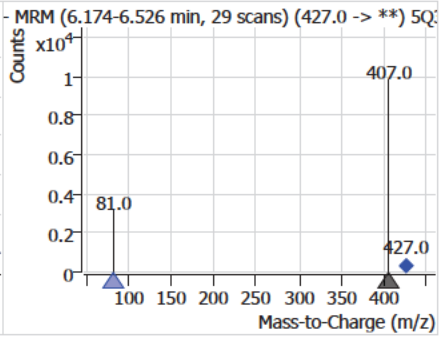
7

Perfluorinated Compounds by LC/MS/MS

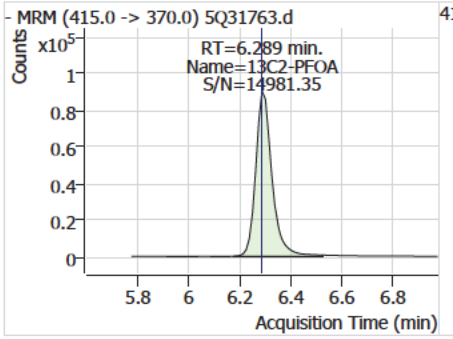
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	23.24	6.29	0.00	213905	427.0 -> 81.0	32.0	16.0	47.9

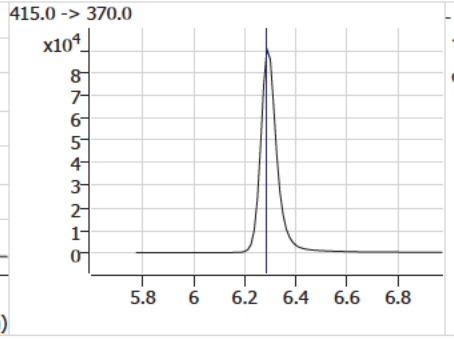


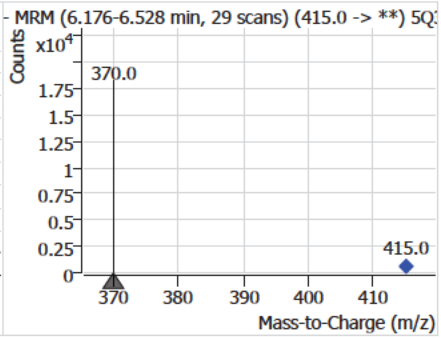




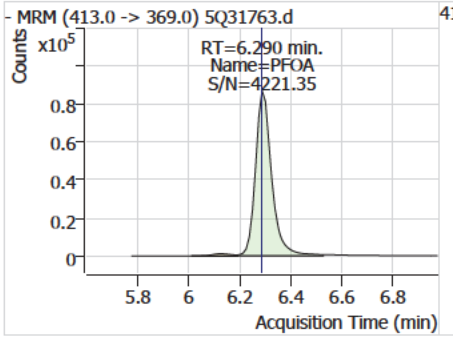
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	401735				

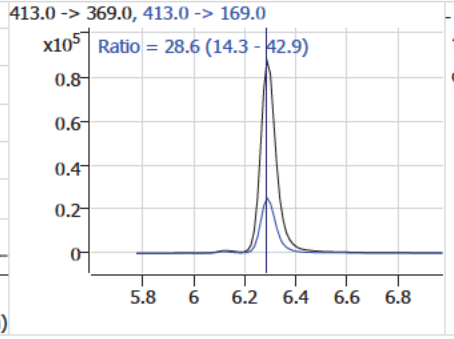


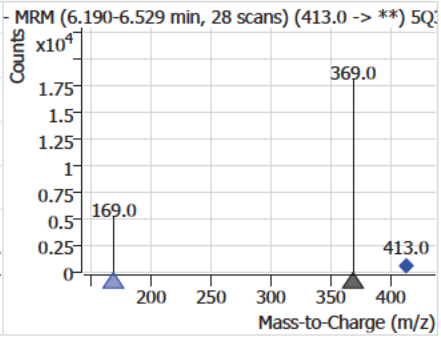




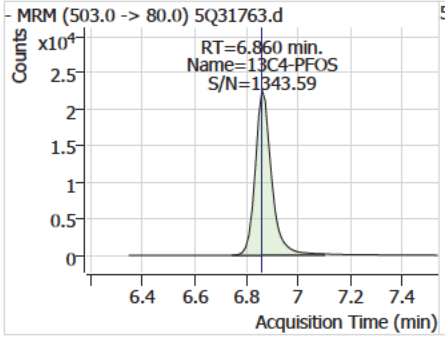
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.09	6.29	0.00	384083	413.0 -> 169.0	28.6	14.3	42.9

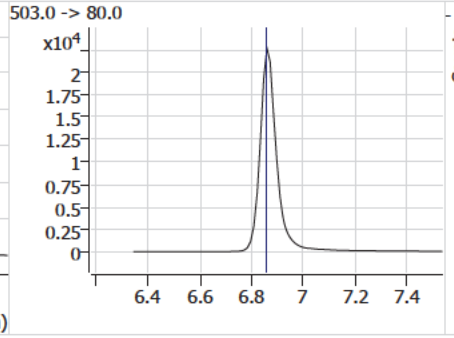


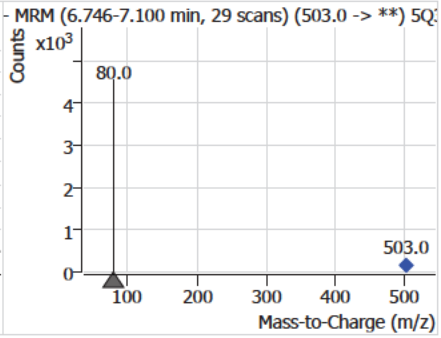




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	98976				







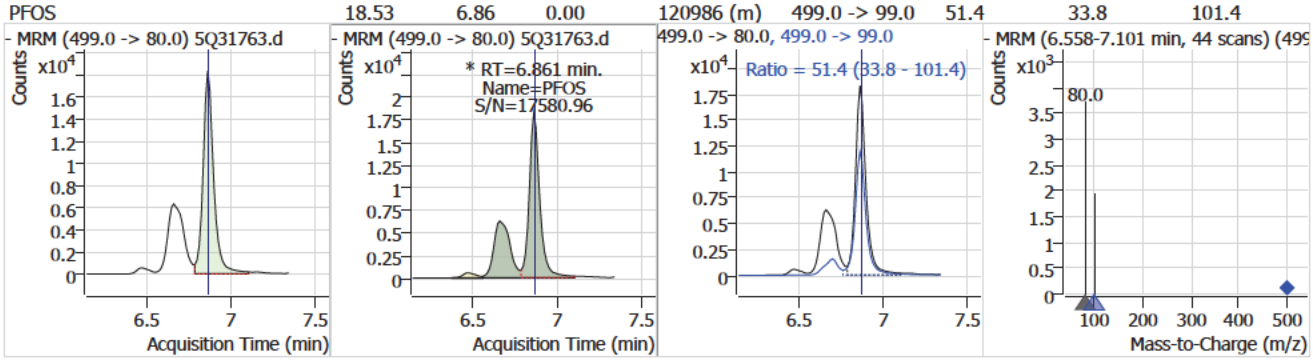
(b) (4)

7.7.26

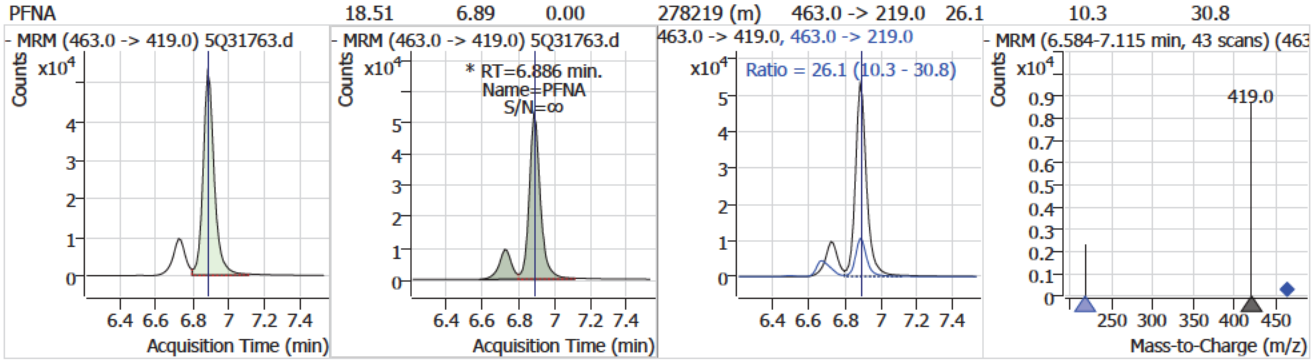
7

Perfluorinated Compounds by LC/MS/MS

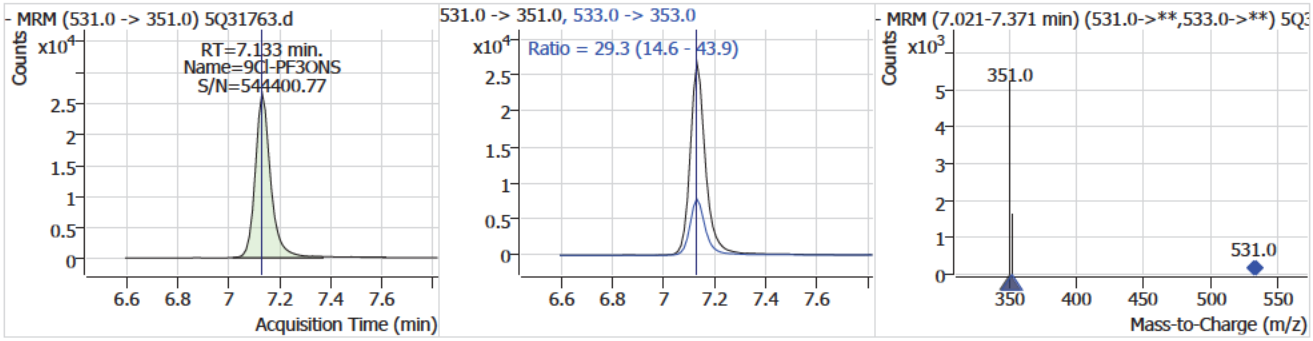
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.53	6.86	0.00	120986 (m)	499.0 -> 99.0	51.4	33.8	101.4



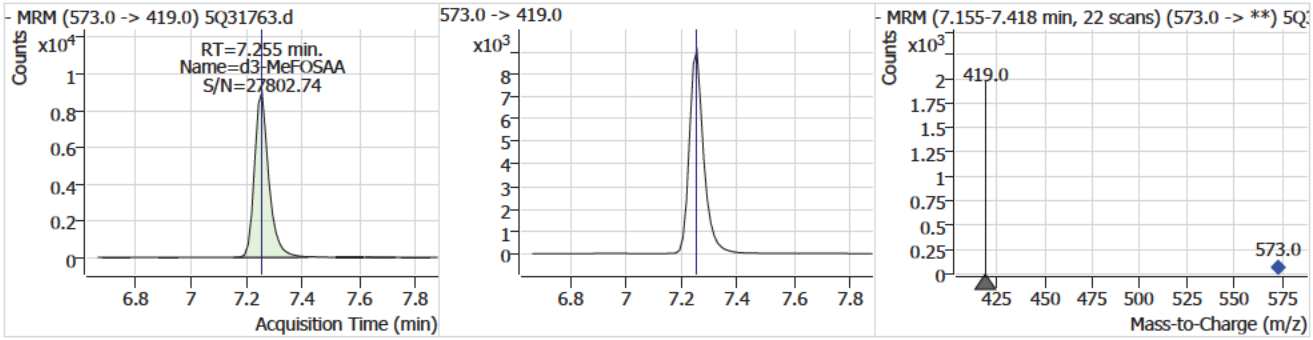
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	18.51	6.89	0.00	278219 (m)	463.0 -> 219.0	26.1	10.3	30.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	17.86	7.13	0.00	111388	533.0 -> 353.0	29.3	14.6	43.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	31819				



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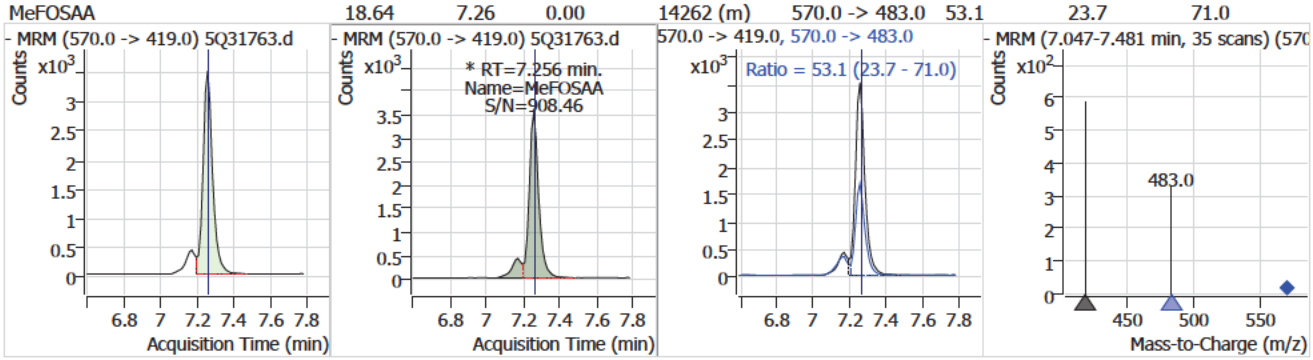
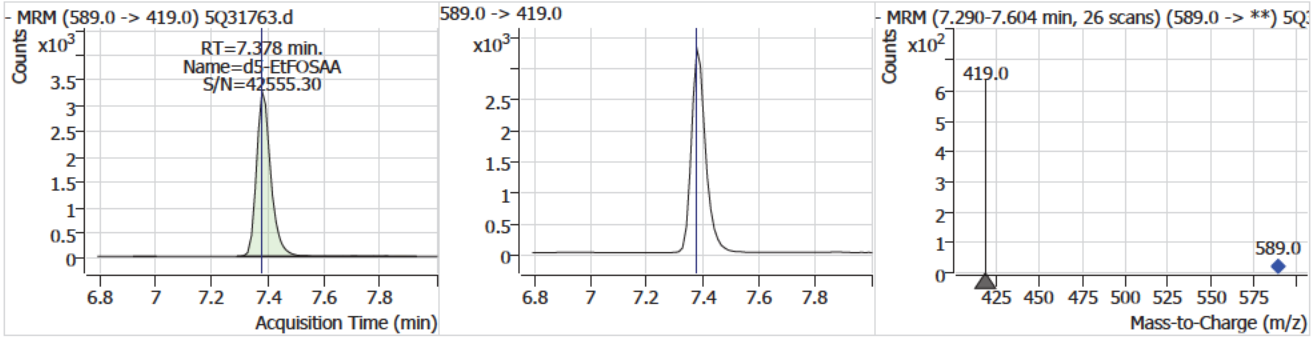
Perfluorinated Compounds by LC/MS/MS

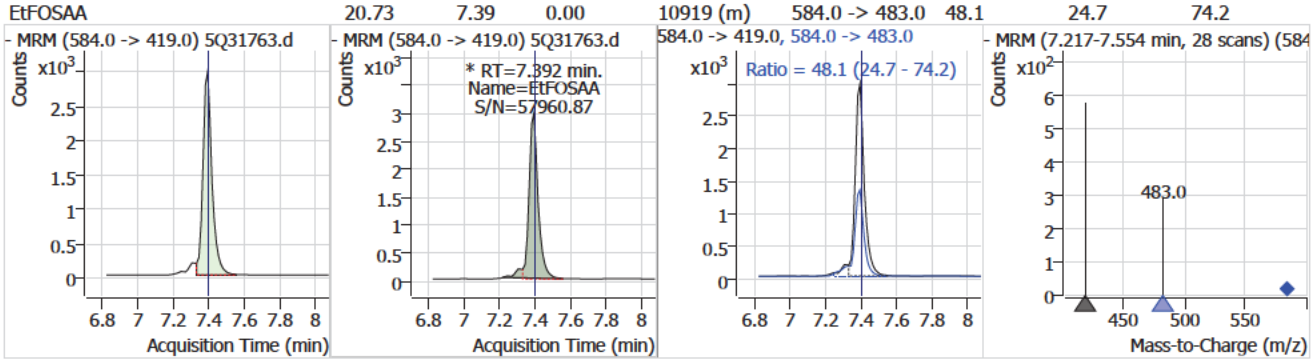
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	18.64	7.26	0.00	14262 (m)	570.0 -> 483.0	53.1	23.7	71.0



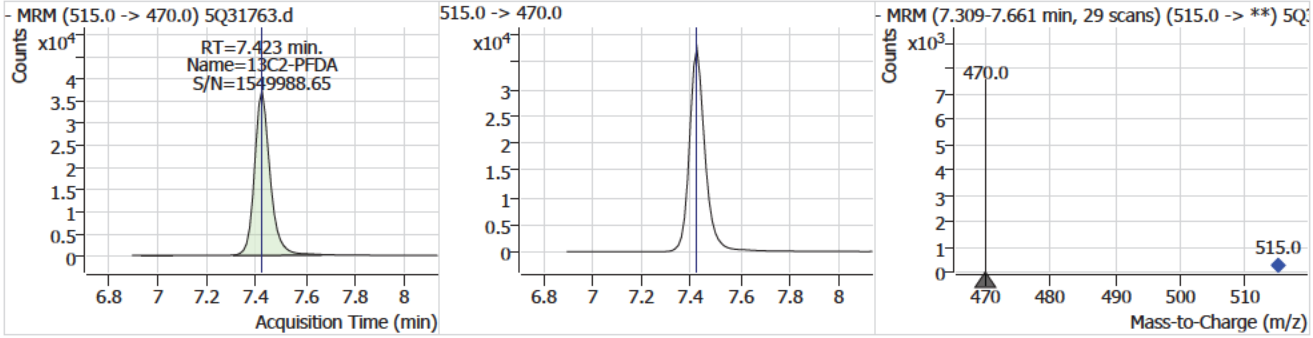
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	19.46	7.38	0.00	11502				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	20.73	7.39	0.00	10919 (m)	584.0 -> 483.0	48.1	24.7	74.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	9.59	7.42	0.00	163603				



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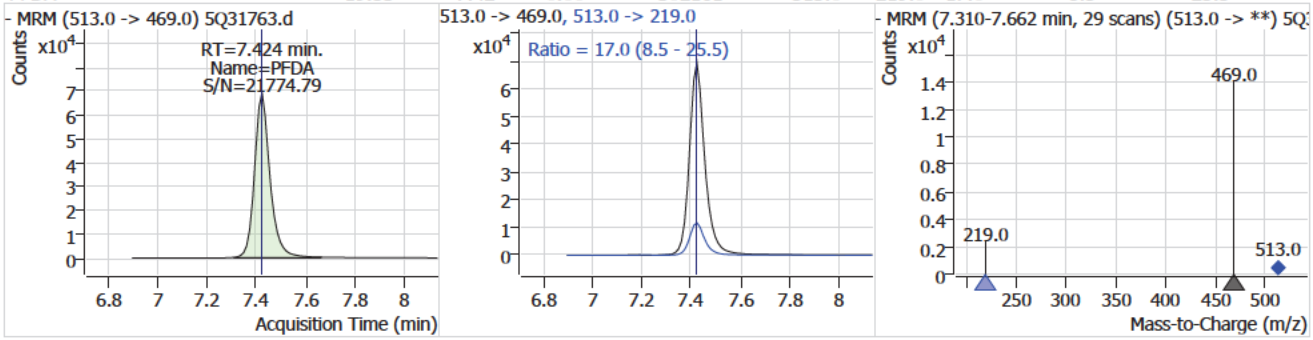
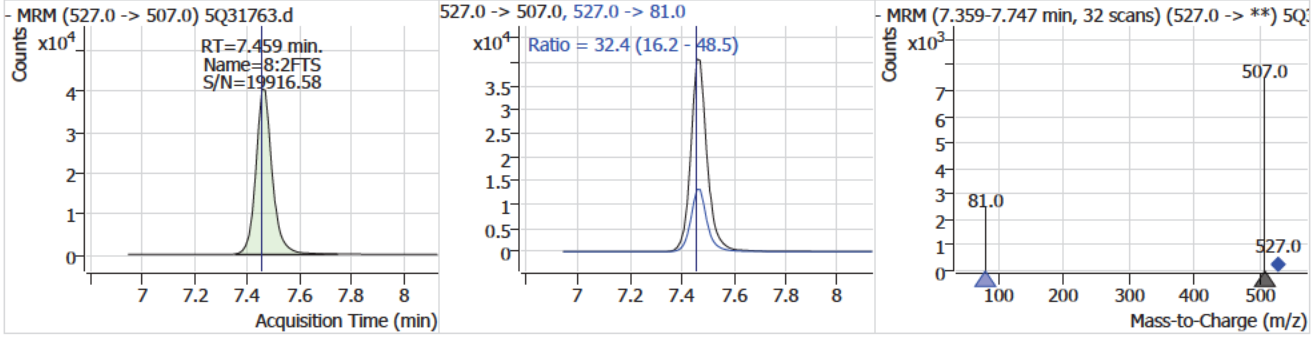
Perfluorinated Compounds by LC/MS/MS

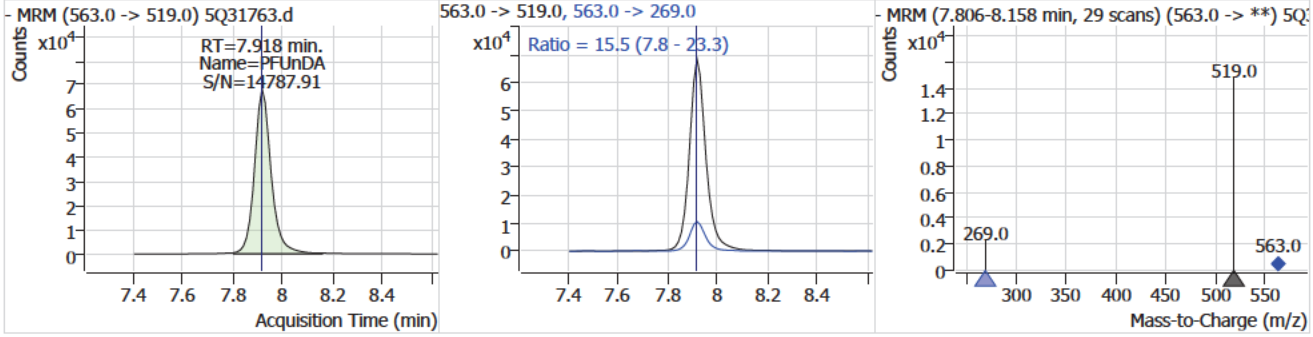
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.53	7.42	0.00	302161	513.0 -> 219.0	17.0	8.5	25.5



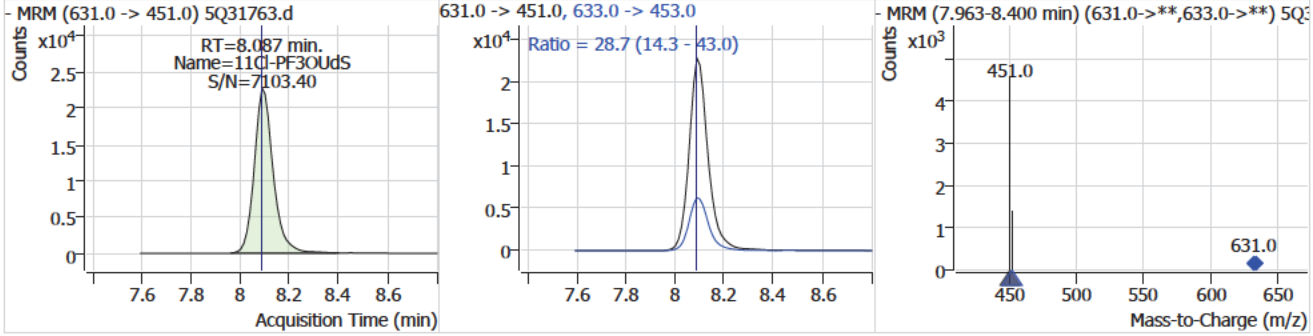
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	22.62	7.46	0.00	177895	527.0 -> 81.0	32.4	16.2	48.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	18.94	7.92	0.00	317041	563.0 -> 269.0	15.5	7.8	23.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	19.87	8.09	0.00	121547	633.0 -> 453.0	28.7	14.3	43.0



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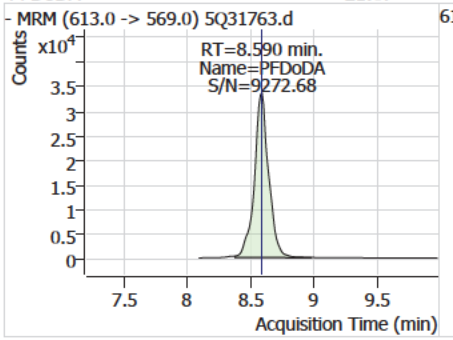
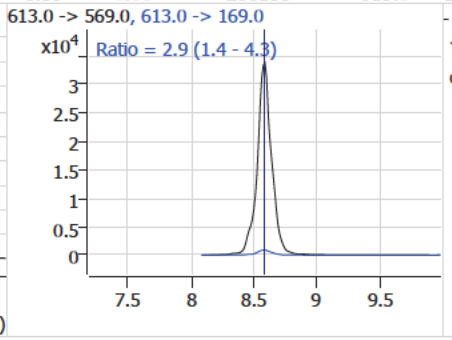
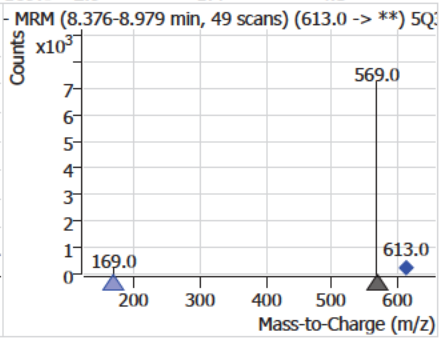
Perfluorinated Compounds by LC/MS/MS

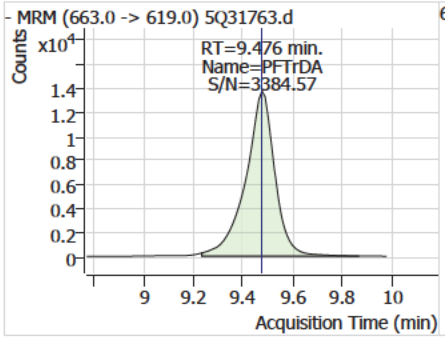
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	21.07	8.59	0.00	266135	613.0 -> 169.0	2.9	1.4	4.3

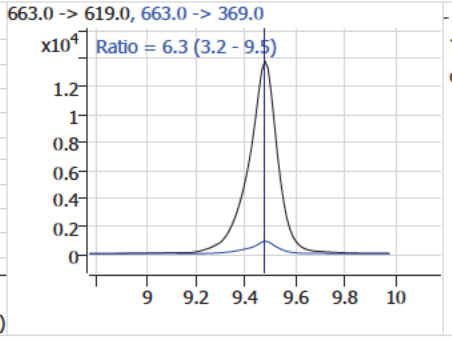


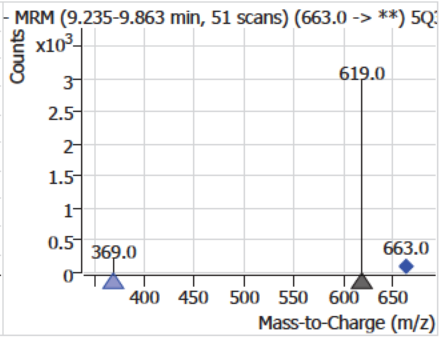




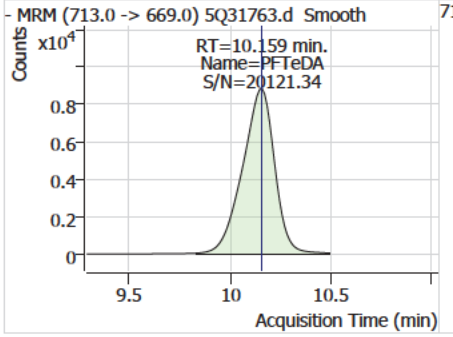
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	15.52	9.48	0.00	111579	663.0 -> 369.0	6.3	3.2	9.5

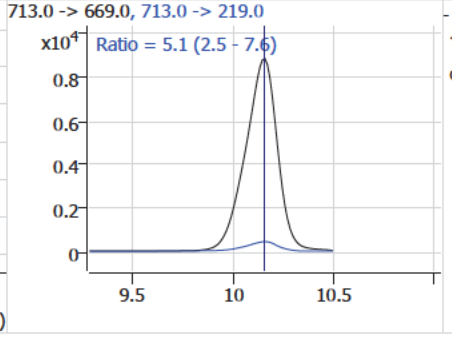


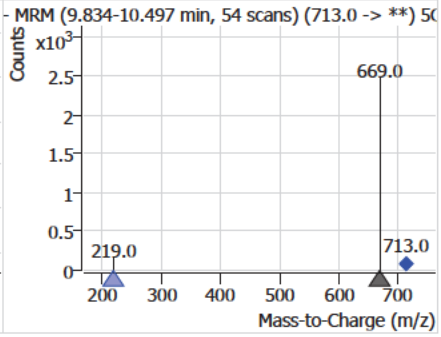




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	16.48	10.16	0.00	98142	713.0 -> 219.0	5.1	2.5	7.6







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Manual Integration Approval Summary

Sample Number: S5Q521-ICC521
Lab FileID: 5Q31763.D
Injection Time: 04/15/25 16:41
Method: EPA 537.1 REV 2.0
Analyst approved: 04/16/25 10:55 (b) (6)
Supervisor approved: 04/16/25 15:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/16/25 15:44

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31764.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/15/2025 4:57:36 PM
Sample Name : ic521-50
Vial : P1-A8
DA Method File : 537_041525_S5Q521.quantmethod
Batch Name : s5q521.batch.bin
Sample Information : OP8882,S5Q521,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	194365	20.00	µg/L		-0.012
13C2-PFOA	6.289	415.0 -> 370.0	378440	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	516764	20.00	µg/L		-0.012
13C4-PFOS	6.860	503.0 -> 80.0	93939	20.00	µg/L		0.000
d3-MeFOSAA	7.255	573.0 -> 419.0	29723	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.423	515.0 -> 470.0	398566	24.80	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 124.0%			
13C2-PFHxA	4.763	315.0 -> 270.0	628250	25.28	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 126.4%			
d5-EtFOSAA	7.378	589.0 -> 419.0	28196	51.08	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 127.7%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	81234	47.99	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 120.0%			
Target Compounds							QValue
6:2FTS	6.275	427.0 -> 407.0	519279	53.75	µg/L		99
8:2FTS	7.459	527.0 -> 507.0	442908	53.66	µg/L		98
EtFOSAA	7.392	584.0 -> 419.0	24876	50.57	µg/L	m	87
MeFOSAA	7.256	570.0 -> 419.0	34294	47.98	µg/L	m	90
PFBS	3.841	299.0 -> 80.0	666142	51.18	µg/L		100
PFDA	7.424	513.0 -> 469.0	729465	50.05	µg/L		99
PFDoDA	8.590	613.0 -> 569.0	691774	51.44	µg/L		100
PFHpA	5.614	363.0 -> 319.0	1674146	48.65	µg/L		100
PFHxA	4.777	313.0 -> 269.0	839081	49.20	µg/L		100
PFHxS	5.635	399.0 -> 80.0	424563	48.74	µg/L	m	97
PFNA	6.886	463.0 -> 419.0	674293	47.61	µg/L	m	86
PFOA	6.290	413.0 -> 369.0	933659	49.27	µg/L		98
PFOS	6.861	499.0 -> 80.0	297963	48.08	µg/L	m	78
PFPeA	3.597	263.0 -> 219.0	1682772	48.74	µg/L		100
PFTeDA	10.147	713.0 -> 669.0	261656	46.29	µg/L		100
PFTrDA	9.476	663.0 -> 619.0	310419	45.49	µg/L		99
PFUnDA	7.918	563.0 -> 519.0	776819	48.89	µg/L		100
ADONA	5.688	377.0 -> 251.0	2257813	47.63	µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	280731	47.79	µg/L		99
11Cl-PF3OUdS	8.087	631.0 -> 451.0	315115	50.44	µg/L		99
HFPO-DA	5.022	285.0 -> 169.0	78791	48.14	µg/L		100

= Qualifier out of range, m = manually integrated, + = Area summed

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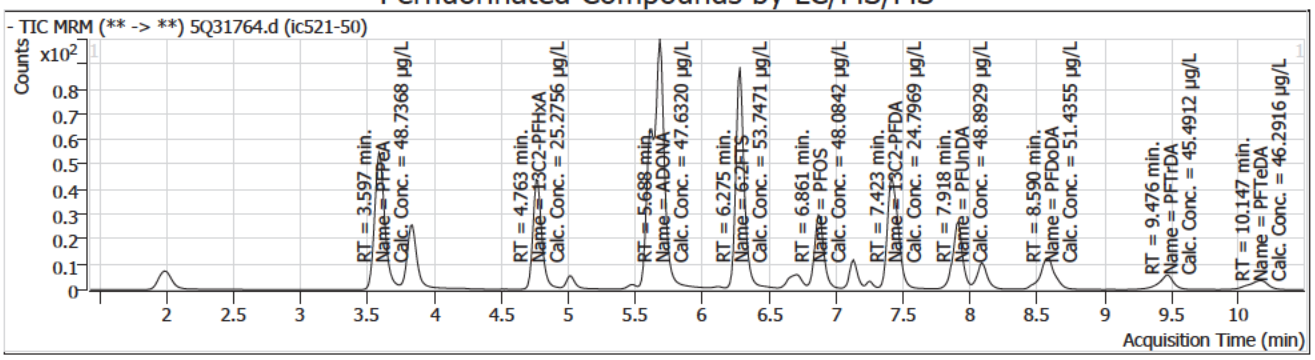
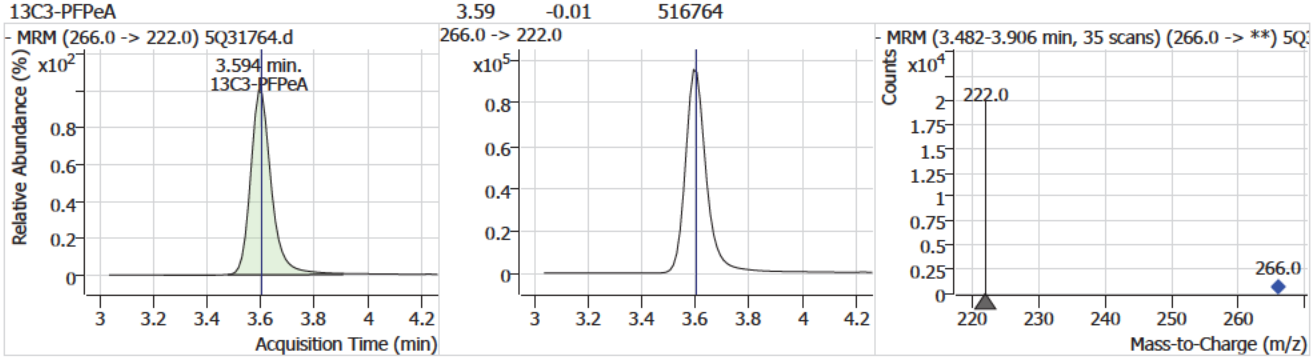
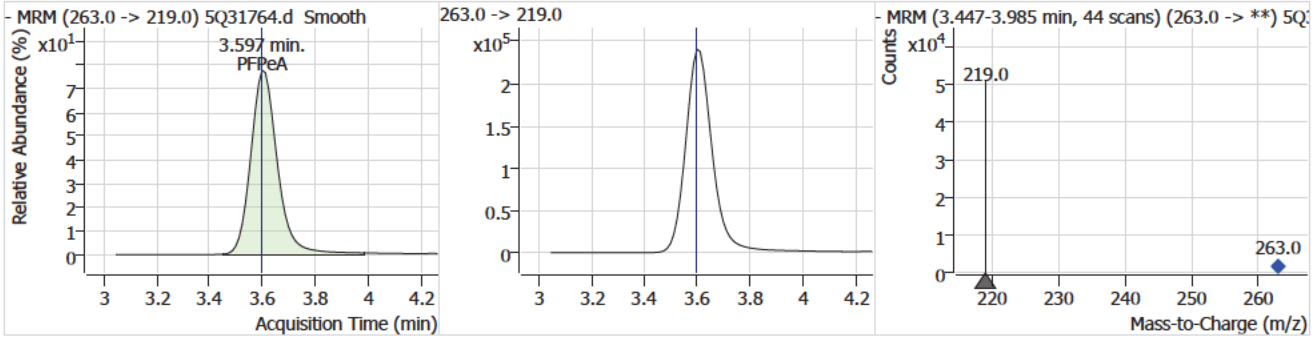
Perfluorinated Compounds by LC/MS/MS



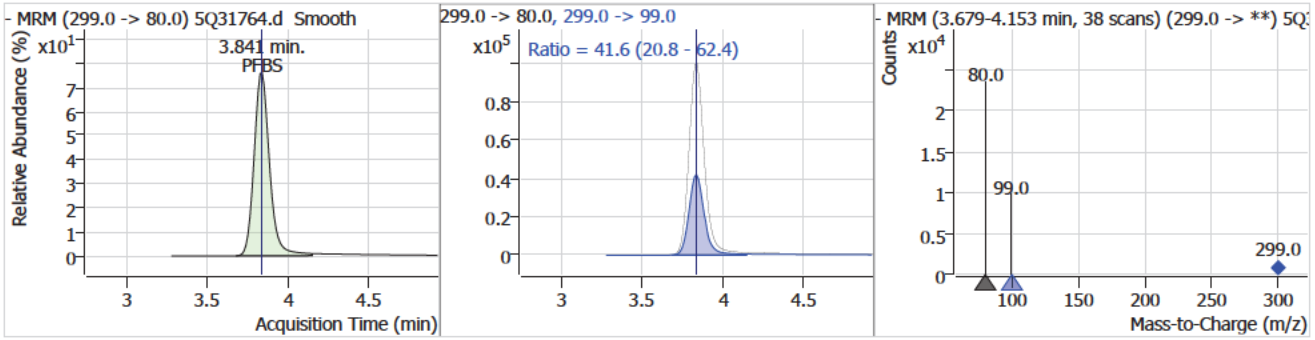
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	516764				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	48.74	3.60	-0.01	1682772				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	51.18	3.84	0.00	666142	299.0 -> 99.0	41.6	20.8	62.4



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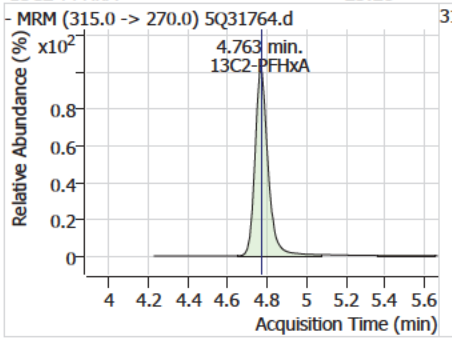
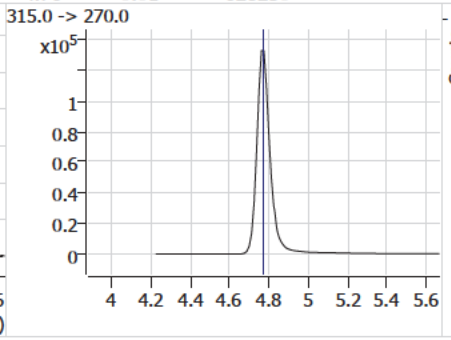
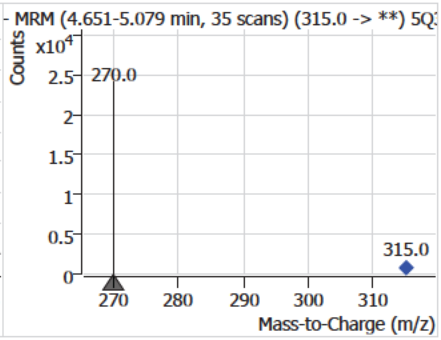
Perfluorinated Compounds by LC/MS/MS

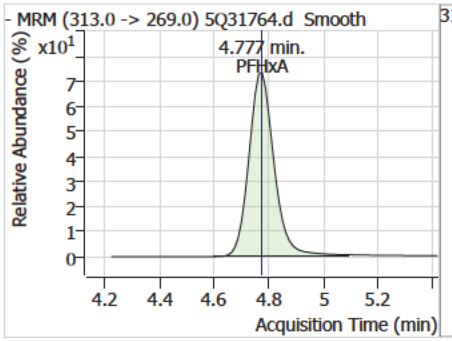
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	25.28	4.76	-0.01	628250				

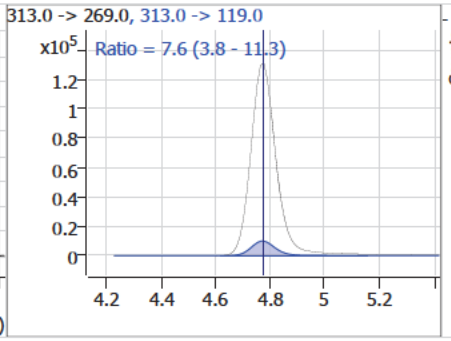


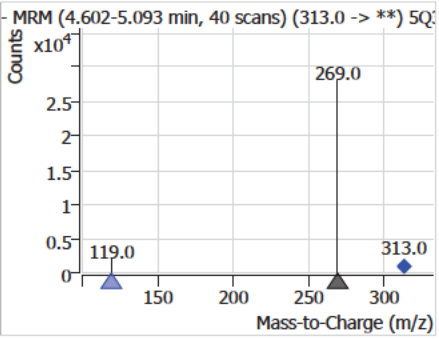




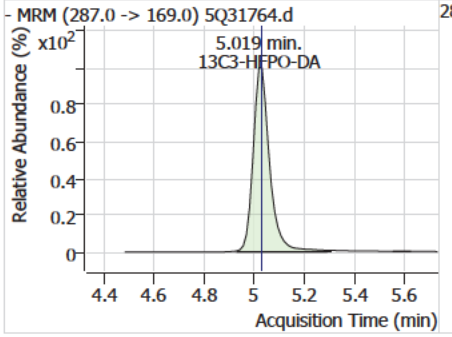
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	49.20	4.78	0.00	839081	313.0 -> 119.0	7.6	3.8	11.3

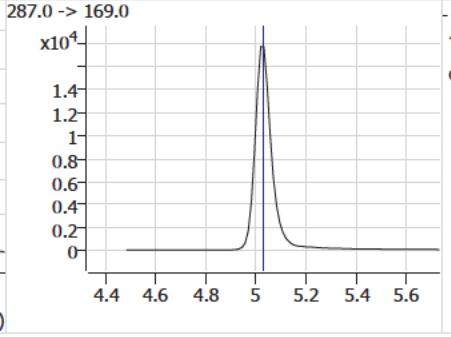


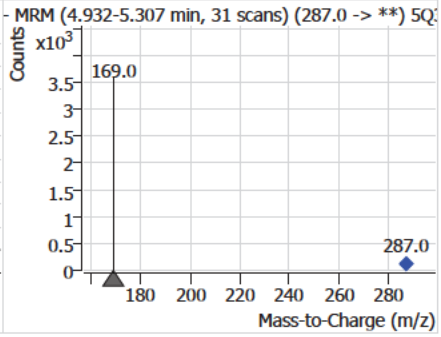




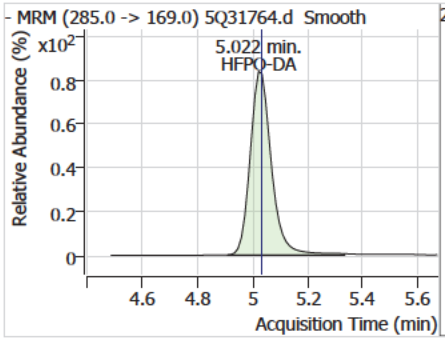
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	47.99	5.02	-0.01	81234				

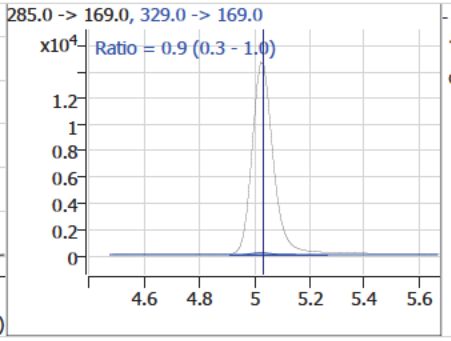


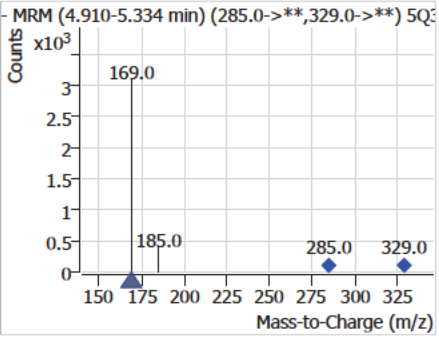




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	48.14	5.02	-0.01	78791	329.0 -> 169.0	0.9	0.3	1.0

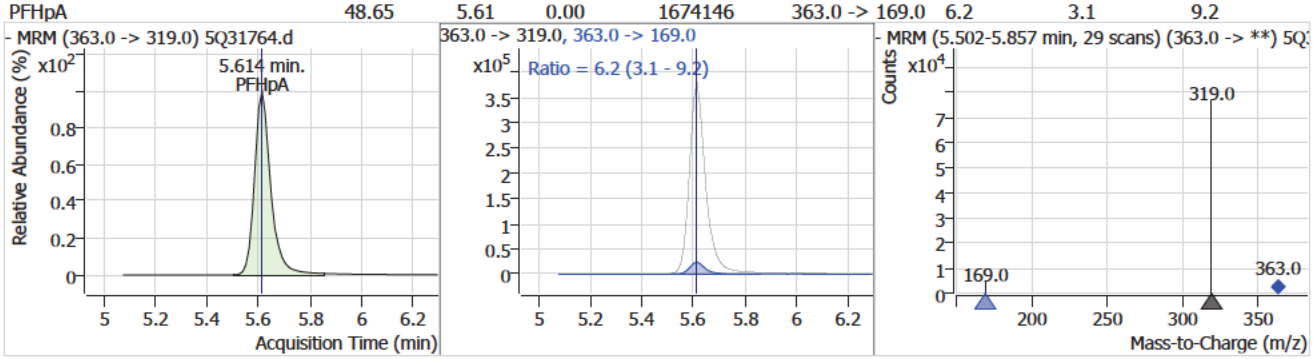




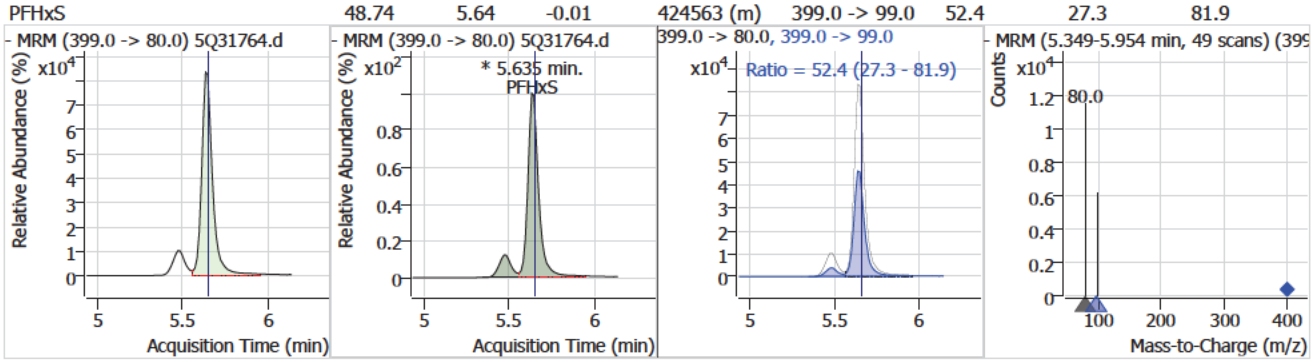


Perfluorinated Compounds by LC/MS/MS

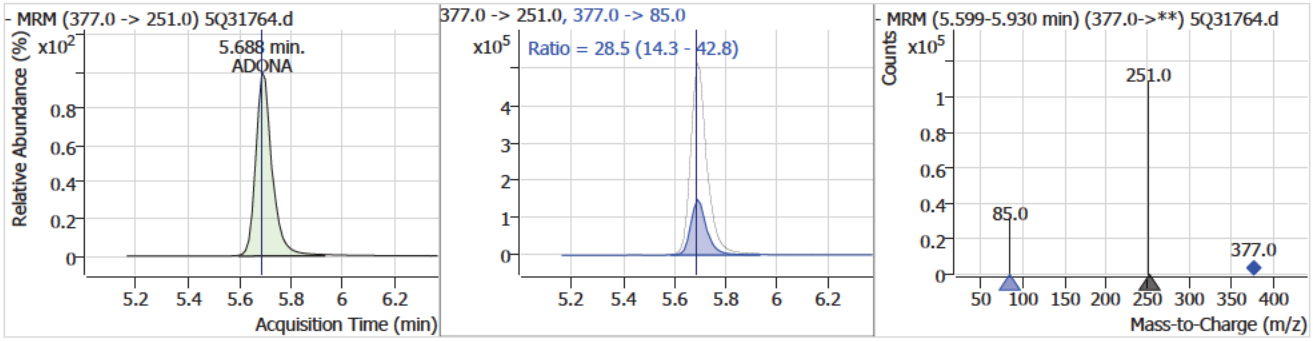
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	48.65	5.61	0.00	1674146	363.0 -> 169.0	6.2	3.1	9.2



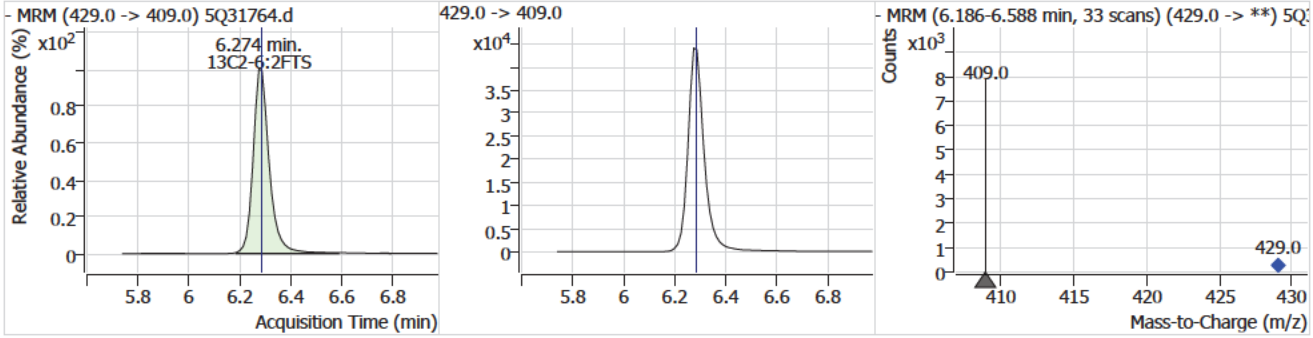
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	48.74	5.64	-0.01	424563 (m)	399.0 -> 99.0	52.4	27.3	81.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	47.63	5.69	0.00	2257813	377.0 -> 85.0	28.5	14.3	42.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	194365				



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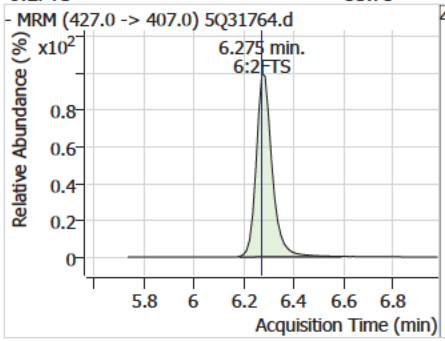
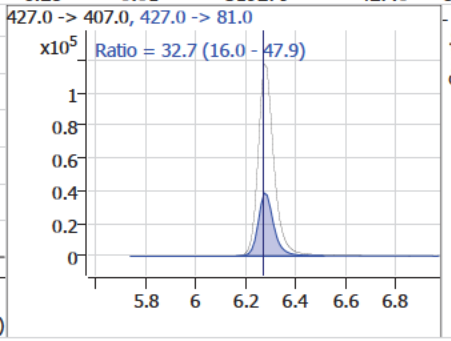
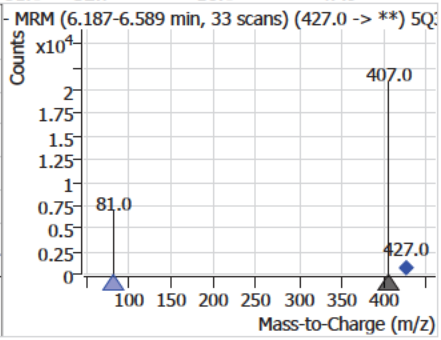
Perfluorinated Compounds by LC/MS/MS

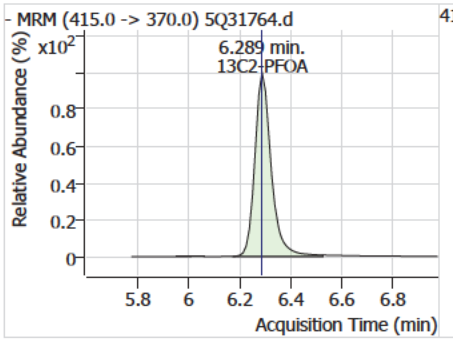
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	53.75	6.28	-0.01	519279	427.0 -> 81.0	32.7	16.0	47.9

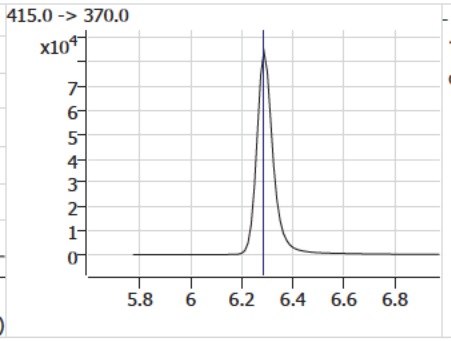


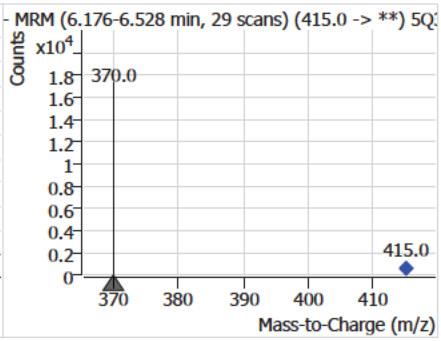




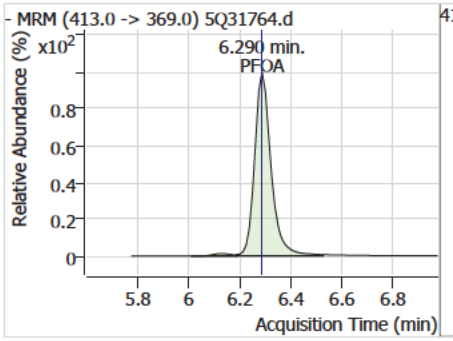
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	378440				

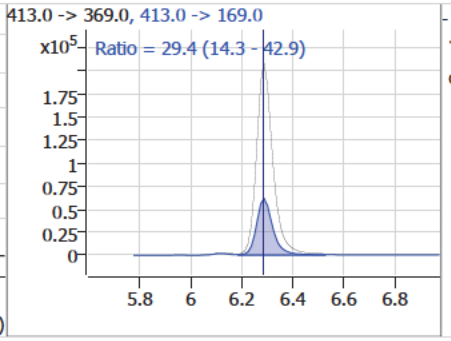


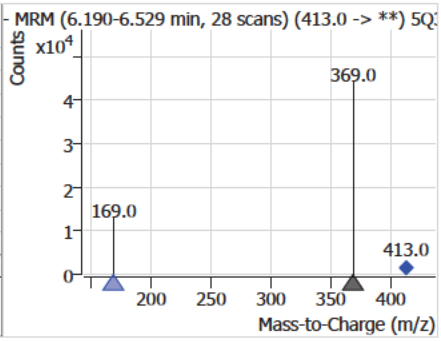




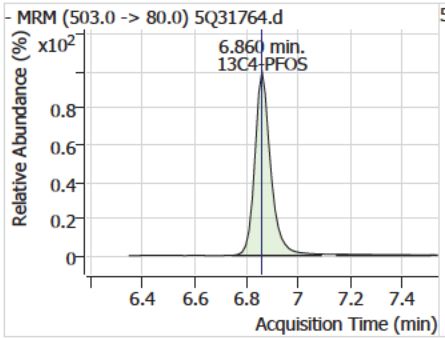
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	49.27	6.29	0.00	933659	413.0 -> 169.0	29.4	14.3	42.9

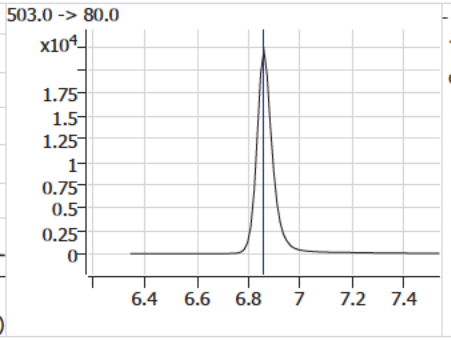


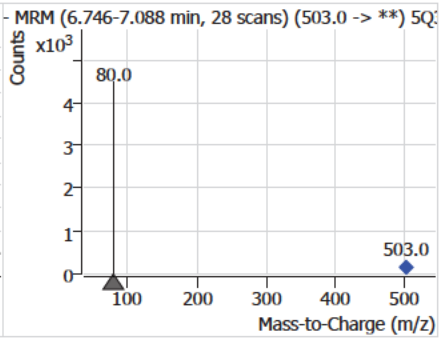




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	93939				







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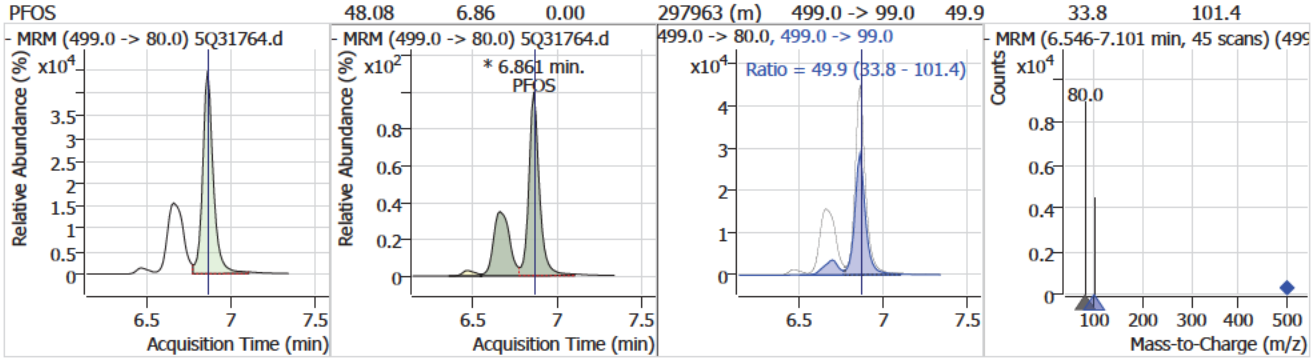
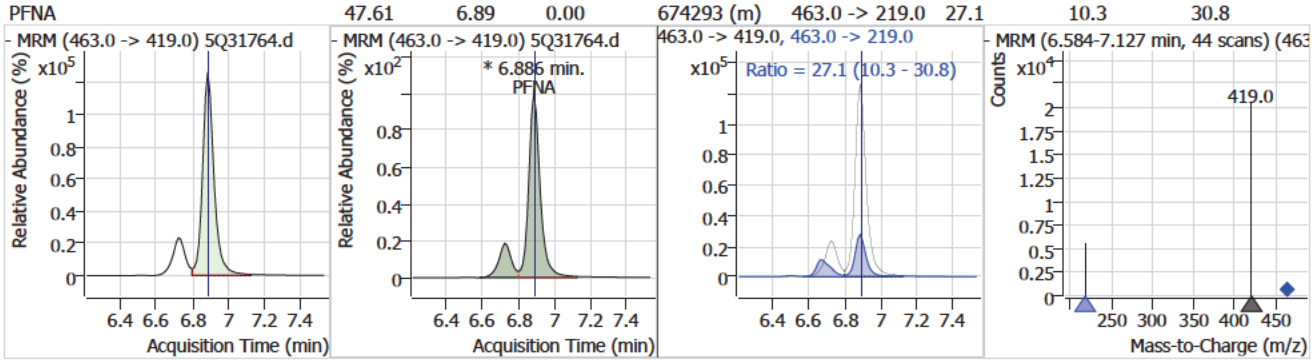
Perfluorinated Compounds by LC/MS/MS

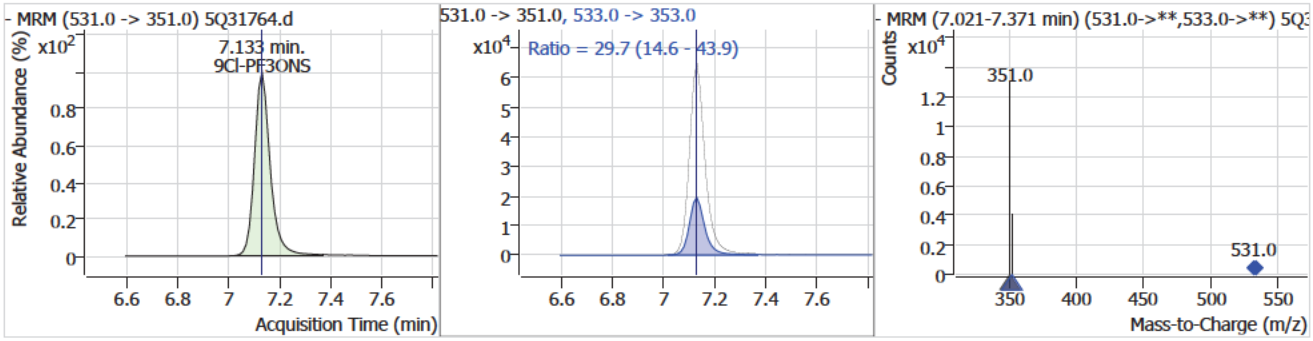
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	48.08	6.86	0.00	297963 (m)	499.0 -> 99.0	49.9	33.8	101.4



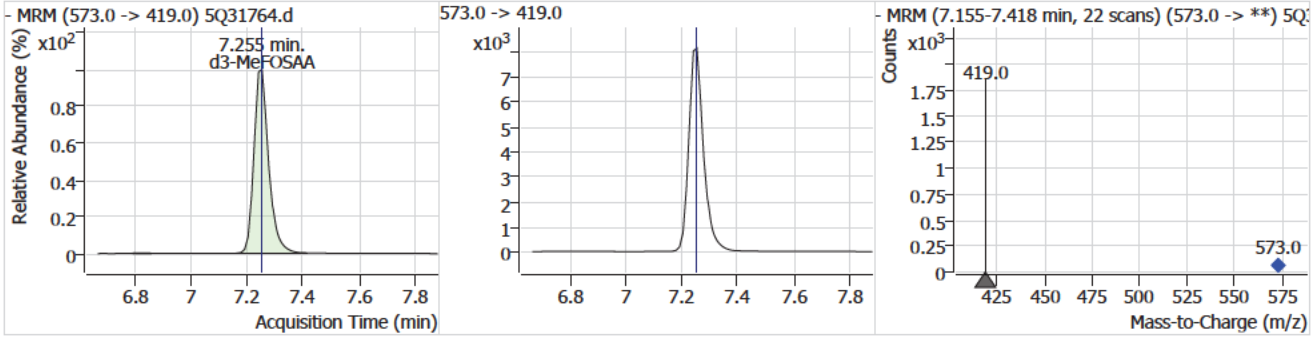
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	47.61	6.89	0.00	674293 (m)	463.0 -> 219.0	27.1	10.3	30.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	47.79	7.13	0.00	280731	533.0 -> 353.0	29.7	14.6	43.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	29723				



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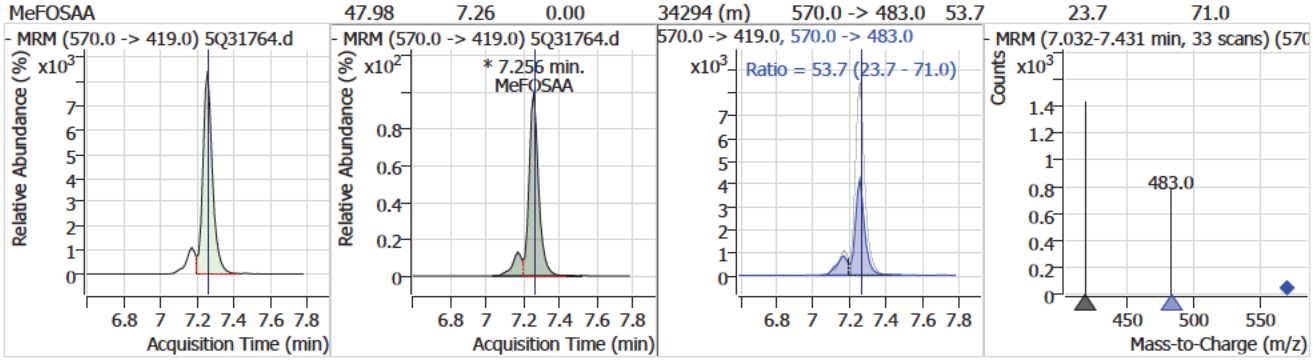
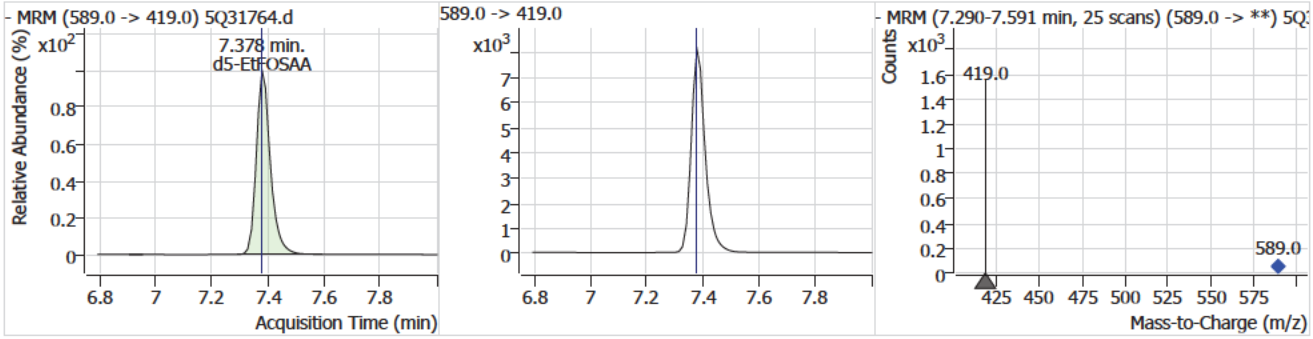
Perfluorinated Compounds by LC/MS/MS

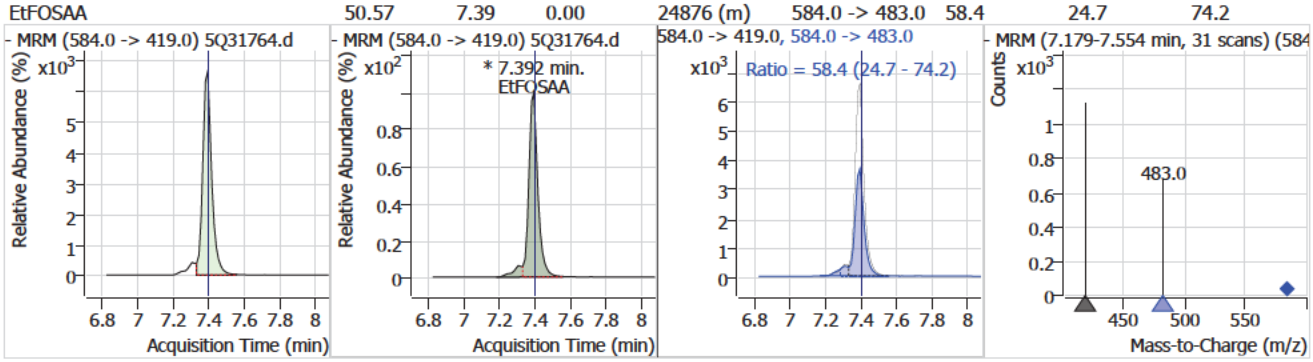
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	47.98	7.26	0.00	34294 (m)	570.0 -> 483.0	53.7	23.7	71.0



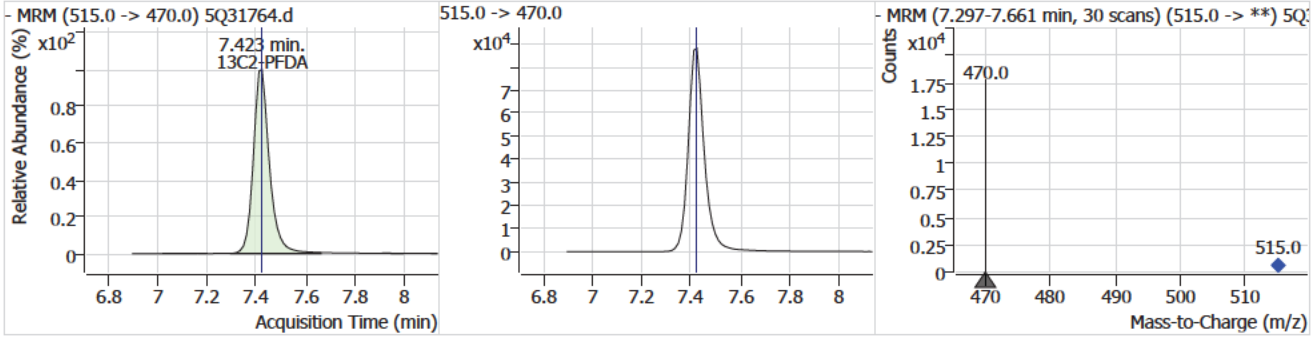
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	51.08	7.38	0.00	28196				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	50.57	7.39	0.00	24876 (m)	584.0 -> 483.0	58.4	24.7	74.2

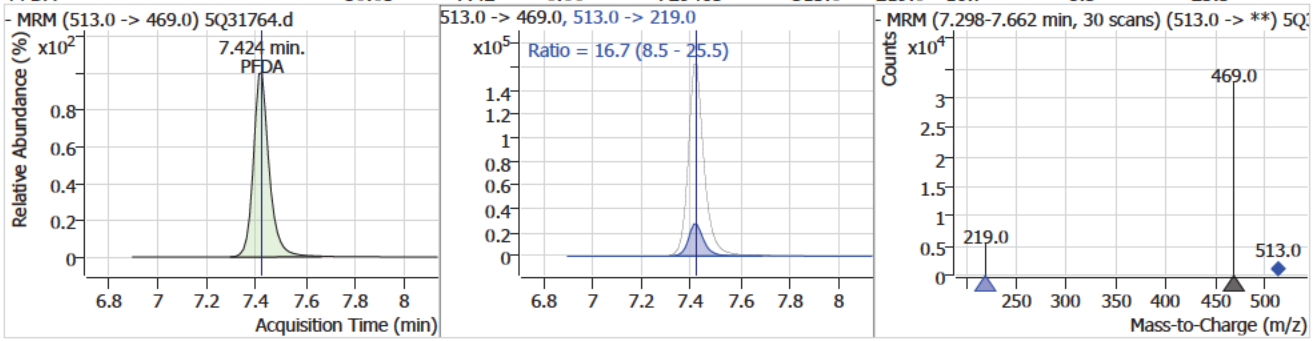


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	24.80	7.42	0.00	398566				

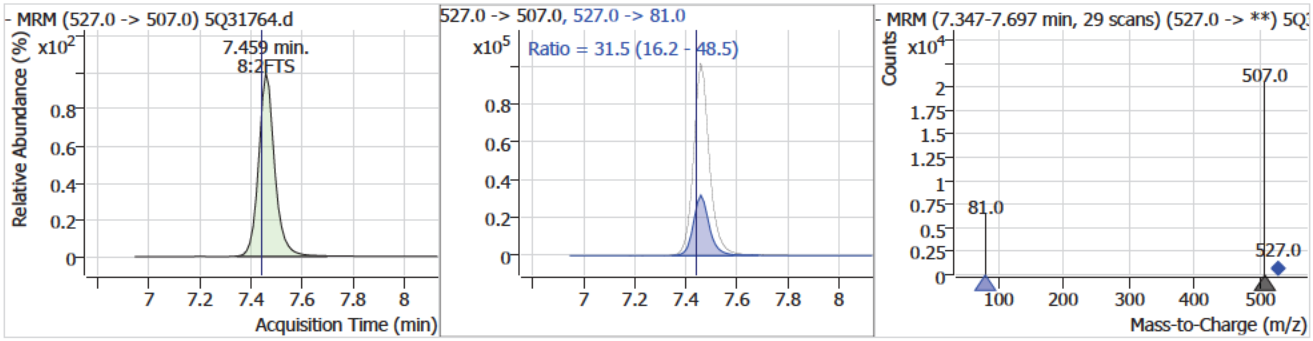


Perfluorinated Compounds by LC/MS/MS

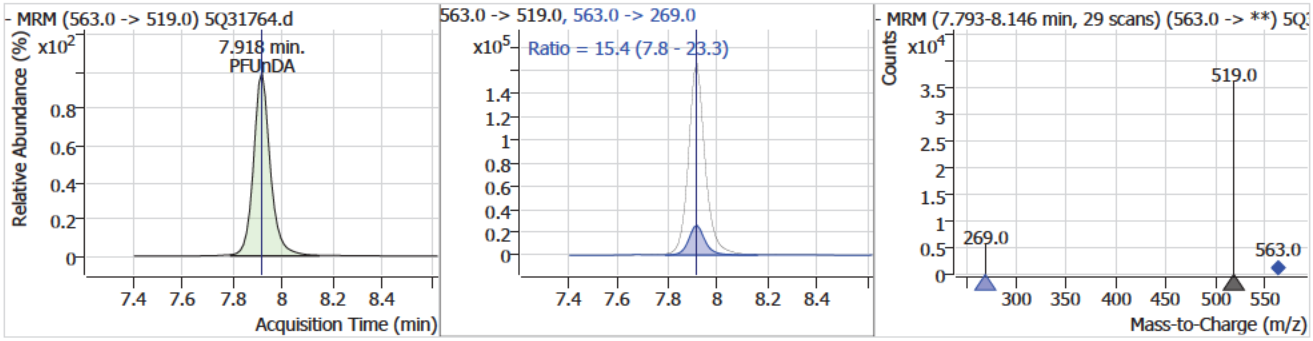
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	50.05	7.42	0.00	729465	513.0 -> 219.0	16.7	8.5	25.5



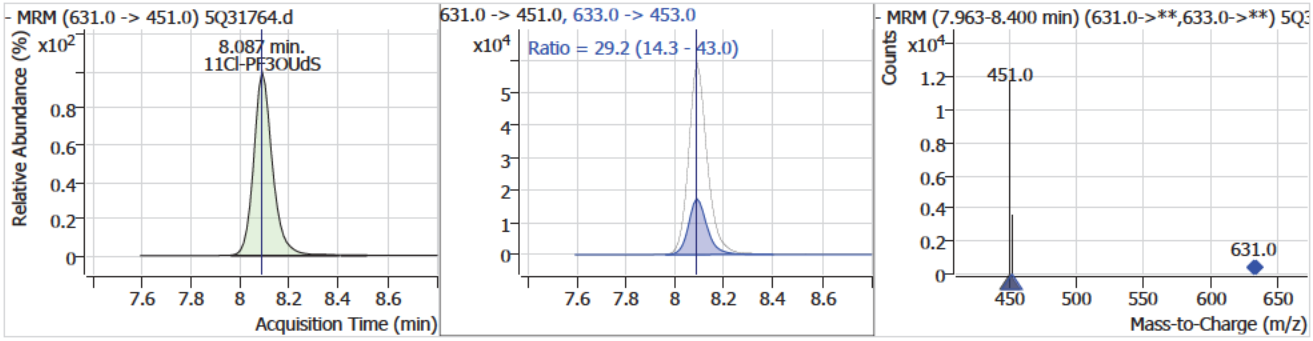
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	53.66	7.46	0.00	442908	527.0 -> 81.0	31.5	16.2	48.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	48.89	7.92	0.00	776819	563.0 -> 269.0	15.4	7.8	23.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	50.44	8.09	0.00	315115	633.0 -> 453.0	29.2	14.3	43.0



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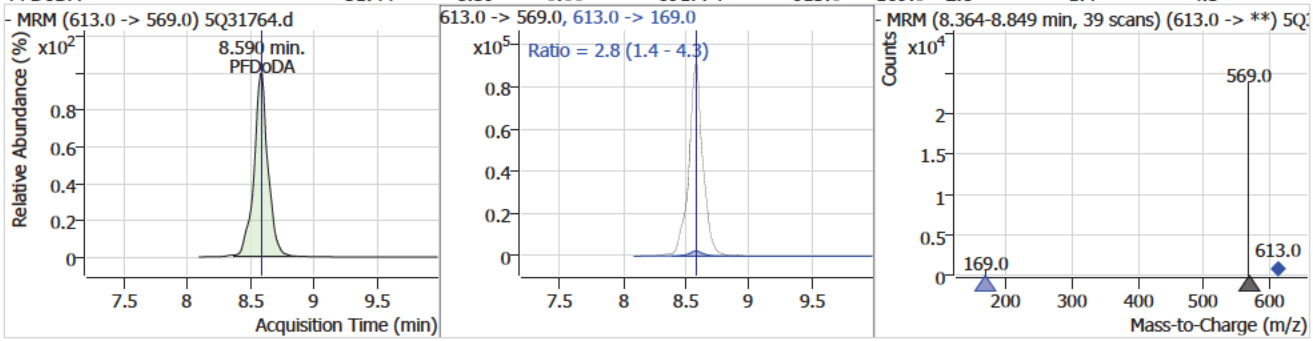
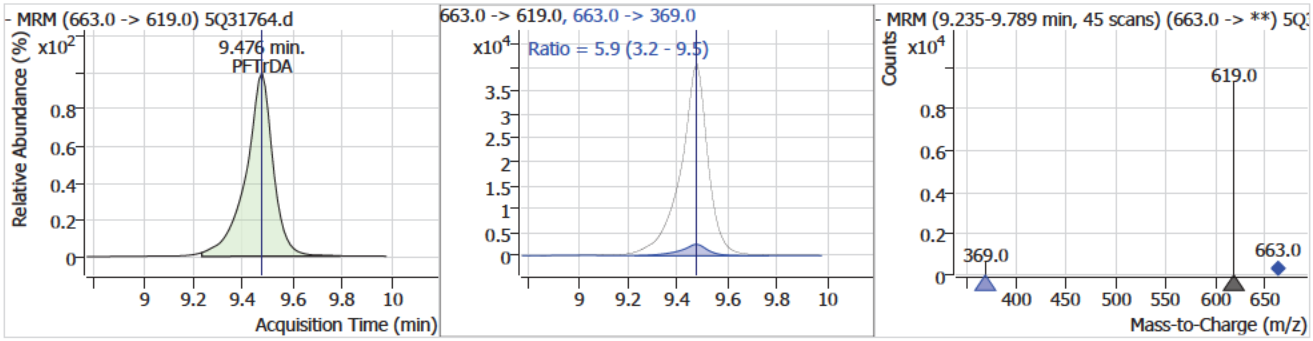
Perfluorinated Compounds by LC/MS/MS

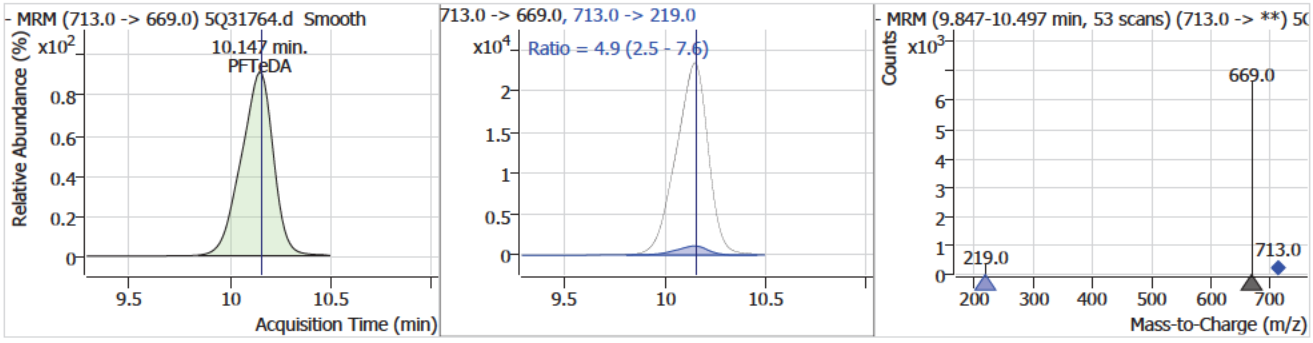
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	51.44	8.59	0.00	691774	613.0 -> 169.0	2.8	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	45.49	9.48	0.00	310419	663.0 -> 369.0	5.9	3.2	9.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	46.29	10.15	-0.01	261656	713.0 -> 219.0	4.9	2.5	7.6



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Manual Integration Approval Summary

Sample Number: S5Q521-IC521
Lab FileID: 5Q31764.D
Injection Time: 04/15/25 16:57
Method: EPA 537.1 REV 2.0
Analyst approved: 04/16/25 10:55 (b) (6)
Supervisor approved: 04/16/25 15:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Cal Report: 5Q31765.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/16/25 15:44

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31765.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/15/2025 5:13:37 PM
Sample Name : ic521-100
Vial : P1-A9
DA Method File : 537_041525_S5Q521.quantmethod
Batch Name : s5q521.batch.bin
Sample Information : OP8882,S5Q521,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.274	429.0 -> 409.0	220631	20.00 µg/L		-0.012
13C2-PFOA	6.289	415.0 -> 370.0	373251	20.00 µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	522084	20.00 µg/L		-0.012
13C4-PFOS	6.860	503.0 -> 80.0	95690	20.00 µg/L		0.000
d3-MeFOSAA	7.255	573.0 -> 419.0	30277	40.00 µg/L		0.000
System Monitoring Compounds						
13C2-PFDA	7.411	515.0 -> 470.0	796414	50.24 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 251.2%		
13C2-PFHxA	4.763	315.0 -> 270.0	1224062	49.93 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 249.7%		
d5-EtFOSAA	7.378	589.0 -> 419.0	55959	99.52 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 248.8%		
13C3-HFPO-DA	5.019	287.0 -> 169.0	169510	101.54 µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 253.8%		
Target Compounds						QValue
6:2FTS	6.275	427.0 -> 407.0	1066530	97.25 µg/L		98
8:2FTS	7.459	527.0 -> 507.0	913934	97.54 µg/L		100
EtFOSAA	7.392	584.0 -> 419.0	49848	99.47 µg/L	m	89
MeFOSAA	7.256	570.0 -> 419.0	73772	101.32 µg/L	m	86
PFBS	3.828	299.0 -> 80.0	1315413	99.22 µg/L		100
PFDA	7.411	513.0 -> 469.0	1439961	100.18 µg/L		99
PFDoDA	8.577	613.0 -> 569.0	1596558	99.44 µg/L		100
PFHpA	5.614	363.0 -> 319.0	3425231	100.92 µg/L		99
PFHxA	4.764	313.0 -> 269.0	1692067	100.60 µg/L		100
PFHxS	5.635	399.0 -> 80.0	896492	101.03 µg/L	m	97
PFNA	6.886	463.0 -> 419.0	1420175	101.67 µg/L	m	85
PFOA	6.290	413.0 -> 369.0	1880669	100.62 µg/L		99
PFOS	6.861	499.0 -> 80.0	639822	101.36 µg/L	m	79
PFPeA	3.597	263.0 -> 219.0	3519701	100.90 µg/L		100
PFTeDA	10.134	713.0 -> 669.0	591995	102.82 µg/L		99
PFTrDA	9.464	663.0 -> 619.0	719527	103.52 µg/L		98
PFUnDA	7.906	563.0 -> 519.0	1632998	100.90 µg/L		100
ADONA	5.688	377.0 -> 251.0	4752672	101.66 µg/L		99
9Cl-PF3ONS	7.133	531.0 -> 351.0	589360	101.72 µg/L		99
11Cl-PF3OUdS	8.087	631.0 -> 451.0	693247	99.92 µg/L		99
HFPO-DA	5.022	285.0 -> 169.0	163535	101.30 µg/L		99

= Qualifier out of range, m = manually integrated, + = Area summed

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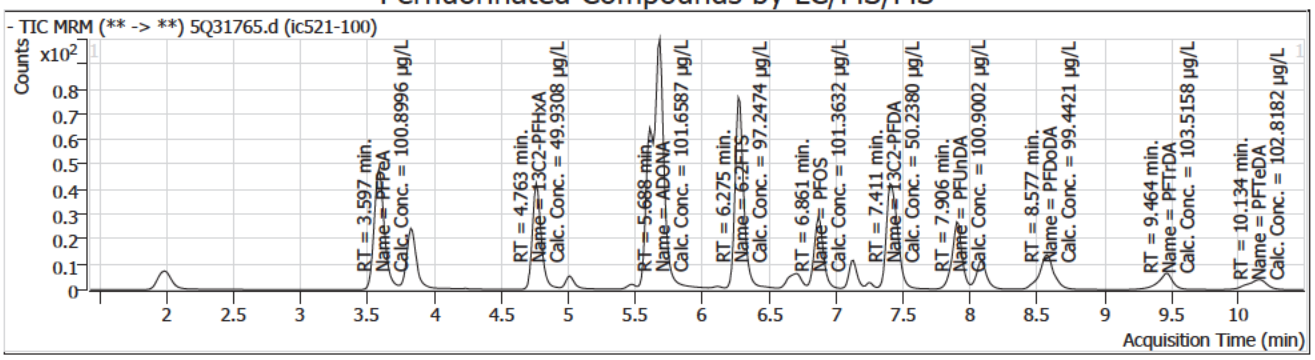
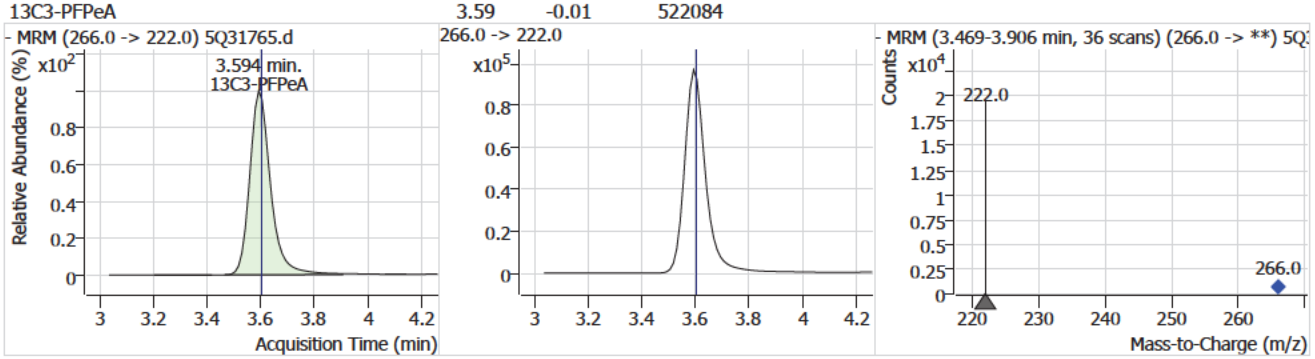
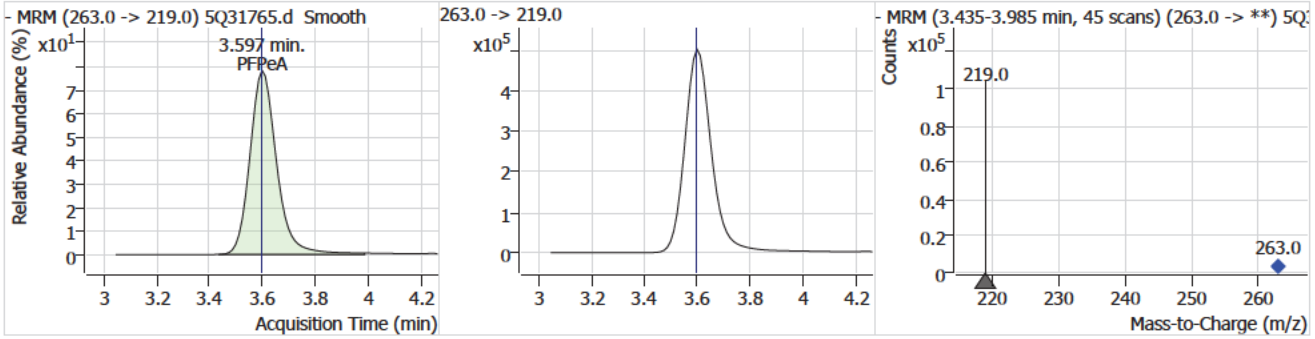
Perfluorinated Compounds by LC/MS/MS



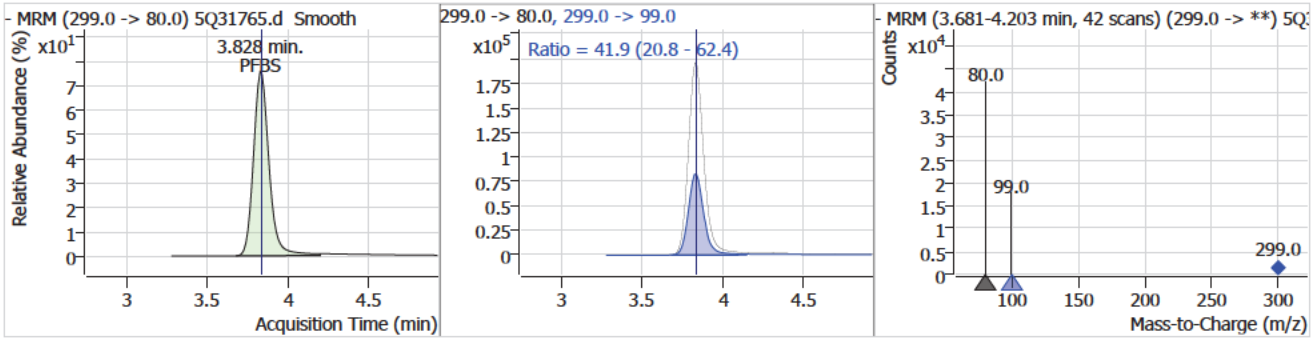
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	522084				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	100.90	3.60	-0.01	3519701				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	99.22	3.83	-0.01	1315413	299.0 -> 99.0	41.9	20.8	62.4



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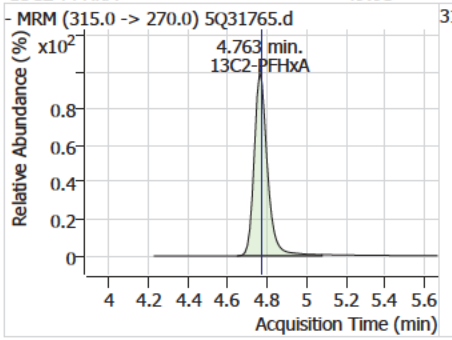
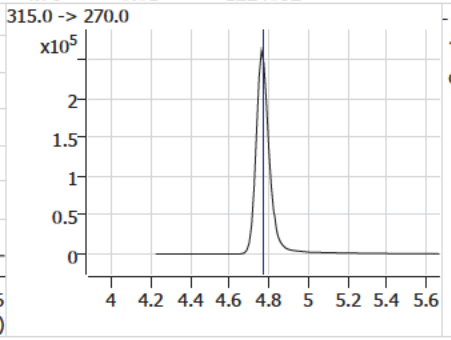
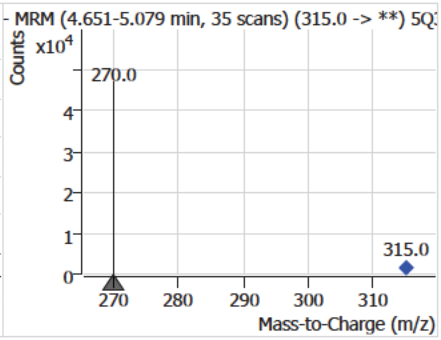
Perfluorinated Compounds by LC/MS/MS

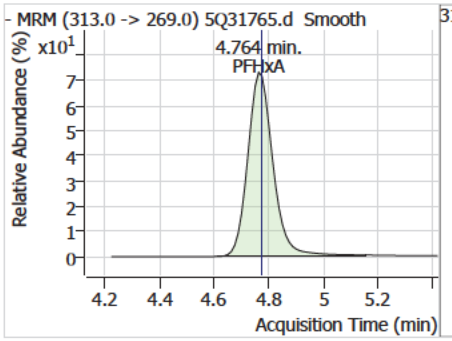
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	49.93	4.76	-0.01	1224062				

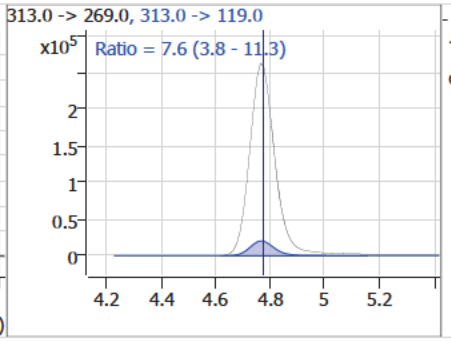


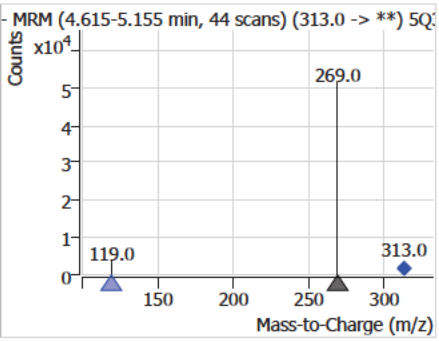




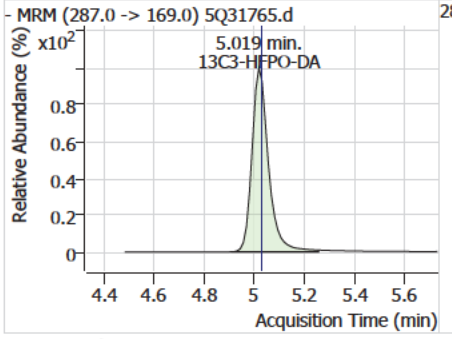
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	100.60	4.76	-0.01	1692067	313.0 -> 119.0	7.6	3.8	11.3

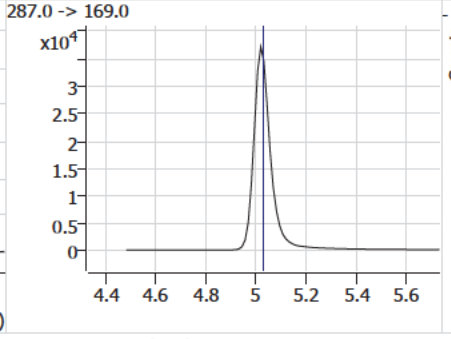


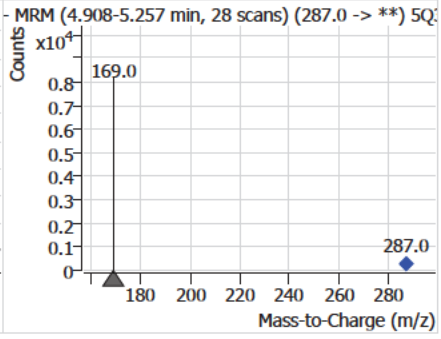




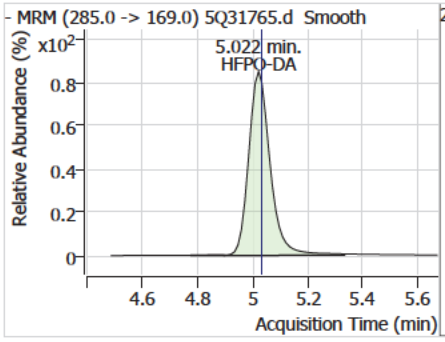
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	101.54	5.02	-0.01	169510				

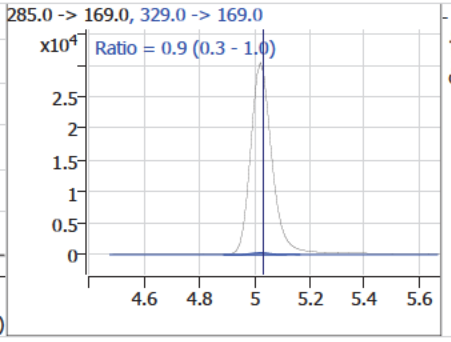


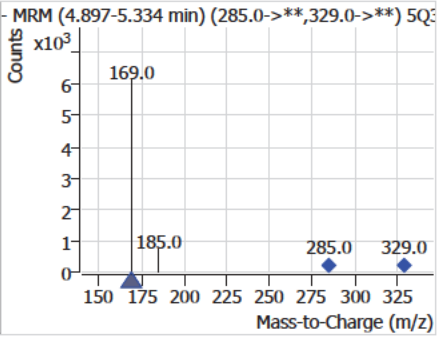




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	101.30	5.02	-0.01	163535	329.0 -> 169.0	0.9	0.3	1.0

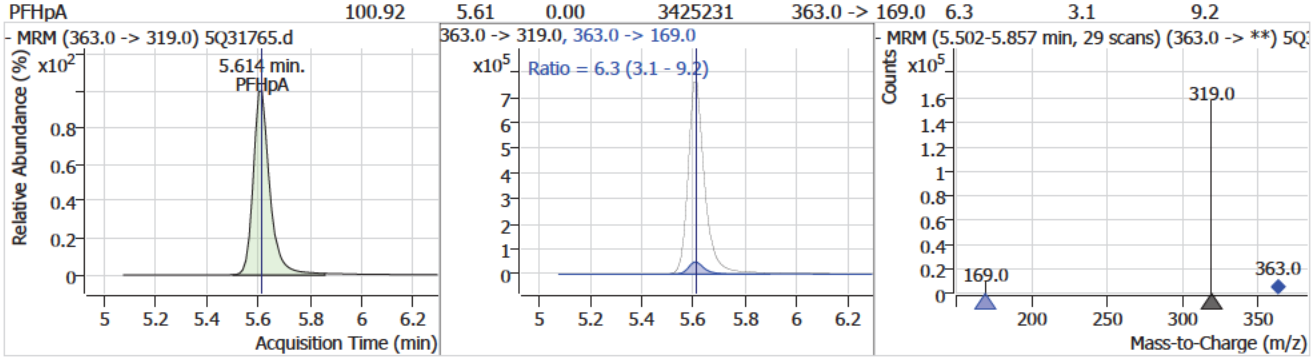




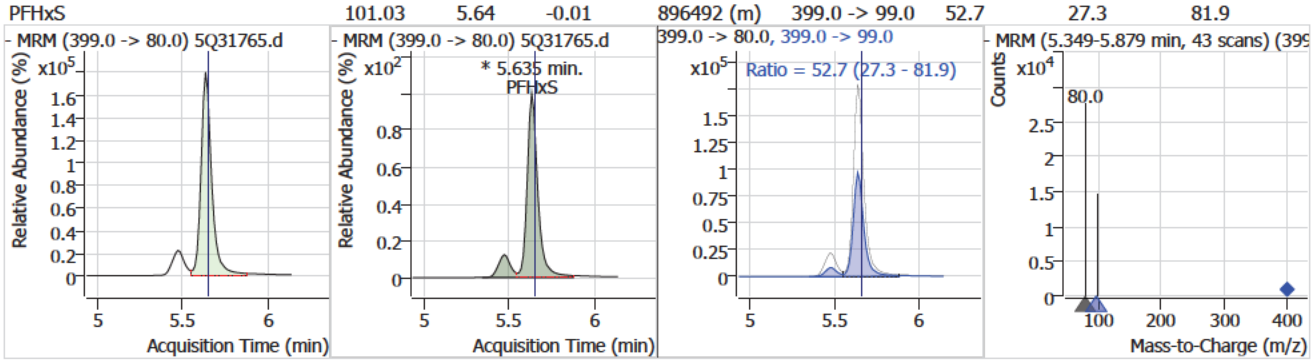


Perfluorinated Compounds by LC/MS/MS

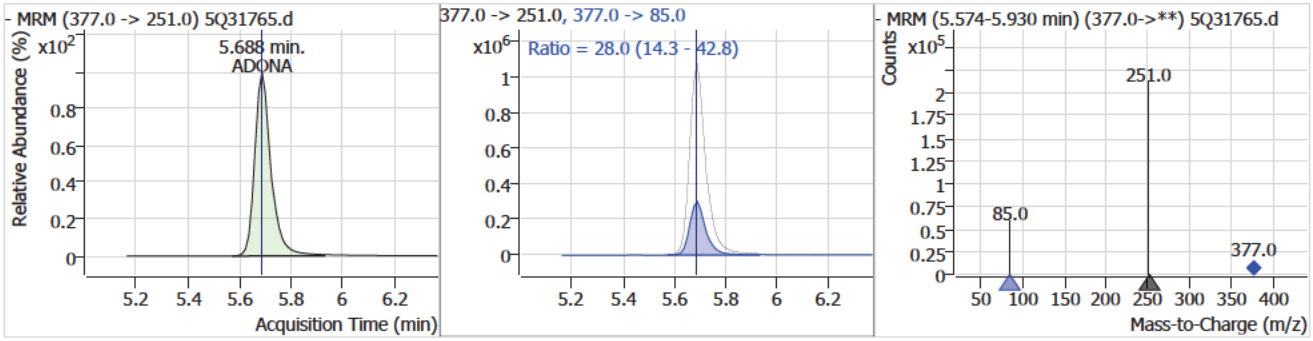
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	100.92	5.61	0.00	3425231	363.0 -> 169.0	6.3	3.1	9.2



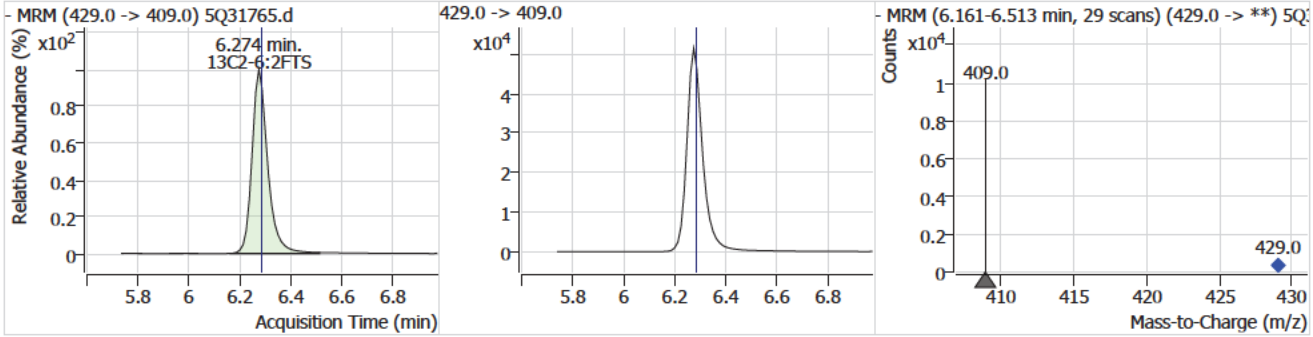
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	101.03	5.64	-0.01	896492 (m)	399.0 -> 99.0	52.7	27.3	81.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	101.66	5.69	0.00	4752672	377.0 -> 85.0	28.0	14.3	42.8

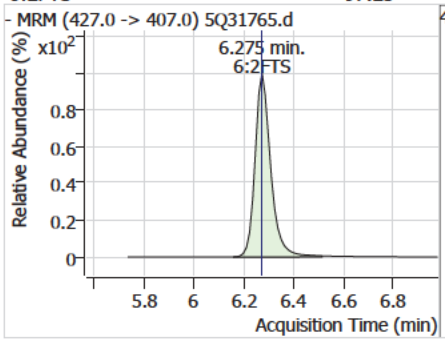


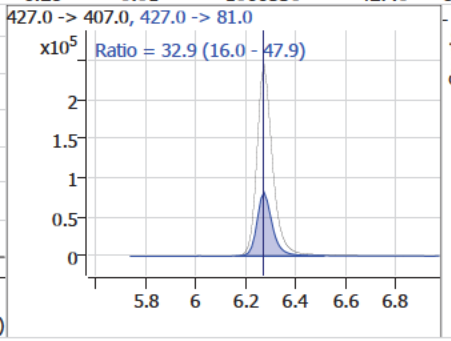
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	220631				

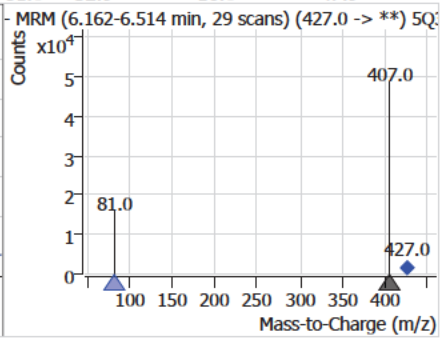


Perfluorinated Compounds by LC/MS/MS

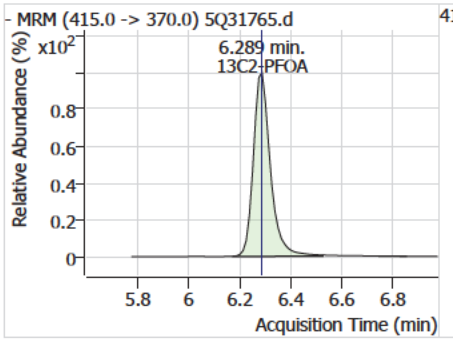
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	97.25	6.28	-0.01	1066530	427.0 -> 81.0	32.9	16.0	47.9

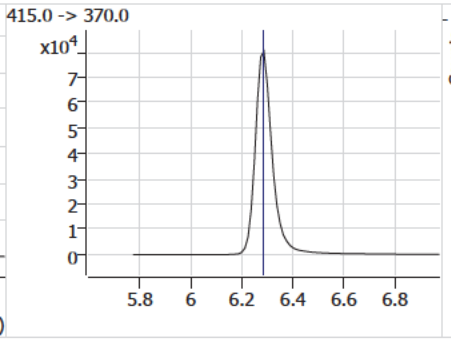


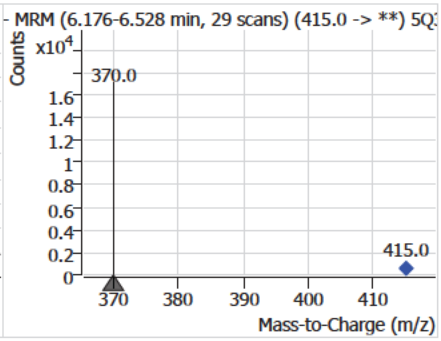




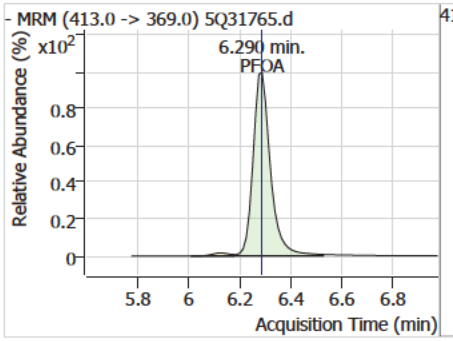
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	373251				

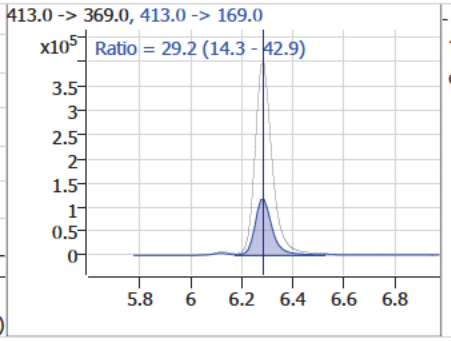


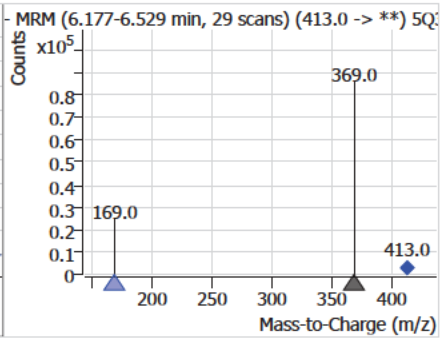




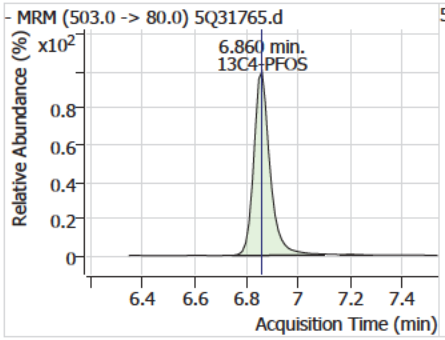
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	100.62	6.29	0.00	1880669	413.0 -> 169.0	29.2	14.3	42.9

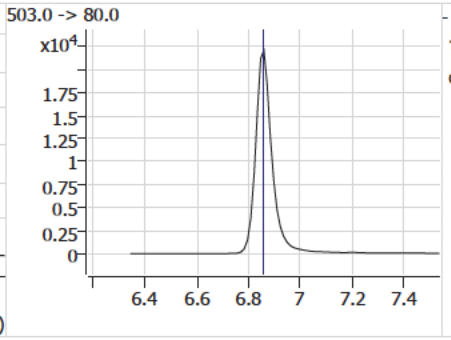


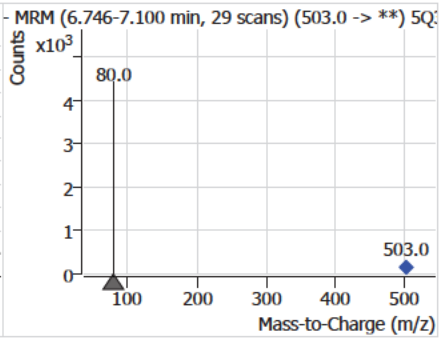




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	95690				

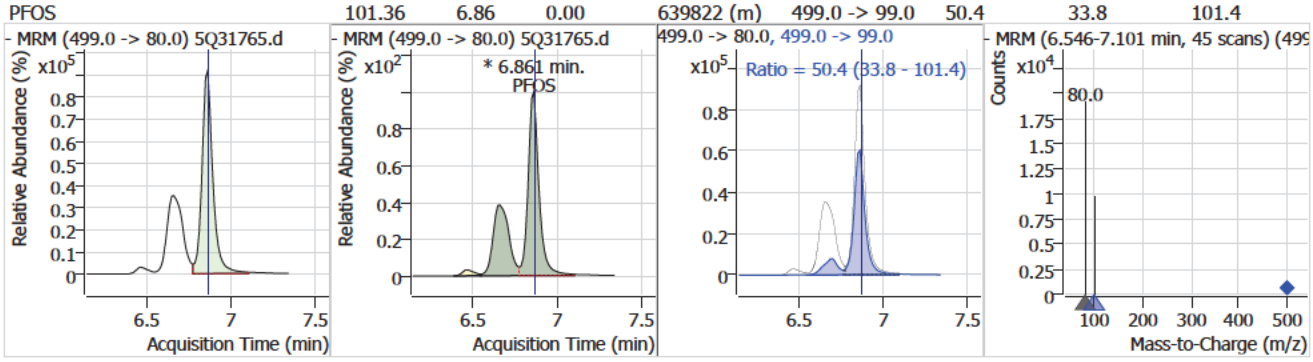




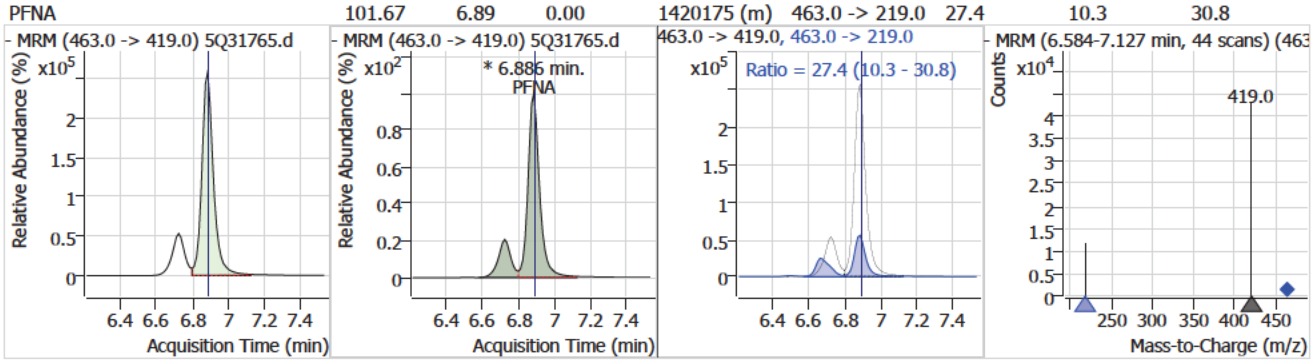


Perfluorinated Compounds by LC/MS/MS

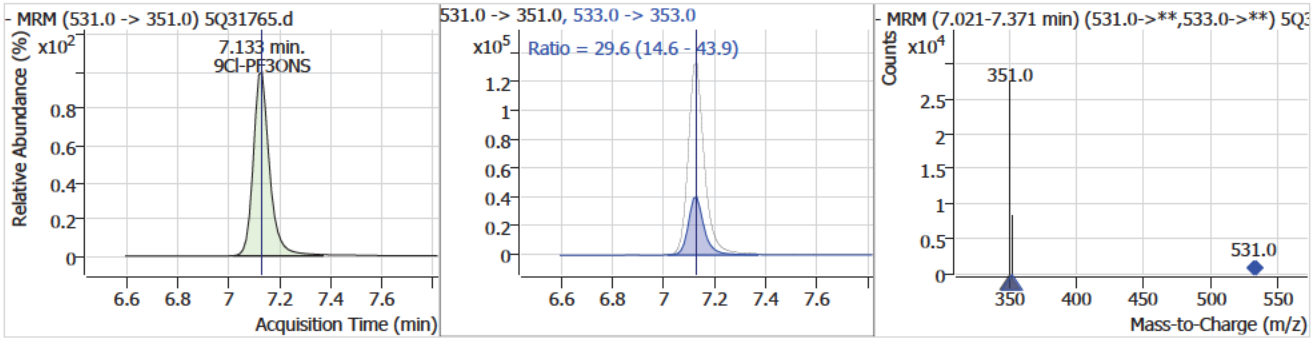
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	101.36	6.86	0.00	639822 (m)	499.0 -> 99.0	50.4	33.8	101.4



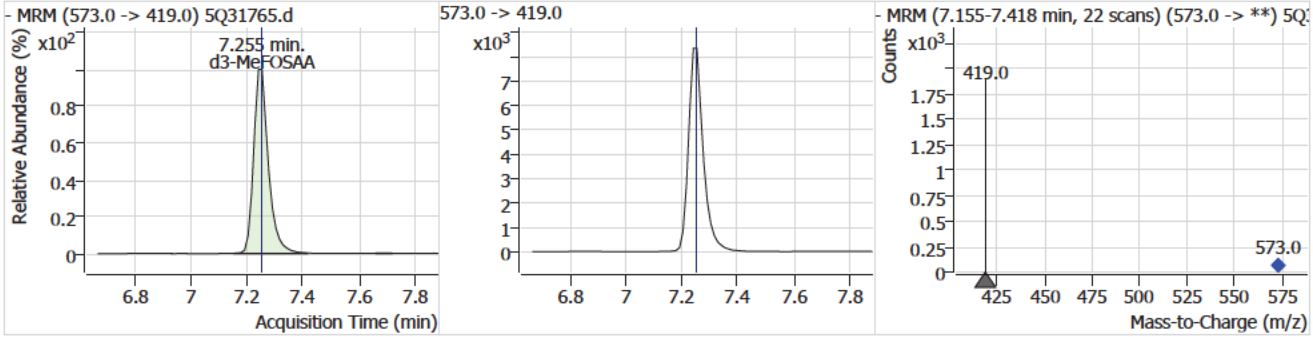
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	101.67	6.89	0.00	1420175 (m)	463.0 -> 219.0	27.4	10.3	30.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	101.72	7.13	0.00	589360	533.0 -> 353.0	29.6	14.6	43.9

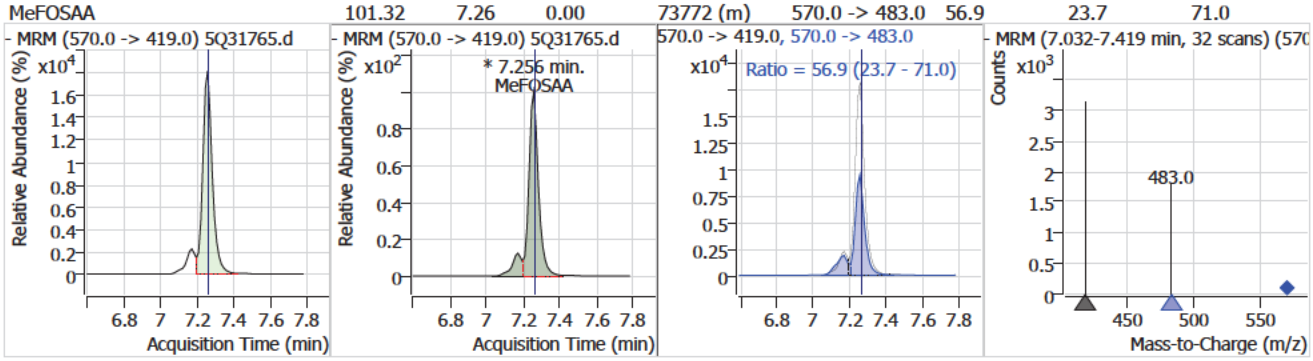


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	30277				

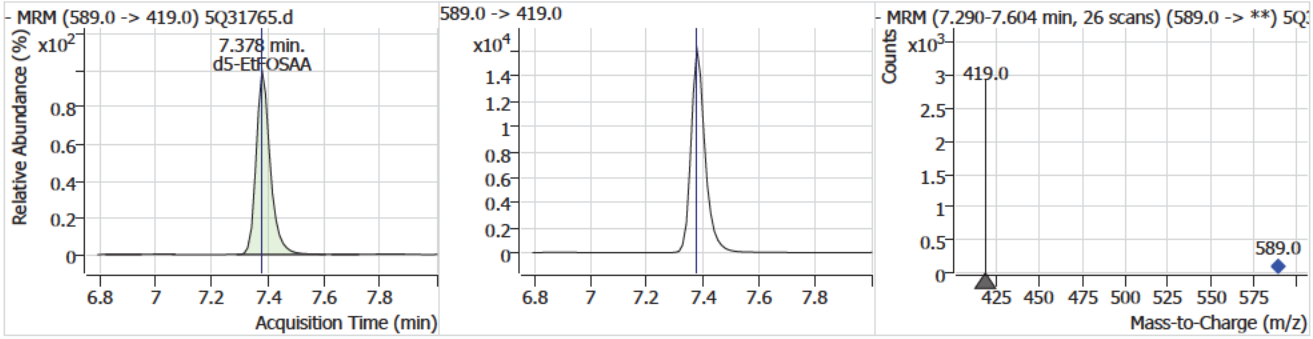


Perfluorinated Compounds by LC/MS/MS

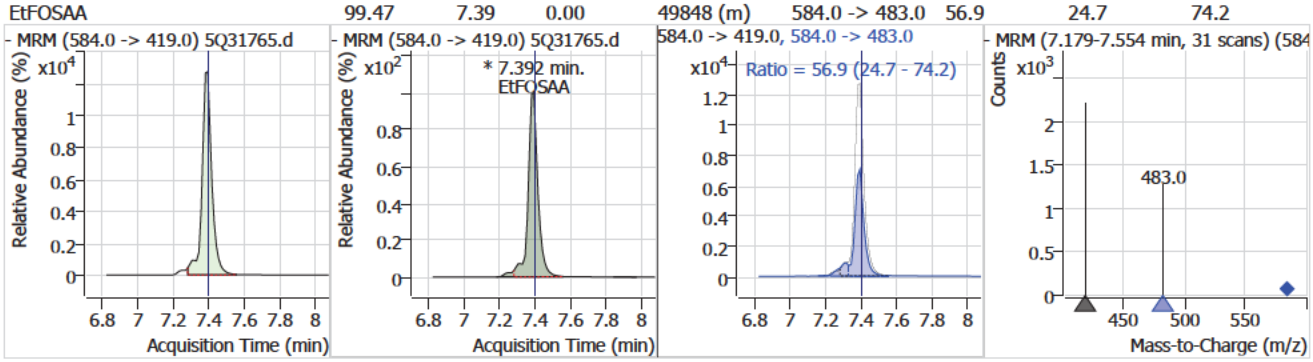
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	101.32	7.26	0.00	73772 (m)	570.0 -> 483.0	56.9	23.7	71.0



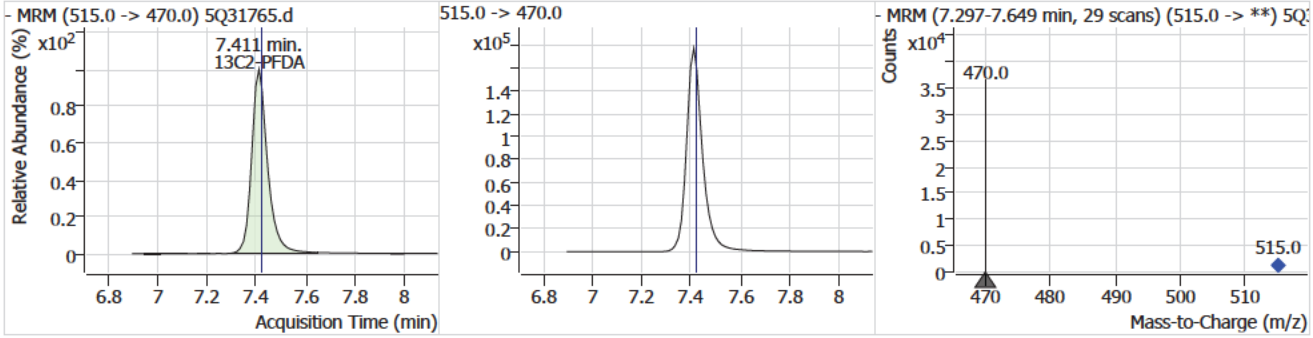
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	99.52	7.38	0.00	55959				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	99.47	7.39	0.00	49848 (m)	584.0 -> 483.0	56.9	24.7	74.2

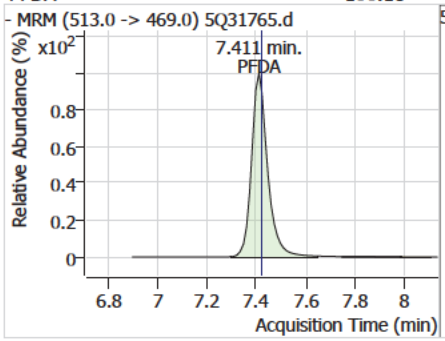


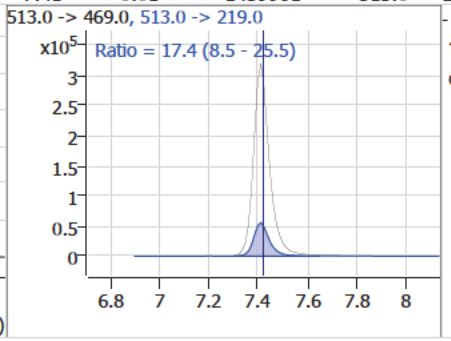
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	50.24	7.41	-0.01	796414				

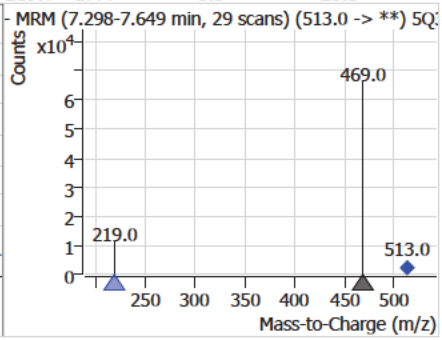


Perfluorinated Compounds by LC/MS/MS

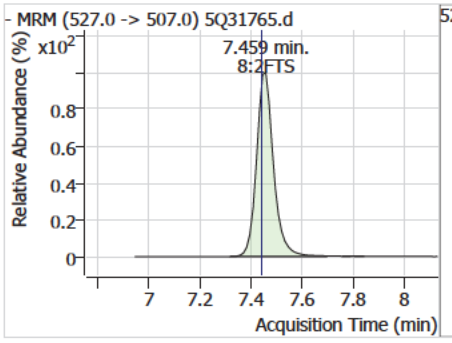
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	100.18	7.41	-0.01	1439961	513.0 -> 219.0	17.4	8.5	25.5

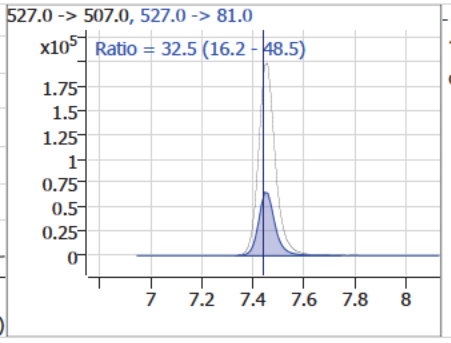


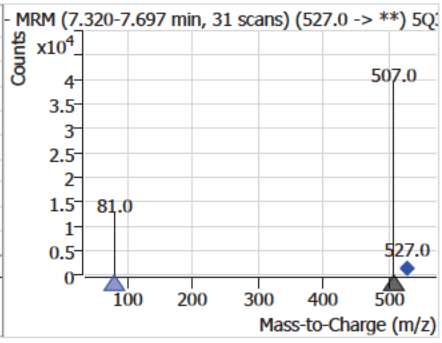




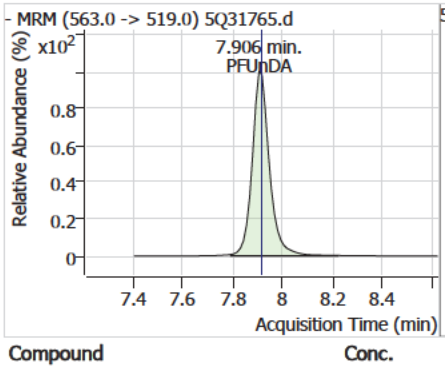
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	97.54	7.46	0.00	913934	527.0 -> 81.0	32.5	16.2	48.5

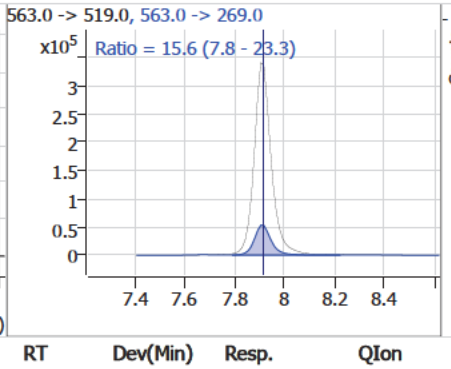


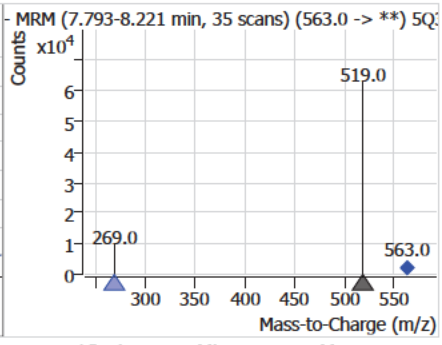




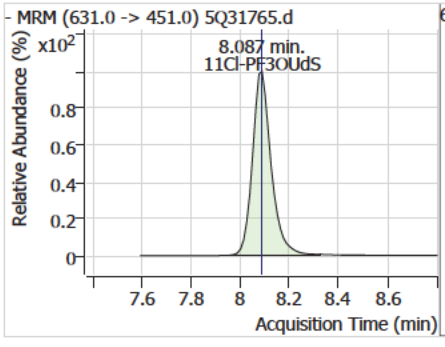
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	100.90	7.91	-0.01	1632998	563.0 -> 269.0	15.6	7.8	23.3

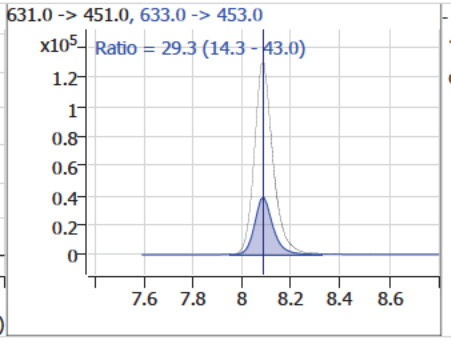


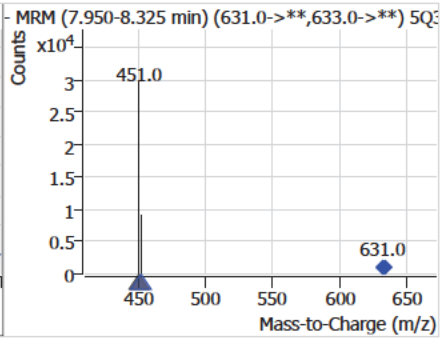




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	99.92	8.09	0.00	693247	633.0 -> 453.0	29.3	14.3	43.0





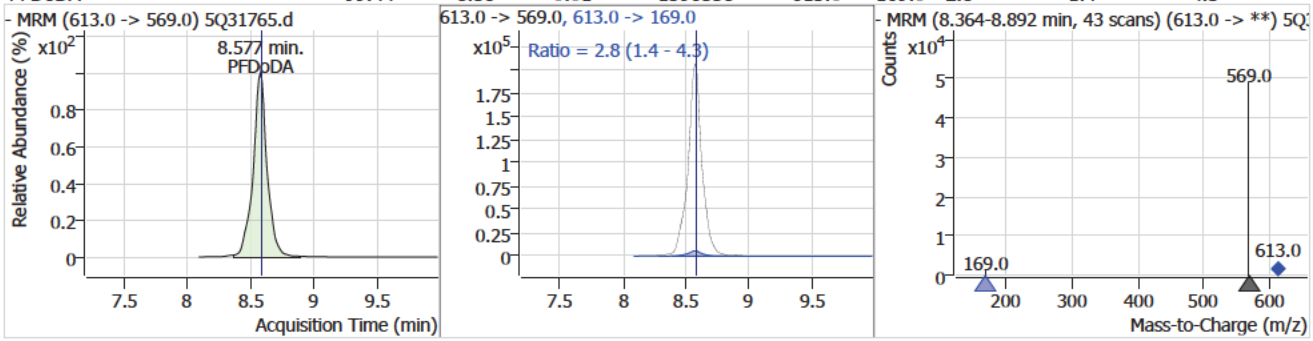


7.7.28

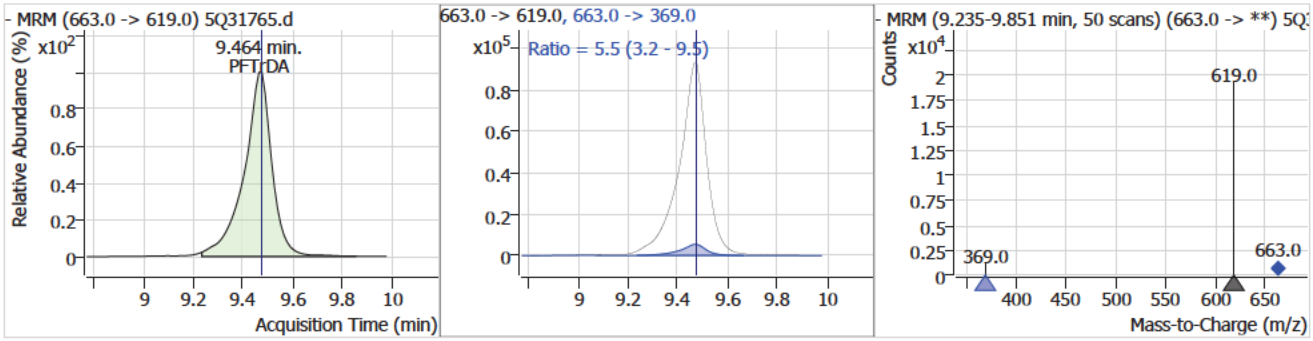
7

Perfluorinated Compounds by LC/MS/MS

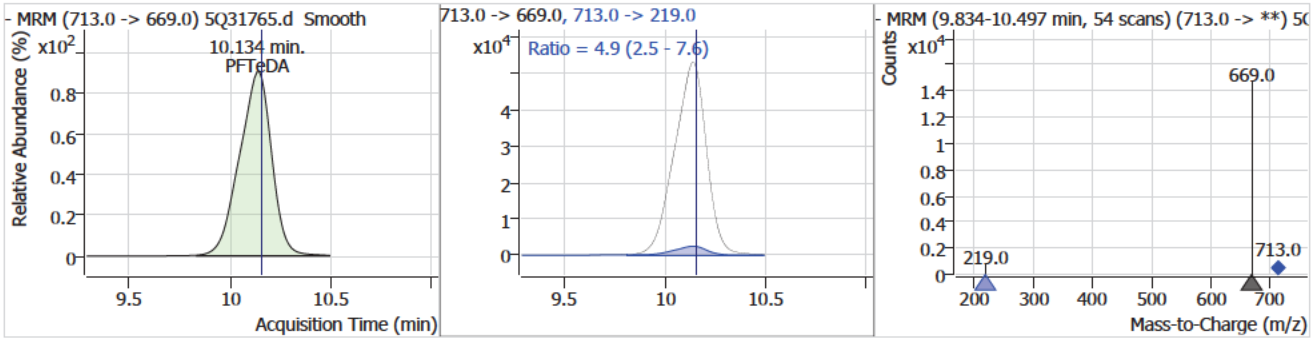
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	99.44	8.58	-0.01	1596558	613.0 -> 169.0	2.8	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	103.52	9.46	-0.01	719527	663.0 -> 369.0	5.5	3.2	9.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	102.82	10.13	-0.03	591995	713.0 -> 219.0	4.9	2.5	7.6



7.7.28

7

Manual Integration Approval Summary

Sample Number: S5Q521-IC521
Lab FileID: 5Q31765.D
Injection Time: 04/15/25 17:13
Method: EPA 537.1 REV 2.0
Analyst approved: 04/16/25 10:55 (b) (6)
Supervisor approved: 04/16/25 15:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Cal Report: 5Q31766.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/16/25 15:44

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31766.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/15/2025 5:29:38 PM
Sample Name : icv521-20
Vial : P1-B1
DA Method File : 537_041525_S5Q521.quantmethod
Batch Name : s5q521.batch.bin
Sample Information : OP8882,S5Q521,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.287	429.0 -> 409.0	186775	20.00	µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	406642	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	535312	20.00	µg/L		-0.012
13C4-PFOS	6.860	503.0 -> 80.0	97275	20.00	µg/L		0.000
d3-MeFOSAA	7.242	573.0 -> 419.0	31095	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.436	515.0 -> 470.0	0		µg/L	m	0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C2-PFHxA	4.775	315.0 -> 270.0	0		µg/L	m	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
d5-EtFOSAA	7.354	589.0 -> 419.0	0		µg/L	m	-0.025
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	0		µg/L	m	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
Target Compounds							QValue
6:2FTS	6.275	427.0 -> 407.0	193366	20.83	µg/L		99
8:2FTS	7.459	527.0 -> 507.0	167452	21.11	µg/L		100
EtFOSAA	7.380	584.0 -> 419.0	10942	21.26	µg/L	m	99
MeFOSAA	7.256	570.0 -> 419.0	13151	17.59	µg/L	m	87
PFBS	3.841	299.0 -> 80.0	239446	17.77	µg/L		100
PFDA	7.424	513.0 -> 469.0	273540	17.47	µg/L		99
PFDoDA	8.590	613.0 -> 569.0	371508	29.01	µg/L		99
PFHpA	5.614	363.0 -> 319.0	677382	18.32	µg/L		100
PFHxA	4.777	313.0 -> 269.0	315737	17.23	µg/L		99
PFHxS	5.635	399.0 -> 80.0	140731	15.60	µg/L	m	100
PFNA	6.886	463.0 -> 419.0	301126	19.79	µg/L		98
PFOA	6.290	413.0 -> 369.0	394342	19.37	µg/L		100
PFOS	6.861	499.0 -> 80.0	115035	17.93	µg/L	m	85
PFPeA	3.597	263.0 -> 219.0	700627	19.59	µg/L		100
PFTeDA	10.147	713.0 -> 669.0	98212	16.78	µg/L		100
PFTrDA	9.476	663.0 -> 619.0	177245	25.08	µg/L	m	99
PFUnDA	7.918	563.0 -> 519.0	353094	21.46	µg/L		100
ADONA	5.688	377.0 -> 251.0	827576	16.25	µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	97682	15.48	µg/L		99
11Cl-PF3OUdS	8.087	631.0 -> 451.0	121797	19.68	µg/L		97
HFPO-DA	5.022	285.0 -> 169.0	31489	17.90	µg/L		100

= Qualifier out of range, m = manually integrated, + = Area summed

7.7.29
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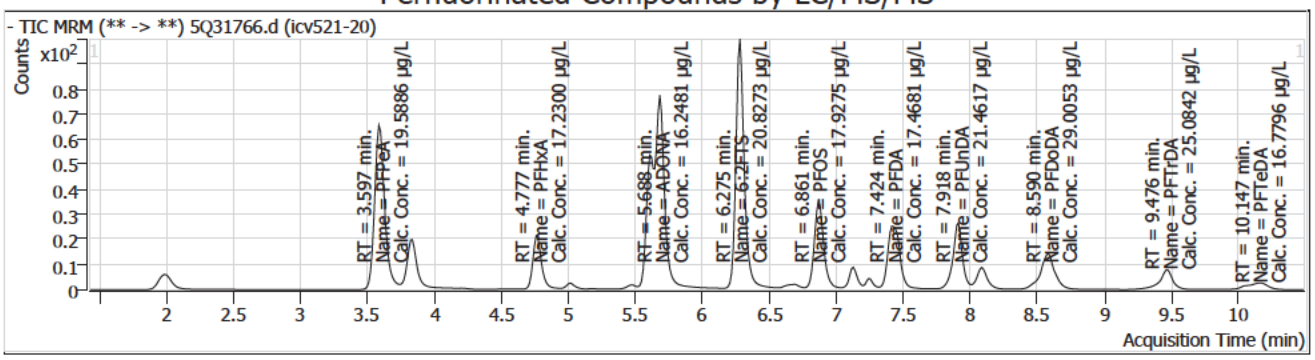
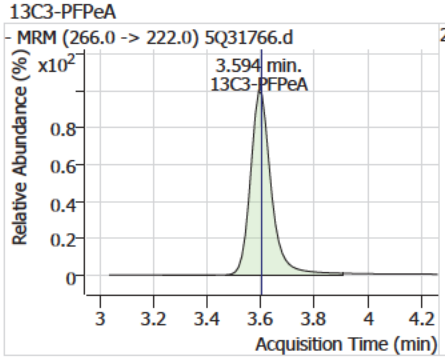
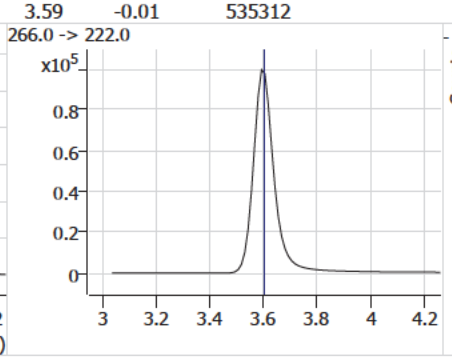
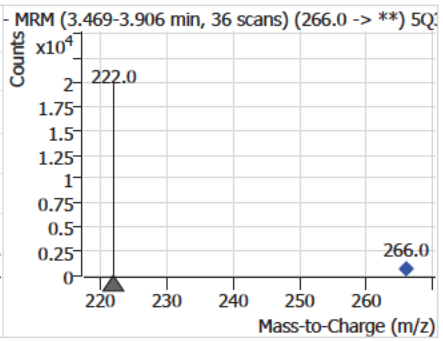
Perfluorinated Compounds by LC/MS/MS



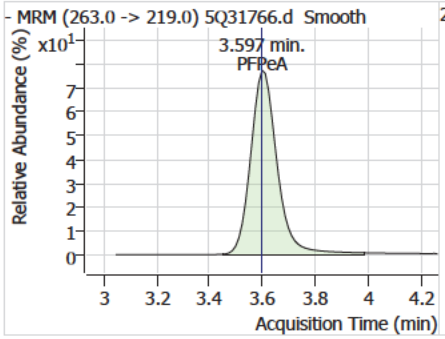
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	535312				

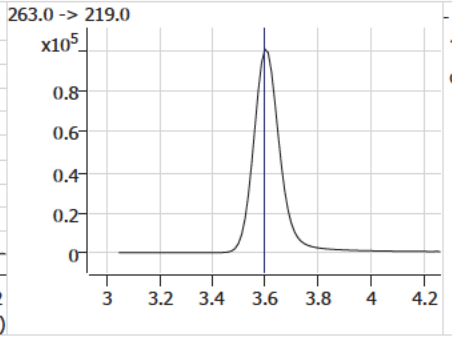


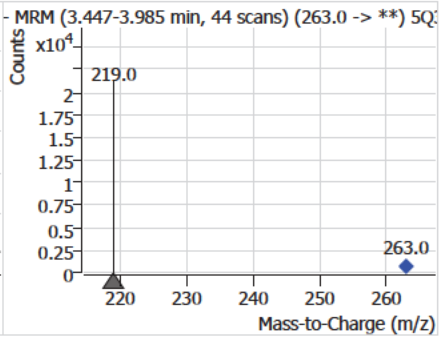




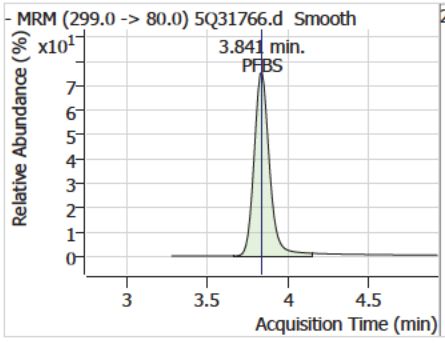
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.59	3.60	-0.01	700627				

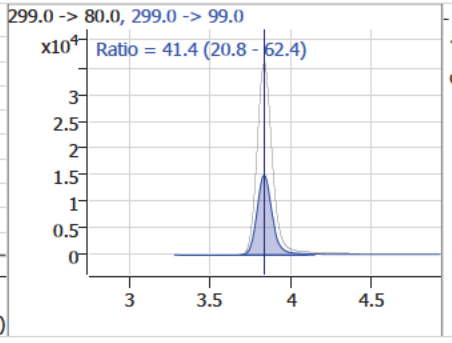


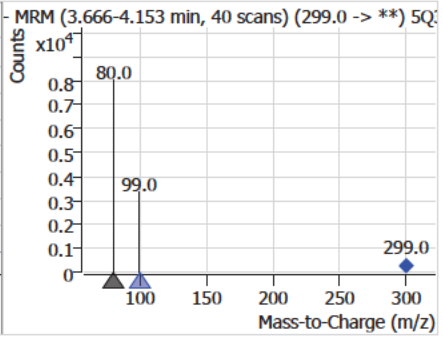




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	17.77	3.84	0.00	239446	299.0 -> 99.0	41.4	20.8	62.4







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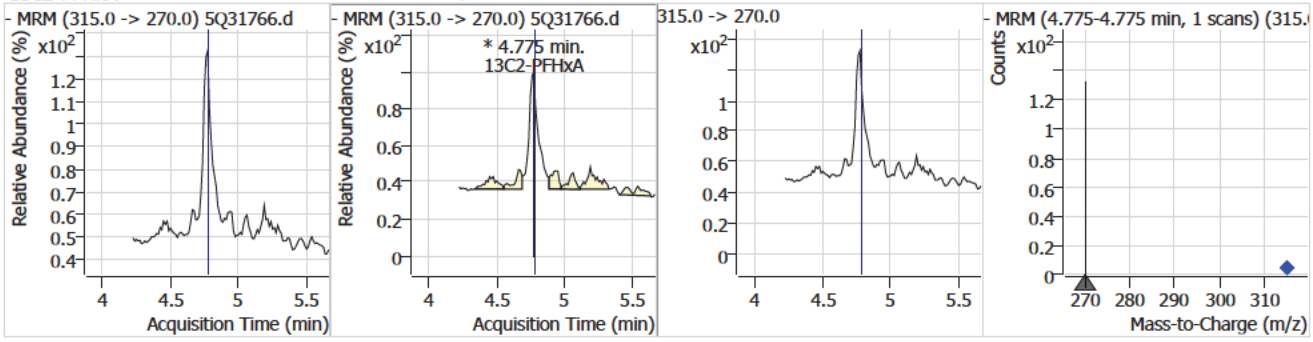
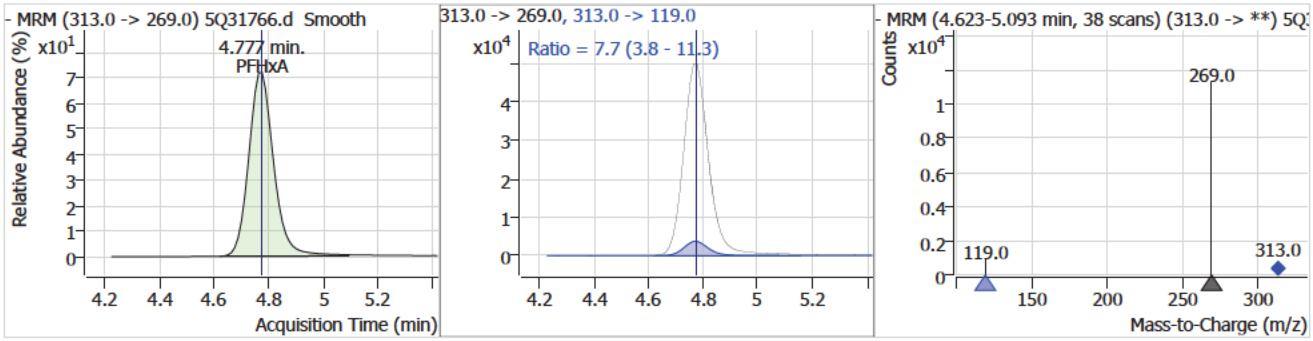
Perfluorinated Compounds by LC/MS/MS

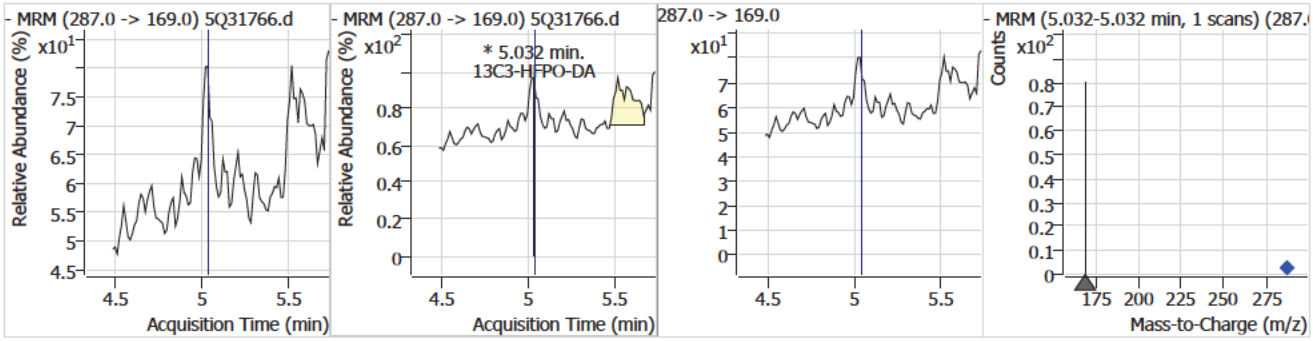
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA		0		0				



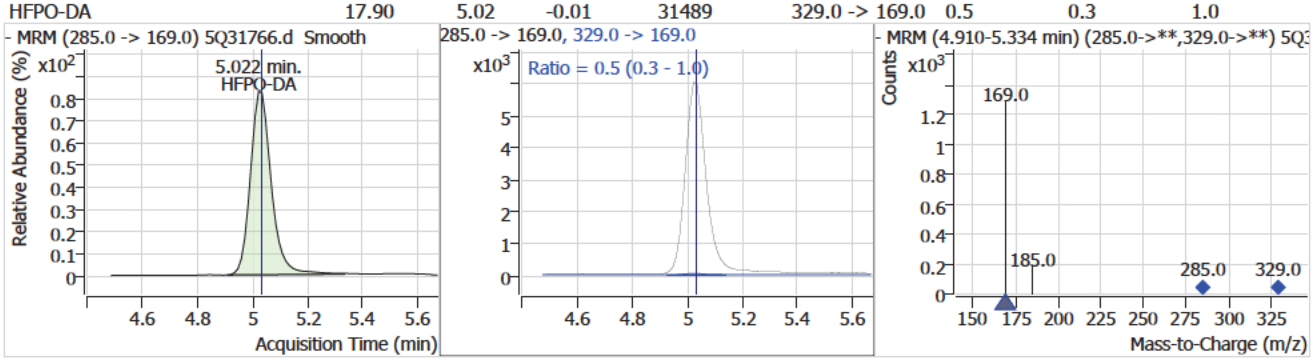
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	17.23	4.78	0.00	315737	313.0 -> 119.0	7.7	3.8	11.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA		0		0				

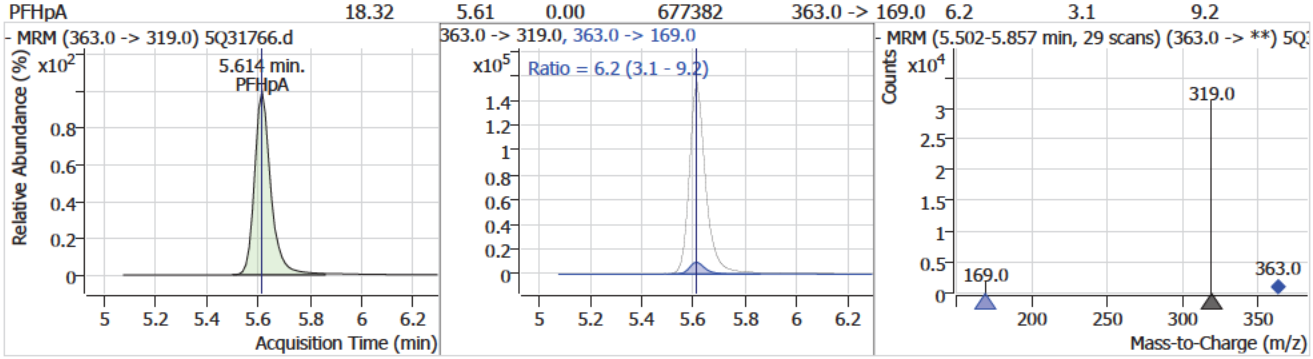


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	17.90	5.02	-0.01	31489	329.0 -> 169.0	0.5	0.3	1.0

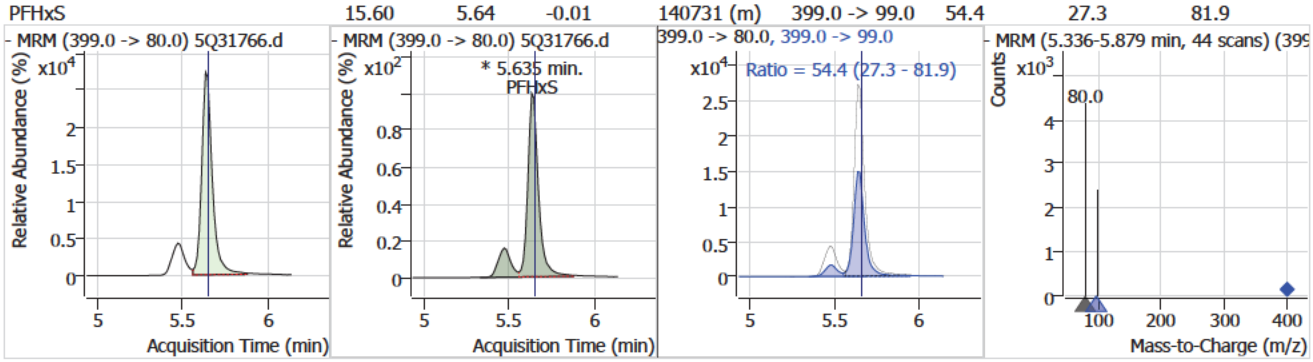


Perfluorinated Compounds by LC/MS/MS

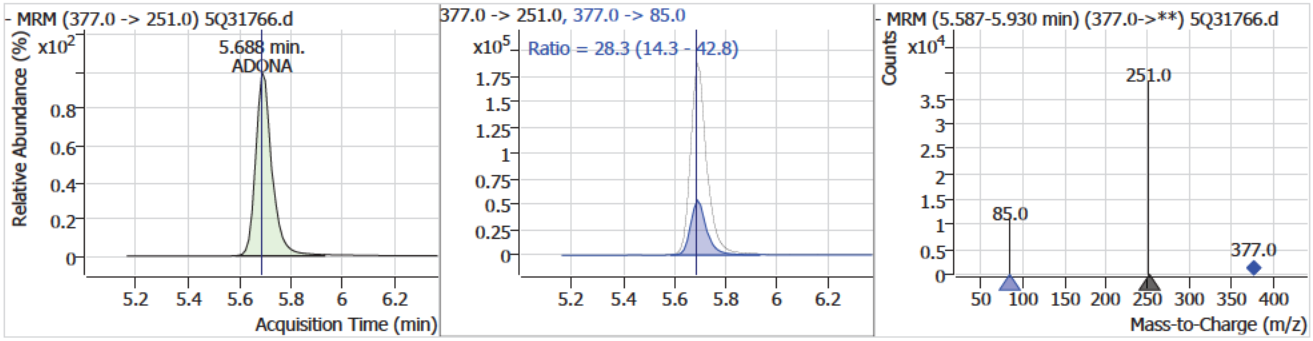
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	18.32	5.61	0.00	677382	363.0 -> 169.0	6.2	3.1	9.2



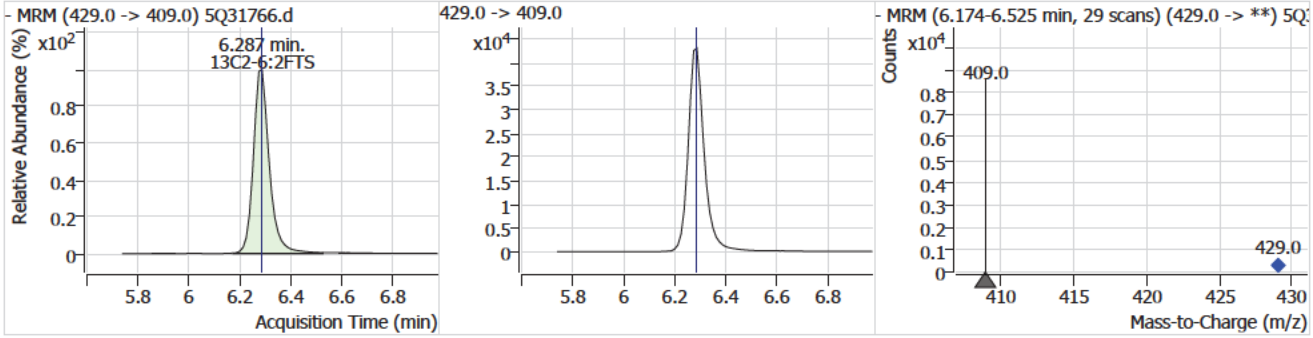
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	15.60	5.64	-0.01	140731 (m)	399.0 -> 99.0	54.4	27.3	81.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	16.25	5.69	0.00	827576	377.0 -> 85.0	28.3	14.3	42.8

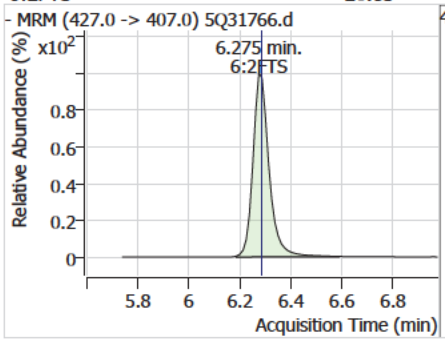


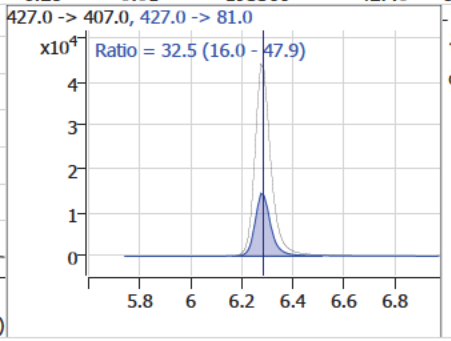
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	186775				

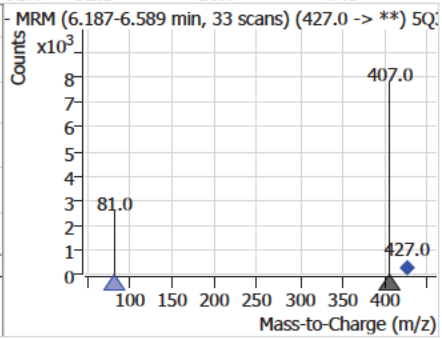


Perfluorinated Compounds by LC/MS/MS

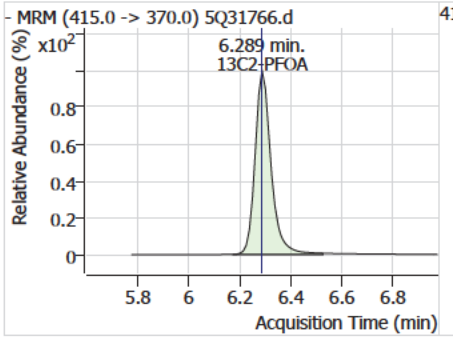
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	20.83	6.28	-0.01	193366	427.0 -> 81.0	32.5	16.0	47.9

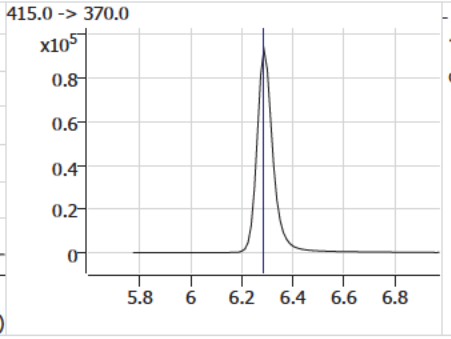


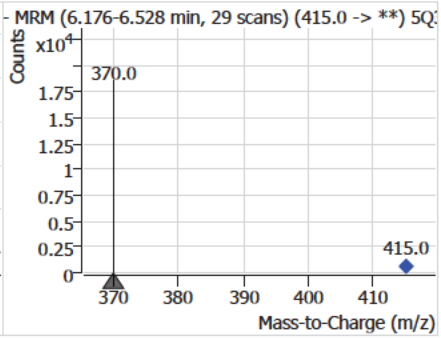




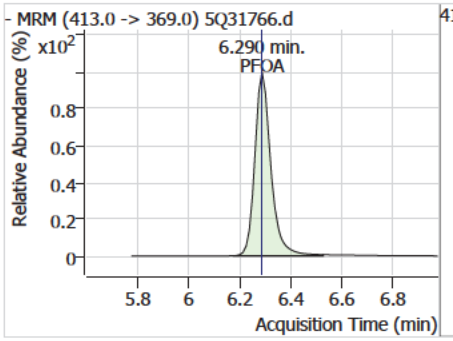
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	406642				

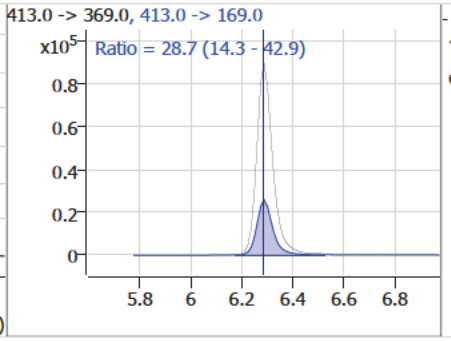


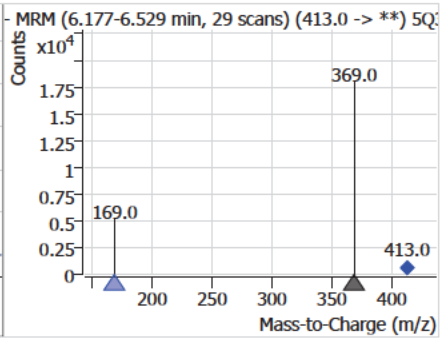




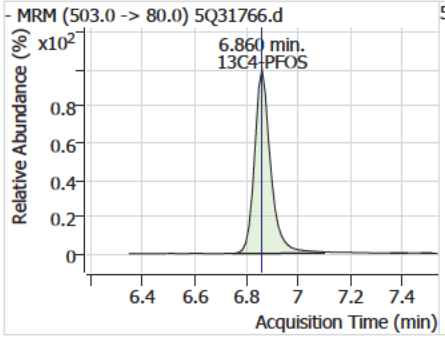
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.37	6.29	0.00	394342	413.0 -> 169.0	28.7	14.3	42.9

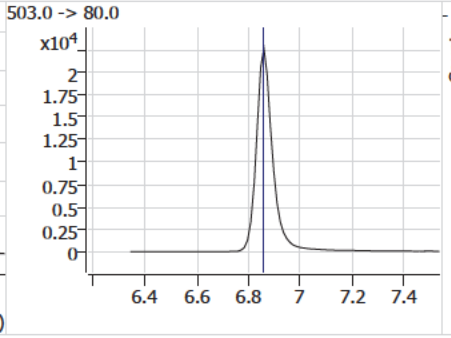


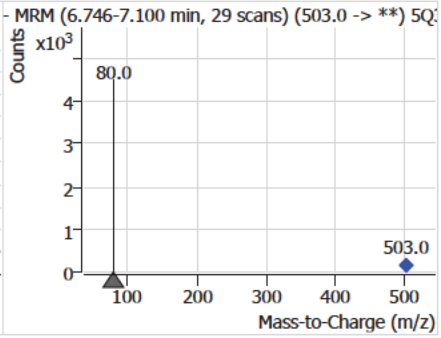




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	97275				

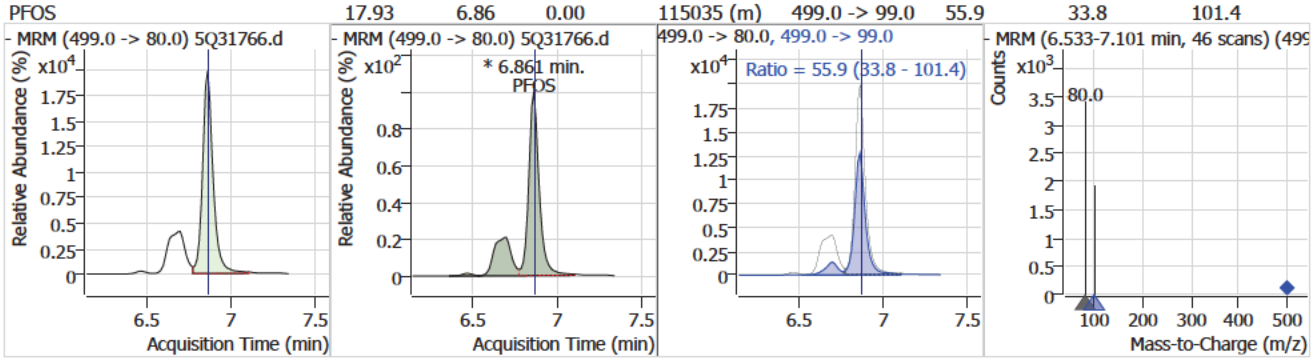




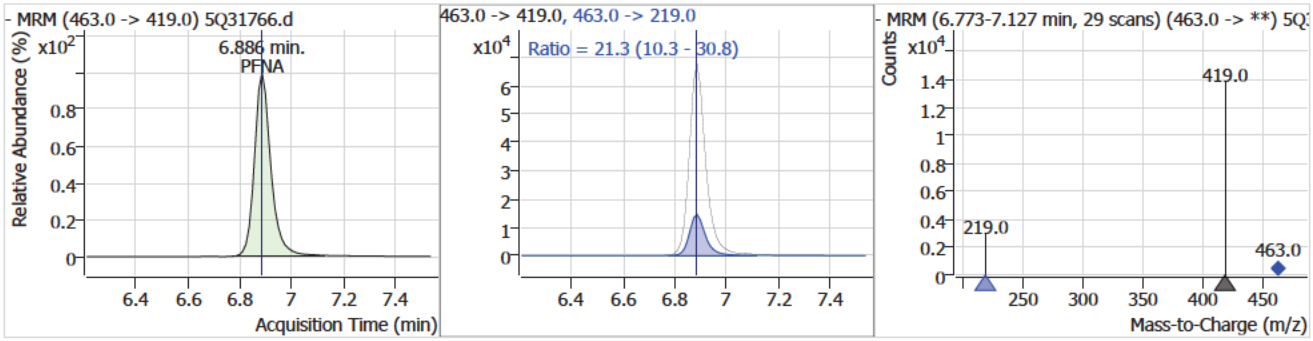


Perfluorinated Compounds by LC/MS/MS

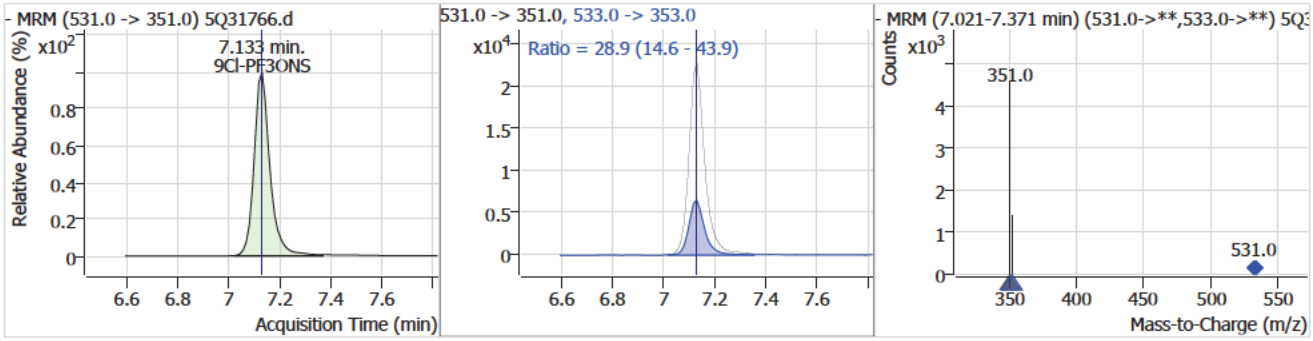
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	17.93	6.86	0.00	115035 (m)	499.0 -> 99.0	55.9	33.8	101.4



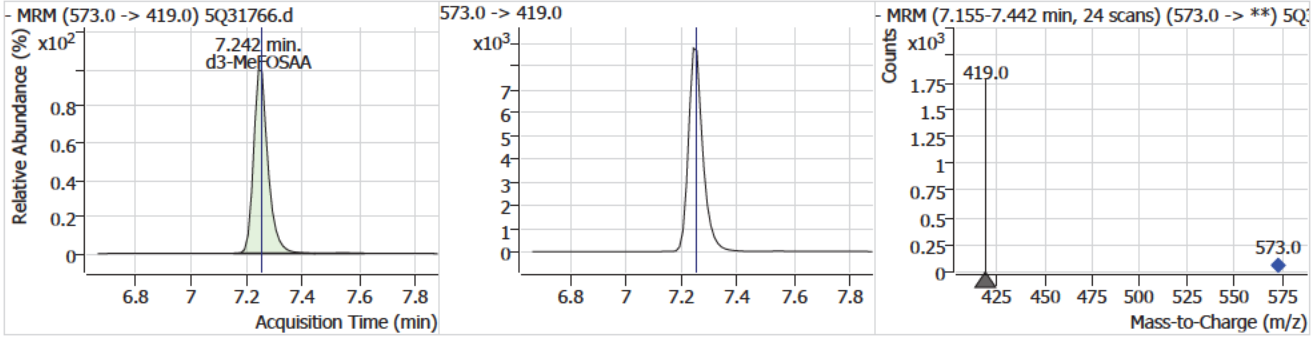
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.79	6.89	0.00	301126	463.0 -> 219.0	21.3	10.3	30.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	15.48	7.13	0.00	97682	533.0 -> 353.0	28.9	14.6	43.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	31095				



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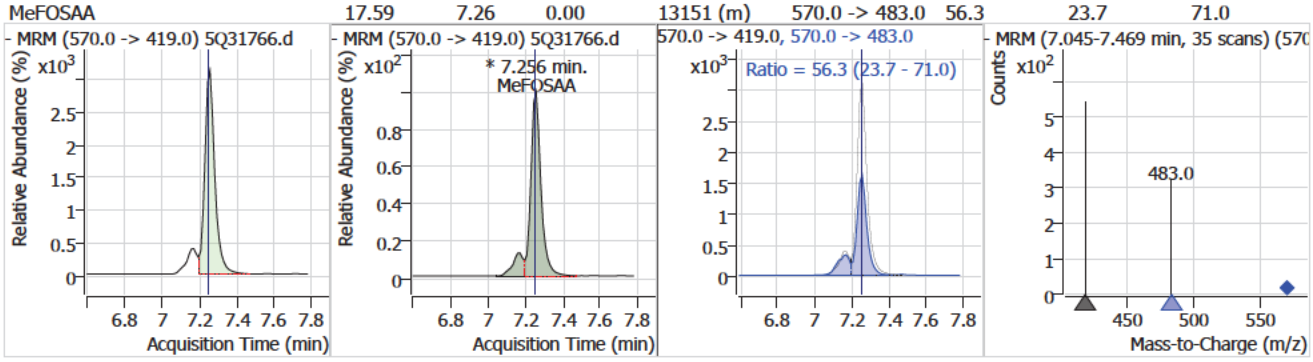
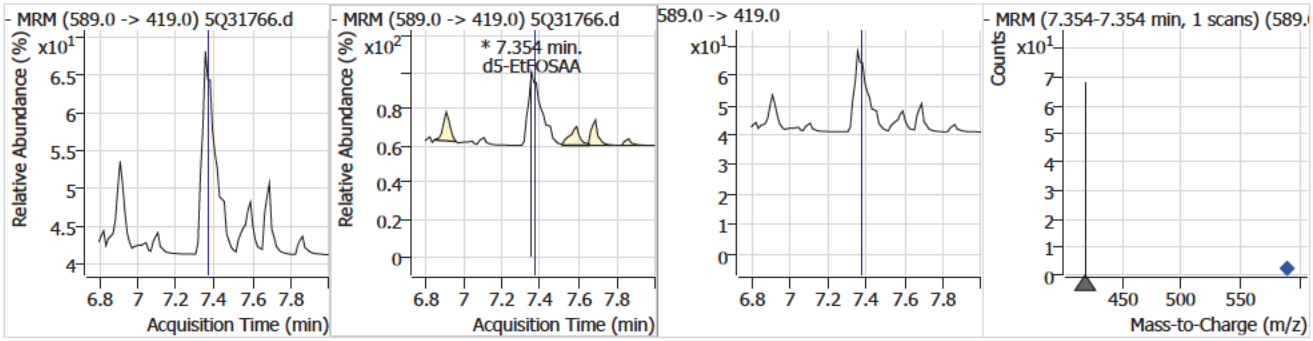
Perfluorinated Compounds by LC/MS/MS

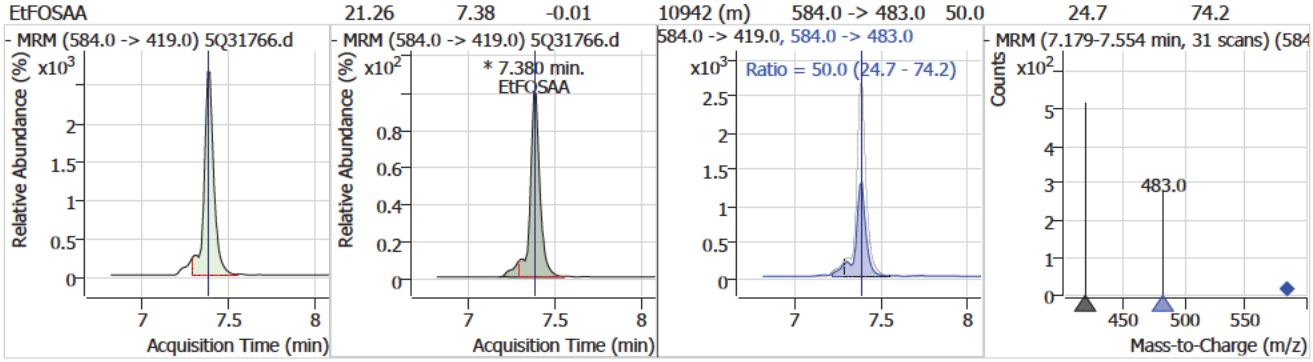
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	17.59	7.26	0.00	13151 (m)	570.0 -> 483.0	56.3	23.7	71.0



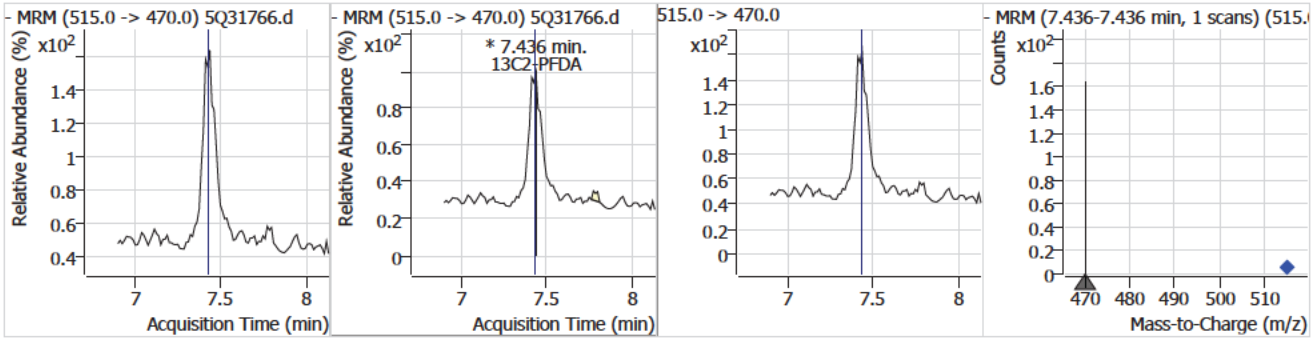
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA		0		0				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	21.26	7.38	-0.01	10942 (m)	584.0 -> 483.0	50.0	24.7	74.2

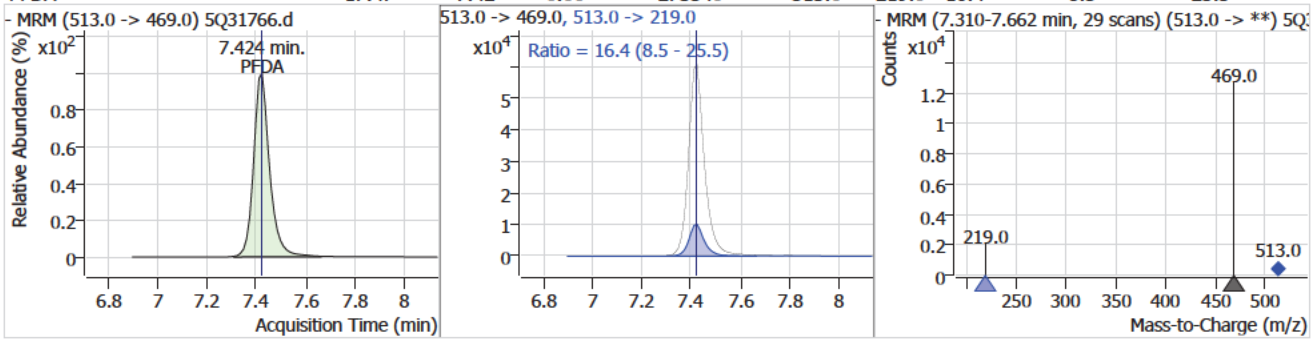


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA		0		0				

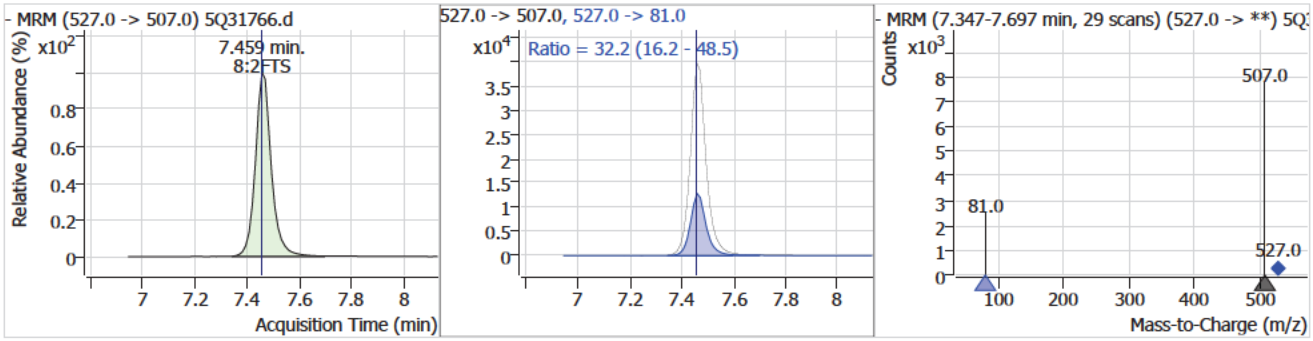


Perfluorinated Compounds by LC/MS/MS

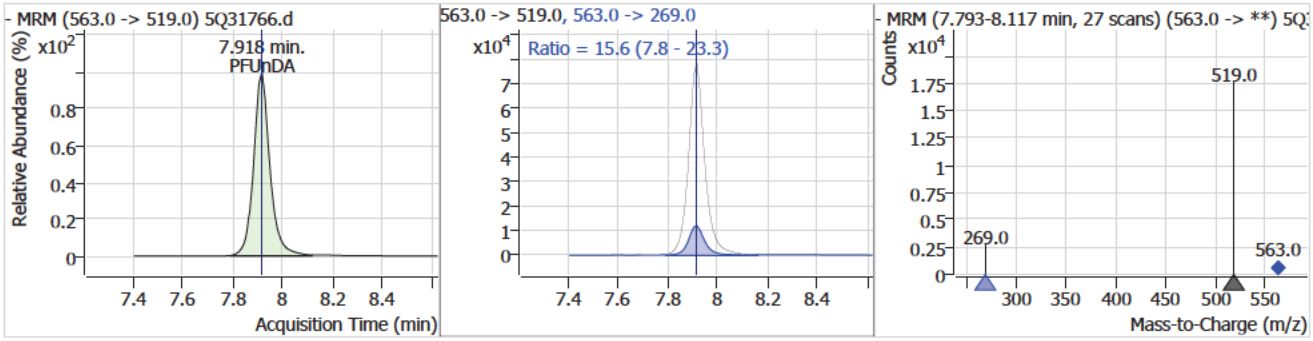
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	17.47	7.42	0.00	273540	513.0 -> 219.0	16.4	8.5	25.5



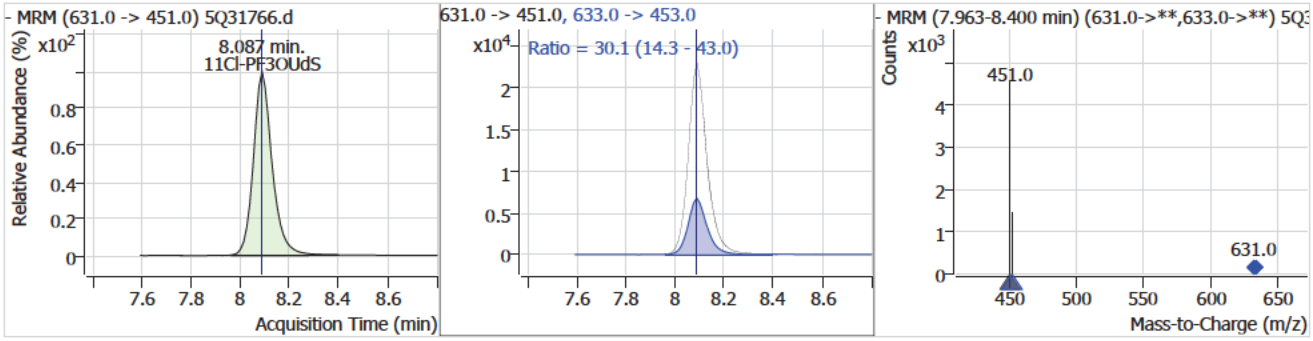
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.11	7.46	0.00	167452	527.0 -> 81.0	32.2	16.2	48.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	21.46	7.92	0.00	353094	563.0 -> 269.0	15.6	7.8	23.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	19.68	8.09	0.00	121797	633.0 -> 453.0	30.1	14.3	43.0



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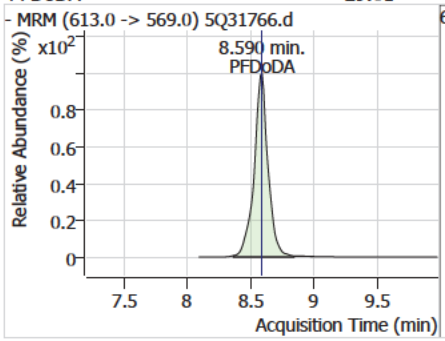
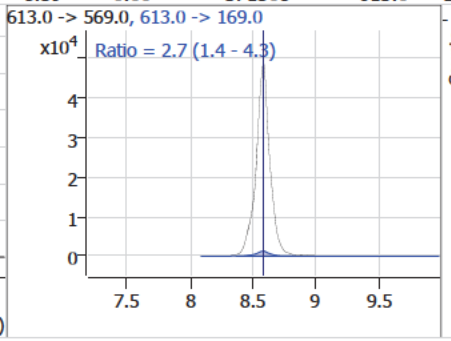
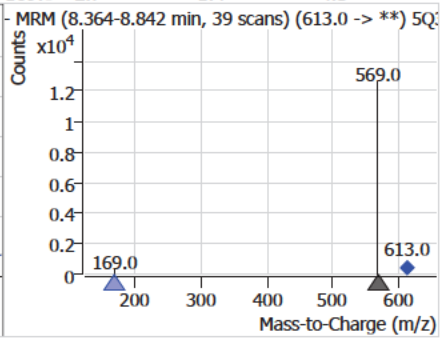
Perfluorinated Compounds by LC/MS/MS

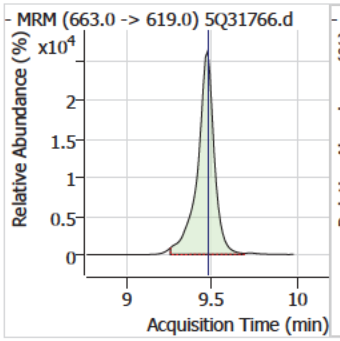
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	29.01	8.59	0.00	371508	613.0 -> 169.0	2.7	1.4	4.3

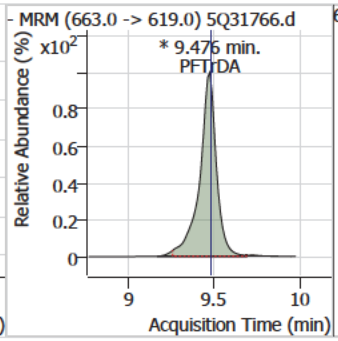


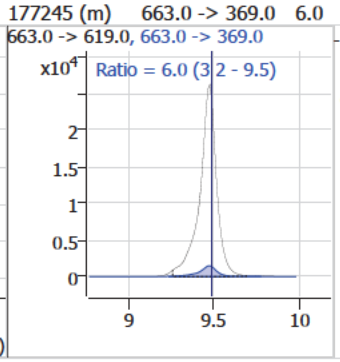


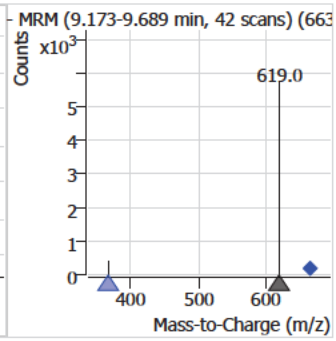


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	25.08	9.48	0.00	177245 (m)	663.0 -> 369.0	6.0	3.2	9.5

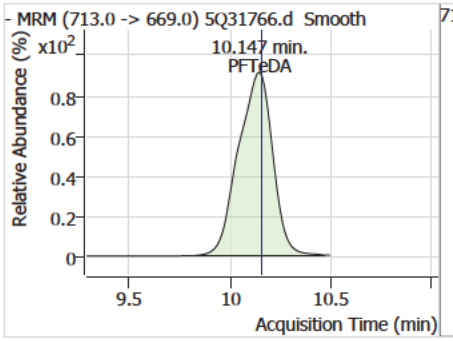


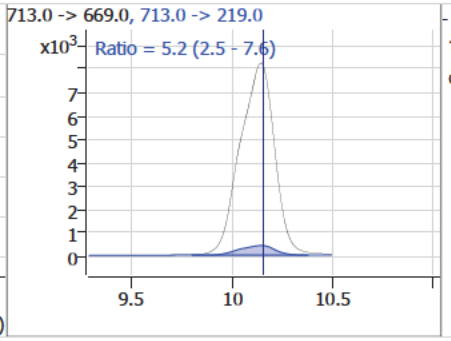


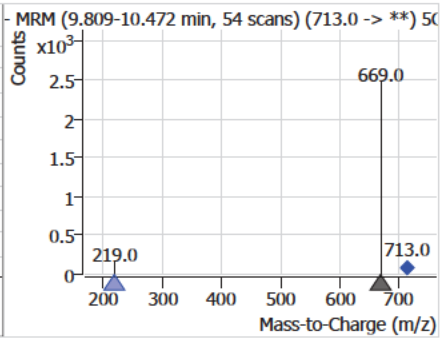




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	16.78	10.15	-0.01	98212	713.0 -> 219.0	5.2	2.5	7.6







7.7.29

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Manual Integration Approval Summary

Sample Number: S5Q521-ICV521
Lab FileID: 5Q31766.D
Injection Time: 04/15/25 17:29
Method: EPA 537.1 REV 2.0
Analyst approved: 04/16/25 10:55 (b) (6) [redacted]
Supervisor approved: 04/16/25 15:44 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.38	Split peak
Perfluorotridecanoic acid	72629-94-8		9.48	Poor instrument integration

Cal Report: 5Q31768.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/16/25 15:44

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31768.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/15/2025 6:01:41 PM
Sample Name : cc521-20
Vial : P1-A7
DA Method File : 537_041525_S5Q521.quantmethod
Batch Name : s5q521.batch.bin
Sample Information : OP8882,S5Q521,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	183585	20.00	µg/L		-0.012
13C2-PFOA	6.289	415.0 -> 370.0	401119	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	537130	20.00	µg/L		-0.012
13C4-PFOS	6.860	503.0 -> 80.0	92694	20.00	µg/L		0.000
d3-MeFOSAA	7.242	573.0 -> 419.0	32175	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	161769	9.50	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 47.5%			
13C2-PFHxA	4.763	315.0 -> 270.0	261617	9.93	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 49.7%			
d5-EtFOSAA	7.378	589.0 -> 419.0	10988	18.39	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 46.0%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	33348	18.59	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 46.5%			
Target Compounds							QValue
6:2FTS	6.275	427.0 -> 407.0	215022	23.56	µg/L		100
8:2FTS	7.459	527.0 -> 507.0	174070	22.33	µg/L		99
EtFOSAA	7.380	584.0 -> 419.0	10962	20.58	µg/L	m	95
MeFOSAA	7.256	570.0 -> 419.0	13222	17.09	µg/L	m	86
PFBS	3.828	299.0 -> 80.0	285258	22.21	µg/L		99
PFDA	7.411	513.0 -> 469.0	299154	19.37	µg/L		100
PFDoDA	8.577	613.0 -> 569.0	274713	23.04	µg/L		100
PFHpA	5.614	363.0 -> 319.0	685837	18.80	µg/L		99
PFHxA	4.764	313.0 -> 269.0	358103	19.81	µg/L		99
PFHxS	5.635	399.0 -> 80.0	167670	19.51	µg/L	m	97
PFNA	6.886	463.0 -> 419.0	270780	18.04	µg/L	m	89
PFOA	6.290	413.0 -> 369.0	394669	19.65	µg/L		100
PFOS	6.861	499.0 -> 80.0	118169	19.33	µg/L	m	77
PFPeA	3.597	263.0 -> 219.0	693791	19.33	µg/L		100
PFTeDA	10.147	713.0 -> 669.0	98207	17.61	µg/L		99
PFTrDA	9.464	663.0 -> 619.0	111185	16.51	µg/L		99
PFUnDA	7.918	563.0 -> 519.0	309536	19.74	µg/L		99
ADONA	5.688	377.0 -> 251.0	903482	17.98	µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	111360	17.89	µg/L		99
11Cl-PF3OUdS	8.087	631.0 -> 451.0	123706	20.23	µg/L		99
HFPO-DA	5.022	285.0 -> 169.0	32728	18.86	µg/L		100

= Qualifier out of range, m = manually integrated, + = Area summed

7.7.30
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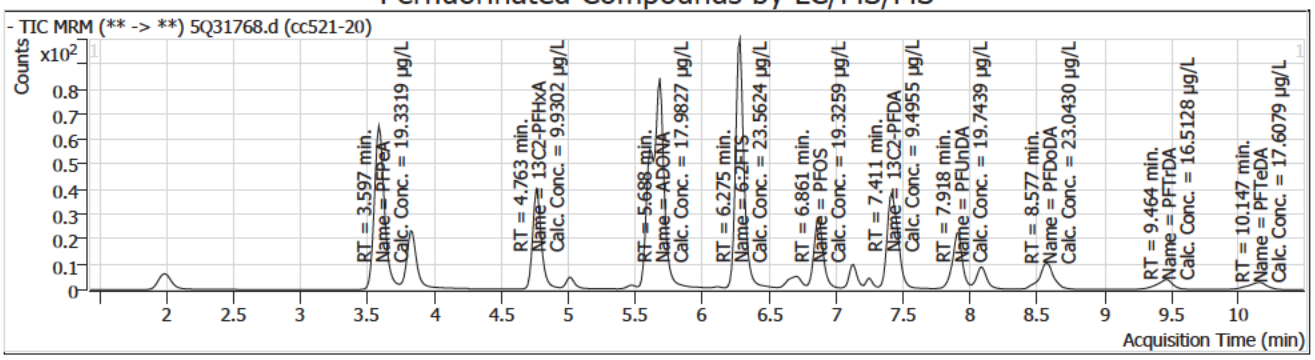
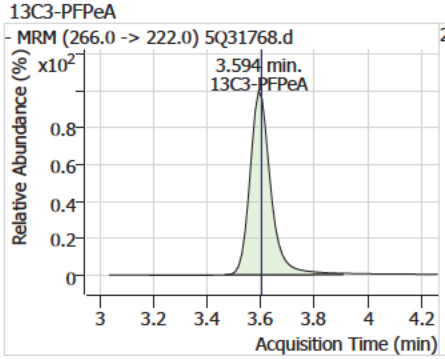
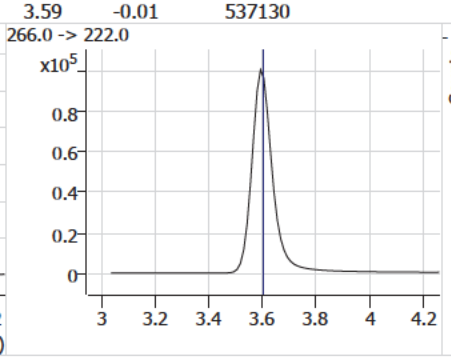
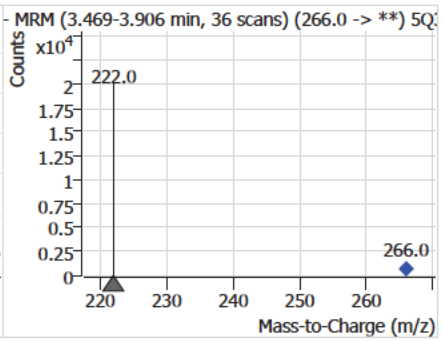
Perfluorinated Compounds by LC/MS/MS



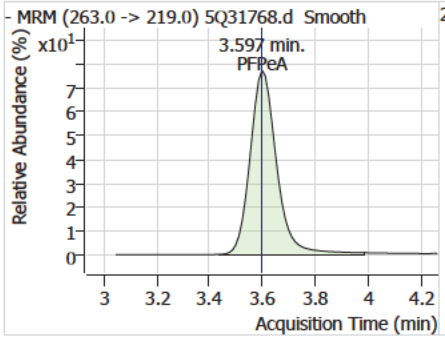
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	537130				

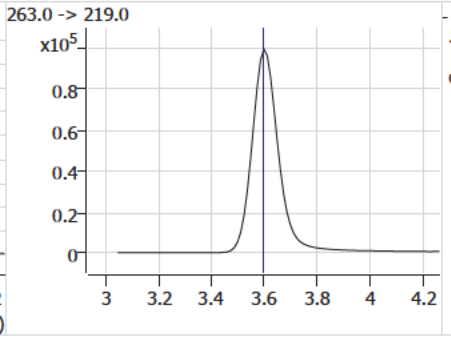


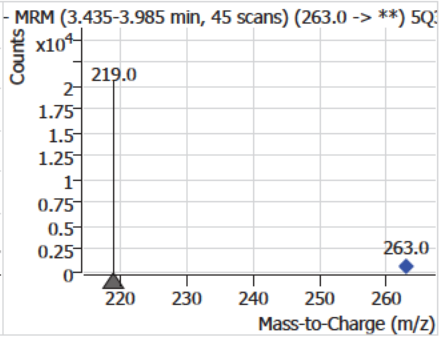




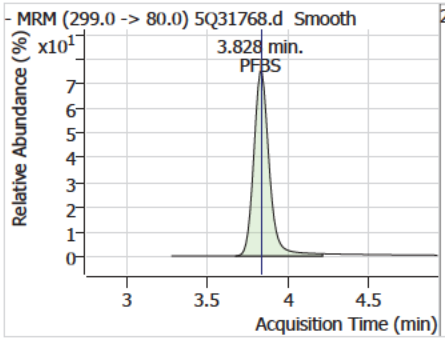
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.33	3.60	-0.01	693791				

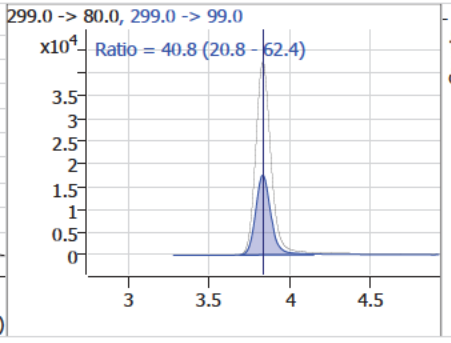


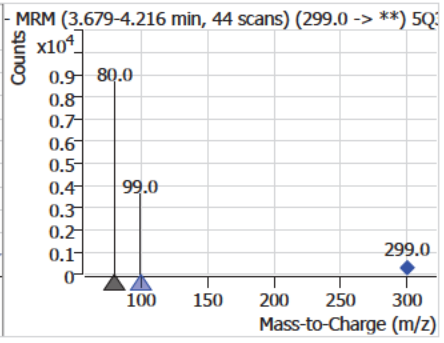




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	22.21	3.83	-0.01	285258	299.0 -> 99.0	40.8	20.8	62.4







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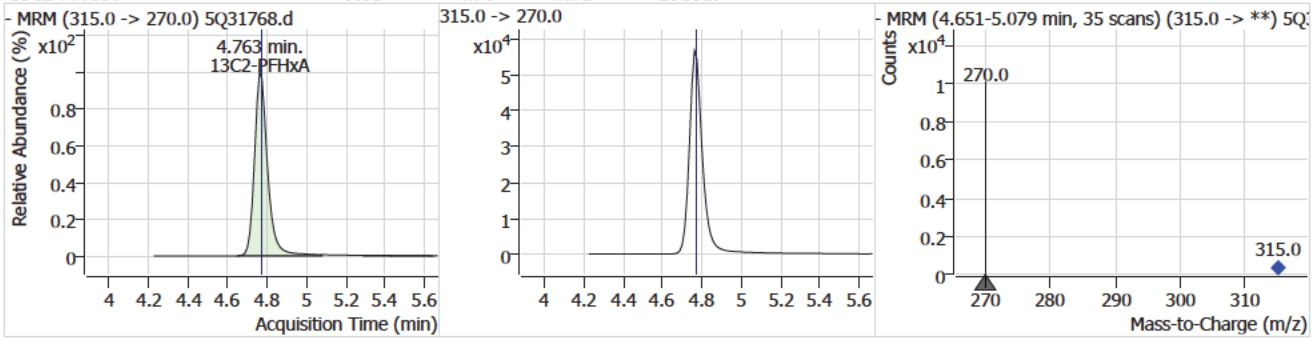
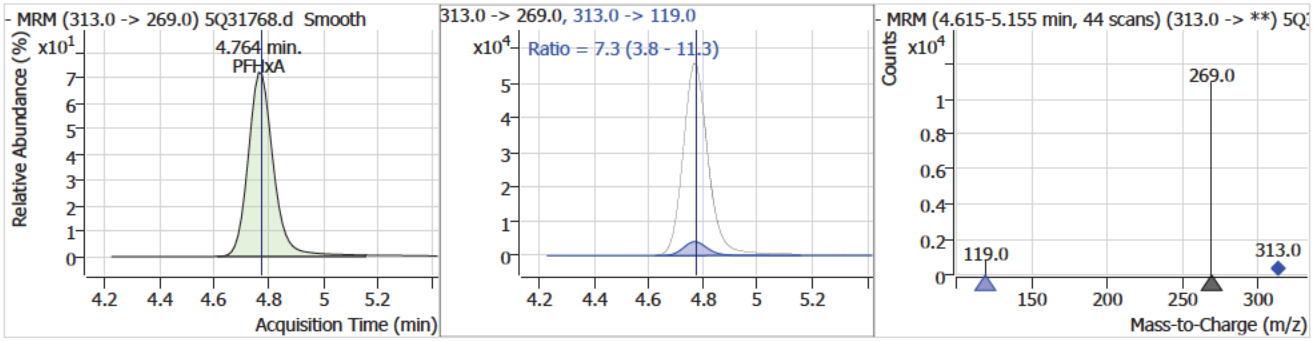
Perfluorinated Compounds by LC/MS/MS

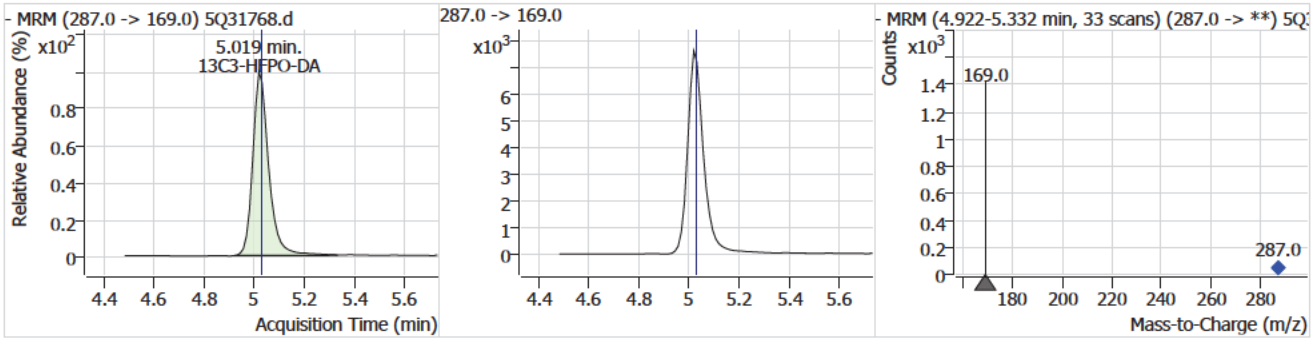
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	9.93	4.76	-0.01	261617				



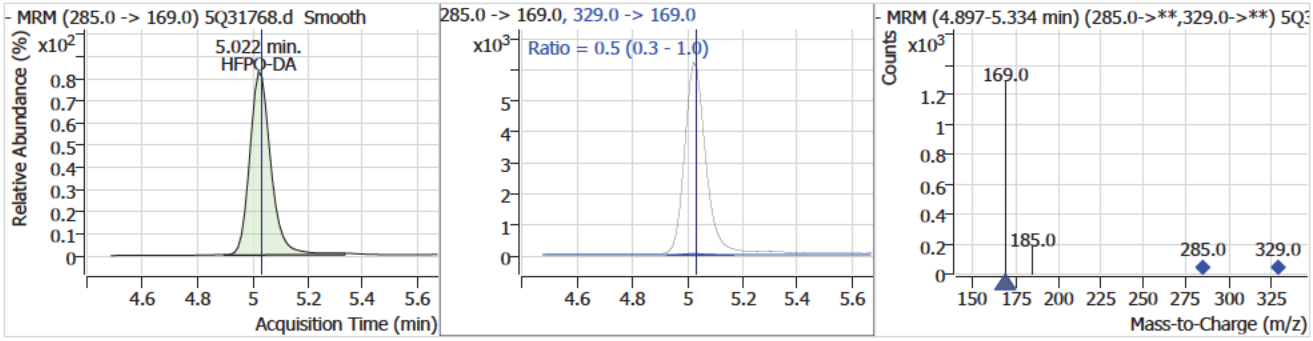
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.81	4.76	-0.01	358103	313.0 -> 119.0	7.3	3.8	11.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	18.59	5.02	-0.01	33348				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	18.86	5.02	-0.01	32728	329.0 -> 169.0	0.5	0.3	1.0



7.7.30

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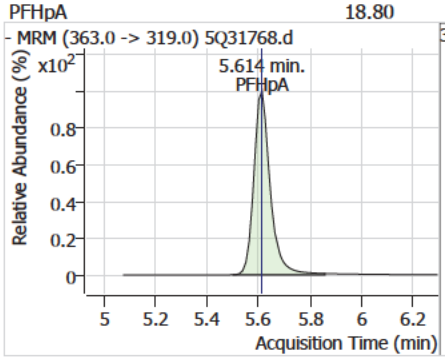
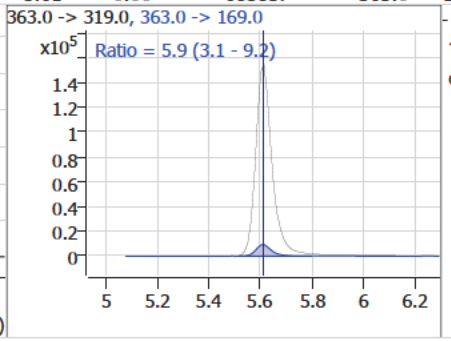
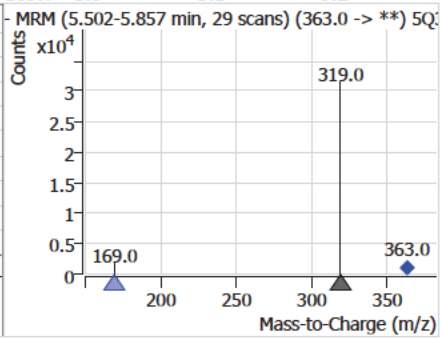
Perfluorinated Compounds by LC/MS/MS

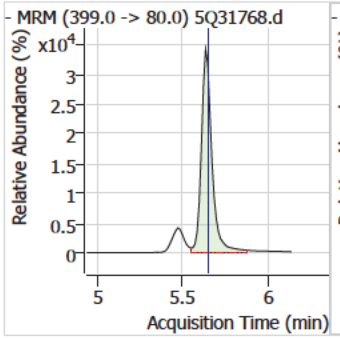
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	18.80	5.61	0.00	685837	363.0 -> 169.0	5.9	3.1	9.2

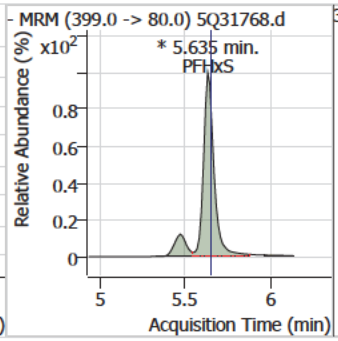


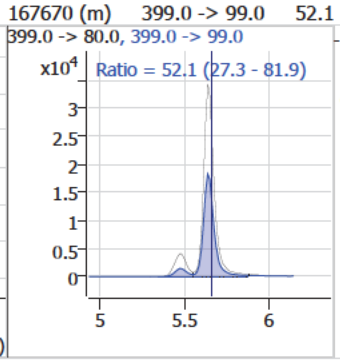


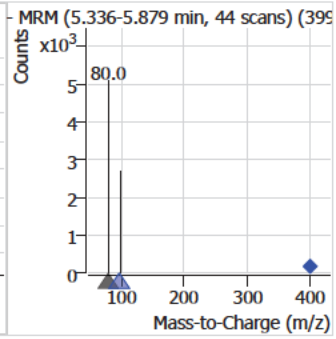


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.51	5.64	-0.01	167670 (m)	399.0 -> 99.0	52.1	27.3	81.9

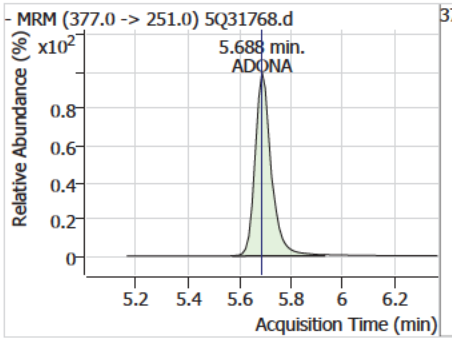


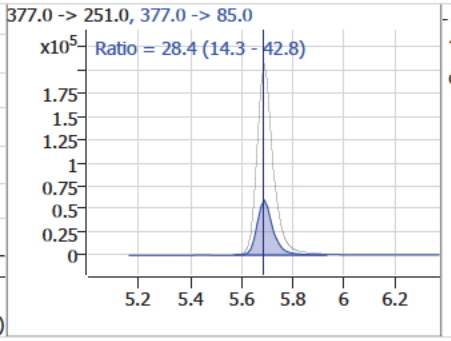


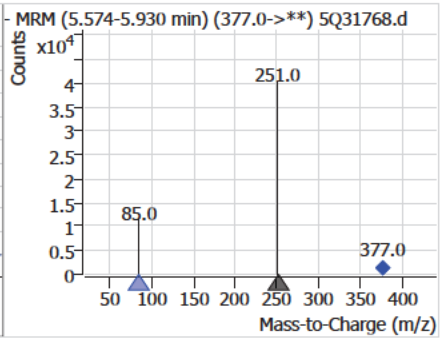




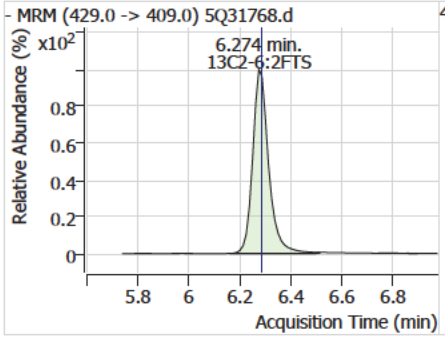
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	17.98	5.69	0.00	903482	377.0 -> 85.0	28.4	14.3	42.8

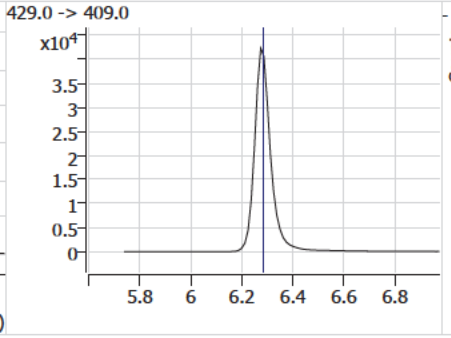


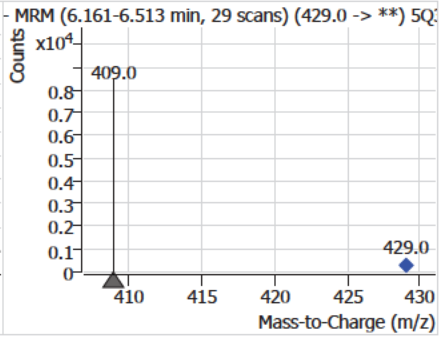




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	183585				







7.7.30

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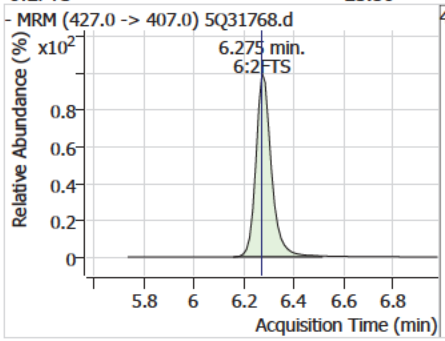
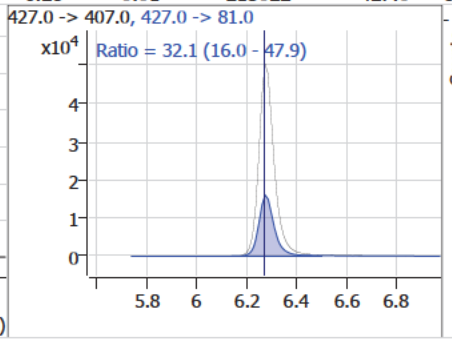
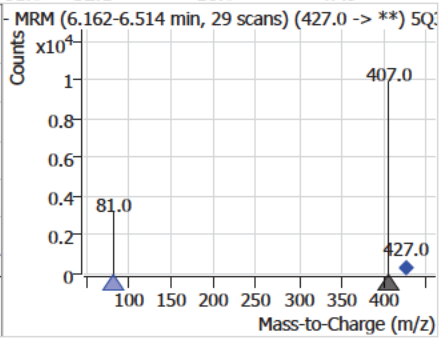
Perfluorinated Compounds by LC/MS/MS

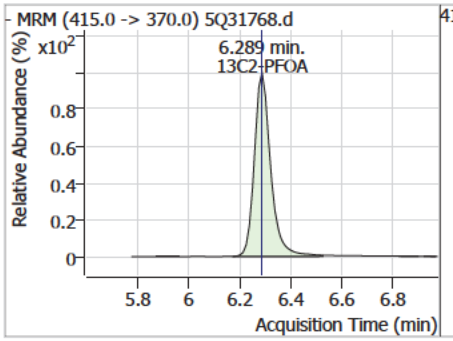
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	23.56	6.28	-0.01	215022	427.0 -> 81.0	32.1	16.0	47.9

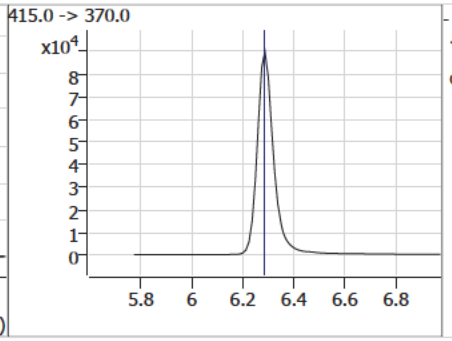


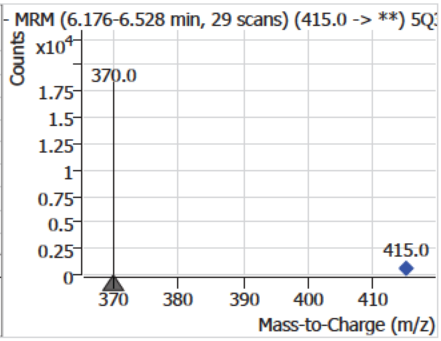




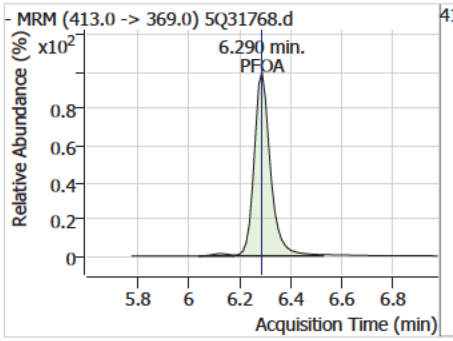
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	401119				

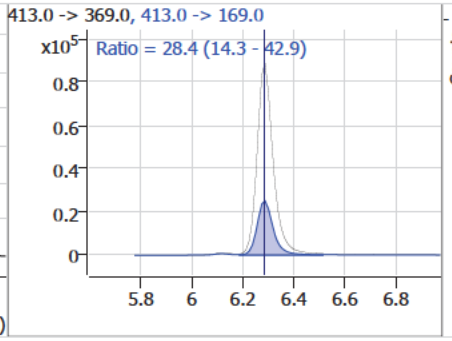


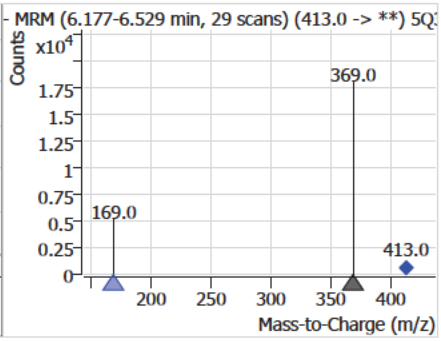




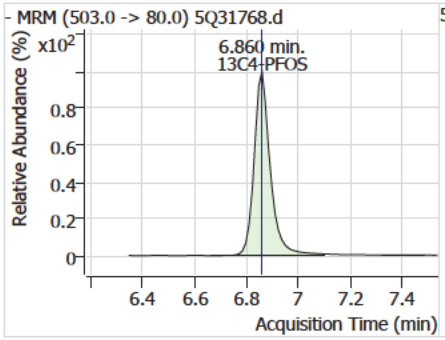
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.65	6.29	0.00	394669	413.0 -> 169.0	28.4	14.3	42.9

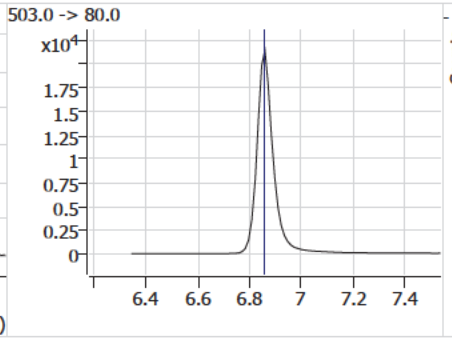


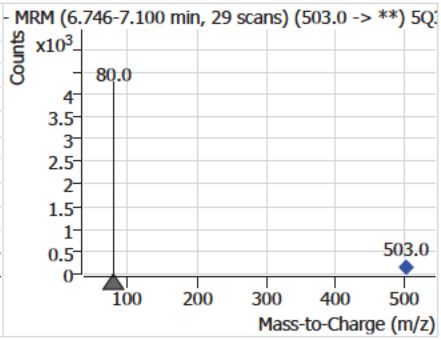




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	92694				

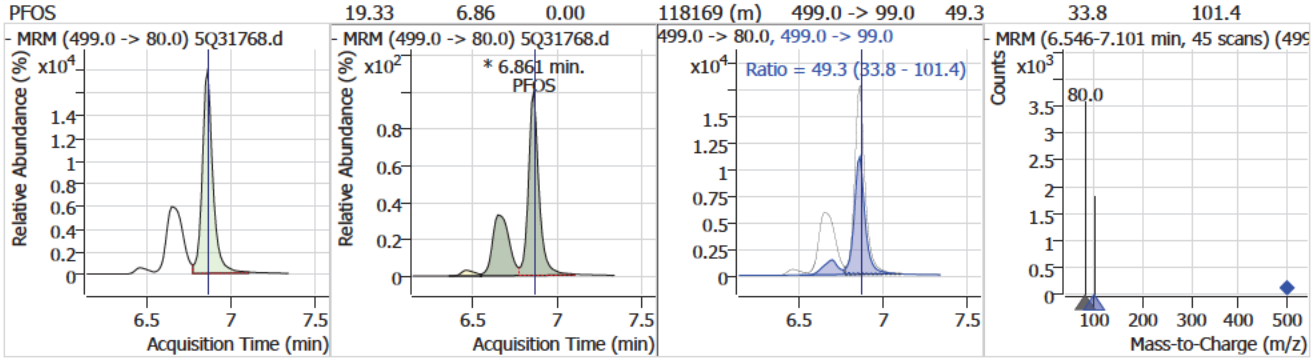




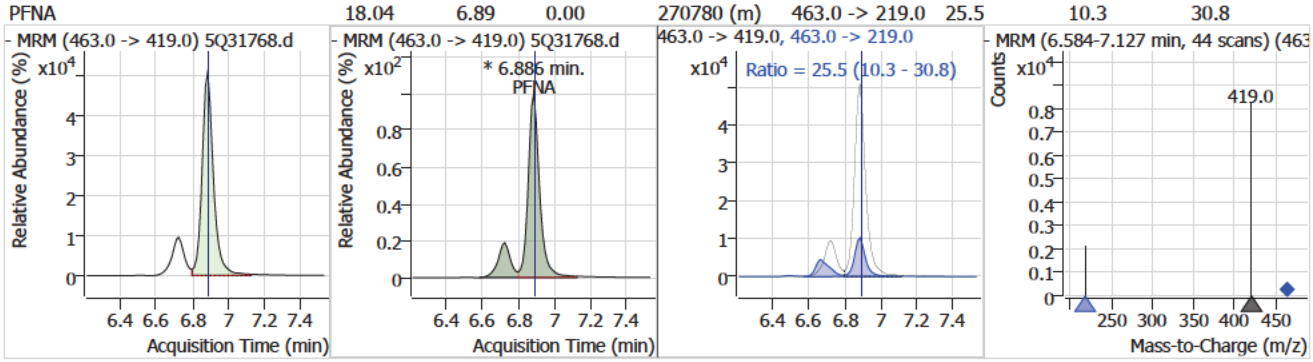


Perfluorinated Compounds by LC/MS/MS

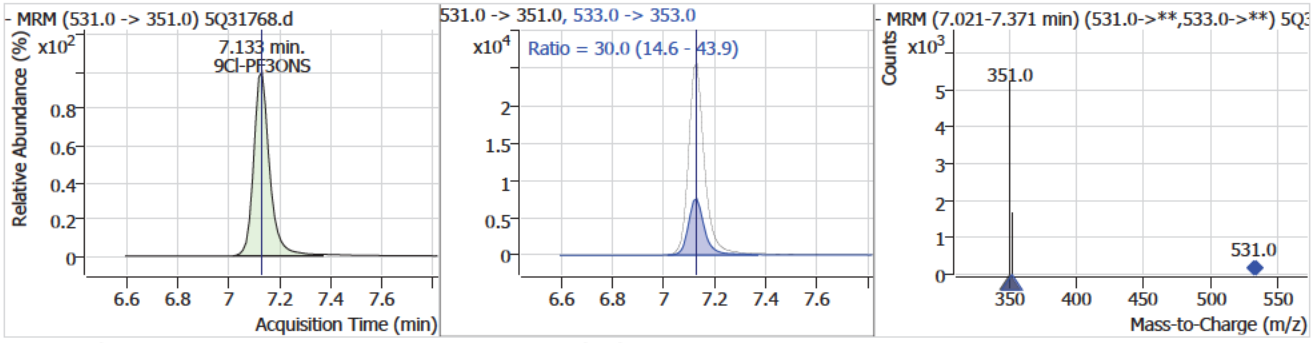
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.33	6.86	0.00	118169 (m)	499.0 -> 99.0	49.3	33.8	101.4



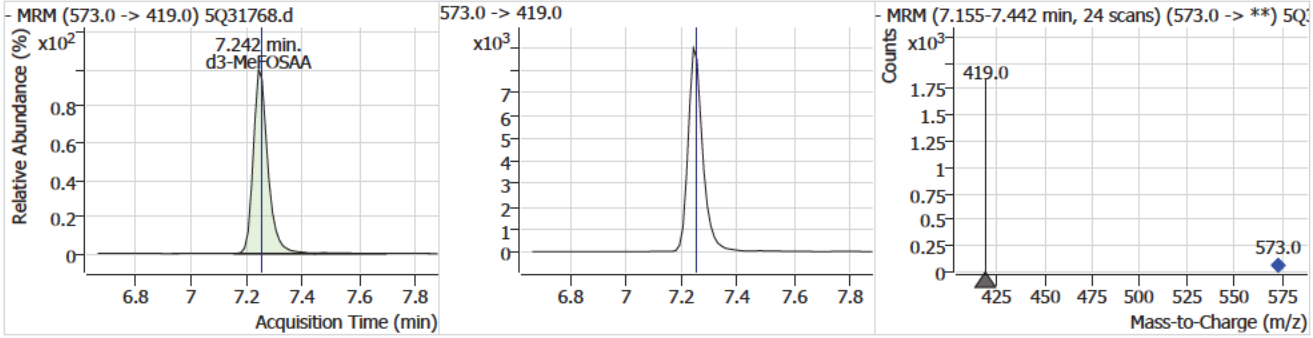
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	18.04	6.89	0.00	270780 (m)	463.0 -> 219.0	25.5	10.3	30.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	17.89	7.13	0.00	111360	533.0 -> 353.0	30.0	14.6	43.9

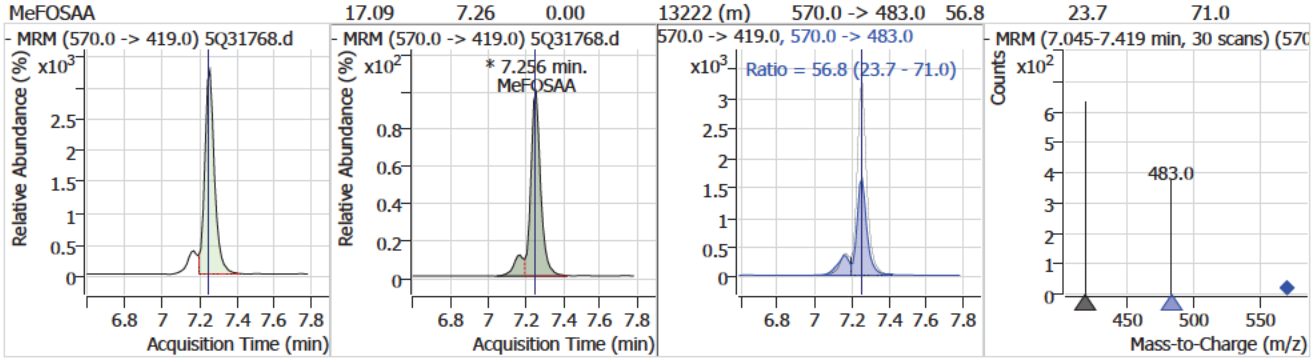


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	32175				

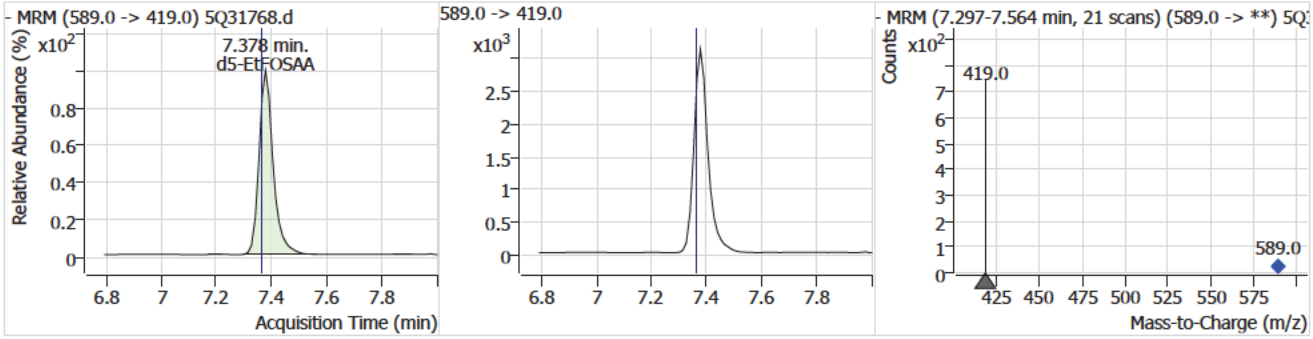


Perfluorinated Compounds by LC/MS/MS

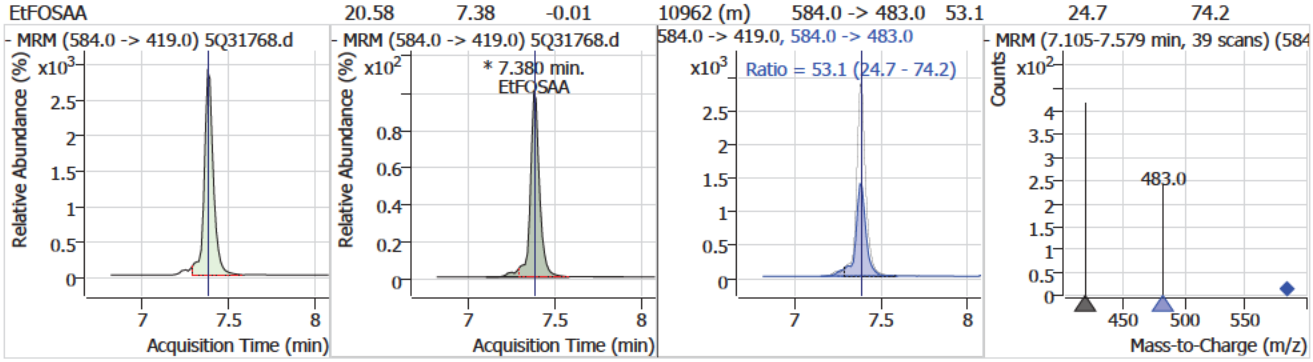
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	17.09	7.26	0.00	13222 (m)	570.0 -> 483.0	56.8	23.7	71.0



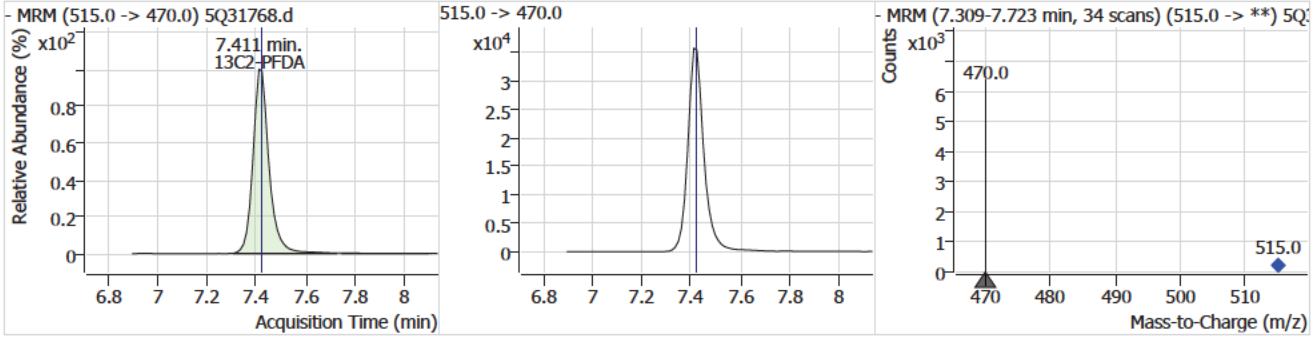
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	18.39	7.38	0.00	10988				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	20.58	7.38	-0.01	10962 (m)	584.0 -> 483.0	53.1	24.7	74.2

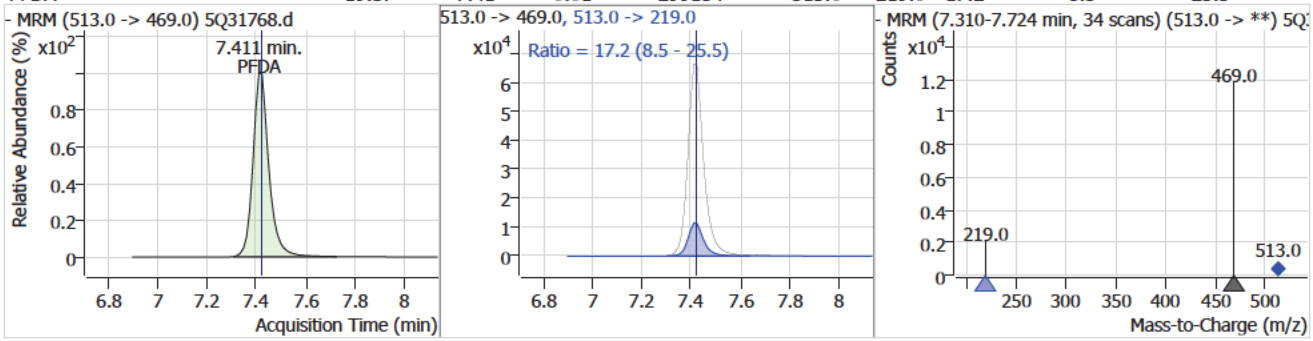


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	9.50	7.41	-0.01	161769				

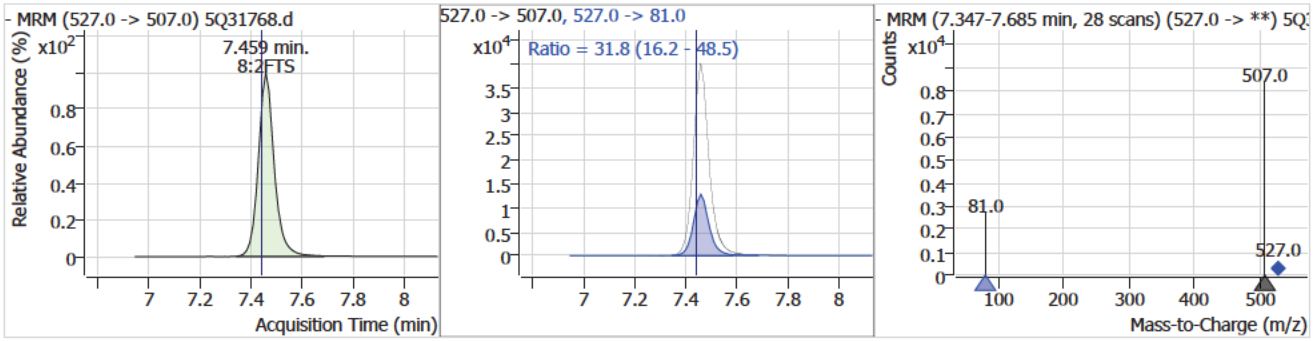


Perfluorinated Compounds by LC/MS/MS

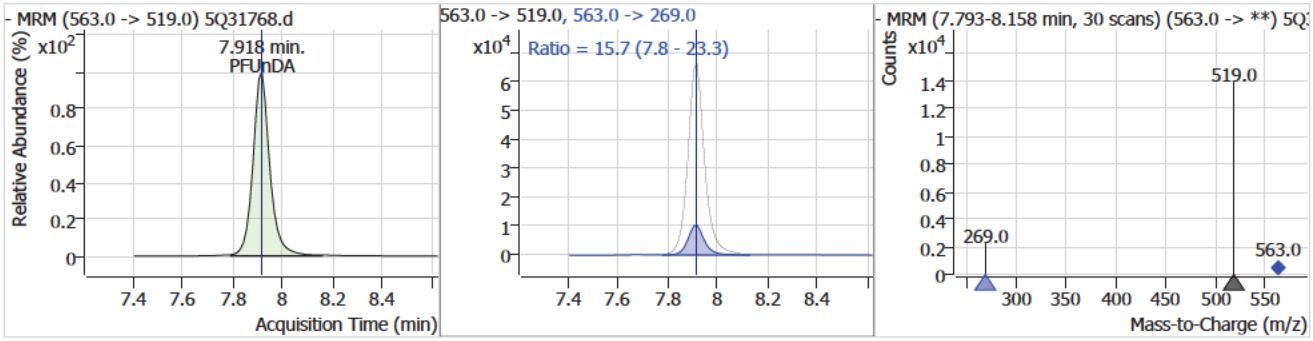
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.37	7.41	-0.01	299154	513.0 -> 219.0	17.2	8.5	25.5



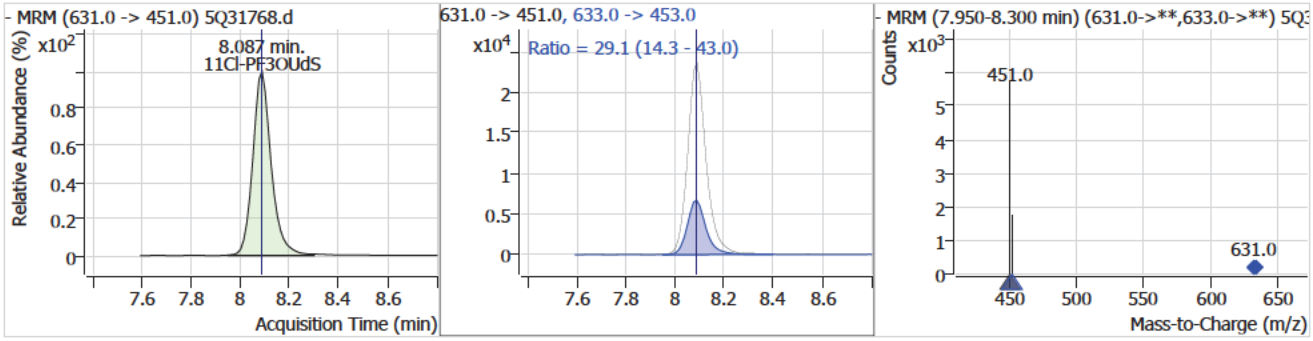
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	22.33	7.46	0.00	174070	527.0 -> 81.0	31.8	16.2	48.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.74	7.92	0.00	309536	563.0 -> 269.0	15.7	7.8	23.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	20.23	8.09	0.00	123706	633.0 -> 453.0	29.1	14.3	43.0



7.7.30

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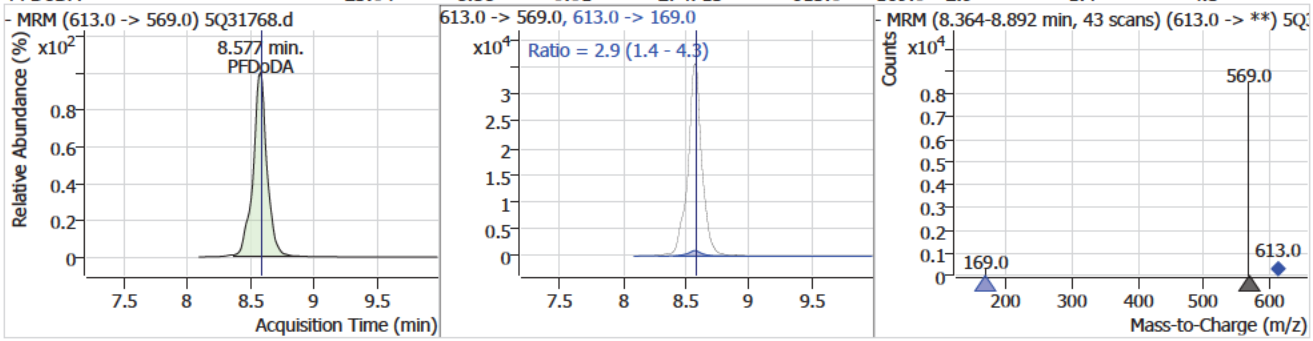
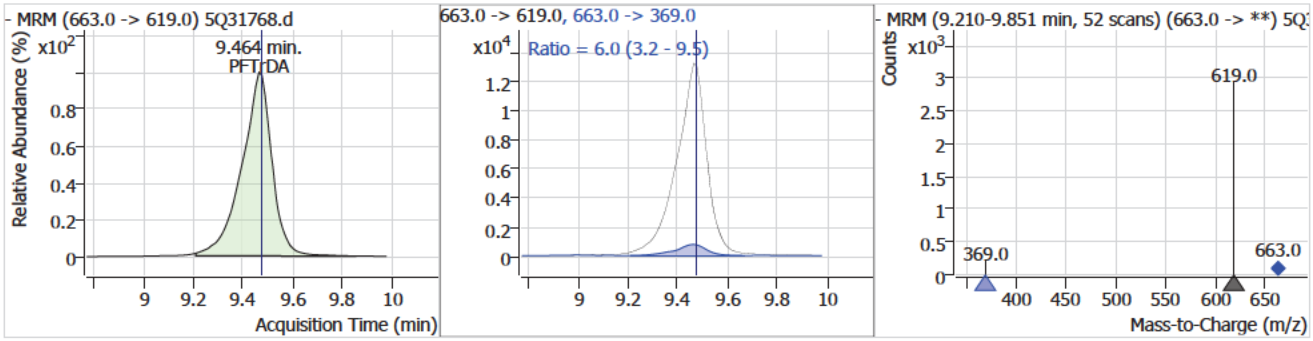
Perfluorinated Compounds by LC/MS/MS

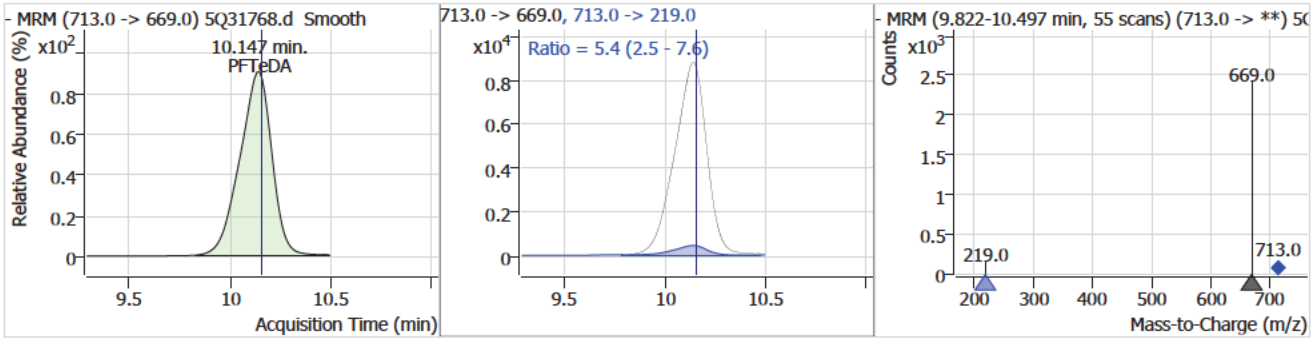
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	23.04	8.58	-0.01	274713	613.0 -> 169.0	2.9	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	16.51	9.46	-0.01	111185	663.0 -> 369.0	6.0	3.2	9.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	17.61	10.15	-0.01	98207	713.0 -> 219.0	5.4	2.5	7.6



7.7.30

7

Manual Integration Approval Summary

Sample Number: S5Q521-CC521
Lab FileID: 5Q31768.D
Injection Time: 04/15/25 18:01
Method: EPA 537.1 REV 2.0
Analyst approved: 04/16/25 10:55 (b) (6)
Supervisor approved: 04/16/25 15:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/16/25 15:44

Perfluorinated Compounds by LC/MS/MS

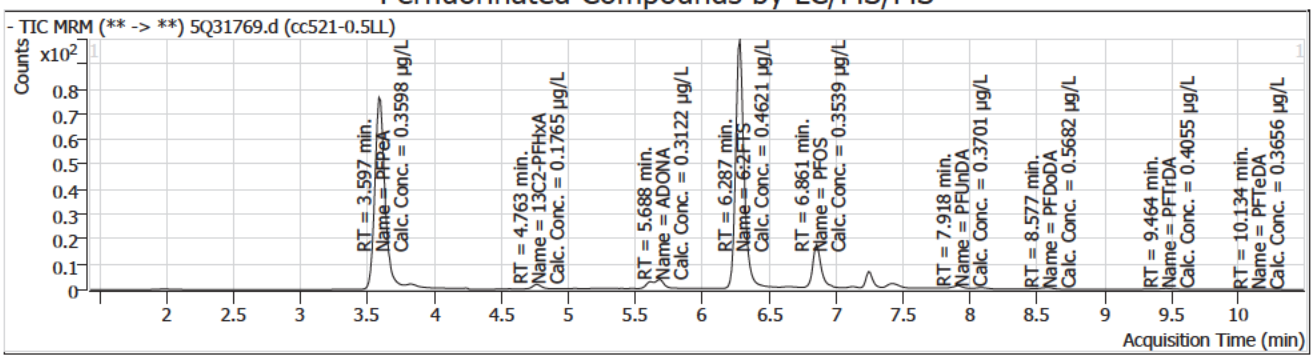
Data File : 5Q31769.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/15/2025 6:17:44 PM
Sample Name : cc521-0.5LL
Vial : P1-A2
DA Method File : 537_041525_S5Q521.quantmethod
Batch Name : s5q521.batch.bin
Sample Information : OP8882,S5Q521,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.274	429.0 -> 409.0	166906	20.00 µg/L		-0.012
13C2-PFOA	6.289	415.0 -> 370.0	380805	20.00 µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	507404	20.00 µg/L		-0.012
13C4-PFOS	6.860	503.0 -> 80.0	90368	20.00 µg/L		0.000
d3-MeFOSAA	7.242	573.0 -> 419.0	29902	40.00 µg/L		-0.012
System Monitoring Compounds						
13C2-PFDA	7.423	515.0 -> 470.0	2910	0.18 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 0.9%		
13C2-PFHxA	4.763	315.0 -> 270.0	4414	0.18 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 0.9%		
d5-EtFOSAA	7.391	589.0 -> 419.0	245	0.44 µg/L		0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 1.1%		
13C3-HFPO-DA	5.019	287.0 -> 169.0	631	0.37 µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 0.9%		
Target Compounds						QValue
6:2FTS	6.287	427.0 -> 407.0	3833	0.46 µg/L		97
8:2FTS	7.459	527.0 -> 507.0	3059	0.43 µg/L		96
EtFOSAA	7.392	584.0 -> 419.0	244	0.49 µg/L	m	89
MeFOSAA	7.256	570.0 -> 419.0	315	0.44 µg/L	m	73
PFBS	3.841	299.0 -> 80.0	4886	0.39 µg/L		94
PFDA	7.424	513.0 -> 469.0	5087	0.35 µg/L		97
PFDoDA	8.577	613.0 -> 569.0	6013	0.57 µg/L		99
PFHpA	5.614	363.0 -> 319.0	12229	0.35 µg/L		99
PFHxA	4.764	313.0 -> 269.0	6065	0.35 µg/L		99
PFHxS	5.635	399.0 -> 80.0	3065	0.37 µg/L	m	93
PFNA	6.886	463.0 -> 419.0	4439	0.31 µg/L	m	79
PFOA	6.290	413.0 -> 369.0	6798	0.36 µg/L		97
PFOS	6.861	499.0 -> 80.0	2110	0.35 µg/L	m	74
PFPeA	3.597	263.0 -> 219.0	12197	0.36 µg/L		100
PFTeDA	10.134	713.0 -> 669.0	1988	0.37 µg/L		96
PFTrDA	9.464	663.0 -> 619.0	2662	0.41 µg/L		95
PFUnDA	7.918	563.0 -> 519.0	5657	0.37 µg/L		96
ADONA	5.688	377.0 -> 251.0	14890	0.31 µg/L		98
9Cl-PF3ONS	7.133	531.0 -> 351.0	2071	0.35 µg/L		93
11Cl-PF3OUdS	8.087	631.0 -> 451.0	2062	0.38 µg/L		82
HFPO-DA	5.035	285.0 -> 169.0	700	0.42 µg/L	m	100

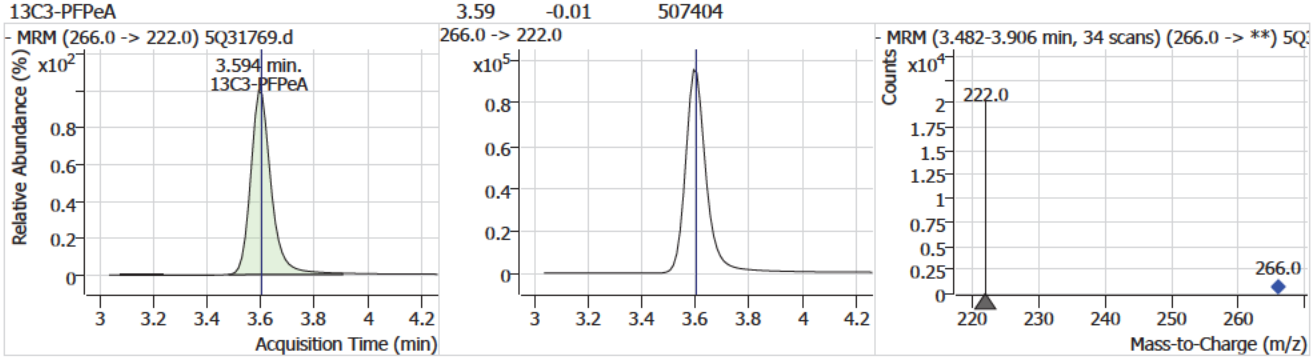
= Qualifier out of range, m = manually integrated, + = Area summed

7.7.31
7

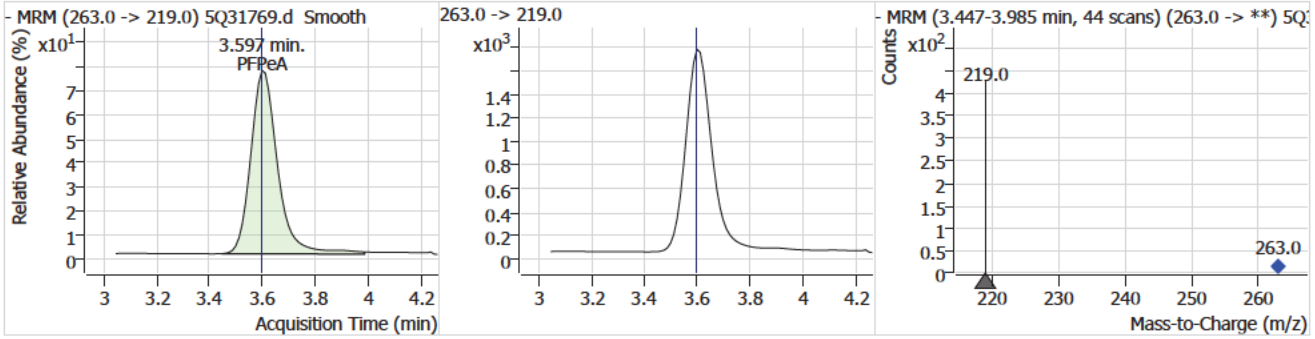
Perfluorinated Compounds by LC/MS/MS



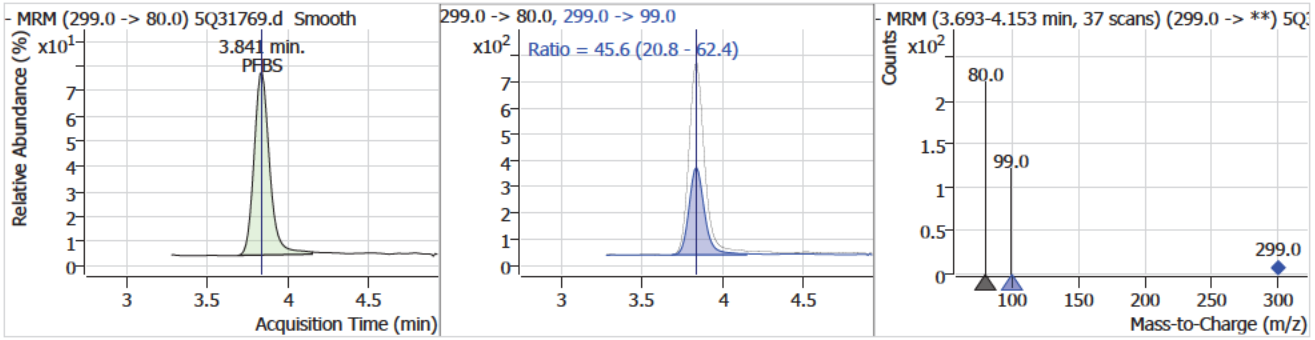
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	507404				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.36	3.60	-0.01	12197				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.39	3.84	0.00	4886	299.0 -> 99.0	45.6	20.8	62.4



7.7.31

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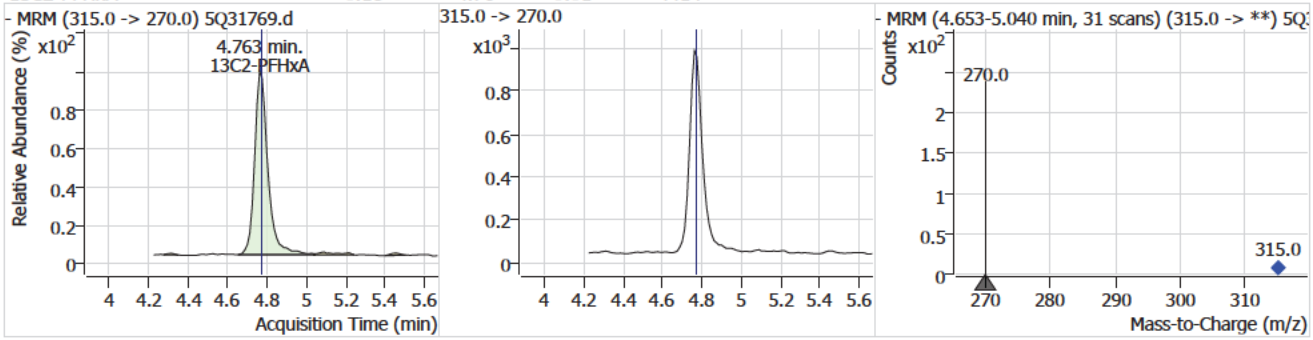
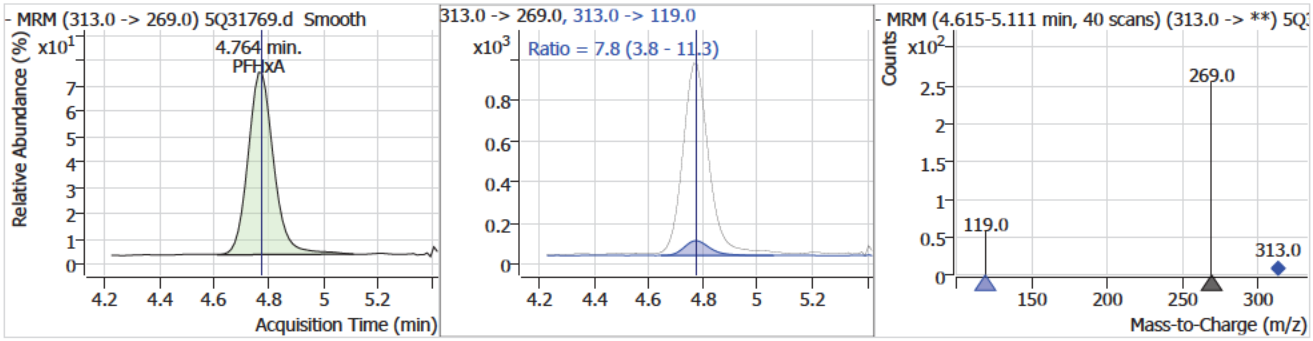
Perfluorinated Compounds by LC/MS/MS

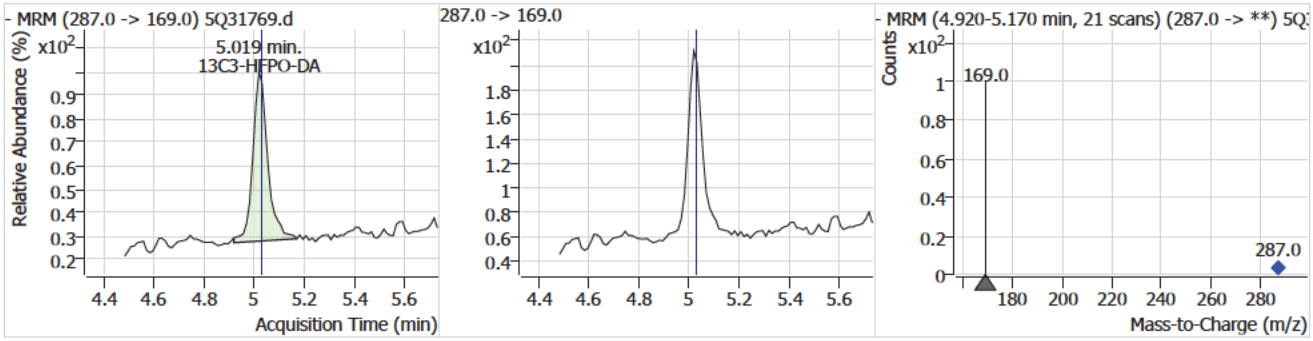
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.18	4.76	-0.01	4414				



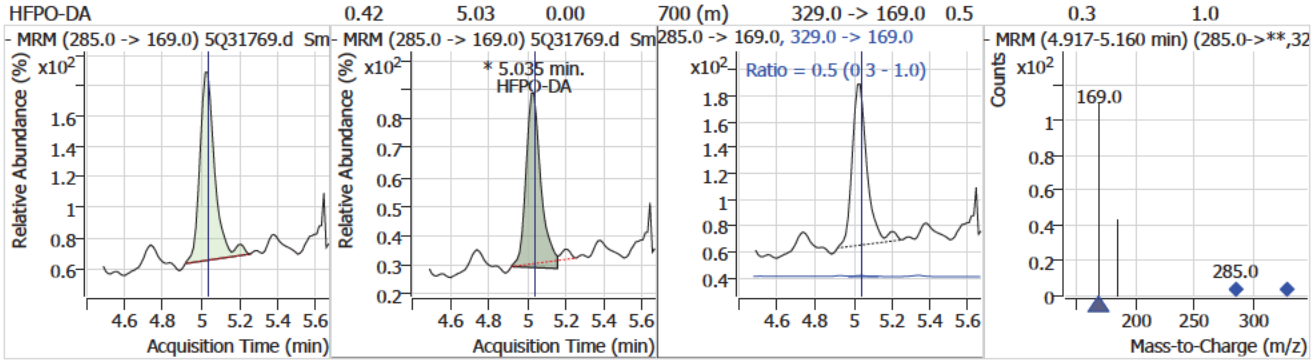
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.35	4.76	-0.01	6065	313.0 -> 119.0	7.8	3.8	11.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.37	5.02	-0.01	631				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.42	5.03	0.00	700 (m)	329.0 -> 169.0	0.5	0.3	1.0



7.7.31

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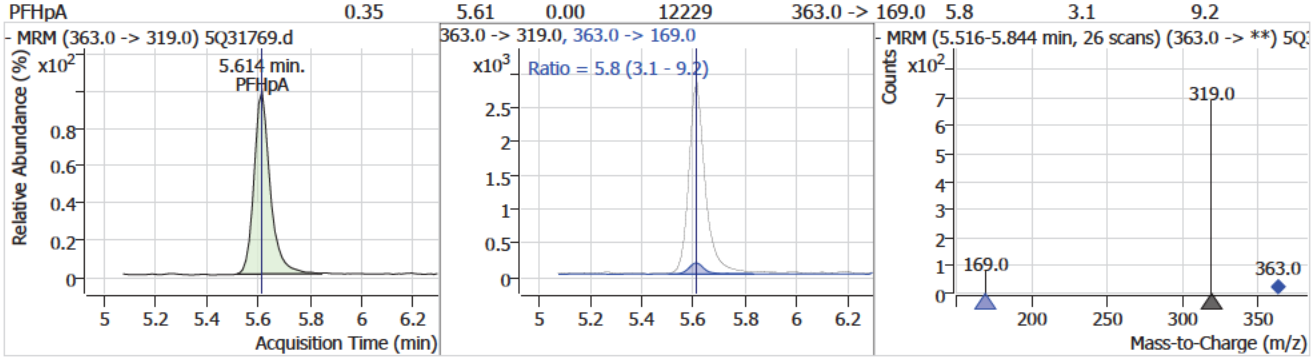
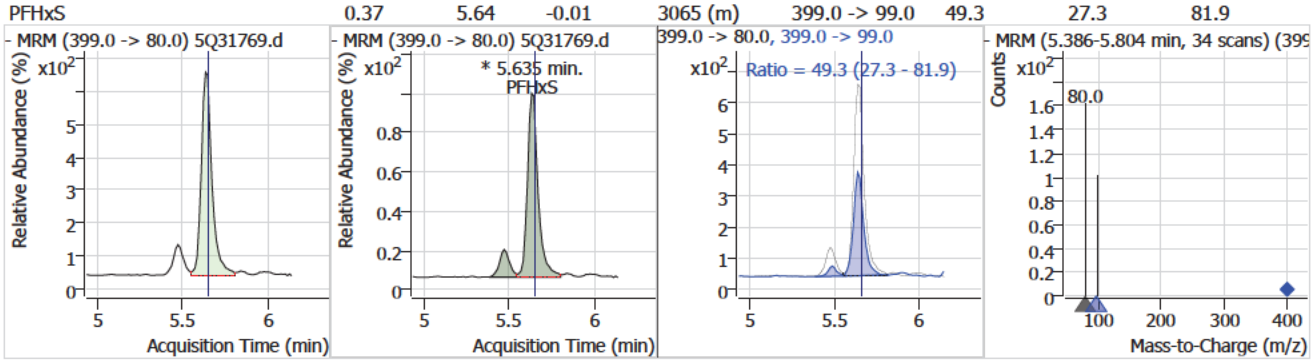
Perfluorinated Compounds by LC/MS/MS

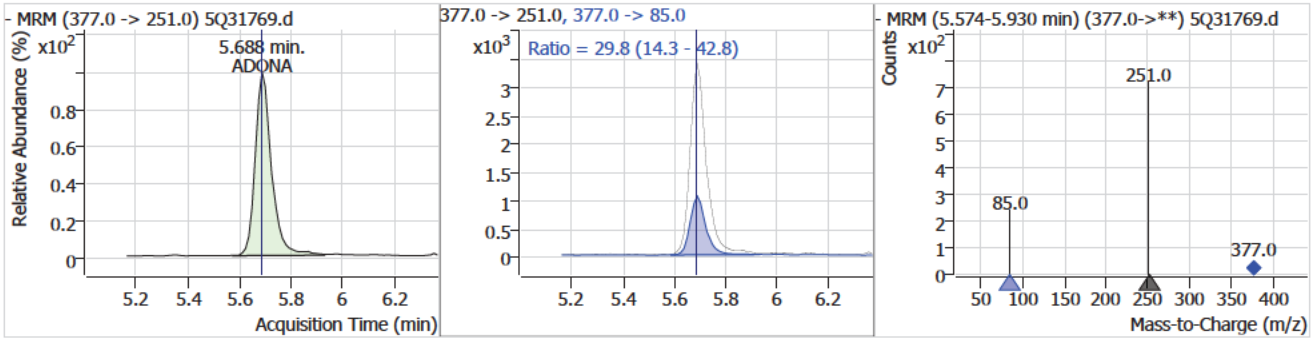
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.35	5.61	0.00	12229	363.0 -> 169.0	5.8	3.1	9.2



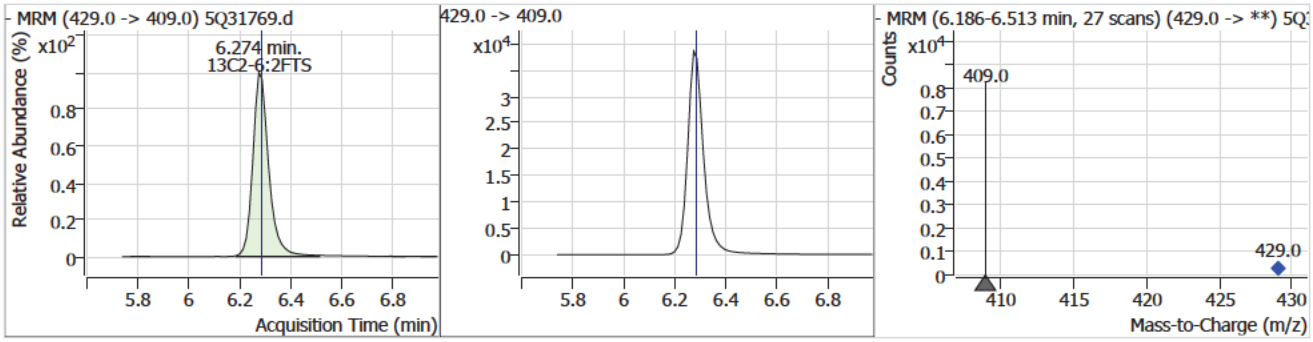
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.37	5.64	-0.01	3065 (m)	399.0 -> 99.0	49.3	27.3	81.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.31	5.69	0.00	14890	377.0 -> 85.0	29.8	14.3	42.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	166906				



7.7.31

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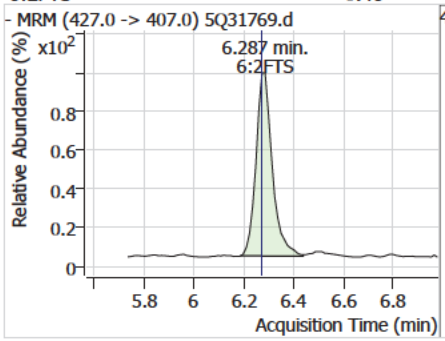
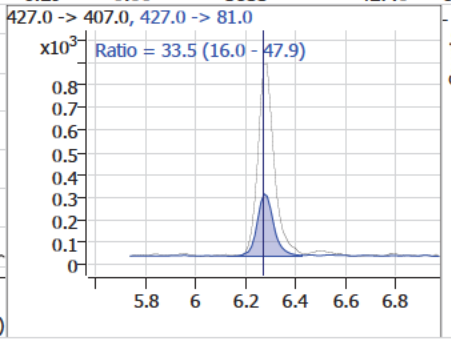
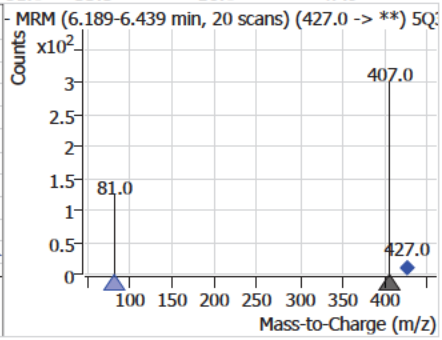
Perfluorinated Compounds by LC/MS/MS

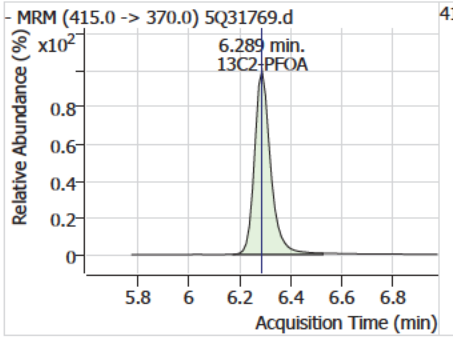
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.46	6.29	0.00	3833	427.0 -> 81.0	33.5	16.0	47.9

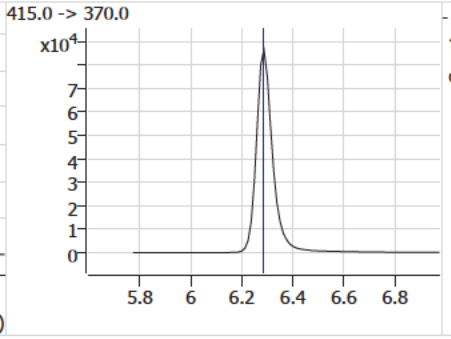


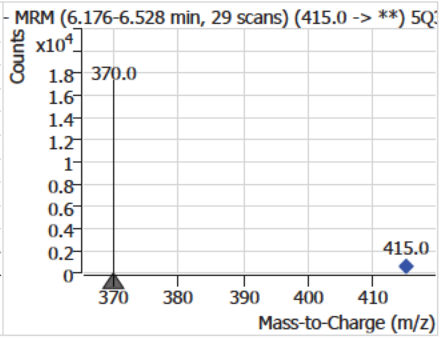




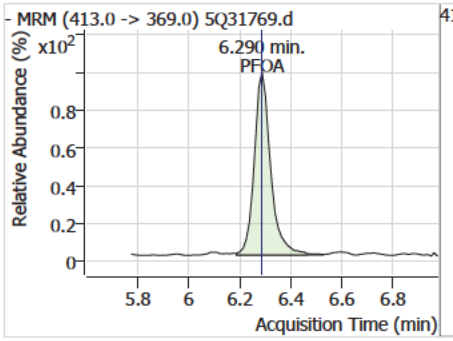
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	380805				

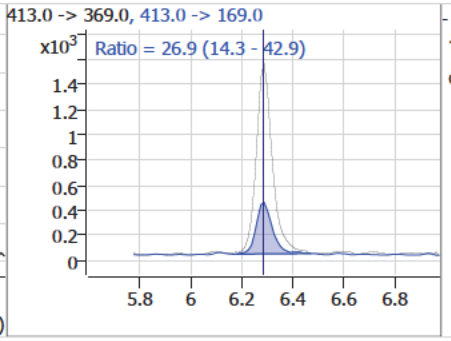


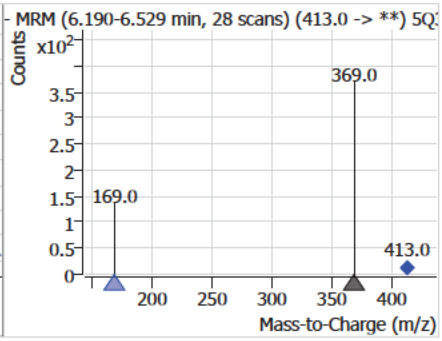




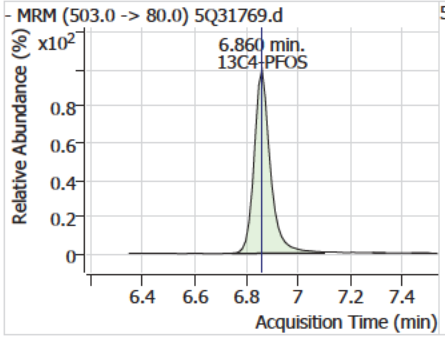
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.36	6.29	0.00	6798	413.0 -> 169.0	26.9	14.3	42.9

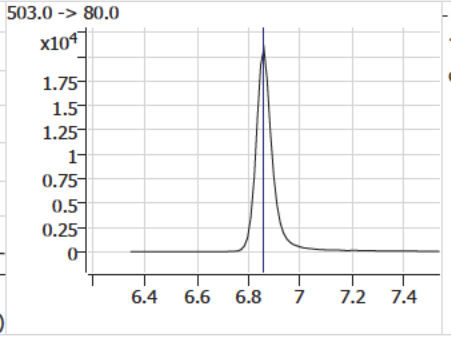


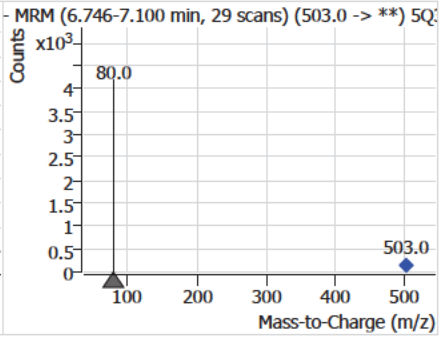




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	90368				

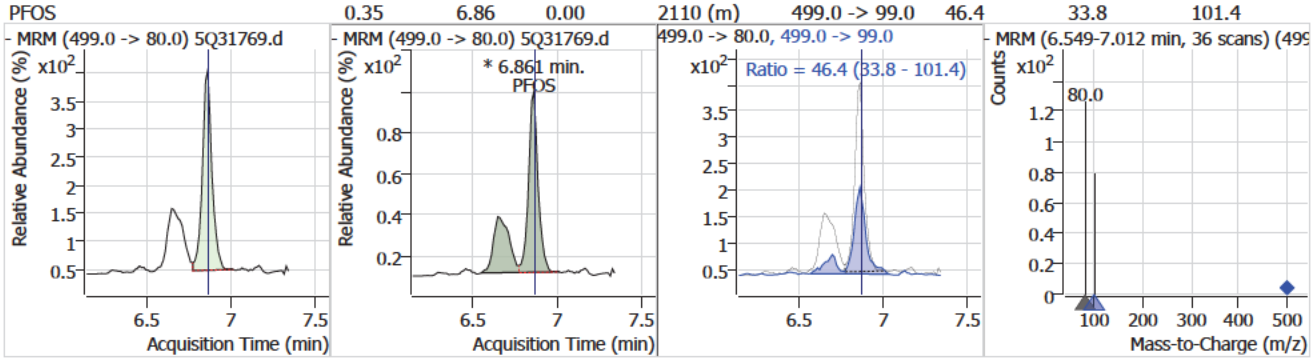




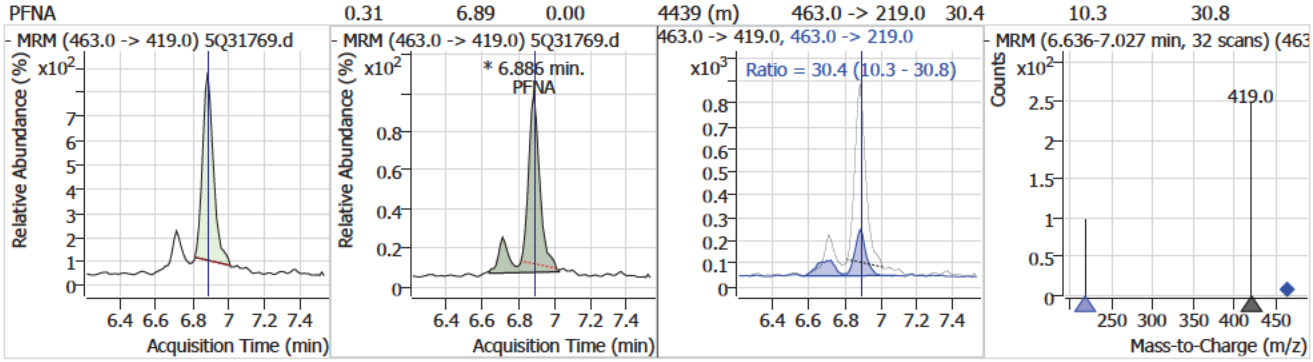


Perfluorinated Compounds by LC/MS/MS

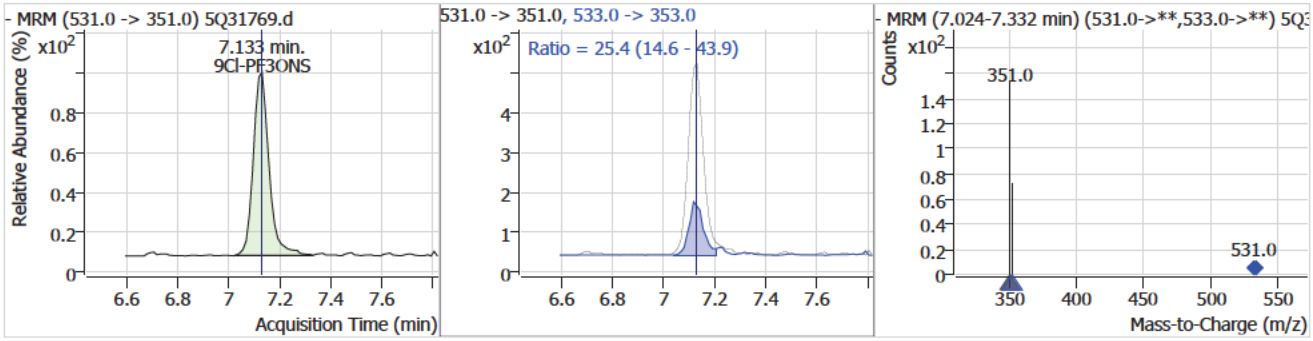
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.35	6.86	0.00	2110 (m)	499.0 -> 99.0	46.4	33.8	101.4



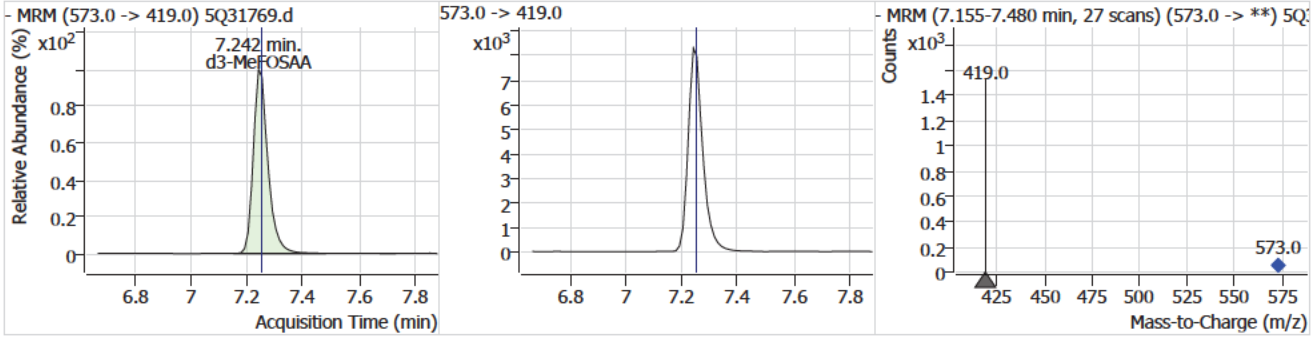
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.31	6.89	0.00	4439 (m)	463.0 -> 219.0	30.4	10.3	30.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.35	7.13	0.00	2071	533.0 -> 353.0	25.4	14.6	43.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	29902				



7.7.31

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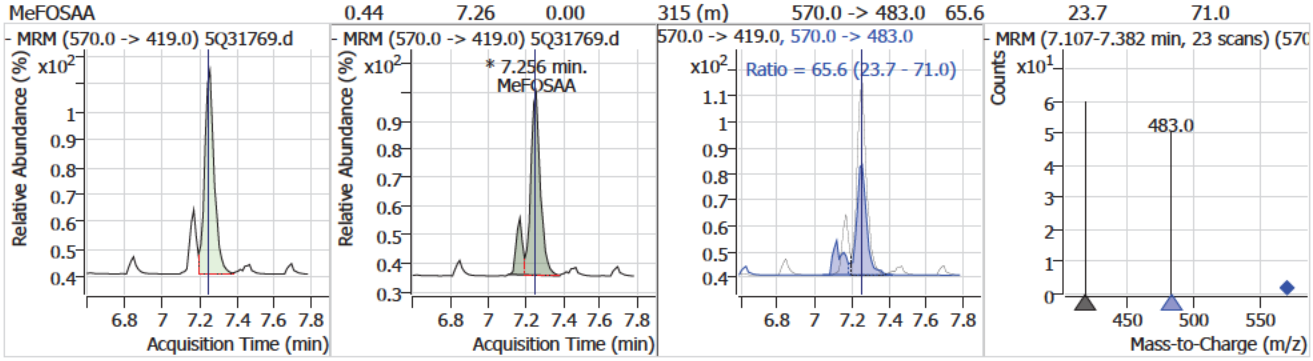
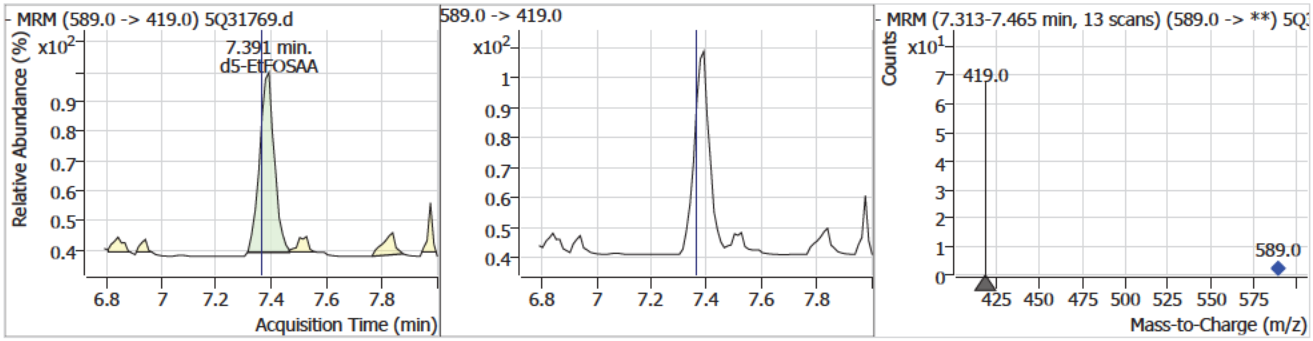
Perfluorinated Compounds by LC/MS/MS

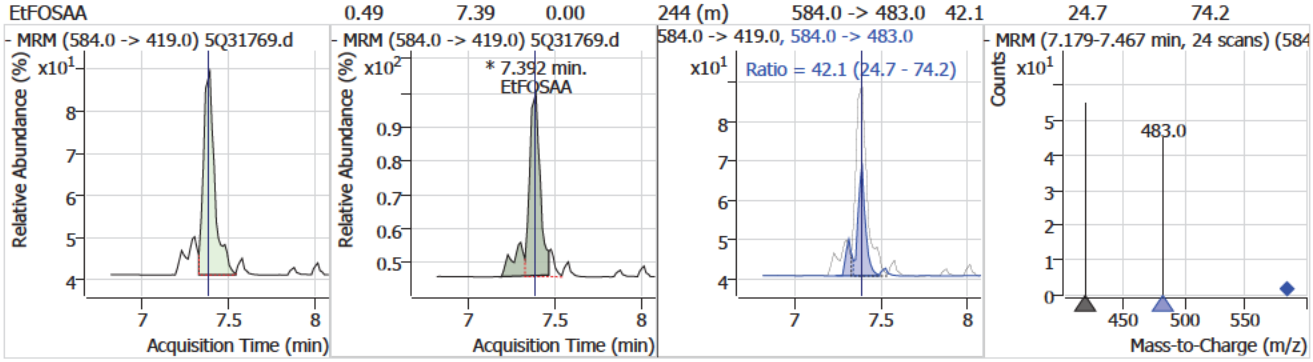
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.44	7.26	0.00	315 (m)	570.0 -> 483.0	65.6	23.7	71.0



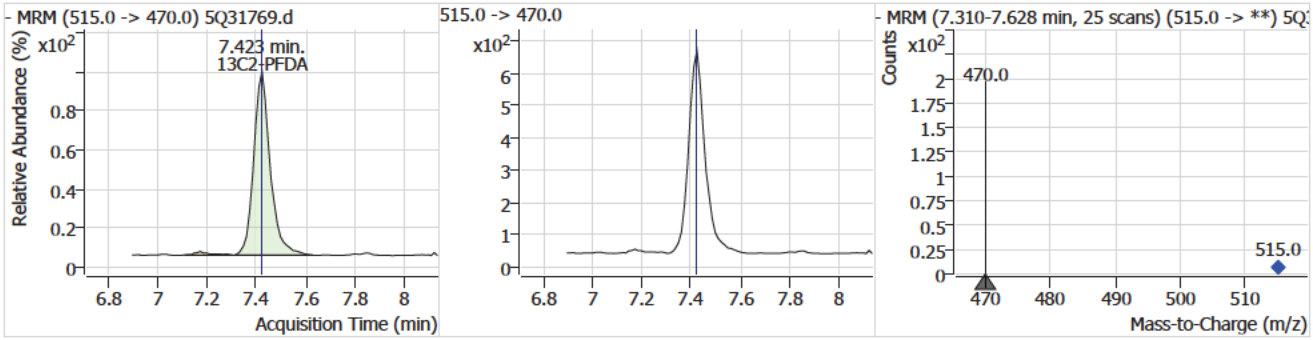
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	0.44	7.39	0.01	245				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.49	7.39	0.00	244 (m)	584.0 -> 483.0	42.1	24.7	74.2

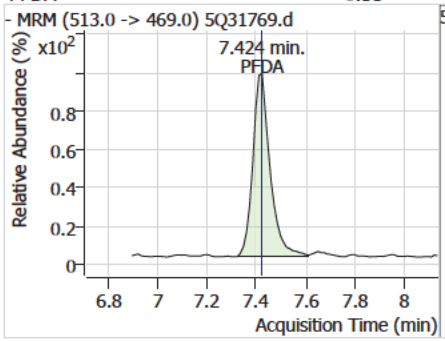


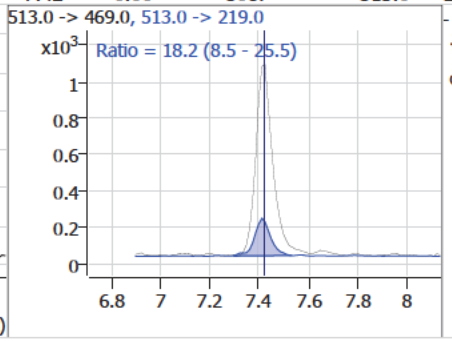
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.18	7.42	0.00	2910				

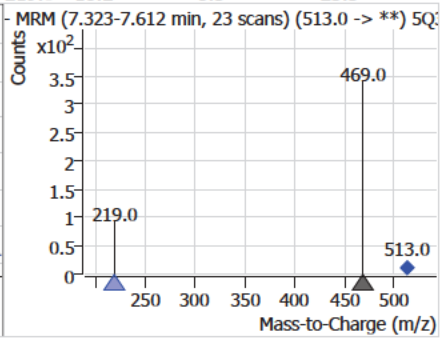


Perfluorinated Compounds by LC/MS/MS

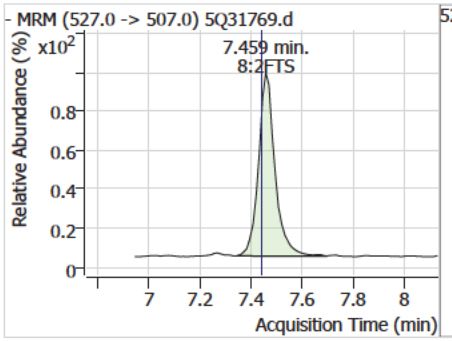
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.35	7.42	0.00	5087	513.0 -> 219.0	18.2	8.5	25.5

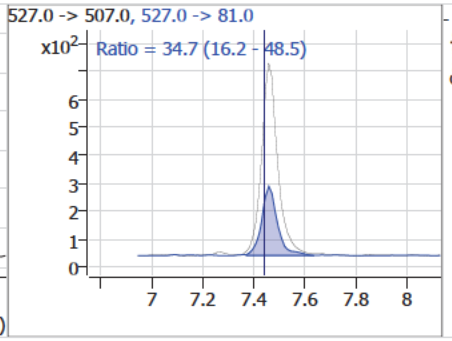


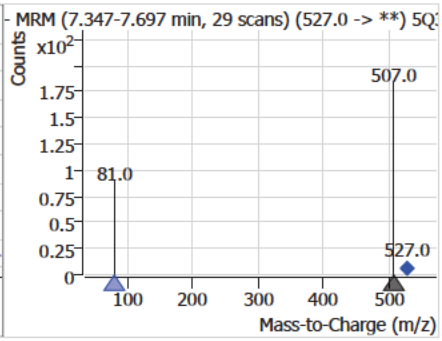




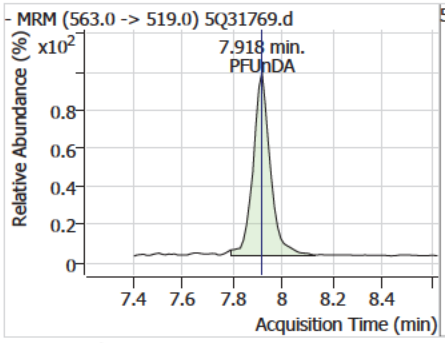
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.43	7.46	0.00	3059	527.0 -> 81.0	34.7	16.2	48.5

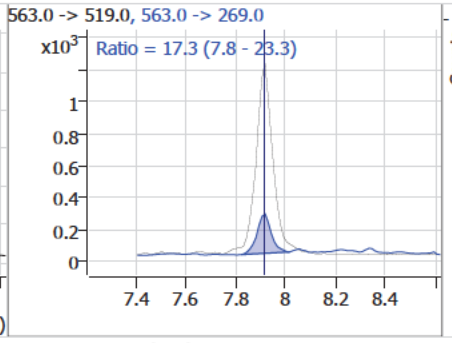


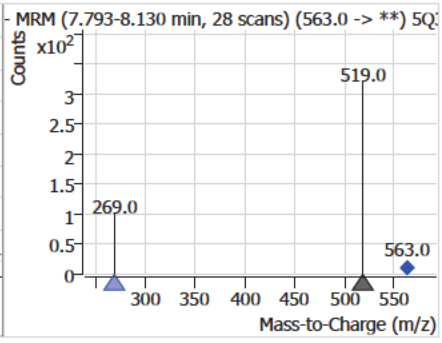




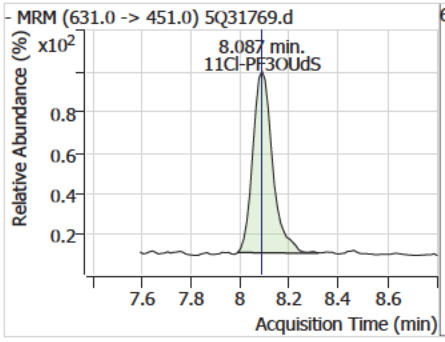
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.37	7.92	0.00	5657	563.0 -> 269.0	17.3	7.8	23.3

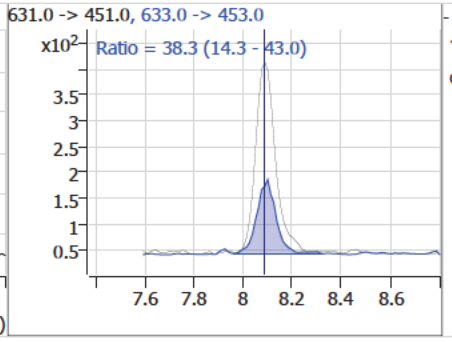


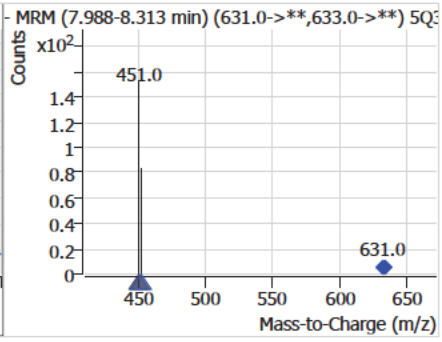




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.38	8.09	0.00	2062	633.0 -> 453.0	38.3	14.3	43.0

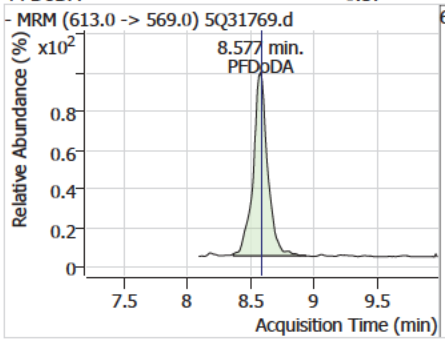


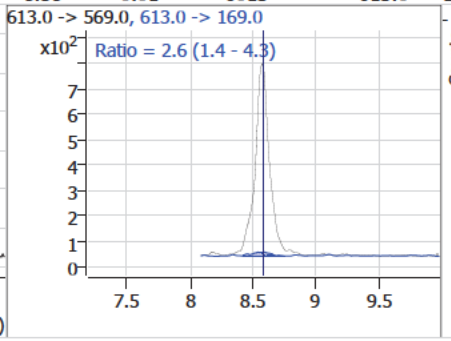


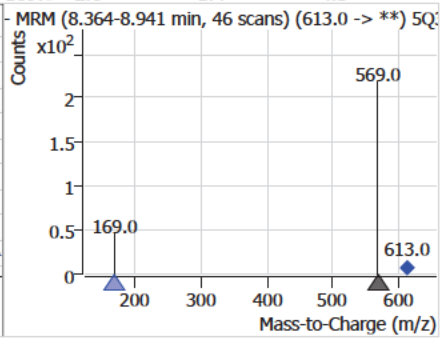


Perfluorinated Compounds by LC/MS/MS

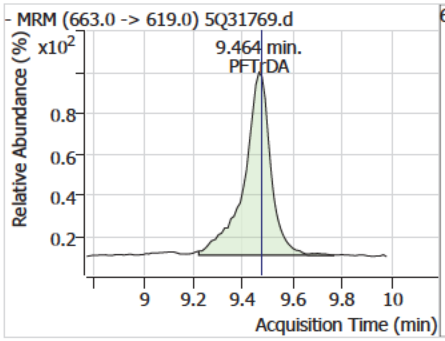
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.57	8.58	-0.01	6013	613.0 -> 169.0	2.6	1.4	4.3

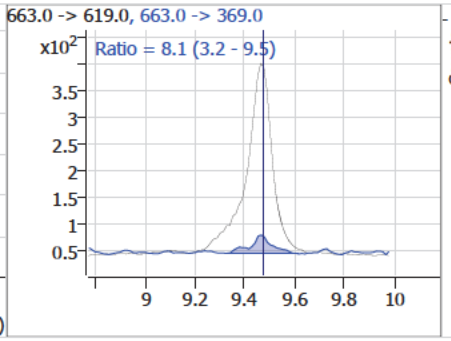


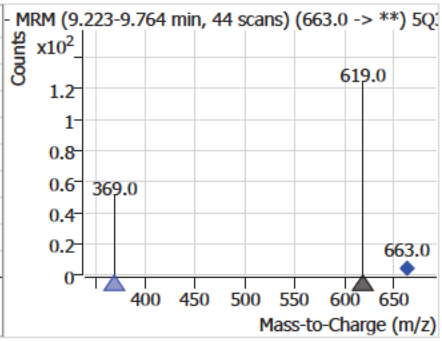




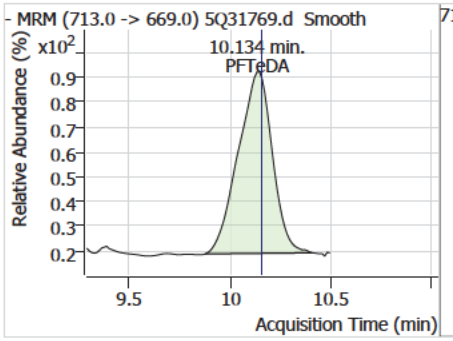
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.41	9.46	-0.01	2662	663.0 -> 369.0	8.1	3.2	9.5

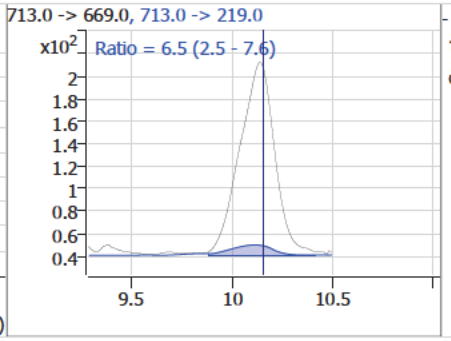


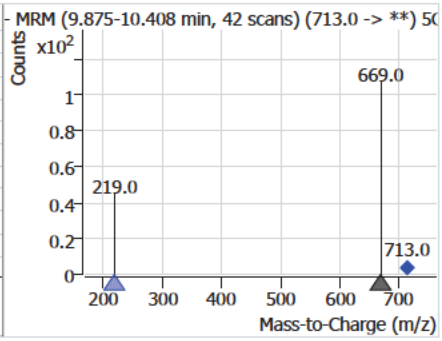




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.37	10.13	-0.03	1988	713.0 -> 219.0	6.5	2.5	7.6







Manual Integration Approval Summary

Sample Number: S5Q521-CC521
Lab FileID: 5Q31769.D
Injection Time: 04/15/25 18:17
Method: EPA 537.1 REV 2.0
Analyst approved: 04/16/25 10:55 (b) (6)
Supervisor approved: 04/16/25 15:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
HFPO-DA (GenX)	13252-13-6		5.04	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Cal Report: 5Q31780.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/16/25 15:44

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31780.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/15/2025 9:13:58 PM
Sample Name : ecc521-20
Vial : P1-A7
DA Method File : 537_041525_S5Q521.quantmethod
Batch Name : s5q521.batch.bin
Sample Information : OP8882,S5Q521,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	180777	20.00	µg/L		-0.012
13C2-PFOA	6.277	415.0 -> 370.0	387719	20.00	µg/L		-0.012
13C3-PFPeA	3.594	266.0 -> 222.0	519631	20.00	µg/L		-0.012
13C4-PFOS	6.847	503.0 -> 80.0	92351	20.00	µg/L		-0.012
d3-MeFOSAA	7.242	573.0 -> 419.0	28776	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	155170	9.42	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 47.1%			
13C2-PFHxA	4.763	315.0 -> 270.0	247809	9.73	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 48.7%			
d5-EtFOSAA	7.378	589.0 -> 419.0	11168	20.90	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 52.2%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	32572	18.78	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 47.0%			
Target Compounds							QValue
6:2FTS	6.275	427.0 -> 407.0	206528	22.98	µg/L		98
8:2FTS	7.459	527.0 -> 507.0	166839	21.73	µg/L		99
EtFOSAA	7.380	584.0 -> 419.0	10535	22.12	µg/L	m	98
MeFOSAA	7.256	570.0 -> 419.0	12924	18.68	µg/L	m	91
PFBS	3.828	299.0 -> 80.0	274885	21.48	µg/L		98
PFDA	7.411	513.0 -> 469.0	278748	18.67	µg/L		100
PFDoDA	8.565	613.0 -> 569.0	259980	21.98	µg/L		100
PFHpA	5.601	363.0 -> 319.0	697194	19.77	µg/L		100
PFHxA	4.764	313.0 -> 269.0	343843	19.68	µg/L		99
PFHxS	5.635	399.0 -> 80.0	167278	19.53	µg/L	m	97
PFNA	6.874	463.0 -> 419.0	265143	18.27	µg/L	m	88
PFOA	6.277	413.0 -> 369.0	374279	19.28	µg/L		99
PFOS	6.848	499.0 -> 80.0	114303	18.76	µg/L	m	80
PFPeA	3.597	263.0 -> 219.0	669176	19.27	µg/L		100
PFTeDA	10.134	713.0 -> 669.0	94293	16.97	µg/L		99
PFTrDA	9.451	663.0 -> 619.0	106043	15.81	µg/L		99
PFUnDA	7.906	563.0 -> 519.0	295448	18.92	µg/L		98
ADONA	5.688	377.0 -> 251.0	891396	18.36	µg/L		100
9Cl-PF3ONS	7.121	531.0 -> 351.0	107739	17.90	µg/L		99
11Cl-PF3OUdS	8.075	631.0 -> 451.0	119594	20.24	µg/L		98
HFPO-DA	5.022	285.0 -> 169.0	31566	18.82	µg/L		100

= Qualifier out of range, m = manually integrated, + = Area summed

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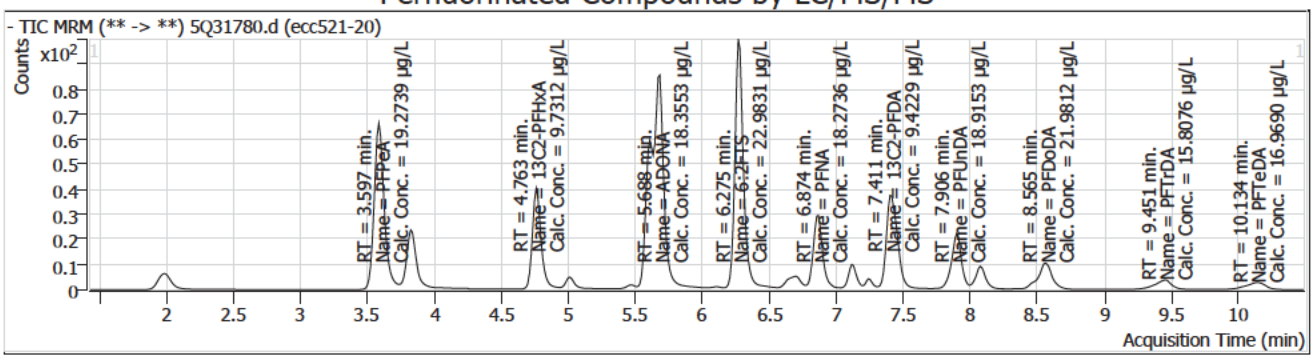
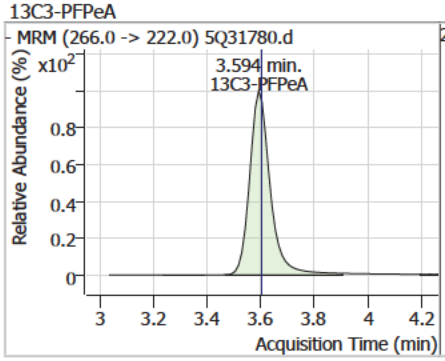
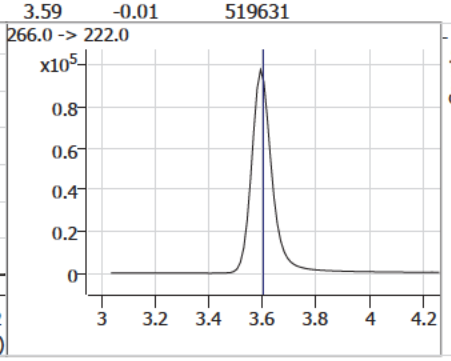
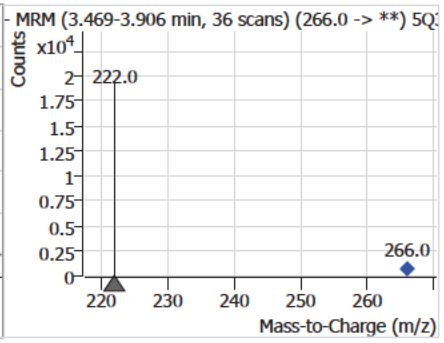
Perfluorinated Compounds by LC/MS/MS



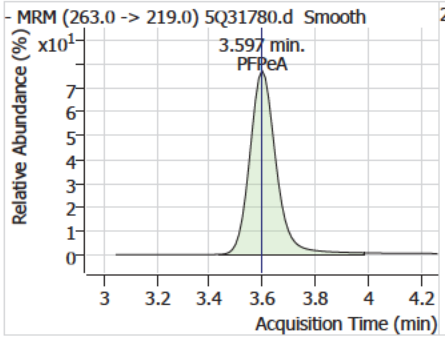
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	519631				

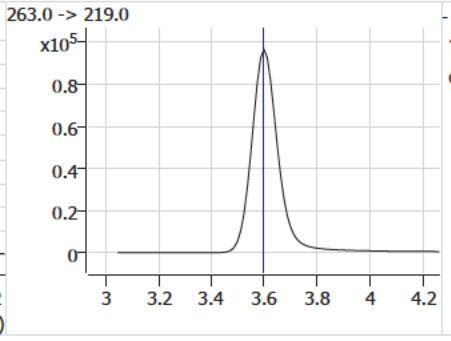


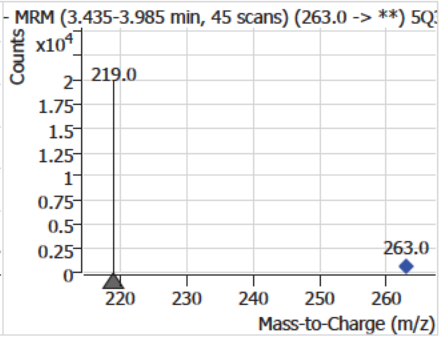




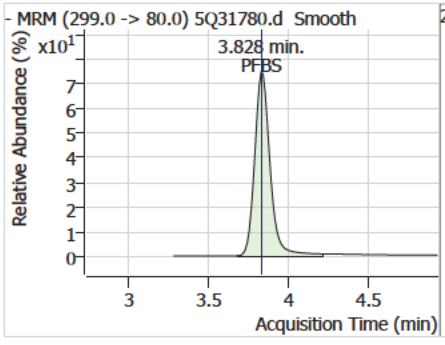
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.27	3.60	-0.01	669176				

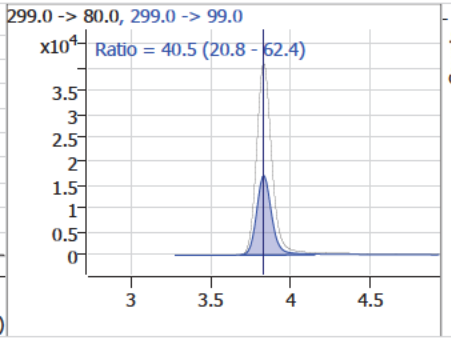


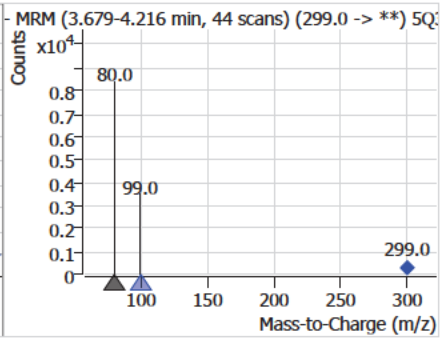




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	21.48	3.83	-0.01	274885	299.0 -> 99.0	40.5	20.8	62.4







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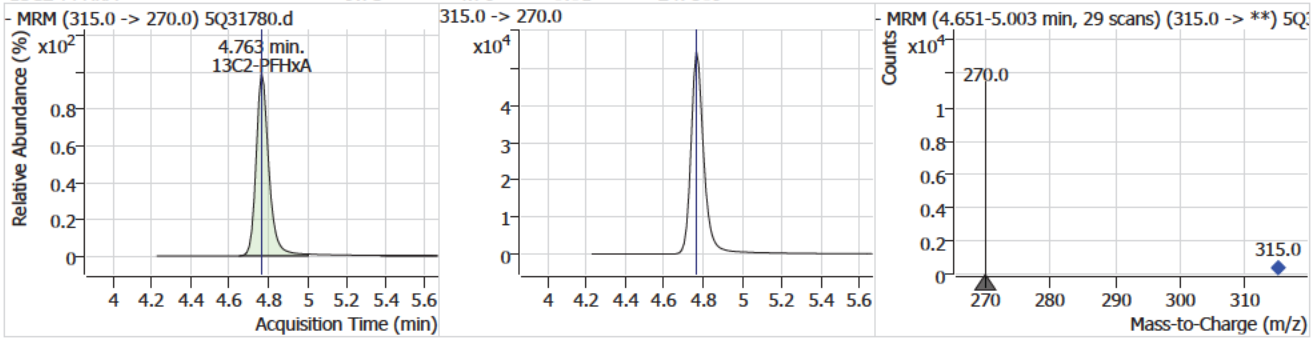
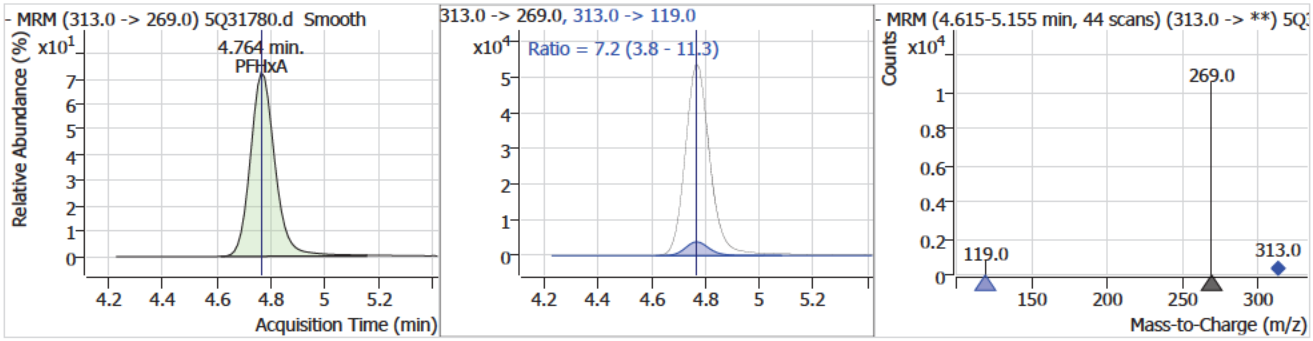
Perfluorinated Compounds by LC/MS/MS

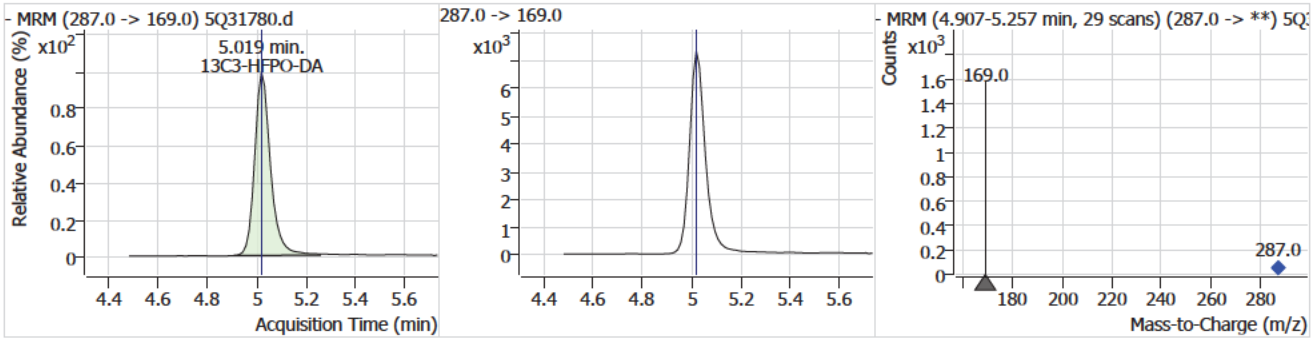
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	9.73	4.76	-0.01	247809				



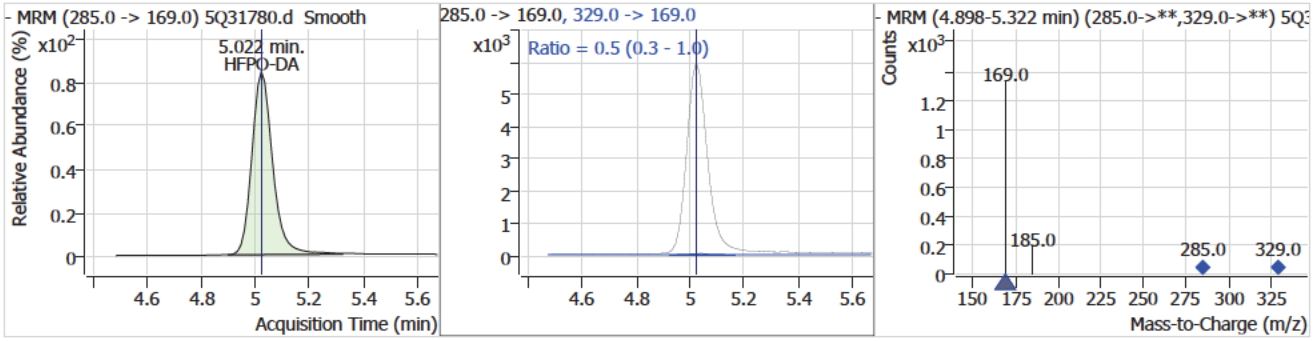
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.68	4.76	-0.01	343843	313.0 -> 119.0	7.2	3.8	11.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	18.78	5.02	-0.01	32572				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	18.82	5.02	-0.01	31566	329.0 -> 169.0	0.5	0.3	1.0



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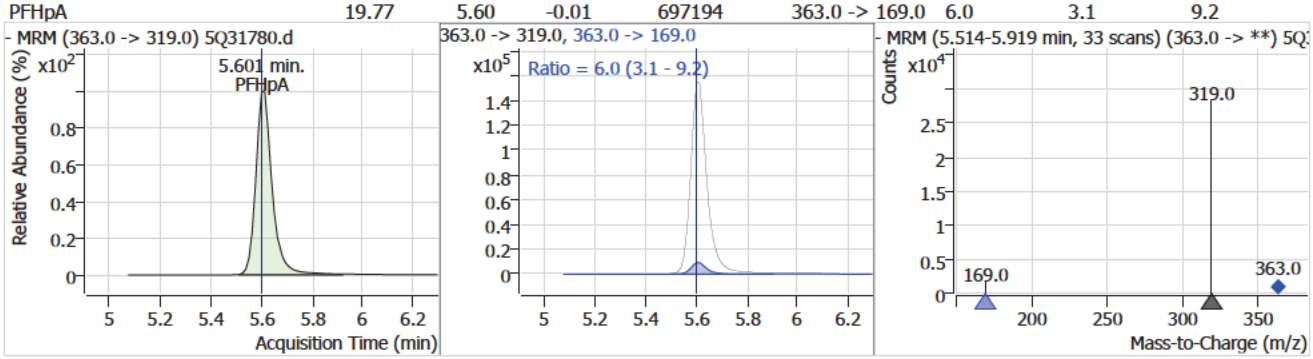
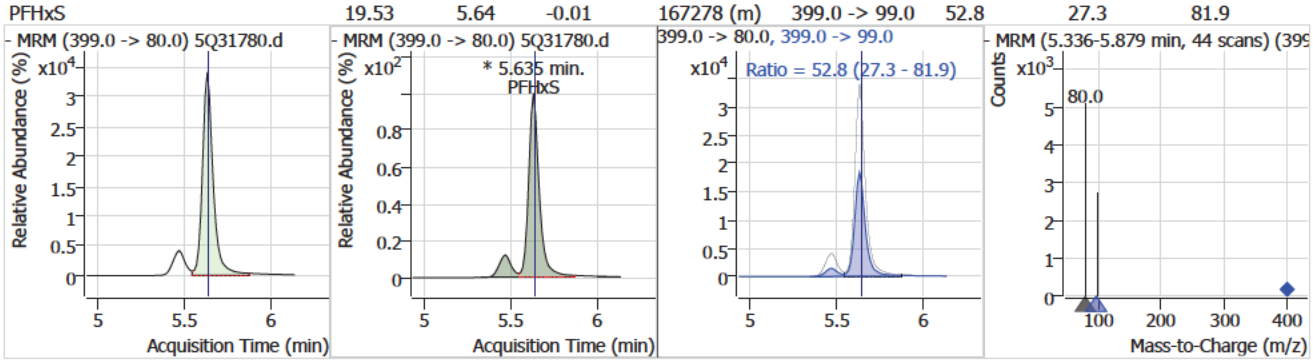
Perfluorinated Compounds by LC/MS/MS

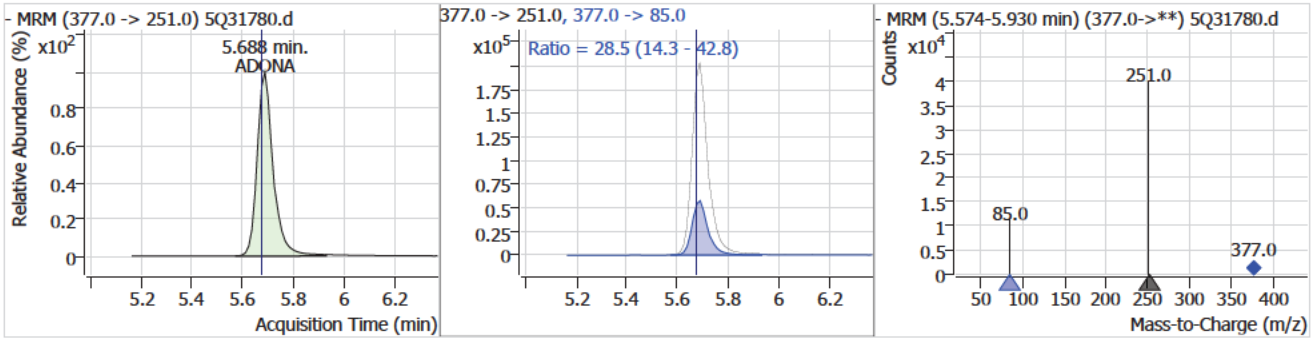
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.77	5.60	-0.01	697194	363.0 -> 169.0	6.0	3.1	9.2



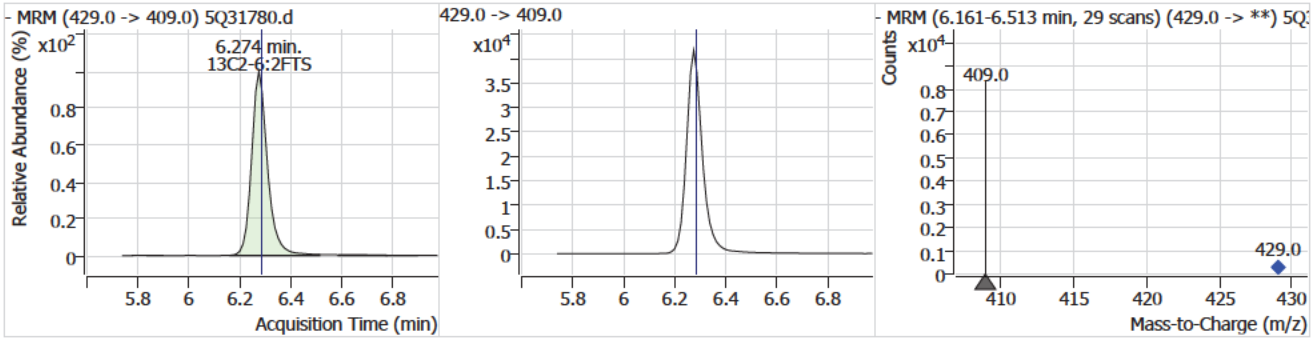
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.53	5.64	-0.01	167278 (m)	399.0 -> 99.0	52.8	27.3	81.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	18.36	5.69	0.00	891396	377.0 -> 85.0	28.5	14.3	42.8

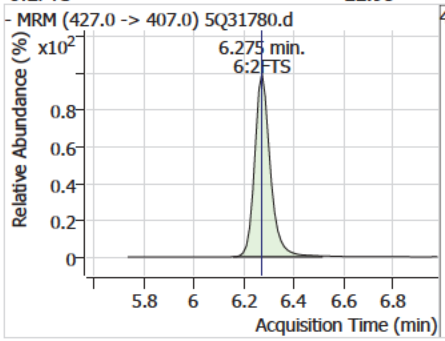


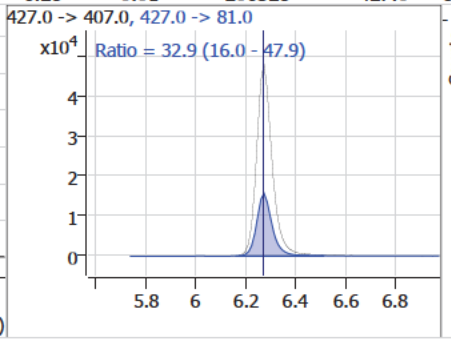
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	180777				

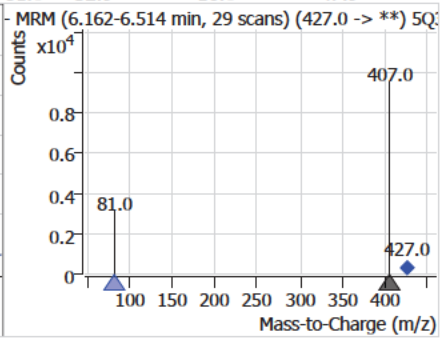


Perfluorinated Compounds by LC/MS/MS

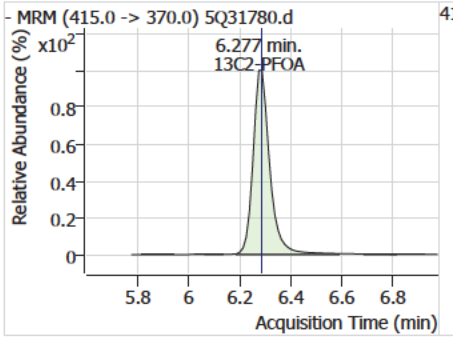
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	22.98	6.28	-0.01	206528	427.0 -> 81.0	32.9	16.0	47.9

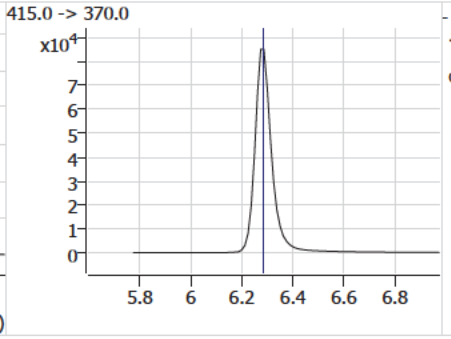


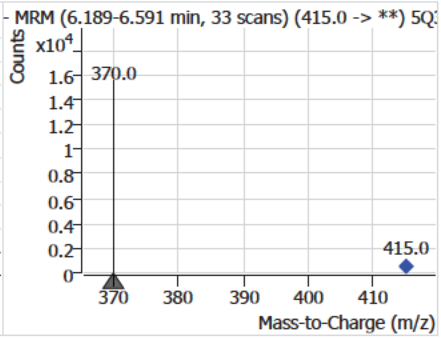




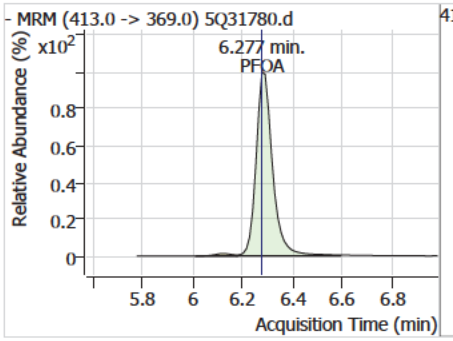
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.28	-0.01	387719				

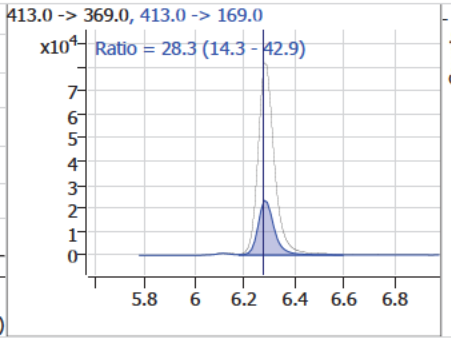


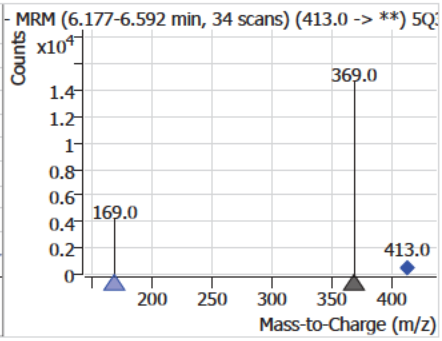




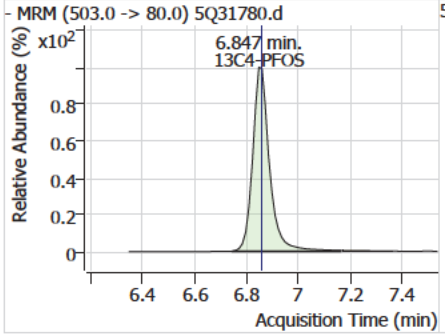
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.28	6.28	-0.01	374279	413.0 -> 169.0	28.3	14.3	42.9

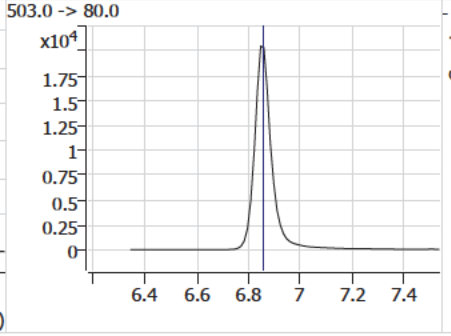


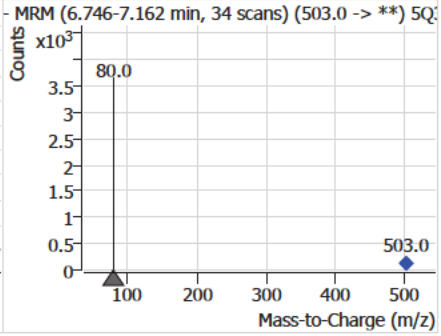




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.85	-0.01	92351				







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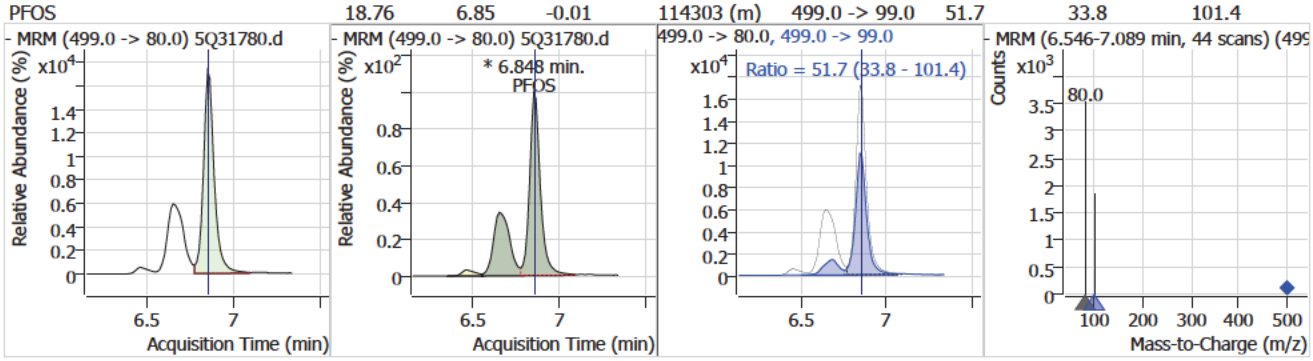
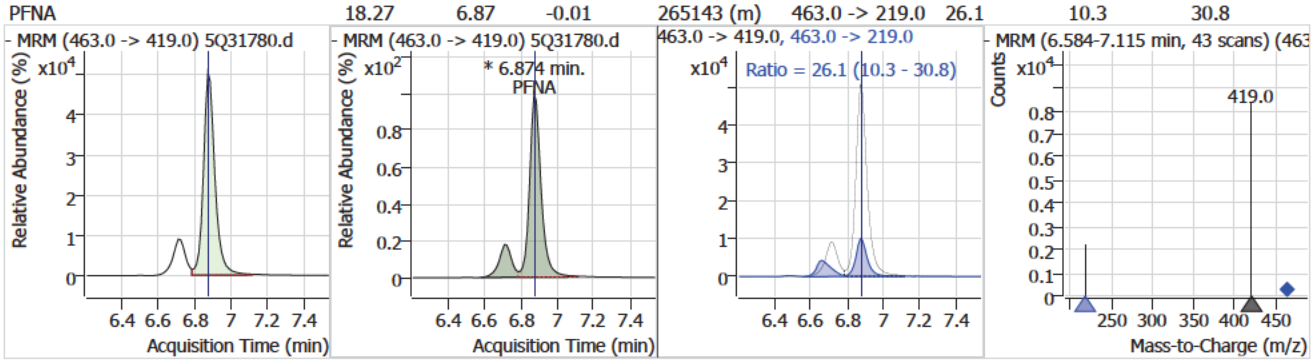
Perfluorinated Compounds by LC/MS/MS

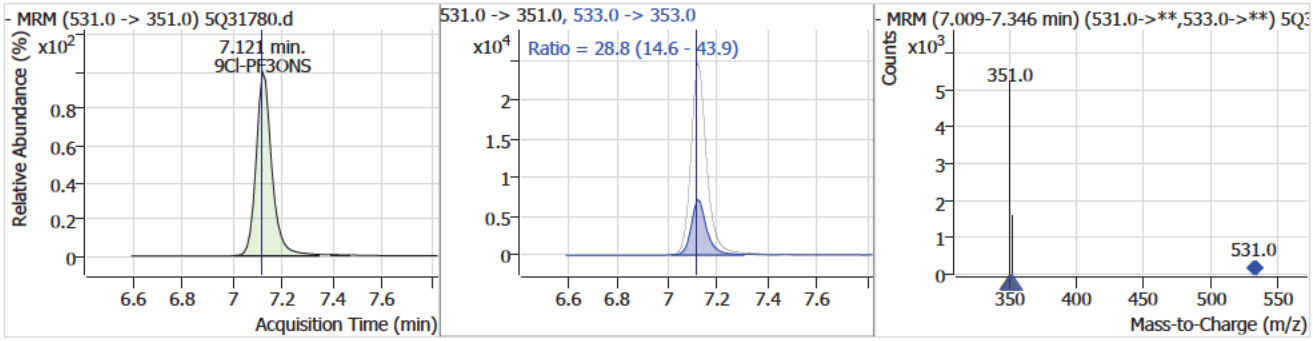
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.76	6.85	-0.01	114303 (m)	499.0 -> 99.0	51.7	33.8	101.4



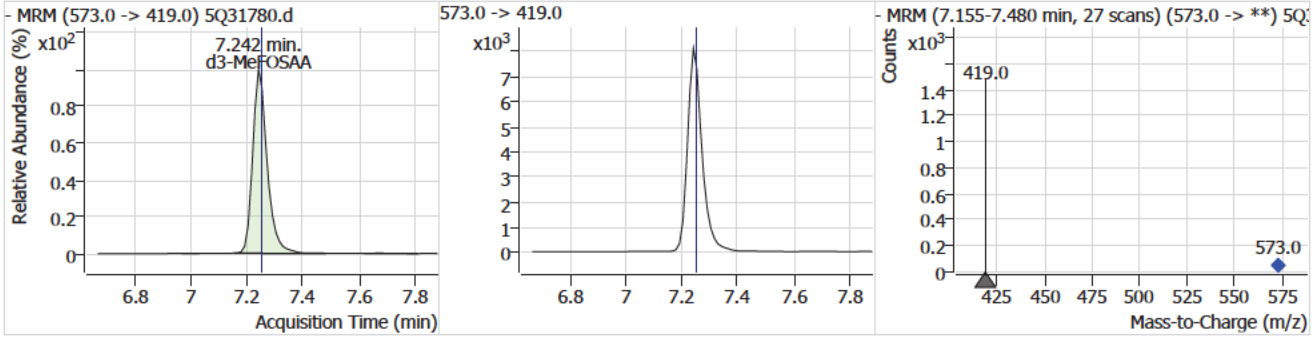
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	18.27	6.87	-0.01	265143 (m)	463.0 -> 219.0	26.1	10.3	30.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	17.90	7.12	-0.01	107739	533.0 -> 353.0	28.8	14.6	43.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	28776				



7.7.32

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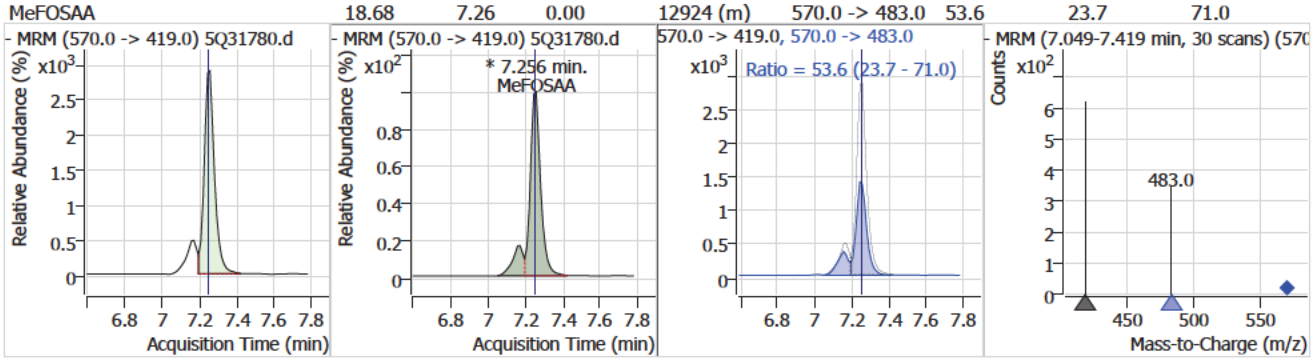
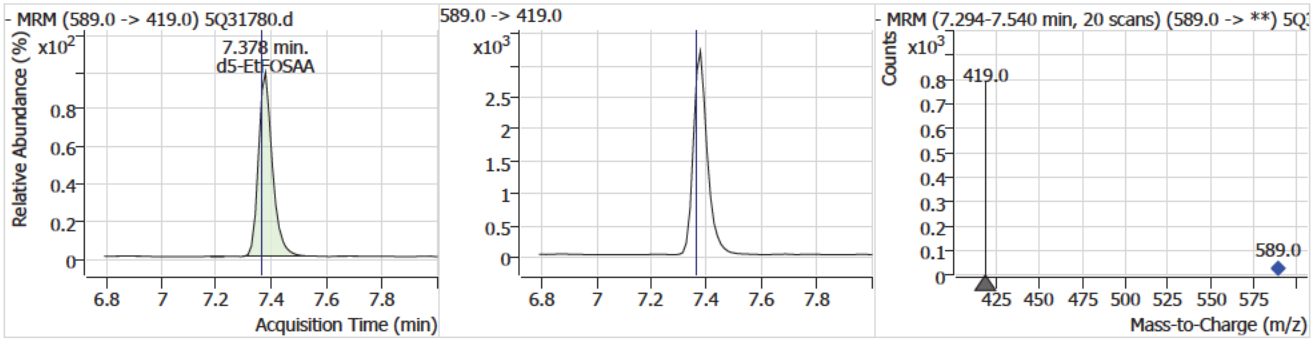
Perfluorinated Compounds by LC/MS/MS

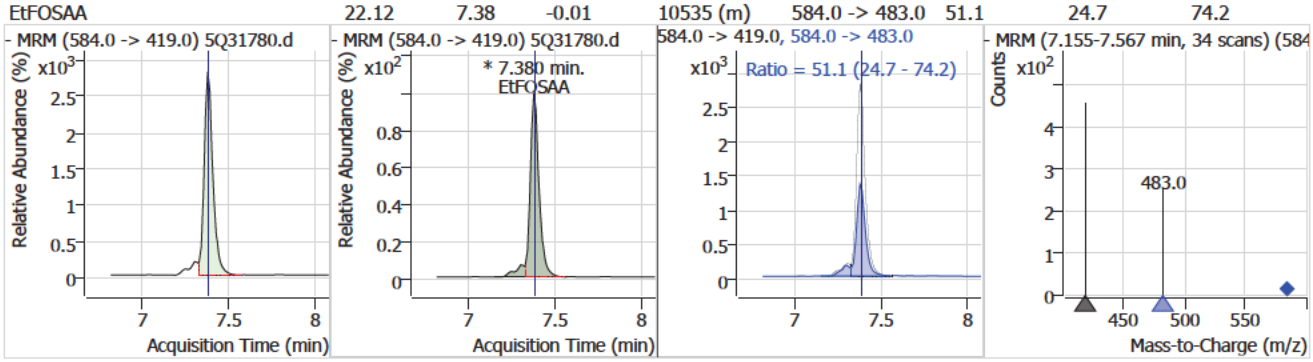
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	18.68	7.26	0.00	12924 (m)	570.0 -> 483.0	53.6	23.7	71.0



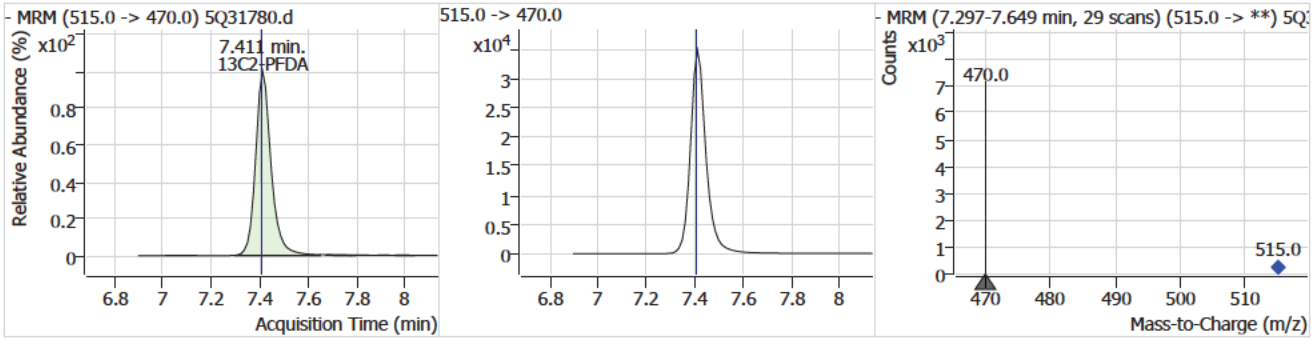
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	20.90	7.38	0.00	11168				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	22.12	7.38	-0.01	10535 (m)	584.0 -> 483.0	51.1	24.7	74.2

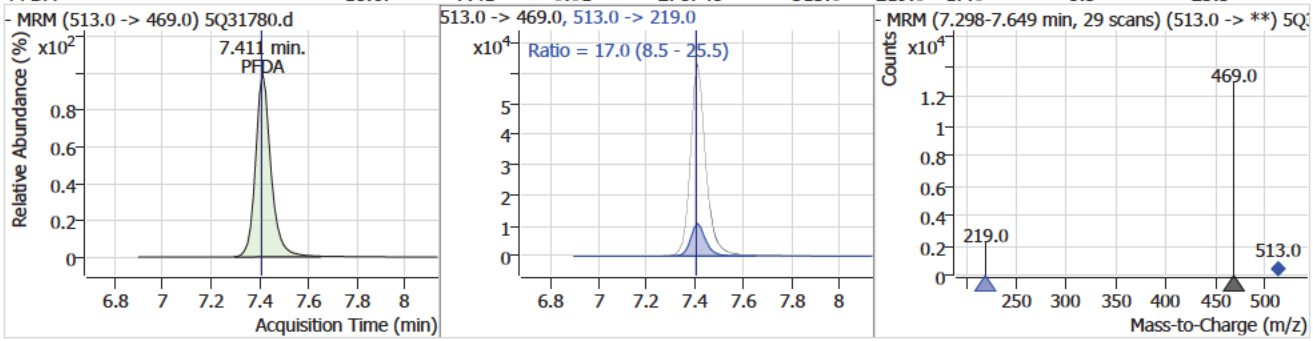


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	9.42	7.41	-0.01	155170				

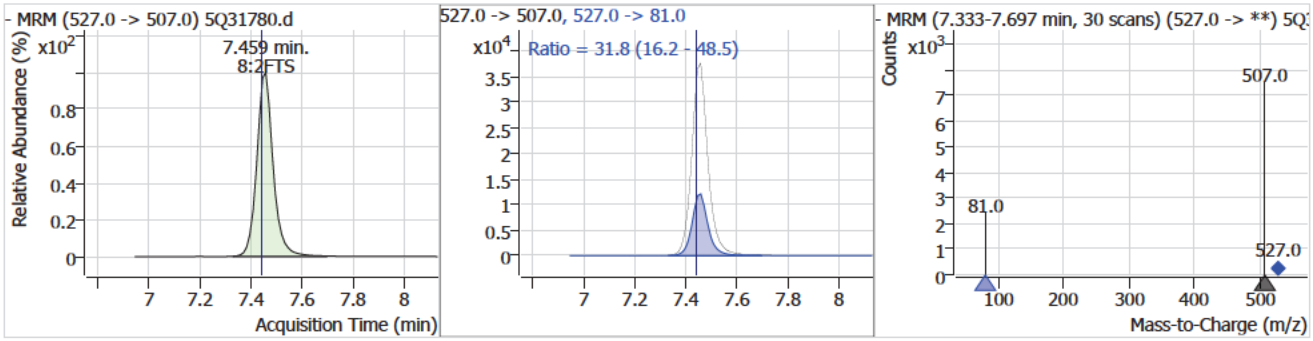


Perfluorinated Compounds by LC/MS/MS

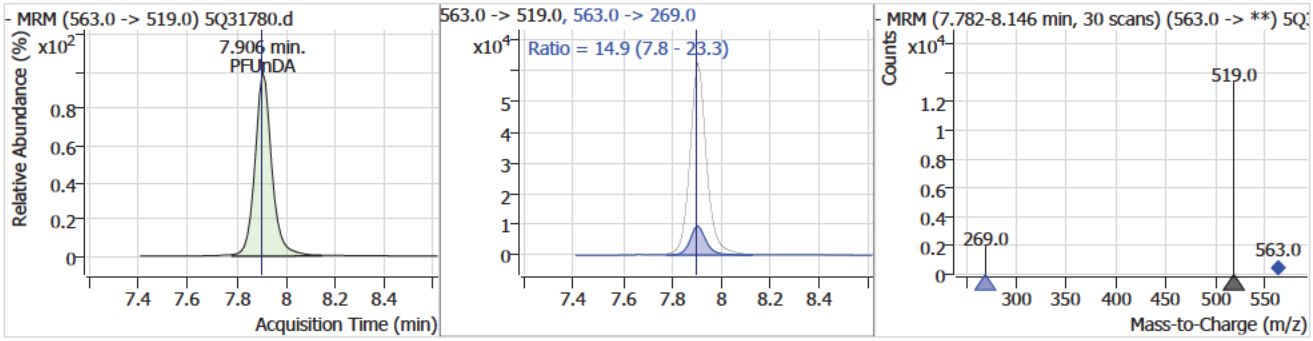
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	18.67	7.41	-0.01	278748	513.0 -> 219.0	17.0	8.5	25.5



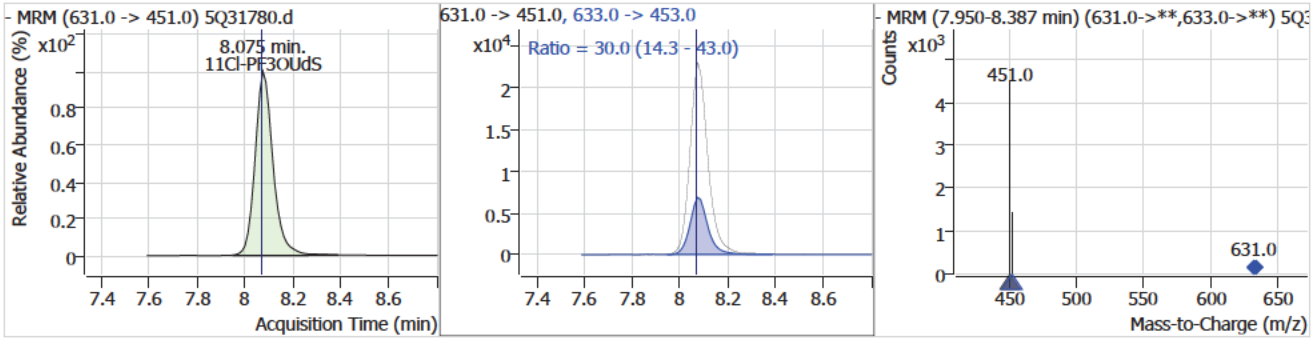
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.73	7.46	0.00	166839	527.0 -> 81.0	31.8	16.2	48.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	18.92	7.91	-0.01	295448	563.0 -> 269.0	14.9	7.8	23.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	20.24	8.07	-0.01	119594	633.0 -> 453.0	30.0	14.3	43.0



7.7.32

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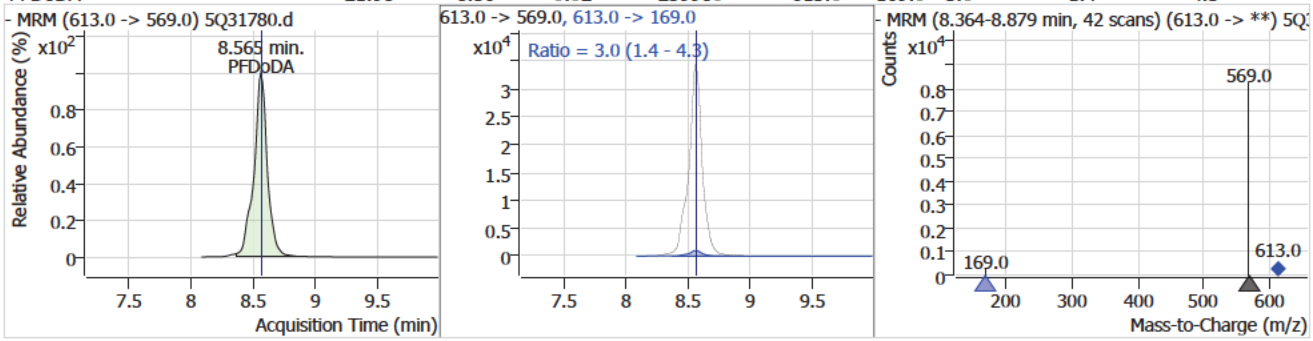
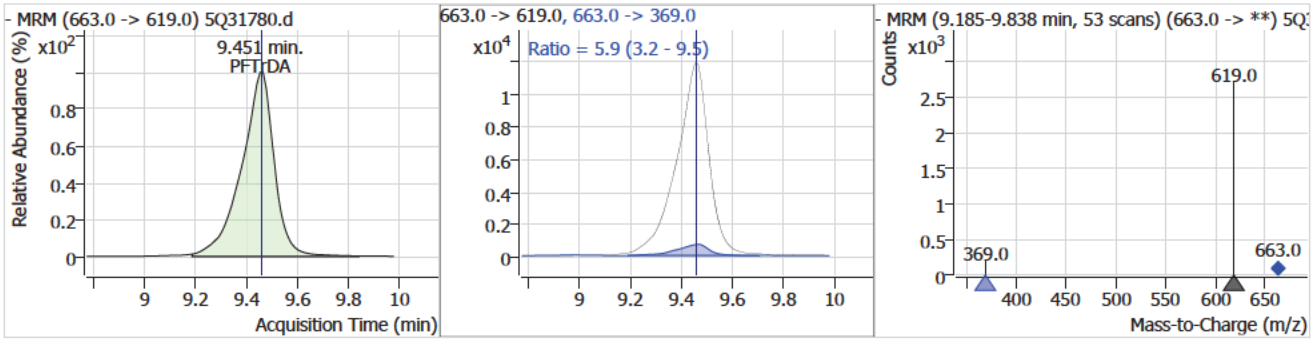
Perfluorinated Compounds by LC/MS/MS

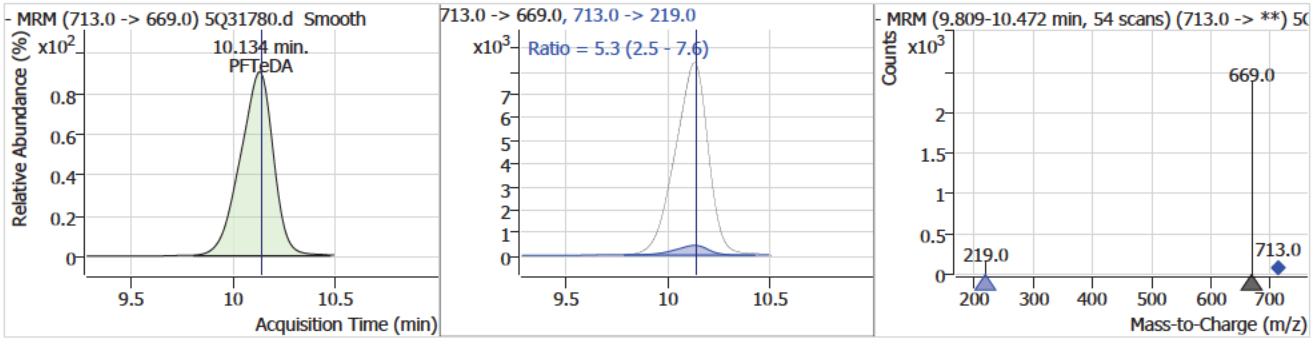
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	21.98	8.56	-0.02	259980	613.0 -> 169.0	3.0	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	15.81	9.45	-0.02	106043	663.0 -> 369.0	5.9	3.2	9.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	16.97	10.13	-0.03	94293	713.0 -> 219.0	5.3	2.5	7.6



Manual Integration Approval Summary

Sample Number: S5Q521-ECC521
Lab FileID: 5Q31780.D
Injection Time: 04/15/25 21:13
Method: EPA 537.1 REV 2.0
Analyst approved: 04/16/25 10:55 (b) (6)
Supervisor approved: 04/16/25 15:44 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.85	Split peak
Perfluorononanoic acid	375-95-1		6.87	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

QQQ Check Tune Report

Agilent | Trusted Answers

Instrument Name	LCMS5Q
MS Model	G6470B
MS Instrument Serial	SG2221G211
Software_Firmware Version	10.1.67, FW: A.00.08.112
Tune Date & Time	14 April 2025 09:23:21
File Path	D:\MassHunter\Tune\QQQ\G6470B\atunes.TUNE.XML
Ion Source	AJS ESI
Ionization Mode	AJS ESI
Tuned Resolution	All
Vacuum Pressure	1.29E+0 [R] (Torr); 3.37E-5 [H] (Torr)

Source Parameters

Parameter	Negative
Gas Temp (°C)	300
Gas Flow (l/min)	8
Nebulizer (psi)	15
Capillary (V)	3500
Nozzle Voltage (V)	1500
Sheath Gas Temp (°C)	250
Sheath Gas Flow (l/min)	7

QQQ Check Tune Report

Agilent | Trusted Answers

Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.99	0.00	Pass	0.70	0.68	-0.02	Pass	63164
302.00	302.07	0.07	Pass	0.70	0.71	0.01	Pass	46772
601.98	602.03	0.05	Pass	0.70	0.70	0.00	Pass	106524
1033.99	1034.06	0.07	Pass	0.70	0.68	-0.02	Pass	168600
1633.95	1634.05	0.10	Pass	0.70	0.64	-0.06	Pass	576560
2233.91	2234.00	0.09	Pass	0.70	0.58	-0.12	Pass	230330

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.98	-0.02	Pass	0.70	0.66	-0.04	Pass	14469
112.99	112.99	0.00	Pass	0.70	0.70	0.00	Pass	45487
302.00	302.00	0.00	Pass	0.70	0.70	0.00	Pass	38497
601.98	601.92	-0.06	Pass	0.70	0.74	0.04	Pass	82452
1033.99	1033.95	-0.04	Pass	0.70	0.74	0.04	Pass	150073
1633.95	1633.90	-0.05	Pass	0.70	0.75	0.05	Pass	482147
2233.91	2233.91	0.00	Pass	0.70	0.73	0.03	Pass	204643

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	113.00	0.01	Pass	1.20	1.28	0.08	Pass	76882
302.00	302.02	0.02	Pass	1.20	1.42	0.22	Pass	60436
601.98	602.02	0.04	Pass	1.20	1.51	0.31	Pass	169034
1033.99	1034.04	0.05	Pass	1.20	1.49	0.29	Pass	303637
1633.95	1634.01	0.06	Pass	1.20	1.40	0.20	Pass	895413
2233.91	2233.93	0.02	Pass	1.20	1.09	-0.11	Pass	499569

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.94	-0.06	Pass	1.20	1.28	0.08	Pass	17547
112.99	112.98	-0.01	Pass	1.20	1.24	0.04	Pass	71681
302.00	301.96	-0.04	Pass	1.20	1.15	-0.05	Pass	46328
601.98	601.90	-0.08	Pass	1.20	1.08	-0.12	Pass	100357
1033.99	1033.91	-0.08	Pass	1.20	1.14	-0.06	Pass	212087
1633.95	1633.85	-0.10	Pass	1.20	1.30	0.10	Pass	824024
2233.91	2233.95	0.04	Pass	1.20	1.35	0.15	Pass	396130

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.98	-0.01	Pass	2.50	2.47	-0.03	Pass	96749
302.00	302.03	0.03	Pass	2.50	2.71	0.21	Pass	70573
601.98	602.02	0.04	Pass	2.50	2.86	0.36	Pass	189021
1033.99	1034.01	0.02	Pass	2.50	2.93	0.43	Pass	591197
1633.95	1633.96	0.01	Pass	2.50	2.77	0.27	Pass	2441107
2233.91	2233.80	-0.11	Pass	2.50	2.89	0.39	Pass	1642805

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.95	-0.05	Pass	2.50	2.40	-0.10	Pass	22938
112.99	112.98	-0.01	Pass	2.50	2.44	-0.06	Pass	88146
302.00	301.97	-0.03	Pass	2.50	2.29	-0.21	Pass	64094
601.98	601.92	-0.06	Pass	2.50	2.30	-0.20	Pass	163732
1033.99	1033.91	-0.08	Pass	2.50	2.26	-0.24	Pass	434415
1633.95	1633.91	-0.04	Pass	2.50	2.40	-0.10	Pass	1901064
2233.91	2233.85	-0.06	Pass	2.50	2.47	-0.03	Pass	1169263

Cal Report: 5Q31786.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 09:03

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31786.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/16/2025 12:01:05 PM
Sample Name : ic522-0.5
Vial : P1-A2
DA Method File : 537_041625_S5Q522.quantmethod
Batch Name : s5q522.batch.bin
Sample Information : OP8882,S5Q522,250,,,1,1,water

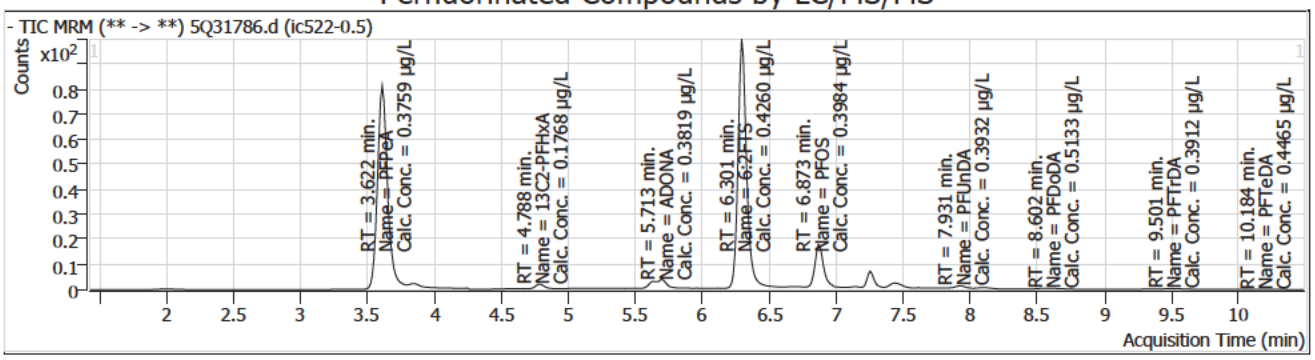
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.300	429.0 -> 409.0	146827	20.00 µg/L		0.013
13C2-PFOA	6.303	415.0 -> 370.0	341969	20.00 µg/L		0.013
13C3-PFPeA	3.619	266.0 -> 222.0	476584	20.00 µg/L		0.013
13C4-PFOS	6.872	503.0 -> 80.0	81702	20.00 µg/L		0.012
d3-MeFOSAA	7.255	573.0 -> 419.0	26788	40.00 µg/L		0.000
System Monitoring Compounds						
13C2-PFDA	7.436	515.0 -> 470.0	2839	0.20 µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 1.0%		
13C2-PFHxA	4.788	315.0 -> 270.0	4087	0.18 µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 0.9%		
d5-EtFOSAA	7.378	589.0 -> 419.0	202	0.40 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 1.0%		
13C3-HFPO-DA	5.044	287.0 -> 169.0	636	0.39 µg/L	m	0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 1.0%		
Target Compounds						QValue
6:2FTS	6.301	427.0 -> 407.0	3697	0.43 µg/L		94
8:2FTS	7.484	527.0 -> 507.0	2978	0.49 µg/L		95
EtFOSAA	7.392	584.0 -> 419.0	246	0.53 µg/L	m	84
MeFOSAA	7.281	570.0 -> 419.0	260	0.39 µg/L	m	92
PFBS	3.853	299.0 -> 80.0	4559	0.39 µg/L		97
PFDA	7.436	513.0 -> 469.0	4592	0.39 µg/L		94
PFDoDA	8.602	613.0 -> 569.0	4590	0.51 µg/L		99
PFHpA	5.626	363.0 -> 319.0	10362	0.36 µg/L		95
PFHxA	4.789	313.0 -> 269.0	5576	0.38 µg/L		97
PFHxS	5.660	399.0 -> 80.0	2701	0.39 µg/L	m	97
PFNA	6.899	463.0 -> 419.0	4346	0.39 µg/L	m	99
PFOA	6.303	413.0 -> 369.0	5955	0.37 µg/L		89
PFOS	6.873	499.0 -> 80.0	2143	0.40 µg/L	m	97
PFPeA	3.622	263.0 -> 219.0	10966	0.38 µg/L		100
PFTeDA	10.184	713.0 -> 669.0	1631	0.45 µg/L		98
PFTrDA	9.501	663.0 -> 619.0	2118	0.39 µg/L		93
PFUnDA	7.931	563.0 -> 519.0	4941	0.39 µg/L		97
ADONA	5.713	377.0 -> 251.0	13910	0.38 µg/L		95
9Cl-PF3ONS	7.146	531.0 -> 351.0	1683	0.38 µg/L		94
11Cl-PF3OUdS	8.112	631.0 -> 451.0	2179	0.49 µg/L		99
HFPO-DA	5.035	285.0 -> 169.0	623	0.46 µg/L	#	98

= Qualifier out of range, m = manually integrated, + = Area summed

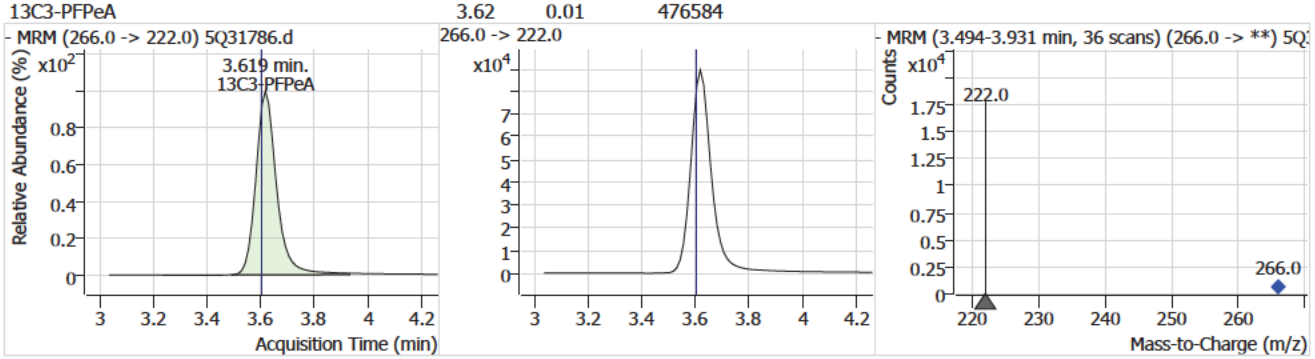
7.7.34

7

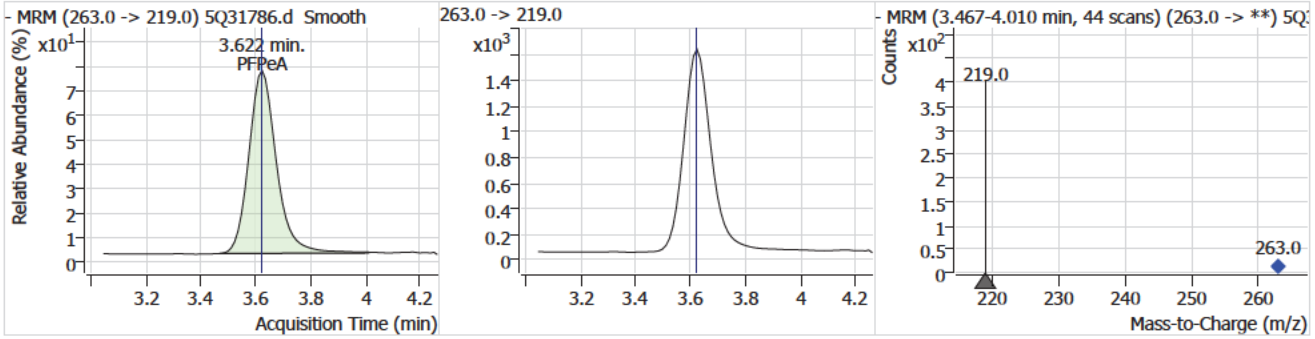
Perfluorinated Compounds by LC/MS/MS



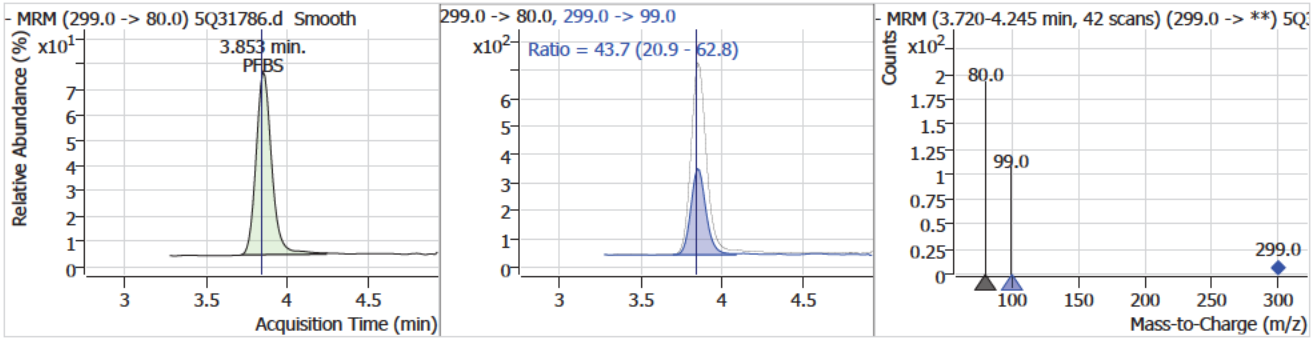
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.62	0.01	476584				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.38	3.62	0.01	10966				

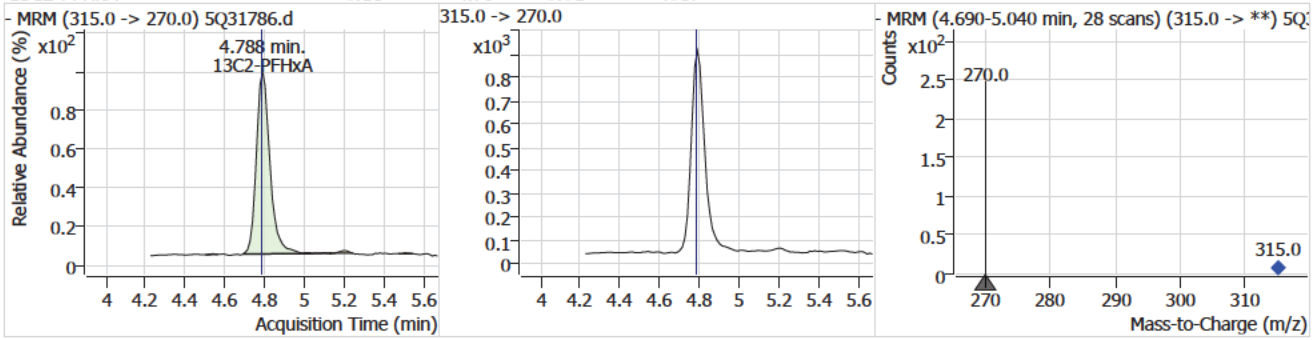


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.39	3.85	0.01	4559	299.0 -> 99.0	43.7	20.9	62.8

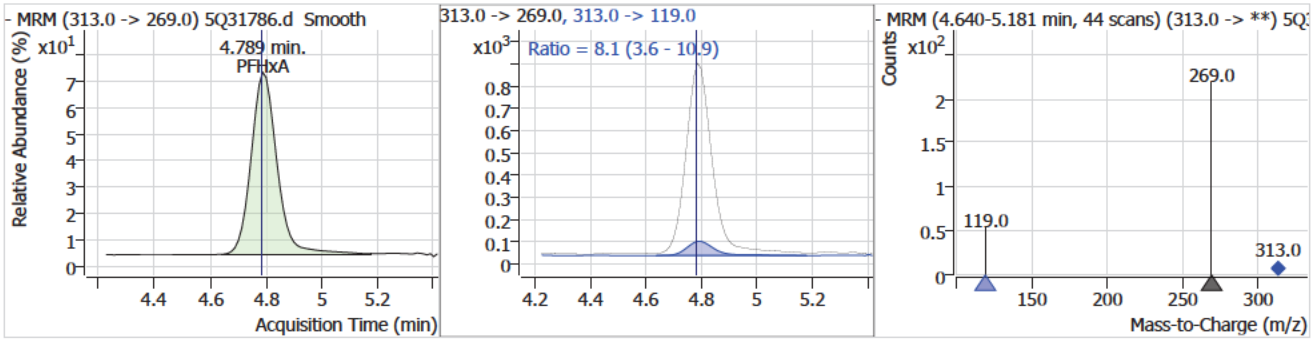


Perfluorinated Compounds by LC/MS/MS

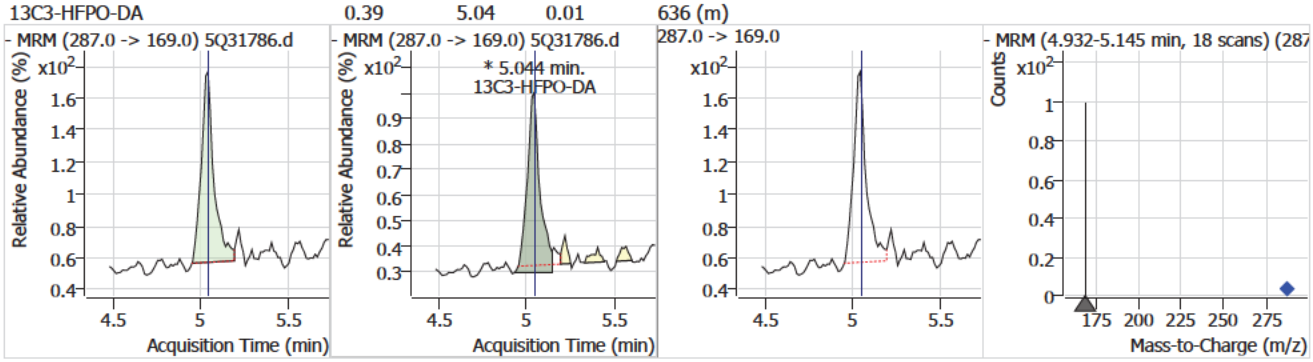
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.18	4.79	0.01	4087				



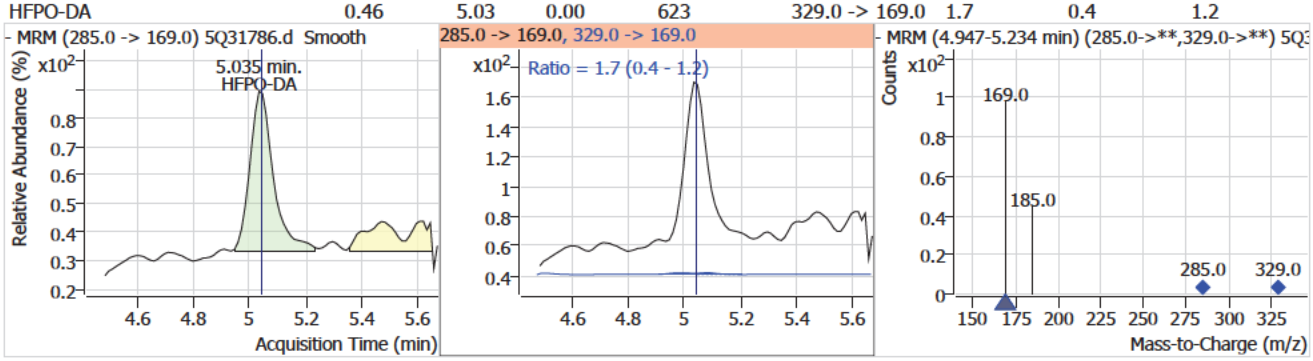
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.38	4.79	0.01	5576	313.0 -> 119.0	8.1	3.6	10.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.39	5.04	0.01	636 (m)				

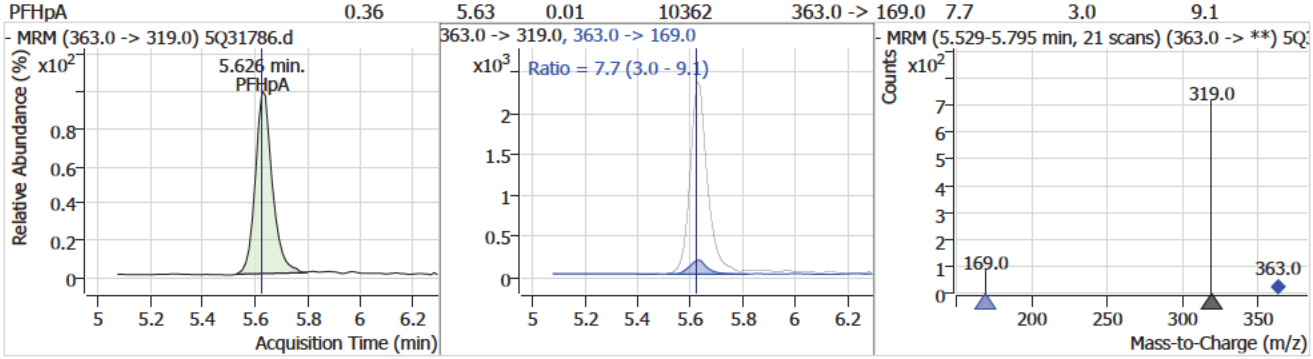


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.46	5.03	0.00	623	329.0 -> 169.0	1.7	0.4	1.2

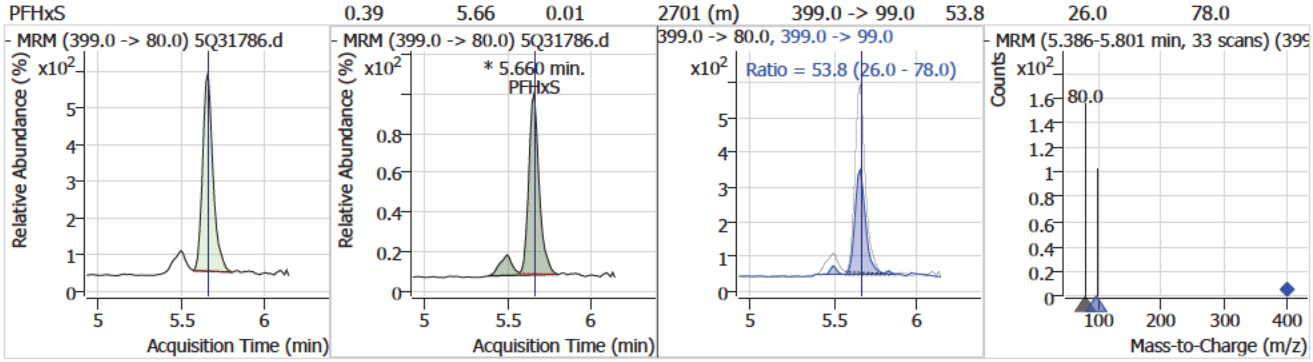


Perfluorinated Compounds by LC/MS/MS

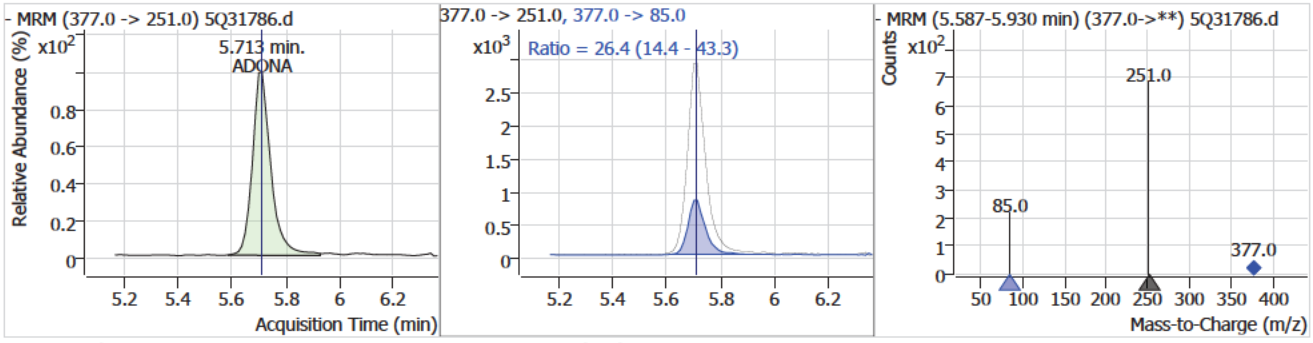
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.36	5.63	0.01	10362	363.0 -> 169.0	7.7	3.0	9.1



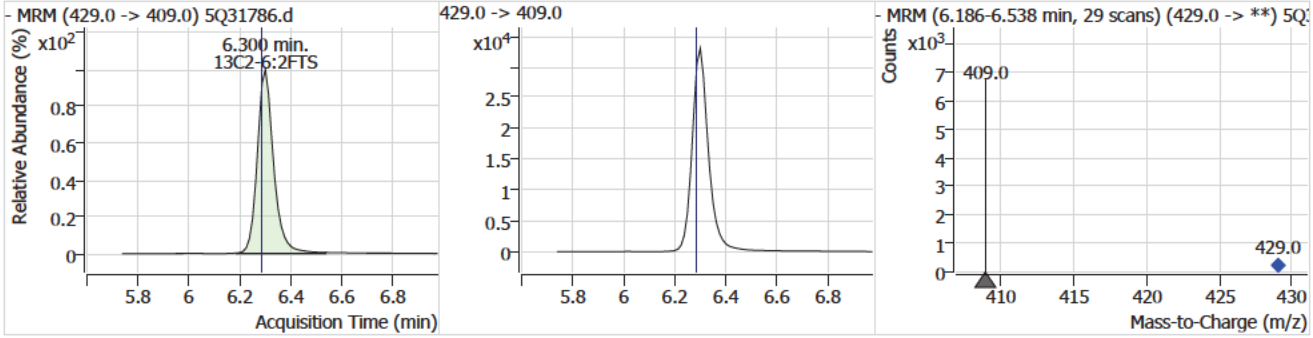
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.39	5.66	0.01	2701 (m)	399.0 -> 99.0	53.8	26.0	78.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.38	5.71	0.01	13910	377.0 -> 85.0	26.4	14.4	43.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.30	0.01	146827				



7.7.34

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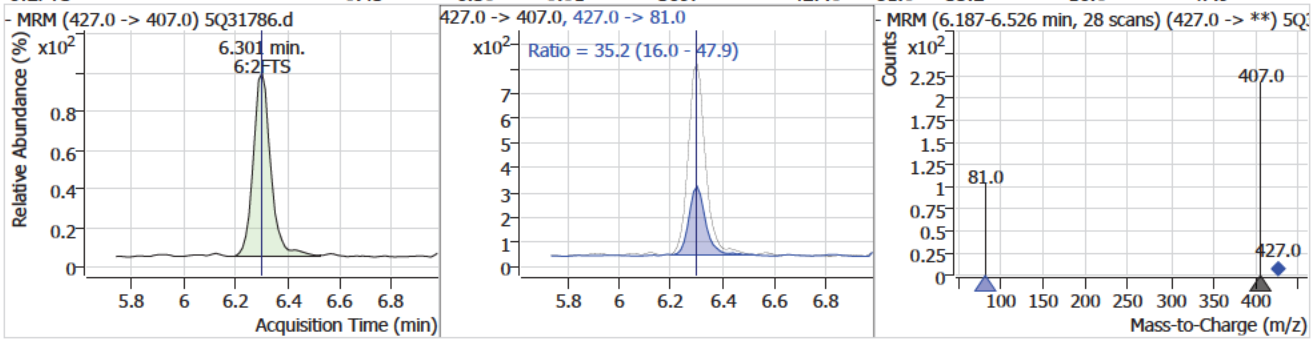
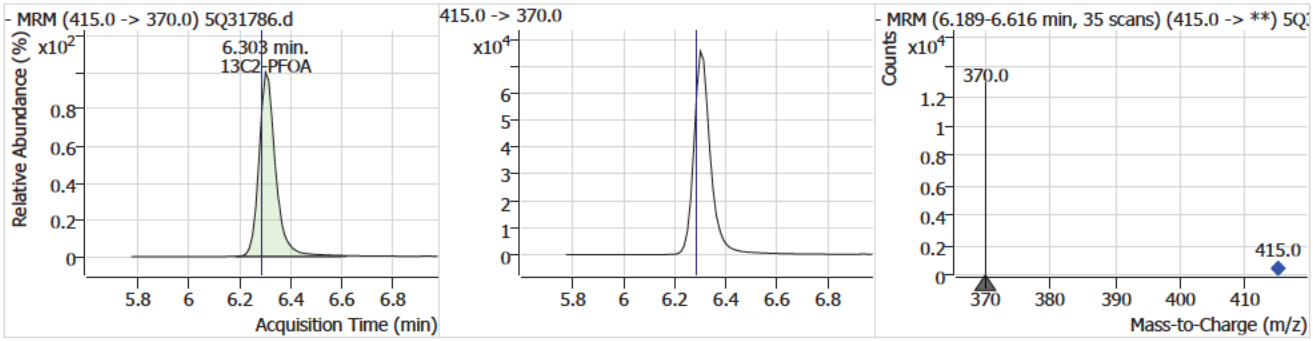
Perfluorinated Compounds by LC/MS/MS

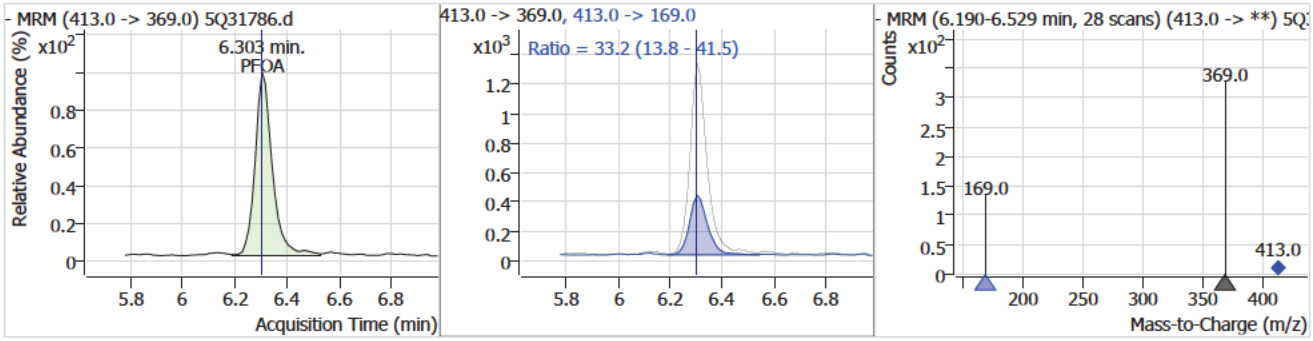
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.43	6.30	0.01	3697	427.0 -> 81.0	35.2	16.0	47.9



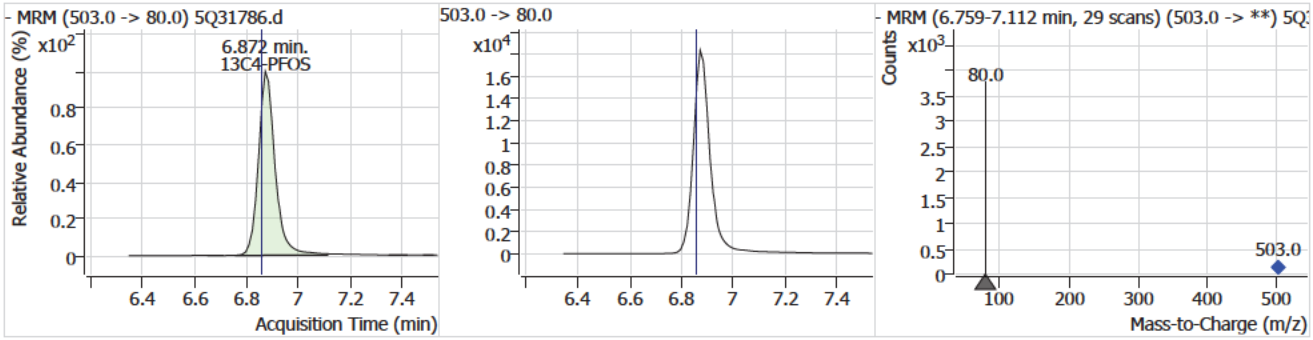
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.30	0.01	341969				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.37	6.30	0.01	5955	413.0 -> 169.0	33.2	13.8	41.5

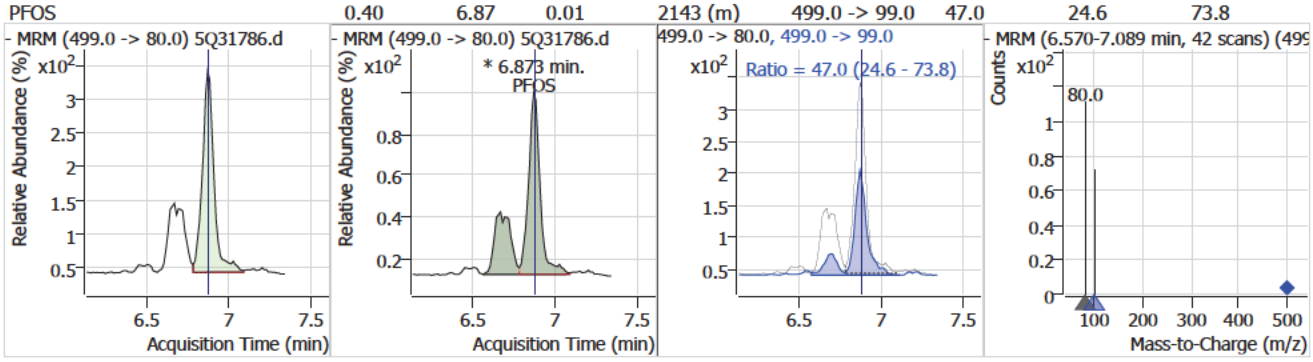


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.87	0.01	81702				

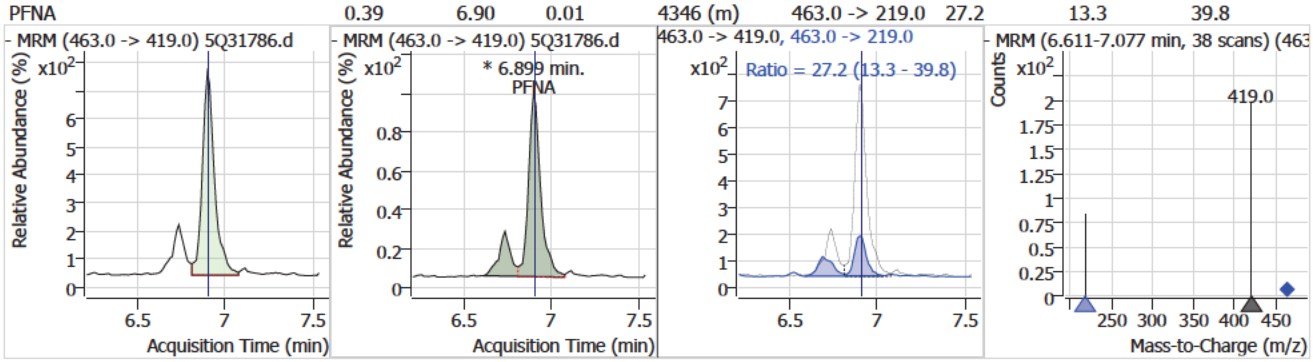


Perfluorinated Compounds by LC/MS/MS

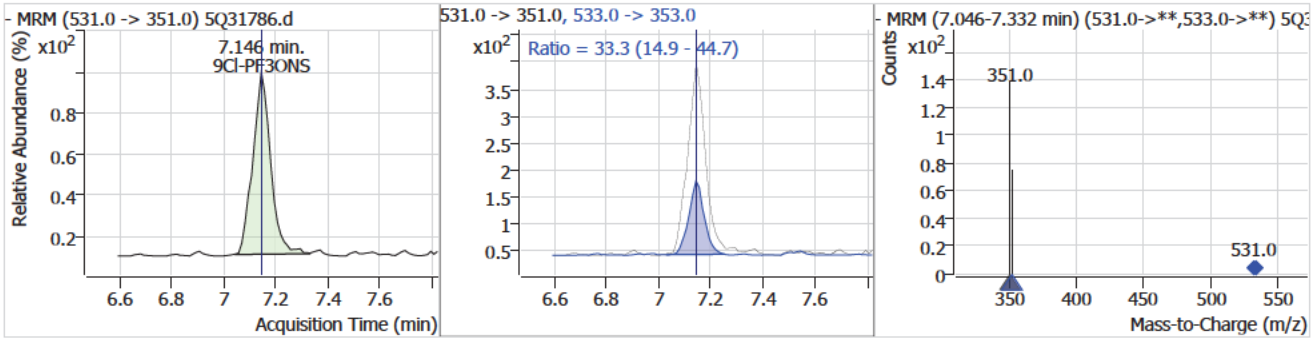
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.40	6.87	0.01	2143 (m)	499.0 -> 99.0	47.0	24.6	73.8



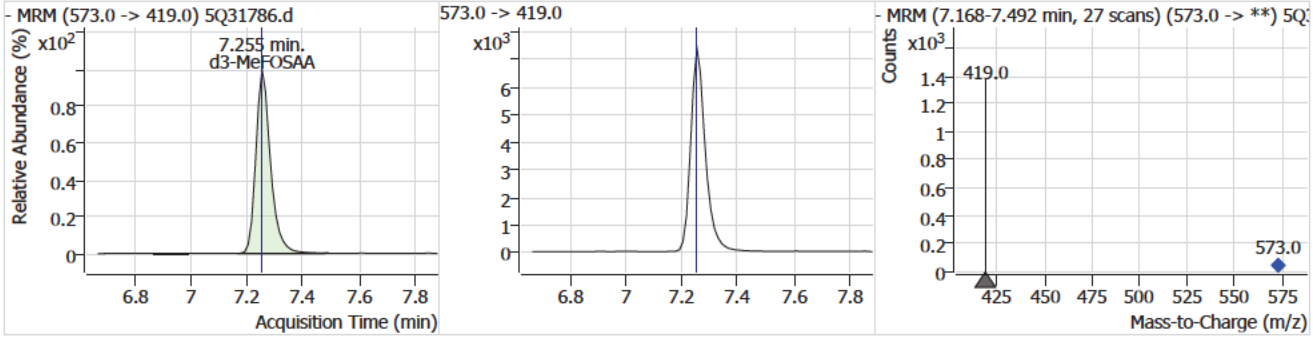
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.39	6.90	0.01	4346 (m)	463.0 -> 219.0	27.2	13.3	39.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.38	7.15	0.01	1683	533.0 -> 353.0	33.3	14.9	44.7

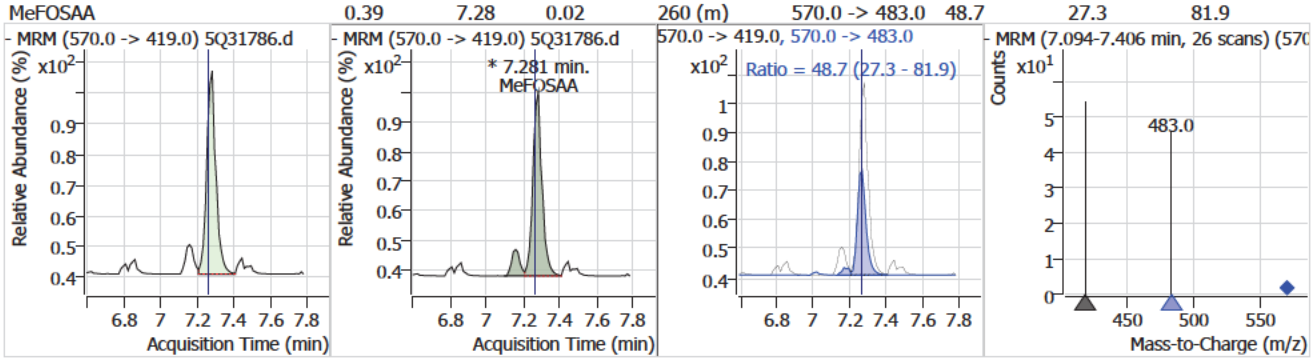


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	26788				

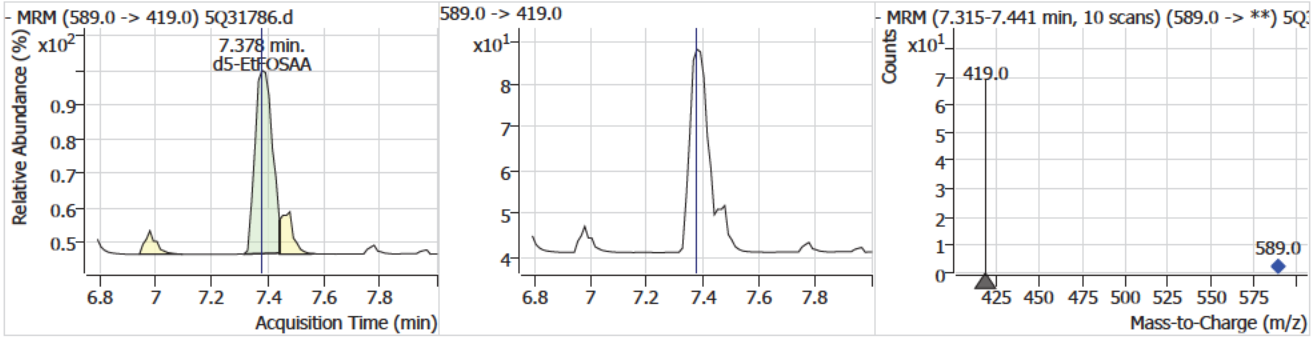


Perfluorinated Compounds by LC/MS/MS

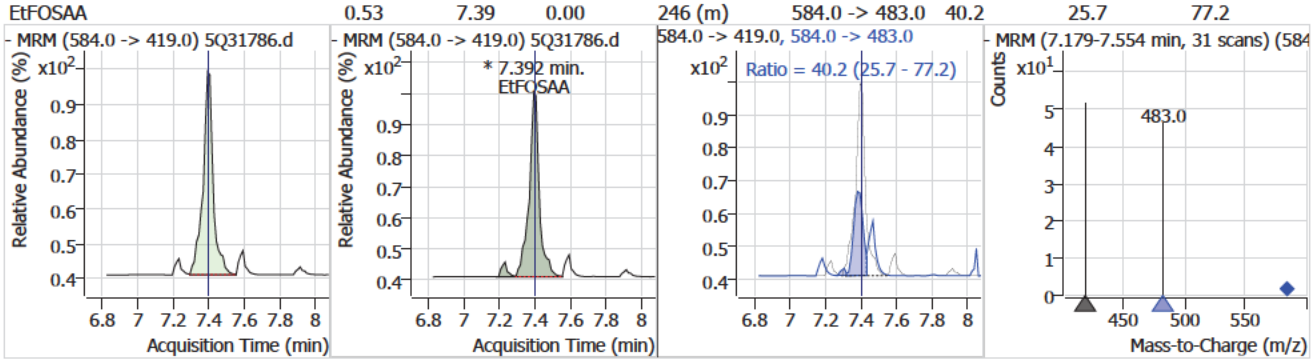
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.39	7.28	0.02	260 (m)	570.0 -> 483.0	48.7	27.3	81.9



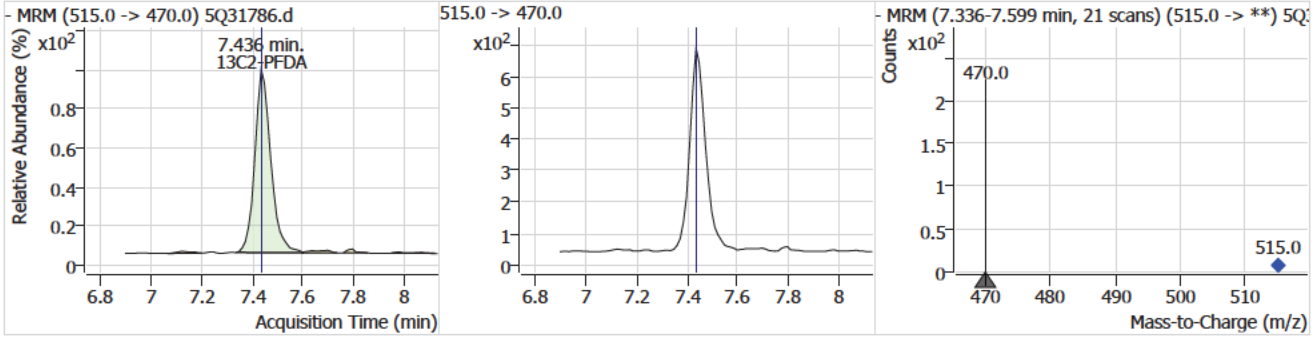
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	0.40	7.38	0.00	202				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.53	7.39	0.00	246 (m)	584.0 -> 483.0	40.2	25.7	77.2

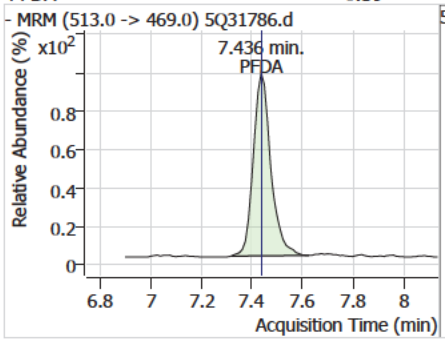


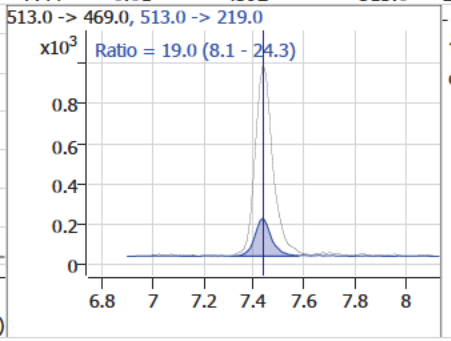
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.20	7.44	0.01	2839				

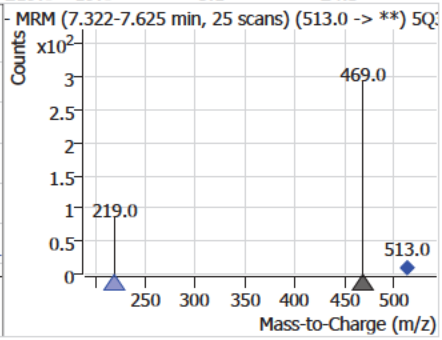


Perfluorinated Compounds by LC/MS/MS

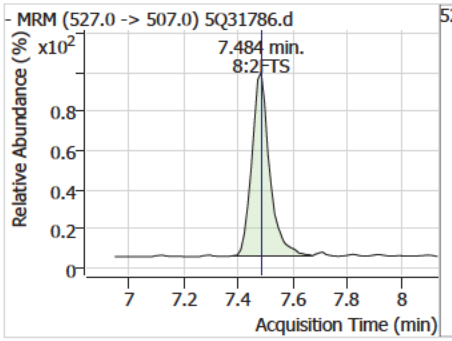
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.39	7.44	0.01	4592	513.0 -> 219.0	19.0	8.1	24.3

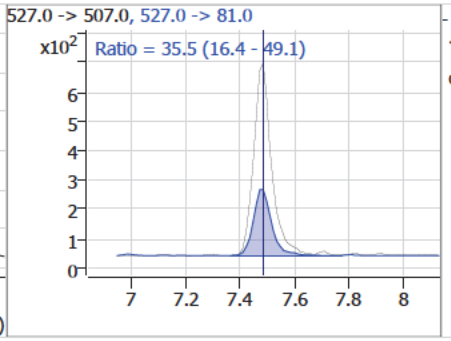


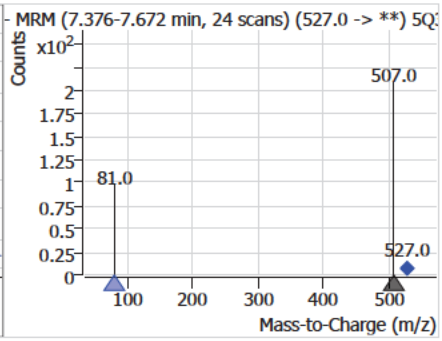




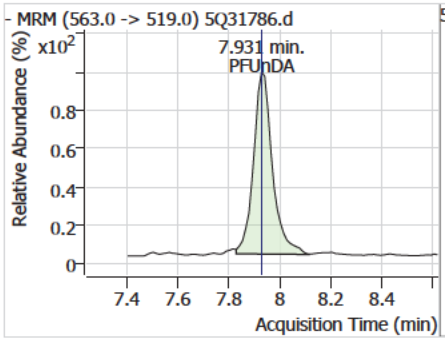
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.49	7.48	0.01	2978	527.0 -> 81.0	35.5	16.4	49.1

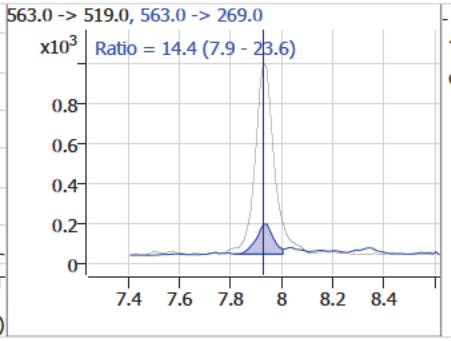


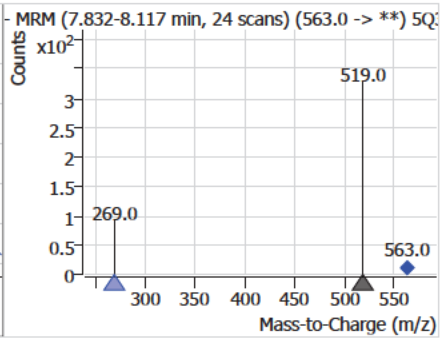




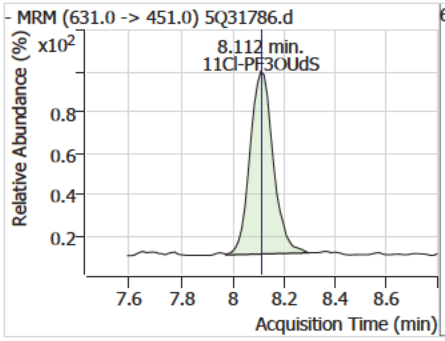
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.39	7.93	0.01	4941	563.0 -> 269.0	14.4	7.9	23.6

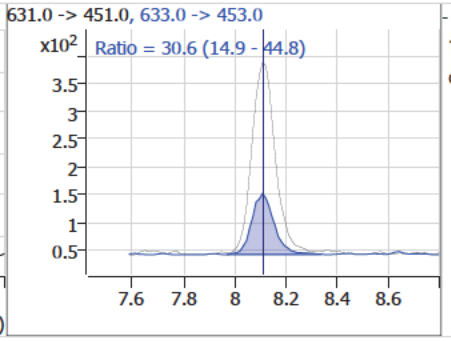


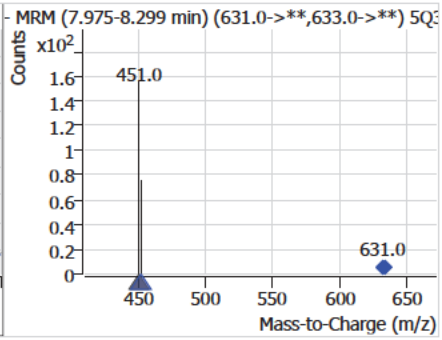




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.49	8.11	0.01	2179	633.0 -> 453.0	30.6	14.9	44.8

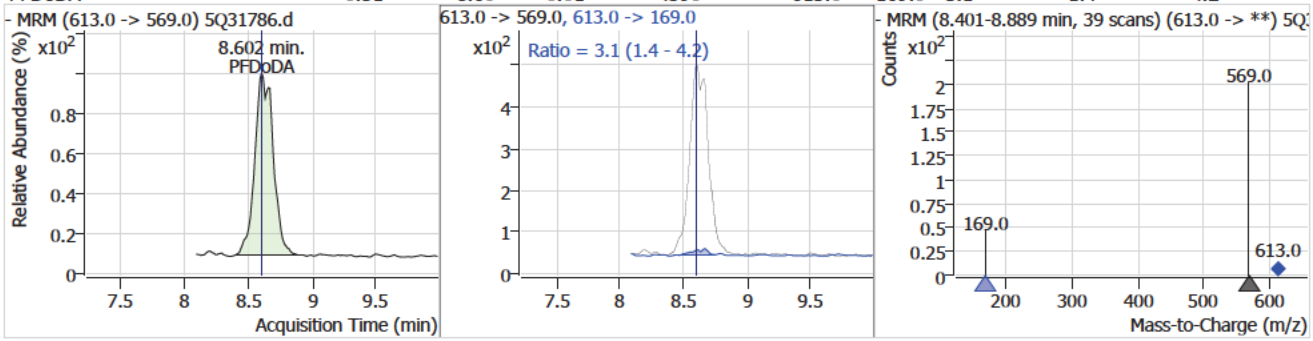




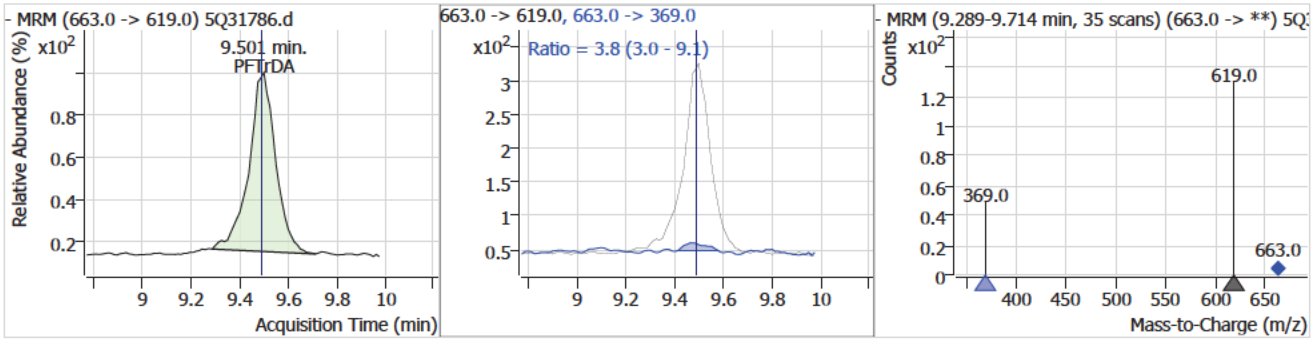


Perfluorinated Compounds by LC/MS/MS

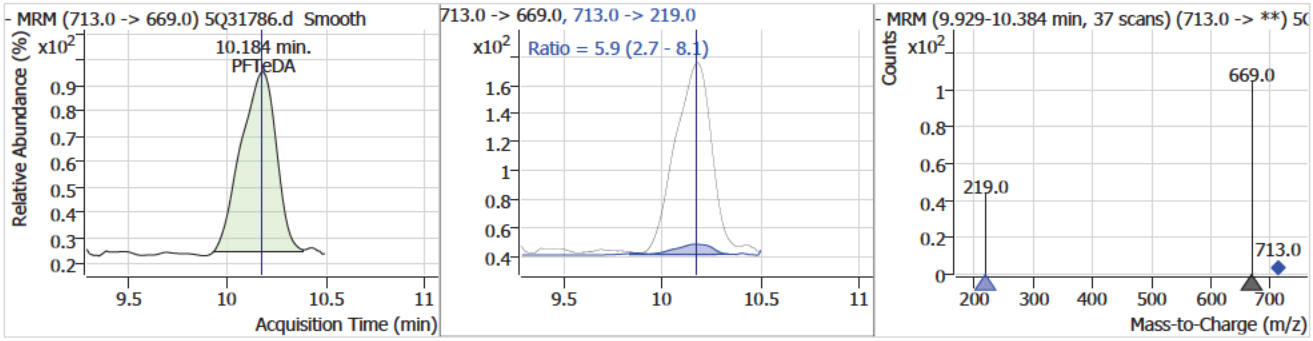
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.51	8.60	0.01	4590	613.0 -> 169.0	3.1	1.4	4.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.39	9.50	0.02	2118	663.0 -> 369.0	3.8	3.0	9.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.45	10.18	0.03	1631	713.0 -> 219.0	5.9	2.7	8.1



7.7.34

7

Manual Integration Approval Summary

Sample Number: S5Q522-IC522
Lab FileID: 5Q31786.D
Injection Time: 04/16/25 12:01
Method: EPA 537.1 REV 2.0
Analyst approved: 04/17/25 07:52 (b) (6) [redacted]
Supervisor approved: 04/17/25 09:03 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C3-HFPO-DA			5.04	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		5.66	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.87	Split peak
Perfluorononanoic acid	375-95-1		6.90	Split peak
MeFOSAA	2355-31-9		7.28	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Cal Report: 5Q31787.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 09:03

Perfluorinated Compounds by LC/MS/MS

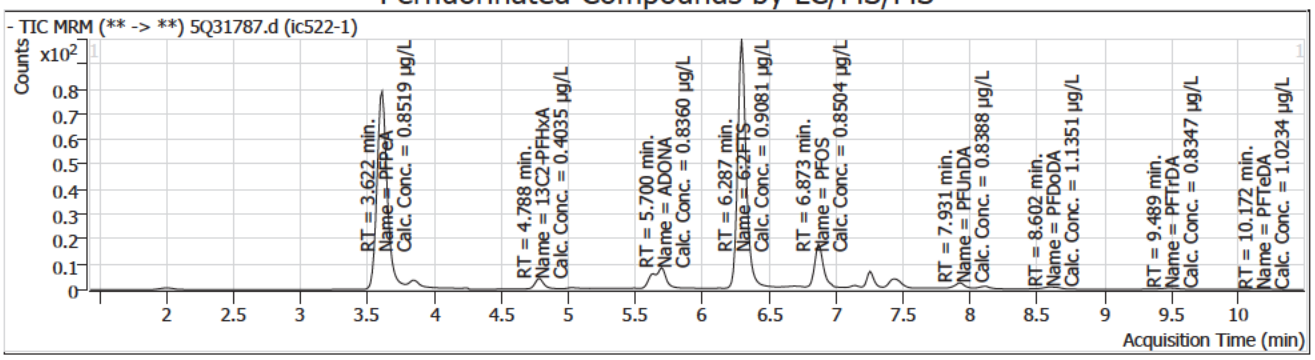
Data File : 5Q31787.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/16/2025 12:17:05 PM
Sample Name : ic522-1
Vial : P1-A3
DA Method File : 537_041625_S5Q522.quantmethod
Batch Name : s5q522.batch.bin
Sample Information : OP8882,S5Q522,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.300	429.0 -> 409.0	151770	20.00	µg/L		0.013
13C2-PFOA	6.303	415.0 -> 370.0	351964	20.00	µg/L		0.013
13C3-PFPeA	3.619	266.0 -> 222.0	485965	20.00	µg/L		0.013
13C4-PFOS	6.872	503.0 -> 80.0	82489	20.00	µg/L		0.012
d3-MeFOSAA	7.255	573.0 -> 419.0	28247	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.436	515.0 -> 470.0	5225	0.36	µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 1.8%			
13C2-PFHxA	4.788	315.0 -> 270.0	9598	0.40	µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 2.0%			
d5-EtFOSAA	7.378	589.0 -> 419.0	414	0.78	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 2.0%			
13C3-HFPO-DA	5.044	287.0 -> 169.0	1373	0.82	µg/L		0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 2.1%			
Target Compounds							QValue
6:2FTS	6.287	427.0 -> 407.0	8137	0.91	µg/L		98
8:2FTS	7.484	527.0 -> 507.0	6276	1.01	µg/L		100
EtFOSAA	7.392	584.0 -> 419.0	490	1.00	µg/L	m	97
MeFOSAA	7.256	570.0 -> 419.0	583	0.83	µg/L	#m	61
PFBS	3.853	299.0 -> 80.0	11098	0.94	µg/L		99
PFDA	7.436	513.0 -> 469.0	10550	0.87	µg/L		98
PFDoDA	8.602	613.0 -> 569.0	10274	1.14	µg/L		98
PFHpA	5.626	363.0 -> 319.0	25217	0.86	µg/L		99
PFHxA	4.789	313.0 -> 269.0	12734	0.85	µg/L		97
PFHxS	5.660	399.0 -> 80.0	6130	0.88	µg/L	m	97
PFNA	6.899	463.0 -> 419.0	9983	0.87	µg/L	m	99
PFOA	6.303	413.0 -> 369.0	13782	0.83	µg/L		99
PFOS	6.873	499.0 -> 80.0	4618	0.85	µg/L	m	95
PFPeA	3.622	263.0 -> 219.0	25351	0.85	µg/L		100
PFTeDA	10.172	713.0 -> 669.0	3782	1.02	µg/L		97
PFTrDA	9.489	663.0 -> 619.0	4563	0.83	µg/L		98
PFUnDA	7.931	563.0 -> 519.0	10641	0.84	µg/L		94
ADONA	5.700	377.0 -> 251.0	31368	0.84	µg/L		99
9Cl-PF3ONS	7.146	531.0 -> 351.0	3597	0.78	µg/L		84
11Cl-PF3OUdS	8.112	631.0 -> 451.0	4598	1.00	µg/L		88
HFPO-DA	5.047	285.0 -> 169.0	1312	0.95	µg/L	m	100

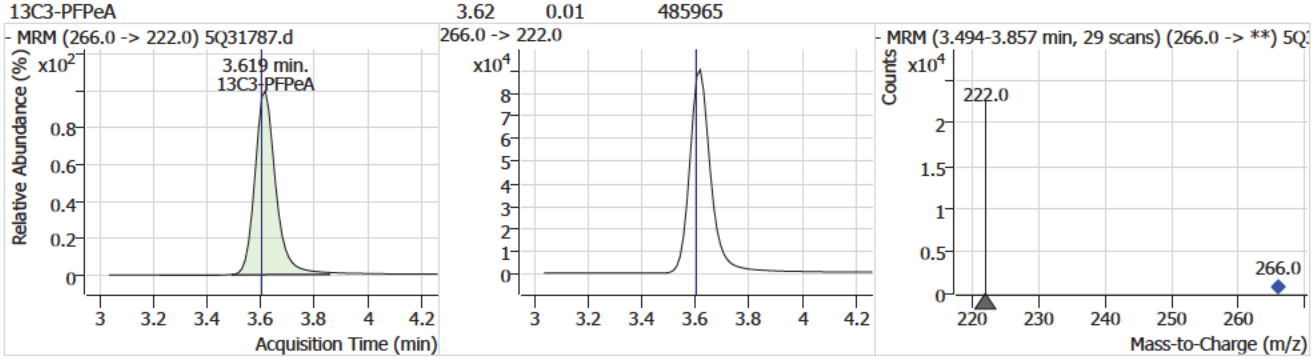
= Qualifier out of range, m = manually integrated, + = Area summed

7.7.35

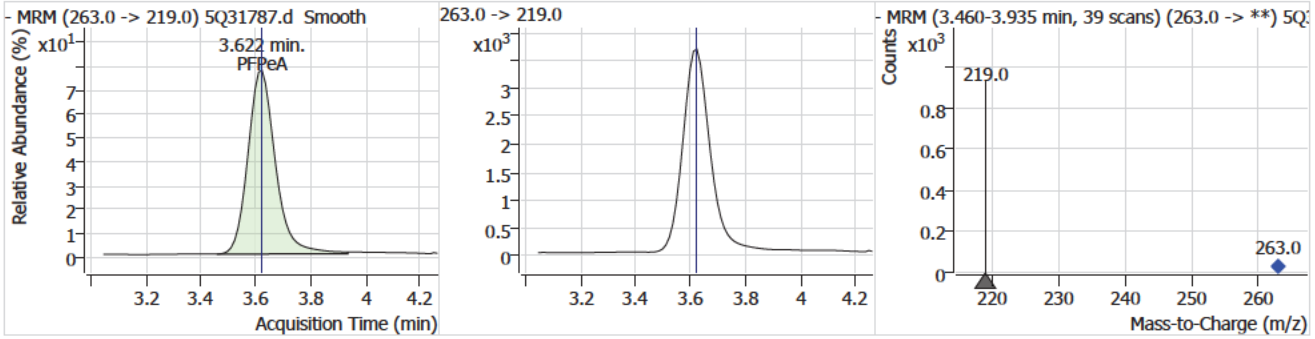
Perfluorinated Compounds by LC/MS/MS



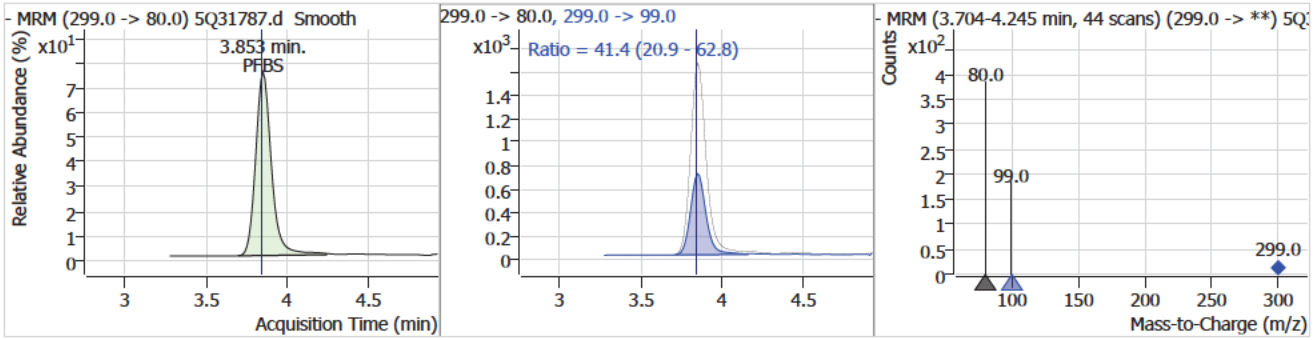
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.62	0.01	485965				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.85	3.62	0.01	25351				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.94	3.85	0.01	11098	299.0 -> 99.0	41.4	20.9	62.8



7.7.35

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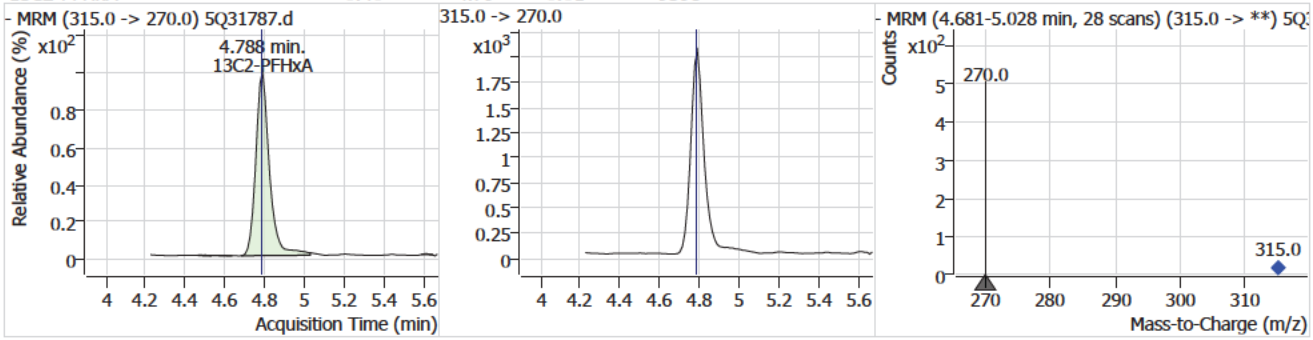
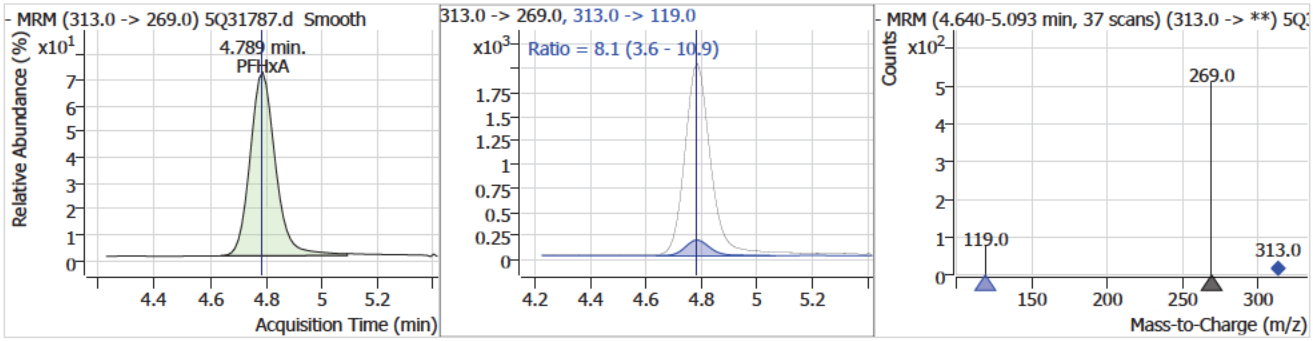
Perfluorinated Compounds by LC/MS/MS

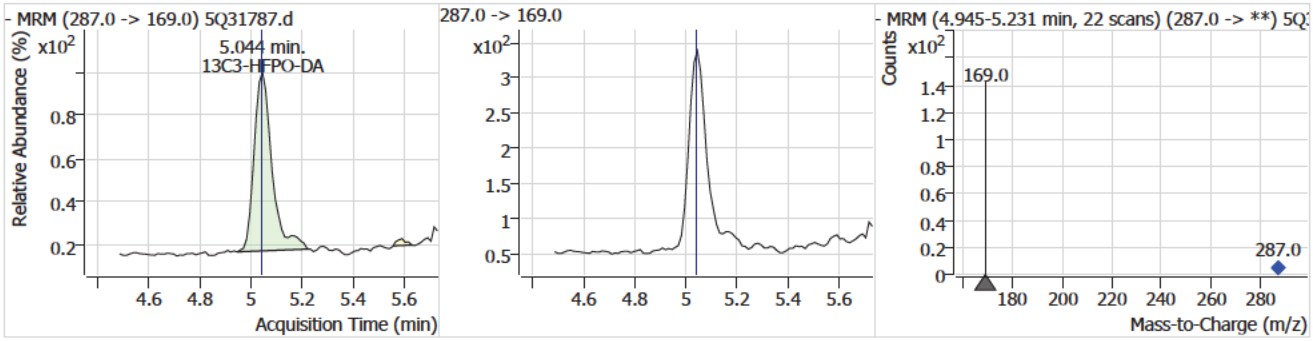
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.40	4.79	0.01	9598				



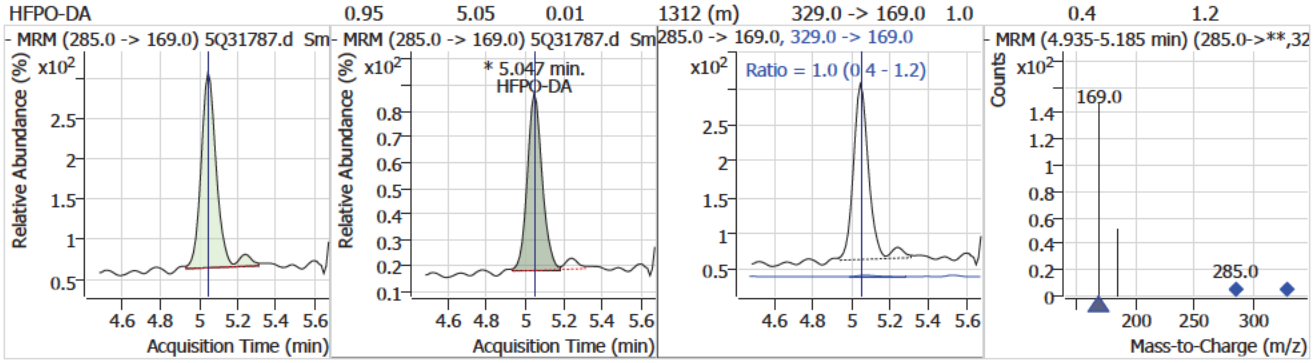
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.85	4.79	0.01	12734	313.0 -> 119.0	8.1	3.6	10.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.82	5.04	0.01	1373				

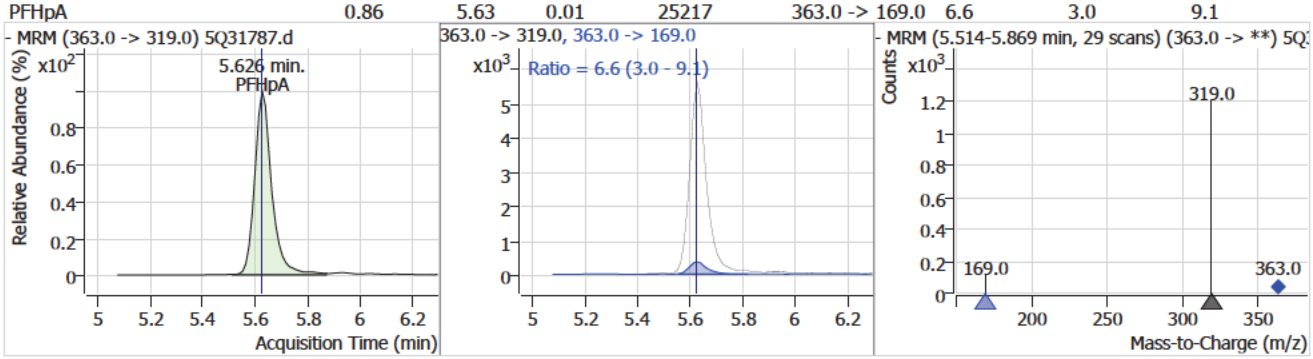


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.95	5.05	0.01	1312 (m)	329.0 -> 169.0	1.0	0.4	1.2

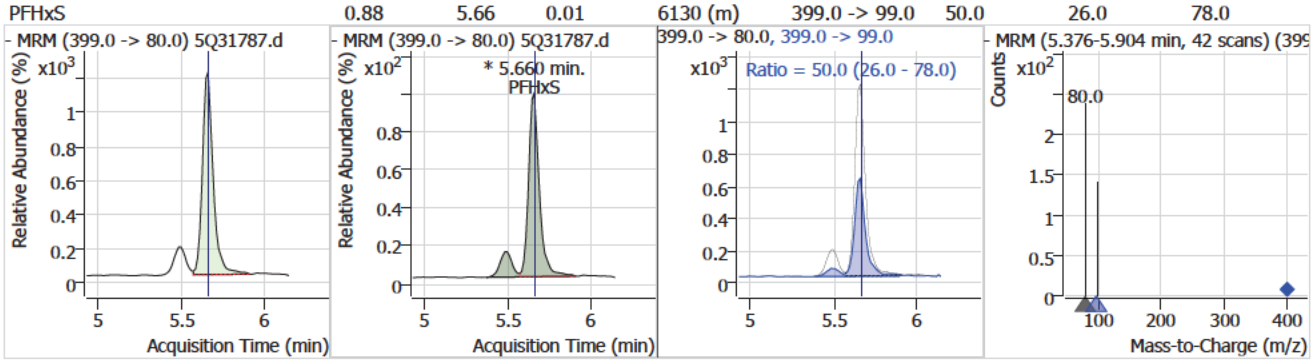


Perfluorinated Compounds by LC/MS/MS

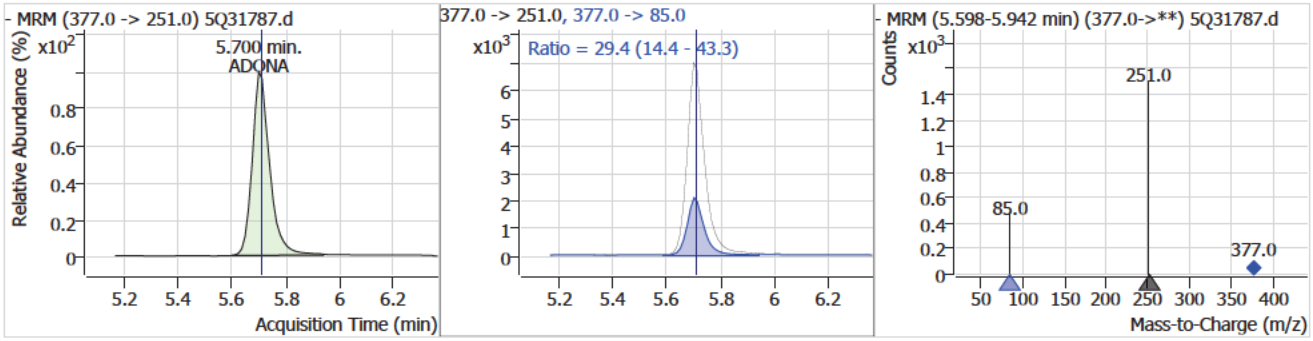
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.86	5.63	0.01	25217	363.0 -> 169.0	6.6	3.0	9.1



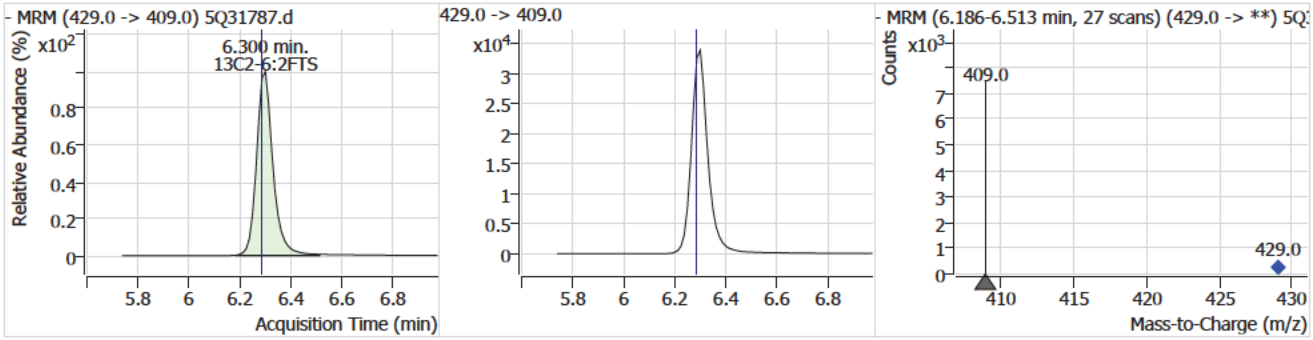
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.88	5.66	0.01	6130 (m)	399.0 -> 99.0	50.0	26.0	78.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.84	5.70	0.00	31368	377.0 -> 85.0	29.4	14.4	43.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.30	0.01	151770				



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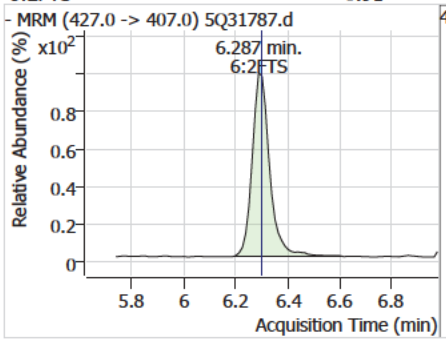
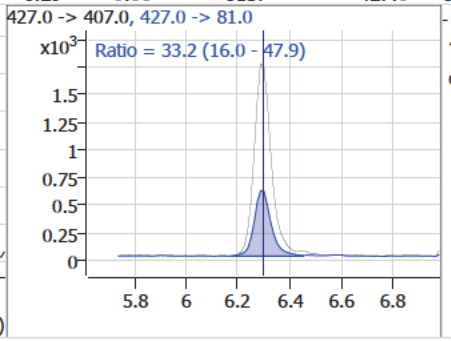
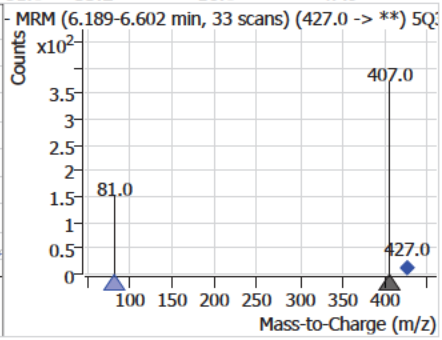
Perfluorinated Compounds by LC/MS/MS

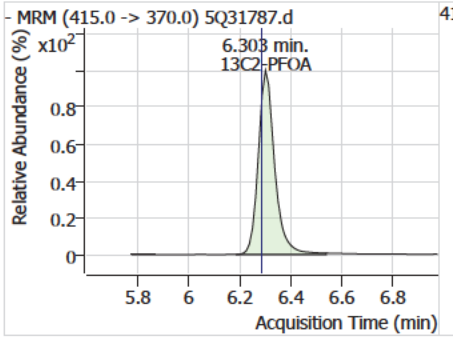
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.91	6.29	0.00	8137	427.0 -> 81.0	33.2	16.0	47.9

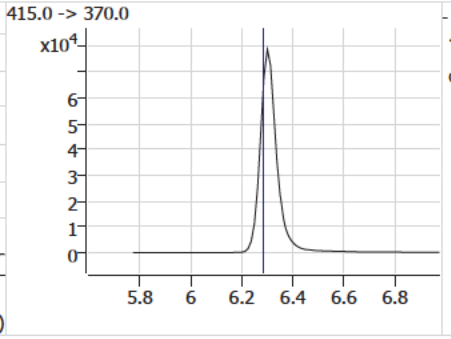


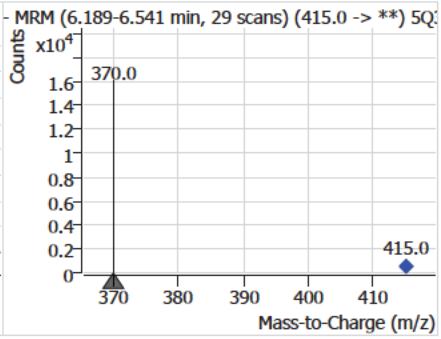




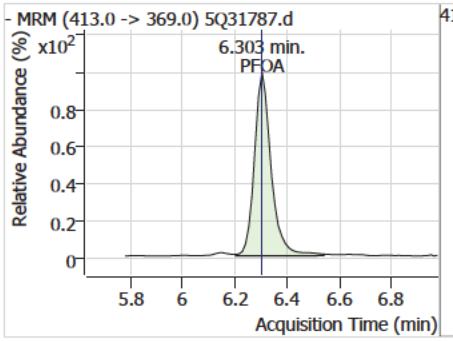
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.30	0.01	351964				

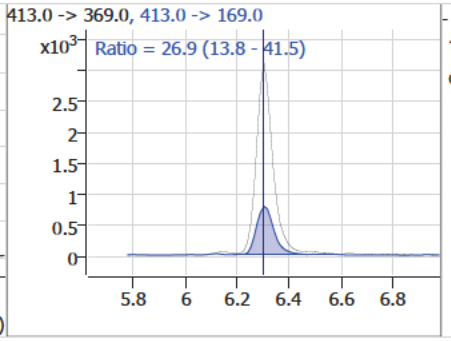


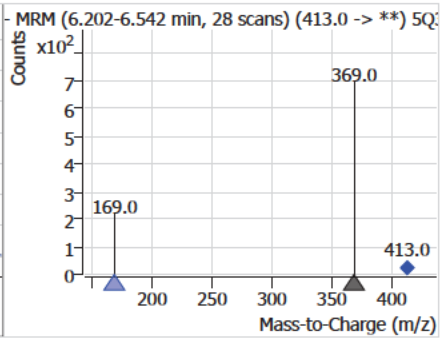




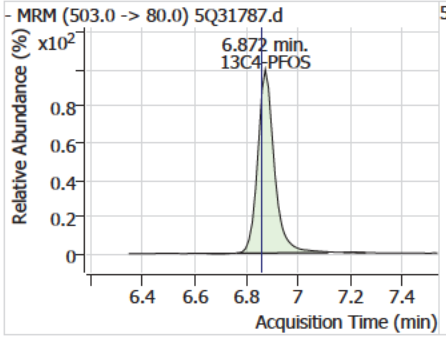
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.83	6.30	0.01	13782	413.0 -> 169.0	26.9	13.8	41.5

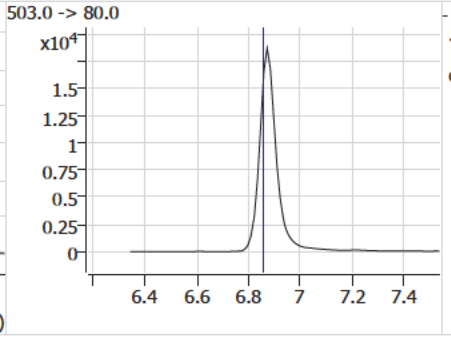


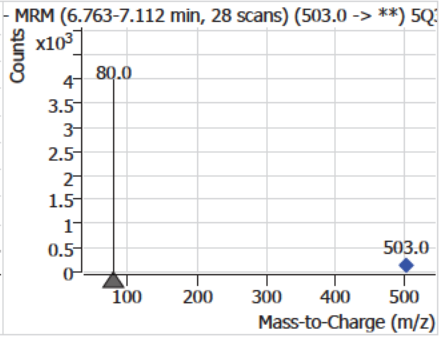




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.87	0.01	82489				

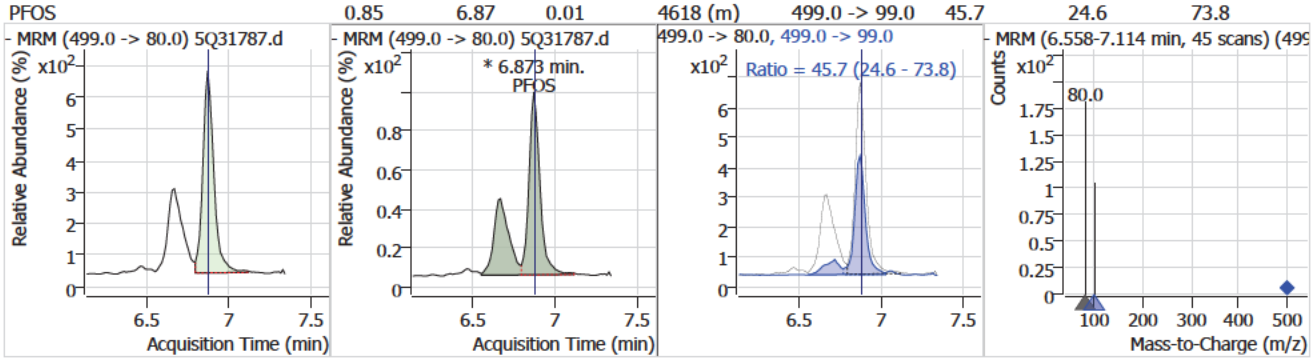




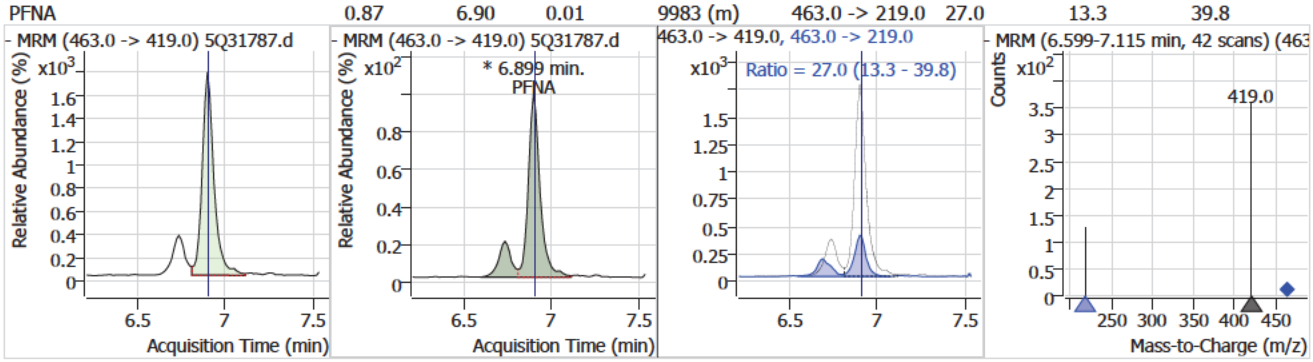


Perfluorinated Compounds by LC/MS/MS

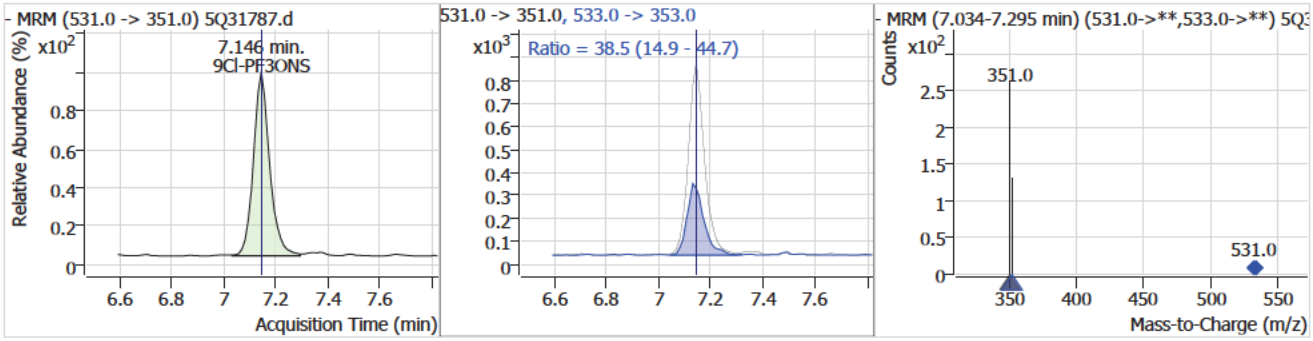
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.85	6.87	0.01	4618 (m)	499.0 -> 99.0	45.7	24.6	73.8



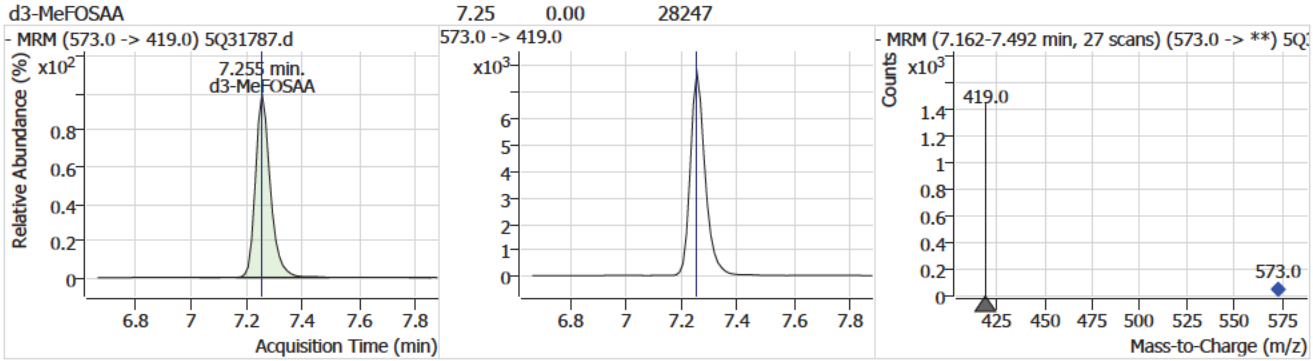
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.87	6.90	0.01	9983 (m)	463.0 -> 219.0	27.0	13.3	39.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.78	7.15	0.01	3597	533.0 -> 353.0	38.5	14.9	44.7

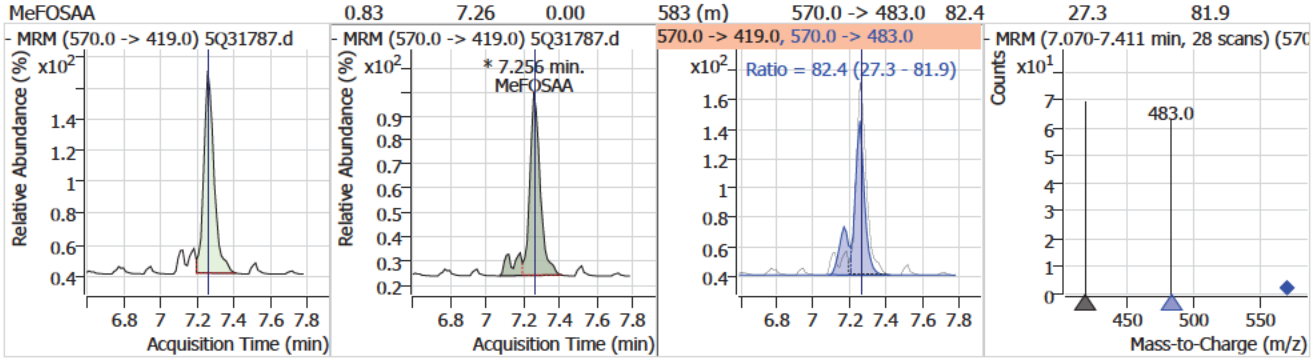


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	28247				

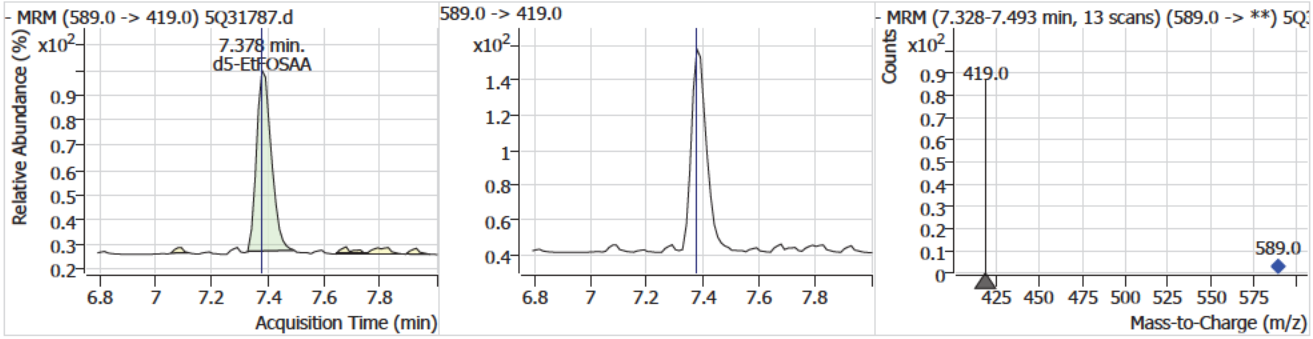


Perfluorinated Compounds by LC/MS/MS

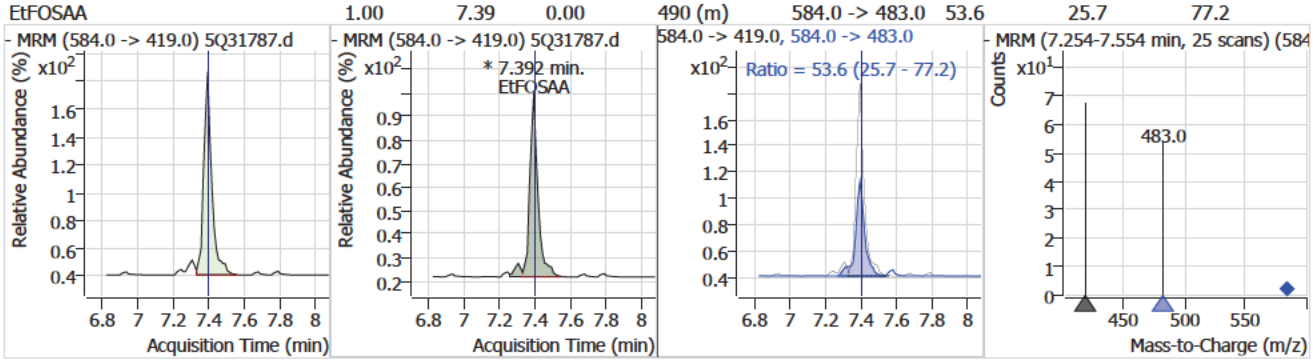
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.83	7.26	0.00	583 (m)	570.0 -> 483.0	82.4	27.3	81.9



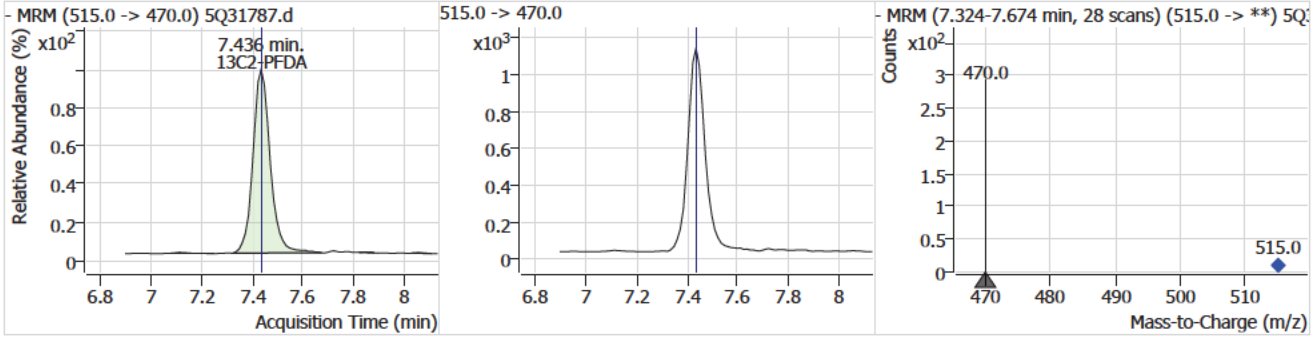
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	0.78	7.38	0.00	414				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.00	7.39	0.00	490 (m)	584.0 -> 483.0	53.6	25.7	77.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.36	7.44	0.01	5225				



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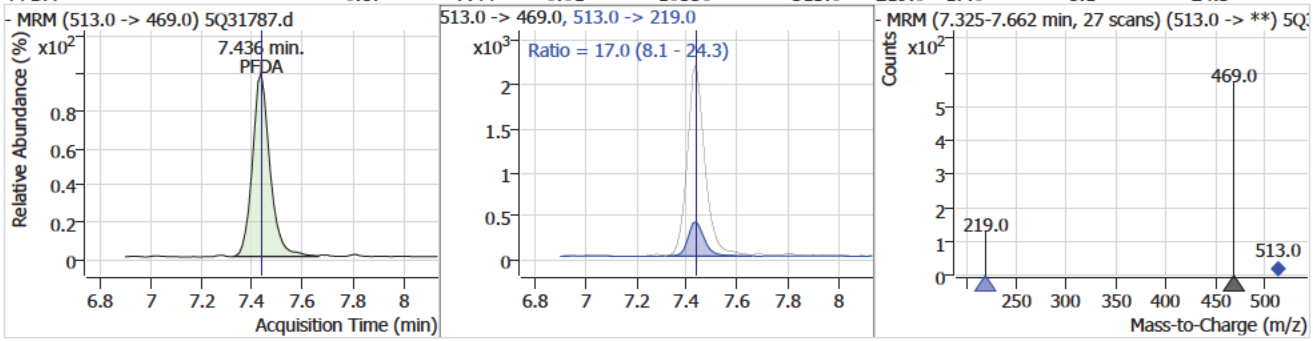
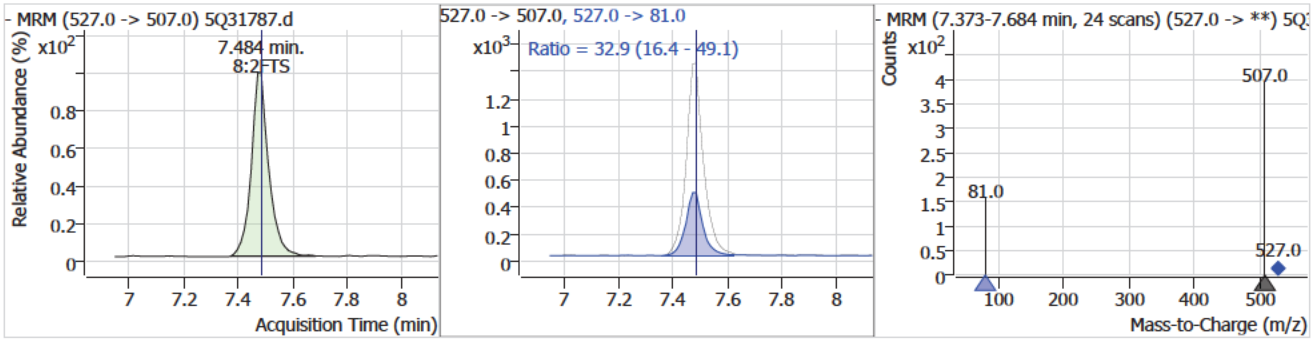
Perfluorinated Compounds by LC/MS/MS

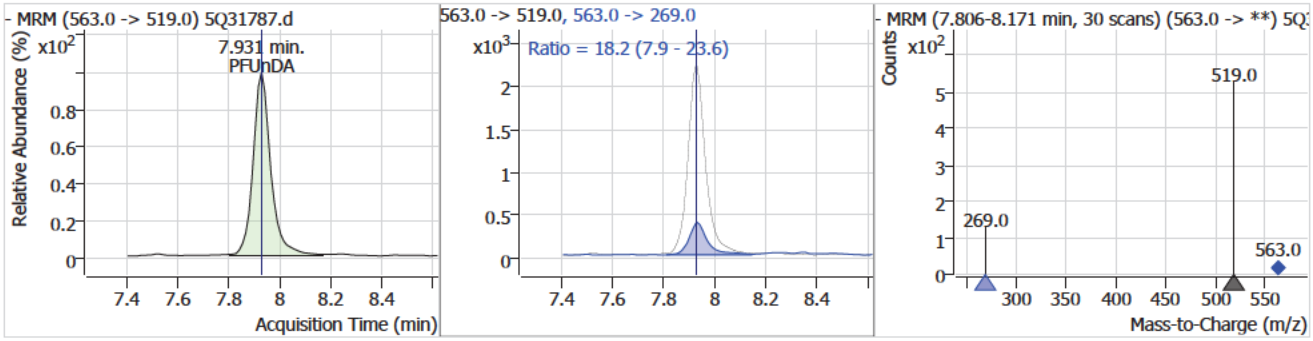
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.87	7.44	0.01	10550	513.0 -> 219.0	17.0	8.1	24.3



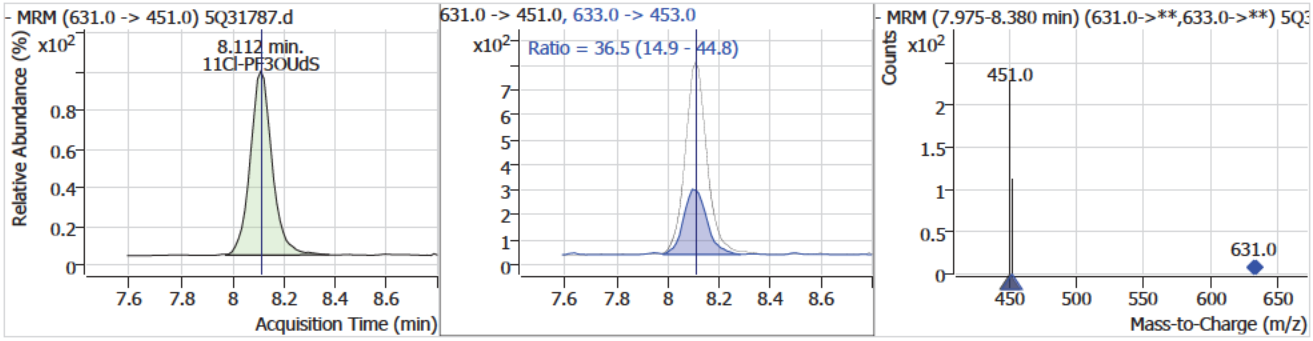
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	1.01	7.48	0.01	6276	527.0 -> 81.0	32.9	16.4	49.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.84	7.93	0.01	10641	563.0 -> 269.0	18.2	7.9	23.6

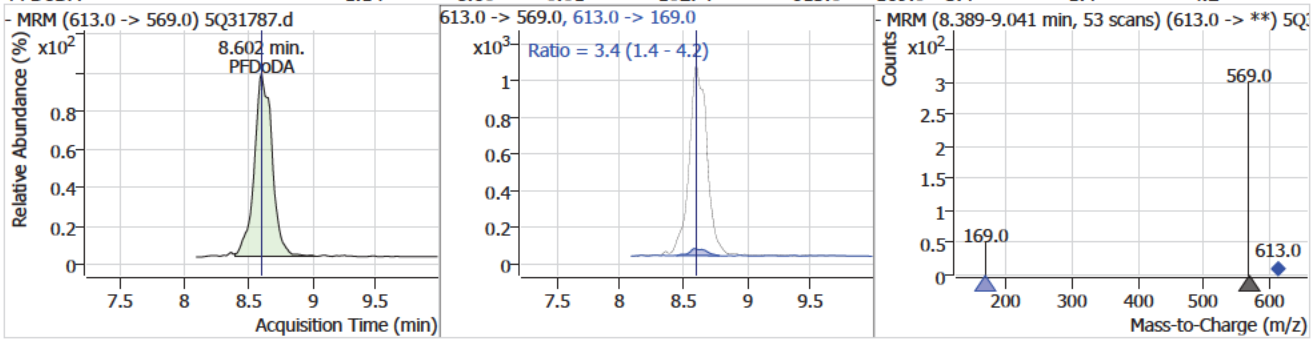


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	1.00	8.11	0.01	4598	633.0 -> 453.0	36.5	14.9	44.8

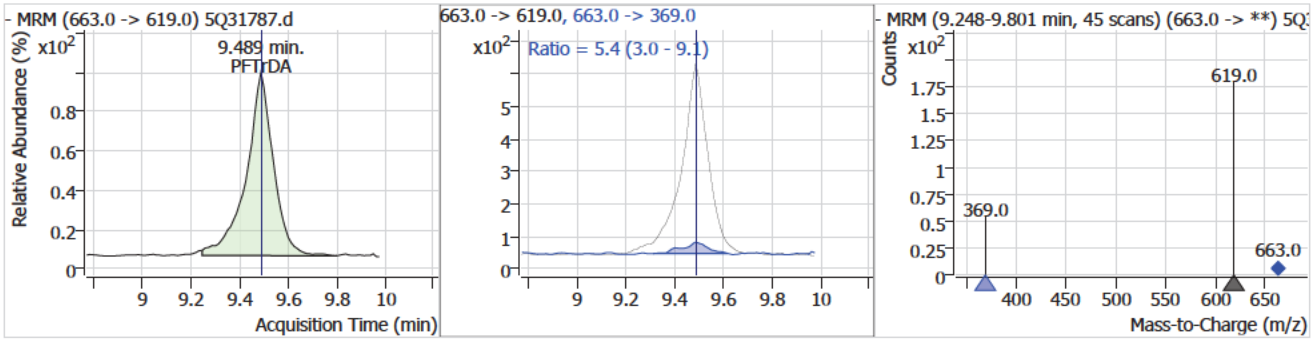


Perfluorinated Compounds by LC/MS/MS

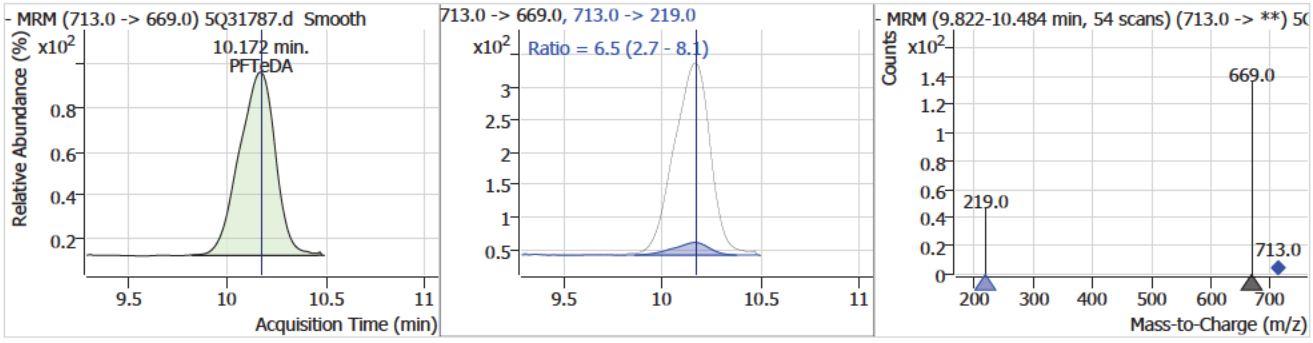
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	1.14	8.60	0.01	10274	613.0 -> 169.0	3.4	1.4	4.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.83	9.49	0.01	4563	663.0 -> 369.0	5.4	3.0	9.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.02	10.17	0.01	3782	713.0 -> 219.0	6.5	2.7	8.1



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Manual Integration Approval Summary

Sample Number: S5Q522-IC522
Lab FileID: 5Q31787.D
Injection Time: 04/16/25 12:17
Method: EPA 537.1 REV 2.0
Analyst approved: 04/17/25 07:52 (b) (6) [redacted]
Supervisor approved: 04/17/25 09:03 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
HFPO-DA (GenX)	13252-13-6		5.05	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		5.66	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.87	Split peak
Perfluorononanoic acid	375-95-1		6.90	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 09:03

Perfluorinated Compounds by LC/MS/MS

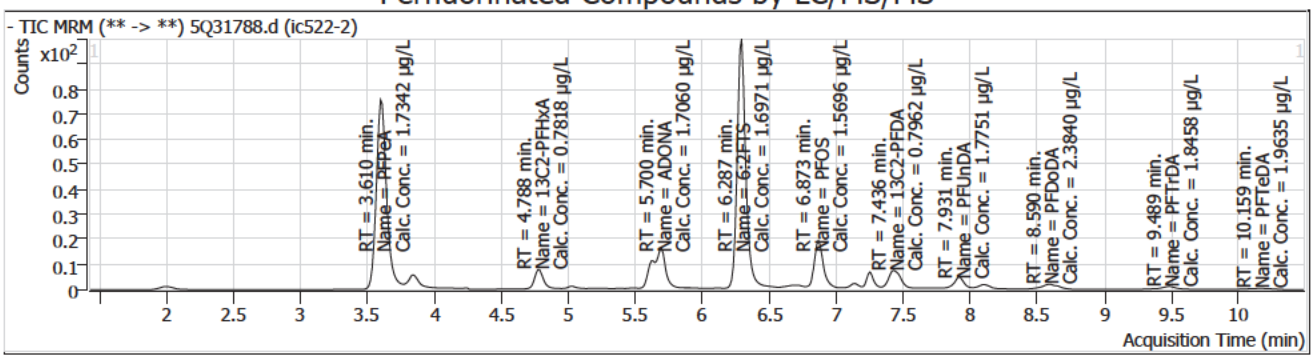
Data File : 5Q31788.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/16/2025 12:33:06 PM
Sample Name : ic522-2
Vial : P1-A4
DA Method File : 537_041625_S5Q522.quantmethod
Batch Name : s5q522.batch.bin
Sample Information : OP8882,S5Q522,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.287	429.0 -> 409.0	161332	20.00	µg/L		0.000
13C2-PFOA	6.303	415.0 -> 370.0	370549	20.00	µg/L		0.013
13C3-PFPeA	3.607	266.0 -> 222.0	497323	20.00	µg/L		0.000
13C4-PFOS	6.872	503.0 -> 80.0	88939	20.00	µg/L		0.012
d3-MeFOSAA	7.255	573.0 -> 419.0	29431	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.436	515.0 -> 470.0	12161	0.80	µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 4.0%			
13C2-PFHxA	4.788	315.0 -> 270.0	19580	0.78	µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 3.9%			
d5-EtFOSAA	7.391	589.0 -> 419.0	1074	1.95	µg/L		0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 4.9%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	2769	1.57	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 3.9%			
Target Compounds							QValue
6:2FTS	6.287	427.0 -> 407.0	16141	1.70	µg/L		95
8:2FTS	7.472	527.0 -> 507.0	14374	2.17	µg/L		99
EtFOSAA	7.392	584.0 -> 419.0	1046	2.05	µg/L	m	100
MeFOSAA	7.256	570.0 -> 419.0	1265	1.72	µg/L	m	91
PFBS	3.853	299.0 -> 80.0	22960	1.80	µg/L		99
PFDA	7.436	513.0 -> 469.0	21199	1.66	µg/L		96
PFDoDA	8.590	613.0 -> 569.0	23381	2.38	µg/L		98
PFHpA	5.626	363.0 -> 319.0	51951	1.67	µg/L		100
PFHxA	4.789	313.0 -> 269.0	27472	1.73	µg/L		98
PFHxS	5.648	399.0 -> 80.0	12520	1.66	µg/L	m	95
PFNA	6.899	463.0 -> 419.0	20872	1.72	µg/L	m	98
PFOA	6.303	413.0 -> 369.0	30114	1.72	µg/L		97
PFOS	6.873	499.0 -> 80.0	9189	1.57	µg/L	m	96
PFPeA	3.610	263.0 -> 219.0	52858	1.73	µg/L		100
PFTeDA	10.159	713.0 -> 669.0	7846	1.96	µg/L		98
PFTrDA	9.489	663.0 -> 619.0	10879	1.85	µg/L		99
PFUnDA	7.931	563.0 -> 519.0	24282	1.78	µg/L		100
ADONA	5.700	377.0 -> 251.0	67515	1.71	µg/L		100
9Cl-PF3ONS	7.146	531.0 -> 351.0	8091	1.66	µg/L		99
11Cl-PF3OUdS	8.112	631.0 -> 451.0	9919	2.04	µg/L		98
HFPO-DA	5.035	285.0 -> 169.0	2982	2.04	µg/L	#	99

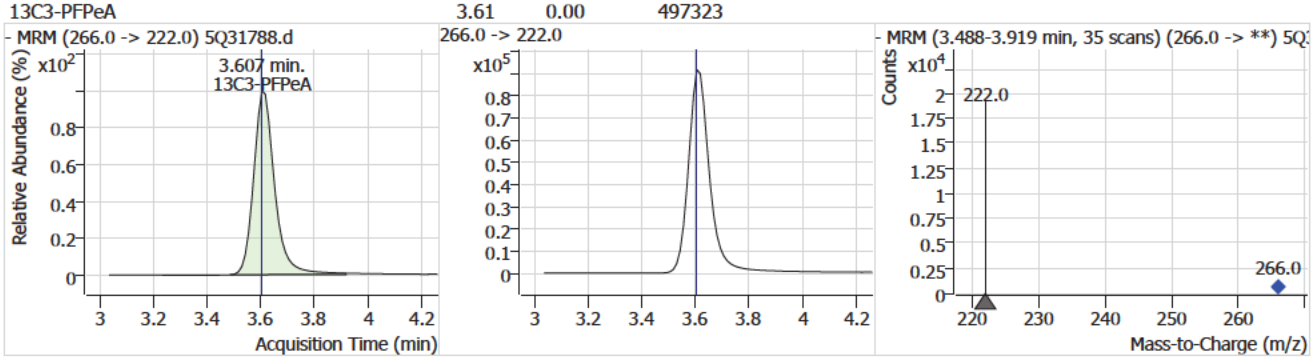
= Qualifier out of range, m = manually integrated, + = Area summed

7.7.36

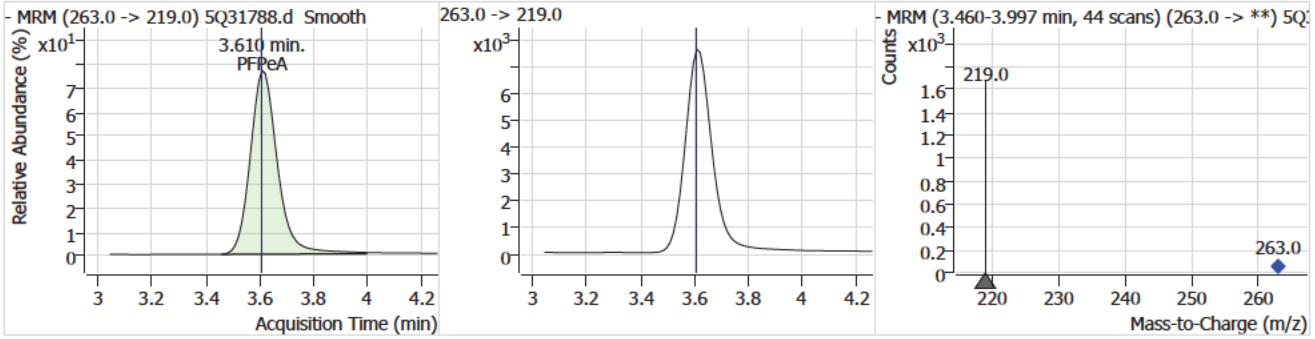
Perfluorinated Compounds by LC/MS/MS



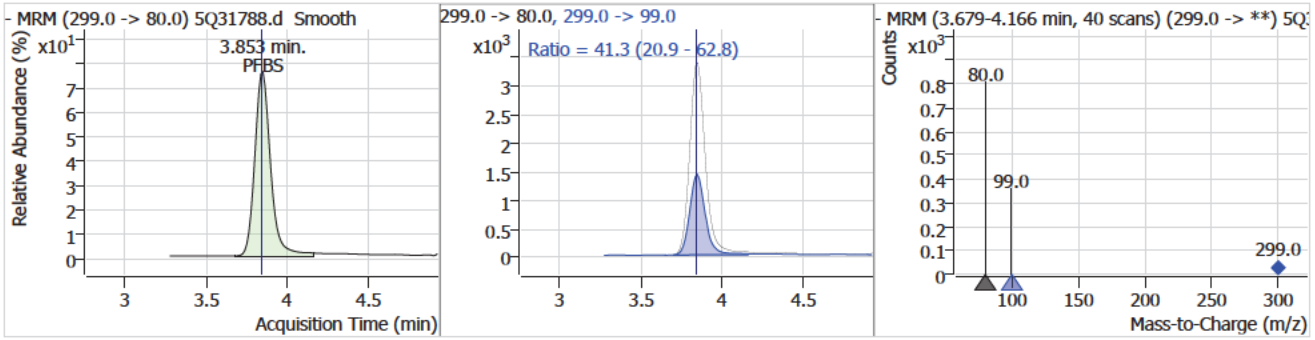
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.00	497323				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.73	3.61	0.00	52858				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.80	3.85	0.01	22960	299.0 -> 99.0	41.3	20.9	62.8



7.7.36

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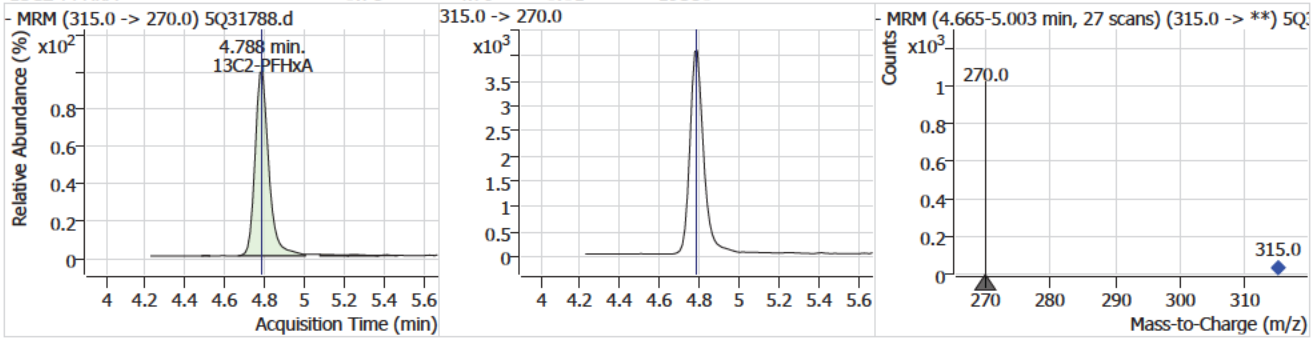
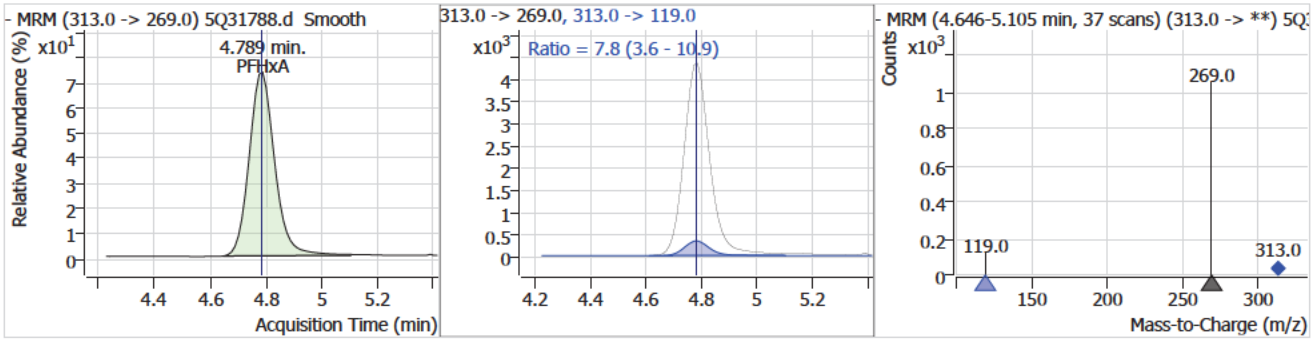
Perfluorinated Compounds by LC/MS/MS

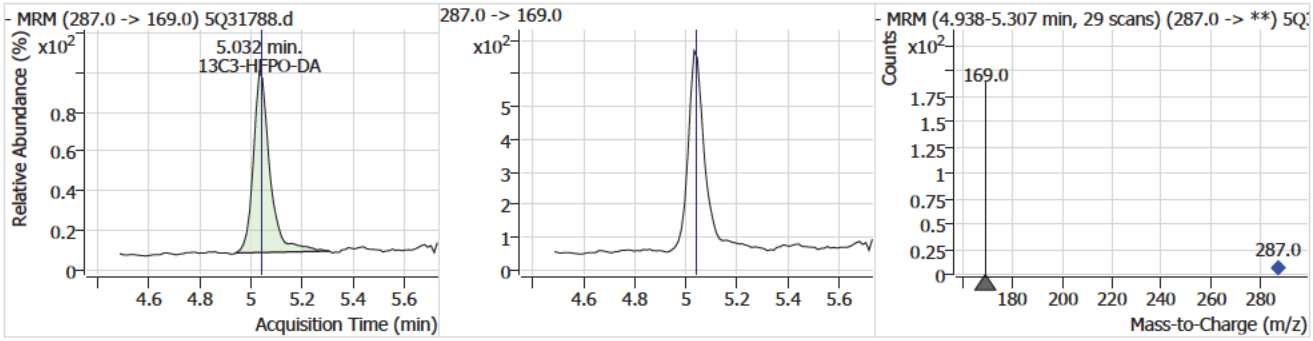
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.78	4.79	0.01	19580				



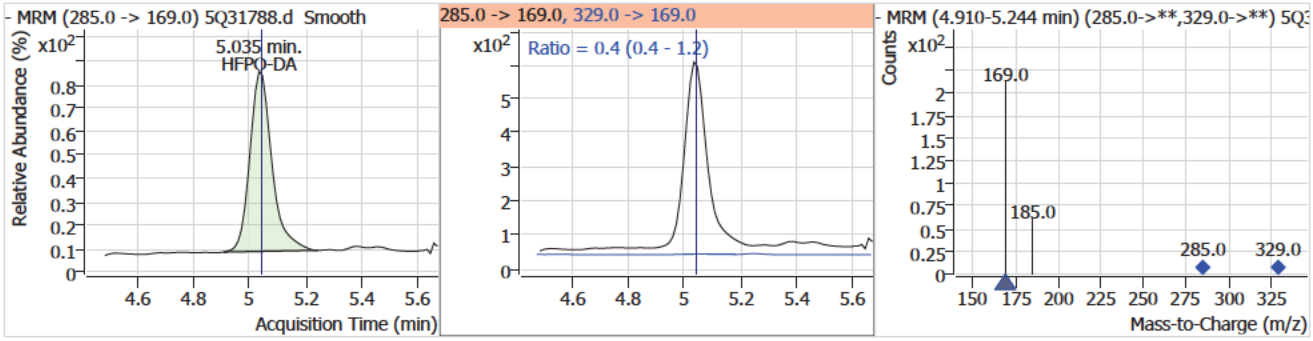
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.73	4.79	0.01	27472	313.0 -> 119.0	7.8	3.6	10.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	1.57	5.03	0.00	2769				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	2.04	5.03	0.00	2982	329.0 -> 169.0	0.4	0.4	1.2

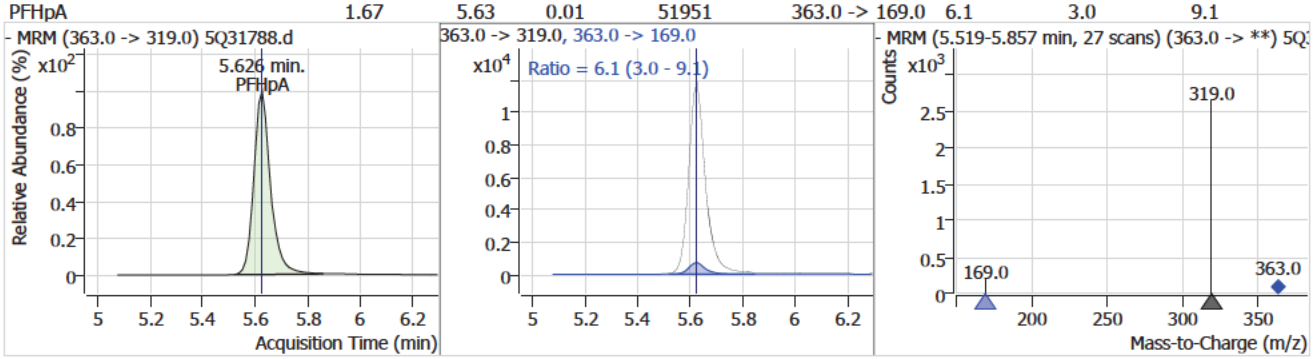


7.7.36

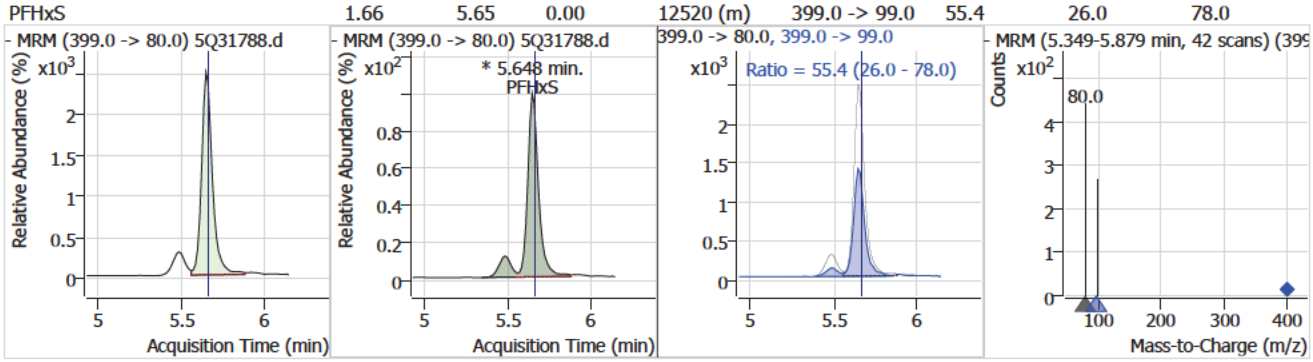
7

Perfluorinated Compounds by LC/MS/MS

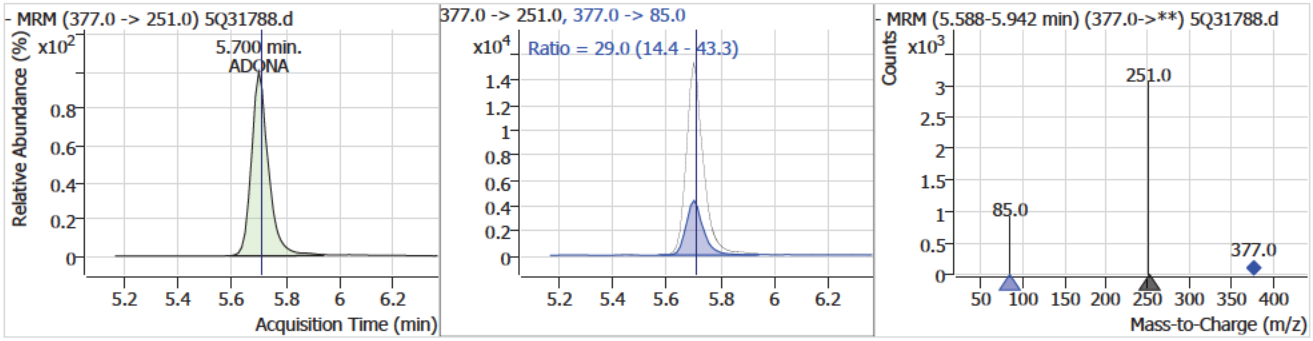
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.67	5.63	0.01	51951	363.0 -> 169.0	6.1	3.0	9.1



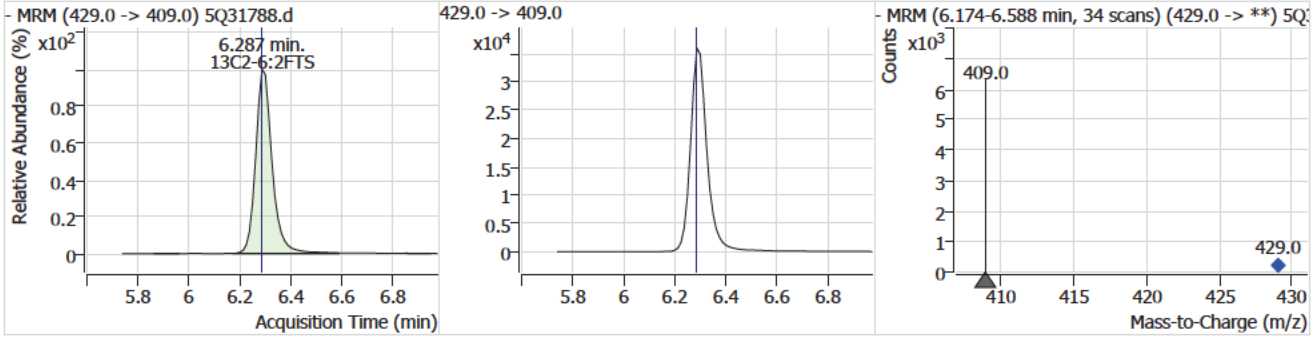
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.66	5.65	0.00	12520 (m)	399.0 -> 99.0	55.4	26.0	78.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	1.71	5.70	0.00	67515	377.0 -> 85.0	29.0	14.4	43.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	161332				



7.7.36

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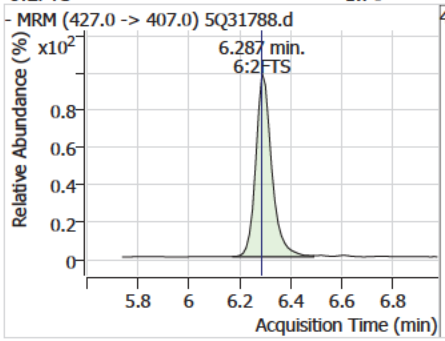
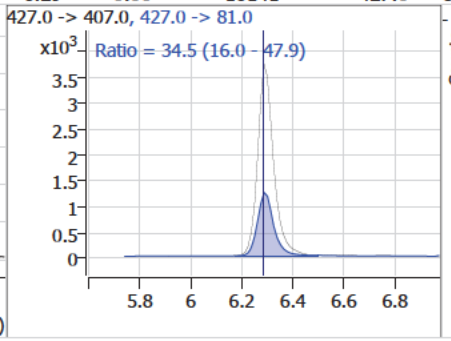
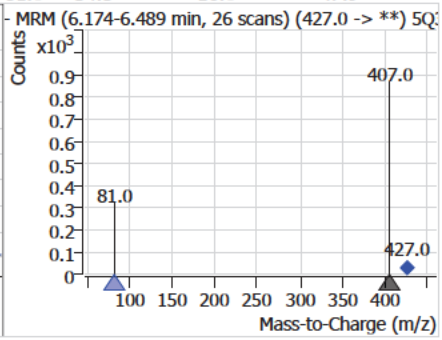
Perfluorinated Compounds by LC/MS/MS

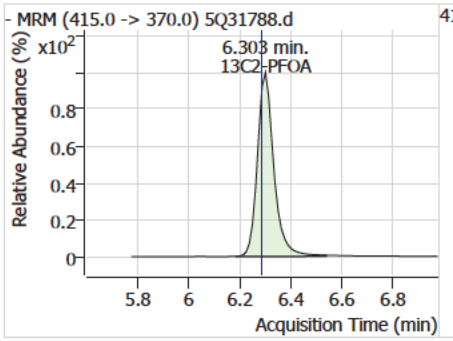
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.70	6.29	0.00	16141	427.0 -> 81.0	34.5	16.0	47.9

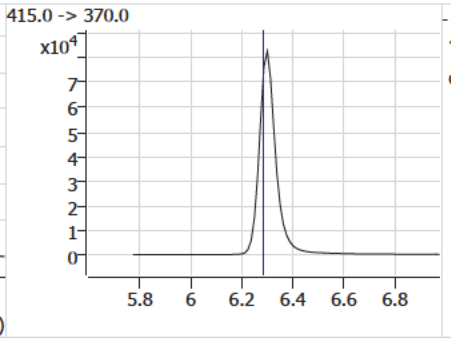


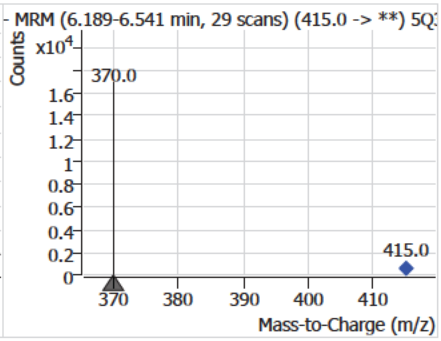




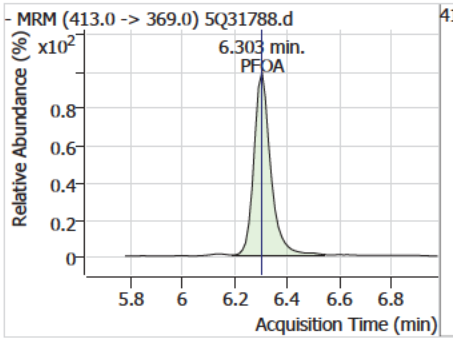
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.30	0.01	370549				

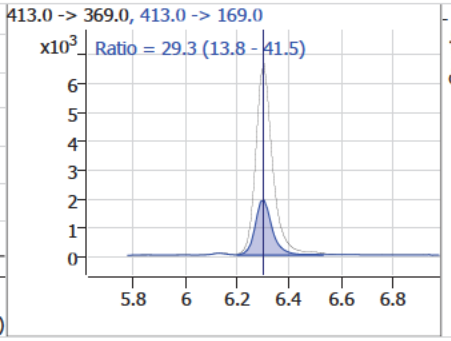


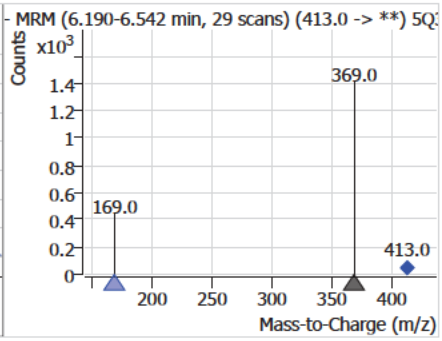




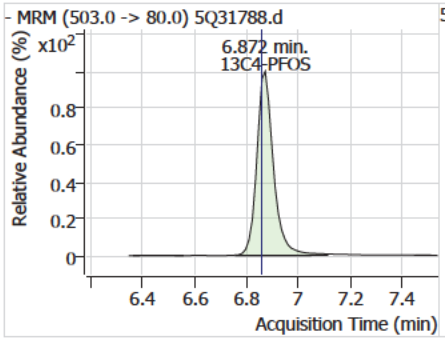
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.72	6.30	0.01	30114	413.0 -> 169.0	29.3	13.8	41.5

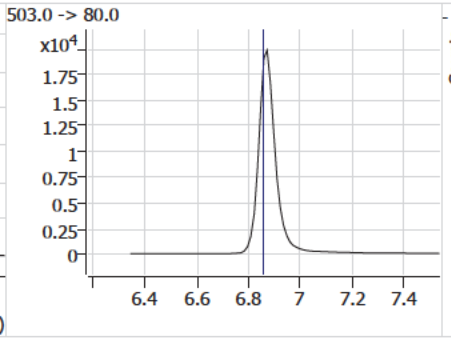


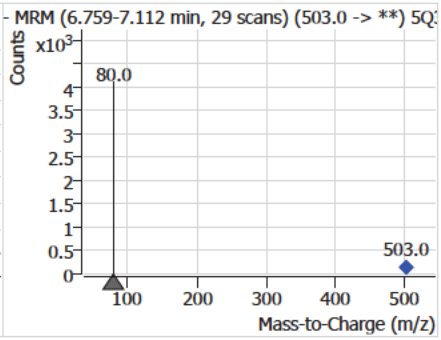




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.87	0.01	88939				

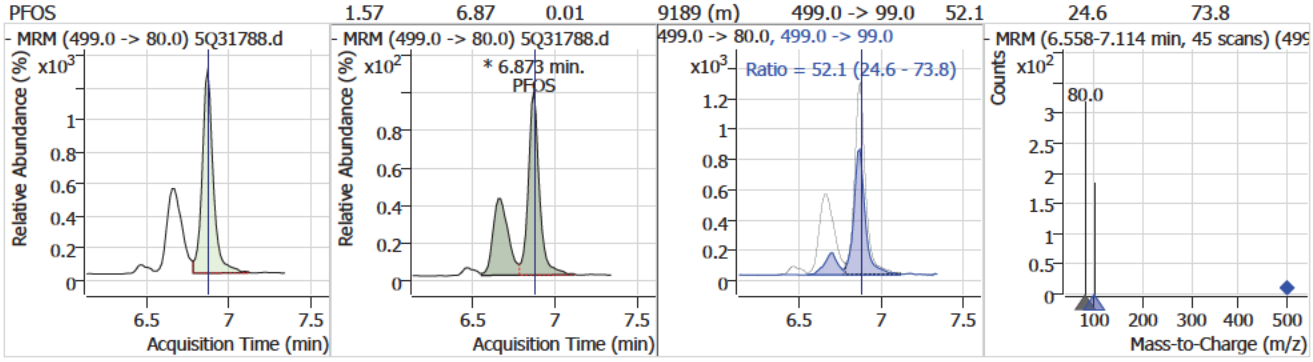




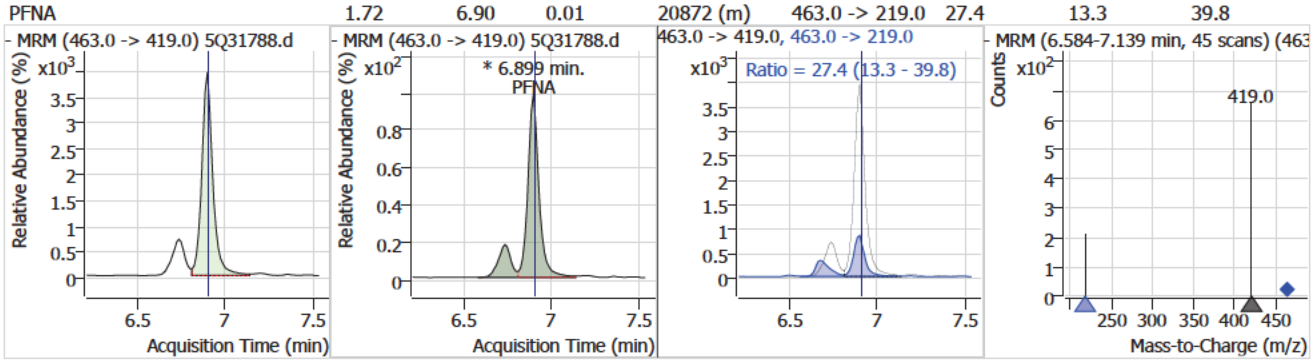


Perfluorinated Compounds by LC/MS/MS

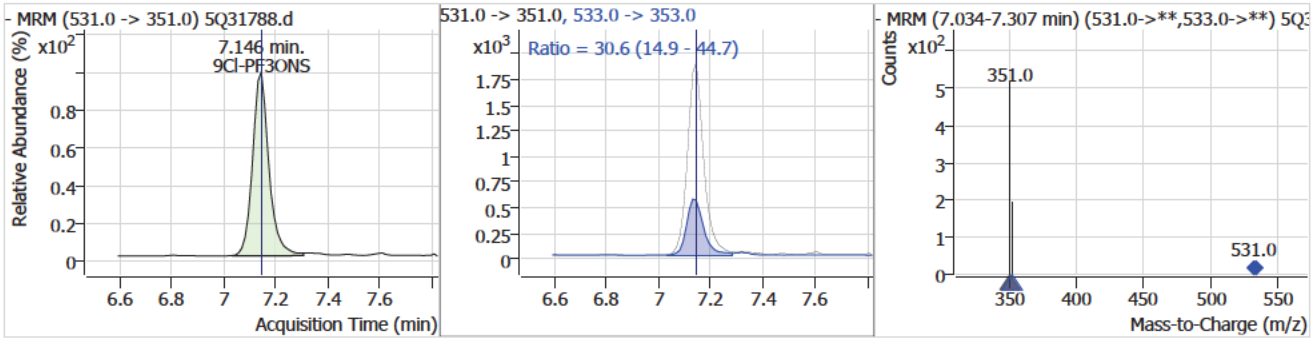
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.57	6.87	0.01	9189 (m)	499.0 -> 99.0	52.1	24.6	73.8



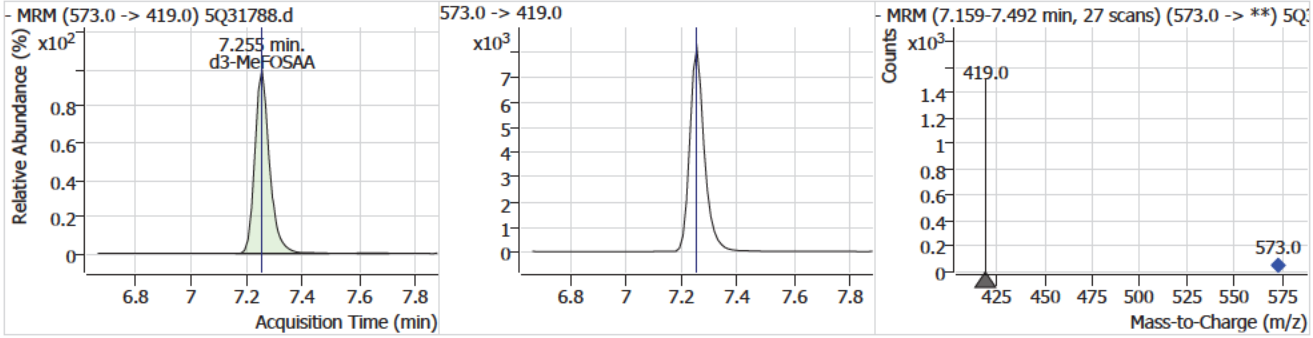
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.72	6.90	0.01	20872 (m)	463.0 -> 219.0	27.4	13.3	39.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	1.66	7.15	0.01	8091	533.0 -> 353.0	30.6	14.9	44.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	29431				



7.7.36

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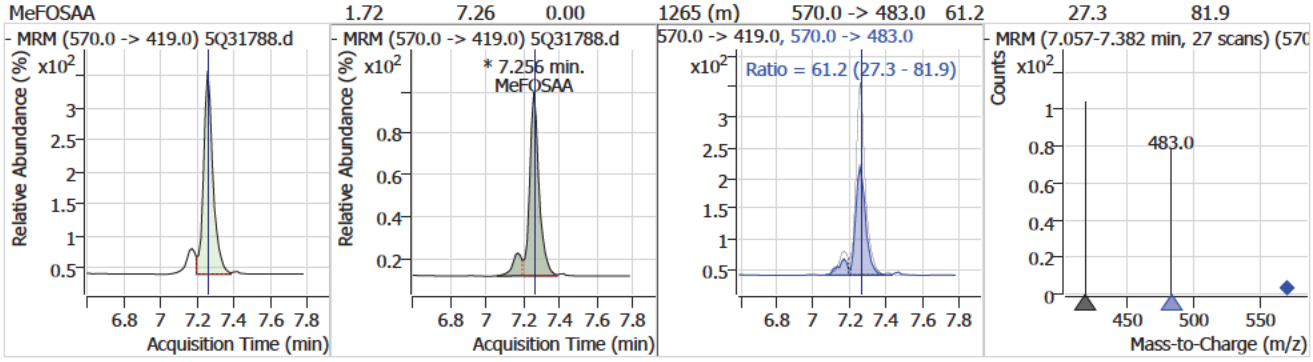
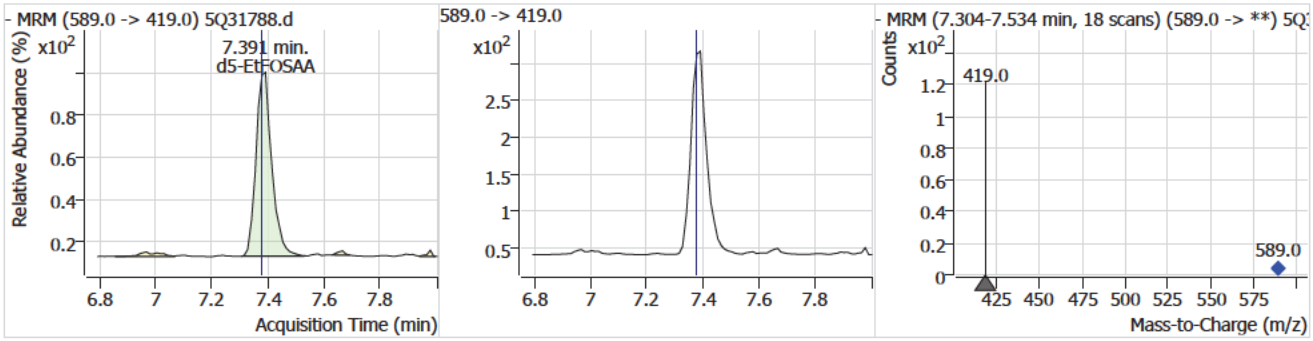
Perfluorinated Compounds by LC/MS/MS

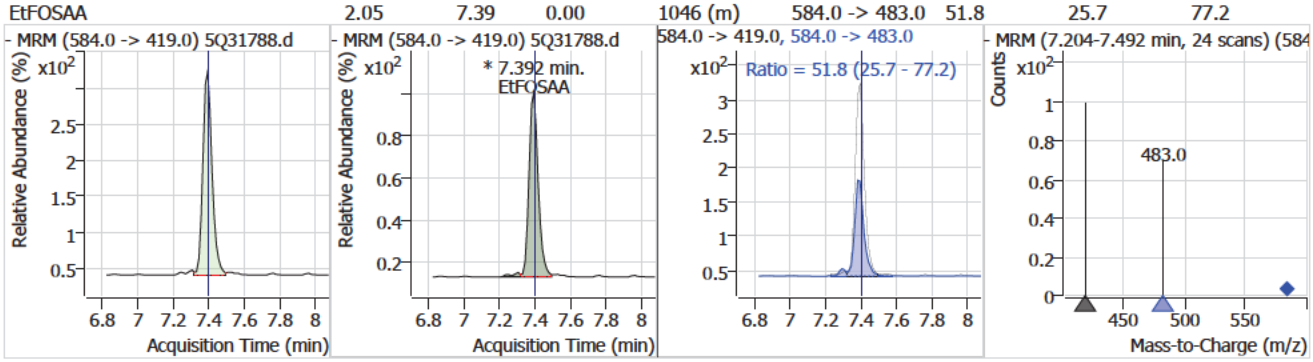
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	1.72	7.26	0.00	1265 (m)	570.0 -> 483.0	61.2	27.3	81.9



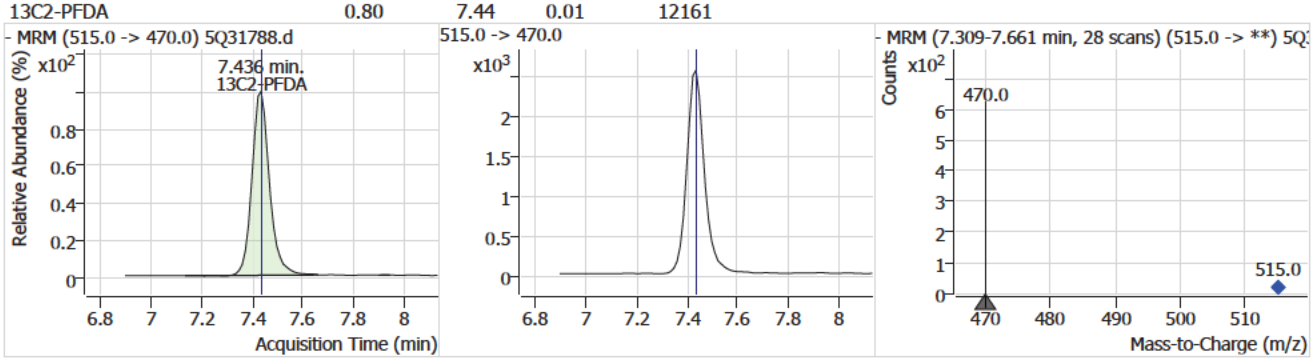
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	1.95	7.39	0.01	1074				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.05	7.39	0.00	1046 (m)	584.0 -> 483.0	51.8	25.7	77.2

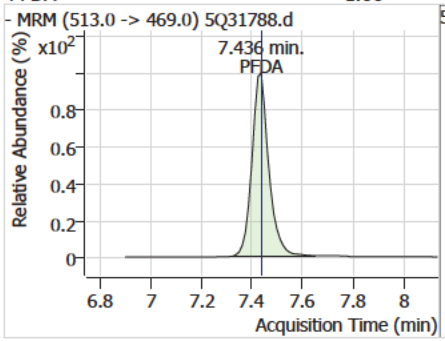


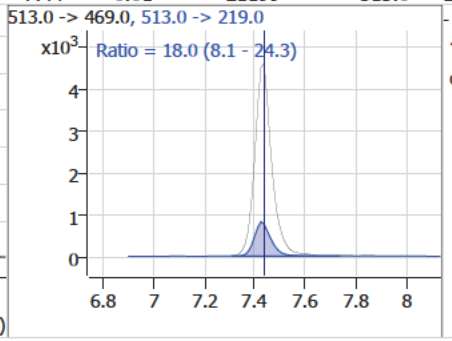
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.80	7.44	0.01	12161				

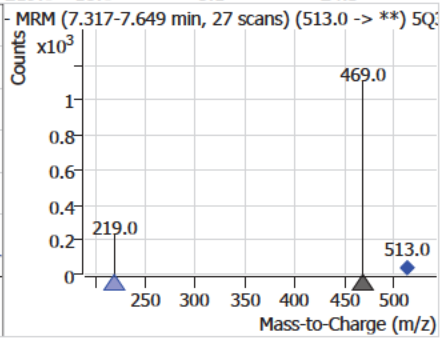


Perfluorinated Compounds by LC/MS/MS

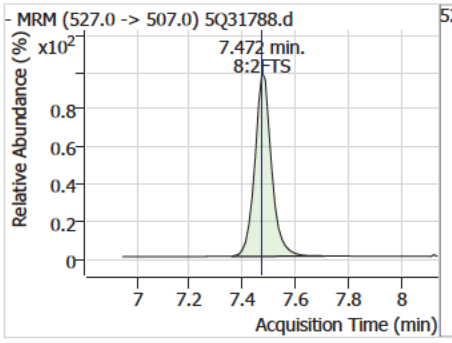
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.66	7.44	0.01	21199	513.0 -> 219.0	18.0	8.1	24.3

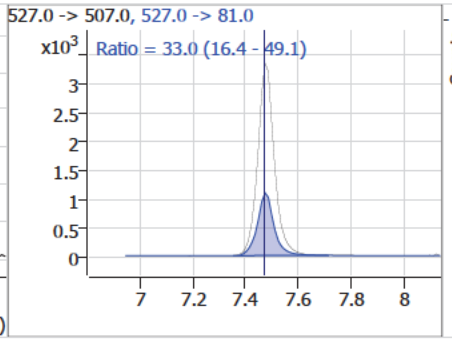


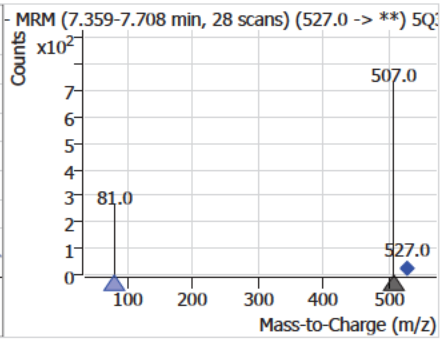




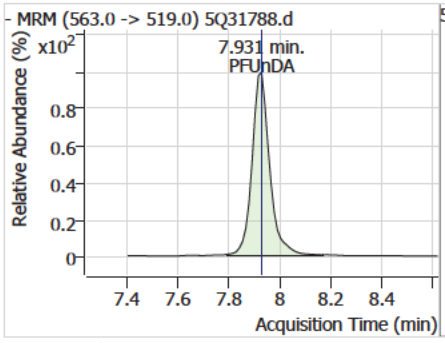
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	2.17	7.47	0.00	14374	527.0 -> 81.0	33.0	16.4	49.1

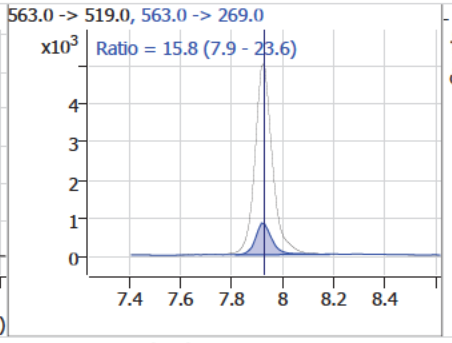


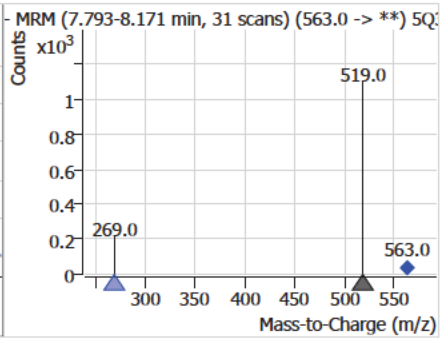




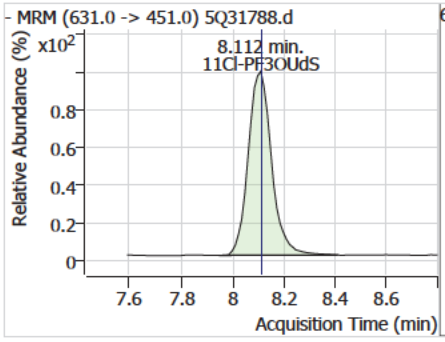
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.78	7.93	0.01	24282	563.0 -> 269.0	15.8	7.9	23.6

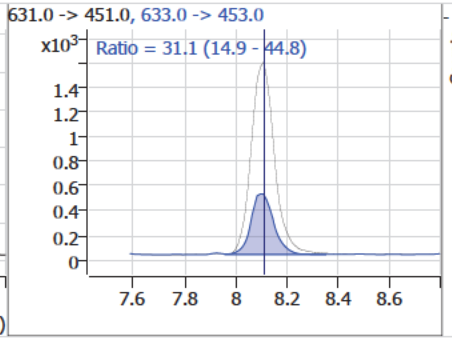


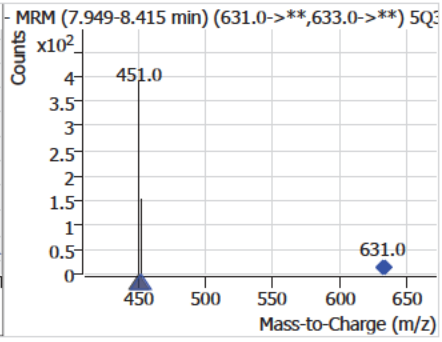




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	2.04	8.11	0.01	9919	633.0 -> 453.0	31.1	14.9	44.8





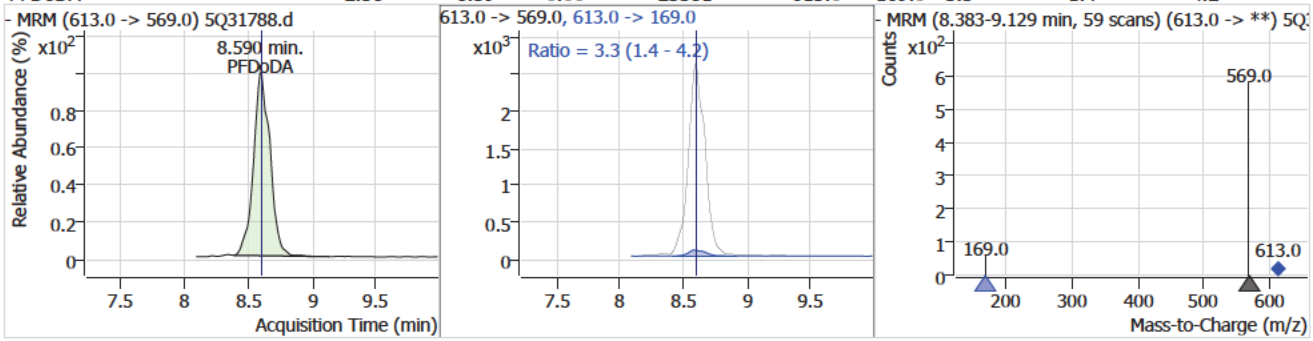


7.7.36

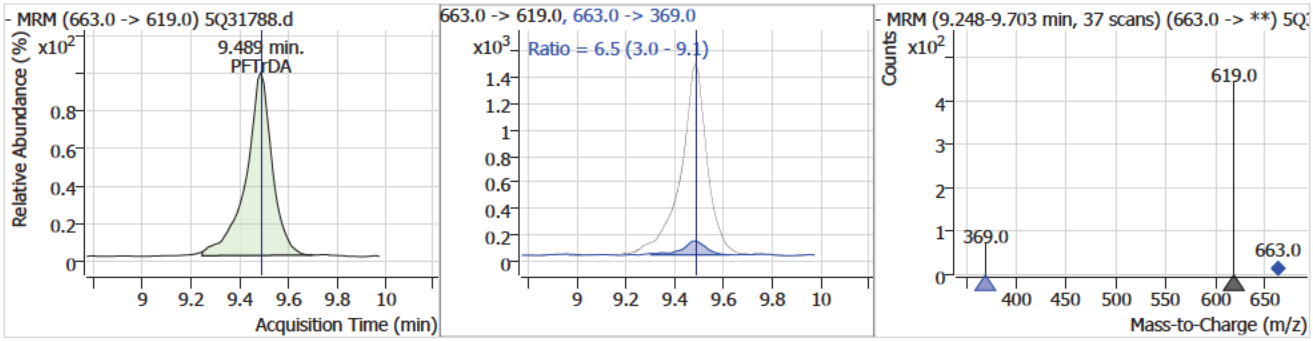
7

Perfluorinated Compounds by LC/MS/MS

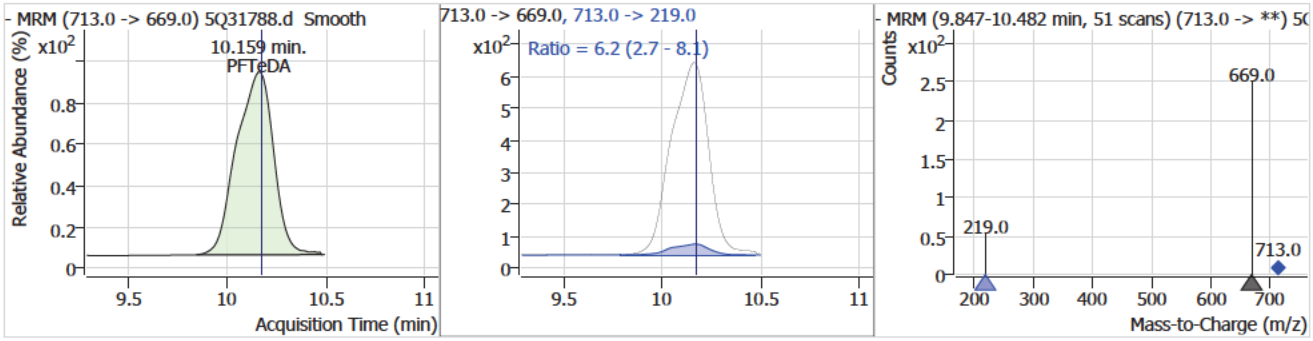
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	2.38	8.59	0.00	23381	613.0 -> 169.0	3.3	1.4	4.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	1.85	9.49	0.01	10879	663.0 -> 369.0	6.5	3.0	9.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.96	10.16	0.00	7846	713.0 -> 219.0	6.2	2.7	8.1



7.7.36

7

Manual Integration Approval Summary

Sample Number: S5Q522-IC522
Lab FileID: 5Q31788.D
Injection Time: 04/16/25 12:33
Method: EPA 537.1 REV 2.0
Analyst approved: 04/17/25 07:52 (b) (6) [redacted]
Supervisor approved: 04/17/25 09:03 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.87	Split peak
Perfluorononanoic acid	375-95-1		6.90	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 09:03

Perfluorinated Compounds by LC/MS/MS

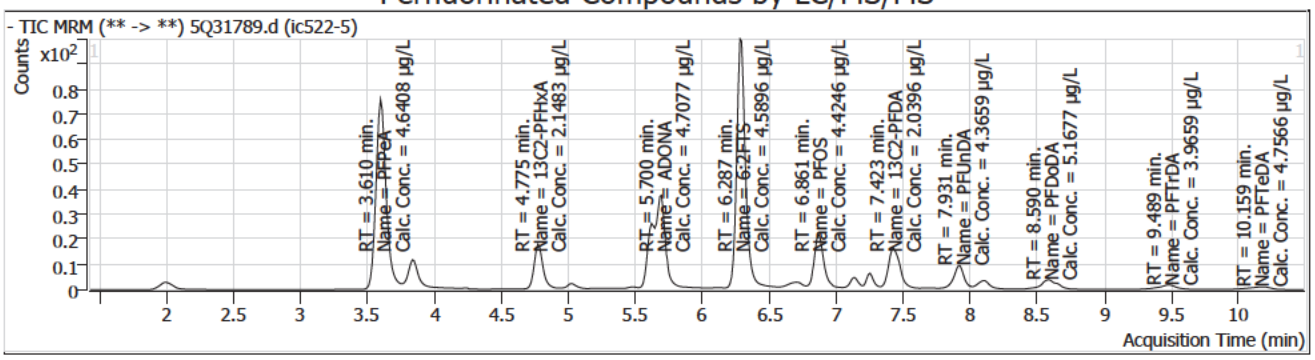
Data File : 5Q31789.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/16/2025 12:49:09 PM
Sample Name : ic522-5
Vial : P1-A5
DA Method File : 537_041625_S5Q522.quantmethod
Batch Name : s5q522.batch.bin
Sample Information : OP8882,S5Q522,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.287	429.0 -> 409.0	159899	20.00 µg/L		0.000
13C2-PFOA	6.303	415.0 -> 370.0	353096	20.00 µg/L		0.013
13C3-PFPeA	3.607	266.0 -> 222.0	487456	20.00 µg/L		0.000
13C4-PFOS	6.872	503.0 -> 80.0	84809	20.00 µg/L		0.012
d3-MeFOSAA	7.255	573.0 -> 419.0	28774	40.00 µg/L		0.000
System Monitoring Compounds						
13C2-PFDA	7.423	515.0 -> 470.0	29687	2.04 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 10.2%		
13C2-PFHxA	4.775	315.0 -> 270.0	51270	2.15 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 10.7%		
d5-EtFOSAA	7.378	589.0 -> 419.0	2516	4.66 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 11.6%		
13C3-HFPO-DA	5.032	287.0 -> 169.0	6625	3.95 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 9.9%		
Target Compounds						QValue
6:2FTS	6.287	427.0 -> 407.0	43030	4.59 µg/L		100
8:2FTS	7.472	527.0 -> 507.0	33298	5.07 µg/L		97
EtFOSAA	7.392	584.0 -> 419.0	2458	4.93 µg/L	m	92
MeFOSAA	7.256	570.0 -> 419.0	3169	4.41 µg/L	m	89
PFBS	3.841	299.0 -> 80.0	60537	4.99 µg/L		98
PFDA	7.424	513.0 -> 469.0	55964	4.59 µg/L		97
PFDoDA	8.590	613.0 -> 569.0	48856	5.17 µg/L		99
PFHpA	5.626	363.0 -> 319.0	141077	4.75 µg/L		99
PFHxA	4.777	313.0 -> 269.0	72238	4.77 µg/L		100
PFHxS	5.648	399.0 -> 80.0	33329	4.61 µg/L	m	100
PFNA	6.899	463.0 -> 419.0	52627	4.53 µg/L	m	98
PFOA	6.303	413.0 -> 369.0	76872	4.59 µg/L		99
PFOS	6.861	499.0 -> 80.0	24702	4.42 µg/L	m	97
PFPeA	3.610	263.0 -> 219.0	139008	4.64 µg/L		100
PFTeDA	10.159	713.0 -> 669.0	18285	4.76 µg/L		100
PFTrDA	9.489	663.0 -> 619.0	22290	3.97 µg/L		98
PFUnDA	7.931	563.0 -> 519.0	56949	4.37 µg/L		98
ADONA	5.700	377.0 -> 251.0	178676	4.71 µg/L		100
9Cl-PF3ONS	7.146	531.0 -> 351.0	21777	4.66 µg/L		97
11Cl-PF3OUdS	8.100	631.0 -> 451.0	22538	4.80 µg/L		98
HFPO-DA	5.035	285.0 -> 169.0	6497	4.65 µg/L	m	100

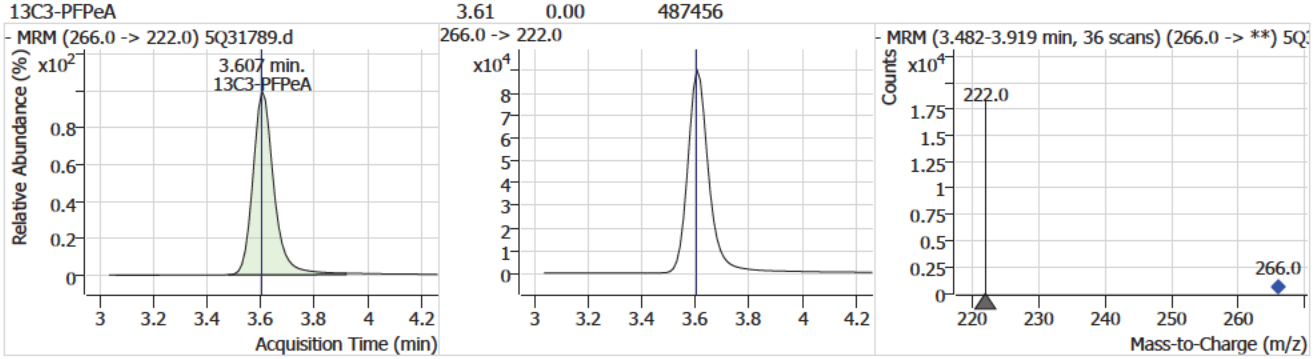
= Qualifier out of range, m = manually integrated, + = Area summed

7.7.37
7

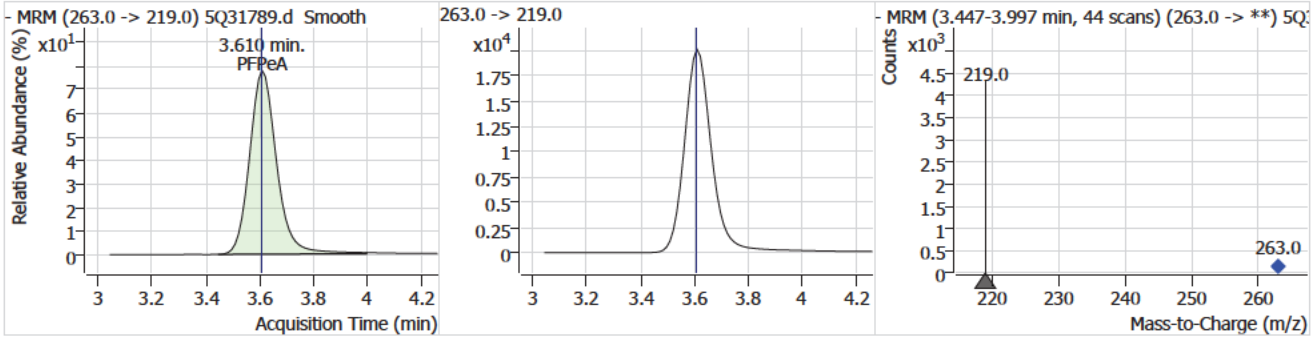
Perfluorinated Compounds by LC/MS/MS



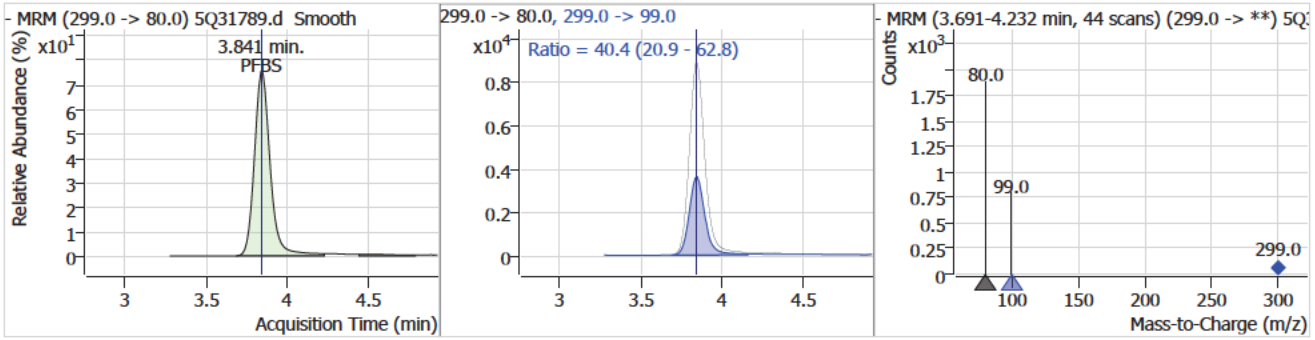
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.00	487456				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.64	3.61	0.00	139008				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	4.99	3.84	0.00	60537	299.0 -> 99.0	40.4	20.9	62.8



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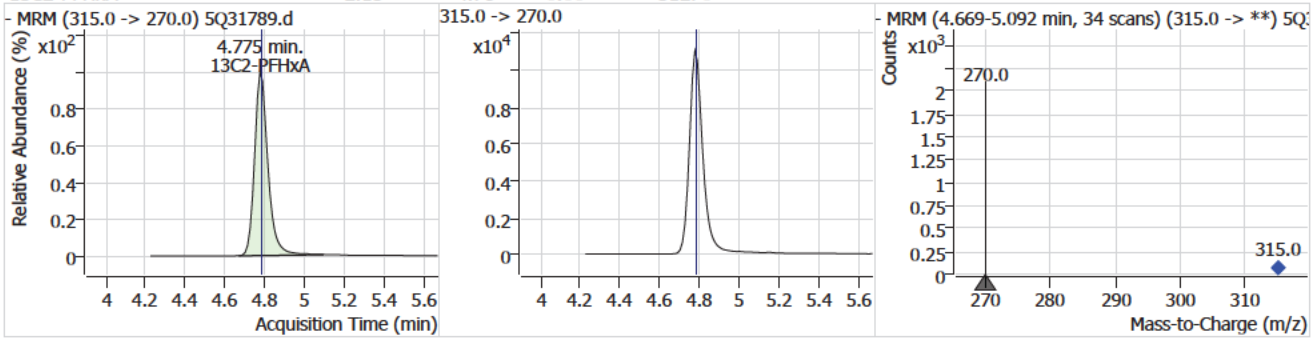
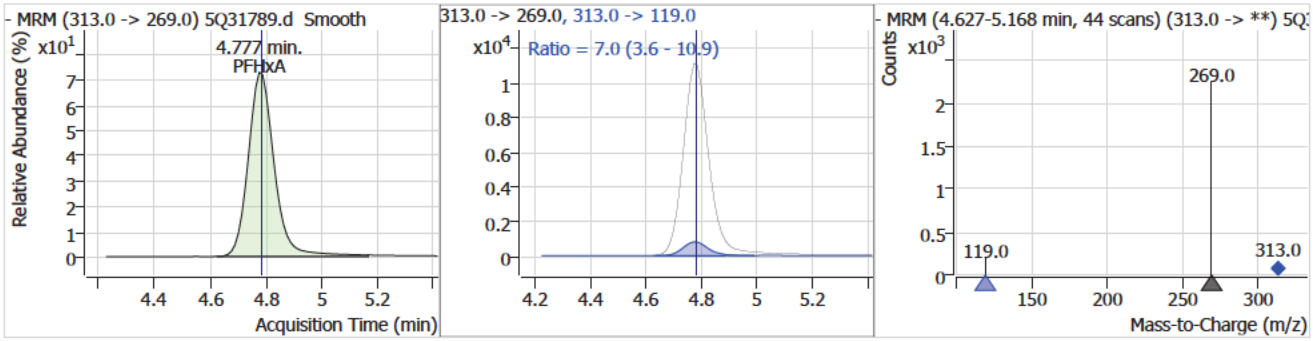
Perfluorinated Compounds by LC/MS/MS

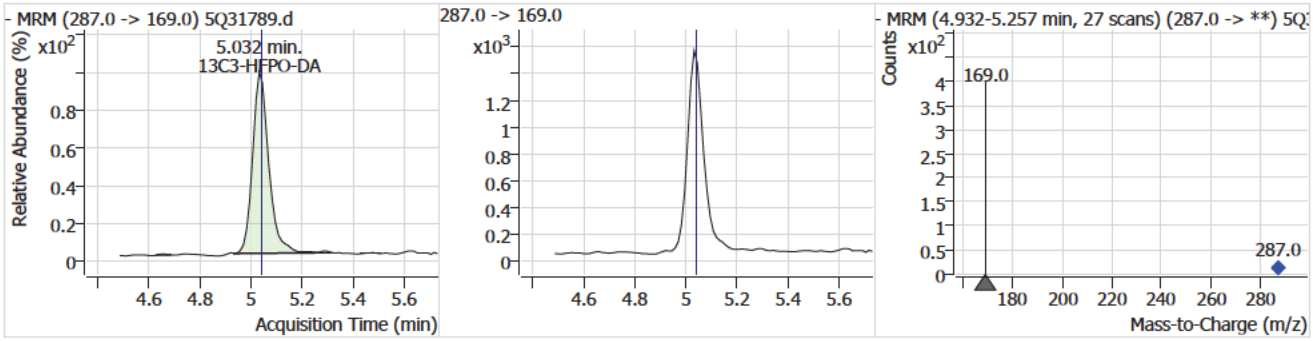
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	2.15	4.78	0.00	51270				



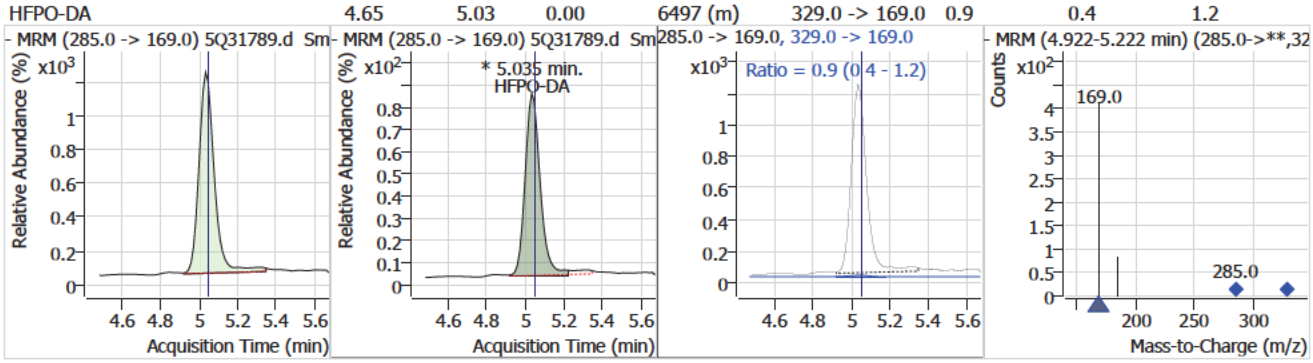
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	4.77	4.78	0.00	72238	313.0 -> 119.0	7.0	3.6	10.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	3.95	5.03	0.00	6625				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.65	5.03	0.00	6497 (m)	329.0 -> 169.0	0.9	0.4	1.2



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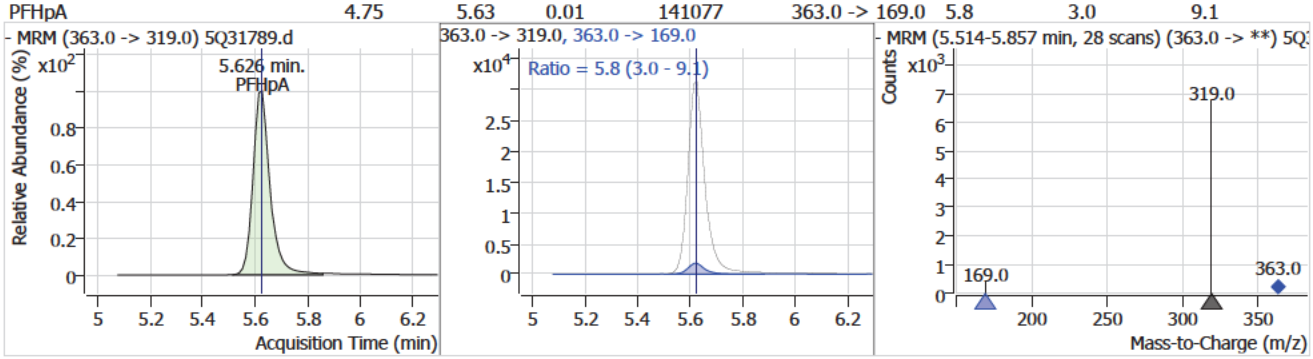
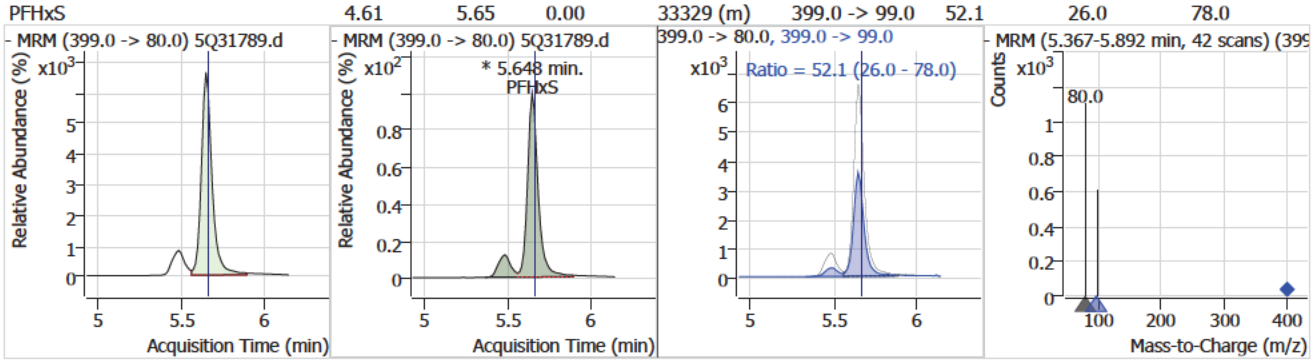
7

Perfluorinated Compounds by LC/MS/MS

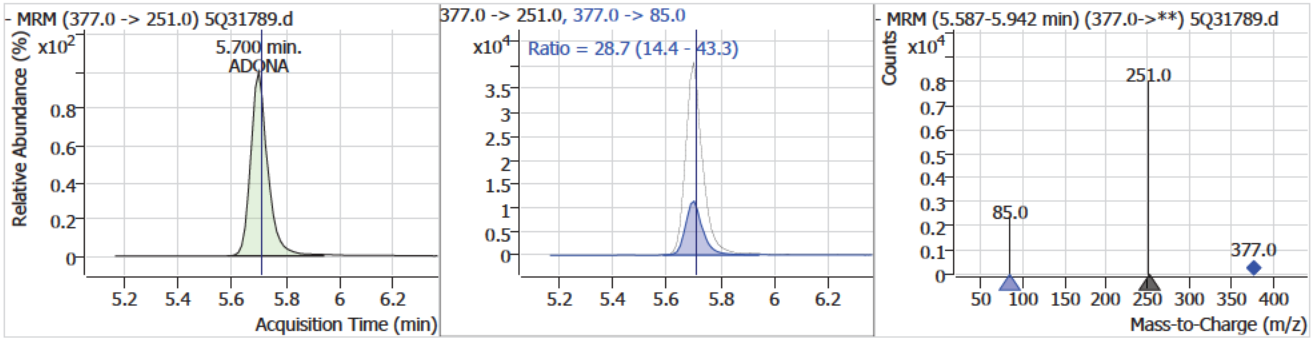
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	4.75	5.63	0.01	141077	363.0 -> 169.0	5.8	3.0	9.1



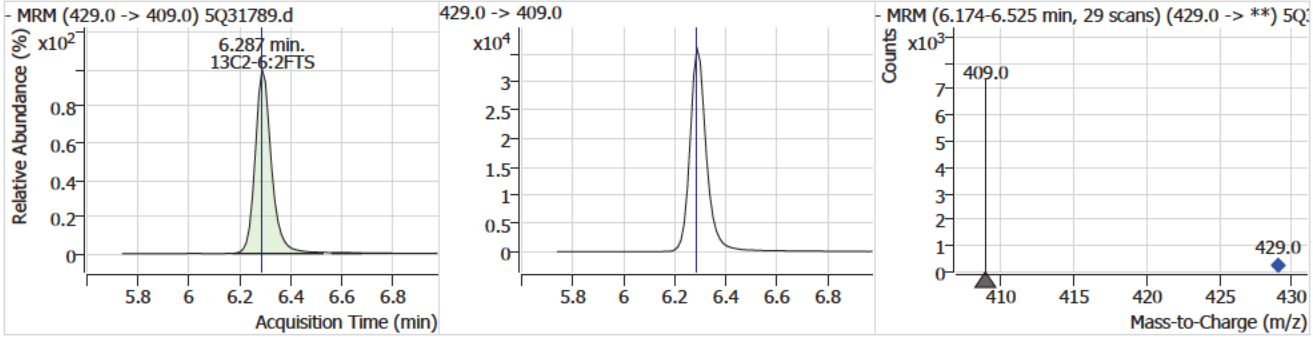
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	4.61	5.65	0.00	33329 (m)	399.0 -> 99.0	52.1	26.0	78.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	4.71	5.70	0.00	178676	377.0 -> 85.0	28.7	14.4	43.3



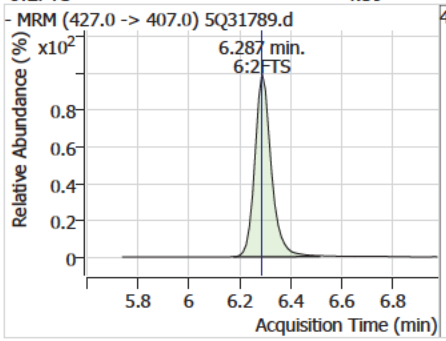
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	159899				

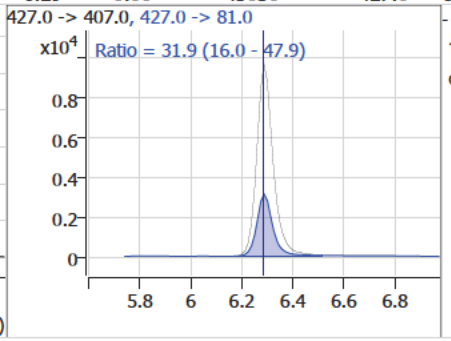


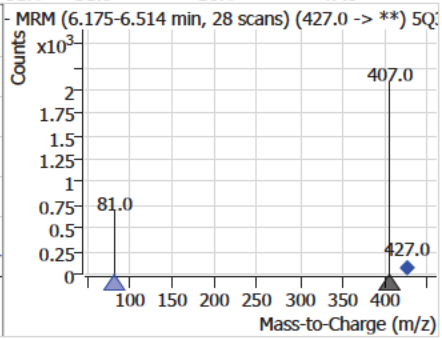
7.7.37

Perfluorinated Compounds by LC/MS/MS

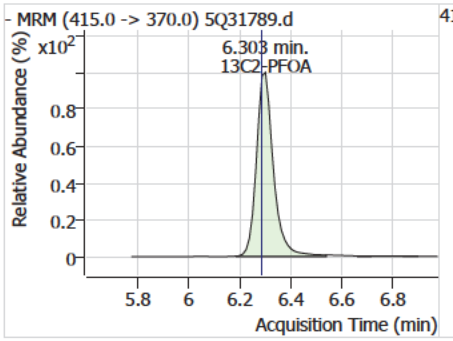
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	4.59	6.29	0.00	43030	427.0 -> 81.0	31.9	16.0	47.9

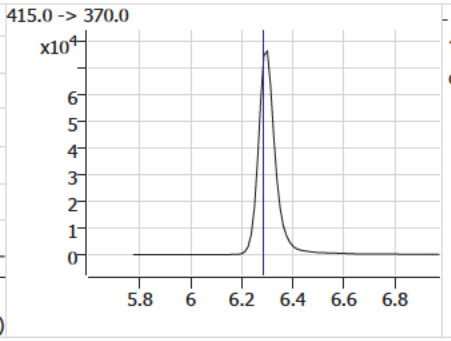


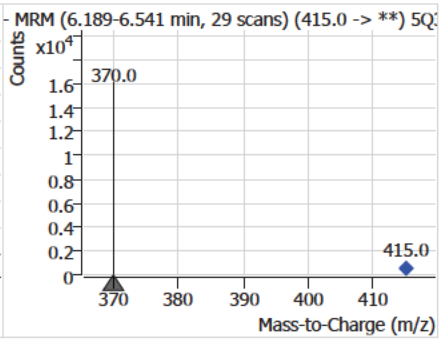




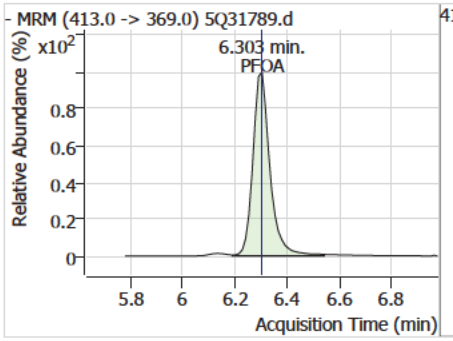
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.30	0.01	353096				

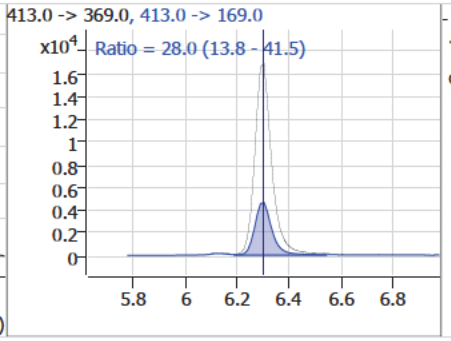


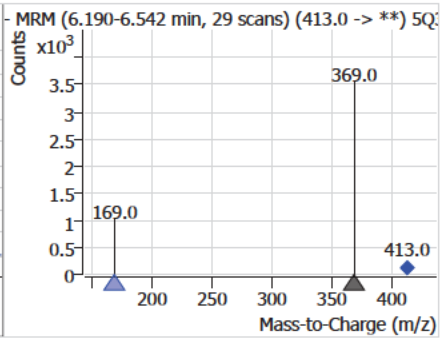




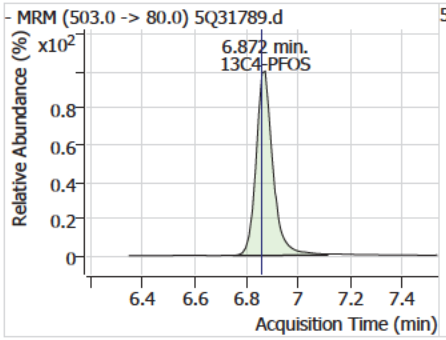
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	4.59	6.30	0.01	76872	413.0 -> 169.0	28.0	13.8	41.5

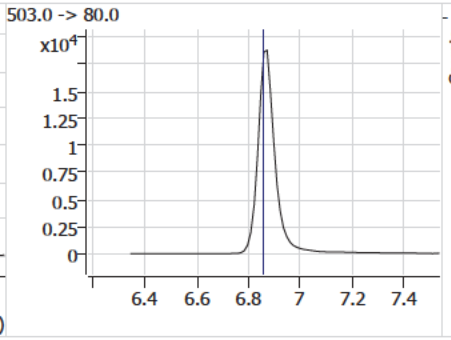


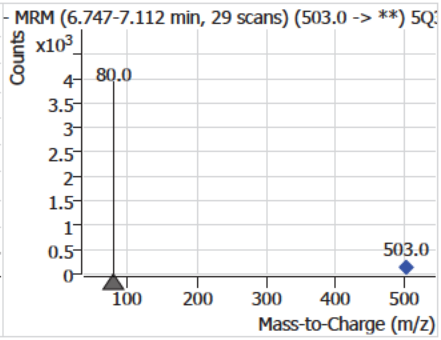




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.87	0.01	84809				







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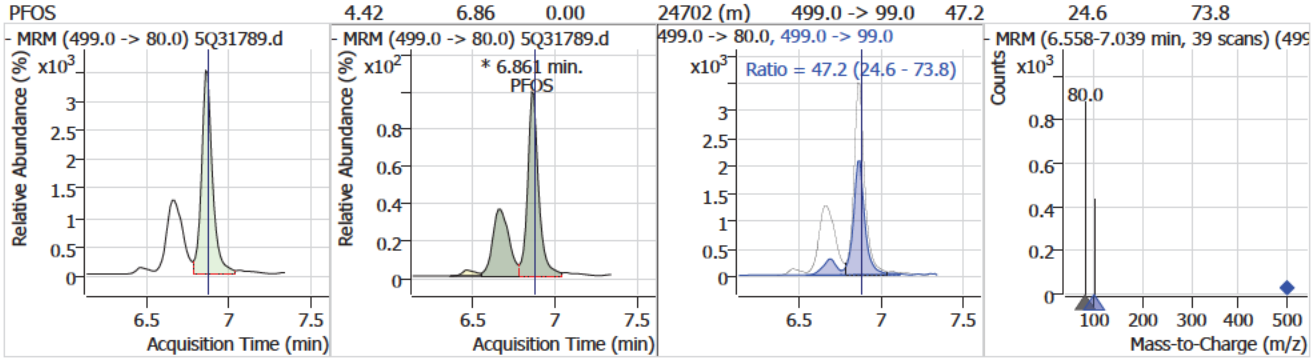
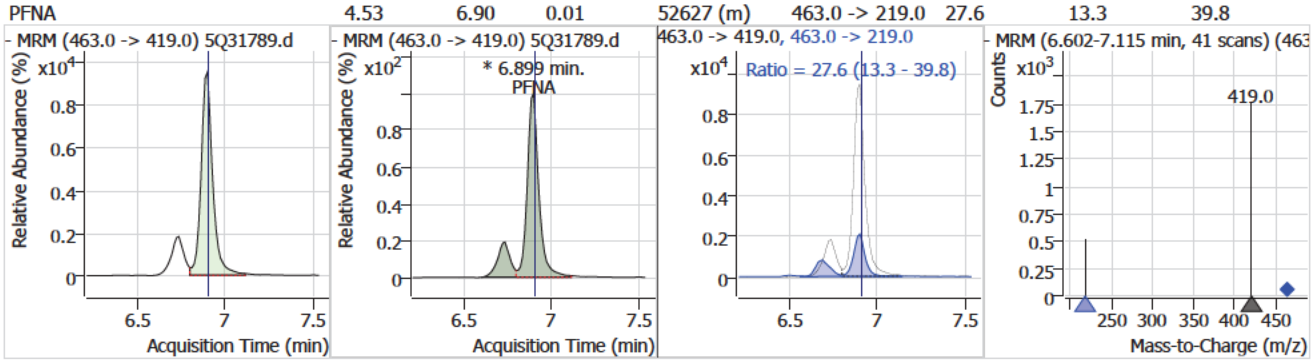
7

Perfluorinated Compounds by LC/MS/MS

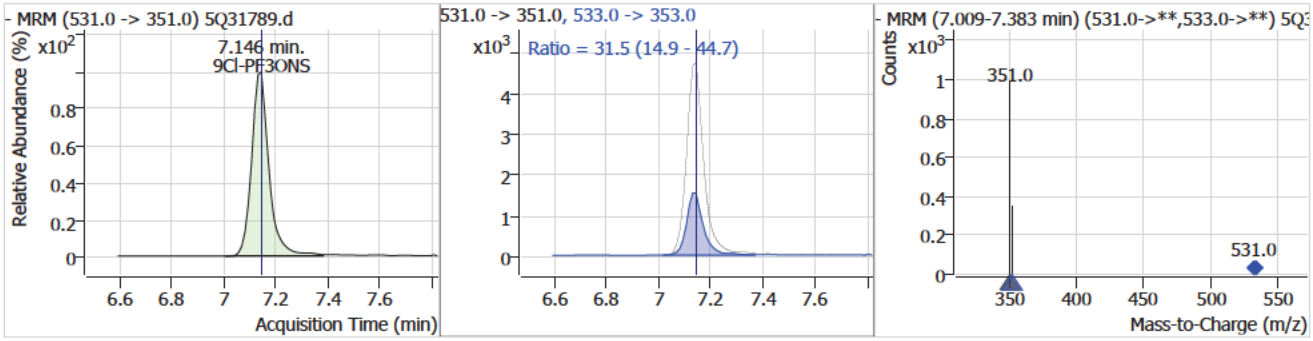
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	4.42	6.86	0.00	24702 (m)	499.0 -> 99.0	47.2	24.6	73.8



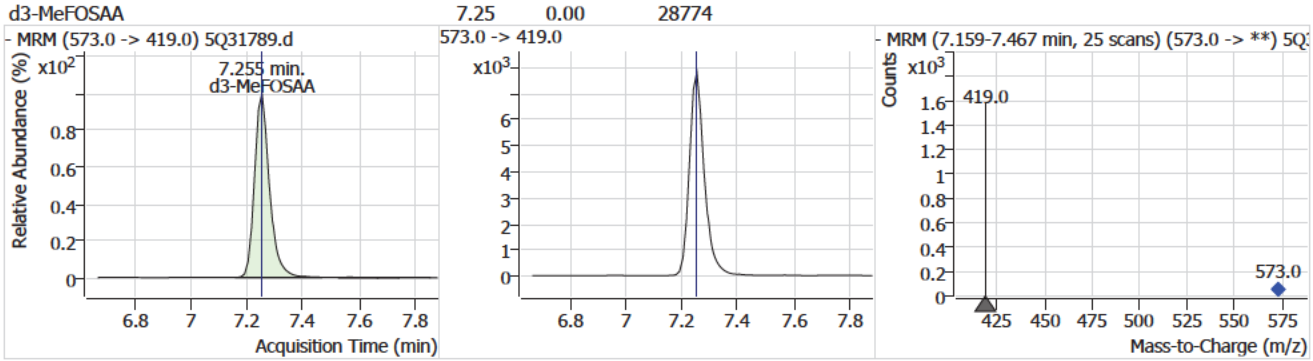
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	4.53	6.90	0.01	52627 (m)	463.0 -> 219.0	27.6	13.3	39.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	4.66	7.15	0.01	21777	533.0 -> 353.0	31.5	14.9	44.7

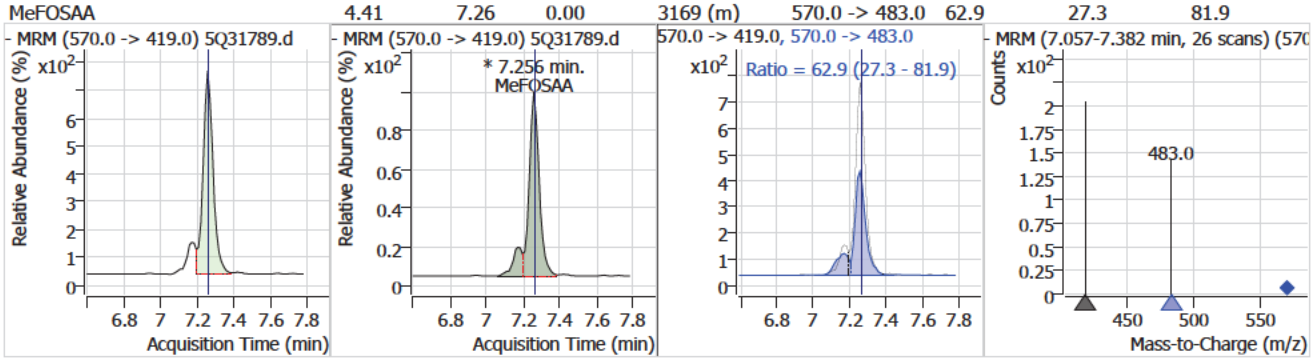


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	28774				

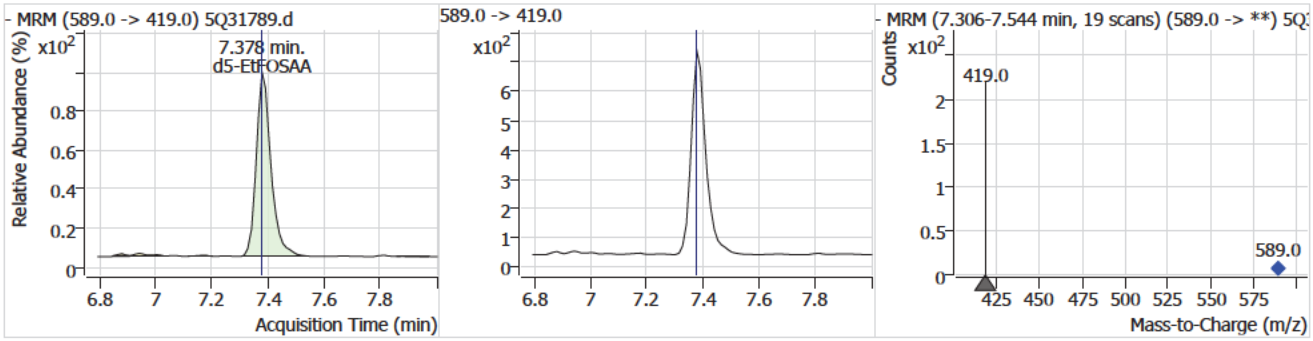


Perfluorinated Compounds by LC/MS/MS

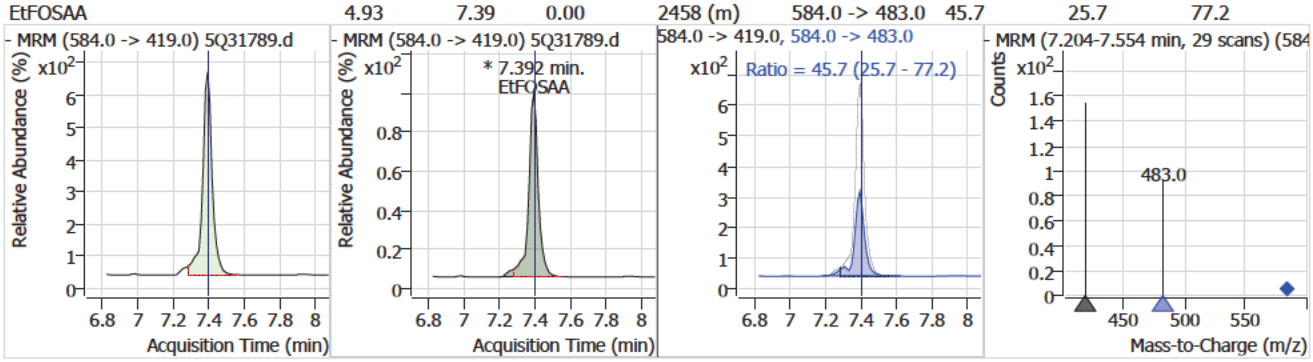
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	4.41	7.26	0.00	3169 (m)	570.0 -> 483.0	62.9	27.3	81.9



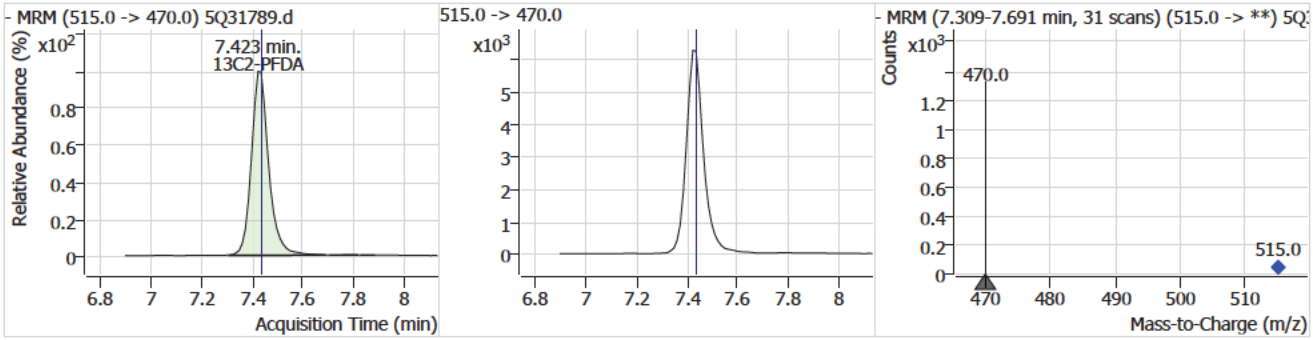
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.66	7.38	0.00	2516				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	4.93	7.39	0.00	2458 (m)	584.0 -> 483.0	45.7	25.7	77.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	2.04	7.42	0.00	29687				



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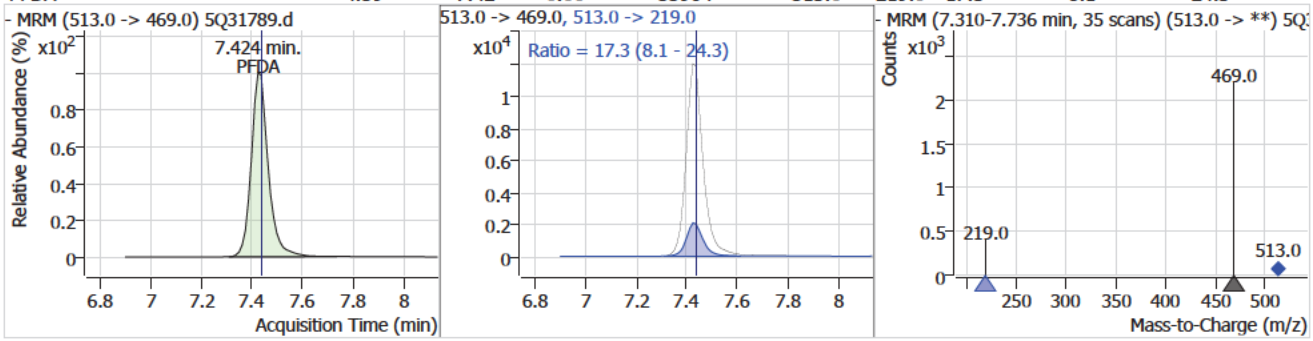
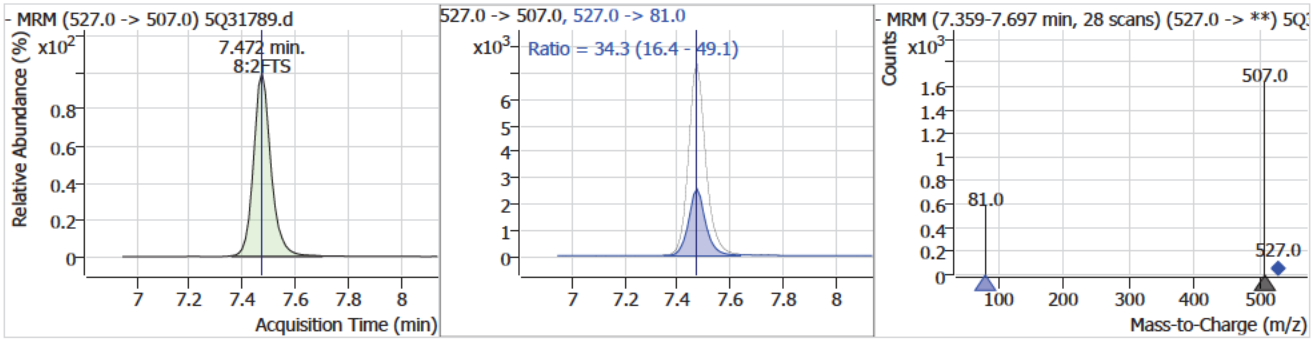
Perfluorinated Compounds by LC/MS/MS

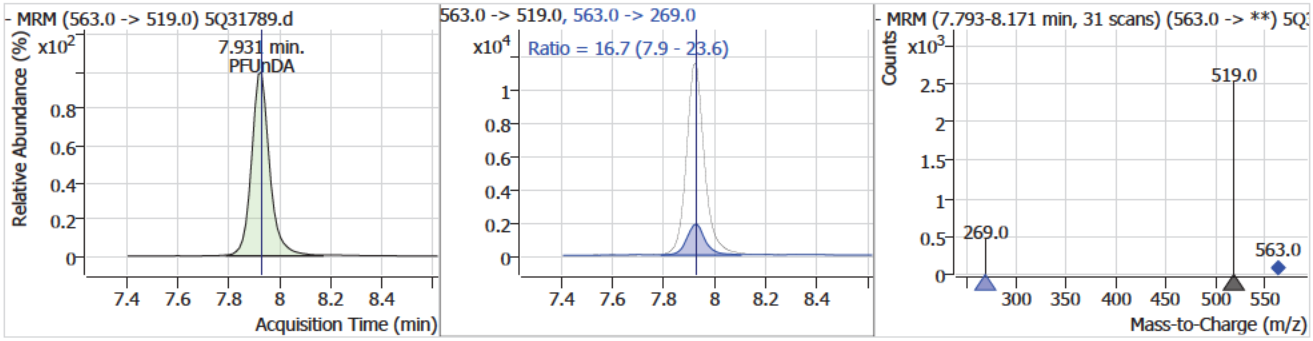
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	4.59	7.42	0.00	55964	513.0 -> 219.0	17.3	8.1	24.3



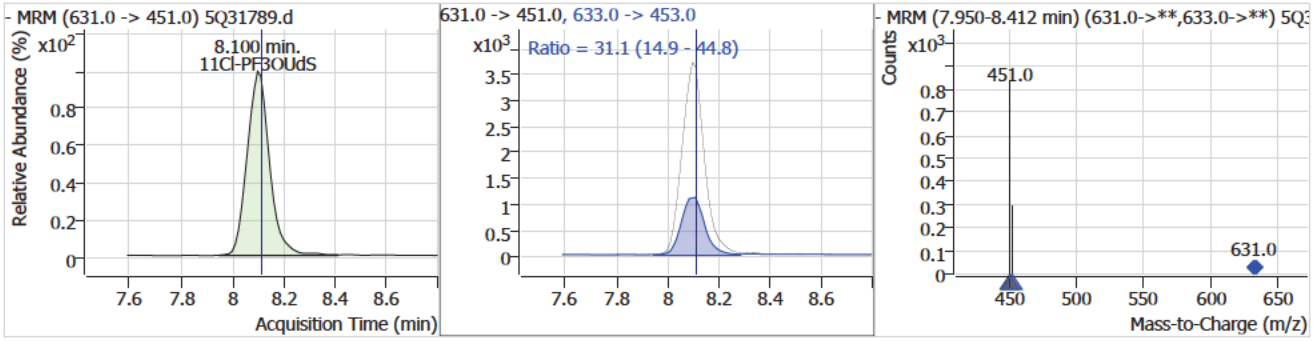
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	5.07	7.47	0.00	33298	527.0 -> 81.0	34.3	16.4	49.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	4.37	7.93	0.01	56949	563.0 -> 269.0	16.7	7.9	23.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	4.80	8.10	0.00	22538	633.0 -> 453.0	31.1	14.9	44.8



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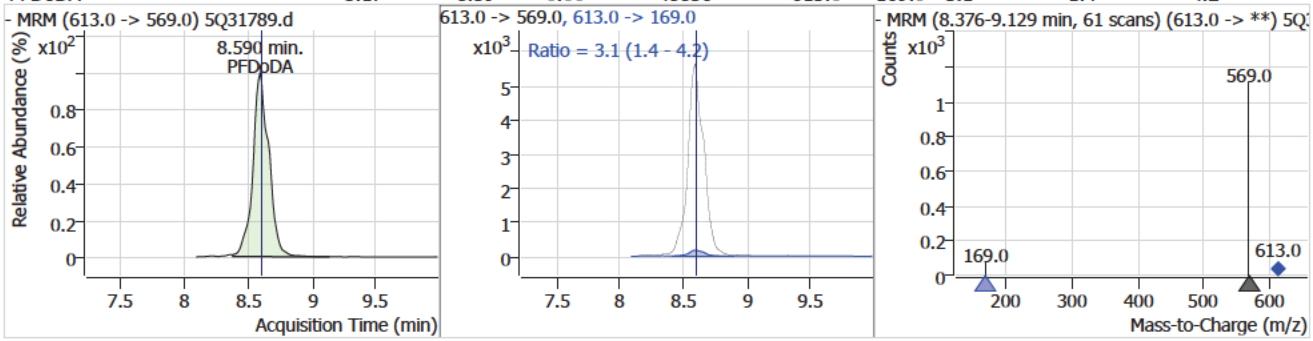
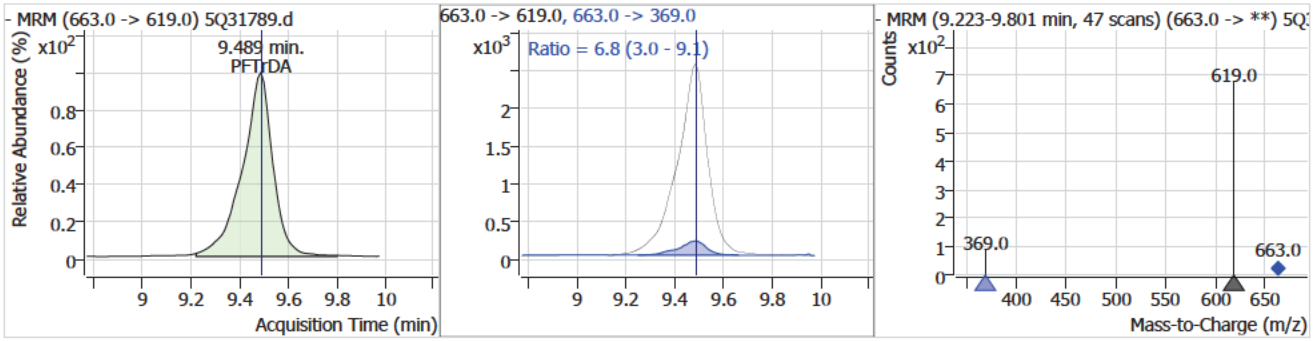
7

Perfluorinated Compounds by LC/MS/MS

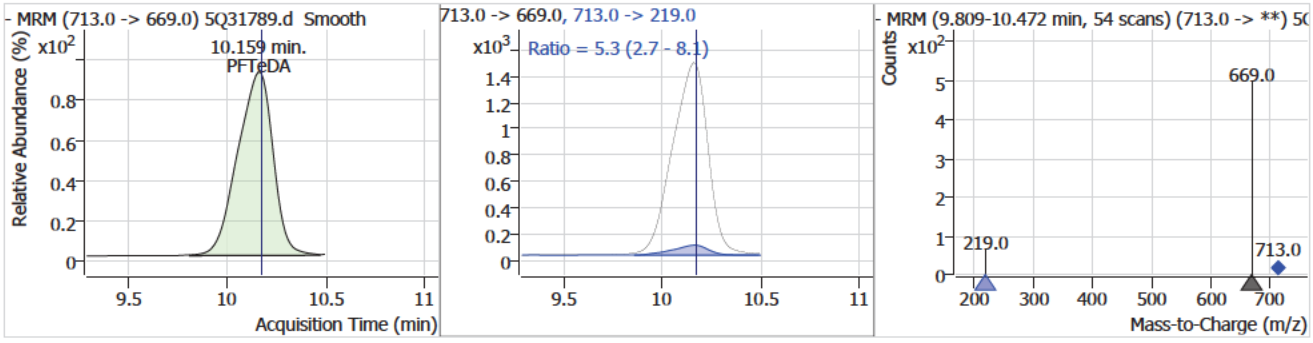
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	5.17	8.59	0.00	48856	613.0 -> 169.0	3.1	1.4	4.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	3.97	9.49	0.01	22290	663.0 -> 369.0	6.8	3.0	9.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	4.76	10.16	0.00	18285	713.0 -> 219.0	5.3	2.7	8.1



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Manual Integration Approval Summary

Sample Number: S5Q522-IC522
Lab FileID: 5Q31789.D
Injection Time: 04/16/25 12:49
Method: EPA 537.1 REV 2.0
Analyst approved: 04/17/25 07:52 (b) (6) [redacted]
Supervisor approved: 04/17/25 09:03 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
HFPO-DA (GenX)	13252-13-6		5.04	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.90	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Cal Report: 5Q31790.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 09:03

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31790.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/16/2025 1:05:11 PM
Sample Name : ic522-10
Vial : P1-A6
DA Method File : 537_041625_S5Q522.quantmethod
Batch Name : s5q522.batch.bin
Sample Information : OP8882,S5Q522,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.287	429.0 -> 409.0	168613	20.00 µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	381163	20.00 µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	525743	20.00 µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	89495	20.00 µg/L		0.000
d3-MeFOSAA	7.255	573.0 -> 419.0	30150	40.00 µg/L		0.000
System Monitoring Compounds						
13C2-PFDA	7.423	515.0 -> 470.0	72448	4.61 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 23.1%		
13C2-PFHxA	4.775	315.0 -> 270.0	124805	4.84 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 24.2%		
d5-EtFOSAA	7.378	589.0 -> 419.0	5645	9.92 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 24.8%		
13C3-HFPO-DA	5.032	287.0 -> 169.0	16195	8.95 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 22.4%		
Target Compounds						QValue
6:2FTS	6.287	427.0 -> 407.0	103580	10.60 µg/L		99
8:2FTS	7.472	527.0 -> 507.0	78022	11.26 µg/L		99
EtFOSAA	7.392	584.0 -> 419.0	5371	10.29 µg/L	m	96
MeFOSAA	7.256	570.0 -> 419.0	6325	8.40 µg/L	m	93
PFBS	3.841	299.0 -> 80.0	141670	11.06 µg/L		100
PFDA	7.424	513.0 -> 469.0	136061	10.28 µg/L		100
PFDoDA	8.590	613.0 -> 569.0	79018	7.84 µg/L		99
PFHpA	5.614	363.0 -> 319.0	335345	10.37 µg/L		100
PFHxA	4.777	313.0 -> 269.0	171178	10.41 µg/L		99
PFHxS	5.648	399.0 -> 80.0	78142	10.16 µg/L	m	96
PFNA	6.886	463.0 -> 419.0	126649	10.02 µg/L	m	100
PFOA	6.290	413.0 -> 369.0	181351	10.00 µg/L		96
PFOS	6.861	499.0 -> 80.0	58564	9.94 µg/L	m	98
PFPeA	3.610	263.0 -> 219.0	337795	10.40 µg/L		100
PFTeDA	10.159	713.0 -> 669.0	42325	10.26 µg/L		99
PFTrDA	9.489	663.0 -> 619.0	43717	7.37 µg/L		100
PFUnDA	7.931	563.0 -> 519.0	129959	9.44 µg/L		98
ADONA	5.700	377.0 -> 251.0	431774	10.41 µg/L		99
9Cl-PF3ONS	7.133	531.0 -> 351.0	53669	10.50 µg/L		100
11Cl-PF3OUdS	8.100	631.0 -> 451.0	50325	9.73 µg/L		99
HFPO-DA	5.035	285.0 -> 169.0	16127	10.60 µg/L		100

= Qualifier out of range, m = manually integrated, + = Area summed

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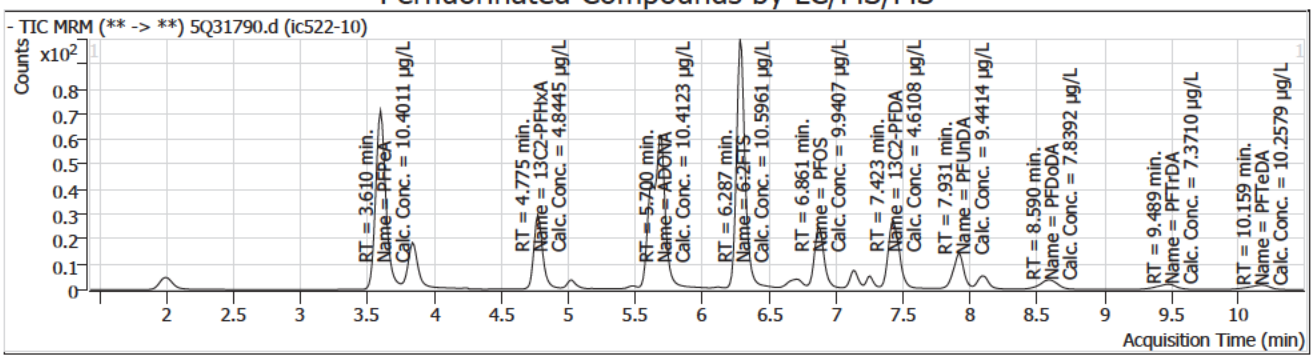
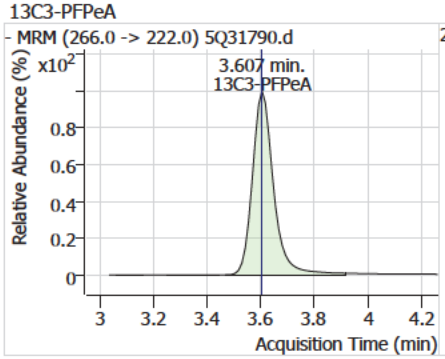
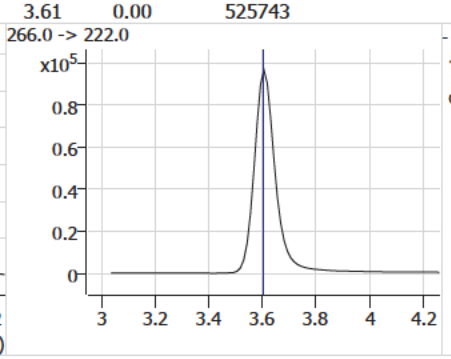
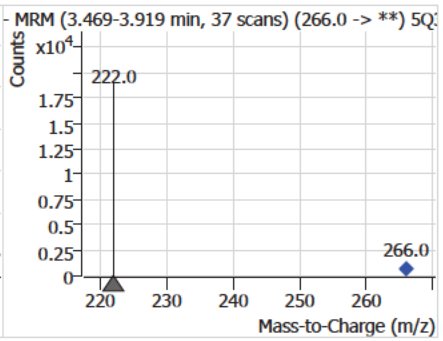
Perfluorinated Compounds by LC/MS/MS



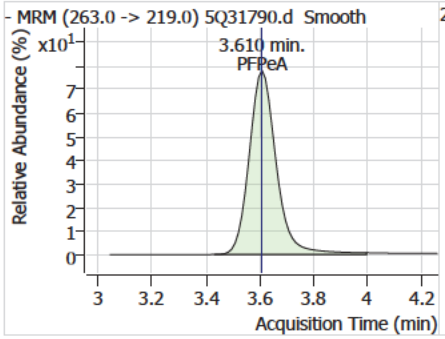
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.00	525743				

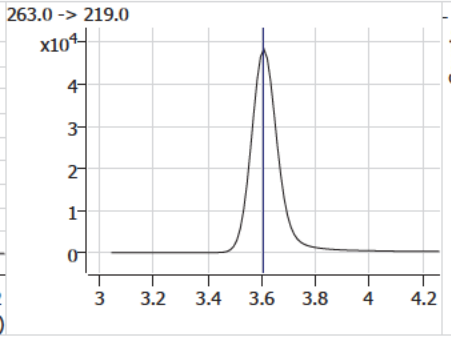


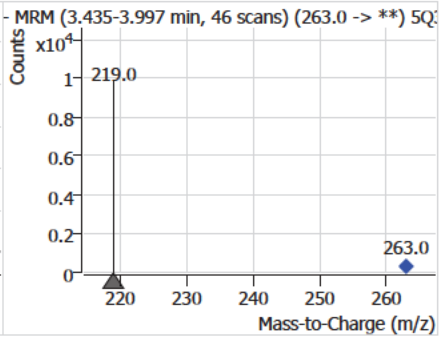




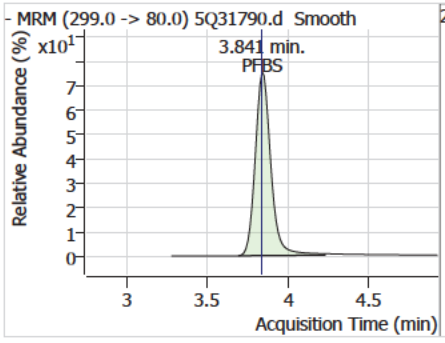
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	10.40	3.61	0.00	337795				

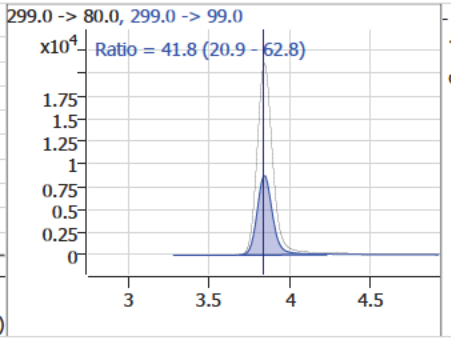


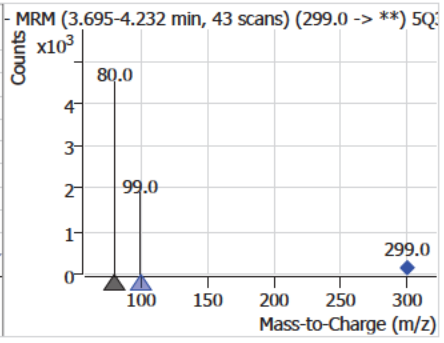




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	11.06	3.84	0.00	141670	299.0 -> 99.0	41.8	20.9	62.8







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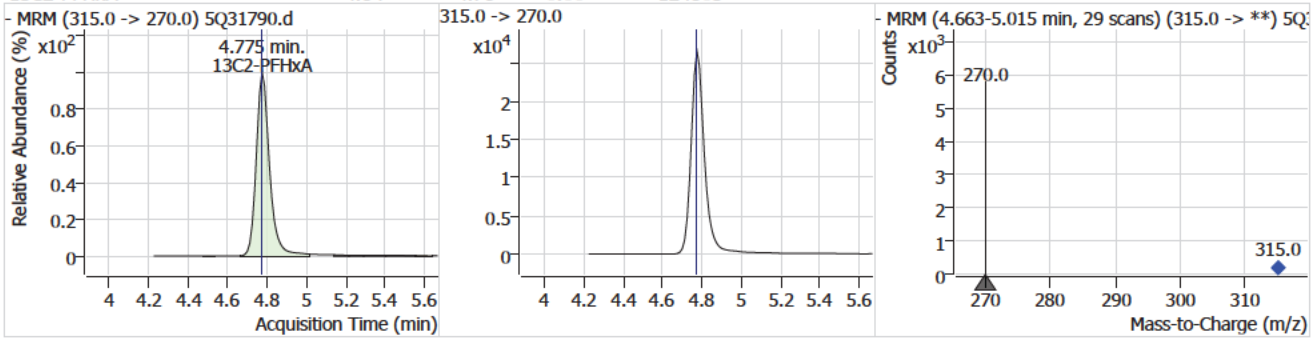
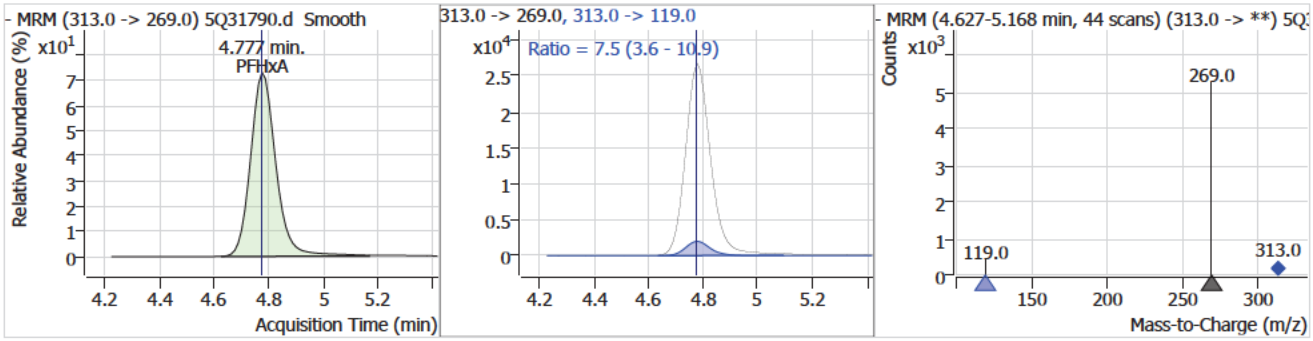
Perfluorinated Compounds by LC/MS/MS

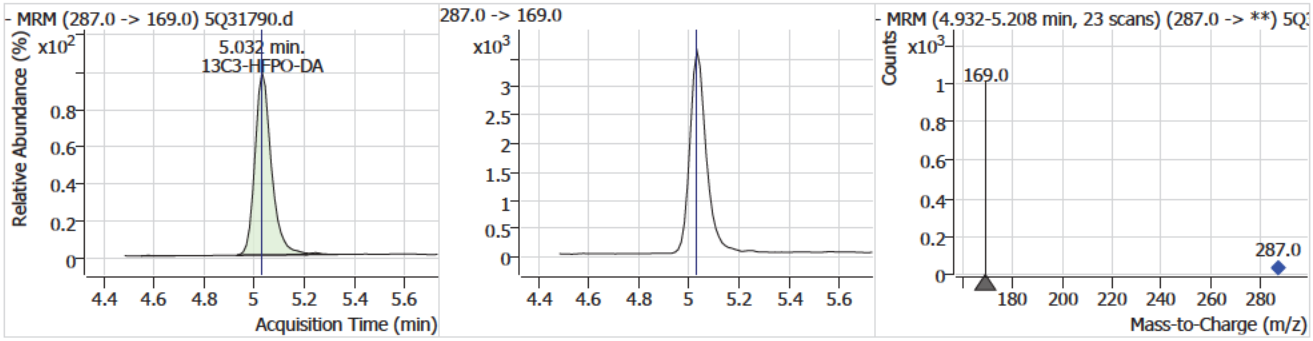
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	4.84	4.78	0.00	124805				



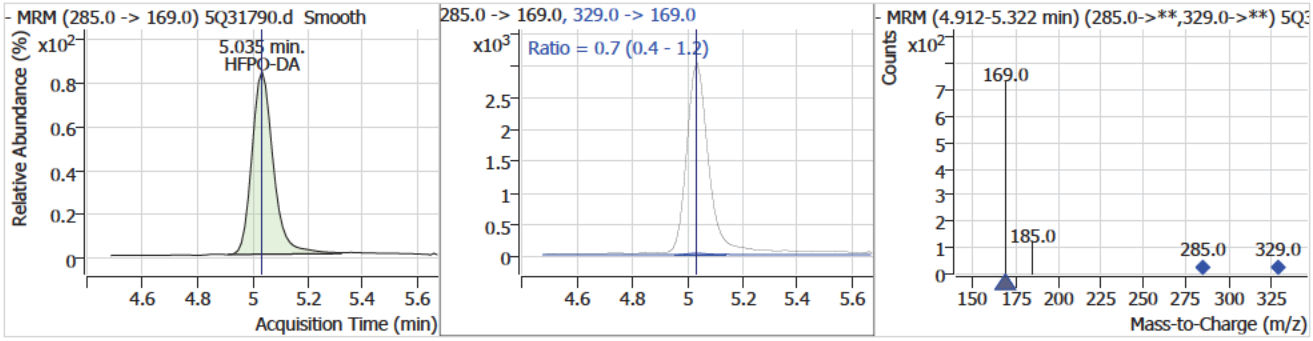
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	10.41	4.78	0.00	171178	313.0 -> 119.0	7.5	3.6	10.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.95	5.03	0.00	16195				

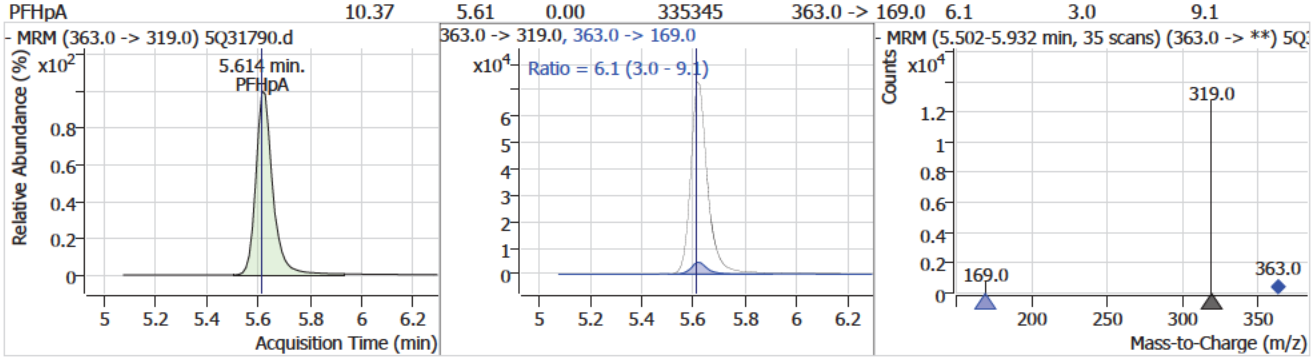


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	10.60	5.03	0.00	16127	329.0 -> 169.0	0.7	0.4	1.2

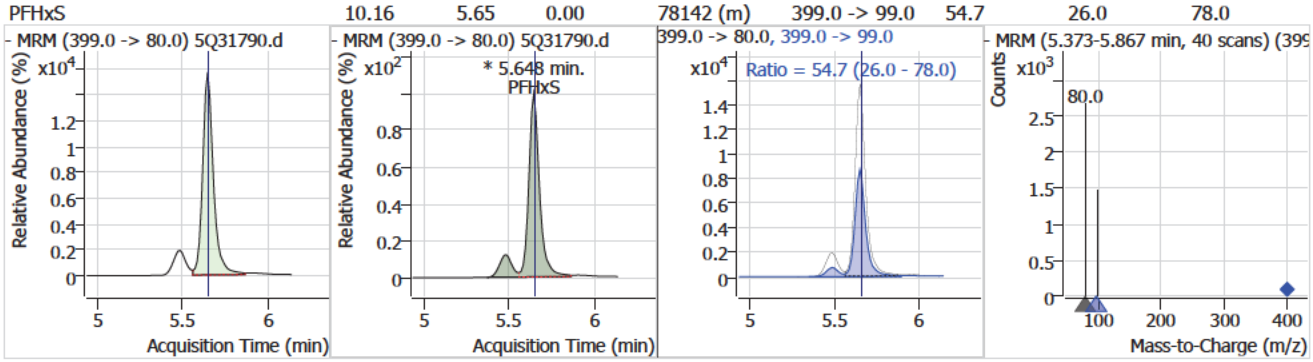


Perfluorinated Compounds by LC/MS/MS

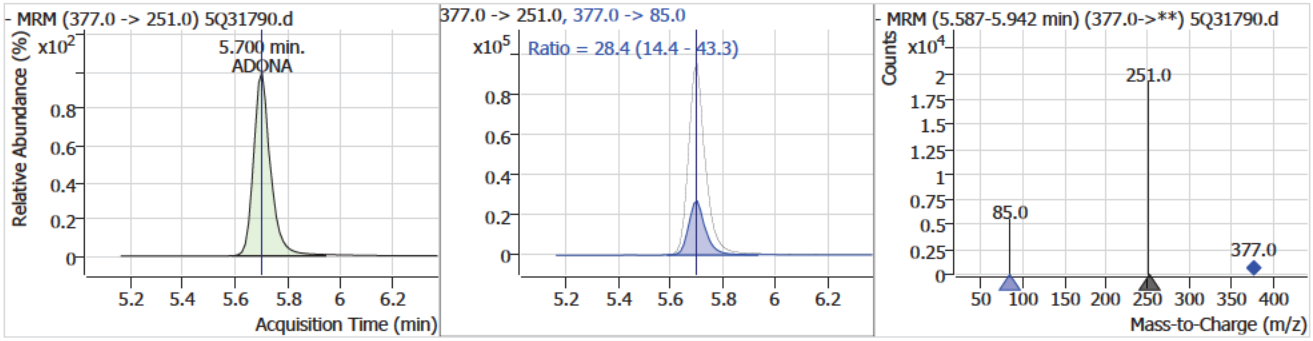
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	10.37	5.61	0.00	335345	363.0 -> 169.0	6.1	3.0	9.1



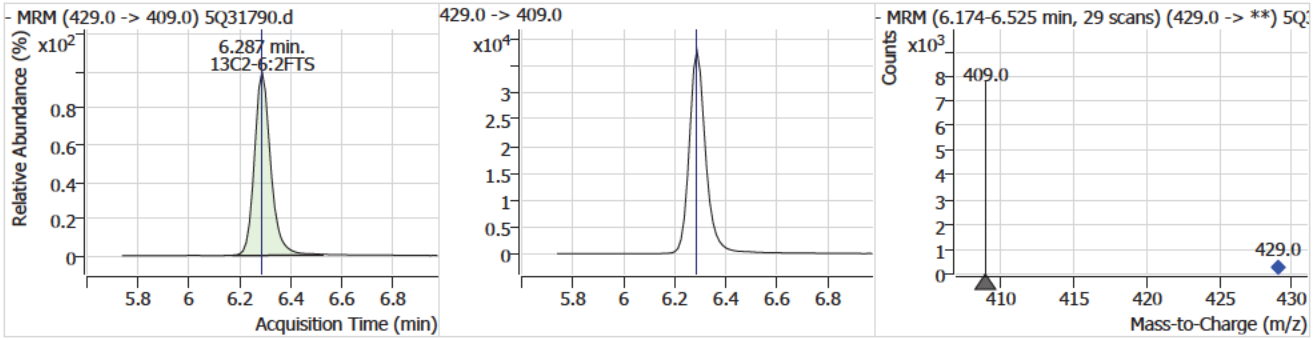
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	10.16	5.65	0.00	78142 (m)	399.0 -> 99.0	54.7	26.0	78.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	10.41	5.70	0.00	431774	377.0 -> 85.0	28.4	14.4	43.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	168613				



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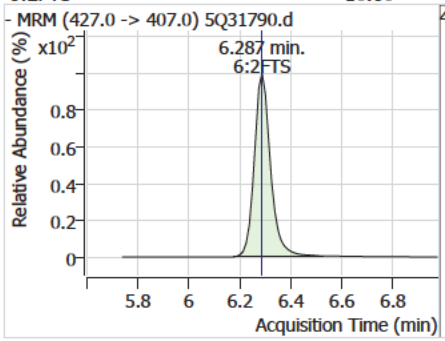
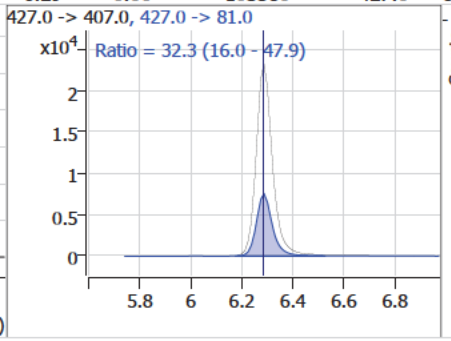
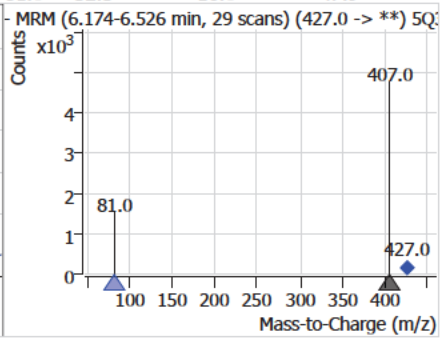
Perfluorinated Compounds by LC/MS/MS

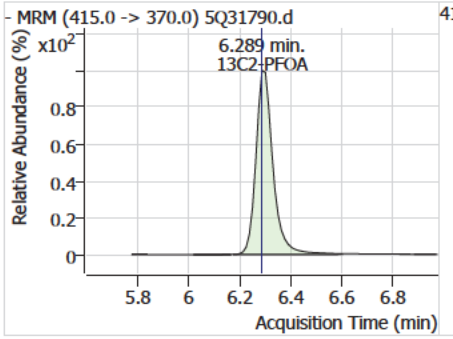
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	10.60	6.29	0.00	103580	427.0 -> 81.0	32.3	16.0	47.9

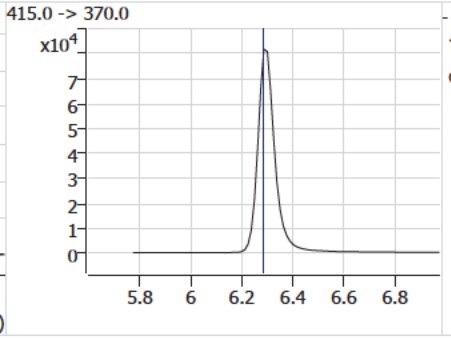


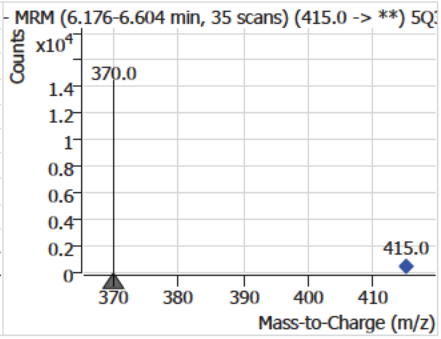




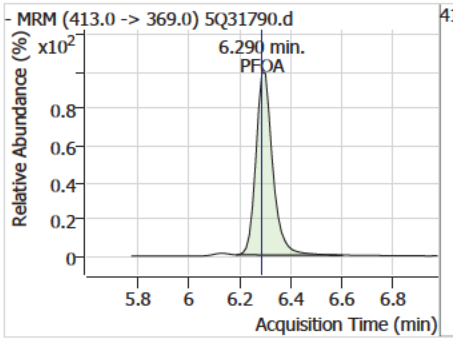
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	381163				

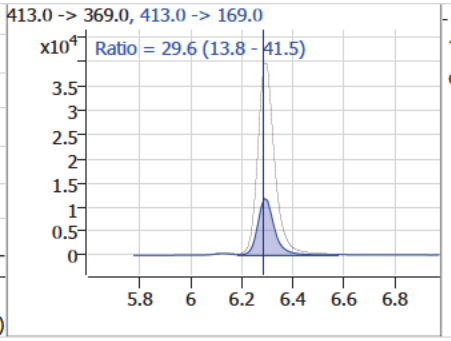


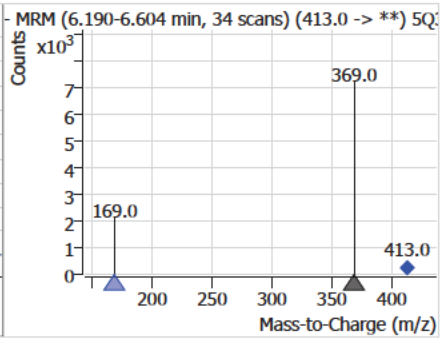




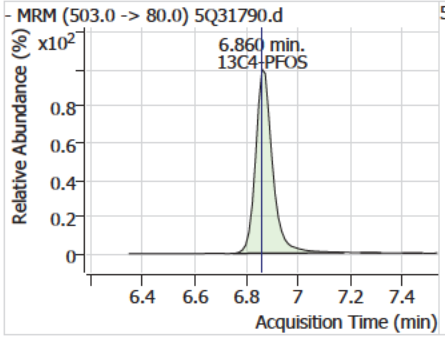
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	10.00	6.29	0.00	181351	413.0 -> 169.0	29.6	13.8	41.5

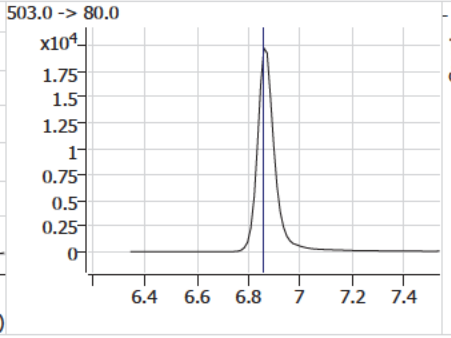


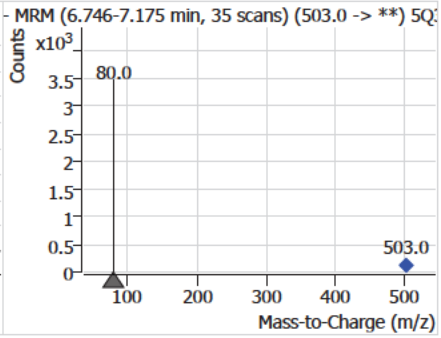




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	89495				







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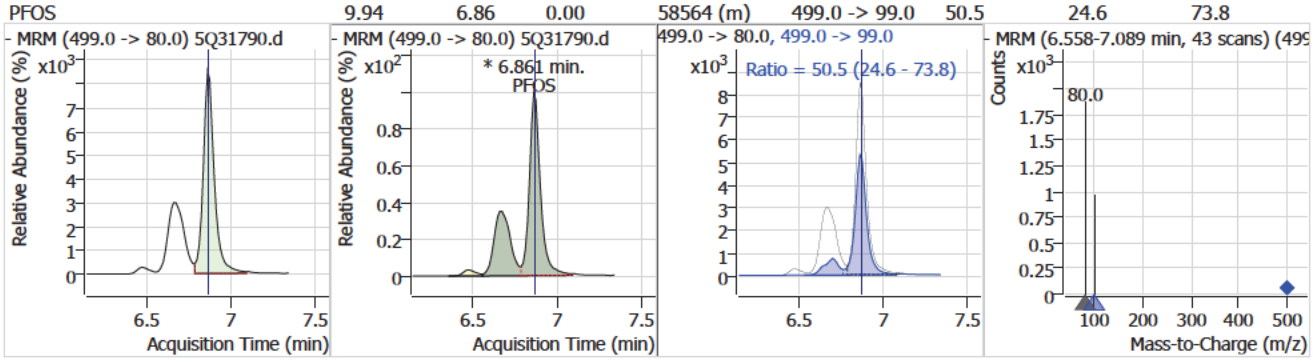
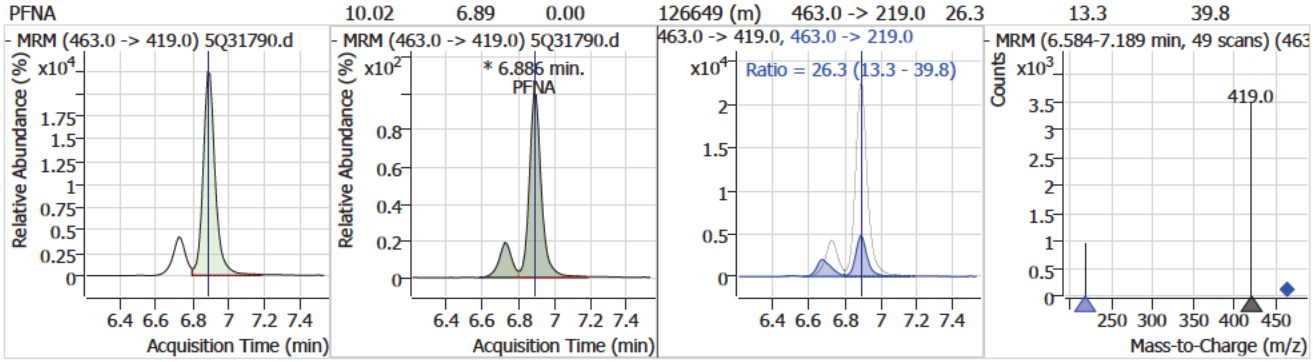
Perfluorinated Compounds by LC/MS/MS

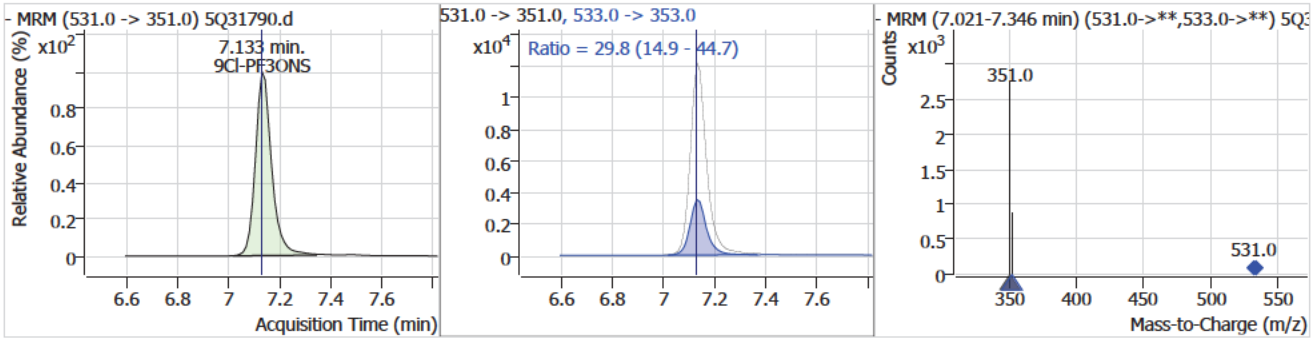
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	9.94	6.86	0.00	58564 (m)	499.0 -> 99.0	50.5	24.6	73.8



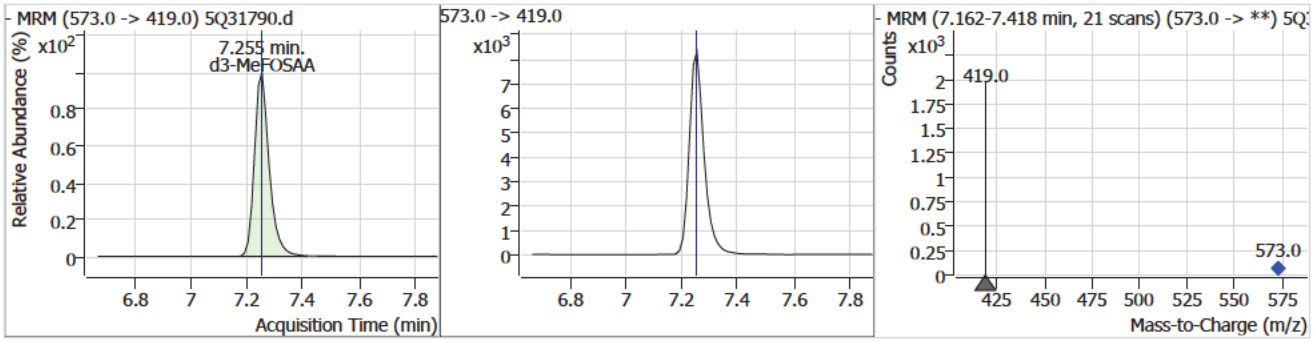
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	10.02	6.89	0.00	126649 (m)	463.0 -> 219.0	26.3	13.3	39.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	10.50	7.13	0.00	53669	533.0 -> 353.0	29.8	14.9	44.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	30150				



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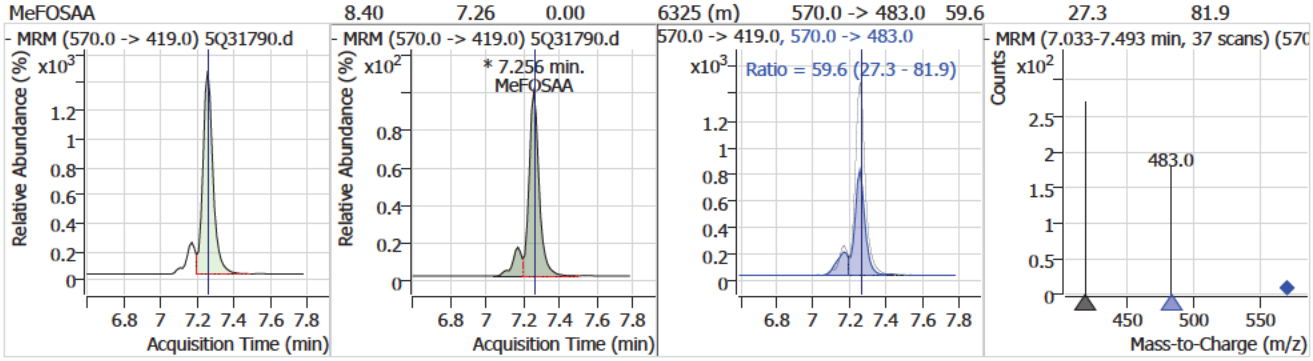
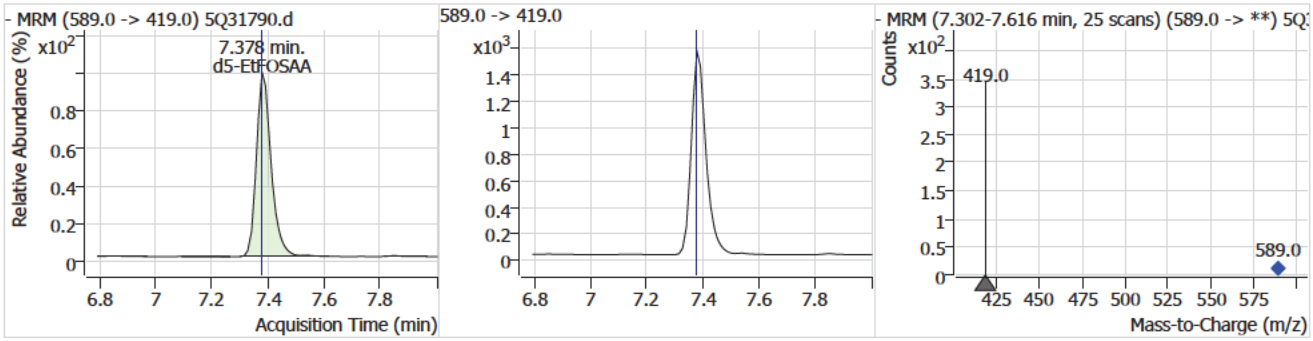
Perfluorinated Compounds by LC/MS/MS

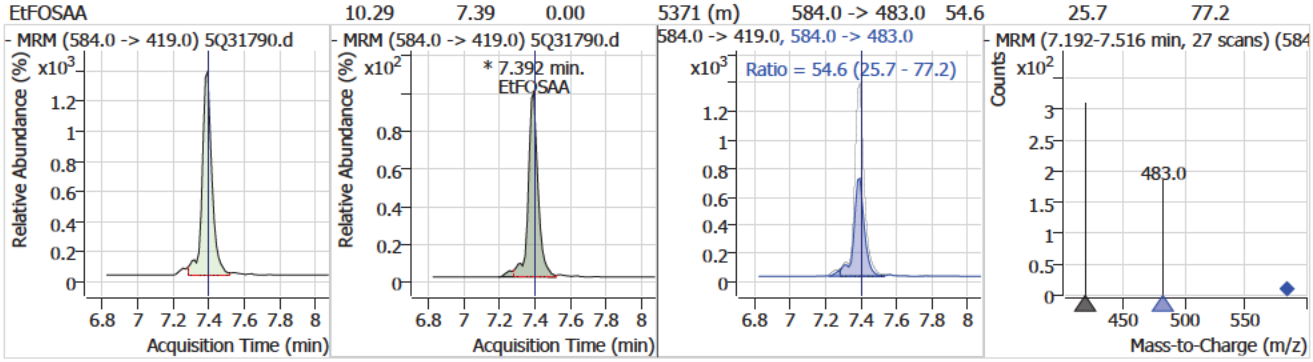
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	8.40	7.26	0.00	6325 (m)	570.0 -> 483.0	59.6	27.3	81.9



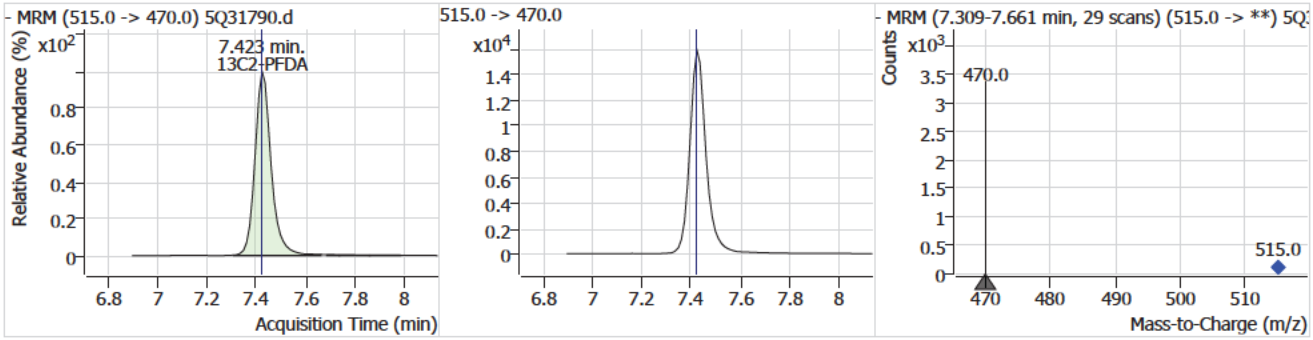
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	9.92	7.38	0.00	5645				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	10.29	7.39	0.00	5371 (m)	584.0 -> 483.0	54.6	25.7	77.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	4.61	7.42	0.00	72448				



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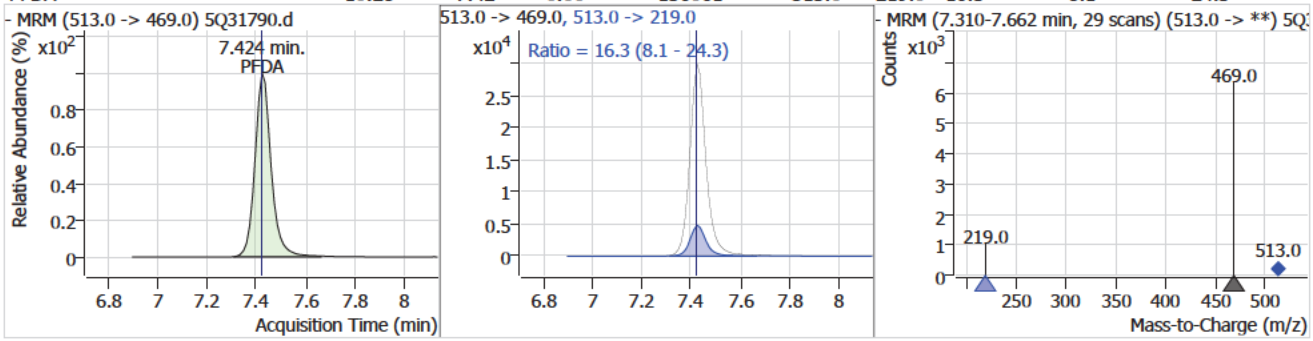
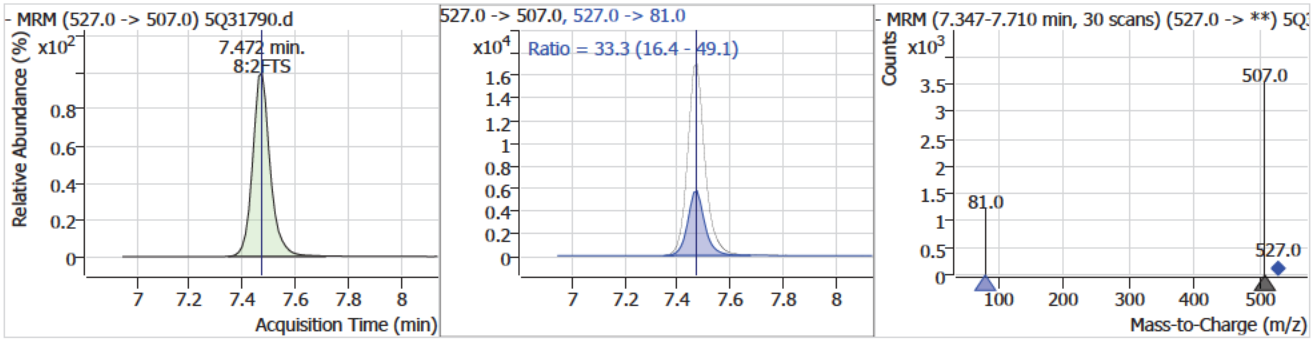
Perfluorinated Compounds by LC/MS/MS

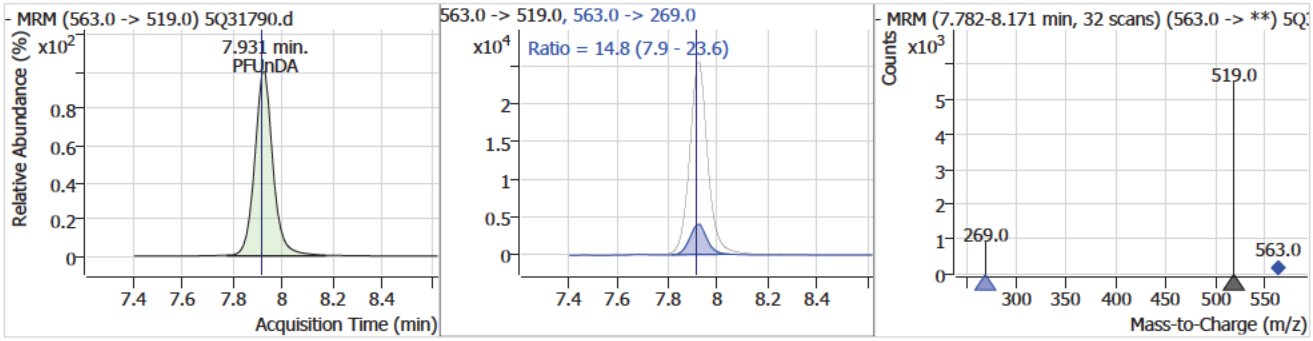
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	10.28	7.42	0.00	136061	513.0 -> 219.0	16.3	8.1	24.3



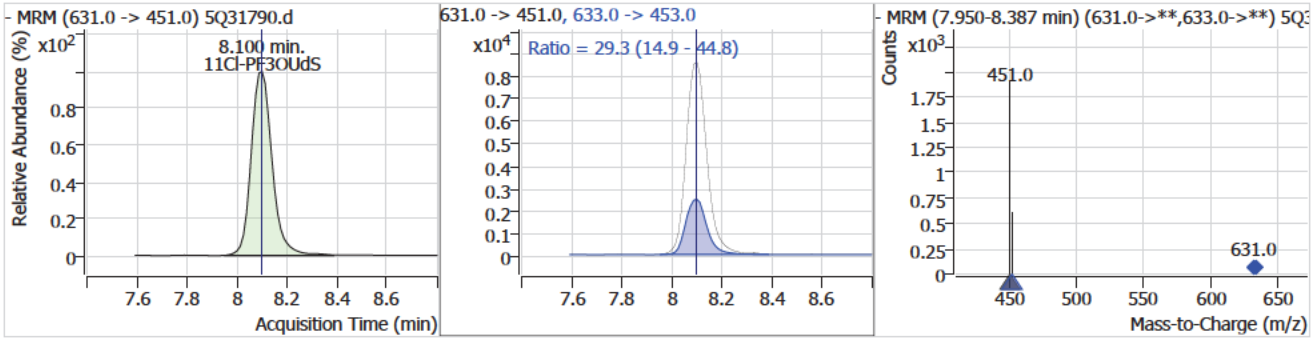
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	11.26	7.47	0.00	78022	527.0 -> 81.0	33.3	16.4	49.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	9.44	7.93	0.01	129959	563.0 -> 269.0	14.8	7.9	23.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	9.73	8.10	0.00	50325	633.0 -> 453.0	29.3	14.9	44.8



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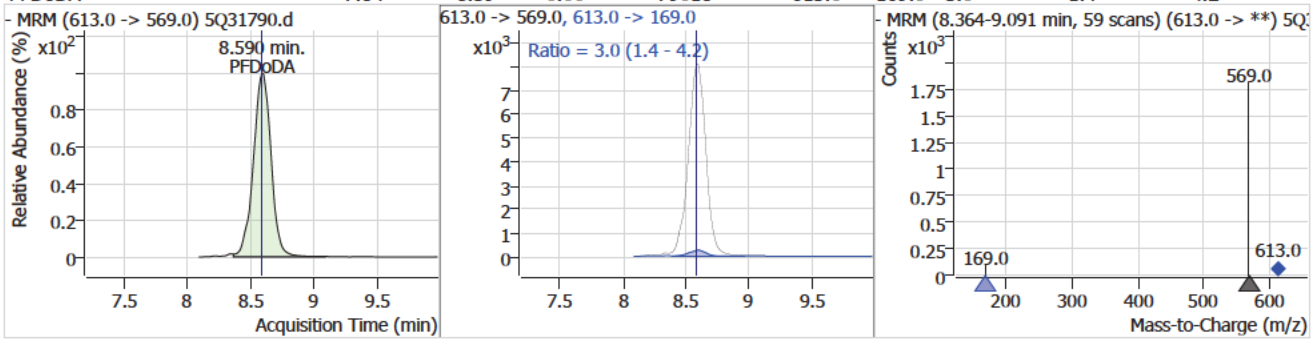
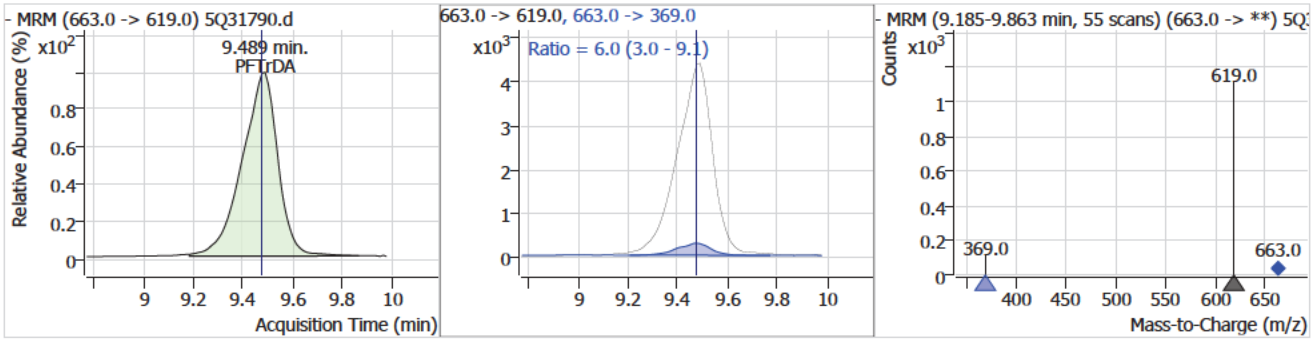
Perfluorinated Compounds by LC/MS/MS

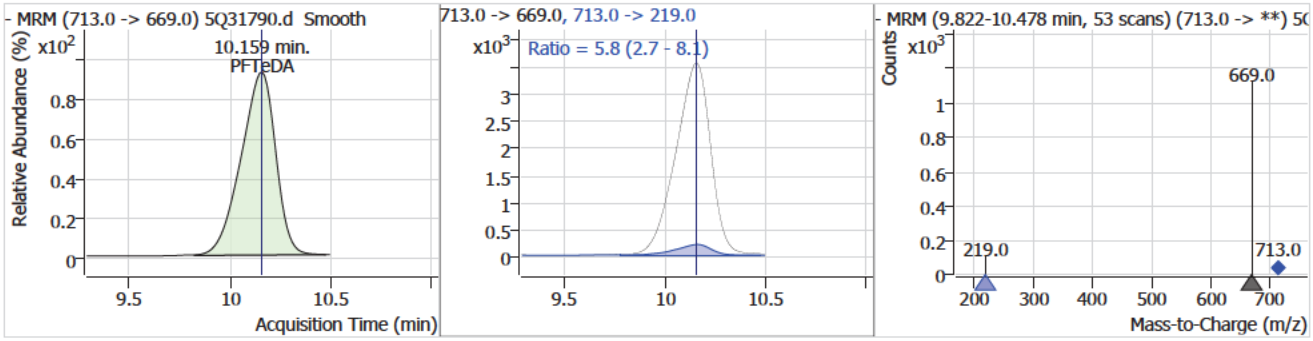
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	7.84	8.59	0.00	79018	613.0 -> 169.0	3.0	1.4	4.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	7.37	9.49	0.01	43717	663.0 -> 369.0	6.0	3.0	9.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	10.26	10.16	0.00	42325	713.0 -> 219.0	5.8	2.7	8.1



7.7.38

7

Manual Integration Approval Summary

Sample Number: S5Q522-IC522
Lab FileID: 5Q31790.D
Injection Time: 04/16/25 13:05
Method: EPA 537.1 REV 2.0
Analyst approved: 04/17/25 07:52 (b) (6) [redacted]
Supervisor approved: 04/17/25 09:03 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

5Q31791.D

Manual Integrations APPROVED (compounds with "m" flag)

(b) (6)

04/17/25 09:03

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31791.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/16/2025 1:21:13 PM
Sample Name : icc522-20
Vial : P1-A7
DA Method File : 537_041625_S5Q522.quantmethod
Batch Name : s5q522.batch.bin
Sample Information : OP8882,S5Q522,250,,,1,1,water

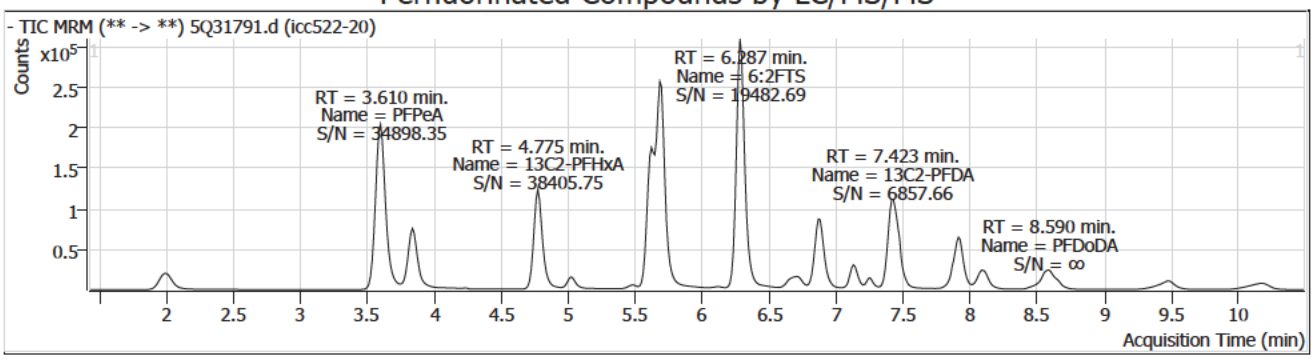
Compound	RT	QIon	Resp.	Symmetry	Conc.	Units		Dev(Min)
Internal Standards								
13C2-6:2FTS	6.287	429.0 -> 409.0	172115		20.00	µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	359027		20.00	µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	493193		20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	88668		20.00	µg/L		0.000
d3-MeFOSAA	7.255	573.0 -> 419.0	28678		40.00	µg/L		0.000
System Monitoring Compounds								
13C2-PFDA	7.423	515.0 -> 470.0	135541		9.16	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%				Recovery = 45.8%			
13C2-PFHxA	4.775	315.0 -> 270.0	231823		9.55	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%				Recovery = 47.8%			
d5-EtFOSAA	7.378	589.0 -> 419.0	10773		19.73	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%				Recovery = 49.3%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	30555		17.93	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%				Recovery = 44.8%			
Target Compounds								QValue
6:2FTS	6.287	427.0 -> 407.0	196387		20.04	µg/L		100
8:2FTS	7.472	527.0 -> 507.0	153843		21.75	µg/L		100
EtFOSAA	7.392	584.0 -> 419.0	10495		21.13	µg/L	m	100
MeFOSAA	7.256	570.0 -> 419.0	12832		17.92	µg/L	m	100
PFBS	3.841	299.0 -> 80.0	263027	1.26	20.73	µg/L		100
PFDA	7.424	513.0 -> 469.0	255358		20.28	µg/L		100
PFDoDA	8.590	613.0 -> 569.0	203572		19.51	µg/L		100
PFHpA	5.614	363.0 -> 319.0	620646		20.12	µg/L		100
PFHxA	4.777	313.0 -> 269.0	318711	1.21	20.38	µg/L		100
PFHxS	5.648	399.0 -> 80.0	151427		19.64	µg/L	m	100
PFNA	6.886	463.0 -> 419.0	240009		19.90	µg/L	m	100
PFOA	6.290	413.0 -> 369.0	355415		20.67	µg/L		100
PFOS	6.861	499.0 -> 80.0	108651		18.61	µg/L	m	100
PFPeA	3.610	263.0 -> 219.0	628796		20.45	µg/L		100
PFTeDA	10.159	713.0 -> 669.0	83150		19.76	µg/L		100
PFTrDA	9.476	663.0 -> 619.0	90248		15.36	µg/L		100
PFUnDA	7.918	563.0 -> 519.0	262550		19.25	µg/L		100
ADONA	5.700	377.0 -> 251.0	805271		20.20	µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	99157		20.15	µg/L		100
11Cl-PF3OUdS	8.100	631.0 -> 451.0	104604		20.54	µg/L		100
HFPO-DA	5.035	285.0 -> 169.0	29410		20.21	µg/L		100

= Qualifier out of range, m = manually integrated, + = Area summed

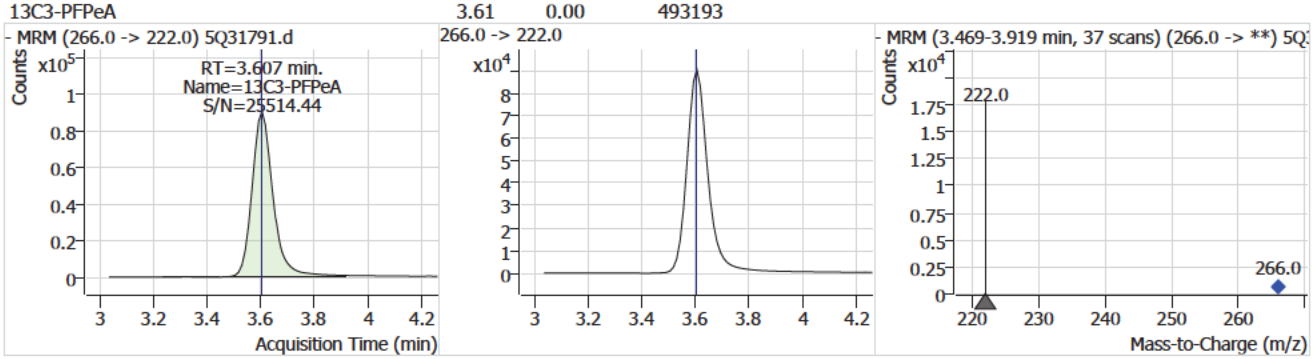
7.7.39

7

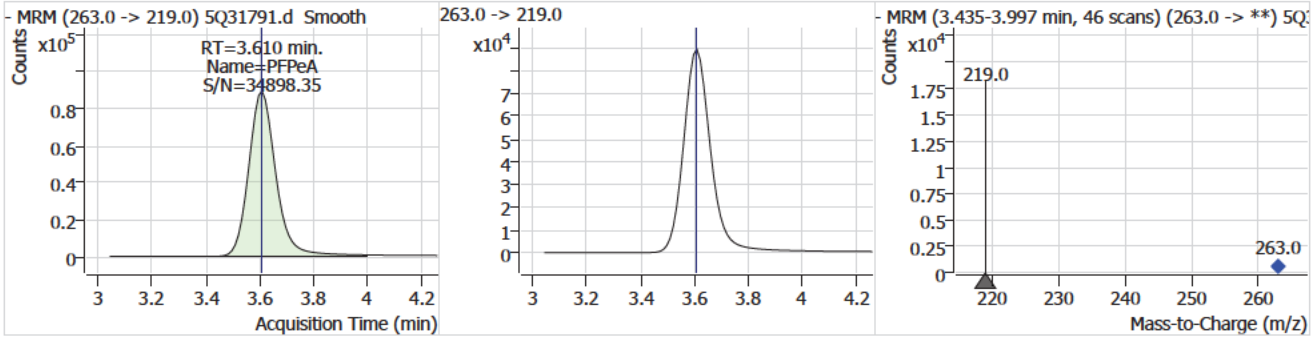
Perfluorinated Compounds by LC/MS/MS



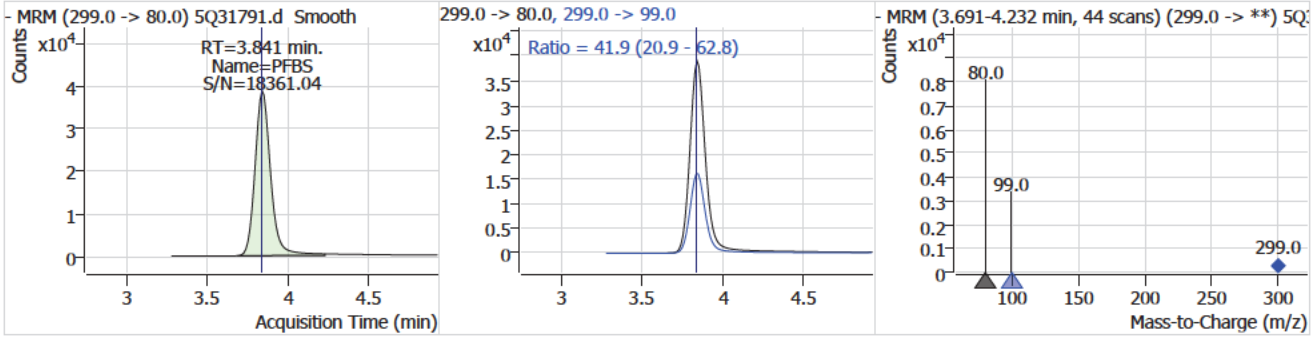
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.00	493193				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.45	3.61	0.00	628796				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.73	3.84	0.00	263027	299.0 -> 99.0	41.9	20.9	62.8



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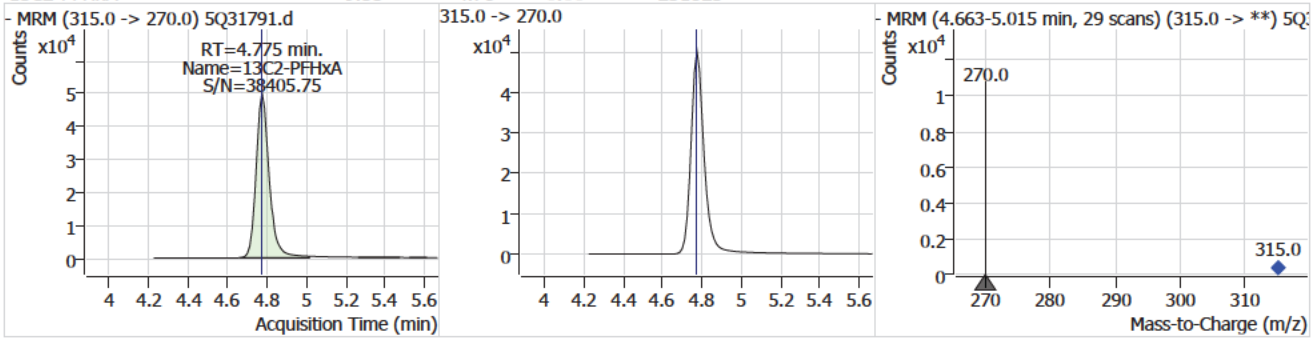
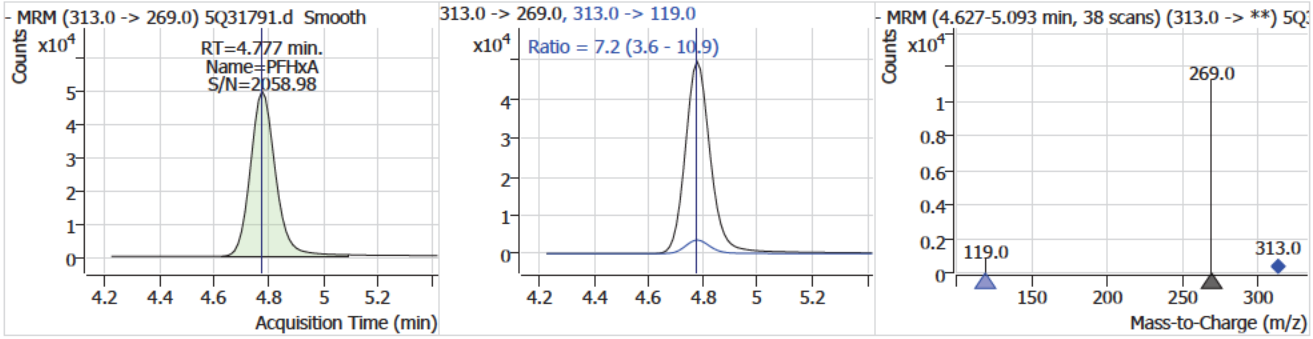
Perfluorinated Compounds by LC/MS/MS

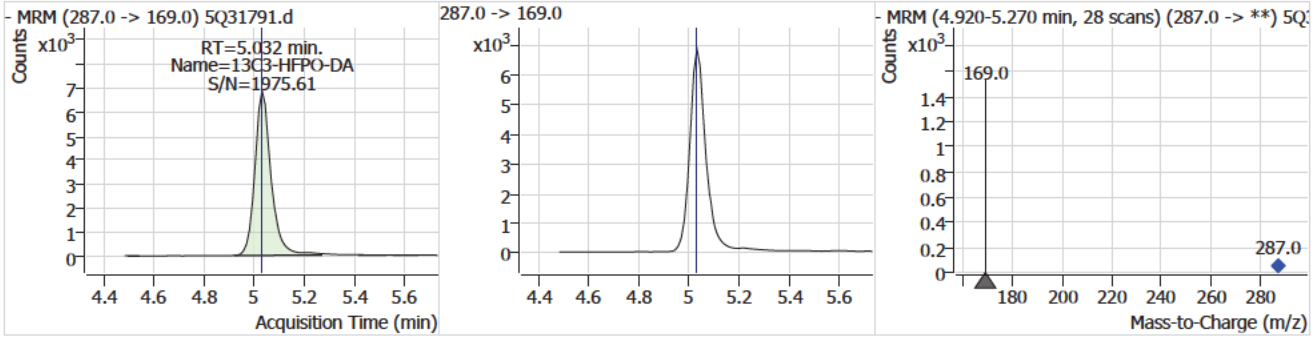
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	9.55	4.78	0.00	231823				



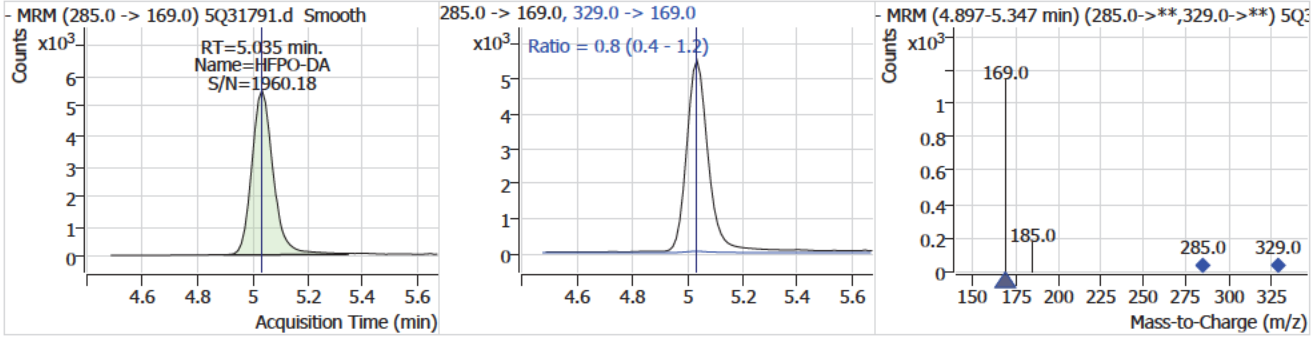
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	20.38	4.78	0.00	318711	313.0 -> 119.0	7.2	3.6	10.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	17.93	5.03	0.00	30555				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	20.21	5.03	0.00	29410	329.0 -> 169.0	0.8	0.4	1.2



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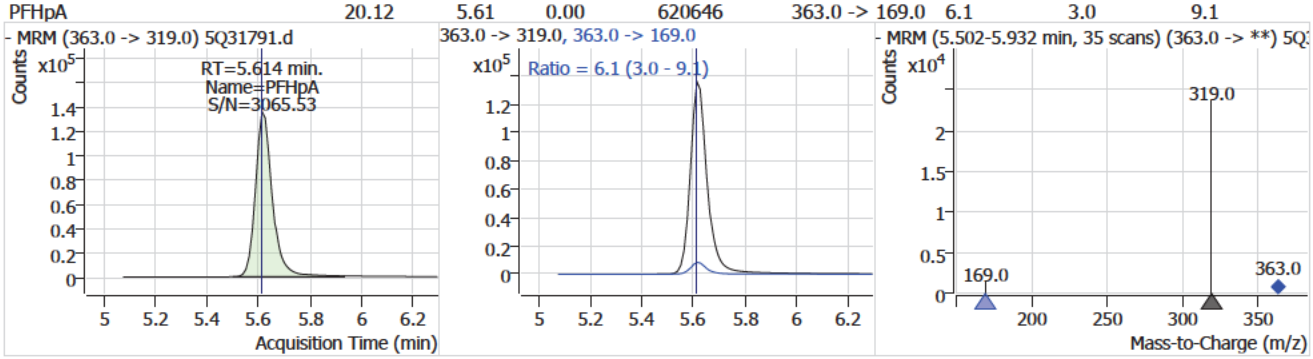
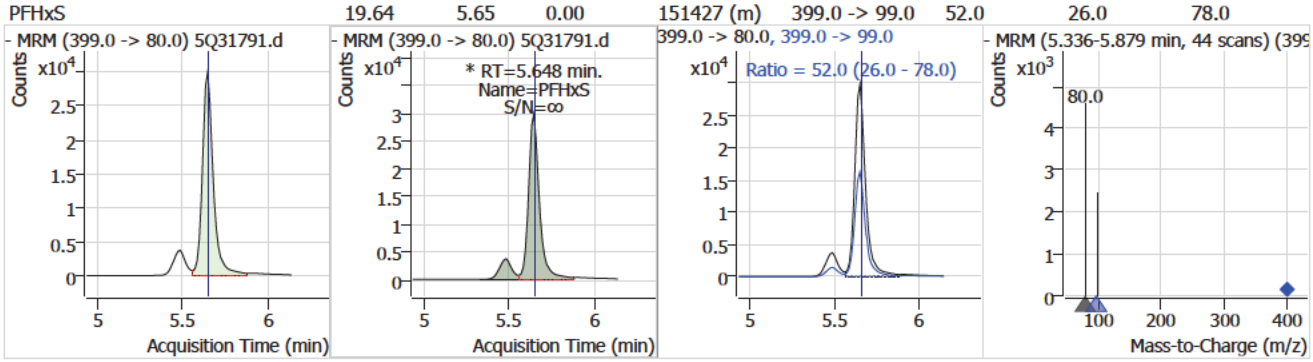
7

Perfluorinated Compounds by LC/MS/MS

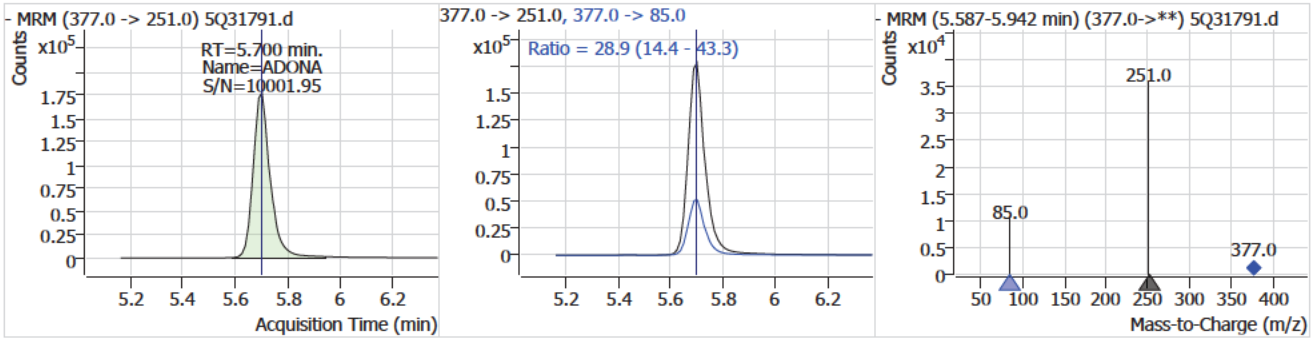
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.12	5.61	0.00	620646	363.0 -> 169.0	6.1	3.0	9.1



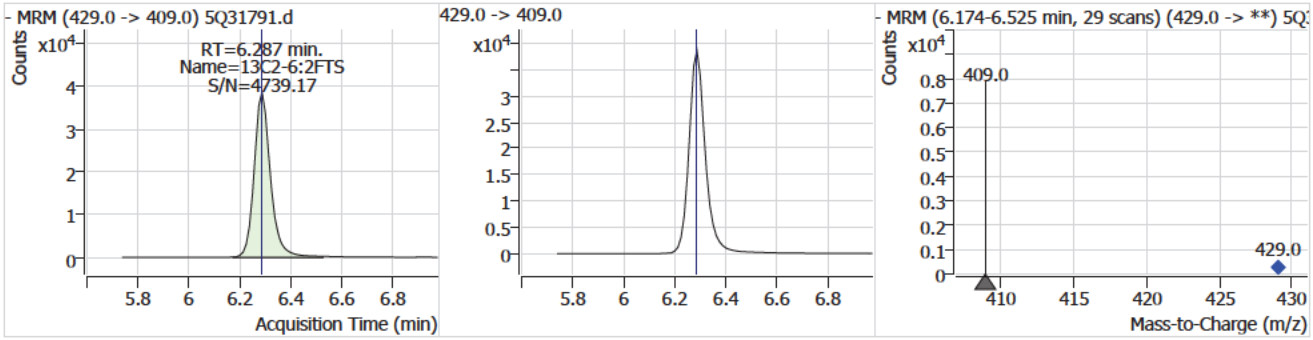
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.64	5.65	0.00	151427 (m)	399.0 -> 99.0	52.0	26.0	78.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.20	5.70	0.00	805271	377.0 -> 85.0	28.9	14.4	43.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	172115				

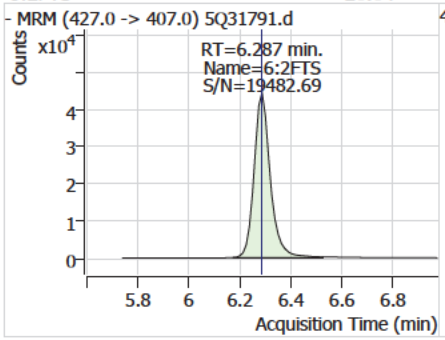


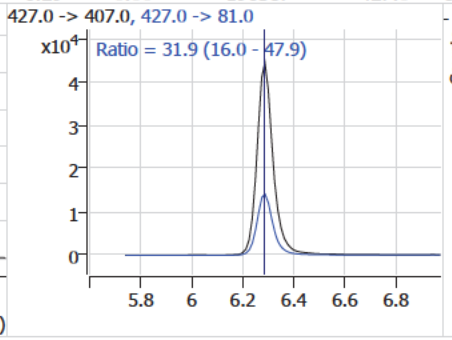
7.7.39

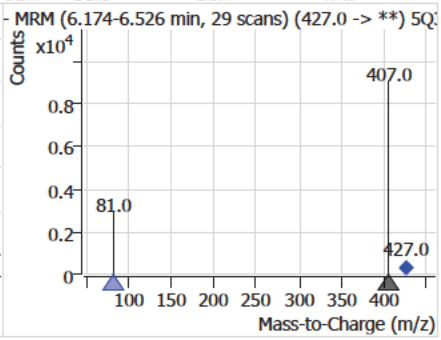
7

Perfluorinated Compounds by LC/MS/MS

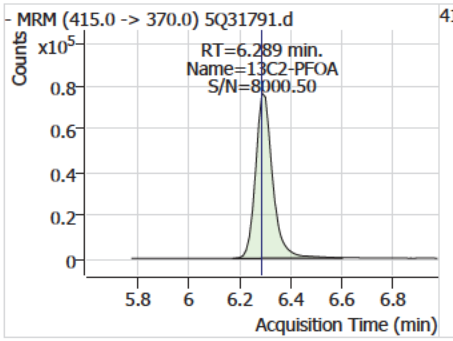
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	20.04	6.29	0.00	196387	427.0 -> 81.0	31.9	16.0	47.9

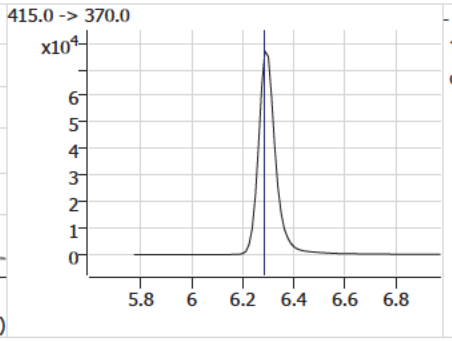


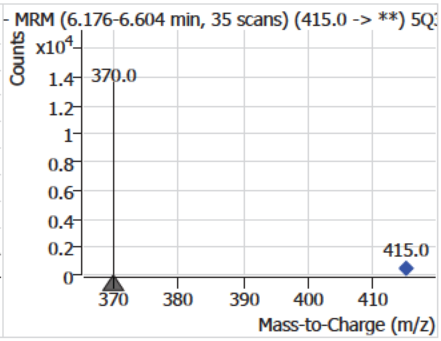




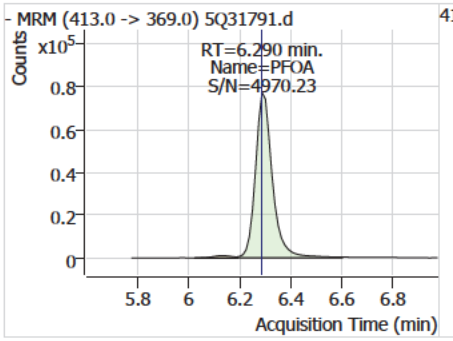
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	359027				

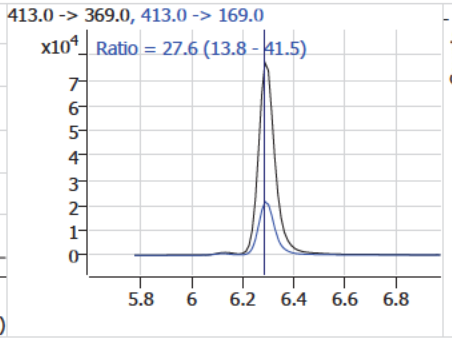


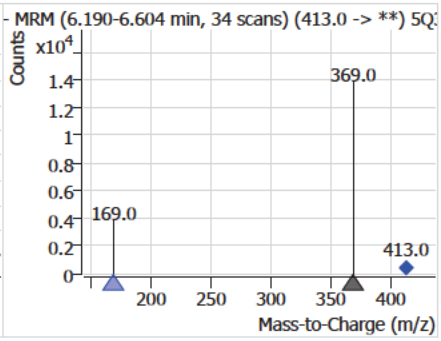




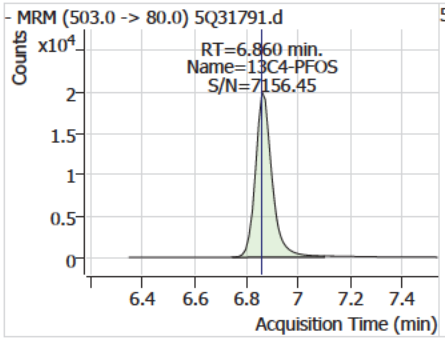
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.67	6.29	0.00	355415	413.0 -> 169.0	27.6	13.8	41.5

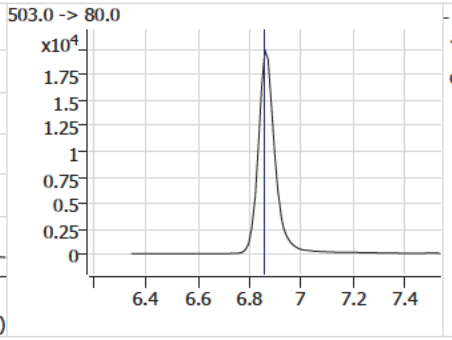


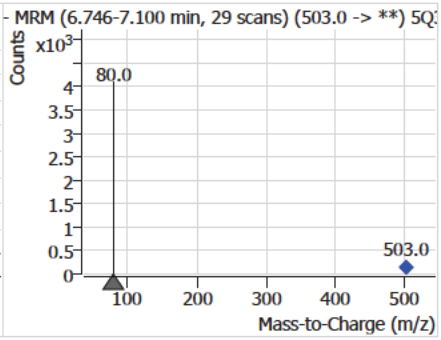




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	88668				

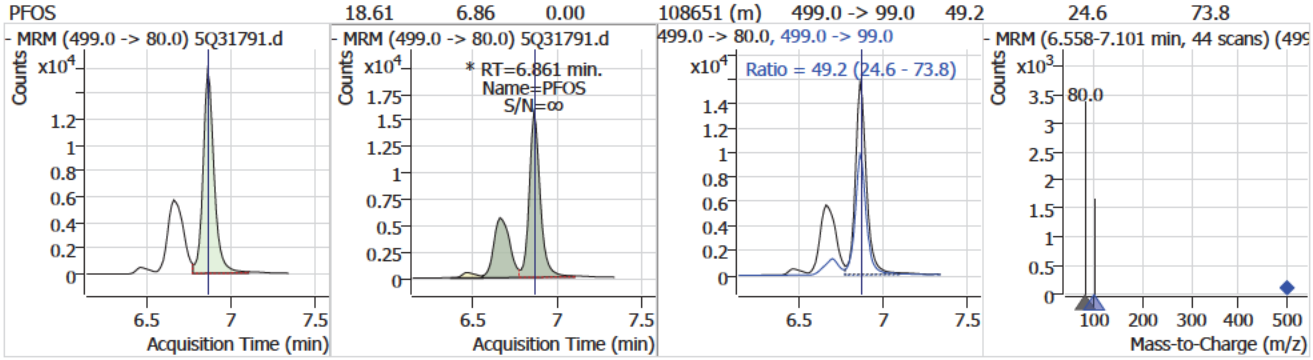




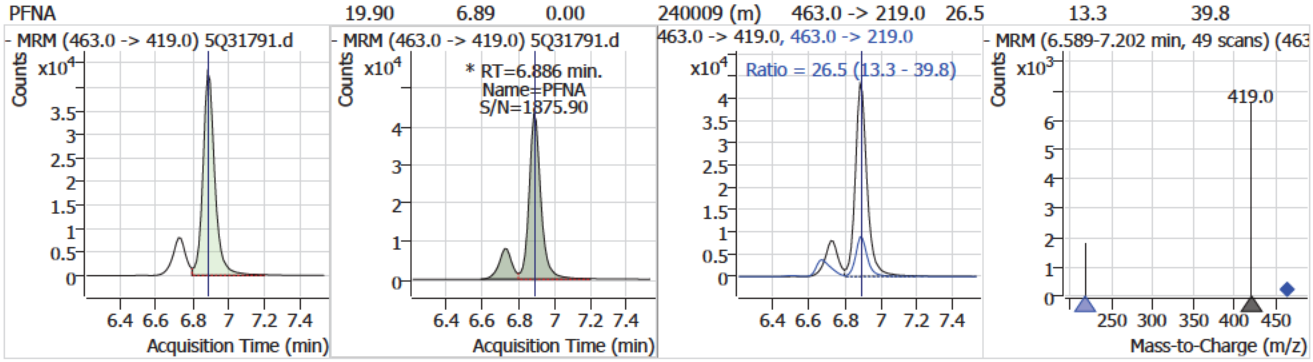


Perfluorinated Compounds by LC/MS/MS

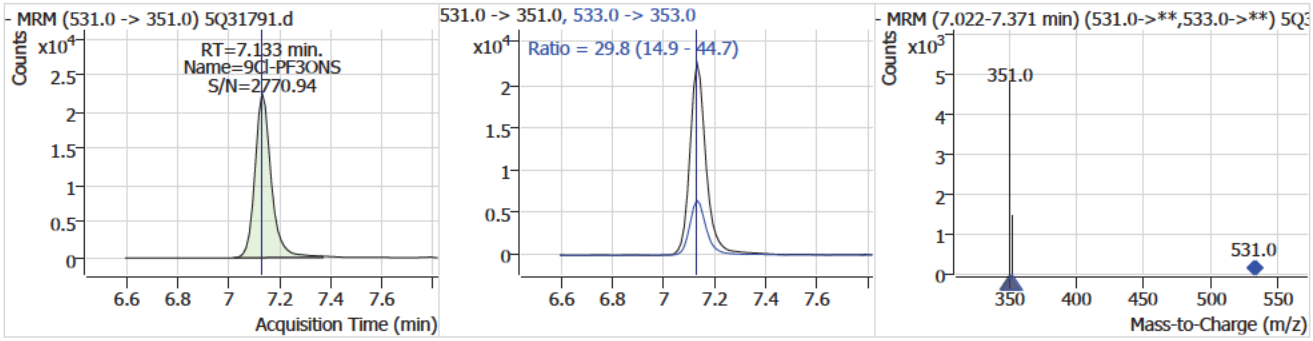
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.61	6.86	0.00	108651 (m)	499.0 -> 99.0	49.2	24.6	73.8



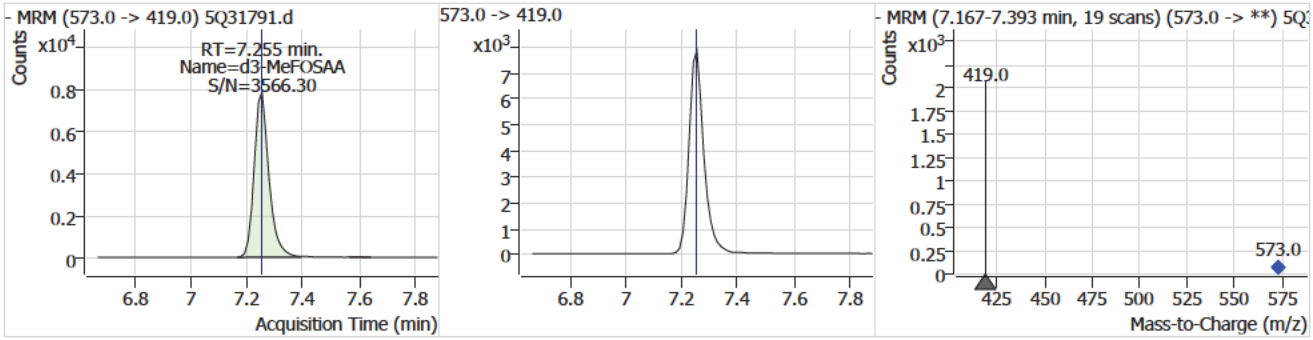
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.90	6.89	0.00	240009 (m)	463.0 -> 219.0	26.5	13.3	39.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	20.15	7.13	0.00	99157	533.0 -> 353.0	29.8	14.9	44.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	28678				



7.7.39

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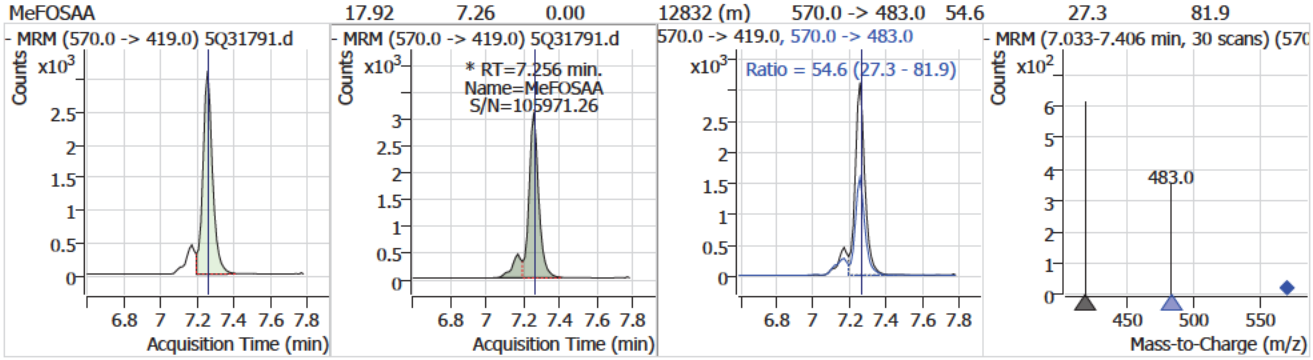
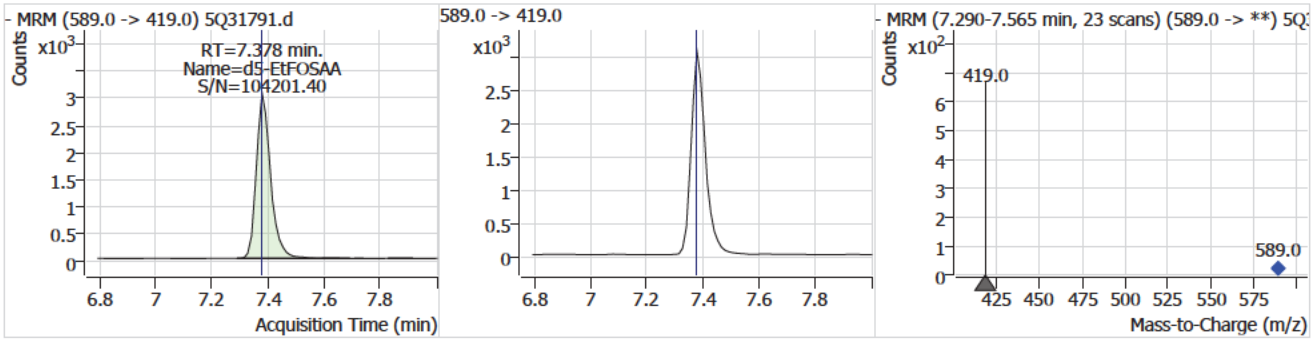
Perfluorinated Compounds by LC/MS/MS

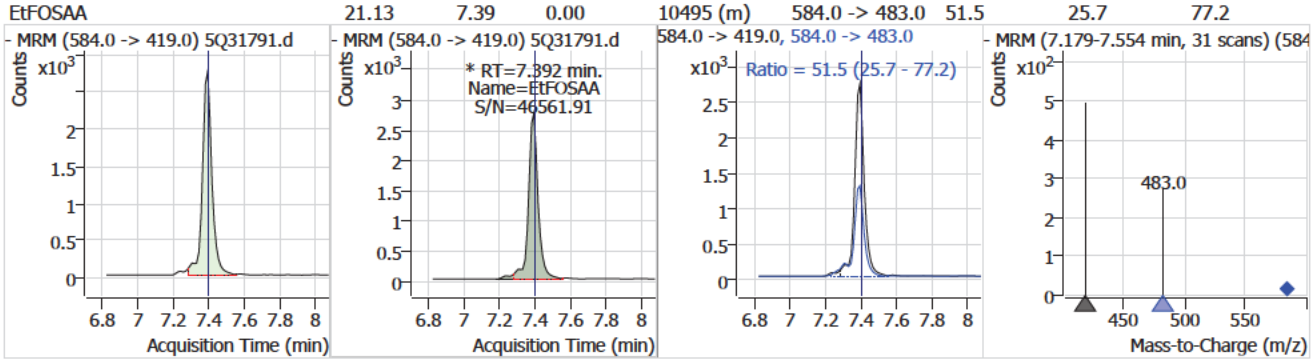
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	17.92	7.26	0.00	12832 (m)	570.0 -> 483.0	54.6	27.3	81.9



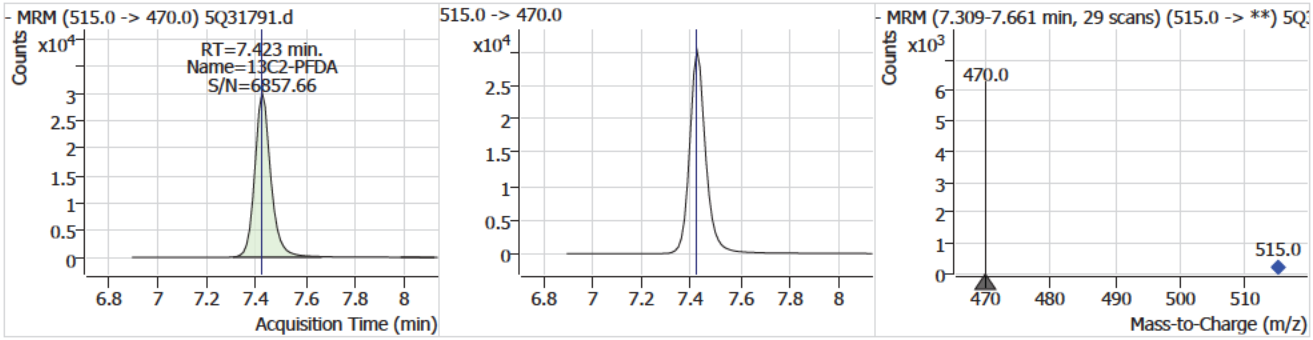
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	19.73	7.38	0.00	10773				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	21.13	7.39	0.00	10495 (m)	584.0 -> 483.0	51.5	25.7	77.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	9.16	7.42	0.00	135541				



7.7.39

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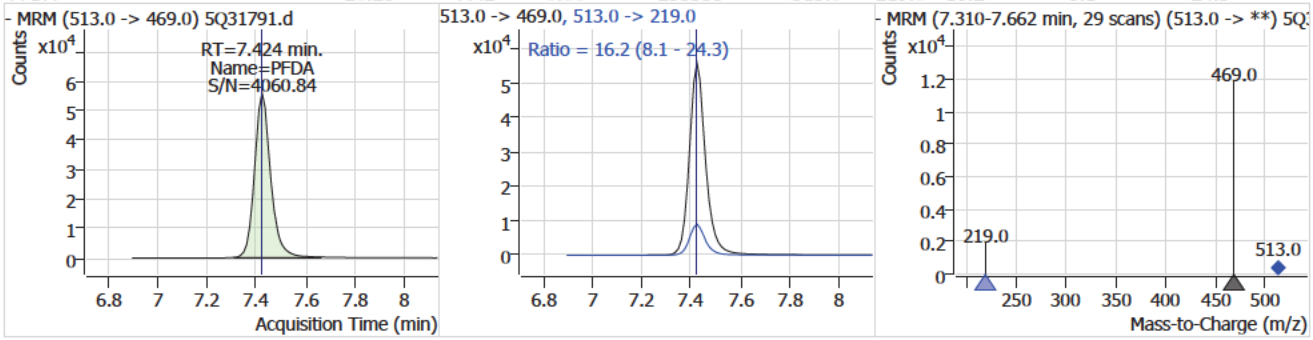
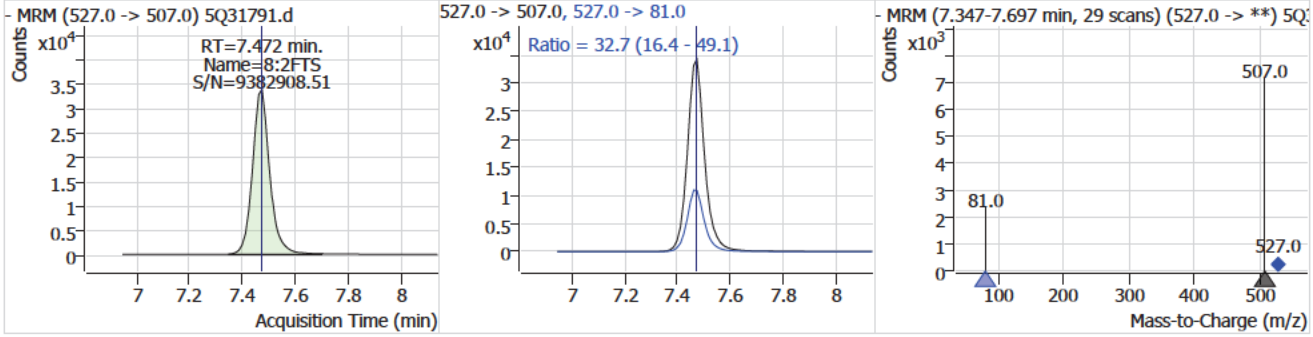
Perfluorinated Compounds by LC/MS/MS

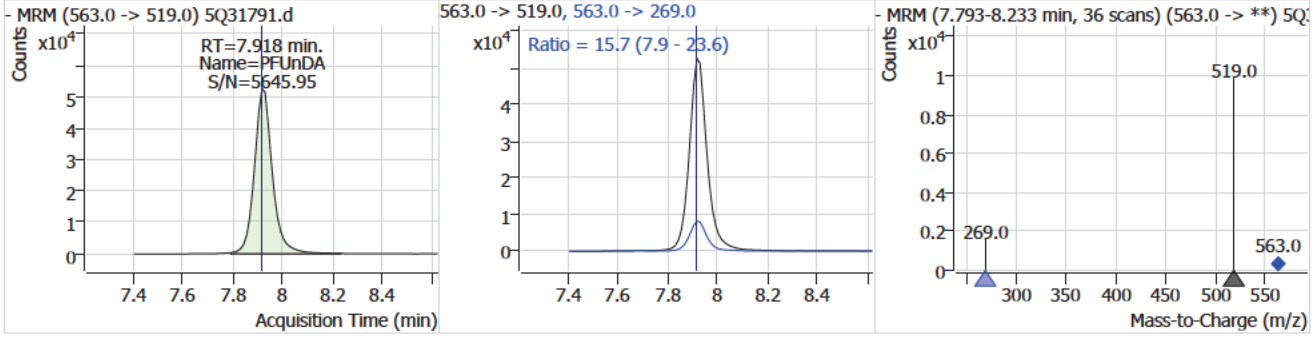
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.28	7.42	0.00	255358	513.0 -> 219.0	16.2	8.1	24.3



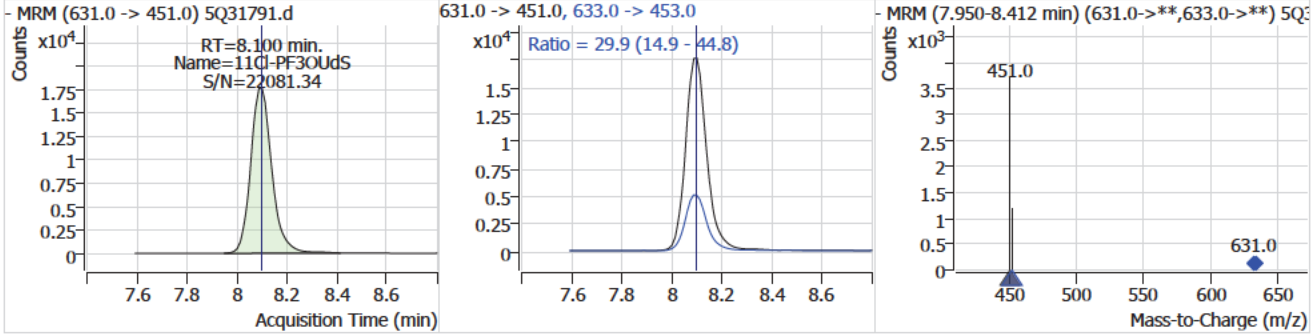
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.75	7.47	0.00	153843	527.0 -> 81.0	32.7	16.4	49.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.25	7.92	0.00	262550	563.0 -> 269.0	15.7	7.9	23.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	20.54	8.10	0.00	104604	633.0 -> 453.0	29.9	14.9	44.8

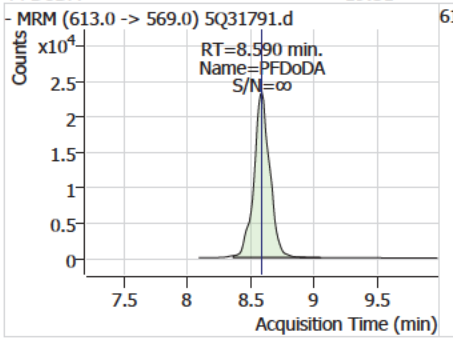


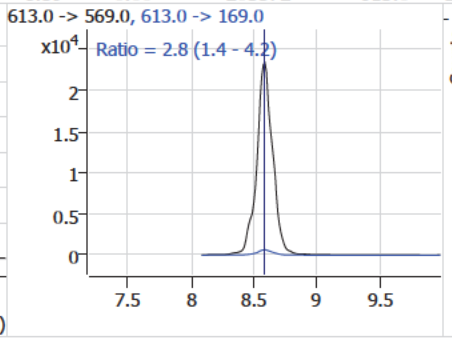
7.7.39

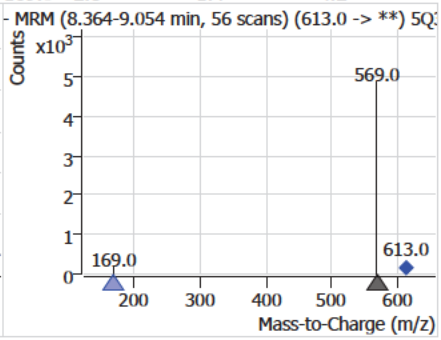
7

Perfluorinated Compounds by LC/MS/MS

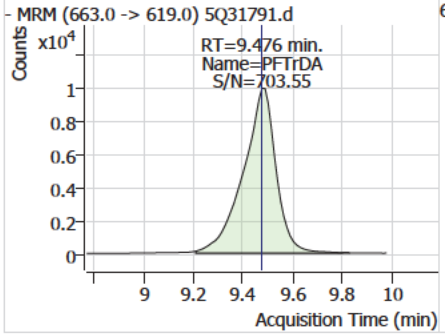
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.51	8.59	0.00	203572	613.0 -> 169.0	2.8	1.4	4.2

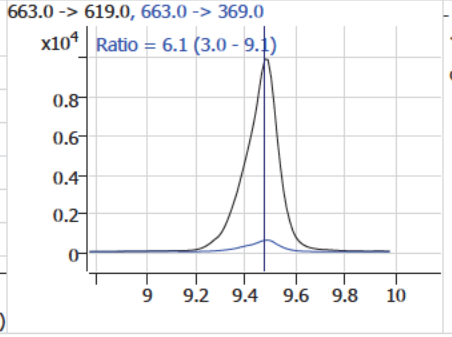


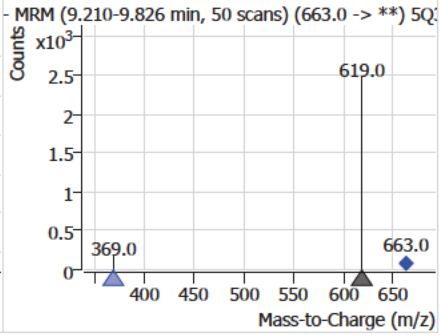




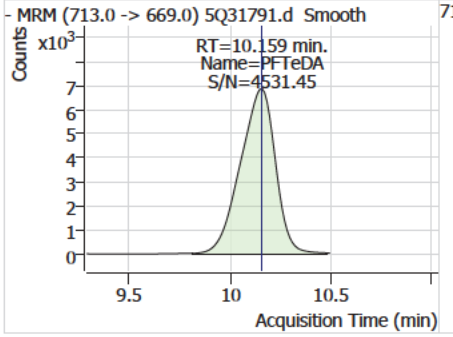
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	15.36	9.48	0.00	90248	663.0 -> 369.0	6.1	3.0	9.1

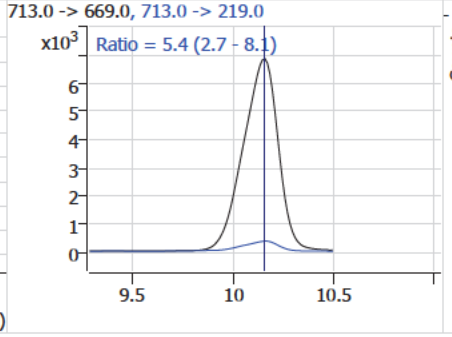


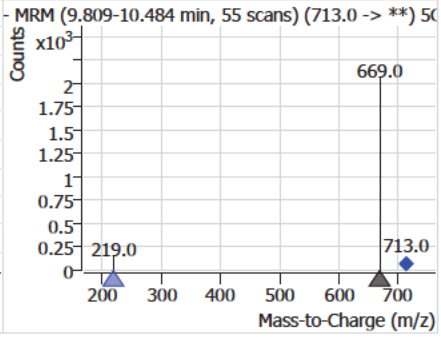




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.76	10.16	0.00	83150	713.0 -> 219.0	5.4	2.7	8.1







Manual Integration Approval Summary

Sample Number: S5Q522-ICC522
Lab FileID: 5Q31791.D
Injection Time: 04/16/25 13:21
Method: EPA 537.1 REV 2.0
Analyst approved: 04/17/25 07:52 (b) (6) [redacted]
Supervisor approved: 04/17/25 09:03 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 09:03

Perfluorinated Compounds by LC/MS/MS

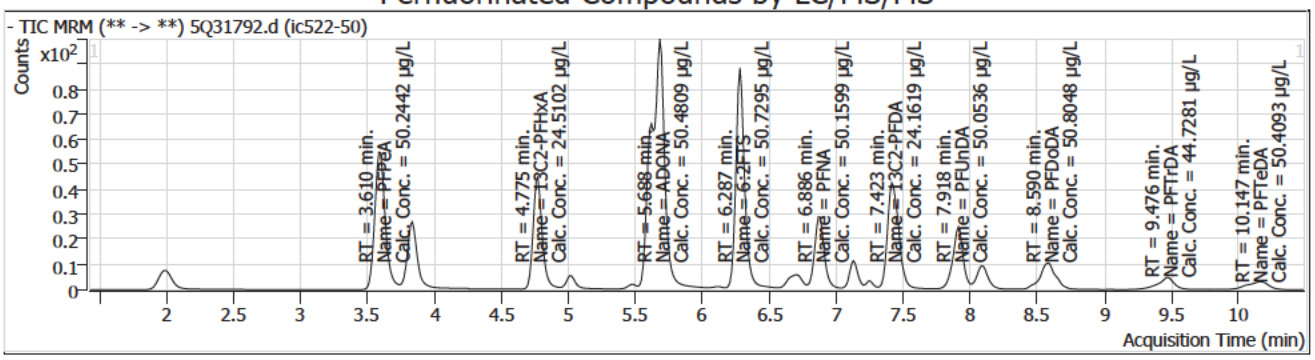
Data File : 5Q31792.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/16/2025 1:37:13 PM
Sample Name : ic522-50
Vial : P1-A8
DA Method File : 537_041625_S5Q522.quantmethod
Batch Name : s5q522.batch.bin
Sample Information : OP8882,S5Q522,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.287	429.0 -> 409.0	171577	20.00 µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	332539	20.00 µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	461540	20.00 µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	82542	20.00 µg/L		0.000
d3-MeFOSAA	7.255	573.0 -> 419.0	26814	40.00 µg/L		0.000
System Monitoring Compounds						
13C2-PFDA	7.423	515.0 -> 470.0	331220	24.16 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 120.8%		
13C2-PFHxA	4.775	315.0 -> 270.0	550892	24.51 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 122.6%		
d5-EtFOSAA	7.378	589.0 -> 419.0	27198	51.80 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 129.5%		
13C3-HFPO-DA	5.032	287.0 -> 169.0	73086	46.32 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 115.8%		
Target Compounds						QValue
6:2FTS	6.287	427.0 -> 407.0	466242	50.73 µg/L		99
8:2FTS	7.459	527.0 -> 507.0	369763	52.45 µg/L		100
EtFOSAA	7.392	584.0 -> 419.0	23726	51.10 µg/L	m	95
MeFOSAA	7.256	570.0 -> 419.0	31437	46.96 µg/L	m	96
PFBS	3.841	299.0 -> 80.0	606215	51.34 µg/L		99
PFDA	7.424	513.0 -> 469.0	598603	49.84 µg/L		98
PFDoDA	8.590	613.0 -> 569.0	550248	50.80 µg/L		100
PFHpA	5.614	363.0 -> 319.0	1481014	49.88 µg/L		100
PFHxA	4.777	313.0 -> 269.0	746677	50.14 µg/L		99
PFHxS	5.648	399.0 -> 80.0	374528	50.26 µg/L	m	99
PFNA	6.886	463.0 -> 419.0	582021	50.16 µg/L	m	100
PFOA	6.290	413.0 -> 369.0	806761	49.69 µg/L		98
PFOS	6.861	499.0 -> 80.0	257307	47.36 µg/L	m	99
PFPeA	3.610	263.0 -> 219.0	1484493	50.24 µg/L		100
PFTeDA	10.147	713.0 -> 669.0	215434	50.41 µg/L		99
PFTrDA	9.476	663.0 -> 619.0	244669	44.73 µg/L		100
PFUnDA	7.918	563.0 -> 519.0	635441	50.05 µg/L		100
ADONA	5.688	377.0 -> 251.0	1979960	50.48 µg/L		99
9Cl-PF3ONS	7.133	531.0 -> 351.0	242666	49.85 µg/L		100
11Cl-PF3OUdS	8.087	631.0 -> 451.0	262918	49.90 µg/L		98
HFPO-DA	5.035	285.0 -> 169.0	69625	49.40 µg/L		100

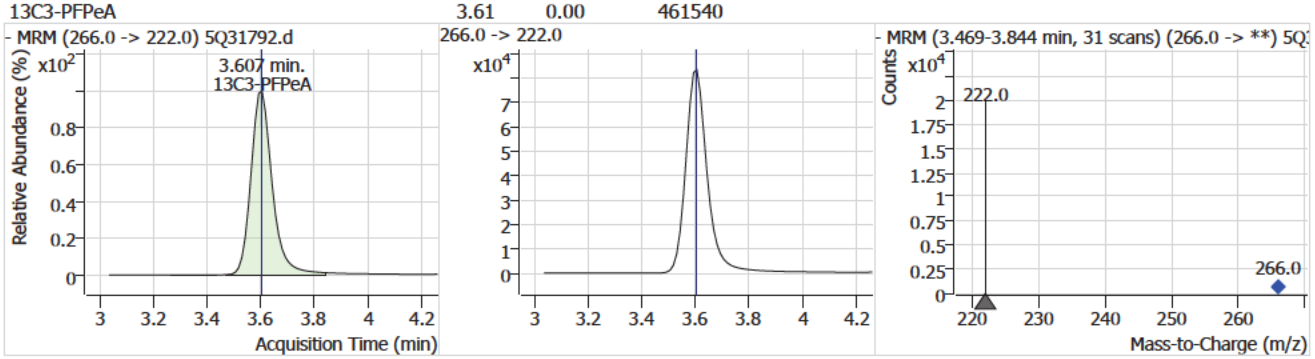
= Qualifier out of range, m = manually integrated, + = Area summed

7.7.40 7

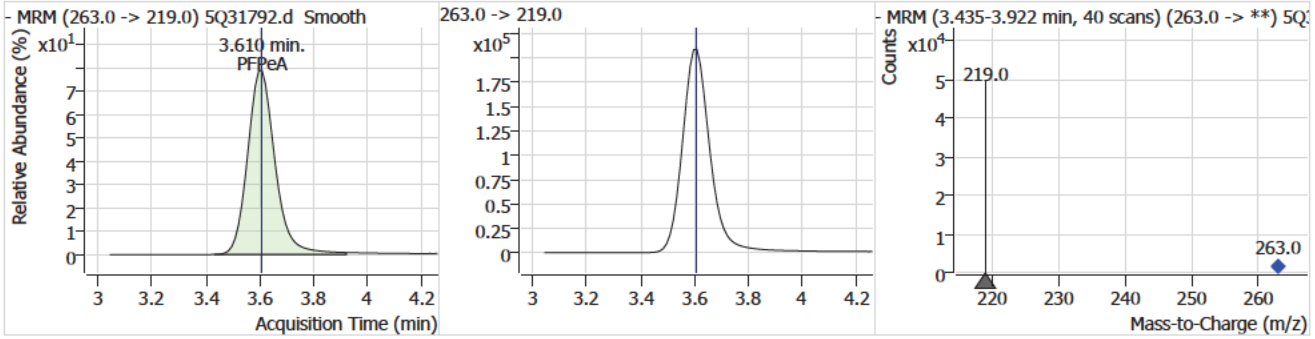
Perfluorinated Compounds by LC/MS/MS



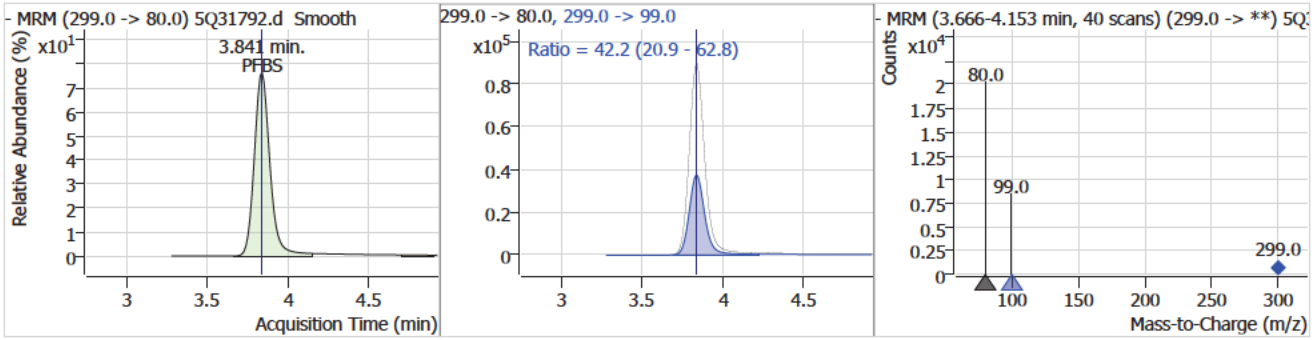
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.00	461540				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	50.24	3.61	0.00	1484493				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	51.34	3.84	0.00	606215	299.0 -> 99.0	42.2	20.9	62.8



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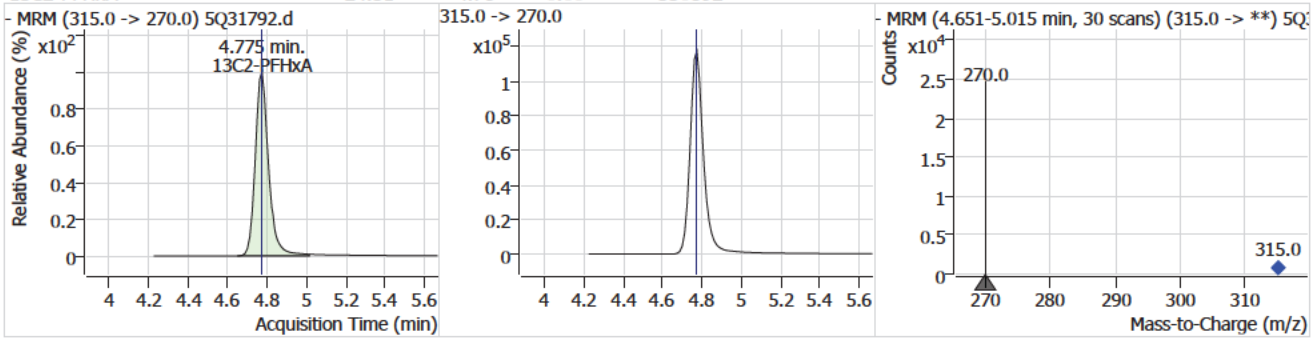
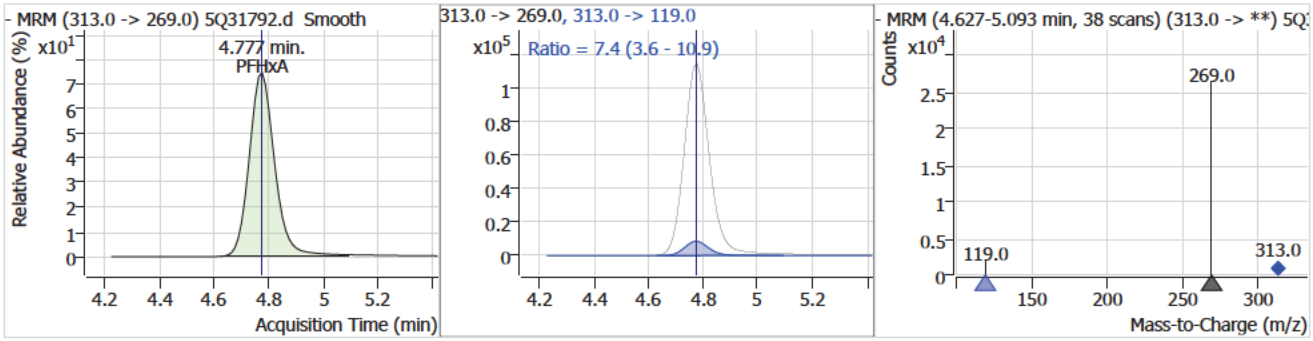
Perfluorinated Compounds by LC/MS/MS

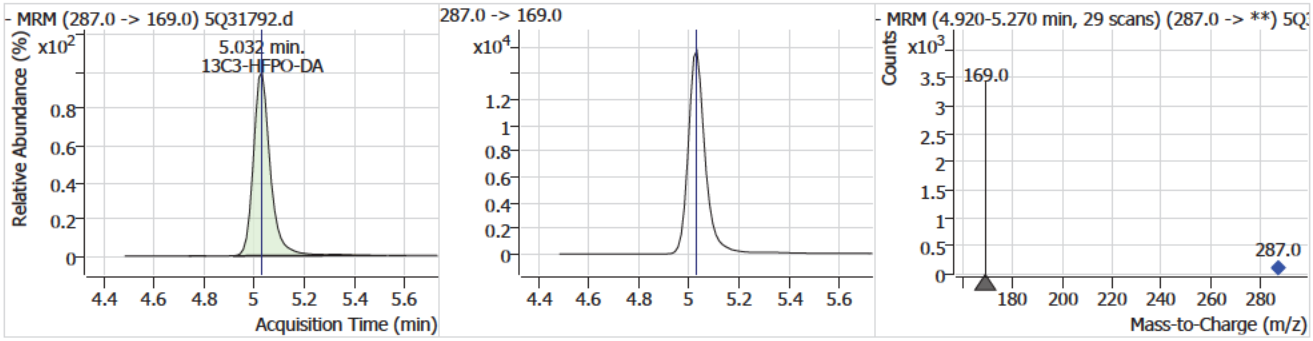
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	24.51	4.78	0.00	550892				



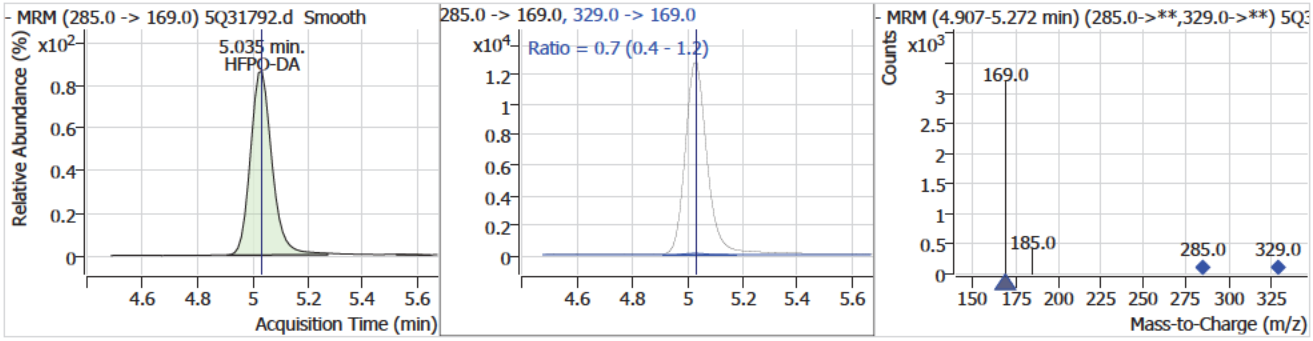
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	50.14	4.78	0.00	746677	313.0 -> 119.0	7.4	3.6	10.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	46.32	5.03	0.00	73086				

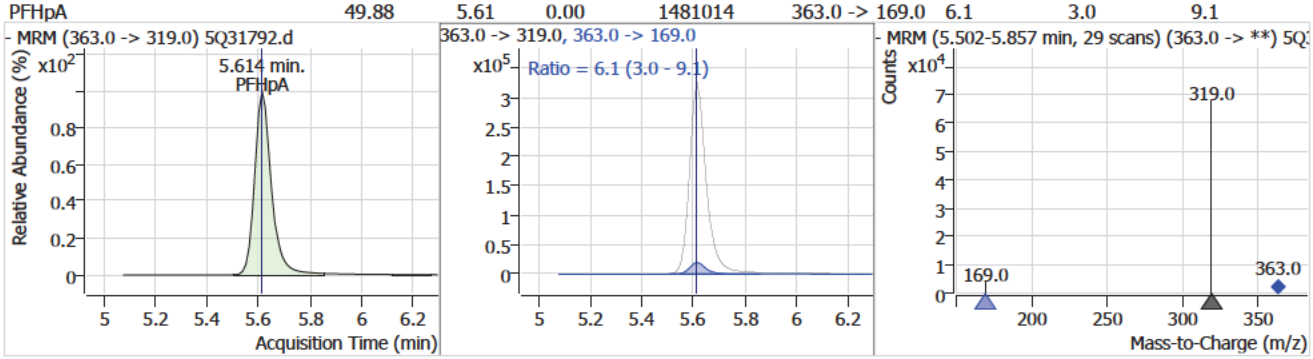


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	49.40	5.03	0.00	69625	329.0 -> 169.0	0.7	0.4	1.2

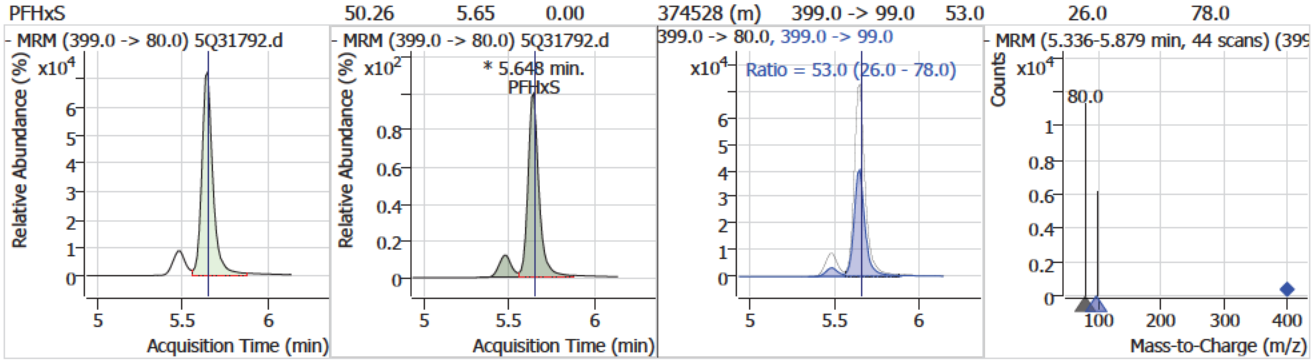


Perfluorinated Compounds by LC/MS/MS

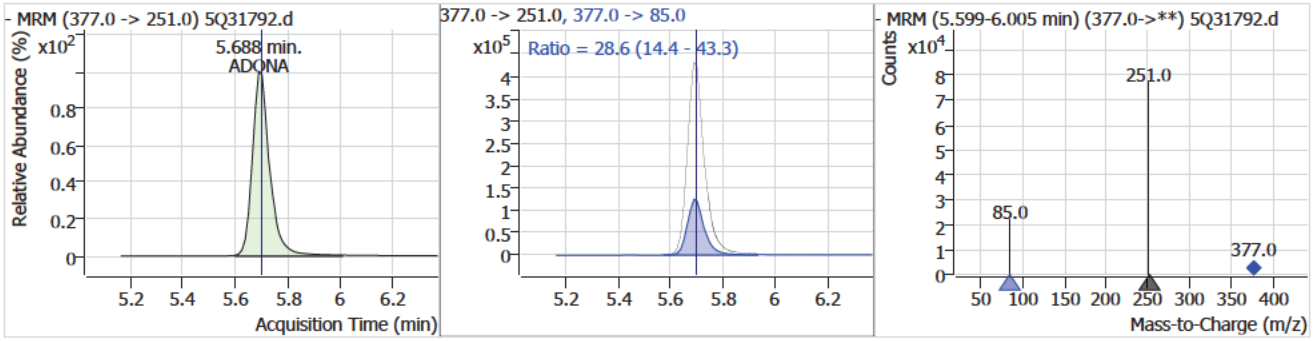
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	49.88	5.61	0.00	1481014	363.0 -> 169.0	6.1	3.0	9.1



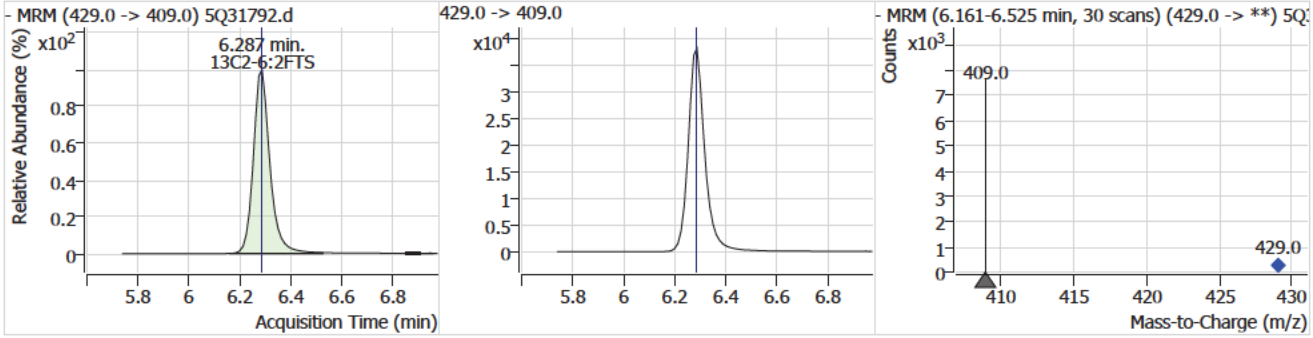
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	50.26	5.65	0.00	374528 (m)	399.0 -> 99.0	53.0	26.0	78.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	50.48	5.69	-0.01	1979960	377.0 -> 85.0	28.6	14.4	43.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	171577				



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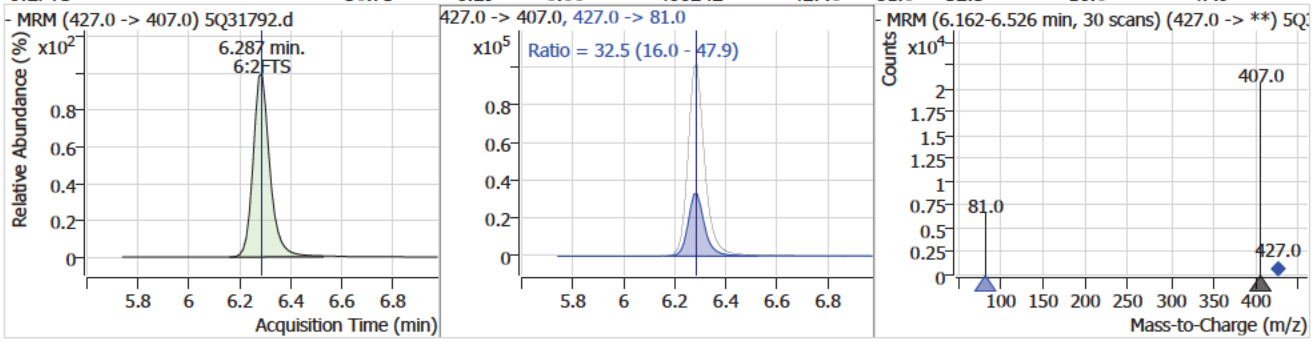
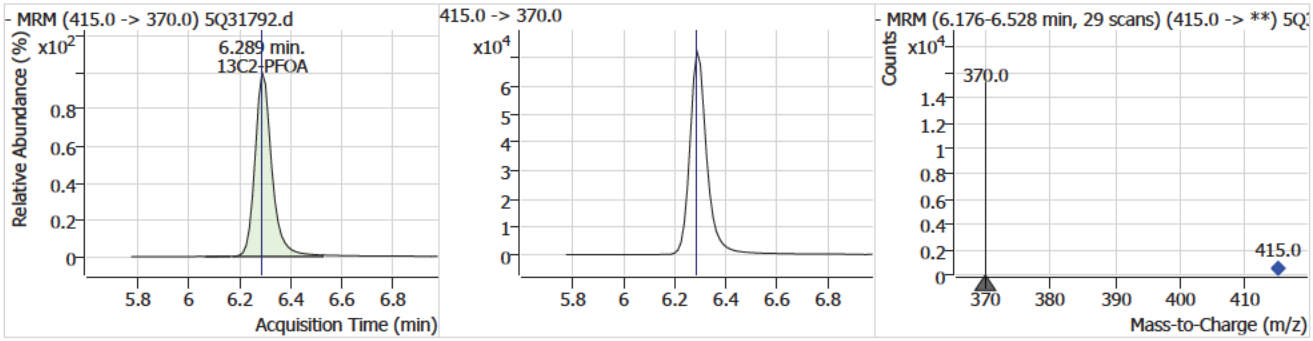
Perfluorinated Compounds by LC/MS/MS

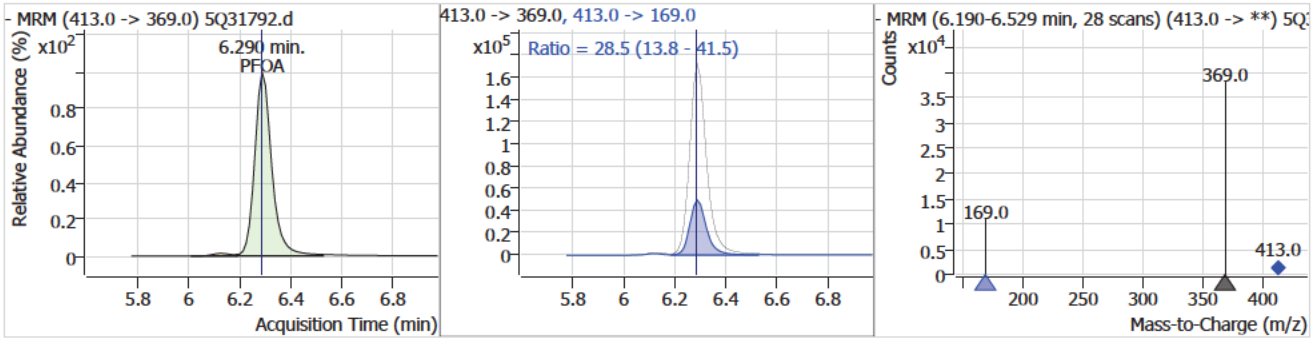
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	50.73	6.29	0.00	466242	427.0 -> 81.0	32.5	16.0	47.9



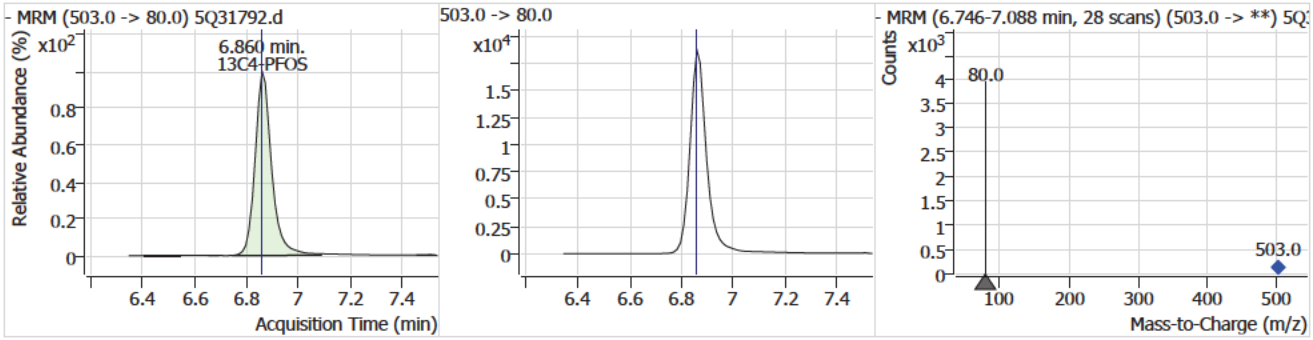
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	332539				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	49.69	6.29	0.00	806761	413.0 -> 169.0	28.5	13.8	41.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	82542				



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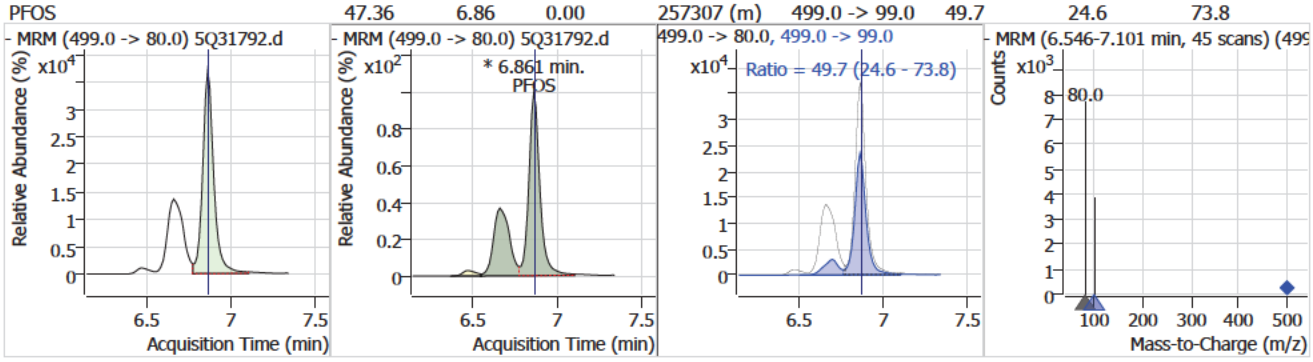
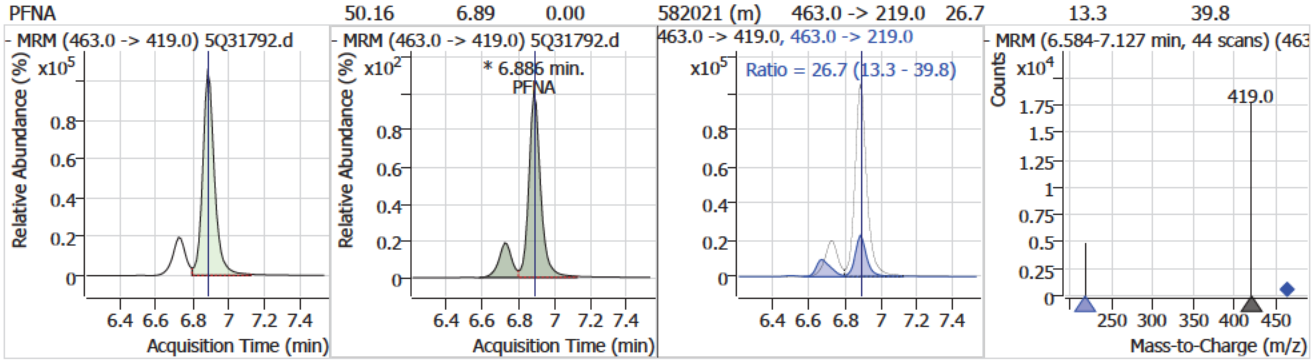
Perfluorinated Compounds by LC/MS/MS

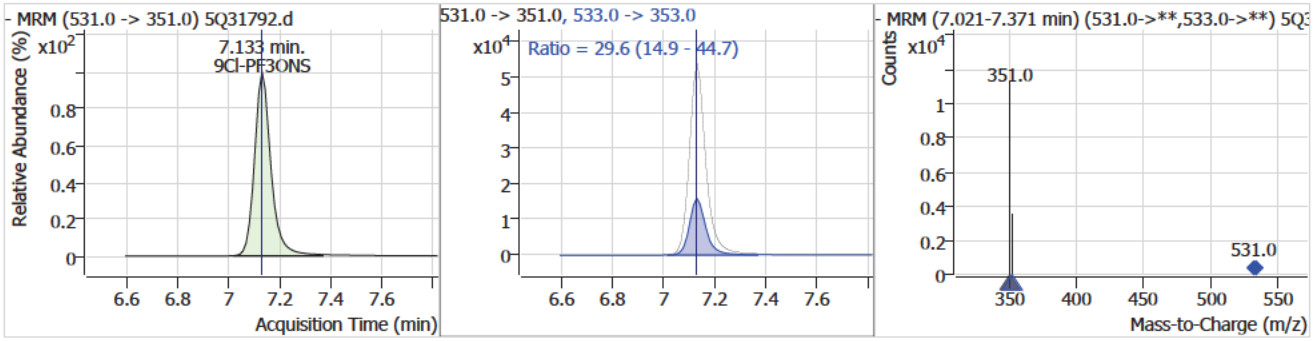
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	47.36	6.86	0.00	257307 (m)	499.0 -> 99.0	49.7	24.6	73.8



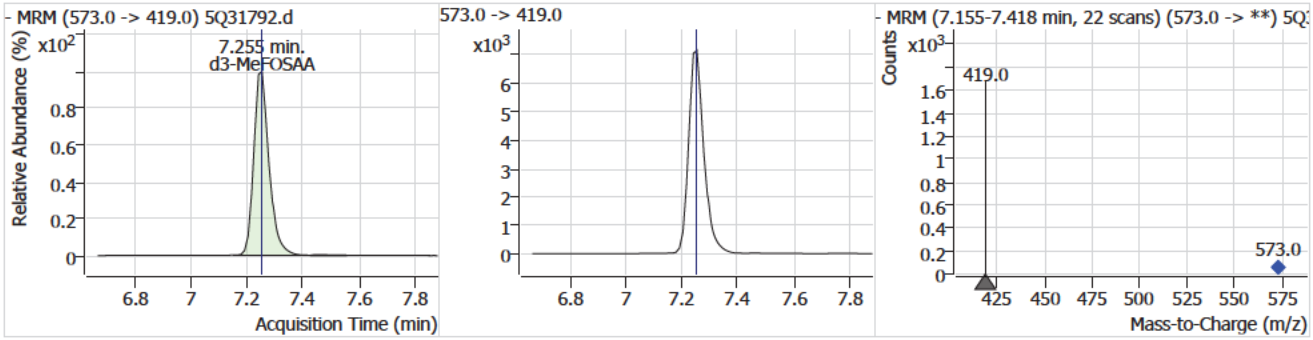
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	50.16	6.89	0.00	582021 (m)	463.0 -> 219.0	26.7	13.3	39.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	49.85	7.13	0.00	242666	533.0 -> 353.0	29.6	14.9	44.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	26814				



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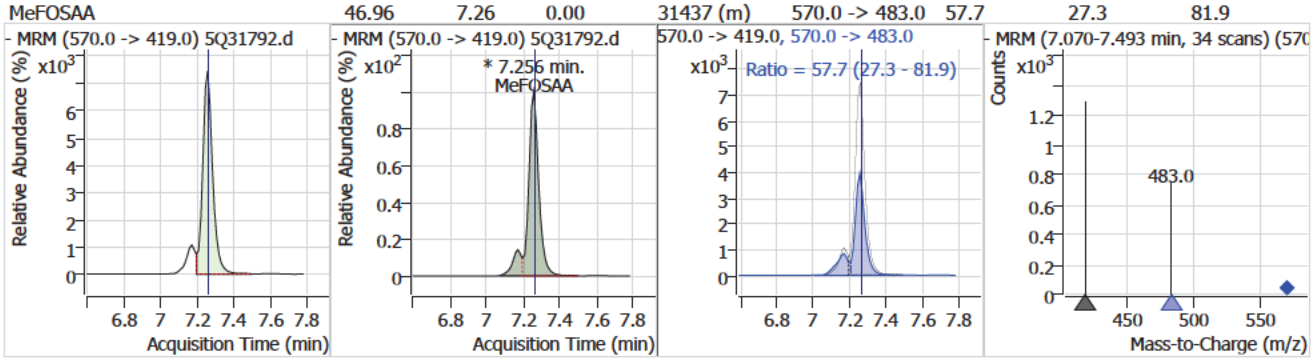
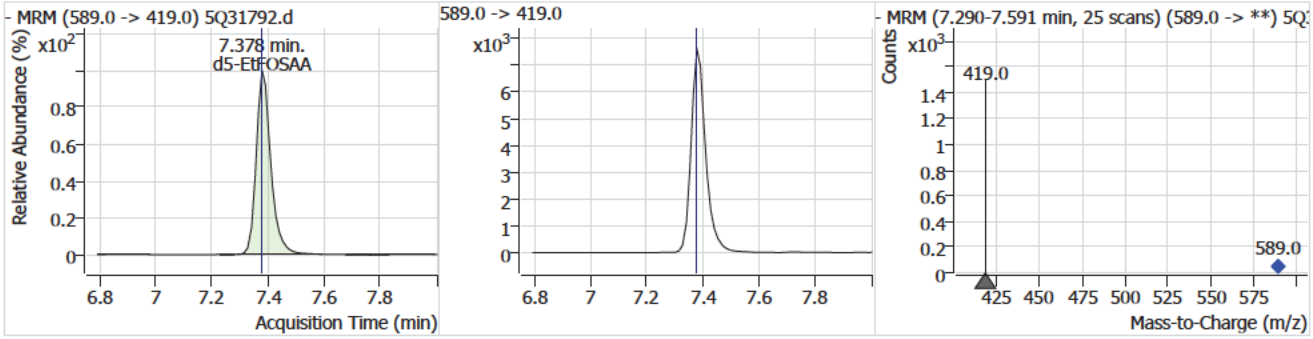
Perfluorinated Compounds by LC/MS/MS

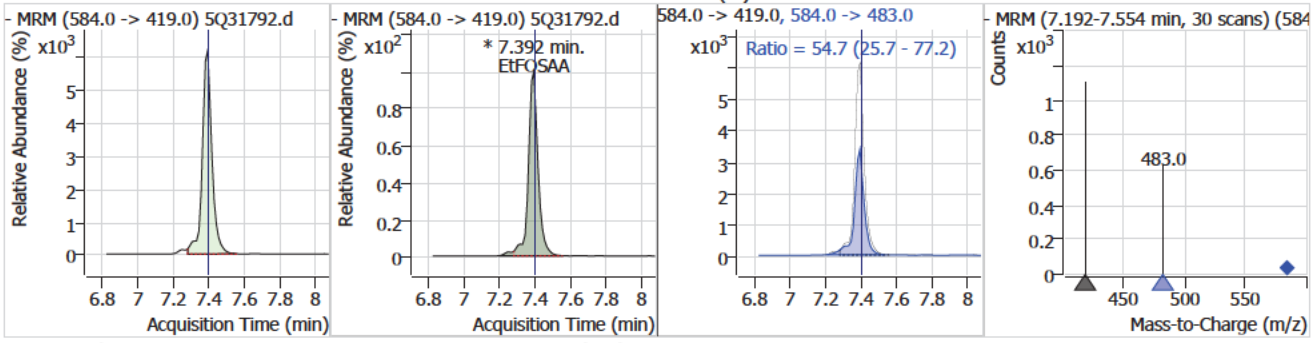
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	46.96	7.26	0.00	31437 (m)	570.0 -> 483.0	57.7	27.3	81.9



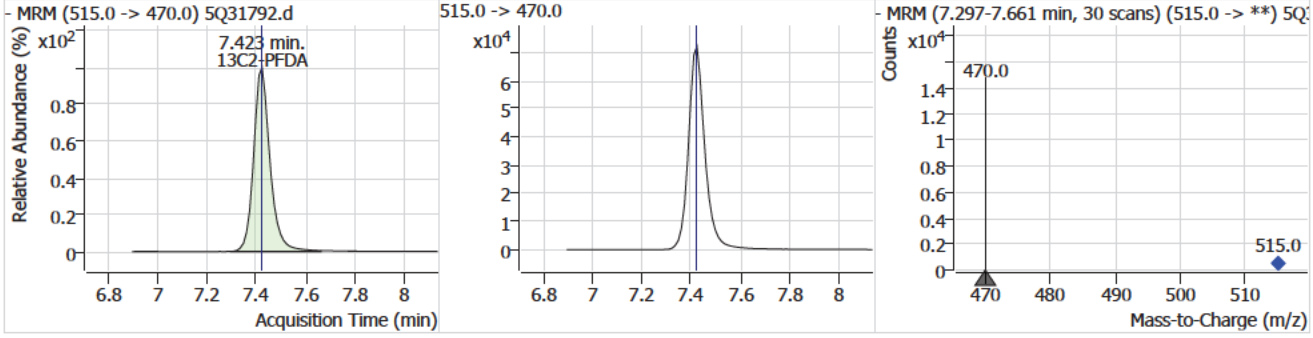
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	51.80	7.38	0.00	27198				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	51.10	7.39	0.00	23726 (m)	584.0 -> 483.0	54.7	25.7	77.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	24.16	7.42	0.00	331220				



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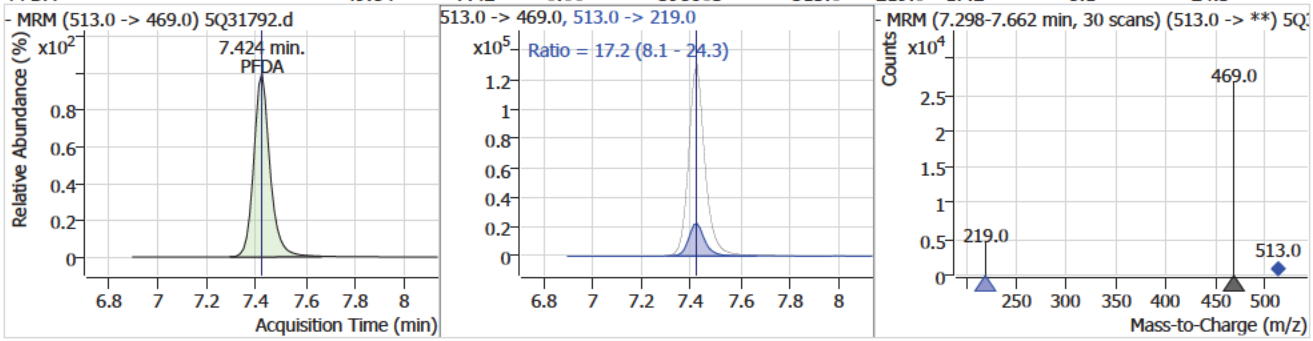
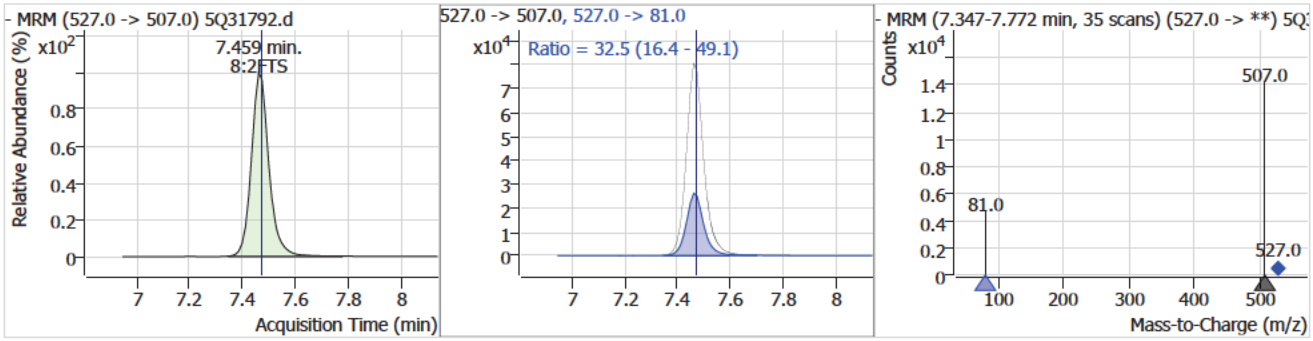
Perfluorinated Compounds by LC/MS/MS

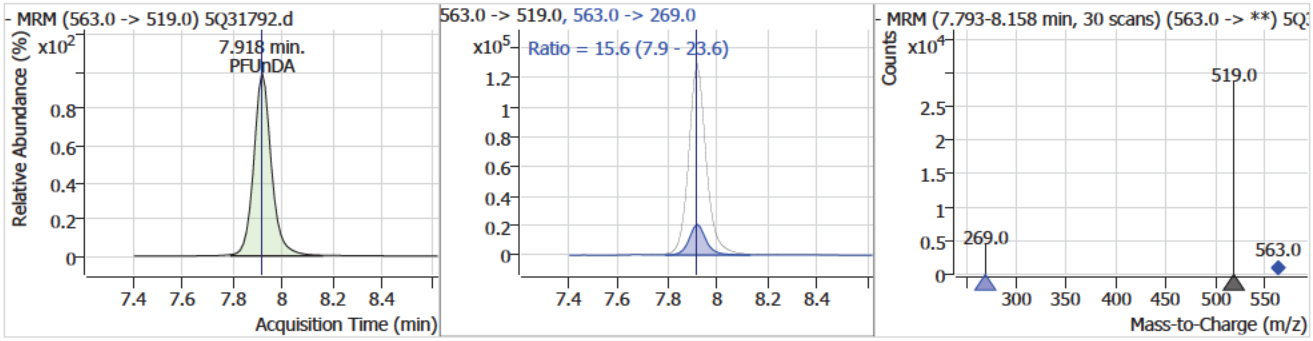
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	49.84	7.42	0.00	598603	513.0 -> 219.0	17.2	8.1	24.3



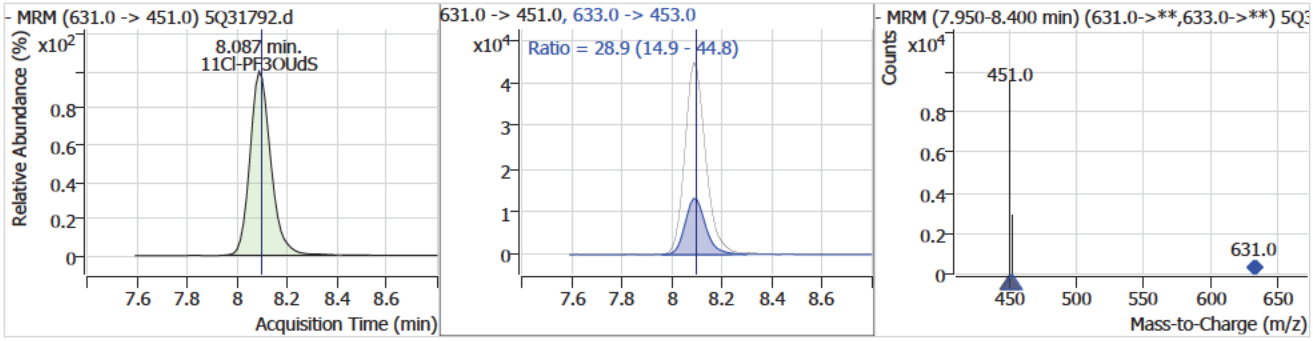
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	52.45	7.46	-0.01	369763	527.0 -> 81.0	32.5	16.4	49.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	50.05	7.92	0.00	635441	563.0 -> 269.0	15.6	7.9	23.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	49.90	8.09	-0.01	262918	633.0 -> 453.0	28.9	14.9	44.8



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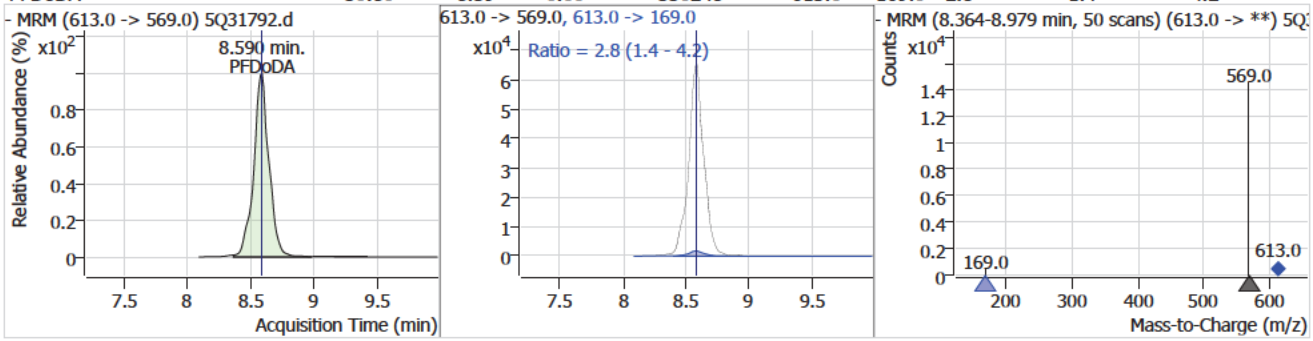
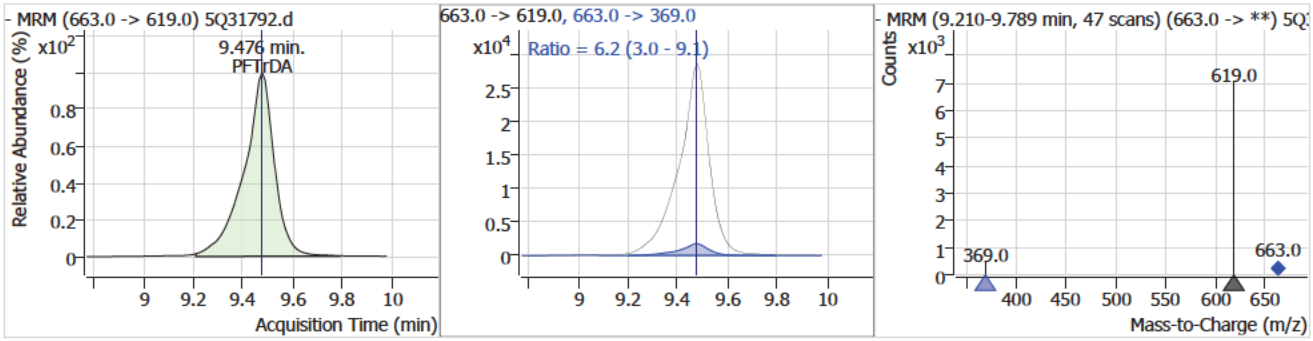
Perfluorinated Compounds by LC/MS/MS

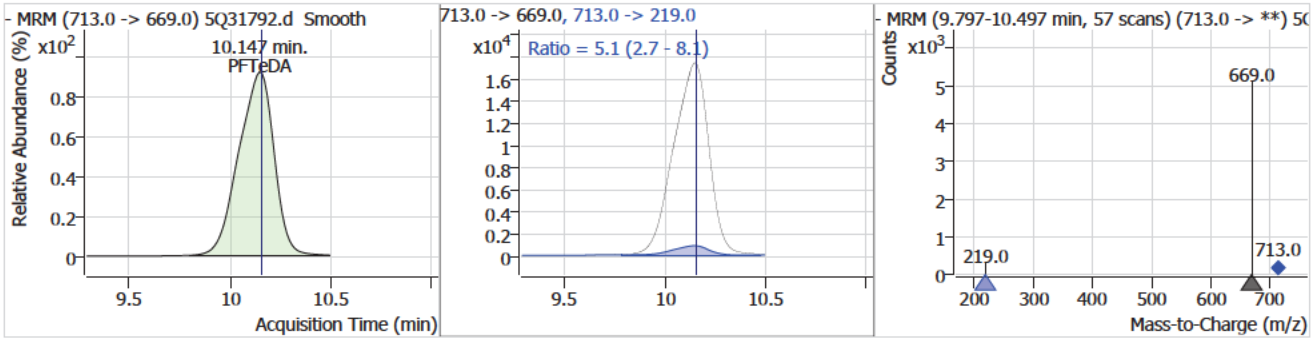
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	50.80	8.59	0.00	550248	613.0 -> 169.0	2.8	1.4	4.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	44.73	9.48	0.00	244669	663.0 -> 369.0	6.2	3.0	9.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	50.41	10.15	-0.01	215434	713.0 -> 219.0	5.1	2.7	8.1



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Manual Integration Approval Summary

Sample Number: S5Q522-IC522
Lab FileID: 5Q31792.D
Injection Time: 04/16/25 13:37
Method: EPA 537.1 REV 2.0
Analyst approved: 04/17/25 07:52 (b) (6)
Supervisor approved: 04/17/25 09:03 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Cal Report: 5Q31793.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 09:03

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31793.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/16/2025 1:53:14 PM
Sample Name : ic522-100
Vial : P1-A9
DA Method File : 537_041625_S5Q522.quantmethod
Batch Name : s5q522.batch.bin
Sample Information : OP8882,S5Q522,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.274	429.0 -> 409.0	206474	20.00 µg/L		-0.012
13C2-PFOA	6.289	415.0 -> 370.0	334868	20.00 µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	489334	20.00 µg/L		-0.012
13C4-PFOS	6.860	503.0 -> 80.0	87012	20.00 µg/L		0.000
d3-MeFOSAA	7.255	573.0 -> 419.0	28267	40.00 µg/L		0.000
System Monitoring Compounds						
13C2-PFDA	7.411	515.0 -> 470.0	699261	50.66 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 253.3%		
13C2-PFHxA	4.763	315.0 -> 270.0	1140113	50.37 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 251.9%		
d5-EtFOSAA	7.378	589.0 -> 419.0	57191	99.24 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 248.1%		
13C3-HFPO-DA	5.019	287.0 -> 169.0	162756	102.42 µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 256.1%		
Target Compounds						QValue
6:2FTS	6.275	427.0 -> 407.0	990176	99.47 µg/L		98
8:2FTS	7.459	527.0 -> 507.0	833926	98.29 µg/L		100
EtFOSAA	7.392	584.0 -> 419.0	48557	99.20 µg/L	m	95
MeFOSAA	7.256	570.0 -> 419.0	72073	102.13 µg/L	m	97
PFBS	3.841	299.0 -> 80.0	1233444	99.08 µg/L		99
PFDA	7.411	513.0 -> 469.0	1269572	100.03 µg/L		97
PFDoDA	8.577	613.0 -> 569.0	1324624	99.87 µg/L		100
PFHpA	5.614	363.0 -> 319.0	3180438	100.02 µg/L		100
PFHxA	4.764	313.0 -> 269.0	1565549	99.85 µg/L		99
PFHxS	5.635	399.0 -> 80.0	831959	99.95 µg/L	m	99
PFNA	6.886	463.0 -> 419.0	1239829	99.97 µg/L	m	97
PFOA	6.290	413.0 -> 369.0	1689583	100.05 µg/L		97
PFOS	6.861	499.0 -> 80.0	582202	101.64 µg/L	m	98
PFPeA	3.597	263.0 -> 219.0	3262207	99.80 µg/L		100
PFTeDA	10.134	713.0 -> 669.0	510576	99.86 µg/L		99
PFTrDA	9.476	663.0 -> 619.0	599035	103.88 µg/L		99
PFUnDA	7.918	563.0 -> 519.0	1370120	102.38 µg/L		100
ADONA	5.688	377.0 -> 251.0	4315827	99.75 µg/L		99
9Cl-PF3ONS	7.133	531.0 -> 351.0	543135	100.03 µg/L		100
11Cl-PF3OUdS	8.087	631.0 -> 451.0	625540	99.99 µg/L		99
HFPO-DA	5.022	285.0 -> 169.0	152996	100.20 µg/L		100

= Qualifier out of range, m = manually integrated, + = Area summed

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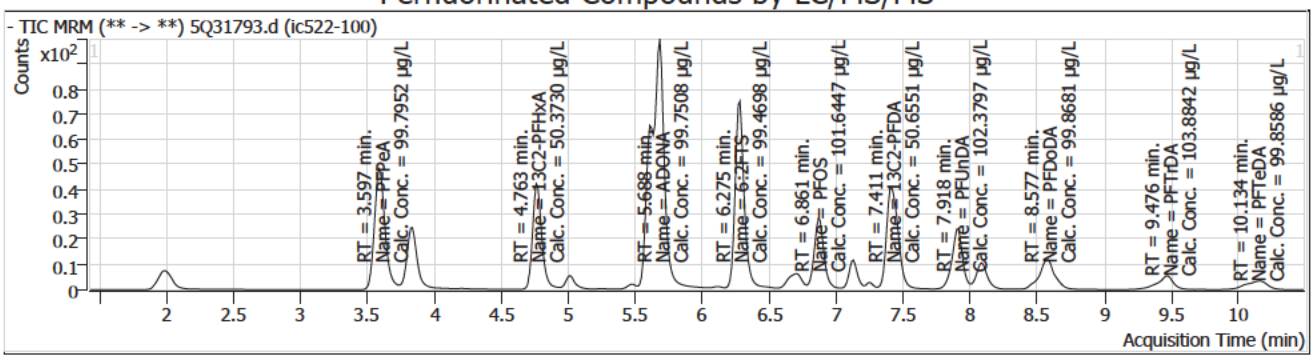
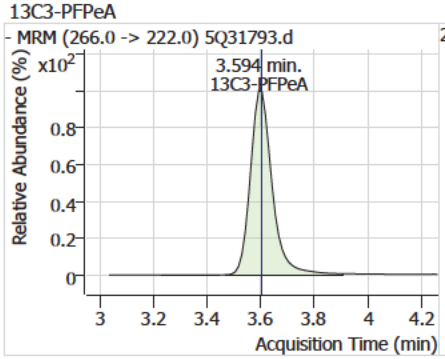
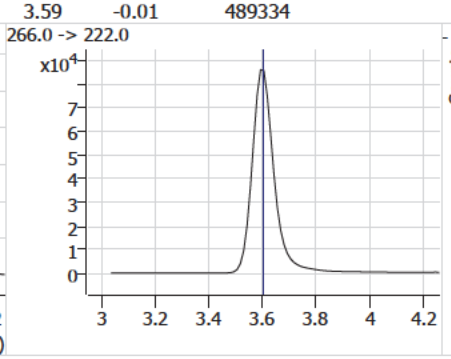
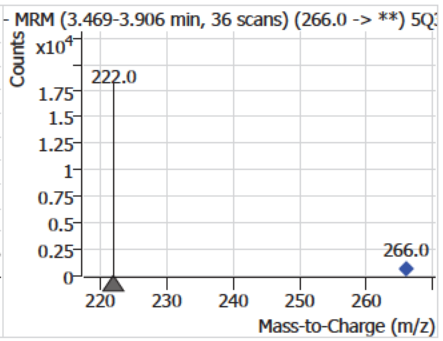
Perfluorinated Compounds by LC/MS/MS



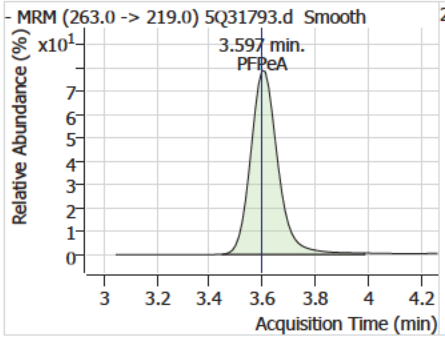
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	489334				

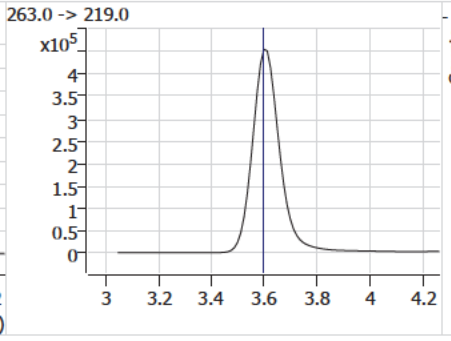


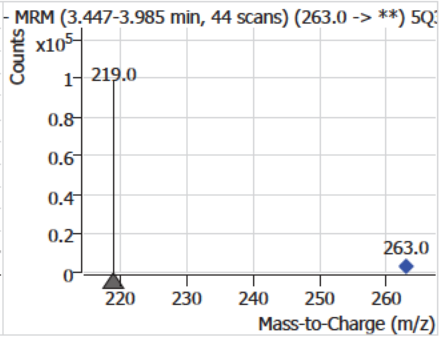




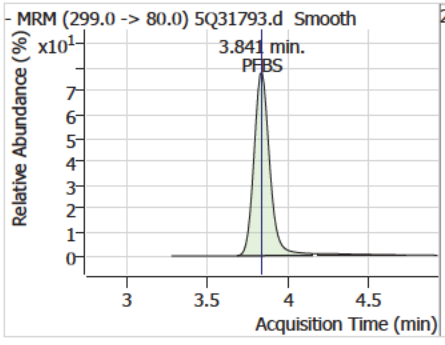
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	99.80	3.60	-0.01	3262207				

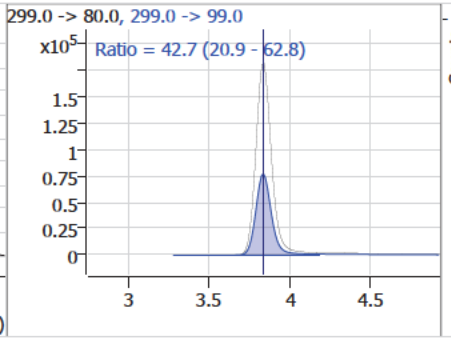


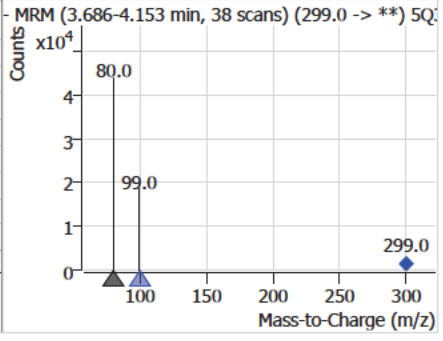




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	99.08	3.84	0.00	1233444	299.0 -> 99.0	42.7	20.9	62.8

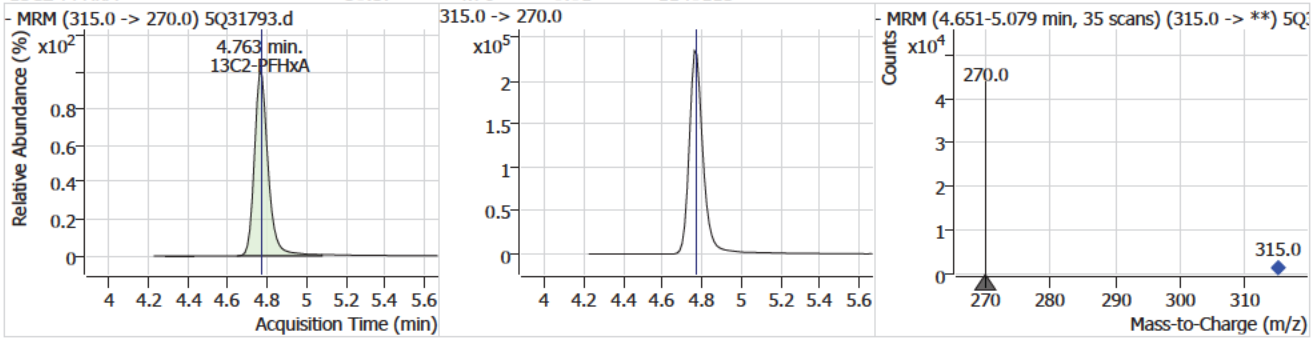




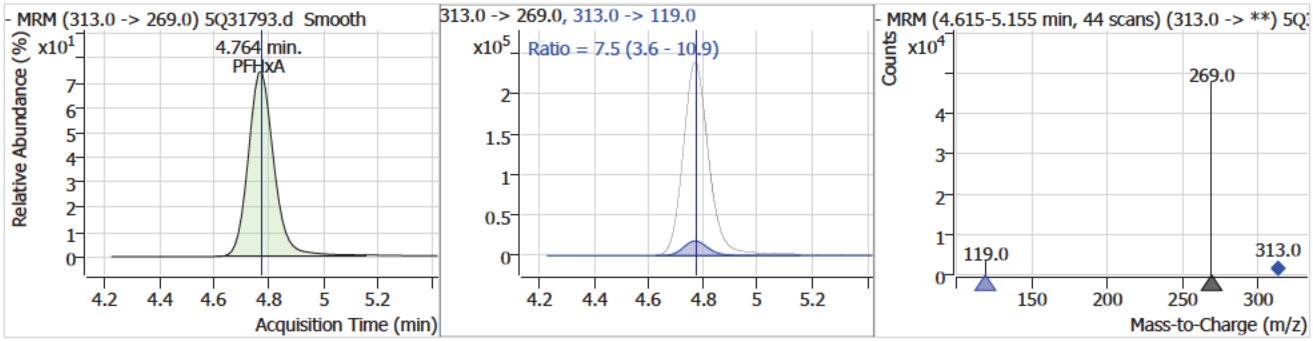


Perfluorinated Compounds by LC/MS/MS

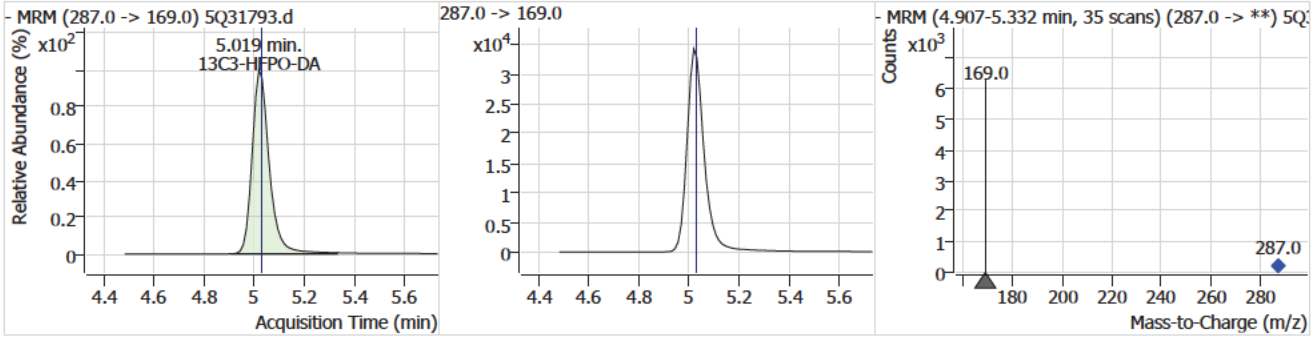
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	50.37	4.76	-0.01	1140113				



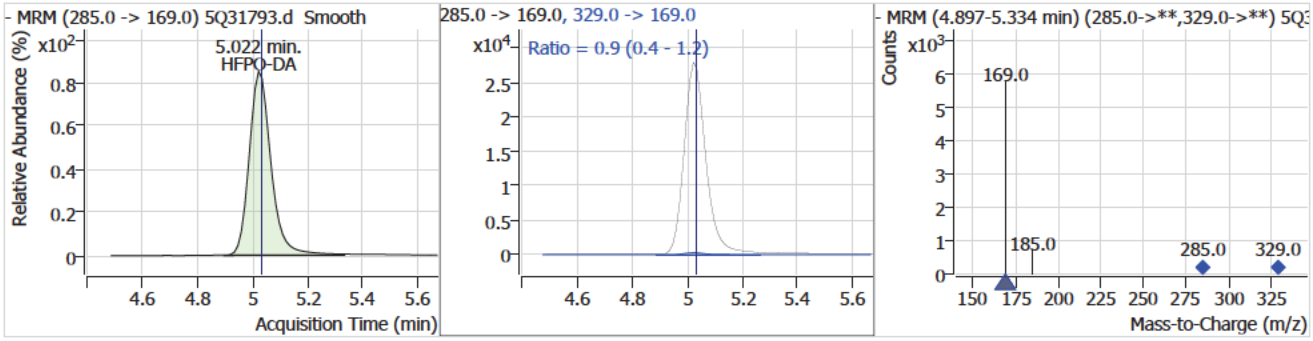
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	99.85	4.76	-0.01	1565549	313.0 -> 119.0	7.5	3.6	10.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	102.42	5.02	-0.01	162756				

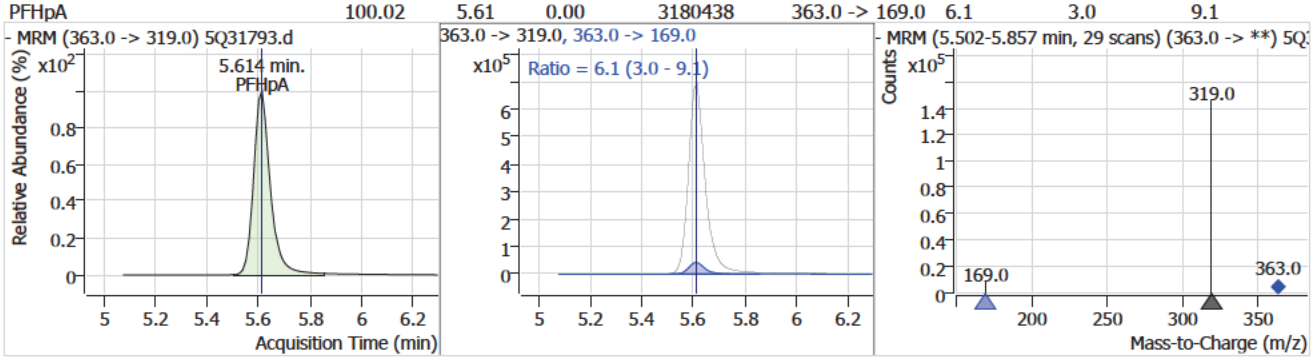


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	100.20	5.02	-0.01	152996	329.0 -> 169.0	0.9	0.4	1.2

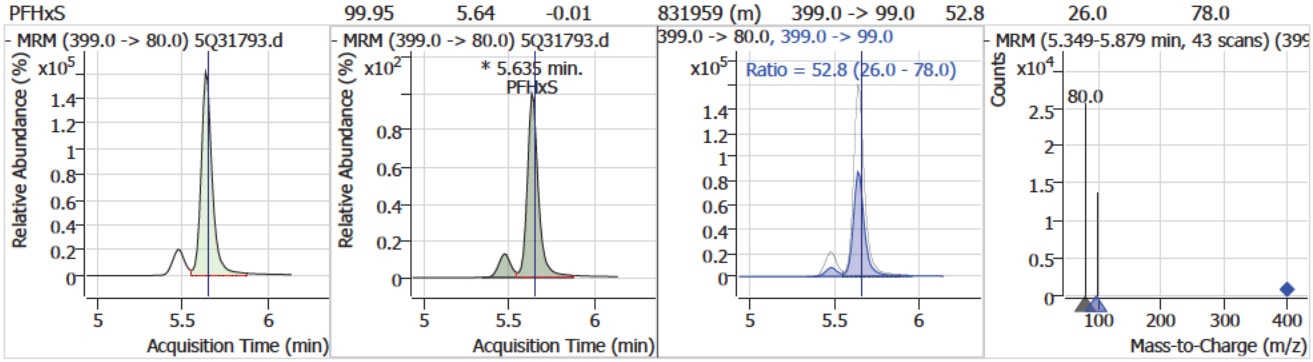


Perfluorinated Compounds by LC/MS/MS

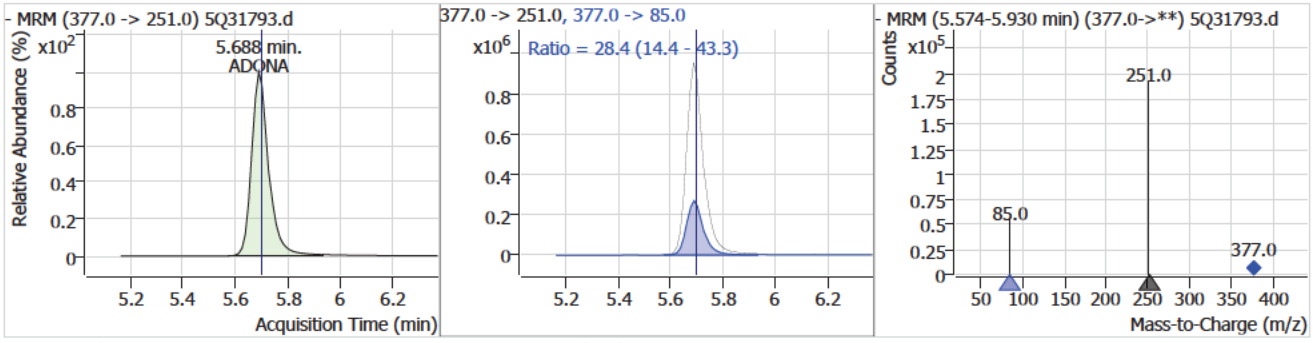
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	100.02	5.61	0.00	3180438	363.0 -> 169.0	6.1	3.0	9.1



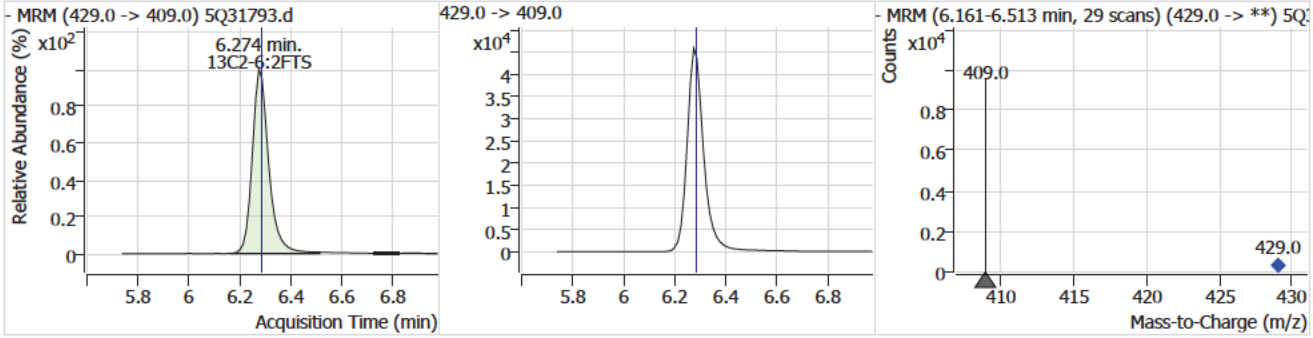
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	99.95	5.64	-0.01	831959 (m)	399.0 -> 99.0	52.8	26.0	78.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	99.75	5.69	-0.01	4315827	377.0 -> 85.0	28.4	14.4	43.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	206474				



7.7.41

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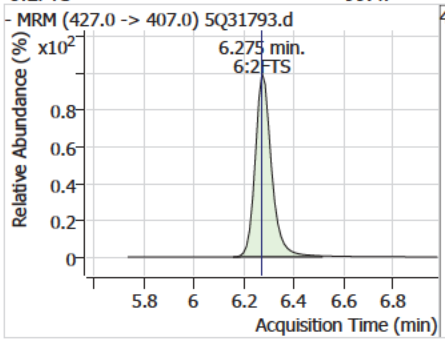
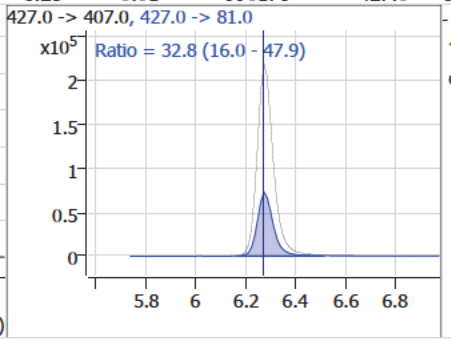
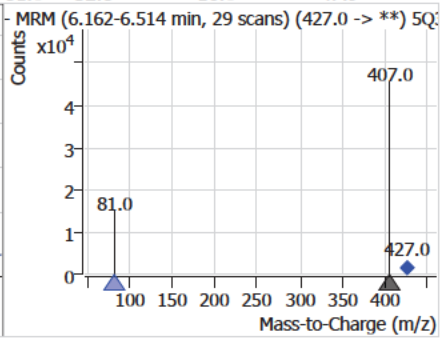
Perfluorinated Compounds by LC/MS/MS

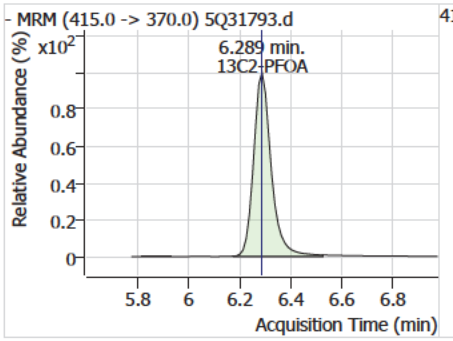
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	99.47	6.28	-0.01	990176	427.0 -> 81.0	32.8	16.0	47.9

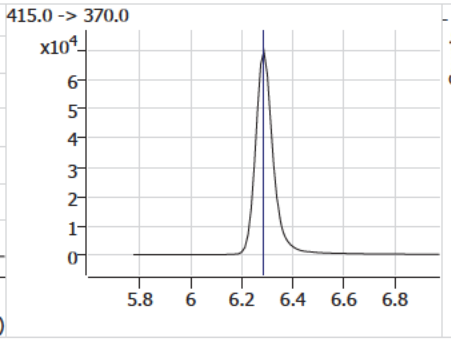


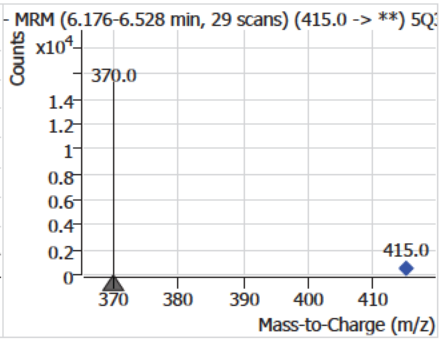




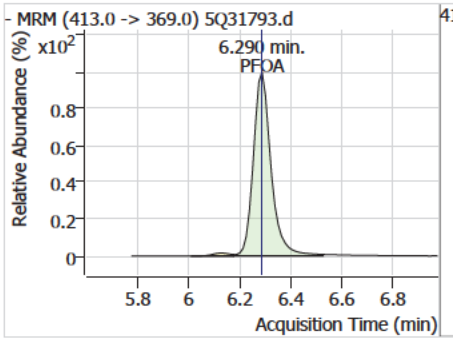
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	334868				

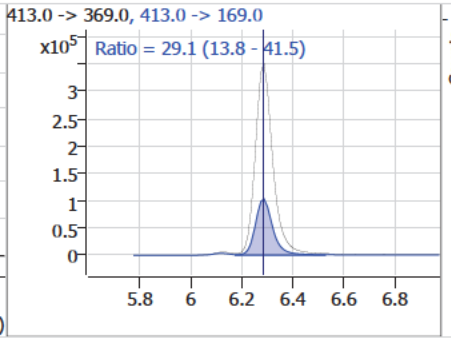


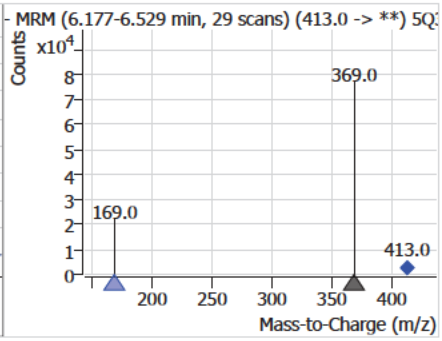




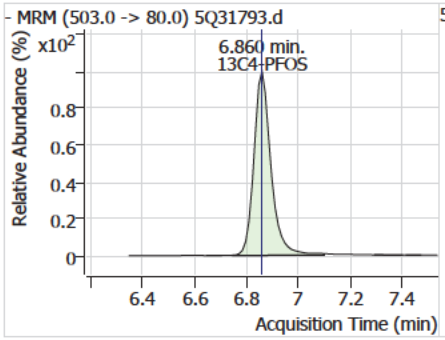
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	100.05	6.29	0.00	1689583	413.0 -> 169.0	29.1	13.8	41.5

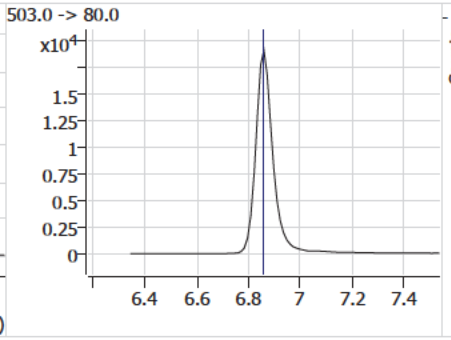


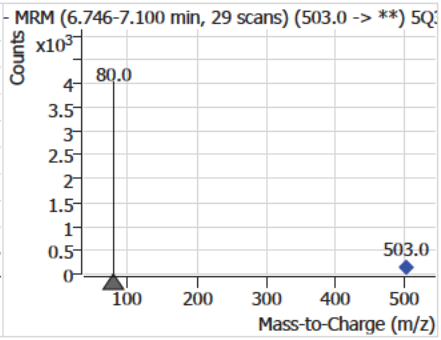




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	87012				







7.7.41

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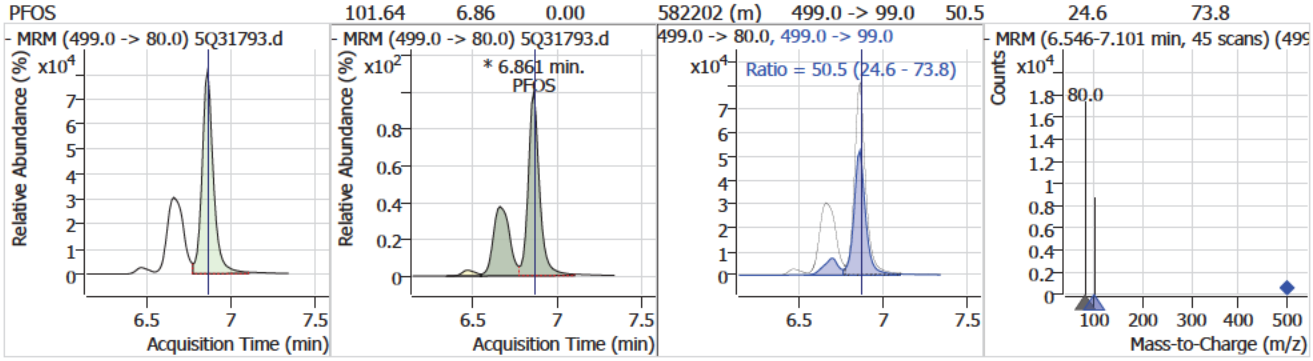
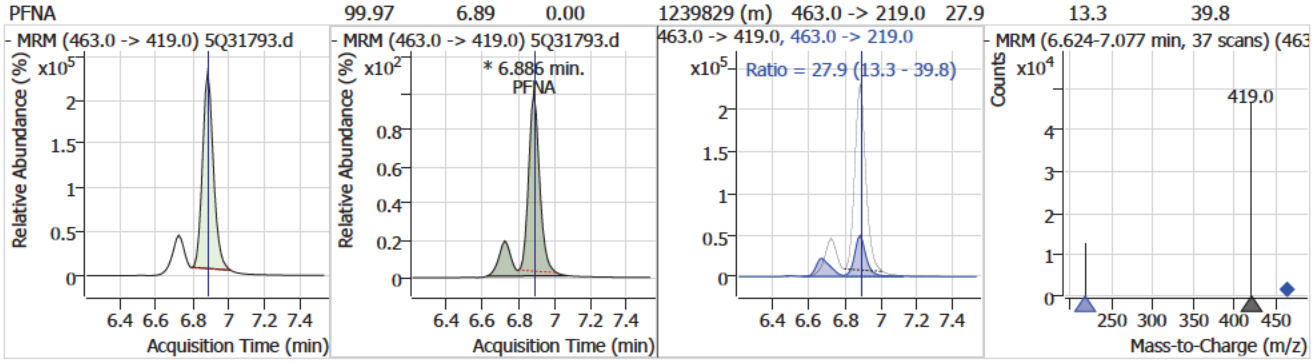
Perfluorinated Compounds by LC/MS/MS

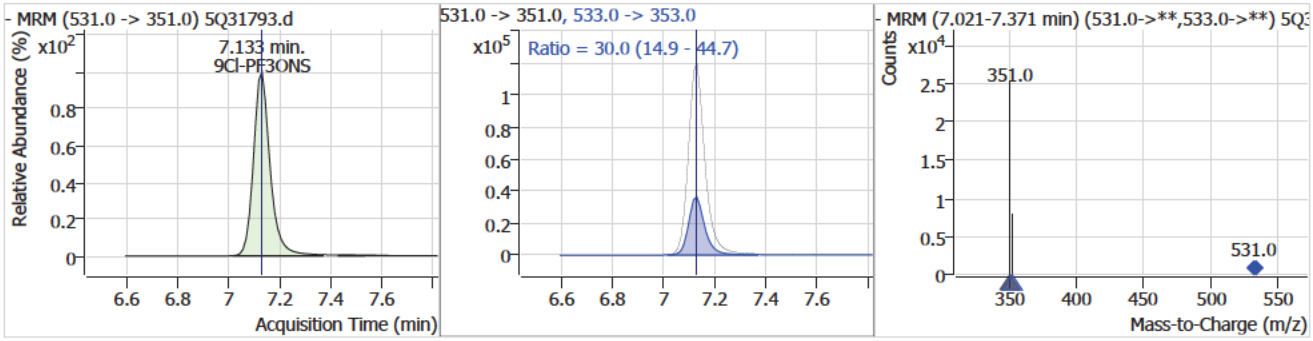
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	101.64	6.86	0.00	582202 (m)	499.0 -> 99.0	50.5	24.6	73.8



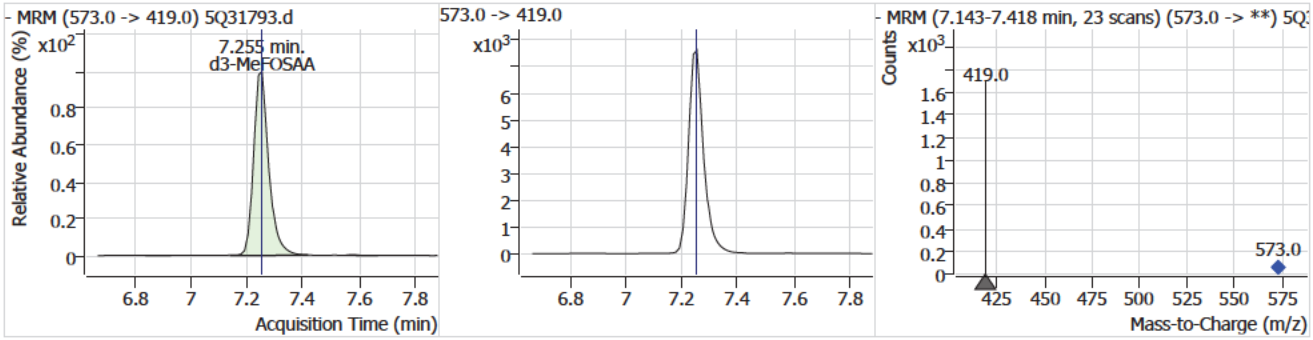
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	99.97	6.89	0.00	1239829 (m)	463.0 -> 219.0	27.9	13.3	39.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	100.03	7.13	0.00	543135	533.0 -> 353.0	30.0	14.9	44.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	28267				



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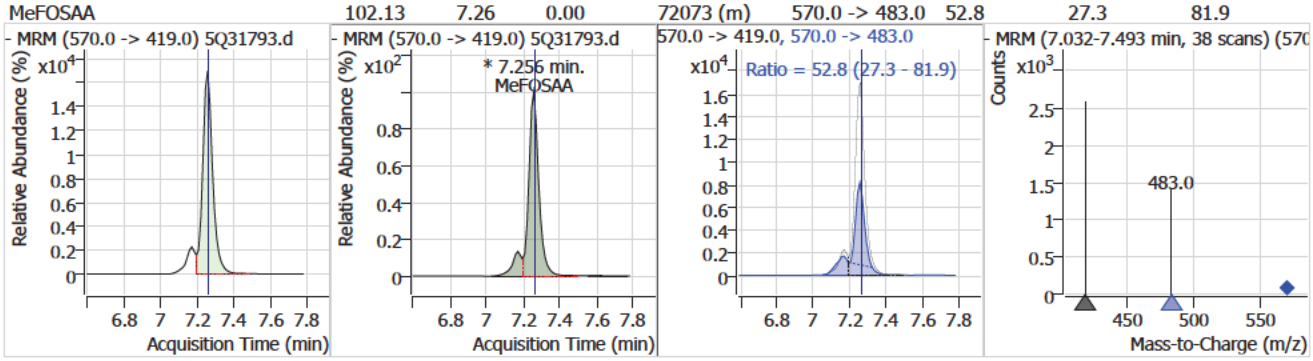
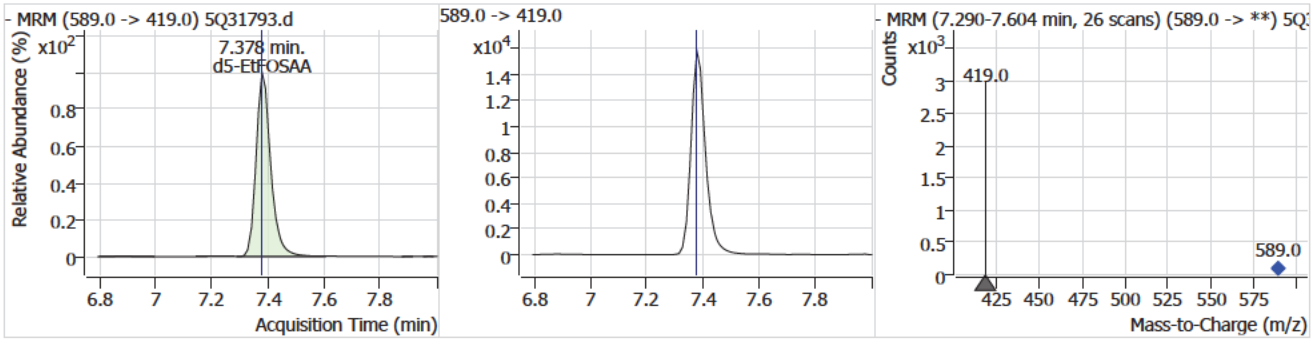
7

Perfluorinated Compounds by LC/MS/MS

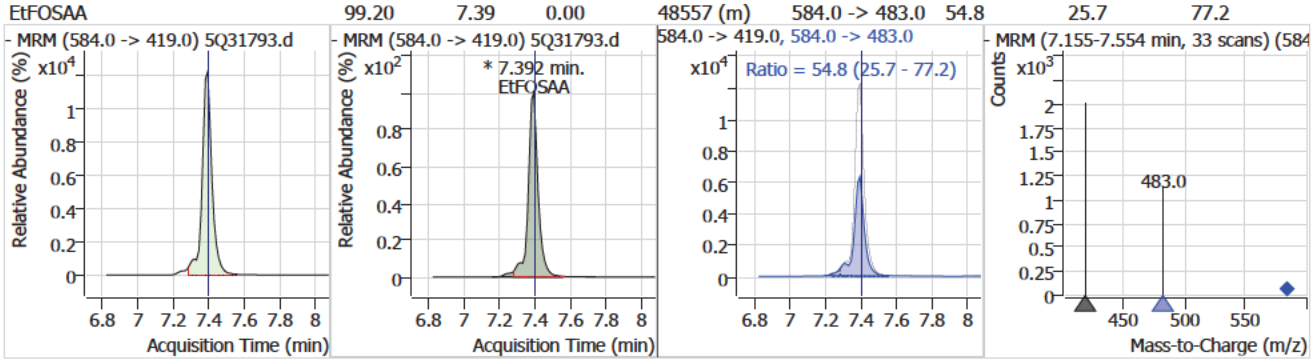
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	102.13	7.26	0.00	72073 (m)	570.0 -> 483.0	52.8	27.3	81.9



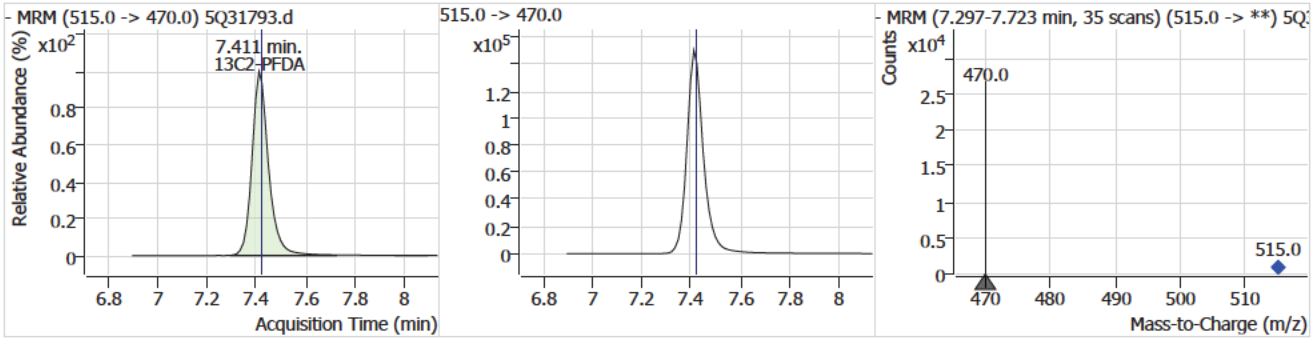
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	99.24	7.38	0.00	57191				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	99.20	7.39	0.00	48557 (m)	584.0 -> 483.0	54.8	25.7	77.2

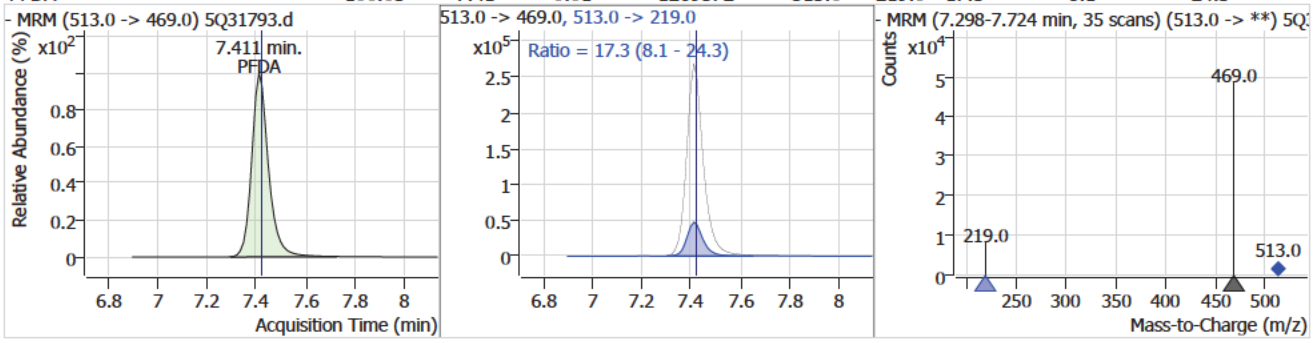


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	50.66	7.41	-0.01	699261				

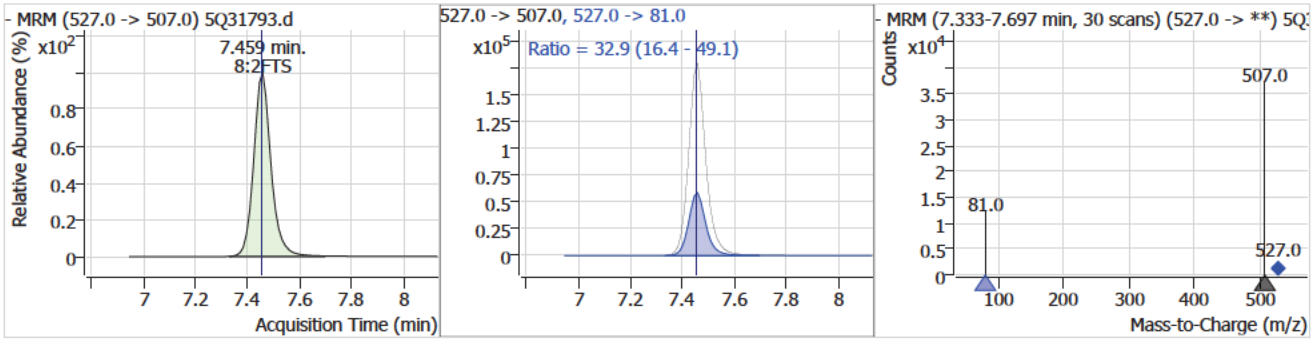


Perfluorinated Compounds by LC/MS/MS

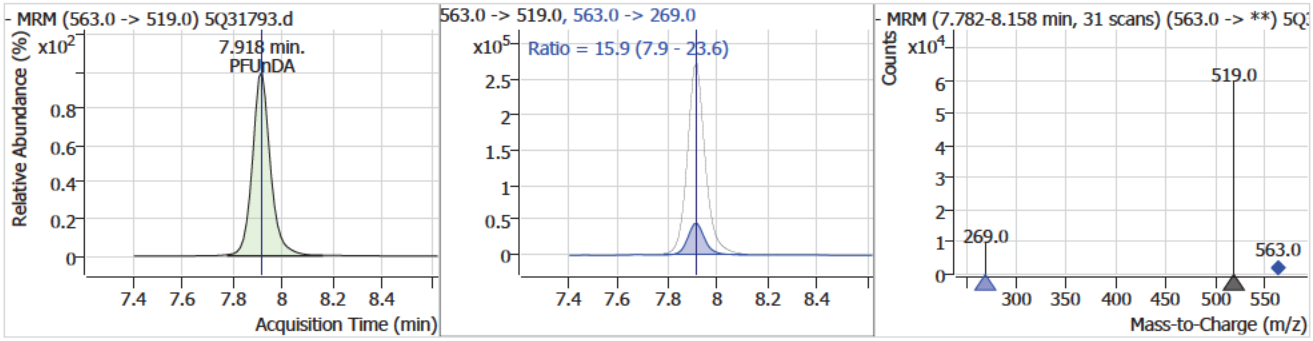
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	100.03	7.41	-0.01	1269572	513.0 -> 219.0	17.3	8.1	24.3



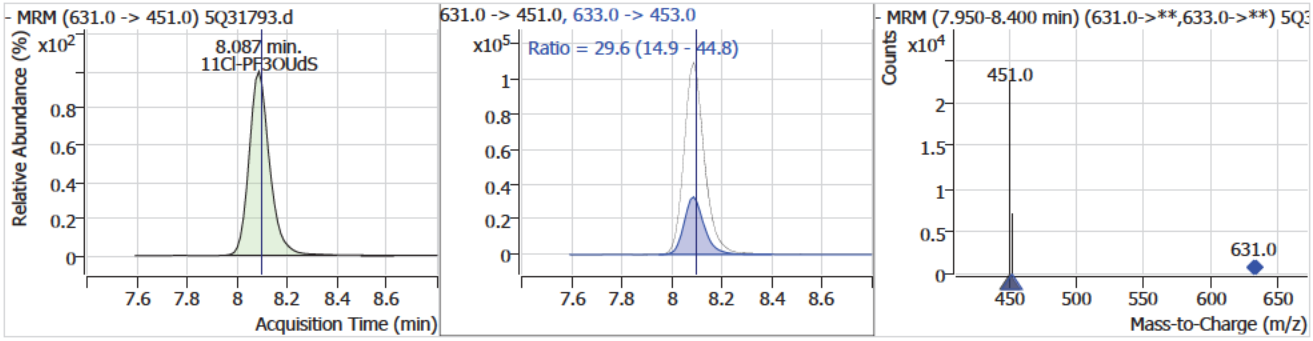
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	98.29	7.46	-0.01	833926	527.0 -> 81.0	32.9	16.4	49.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	102.38	7.92	0.00	1370120	563.0 -> 269.0	15.9	7.9	23.6

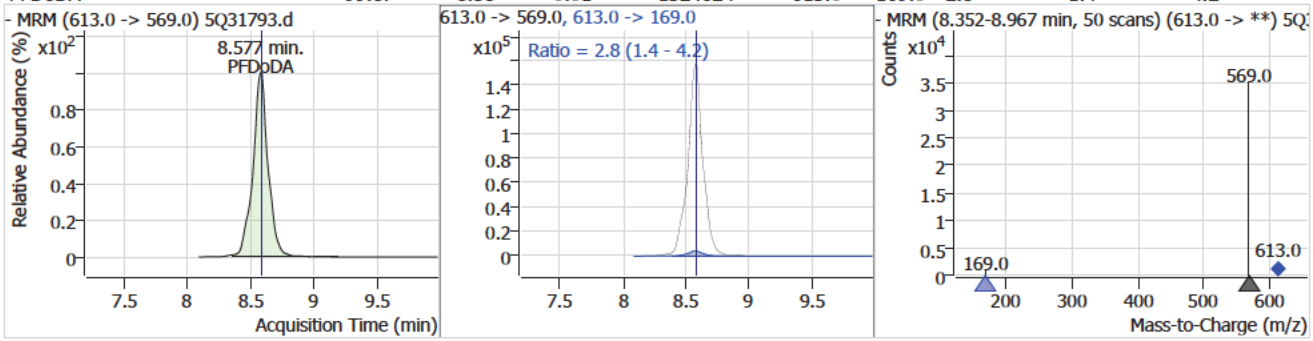


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	99.99	8.09	-0.01	625540	633.0 -> 453.0	29.6	14.9	44.8

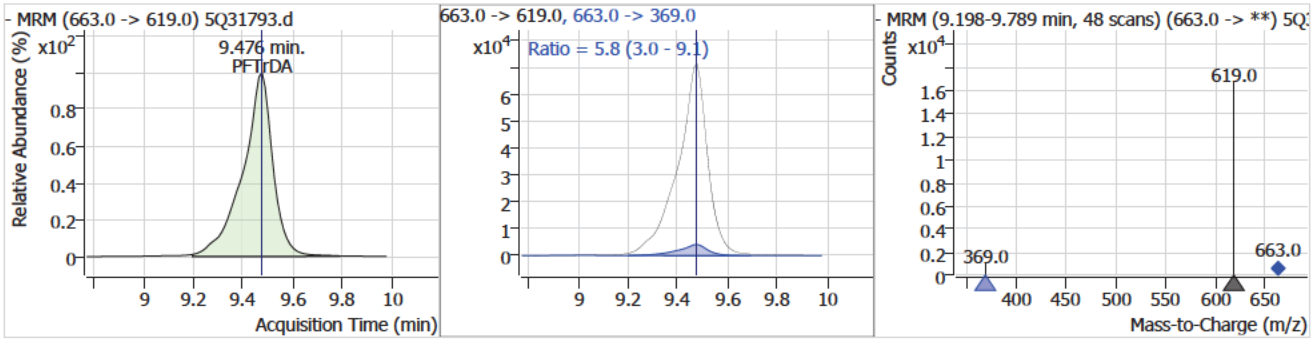


Perfluorinated Compounds by LC/MS/MS

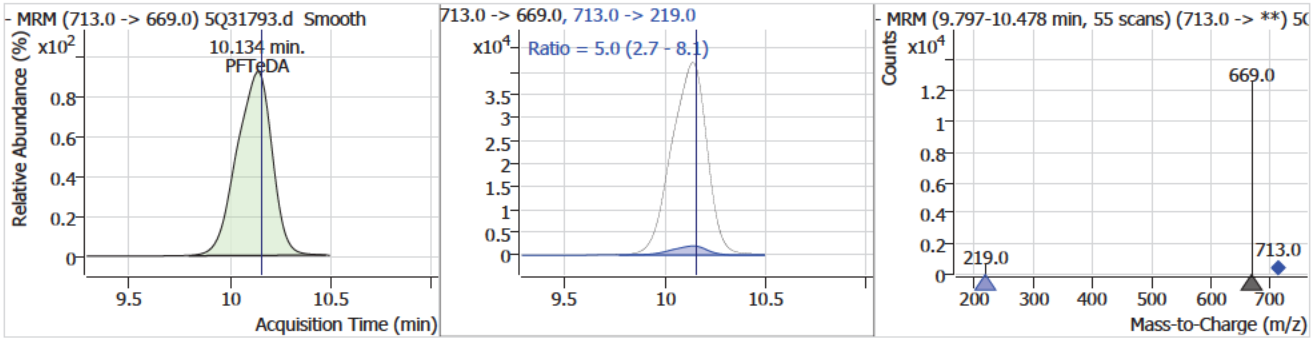
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	99.87	8.58	-0.01	1324624	613.0 -> 169.0	2.8	1.4	4.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	103.88	9.48	0.00	599035	663.0 -> 369.0	5.8	3.0	9.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	99.86	10.13	-0.02	510576	713.0 -> 219.0	5.0	2.7	8.1



Manual Integration Approval Summary

Sample Number: S5Q522-IC522
Lab FileID: 5Q31793.D
Injection Time: 04/16/25 13:53
Method: EPA 537.1 REV 2.0
Analyst approved: 04/17/25 07:52 (b) (6) [redacted]
Supervisor approved: 04/17/25 09:03 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 09:03

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31794.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/16/2025 2:09:16 PM
Sample Name : icv522-20
Vial : P1-B1
DA Method File : 537_041625_S5Q522.quantmethod
Batch Name : s5q522.batch.bin
Sample Information : OP8882,S5Q522,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.287	429.0 -> 409.0	169252	20.00	µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	354178	20.00	µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	485897	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	86724	20.00	µg/L		0.000
d3-MeFOSAA	7.255	573.0 -> 419.0	29500	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.423	515.0 -> 470.0	0		µg/L	m	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C2-PFHxA	4.775	315.0 -> 270.0	0		µg/L	m	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
d5-EtFOSAA	7.378	589.0 -> 419.0	0		µg/L	m	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C3-HFPO-DA	5.044	287.0 -> 169.0	0		µg/L	m	0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
Target Compounds							QValue
6:2FTS	6.287	427.0 -> 407.0	172373	17.81	µg/L		99
8:2FTS	7.472	527.0 -> 507.0	145599	20.94	µg/L		100
EtFOSAA	7.392	584.0 -> 419.0	9788	19.16	µg/L	m	98
MeFOSAA	7.256	570.0 -> 419.0	12632	17.15	µg/L	m	99
PFBS	3.841	299.0 -> 80.0	224567	18.10	µg/L		99
PFDA	7.424	513.0 -> 469.0	238821	19.25	µg/L		98
PFDoDA	8.590	613.0 -> 569.0	298832	28.36	µg/L		100
PFHpA	5.614	363.0 -> 319.0	606988	19.95	µg/L		100
PFHxA	4.777	313.0 -> 269.0	288316	18.71	µg/L		100
PFHxS	5.648	399.0 -> 80.0	125680	16.73	µg/L	m	96
PFNA	6.886	463.0 -> 419.0	275032	23.03	µg/L		88
PFOA	6.290	413.0 -> 369.0	347343	20.48	µg/L		99
PFOS	6.861	499.0 -> 80.0	104305	18.27	µg/L	m	93
PFPeA	3.610	263.0 -> 219.0	626622	20.68	µg/L		100
PFTeDA	10.147	713.0 -> 669.0	83452	20.25	µg/L		99
PFTrDA	9.476	663.0 -> 619.0	147630	25.69	µg/L		100
PFUnDA	7.918	563.0 -> 519.0	297243	22.28	µg/L		99
ADONA	5.700	377.0 -> 251.0	716649	18.30	µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	88210	18.25	µg/L		100
11Cl-PF3OUdS	8.087	631.0 -> 451.0	106515	21.15	µg/L		99
HFPO-DA	5.035	285.0 -> 169.0	28132	19.61	µg/L		99

= Qualifier out of range, m = manually integrated, + = Area summed

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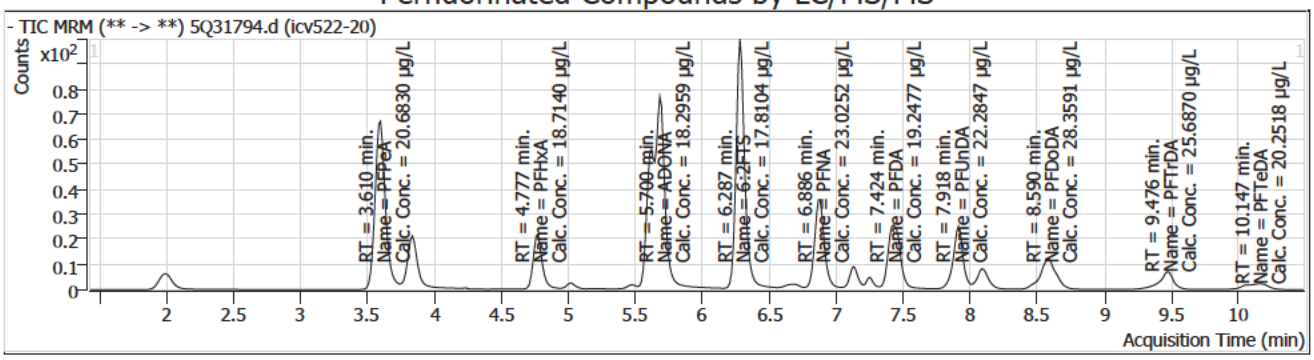
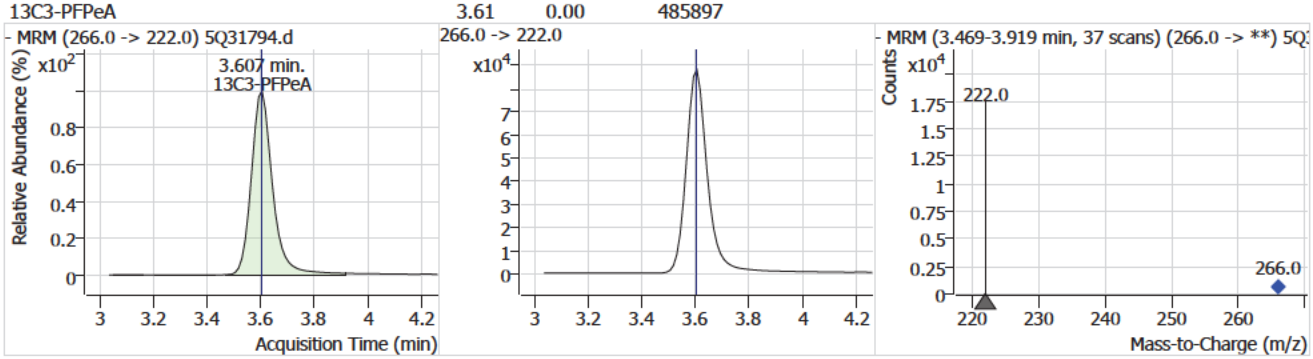
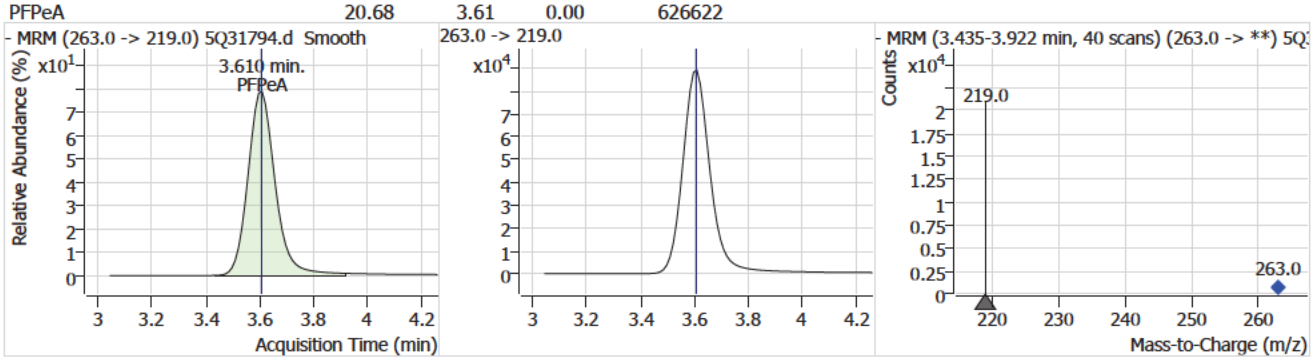
Perfluorinated Compounds by LC/MS/MS



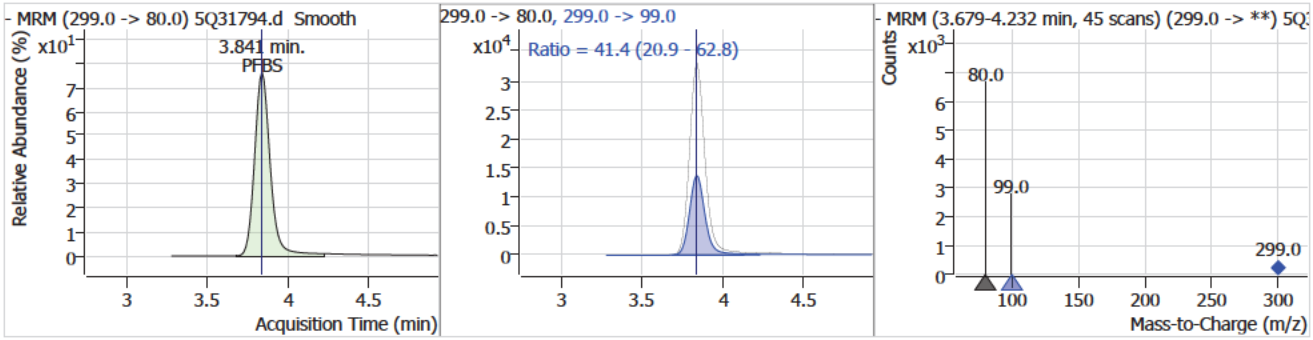
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.00	485897				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.68	3.61	0.00	626622				

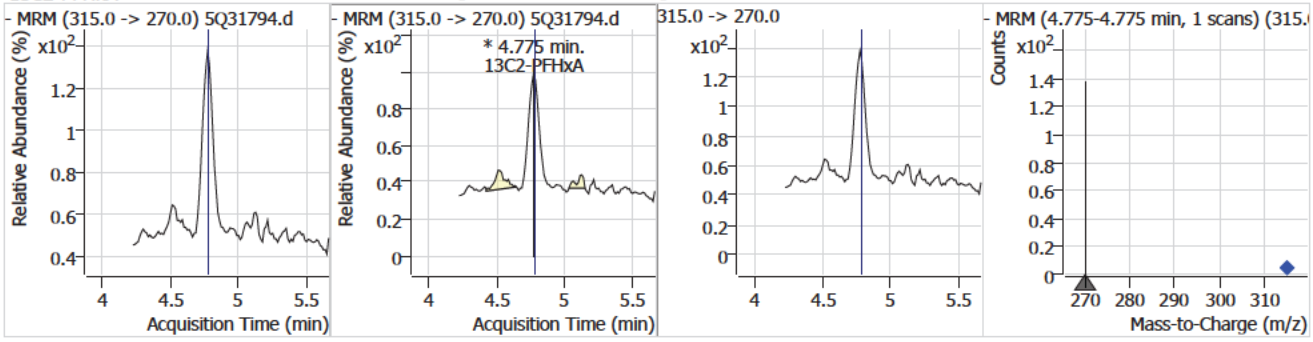


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	18.10	3.84	0.00	224567	299.0 -> 99.0	41.4	20.9	62.8

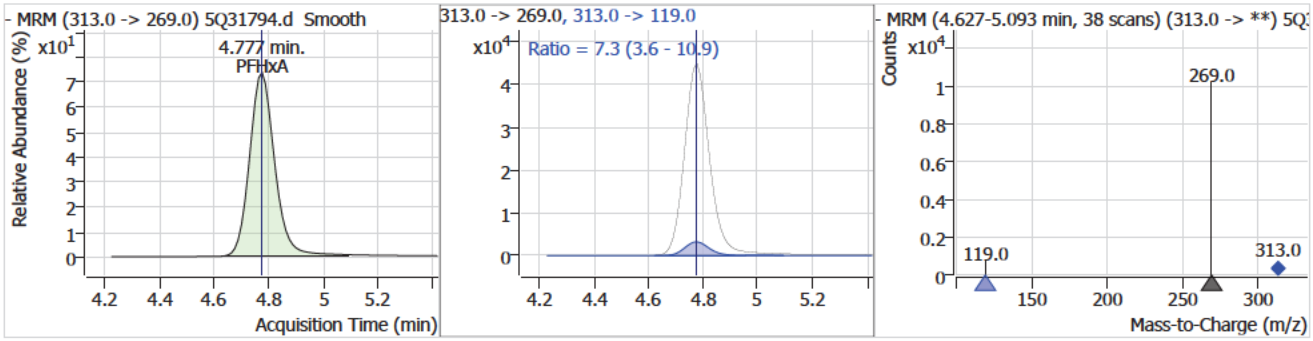


Perfluorinated Compounds by LC/MS/MS

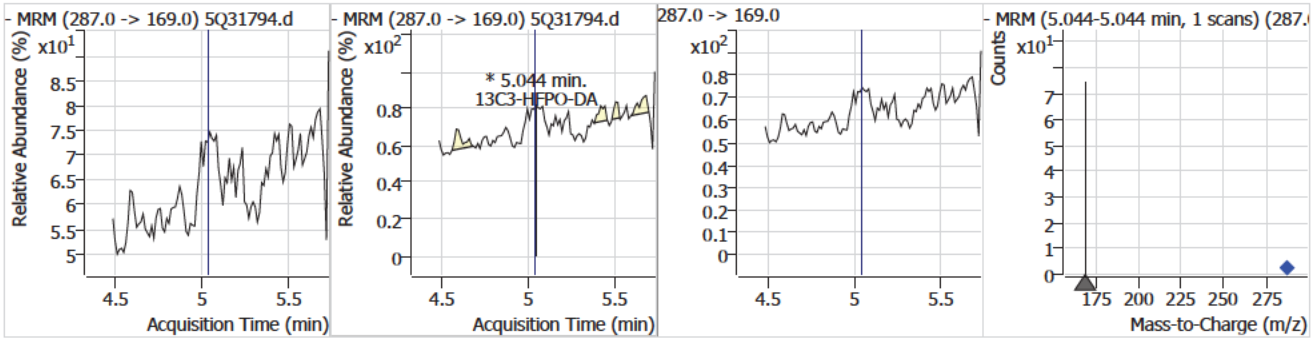
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA		0		0				



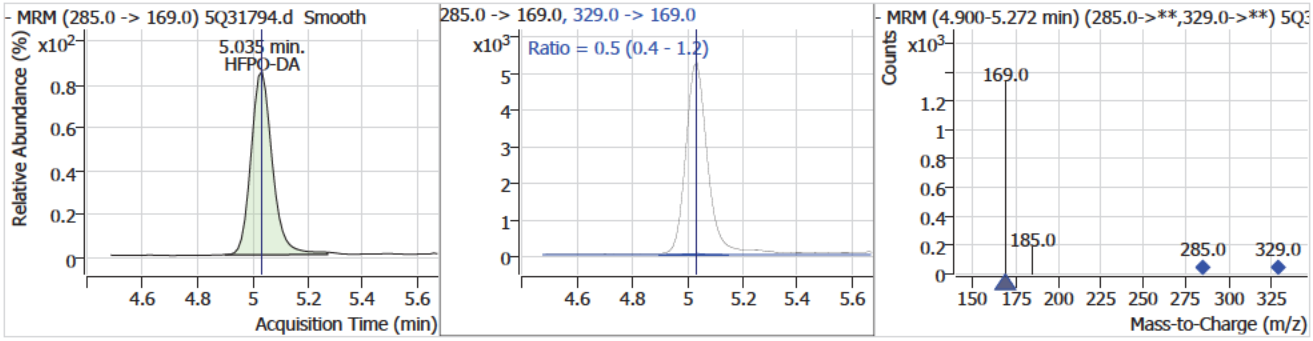
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	18.71	4.78	0.00	288316	313.0 -> 119.0	7.3	3.6	10.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA		0		0				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.61	5.03	0.00	28132	329.0 -> 169.0	0.5	0.4	1.2



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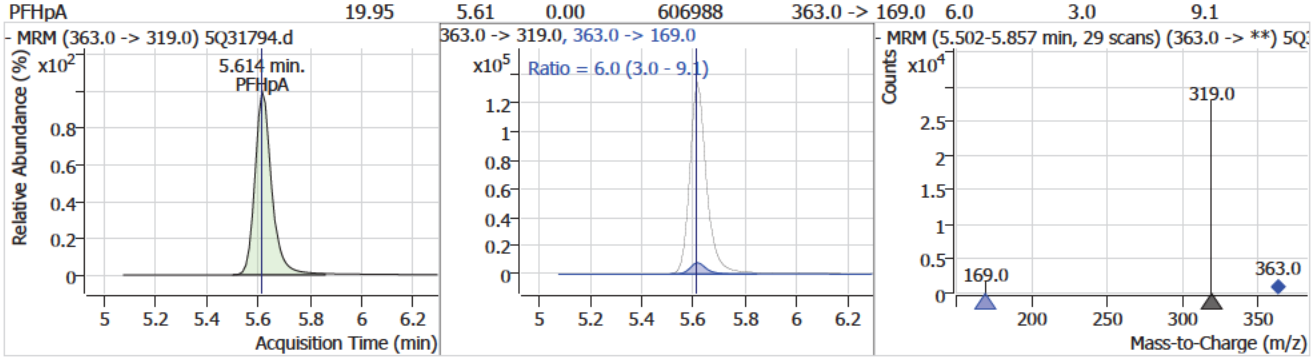
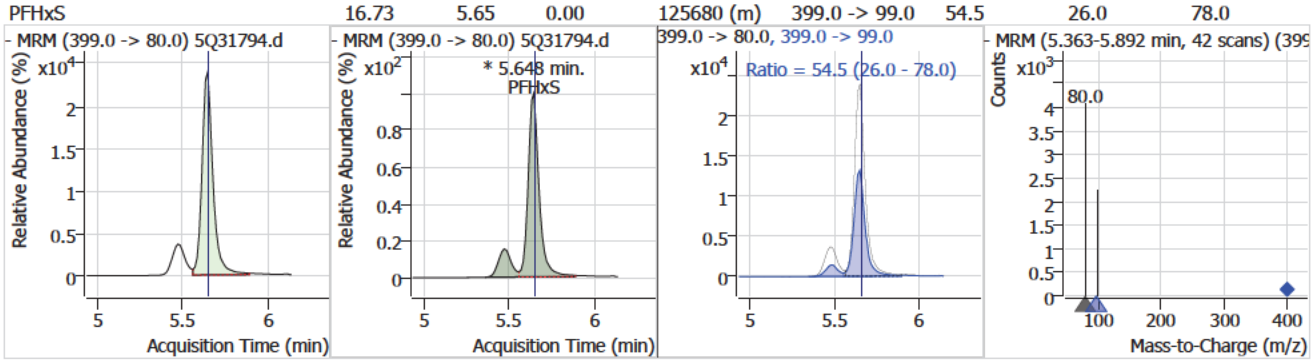
Perfluorinated Compounds by LC/MS/MS

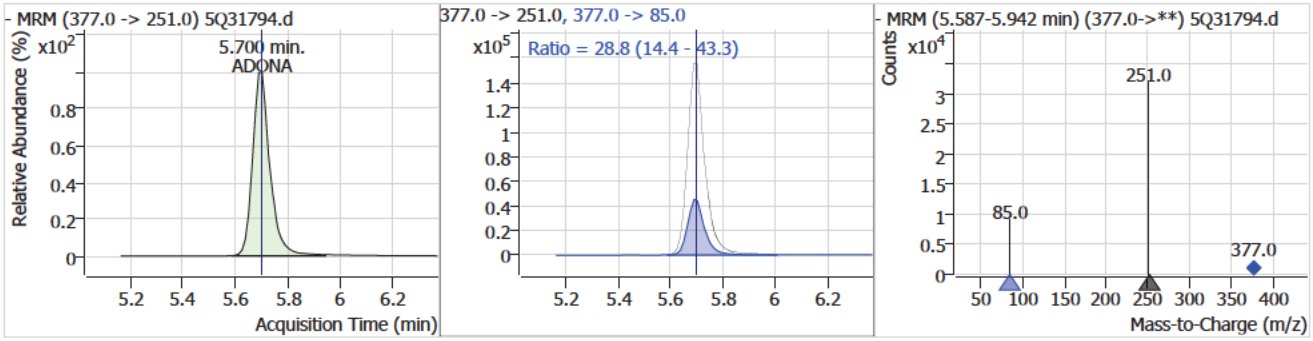
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.95	5.61	0.00	606988	363.0 -> 169.0	6.0	3.0	9.1



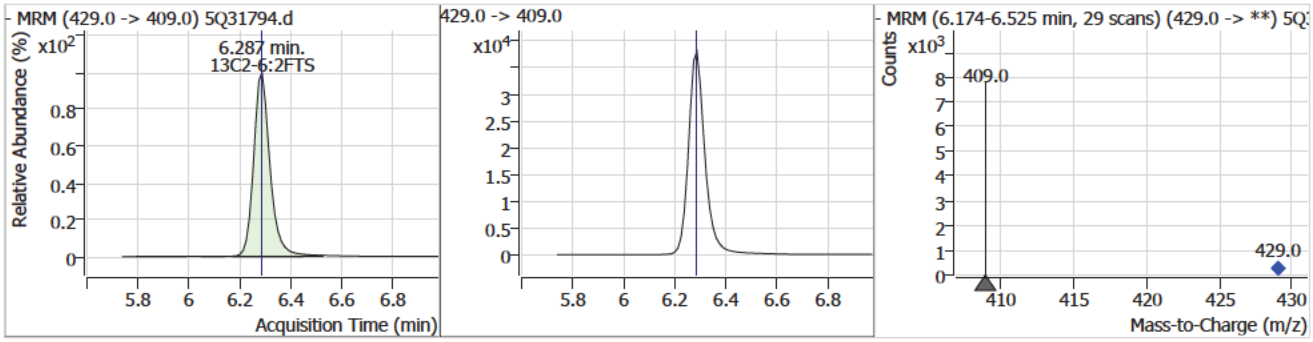
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	16.73	5.65	0.00	125680 (m)	399.0 -> 99.0	54.5	26.0	78.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	18.30	5.70	0.00	716649	377.0 -> 85.0	28.8	14.4	43.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	169252				



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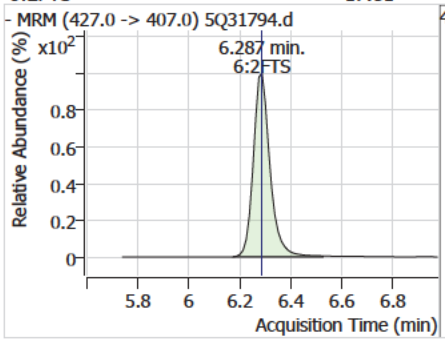
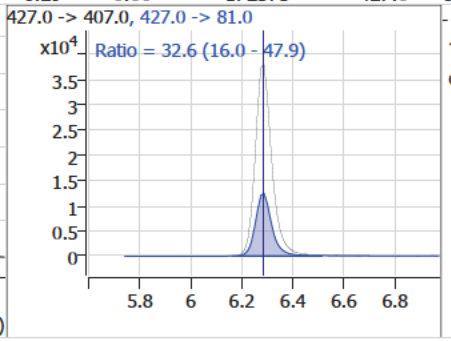
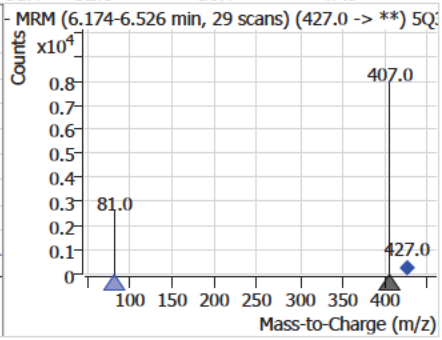
Perfluorinated Compounds by LC/MS/MS

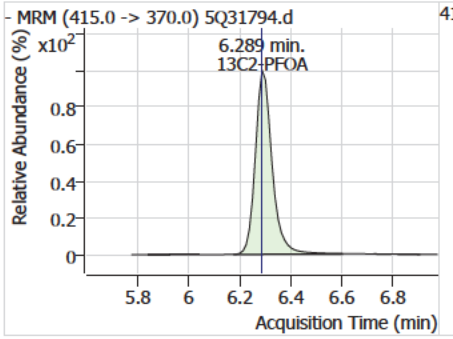
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	17.81	6.29	0.00	172373	427.0 -> 81.0	32.6	16.0	47.9

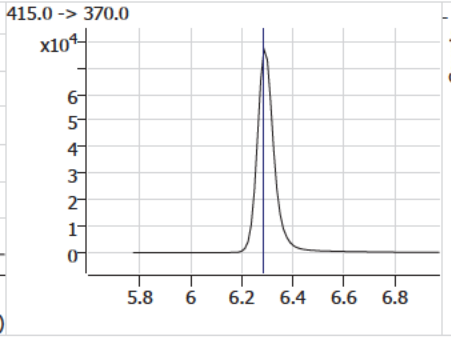


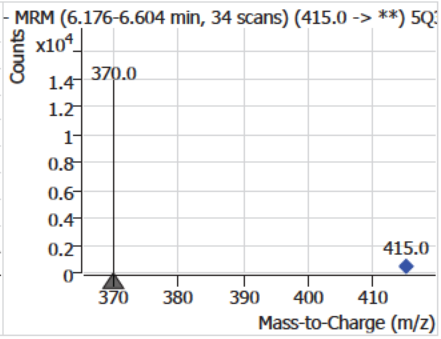




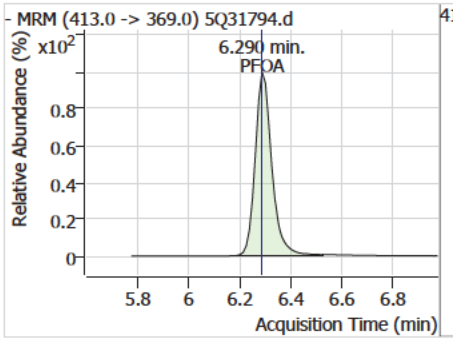
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	354178				

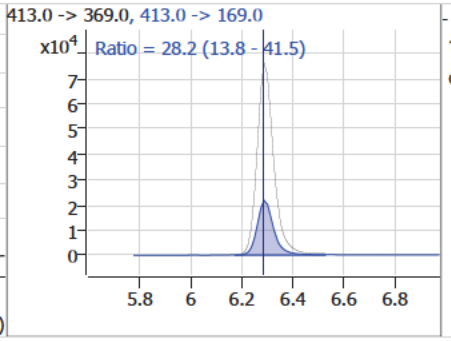


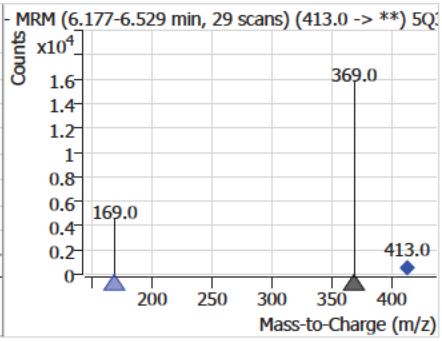




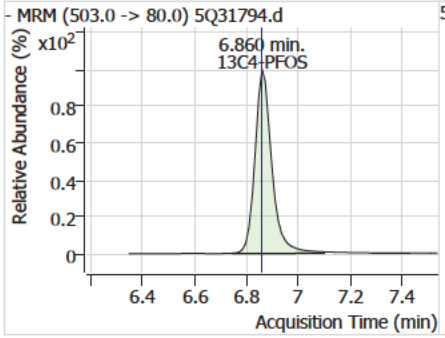
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.48	6.29	0.00	347343	413.0 -> 169.0	28.2	13.8	41.5

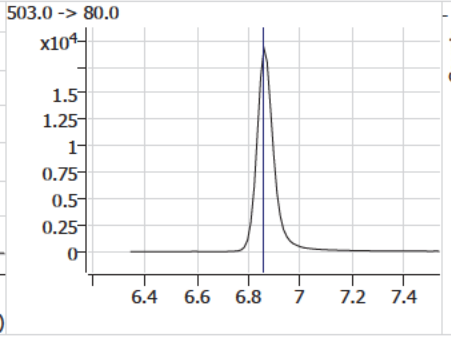


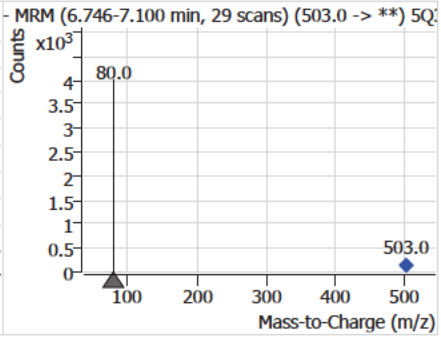




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	86724				







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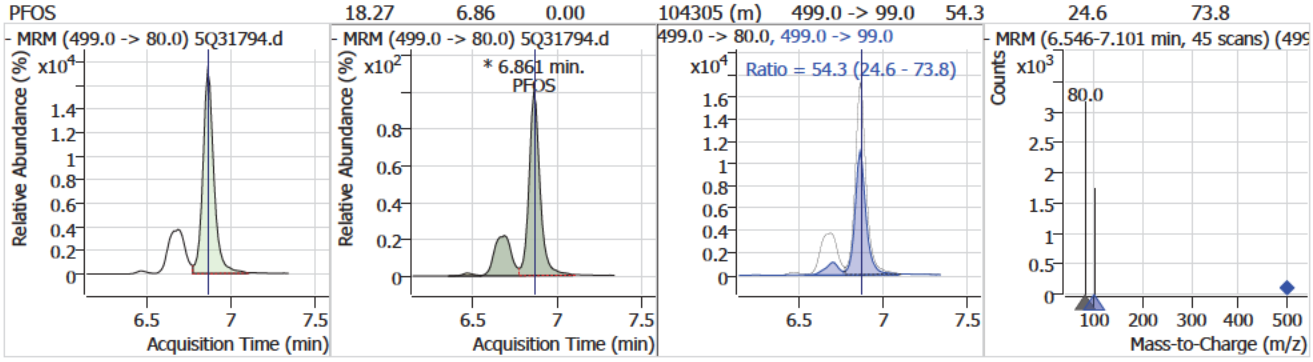
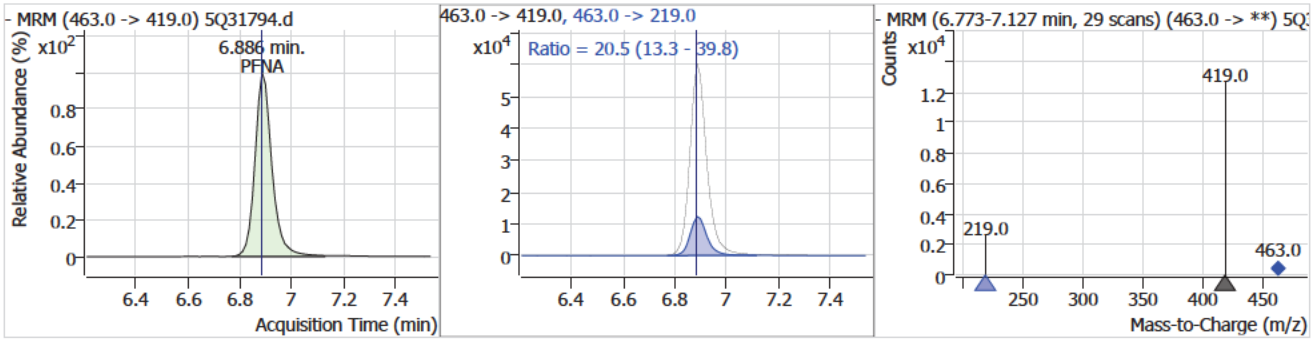
Perfluorinated Compounds by LC/MS/MS

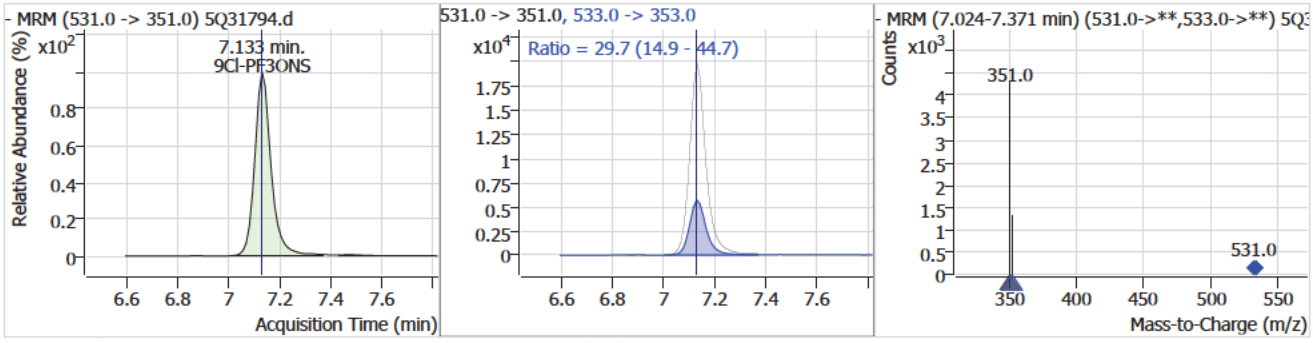
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.27	6.86	0.00	104305 (m)	499.0 -> 99.0	54.3	24.6	73.8



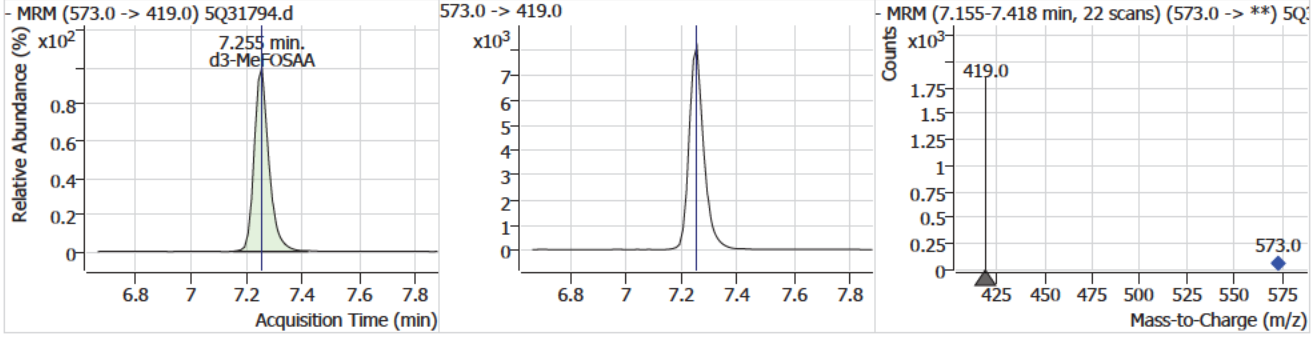
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	23.03	6.89	0.00	275032	463.0 -> 219.0	20.5	13.3	39.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	18.25	7.13	0.00	88210	533.0 -> 353.0	29.7	14.9	44.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	29500				



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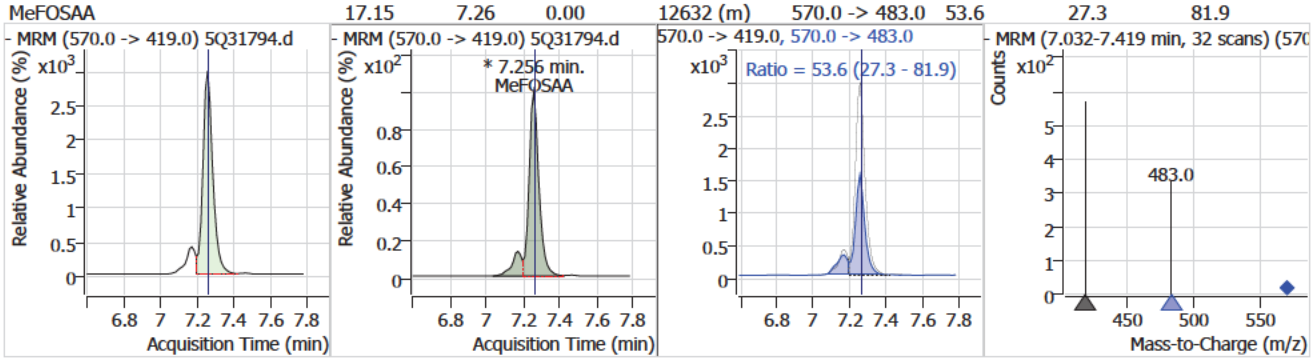
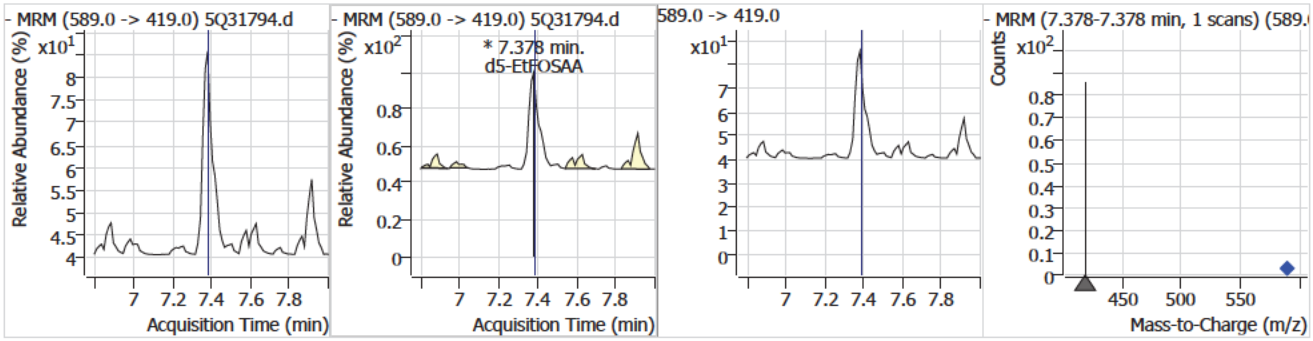
Perfluorinated Compounds by LC/MS/MS

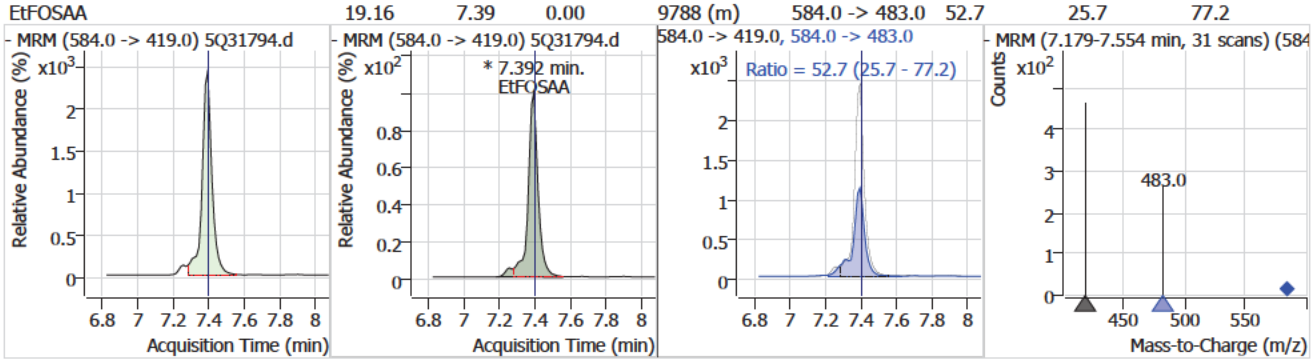
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	17.15	7.26	0.00	12632 (m)	570.0 -> 483.0	53.6	27.3	81.9



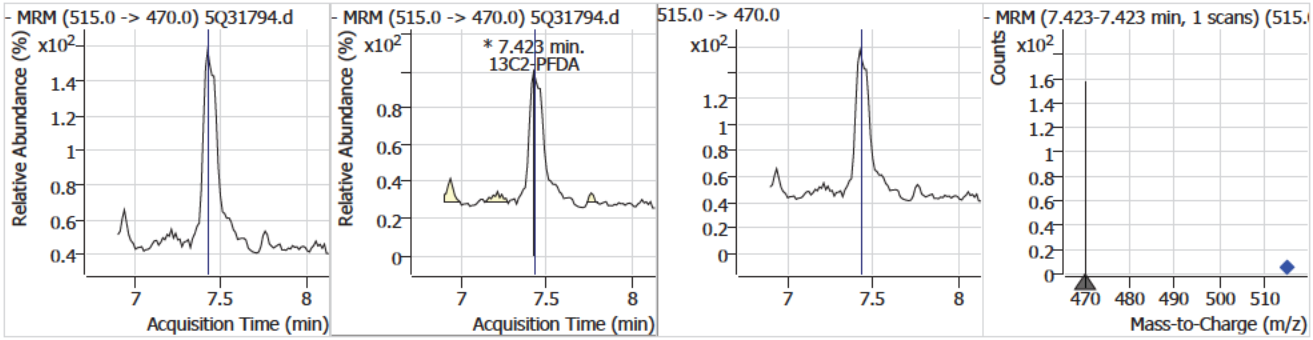
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA		0		0				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.16	7.39	0.00	9788 (m)	584.0 -> 483.0	52.7	25.7	77.2

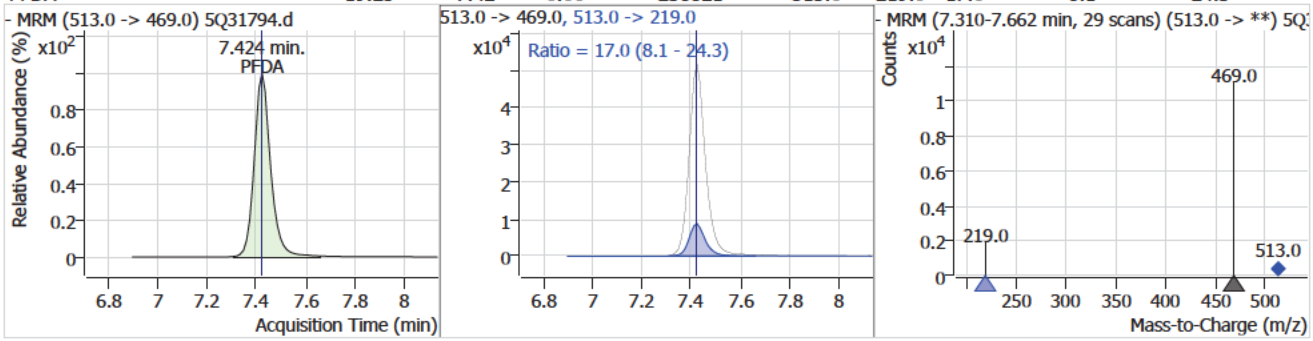


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA		0		0				

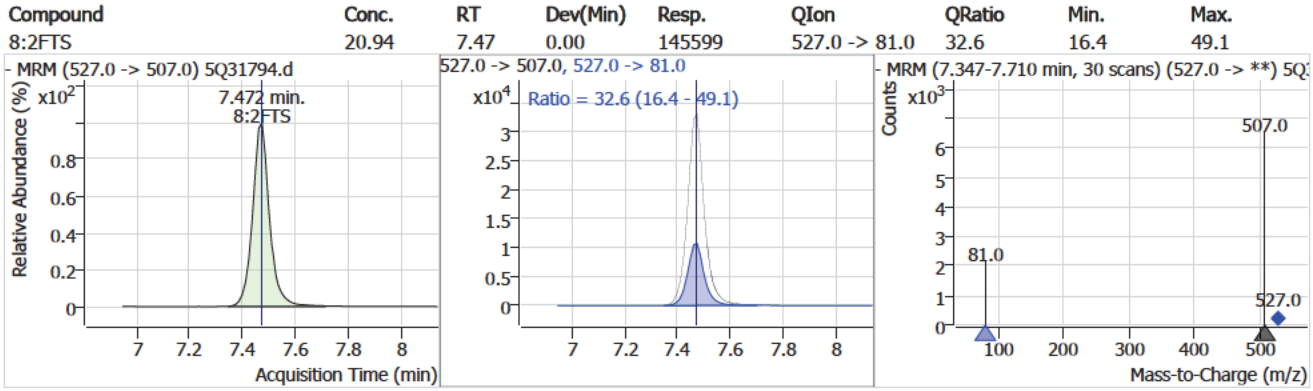


Perfluorinated Compounds by LC/MS/MS

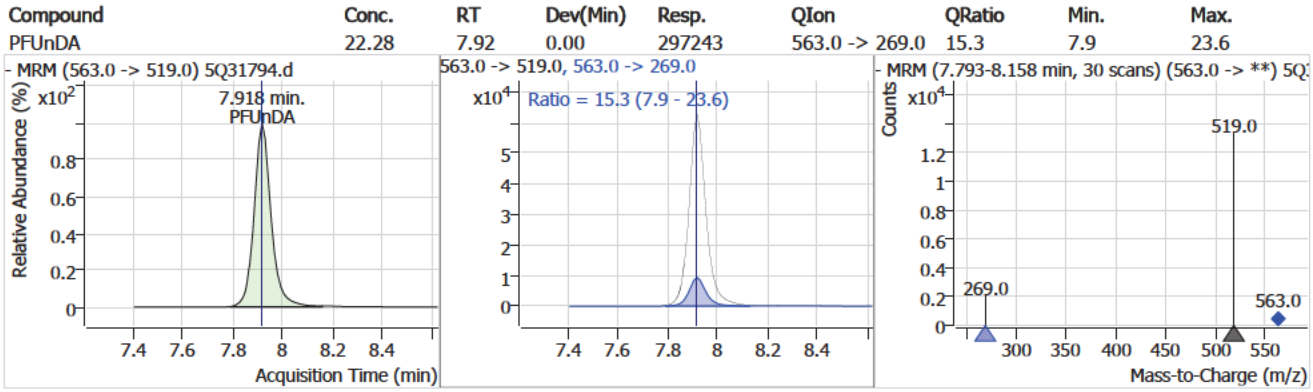
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.25	7.42	0.00	238821	513.0 -> 219.0	17.0	8.1	24.3



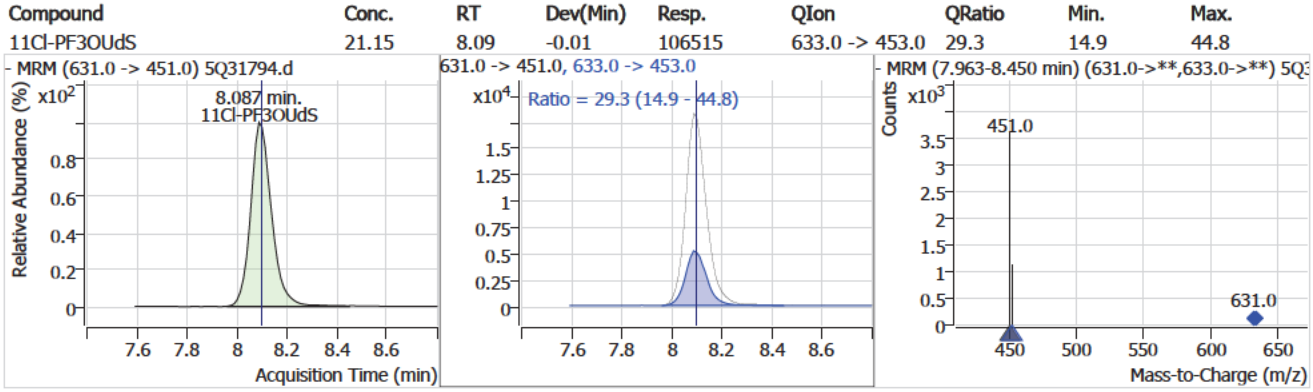
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	20.94	7.47	0.00	145599	527.0 -> 81.0	32.6	16.4	49.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	22.28	7.92	0.00	297243	563.0 -> 269.0	15.3	7.9	23.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	21.15	8.09	-0.01	106515	633.0 -> 453.0	29.3	14.9	44.8

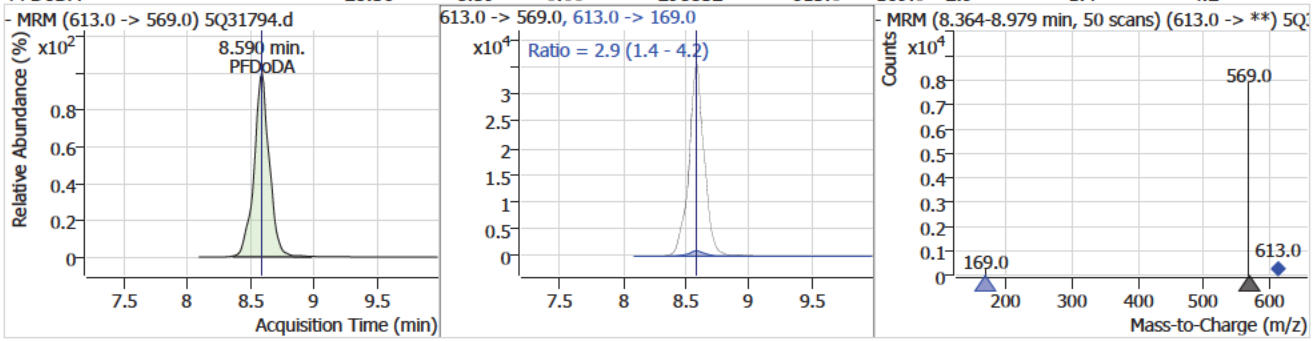


7.7.42

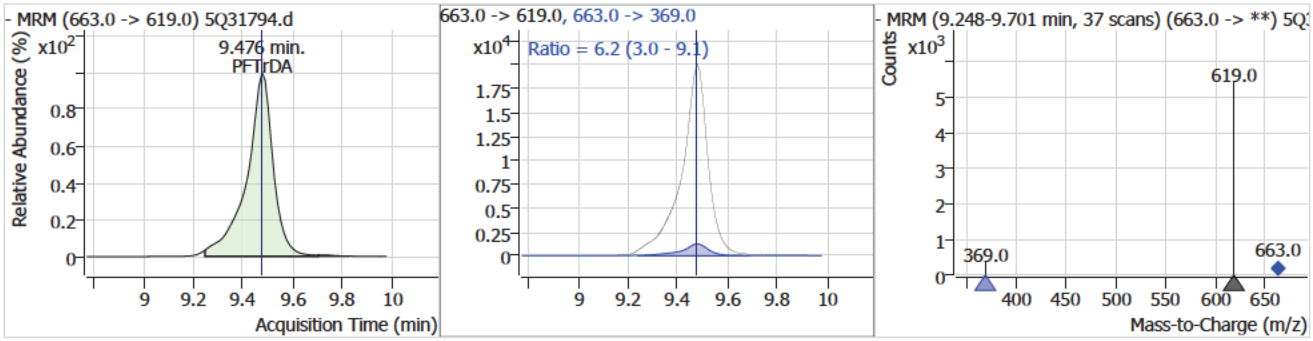
7

Perfluorinated Compounds by LC/MS/MS

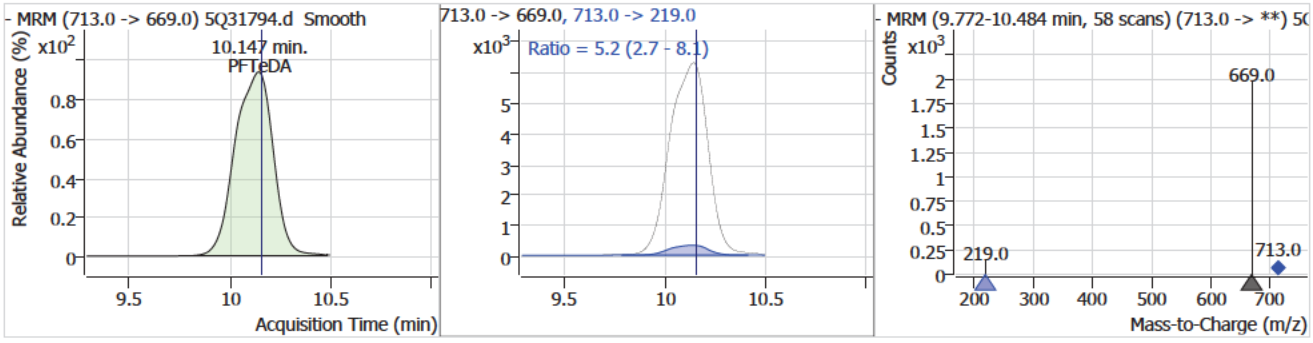
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	28.36	8.59	0.00	298832	613.0 -> 169.0	2.9	1.4	4.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	25.69	9.48	0.00	147630	663.0 -> 369.0	6.2	3.0	9.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	20.25	10.15	-0.01	83452	713.0 -> 219.0	5.2	2.7	8.1



7.7.42

7

Manual Integration Approval Summary

Sample Number: S5Q522-ICV522
Lab FileID: 5Q31794.D
Injection Time: 04/16/25 14:09
Method: EPA 537.1 REV 2.0
Analyst approved: 04/17/25 07:52 (b) (6) [redacted]
Supervisor approved: 04/17/25 09:03 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 09:03

Perfluorinated Compounds by LC/MS/MS

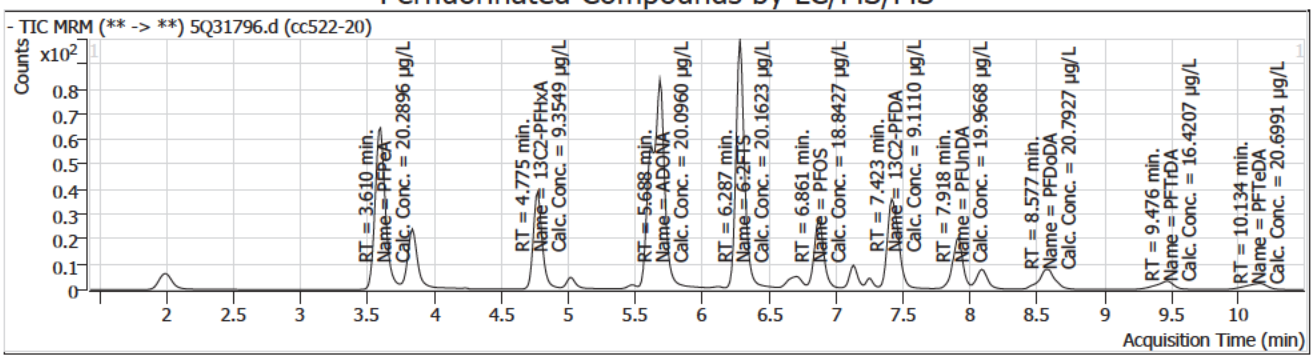
Data File : 5Q31796.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/16/2025 2:41:17 PM
Sample Name : cc522-20
Vial : P1-A7
DA Method File : 537_041625_S5Q522.quantmethod
Batch Name : s5q522.batch.bin
Sample Information : OP8882,S5Q522,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.287	429.0 -> 409.0	167177	20.00 µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	356929	20.00 µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	479976	20.00 µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	82953	20.00 µg/L		0.000
d3-MeFOSAA	7.255	573.0 -> 419.0	27606	40.00 µg/L		0.000
System Monitoring Compounds						
13C2-PFDA	7.423	515.0 -> 470.0	134057	9.11 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 45.6%		
13C2-PFHxA	4.775	315.0 -> 270.0	225682	9.35 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 46.8%		
d5-EtFOSAA	7.378	589.0 -> 419.0	10262	19.53 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 48.8%		
13C3-HFPO-DA	5.032	287.0 -> 169.0	30362	17.93 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 44.8%		
Target Compounds						QValue
6:2FTS	6.287	427.0 -> 407.0	191873	20.16 µg/L		98
8:2FTS	7.459	527.0 -> 507.0	149215	21.72 µg/L		98
EtFOSAA	7.380	584.0 -> 419.0	9615	20.11 µg/L	m	95
MeFOSAA	7.256	570.0 -> 419.0	12677	18.40 µg/L	m	98
PFBS	3.841	299.0 -> 80.0	257933	21.73 µg/L		99
PFDA	7.424	513.0 -> 469.0	249103	19.91 µg/L		99
PFDoDA	8.577	613.0 -> 569.0	203930	20.79 µg/L		100
PFHpA	5.614	363.0 -> 319.0	616103	20.09 µg/L		99
PFHxA	4.777	313.0 -> 269.0	311204	20.02 µg/L		99
PFHxS	5.648	399.0 -> 80.0	151797	21.01 µg/L	m	100
PFNA	6.886	463.0 -> 419.0	237984	19.85 µg/L	m	100
PFOA	6.290	413.0 -> 369.0	345242	20.20 µg/L		98
PFOS	6.861	499.0 -> 80.0	102893	18.84 µg/L	m	99
PFPeA	3.610	263.0 -> 219.0	607000	20.29 µg/L		100
PFTeDA	10.134	713.0 -> 669.0	81696	20.70 µg/L		100
PFTrDA	9.476	663.0 -> 619.0	90271	16.42 µg/L		99
PFUnDA	7.918	563.0 -> 519.0	254746	19.97 µg/L		99
ADONA	5.688	377.0 -> 251.0	796221	20.10 µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	95257	19.50 µg/L		98
11Cl-PF3OUdS	8.087	631.0 -> 451.0	103149	20.39 µg/L		99
HFPO-DA	5.035	285.0 -> 169.0	28667	19.82 µg/L		100

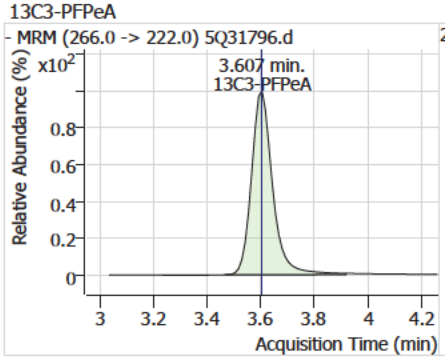
= Qualifier out of range, m = manually integrated, + = Area summed

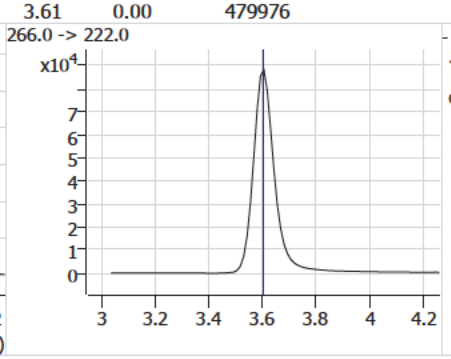
7.7.43
7

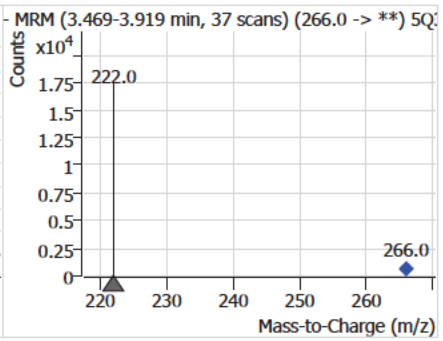
Perfluorinated Compounds by LC/MS/MS



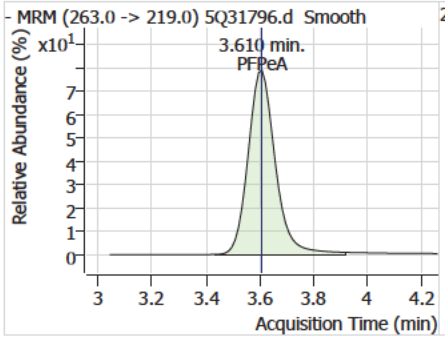
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.00	479976				

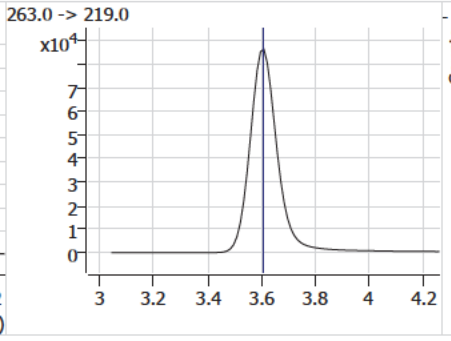


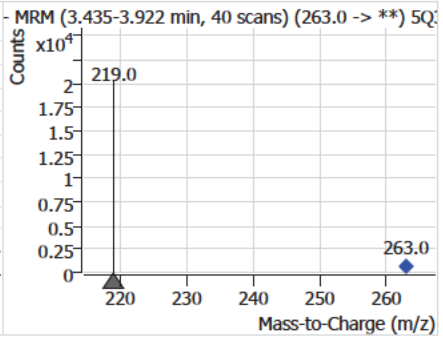




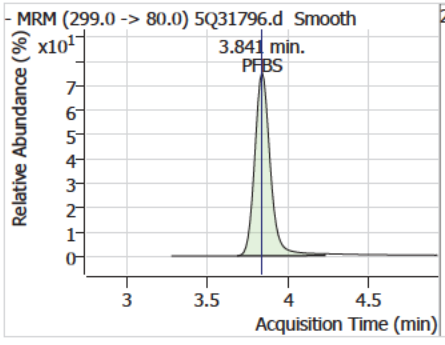
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.29	3.61	0.00	607000				

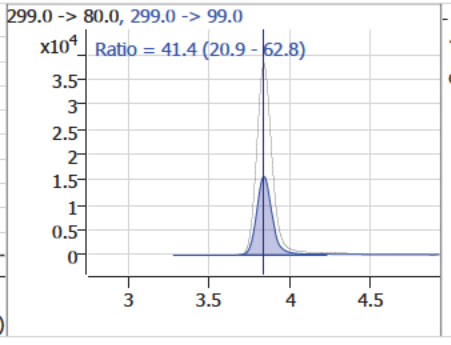


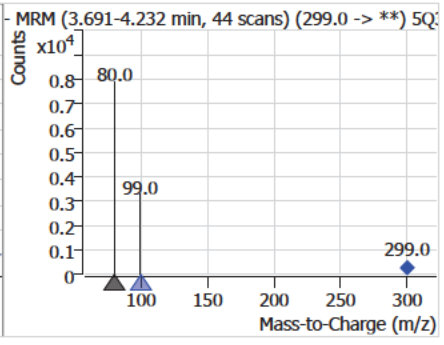




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	21.73	3.84	0.00	257933	299.0 -> 99.0	41.4	20.9	62.8

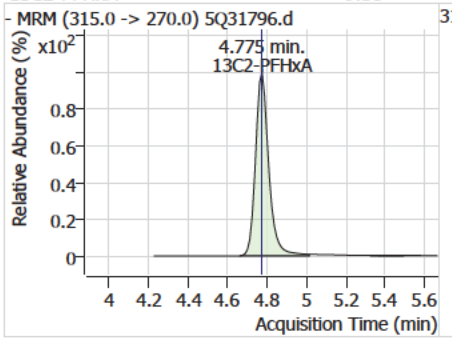


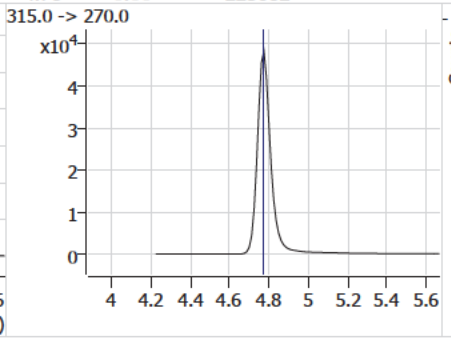


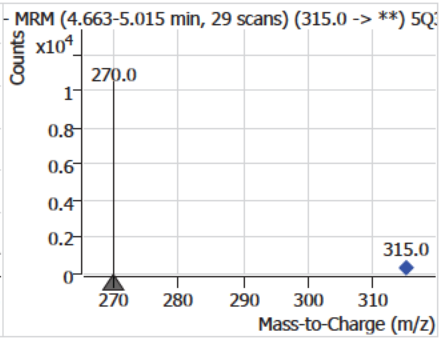


Perfluorinated Compounds by LC/MS/MS

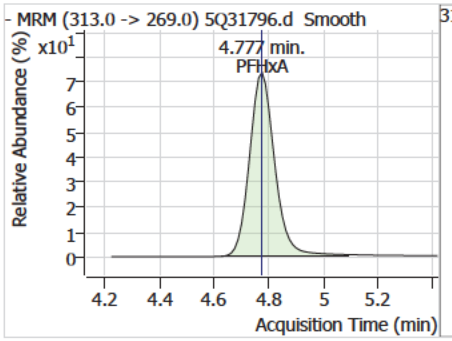
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	9.35	4.78	0.00	225682				

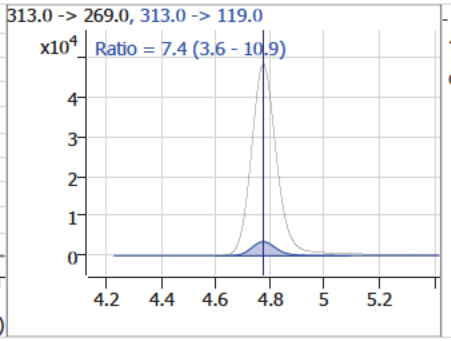


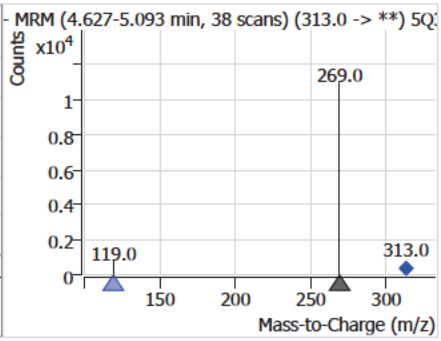




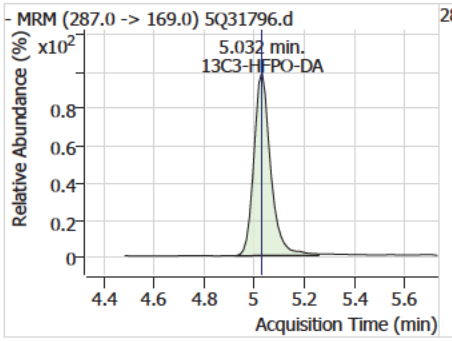
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	20.02	4.78	0.00	311204	313.0 -> 119.0	7.4	3.6	10.9

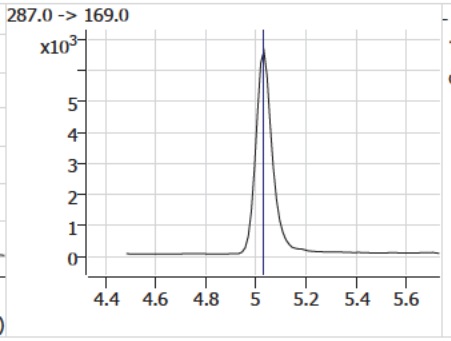


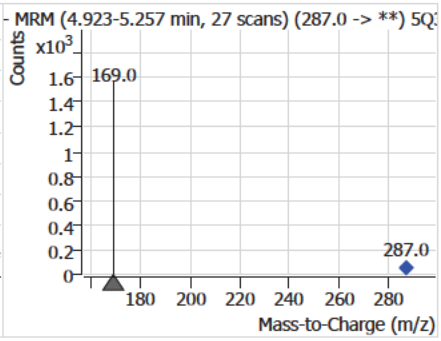




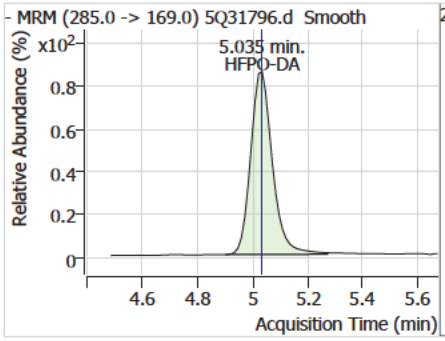
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	17.93	5.03	0.00	30362				

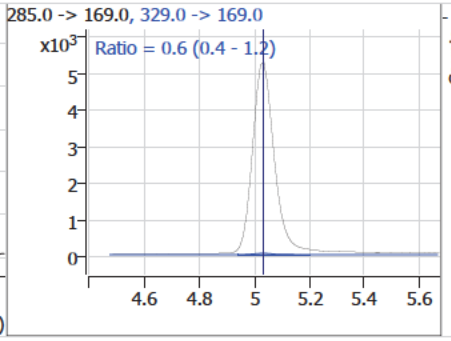


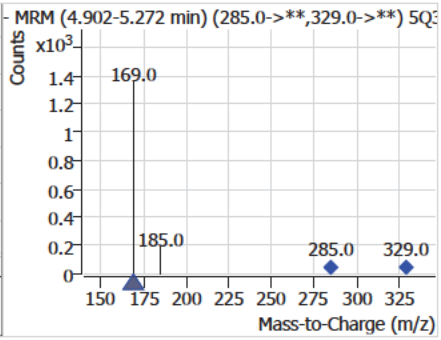




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.82	5.03	0.00	28667	329.0 -> 169.0	0.6	0.4	1.2

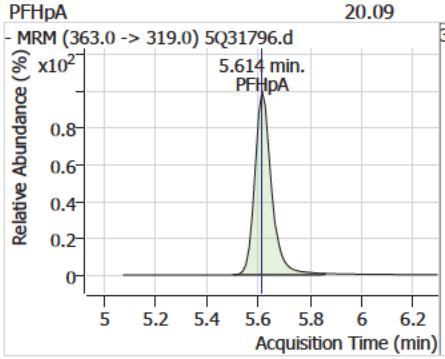


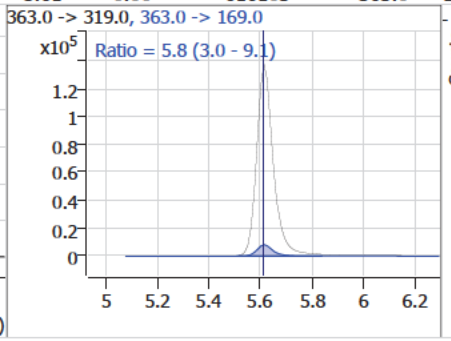


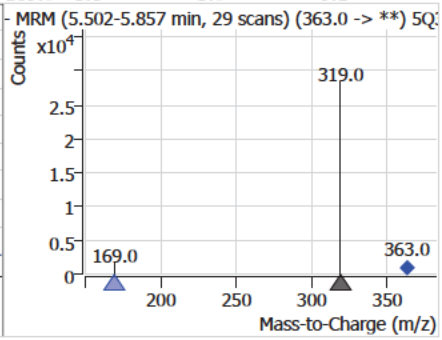


Perfluorinated Compounds by LC/MS/MS

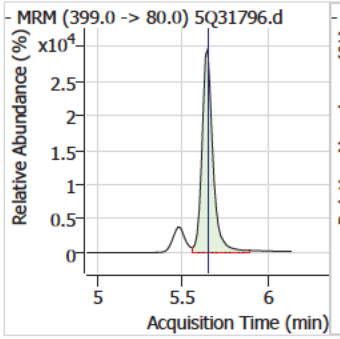
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.09	5.61	0.00	616103	363.0 -> 169.0	5.8	3.0	9.1

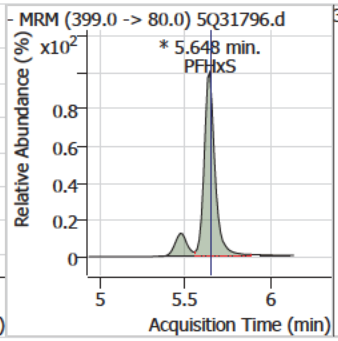


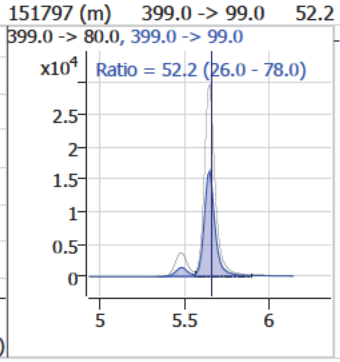


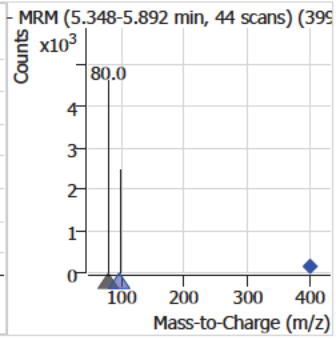


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	21.01	5.65	0.00	151797 (m)	399.0 -> 99.0	52.2	26.0	78.0

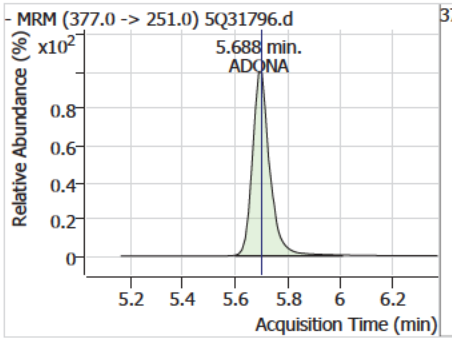


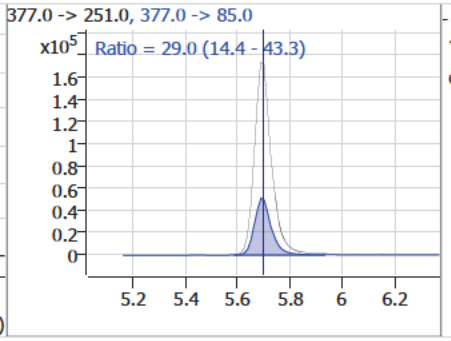


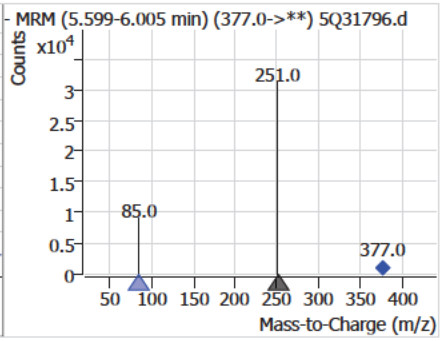




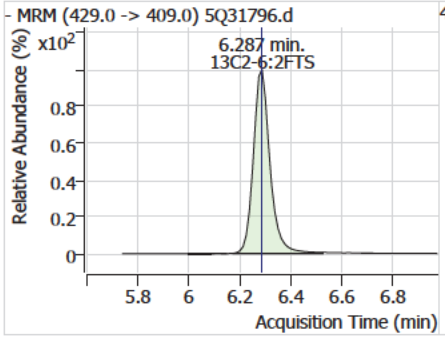
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.10	5.69	-0.01	796221	377.0 -> 85.0	29.0	14.4	43.3

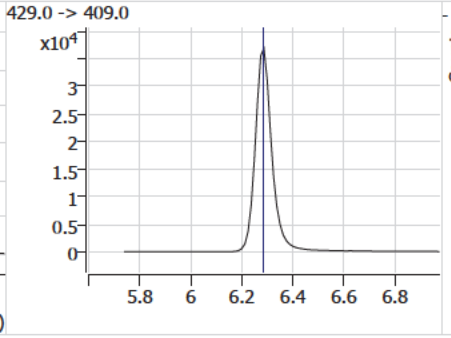


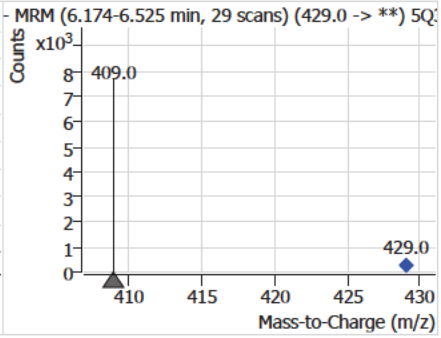




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	167177				

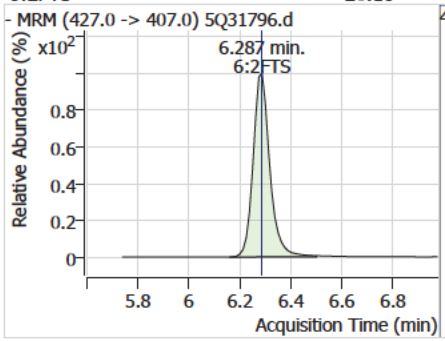


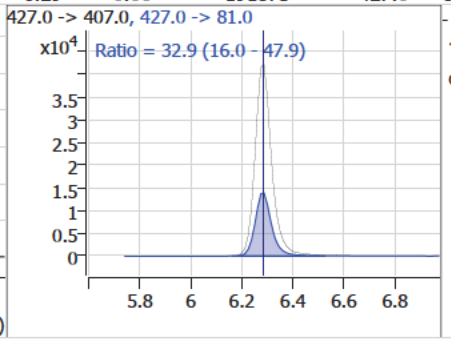


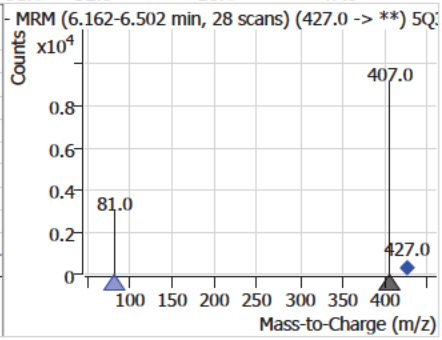


Perfluorinated Compounds by LC/MS/MS

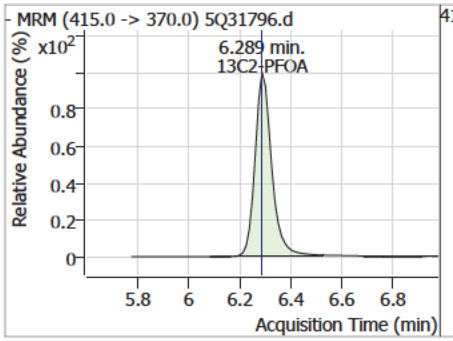
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	20.16	6.29	0.00	191873	427.0 -> 81.0	32.9	16.0	47.9

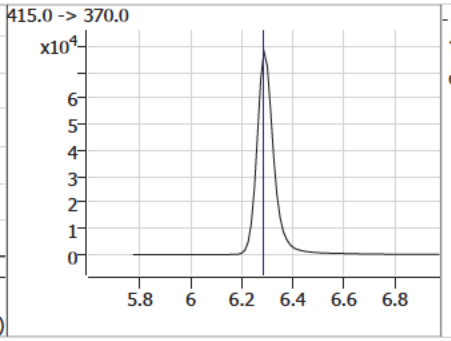


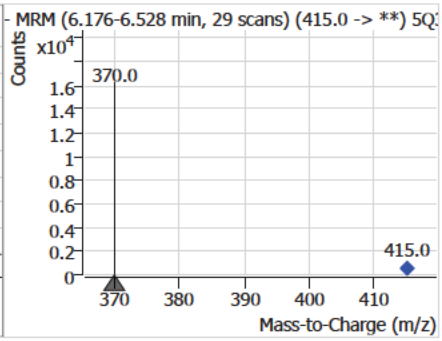




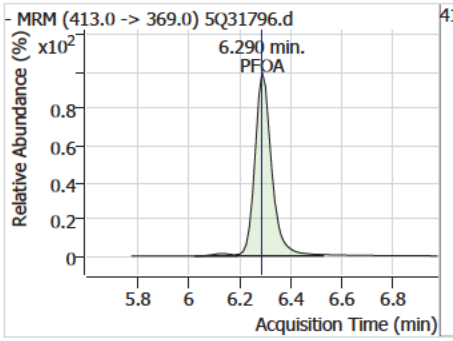
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	356929				

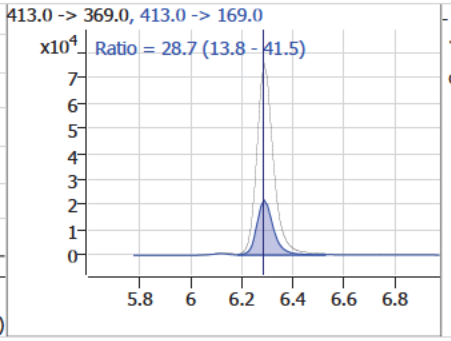


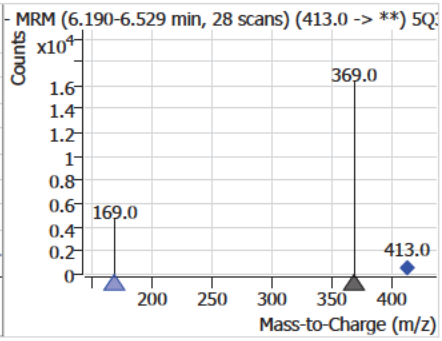




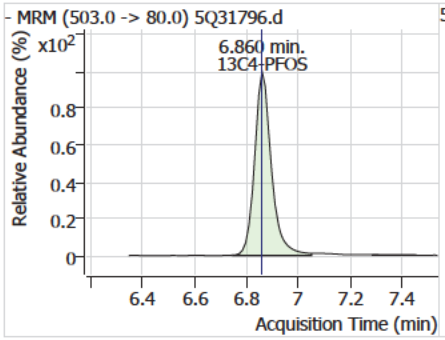
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.20	6.29	0.00	345242	413.0 -> 169.0	28.7	13.8	41.5

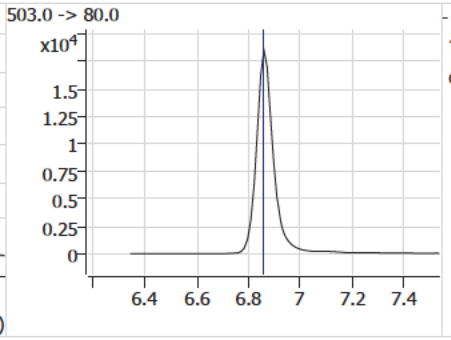


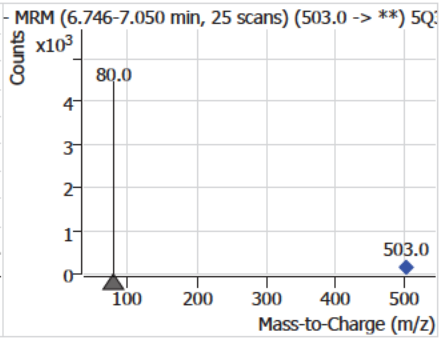




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	82953				

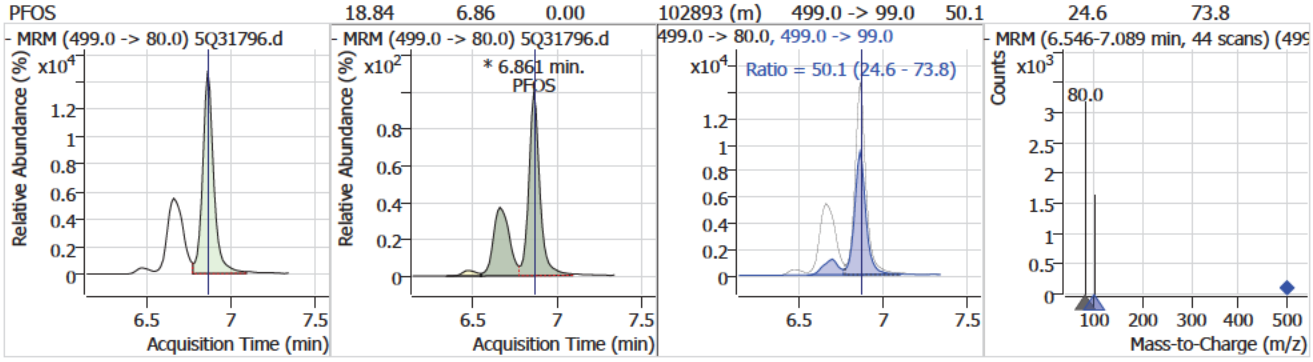




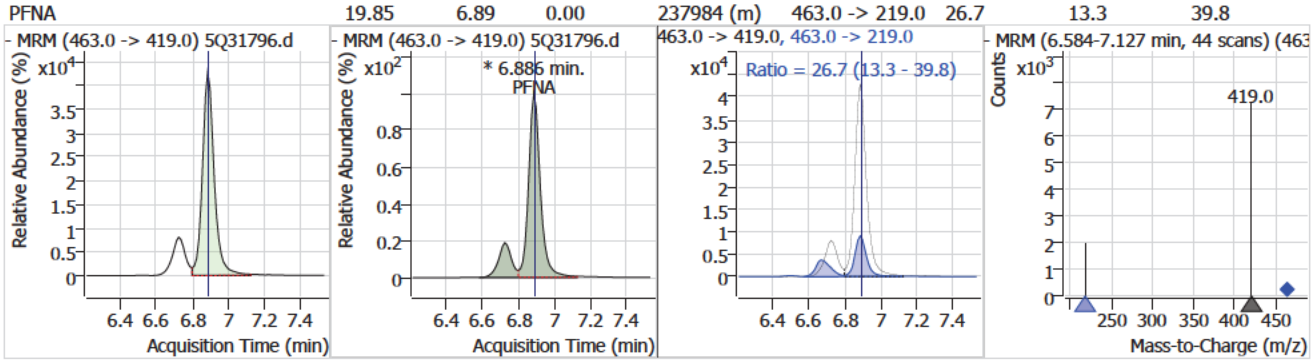


Perfluorinated Compounds by LC/MS/MS

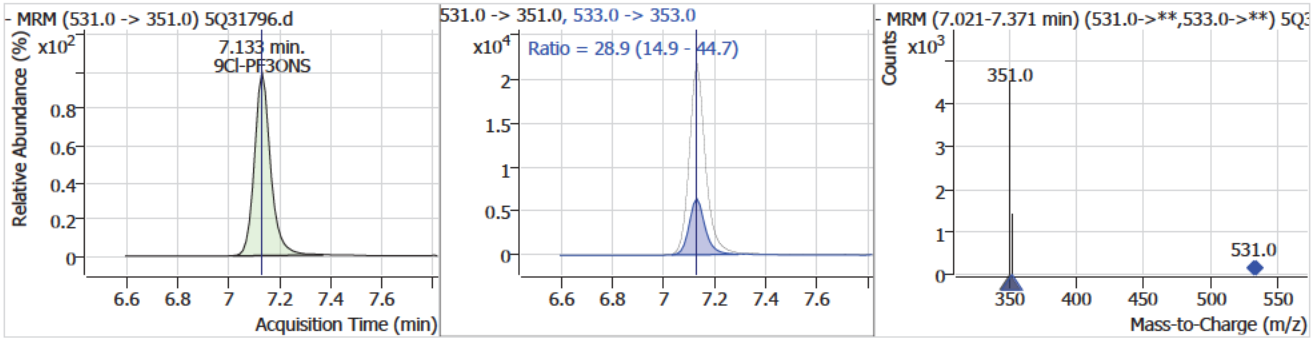
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.84	6.86	0.00	102893 (m)	499.0 -> 99.0	50.1	24.6	73.8



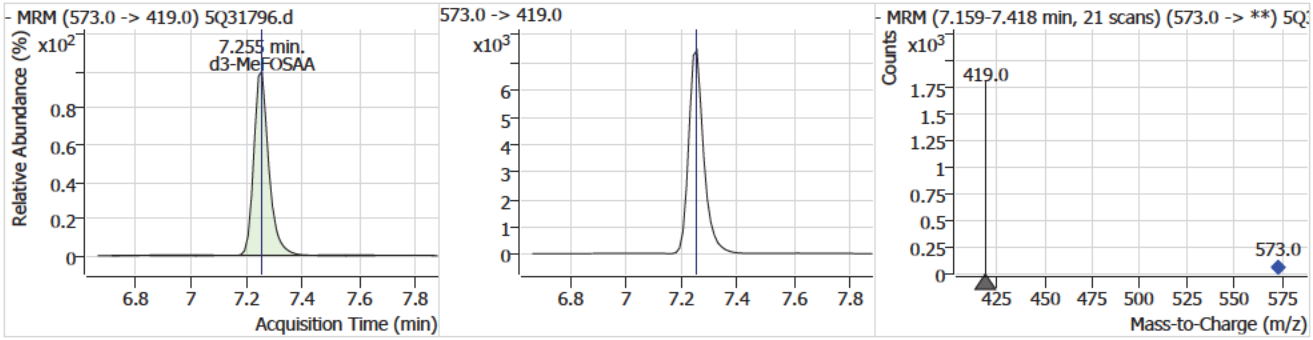
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.85	6.89	0.00	237984 (m)	463.0 -> 219.0	26.7	13.3	39.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	19.50	7.13	0.00	95257	533.0 -> 353.0	28.9	14.9	44.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	27606				



(b) (4)

7.7.43
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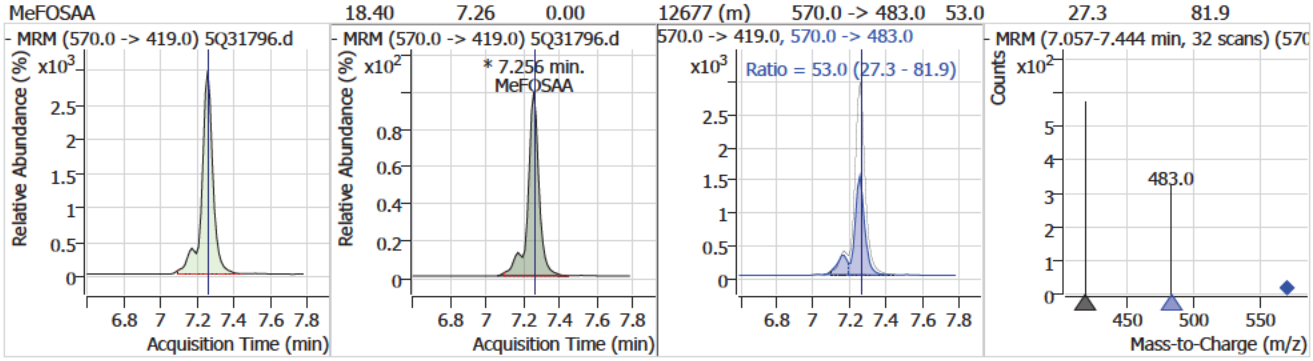
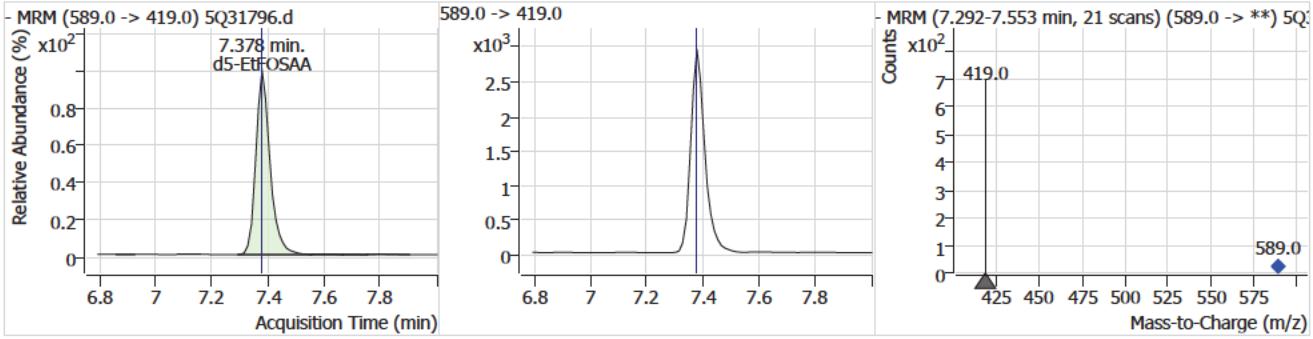
Perfluorinated Compounds by LC/MS/MS

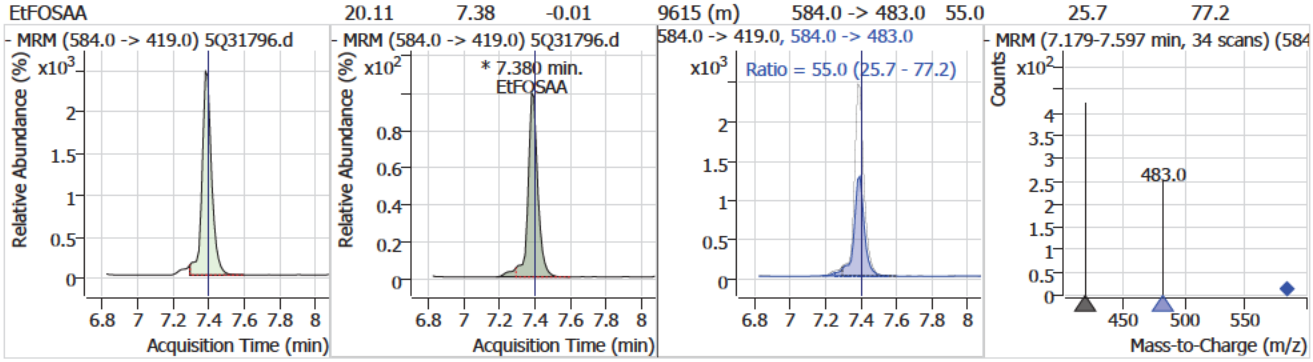
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	18.40	7.26	0.00	12677 (m)	570.0 -> 483.0	53.0	27.3	81.9



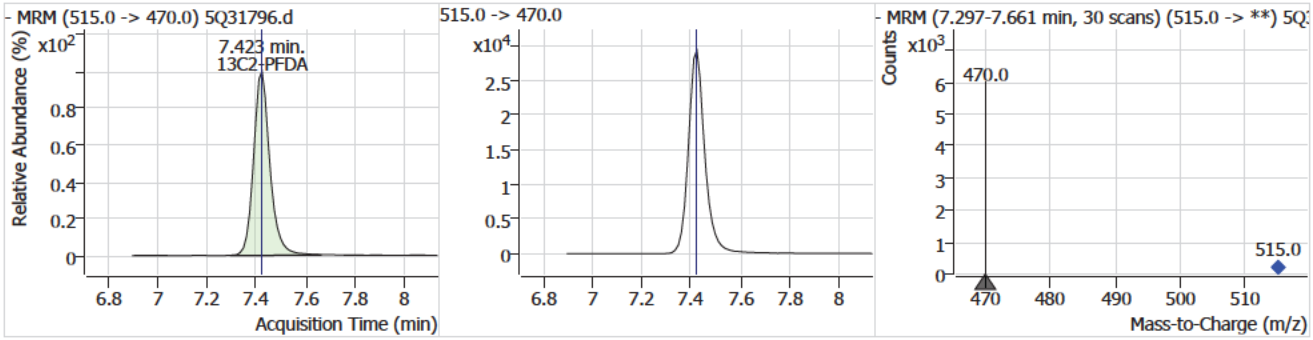
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	19.53	7.38	0.00	10262				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	20.11	7.38	-0.01	9615 (m)	584.0 -> 483.0	55.0	25.7	77.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	9.11	7.42	0.00	134057				



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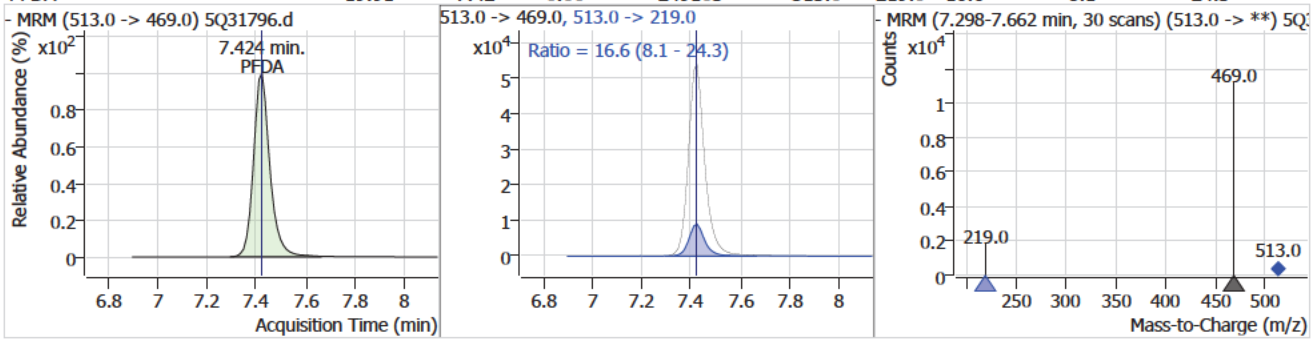
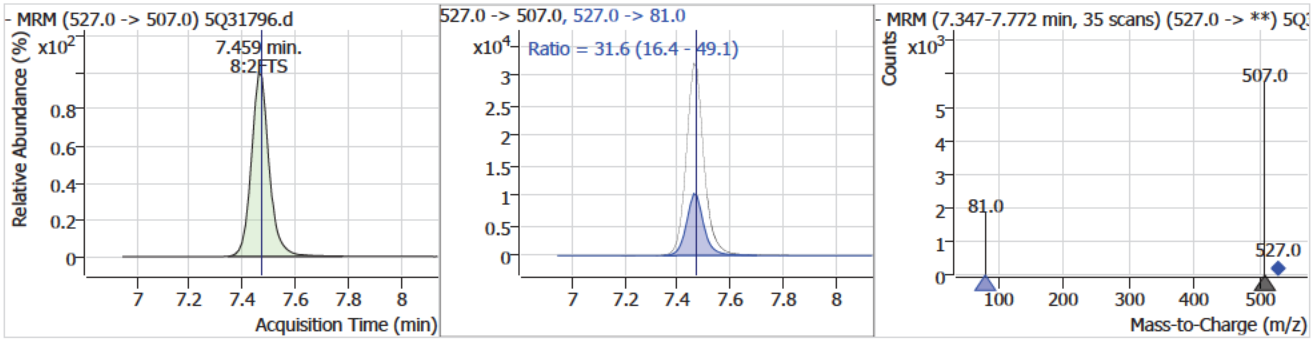
Perfluorinated Compounds by LC/MS/MS

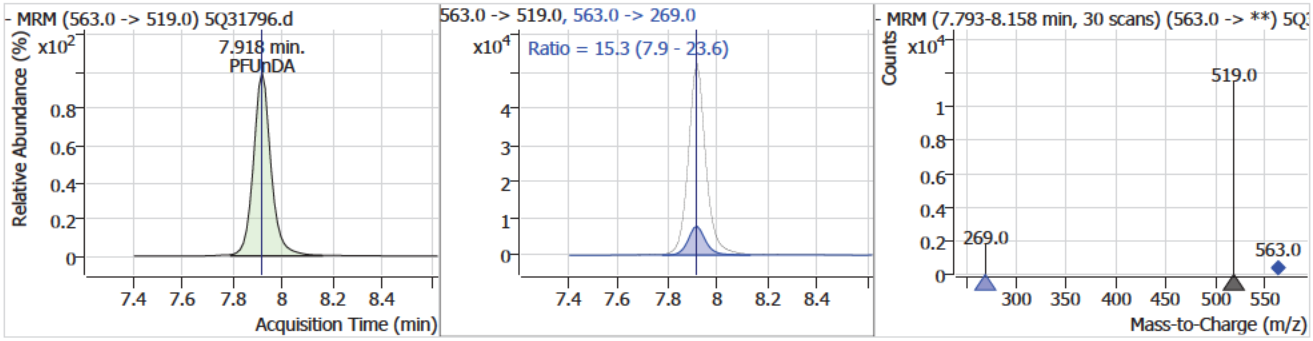
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.91	7.42	0.00	249103	513.0 -> 219.0	16.6	8.1	24.3



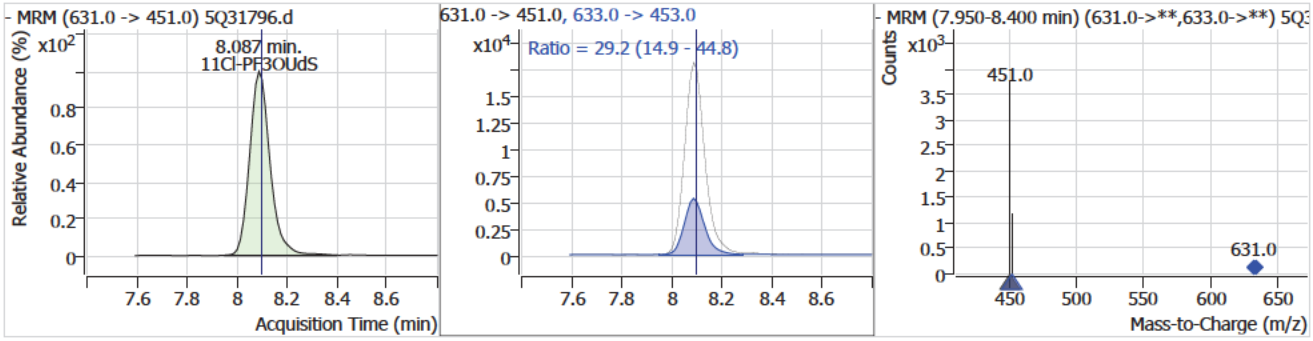
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.72	7.46	-0.01	149215	527.0 -> 81.0	31.6	16.4	49.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.97	7.92	0.00	254746	563.0 -> 269.0	15.3	7.9	23.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	20.39	8.09	-0.01	103149	633.0 -> 453.0	29.2	14.9	44.8



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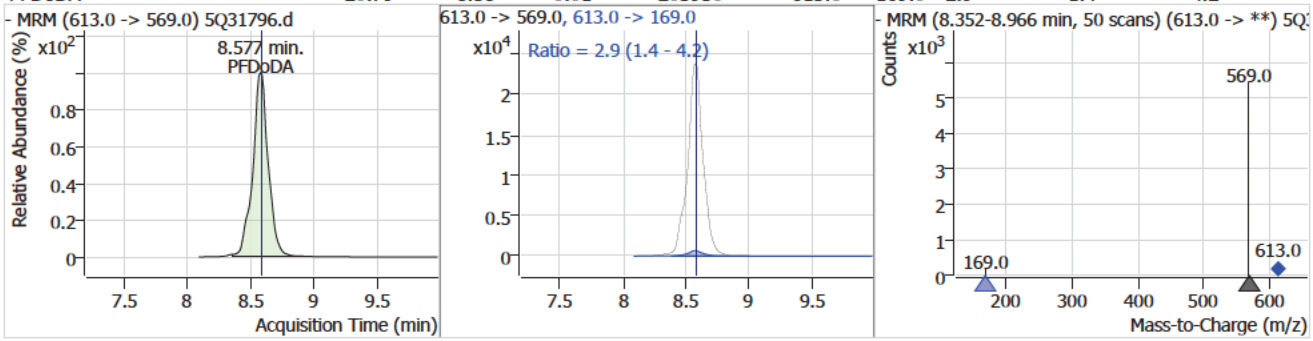
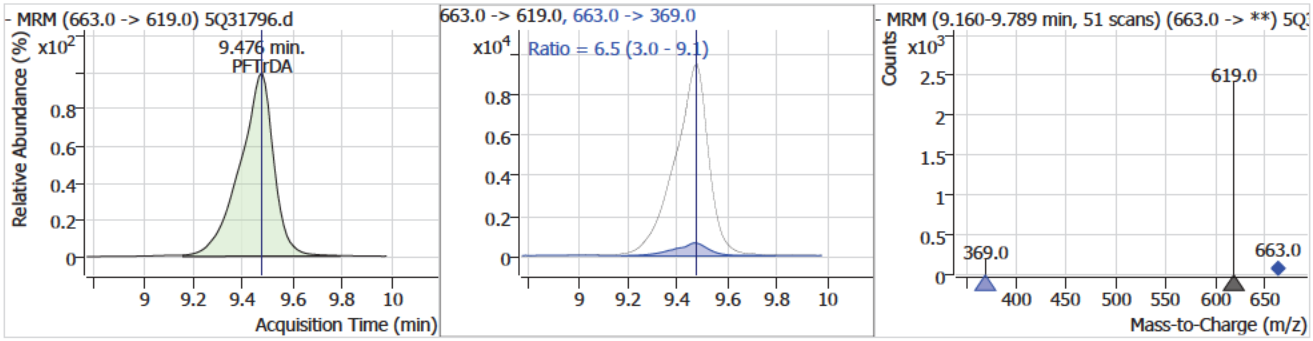
Perfluorinated Compounds by LC/MS/MS

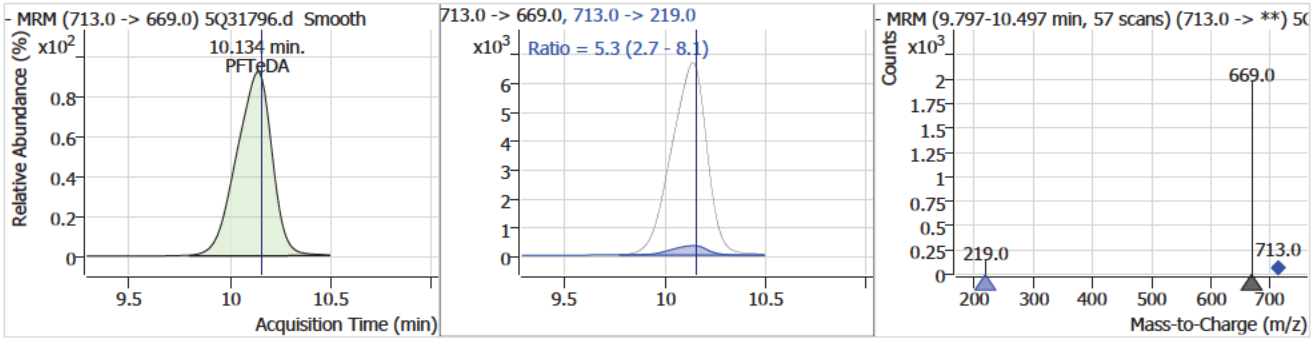
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	20.79	8.58	-0.01	203930	613.0 -> 169.0	2.9	1.4	4.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	16.42	9.48	0.00	90271	663.0 -> 369.0	6.5	3.0	9.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	20.70	10.13	-0.03	81696	713.0 -> 219.0	5.3	2.7	8.1



Manual Integration Approval Summary

Sample Number: S5Q522-CC522
Lab FileID: 5Q31796.D
Injection Time: 04/16/25 14:41
Method: EPA 537.1 REV 2.0
Analyst approved: 04/17/25 07:52 (b) (6) [redacted]
Supervisor approved: 04/17/25 09:03 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 09:03

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31797.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/16/2025 2:57:17 PM
Sample Name : cc522-0.5LL
Vial : P1-A2
DA Method File : 537_041625_S5Q522.quantmethod
Batch Name : s5q522.batch.bin
Sample Information : OP8882,S5Q522,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.287	429.0 -> 409.0	154123	20.00	µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	349266	20.00	µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	470951	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	84079	20.00	µg/L		0.000
d3-MeFOSAA	7.255	573.0 -> 419.0	29329	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.423	515.0 -> 470.0	2608	0.18	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 0.9%			
13C2-PFHxA	4.775	315.0 -> 270.0	4272	0.18	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 0.9%			
d5-EtFOSAA	7.378	589.0 -> 419.0	182	0.33	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 0.8%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	619	0.37	µg/L	m	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 0.9%			
Target Compounds							QValue
6:2FTS	6.287	427.0 -> 407.0	3128	0.34	µg/L		96
8:2FTS	7.472	527.0 -> 507.0	2956	0.47	µg/L		95
EtFOSAA	7.380	584.0 -> 419.0	244	0.48	µg/L	m	87
MeFOSAA	7.256	570.0 -> 419.0	298	0.41	µg/L		100
PFBS	3.841	299.0 -> 80.0	4848	0.40	µg/L		99
PFDA	7.424	513.0 -> 469.0	4745	0.40	µg/L		95
PFDoDA	8.577	613.0 -> 569.0	4908	0.53	µg/L	#	95
PFHpA	5.614	363.0 -> 319.0	10942	0.37	µg/L		99
PFHxA	4.777	313.0 -> 269.0	5238	0.35	µg/L		94
PFHxS	5.648	399.0 -> 80.0	2663	0.37	µg/L	m	92
PFNA	6.886	463.0 -> 419.0	4210	0.37	µg/L	#m	73
PFOA	6.290	413.0 -> 369.0	6215	0.38	µg/L		96
PFOS	6.861	499.0 -> 80.0	2050	0.37	µg/L	m	90
PFPeA	3.610	263.0 -> 219.0	10683	0.37	µg/L		100
PFTeDA	10.134	713.0 -> 669.0	1666	0.44	µg/L		99
PFTrDA	9.476	663.0 -> 619.0	2282	0.41	µg/L		99
PFUnDA	7.918	563.0 -> 519.0	4550	0.35	µg/L		93
ADONA	5.688	377.0 -> 251.0	13284	0.36	µg/L		97
9Cl-PF3ONS	7.133	531.0 -> 351.0	1670	0.37	µg/L		97
11Cl-PF3OUdS	8.087	631.0 -> 451.0	2055	0.45	µg/L		92
HFPO-DA	5.035	285.0 -> 169.0	487	0.35	µg/L	#m	99

= Qualifier out of range, m = manually integrated, + = Area summed

7.7.44
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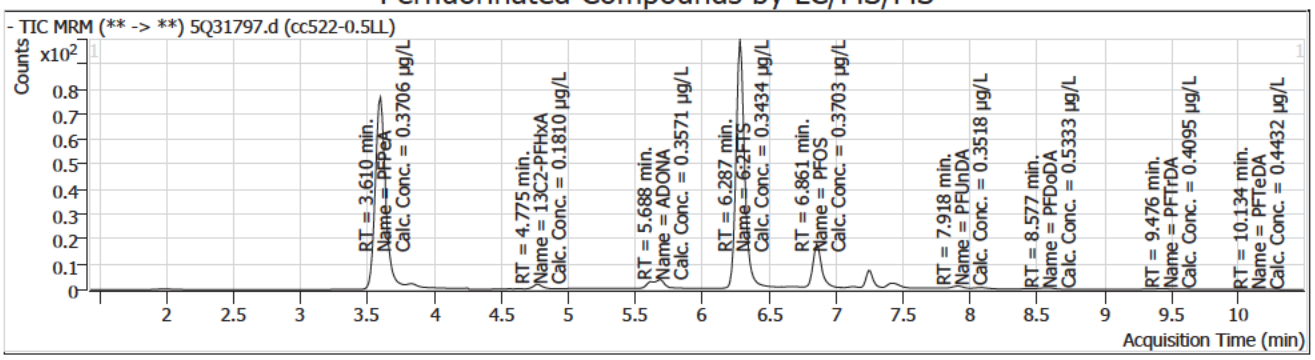
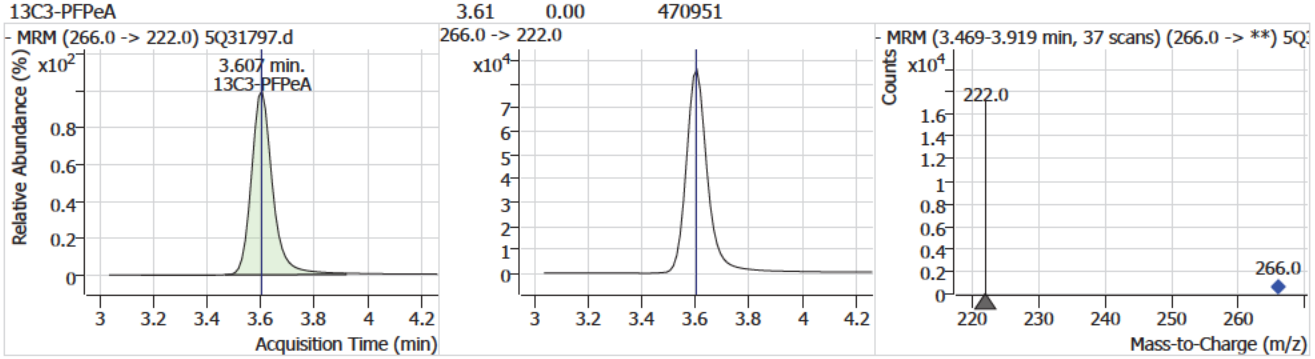
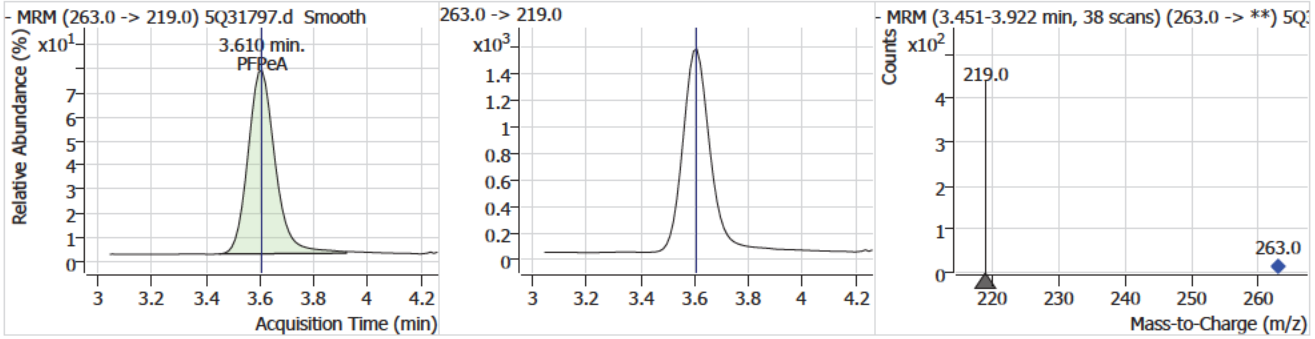
Perfluorinated Compounds by LC/MS/MS



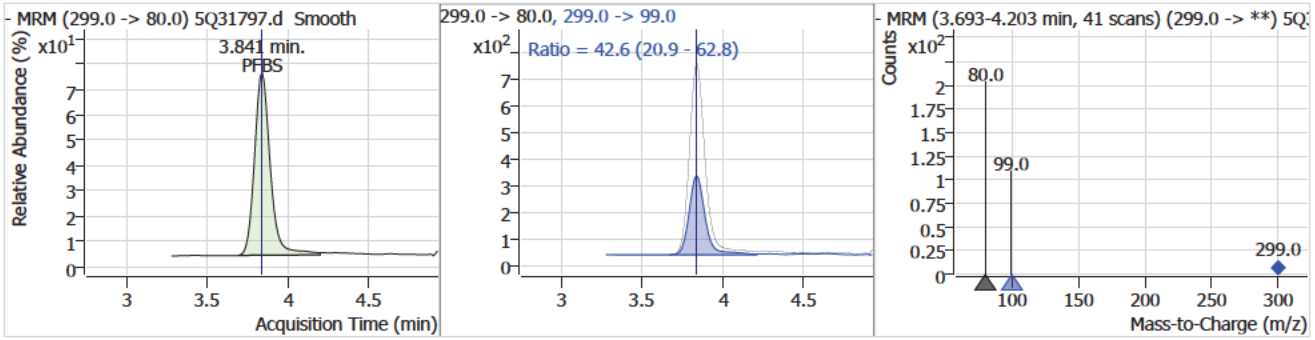
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.00	470951				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.37	3.61	0.00	10683				

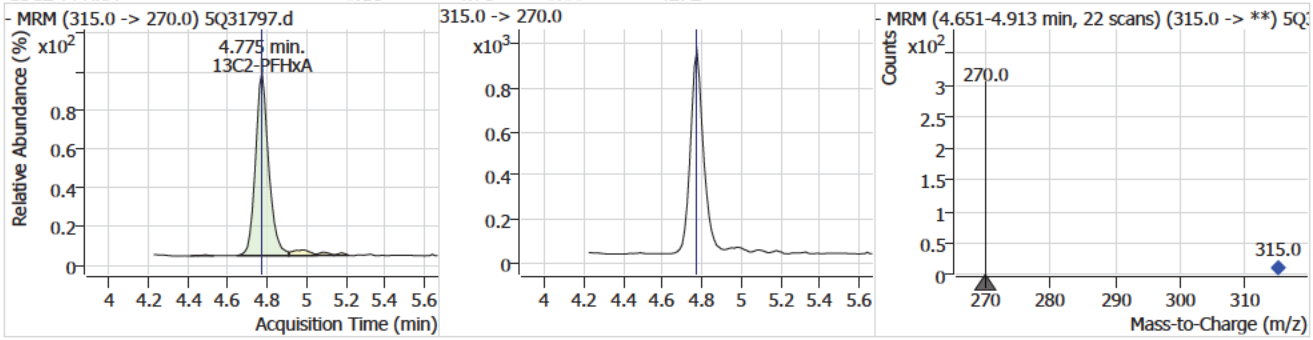


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.40	3.84	0.00	4848	299.0 -> 99.0	42.6	20.9	62.8

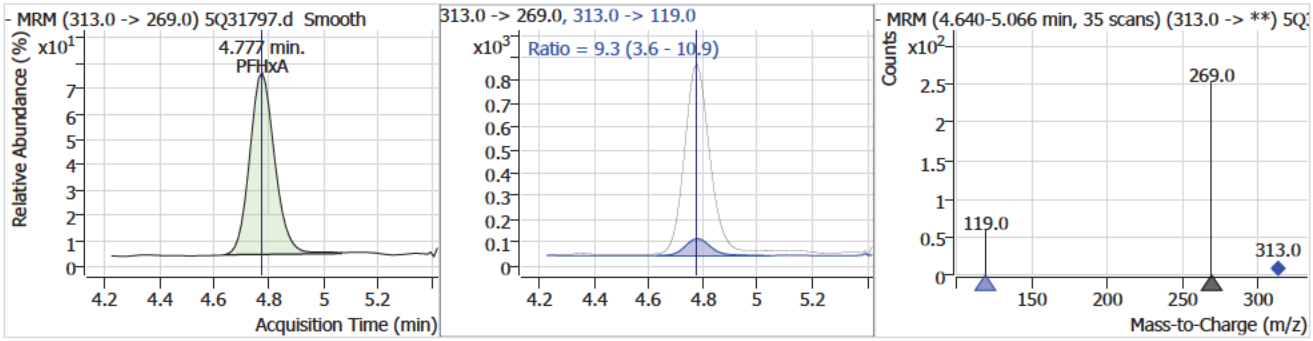


Perfluorinated Compounds by LC/MS/MS

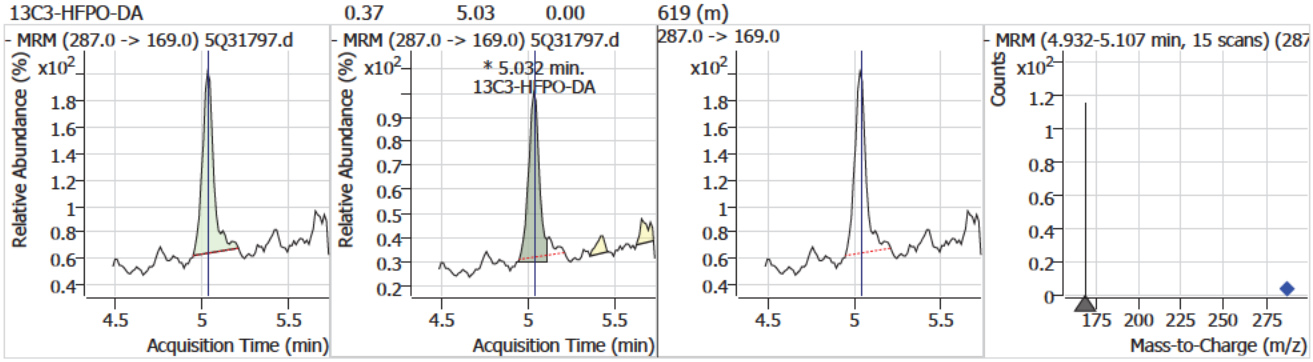
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.18	4.78	0.00	4272				



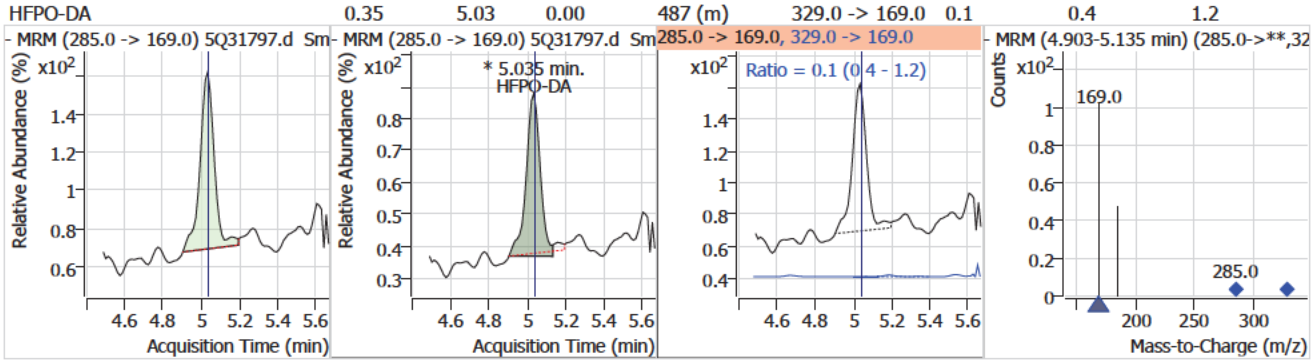
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.35	4.78	0.00	5238	313.0 -> 119.0	9.3	3.6	10.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.37	5.03	0.00	619 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.35	5.03	0.00	487 (m)	329.0 -> 169.0	0.1	0.4	1.2



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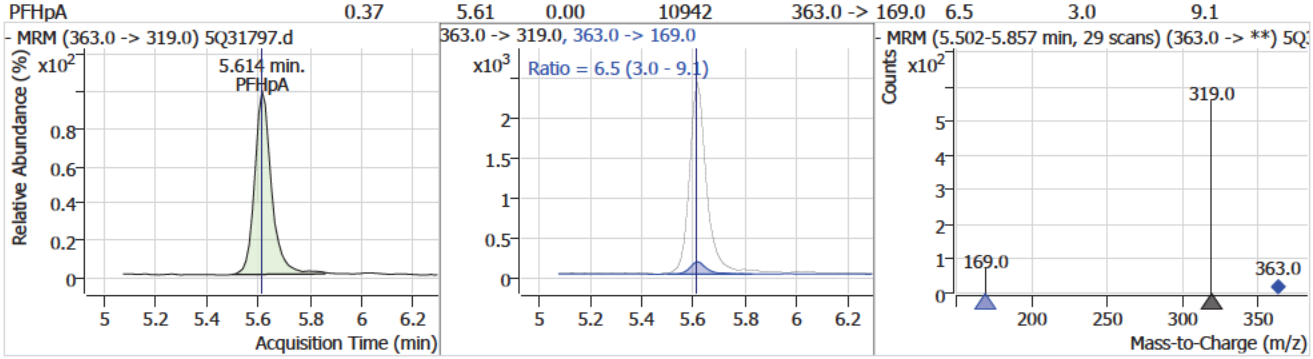
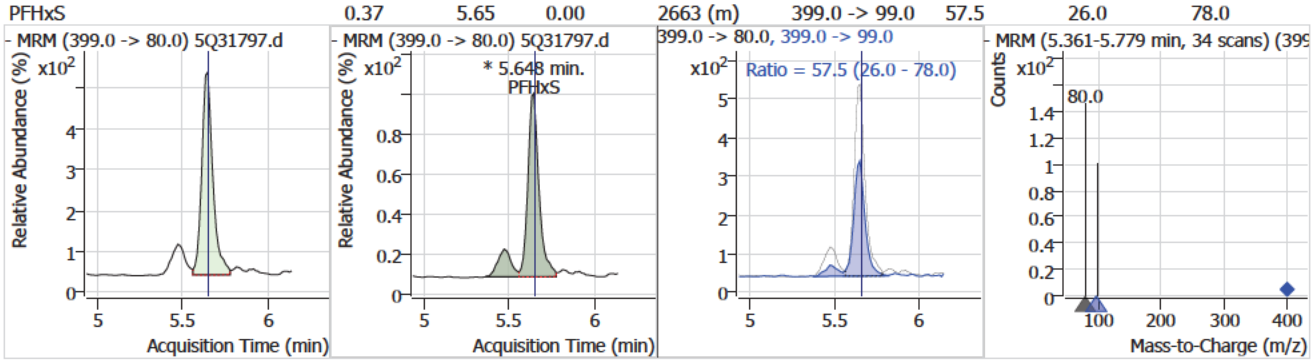
Perfluorinated Compounds by LC/MS/MS

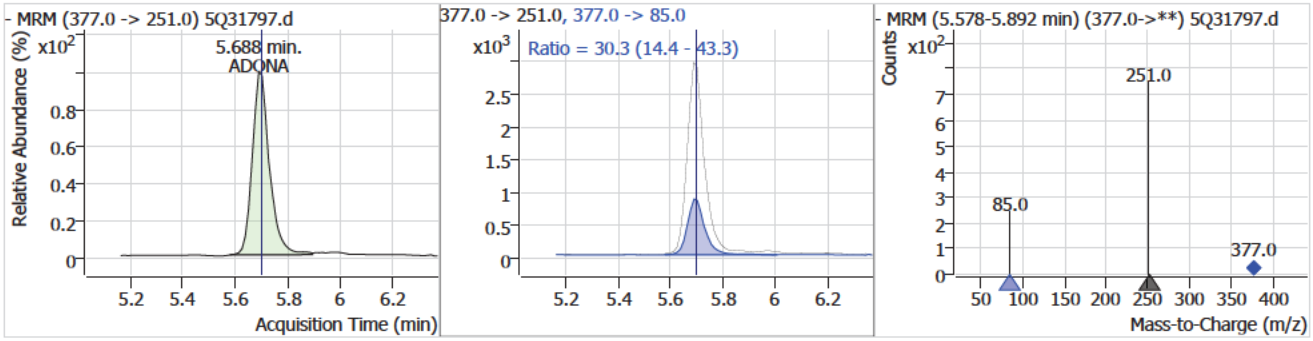
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.37	5.61	0.00	10942	363.0 -> 169.0	6.5	3.0	9.1



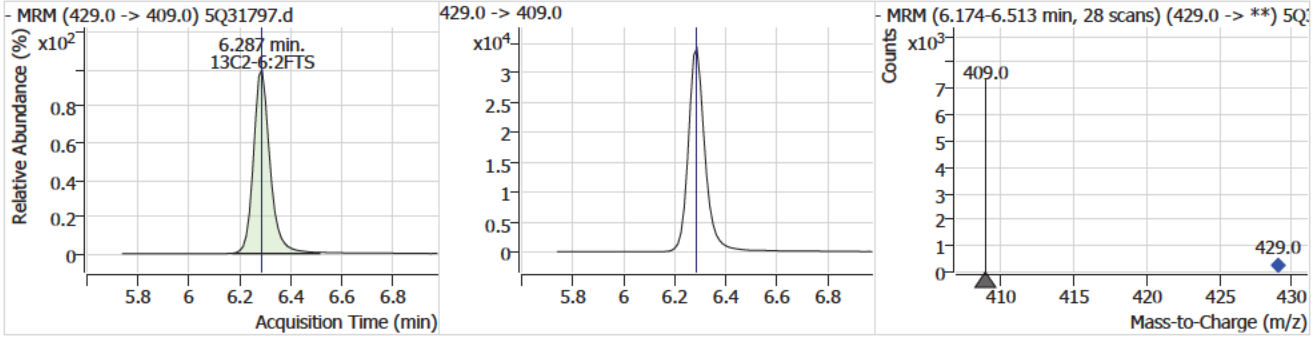
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.37	5.65	0.00	2663 (m)	399.0 -> 99.0	57.5	26.0	78.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.36	5.69	-0.01	13284	377.0 -> 85.0	30.3	14.4	43.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	154123				



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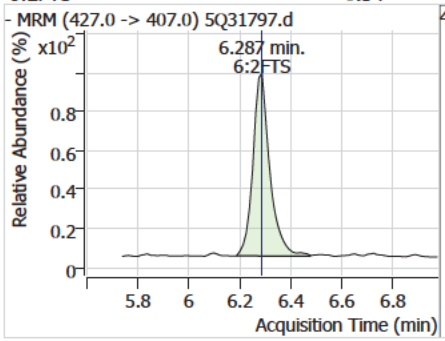
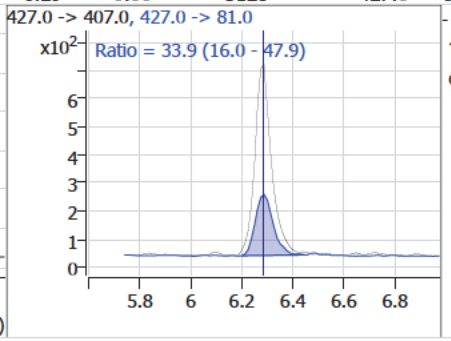
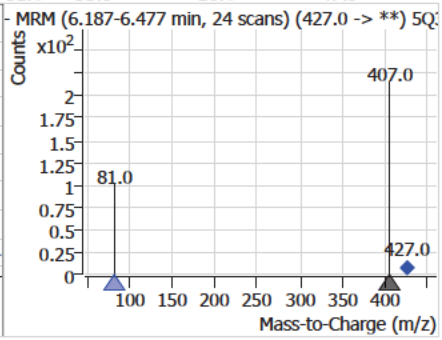
Perfluorinated Compounds by LC/MS/MS

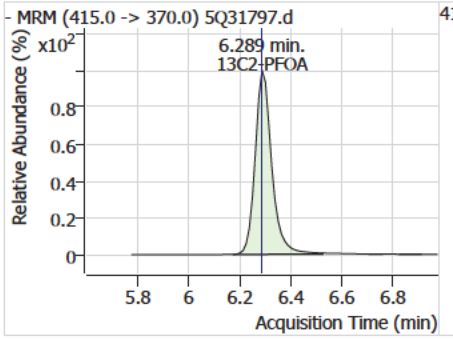
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.34	6.29	0.00	3128	427.0 -> 81.0	33.9	16.0	47.9

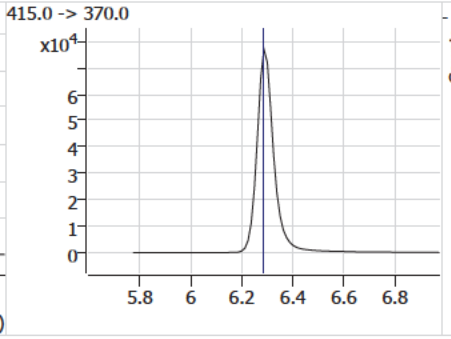


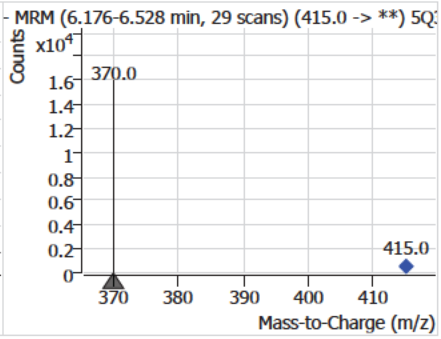




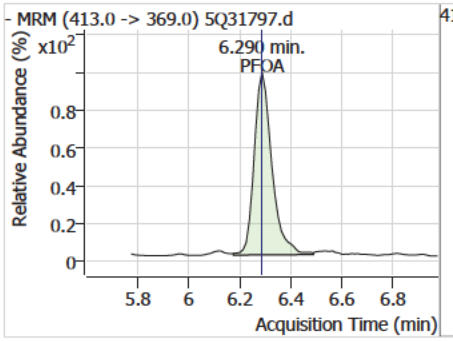
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	349266				

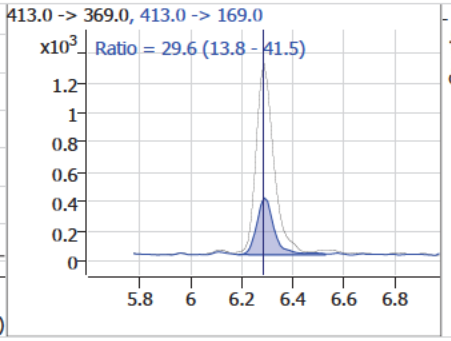


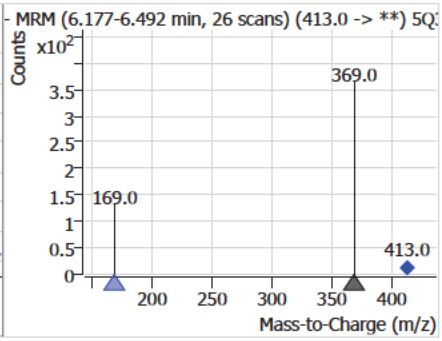




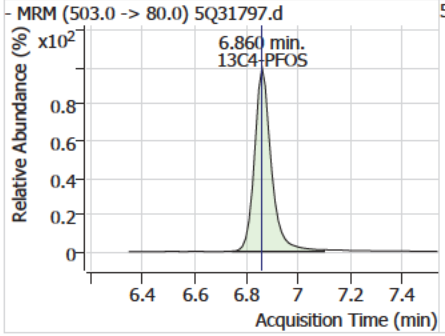
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.38	6.29	0.00	6215	413.0 -> 169.0	29.6	13.8	41.5

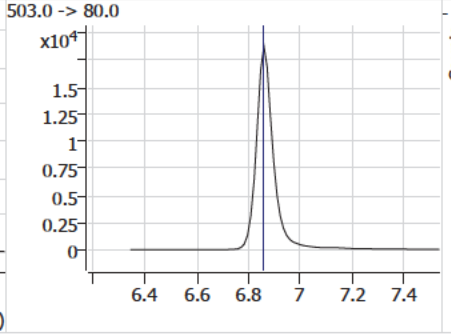


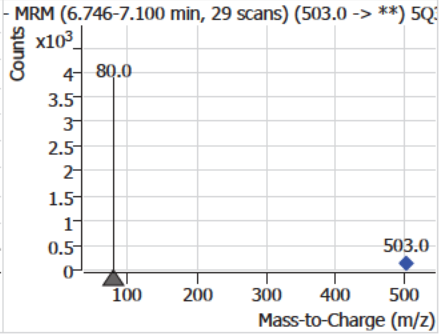




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	84079				







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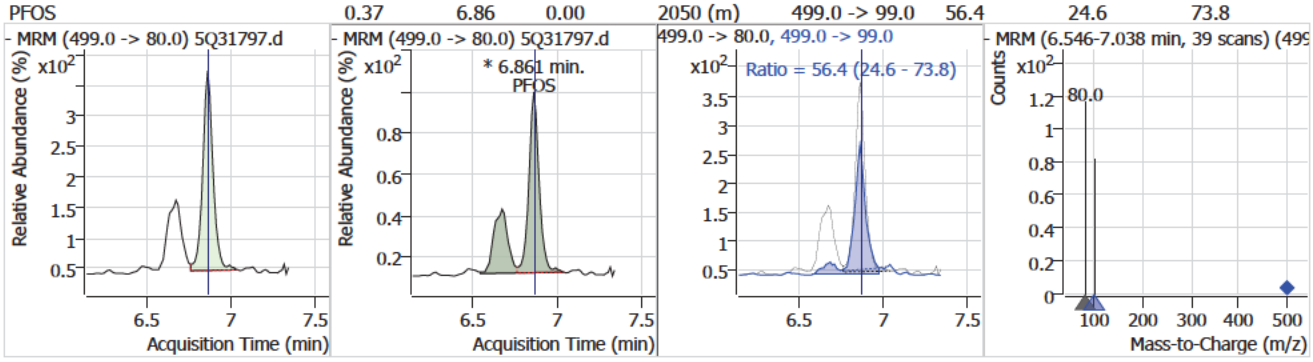
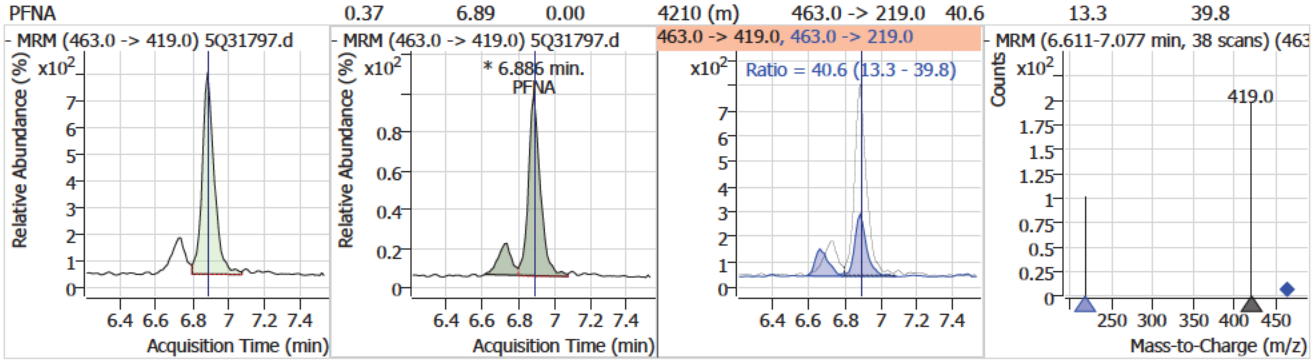
Perfluorinated Compounds by LC/MS/MS

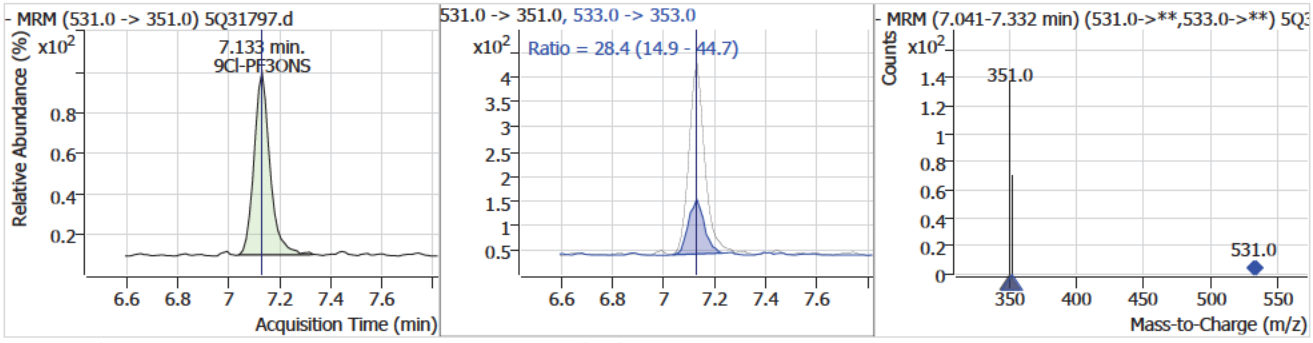
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.37	6.86	0.00	2050 (m)	499.0 -> 99.0	56.4	24.6	73.8



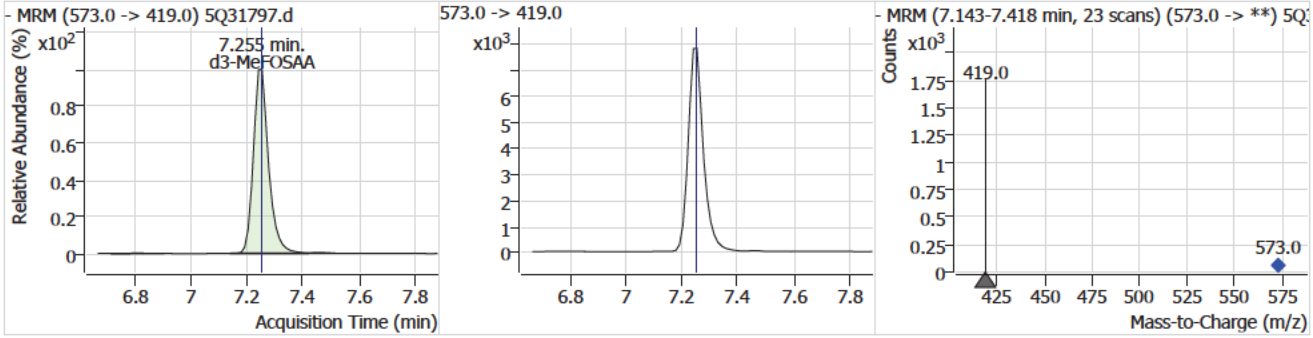
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.37	6.89	0.00	4210 (m)	463.0 -> 219.0	40.6	13.3	39.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.37	7.13	0.00	1670	533.0 -> 353.0	28.4	14.9	44.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	29329				



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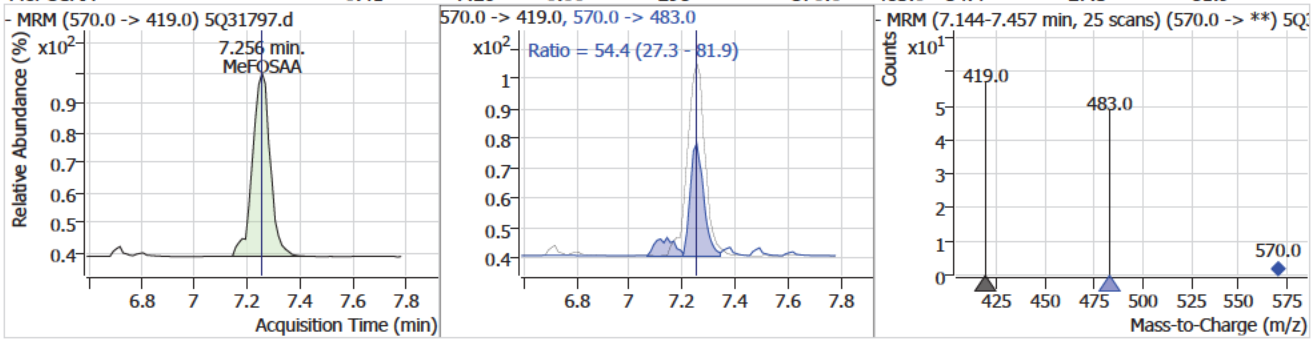
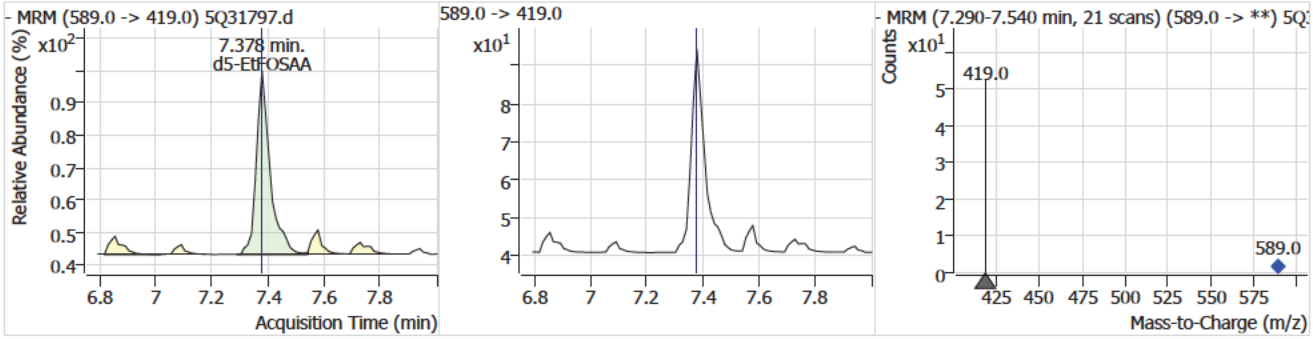
Perfluorinated Compounds by LC/MS/MS

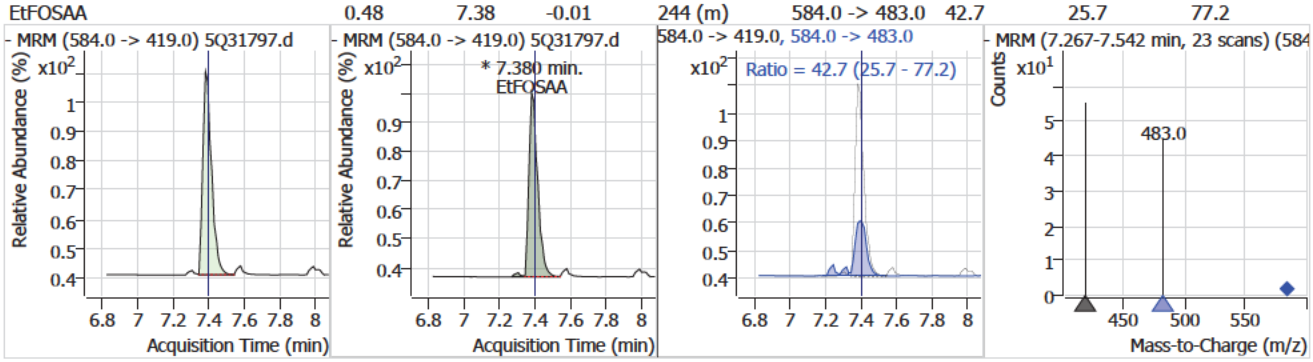
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.41	7.26	0.00	298	570.0 -> 483.0	54.4	27.3	81.9



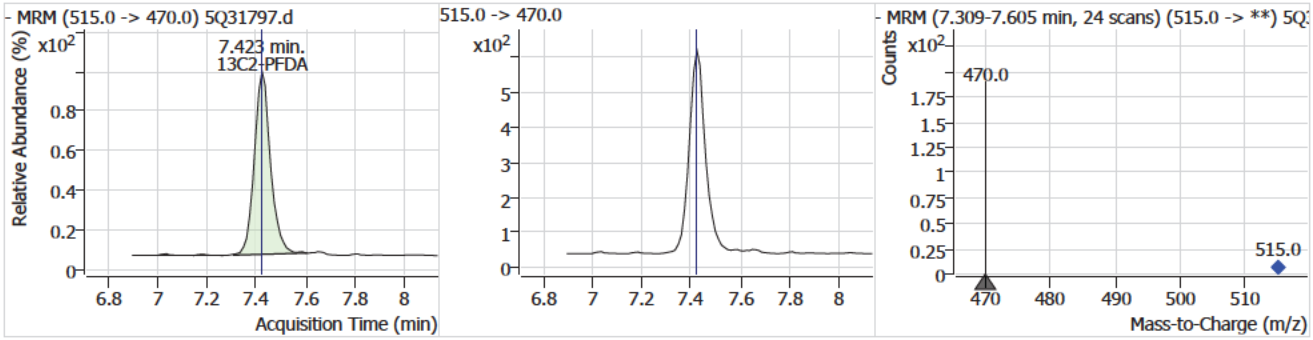
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	0.33	7.38	0.00	182				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.48	7.38	-0.01	244 (m)	584.0 -> 483.0	42.7	25.7	77.2

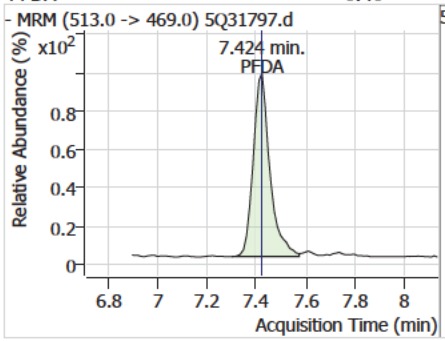


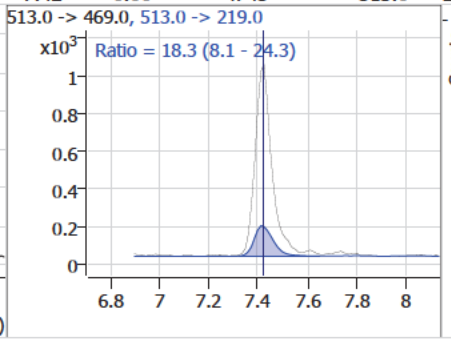
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.18	7.42	0.00	2608				

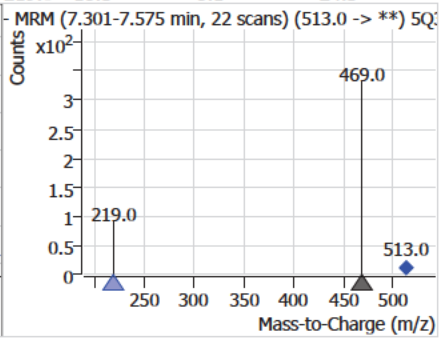


Perfluorinated Compounds by LC/MS/MS

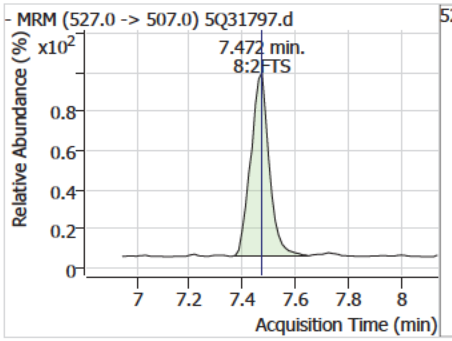
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.40	7.42	0.00	4745	513.0 -> 219.0	18.3	8.1	24.3

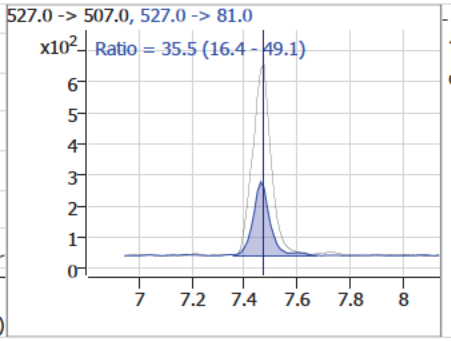


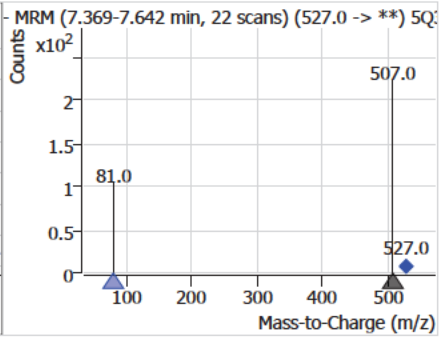




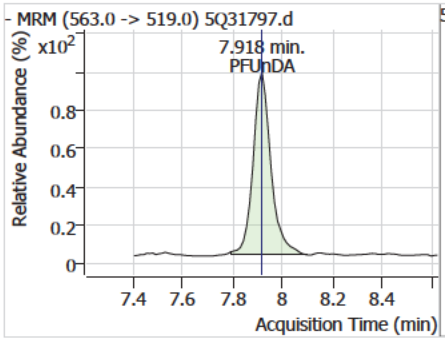
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.47	7.47	0.00	2956	527.0 -> 81.0	35.5	16.4	49.1

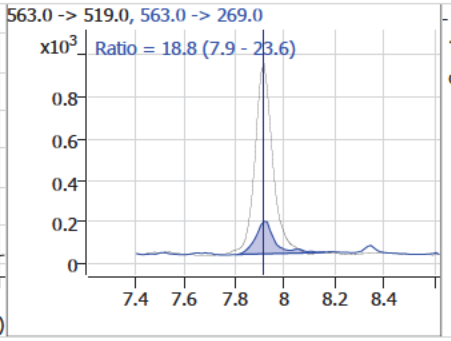


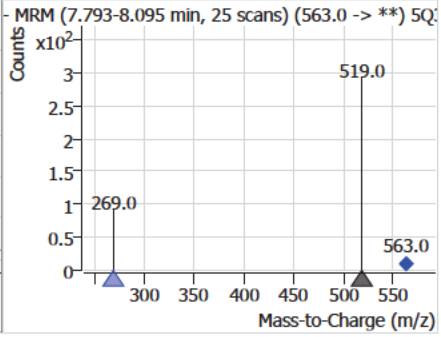




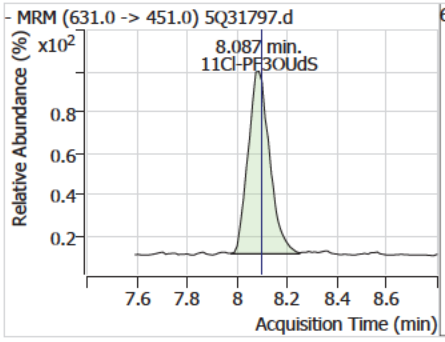
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.35	7.92	0.00	4550	563.0 -> 269.0	18.8	7.9	23.6

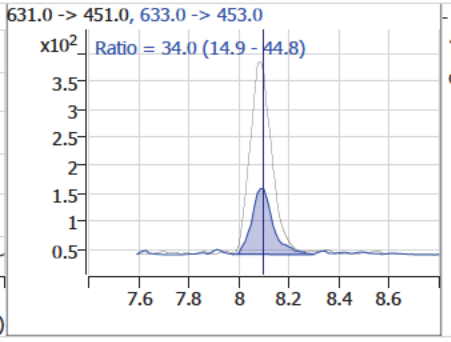


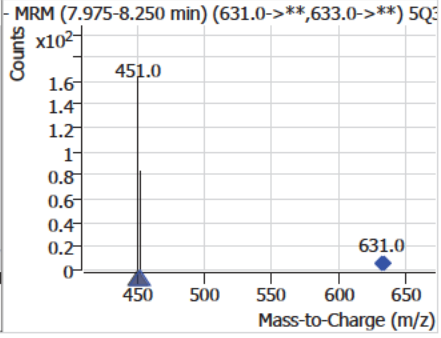




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.45	8.09	-0.01	2055	633.0 -> 453.0	34.0	14.9	44.8

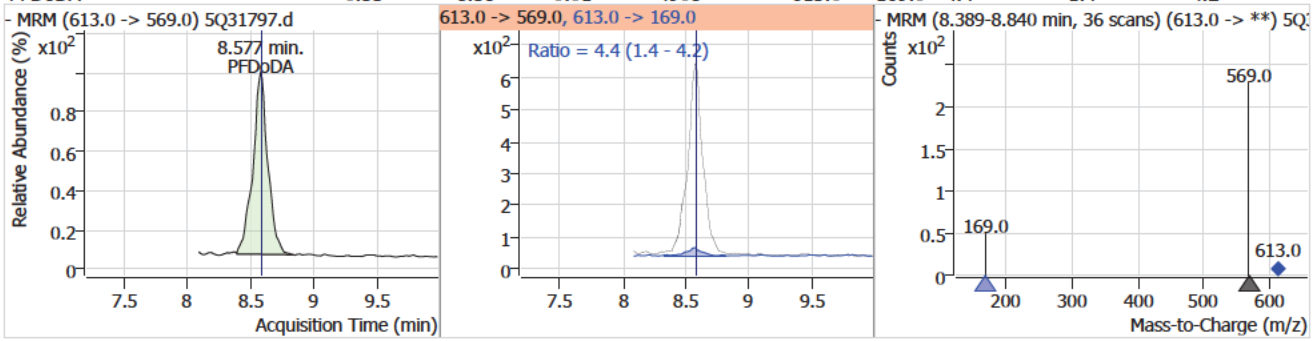




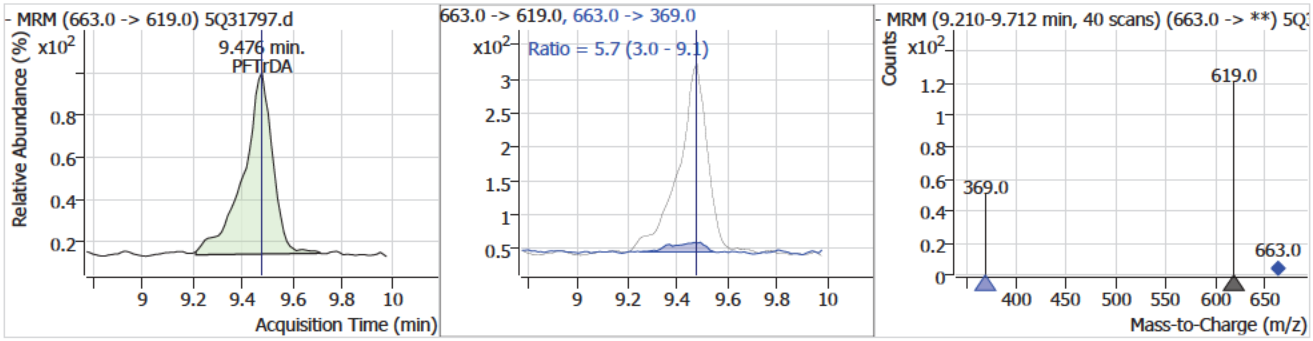


Perfluorinated Compounds by LC/MS/MS

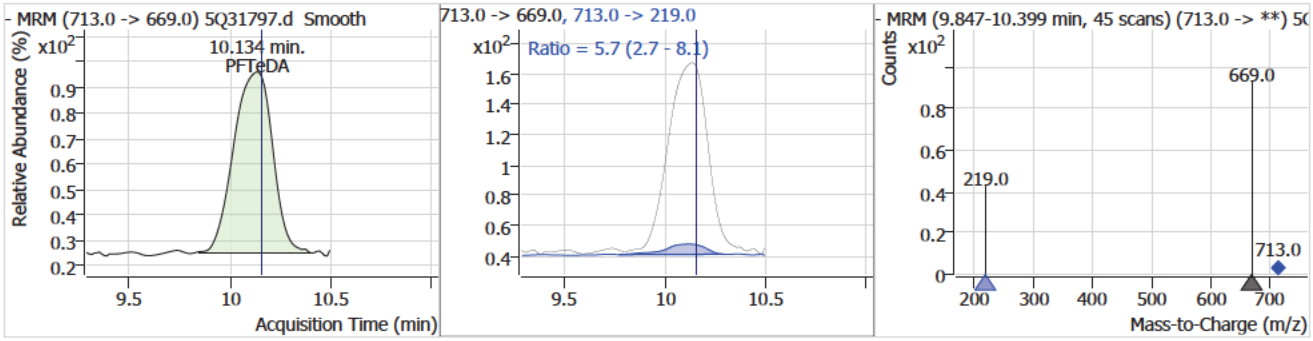
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.53	8.58	-0.01	4908	613.0 -> 169.0	4.4	1.4	4.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.41	9.48	0.00	2282	663.0 -> 369.0	5.7	3.0	9.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.44	10.13	-0.02	1666	713.0 -> 219.0	5.7	2.7	8.1



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Manual Integration Approval Summary

Sample Number: S5Q522-CC522
Lab FileID: 5Q31797.D
Injection Time: 04/16/25 14:57
Method: EPA 537.1 REV 2.0
Analyst approved: 04/17/25 07:52 (b) (6) [redacted]
Supervisor approved: 04/17/25 09:03 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C3-HFPO-DA			5.03	Poor instrument integration
HFPO-DA (GenX)	13252-13-6		5.04	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Cal Report: 5Q31808.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 09:03

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31808.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/16/2025 5:53:27 PM
Sample Name : ecc522-20
Vial : P1-A7
DA Method File : 537_041625_S5Q522.quantmethod
Batch Name : s5q522.batch.bin
Sample Information : OP8882,S5Q522,250,,,1,1,water

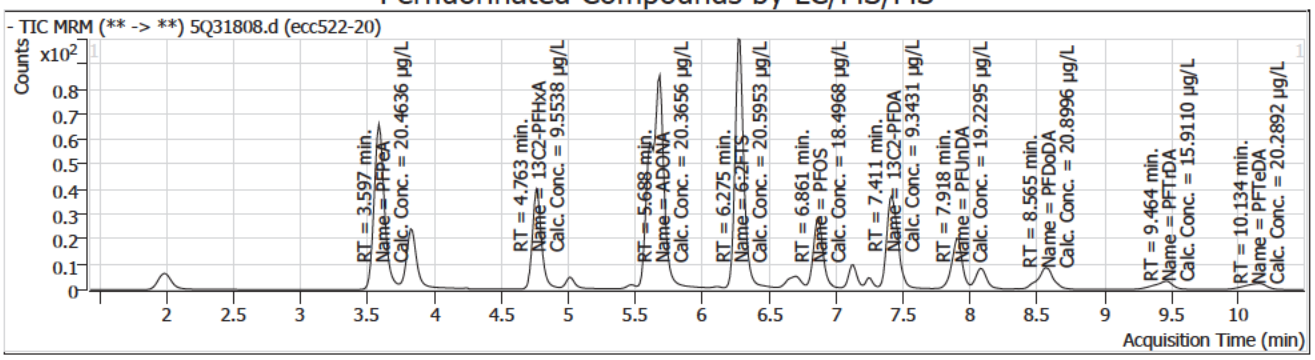
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.274	429.0 -> 409.0	170488	20.00	µg/L		-0.012
13C2-PFOA	6.289	415.0 -> 370.0	358492	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	477446	20.00	µg/L		-0.012
13C4-PFOS	6.860	503.0 -> 80.0	86095	20.00	µg/L		0.000
d3-MeFOSAA	7.242	573.0 -> 419.0	29636	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.411	515.0 -> 470.0	138074	9.34	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 46.7%			
13C2-PFHxA	4.763	315.0 -> 270.0	231490	9.55	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 47.8%			
d5-EtFOSAA	7.378	589.0 -> 419.0	10798	19.15	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 47.9%			
13C3-HFPO-DA	5.019	287.0 -> 169.0	29918	17.59	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 44.0%			
Target Compounds							QValue
6:2FTS	6.275	427.0 -> 407.0	199709	20.60	µg/L		99
8:2FTS	7.459	527.0 -> 507.0	150250	21.45	µg/L		100
EtFOSAA	7.380	584.0 -> 419.0	10398	20.26	µg/L	m	96
MeFOSAA	7.256	570.0 -> 419.0	12854	17.37	µg/L	m	98
PFBS	3.828	299.0 -> 80.0	260489	21.15	µg/L		99
PFDA	7.411	513.0 -> 469.0	250936	19.97	µg/L		97
PFDoDA	8.565	613.0 -> 569.0	212825	20.90	µg/L		100
PFHpA	5.614	363.0 -> 319.0	627023	20.35	µg/L		100
PFHxA	4.764	313.0 -> 269.0	318605	20.40	µg/L		100
PFHxS	5.635	399.0 -> 80.0	154739	20.64	µg/L	m	100
PFNA	6.886	463.0 -> 419.0	238861	19.84	µg/L	m	99
PFOA	6.290	413.0 -> 369.0	346806	20.20	µg/L		99
PFOS	6.861	499.0 -> 80.0	104829	18.50	µg/L	m	98
PFPeA	3.597	263.0 -> 219.0	609073	20.46	µg/L		100
PFTeDA	10.134	713.0 -> 669.0	83009	20.29	µg/L		99
PFTrDA	9.464	663.0 -> 619.0	90782	15.91	µg/L		99
PFUnDA	7.918	563.0 -> 519.0	254630	19.23	µg/L		98
ADONA	5.688	377.0 -> 251.0	810887	20.37	µg/L		100
9Cl-PF3ONS	7.121	531.0 -> 351.0	98129	19.98	µg/L		99
11Cl-PF3OUdS	8.075	631.0 -> 451.0	107355	21.07	µg/L		97
HFPO-DA	5.022	285.0 -> 169.0	29083	20.02	µg/L		99

= Qualifier out of range, m = manually integrated, + = Area summed

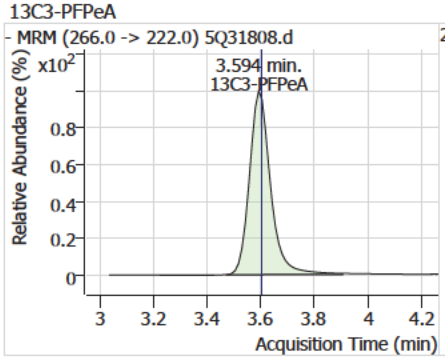
7.7.45

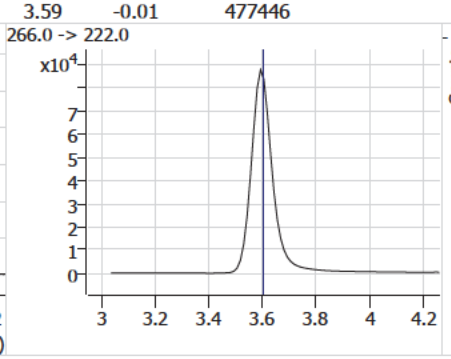
7

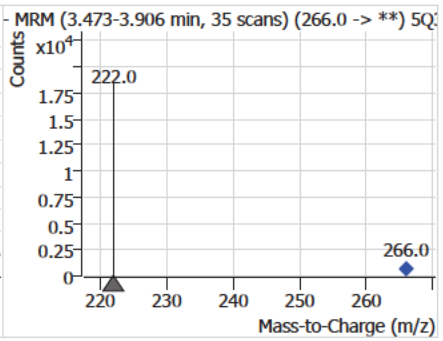
Perfluorinated Compounds by LC/MS/MS



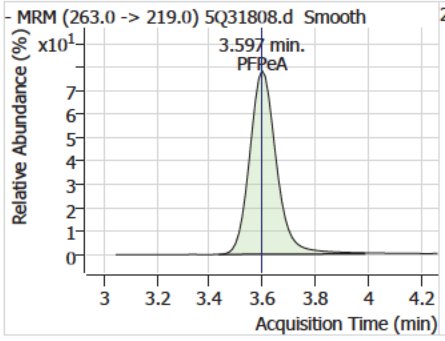
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	-0.01	477446				

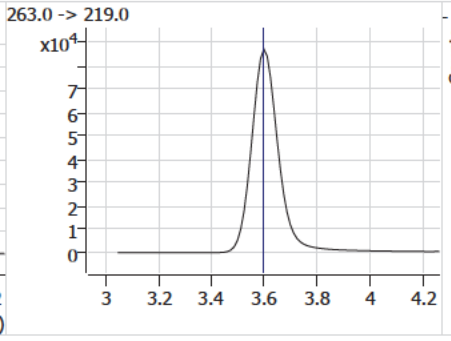


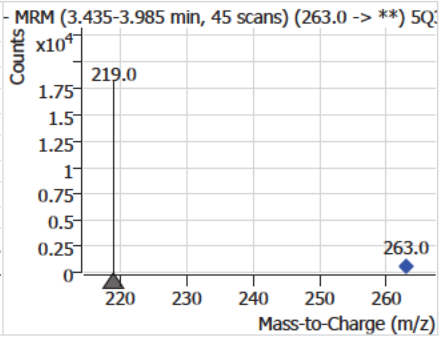




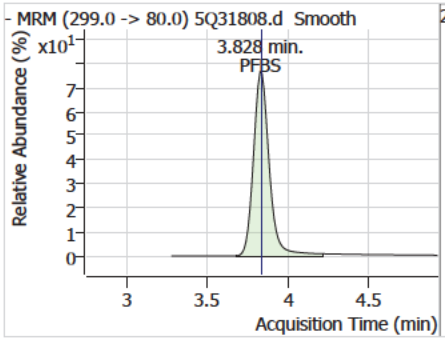
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.46	3.60	-0.01	609073				

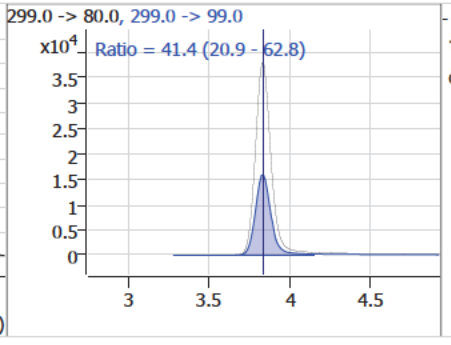


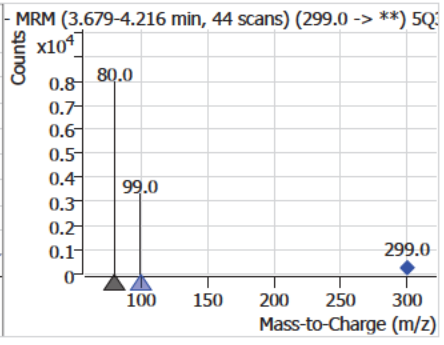




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	21.15	3.83	-0.01	260489	299.0 -> 99.0	41.4	20.9	62.8

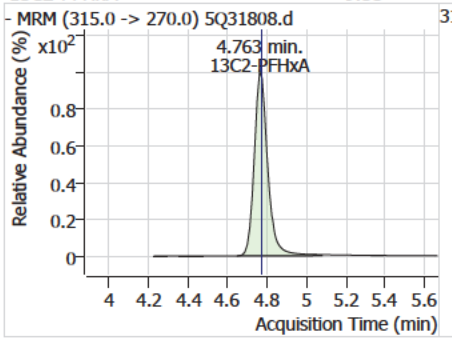


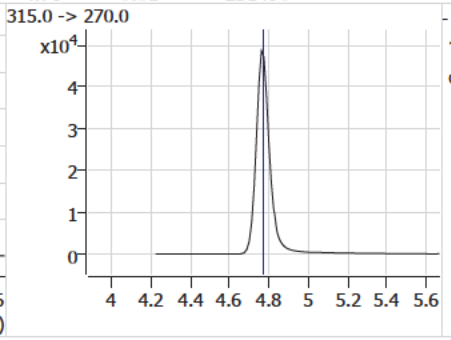


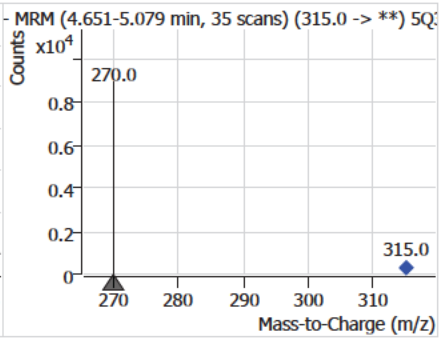


Perfluorinated Compounds by LC/MS/MS

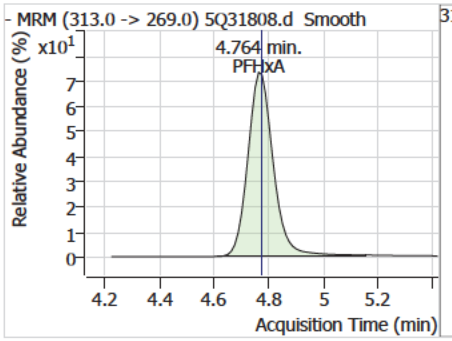
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	9.55	4.76	-0.01	231490				

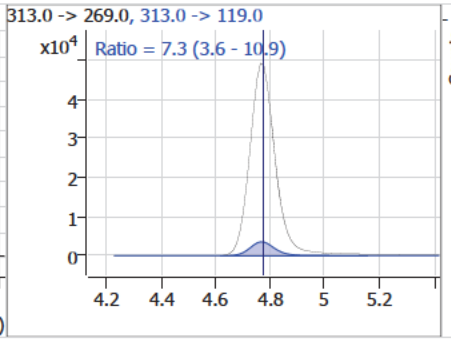


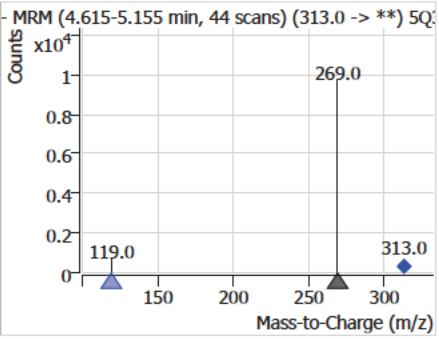




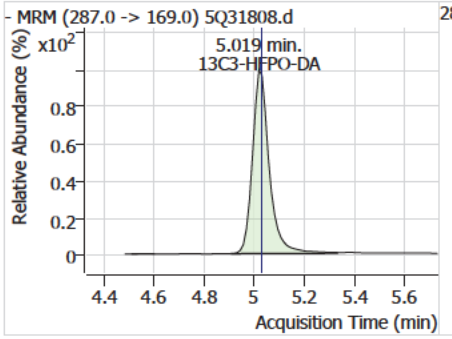
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	20.40	4.76	-0.01	318605	313.0 -> 119.0	7.3	3.6	10.9

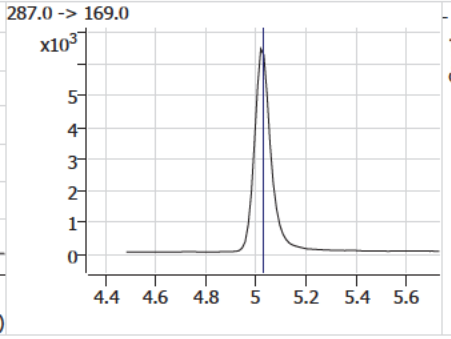


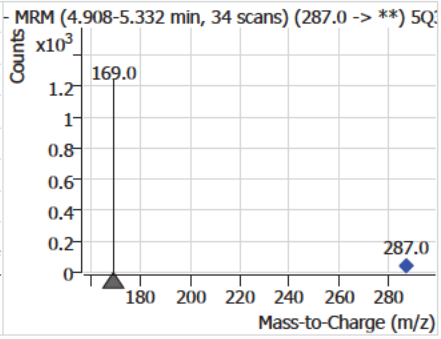




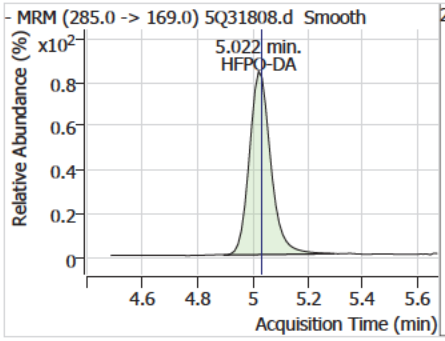
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	17.59	5.02	-0.01	29918				

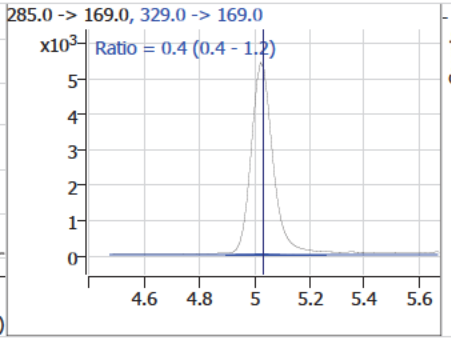


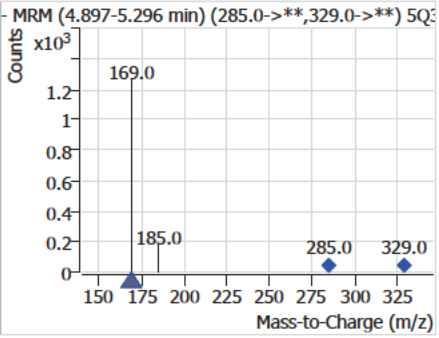




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	20.02	5.02	-0.01	29083	329.0 -> 169.0	0.4	0.4	1.2

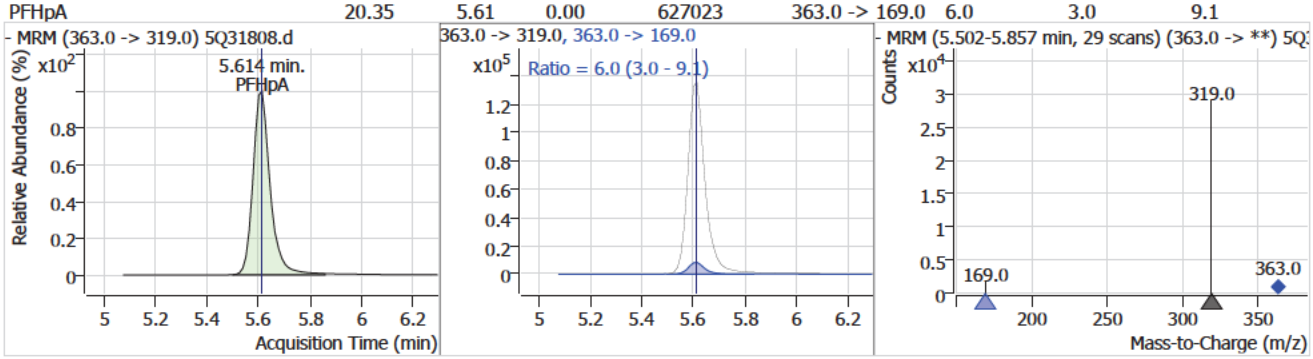




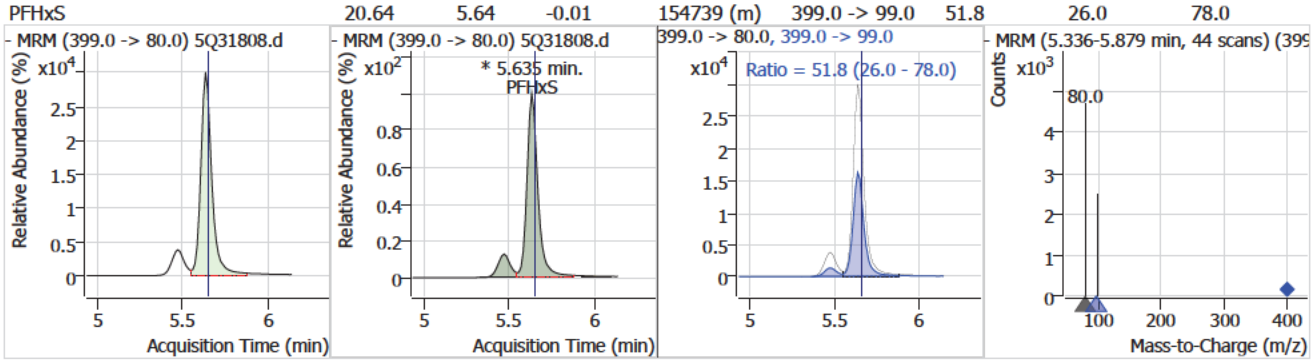


Perfluorinated Compounds by LC/MS/MS

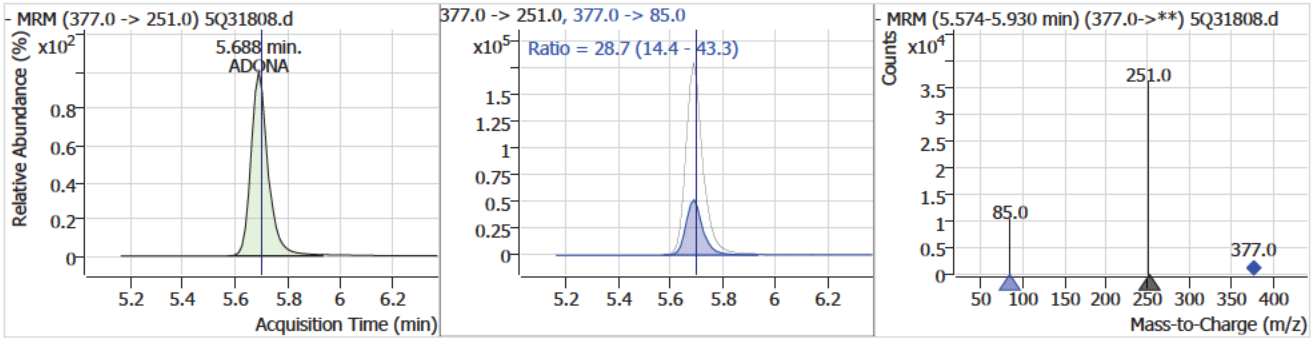
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.35	5.61	0.00	627023	363.0 -> 169.0	6.0	3.0	9.1



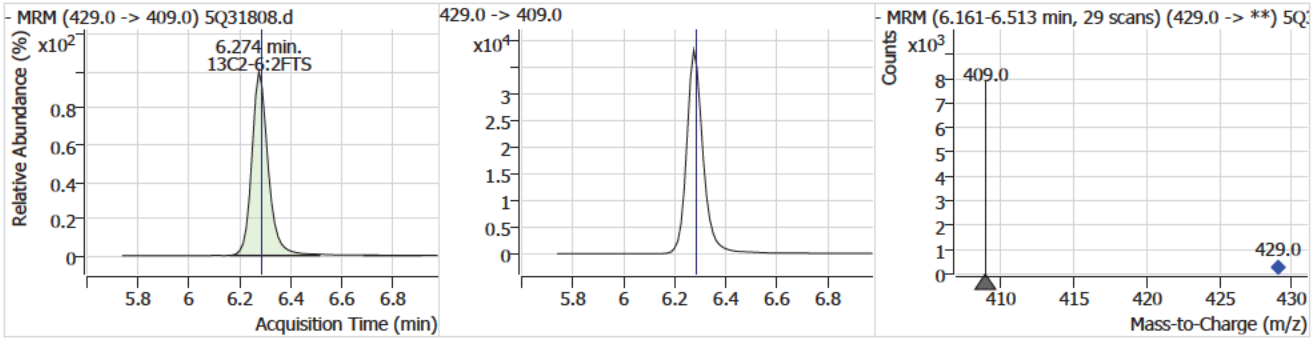
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	20.64	5.64	-0.01	154739 (m)	399.0 -> 99.0	51.8	26.0	78.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.37	5.69	-0.01	810887	377.0 -> 85.0	28.7	14.4	43.3

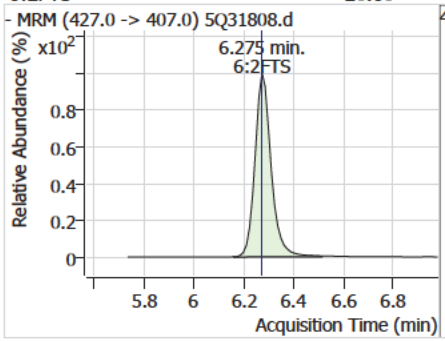


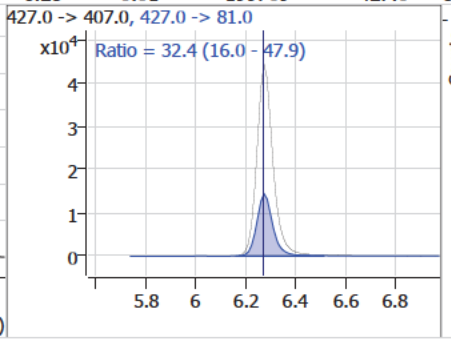
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.27	-0.01	170488				

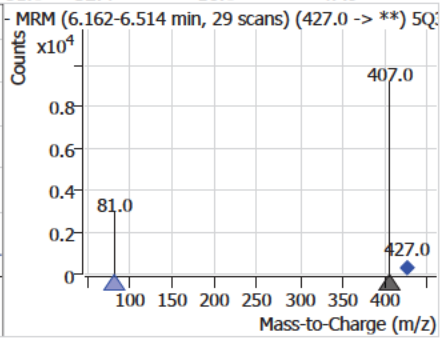


Perfluorinated Compounds by LC/MS/MS

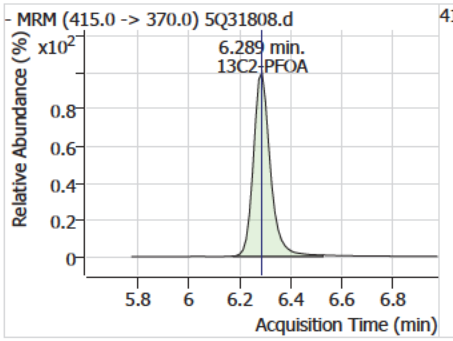
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	20.60	6.28	-0.01	199709	427.0 -> 81.0	32.4	16.0	47.9

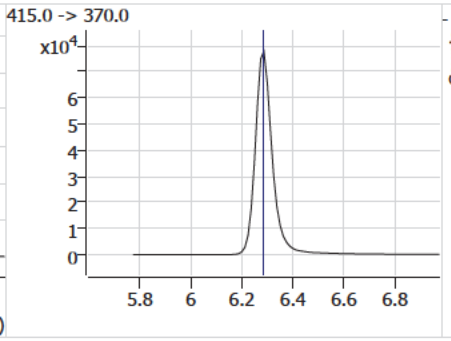


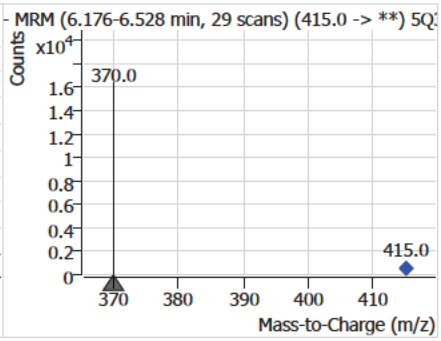




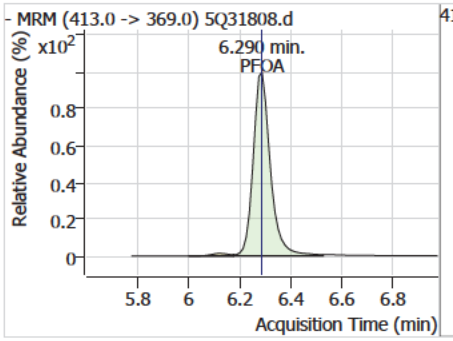
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	358492				

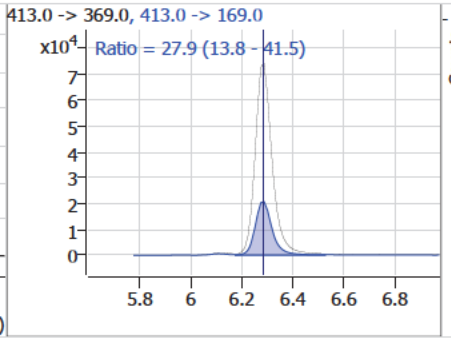


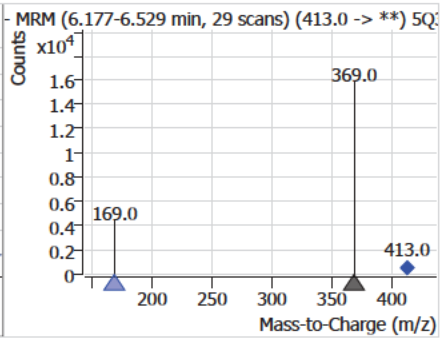




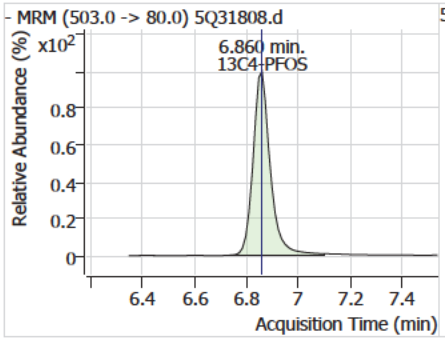
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.20	6.29	0.00	346806	413.0 -> 169.0	27.9	13.8	41.5

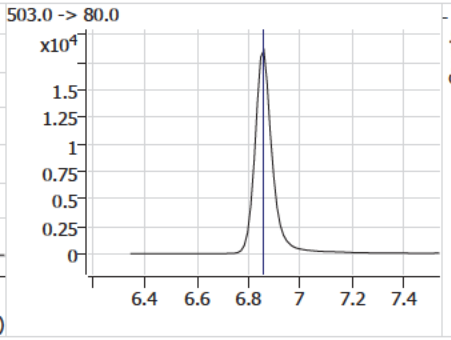


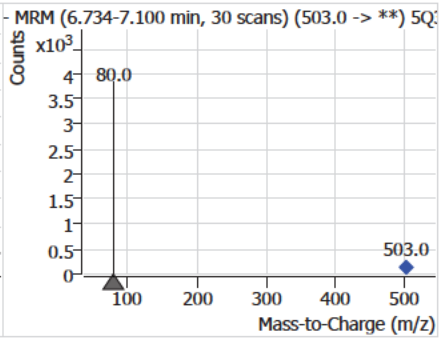




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	86095				

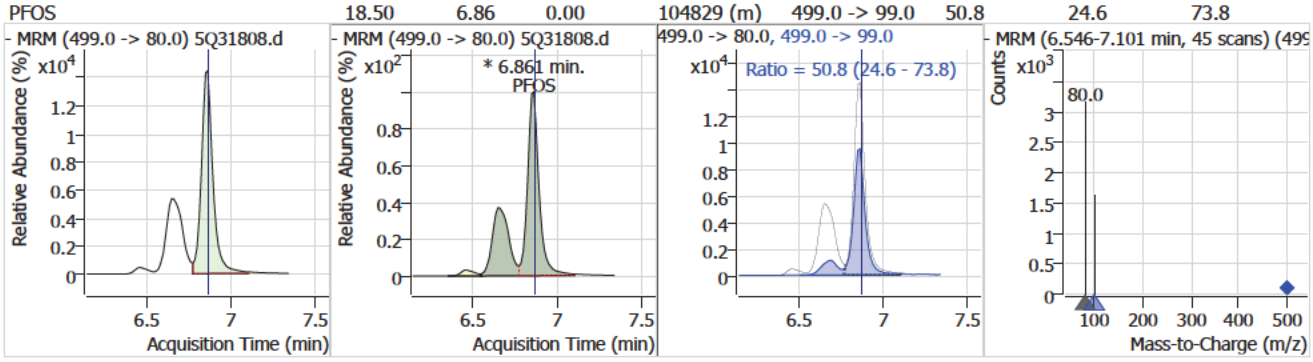




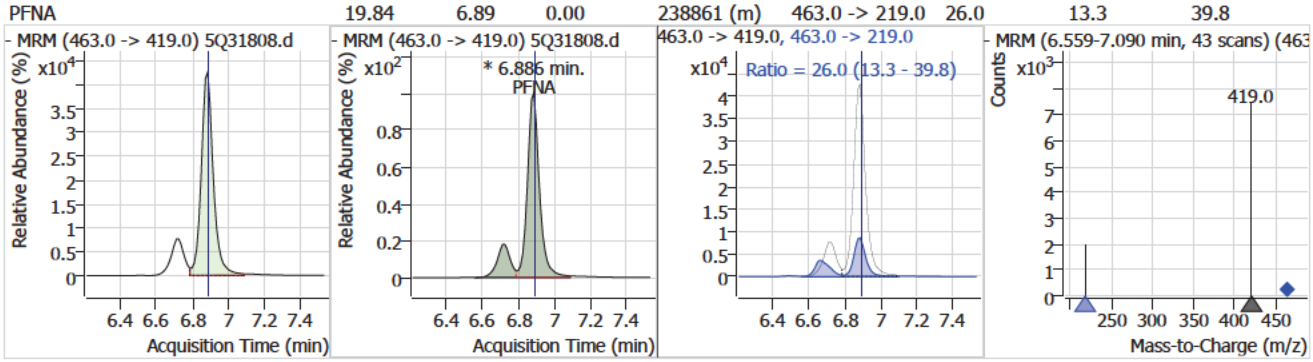


Perfluorinated Compounds by LC/MS/MS

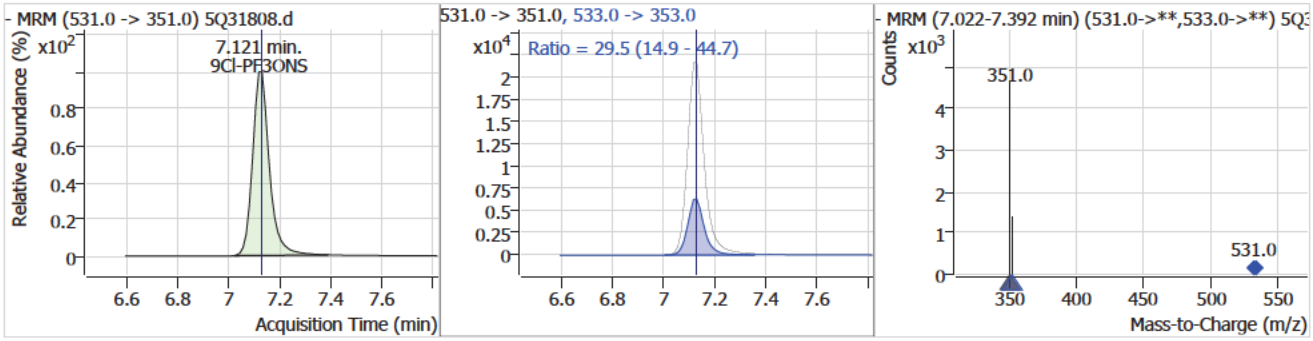
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.50	6.86	0.00	104829 (m)	499.0 -> 99.0	50.8	24.6	73.8



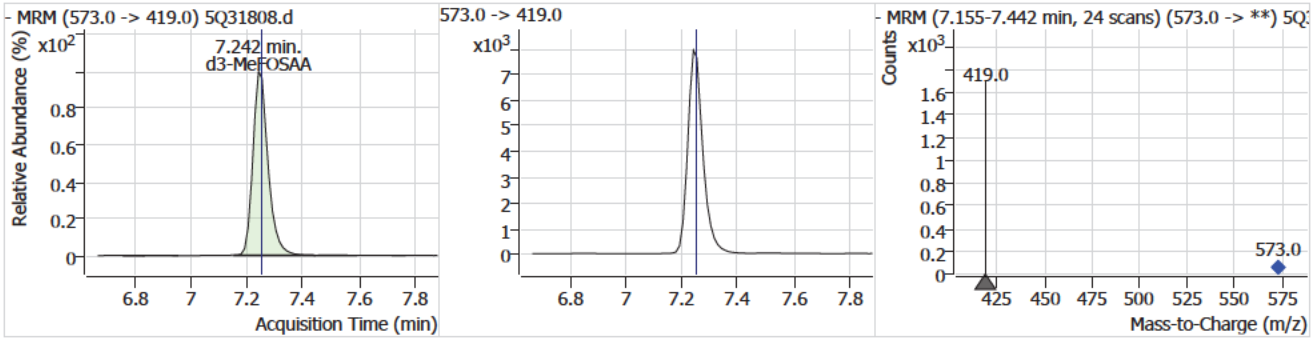
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.84	6.89	0.00	238861 (m)	463.0 -> 219.0	26.0	13.3	39.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	19.98	7.12	-0.01	98129	533.0 -> 353.0	29.5	14.9	44.7

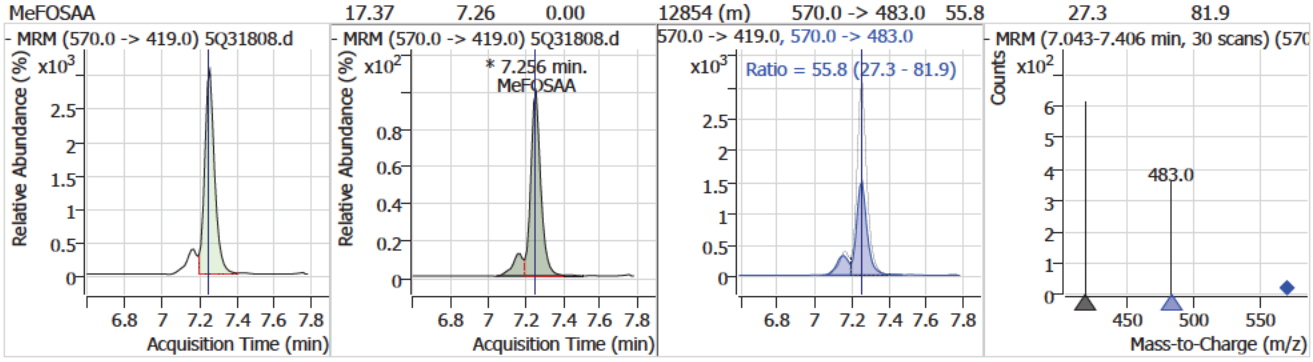


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	29636				

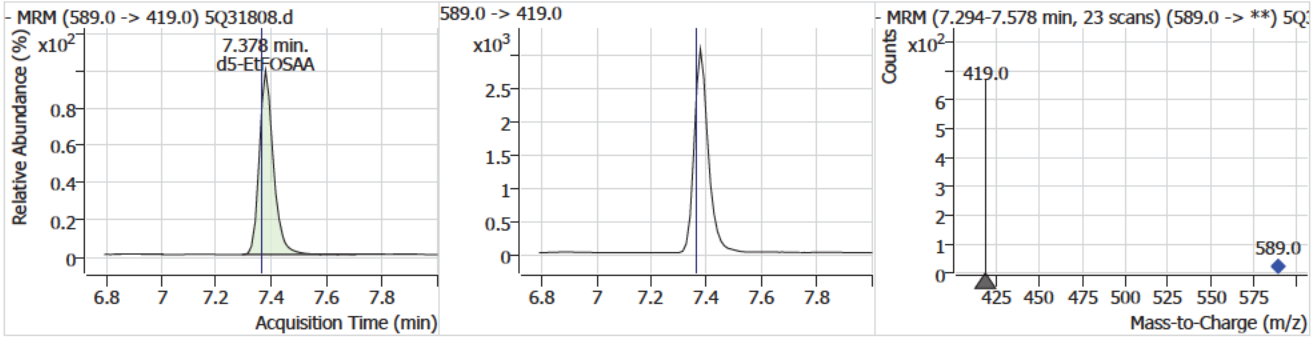


Perfluorinated Compounds by LC/MS/MS

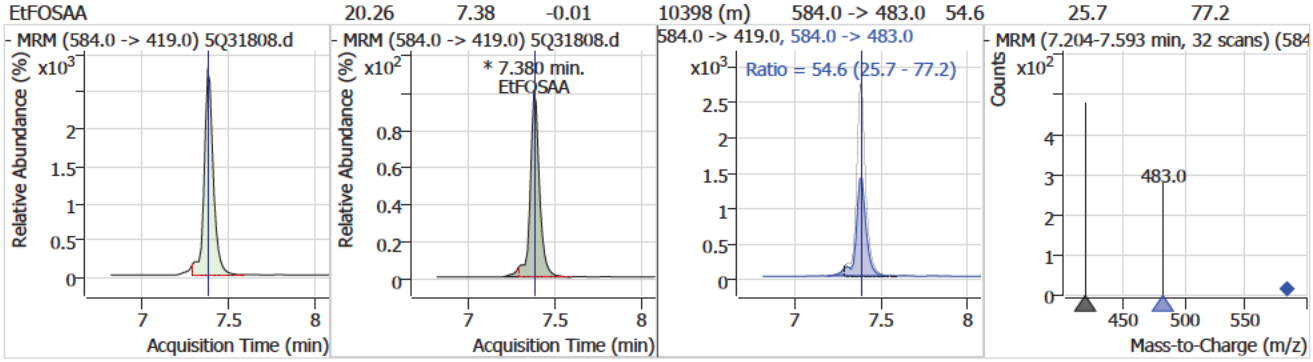
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	17.37	7.26	0.00	12854 (m)	570.0 -> 483.0	55.8	27.3	81.9



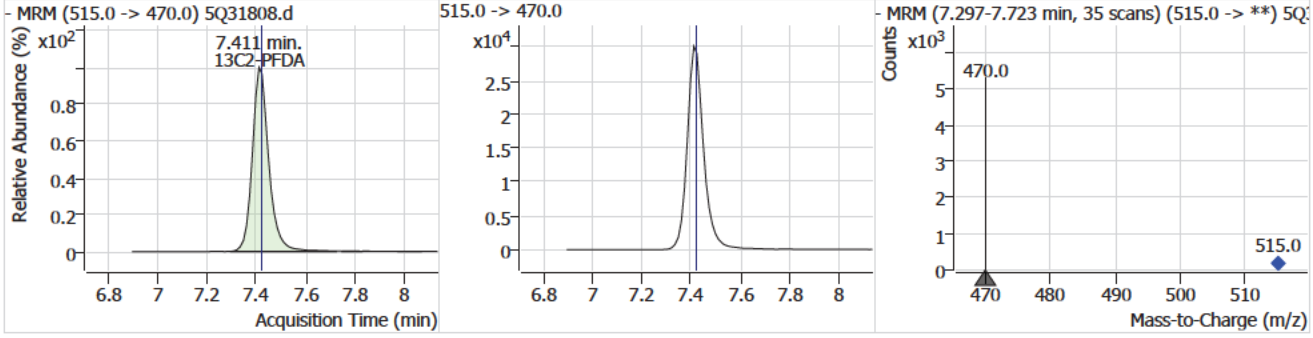
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	19.15	7.38	0.00	10798				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	20.26	7.38	-0.01	10398 (m)	584.0 -> 483.0	54.6	25.7	77.2

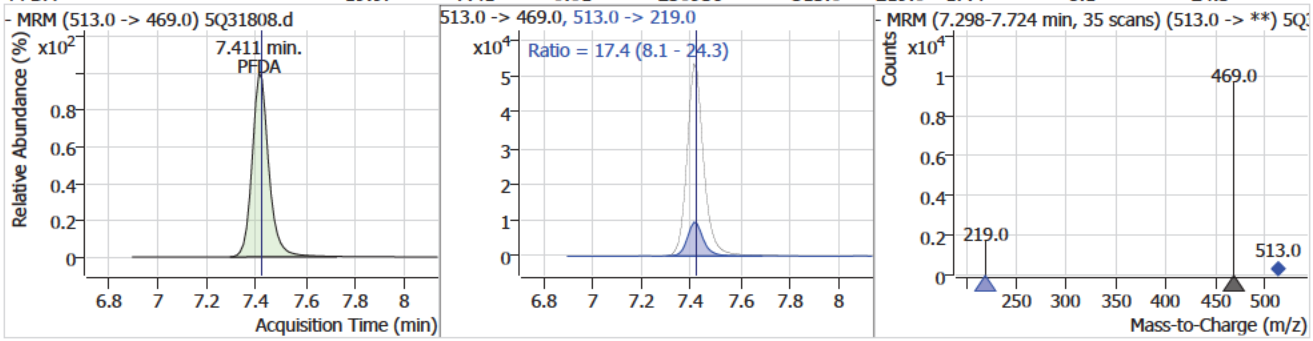


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	9.34	7.41	-0.01	138074				

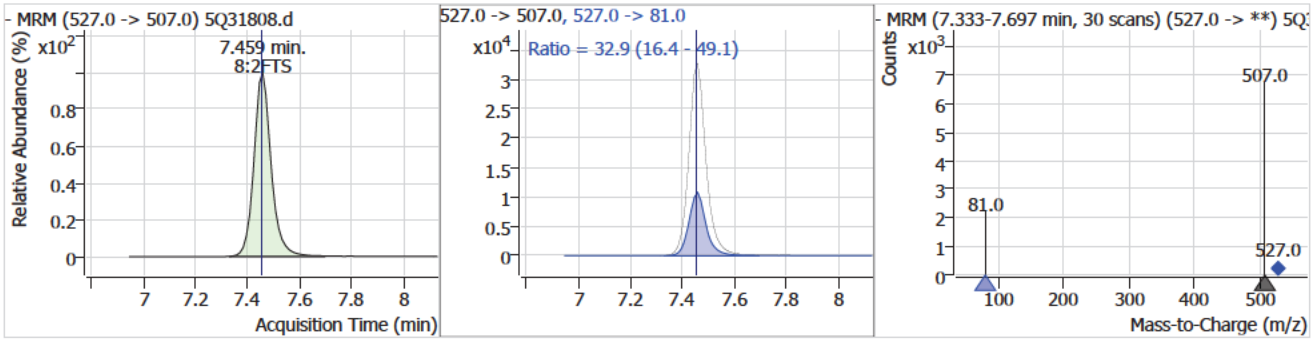


Perfluorinated Compounds by LC/MS/MS

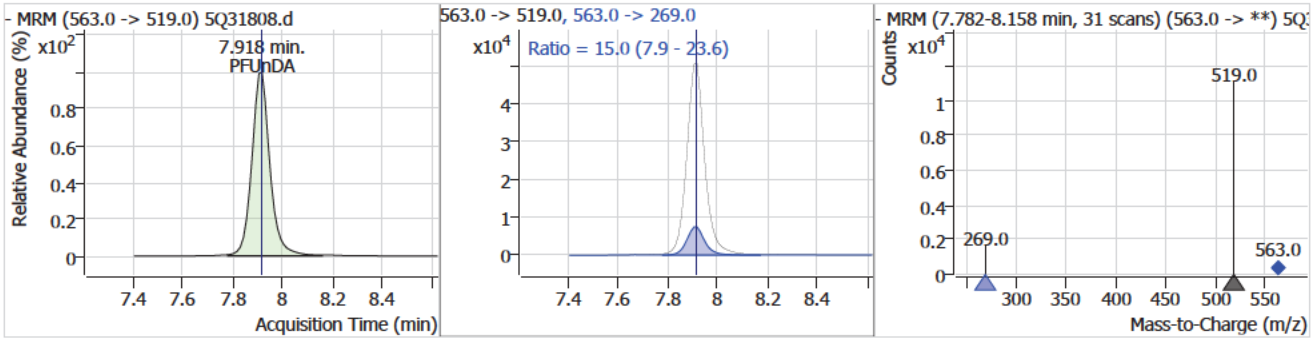
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.97	7.41	-0.01	250936	513.0 -> 219.0	17.4	8.1	24.3



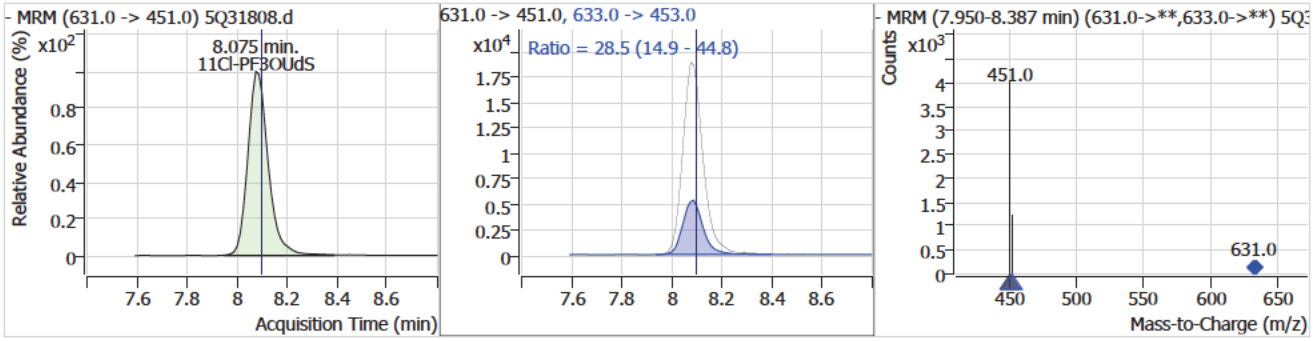
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.45	7.46	-0.01	150250	527.0 -> 81.0	32.9	16.4	49.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.23	7.92	0.00	254630	563.0 -> 269.0	15.0	7.9	23.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	21.07	8.07	-0.02	107355	633.0 -> 453.0	28.5	14.9	44.8



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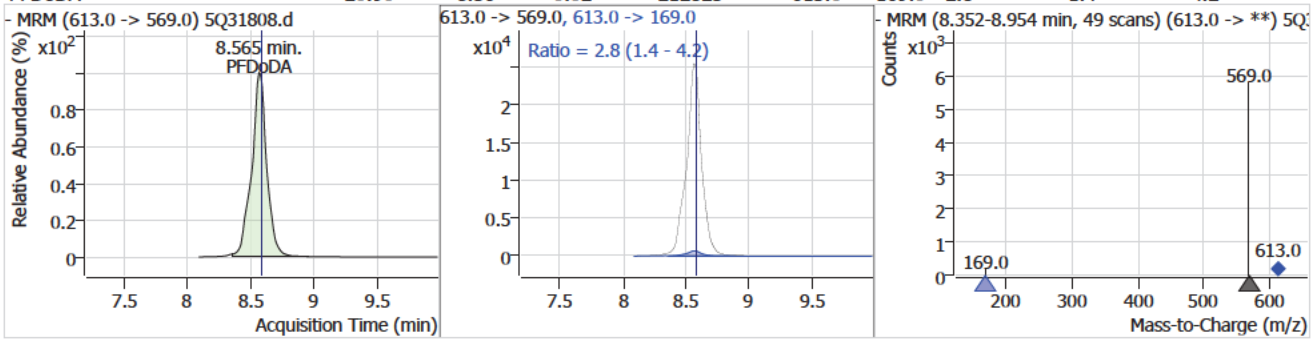
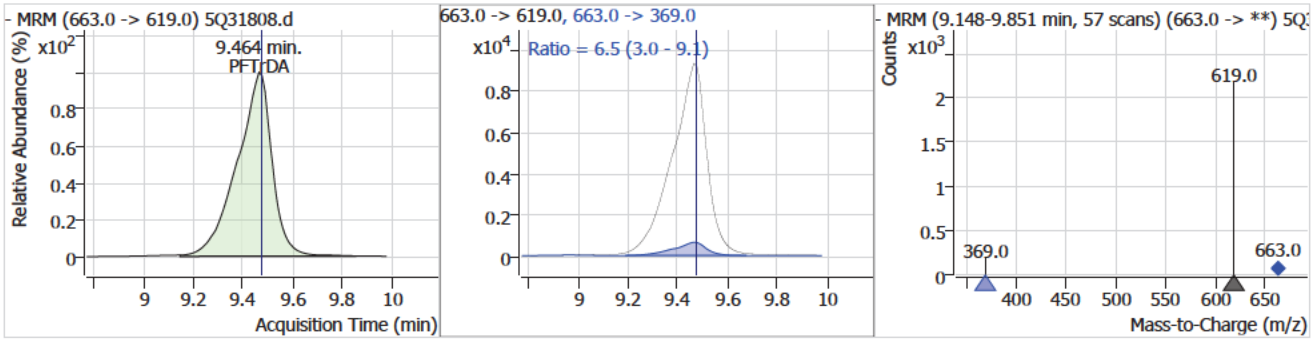
Perfluorinated Compounds by LC/MS/MS

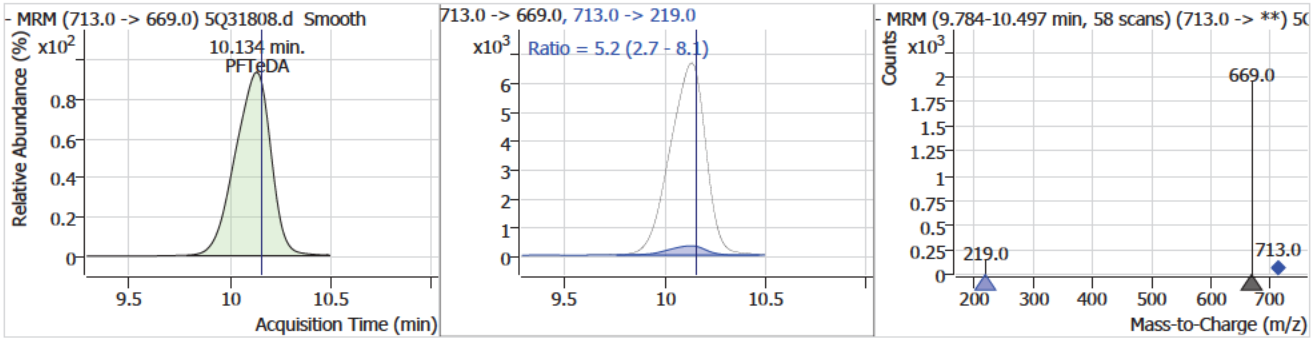
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	20.90	8.56	-0.02	212825	613.0 -> 169.0	2.8	1.4	4.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	15.91	9.46	-0.01	90782	663.0 -> 369.0	6.5	3.0	9.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	20.29	10.13	-0.03	83009	713.0 -> 219.0	5.2	2.7	8.1



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Manual Integration Approval Summary

Sample Number: S5Q522-ECC522
Lab FileID: 5Q31808.D
Injection Time: 04/16/25 17:53
Method: EPA 537.1 REV 2.0
Analyst approved: 04/17/25 07:52 (b) (6) [redacted]
Supervisor approved: 04/17/25 09:03 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

QQQ Check Tune Report

Agilent | Trusted Answers

Instrument Name	LCMS5Q
MS Model	G6470B
MS Instrument Serial	SG2221G211
Software_Firmware Version	10.1.67, FW: A.00.08.112
Tune Date & Time	14 April 2025 09:23:21
File Path	D:\MassHunter\Tune\QQQ\G6470B\atunes.TUNE.XML
Ion Source	AJS ESI
Ionization Mode	AJS ESI
Tuned Resolution	All
Vacuum Pressure	1.29E+0 [R] (Torr); 3.37E-5 [H] (Torr)

Source Parameters

Parameter	Negative
Gas Temp (°C)	300
Gas Flow (l/min)	8
Nebulizer (psi)	15
Capillary (V)	3500
Nozzle Voltage (V)	1500
Sheath Gas Temp (°C)	250
Sheath Gas Flow (l/min)	7

QQQ Check Tune Report

Agilent | Trusted Answers

Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.99	0.00	Pass	0.70	0.68	-0.02	Pass	63164
302.00	302.07	0.07	Pass	0.70	0.71	0.01	Pass	46772
601.98	602.03	0.05	Pass	0.70	0.70	0.00	Pass	106524
1033.99	1034.06	0.07	Pass	0.70	0.68	-0.02	Pass	168600
1633.95	1634.05	0.10	Pass	0.70	0.64	-0.06	Pass	576560
2233.91	2234.00	0.09	Pass	0.70	0.58	-0.12	Pass	230330

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.98	-0.02	Pass	0.70	0.66	-0.04	Pass	14469
112.99	112.99	0.00	Pass	0.70	0.70	0.00	Pass	45487
302.00	302.00	0.00	Pass	0.70	0.70	0.00	Pass	38497
601.98	601.92	-0.06	Pass	0.70	0.74	0.04	Pass	82452
1033.99	1033.95	-0.04	Pass	0.70	0.74	0.04	Pass	150073
1633.95	1633.90	-0.05	Pass	0.70	0.75	0.05	Pass	482147
2233.91	2233.91	0.00	Pass	0.70	0.73	0.03	Pass	204643

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	113.00	0.01	Pass	1.20	1.28	0.08	Pass	76882
302.00	302.02	0.02	Pass	1.20	1.42	0.22	Pass	60436
601.98	602.02	0.04	Pass	1.20	1.51	0.31	Pass	169034
1033.99	1034.04	0.05	Pass	1.20	1.49	0.29	Pass	303637
1633.95	1634.01	0.06	Pass	1.20	1.40	0.20	Pass	895413
2233.91	2233.93	0.02	Pass	1.20	1.09	-0.11	Pass	499569

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.94	-0.06	Pass	1.20	1.28	0.08	Pass	17547
112.99	112.98	-0.01	Pass	1.20	1.24	0.04	Pass	71681
302.00	301.96	-0.04	Pass	1.20	1.15	-0.05	Pass	46328
601.98	601.90	-0.08	Pass	1.20	1.08	-0.12	Pass	100357
1033.99	1033.91	-0.08	Pass	1.20	1.14	-0.06	Pass	212087
1633.95	1633.85	-0.10	Pass	1.20	1.30	0.10	Pass	824024
2233.91	2233.95	0.04	Pass	1.20	1.35	0.15	Pass	396130

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.98	-0.01	Pass	2.50	2.47	-0.03	Pass	96749
302.00	302.03	0.03	Pass	2.50	2.71	0.21	Pass	70573
601.98	602.02	0.04	Pass	2.50	2.86	0.36	Pass	189021
1033.99	1034.01	0.02	Pass	2.50	2.93	0.43	Pass	591197
1633.95	1633.96	0.01	Pass	2.50	2.77	0.27	Pass	2441107
2233.91	2233.80	-0.11	Pass	2.50	2.89	0.39	Pass	1642805

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.95	-0.05	Pass	2.50	2.40	-0.10	Pass	22938
112.99	112.98	-0.01	Pass	2.50	2.44	-0.06	Pass	88146
302.00	301.97	-0.03	Pass	2.50	2.29	-0.21	Pass	64094
601.98	601.92	-0.06	Pass	2.50	2.30	-0.20	Pass	163732
1033.99	1033.91	-0.08	Pass	2.50	2.26	-0.24	Pass	434415
1633.95	1633.91	-0.04	Pass	2.50	2.40	-0.10	Pass	1901064
2233.91	2233.85	-0.06	Pass	2.50	2.47	-0.03	Pass	1169263

Cal Report: 5Q31820.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31820.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 12:39:17 PM
Sample Name : ic523-0.5
Vial : P1-A2
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.288	429.0 -> 409.0	170462	20.00	µg/L		0.000
13C2-PFOA	6.303	415.0 -> 370.0	376095	20.00	µg/L		0.012
13C3-PFPeA	3.607	266.0 -> 222.0	481778	20.00	µg/L		0.012
13C4-PFOS	6.873	503.0 -> 80.0	93141	20.00	µg/L		0.013
d3-MeFOSAA	7.254	573.0 -> 419.0	28351	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.435	515.0 -> 470.0	3263	0.20	µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 1.0%			
13C2-PFHxA	4.776	315.0 -> 270.0	4280	0.18	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 0.9%			
d5-EtFOSAA	7.378	589.0 -> 419.0	323	0.60	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 1.5%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	682	0.41	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 1.0%			
Target Compounds							QValue
6:2FTS	6.289	427.0 -> 407.0	3575	0.42	µg/L		95
8:2FTS	7.471	527.0 -> 507.0	3302	0.45	µg/L		91
EtFOSAA	7.391	584.0 -> 419.0	237	0.50	µg/L	m	77
MeFOSAA	7.254	570.0 -> 419.0	182	0.29	µg/L	#m	13
PFBS	3.841	299.0 -> 80.0	4729	0.39	µg/L		98
PFDA	7.423	513.0 -> 469.0	5042	0.38	µg/L		99
PFDoDA	8.641	613.0 -> 569.0	5319	0.40	µg/L	m	100
PFHpA	5.627	363.0 -> 319.0	11464	0.38	µg/L		100
PFHxA	4.778	313.0 -> 269.0	5722	0.35	µg/L		95
PFHxS	5.648	399.0 -> 80.0	2944	0.40	µg/L	m	94
PFNA	6.900	463.0 -> 419.0	4829	0.42	µg/L	m	99
PFOA	6.304	413.0 -> 369.0	6390	0.36	µg/L		90
PFOS	6.861	499.0 -> 80.0	2239	0.36	µg/L	m	88
PFPeA	3.610	263.0 -> 219.0	10978	0.36	µg/L		100
PFTeDA	10.297	713.0 -> 669.0	1704	0.37	µg/L		99
PFTrDA	9.522	663.0 -> 619.0	2438	0.36	µg/L		98
PFUnDA	7.942	563.0 -> 519.0	5588	0.37	µg/L		93
ADONA	5.701	377.0 -> 251.0	13932	0.36	µg/L		95
9Cl-PF3ONS	7.131	531.0 -> 351.0	2052	0.43	µg/L		92
11Cl-PF3OUdS	8.125	631.0 -> 451.0	2197	0.44	µg/L		86
HFPO-DA	5.035	285.0 -> 169.0	638	0.45	µg/L		100

= Qualifier out of range, m = manually integrated, + = Area summed

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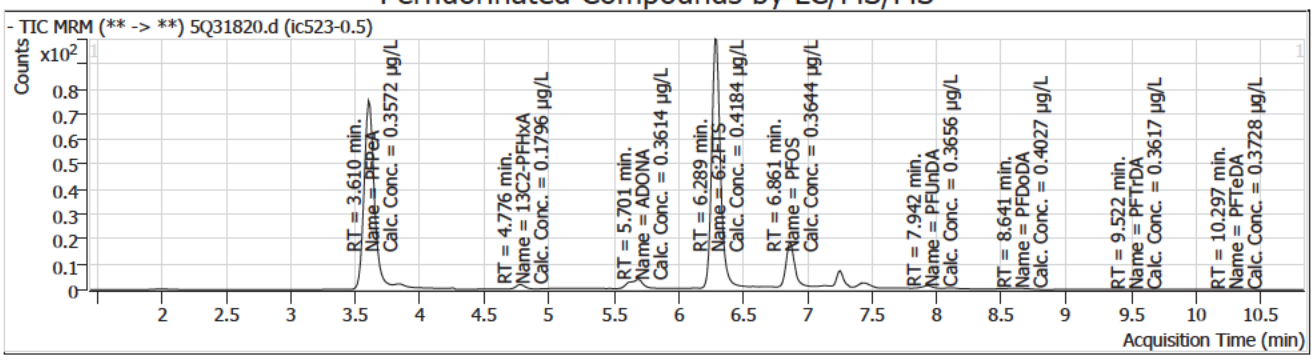
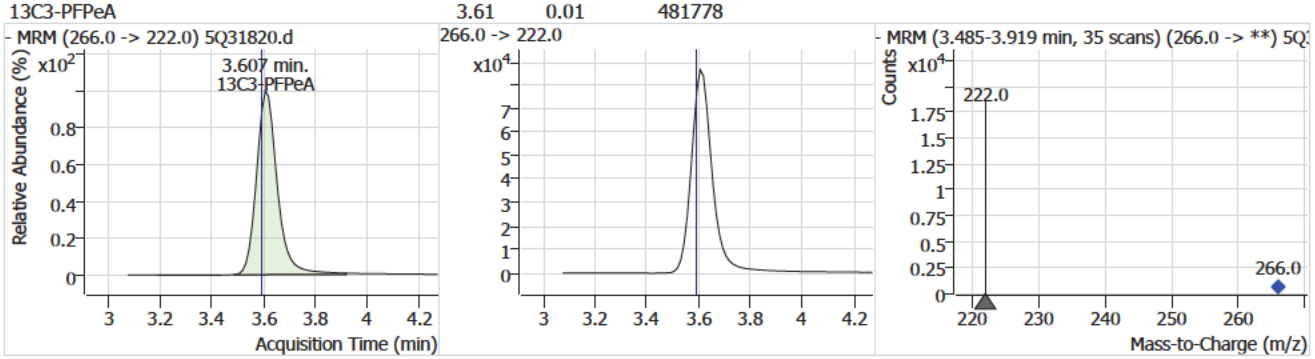
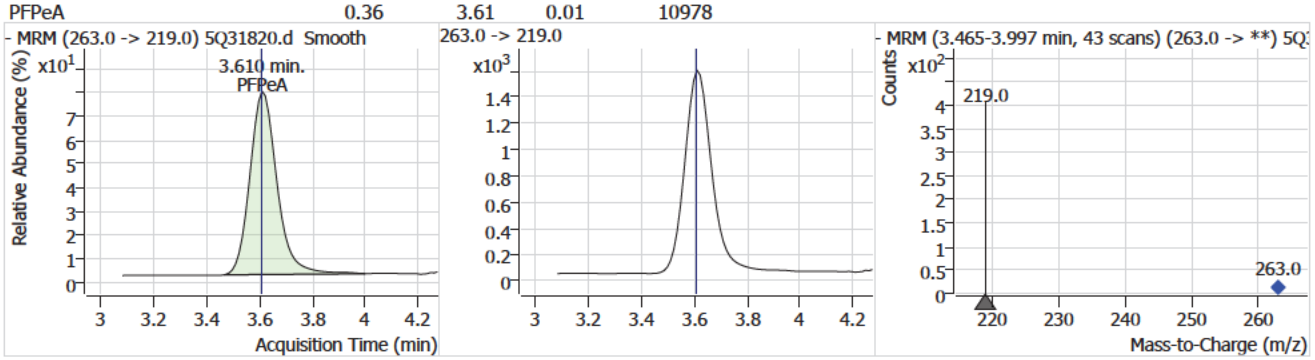
Perfluorinated Compounds by LC/MS/MS



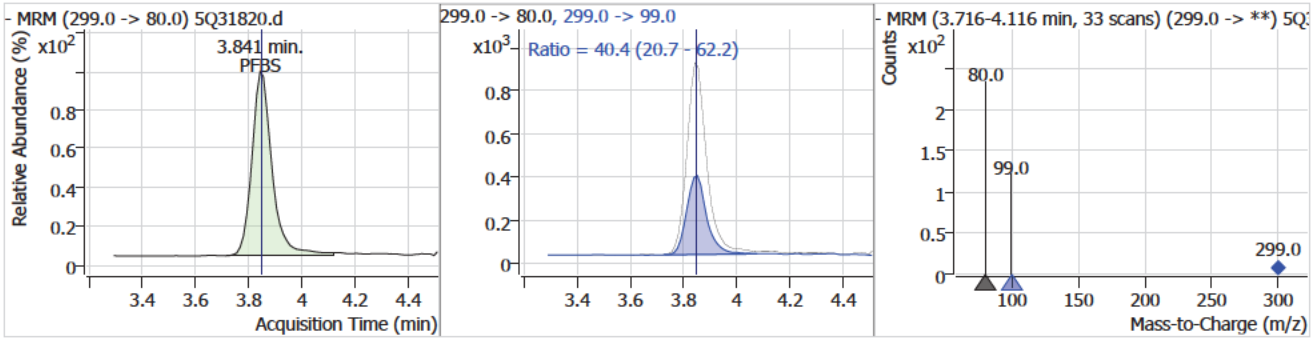
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.01	481778				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.36	3.61	0.01	10978				

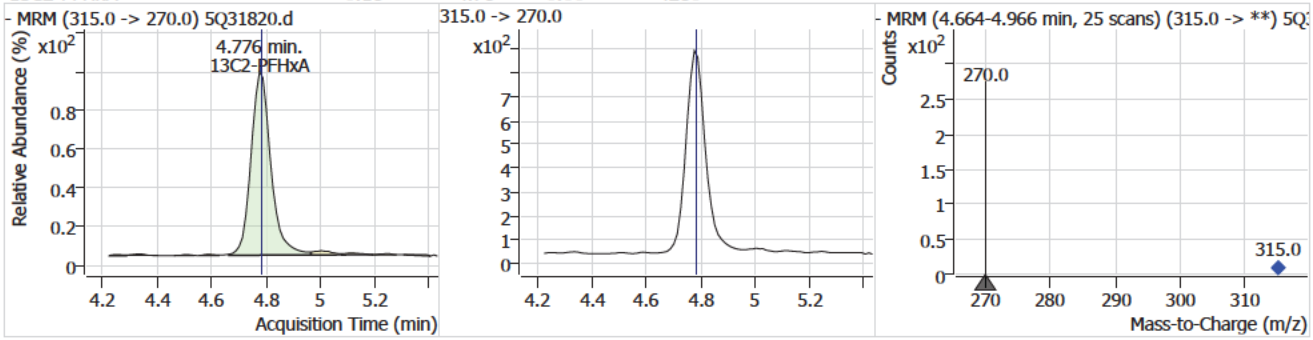


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.39	3.84	0.00	4729	299.0 -> 99.0	40.4	20.7	62.2

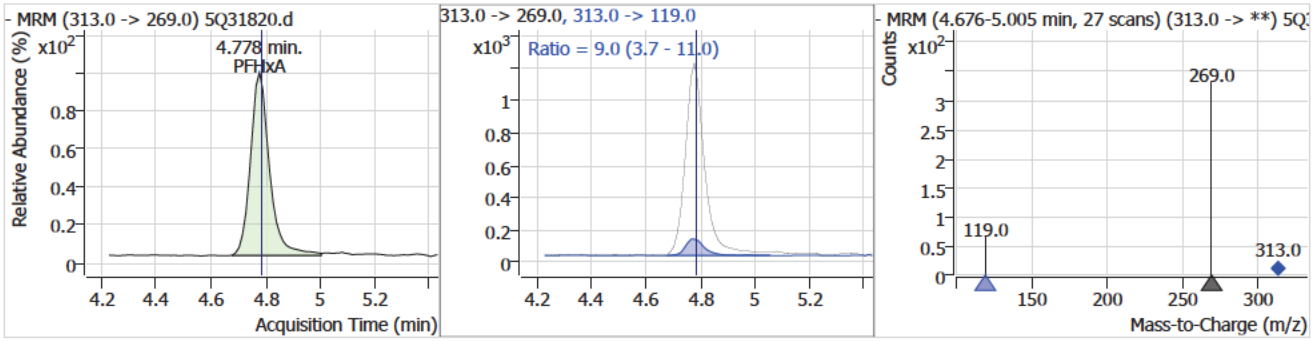


Perfluorinated Compounds by LC/MS/MS

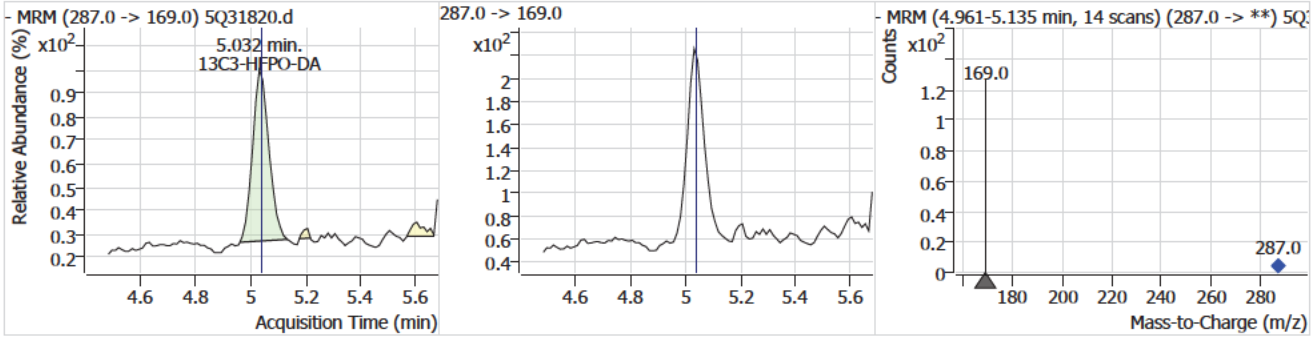
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.18	4.78	0.00	4280				



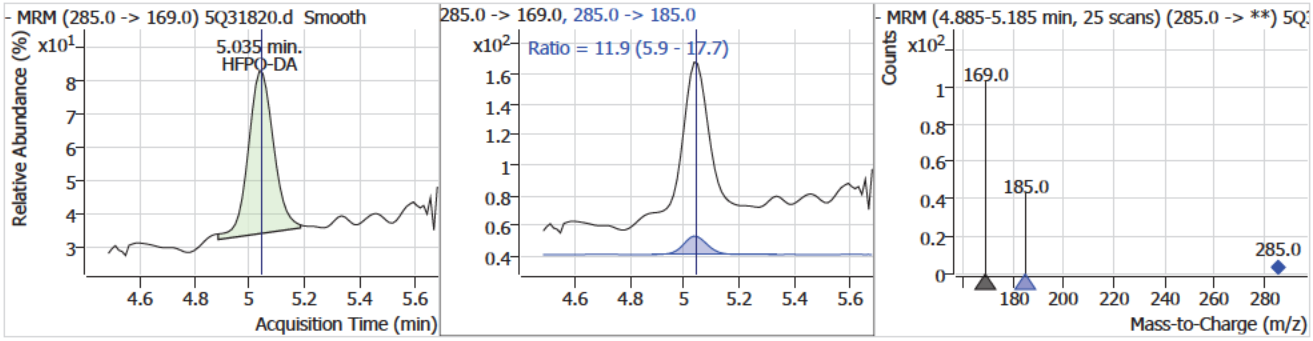
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.35	4.78	0.00	5722	313.0 -> 119.0	9.0	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.41	5.03	0.00	682				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.45	5.03	0.00	638	285.0 -> 185.0	11.9	5.9	17.7



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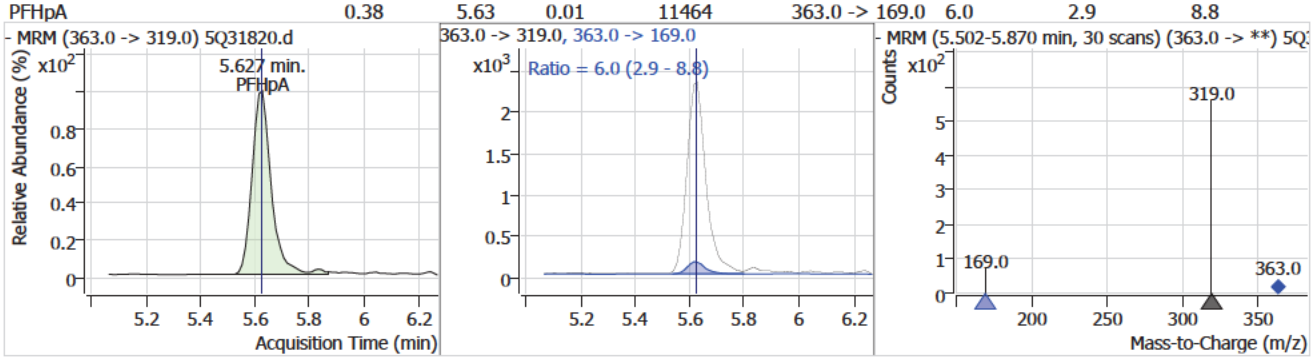
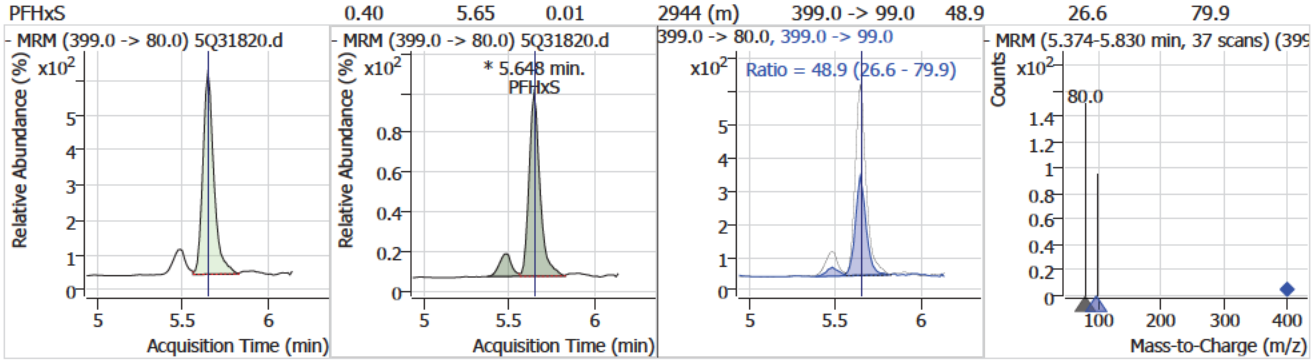
Perfluorinated Compounds by LC/MS/MS

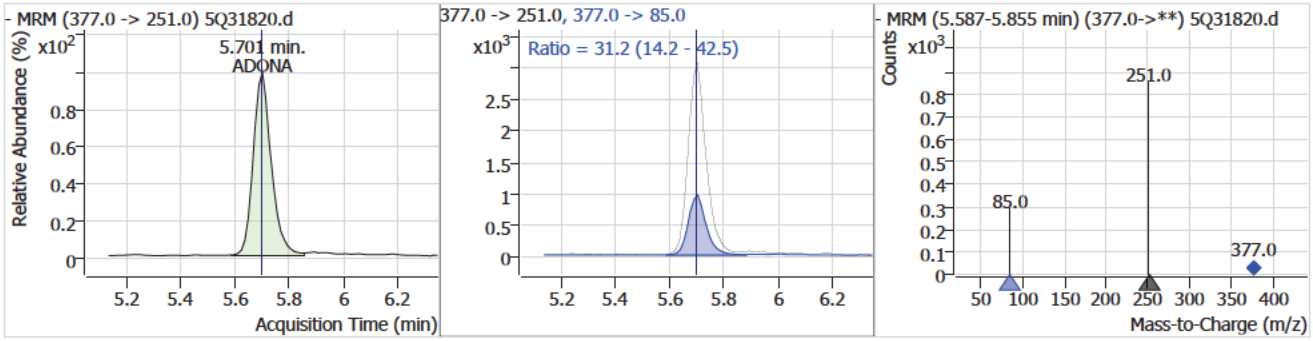
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.38	5.63	0.01	11464	363.0 -> 169.0	6.0	2.9	8.8



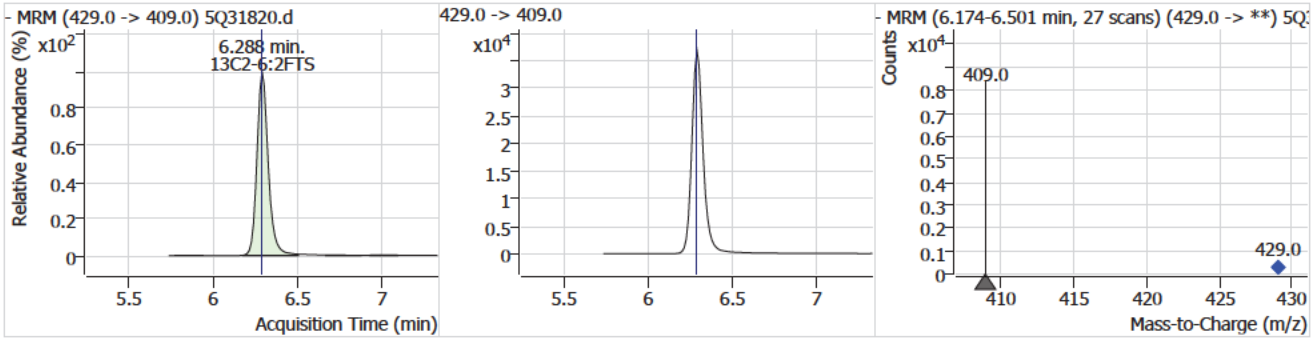
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.40	5.65	0.01	2944 (m)	399.0 -> 99.0	48.9	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.36	5.70	0.01	13932	377.0 -> 85.0	31.2	14.2	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	170462				



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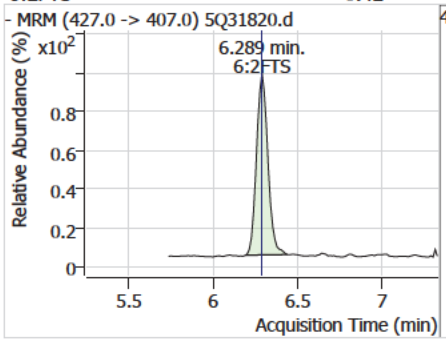
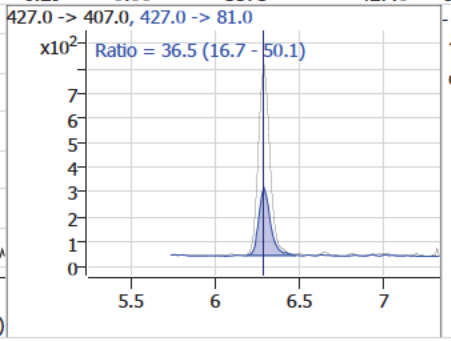
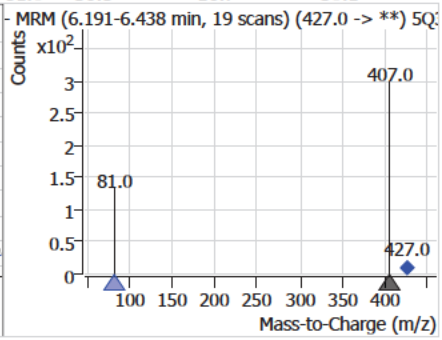
Perfluorinated Compounds by LC/MS/MS

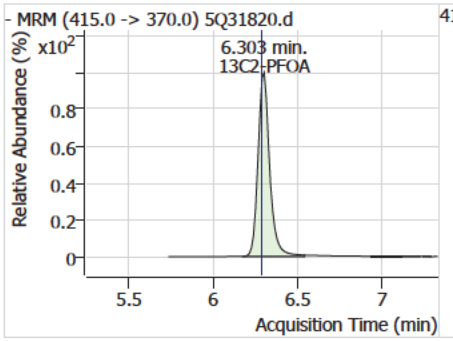
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.42	6.29	0.00	3575	427.0 -> 81.0	36.5	16.7	50.1

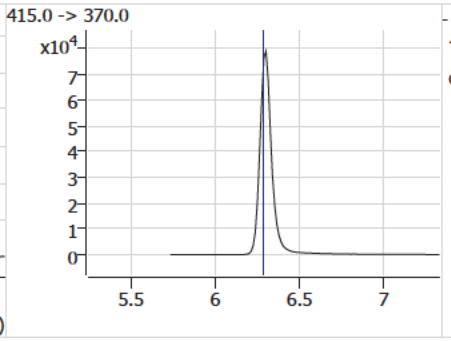


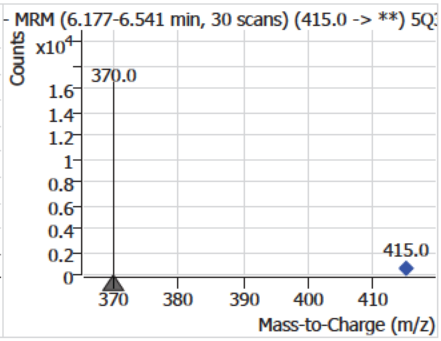




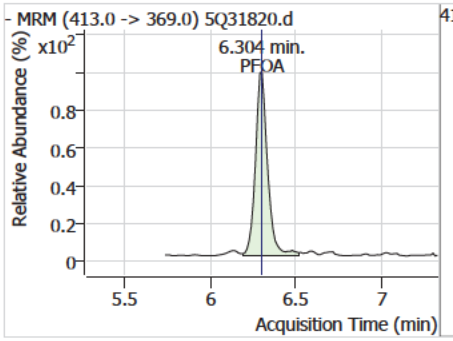
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.30	0.01	376095				

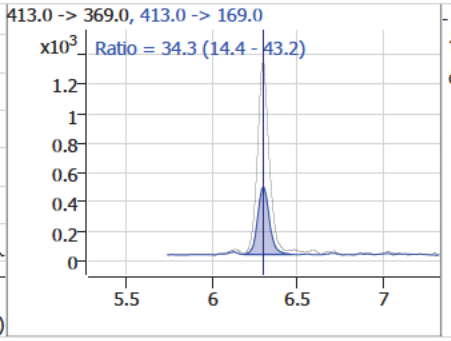


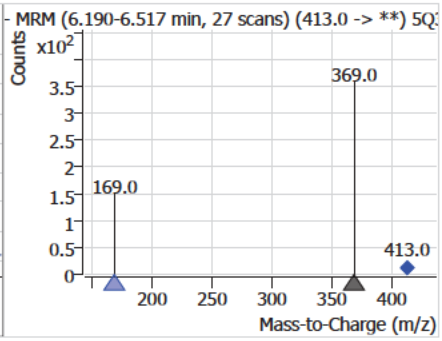




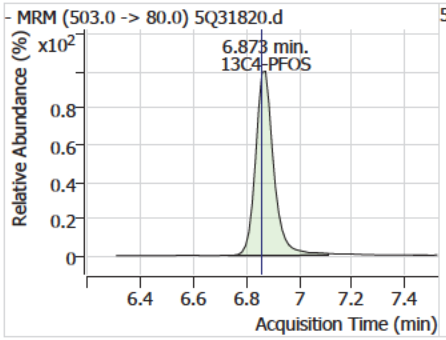
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.36	6.30	0.01	6390	413.0 -> 169.0	34.3	14.4	43.2

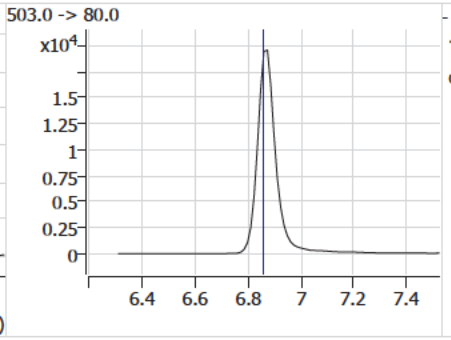


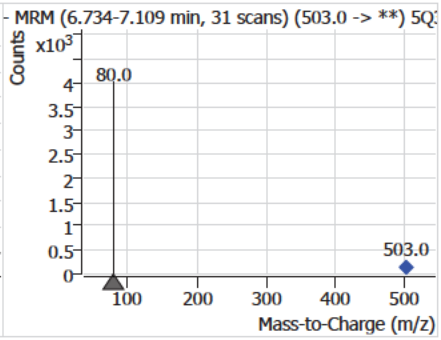




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.87	0.01	93141				







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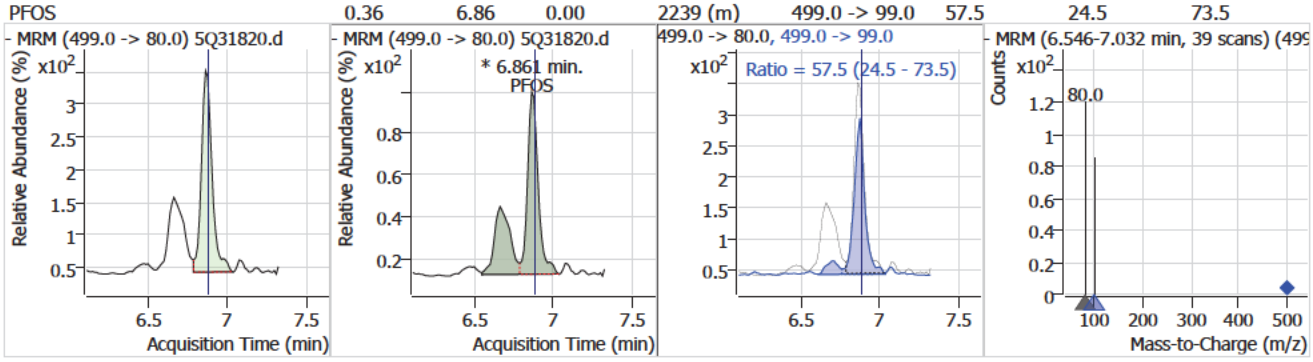
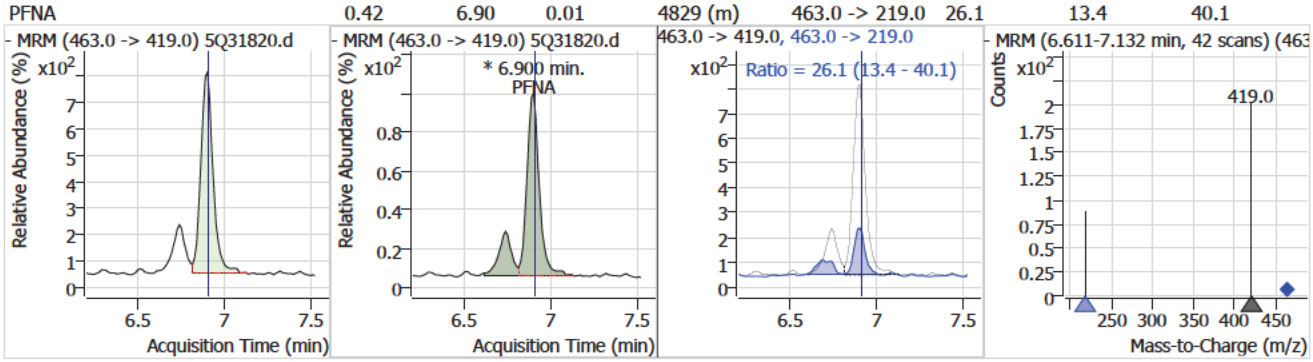
Perfluorinated Compounds by LC/MS/MS

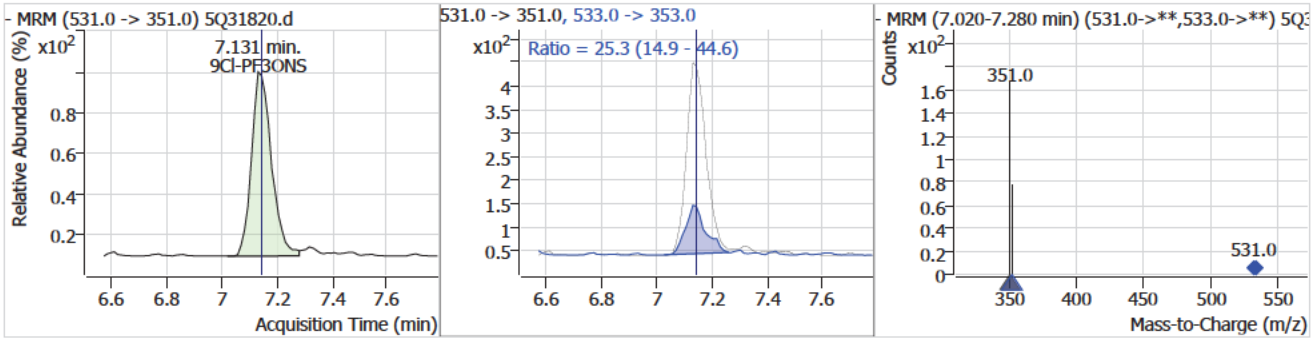
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.36	6.86	0.00	2239 (m)	499.0 -> 99.0	57.5	24.5	73.5



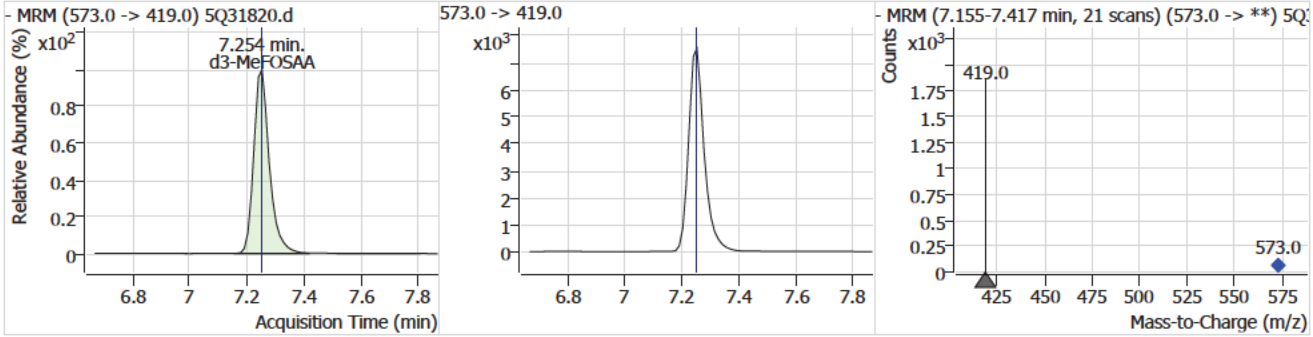
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.42	6.90	0.01	4829 (m)	463.0 -> 219.0	26.1	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.43	7.13	0.00	2052	533.0 -> 353.0	25.3	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	28351				



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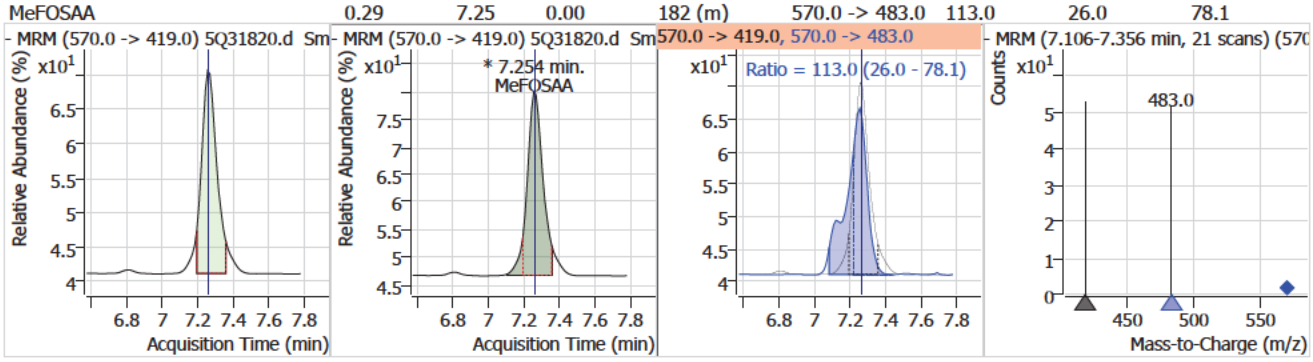
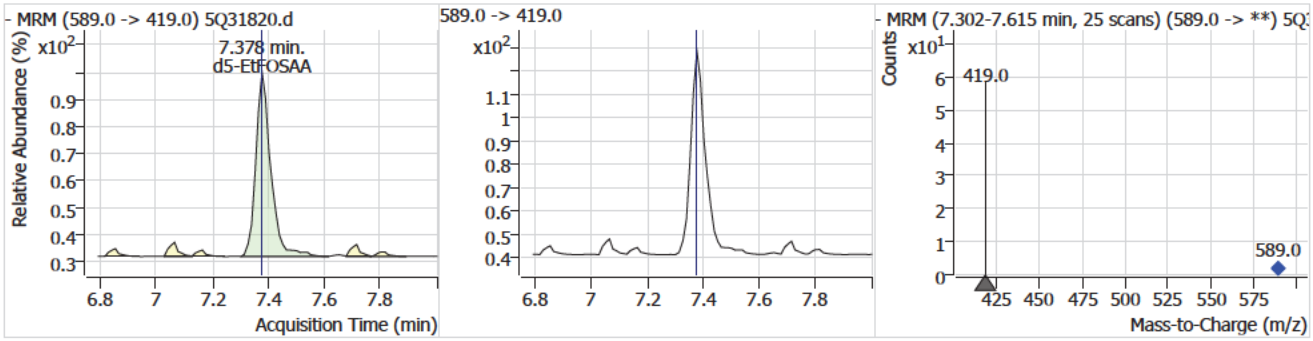
Perfluorinated Compounds by LC/MS/MS

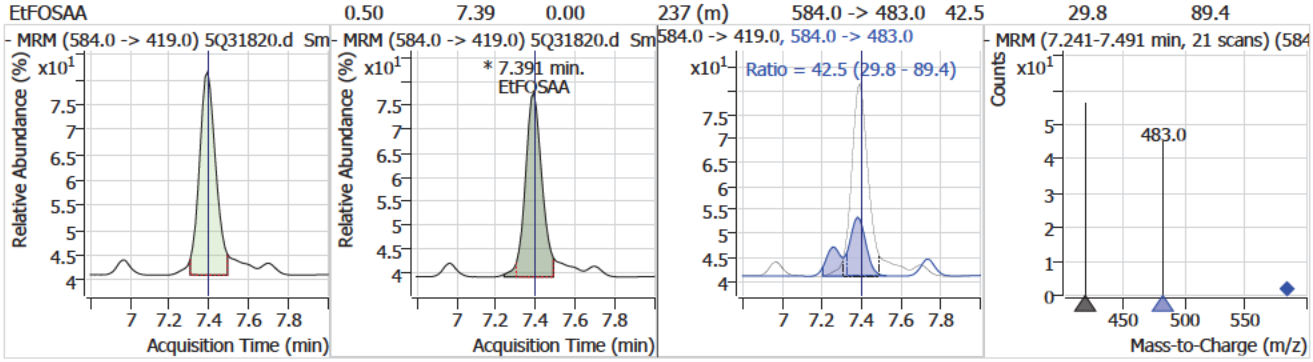
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.29	7.25	0.00	182 (m)	570.0 -> 483.0	113.0	26.0	78.1



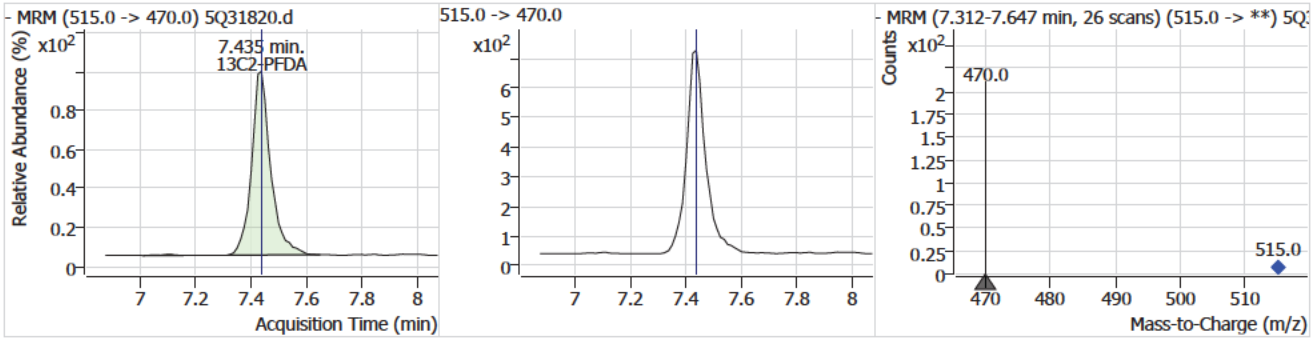
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	0.60	7.38	0.00	323				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.50	7.39	0.00	237 (m)	584.0 -> 483.0	42.5	29.8	89.4

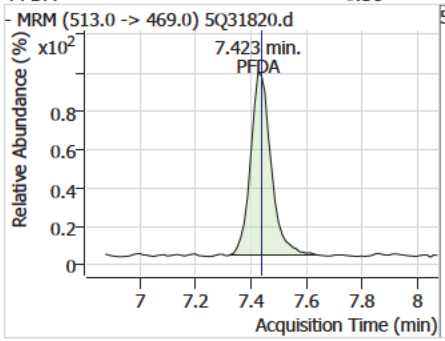


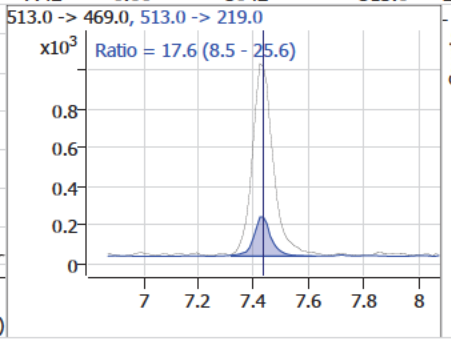
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.20	7.43	0.01	3263				

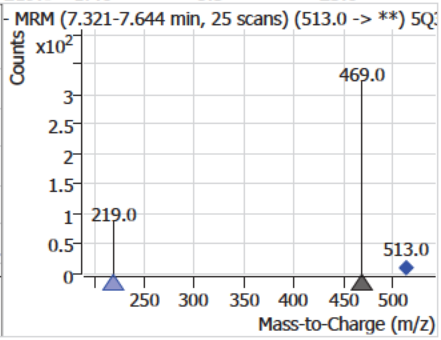


Perfluorinated Compounds by LC/MS/MS

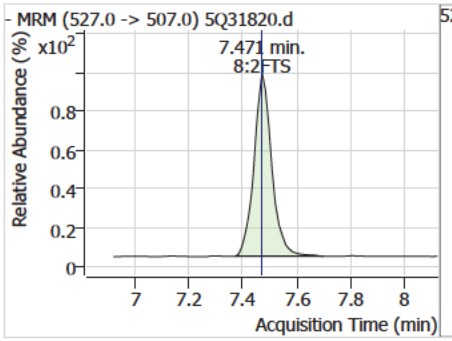
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.38	7.42	0.00	5042	513.0 -> 219.0	17.6	8.5	25.6

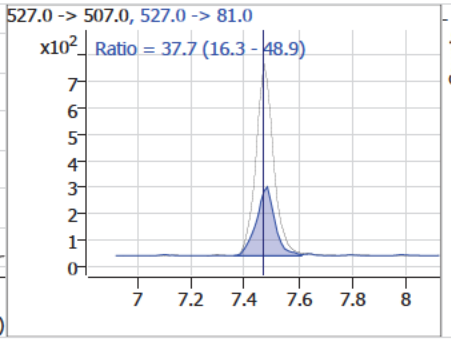


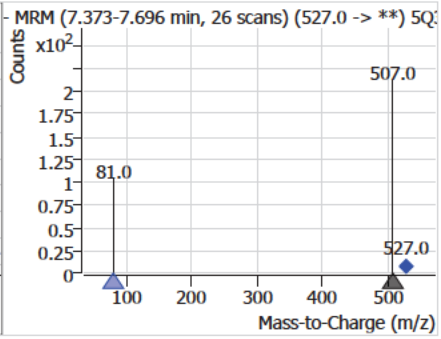




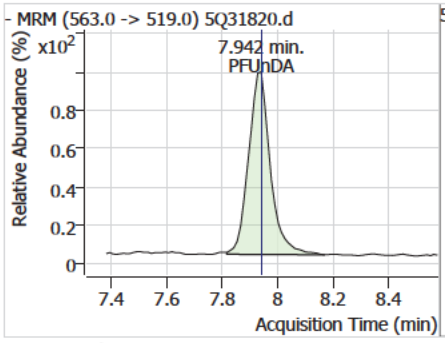
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.45	7.47	0.00	3302	527.0 -> 81.0	37.7	16.3	48.9

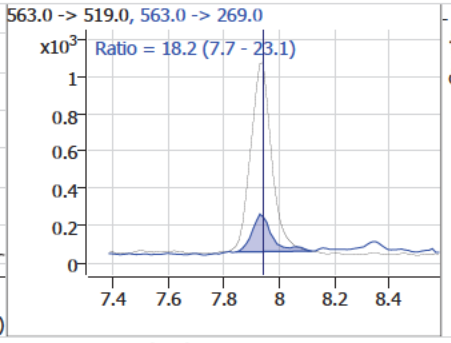


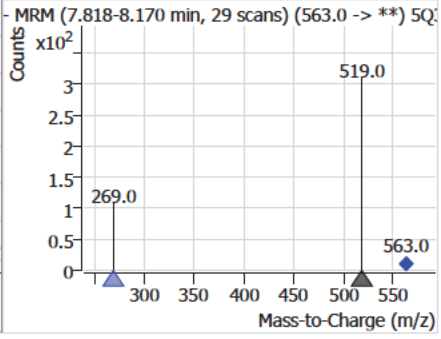




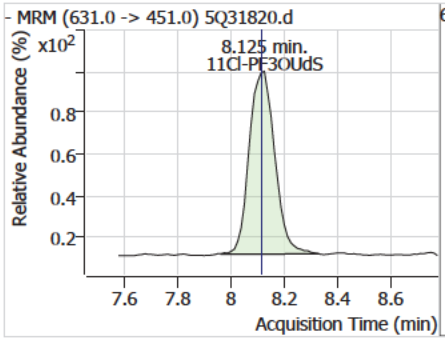
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.37	7.94	0.01	5588	563.0 -> 269.0	18.2	7.7	23.1

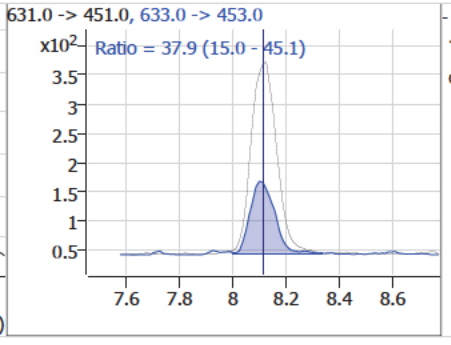


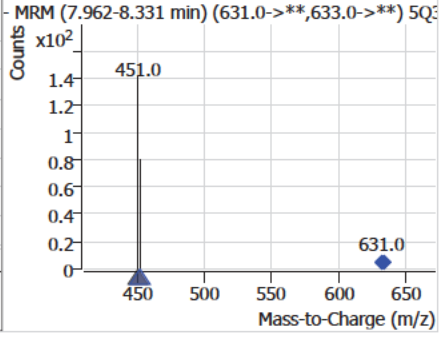




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.44	8.12	0.02	2197	633.0 -> 453.0	37.9	15.0	45.1







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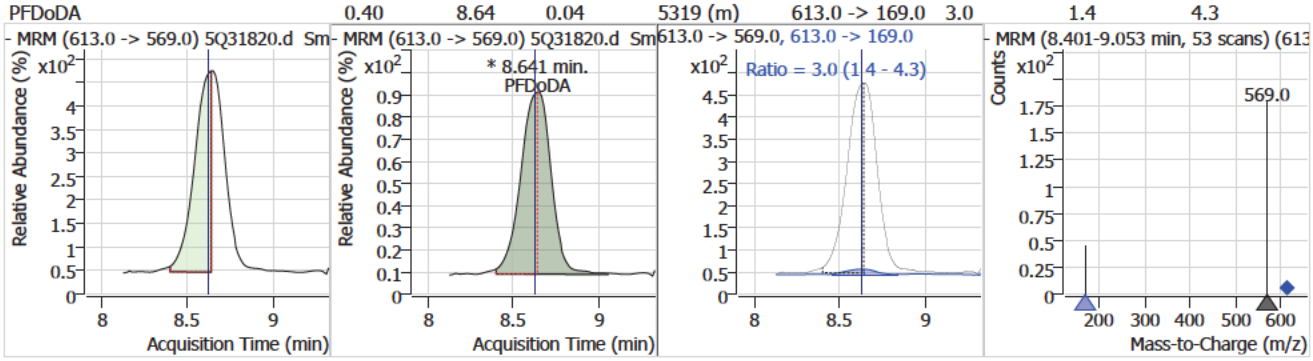
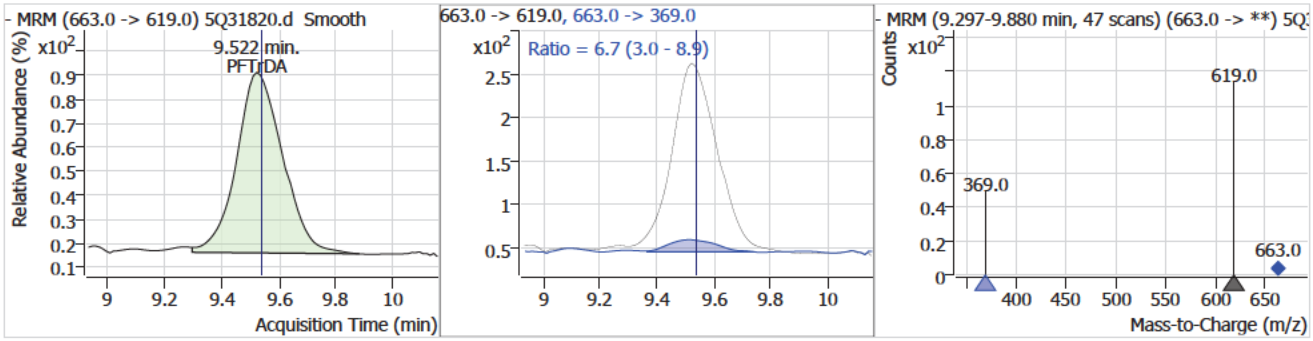
Perfluorinated Compounds by LC/MS/MS

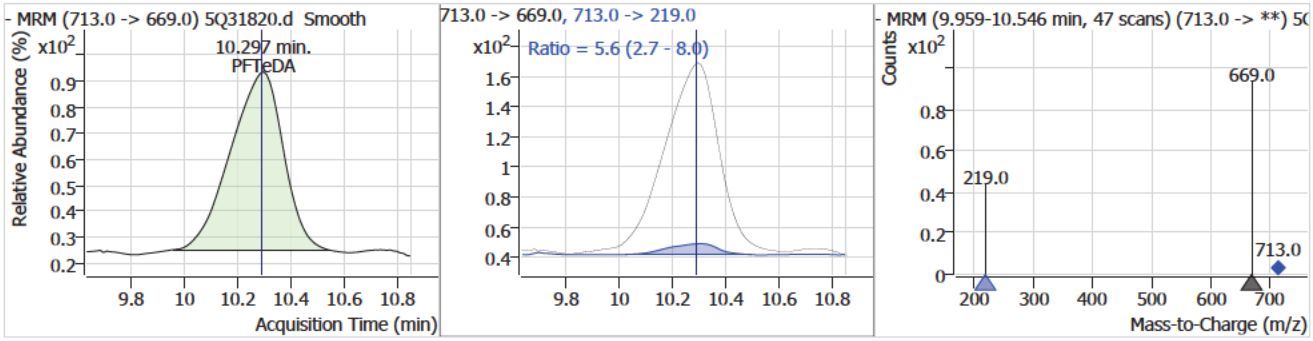
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.40	8.64	0.04	5319 (m)	613.0 -> 169.0	3.0	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.36	9.52	0.00	2438	663.0 -> 369.0	6.7	3.0	8.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.37	10.30	0.02	1704	713.0 -> 219.0	5.6	2.7	8.0



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Manual Integration Approval Summary

Sample Number: S5Q523-IC523
Lab FileID: 5Q31820.D
Injection Time: 04/17/25 12:39
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6) [redacted]
Supervisor approved: 04/18/25 11:00 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.90	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak
Perfluorododecanoic acid	307-55-1		8.64	Poor instrument integration

Cal Report: 5Q31821.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31821.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 12:55:41 PM
Sample Name : ic523-1
Vial : P1-A3
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.288	429.0 -> 409.0	187895	20.00 µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	418170	20.00 µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	528114	20.00 µg/L		0.012
13C4-PFOS	6.860	503.0 -> 80.0	105227	20.00 µg/L		0.000
d3-MeFOSAA	7.254	573.0 -> 419.0	33366	40.00 µg/L		0.000
System Monitoring Compounds						
13C2-PFDA	7.435	515.0 -> 470.0	6914	0.39 µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 1.9%		
13C2-PFHxA	4.776	315.0 -> 270.0	10466	0.39 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 2.0%		
d5-EtFOSAA	7.378	589.0 -> 419.0	610	0.96 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 2.4%		
13C3-HFPO-DA	5.032	287.0 -> 169.0	1447	0.77 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 1.9%		
Target Compounds						QValue
6:2FTS	6.289	427.0 -> 407.0	9646	1.02 µg/L		100
8:2FTS	7.471	527.0 -> 507.0	8700	1.06 µg/L		94
EtFOSAA	7.391	584.0 -> 419.0	418	0.75 µg/L	m	63
MeFOSAA	7.254	570.0 -> 419.0	661	0.89 µg/L	m	95
PFBS	3.841	299.0 -> 80.0	11510	0.84 µg/L		98
PFDA	7.435	513.0 -> 469.0	13405	0.92 µg/L		93
PFDoDA	8.641	613.0 -> 569.0	12879	0.86 µg/L		99
PFHpA	5.615	363.0 -> 319.0	27628	0.83 µg/L		98
PFHxA	4.778	313.0 -> 269.0	14178	0.79 µg/L		99
PFHxS	5.648	399.0 -> 80.0	6760	0.80 µg/L	m	99
PFNA	6.887	463.0 -> 419.0	11745	0.91 µg/L	m	99
PFOA	6.291	413.0 -> 369.0	16548	0.84 µg/L		97
PFOS	6.874	499.0 -> 80.0	5764	0.83 µg/L	m	99
PFPeA	3.610	263.0 -> 219.0	27463	0.82 µg/L		100
PFTeDA	10.297	713.0 -> 669.0	4501	0.87 µg/L		100
PFTrDA	9.522	663.0 -> 619.0	5613	0.74 µg/L		100
PFUnDA	7.930	563.0 -> 519.0	13339	0.77 µg/L		97
ADONA	5.701	377.0 -> 251.0	35599	0.83 µg/L		99
9Cl-PF3ONS	7.131	531.0 -> 351.0	4732	0.88 µg/L		90
11Cl-PF3OUdS	8.112	631.0 -> 451.0	5474	0.98 µg/L		99
HFPO-DA	5.035	285.0 -> 169.0	1401	0.88 µg/L		91

 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.48
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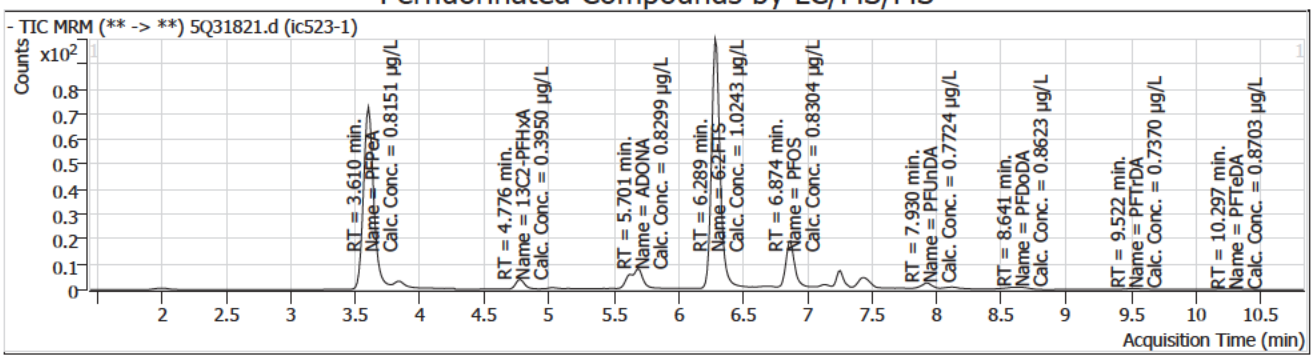
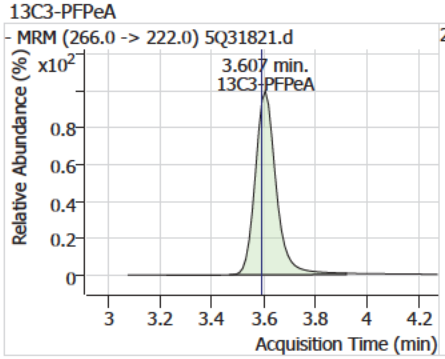
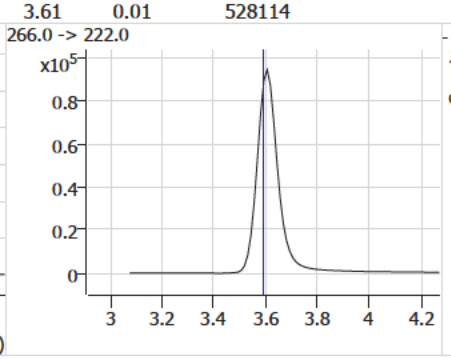
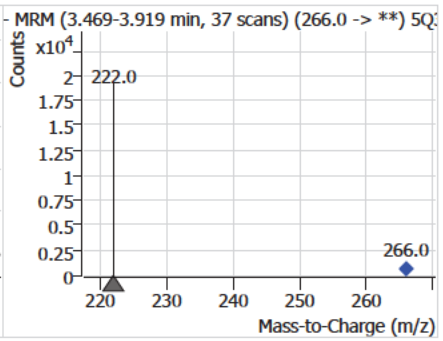
Perfluorinated Compounds by LC/MS/MS



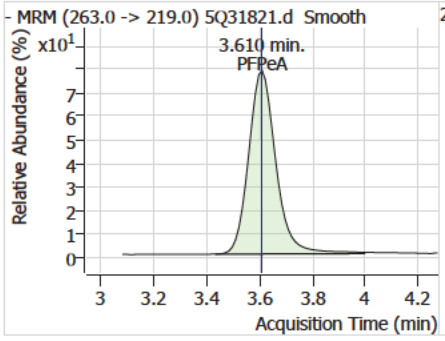
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.01	528114				

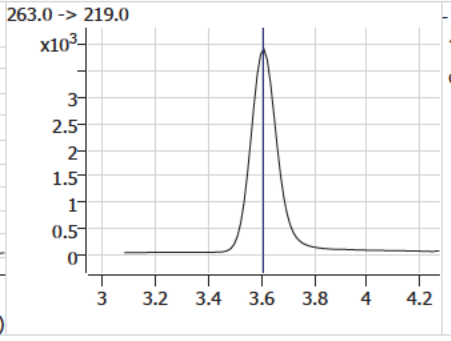


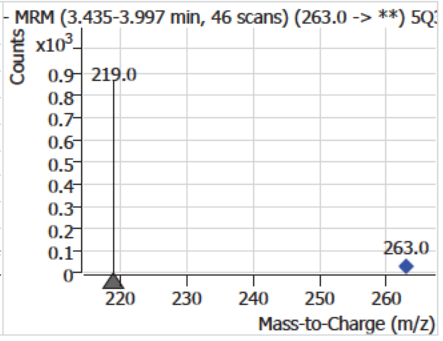




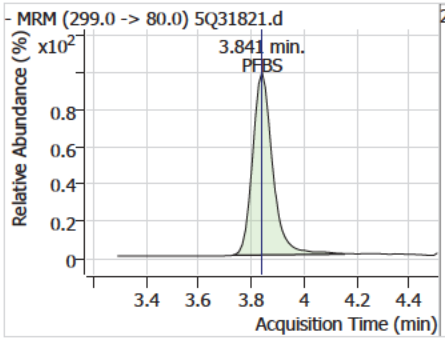
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.82	3.61	0.01	27463				

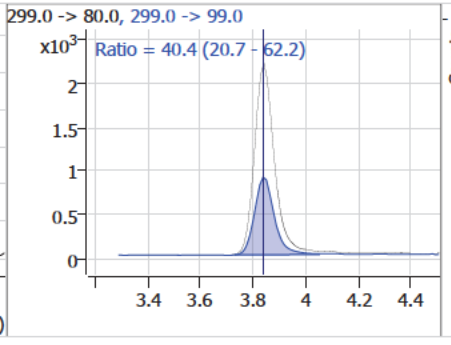


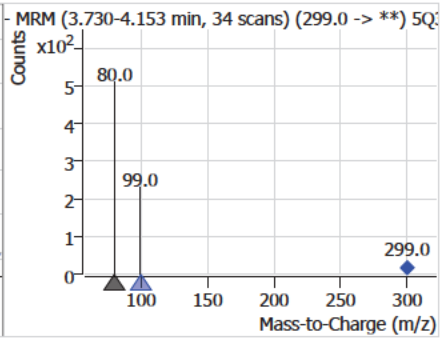




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.84	3.84	0.00	11510	299.0 -> 99.0	40.4	20.7	62.2







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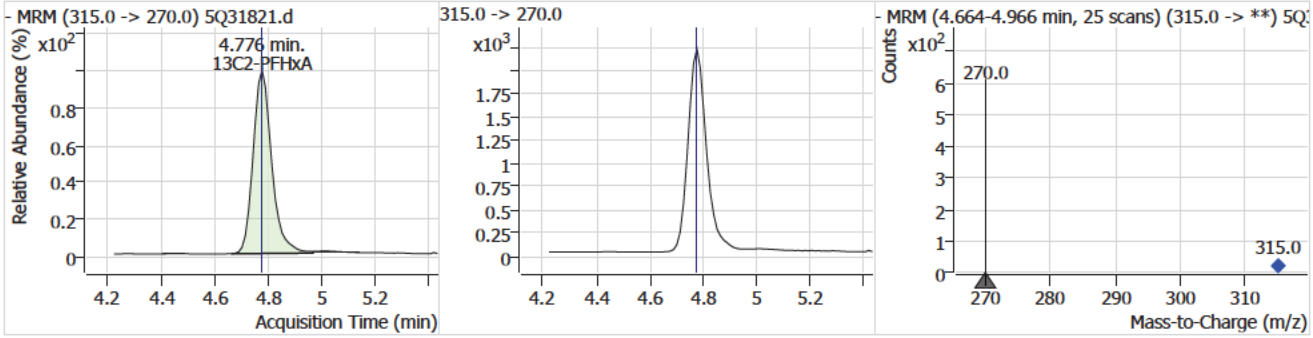
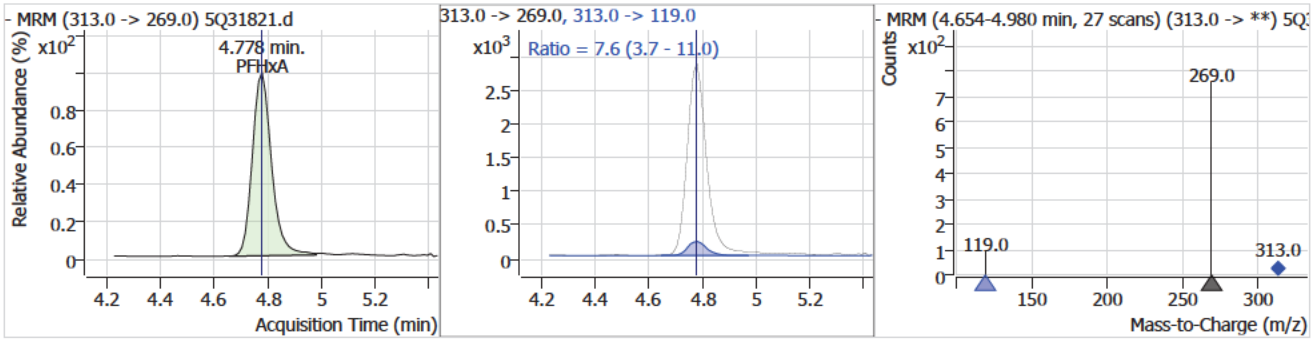
Perfluorinated Compounds by LC/MS/MS

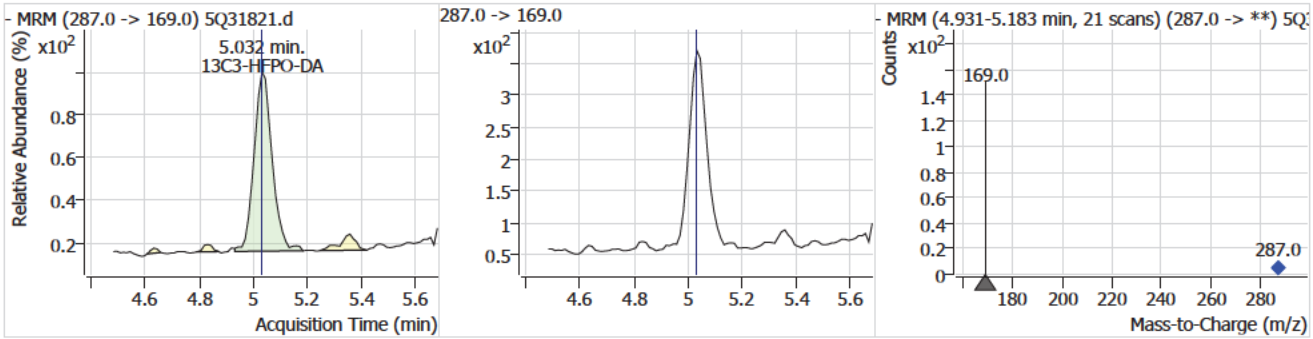
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.39	4.78	0.00	10466				



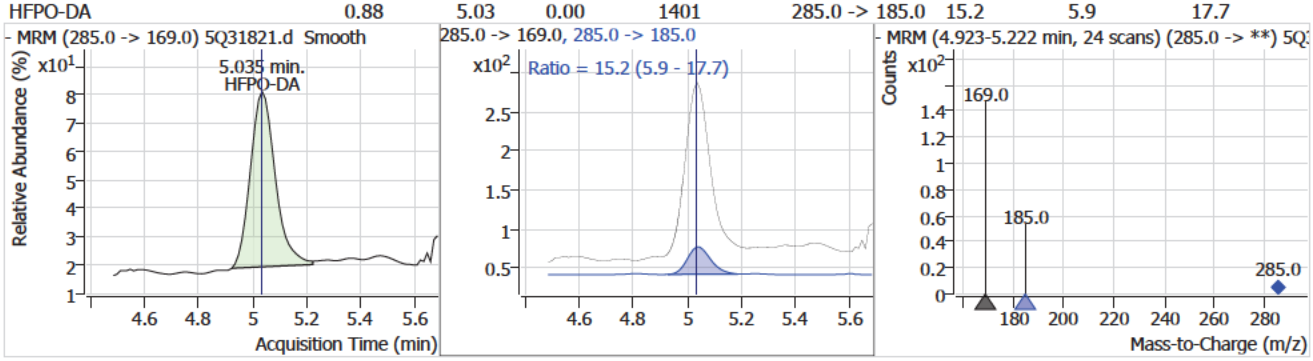
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.79	4.78	0.00	14178	313.0 -> 119.0	7.6	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.77	5.03	0.00	1447				

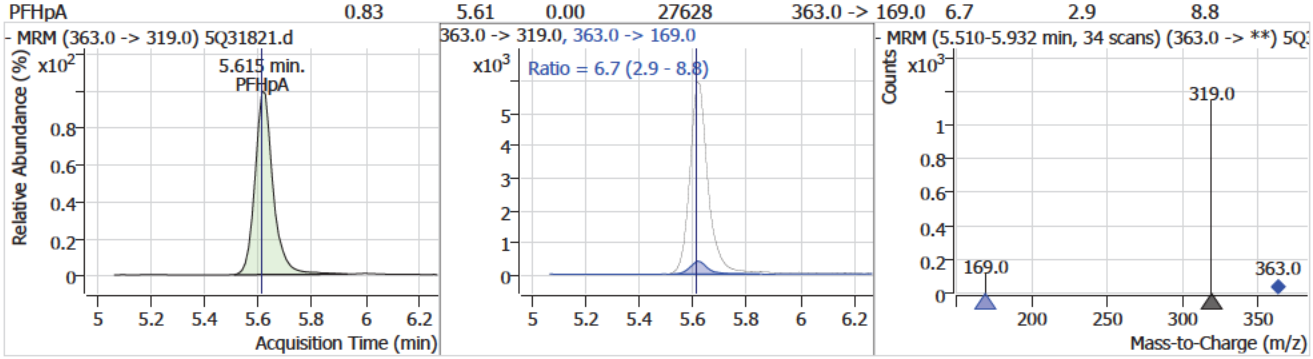


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.88	5.03	0.00	1401	285.0 -> 185.0	15.2	5.9	17.7

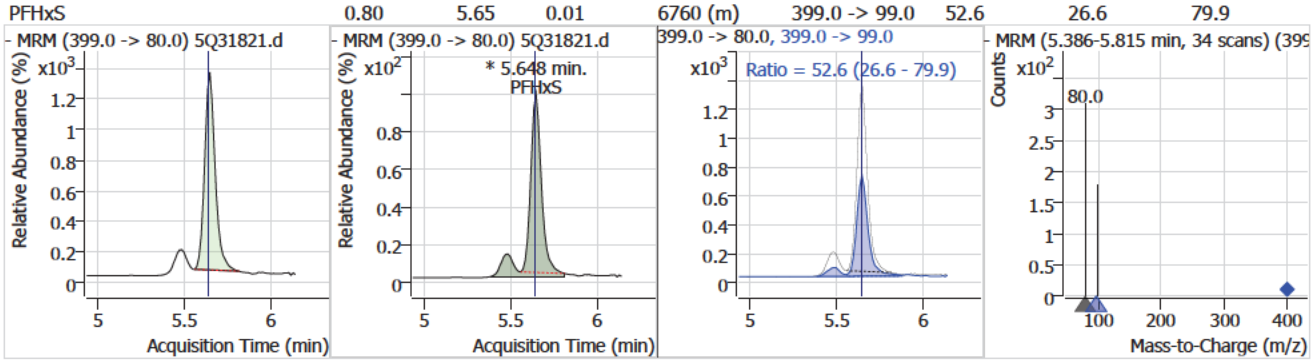


Perfluorinated Compounds by LC/MS/MS

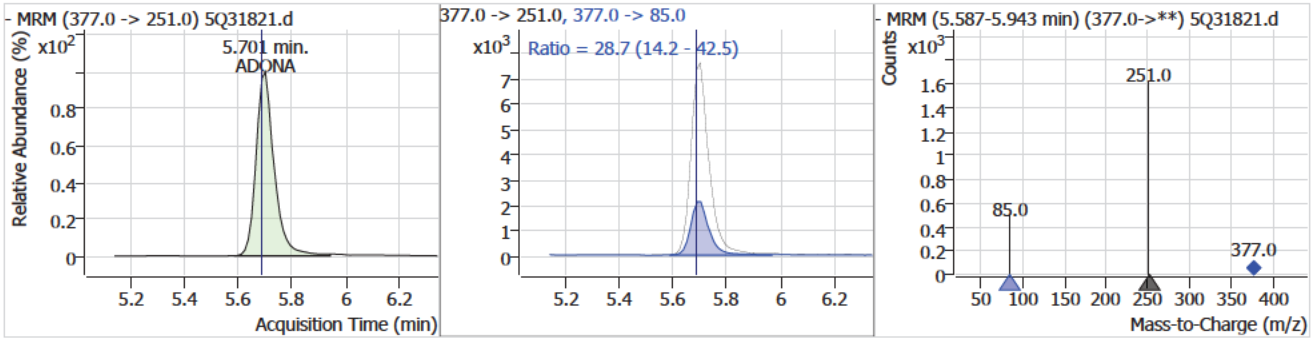
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.83	5.61	0.00	27628	363.0 -> 169.0	6.7	2.9	8.8



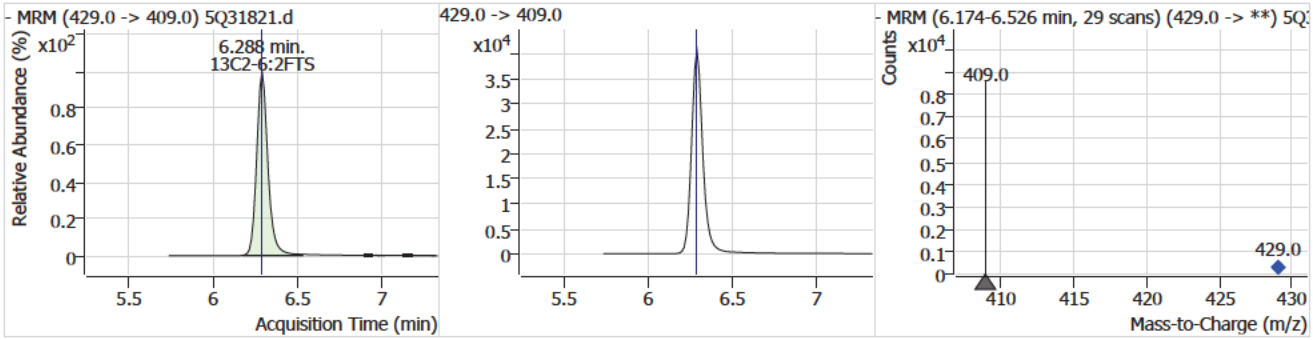
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.80	5.65	0.01	6760 (m)	399.0 -> 99.0	52.6	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.83	5.70	0.01	35599	377.0 -> 85.0	28.7	14.2	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	187895				



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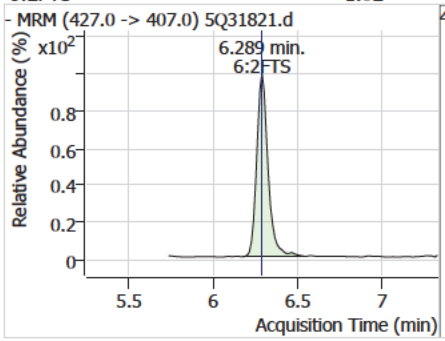
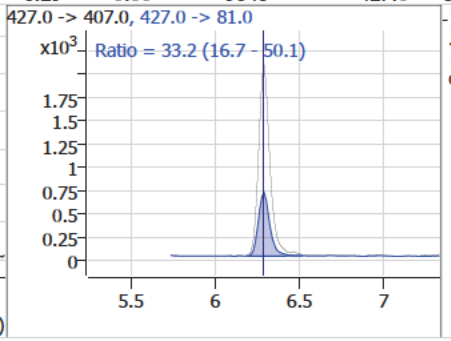
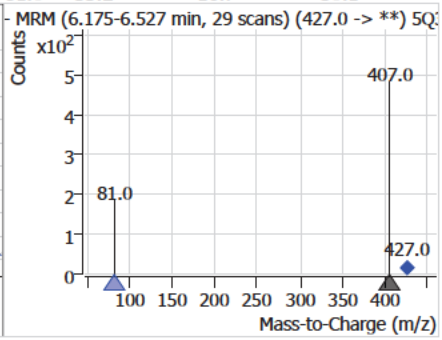
Perfluorinated Compounds by LC/MS/MS

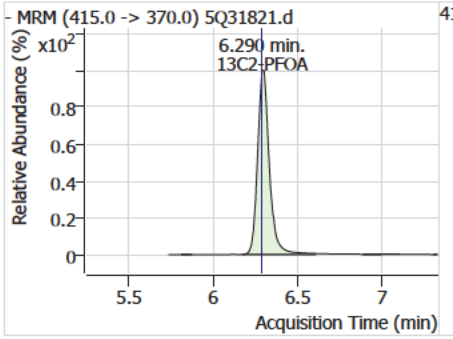
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.02	6.29	0.00	9646	427.0 -> 81.0	33.2	16.7	50.1

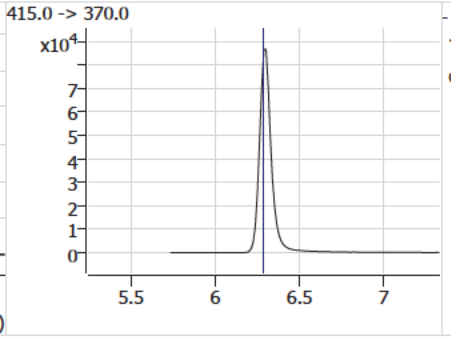


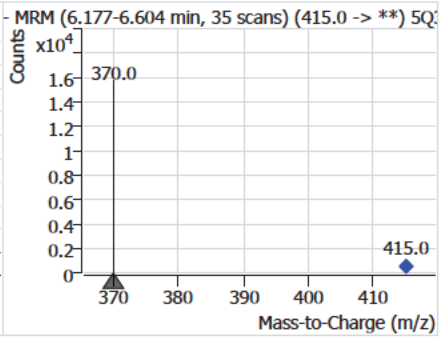




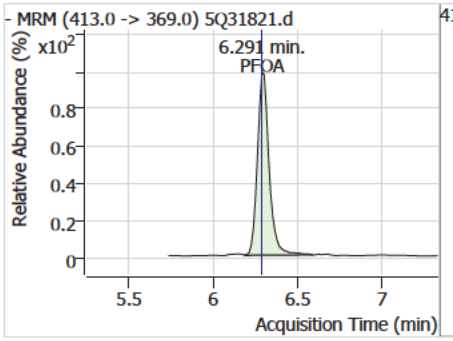
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	418170				

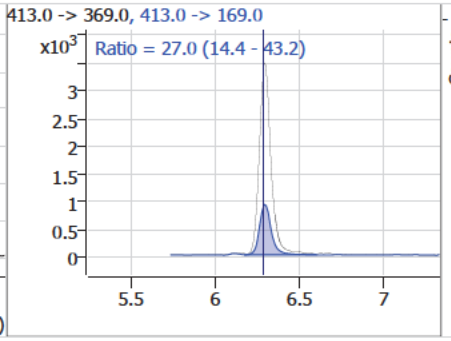


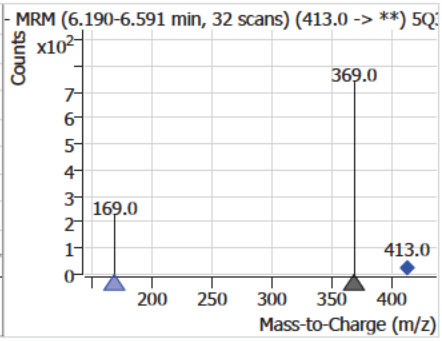




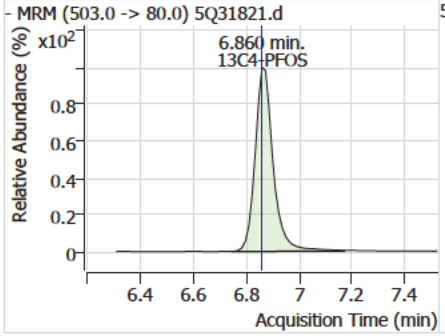
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.84	6.29	0.00	16548	413.0 -> 169.0	27.0	14.4	43.2

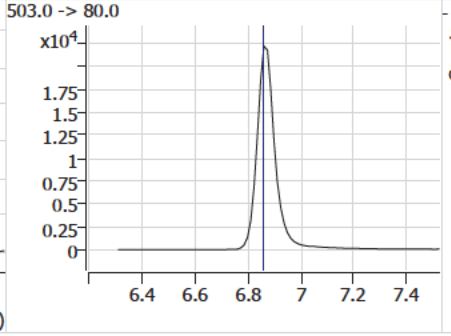


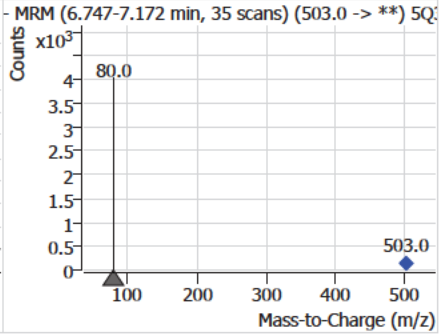




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	105227				

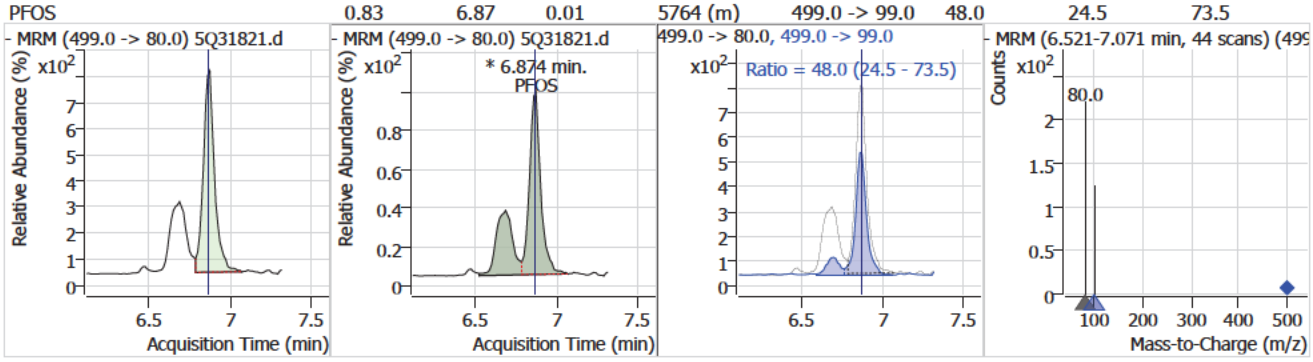




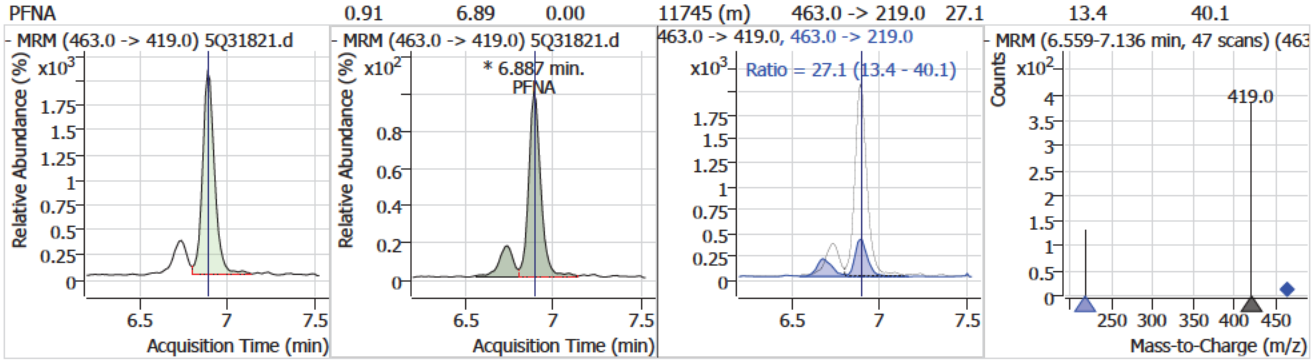


Perfluorinated Compounds by LC/MS/MS

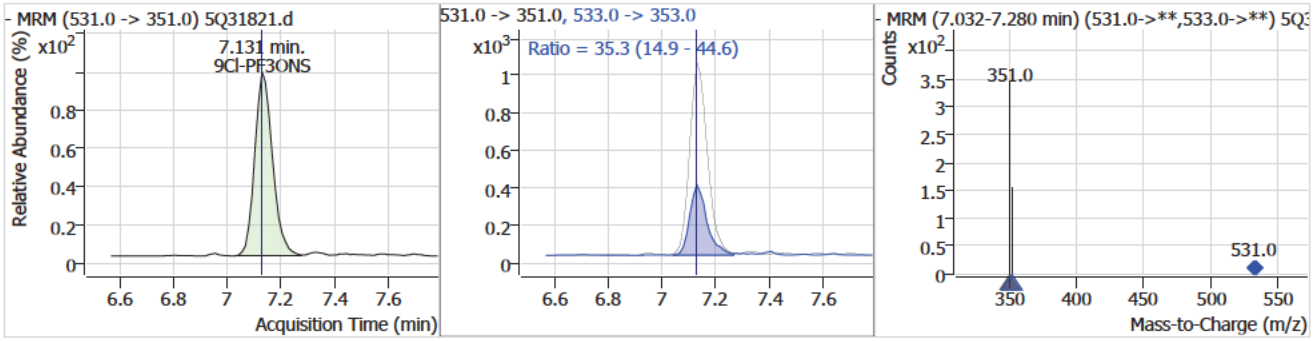
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.83	6.87	0.01	5764 (m)	499.0 -> 99.0	48.0	24.5	73.5



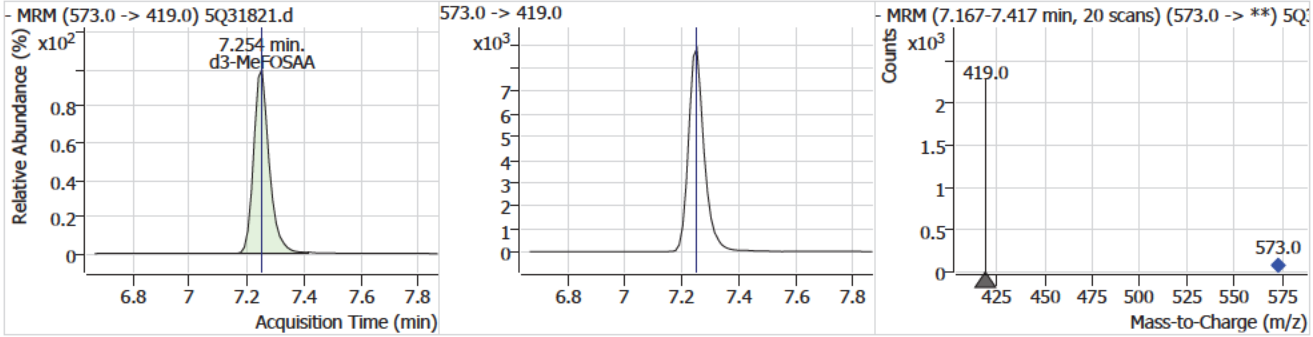
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.91	6.89	0.00	11745 (m)	463.0 -> 219.0	27.1	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.88	7.13	0.00	4732	533.0 -> 353.0	35.3	14.9	44.6

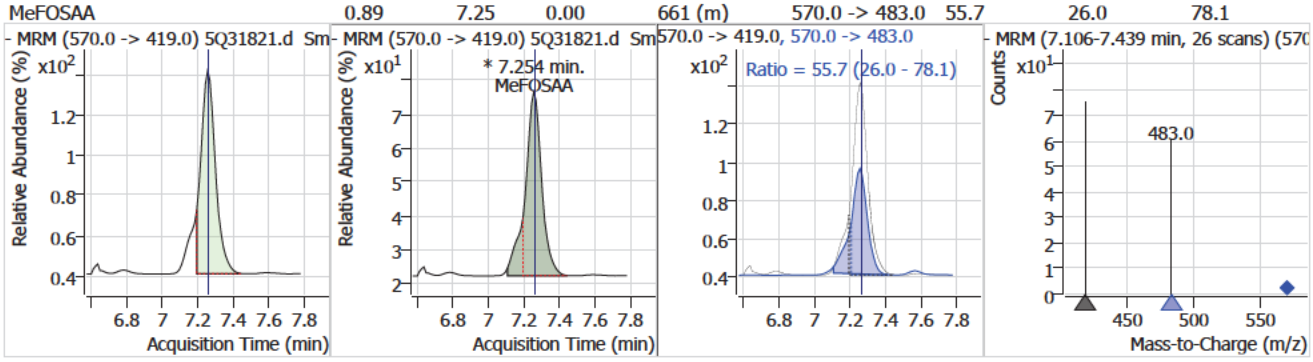


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	33366				

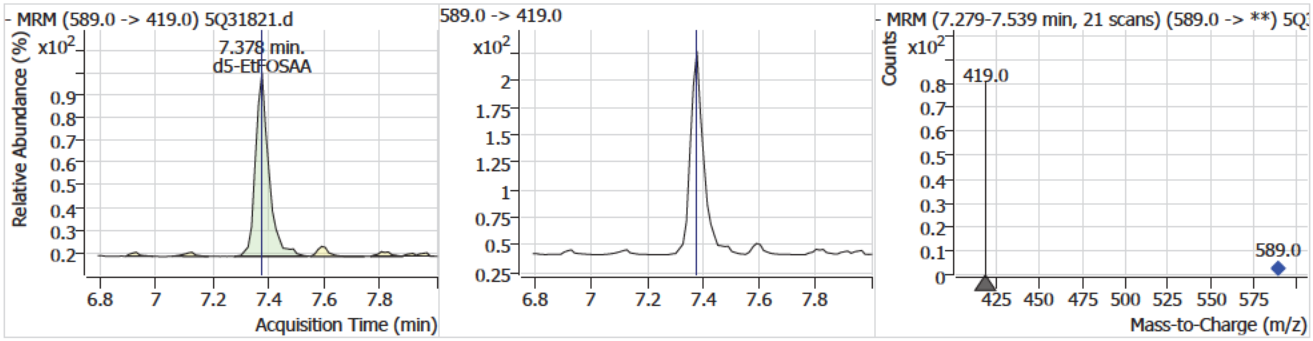


Perfluorinated Compounds by LC/MS/MS

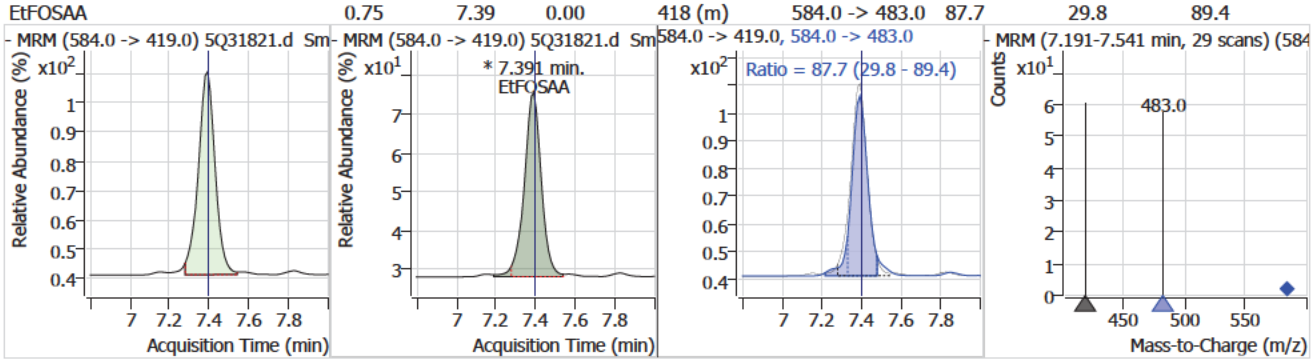
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.89	7.25	0.00	661 (m)	570.0 -> 483.0	55.7	26.0	78.1



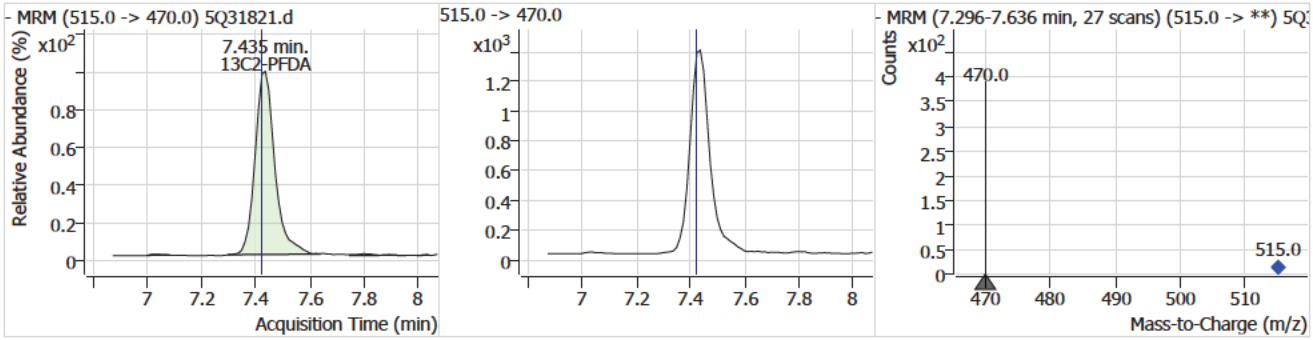
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	0.96	7.38	0.00	610				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.75	7.39	0.00	418 (m)	584.0 -> 483.0	87.7	29.8	89.4

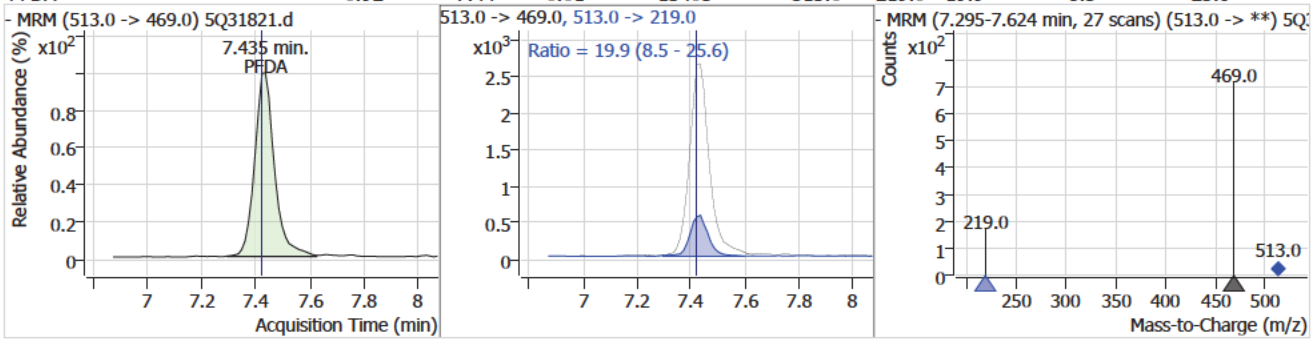


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.39	7.43	0.01	6914				

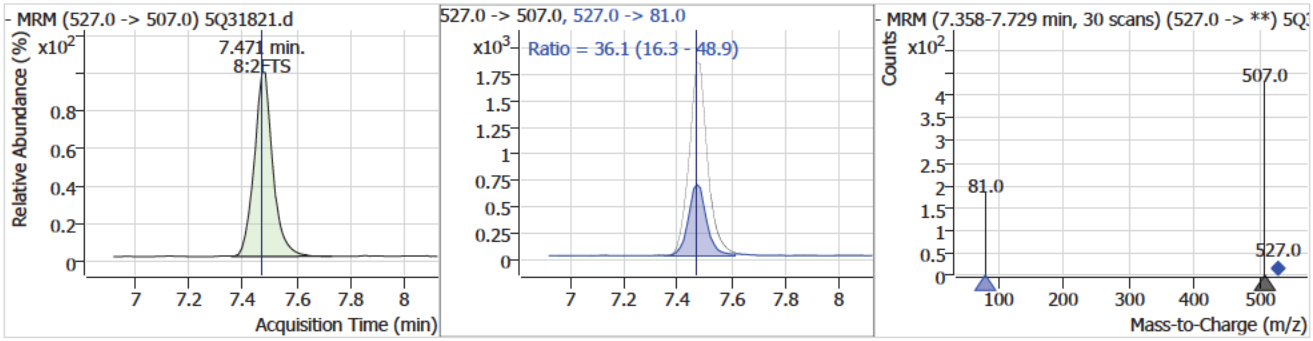


Perfluorinated Compounds by LC/MS/MS

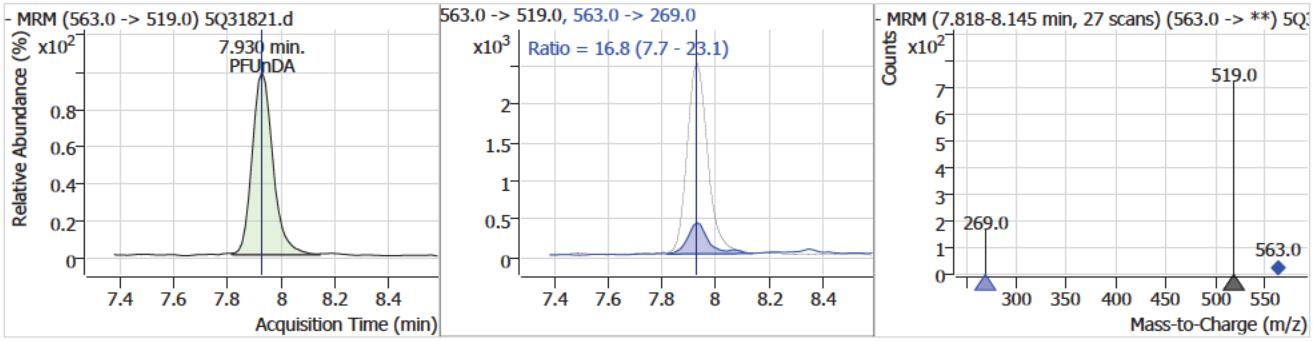
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.92	7.44	0.01	13405	513.0 -> 219.0	19.9	8.5	25.6



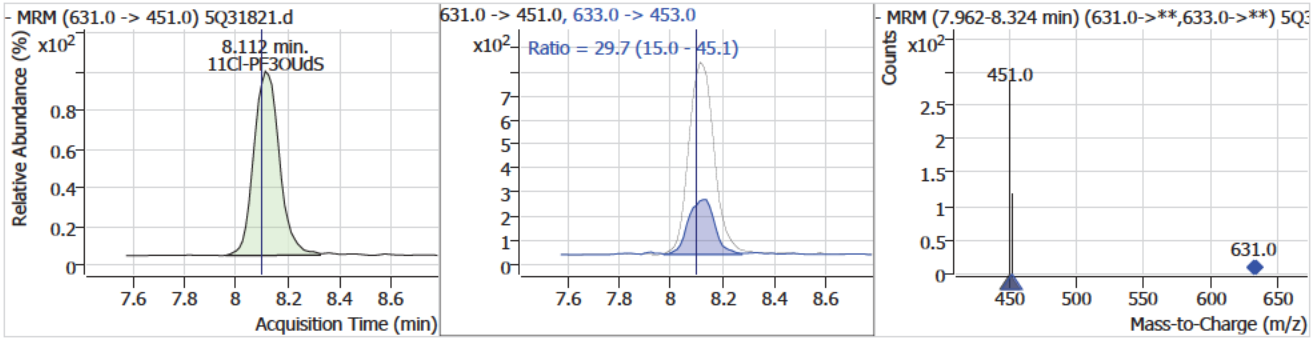
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	1.06	7.47	0.00	8700	527.0 -> 81.0	36.1	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.77	7.93	0.00	13339	563.0 -> 269.0	16.8	7.7	23.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.98	8.11	0.01	5474	633.0 -> 453.0	29.7	15.0	45.1



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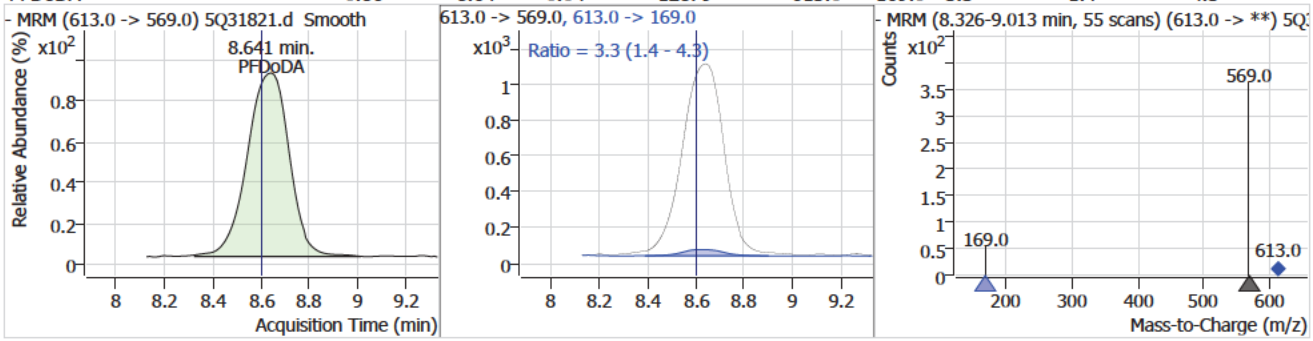
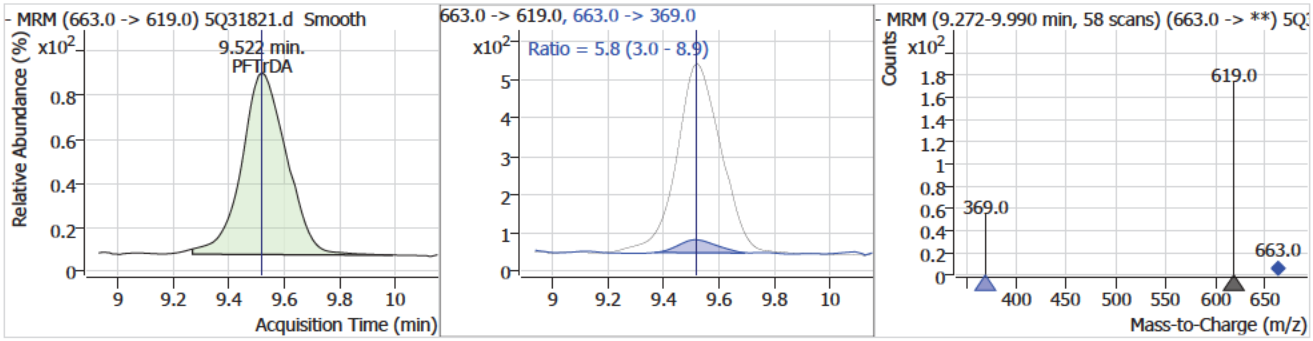
Perfluorinated Compounds by LC/MS/MS

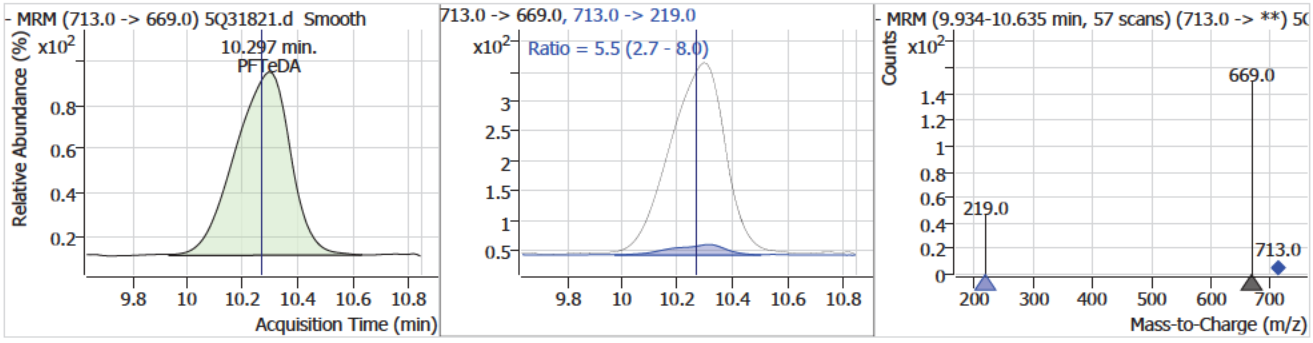
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.86	8.64	0.04	12879	613.0 -> 169.0	3.3	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.74	9.52	0.00	5613	663.0 -> 369.0	5.8	3.0	8.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.87	10.30	0.03	4501	713.0 -> 219.0	5.5	2.7	8.0



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Manual Integration Approval Summary

Sample Number: S5Q523-IC523
Lab FileID: 5Q31821.D
Injection Time: 04/17/25 12:55
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6) [redacted]
Supervisor approved: 04/18/25 11:00 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.87	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31822.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 1:12:06 PM
Sample Name : ic523-2
Vial : P1-A4
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.288	429.0 -> 409.0	176876	20.00 µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	392988	20.00 µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	501309	20.00 µg/L		0.012
13C4-PFOS	6.860	503.0 -> 80.0	98059	20.00 µg/L		0.000
d3-MeFOSAA	7.254	573.0 -> 419.0	29802	40.00 µg/L		0.000
System Monitoring Compounds						
13C2-PFDA	7.435	515.0 -> 470.0	13389	0.80 µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 4.0%		
13C2-PFHxA	4.776	315.0 -> 270.0	20002	0.80 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 4.0%		
d5-EtFOSAA	7.378	589.0 -> 419.0	911	1.61 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 4.0%		
13C3-HFPO-DA	5.032	287.0 -> 169.0	2916	1.66 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 4.1%		
Target Compounds						QValue
6:2FTS	6.289	427.0 -> 407.0	18396	2.08 µg/L		98
8:2FTS	7.471	527.0 -> 507.0	16014	2.08 µg/L		97
EtFOSAA	7.391	584.0 -> 419.0	1182	2.37 µg/L	m	97
MeFOSAA	7.254	570.0 -> 419.0	1449	2.18 µg/L	m	91
PFBS	3.841	299.0 -> 80.0	22576	1.76 µg/L		100
PFDA	7.435	513.0 -> 469.0	25527	1.85 µg/L		100
PFDoDA	8.629	613.0 -> 569.0	26728	1.92 µg/L		99
PFHpA	5.615	363.0 -> 319.0	56216	1.79 µg/L		99
PFHxA	4.778	313.0 -> 269.0	27998	1.65 µg/L		98
PFHxS	5.648	399.0 -> 80.0	13162	1.68 µg/L	m	97
PFNA	6.887	463.0 -> 419.0	22488	1.86 µg/L	m	96
PFOA	6.291	413.0 -> 369.0	31366	1.70 µg/L		97
PFOS	6.861	499.0 -> 80.0	9688	1.50 µg/L	m	96
PFPeA	3.610	263.0 -> 219.0	54261	1.70 µg/L		100
PFTeDA	10.284	713.0 -> 669.0	9074	1.88 µg/L		98
PFTrDA	9.522	663.0 -> 619.0	12144	1.71 µg/L		98
PFUnDA	7.930	563.0 -> 519.0	27429	1.70 µg/L		100
ADONA	5.701	377.0 -> 251.0	72441	1.79 µg/L		99
9Cl-PF3ONS	7.144	531.0 -> 351.0	10201	2.02 µg/L		91
11Cl-PF3OUdS	8.112	631.0 -> 451.0	10483	1.99 µg/L		98
HFPO-DA	5.035	285.0 -> 169.0	2763	1.85 µg/L		98

= Qualifier out of range, m = manually integrated, + = Area summed

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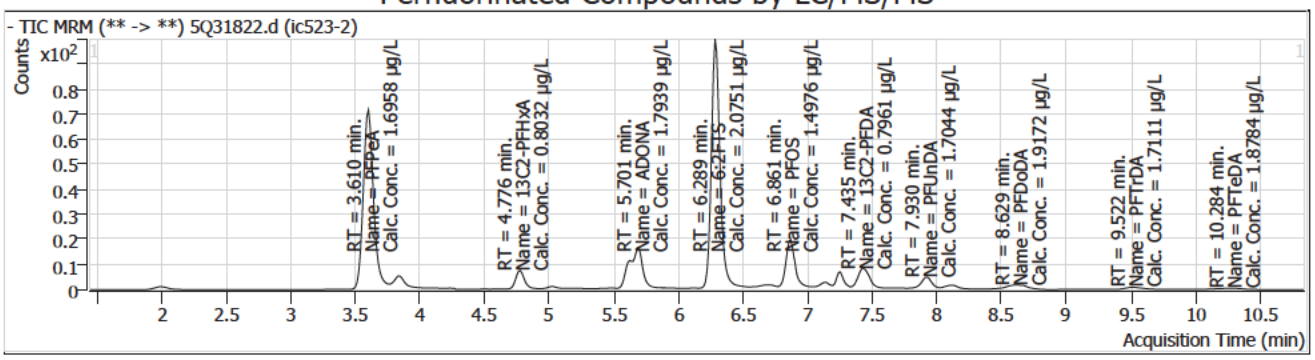
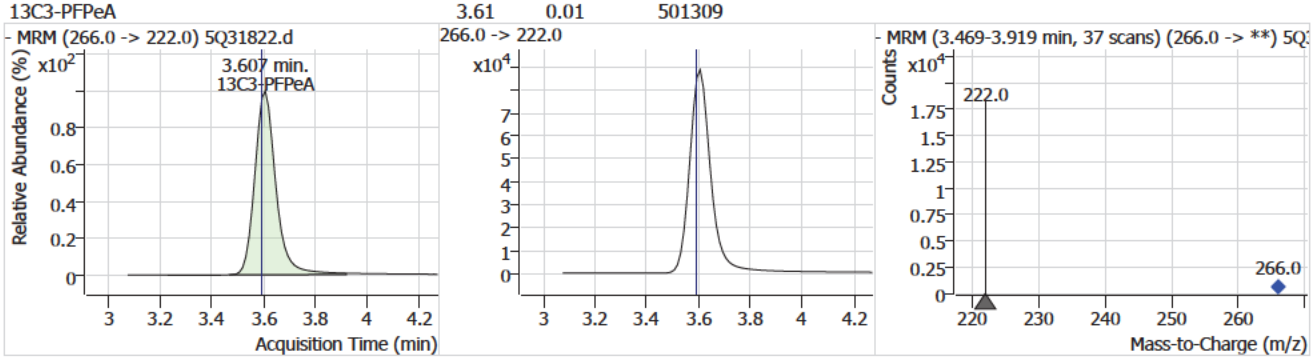
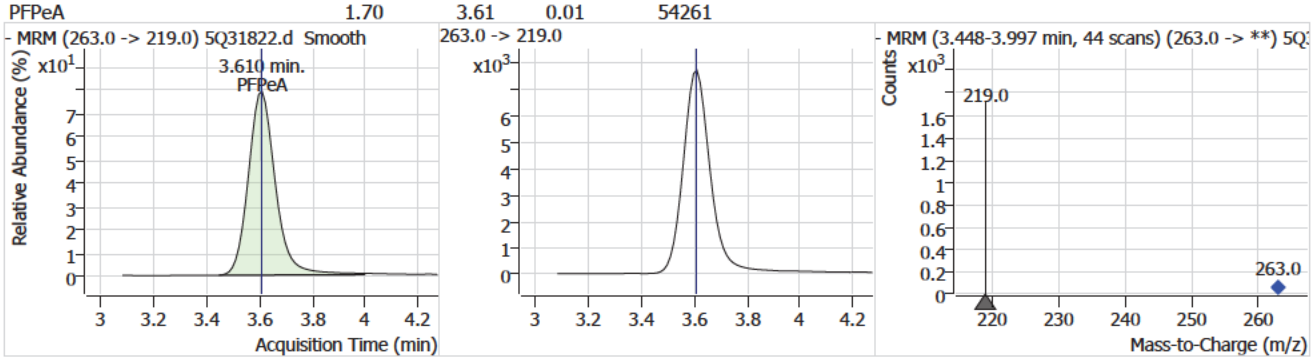
Perfluorinated Compounds by LC/MS/MS



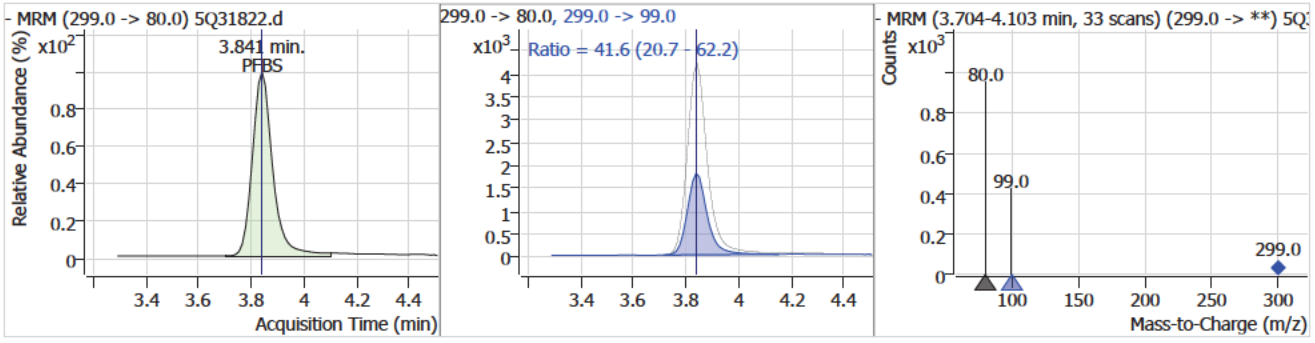
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.01	501309				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.70	3.61	0.01	54261				

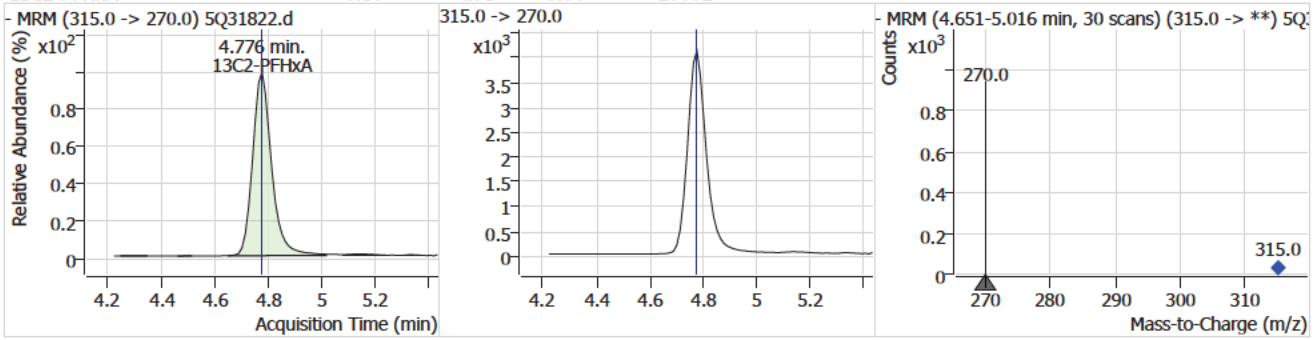


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.76	3.84	0.00	22576	299.0 -> 99.0	41.6	20.7	62.2

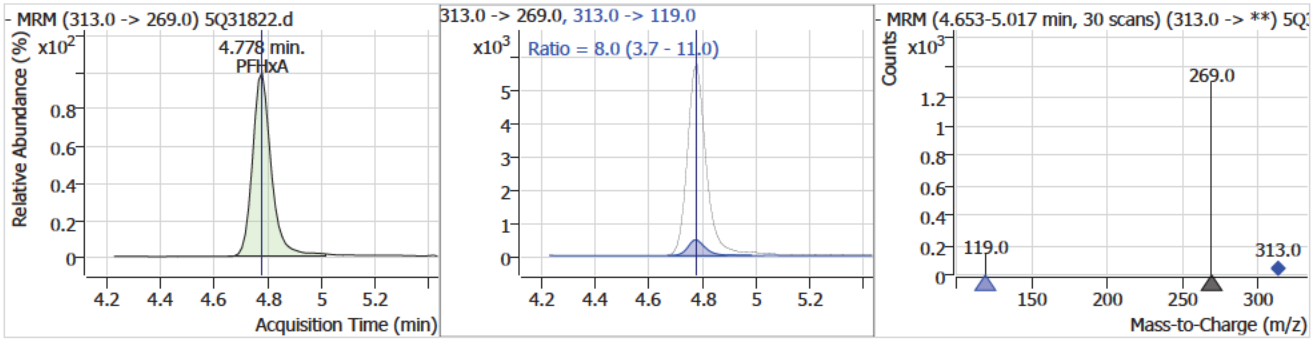


Perfluorinated Compounds by LC/MS/MS

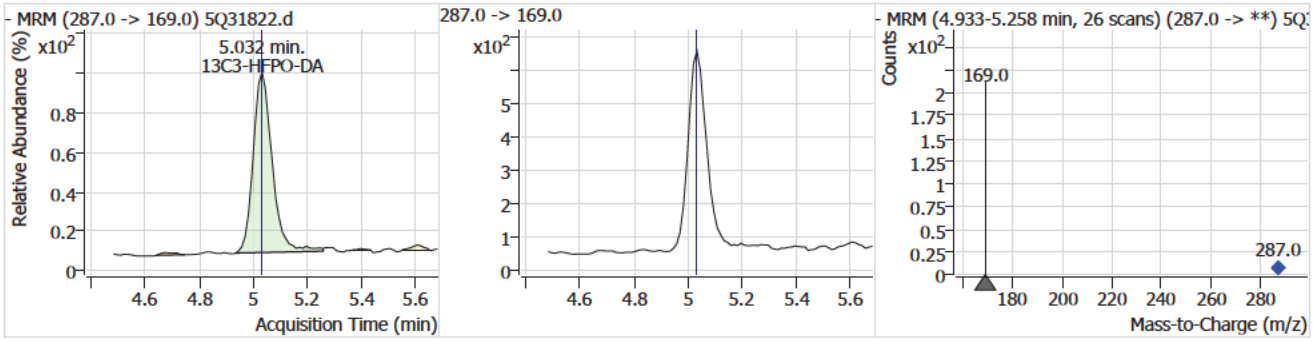
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.80	4.78	0.00	20002				



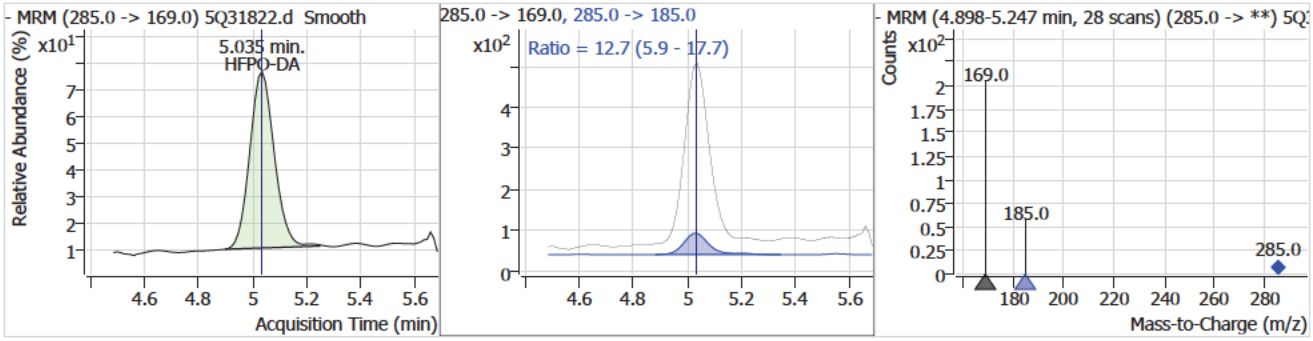
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.65	4.78	0.00	27998	313.0 -> 119.0	8.0	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	1.66	5.03	0.00	2916				

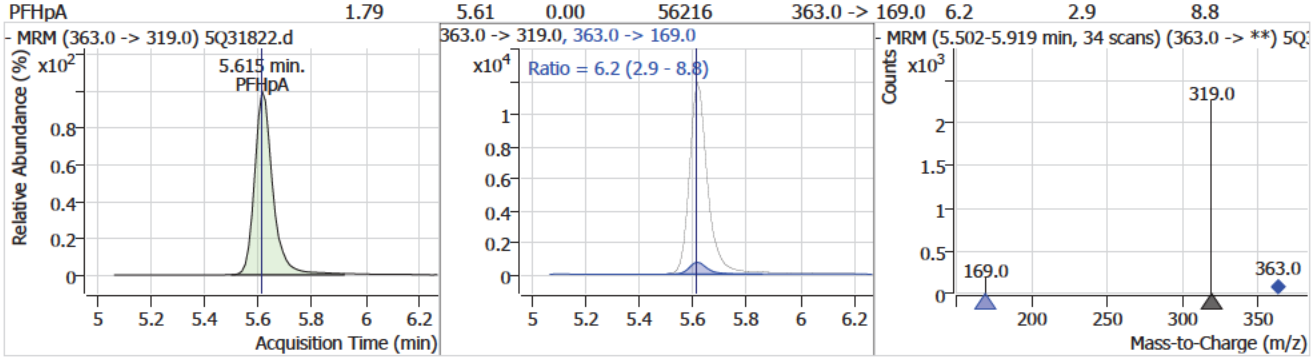


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	1.85	5.03	0.00	2763	285.0 -> 185.0	12.7	5.9	17.7

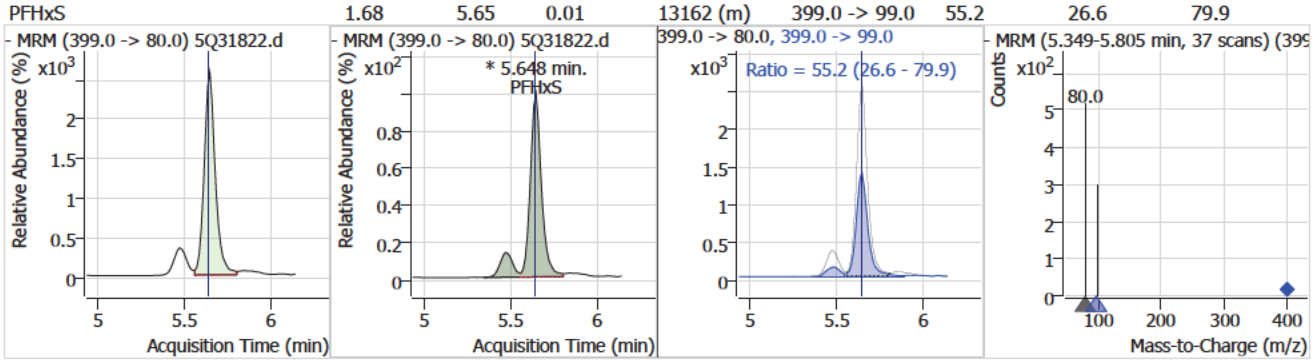


Perfluorinated Compounds by LC/MS/MS

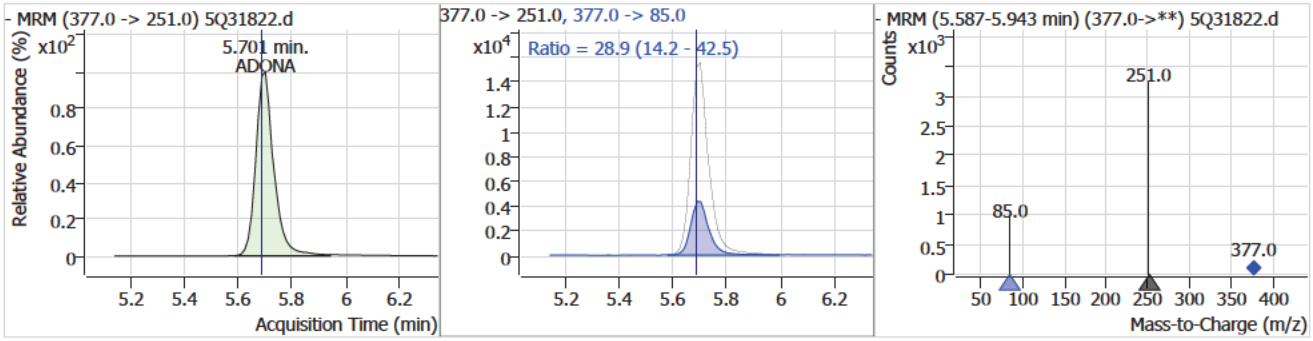
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.79	5.61	0.00	56216	363.0 -> 169.0	6.2	2.9	8.8



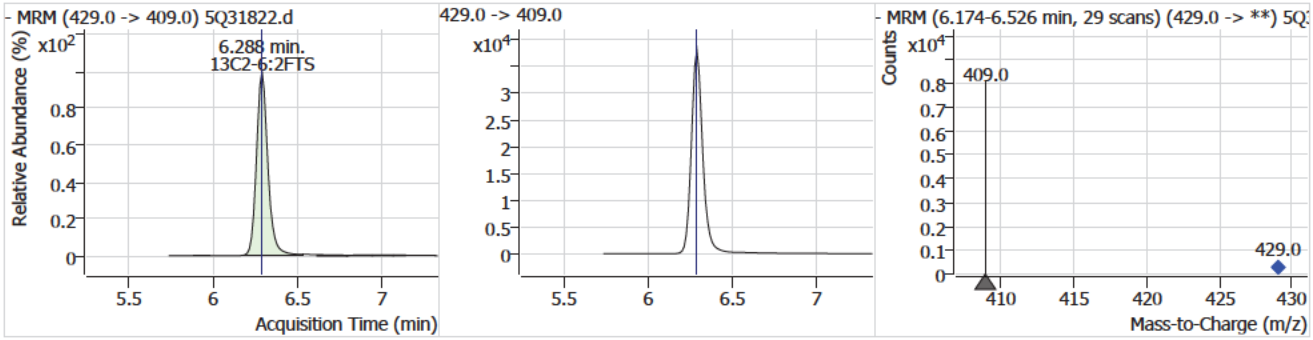
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.68	5.65	0.01	13162 (m)	399.0 -> 99.0	55.2	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	1.79	5.70	0.01	72441	377.0 -> 85.0	28.9	14.2	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	176876				



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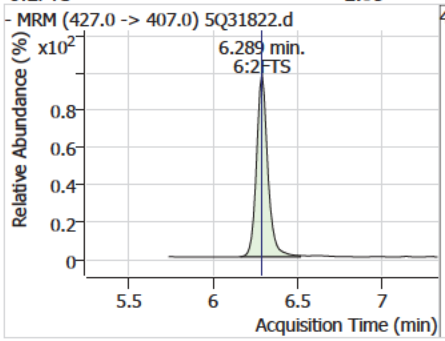
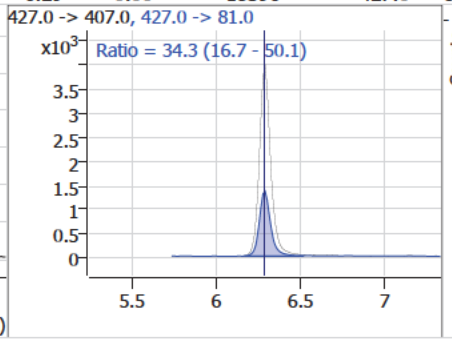
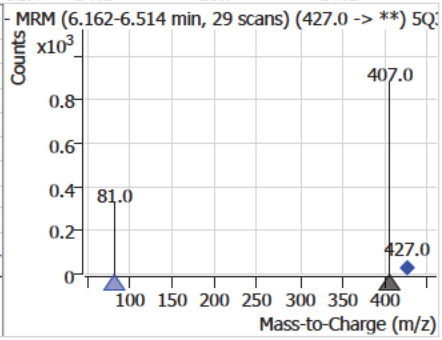
Perfluorinated Compounds by LC/MS/MS

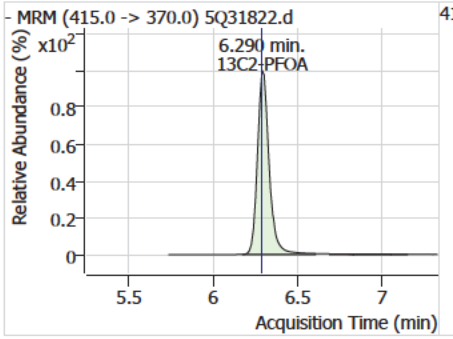
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	2.08	6.29	0.00	18396	427.0 -> 81.0	34.3	16.7	50.1

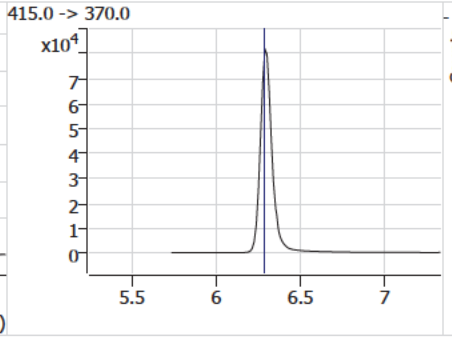


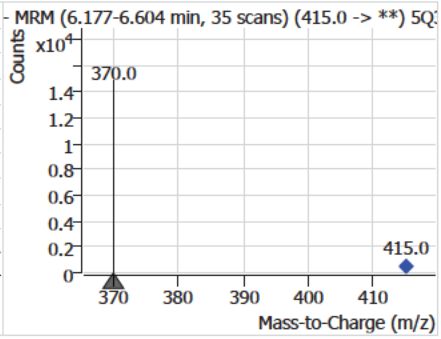




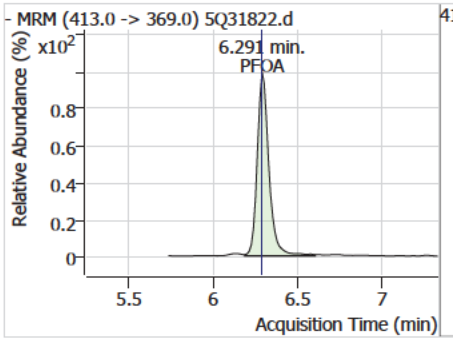
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	392988				

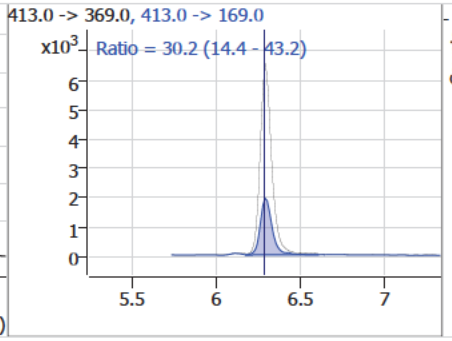


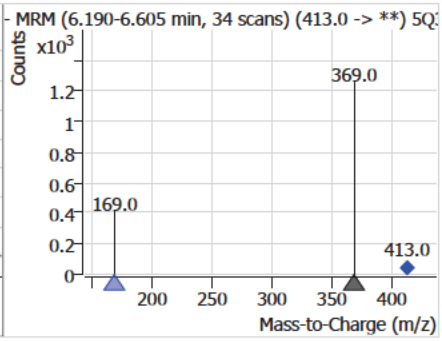




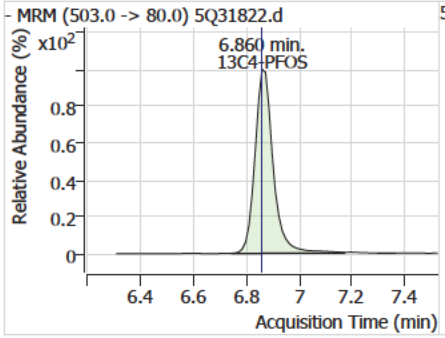
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.70	6.29	0.00	31366	413.0 -> 169.0	30.2	14.4	43.2

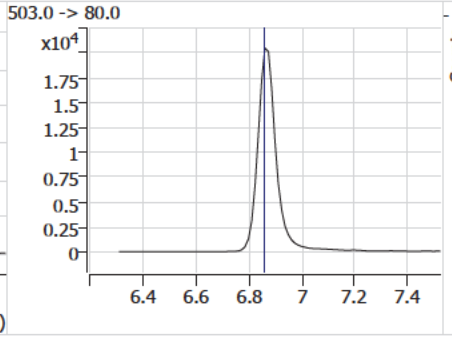


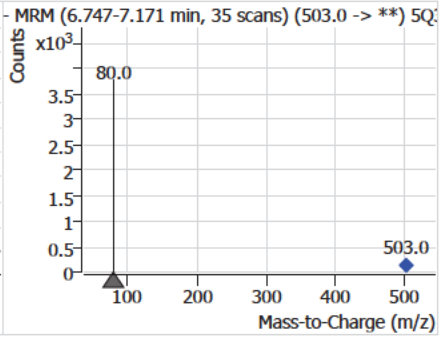




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	98059				







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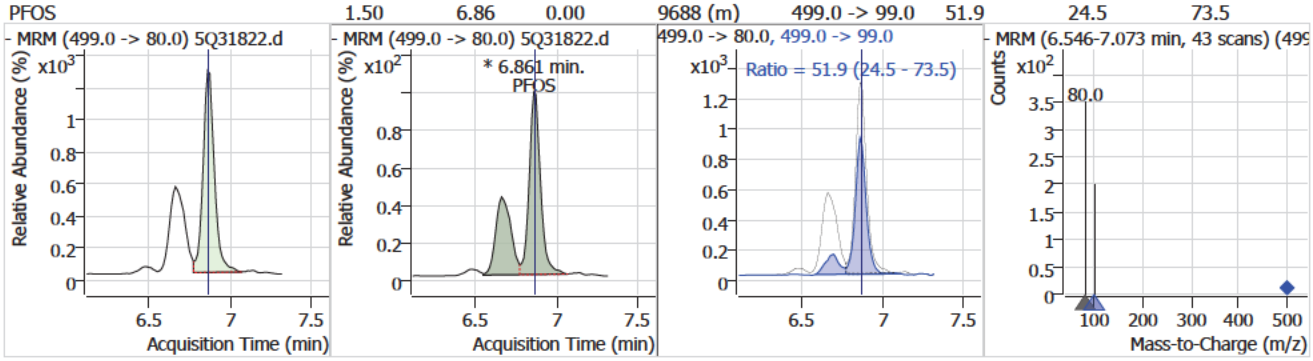
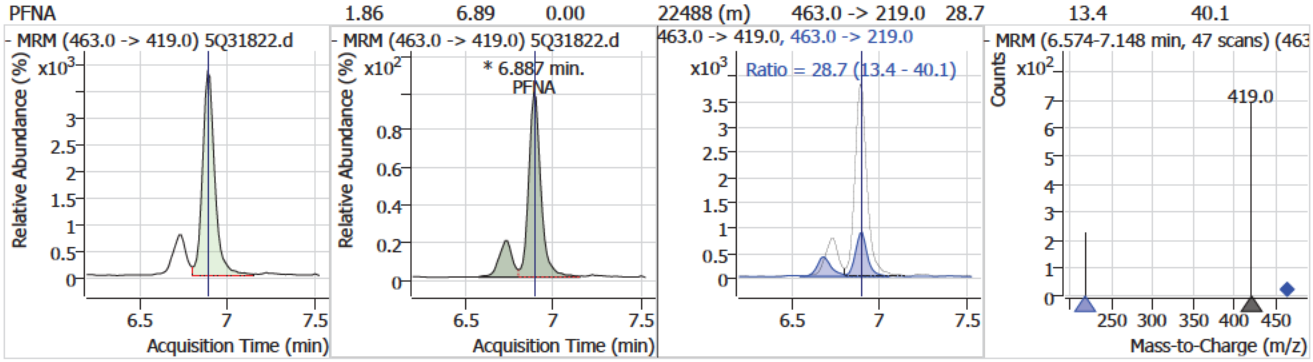
Perfluorinated Compounds by LC/MS/MS

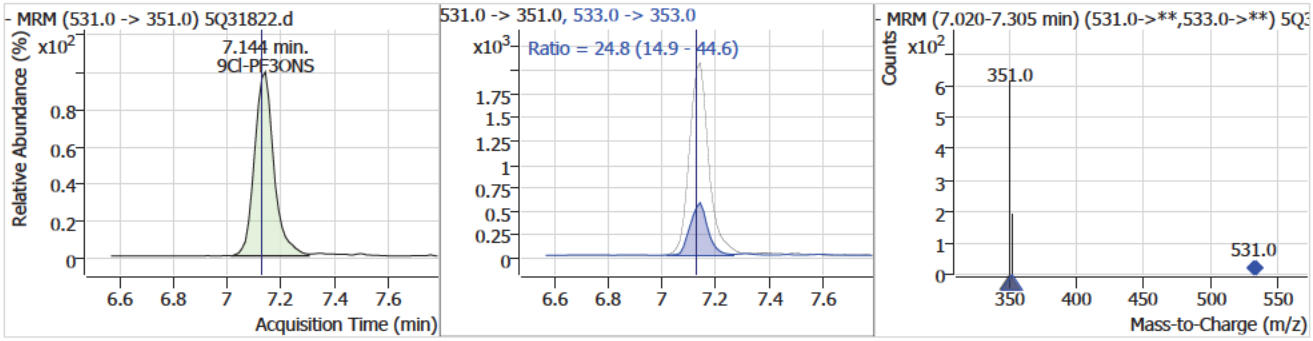
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.50	6.86	0.00	9688 (m)	499.0 -> 99.0	51.9	24.5	73.5



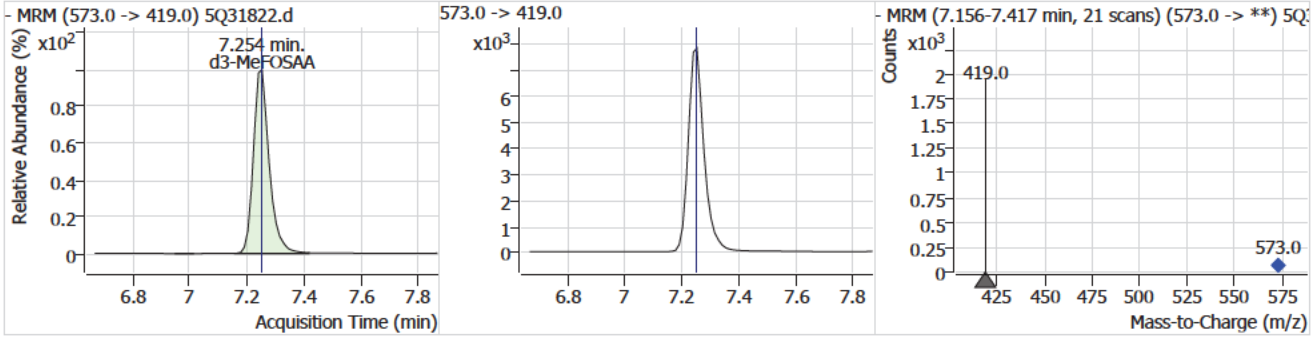
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.86	6.89	0.00	22488 (m)	463.0 -> 219.0	28.7	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	2.02	7.14	0.01	10201	533.0 -> 353.0	24.8	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	29802				



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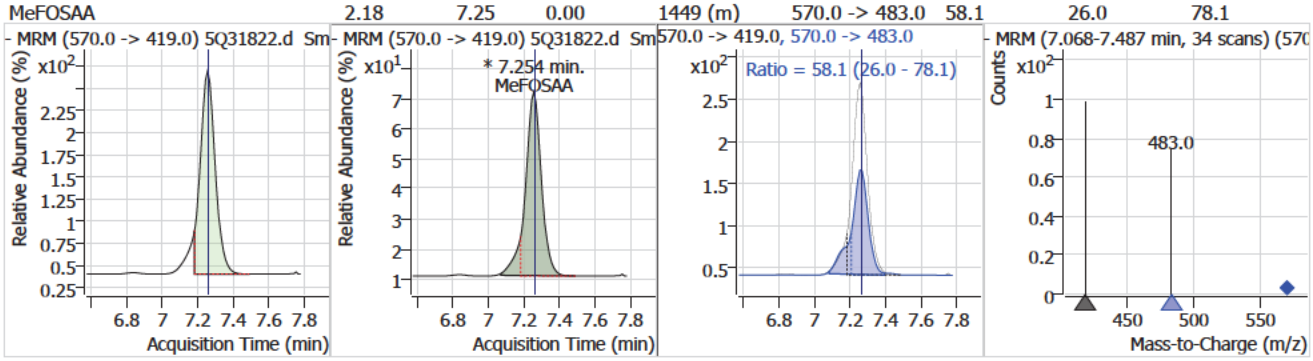
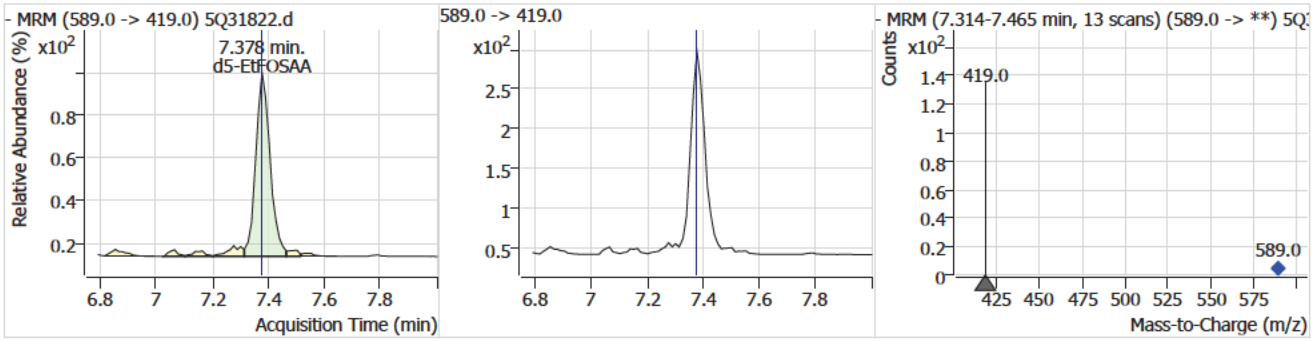
Perfluorinated Compounds by LC/MS/MS

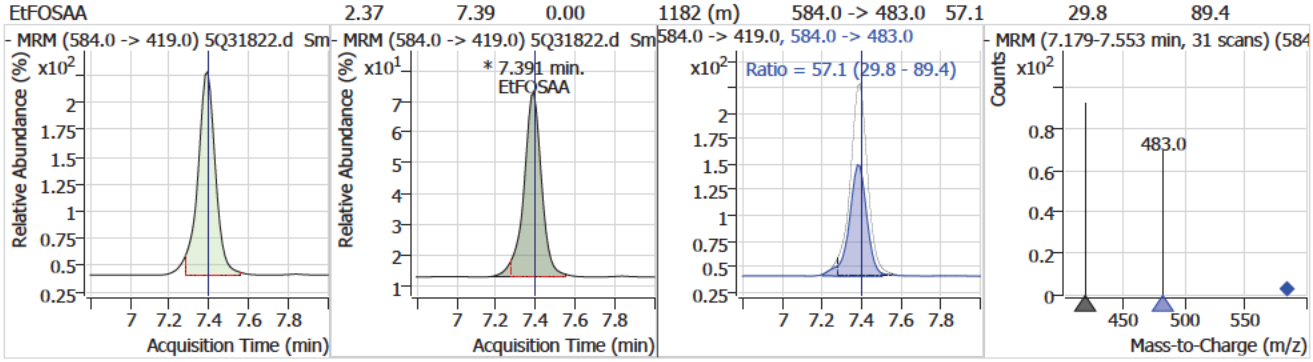
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.18	7.25	0.00	1449 (m)	570.0 -> 483.0	58.1	26.0	78.1



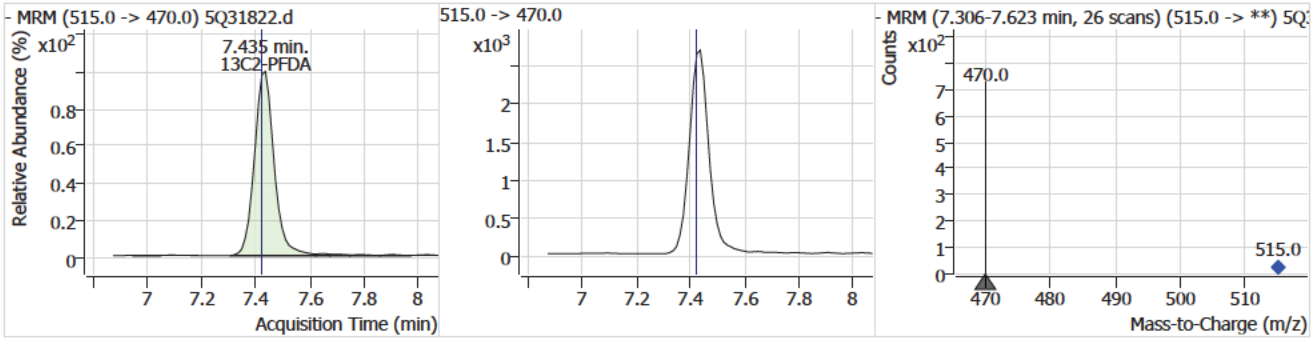
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	1.61	7.38	0.00	911				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.37	7.39	0.00	1182 (m)	584.0 -> 483.0	57.1	29.8	89.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.80	7.43	0.01	13389				



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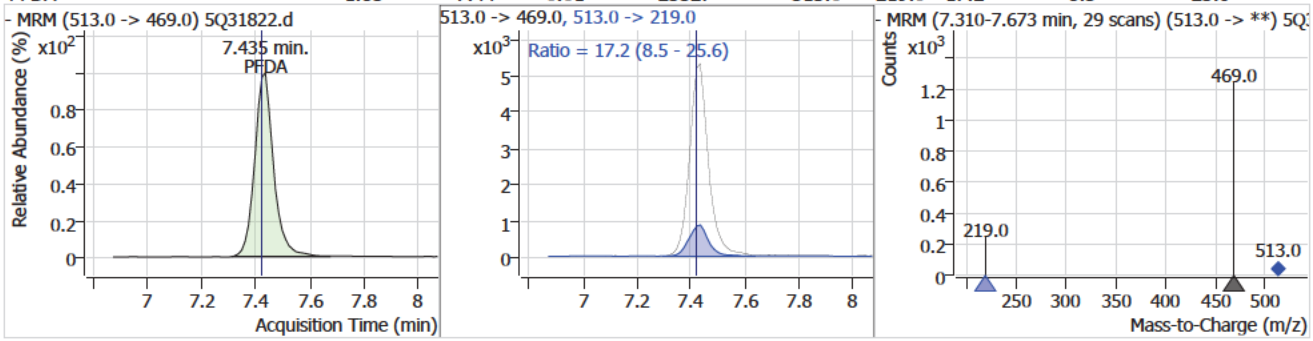
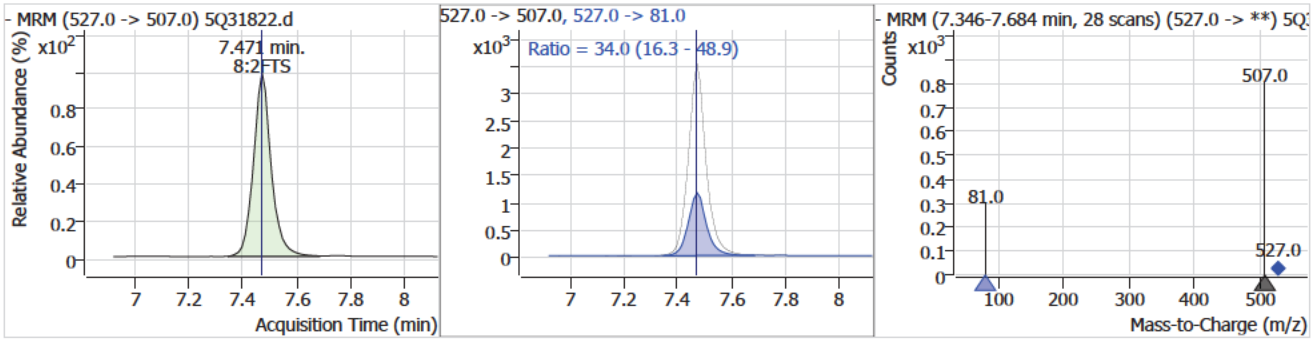
Perfluorinated Compounds by LC/MS/MS

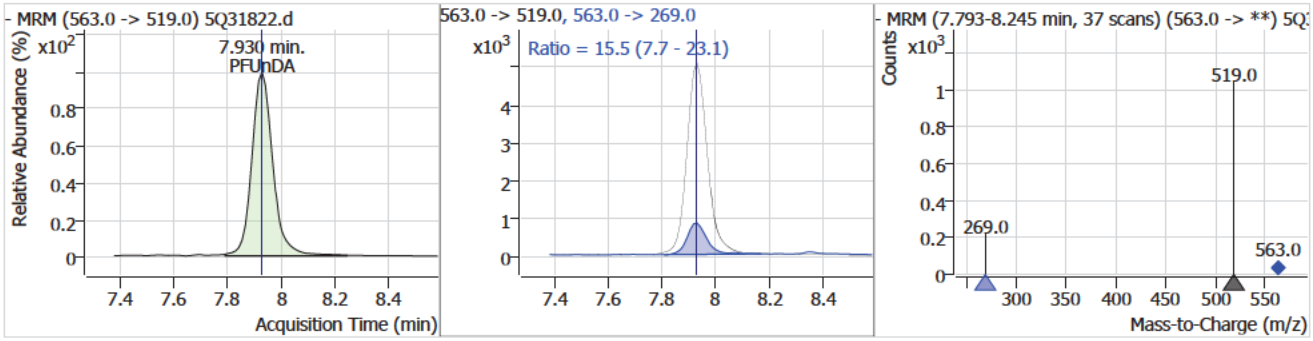
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.85	7.44	0.01	25527	513.0 -> 219.0	17.2	8.5	25.6



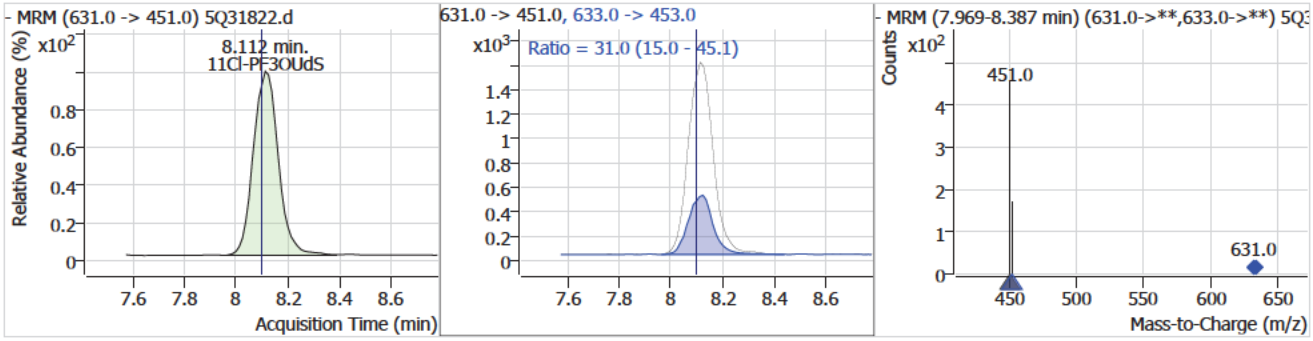
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	2.08	7.47	0.00	16014	527.0 -> 81.0	34.0	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.70	7.93	0.00	27429	563.0 -> 269.0	15.5	7.7	23.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	1.99	8.11	0.01	10483	633.0 -> 453.0	31.0	15.0	45.1



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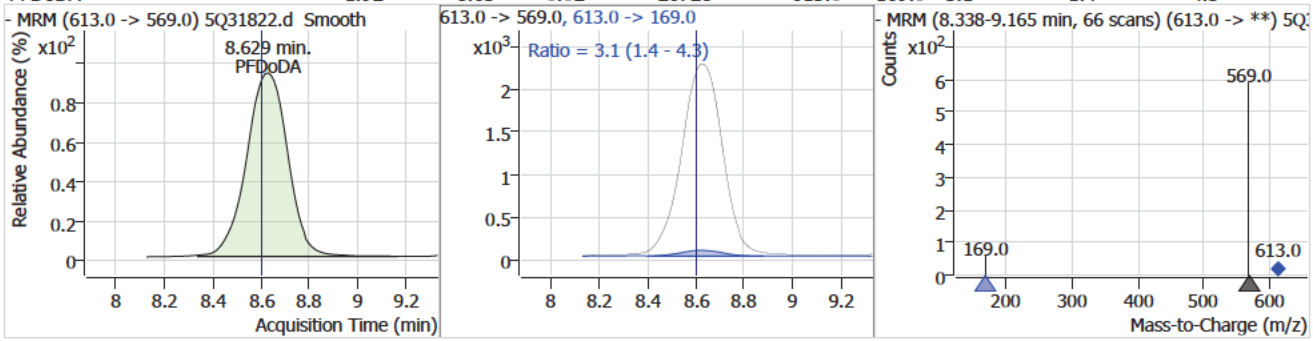
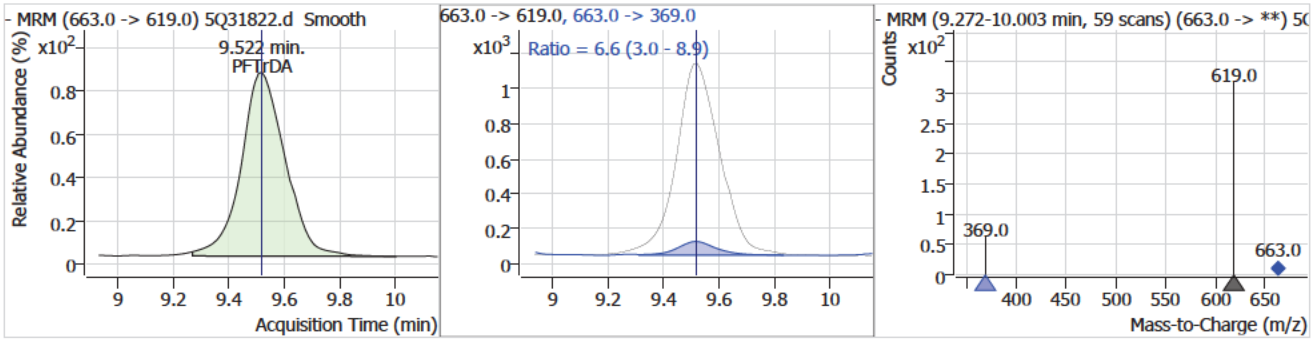
Perfluorinated Compounds by LC/MS/MS

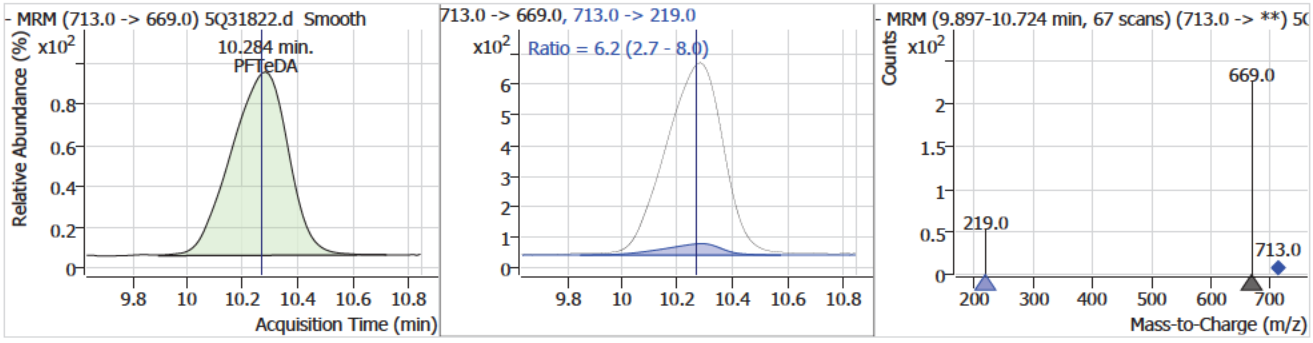
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	1.92	8.63	0.02	26728	613.0 -> 169.0	3.1	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	1.71	9.52	0.00	12144	663.0 -> 369.0	6.6	3.0	8.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.88	10.28	0.01	9074	713.0 -> 219.0	6.2	2.7	8.0



Manual Integration Approval Summary

Sample Number: S5Q523-IC523
Lab FileID: 5Q31822.D
Injection Time: 04/17/25 13:12
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6) [redacted]
Supervisor approved: 04/18/25 11:00 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31823.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 1:28:32 PM
Sample Name : ic523-5
Vial : P1-A5
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.288	429.0 -> 409.0	183368	20.00	µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	403054	20.00	µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	506505	20.00	µg/L		0.012
13C4-PFOS	6.860	503.0 -> 80.0	99224	20.00	µg/L		0.000
d3-MeFOSAA	7.254	573.0 -> 419.0	31569	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.422	515.0 -> 470.0	36936	2.14	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 10.7%			
13C2-PFHxA	4.776	315.0 -> 270.0	55232	2.16	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 10.8%			
d5-EtFOSAA	7.378	589.0 -> 419.0	2656	4.43	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 11.1%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	7370	4.08	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 10.2%			
Target Compounds							QValue
6:2FTS	6.289	427.0 -> 407.0	49664	5.40	µg/L		98
8:2FTS	7.471	527.0 -> 507.0	41857	5.25	µg/L		99
EtFOSAA	7.391	584.0 -> 419.0	2194	4.15	µg/L	m	99
MeFOSAA	7.254	570.0 -> 419.0	2666	3.77	µg/L	#m	63
PFBS	3.841	299.0 -> 80.0	61607	4.75	µg/L		98
PFDA	7.423	513.0 -> 469.0	67060	4.74	µg/L		98
PFDoDA	8.604	613.0 -> 569.0	64076	4.52	µg/L		99
PFHpA	5.615	363.0 -> 319.0	151502	4.68	µg/L		100
PFHxA	4.778	313.0 -> 269.0	75952	4.37	µg/L		99
PFHxS	5.648	399.0 -> 80.0	35860	4.51	µg/L	m	100
PFNA	6.887	463.0 -> 419.0	64507	5.15	µg/L	m	99
PFOA	6.291	413.0 -> 369.0	84652	4.45	µg/L		99
PFOS	6.861	499.0 -> 80.0	27585	4.21	µg/L	m	100
PFPeA	3.610	263.0 -> 219.0	147044	4.54	µg/L		100
PFTeDA	10.284	713.0 -> 669.0	22055	4.48	µg/L		100
PFTrDA	9.522	663.0 -> 619.0	27200	3.79	µg/L		97
PFUnDA	7.930	563.0 -> 519.0	71206	4.37	µg/L		100
ADONA	5.689	377.0 -> 251.0	195292	4.69	µg/L		99
9Cl-PF3ONS	7.131	531.0 -> 351.0	25637	4.90	µg/L		96
11Cl-PF3OUdS	8.112	631.0 -> 451.0	27621	5.06	µg/L		99
HFPO-DA	5.035	285.0 -> 169.0	7077	4.61	µg/L		93

= Qualifier out of range, m = manually integrated, + = Area summed

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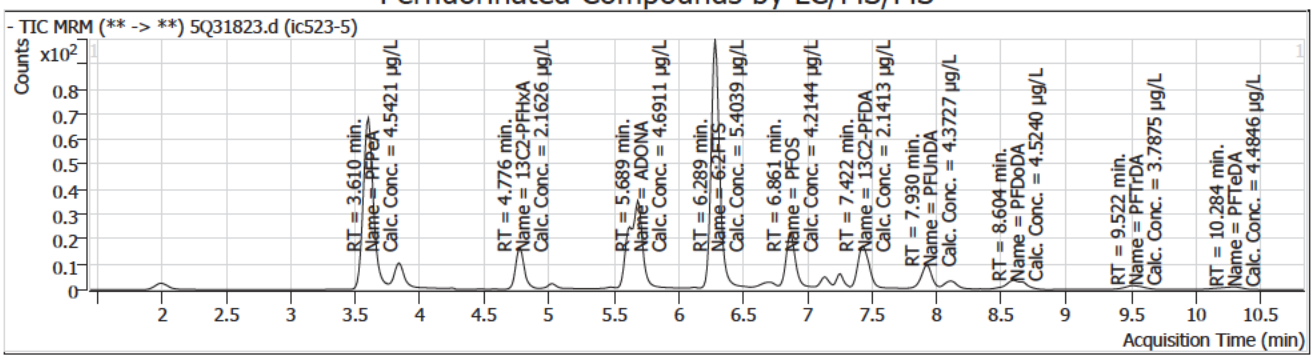
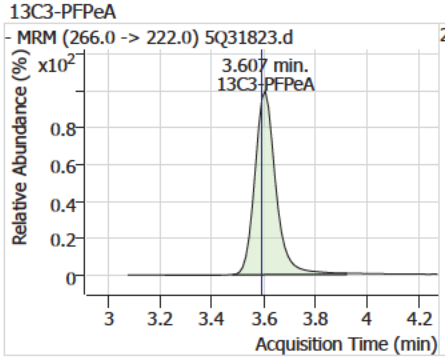
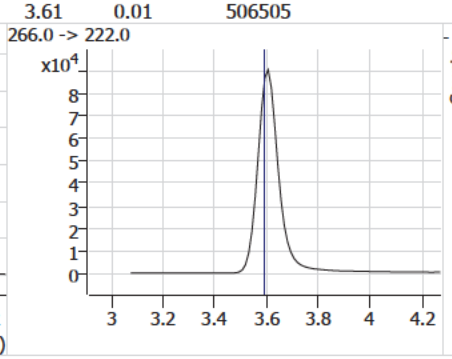
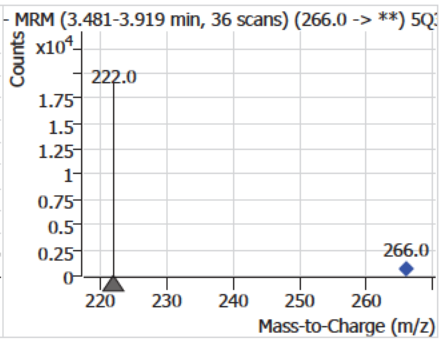
Perfluorinated Compounds by LC/MS/MS



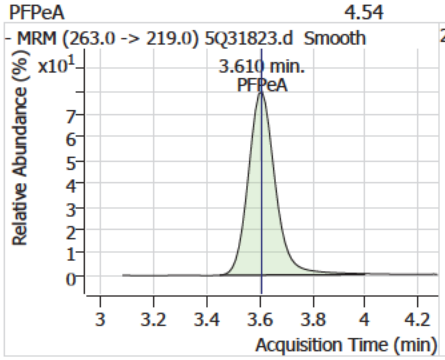
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.01	506505				

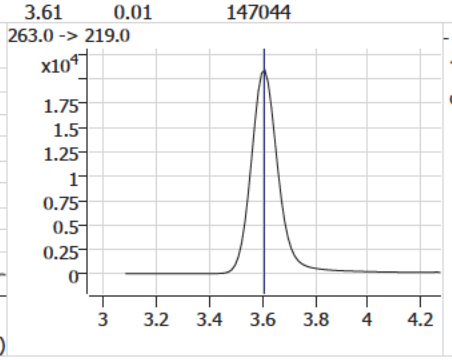


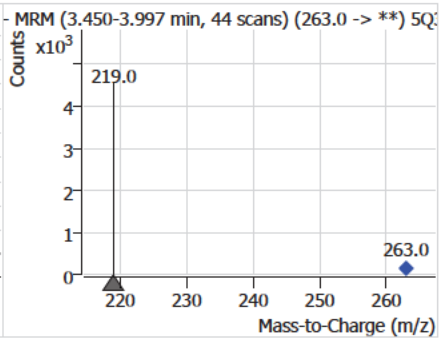




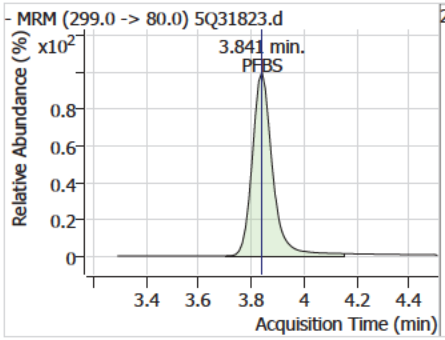
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.54	3.61	0.01	147044				

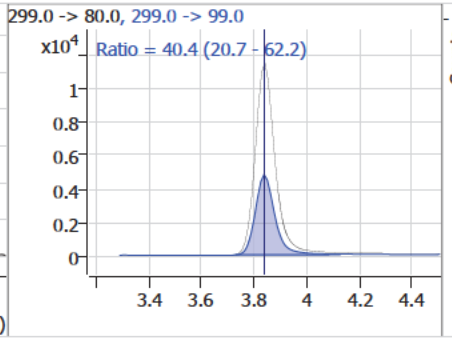


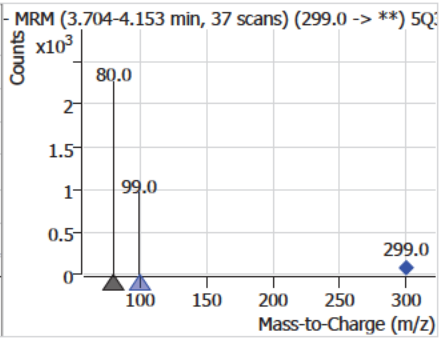




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	4.75	3.84	0.00	61607	299.0 -> 99.0	40.4	20.7	62.2

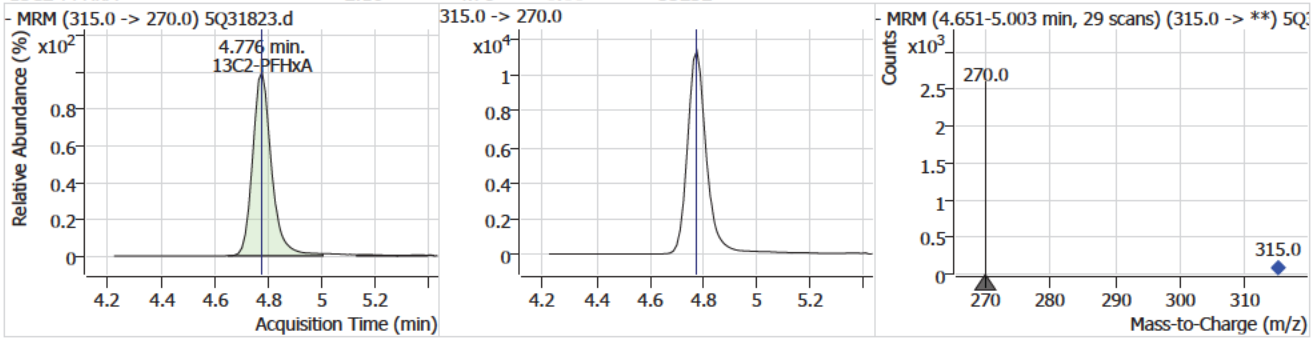




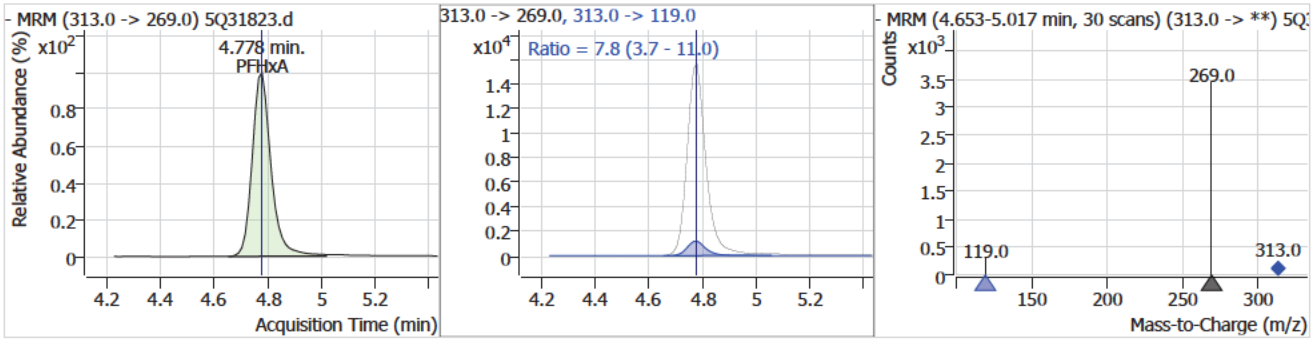


Perfluorinated Compounds by LC/MS/MS

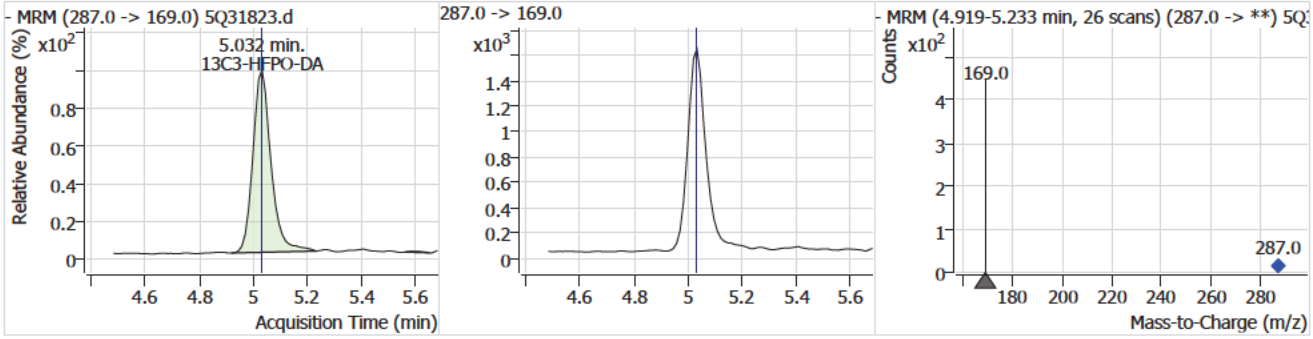
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	2.16	4.78	0.00	55232				



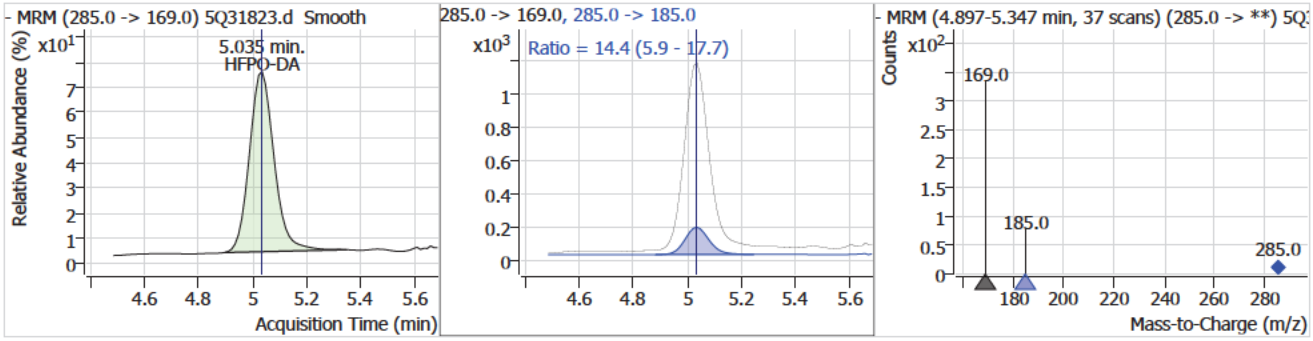
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	4.37	4.78	0.00	75952	313.0 -> 119.0	7.8	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	4.08	5.03	0.00	7370				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.61	5.03	0.00	7077	285.0 -> 185.0	14.4	5.9	17.7



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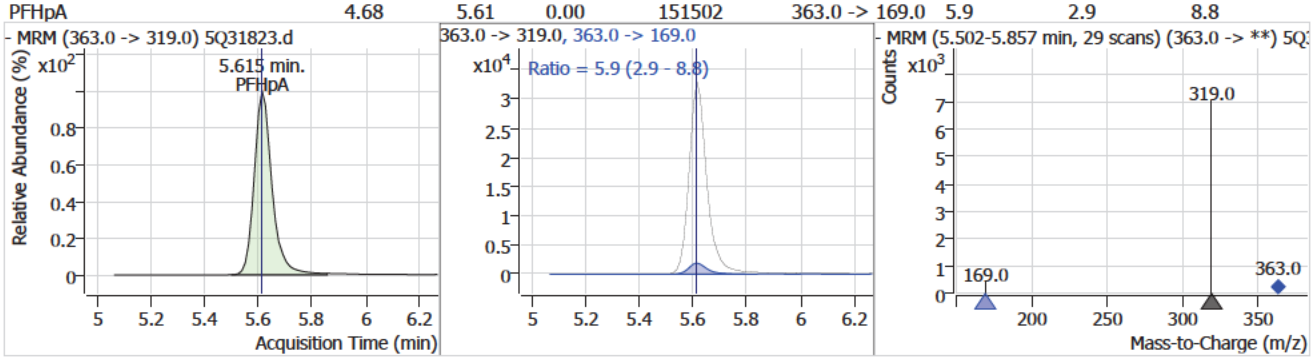
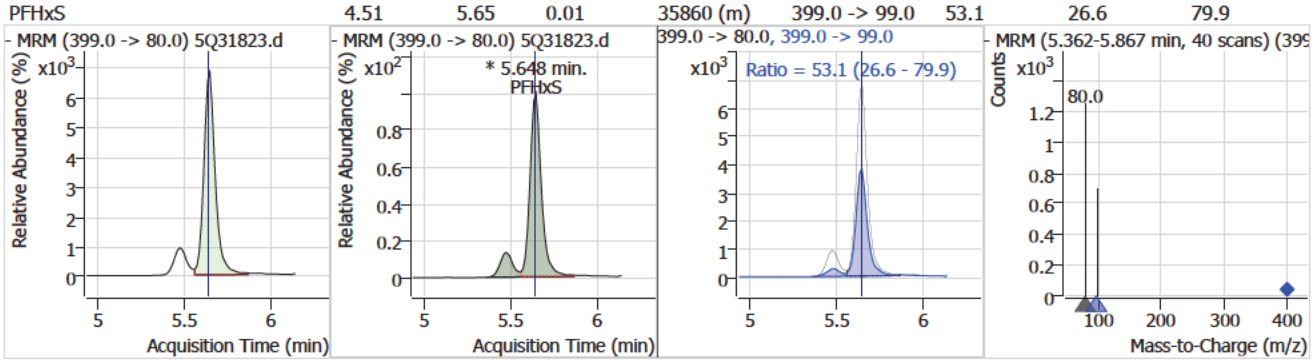
Perfluorinated Compounds by LC/MS/MS

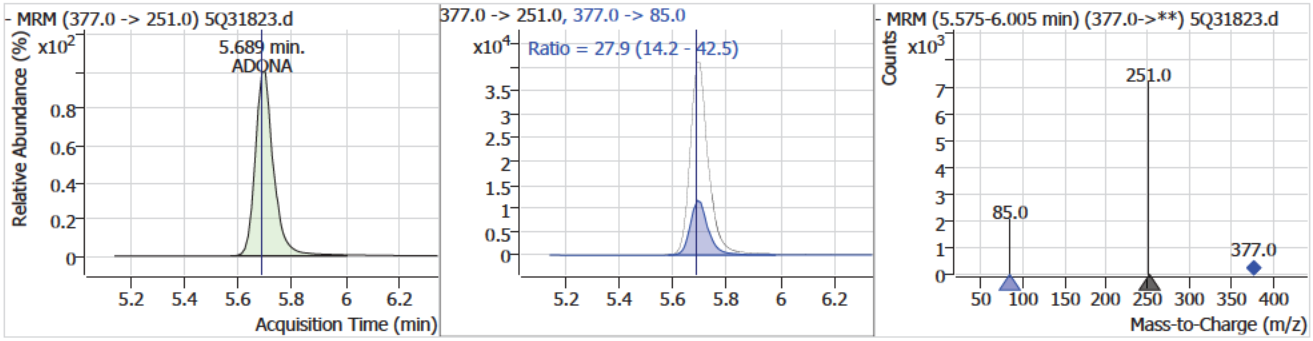
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	4.68	5.61	0.00	151502	363.0 -> 169.0	5.9	2.9	8.8



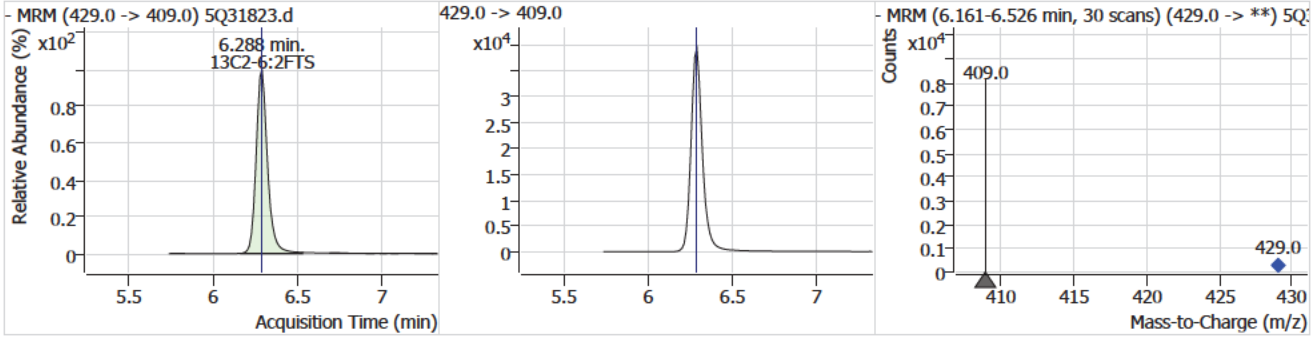
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	4.51	5.65	0.01	35860 (m)	399.0 -> 99.0	53.1	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	4.69	5.69	0.00	195292	377.0 -> 85.0	27.9	14.2	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	183368				



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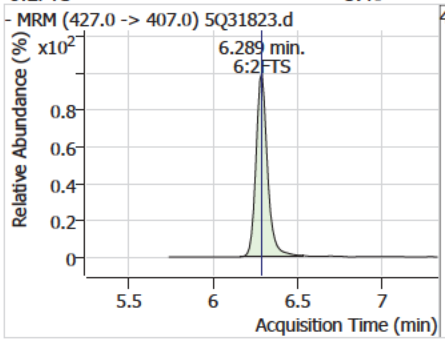
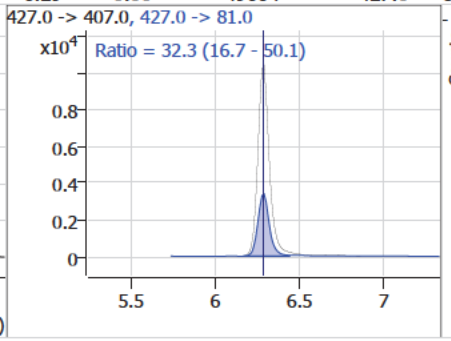
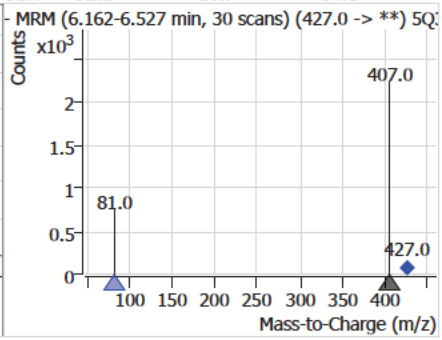
Perfluorinated Compounds by LC/MS/MS

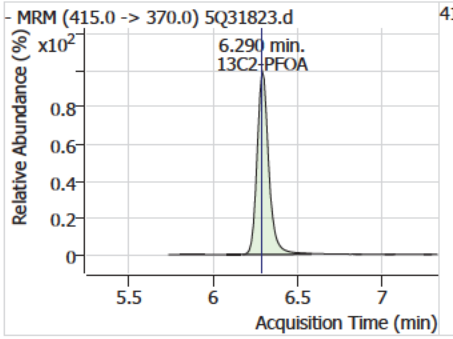
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	5.40	6.29	0.00	49664	427.0 -> 81.0	32.3	16.7	50.1

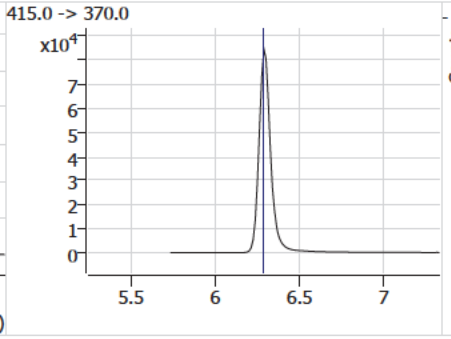


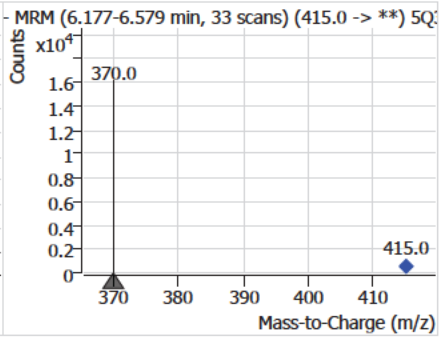




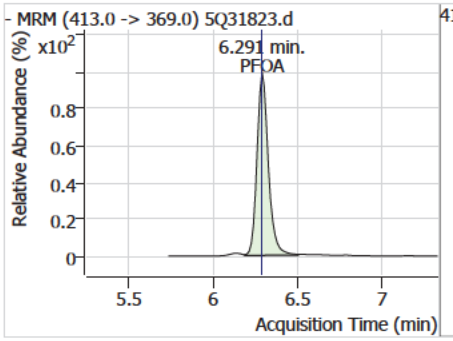
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	403054				

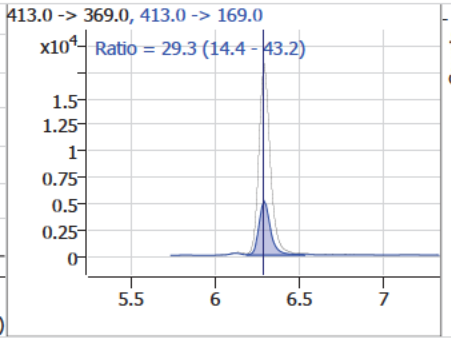


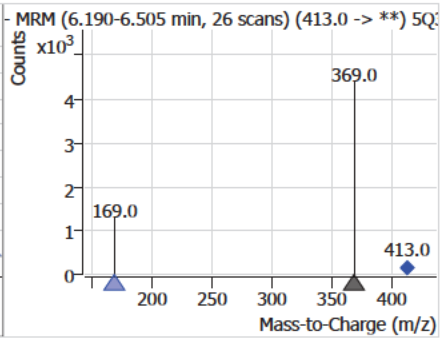




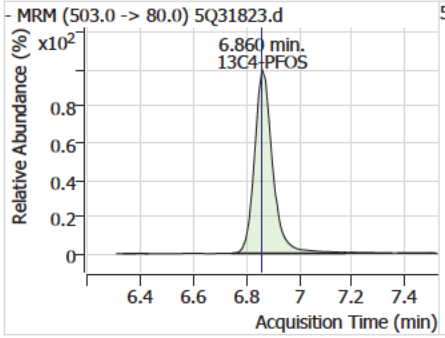
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	4.45	6.29	0.00	84652	413.0 -> 169.0	29.3	14.4	43.2

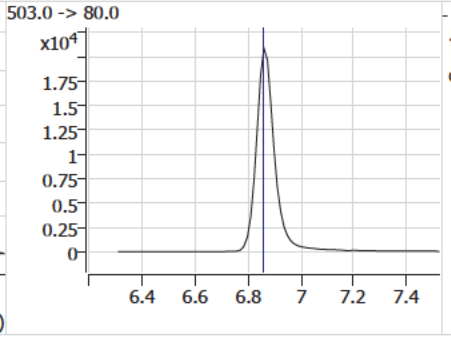


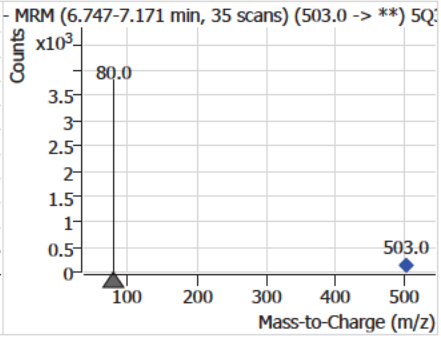




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	99224				







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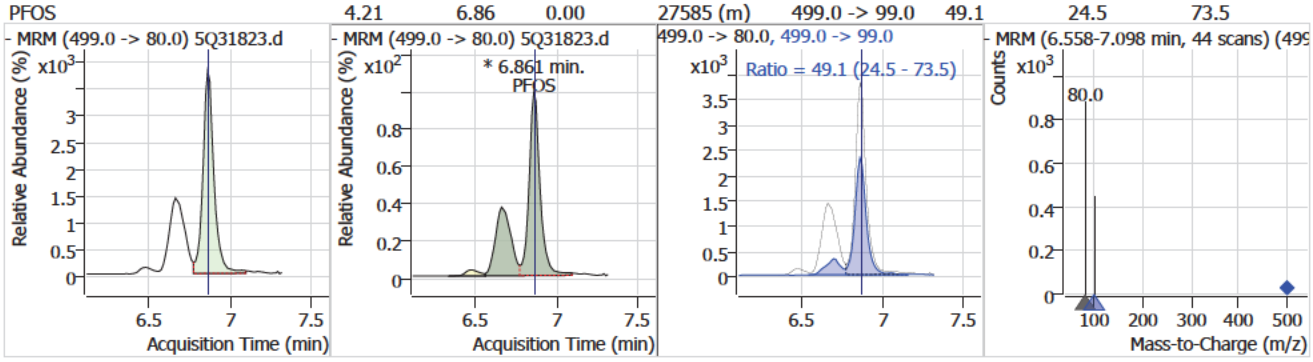
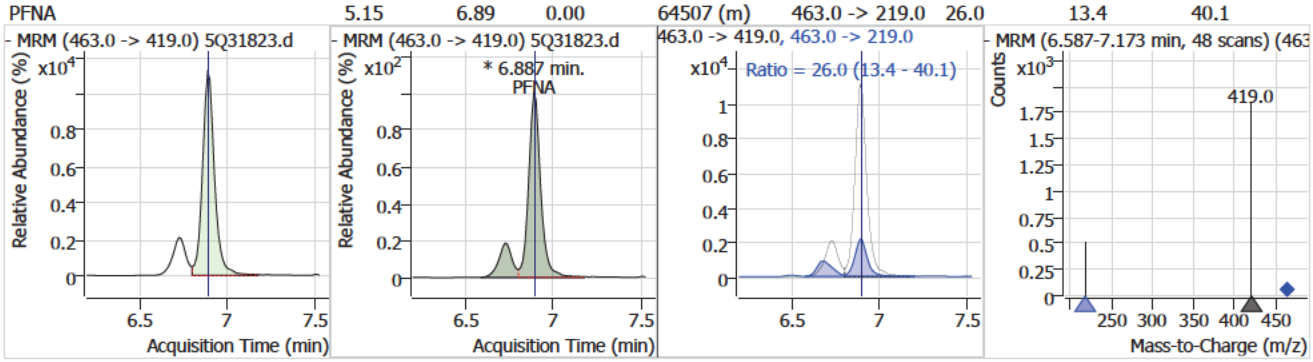
Perfluorinated Compounds by LC/MS/MS

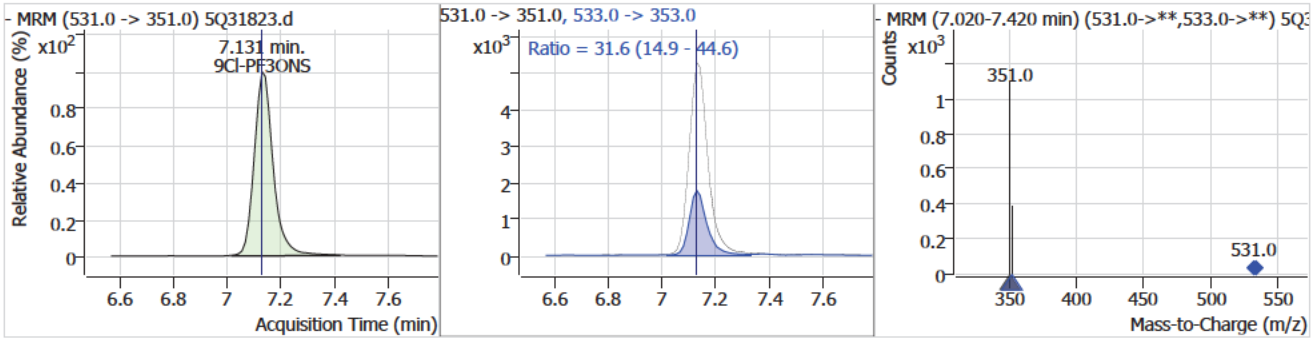
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	4.21	6.86	0.00	27585 (m)	499.0 -> 99.0	49.1	24.5	73.5



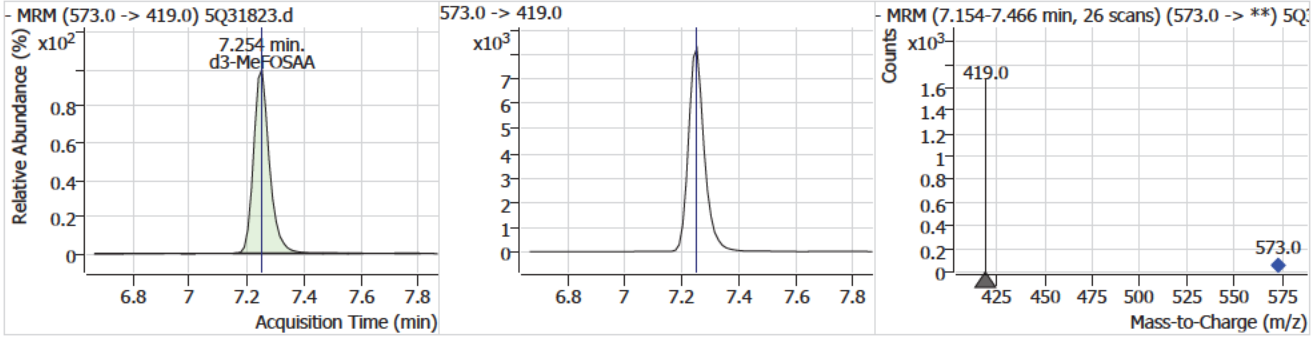
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	5.15	6.89	0.00	64507 (m)	463.0 -> 219.0	26.0	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	4.90	7.13	0.00	25637	533.0 -> 353.0	31.6	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	31569				



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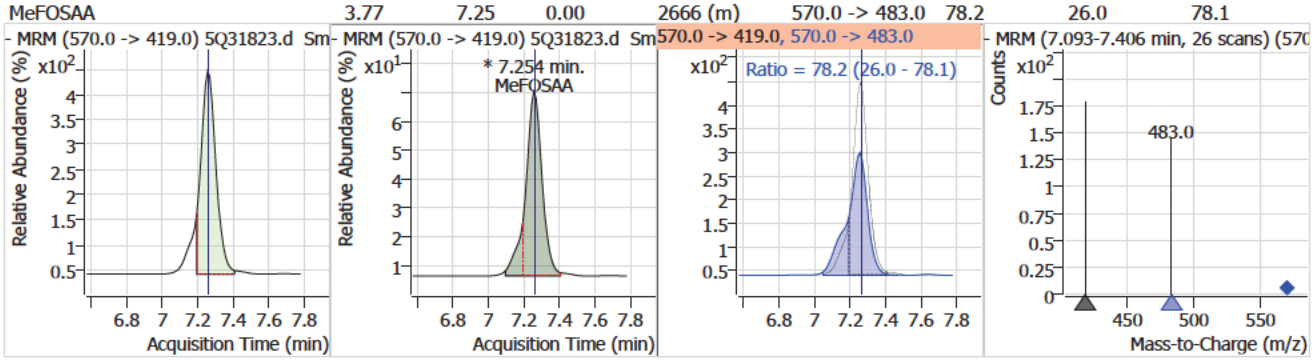
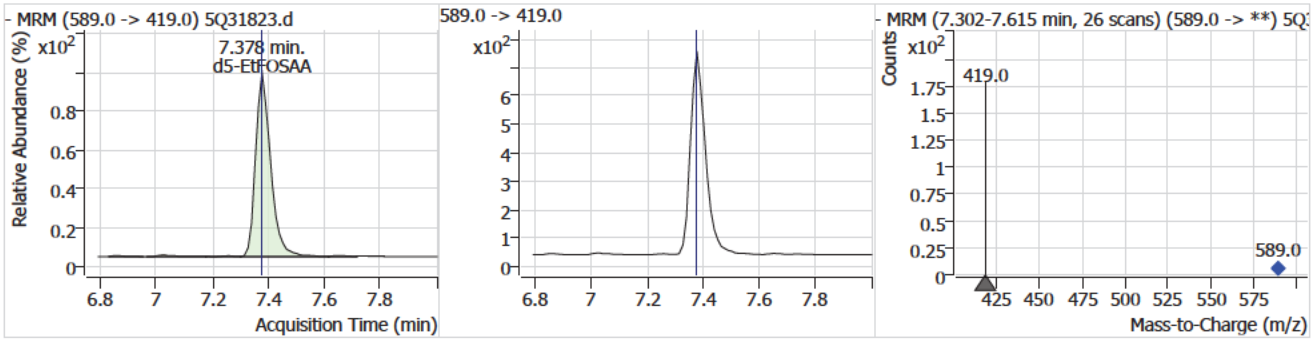
Perfluorinated Compounds by LC/MS/MS

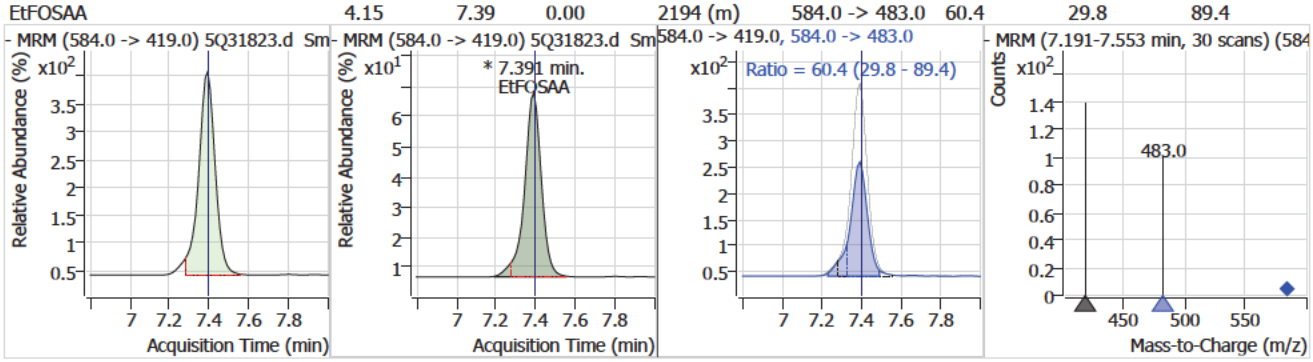
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	3.77	7.25	0.00	2666 (m)	570.0 -> 483.0	78.2	26.0	78.1



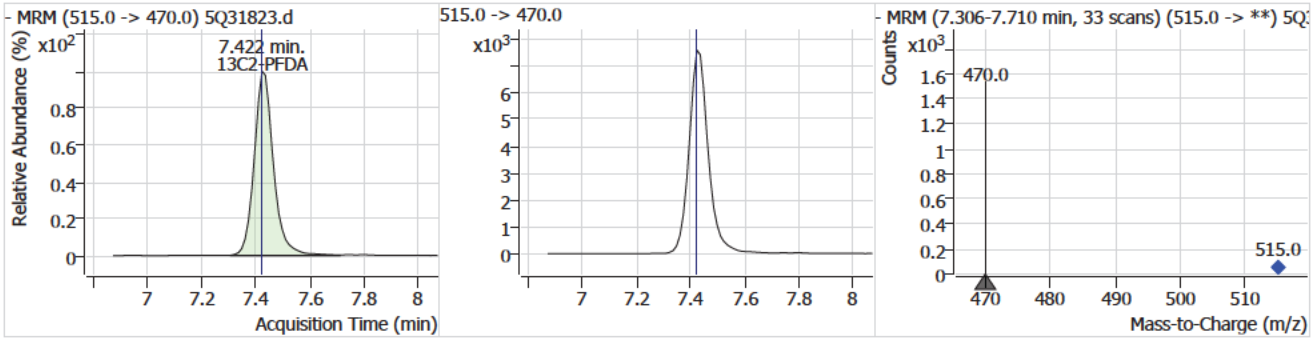
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.43	7.38	0.00	2656				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	4.15	7.39	0.00	2194 (m)	584.0 -> 483.0	60.4	29.8	89.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	2.14	7.42	0.00	36936				



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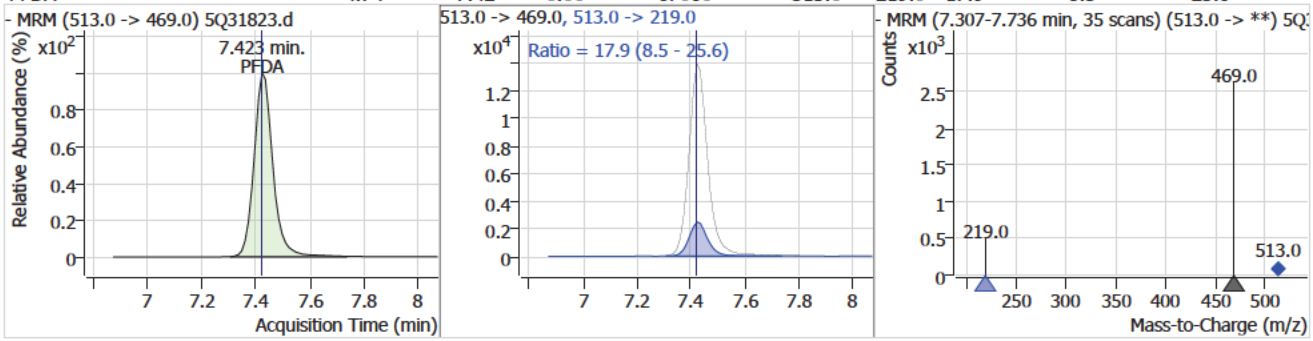
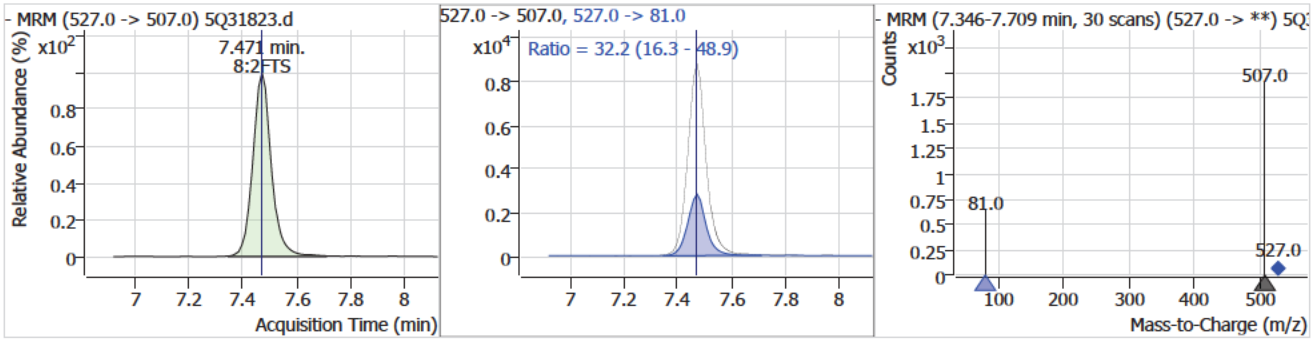
Perfluorinated Compounds by LC/MS/MS

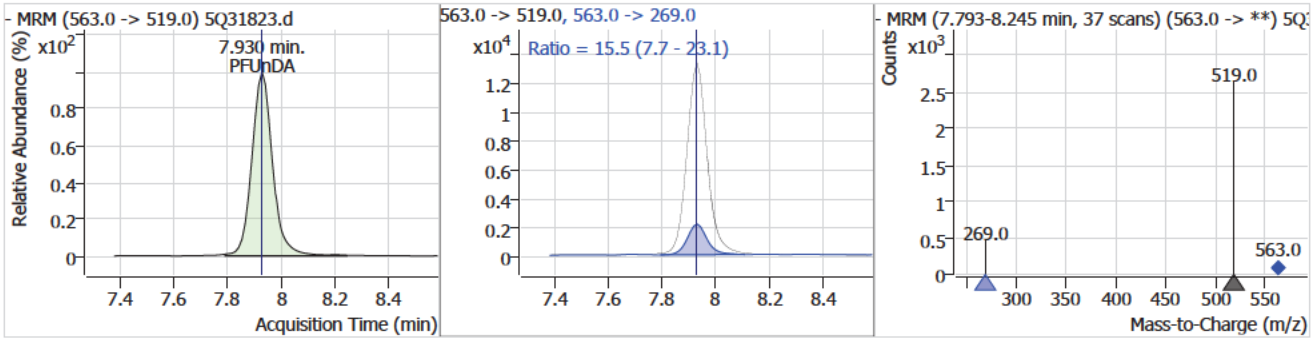
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	4.74	7.42	0.00	67060	513.0 -> 219.0	17.9	8.5	25.6



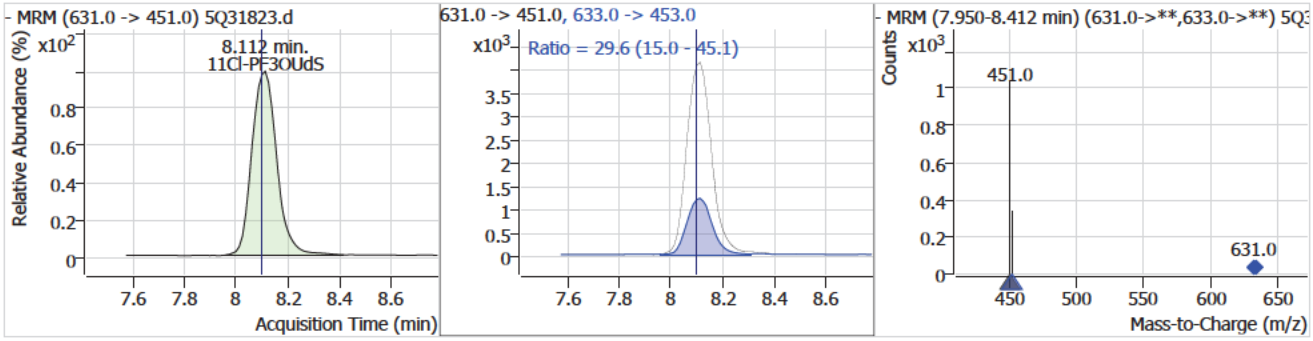
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	5.25	7.47	0.00	41857	527.0 -> 81.0	32.2	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	4.37	7.93	0.00	71206	563.0 -> 269.0	15.5	7.7	23.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	5.06	8.11	0.01	27621	633.0 -> 453.0	29.6	15.0	45.1



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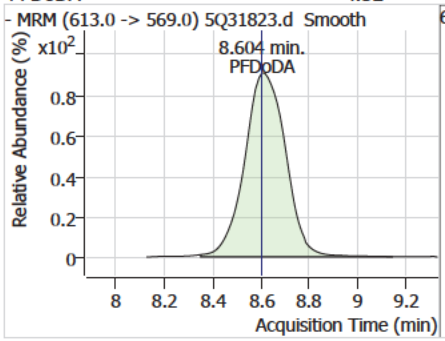
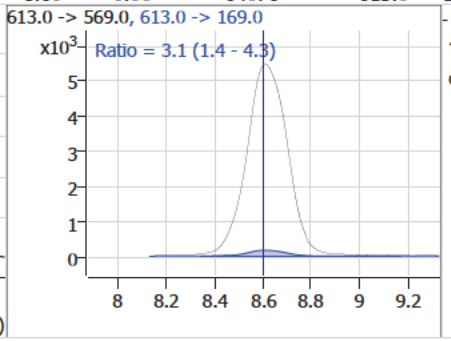
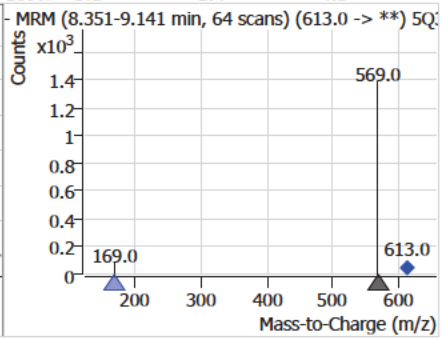
Perfluorinated Compounds by LC/MS/MS

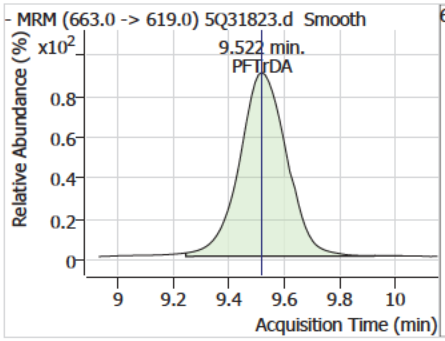
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	4.52	8.60	0.00	64076	613.0 -> 169.0	3.1	1.4	4.3

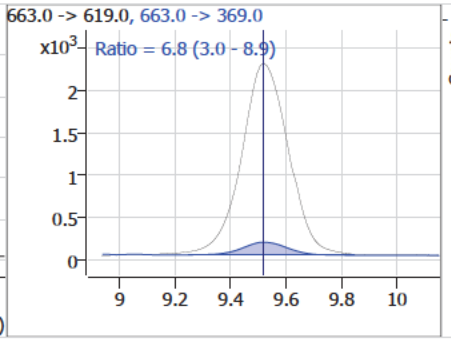


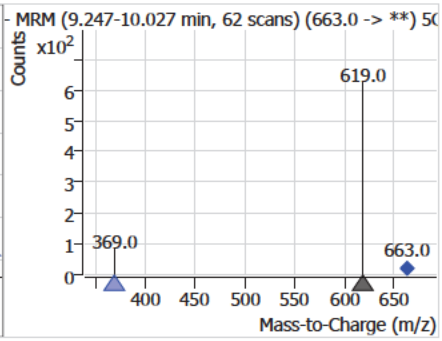




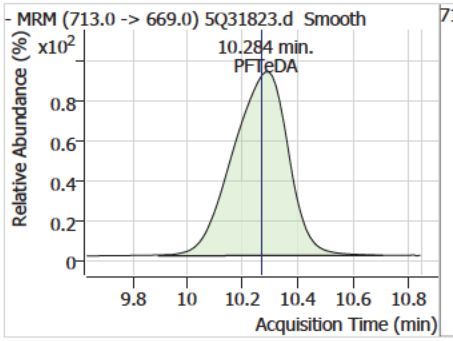
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	3.79	9.52	0.00	27200	663.0 -> 369.0	6.8	3.0	8.9

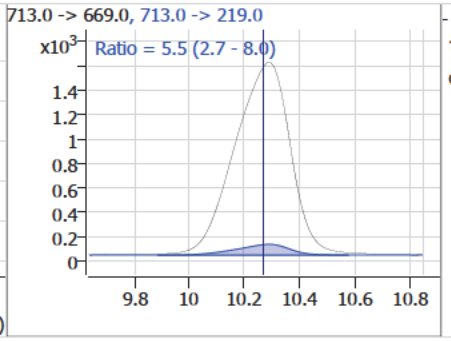


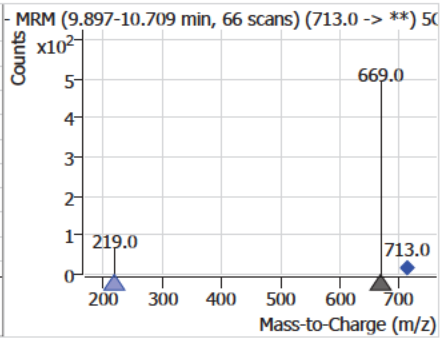




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	4.48	10.28	0.01	22055	713.0 -> 219.0	5.5	2.7	8.0







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Manual Integration Approval Summary

Sample Number: S5Q523-IC523
Lab FileID: 5Q31823.D
Injection Time: 04/17/25 13:28
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6) [redacted]
Supervisor approved: 04/18/25 11:00 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31824.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 1:44:57 PM
Sample Name : ic523-10
Vial : P1-A6
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.288	429.0 -> 409.0	203951	20.00 µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	433345	20.00 µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	542680	20.00 µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	105701	20.00 µg/L		0.000
d3-MeFOSAA	7.254	573.0 -> 419.0	31471	40.00 µg/L		0.000
System Monitoring Compounds						
13C2-PFDA	7.422	515.0 -> 470.0	90239	4.87 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 24.3%		
13C2-PFHxA	4.776	315.0 -> 270.0	136859	4.98 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 24.9%		
d5-EtFOSAA	7.378	589.0 -> 419.0	6164	10.32 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 25.8%		
13C3-HFPO-DA	5.032	287.0 -> 169.0	18304	9.43 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 23.6%		
Target Compounds						QValue
6:2FTS	6.289	427.0 -> 407.0	121557	11.89 µg/L		98
8:2FTS	7.471	527.0 -> 507.0	96381	10.87 µg/L		98
EtFOSAA	7.391	584.0 -> 419.0	6049	11.48 µg/L	m	90
MeFOSAA	7.254	570.0 -> 419.0	7079	10.02 µg/L	m	81
PFBS	3.841	299.0 -> 80.0	143181	10.35 µg/L		97
PFDA	7.423	513.0 -> 469.0	164327	10.72 µg/L		99
PFDoDA	8.616	613.0 -> 569.0	109833	7.25 µg/L		99
PFHpA	5.615	363.0 -> 319.0	377013	10.74 µg/L		100
PFHxA	4.765	313.0 -> 269.0	187789	10.05 µg/L		100
PFHxS	5.648	399.0 -> 80.0	88995	10.42 µg/L	m	99
PFNA	6.887	463.0 -> 419.0	149164	10.92 µg/L	m	99
PFOA	6.291	413.0 -> 369.0	213618	10.41 µg/L		99
PFOS	6.861	499.0 -> 80.0	66764	9.57 µg/L	m	99
PFPeA	3.597	263.0 -> 219.0	360662	10.37 µg/L		100
PFTeDA	10.284	713.0 -> 669.0	52042	9.81 µg/L		99
PFTrDA	9.534	663.0 -> 619.0	56521	7.39 µg/L		98
PFUnDA	7.930	563.0 -> 519.0	162667	9.38 µg/L		100
ADONA	5.689	377.0 -> 251.0	480631	10.63 µg/L		100
9Cl-PF3ONS	7.131	531.0 -> 351.0	60069	10.50 µg/L		98
11Cl-PF3OUdS	8.100	631.0 -> 451.0	59715	9.97 µg/L		98
HFPO-DA	5.035	285.0 -> 169.0	17779	10.66 µg/L		100

= Qualifier out of range, m = manually integrated, + = Area summed

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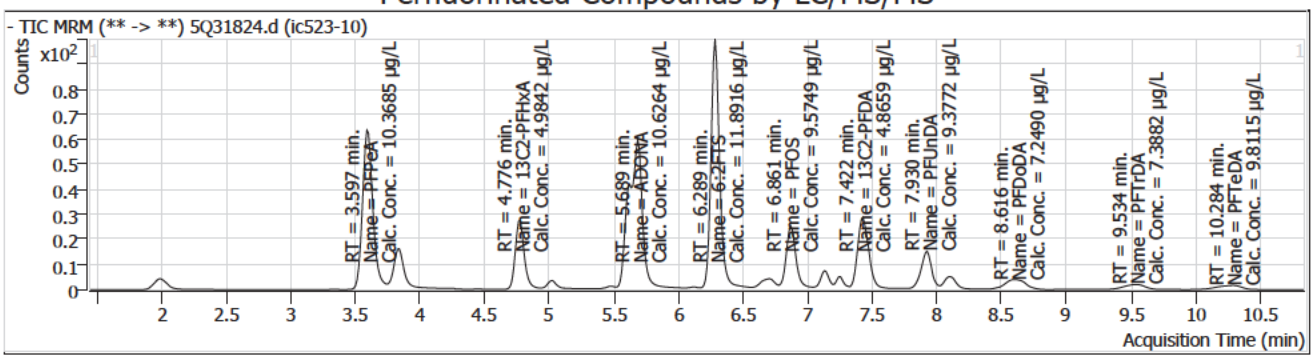
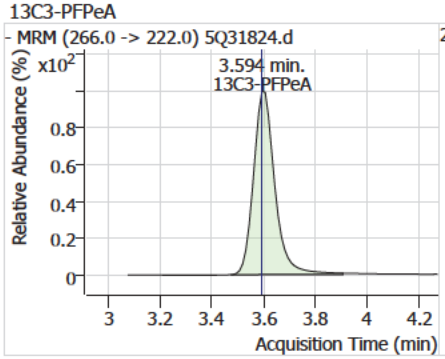
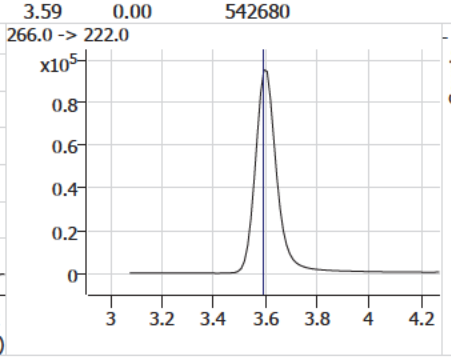
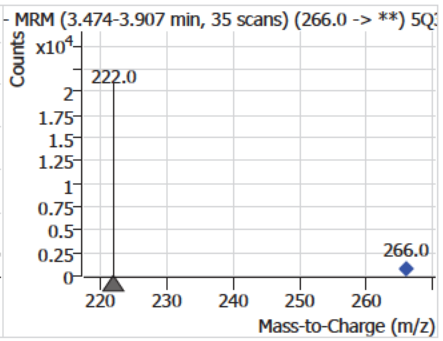
Perfluorinated Compounds by LC/MS/MS



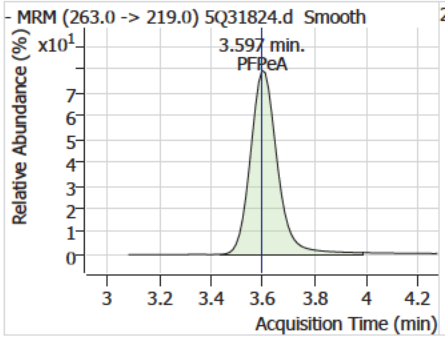
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	542680				

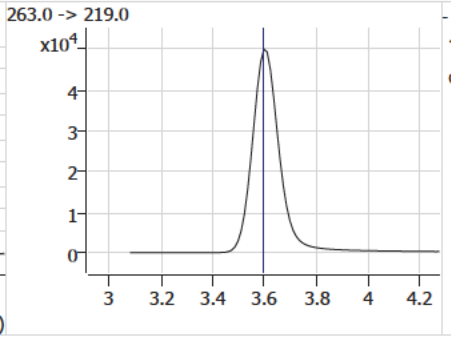


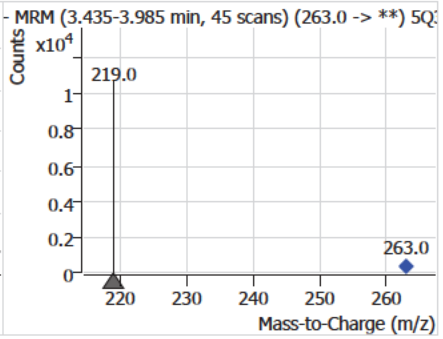




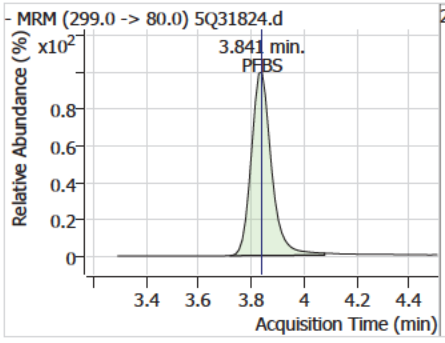
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	10.37	3.60	0.00	360662				

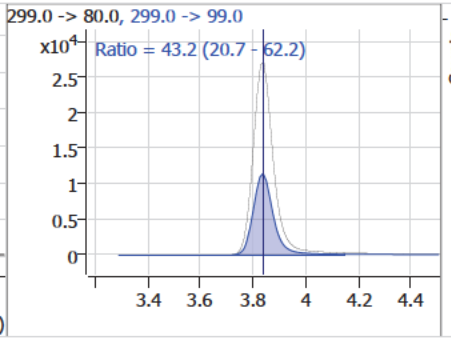


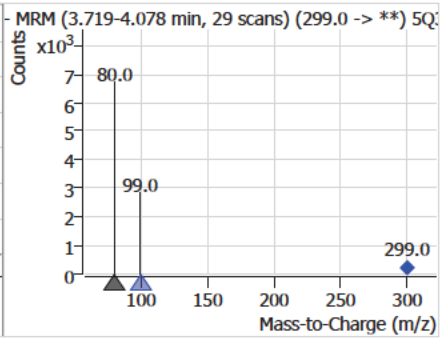




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	10.35	3.84	0.00	143181	299.0 -> 99.0	43.2	20.7	62.2







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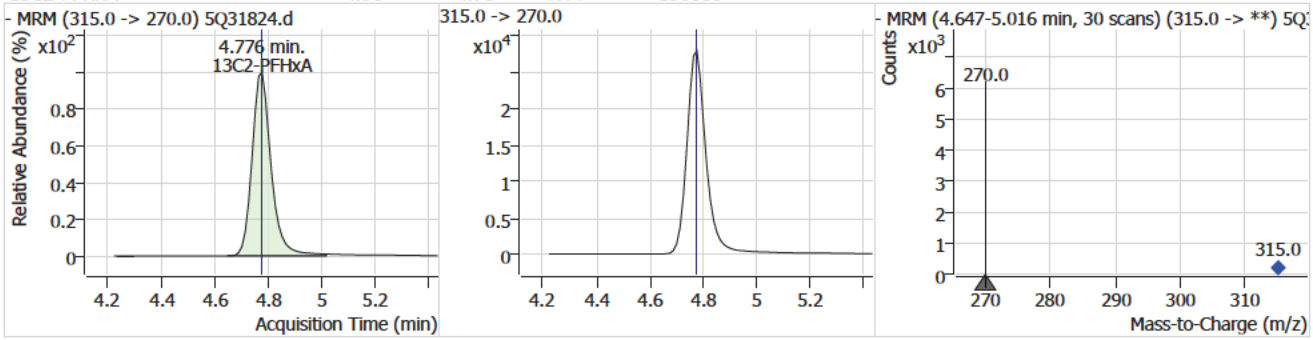
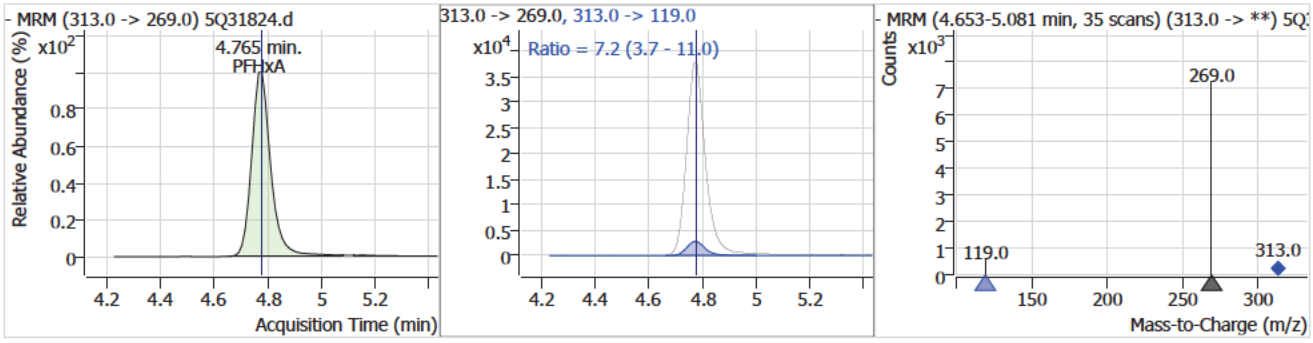
Perfluorinated Compounds by LC/MS/MS

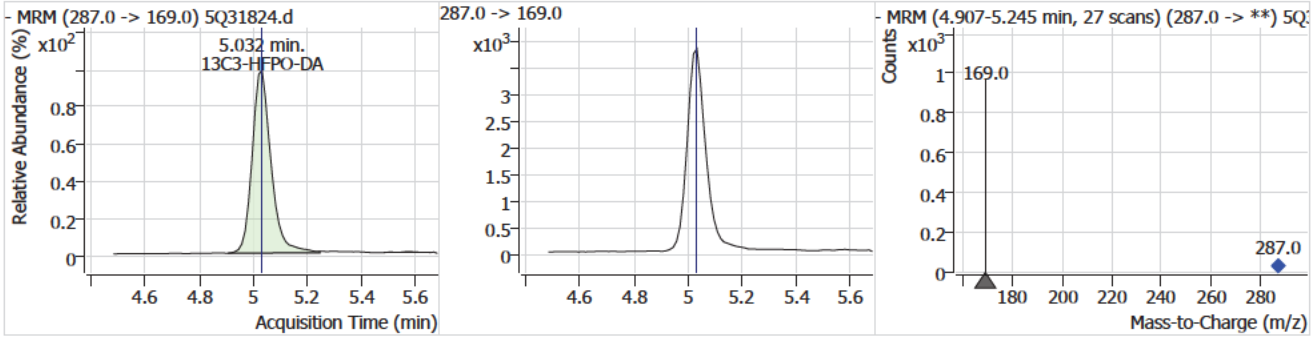
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	4.98	4.78	0.00	136859				



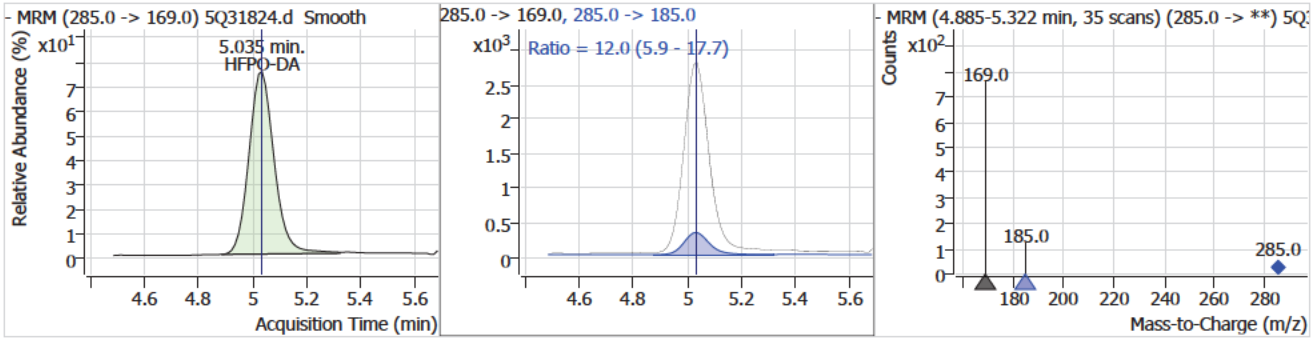
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	10.05	4.77	-0.01	187789	313.0 -> 119.0	7.2	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.43	5.03	0.00	18304				

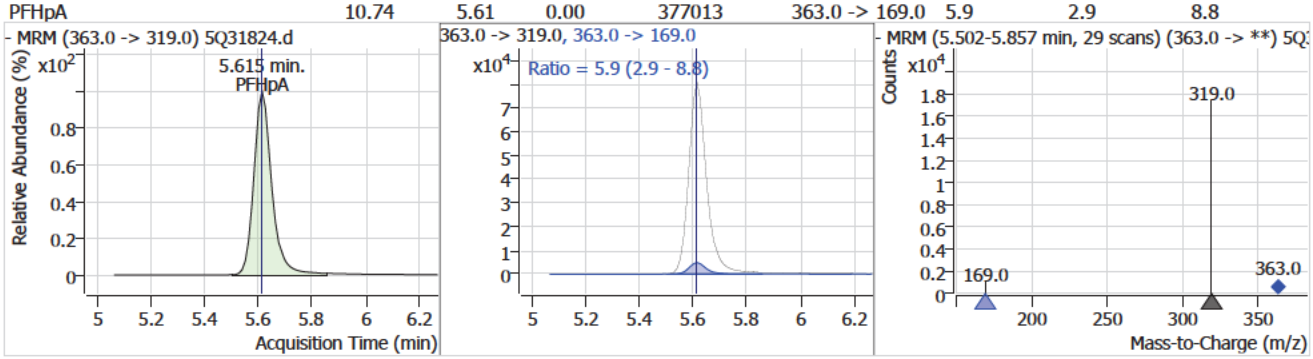


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	10.66	5.03	0.00	17779	285.0 -> 185.0	12.0	5.9	17.7

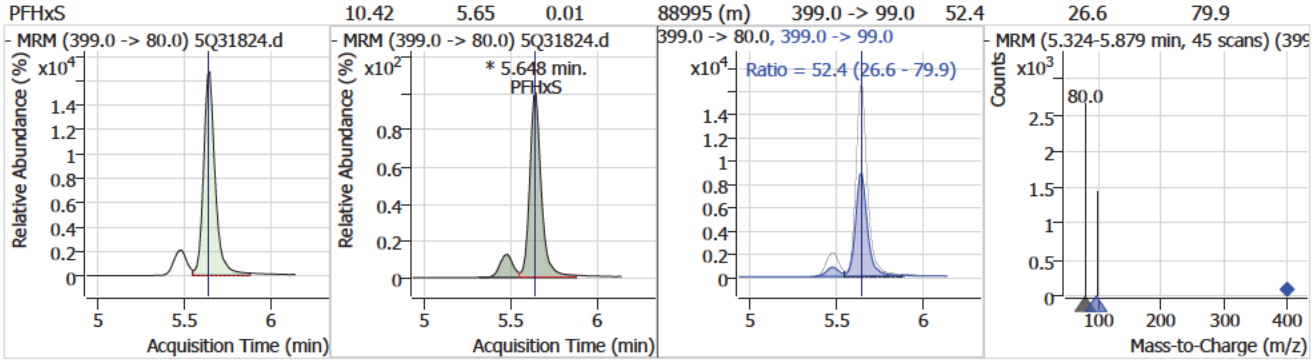


Perfluorinated Compounds by LC/MS/MS

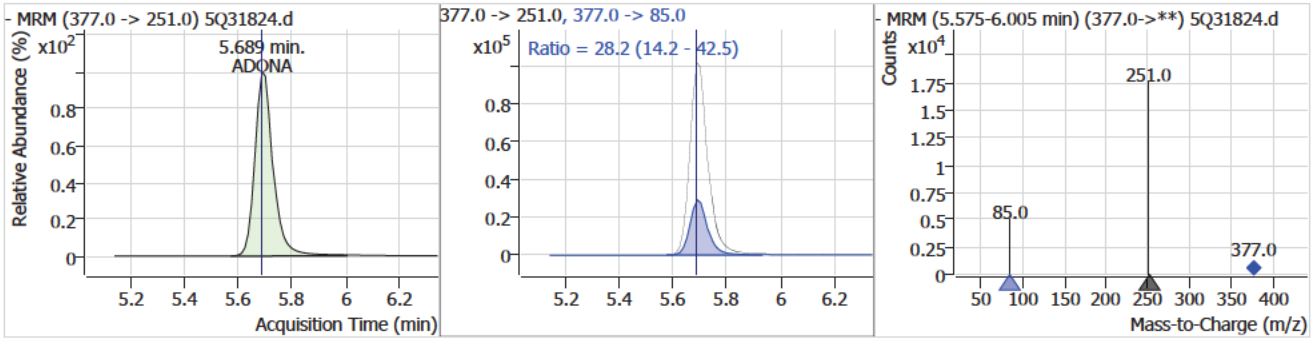
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	10.74	5.61	0.00	377013	363.0 -> 169.0	5.9	2.9	8.8



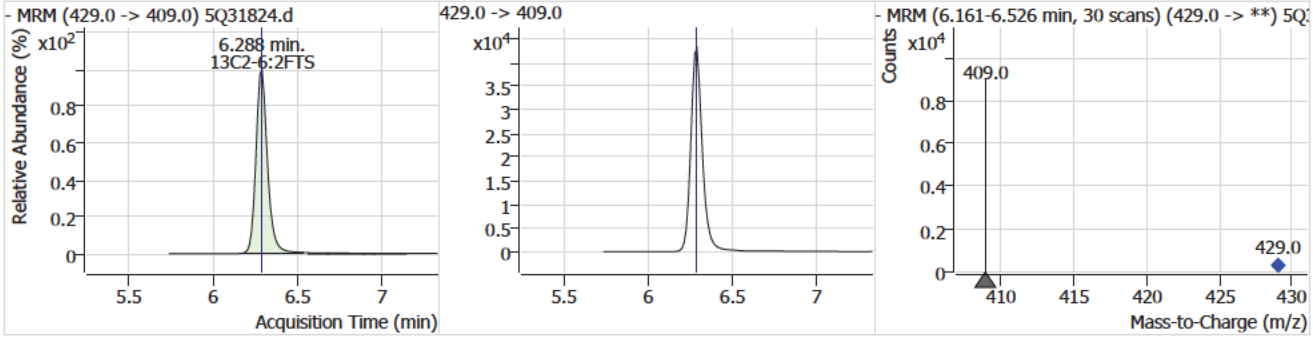
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	10.42	5.65	0.01	88995 (m)	399.0 -> 99.0	52.4	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	10.63	5.69	0.00	480631	377.0 -> 85.0	28.2	14.2	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	203951				



7.7.51

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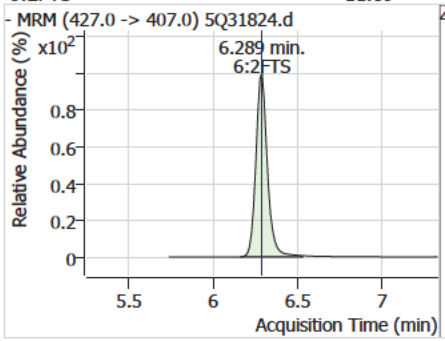
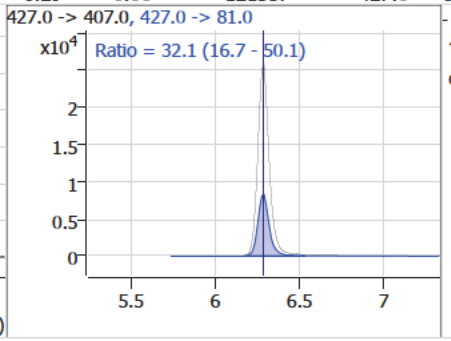
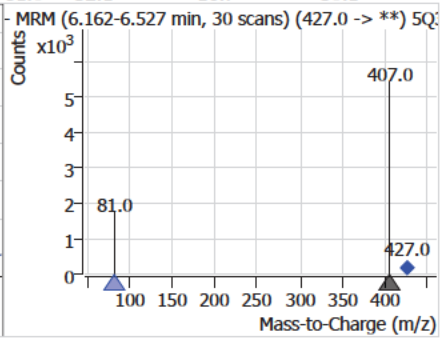
Perfluorinated Compounds by LC/MS/MS

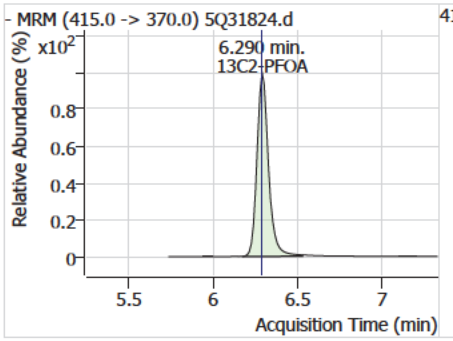
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	11.89	6.29	0.00	121557	427.0 -> 81.0	32.1	16.7	50.1

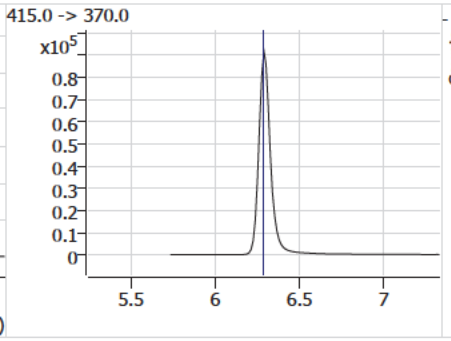


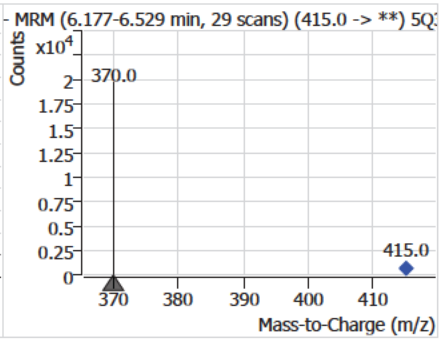




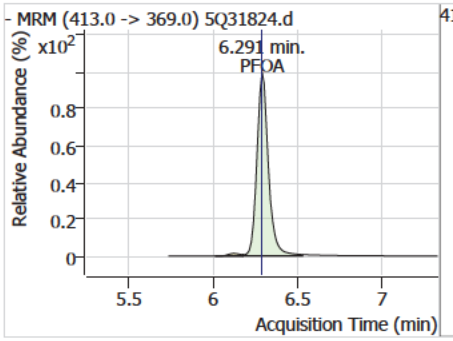
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	433345				

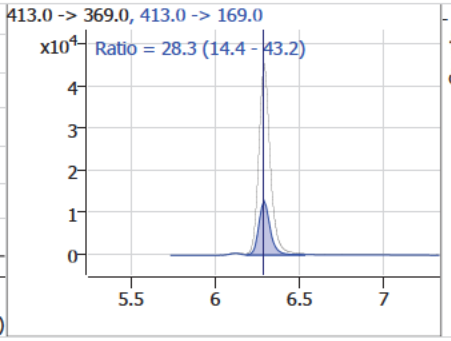


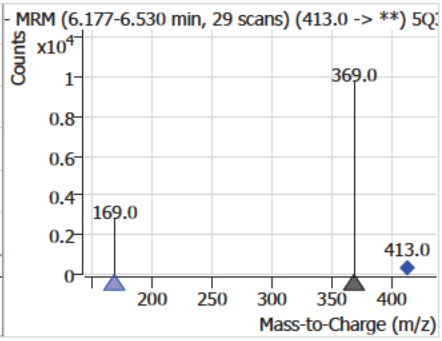




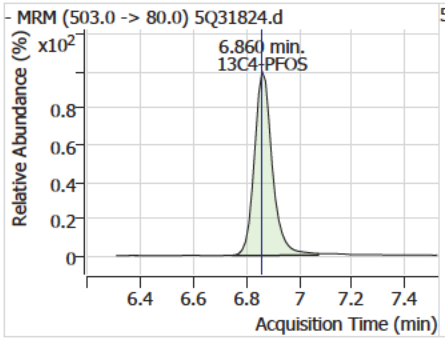
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	10.41	6.29	0.00	213618	413.0 -> 169.0	28.3	14.4	43.2

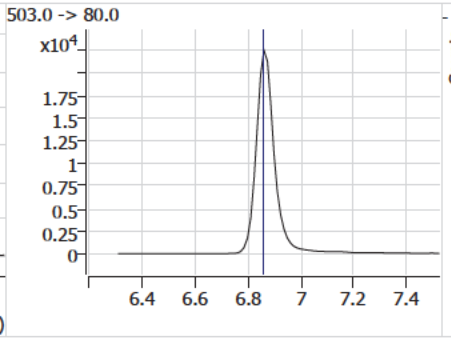


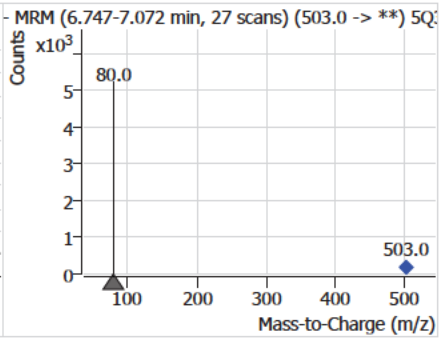




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	105701				

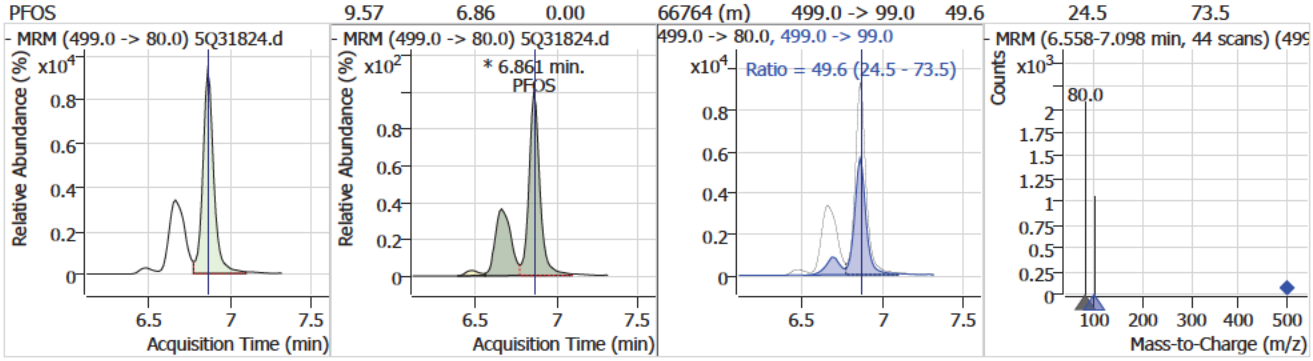




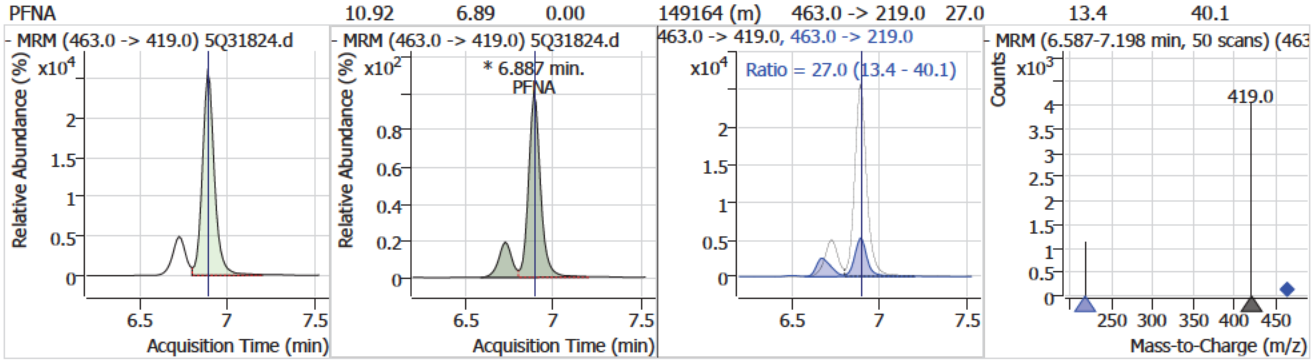


Perfluorinated Compounds by LC/MS/MS

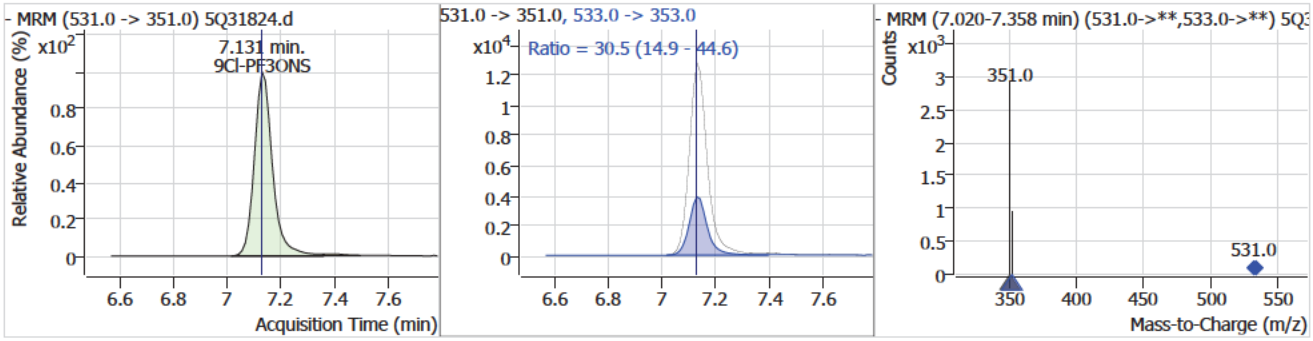
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	9.57	6.86	0.00	66764 (m)	499.0 -> 99.0	49.6	24.5	73.5



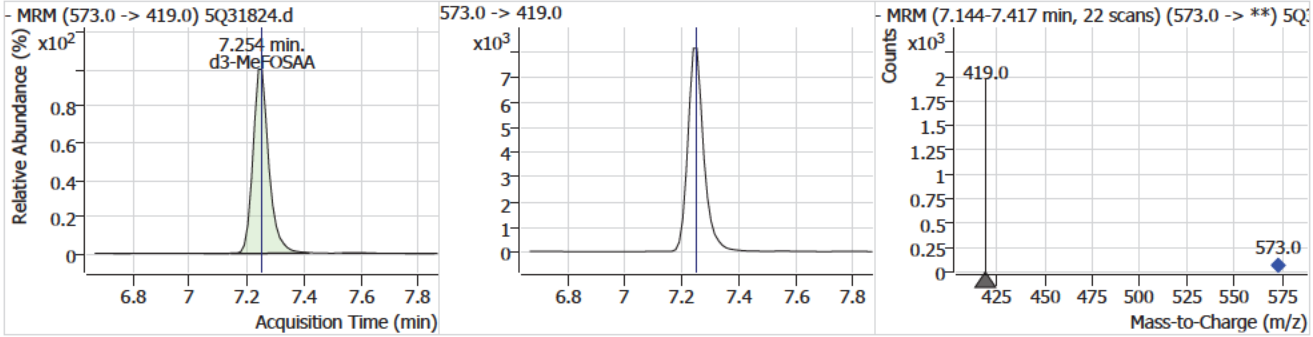
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	10.92	6.89	0.00	149164 (m)	463.0 -> 219.0	27.0	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	10.50	7.13	0.00	60069	533.0 -> 353.0	30.5	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	31471				



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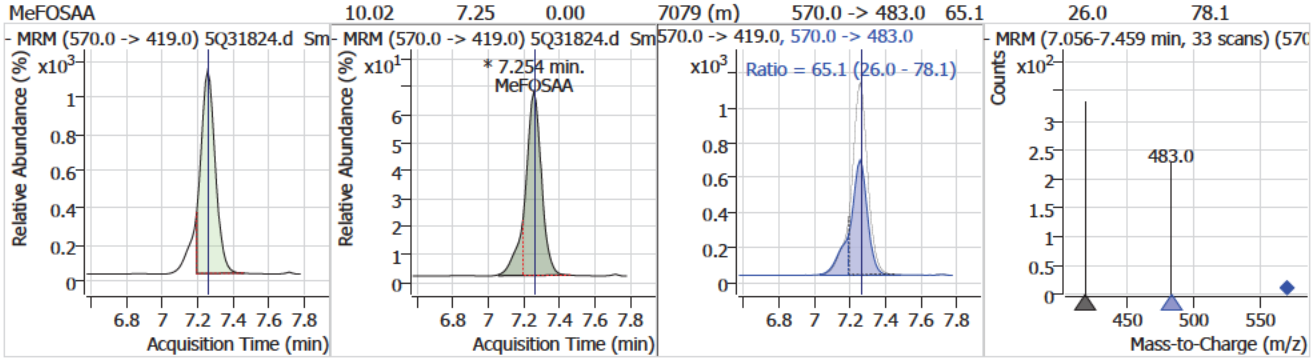
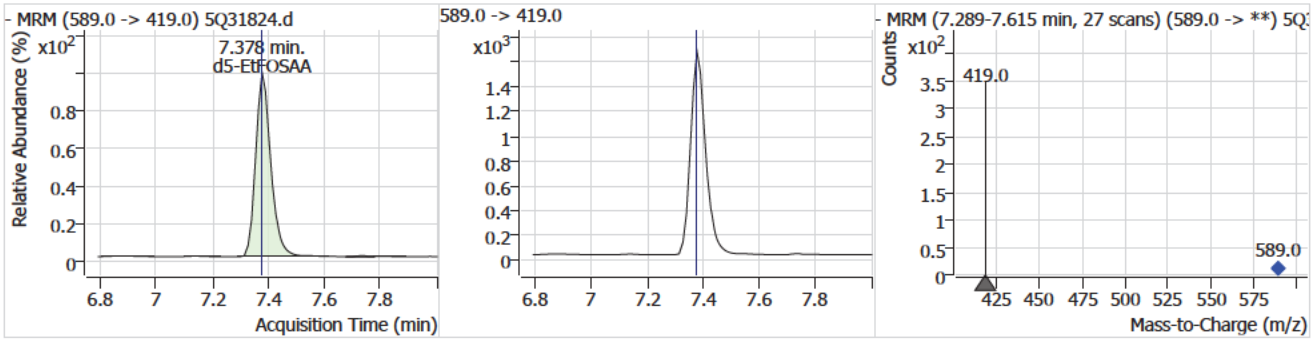
Perfluorinated Compounds by LC/MS/MS

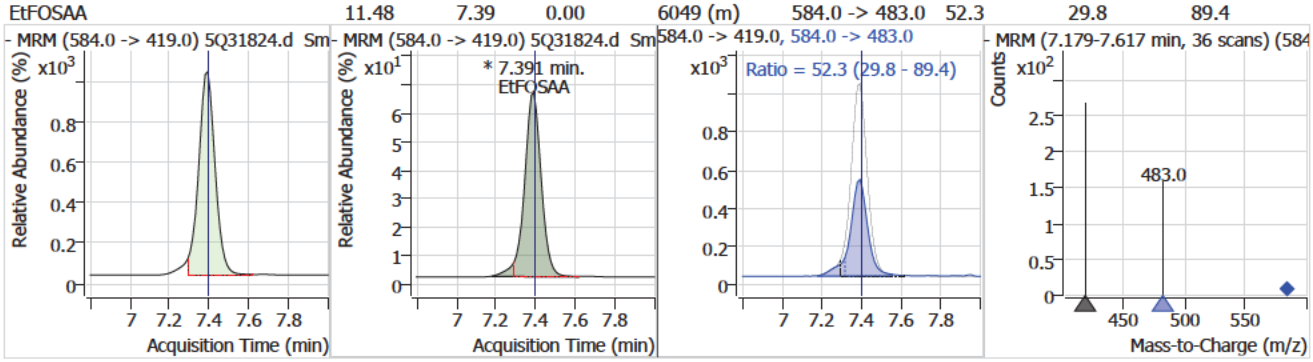
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	10.02	7.25	0.00	7079 (m)	570.0 -> 483.0	65.1	26.0	78.1



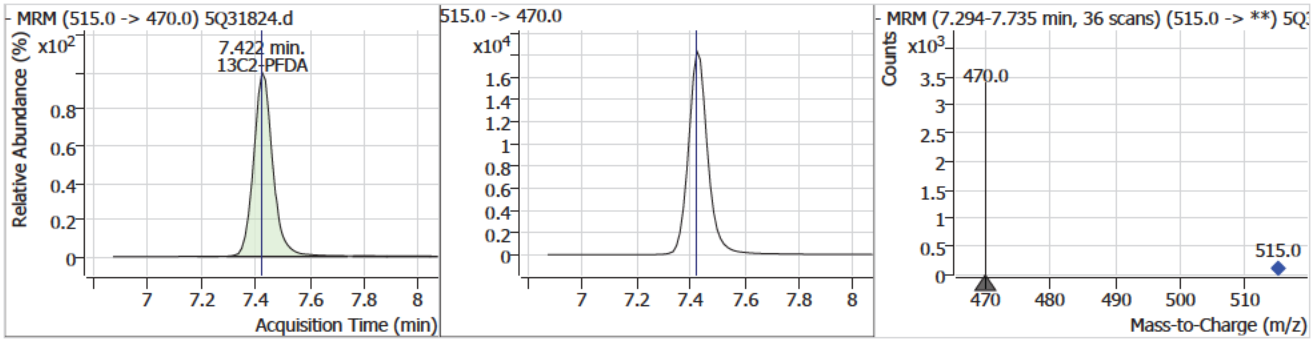
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	10.32	7.38	0.00	6164				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	11.48	7.39	0.00	6049 (m)	584.0 -> 483.0	52.3	29.8	89.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	4.87	7.42	0.00	90239				



7.7.51

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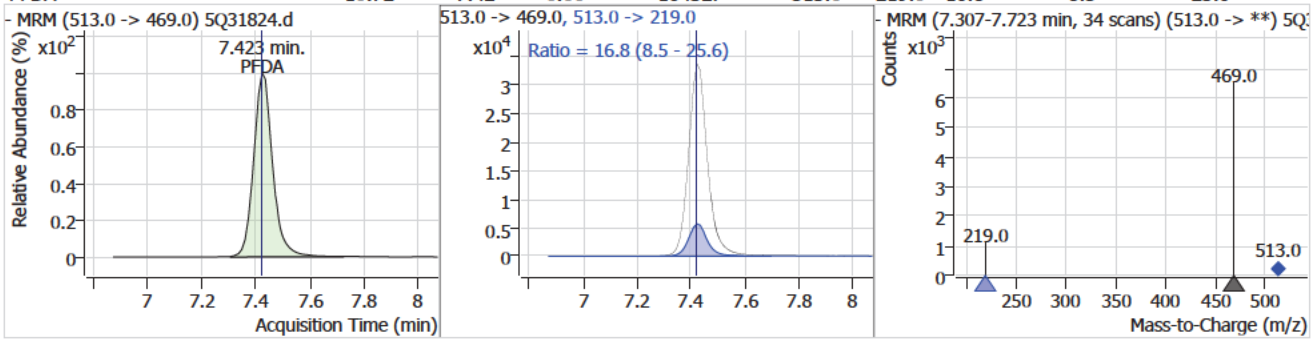
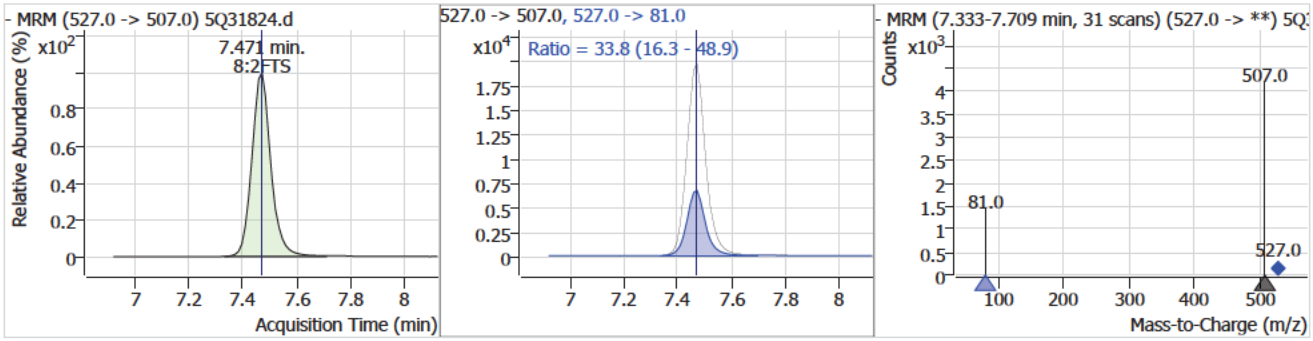
Perfluorinated Compounds by LC/MS/MS

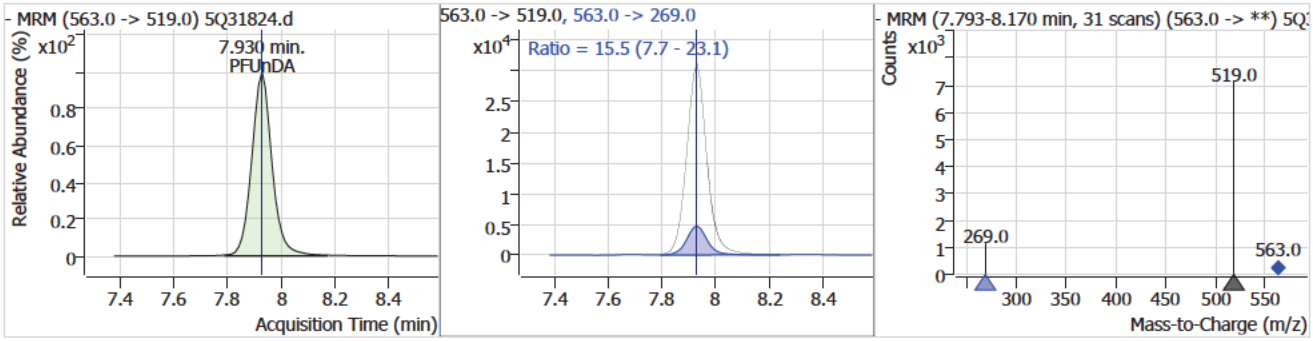
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	10.72	7.42	0.00	164327	513.0 -> 219.0	16.8	8.5	25.6



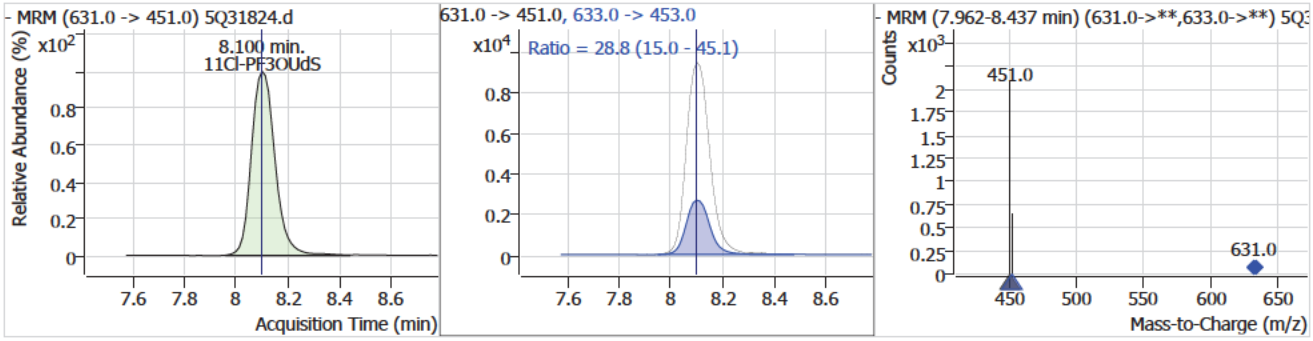
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	10.87	7.47	0.00	96381	527.0 -> 81.0	33.8	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	9.38	7.93	0.00	162667	563.0 -> 269.0	15.5	7.7	23.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	9.97	8.10	0.00	59715	633.0 -> 453.0	28.8	15.0	45.1



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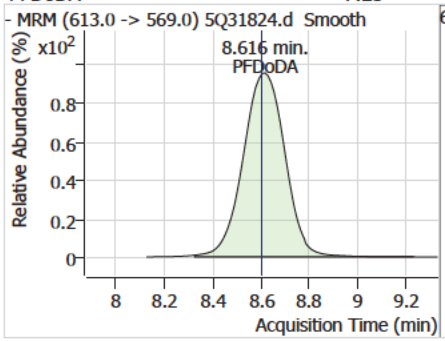
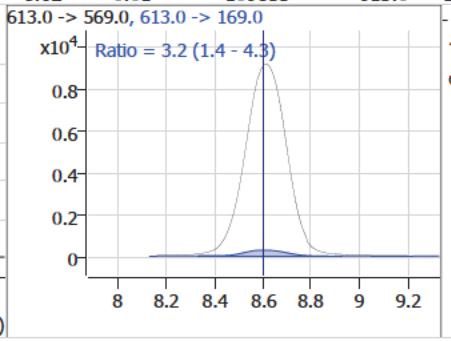
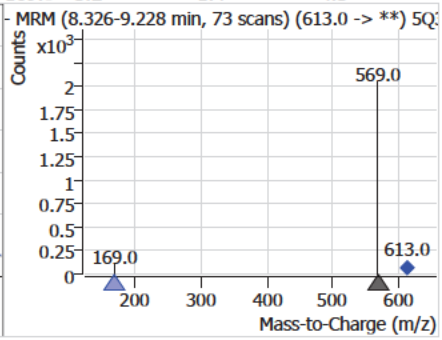
Perfluorinated Compounds by LC/MS/MS

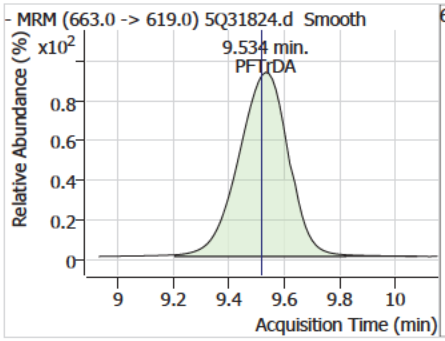
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	7.25	8.62	0.01	109833	613.0 -> 169.0	3.2	1.4	4.3

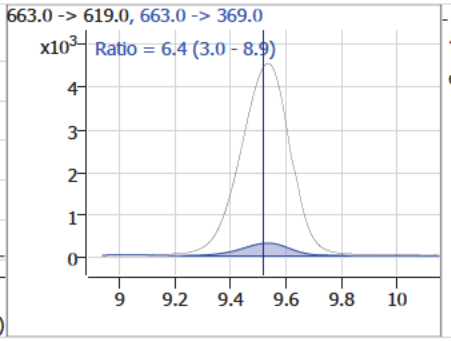


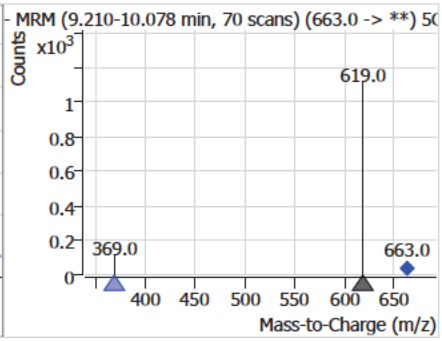




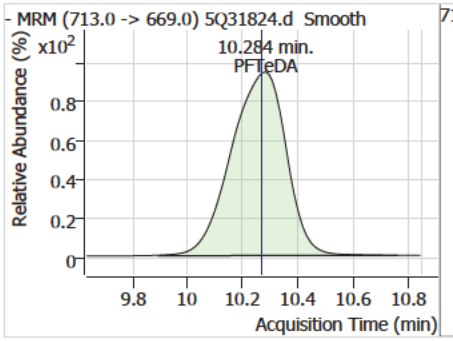
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	7.39	9.53	0.01	56521	663.0 -> 369.0	6.4	3.0	8.9

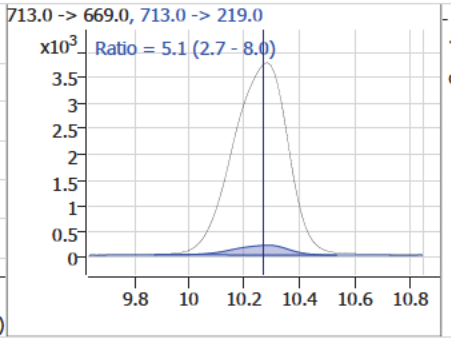


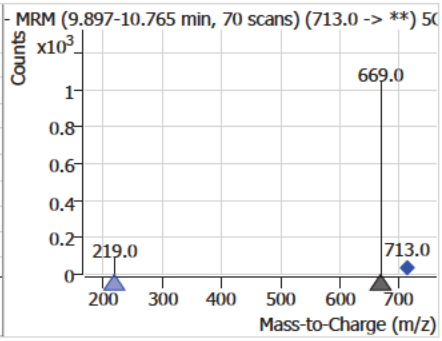




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	9.81	10.28	0.01	52042	713.0 -> 219.0	5.1	2.7	8.0







Manual Integration Approval Summary

Sample Number: S5Q523-IC523
Lab FileID: 5Q31824.D
Injection Time: 04/17/25 13:44
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6) [redacted]
Supervisor approved: 04/18/25 11:00 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

5Q31825.D

Manual Integrations APPROVED (compounds with "m" flag)

(b) (6)

04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31825.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 2:01:21 PM
Sample Name : icc523-20
Vial : P1-A7
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.288	429.0 -> 409.0	200480	20.00	µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	416202	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	511459	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	97672	20.00	µg/L		0.000
d3-MeFOSAA	7.254	573.0 -> 419.0	29996	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.422	515.0 -> 470.0	163629	9.19	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 45.9%			
13C2-PFHxA	4.776	315.0 -> 270.0	244472	9.27	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 46.4%			
d5-EtFOSAA	7.378	589.0 -> 419.0	12403	21.79	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 54.5%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	32626	17.51	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 43.8%			
Target Compounds							QValue
6:2FTS	6.289	427.0 -> 407.0	228827	22.77	µg/L		100
8:2FTS	7.471	527.0 -> 507.0	188311	21.60	µg/L		100
EtFOSAA	7.391	584.0 -> 419.0	10107	20.13	µg/L	m	100
MeFOSAA	7.254	570.0 -> 419.0	14346	21.19	µg/L	m	100
PFBS	3.841	299.0 -> 80.0	266227	20.83	µg/L		99
PFDA	7.423	513.0 -> 469.0	304299	20.46	µg/L		100
PFDoDA	8.604	613.0 -> 569.0	270954	19.01	µg/L		100
PFHpA	5.615	363.0 -> 319.0	671426	19.69	µg/L		100
PFHxA	4.765	313.0 -> 269.0	338585	18.87	µg/L		100
PFHxS	5.636	399.0 -> 80.0	161508	20.24	µg/L	m	100
PFNA	6.887	463.0 -> 419.0	281368	20.91	µg/L	m	100
PFOA	6.291	413.0 -> 369.0	397717	20.05	µg/L		100
PFOS	6.861	499.0 -> 80.0	122325	18.99	µg/L	m	100
PFPeA	3.597	263.0 -> 219.0	654039	19.86	µg/L		100
PFTeDA	10.284	713.0 -> 669.0	98893	19.73	µg/L		100
PFTrDA	9.522	663.0 -> 619.0	115573	16.35	µg/L		100
PFUnDA	7.930	563.0 -> 519.0	315528	19.68	µg/L		100
ADONA	5.689	377.0 -> 251.0	870356	19.72	µg/L		100
9Cl-PF3ONS	7.131	531.0 -> 351.0	114560	20.27	µg/L		100
11Cl-PF3OUdS	8.100	631.0 -> 451.0	118950	19.91	µg/L		100
HFPO-DA	5.035	285.0 -> 169.0	31778	19.55	µg/L		99

= Qualifier out of range, m = manually integrated, + = Area summed

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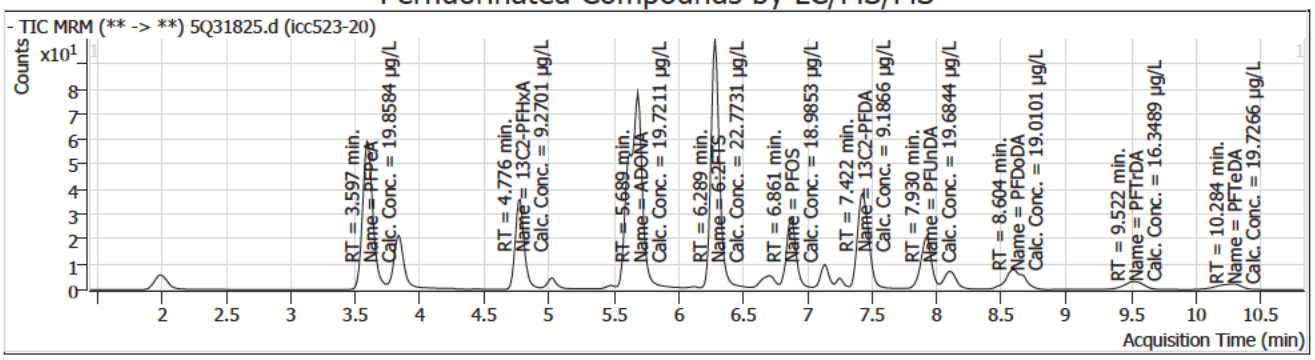
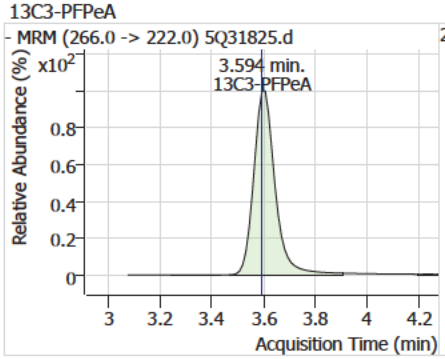
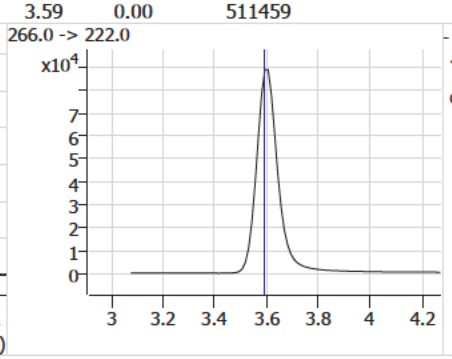
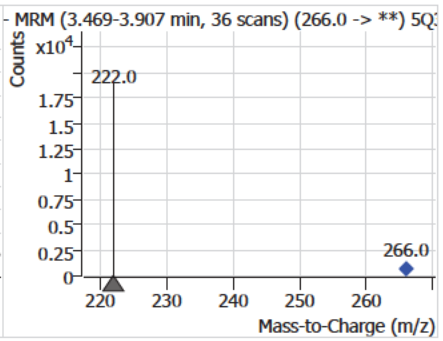
Perfluorinated Compounds by LC/MS/MS



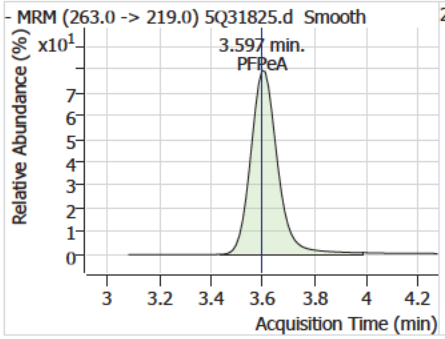
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	511459				

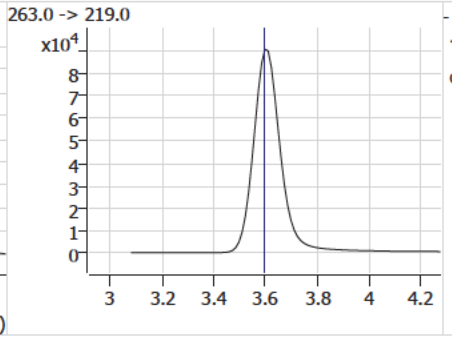


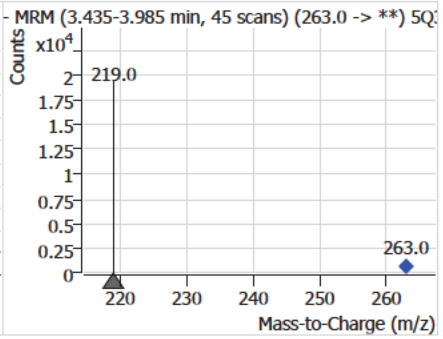




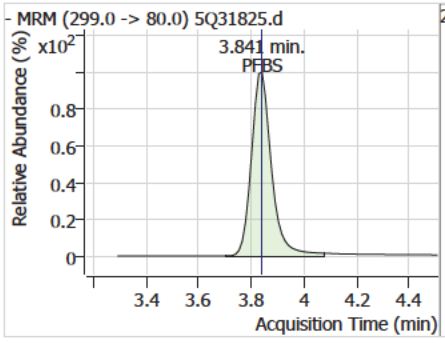
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.86	3.60	0.00	654039				

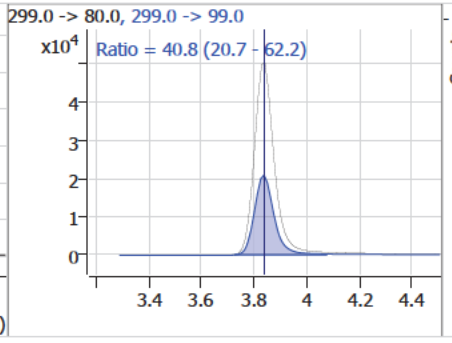


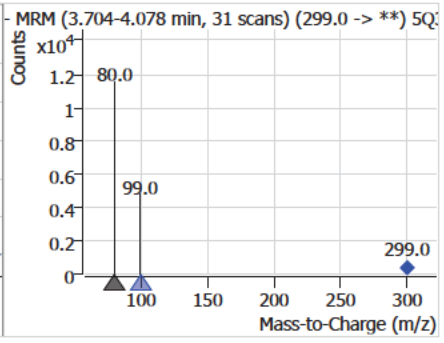




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.83	3.84	0.00	266227	299.0 -> 99.0	40.8	20.7	62.2







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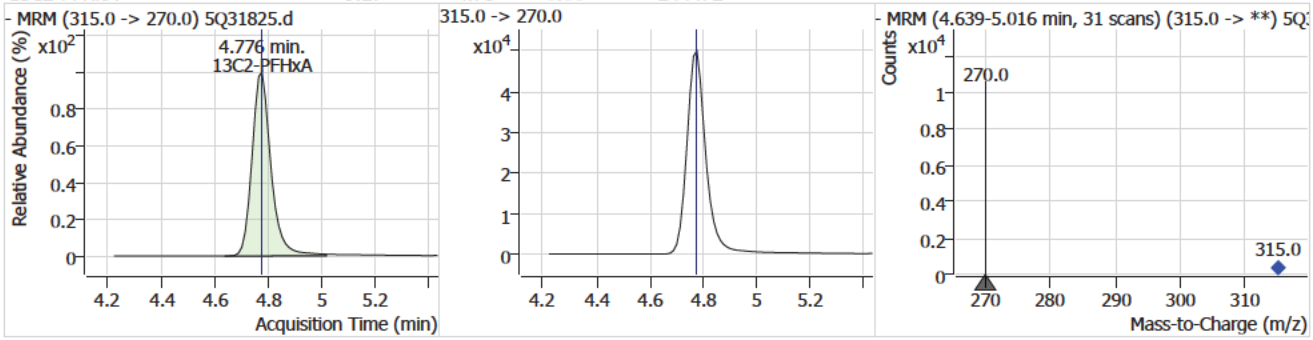
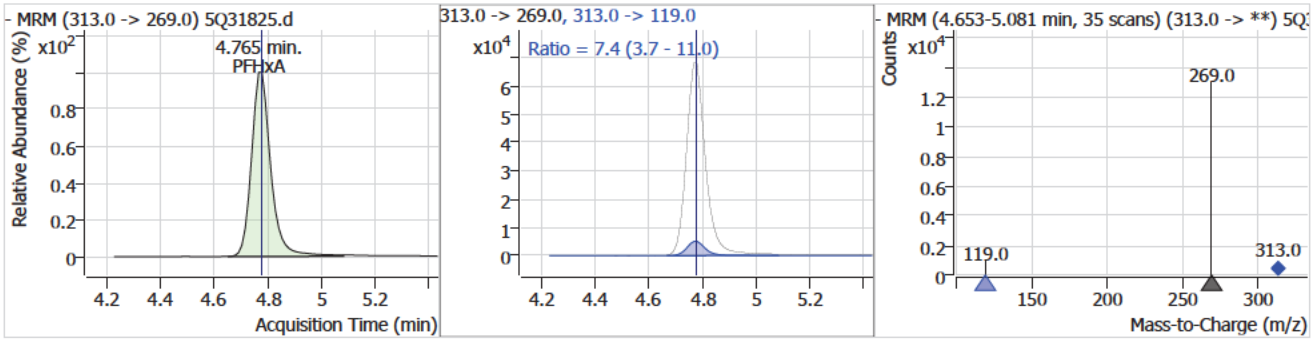
Perfluorinated Compounds by LC/MS/MS

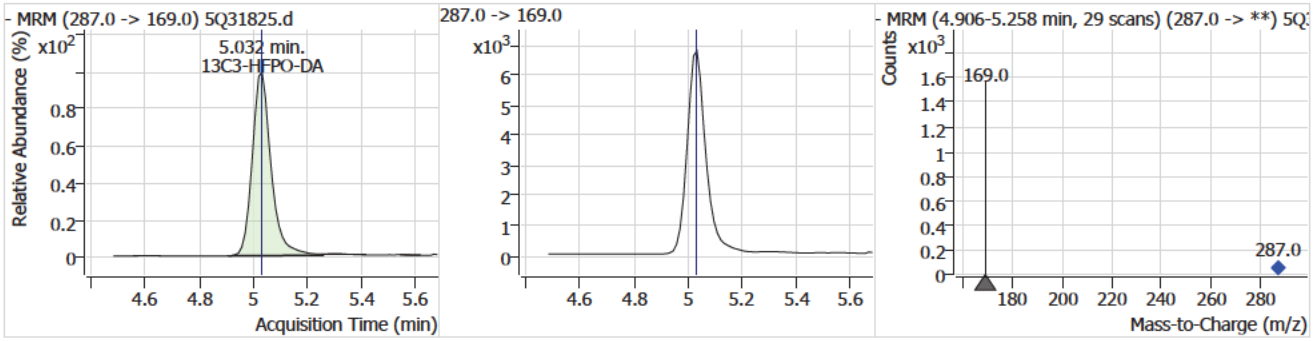
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	9.27	4.78	0.00	244472				



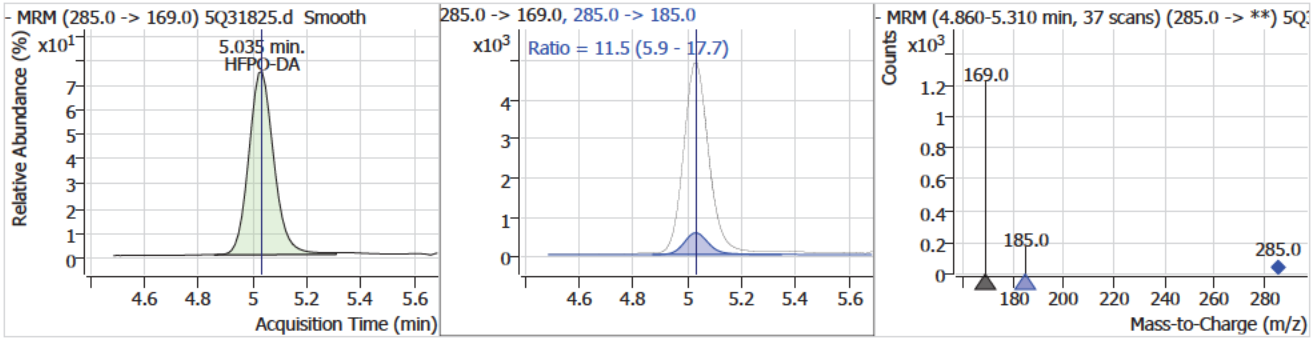
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	18.87	4.77	-0.01	338585	313.0 -> 119.0	7.4	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	17.51	5.03	0.00	32626				

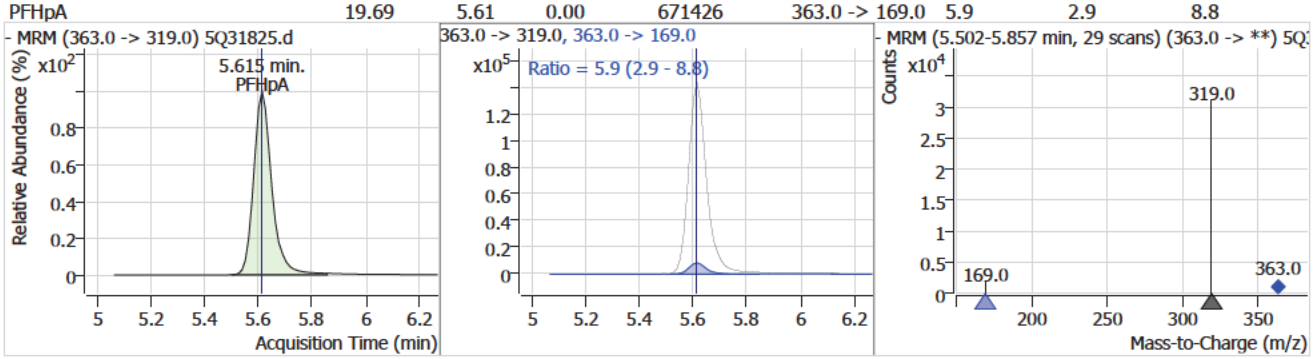


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.55	5.03	0.00	31778	285.0 -> 185.0	11.5	5.9	17.7

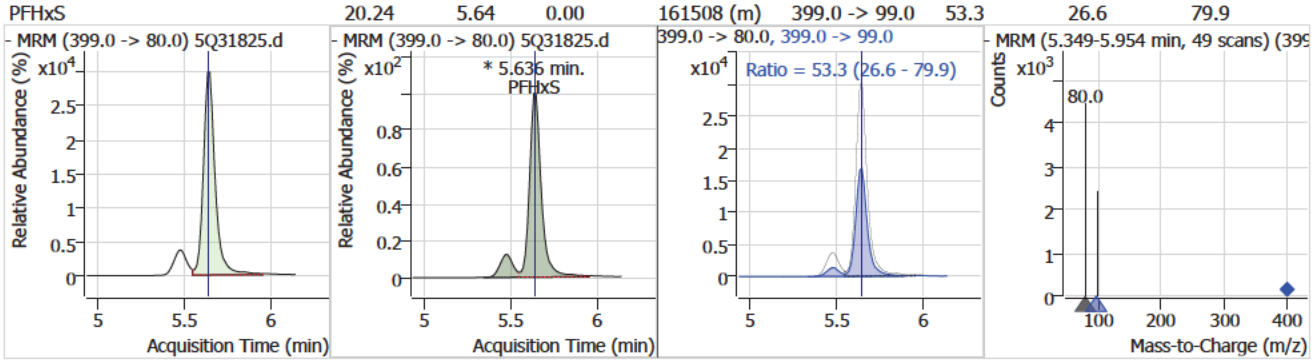


Perfluorinated Compounds by LC/MS/MS

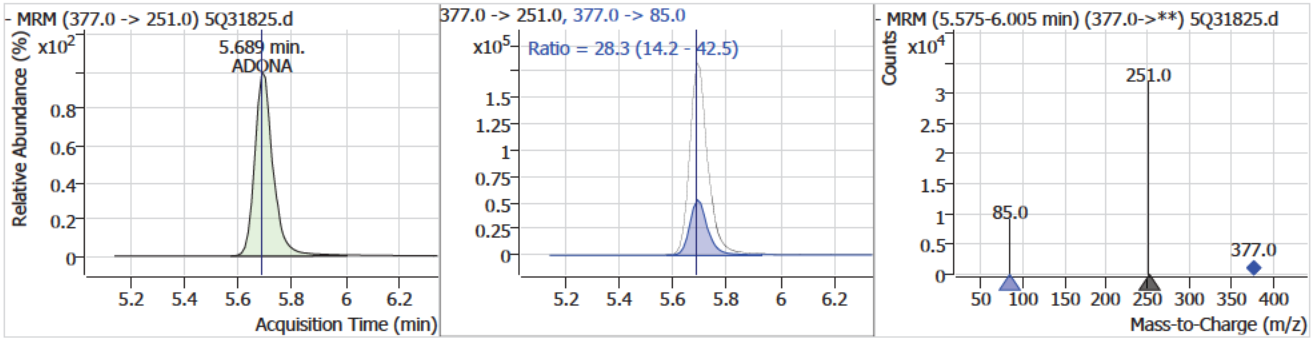
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.69	5.61	0.00	671426	363.0 -> 169.0	5.9	2.9	8.8



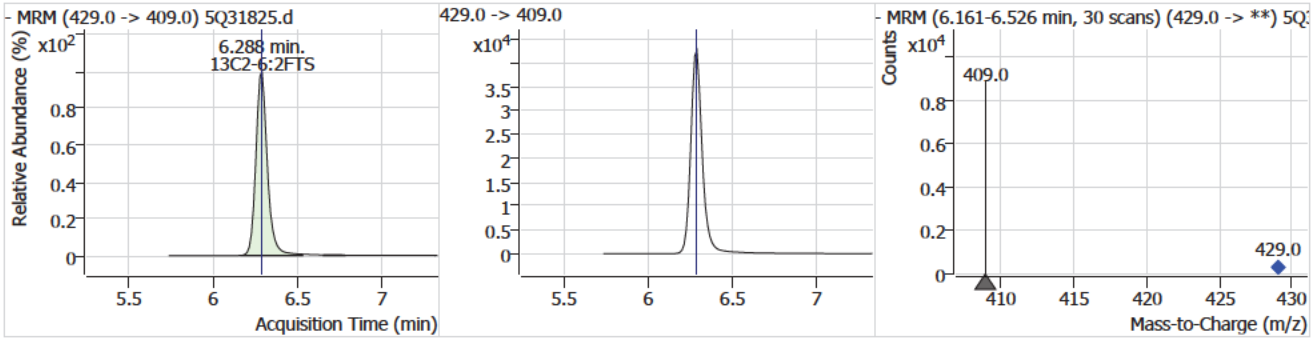
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	20.24	5.64	0.00	161508 (m)	399.0 -> 99.0	53.3	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.72	5.69	0.00	870356	377.0 -> 85.0	28.3	14.2	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	200480				



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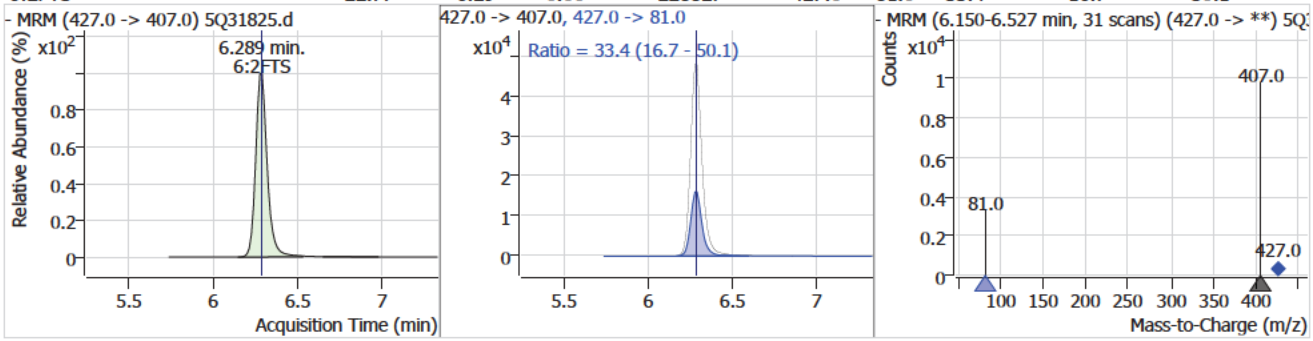
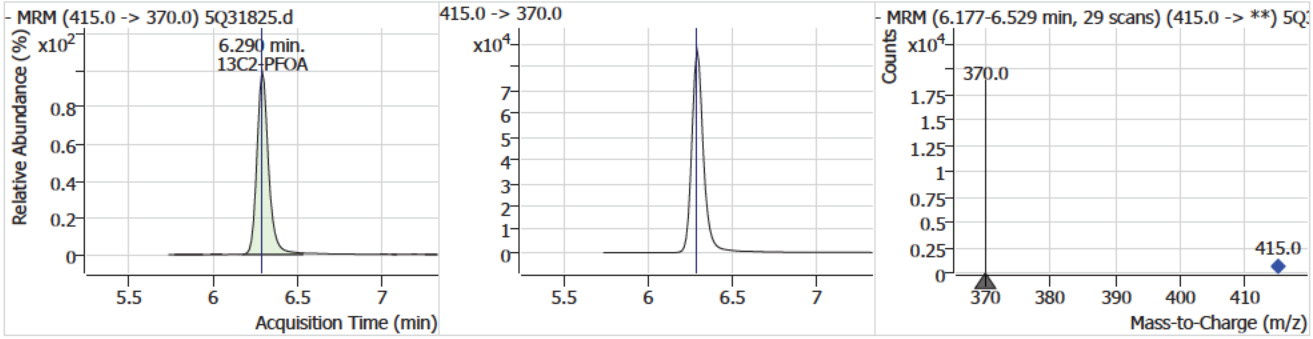
Perfluorinated Compounds by LC/MS/MS

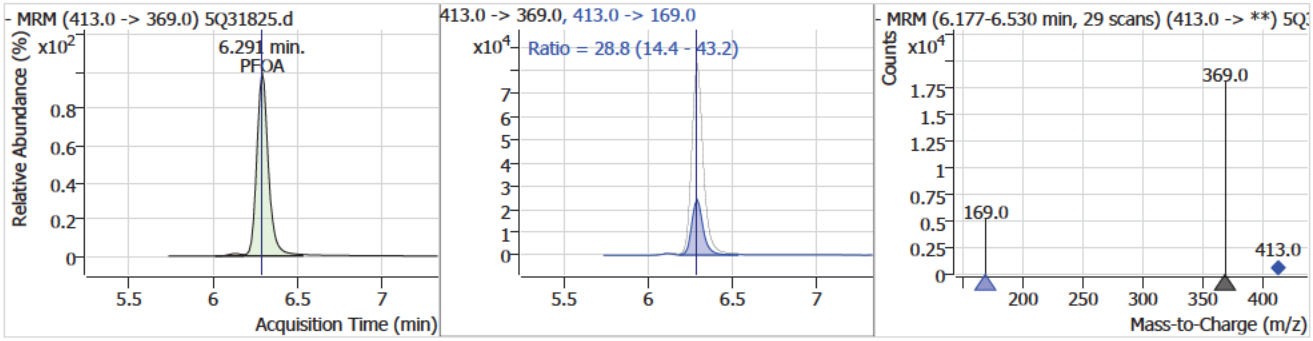
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	22.77	6.29	0.00	228827	427.0 -> 81.0	33.4	16.7	50.1



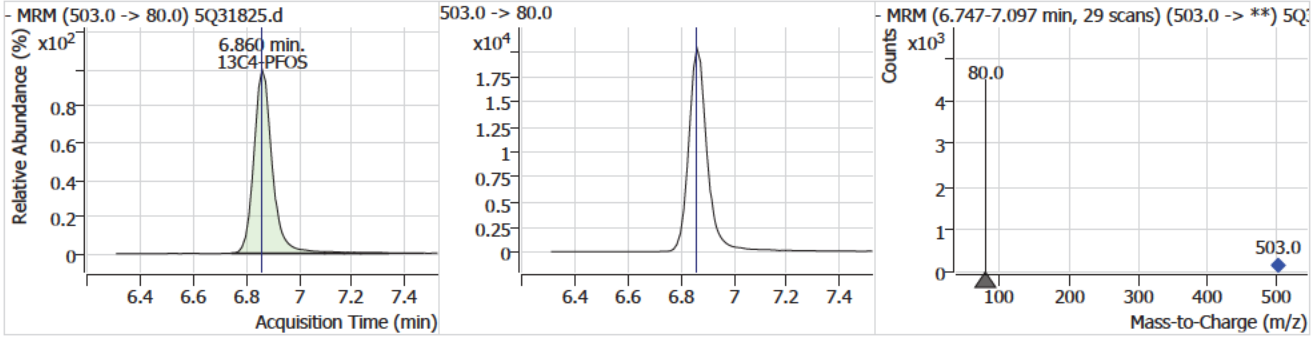
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	416202				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.05	6.29	0.00	397717	413.0 -> 169.0	28.8	14.4	43.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	97672				



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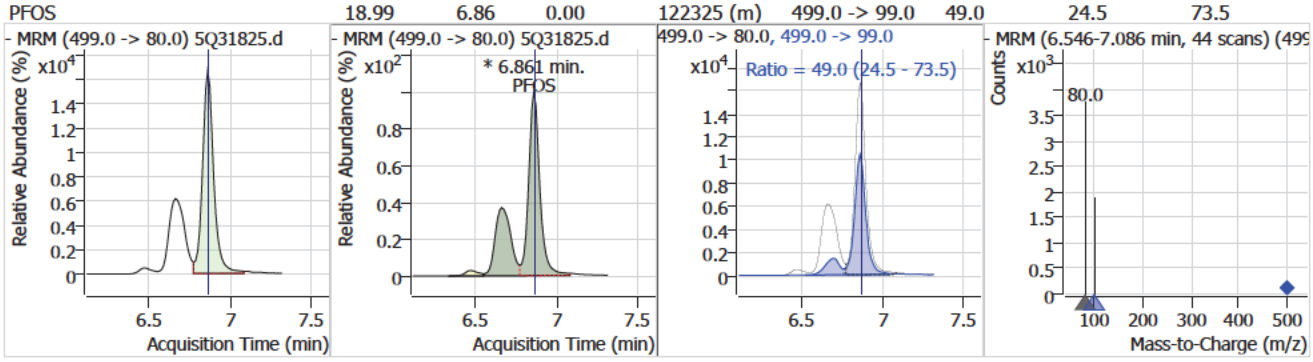
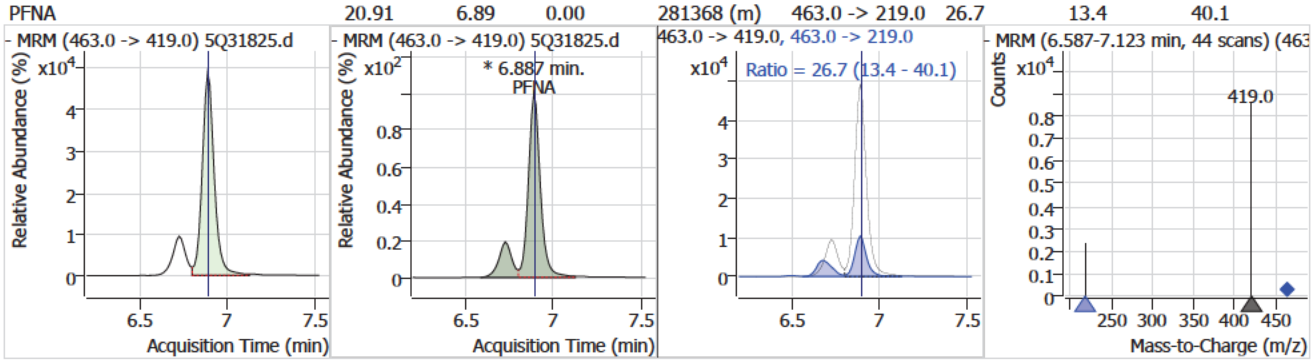
Perfluorinated Compounds by LC/MS/MS

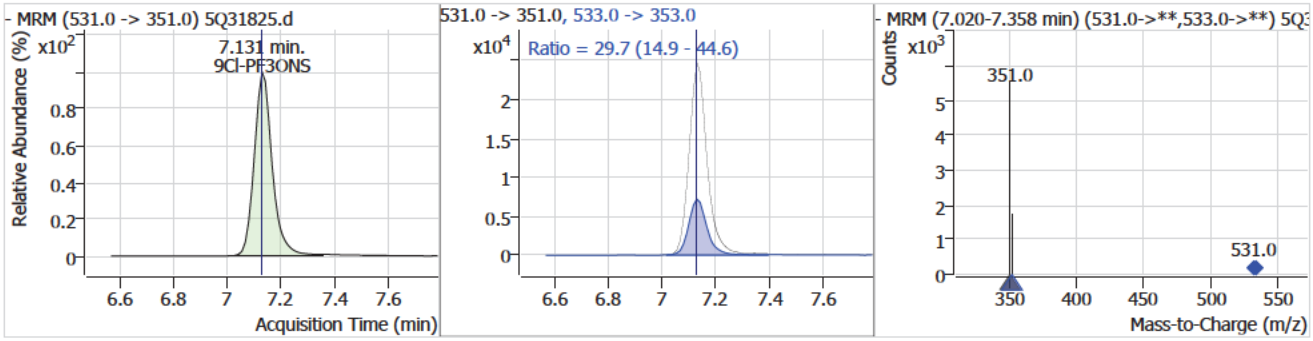
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.99	6.86	0.00	122325 (m)	499.0 -> 99.0	49.0	24.5	73.5



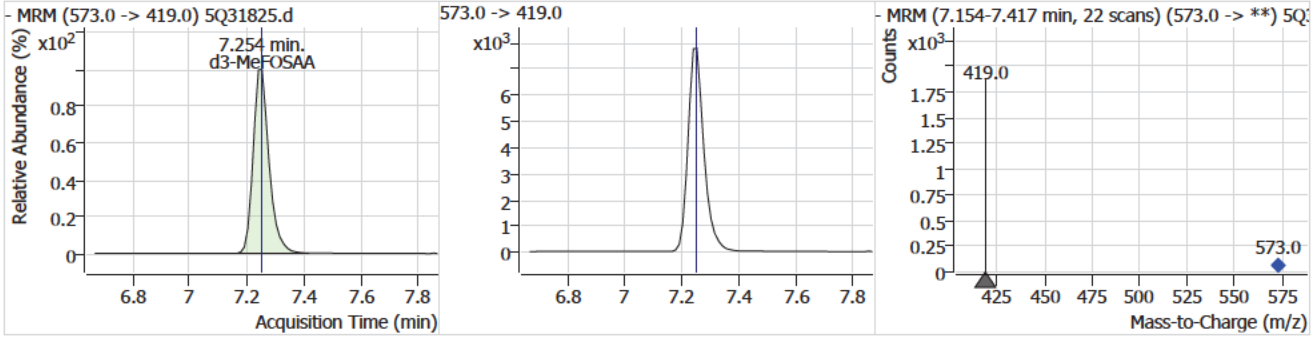
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	20.91	6.89	0.00	281368 (m)	463.0 -> 219.0	26.7	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	20.27	7.13	0.00	114560	533.0 -> 353.0	29.7	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	29996				



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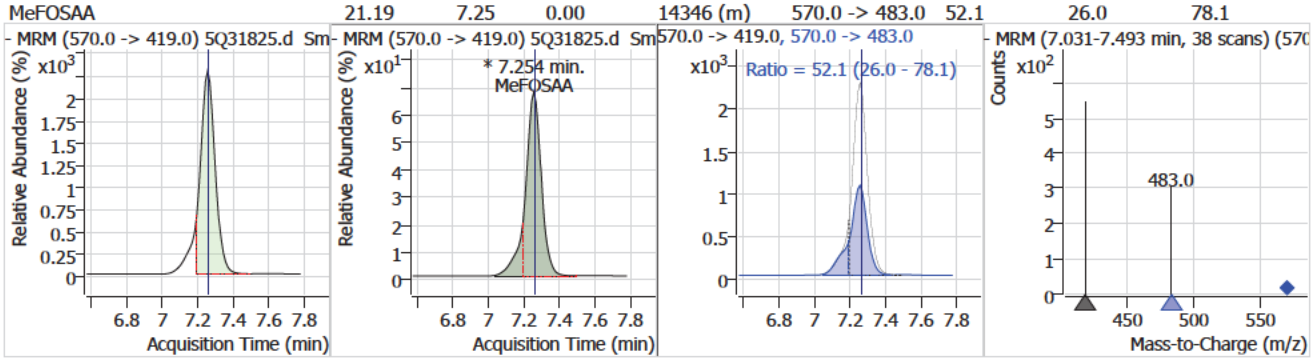
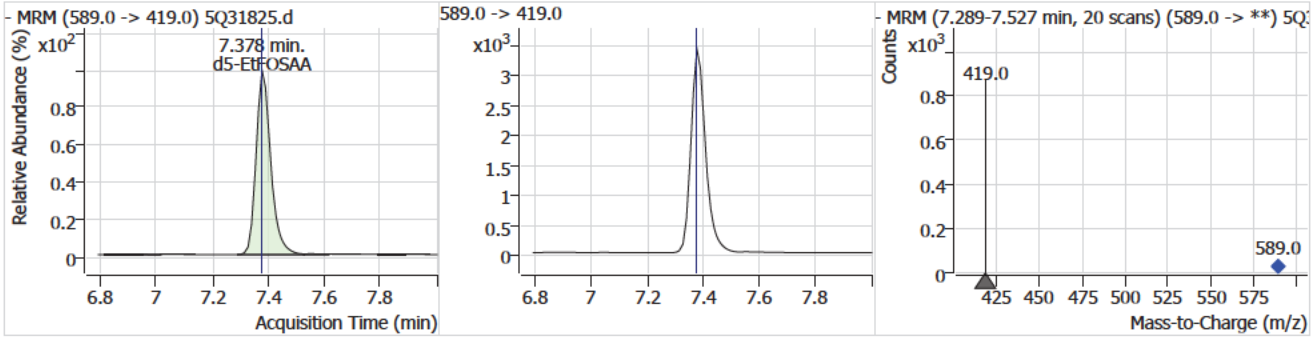
Perfluorinated Compounds by LC/MS/MS

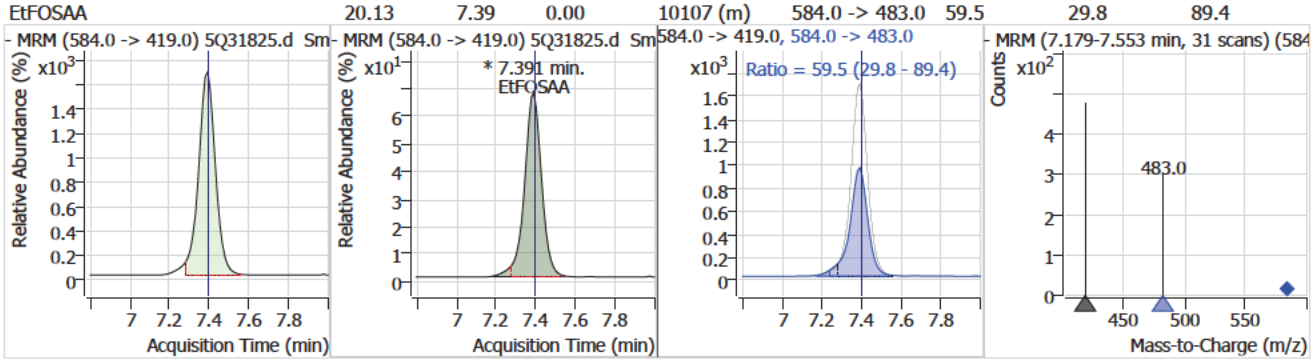
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	21.19	7.25	0.00	14346 (m)	570.0 -> 483.0	52.1	26.0	78.1



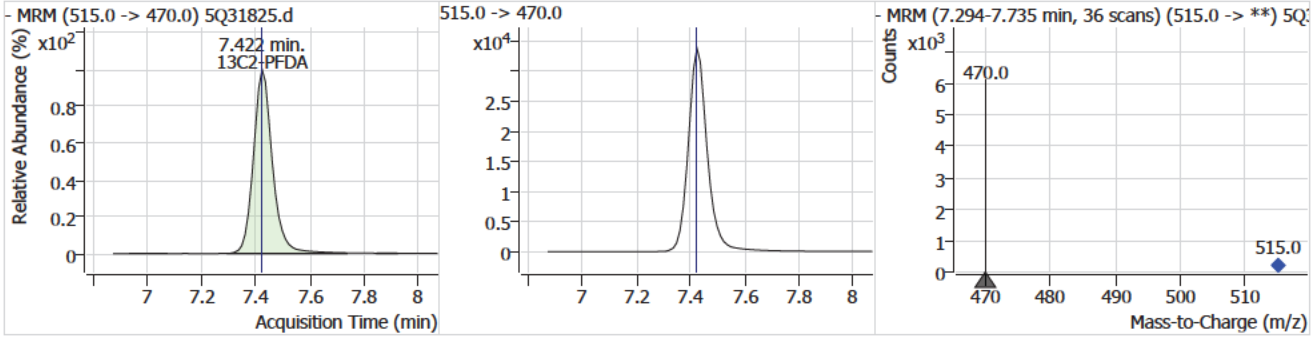
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	21.79	7.38	0.00	12403				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	20.13	7.39	0.00	10107 (m)	584.0 -> 483.0	59.5	29.8	89.4

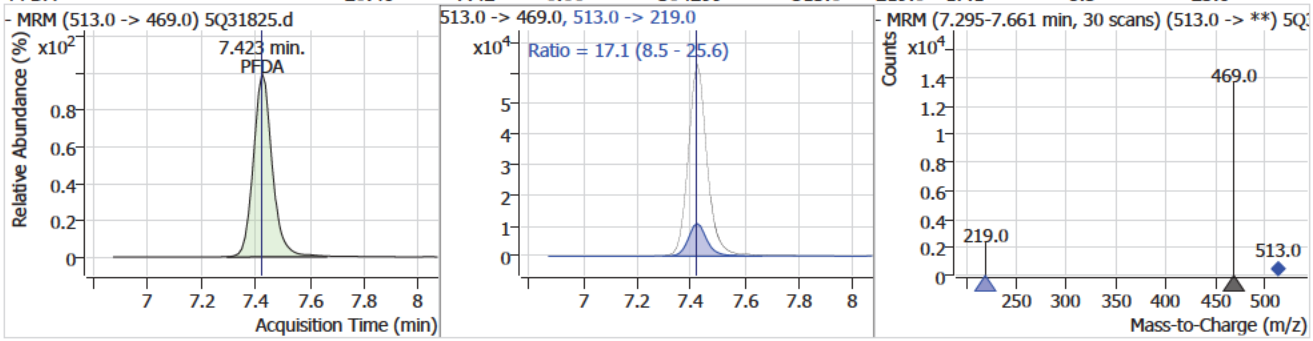


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	9.19	7.42	0.00	163629				

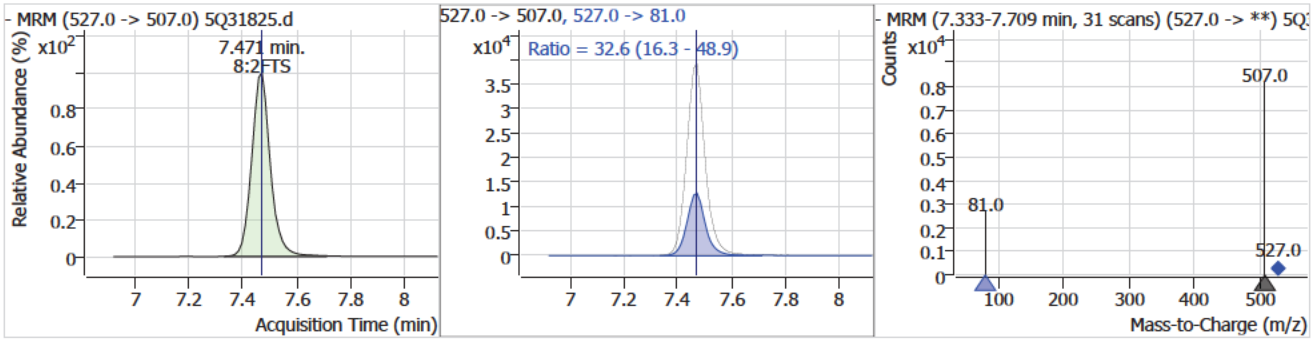


Perfluorinated Compounds by LC/MS/MS

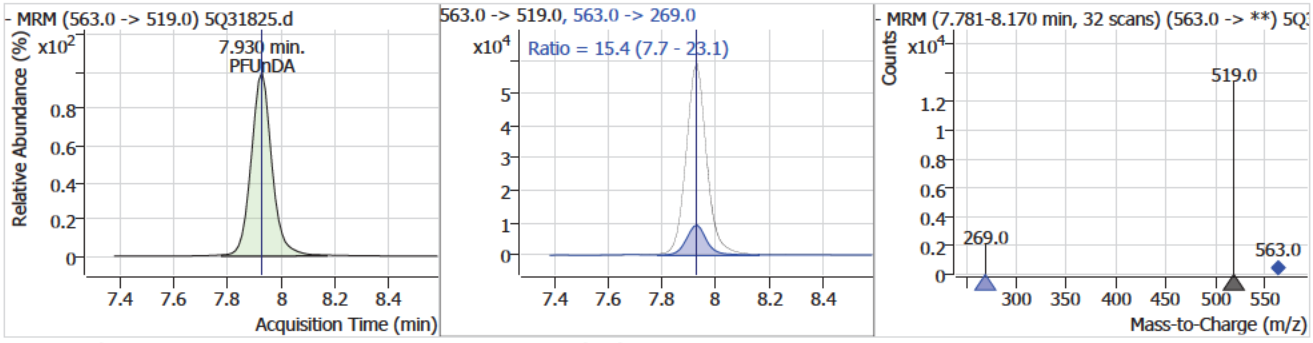
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.46	7.42	0.00	304299	513.0 -> 219.0	17.1	8.5	25.6



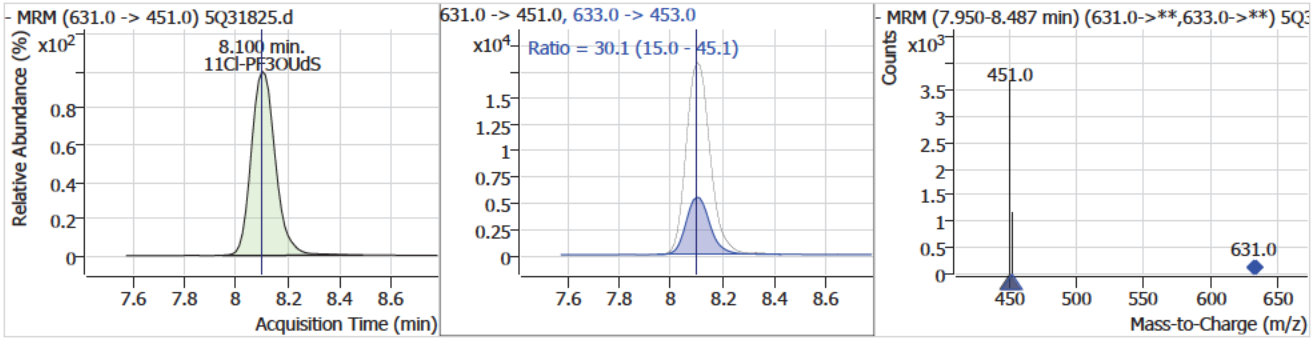
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.60	7.47	0.00	188311	527.0 -> 81.0	32.6	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.68	7.93	0.00	315528	563.0 -> 269.0	15.4	7.7	23.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	19.91	8.10	0.00	118950	633.0 -> 453.0	30.1	15.0	45.1



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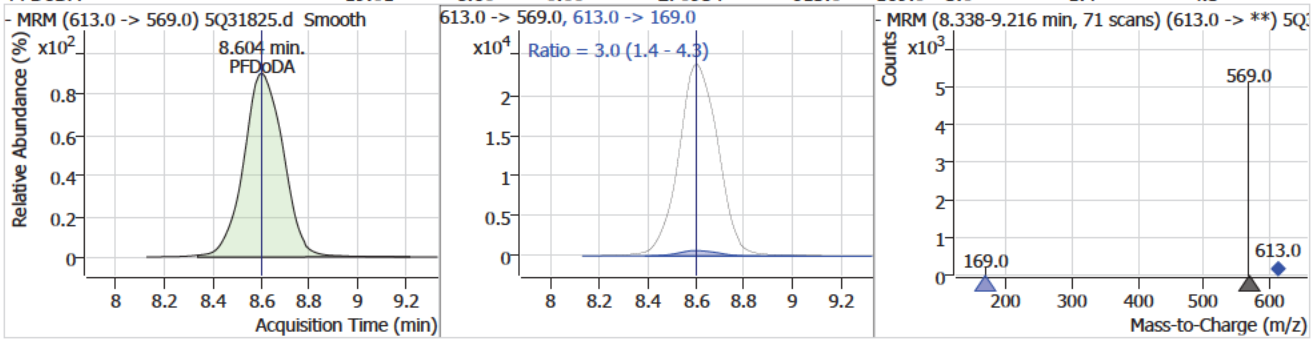
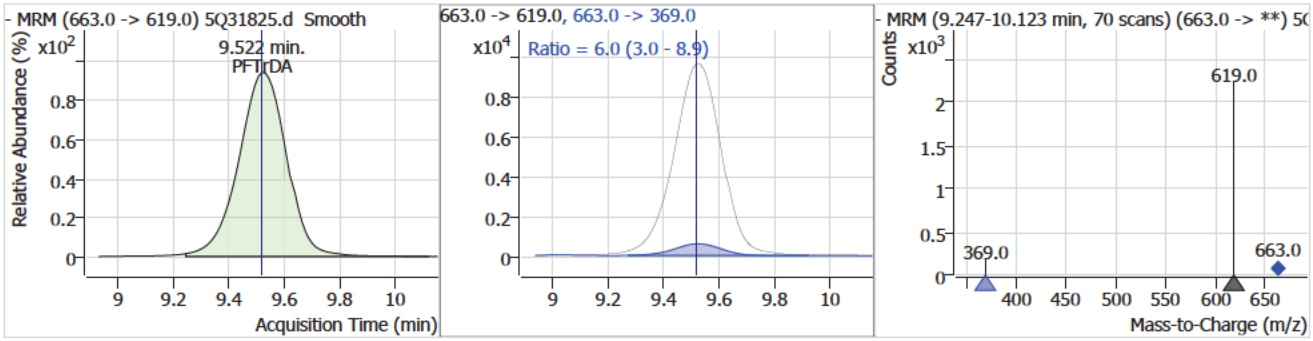
Perfluorinated Compounds by LC/MS/MS

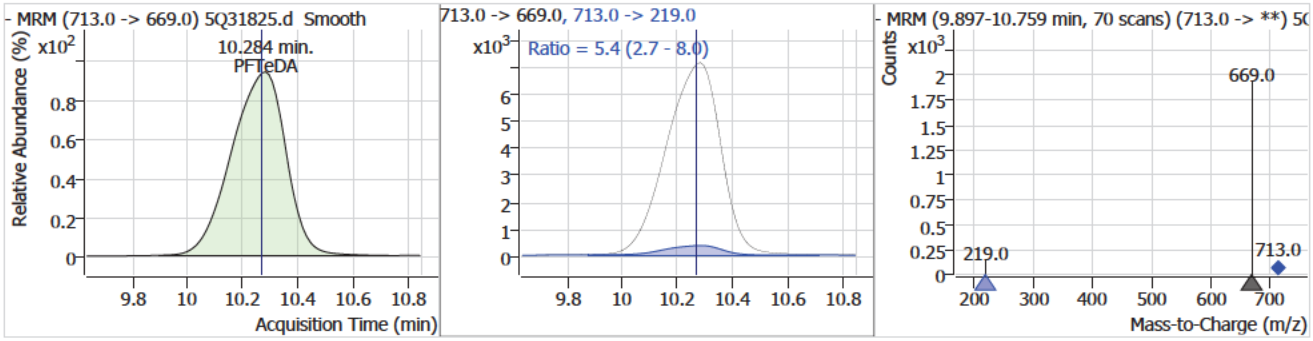
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.01	8.60	0.00	270954	613.0 -> 169.0	3.0	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	16.35	9.52	0.00	115573	663.0 -> 369.0	6.0	3.0	8.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.73	10.28	0.01	98893	713.0 -> 219.0	5.4	2.7	8.0



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Manual Integration Approval Summary

Sample Number: S5Q523-ICC523
Lab FileID: 5Q31825.D
Injection Time: 04/17/25 14:01
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6) [redacted]
Supervisor approved: 04/18/25 11:00 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31826.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 2:17:47 PM
Sample Name : ic523-50
Vial : P1-A8
DA Method File
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Symmetry	Conc.	Units		Dev(Min)
Internal Standards								
13C2-6:2FTS	6.275	429.0 -> 409.0	201860		20.00	µg/L		-0.012
13C2-PFOA	6.290	415.0 -> 370.0	377955		20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	485159		20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	93502		20.00	µg/L		0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	28275		40.00	µg/L		-0.012
System Monitoring Compounds								
13C2-PFDA	7.422	515.0 -> 470.0	386194		23.88	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%				Recovery = 119.4%			
13C2-PFHxA	4.764	315.0 -> 270.0	593671		24.79	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%				Recovery = 123.9%			
d5-EtFOSAA	7.378	589.0 -> 419.0	26654		49.68	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%				Recovery = 124.2%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	81704		48.28	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%				Recovery = 120.7%			
Target Compounds								QValue
6:2FTS	6.276	427.0 -> 407.0	542260		53.60	µg/L		99
8:2FTS	7.458	527.0 -> 507.0	453875		51.71	µg/L		100
EtFOSAA	7.391	584.0 -> 419.0	24610		52.00	µg/L	m	93
MeFOSAA	7.254	570.0 -> 419.0	33660		51.94	µg/L	m	96
PFBS	3.828	299.0 -> 80.0	623259	1.49	50.94	µg/L		99
PFDA	7.423	513.0 -> 469.0	690275		49.55	µg/L		100
PFDoDA	8.604	613.0 -> 569.0	737874		51.55	µg/L		100
PFHpA	5.615	363.0 -> 319.0	1610575		50.02	µg/L		99
PFHxA	4.765	313.0 -> 269.0	806825	1.43	49.51	µg/L		99
PFHxS	5.636	399.0 -> 80.0	402957		50.89	µg/L	m	98
PFNA	6.887	463.0 -> 419.0	643091		49.20	µg/L	m	97
PFOA	6.291	413.0 -> 369.0	918781		49.96	µg/L		100
PFOS	6.861	499.0 -> 80.0	293796		47.63	µg/L	m	98
PFPeA	3.597	263.0 -> 219.0	1587420		50.08	µg/L		100
PFTeDA	10.272	713.0 -> 669.0	258063		50.31	µg/L		99
PFTrDA	9.522	663.0 -> 619.0	317302		46.89	µg/L		99
PFUnDA	7.930	563.0 -> 519.0	752388		49.03	µg/L		100
ADONA	5.689	377.0 -> 251.0	2110241		50.04	µg/L		99
9Cl-PF3ONS	7.131	531.0 -> 351.0	276506		49.72	µg/L		100
11Cl-PF3OUdS	8.100	631.0 -> 451.0	302523		50.05	µg/L		99
HFPO-DA	5.023	285.0 -> 169.0	77693		50.13	µg/L		100

= Qualifier out of range, m = manually integrated, + = Area summed

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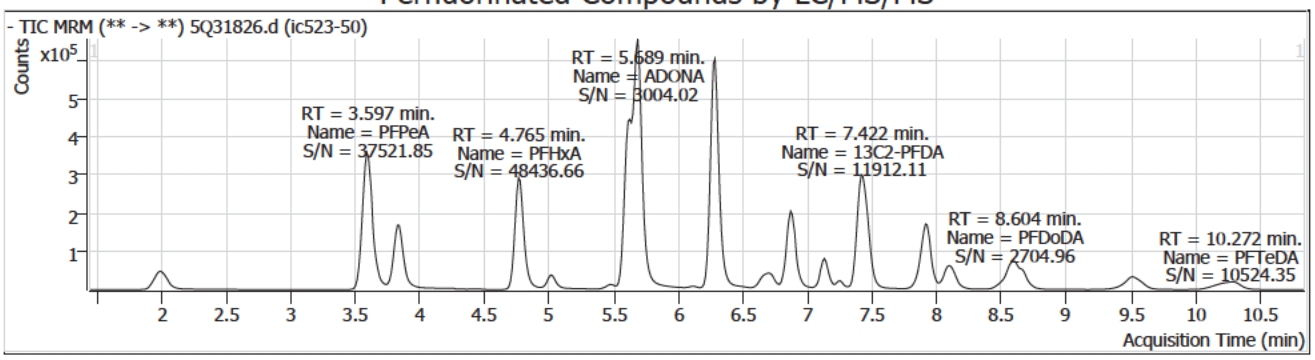
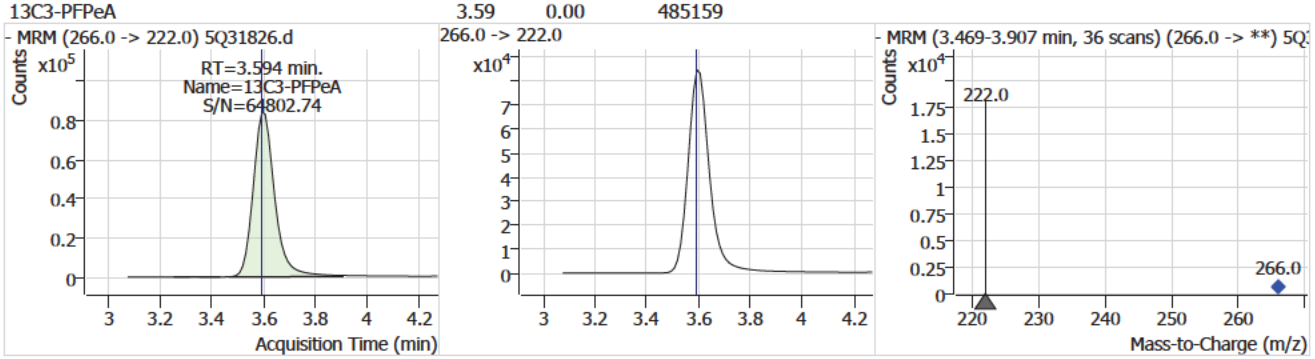
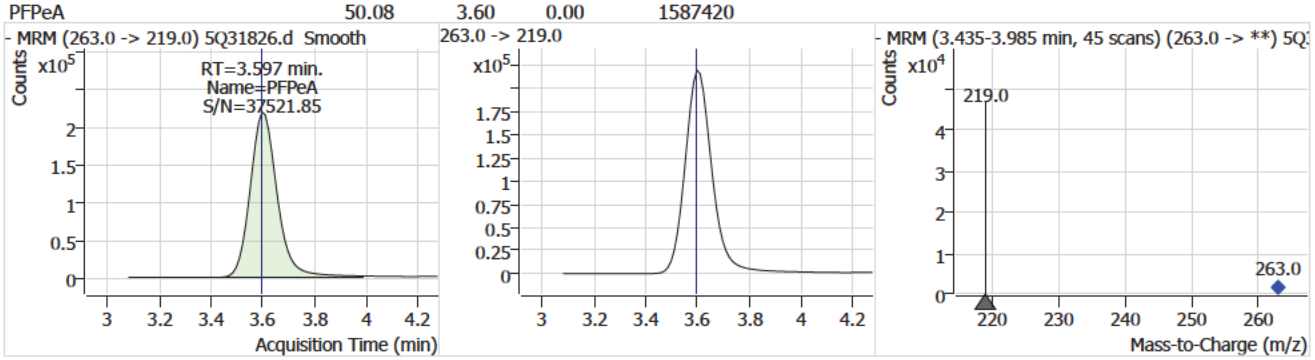
Perfluorinated Compounds by LC/MS/MS



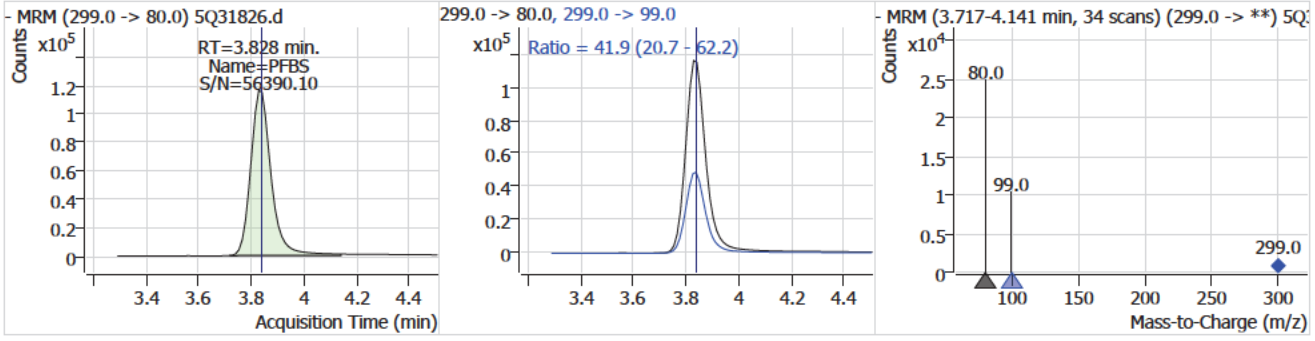
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	485159				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	50.08	3.60	0.00	1587420				

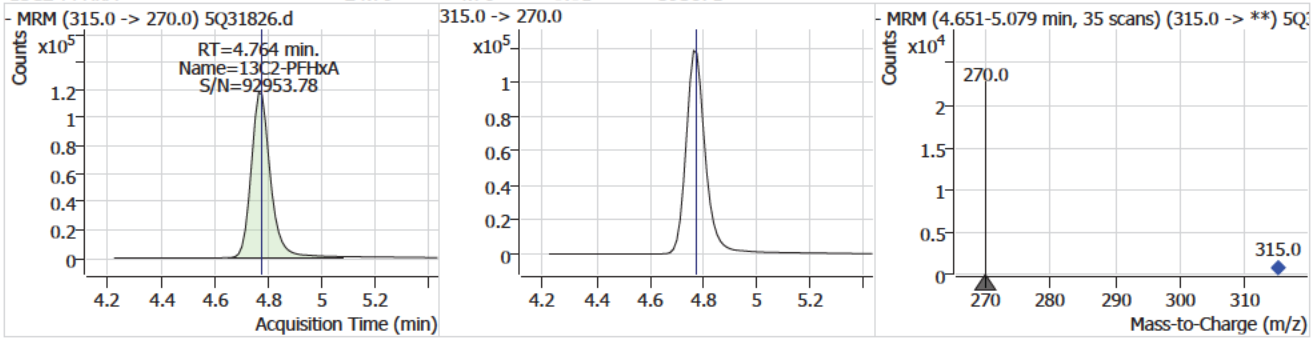


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	50.94	3.83	-0.01	623259	299.0 -> 99.0	41.9	20.7	62.2

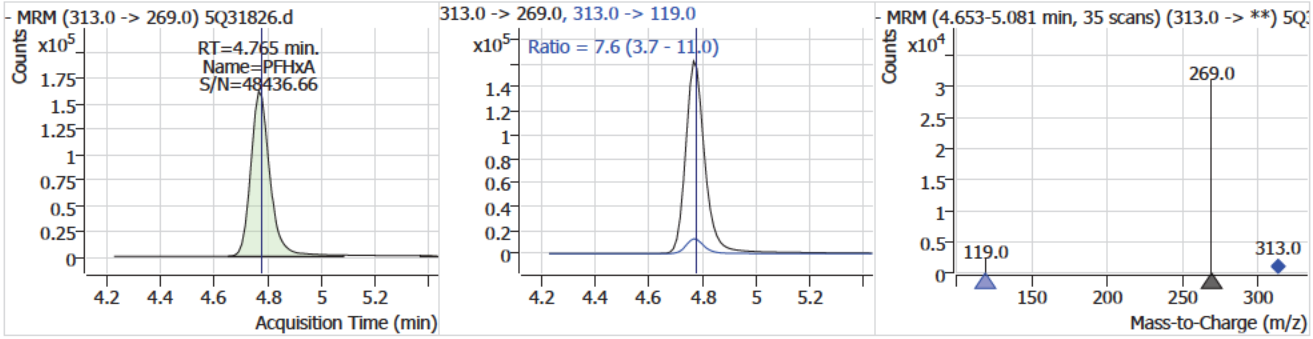


Perfluorinated Compounds by LC/MS/MS

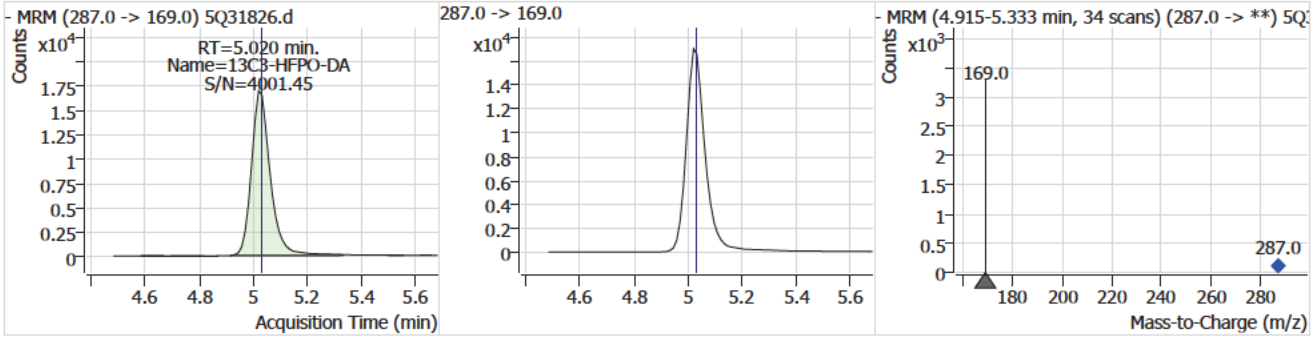
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	24.79	4.76	-0.01	593671				



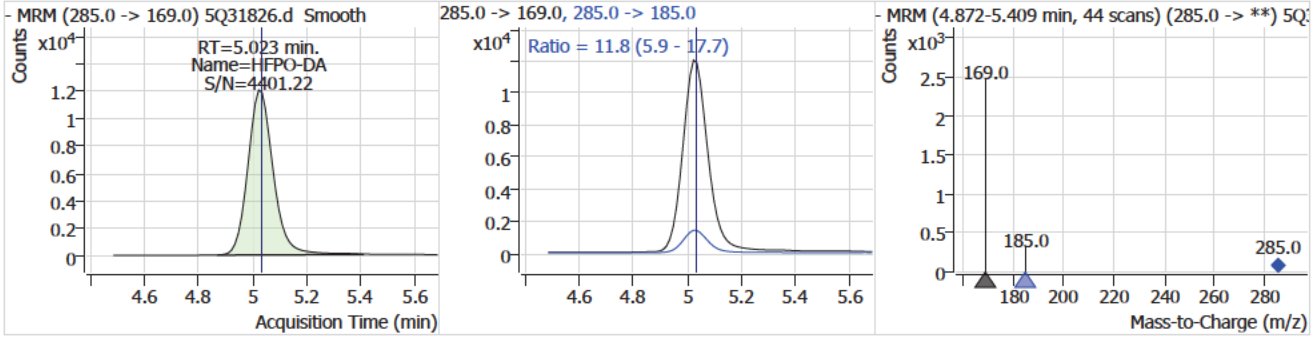
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	49.51	4.77	-0.01	806825	313.0 -> 119.0	7.6	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	48.28	5.02	-0.01	81704				

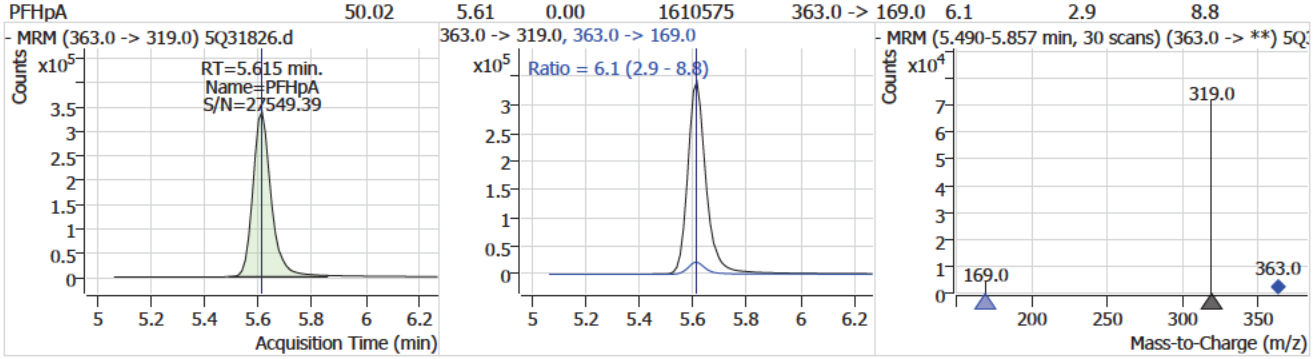


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	50.13	5.02	-0.01	77693	285.0 -> 185.0	11.8	5.9	17.7

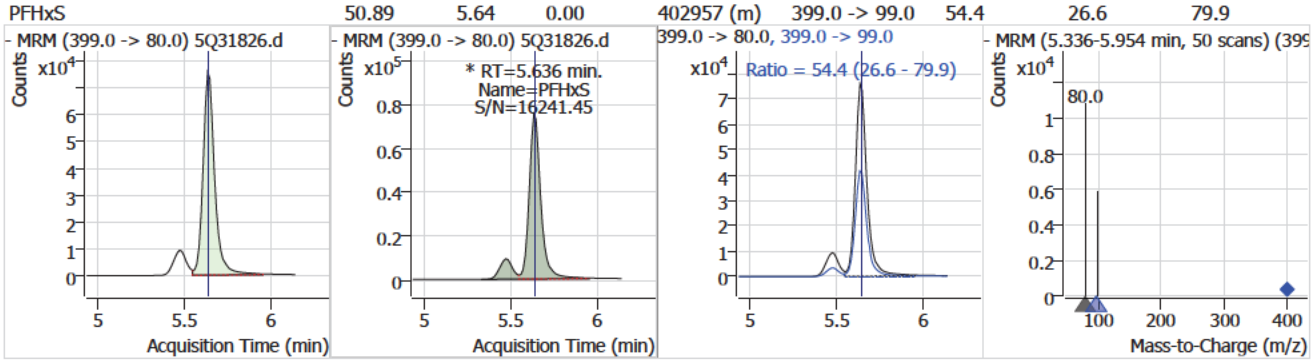


Perfluorinated Compounds by LC/MS/MS

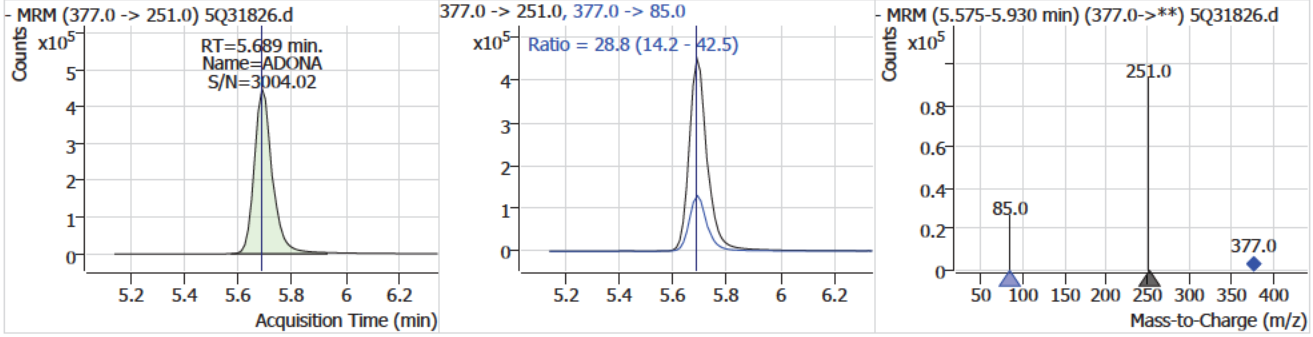
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	50.02	5.61	0.00	1610575	363.0 -> 169.0	6.1	2.9	8.8



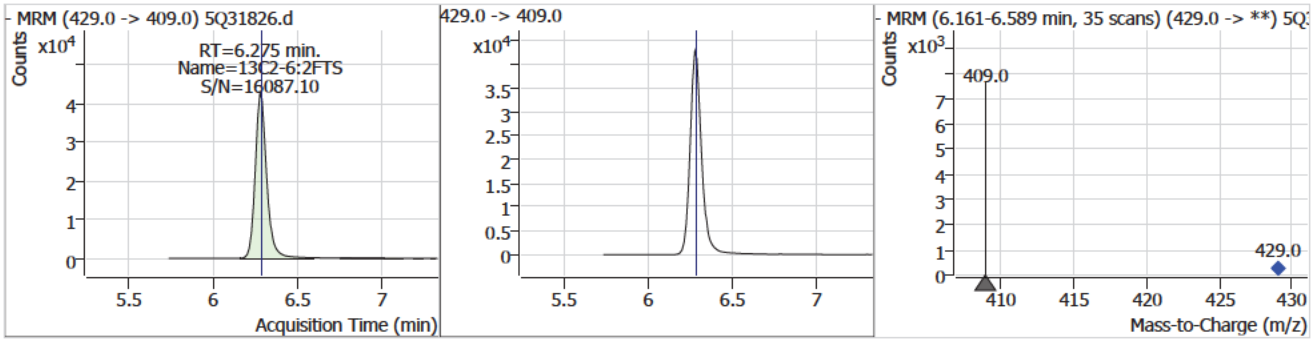
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	50.89	5.64	0.00	402957 (m)	399.0 -> 99.0	54.4	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	50.04	5.69	0.00	2110241	377.0 -> 85.0	28.8	14.2	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	201860				



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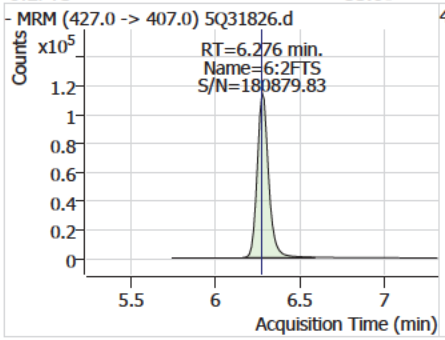
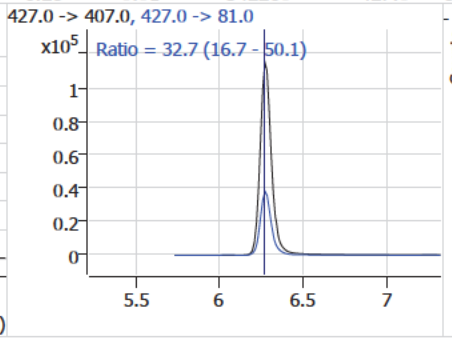
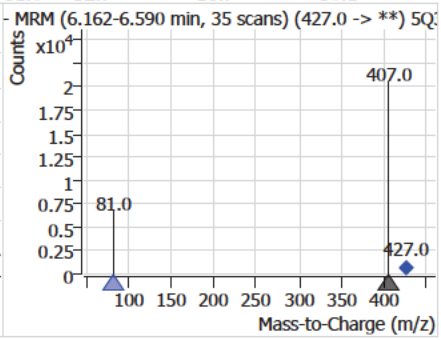
Perfluorinated Compounds by LC/MS/MS

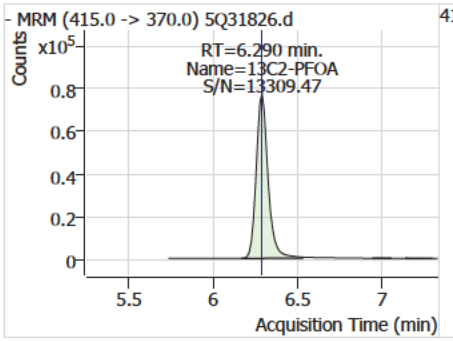
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	53.60	6.28	-0.01	542260	427.0 -> 81.0	32.7	16.7	50.1

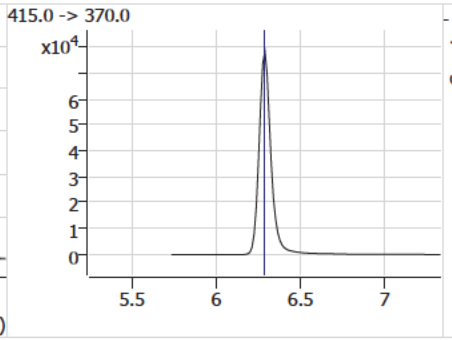


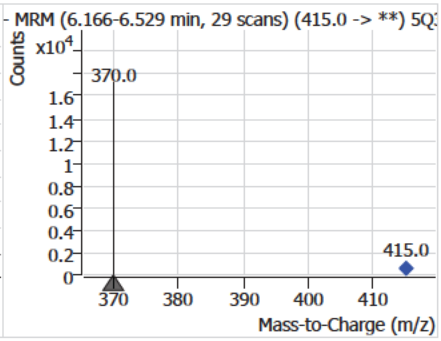




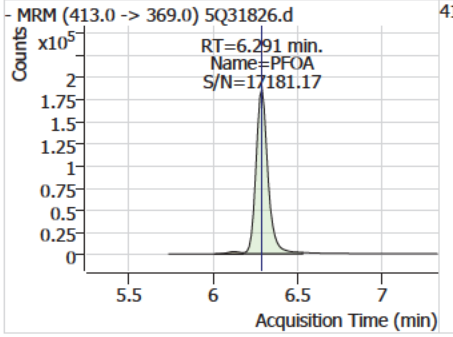
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	377955				

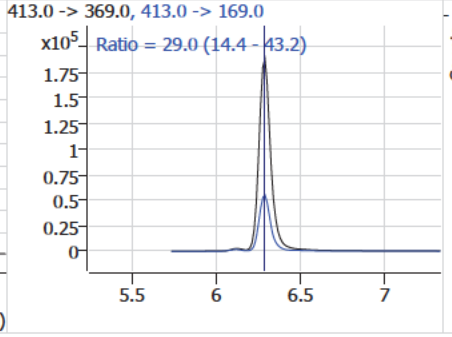


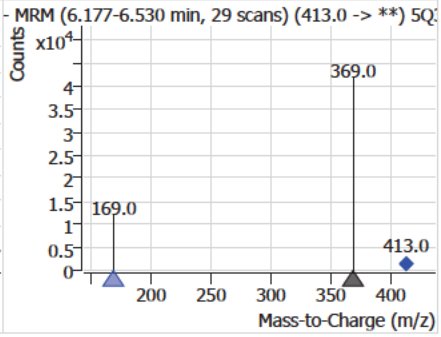




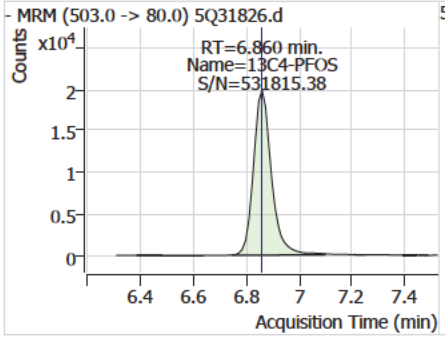
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	49.96	6.29	0.00	918781	413.0 -> 169.0	29.0	14.4	43.2

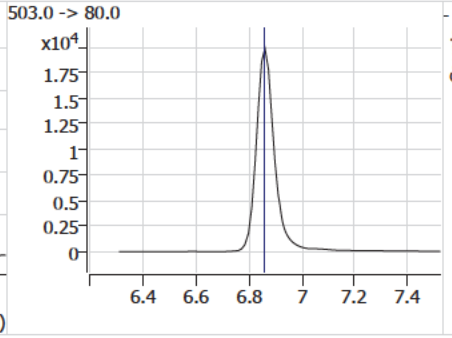


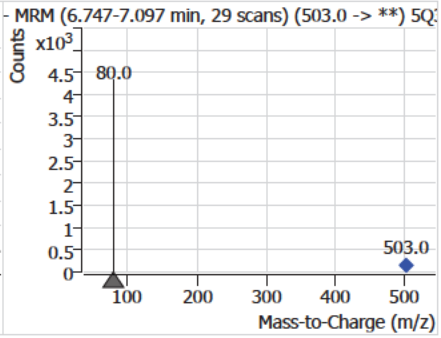




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	93502				







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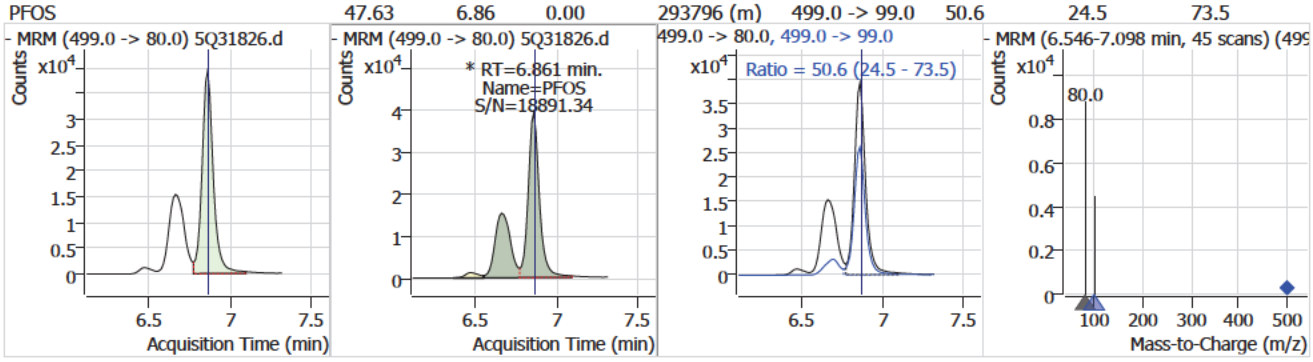
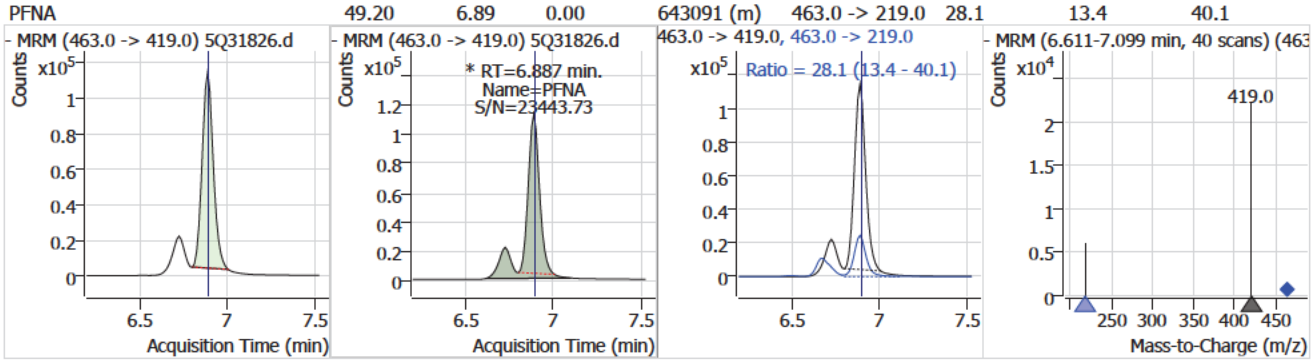
Perfluorinated Compounds by LC/MS/MS

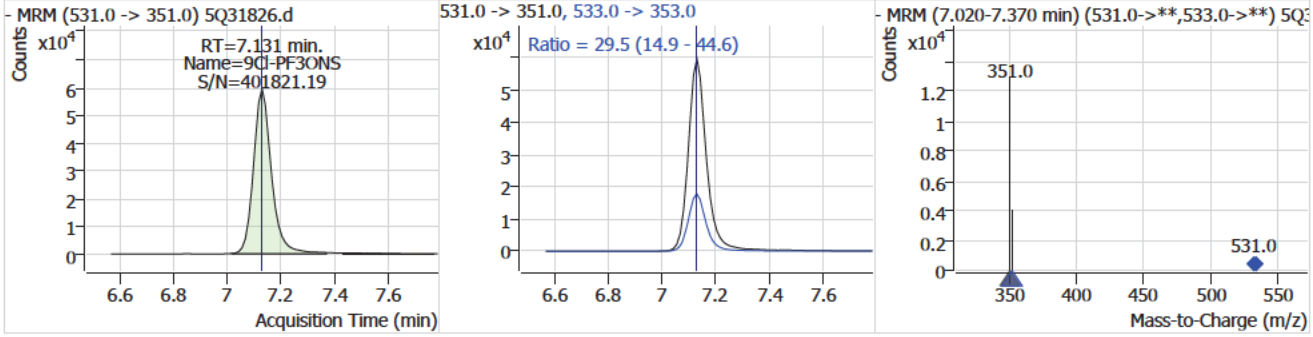
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	47.63	6.86	0.00	293796 (m)	499.0 -> 99.0	50.6	24.5	73.5



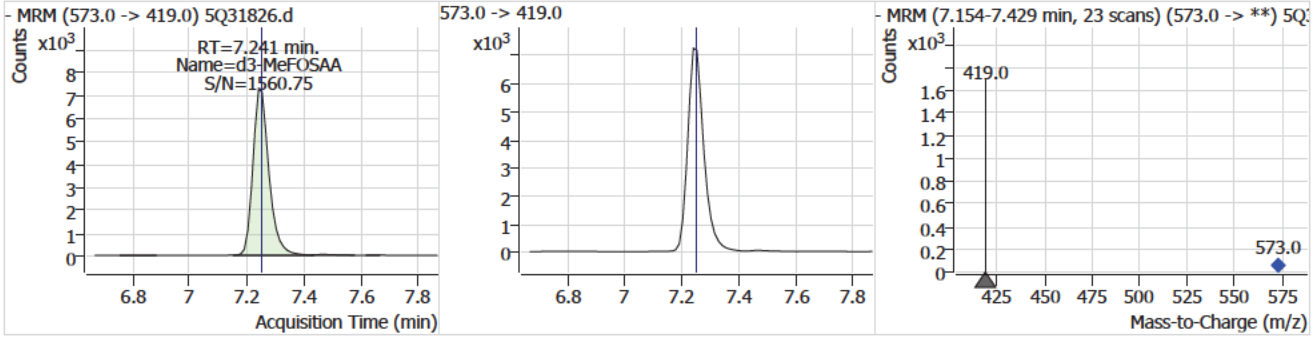
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	49.20	6.89	0.00	643091 (m)	463.0 -> 219.0	28.1	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	49.72	7.13	0.00	276506	533.0 -> 353.0	29.5	14.9	44.6

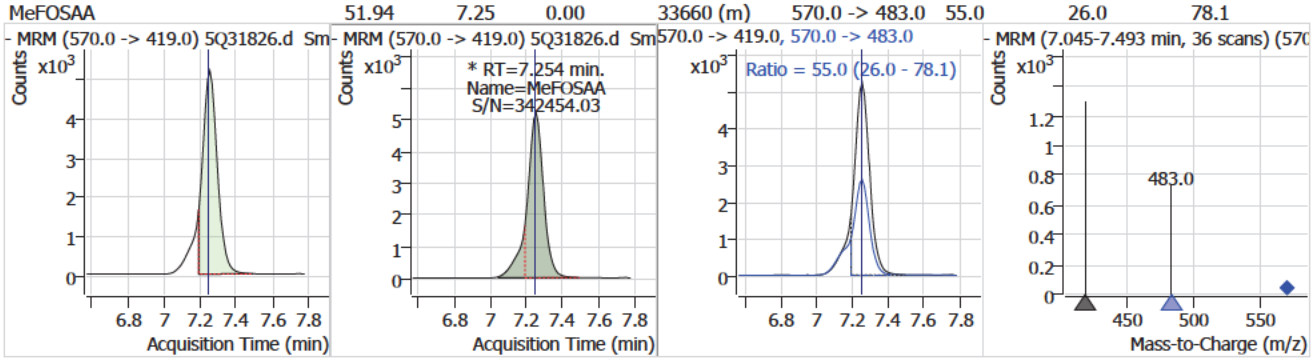


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	28275				

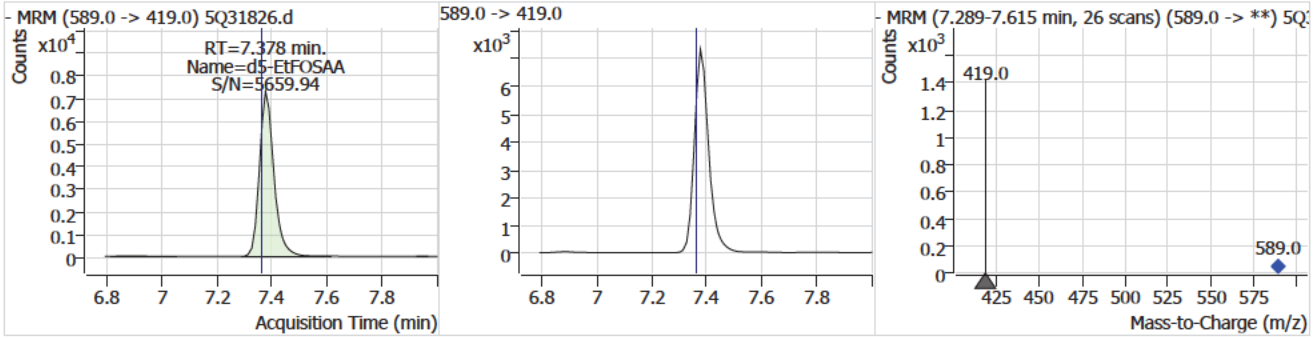


Perfluorinated Compounds by LC/MS/MS

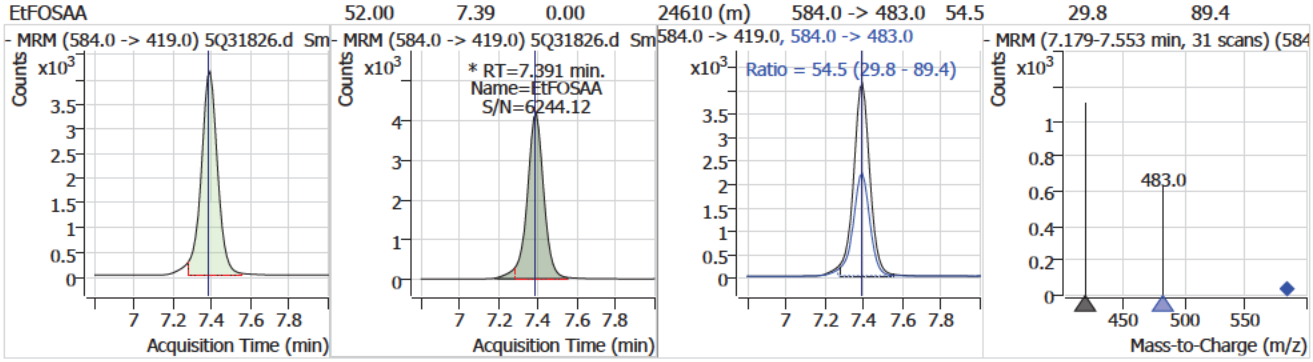
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	51.94	7.25	0.00	33660 (m)	570.0 -> 483.0	55.0	26.0	78.1



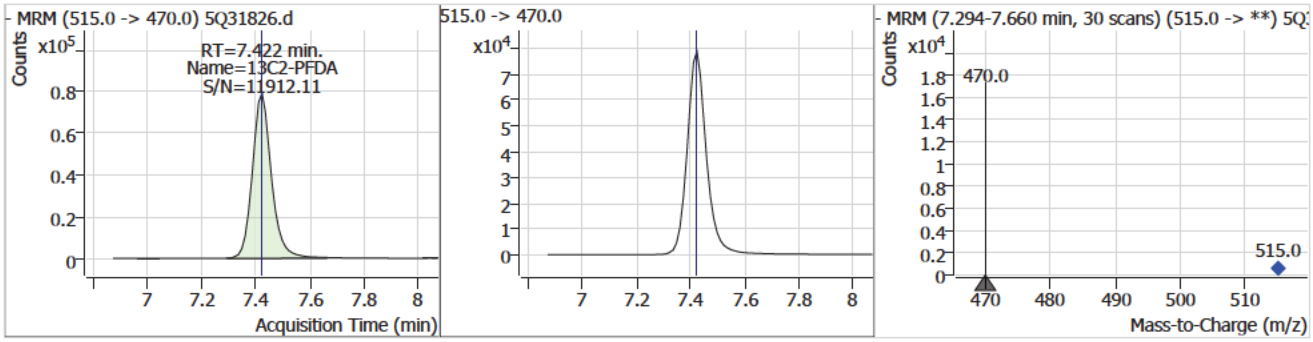
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	49.68	7.38	0.00	26654				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	52.00	7.39	0.00	24610 (m)	584.0 -> 483.0	54.5	29.8	89.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	23.88	7.42	0.00	386194				



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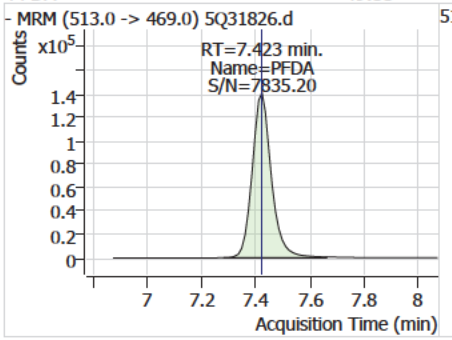
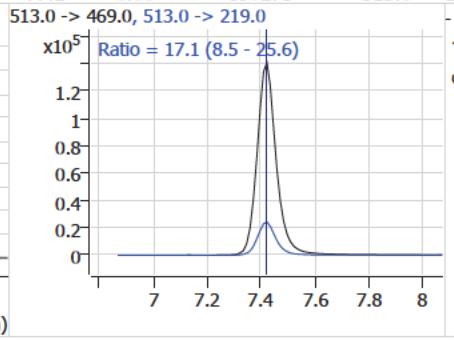
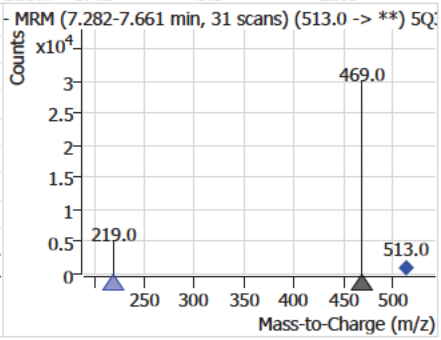
Perfluorinated Compounds by LC/MS/MS

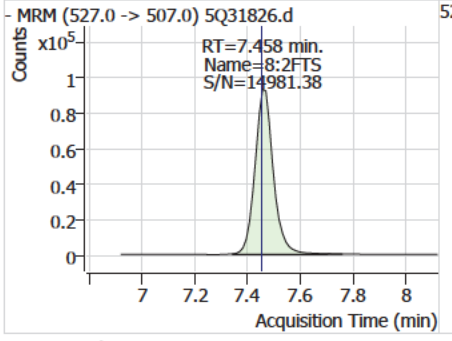
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	49.55	7.42	0.00	690275	513.0 -> 219.0	17.1	8.5	25.6

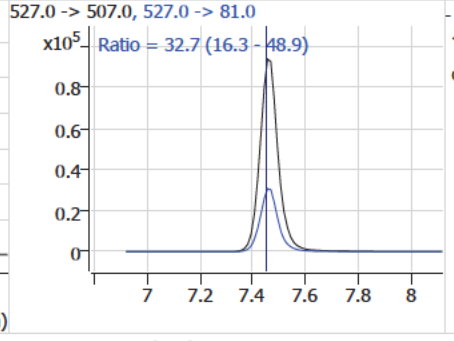


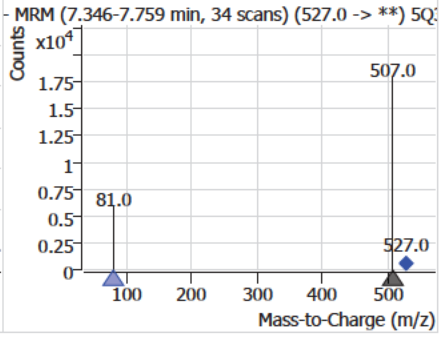




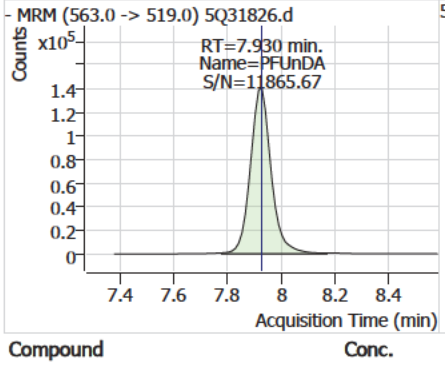
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	51.71	7.46	-0.01	453875	527.0 -> 81.0	32.7	16.3	48.9

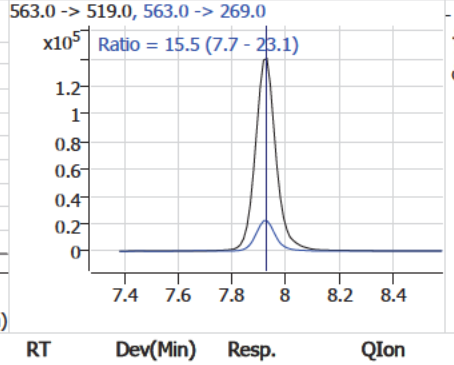


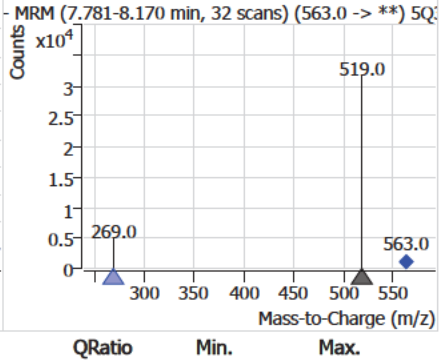




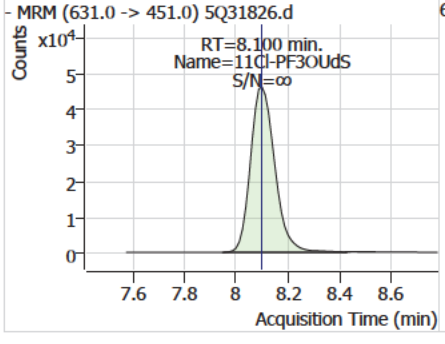
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	49.03	7.93	0.00	752388	563.0 -> 269.0	15.5	7.7	23.1

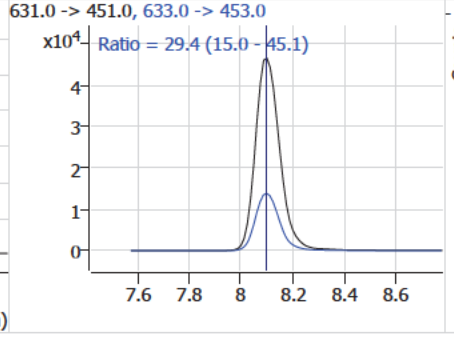


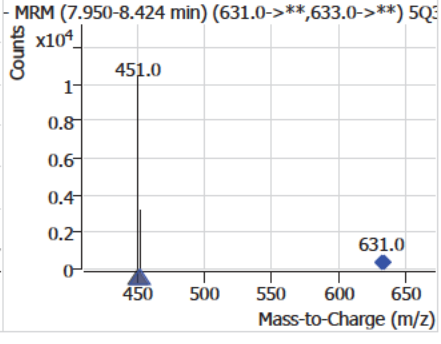




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	50.05	8.10	0.00	302523	633.0 -> 453.0	29.4	15.0	45.1

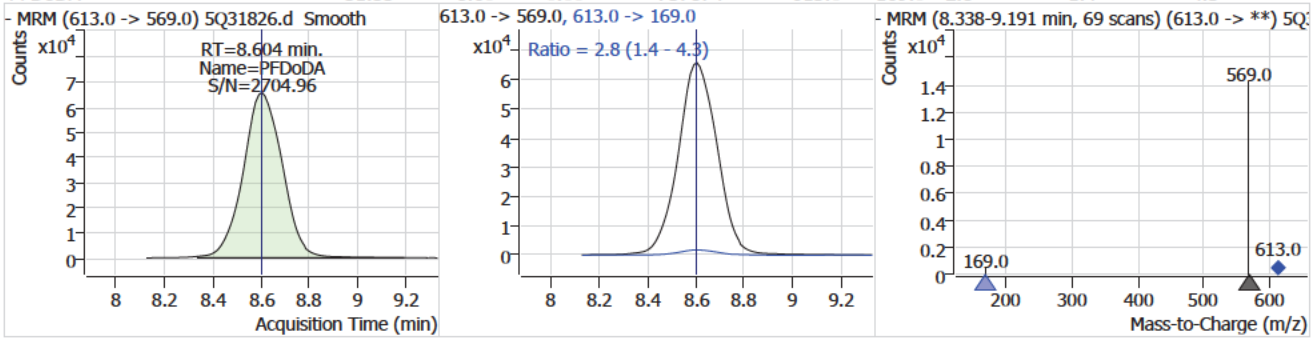




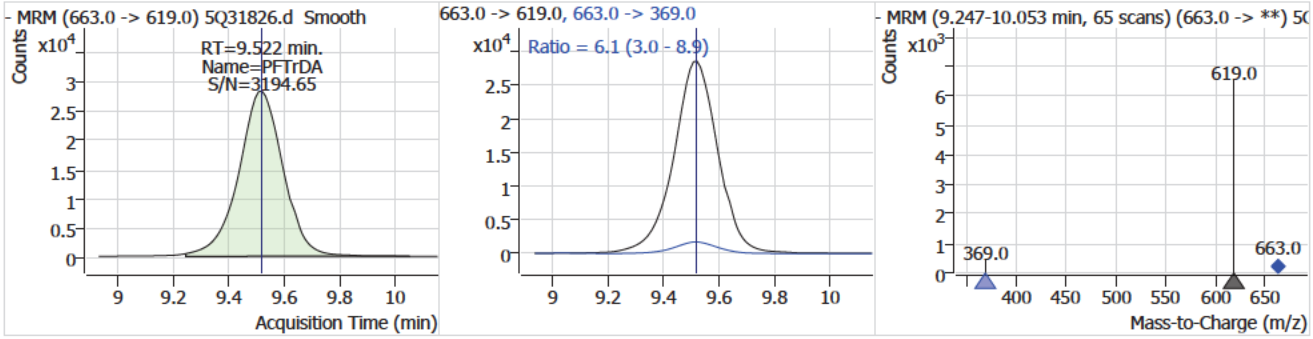


Perfluorinated Compounds by LC/MS/MS

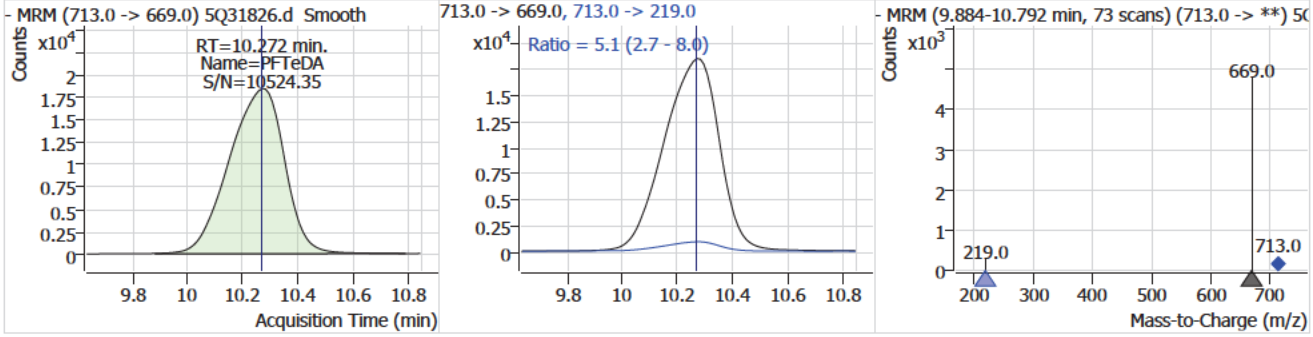
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	51.55	8.60	0.00	737874	613.0 -> 169.0	2.8	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	46.89	9.52	0.00	317302	663.0 -> 369.0	6.1	3.0	8.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	50.31	10.27	0.00	258063	713.0 -> 219.0	5.1	2.7	8.0



Manual Integration Approval Summary

Sample Number: S5Q523-IC523
Lab FileID: 5Q31826.D
Injection Time: 04/17/25 14:17
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6) [redacted]
Supervisor approved: 04/18/25 11:00 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31827.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 2:34:12 PM
Sample Name : ic523-100
Vial : P1-A9
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.275	429.0 -> 409.0	236437	20.00 µg/L		-0.012
13C2-PFOA	6.290	415.0 -> 370.0	380493	20.00 µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	519961	20.00 µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	100503	20.00 µg/L		0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	31812	40.00 µg/L		-0.012
System Monitoring Compounds						
13C2-PFDA	7.410	515.0 -> 470.0	826575	50.76 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 253.8%		
13C2-PFHxA	4.764	315.0 -> 270.0	1212107	50.28 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 251.4%		
d5-EtFOSAA	7.378	589.0 -> 419.0	60249	99.81 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 249.5%		
13C3-HFPO-DA	5.020	287.0 -> 169.0	172873	101.47 µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 253.7%		
Target Compounds						QValue
6:2FTS	6.276	427.0 -> 407.0	1154652	97.44 µg/L		99
8:2FTS	7.458	527.0 -> 507.0	1014930	98.72 µg/L		99
EtFOSAA	7.391	584.0 -> 419.0	52646	98.86 µg/L	m	93
MeFOSAA	7.254	570.0 -> 419.0	73828	98.96 µg/L	m	93
PFBS	3.828	299.0 -> 80.0	1306437	99.35 µg/L		99
PFDA	7.411	513.0 -> 469.0	1477844	100.08 µg/L		99
PFDoDA	8.591	613.0 -> 569.0	1640239	99.71 µg/L		100
PFHpA	5.602	363.0 -> 319.0	3444074	100.00 µg/L		100
PFHxA	4.765	313.0 -> 269.0	1648949	100.51 µg/L		99
PFHxS	5.636	399.0 -> 80.0	894508	99.55 µg/L	m	100
PFNA	6.887	463.0 -> 419.0	1472543	100.13 µg/L	m	97
PFOA	6.291	413.0 -> 369.0	1914120	100.01 µg/L		100
PFOS	6.861	499.0 -> 80.0	672807	101.48 µg/L	m	98
PFPeA	3.597	263.0 -> 219.0	3478067	99.98 µg/L		100
PFTeDA	10.272	713.0 -> 669.0	608728	99.95 µg/L		99
PFTrDA	9.509	663.0 -> 619.0	746444	102.62 µg/L		100
PFUnDA	7.917	563.0 -> 519.0	1660110	100.65 µg/L		100
ADONA	5.689	377.0 -> 251.0	4593414	100.00 µg/L		100
9Cl-PF3ONS	7.131	531.0 -> 351.0	633743	100.05 µg/L		99
11Cl-PF3OUdS	8.087	631.0 -> 451.0	711615	99.99 µg/L		98
HFPO-DA	5.023	285.0 -> 169.0	168027	99.98 µg/L		99

= Qualifier out of range, m = manually integrated, + = Area summed

7.7.54
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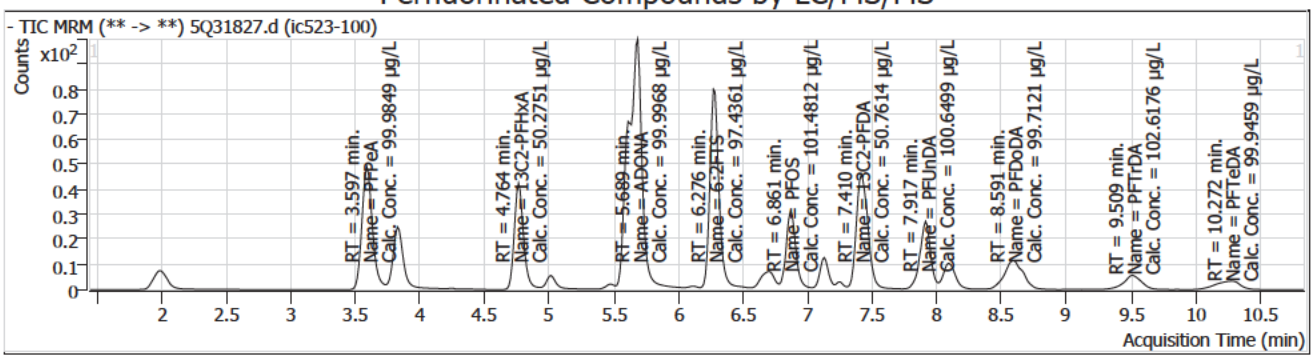
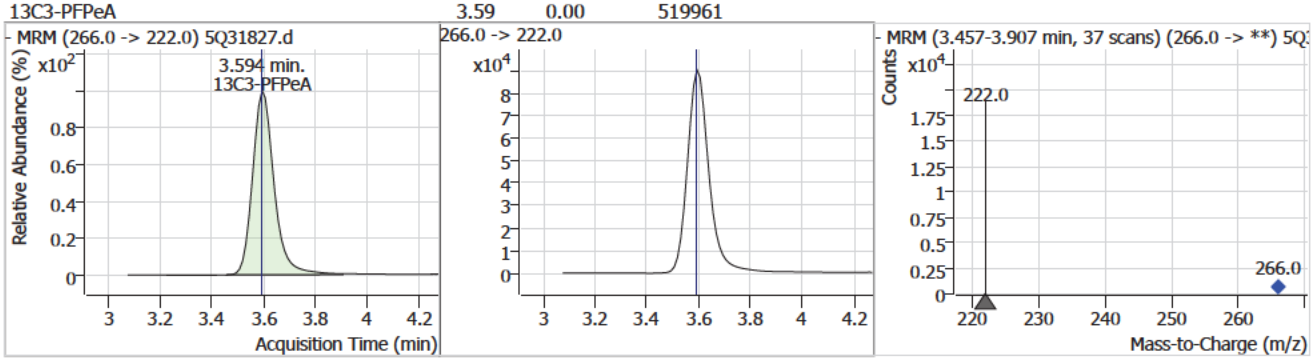
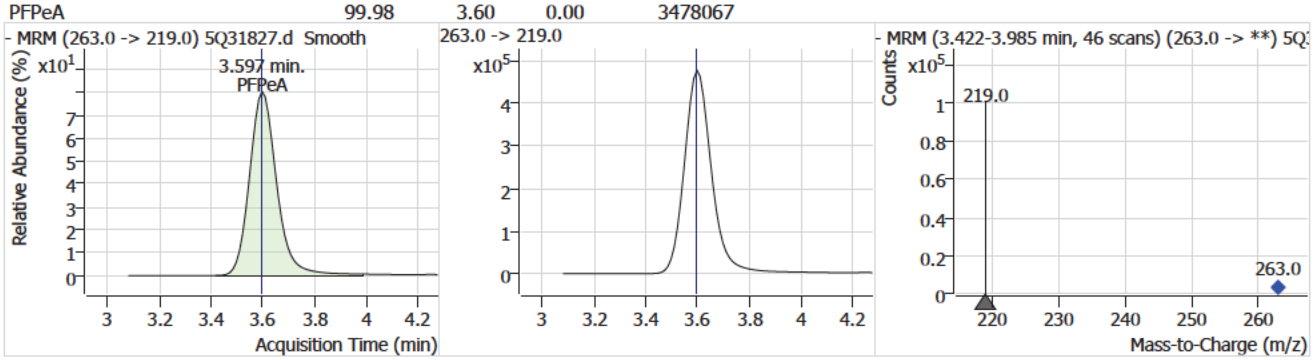
Perfluorinated Compounds by LC/MS/MS



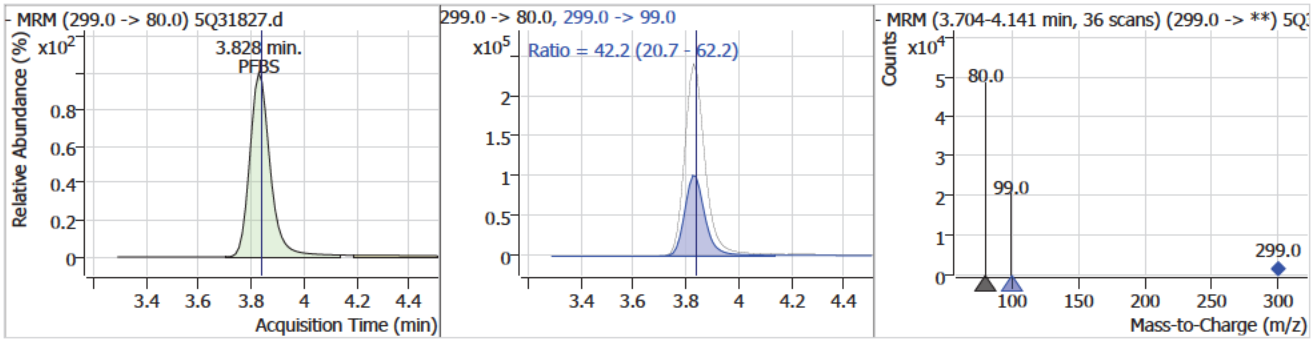
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	519961				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	99.98	3.60	0.00	3478067				

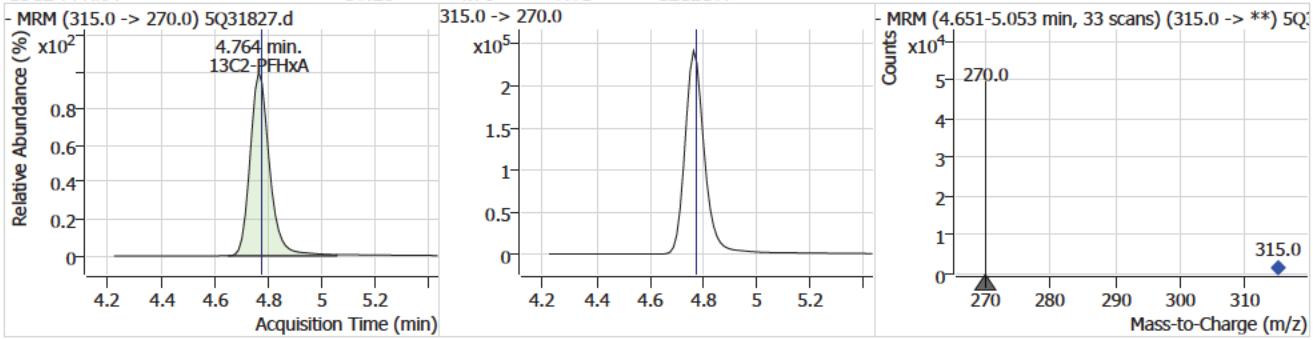


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	99.35	3.83	-0.01	1306437	299.0 -> 99.0	42.2	20.7	62.2

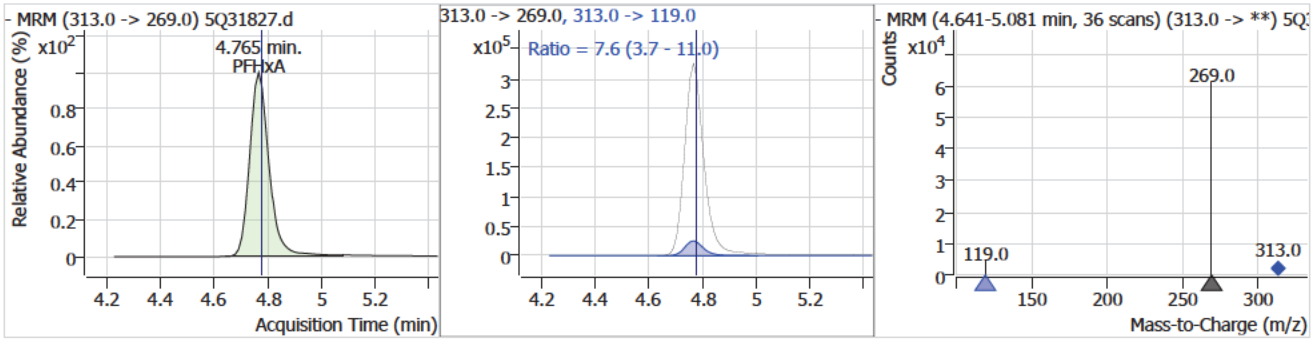


Perfluorinated Compounds by LC/MS/MS

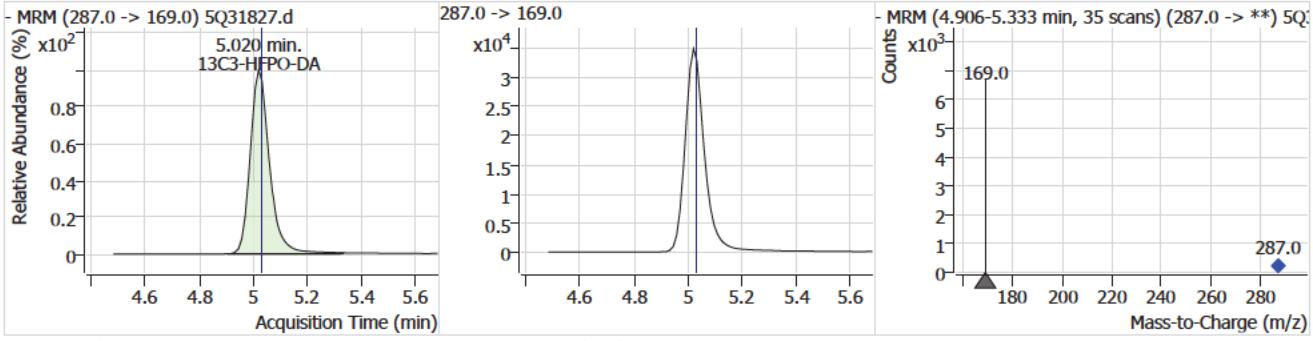
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	50.28	4.76	-0.01	1212107				



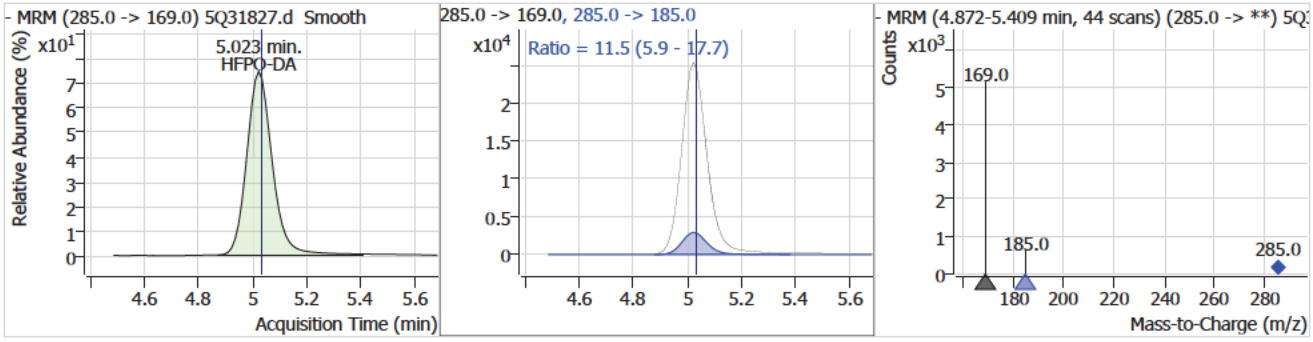
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	100.51	4.77	-0.01	1648949	313.0 -> 119.0	7.6	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	101.47	5.02	-0.01	172873				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	99.98	5.02	-0.01	168027	285.0 -> 185.0	11.5	5.9	17.7



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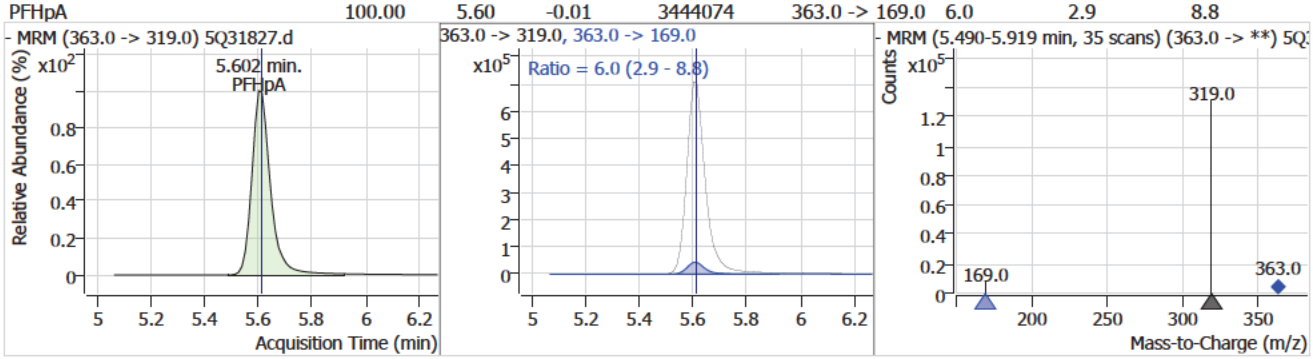
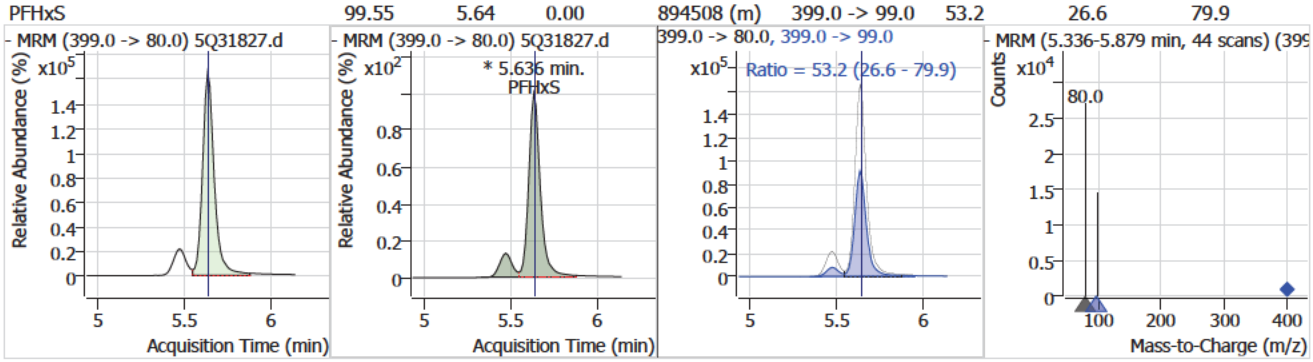
Perfluorinated Compounds by LC/MS/MS

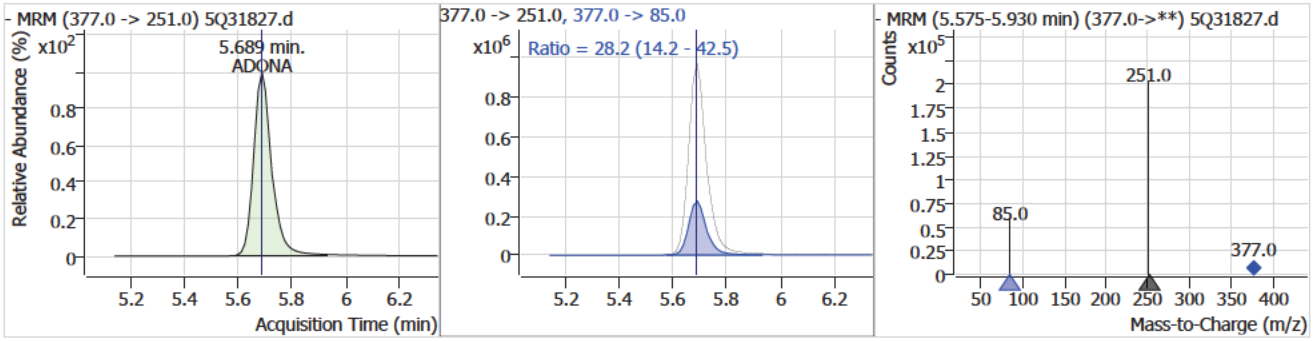
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	100.00	5.60	-0.01	3444074	363.0 -> 169.0	6.0	2.9	8.8



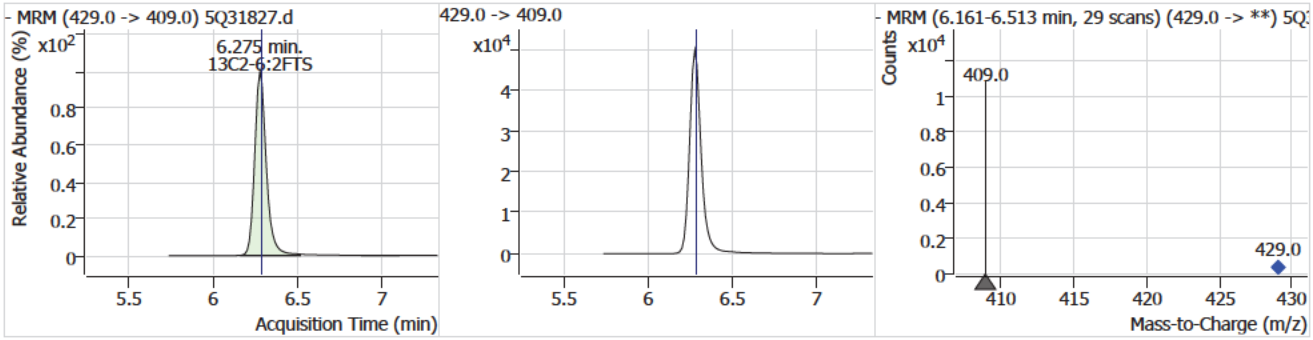
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	99.55	5.64	0.00	894508 (m)	399.0 -> 99.0	53.2	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	100.00	5.69	0.00	4593414	377.0 -> 85.0	28.2	14.2	42.5

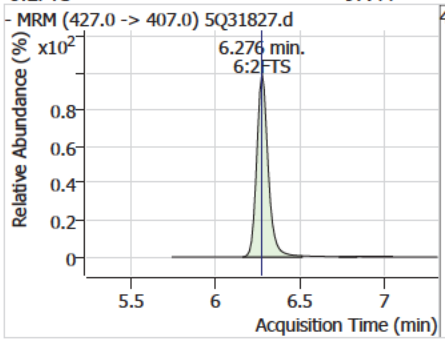


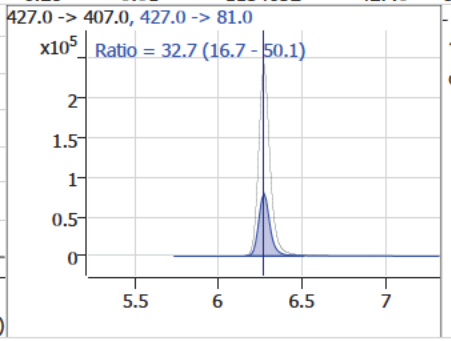
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	236437				

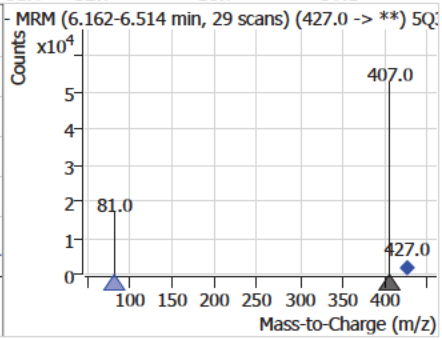


Perfluorinated Compounds by LC/MS/MS

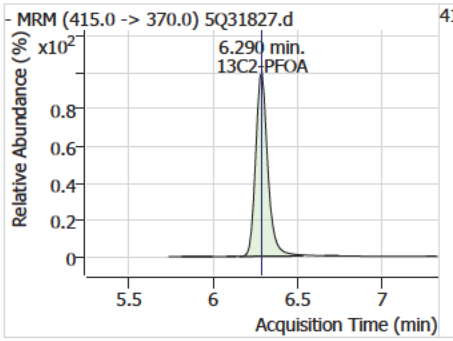
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	97.44	6.28	-0.01	1154652	427.0 -> 81.0	32.7	16.7	50.1

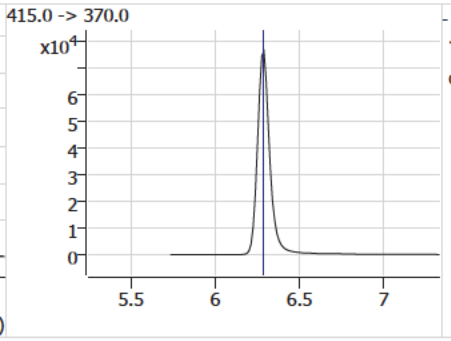


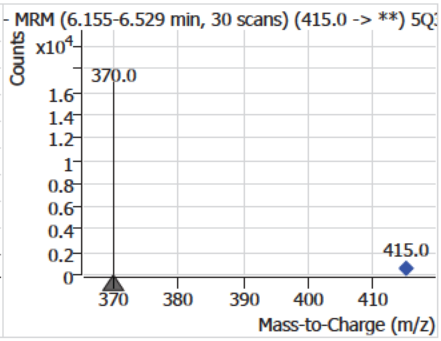




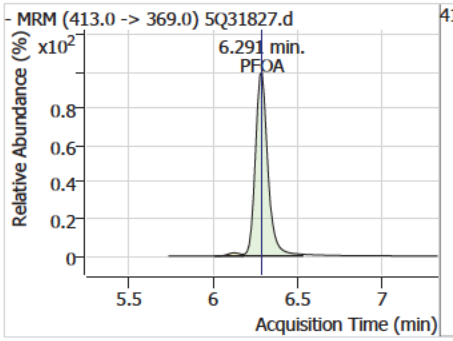
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	380493				

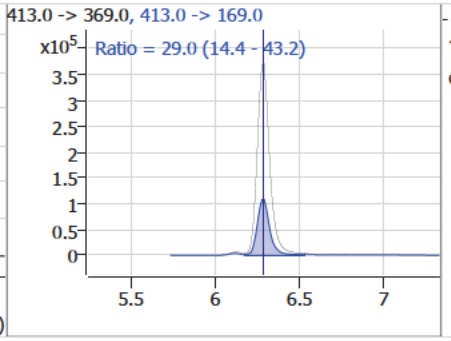


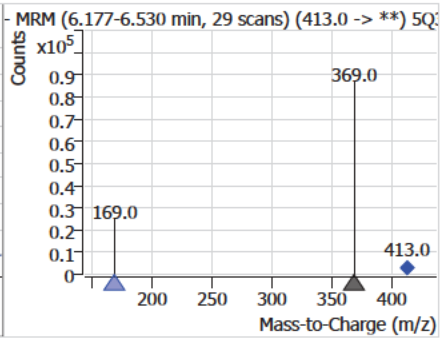




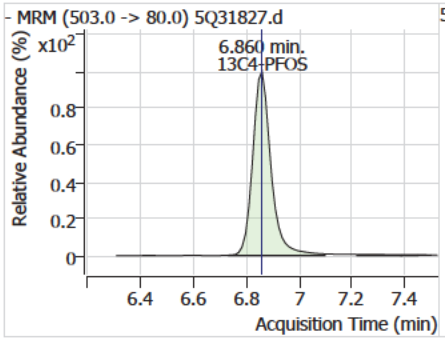
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	100.01	6.29	0.00	1914120	413.0 -> 169.0	29.0	14.4	43.2

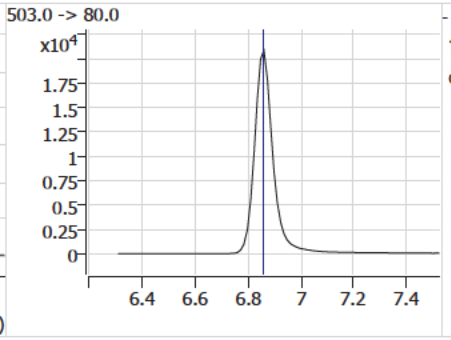


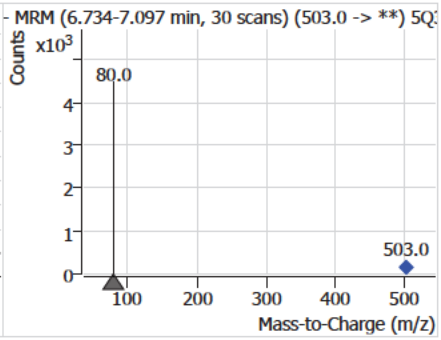




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	100503				

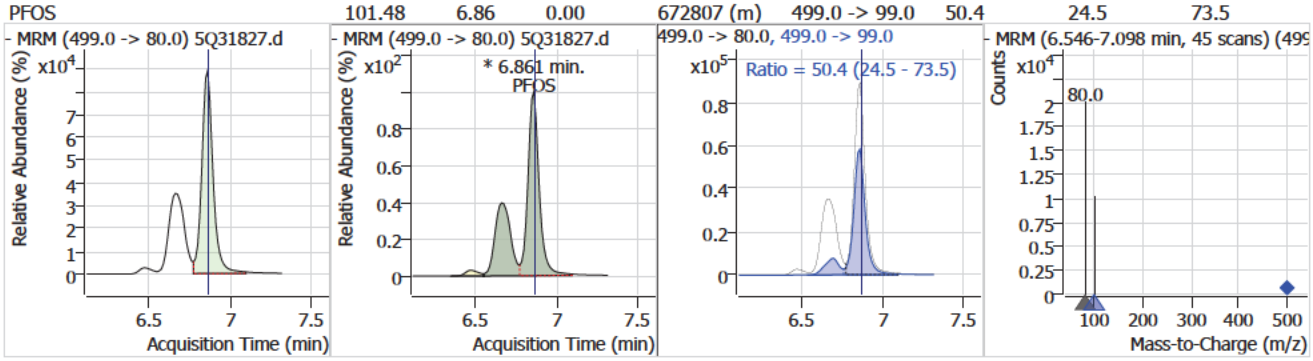




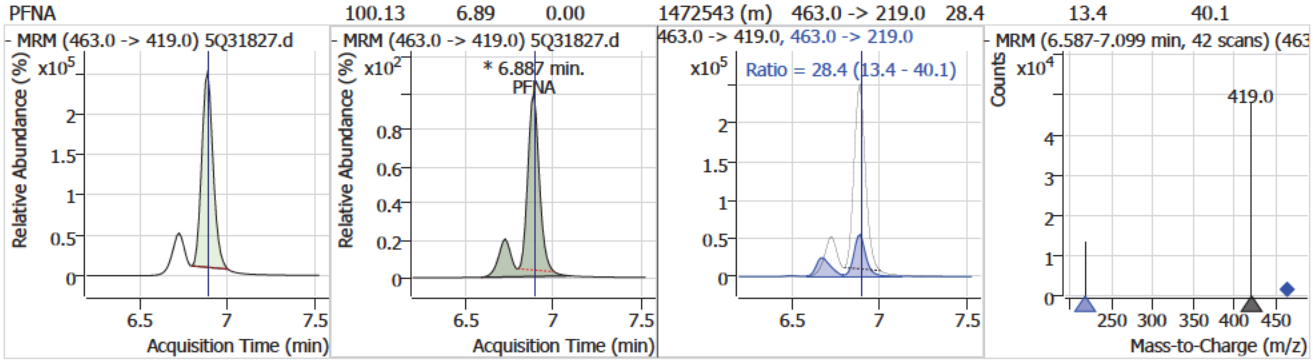


Perfluorinated Compounds by LC/MS/MS

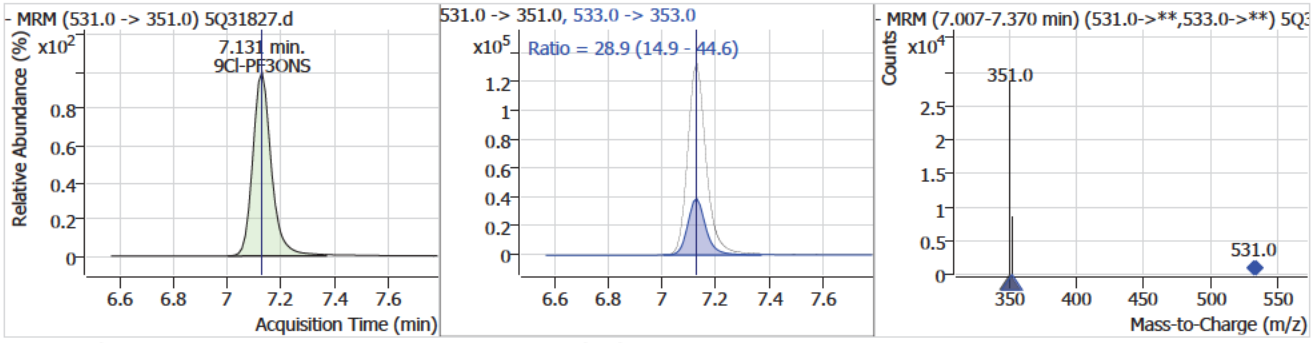
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	101.48	6.86	0.00	672807 (m)	499.0 -> 99.0	50.4	24.5	73.5



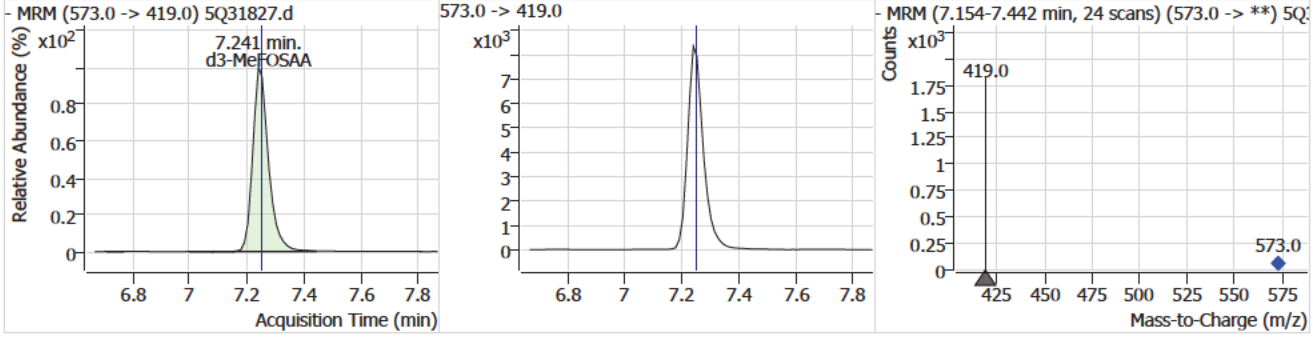
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	100.13	6.89	0.00	1472543 (m)	463.0 -> 219.0	28.4	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	100.05	7.13	0.00	633743	533.0 -> 353.0	28.9	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	31812				



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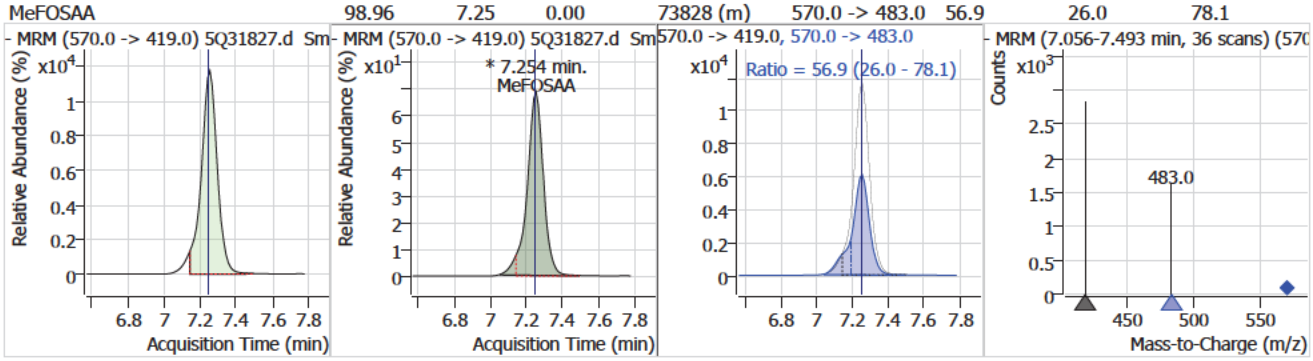
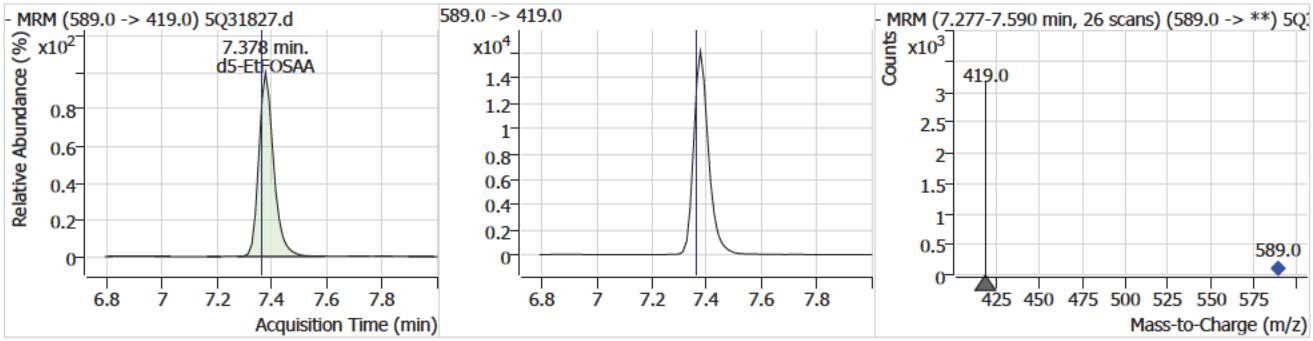
Perfluorinated Compounds by LC/MS/MS

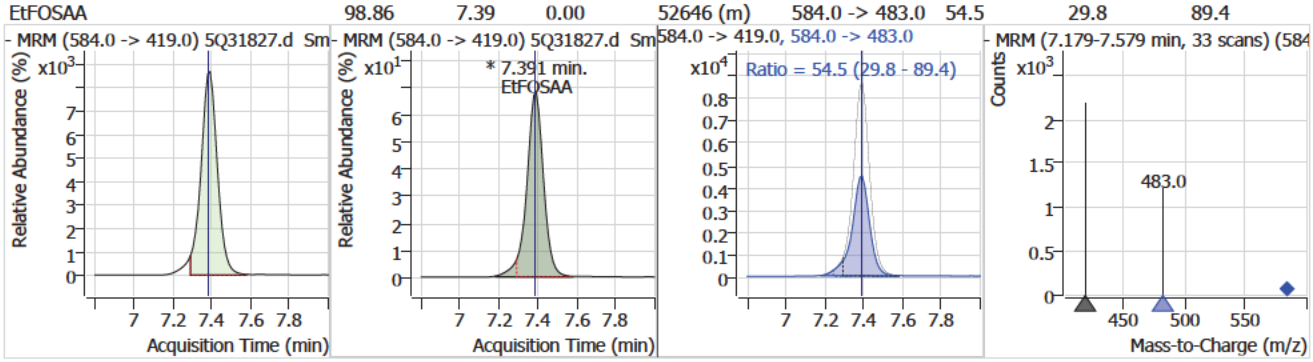
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	98.96	7.25	0.00	73828 (m)	570.0 -> 483.0	56.9	26.0	78.1



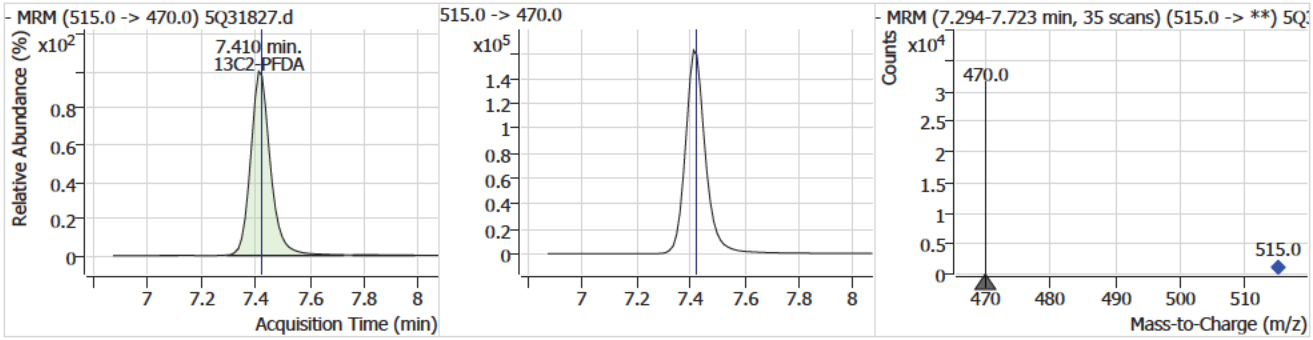
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	99.81	7.38	0.00	60249				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	98.86	7.39	0.00	52646 (m)	584.0 -> 483.0	54.5	29.8	89.4

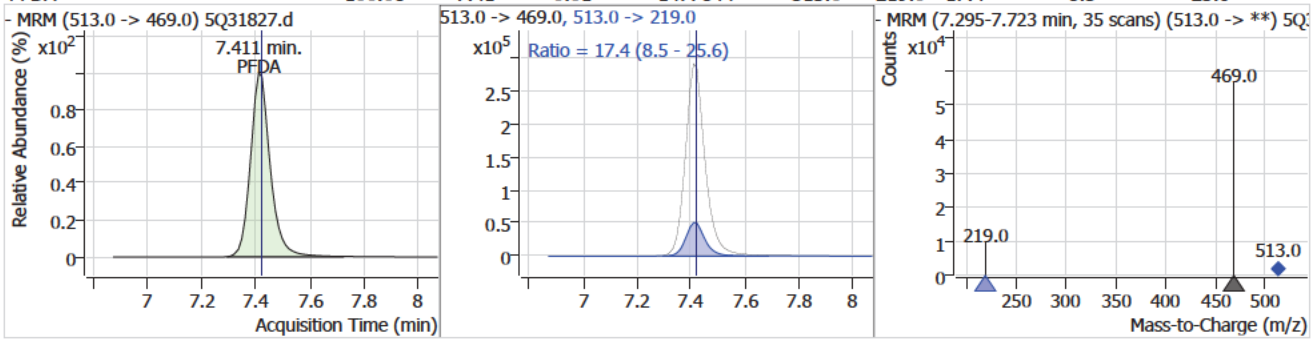


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	50.76	7.41	-0.01	826575				

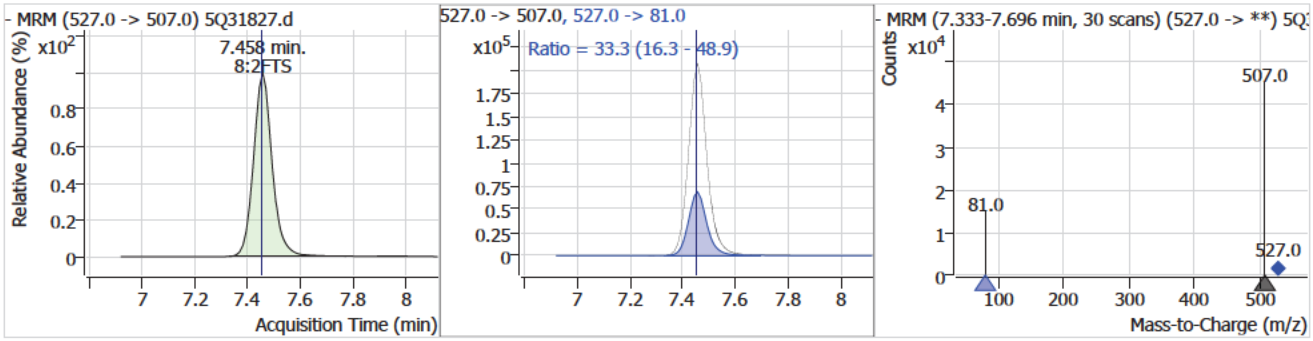


Perfluorinated Compounds by LC/MS/MS

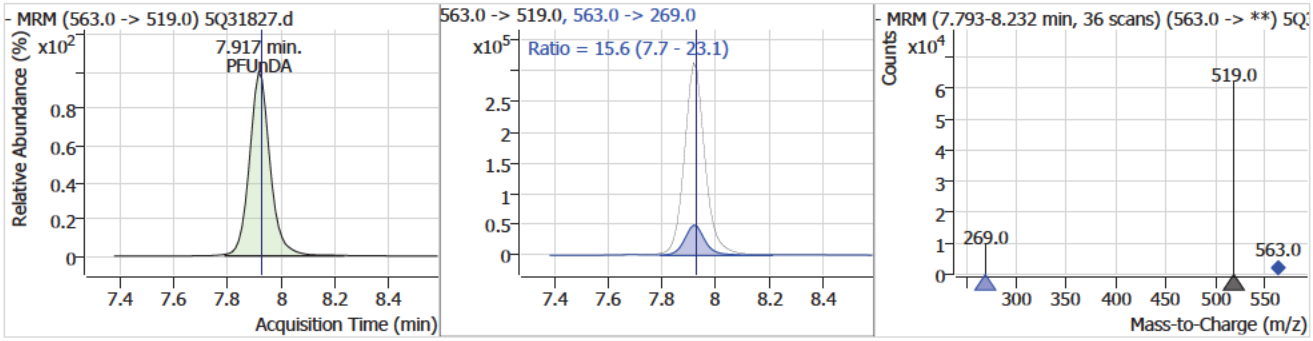
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	100.08	7.41	-0.01	1477844	513.0 -> 219.0	17.4	8.5	25.6



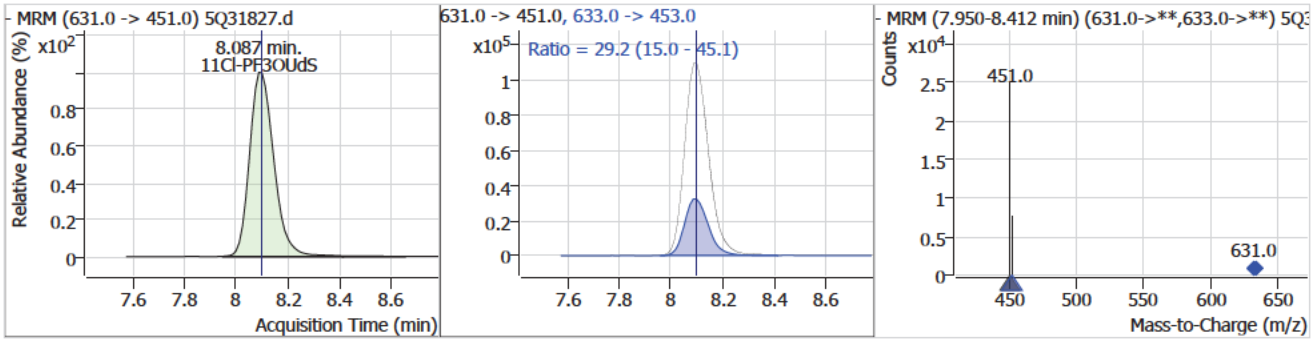
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	98.72	7.46	-0.01	1014930	527.0 -> 81.0	33.3	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	100.65	7.92	-0.01	1660110	563.0 -> 269.0	15.6	7.7	23.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	99.99	8.09	-0.01	711615	633.0 -> 453.0	29.2	15.0	45.1



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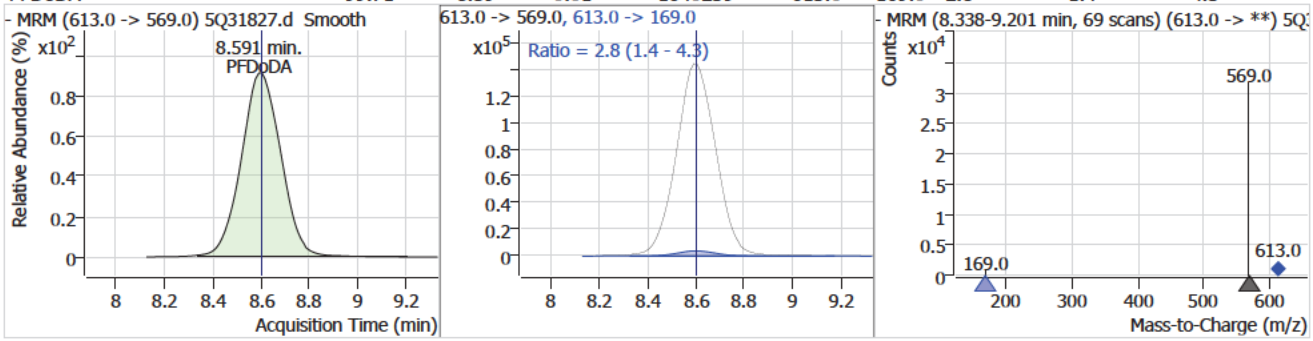
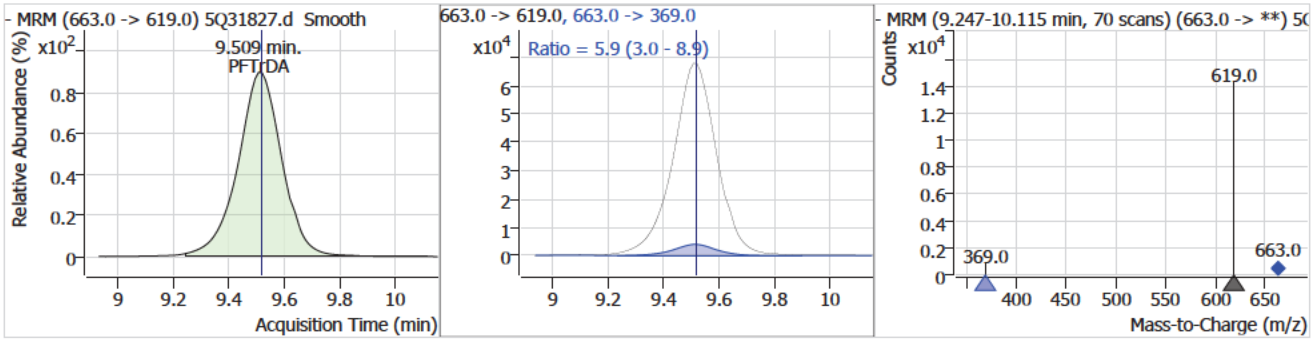
Perfluorinated Compounds by LC/MS/MS

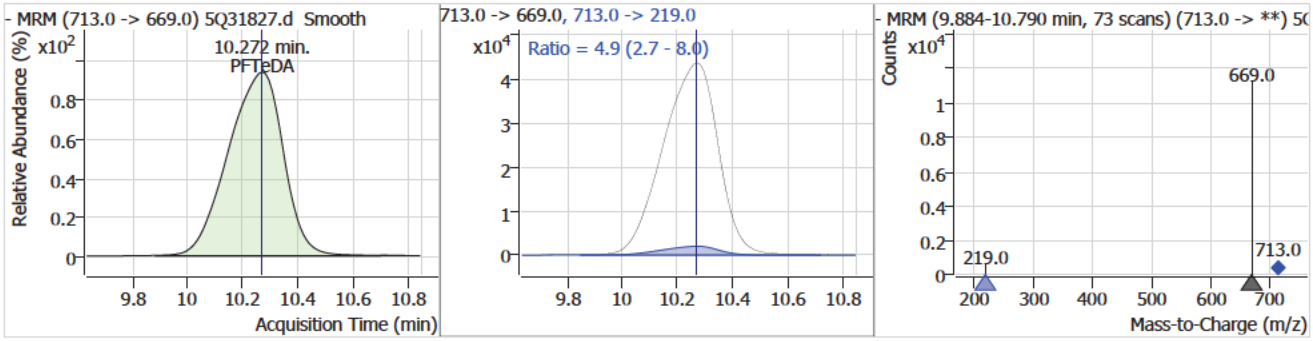
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	99.71	8.59	-0.01	1640239	613.0 -> 169.0	2.8	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	102.62	9.51	-0.01	746444	663.0 -> 369.0	5.9	3.0	8.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	99.95	10.27	0.00	608728	713.0 -> 219.0	4.9	2.7	8.0



Manual Integration Approval Summary

Sample Number: S5Q523-IC523
Lab FileID: 5Q31827.D
Injection Time: 04/17/25 14:34
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6) [redacted]
Supervisor approved: 04/18/25 11:00 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Cal Report: 5Q31828.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31828.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 2:50:37 PM
Sample Name : icv523-20
Vial : P1-B1
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.275	429.0 -> 409.0	199433	20.00	µg/L		-0.012
13C2-PFOA	6.290	415.0 -> 370.0	407022	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	511537	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	96913	20.00	µg/L		0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	30673	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.435	515.0 -> 470.0	0		µg/L	m	0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C2-PFHxA	4.751	315.0 -> 270.0	0		µg/L	m	-0.025
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
d5-EtFOSAA	7.378	589.0 -> 419.0	0		µg/L	m	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	0		µg/L	m	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
Target Compounds							QValue
6:2FTS	6.276	427.0 -> 407.0	204752	20.48	µg/L		99
8:2FTS	7.471	527.0 -> 507.0	178824	20.62	µg/L		100
EtFOSAA	7.391	584.0 -> 419.0	10110	19.69	µg/L	m	96
MeFOSAA	7.254	570.0 -> 419.0	13328	19.27	µg/L	m	99
PFBS	3.828	299.0 -> 80.0	230840	18.20	µg/L		99
PFDA	7.423	513.0 -> 469.0	274943	18.93	µg/L		100
PFDoDA	8.604	613.0 -> 569.0	363204	25.44	µg/L		100
PFHpA	5.615	363.0 -> 319.0	683772	20.48	µg/L		100
PFHxA	4.765	313.0 -> 269.0	310467	17.69	µg/L		100
PFHxS	5.636	399.0 -> 80.0	139365	17.65	µg/L	m	99
PFNA	6.887	463.0 -> 419.0	312100	23.57	µg/L		89
PFOA	6.291	413.0 -> 369.0	396109	20.41	µg/L		98
PFOS	6.861	499.0 -> 80.0	115931	18.13	µg/L	m	92
PFPeA	3.597	263.0 -> 219.0	664327	20.16	µg/L		100
PFTeDA	10.272	713.0 -> 669.0	98511	19.80	µg/L		99
PFTrDA	9.509	663.0 -> 619.0	177271	25.27	µg/L		100
PFUnDA	7.930	563.0 -> 519.0	353943	22.25	µg/L		99
ADONA	5.689	377.0 -> 251.0	793286	18.42	µg/L		99
9Cl-PF3ONS	7.131	531.0 -> 351.0	102524	18.63	µg/L		97
11Cl-PF3OUdS	8.100	631.0 -> 451.0	120882	20.63	µg/L		99
HFPO-DA	5.023	285.0 -> 169.0	31309	19.69	µg/L		99

= Qualifier out of range, m = manually integrated, + = Area summed

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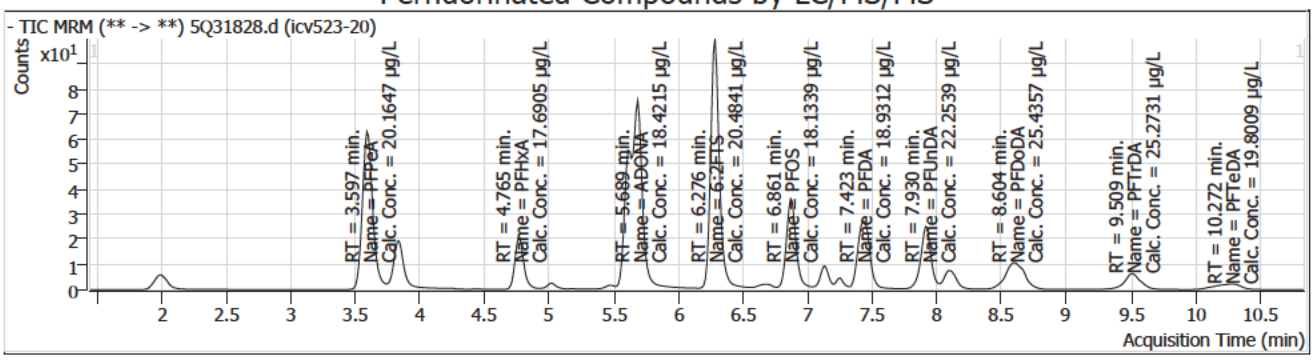
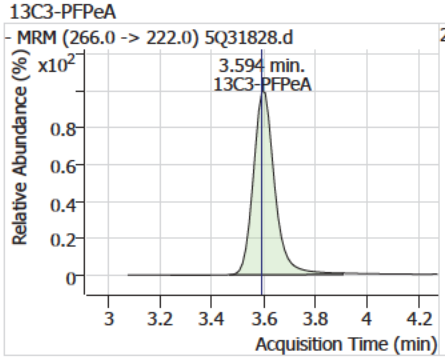
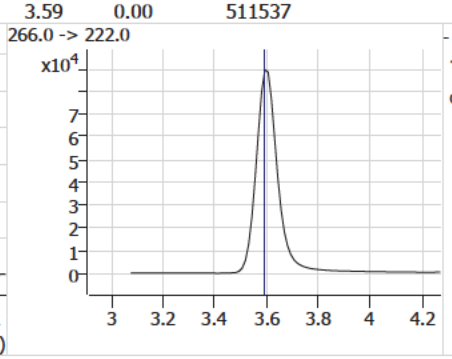
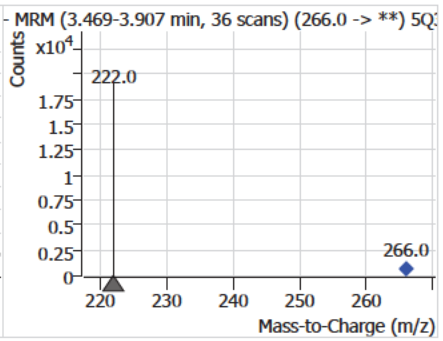
Perfluorinated Compounds by LC/MS/MS



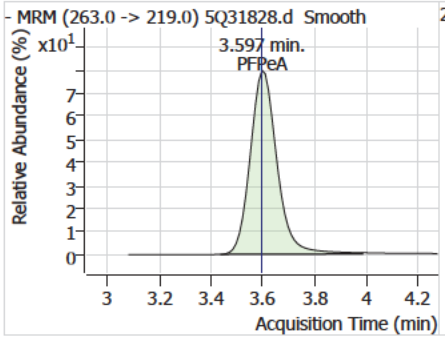
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	511537				

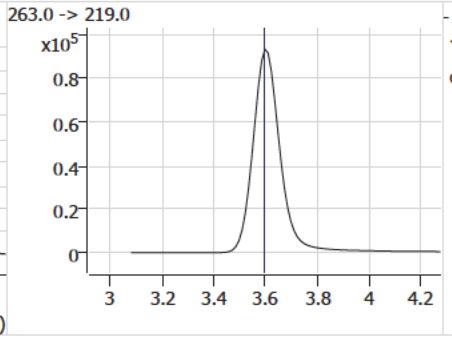


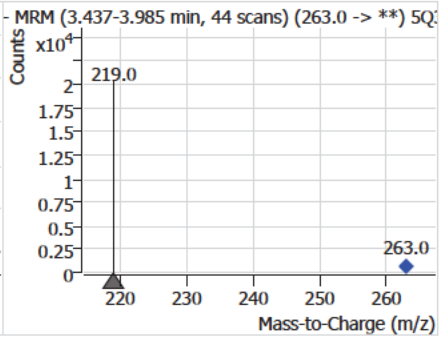




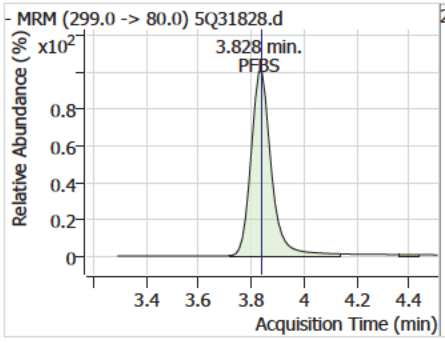
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.16	3.60	0.00	664327				

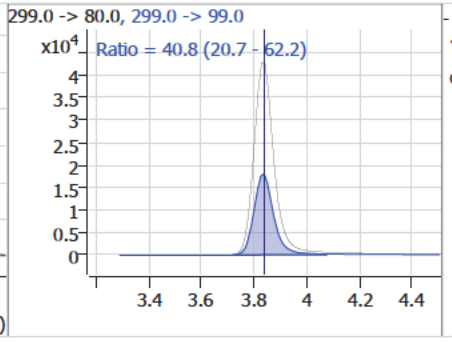


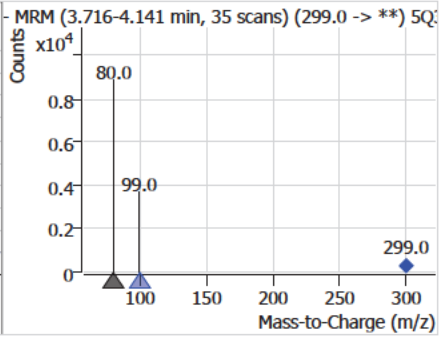




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	18.20	3.83	-0.01	230840	299.0 -> 99.0	40.8	20.7	62.2







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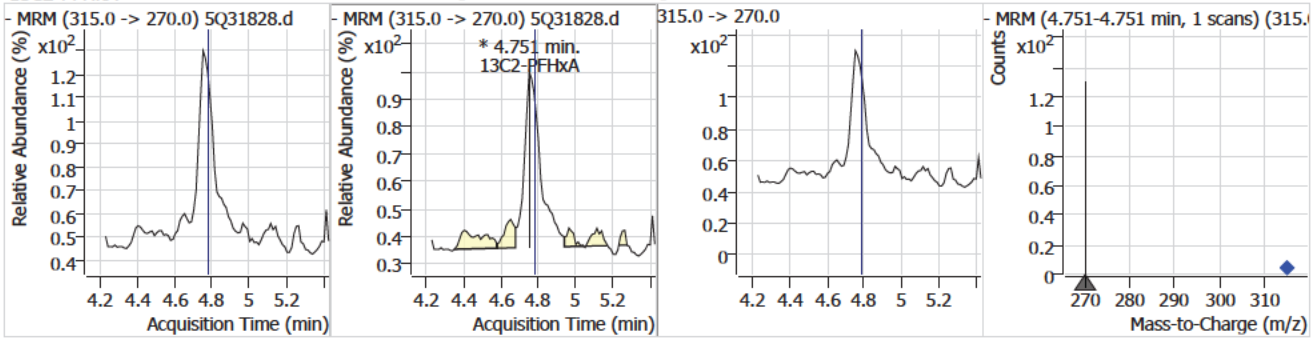
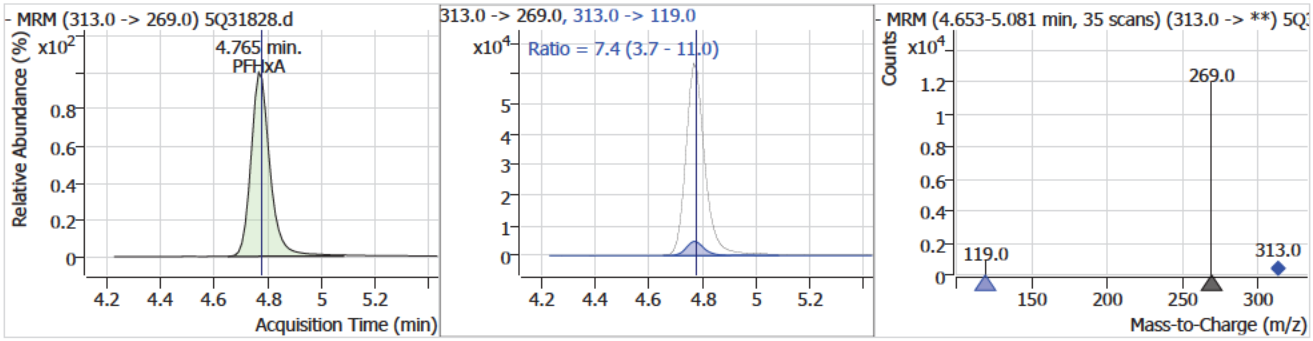
Perfluorinated Compounds by LC/MS/MS

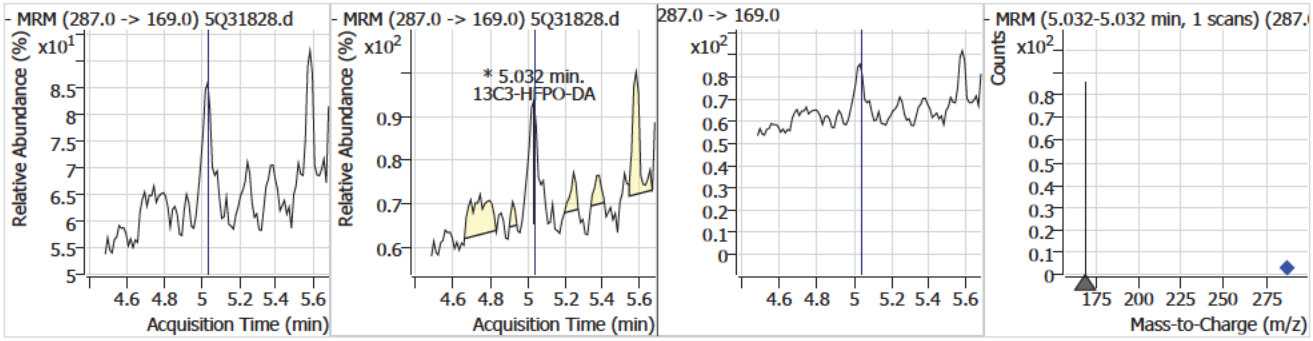
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA		0		0				



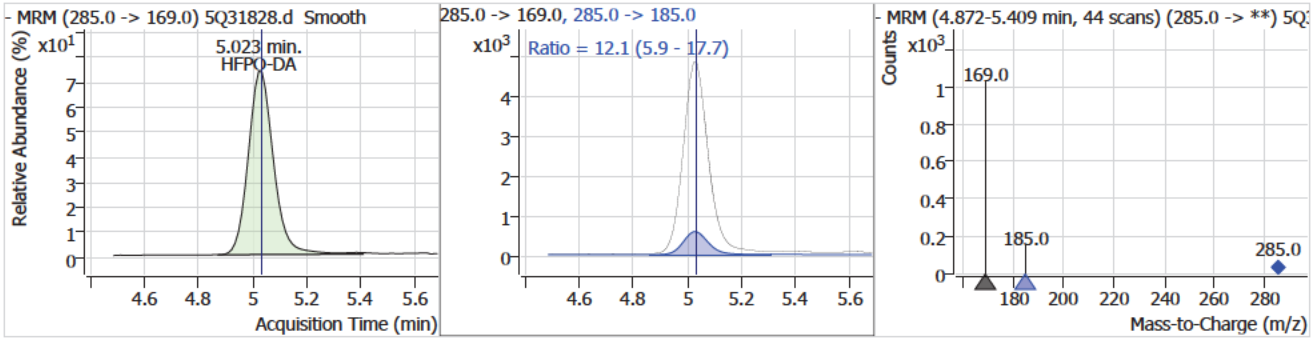
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	17.69	4.77	-0.01	310467	313.0 -> 119.0	7.4	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA		0		0				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.69	5.02	-0.01	31309	285.0 -> 185.0	12.1	5.9	17.7



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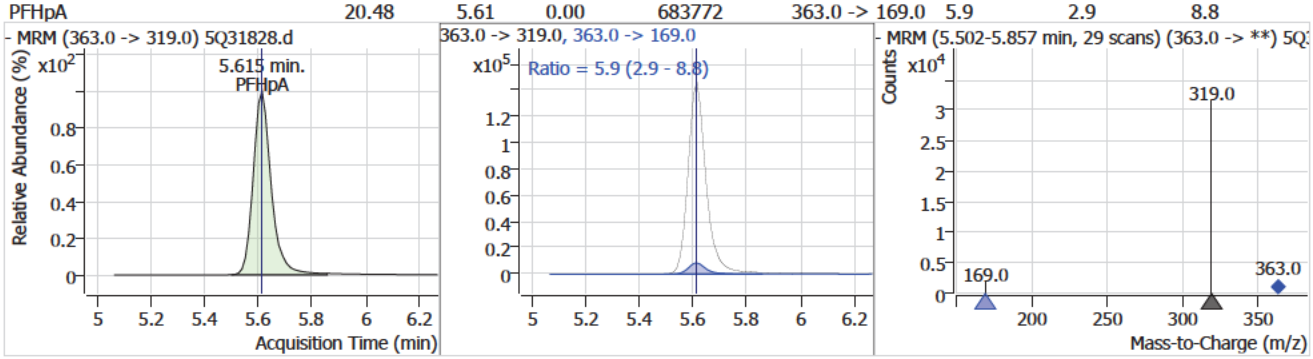
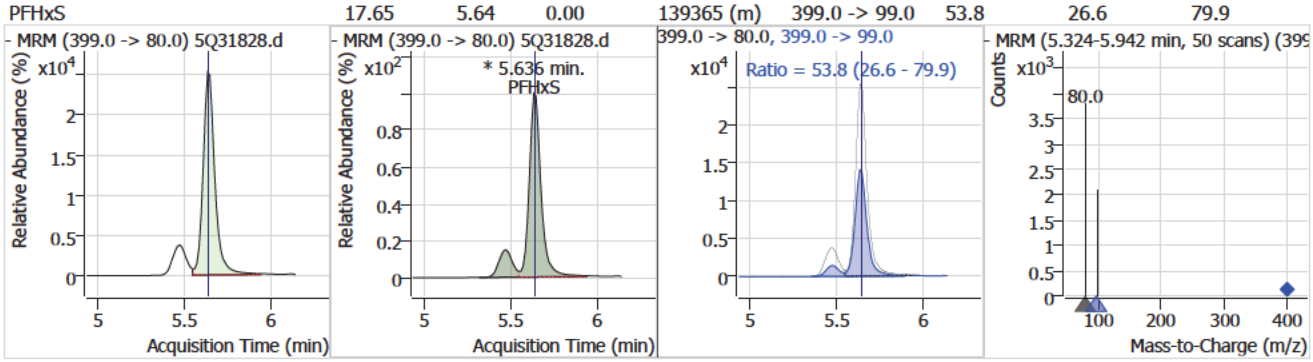
Perfluorinated Compounds by LC/MS/MS

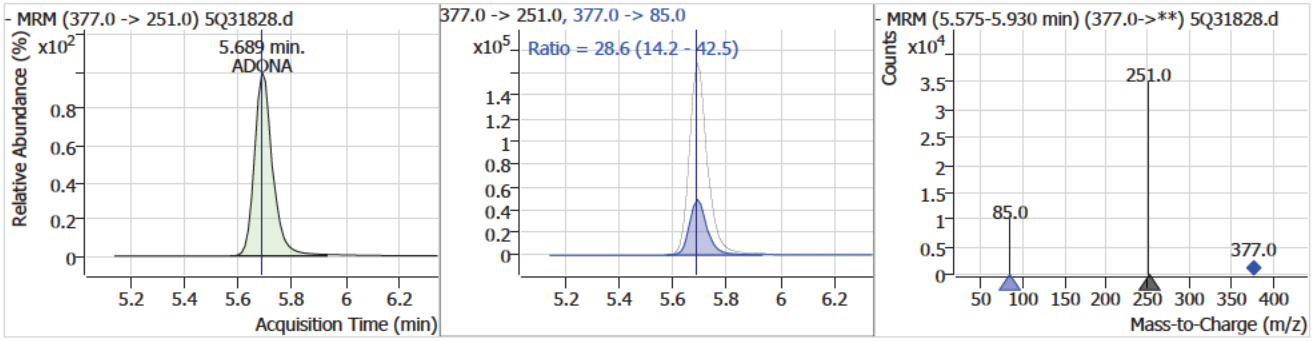
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.48	5.61	0.00	683772	363.0 -> 169.0	5.9	2.9	8.8



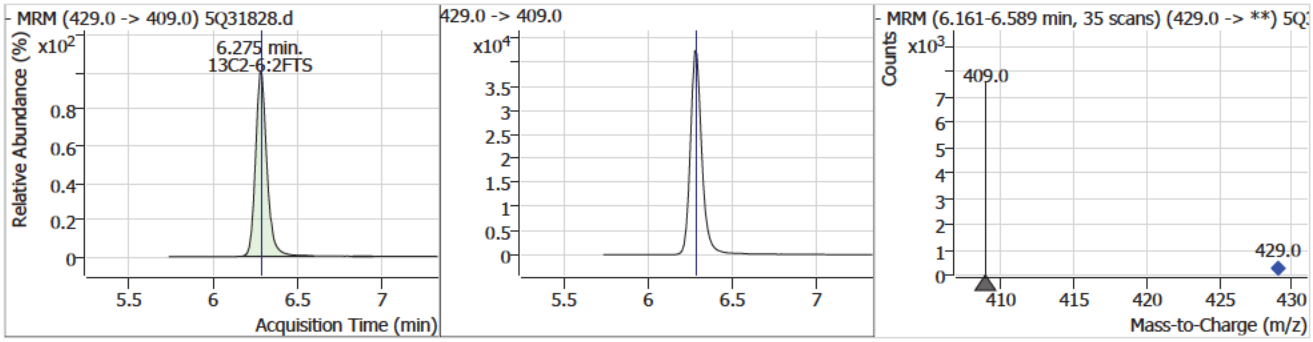
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	17.65	5.64	0.00	139365 (m)	399.0 -> 99.0	53.8	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	18.42	5.69	0.00	793286	377.0 -> 85.0	28.6	14.2	42.5

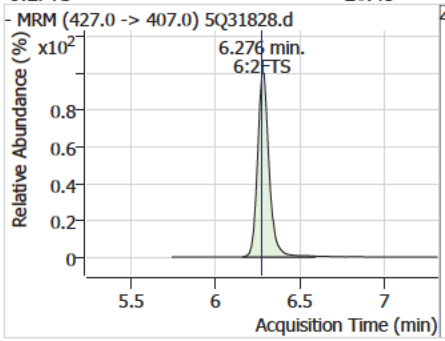


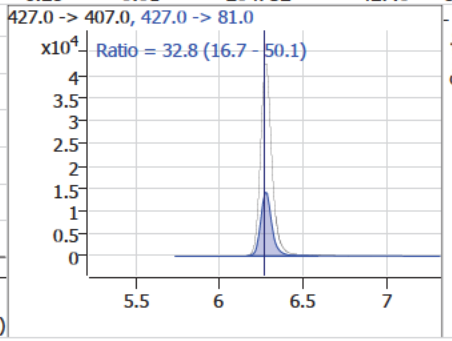
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	199433				

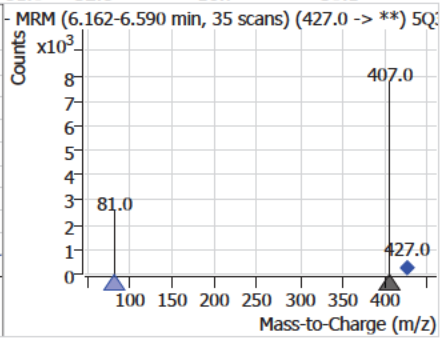


Perfluorinated Compounds by LC/MS/MS

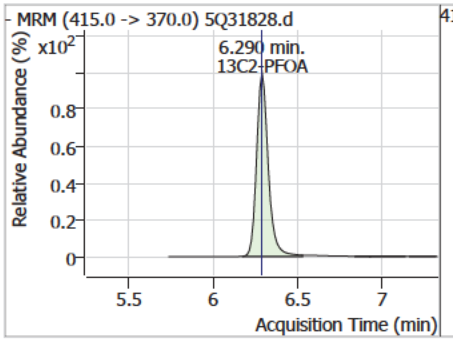
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	20.48	6.28	-0.01	204752	427.0 -> 81.0	32.8	16.7	50.1

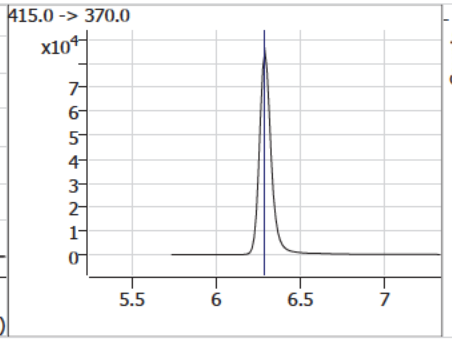


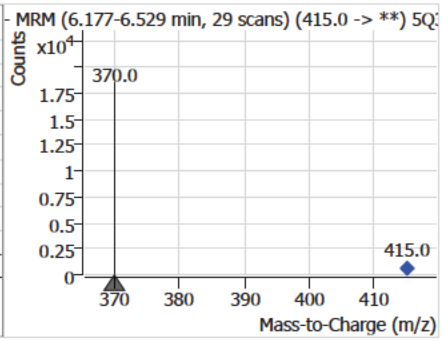




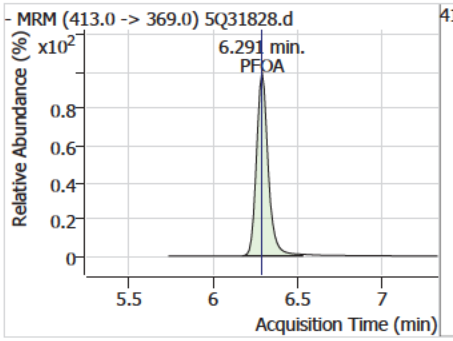
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	407022				

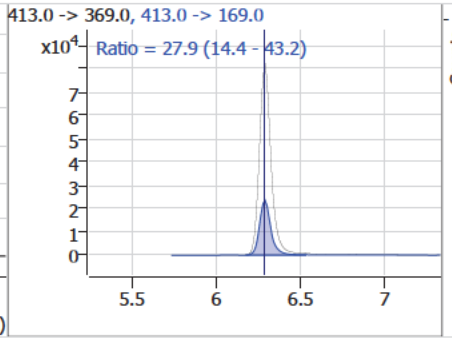


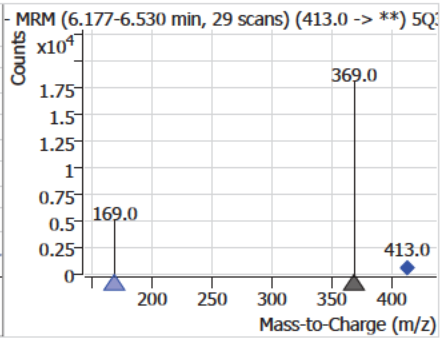




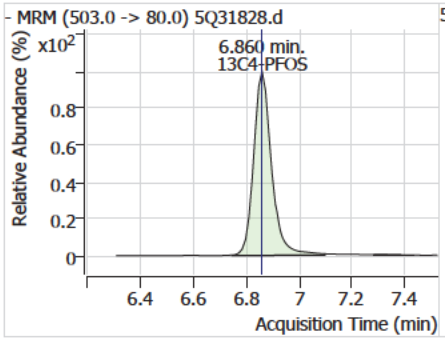
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.41	6.29	0.00	396109	413.0 -> 169.0	27.9	14.4	43.2

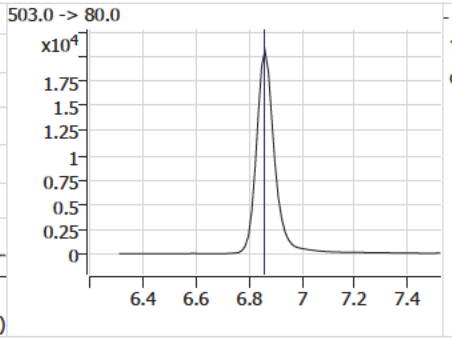


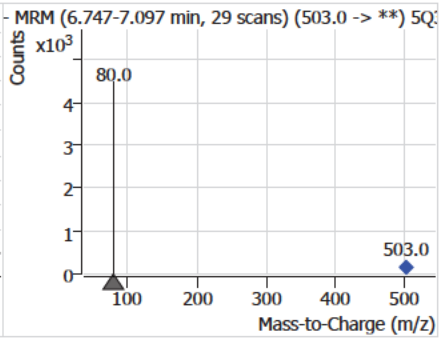




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	96913				

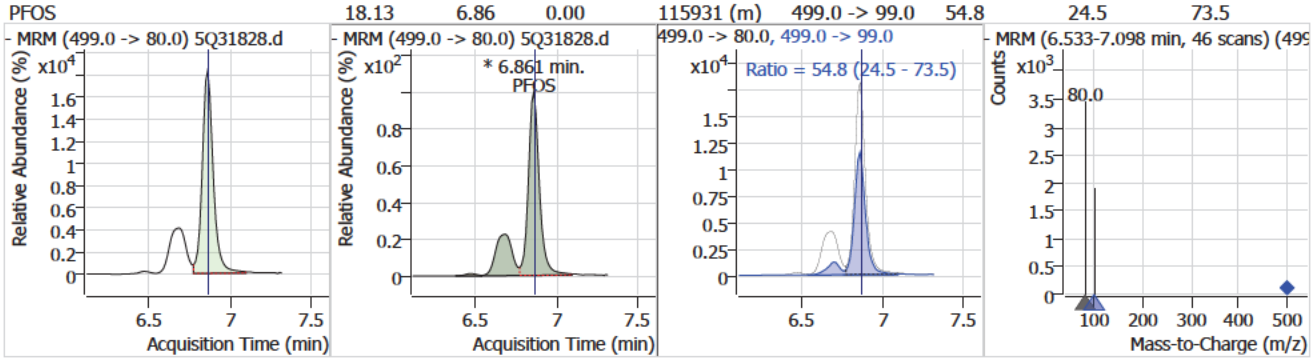




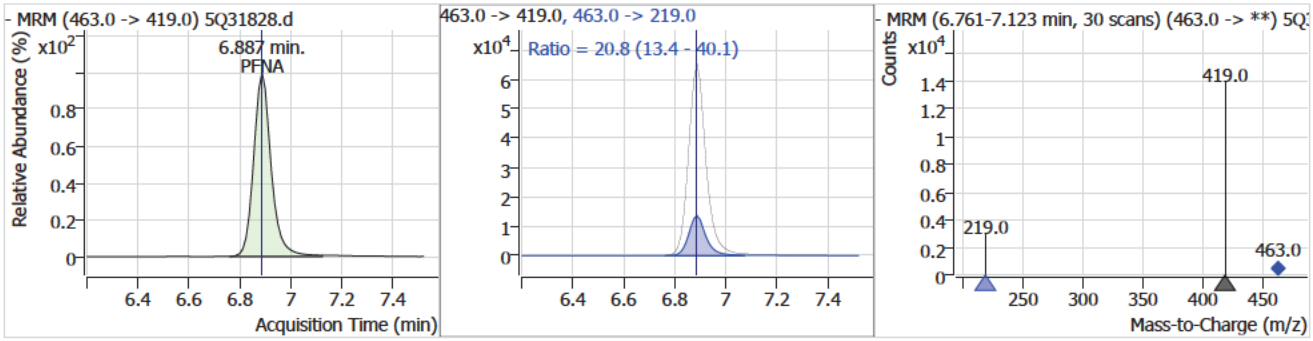


Perfluorinated Compounds by LC/MS/MS

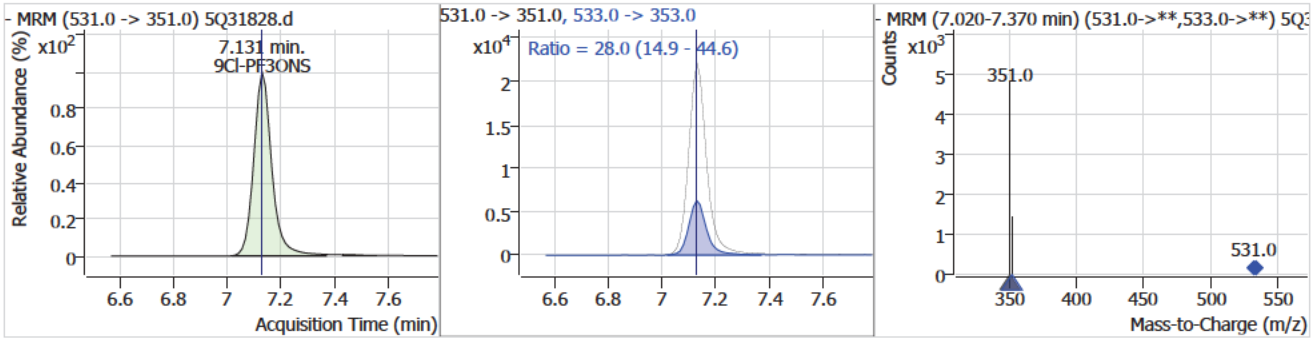
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.13	6.86	0.00	115931 (m)	499.0 -> 99.0	54.8	24.5	73.5



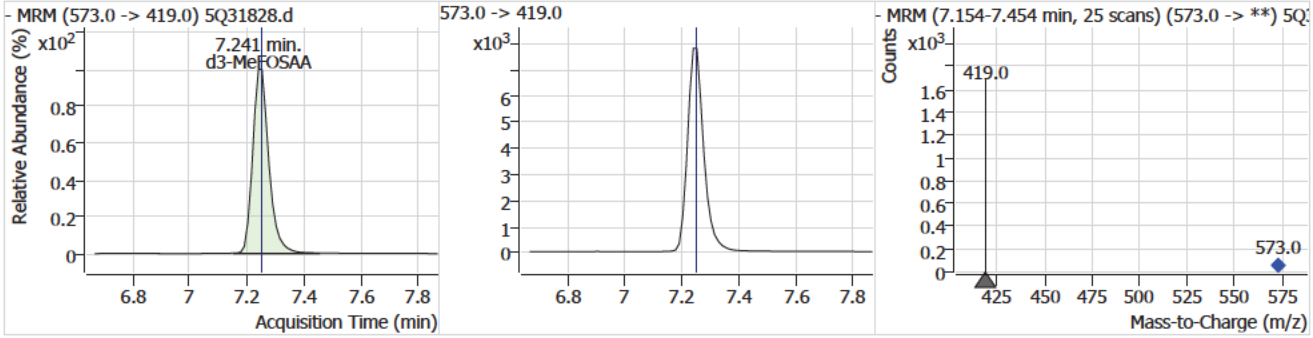
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	23.57	6.89	0.00	312100	463.0 -> 219.0	20.8	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	18.63	7.13	0.00	102524	533.0 -> 353.0	28.0	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	30673				



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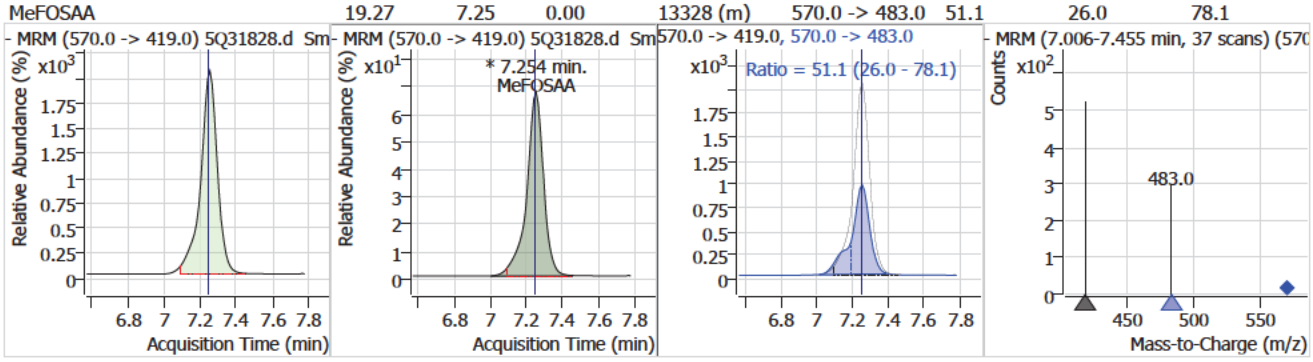
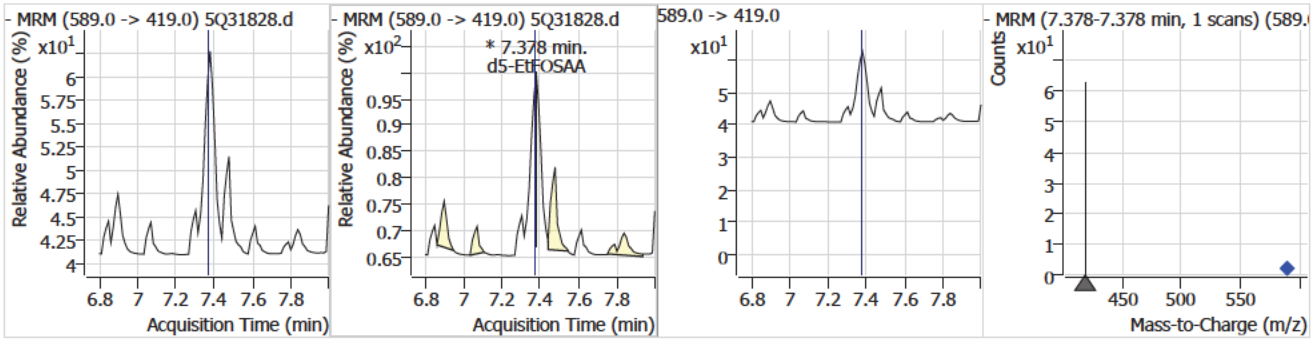
Perfluorinated Compounds by LC/MS/MS

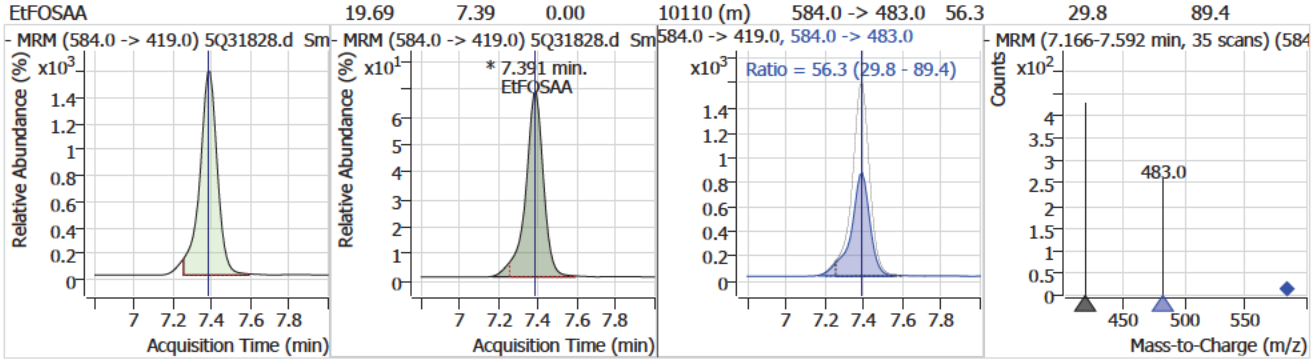
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.27	7.25	0.00	13328 (m)	570.0 -> 483.0	51.1	26.0	78.1



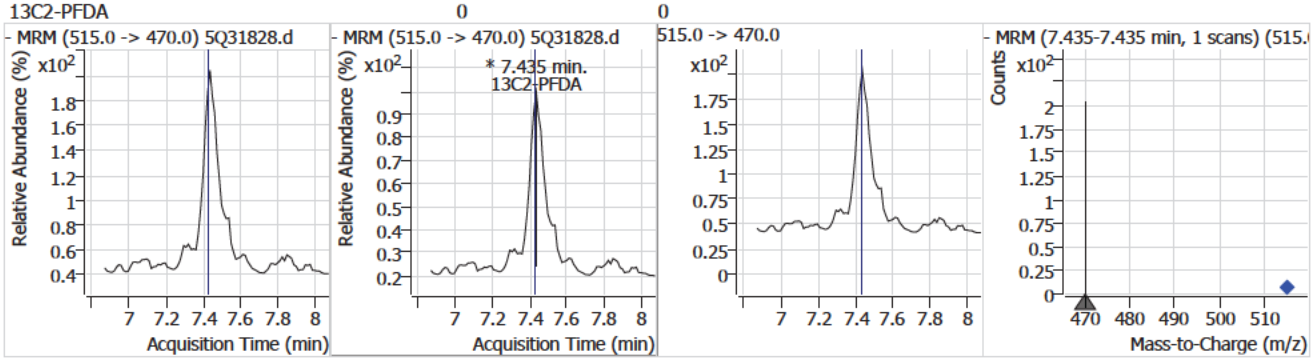
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA		0		0				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.69	7.39	0.00	10110 (m)	584.0 -> 483.0	56.3	29.8	89.4

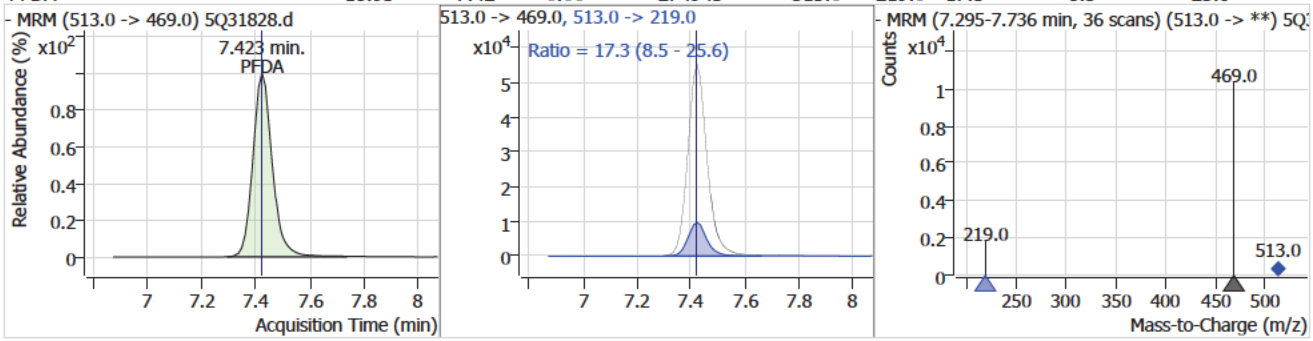


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA		0		0				

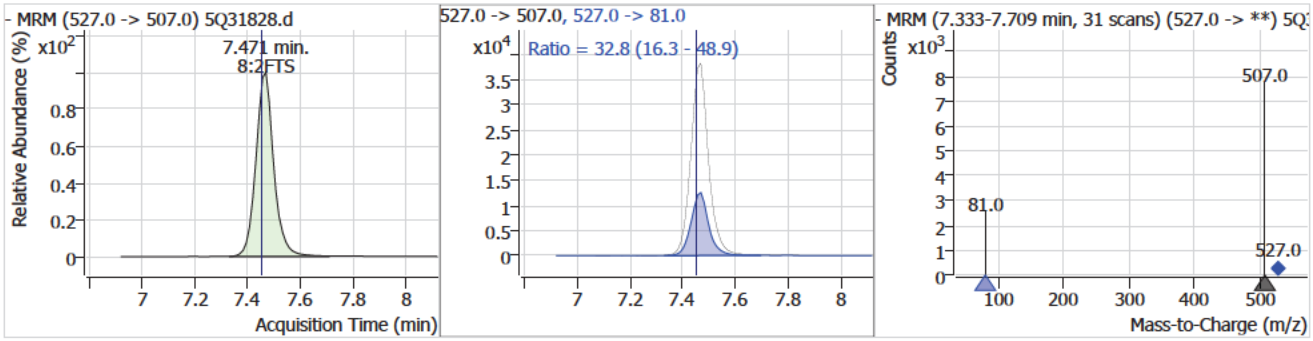


Perfluorinated Compounds by LC/MS/MS

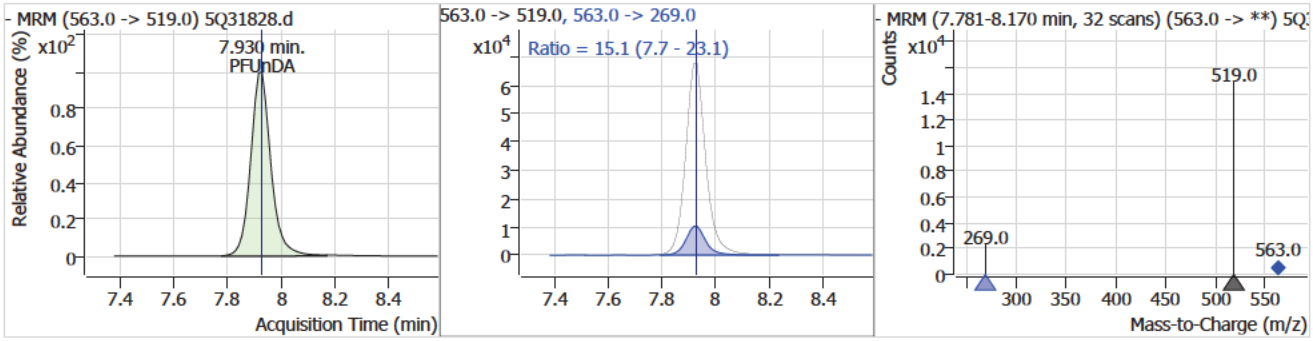
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	18.93	7.42	0.00	274943	513.0 -> 219.0	17.3	8.5	25.6



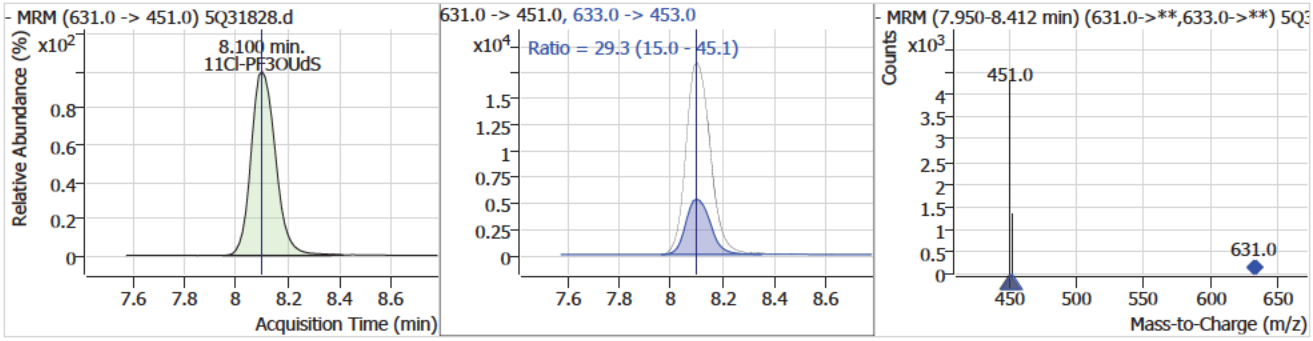
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	20.62	7.47	0.00	178824	527.0 -> 81.0	32.8	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	22.25	7.93	0.00	353943	563.0 -> 269.0	15.1	7.7	23.1

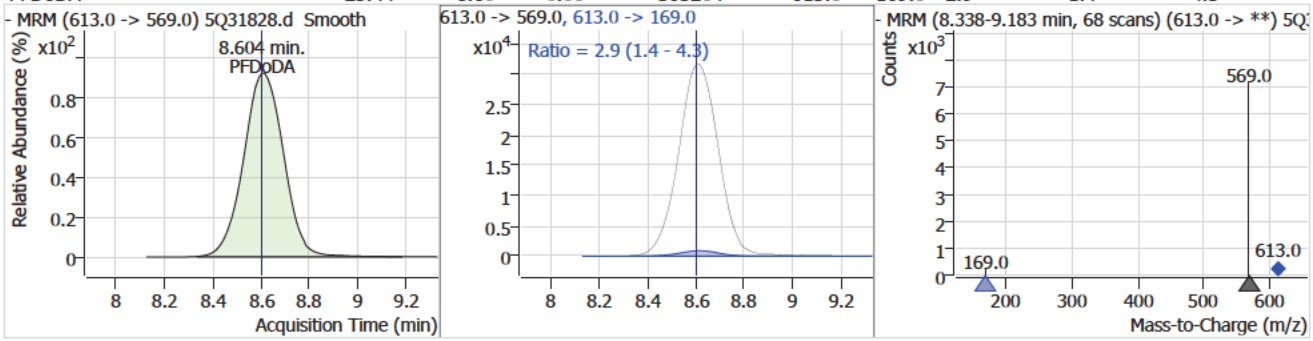


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	20.63	8.10	0.00	120882	633.0 -> 453.0	29.3	15.0	45.1

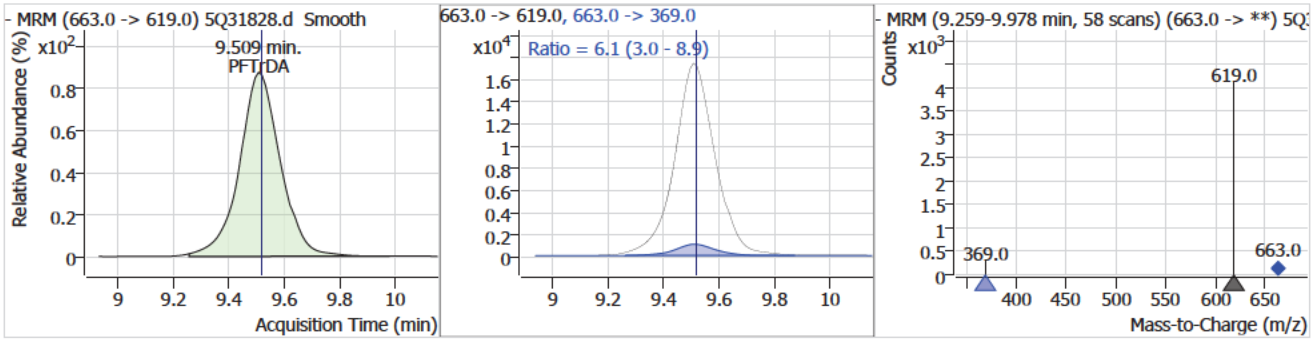


Perfluorinated Compounds by LC/MS/MS

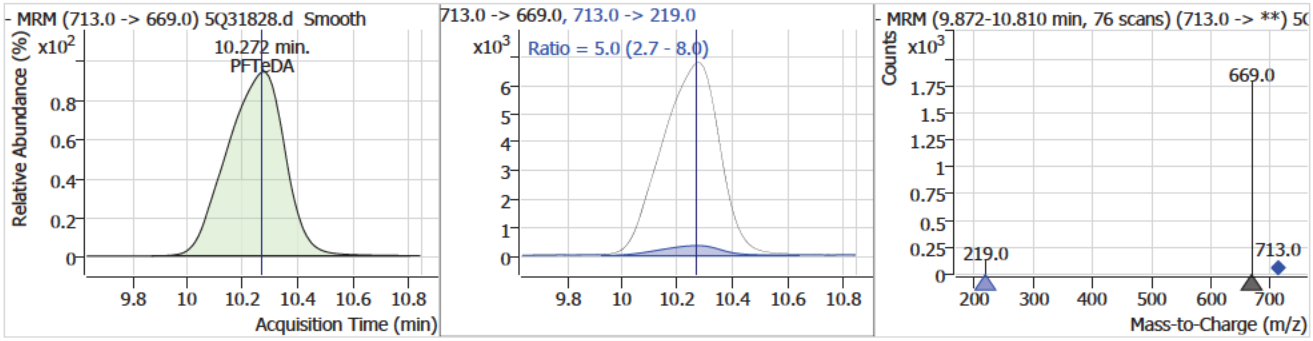
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	25.44	8.60	0.00	363204	613.0 -> 169.0	2.9	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	25.27	9.51	-0.01	177271	663.0 -> 369.0	6.1	3.0	8.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.80	10.27	0.00	98511	713.0 -> 219.0	5.0	2.7	8.0



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Manual Integration Approval Summary

Sample Number: S5Q523-ICV523
Lab FileID: 5Q31828.D
Injection Time: 04/17/25 14:50
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6) [redacted]
Supervisor approved: 04/18/25 11:00 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Cal Report: 5Q31830.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31830.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 3:23:28 PM
Sample Name : cc523-20
Vial : P1-A7
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.275	429.0 -> 409.0	201547	20.00 µg/L		-0.012
13C2-PFOA	6.290	415.0 -> 370.0	421900	20.00 µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	512699	20.00 µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	100208	20.00 µg/L		0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	32420	40.00 µg/L		-0.012
System Monitoring Compounds						
13C2-PFDA	7.422	515.0 -> 470.0	165298	9.15 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 45.8%		
13C2-PFHxA	4.764	315.0 -> 270.0	250929	9.39 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 46.9%		
d5-EtFOSAA	7.378	589.0 -> 419.0	11922	19.38 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 48.4%		
13C3-HFPO-DA	5.020	287.0 -> 169.0	33446	17.71 µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 44.3%		
Target Compounds						QValue
6:2FTS	6.276	427.0 -> 407.0	237827	23.54 µg/L		97
8:2FTS	7.458	527.0 -> 507.0	185195	21.13 µg/L		98
EtFOSAA	7.391	584.0 -> 419.0	11244	20.72 µg/L	m	86
MeFOSAA	7.254	570.0 -> 419.0	13703	18.75 µg/L	m	84
PFBS	3.828	299.0 -> 80.0	272245	20.76 µg/L		99
PFDA	7.423	513.0 -> 469.0	308601	20.47 µg/L		99
PFDoDA	8.604	613.0 -> 569.0	290730	19.86 µg/L		99
PFHpA	5.615	363.0 -> 319.0	676030	19.56 µg/L		100
PFHxA	4.765	313.0 -> 269.0	339925	18.69 µg/L		100
PFHxS	5.636	399.0 -> 80.0	164168	20.05 µg/L	m	99
PFNA	6.887	463.0 -> 419.0	293061	21.46 µg/L	m	99
PFOA	6.291	413.0 -> 369.0	408261	20.30 µg/L		99
PFOS	6.861	499.0 -> 80.0	123281	18.65 µg/L	m	97
PFPeA	3.597	263.0 -> 219.0	665277	20.15 µg/L		100
PFTeDA	10.272	713.0 -> 669.0	102020	19.83 µg/L		100
PFTrDA	9.522	663.0 -> 619.0	119168	16.43 µg/L		100
PFUnDA	7.930	563.0 -> 519.0	323403	19.67 µg/L		99
ADONA	5.689	377.0 -> 251.0	877750	19.62 µg/L		98
9Cl-PF3ONS	7.131	531.0 -> 351.0	114980	20.08 µg/L		99
11Cl-PF3OUdS	8.100	631.0 -> 451.0	122027	20.13 µg/L		100
HFPO-DA	5.023	285.0 -> 169.0	32924	19.97 µg/L		98

= Qualifier out of range, m = manually integrated, + = Area summed

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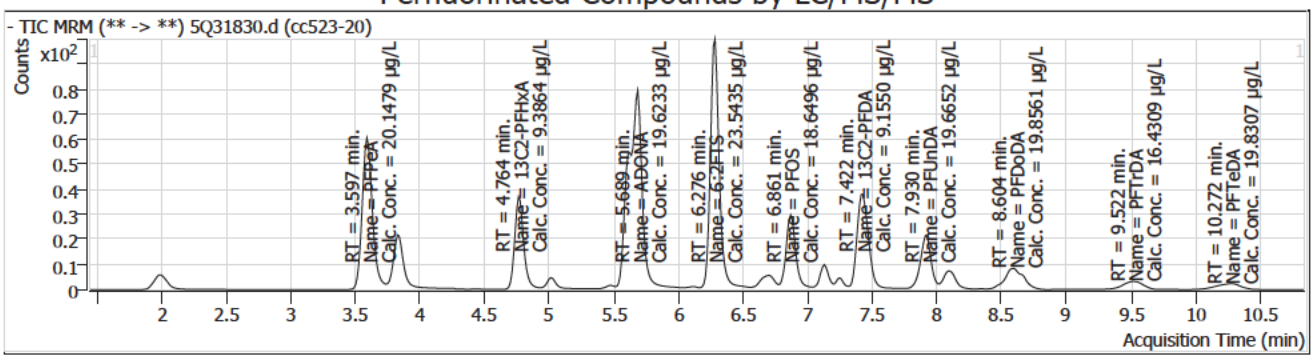
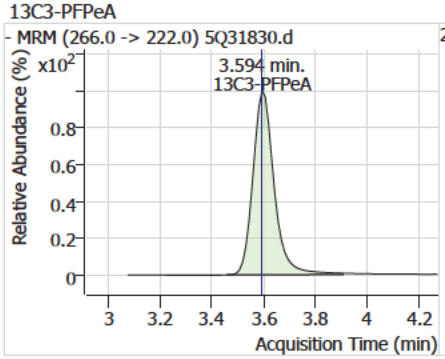
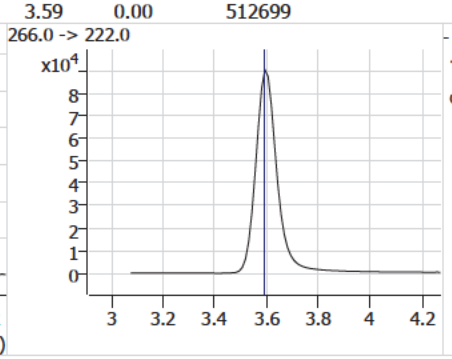
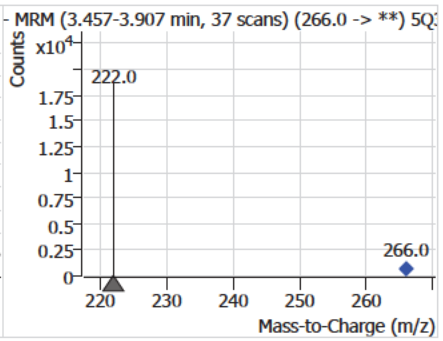
Perfluorinated Compounds by LC/MS/MS



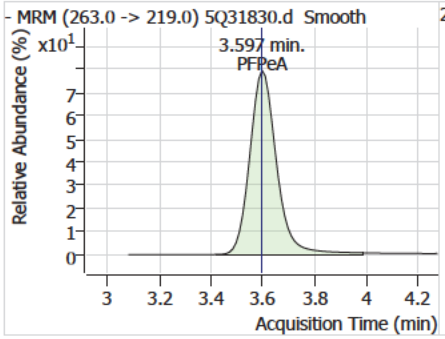
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	512699				

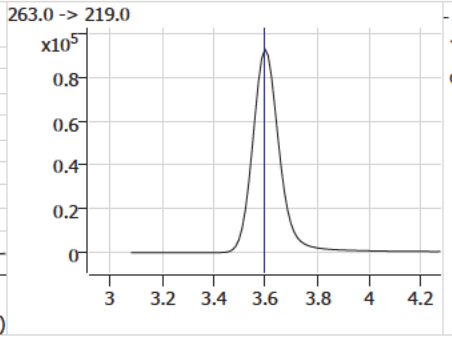


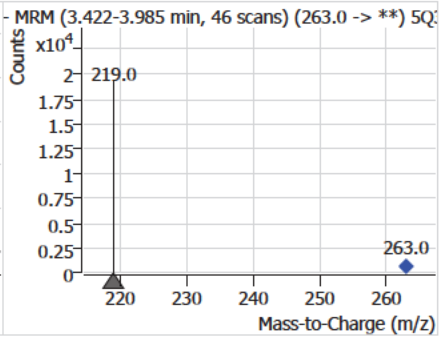




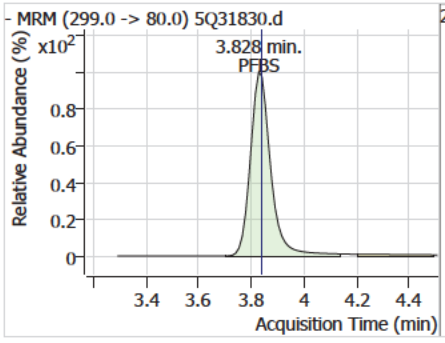
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.15	3.60	0.00	665277				

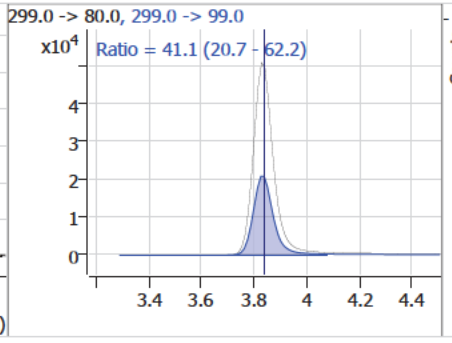


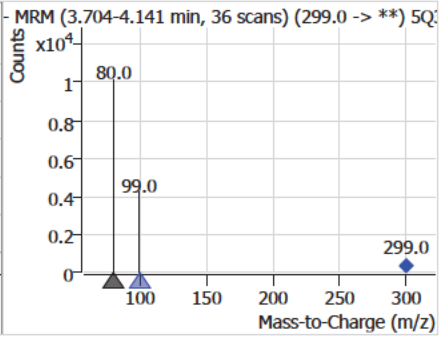




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.76	3.83	-0.01	272245	299.0 -> 99.0	41.1	20.7	62.2

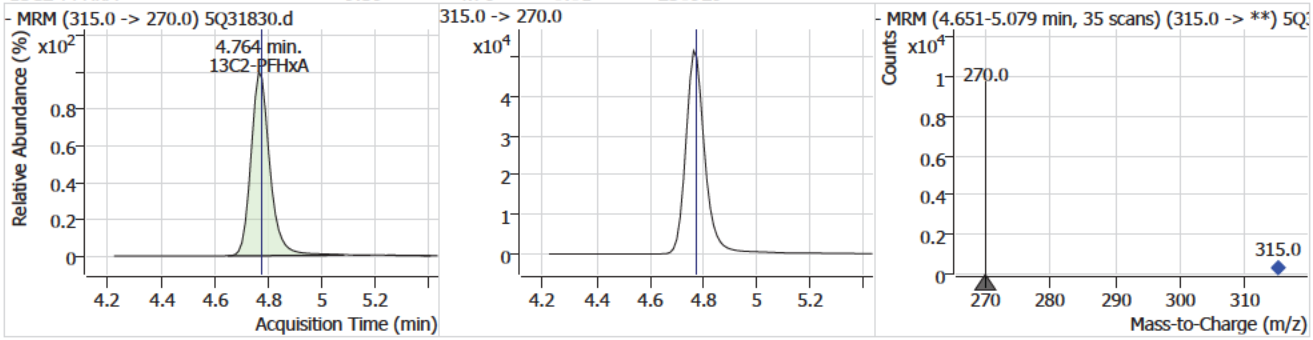




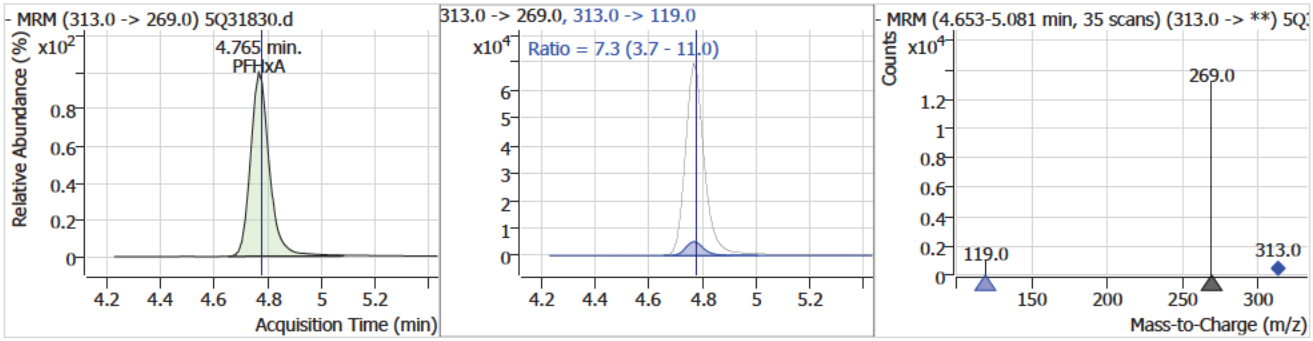


Perfluorinated Compounds by LC/MS/MS

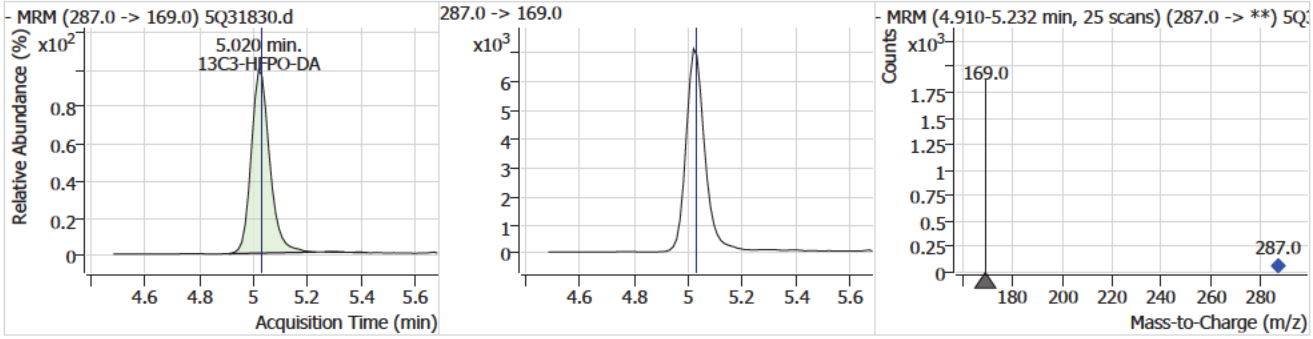
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	9.39	4.76	-0.01	250929				



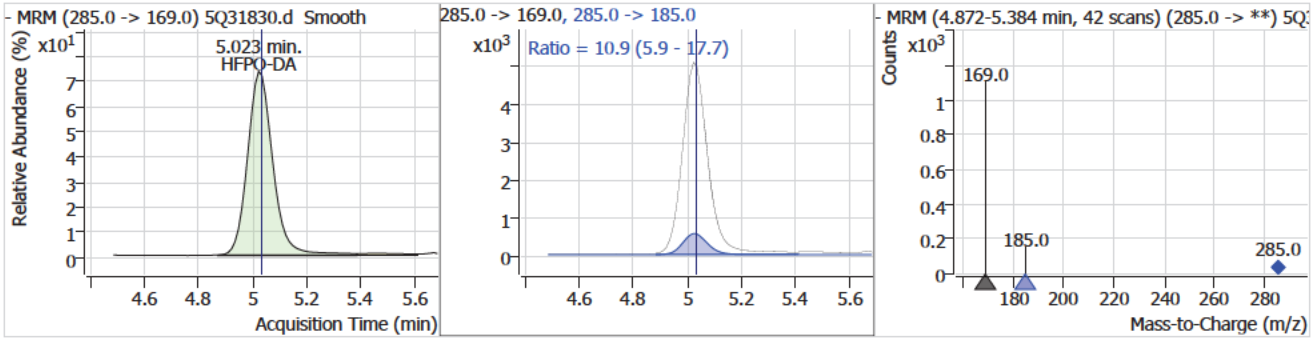
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	18.69	4.77	-0.01	339925	313.0 -> 119.0	7.3	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	17.71	5.02	-0.01	33446				

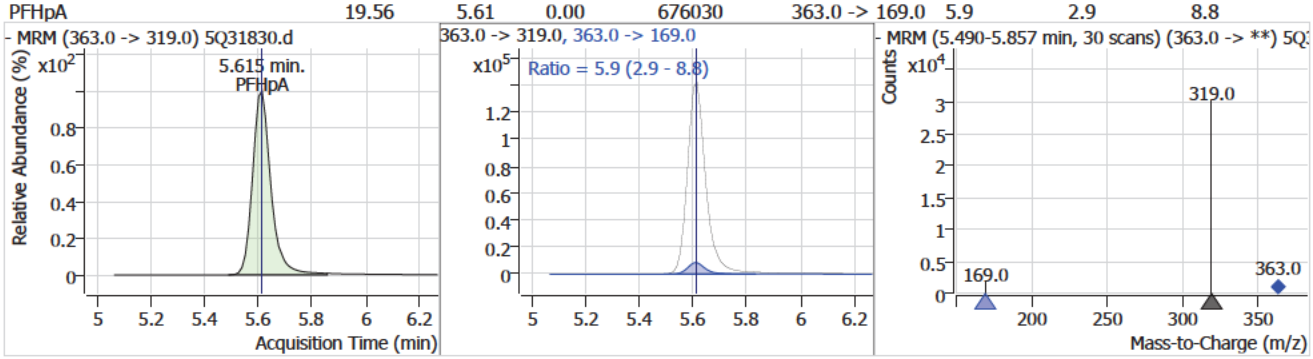


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.97	5.02	-0.01	32924	285.0 -> 185.0	10.9	5.9	17.7

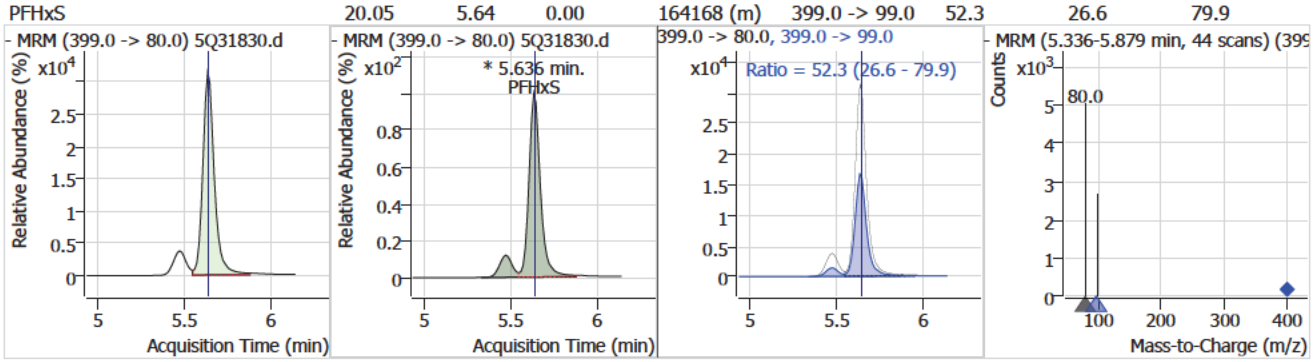


Perfluorinated Compounds by LC/MS/MS

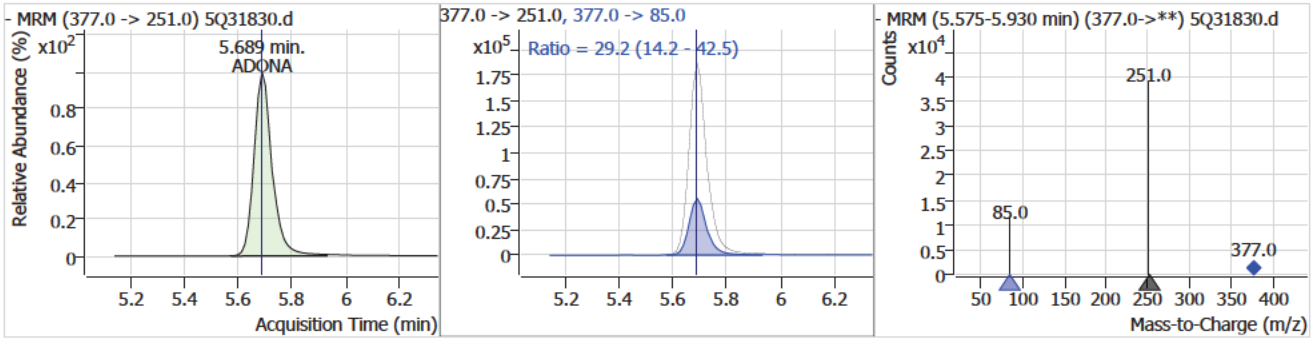
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.56	5.61	0.00	676030	363.0 -> 169.0	5.9	2.9	8.8



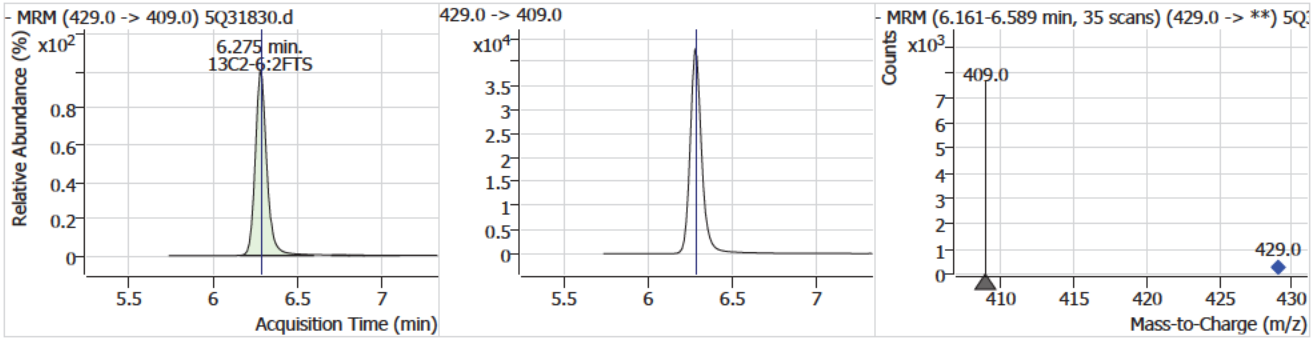
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	20.05	5.64	0.00	164168 (m)	399.0 -> 99.0	52.3	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.62	5.69	0.00	877750	377.0 -> 85.0	29.2	14.2	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	201547				



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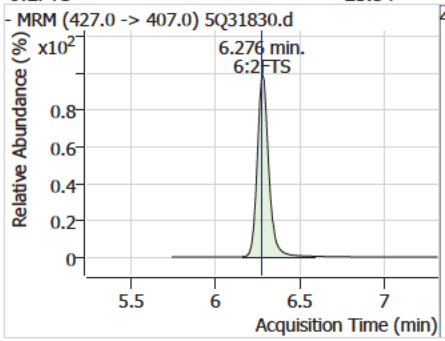
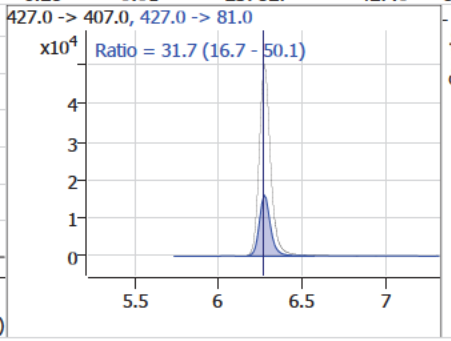
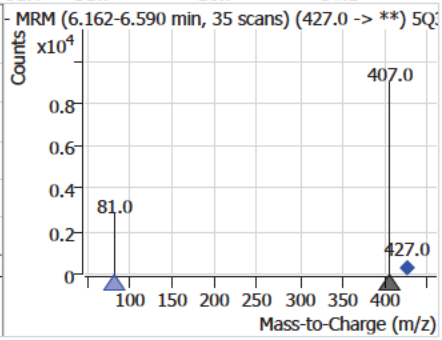
Perfluorinated Compounds by LC/MS/MS

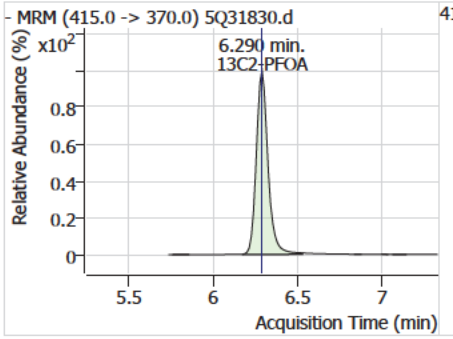
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	23.54	6.28	-0.01	237827	427.0 -> 81.0	31.7	16.7	50.1

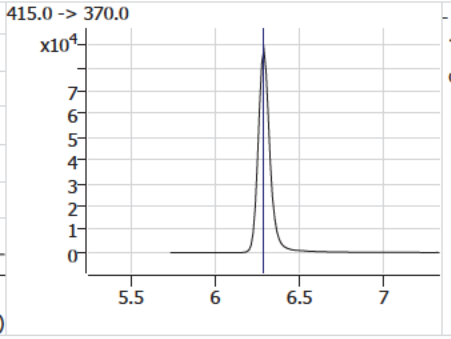


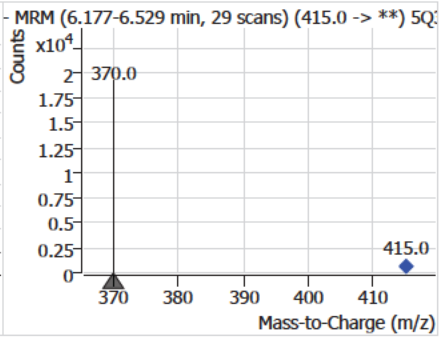




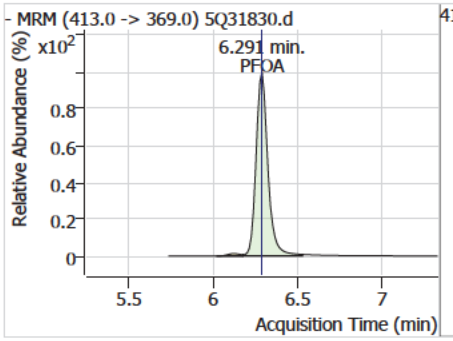
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	421900				

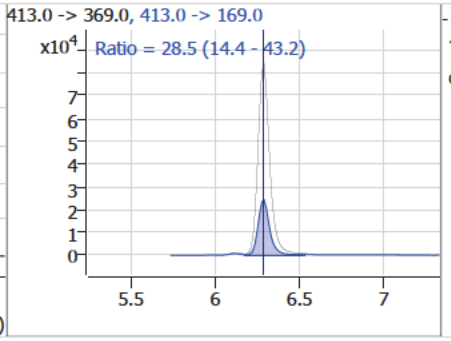


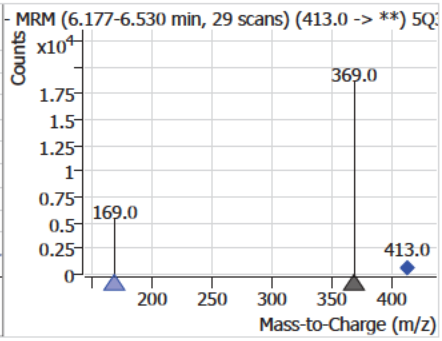




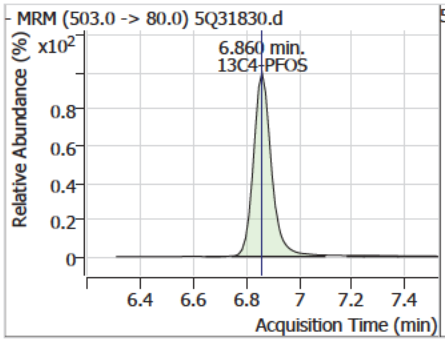
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.30	6.29	0.00	408261	413.0 -> 169.0	28.5	14.4	43.2

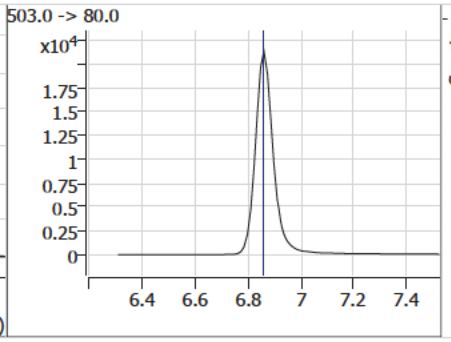


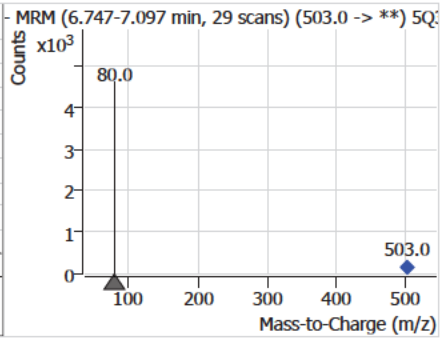




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	100208				







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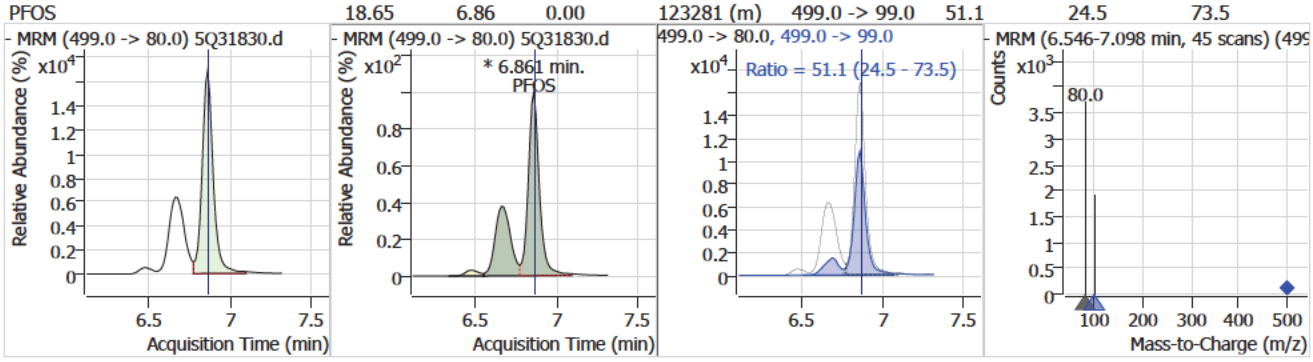
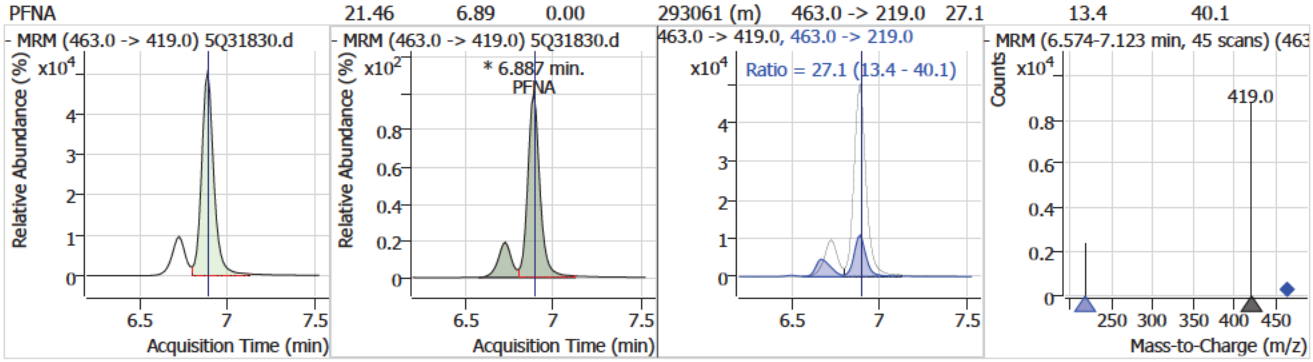
Perfluorinated Compounds by LC/MS/MS

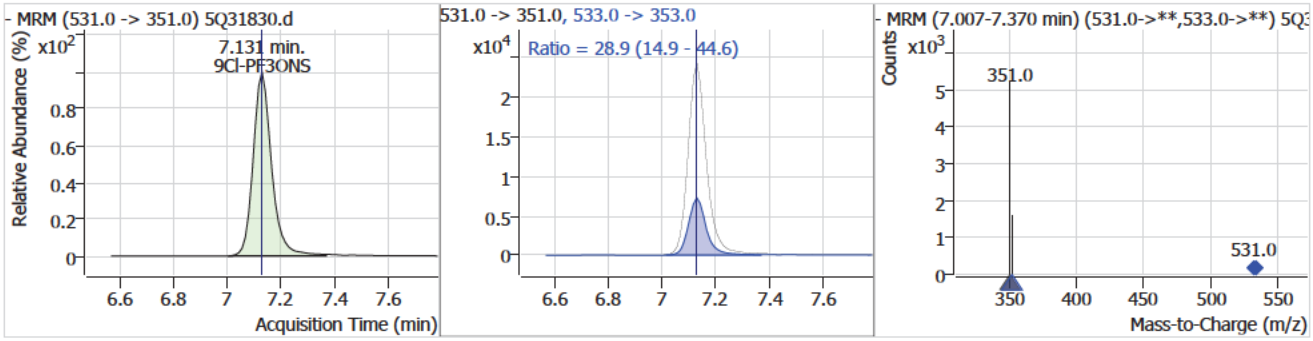
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.65	6.86	0.00	123281 (m)	499.0 -> 99.0	51.1	24.5	73.5



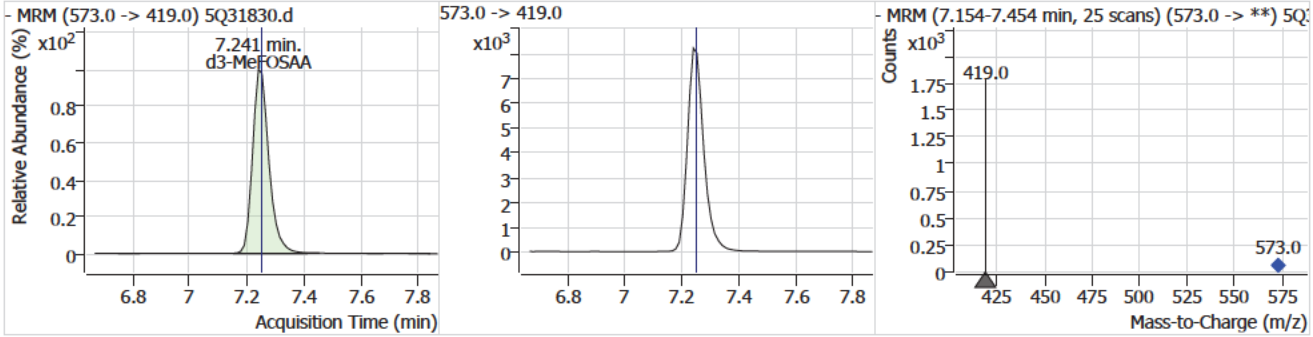
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	21.46	6.89	0.00	293061 (m)	463.0 -> 219.0	27.1	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	20.08	7.13	0.00	114980	533.0 -> 353.0	28.9	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	32420				



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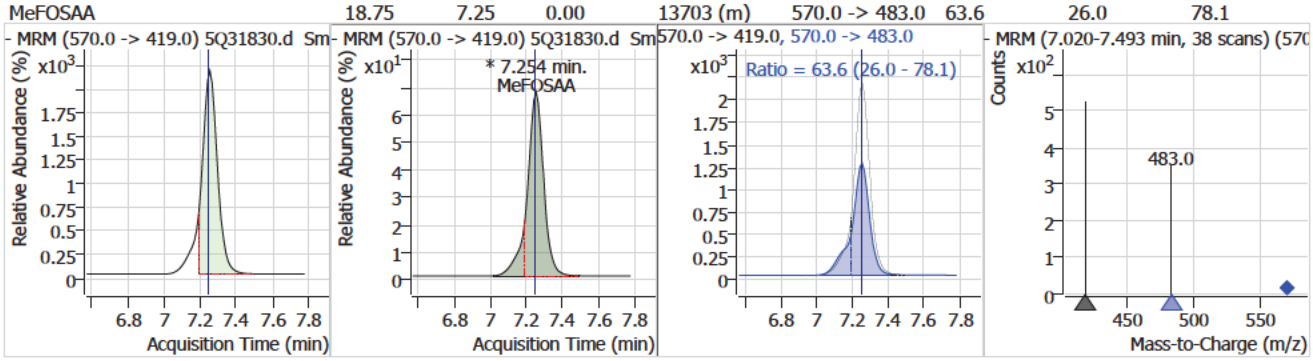
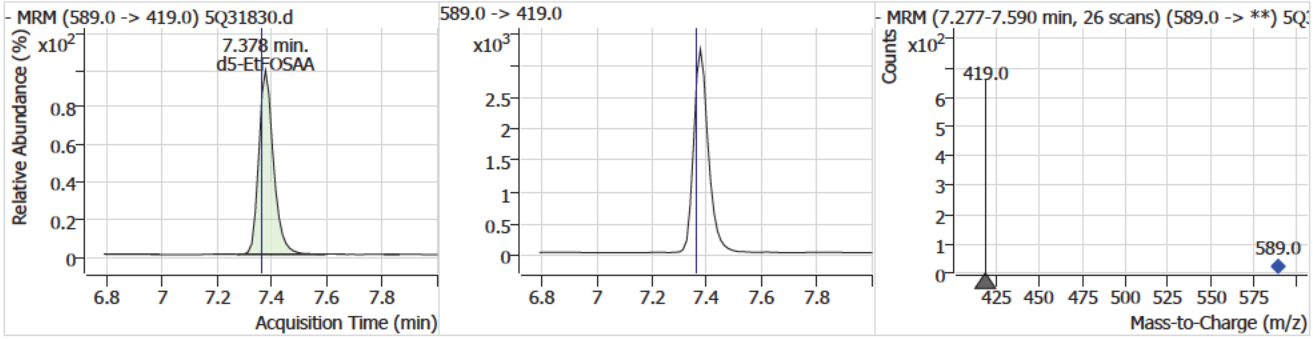
Perfluorinated Compounds by LC/MS/MS

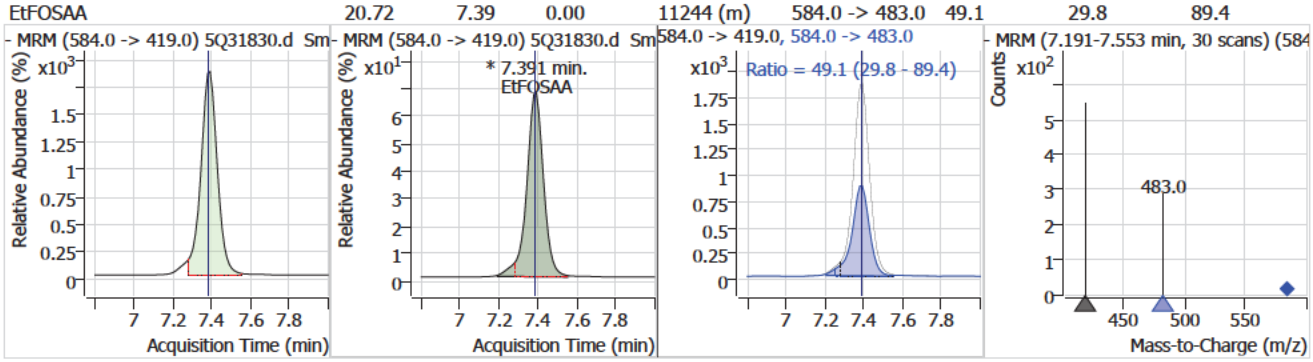
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	18.75	7.25	0.00	13703 (m)	570.0 -> 483.0	63.6	26.0	78.1



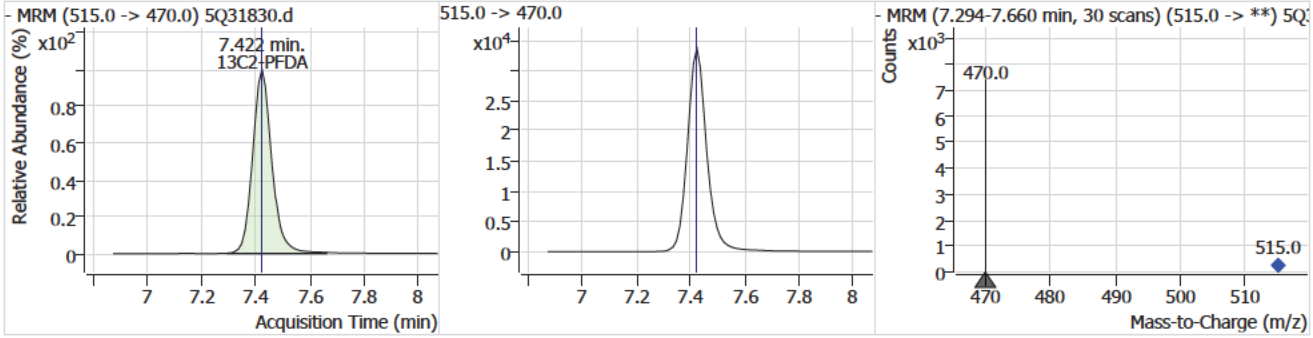
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	19.38	7.38	0.00	11922				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	20.72	7.39	0.00	11244 (m)	584.0 -> 483.0	49.1	29.8	89.4

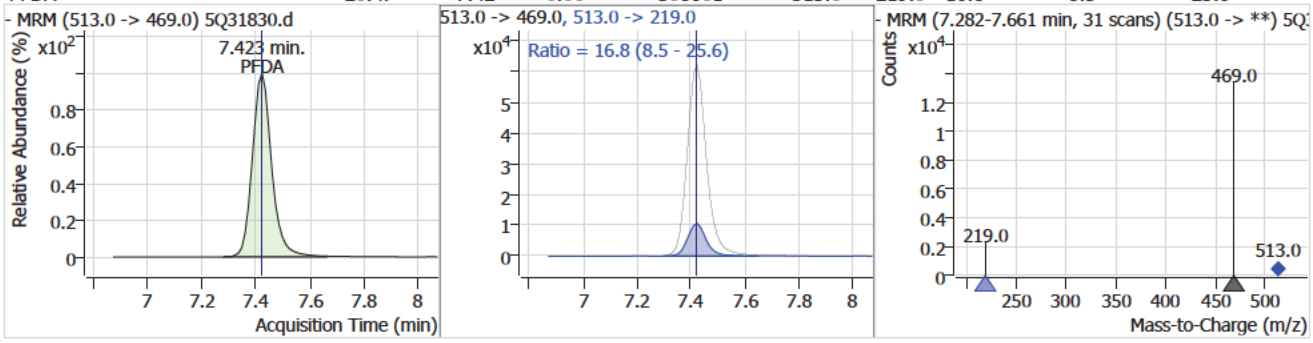


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	9.15	7.42	0.00	165298				

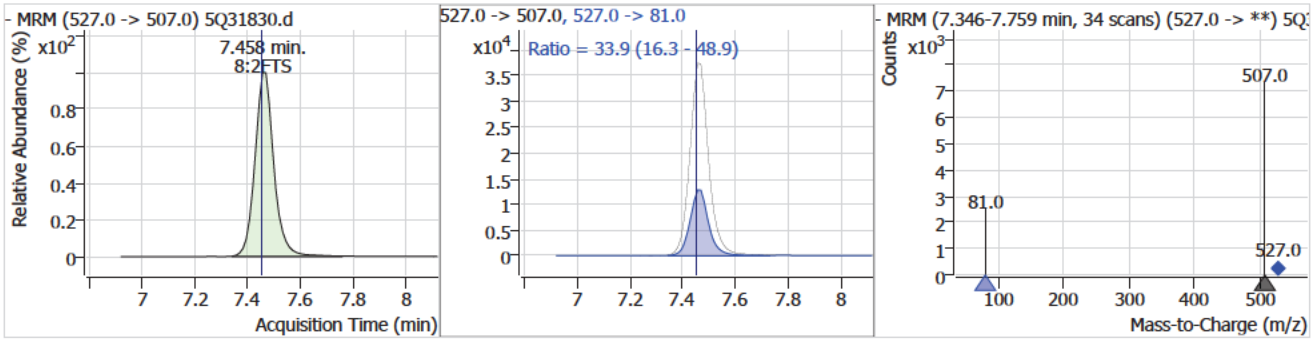


Perfluorinated Compounds by LC/MS/MS

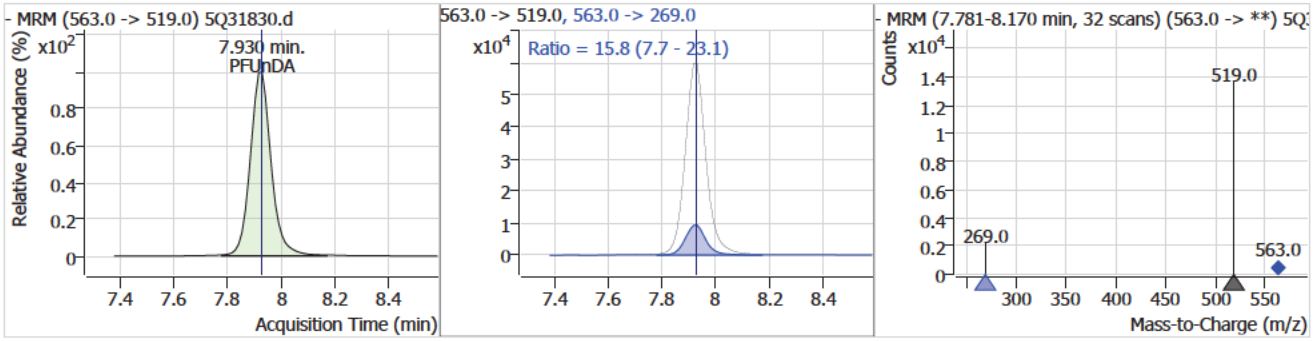
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.47	7.42	0.00	308601	513.0 -> 219.0	16.8	8.5	25.6



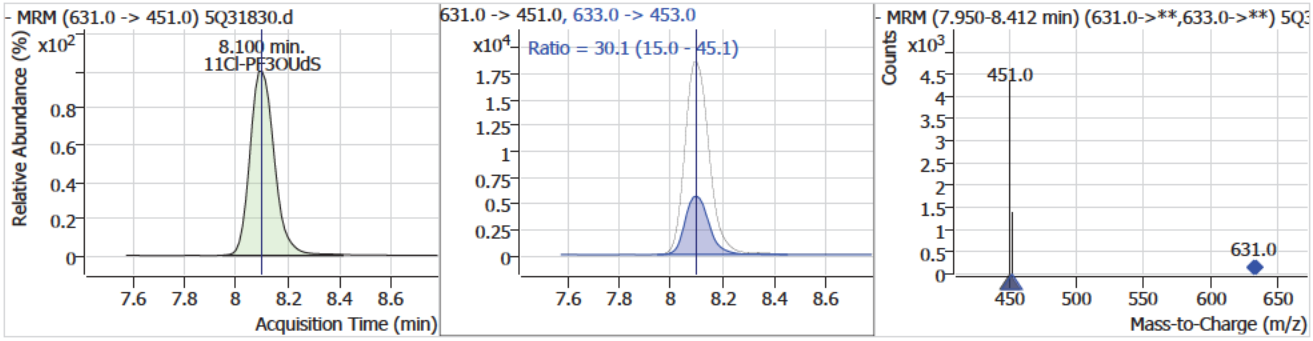
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.13	7.46	-0.01	185195	527.0 -> 81.0	33.9	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.67	7.93	0.00	323403	563.0 -> 269.0	15.8	7.7	23.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	20.13	8.10	0.00	122027	633.0 -> 453.0	30.1	15.0	45.1



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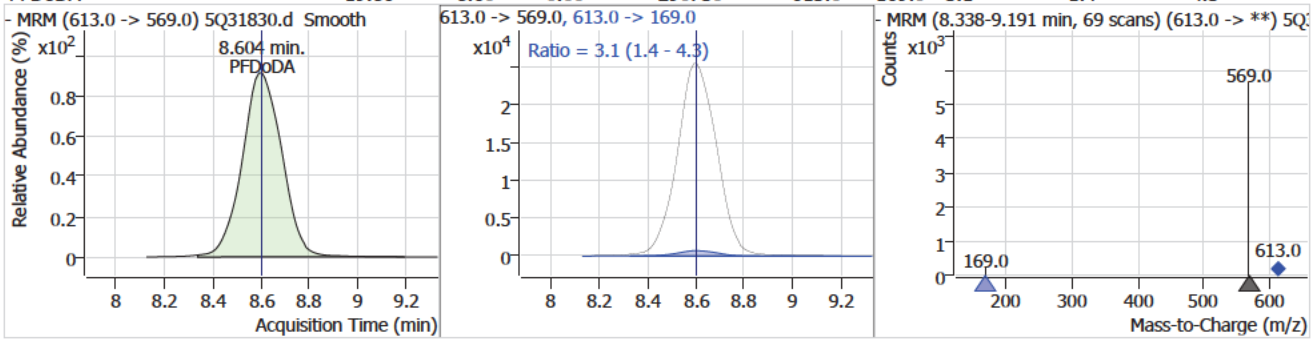
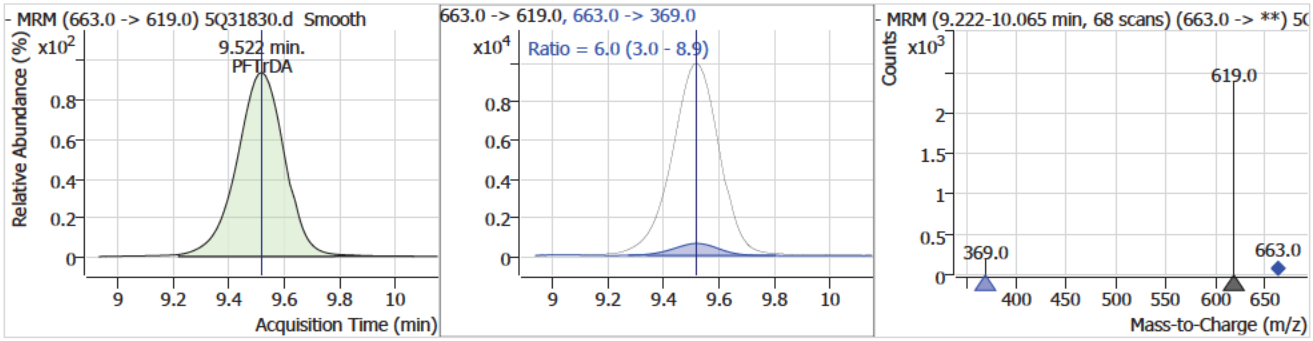
Perfluorinated Compounds by LC/MS/MS

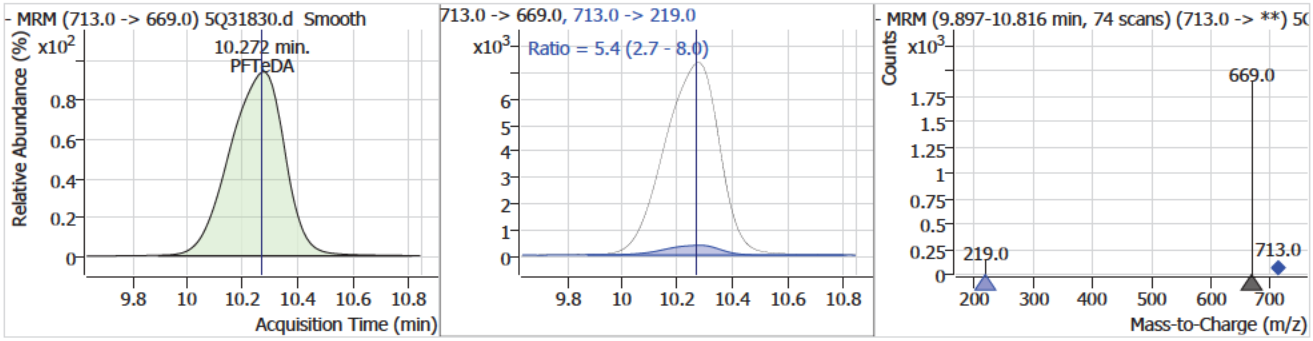
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.86	8.60	0.00	290730	613.0 -> 169.0	3.1	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	16.43	9.52	0.00	119168	663.0 -> 369.0	6.0	3.0	8.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.83	10.27	0.00	102020	713.0 -> 219.0	5.4	2.7	8.0



Manual Integration Approval Summary

Sample Number: S5Q523-CC523
Lab FileID: 5Q31830.D
Injection Time: 04/17/25 15:23
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6) [redacted]
Supervisor approved: 04/18/25 11:00 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Cal Report: 5Q31831.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31831.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 3:39:53 PM
Sample Name : cc523-0.5LL
Vial : P1-A2
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.275	429.0 -> 409.0	177502	20.00	µg/L		-0.012
13C2-PFOA	6.290	415.0 -> 370.0	388263	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	489132	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	96369	20.00	µg/L		0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	31006	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.422	515.0 -> 470.0	2960	0.18	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 0.9%			
13C2-PFHxA	4.764	315.0 -> 270.0	4331	0.18	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 0.9%			
d5-EtFOSAA	7.378	589.0 -> 419.0	364	0.62	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 1.5%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	609	0.35	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 0.9%			
Target Compounds							QValue
6:2FTS	6.276	427.0 -> 407.0	4008	0.45	µg/L		98
8:2FTS	7.471	527.0 -> 507.0	3279	0.42	µg/L		95
EtFOSAA	7.379	584.0 -> 419.0	237	0.46	µg/L	m	91
MeFOSAA	7.254	570.0 -> 419.0	360	0.52	µg/L	m	92
PFBS	3.828	299.0 -> 80.0	4801	0.38	µg/L		98
PFDA	7.423	513.0 -> 469.0	5091	0.37	µg/L		97
PFDoDA	8.604	613.0 -> 569.0	6195	0.45	µg/L		97
PFHpA	5.615	363.0 -> 319.0	11966	0.39	µg/L		100
PFHxA	4.765	313.0 -> 269.0	6044	0.36	µg/L		98
PFHxS	5.636	399.0 -> 80.0	2767	0.36	µg/L	m	94
PFNA	6.875	463.0 -> 419.0	5158	0.43	µg/L	m	89
PFOA	6.291	413.0 -> 369.0	7061	0.39	µg/L		100
PFOS	6.861	499.0 -> 80.0	2545	0.40	µg/L	m	98
PFPeA	3.597	263.0 -> 219.0	11466	0.37	µg/L		100
PFTeDA	10.272	713.0 -> 669.0	2127	0.45	µg/L		100
PFTrDA	9.509	663.0 -> 619.0	2806	0.40	µg/L		97
PFUnDA	7.930	563.0 -> 519.0	5789	0.37	µg/L		99
ADONA	5.689	377.0 -> 251.0	14437	0.36	µg/L		96
9Cl-PF3ONS	7.131	531.0 -> 351.0	2371	0.48	µg/L		87
11Cl-PF3OUdS	8.100	631.0 -> 451.0	2257	0.44	µg/L		91
HFPO-DA	5.035	285.0 -> 169.0	597	0.41	µg/L	m	89

= Qualifier out of range, m = manually integrated, + = Area summed

7.7.57

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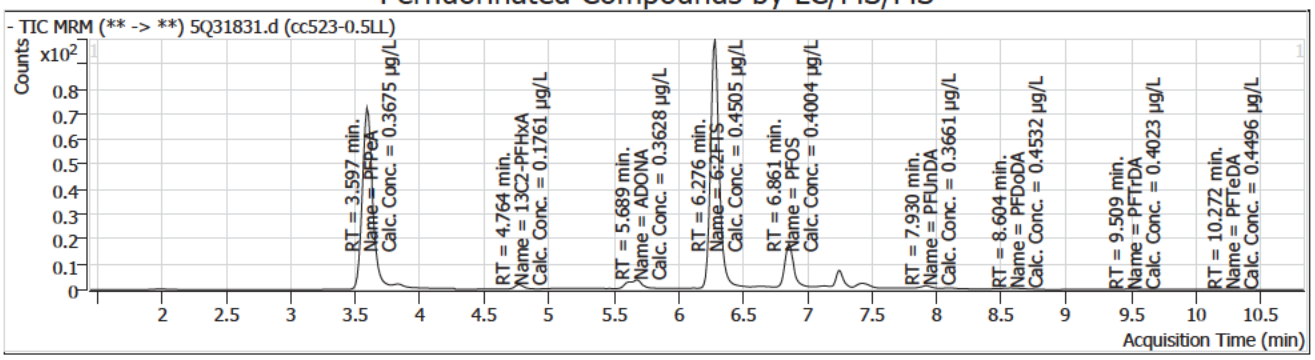
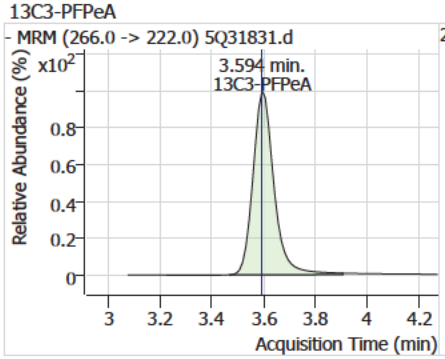
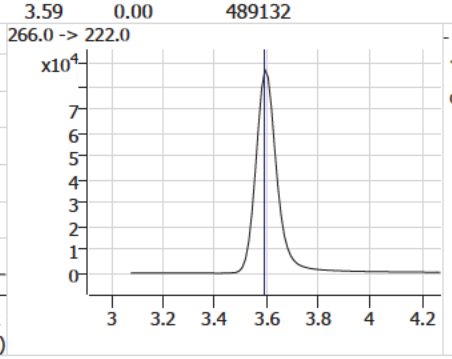
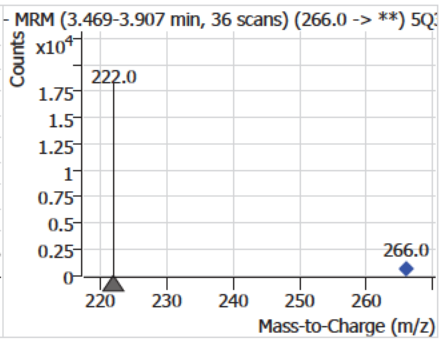
Perfluorinated Compounds by LC/MS/MS



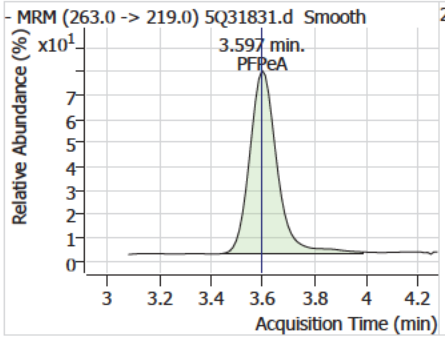
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	489132				

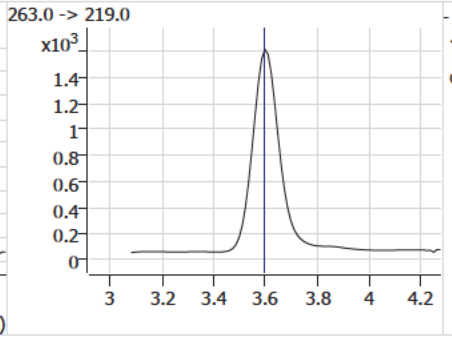


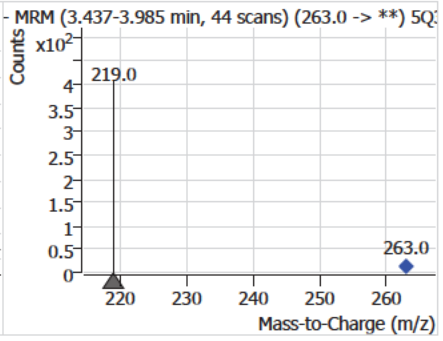




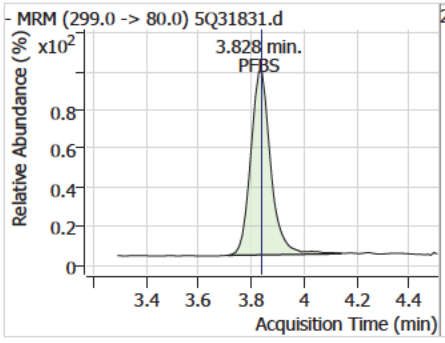
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.37	3.60	0.00	11466				

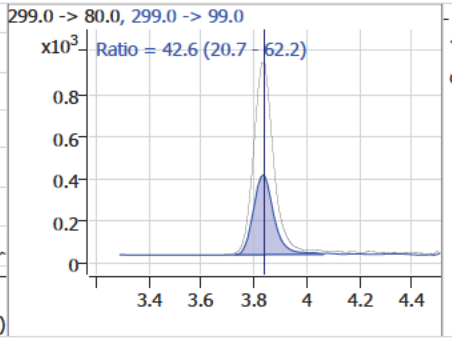


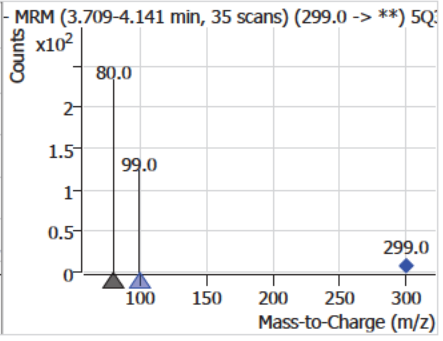




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.38	3.83	-0.01	4801	299.0 -> 99.0	42.6	20.7	62.2







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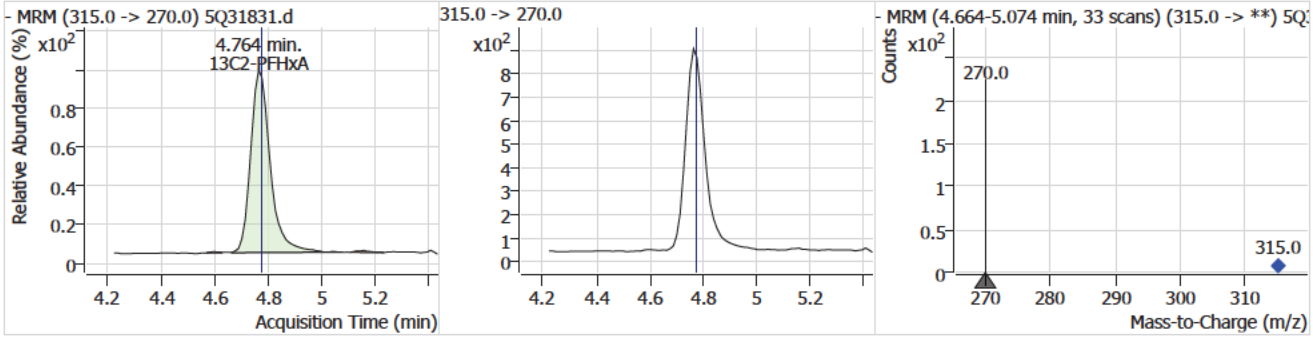
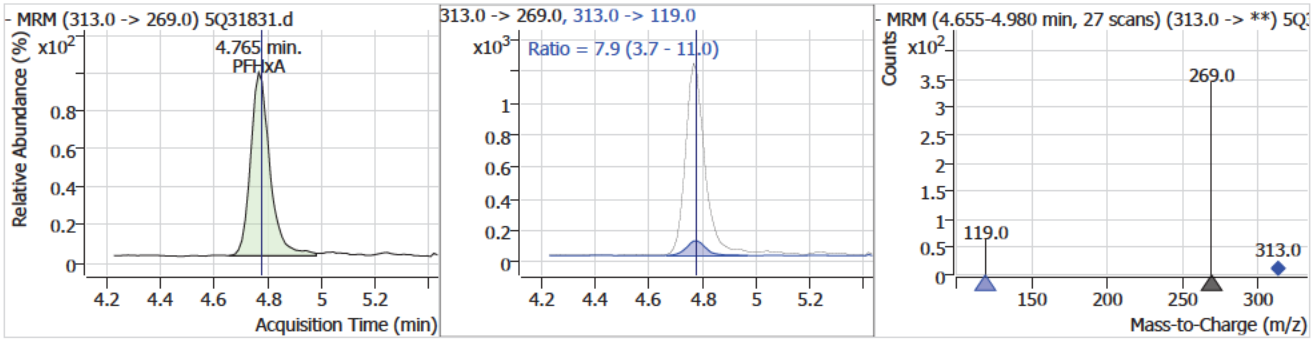
Perfluorinated Compounds by LC/MS/MS

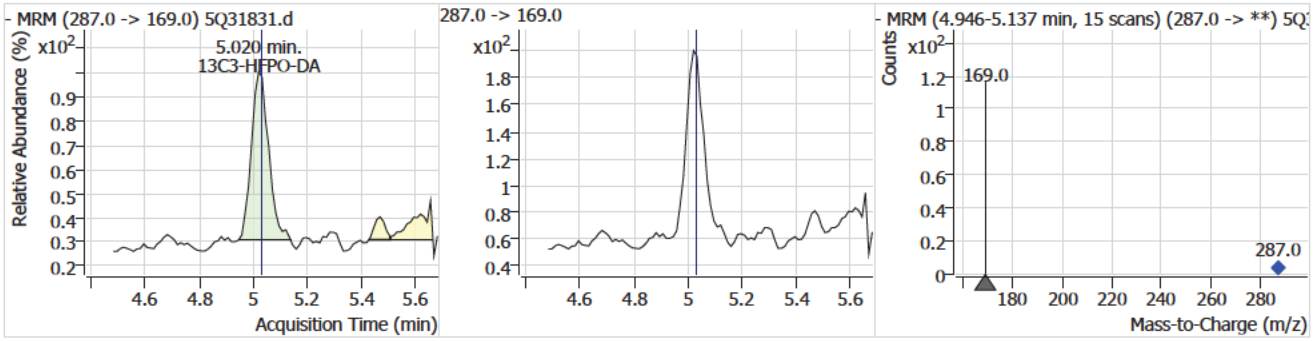
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.18	4.76	-0.01	4331				



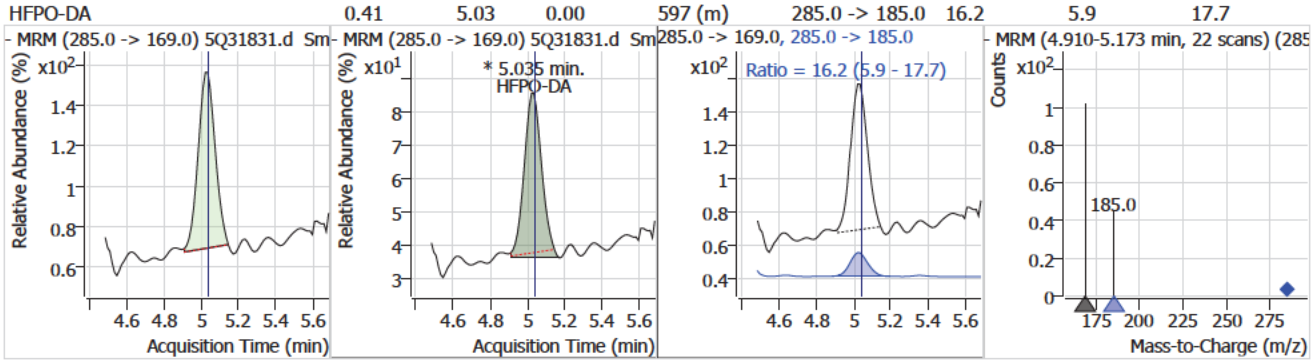
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.36	4.77	-0.01	6044	313.0 -> 119.0	7.9	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.35	5.02	-0.01	609				

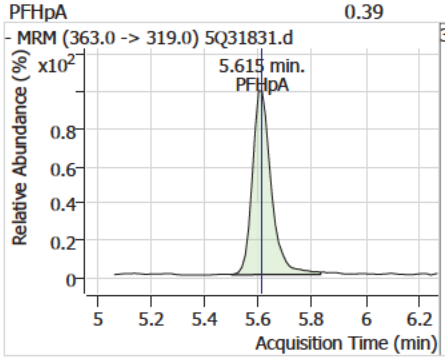


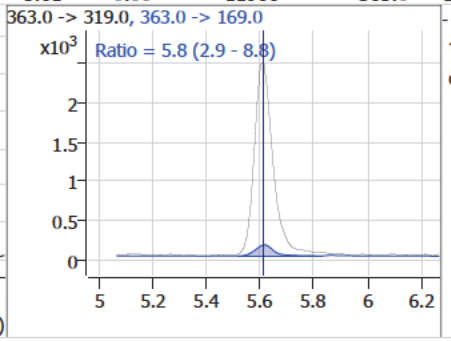
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.41	5.03	0.00	597 (m)	285.0 -> 185.0	16.2	5.9	17.7

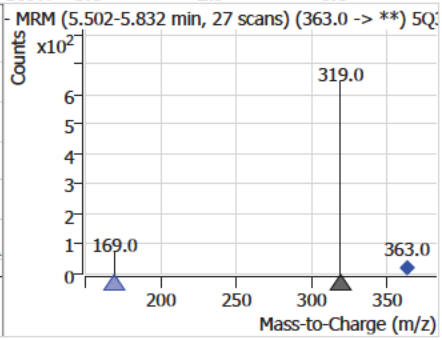


Perfluorinated Compounds by LC/MS/MS

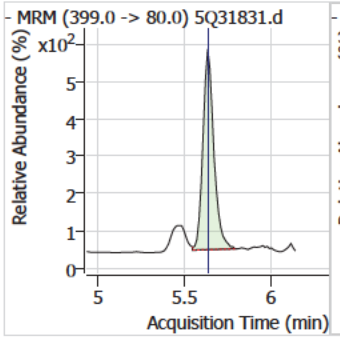
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.39	5.61	0.00	11966	363.0 -> 169.0	5.8	2.9	8.8

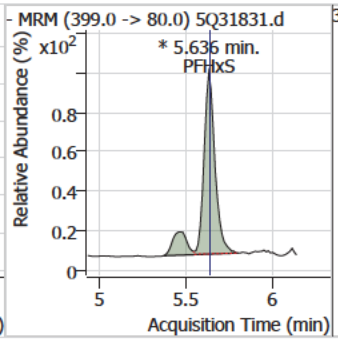


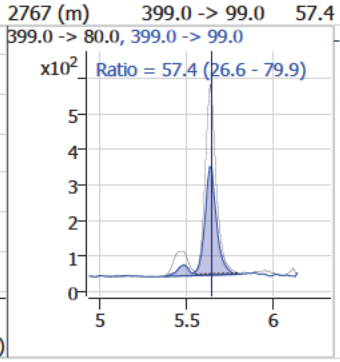


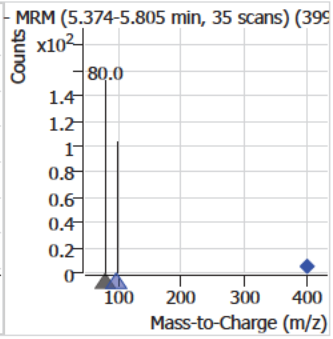


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.36	5.64	0.00	2767 (m)	399.0 -> 99.0	57.4	26.6	79.9

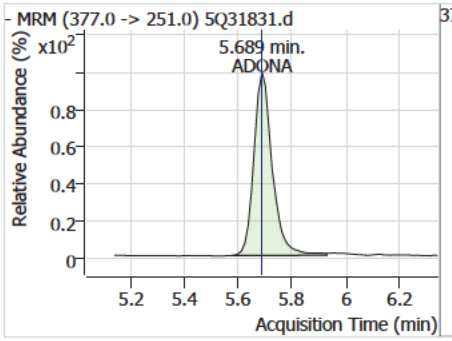


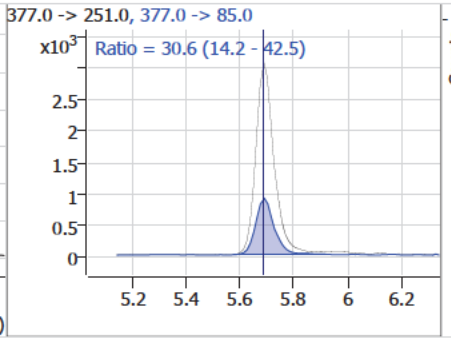


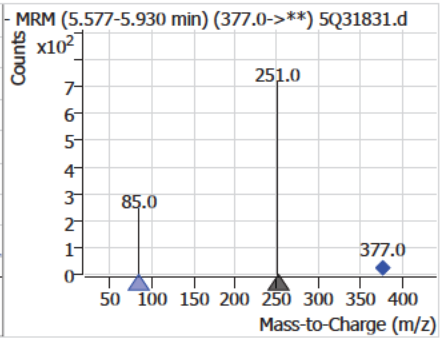




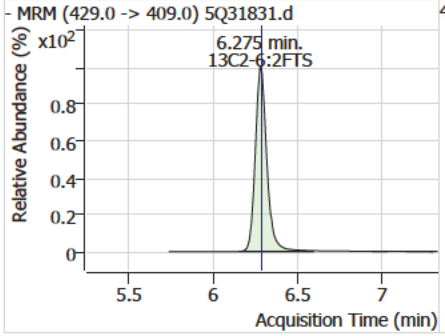
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.36	5.69	0.00	14437	377.0 -> 85.0	30.6	14.2	42.5

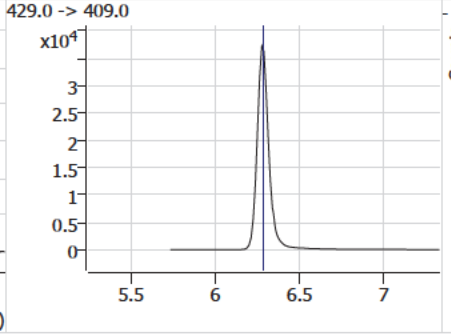


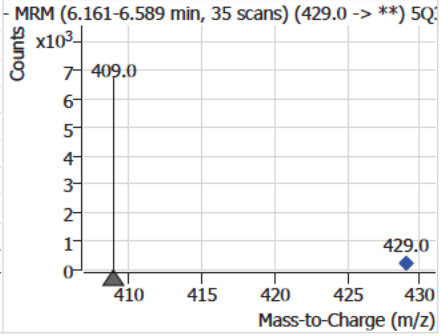




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	177502				







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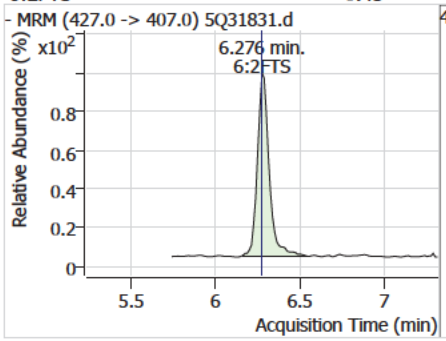
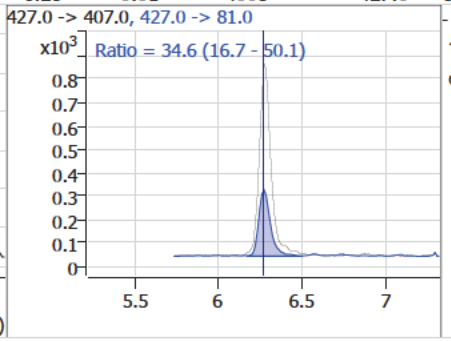
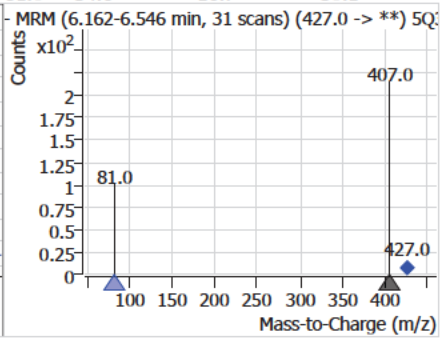
Perfluorinated Compounds by LC/MS/MS

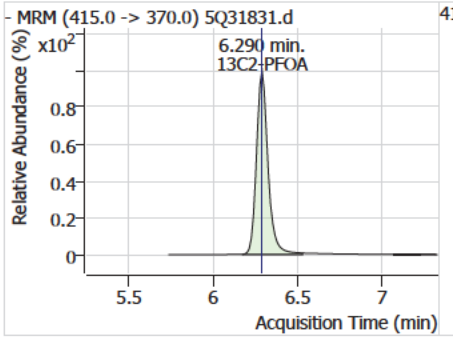
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.45	6.28	-0.01	4008	427.0 -> 81.0	34.6	16.7	50.1

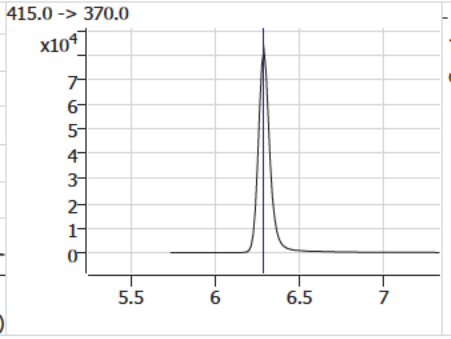


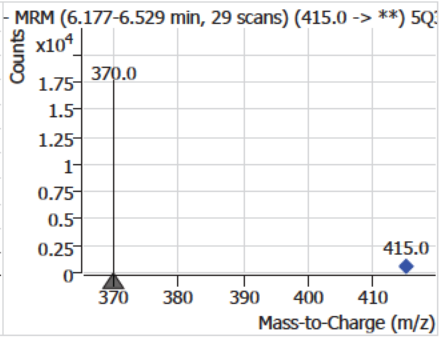




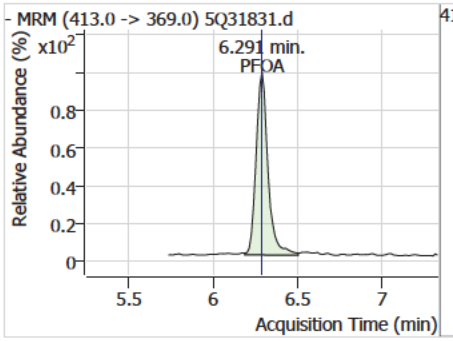
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	388263				

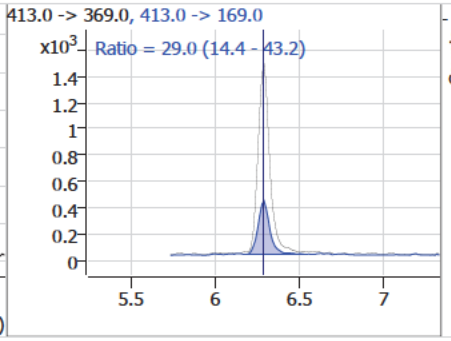


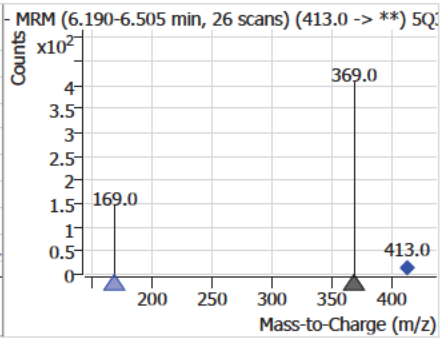




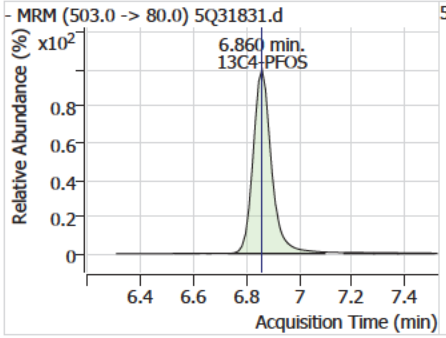
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.39	6.29	0.00	7061	413.0 -> 169.0	29.0	14.4	43.2

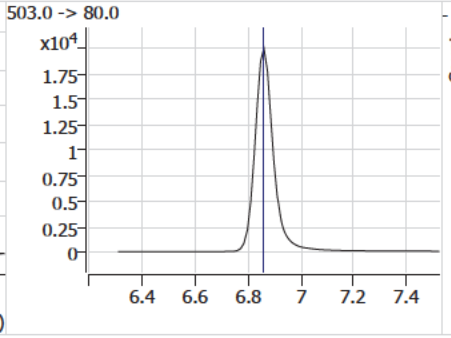


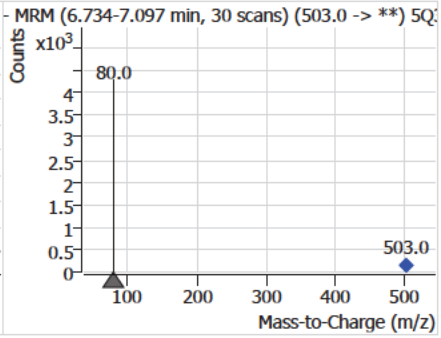




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	96369				

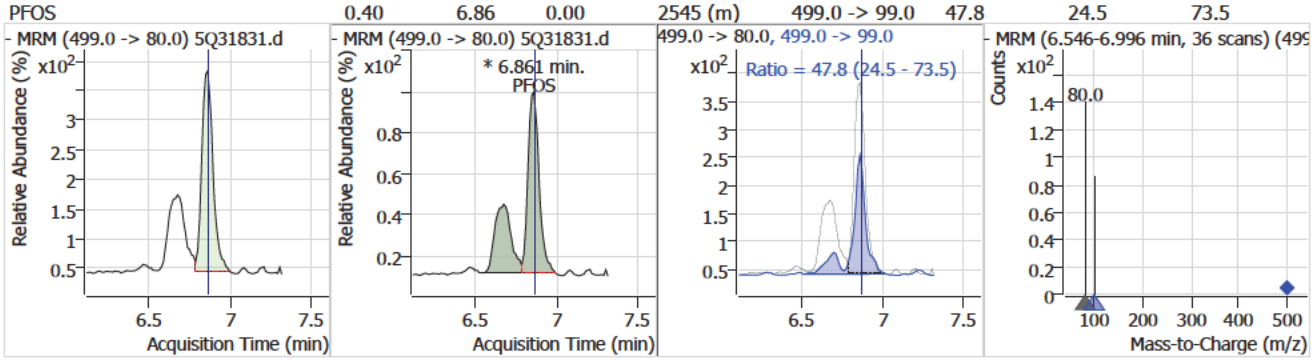




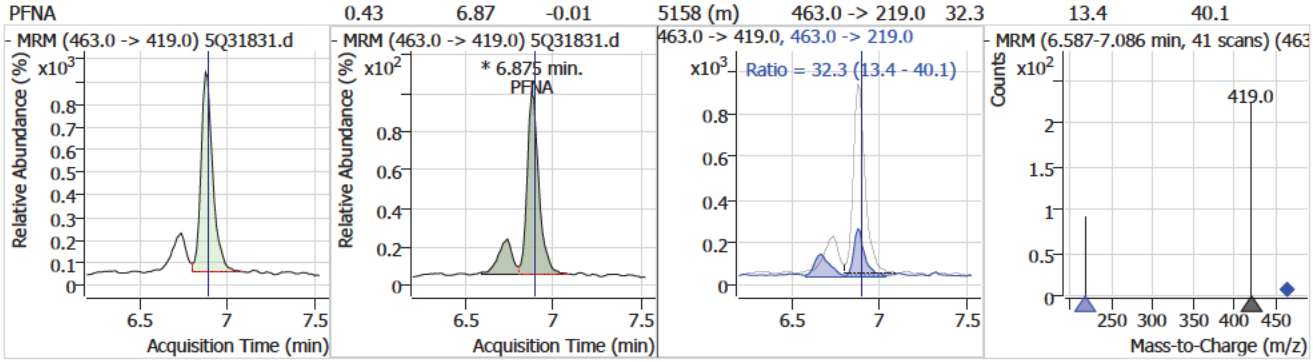


Perfluorinated Compounds by LC/MS/MS

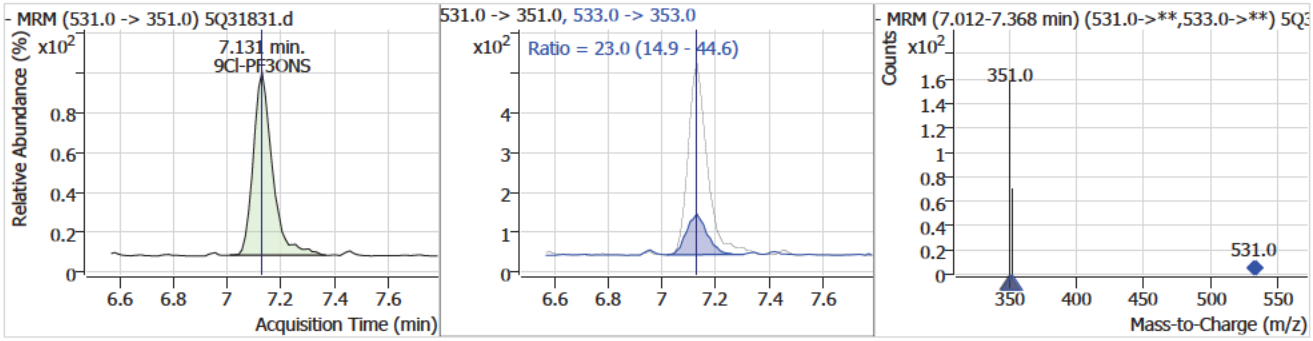
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.40	6.86	0.00	2545 (m)	499.0 -> 99.0	47.8	24.5	73.5



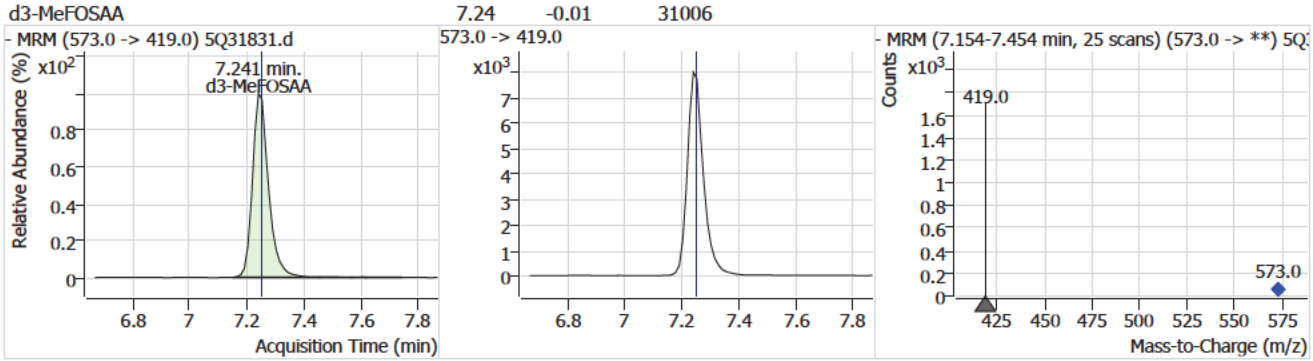
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.43	6.87	-0.01	5158 (m)	463.0 -> 219.0	32.3	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.48	7.13	0.00	2371	533.0 -> 353.0	23.0	14.9	44.6

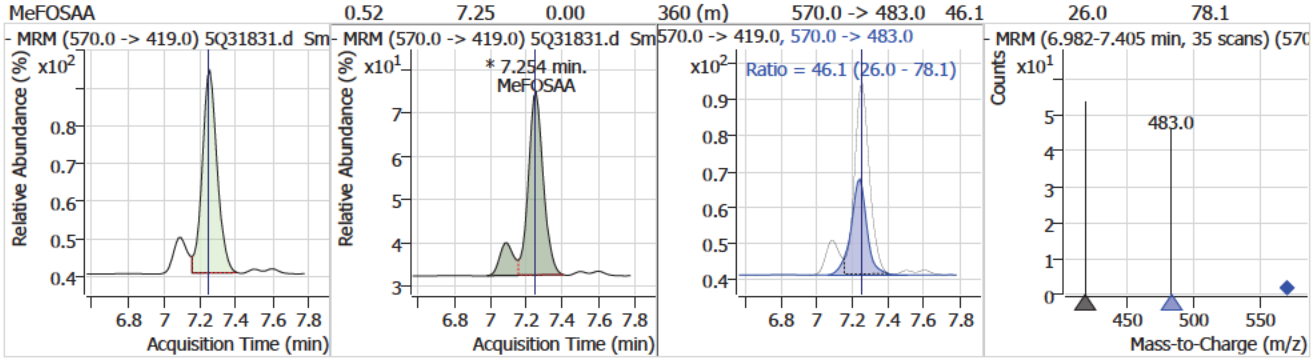


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	31006				

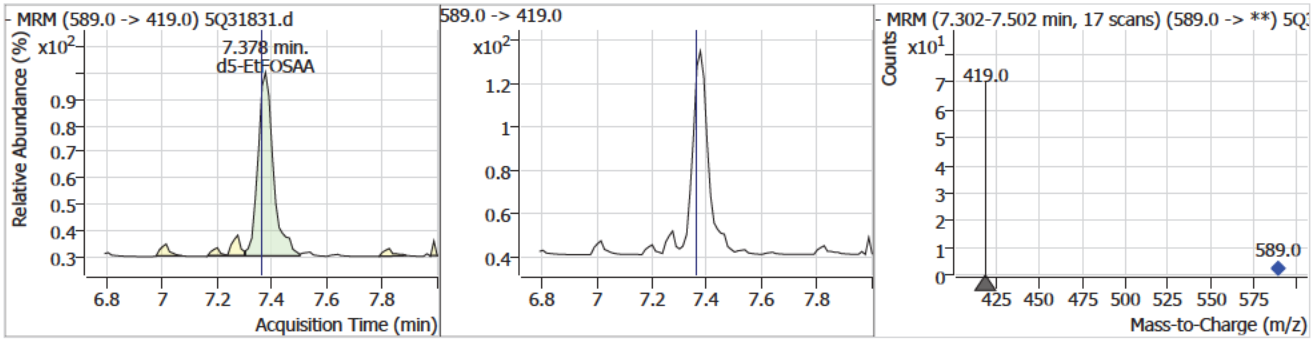


Perfluorinated Compounds by LC/MS/MS

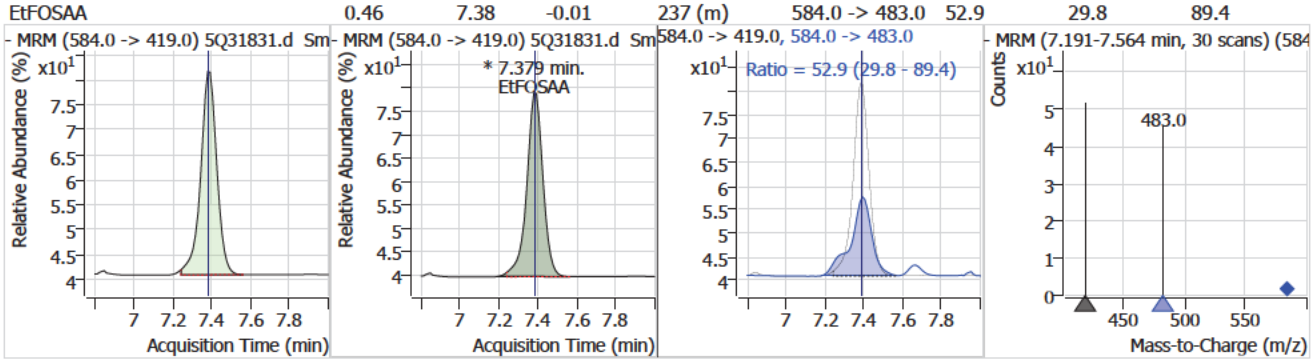
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.52	7.25	0.00	360 (m)	570.0 -> 483.0	46.1	26.0	78.1



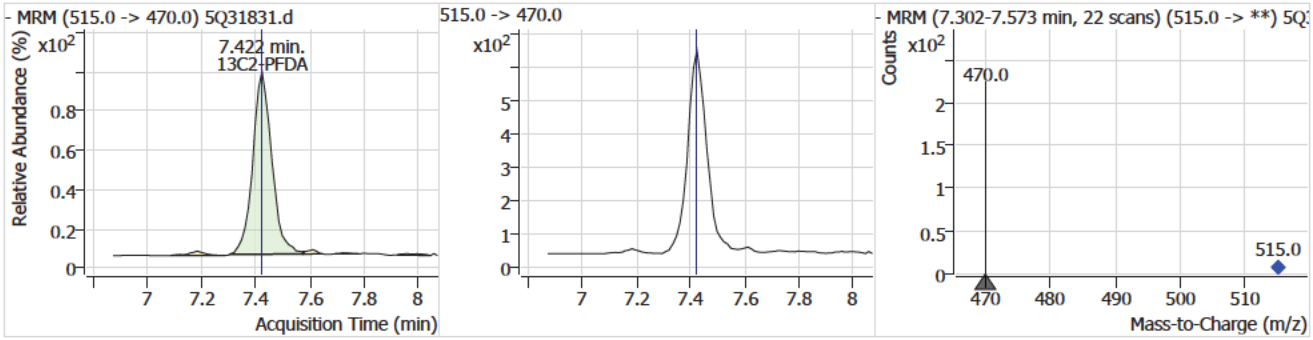
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	0.62	7.38	0.00	364				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.46	7.38	-0.01	237 (m)	584.0 -> 483.0	52.9	29.8	89.4

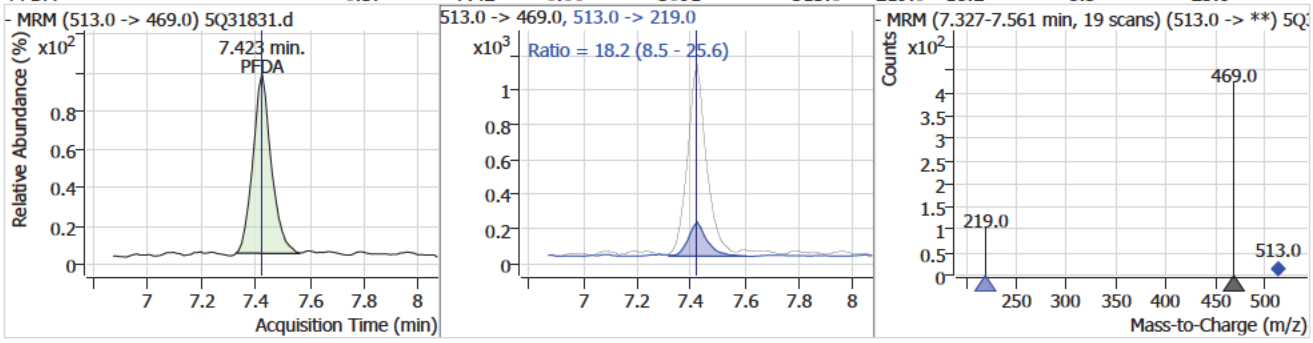


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.18	7.42	0.00	2960				

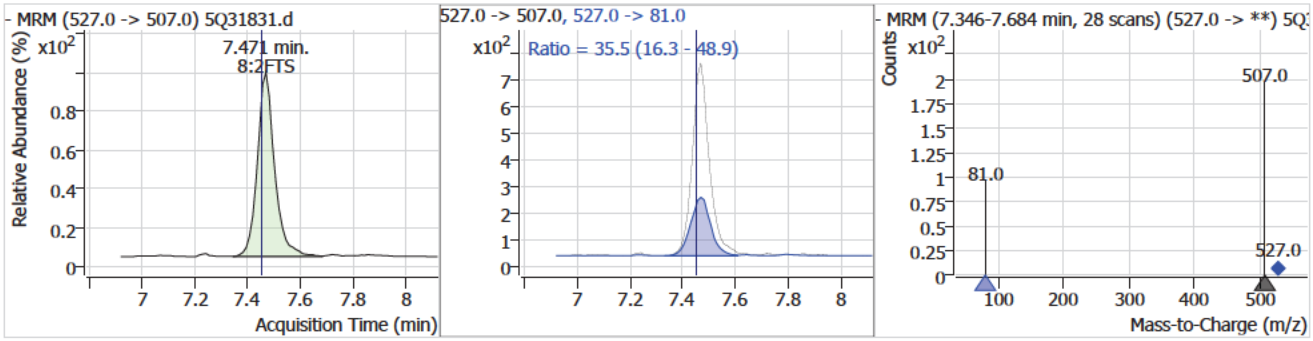


Perfluorinated Compounds by LC/MS/MS

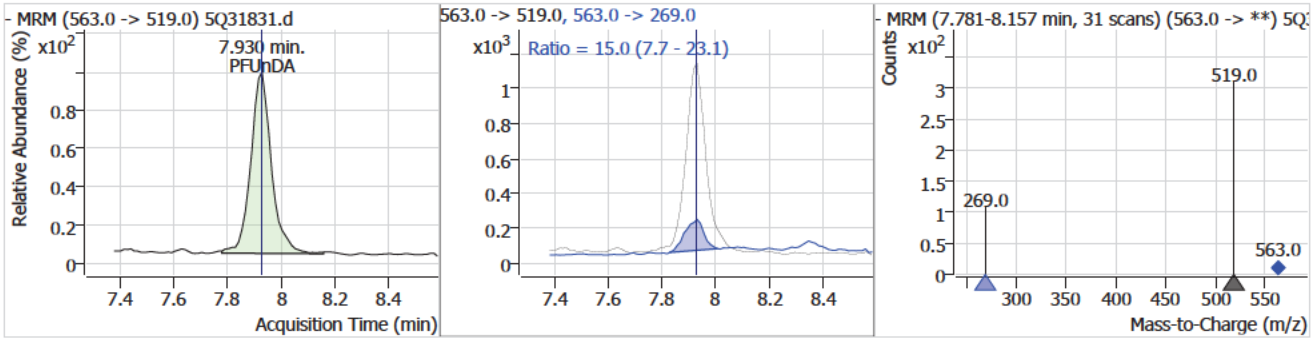
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.37	7.42	0.00	5091	513.0 -> 219.0	18.2	8.5	25.6



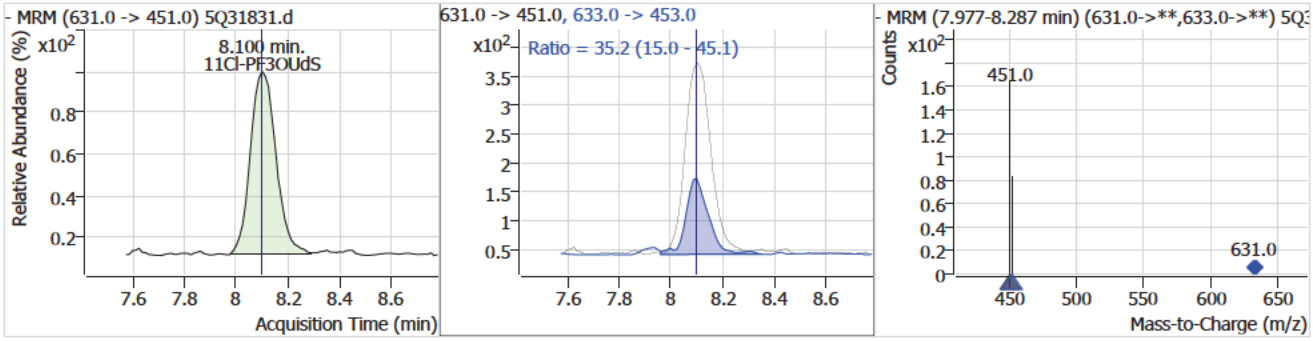
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.42	7.47	0.00	3279	527.0 -> 81.0	35.5	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.37	7.93	0.00	5789	563.0 -> 269.0	15.0	7.7	23.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.44	8.10	0.00	2257	633.0 -> 453.0	35.2	15.0	45.1



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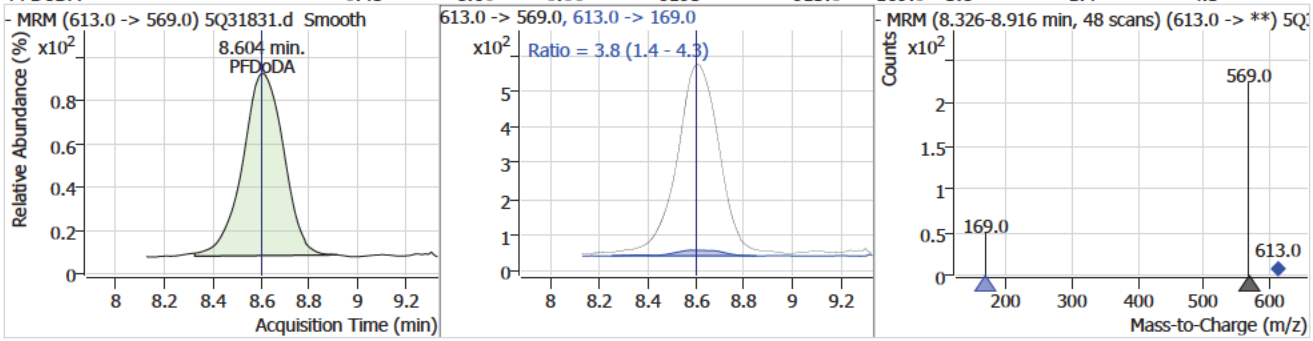
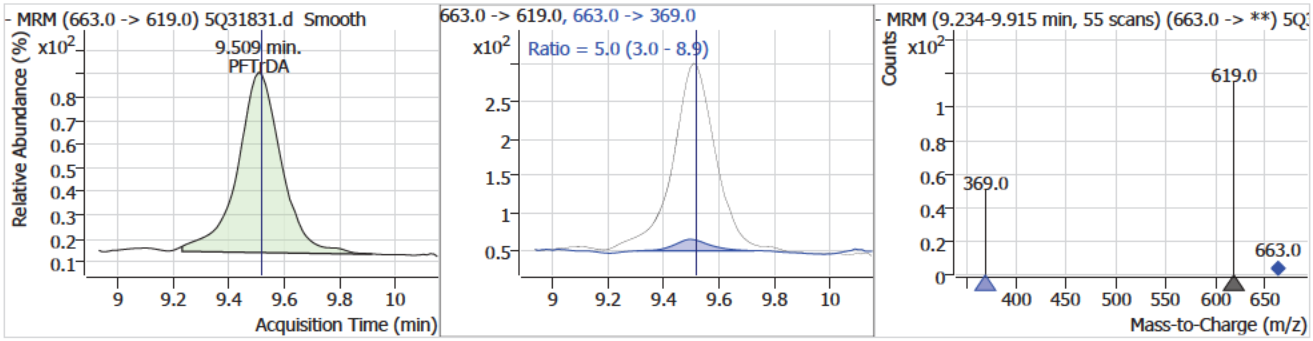
Perfluorinated Compounds by LC/MS/MS

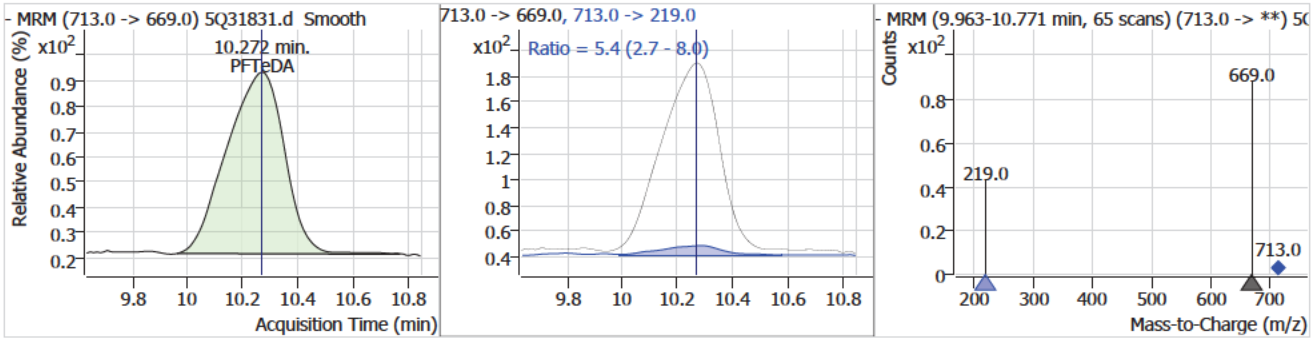
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.45	8.60	0.00	6195	613.0 -> 169.0	3.8	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.40	9.51	-0.01	2806	663.0 -> 369.0	5.0	3.0	8.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.45	10.27	0.00	2127	713.0 -> 219.0	5.4	2.7	8.0



Manual Integration Approval Summary

Sample Number: S5Q523-CC523
Lab FileID: 5Q31831.D
Injection Time: 04/17/25 15:39
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6) [redacted]
Supervisor approved: 04/18/25 11:00 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
HFPO-DA (GenX)	13252-13-6		5.04	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.88	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Cal Report: 5Q31842.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31842.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 6:40:25 PM
Sample Name : ecc523-20
Vial : P1-A7
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.275	429.0 -> 409.0	197588	20.00	µg/L		-0.012
13C2-PFOA	6.290	415.0 -> 370.0	404862	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	497002	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	97933	20.00	µg/L		0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	33337	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.422	515.0 -> 470.0	166947	9.64	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 48.2%			
13C2-PFHxA	4.764	315.0 -> 270.0	247729	9.66	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 48.3%			
d5-EtFOSAA	7.378	589.0 -> 419.0	12462	19.70	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 49.2%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	32777	18.08	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 45.2%			
Target Compounds							QValue
6:2FTS	6.276	427.0 -> 407.0	230958	23.32	µg/L		98
8:2FTS	7.458	527.0 -> 507.0	183653	21.38	µg/L		100
EtFOSAA	7.391	584.0 -> 419.0	11136	19.96	µg/L	m	94
MeFOSAA	7.254	570.0 -> 419.0	14191	18.88	µg/L		93
PFBS	3.828	299.0 -> 80.0	265650	20.73	µg/L		100
PFDA	7.423	513.0 -> 469.0	296238	20.47	µg/L		99
PFDoDA	8.591	613.0 -> 569.0	285135	19.92	µg/L		100
PFHpA	5.615	363.0 -> 319.0	668358	20.13	µg/L		100
PFHxA	4.765	313.0 -> 269.0	333655	19.11	µg/L		100
PFHxS	5.636	399.0 -> 80.0	163748	20.46	µg/L	m	99
PFNA	6.887	463.0 -> 419.0	275162	21.02	µg/L	m	100
PFOA	6.291	413.0 -> 369.0	391388	20.28	µg/L		99
PFOS	6.861	499.0 -> 80.0	124685	19.30	µg/L	m	100
PFPeA	3.597	263.0 -> 219.0	644765	20.14	µg/L		100
PFTeDA	10.272	713.0 -> 669.0	97867	19.48	µg/L		100
PFTrDA	9.509	663.0 -> 619.0	114462	16.15	µg/L		100
PFUnDA	7.917	563.0 -> 519.0	316212	19.67	µg/L		99
ADONA	5.689	377.0 -> 251.0	861647	20.06	µg/L		99
9Cl-PF3ONS	7.131	531.0 -> 351.0	116332	21.11	µg/L		98
11Cl-PF3OUdS	8.087	631.0 -> 451.0	120637	20.69	µg/L		100
HFPO-DA	5.023	285.0 -> 169.0	31613	19.98	µg/L		99

= Qualifier out of range, m = manually integrated, + = Area summed

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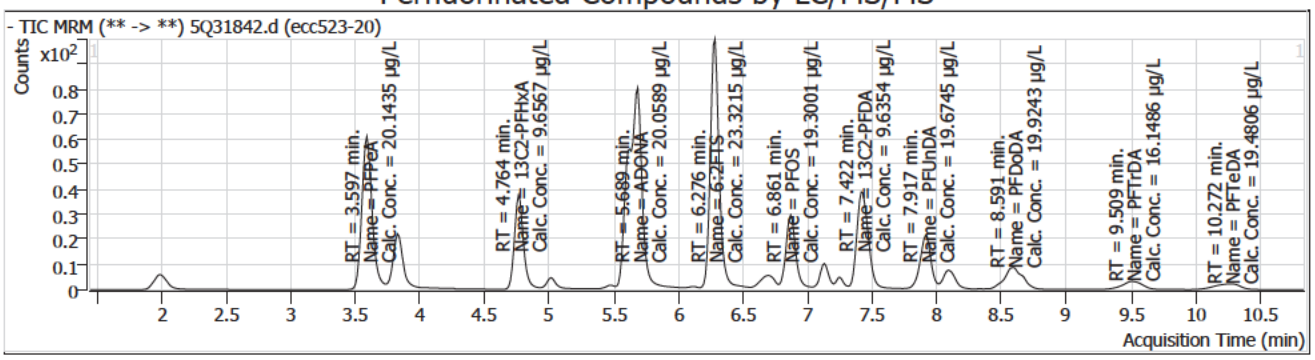
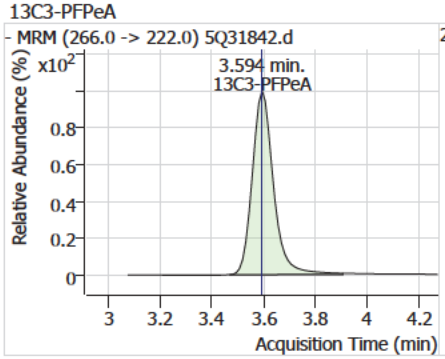
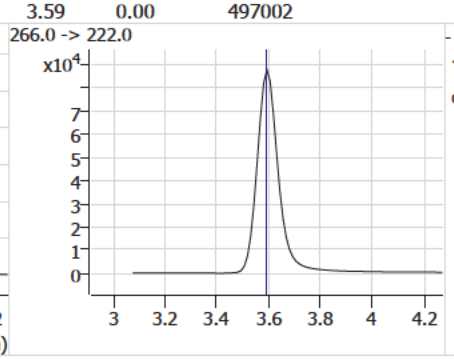
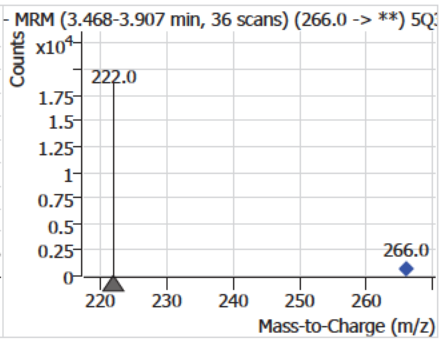
Perfluorinated Compounds by LC/MS/MS



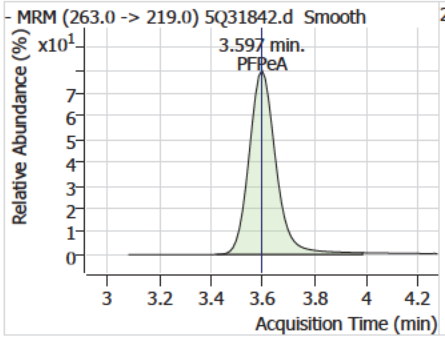
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	497002				

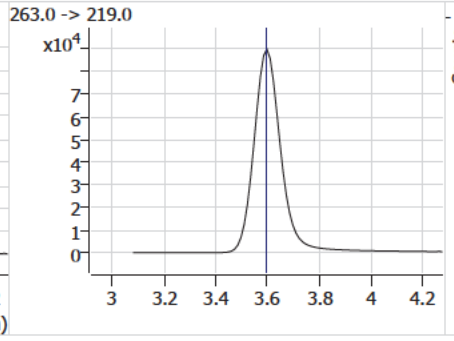


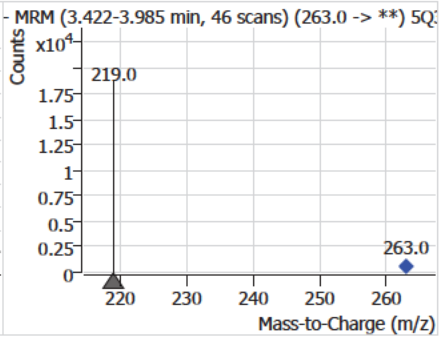




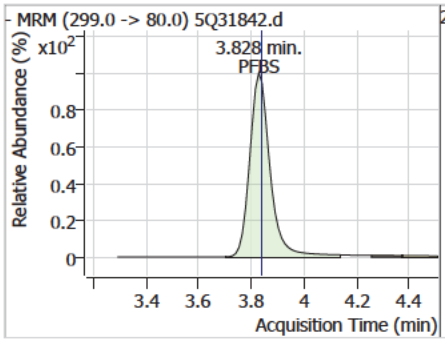
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.14	3.60	0.00	644765				

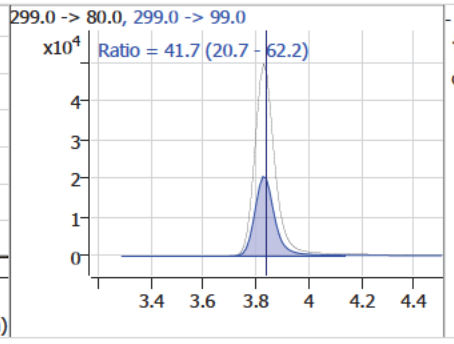


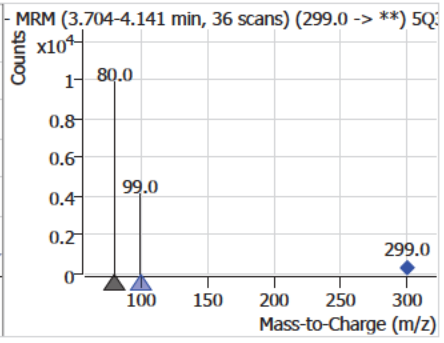




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.73	3.83	-0.01	265650	299.0 -> 99.0	41.7	20.7	62.2

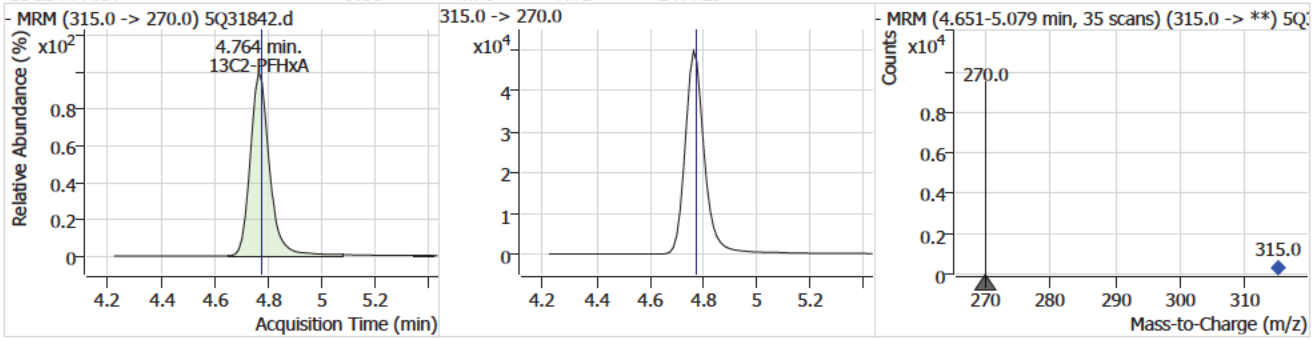




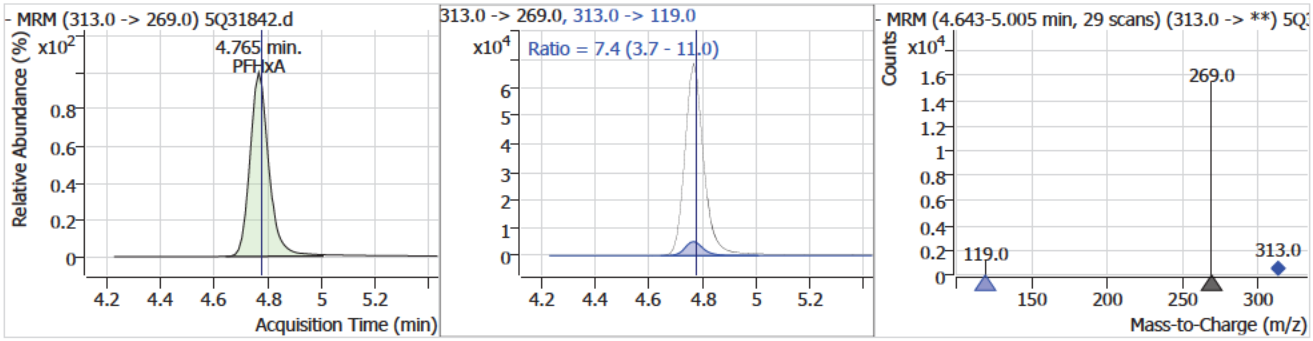


Perfluorinated Compounds by LC/MS/MS

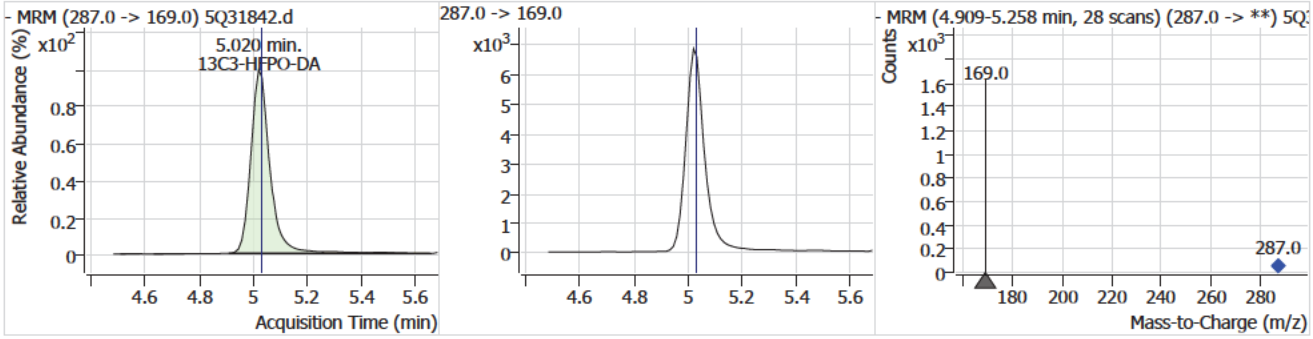
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	9.66	4.76	-0.01	247729				



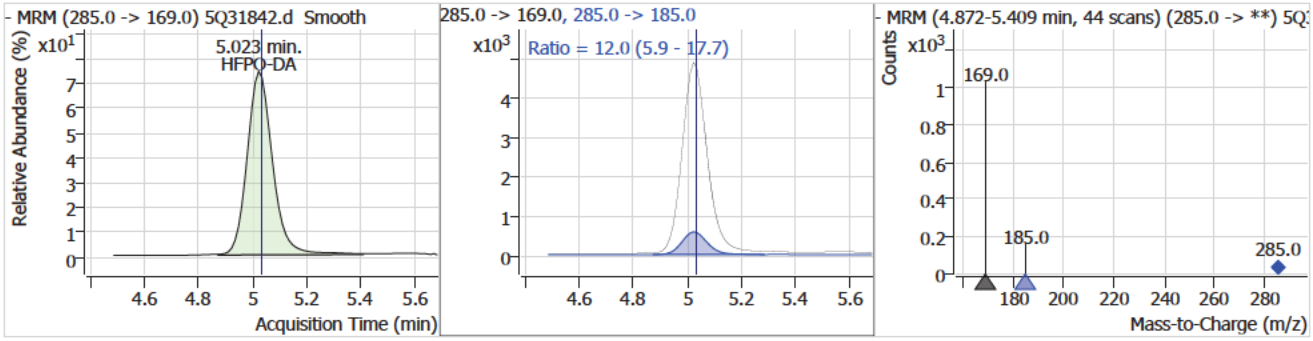
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.11	4.77	-0.01	333655	313.0 -> 119.0	7.4	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	18.08	5.02	-0.01	32777				

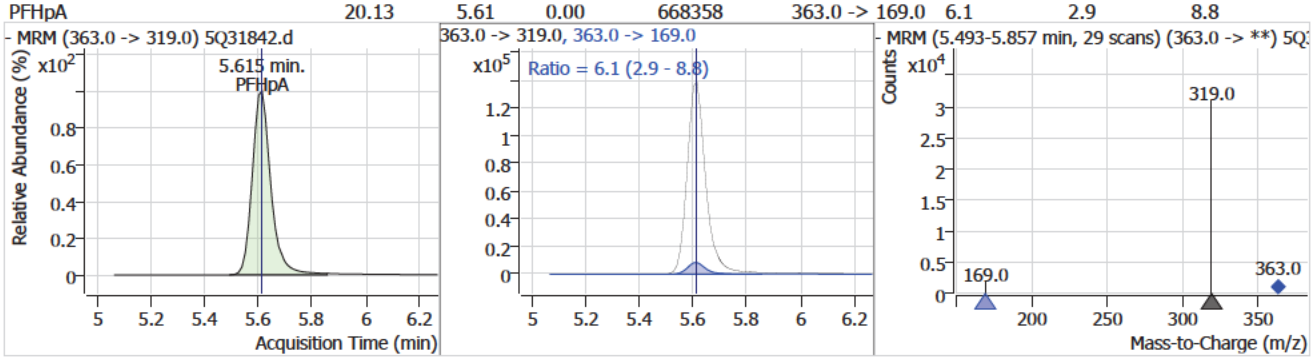


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.98	5.02	-0.01	31613	285.0 -> 185.0	12.0	5.9	17.7

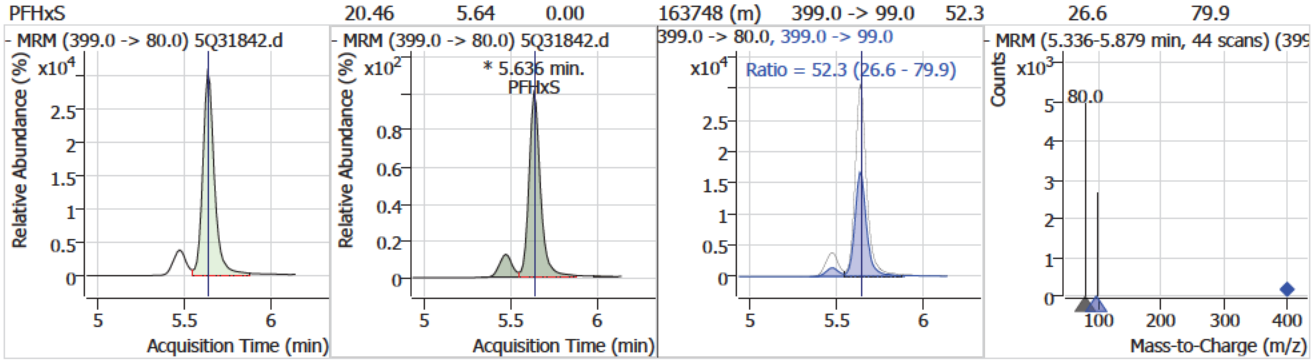


Perfluorinated Compounds by LC/MS/MS

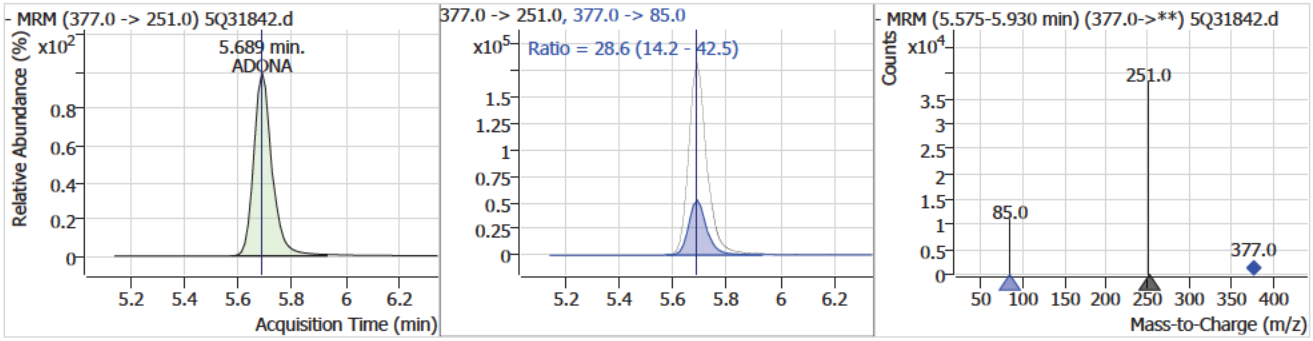
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.13	5.61	0.00	668358	363.0 -> 169.0	6.1	2.9	8.8



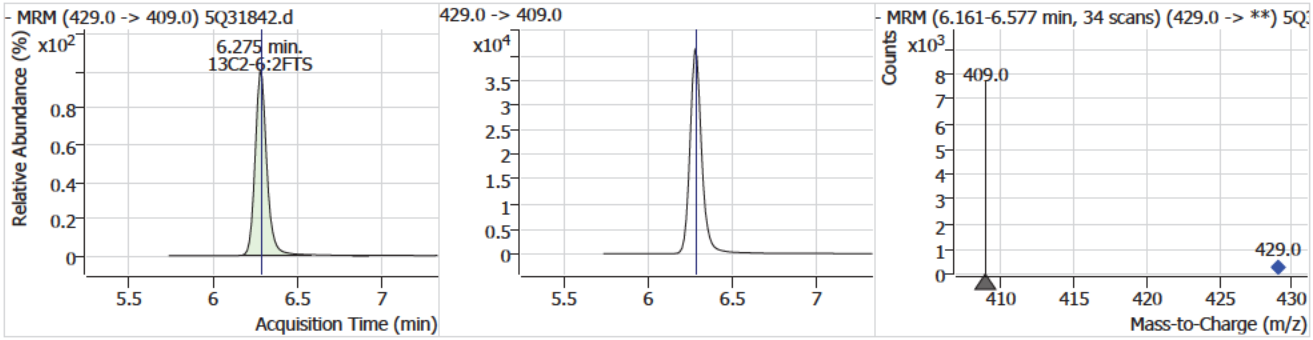
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	20.46	5.64	0.00	163748 (m)	399.0 -> 99.0	52.3	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.06	5.69	0.00	861647	377.0 -> 85.0	28.6	14.2	42.5

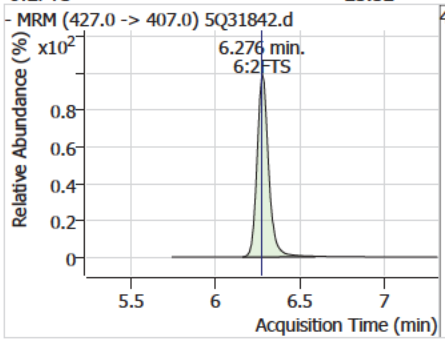


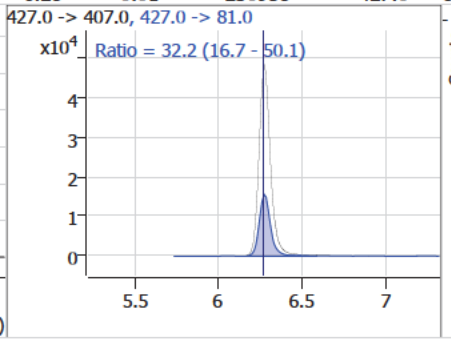
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	197588				

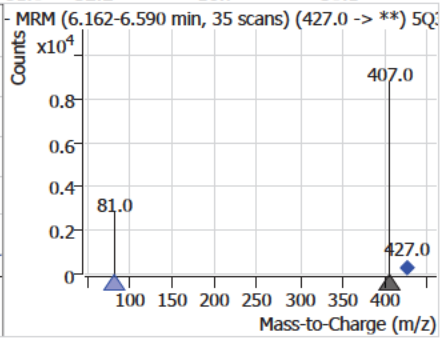


Perfluorinated Compounds by LC/MS/MS

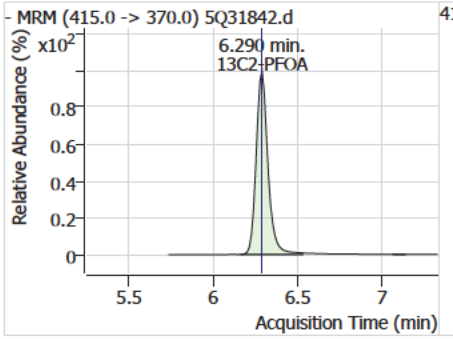
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	23.32	6.28	-0.01	230958	427.0 -> 81.0	32.2	16.7	50.1

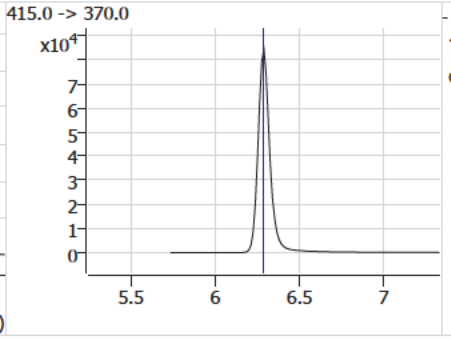


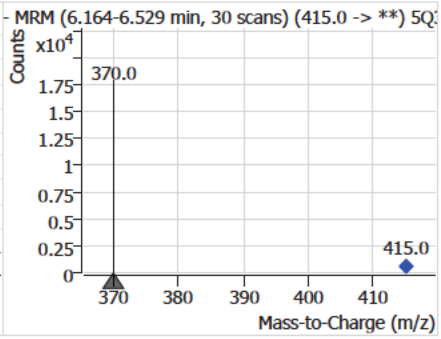




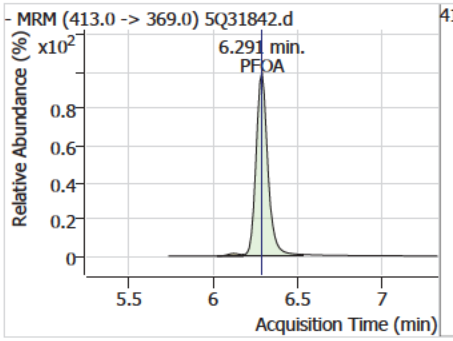
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	404862				

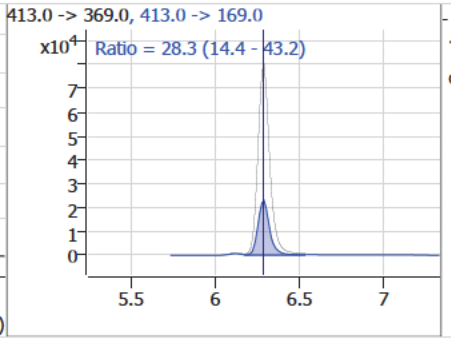


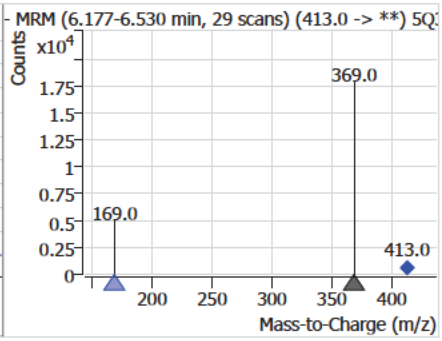




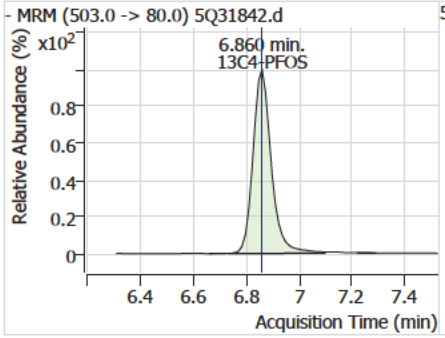
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.28	6.29	0.00	391388	413.0 -> 169.0	28.3	14.4	43.2

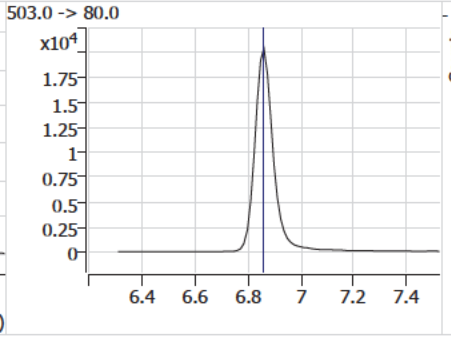


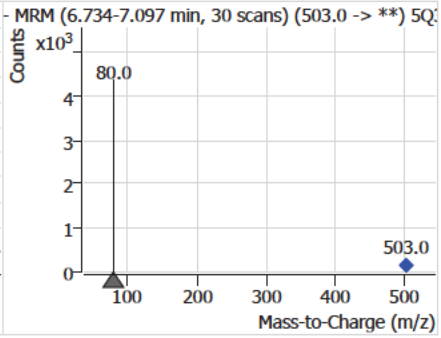




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	97933				







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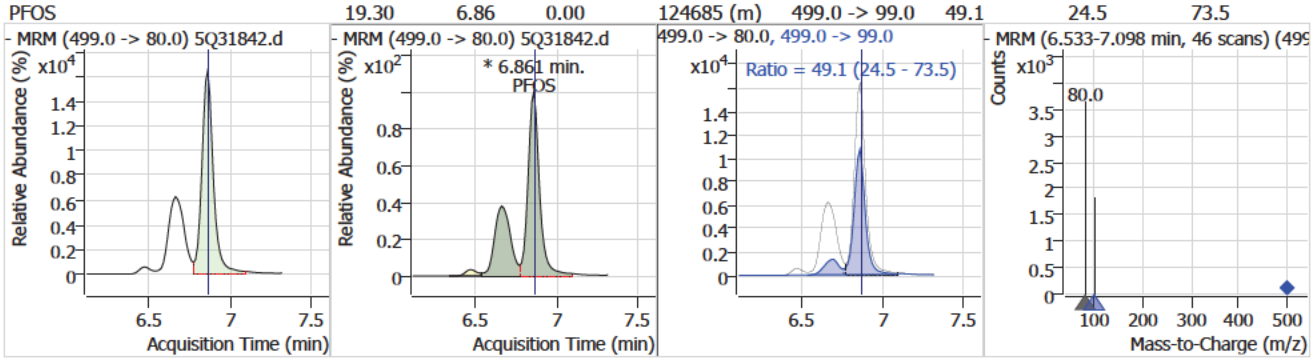
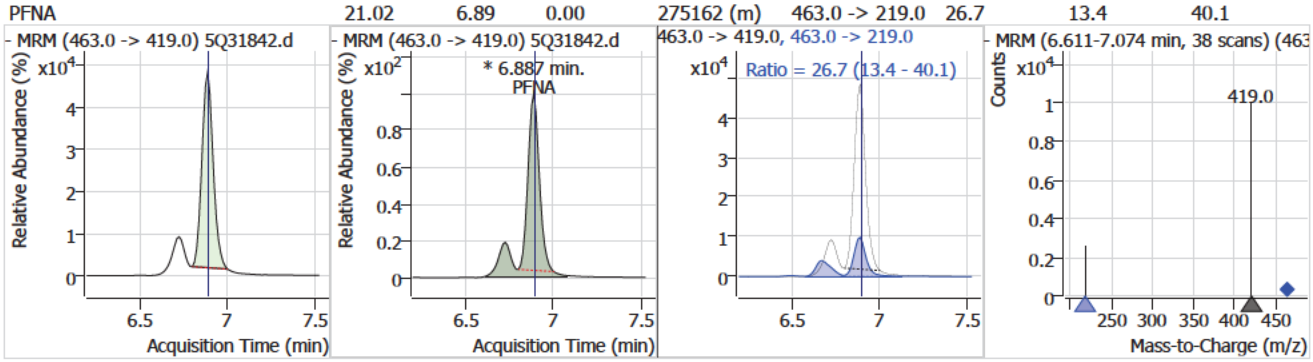
Perfluorinated Compounds by LC/MS/MS

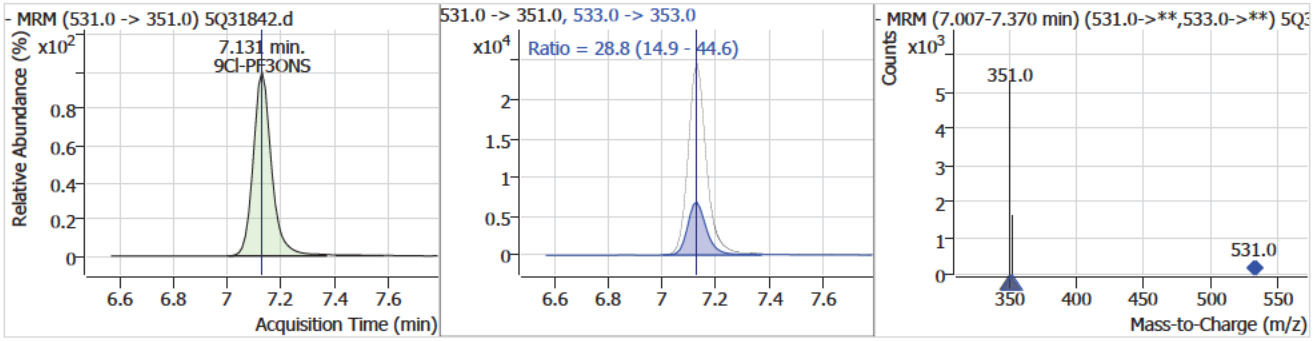
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.30	6.86	0.00	124685 (m)	499.0 -> 99.0	49.1	24.5	73.5



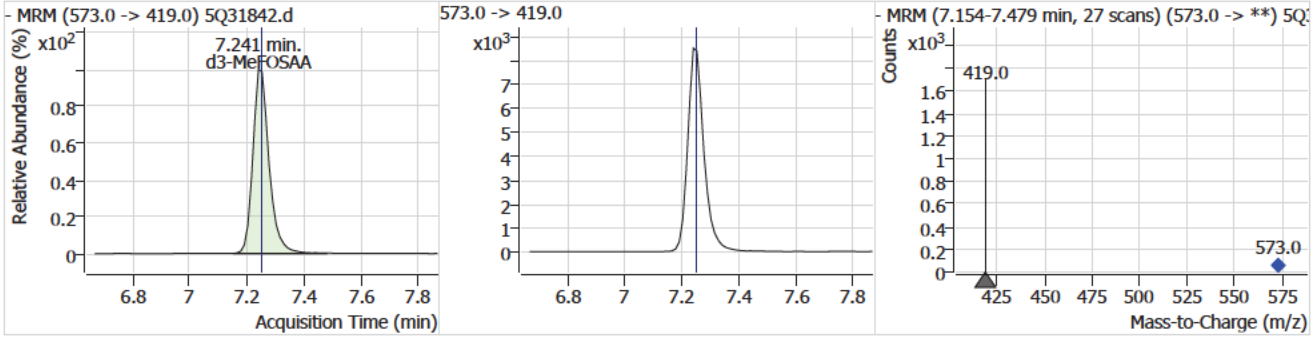
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	21.02	6.89	0.00	275162 (m)	463.0 -> 219.0	26.7	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	21.11	7.13	0.00	116332	533.0 -> 353.0	28.8	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	33337				



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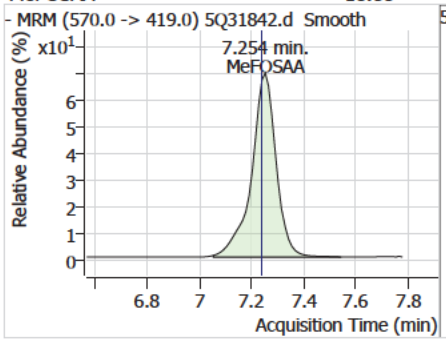
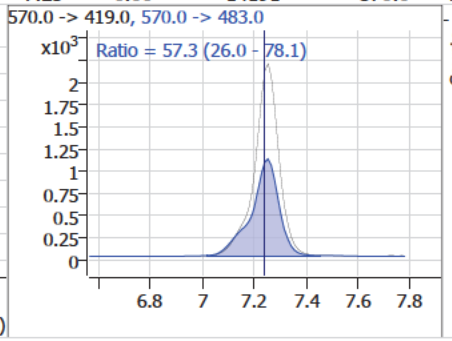
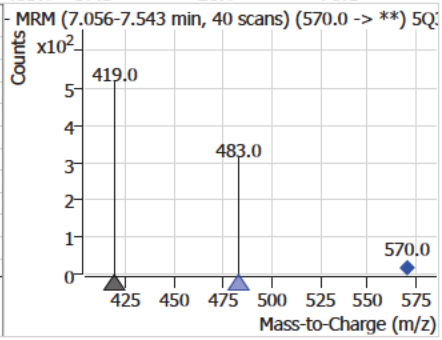
Perfluorinated Compounds by LC/MS/MS

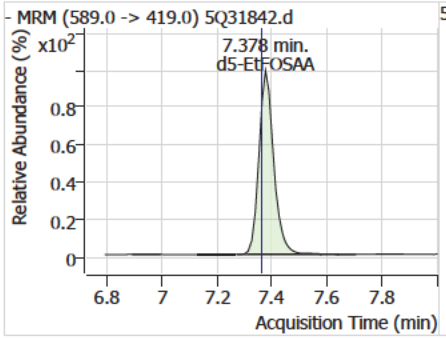
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	18.88	7.25	0.00	14191	570.0 -> 483.0	57.3	26.0	78.1

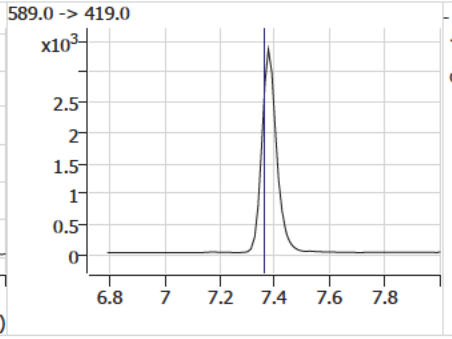


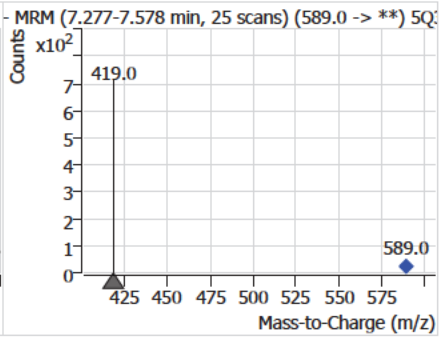




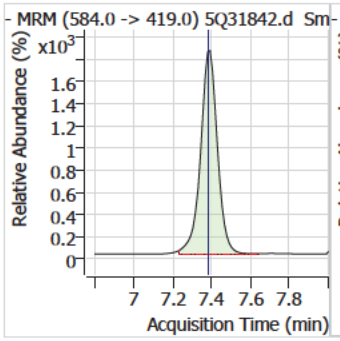
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	19.70	7.38	0.00	12462				

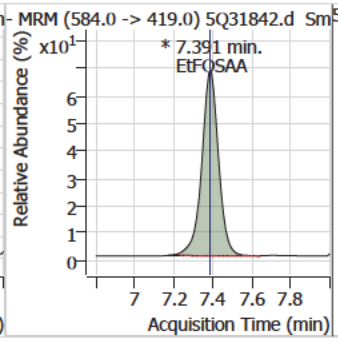


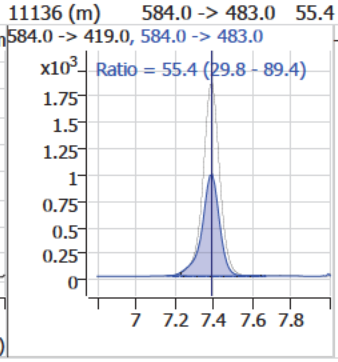


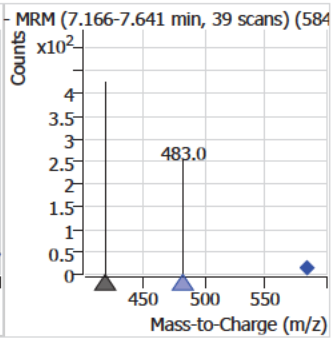


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.96	7.39	0.00	11136 (m)	584.0 -> 483.0	55.4	29.8	89.4

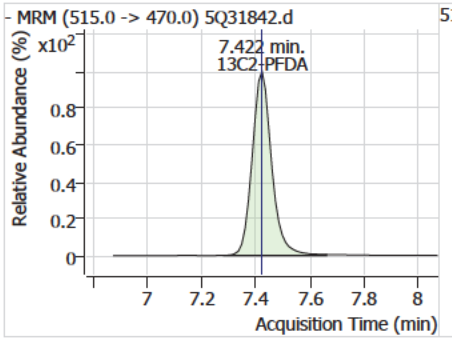


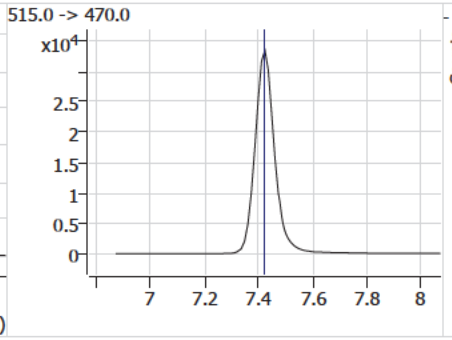


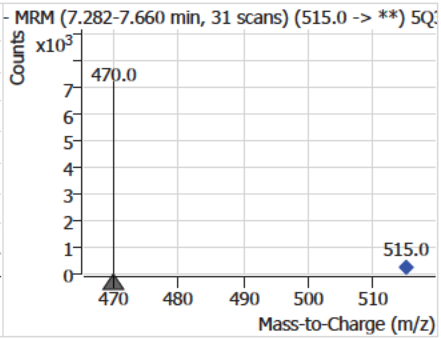




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	9.64	7.42	0.00	166947				







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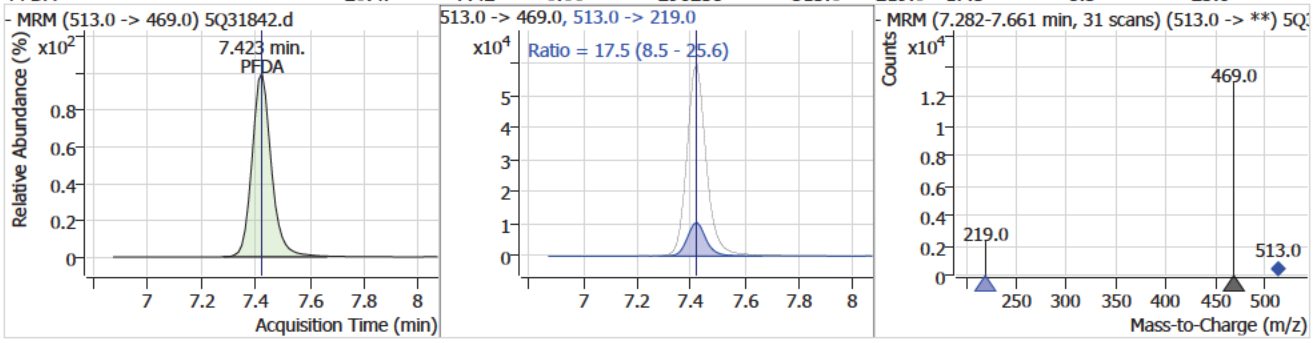
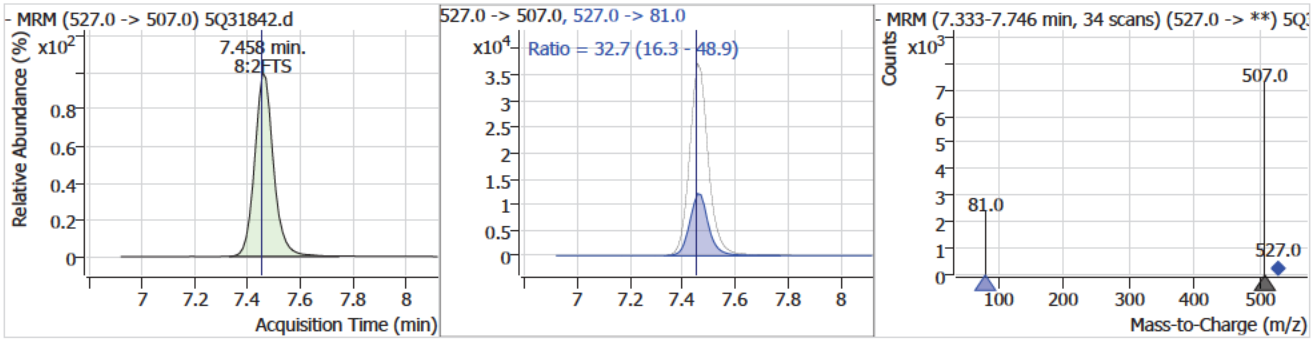
Perfluorinated Compounds by LC/MS/MS

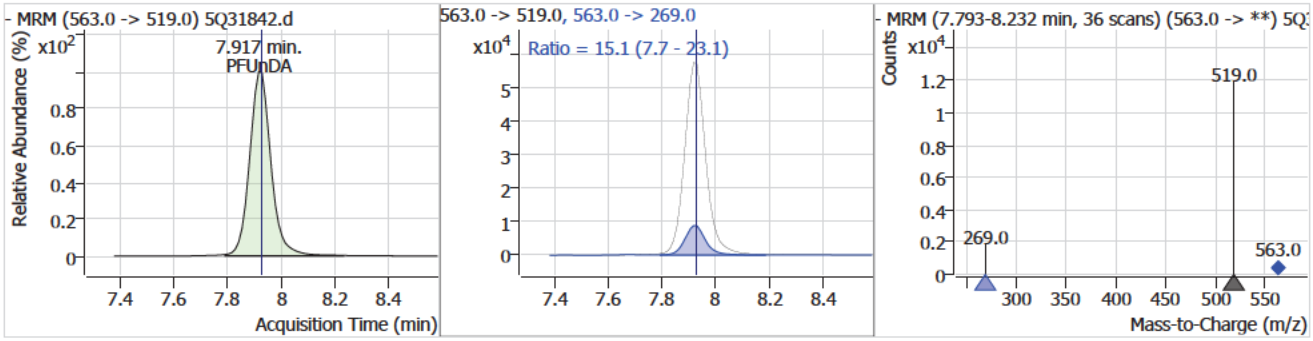
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.47	7.42	0.00	296238	513.0 -> 219.0	17.5	8.5	25.6



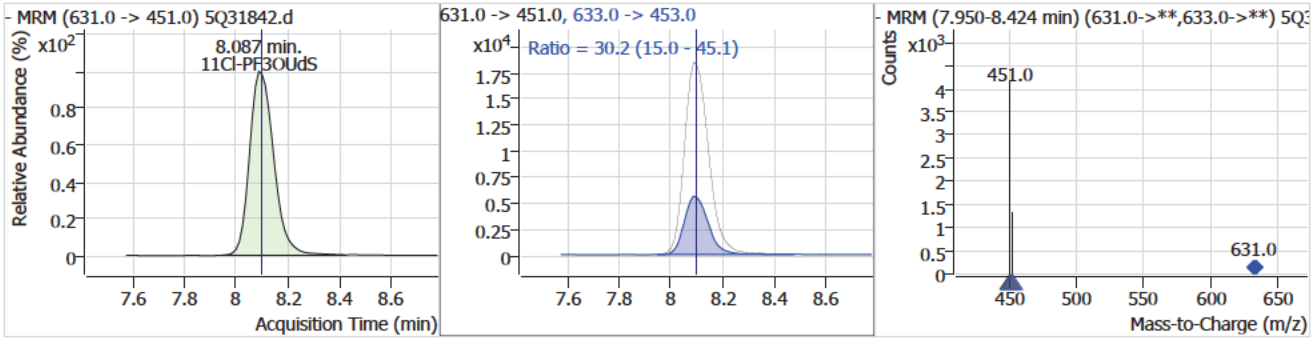
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.38	7.46	-0.01	183653	527.0 -> 81.0	32.7	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.67	7.92	-0.01	316212	563.0 -> 269.0	15.1	7.7	23.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	20.69	8.09	-0.01	120637	633.0 -> 453.0	30.2	15.0	45.1



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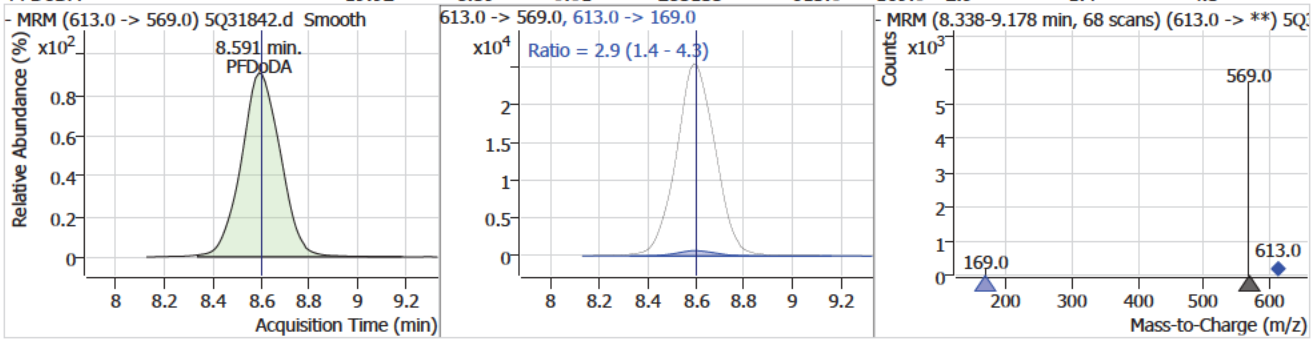
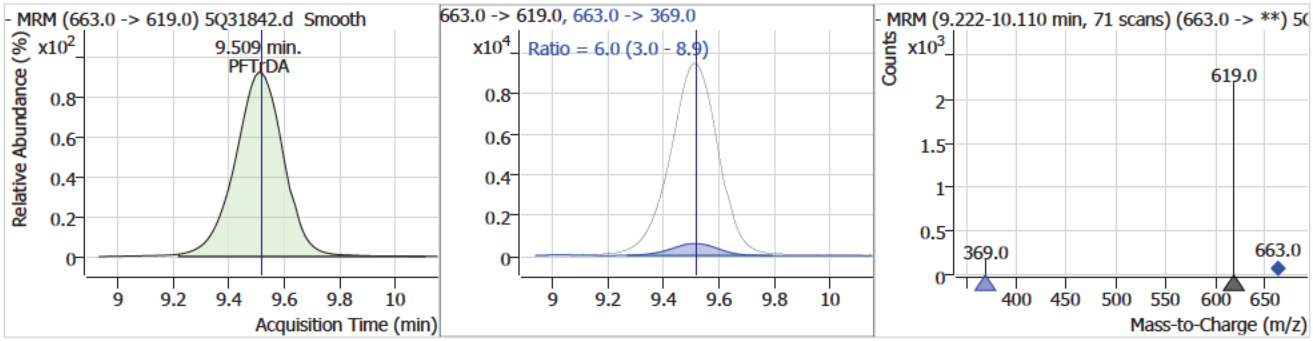
Perfluorinated Compounds by LC/MS/MS

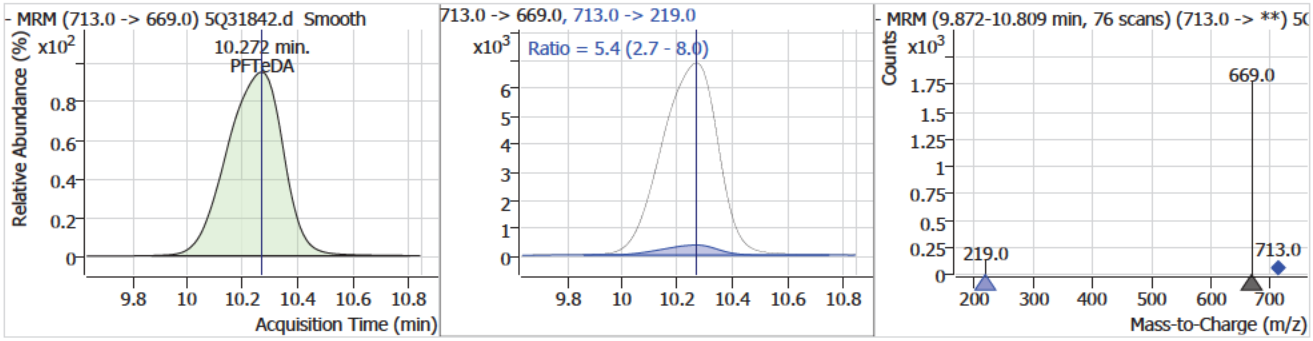
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.92	8.59	-0.01	285135	613.0 -> 169.0	2.9	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	16.15	9.51	-0.01	114462	663.0 -> 369.0	6.0	3.0	8.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.48	10.27	0.00	97867	713.0 -> 219.0	5.4	2.7	8.0



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Manual Integration Approval Summary

Sample Number: S5Q523-ECC523
Lab FileID: 5Q31842.D
Injection Time: 04/17/25 18:40
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6) [redacted]
Supervisor approved: 04/18/25 11:00 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

[redacted]

LCMS3-3Q ANALYSIS LOG

DATE:	04/15/25
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS3-3Q

METHODS:	533m
PROC. METH:	533_041525_S3Q1492
CAL DATE:	04/15/25
ANALYST:	[redacted]
RUN BATCH:	S3Q1492

ELUENT A LOT #:	225380 W/0.1% AA 224297
ELUENT B LOT #:	224231 W/0.1% AA 224297
IC/CC STD LOT #:	LCMS 2490 / 2486
ICV STD LOT #:	12339
ISTD/ID STD LOT #:	LCMS2466-G

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Notes
1	3q101452.d	P1-C9	cond std	533.m	Sample		op8141,S3Q1492,250,,,1,1,water	-
2	3q101453.d	P1-C9	cond std	533.m	Sample		op8141,S3Q1492,250,,,1,1,water	-
3	3q101454.d	P1-C9	cond std	533.m	Sample		op8141,S3Q1492,250,,,1,1,water	-
4	3q101455.d	P1-C9	cond std	533.m	Sample		op8141,S3Q1492,250,,,1,1,water	-
5	3q101456.d	P1-C1	ccb	533.m	Sample		op8141,S3Q1492,250,,,1,1,water	-
6	3q101457.d	P1-C1	ic1492-0	533.m	Sample		op8141,S3Q1492,250,,,1,1,water	✓
7	3q101458.d	P1-C2	ic1492-0.5	533.m	Calibration	2.5/500	op8141,S3Q1492,250,,,1,1,water	✓
8	3q101459.d	P1-C3	ic1492-1	533.m	Calibration	5/500	op8141,S3Q1492,250,,,1,1,water	✓
9	3q101460.d	P1-C4	ic1492-2	533.m	Calibration	10/500	op8141,S3Q1492,250,,,1,1,water	✓
10	3q101461.d	P1-C5	ic1492-5	533.m	Calibration	25/500	op8141,S3Q1492,250,,,1,1,water	✓
11	3q101462.d	P1-C6	ic1492-10	533.m	Calibration	50/500	op8141,S3Q1492,250,,,1,1,water	✓
12	3q101463.d	P1-C7	icc1492-20	533.m	Calibration	100/500	op8141,S3Q1492,250,,,1,1,water	✓
13	3q101464.d	P1-C8	ic1492-40	533.m	Calibration	200/500	op8141,S3Q1492,250,,,1,1,water	✓
14	3q101465.d	P1-C9	ic1492-50	533.m	Calibration	250/500	op8141,S3Q1492,250,,,1,1,water	✓
15	3q101466.d	P1-C1	iblk	533.m	Sample		op8141,S3Q1492,250,,,1,1,water	✓
16	3q101467.d	P1-D1	icv1492-20	533.m	QC	5/500	op8141,S3Q1492,250,,,1,1,water	phenova✓
17	3q101468.d	P1-D2	rt	533.m	Sample		op8141,S3Q1492,250,,,1,1,water	✓
18	3q101469.d	P1-C7	cc1492-20	533.m	QC	100/500	op8141,S3Q1492,250,,,1,1,water	✓
19	3q101470.d	P1-C2	cc1492-0.5LL	533.m	QC	2.5/500	op8141,S3Q1492,250,,,1,1,water	✓
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21	3q101472.d	P3-B2	op8883-bs	533.m	Sample		op8883,S3Q1492,250,,,1,1,water	rr1x
22	3q101473.d	P3-B3	fc23899-1	533.m	Sample		op8883,S3Q1492,280,,,1,1,water	rr1x
23	3q101474.d	P3-B4	op8883-ms	533.m	Sample		op8883,S3Q1492,280,,,1,1,water	rr1x
24	3q101475.d	P3-B5	fc23899-2	533.m	Sample		op8883,S3Q1492,280,,,1,1,water	redo
25	3q101476.d	P3-B6	fc23899-3	533.m	Sample		op8883,S3Q1492,280,,,1,1,water	rr1x
26	3q101477.d	P3-B7	op8883-dup	533.m	Sample		op8883,S3Q1492,280,,,1,1,water	rr1x
27	3q101478.d	P3-B8	fc23899-4	533.m	Sample		op8883,S3Q1492,280,,,1,1,water	redo
28	3q101479.d	P3-B9	fc23838-3	533.m	Sample		op8883,S3Q1492,250,,,1,1,water	redo
29	3q101480.d	P1-C7	ecc1492-20	533.m	QC	100/500	op8141,S3Q1492,250,,,1,1,water	✓
30	3q101481.d	P1-C1	ccb	533.m	Sample		op8141,S3Q1492,250,,,1,1,water	-

Printed 4/16/2025 @ 9:25 AM

[redacted]

LCMS3-3Q ANALYSIS LOG

DATE:	04/16/25
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS3-3Q

METHODS:	533m
PROC. METH:	533_041525_S3Q1492
CAL DATE:	04/15/25
ANALYST:	[redacted]
RUN BATCH:	S3Q1493

ELUENT A LOT #:	225380 W/0.1% AA 224297
ELUENT B LOT #:	224231 W/0.1% AA 224297
IC/CC STD LOT #:	LCMS 2490 / 2486
ICV STD LOT #:	12339
ISTD/ID STD LOT #:	LCMS2466-G

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Notes
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2	3q101483.d	P1-C9	cond std	533.m	Sample		op8141,S3Q1493,250,,,1,1,water	-
3	3q101484.d	P1-C9	cond std	533.m	Sample		op8141,S3Q1493,250,,,1,1,water	-
4	3q101485.d	P1-C9	cond std	533.m	Sample		op8141,S3Q1493,250,,,1,1,water	-
5	3q101486.d	P1-C1	ccb	533.m	Sample		op8141,S3Q1493,250,,,1,1,water	-
6	3q101487.d	P1-C9	high std	533.m	Sample		op8141,S3Q1493,250,,,1,1,water	✓
7	3q101488.d	P1-C1	iblk	533.m	Sample		op8141,S3Q1493,250,,,1,1,water	✓
8	3q101489.d	P1-D2	rt	533.m	Sample		op8141,S3Q1493,250,,,1,1,water	✓
9	3q101490.d	P1-C7	cc1492-20	533.m	QC	100/500	op8141,S3Q1493,250,,,1,1,water	✓
10	3q101491.d	P1-C2	cc1492-0.5LL	533.m	QC	2.5/500	op8141,S3Q1493,250,,,1,1,water	✓
11	3q101492.d	P1-C1	ccb	533.m	Sample		op8141,S3Q1493,250,,,1,1,water	-
12	3q101493.d	P3-B2	op8883-bs	533.m	Sample		op8883,S3Q1493,250,,,1,1,water	✓
13	3q101494.d	P3-B1	op8883-mb	533.m	Sample		op8883,S3Q1493,250,,,1,1,water	✓
14	3q101495.d	P3-B3	fc23899-1	533.m	Sample		op8883,S3Q1493,280,,,1,1,water	✓
15	3q101496.d	P3-B4	op8883-ms	533.m	Sample		op8883,S3Q1493,280,,,1,1,water	✓
16	3q101497.d	P3-B6	fc23899-3	533.m	Sample		op8883,S3Q1493,280,,,1,1,water	✓
17	3q101498.d	P3-B7	op8883-dup	533.m	Sample		op8883,S3Q1493,280,,,1,1,water	✓
18	3q101499.d	P1-C7	ecc1492-20	533.m	QC	100/500	op8141,S3Q1493,250,,,1,1,water	✓
19	3q101500.d	P1-C1	ccb	533.m	Sample		op8141,S3Q1493,250,,,1,1,water	-

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LCMS3-3Q ANALYSIS LOG

DATE:	04/17/25
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS3-3Q

METHODS:	533m
PROC. METH:	533_041525_S3Q1492
CAL DATE:	04/15/25
ANALYST:	[redacted]
RUN BATCH:	S3Q1494

ELUENT A LOT #:	225380 W/0.1% AA 224297
ELUENT B LOT #:	224231 W/0.1% AA 224297
IC/CC STD LOT #:	LCMS 2490 / 2486
ICV STD LOT #:	12339
ISTD/ID STD LOT #:	LCMS2466-G

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Notes
1	3q101513.d	P1-C9	cond std	533.m	Sample		op8907,S3Q1494,250,,,1,1,water	-
2	3q101514.d	P1-C9	cond std	533.m	Sample		op8907,S3Q1494,250,,,1,1,water	-
3	3q101515.d	P1-C8	cond std	533.m	Sample		op8907,S3Q1494,250,,,1,1,water	-
4	3q101516.d	P1-C1	ccb	533.m	Sample		op8907,S3Q1494,250,,,1,1,water	-
5	3q101517.d	P1-C9	high std	533.m	Sample		op8907,S3Q1494,250,,,1,1,water	✓
6	3q101518.d	P1-C1	iblk	533.m	Sample		op8907,S3Q1494,250,,,1,1,water	✓
7	3q101519.d	P1-D2	rt	533.m	Sample		op8907,S3Q1494,250,,,1,1,water	✓
8	3q101520.d	P1-C7	cc1492-20	533.m	QC	100/500	op8907,S3Q1494,250,,,1,1,water	✓
9	3q101521.d	P1-C2	cc1492-0.5LL	533.m	QC	2.5/500	op8907,S3Q1494,250,,,1,1,water	✓
10	3q101522.d	P1-C1	ccb	533.m	Sample		op8907,S3Q1494,250,,,1,1,water	-
11	3q101523.d	P3-B5	fc23899-2	533.m	Sample		op8907,S3Q1494,280,,,1,1,water	✓
12	3q101524.d	P3-C1	op8907-bs:1	533.m	Sample		op8907,S3Q1494,250,,,1,1,water	✓
13	3q101525.d	P3-C2	op8907-mb	533.m	Sample		op8907,S3Q1494,250,,,1,1,water	✓
14	3q101526.d	P3-C3	fc23948-1	533.m	Sample		op8907,S3Q1494,285,,,1,1,water	✓
15	3q101527.d	P3-C4	op8907-ms:1	533.m	Sample		op8907,S3Q1494,285,,,1,1,water	✓
16	3q101528.d	P3-C5	fc23948-2	533.m	Sample		op8907,S3Q1494,270,,,1,1,water	✓
17	3q101529.d	P3-C6	fc23948-3	533.m	Sample		op8907,S3Q1494,285,,,1,1,water	✓
18	3q101530.d	P3-C7	op8907-dup	533.m	Sample		op8907,S3Q1494,285,,,1,1,water	✓
19	3q101531.d	P3-C8	fc23948-4	533.m	Sample		op8907,S3Q1494,285,,,1,1,water	✓
20	3q101532.d	P3-C9	fc23899-4re	533.m	Sample		op8907,S3Q1494,285,,,1,1,water	✓
21	3q101533.d	P1-C7	cc1492-20	533.m	QC	100/500	op8907,S3Q1494,250,,,1,1,water	✓
22	3q101534.d	P3-D1	fc23838-3	533.m	Sample		op8907,S3Q1494,50,,,1,1,water	✓
23	3q101535.d	P3-D2	fc23838-3	533.m	Sample		op8907,S3Q1494,250,,,1,1,water	✓
24	3q101536.d	P1-C7	ecc1492-20	533.m	QC	100/500	op8907,S3Q1494,250,,,1,1,water	✓
25	3q101537.d	P1-C1	ccb	533.m	Sample		op8907,S3Q1494,250,,,1,1,water	-

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LCMS2-2Q ANALYSIS LOG

DATE:	04/15/25
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS5-5Q

METHODS:	537 DW
PROC. METH:	537_041525_s5q521
CAL DATE:	04/15/25
ANALYST:	[redacted]
RUN BATCH:	S5Q521

ELUENT A LOT #:	H2O lot:225382 w 0.1% A.A lot:194003
ELUENT B LOT #:	MeOH:224231 w 0.1% AA:194003
IC/CC STD LOT #:	LCMS 2484
ICV STD LOT #:	12647A tpfoa:2491
ISTD/ID STD LOT #:	LCMS2492

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	5Q31754.d	P1-A9	cond std	537.m	Sample		OP8882,S5Q521,250,,,1,1,water	✓
2	5Q31755.d	P1-A9	cond std	537.m	Sample		OP8882,S5Q521,250,,,1,1,water	✓
3	5Q31756.d	P1-A9	cond std	537.m	Sample		OP8882,S5Q521,250,,,1,1,water	✓
4	5Q31757.d	P1-A1	ic521-0	537.m	Sample		OP8882,S5Q521,250,,,1,1,water	Tune File
5	5Q31758.d	P1-A2	ic521-0.5	537.m	Calibration	2.5/500	OP8882,S5Q521,250,,,1,1,water	pass +/-50%
6	5Q31759.d	P1-A3	ic521-1	537.m	Calibration	5/500	OP8882,S5Q521,250,,,1,1,water	✓
7	5Q31760.d	P1-A4	ic521-2	537.m	Calibration	10/500	OP8882,S5Q521,250,,,1,1,water	✓
8	5Q31761.d	P1-A5	ic521-5	537.m	Calibration	20/500	OP8882,S5Q521,250,,,1,1,water	✓
9	5Q31762.d	P1-A6	ic521-10	537.m	Calibration	50/500	OP8882,S5Q521,250,,,1,1,water	✓
10	5Q31763.d	P1-A7	icc521-20	537.m	Calibration	100/500	OP8882,S5Q521,250,,,1,1,water	✓
11	5Q31764.d	P1-A8	ic521-50	537.m	Calibration	250/500	OP8882,S5Q521,250,,,1,1,water	✓
12	5Q31765.d	P1-A9	ic521-100	537.m	Calibration	1x	OP8882,S5Q521,250,,,1,1,water	✓
13	5Q31766.d	P1-B1	icv521-20	537.m	QC	10/500	OP8882,S5Q521,250,,,1,1,water	par30, doda high
14	5Q31767.d	P1-B2	rt	537.m	Sample	100/500	OP8882,S5Q521,250,,,1,1,water	✓
15	5Q31768.d	P1-A7	cc521-20	537.m	QC	100/500	OP8882,S5Q521,250,,,1,1,water	✓
16	5Q31769.d	P1-A2	cc521-0.5LL	537.m	QC	2.5/500	OP8882,S5Q521,250,,,1,1,water	pass +/-50%
17	5Q31770.d	P2-C1	op8882-bs	537.m	Sample		OP8882,S5Q521,250,,,1,1,water	un, do, tri teda, me, et, 9cl, 11cl low
18	5Q31771.d	P2-C2	op8882-mb	537.m	Sample		OP8882,S5Q521,250,,,1,1,water	rr batch
19	5Q31772.d	P2-C3	fc23899-1a	537.m	Sample		OP8882,S5Q521,280,,,1,1,water	rr batch
20	5Q31773.d	P2-C4	op8882-ms	537.m	Sample		OP8882,S5Q521,280,,,1,1,water	rr batch
21	5Q31774.d	P2-C5	fc23899-2a	537.m	Sample		OP8882,S5Q521,280,,,1,1,water	rr batch
22	5Q31775.d	P2-C6	fc23899-3a	537.m	Sample		OP8882,S5Q521,280,,,1,1,water	rr batch
23	5Q31776.d	P2-C7	op8882-dup	537.m	Sample		OP8882,S5Q521,280,,,1,1,water	rr batch
24	5Q31777.d	P2-C8	fc23899-4a	537.m	Sample		OP8882,S5Q521,280,,,1,1,water	rr batch
25	5Q31778.d	P2-C9	fc23838-3	537.m	Sample		OP8882,S5Q521,250,,,1,1,water	rr batch
26	5Q31779.d	P2-D1	fc23838-3	537.m	Sample		OP8882,S5Q521,50,,,1,1,water	rr batch
27	5Q31780.d	P1-A7	ecc521-20	537.m	QC	100/500	OP8882,S5Q521,250,,,1,1,water	✓
28	5Q31781.d	P1-A1	ccb	537.m	Sample		OP8882,S5Q521,250,,,1,1,water	✓

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LCMS2-2Q ANALYSIS LOG

DATE:	04/16/25
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS5-5Q

METHODS:	537 DW
PROC. METH:	537_041625_s5q522
CAL DATE:	04/16/25
ANALYST:	[redacted]
RUN BATCH:	S5Q522

ELUENT A LOT #:	H2O lot:250105 w 0.1% A.A lot:224297
ELUENT B LOT #:	MeOH:222643 w 0.1% AA:224297
IC/CC STD LOT #:	LCMS 2484
ICV STD LOT #:	12647A tpfoa:2491
ISTD/ID STD LOT #:	LCMS2492

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	5Q31782.d	P1-A9	cond std	537.m	Sample		OP8882,S5Q522,250,,,1,1,water	✓
2	5Q31783.d	P1-A9	cond std	537.m	Sample		OP8882,S5Q522,250,,,1,1,water	✓
3	5Q31784.d	P1-A9	cond std	537.m	Sample		OP8882,S5Q522,250,,,1,1,water	✓
4	5Q31785.d	P1-A1	ic522-0	537.m	Sample		OP8882,S5Q522,250,,,1,1,water	Tune File
5	5Q31786.d	P1-A2	ic522-0.5	537.m	Calibration	2.5/500	OP8882,S5Q522,250,,,1,1,water	✓
6	5Q31787.d	P1-A3	ic522-1	537.m	Calibration	5/500	OP8882,S5Q522,250,,,1,1,water	✓
7	5Q31788.d	P1-A4	ic522-2	537.m	Calibration	10/500	OP8882,S5Q522,250,,,1,1,water	✓
8	5Q31789.d	P1-A5	ic522-5	537.m	Calibration	20/500	OP8882,S5Q522,250,,,1,1,water	✓
9	5Q31790.d	P1-A6	ic522-10	537.m	Calibration	50/500	OP8882,S5Q522,250,,,1,1,water	✓
10	5Q31791.d	P1-A7	icc522-20	537.m	Calibration	100/500	OP8882,S5Q522,250,,,1,1,water	✓
11	5Q31792.d	P1-A8	ic522-50	537.m	Calibration	250/500	OP8882,S5Q522,250,,,1,1,water	✓
12	5Q31793.d	P1-A9	ic522-100	537.m	Calibration	1x	OP8882,S5Q522,250,,,1,1,water	✓
13	5Q31794.d	P1-B1	icv522-20	537.m	QC	10/500	OP8882,S5Q522,250,,,1,1,water	par30, doda high
14	5Q31795.d	P1-B2	rt	537.m	Sample		OP8882,S5Q522,250,,,1,1,water	✓
15	5Q31796.d	P1-A7	cc522-20	537.m	QC	100/500	OP8882,S5Q522,250,,,1,1,water	✓
16	5Q31797.d	P1-A2	cc522-0.5LL	537.m	QC	2.5/500	OP8882,S5Q522,250,,,1,1,water	pass +/-50%
17	5Q31798.d	P2-C1	op8882-bs	537.m	Sample		OP8882,S5Q522,250,,,1,1,water	un, do, tri teda, me, et, 11cl low, eis high ✓
18	5Q31799.d	P2-C2	op8882-mb	537.m	Sample		OP8882,S5Q522,250,,,1,1,water	etfosaa eis high✓
19	5Q31800.d	P2-C3	fc23899-1a	537.m	Sample		OP8882,S5Q522,280,,,1,1,water	✓
20	5Q31801.d	P2-C4	op8882-ms	537.m	Sample		OP8882,S5Q522,280,,,1,1,water	✓
21	5Q31802.d	P2-C5	fc23899-2a	537.m	Sample		OP8882,S5Q522,280,,,1,1,water	redo
22	5Q31803.d	P2-C6	fc23899-3a	537.m	Sample		OP8882,S5Q522,280,,,1,1,water	✓
23	5Q31804.d	P2-C7	op8882-dup	537.m	Sample		OP8882,S5Q522,280,,,1,1,water	✓
24	5Q31805.d	P2-C8	fc23899-4a	537.m	Sample		OP8882,S5Q522,280,,,1,1,water	redo
25	5Q31806.d	P2-C9	fc23838-3	537.m	Sample		OP8882,S5Q522,250,,,1,1,water	redo
26	5Q31807.d	P2-D1	fc23838-3	537.m	Sample		OP8882,S5Q522,50,,,1,1,water	redo
27	5Q31808.d	P1-A7	ecc522-20	537.m	QC	100/500	OP8882,S5Q522,250,,,1,1,water	✓
28	5Q31809.d	P1-A1	ccb	537.m	Sample		OP8882,S5Q522,250,,,1,1,water	✓

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LCMS2-2Q ANALYSIS LOG

DATE:	04/17/25
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS5-5Q

METHODS:	537 DW
PROC. METH:	537_041725_s5q523
CAL DATE:	04/17/25
ANALYST:	[redacted]
RUN BATCH:	S5Q523

ELUENT A LOT #:	H2O lot:250105 w 0.1% A.A lot:224297
ELUENT B LOT #:	MeOH:222643 w 0.1% AA:224297
IC/CC STD LOT #:	LCMS 2484
ICV STD LOT #:	12647A tpfoa:2491
ISTD/ID STD LOT #:	LCMS2492

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	5Q31816.d	P1-A8	cond std	537.m	Sample		OP8882,S5Q523,250,,,1,1,water	-
2	5Q31817.d	P1-A8	cond std	537.m	Sample		OP8882,S5Q523,250,,,1,1,water	-
3	5Q31818.d	P2-F2	bs dw test	537.m	Sample		OP8882,S5Q523,250,,,1,1,water	✓
4	5Q31819.d	P1-A1	ic523-0	537.m	Sample		OP8882,S5Q523,250,,,1,1,water	Tune File
5	5Q31820.d	P1-A2	ic523-0.5	537.m	Calibration	2.5/500	OP8882,S5Q523,250,,,1,1,water	pass +/-50%
6	5Q31821.d	P1-A3	ic523-1	537.m	Calibration	5/500	OP8882,S5Q523,250,,,1,1,water	✓
7	5Q31822.d	P1-A4	ic523-2	537.m	Calibration	10/500	OP8882,S5Q523,250,,,1,1,water	✓
8	5Q31823.d	P1-A5	ic523-5	537.m	Calibration	20/500	OP8882,S5Q523,250,,,1,1,water	✓
9	5Q31824.d	P1-A6	ic523-10	537.m	Calibration	50/500	OP8882,S5Q523,250,,,1,1,water	✓
10	5Q31825.d	P1-A7	icc523-20	537.m	Calibration	100/500	OP8882,S5Q523,250,,,1,1,water	✓
11	5Q31826.d	P1-A8	ic523-50	537.m	Calibration	250/500	OP8882,S5Q523,250,,,1,1,water	✓
12	5Q31827.d	P1-A9	ic523-100	537.m	Calibration	1x	OP8882,S5Q523,250,,,1,1,water	✓
13	5Q31828.d	P1-B1	icv523-20	537.m	QC	10/500	OP8882,S5Q523,250,,,1,1,water	par30✓
14	5Q31829.d	P1-B2	rt	537.m	Sample		OP8882,S5Q523,250,,,1,1,water	✓
15	5Q31830.d	P1-A7	cc523-20	537.m	QC	100/500	OP8882,S5Q523,250,,,1,1,water	✓
16	5Q31831.d	P1-A2	cc523-0.5LL	537.m	QC	2.5/500	OP8882,S5Q523,250,,,1,1,water	✓
17	5Q31832.d	P2-E1	op8904-bs	537.m	Sample		OP8904,S5Q523,250,,,1,1,water	rr1x tri, teda, doda targets low
18	5Q31833.d	P2-E2	op8904-mb	537.m	Sample		OP8904,S5Q523,250,,,1,1,water	rr1x bs targets low
19	5Q31834.d	P2-E3	fc23797-1are	537.m	Sample		OP8904,S5Q523,280,,,1,1,water	✓
20	5Q31835.d	P2-E4	fc23948-1a	537.m	Sample		OP8904,S5Q523,280,,,1,1,water	rr1x bs targets low, sample eis high
21	5Q31836.d	P2-E5	fc23948-2a	537.m	Sample		OP8904,S5Q523,285,,,1,1,water	rr1x bs targets low, sample eis high
22	5Q31837.d	P2-E6	fc23948-3a	537.m	Sample		OP8904,S5Q523,285,,,1,1,water	rr1x bs targets low, sample eis high
23	5Q31838.d	P2-E7	op8904-ms	537.m	Sample		OP8904,S5Q523,280,,,1,1,water	rr1x bs targets low, sample eis high
24	5Q31839.d	P2-E8	fc23948-4a	537.m	Sample		OP8904,S5Q523,280,,,1,1,water	rr1x bs targets low, sample eis high
25	5Q31840.d	P2-E9	op8904-dup	537.m	Sample		OP8904,S5Q523,280,,,1,1,water	rr1x bs targets low, sample eis high
26	5Q31841.d	P2-F1	fc23899-4are	537.m	Sample		OP8904,S5Q523,280,,,1,1,water	✓
27	5Q31842.d	P1-A7	ecc523-20	537.m	QC	100/500	OP8882,S5Q523,250,,,1,1,water	✓
28	5Q31843.d	P1-A1	ccb	537.m	Sample		OP8882,S5Q523,250,,,1,1,water	-

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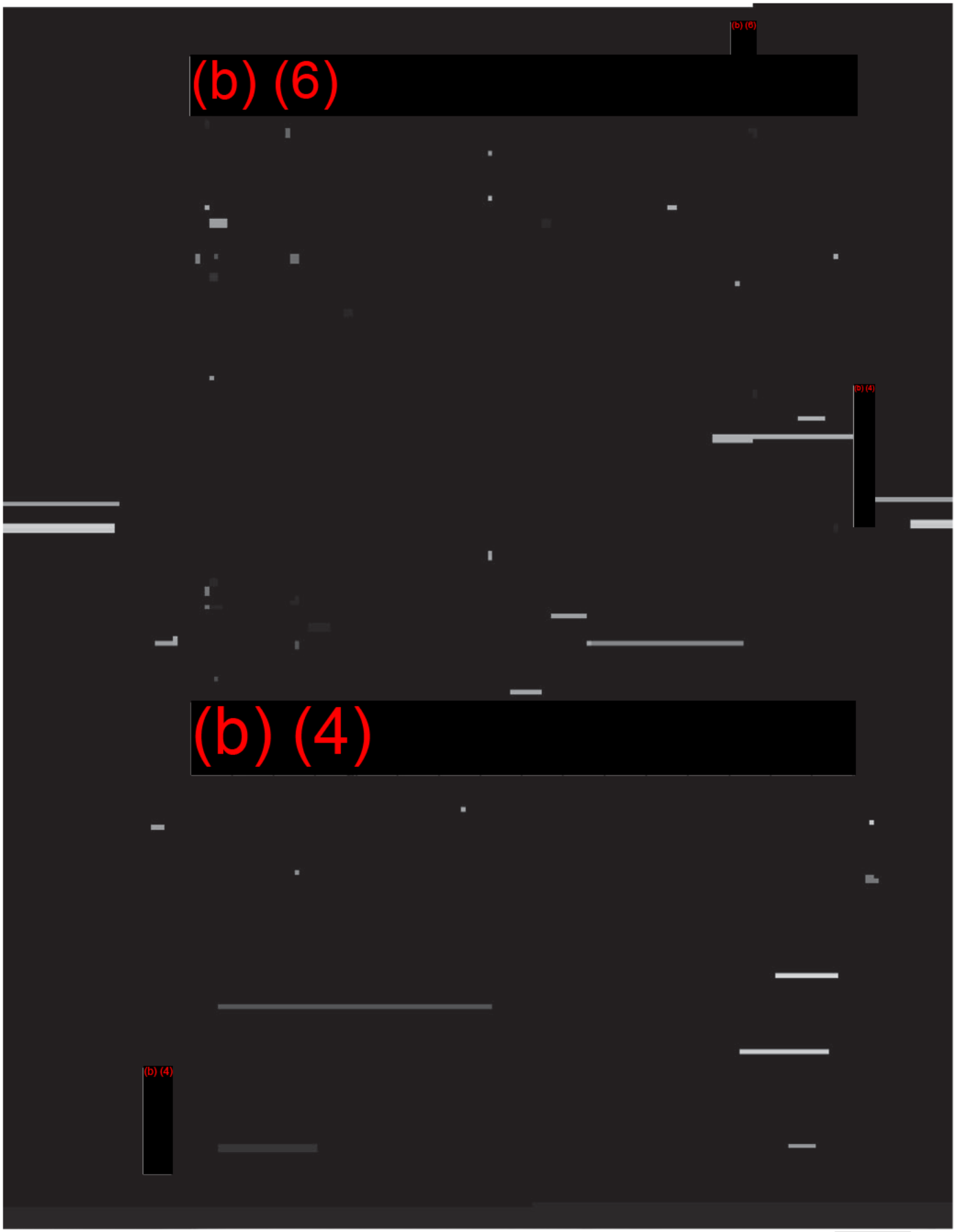
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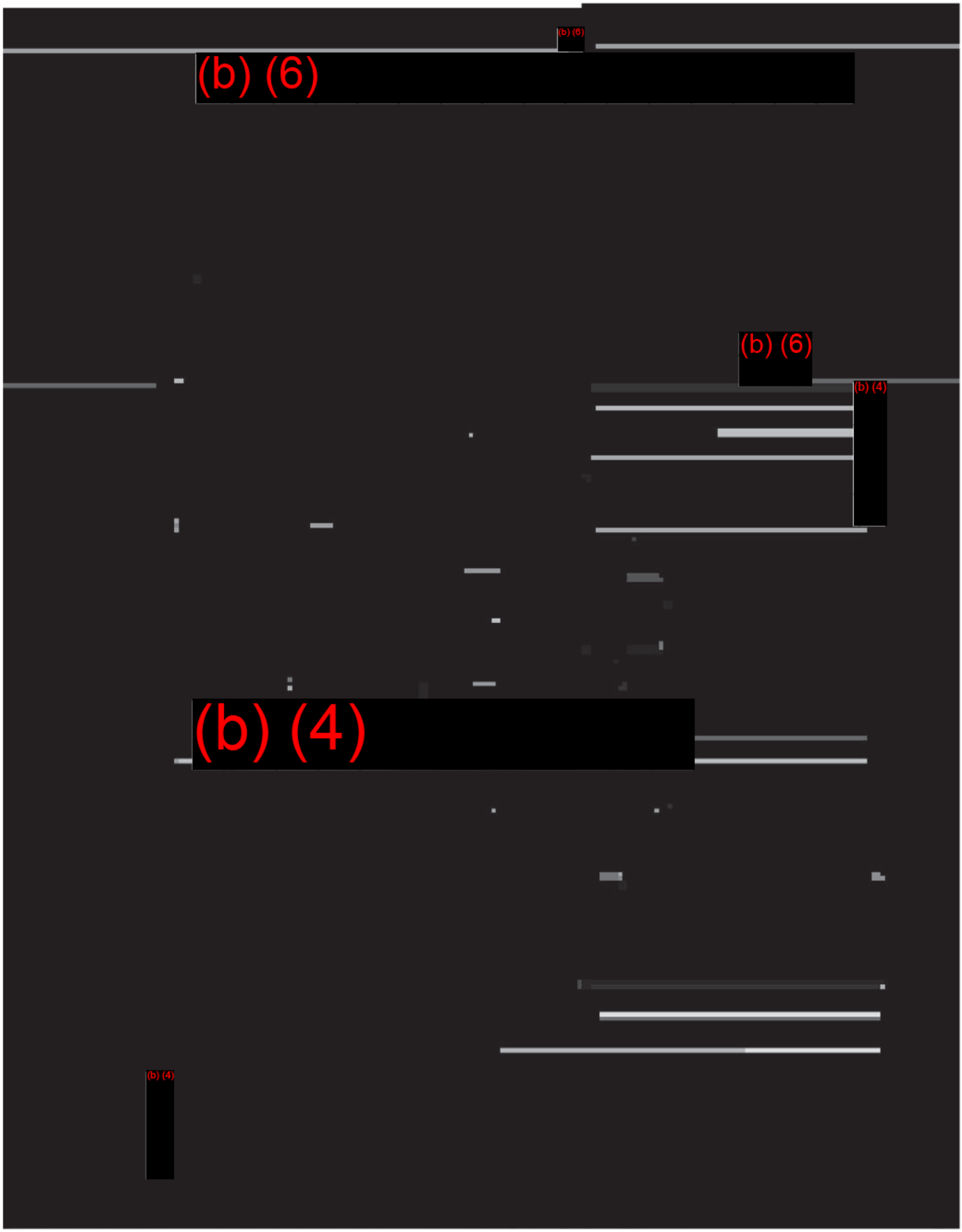
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1.	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	4185	11ClPF3OUdS			0.017			
2.	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)		9ClPF3ONS1023	0.043	2.15	0.017			
	Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA1223	0.042	2.12	0.017			
4.	Perfluoro(2-methyl-3-oxahexanoic) acid (HFPO-DA)	99666	121923	0.04	2.00	0.017	50.2	2.00	0.04
5.	Perfluoro-3,6-dioxaheptanoic acid (NFDHA)	4448	36OPFHpA0323	0.04	2.00	0.017	50.0	2.00	0.04
	Perfluoro-n-butanoic acid (PFBA)	64459	030720	0.02	1.00	0.004	100.2	2.00	0.04
7.	Perfluorobutanesulfonic acid (PFBS)	99194	100523	0.04	2.00	0.017	50.2	2.01	0.04
8.	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	67398	090823	0.040	2.00	0.0			
	Perfluorodecanoic acid (PFDA)	99195	100523	0.04	2.00	0.0			
10.	Perfluorododecanoic acid (PFDoA)	99196	052423	0.04	2.00	0.0			
11.	Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	65587	090723	0.040	2.00	0.0			
	Perfluoro-1-heptanesulfonic acid (PFHpS)	3672	LPFHpS0923	0.042	2.10	0.0			
	Perfluoroheptanoic acid (PFHpA)	99197	110923	0.04	2.00	0.0			
14.	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	65271	063023	0.04	2.00	0.0			
15.	Perfluoro-1-hexanesulfonic acid (br-PFHxS)*	99198							
	Perfluorohexanoic acid (PFHxA)	99199							
17.	Perfluoro-4-oxapentanoic acid (PF4OPaA; PFMPA)	65439							
	Perfluoro-5-oxahexanoic acid (PF5OHxA; PFMBA)	65440							
	Perfluorononanoic acid (PFNA)	99200							
20.	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	65272							
	Heptadecafluorooctanesulfonic acid (br-PFOS)*	99201							
	Perfluorooctanoic acid (br-PFOA)*	64458							
	Perfluoro-n-pentanoic acid (PFPeA)	99543							
	Perfluoro-1-pentanesulfonic acid (PFPeS)								

Perfluoro-1-hexanesulfonic acid (linear)*	[illegible]								
Perfluoro-1-hexanesulfonic acid (branched isomer)*	[illegible]								
Heptadecafluorooctanesulfonic acid (linear)*	99201								
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201								
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201								
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201								

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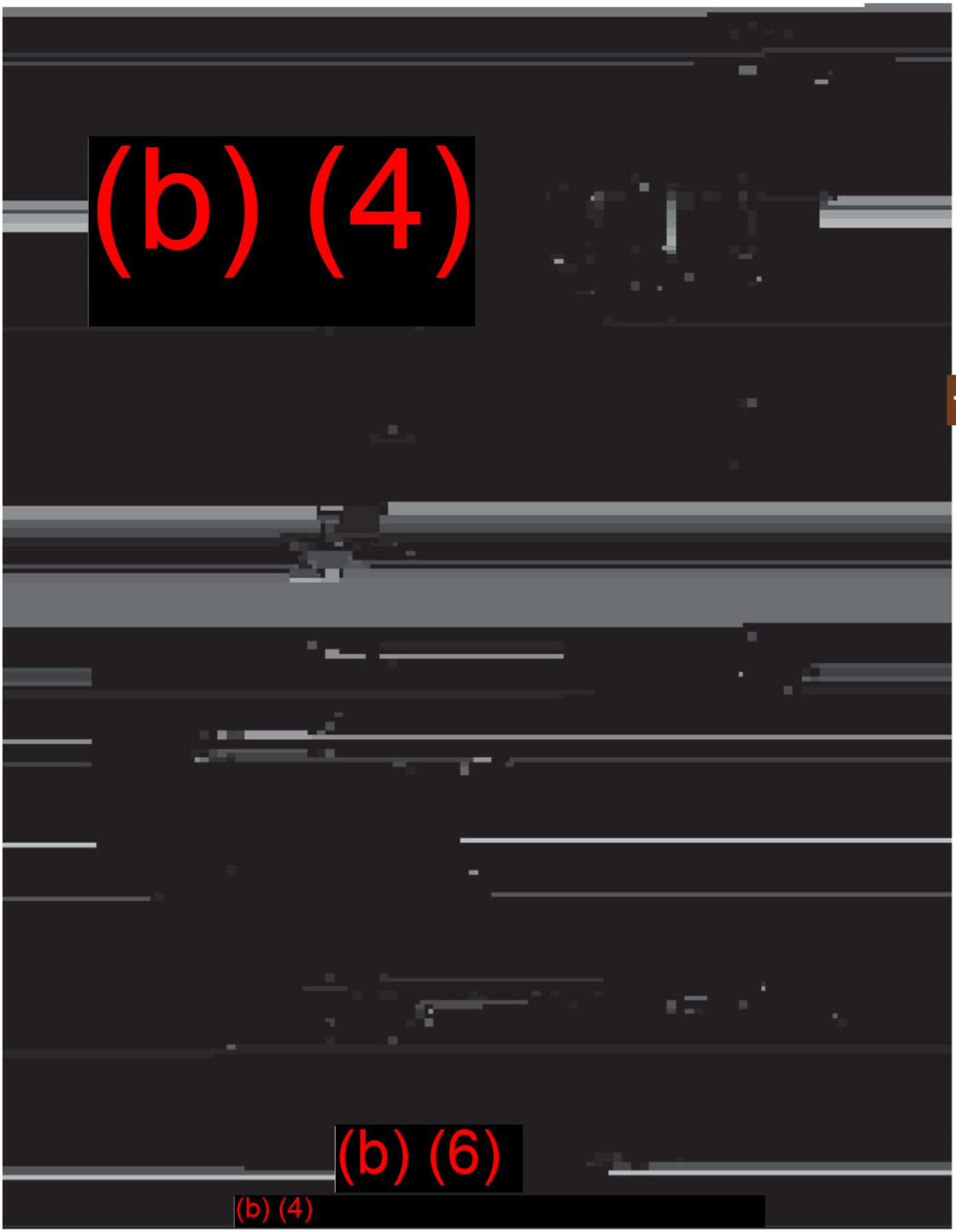

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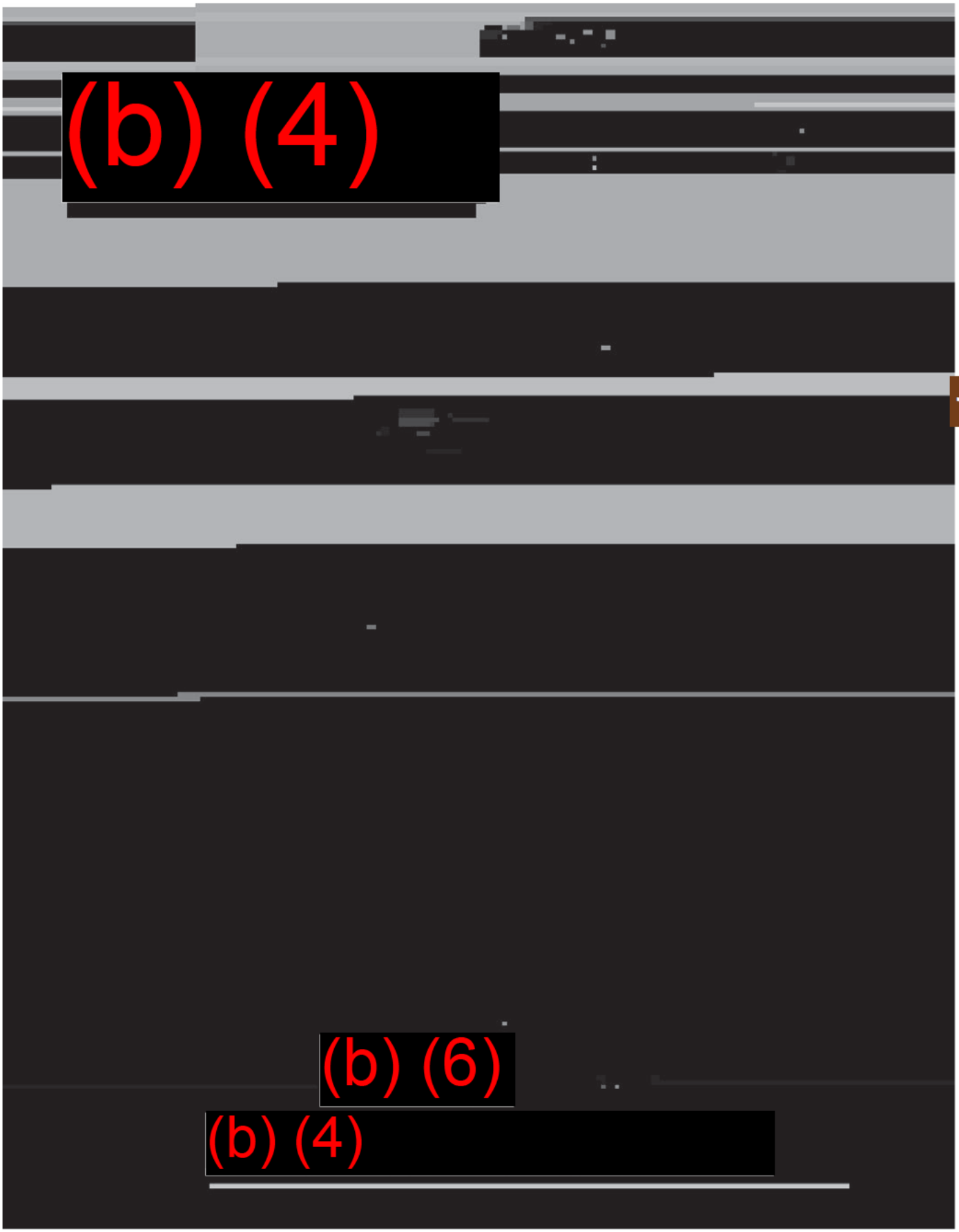

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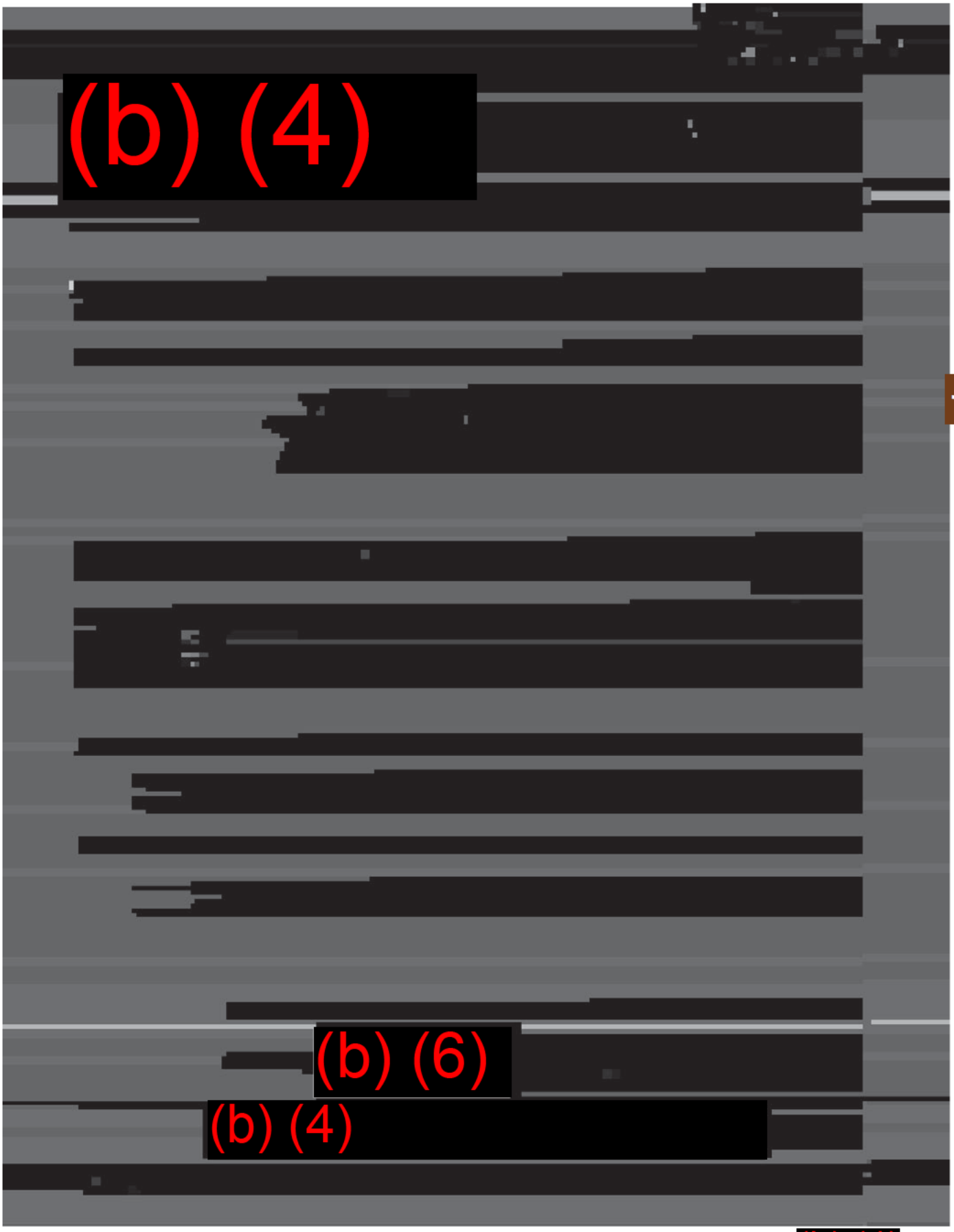

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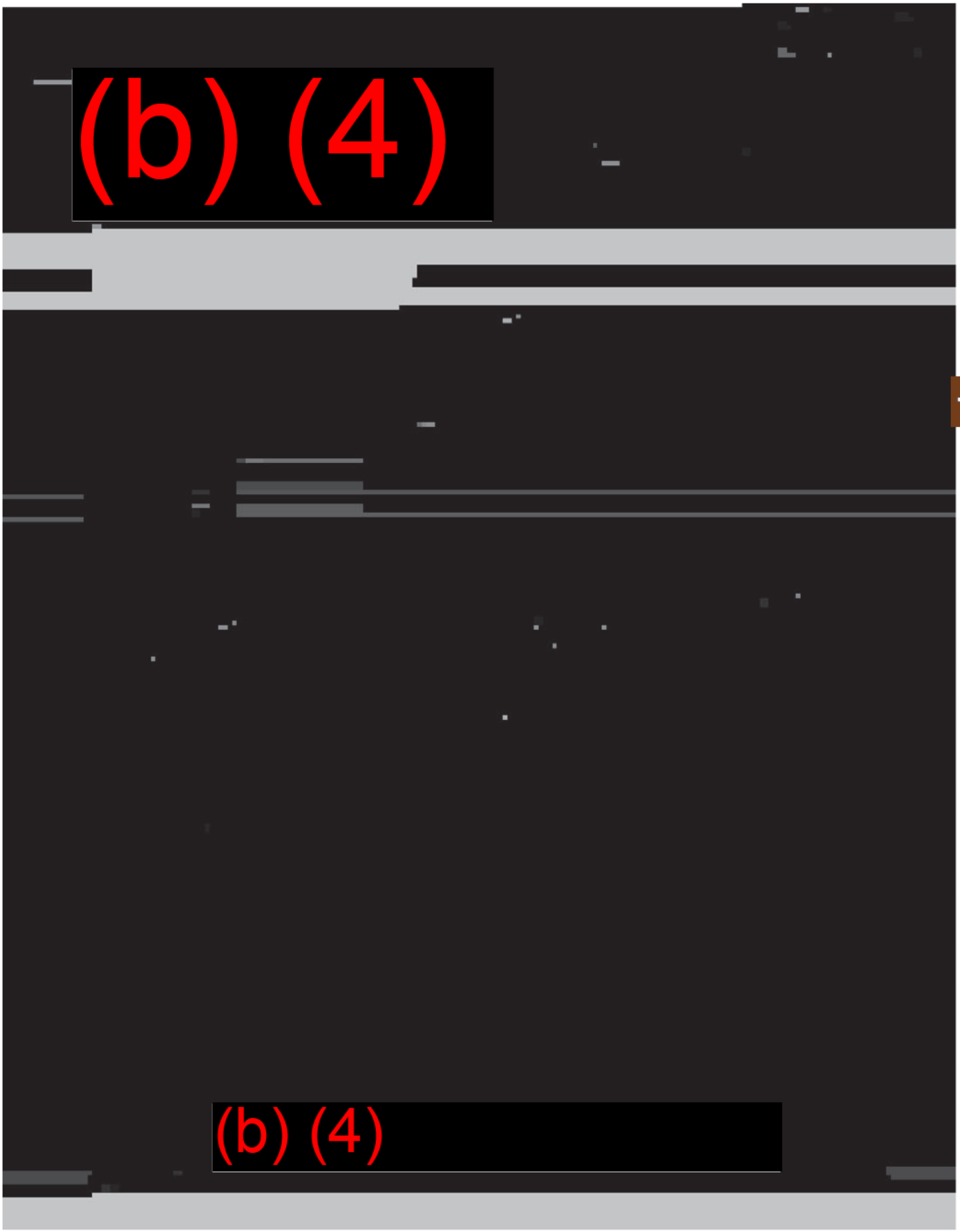
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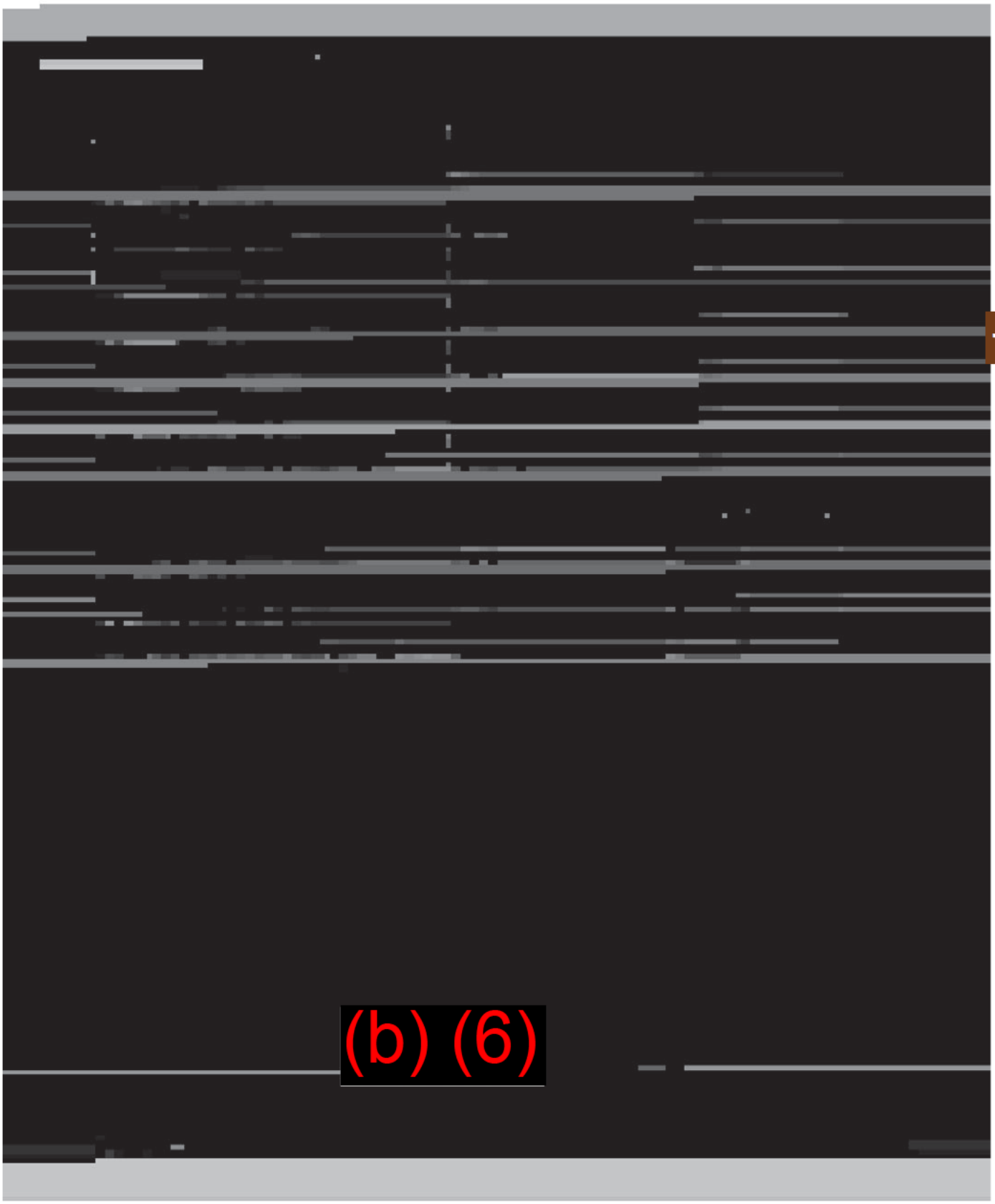

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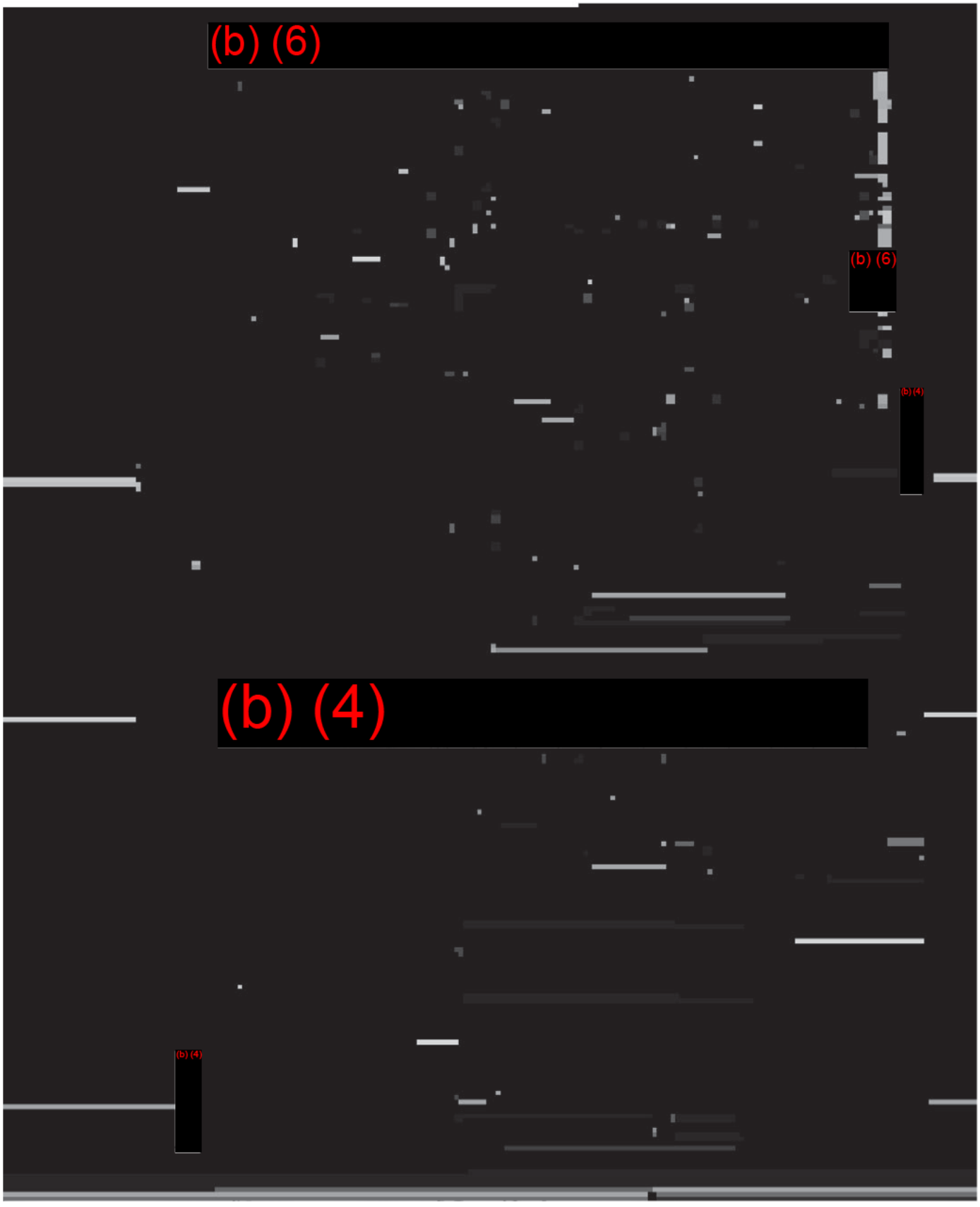
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Compound	Number	(%)	Purity	Vol. (mL)
3. Perfluorohexanoic acid (PFHxA)				
4. Perfluoroheptanoic acid (PFHpA)	99197			
5. Perfluorooctanoic acid (for PFOA)*	99202			
6. Perfluoro-n-nonanoic acid (for PFNA)*				
10. Perfluorodecanoic acid (PFDA)				
1. Perfluoroundecanoic acid (PFUnA)				
Perfluorotridecanoic acid (PFTrA)				
Perfluorotetradecanoic acid (PFTeA)				
Perfluorooctanesulfonamide (for FOSA)				
3. N-Methylperfluorooctanesulfonamidoacetic acid (for NMeFOSAA)*	4162	NMeFOSAAC124	98	
N-Ethylperfluorooctanesulfonamidoacetic acid (for NEtFOSAA)*	65806	D52324	98.5	0.02
Perfluorobutanesulfonic acid (PFBS)	99194	D61924	99	0.02
6. Perfluoro-1-pentanesulfonic acid (PFPeS)	99544	D61924	99	0.02
7. Perfluorohexanesulfonic acid (for PFHxS)*	99198	D39622	99	0.02
8. Perfluoroheptanesulfonic acid (PFHpS)	65942	101722	98	0.02
19. Hexacosafluorotetracosanesulfonic acid (for PFOS)*	99201	110923	99	0.02
20. Perfluoro-1-nonanesulfonic acid (PFNS)	3957	LPFNS0124	98	0.021
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)				
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	65272	129429	99	0.02
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	67508	011724	98	0.02
2-(perfluorooctyl)-2,3,3,3-tetrafluoropropene acid (HFPO-DA)	99668	121923	98	0.02
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	4165	11CPF3OUdS1021	98	0.021
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	4164	9CPF3ONS0324	98	0.021
Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA327		

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7.9.2

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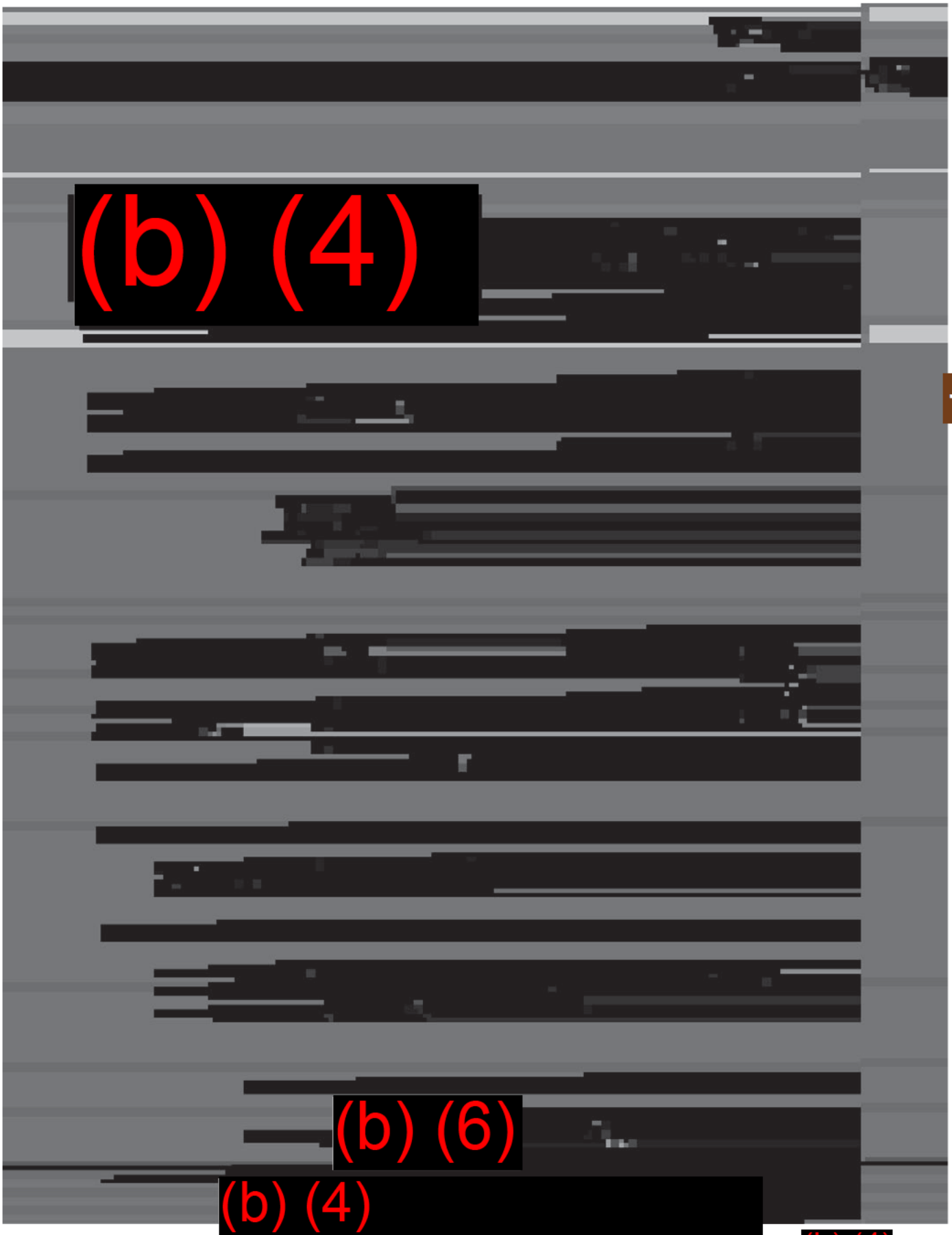

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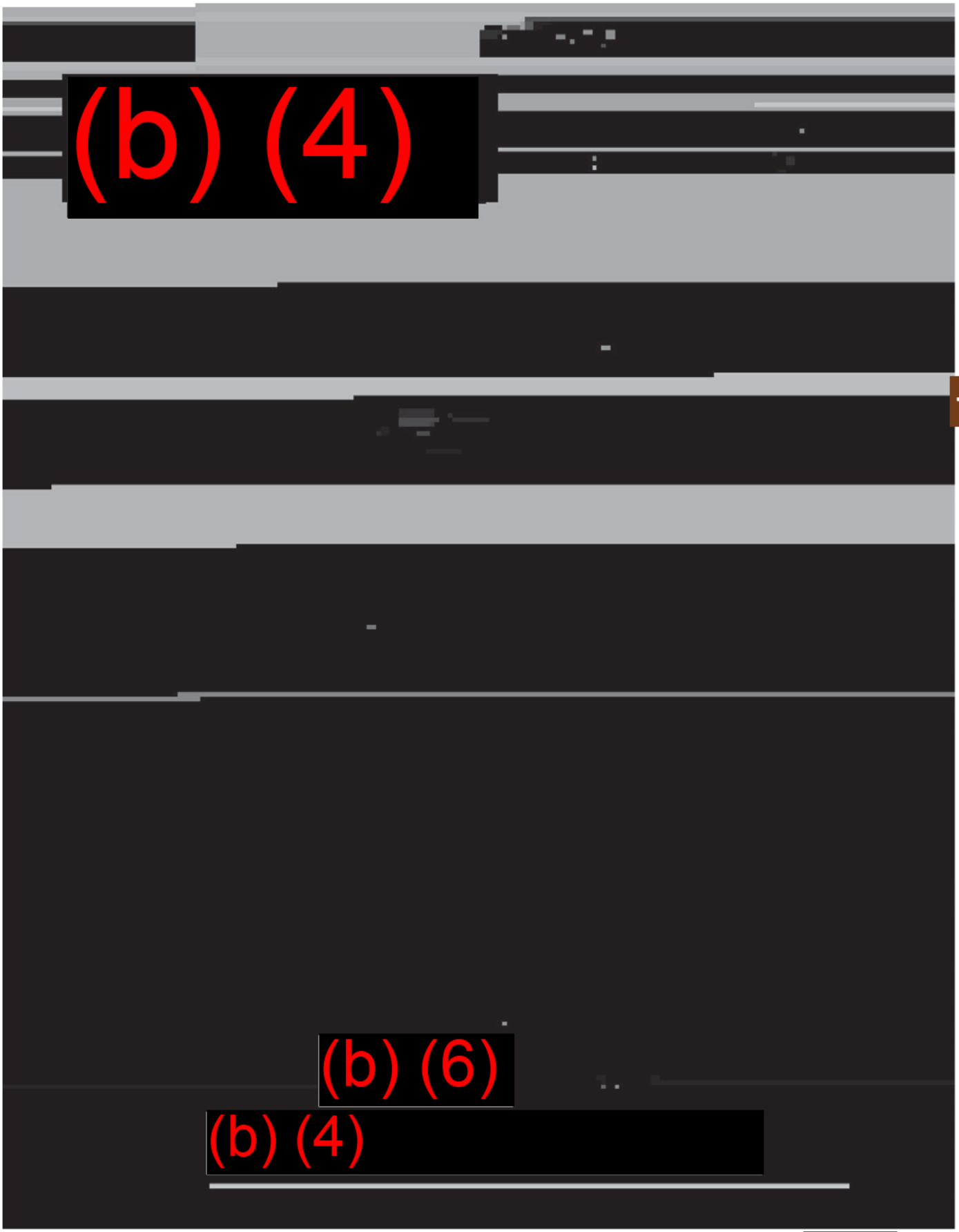

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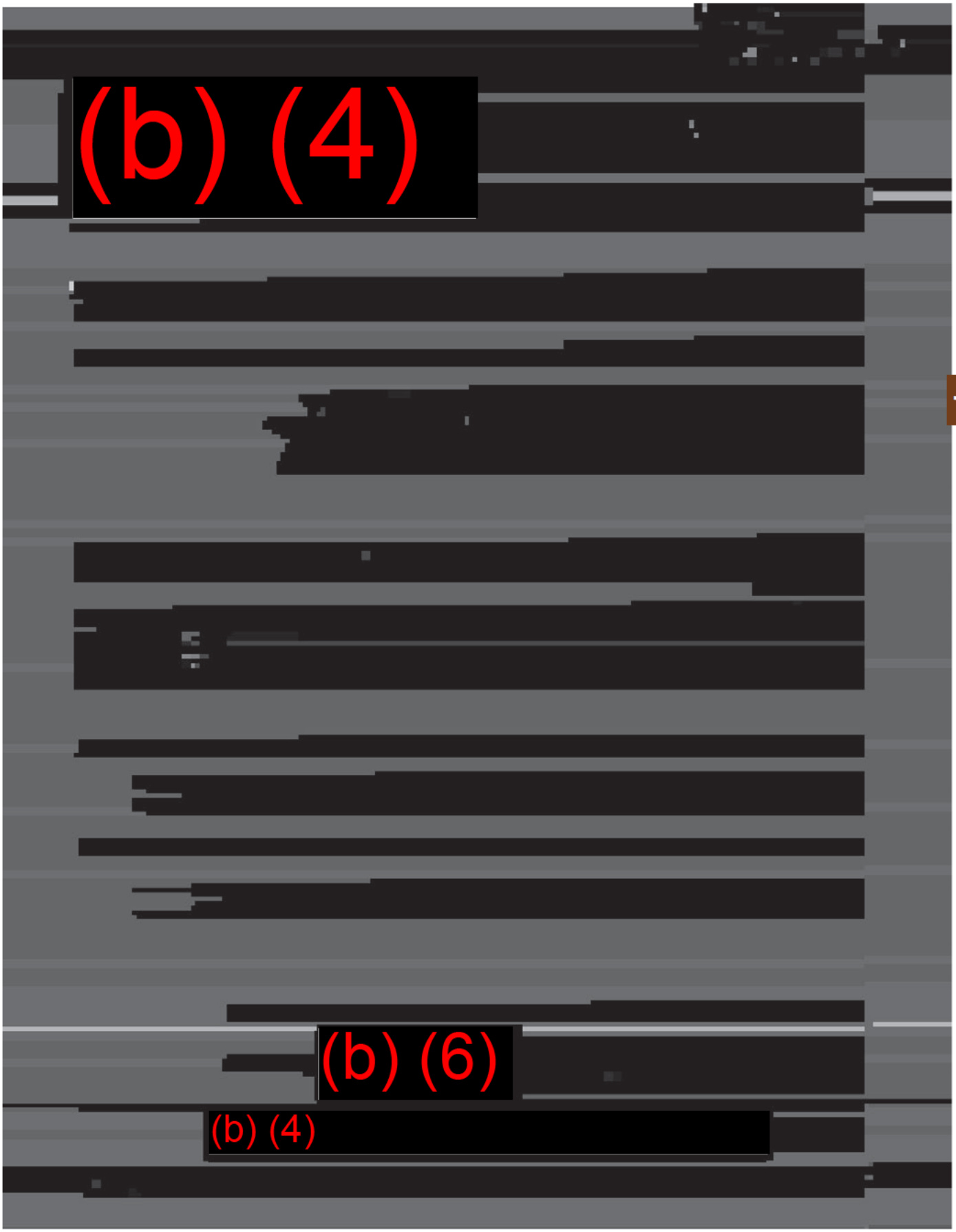
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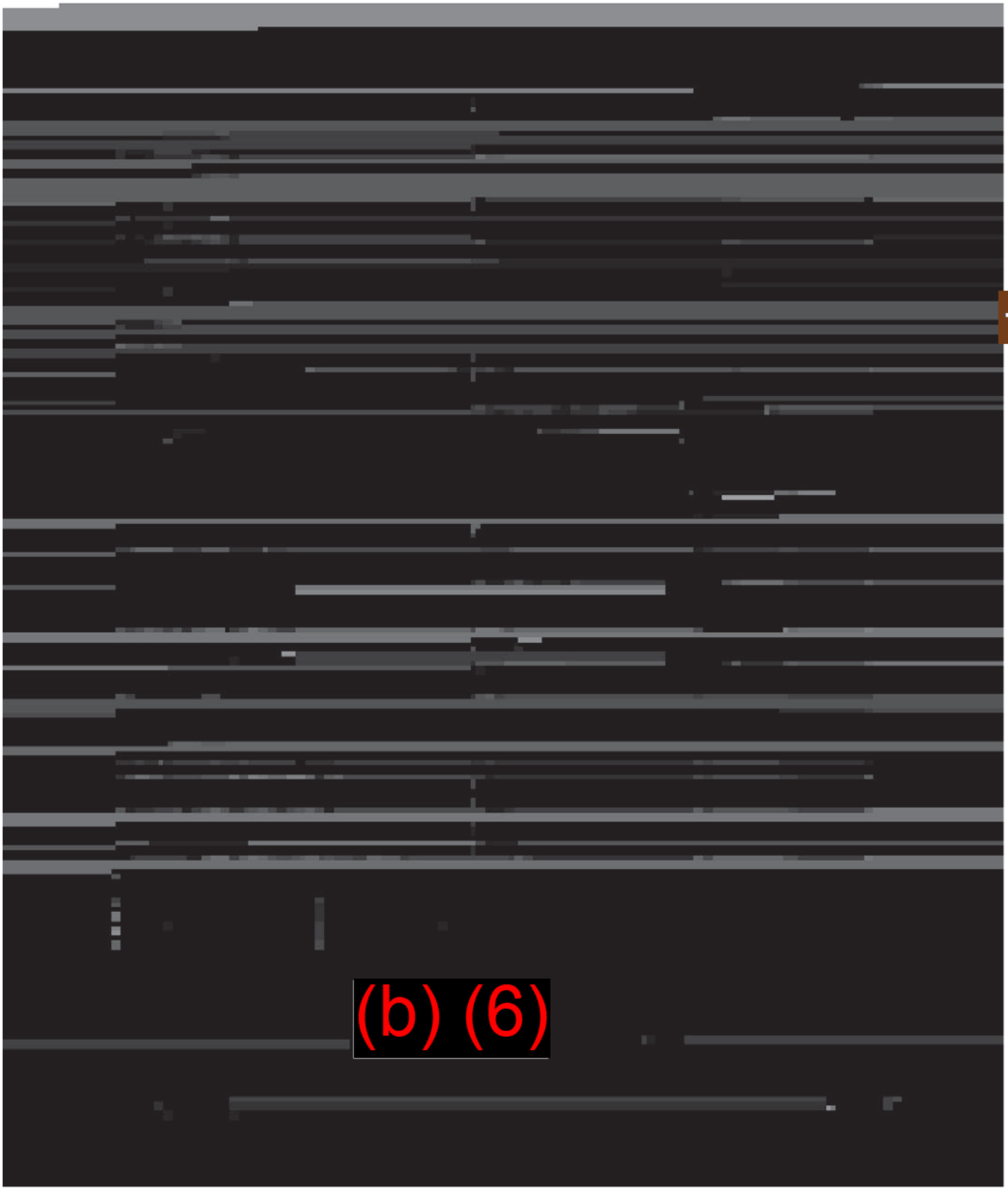

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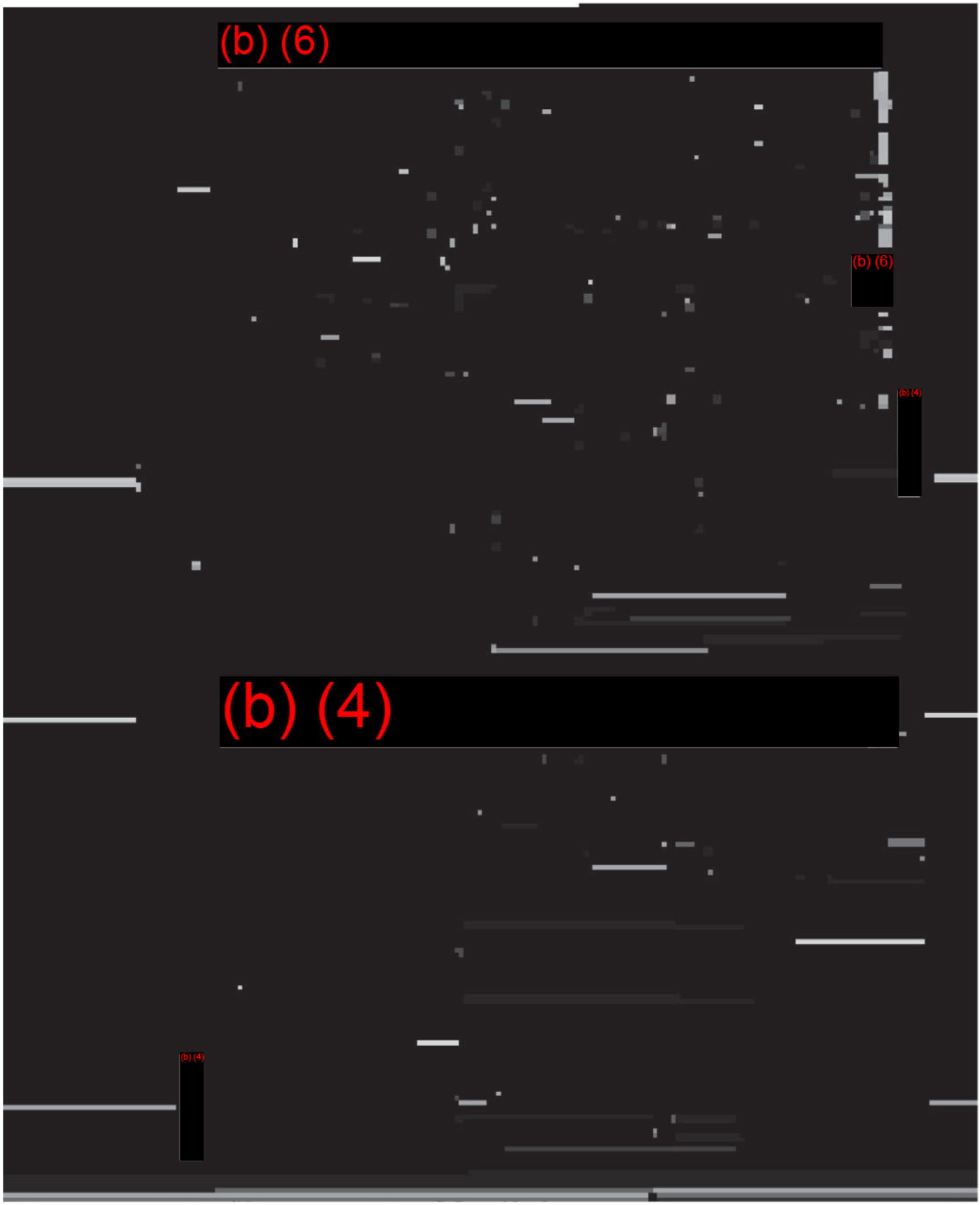
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7.9.3

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Compound	Number	(%)	Purity	Vol. (mL)
3. Perfluorohexanoic acid (PFHxA)	98107			
4. Perfluorohexanoic acid (PFHxA)				
5. Perfluorooctanoic acid (br-PFOA)*	99202			
6. Perfluoro-n-nonanoic acid (br-PFNA)*				

10. Perfluorotridecanoic acid (PFTrDA)															
1. Perfluorotetradecanoic acid (PFTeDA)															
Perfluorooctanesulfonamide (br-FOSA)															
3. N-Methylperfluorooctanesulfonamidoacetic acid (br-NMeFOSAA)*	4162	mNMeFOSAAC924	98												
N-Ethylperfluorooctanesulfonamidoacetic acid (br-NEtFOSAA)*	60806	D52324	98.5	0.02	2.50	0.017	50.2	1.00							
Perfluorobutanesulfonic acid (PFBS)	99194	D61924	99	0.01	2.50	0.017	50.2	1.00	0.02	375-73-5	N/A				
6. Perfluoro-1-pentanesulfonic acid (PFPeS)	99444	D81924	99	0.01	2.50	0.017	50.1	1.00	0.02	2706-91-4	N/A				
7. Perfluorohexanesulfonic acid (br-PFHxS)*	99198	D30922	99	0.01	2.50	0.017	50.0	1.00	0.02	355-46-4 (L)	N/A				
8. Perfluoroheptanesulfonic acid (PFHpS)	60942	101722	98	0.02	2.50	0.017	50.0	1.00	0.05	375-92-8	N/A				A
19. Hexadecafluorooctanesulfonic acid (br-PFOS)*	99201	110923	99	0.02	2.50	0.017	50.0	1.00							
20. Perfluoro-1-nonanesulfonic acid (PFNS)	3957	LPFNS0124	98	0.021	2.60	0.017	48.0	1.00							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (42 FTS)															
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	60272	120423	99	0.00	2.50										
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	67208	011724	98	0.00	2.50	0.017	50.5	1.01	0.05	39108-34-4					
2-(perfluorooctyl)-2,3,3,3-tetrafluoropropionic acid (HFPO-DA)	99868	121923	98	0.00	2.50	0.017	50.2	1.00	0.02	13252-13-6	N/A				N/A
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	4165	mCHPF3OUdSN321	98	0.021	2.65	0.017	47.1	1.00	0.05	763051-92-9	N/A				N/A
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	4164	9CHPF3ONS0324	98	0.021	2.66	0.017	48.6	00	0.05	756426-58-1	N/A				N/A
Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NuDONA0327													

Perfluorooctanoic acid (linear)*	99202	020624		0.02	2.50						(L)				ng/ml (480ng/mL)
Perfluorooctanoic acid (branched)*	99202	020624		0.02	2.50	0.0004	0.6	0.01	0.001	335-67-1 (L)	N/A				ng/ml (480ng/mL)
Perfluoroctanesulfonic acid (linear)*															
Perfluoroctanesulfonic acid (branched)*															
Hydrogenfluorooctanesulfonic acid (linear)*	99201	1													
Hydrogenfluorooctanesulfonic acid (branched)*	99201	1													
Hydrogenfluorooctanesulfonic acid (branched)*	99201	1													
Hydrogenfluorooctanesulfonic acid (branched)*															
N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*															
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*															
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	6586														
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	6586														
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	63														
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	63806	C													
Perfluoro-n-nonanoic acid (linear)*															
Perfluoro-n-nonanoic acid (branched)*															
Perfluoro-n-nonanoic acid (branched)*															
Perfluoro-n-nonanoic acid (branched)*															

*Concentrations for branched and linear isomers are based on LC/MS chromatographic analysis only.

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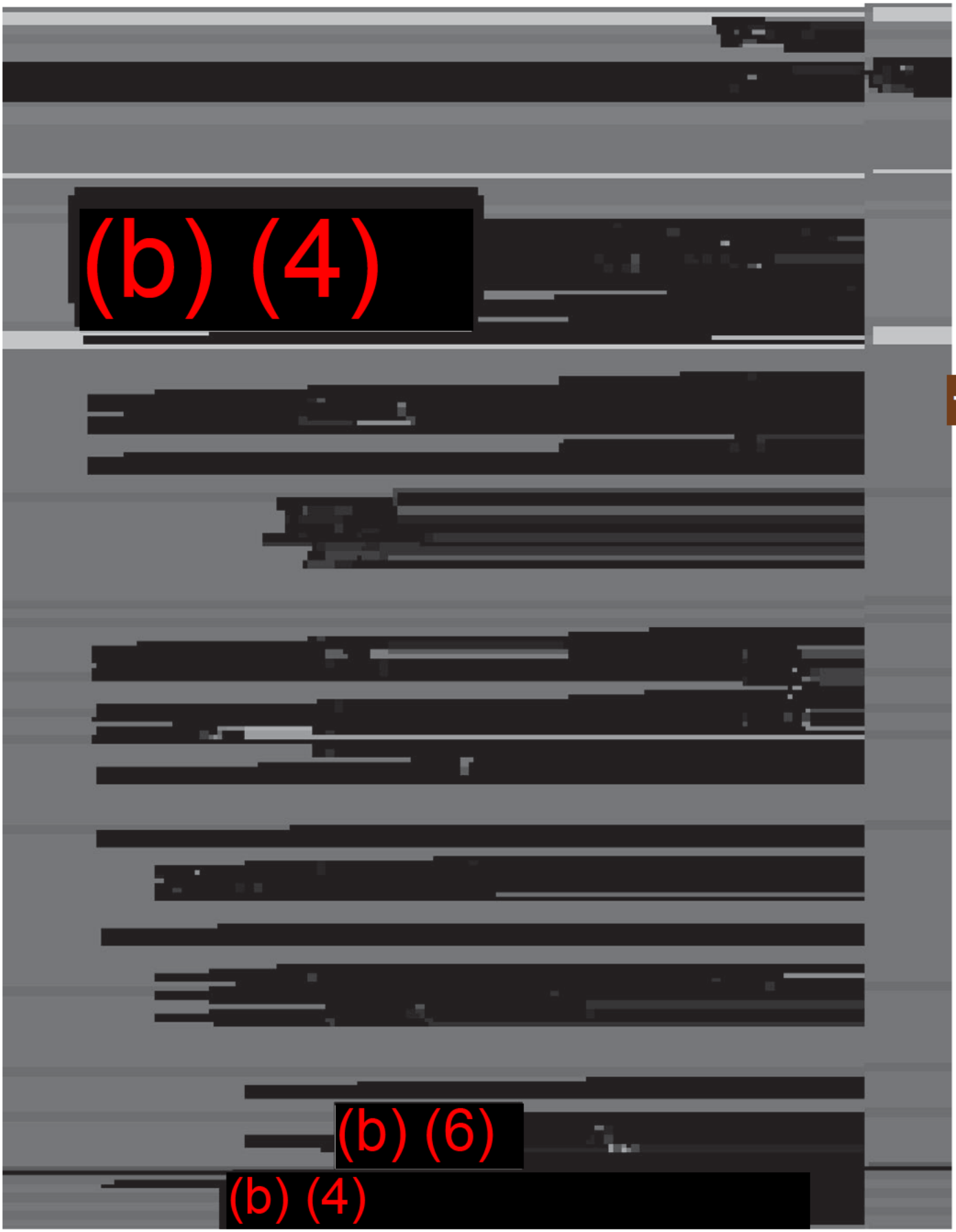

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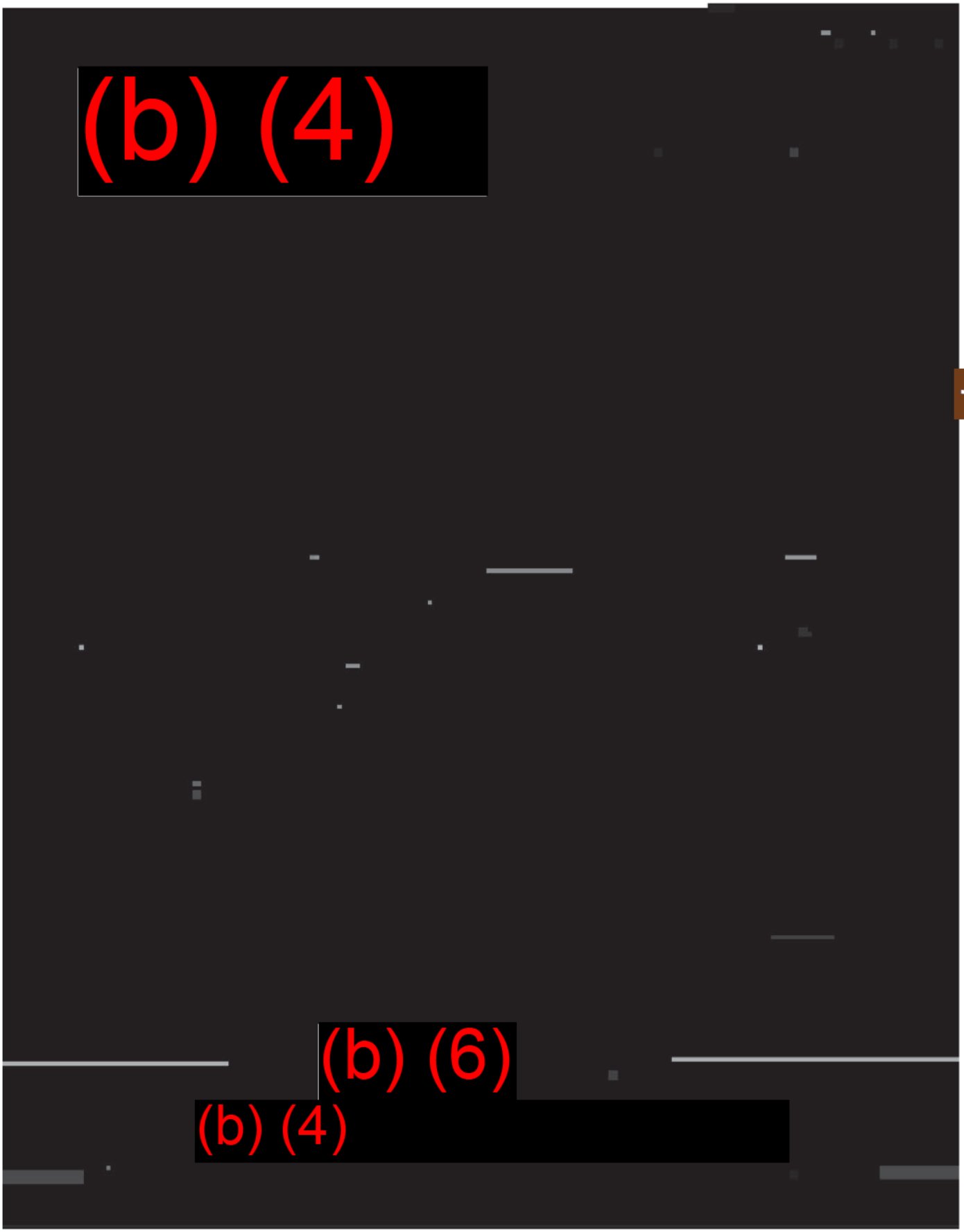
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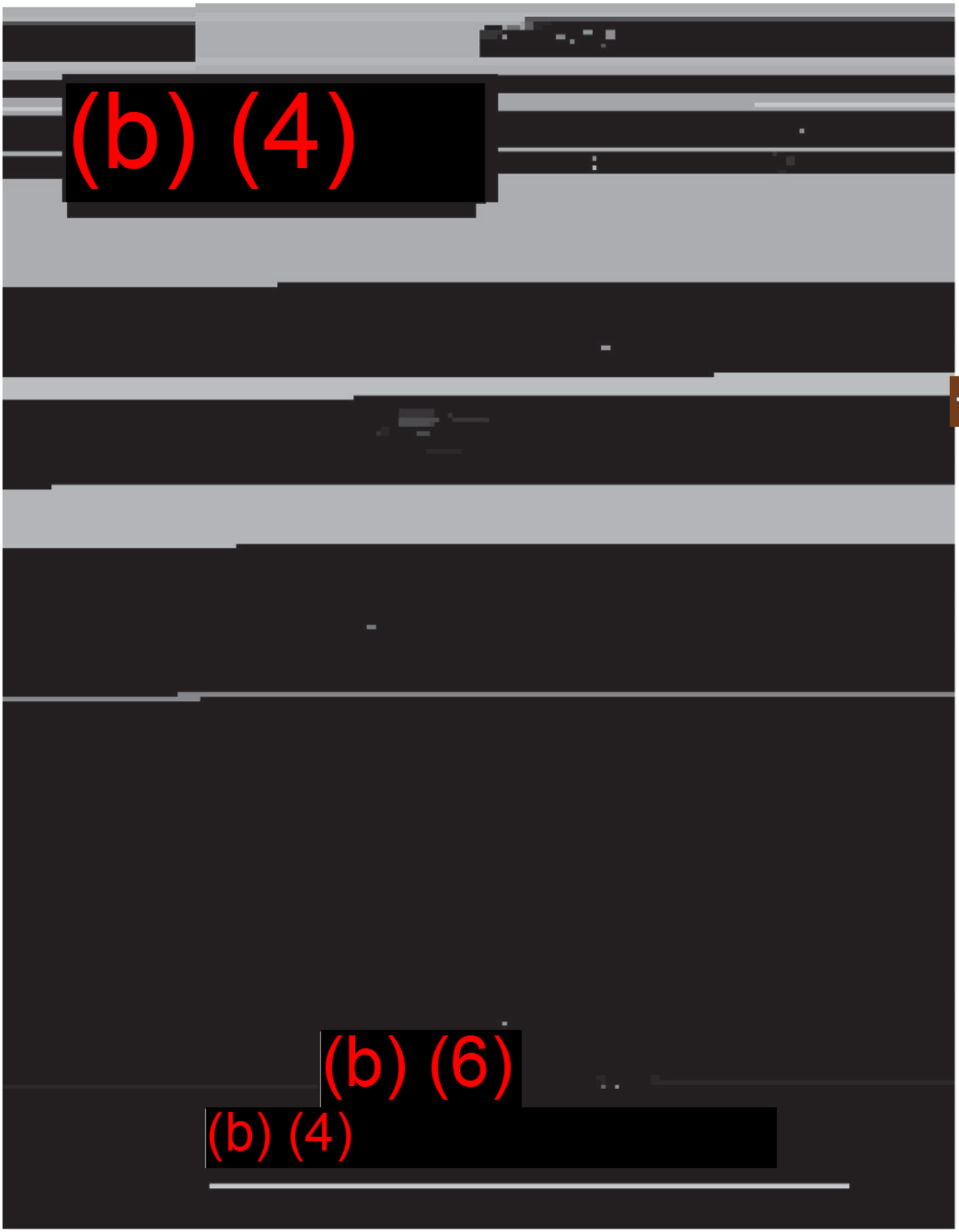

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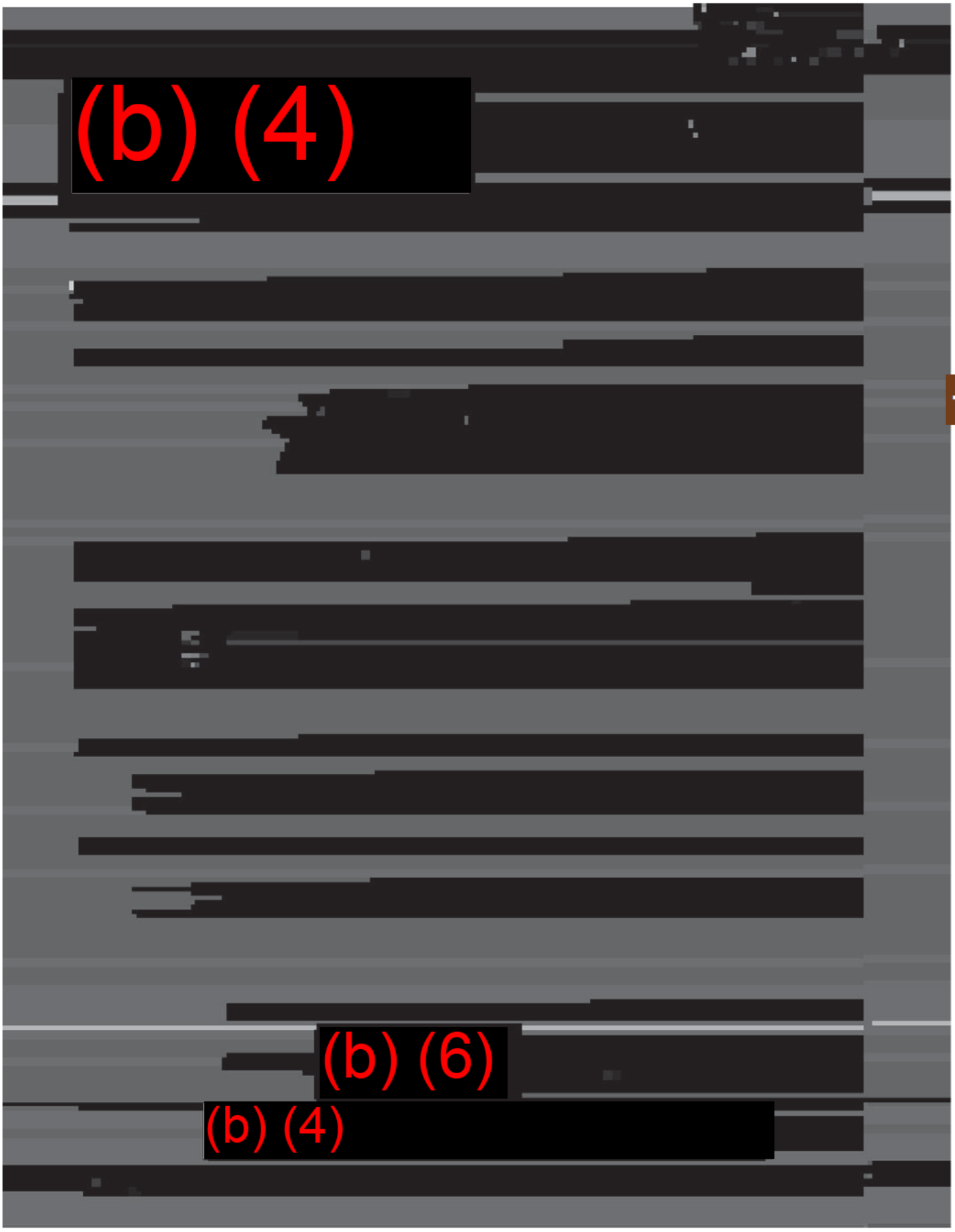

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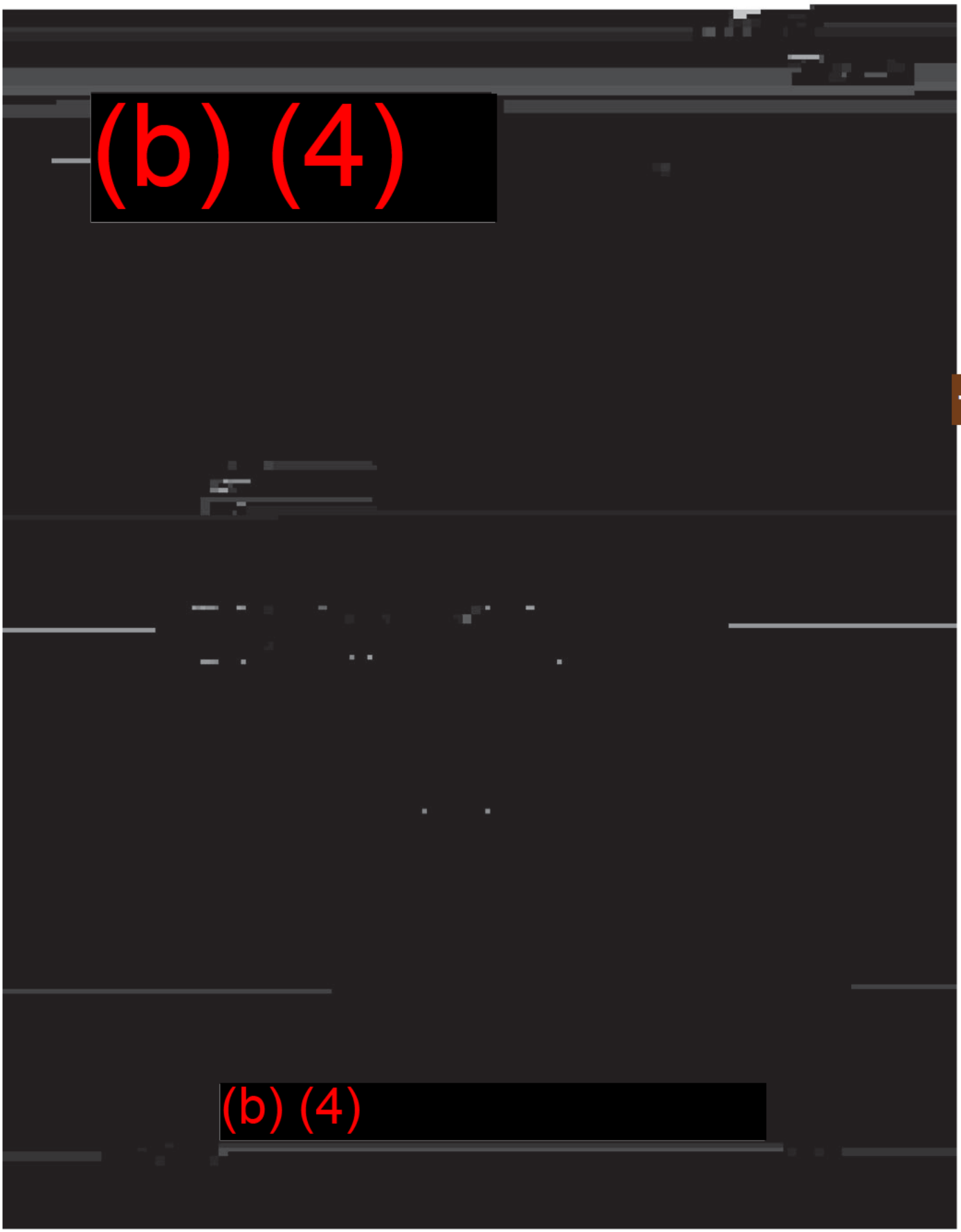
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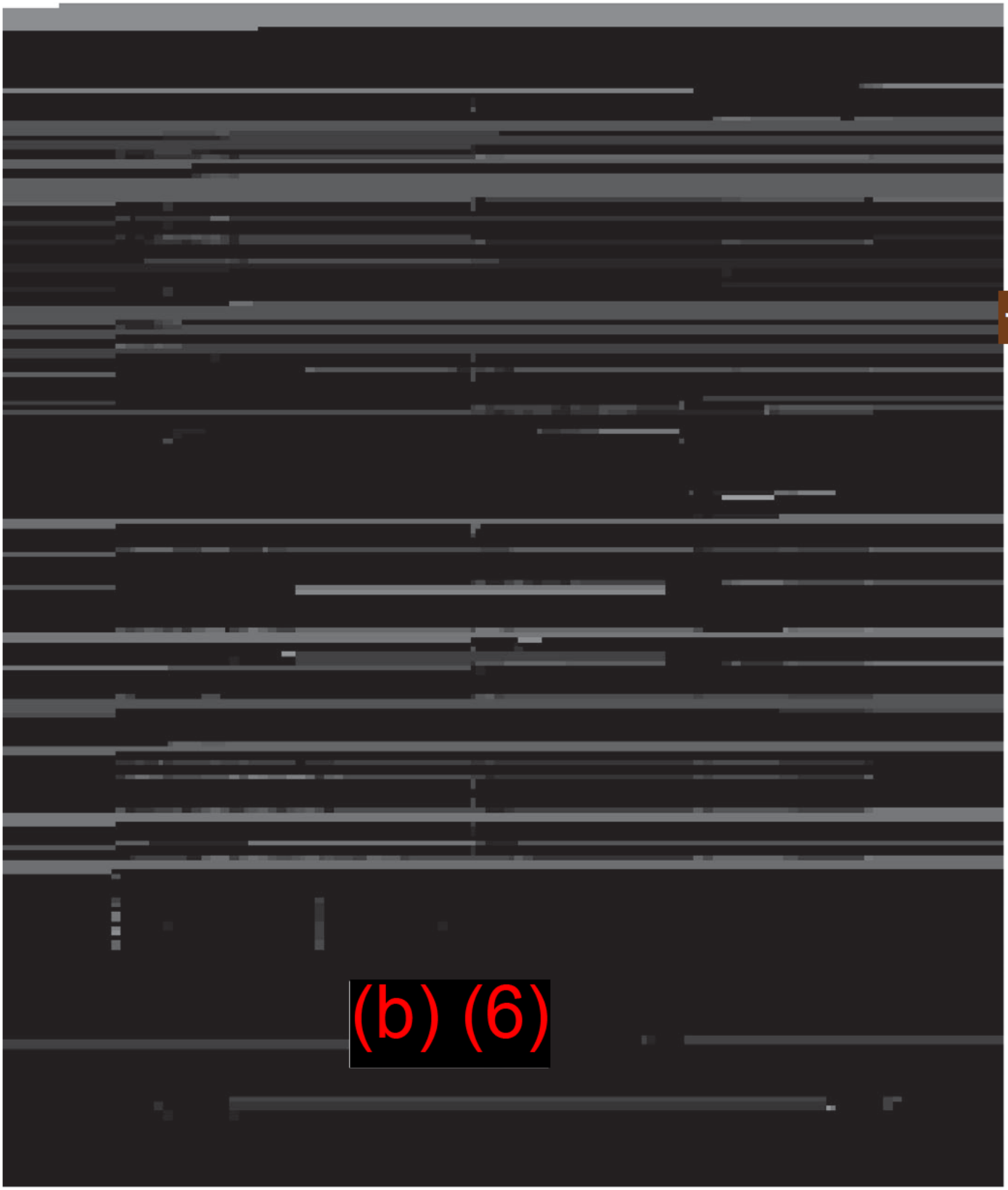

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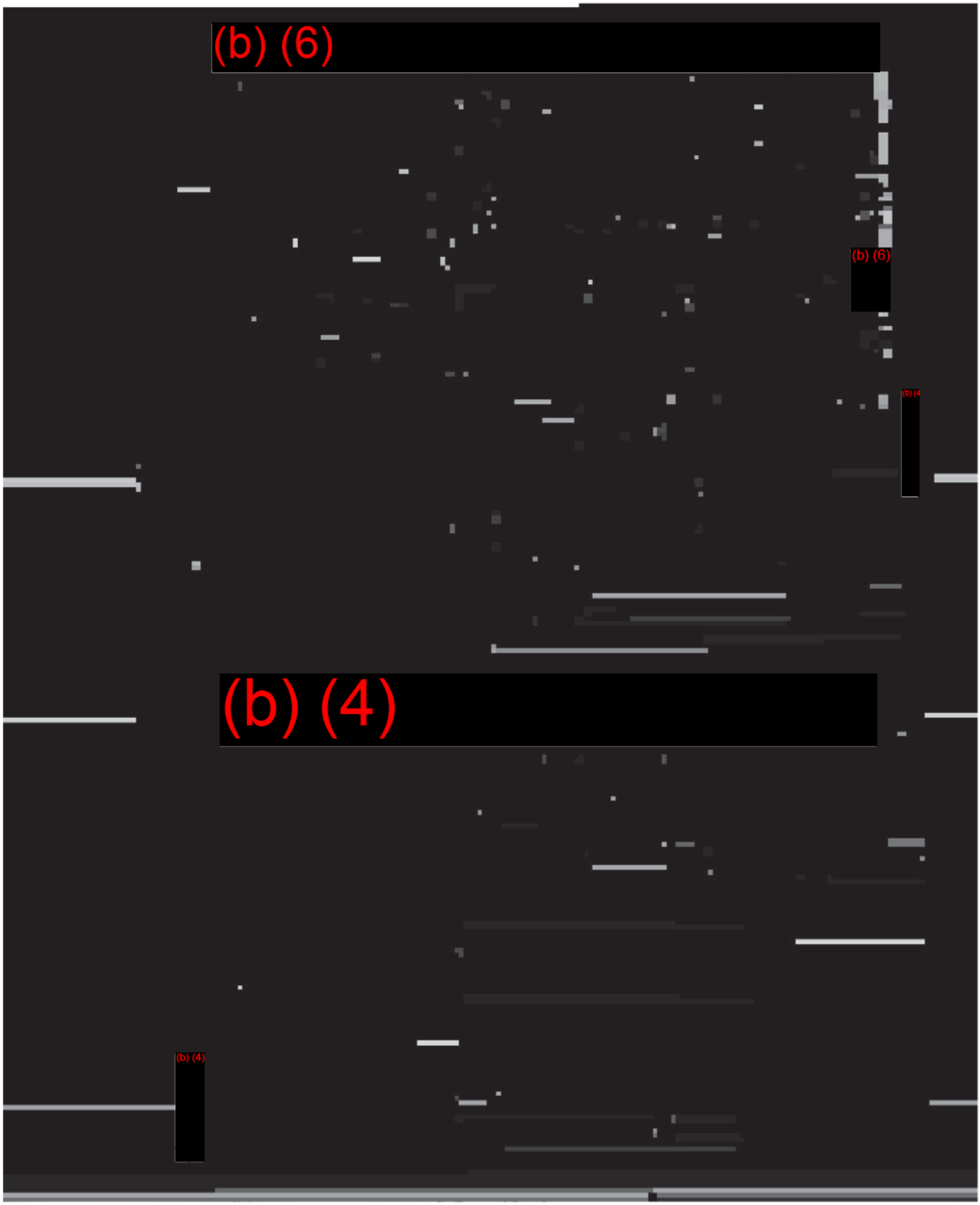
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7.9.4

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Methanol (1

Compound	Number	(%)	Purity	Vol. (mL)
3. Perfluorohexanoic acid (PFHxA)				
4. N-Methylperfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	4102			
5. Perfluorooctanoic acid (PFOA)	99197			
6. Perfluoro-n-nonanoic acid (PFNA)	99202			

Compound	Number	(%)	Purity	Vol. (mL)
10. Perfluorotetradecanoic acid (PFTeDA)				
1. Perfluorotridecanoic acid (PFTrDA)				
Perfluorooctanesulfonamide (or FOSA)				
3. N-Methylperfluorooctanesulfonamidoacetic acid (or NMeFOSAA)*	4102	mNMeFOSAAC924	98	
N-Ethylperfluorooctanesulfonamidoacetic acid (or NEtFOSAA)*	60806	D52324	98.5	0.02
Perfluorobutanesulfonic acid (PFBS)	99194	D61924	99	0.02
6. Perfluoro-1-pentanesulfonic acid (PFPeS)	99944	D61924	99	0.02
7. Perfluorohexanesulfonic acid (or PFHxS)*	99198	D39N23	99	0.04
8. Perfluoroheptanesulfonic acid (PFHpS)	60942	101722	98	0.02
19. Heptadecafluorooctanesulfonic acid (or PFOS)*	99201	110923	99	0.02
20. Perfluoro-1-nonanesulfonic acid (PFNS)	3957	LPFNS0124	98	0.021
1H,1H,2H,2H-Perfluorodecane sulfonic acid (42 FTS)				
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	60272	129429	99	0.02
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	67508	011724	98	0.02
2-(perfluorooctyl)-2,3,3,3-tetrafluoropropene acid (HFPO-DA)	99868	121923	98	0.02
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	4165	mCPF3OUdSN321	98	0.021
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	4164	9CPF3ONS0324	98	0.021
Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA087		

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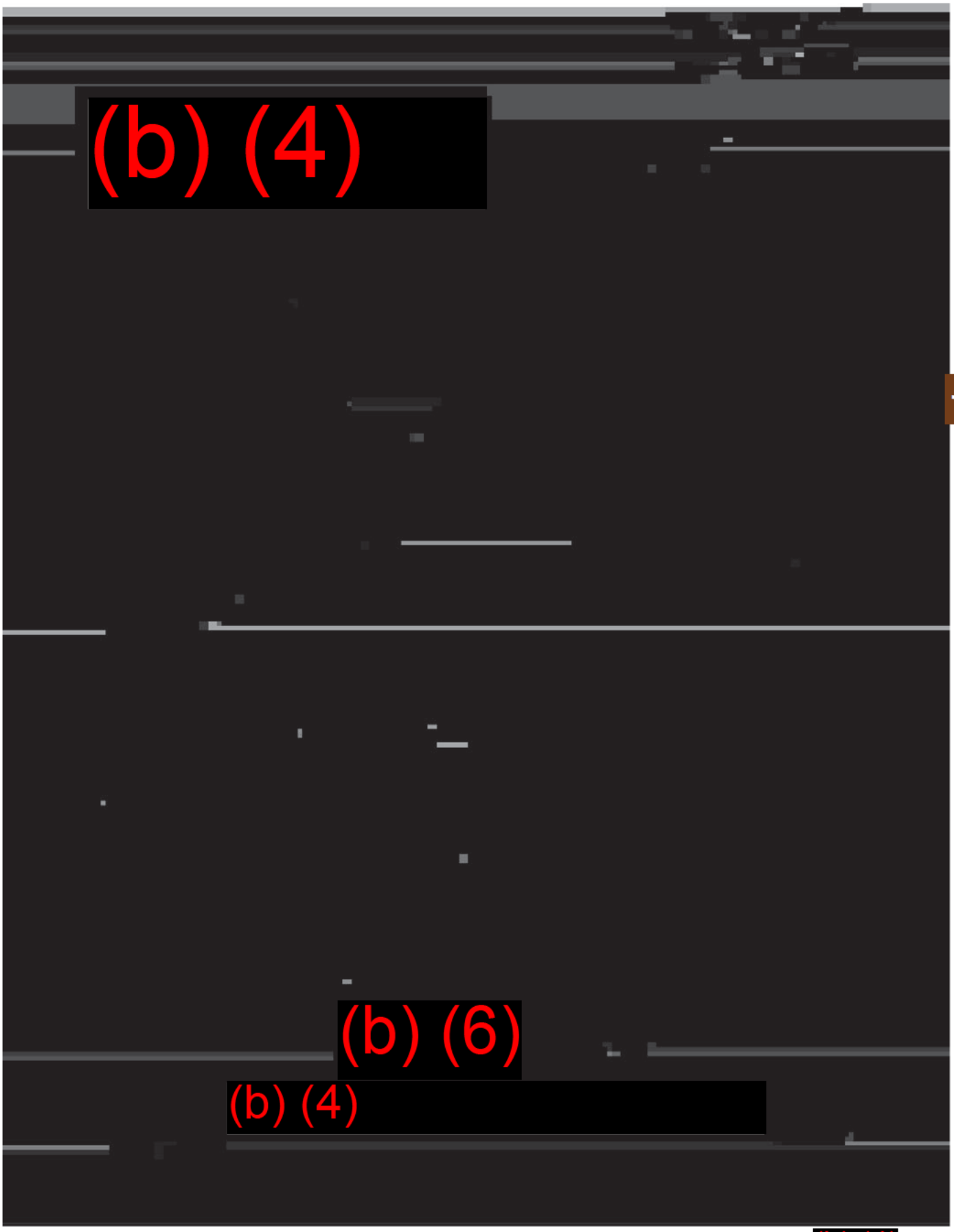
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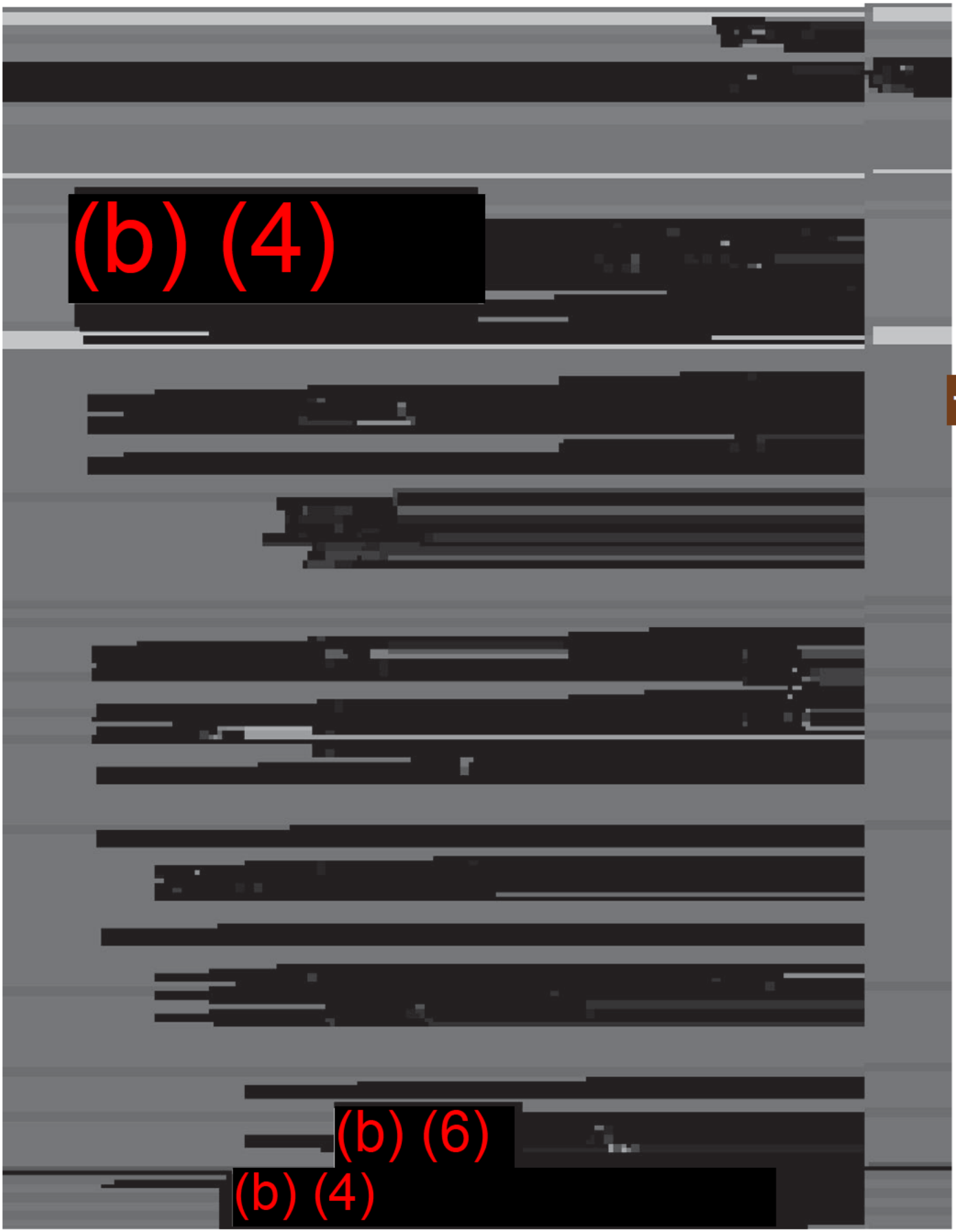

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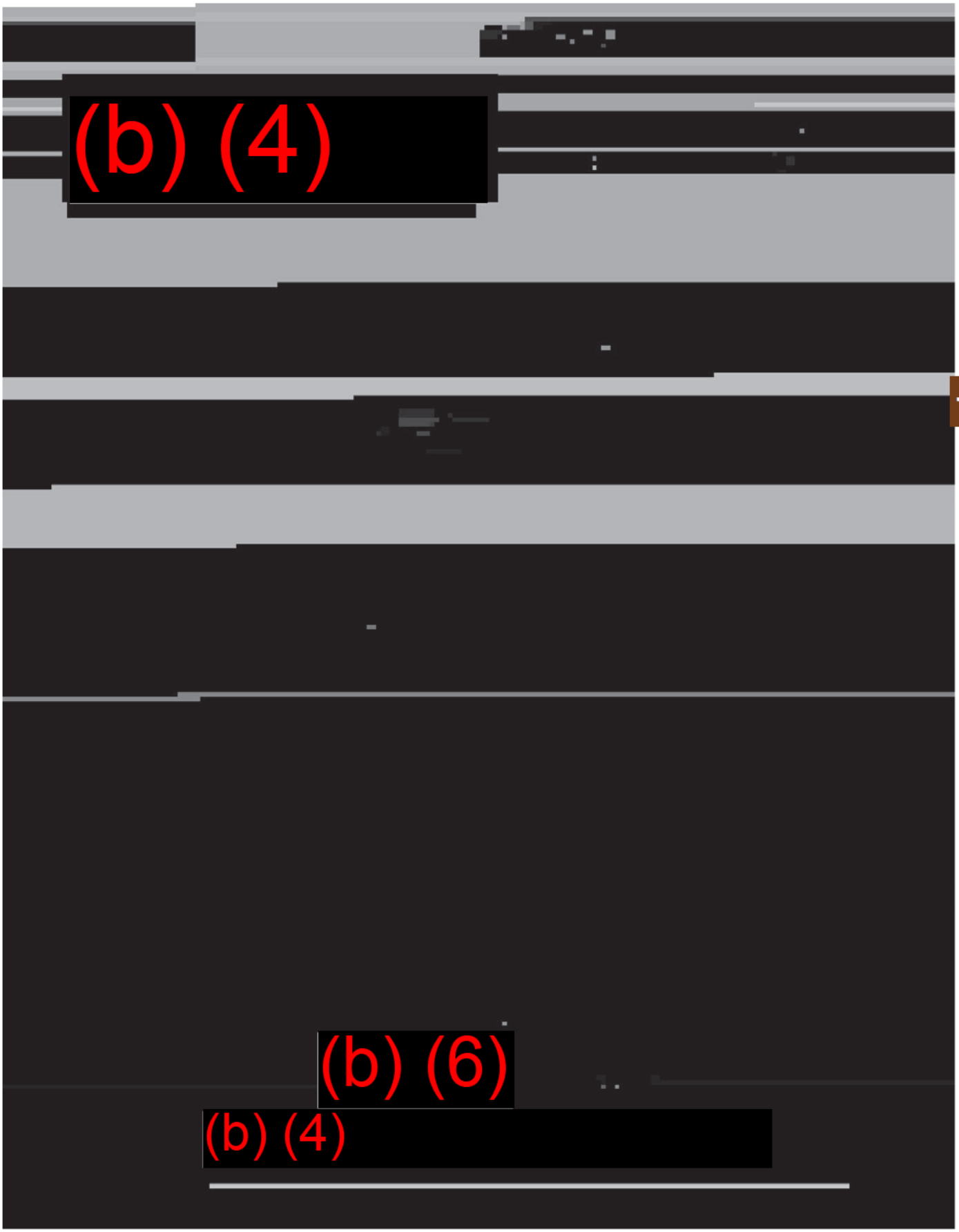

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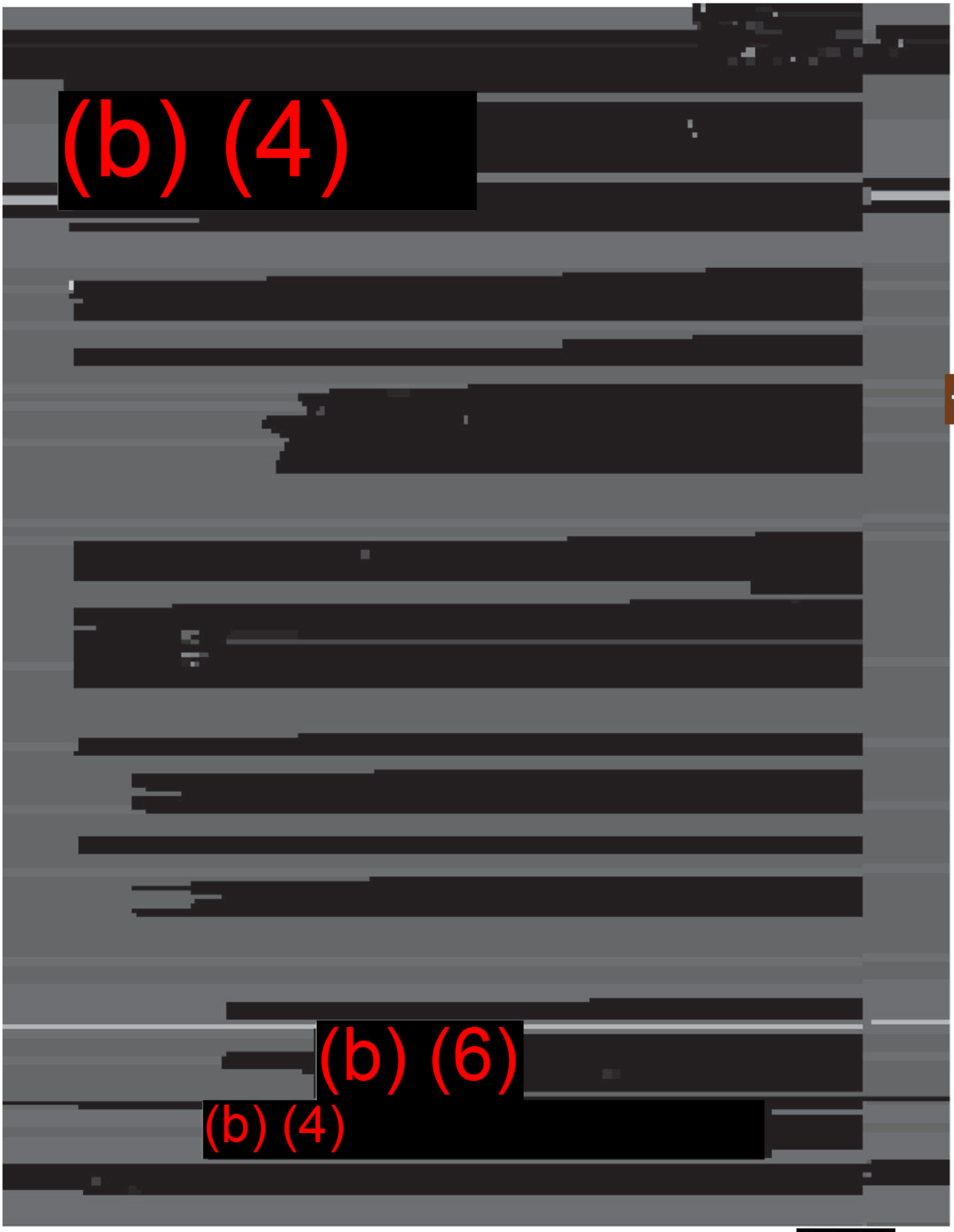

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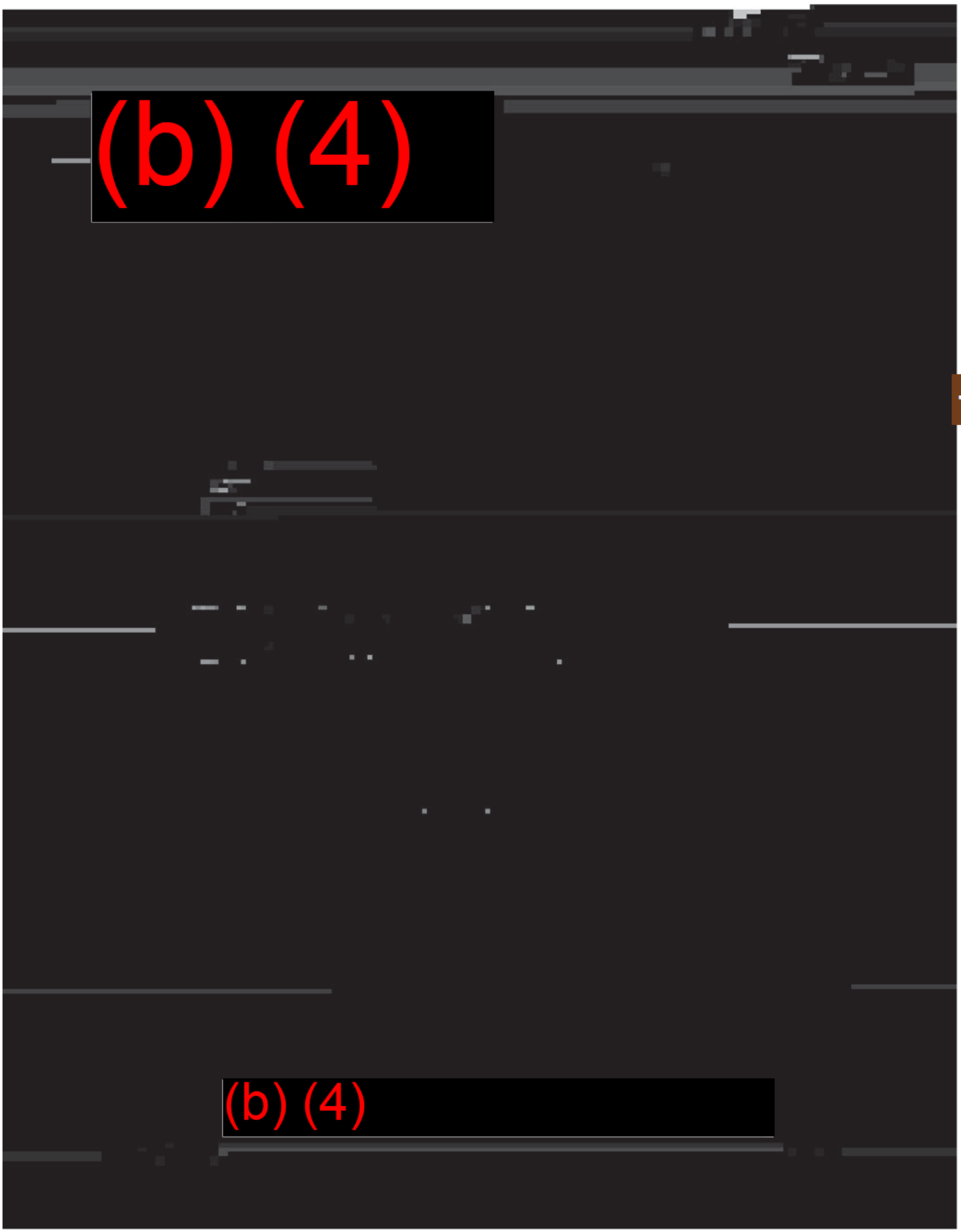

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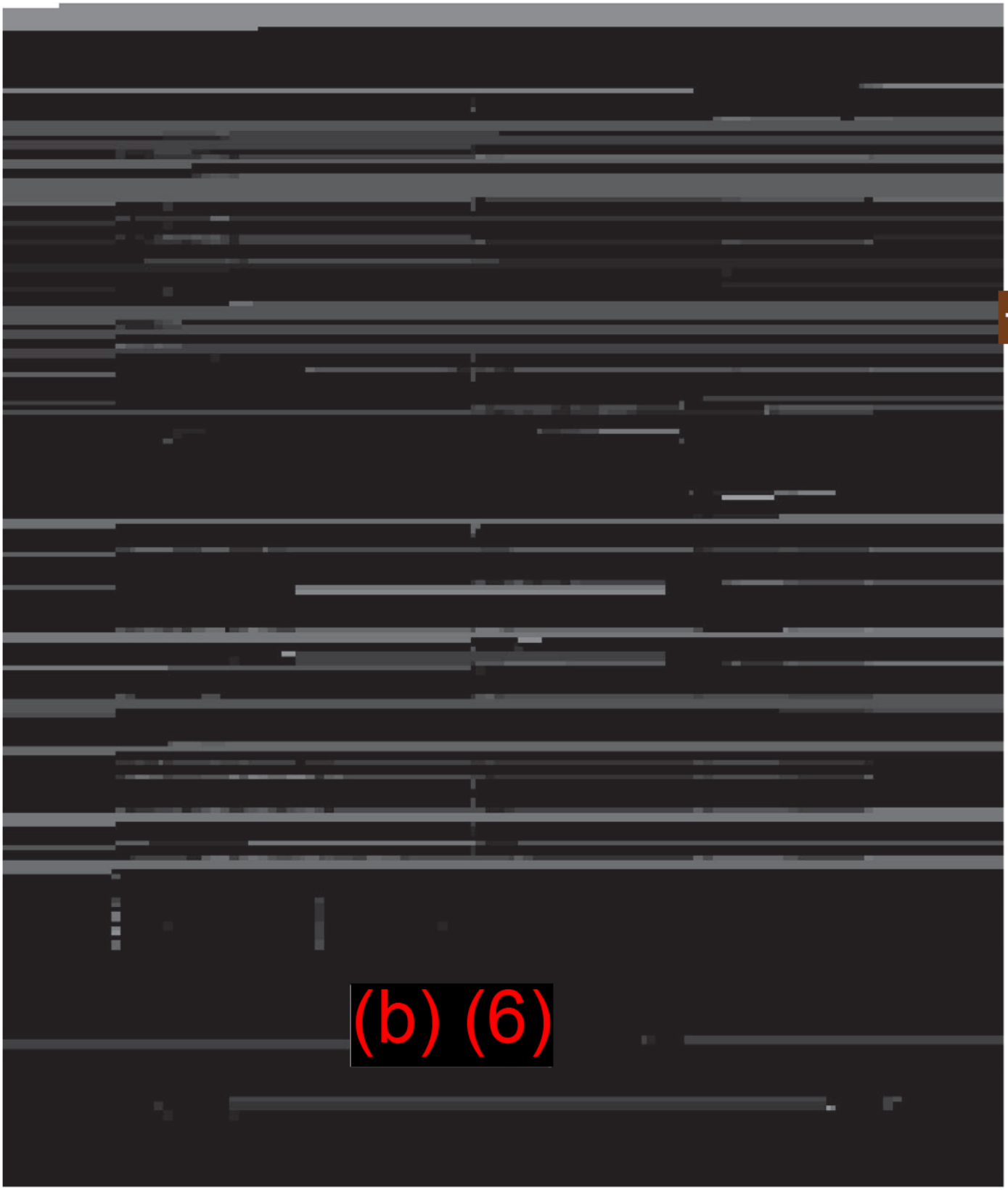

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SPE LIQUID SAMPLE PREP REPORT

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Date/Time Finished: 4/15/25 12:00 {mm/dd/yy 24:00}

Prep Method: (537.1) / 533 (circle one)

Analytical Method: 537.1 / 533 (circle one)

Batch#: OP8882 Ext. By: (b) (6) Conc. By: (b) (6) Vialed By:

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Residual CHL, y/n	Surrogate Amount	Spike Amount	Final Volume (ml)	Manifold ID	Comments
OP 8882 MB		250	7	NA	N	20ul		1	A8	
OP 8882 BS		250					100 uL			
FC23899-1A	4	280								
-2A	2	280								
-3A	2	280								
-4A	3	280								
FC23838-3	1	250								
-3	1	50						1		
FC23899-1 MS	3	280				20uL	100 uL	1	A8	
MSD										
FC23899-3 DUP	3	280				20 uL		1	A8	

(b) (6) 4-15-25

Comments:

Surr.1 ID: 2483 Conc: 1.0/2.0 ppm Exp. Date: 05/30/25 Inj. By: (b) (6) Ver. By (b) (6)

Spk.1 ID: 2482 Conc: 200 ppb Exp. Date: 08/27/25 Inj. By: (b) (6) Ver. By

TurboVap Temp (Therm ID): Turbo #20

Observed Temp °C: 63 Corr. Temp °C: 60

N-Evap Temp (Therm ID):

Observed Temp °C: Corr. Temp °C:

Methanol Lot # 242643 Trizma Lot # slck3633 pH Paper # 206724

Water Lot# DI H20 Acetic Acid Lot# ✓ CHL Paper # 07224

PO4 Buffer Lot# ✓ AMN Acetate Lot# ✓ SPE Lot # 681618-02

2%MeOH:NH4OH # ✓ Other # ✓

Relinquished B (b) (6) Date: 4/15/25

Accepted By: Date: 4/15/25

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(b) (4) [redacted]

SPE LIQUID SAMPLE PREP REPORT

Date/Time Started: 4-15-25 6:30 {mm/dd/yy 24:00}

Date/Time Finished: 4/15/25 12:00 {mm/dd/yy 24:00}

Prep Method: 537.1 / (533) (circle one)

Analytical Method: 537.1 / 533 (circle one)

Batch#: OP8883 Ext. By: (b) (6) [redacted] Conc. By: (b) (6) [redacted] Vialed By:

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Residual CHL, y/n	Surrogate Amount	Spike Amount	Final Volume (ml)	Manifold ID	Comments
OP 8883 MB		250	7	NA	N	20ul		1	I	
OP 8883 BS		250					200ul			
FC23899-1	1	280								
-2	1	280								
-3	1	280								
-4	1	280								
FC23838-3	1	250						1		

(b) (4) [redacted]

SPE LIQUID SAMPLE PREP REPORT

Date/Time Started: 04/16/25 08:30 (mm/dd/yy 24:00)

Date/Time Finished: 4/17/25 8:55 (mm/dd/yy 24:00)

Batch#: OP8904 Ext. By: (b) (6) [redacted] Conc. By: (b) (6) [redacted] Vialed By:

Prep Method: (537.1) / 533 (circle one)

Analytical Method: (537.1) / 533 (circle one)

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Residual CHL, y/n	Surrogate Amount	Spike Amount	Final Volume (ml)	Manifold ID	Comments
OP 8904 MB		250	7.6	N/A	n	20		1	0	
OP 8904 BS		250	7.6	N/A	n	20	100		0	
FC23797-1ARe	2	280	7.0	N/A	n	20			0	
4ARe	—	—	—	—	—	—			—	
FC23948-1A	1	280	7.0	N/A	n	20			0	
2A	1	285	↓	↓	↓	↓			0	
3A	3	285						↓	6	
4A	1	280	7.0	N/A	n	20		1	0	
FC23899-4ARe	4	280	7.0	N/A	n	20			0	
FC23948-3A MS	4	280	7.0	N/A	n	20	100	1	0	
MSD										
FC23948-4ADUP	2	280	7.0	N/A	n	20		1	0	

GH 04/16/25

GH 04/16/25

(b) (6) [redacted] 04/16/25

Comments:

Surr.1 ID: LCMS2483 Conc: 1.0/2.0PPM Exp. Date: 05/30/25 Inj. By: (b) (6) [redacted] Ver. By (b) (6) [redacted]

Spk.1 ID: LCMS2482 Conc: 200 PPB Exp. Date: 08/27/25 Inj. By: [redacted] Ver. By [redacted]

TurboVap Temp (Therm ID): Turbo #20

Observed Temp °C: 63 Corr. Temp °C: 60

N-Evap Temp (Therm ID):

Observed Temp °C: Corr. Temp °C:

Methanol Lot #: 242643 Trizma Lot #: 0000357068 pH Paper #: 206724

Water Lot#: DI H20 Acetic Acid Lot#: CHL Paper #: 14-860

PO4 Buffer Lot#: AMN Acetate Lot#: SPE Lot #: 68 16118-02

2%MeOH:NH4OH #: Other #:

Relinquished By: (b) (6) [redacted] Date: 4/17/25

Accepted By: [redacted] Date: ~~4/17/25~~ 4/17/25 OS 4/17/25

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(b) (4) [redacted]

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(b) (4)

SPE LIQUID SAMPLE PREP REPORT

Date/Time Started: 04/16/25 09:45 (mm/dd/yy 24:00)

Date/Time Finished: 4/17/25 8:30 (mm/dd/yy 24:00)

Prep Method: 537.1 / 533 (circle one)

Analytical Method: 537.1 / 533 (circle one)

Batch#: OP8907 Ext. By: (b) (6) Conc. By: (b) (6) Vialed By:

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Residual CHL, y/n	Surrogate Amount	Spike Amount	Final Volume (ml)	Manifold ID	Comments
OP 8907 MB	/	250	7	N/A	N	20		1	A3	
OP 8907 BS		250	7				10			
FC23948-1	3	285	6.4							
-2	2	270	6							
-3	1	285	6.4							
-4	3	285	6.4							
FC23899-4RE	2	285	6.4							
FC23838-3	1	50	7							
-3	1	250	7	N/A	N	20		1	A3	
(b) (6) 04/16/25										
FC23948-1 MS	4	285	6.4	N/A	N	20	10	1	A3	
MSD										
FC23948.3 DUP	2	285	6.4	N/A	N	20		1	A3	

Comments:

Surr.1 ID: LCMS 2497C Conc: 0.5 ppm Exp. Date: 09/23/25 Inj. By: (b) (6) Ver. By: (b) (6)

Spk.1 ID: LCMS 2489 Conc: 100 ppb Exp. Date: 09/14/25 Inj. By: Ver. By:

TurboVap Temp (Therm ID): Turbo #20

Observed Temp °C: 63 Corr. Temp °C: 60

N-Evap Temp (Therm ID):

Observed Temp °C: Corr. Temp °C:

Methanol Lot #: 242643

Trizma Lot #: —

pH Paper #: 206724

Water Lot#: DI H_2O

Acetic Acid Lot#:

CHL Paper #: 012P408-HH

PO4 Buffer Lot#: PP 2527

AMN Acetate Lot#: 1003780275

SPE Lot #: 5437-0007

2%MeOH:NH4OH #: PP 2530

Other #:

Relinquished By: (b) (6) Date: 4/17/25

Accepted By: Date: 4/17/25

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(b) (4)

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(b) (4)

DATA VALIDATION REPORT

Extended Drinking Water Monitoring
NAH Shaft Treatment System Pilot Study

SDG: FC23899

(b) (4)

Prepared by

(b) (4)

Prepared for

AECOM Environmental

REV 01 Report Released: 05/02/2025

Data Validators and Peer Reviewers:

(b) (6)

(b) (4)

EXECUTIVE NARRATIVE

Sample Delivery Group: FC23899
Laboratory: (b) (4)
Site: Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, Oahu, Hawaii, Extended Drinking Water Monitoring, NAH Shaft Treatment System Pilot Study
Sampling dates: 04/11/2025
Number of Samples: 4
Test Method: USEPA method 533
Analysis: Per-fluorinated Alkyl Substances (PFAS)

Quality Assurance Project Plan: Final Extended Drinking Water Monitoring Plan Joint Base Pearl Harbor-Hickam Public Water System #HI0000360 and Aliamanu Military Reservation PWS #HI0000337 O'ahu, Hawai'i, March 2024.

Validation Guidelines: Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537, EPA 910-R-18-001 (November 2018); National Functional Guidelines for High Resolution Superfund Methods Data Review, OLEM 9240.1-65, EPA-542-R-20-007, (November 2020).

Client Sample ID	Laboratory Sample ID	Matrix	Validation Stage
SHAFT-HW-0018384-25098-N-R01	FC23899-1	Drinking Water	S4VEM
SHAFT-FB-250411-25098-N	FC23899-2	Field blank	S4VEM
SHAFT-HW-0018393-25098-N-R01	FC23899-3	Drinking Water	S4VEM
SHAFT-HW-0018394-25098-N-R01	FC23899-4	Drinking Water	S4VEM

Table 1 provides a summary of the major and minor data quality issues identified in this data set. All data are acceptable except those results which have been qualified with "R", rejected. Data validation qualifiers along with associated descriptions are provided in Table 2. All data qualification related to this group of samples is detailed on the attached sheets.

All data users should note two facts. First, an "R" flag means that the associated value is unusable due to significant quality control (QC) problems, the data is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on any data tables even as a last resort. Second, no analyte concentration, even if it passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data, but any value potentially contains error.

DATA ASSESSMENT

1. NARRATIVE AND COMPLETENESS REVIEW

The case narrative was reviewed, and the data package was checked for completeness. No discrepancies were noted.

2. SAMPLE DELIVERY AND CONDITION

The samples arrived at the laboratory in acceptable condition. Proper custody was documented.

3. HOLDING TIME

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detect results will be flagged as not detected at an estimated quantitation limit, "UJ", unless the holding time is grossly exceeded (by more than two times the holding time specified), in which case non-detect results are flagged "R", rejected. Qualifications were applied to the samples and analytes as shown below.

All sample analyses were within the validation guidance.

4. MASS CALIBRATION

Mass calibration range must bracket the ion masses of interest. The most recent mass calibration must be used for every acquisition in an analytical run. Mass calibration must be verified to be ±0.5 amu of the true value, by acquiring a full scan continuum mass spectrum of a PFAS.

No problems were found for this criterion.

5. CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument can produce acceptable quantitative data. An initial calibration demonstrates that the instrument can give acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is providing satisfactory daily performance. Additionally, a continuing calibration is analyzed at the end of each 12-hour analytical sequence, denoted as a "closing" calibration verification and ascertains acceptable performance at the conclusion of the analytical sequence.

A) Initial Calibration

Percent Relative Standard Deviation (%RSD) is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent RSD must be less than the maximum %RSD, in cases where linear and non-linear regressions are used, linear correlation coefficients must be greater than the minimum requirement. If the %RSD or correlation coefficient do not meet quality control criteria, detects may be qualified as "J" and professional judgement is used to qualify non-detects. Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

B) Continuing Calibration

Percent difference (%D) compares the response factor of the continuing calibration check to mean response factor (RF) from the initial calibration. The %D for all analytes and surrogates in the continuing calibration verifications (CCVs) must be <30%. A value outside of these limits indicates potential detection and quantitation errors. If the %D exceeds quality control criteria, the positive results are flagged as estimated, "J" and non-detects are flagged "UJ". Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

6. BLANKS

Quality assurance (QA) blanks (i.e. method, storage, trip, field, or rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation and analysis or field activity. Method and storage blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. Qualifications were applied to the samples and analytes as shown below.

A) Laboratory Blanks

Method blanks were analyzed with appropriate frequency. No problems were found for this criterion.

B) Equipment / Field Blanks

Sample SHAFT-FB-250411-25098-N was submitted as a field blank in association with this sample delivery group (SDG). No problems were found for this criterion.

7. ISOTOPE DILUTION ANALOGUES

All samples are fortified with isotopically labeled analogues prior to sample preparation and analyses to evaluate overall laboratory performance and efficiency of the analytical technique. The reported project samples and laboratory quality control samples had observed isotope dilution analogue recoveries within the established limits in all cases with the following exceptions.

No problems were found for this criterion with the following exceptions.

The observed recoveries for isotope dilution standards 13C7-PFUnDA and 13C2-PFDoDA were less than the lowest acceptance limit during the analyses of samples SHAFT-HW-0018384-25098-N-R01, SHAFT-FB-250411-25098-N, and SHAFT-HW-0018393-25098-N-R01. The results reported for the associated target analytes have been qualified "UJ" on this basis.

8. COMPOUND IDENTIFICATION

Compound Identification

The project target analyte compounds are identified on the LC/MS/MS by using the analytes relative retention time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within ±0.06 RRT units of the standard compound and have ion spectra with primary and when available secondary characteristic ions present. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

Target compound identifications were reviewed for samples at the Stage 4 level. No anomalies were identified.

9. MATRIX SPIKE/MATRIX SPIKE DUPLICATE / MATRIX DUPLICATE

Matrix spike/matrix spike duplicate (MS/MSD) data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD data may be used in conjunction with other quality control criteria for additional qualification of data.

Sample SHAFT-HW-0018384-25098-N-R01 was submitted for MS evaluation in association with this SDG. Upon evaluation all accuracy indicators were acceptable or did not result in a need to qualify sample results with the following exception. The observed MS recovery for 11Cl-PF3OUdS was less than the lowest acceptance limit. The result reported for the impacted analyte in the parent sample has been qualified "UJ" on this basis.

Sample SHAFT-HW-0018393-25098-N-R01 was submitted for matrix duplicate evaluation in association with this SDG. Upon evaluation adequate laboratory precision was demonstrated.

10. LABORATORY CONTROL SAMPLE

The Laboratory Control Sample (LCS) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. Aqueous/water, soil/sediment, wipe, and filter LCSs shall be analyzed for each analyte utilizing the same sample preparations, analytical methods, and quality assurance/quality control (QA/QC) procedures as employed for the samples. All LCS percent recoveries must fall within the control limits. Qualifications were applied to the samples and analytes as shown below.

No problems requiring qualification of samples results were found for this criterion.

11. FIELD DUPLICATE

Field duplicates may be taken and analyzed as an indication of overall precision. These analyses measure both field and laboratory precision. A control limit of 30% for the Relative Percent Difference (RPD) shall be used for original and duplicate sample values greater than or equal to five times the LOQ. A control limit of two times the LOQ shall be used if either the sample or duplicate value is less than five times the LOQ. For field duplicate analyses

that do not meet the technical criteria, the action was applied to only the field sample and its duplicate.

No samples were submitted as a field duplicate pair in association with this SDG.

12. DILUTIONS, RE-EXTRACTIONS & REANALYSIS

Samples may be re-analyzed for dilution, re-extraction and for other QC reasons. In such cases, the best result values are used.

Samples were re-extracted and/or reanalyzed in several cases to confirm quality control results. Upon review, the laboratory reported the best and final result.

13. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

Overall, the laboratory data generated met the project goals and quality control criteria, with the exceptions identified in this report and as summarized in Table 1.

14. OTHER PROBLEMS

None.

Table 1 Major and Minor Findings

	Were acceptance criteria met?		
	Yes	No	
Per-fluorinated Compounds		Major	Minor
Holding Time/Sample Handling	x		
Method Blanks	x		
Equipment / Field Blanks	x		
Calibration Blanks	x		
Mass Calibration	x		
Calibration Percent Relative Standard Deviation and Percent Difference	x		
Isotope Dilution Analogues			x
Compound Identification	x		
Matrix Spike/Matrix Spike Duplicate			x
Matrix Duplicate	x		
Laboratory Control Sample	x		
Other Quality Control Data out of Specification	x		
Field Duplicate	NA		

Major = Major data quality issue identified resulting in rejection of data.
Minor = Minor data quality issue identified resulting in the qualification of data. Data qualification should be used to inform the data users of data limitations.
NA = Not applicable

Table 2 Data Validation Qualifiers

Data Qualifier	Definition
U	The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
NJ	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

Table 3 PFAS Definitions Table

	CAS Number	Compound	Abbreviation(s)
1	151772-58-6	Nonafluoro-3,6-dioxaheptanoic acid	NFDHA, PFECA B
2	113507-82-7	Perfluoro (2-ethoxyethane) sulfonic acid	PFEESA, PES
3	377-73-1	Perfluoro-3-methoxypropanoic acid	PFMPA, PRMOPrA, PFECA F
4	375-73-5	Perfluorobutanesulfonic acid	PFBS
5	863090-89-5	Perfluoro-4-methoxybutanoic acid	PFMBA, PFMOBA, PFECA A
6	13252-13-6	Hexafluoropropylene Oxide Dimer Acid	HFPO-DA, Gen-X, HFPODA
7	375-22-4	Perfluorobutanoic acid	PFBA
8	335-67-1	Perfluorooctanoic acid	PFOA
9	2706-91-4	Perfluoropentanesulfonic acid	PFPeS
10	1763-23-1	Perfluorooctanesulfonic acid	PFOS, PFOSA
11	2706-90-3	Perfluoropentanoic acid	PFPeA
12	2058-94-8	Perfluoroundecanoic acid	PFUnA, PFUnDA
13	375-95-1	Perfluorononanoic acid	PFNA
14	307-55-1	Perfluorododecanoic acid	PFDoA, PFDoDA
15	335-76-2	Perfluorodecanoic acid	PFDA
16	375-92-8	Perfluoroheptanesulfonic Acid	PFHpS
17	307-24-4	Perfluorohexanoic acid	PFHxA
18	375-85-9	Perfluoroheptanoic acid	PFHpA
19	355-46-4	Perfluorohexanesulfonic acid	PFHxS
20	763051-92-9	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11CL-PF3Ouds, F-53 Minor
21	27619-97-2	6:2-Fluorotelomersulfonic acid	6:2 FTS
22	756426-58-1	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9Cl-PF3ONS
23	39108-34-4	8:2-Fluotelomersulfonic acid	8:2 FTS
24	919005-14-4	4,8-Dioxa-3H-perfluorononanoic acid	DONA, ADONA
25	757124-72-4	4:2-Fluorotelomersulfonic acid	4:2 FTS

(b) (4)

EXECUTIVE NARRATIVE

Sample Delivery Group: FC23899
Laboratory: (b) (4)
Site: Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, Oahu, Hawaii, EPA Co-Sampling, Extended Drinking Water Monitoring, NAH Shaft Treatment System Pilot Study
Sampling dates: 04/11/2025
Number of Samples: 4
Test Method: USEPA method 537.1
Analysis: Per-fluorinated Alkyl Substances (PFAS)

Quality Assurance Project Plan: Final Extended Drinking Water Monitoring Plan Joint Base Pearl Harbor-Hickam Public Water System #HI0000360 and Aliamanu Military Reservation PWS #HI0000337 O'ahu, Hawai'i, March 2024.

Validation Guidelines: Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537, EPA 910-R-18-001 (November 2018).

Client Sample ID	Laboratory Sample ID	Matrix	Validation Stage
SHAFT-HW-0018384-25098-N-R01	FC23899-1A	Drinking Water	S4VEM
SHAFT-FB-250411-25098-N	FC23899-2A	Field blank	S4VEM
SHAFT-HW-0018393-25098-N-R01	FC23899-3A	Drinking Water	S4VEM
SHAFT-HW-0018394-25098-N-R01	FC23899-4A	Drinking Water	S4VEM

Table 1 provides a summary of the major and minor data quality issues identified in this data set. All data are acceptable except those results which have been qualified with "R", rejected. Data validation qualifiers along with associated descriptions are provided in Table 2. All data qualification related to this group of samples is detailed on the attached sheets.

All data users should note two facts. First, an "R" flag means that the associated value is unusable due to significant quality control (QC) problems, the data is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on any data tables even as a last resort. Second, no analyte concentration, even if it passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data, but any value potentially contains error.

DATA ASSESSMENT

1. NARRATIVE AND COMPLETENESS REVIEW

The case narrative was reviewed, and the data package was checked for completeness. No discrepancies were noted.

2. SAMPLE DELIVERY AND CONDITION

The samples arrived at the laboratory in acceptable condition. Proper custody was documented.

3. HOLDING TIME

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detect results will be flagged as not detected at an estimated quantitation limit, "UJ", unless the holding time is grossly exceeded (by more than two times the holding time specified), in which case non-detect results are flagged "R", rejected. Qualifications were applied to the samples and analytes as shown below.

All sample analyses were within the validation guidance.

4. MASS CALIBRATION

Mass calibration range must bracket the ion masses of interest. The most recent mass calibration must be used for every acquisition in an analytical run. Mass calibration must be verified to be ±0.5 amu of the true value, by acquiring a full scan continuum mass spectrum of a PFAS.

No problems were found for this criterion.

5. CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument can produce acceptable quantitative data. An initial calibration demonstrates that the instrument can give acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is providing satisfactory daily performance. Additionally, a continuing calibration is analyzed at the end of each 12-hour analytical sequence, denoted as a "closing" calibration verification and ascertains acceptable performance at the conclusion of the analytical sequence.

A) Initial Calibration

Percent Relative Standard Deviation (%RSD) is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent RSD must be less than the maximum %RSD, in cases where linear and non-linear regressions are used, linear correlation coefficients must be greater than the minimum requirement. If the %RSD or correlation coefficient do not meet quality control criteria, detects may be qualified as "J" and professional judgement is used to qualify non-detects. Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

B) Continuing Calibration

Percent difference (%D) compares the response factor of the continuing calibration check to mean response factor (RF) from the initial calibration. The %D for all analytes and surrogates in the continuing calibration verifications (CCVs) must be <30%. A value outside of these limits indicates potential detection and quantitation errors. If the %D exceeds quality control criteria, the positive results are flagged as estimated, "J" and non-detects are flagged "UJ". Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion with the following exceptions. The recoveries for PFDoA were outside of acceptance limits for two calibration verifications associated with all samples in this sample delivery group (SDG). All results reported for the impacted analyte in the associated samples have been qualified "UJ" on this basis.

6. BLANKS

Quality assurance (QA) blanks (i.e. method, storage, trip, field, or rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation and analysis or field activity. Method and storage blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. Qualifications were applied to the samples and analytes as shown below.

A) Laboratory Blanks

Method blanks were analyzed with appropriate frequency. No problems were found for this criterion.

B) Equipment / Field Blanks

Sample SHAFT-FB-250411-25098-N was submitted as a field blank in association with this SDG. No problems were found for this criterion.

7. SURROGATES

All samples are spiked with isotopically labeled surrogate compounds prior to sample preparation and analyses to evaluate overall laboratory performance and efficiency of the analytical technique. The reported project samples and laboratory quality control samples had observed surrogate recoveries within the established limits in all cases with the following exceptions.

No problems requiring qualification of sample results were found for this criterion with the following exception. The observed recoveries for surrogates d5-EtFOSAA were less than the lowest acceptable limit during the analyses of samples SHAFT-HW-0018384-25098-N-R01 and SHAFT-HW-0018394-25098-N-R01. All results reported for the impacted samples have been qualified "J" or "UJ" as appropriate on this basis.

8. INTERNAL STANDARDS PERFORMANCE

Internal standard performance criteria are meant to ensure that the liquid chromatograph/tandem mass spectrometer (LC/MS/MS) sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than +/- 50% from the average peak area calculated during the initial calibration and 70-140% from the most recent continuing calibration standard. The retention time of the internal standard must not vary by more than +/-30 seconds from the associated continuing calibration standard. If area count is greater than the upper acceptance limit, non-detected results are not qualified while positive results are qualified "J," estimated. When an observed area count is less than the lower acceptance limit, results are qualified "J" or "UJ" as appropriate.

No problems were found for this criterion.

9. COMPOUND IDENTIFICATION

Compound Identification

The project target analyte compounds are identified on the LC/MS/MS by using the analytes relative retention time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within ±0.06 RRT units of the standard compound and have ion spectra with primary and when available secondary characteristic ions present. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

Target compound identifications were reviewed for samples at the Stage 4 level. No anomalies were identified.

10. MATRIX SPIKE/MATRIX SPIKE DUPLICATE / MATRIX DUPLICATE

Matrix spike/matrix spike duplicate (MS/MSD) data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD data may be used in conjunction with other quality control criteria for additional qualification of data.

Sample SHAFT-HW-0018384-25098-N-R01 was submitted for MS evaluation in association with this SDG. Upon evaluation all accuracy indicators were acceptable with the following exceptions. The observed MS recoveries for the analytes listed in the table below were lower than the lowest acceptable limit. The results reported for the impacted analytes in the parent sample has been qualified "UJ" on this basis.

PFUnA	*PFTrDA*	*EtFOSAA*	*11Cl-PF3OUdS*
PFDoA	*PFTeDA*	*MeFOSAA*	

Sample SHAFT-HW-0018393-25098-N-R01 was submitted for matrix duplicate evaluation in association with this SDG. Upon evaluation adequate laboratory precision was demonstrated.

11. LABORATORY CONTROL SAMPLE

The Laboratory Control Sample (LCS) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. Aqueous/water, soil/sediment, wipe, and filter LCSs shall be analyzed for each analyte utilizing the same sample preparations, analytical methods, and quality assurance/quality control (QA/QC) procedures as employed for the samples. All LCS percent recoveries must fall within the control limits. Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion with the following exceptions. The observed recoveries for the analytes listed in the table below were less than the lowest acceptance limit in the LCS associated with all samples in this SDG. The results reported for the impacted analytes in the associated samples have been qualified "UJ" on this basis.

PFUnA	*PFTrDA*	*EtFOSAA*	*9Cl-PF3ONS*
PFDoA	*PFTeDA*	*MeFOSAA*	*11Cl-PF3OUdS*

12. FIELD DUPLICATE

Field duplicates may be taken and analyzed as an indication of overall precision. These analyses measure both field and laboratory precision. A control limit of 30% for the Relative Percent Difference (RPD) shall be used for original and duplicate sample values greater than or equal to five times the LOQ. A control limit of two times the LOQ shall be used if either the sample or duplicate value is less than five times the LOQ. For field duplicate analyses that do not meet the technical criteria, the action was applied to only the field sample and its duplicate.

No samples were submitted as a field duplicate pair in association with this SDG.

13. DILUTIONS, RE-EXTRACTIONS & REANALYSIS

Samples may be re-analyzed for dilution, re-extraction and for other QC reasons. In such cases, the best result values are used.

Samples were re-extracted and/or reanalyzed in several cases to confirm quality control results. Upon review, the laboratory reported the best and final result.

14. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

Overall, the laboratory data generated met the project goals and quality control criteria, with the exceptions identified in this report and as summarized in Table 1.

15. OTHER PROBLEMS

None.

Table 1 Major and Minor Findings

	Were acceptance criteria met?		
	Yes	No	
Per-fluorinated Compounds		Major	Minor
Holding Time/Sample Handling	x		
Method Blanks	x		
Equipment / Field Blanks	x		
Calibration Blanks	x		
Mass Calibration	x		
Calibration Percent Relative Standard Deviation and Percent Difference			x
Surrogates			x
Internal Standards Performance	x		
Compound Identification	x		
Matrix Spike/Matrix Spike Duplicate			x
Matrix Duplicate	x		
Laboratory Control Sample			x
Other Quality Control Data out of Specification	x		
Field Duplicate	NA		

Major = Major data quality issue identified resulting in rejection of data.
Minor = Minor data quality issue identified resulting in the qualification of data. Data qualification should be used to inform the data users of data limitations.
NA = Not applicable

Table 2 Data Validation Qualifiers

Data Qualifier	Definition
U	The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
NJ	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

Table 3 PFAS Definitions Table

NO	CAS #	Target Name	Target Abbreviation
1	307-24-4	Perfluorohexanoic acid	PFHxA
2	375-85-9	Perfluoroheptanoic acid	PFHpA
3	335-67-1	Perfluorooctanoic acid	PFOA
4	375-95-1	Perfluorononanoic acid	PFNA
5	335-76-2	Perfluorodecanoic acid	PFDA
6	2058-94-8	Perfluoroundecanoic acid	PFUnDA
7	307-55-1	Perfluorododecanoic acid	PFDoA
8	72629-94-8	Perfluorotridecanoic acid	PFTrDA
9	376-06-7	Perfluorotetradecanoic acid	PFTeDA
10	375-73-5	Perfluorobutanesulfonic acid	PFBS
11	355-46-4	Perfluorohexanesulfonic acid	PFHxS
12	1763-23-1	Perfluorooctanesulfonic acid	PFOS
13	2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid	NMeFOSAA
14	2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid	NEtFOSAA
15	13252-13-6	2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptapropoxy)-propanoic acid	GenX (HFPODA)
16	919005-14-4(e)	Sodium dodcaefluoro-3H-4, 8-dioxanonanoate	DONA, ADONA, NaDONA
17	756426-58-1	Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS
18	763051-92-9	Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS

Calculation Documentation

Internal Standard Initial Calibration and Calculation Worksheet

Lab: (b) (4)
Method: 533
Instrument: GCMS3Q
Curve Date: 4/15/2025
Compound: PFPeA
Internal Standard: M5-PFPeA

Initial Calibration Model Worksheet

Compound Area Ax	ISTD Area Ais	Compound Conc Cx	ISTD Conc Cis	Y-Values Ax/Ais	X-Values Cx/Cis	X^2 $(Cx/Cis)^2$	RF (Ax*Cis)/(Ais*Cx)
6106	179781	0.5	10	0.033963545	0.05	0.0025	0.679
14013	166322	1	10	0.084252234	0.1	0.01	0.843
26850	166839	2	10	0.160933595	0.2	0.04	0.805
68867	164287	5	10	0.419187154	0.5	0.25	0.838
151266	175842	10	10	0.860238168	1	1	0.860
270642	179212	20	10	1.51017789	2	4	0.755
528721	175506	40	10	3.012552277	4	16	0.753
657220	175238	50	10	3.750442256	5	25	0.750
SUM OF EACH COLUMN :				9.8317	12.85	46.3025	6.2834

CALIBRATION MODELS:

Average Response Factor:
Cx = Ax*Cis/Ais/RF

Average RF	0.785	AVERAGE(RF)	0.7854
RSD	7.8%	STDEV(RF)/(AveRF)	7.834

Linear Regression:

y = mx + b
Cx = (((Ax/Ais)-b)/m)*Cis

Weighting	Equal	1/X	$1/X^2$	Equation
Slope (m)	0.745948654	0.76214	0.80408	SLOPE(RatioY,RatioX)
Intercept (b)	0.03079	0.00478	-0.003831	INTERCEPT(RatioY,RatioX)
CC (R)	0.99967	0.99892	0.99678	CORREL(RatioY,RatioX)
COD (R^2)	0.99934	0.99783	0.99357	POWER(R,2)

Quadratic Regression:

$y = ax^2 + bx + c$
Cx=(SQRT(b^2-(4*a*(c-(Ax/Ais))))-b)/(2*a)*Cis

Weighting	Equal	1/X	$1/X^2$	Equation
x^2 Coefficient (a)	-0.00748	-0.00691	0.00312	LINEST(RatioY,RatioX:RatioX^2,1,1)
x Coefficient (b)	0.78202	0.77925	0.74998	INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),1,2)
Intercept (c)	0.01614	0.01726	0.00625	INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),1,3)
COD (R^2)	0.99947			INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),3,1)

Sample Concentration Calculations

Sample ID	File ID	Compound Area Ax	ISTD Area Ais	ISTD Conc Cis	Ave RF On-column Conc	Linear Cal On-column Conc Equal Weighting	Linear Cal On-column Conc 1/X Weighting	Linear Cal On-column Conc $1/X^2$ Weighting	Quadratic Cal On-column Conc Equal Weighting	Quadratic Cal On-column Conc 1/X Weighting	Quadratic Cal On-column Conc $1/X^2$ Weighting	
Equations:					Ax*Cis/Ais/RF	((Ax/Ais-b)/m)*Cis			(SQRT(b^2-(4*a*(c-(Ax/Ais))))-b)/(2*a)*Cis			
ICV	3Q101467.D	243359	164253	10	18.864	19.449	19.377	18.474	19.088	19.115	19.514	19.64
CCV	3Q101469.D	271634	179137	10	19.306	19.915	19.833	18.906	19.549	19.577	19.969	20.1
MB	3Q101471.D	0	128869	10	0.000	-0.413	-0.063	0.048	-0.206	-0.221	-0.083	ND
LCS	3Q101472.D	246077	127967	10	24.483	25.366	25.169	23.963	24.980	25.010	25.291	25.49
FC23899-1	3Q101473.D	22141	123783	10	2.277	1.985	2.284	2.272	2.085	2.078	2.299	2.37

Internal Standard Initial Calibration and Calculation Worksheet

Lab: (b) (4)
Method: 533
Instrument: GCMS3Q
Curve Date: 4/15/2025
Compound: 13C5-PFPeA
Internal Standard: 13C3-PFBA

Initial Calibration Model Worksheet

Compound Area Ax	ISTD Area Ais	Compound Conc Cx	ISTD Conc Cis	Y-Values Ax/Ais	X-Values Cx/Cis	X^2 $(Cx/Cis)^2$	RF (Ax*Cis)/(Ais*Cx)
179781	82914	10	10	2.168282799	1	1	2.168
166322	85518	10	10	1.944877102	1	1	1.945
166839	85042	10	10	1.961842384	1	1	1.962
164287	84842	10	10	1.936387638	1	1	1.936
175842	82118	10	10	2.141333203	1	1	2.141
179212	84034	10	10	2.13261299	1	1	2.133
175506	86424	10	10	2.030755346	1	1	2.031
175238	85777	10	10	2.042948576	1	1	2.043
SUM OF EACH COLUMN :				16.3590	8	8	16.3590

CALIBRATION MODELS:

Average Response Factor:
Cx = Ax*Cis/Ais/RF

Average RF	2.045	AVERAGE(RF)	2.0449
RSD	4.6%	STDEV(RF)/(AveRF)	4.569

Linear Regression:

y = mx + b
Cx = (((Ax/Ais)-b)/m)*Cis

Weighting	Equal	1/X	$1/X^2$	Equation
Slope (m)	#DIV/0!	#DIV/0!	#DIV/0!	SLOPE(RatioY,RatioX)
Intercept (b)	#DIV/0!	#DIV/0!	#DIV/0!	INTERCEPT(RatioY,RatioX)
CC (R)	#DIV/0!	#DIV/0!	#DIV/0!	CORREL(RatioY,RatioX)
COD (R^2)	#DIV/0!	#DIV/0!	#DIV/0!	POWER(R,2)

Quadratic Regression:

$y = ax^2 + bx + c$
Cx=(SQRT(b^2-(4*a*(c-(Ax/Ais))))-b)/(2*a)*Cis

Weighting	Equal	1/X	$1/X^2$	Equation
x^2 Coefficient (a)	0.00000	#DIV/0!	#DIV/0!	LINEST(RatioY,RatioX:RatioX^2,1,1)
x Coefficient (b)	0.00000	#DIV/0!	#DIV/0!	INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),1,2)
Intercept (c)	2.04488	#DIV/0!	#DIV/0!	INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),1,3)
COD (R^2)	0.50368			INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),3,1)

Sample Concentration Calculations

Sample ID	File ID	Compound Area Ax	ISTD Area Ais	ISTD Conc Cis	Ave RF On-column Conc	Linear Cal On-column Conc Equal Weighting	Linear Cal On-column Conc 1/X Weighting	Linear Cal On-column Conc $1/X^2$ Weighting	Quadratic Cal On-column Conc Equal Weighting	Quadratic Cal On-column Conc 1/X Weighting	Quadratic Cal On-column Conc $1/X^2$ Weighting	
Equations:					Ax*Cis/Ais/RF	((Ax/Ais-b)/m)*Cis			(SQRT(b^2-(4*a*(c-(Ax/Ais))))-b)/(2*a)*Cis			
ICV	3Q101467.D	164253	91327	10	8.795	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	8.8
CCV	3Q101469.D	179137	83723	10	10.463	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	10.46
MB	3Q101471.D	128869	71808	10	8.776	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	8.78
LCS	3Q101472.D	127967	80156	10	7.807	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	7.81
FC23899-1	3Q101473.D	123783	80392	10	7.530	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	7.53

Internal Standard Initial Calibration and Calculation Worksheet

Lab: (b) (4)
Method: 537.1
Instrument: GCMS5Q
Curve Date: 4/16/2025
Compound: PFOA
Internal Standard: 13C2-PFOA

Initial Calibration Model Worksheet

Compound Area Ax	ISTD Area Ais	Compound Conc Cx	ISTD Conc Cis	Y-Values Ax/Ais	X-Values Cx/Cis	X^2 $(Cx/Cis)^2$	RF (Ax*Cis)/(Ais*Cx)
5955	341969	0.5	20	0.017413859	0.025	0.000625	0.697
13782	351964	1	20	0.039157414	0.05	0.0025	0.783
30114	370549	2	20	0.081268604	0.1	0.01	0.813
76872	353096	5	20	0.217708499	0.25	0.0625	0.871
181351	381163	10	20	0.475783326	0.5	0.25	0.952
355415	359027	20	20	0.989939475	1	1	0.990
806761	332539	50	20	2.426064311	2.5	6.25	0.970
1689583	334868	100	20	5.045519429	5	25	1.009
SUM OF EACH COLUMN :				9.2929	9.425	32.575625	7.0843

CALIBRATION MODELS:

Average Response Factor:
Cx = Ax*Cis/Ais/RF

Average RF	0.886	AVERAGE(RF)
RSD	12.8%	STDEV(RF)/(AveRF)

Linear Regression:

y = mx + b
Cx = (((Ax/Ais)-b)/m)*Cis

Weighting	Equal	1/X	$1/X^2$	Equation
Slope (m)	0.558938	0.99561	0.95711	SLOPE(RatioY,RatioX)
Intercept (b)	0.00000	-0.01135	-0.007380	INTERCEPT(RatioY,RatioX)
CC (R)	0.99985	0.99969	0.99842	CORREL(RatioY,RatioX)
COD (R^2)	0.99971	0.99939	0.99685	POWER(R,2)

Quadratic Regression:

$y = ax^2 + bx + c$
Cx=(SQRT(b^2-(4*a*(c-(Ax/Ais))))-b)/(2*a)*Cis

Weighting	Equal	1/X	$1/X^2$	Equation
x^2 Coefficient (a)	0.01149	0.04743	0.06743	LINEST(RatioY,RatioX:RatioX^2,1,1)
x Coefficient (b)	0.95238	0.77933	0.74782	INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),1,2)
Intercept (c)	-0.00721	0.05032	0.00601	INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),1,3)
COD (R^2)	0.99992			INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),3,1)

Sample Concentration Calculations

Sample ID	File ID	Compound Area Ax	ISTD Area Ais	ISTD Conc Cis	Ave RF On-column Conc	Linear Cal On-column Conc Equal Weighting	Linear Cal On-column Conc 1/X Weighting	Linear Cal On-column Conc $1/X^2$ Weighting	Quadratic Cal On-column Conc Equal Weighting	Quadratic Cal On-column Conc 1/X Weighting	Quadratic Cal On-column Conc $1/X^2$ Weighting	
Equations:					Ax*Cis/Ais/RF	((Ax/Ais-b)/m)*Cis			(SQRT(b^2-(4*a*(c-(Ax/Ais))))-b)/(2*a)*Cis			
ICV	5Q31794.D	347343	354178	20	22.149	35.092	19.928	20.647	20.493	22.356	23.564	20.48
CCV	5Q31796.D	345242	356929	20	21.846	34.611	19.658	20.366	20.217	22.052	23.267	20.2
MB	5Q31799.D	0	394595	20	0.000	0.000	0.228	0.154	0.151	-1.297	-0.161	ND
LCS	5Q31798.D	324396	341496	20	21.454	33.990	19.310	20.004	19.862	21.659	22.884	19.84
FC23899-1A	5Q31800.D	15866	309052	20	1.159	1.837	1.259	1.227	1.229	0.026	1.206	1.09

Internal Standard Initial Calibration and Calculation Worksheet

Lab: (b) (4)
Method: 537.1
Instrument: GCMS5Q
Curve Date: 4/16/2025
Compound: d5-EtFOSAA
Internal Standard: d3-MeFOSAA

Initial Calibration Model Worksheet

Compound Area Ax	ISTD Area Ais	Compound Conc Cx	ISTD Conc Cis	Y-Values Ax/Ais	X-Values Cx/Cis	X^2 $(Cx/Cis)^2$	RF (Ax*Cis)/(Ais*Cx)
202	26788	0.5	40	0.00754069	0.0125	0.00015625	0.603
414	28247	1	40	0.014656424	0.025	0.000625	0.586
1074	29431	2	40	0.036492134	0.05	0.0025	0.730
2516	28774	5	40	0.08744005	0.125	0.015625	0.700
5645	30150	10	40	0.187230514	0.25	0.0625	0.749
10773	28678	20	40	0.375653811	0.5	0.25	0.751
27198	26814	50	40	1.014320877	1.25	1.5625	0.811
57191	28267	100	40	2.02324265	2.5	6.25	0.809
SUM OF EACH COLUMN :				3.7466	4.7125	8.14390625	5.7399

CALIBRATION MODELS:

Average Response Factor:
Cx = Ax*Cis/Ais/RF

Average RF	0.717	AVERAGE(RF)
RSD	11.8%	STDEV(RF)/(AveRF)

Linear Regression:

y = mx + b
Cx = (((Ax/Ais)-b)/m)*Cis

Weighting	Equal	1/X	$1/X^2$	Equation
Slope (m)	0.81351	0.80247	0.76702	SLOPE(RatioY,RatioX)
Intercept (b)	-0.01089	-0.00438	-0.002554	INTERCEPT(RatioY,RatioX)
CC (R)	0.99991	0.99955	0.99763	CORREL(RatioY,RatioX)
COD (R^2)	0.99982	0.99909	0.99527	POWER(R,2)

Quadratic Regression:

$y = ax^2 + bx + c$
Cx=(SQRT(b^2-(4*a*(c-(Ax/Ais))))-b)/(2*a)*Cis

Weighting	Equal	1/X	$1/X^2$	Equation
x^2 Coefficient (a)	0.00451	0.06003	0.09808	LINEST(RatioY,RatioX:RatioX^2,1,1)
x Coefficient (b)	0.80265	0.66898	0.62226	INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),1,2)
Intercept (c)	-0.00908	0.01314	0.00193	INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),1,3)
COD (R^2)	0.99983			INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),3,1)

Sample Concentration Calculations

Sample ID	File ID	Compound Area Ax	ISTD Area Ais	ISTD Conc Cis	Ave RF On-column Conc	Linear Cal On-column Conc Equal Weighting	Linear Cal On-column Conc 1/X Weighting	Linear Cal On-column Conc $1/X^2$ Weighting	Quadratic Cal On-column Conc Equal Weighting	Quadratic Cal On-column Conc 1/X Weighting	Quadratic Cal On-column Conc $1/X^2$ Weighting	
Equations:					Ax*Cis/Ais/RF	((Ax/Ais-b)/m)*Cis			(SQRT(b^2-(4*a*(c-(Ax/Ais))))-b)/(2*a)*Cis			
ICV	5Q31794.D	0	29500	40	0.000	0.535	0.218	0.133	0.453	-0.787	-0.124	NA
CCV	5Q31796.D	10262	27606	40	20.724	18.813	18.748	19.519	18.927	20.498	21.884	19.53
MB	5Q31799.D	12407	30296	40	22.831	20.672	20.632	21.490	20.801	22.559	23.942	21.48
LCS	5Q31798.D	9514	27541	40	19.259	17.521	17.438	18.148	17.624	19.055	20.436	18.17
FC23899-1A	5Q31800.D	10717	24946	40	23.951	21.659	21.633	22.537	21.795	23.647	25.024	22.51

Data Validation Worksheet

DATA VALIDATION PFAS EPA 533

Using Data Review and Validation Guidelines for Perfluoroalkyl substances (PFASs) Analyzed Using EPA method 537 (EPA 910-R-18-001), November 2018 and); National Functional Guidelines for High Resolution Superfund Methods Data Review, OLEM 9240.1-65, EPA-542-R-20-007, (November 2020).

Validator: (b) (6)

Date Validated: 04/24/2025

Reviewer: DM 4/28/2025

Project: Red Hill Extended Drinking Water

SDG: FC23899

LAB: (b) (4)

Samples Collected: 04/11/2025

4 Samples

SAMPLE RECEIPT AND CASE NARRATIVE REVIEW

- ✓ Traffic reports, chain-of-custody forms or SDG narrative do not indicate any problems with sample receipt, condition of the samples, analytical problems or special circumstances affecting the quality of the data.

  Coolers received on 04/12 at 5C

HOLDING TIMES

- ✓ Water and waste samples must be properly preserved (cooled to 4° +/- 2°), and samples must be extracted within 28 days of the date of collection. Extracts must be analyzed within 28 days of the date of extraction.

  Samples collected on 04/11
  Samples extracted on 04/15 and 04/16
  Samples analyzed on 04/15 and 04/17

  All ok

ISOTOPE DILUTION ANALOGUE

- ✓ LCMS Surrogate Recovery (Form II, Form VIII)
- ✓ Added to all QC and field samples
- ✓ Recoveries are within 50-200%
- ✓ See table 5 in method 533 for extracted internal standard associations

Per NFG:

- ✓ If low qualify J-/UJ
- ✓ If high qualify J+ for positive hits; no qual on ND
- ✓ If <10% qualify J-/R

All ok except

SHAFT-HW-0018384-25098-N-R01 FC23899-1
13C7-PFUnDA ↓ in both run 1 and run 2 flag associated UJ
13C2-PFDoDA in both run 1 and run 2 flag associated UJ

SHAFT-FB-250411-25098-N FC23899-2
13C7-PFUnDA ↓ in both run 1 and run 2 flag associated UJ
13C2-PFDoDA in both run 1 and run 2 flag associated UJ

SHAFT-HW-0018393-25098-N-R01 FC23899-3
13C7-PFUnDA ↓ in run 1; reported from run 1 flag associated UJ
13C2-PFDoDA in both run 1 and run 2 flag associated UJ

SHAFT-HW-0018393-25098-N-R01 FC23899-3A
d5-EtFOSAA ↓ in run 2; reported from run 1; no action required

LCMS LABORATORY CONTROL SAMPLE

- ✓ LCMS Lab Control Recovery (Form III), Form I, prep log, run log

- ✓ LCS prepared, extracted, analyzed, and reported once for every 20 field samples of a similar matrix, per SDG. Raw data and percent recoveries present for all Laboratory Control samples as required by Method 537 (Table 13).

- ✓ Laboratory Control Samples were analyzed for all the target analytes that the samples are analyzed for.

- ✓ Per method 533: Recoveries 70-130% for medium and high level lab fortified blank or 50-150% for low level lab fortified blank and 70-130 % per EPA 910-R-18-001 (11/2018)

OP8907-BS All ok

OP8883-BS associated with samples 1 and 2 AND 3

2058-94-8 Perfluoroundecanoic acid ↑	ND; no action
307-55-1 Perfluorododecanoic acid ↑	ND; no action
39108-34-4 8:2 Fluorotelomer sulfonate ↑	ND; no action
13252-13-6 HFPO-DA (GenX) ↑	ND; no action
375-92-8 Perfluoroheptanesulfonic acid ↑	ND; no action

MS/MSD

- ✓ LCMS Matrix Spike Recovery (Form III)
- ✓ The Matrix Spike Samples were spiked and analyzed for all the target analytes that the samples are analyzed for (Same analytes as LCS).
- ✓ Per method 533: Recoveries 70-130% for medium and high level lab fortified sample matrix or 50-150% for low level lab fortified sample matrix and 70-130 % per EPA 910-R-18-001 (11/2018)
- ✓ RPDs must be ≤ 30% and EPA 910-R-18-001 (11/2018)

SHAFT-HW-0018384-25098-N-R01 FC23899-1 MS only all ok

2058-94-8 Perfluoroundecanoic acid ↑	ND; no action
307-55-1 Perfluorododecanoic acid↑	ND; no action
39108-34-4 8:2 Fluorotelomer sulfonate↑	ND; no action
13252-13-6 HFPO-DA (GenX) ↑	ND; no action
763051-92-911Cl-PF3OUdS ↓	flag UJ

Lab Duplicate: SHAFT-HW-0018393-25098-N-R01 FC23899-3 all ok

BLANKS

- ✓ LCMS Method Blank Summary (Form IV), method blank Form I, prep log, run log
- ✓ Frequency of Analysis: reagent blank has been analyzed for every 20 (or less) samples of similar matrix or concentration or each extraction batch.
- ✓ Continuing Calibration Blanks (Form I) and run log
- ✓ Frequency of Analysis: immediately following the highest standard analyzed and daily prior to sample analysis.
- ✓ Field/rinse blanks are non-detected for all analytes

✓ evaluate storage, method, field and trip blanks

✓ method blank were prepared and analyzed in association with all samples in SDG

✓ and EPA 910-R-18-001 (11/2018):

Table 9. Blank Actions for PFAS Analysis

Blank Result	Sample Result	Action
Detect	Non-detect	No qualification
< MRL	< MRL	Report at MRL and qualify as non-detect (U)
	≥ 10x Blank Result	No qualification
≥ MRL	< MRL	Report at MRL and qualify as non-detect (U)
	≥ MRL and ≤ 10x Blank Result	Report at sample result and qualify as non-detect (U)
Gross contamination	Detect	Qualify as unusable (R)

OP8883-MB all ND

OP8907-MB all ND

SHAFT-FB-250411-25098-N All ND

MASS CALIBRATION/TUNE CHECK

- ✓ Bracket ion masses of interest
- ✓ Verified to be ±0.5 amu of true value

passed

ICAL

- ✓ Initial Calibration Data Curve Evaluation (Form VI) and run log
- ✓ Minimum of 5 standard concentration were used
- ✓ %RSD <25% or r2 > 0.99

Note: An RSD value outside the initial calibration limit indicates the potential for quantitation errors. For this reason, all positive and non-detected results are qualified as estimated. Severe performance failures (RSD >90%) requires rejection of non-detected results.

See below

CCAL

- ✓ Continuing Calibration Data (Form VII) and run log

- ✓ Continuing calibration standard analyzed on each working day, prior to sample analyses.

- ✓ Calibration verification/continuing calibration standard been analyzed after every 10 samples and at the end of each analytical sequence

- ✓ The %D for all analytes and surrogates in the continuing calibration 70-130%

Used lab limit of 50% for CCVL

Instrument ID: GCMS3Q 04/15/25 all %RSD<25
S3Q1492-IBLK 3Q101466.D 04/15/25 16:12 n/a Instrument Blank
S3Q1492-ICV1492 3Q101467.D 04/15/25 16:28 n/a Initial cal verification 20

S3Q1492-CC1492 3Q101469.D 04/15/25 17:00 n/a Continuing cal 20
S3Q1492-CC1492 3Q101470.D 04/15/25 17:16 n/a Continuing cal 0.5LL

Samples 1-4 (sample 4 not reported)

S3Q1492-ECC1492 3Q101480.D 04/15/25 19:57 n/a Ending cal 20

S3Q1493-IBLK 3Q101488.D 04/16/25 11:13 n/a Instrument Blank
S3Q1493-CC1492 3Q101490.D 04/16/25 11:45 n/a Continuing cal 20
S3Q1493-CC1492 3Q101491.D 04/16/25 12:01 n/a Continuing cal 0.5LL

Samples 1 and 3 (not reported)

S3Q1493-ECC1492 3Q101499.D 04/16/25 14:10 n/a Ending cal 20

S3Q1494-IBLK 3Q101518.D 04/17/25 10:18 n/a Instrument Blank

S3Q1494-CC1492 3Q101520.D 04/17/25 10:51 n/a Continuing cal 20
S3Q1494-CC1492 3Q101521.D 04/17/25 11:07 n/a Continuing cal 0.5LL

Samples 2 and 4 (sample 2 not reported)

S3Q1494-CC1492 3Q101533.D 04/17/25 14:20 n/a Continuing cal 20

ALL OK

COMPOUND INDENTIFICATION

- ✓ The sample peak must be within ±0.06 RRT units of the standard compound and have ion spectra with primary and when available secondary characteristic ions present
- ✓ Signal to noise ration >10 for positive results
- ✓ Ion ration limits within window

all ok

Calibration Range Exceedance

✓ qualify if analytes reported from exceedance; reject if saturated column

FIELD DUPLICATES

RPD +/- 30%

See field duplicate worksheet

none

DATA VALIDATION PFAS EPA 537.1 mod

Using Data Review and Validation Guidelines for Perfluoroalkyl substances (PFASs) Analyzed Using EPA method 537 (EPA 910-R-18-001); November 2018

Validator: (b) (6)

Date Validated: 04/24/2025

Reviewer: DM 4/28/2025

Project: Red Hill EDWM EPA Co-Sampling

SDG: FC23899

LAB: (b) (4)

Samples Collected: 04/1/2025

4 Samples

SAMPLE RECEIPT AND CASE NARRATIVE REVIEW

- ✓ Traffic reports, chain-of-custody forms or SDG narrative do not indicate any problems with sample receipt, condition of the samples, analytical problems or special circumstances affecting the quality of the data.

  Coolers received on 04/12 at 3 C

HOLDING TIMES

- ✓ Water and waste samples must be properly preserved (cooled to 4° +/- 2°), and samples must be extracted within 14 days of the date of collection. Extracts must be analyzed within 28 days of the date of extraction.

  Samples collected on 04/11
  Samples extracted on 04/15
  Samples analyzed on 04/15 and 04/16

  All ok

SURROGATES

- ✓ LCMS Surrogate Recovery (Form II, Form VIII)
- ✓ Added to all QC and field samples
- ✓ Recoveries are within the 70-130% per EPA 910-R-18-001 (11/2018) J/UJ per guidance (no bias)

SHAFT-HW-0018384-25098-N-R01 FC23899-1A
d5-EtFOSAA ↓ in both runs flag J/UJ

SHAFT-FB-250411-25098-N FC23899-2A
d5-EtFOSAA ↓ in run 2; run 1 reported; no action

SHAFT-HW-0018393-25098-N-R01 FC23899-3
d5-EtFOSAA ↓ in run 2; run 1 reported; no action

SHAFT-HW-0018394-25098-N-R01 FC23899-4A
13C2-PFHxA ↑ in run 2; run 1 reported; no action
d5-EtFOSAA ↓ in run 1; ↑ in run 2 run 1 was reported flag UJ

INTERNAL STANDARDS

- ✓ LCMS Internal Standard Area and Retention Time Summary (Form VIII)
- ✓ Per method 537: Peak area counts within +/- 50% window of average initial calibration (and 70-140% from most recent CCC per EPA 910-R-18-001 (11/2018)
- ✓ All RTs within in established limits
- ✓ Confirmed Lab limits established correct window and used to evaluate

All ok

LCMS LABORATORY CONTROL SAMPLE

- ✓ LCMS Lab Control Recovery (Form III), Form I, prep log, run log
- ✓ LCS prepared, extracted, analyzed, and reported once for every 20 field samples of a similar matrix, per SDG. Raw data and percent recoveries present for all Laboratory Control samples as required by Method 537 (Table 13).

- ✓ Laboratory Control Samples were analyzed for all the target analytes that the samples are analyzed for.

- ✓ Per method 537: Recoveries 70-130% and EPA 910-R-18-001 (11/2018)

OP8882-BS associated with all samples		
2058-94-8 Perfluoroundecanoic acid PFUnA	↓	**FLAG UJ**
307-55-1 Perfluorododecanoic acid PFDoA	↓	**FLAG UJ**
72629-94-8 Perfluorotridecanoic acid PFTrDA	↓	**FLAG UJ**
376-06-7 Perfluorotetradecanoic acid PFTeDA	↓	**FLAG UJ**
2355-31-9 MeFOSAA	↓	**FLAG UJ**
2991-50-6 EtFOSAA	↓	**FLAG UJ**
756426-58-19Cl-PF3ONS	↓	**FLAG UJ**
763051-92-911Cl-PF3OUdS	↓	**FLAG UJ**

MS/MSD

- ✓ LCMS Matrix Spike Recovery (Form III)

- ✓ The Matrix Spike Samples were spiked and analyzed for all the target analytes that the samples are analyzed for (Same analytes as LCS).

- ✓ Per method 537: Recoveries 70-130% and EPA 910-R-18-001 (11/2018)

- ✓ Per method 537: Method analyte RPDs must be $\leq$ 30% and EPA 910-R-18-001 (11/2018)

FC23899-1 SHAFT-HW-0018384-25098-N-R01

Analyte	MS only	
2058-94-8 Perfluoroundecanoic acid	↓	FLAG UJ
307-55-1 Perfluorododecanoic acid	↓	FLAG UJ
72629-94-8 Perfluorotridecanoic acid	↓	FLAG UJ
376-06-7 Perfluorotetradecanoic acid	↓	FLAG UJ
2355-31-9 MeFOSAA	↓	FLAG UJ
2991-50-6 EtFOSAA	↓	FLAG UJ
763051-92-911Cl-PF3OUdS	↓	FLAG UJ

Lab duplicate:
None

FC23899-3A SHAFT-HW-0018393-25098-N-R01
All ok

BLANKS

- ✓ LCMS Method Blank Summary (Form IV), method blank Form I, prep log, run log
- ✓ Frequency of Analysis: reagent blank has been analyzed for every 20 (or less) samples of similar matrix or concentration or each extraction batch.
- ✓ Continuing Calibration Blanks (Form I) and run log
- ✓ Frequency of Analysis: immediately following the highest standard analyzed and daily prior to sample analysis.
- ✓ Field/rinse blanks are non-detected for all analytes

✓ evaluate storage, method, field and trip blanks

✓ method blank were prepared and analyzed in association with all samples in SDG

✓ and EPA 910-R-18-001 (11/2018):

Table 9. Blank Actions for PFAS Analysis

Blank Result	Sample Result	Action
Detect	Non-detect	No qualification
< MRL	< MRL	Report at MRL and qualify as non-detect (U)
	≥ 10x Blank Result	No qualification
≥ MRL	< MRL	Report at MRL and qualify as non-detect (U)
	≥ MRL and ≤ 10x Blank Result	Report at sample result and qualify as non-detect (U)
Gross contamination	Detect	Qualify as unusable (R)

OP8882-MB all ND

SHAFT-FB-250411-25098-N all ND

MASS CALIBRATION/TUNE CHECK

- ✓ Bracket ion masses of interest
- ✓ Verified to be ±0.5 amu of true value

passed

ICAL

- ✓ Initial Calibration Data Curve Evaluation (Form VI) and run log

- ✓ Minimum of 5 standard concentration were used
- ✓ %RSD <25% or r2 > 0.99

Note: An RSD value outside the initial calibration limit indicates the potential for quantitation errors. For this reason, all positive and non-detected results are qualified as estimated. Severe performance failures (RSD >90%) requires rejection of non-detected results.

See below

CCAL

- ✓ Continuing Calibration Data (Form VII) and run log
- ✓ Continuing calibration standard analyzed on each working day, prior to sample analyses.
- ✓ Calibration verification/continuing calibration standard been analyzed after every 10 samples and at the end of each analytical sequence
- ✓ The %D for all analytes and surrogates in the continuing calibration 70-130%

Used lab limit of 50% for CCVL

Instrument ID: GCMS5Q 04/15/25 all %RSD<25
S5Q521-ICV521 5Q31766.D 04/15/25 17:29 n/a Initial cal verification 20
PFDoA out
S5Q521-CC521 5Q31768.D 04/15/25 18:01 n/a Continuing cal 20
S5Q521-CC521 5Q31769.D 04/15/25 18:17 n/a Continuing cal 0.5LL

Samples 1-4 (sample 1 not reported)

S5Q521-ECC521 5Q31780.D 04/15/25 21:13 n/a Ending cal 20

Instrument ID: GCMS5Q 04/16/25 all %RSD<25
S5Q522-ICV522 5Q31794.D 04/16/25 14:09 n/a Initial cal verification 20
PFDoA out
S5Q522-CC522 5Q31796.D 04/16/25 14:41 n/a Continuing cal 20
S5Q522-CC522 5Q31797.D 04/16/25 14:57 n/a Continuing cal 0.5LL

Samples 1-3 (only sample 1 reported)

S5Q522-ECC522 5Q31808.D 04/16/25 17:53 n/a Ending cal 20

Instrument ID: GCMS5Q 04/17/25 all %RSD<25
S5Q523-ICV523 5Q31828.D 04/17/25 14:50 n/a Initial cal verification 20

S5Q523-CC523 5Q31830.D 04/17/25 15:23 n/a Continuing cal 20
S5Q523-CC523 5Q31831.D 04/17/25 15:39 n/a Continuing cal 0.5LL

Sample 4 (not reported)
S5Q523-ECC523 5Q31842.D 04/17/25 18:40 n/a Ending cal 20

All ok

COMPOUND INDENTIFICATION

- ✓ The sample peak must be within ±0.06 RRT units of the standard compound and have ion spectra with primary and when available secondary characteristic ions present
- ✓ Signal to noise ration >10 for positive results
- ✓ Ion ration limits within window

all ok

Calibration Range Exceedance

✓ qualify if analytes reported from exceedance; reject if saturated column

FIELD DUPLICATES

RPD +/- 30% per method 537.1

See field duplicate worksheet

none

Data Validation Report for FC23899

Facility:	Drinking Water Sampling, JBPHH, Oahu, Hawaii
Event:	NAH Shaft Treatment System Pilot Study
SDG:	FC23899
Guidance Document:	Extended Drinking Water Monitoring Plan, March 2024
Prime Contractor:	AECOM, Honolulu, HI
Project Manager:	(b) (6)
Contract Laboratory(ies):	(b) (4)
Data Review Contractor:	(b) (4)
Data Review Level:	S4VEM
Primary Data Reviewer:	(b) (6) Technical Specialist
Date Submitted:	April 30, 2025

Field Sample ID	Lab Sample ID	Matrix	Type/Type Code	E533	E537.1
SHAFT-FB-250411-25098-N	FC23899-2	Water	Field Blank/FB	X	
SHAFT-FB-250411-25098-N	FC23899-2A	Water	Field Blank/FB		X
SHAFT-HW-0018384-25098-N-R01	FC23899-1	Water	Field Sample/N	X	
SHAFT-HW-0018384-25098-N-R01	FC23899-1A	Water	Field Sample/N		X
SHAFT-HW-0018393-25098-N-R01	FC23899-3	Water	Field Sample/N	X	
SHAFT-HW-0018393-25098-N-R01	FC23899-3A	Water	Field Sample/N		X
SHAFT-HW-0018394-25098-N-R01	FC23899-4	Water	Field Sample/N	X	
SHAFT-HW-0018394-25098-N-R01	FC23899-4A	Water	Field Sample/N		X

Data Validation Report for FC23899

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page at S4VEM data validation level. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in the Extended Drinking Water Monitoring Plan, March 2024 and the Draft Database Management Plan December 2021, and in accordance with the EPA Drinking Water Methods, the National Functional Guidelines and Department of Defense Data Validation Guidelines as appropriate and in the order of priority listed. Where definitive guidance is not provided, results have been evaluated in a conservative manner using professional judgment.

Sample collection was managed and directed by AECOM, Honolulu, HI; analyses were performed by (b) (4) (b) (4) Orlando, FL and were reported under sample delivery group (SDG) FC23899. Data have been evaluated electronically based on electronic data deliverables (EDDs) provided by the laboratory, and hard copy data summary forms have also been reviewed during this effort and compared to the automated review output by the reviewers whose signatures appear on the following page. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative and throughout this report.

All quality control (QC) elements associated with this SDG have been reviewed by a project chemist in accordance with the requirements defined for the project. This review is documented in the attached Data Review Checklists. The QC elements listed below were supported by the electronic deliverable and were evaluated using ADR processes.

- Duplicate Error Ratio (LR)
- Extracted Internal Standard
- Field Blank
- Lab Blank
- Lab Replicate RPD
- LCS Recovery
- MS Recovery
- Prep Hold Time
- Relative Error Ratio (LR)
- Test Hold Time

Results of the ADR process were subsequently reviewed and updated as applicable by the data review chemists identified on the signature page. Quality control elements that were not included in the electronic deliverable were reviewed manually and findings are documented within this report. Summaries of findings and associated qualified results are documented throughout this report.

A total of 59 results (34.30%) out of the 172 results (sample and field QC samples) reported are qualified based on review and 0 results (0.00%) have been rejected. Trace values, defined as results that are qualified as estimated because they fall between the detection limit and the reporting limit/limit of quantitation, are not counted as qualified results in the above count. The qualified results are detailed throughout this report and discussed in the narrative below, where appropriate.

Narrative Comments

Analytical Method	Data Reviewer Comment
E533	No additional comments; see Checklist for detail.
E537.1	No additional comments; see Checklist for detail.

April 30, 2025

Reviewed by (b) (6), Technical Specialist, (b) (4).

As the Reviewer, I certify that I have performed a data review process in accordance with the requirements of the project guidance document, and have compared the electronic data to the laboratory's hard copy report and have verified the consistency of the reported sample results and method quality control data between the two deliverables.

Quality Control Outliers for test method E533, Extracted Internal Standard

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with internal standards compounds prior to sample preparation (EIS). The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. EIS results that were outside of the acceptance criteria are listed below.

Sample ID/ Lab Sample ID	Analyte	Result	Warning Limits	Control Limits	Units	Qualifier	Reason Code	Comment
LABQC (LB)	Perfluoro-n-[1,2,3,4,5,6,7-13C7]undecanoic acid (13C7-PFUnA)	45.00	50 - 200	50 - 200	percent	R/R	Y5	No Qualifiers Applied
LABQC (BS)	Perfluoro-n-[1,2-13C2]dodecanoic acid (13C2-PFDoA)	36.00	50 - 200	50 - 200	percent	R/R	Y5	No Qualifiers Applied
LABQC (LB)	Perfluoro-n-[1,2-13C2]dodecanoic acid (13C2-PFDoA)	34.00	50 - 200	50 - 200	percent	R/R	Y5	No Qualifiers Applied
SHAFT-FB-250411-25098-N (FB)	Perfluoro-n-[1,2,3,4,5,6,7-13C7]undecanoic acid (13C7-PFUnA)	40.00	50 - 200	50 - 200	percent	R/R	Y5	
SHAFT-FB-250411-25098-N (FB)	Perfluoro-n-[1,2-13C2]dodecanoic acid (13C2-PFDoA)	27.00	50 - 200	50 - 200	percent	R/R	Y5	
SHAFT-HW-0018384-25098-N-R01 (N)	Perfluoro-n-[1,2,3,4,5,6,7-13C7]undecanoic acid (13C7-PFUnA)	39.00	50 - 200	50 - 200	percent	R/R	Y5	
SHAFT-HW-0018384-25098-N-R01 (MS)	Perfluoro-n-[1,2,3,4,5,6,7-13C7]undecanoic acid (13C7-PFUnA)	40.00	50 - 200	50 - 200	percent	R/R	Y5	No Qualifiers Applied
SHAFT-HW-0018384-25098-N-R01 (N)	Perfluoro-n-[1,2-13C2]dodecanoic acid (13C2-PFDoA)	24.00	50 - 200	50 - 200	percent	R/R	Y5	
SHAFT-HW-0018384-25098-N-R01 (MS)	Perfluoro-n-[1,2-13C2]dodecanoic acid (13C2-PFDoA)	26.00	50 - 200	50 - 200	percent	R/R	Y5	No Qualifiers Applied
SHAFT-HW-0018393-25098-N-R01 (N)	Perfluoro-n-[1,2,3,4,5,6,7-13C7]undecanoic acid (13C7-PFUnA)	49.00	50 - 200	50 - 200	percent	R/R	Y5	
SHAFT-HW-0018393-25098-N-R01 (LR)	Perfluoro-n-[1,2,3,4,5,6,7-13C7]undecanoic acid (13C7-PFUnA)	49.00	50 - 200	50 - 200	percent	R/R	Y5	No Qualifiers Applied
SHAFT-HW-0018393-25098-N-R01 (N)	Perfluoro-n-[1,2-13C2]dodecanoic acid (13C2-PFDoA)	33.00	50 - 200	50 - 200	percent	R/R	Y5	

Quality Control Outliers for test method E533, Extracted Internal Standard

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with internal standards compounds prior to sample preparation (EIS). The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. EIS results that were outside of the acceptance criteria are listed below.

Sample ID/ Lab Sample ID	Analyte	Result	Warning Limits	Control Limits	Units	Qualifier	Reason Code	Comment
SHAFT-HW-0018393-25098-N-R01 (LR)	Perfluoro-n-[1,2-13C2]dodecanoic acid (13C2-PFDoA)	34.00	50 - 200	50 - 200	percent	R/R	Y5	No Qualifiers Applied

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

Qualified Results associated with the Extracted Internal Standard for E533

FieldSample ID	Type	Analyte	RL	MDL	Lab Result	Qualified Result	Units	Reason
SHAFT-FB-250411-25098-N FC23899-2	FB	Perfluorododecanoic acid (PFDoA)	1.80	0.540	0.540 U	0.540 UJ	ng/l	Y5
SHAFT-FB-250411-25098-N FC23899-2	FB	Perfluoroundecanoic acid (PFUnA)	1.80	0.580	0.580 U	0.580 UJ	ng/l	Y5
SHAFT-HW-0018384-25098-N-R01 FC23899-1	N	Perfluorododecanoic acid (PFDoA)	1.80	0.540	0.540 U	0.540 UJ	ng/l	Y5
SHAFT-HW-0018384-25098-N-R01 FC23899-1	N	Perfluoroundecanoic acid (PFUnA)	1.80	0.580	0.580 U	0.580 UJ	ng/l	Y5
SHAFT-HW-0018393-25098-N-R01 FC23899-3	N	Perfluorododecanoic acid (PFDoA)	1.80	0.540	0.540 U	0.540 UJ	ng/l	Y5
SHAFT-HW-0018393-25098-N-R01 FC23899-3	N	Perfluoroundecanoic acid (PFUnA)	1.80	0.580	0.580 U	0.580 UJ	ng/l	Y5

Analytes not found in project samples are reported as not detected at the method detection limit (MDL) unless blank contamination occurs and then the sample may be reported as not detected at the (RL) or amount found in sample, whichever is greater. Results for PFAS analysis that are associated with blank contamination and are less than the RL will be reported non-detect at the sample concentration.

Quality Control Outliers for test method E533, LCS Recovery

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

Sample ID/ Lab Sample ID	Analyte	Result	Warning Limits	Control Limits	Units	Qualifier	Reason Code	Comment
OP8883-BS (BS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	141.0	70 - 130	70 - 130	percent	R/R	C	
OP8883-BS (BS)	Hexafluoropropylene oxide dimer acid (HFPO-DA)	150.0	70 - 130	70 - 130	percent	R/R	C	
OP8883-BS (BS)	Perfluorododecanoic acid (PFDoA)	161.0	70 - 130	70 - 130	percent	R/R	C	
OP8883-BS (BS)	Perfluoroundecanoic acid (PFUnA)	136.0	70 - 130	70 - 130	percent	R/R	C	

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

Data Validation Report for FC23899

Quality Control Outliers for test method E533, MS Recovery

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

Sample ID/ Lab Sample ID	Analyte	Result	Warning Limits	Control Limits	Units	Qualifier	Reason Code	Comment
SHAFT-HW-0018384-25098-N-R01 (MS)	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	62.00	70 - 130	10 - 130	percent	R/R	M	
SHAFT-HW-0018384-25098-N-R01 (MS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	139.0	70 - 130	10 - 130	percent	R/R	M	
SHAFT-HW-0018384-25098-N-R01 (MS)	Hexafluoropropylene oxide dimer acid (HFPO-DA)	135.0	70 - 130	10 - 130	percent	R/R	M	
SHAFT-HW-0018384-25098-N-R01 (MS)	Perfluorododecanoic acid (PFDoA)	168.0	70 - 130	10 - 130	percent	R/R	M	
SHAFT-HW-0018384-25098-N-R01 (MS)	Perfluoroundecanoic acid (PFUnA)	144.0	70 - 130	10 - 130	percent	R/R	M	

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

Qualified Results associated with the MS Recovery for E533

FieldSample ID	Type	Analyte	RL	MDL	Lab Result	Qualified Result	Units	Reason
SHAFT-HW-0018384-25098-N-R01 FC23899-1	N	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	3.60	0.610	0.610 U	0.610 UJ	ng/l	M

Analytes not found in project samples are reported as not detected at the method detection limit (MDL) unless blank contamination occurs and then the sample may be reported as not detected at the (RL) or amount found in sample, whichever is greater. Results for PFAS analysis that are associated with blank contamination and are less than the RL will be reported non-detect at the sample concentration.

Quality Control Outliers for test method E537.1, Extracted Internal Standard

Method performance for individual samples is demonstrated through spiking activities. All samples are spiked with internal standards compounds prior to sample preparation (EIS). The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Summary forms were evaluated and compared to electronic data deliverables. EIS results that were outside of the acceptance criteria are listed below.

Sample ID/ Lab Sample ID	Analyte	Result	Warning Limits	Control Limits	Units	Qualifier	Reason Code	Comment
LABQC (BS)	d5-N-Ethylperfluoro-1-octanesulfonamido acetic acid	43.00	70 - 130	70 - 130	percent	R/R	Y5	No Qualifiers Applied
LABQC (LB)	d5-N-Ethylperfluoro-1-octanesulfonamido acetic acid	53.00	70 - 130	70 - 130	percent	R/R	Y5	No Qualifiers Applied
SHAFT-HW-0018384-25098-N-R01 (N)	d5-N-Ethylperfluoro-1-octanesulfonamido acetic acid	56.00	70 - 130	70 - 130	percent	R/R	Y5	
SHAFT-HW-0018384-25098-N-R01 (MS)	d5-N-Ethylperfluoro-1-octanesulfonamido acetic acid	53.00	70 - 130	70 - 130	percent	R/R	Y5	No Qualifiers Applied
SHAFT-HW-0018393-25098-N-R01 (LR)	d5-N-Ethylperfluoro-1-octanesulfonamido acetic acid	64.00	70 - 130	70 - 130	percent	R/R	Y5	No Qualifiers Applied
SHAFT-HW-0018394-25098-N-R01 (N)	d5-N-Ethylperfluoro-1-octanesulfonamido acetic acid	67.00	70 - 130	70 - 130	percent	R/R	Y5	

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

No results associated with this QC element required qualification.

Quality Control Outliers for test method E537.1, LCS Recovery

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

Sample ID/ Lab Sample ID	Analyte	Result	Warning Limits	Control Limits	Units	Qualifier	Reason Code	Comment
OP8882-BS (BS)	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	43.00	70 - 130	40 - 130	percent	R/R	C	
OP8882-BS (BS)	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	64.00	70 - 130	40 - 130	percent	R/R	C	
OP8882-BS (BS)	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	59.00	70 - 130	40 - 130	percent	R/R	C	
OP8882-BS (BS)	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	51.00	70 - 130	40 - 130	percent	R/R	C	
OP8882-BS (BS)	Perfluorododecanoic acid (PFDoA)	39.00	70 - 130	40 - 130	percent	R/R	C	
OP8882-BS (BS)	Perfluorotetradecanoic acid (PFTeDA)	43.00	70 - 130	40 - 130	percent	R/R	C	
OP8882-BS (BS)	Perfluorotridecanoic acid (PFTrDA)	36.00	70 - 130	40 - 130	percent	R/R	C	
OP8882-BS (BS)	Perfluoroundecanoic acid (PFUnA)	50.00	70 - 130	40 - 130	percent	R/R	C	

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

Qualified Results associated with the LCS Recovery for E537.1

FieldSample ID	Type	Analyte	RL	MDL	Lab Result	Qualified Result	Units	Reason
SHAFT-FB-250411-25098-N FC23899-2A	FB	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	7.10	1.80	1.80 U	1.80 UJ	ng/l	C
SHAFT-FB-250411-25098-N FC23899-2A	FB	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	7.10	1.80	1.80 U	1.80 UJ	ng/l	C
SHAFT-FB-250411-25098-N FC23899-2A	FB	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.60	0.890	0.890 U	0.890 UJ	ng/l	C
SHAFT-FB-250411-25098-N FC23899-2A	FB	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.60	0.890	0.890 U	0.890 UJ	ng/l	C
SHAFT-FB-250411-25098-N FC23899-2A	FB	Perfluorododecanoic acid (PFDoA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C/V1
SHAFT-FB-250411-25098-N FC23899-2A	FB	Perfluorotetradecanoic acid (PFTeDA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C
SHAFT-FB-250411-25098-N FC23899-2A	FB	Perfluorotridecanoic acid (PFTrDA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C

Qualified Results associated with the LCS Recovery for E537.1

FieldSample ID	Type	Analyte	RL	MDL	Lab Result	Qualified Result	Units	Reason
SHAFT-FB-250411-25098-N FC23899-2A	FB	Perfluoroundecanoic acid (PFUnA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	7.10	1.80	1.80 U	1.80 UJ	ng/l	C/I/M
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	7.10	1.80	1.80 U	1.80 UJ	ng/l	C/I
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.60	0.890	0.890 U	0.890 UJ	ng/l	C/I/M
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.60	0.890	0.890 U	0.890 UJ	ng/l	C/I/M
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorododecanoic acid (PFDoA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C/I/M/V1
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorotetradecanoic acid (PFTeDA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C/I/M
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorotridecanoic acid (PFTrDA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C/I/M
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluoroundecanoic acid (PFUnA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C/I/M
SHAFT-HW-0018393-25098-N-R01 FC23899-3A	N	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	7.10	1.80	1.80 U	1.80 UJ	ng/l	C
SHAFT-HW-0018393-25098-N-R01 FC23899-3A	N	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	7.10	1.80	1.80 U	1.80 UJ	ng/l	C
SHAFT-HW-0018393-25098-N-R01 FC23899-3A	N	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.60	0.890	0.890 U	0.890 UJ	ng/l	C
SHAFT-HW-0018393-25098-N-R01 FC23899-3A	N	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.60	0.890	0.890 U	0.890 UJ	ng/l	C
SHAFT-HW-0018393-25098-N-R01 FC23899-3A	N	Perfluorododecanoic acid (PFDoA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C/V1
SHAFT-HW-0018393-25098-N-R01 FC23899-3A	N	Perfluorotetradecanoic acid (PFTeDA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C
SHAFT-HW-0018393-25098-N-R01 FC23899-3A	N	Perfluorotridecanoic acid (PFTrDA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C
SHAFT-HW-0018393-25098-N-R01 FC23899-3A	N	Perfluoroundecanoic acid (PFUnA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	7.10	1.80	1.80 U	1.80 UJ	ng/l	C/I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	7.10	1.80	1.80 U	1.80 UJ	ng/l	C/I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.60	0.890	0.890 U	0.890 UJ	ng/l	C/I

Qualified Results associated with the LCS Recovery for E537.1

FieldSample ID	Type	Analyte	RL	MDL	Lab Result	Qualified Result	Units	Reason
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.60	0.890	0.890 U	0.890 UJ	ng/l	C/I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluorododecanoic acid (PFDoA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C/I/V1
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluorotetradecanoic acid (PFTeDA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C/I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluorotridecanoic acid (PFTrDA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C/I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluoroundecanoic acid (PFUnA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C/I

Analytes not found in project samples are reported as not detected at the method detection limit (MDL) unless blank contamination occurs and then the sample may be reported as not detected at the (RL) or amount found in sample, whichever is greater. Results for PFAS analysis that are associated with blank contamination and are less than the RL will be reported non-detect at the sample concentration.

Quality Control Outliers for test method E537.1, MS Recovery

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, MS/MSD data can be used in conjunction with other available QC information. Reported results were evaluated to determine compliance with the required acceptance criteria, and summary forms were evaluated and compared to electronic data deliverables. Findings of this review, and any associated qualified results, are listed below.

Sample ID/ Lab Sample ID	Analyte	Result	Warning Limits	Control Limits	Units	Qualifier	Reason Code	Comment
SHAFT-HW-0018384-25098-N-R01 (MS)	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	37.00	70 - 130	10 - 130	percent	R/R	M	
SHAFT-HW-0018384-25098-N-R01 (MS)	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	60.00	70 - 130	10 - 130	percent	R/R	M	
SHAFT-HW-0018384-25098-N-R01 (MS)	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	59.00	70 - 130	10 - 130	percent	R/R	M	
SHAFT-HW-0018384-25098-N-R01 (MS)	Perfluorododecanoic acid (PFDoA)	33.00	70 - 130	10 - 130	percent	R/R	M	
SHAFT-HW-0018384-25098-N-R01 (MS)	Perfluorotetradecanoic acid (PFTeDA)	45.00	70 - 130	10 - 130	percent	R/R	M	
SHAFT-HW-0018384-25098-N-R01 (MS)	Perfluorotridecanoic acid (PFTrDA)	31.00	70 - 130	10 - 130	percent	R/R	M	
SHAFT-HW-0018384-25098-N-R01 (MS)	Perfluoroundecanoic acid (PFUnA)	54.00	70 - 130	10 - 130	percent	R/R	M	

Where two qualifiers are listed, such as 'J/UJ', the first applies to positive results, and the second to non-detect results.
Upper and Lower Warning and Control Limits are abbreviated UWL, LWL, UCL, and LCL in the Comment field.

Qualified Results associated with the MS Recovery for E537.1

FieldSample ID	Type	Analyte	RL	MDL	Lab Result	Qualified Result	Units	Reason
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	7.10	1.80	1.80 U	1.80 UJ	ng/l	C/I/M
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.60	0.890	0.890 U	0.890 UJ	ng/l	C/I/M
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.60	0.890	0.890 U	0.890 UJ	ng/l	C/I/M
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorododecanoic acid (PFDoA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C/I/M/V1
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorotetradecanoic acid (PFTeDA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C/I/M
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorotridecanoic acid (PFTrDA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C/I/M

Qualified Results associated with the MS Recovery for E537.1

FieldSample ID	Type	Analyte	RL	MDL	Lab Result	Qualified Result	Units	Reason
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluoroundecanoic acid (PFUnA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C/I/M

Analytes not found in project samples are reported as not detected at the method detection limit (MDL) unless blank contamination occurs and then the sample may be reported as not detected at the (RL) or amount found in sample, whichever is greater. Results for PFAS analysis that are associated with blank contamination and are less than the RL will be reported non-detect at the sample concentration.

Table of All Qualified Results

Test Method: E533		Extraction Method: METHOD						
FieldSample ID / LabSample ID	Type	Analyte	RL	MDL	Lab Result	Qualified Result	Units	Reason
SHAFT-FB-250411-25098-N FC23899-2	FB	Perfluorododecanoic acid (PFDoA)	1.80	0.540	0.540 U	0.540 UJ	ng/l	Y5
SHAFT-FB-250411-25098-N FC23899-2	FB	Perfluoroundecanoic acid (PFUnA)	1.80	0.580	0.580 U	0.580 UJ	ng/l	Y5
SHAFT-HW-0018384-25098-N-R01 FC23899-1	N	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	3.60	0.610	0.610 U	0.610 UJ	ng/l	M
SHAFT-HW-0018384-25098-N-R01 FC23899-1	N	Perfluorododecanoic acid (PFDoA)	1.80	0.540	0.540 U	0.540 UJ	ng/l	Y5
SHAFT-HW-0018384-25098-N-R01 FC23899-1	N	Perfluoroundecanoic acid (PFUnA)	1.80	0.580	0.580 U	0.580 UJ	ng/l	Y5
SHAFT-HW-0018393-25098-N-R01 FC23899-3	N	Perfluorododecanoic acid (PFDoA)	1.80	0.540	0.540 U	0.540 UJ	ng/l	Y5
SHAFT-HW-0018393-25098-N-R01 FC23899-3	N	Perfluoroundecanoic acid (PFUnA)	1.80	0.580	0.580 U	0.580 UJ	ng/l	Y5

Test Method: E537.1		Extraction Method: METHOD						
FieldSample ID / LabSample ID	Type	Analyte	RL	MDL	Lab Result	Qualified Result	Units	Reason
SHAFT-FB-250411-25098-N FC23899-2A	FB	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	7.10	1.80	1.80 U	1.80 UJ	ng/l	C
SHAFT-FB-250411-25098-N FC23899-2A	FB	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	7.10	1.80	1.80 U	1.80 UJ	ng/l	C
SHAFT-FB-250411-25098-N FC23899-2A	FB	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.60	0.890	0.890 U	0.890 UJ	ng/l	C
SHAFT-FB-250411-25098-N FC23899-2A	FB	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.60	0.890	0.890 U	0.890 UJ	ng/l	C
SHAFT-FB-250411-25098-N FC23899-2A	FB	Perfluorododecanoic acid (PFDoA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C/V1
SHAFT-FB-250411-25098-N FC23899-2A	FB	Perfluorotetradecanoic acid (PFTeDA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C
SHAFT-FB-250411-25098-N FC23899-2A	FB	Perfluorotridecanoic acid (PFTrDA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C
SHAFT-FB-250411-25098-N FC23899-2A	FB	Perfluoroundecanoic acid (PFUnA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	7.10	1.80	1.80 U	1.80 UJ	ng/l	C/I/M
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	7.10	1.80	1.80 U	1.80 UJ	ng/l	I
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	7.10	1.80	1.80 U	1.80 UJ	ng/l	C/I
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.10	2.70	2.70 U	2.70 UJ	ng/l	I

Data Validation Report for FC23899

Table of All Qualified Results

Test Method: E537.1		**Extraction Method: METHOD**						
FieldSample ID / LabSample ID	Type	Analyte	RL	MDL	Lab Result	Qualified Result	Units	Reason
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.60	0.890	0.890 U	0.890 UJ	ng/l	C/I/M
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.60	0.890	0.890 U	0.890 UJ	ng/l	C/I/M
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorobutanesulfonic acid (PFBS)	1.80	0.710	3.70	3.70 J	ng/l	I
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorodecanoic acid (PFDA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	I
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorododecanoic acid (PFDoA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C/I/M/V1
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluoroheptanoic acid (PFHpA)	1.80	0.710	2.20	2.20 J	ng/l	I
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorohexanesulfonic acid (PFHxS)	1.80	0.710	4.40	4.40 J	ng/l	I
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorohexanoic acid (PFHxA)	1.80	0.710	4.60	4.60 J	ng/l	I
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorononanoic acid (PFNA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	I
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorooctanesulfonic acid (PFOS)	1.80	0.710	6.00	6.00 J	ng/l	I
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorooctanoic acid (PFOA)	1.80	0.710	3.90	3.90 J	ng/l	I
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorotetradecanoic acid (PFTeDA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C/I/M
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorotridecanoic acid (PFTrDA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C/I/M
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluoroundecanoic acid (PFUnA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C/I/M
SHAFT-HW-0018393-25098-N-R01 FC23899-3A	N	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	7.10	1.80	1.80 U	1.80 UJ	ng/l	C
SHAFT-HW-0018393-25098-N-R01 FC23899-3A	N	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	7.10	1.80	1.80 U	1.80 UJ	ng/l	C
SHAFT-HW-0018393-25098-N-R01 FC23899-3A	N	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.60	0.890	0.890 U	0.890 UJ	ng/l	C
SHAFT-HW-0018393-25098-N-R01 FC23899-3A	N	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.60	0.890	0.890 U	0.890 UJ	ng/l	C
SHAFT-HW-0018393-25098-N-R01 FC23899-3A	N	Perfluorododecanoic acid (PFDoA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C/V1

Data Validation Report for FC23899

Table of All Qualified Results

Test Method: E537.1		**Extraction Method: METHOD**						
FieldSample ID / LabSample ID	Type	Analyte	RL	MDL	Lab Result	Qualified Result	Units	Reason
SHAFT-HW-0018393-25098-N-R01 FC23899-3A	N	Perfluorotetradecanoic acid (PFTeDA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C
SHAFT-HW-0018393-25098-N-R01 FC23899-3A	N	Perfluorotridecanoic acid (PFTrDA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C
SHAFT-HW-0018393-25098-N-R01 FC23899-3A	N	Perfluoroundecanoic acid (PFUnA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	7.10	1.80	1.80 U	1.80 UJ	ng/l	C/I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	7.10	1.80	1.80 U	1.80 UJ	ng/l	I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	7.10	1.80	1.80 U	1.80 UJ	ng/l	C/I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.10	2.70	2.70 U	2.70 UJ	ng/l	I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.60	0.890	0.890 U	0.890 UJ	ng/l	C/I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.60	0.890	0.890 U	0.890 UJ	ng/l	C/I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluorobutanesulfonic acid (PFBS)	1.80	0.710	0.710 U	0.710 UJ	ng/l	I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluorodecanoic acid (PFDA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluorododecanoic acid (PFDoA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C/I/V1
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluoroheptanoic acid (PFHpA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluorohexanesulfonic acid (PFHxS)	1.80	0.710	0.710 U	0.710 UJ	ng/l	I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluorohexanoic acid (PFHxA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluorononanoic acid (PFNA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluorooctanesulfonic acid (PFOS)	1.80	0.710	0.710 U	0.710 UJ	ng/l	I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluorooctanoic acid (PFOA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluorotetradecanoic acid (PFTeDA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C/I

Table of All Qualified Results

Test Method: E537.1		Extraction Method: METHOD						
FieldSample ID / LabSample ID	Type	Analyte	RL	MDL	Lab Result	Qualified Result	Units	Reason
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluorotridecanoic acid (PFTrDA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C/I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluoroundecanoic acid (PFUnA)	1.80	0.710	0.710 U	0.710 UJ	ng/l	C/I

Analytes not found in project samples are reported as not detected at the method detection limit (MDL) unless blank contamination occurs and then the sample may be reported as not detected at the (RL) or amount found in sample, whichever is greater.
Trace values are not included in the qualified results table unless additional reason codes are associated.

Table of Results with Modified Qualifiers

Modified Qualifiers for test method E533

FieldSample ID / LabSample ID	Type	Analyte	RL	Lab Result	ADR Result	Modified Result	Reason
SHAFT-FB-250411-25098-N FC23899-2	FB	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	3.60	0.540 U	0.540 R	0.540 U	
SHAFT-FB-250411-25098-N FC23899-2	FB	Hexafluoropropylene oxide dimer acid (HFPO-DA)	3.60	0.890 U	0.890 R	0.890 U	
SHAFT-FB-250411-25098-N FC23899-2	FB	Perfluorododecanoic acid (PFDoA)	1.80	0.540 U	0.540 R	0.540 UJ	Y5
SHAFT-FB-250411-25098-N FC23899-2	FB	Perfluoroundecanoic acid (PFUnA)	1.80	0.580 U	0.580 R	0.580 UJ	Y5
SHAFT-HW-0018384-25098-N-R01 FC23899-1	N	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	3.60	0.610 U	0.610 R	0.610 UJ	M
SHAFT-HW-0018384-25098-N-R01 FC23899-1	N	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	3.60	0.540 U	0.540 R	0.540 U	
SHAFT-HW-0018384-25098-N-R01 FC23899-1	N	Hexafluoropropylene oxide dimer acid (HFPO-DA)	3.60	0.890 U	0.890 R	0.890 U	
SHAFT-HW-0018384-25098-N-R01 FC23899-1	N	Perfluorododecanoic acid (PFDoA)	1.80	0.540 U	0.540 R	0.540 UJ	Y5
SHAFT-HW-0018384-25098-N-R01 FC23899-1	N	Perfluoroundecanoic acid (PFUnA)	1.80	0.580 U	0.580 R	0.580 UJ	Y5
SHAFT-HW-0018393-25098-N-R01 FC23899-3	N	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	3.60	0.540 U	0.540 R	0.540 U	
SHAFT-HW-0018393-25098-N-R01 FC23899-3	N	Hexafluoropropylene oxide dimer acid (HFPO-DA)	3.60	0.890 U	0.890 R	0.890 U	
SHAFT-HW-0018393-25098-N-R01 FC23899-3	N	Perfluorododecanoic acid (PFDoA)	1.80	0.540 U	0.540 R	0.540 UJ	Y5
SHAFT-HW-0018393-25098-N-R01 FC23899-3	N	Perfluoroundecanoic acid (PFUnA)	1.80	0.580 U	0.580 R	0.580 UJ	Y5

Modified Qualifiers for test method E537.1

FieldSample ID / LabSample ID	Type	Analyte	RL	Lab Result	ADR Result	Modified Result	Reason
SHAFT-FB-250411-25098-N FC23899-2A	FB	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	7.10	1.80 U	1.80 R	1.80 UJ	C
SHAFT-FB-250411-25098-N FC23899-2A	FB	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	7.10	1.80 U	1.80 R	1.80 UJ	C
SHAFT-FB-250411-25098-N FC23899-2A	FB	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.60	0.890 U	0.890 R	0.890 UJ	C
SHAFT-FB-250411-25098-N FC23899-2A	FB	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.60	0.890 U	0.890 R	0.890 UJ	C
SHAFT-FB-250411-25098-N FC23899-2A	FB	Perfluorododecanoic acid (PFDoA)	1.80	0.710 U	0.710 R	0.710 UJ	C/V1
SHAFT-FB-250411-25098-N FC23899-2A	FB	Perfluorotetradecanoic acid (PFTeDA)	1.80	0.710 U	0.710 R	0.710 UJ	C

Table of Results with Modified Qualifiers

Modified Qualifiers for test method E537.1

FieldSample ID / LabSample ID	Type	Analyte	RL	Lab Result	ADR Result	Modified Result	Reason
SHAFT-FB-250411-25098-N FC23899-2A	FB	Perfluorotridecanoic acid (PFTrDA)	1.80	0.710 U	0.710 R	0.710 UJ	C
SHAFT-FB-250411-25098-N FC23899-2A	FB	Perfluoroundecanoic acid (PFUnA)	1.80	0.710 U	0.710 R	0.710 UJ	C
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	7.10	1.80 U	1.80 R	1.80 UJ	C/I/M
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	7.10	1.80 U	1.80 U	1.80 UJ	I
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	7.10	1.80 U	1.80 R	1.80 UJ	C/I
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.10	2.70 U	2.70 U	2.70 UJ	I
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.60	0.890 U	0.890 R	0.890 UJ	C/I/M
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.60	0.890 U	0.890 R	0.890 UJ	C/I/M
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorobutanesulfonic acid (PFBS)	1.80	3.70	3.70	3.70 J	I
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorodecanoic acid (PFDA)	1.80	0.710 U	0.710 U	0.710 UJ	I
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorododecanoic acid (PFDoA)	1.80	0.710 U	0.710 R	0.710 UJ	C/I/M/V1
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluoroheptanoic acid (PFHpA)	1.80	2.20	2.20	2.20 J	I
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorohexanesulfonic acid (PFHxS)	1.80	4.40	4.40	4.40 J	I
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorohexanoic acid (PFHxA)	1.80	4.60	4.60 R	4.60 J	I
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorononanoic acid (PFNA)	1.80	0.710 U	0.710 U	0.710 UJ	I
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorooctanesulfonic acid (PFOS)	1.80	6.00	6.00	6.00 J	I
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorooctanoic acid (PFOA)	1.80	3.90	3.90	3.90 J	I
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorotetradecanoic acid (PFTeDA)	1.80	0.710 U	0.710 R	0.710 UJ	C/I/M
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluorotridecanoic acid (PFTrDA)	1.80	0.710 U	0.710 R	0.710 UJ	C/I/M

Table of Results with Modified Qualifiers

Modified Qualifiers for test method E537.1

FieldSample ID / LabSample ID	Type	Analyte	RL	Lab Result	ADR Result	Modified Result	Reason
SHAFT-HW-0018384-25098-N-R01 FC23899-1A	N	Perfluoroundecanoic acid (PFUnA)	1.80	0.710 U	0.710 R	0.710 UJ	C/I/M
SHAFT-HW-0018393-25098-N-R01 FC23899-3A	N	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	7.10	1.80 U	1.80 R	1.80 UJ	C
SHAFT-HW-0018393-25098-N-R01 FC23899-3A	N	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	7.10	1.80 U	1.80 R	1.80 UJ	C
SHAFT-HW-0018393-25098-N-R01 FC23899-3A	N	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.60	0.890 U	0.890 R	0.890 UJ	C
SHAFT-HW-0018393-25098-N-R01 FC23899-3A	N	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.60	0.890 U	0.890 R	0.890 UJ	C
SHAFT-HW-0018393-25098-N-R01 FC23899-3A	N	Perfluorododecanoic acid (PFDoA)	1.80	0.710 U	0.710 R	0.710 UJ	C/V1
SHAFT-HW-0018393-25098-N-R01 FC23899-3A	N	Perfluorotetradecanoic acid (PFTeDA)	1.80	0.710 U	0.710 R	0.710 UJ	C
SHAFT-HW-0018393-25098-N-R01 FC23899-3A	N	Perfluorotridecanoic acid (PFTrDA)	1.80	0.710 U	0.710 R	0.710 UJ	C
SHAFT-HW-0018393-25098-N-R01 FC23899-3A	N	Perfluoroundecanoic acid (PFUnA)	1.80	0.710 U	0.710 R	0.710 UJ	C
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	7.10	1.80 U	1.80 R	1.80 UJ	C/I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	7.10	1.80 U	1.80 U	1.80 UJ	I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	7.10	1.80 U	1.80 R	1.80 UJ	C/I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.10	2.70 U	2.70 U	2.70 UJ	I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.60	0.890 U	0.890 R	0.890 UJ	C/I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.60	0.890 U	0.890 R	0.890 UJ	C/I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluorobutanesulfonic acid (PFBS)	1.80	0.710 U	0.710 U	0.710 UJ	I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluorodecanoic acid (PFDA)	1.80	0.710 U	0.710 U	0.710 UJ	I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluorododecanoic acid (PFDoA)	1.80	0.710 U	0.710 R	0.710 UJ	C/I/V1
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluoroheptanoic acid (PFHpA)	1.80	0.710 U	0.710 U	0.710 UJ	I

Table of Results with Modified Qualifiers

Modified Qualifiers for test method E537.1

FieldSample ID / LabSample ID	Type	Analyte	RL	Lab Result	ADR Result	Modified Result	Reason
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluorohexanesulfonic acid (PFHxS)	1.80	0.710 U	0.710 U	0.710 UJ	I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluorohexanoic acid (PFHxA)	1.80	0.710 U	0.710 R	0.710 UJ	I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluorononanoic acid (PFNA)	1.80	0.710 U	0.710 U	0.710 UJ	I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluorooctanesulfonic acid (PFOS)	1.80	0.710 U	0.710 U	0.710 UJ	I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluorooctanoic acid (PFOA)	1.80	0.710 U	0.710 U	0.710 UJ	I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluorotetradecanoic acid (PFTeDA)	1.80	0.710 U	0.710 R	0.710 UJ	C/I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluorotridecanoic acid (PFTrDA)	1.80	0.710 U	0.710 R	0.710 UJ	C/I
SHAFT-HW-0018394-25098-N-R01 FC23899-4A	N	Perfluoroundecanoic acid (PFUnA)	1.80	0.710 U	0.710 R	0.710 UJ	C/I

Analytes not found in project samples are reported as not detected at the method detection limit (MDL) unless blank contamination occurs and then the sample may be reported as not detected at the (RL) or amount found in sample, whichever is greater.
Trace values are not included in the qualified results table unless additional reason codes are associated.

Reason Code Definitions

Code	Definition
C	LCS Recovery
I	Surrogate recovery outside project limits.
M	MS Recovery
TR	Trace Level Detect
V1	ICV
Y5	Extracted Internal Standard

Flag Code and Definitions

Flag	Definition
J	Estimated Value
N	The analysis indicates the presence of an analyte for which there was presumptive evidence to make a tentative identification.
NJ	The analyte has been tentatively identified or presumptively as present and the associated numerical value was the estimated concentration in the sample.
R	The data are rejected due to deficiencies in meeting QC criteria and may not be used for decision making.
U	Undetected: The analyte was analyzed for, but not detected.
UJ	The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

X	Result may require rejection; PDT attention required

Review Levels	
S2AVEM	EPA Stage 2A Validation, Electronic Review supplemented with Manual Review by Chemist
S4VEM	EPA Stage 4 Validation, Electronic Review supplemented with Manual Review by Chemist

(b) (4)

04/24/25

The results set forth herein are provided by (b) (4).

e-Hardcopy 2.0
Automated Report



Technical Report for

AECOM, INC.

N6274224F0139 Extended Drinking Water

60729369

(b) (4) Job Number: FC23948

Sampling Date: 04/14/25

Report to:

AECOM, Inc
7595 Technology Way
Denver, CO 80237
(b) (6)

ATTN: (b) (6)

Total number of pages in report: 50

NELAP ACCREDITED TNI LABORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

(b) (6)
Technical Director

Client Service contact: (b) (6)
(b) (4)

Test results relate only to samples analyzed.

(b) (4) • (b) (4)

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(b) (4)

Sample Summary

AECOM, INC.

Job No: FC23948

N6274224F0139 Extended Drinking Water
Project No: 60729369

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FC23948-1	04/14/25	08:50	(b) (6)	04/15/25	DW	Drinking Water	SHAFT-HW-0018384-25098-N-R02
FC23948-1A	04/14/25	08:50	(b) (6)	04/15/25	DW	Drinking Water	SHAFT-HW-0018384-25098-N-R02
FC23948-2	04/14/25	08:08	(b) (6)	04/15/25	DW	Drinking Water FB	SHAFT-FB-250414-25098-N
FC23948-2A	04/14/25	08:08	(b) (6)	04/15/25	DW	Drinking Water FB	SHAFT-FB-250414-25098-N
FC23948-3	04/14/25	11:20	(b) (6)	04/15/25	DW	Drinking Water	SHAFT-HW-0018393-25098-N-R02
FC23948-3A	04/14/25	11:20	(b) (6)	04/15/25	DW	Drinking Water	SHAFT-HW-0018393-25098-N-R02
FC23948-4	04/14/25	11:36	(b) (6)	04/15/25	DW	Drinking Water	SHAFT-HW-0018394-25098-N-R02
FC23948-4A	04/14/25	11:36	(b) (6)	04/15/25	DW	Drinking Water	SHAFT-HW-0018394-25098-N-R02

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC. **Job No:** FC23948

Site: N6274224F0139 Extended Drinking Water **Report Date:** 4/24/2025 1:37:51 PM

On 04/15/2025, 3 Sample(s), 0 Trip Blank(s), 0 Equip. Blank(s) and 1 Field Blank(s) were received at (b) (4) - Orlando. at a maximum corrected temperature of 4.4 C. Samples were intact and chemically preserved, unless noted below. A (b) (4) - Orlando Job Number of FC23948 was assigned to the project.

Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section. Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Semi-volatiles By Method EPA 533

Matrix: DW **Batch ID:** OP8907

Sample(s) FC23948-1MS, FC23948-3DUP were used as the QC samples indicated.

Matrix Spike Recovery(s) for 11Cl-PF3OUdS (F-53B Minor) are outside control limits. Probable cause is due to matrix interference.

MS Semi-volatiles By Method EPA 537.1 REV 2.0

Matrix: DW **Batch ID:** OP8904

Sample(s) FC23948-3AMS, FC23948-4ADUP were used as the QC samples indicated.

Blank Spike Recovery(s) for Perfluorododecanoic acid, Perfluorotetradecanoic acid, Perfluorotridecanoic acid are outside control limits.

Matrix Spike Recovery(s) for Perfluorododecanoic acid, Perfluorotetradecanoic acid, Perfluorotridecanoic acid are outside control limits. Probable cause is due to matrix interference.

Sample(s) FC23948-1A, FC23948-2A, FC23948-3A, FC23948-4A have surrogates outside control limits.

OP8904-BS for 13C2-PFHxA: Outside control limits.

OP8904-BS for 13C3-HFPO-DA: Outside control limits.

OP8904-MB for 13C2-PFHxA: Outside control limits.

FC23948-1A for 13C2-PFHxA: Outside control limits.

FC23948-1A for 13C3-HFPO-DA: Outside control limits.

FC23948-1A for HFPO-DA (GenX): Associated EIS outside control limits.

FC23948-1A for Perfluorododecanoic acid: Associated BS outside of control limits low.

FC23948-1A for Perfluorotetradecanoic acid: Associated BS outside of control limits low.

FC23948-1A for Perfluorotridecanoic acid: Associated BS outside of control limits low.

FC23948-2A for Perfluorododecanoic acid: Associated BS outside of control limits low.

FC23948-2A: Confirmation run.

FC23948-2A: Insufficient sample for re-extraction.

FC23948-3A for EtFOSAA: Associated EIS outside control limits.

FC23948-3A for Perfluorotetradecanoic acid: Associated BS outside of control limits low.

FC23948-3A: Confirmation run.

FC23948-3A: Insufficient sample for re-extraction.

FC23948-4A for EtFOSAA: Associated EIS outside control limits.

FC23948-4A for Perfluorotetradecanoic acid: Associated BS outside of control limits low.

FC23948-4A: Confirmation run.

FC23948-4A: Insufficient sample for re-extraction.

Matrix: DW **Batch ID:** OP8985

FC23948-1A: Confirmation run.

(b) (4) - Orlando certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted. Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria. (b) (4) (b) (4) .- Orlando is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety.

2

Narrative prepared by:

(b) (6), Report Generation (signature on file)

Summary of Hits

Job Number: FC23948
Account: AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Collected: 04/14/25

3

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
FC23948-1	**SHAFT-HW-0018384-25098-N-R02**					
Perfluorobutanoic acid		0.0034 J	0.0035	0.0014	ug/l	EPA 533
Perfluoropentanoic acid		0.0089	0.0035	0.0014	ug/l	EPA 533
Perfluorohexanoic acid		0.0067	0.0018	0.0014	ug/l	EPA 533
Perfluoroheptanoic acid		0.0035	0.0018	0.0014	ug/l	EPA 533
Perfluorooctanoic acid		0.0064	0.0018	0.0014	ug/l	EPA 533
Perfluoroundecanoic acid		0.0013 J	0.0018	0.0014	ug/l	EPA 533
Perfluorododecanoic acid		0.0012 J	0.0018	0.0014	ug/l	EPA 533
Perfluorobutanesulfonic acid		0.0051	0.0018	0.0014	ug/l	EPA 533
Perfluoropentanesulfonic acid		0.00072 J	0.0018	0.0014	ug/l	EPA 533
Perfluorohexanesulfonic acid		0.0067	0.0018	0.0014	ug/l	EPA 533
Perfluorooctanesulfonic acid		0.0107	0.0018	0.0014	ug/l	EPA 533
11Cl-PF3OUdS (F-53B Minor)		0.00087 J	0.0035	0.0014	ug/l	EPA 533
FC23948-1A	**SHAFT-HW-0018384-25098-N-R02**					
Perfluorohexanoic acid		0.0049	0.0018	0.0014	ug/l	EPA 537.1 REV 2.0
Perfluoroheptanoic acid		0.0027	0.0018	0.0014	ug/l	EPA 537.1 REV 2.0
Perfluorooctanoic acid		0.0047	0.0018	0.0014	ug/l	EPA 537.1 REV 2.0
Perfluorobutanesulfonic acid		0.0047	0.0018	0.0014	ug/l	EPA 537.1 REV 2.0
Perfluorohexanesulfonic acid		0.0052	0.0018	0.0014	ug/l	EPA 537.1 REV 2.0
Perfluorooctanesulfonic acid		0.0072	0.0018	0.0014	ug/l	EPA 537.1 REV 2.0
FC23948-2	**SHAFT-FB-250414-25098-N**					
No hits reported in this sample.						
FC23948-2A	**SHAFT-FB-250414-25098-N**					
No hits reported in this sample.						
FC23948-3	**SHAFT-HW-0018393-25098-N-R02**					
No hits reported in this sample.						
FC23948-3A	**SHAFT-HW-0018393-25098-N-R02**					
No hits reported in this sample.						
FC23948-4	**SHAFT-HW-0018394-25098-N-R02**					
No hits reported in this sample.						

Summary of Hits

Job Number: FC23948
Account: AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Collected: 04/14/25

3

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
FC23948-4A	SHAFT-HW-0018394-25098-N-R02					

No hits reported in this sample.

Sample Results

Report of Analysis

(b) (4)

Report of Analysis

4.1
4

Client Sample ID:	SHAFT-HW-0018384-25098-N-R02		
Lab Sample ID:	FC23948-1	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water	**Date Received:**	04/15/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3Q101526.D	1	04/17/25 12:27	(b) (6)	04/16/25 09:45	OP8907	S3Q1494
Run #2							

	Initial Volume	Final Volume
Run #1	285 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
375-22-4	Perfluorobutanoic acid	0.0034		0.0035	0.0014	0.00053	ug/l	J
2706-90-3	Perfluoropentanoic acid	0.0089		0.0035	0.0014	0.00060	ug/l	
307-24-4	Perfluorohexanoic acid	0.0067		0.0018	0.0014	0.00053	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0035		0.0018	0.0014	0.00060	ug/l	
335-67-1	Perfluorooctanoic acid	0.0064		0.0018	0.0014	0.00053	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00056	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0013		0.0018	0.0014	0.00057	ug/l	J
307-55-1	Perfluorododecanoic acid	0.0012		0.0018	0.0014	0.00053	ug/l	J
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0051		0.0018	0.0014	0.00053	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	0.00072		0.0018	0.0014	0.00067	ug/l	J
355-46-4	Perfluorohexanesulfonic acid	0.0067		0.0018	0.0014	0.00053	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0107		0.0018	0.0014	0.00053	ug/l	
FLUOROTELOMER SULFONATES								
757124-72-4	4:2 Fluorotelomer sulfonate	0.0014 U		0.0035	0.0014	0.00053	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0014 U		0.0035	0.0014	0.00098	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0014 U		0.0035	0.0014	0.00053	ug/l	
PER and POLYFLUOROETHER CARBOXYLIC and SULFONIC ACIDS								
377-73-1	PFMPA	0.0014 U		0.0035	0.0014	0.00056	ug/l	
863090-89-5	PFMBA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
151772-58-6	NFDHA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
113507-82-7	PFEESA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
13252-13-6	HFPO-DA (GenX)	0.0018 U		0.0035	0.0018	0.00088	ug/l	
919005-14-4	ADONA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0014 U		0.0035	0.0014	0.00053	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.00087		0.0035	0.0014	0.00060	ug/l	J

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 141) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

4.1
4

Client Sample ID:	SHAFT-HW-0018384-25098-N-R02		
Lab Sample ID:	FC23948-1	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water	**Date Received:**	04/15/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	79%		50-200%
	13C5-PFPeA	81%		50-200%
	13C5-PFHxA	78%		50-200%
	13C4-PFHpA	80%		50-200%
	13C8-PFOA	83%		50-200%
	13C9-PFNA	83%		50-200%
	13C6-PFDA	87%		50-200%
	13C7-PFUnDA	68%		50-200%
	13C2-PFDoDA	58%		50-200%
	13C3-PFBS	75%		50-200%
	13C3-PFHxS	79%		50-200%
	13C8-PFOS	79%		50-200%
	13C2-4:2FTS	76%		50-200%
	13C2-6:2FTS	78%		50-200%
	13C2-8:2FTS	78%		50-200%
	13C3-HFPO-DA	70%		50-200%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

(b) (4)

Report of Analysis

4.2.4

Client Sample ID:	SHAFT-HW-0018384-25098-N-R02		
Lab Sample ID:	FC23948-1A	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water	**Date Received:**	04/15/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5Q31835.D	1	04/17/25 16:45	(b) (4)	04/16/25 08:30	OP8904	S5Q523
Run #2 [a]	4Q74374.D	1	04/24/25 01:21	(b) (4)	04/21/25 07:45	OP8985	S4Q1106

	Initial Volume	Final Volume
Run #1	280 ml	1.0 ml
Run #2	280 ml	1.0 ml

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
307-24-4	Perfluorohexanoic acid	0.0049		0.0018	0.0014	0.00071	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0027		0.0018	0.0014	0.00071	ug/l	
335-67-1	Perfluorooctanoic acid	0.0047		0.0018	0.0014	0.00071	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
307-55-1	Perfluorododecanoic acid [b]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
72629-94-8	Perfluorotridecanoic acid [b]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
376-06-7	Perfluorotetradecanoic acid [b]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0047		0.0018	0.0014	0.00071	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0052		0.0018	0.0014	0.00071	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0072		0.0018	0.0014	0.00071	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS								
2355-31-9	MeFOSAA	0.0018 U		0.0036	0.0018	0.00089	ug/l	
2991-50-6	EtFOSAA	0.0018 U		0.0036	0.0018	0.00089	ug/l	
NEXT GENERATION PFAS ANALYTES								
13252-13-6	HFPO-DA (GenX) [c]	0.0054 U		0.0071	0.0054	0.0027	ug/l	
919005-14-4	ADONA	0.0036 U		0.0071	0.0036	0.0018	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0036 U		0.0071	0.0036	0.0018	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0036 U		0.0071	0.0036	0.0018	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	139% [d]	114%	70-130%
	13C2-PFDA	122%	117%	70-130%
	d5-EtFOSAA	124%	88%	70-130%
	13C3-HFPO-DA	133% [d]	110%	70-130%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 141) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018384-25098-N-R02		
Lab Sample ID:	FC23948-1A	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water	**Date Received:**	04/15/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

4.2
4

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q

(a) Confirmation run.
(b) Associated BS outside of control limits low.
(c) Associated EIS outside control limits.
(d) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4) .

Report of Analysis

Client Sample ID:	SHAFT-FB-250414-25098-N		
Lab Sample ID:	FC23948-2	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water FB	**Date Received:**	04/15/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3Q101528.D	1	04/17/25 12:59	(b) (6)	04/16/25 09:45	OP8907	S3Q1494
Run #2							

	Initial Volume	Final Volume
Run #1	270 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
375-22-4	Perfluorobutanoic acid	0.0015 U		0.0037	0.0015	0.00056	ug/l	
2706-90-3	Perfluoropentanoic acid	0.0015 U		0.0037	0.0015	0.00063	ug/l	
307-24-4	Perfluorohexanoic acid	0.0015 U		0.0019	0.0015	0.00056	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0015 U		0.0019	0.0015	0.00063	ug/l	
335-67-1	Perfluorooctanoic acid	0.0015 U		0.0019	0.0015	0.00056	ug/l	
375-95-1	Perfluorononanoic acid	0.0015 U		0.0019	0.0015	0.00056	ug/l	
335-76-2	Perfluorodecanoic acid	0.0015 U		0.0019	0.0015	0.00059	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0015 U		0.0019	0.0015	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	0.0015 U		0.0019	0.0015	0.00056	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0015 U		0.0019	0.0015	0.00056	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	0.0015 U		0.0019	0.0015	0.00071	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0015 U		0.0019	0.0015	0.00056	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	0.0015 U		0.0019	0.0015	0.00056	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0015 U		0.0019	0.0015	0.00056	ug/l	
FLUOROTELOMER SULFONATES								
757124-72-4	4:2 Fluorotelomer sulfonate	0.0015 U		0.0037	0.0015	0.00056	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0015 U		0.0037	0.0015	0.0010	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0015 U		0.0037	0.0015	0.00056	ug/l	
PER and POLYFLUOROETHER CARBOXYLIC and SULFONIC ACIDS								
377-73-1	PFMPA	0.0015 U		0.0037	0.0015	0.00059	ug/l	
863090-89-5	PFMBA	0.0015 U		0.0037	0.0015	0.00056	ug/l	
151772-58-6	NFDHA	0.0015 U		0.0037	0.0015	0.00056	ug/l	
113507-82-7	PFEESA	0.0015 U		0.0037	0.0015	0.00056	ug/l	
13252-13-6	HFPO-DA (GenX)	0.0019 U		0.0037	0.0019	0.00093	ug/l	
919005-14-4	ADONA	0.0015 U		0.0037	0.0015	0.00056	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0015 U		0.0037	0.0015	0.00056	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0015 U		0.0037	0.0015	0.00063	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 141) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

4.3
4

Client Sample ID:	SHAFT-FB-250414-25098-N		
Lab Sample ID:	FC23948-2	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water FB	**Date Received:**	04/15/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	78%		50-200%
	13C5-PFPeA	78%		50-200%
	13C5-PFHxA	77%		50-200%
	13C4-PFHpA	79%		50-200%
	13C8-PFOA	82%		50-200%
	13C9-PFNA	79%		50-200%
	13C6-PFDA	82%		50-200%
	13C7-PFUnDA	66%		50-200%
	13C2-PFDoDA	57%		50-200%
	13C3-PFBS	76%		50-200%
	13C3-PFHxS	78%		50-200%
	13C8-PFOS	75%		50-200%
	13C2-4:2FTS	74%		50-200%
	13C2-6:2FTS	83%		50-200%
	13C2-8:2FTS	72%		50-200%
	13C3-HFPO-DA	71%		50-200%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

4.4
4

Client Sample ID:	SHAFT-FB-250414-25098-N		
Lab Sample ID:	FC23948-2A	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water FB	**Date Received:**	04/15/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5Q31836.D	1	04/17/25 17:01	(b) (4)	04/16/25 08:30	OP8904	S5Q523
Run #2 [b]	5Q31880.D	1	04/18/25 18:03	(b) (4)	04/16/25 08:30	OP8904	S5Q524

	Initial Volume	Final Volume
Run #1	285 ml	1.0 ml
Run #2	285 ml	1.0 ml

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
307-55-1	Perfluorododecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00070	ug/l	
72629-94-8	Perfluorotridecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00070	ug/l	
376-06-7	Perfluorotetradecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00070	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS								
2355-31-9	MeFOSAA	0.0018 U		0.0035	0.0018	0.00088	ug/l	
2991-50-6	EtFOSAA	0.0018 U		0.0035	0.0018	0.00088	ug/l	
NEXT GENERATION PFAS ANALYTES								
13252-13-6	HFPO-DA (GenX)	0.0053 U		0.0070	0.0053	0.0026	ug/l	
919005-14-4	ADONA	0.0035 U		0.0070	0.0035	0.0018	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0035 U		0.0070	0.0035	0.0018	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0035 U		0.0070	0.0035	0.0018	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	152% [d]	170% [d]	70-130%
	13C2-PFDA	144% [d]	157% [d]	70-130%
	d5-EtFOSAA	152% [d]	149% [d]	70-130%
	13C3-HFPO-DA	142% [d]	164% [d]	70-130%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-FB-250414-25098-N		
Lab Sample ID:	FC23948-2A	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water FB	**Date Received:**	04/15/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Associated BS outside of control limits low.
(d) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

4.5
4

Client Sample ID:	SHAFT-HW-0018393-25098-N-R02		
Lab Sample ID:	FC23948-3	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water	**Date Received:**	04/15/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3Q101529.D	1	04/17/25 13:15	(b) (6)	04/16/25 09:45	OP8907	S3Q1494
Run #2							

	Initial Volume	Final Volume
Run #1	285 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
375-22-4	Perfluorobutanoic acid	0.0014 U		0.0035	0.0014	0.00053	ug/l	
2706-90-3	Perfluoropentanoic acid	0.0014 U		0.0035	0.0014	0.00060	ug/l	
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00060	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00056	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0014 U		0.0018	0.0014	0.00057	ug/l	
307-55-1	Perfluorododecanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	0.0014 U		0.0018	0.0014	0.00067	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
FLUOROTELOMER SULFONATES								
757124-72-4	4:2 Fluorotelomer sulfonate	0.0014 U		0.0035	0.0014	0.00053	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0014 U		0.0035	0.0014	0.00098	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0014 U		0.0035	0.0014	0.00053	ug/l	
PER and POLYFLUOROETHER CARBOXYLIC and SULFONIC ACIDS								
377-73-1	PFMPA	0.0014 U		0.0035	0.0014	0.00056	ug/l	
863090-89-5	PFMBA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
151772-58-6	NFDHA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
113507-82-7	PFEESA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
13252-13-6	HFPO-DA (GenX)	0.0018 U		0.0035	0.0018	0.00088	ug/l	
919005-14-4	ADONA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0014 U		0.0035	0.0014	0.00053	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0014 U		0.0035	0.0014	0.00060	ug/l	

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

4.5
4

Client Sample ID:	SHAFT-HW-0018393-25098-N-R02		
Lab Sample ID:	FC23948-3	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water	**Date Received:**	04/15/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	80%		50-200%
	13C5-PFPeA	81%		50-200%
	13C5-PFHxA	82%		50-200%
	13C4-PFHpA	83%		50-200%
	13C8-PFOA	84%		50-200%
	13C9-PFNA	84%		50-200%
	13C6-PFDA	87%		50-200%
	13C7-PFUnDA	67%		50-200%
	13C2-PFDoDA	57%		50-200%
	13C3-PFBS	79%		50-200%
	13C3-PFHxS	80%		50-200%
	13C8-PFOS	76%		50-200%
	13C2-4:2FTS	82%		50-200%
	13C2-6:2FTS	79%		50-200%
	13C2-8:2FTS	72%		50-200%
	13C3-HFPO-DA	66%		50-200%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4) [redacted]

Report of Analysis

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4

Client Sample ID:	SHAFT-HW-0018393-25098-N-R02		
Lab Sample ID:	FC23948-3A	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water	**Date Received:**	04/15/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5Q31837.D	1	04/17/25 17:18	[redacted]	04/16/25 08:30	OP8904	S5Q523
Run #2 [b]	5Q31881.D	1	04/18/25 18:19	[redacted]	04/16/25 08:30	OP8904	S5Q524

	Initial Volume	Final Volume
Run #1	285 ml	1.0 ml
Run #2	285 ml	1.0 ml

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
2058-94-8	Perfluoroundecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00070	ug/l	
307-55-1	Perfluorododecanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
72629-94-8	Perfluorotridecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00070	ug/l	
376-06-7	Perfluorotetradecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00070	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS								
2355-31-9	MeFOSAA	0.0018 U		0.0035	0.0018	0.00088	ug/l	
2991-50-6	EtFOSAA [d]	0.0018 U		0.0035	0.0018	0.00088	ug/l	
NEXT GENERATION PFAS ANALYTES								
13252-13-6	HFPO-DA (GenX)	0.0053 U		0.0070	0.0053	0.0026	ug/l	
919005-14-4	ADONA	0.0035 U		0.0070	0.0035	0.0018	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0035 U		0.0070	0.0035	0.0018	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0035 U		0.0070	0.0035	0.0018	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	133% [e]	146% [e]	70-130%
	13C2-PFDA	137% [e]	140% [e]	70-130%
	d5-EtFOSAA	140% [e]	137% [e]	70-130%
	13C3-HFPO-DA	127%	140% [e]	70-130%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018393-25098-N-R02		
Lab Sample ID:	FC23948-3A	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water	**Date Received:**	04/15/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

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Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Associated BS outside of control limits low.
(d) Associated EIS outside control limits.
(e) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

4.7.4

Client Sample ID:	SHAFT-HW-0018394-25098-N-R02		
Lab Sample ID:	FC23948-4	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water	**Date Received:**	04/15/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3Q101531.D	1	04/17/25 13:48	(b) (6)	04/16/25 09:45	OP8907	S3Q1494
Run #2							

	Initial Volume	Final Volume
Run #1	285 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
375-22-4	Perfluorobutanoic acid	0.0014 U		0.0035	0.0014	0.00053	ug/l	
2706-90-3	Perfluoropentanoic acid	0.0014 U		0.0035	0.0014	0.00060	ug/l	
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00060	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00056	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0014 U		0.0018	0.0014	0.00057	ug/l	
307-55-1	Perfluorododecanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	0.0014 U		0.0018	0.0014	0.00067	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
FLUOROTELOMER SULFONATES								
757124-72-4	4:2 Fluorotelomer sulfonate	0.0014 U		0.0035	0.0014	0.00053	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0014 U		0.0035	0.0014	0.00098	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0014 U		0.0035	0.0014	0.00053	ug/l	
PER and POLYFLUOROETHER CARBOXYLIC and SULFONIC ACIDS								
377-73-1	PFMPA	0.0014 U		0.0035	0.0014	0.00056	ug/l	
863090-89-5	PFMBA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
151772-58-6	NFDHA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
113507-82-7	PFEESA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
13252-13-6	HFPO-DA (GenX)	0.0018 U		0.0035	0.0018	0.00088	ug/l	
919005-14-4	ADONA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0014 U		0.0035	0.0014	0.00053	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0014 U		0.0035	0.0014	0.00060	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value

MCL = Maximum Contamination Level (40 CFR 141) B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

4.7.4

Client Sample ID:	SHAFT-HW-0018394-25098-N-R02		
Lab Sample ID:	FC23948-4	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water	**Date Received:**	04/15/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	76%		50-200%
	13C5-PFPeA	77%		50-200%
	13C5-PFHxA	75%		50-200%
	13C4-PFHpA	78%		50-200%
	13C8-PFOA	80%		50-200%
	13C9-PFNA	80%		50-200%
	13C6-PFDA	85%		50-200%
	13C7-PFUnDA	67%		50-200%
	13C2-PFDoDA	56%		50-200%
	13C3-PFBS	75%		50-200%
	13C3-PFHxS	75%		50-200%
	13C8-PFOS	77%		50-200%
	13C2-4:2FTS	73%		50-200%
	13C2-6:2FTS	74%		50-200%
	13C2-8:2FTS	77%		50-200%
	13C3-HFPO-DA	60%		50-200%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018394-25098-N-R02		
Lab Sample ID:	FC23948-4A	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water	**Date Received:**	04/15/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5Q31839.D	1	04/17/25 17:51	[redacted]	04/16/25 08:30	OP8904	S5Q523
Run #2 [b]	5Q31883.D	1	04/18/25 18:52	[redacted]	04/16/25 08:30	OP8904	S5Q524

	Initial Volume	Final Volume
Run #1	280 ml	1.0 ml
Run #2	280 ml	1.0 ml

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
2058-94-8	Perfluoroundecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
307-55-1	Perfluorododecanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
72629-94-8	Perfluorotridecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
376-06-7	Perfluorotetradecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS								
2355-31-9	MeFOSAA	0.0018 U		0.0036	0.0018	0.00089	ug/l	
2991-50-6	EtFOSAA [d]	0.0018 U		0.0036	0.0018	0.00089	ug/l	
NEXT GENERATION PFAS ANALYTES								
13252-13-6	HFPO-DA (GenX)	0.0054 U		0.0071	0.0054	0.0027	ug/l	
919005-14-4	ADONA	0.0036 U		0.0071	0.0036	0.0018	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0036 U		0.0071	0.0036	0.0018	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0036 U		0.0071	0.0036	0.0018	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	136% [e]	155% [e]	70-130%
	13C2-PFDA	130%	141% [e]	70-130%
	d5-EtFOSAA	131% [e]	142% [e]	70-130%
	13C3-HFPO-DA	127%	146% [e]	70-130%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018394-25098-N-R02		
Lab Sample ID:	FC23948-4A	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water	**Date Received:**	04/15/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

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Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Associated BS outside of control limits low.
(d) Associated EIS outside control limits.
(e) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5.x Limits

[redacted] (b) (4)

(b) (4) [redacted]

Chain of Custody

(b) (4) [redacted]

COC #:

(b) (4) [redacted] OB # : 250414-ORL- 02

(b) (4) [redacted] Quote # SKIFF # FC23948

Client / Reporting Information	Project Information
Company Name: AECOM	Project Name: N6274224F0139 PEM
Address: 1001 Bishop St, ste 1600	Street
City: Honolulu State: HI Zip: 96813	City Honolulu State Hawaii
(b) (6) [redacted]	oject # 60729369
(b) (6) [redacted]	ax #
Sampler(s) Name(s) (Printed)	Client Purchase Order # 1650246
Sampler (b) (6) [redacted]	
(b) (4) [redacted]	

Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZNAC	DI WATER	MEOH	PFAS 533 (250 ml poly Ammonia Acetate)	PFAS 537.1 (250 ml poly Trizma)	PFAS 1633 (2x250ml + 1x60ml poly unpres)	LAB USE ONLY
1	SHAFT-HW-0018384-25098-N-R02	4/14/25	0850	(b) (6) [redacted]	DW	4	x									2	2	0	

Analytical Information

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL - Sludge; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe

Turnaround Time (Business days)

10 Day (Business)
7 Day
5 Day
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH*
Other

Approved By: / Date:

Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [x] FULLT1 (EPA LEVEL 4)
- [x] EDD'S

Comments / Remarks

EDMS upload database: JBPHH
EDMS Coverage: Shaft Samples

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:
1 (b) (6) [redacted]	4/14/25	2 (b) (6) [redacted]	3 (b) (6) [redacted]	4/14/25 1340
5		6 (b) (6) [redacted]	7	4/15/25

Lab Use Only : Cooler Temperature (s) Celsius (corrected): 4.0 (b) (6) [redacted]

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FC23948: Chain of Custody
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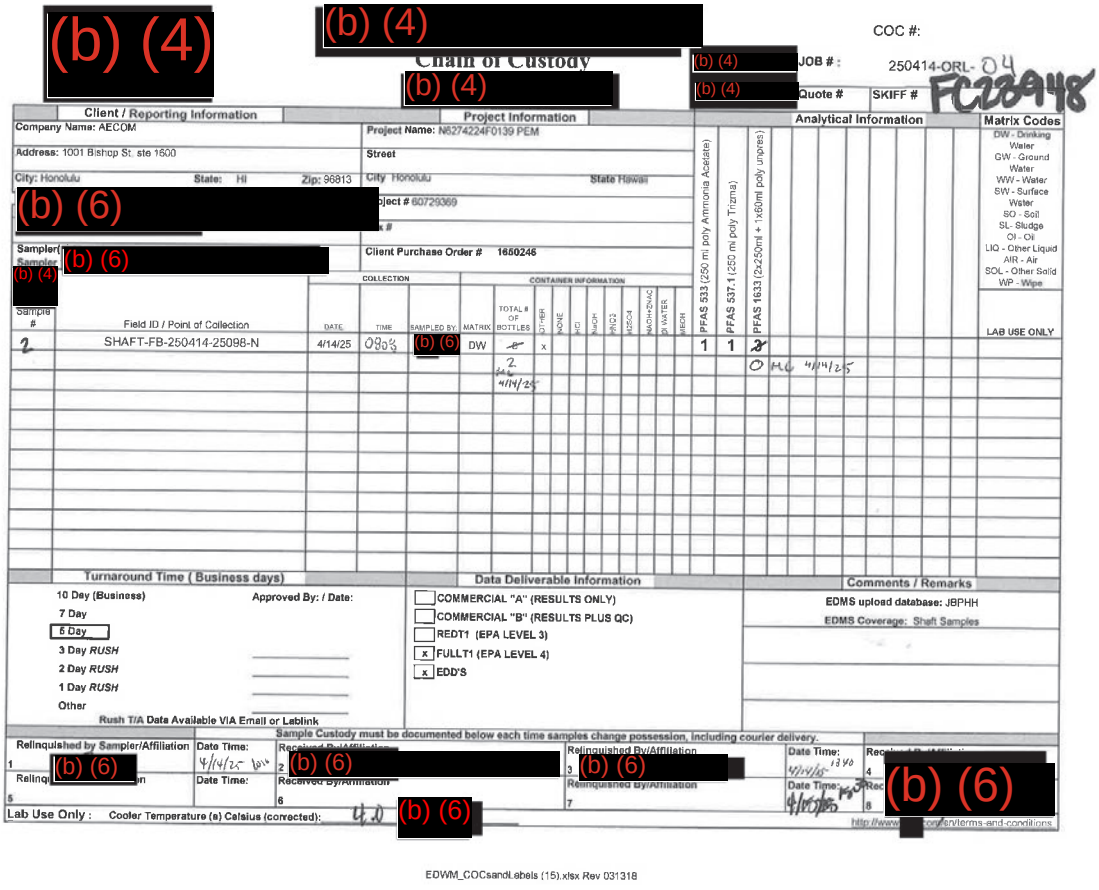

Chain of Custody

COC #:

JOB #: 250414-ORL-04

Quote #

SKIFF # FC23948

Client / Reporting Information

Company Name: AECOM

Address: 1001 Bishop St. ste 1600

City: Honolulu State: HI Zip: 96813

(b) (6)

Sampler: (b) (6)

(b) (4)

Project Information

Project Name: N6274224F0139 PEM

Street

City Honolulu State Hawaii

Project # 60729369

Client Purchase Order # 1650246

Analytical Information

PFAS 533 (250 ml poly Ammonia Acetate)

PFAS 537.1 (250 ml poly Trizma)

PFAS 1633 (2x250ml + 1x60ml poly unpres)

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL - Sludge
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe

Sample #	Field ID / Point of Collection	COLLECTION DATE	COLLECTION TIME	SAMPLED BY	MATRIX	CONTAINER INFORMATION TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZnAc	DI WATER	MEOH	PFAS 533	PFAS 537.1	PFAS 1633	LAB USE ONLY
2	SHAFT-FB-250414-25098-N	4/14/25	0903	(b) (6)	DW	2		x								1	1	2	

Turnaround Time (Business days)

10 Day (Business)
7 Day
5 Day
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH*
Other

Approved By: / Date:

Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [x] FULLT1 (EPA LEVEL 4)
- [x] EDD'S

Comments / Remarks

EDMS upload database: JBPHH

EDMS Coverage: Shaft Samples

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation
1	(b) (6)	4/14/25 1845	2 (b) (6)
3	Relinquished By/Affiliation (b) (6)	Date Time: 4/14/25 1840	4 (b) (6)
5	Relinquished By/Affiliation	Date Time: 4/15/25	6 (b) (6)
7	Relinquished By/Affiliation	Date Time:	8

Lab Use Only : Cooler Temperature (s) Celsius (corrected): 4.2 (b) (6)

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FC23948: Chain of Custody
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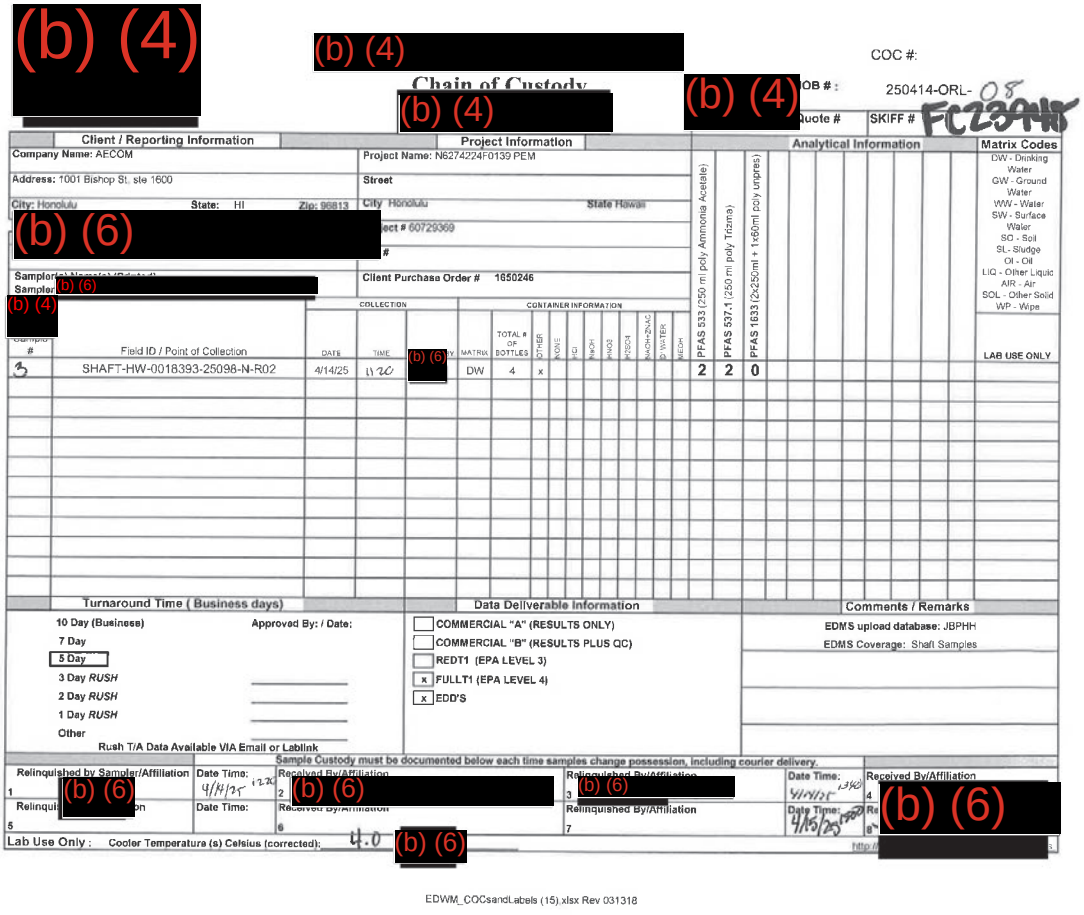

[redacted]

[redacted]

COC #:

Chain of Custody [redacted]

[redacted] JOB # : 250414-ORL- 08

Quote # SKIFF # FC23948

Client / Reporting Information	Project Information	Analytical Information	Matrix Codes
Company Name: AECOM	Project Name: N6274224F0139 PEM		DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe
Address: 1001 Bishop St, ste 1600	Street		
City: Honolulu State: HI Zip: 96813	City Honolulu State Hawaii		
[redacted]	[redacted]ect # 60729369		
	[redacted]#		
Sampler[redacted]	Client Purchase Order # 1650246		

Sample #	Field ID / Point of Collection	DATE	TIME	[redacted]	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZNAC	D WATER	MEOH	PFAS 533 (250 ml poly Ammonia Acetate)	PFAS 537.1 (250 ml poly Trizma)	PFAS 1633 (2x250ml + 1x60ml poly unpres)	LAB USE ONLY
3	SHAFT-HW-0018393-25098-N-R02	4/14/25	1120	[redacted]	DW	4	x									2	2	0	

Turnaround Time (Business days)	Data Deliverable Information	Comments / Remarks
10 Day (Business) Approved By: / Date: 7 Day 5 Day 3 Day *RUSH* 2 Day *RUSH* 1 Day *RUSH* Other Rush T/A Data Available VIA Email or Lablink	[ ] COMMERCIAL "A" (RESULTS ONLY) [ ] COMMERCIAL "B" (RESULTS PLUS QC) [ ] REDT1 (EPA LEVEL 3) [x] FULLT1 (EPA LEVEL 4) [x] EDD'S	EDMS upload database: JBPHH EDMS Coverage: Shaft Samples

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1 [redacted]	4/14/25 1220	2 [redacted]	3 [redacted]	4/14/25 1340	4 [redacted]
Relinqui[redacted]on	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Re[redacted]
5		6	7	4/15/25 1500	8 [redacted]

Lab Use Only : Cooler Temperature (s) Celsius (corrected): 4.0 [redacted]

http://[redacted]

EDWM_COCsandLabels (15).xlsx Rev 031318

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FC23948: Chain of Custody
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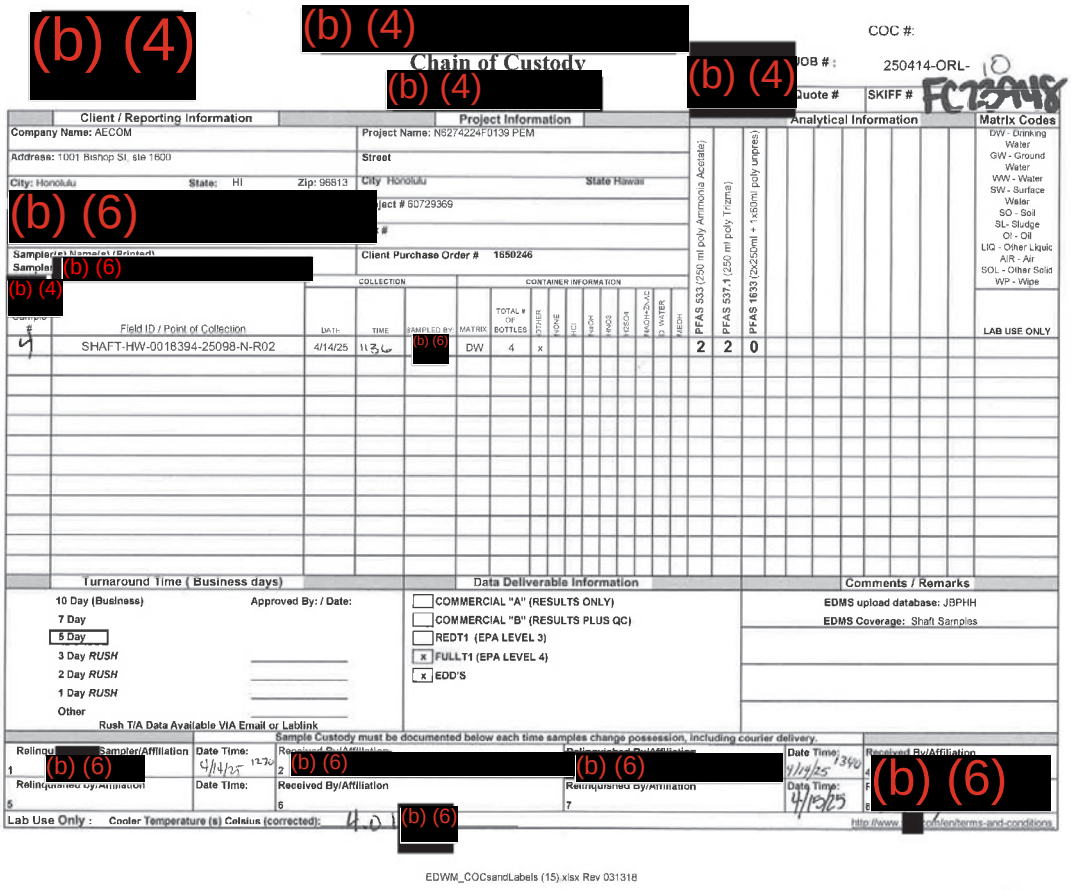

[redacted] (b) (4)

[redacted] (b) (4)

Chain of Custody

[redacted] (b) (4)

COC #:

[redacted] (b) (4) JOB # : 250414-ORL- 10

Quote # SKIFF # FC23948

Client / Reporting Information	Project Information	Analytical Information	Matrix Codes
Company Name: AECOM	Project Name: N6274224F0139 PEM		DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL- Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe
Address: 1001 Bishop St, ste 1600	Street		
City: Honolulu State: HI Zip: 96813	City Honolulu State Hawaii		
[redacted] (b) (6)	[redacted]ject # 60729369		
	[redacted] #		
Sampler(s) Name(s) (Printed)	Client Purchase Order # 1650246		
Sampler [redacted] (b) (6)			
[redacted] (b) (4)			

Sample #	Field ID / Point of Collection	COLLECTION DATE	COLLECTION TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZnAc	D WATER	MEOH	PFAS 533 (250 ml poly Ammonia Acetate)	PFAS 537.1 (250 ml poly Trizma)	PFAS 1633 (2x250ml + 1x60ml poly unpres)	LAB USE ONLY
4	SHAFT-HW-0018394-25098-N-R02	4/14/25	1136	[redacted] (b) (6)	DW	4	x									2	2	0	

Turnaround Time (Business days)	Data Deliverable Information	Comments / Remarks
10 Day (Business) Approved By: / Date:	[ ] COMMERCIAL "A" (RESULTS ONLY)	EDMS upload database: JBPHH
7 Day	[ ] COMMERCIAL "B" (RESULTS PLUS QC)	EDMS Coverage: Shaft Samples
5 Day	[ ] REDT1 (EPA LEVEL 3)	
3 Day *RUSH*	[x] FULLT1 (EPA LEVEL 4)	
2 Day *RUSH*	[x] EDD'S	
1 Day *RUSH*		
Other		
Rush T/A Data Available VIA Email or Lablink		

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinqu[redacted] Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1 [redacted] (b) (6)	4/14/25 1270	2 [redacted] (b) (6)	[redacted] (b) (6)	4/14/25 1340	4 [redacted] (b) (6)
Relinquished By/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	
5		6	7	4/15/25	8

Lab Use Only : Cooler Temperature (s) Celsius (corrected): 4.0 [redacted] (b) (6)

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FC23948: Chain of Custody
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(b) (4) Sample Receipt Summary

Job Number: fc23948 **Client:** AECOM **Project:** N6274224F0139 Extended Drinking Water

Date / Time Received: 4/15/2025 3:00:00 PM **Delivery Method:** United Cargo/Airspace **Airbill #'s:** United Cargo AWB #: 016-93669413

Cooler Temps (Raw Measured) °C: Cooler 1: (4.0);

Cooler Temps (Corrected) °C: Cooler 1: (4.4);

Cooler Informatio	Y	or	N
1. Custody Seals Present:	☑		☐
2. Custody Seals Intact:	☑		☐
3. Temp criteria achieved:	☑		☐
4. Cooler temp verification:	IR Gun		
5. Cooler media:	Ice (Bag)		

Trip Blank Information	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑

	W	or	S	N/A
3. Type of TB Received	☐		☐	☑

Sample Information	Y	or	N	N/A
1. Sample labels present on bottles:	☑		☐	
2. Samples presented properly	☑		☐	
3. Sufficient volume/containers recv'd for analysi	☑		☐	
4. Condition of sample:	Intact			
5. Sample recv'd within HT	☑		☐	
6. Dates/Times/IDs on COC match sample labe	☑		☐	
7. VOCs have headspace	☐		☐	☑
8. Bottles received for unspecified tests	☐		☑	
9. Compositing instructions clear	☐		☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☑
11. % Solids Jar Received?	☐		☐	☑
12. Residual Chlorine Present?	☐		☐	☑

Misc Information

Number of Encores: 25 Gram 5 Gram

Test Strip Lot #s: pH 0-3: 226422 pH 10-12: Number of Lab Filtered Metals Other: (Specify) 0-14 210224

Residual Chlorine Test Strip Lot

Comments

Sample Receipt Summary 112723 EK Technician: (b) (6) Date: 4/15/2025 3:05:06 PM Reviewer: (b) (6) Date: 04/15/25

QC Evaluation: DOD QSM5.x Limits

Job Number: FC23948
Account: AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Collected: 04/14/25

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits

No DOD QSM5.x Limits found for methods in this job.

* Sample used for QC is not from job FC23948

MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Instrument Blank

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q1492-IBLK	3Q101466.D	1	04/15/25	(b) (6)	n/a	n/a	S3Q1492

The QC reported here applies to the following samples: **Method:** EPA 533

FC23948-1, FC23948-2, FC23948-3, FC23948-4

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.00060	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.00068	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00060	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00068	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00060	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00060	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00064	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00065	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00060	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.00077	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00060	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.00060	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00060	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0040	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
377-73-1	PFMPA	ND	0.0040	0.00064	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.00060	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.00060	ug/l	
113507-82-7	PFEESA	ND	0.0040	0.00060	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0040	0.00060	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0040	0.00060	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0040	0.00068	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	102%	50-200%
	13C5-PFPeA	103%	50-200%
	13C5-PFHxA	99%	50-200%
	13C4-PFHpA	100%	50-200%
	13C8-PFOA	102%	50-200%
	13C9-PFNA	101%	50-200%
	13C6-PFDA	102%	50-200%

(b) (4)

Instrument Blank

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q1492-IBLK	3Q101466.D	1	04/15/25	(b) (6)	n/a	n/a	S3Q1492

The QC reported here applies to the following samples: **Method:** EPA 533

FC23948-1, FC23948-2, FC23948-3, FC23948-4

CAS No.	ID Standard Recoveries		Limits
	13C7-PFUnDA	97%	50-200%
	13C2-PFDoDA	99%	50-200%
	13C3-PFBS	99%	50-200%
	13C3-PFHxS	101%	50-200%
	13C8-PFOS	100%	50-200%
	13C2-4:2FTS	93%	50-200%
	13C2-6:2FTS	93%	50-200%
	13C2-8:2FTS	93%	50-200%
	13C3-HFPO-DA	84%	50-200%

Instrument Blank

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q1494-IBLK	3Q101518.D	1	04/17/25	(b) (6)	n/a	n/a	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23948-1, FC23948-2, FC23948-3, FC23948-4

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.00060	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.00068	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00060	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00068	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00060	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00060	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00064	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00065	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00060	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.00077	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00060	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.00060	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00060	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0040	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
377-73-1	PFMPA	ND	0.0040	0.00064	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.00060	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.00060	ug/l	
113507-82-7	PFEESA	ND	0.0040	0.00060	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0040	0.00060	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0040	0.00060	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0040	0.00068	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	103%	50-200%
	13C5-PFPeA	104%	50-200%
	13C5-PFHxA	106%	50-200%
	13C4-PFHpA	106%	50-200%
	13C8-PFOA	109%	50-200%
	13C9-PFNA	111%	50-200%
	13C6-PFDA	116%	50-200%

Instrument Blank

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q1494-IBLK	3Q101518.D	1	04/17/25	(b) (6)	n/a	n/a	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23948-1, FC23948-2, FC23948-3, FC23948-4

CAS No.	ID Standard Recoveries		Limits
	13C7-PFUnDA	99%	50-200%
	13C2-PFDoDA	108%	50-200%
	13C3-PFBS	98%	50-200%
	13C3-PFHxS	99%	50-200%
	13C8-PFOS	99%	50-200%
	13C2-4:2FTS	97%	50-200%
	13C2-6:2FTS	101%	50-200%
	13C2-8:2FTS	105%	50-200%
	13C3-HFPO-DA	76%	50-200%

Method Blank Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-MB	3Q101525.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23948-1, FC23948-2, FC23948-3, FC23948-4

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.00060	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.00068	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00060	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00068	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00060	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00060	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00064	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00065	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00060	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.00077	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00060	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.00060	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00060	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0040	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
377-73-1	PFMPA	ND	0.0040	0.00064	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.00060	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.00060	ug/l	
113507-82-7	PFEESA	ND	0.0040	0.00060	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0040	0.00060	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0040	0.00060	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0040	0.00068	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	78%	50-200%
	13C5-PFPeA	78%	50-200%
	13C5-PFHxA	78%	50-200%
	13C4-PFHpA	80%	50-200%
	13C8-PFOA	82%	50-200%
	13C9-PFNA	82%	50-200%
	13C6-PFDA	83%	50-200%

Method Blank Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-MB	3Q101525.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23948-1, FC23948-2, FC23948-3, FC23948-4

CAS No.	ID Standard Recoveries		Limits
	13C7-PFUnDA	78%	50-200%
	13C2-PFDoDA	69%	50-200%
	13C3-PFBS	76%	50-200%
	13C3-PFHxS	76%	50-200%
	13C8-PFOS	76%	50-200%
	13C2-4:2FTS	74%	50-200%
	13C2-6:2FTS	76%	50-200%
	13C2-8:2FTS	73%	50-200%
	13C3-HFPO-DA	66%	50-200%

Method Blank Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8904-MB	5Q31833.D	1	04/17/25	(b)(4)	04/16/25	OP8904	S5Q523

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23948-1A, FC23948-2A, FC23948-3A, FC23948-4A

CAS No.	Compound	Result	RL	MDL	Units	Q
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00080	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00080	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00080	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00080	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00080	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00080	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00080	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0020	0.00080	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0020	0.00080	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00080	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00080	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00080	ug/l	
2355-31-9	MeFOSAA	ND	0.0040	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0040	0.0010	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0080	0.0030	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

CAS No.	Surrogate Recoveries		Limits
	13C2-PFHxA	125%	70-130%
	13C2-PFDA	115%	70-130%
	d5-EtFOSAA	108%	70-130%
	13C3-HFPO-DA	116%	70-130%

Method Blank Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8904-MB	5Q31878.D	1	04/18/25	(b)(4)	04/16/25	OP8904	S5Q524

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23948-1A, FC23948-2A, FC23948-3A, FC23948-4A

CAS No.	Compound	Result	RL	MDL	Units	Q
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00080	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00080	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00080	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00080	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00080	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00080	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00080	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0020	0.00080	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0020	0.00080	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00080	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00080	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00080	ug/l	
2355-31-9	MeFOSAA	ND	0.0040	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0040	0.0010	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0080	0.0030	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

CAS No.	Surrogate Recoveries		Limits
	13C2-PFHxA	135%* [a]	70-130%
	13C2-PFDA	118%	70-130%
	d5-EtFOSAA	118%	70-130%
	13C3-HFPO-DA	127%	70-130%

(a) Outside control limits.

Blank Spike Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-BS	3Q101524.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23948-1, FC23948-2, FC23948-3, FC23948-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.004	0.0044	110	50-150
2706-90-3	Perfluoropentanoic acid	0.004	0.0043	108	50-150
307-24-4	Perfluorohexanoic acid	0.004	0.0041	103	50-150
375-85-9	Perfluoroheptanoic acid	0.004	0.0040	100	50-150
335-67-1	Perfluorooctanoic acid	0.004	0.0042	105	50-150
375-95-1	Perfluorononanoic acid	0.004	0.0042	105	50-150
335-76-2	Perfluorodecanoic acid	0.004	0.0042	105	50-150
2058-94-8	Perfluoroundecanoic acid	0.004	0.0043	108	50-150
307-55-1	Perfluorododecanoic acid	0.004	0.0043	108	50-150
375-73-5	Perfluorobutanesulfonic acid	0.004	0.0042	105	50-150
2706-91-4	Perfluoropentanesulfonic acid	0.004	0.0043	108	50-150
355-46-4	Perfluorohexanesulfonic acid	0.004	0.0045	113	50-150
375-92-8	Perfluoroheptanesulfonic acid	0.004	0.0046	115	50-150
1763-23-1	Perfluorooctanesulfonic acid	0.004	0.0043	108	50-150
757124-72-4	4:2 Fluorotelomer sulfonate	0.004	0.0040	100	50-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.004	0.0045	113	50-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.004	0.0052	130	50-150
377-73-1	PFMPA	0.004	0.0044	110	50-150
863090-89-5	PFMBA	0.004	0.0042	105	50-150
151772-58-6	NFDHA	0.004	0.0045	113	50-150
113507-82-7	PFEESA	0.004	0.0043	108	50-150
13252-13-6	HFPO-DA (GenX)	0.004	0.0045	113	50-150
919005-14-4	ADONA	0.004	0.0040	100	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.004	0.0040	100	50-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.004	0.0036	90	50-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	80%	50-200%
	13C5-PFPeA	81%	50-200%
	13C5-PFHxA	82%	50-200%
	13C4-PFHpA	84%	50-200%
	13C8-PFOA	85%	50-200%
	13C9-PFNA	86%	50-200%
	13C6-PFDA	93%	50-200%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-BS	3Q101524.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23948-1, FC23948-2, FC23948-3, FC23948-4

CAS No.	ID Standard Recoveries	BSP	Limits
	13C7-PFUnDA	77%	50-200%
	13C2-PFDoDA	70%	50-200%
	13C3-PFBS	80%	50-200%
	13C3-PFHxS	81%	50-200%
	13C8-PFOS	81%	50-200%
	13C2-4:2FTS	79%	50-200%
	13C2-6:2FTS	80%	50-200%
	13C2-8:2FTS	78%	50-200%
	13C3-HFPO-DA	69%	50-200%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8904-BS	5Q31832.D	1	04/17/25	(b)(6)	04/16/25	OP8904	S5Q523

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23948-1A, FC23948-2A, FC23948-3A, FC23948-4A

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
307-24-4	Perfluorohexanoic acid	0.08	0.0767	96	70-130
375-85-9	Perfluoroheptanoic acid	0.08	0.0810	101	70-130
335-67-1	Perfluorooctanoic acid	0.08	0.0790	99	70-130
375-95-1	Perfluorononanoic acid	0.08	0.0831	104	70-130
335-76-2	Perfluorodecanoic acid	0.08	0.0774	97	70-130
2058-94-8	Perfluoroundecanoic acid	0.08	0.0668	84	70-130
307-55-1	Perfluorododecanoic acid	0.08	0.0421	53*	70-130
72629-94-8	Perfluorotridecanoic acid	0.08	0.0418	52*	70-130
376-06-7	Perfluorotetradecanoic acid	0.08	0.0503	63*	70-130
375-73-5	Perfluorobutanesulfonic acid	0.08	0.0871	109	70-130
355-46-4	Perfluorohexanesulfonic acid	0.08	0.0837	105	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.08	0.0721	90	70-130
2355-31-9	MeFOSAA	0.08	0.0767	96	70-130
2991-50-6	EtFOSAA	0.08	0.0704	88	70-130
13252-13-6	HFPO-DA (GenX)	0.08	0.0782	98	70-130
919005-14-4	ADONA	0.08	0.0807	101	70-130
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.08	0.0785	98	70-130
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.08	0.0565	71	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
	13C2-PFHxA	127%	70-130%
	13C2-PFDA	117%	70-130%
	d5-EtFOSAA	123%	70-130%
	13C3-HFPO-DA	119%	70-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8904-BS	5Q31877.D	1	04/18/25	[redacted]	04/16/25	OP8904	S5Q524

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23948-1A, FC23948-2A, FC23948-3A, FC23948-4A

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
307-24-4	Perfluorohexanoic acid	0.08	0.0851	106	70-130
375-85-9	Perfluoroheptanoic acid	0.08	0.0836	105	70-130
335-67-1	Perfluorooctanoic acid	0.08	0.0830	104	70-130
375-95-1	Perfluorononanoic acid	0.08	0.0761	95	70-130
335-76-2	Perfluorodecanoic acid	0.08	0.0784	98	70-130
2058-94-8	Perfluoroundecanoic acid	0.08	0.0707	88	70-130
307-55-1	Perfluorododecanoic acid	0.08	0.0587	73	70-130
72629-94-8	Perfluorotridecanoic acid	0.08	0.0508	64*	70-130
376-06-7	Perfluorotetradecanoic acid	0.08	0.0443	55*	70-130
375-73-5	Perfluorobutanesulfonic acid	0.08	0.0912	114	70-130
355-46-4	Perfluorohexanesulfonic acid	0.08	0.0819	102	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.08	0.0770	96	70-130
2355-31-9	MeFOSAA	0.08	0.0743	93	70-130
2991-50-6	EtFOSAA	0.08	0.0735	92	70-130
13252-13-6	HFPO-DA (GenX)	0.08	0.0839	105	70-130
919005-14-4	ADONA	0.08	0.0801	100	70-130
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.08	0.0789	99	70-130
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.08	0.0567	71	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
	13C2-PFHxA	142%* [a]	70-130%
	13C2-PFDA	127%	70-130%
	d5-EtFOSAA	124%	70-130%
	13C3-HFPO-DA	135%* [a]	70-130%

(a) Outside control limits.

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-MS	3Q101527.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494
FC23948-1	3Q101526.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23948-1, FC23948-2, FC23948-3, FC23948-4

CAS No.	Compound	FC23948-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.0034	J	0.00351	0.0066	91	50-150
2706-90-3	Perfluoropentanoic acid	0.0089		0.00351	0.0117	80	50-150
307-24-4	Perfluorohexanoic acid	0.0067		0.00351	0.0093	74	50-150
375-85-9	Perfluoroheptanoic acid	0.0035		0.00351	0.0065	86	50-150
335-67-1	Perfluorooctanoic acid	0.0064		0.00351	0.0092	80	50-150
375-95-1	Perfluorononanoic acid	0.0018	U	0.00351	0.0035	100	50-150
335-76-2	Perfluorodecanoic acid	0.0018	U	0.00351	0.0033	94	50-150
2058-94-8	Perfluoroundecanoic acid	0.0013	J	0.00351	0.0032	54	50-150
307-55-1	Perfluorododecanoic acid	0.0012	J	0.00351	0.0032	57	50-150
375-73-5	Perfluorobutanesulfonic acid	0.0051		0.00351	0.0079	80	50-150
2706-91-4	Perfluoropentanesulfonic acid	0.00072	J	0.00351	0.0041	96	50-150
355-46-4	Perfluorohexanesulfonic acid	0.0067		0.00351	0.0099	91	50-150
375-92-8	Perfluoroheptanesulfonic acid	0.0018	U	0.00351	0.0036	103	50-150
1763-23-1	Perfluorooctanesulfonic acid	0.0107		0.00351	0.0137	86	50-150
757124-72-4	4:2 Fluorotelomer sulfonate	0.0035	U	0.00351	0.0031	88	50-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0035	U	0.00351	0.0034	97	50-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0035	U	0.00351	0.0039	111	50-150
377-73-1	PFMPA	0.0035	U	0.00351	0.0034	97	50-150
863090-89-5	PFMBA	0.0035	U	0.00351	0.0033	94	50-150
151772-58-6	NFDHA	0.0035	U	0.00351	0.0032	91	50-150
113507-82-7	PFEESA	0.0035	U	0.00351	0.0033	94	50-150
13252-13-6	HFPO-DA (GenX)	0.0035	U	0.00351	0.0033	94	50-150
919005-14-4	ADONA	0.0035	U	0.00351	0.0030	86	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0035	U	0.00351	0.0029	83	50-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.00087	J	0.00351	0.0024	44*	50-150

CAS No.	ID Standard Recoveries	MS	FC23948-1	Limits
	13C4-PFBA	82%	79%	50-200%
	13C5-PFPeA	84%	81%	50-200%
	13C5-PFHxA	83%	78%	50-200%
	13C4-PFHpA	84%	80%	50-200%
	13C8-PFOA	86%	83%	50-200%
	13C9-PFNA	85%	83%	50-200%
	13C6-PFDA	90%	87%	50-200%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-MS	3Q101527.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494
FC23948-1	3Q101526.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23948-1, FC23948-2, FC23948-3, FC23948-4

CAS No.	ID Standard Recoveries	MS	FC23948-1	Limits
	13C7-PFUnDA	74%	68%	50-200%
	13C2-PFDoDA	62%	58%	50-200%
	13C3-PFBS	79%	75%	50-200%
	13C3-PFHxS	81%	79%	50-200%
	13C8-PFOS	79%	79%	50-200%
	13C2-4:2FTS	79%	76%	50-200%
	13C2-6:2FTS	80%	78%	50-200%
	13C2-8:2FTS	76%	78%	50-200%
	13C3-HFPO-DA	69%	70%	50-200%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8904-MS	5Q31838.D	1	04/17/25	(b) (6)	04/16/25	OP8904	S5Q523
FC23948-3A [a]	5Q31837.D	1	04/17/25	(b) (6)	04/16/25	OP8904	S5Q523
FC23948-3A [b]	5Q31881.D	1	04/18/25	(b) (6)	04/16/25	OP8904	S5Q524

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23948-1A, FC23948-2A, FC23948-3A, FC23948-4A

CAS No.	Compound	FC23948-3A ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
307-24-4	Perfluorohexanoic acid	0.0018	U	0.0714	0.0628	88	70-130
375-85-9	Perfluoroheptanoic acid	0.0018	U	0.0714	0.0702	98	70-130
335-67-1	Perfluorooctanoic acid	0.0018	U	0.0714	0.0718	101	70-130
375-95-1	Perfluorononanoic acid	0.0018	U	0.0714	0.0760	106	70-130
335-76-2	Perfluorodecanoic acid	0.0018	U	0.0714	0.0692	97	70-130
2058-94-8	Perfluoroundecanoic acid	0.0018	U	0.0714	0.0576	81	70-130
307-55-1	Perfluorododecanoic acid	0.0018	U	0.0714	0.0339	47* [c]	70-130
72629-94-8	Perfluorotridecanoic acid	0.0018	U	0.0714	0.0301	42* [c]	70-130
376-06-7	Perfluorotetradecanoic acid	0.0018	U	0.0714	0.0270	38* [c]	70-130
375-73-5	Perfluorobutanesulfonic acid	0.0018	U	0.0714	0.0710	99	70-130
355-46-4	Perfluorohexanesulfonic acid	0.0018	U	0.0714	0.0688	96	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.0018	U	0.0714	0.0622	87	70-130
2355-31-9	MeFOSAA	0.0035	U	0.0714	0.0733	103	70-130
2991-50-6	EtFOSAA	0.0035	U	0.0714	0.0742	104	70-130
13252-13-6	HFPO-DA (GenX)	0.0070	U	0.0714	0.0694	97	70-130
919005-14-4	ADONA	0.0070	U	0.0714	0.0729	102	70-130
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0070	U	0.0714	0.0712	100	70-130
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0070	U	0.0714	0.0520	73	70-130

CAS No.	Surrogate Recoveries	MS	FC23948-3A	FC23948-3A	Limits
	13C2-PFHxA	116%	133%* [c]	146%* [c]	70-130%
	13C2-PFDA	120%	137%* [c]	140%* [c]	70-130%
	d5-EtFOSAA	126%	140%* [c]	137%* [c]	70-130%
	13C3-HFPO-DA	111%	127%	140%* [c]	70-130%

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Outside control limits.

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-DUP	3Q101530.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494
FC23948-3	3Q101529.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23948-1, FC23948-2, FC23948-3, FC23948-4

CAS No.	Compound	FC23948-3 ug/l	Q	DUP ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.0035	U	ND		nc	30
2706-90-3	Perfluoropentanoic acid	0.0035	U	ND		nc	30
307-24-4	Perfluorohexanoic acid	0.0018	U	ND		nc	30
375-85-9	Perfluoroheptanoic acid	0.0018	U	ND		nc	30
335-67-1	Perfluorooctanoic acid	0.0018	U	ND		nc	30
375-95-1	Perfluorononanoic acid	0.0018	U	ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0018	U	ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0018	U	ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0018	U	ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0018	U	ND		nc	30
2706-91-4	Perfluoropentanesulfonic acid	0.0018	U	ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0018	U	ND		nc	30
375-92-8	Perfluoroheptanesulfonic acid	0.0018	U	ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0018	U	ND		nc	30
757124-72-4	4:2 Fluorotelomer sulfonate	0.0035	U	ND		nc	30
27619-97-2	6:2 Fluorotelomer sulfonate	0.0035	U	ND		nc	30
39108-34-4	8:2 Fluorotelomer sulfonate	0.0035	U	ND		nc	30
377-73-1	PFMPA	0.0035	U	ND		nc	30
863090-89-5	PFMBA	0.0035	U	ND		nc	30
151772-58-6	NFDHA	0.0035	U	ND		nc	30
113507-82-7	PFEESA	0.0035	U	ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.0035	U	ND		nc	30
919005-14-4	ADONA	0.0035	U	ND		nc	30
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0035	U	ND		nc	30
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0035	U	ND		nc	30

CAS No.	ID Standard Recoveries	DUP	FC23948-3	Limits
	13C4-PFBA	79%	80%	50-200%
	13C5-PFPeA	80%	81%	50-200%
	13C5-PFHxA	81%	82%	50-200%
	13C4-PFHpA	81%	83%	50-200%
	13C8-PFOA	83%	84%	50-200%
	13C9-PFNA	83%	84%	50-200%
	13C6-PFDA	83%	87%	50-200%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-DUP	3Q101530.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494
FC23948-3	3Q101529.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23948-1, FC23948-2, FC23948-3, FC23948-4

CAS No.	ID Standard Recoveries	DUP	FC23948-3	Limits
	13C7-PFUnDA	71%	67%	50-200%
	13C2-PFDoDA	58%	57%	50-200%
	13C3-PFBS	76%	79%	50-200%
	13C3-PFHxS	78%	80%	50-200%
	13C8-PFOS	79%	76%	50-200%
	13C2-4:2FTS	81%	82%	50-200%
	13C2-6:2FTS	79%	79%	50-200%
	13C2-8:2FTS	75%	72%	50-200%
	13C3-HFPO-DA	65%	66%	50-200%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8904-DUP	5Q31840.D	1	04/17/25	(b) (6)	04/16/25	OP8904	S5Q523
FC23948-4A [a]	5Q31839.D	1	04/17/25	(b) (6)	04/16/25	OP8904	S5Q523
FC23948-4A [b]	5Q31883.D	1	04/18/25	(b) (6)	04/16/25	OP8904	S5Q524

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23948-1A, FC23948-2A, FC23948-3A, FC23948-4A

CAS No.	Compound	FC23948-4A ug/l	Q	DUP ug/l	Q	RPD	Limits
307-24-4	Perfluorohexanoic acid	0.0018	U	ND		nc	30
375-85-9	Perfluoroheptanoic acid	0.0018	U	ND		nc	30
335-67-1	Perfluorooctanoic acid	0.0018	U	ND		nc	30
375-95-1	Perfluorononanoic acid	0.0018	U	ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0018	U	ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0018	U	ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0018	U	ND		nc	30
72629-94-8	Perfluorotridecanoic acid	0.0018	U	ND		nc	30
376-06-7	Perfluorotetradecanoic acid	0.0018	U	ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0018	U	ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0018	U	ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0018	U	ND		nc	30
2355-31-9	MeFOSAA	0.0036	U	ND		nc	30
2991-50-6	EtFOSAA	0.0036	U	ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.0071	U	ND		nc	30
919005-14-4	ADONA	0.0071	U	ND		nc	30
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0071	U	ND		nc	30
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0071	U	ND		nc	30

CAS No.	Surrogate Recoveries	DUP	FC23948-4A	FC23948-4A	Limits
	13C2-PFHxA	143%* [c]	136%* [c]	155%* [c]	70-130%
	13C2-PFDA	129%	130%	141%* [c]	70-130%
	d5-EtFOSAA	129%	131%* [c]	142%* [c]	70-130%
	13C3-HFPO-DA	134%* [c]	127%	146%* [c]	70-130%

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Outside control limits.

* = Outside of Control Limits.

(b) (4)

04/24/25

The results set forth herein are provided by (b) (4)

e-Hardcopy 2.0
Automated Report



Technical Report for

AECOM, INC.

N6274224F0139 Extended Drinking Water

60729369

(b) (4) Job Number: FC23948

Sampling Date: 04/14/25

Report to:

AECOM, Inc
7595 Technology Way
Denver, CO 80237
(b) (6)

Total number of pages in report: 951

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

(b) (6)
Technical Director

Client Service contact: (b) (6)
(b) (4)

Test results relate only to samples analyzed.

(b) (4)
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(b) (4)

Sample Summary

AECOM, INC.

Job No: FC23948

N6274224F0139 Extended Drinking Water
Project No: 60729369

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FC23948-1	04/14/25	08:50	(b) (6)	04/15/25	DW	Drinking Water	SHAFT-HW-0018384-25098-N-R02
FC23948-1A	04/14/25	08:50	(b) (6)	04/15/25	DW	Drinking Water	SHAFT-HW-0018384-25098-N-R02
FC23948-2	04/14/25	08:08	(b) (6)	04/15/25	DW	Drinking Water FB	SHAFT-FB-250414-25098-N
FC23948-2A	04/14/25	08:08	(b) (6)	04/15/25	DW	Drinking Water FB	SHAFT-FB-250414-25098-N
FC23948-3	04/14/25	11:20	(b) (6)	04/15/25	DW	Drinking Water	SHAFT-HW-0018393-25098-N-R02
FC23948-3A	04/14/25	11:20	(b) (6)	04/15/25	DW	Drinking Water	SHAFT-HW-0018393-25098-N-R02
FC23948-4	04/14/25	11:36	(b) (6)	04/15/25	DW	Drinking Water	SHAFT-HW-0018394-25098-N-R02
FC23948-4A	04/14/25	11:36	(b) (6)	04/15/25	DW	Drinking Water	SHAFT-HW-0018394-25098-N-R02

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC. **Job No:** FC23948

Site: N6274224F0139 Extended Drinking Water **Report Date:** 4/24/2025 1:37:51 PM

On 04/15/2025, 3 Sample(s), 0 Trip Blank(s), 0 Equip. Blank(s) and 1 Field Blank(s) were received at (b) (4) at a maximum corrected temperature of 4.4 C. Samples were intact and chemically preserved, unless noted below. A (b) (4) Job Number of FC23948 was assigned to the project.

Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section. Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Semi-volatiles By Method EPA 533

Matrix: DW **Batch ID:** OP8907

Sample(s) FC23948-1MS, FC23948-3DUP were used as the QC samples indicated.

Matrix Spike Recovery(s) for 11Cl-PF3OUdS (F-53B Minor) are outside control limits. Probable cause is due to matrix interference.

MS Semi-volatiles By Method EPA 537.1 REV 2.0

Matrix: DW **Batch ID:** OP8904

Sample(s) FC23948-3AMS, FC23948-4ADUP were used as the QC samples indicated.

Blank Spike Recovery(s) for Perfluorododecanoic acid, Perfluorotetradecanoic acid, Perfluorotridecanoic acid are outside control limits.

Matrix Spike Recovery(s) for Perfluorododecanoic acid, Perfluorotetradecanoic acid, Perfluorotridecanoic acid are outside control limits. Probable cause is due to matrix interference.

Sample(s) FC23948-1A, FC23948-2A, FC23948-3A, FC23948-4A have surrogates outside control limits.

OP8904-BS for 13C2-PFHxA: Outside control limits.

OP8904-BS for 13C3-HFPO-DA: Outside control limits.

OP8904-MB for 13C2-PFHxA: Outside control limits.

FC23948-1A for 13C2-PFHxA: Outside control limits.

FC23948-1A for 13C3-HFPO-DA: Outside control limits.

FC23948-1A for HFPO-DA (GenX): Associated EIS outside control limits.

FC23948-1A for Perfluorododecanoic acid: Associated BS outside of control limits low.

FC23948-1A for Perfluorotetradecanoic acid: Associated BS outside of control limits low.

FC23948-1A for Perfluorotridecanoic acid: Associated BS outside of control limits low.

FC23948-2A for Perfluorododecanoic acid: Associated BS outside of control limits low.

FC23948-2A: Confirmation run.

FC23948-2A: Insufficient sample for re-extraction.

FC23948-3A for EtFOSAA: Associated EIS outside control limits.

FC23948-3A for Perfluorotetradecanoic acid: Associated BS outside of control limits low.

FC23948-3A: Confirmation run.

FC23948-3A: Insufficient sample for re-extraction.

FC23948-4A for EtFOSAA: Associated EIS outside control limits.

FC23948-4A for Perfluorotetradecanoic acid: Associated BS outside of control limits low.

FC23948-4A: Confirmation run.

FC23948-4A: Insufficient sample for re-extraction.

Matrix: DW **Batch ID:** OP8985

FC23948-1A: Confirmation run.

(b) (4) certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted. Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria. (b) (4) (b) (4) is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety.

Narrative prepared by:

(b) (6) Report Generation (signature on file)

Summary of Hits

Job Number: FC23948
Account: AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Collected: 04/14/25

3

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
FC23948-1	**SHAFT-HW-0018384-25098-N-R02**					
Perfluorobutanoic acid		0.0034 J	0.0035	0.0014	ug/l	EPA 533
Perfluoropentanoic acid		0.0089	0.0035	0.0014	ug/l	EPA 533
Perfluorohexanoic acid		0.0067	0.0018	0.0014	ug/l	EPA 533
Perfluoroheptanoic acid		0.0035	0.0018	0.0014	ug/l	EPA 533
Perfluorooctanoic acid		0.0064	0.0018	0.0014	ug/l	EPA 533
Perfluoroundecanoic acid		0.0013 J	0.0018	0.0014	ug/l	EPA 533
Perfluorododecanoic acid		0.0012 J	0.0018	0.0014	ug/l	EPA 533
Perfluorobutanesulfonic acid		0.0051	0.0018	0.0014	ug/l	EPA 533
Perfluoropentanesulfonic acid		0.00072 J	0.0018	0.0014	ug/l	EPA 533
Perfluorohexanesulfonic acid		0.0067	0.0018	0.0014	ug/l	EPA 533
Perfluorooctanesulfonic acid		0.0107	0.0018	0.0014	ug/l	EPA 533
11Cl-PF3OUdS (F-53B Minor)		0.00087 J	0.0035	0.0014	ug/l	EPA 533
FC23948-1A	**SHAFT-HW-0018384-25098-N-R02**					
Perfluorohexanoic acid		0.0049	0.0018	0.0014	ug/l	EPA 537.1 REV 2.0
Perfluoroheptanoic acid		0.0027	0.0018	0.0014	ug/l	EPA 537.1 REV 2.0
Perfluorooctanoic acid		0.0047	0.0018	0.0014	ug/l	EPA 537.1 REV 2.0
Perfluorobutanesulfonic acid		0.0047	0.0018	0.0014	ug/l	EPA 537.1 REV 2.0
Perfluorohexanesulfonic acid		0.0052	0.0018	0.0014	ug/l	EPA 537.1 REV 2.0
Perfluorooctanesulfonic acid		0.0072	0.0018	0.0014	ug/l	EPA 537.1 REV 2.0
FC23948-2	**SHAFT-FB-250414-25098-N**					
No hits reported in this sample.						
FC23948-2A	**SHAFT-FB-250414-25098-N**					
No hits reported in this sample.						
FC23948-3	**SHAFT-HW-0018393-25098-N-R02**					
No hits reported in this sample.						
FC23948-3A	**SHAFT-HW-0018393-25098-N-R02**					
No hits reported in this sample.						
FC23948-4	**SHAFT-HW-0018394-25098-N-R02**					
No hits reported in this sample.						

Summary of Hits

Job Number: FC23948
Account: AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Collected: 04/14/25

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
FC23948-4A	SHAFT-HW-0018394-25098-N-R02					

No hits reported in this sample.

Sample Results

Report of Analysis

Raw Data: 3Q101526.D

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018384-25098-N-R02		
Lab Sample ID:	FC23948-1	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water	**Date Received:**	04/15/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3Q101526.D	1	04/17/25 12:27	(b) (6)	04/16/25 09:45	OP8907	S3Q1494
Run #2							

	Initial Volume	Final Volume
Run #1	285 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
375-22-4	Perfluorobutanoic acid	0.0034		0.0035	0.0014	0.00053	ug/l	J
2706-90-3	Perfluoropentanoic acid	0.0089		0.0035	0.0014	0.00060	ug/l	
307-24-4	Perfluorohexanoic acid	0.0067		0.0018	0.0014	0.00053	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0035		0.0018	0.0014	0.00060	ug/l	
335-67-1	Perfluorooctanoic acid	0.0064		0.0018	0.0014	0.00053	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00056	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0013		0.0018	0.0014	0.00057	ug/l	J
307-55-1	Perfluorododecanoic acid	0.0012		0.0018	0.0014	0.00053	ug/l	J
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0051		0.0018	0.0014	0.00053	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	0.00072		0.0018	0.0014	0.00067	ug/l	J
355-46-4	Perfluorohexanesulfonic acid	0.0067		0.0018	0.0014	0.00053	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0107		0.0018	0.0014	0.00053	ug/l	
FLUOROTELOMER SULFONATES								
757124-72-4	4:2 Fluorotelomer sulfonate	0.0014 U		0.0035	0.0014	0.00053	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0014 U		0.0035	0.0014	0.00098	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0014 U		0.0035	0.0014	0.00053	ug/l	
PER and POLYFLUOROETHER CARBOXYLIC and SULFONIC ACIDS								
377-73-1	PFMPA	0.0014 U		0.0035	0.0014	0.00056	ug/l	
863090-89-5	PFMBA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
151772-58-6	NFDHA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
113507-82-7	PFEESA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
13252-13-6	HFPO-DA (GenX)	0.0018 U		0.0035	0.0018	0.00088	ug/l	
919005-14-4	ADONA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0014 U		0.0035	0.0014	0.00053	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.00087		0.0035	0.0014	0.00060	ug/l	J

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 141) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.1
4

(b) (4)

Report of Analysis

4.1
4

Client Sample ID:	SHAFT-HW-0018384-25098-N-R02		
Lab Sample ID:	FC23948-1	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water	**Date Received:**	04/15/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	79%		50-200%
	13C5-PFPeA	81%		50-200%
	13C5-PFHxA	78%		50-200%
	13C4-PFHpA	80%		50-200%
	13C8-PFOA	83%		50-200%
	13C9-PFNA	83%		50-200%
	13C6-PFDA	87%		50-200%
	13C7-PFUnDA	68%		50-200%
	13C2-PFDoDA	58%		50-200%
	13C3-PFBS	75%		50-200%
	13C3-PFHxS	79%		50-200%
	13C8-PFOS	79%		50-200%
	13C2-4:2FTS	76%		50-200%
	13C2-6:2FTS	78%		50-200%
	13C2-8:2FTS	78%		50-200%
	13C3-HFPO-DA	70%		50-200%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: 5Q31835.D 4Q74374.D

(b) (4)

Report of Analysis

4.2.4

Client Sample ID:	SHAFT-HW-0018384-25098-N-R02		
Lab Sample ID:	FC23948-1A	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water	**Date Received:**	04/15/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5Q31835.D	1	04/17/25 16:45	(b) (4)	04/16/25 08:30	OP8904	S5Q523
Run #2 [a]	4Q74374.D	1	04/24/25 01:21	(b) (4)	04/21/25 07:45	OP8985	S4Q1106

	Initial Volume	Final Volume
Run #1	280 ml	1.0 ml
Run #2	280 ml	1.0 ml

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
307-24-4	Perfluorohexanoic acid	0.0049		0.0018	0.0014	0.00071	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0027		0.0018	0.0014	0.00071	ug/l	
335-67-1	Perfluorooctanoic acid	0.0047		0.0018	0.0014	0.00071	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
307-55-1	Perfluorododecanoic acid [b]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
72629-94-8	Perfluorotridecanoic acid [b]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
376-06-7	Perfluorotetradecanoic acid [b]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0047		0.0018	0.0014	0.00071	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0052		0.0018	0.0014	0.00071	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0072		0.0018	0.0014	0.00071	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS								
2355-31-9	MeFOSAA	0.0018 U		0.0036	0.0018	0.00089	ug/l	
2991-50-6	EtFOSAA	0.0018 U		0.0036	0.0018	0.00089	ug/l	
NEXT GENERATION PFAS ANALYTES								
13252-13-6	HFPO-DA (GenX) [c]	0.0054 U		0.0071	0.0054	0.0027	ug/l	
919005-14-4	ADONA	0.0036 U		0.0071	0.0036	0.0018	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0036 U		0.0071	0.0036	0.0018	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0036 U		0.0071	0.0036	0.0018	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	139% [d]	114%	70-130%
	13C2-PFDA	122%	117%	70-130%
	d5-EtFOSAA	124%	88%	70-130%
	13C3-HFPO-DA	133% [d]	110%	70-130%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 141) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018384-25098-N-R02		
Lab Sample ID:	FC23948-1A	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water	**Date Received:**	04/15/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

4.2
4

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q

(a) Confirmation run.
(b) Associated BS outside of control limits low.
(c) Associated EIS outside control limits.
(d) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: 3Q101528.D

(b) (4)

Report of Analysis

4.3
4

Client Sample ID:	SHAFT-FB-250414-25098-N		
Lab Sample ID:	FC23948-2	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water FB	**Date Received:**	04/15/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3Q101528.D	1	04/17/25 12:59	(b) (6)	04/16/25 09:45	OP8907	S3Q1494
Run #2							

	Initial Volume	Final Volume
Run #1	270 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
375-22-4	Perfluorobutanoic acid	0.0015 U		0.0037	0.0015	0.00056	ug/l	
2706-90-3	Perfluoropentanoic acid	0.0015 U		0.0037	0.0015	0.00063	ug/l	
307-24-4	Perfluorohexanoic acid	0.0015 U		0.0019	0.0015	0.00056	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0015 U		0.0019	0.0015	0.00063	ug/l	
335-67-1	Perfluorooctanoic acid	0.0015 U		0.0019	0.0015	0.00056	ug/l	
375-95-1	Perfluorononanoic acid	0.0015 U		0.0019	0.0015	0.00056	ug/l	
335-76-2	Perfluorodecanoic acid	0.0015 U		0.0019	0.0015	0.00059	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0015 U		0.0019	0.0015	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	0.0015 U		0.0019	0.0015	0.00056	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0015 U		0.0019	0.0015	0.00056	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	0.0015 U		0.0019	0.0015	0.00071	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0015 U		0.0019	0.0015	0.00056	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	0.0015 U		0.0019	0.0015	0.00056	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0015 U		0.0019	0.0015	0.00056	ug/l	
FLUOROTELOMER SULFONATES								
757124-72-4	4:2 Fluorotelomer sulfonate	0.0015 U		0.0037	0.0015	0.00056	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0015 U		0.0037	0.0015	0.0010	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0015 U		0.0037	0.0015	0.00056	ug/l	
PER and POLYFLUOROETHER CARBOXYLIC and SULFONIC ACIDS								
377-73-1	PFMPA	0.0015 U		0.0037	0.0015	0.00059	ug/l	
863090-89-5	PFMBA	0.0015 U		0.0037	0.0015	0.00056	ug/l	
151772-58-6	NFDHA	0.0015 U		0.0037	0.0015	0.00056	ug/l	
113507-82-7	PFEESA	0.0015 U		0.0037	0.0015	0.00056	ug/l	
13252-13-6	HFPO-DA (GenX)	0.0019 U		0.0037	0.0019	0.00093	ug/l	
919005-14-4	ADONA	0.0015 U		0.0037	0.0015	0.00056	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0015 U		0.0037	0.0015	0.00056	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0015 U		0.0037	0.0015	0.00063	ug/l	

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-FB-250414-25098-N		
Lab Sample ID:	FC23948-2	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water FB	**Date Received:**	04/15/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	78%		50-200%
	13C5-PFPeA	78%		50-200%
	13C5-PFHxA	77%		50-200%
	13C4-PFHpA	79%		50-200%
	13C8-PFOA	82%		50-200%
	13C9-PFNA	79%		50-200%
	13C6-PFDA	82%		50-200%
	13C7-PFUnDA	66%		50-200%
	13C2-PFDoDA	57%		50-200%
	13C3-PFBS	76%		50-200%
	13C3-PFHxS	78%		50-200%
	13C8-PFOS	75%		50-200%
	13C2-4:2FTS	74%		50-200%
	13C2-6:2FTS	83%		50-200%
	13C2-8:2FTS	72%		50-200%
	13C3-HFPO-DA	71%		50-200%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: 5Q31836.D 5Q31880.D

(b) (4)

Report of Analysis

4.4 4

Client Sample ID:	SHAFT-FB-250414-25098-N		
Lab Sample ID:	FC23948-2A	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water FB	**Date Received:**	04/15/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5Q31836.D	1	04/17/25 17:01	(b) (4)	04/16/25 08:30	OP8904	S5Q523
Run #2 [b]	5Q31880.D	1	04/18/25 18:03	(b) (4)	04/16/25 08:30	OP8904	S5Q524

	Initial Volume	Final Volume
Run #1	285 ml	1.0 ml
Run #2	285 ml	1.0 ml

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
307-55-1	Perfluorododecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00070	ug/l	
72629-94-8	Perfluorotridecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00070	ug/l	
376-06-7	Perfluorotetradecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00070	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS								
2355-31-9	MeFOSAA	0.0018 U		0.0035	0.0018	0.00088	ug/l	
2991-50-6	EtFOSAA	0.0018 U		0.0035	0.0018	0.00088	ug/l	
NEXT GENERATION PFAS ANALYTES								
13252-13-6	HFPO-DA (GenX)	0.0053 U		0.0070	0.0053	0.0026	ug/l	
919005-14-4	ADONA	0.0035 U		0.0070	0.0035	0.0018	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0035 U		0.0070	0.0035	0.0018	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0035 U		0.0070	0.0035	0.0018	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	152% [d]	170% [d]	70-130%
	13C2-PFDA	144% [d]	157% [d]	70-130%
	d5-EtFOSAA	152% [d]	149% [d]	70-130%
	13C3-HFPO-DA	142% [d]	164% [d]	70-130%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-FB-250414-25098-N		
Lab Sample ID:	FC23948-2A	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water FB	**Date Received:**	04/15/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Associated BS outside of control limits low.
(d) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: 3Q101529.D

(b) (4)

Report of Analysis

4.5
4

Client Sample ID:	SHAFT-HW-0018393-25098-N-R02		
Lab Sample ID:	FC23948-3	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water	**Date Received:**	04/15/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3Q101529.D	1	04/17/25 13:15	(b) (6)	04/16/25 09:45	OP8907	S3Q1494
Run #2							

	Initial Volume	Final Volume
Run #1	285 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
375-22-4	Perfluorobutanoic acid	0.0014 U		0.0035	0.0014	0.00053	ug/l	
2706-90-3	Perfluoropentanoic acid	0.0014 U		0.0035	0.0014	0.00060	ug/l	
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00060	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00056	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0014 U		0.0018	0.0014	0.00057	ug/l	
307-55-1	Perfluorododecanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	0.0014 U		0.0018	0.0014	0.00067	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
FLUOROTELOMER SULFONATES								
757124-72-4	4:2 Fluorotelomer sulfonate	0.0014 U		0.0035	0.0014	0.00053	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0014 U		0.0035	0.0014	0.00098	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0014 U		0.0035	0.0014	0.00053	ug/l	
PER and POLYFLUOROETHER CARBOXYLIC and SULFONIC ACIDS								
377-73-1	PFMPA	0.0014 U		0.0035	0.0014	0.00056	ug/l	
863090-89-5	PFMBA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
151772-58-6	NFDHA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
113507-82-7	PFEESA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
13252-13-6	HFPO-DA (GenX)	0.0018 U		0.0035	0.0018	0.00088	ug/l	
919005-14-4	ADONA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0014 U		0.0035	0.0014	0.00053	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0014 U		0.0035	0.0014	0.00060	ug/l	

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

4.5
4

Client Sample ID:	SHAFT-HW-0018393-25098-N-R02		
Lab Sample ID:	FC23948-3	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water	**Date Received:**	04/15/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	80%		50-200%
	13C5-PFPeA	81%		50-200%
	13C5-PFHxA	82%		50-200%
	13C4-PFHpA	83%		50-200%
	13C8-PFOA	84%		50-200%
	13C9-PFNA	84%		50-200%
	13C6-PFDA	87%		50-200%
	13C7-PFUnDA	67%		50-200%
	13C2-PFDoDA	57%		50-200%
	13C3-PFBS	79%		50-200%
	13C3-PFHxS	80%		50-200%
	13C8-PFOS	76%		50-200%
	13C2-4:2FTS	82%		50-200%
	13C2-6:2FTS	79%		50-200%
	13C2-8:2FTS	72%		50-200%
	13C3-HFPO-DA	66%		50-200%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: 5Q31837.D 5Q31881.D

(b) (4)

Report of Analysis

4.6
4

Client Sample ID:	SHAFT-HW-0018393-25098-N-R02		
Lab Sample ID:	FC23948-3A	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water	**Date Received:**	04/15/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5Q31837.D	1	04/17/25 17:18	(b) (4)	04/16/25 08:30	OP8904	S5Q523
Run #2 [b]	5Q31881.D	1	04/18/25 18:19	(b) (4)	04/16/25 08:30	OP8904	S5Q524

	Initial Volume	Final Volume
Run #1	285 ml	1.0 ml
Run #2	285 ml	1.0 ml

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
2058-94-8	Perfluoroundecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00070	ug/l	
307-55-1	Perfluorododecanoic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
72629-94-8	Perfluorotridecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00070	ug/l	
376-06-7	Perfluorotetradecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00070	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00070	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS								
2355-31-9	MeFOSAA	0.0018 U		0.0035	0.0018	0.00088	ug/l	
2991-50-6	EtFOSAA [d]	0.0018 U		0.0035	0.0018	0.00088	ug/l	
NEXT GENERATION PFAS ANALYTES								
13252-13-6	HFPO-DA (GenX)	0.0053 U		0.0070	0.0053	0.0026	ug/l	
919005-14-4	ADONA	0.0035 U		0.0070	0.0035	0.0018	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0035 U		0.0070	0.0035	0.0018	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0035 U		0.0070	0.0035	0.0018	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	133% [e]	146% [e]	70-130%
	13C2-PFDA	137% [e]	140% [e]	70-130%
	d5-EtFOSAA	140% [e]	137% [e]	70-130%
	13C3-HFPO-DA	127%	140% [e]	70-130%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018393-25098-N-R02		
Lab Sample ID:	FC23948-3A	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water	**Date Received:**	04/15/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

4.6
4

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Associated BS outside of control limits low.
(d) Associated EIS outside control limits.
(e) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: 3Q101531.D

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018394-25098-N-R02		
Lab Sample ID:	FC23948-4	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water	**Date Received:**	04/15/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3Q101531.D	1	04/17/25 13:48	(b) (6)	04/16/25 09:45	OP8907	S3Q1494
Run #2							

	Initial Volume	Final Volume
Run #1	285 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
375-22-4	Perfluorobutanoic acid	0.0014 U		0.0035	0.0014	0.00053	ug/l	
2706-90-3	Perfluoropentanoic acid	0.0014 U		0.0035	0.0014	0.00060	ug/l	
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00060	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00056	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0014 U		0.0018	0.0014	0.00057	ug/l	
307-55-1	Perfluorododecanoic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	0.0014 U		0.0018	0.0014	0.00067	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00053	ug/l	
FLUOROTELOMER SULFONATES								
757124-72-4	4:2 Fluorotelomer sulfonate	0.0014 U		0.0035	0.0014	0.00053	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0014 U		0.0035	0.0014	0.00098	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0014 U		0.0035	0.0014	0.00053	ug/l	
PER and POLYFLUOROETHER CARBOXYLIC and SULFONIC ACIDS								
377-73-1	PFMPA	0.0014 U		0.0035	0.0014	0.00056	ug/l	
863090-89-5	PFMBA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
151772-58-6	NFDHA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
113507-82-7	PFEESA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
13252-13-6	HFPO-DA (GenX)	0.0018 U		0.0035	0.0018	0.00088	ug/l	
919005-14-4	ADONA	0.0014 U		0.0035	0.0014	0.00053	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0014 U		0.0035	0.0014	0.00053	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0014 U		0.0035	0.0014	0.00060	ug/l	

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

4.7.4

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018394-25098-N-R02		
Lab Sample ID:	FC23948-4	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water	**Date Received:**	04/15/25
Method:	EPA 533 EPA 533	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	76%		50-200%
	13C5-PFPeA	77%		50-200%
	13C5-PFHxA	75%		50-200%
	13C4-PFHpA	78%		50-200%
	13C8-PFOA	80%		50-200%
	13C9-PFNA	80%		50-200%
	13C6-PFDA	85%		50-200%
	13C7-PFUnDA	67%		50-200%
	13C2-PFDoDA	56%		50-200%
	13C3-PFBS	75%		50-200%
	13C3-PFHxS	75%		50-200%
	13C8-PFOS	77%		50-200%
	13C2-4:2FTS	73%		50-200%
	13C2-6:2FTS	74%		50-200%
	13C2-8:2FTS	77%		50-200%
	13C3-HFPO-DA	60%		50-200%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Raw Data: 5Q31839.D 5Q31883.D

(b) (4)

Report of Analysis

4.8 4

Client Sample ID:	SHAFT-HW-0018394-25098-N-R02		
Lab Sample ID:	FC23948-4A	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water	**Date Received:**	04/15/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5Q31839.D	1	04/17/25 17:51	(b) (4)	04/16/25 08:30	OP8904	S5Q523
Run #2 [b]	5Q31883.D	1	04/18/25 18:52	(b) (4)	04/16/25 08:30	OP8904	S5Q524

	Initial Volume	Final Volume
Run #1	280 ml	1.0 ml
Run #2	280 ml	1.0 ml

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS								
307-24-4	Perfluorohexanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
335-67-1	Perfluorooctanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
375-95-1	Perfluorononanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
335-76-2	Perfluorodecanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
2058-94-8	Perfluoroundecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
307-55-1	Perfluorododecanoic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
72629-94-8	Perfluorotridecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
376-06-7	Perfluorotetradecanoic acid [c]	0.0014 U		0.0018	0.0014	0.00071	ug/l	
PERFLUOROALKYLSULFONIC ACIDS								
375-73-5	Perfluorobutanesulfonic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0014 U		0.0018	0.0014	0.00071	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS								
2355-31-9	MeFOSAA	0.0018 U		0.0036	0.0018	0.00089	ug/l	
2991-50-6	EtFOSAA [d]	0.0018 U		0.0036	0.0018	0.00089	ug/l	
NEXT GENERATION PFAS ANALYTES								
13252-13-6	HFPO-DA (GenX)	0.0054 U		0.0071	0.0054	0.0027	ug/l	
919005-14-4	ADONA	0.0036 U		0.0071	0.0036	0.0018	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0036 U		0.0071	0.0036	0.0018	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0036 U		0.0071	0.0036	0.0018	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	136% [e]	155% [e]	70-130%
	13C2-PFDA	130%	141% [e]	70-130%
	d5-EtFOSAA	131% [e]	142% [e]	70-130%
	13C3-HFPO-DA	127%	146% [e]	70-130%

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

(b) (4)

Report of Analysis

Client Sample ID:	SHAFT-HW-0018394-25098-N-R02		
Lab Sample ID:	FC23948-4A	**Date Sampled:**	04/14/25
Matrix:	DW - Drinking Water	**Date Received:**	04/15/25
Method:	EPA 537.1 REV 2.0 EPA 537.1	**Percent Solids:**	n/a
Project:	N6274224F0139 Extended Drinking Water		

4.8 4

Perfluorinated Alkyl Acids

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Associated BS outside of control limits low.
(d) Associated EIS outside control limits.
(e) Outside control limits.

U = Not detected LOD = Limit of Detection
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5.x Limits

[redacted]

[redacted]

Chain of Custody

[redacted]

COC #:

[redacted] JOB # : 250414-ORL- 02

Quote # SKIFF # FC23948

Client / Reporting Information	Project Information	Analytical Information	Matrix Codes
Company Name: AECOM	Project Name: N6274224F0139 PEM		DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL- Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe
Address: 1001 Bishop St, ste 1600	Street		
City: Honolulu State: HI Zip: 96813	City Honolulu State Hawaii		
[redacted]	Project # 60729369		
	Fax #		
Sampler(s) Name(s) (Printed)	Client Purchase Order # 1650246		
Sampler [redacted]			

Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZNAC	DI WATER	MEOH	PFAS 533 (250 ml poly Ammonia Acetate)	PFAS 537.1 (250 ml poly Trizma)	PFAS 1633 (2x250ml + 1x60ml poly unpres)	LAB USE ONLY
1	SHAFT-HW-0018384-25098-N-R02	4/14/25	0850	[redacted]	DW	4	x									2	2	0	

Turnaround Time (Business days)	Data Deliverable Information	Comments / Remarks
10 Day (Business) Approved By: / Date: 7 Day 5 Day 3 Day *RUSH* 2 Day *RUSH* 1 Day *RUSH* Other Rush T/A Data Available VIA Email or Lablink	COMMERCIAL "A" (RESULTS ONLY) COMMERCIAL "B" (RESULTS PLUS QC) REDT1 (EPA LEVEL 3) x FULLT1 (EPA LEVEL 4) x EDD'S	EDMS upload database: JBPHH EDMS Coverage: Shaft Samples

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished By/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:
1 [redacted]	4/14/25	2 [redacted]	3 [redacted]	4/14/25 1340
5		6 [redacted]	7	4/15/25

Lab Use Only : Cooler Temperature (s) Celsius (corrected): 4.0 [redacted]

http://www.[redacted]/en/terms-and-conditions

EDWM_COCsandLabels (15).xlsx Rev 031318

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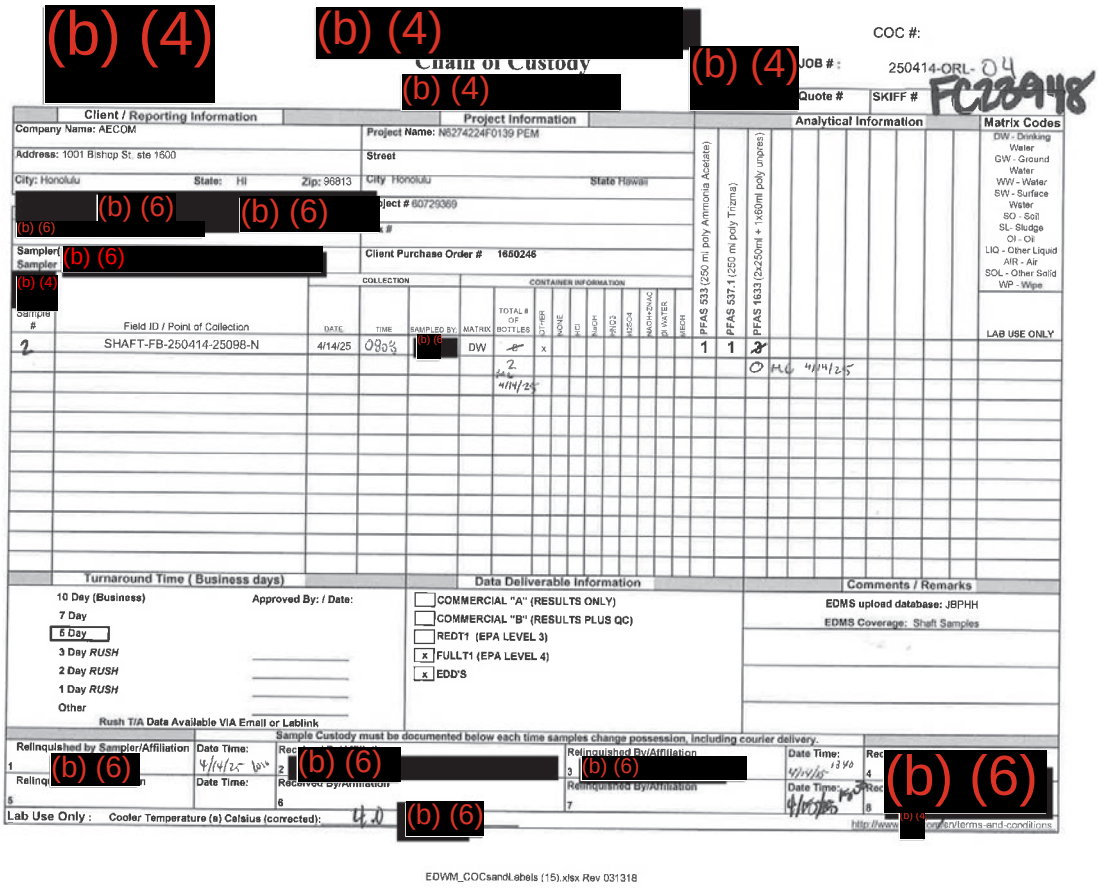
FC23948: Chain of Custody
Page 1 of 5



Chain of Custody

COC #:

JOB #: 250414-ORL-04

Quote #

SKIFF # FC23948

Client / Reporting Information

Company Name: AECOM

Address: 1001 Bishop St. ste 1600

City: Honolulu State: HI Zip: 96813

(b) (6) (b) (6)

(b) (6)

Sampler(

Sampler

(b) (6)

(b) (4)

Project Information

Project Name: N6274224F0139 PEM

Street

City Honolulu State Hawaii

ject # 60729369

Client Purchase Order # 1650246

Analytical Information

PFAS 533 (250 ml poly Ammonia Acetate)

PFAS 537.1 (250 ml poly Trizma)

PFAS 1633 (2x250ml + 1x60ml poly unpres)

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL - Sludge
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe

Sample #	Field ID / Point of Collection	COLLECTION DATE	COLLECTION TIME	SAMPLED BY:	MATRIX	CONTAINER INFORMATION TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZnAc	DI WATER	MEOH	PFAS 533	PFAS 537.1	PFAS 1633	LAB USE ONLY
2	SHAFT-FB-250414-25098-N	4/14/25	0903	(b) (6)	DW	2		x								1	1	2	

Turnaround Time (Business days)

10 Day (Business) Approved By: / Date:

7 Day

5 Day

3 Day *RUSH*

2 Day *RUSH*

1 Day *RUSH*

Other

Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [x] FULLT1 (EPA LEVEL 4)
- [x] EDD'S

Comments / Remarks

EDMS upload database: JBPHH

EDMS Coverage: Shaft Samples

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation
1	(b) (6)	4/14/25 1840	2 (b) (6)
3	Relinquished By/Affiliation (b) (6)	Date Time: 4/14/25 1840	4 (b) (6)
5	Relinq	Date Time:	Received By/Affiliation 6
7	Relinquished By/Affiliation	Date Time: 4/15/25	8

Lab Use Only : Cooler Temperature (s) Celsius (corrected): 4.0 (b) (6)

http://www (b) (4) com/terms-and-conditions

EDWM_COCsandLabels (15).xlsx Rev 031318

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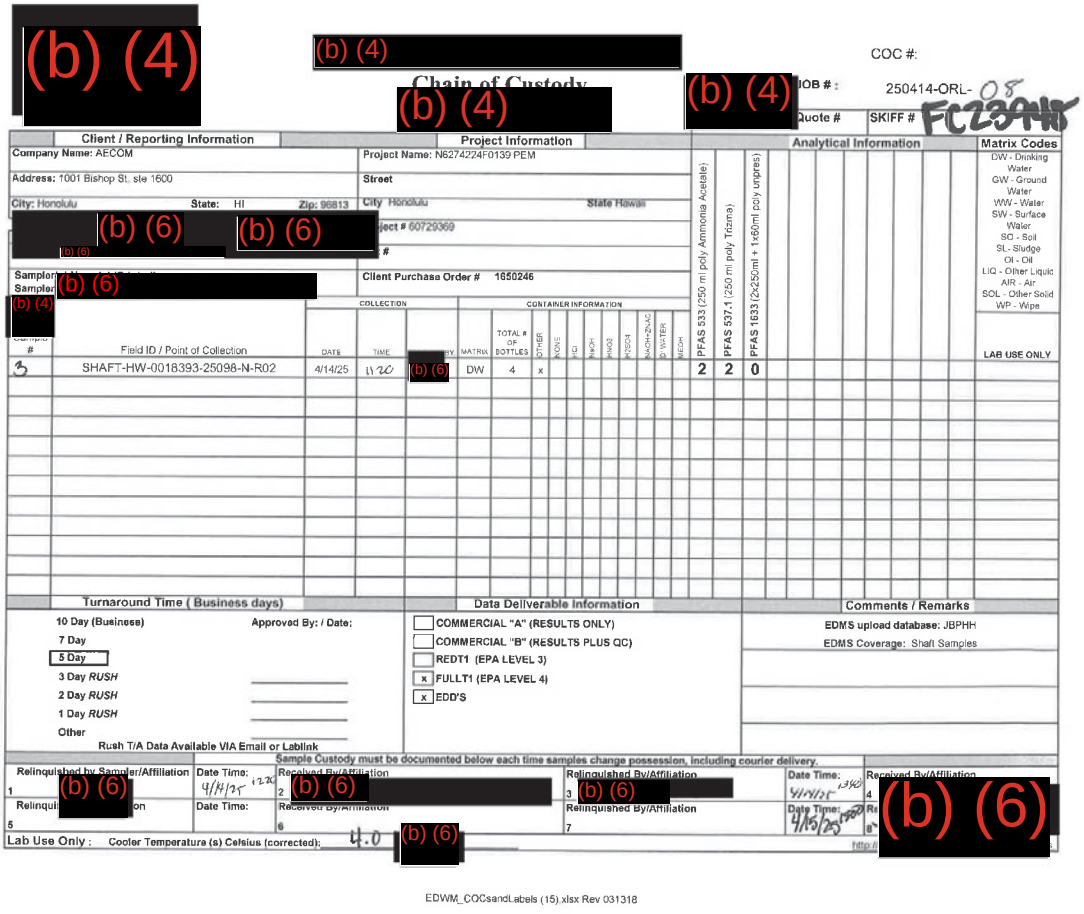
FC23948: Chain of Custody
Page 2 of 5



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[redacted] (b) (4)

COC #:

Chain of Custody

[redacted] (b) (4)

[redacted] (b) (4) IOB # : 250414-ORL- 08

Quote # SKIFF # FC23948

Client / Reporting Information	Project Information
Company Name: AECOM	Project Name: N6274224F0139 PEM
Address: 1001 Bishop St, ste 1600	Street
City: Honolulu State: HI Zip: 96813	City Honolulu State Hawaii
[redacted] (b) (6) [redacted] (b) (6)	ject # 60729369
[redacted] (b) (6)	#
Sampler [redacted] (b) (6)	Client Purchase Order # 1650246
Sampler [redacted] (b) (4)	

Sample #	Field ID / Point of Collection	COLLECTION DATE	TIME	[redacted] BY	CONTAINER INFORMATION MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZNAC	D WATER	MEOH	PFAS 533 (250 ml poly Ammonia Acetate)	PFAS 537.1 (250 ml poly Trizma)	PFAS 1633 (2x250ml + 1x60ml poly unpres)	LAB USE ONLY
3	SHAFT-HW-0018393-25098-N-R02	4/14/25	1120	[redacted] (b) (6)	DW	4	x									2	2	0	

Analytical Information

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL - Sludge; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe

Turnaround Time (Business days)	Data Deliverable Information	Comments / Remarks
10 Day (Business) Approved By: / Date:	[ ] COMMERCIAL "A" (RESULTS ONLY)	EDMS upload database: JBPHH
7 Day	[ ] COMMERCIAL "B" (RESULTS PLUS QC)	EDMS Coverage: Shaft Samples
5 Day	[ ] REDT1 (EPA LEVEL 3)	
3 Day *RUSH*	[x] FULLT1 (EPA LEVEL 4)	
2 Day *RUSH*	[x] EDD'S	
1 Day *RUSH*		
Other		
Rush T/A Data Available VIA Email or Lablink		

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1 [redacted] (b) (6)	4/14/25 1220	2 [redacted] (b) (6)	3 [redacted] (b) (6)	4/14/25 1340	4 [redacted] (b) (6)
Relinqui[redacted]on	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Re[redacted]
5		6	7	4/15/25 1500	8

Lab Use Only : Cooler Temperature (s) Celsius (corrected): 4.0 [redacted] (b) (6)

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EDWM_COCsandLabels (15).xlsx Rev 031318

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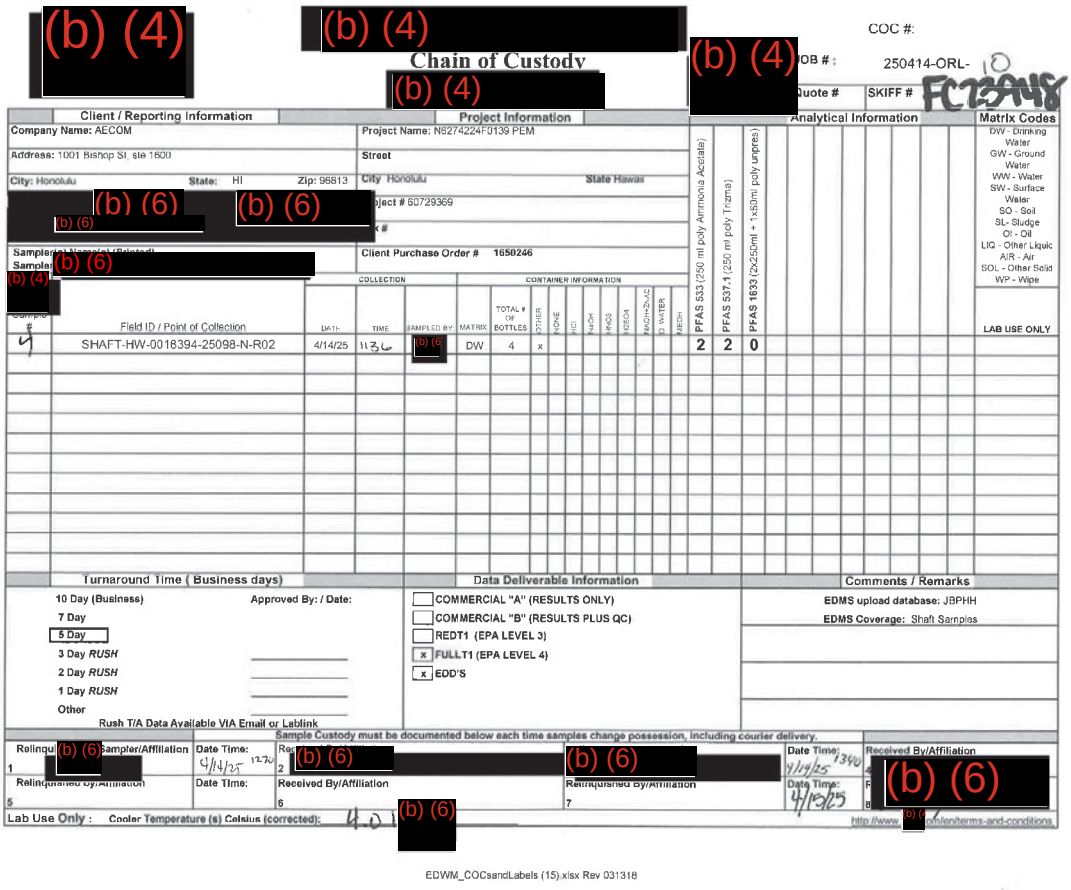
FC23948: Chain of Custody
Page 3 of 5



Chain of Custody

COC #:

JOB #: 250414-ORL-10

Quote #

SKIFF # FC23948

Client / Reporting Information	Project Information
Company Name: AECOM	Project Name: N6274224F0139 PEM
Address: 1001 Bishop St, ste 1600	Street
City: Honolulu State: HI Zip: 96813	City Honolulu State Hawaii
(b) (6) (b) (6)	Project # 60729369
(b) (6)	PO #
Sampler(s) Name(s) / Printed: (b) (6)	Client Purchase Order # 1650246
Sampler: (b) (6) (b) (4)	

Sample #	Field ID / Point of Collection	COLLECTION DATE	COLLECTION TIME	SAMPLED BY	CONTAINER INFORMATION MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	H2SO4	MeOH+ZnAc	DI WATER	MeOH	PFAS 533 (250 ml poly Ammonia Acetate)	PFAS 537.1 (250 ml poly Trizma)	PFAS 1633 (2x250ml + 1x50ml poly unpres.)	LAB USE ONLY
4	SHAFT-HW-0018394-25098-N-R02	4/14/25	1136	(b) (6)	DW	4	x								2	2	0	

Analytical Information

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL - Sludge; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe

Turnaround Time (Business days)

10 Day (Business) Approved By: / Date:
7 Day
5 Day
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH*
Other
Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [x] FULLT1 (EPA LEVEL 4)
- [x] EDD'S

Comments / Remarks

EDMS upload database: JBPHH
EDMS Coverage: Shaft Samples

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished By/Affiliation	Date Time	Received By/Affiliation	Relinquished By/Affiliation	Date Time	Received By/Affiliation
1 (b) (6) Sampler/Affiliation	4/14/25 1230	2 (b) (6)	(b) (6)	4/14/25 1340	(b) (6)
5	Date Time:	6 Received By/Affiliation	7	Date Time: 4/15/25	

Lab Use Only : Cooler Temperature (s) Celsius (corrected): 4.0 (b) (6)

http://www. (b) (6) n/terms-and-conditions

EDWM_COCsandLabels (15).xlsx Rev 031318

5.1 5

FC23948: Chain of Custody
Page 4 of 5

(b) (4) **Sample Receipt Summary**

Job Number: fc23948 **Client:** AECOM **Project:** N6274224F0139 Extended Drinking Water

Date / Time Received: 4/15/2025 3:00:00 PM **Delivery Method:** United Cargo/Airspace **Airbill #'s:** United Cargo AWB #: 016-93669413

Cooler Temps (Raw Measured) °C: Cooler 1: (4.0);

Cooler Temps (Corrected) °C: Cooler 1: (4.4);

Cooler Informatio	Y	or	N
1. Custody Seals Present:	☑		☐
2. Custody Seals Intact:	☑		☐
3. Temp criteria achieved:	☑		☐
4. Cooler temp verification:	IR Gun		
5. Cooler media:	Ice (Bag)		

Trip Blank Information	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑

	W	or	S	N/A
3. Type of TB Received	☐		☐	☑

Sample Information	Y	or	N	N/A
1. Sample labels present on bottles:	☑		☐	
2. Samples presented properly	☑		☐	
3. Sufficient volume/containers recv'd for analysi	☑		☐	
4. Condition of sample:	Intact			
5. Sample recv'd within HT	☑		☐	
6. Dates/Times/IDs on COC match sample labe	☑		☐	
7. VOCs have headspace	☐		☐	☑
8. Bottles received for unspecified tests	☐		☑	
9. Compositing instructions clear	☐		☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☑
11. % Solids Jar Received?	☐		☐	☑
12. Residual Chlorine Present?	☐		☐	☑

Misc Information

Number of Encores: 25 Gram 5 Gram

Test Strip Lot #s: pH 0-3: 226422 pH 10-12: Number of Lab Filtered Metals Other: (Specify) 0-14 210224

Residual Chlorine Test Strip Lot

Comments

Sample Receipt Summary 112723 EK Technician: (b) (6) Date: 4/15/2025 3:05:06 PM Reviewer: (b) (6) Date: 04/15/25

5.1 5

FC23948: Chain of Custody
Page 5 of 5

QC Evaluation: DOD QSM5.x Limits

Job Number: FC23948
Account: AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Collected: 04/14/25

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits

No DOD QSM5.x Limits found for methods in this job.

* Sample used for QC is not from job FC23948

MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Injection/Internal Standard Area Summaries
- Isotope Dilution Standard/Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries
- Run Sequence Reports

Raw Data: 3Q101466.D

Instrument Blank

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q1492-IBLK	3Q101466.D	1	04/15/25	(b) (6)	n/a	n/a	S3Q1492

The QC reported here applies to the following samples: **Method:** EPA 533

FC23948-1, FC23948-2, FC23948-3, FC23948-4

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.00060	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.00068	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00060	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00068	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00060	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00060	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00064	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00065	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00060	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.00077	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00060	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.00060	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00060	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0040	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
377-73-1	PFMPA	ND	0.0040	0.00064	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.00060	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.00060	ug/l	
113507-82-7	PFEESA	ND	0.0040	0.00060	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0040	0.00060	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0040	0.00060	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0040	0.00068	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	102%	50-200%
	13C5-PFPeA	103%	50-200%
	13C5-PFHxA	99%	50-200%
	13C4-PFHpA	100%	50-200%
	13C8-PFOA	102%	50-200%
	13C9-PFNA	101%	50-200%
	13C6-PFDA	102%	50-200%

Instrument Blank

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q1492-IBLK	3Q101466.D	1	04/15/25	(b) (6)	n/a	n/a	S3Q1492

The QC reported here applies to the following samples: **Method:** EPA 533

FC23948-1, FC23948-2, FC23948-3, FC23948-4

CAS No.	ID Standard Recoveries		Limits
	13C7-PFUnDA	97%	50-200%
	13C2-PFDoDA	99%	50-200%
	13C3-PFBS	99%	50-200%
	13C3-PFHxS	101%	50-200%
	13C8-PFOS	100%	50-200%
	13C2-4:2FTS	93%	50-200%
	13C2-6:2FTS	93%	50-200%
	13C2-8:2FTS	93%	50-200%
	13C3-HFPO-DA	84%	50-200%

Raw Data: 3Q101518.D

Instrument Blank

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q1494-IBLK	3Q101518.D	1	04/17/25	(b) (6)	n/a	n/a	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23948-1, FC23948-2, FC23948-3, FC23948-4

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.00060	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.00068	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00060	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00068	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00060	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00060	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00064	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00065	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00060	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.00077	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00060	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.00060	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00060	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0040	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
377-73-1	PFMPA	ND	0.0040	0.00064	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.00060	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.00060	ug/l	
113507-82-7	PFEESA	ND	0.0040	0.00060	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0040	0.00060	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0040	0.00060	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0040	0.00068	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	103%	50-200%
	13C5-PFPeA	104%	50-200%
	13C5-PFHxA	106%	50-200%
	13C4-PFHpA	106%	50-200%
	13C8-PFOA	109%	50-200%
	13C9-PFNA	111%	50-200%
	13C6-PFDA	116%	50-200%

Instrument Blank

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q1494-IBLK	3Q101518.D	1	04/17/25	(b) (6)	n/a	n/a	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23948-1, FC23948-2, FC23948-3, FC23948-4

CAS No.	ID Standard Recoveries		Limits
	13C7-PFUnDA	99%	50-200%
	13C2-PFDoDA	108%	50-200%
	13C3-PFBS	98%	50-200%
	13C3-PFHxS	99%	50-200%
	13C8-PFOS	99%	50-200%
	13C2-4:2FTS	97%	50-200%
	13C2-6:2FTS	101%	50-200%
	13C2-8:2FTS	105%	50-200%
	13C3-HFPO-DA	76%	50-200%

Raw Data: 3Q101525.D

Method Blank Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-MB	3Q101525.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23948-1, FC23948-2, FC23948-3, FC23948-4

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.00060	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.00068	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00060	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00068	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00060	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00060	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00064	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00065	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00060	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.00077	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00060	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.00060	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00060	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0040	0.0011	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0040	0.00060	ug/l	
377-73-1	PFMPA	ND	0.0040	0.00064	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.00060	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.00060	ug/l	
113507-82-7	PFEESA	ND	0.0040	0.00060	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0040	0.00060	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0040	0.00060	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0040	0.00068	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	78%	50-200%
	13C5-PFPeA	78%	50-200%
	13C5-PFHxA	78%	50-200%
	13C4-PFHpA	80%	50-200%
	13C8-PFOA	82%	50-200%
	13C9-PFNA	82%	50-200%
	13C6-PFDA	83%	50-200%

Method Blank Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-MB	3Q101525.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23948-1, FC23948-2, FC23948-3, FC23948-4

CAS No.	ID Standard Recoveries		Limits
	13C7-PFUnDA	78%	50-200%
	13C2-PFDoDA	69%	50-200%
	13C3-PFBS	76%	50-200%
	13C3-PFHxS	76%	50-200%
	13C8-PFOS	76%	50-200%
	13C2-4:2FTS	74%	50-200%
	13C2-6:2FTS	76%	50-200%
	13C2-8:2FTS	73%	50-200%
	13C3-HFPO-DA	66%	50-200%

Raw Data: 5Q31833.D

Method Blank Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8904-MB	5Q31833.D	1	04/17/25	[redacted]	04/16/25	OP8904	S5Q523

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23948-1A, FC23948-2A, FC23948-3A, FC23948-4A

CAS No.	Compound	Result	RL	MDL	Units	Q
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00080	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00080	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00080	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00080	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00080	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00080	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00080	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0020	0.00080	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0020	0.00080	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00080	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00080	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00080	ug/l	
2355-31-9	MeFOSAA	ND	0.0040	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0040	0.0010	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0080	0.0030	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

CAS No.	Surrogate Recoveries		Limits
	13C2-PFHxA	125%	70-130%
	13C2-PFDA	115%	70-130%
	d5-EtFOSAA	108%	70-130%
	13C3-HFPO-DA	116%	70-130%

6.1.4

6

Raw Data: 5Q31878.D

Method Blank Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8904-MB	5Q31878.D	1	04/18/25	(b)(4)	04/16/25	OP8904	S5Q524

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23948-1A, FC23948-2A, FC23948-3A, FC23948-4A

CAS No.	Compound	Result	RL	MDL	Units	Q
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00080	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00080	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00080	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00080	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00080	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00080	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00080	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0020	0.00080	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0020	0.00080	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.00080	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.00080	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.00080	ug/l	
2355-31-9	MeFOSAA	ND	0.0040	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0040	0.0010	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0080	0.0030	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

CAS No.	Surrogate Recoveries		Limits
	13C2-PFHxA	135%* [a]	70-130%
	13C2-PFDA	118%	70-130%
	d5-EtFOSAA	118%	70-130%
	13C3-HFPO-DA	127%	70-130%

(a) Outside control limits.

Raw Data: 3Q101524.D

Blank Spike Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-BS	3Q101524.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23948-1, FC23948-2, FC23948-3, FC23948-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.004	0.0044	110	50-150
2706-90-3	Perfluoropentanoic acid	0.004	0.0043	108	50-150
307-24-4	Perfluorohexanoic acid	0.004	0.0041	103	50-150
375-85-9	Perfluoroheptanoic acid	0.004	0.0040	100	50-150
335-67-1	Perfluorooctanoic acid	0.004	0.0042	105	50-150
375-95-1	Perfluorononanoic acid	0.004	0.0042	105	50-150
335-76-2	Perfluorodecanoic acid	0.004	0.0042	105	50-150
2058-94-8	Perfluoroundecanoic acid	0.004	0.0043	108	50-150
307-55-1	Perfluorododecanoic acid	0.004	0.0043	108	50-150
375-73-5	Perfluorobutanesulfonic acid	0.004	0.0042	105	50-150
2706-91-4	Perfluoropentanesulfonic acid	0.004	0.0043	108	50-150
355-46-4	Perfluorohexanesulfonic acid	0.004	0.0045	113	50-150
375-92-8	Perfluoroheptanesulfonic acid	0.004	0.0046	115	50-150
1763-23-1	Perfluorooctanesulfonic acid	0.004	0.0043	108	50-150
757124-72-4	4:2 Fluorotelomer sulfonate	0.004	0.0040	100	50-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.004	0.0045	113	50-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.004	0.0052	130	50-150
377-73-1	PFMPA	0.004	0.0044	110	50-150
863090-89-5	PFMBA	0.004	0.0042	105	50-150
151772-58-6	NFDHA	0.004	0.0045	113	50-150
113507-82-7	PFEESA	0.004	0.0043	108	50-150
13252-13-6	HFPO-DA (GenX)	0.004	0.0045	113	50-150
919005-14-4	ADONA	0.004	0.0040	100	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.004	0.0040	100	50-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.004	0.0036	90	50-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	80%	50-200%
	13C5-PFPeA	81%	50-200%
	13C5-PFHxA	82%	50-200%
	13C4-PFHpA	84%	50-200%
	13C8-PFOA	85%	50-200%
	13C9-PFNA	86%	50-200%
	13C6-PFDA	93%	50-200%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-BS	3Q101524.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23948-1, FC23948-2, FC23948-3, FC23948-4

CAS No.	ID Standard Recoveries	BSP	Limits
	13C7-PFUnDA	77%	50-200%
	13C2-PFDoDA	70%	50-200%
	13C3-PFBS	80%	50-200%
	13C3-PFHxS	81%	50-200%
	13C8-PFOS	81%	50-200%
	13C2-4:2FTS	79%	50-200%
	13C2-6:2FTS	80%	50-200%
	13C2-8:2FTS	78%	50-200%
	13C3-HFPO-DA	69%	50-200%

* = Outside of Control Limits.

Raw Data: 5Q31832.D

Blank Spike Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8904-BS	5Q31832.D	1	04/17/25	(b)(6)	04/16/25	OP8904	S5Q523

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23948-1A, FC23948-2A, FC23948-3A, FC23948-4A

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
307-24-4	Perfluorohexanoic acid	0.08	0.0767	96	70-130
375-85-9	Perfluoroheptanoic acid	0.08	0.0810	101	70-130
335-67-1	Perfluorooctanoic acid	0.08	0.0790	99	70-130
375-95-1	Perfluorononanoic acid	0.08	0.0831	104	70-130
335-76-2	Perfluorodecanoic acid	0.08	0.0774	97	70-130
2058-94-8	Perfluoroundecanoic acid	0.08	0.0668	84	70-130
307-55-1	Perfluorododecanoic acid	0.08	0.0421	53*	70-130
72629-94-8	Perfluorotridecanoic acid	0.08	0.0418	52*	70-130
376-06-7	Perfluorotetradecanoic acid	0.08	0.0503	63*	70-130
375-73-5	Perfluorobutanesulfonic acid	0.08	0.0871	109	70-130
355-46-4	Perfluorohexanesulfonic acid	0.08	0.0837	105	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.08	0.0721	90	70-130
2355-31-9	MeFOSAA	0.08	0.0767	96	70-130
2991-50-6	EtFOSAA	0.08	0.0704	88	70-130
13252-13-6	HFPO-DA (GenX)	0.08	0.0782	98	70-130
919005-14-4	ADONA	0.08	0.0807	101	70-130
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.08	0.0785	98	70-130
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.08	0.0565	71	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
	13C2-PFHxA	127%	70-130%
	13C2-PFDA	117%	70-130%
	d5-EtFOSAA	123%	70-130%
	13C3-HFPO-DA	119%	70-130%

* = Outside of Control Limits.

Raw Data: 5Q31877.D

Blank Spike Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8904-BS	5Q31877.D	1	04/18/25	(b)(6)	04/16/25	OP8904	S5Q524

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23948-1A, FC23948-2A, FC23948-3A, FC23948-4A

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
307-24-4	Perfluorohexanoic acid	0.08	0.0851	106	70-130
375-85-9	Perfluoroheptanoic acid	0.08	0.0836	105	70-130
335-67-1	Perfluorooctanoic acid	0.08	0.0830	104	70-130
375-95-1	Perfluorononanoic acid	0.08	0.0761	95	70-130
335-76-2	Perfluorodecanoic acid	0.08	0.0784	98	70-130
2058-94-8	Perfluoroundecanoic acid	0.08	0.0707	88	70-130
307-55-1	Perfluorododecanoic acid	0.08	0.0587	73	70-130
72629-94-8	Perfluorotridecanoic acid	0.08	0.0508	64*	70-130
376-06-7	Perfluorotetradecanoic acid	0.08	0.0443	55*	70-130
375-73-5	Perfluorobutanesulfonic acid	0.08	0.0912	114	70-130
355-46-4	Perfluorohexanesulfonic acid	0.08	0.0819	102	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.08	0.0770	96	70-130
2355-31-9	MeFOSAA	0.08	0.0743	93	70-130
2991-50-6	EtFOSAA	0.08	0.0735	92	70-130
13252-13-6	HFPO-DA (GenX)	0.08	0.0839	105	70-130
919005-14-4	ADONA	0.08	0.0801	100	70-130
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.08	0.0789	99	70-130
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.08	0.0567	71	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
	13C2-PFHxA	142%* [a]	70-130%
	13C2-PFDA	127%	70-130%
	d5-EtFOSAA	124%	70-130%
	13C3-HFPO-DA	135%* [a]	70-130%

(a) Outside control limits.

* = Outside of Control Limits.

Raw Data: 3Q101527.D

Matrix Spike Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-MS	3Q101527.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494
FC23948-1	3Q101526.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23948-1, FC23948-2, FC23948-3, FC23948-4

CAS No.	Compound	FC23948-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.0034	J	0.00351	0.0066	91	50-150
2706-90-3	Perfluoropentanoic acid	0.0089		0.00351	0.0117	80	50-150
307-24-4	Perfluorohexanoic acid	0.0067		0.00351	0.0093	74	50-150
375-85-9	Perfluoroheptanoic acid	0.0035		0.00351	0.0065	86	50-150
335-67-1	Perfluorooctanoic acid	0.0064		0.00351	0.0092	80	50-150
375-95-1	Perfluorononanoic acid	0.0018	U	0.00351	0.0035	100	50-150
335-76-2	Perfluorodecanoic acid	0.0018	U	0.00351	0.0033	94	50-150
2058-94-8	Perfluoroundecanoic acid	0.0013	J	0.00351	0.0032	54	50-150
307-55-1	Perfluorododecanoic acid	0.0012	J	0.00351	0.0032	57	50-150
375-73-5	Perfluorobutanesulfonic acid	0.0051		0.00351	0.0079	80	50-150
2706-91-4	Perfluoropentanesulfonic acid	0.00072	J	0.00351	0.0041	96	50-150
355-46-4	Perfluorohexanesulfonic acid	0.0067		0.00351	0.0099	91	50-150
375-92-8	Perfluoroheptanesulfonic acid	0.0018	U	0.00351	0.0036	103	50-150
1763-23-1	Perfluorooctanesulfonic acid	0.0107		0.00351	0.0137	86	50-150
757124-72-4	4:2 Fluorotelomer sulfonate	0.0035	U	0.00351	0.0031	88	50-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0035	U	0.00351	0.0034	97	50-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0035	U	0.00351	0.0039	111	50-150
377-73-1	PFMPA	0.0035	U	0.00351	0.0034	97	50-150
863090-89-5	PFMBA	0.0035	U	0.00351	0.0033	94	50-150
151772-58-6	NFDHA	0.0035	U	0.00351	0.0032	91	50-150
113507-82-7	PFEESA	0.0035	U	0.00351	0.0033	94	50-150
13252-13-6	HFPO-DA (GenX)	0.0035	U	0.00351	0.0033	94	50-150
919005-14-4	ADONA	0.0035	U	0.00351	0.0030	86	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0035	U	0.00351	0.0029	83	50-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.00087	J	0.00351	0.0024	44*	50-150

CAS No.	ID Standard Recoveries	MS	FC23948-1	Limits
	13C4-PFBA	82%	79%	50-200%
	13C5-PFPeA	84%	81%	50-200%
	13C5-PFHxA	83%	78%	50-200%
	13C4-PFHpA	84%	80%	50-200%
	13C8-PFOA	86%	83%	50-200%
	13C9-PFNA	85%	83%	50-200%
	13C6-PFDA	90%	87%	50-200%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-MS	3Q101527.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494
FC23948-1	3Q101526.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23948-1, FC23948-2, FC23948-3, FC23948-4

CAS No.	ID Standard Recoveries	MS	FC23948-1	Limits
	13C7-PFUnDA	74%	68%	50-200%
	13C2-PFDoDA	62%	58%	50-200%
	13C3-PFBS	79%	75%	50-200%
	13C3-PFHxS	81%	79%	50-200%
	13C8-PFOS	79%	79%	50-200%
	13C2-4:2FTS	79%	76%	50-200%
	13C2-6:2FTS	80%	78%	50-200%
	13C2-8:2FTS	76%	78%	50-200%
	13C3-HFPO-DA	69%	70%	50-200%

* = Outside of Control Limits.

Raw Data: 5Q31838.D

Matrix Spike Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8904-MS	5Q31838.D	1	04/17/25	(b) (6)	04/16/25	OP8904	S5Q523
FC23948-3A [a]	5Q31837.D	1	04/17/25	(b) (6)	04/16/25	OP8904	S5Q523
FC23948-3A [b]	5Q31881.D	1	04/18/25	(b) (6)	04/16/25	OP8904	S5Q524

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23948-1A, FC23948-2A, FC23948-3A, FC23948-4A

CAS No.	Compound	FC23948-3A ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
307-24-4	Perfluorohexanoic acid	0.0018	U	0.0714	0.0628	88	70-130
375-85-9	Perfluoroheptanoic acid	0.0018	U	0.0714	0.0702	98	70-130
335-67-1	Perfluorooctanoic acid	0.0018	U	0.0714	0.0718	101	70-130
375-95-1	Perfluorononanoic acid	0.0018	U	0.0714	0.0760	106	70-130
335-76-2	Perfluorodecanoic acid	0.0018	U	0.0714	0.0692	97	70-130
2058-94-8	Perfluoroundecanoic acid	0.0018	U	0.0714	0.0576	81	70-130
307-55-1	Perfluorododecanoic acid	0.0018	U	0.0714	0.0339	47* [c]	70-130
72629-94-8	Perfluorotridecanoic acid	0.0018	U	0.0714	0.0301	42* [c]	70-130
376-06-7	Perfluorotetradecanoic acid	0.0018	U	0.0714	0.0270	38* [c]	70-130
375-73-5	Perfluorobutanesulfonic acid	0.0018	U	0.0714	0.0710	99	70-130
355-46-4	Perfluorohexanesulfonic acid	0.0018	U	0.0714	0.0688	96	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.0018	U	0.0714	0.0622	87	70-130
2355-31-9	MeFOSAA	0.0035	U	0.0714	0.0733	103	70-130
2991-50-6	EtFOSAA	0.0035	U	0.0714	0.0742	104	70-130
13252-13-6	HFPO-DA (GenX)	0.0070	U	0.0714	0.0694	97	70-130
919005-14-4	ADONA	0.0070	U	0.0714	0.0729	102	70-130
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0070	U	0.0714	0.0712	100	70-130
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0070	U	0.0714	0.0520	73	70-130

CAS No.	Surrogate Recoveries	MS	FC23948-3A	FC23948-3A	Limits
	13C2-PFHxA	116%	133%* [c]	146%* [c]	70-130%
	13C2-PFDA	120%	137%* [c]	140%* [c]	70-130%
	d5-EtFOSAA	126%	140%* [c]	137%* [c]	70-130%
	13C3-HFPO-DA	111%	127%	140%* [c]	70-130%

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Outside control limits.

* = Outside of Control Limits.

Raw Data: 3Q101530.D

Duplicate Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-DUP	3Q101530.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494
FC23948-3	3Q101529.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23948-1, FC23948-2, FC23948-3, FC23948-4

CAS No.	Compound	FC23948-3 ug/l	Q	DUP ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.0035	U	ND		nc	30
2706-90-3	Perfluoropentanoic acid	0.0035	U	ND		nc	30
307-24-4	Perfluorohexanoic acid	0.0018	U	ND		nc	30
375-85-9	Perfluoroheptanoic acid	0.0018	U	ND		nc	30
335-67-1	Perfluorooctanoic acid	0.0018	U	ND		nc	30
375-95-1	Perfluorononanoic acid	0.0018	U	ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0018	U	ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0018	U	ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0018	U	ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0018	U	ND		nc	30
2706-91-4	Perfluoropentanesulfonic acid	0.0018	U	ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0018	U	ND		nc	30
375-92-8	Perfluoroheptanesulfonic acid	0.0018	U	ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0018	U	ND		nc	30
757124-72-4	4:2 Fluorotelomer sulfonate	0.0035	U	ND		nc	30
27619-97-2	6:2 Fluorotelomer sulfonate	0.0035	U	ND		nc	30
39108-34-4	8:2 Fluorotelomer sulfonate	0.0035	U	ND		nc	30
377-73-1	PFMPA	0.0035	U	ND		nc	30
863090-89-5	PFMBA	0.0035	U	ND		nc	30
151772-58-6	NFDHA	0.0035	U	ND		nc	30
113507-82-7	PFEESA	0.0035	U	ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.0035	U	ND		nc	30
919005-14-4	ADONA	0.0035	U	ND		nc	30
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0035	U	ND		nc	30
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0035	U	ND		nc	30

CAS No.	ID Standard Recoveries	DUP	FC23948-3	Limits
	13C4-PFBA	79%	80%	50-200%
	13C5-PFPeA	80%	81%	50-200%
	13C5-PFHxA	81%	82%	50-200%
	13C4-PFHpA	81%	83%	50-200%
	13C8-PFOA	83%	84%	50-200%
	13C9-PFNA	83%	84%	50-200%
	13C6-PFDA	83%	87%	50-200%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8907-DUP	3Q101530.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494
FC23948-3	3Q101529.D	1	04/17/25	(b) (6)	04/16/25	OP8907	S3Q1494

The QC reported here applies to the following samples: **Method:** EPA 533

FC23948-1, FC23948-2, FC23948-3, FC23948-4

CAS No.	ID Standard Recoveries	DUP	FC23948-3	Limits
	13C7-PFUnDA	71%	67%	50-200%
	13C2-PFDoDA	58%	57%	50-200%
	13C3-PFBS	76%	79%	50-200%
	13C3-PFHxS	78%	80%	50-200%
	13C8-PFOS	79%	76%	50-200%
	13C2-4:2FTS	81%	82%	50-200%
	13C2-6:2FTS	79%	79%	50-200%
	13C2-8:2FTS	75%	72%	50-200%
	13C3-HFPO-DA	65%	66%	50-200%

* = Outside of Control Limits.

Raw Data: 5Q31840.D

Duplicate Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP8904-DUP	5Q31840.D	1	04/17/25	(b) (6)	04/16/25	OP8904	S5Q523
FC23948-4A [a]	5Q31839.D	1	04/17/25	(b) (6)	04/16/25	OP8904	S5Q523
FC23948-4A [b]	5Q31883.D	1	04/18/25	(b) (6)	04/16/25	OP8904	S5Q524

The QC reported here applies to the following samples: **Method:** EPA 537.1 REV 2.0

FC23948-1A, FC23948-2A, FC23948-3A, FC23948-4A

CAS No.	Compound	FC23948-4A ug/l	Q	DUP ug/l	Q	RPD	Limits
307-24-4	Perfluorohexanoic acid	0.0018	U	ND		nc	30
375-85-9	Perfluoroheptanoic acid	0.0018	U	ND		nc	30
335-67-1	Perfluorooctanoic acid	0.0018	U	ND		nc	30
375-95-1	Perfluorononanoic acid	0.0018	U	ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0018	U	ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0018	U	ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0018	U	ND		nc	30
72629-94-8	Perfluorotridecanoic acid	0.0018	U	ND		nc	30
376-06-7	Perfluorotetradecanoic acid	0.0018	U	ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0018	U	ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0018	U	ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0018	U	ND		nc	30
2355-31-9	MeFOSAA	0.0036	U	ND		nc	30
2991-50-6	EtFOSAA	0.0036	U	ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.0071	U	ND		nc	30
919005-14-4	ADONA	0.0071	U	ND		nc	30
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0071	U	ND		nc	30
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0071	U	ND		nc	30

CAS No.	Surrogate Recoveries	DUP	FC23948-4A	FC23948-4A	Limits
	13C2-PFHxA	143%* [c]	136%* [c]	155%* [c]	70-130%
	13C2-PFDA	129%	130%	141%* [c]	70-130%
	d5-EtFOSAA	129%	131%* [c]	142%* [c]	70-130%
	13C3-HFPO-DA	134%* [c]	127%	146%* [c]	70-130%

(a) Insufficient sample for re-extraction.
(b) Confirmation run.
(c) Outside control limits.

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Check Std:	S3Q1494-CC1492	**Injection Date:**	04/17/25
Lab File ID:	3Q101520.D	**Injection Time:**	10:51
Instrument ID:	GCMS3Q	**Method:**	EPA 533

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT
Initial Cal [a]	84584	2.13	213780	7.43	32371	8.00
Check Std [b]	102753	2.37	258564	7.45	39230	8.00
Upper Limit [c]	126876	3.37	320670	8.45	48557	9.00
Lower Limit [d]	42292	1.37	106890	6.45	16186	7.00

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT
ZZZZZZ	107217	2.34	285429	7.45	40842	8.00
OP8907-BS	98630	2.33	253821	7.45	37068	8.00
OP8907-MB	100121	2.33	260183	7.45	38241	8.01
FC23948-1	92570	2.34	246541	7.45	35910	8.00
OP8907-MS	91913	2.34	243304	7.45	36091	8.01
FC23948-2	103324	2.34	270699	7.45	38633	8.00
FC23948-3	98216	2.34	259164	7.45	37905	8.00
OP8907-DUP	92207	2.34	245999	7.45	35936	8.00
FC23948-4	99126	2.34	261025	7.45	38104	8.00
ZZZZZZ	101119	2.34	266608	7.45	38836	8.00

IS 1 = 13C3-PFBA
IS 2 = 13C2-PFOA
IS 3 = 13C4-PFOS

(a) Initial Cal is: S3Q1492-ICC1492 3Q101463.D 04/15/25 15:24. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +50% of initial standard area; Retention time +1 minutes of check standard.
(d) Lower Limit = -50% of initial standard area; Retention time -1 minutes of check standard.

Internal Standard Area Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Check Std:	S4Q1106-ICC1106	**Injection Date:**	04/23/25
Lab File ID:	4Q74365.D	**Injection Time:**	23:12
Instrument ID:	GCMS4Q	**Method:**	EPA 537.1 REV 2.0

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal [a]	441874	3.12	534948	6.16	1011956	6.20	144798	6.69	1466442	7.75
Check Std [b]	425521	3.12	515180	6.16	981273	6.20	139527	6.69	1412949	7.75
Upper Limit [c]	595729	4.12	721252	7.16	1373782	7.20	195338	7.69	1978129	8.75
Lower Limit [d]	297865	2.12	360626	5.16	686891	5.20	97669	5.69	989064	6.75

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
S4Q1106-RT	407733	3.12	467800	6.18	934784	6.20	134802	6.70	1426775	7.75

IS 1 = 13C3-PFPeA
IS 2 = 13C2-6:2FTS
IS 3 = 13C2-PFOA
IS 4 = 13C4-PFOS
IS 5 = d3-MeFOSAA

(a) Initial Cal is: S4Q1106-ICC1106 4Q74365.D 04/23/25 23:12. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +40% of check standard area; Retention time +1 minutes.
(d) Lower Limit = -30% of check standard area; Retention time -1 minutes.

Internal Standard Area Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Check Std:	S4Q1106-CC1106	**Injection Date:**	04/24/25
Lab File ID:	4Q74370.D	**Injection Time:**	00:24
Instrument ID:	GCMS4Q	**Method:**	EPA 537.1 REV 2.0

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal [a]	441874	3.12	534948	6.16	1011956	6.20	144798	6.69	1466442	7.75
Check Std [b]	419946	3.13	511875	6.18	965091	6.20	138454	6.70	1394156	7.75
Upper Limit [c]	587924	4.13	716625	7.18	1351127	7.20	193836	7.70	1951818	8.75
Lower Limit [d]	293962	2.13	358313	5.18	675564	5.20	96918	5.70	975909	6.75

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
OP8985-BS	383151	3.14	484580	6.19	809946	6.22	121134	6.71	1170596	7.75
OP8985-MB	389804	3.16	472611	6.19	800097	6.22	119234	6.71	1142768	7.75
FC23948-1A [e]	353721	3.13	440705	6.19	758506	6.22	121050	6.71	1270331	7.75
FC24082-3A	361975	3.16	438488	6.19	767922	6.22	119931	6.71	1176073	7.75
OP8985-MS	339914	3.16	443190	6.20	730521	6.23	112945	6.72	1086795	7.75
OP8985-MSD	323305	3.16	414002	6.19	688449	6.22	108628	6.72	1058001	7.75
S4Q1106-ECC1106	419179	3.14	522823	6.19	968409	6.23	140180	6.72	1402431	7.75

IS 1 = 13C3-PFPeA
IS 2 = 13C2-6:2FTS
IS 3 = 13C2-PFOA
IS 4 = 13C4-PFOS
IS 5 = d3-MeFOSAA

(a) Initial Cal is: S4Q1106-ICC1106 4Q74365.D 04/23/25 23:12. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +40% of check standard area; Retention time +1 minutes.
(d) Lower Limit = -30% of check standard area; Retention time -1 minutes.
(e) Confirmation run.

Internal Standard Area Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Check Std:	S5Q523-ICC523	**Injection Date:**	04/17/25
Lab File ID:	5Q31825.D	**Injection Time:**	14:01
Instrument ID:	GCMS5Q	**Method:**	EPA 537.1 REV 2.0

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal [a]	509621	3.59	195166	6.29	399788	6.29	99129	6.86	30580	7.25
Check Std [b]	511459	3.59	200480	6.29	416202	6.29	97672	6.86	29996	7.25
Upper Limit [c]	716043	4.59	280672	7.29	582683	7.29	136741	7.86	41994	8.25
Lower Limit [d]	358021	2.59	140336	5.29	291341	5.29	68370	5.86	20997	6.25

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
S5Q523-RT	488219	3.59	176883	6.29	381361	6.29	97082	6.86	32235	7.25

IS 1 = 13C3-PFPeA
IS 2 = 13C2-6:2FTS
IS 3 = 13C2-PFOA
IS 4 = 13C4-PFOS
IS 5 = d3-MeFOSAA

(a) Initial Cal is: S5Q523-ICC523 5Q31825.D 04/17/25 14:01. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +40% of check standard area; Retention time +1 minutes.
(d) Lower Limit = -30% of check standard area; Retention time -1 minutes.

Internal Standard Area Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Check Std:	S5Q523-CC523	**Injection Date:**	04/17/25
Lab File ID:	5Q31830.D	**Injection Time:**	15:23
Instrument ID:	GCMS5Q	**Method:**	EPA 537.1 REV 2.0

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal [a]	509621	3.59	195166	6.29	399788	6.29	99129	6.86	30580	7.25
Check Std [b]	512699	3.59	201547	6.28	421900	6.29	100208	6.86	32420	7.24
Upper Limit [c]	717779	4.59	282166	7.28	590660	7.29	140291	7.86	45388	8.24
Lower Limit [d]	358889	2.59	141083	5.28	295330	5.29	70146	5.86	22694	6.24

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
OP8904-BS	502426	3.59	188431	6.28	395007	6.29	92532	6.86	29322	7.24
OP8904-MB	472936	3.59	168937	6.28	371031	6.29	89729	6.86	28755	7.24
ZZZZZZ	431261	3.59	157949	6.28	341170	6.29	85160	6.86	27589	7.24
FC23948-1A	460853	3.59	167204	6.28	367882	6.29	84634	6.86	26326	7.24
FC23948-2A [e]	432408	3.59	160632	6.28	353151	6.29	84611	6.86	24398	7.24
FC23948-3A [e]	427851	3.59	179054	6.28	338061	6.29	82874	6.86	25292	7.24
OP8904-MS	489738	3.59	221139	6.28	395329	6.29	98834	6.86	28577	7.24
FC23948-4A [e]	480957	3.59	175185	6.28	391083	6.29	93369	6.86	28966	7.24
OP8904-DUP	454184	3.59	167478	6.28	358687	6.29	83610	6.86	27412	7.24
ZZZZZZ	496577	3.59	178520	6.28	394540	6.29	93746	6.86	27054	7.25
S5Q523-ECC523	497002	3.59	197588	6.28	404862	6.29	97933	6.86	33337	7.24

IS 1 = 13C3-PFPeA
IS 2 = 13C2-6:2FTS
IS 3 = 13C2-PFOA
IS 4 = 13C4-PFOS
IS 5 = d3-MeFOSAA

(a) Initial Cal is: S5Q523-ICC523 5Q31825.D 04/17/25 14:01. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +40% of check standard area; Retention time +1 minutes.
(d) Lower Limit = -30% of check standard area; Retention time -1 minutes.
(e) Insufficient sample for re-extraction.

Internal Standard Area Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Check Std:	S5Q524-ICC524	**Injection Date:**	04/18/25
Lab File ID:	5Q31870.D	**Injection Time:**	15:18
Instrument ID:	GCMS5Q	**Method:**	EPA 537.1 REV 2.0

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal [a]	340369	3.59	136450	6.28	271056	6.29	65550	6.86	23256	7.24
Check Std [b]	332030	3.59	133860	6.28	268029	6.29	62163	6.86	23013	7.24
Upper Limit [c]	464842	4.59	187404	7.28	375241	7.29	87028	7.86	32218	8.24
Lower Limit [d]	232421	2.59	93702	5.28	187620	5.29	43514	5.86	16109	6.24

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
S5Q524-RT	328720	3.59	123224	6.28	267034	6.29	62847	6.86	22142	7.24

IS 1 = 13C3-PFPeA
IS 2 = 13C2-6:2FTS
IS 3 = 13C2-PFOA
IS 4 = 13C4-PFOS
IS 5 = d3-MeFOSAA

(a) Initial Cal is: S5Q524-ICC524 5Q31870.D 04/18/25 15:18. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +40% of check standard area; Retention time +1 minutes.
(d) Lower Limit = -30% of check standard area; Retention time -1 minutes.

Internal Standard Area Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Check Std:	S5Q524-CC524	**Injection Date:**	04/18/25
Lab File ID:	5Q31875.D	**Injection Time:**	16:40
Instrument ID:	GCMS5Q	**Method:**	EPA 537.1 REV 2.0

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal [a]	340369	3.59	136450	6.28	271056	6.29	65550	6.86	23256	7.24
Check Std [b]	328036	3.59	132038	6.28	264994	6.29	64891	6.86	22525	7.24
Upper Limit [c]	459250	4.59	184853	7.28	370992	7.29	90847	7.86	31535	8.24
Lower Limit [d]	229625	2.59	92427	5.28	185496	5.29	45424	5.86	15768	6.24

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
OP8904-BS	360906	3.59	139674	6.28	277439	6.29	66997	6.86	23604	7.24
OP8904-MB	330693	3.59	119677	6.29	258540	6.29	59906	6.86	20977	7.24
FC23948-2A [e]	301347	3.59	112986	6.28	241355	6.29	55951	6.86	20508	7.24
FC23948-3A [e]	295919	3.59	120400	6.28	235650	6.29	55163	6.86	18959	7.24
FC23948-4A [e]	335380	3.59	119733	6.28	258674	6.29	62077	6.86	21290	7.24
S5Q524-ECC524	317171	3.59	126165	6.28	252306	6.29	59439	6.86	21728	7.24

IS 1 = 13C3-PFPeA
IS 2 = 13C2-6:2FTS
IS 3 = 13C2-PFOA
IS 4 = 13C4-PFOS
IS 5 = d3-MeFOSAA

(a) Initial Cal is: S5Q524-ICC524 5Q31870.D 04/18/25 15:18. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to +50% of initial cal area.
(c) Upper Limit = +40% of check standard area; Retention time +1 minutes.
(d) Lower Limit = -30% of check standard area; Retention time -1 minutes.
(e) Confirmation run.

Isotope Dilution Standard Recovery Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Method: EPA 533 **Matrix:** DW

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6	S7	S8
FC23948-1	3Q101526.D	79	81	78	80	83	83	87	68
FC23948-2	3Q101528.D	78	78	77	79	82	79	82	66
FC23948-3	3Q101529.D	80	81	82	83	84	84	87	67
FC23948-4	3Q101531.D	76	77	75	78	80	80	85	67
OP8907-BS	3Q101524.D	80	81	82	84	85	86	93	77
OP8907-DUP	3Q101530.D	79	80	81	81	83	83	83	71
OP8907-MB	3Q101525.D	78	78	78	80	82	82	83	78
OP8907-MS	3Q101527.D	82	84	83	84	86	85	90	74
S3Q1492-IBLK	3Q101466.D	102	103	99	100	102	101	102	97
S3Q1494-IBLK	3Q101518.D	103	104	106	106	109	111	116	99

Isotope Dilution Standards	Recovery Limits
S1 = 13C4-PFBA	50-200%
S2 = 13C5-PFPeA	50-200%
S3 = 13C5-PFHxA	50-200%
S4 = 13C4-PFHpA	50-200%
S5 = 13C8-PFOA	50-200%
S6 = 13C9-PFNA	50-200%
S7 = 13C6-PFDA	50-200%
S8 = 13C7-PFUnDA	50-200%

Isotope Dilution Standard Recovery Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Method: EPA 533 **Matrix:** DW

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S9	S10	S11	S12	S13	S14	S15	S16
FC23948-1	3Q101526.D	58	75	79	79	76	78	78	70
FC23948-2	3Q101528.D	57	76	78	75	74	83	72	71
FC23948-3	3Q101529.D	57	79	80	76	82	79	72	66
FC23948-4	3Q101531.D	56	75	75	77	73	74	77	60
OP8907-BS	3Q101524.D	70	80	81	81	79	80	78	69
OP8907-DUP	3Q101530.D	58	76	78	79	81	79	75	65
OP8907-MB	3Q101525.D	69	76	76	76	74	76	73	66
OP8907-MS	3Q101527.D	62	79	81	79	79	80	76	69
S3Q1492-IBLK	3Q101466.D	99	99	101	100	93	93	93	84
S3Q1494-IBLK	3Q101518.D	108	98	99	99	97	101	105	76

Isotope Dilution Standards	Recovery Limits
S9 = 13C2-PFDoDA	50-200%
S10 = 13C3-PFBS	50-200%
S11 = 13C3-PFHxS	50-200%
S12 = 13C8-PFOS	50-200%
S13 = 13C2-4:2FTS	50-200%
S14 = 13C2-6:2FTS	50-200%
S15 = 13C2-8:2FTS	50-200%
S16 = 13C3-HFPO-DA	50-200%

Surrogate Recovery Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Method: EPA 537.1 REV 2.0 **Matrix:** DW

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
FC23948-1A	4Q74374.D	114	117	88	110
FC23948-1A	5Q31835.D	139* [a]	122	124	133* [a]
FC23948-2A	5Q31880.D	170* [a]	157* [a]	149* [a]	164* [a]
FC23948-2A	5Q31836.D	152* [a]	144* [a]	152* [a]	142* [a]
FC23948-3A	5Q31881.D	146* [a]	140* [a]	137* [a]	140* [a]
FC23948-3A	5Q31837.D	133* [a]	137* [a]	140* [a]	127
FC23948-4A	5Q31883.D	155* [a]	141* [a]	142* [a]	146* [a]
FC23948-4A	5Q31839.D	136* [a]	130	131* [a]	127
OP8904-BS	5Q31832.D	127	117	123	119
OP8904-BS	5Q31877.D	142* [a]	127	124	135* [a]
OP8904-DUP	5Q31840.D	143* [a]	129	129	134* [a]
OP8904-MB	5Q31833.D	125	115	108	116
OP8904-MB	5Q31878.D	135* [a]	118	118	127
OP8904-MS	5Q31838.D	116	120	126	111

Surrogate Compounds	Recovery Limits
S1 = 13C2-PFHxA	70-130%
S2 = 13C2-PFDA	70-130%
S3 = d5-EtFOSAA	70-130%
S4 = 13C3-HFPO-DA	70-130%

(a) Outside control limits.

Raw Data: 3Q101457.D 3Q101458.D 3Q101459.D 3Q101460.D 3Q101461.D 3Q101462.D 3Q101463.D 3Q101464.D 3Q101465.D

Initial Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1492-ICC1492
Lab FileID: 3Q101463.D

Initial Calibration Report

Method Path	D:\MassHunter\Methods
Method File	533_041525_S3Q1492.quantmethod.xml
Batch Name	D:\MassHunter\Data\041525_533_S3Q1492\QuantResults\s3q1942.batch.bin
Last Calib Update	4/16/2025 8:04:10 AM

Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time
1	D:\MassHunter\Data\041525_533_S3Q1492\3q101458.d	4/15/2025 2:03:57 PM	4/16/2025 8:04:10 AM
2	D:\MassHunter\Data\041525_533_S3Q1492\3q101459.d	4/15/2025 2:20:02 PM	4/16/2025 8:04:10 AM
3	D:\MassHunter\Data\041525_533_S3Q1492\3q101460.d	4/15/2025 2:36:07 PM	4/16/2025 8:04:10 AM
4	D:\MassHunter\Data\041525_533_S3Q1492\3q101461.d	4/15/2025 2:52:12 PM	4/16/2025 8:04:10 AM
5	D:\MassHunter\Data\041525_533_S3Q1492\3q101462.d	4/15/2025 3:08:17 PM	4/16/2025 8:04:10 AM
6	D:\MassHunter\Data\041525_533_S3Q1492\3q101463.d	4/15/2025 3:24:23 PM	4/16/2025 8:04:10 AM
7	D:\MassHunter\Data\041525_533_S3Q1492\3q101464.d	4/15/2025 3:40:29 PM	4/16/2025 8:04:10 AM
8	D:\MassHunter\Data\041525_533_S3Q1492\3q101465.d	4/15/2025 3:56:34 PM	4/16/2025 8:04:10 AM

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I 13C2-PFOA						ISTD					
S 13C5-PFHxA	Avg RF	1.0579	0.9447	0.9470	0.9413	1.0191	1.0854	1.0519	1.0568	1.0130	5.886
S 13C3-HFPO-DA	Avg RF	0.0137	0.0120	0.0118	0.0130	0.0146	0.0157	0.0171	0.0186	0.0146	16.626
S 13C4-PFHpA	Avg RF	0.8843	0.7973	0.7905	0.7945	0.8480	0.9057	0.8731	0.8765	0.8462	5.436
S 13C8-PFOA	Avg RF	1.1591	1.0349	1.0478	1.0428	1.1353	1.1740	1.0966	1.0976	1.0985	4.920
S 13C9-PFNA	Avg RF	1.2523	1.1189	1.1090	1.1273	1.2203	1.2833	1.2275	1.2108	1.1937	5.556
S 13C6-PFDA	Avg RF	1.7017	1.5712	1.5118	1.5762	1.7264	1.8135	1.7499	1.7313	1.6728	6.329
S 13C7-PFUnDA	Avg RF	3.4828	3.0627	3.0343	3.1157	3.5165	3.6363	3.4161	3.4669	3.3414	6.991
S 13C2-PFDoDA	Avg RF	4.4511	3.9627	3.9811	3.9550	4.3202	4.5895	4.3722	4.4295	4.2577	5.950
I 13C3-PFBA						ISTD					
S 13C4-PFBA	Avg RF	1.7900	1.6095	1.6175	1.6093	1.7461	1.7942	1.7119	1.6925	1.6964	4.590
S 13C5-PFPeA	Avg RF	2.1683	1.9449	1.9618	1.9364	2.1413	2.1326	2.0308	2.0430	2.0449	4.569
I 13C4-PFOS						ISTD					
S 13C3-PFBS	Avg RF	0.6441	0.5923	0.5872	0.5799	0.6840	0.6553	0.6327	0.6160	0.6239	5.881
S 13C2-4:2FTS	Avg RF	2.3094	2.1386	2.0730	2.0993	2.4132	2.5823	2.6972	2.7271	2.3800	11.222
S 13C3-PFHxS	Avg RF	0.9271	0.8628	0.8265	0.8378	0.9166	0.9463	0.9110	0.8784	0.8883	4.907
S 13C2-6:2FTS	Avg RF	4.4350	4.0590	4.0217	4.0086	4.6694	4.8307	4.8899	4.8476	4.4702	8.757
S 13C8-PFOS	Avg RF	1.2022	1.0980	1.0701	1.0581	1.1604	1.2311	1.1592	1.1181	1.1372	5.434
S 13C2-8:2FTS	Avg RF	7.2181	6.8418	6.6493	6.8384	7.5673	8.1932	8.3354	8.2707	7.4893	9.374
I M4-PFBA						ISTD					
T PFBA	Linear	0.2509	0.3205	0.2912	0.3063	0.3130	0.2773	0.2730	0.2767	0.2886	8.138
T PFMPA	Linear	0.2914	0.3692	0.3441	0.3616	0.3546	0.3185	0.3208	0.3249	0.3356	7.821
I M5-PFPeA						ISTD					
T PFPeA	Linear	0.6793	0.8425	0.8047	0.8384	0.8602	0.7551	0.7531	0.7501	0.7854	7.834
T PFMBA	Linear	0.3456	0.4203	0.3863	0.4155	0.4057	0.3706	0.3684	0.3666	0.3849	6.924
I M5-PFHxA						ISTD					

Generated at 8:04 AM on 4/16/2025

Initial Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1492-ICC1492
Lab FileID: 3Q101463.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T NFDHA	Linear	0.2470	0.2896	0.2663	0.2774	0.2848	0.2505	0.2461	0.2509	0.2641	6.764
T PFHxA	Linear	0.8405	1.0370	0.9920	1.0514	1.0727	0.9384	0.9357	0.9404	0.9760	7.905
I M4-PFHpA						ISTD					
T PFHpA	Linear	1.2475	1.5757	1.4724	1.5646	1.5885	1.4215	1.3938	1.3971	1.4577	8.031
T ADONA	Linear	1.8989	2.3600	2.2386	2.4034	2.5057	2.1566	2.1529	2.1603	2.2345	8.436
I M8-PFOA						ISTD					
T PFOA	Linear	0.6815	0.8584	0.8105	0.8621	0.8791	0.7670	0.7680	0.7687	0.7994	8.297
I M9-PFNA						ISTD					
T PFNA	Linear	0.7634	0.9358	0.8741	0.9109	0.9300	0.8226	0.8086	0.8198	0.8581	7.423
I M6-PFDA						ISTD					
T PFDA	Linear	0.5008	0.6262	0.5963	0.6325	0.6448	0.5686	0.5542	0.5684	0.5865	8.206
I M7-PFUnDA						ISTD					
T PFUnDA	Linear	0.5769	0.7092	0.6729	0.7151	0.7331	0.6422	0.6384	0.6446	0.6666	7.725
I M2-PFDoDA						ISTD					
T PFDoDA	Linear	0.6002	0.7376	0.6974	0.7423	0.7526	0.6659	0.6579	0.6651	0.6899	7.607
I M3-PFBS						ISTD					
T PFBS	Linear	1.7005	2.2037	1.9926	2.2451	2.2846	2.0342	2.0172	2.0102	2.0610	9.061
T PFEESA	Linear	7.9237	10.08	9.4548	10.09	9.7044	9.2166	8.9355	9.0027	9.3011	7.651
I M3-PFHxS						ISTD					
T PFPeS	Linear	0.8855	1.1480	1.0984	1.1597	1.1574	1.0253	1.0098	1.0210	1.0631	9.012
T PFHxS	Linear	1.7382	2.0113	1.8743	1.9619	2.0205	1.7873	1.7453	1.7525	1.8614	6.551
T PFHpS	Linear	1.6399	2.0838	2.0359	2.0720	2.1436	1.8594	1.8111	1.8242	1.9337	9.064
I M8-PFOS						ISTD					
T PFOS	Linear	1.5579	1.8778	1.7219	1.7935	1.8742	1.5876	1.5874	1.5947	1.6994	7.951
T 9Cl-PF3ONS	Linear	2.1859	2.7926	2.6112	2.9034	2.9984	2.5855	2.5674	2.5598	2.6505	9.480
T 11Cl-PF3OUdS	Linear	6.5503	7.9514	7.6377	8.2398	8.6272	7.3646	7.3467	7.4319	7.6437	8.309
I M2-4:2FTS						ISTD					
T 4:2FTS	Quadratic	1.0418	1.2954	1.2244	1.2995	1.2654	1.0811	0.9784	0.9415	1.1409	12.874
I M2-6:2FTS						ISTD					
T 6:2FTS	Quadratic	0.7323	0.9347	0.8658	0.9102	0.9013	0.7660	0.7073	0.6849	0.8128	12.404
I M2-8:2FTS						ISTD					
T 8:2FTS	Linear	0.7100	0.8892	0.8278	0.8848	0.8818	0.7479	0.6846	0.6688	0.7869	12.016
I M3-HFPO-DA						ISTD					
T HFPO-DA	Quadratic	0.2700	0.2808	0.2455	0.2865	0.2417	0.2255	0.1838	0.1789	0.2391	17.207

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Generated at 8:04 AM on 4/16/2025

Initial Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1492-ICC1492
Lab FileID: 3Q101463.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	Curve Fit R2
T PFBA	Linear	y = 0.276474 * x	0.999076
T PFMPA	Linear	y = 0.323781 * x	0.999383
T PFPeA	Linear	y = 0.754493 * x	0.999045
T PFBS	Linear	y = 2.021899 * x	0.999160
T PFMBA	Linear	y = 0.368731 * x	0.999391
T PFEESA	Linear	y = 9.019533 * x	0.999486
T NFDHA	Linear	y = 0.250104 * x	0.998931
T 4:2FTS	Quadratic	y = -0.057740 * x ^ 2 + 1.222662 * x	0.999120
T PFHxA	Linear	y = 0.942123 * x	0.999057
T PFPeS	Linear	y = 1.021308 * x	0.999010
T HFPO-DA	Quadratic	y = -0.015333 * x ^ 2 + 0.252255 * x	0.997985
T PFHpA	Linear	y = 1.403226 * x	0.999088
T PFHxS	Linear	y = 1.760093 * x	0.998877
T ADONA	Linear	y = 2.166257 * x	0.998862
T PFHpS	Linear	y = 1.831213 * x	0.998502
T 6:2FTS	Quadratic	y = -0.035883 * x ^ 2 + 0.859316 * x	0.999083
T PFOA	Linear	y = 0.771234 * x	0.999045
T PFOS	Linear	y = 1.598848 * x	0.998597
T PFNA	Linear	y = 0.819077 * x	0.999020
T 9Cl-PF3ONS	Linear	y = 2.576055 * x	0.998712
T PFDA	Linear	y = 0.565531 * x	0.998783
T 8:2FTS	Linear	y = 0.687044 * x	0.993650
T PFUnDA	Linear	y = 0.644606 * x	0.999063
T 11Cl-PF3OUdS	Linear	y = 7.427108 * x	0.998752
T PFDoDA	Linear	y = 0.665040 * x	0.999094

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Raw Data: 3Q101467.D

Initial Calibration Verification

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S3Q1492-ICV1492
Lab FileID: 3Q101467.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041525_533_S3Q1492\s3q1942.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041525_533_S3Q1492\3q101458.d
2:D:\MassHunter\Data\041525_533_S3Q1492\3q101459.d
3:D:\MassHunter\Data\041525_533_S3Q1492\3q101460.d
4:D:\MassHunter\Data\041525_533_S3Q1492\3q101461.d
5:D:\MassHunter\Data\041525_533_S3Q1492\3q101462.d
6:D:\MassHunter\Data\041525_533_S3Q1492\3q101463.d
7:D:\MassHunter\Data\041525_533_S3Q1492\3q101464.d
8:D:\MassHunter\Data\041525_533_S3Q1492\3q101465.d

Data File: 3q101467
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	10.000	9.143	-8.6	91.4
13C2-6:2FTS	10.000	9.066	-9.3	90.7
13C2-8:2FTS	10.000	9.291	-7.1	92.9
13C2-PFDoDA	10.000	8.829	-11.7	88.3
13C2-PFOA	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
13C3-PFBS	10.000	9.032	-9.7	90.3
13C3-PFHxS	10.000	9.066	-9.3	90.7
13C4-PFBA	10.000	8.842	-11.6	88.4
13C4-PFHpA	10.000	8.958	-10.4	89.6
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	10.000	8.900	-11.0	89.0
13C5-PFPeA	10.000	8.795	-12.0	88.0
13C6-PFDA	10.000	8.699	-13.0	87.0
13C7-PFUnDA	10.000	8.822	-11.8	88.2
PFMPA	20.000	23.209	16.0	116.0
13C8-PFOA	10.000	8.874	-11.3	88.7
13C8-PFOS	10.000	9.114	-8.9	91.1
13C9-PFNA	10.000	8.882	-11.2	88.8
4:2FTS	20.000	18.957	-5.2	94.8
6:2FTS	20.000	19.241	-3.8	96.2
8:2FTS	20.000	22.818	14.1	114.1
PFMBA	20.000	18.585	-7.1	92.9
PFEESA	20.000	18.282	-8.6	91.4
NFDHA	20.000	19.682	-1.6	98.4
PFBA	20.000	21.759	8.8	108.8
PFBS	20.000	18.622	-6.9	93.1
PFDA	20.000	19.553	-2.2	97.8
PFDoDA	20.000	22.065	10.3	110.3
PFHpA	20.000	20.863	4.3	104.3
PFHpS	20.000	18.660	-6.7	93.3
PFHxA	20.000	19.902	-0.5	99.5
PFHxS	20.000	19.939	-0.3	99.7
PFNA	20.000	19.272	-3.6	96.4
PFOA	20.000	21.590	7.9	107.9
PFOS	20.000	20.947	4.7	104.7
PFPeA	20.000	19.637	-1.8	98.2

Initial Calibration Verification

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1492-ICV1492
Lab FileID: 3Q101467.D

PFPeS	20.000	19.449	-2.8	97.2
PFUnDA	20.000	22.540	12.7	112.7
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
11Cl-PF3OUdS	20.000	19.446	-2.8	97.2
13C3-HFPO-DA	10.000	8.675	-13.3	86.7
9Cl-PF3ONS	20.000	20.112	0.6	100.6
ADONA	20.000	20.934	4.7	104.7
HFPO-DA	20.000	19.187	-4.1	95.9
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Raw Data: 3Q101469.D

Continuing Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S3Q1492-CC1492
Lab FileID: 3Q101469.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041525_533_S3Q1492\s3q1942.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041525_533_S3Q1492\3q101458.d
2:D:\MassHunter\Data\041525_533_S3Q1492\3q101459.d
3:D:\MassHunter\Data\041525_533_S3Q1492\3q101460.d
4:D:\MassHunter\Data\041525_533_S3Q1492\3q101461.d
5:D:\MassHunter\Data\041525_533_S3Q1492\3q101462.d
6:D:\MassHunter\Data\041525_533_S3Q1492\3q101463.d
7:D:\MassHunter\Data\041525_533_S3Q1492\3q101464.d
8:D:\MassHunter\Data\041525_533_S3Q1492\3q101465.d

Data File: 3q101469
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	10.000	10.698	7.0	107.0
13C2-6:2FTS	10.000	10.607	6.1	106.1
13C2-8:2FTS	10.000	10.644	6.4	106.4
13C2-PFDoDA	10.000	10.548	5.5	105.5
13C2-PFOA	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
13C3-PFBS	10.000	10.556	5.6	105.6
13C3-PFHxS	10.000	10.664	6.6	106.6
13C4-PFBA	10.000	10.630	6.3	106.3
13C4-PFHpA	10.000	10.665	6.6	106.6
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	10.000	10.761	7.6	107.6
13C5-PFPeA	10.000	10.463	4.6	104.6
13C6-PFDA	10.000	11.346	13.5	113.5
13C7-PFUnDA	10.000	10.592	5.9	105.9
PFMPA	20.000	19.921	-0.4	99.6
13C8-PFOA	10.000	10.777	7.8	107.8
13C8-PFOS	10.000	10.500	5.0	105.0
13C9-PFNA	10.000	10.767	7.7	107.7
4:2FTS	20.000	19.585	-2.1	97.9
6:2FTS	20.000	19.551	-2.2	97.8
8:2FTS	20.000	21.971	9.9	109.9
PFMBA	20.000	19.867	-0.7	99.3
PFEESA	20.000	19.814	-0.9	99.1
NFDHA	20.000	19.880	-0.6	99.4
PFBA	20.000	19.913	-0.4	99.6
PFBS	20.000	19.790	-1.0	99.0
PFDA	20.000	20.003	0.0	100.0
PFDoDA	20.000	20.155	0.8	100.8
PFHpA	20.000	20.147	0.7	100.7
PFHpS	20.000	20.246	1.2	101.2
PFHxA	20.000	19.965	-0.2	99.8
PFHxS	20.000	19.848	-0.8	99.2
PFNA	20.000	20.082	0.4	100.4
PFOA	20.000	19.920	-0.4	99.6
PFOS	20.000	20.168	0.8	100.8
PFPeA	20.000	20.098	0.5	100.5

Continuing Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1492-CC1492
Lab FileID: 3Q101469.D

PFPeS	20.000	19.762	-1.2	98.8
PFUnDA	20.000	19.965	-0.2	99.8
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
11Cl-PF3OUdS	20.000	19.776	-1.1	98.9
13C3-HFPO-DA	10.000	10.576	5.8	105.8
9Cl-PF3ONS	20.000	20.115	0.6	100.6
ADONA	20.000	20.059	0.3	100.3
HFPO-DA	20.000	20.000	0.0	100.0
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Raw Data: 3Q101470.D

Continuing Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1492-CC1492
Lab FileID: 3Q101470.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041525_533_S3Q1492\s3q1942.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041525_533_S3Q1492\3q101458.d
2:D:\MassHunter\Data\041525_533_S3Q1492\3q101459.d
3:D:\MassHunter\Data\041525_533_S3Q1492\3q101460.d
4:D:\MassHunter\Data\041525_533_S3Q1492\3q101461.d
5:D:\MassHunter\Data\041525_533_S3Q1492\3q101462.d
6:D:\MassHunter\Data\041525_533_S3Q1492\3q101463.d
7:D:\MassHunter\Data\041525_533_S3Q1492\3q101464.d
8:D:\MassHunter\Data\041525_533_S3Q1492\3q101465.d

Data File: 3q101470
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	10.000	9.606	-3.9	96.1
13C2-6:2FTS	10.000	10.090	0.9	100.9
13C2-8:2FTS	10.000	9.563	-4.4	95.6
13C2-PFDoDA	10.000	10.258	2.6	102.6
13C2-PFOA	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
13C3-PFBS	10.000	10.521	5.2	105.2
13C3-PFHxS	10.000	10.480	4.8	104.8
13C4-PFBA	10.000	10.510	5.1	105.1
13C4-PFHpA	10.000	10.272	2.7	102.7
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	10.000	10.289	2.9	102.9
13C5-PFPeA	10.000	10.394	3.9	103.9
13C6-PFDA	10.000	11.296	13.0	113.0
13C7-PFUnDA	10.000	10.503	5.0	105.0
PFMPA	0.500	0.458	-8.4	91.6
13C8-PFOA	10.000	10.553	5.5	105.5
13C8-PFOS	10.000	10.575	5.7	105.7
13C9-PFNA	10.000	10.410	4.1	104.1
4:2FTS	0.500	0.434	-13.2	86.8
6:2FTS	0.500	0.428	-14.4	85.6
8:2FTS	0.500	0.530	6.1	106.1
PFMBA	0.500	0.447	-10.5	89.5
PFEESA	0.500	0.434	-13.2	86.8
NFDHA	0.500	0.452	-9.6	90.4
PFBA	0.500	0.462	-7.7	92.3
PFBS	0.500	0.430	-14.1	85.9
PFDA	0.500	0.454	-9.1	90.9
PFDoDA	0.500	0.466	-6.9	93.1
PFHpA	0.500	0.456	-8.8	91.2
PFHpS	0.500	0.490	-2.0	98.0
PFHxA	0.500	0.442	-11.6	88.4
PFHxS	0.500	0.468	-6.4	93.6
PFNA	0.500	0.461	-7.9	92.1
PFOA	0.500	0.449	-10.3	89.7
PFOS	0.500	0.497	-0.6	99.4
PFPeA	0.500	0.451	-9.9	90.1

Continuing Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1492-CC1492
Lab FileID: 3Q101470.D

PFPeS	0.500	0.460	-8.0	92.0
PFUnDA	0.500	0.450	-10.0	90.0
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
11Cl-PF3OUdS	0.500	0.454	-9.1	90.9
13C3-HFPO-DA	10.000	8.515	-14.9	85.1
9Cl-PF3ONS	0.500	0.445	-10.9	89.1
ADONA	0.500	0.443	-11.4	88.6
HFPO-DA	0.500	0.561	12.2	112.2
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S3Q1494-CC1492
Lab FileID: 3Q101520.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041725_533_S3Q1494\s3q1494.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041525_533_S3Q1492\3q101458.d
2:D:\MassHunter\Data\041525_533_S3Q1492\3q101459.d
3:D:\MassHunter\Data\041525_533_S3Q1492\3q101460.d
4:D:\MassHunter\Data\041525_533_S3Q1492\3q101461.d
5:D:\MassHunter\Data\041525_533_S3Q1492\3q101462.d
6:D:\MassHunter\Data\041525_533_S3Q1492\3q101463.d
7:D:\MassHunter\Data\041525_533_S3Q1492\3q101464.d
8:D:\MassHunter\Data\041525_533_S3Q1492\3q101465.d

Data File: 3q101520
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	10.000	11.406	14.1	114.1
13C2-6:2FTS	10.000	11.290	12.9	112.9
13C2-8:2FTS	10.000	11.774	17.7	117.7
13C2-PFDoDA	10.000	11.287	12.9	112.9
13C2-PFOA	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
13C3-PFBS	10.000	10.491	4.9	104.9
13C3-PFHxS	10.000	10.446	4.5	104.5
13C4-PFBA	10.000	10.743	7.4	107.4
13C4-PFHpA	10.000	11.197	12.0	112.0
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	10.000	11.076	10.8	110.8
13C5-PFPeA	10.000	10.722	7.2	107.2
13C6-PFDA	10.000	11.238	12.4	112.4
13C7-PFUnDA	10.000	11.383	13.8	113.8
PFMPA	20.000	19.865	-0.7	99.3
13C8-PFOA	10.000	11.190	11.9	111.9
13C8-PFOS	10.000	10.450	4.5	104.5
13C9-PFNA	10.000	11.492	14.9	114.9
4:2FTS	20.000	19.035	-4.8	95.2
6:2FTS	20.000	19.358	-3.2	96.8
8:2FTS	20.000	21.723	8.6	108.6
PFMBA	20.000	19.789	-1.1	98.9
PFEESA	20.000	20.215	1.1	101.1
NFDHA	20.000	18.961	-5.2	94.8
PFBA	20.000	19.768	-1.2	98.8
PFBS	20.000	19.733	-1.3	98.7
PFDA	20.000	19.944	-0.3	99.7
PFDoDA	20.000	20.069	0.3	100.3
PFHpA	20.000	18.802	-6.0	94.0
PFHpS	20.000	20.662	3.3	103.3
PFHxA	20.000	18.537	-7.3	92.7
PFHxS	20.000	20.715	3.6	103.6
PFNA	20.000	18.821	-5.9	94.1
PFOA	20.000	19.013	-4.9	95.1
PFOS	20.000	20.418	2.1	102.1
PFPeA	20.000	19.892	-0.5	99.5

Continuing Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1494-CC1492
Lab FileID: 3Q101520.D

PFPeS	20.000	20.259	1.3	101.3
PFUnDA	20.000	20.259	1.3	101.3
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
11Cl-PF3OUdS	20.000	20.711	3.6	103.6
13C3-HFPO-DA	10.000	9.061	-9.4	90.6
9Cl-PF3ONS	20.000	20.259	1.3	101.3
ADONA	20.000	18.333	-8.3	91.7
HFPO-DA	20.000	23.336	16.7	116.7
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S3Q1494-CC1492
Lab FileID: 3Q101521.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041725_533_S3Q1494\s3q1494.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041525_533_S3Q1492\3q101458.d
2:D:\MassHunter\Data\041525_533_S3Q1492\3q101459.d
3:D:\MassHunter\Data\041525_533_S3Q1492\3q101460.d
4:D:\MassHunter\Data\041525_533_S3Q1492\3q101461.d
5:D:\MassHunter\Data\041525_533_S3Q1492\3q101462.d
6:D:\MassHunter\Data\041525_533_S3Q1492\3q101463.d
7:D:\MassHunter\Data\041525_533_S3Q1492\3q101464.d
8:D:\MassHunter\Data\041525_533_S3Q1492\3q101465.d

Data File: 3q101521
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	10.000	10.060	0.6	100.6
13C2-6:2FTS	10.000	10.446	4.5	104.5
13C2-8:2FTS	10.000	10.601	6.0	106.0
13C2-PFDoDA	10.000	11.106	11.1	111.1
13C2-PFOA	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
13C3-PFBS	10.000	10.039	0.4	100.4
13C3-PFHxS	10.000	10.202	2.0	102.0
13C4-PFBA	10.000	10.651	6.5	106.5
13C4-PFHpA	10.000	10.852	8.5	108.5
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	10.000	10.745	7.4	107.4
13C5-PFPeA	10.000	10.612	6.1	106.1
13C6-PFDA	10.000	10.820	8.2	108.2
13C7-PFUnDA	10.000	11.123	11.2	111.2
PFMPA	0.500	0.443	-11.5	88.5
13C8-PFOA	10.000	11.145	11.5	111.5
13C8-PFOS	10.000	10.298	3.0	103.0
13C9-PFNA	10.000	11.425	14.2	114.2
4:2FTS	0.500	0.431	-13.8	86.2
6:2FTS	0.500	0.427	-14.5	85.5
8:2FTS	0.500	0.511	2.3	102.3
PFMBA	0.500	0.433	-13.4	86.6
PFEESA	0.500	0.446	-10.8	89.2
NFDHA	0.500	0.446	-10.8	89.2
PFBA	0.500	0.425	-15.0	85.0
PFBS	0.500	0.401	-19.7	80.3
PFDA	0.500	0.444	-11.2	88.8
PFDoDA	0.500	0.457	-8.6	91.4
PFHpA	0.500	0.426	-14.8	85.2
PFHpS	0.500	0.471	-5.9	94.1
PFHxA	0.500	0.416	-16.7	83.3
PFHxS	0.500	0.472	-5.6	94.4
PFNA	0.500	0.408	-18.5	81.5
PFOA	0.500	0.425	-14.9	85.1
PFOS	0.500	0.471	-5.7	94.3
PFPeA	0.500	0.442	-11.5	88.5

Continuing Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1494-CC1492
Lab FileID: 3Q101521.D

PFPeS	0.500	0.451	-9.8	90.2
PFUnDA	0.500	0.444	-11.1	88.9
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
11Cl-PF3OUdS	0.500	0.464	-7.3	92.7
13C3-HFPO-DA	10.000	8.604	-14.0	86.0
9Cl-PF3ONS	0.500	0.446	-10.9	89.1
ADONA	0.500	0.404	-19.3	80.7
HFPO-DA	0.500	0.510	1.9	101.9
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Raw Data: 3Q101533.D

Continuing Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S3Q1494-CC1492
Lab FileID: 3Q101533.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041725_533_S3Q1494\s3q1494.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041525_533_S3Q1492\3q101458.d
2:D:\MassHunter\Data\041525_533_S3Q1492\3q101459.d
3:D:\MassHunter\Data\041525_533_S3Q1492\3q101460.d
4:D:\MassHunter\Data\041525_533_S3Q1492\3q101461.d
5:D:\MassHunter\Data\041525_533_S3Q1492\3q101462.d
6:D:\MassHunter\Data\041525_533_S3Q1492\3q101463.d
7:D:\MassHunter\Data\041525_533_S3Q1492\3q101464.d
8:D:\MassHunter\Data\041525_533_S3Q1492\3q101465.d

Data File: 3q101533
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	10.000	11.569	15.7	115.7
13C2-6:2FTS	10.000	11.407	14.1	114.1
13C2-8:2FTS	10.000	11.748	17.5	117.5
13C2-PFDoDA	10.000	10.922	9.2	109.2
13C2-PFOA	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
13C3-PFBS	10.000	10.277	2.8	102.8
13C3-PFHxS	10.000	10.548	5.5	105.5
13C4-PFBA	10.000	10.757	7.6	107.6
13C4-PFHpA	10.000	11.021	10.2	110.2
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	10.000	10.963	9.6	109.6
13C5-PFPeA	10.000	10.557	5.6	105.6
13C6-PFDA	10.000	11.212	12.1	112.1
13C7-PFUnDA	10.000	11.673	16.7	116.7
PFMPA	20.000	19.738	-1.3	98.7
13C8-PFOA	10.000	11.248	12.5	112.5
13C8-PFOS	10.000	10.693	6.9	106.9
13C9-PFNA	10.000	11.560	15.6	115.6
4:2FTS	20.000	18.830	-5.8	94.2
6:2FTS	20.000	19.552	-2.2	97.8
8:2FTS	20.000	21.734	8.7	108.7
PFMBA	20.000	19.596	-2.0	98.0
PFEESA	20.000	20.550	2.8	102.8
NFDHA	20.000	19.233	-3.8	96.2
PFBA	20.000	19.629	-1.9	98.1
PFBS	20.000	20.179	0.9	100.9
PFDA	20.000	19.694	-1.5	98.5
PFDoDA	20.000	20.011	0.1	100.1
PFHpA	20.000	18.887	-5.6	94.4
PFHpS	20.000	20.851	4.3	104.3
PFHxA	20.000	18.679	-6.6	93.4
PFHxS	20.000	19.794	-1.0	99.0
PFNA	20.000	18.928	-5.4	94.6
PFOA	20.000	18.889	-5.6	94.4
PFOS	20.000	20.113	0.6	100.6
PFPeA	20.000	19.869	-0.7	99.3

6.7.7 6

Continuing Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S3Q1494-CC1492
Lab FileID: 3Q101533.D

PFPeS	20.000	20.036	0.2	100.2
PFUnDA	20.000	20.173	0.9	100.9
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
11Cl-PF3OUdS	20.000	20.798	4.0	104.0
13C3-HFPO-DA	10.000	9.838	-1.6	98.4
9Cl-PF3ONS	20.000	19.769	-1.2	98.8
ADONA	20.000	18.613	-6.9	93.1
HFPO-DA	20.000	19.514	-2.4	97.6
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Initial Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S4Q1106-ICC1106
Lab FileID: 4Q74365.D

Initial Calibration Report

Method Path	D:\MassHunter\Methods
Method File	537_042325_S4q1106.quantmethod.xml
Batch Name	D:\MassHunter\Data\042325_537.1_s4q1106\QuantResults\s4q1106.batch.bin
Last Calib Update	4/24/2025 10:37:49 AM

Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time
1	D:\MassHunter\Data\042325_537.1_s4q1106\4q74360.d	4/23/2025 10:01:34 PM	4/24/2025 10:37:49 AM
2	D:\MassHunter\Data\042325_537.1_s4q1106\4q74361.d	4/23/2025 10:15:50 PM	4/24/2025 10:37:49 AM
3	D:\MassHunter\Data\042325_537.1_s4q1106\4q74362.d	4/23/2025 10:30:06 PM	4/24/2025 10:37:49 AM
4	D:\MassHunter\Data\042325_537.1_s4q1106\4q74363.d	4/23/2025 10:44:23 PM	4/24/2025 10:37:49 AM
5	D:\MassHunter\Data\042325_537.1_s4q1106\4q74364.d	4/23/2025 10:58:39 PM	4/24/2025 10:37:49 AM
6	D:\MassHunter\Data\042325_537.1_s4q1106\4q74365.d	4/23/2025 11:12:55 PM	4/24/2025 10:37:49 AM
7	D:\MassHunter\Data\042325_537.1_s4q1106\4q74366.d	4/23/2025 11:27:12 PM	4/24/2025 10:37:49 AM
8	D:\MassHunter\Data\042325_537.1_s4q1106\4q74367.d	4/23/2025 11:41:28 PM	4/24/2025 10:37:49 AM

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I 13C2-6:2FTS						ISTD					
T 6:2FTS	Quadratic	1.1712	1.2494	1.0179	1.0800	1.1445	1.1236	0.9656	0.9306	1.0853	9.979
T 8:2FTS	Quadratic	1.2475	1.2615	1.0677	1.1343	1.2012	1.1665	0.9593	0.9024	1.1176	11.769
I 13C2-PFOA						ISTD					
S 13C2-PFHxA	Linear	0.5385	0.5327	0.4424	0.4717	0.5024	0.4981	0.4466	0.4758	0.4885	7.364
T PFHxA	Linear	0.3015	0.2972	0.2534	0.2720	0.2917	0.2940	0.2602	0.2768	0.2808	6.400
S 13C3-HFPO-DA	Linear	0.0067	0.0083	0.0066	0.0064	0.0072	0.0069	0.0067	0.0076	0.0071	9.157
T HFPO-DA	Quadratic	0.0083	0.0061	0.0061	0.0061	0.0070	0.0073	0.0066	0.0076	0.0069	11.805
T PFHpA	Linear	0.8535	0.8836	0.7620	0.8164	0.8788	0.8917	0.8339	0.9478	0.8585	6.505
T ADONA	Linear	1.3193	1.3692	1.1640	1.2575	1.3478	1.3741	1.2697	1.4113	1.3141	6.098
T PFOA	Linear	0.6677	0.6434	0.5427	0.5959	0.6373	0.6483	0.6121	0.6862	0.6292	7.168
T PFNA	Linear	0.8193	0.8340	0.7031	0.7669	0.8261	0.8336	0.7804	0.8827	0.8058	6.762
T 9Cl-PF3ONS	Quadratic	0.1623	0.1491	0.1328	0.1494	0.1593	0.1652	0.1538	0.1762	0.1560	8.314
S 13C2-PFDA	Linear	1.4757	1.5084	1.3076	1.4037	1.5094	1.5276	1.3597	1.4933	1.4482	5.600
T PFDA	Linear	1.0391	1.0657	0.9097	0.9829	1.0400	1.0543	0.9601	1.0394	1.0114	5.408
T 11Cl-PF3OUdS	Quadratic	0.5929	0.6153	0.5269	0.5766	0.6260	0.6375	0.5950	0.6657	0.6045	6.974
I 13C3-PFPeA						ISTD					
T PFPeA	Linear	1.2008	1.1872	0.9932	1.1014	1.1868	1.2113	1.1294	1.2772	1.1609	7.401
I 13C4-PFOS						ISTD					
T PFBS	Linear	0.9369	0.9109	0.8085	0.8475	0.9029	0.9158	0.8227	0.9284	0.8842	5.680
T PFHxS	Linear	0.9460	0.9314	0.7982	0.8194	0.9102	0.9203	0.8446	0.9722	0.8928	7.127
T PFOS	Linear	1.0938	1.0617	0.9718	0.9924	1.0723	1.0767	0.9919	1.1705	1.0539	6.260
T PFUnDA	Linear	7.2527	7.2182	6.0153	6.6260	7.1298	7.1324	6.3099	6.9142	6.8248	6.768
T PFDoDA	Linear	6.7675	6.7242	5.7169	6.1641	6.7042	6.8704	6.1247	6.8302	6.4878	6.580
T PFTrDA	Linear	4.7011	4.6430	3.9647	4.3753	4.7252	4.8143	4.3818	4.9799	4.5732	6.984
T PFTeDA	Quadratic	4.3862	4.3194	3.6909	4.1122	4.4523	4.5435	4.2314	5.0297	4.3457	8.771
I d3-MeFOSAA						ISTD					

Initial Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S4Q1106-ICC1106
Lab FileID: 4Q74365.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T MeFOSAA	Linear	0.9691	0.9466	0.8097	0.8656	0.9564	0.9881	0.9269	1.0589	0.9401	8.071
S d5-EtFOSAA	Quadratic	1.1489	1.1509	0.9918	1.0627	1.1516	1.1719	1.1109	1.2153	1.1255	6.203
T EtFOSAA	Quadratic	0.9242	0.8995	0.7695	0.8226	0.9046	0.9243	0.8620	0.9479	0.8818	6.822

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Generated at 10:38 AM on 4/24/2025

6.7.8

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Initial Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S4Q1106-ICC1106
Lab FileID: 4Q74365.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	Curve Fit R2
T PFPeA	Linear	y = 1.245658 * x	0.996686
T PFBS	Linear	y = 0.907356 * x	0.996872
S 13C2-PFHxA	Linear	y = 0.471079 * x	0.998888
T PFHxA	Linear	y = 0.274220 * x	0.998843
S 13C3-HFPO-DA	Linear	y = 0.007432 * x	0.996403
T HFPO-DA	Quadratic	y = 2.750942E-004 * x ^ 2 + 0.006168 * x	0.999005
T PFHpA	Linear	y = 0.923356 * x	0.996416
T PFHxS	Linear	y = 0.945332 * x	0.995758
T ADONA	Linear	y = 1.382150 * x	0.997560
T 6:2FTS	Quadratic	y = -0.027059 * x ^ 2 + 1.062986 * x	0.999144
T PFOA	Linear	y = 0.670213 * x	0.997092
T PFOS	Linear	y = 1.132179 * x	0.994203
T PFNA	Linear	y = 0.860842 * x	0.996679
T 9Cl-PF3ONS	Quadratic	y = 0.006674 * x ^ 2 + 0.142323 * x	0.999251
T 8:2FTS	Quadratic	y = -0.039493 * x ^ 2 + 1.096148 * x	0.998530
S 13C2-PFDA	Linear	y = 1.468582 * x	0.997995
T PFDA	Linear	y = 1.024536 * x	0.998561
T PFUnDA	Linear	y = 6.805771 * x	0.998030
T 11Cl-PF3OUdS	Quadratic	y = 0.020353 * x ^ 2 + 0.562192 * x	0.999369
T PFDoDA	Linear	y = 6.693527 * x	0.997392
T MeFOSAA	Linear	y = 1.030133 * x	0.996059
S d5-EtFOSAA	Quadratic	y = 0.060790 * x ^ 2 + 1.060799 * x	0.999603
T EtFOSAA	Quadratic	y = 0.048001 * x ^ 2 + 0.825614 * x	0.999451
T PFTrDA	Linear	y = 4.856584 * x	0.996495
T PFTeDA	Quadratic	y = 0.243455 * x ^ 2 + 3.795474 * x	0.999004

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Raw Data: 4Q74369.D

Initial Calibration Verification

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S4Q1106-ICV1106
Lab FileID: 4Q74369.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042325_537.1_s4q1106\s4q1106.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\042325_537.1_s4q1106\4q74360.d
2:D:\MassHunter\Data\042325_537.1_s4q1106\4q74361.d
3:D:\MassHunter\Data\042325_537.1_s4q1106\4q74362.d
4:D:\MassHunter\Data\042325_537.1_s4q1106\4q74363.d
5:D:\MassHunter\Data\042325_537.1_s4q1106\4q74364.d
6:D:\MassHunter\Data\042325_537.1_s4q1106\4q74365.d
7:D:\MassHunter\Data\042325_537.1_s4q1106\4q74366.d
8:D:\MassHunter\Data\042325_537.1_s4q1106\4q74367.d

Data File: 4q74369
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	0.000	# -100.0	0.0
13C2-PFHxA	10.000	0.000	# -100.0	0.0
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	22.076	10.4	110.4
8:2FTS	20.000	24.008	20.0	120.0
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	0.000	# -100.0	0.0
EtFOSAA	20.000	25.049	25.2	125.2
MeFOSAA	20.000	21.341	6.7	106.7
PFBS	20.000	20.642	3.2	103.2
PFDA	20.000	22.525	12.6	112.6
PFDoDA	20.000	25.936	29.7	129.7
PFHpA	20.000	23.282	16.4	116.4
PFHxA	20.000	24.167	20.8	120.8
PFHxS	20.000	19.304	-3.5	96.5
PFNA	20.000	21.909	9.5	109.5
PFOA	20.000	28.983	# 44.9	144.9
PFOS	20.000	21.651	8.3	108.3
PFPeA	20.000	22.748	13.7	113.7
PFTeDA	20.000	23.599	18.0	118.0
PFTrDA	20.000	27.091	# 35.5	135.5
PFUnDA	20.000	26.949	# 34.7	134.7
ADONA	20.000	21.188	5.9	105.9
9Cl-PF3ONS	20.000	23.312	16.6	116.6
11Cl-PF3OUdS	20.000	23.477	17.4	117.4
13C3-HFPO-DA	20.000	0.000	# -100.0	0.0
HFPO-DA	20.000	24.189	20.9	120.9

CC Criteria: +/- 30%

6.7.9

6

Raw Data: 4Q74370.D

Continuing Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S4Q1106-CC1106
Lab FileID: 4Q74370.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042325_537.1_s4q1106\s4q1106.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\042325_537.1_s4q1106\4q74360.d
2:D:\MassHunter\Data\042325_537.1_s4q1106\4q74361.d
3:D:\MassHunter\Data\042325_537.1_s4q1106\4q74362.d
4:D:\MassHunter\Data\042325_537.1_s4q1106\4q74363.d
5:D:\MassHunter\Data\042325_537.1_s4q1106\4q74364.d
6:D:\MassHunter\Data\042325_537.1_s4q1106\4q74365.d
7:D:\MassHunter\Data\042325_537.1_s4q1106\4q74366.d
8:D:\MassHunter\Data\042325_537.1_s4q1106\4q74367.d

Data File: 4q74370
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	10.384	3.8	103.8
13C2-PFHxA	10.000	10.691	6.9	106.9
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	21.843	9.2	109.2
8:2FTS	20.000	22.051	10.3	110.3
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	21.807	9.0	109.0
EtFOSAA	20.000	21.672	8.4	108.4
MeFOSAA	20.000	19.162	-4.2	95.8
PFBS	20.000	20.074	0.4	100.4
PFDA	20.000	20.561	2.8	102.8
PFDoDA	20.000	20.379	1.9	101.9
PFHpA	20.000	19.442	-2.8	97.2
PFHxA	20.000	21.304	6.5	106.5
PFHxS	20.000	19.096	-4.5	95.5
PFNA	20.000	19.535	-2.3	97.7
PFOA	20.000	19.418	-2.9	97.1
PFOS	20.000	18.877	-5.6	94.4
PFPeA	20.000	19.417	-2.9	97.1
PFTeDA	20.000	22.240	11.2	111.2
PFTrDA	20.000	19.791	-1.0	99.0
PFUnDA	20.000	20.737	3.7	103.7
ADONA	20.000	19.728	-1.4	98.6
9Cl-PF3ONS	20.000	22.155	10.8	110.8
11Cl-PF3OUdS	20.000	22.026	10.1	110.1
13C3-HFPO-DA	20.000	19.486	-2.6	97.4
HFPO-DA	20.000	21.090	5.5	105.5

CC Criteria: +/- 30%

Raw Data: 4Q74371.D

Continuing Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S4Q1106-CC1106
Lab FileID: 4Q74371.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042325_537.1_s4q1106\s4q1106.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\042325_537.1_s4q1106\4q74360.d
2:D:\MassHunter\Data\042325_537.1_s4q1106\4q74361.d
3:D:\MassHunter\Data\042325_537.1_s4q1106\4q74362.d
4:D:\MassHunter\Data\042325_537.1_s4q1106\4q74363.d
5:D:\MassHunter\Data\042325_537.1_s4q1106\4q74364.d
6:D:\MassHunter\Data\042325_537.1_s4q1106\4q74365.d
7:D:\MassHunter\Data\042325_537.1_s4q1106\4q74366.d
8:D:\MassHunter\Data\042325_537.1_s4q1106\4q74367.d

Data File: 4q74371
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	0.250	0.253	1.3	101.3
13C2-PFHxA	0.250	0.269	7.8	107.8
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	0.500	0.521	4.3	104.3
8:2FTS	0.500	0.575	15.1	115.1
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	0.500	0.554	10.9	110.9
EtFOSAA	0.500	0.572	14.4	114.4
MeFOSAA	0.500	0.470	-6.0	94.0
PFBS	0.500	0.501	0.2	100.2
PFDA	0.500	0.501	0.3	100.3
PFDoDA	0.500	0.500	-0.1	99.9
PFHpA	0.500	0.465	-6.9	93.1
PFHxA	0.500	0.538	7.7	107.7
PFHxS	0.500	0.471	-5.8	94.2
PFNA	0.500	0.481	-3.9	96.1
PFOA	0.500	0.490	-2.0	98.0
PFOS	0.500	0.511	2.2	102.2
PFPeA	0.500	0.468	-6.4	93.6
PFTeDA	0.500	0.587	17.3	117.3
PFTrDA	0.500	0.485	-3.0	97.0
PFUnDA	0.500	0.542	8.4	108.4
ADONA	0.500	0.483	-3.5	96.5
9Cl-PF3ONS	0.500	0.538	7.6	107.6
11Cl-PF3OUdS	0.500	0.564	12.8	112.8
13C3-HFPO-DA	0.500	0.539	7.7	107.7
HFPO-DA	0.500	0.525	4.9	104.9

CC Criteria: +/- 30%

Raw Data: 4Q74382.D

Continuing Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S4Q1106-ECC1106
Lab FileID: 4Q74382.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042325_537.1_s4q1106\s4q1106.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\042325_537.1_s4q1106\4q74360.d
2:D:\MassHunter\Data\042325_537.1_s4q1106\4q74361.d
3:D:\MassHunter\Data\042325_537.1_s4q1106\4q74362.d
4:D:\MassHunter\Data\042325_537.1_s4q1106\4q74363.d
5:D:\MassHunter\Data\042325_537.1_s4q1106\4q74364.d
6:D:\MassHunter\Data\042325_537.1_s4q1106\4q74365.d
7:D:\MassHunter\Data\042325_537.1_s4q1106\4q74366.d
8:D:\MassHunter\Data\042325_537.1_s4q1106\4q74367.d

Data File: 4q74382
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	10.163	1.6	101.6
13C2-PFHxA	10.000	10.712	7.1	107.1
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	21.826	9.1	109.1
8:2FTS	20.000	21.941	9.7	109.7
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	21.385	6.9	106.9
EtFOSAA	20.000	21.614	8.1	108.1
MeFOSAA	20.000	19.240	-3.8	96.2
PFBS	20.000	19.847	-0.8	99.2
PFDA	20.000	20.703	3.5	103.5
PFDoDA	20.000	20.228	1.1	101.1
PFHpA	20.000	19.380	-3.1	96.9
PFHxA	20.000	21.151	5.8	105.8
PFHxS	20.000	19.129	-4.4	95.6
PFNA	20.000	19.575	-2.1	97.9
PFOA	20.000	19.490	-2.5	97.5
PFOS	20.000	18.784	-6.1	93.9
PFPeA	20.000	19.521	-2.4	97.6
PFTeDA	20.000	22.101	10.5	110.5
PFTrDA	20.000	19.686	-1.6	98.4
PFUnDA	20.000	20.685	3.4	103.4
ADONA	20.000	19.784	-1.1	98.9
9Cl-PF3ONS	20.000	22.070	10.3	110.3
11Cl-PF3OUdS	20.000	21.826	9.1	109.1
13C3-HFPO-DA	20.000	18.664	-6.7	93.3
HFPO-DA	20.000	21.170	5.9	105.9

CC Criteria: +/- 30%

6.7.12
6

Initial Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q523-ICC523
Lab FileID: 5Q31825.D

Initial Calibration Report

Method Path	D:\MassHunter\Methods
Method File	537_041725_S5Q523.quantmethod.xml
Batch Name	D:\MassHunter\Data\041725_537.1_S5Q523\QuantResults\s5q523.batch.bin
Last Calib Update	4/18/2025 6:39:14 AM

Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time
1	D:\MassHunter\Data\041725_537.1_S5Q523\SQ31820.d	4/17/2025 12:39:17 PM	4/18/2025 6:39:14 AM
2	D:\MassHunter\Data\041725_537.1_S5Q523\SQ31821.d	4/17/2025 12:55:41 PM	4/18/2025 6:39:14 AM
3	D:\MassHunter\Data\041725_537.1_S5Q523\SQ31822.d	4/17/2025 1:12:06 PM	4/18/2025 6:39:14 AM
4	D:\MassHunter\Data\041725_537.1_S5Q523\SQ31823.d	4/17/2025 1:28:32 PM	4/18/2025 6:39:14 AM
5	D:\MassHunter\Data\041725_537.1_S5Q523\SQ31824.d	4/17/2025 1:44:57 PM	4/18/2025 6:39:14 AM
6	D:\MassHunter\Data\041725_537.1_S5Q523\SQ31825.d	4/17/2025 2:01:21 PM	4/18/2025 6:39:14 AM
7	D:\MassHunter\Data\041725_537.1_S5Q523\SQ31826.d	4/17/2025 2:17:47 PM	4/18/2025 6:39:14 AM
8	D:\MassHunter\Data\041725_537.1_S5Q523\SQ31827.d	4/17/2025 2:34:12 PM	4/18/2025 6:39:14 AM

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I 13C2-6:2FTS						ISTD					
T 6:2FTS	Linear	0.8388	1.0268	1.0401	1.0834	1.1920	1.1414	1.0745	0.9767	1.0467	10.262
T 8:2FTS	Linear	0.7748	0.9260	0.9054	0.9131	0.9451	0.9393	0.8994	0.8585	0.8952	6.215
I 13C2-PFOA						ISTD					
S 13C2-PFHxA	Linear	0.9105	1.0011	1.0179	1.0963	1.2633	1.1748	1.2566	1.2742	1.1243	12.344
T PFHxA	Linear	0.6086	0.6781	0.7124	0.7538	0.8667	0.8135	0.8539	0.8667	0.7692	12.596
S 13C3-HFPO-DA	Linear	0.0726	0.0692	0.0742	0.0731	0.0845	0.0784	0.0865	0.0909	0.0787	9.863
T HFPO-DA	Quadratic	0.0678	0.0670	0.0703	0.0702	0.0821	0.0764	0.0822	0.0883	0.0755	10.485
T PFHpA	Quadratic	1.2192	1.3214	1.4305	1.5035	1.7400	1.6132	1.7045	1.8103	1.5428	13.628
T ADONA	Quadratic	1.4817	1.7026	1.8434	1.9381	2.2182	2.0912	2.2333	2.4145	1.9904	15.507
T PFOA	Quadratic	0.6796	0.7914	0.7981	0.8401	0.9859	0.9556	0.9724	1.0061	0.8787	13.442
T PFNA	Quadratic	0.5135	0.5617	0.5722	0.6402	0.6884	0.6760	0.6806	0.7740	0.6383	13.232
T 9Cl-PF3ONS	Quadratic	0.2183	0.2263	0.2596	0.2544	0.2772	0.2753	0.2926	0.3331	0.2671	13.752
S 13C2-PFDA	Linear	0.6940	0.6614	0.6814	0.7331	0.8330	0.7863	0.8174	0.8690	0.7594	10.219
T PFDA	Quadratic	0.5362	0.6411	0.6496	0.6655	0.7584	0.7311	0.7305	0.7768	0.6862	11.514
T 11Cl-PF3OUdS	Quadratic	0.2336	0.2618	0.2668	0.2741	0.2756	0.2858	0.3202	0.3740	0.2865	14.964
I 13C3-PFPeA						ISTD					
T PFPeA	Quadratic	0.9115	1.0400	1.0824	1.1612	1.3292	1.2788	1.3088	1.3378	1.1812	13.388
I 13C4-PFOS						ISTD					
T PFBS	Linear	2.0308	2.1876	2.3023	2.4836	2.7092	2.7257	2.6663	2.5998	2.4632	10.615
T PFHxS	Quadratic	1.2645	1.2849	1.3422	1.4456	1.6839	1.6536	1.7238	1.7801	1.5223	13.858
T PFOS	Linear	0.9614	1.0956	0.9879	1.1120	1.2633	1.2524	1.2569	1.3389	1.1585	12.034
T PFUnDA	Linear	2.3999	2.5352	2.7972	2.8705	3.0779	3.2305	3.2187	3.3036	2.9292	11.492
T PFDoDA	Quadratic	2.2845	2.4478	2.7257	2.5831	2.0782	2.7741	3.1566	3.2641	2.6643	15.274
T PFTrDA	Linear	1.0471	1.0668	1.2384	1.0965	1.0695	1.1833	1.3574	1.4854	1.1930	13.309
T PFTeDA	Quadratic	0.7320	0.8555	0.9254	0.8891	0.9847	1.0125	1.1040	1.2114	0.9643	15.495
I d3-MeFOSAA						ISTD					

Initial Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q523-ICC523
Lab FileID: 5Q31825.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T MeFOSAA	Quadratic	0.5128	0.7923	0.9726	0.6756	0.8997	0.9566	0.9524	0.9283	0.8363	19.773
S d5-EtFOSAA	Linear	0.9104	0.7309	0.6111	0.6732	0.7834	0.8270	0.7542	0.7576	0.7560	12.056
T EtFOSAA	Linear	0.6681	0.5008	0.7935	0.5559	0.7688	0.6739	0.6963	0.6620	0.6649	14.741

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Page 2 of 3

Generated at 6:40 AM on 4/18/2025

Initial Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q523-ICC523
Lab FileID: 5Q31825.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	Curve Fit R2
T PFPeA	Quadratic	y = 0.012513 * x ^ 2 + 1.275464 * x	0.999944
T PFBS	Linear	y = 2.616903 * x	0.999732
S 13C2-PFHxA	Linear	y = 1.267277 * x	0.999623
T PFHxA	Linear	y = 0.862359 * x	0.999728
S 13C3-HFPO-DA	Linear	y = 0.089551 * x	0.998564
T HFPO-DA	Quadratic	y = 0.002541 * x ^ 2 + 0.075635 * x	0.999921
T PFHpA	Quadratic	y = 0.042655 * x ^ 2 + 1.597047 * x	0.999919
T PFHxS	Quadratic	y = 0.038761 * x ^ 2 + 1.595147 * x	0.999003
T ADONA	Quadratic	y = 0.073191 * x ^ 2 + 2.048593 * x	0.999941
T 6:2FTS	Linear	y = 1.002409 * x	0.996282
T PFOA	Quadratic	y = 0.013166 * x ^ 2 + 0.940242 * x	0.999937
T PFOS	Linear	y = 1.319338 * x	0.998869
T PFNA	Quadratic	y = 0.031928 * x ^ 2 + 0.613141 * x	0.999771
T 9Cl-PF3ONS	Quadratic	y = 0.015385 * x ^ 2 + 0.256004 * x	0.999963
T MeFOSAA	Quadratic	y = 0.018127 * x ^ 2 + 0.893252 * x	0.995945
S d5-EtFOSAA	Linear	y = 0.759043 * x	0.999540
T EtFOSAA	Linear	y = 0.669574 * x	0.999012
S 13C2-PFDA	Linear	y = 0.855918 * x	0.998768
T PFDA	Quadratic	y = 0.015412 * x ^ 2 + 0.699047 * x	0.999890
T 8:2FTS	Linear	y = 0.869627 * x	0.999058
T PFUnDA	Linear	y = 3.282276 * x	0.999725
T 11Cl-PF3OUdS	Quadratic	y = 0.021715 * x ^ 2 + 0.265508 * x	0.999999
T PFDoDA	Quadratic	y = 0.087957 * x ^ 2 + 2.834969 * x	0.998899
T PFTrDA	Linear	y = 1.447528 * x	0.995753
T PFTeDA	Quadratic	y = 0.046245 * x ^ 2 + 0.980923 * x	0.999954

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Raw Data: 5Q31828.D

Initial Calibration Verification

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q523-ICV523
Lab FileID: 5Q31828.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041725_537.1_S5Q523\s5q523.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31820.d
2:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31821.d
3:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31822.d
4:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31823.d
5:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31824.d
6:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31825.d
7:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31826.d
8:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31827.d

Data File: 5Q31828
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	0.000	# -100.0	0.0
13C2-PFHxA	10.000	0.000	# -100.0	0.0
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	20.484	2.4	102.4
8:2FTS	20.000	20.622	3.1	103.1
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	0.000	# -100.0	0.0
EtFOSAA	20.000	19.690	-1.6	98.4
MeFOSAA	20.000	19.270	-3.6	96.4
PFBS	20.000	18.204	-9.0	91.0
PFDA	20.000	18.931	-5.3	94.7
PFDoDA	20.000	25.436	27.2	127.2
PFHpA	20.000	20.478	2.4	102.4
PFHxA	20.000	17.690	-11.5	88.5
PFHxS	20.000	17.652	-11.7	88.3
PFNA	20.000	23.566	17.8	117.8
PFOA	20.000	20.409	2.0	102.0
PFOS	20.000	18.134	-9.3	90.7
PFPeA	20.000	20.165	0.8	100.8
PFTeDA	20.000	19.801	-1.0	99.0
PFTrDA	20.000	25.273	26.4	126.4
PFUnDA	20.000	22.254	11.3	111.3
ADONA	20.000	18.422	-7.9	92.1
9Cl-PF3ONS	20.000	18.635	-6.8	93.2
11Cl-PF3OUdS	20.000	20.631	3.2	103.2
13C3-HFPO-DA	20.000	0.000	# -100.0	0.0
HFPO-DA	20.000	19.689	-1.6	98.4

CC Criteria: +/- 30%

6.7.14
6

Raw Data: 5Q31830.D

Continuing Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q523-CC523
Lab FileID: 5Q31830.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041725_537.1_S5Q523\s5q523.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31820.d
2:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31821.d
3:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31822.d
4:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31823.d
5:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31824.d
6:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31825.d
7:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31826.d
8:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31827.d

Data File: 5Q31830
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	9.155	-8.5	91.5
13C2-PFHxA	10.000	9.386	-6.1	93.9
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	23.543	17.7	117.7
8:2FTS	20.000	21.132	5.7	105.7
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	19.379	-3.1	96.9
EtFOSAA	20.000	20.719	3.6	103.6
MeFOSAA	20.000	18.749	-6.3	93.7
PFBS	20.000	20.763	3.8	103.8
PFDA	20.000	20.466	2.3	102.3
PFDoDA	20.000	19.856	-0.7	99.3
PFHpA	20.000	19.556	-2.2	97.8
PFHxA	20.000	18.686	-6.6	93.4
PFHxS	20.000	20.052	0.3	100.3
PFNA	20.000	21.459	7.3	107.3
PFOA	20.000	20.295	1.5	101.5
PFOS	20.000	18.650	-6.8	93.2
PFPeA	20.000	20.148	0.7	100.7
PFTeDA	20.000	19.831	-0.8	99.2
PFTrDA	20.000	16.431	-17.8	82.2
PFUnDA	20.000	19.665	-1.7	98.3
ADONA	20.000	19.623	-1.9	98.1
9Cl-PF3ONS	20.000	20.079	0.4	100.4
11Cl-PF3OUdS	20.000	20.130	0.6	100.6
13C3-HFPO-DA	20.000	17.705	-11.5	88.5
HFPO-DA	20.000	19.965	-0.2	99.8

CC Criteria: +/- 30%

6.7.15
6

Raw Data: 5Q31831.D

Continuing Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q523-CC523
Lab FileID: 5Q31831.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041725_537.1_S5Q523\s5q523.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31820.d
2:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31821.d
3:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31822.d
4:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31823.d
5:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31824.d
6:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31825.d
7:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31826.d
8:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31827.d

Data File: 5Q31831
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	0.250	0.178	-28.8	71.2
13C2-PFHxA	0.250	0.176	-29.6	70.4
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	0.500	0.451	-9.9	90.1
8:2FTS	0.500	0.425	-15.0	85.0
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	0.500	0.618	23.7	123.7
EtFOSAA	0.500	0.457	-8.6	91.4
MeFOSAA	0.500	0.520	3.9	103.9
PFBS	0.500	0.381	-23.9	76.1
PFDA	0.500	0.375	-25.0	75.0
PFDoDA	0.500	0.453	-9.4	90.6
PFHpA	0.500	0.386	-22.8	77.2
PFHxA	0.500	0.361	-27.8	72.2
PFHxS	0.500	0.360	-28.0	72.0
PFNA	0.500	0.433	-13.4	86.6
PFOA	0.500	0.387	-22.7	77.3
PFOS	0.500	0.400	-19.9	80.1
PFPeA	0.500	0.368	-26.5	73.5
PFTeDA	0.500	0.450	-10.1	89.9
PFTrDA	0.500	0.402	-19.5	80.5
PFUnDA	0.500	0.366	-26.8	73.2
ADONA	0.500	0.363	-27.4	72.6
9Cl-PF3ONS	0.500	0.476	-4.7	95.3
11Cl-PF3OUdS	0.500	0.437	-12.6	87.4
13C3-HFPO-DA	0.500	0.350	-29.9	70.1
HFPO-DA	0.500	0.406	-18.7	81.3

CC Criteria: +/- 30%

6.7.16
6

Raw Data: 5Q31842.D

Continuing Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q523-ECC523
Lab FileID: 5Q31842.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041725_537.1_S5Q523\s5q523.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31820.d
2:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31821.d
3:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31822.d
4:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31823.d
5:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31824.d
6:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31825.d
7:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31826.d
8:D:\MassHunter\Data\041725_537.1_S5Q523\5Q31827.d

Data File: 5Q31842
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	9.635	-3.6	96.4
13C2-PFHxA	10.000	9.657	-3.4	96.6
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	23.321	16.6	116.6
8:2FTS	20.000	21.376	6.9	106.9
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	19.700	-1.5	98.5
EtFOSAA	20.000	19.955	-0.2	99.8
MeFOSAA	20.000	18.881	-5.6	94.4
PFBS	20.000	20.731	3.7	103.7
PFDA	20.000	20.472	2.4	102.4
PFDoDA	20.000	19.924	-0.4	99.6
PFHpA	20.000	20.132	0.7	100.7
PFHxA	20.000	19.113	-4.4	95.6
PFHxS	20.000	20.456	2.3	102.3
PFNA	20.000	21.019	5.1	105.1
PFOA	20.000	20.275	1.4	101.4
PFOS	20.000	19.300	-3.5	96.5
PFPeA	20.000	20.143	0.7	100.7
PFTeDA	20.000	19.481	-2.6	97.4
PFTrDA	20.000	16.149	-19.3	80.7
PFUnDA	20.000	19.675	-1.6	98.4
ADONA	20.000	20.059	0.3	100.3
9Cl-PF3ONS	20.000	21.109	5.5	105.5
11Cl-PF3OUdS	20.000	20.694	3.5	103.5
13C3-HFPO-DA	20.000	18.081	-9.6	90.4
HFPO-DA	20.000	19.977	-0.1	99.9

CC Criteria: +/- 30%

6.7.17
6

Initial Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q524-ICC524
Lab FileID: 5Q31870.D

Initial Calibration Report

Method Path	D:\MassHunter\Methods
Method File	537_041825_S5Q524.quantmethod.xml
Batch Name	D:\MassHunter\Data\041825_537.1_S5Q524\QuantResults\s5q524.batch.bin
Last Calib Update	4/21/2025 9:26:48 AM

Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time
1	D:\MassHunter\Data\041825_537.1_S5Q524\5Q31865.d	4/18/2025 1:55:35 PM	4/21/2025 9:26:48 AM
2	D:\MassHunter\Data\041825_537.1_S5Q524\5Q31866.d	4/18/2025 2:12:06 PM	4/21/2025 9:26:48 AM
3	D:\MassHunter\Data\041825_537.1_S5Q524\5Q31867.d	4/18/2025 2:28:35 PM	4/21/2025 9:26:48 AM
4	D:\MassHunter\Data\041825_537.1_S5Q524\5Q31868.d	4/18/2025 2:45:04 PM	4/21/2025 9:26:48 AM
5	D:\MassHunter\Data\041825_537.1_S5Q524\5Q31869.d	4/18/2025 3:01:37 PM	4/21/2025 9:26:48 AM
6	D:\MassHunter\Data\041825_537.1_S5Q524\5Q31870.d	4/18/2025 3:18:07 PM	4/21/2025 9:26:48 AM
7	D:\MassHunter\Data\041825_537.1_S5Q524\5Q31871.d	4/18/2025 3:34:36 PM	4/21/2025 9:26:48 AM
8	D:\MassHunter\Data\041825_537.1_S5Q524\5Q31872.d	4/18/2025 3:51:06 PM	4/21/2025 9:26:48 AM

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I 13C2-6:2FTS						ISTD					
T 6:2FTS	Linear	1.0766	0.8833	0.8661	1.0806	1.1920	1.1733	1.0172	0.9316	1.0276	12.184
T 8:2FTS	Linear	0.7781	0.7215	0.7236	0.8378	0.8976	0.8740	0.7901	0.7360	0.7948	8.625
I 13C2-PFOA						ISTD					
S 13C2-PFHxA	Linear	1.1373	1.0721	0.9250	1.1110	1.2206	1.2101	1.1301	1.1698	1.1220	8.352
T PFHxA	Linear	0.7132	0.6275	0.6316	0.7581	0.8369	0.8491	0.7717	0.7950	0.7479	11.332
S 13C3-HFPO-DA	Linear	0.0698	0.0683	0.0614	0.0791	0.0849	0.0787	0.0755	0.0807	0.0748	10.329
T HFPO-DA	Linear	0.0953	0.0748	0.0695	0.0715	0.0798	0.0785	0.0712	0.0754	0.0770	10.663
T PFHpA	Linear	1.4123	1.2245	1.2261	1.5535	1.6916	1.6886	1.5533	1.6299	1.4975	12.705
T ADONA	Linear	1.7191	1.5185	1.5299	1.9298	2.1363	2.1196	1.9880	2.1515	1.8866	14.021
T PFOA	Linear	0.9067	0.7307	0.7070	0.8876	0.9767	0.9785	0.8979	0.9354	0.8776	11.826
T PFNA	Linear	0.6046	0.4893	0.4976	0.6296	0.6894	0.6791	0.6469	0.7004	0.6171	13.391
T 9Cl-PF3ONS	Quadratic	0.2819	0.2013	0.2006	0.2582	0.2804	0.2722	0.2697	0.2924	0.2571	14.017
S 13C2-PFDA	Linear	0.6551	0.6261	0.5901	0.7351	0.8027	0.7559	0.7408	0.7644	0.7088	10.622
T PFDA	Linear	0.6505	0.5200	0.5073	0.6383	0.7348	0.7145	0.6731	0.7012	0.6425	13.345
T 11Cl-PF3OUdS	Linear	0.2329	0.1817	0.1823	0.2359	0.2507	0.2381	0.2492	0.2631	0.2292	13.401
I 13C3-PFPeA						ISTD					
T PFPeA	Linear	1.1680	0.9615	0.9578	1.1686	1.2854	1.2892	1.2069	1.2338	1.1589	11.320
I 13C4-PFOS						ISTD					
T PFBS	Linear	2.4292	2.0926	2.1498	2.4880	2.7204	2.8669	2.5498	2.4978	2.4743	10.519
T PFHxS	Linear	1.5454	1.1964	1.3825	1.5048	1.6181	1.7200	1.6326	1.6296	1.5287	11.009
T PFOS	Linear	1.2520	0.9277	0.9916	1.1411	1.2558	1.2646	1.2009	1.2435	1.1597	11.285
T PFUnDA	Linear	2.8025	2.2492	2.2231	2.6066	2.9433	3.0099	2.9017	2.8509	2.6984	11.452
T PFDoDA	Quadratic	1.6485	1.3414	1.3096	1.6466	1.7151	1.8347	2.1167	1.8915	1.6880	16.054
T PFTrDA	Linear	1.0172	0.7621	0.7848	0.8895	0.9655	1.0639	1.0261	1.0768	0.9482	12.967
T PFTeDA	Linear	0.8975	0.6986	0.7344	0.8639	0.9409	0.9800	0.9415	1.0090	0.8832	12.745
I d3-MeFOSAA						ISTD					

Generated at 9:27 AM on 4/21/2025

Initial Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q524-ICC524
Lab FileID: 5Q31870.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T MeFOSAA	Linear	0.8252	0.6459	0.7834	0.8465	0.9467	0.9241	0.8322	0.8859	0.8362	11.224
S d5-EtFOSAA	Linear	1.0815	0.7271	0.6335	0.7026	0.8045	0.7110	0.6887	0.7407	0.7612	18.147
T EtFOSAA	Linear	0.7016	0.4552	0.6545	0.6305	0.8019	0.7351	0.6323		0.6587	16.526

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Initial Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Sample: S5Q524-ICC524
Lab FileID: 5Q31870.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	Curve Fit R2
T PFPeA	Linear	y = 1.230486 * x	0.999720
T PFBS	Linear	y = 2.520636 * x	0.998884
S 13C2-PFHxA	Linear	y = 1.163606 * x	0.999599
T PFHxA	Linear	y = 0.792359 * x	0.999483
S 13C3-HFPO-DA	Linear	y = 0.079702 * x	0.998931
T HFPO-DA	Linear	y = 0.074743 * x	0.999070
T PFHpA	Linear	y = 1.617213 * x	0.999323
T PFHxS	Linear	y = 1.632545 * x	0.999825
T ADONA	Linear	y = 2.118394 * x	0.998566
T 6:2FTS	Linear	y = 0.957706 * x	0.994699
T PFOA	Linear	y = 0.929643 * x	0.999421
T PFOS	Linear	y = 1.235796 * x	0.999654
T PFNA	Linear	y = 0.689188 * x	0.998542
T 9Cl-PF3ONS	Quadratic	y = 0.007382 * x ^ 2 + 0.255103 * x	0.999809
T MeFOSAA	Linear	y = 0.877084 * x	0.998901
S d5-EtFOSAA	Linear	y = 0.730160 * x	0.998657
T EtFOSAA	Linear	y = 0.651404 * x	0.992312
S 13C2-PFDA	Linear	y = 0.759809 * x	0.999708
T PFDA	Linear	y = 0.696298 * x	0.999494
T 8:2FTS	Linear	y = 0.752033 * x	0.996931
T PFUnDA	Linear	y = 2.865509 * x	0.999743
T 11Cl-PF3OUdS	Linear	y = 0.259475 * x	0.998940
T PFDoDA	Quadratic	y = 0.020137 * x ^ 2 + 1.838320 * x	0.993465
T PFTrDA	Linear	y = 1.065334 * x	0.999262
T PFTeDA	Linear	y = 0.994238 * x	0.998812

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Initial Calibration Verification

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q524-ICV524
Lab FileID: 5Q31873.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041825_537.1_S5Q524\s5q524.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31865.d
2:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31866.d
3:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31867.d
4:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31868.d
5:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31869.d
6:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31870.d
7:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31871.d
8:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31872.d

Data File: 5Q31873
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	0.000	# -100.0	0.0
13C2-PFHxA	10.000	0.000	# -100.0	0.0
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	23.035	15.2	115.2
8:2FTS	20.000	22.228	11.1	111.1
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	0.000	# -100.0	0.0
EtFOSAA	20.000	22.020	10.1	110.1
MeFOSAA	20.000	20.304	1.5	101.5
PFBS	20.000	20.398	2.0	102.0
PFDA	20.000	19.339	-3.3	96.7
PFDoDA	20.000	22.792	14.0	114.0
PFHpA	20.000	21.482	7.4	107.4
PFHxA	20.000	20.401	2.0	102.0
PFHxS	20.000	18.727	-6.4	93.6
PFNA	20.000	23.128	15.6	115.6
PFOA	20.000	22.232	11.2	111.2
PFOS	20.000	21.185	5.9	105.9
PFPeA	20.000	22.332	11.7	111.7
PFTeDA	20.000	18.584	-7.1	92.9
PFTrDA	20.000	23.289	16.4	116.4
PFUnDA	20.000	23.495	17.5	117.5
ADONA	20.000	19.113	-4.4	95.6
9Cl-PF3ONS	20.000	19.637	-1.8	98.2
11Cl-PF3OUdS	20.000	18.697	-6.5	93.5
13C3-HFPO-DA	20.000	0.000	# -100.0	0.0
HFPO-DA	20.000	21.250	6.2	106.2

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q524-CC524
Lab FileID: 5Q31875.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041825_537.1_S5Q524\s5q524.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31865.d
2:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31866.d
3:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31867.d
4:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31868.d
5:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31869.d
6:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31870.d
7:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31871.d
8:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31872.d

Data File: 5Q31875
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	10.306	3.1	103.1
13C2-PFHxA	10.000	10.660	6.6	106.6
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	24.685	23.4	123.4
8:2FTS	20.000	24.335	21.7	121.7
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	20.867	4.3	104.3
EtFOSAA	20.000	22.729	13.6	113.6
MeFOSAA	20.000	21.260	6.3	106.3
PFBS	20.000	22.105	10.5	110.5
PFDA	20.000	20.718	3.6	103.6
PFDoDA	20.000	19.488	-2.6	97.4
PFHpA	20.000	20.929	4.6	104.6
PFHxA	20.000	21.211	6.1	106.1
PFHxS	20.000	20.788	3.9	103.9
PFNA	20.000	20.239	1.2	101.2
PFOA	20.000	21.024	5.1	105.1
PFOS	20.000	19.919	-0.4	99.6
PFPeA	20.000	21.283	6.4	106.4
PFTeDA	20.000	19.137	-4.3	95.7
PFTrDA	20.000	19.081	-4.6	95.4
PFUnDA	20.000	20.390	1.9	101.9
ADONA	20.000	20.354	1.8	101.8
9Cl-PF3ONS	20.000	21.388	6.9	106.9
11Cl-PF3OUdS	20.000	18.571	-7.1	92.9
13C3-HFPO-DA	20.000	19.756	-1.2	98.8
HFPO-DA	20.000	21.166	5.8	105.8

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q524-CC524
Lab FileID: 5Q31876.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041825_537.1_S5Q524\s5q524.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31865.d
2:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31866.d
3:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31867.d
4:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31868.d
5:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31869.d
6:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31870.d
7:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31871.d
8:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31872.d

Data File: 5Q31876
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	0.250	0.207	-17.4	82.6
13C2-PFHxA	0.250	0.234	-6.3	93.7
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	0.500	0.597	19.4	119.4
8:2FTS	0.500	0.560	12.1	112.1
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	0.500	0.604	20.8	120.8
EtFOSAA	0.500	0.543	8.7	108.7
MeFOSAA	0.500	0.539	7.9	107.9
PFBS	0.500	0.515	2.9	102.9
PFDA	0.500	0.471	-5.8	94.2
PFDoDA	0.500	0.425	-15.1	84.9
PFHpA	0.500	0.452	-9.5	90.5
PFHxA	0.500	0.447	-10.6	89.4
PFHxS	0.500	0.436	-12.8	87.2
PFNA	0.500	0.430	-13.9	86.1
PFOA	0.500	0.458	-8.5	91.5
PFOS	0.500	0.495	-0.9	99.1
PFPeA	0.500	0.491	-1.8	98.2
PFTeDA	0.500	0.441	-11.7	88.3
PFTrDA	0.500	0.442	-11.6	88.4
PFUnDA	0.500	0.428	-14.4	85.6
ADONA	0.500	0.413	-17.4	82.6
9Cl-PF3ONS	0.500	0.476	-4.8	95.2
11Cl-PF3OUdS	0.500	0.452	-9.7	90.3
13C3-HFPO-DA	0.500	0.557	11.4	111.4
HFPO-DA	0.500	0.662	32.5	132.5

CC Criteria: +/- 50%

Raw Data: 5Q31885.D

Continuing Calibration Summary

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water
Sample: S5Q524-ECC524
Lab FileID: 5Q31885.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041825_537.1_S5Q524\s5q524.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31865.d
2:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31866.d
3:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31867.d
4:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31868.d
5:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31869.d
6:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31870.d
7:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31871.d
8:D:\MassHunter\Data\041825_537.1_S5Q524\5Q31872.d

Data File: 5Q31885
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	10.000	10.337	3.4	103.4
13C2-PFHxA	10.000	10.795	7.9	107.9
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	24.674	23.4	123.4
8:2FTS	20.000	23.085	15.4	115.4
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	21.169	5.8	105.8
EtFOSAA	20.000	22.216	11.1	111.1
MeFOSAA	20.000	20.454	2.3	102.3
PFBS	20.000	23.023	15.1	115.1
PFDA	20.000	20.022	0.1	100.1
PFDoDA	20.000	19.766	-1.2	98.8
PFHpA	20.000	20.995	5.0	105.0
PFHxA	20.000	21.511	7.6	107.6
PFHxS	20.000	21.349	6.7	106.7
PFNA	20.000	19.253	-3.7	96.3
PFOA	20.000	20.734	3.7	103.7
PFOS	20.000	20.739	3.7	103.7
PFPeA	20.000	21.275	6.4	106.4
PFTeDA	20.000	19.442	-2.8	97.2
PFTrDA	20.000	19.733	-1.3	98.7
PFUnDA	20.000	21.160	5.8	105.8
ADONA	20.000	20.219	1.1	101.1
9Cl-PF3ONS	20.000	21.175	5.9	105.9
11Cl-PF3OUdS	20.000	18.458	-7.7	92.3
13C3-HFPO-DA	20.000	21.059	5.3	105.3
HFPO-DA	20.000	21.545	7.7	107.7

CC Criteria: +/- 30%

6.7.22
6

Run Sequence Report

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Run ID: S3Q1492	**Method:** EPA 533	**Instrument ID:** GCMS3Q

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S3Q1492-IC1492	3Q101457.D	04/15/25 13:47	n/a	Mass Calibration Verification
S3Q1492-IC1492	3Q101458.D	04/15/25 14:03	n/a	Initial cal 0.5
S3Q1492-IC1492	3Q101459.D	04/15/25 14:20	n/a	Initial cal 1
S3Q1492-IC1492	3Q101460.D	04/15/25 14:36	n/a	Initial cal 2
S3Q1492-IC1492	3Q101461.D	04/15/25 14:52	n/a	Initial cal 5
S3Q1492-IC1492	3Q101462.D	04/15/25 15:08	n/a	Initial cal 10
S3Q1492-ICC1492	3Q101463.D	04/15/25 15:24	n/a	Initial cal 20
S3Q1492-IC1492	3Q101464.D	04/15/25 15:40	n/a	Initial cal 40
S3Q1492-IC1492	3Q101465.D	04/15/25 15:56	n/a	Initial cal 50
S3Q1492-IBLK	3Q101466.D	04/15/25 16:12	n/a	Instrument Blank
S3Q1492-ICV1492	3Q101467.D	04/15/25 16:28	n/a	Initial cal verification 20
S3Q1492-RT	3Q101468.D	04/15/25 16:44	n/a	Retention Time Marker
S3Q1492-CC1492	3Q101469.D	04/15/25 17:00	n/a	Continuing cal 20
S3Q1492-CC1492	3Q101470.D	04/15/25 17:16	n/a	Continuing cal 0.5LL
OP8883-MB	3Q101471.D	04/15/25 17:33	OP8883	Method Blank
OP8883-BS	3Q101472.D	04/15/25 17:49	OP8883	Blank Spike
FC23899-1	3Q101473.D	04/15/25 18:05	OP8883	(used for QC only; not part of job FC23948)
OP8883-MS	3Q101474.D	04/15/25 18:21	OP8883	Matrix Spike
ZZZZZZ	3Q101475.D	04/15/25 18:37	OP8883	(unrelated sample)
FC23899-3	3Q101476.D	04/15/25 18:53	OP8883	(used for QC only; not part of job FC23948)
OP8883-DUP	3Q101477.D	04/15/25 19:09	OP8883	Duplicate
ZZZZZZ	3Q101478.D	04/15/25 19:25	OP8883	(unrelated sample)
S3Q1492-ECC1492	3Q101480.D	04/15/25 19:57	n/a	Ending cal 20

Run Sequence Report

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Run ID: S3Q1494	**Method:** EPA 533	**Instrument ID:** GCMS3Q

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S3Q1494-IBLK	3Q101518.D	04/17/25 10:18	n/a	Instrument Blank
S3Q1494-RT	3Q101519.D	04/17/25 10:35	n/a	Retention Time Marker
S3Q1494-CC1492	3Q101520.D	04/17/25 10:51	n/a	Continuing cal 20
S3Q1494-CC1492	3Q101521.D	04/17/25 11:07	n/a	Continuing cal 0.5LL
ZZZZZZ	3Q101523.D	04/17/25 11:39	OP8883	(unrelated sample)
OP8907-BS	3Q101524.D	04/17/25 11:55	OP8907	Blank Spike
OP8907-MB	3Q101525.D	04/17/25 12:11	OP8907	Method Blank
FC23948-1	3Q101526.D	04/17/25 12:27	OP8907	SHAFT-HW-0018384-25098-N-R02
OP8907-MS	3Q101527.D	04/17/25 12:43	OP8907	Matrix Spike
FC23948-2	3Q101528.D	04/17/25 12:59	OP8907	SHAFT-FB-250414-25098-N
FC23948-3	3Q101529.D	04/17/25 13:15	OP8907	SHAFT-HW-0018393-25098-N-R02
OP8907-DUP	3Q101530.D	04/17/25 13:31	OP8907	Duplicate
FC23948-4	3Q101531.D	04/17/25 13:48	OP8907	SHAFT-HW-0018394-25098-N-R02
ZZZZZZ	3Q101532.D	04/17/25 14:04	OP8907	(unrelated sample)
S3Q1494-CC1492	3Q101533.D	04/17/25 14:20	n/a	Continuing cal 20
ZZZZZZ	3Q101534.D	04/17/25 14:36	OP8907	(unrelated sample)
ZZZZZZ	3Q101535.D	04/17/25 14:52	OP8907	(unrelated sample)
S3Q1494-ECC1492	3Q101536.D	04/17/25 15:08	n/a	Ending cal 20

Run Sequence Report

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Run ID: S4Q1106 **Method:** EPA 537.1 REV 2.0 **Instrument ID:** GCMS4Q

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S4Q1106-IC1106	4Q74359.D	04/23/25 21:47	n/a	Mass Calibration Verification
S4Q1106-IC1106	4Q74360.D	04/23/25 22:01	n/a	Initial cal 0.5
S4Q1106-IC1106	4Q74361.D	04/23/25 22:15	n/a	Initial cal 1
S4Q1106-IC1106	4Q74362.D	04/23/25 22:30	n/a	Initial cal 2
S4Q1106-IC1106	4Q74363.D	04/23/25 22:44	n/a	Initial cal 5
S4Q1106-IC1106	4Q74364.D	04/23/25 22:58	n/a	Initial cal 10
S4Q1106-ICC1106	4Q74365.D	04/23/25 23:12	n/a	Initial cal 20
S4Q1106-IC1106	4Q74366.D	04/23/25 23:27	n/a	Initial cal 50
S4Q1106-IC1106	4Q74367.D	04/23/25 23:41	n/a	Initial cal 100
S4Q1106-RT	4Q74368.D	04/23/25 23:55	n/a	Retention Time Marker
S4Q1106-ICV1106	4Q74369.D	04/24/25 00:10	n/a	Initial cal verification 20
S4Q1106-CC1106	4Q74370.D	04/24/25 00:24	n/a	Continuing cal 20
S4Q1106-CC1106	4Q74371.D	04/24/25 00:38	n/a	Continuing cal 0.5LL
OP8985-BS	4Q74372.D	04/24/25 00:52	OP8985	Blank Spike
OP8985-MB	4Q74373.D	04/24/25 01:07	OP8985	Method Blank
FC23948-1A	4Q74374.D	04/24/25 01:21	OP8985	SHAFT-HW-0018384-25098-N-R02
FC24082-3A	4Q74378.D	04/24/25 02:18	OP8985	(used for QC only; not part of job FC23948)
OP8985-MS	4Q74379.D	04/24/25 02:32	OP8985	Matrix Spike
OP8985-MSD	4Q74380.D	04/24/25 02:47	OP8985	Matrix Spike Duplicate
S4Q1106-ECC1106	4Q74382.D	04/24/25 03:15	n/a	Ending cal 20

Run Sequence Report

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Run ID: S5Q523 **Method:** EPA 537.1 REV 2.0 **Instrument ID:** GCMS5Q

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S5Q523-IC523	5Q31819.D	04/17/25 12:22	n/a	Mass Calibration Verification
S5Q523-IC523	5Q31820.D	04/17/25 12:39	n/a	Initial cal 0.5
S5Q523-IC523	5Q31821.D	04/17/25 12:55	n/a	Initial cal 1
S5Q523-IC523	5Q31822.D	04/17/25 13:12	n/a	Initial cal 2
S5Q523-IC523	5Q31823.D	04/17/25 13:28	n/a	Initial cal 5
S5Q523-IC523	5Q31824.D	04/17/25 13:44	n/a	Initial cal 10
S5Q523-ICC523	5Q31825.D	04/17/25 14:01	n/a	Initial cal 20
S5Q523-IC523	5Q31826.D	04/17/25 14:17	n/a	Initial cal 50
S5Q523-IC523	5Q31827.D	04/17/25 14:34	n/a	Initial cal 100
S5Q523-ICV523	5Q31828.D	04/17/25 14:50	n/a	Initial cal verification 20
S5Q523-RT	5Q31829.D	04/17/25 15:07	n/a	Retention Time Marker
S5Q523-CC523	5Q31830.D	04/17/25 15:23	n/a	Continuing cal 20
S5Q523-CC523	5Q31831.D	04/17/25 15:39	n/a	Continuing cal 0.5LL
OP8904-BS	5Q31832.D	04/17/25 15:56	OP8904	Blank Spike
OP8904-MB	5Q31833.D	04/17/25 16:12	OP8904	Method Blank
ZZZZZZ	5Q31834.D	04/17/25 16:29	OP8904	(unrelated sample)
FC23948-1A	5Q31835.D	04/17/25 16:45	OP8904	SHAFT-HW-0018384-25098-N-R02
FC23948-2A	5Q31836.D	04/17/25 17:01	OP8904	SHAFT-FB-250414-25098-N
FC23948-3A	5Q31837.D	04/17/25 17:18	OP8904	SHAFT-HW-0018393-25098-N-R02
OP8904-MS	5Q31838.D	04/17/25 17:34	OP8904	Matrix Spike
FC23948-4A	5Q31839.D	04/17/25 17:51	OP8904	SHAFT-HW-0018394-25098-N-R02
OP8904-DUP	5Q31840.D	04/17/25 18:07	OP8904	Duplicate
ZZZZZZ	5Q31841.D	04/17/25 18:24	OP8904	(unrelated sample)
S5Q523-ECC523	5Q31842.D	04/17/25 18:40	n/a	Ending cal 20

Run Sequence Report

Job Number: FC23948
Account: AECOMCOD AECOM, INC.
Project: N6274224F0139 Extended Drinking Water

Run ID: S5Q524 **Method:** EPA 537.1 REV 2.0 **Instrument ID:** GCMS5Q

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S5Q524-IC524	5Q31864.D	04/18/25 13:28	n/a	Mass Calibration Verification
S5Q524-IC524	5Q31865.D	04/18/25 13:55	n/a	Initial cal 0.5
S5Q524-IC524	5Q31866.D	04/18/25 14:12	n/a	Initial cal 1
S5Q524-IC524	5Q31867.D	04/18/25 14:28	n/a	Initial cal 2
S5Q524-IC524	5Q31868.D	04/18/25 14:45	n/a	Initial cal 5
S5Q524-IC524	5Q31869.D	04/18/25 15:01	n/a	Initial cal 10
S5Q524-ICC524	5Q31870.D	04/18/25 15:18	n/a	Initial cal 20
S5Q524-IC524	5Q31871.D	04/18/25 15:34	n/a	Initial cal 50
S5Q524-IC524	5Q31872.D	04/18/25 15:51	n/a	Initial cal 100
S5Q524-ICV524	5Q31873.D	04/18/25 16:07	n/a	Initial cal verification 20
S5Q524-RT	5Q31874.D	04/18/25 16:24	n/a	Retention Time Marker
S5Q524-CC524	5Q31875.D	04/18/25 16:40	n/a	Continuing cal 20
S5Q524-CC524	5Q31876.D	04/18/25 16:57	n/a	Continuing cal 0.5LL
OP8904-BS	5Q31877.D	04/18/25 17:13	OP8904	Blank Spike
OP8904-MB	5Q31878.D	04/18/25 17:30	OP8904	Method Blank
FC23948-2A	5Q31880.D	04/18/25 18:03	OP8904	SHAFT-FB-250414-25098-N
FC23948-3A	5Q31881.D	04/18/25 18:19	OP8904	SHAFT-HW-0018393-25098-N-R02
FC23948-4A	5Q31883.D	04/18/25 18:52	OP8904	SHAFT-HW-0018394-25098-N-R02
S5Q524-ECC524	5Q31885.D	04/18/25 19:25	n/a	Ending cal 20

MS Semi-volatiles

Raw Data

Manual Integrations APPROVED
(compounds with "m" flag)
(b) (6)
04/18/25 10:39

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101526.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/17/2025 12:27:38 PM
Sample Name : fc23948-1
Vial : P3-C3
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1494.batch.bin
Sample Information : op8907,S3Q1494,285,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.447	415.0 -> 370.0	246541	10.00 µg/L	0.025
13C3-PFBA	2.344	216.0 -> 172.0	92570	10.00 µg/L	0.000
13C4-PFOS	7.995	503.0 -> 80.0	35910	10.00 µg/L	0.026
M4-PFBA	2.340	217.0 -> 172.0	124199	10.00 µg/L	0.000
M5-PFPeA	4.425	268.0 -> 223.0	152577	10.00 µg/L	0.013
M5-PFHxA	5.788	318.0 -> 273.0	195321	10.00 µg/L	0.013
M4-PFHpA	6.719	367.0 -> 322.0	166986	10.00 µg/L	0.025
M8-PFOA	7.447	421.0 -> 376.0	223713	10.00 µg/L	0.025
M9-PFNA	8.022	472.0 -> 427.0	244541	10.00 µg/L	0.026
M6-PFDA	8.546	519.0 -> 474.0	357928	10.00 µg/L	0.025
M7-PFUnDA	9.172	570.0 -> 525.0	559303	10.00 µg/L	-0.013
M2-PFDoDA	10.046	615.0 -> 570.0	604822	10.00 µg/L	-0.038
M3-PFBS	4.721	302.0 -> 99.0	16741	10.00 µg/L	0.013
M3-PFHxS	6.749	402.0 -> 99.0	25251	10.00 µg/L	0.025
M8-PFOS	7.995	507.0 -> 99.0	32086	10.00 µg/L	0.026
M2-4:2FTS	5.684	329.0 -> 309.0	64586	10.00 µg/L	0.013
M2-6:2FTS	7.445	429.0 -> 409.0	124997	10.00 µg/L	0.025
M2-8:2FTS	8.611	529.0 -> 509.0	209879	10.00 µg/L	0.026
M3-HFPO-DA	6.081	287.0 -> 169.0	2531	10.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.684	329.0 -> 309.0	64586	7.56 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 75.6%	
13C2-6:2FTS	7.445	429.0 -> 409.0	124997	7.79 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.9%	
13C2-8:2FTS	8.611	529.0 -> 509.0	209879	7.80 µg/L	0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.0%	
13C2-PFDoDA	10.046	615.0 -> 570.0	604822	5.76 µg/L	-0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 57.6%	
13C3-PFBS	4.721	302.0 -> 99.0	16741	7.47 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 74.7%	
13C3-PFHxS	6.749	402.0 -> 99.0	25251	7.92 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.2%	
13C4-PFBA	2.340	217.0 -> 172.0	124199	7.91 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.1%	
13C4-PFHpA	6.719	367.0 -> 322.0	166986	8.00 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.0%	
13C5-PFHxA	5.788	318.0 -> 273.0	195321	7.82 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.2%	
13C5-PFPeA	4.425	268.0 -> 223.0	152577	8.06 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.6%	
13C6-PFDA	8.546	519.0 -> 474.0	357928	8.68 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 86.8%	
13C7-PFUnDA	9.172	570.0 -> 525.0	559303	6.79 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 67.9%	
13C8-PFOA	7.447	421.0 -> 376.0	223710	8.26 µg/L	0.025

Perfluorinated Compounds by LC/MS/MS

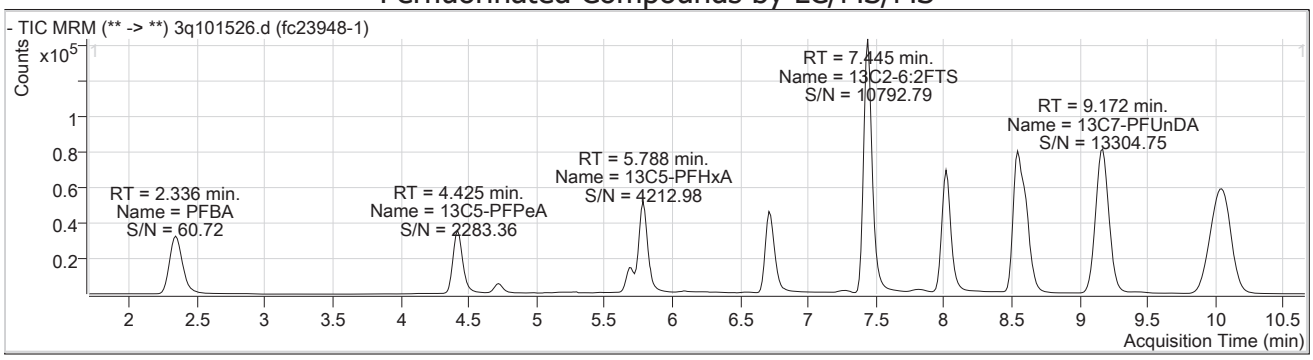
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.6%		
13C8-PFOS	7.995	507.0 -> 99.0	32086	7.86 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.6%		
13C9-PFNA	8.022	472.0 -> 427.0	244541	8.31 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 83.1%		
13C3-HFPO-DA	6.081	287.0 -> 169.0	2531	7.05 µg/L		0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 70.5%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	2.336	213.0 -> 169.0	3318	0.97 µg/L		100
PFBS	4.722	299.0 -> 80.0	4874	1.44 µg/L		92
		299.0 -> 99.0	2280			
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	10.041	613.0 -> 569.0	14293	0.36 µg/L		95
		613.0 -> 169.0	1312			
PFHpA	6.720	363.0 -> 319.0	23697	1.01 µg/L		99
		363.0 -> 169.0	2012			
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	5.791	313.0 -> 269.0	34974	1.90 µg/L		99
		313.0 -> 119.0	1304			
PFHxS	6.750	399.0 -> 80.0	8476	1.91 µg/L	m	100
		399.0 -> 99.0	4400			
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	7.448	413.0 -> 369.0	31557	1.83 µg/L	m	96
		413.0 -> 169.0	12384			
PFOS	7.996	499.0 -> 80.0	15663	3.05 µg/L	m	91
		499.0 -> 99.0	7082			
PFPeA	4.427	263.0 -> 219.0	29326	2.55 µg/L		100
PFPeS	5.896	349.0 -> 80.0	531	0.21 µg/L		92
		349.0 -> 99.0	249			
PFUnDA	9.161	563.0 -> 519.0	13021	0.36 µg/L		98
		563.0 -> 269.0	2399			
11Cl-PF3OUdS	9.420	631.0 -> 451.0	5899	0.25 µg/L		100
		631.0 -> 83.0	285			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	6.036	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0	0			

= Qualifier out of range, m = manually integrated, + = Area summed

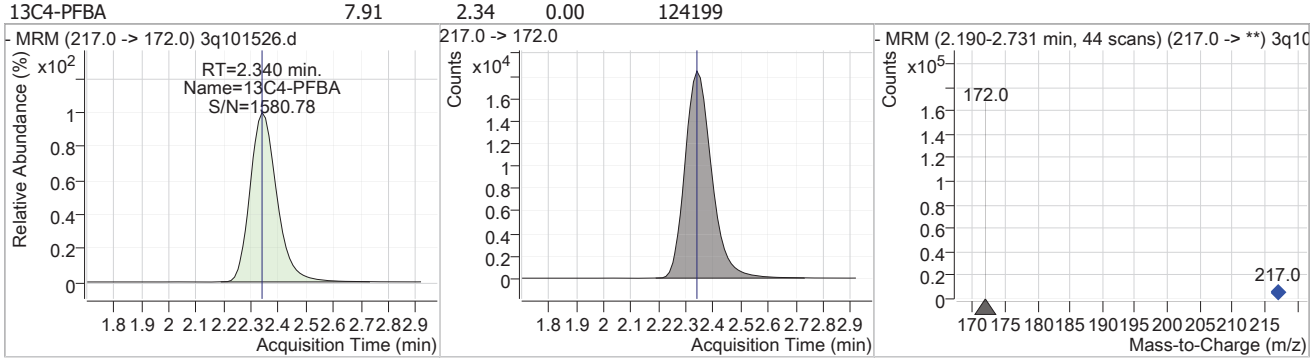
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

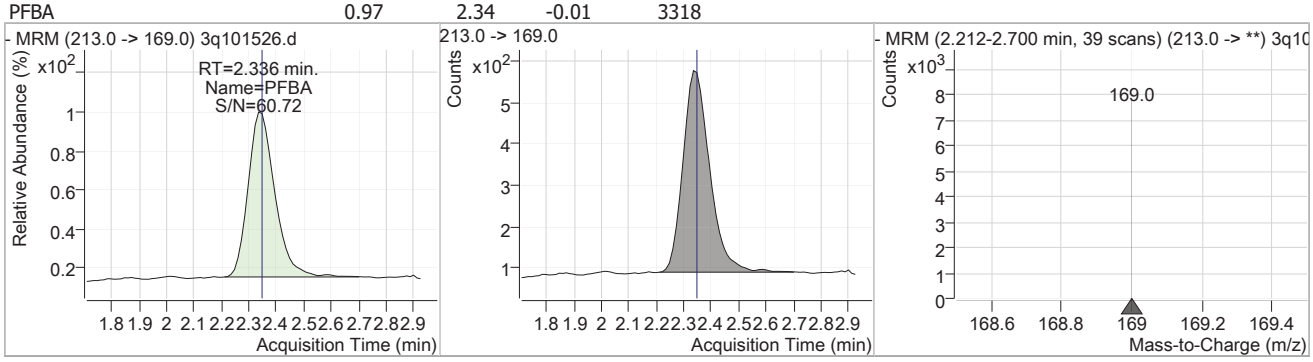
Perfluorinated Compounds by LC/MS/MS



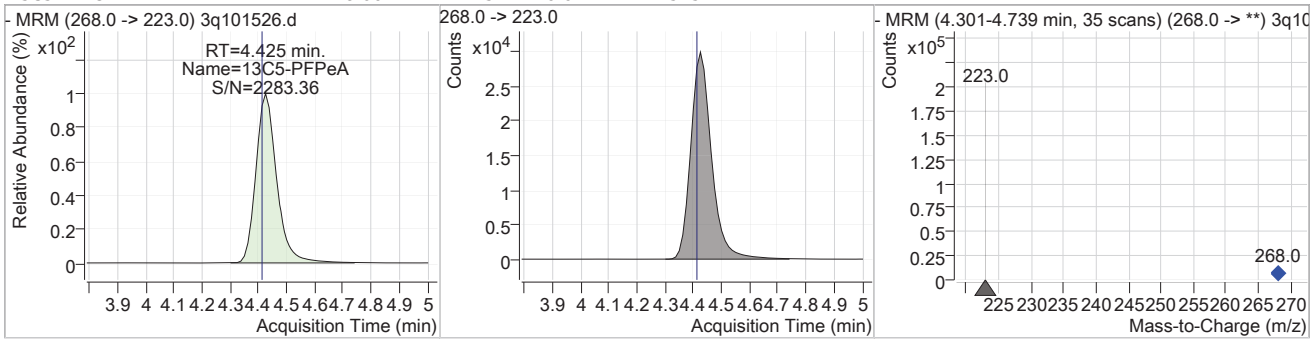
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	7.91	2.34	0.00	124199				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.97	2.34	-0.01	3318				

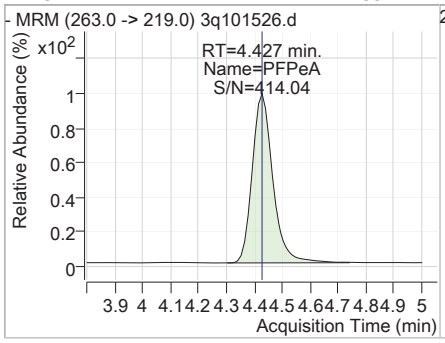


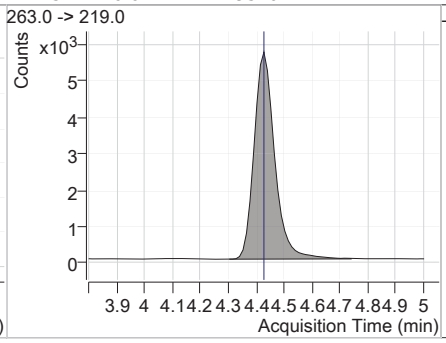
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	8.06	4.43	0.01	152577				

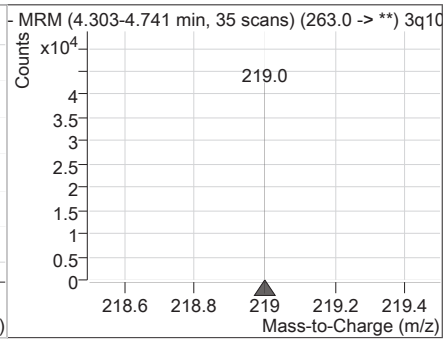


Perfluorinated Compounds by LC/MS/MS

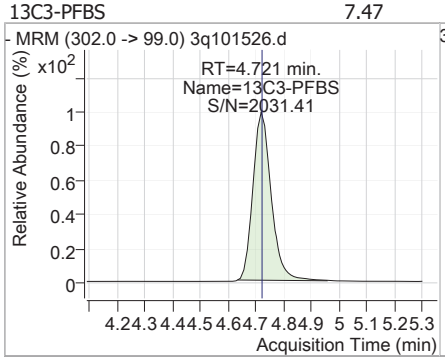
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	2.55	4.43	0.01	29326				

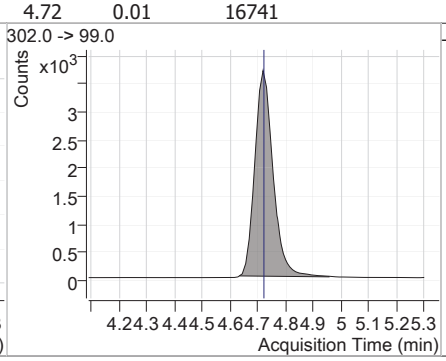


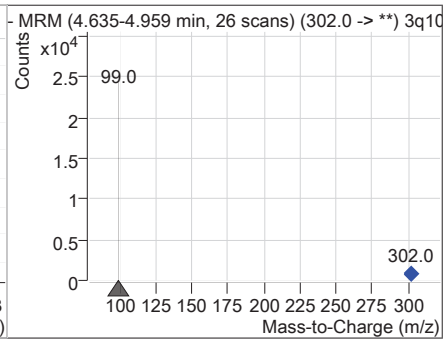




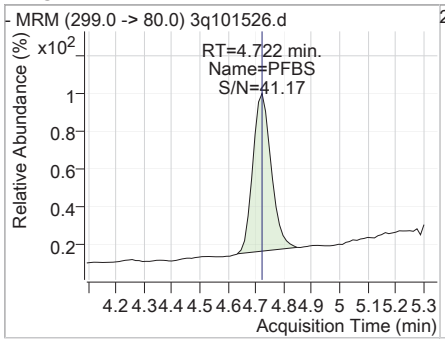
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	7.47	4.72	0.01	16741				

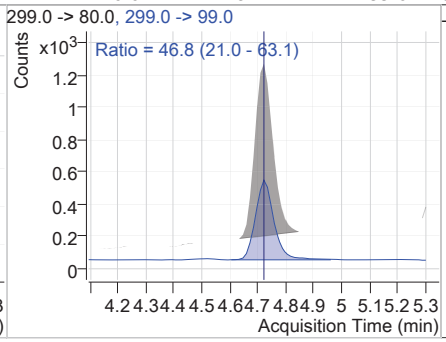


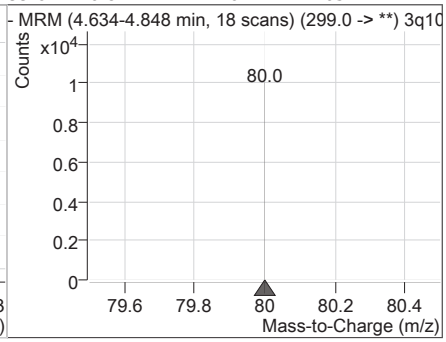




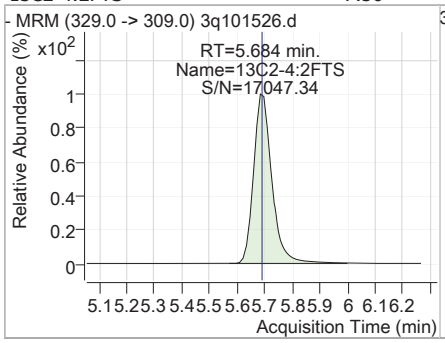
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.44	4.72	0.01	4874	299.0 -> 99.0	46.8	21.0	63.1

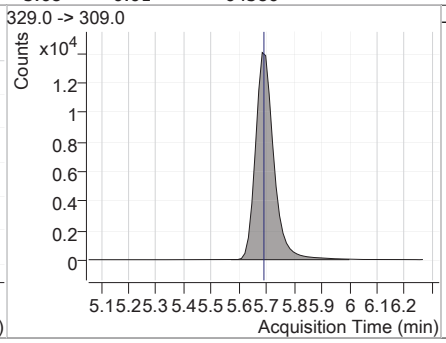


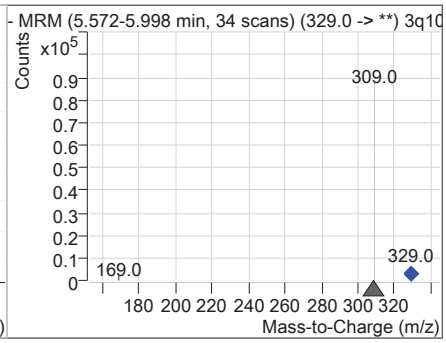




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	7.56	5.68	0.01	64586				

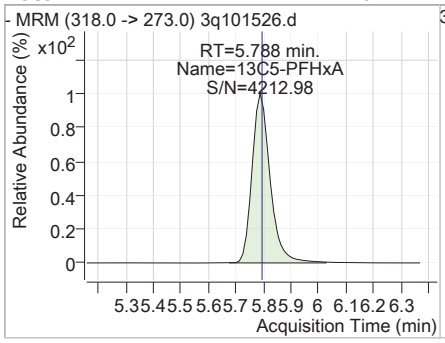


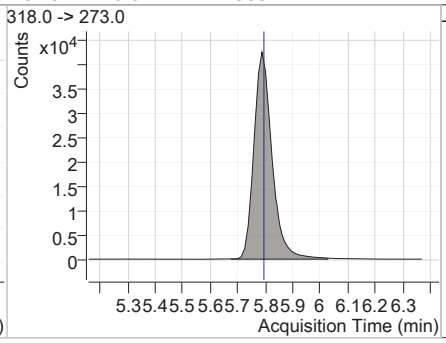


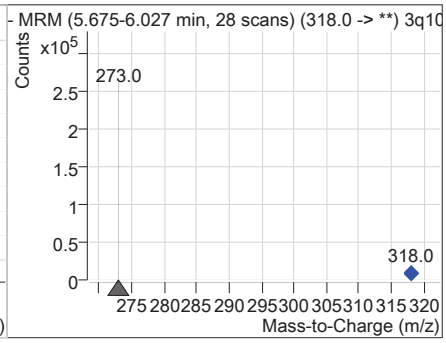


Perfluorinated Compounds by LC/MS/MS

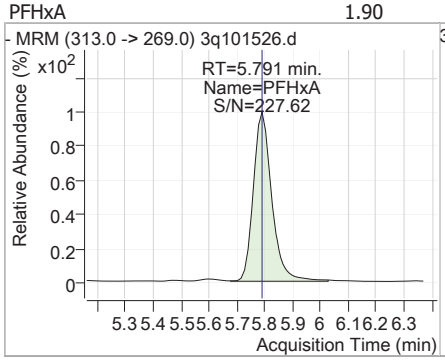
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	7.82	5.79	0.01	195321				

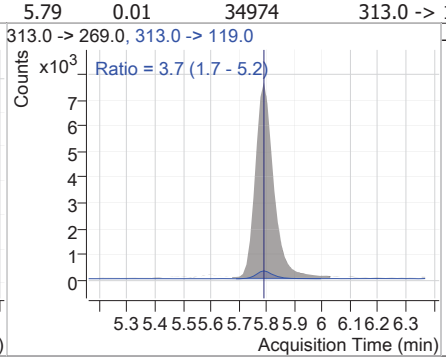


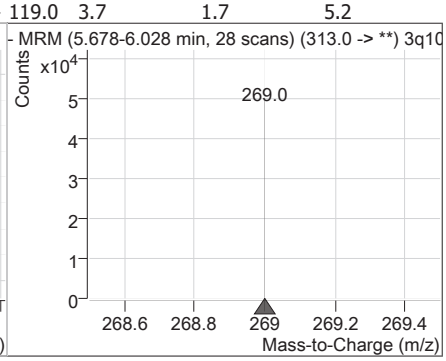




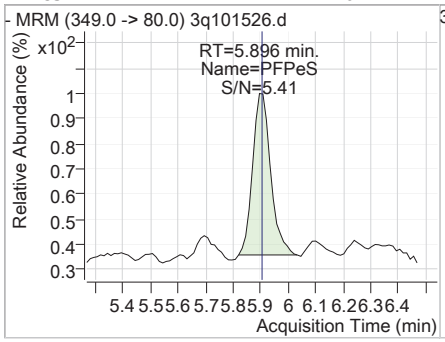
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.90	5.79	0.01	34974	313.0 -> 119.0	3.7	1.7	5.2

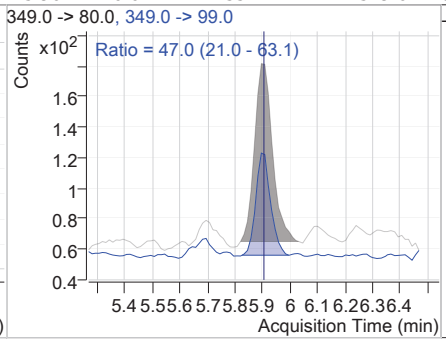


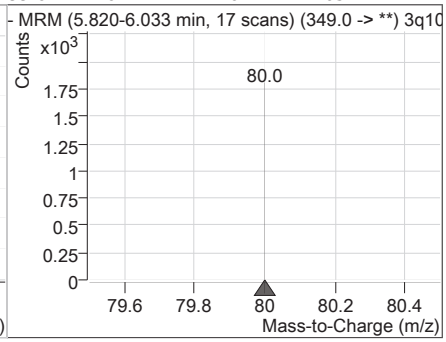




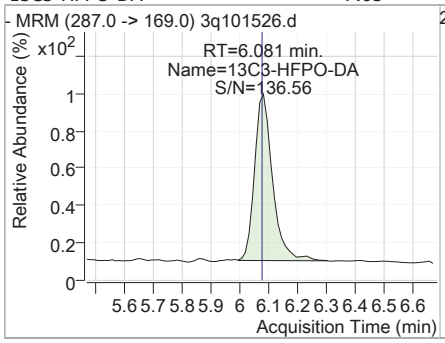
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.21	5.90	0.01	531	349.0 -> 99.0	47.0	21.0	63.1

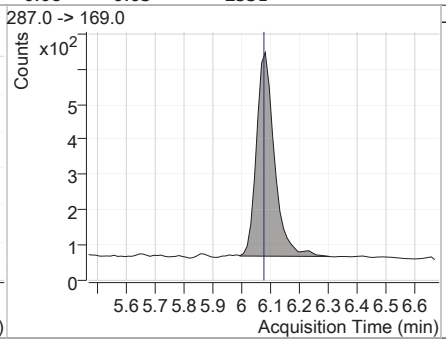


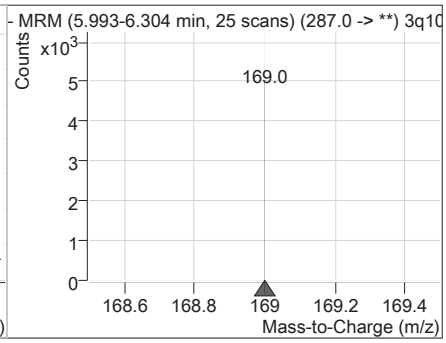




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	7.05	6.08	0.03	2531				

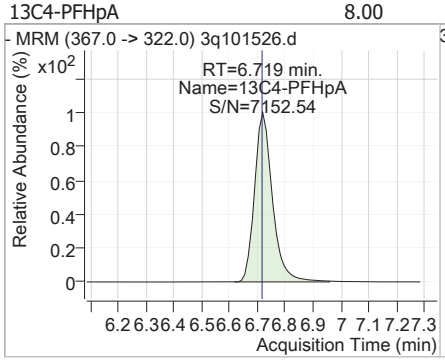


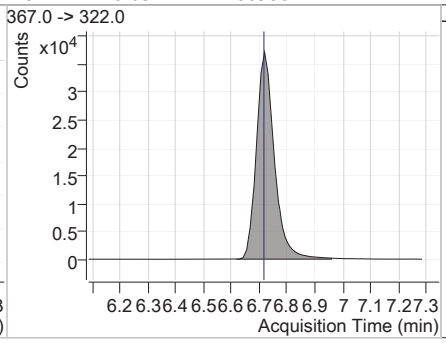


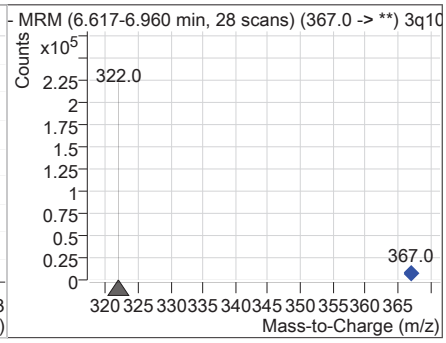


Perfluorinated Compounds by LC/MS/MS

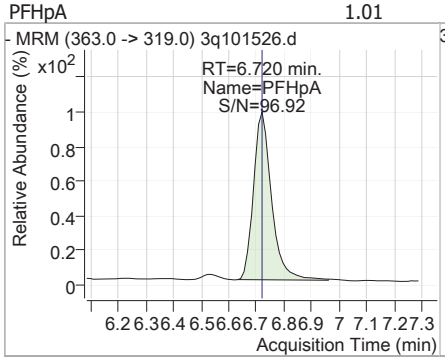
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	8.00	6.72	0.03	166986				

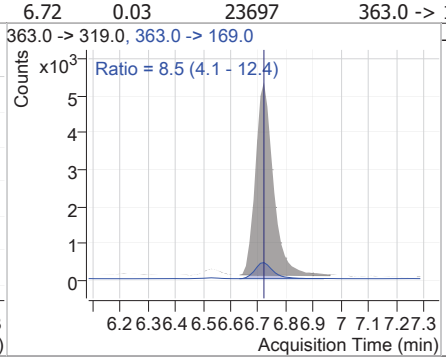


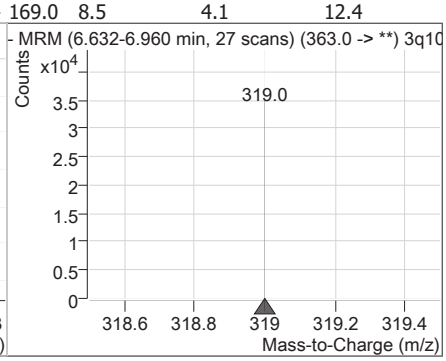




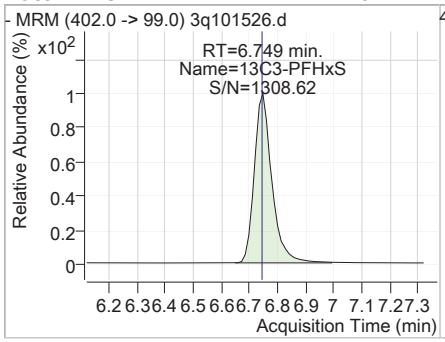
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.01	6.72	0.03	23697	363.0 -> 169.0	8.5	4.1	12.4

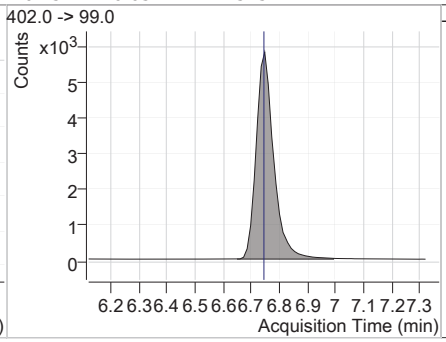


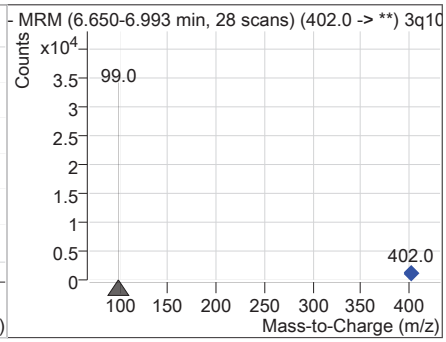




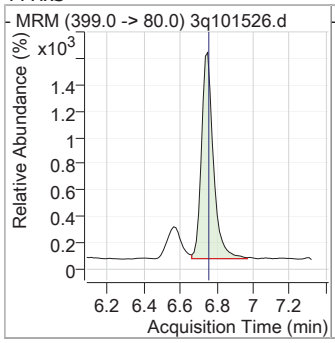
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	7.92	6.75	0.03	25251				

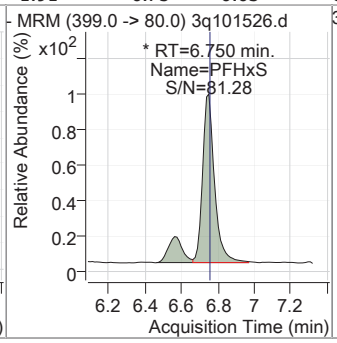


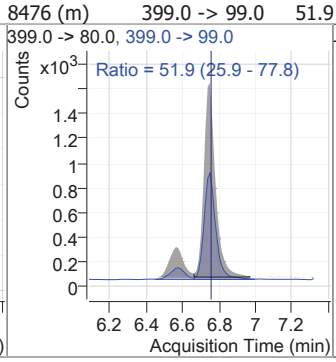


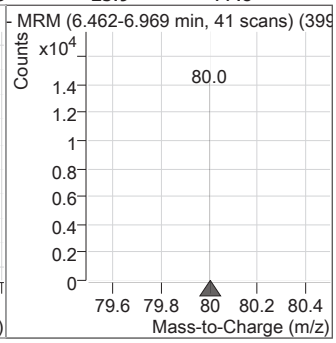


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.91	6.75	0.03	8476 (m)	399.0 -> 99.0	51.9	25.9	77.8



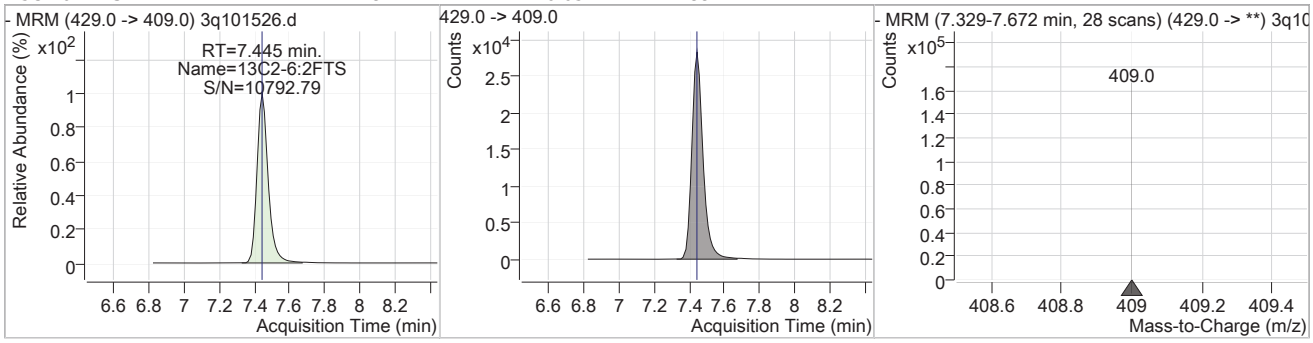




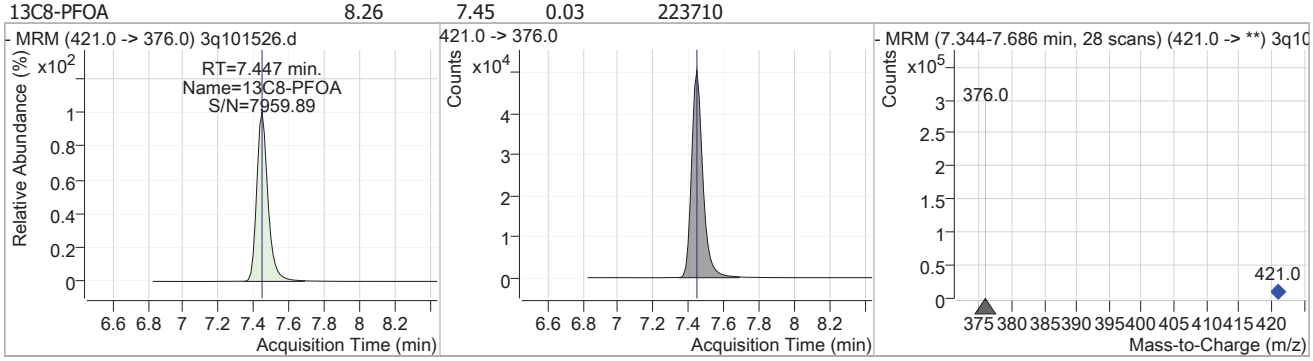


Perfluorinated Compounds by LC/MS/MS

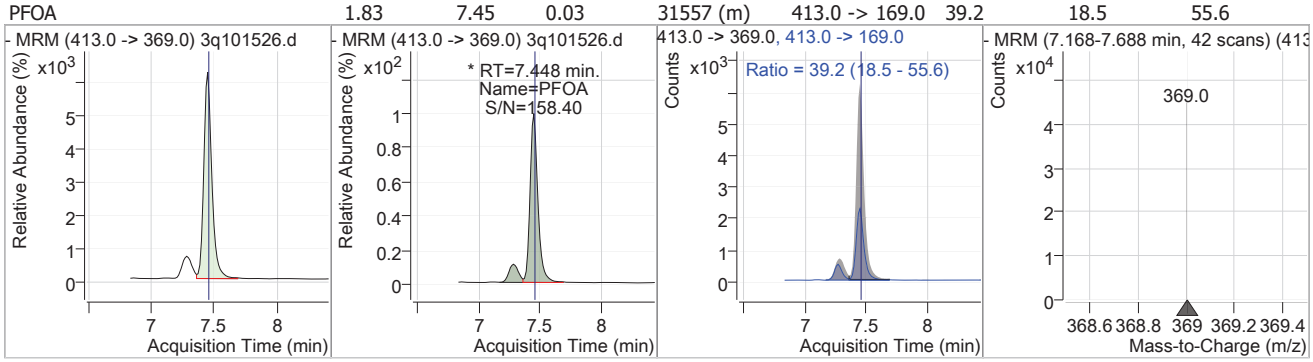
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	7.79	7.44	0.03	124997				



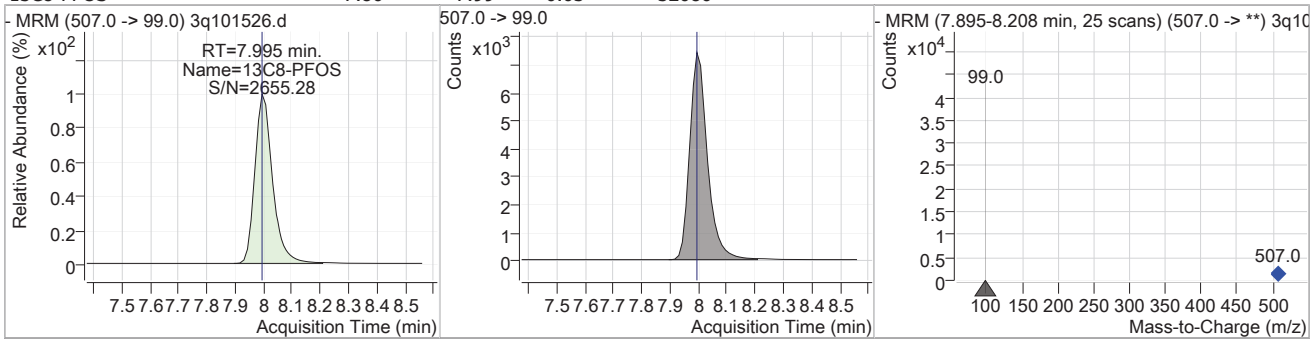
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	8.26	7.45	0.03	223710				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.83	7.45	0.03	31557 (m)	413.0 -> 169.0	39.2	18.5	55.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	7.86	7.99	0.03	32086				



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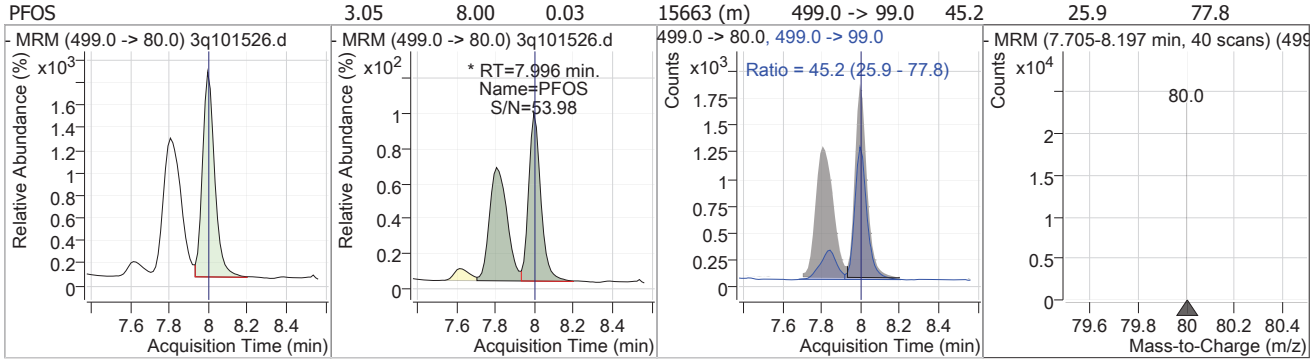
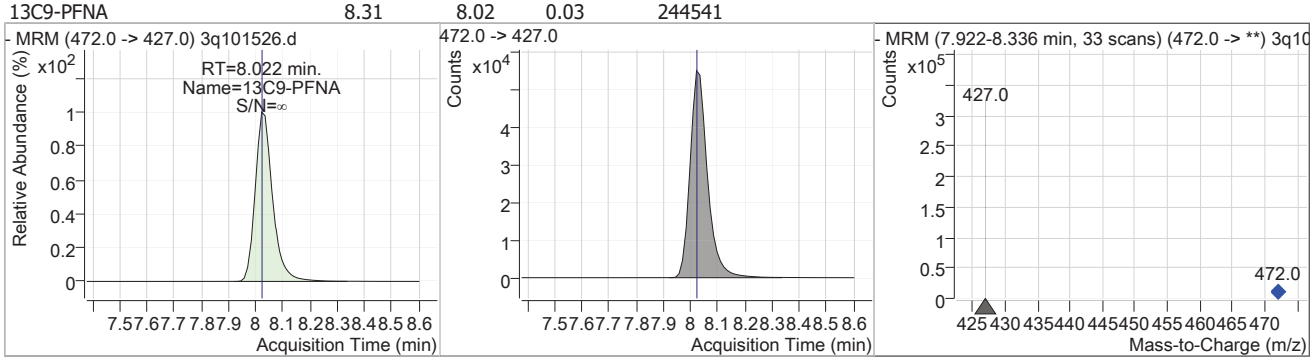
Perfluorinated Compounds by LC/MS/MS

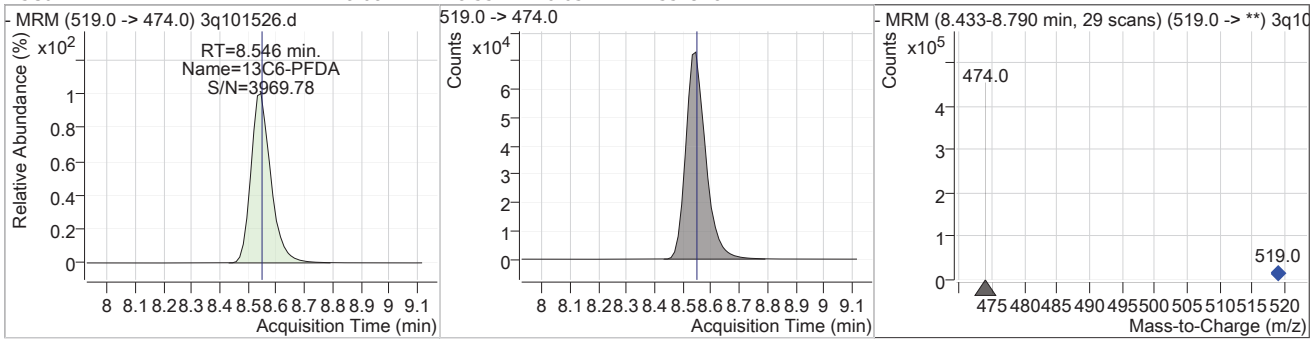
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	3.05	8.00	0.03	15663 (m)	499.0 -> 99.0	45.2	25.9	77.8



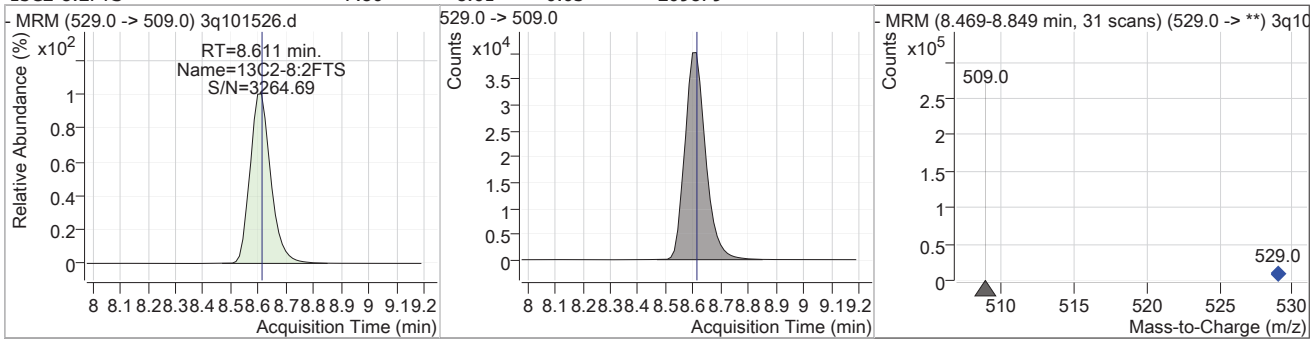
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	8.31	8.02	0.03	244541				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	8.68	8.55	0.03	357928				

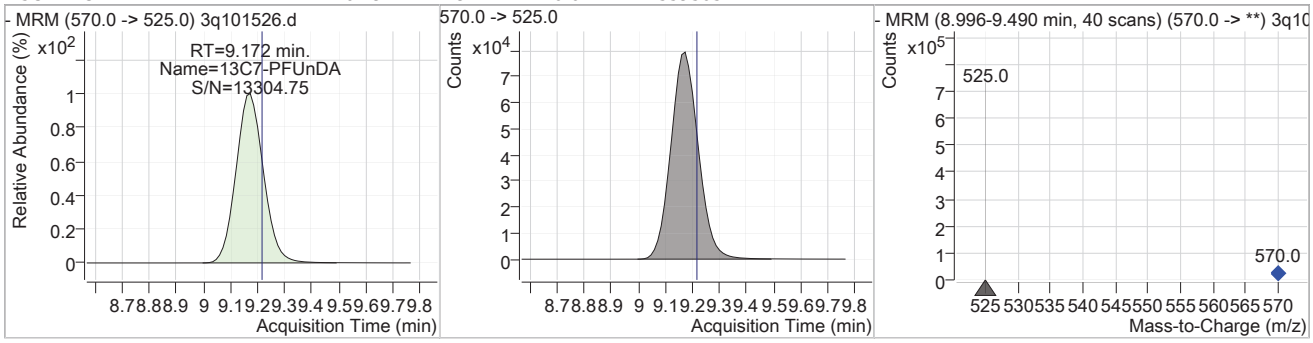


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	7.80	8.61	0.03	209879				

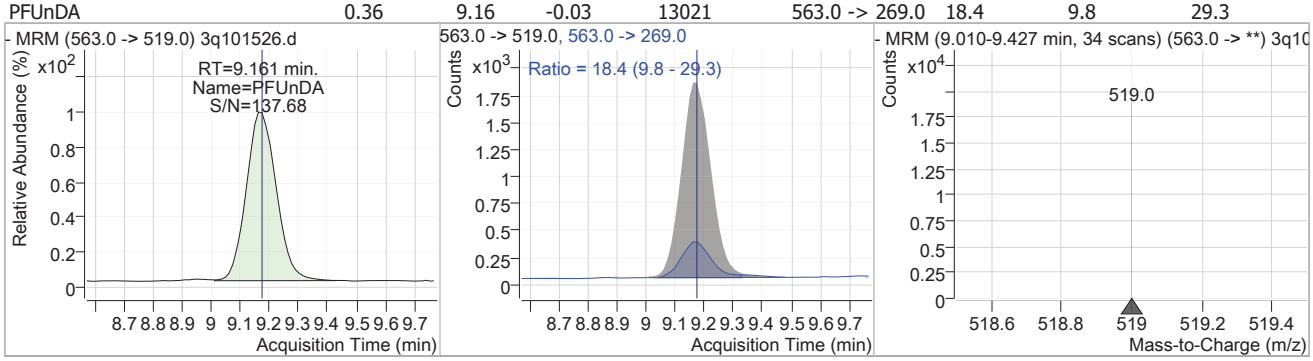


Perfluorinated Compounds by LC/MS/MS

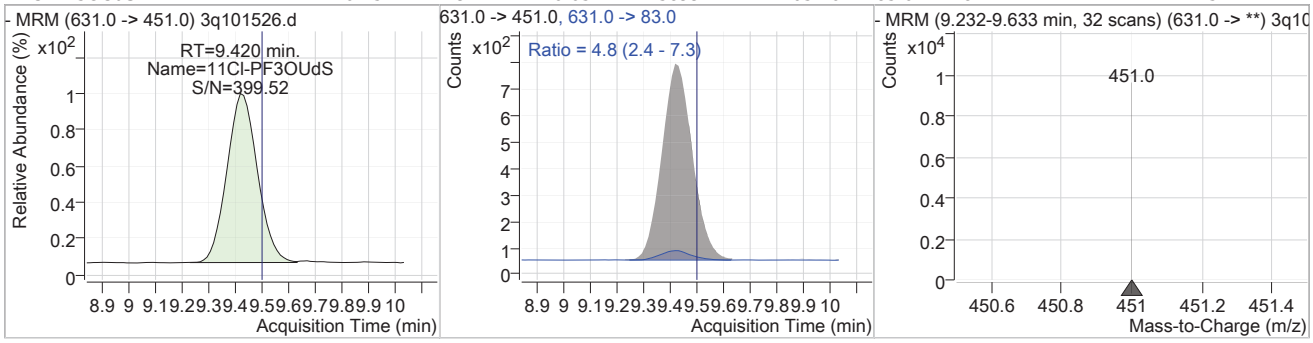
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	6.79	9.17	-0.01	559303				



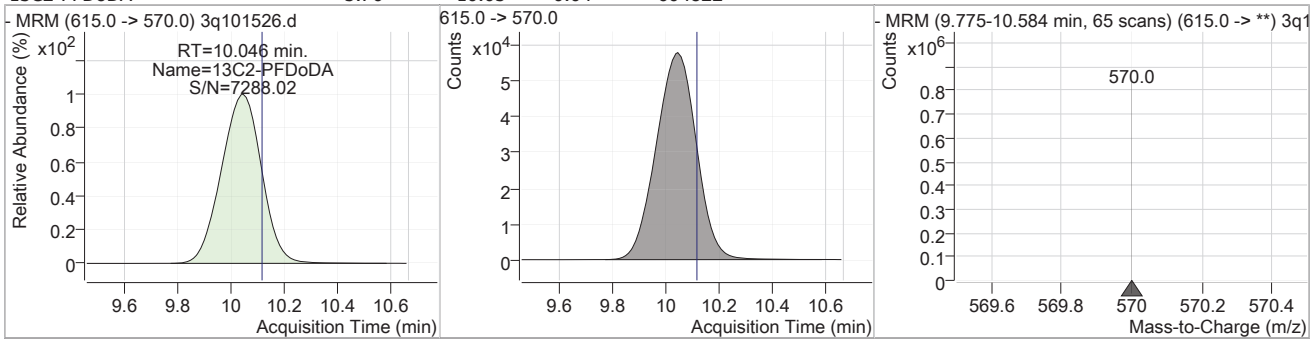
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.36	9.16	-0.03	13021	563.0 -> 269.0	18.4	9.8	29.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.25	9.42	-0.05	5899	631.0 -> 83.0	4.8	2.4	7.3

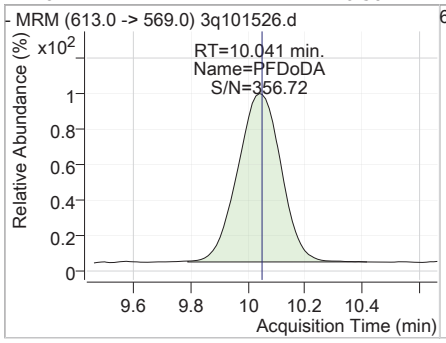


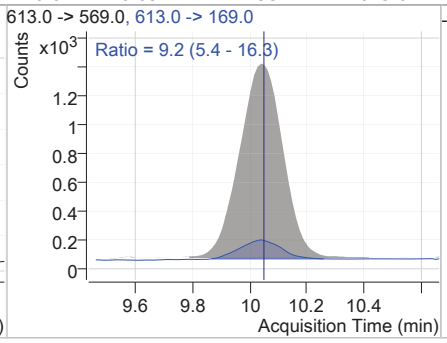
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	5.76	10.05	-0.04	604822				

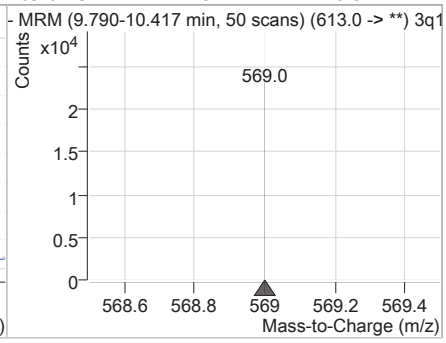


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.36	10.04	-0.05	14293	613.0 -> 169.0	9.2	5.4	16.3







7.1.1

7

Manual Integration Approval Summary

Sample Number:	FC23948-1	**Method:**	EPA 533
Lab FileID:	3Q101526.D	**Analyst approved:**	04/18/25 10:32 (b) (6)
Injection Time:	04/17/25 12:27	**Supervisor approved:**	04/18/25 10:39 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.75	Split peak
Perfluorooctanoic acid	335-67-1		7.45	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.00	Split peak

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101528.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/17/2025 12:59:48 PM
Sample Name : fc23948-2
Vial : P3-C5
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1494.batch.bin
Sample Information : op8907,S3Q1494,270,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.447	415.0 -> 370.0	270699	10.00 µg/L	0.025
13C3-PFBA	2.344	216.0 -> 172.0	103324	10.00 µg/L	0.000
13C4-PFOS	7.995	503.0 -> 80.0	38633	10.00 µg/L	0.026
M4-PFBA	2.340	217.0 -> 172.0	136731	10.00 µg/L	0.000
M5-PFPeA	4.438	268.0 -> 223.0	165405	10.00 µg/L	0.025
M5-PFHxA	5.788	318.0 -> 273.0	210157	10.00 µg/L	0.013
M4-PFHpA	6.719	367.0 -> 322.0	180948	10.00 µg/L	0.025
M8-PFOA	7.447	421.0 -> 376.0	243560	10.00 µg/L	0.025
M9-PFNA	8.022	472.0 -> 427.0	256828	10.00 µg/L	0.026
M6-PFDA	8.546	519.0 -> 474.0	369354	10.00 µg/L	0.025
M7-PFUnDA	9.237	570.0 -> 525.0	592736	10.00 µg/L	0.052
M2-PFDoDA	10.133	615.0 -> 570.0	655649	10.00 µg/L	0.050
M3-PFBS	4.733	302.0 -> 99.0	18413	10.00 µg/L	0.025
M3-PFHxS	6.749	402.0 -> 99.0	26598	10.00 µg/L	0.025
M8-PFOS	7.995	507.0 -> 99.0	33126	10.00 µg/L	0.026
M2-4:2FTS	5.697	329.0 -> 309.0	68182	10.00 µg/L	0.025
M2-6:2FTS	7.445	429.0 -> 409.0	143776	10.00 µg/L	0.025
M2-8:2FTS	8.611	529.0 -> 509.0	209321	10.00 µg/L	0.026
M3-HFPO-DA	6.081	287.0 -> 169.0	2787	10.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.697	329.0 -> 309.0	68182	7.42 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 74.2%	
13C2-6:2FTS	7.445	429.0 -> 409.0	143776	8.33 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 83.3%	
13C2-8:2FTS	8.611	529.0 -> 509.0	209321	7.23 µg/L	0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 72.3%	
13C2-PFDoDA	10.133	615.0 -> 570.0	655649	5.69 µg/L	0.050
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 56.9%	
13C3-PFBS	4.733	302.0 -> 99.0	18413	7.64 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.4%	
13C3-PFHxS	6.749	402.0 -> 99.0	26598	7.75 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.5%	
13C4-PFBA	2.340	217.0 -> 172.0	136731	7.80 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.0%	
13C4-PFHpA	6.719	367.0 -> 322.0	180948	7.90 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.0%	
13C5-PFHxA	5.788	318.0 -> 273.0	210157	7.66 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.6%	
13C5-PFPeA	4.438	268.0 -> 223.0	165405	7.83 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.3%	
13C6-PFDA	8.546	519.0 -> 474.0	369354	8.16 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.6%	
13C7-PFUnDA	9.237	570.0 -> 525.0	592736	6.55 µg/L	0.052
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 65.5%	
13C8-PFOA	7.447	421.0 -> 376.0	243560	8.19 µg/L	0.025

Perfluorinated Compounds by LC/MS/MS

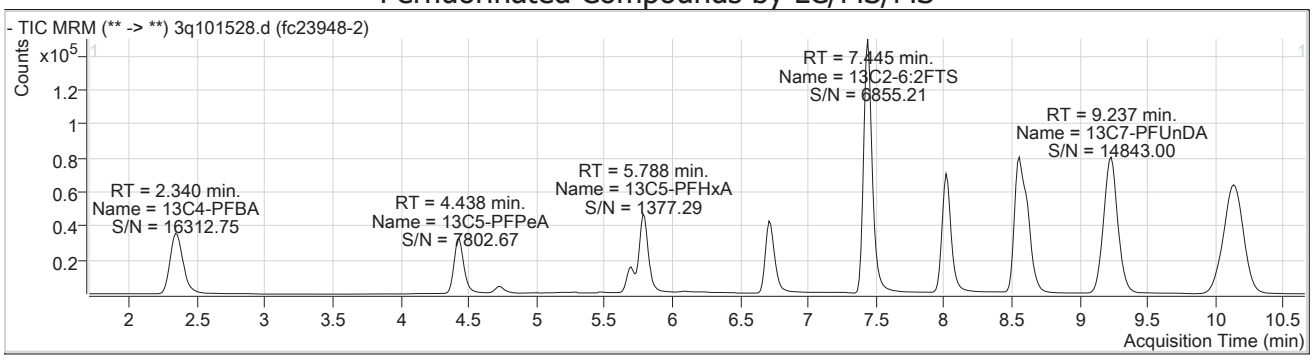
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.9%		
13C8-PFOS	7.995	507.0 -> 99.0	33126	7.54 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 75.4%		
13C9-PFNA	8.022	472.0 -> 427.0	256828	7.95 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.5%		
13C3-HFPO-DA	6.081	287.0 -> 169.0	2787	7.07 µg/L		0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 70.7%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	-	299.0 -> 80.0	-	N.D.		
		299.0 -> 99.0				
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	-	363.0 -> 319.0	-	N.D.		
		363.0 -> 169.0				
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	6.011	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0				

 # = Qualifier out of range, m = manually integrated, + = Area summed

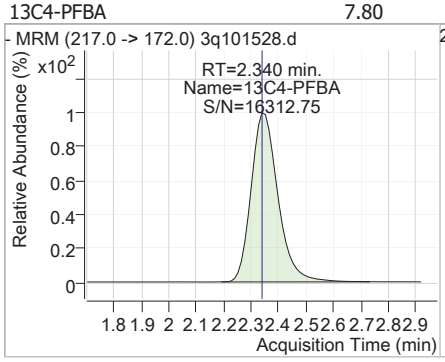
Perfluorinated Compounds by LC/MS/MS

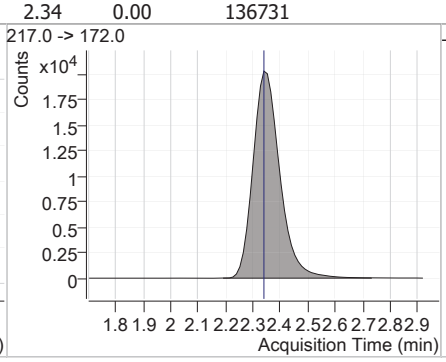
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

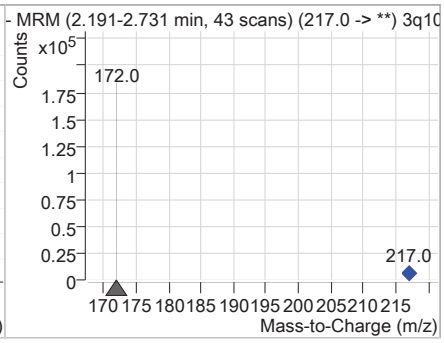
Perfluorinated Compounds by LC/MS/MS



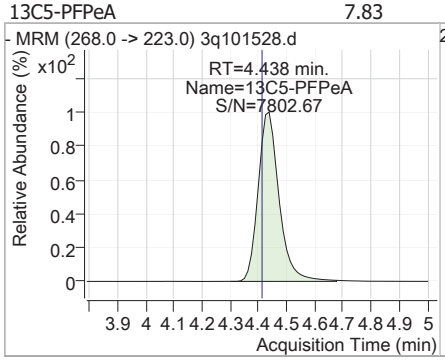
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	7.80	2.34	0.00	136731				

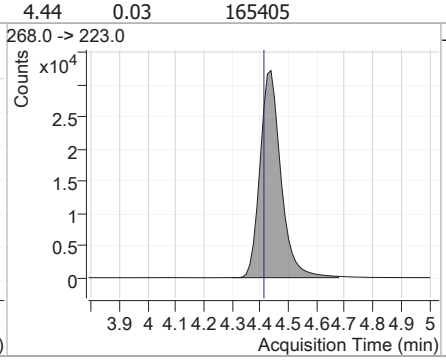


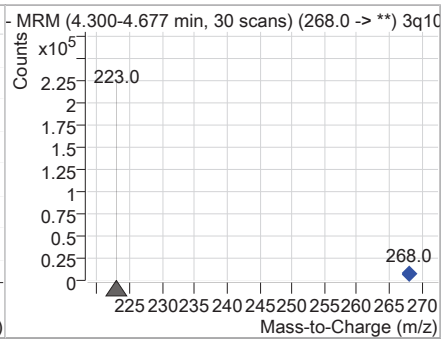




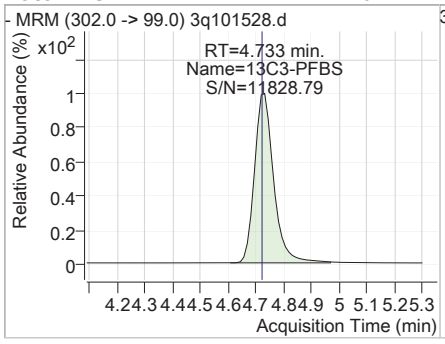
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	7.83	4.44	0.03	165405				

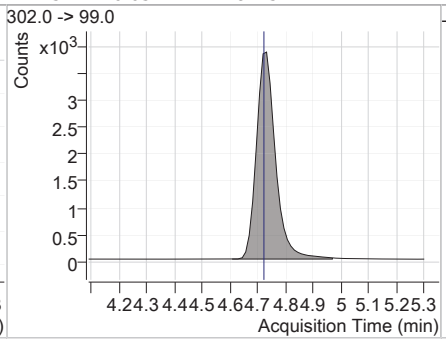


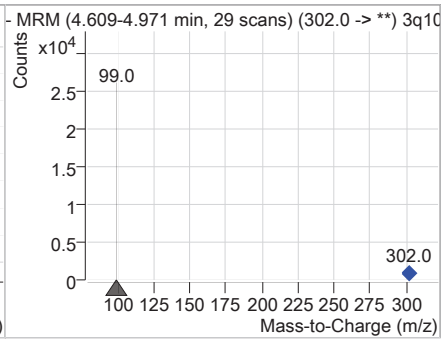




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	7.64	4.73	0.03	18413				







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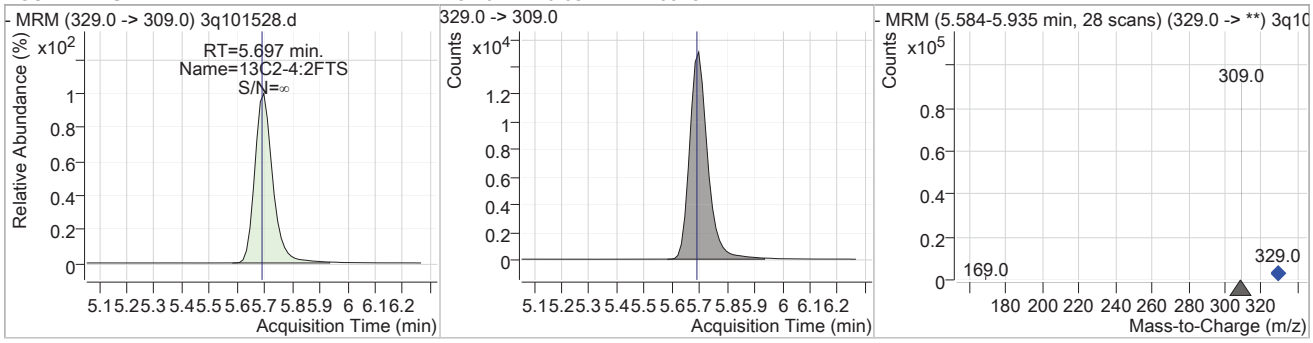
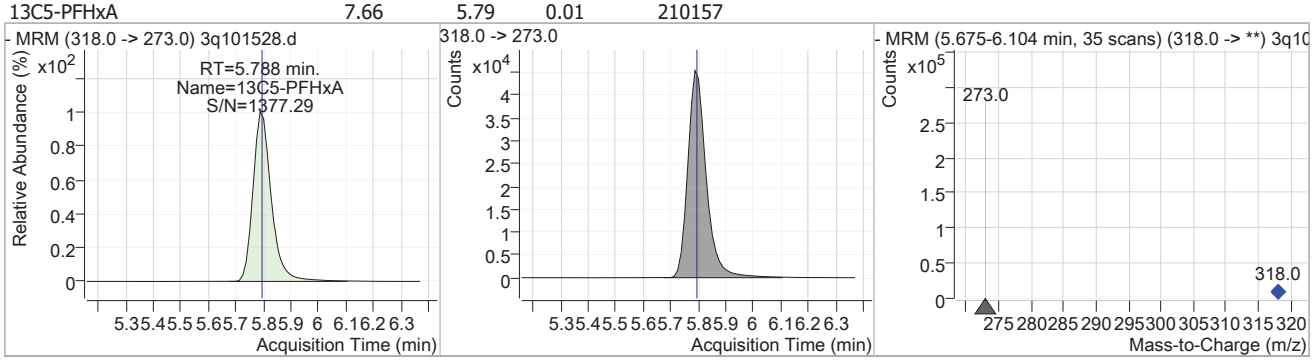
Perfluorinated Compounds by LC/MS/MS

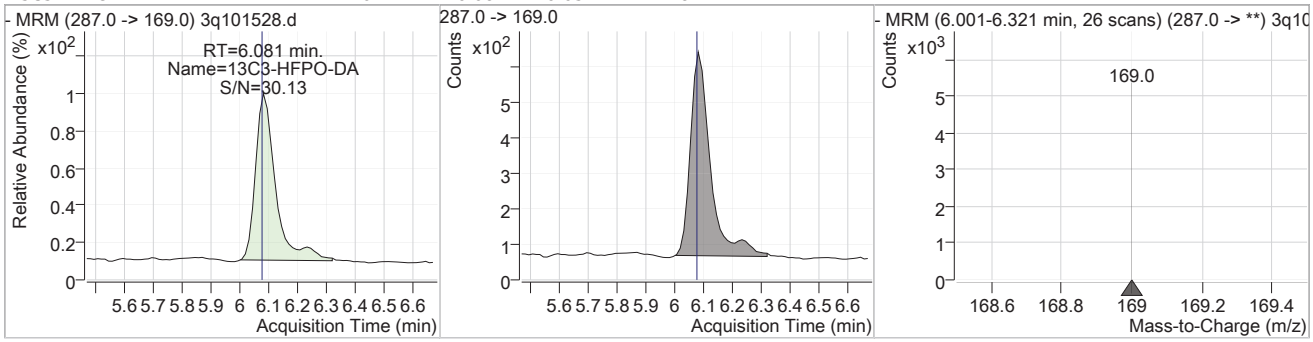
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	7.42	5.70	0.03	68182				



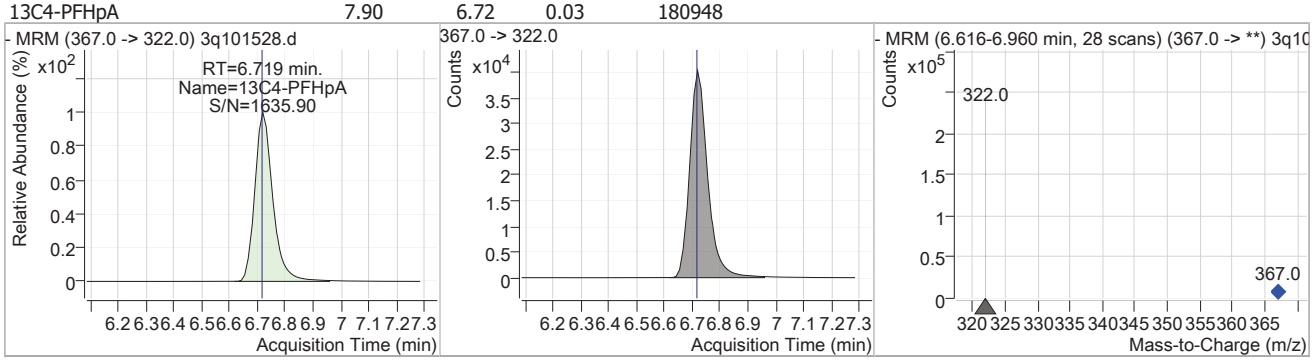
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	7.66	5.79	0.01	210157				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	7.07	6.08	0.03	2787				

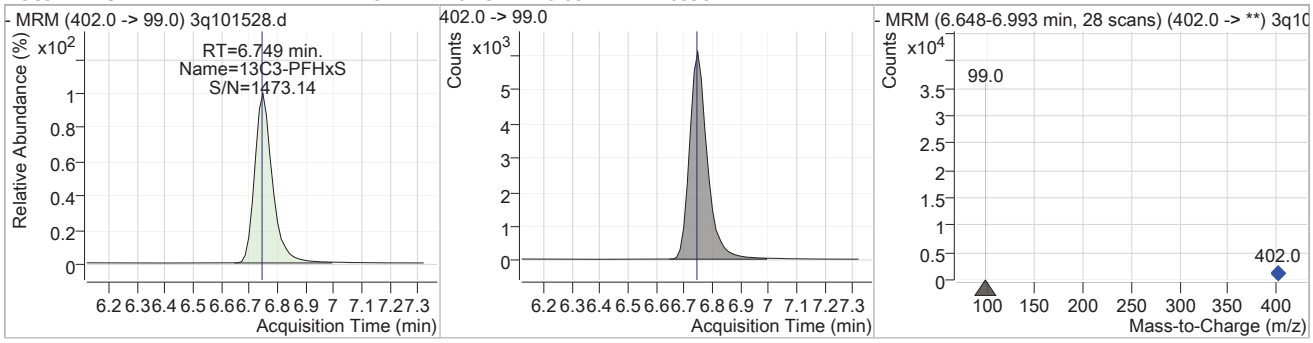


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	7.90	6.72	0.03	180948				

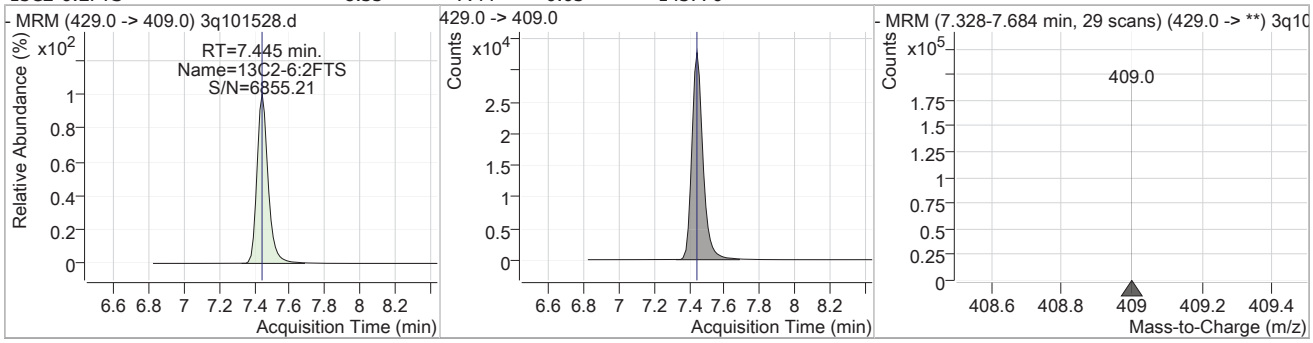


Perfluorinated Compounds by LC/MS/MS

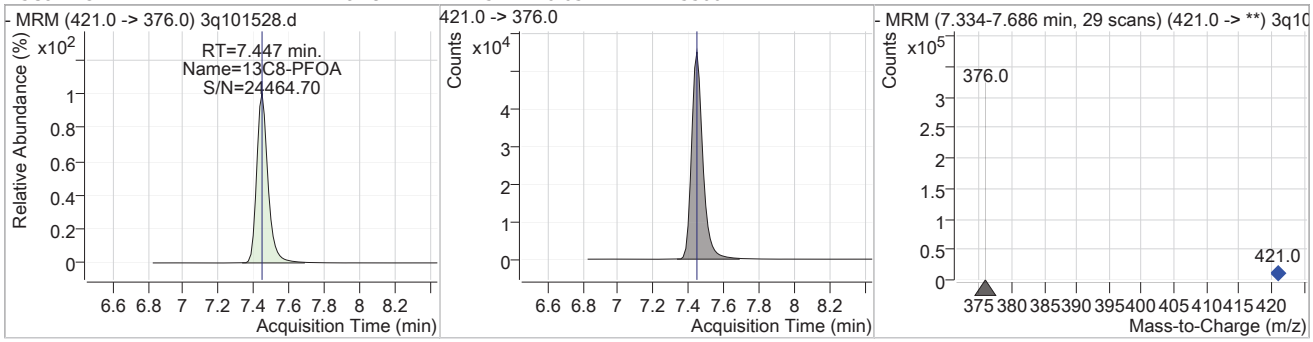
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	7.75	6.75	0.03	26598				



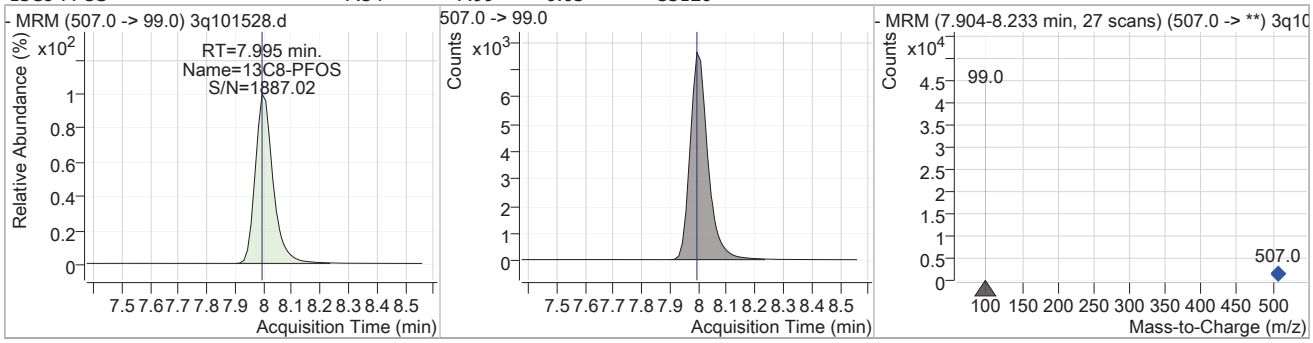
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	8.33	7.44	0.03	143776				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	8.19	7.45	0.03	243560				



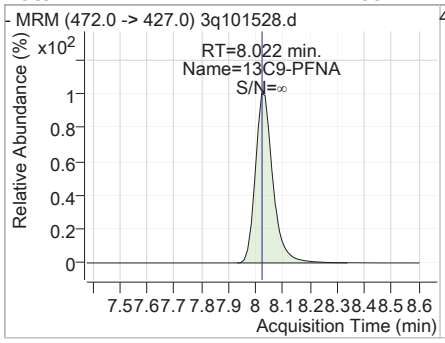
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	7.54	7.99	0.03	33126				

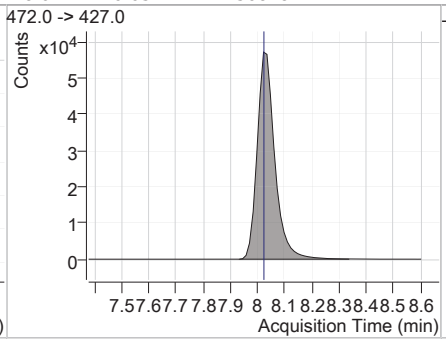


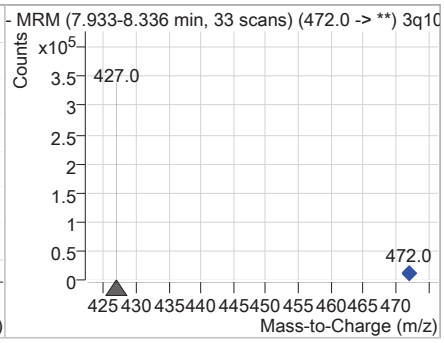
7.1.2 7

Perfluorinated Compounds by LC/MS/MS

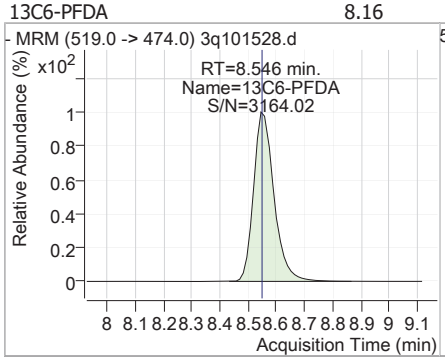
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	7.95	8.02	0.03	256828				

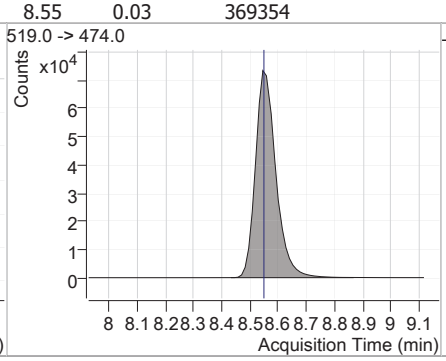


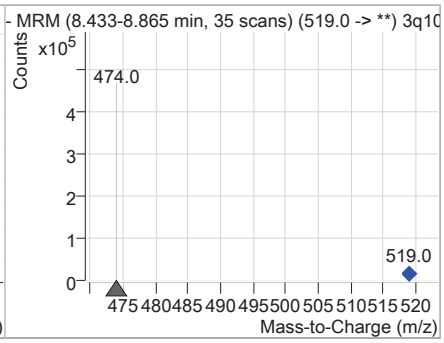




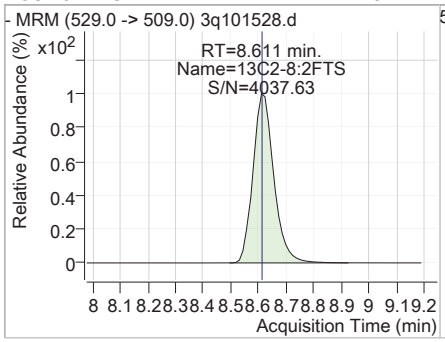
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	8.16	8.55	0.03	369354				

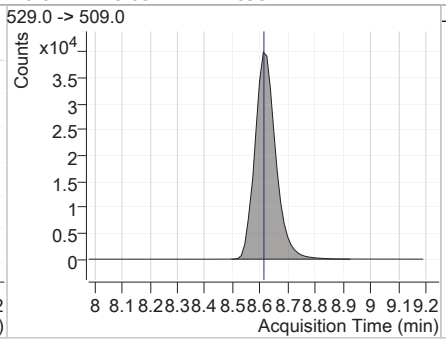


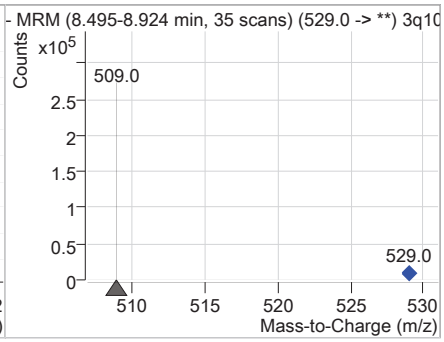




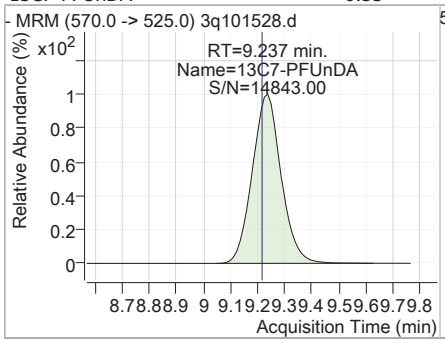
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	7.23	8.61	0.03	209321				

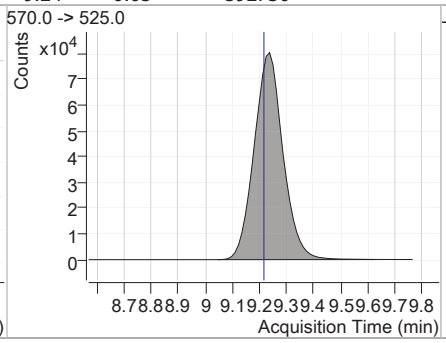


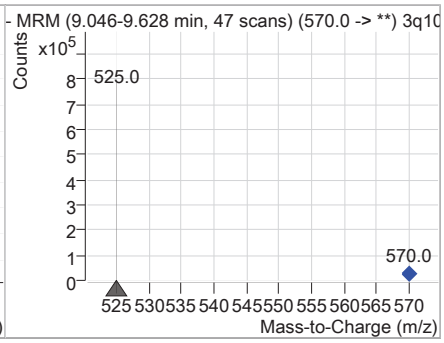




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	6.55	9.24	0.05	592736				







7.1.2

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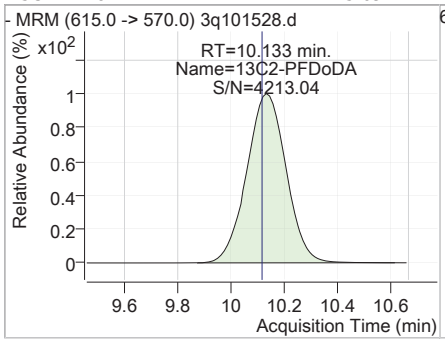
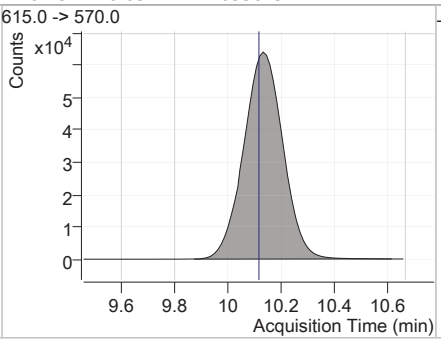
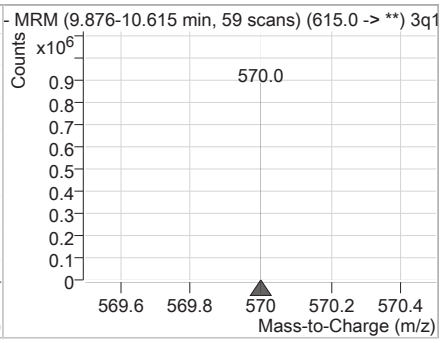
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	5.69	10.13	0.05	655649				







7.1.2

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Perfluorinated Compounds by LC/MS/MS

Data File : 3q101529.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/17/2025 1:15:54 PM
Sample Name : fc23948-3
Vial : P3-C6
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1494.batch.bin
Sample Information : op8907,S3Q1494,285,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.447	415.0 -> 370.0	259164	10.00 µg/L	0.025
13C3-PFBA	2.344	216.0 -> 172.0	98216	10.00 µg/L	0.000
13C4-PFOS	7.995	503.0 -> 80.0	37905	10.00 µg/L	0.026
M4-PFBA	2.340	217.0 -> 172.0	132601	10.00 µg/L	0.000
M5-PFPeA	4.425	268.0 -> 223.0	163513	10.00 µg/L	0.013
M5-PFHxA	5.788	318.0 -> 273.0	214487	10.00 µg/L	0.013
M4-PFHpA	6.719	367.0 -> 322.0	181128	10.00 µg/L	0.025
M8-PFOA	7.447	421.0 -> 376.0	238146	10.00 µg/L	0.025
M9-PFNA	8.022	472.0 -> 427.0	259363	10.00 µg/L	0.026
M6-PFDA	8.546	519.0 -> 474.0	379249	10.00 µg/L	0.025
M7-PFUnDA	9.224	570.0 -> 525.0	579278	10.00 µg/L	0.039
M2-PFDoDA	10.121	615.0 -> 570.0	625452	10.00 µg/L	0.038
M3-PFBS	4.721	302.0 -> 99.0	18626	10.00 µg/L	0.013
M3-PFHxS	6.749	402.0 -> 99.0	26875	10.00 µg/L	0.025
M8-PFOS	7.995	507.0 -> 99.0	32622	10.00 µg/L	0.026
M2-4:2FTS	5.684	329.0 -> 309.0	74155	10.00 µg/L	0.013
M2-6:2FTS	7.445	429.0 -> 409.0	134666	10.00 µg/L	0.025
M2-8:2FTS	8.611	529.0 -> 509.0	205181	10.00 µg/L	0.026
M3-HFPO-DA	6.081	287.0 -> 169.0	2477	10.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.684	329.0 -> 309.0	74155	8.22 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.2%	
13C2-6:2FTS	7.445	429.0 -> 409.0	134670	7.95 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.5%	
13C2-8:2FTS	8.611	529.0 -> 509.0	205181	7.23 µg/L	0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 72.3%	
13C2-PFDoDA	10.121	615.0 -> 570.0	625452	5.67 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 56.7%	
13C3-PFBS	4.721	302.0 -> 99.0	18626	7.88 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.8%	
13C3-PFHxS	6.749	402.0 -> 99.0	26875	7.98 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.8%	
13C4-PFBA	2.340	217.0 -> 172.0	132601	7.96 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.6%	
13C4-PFHpA	6.719	367.0 -> 322.0	181128	8.26 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.6%	
13C5-PFHxA	5.788	318.0 -> 273.0	214487	8.17 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.7%	
13C5-PFPeA	4.425	268.0 -> 223.0	163513	8.14 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.4%	
13C6-PFDA	8.546	519.0 -> 474.0	379249	8.75 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 87.5%	
13C7-PFUnDA	9.224	570.0 -> 525.0	579278	6.69 µg/L	0.039
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 66.9%	
13C8-PFOA	7.447	421.0 -> 376.0	238146	8.36 µg/L	0.025

Perfluorinated Compounds by LC/MS/MS

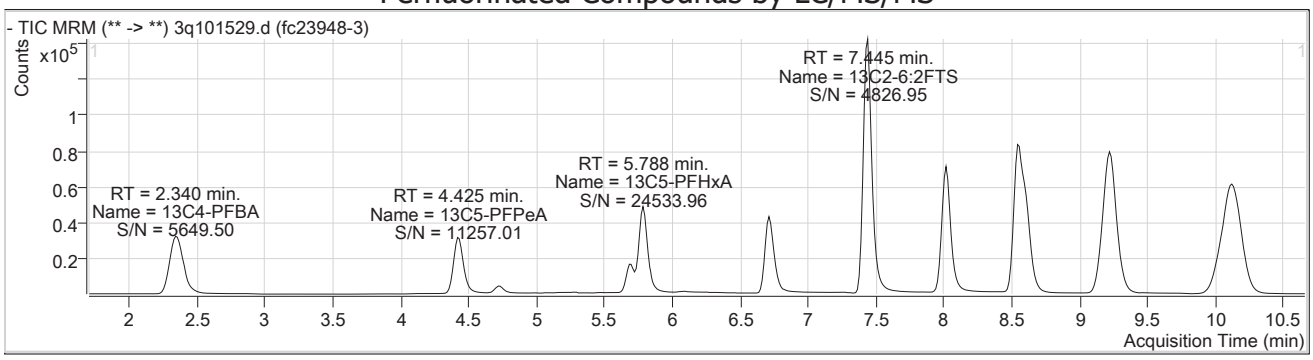
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 83.6%		
13C8-PFOS	7.995	507.0 -> 99.0	32622	7.57 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 75.7%		
13C9-PFNA	8.022	472.0 -> 427.0	259363	8.38 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 83.8%		
13C3-HFPO-DA	6.081	287.0 -> 169.0	2477	6.56 µg/L		0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 65.6%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	-	299.0 -> 80.0	-	N.D.		
		299.0 -> 99.0				
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	-	363.0 -> 319.0	-	N.D.		
		363.0 -> 169.0				
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	6.139	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0	0			

 # = Qualifier out of range, m = manually integrated, + = Area summed

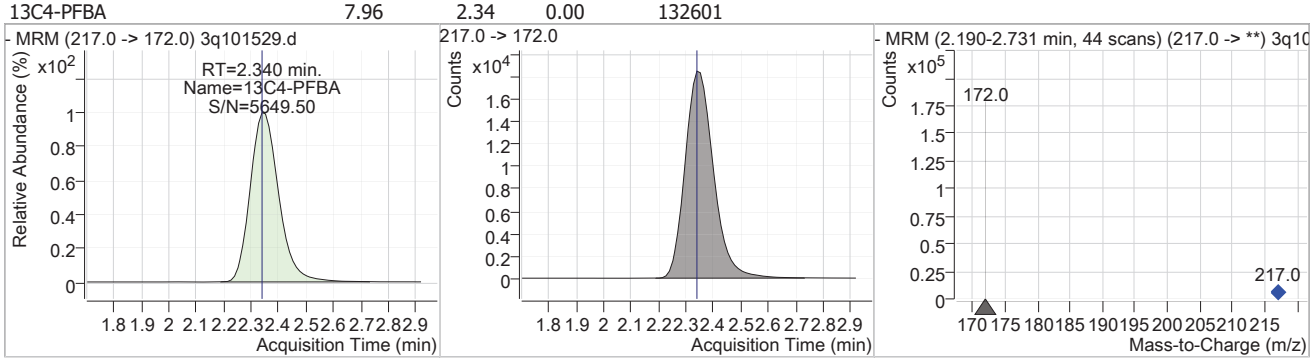
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

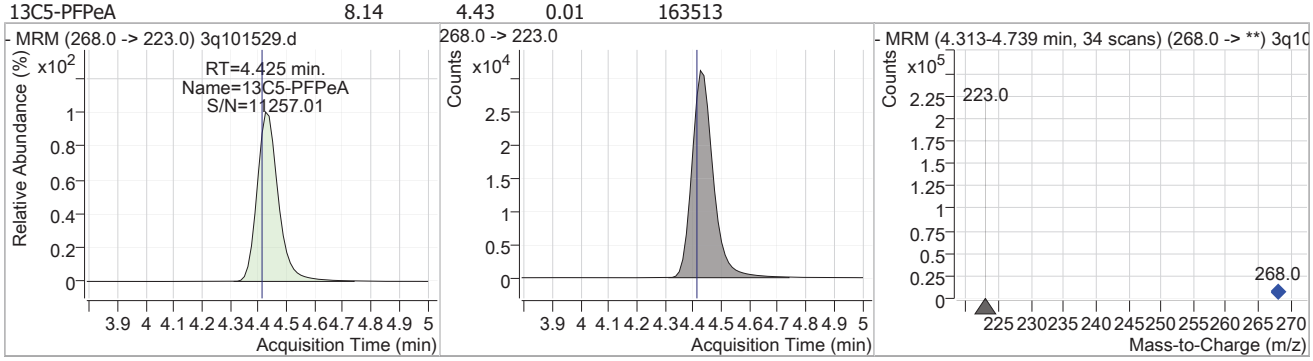
Perfluorinated Compounds by LC/MS/MS



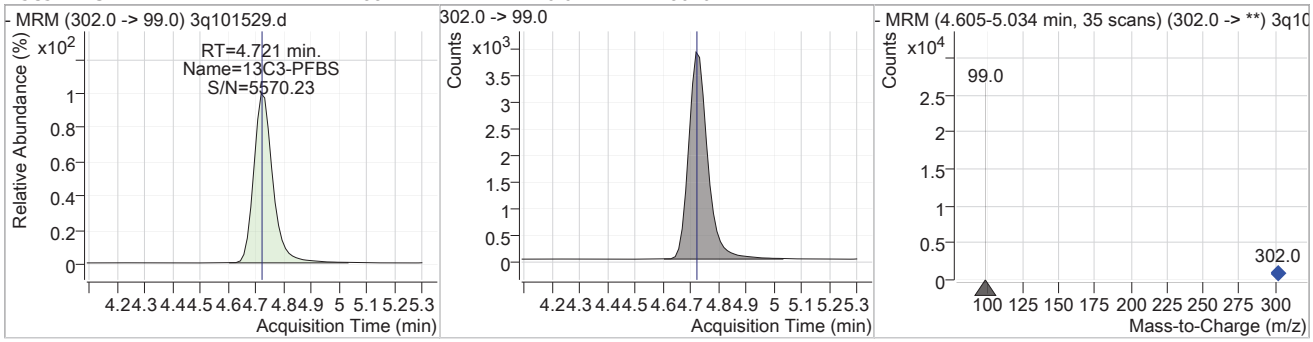
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	7.96	2.34	0.00	132601				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	8.14	4.43	0.01	163513				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	7.88	4.72	0.01	18626				



7.1.3

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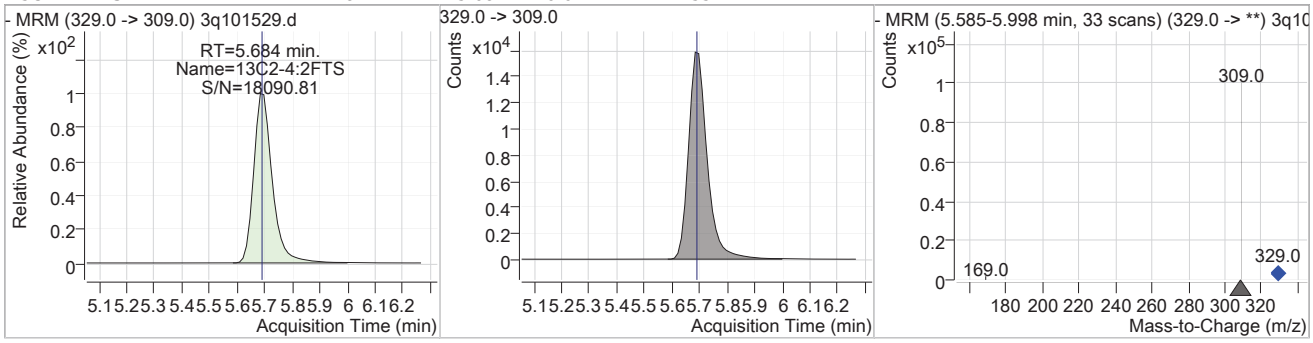
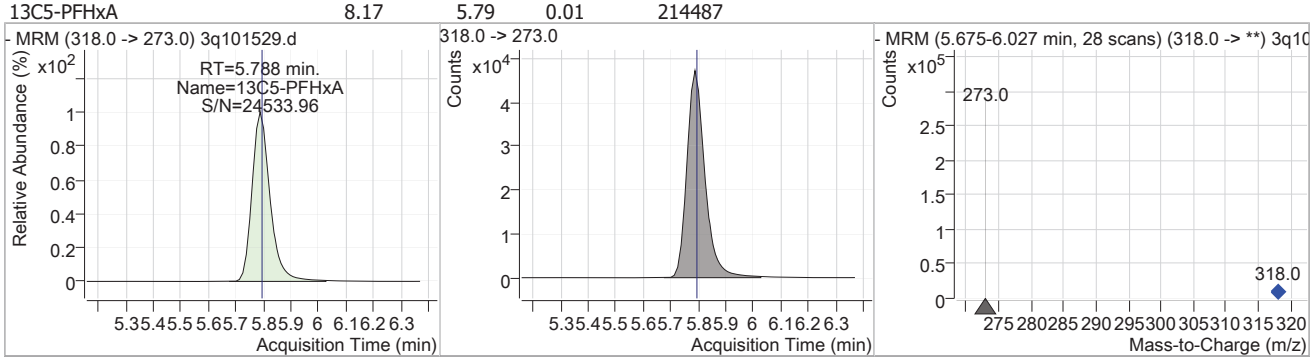
Perfluorinated Compounds by LC/MS/MS

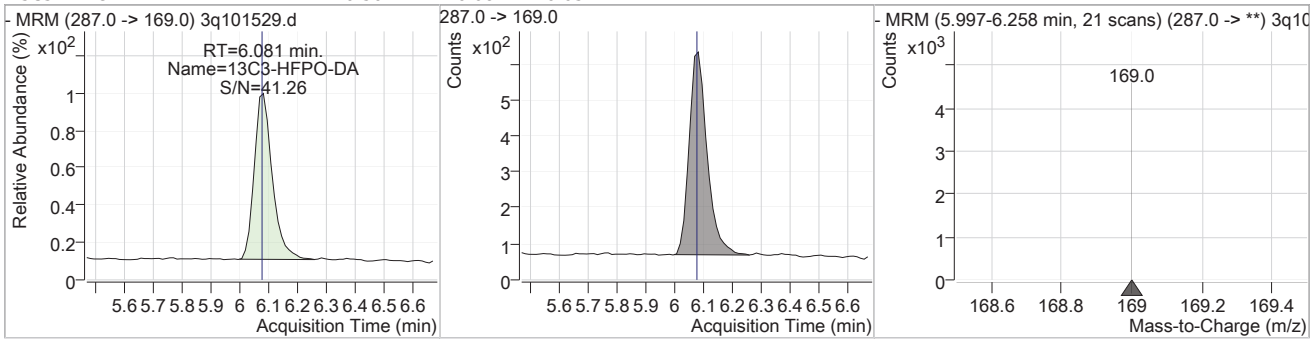
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	8.22	5.68	0.01	74155				



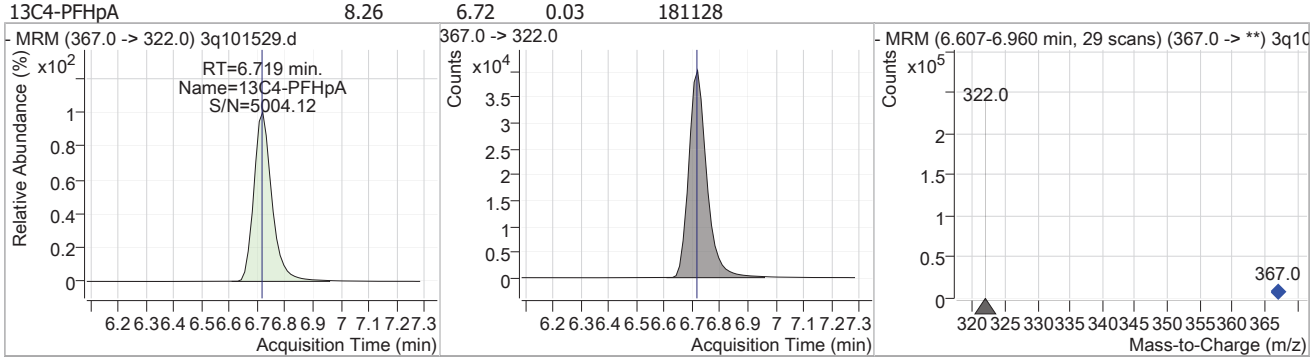
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	8.17	5.79	0.01	214487				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	6.56	6.08	0.03	2477				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	8.26	6.72	0.03	181128				



7.1.3

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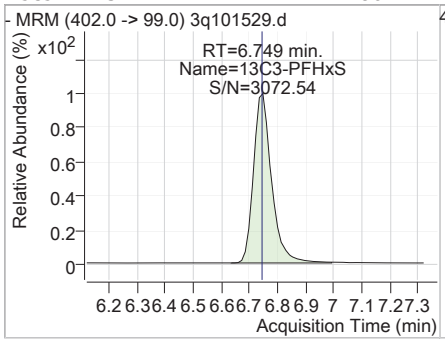
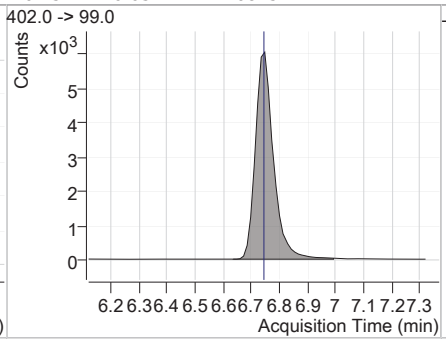
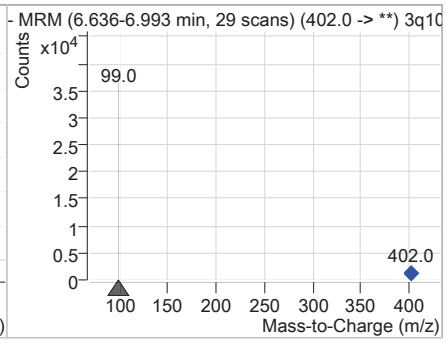
Perfluorinated Compounds by LC/MS/MS

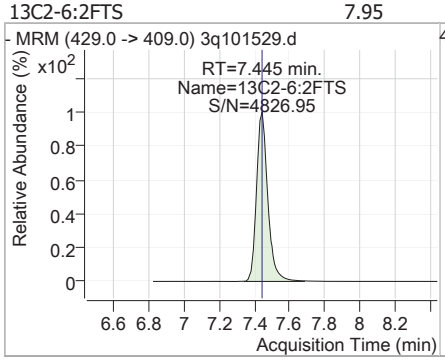
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	7.98	6.75	0.03	26875				

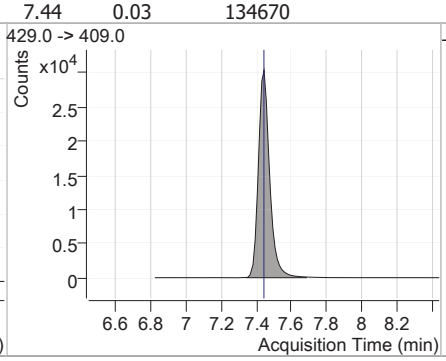


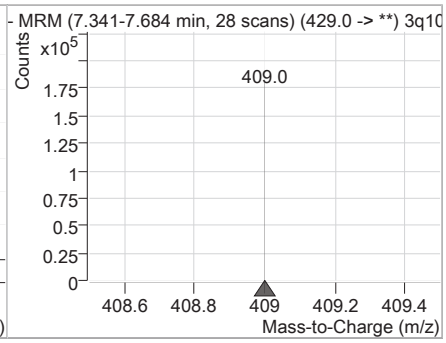




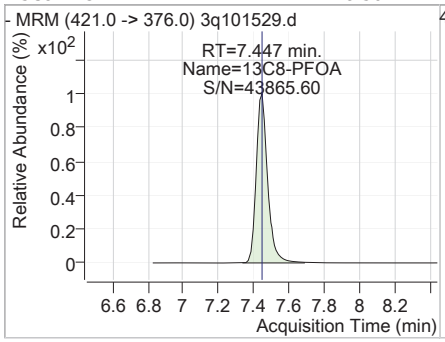
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	7.95	7.44	0.03	134670				

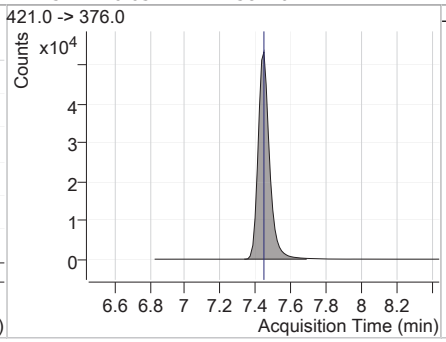


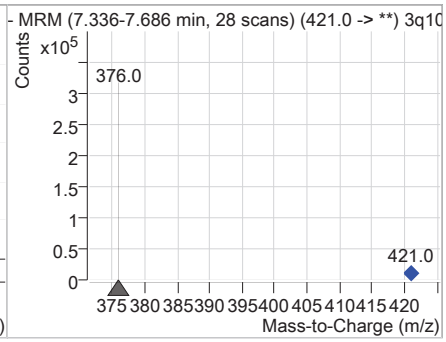




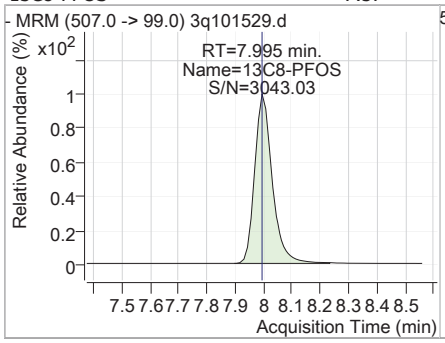
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	8.36	7.45	0.03	238146				

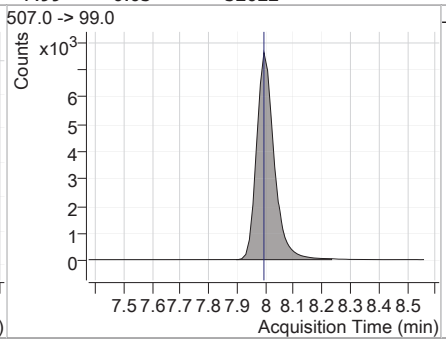


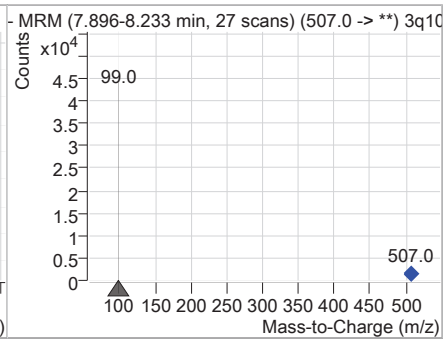




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	7.57	7.99	0.03	32622				







7.1.3

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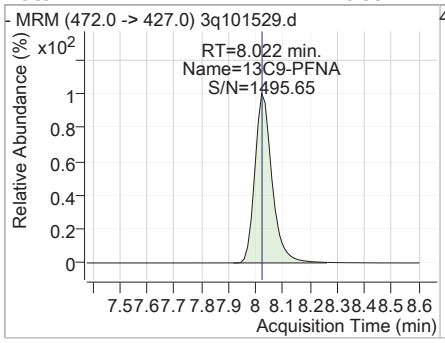
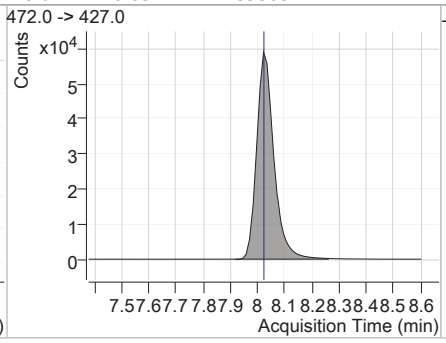
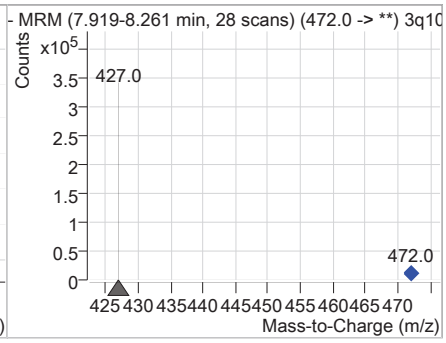
Perfluorinated Compounds by LC/MS/MS

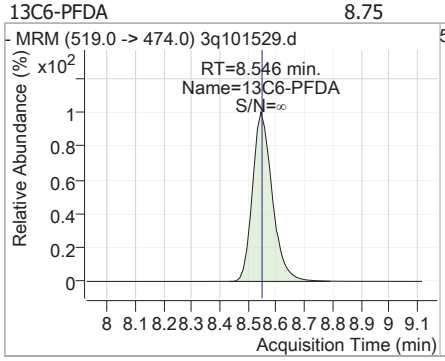
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	8.38	8.02	0.03	259363				

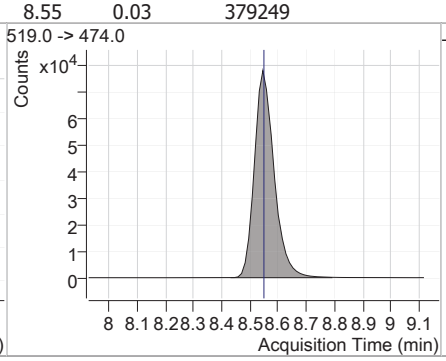


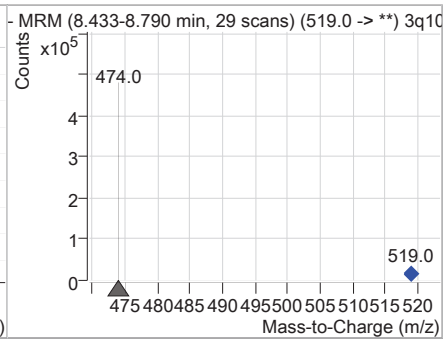




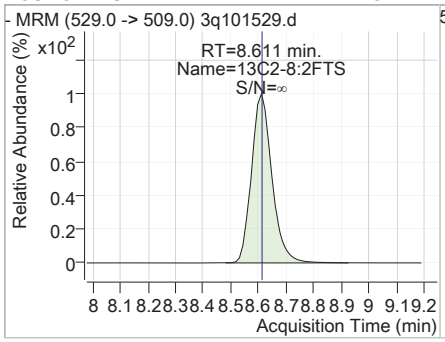
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	8.75	8.55	0.03	379249				

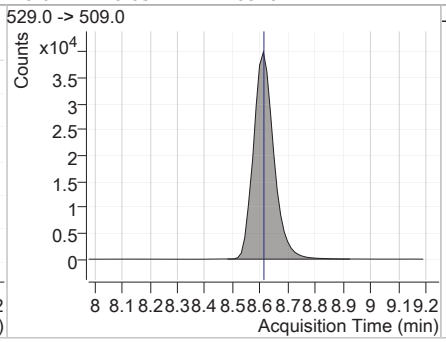


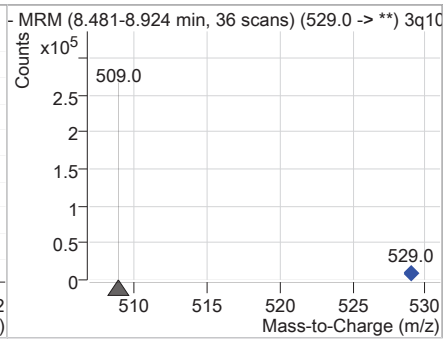




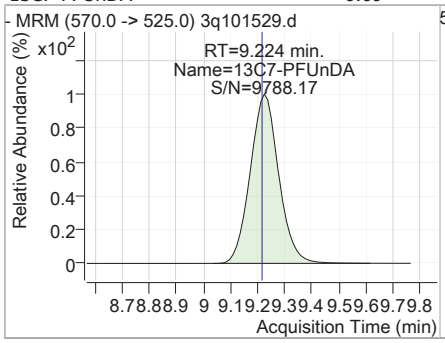
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	7.23	8.61	0.03	205181				

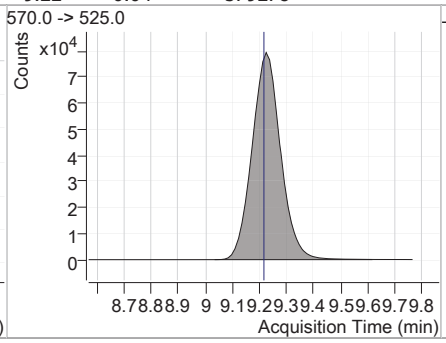


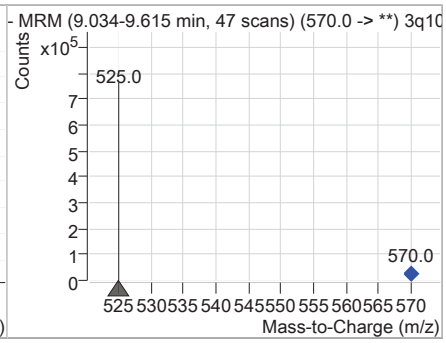




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	6.69	9.22	0.04	579278				







7.1.3

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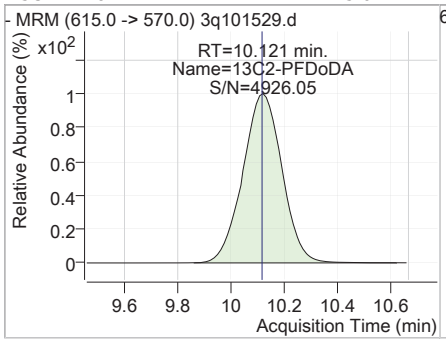
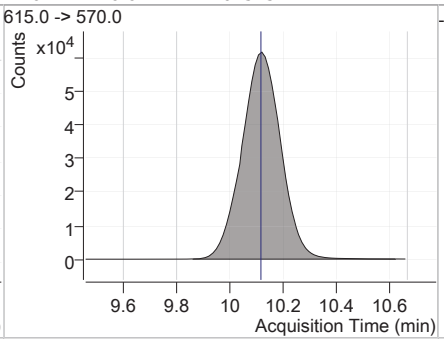
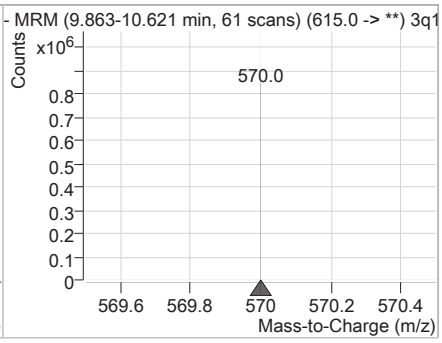
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	5.67	10.12	0.04	625452				







7.1.3

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Perfluorinated Compounds by LC/MS/MS

Data File : 3q101531.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/17/2025 1:48:05 PM
Sample Name : fc23948-4
Vial : P3-C8
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1494.batch.bin
Sample Information : op8907,S3Q1494,285,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.447	415.0 -> 370.0	261025	10.00 µg/L	0.025
13C3-PFBA	2.344	216.0 -> 172.0	99126	10.00 µg/L	0.000
13C4-PFOS	7.995	503.0 -> 80.0	38104	10.00 µg/L	0.026
M4-PFBA	2.340	217.0 -> 172.0	127668	10.00 µg/L	0.000
M5-PFPeA	4.425	268.0 -> 223.0	157010	10.00 µg/L	0.013
M5-PFHxA	5.788	318.0 -> 273.0	199094	10.00 µg/L	0.013
M4-PFHpA	6.719	367.0 -> 322.0	171202	10.00 µg/L	0.025
M8-PFOA	7.447	421.0 -> 376.0	229005	10.00 µg/L	0.025
M9-PFNA	8.022	472.0 -> 427.0	248424	10.00 µg/L	0.026
M6-PFDA	8.546	519.0 -> 474.0	371411	10.00 µg/L	0.025
M7-PFUnDA	9.185	570.0 -> 525.0	585287	10.00 µg/L	0.000
M2-PFDoDA	10.083	615.0 -> 570.0	622764	10.00 µg/L	0.000
M3-PFBS	4.721	302.0 -> 99.0	17768	10.00 µg/L	0.013
M3-PFHxS	6.749	402.0 -> 99.0	25327	10.00 µg/L	0.025
M8-PFOS	7.995	507.0 -> 99.0	33297	10.00 µg/L	0.026
M2-4:2FTS	5.684	329.0 -> 309.0	65847	10.00 µg/L	0.013
M2-6:2FTS	7.445	429.0 -> 409.0	125914	10.00 µg/L	0.025
M2-8:2FTS	8.597	529.0 -> 509.0	219303	10.00 µg/L	0.013
M3-HFPO-DA	6.081	287.0 -> 169.0	2294	10.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.684	329.0 -> 309.0	65847	7.26 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 72.6%	
13C2-6:2FTS	7.445	429.0 -> 409.0	125914	7.39 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 73.9%	
13C2-8:2FTS	8.597	529.0 -> 509.0	219303	7.68 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.8%	
13C2-PFDoDA	10.083	615.0 -> 570.0	622764	5.60 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 56.0%	
13C3-PFBS	4.721	302.0 -> 99.0	17768	7.47 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 74.7%	
13C3-PFHxS	6.749	402.0 -> 99.0	25327	7.48 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 74.8%	
13C4-PFBA	2.340	217.0 -> 172.0	127668	7.59 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 75.9%	
13C4-PFHpA	6.719	367.0 -> 322.0	171202	7.75 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.5%	
13C5-PFHxA	5.788	318.0 -> 273.0	199094	7.53 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 75.3%	
13C5-PFPeA	4.425	268.0 -> 223.0	157010	7.75 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.5%	
13C6-PFDA	8.546	519.0 -> 474.0	371411	8.51 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 85.1%	
13C7-PFUnDA	9.185	570.0 -> 525.0	585287	6.71 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 67.1%	
13C8-PFOA	7.447	421.0 -> 376.0	229005	7.99 µg/L	0.025

Perfluorinated Compounds by LC/MS/MS

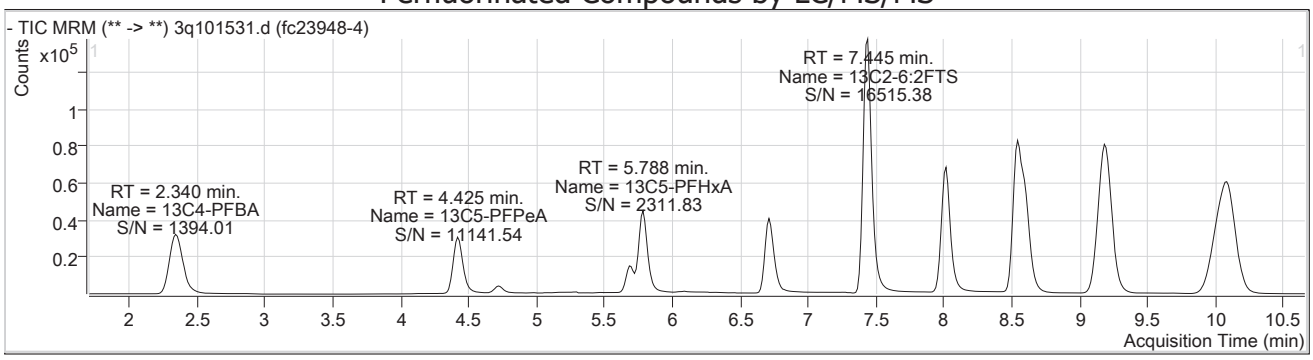
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.9%		
13C8-PFOS	7.995	507.0 -> 99.0	33297	7.68 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.8%		
13C9-PFNA	8.022	472.0 -> 427.0	248424	7.97 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.7%		
13C3-HFPO-DA	6.081	287.0 -> 169.0	2294	6.03 µg/L		0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 60.3%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	-	299.0 -> 80.0	-	N.D.		
		299.0 -> 99.0				
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	-	363.0 -> 319.0	-	N.D.		
		363.0 -> 169.0				
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	6.023	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0				

 # = Qualifier out of range, m = manually integrated, + = Area summed

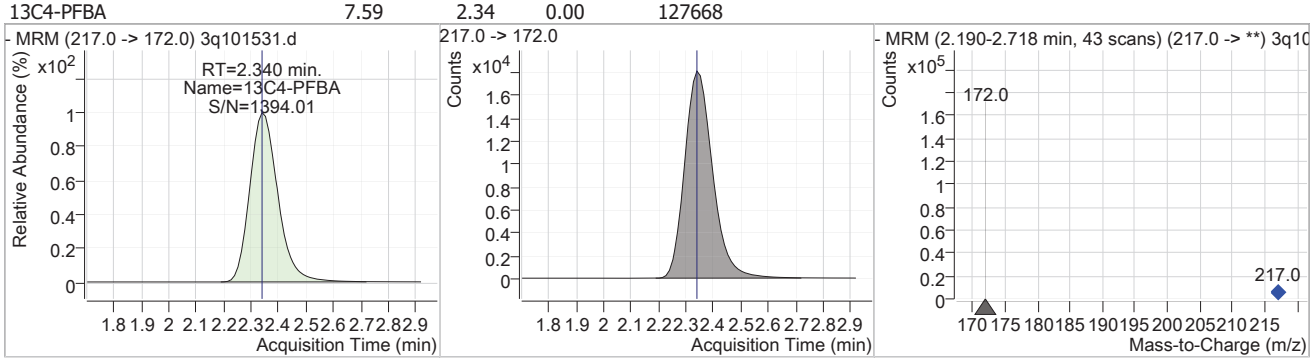
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

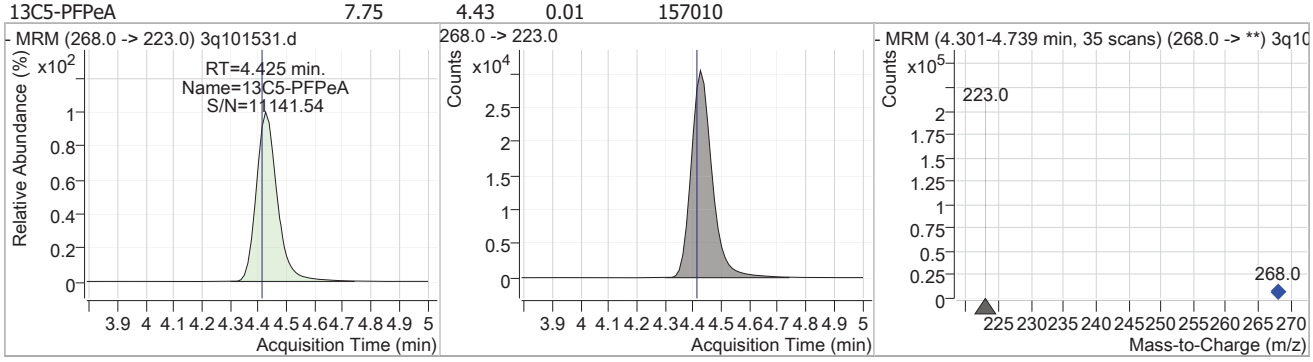
Perfluorinated Compounds by LC/MS/MS



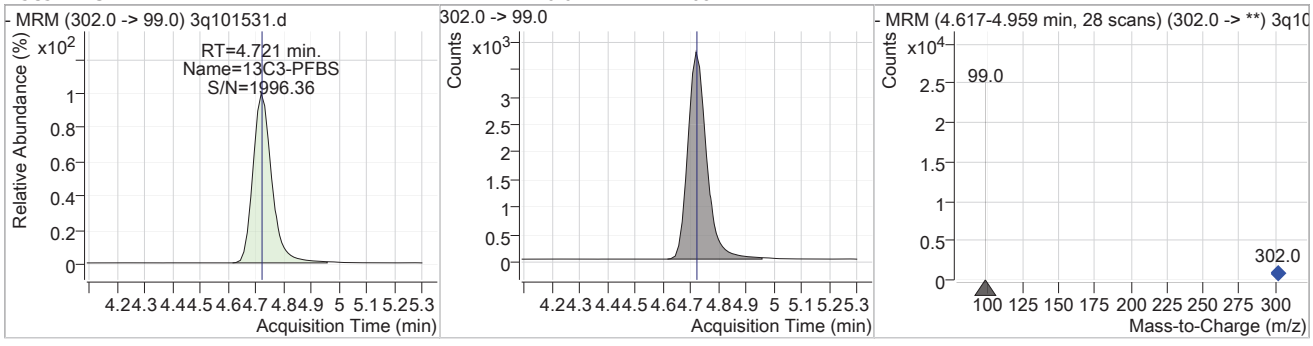
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	7.59	2.34	0.00	127668				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	7.75	4.43	0.01	157010				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	7.47	4.72	0.01	17768				



7.1.4

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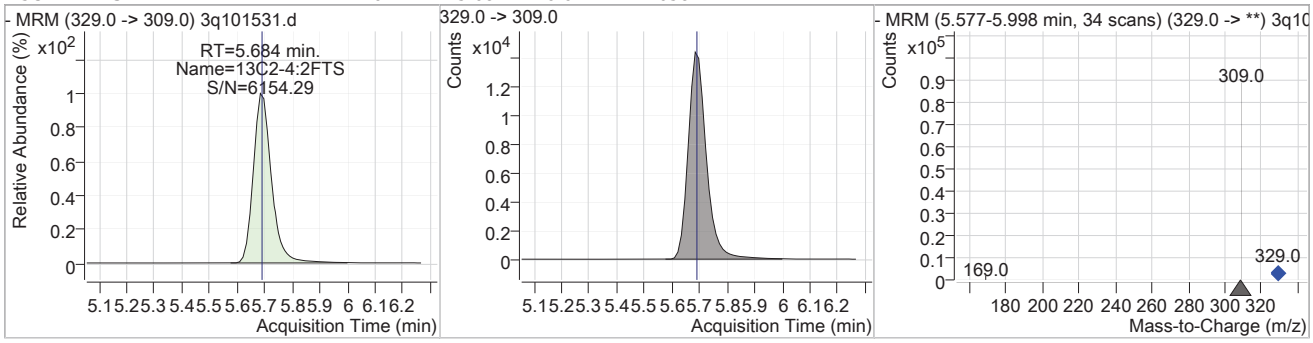
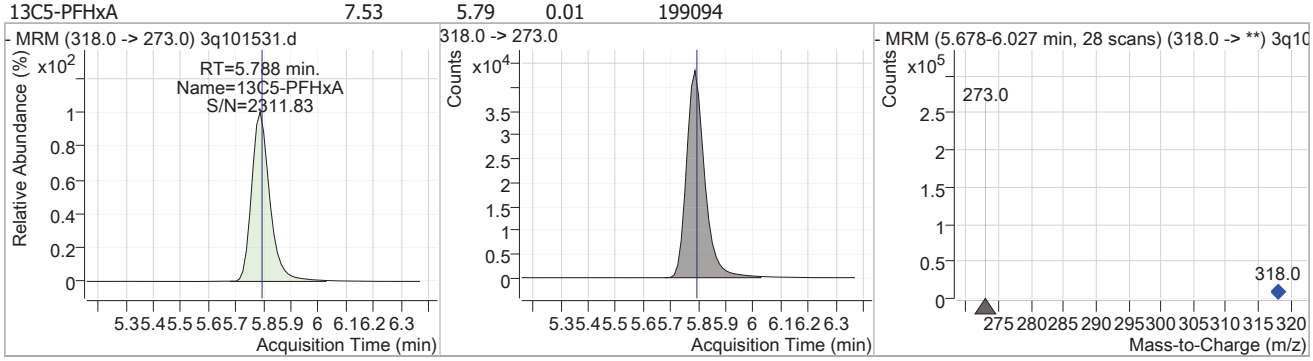
Perfluorinated Compounds by LC/MS/MS

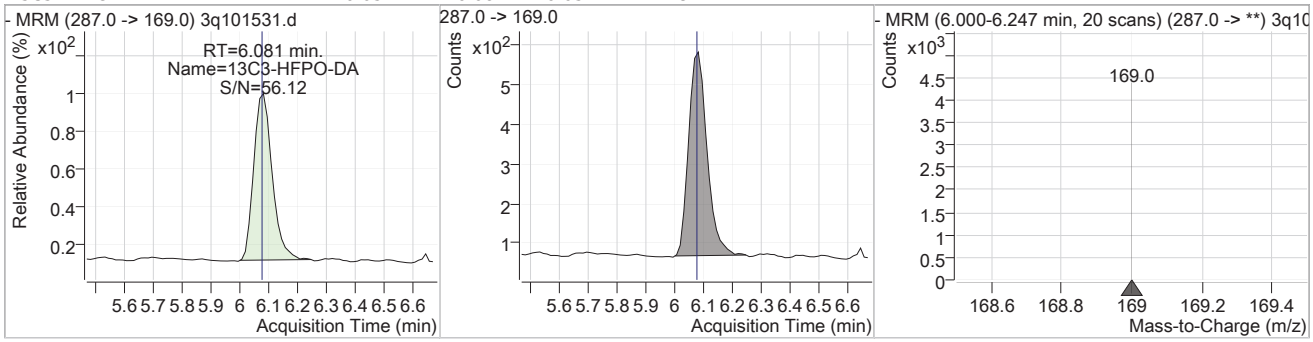
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	7.26	5.68	0.01	65847				



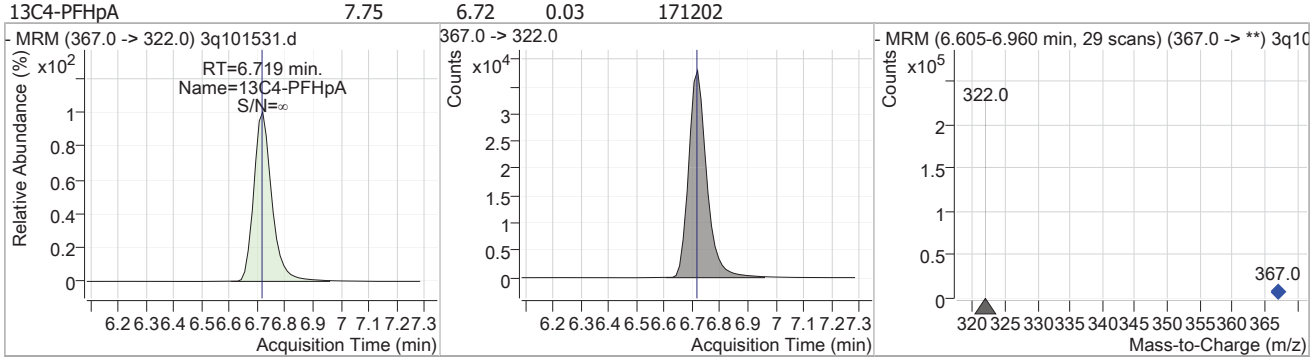
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	7.53	5.79	0.01	199094				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	6.03	6.08	0.03	2294				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	7.75	6.72	0.03	171202				

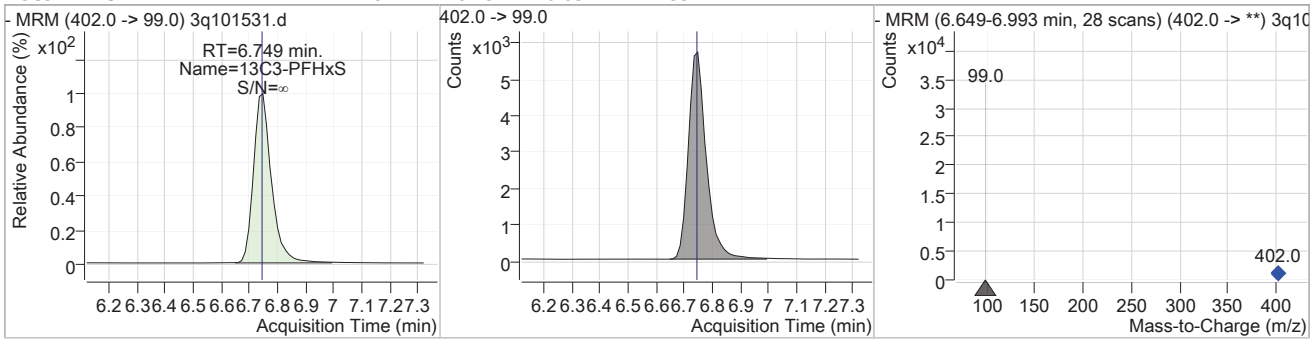


7.1.4

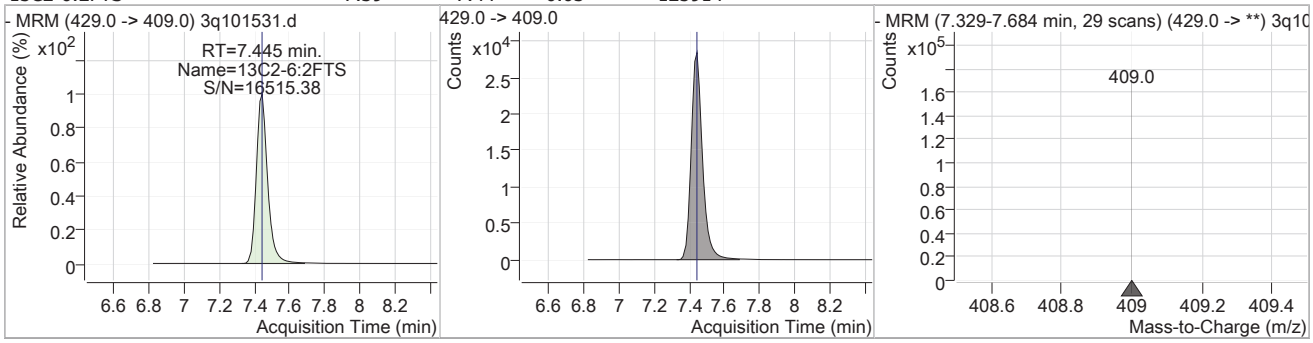
7

Perfluorinated Compounds by LC/MS/MS

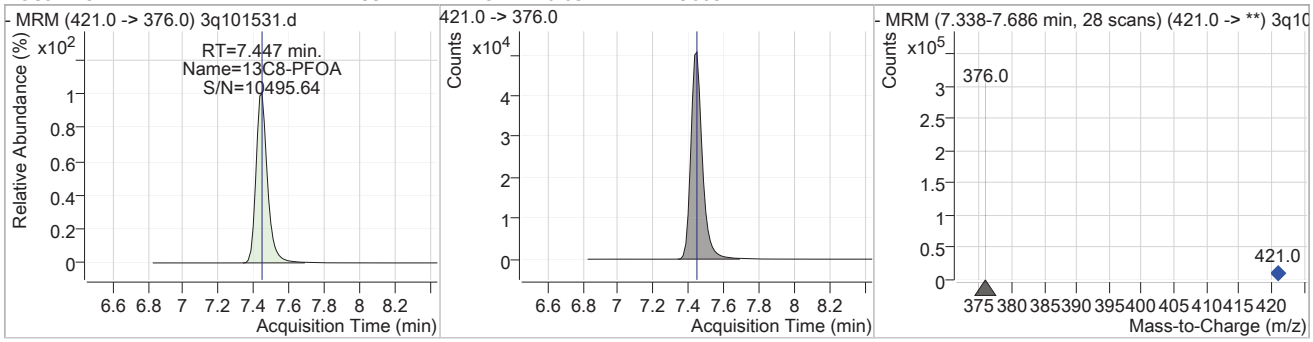
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	7.48	6.75	0.03	25327				



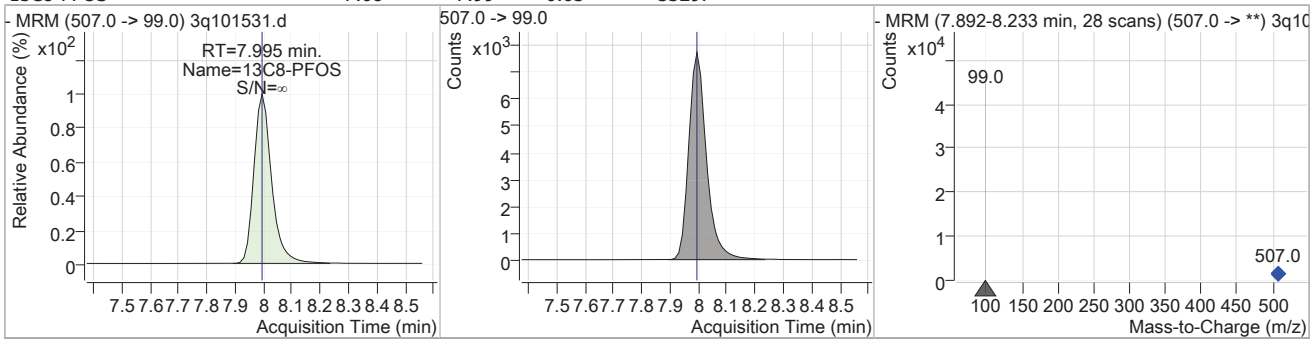
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	7.39	7.44	0.03	125914				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	7.99	7.45	0.03	229005				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	7.68	7.99	0.03	33297				



7.1.4

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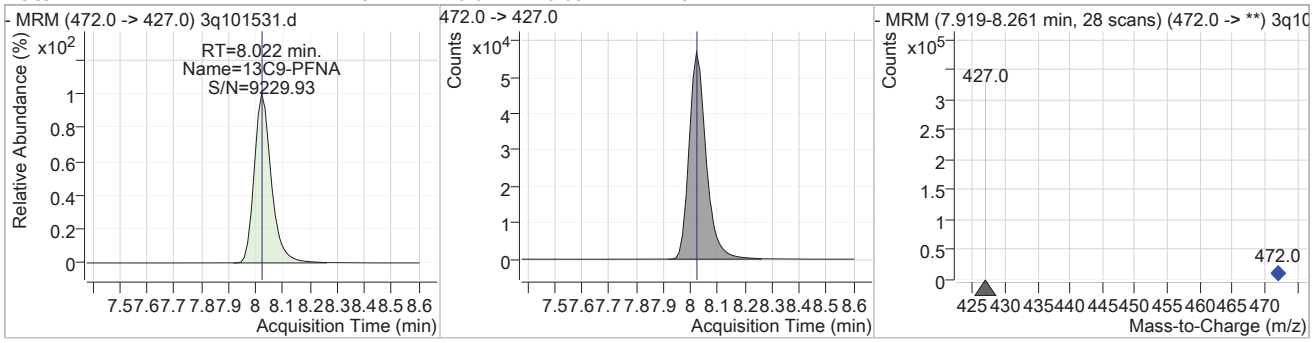
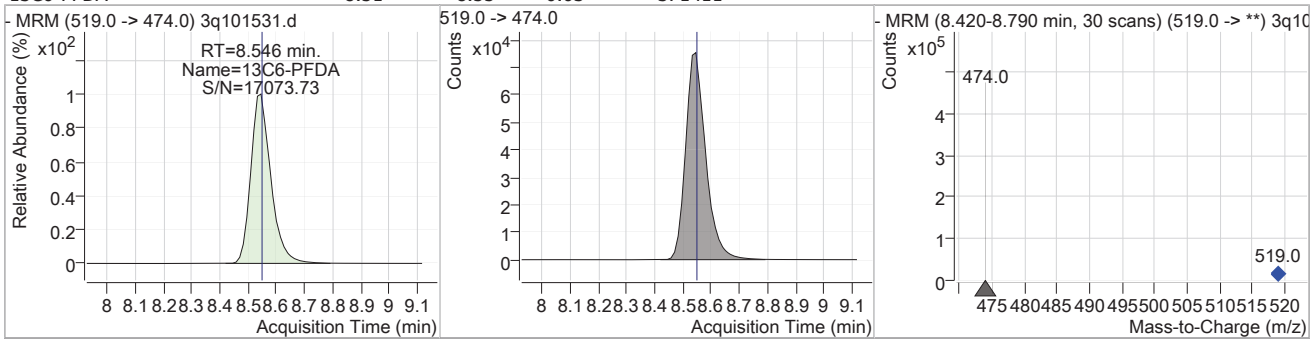
Perfluorinated Compounds by LC/MS/MS

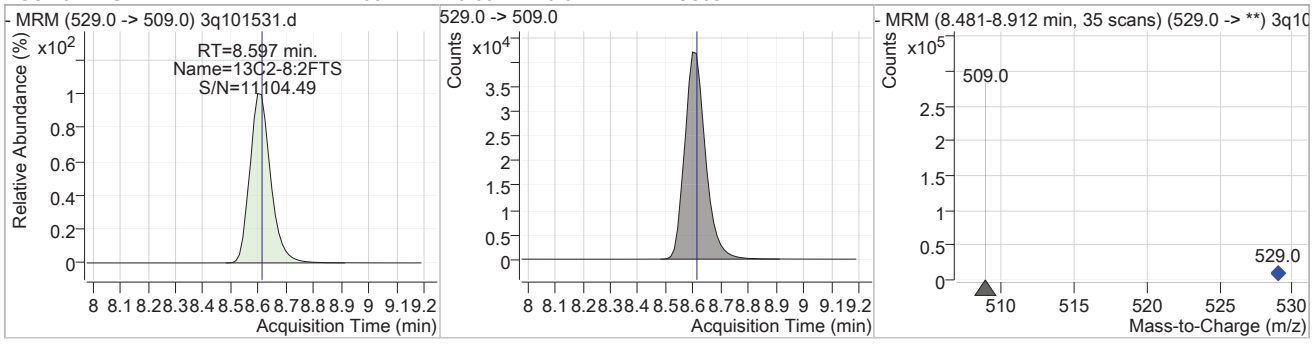
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	7.97	8.02	0.03	248424				



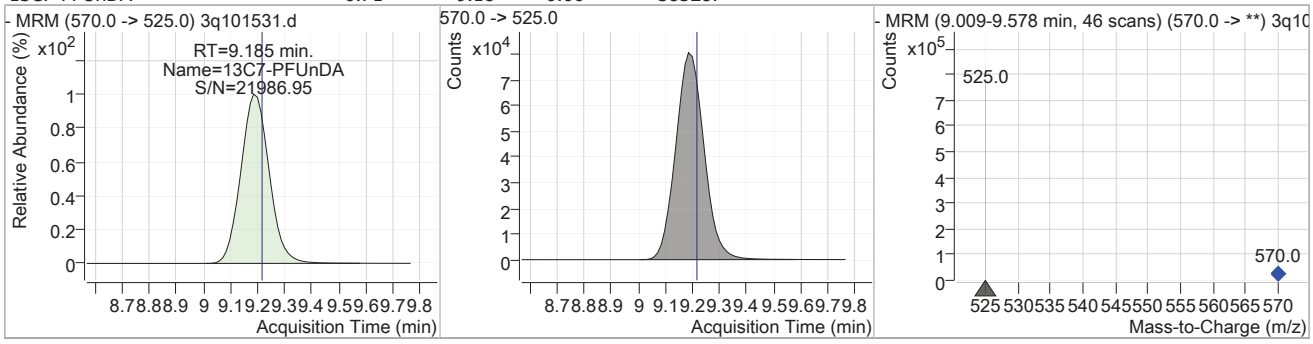
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	8.51	8.55	0.03	371411				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	7.68	8.60	0.01	219303				

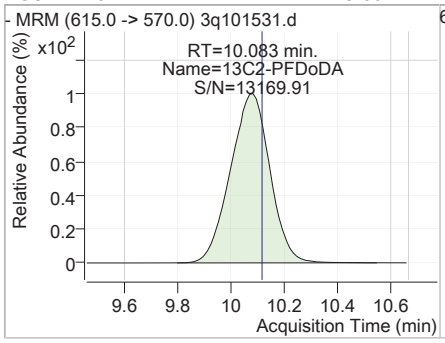


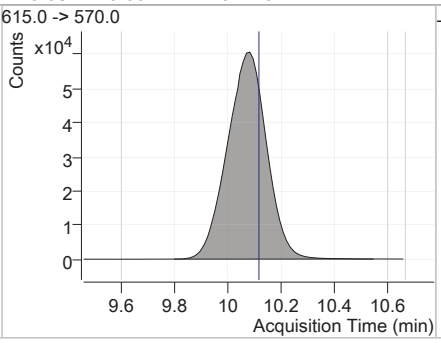
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	6.71	9.18	0.00	585287				

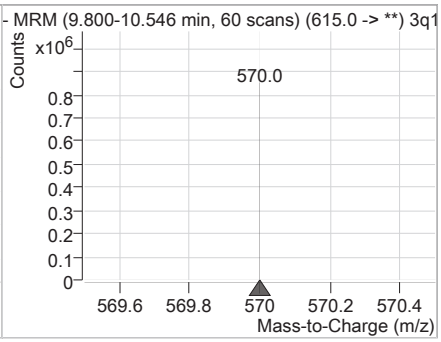


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	5.60	10.08	0.00	622764				







7.1.4

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Sample Results: 5Q31835.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/24/25 12:52

Perfluorinated Compounds by LC/MS/MS

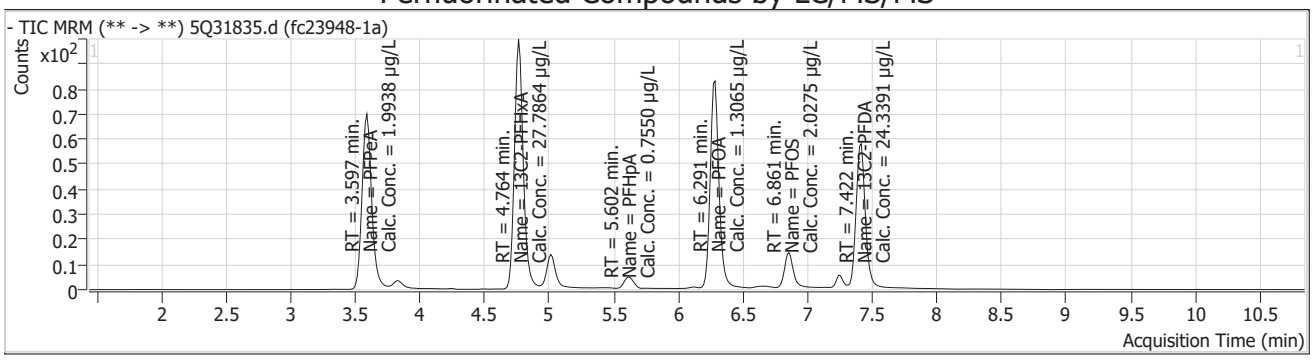
Data File : 5Q31835.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 4:45:30 PM
Sample Name : fc23948-1a
Vial : P2-E4
DA Method File
Batch Name : s5q523.batch.bin
Sample Information : OP8904,S5Q523,280,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.275	429.0 -> 409.0	167204	20.00	µg/L		-0.012
13C2-PFOA	6.290	415.0 -> 370.0	367882	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	460853	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	84634	20.00	µg/L		0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	26326	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.422	515.0 -> 470.0	383190	24.34	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 121.7%			
13C2-PFHxA	4.764	315.0 -> 270.0	647712	27.79	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 138.9%			
d5-EtFOSAA	7.378	589.0 -> 419.0	24716	49.48	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 123.7%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	87594	53.18	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 132.9%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	3.828	299.0 -> 80.0	14428	1.30	µg/L		99
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	5.602	363.0 -> 319.0	22201	0.75	µg/L		98
PFHxA	4.765	313.0 -> 269.0	21965	1.38	µg/L		97
PFHxS	5.636	399.0 -> 80.0	9783	1.45	µg/L	m	98
PFNA	6.887	463.0 -> 419.0	1410	0.12	µg/L	m	80
PFOA	6.291	413.0 -> 369.0	22616	1.31	µg/L	m	98
PFOS	6.861	499.0 -> 80.0	11320	2.03	µg/L	m	95
PFPeA	3.597	263.0 -> 219.0	58656	1.99	µg/L		100
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	5.060	285.0 -> 169.0	0		µg/L	m	1

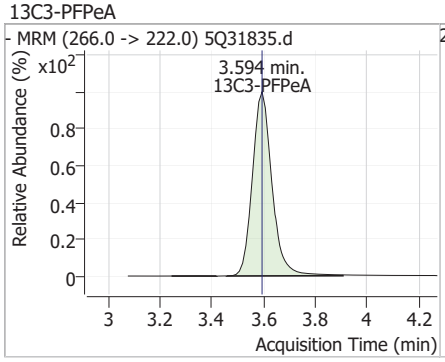
 # = Qualifier out of range, m = manually integrated, + = Area summed

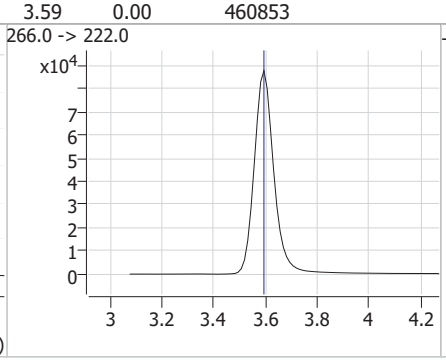
7.1.5
7

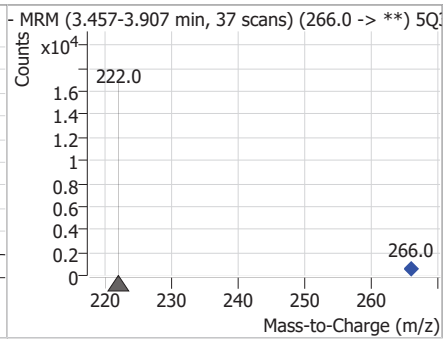
Perfluorinated Compounds by LC/MS/MS



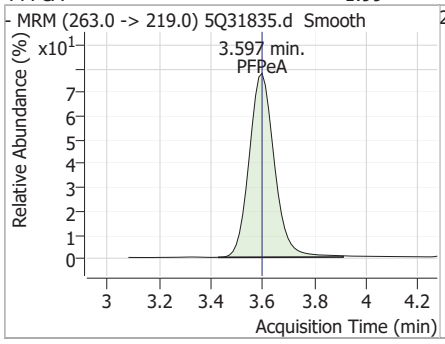
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	460853				

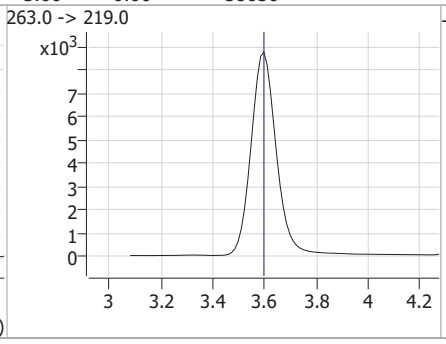


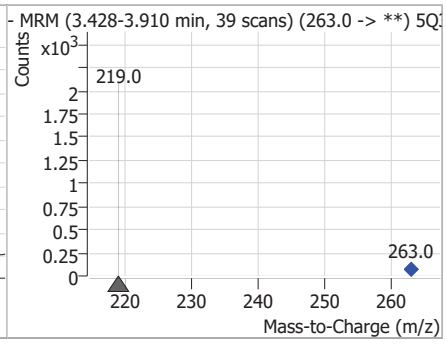




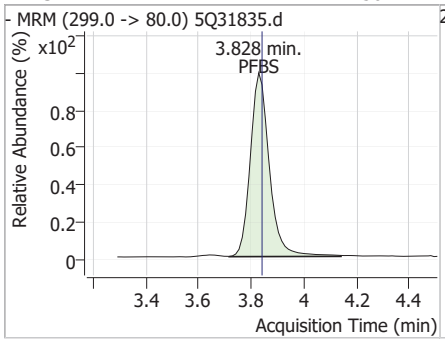
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.99	3.60	0.00	58656				

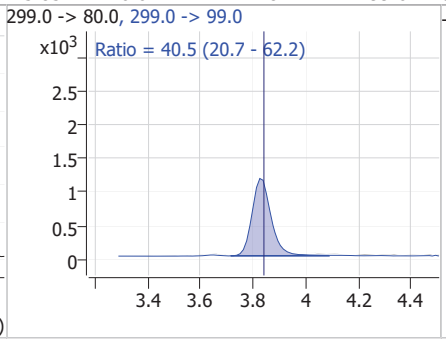


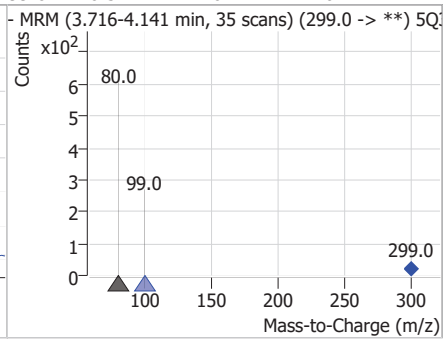




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.30	3.83	-0.01	14428	299.0 -> 99.0	40.5	20.7	62.2







7.1.5

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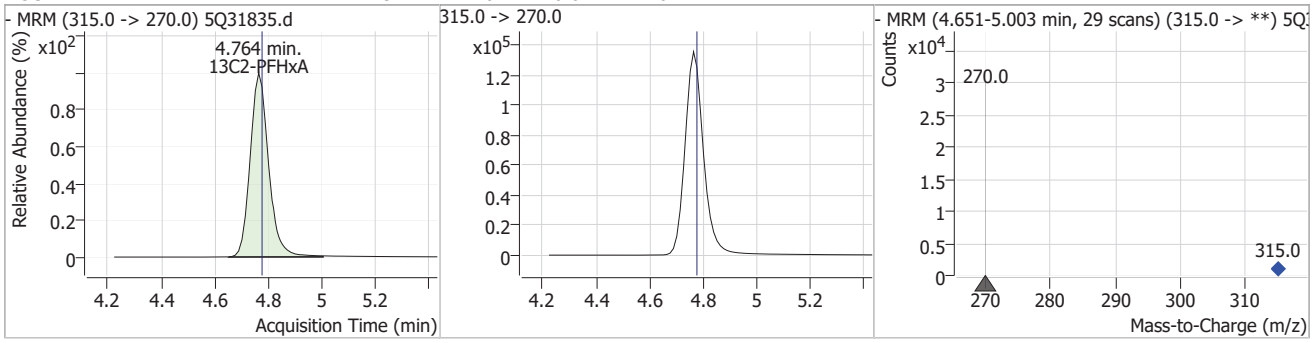
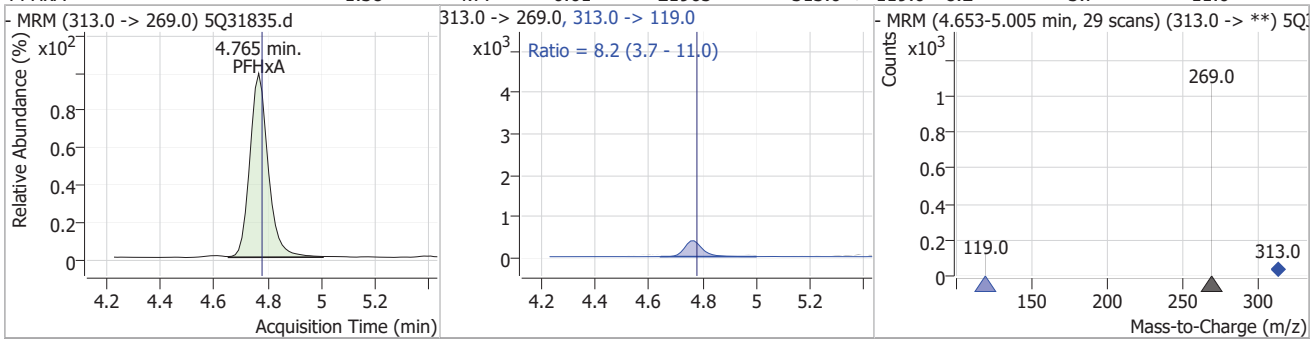
Perfluorinated Compounds by LC/MS/MS

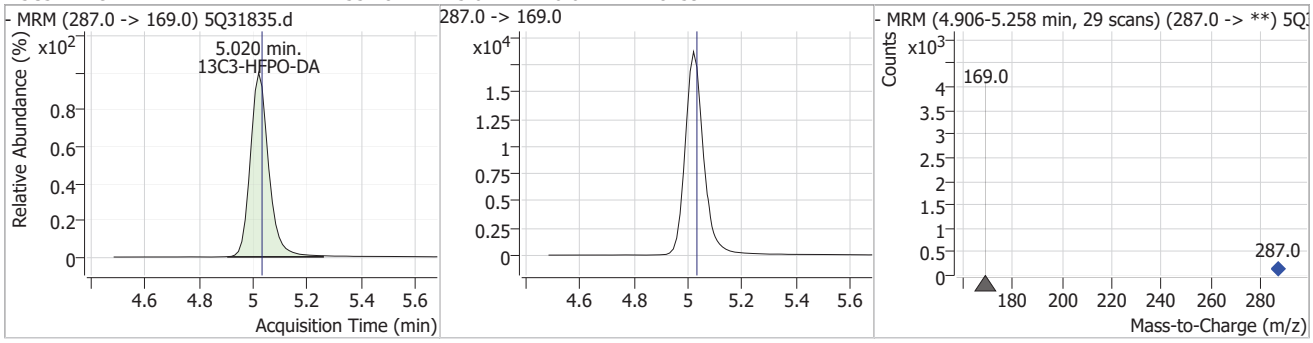
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	27.79	4.76	-0.01	647712				



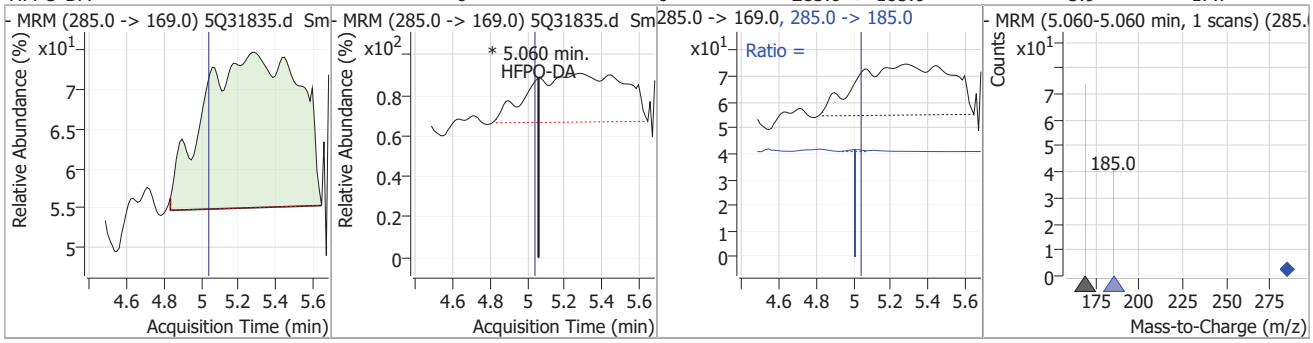
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.38	4.77	-0.01	21965	313.0 -> 119.0	8.2	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	53.18	5.02	-0.01	87594				

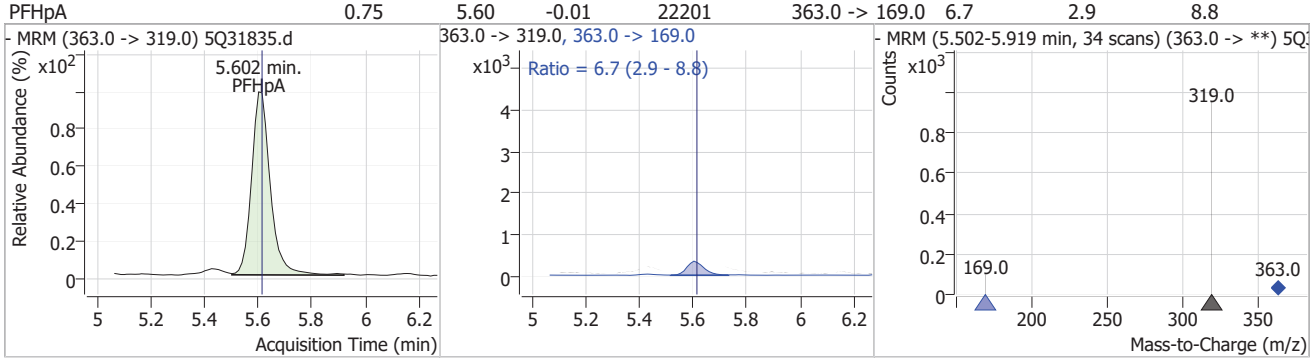


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA		0		0	285.0 -> 185.0		5.9	17.7

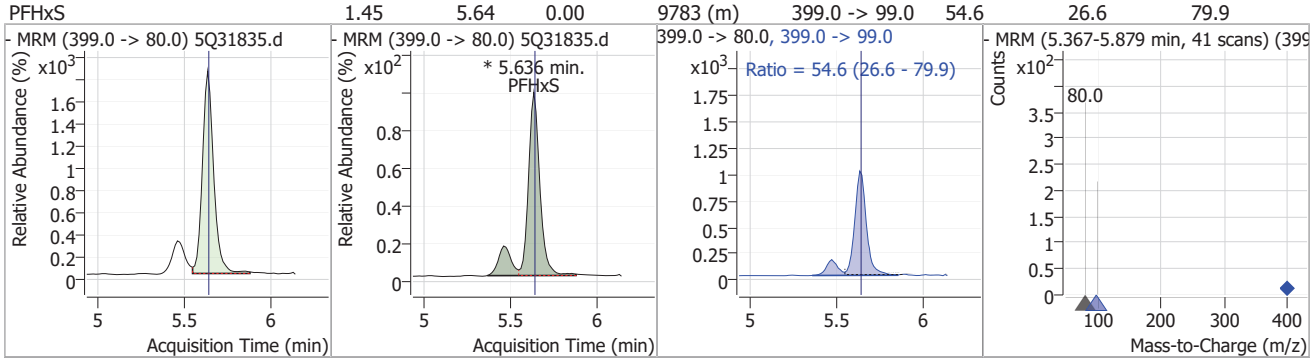


Perfluorinated Compounds by LC/MS/MS

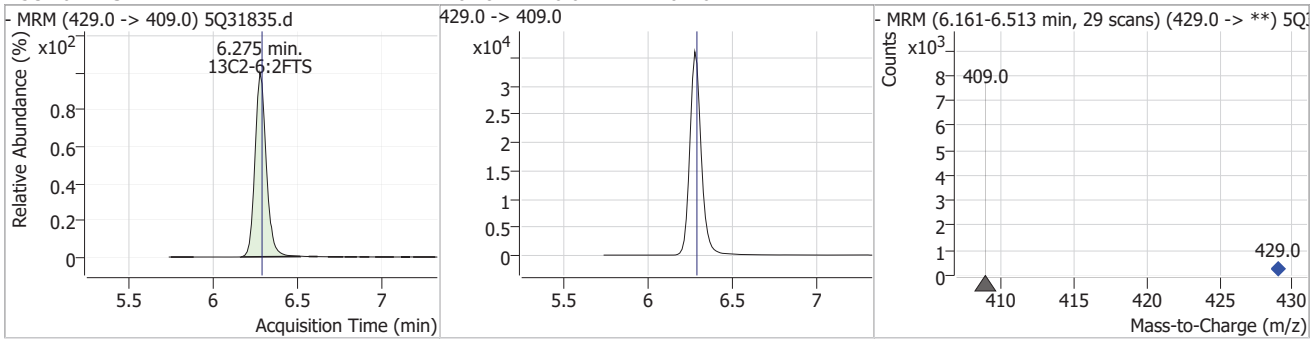
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.75	5.60	-0.01	22201	363.0 -> 169.0	6.7	2.9	8.8



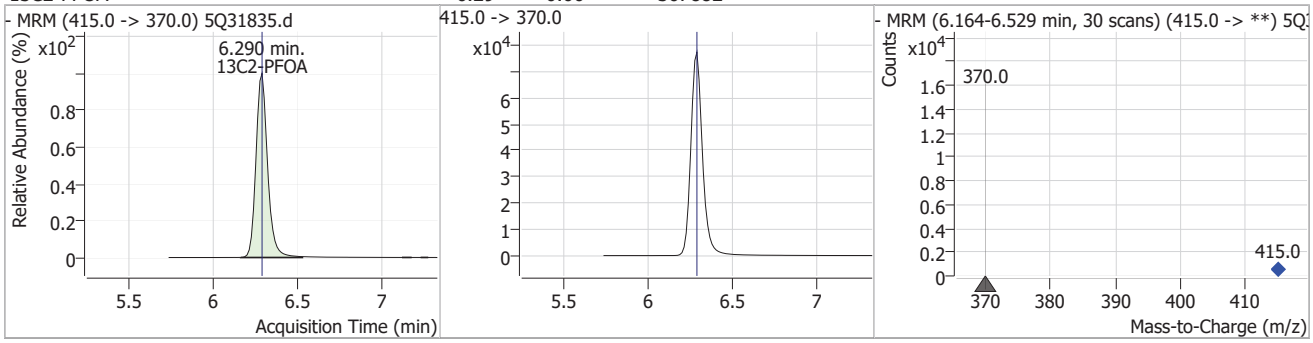
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.45	5.64	0.00	9783 (m)	399.0 -> 99.0	54.6	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	167204				

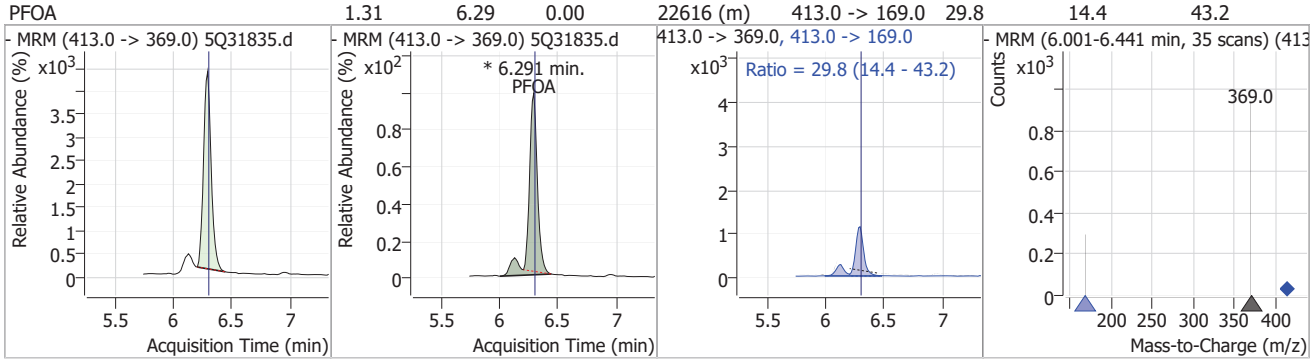


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	367882				

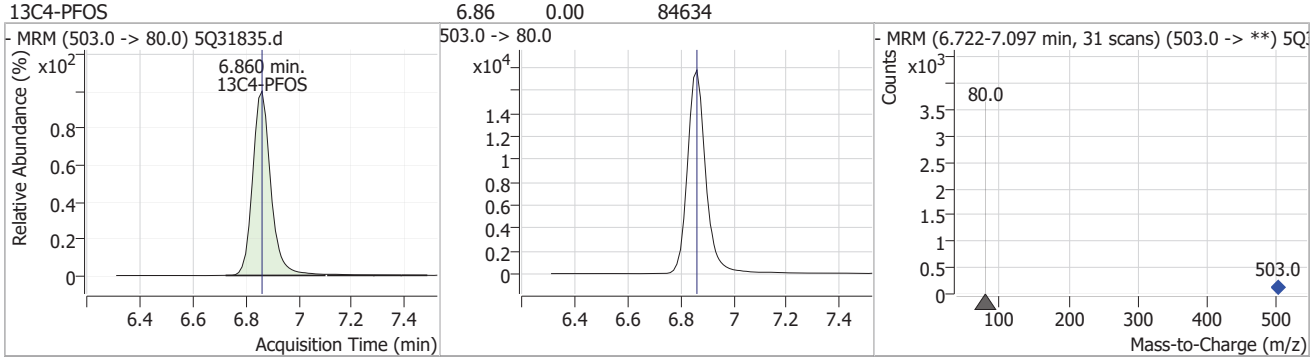


Perfluorinated Compounds by LC/MS/MS

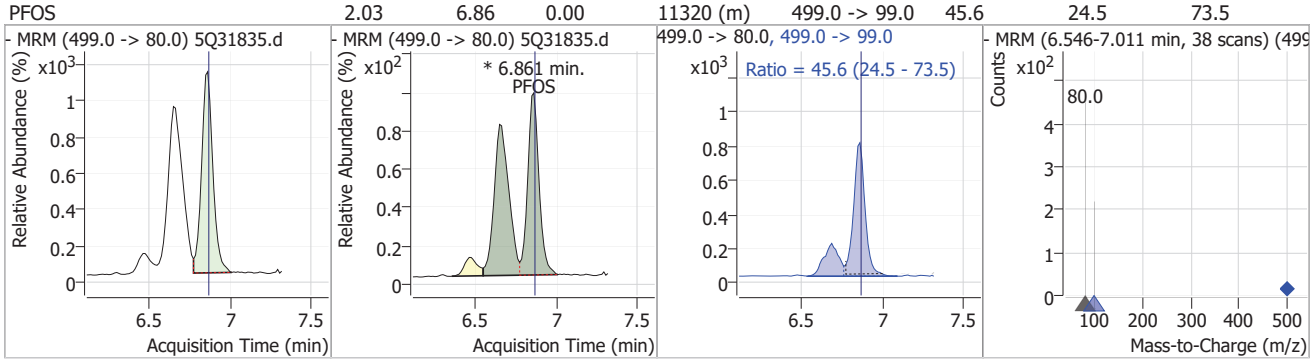
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.31	6.29	0.00	22616 (m)	413.0 -> 169.0	29.8	14.4	43.2



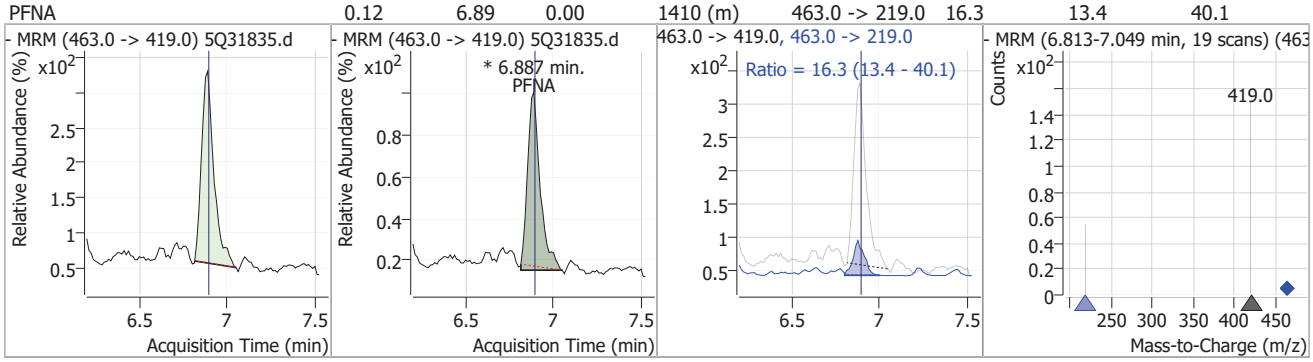
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	84634				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.03	6.86	0.00	11320 (m)	499.0 -> 99.0	45.6	24.5	73.5

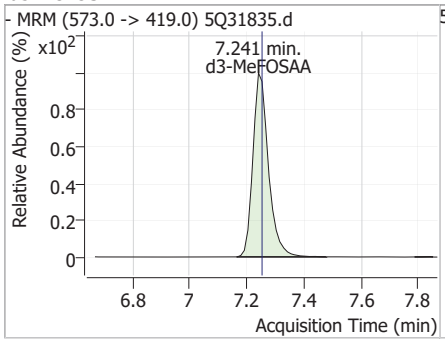


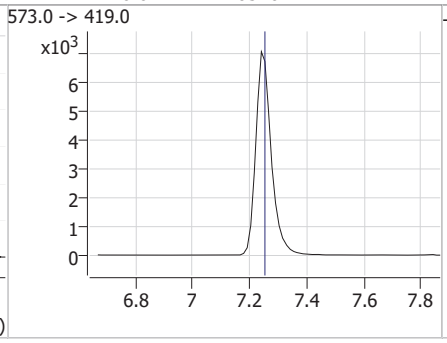
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.12	6.89	0.00	1410 (m)	463.0 -> 219.0	16.3	13.4	40.1

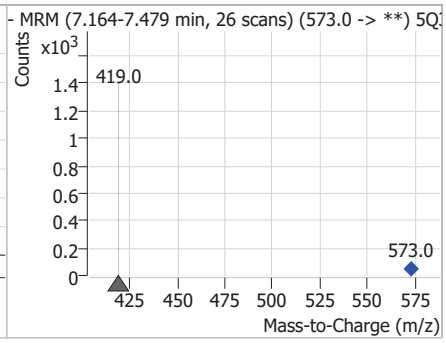


Perfluorinated Compounds by LC/MS/MS

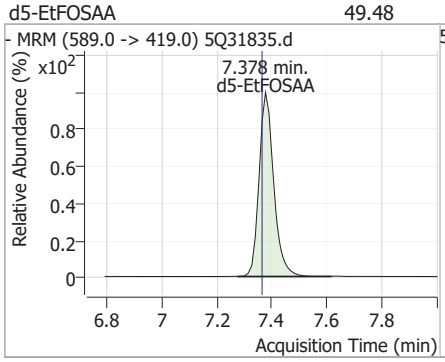
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	26326				

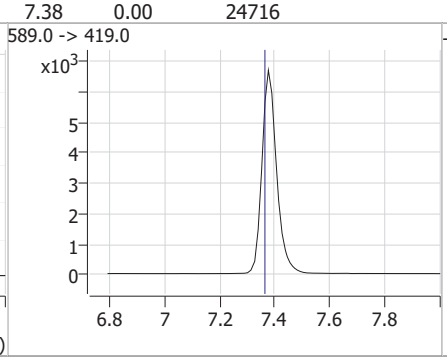


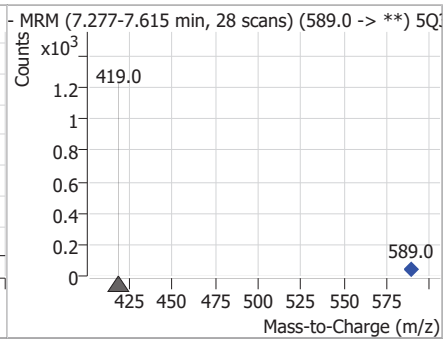




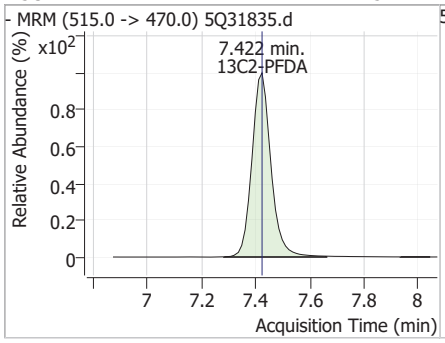
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	49.48	7.38	0.00	24716				

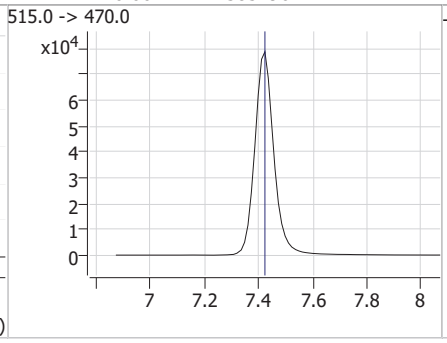


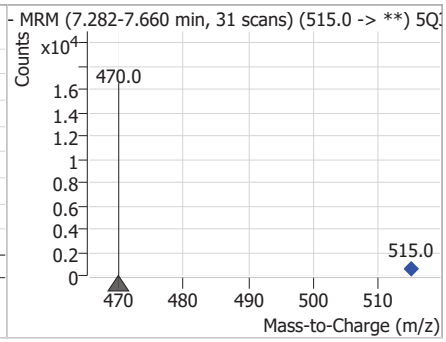




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	24.34	7.42	0.00	383190				







7.1.5

7

Manual Integration Approval Summary

Sample Number:	FC23948-1A	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31835.D	**Analyst approved:**	04/24/25 11:56 (b) (6)
Injection Time:	04/17/25 16:45	**Supervisor approved:**	04/24/25 12:52 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanoic acid	335-67-1		6.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Poor instrument integration

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/24/25 12:52

Perfluorinated Compounds by LC/MS/MS

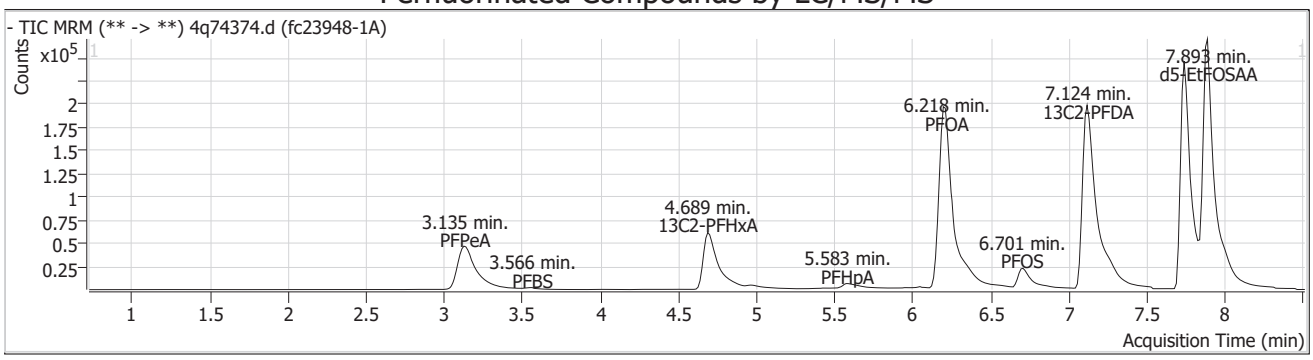
Data File : 4q74374.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/24/2025 1:21:24 AM
Sample Name : fc23948-1A
Vial : P4-A3
DA Method File : 537_042325_S4q1106.quantmethod.xml
Batch Name : s4q1106.batch.bin
Sample Information : OP8985,S4Q1106,280,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.189	429.0 -> 409.0	440705	20.00	µg/L		0.026
13C2-PFOA	6.217	415.0 -> 370.0	758506	20.00	µg/L		0.012
13C3-PFPeA	3.132	266.0 -> 222.0	353721	20.00	µg/L		0.012
13C4-PFOS	6.712	503.0 -> 80.0	121050	20.00	µg/L		0.025
d3-MeFOSAA	7.745	573.0 -> 419.0	1270331	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.124	515.0 -> 470.0	1305693	23.44	µg/L		0.026
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = 234.4%			
13C2-PFHxA	4.689	315.0 -> 270.0	408185	22.85	µg/L		0.012
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = 228.5%			
d5-EtFOSAA	7.893	589.0 -> 419.0	1246507	35.22	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 176.1%			
13C3-HFPO-DA	4.984	287.0 -> 169.0	12382	43.93	µg/L		0.025
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 219.6%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	3.566	299.0 -> 80.0	6705	1.22	µg/L		97
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	5.583	363.0 -> 319.0	27229	0.78	µg/L		99
PFHxA	4.703	313.0 -> 269.0	18314	1.76	µg/L		98
PFHxS	5.655	399.0 -> 80.0	6961	1.22	µg/L	m	100
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	6.218	413.0 -> 369.0	45419	1.79	µg/L	m	99
PFOS	6.701	499.0 -> 80.0	15699	2.29	µg/L	m	87
PFPeA	3.135	263.0 -> 219.0	45579	2.07	µg/L		100
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	-	285.0 -> 169.0	-	N.D.			

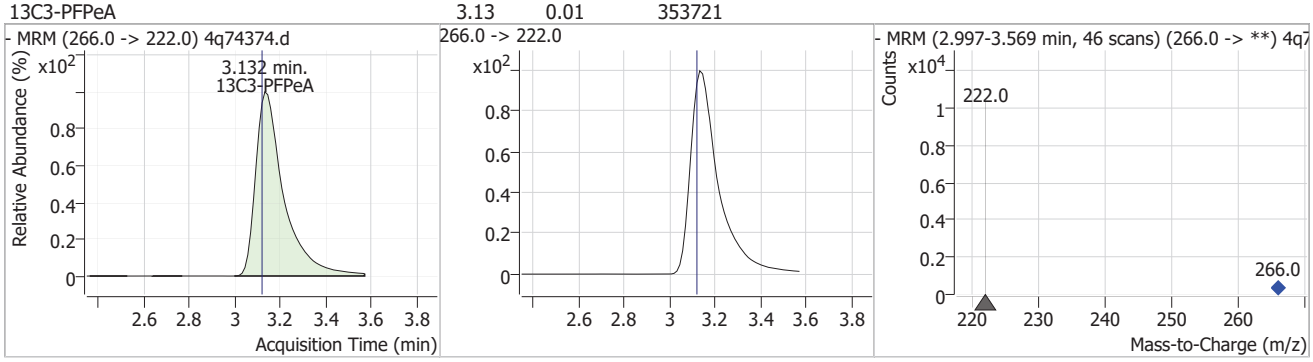
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.1.6
7

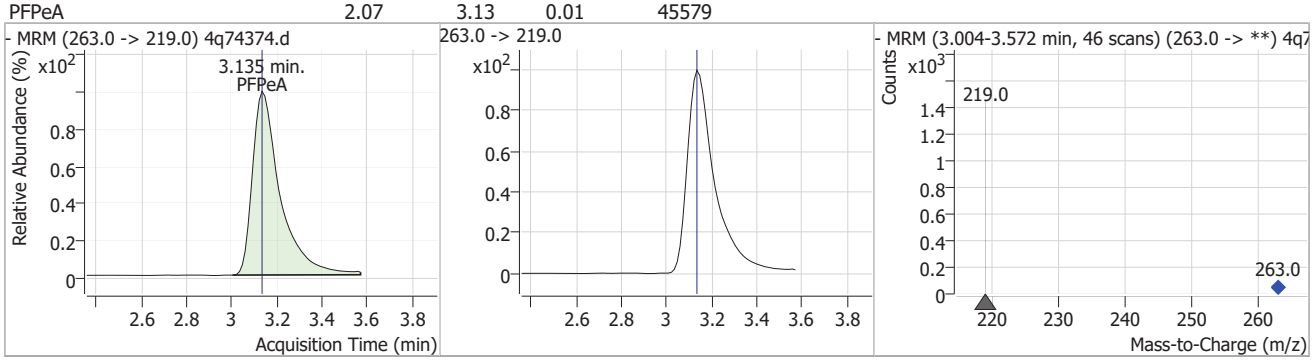
Perfluorinated Compounds by LC/MS/MS



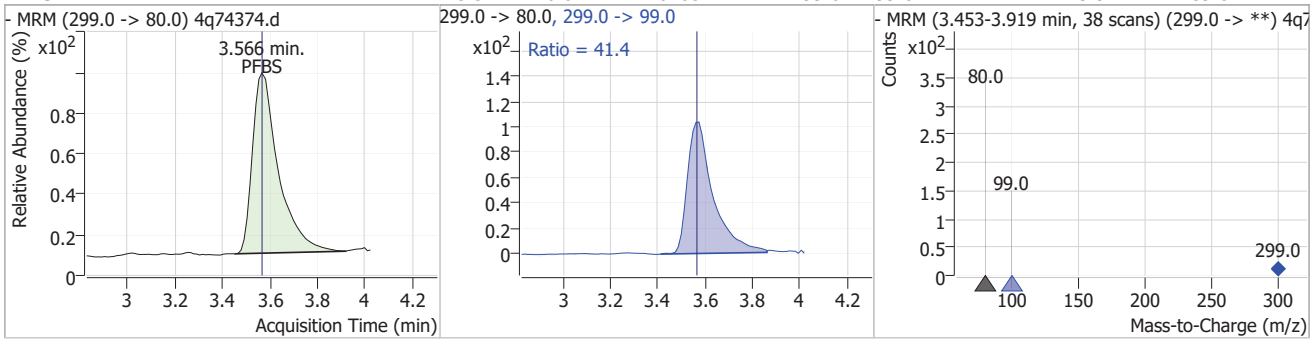
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.13	0.01	353721				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	2.07	3.13	0.01	45579				

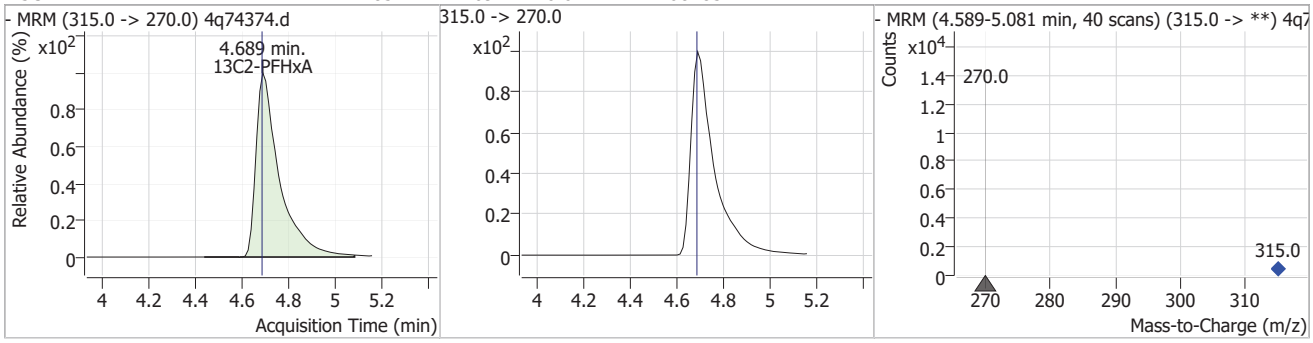


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.22	3.57	0.01	6705	299.0 -> 99.0	41.4	19.9	59.8

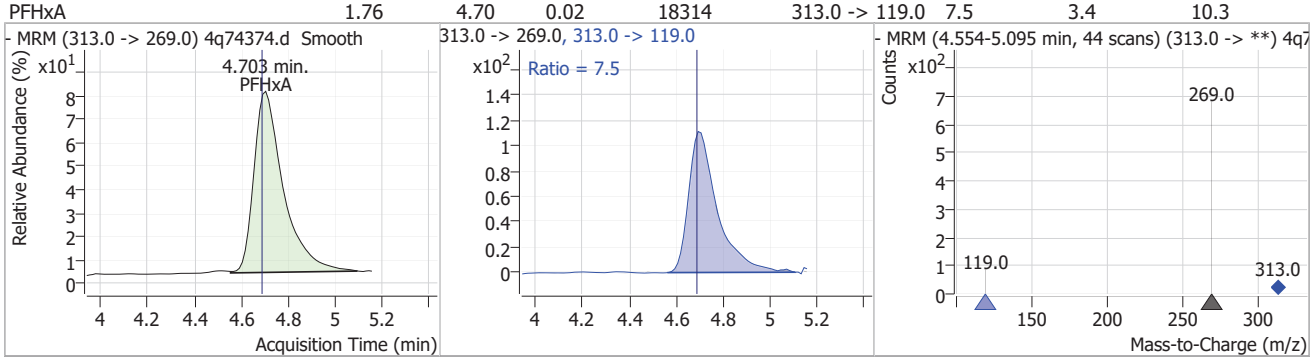


Perfluorinated Compounds by LC/MS/MS

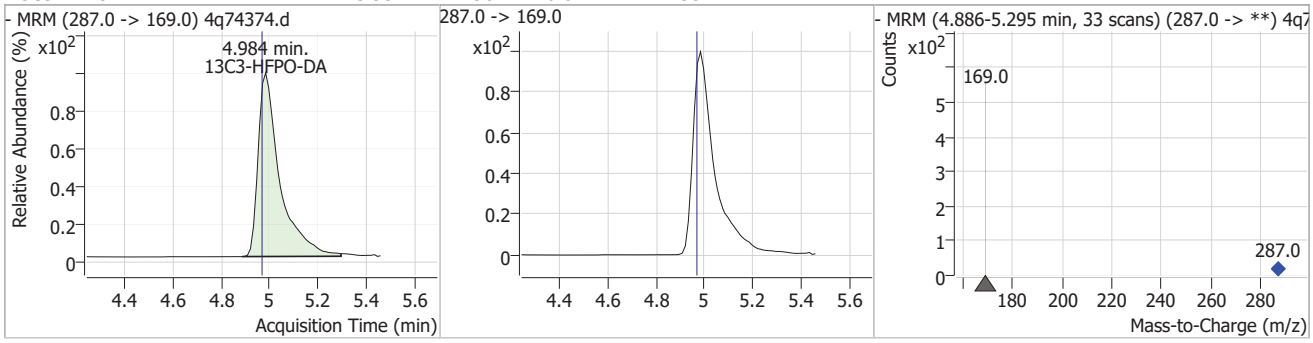
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	22.85	4.69	0.01	408185				



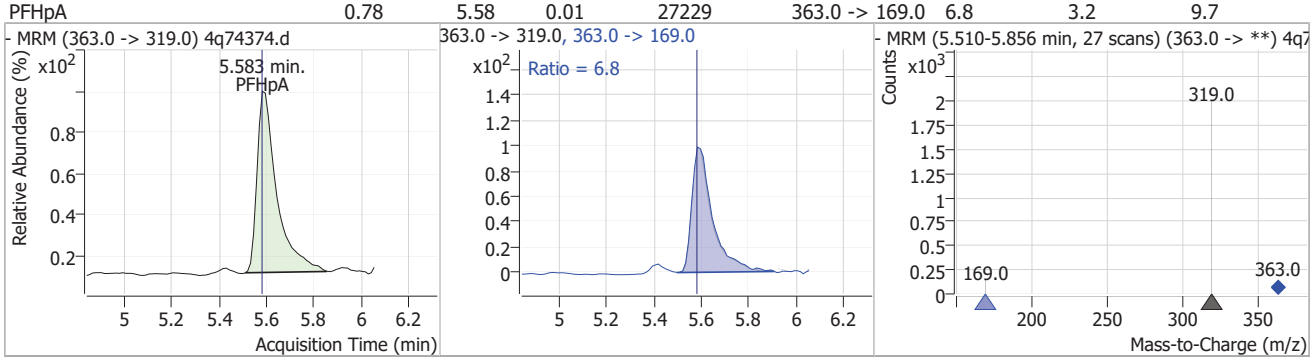
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.76	4.70	0.02	18314	313.0 -> 119.0	7.5	3.4	10.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	43.93	4.98	0.02	12382				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.78	5.58	0.01	27229	363.0 -> 169.0	6.8	3.2	9.7



7.1.6

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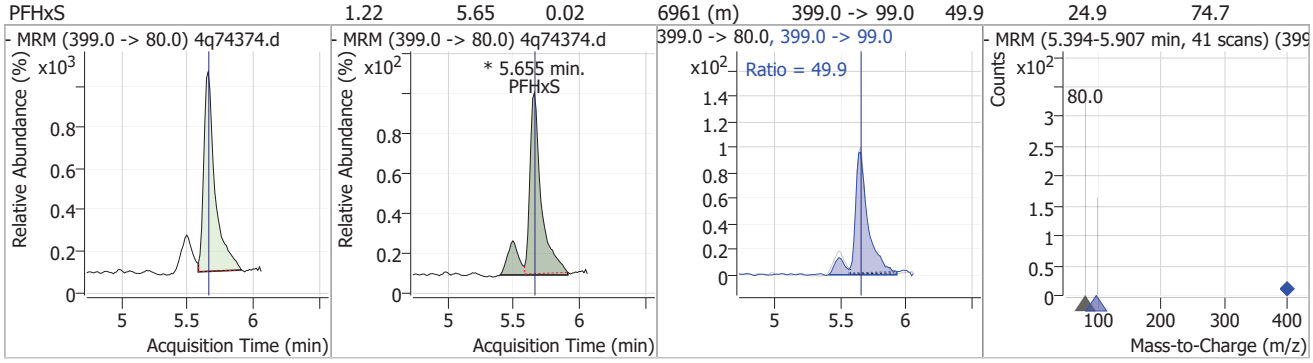
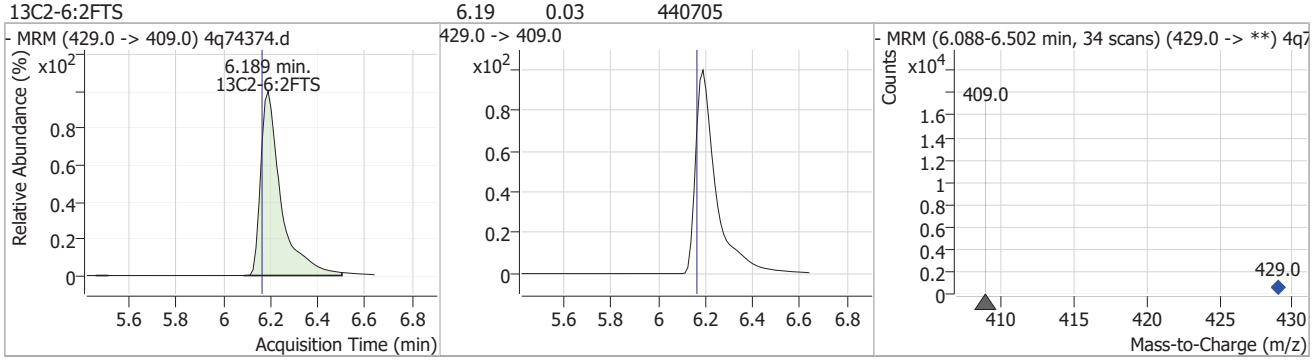
Perfluorinated Compounds by LC/MS/MS

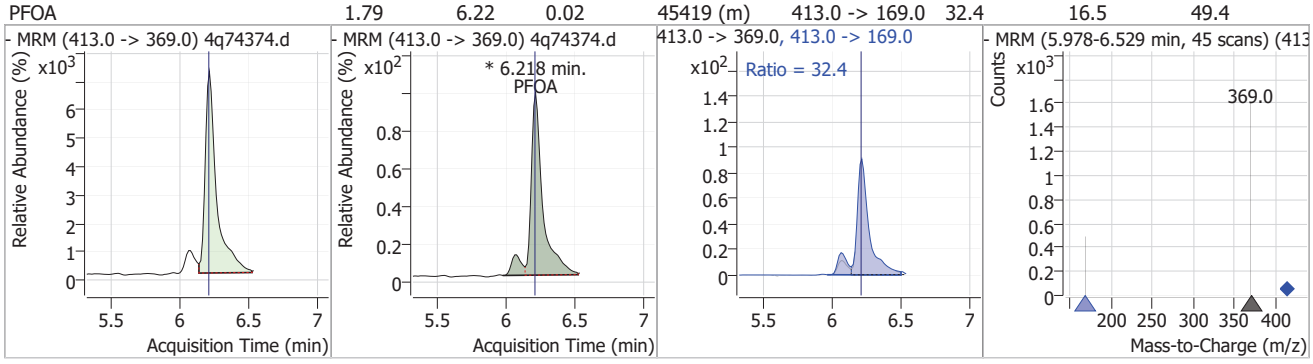
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.22	5.65	0.02	6961 (m)	399.0 -> 99.0	49.9	24.9	74.7



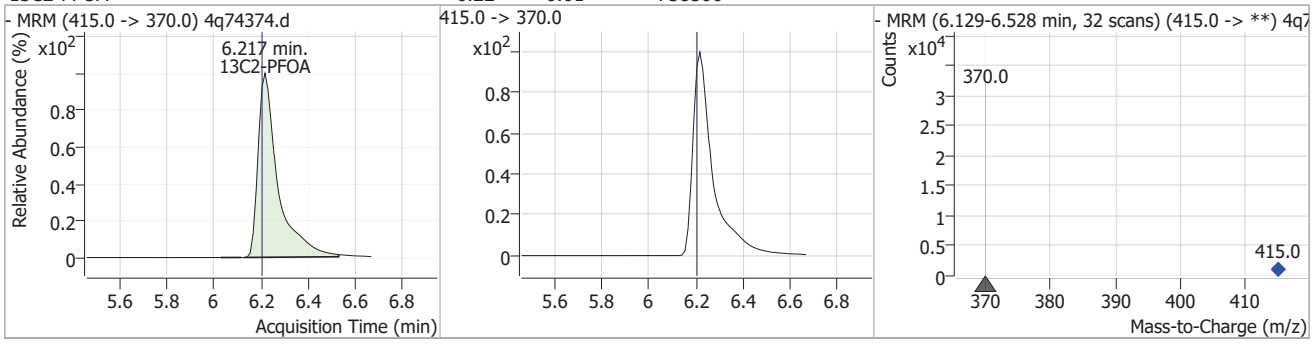
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.19	0.03	440705				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.79	6.22	0.02	45419 (m)	413.0 -> 169.0	32.4	16.5	49.4

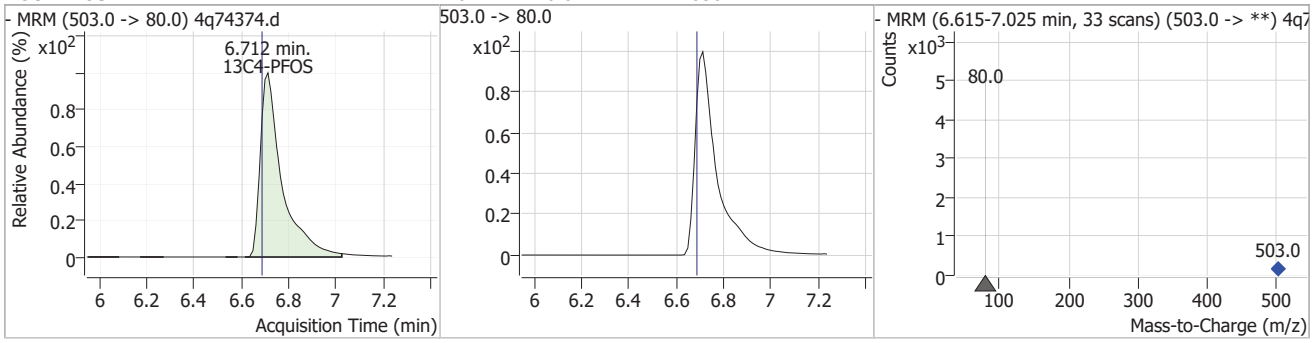


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.22	0.01	758506				

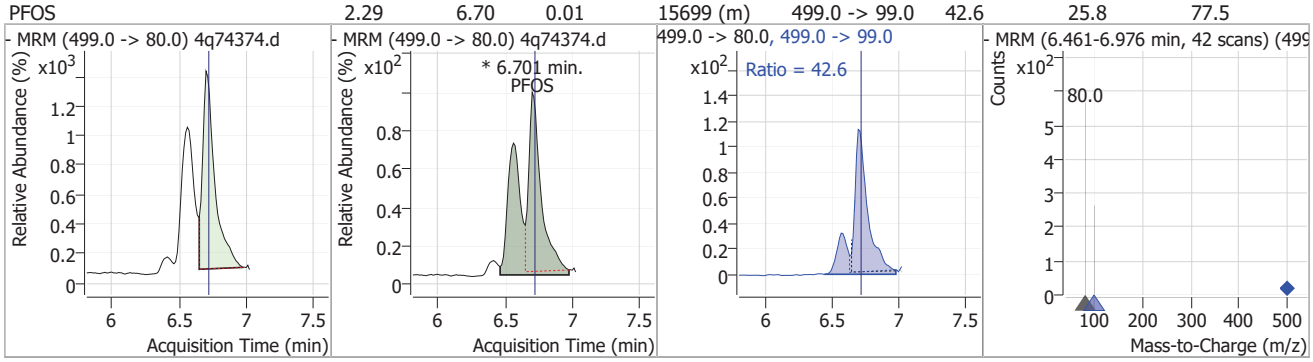


Perfluorinated Compounds by LC/MS/MS

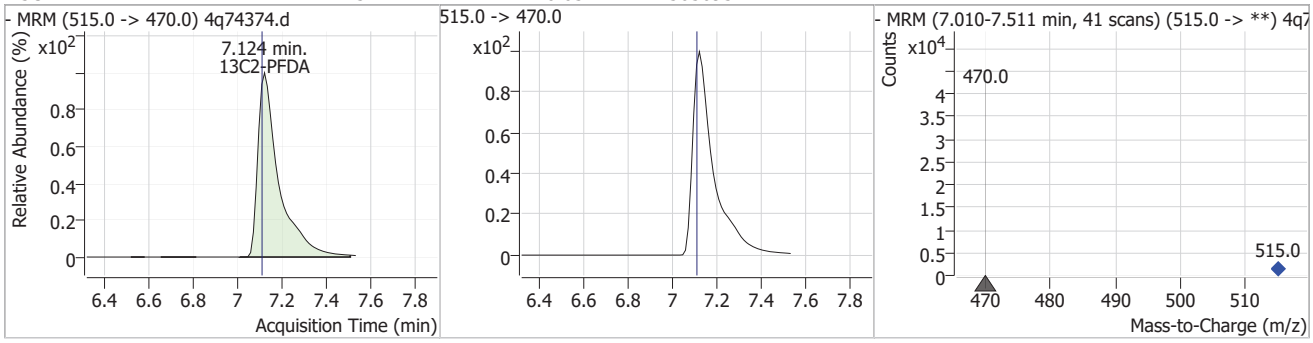
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.71	0.02	121050				



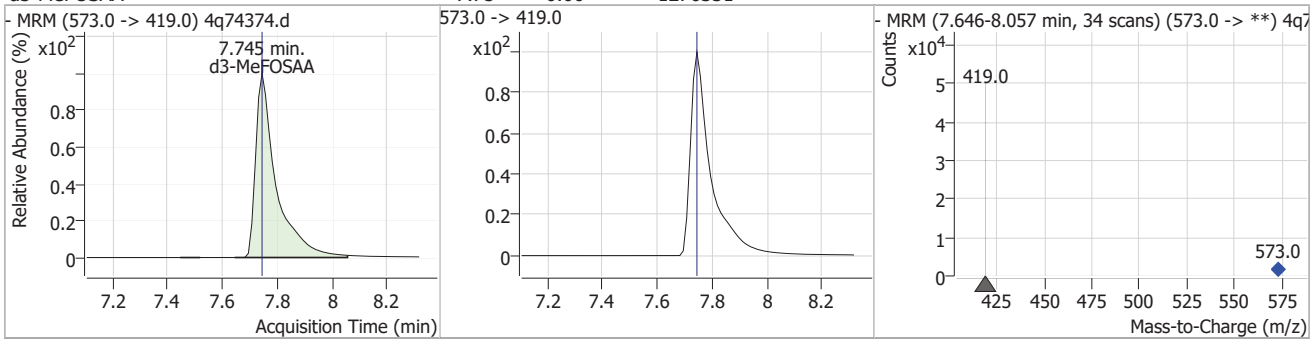
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.29	6.70	0.01	15699 (m)	499.0 -> 99.0	42.6	25.8	77.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	23.44	7.12	0.03	1305693				

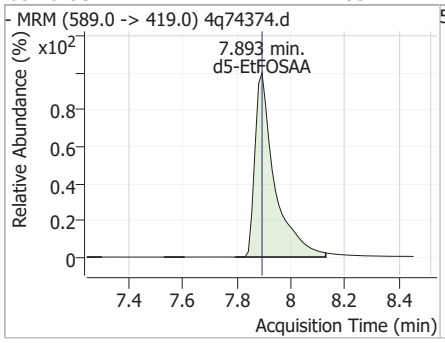


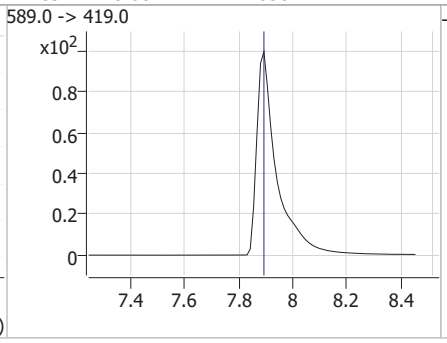
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.75	0.00	1270331				

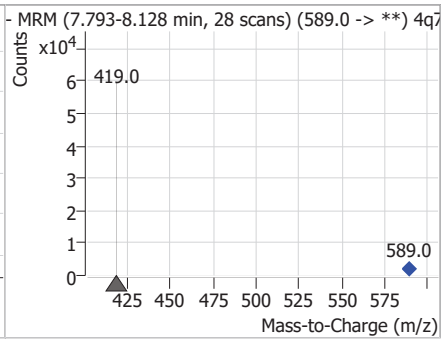


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	35.22	7.89	0.00	1246507				







7.1.6

7

Manual Integration Approval Summary

Sample Number:	FC23948-1A	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	4Q74374.D	**Analyst approved:**	04/24/25 11:56 (b) (6)
Injection Time:	04/24/25 01:21	**Supervisor approved:**	04/24/25 12:52 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.66	Split peak
Perfluorooctanoic acid	335-67-1		6.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.70	Split peak

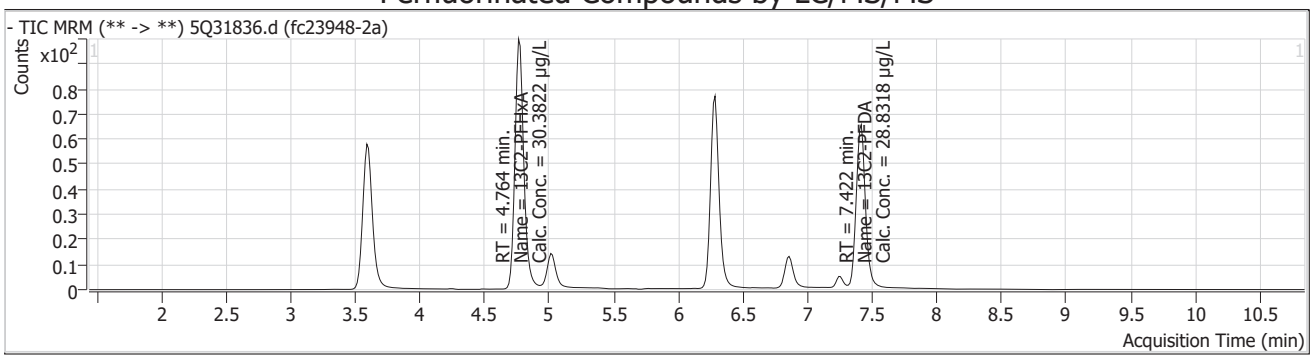
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31836.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 5:01:54 PM
Sample Name : fc23948-2a
Vial : P2-E5
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8904,S5Q523,285,,,1,1,water

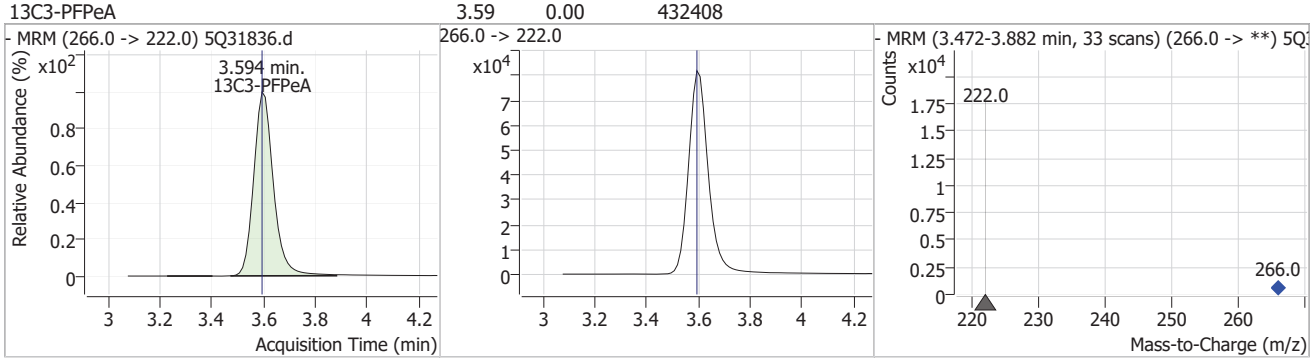
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.275	429.0 -> 409.0	160632	20.00	µg/L		-0.012
13C2-PFOA	6.290	415.0 -> 370.0	353151	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	432408	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	84611	20.00	µg/L		0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	24398	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.422	515.0 -> 470.0	435746	28.83	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 144.2%			
13C2-PFHxA	4.764	315.0 -> 270.0	679862	30.38	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 151.9%			
d5-EtFOSAA	7.378	589.0 -> 419.0	28114	60.72	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 151.8%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	89860	56.83	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 142.1%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	-	363.0 -> 319.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	-	413.0 -> 369.0	-	N.D.			
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	5.247	285.0 -> 169.0	0		µg/L	m	1

 # = Qualifier out of range, m = manually integrated, + = Area summed

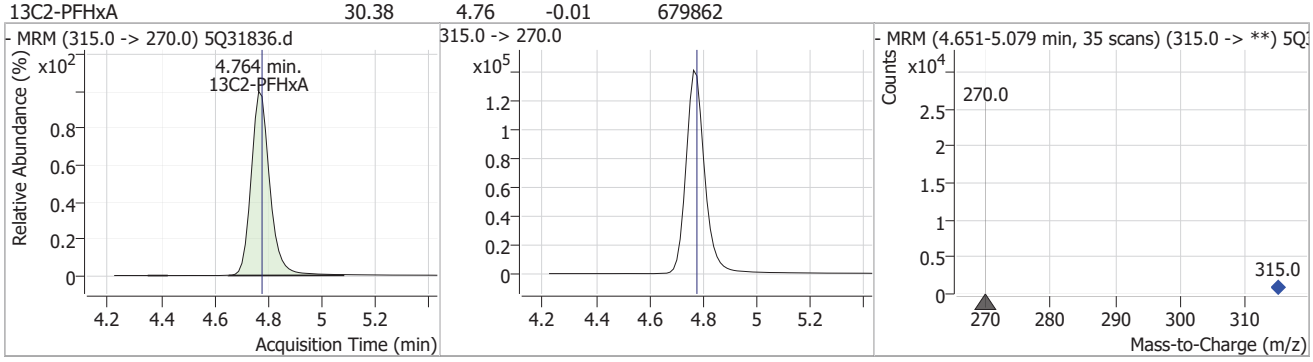
Perfluorinated Compounds by LC/MS/MS



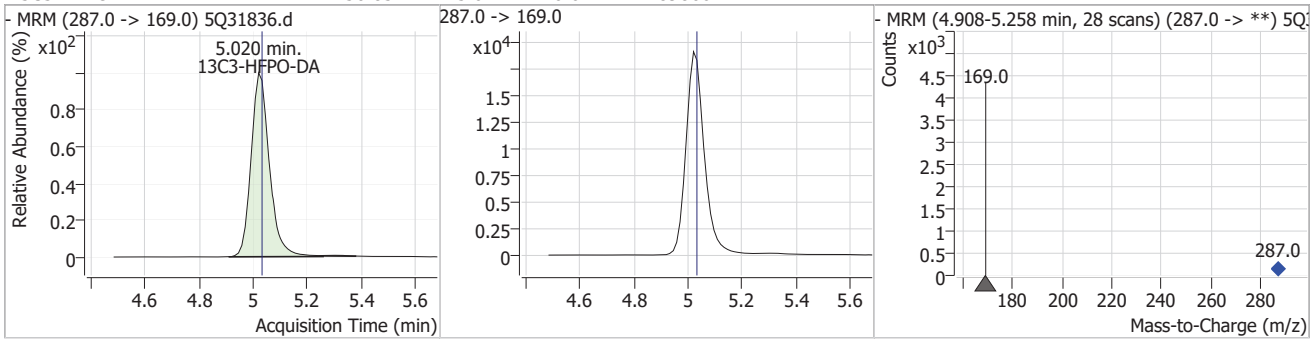
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	432408				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	30.38	4.76	-0.01	679862				

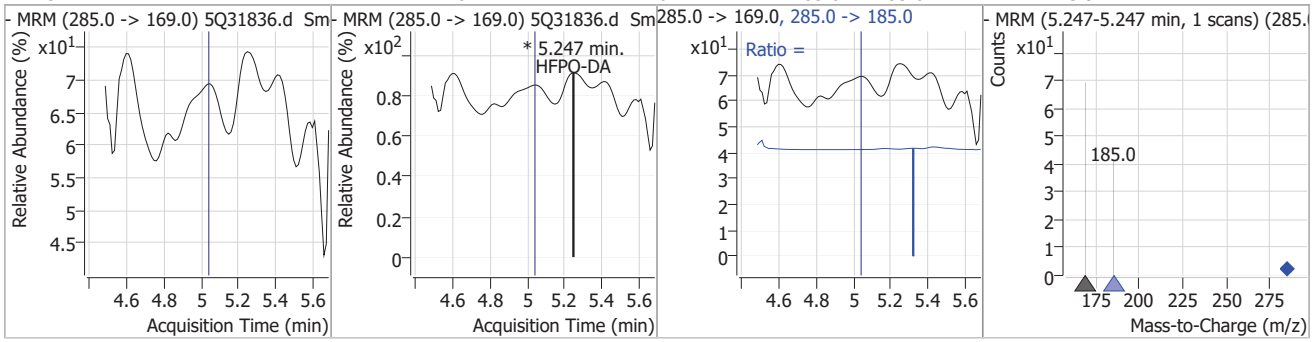


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	56.83	5.02	-0.01	89860				

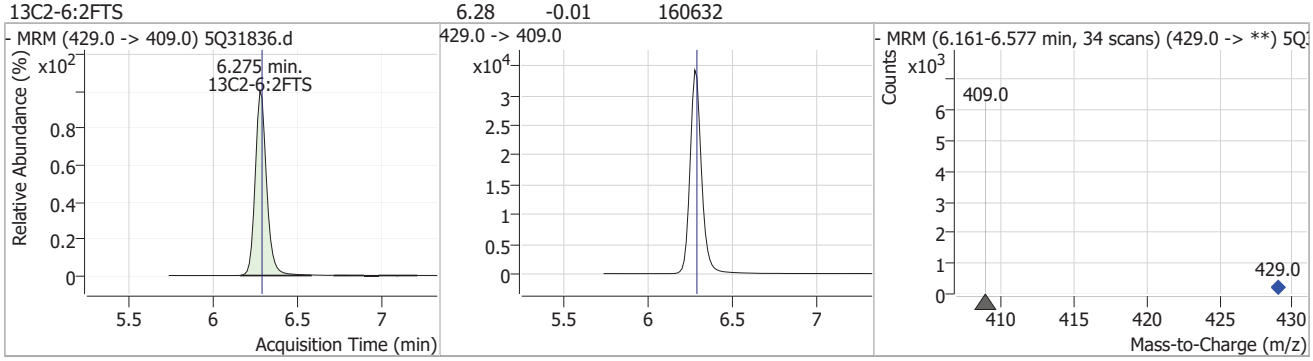


Perfluorinated Compounds by LC/MS/MS

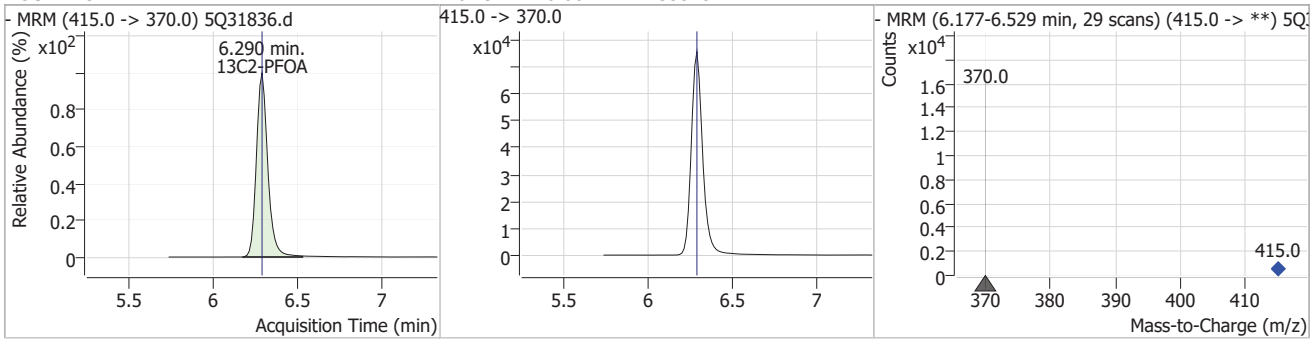
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA		0		0	285.0 -> 185.0		5.9	17.7



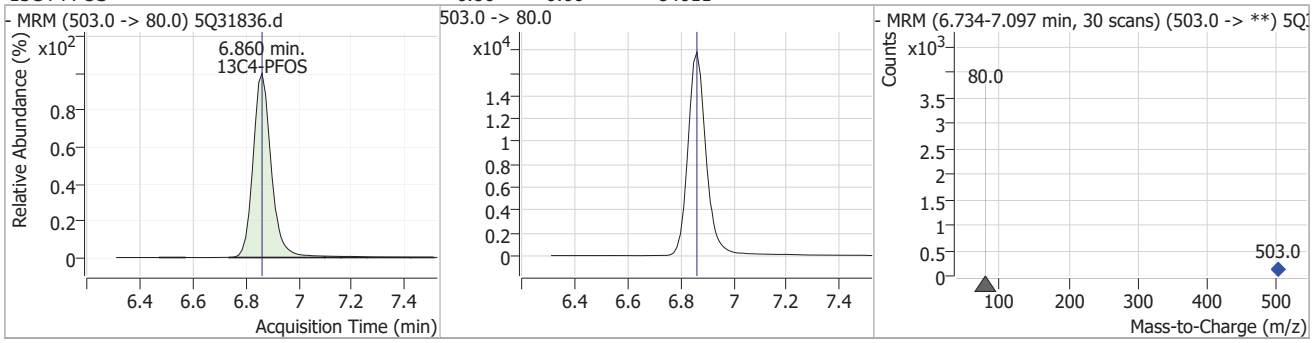
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	160632				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	353151				

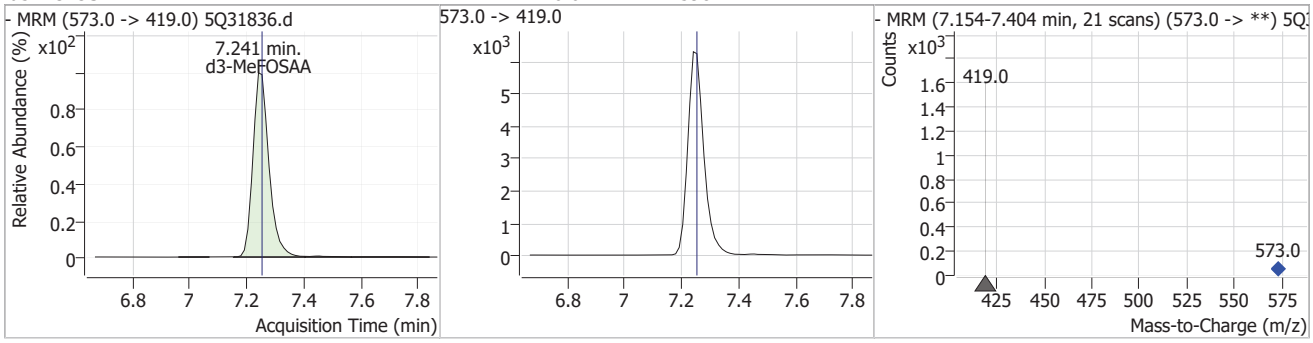


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	84611				

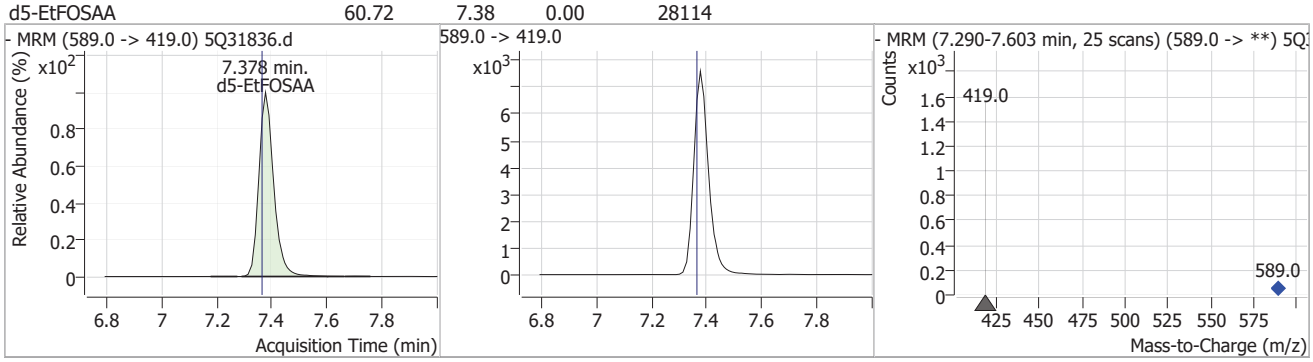


Perfluorinated Compounds by LC/MS/MS

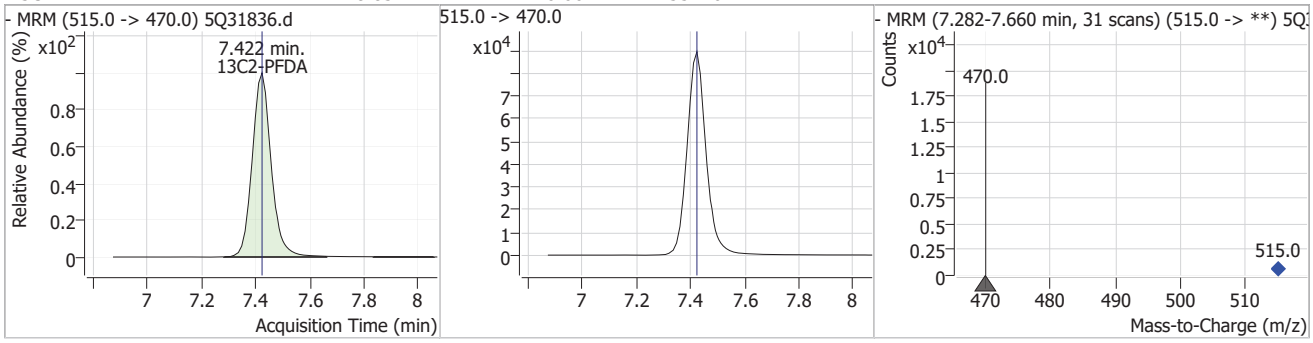
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	24398				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	60.72	7.38	0.00	28114				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	28.83	7.42	0.00	435746				



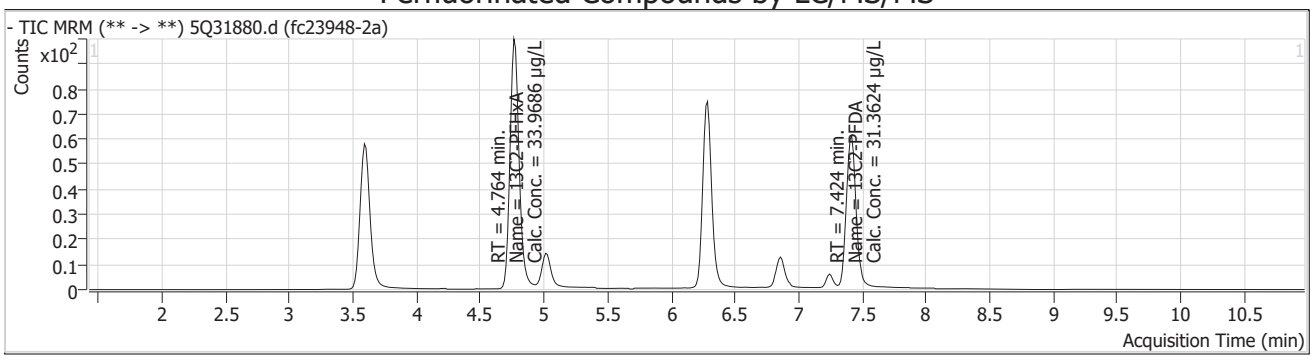
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31880.d
Operator : (b) (6)
Acq. Method : 537_5Q.m
Acq. Date-Time : 4/18/2025 6:03:09 PM
Sample Name : fc23948-2a
Vial : P2-E5
DA Method File : 537_041825_S5Q524.quantmethod.xml
Batch Name : s5q524.batch.bin
Sample Information : OP8904,S5Q524,285,,,1,1,water

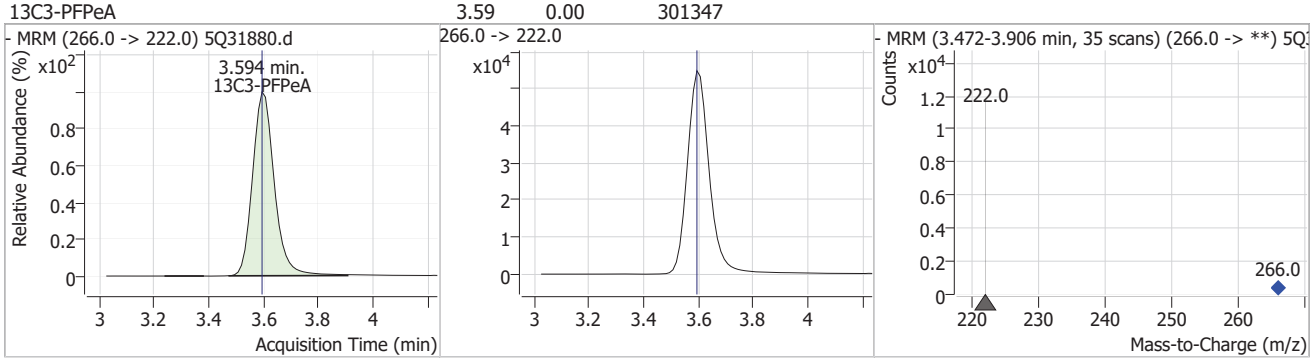
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.275	429.0 -> 409.0	112986	20.00 µg/L	0.000
13C2-PFOA	6.290	415.0 -> 370.0	241355	20.00 µg/L	0.000
13C3-PFPeA	3.594	266.0 -> 222.0	301347	20.00 µg/L	0.000
13C4-PFOS	6.861	503.0 -> 80.0	55951	20.00 µg/L	0.000
d3-MeFOSAA	7.243	573.0 -> 419.0	20508	40.00 µg/L	0.000
System Monitoring Compounds					
13C2-PFDA	7.424	515.0 -> 470.0	287567	31.36 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 156.8%	
13C2-PFHxA	4.764	315.0 -> 270.0	476991	33.97 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 169.8%	
d5-EtFOSAA	7.379	589.0 -> 419.0	22308	59.59 µg/L	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 149.0%	
13C3-HFPO-DA	5.020	287.0 -> 169.0	62966	65.47 µg/L	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 163.7%	
Target Compounds					QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.	
8:2FTS	-	527.0 -> 507.0	-	N.D.	
EtFOSAA	-	584.0 -> 419.0	-	N.D.	
MeFOSAA	-	570.0 -> 419.0	-	N.D.	
PFBS	-	299.0 -> 80.0	-	N.D.	
PFDA	-	513.0 -> 469.0	-	N.D.	
PFDoDA	-	613.0 -> 569.0	-	N.D.	
PFHpA	-	363.0 -> 319.0	-	N.D.	
PFHxA	-	313.0 -> 269.0	-	N.D.	
PFHxS	-	399.0 -> 80.0	-	N.D.	
PFNA	-	463.0 -> 419.0	-	N.D.	
PFOA	-	413.0 -> 369.0	-	N.D.	
PFOS	-	499.0 -> 80.0	-	N.D.	
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	
ADONA	-	377.0 -> 251.0	-	N.D.	
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
HFPO-DA	-	285.0 -> 169.0	-	N.D.	

 # = Qualifier out of range, m = manually integrated, + = Area summed

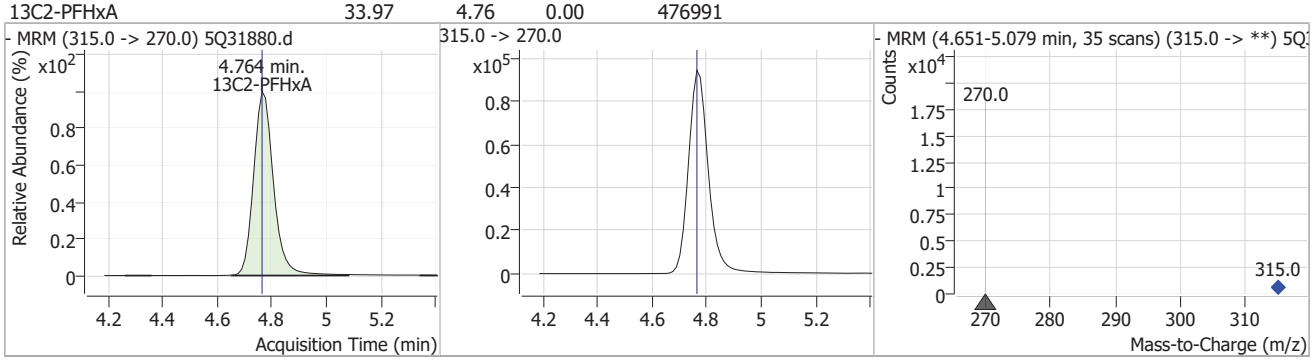
Perfluorinated Compounds by LC/MS/MS



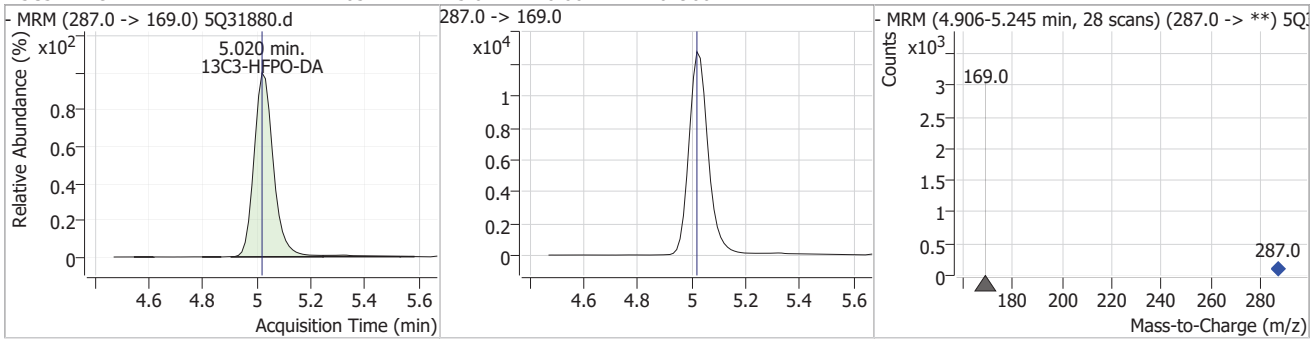
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	301347				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	33.97	4.76	0.00	476991				

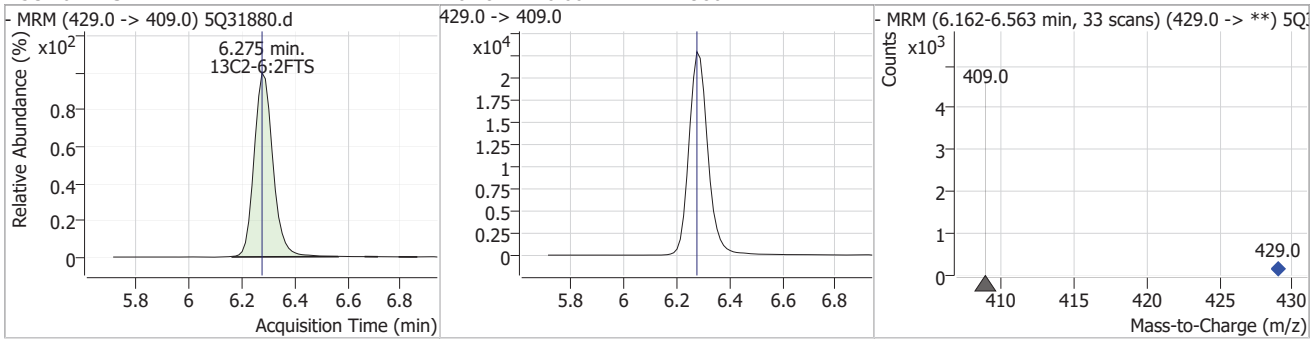


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	65.47	5.02	0.00	62966				

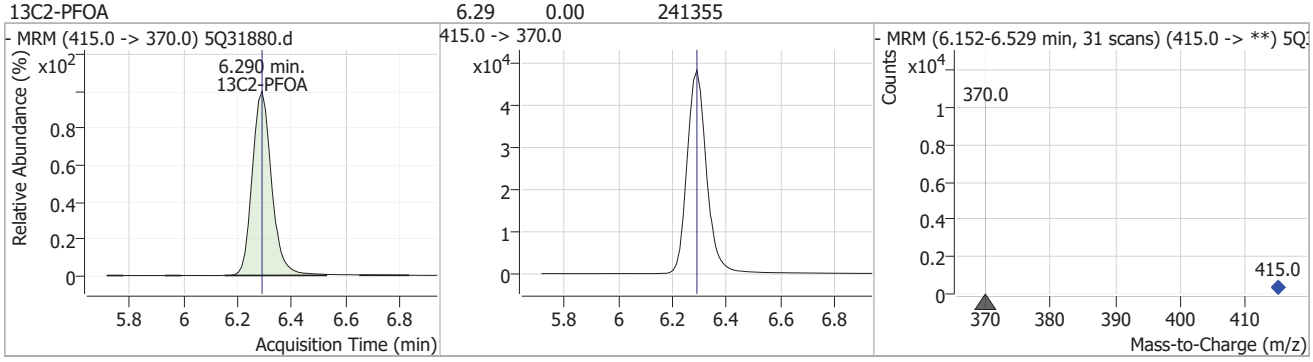


Perfluorinated Compounds by LC/MS/MS

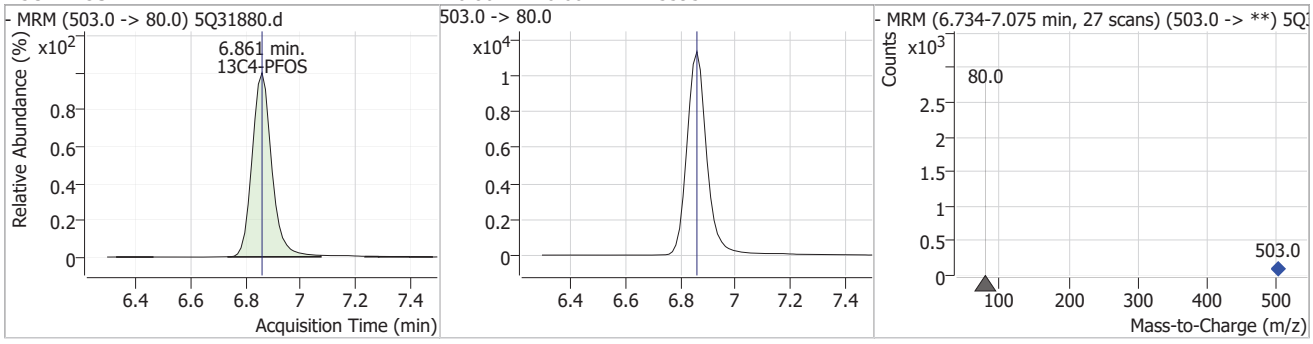
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	0.00	112986				



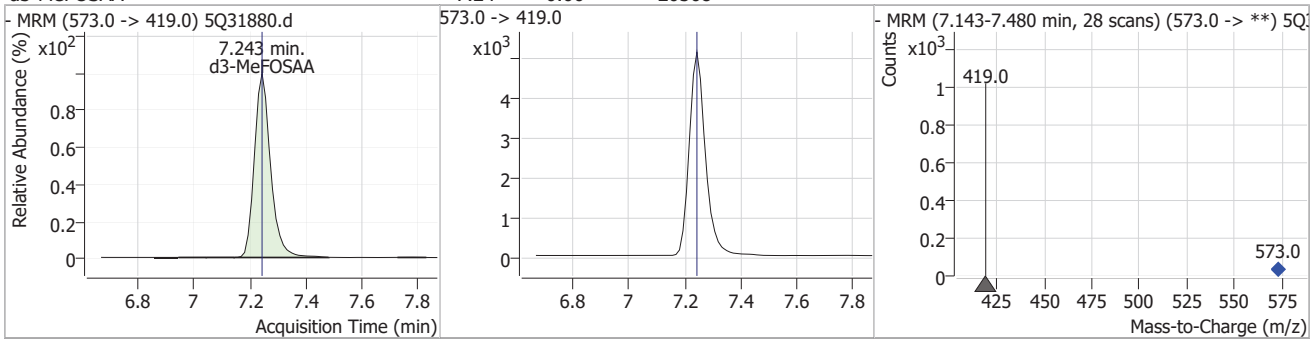
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	241355				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	55951				

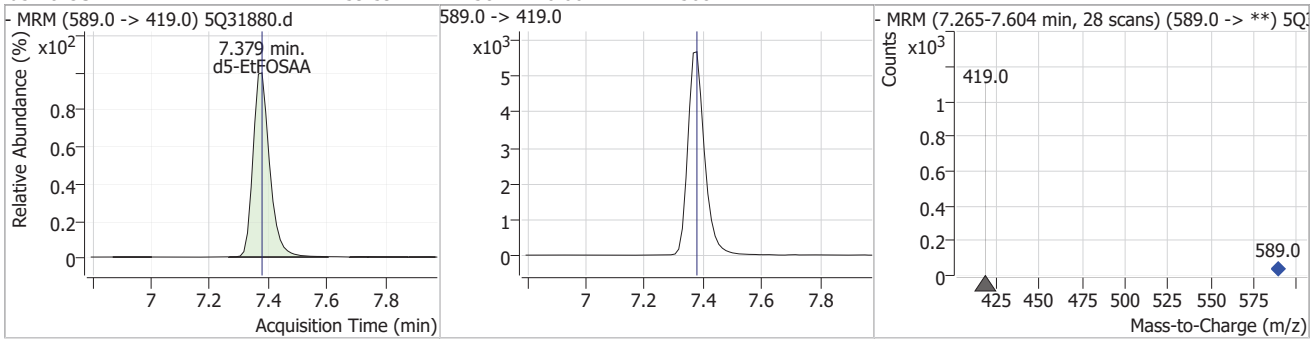


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	20508				

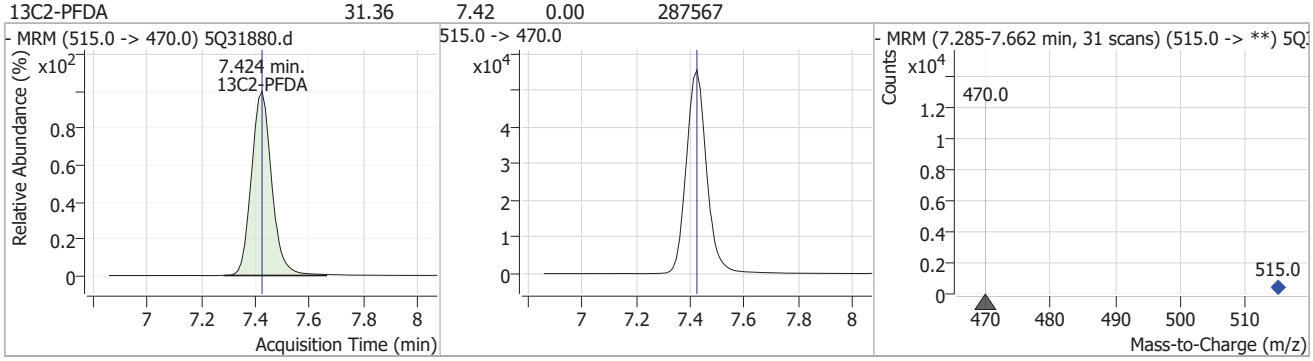


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	59.59	7.38	0.00	22308				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	31.36	7.42	0.00	287567				



7.1.8

7

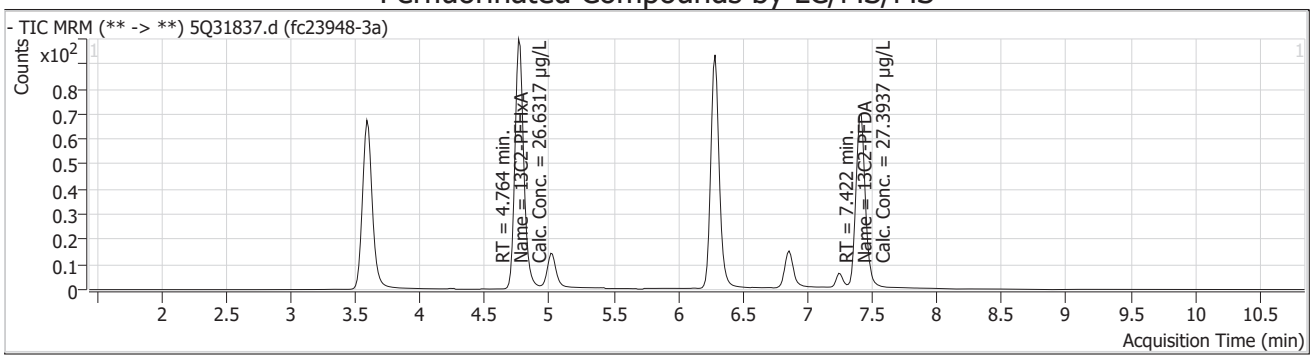
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31837.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 5:18:20 PM
Sample Name : fc23948-3a
Vial : P2-E6
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8904,S5Q523,285,,,1,1,water

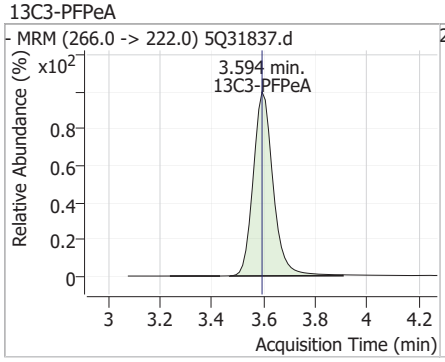
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.275	429.0 -> 409.0	179054	20.00 µg/L	-0.012
13C2-PFOA	6.290	415.0 -> 370.0	338061	20.00 µg/L	0.000
13C3-PFPeA	3.594	266.0 -> 222.0	427851	20.00 µg/L	0.000
13C4-PFOS	6.860	503.0 -> 80.0	82874	20.00 µg/L	0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	25292	40.00 µg/L	-0.012
System Monitoring Compounds					
13C2-PFDA	7.422	515.0 -> 470.0	396321	27.39 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 137.0%	
13C2-PFHxA	4.764	315.0 -> 270.0	570473	26.63 µg/L	-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 133.2%	
d5-EtFOSAA	7.378	589.0 -> 419.0	26954	56.16 µg/L	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 140.4%	
13C3-HFPO-DA	5.020	287.0 -> 169.0	76782	50.73 µg/L	-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 126.8%	
Target Compounds					QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.	
8:2FTS	-	527.0 -> 507.0	-	N.D.	
EtFOSAA	-	584.0 -> 419.0	-	N.D.	
MeFOSAA	-	570.0 -> 419.0	-	N.D.	
PFBS	-	299.0 -> 80.0	-	N.D.	
PFDA	-	513.0 -> 469.0	-	N.D.	
PFDoDA	-	613.0 -> 569.0	-	N.D.	
PFHpA	-	363.0 -> 319.0	-	N.D.	
PFHxA	-	313.0 -> 269.0	-	N.D.	
PFHxS	-	399.0 -> 80.0	-	N.D.	
PFNA	-	463.0 -> 419.0	-	N.D.	
PFOA	-	413.0 -> 369.0	-	N.D.	
PFOS	-	499.0 -> 80.0	-	N.D.	
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	
ADONA	-	377.0 -> 251.0	-	N.D.	
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
HFPO-DA	-	285.0 -> 169.0	-	N.D.	

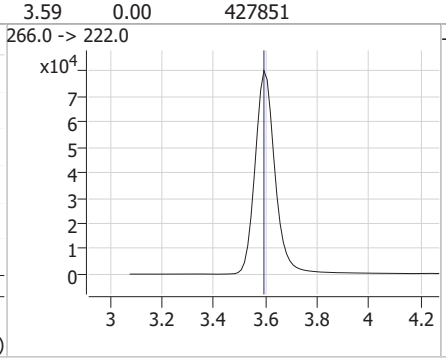
 # = Qualifier out of range, m = manually integrated, + = Area summed

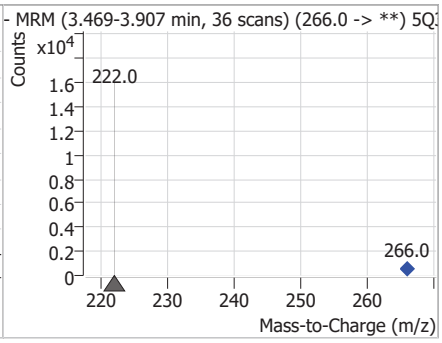
Perfluorinated Compounds by LC/MS/MS



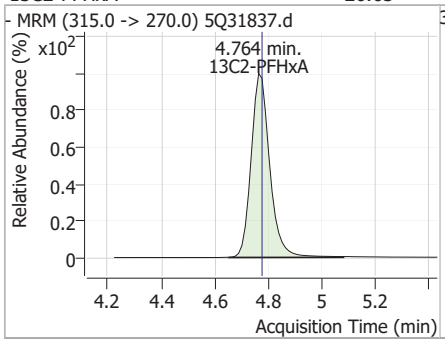
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	427851				

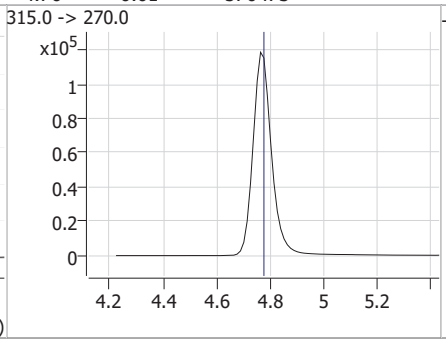


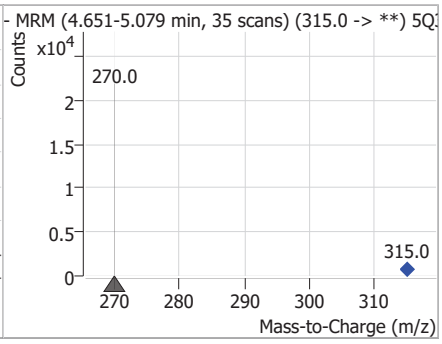




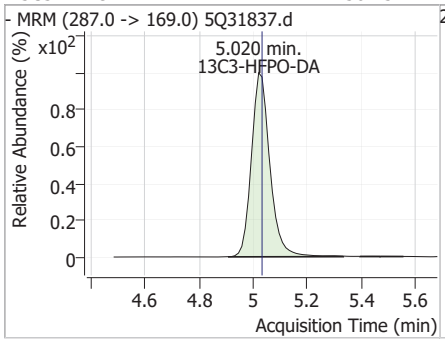
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	26.63	4.76	-0.01	570473				

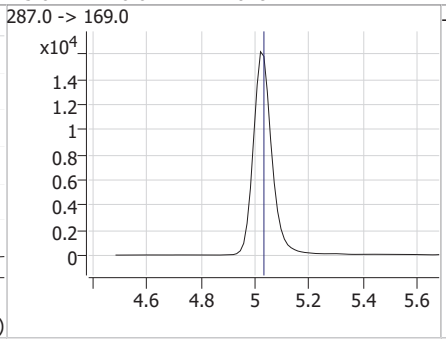


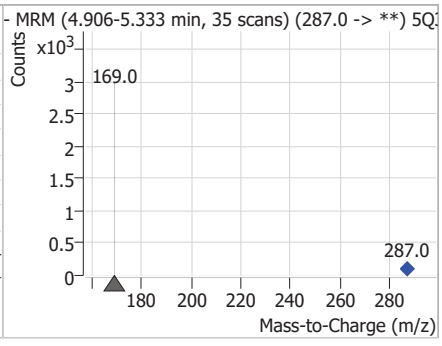




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	50.73	5.02	-0.01	76782				

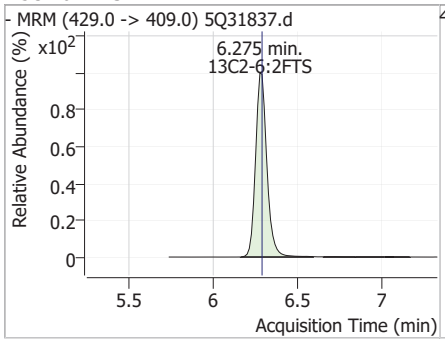


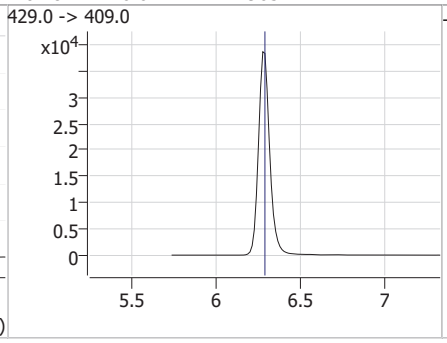


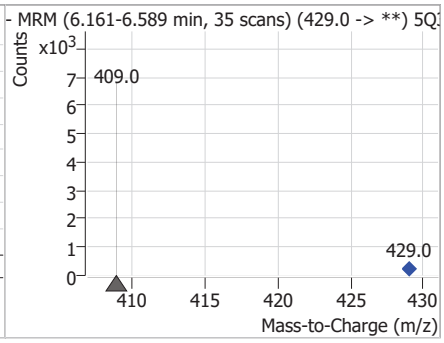


Perfluorinated Compounds by LC/MS/MS

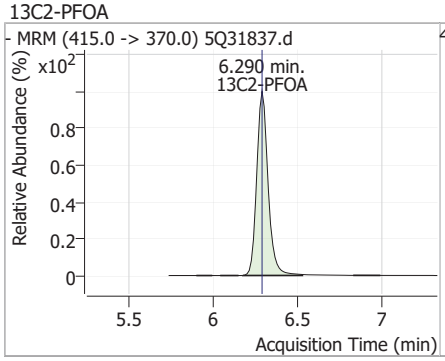
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	179054				

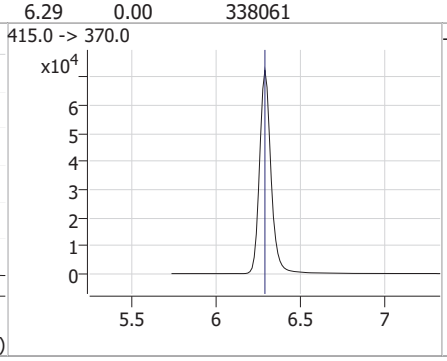


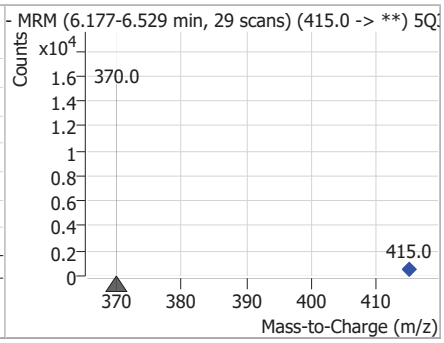




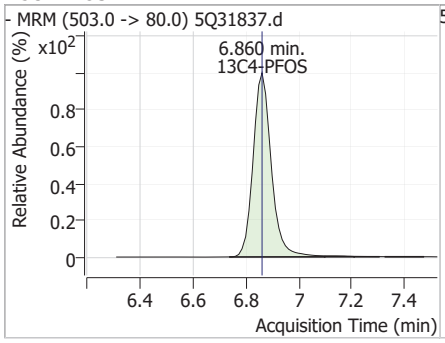
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	338061				

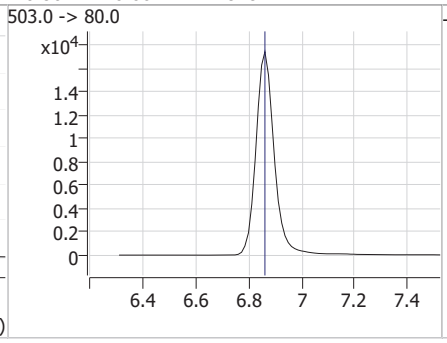


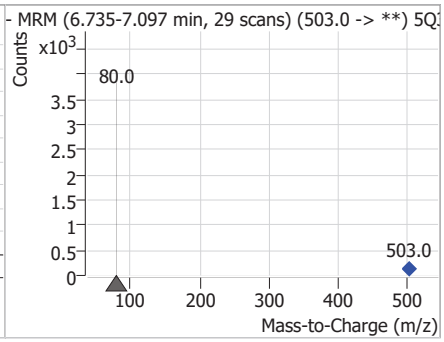




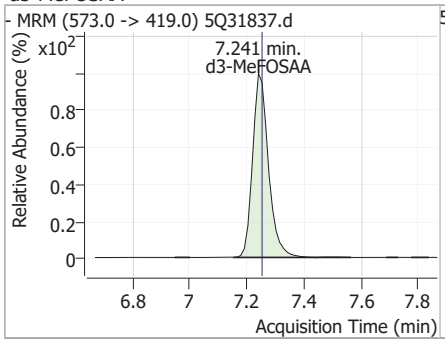
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	82874				

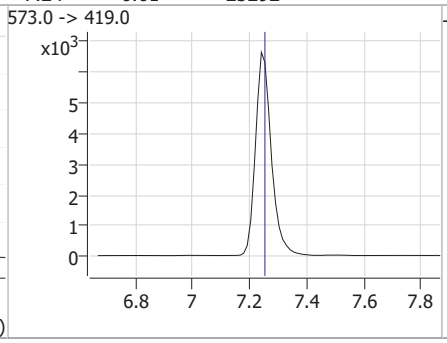


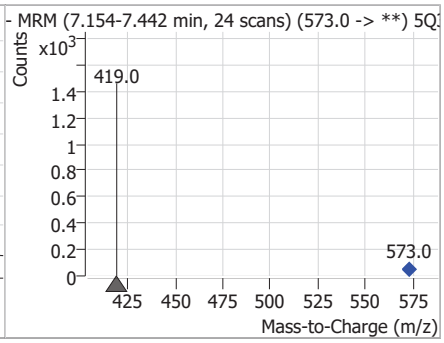




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	25292				

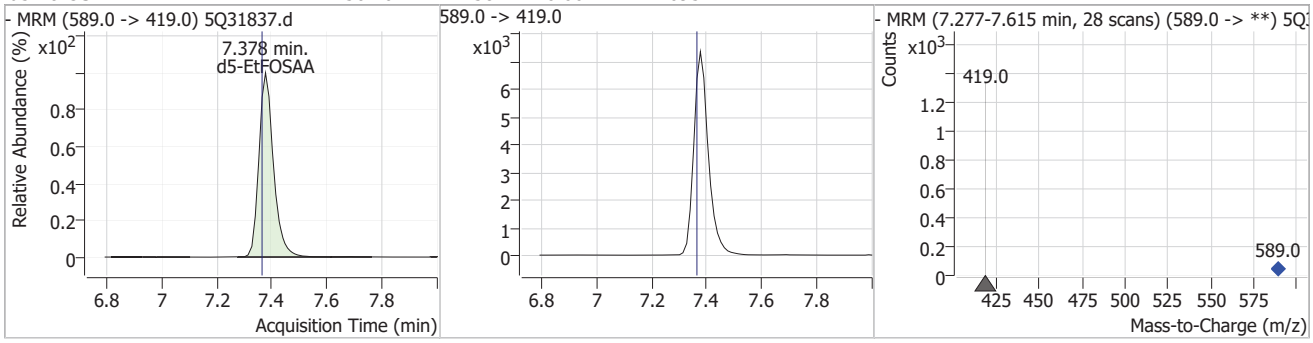




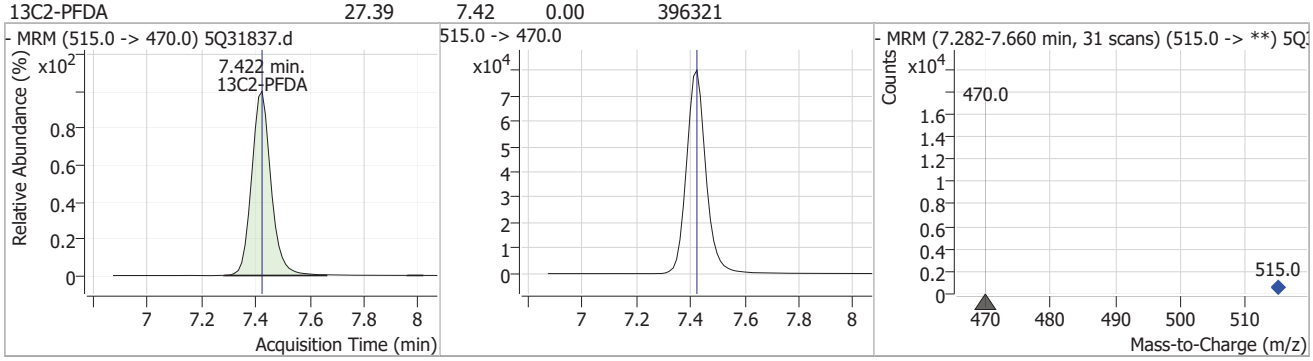


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	56.16	7.38	0.00	26954				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	27.39	7.42	0.00	396321				



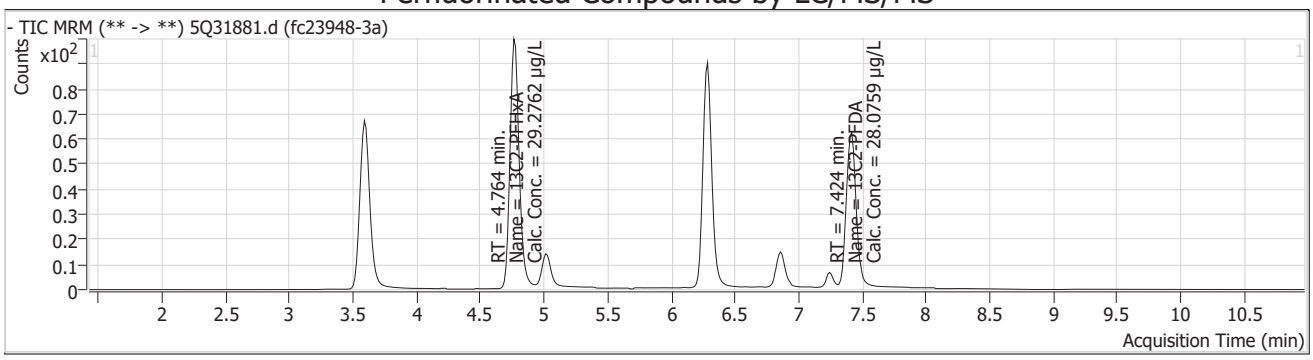
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31881.d
Operator : (b) (6)
Acq. Method : 537_5Q.m
Acq. Date-Time : 4/18/2025 6:19:39 PM
Sample Name : fc23948-3a
Vial : P2-E6
DA Method File : 537_041825_S5Q524.quantmethod.xml
Batch Name : s5q524.batch.bin
Sample Information : OP8904,S5Q524,285,,,1,1,water

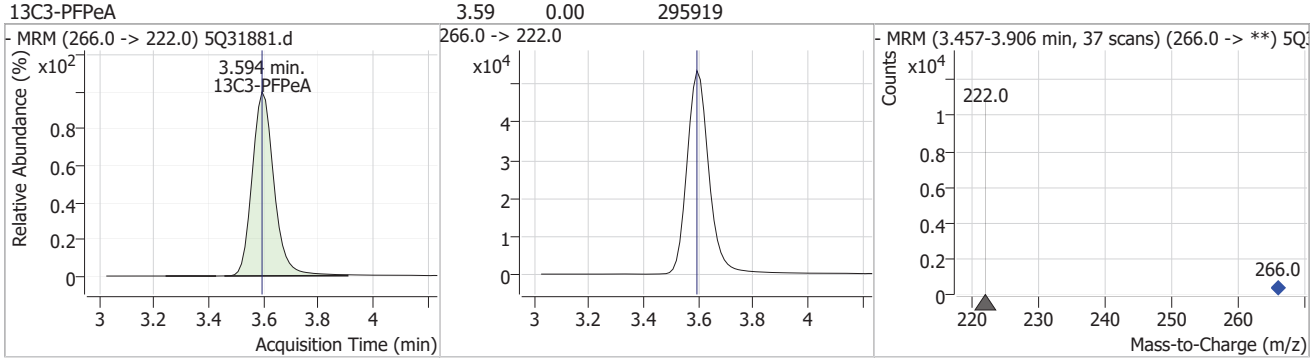
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.275	429.0 -> 409.0	120400	20.00	µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	235650	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	295919	20.00	µg/L		0.000
13C4-PFOS	6.861	503.0 -> 80.0	55163	20.00	µg/L		0.000
d3-MeFOSAA	7.243	573.0 -> 419.0	18959	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.424	515.0 -> 470.0	251348	28.08	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 140.4%			
13C2-PFHxA	4.764	315.0 -> 270.0	401382	29.28	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 146.4%			
d5-EtFOSAA	7.379	589.0 -> 419.0	18952	54.76	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 136.9%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	52743	56.16	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 140.4%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	-	363.0 -> 319.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	-	413.0 -> 369.0	-	N.D.			
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	5.583	285.0 -> 169.0	0		µg/L	m	1

 # = Qualifier out of range, m = manually integrated, + = Area summed

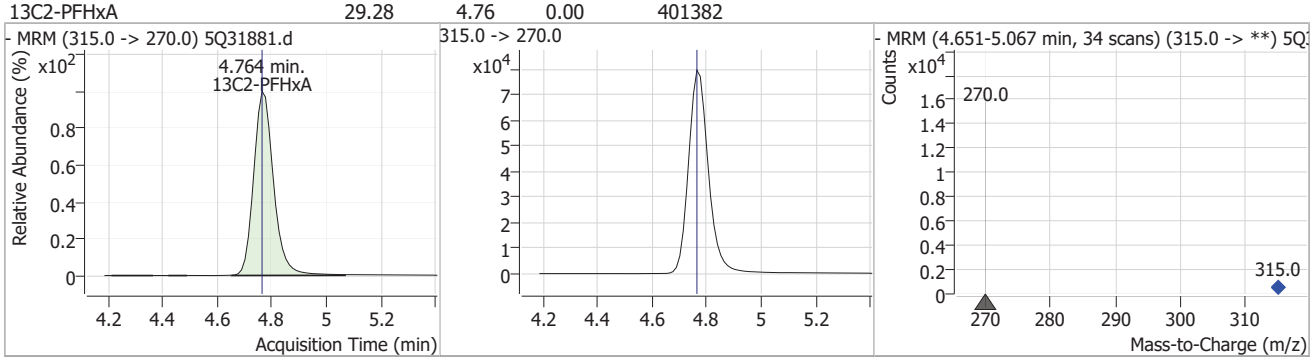
Perfluorinated Compounds by LC/MS/MS



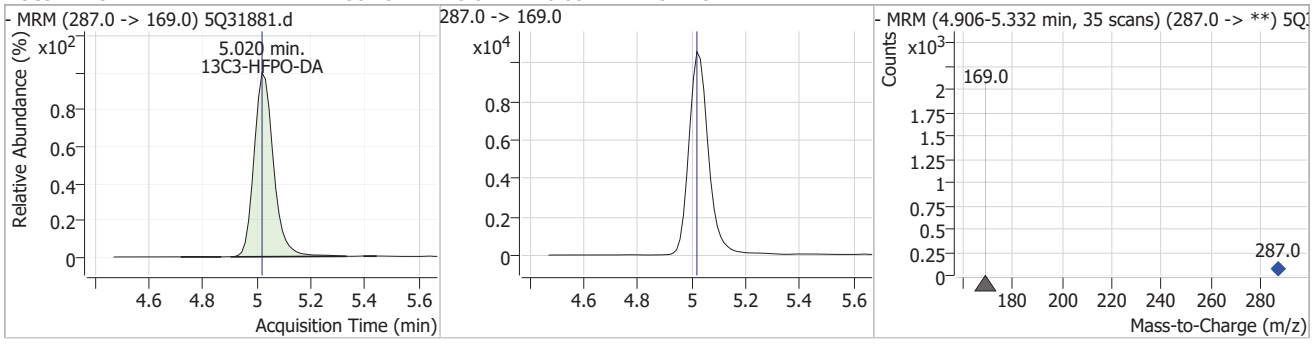
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	295919				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	29.28	4.76	0.00	401382				

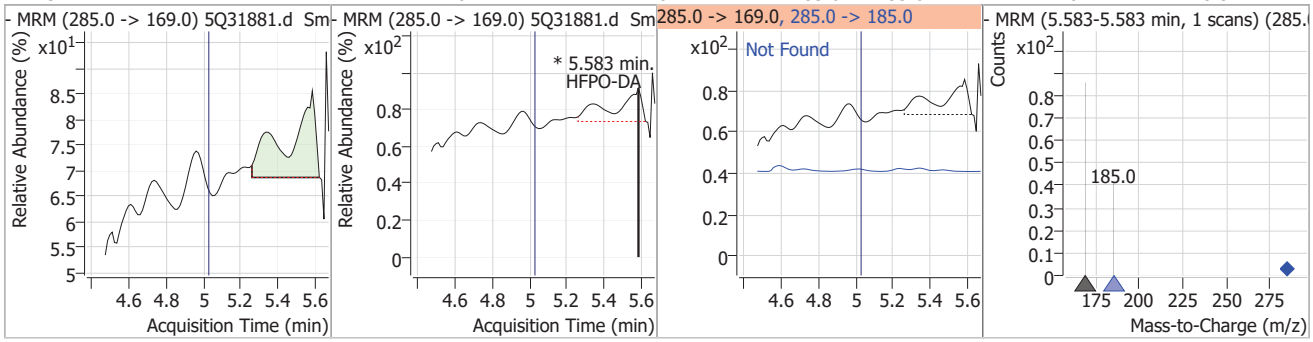


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	56.16	5.02	0.00	52743				

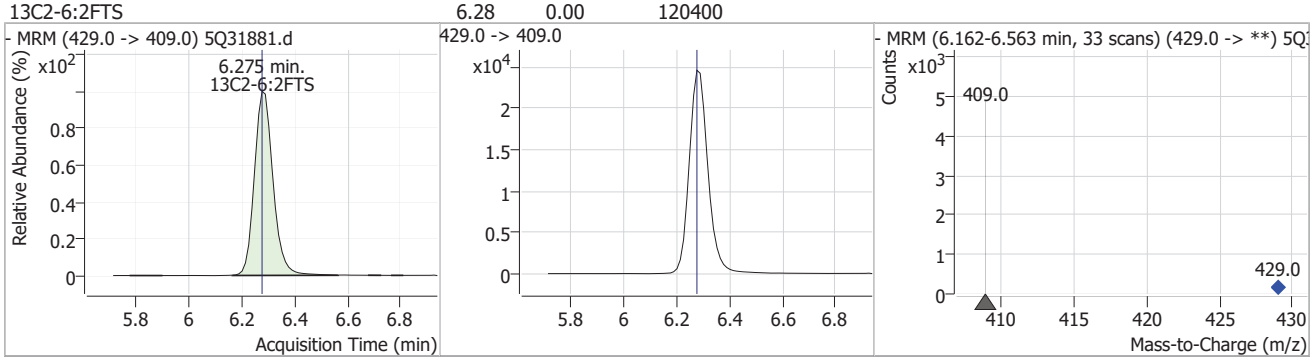


Perfluorinated Compounds by LC/MS/MS

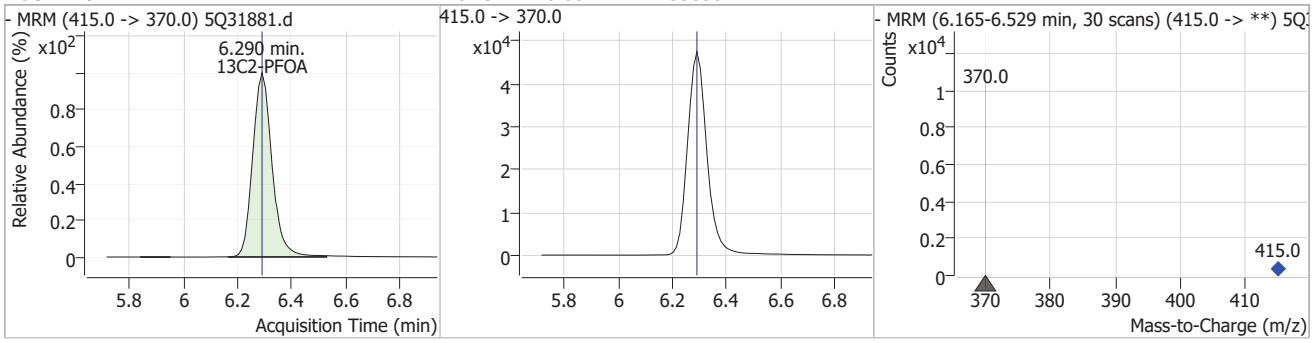
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA		0		0	285.0 -> 185.0		6.2	18.5



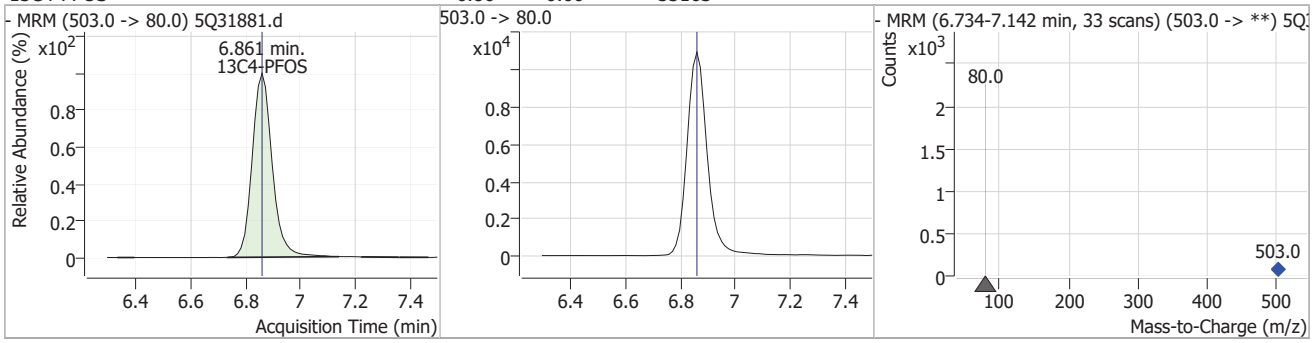
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	0.00	120400				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	235650				

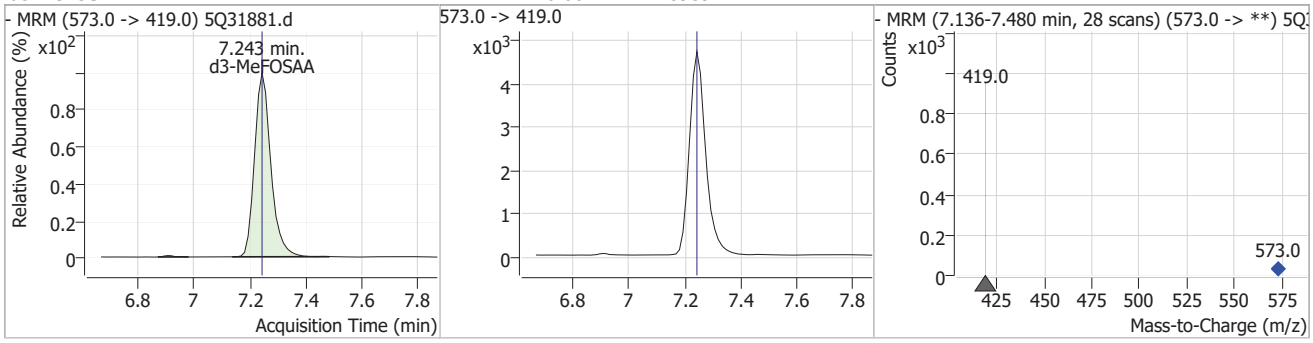


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	55163				

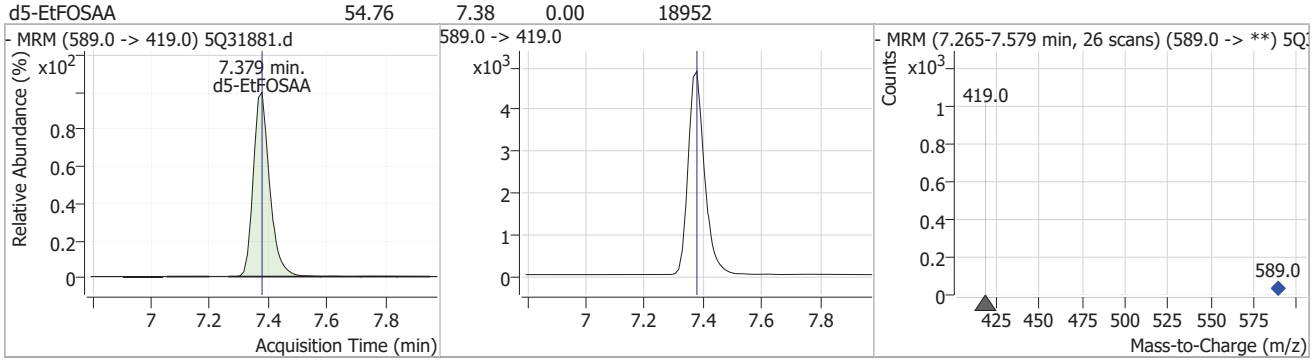


Perfluorinated Compounds by LC/MS/MS

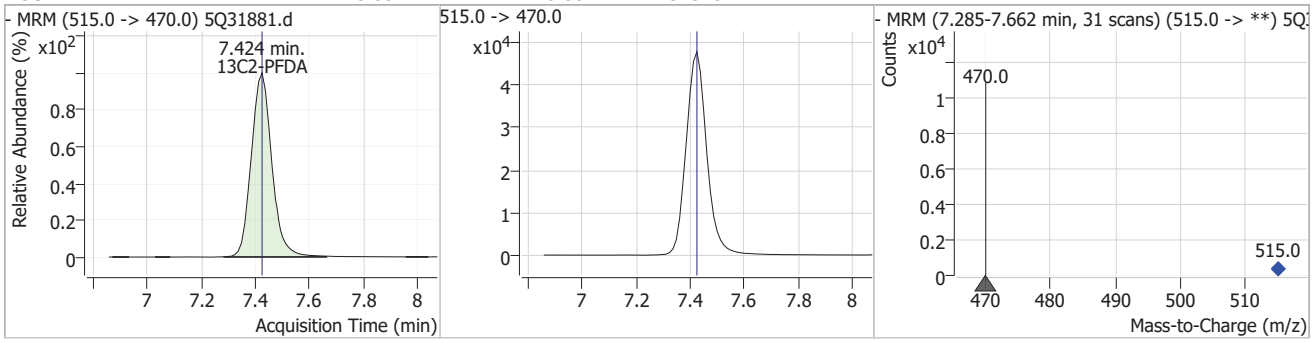
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	18959				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	54.76	7.38	0.00	18952				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	28.08	7.42	0.00	251348				



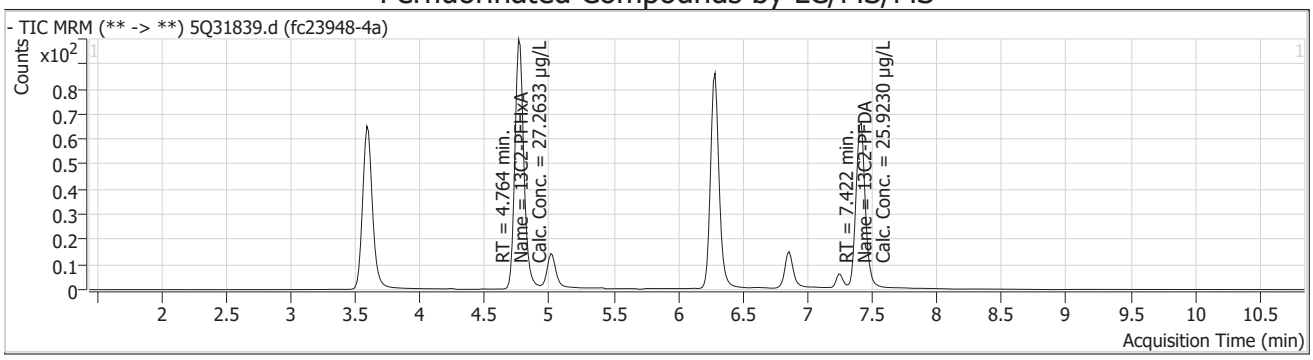
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31839.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 5:51:11 PM
Sample Name : fc23948-4a
Vial : P2-E8
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8904,S5Q523,280,,,1,1,water

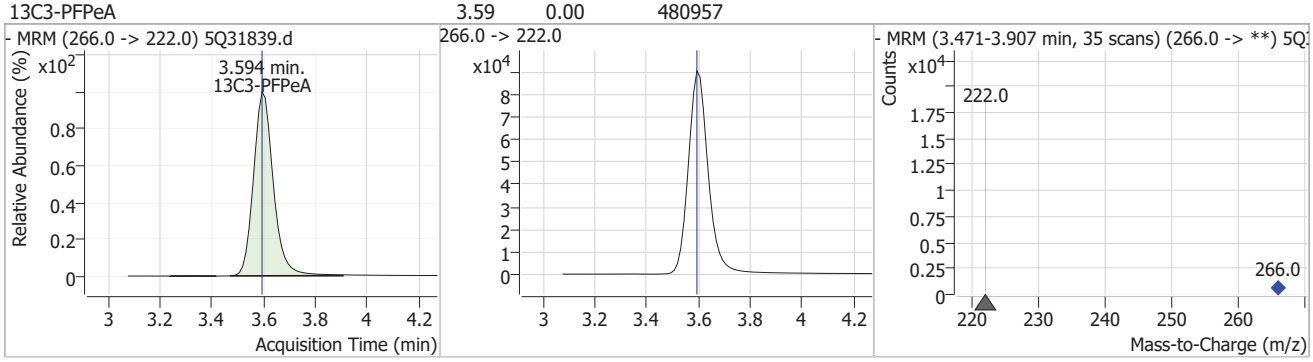
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.275	429.0 -> 409.0	175185	20.00 µg/L	-0.012
13C2-PFOA	6.290	415.0 -> 370.0	391083	20.00 µg/L	0.000
13C3-PFPeA	3.594	266.0 -> 222.0	480957	20.00 µg/L	0.000
13C4-PFOS	6.860	503.0 -> 80.0	93369	20.00 µg/L	0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	28966	40.00 µg/L	-0.012
System Monitoring Compounds					
13C2-PFDA	7.422	515.0 -> 470.0	433867	25.92 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 129.6%	
13C2-PFHxA	4.764	315.0 -> 270.0	675599	27.26 µg/L	-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 136.3%	
d5-EtFOSAA	7.378	589.0 -> 419.0	28883	52.55 µg/L	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 131.4%	
13C3-HFPO-DA	5.020	287.0 -> 169.0	88765	50.69 µg/L	-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 126.7%	
Target Compounds					QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.	
8:2FTS	-	527.0 -> 507.0	-	N.D.	
EtFOSAA	-	584.0 -> 419.0	-	N.D.	
MeFOSAA	-	570.0 -> 419.0	-	N.D.	
PFBS	-	299.0 -> 80.0	-	N.D.	
PFDA	-	513.0 -> 469.0	-	N.D.	
PFDoDA	-	613.0 -> 569.0	-	N.D.	
PFHpA	-	363.0 -> 319.0	-	N.D.	
PFHxA	-	313.0 -> 269.0	-	N.D.	
PFHxS	-	399.0 -> 80.0	-	N.D.	
PFNA	-	463.0 -> 419.0	-	N.D.	
PFOA	-	413.0 -> 369.0	-	N.D.	
PFOS	-	499.0 -> 80.0	-	N.D.	
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	
ADONA	-	377.0 -> 251.0	-	N.D.	
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
HFPO-DA	-	285.0 -> 169.0	-	N.D.	

 # = Qualifier out of range, m = manually integrated, + = Area summed

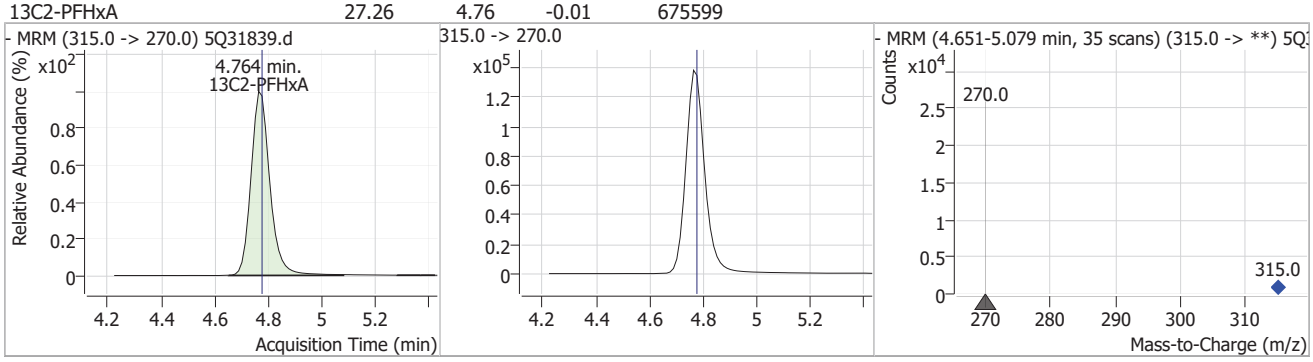
Perfluorinated Compounds by LC/MS/MS



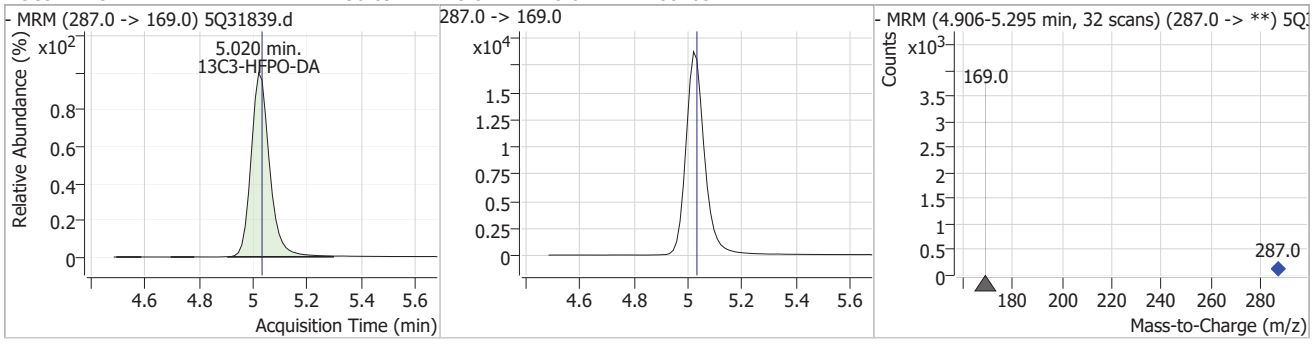
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	480957				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	27.26	4.76	-0.01	675599				

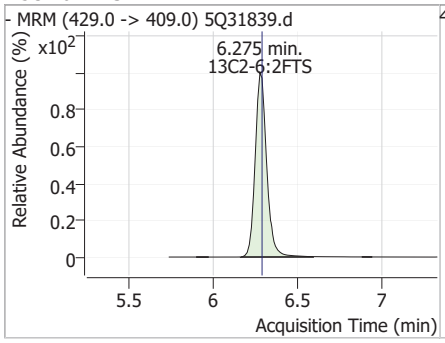


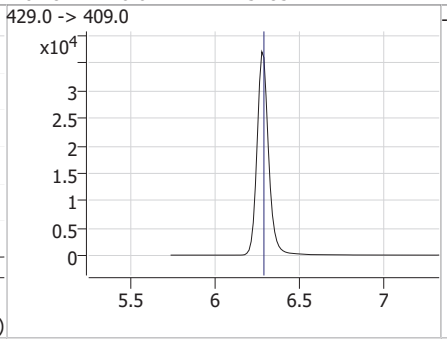
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	50.69	5.02	-0.01	88765				

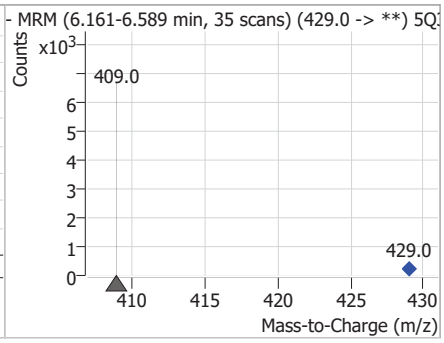


Perfluorinated Compounds by LC/MS/MS

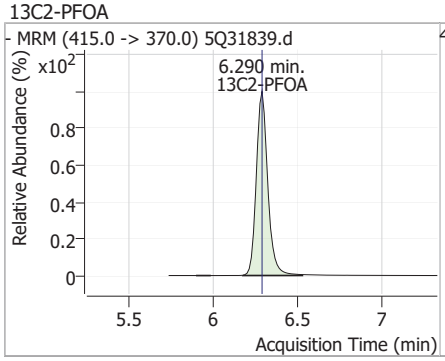
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	175185				

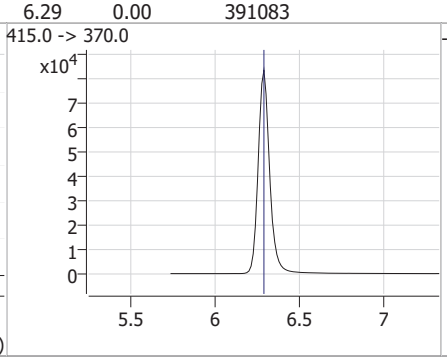


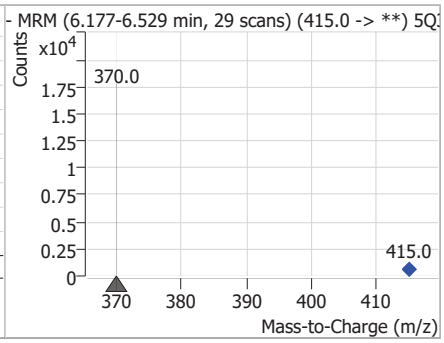




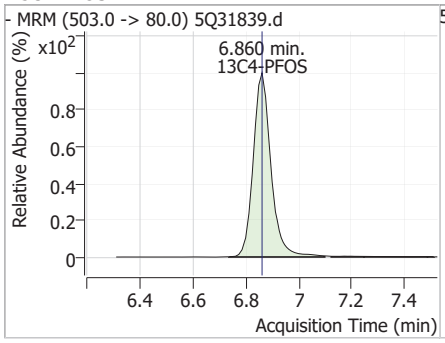
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	391083				

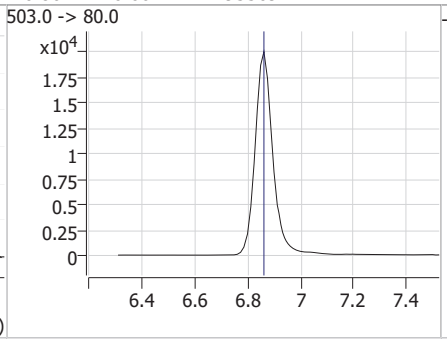


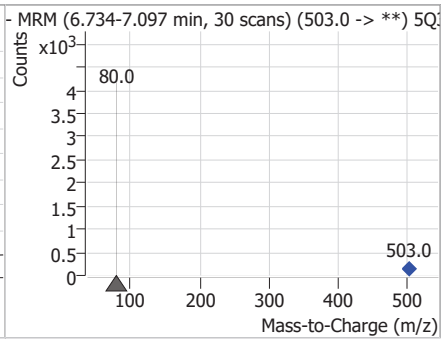




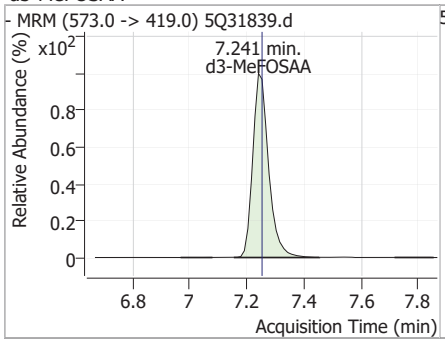
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	93369				

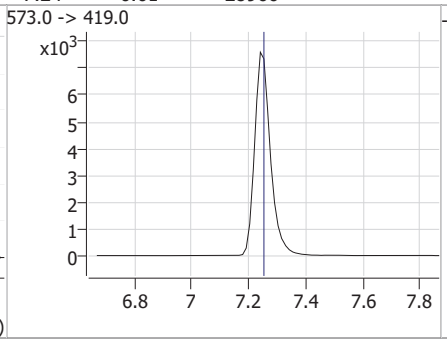


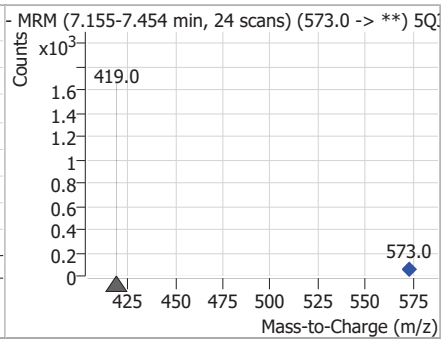




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	28966				

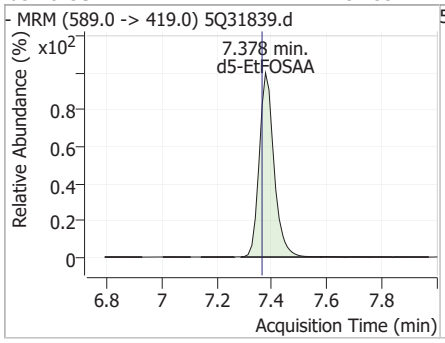


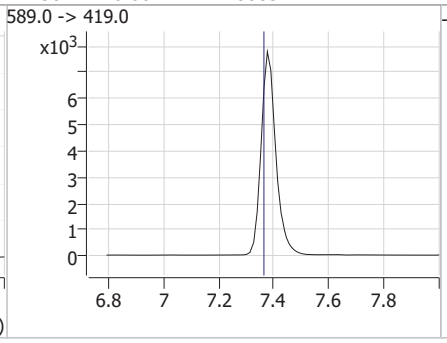


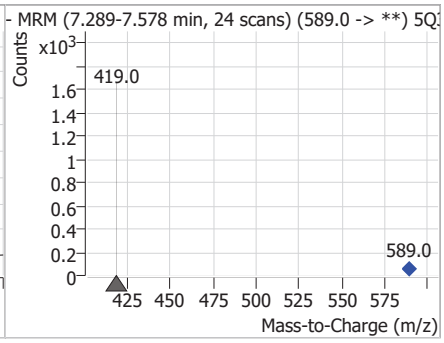


Perfluorinated Compounds by LC/MS/MS

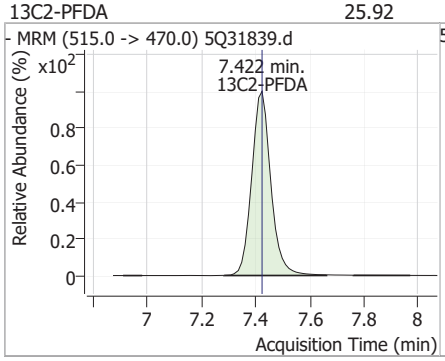
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	52.55	7.38	0.00	28883				

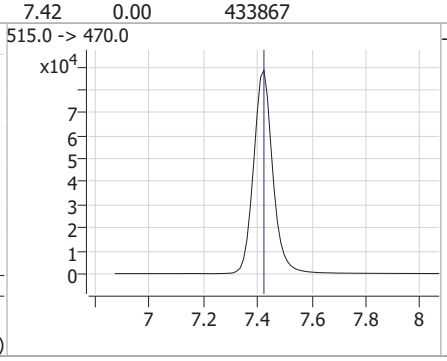


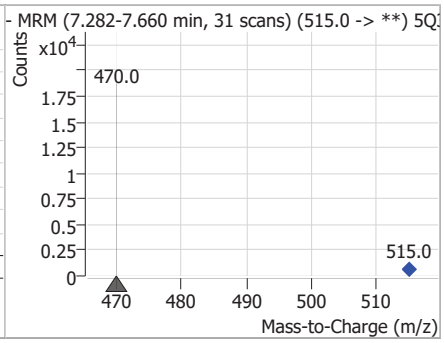




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	25.92	7.42	0.00	433867				







7.1.11

7

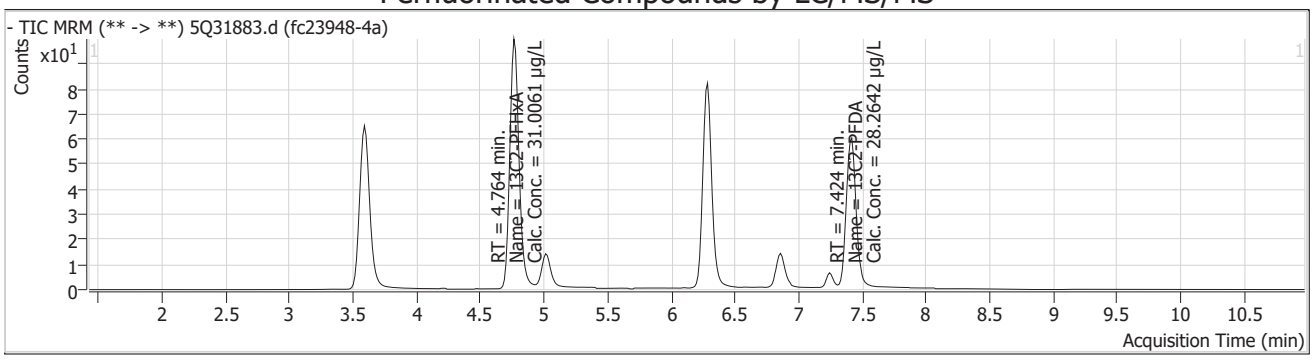
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31883.d
Operator : (b) (6)
Acq. Method : 537_5Q.m
Acq. Date-Time : 4/18/2025 6:52:38 PM
Sample Name : fc23948-4a
Vial : P2-E8
DA Method File : 537_041825_S5Q524.quantmethod.xml
Batch Name : s5q524.batch.bin
Sample Information : OP8904,S5Q524,280,,,1,1,water

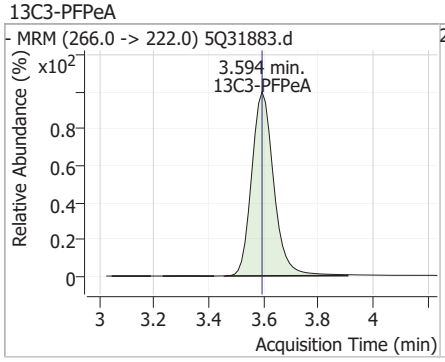
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.275	429.0 -> 409.0	119733	20.00	µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	258674	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	335380	20.00	µg/L		0.000
13C4-PFOS	6.861	503.0 -> 80.0	62077	20.00	µg/L		0.000
d3-MeFOSAA	7.243	573.0 -> 419.0	21290	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.424	515.0 -> 470.0	277756	28.26	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 141.3%			
13C2-PFHxA	4.764	315.0 -> 270.0	466633	31.01	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 155.0%			
d5-EtFOSAA	7.379	589.0 -> 419.0	21997	56.60	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 141.5%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	60312	58.51	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 146.3%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	-	363.0 -> 319.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	-	413.0 -> 369.0	-	N.D.			
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	5.347	285.0 -> 169.0	0		µg/L	m	1

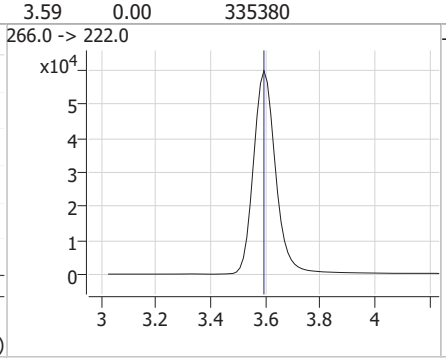
 # = Qualifier out of range, m = manually integrated, + = Area summed

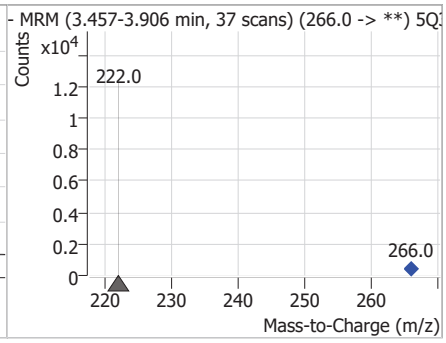
Perfluorinated Compounds by LC/MS/MS



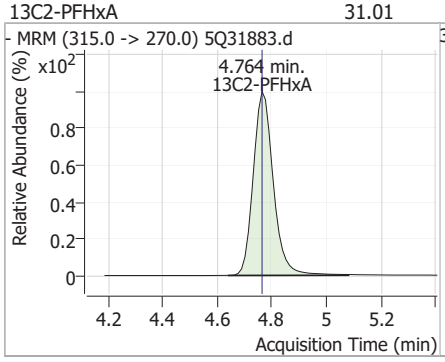
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	335380				

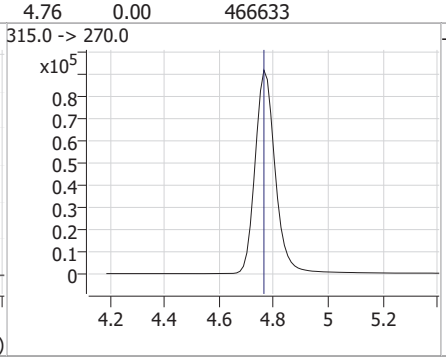


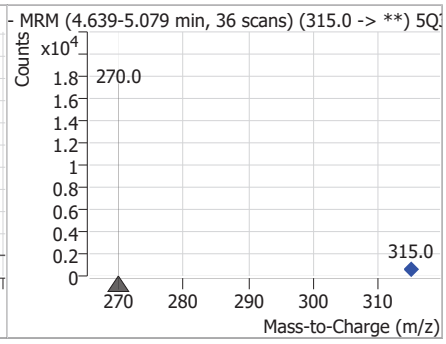




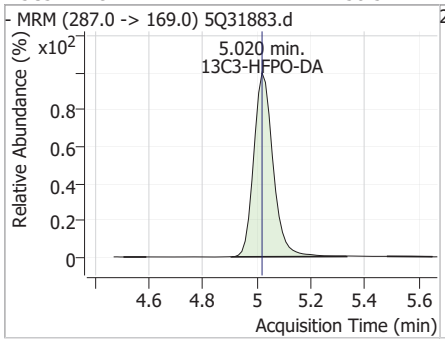
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	31.01	4.76	0.00	466633				

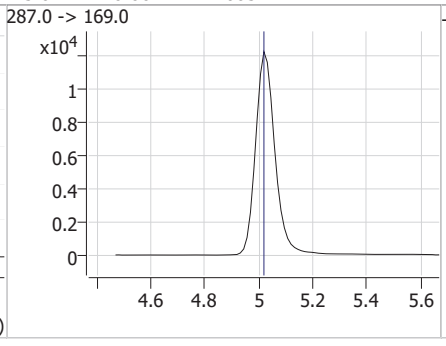


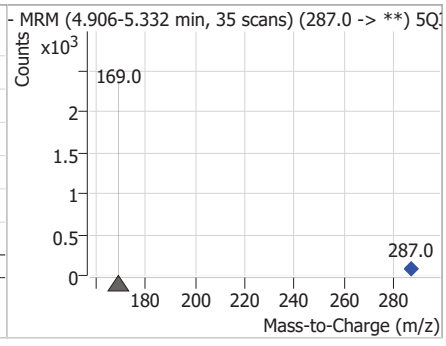




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	58.51	5.02	0.00	60312				

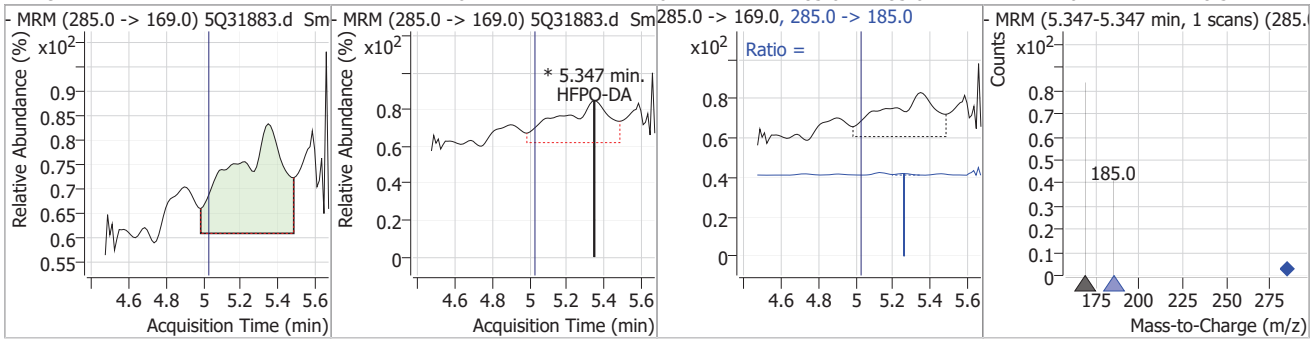




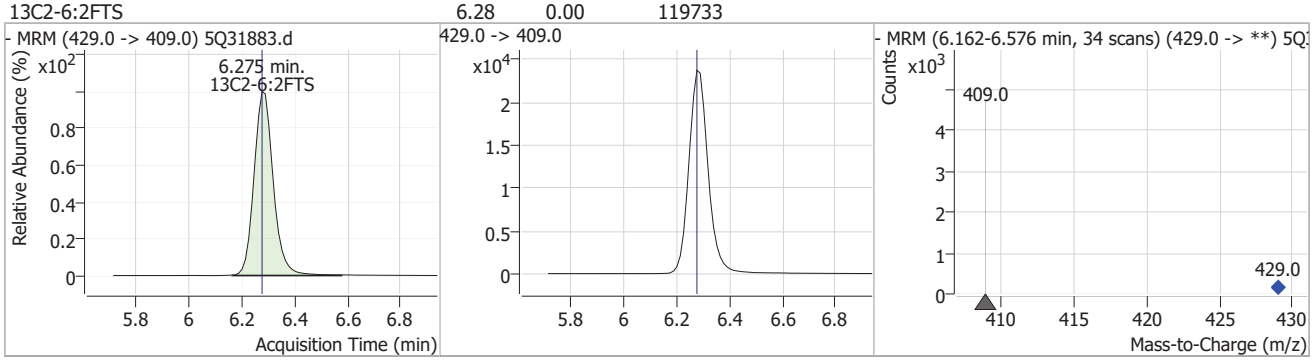


Perfluorinated Compounds by LC/MS/MS

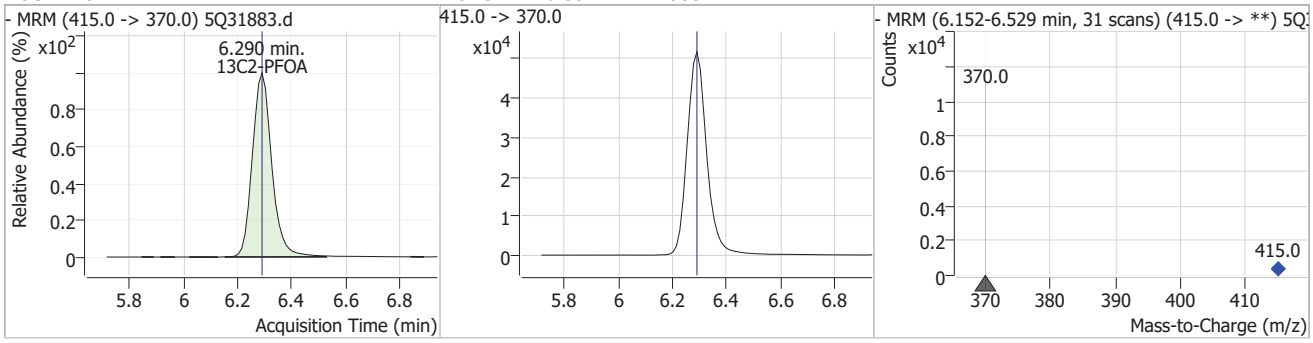
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA		0		0	285.0 -> 185.0		6.2	18.5



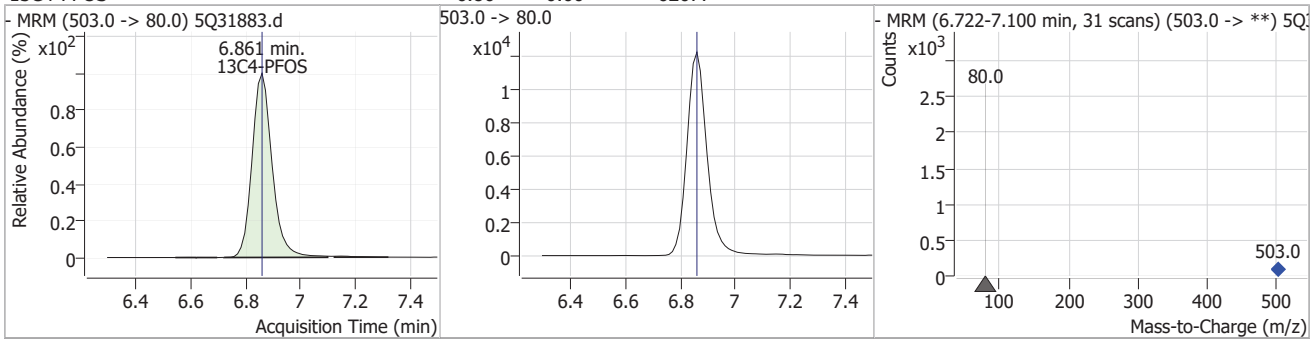
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	0.00	119733				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	258674				

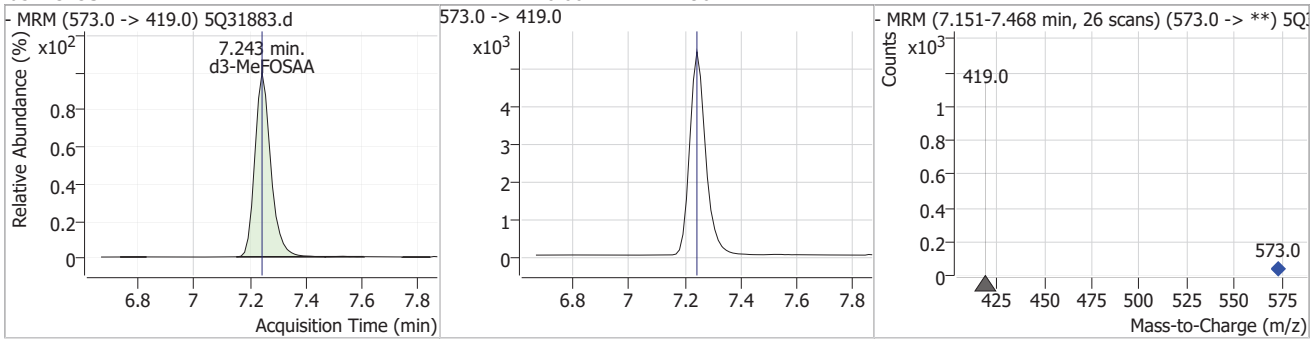


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	62077				

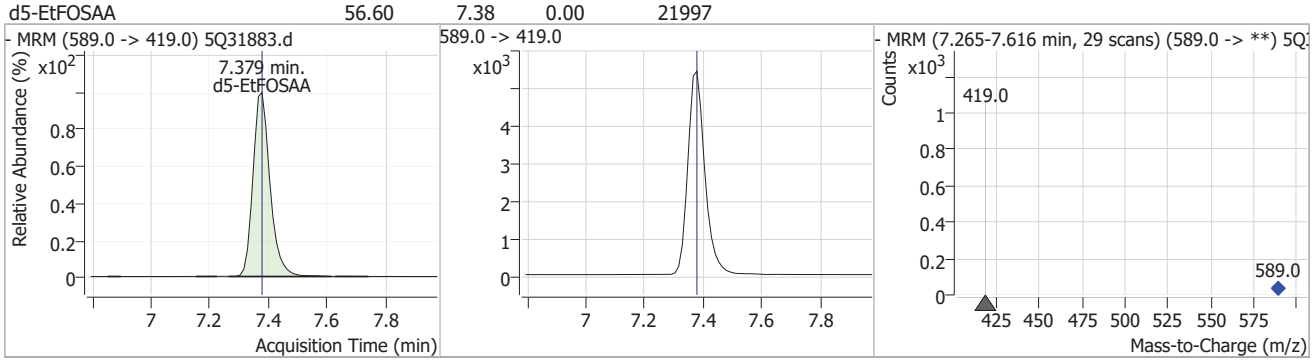


Perfluorinated Compounds by LC/MS/MS

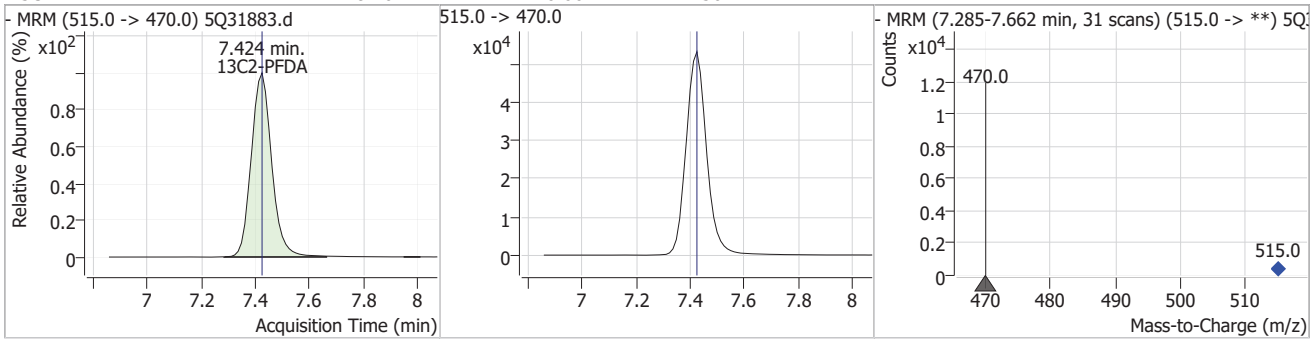
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	21290				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	56.60	7.38	0.00	21997				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	28.26	7.42	0.00	277756				



Perfluorinated Compounds by LC/MS/MS

Data File : 3q101525.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/17/2025 12:11:33 PM
Sample Name : op8907-mb
Vial : P3-C2
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1494.batch.bin
Sample Information : op8907,S3Q1494,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.447	415.0 -> 370.0	260183	10.00 µg/L	0.025
13C3-PFBA	2.332	216.0 -> 172.0	100121	10.00 µg/L	-0.013
13C4-PFOS	8.008	503.0 -> 80.0	38241	10.00 µg/L	0.039
M4-PFBA	2.340	217.0 -> 172.0	131952	10.00 µg/L	0.000
M5-PFPeA	4.425	268.0 -> 223.0	160030	10.00 µg/L	0.013
M5-PFHxA	5.788	318.0 -> 273.0	206705	10.00 µg/L	0.013
M4-PFHpA	6.719	367.0 -> 322.0	175589	10.00 µg/L	0.025
M8-PFOA	7.447	421.0 -> 376.0	233309	10.00 µg/L	0.025
M9-PFNA	8.035	472.0 -> 427.0	255021	10.00 µg/L	0.038
M6-PFDA	8.558	519.0 -> 474.0	359705	10.00 µg/L	0.038
M7-PFUnDA	9.249	570.0 -> 525.0	679567	10.00 µg/L	0.064
M2-PFDoDA	10.196	615.0 -> 570.0	763230	10.00 µg/L	0.113
M3-PFBS	4.721	302.0 -> 99.0	18169	10.00 µg/L	0.013
M3-PFHxS	6.749	402.0 -> 99.0	25967	10.00 µg/L	0.025
M8-PFOS	8.008	507.0 -> 99.0	33203	10.00 µg/L	0.039
M2-4:2FTS	5.697	329.0 -> 309.0	67194	10.00 µg/L	0.025
M2-6:2FTS	7.445	429.0 -> 409.0	130215	10.00 µg/L	0.025
M2-8:2FTS	8.624	529.0 -> 509.0	207930	10.00 µg/L	0.039
M3-HFPO-DA	6.081	287.0 -> 169.0	2486	10.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.697	329.0 -> 309.0	67194	7.38 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 73.8%	
13C2-6:2FTS	7.445	429.0 -> 409.0	130199	7.62 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.2%	
13C2-8:2FTS	8.624	529.0 -> 509.0	207930	7.26 µg/L	0.039
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 72.6%	
13C2-PFDoDA	10.196	615.0 -> 570.0	763230	6.89 µg/L	0.113
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 68.9%	
13C3-PFBS	4.721	302.0 -> 99.0	18169	7.62 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.2%	
13C3-PFHxS	6.749	402.0 -> 99.0	25967	7.64 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.4%	
13C4-PFBA	2.340	217.0 -> 172.0	131952	7.77 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.7%	
13C4-PFHpA	6.719	367.0 -> 322.0	175589	7.98 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.8%	
13C5-PFHxA	5.788	318.0 -> 273.0	206705	7.84 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.4%	
13C5-PFPeA	4.425	268.0 -> 223.0	160030	7.82 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.2%	
13C6-PFDA	8.558	519.0 -> 474.0	359705	8.26 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.6%	
13C7-PFUnDA	9.249	570.0 -> 525.0	679567	7.82 µg/L	0.064
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.2%	
13C8-PFOA	7.447	421.0 -> 376.0	233309	8.16 µg/L	0.025

Perfluorinated Compounds by LC/MS/MS

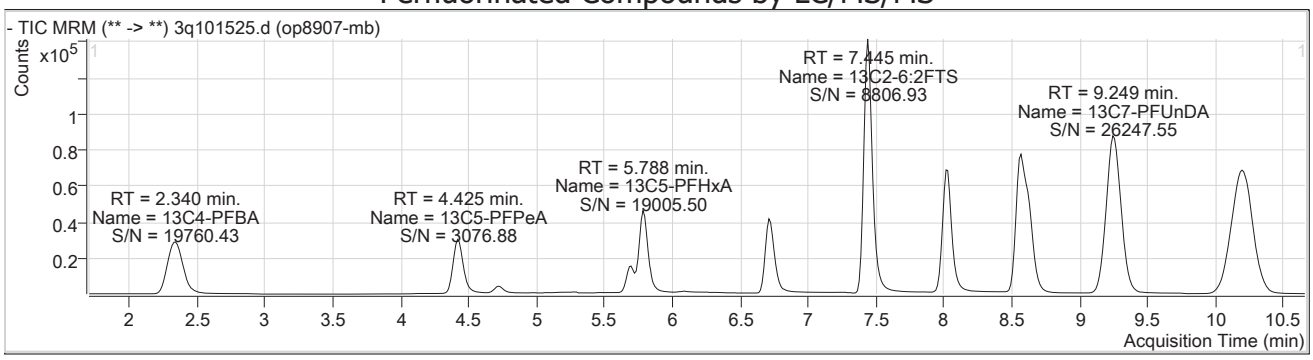
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.6%		
13C8-PFOS	8.008	507.0 -> 99.0	33203	7.64 µg/L		0.039
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.4%		
13C9-PFNA	8.035	472.0 -> 427.0	255021	8.21 µg/L		0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.1%		
13C3-HFPO-DA	6.081	287.0 -> 169.0	2486	6.56 µg/L		0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 65.6%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	5.278	299.0 -> 80.0	0	0.00 µg/L	m	1
		299.0 -> 99.0	0			
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	-	363.0 -> 319.0	-	N.D.		
		363.0 -> 169.0				
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	6.191	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0	0			

 # = Qualifier out of range, m = manually integrated, + = Area summed

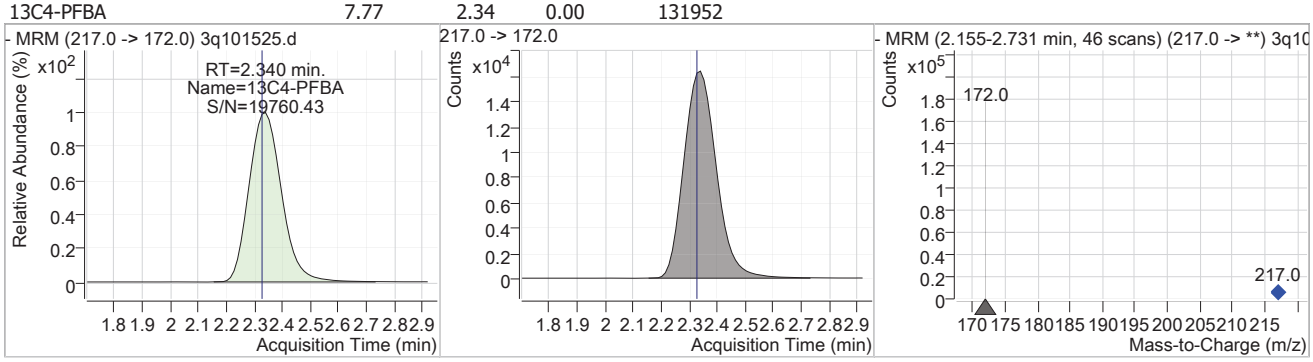
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

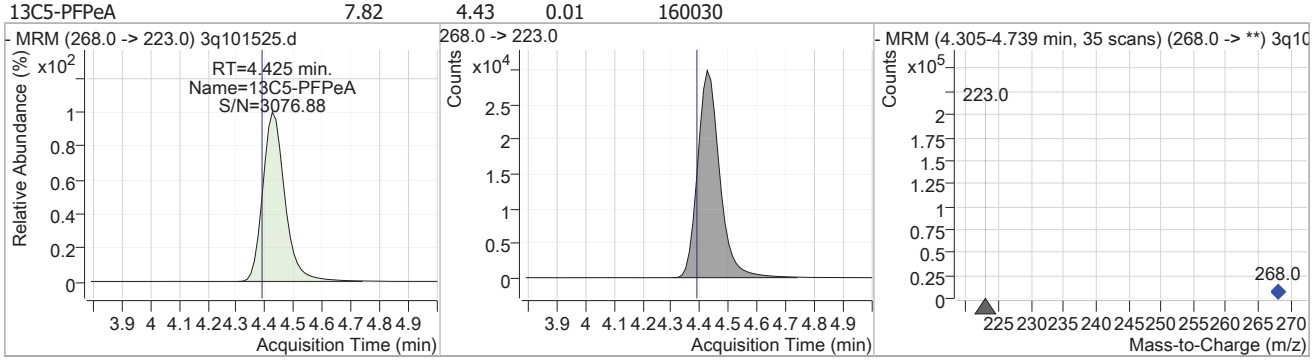
Perfluorinated Compounds by LC/MS/MS



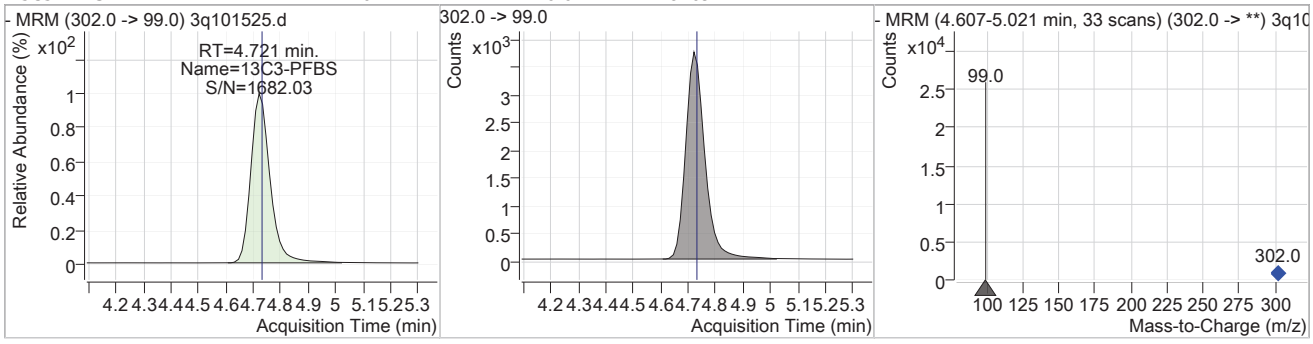
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	7.77	2.34	0.00	131952				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	7.82	4.43	0.01	160030				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	7.62	4.72	0.01	18169				



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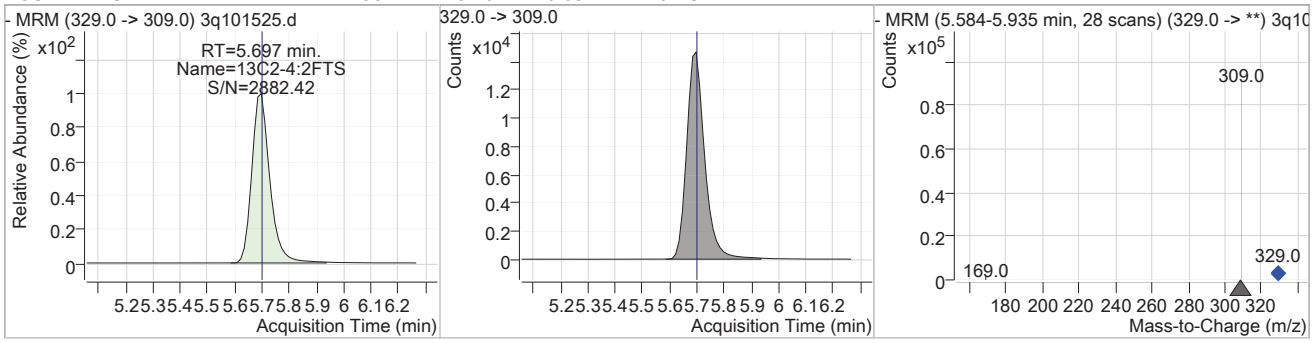
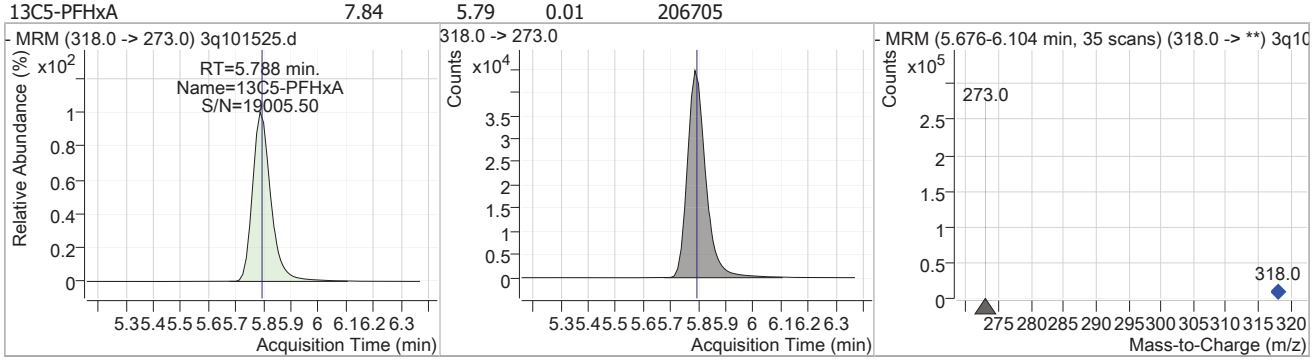
Perfluorinated Compounds by LC/MS/MS

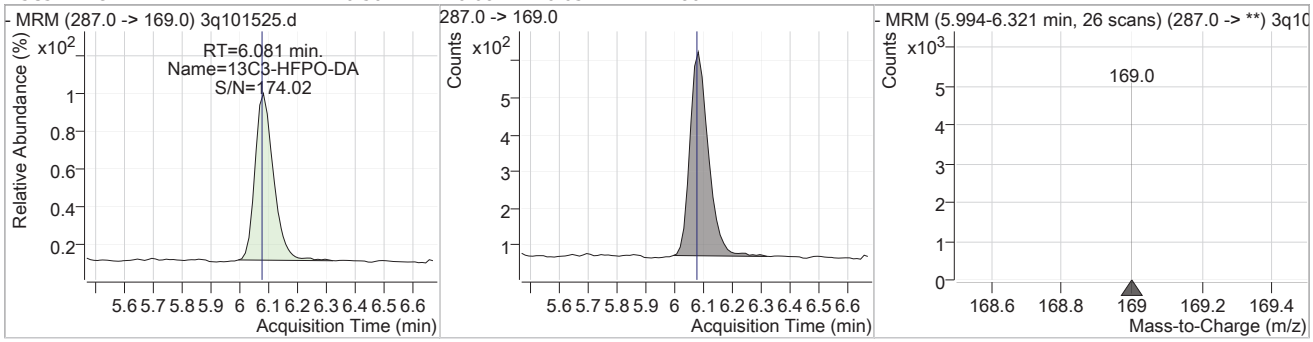
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	7.38	5.70	0.03	67194				



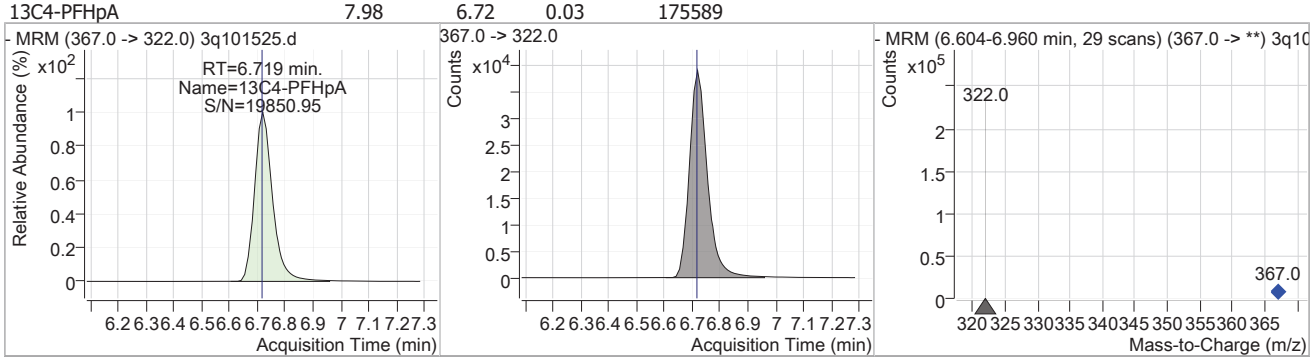
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	7.84	5.79	0.01	206705				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	6.56	6.08	0.03	2486				

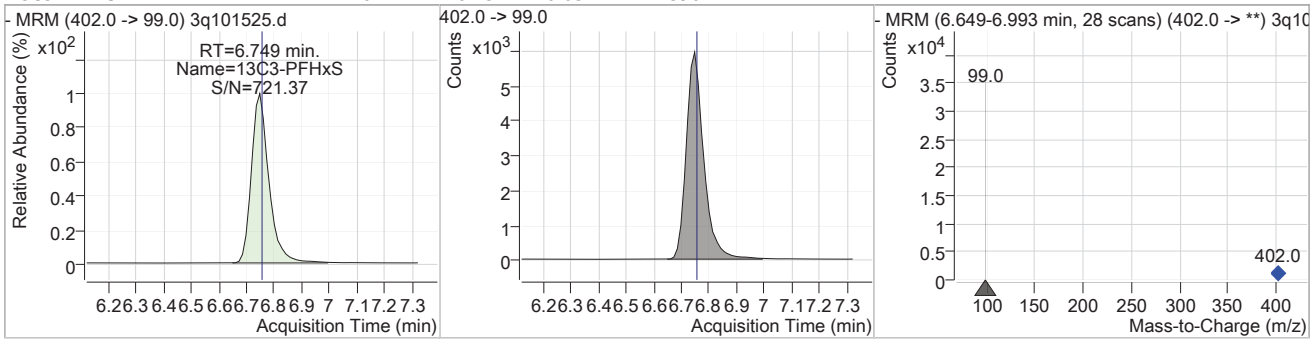


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	7.98	6.72	0.03	175589				

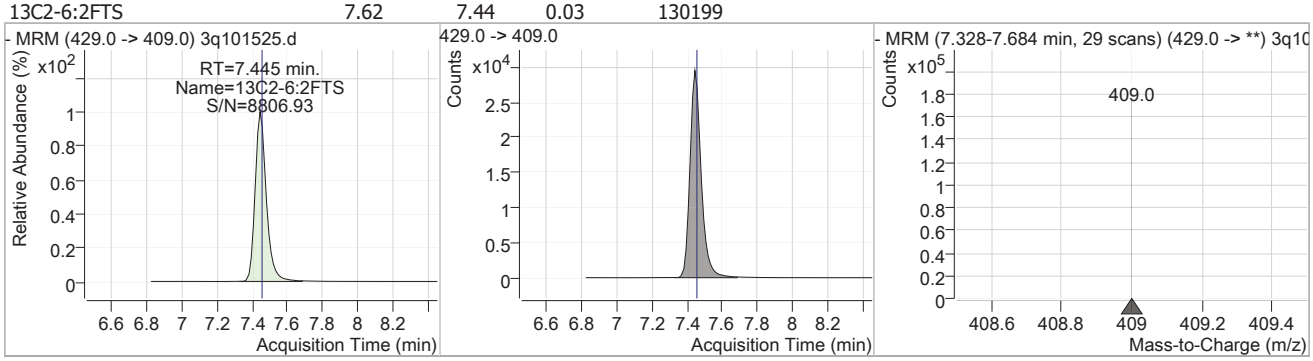


Perfluorinated Compounds by LC/MS/MS

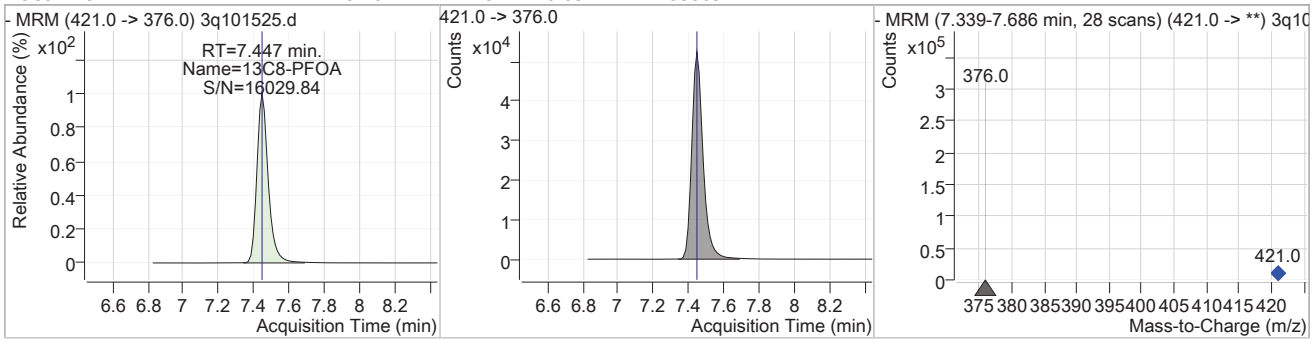
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	7.64	6.75	0.03	25967				



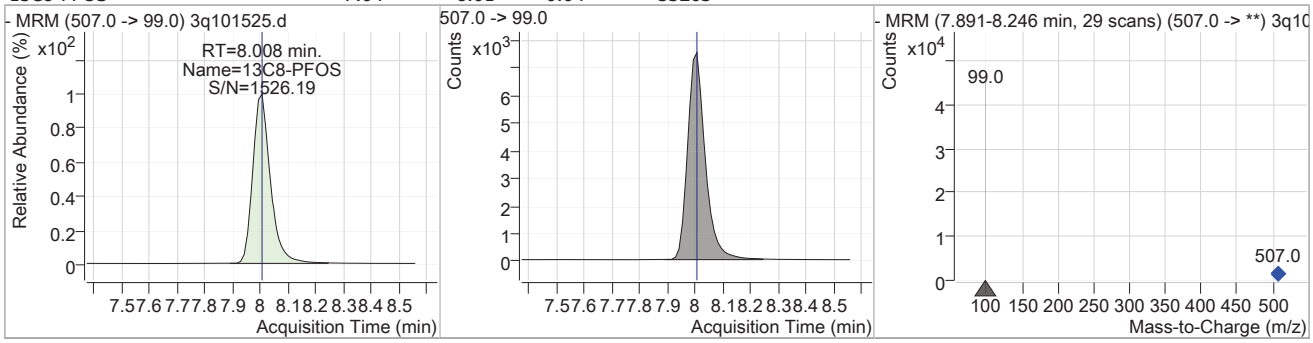
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	7.62	7.44	0.03	130199				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	8.16	7.45	0.03	233309				

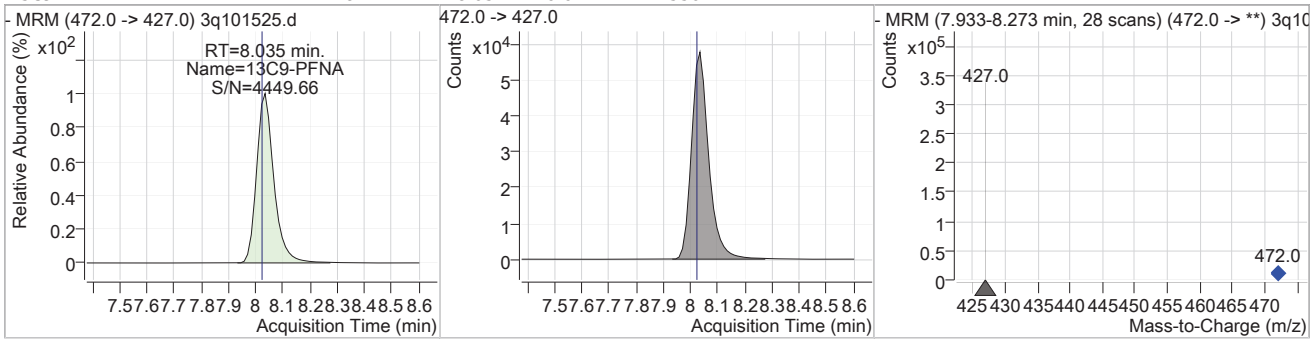


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	7.64	8.01	0.04	33203				

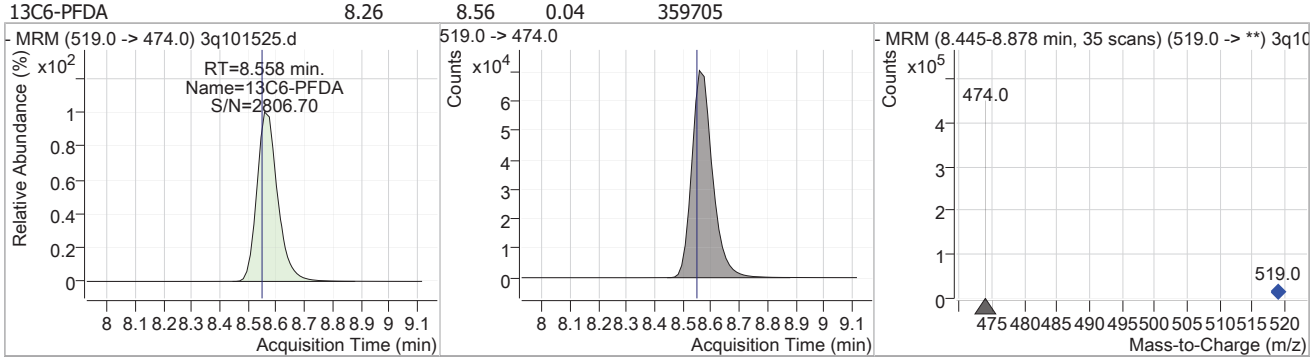


Perfluorinated Compounds by LC/MS/MS

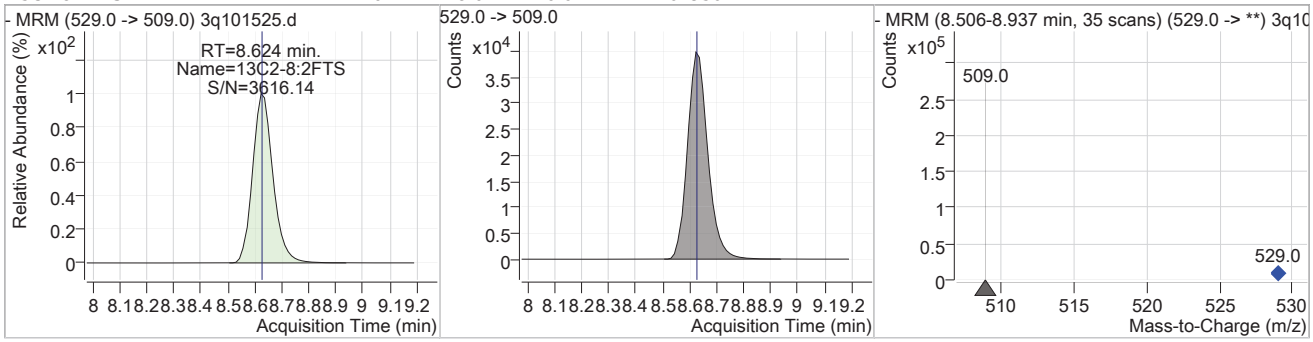
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	8.21	8.03	0.04	255021				



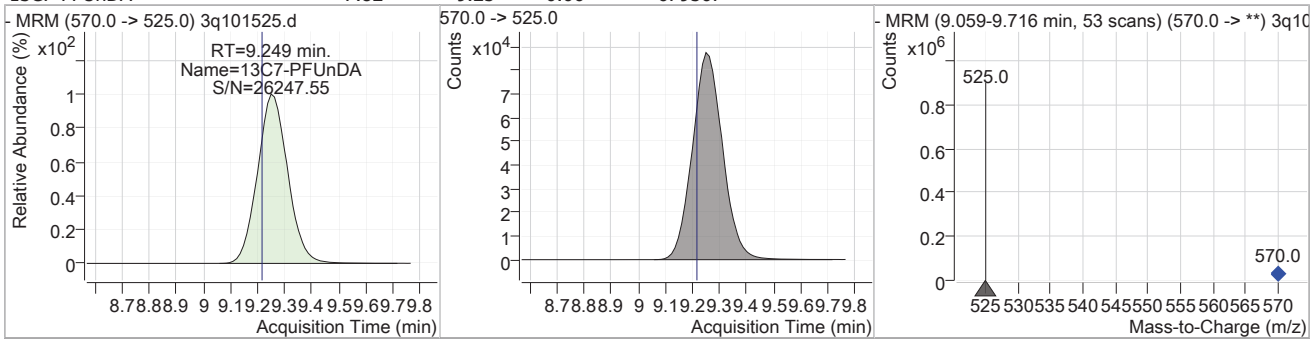
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	8.26	8.56	0.04	359705				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	7.26	8.62	0.04	207930				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	7.82	9.25	0.06	679567				



7.2.1

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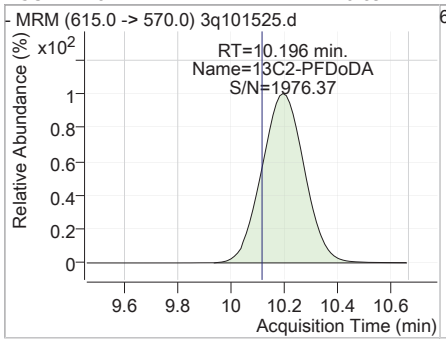
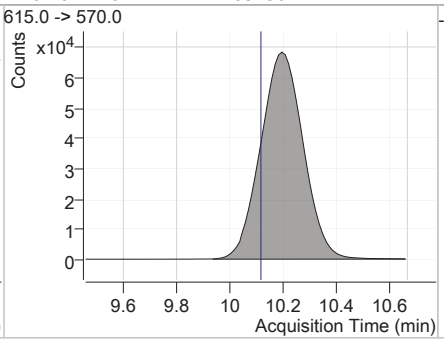
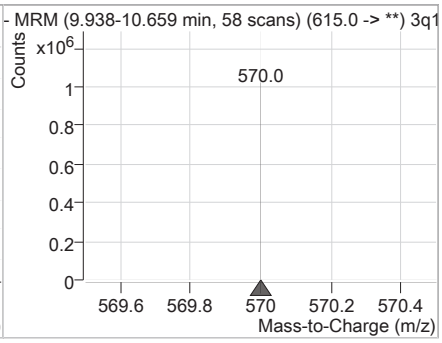
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	6.89	10.20	0.11	763230				







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Perfluorinated Compounds by LC/MS/MS

Data File : 3q101466.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 4:12:39 PM
Sample Name : iblk
Vial : P1-C1
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.435	415.0 -> 370.0	200621	10.00 µg/L	0.000
13C3-PFBA	2.344	216.0 -> 172.0	76211	10.00 µg/L	0.213
13C4-PFOS	7.983	503.0 -> 80.0	29840	10.00 µg/L	-0.013
M4-PFBA	2.352	217.0 -> 172.0	132075	10.00 µg/L	0.213
M5-PFPeA	4.413	268.0 -> 223.0	159743	10.00 µg/L	0.075
M5-PFHxA	5.776	318.0 -> 273.0	201154	10.00 µg/L	0.025
M4-PFHpA	6.706	367.0 -> 322.0	169654	10.00 µg/L	0.000
M8-PFOA	7.434	421.0 -> 376.0	225689	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	241750	10.00 µg/L	-0.013
M6-PFDA	8.533	519.0 -> 474.0	343547	10.00 µg/L	-0.013
M7-PFUnDA	9.199	570.0 -> 525.0	648324	10.00 µg/L	-0.025
M2-PFDoDA	10.108	615.0 -> 570.0	849541	10.00 µg/L	-0.025
M3-PFBS	4.708	302.0 -> 99.0	18458	10.00 µg/L	0.063
M3-PFHxS	6.736	402.0 -> 99.0	26684	10.00 µg/L	0.000
M8-PFOS	7.982	507.0 -> 99.0	33978	10.00 µg/L	-0.013
M2-4:2FTS	5.672	329.0 -> 309.0	65920	10.00 µg/L	0.025
M2-6:2FTS	7.432	429.0 -> 409.0	123840	10.00 µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	208411	10.00 µg/L	-0.014
M3-HFPO-DA	6.068	287.0 -> 169.0	2455	10.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.672	329.0 -> 309.0	65920	9.28 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.8%	
13C2-6:2FTS	7.432	429.0 -> 409.0	123840	9.28 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.8%	
13C2-8:2FTS	8.597	529.0 -> 509.0	208411	9.33 µg/L	-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.3%	
13C2-PFDoDA	10.108	615.0 -> 570.0	849541	9.95 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C3-PFBS	4.708	302.0 -> 99.0	18458	9.91 µg/L	0.063
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C3-PFHxS	6.736	402.0 -> 99.0	26684	10.07 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C4-PFBA	2.352	217.0 -> 172.0	132075	10.22 µg/L	0.213
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C4-PFHpA	6.706	367.0 -> 322.0	169654	9.99 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C5-PFHxA	5.776	318.0 -> 273.0	201154	9.90 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C5-PFPeA	4.413	268.0 -> 223.0	159743	10.25 µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C6-PFDA	8.533	519.0 -> 474.0	343547	10.24 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C7-PFUnDA	9.199	570.0 -> 525.0	648324	9.67 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C8-PFOA	7.434	421.0 -> 376.0	225689	10.24 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

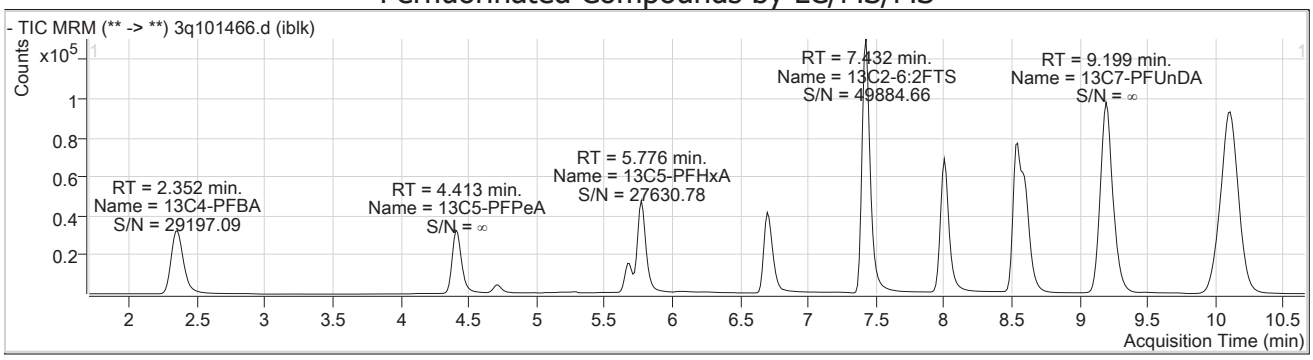
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C8-PFOS	7.982	507.0 -> 99.0	33978	10.01 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C9-PFNA	8.010	472.0 -> 427.0	241750	10.10 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C3-HFPO-DA	6.068	287.0 -> 169.0	2455	8.40 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 84.0%	
Target Compounds					**QValue**
PFMPA	-	229.0 -> 85.0	-	N.D.	
4:2FTS	-	327.0 -> 307.0	-	N.D.	
		327.0 -> 81.0			
6:2FTS	-	427.0 -> 407.0	-	N.D.	
		427.0 -> 81.0			
8:2FTS	-	527.0 -> 507.0	-	N.D.	
		527.0 -> 81.0			
PFMBA	-	279.0 -> 85.0	-	N.D.	
PFEESA	-	315.0 -> 135.0	-	N.D.	
		315.0 -> 69.0			
NFDHA	-	201.0 -> 85.0	-	N.D.	
		295.0 -> 201.0			
PFBA	-	213.0 -> 169.0	-	N.D.	
PFBS	-	299.0 -> 80.0	-	N.D.	
		299.0 -> 99.0			
PFDA	-	513.0 -> 469.0	-	N.D.	
		513.0 -> 219.0			
PFDoDA	-	613.0 -> 569.0	-	N.D.	
		613.0 -> 169.0			
PFHpA	-	363.0 -> 319.0	-	N.D.	
		363.0 -> 169.0			
PFHpS	-	449.0 -> 80.0	-	N.D.	
		449.0 -> 99.0			
PFHxA	-	313.0 -> 269.0	-	N.D.	
		313.0 -> 119.0			
PFHxS	-	399.0 -> 80.0	-	N.D.	
		399.0 -> 99.0			
PFNA	-	463.0 -> 419.0	-	N.D.	
		463.0 -> 219.0			
PFOA	-	413.0 -> 369.0	-	N.D.	
		413.0 -> 169.0			
PFOS	-	499.0 -> 80.0	-	N.D.	
		499.0 -> 99.0			
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFPeS	-	349.0 -> 80.0	-	N.D.	
		349.0 -> 99.0			
PFUnDA	-	563.0 -> 519.0	-	N.D.	
		563.0 -> 269.0			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
		631.0 -> 83.0			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
		531.0 -> 83.0			
ADONA	-	377.0 -> 251.0	-	N.D.	
		377.0 -> 85.0			
HFPO-DA	-	329.0 -> 169.0	-	N.D.	
		285.0 -> 169.0			

 # = Qualifier out of range, m = manually integrated, + = Area summed

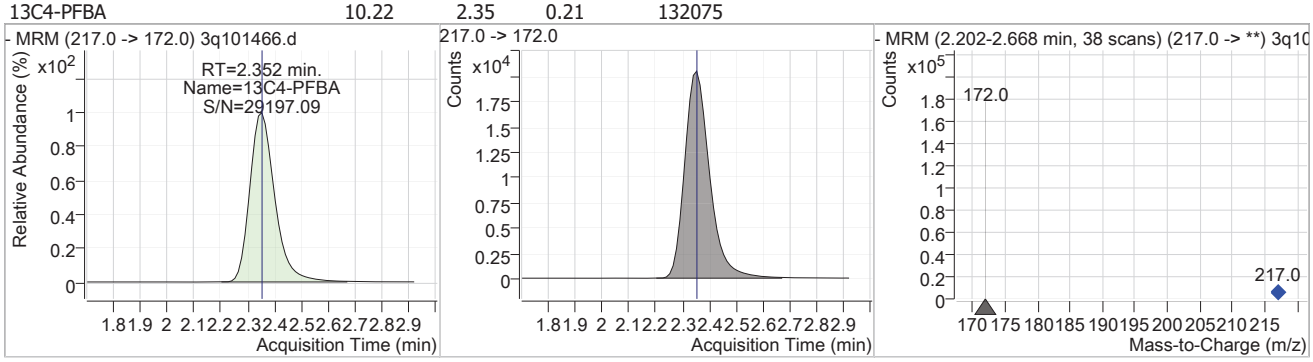
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

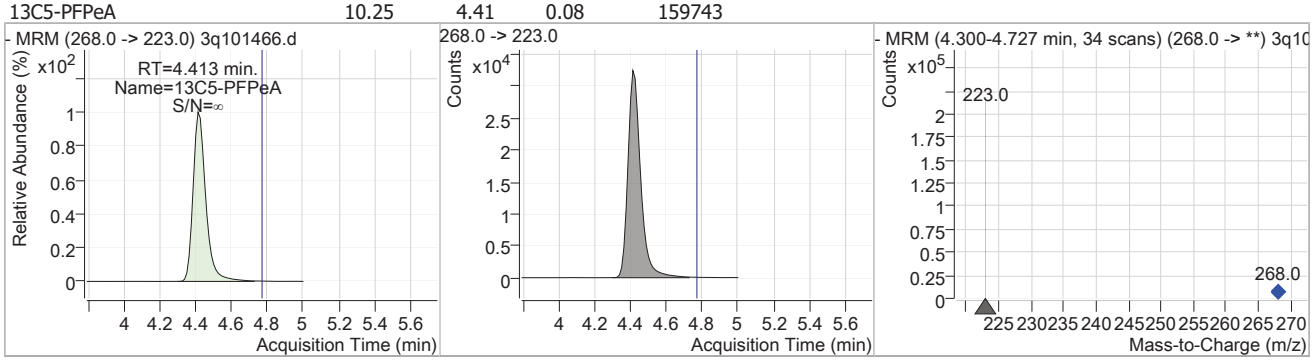
Perfluorinated Compounds by LC/MS/MS



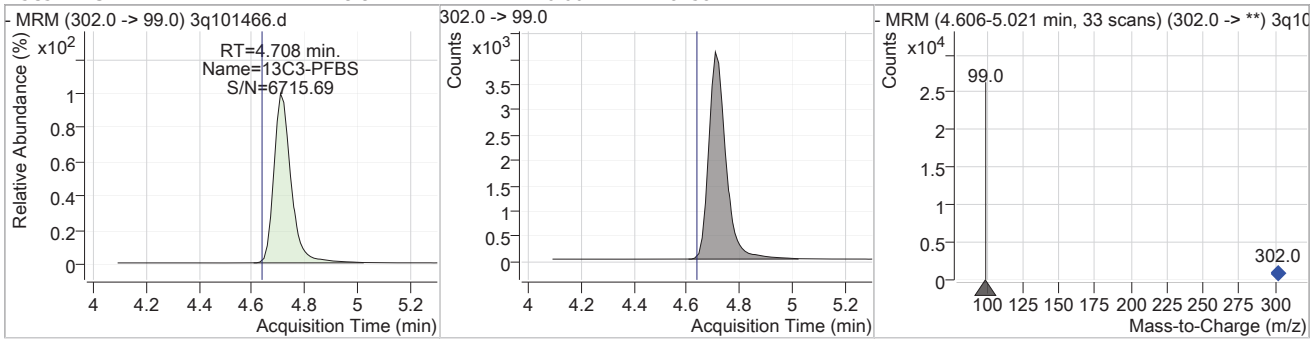
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.22	2.35	0.21	132075				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.25	4.41	0.08	159743				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	9.91	4.71	0.06	18458				



7.2.2

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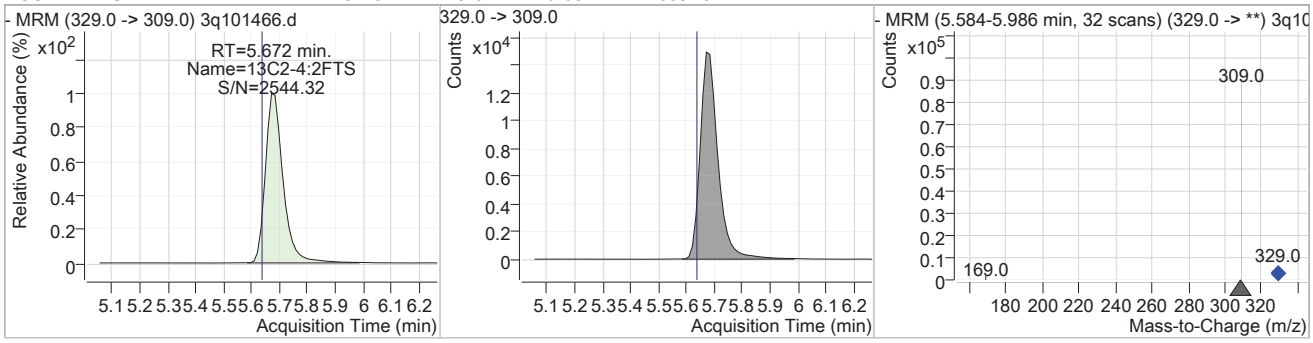
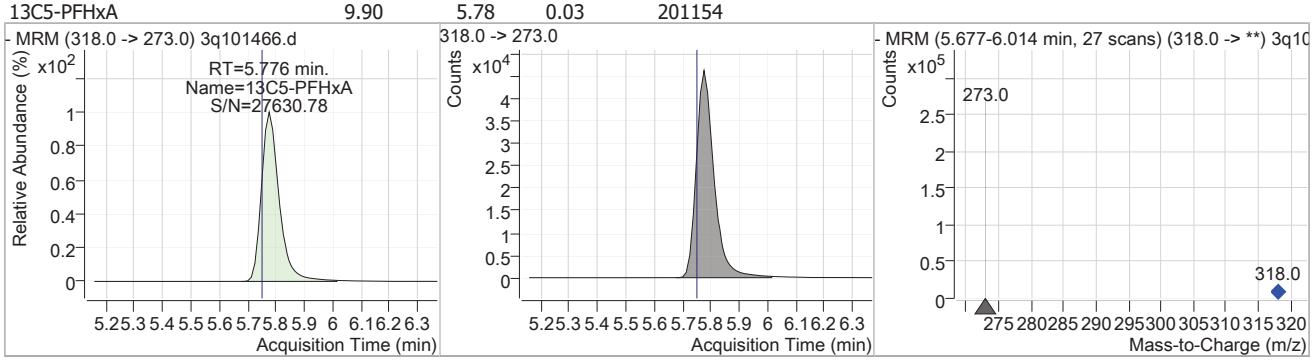
Perfluorinated Compounds by LC/MS/MS

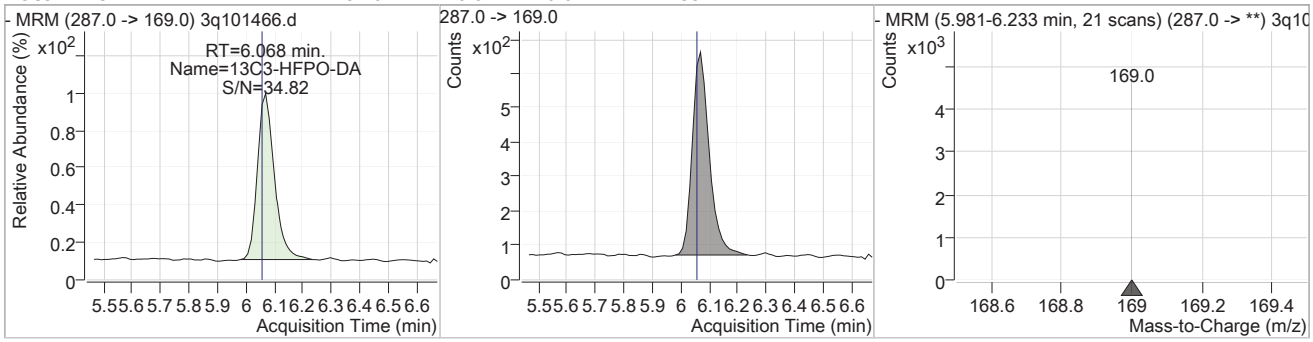
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	9.28	5.67	0.03	65920				



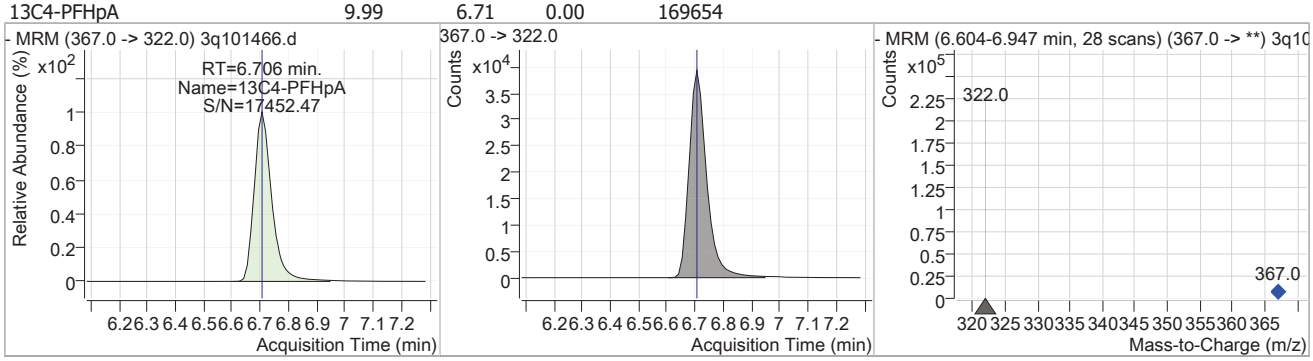
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	9.90	5.78	0.03	201154				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.40	6.07	0.01	2455				

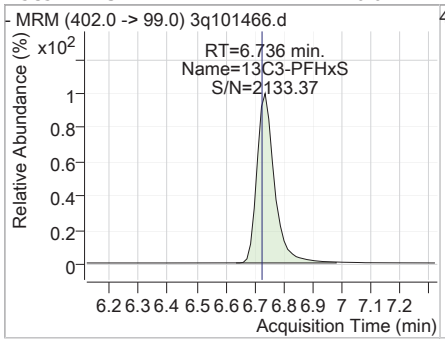


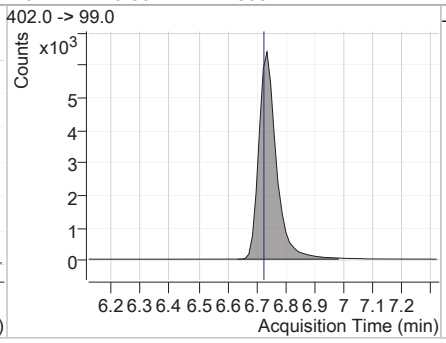
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	9.99	6.71	0.00	169654				

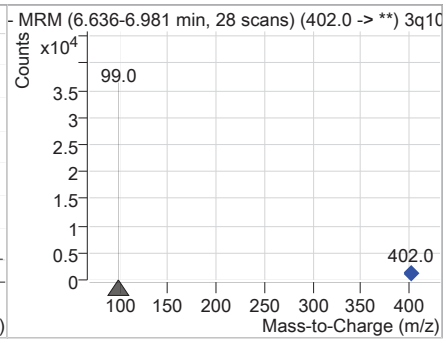


Perfluorinated Compounds by LC/MS/MS

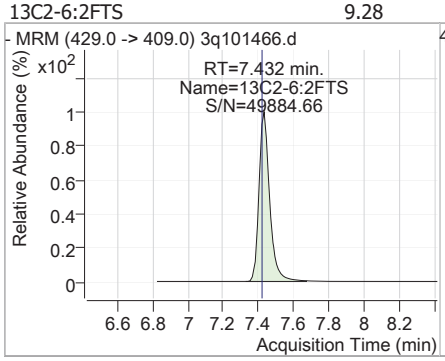
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.07	6.74	0.00	26684				

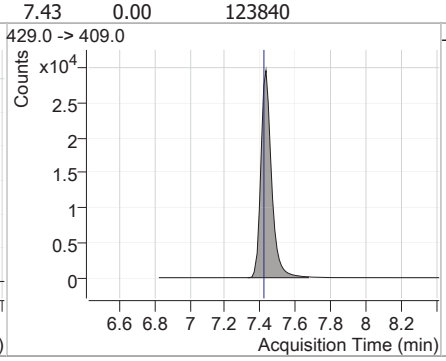


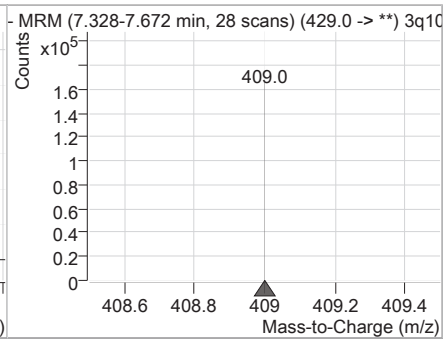




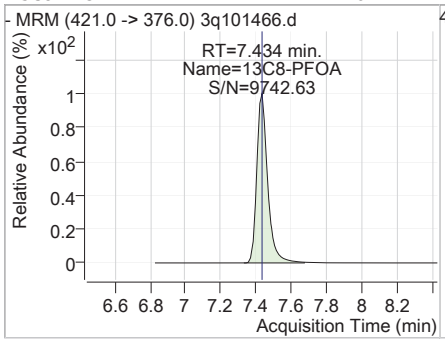
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	9.28	7.43	0.00	123840				

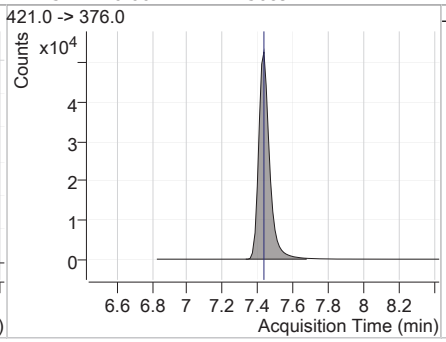


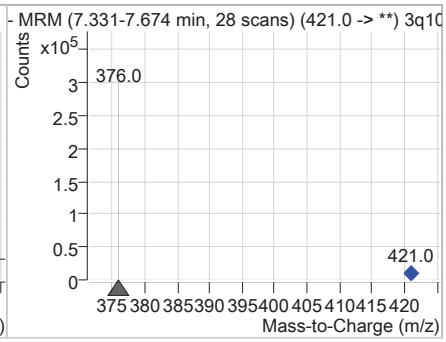




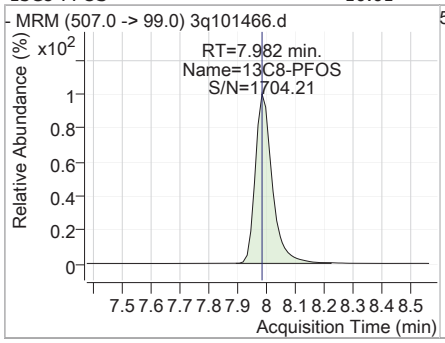
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.24	7.43	0.00	225689				

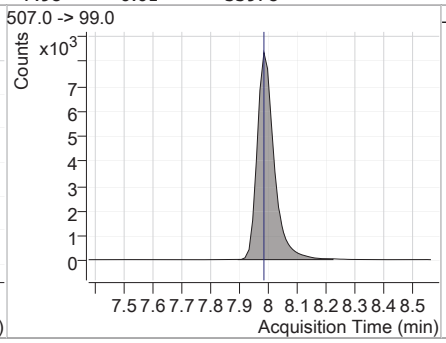


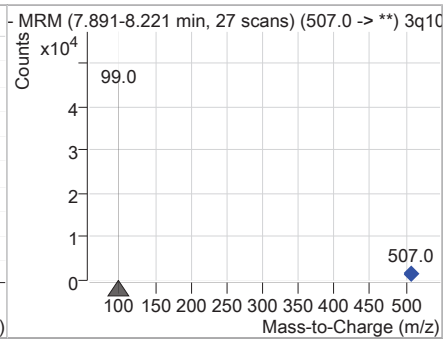




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.01	7.98	-0.01	33978				







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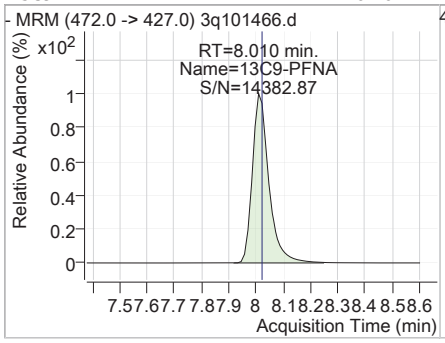
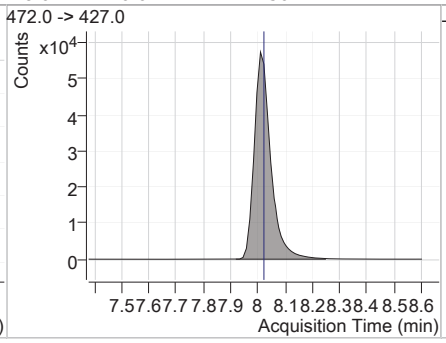
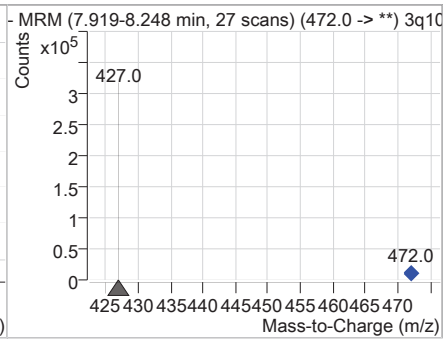
Perfluorinated Compounds by LC/MS/MS

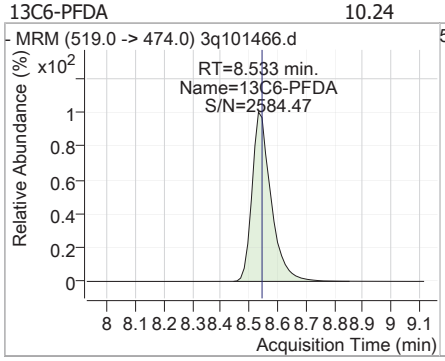
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.10	8.01	-0.01	241750				

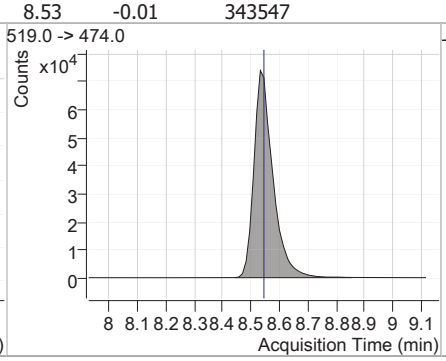


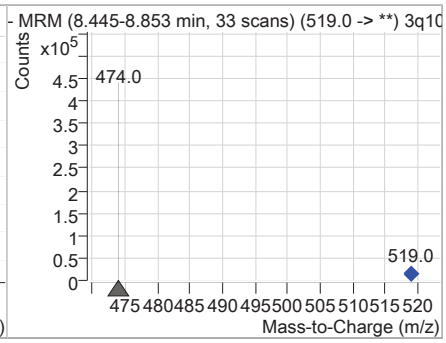




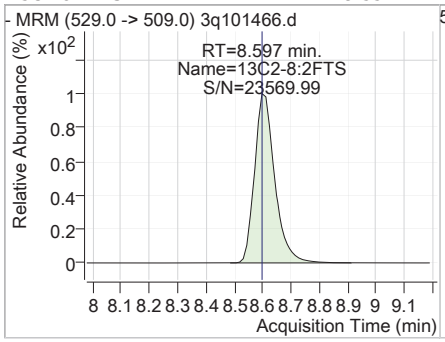
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	10.24	8.53	-0.01	343547				

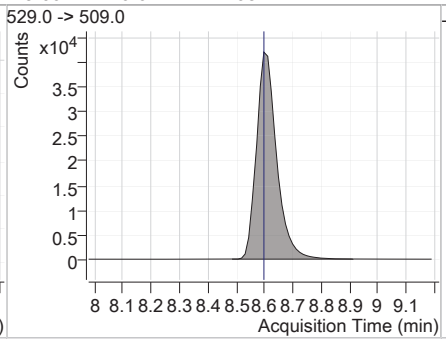


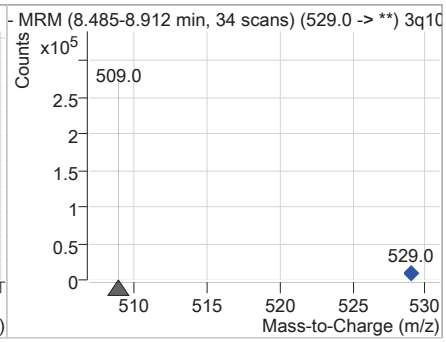




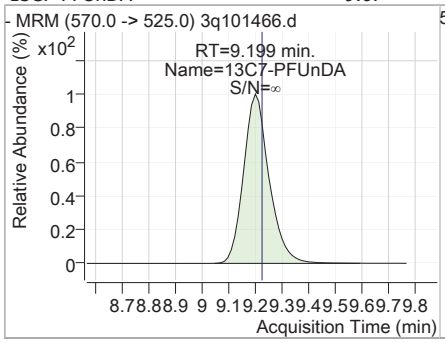
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	9.33	8.60	-0.01	208411				

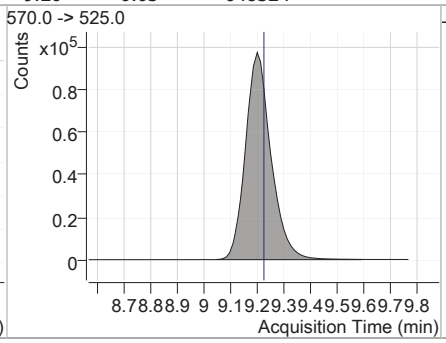


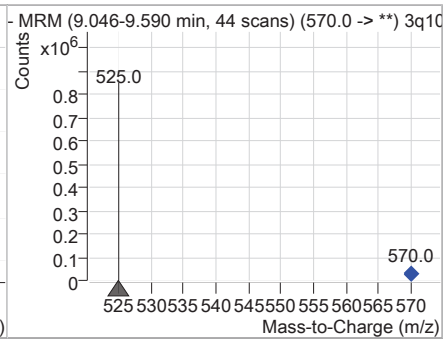




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	9.67	9.20	-0.03	648324				







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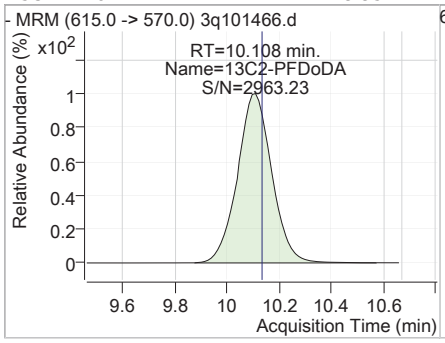
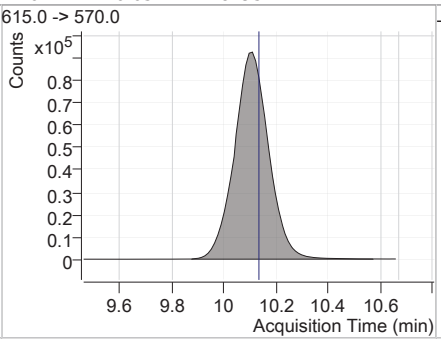
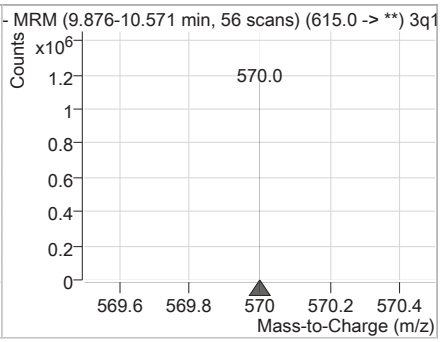
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	9.95	10.11	-0.03	849541				







7.2.2

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Perfluorinated Compounds by LC/MS/MS

Data File : 3q101518.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/17/2025 10:18:55 AM
Sample Name : iblk
Vial : P1-C1
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1494.batch.bin
Sample Information : op8907,S3Q1494,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.447	415.0 -> 370.0	246057	10.00 µg/L	0.025
13C3-PFBA	2.382	216.0 -> 172.0	94154	10.00 µg/L	0.038
13C4-PFOS	7.995	503.0 -> 80.0	37277	10.00 µg/L	0.026
M4-PFBA	2.377	217.0 -> 172.0	165154	10.00 µg/L	0.038
M5-PFPeA	4.438	268.0 -> 223.0	200523	10.00 µg/L	0.025
M5-PFHxA	5.801	318.0 -> 273.0	263888	10.00 µg/L	0.025
M4-PFHpA	6.719	367.0 -> 322.0	221074	10.00 µg/L	0.025
M8-PFOA	7.447	421.0 -> 376.0	294639	10.00 µg/L	0.025
M9-PFNA	8.035	472.0 -> 427.0	325328	10.00 µg/L	0.038
M6-PFDA	8.546	519.0 -> 474.0	478478	10.00 µg/L	0.025
M7-PFUnDA	9.262	570.0 -> 525.0	811128	10.00 µg/L	0.077
M2-PFDoDA	10.158	615.0 -> 570.0	1126354	10.00 µg/L	0.075
M3-PFBS	4.733	302.0 -> 99.0	22795	10.00 µg/L	0.025
M3-PFHxS	6.749	402.0 -> 99.0	32830	10.00 µg/L	0.025
M8-PFOS	8.008	507.0 -> 99.0	42009	10.00 µg/L	0.039
M2-4:2FTS	5.697	329.0 -> 309.0	86074	10.00 µg/L	0.025
M2-6:2FTS	7.445	429.0 -> 409.0	168784	10.00 µg/L	0.025
M2-8:2FTS	8.611	529.0 -> 509.0	292356	10.00 µg/L	0.026
M3-HFPO-DA	6.081	287.0 -> 169.0	2741	10.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.697	329.0 -> 309.0	86074	9.70 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C2-6:2FTS	7.445	429.0 -> 409.0	168790	10.13 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C2-8:2FTS	8.611	529.0 -> 509.0	292356	10.47 µg/L	0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C2-PFDoDA	10.158	615.0 -> 570.0	1126354	10.75 µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.5%	
13C3-PFBS	4.733	302.0 -> 99.0	22795	9.80 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C3-PFHxS	6.749	402.0 -> 99.0	32830	9.91 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C4-PFBA	2.377	217.0 -> 172.0	165154	10.34 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C4-PFHpA	6.719	367.0 -> 322.0	221074	10.62 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.2%	
13C5-PFHxA	5.801	318.0 -> 273.0	263888	10.59 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C5-PFPeA	4.438	268.0 -> 223.0	200523	10.41 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C6-PFDA	8.546	519.0 -> 474.0	478478	11.62 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 116.2%	
13C7-PFUnDA	9.262	570.0 -> 525.0	811128	9.87 µg/L	0.077
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C8-PFOA	7.447	421.0 -> 376.0	294639	10.90 µg/L	0.025

Perfluorinated Compounds by LC/MS/MS

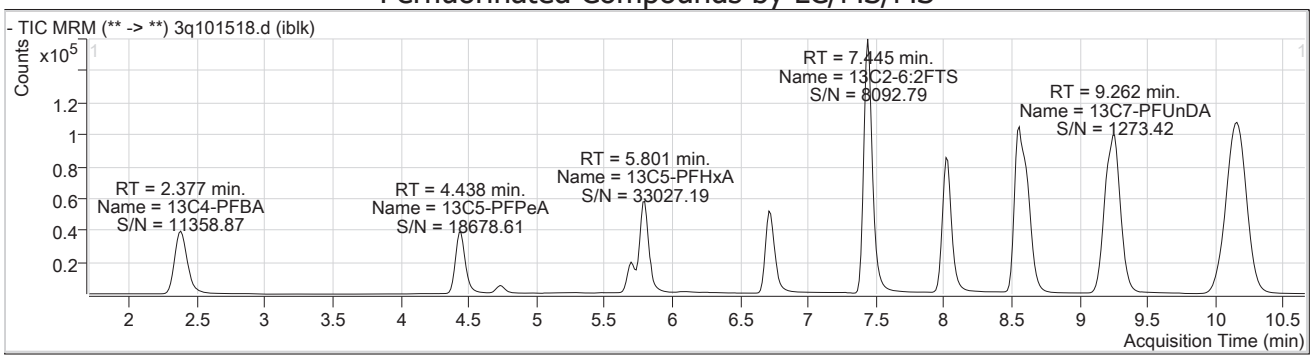
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.0%		
13C8-PFOS	8.008	507.0 -> 99.0	42009	9.91 µg/L		0.039
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%		
13C9-PFNA	8.035	472.0 -> 427.0	325328	11.08 µg/L		0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.8%		
13C3-HFPO-DA	6.081	287.0 -> 169.0	2741	7.65 µg/L		0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.5%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	-	299.0 -> 80.0	-	N.D.		
		299.0 -> 99.0				
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	-	363.0 -> 319.0	-	N.D.		
		363.0 -> 169.0				
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	6.101	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0	0			

 # = Qualifier out of range, m = manually integrated, + = Area summed

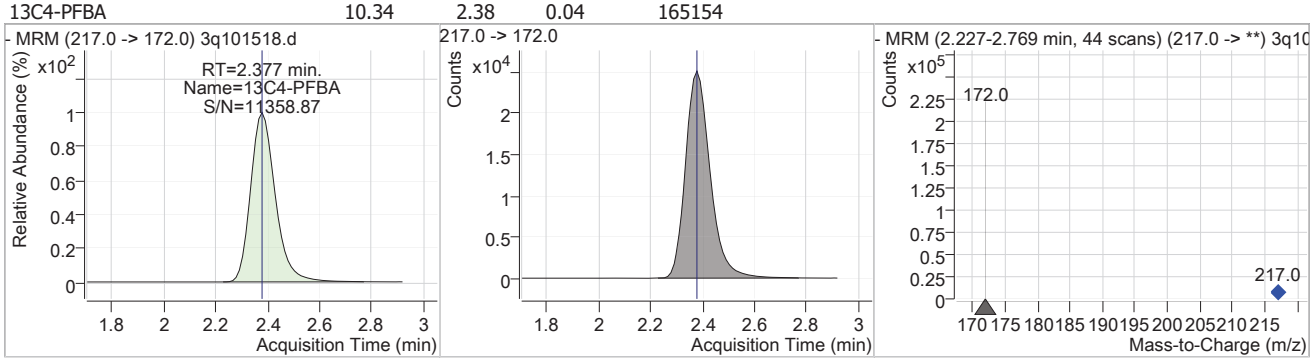
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

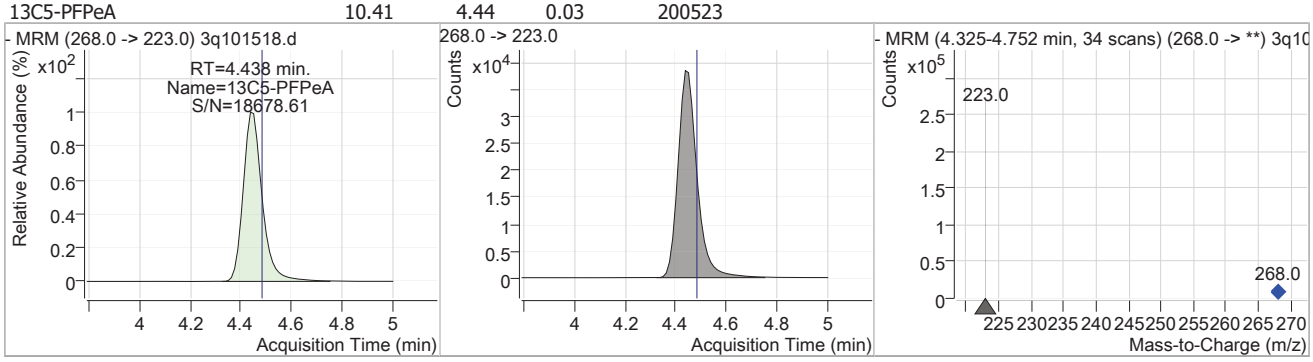
Perfluorinated Compounds by LC/MS/MS



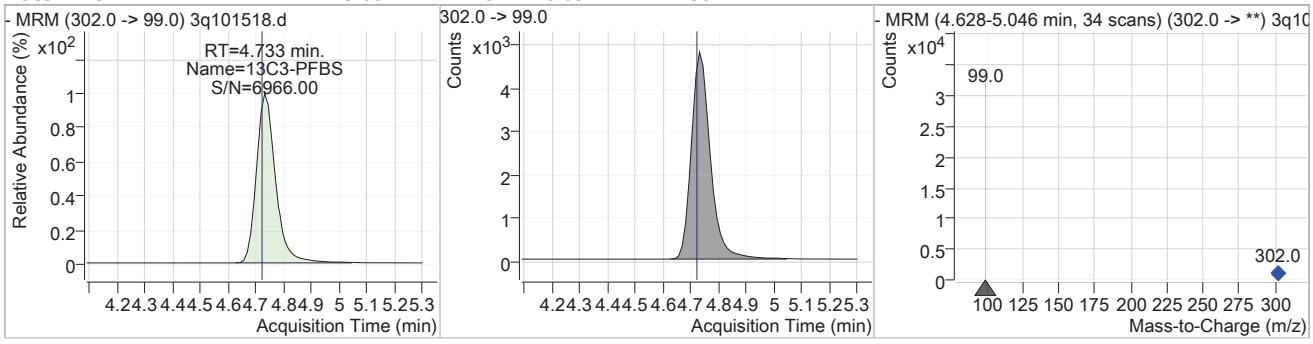
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.34	2.38	0.04	165154				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.41	4.44	0.03	200523				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	9.80	4.73	0.03	22795				



7.2.3

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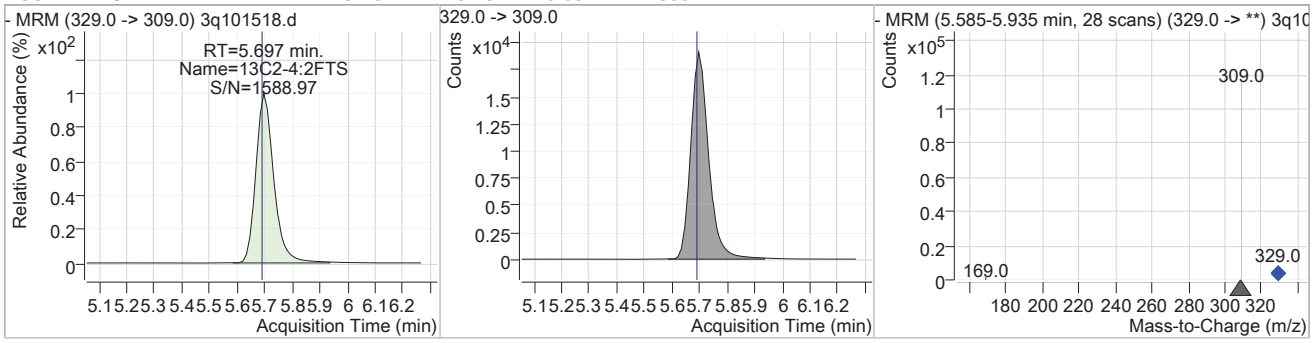
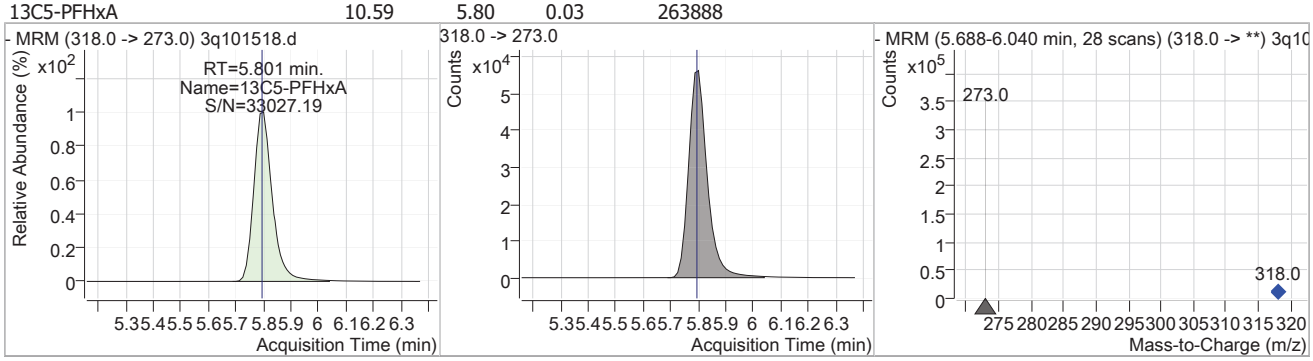
Perfluorinated Compounds by LC/MS/MS

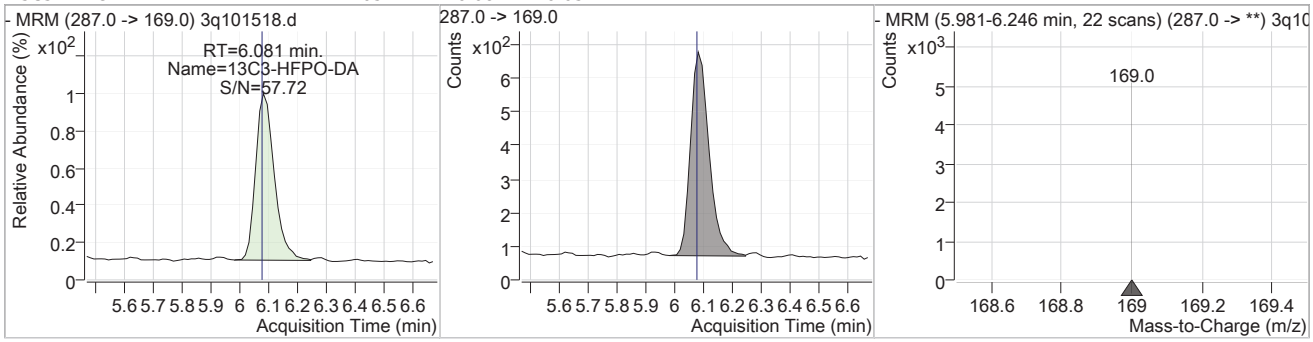
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	9.70	5.70	0.03	86074				



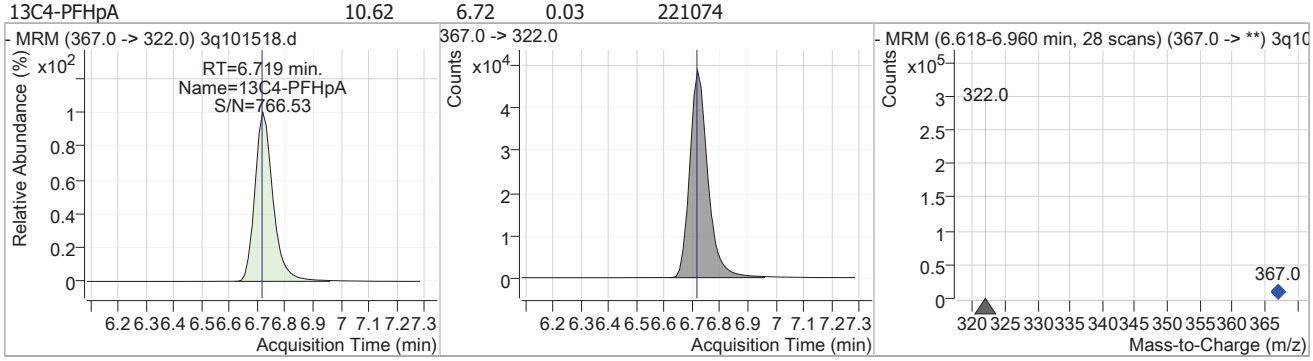
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.59	5.80	0.03	263888				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	7.65	6.08	0.03	2741				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.62	6.72	0.03	221074				

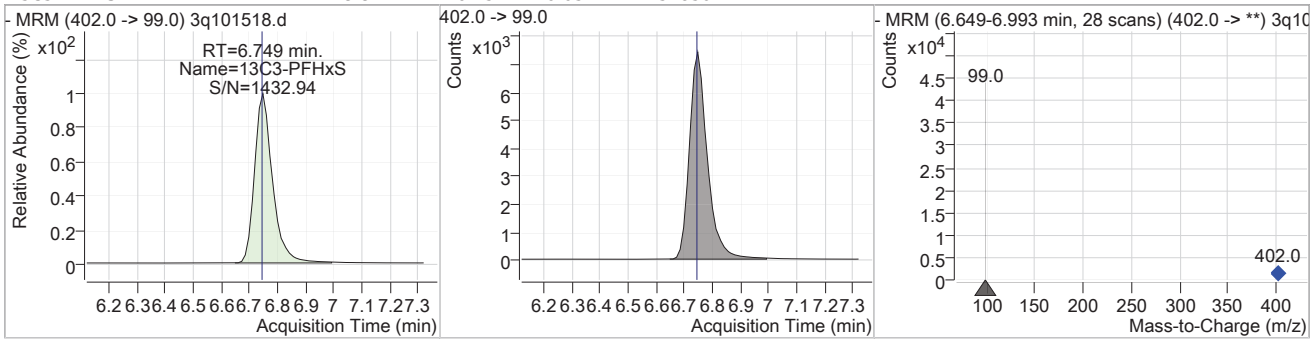


7.2.3

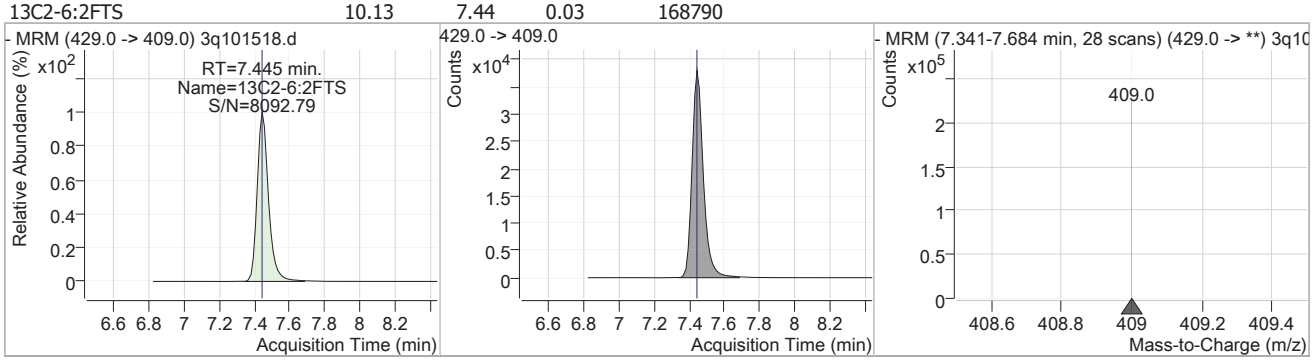
7

Perfluorinated Compounds by LC/MS/MS

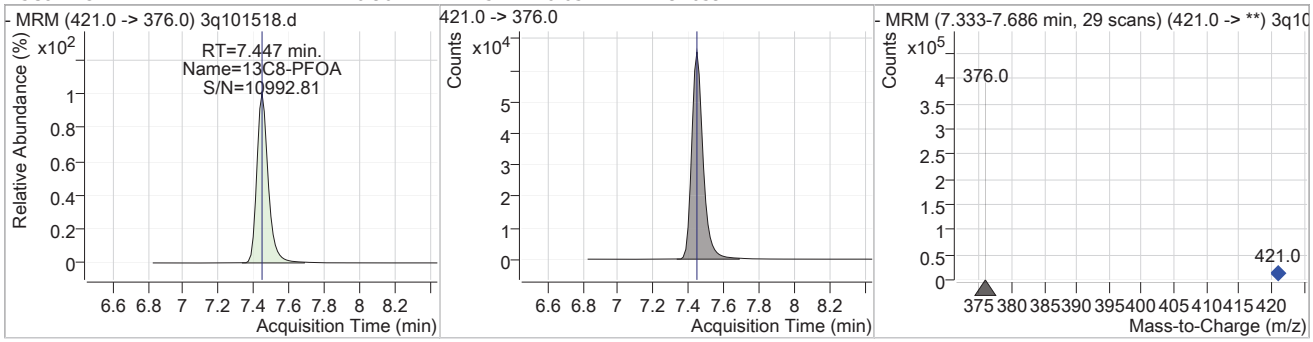
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	9.91	6.75	0.03	32830				



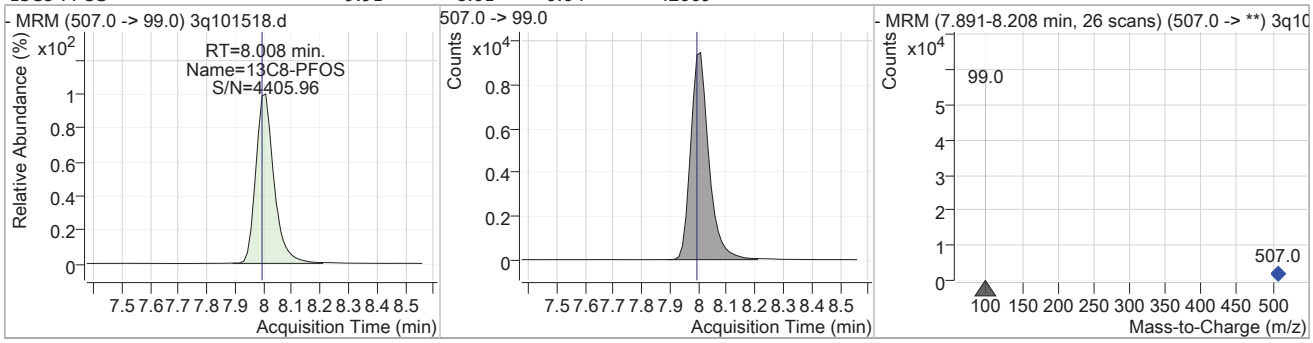
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	10.13	7.44	0.03	168790				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.90	7.45	0.03	294639				

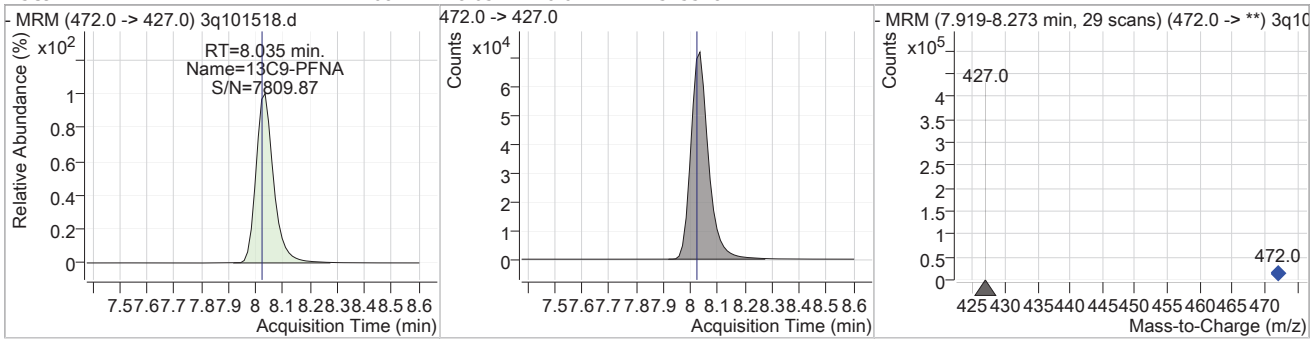


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	9.91	8.01	0.04	42009				

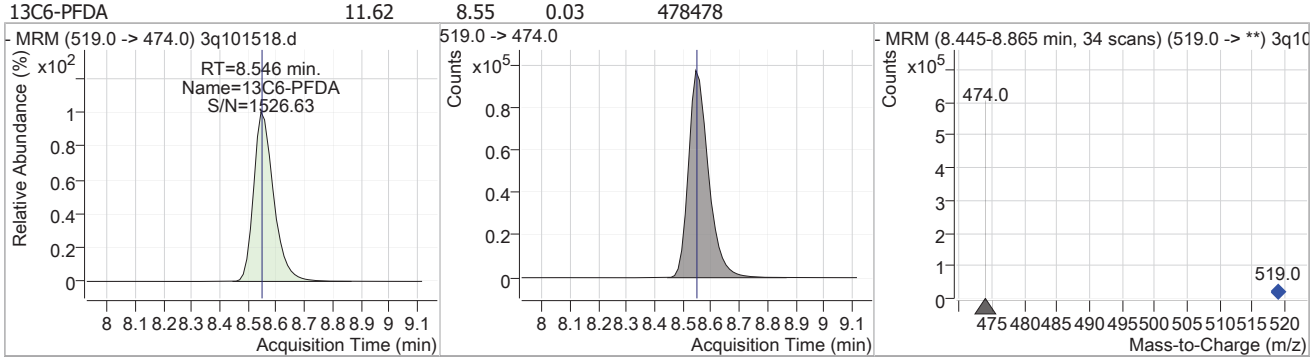


Perfluorinated Compounds by LC/MS/MS

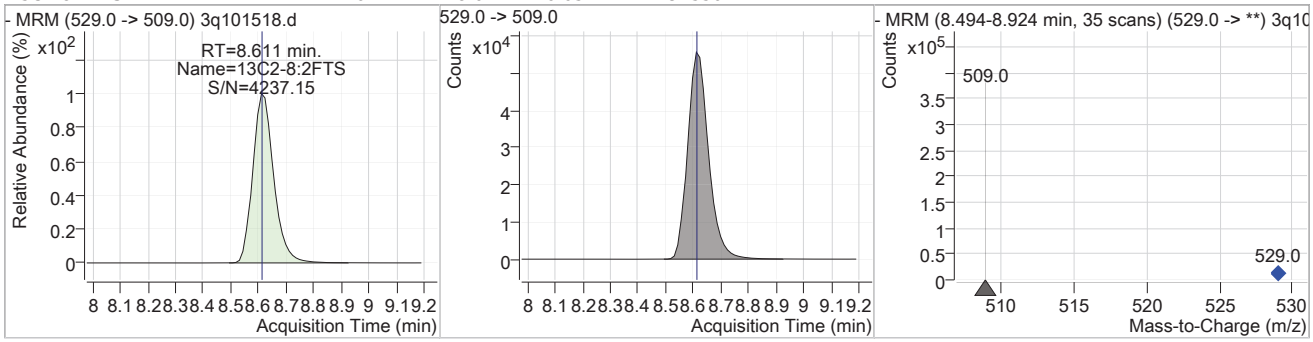
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	11.08	8.03	0.04	325328				



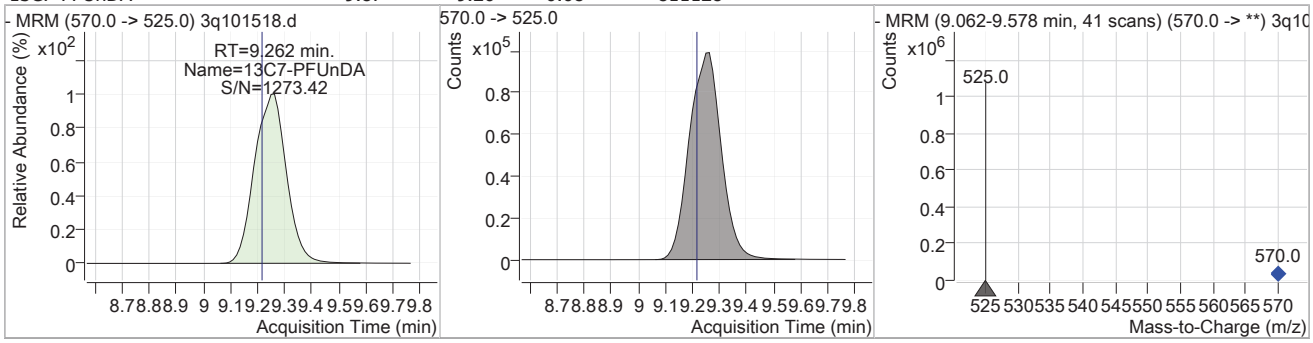
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	11.62	8.55	0.03	478478				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	10.47	8.61	0.03	292356				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	9.87	9.26	0.08	811128				



7.2.3

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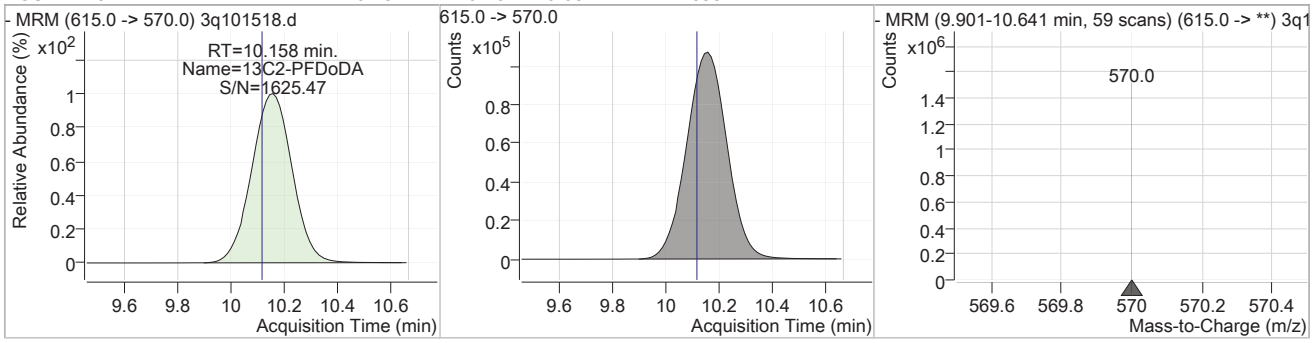
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.75	10.16	0.08	1126354				



7.2.3

7

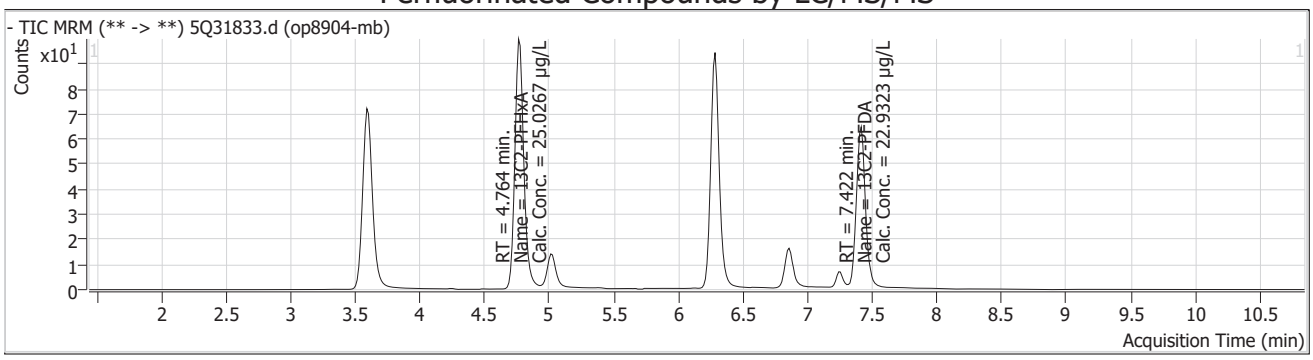
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31833.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 4:12:41 PM
Sample Name : op8904-mb
Vial : P2-E2
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8904,S5Q523,250,,,1,1,water

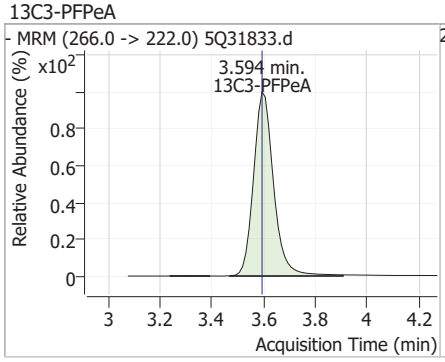
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-6:2FTS	6.275	429.0 -> 409.0	168937	20.00 µg/L	-0.012
13C2-PFOA	6.290	415.0 -> 370.0	371031	20.00 µg/L	0.000
13C3-PFPeA	3.594	266.0 -> 222.0	472936	20.00 µg/L	0.000
13C4-PFOS	6.860	503.0 -> 80.0	89729	20.00 µg/L	0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	28755	40.00 µg/L	-0.012
System Monitoring Compounds					
13C2-PFDA	7.422	515.0 -> 470.0	364133	22.93 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 114.7%	
13C2-PFHxA	4.764	315.0 -> 270.0	588378	25.03 µg/L	-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 125.1%	
d5-EtFOSAA	7.378	589.0 -> 419.0	23502	43.07 µg/L	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 107.7%	
13C3-HFPO-DA	5.020	287.0 -> 169.0	77307	46.53 µg/L	-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 116.3%	
Target Compounds					QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.	
8:2FTS	-	527.0 -> 507.0	-	N.D.	
EtFOSAA	-	584.0 -> 419.0	-	N.D.	
MeFOSAA	-	570.0 -> 419.0	-	N.D.	
PFBS	-	299.0 -> 80.0	-	N.D.	
PFDA	-	513.0 -> 469.0	-	N.D.	
PFDoDA	-	613.0 -> 569.0	-	N.D.	
PFHpA	-	363.0 -> 319.0	-	N.D.	
PFHxA	-	313.0 -> 269.0	-	N.D.	
PFHxS	-	399.0 -> 80.0	-	N.D.	
PFNA	-	463.0 -> 419.0	-	N.D.	
PFOA	-	413.0 -> 369.0	-	N.D.	
PFOS	-	499.0 -> 80.0	-	N.D.	
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	
ADONA	-	377.0 -> 251.0	-	N.D.	
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
HFPO-DA	-	285.0 -> 169.0	-	N.D.	

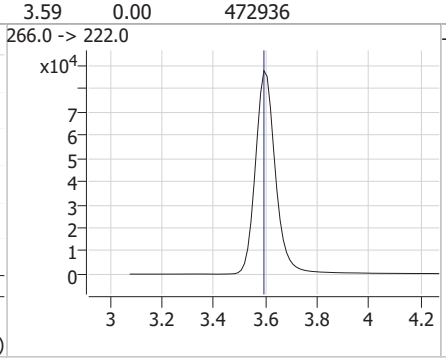
 # = Qualifier out of range, m = manually integrated, + = Area summed

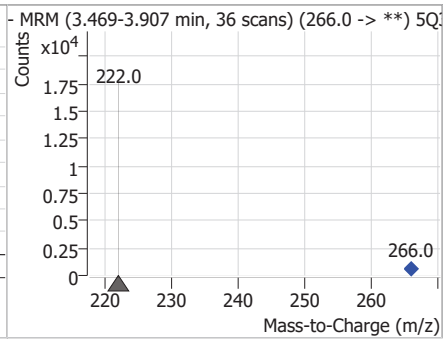
Perfluorinated Compounds by LC/MS/MS



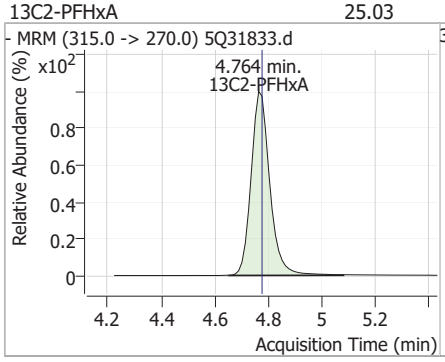
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	472936				

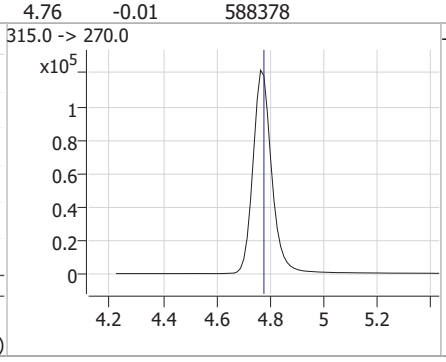


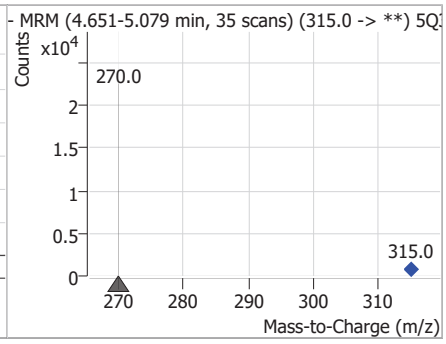




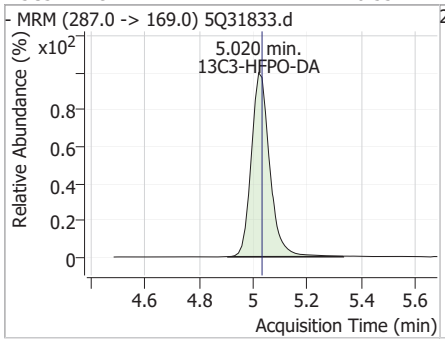
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	25.03	4.76	-0.01	588378				

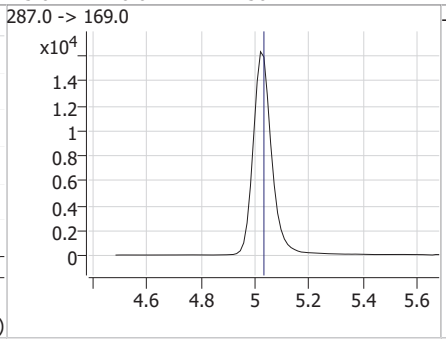


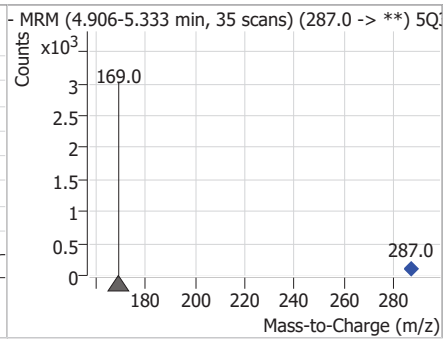




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	46.53	5.02	-0.01	77307				







7.2.4

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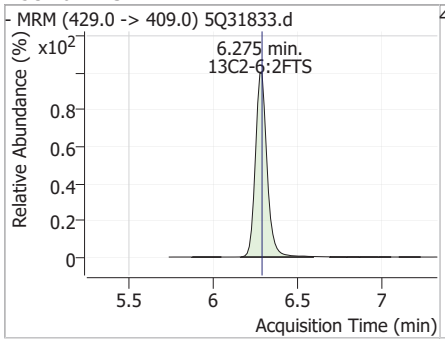
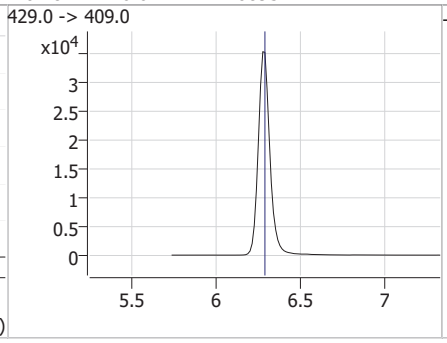
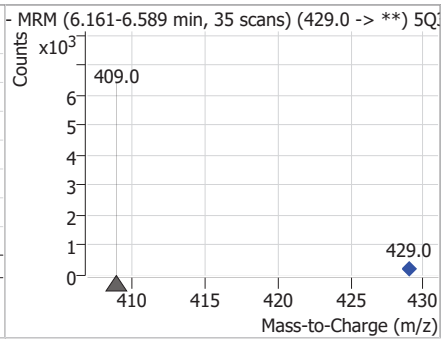
Perfluorinated Compounds by LC/MS/MS

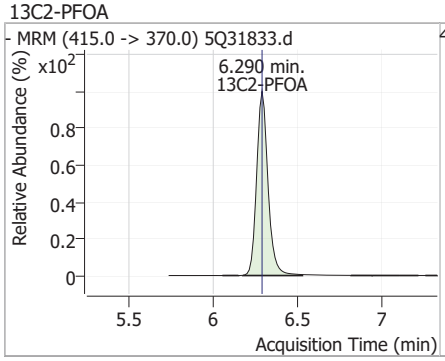
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	168937				

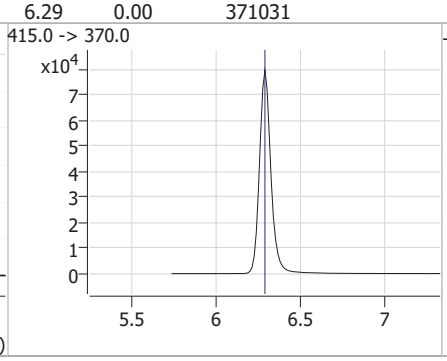


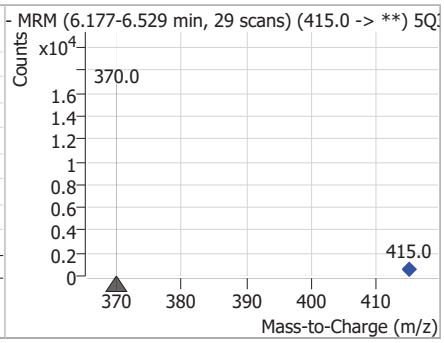




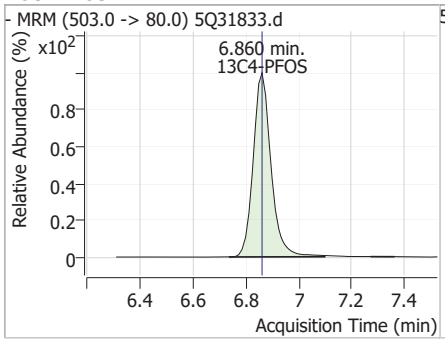
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	371031				

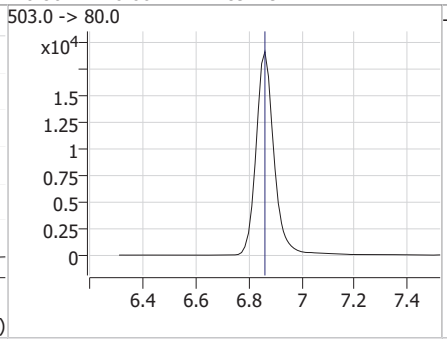


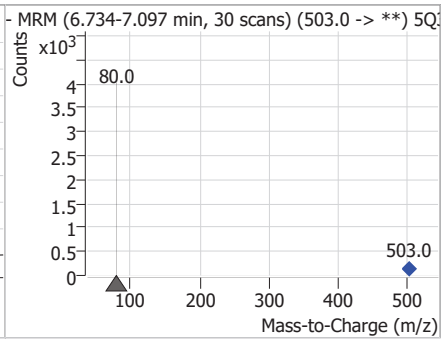




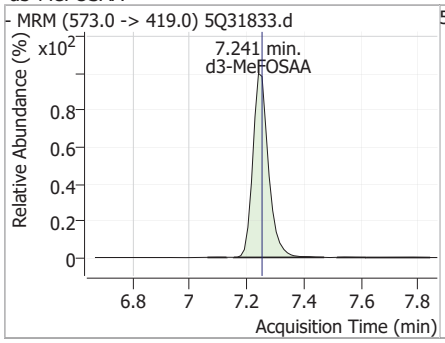
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	89729				

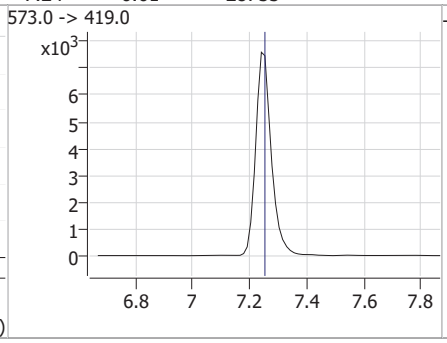


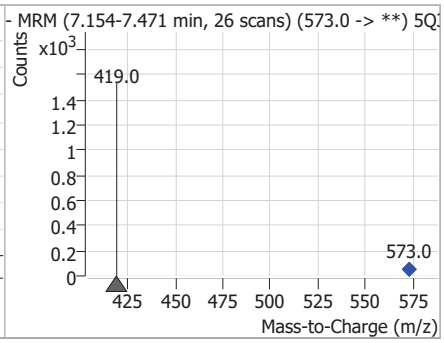




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	28755				

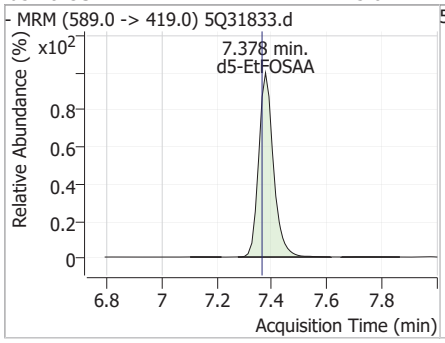


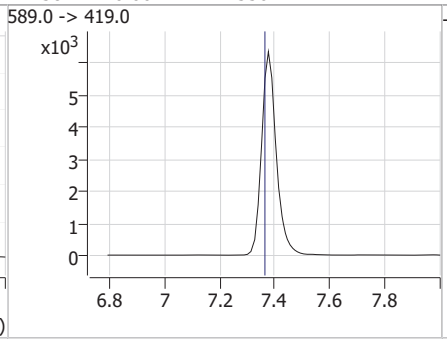


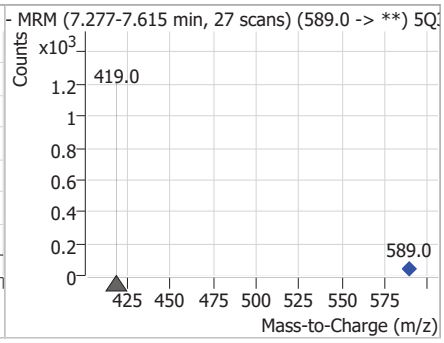


Perfluorinated Compounds by LC/MS/MS

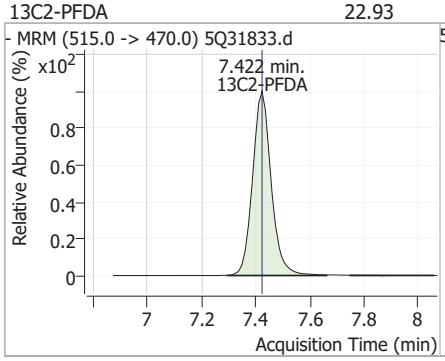
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	43.07	7.38	0.00	23502				

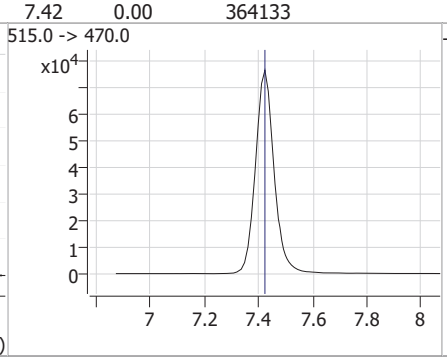


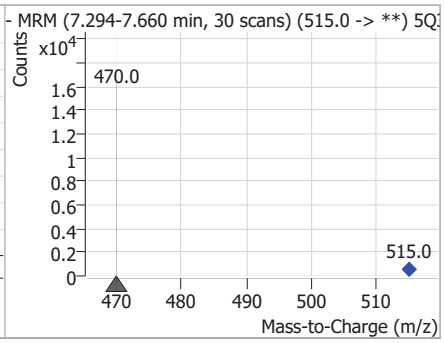




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	22.93	7.42	0.00	364133				







7.2.4

7

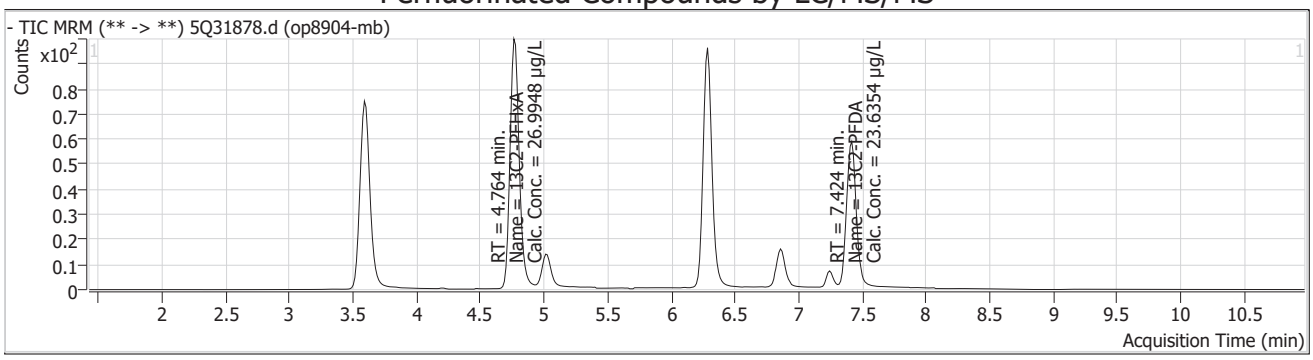
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31878.d
Operator : (b) (6)
Acq. Method : 537_5Q.m
Acq. Date-Time : 4/18/2025 5:30:08 PM
Sample Name : op8904-mb
Vial : P2-E2
DA Method File : 537_041825_S5Q524.quantmethod.xml
Batch Name : s5q524.batch.bin
Sample Information : OP8904,S5Q524,250,,,1,1,water

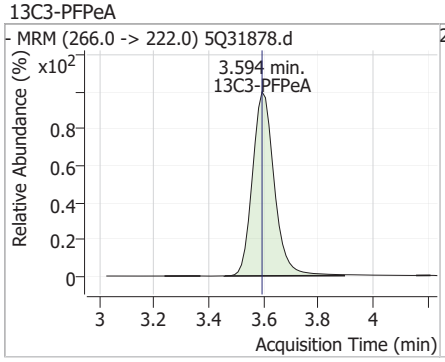
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.288	429.0 -> 409.0	119677	20.00	µg/L		0.012
13C2-PFOA	6.290	415.0 -> 370.0	258540	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	330693	20.00	µg/L		0.000
13C4-PFOS	6.861	503.0 -> 80.0	59906	20.00	µg/L		0.000
d3-MeFOSAA	7.243	573.0 -> 419.0	20977	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.424	515.0 -> 470.0	232148	23.64	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 118.2%			
13C2-PFHxA	4.764	315.0 -> 270.0	406055	26.99	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 135.0%			
d5-EtFOSAA	7.379	589.0 -> 419.0	18080	47.22	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 118.0%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	52380	50.84	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 127.1%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	-	363.0 -> 319.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	-	413.0 -> 369.0	-	N.D.			
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	5.022	285.0 -> 169.0	0		µg/L	m	1

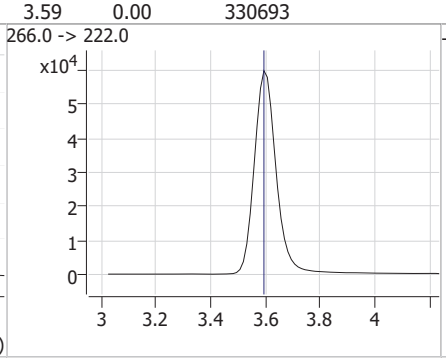
 # = Qualifier out of range, m = manually integrated, + = Area summed

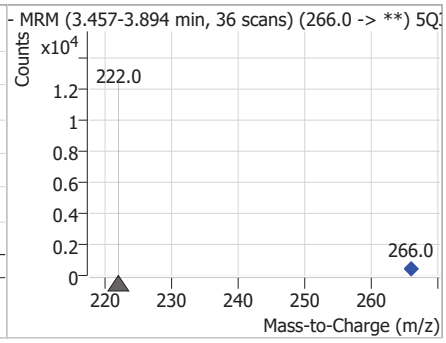
Perfluorinated Compounds by LC/MS/MS



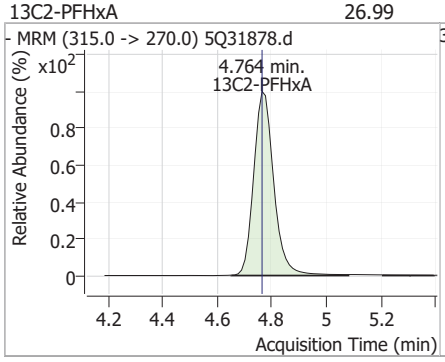
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	330693				

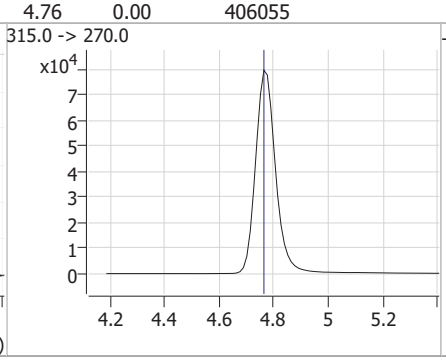


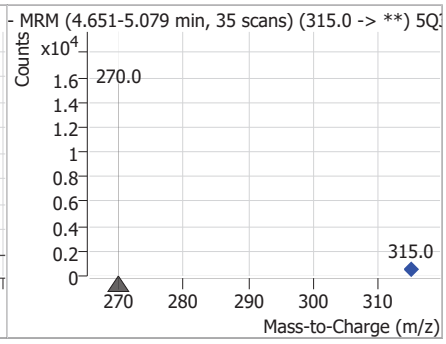




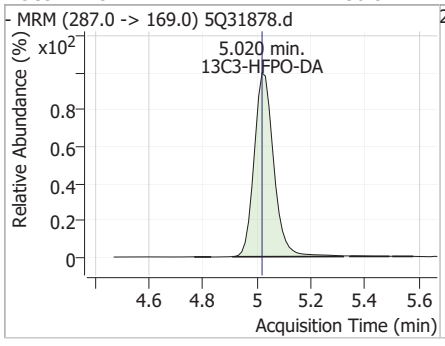
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	26.99	4.76	0.00	406055				

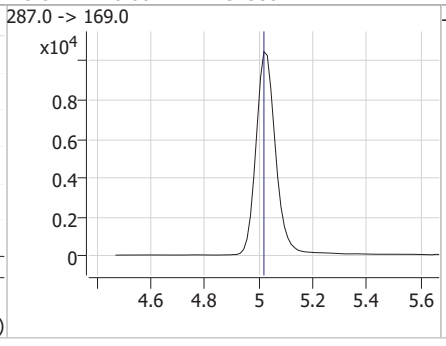


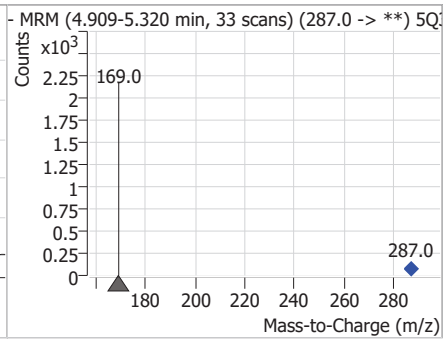




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	50.84	5.02	0.00	52380				





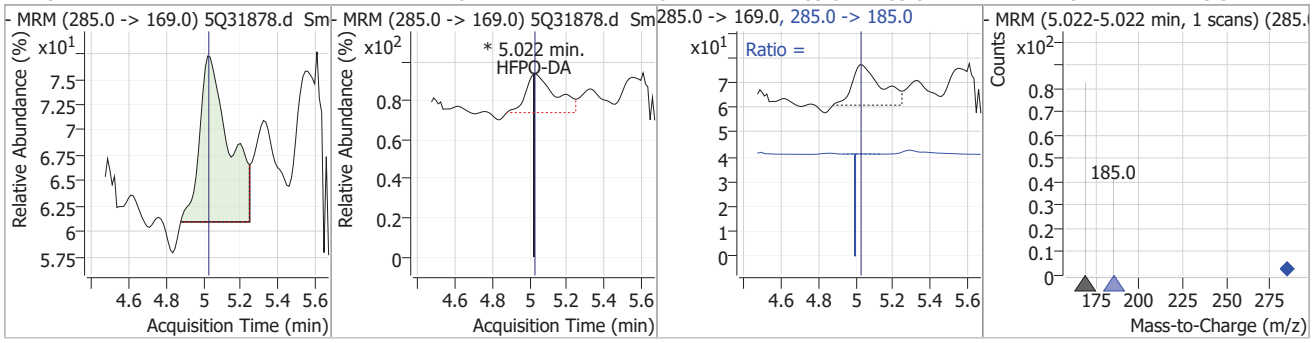


7.2.5

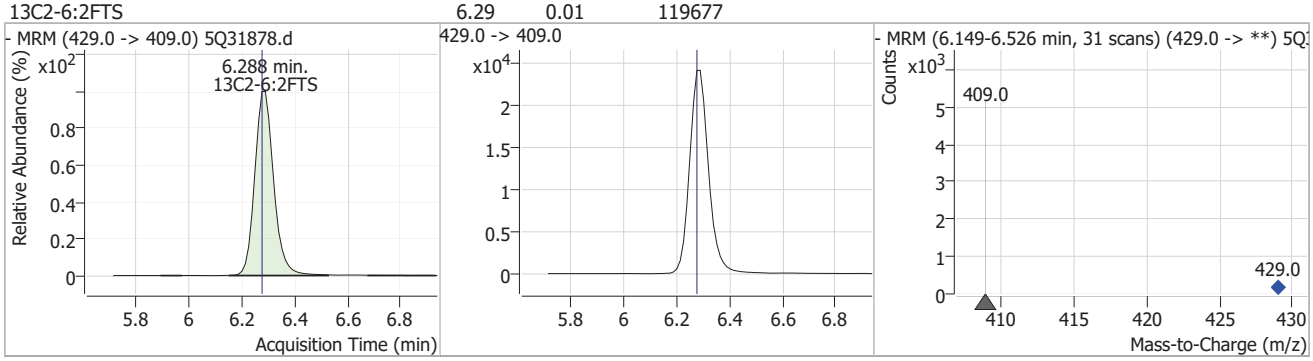
7

Perfluorinated Compounds by LC/MS/MS

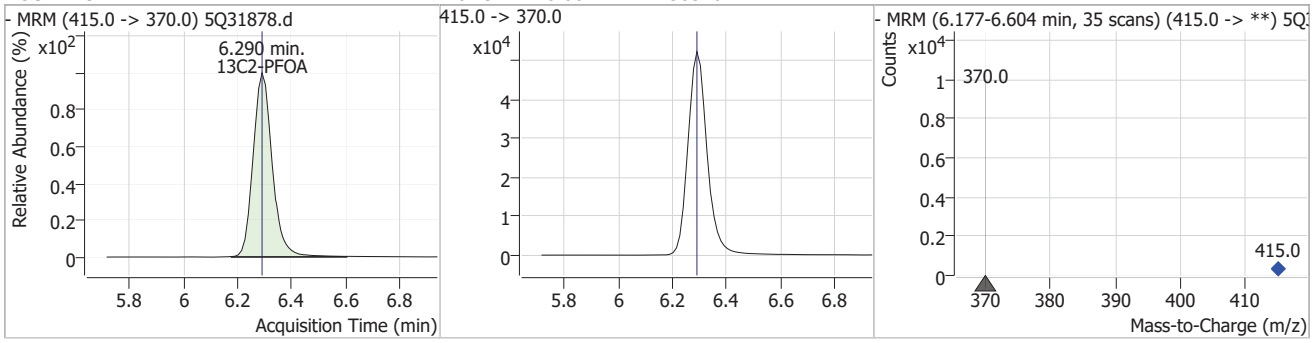
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA		0		0	285.0 -> 185.0		6.2	18.5



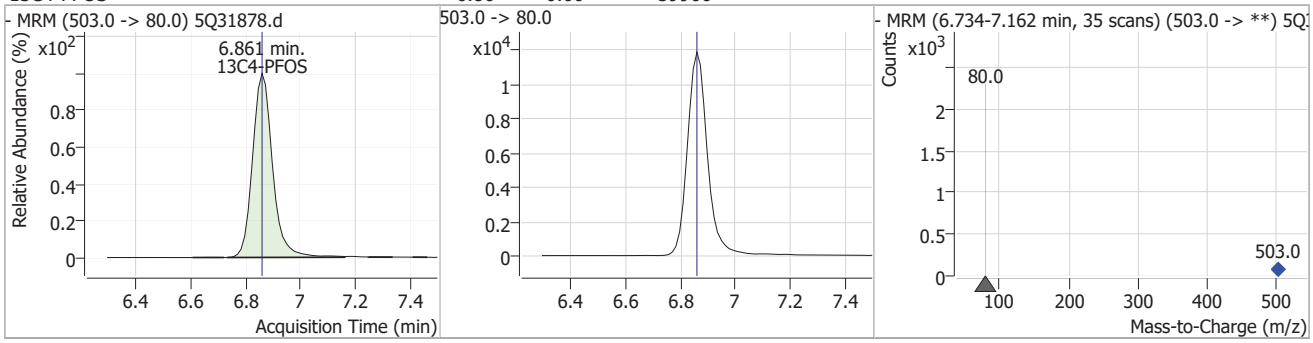
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.01	119677				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	258540				

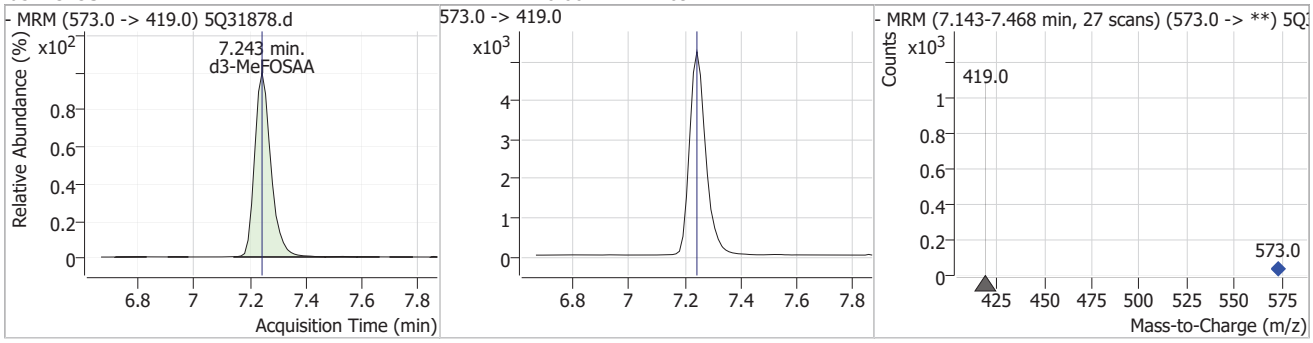


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	59906				

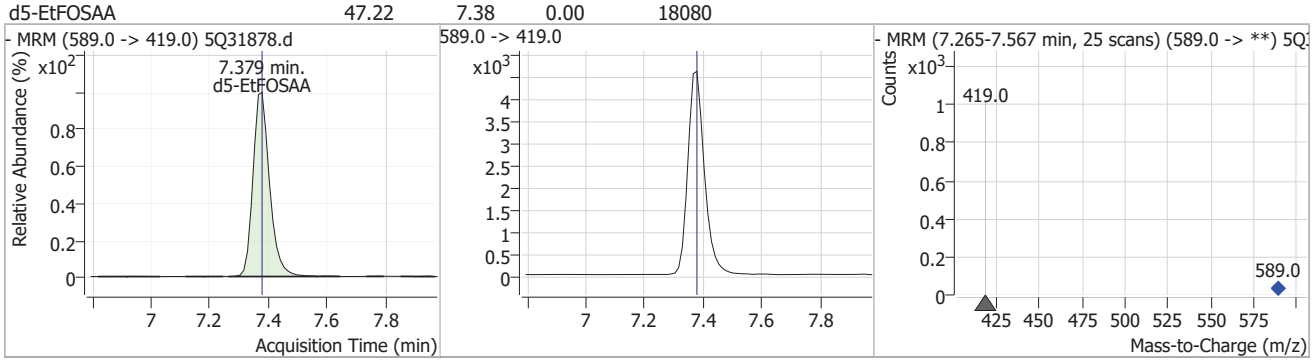


Perfluorinated Compounds by LC/MS/MS

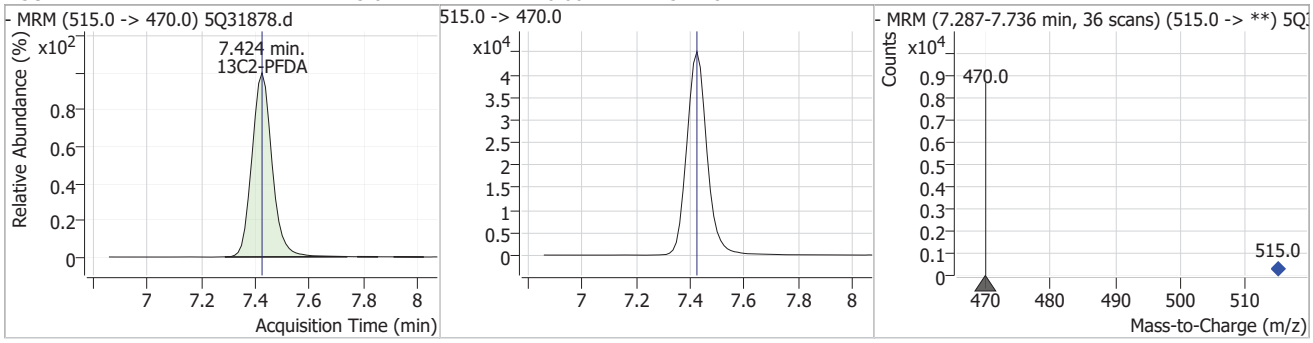
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	20977				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	47.22	7.38	0.00	18080				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	23.64	7.42	0.00	232148				



7.2.5

7

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 10:08

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101524.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/17/2025 11:55:29 AM
Sample Name : op8907-bs:1
Vial : P3-C1
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1494.batch.bin
Sample Information : op8907,S3Q1494,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.447	415.0 -> 370.0	253821	10.00 µg/L	0.025
13C3-PFBA	2.332	216.0 -> 172.0	98630	10.00 µg/L	-0.013
13C4-PFOS	7.995	503.0 -> 80.0	37068	10.00 µg/L	0.026
M4-PFBA	2.327	217.0 -> 172.0	134365	10.00 µg/L	-0.013
M5-PFPeA	4.425	268.0 -> 223.0	164014	10.00 µg/L	0.013
M5-PFHxA	5.788	318.0 -> 273.0	211166	10.00 µg/L	0.013
M4-PFHpA	6.719	367.0 -> 322.0	180407	10.00 µg/L	0.025
M8-PFOA	7.447	421.0 -> 376.0	235949	10.00 µg/L	0.025
M9-PFNA	8.022	472.0 -> 427.0	259828	10.00 µg/L	0.026
M6-PFDA	8.546	519.0 -> 474.0	393503	10.00 µg/L	0.025
M7-PFUnDA	9.237	570.0 -> 525.0	652517	10.00 µg/L	0.052
M2-PFDoDA	10.146	615.0 -> 570.0	754564	10.00 µg/L	0.063
M3-PFBS	4.721	302.0 -> 99.0	18590	10.00 µg/L	0.013
M3-PFHxS	6.749	402.0 -> 99.0	26512	10.00 µg/L	0.025
M8-PFOS	7.995	507.0 -> 99.0	34216	10.00 µg/L	0.026
M2-4:2FTS	5.684	329.0 -> 309.0	69805	10.00 µg/L	0.013
M2-6:2FTS	7.445	429.0 -> 409.0	131986	10.00 µg/L	0.025
M2-8:2FTS	8.611	529.0 -> 509.0	216589	10.00 µg/L	0.026
M3-HFPO-DA	6.081	287.0 -> 169.0	2564	10.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.684	329.0 -> 309.0	69805	7.91 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.1%	
13C2-6:2FTS	7.445	429.0 -> 409.0	131986	7.97 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.7%	
13C2-8:2FTS	8.611	529.0 -> 509.0	216589	7.80 µg/L	0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.0%	
13C2-PFDoDA	10.146	615.0 -> 570.0	754564	6.98 µg/L	0.063
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 69.8%	
13C3-PFBS	4.721	302.0 -> 99.0	18590	8.04 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.4%	
13C3-PFHxS	6.749	402.0 -> 99.0	26512	8.05 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.5%	
13C4-PFBA	2.327	217.0 -> 172.0	134365	8.03 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.3%	
13C4-PFHpA	6.719	367.0 -> 322.0	180407	8.40 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 84.0%	
13C5-PFHxA	5.788	318.0 -> 273.0	211166	8.21 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.1%	
13C5-PFPeA	4.425	268.0 -> 223.0	164014	8.13 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.3%	
13C6-PFDA	8.546	519.0 -> 474.0	393503	9.27 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.7%	
13C7-PFUnDA	9.237	570.0 -> 525.0	652517	7.69 µg/L	0.052
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.9%	
13C8-PFOA	7.447	421.0 -> 376.0	235949	8.46 µg/L	0.025

Perfluorinated Compounds by LC/MS/MS

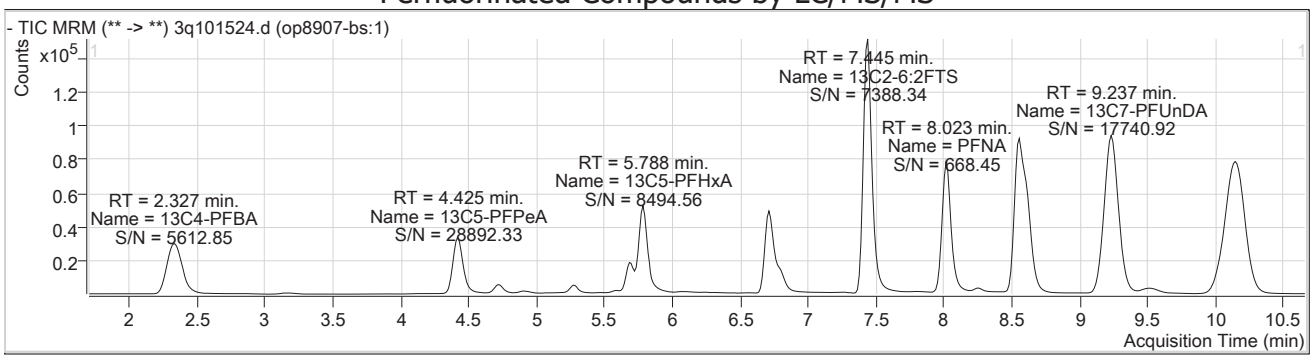
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 84.6%		
13C8-PFOS	7.995	507.0 -> 99.0	34216	8.12 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.2%		
13C9-PFNA	8.022	472.0 -> 427.0	259828	8.58 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 85.8%		
13C3-HFPO-DA	6.081	287.0 -> 169.0	2564	6.94 µg/L		0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 69.4%		
Target Compounds						QValue
PFMPA	3.166	229.0 -> 85.0	4826	1.11 µg/L		100
4:2FTS	5.686	327.0 -> 307.0	8573	1.01 µg/L		91
		327.0 -> 81.0	4144			
6:2FTS	7.445	427.0 -> 407.0	12831	1.14 µg/L		99
		427.0 -> 81.0	5621			
8:2FTS	8.612	527.0 -> 507.0	19400	1.30 µg/L		96
		527.0 -> 81.0	7422			
PFMBA	4.913	279.0 -> 85.0	6414	1.06 µg/L		100
PFEESA	5.274	315.0 -> 135.0	18020	1.07 µg/L		100
		315.0 -> 69.0	1371			
NFDHA	5.594	201.0 -> 85.0	5901	1.12 µg/L		98
		295.0 -> 201.0	338			
PFBA	2.336	213.0 -> 169.0	4127	1.11 µg/L		100
PFBS	4.722	299.0 -> 80.0	3915	1.04 µg/L		95
		299.0 -> 99.0	1756			
PFDA	8.546	513.0 -> 469.0	23193	1.04 µg/L		98
		513.0 -> 219.0	5122			
PFDoDA	10.150	613.0 -> 569.0	54181	1.08 µg/L		97
		613.0 -> 169.0	5256			
PFHpA	6.720	363.0 -> 319.0	25419	1.00 µg/L		99
		363.0 -> 169.0	2160			
PFHpS	7.431	449.0 -> 80.0	5618	1.16 µg/L		98
		449.0 -> 99.0	3047			
PFHxA	5.791	313.0 -> 269.0	20347	1.02 µg/L		99
		313.0 -> 119.0	748			
PFHxS	6.738	399.0 -> 80.0	5198	1.11 µg/L	m	98
		399.0 -> 99.0	2762			
PFNA	8.023	463.0 -> 419.0	22395	1.05 µg/L		98
		463.0 -> 219.0	6445			
PFOA	7.448	413.0 -> 369.0	18905	1.04 µg/L		99
		413.0 -> 169.0	7181			
PFOS	7.996	499.0 -> 80.0	5896	1.08 µg/L	m	96
		499.0 -> 99.0	3215			
PFPeA	4.427	263.0 -> 219.0	13294	1.07 µg/L		100
PFPeS	5.896	349.0 -> 80.0	2916	1.08 µg/L		100
		349.0 -> 99.0	1232			
PFUnDA	9.239	563.0 -> 519.0	45348	1.08 µg/L		95
		563.0 -> 269.0	7878			
11Cl-PF3OUdS	9.520	631.0 -> 451.0	23183	0.91 µg/L		100
		631.0 -> 83.0	1157			
9Cl-PF3ONS	8.254	531.0 -> 351.0	8793	1.00 µg/L		98
		531.0 -> 83.0	520			
ADONA	6.805	377.0 -> 251.0	38726	0.99 µg/L		100
		377.0 -> 85.0	4668			
HFPO-DA	6.073	329.0 -> 169.0	72	1.12 µg/L		71
		285.0 -> 169.0	137			

 # = Qualifier out of range, m = manually integrated, + = Area summed

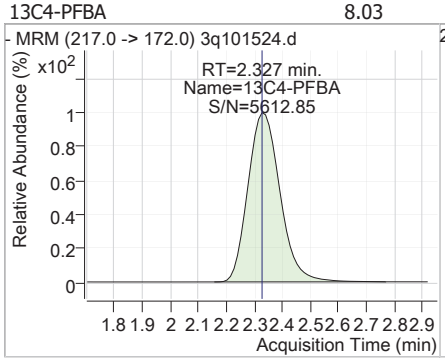
Perfluorinated Compounds by LC/MS/MS

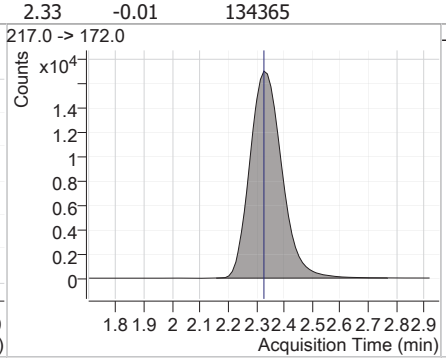
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

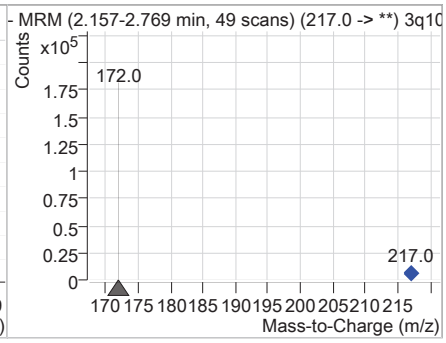
Perfluorinated Compounds by LC/MS/MS



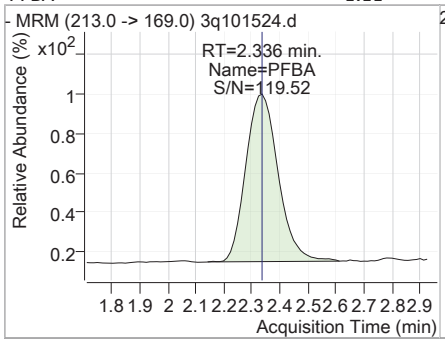
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	8.03	2.33	-0.01	134365				

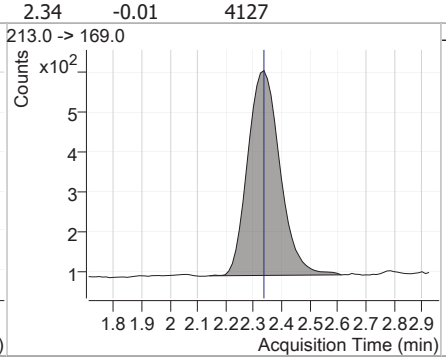


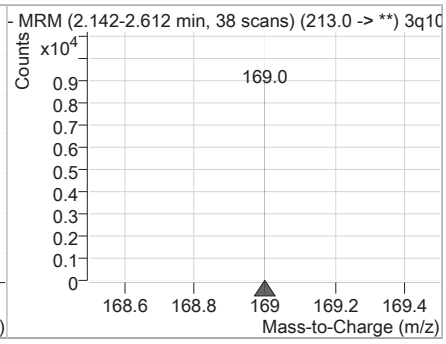




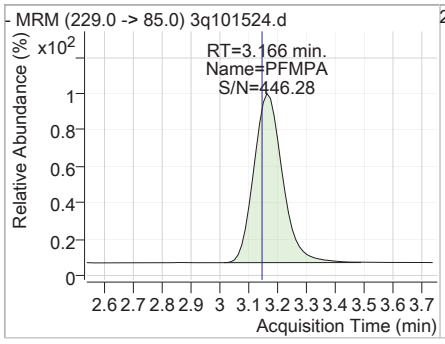
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	1.11	2.34	-0.01	4127				

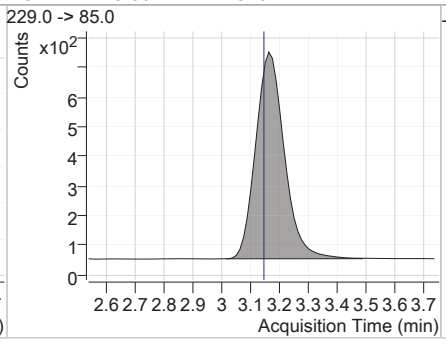


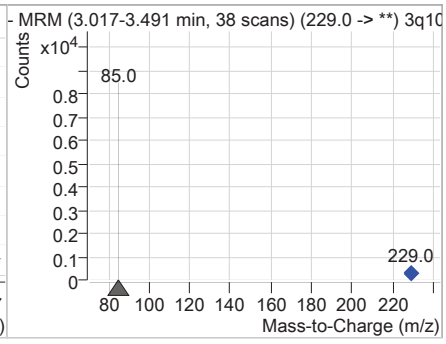




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	1.11	3.17	0.00	4826				





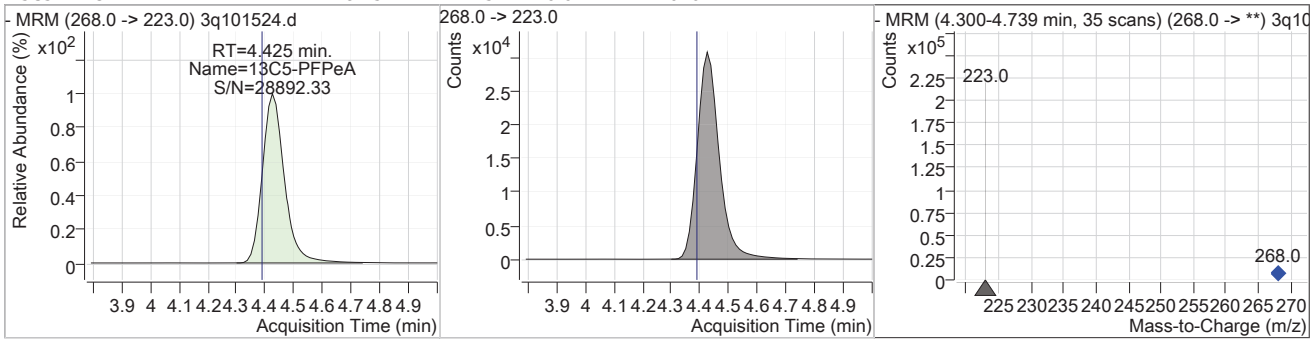


7.3.1

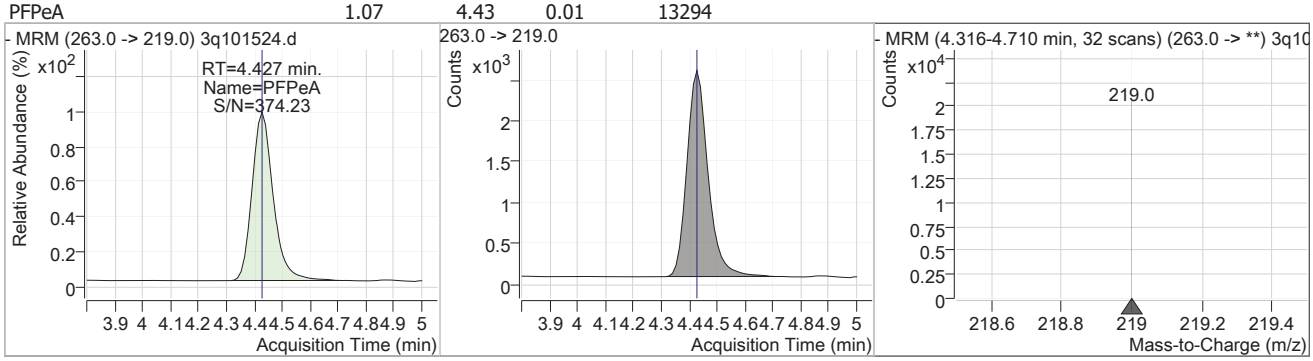
7

Perfluorinated Compounds by LC/MS/MS

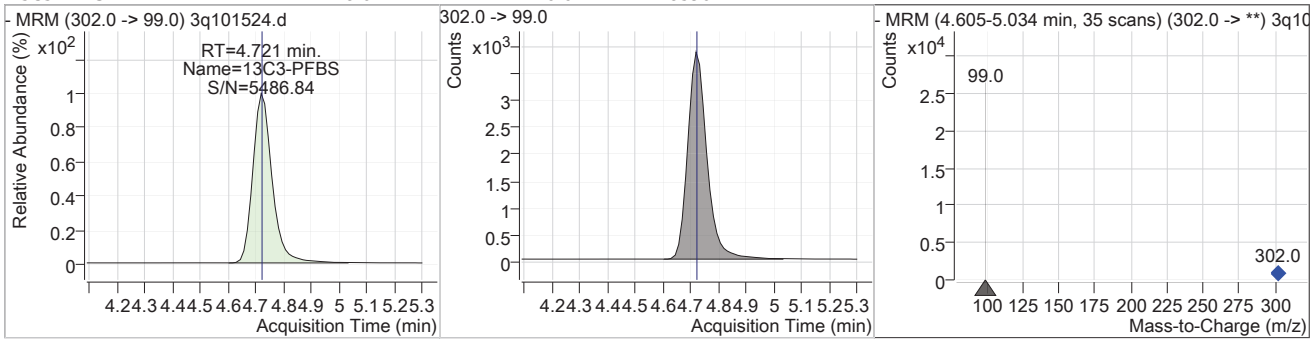
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	8.13	4.43	0.01	164014				



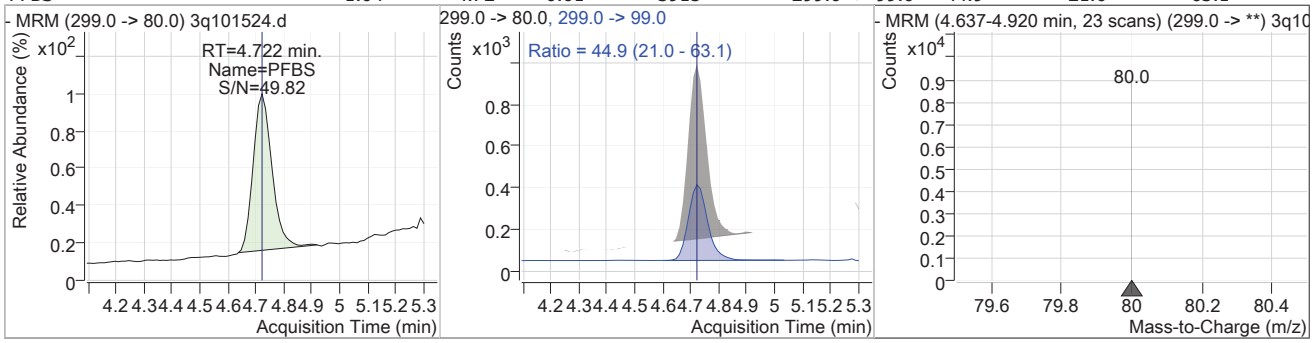
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.07	4.43	0.01	13294				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	8.04	4.72	0.01	18590				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.04	4.72	0.01	3915	299.0 -> 99.0	44.9	21.0	63.1

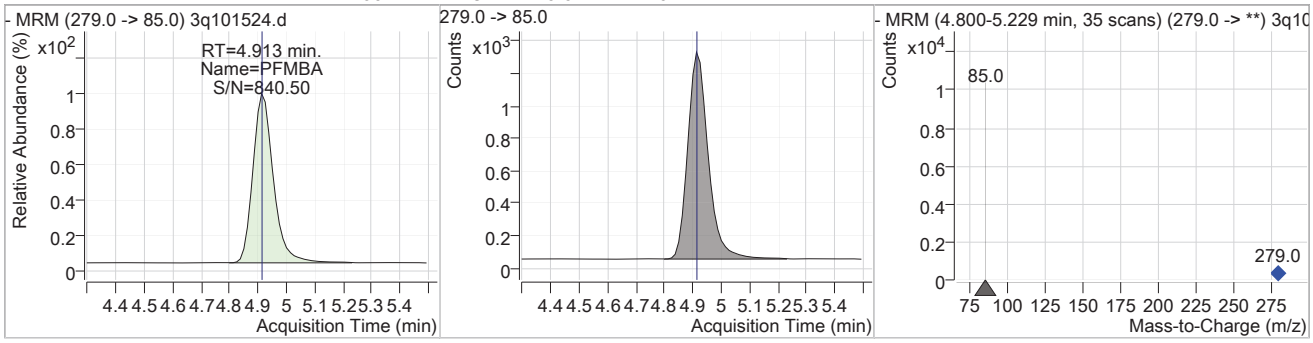


7.3.1

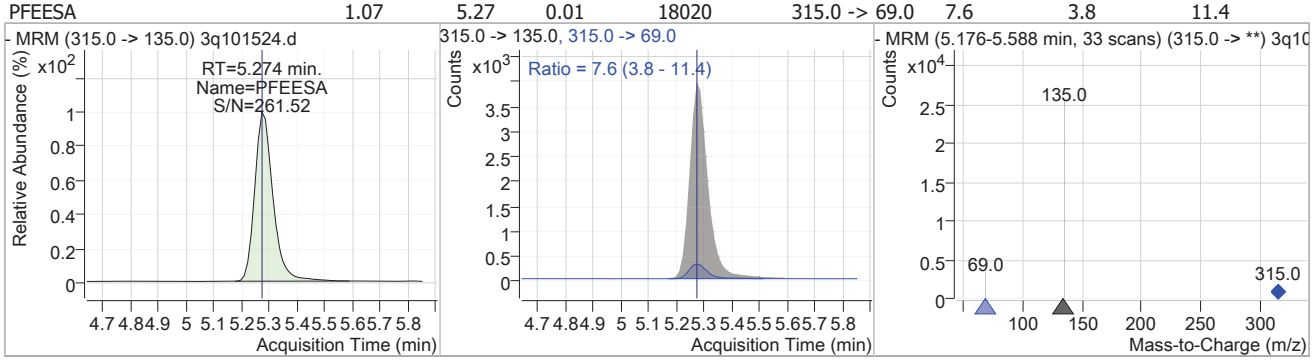
7

Perfluorinated Compounds by LC/MS/MS

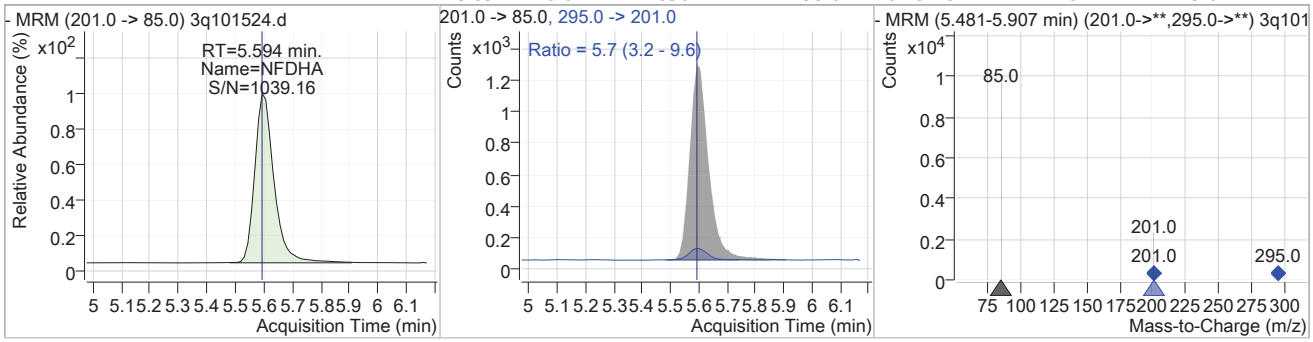
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	1.06	4.91	0.01	6414				



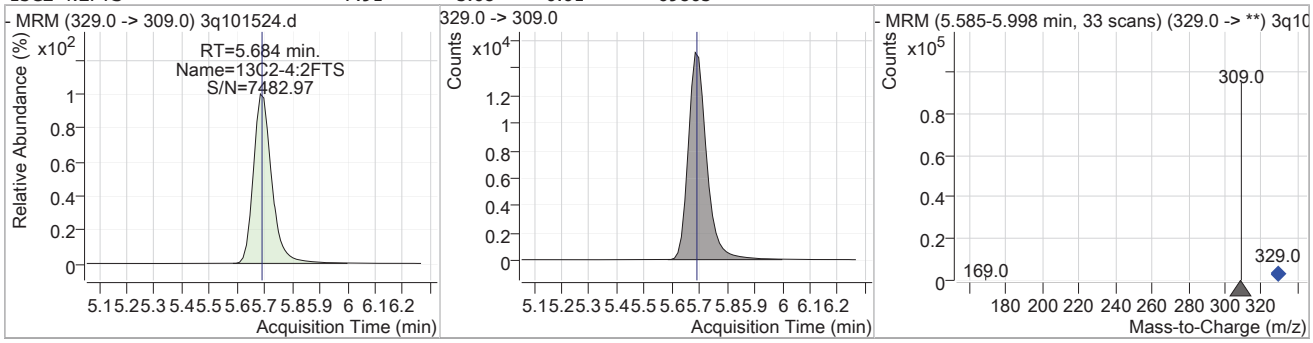
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	1.07	5.27	0.01	18020	315.0 -> 69.0	7.6	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	1.12	5.59	0.01	5901	295.0 -> 201.0	5.7	3.2	9.6

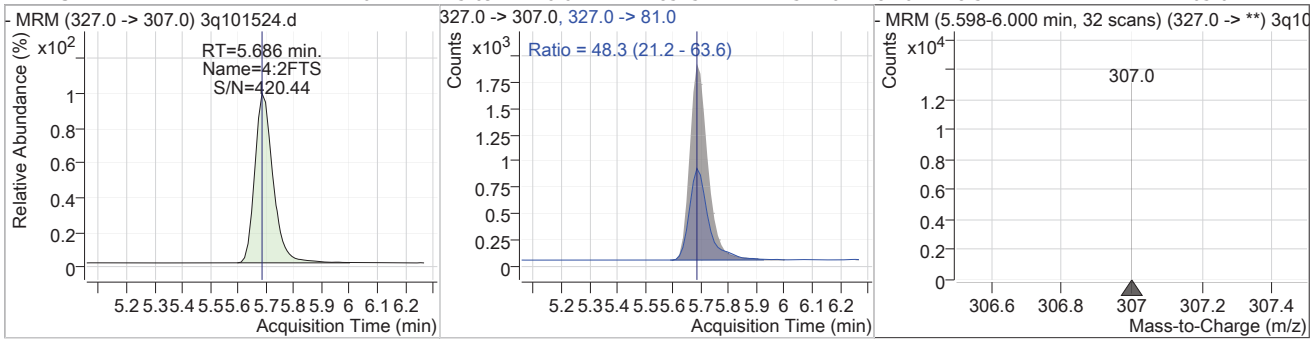


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	7.91	5.68	0.01	69805				

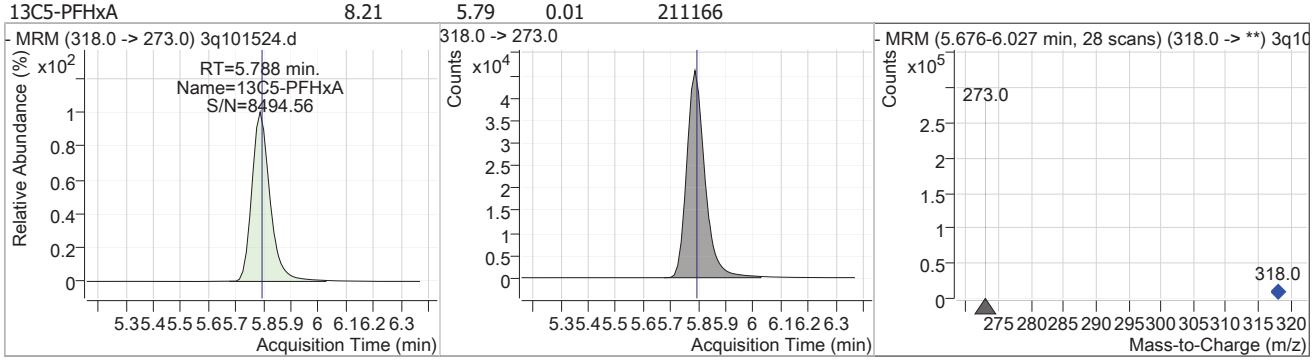


Perfluorinated Compounds by LC/MS/MS

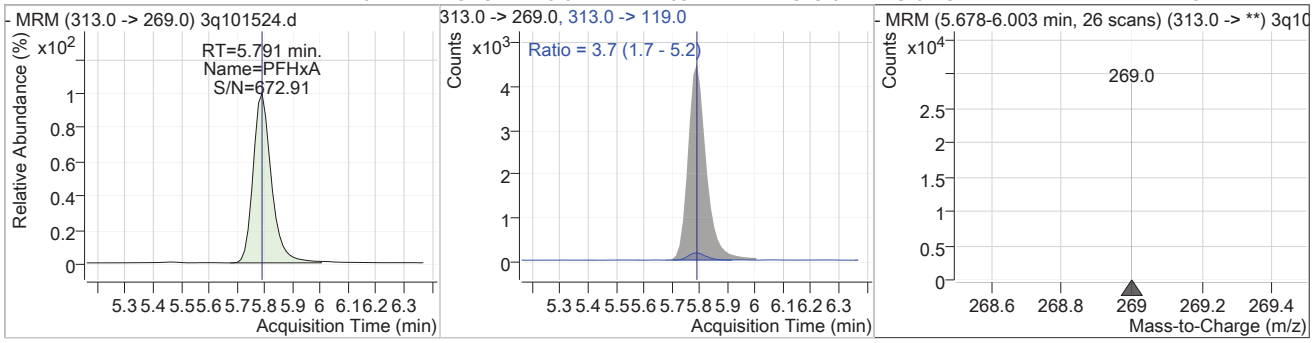
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	1.01	5.69	0.01	8573	327.0 -> 81.0	48.3	21.2	63.6



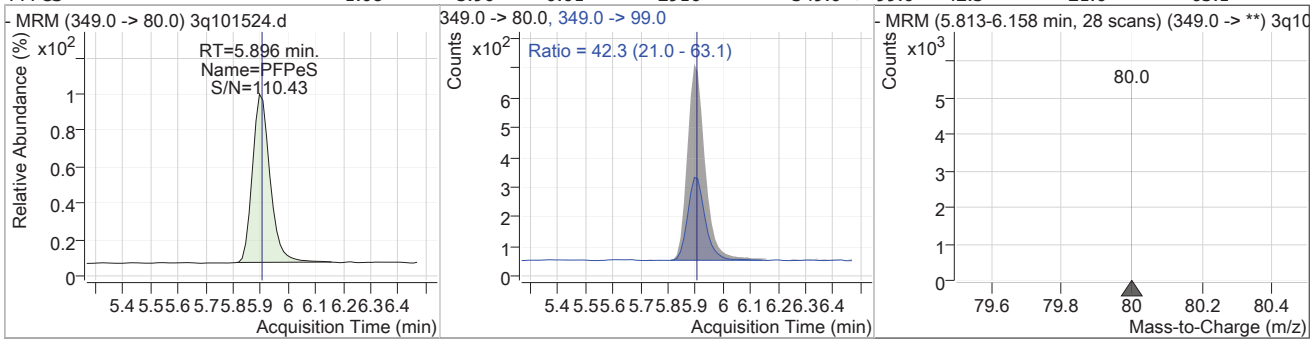
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	8.21	5.79	0.01	211166				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.02	5.79	0.01	20347	313.0 -> 119.0	3.7	1.7	5.2

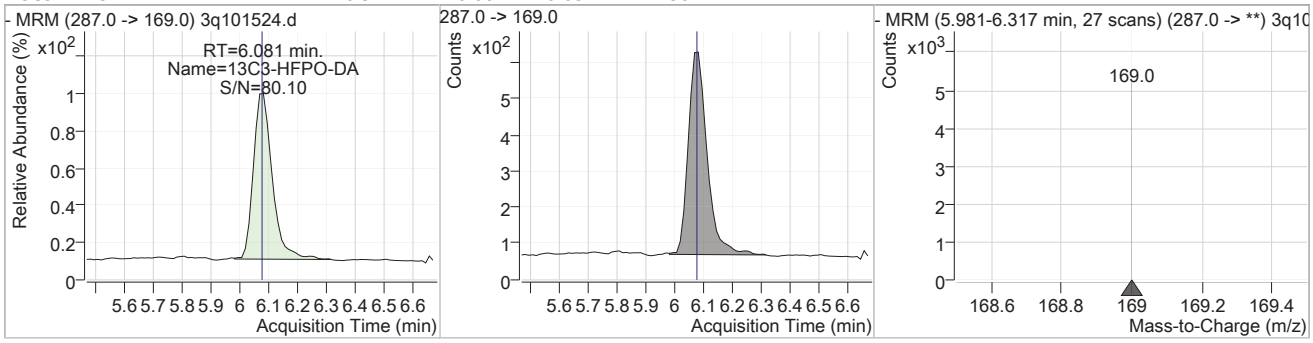


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	1.08	5.90	0.01	2916	349.0 -> 99.0	42.3	21.0	63.1

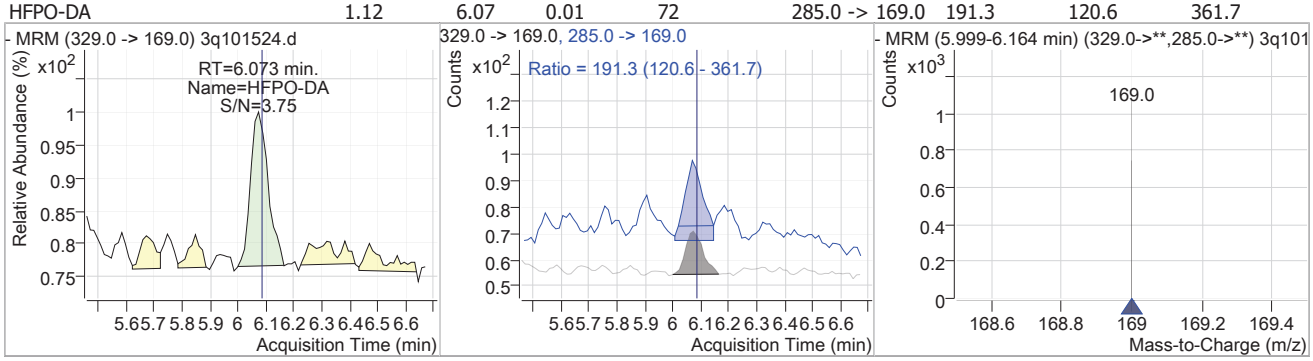


Perfluorinated Compounds by LC/MS/MS

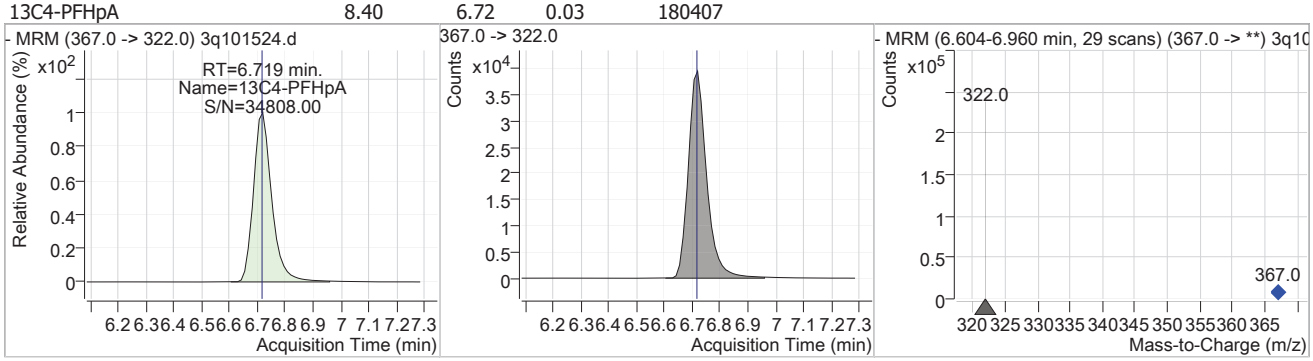
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	6.94	6.08	0.03	2564				



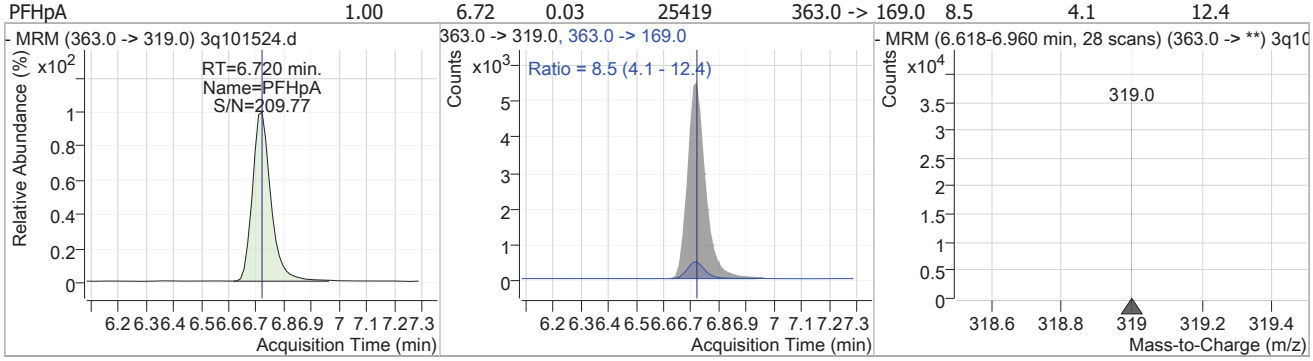
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	1.12	6.07	0.01	72	285.0 -> 169.0	191.3	120.6	361.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	8.40	6.72	0.03	180407				

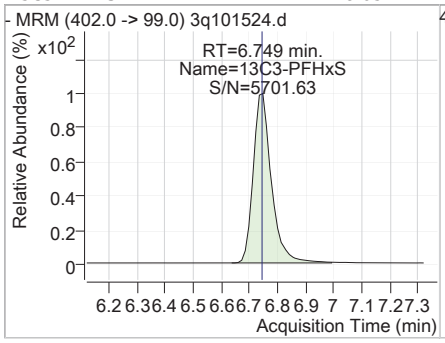


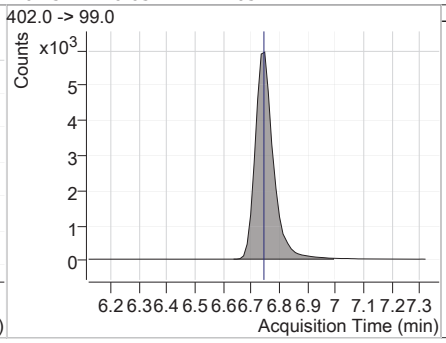
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.00	6.72	0.03	25419	363.0 -> 169.0	8.5	4.1	12.4

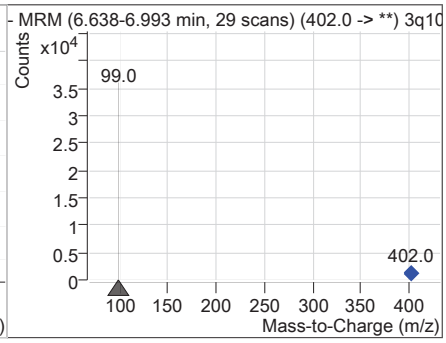


Perfluorinated Compounds by LC/MS/MS

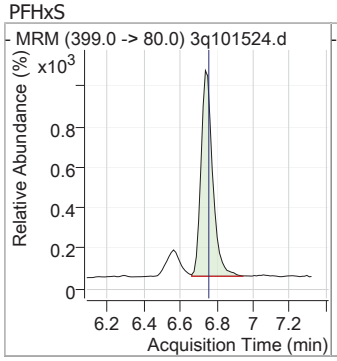
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	8.05	6.75	0.03	26512				

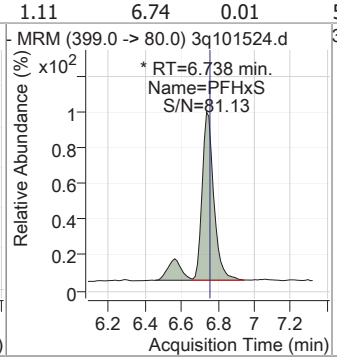


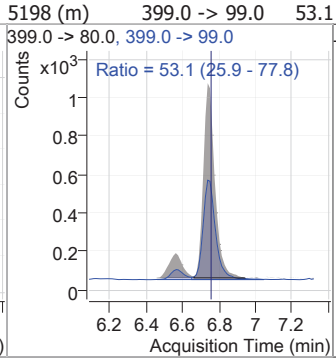


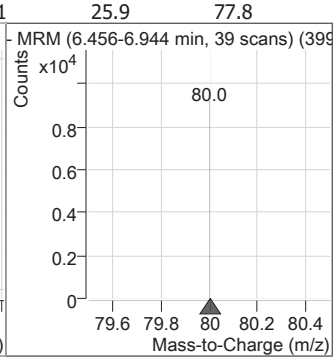


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.11	6.74	0.01	5198 (m)	399.0 -> 99.0	53.1	25.9	77.8

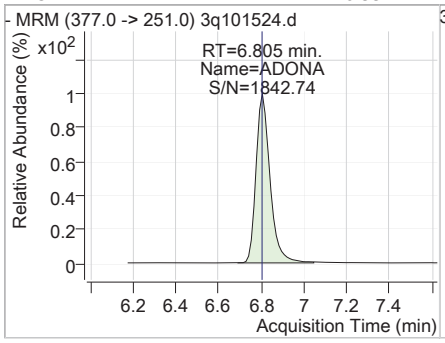


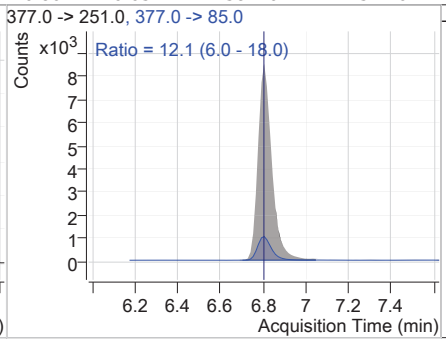


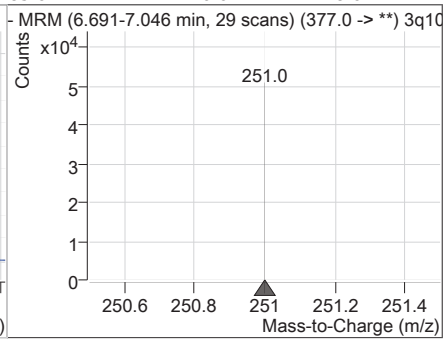




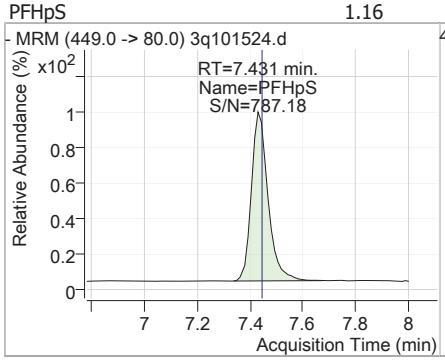
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.99	6.80	0.03	38726	377.0 -> 85.0	12.1	6.0	18.0

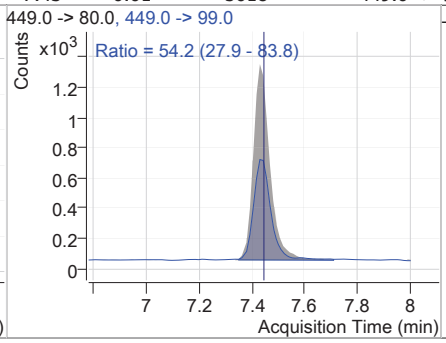


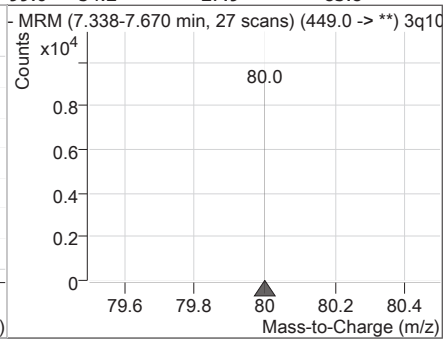




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	1.16	7.43	0.01	5618	449.0 -> 99.0	54.2	27.9	83.8

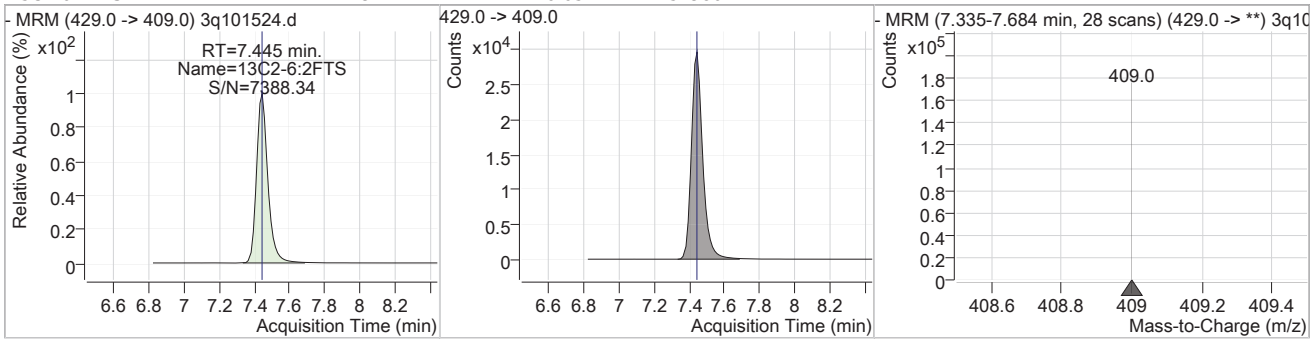




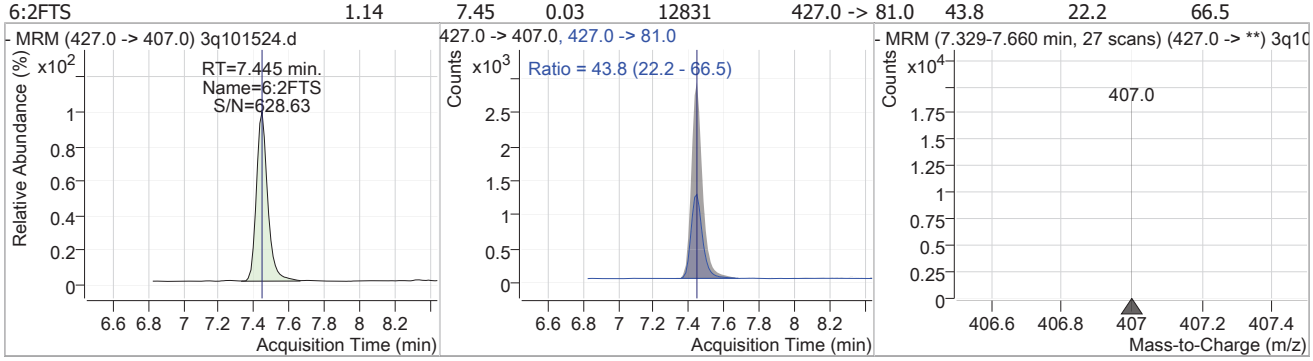


Perfluorinated Compounds by LC/MS/MS

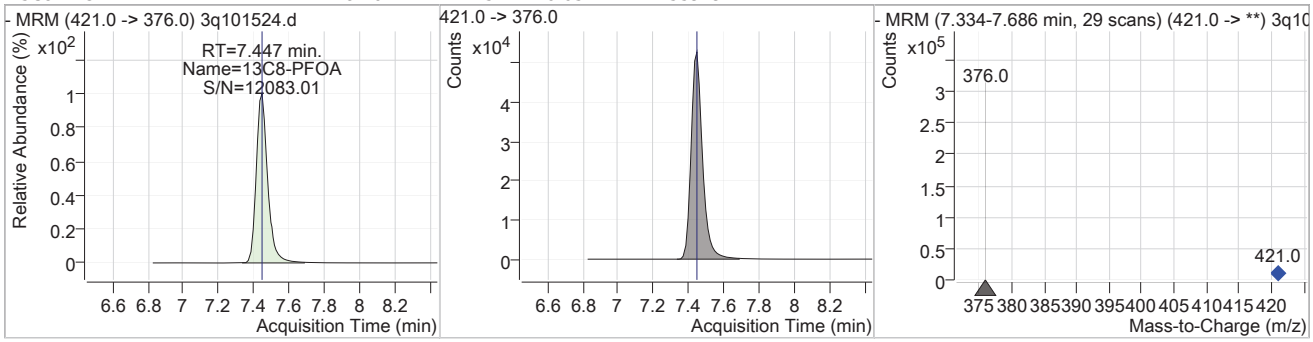
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	7.97	7.44	0.03	131986				



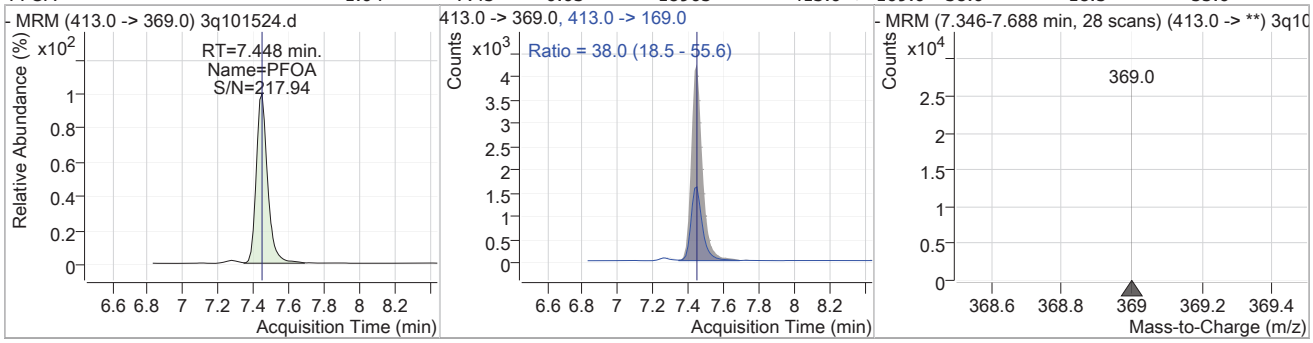
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.14	7.45	0.03	12831	427.0 -> 81.0	43.8	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	8.46	7.45	0.03	235949				

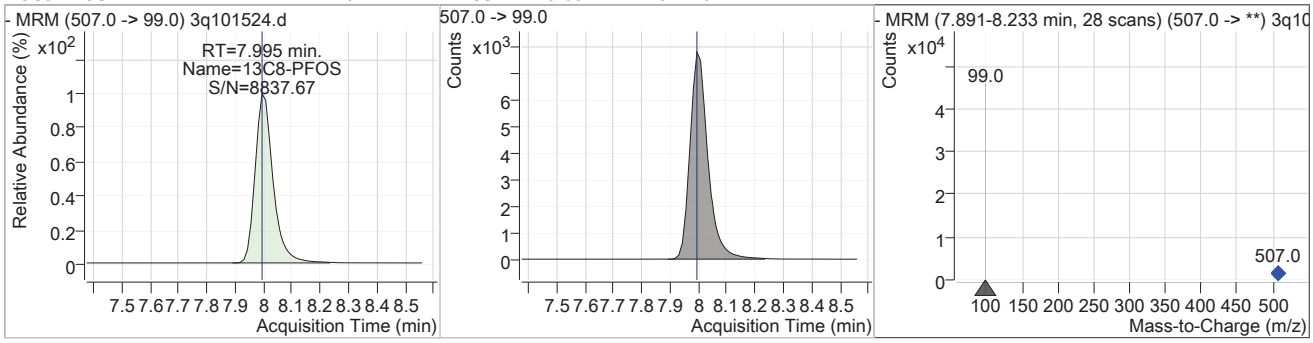


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.04	7.45	0.03	18905	413.0 -> 169.0	38.0	18.5	55.6

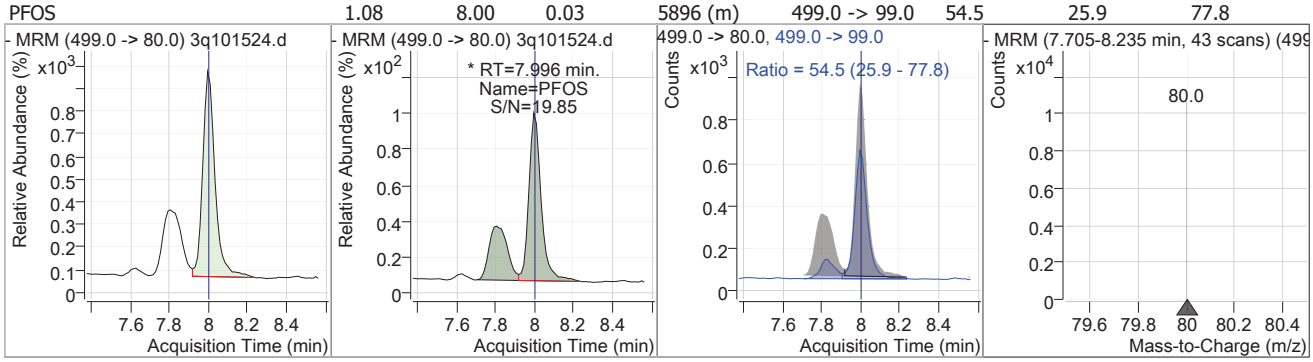


Perfluorinated Compounds by LC/MS/MS

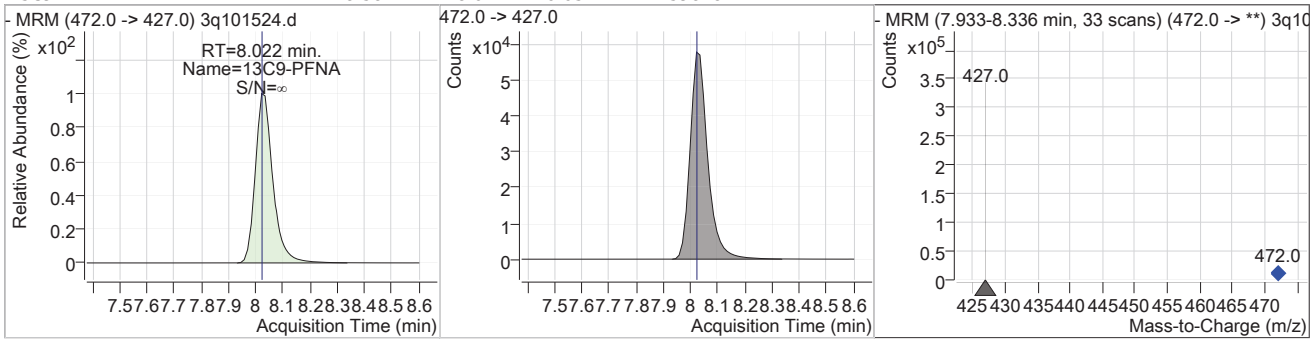
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	8.12	7.99	0.03	34216				



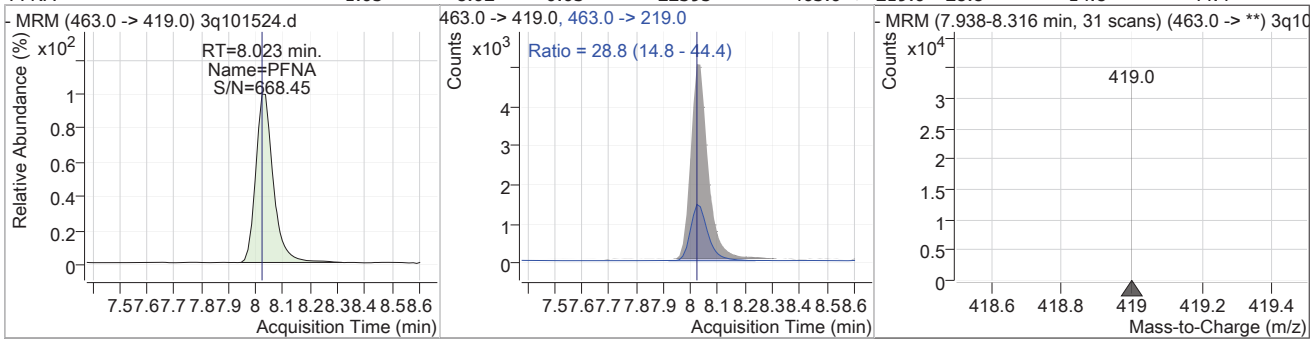
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.08	8.00	0.03	5896 (m)	499.0 -> 99.0	54.5	25.9	77.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	8.58	8.02	0.03	259828				

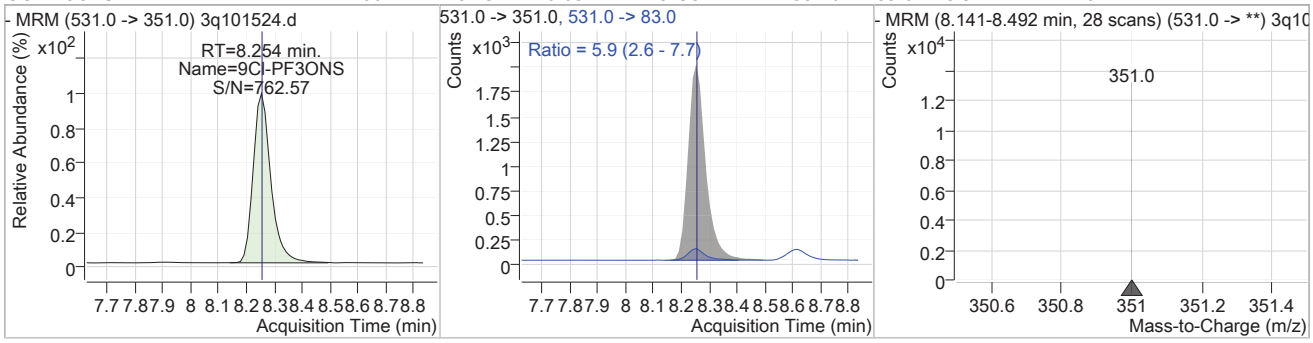


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.05	8.02	0.03	22395	463.0 -> 219.0	28.8	14.8	44.4

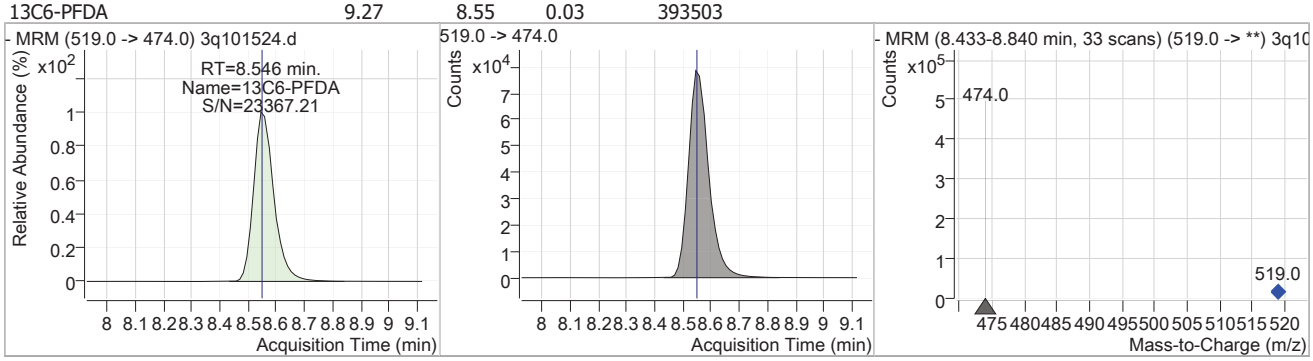


Perfluorinated Compounds by LC/MS/MS

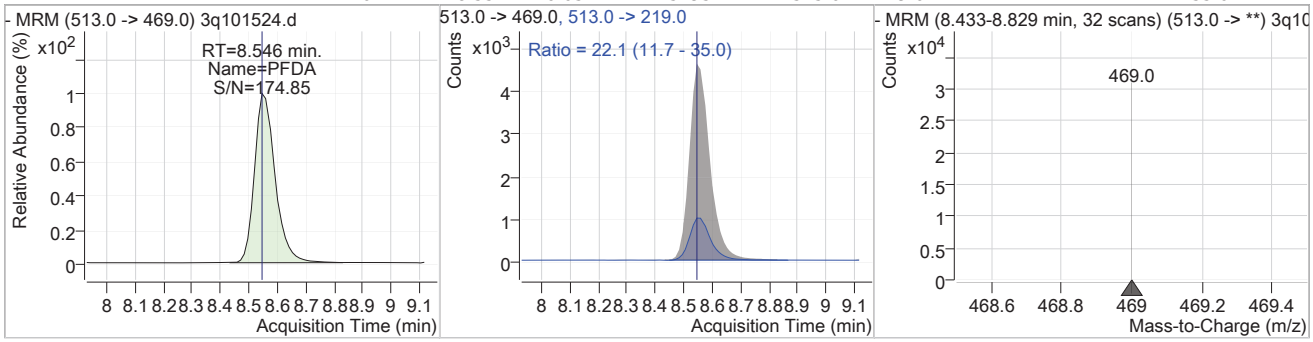
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	1.00	8.25	0.03	8793	531.0 -> 83.0	5.9	2.6	7.7



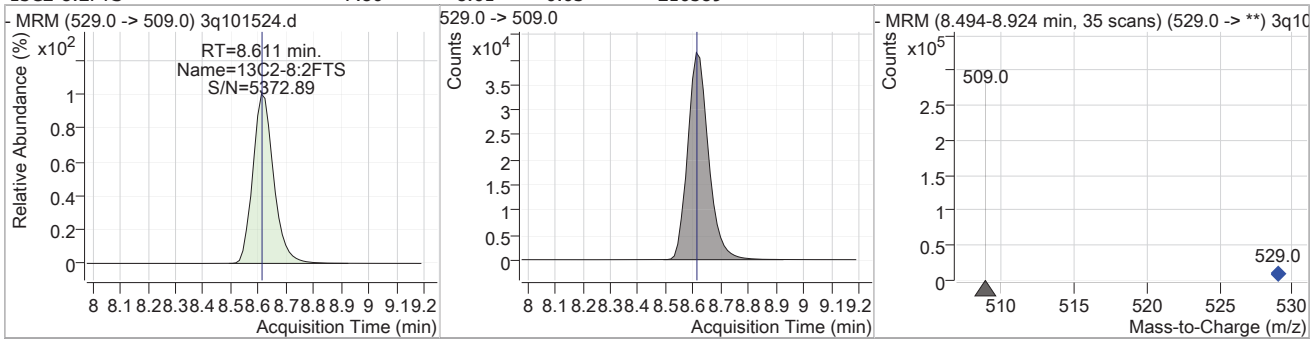
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	9.27	8.55	0.03	393503				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.04	8.55	0.03	23193	513.0 -> 219.0	22.1	11.7	35.0

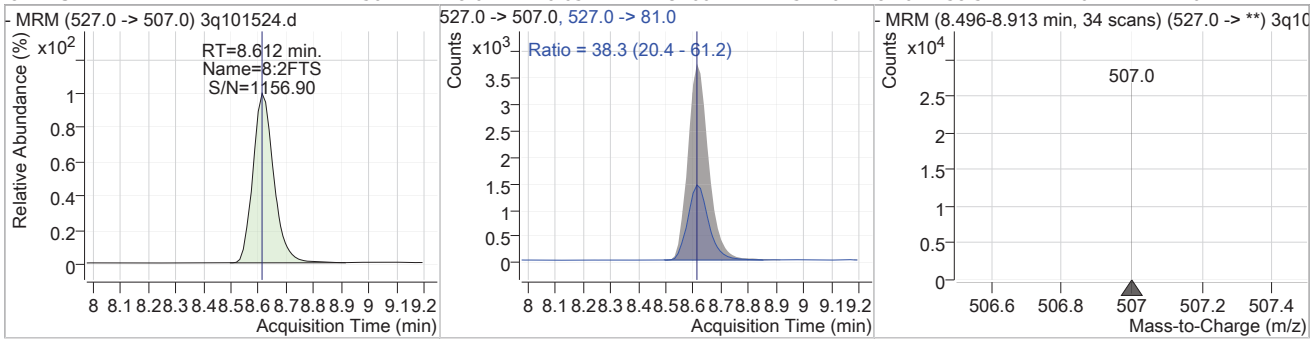


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	7.80	8.61	0.03	216589				

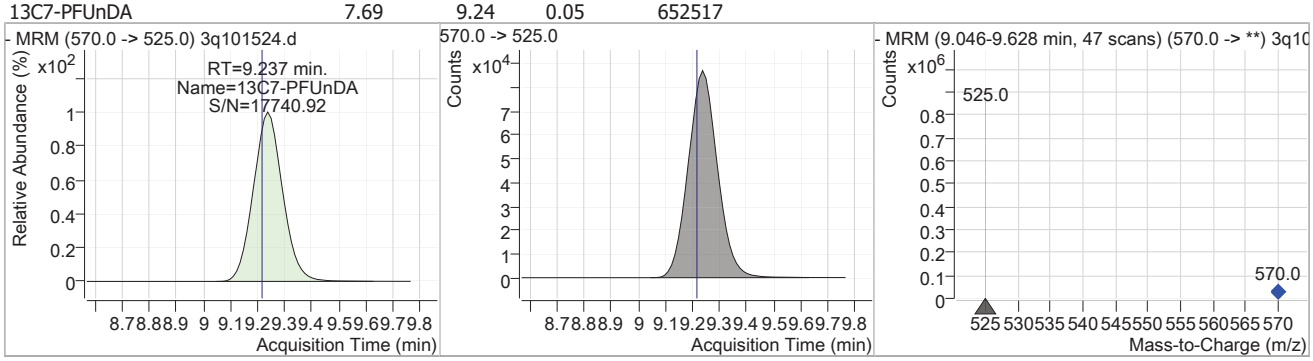


Perfluorinated Compounds by LC/MS/MS

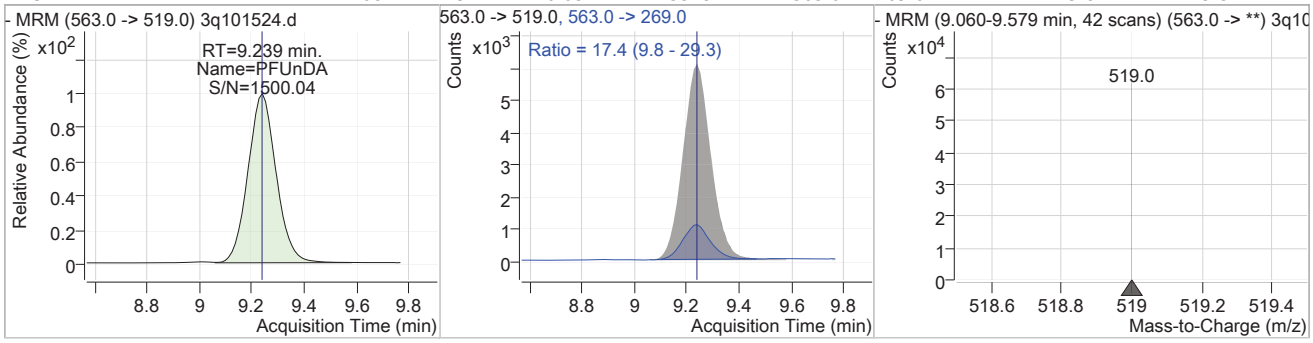
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	1.30	8.61	0.03	19400	527.0 -> 81.0	38.3	20.4	61.2



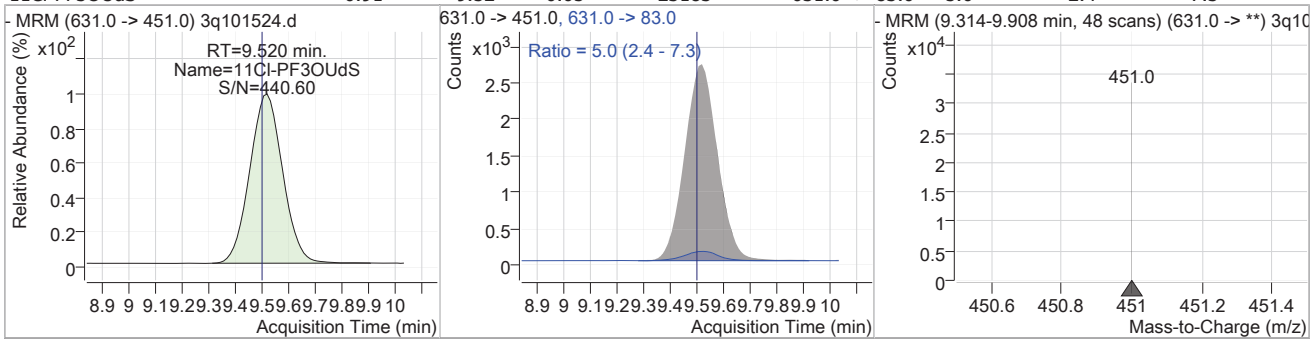
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	7.69	9.24	0.05	652517				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.08	9.24	0.05	45348	563.0 -> 269.0	17.4	9.8	29.3

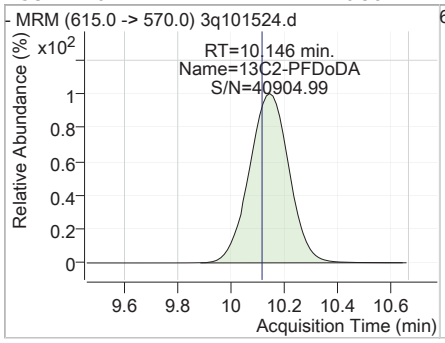


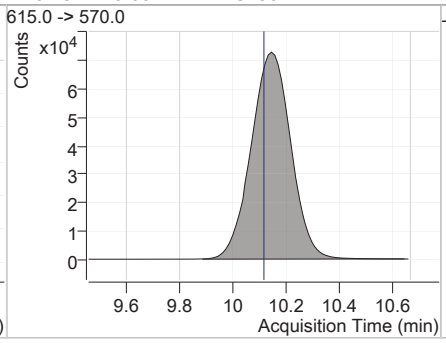
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.91	9.52	0.05	23183	631.0 -> 83.0	5.0	2.4	7.3

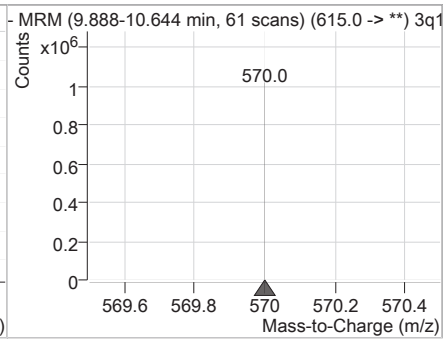


Perfluorinated Compounds by LC/MS/MS

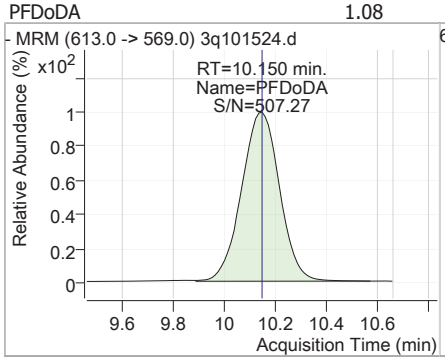
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	6.98	10.15	0.06	754564				

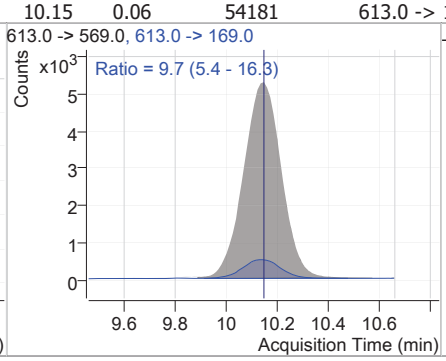


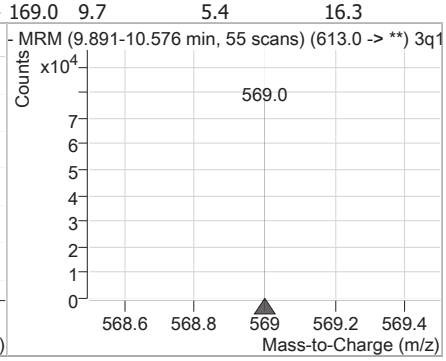




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	1.08	10.15	0.06	54181	613.0 -> 169.0	9.7	5.4	16.3







Manual Integration Approval Summary

Sample Number:	OP8907-BS	**Method:**	EPA 533
Lab FileID:	3Q101524.D	**Analyst approved:**	04/18/25 08:34 (b) (6)
Injection Time:	04/17/25 11:55	**Supervisor approved:**	04/18/25 10:08 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.00	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

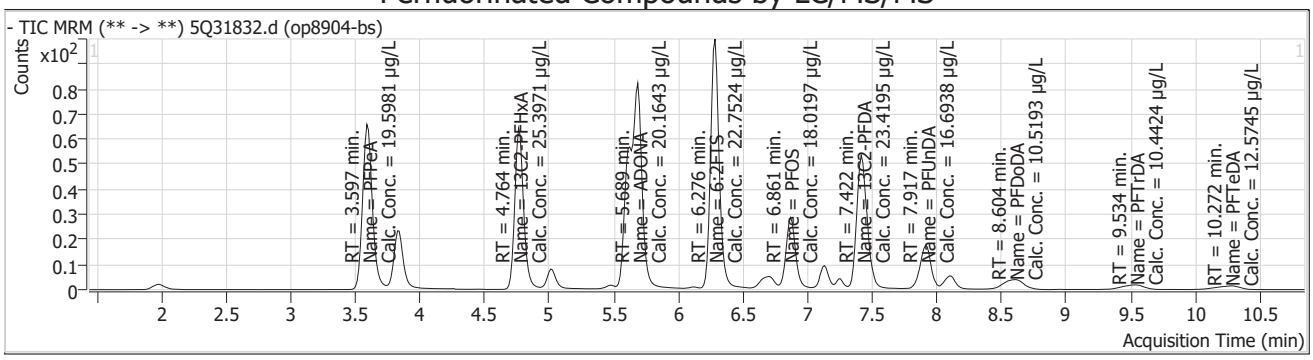
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31832.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 3:56:17 PM
Sample Name : op8904-bs
Vial : P2-E1
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8904,S5Q523,250,,,1,1,water

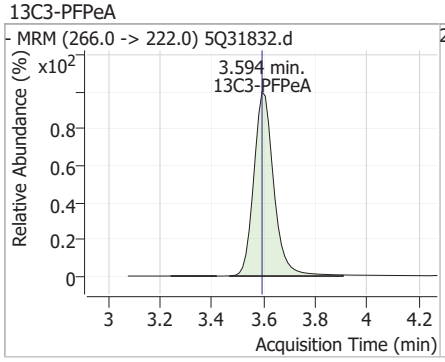
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.275	429.0 -> 409.0	188431	20.00 µg/L		-0.012
13C2-PFOA	6.290	415.0 -> 370.0	395007	20.00 µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	502426	20.00 µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	92532	20.00 µg/L		0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	29322	40.00 µg/L		-0.012
System Monitoring Compounds						
13C2-PFDA	7.422	515.0 -> 470.0	395900	23.42 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 117.1%		
13C2-PFHxA	4.764	315.0 -> 270.0	635670	25.40 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 127.0%		
d5-EtFOSAA	7.378	589.0 -> 419.0	27419	49.28 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 123.2%		
13C3-HFPO-DA	5.020	287.0 -> 169.0	84521	47.79 µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 119.5%		
Target Compounds						QValue
6:2FTS	6.276	427.0 -> 407.0	214879	22.75 µg/L		99
8:2FTS	7.458	527.0 -> 507.0	163077	19.90 µg/L		99
EtFOSAA	7.391	584.0 -> 419.0	8640	17.60 µg/L	m	97
MeFOSAA	7.254	570.0 -> 419.0	12678	19.18 µg/L		100
PFBS	3.828	299.0 -> 80.0	263633	21.77 µg/L		99
PFDA	7.423	513.0 -> 469.0	272983	19.36 µg/L		99
PFDoDA	8.604	613.0 -> 569.0	140226	10.52 µg/L		99
PFHpA	5.615	363.0 -> 319.0	656383	20.26 µg/L		100
PFHxA	4.765	313.0 -> 269.0	326469	19.17 µg/L		100
PFHxS	5.636	399.0 -> 80.0	158379	20.93 µg/L	m	98
PFNA	6.887	463.0 -> 419.0	265147	20.77 µg/L	m	99
PFOA	6.291	413.0 -> 369.0	371973	19.76 µg/L		100
PFOS	6.861	499.0 -> 80.0	109993	18.02 µg/L	m	98
PFPeA	3.597	263.0 -> 219.0	633985	19.60 µg/L		100
PFTeDA	10.272	713.0 -> 669.0	58759	12.57 µg/L		99
PFTrDA	9.534	663.0 -> 619.0	69934	10.44 µg/L		98
PFUnDA	7.917	563.0 -> 519.0	253510	16.69 µg/L		100
ADONA	5.689	377.0 -> 251.0	845244	20.16 µg/L		100
9Cl-PF3ONS	7.131	531.0 -> 351.0	105133	19.63 µg/L		97
11Cl-PF3OUdS	8.100	631.0 -> 451.0	78394	14.13 µg/L		99
HFPO-DA	5.023	285.0 -> 169.0	30155	19.54 µg/L		98

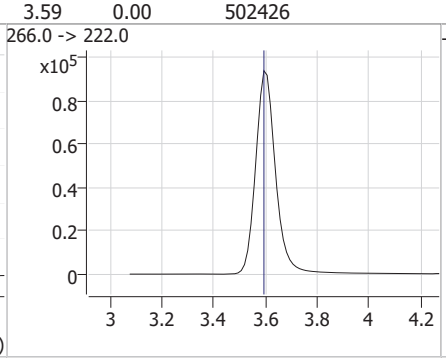
 # = Qualifier out of range, m = manually integrated, + = Area summed

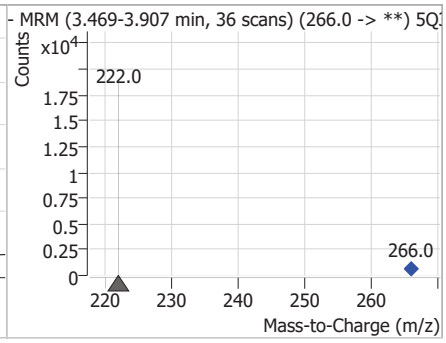
Perfluorinated Compounds by LC/MS/MS



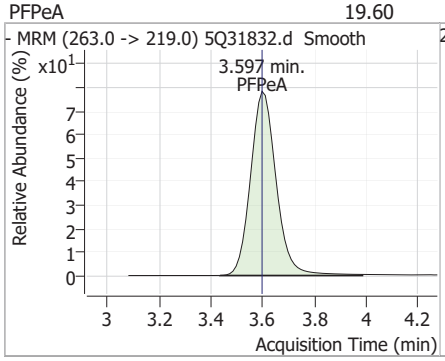
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	502426				

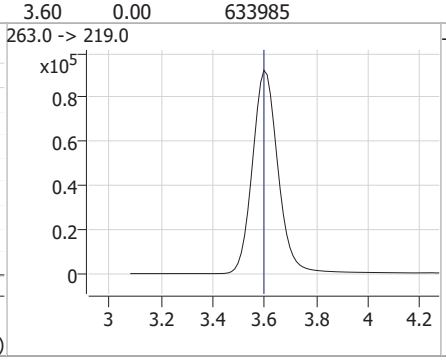


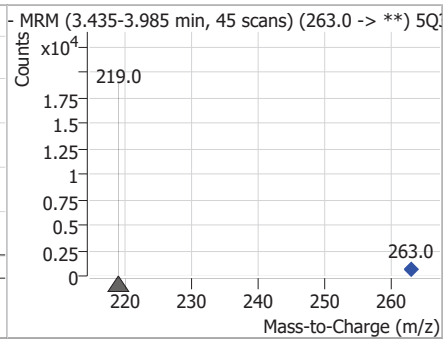




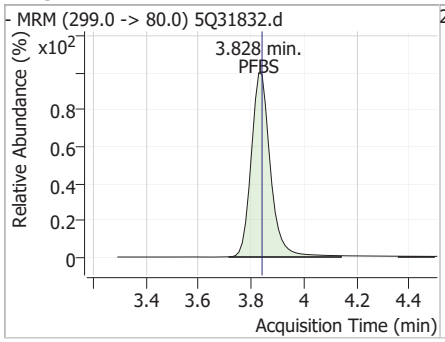
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.60	3.60	0.00	633985				

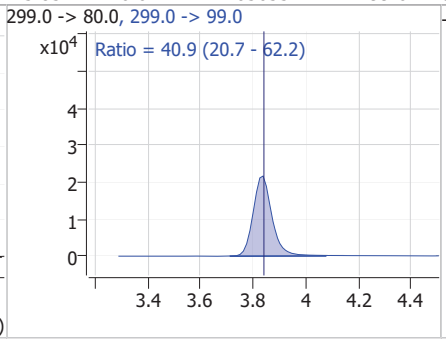


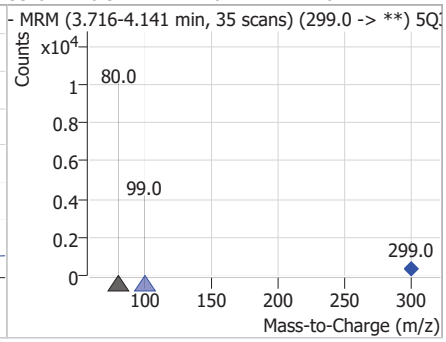




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	21.77	3.83	-0.01	263633	299.0 -> 99.0	40.9	20.7	62.2

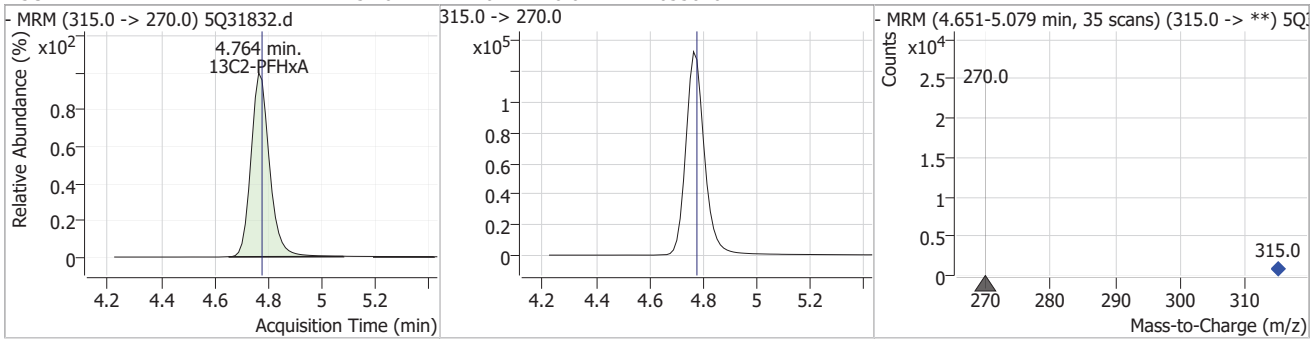




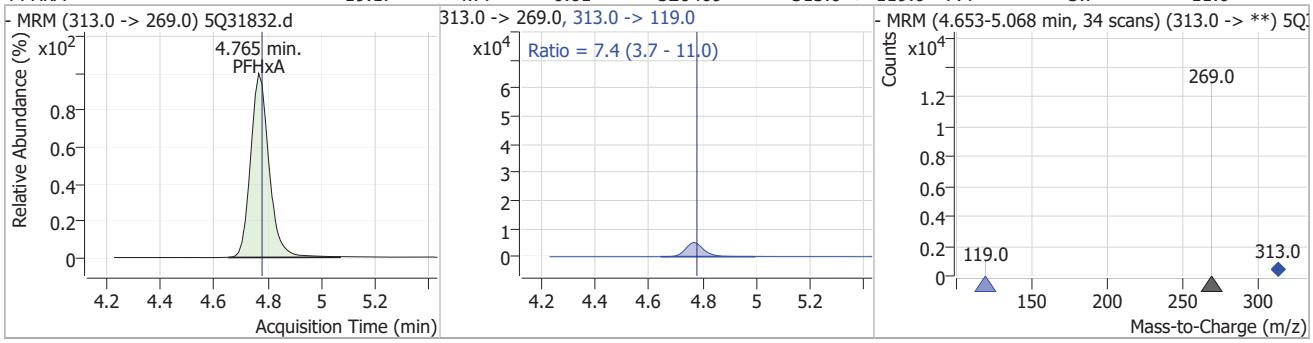


Perfluorinated Compounds by LC/MS/MS

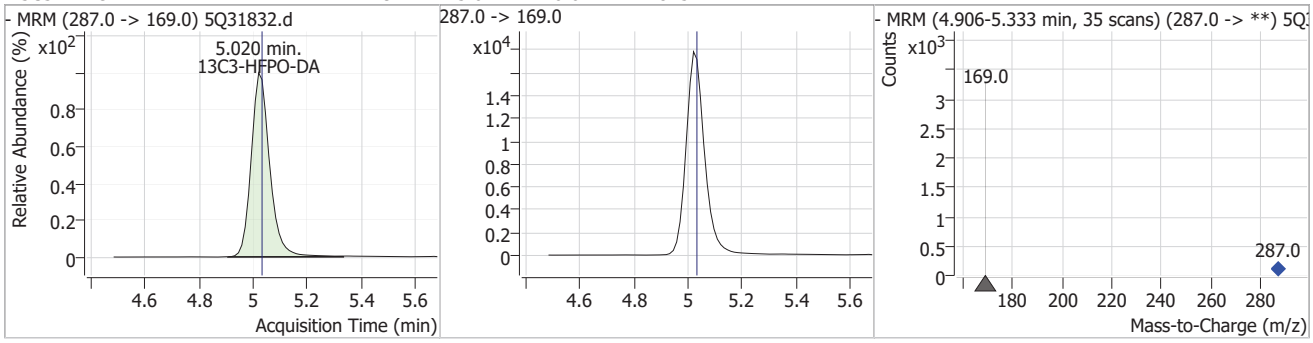
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	25.40	4.76	-0.01	635670				



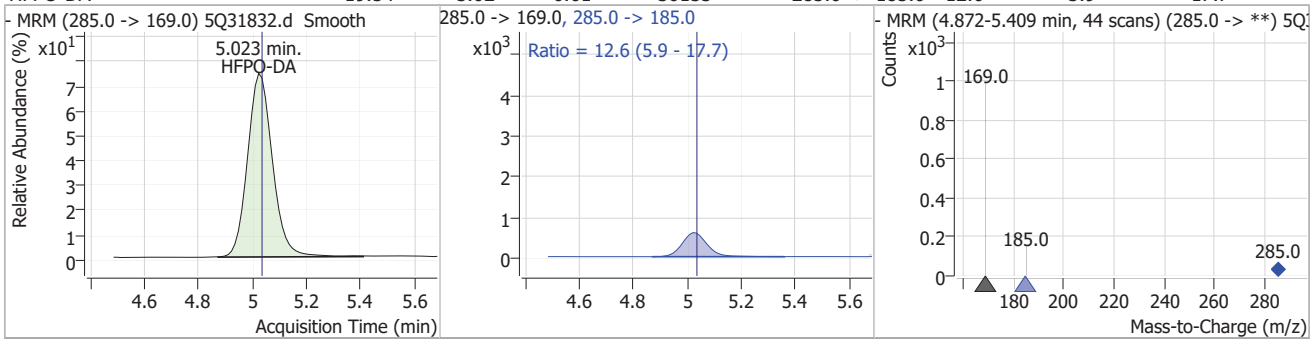
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.17	4.77	-0.01	326469	313.0 -> 119.0	7.4	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	47.79	5.02	-0.01	84521				

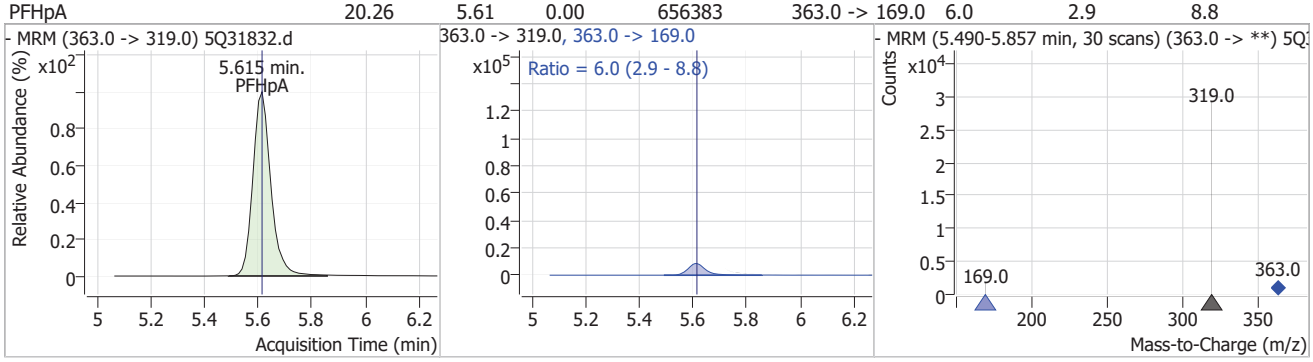


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.54	5.02	-0.01	30155	285.0 -> 185.0	12.6	5.9	17.7

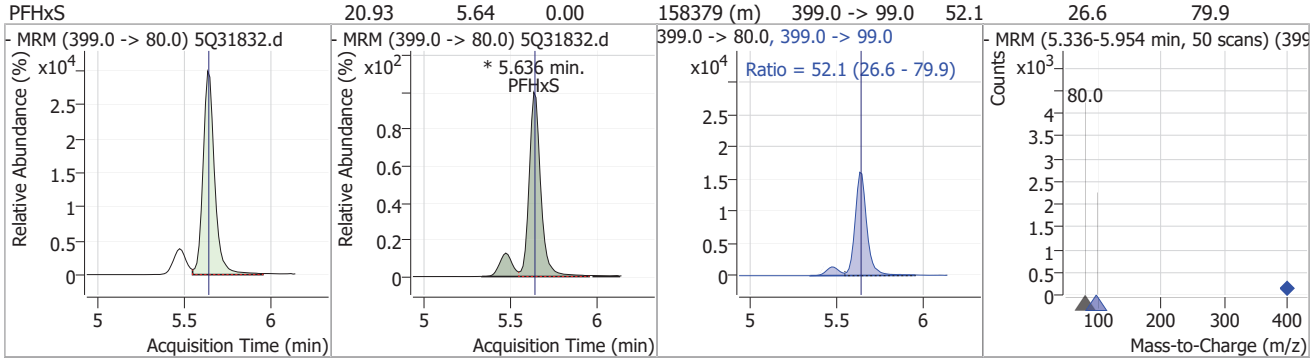


Perfluorinated Compounds by LC/MS/MS

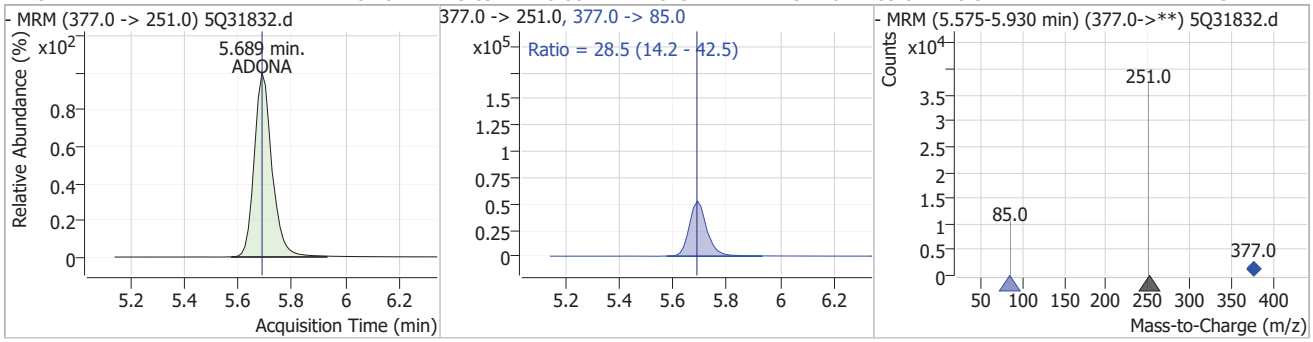
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.26	5.61	0.00	656383	363.0 -> 169.0	6.0	2.9	8.8



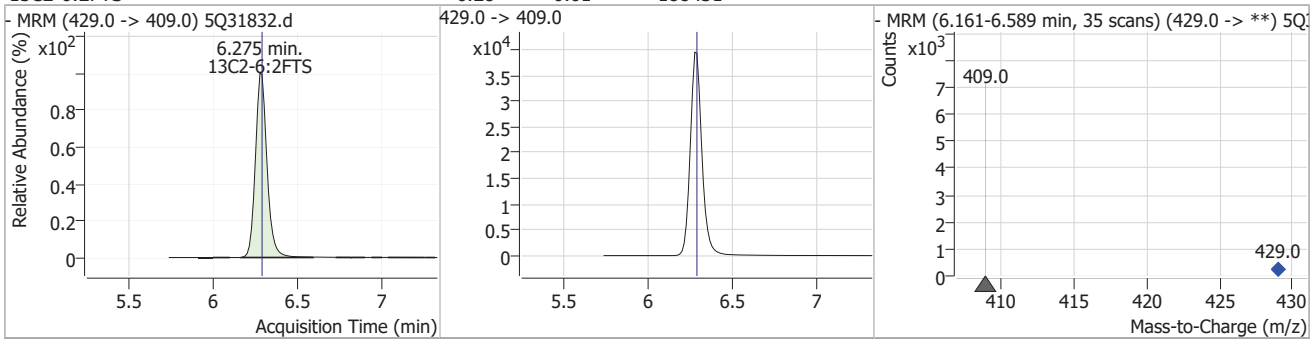
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	20.93	5.64	0.00	158379 (m)	399.0 -> 99.0	52.1	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.16	5.69	0.00	845244	377.0 -> 85.0	28.5	14.2	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	188431				



7.3.2

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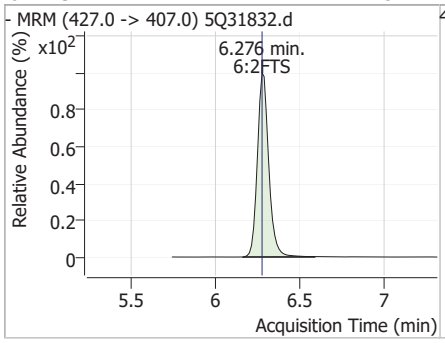
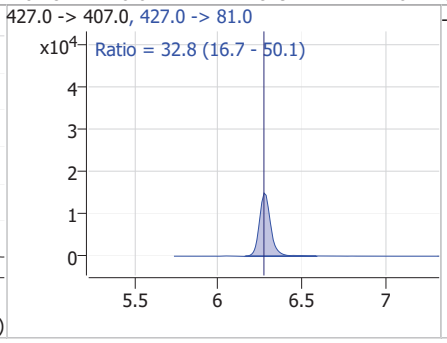
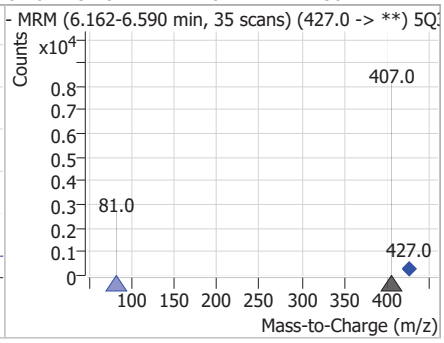
Perfluorinated Compounds by LC/MS/MS

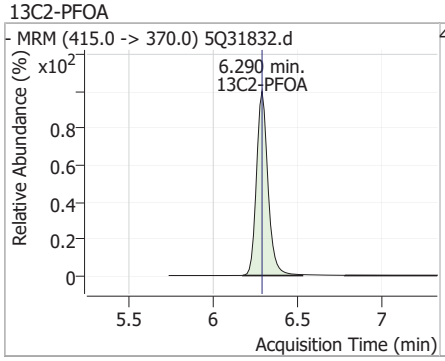
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	22.75	6.28	-0.01	214879	427.0 -> 81.0	32.8	16.7	50.1

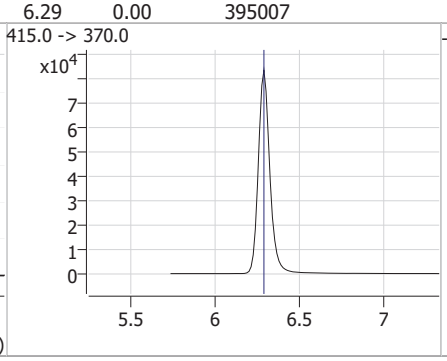


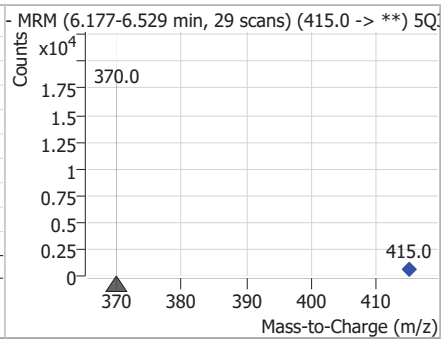




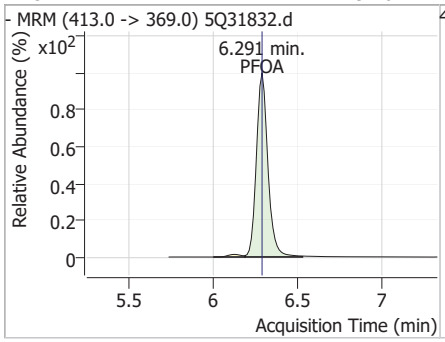
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	395007				

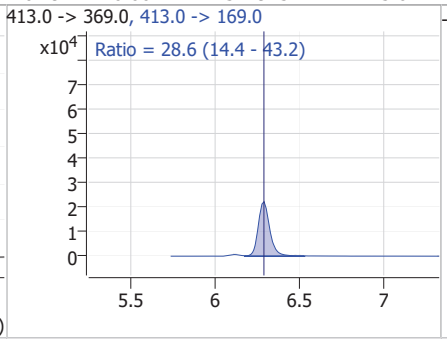


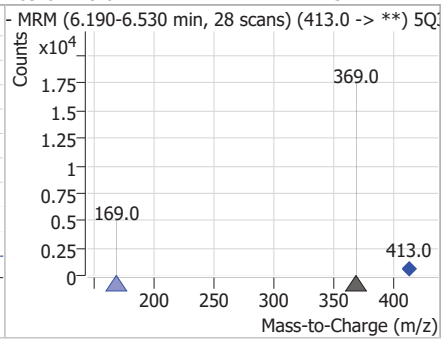




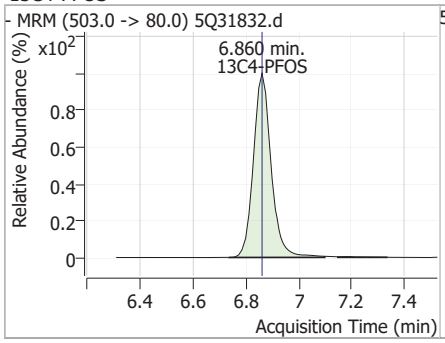
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.76	6.29	0.00	371973	413.0 -> 169.0	28.6	14.4	43.2

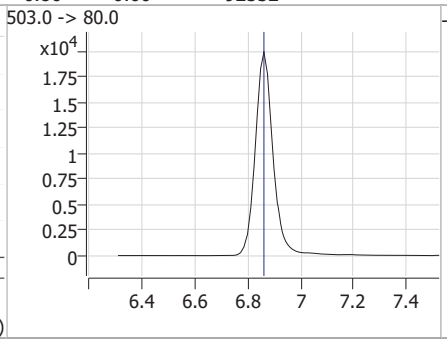


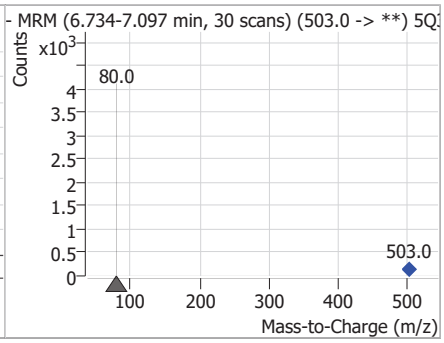




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	92532				

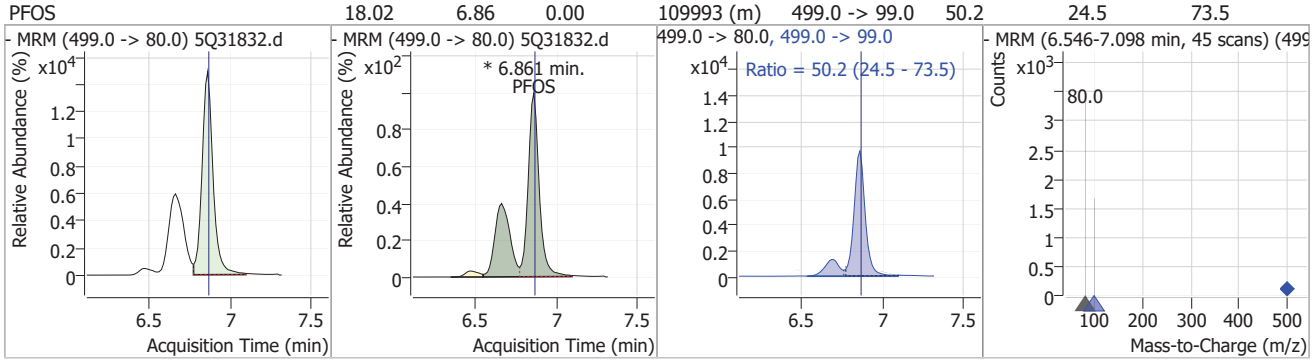




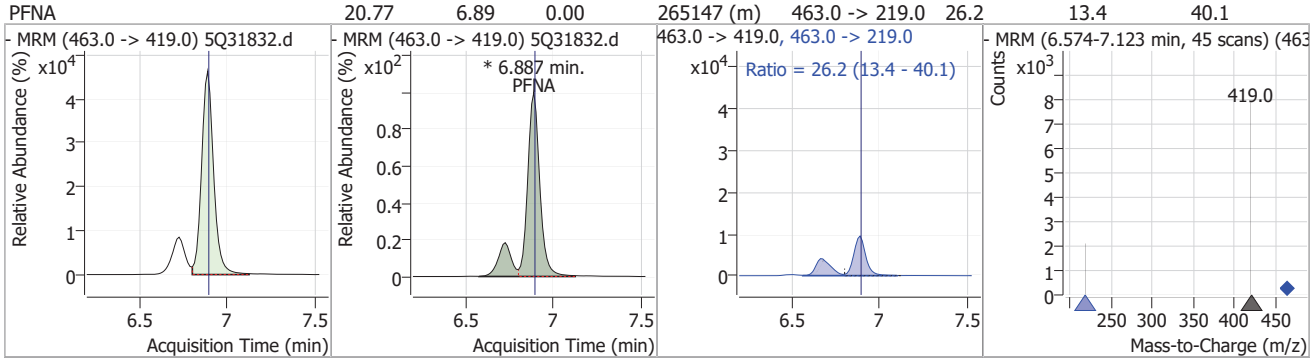


Perfluorinated Compounds by LC/MS/MS

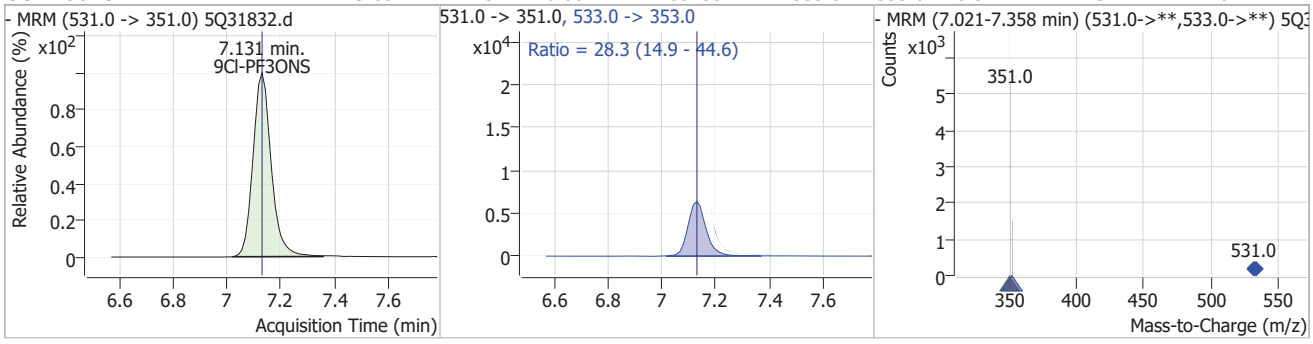
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.02	6.86	0.00	109993 (m)	499.0 -> 99.0	50.2	24.5	73.5



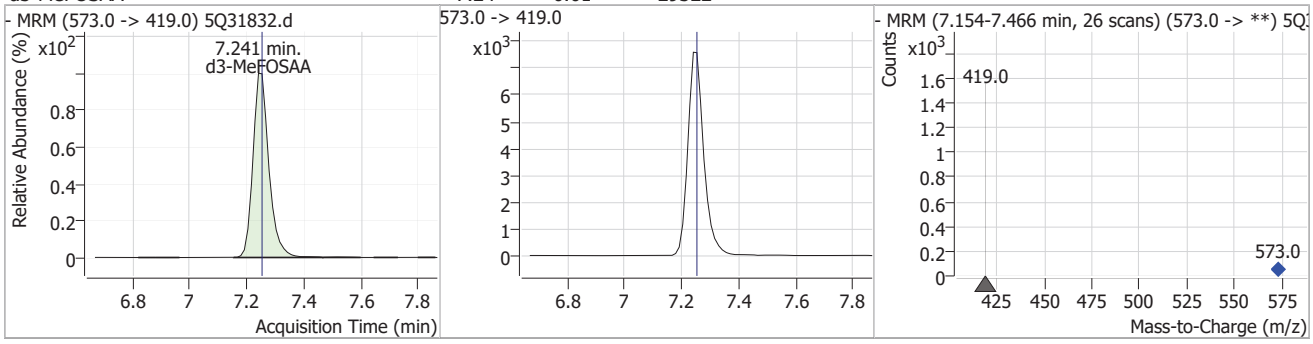
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	20.77	6.89	0.00	265147 (m)	463.0 -> 219.0	26.2	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	19.63	7.13	0.00	105133	533.0 -> 353.0	28.3	14.9	44.6



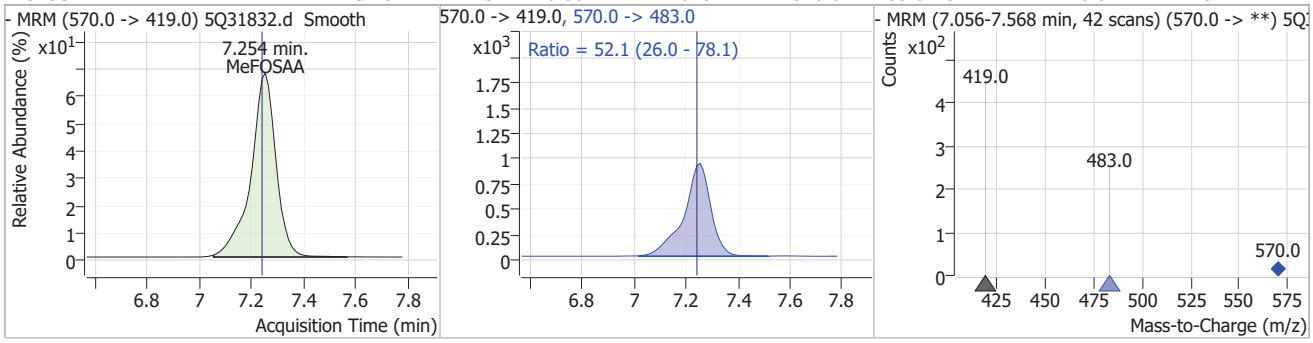
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	29322				



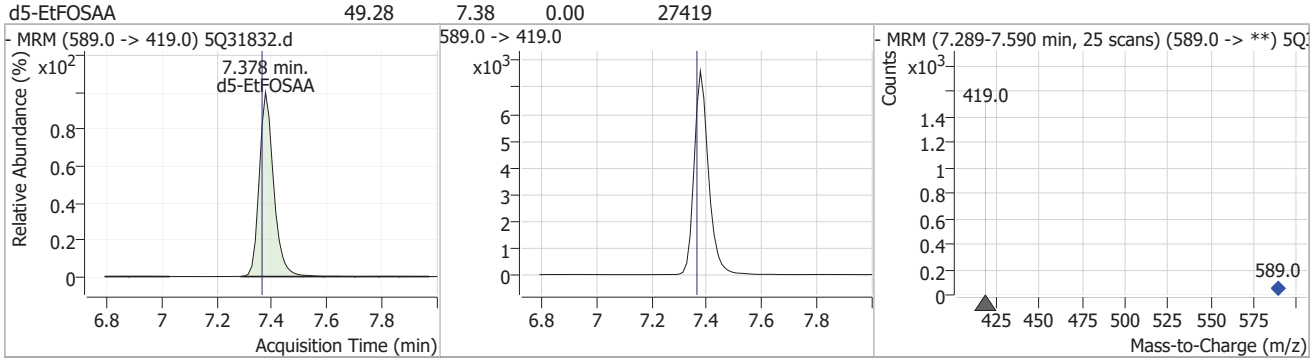
7.3.2 7

Perfluorinated Compounds by LC/MS/MS

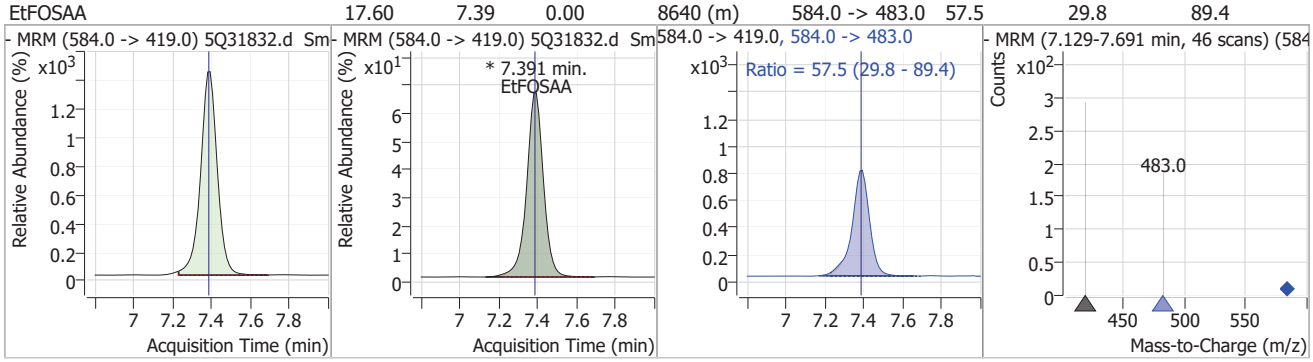
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.18	7.25	0.00	12678	570.0 -> 483.0	52.1	26.0	78.1



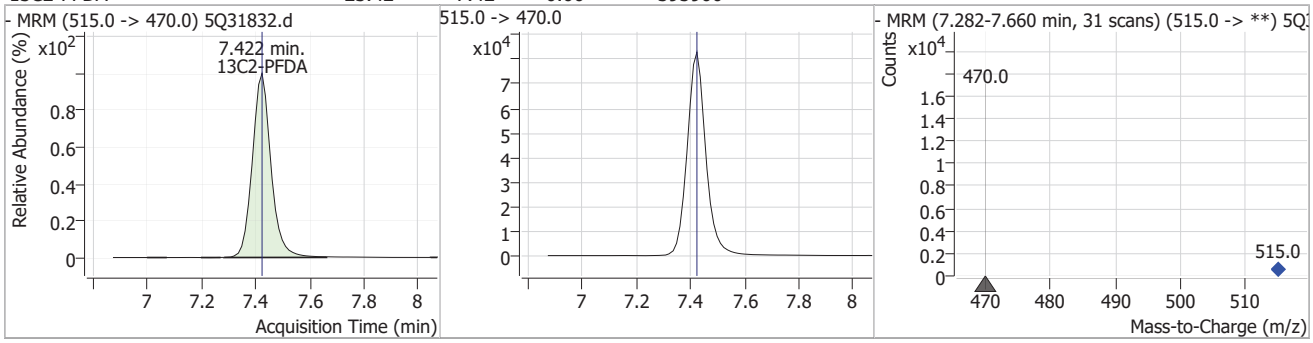
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	49.28	7.38	0.00	27419				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	17.60	7.39	0.00	8640 (m)	584.0 -> 483.0	57.5	29.8	89.4

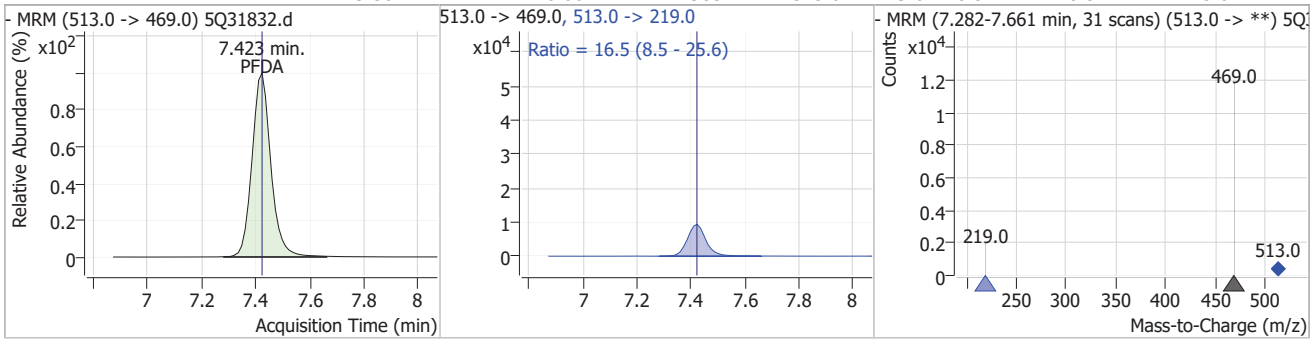


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	23.42	7.42	0.00	395900				

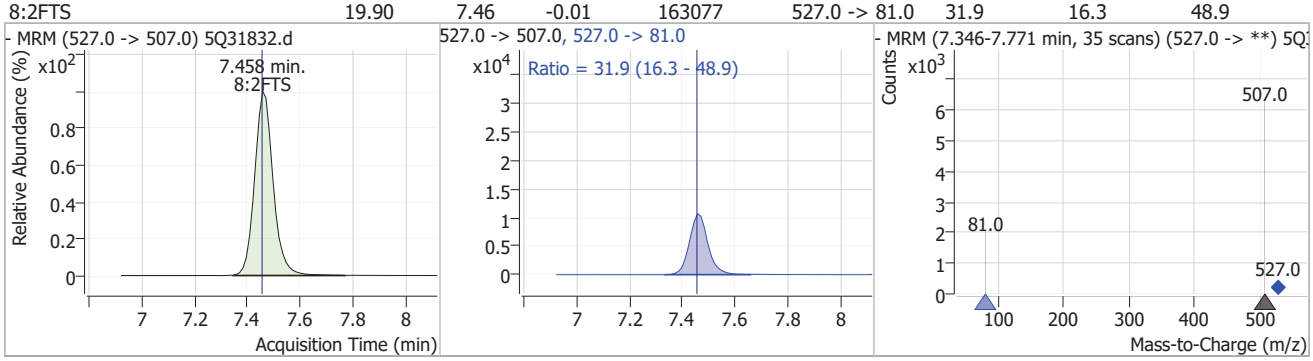


Perfluorinated Compounds by LC/MS/MS

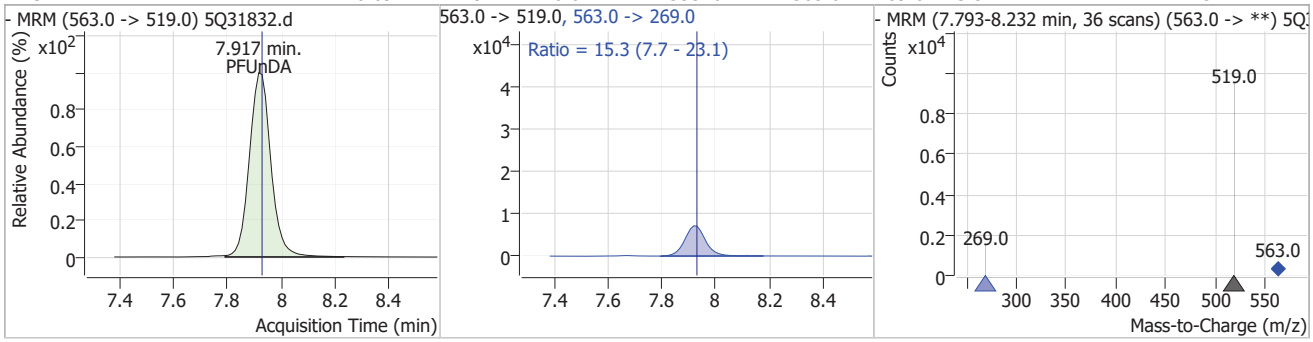
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.36	7.42	0.00	272983	513.0 -> 219.0	16.5	8.5	25.6



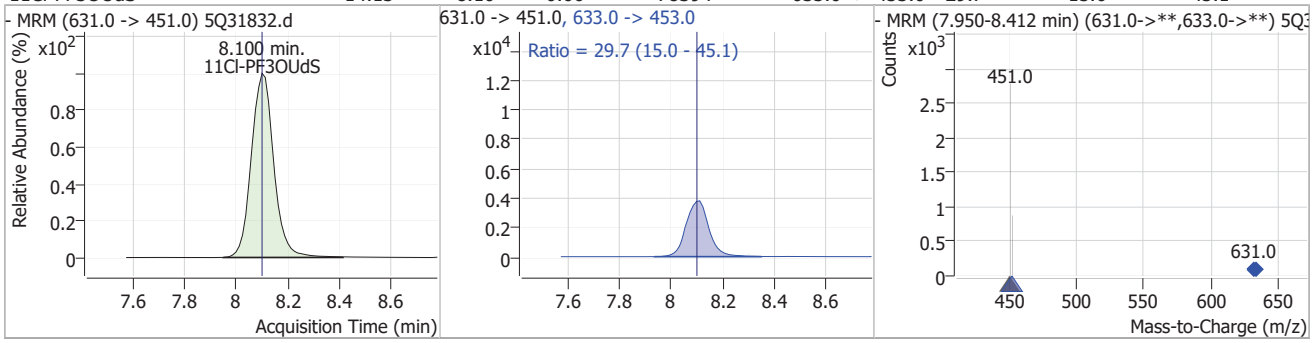
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	19.90	7.46	-0.01	163077	527.0 -> 81.0	31.9	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	16.69	7.92	-0.01	253510	563.0 -> 269.0	15.3	7.7	23.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	14.13	8.10	0.00	78394	633.0 -> 453.0	29.7	15.0	45.1

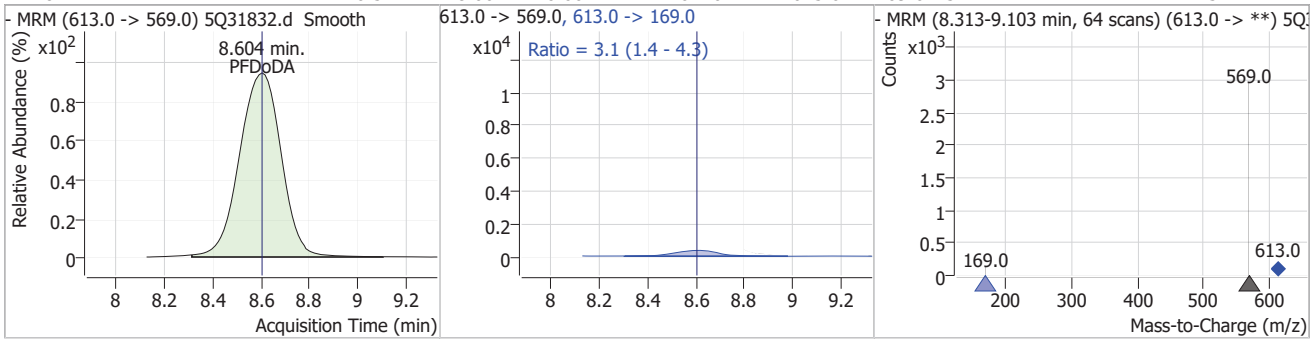


7.3.2

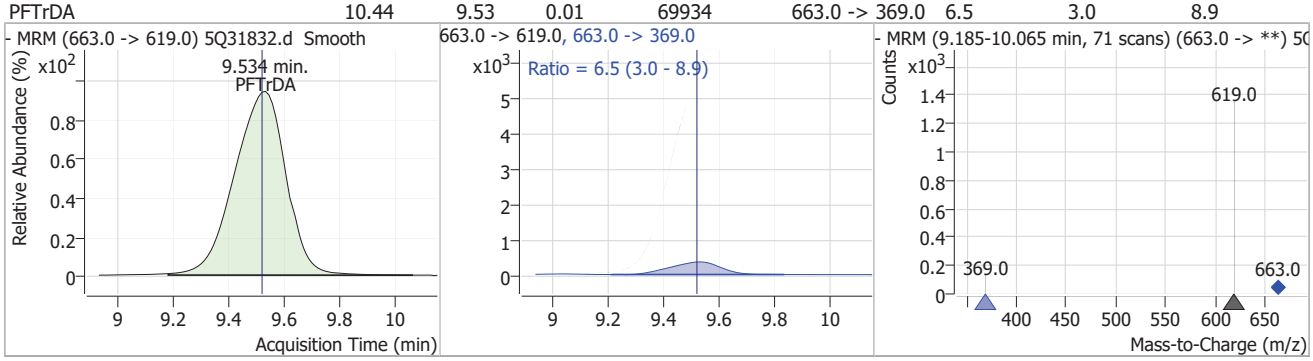
7

Perfluorinated Compounds by LC/MS/MS

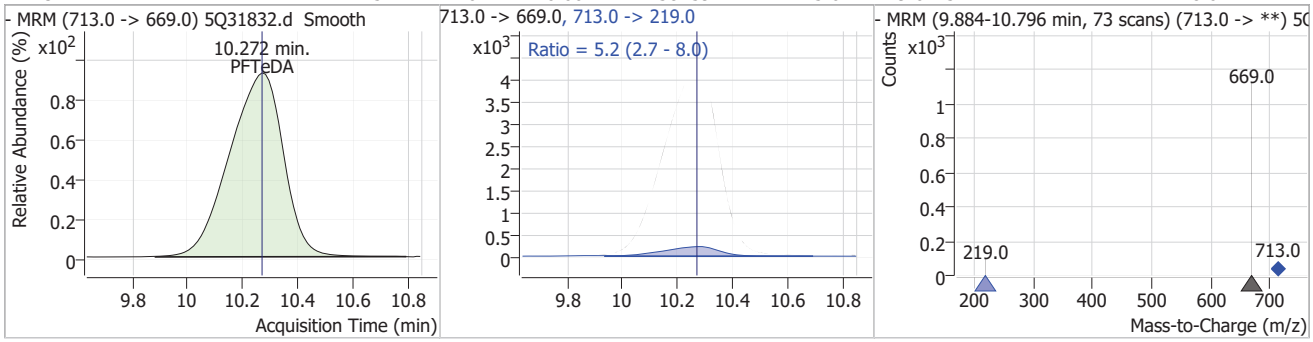
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	10.52	8.60	0.00	140226	613.0 -> 169.0	3.1	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	10.44	9.53	0.01	69934	663.0 -> 369.0	6.5	3.0	8.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	12.57	10.27	0.00	58759	713.0 -> 219.0	5.2	2.7	8.0



Manual Integration Approval Summary

Sample Number: OP8904-BS
Lab FileID: 5Q31832.D
Injection Time: 04/17/25 15:56
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6)
Supervisor approved: 04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/21/25 10:51

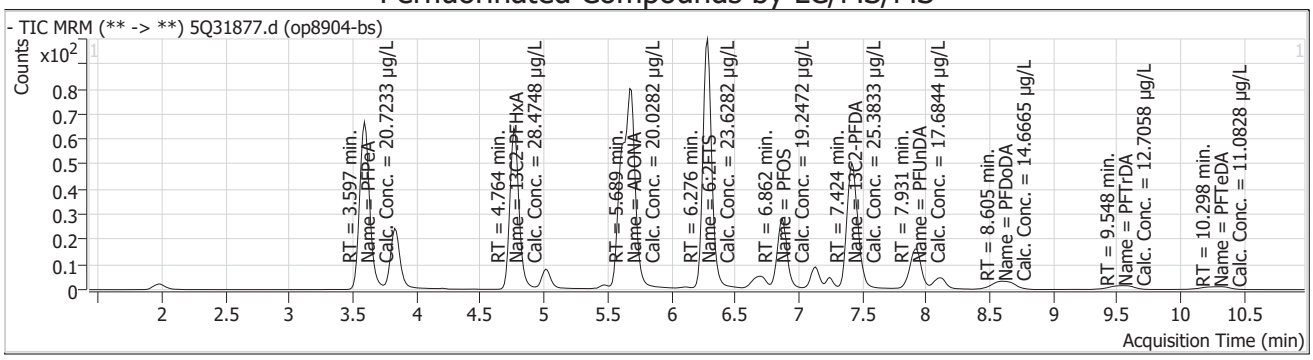
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31877.d
Operator : (b) (6)
Acq. Method : 537_5Q.m
Acq. Date-Time : 4/18/2025 5:13:38 PM
Sample Name : op8904-bs
Vial : P2-E1
DA Method File : 537_041825_S5Q524.quantmethod.xml
Batch Name : s5q524.batch.bin
Sample Information : OP8904,S5Q524,250,,,1,1,water

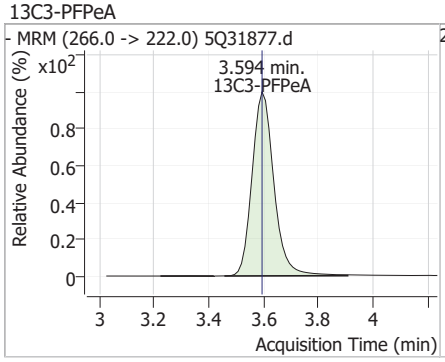
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.275	429.0 -> 409.0	139674	20.00	µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	277439	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	360906	20.00	µg/L		0.000
13C4-PFOS	6.861	503.0 -> 80.0	66997	20.00	µg/L		0.000
d3-MeFOSAA	7.243	573.0 -> 419.0	23604	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.424	515.0 -> 470.0	267541	25.38	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 126.9%			
13C2-PFHxA	4.764	315.0 -> 270.0	459626	28.47	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 142.4%			
d5-EtFOSAA	7.379	589.0 -> 419.0	21359	49.57	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 123.9%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	59526	53.84	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 134.6%			
Target Compounds							QValue
6:2FTS	6.276	427.0 -> 407.0	158033	23.63	µg/L		99
8:2FTS	7.460	527.0 -> 507.0	112508	21.42	µg/L		100
EtFOSAA	7.380	584.0 -> 419.0	7065	18.38	µg/L	m	95
MeFOSAA	7.244	570.0 -> 419.0	9613	18.57	µg/L		92
PFBS	3.828	299.0 -> 80.0	192466	22.79	µg/L		99
PFDA	7.425	513.0 -> 469.0	189259	19.59	µg/L		99
PFDoDA	8.605	613.0 -> 569.0	91042	14.67	µg/L		99
PFHpA	5.615	363.0 -> 319.0	468841	20.90	µg/L		100
PFHxA	4.765	313.0 -> 269.0	233843	21.27	µg/L		99
PFHxS	5.636	399.0 -> 80.0	111986	20.48	µg/L	m	99
PFNA	6.887	463.0 -> 419.0	181913	19.03	µg/L	m	99
PFOA	6.291	413.0 -> 369.0	267487	20.74	µg/L		99
PFOS	6.862	499.0 -> 80.0	79678	19.25	µg/L	m	98
PFPeA	3.597	263.0 -> 219.0	460149	20.72	µg/L		100
PFTeDA	10.298	713.0 -> 669.0	36912	11.08	µg/L		100
PFTrDA	9.548	663.0 -> 619.0	45343	12.71	µg/L		100
PFUnDA	7.931	563.0 -> 519.0	169752	17.68	µg/L		99
ADONA	5.689	377.0 -> 251.0	588555	20.03	µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	71808	19.73	µg/L		97
11Cl-PF3OUdS	8.113	631.0 -> 451.0	51042	14.18	µg/L		99
HFPO-DA	5.022	285.0 -> 169.0	21750	20.98	µg/L		99

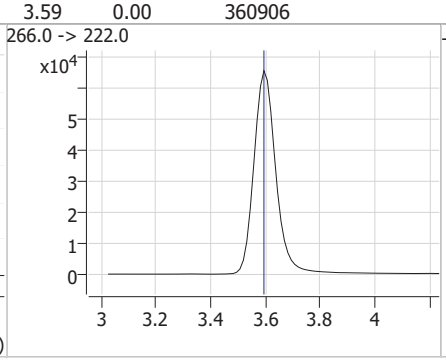
 # = Qualifier out of range, m = manually integrated, + = Area summed

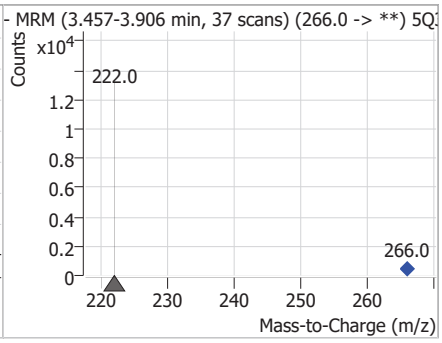
Perfluorinated Compounds by LC/MS/MS



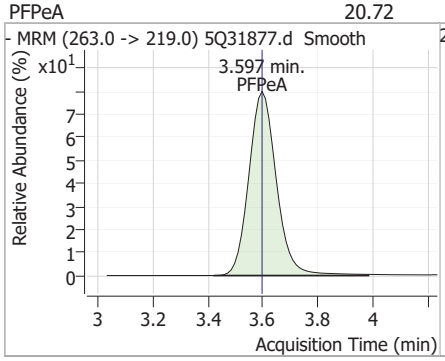
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	360906				

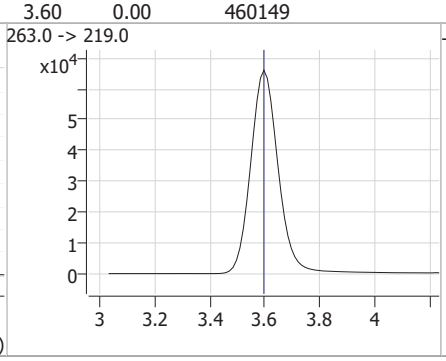


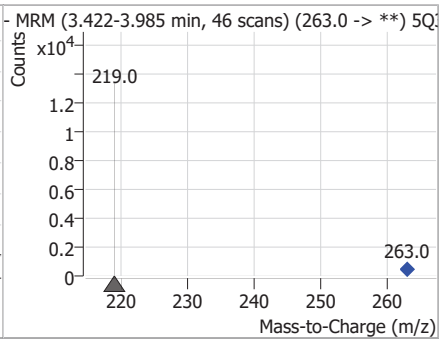




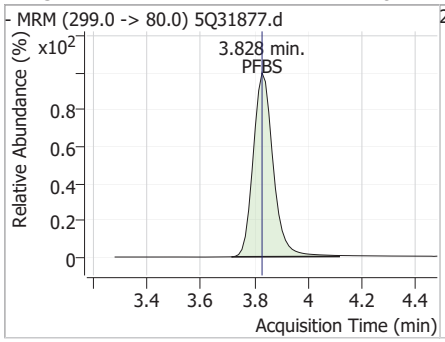
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.72	3.60	0.00	460149				

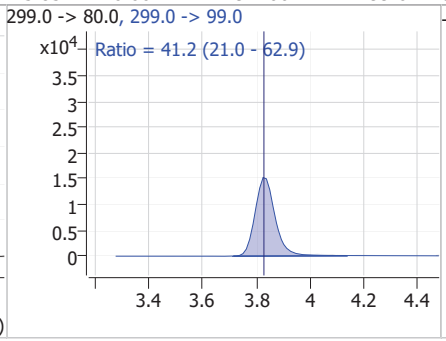


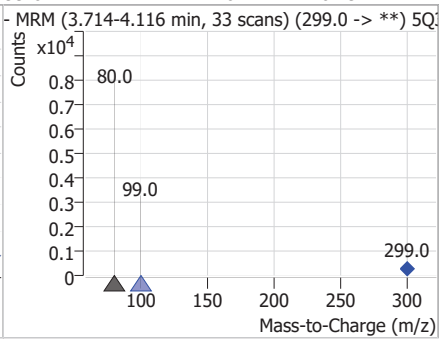




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	22.79	3.83	0.00	192466	299.0 -> 99.0	41.2	21.0	62.9





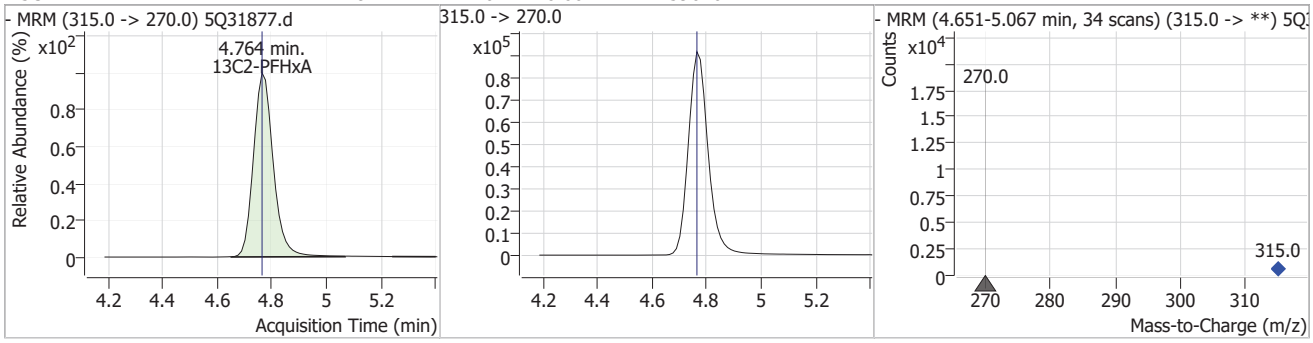


7.3.3

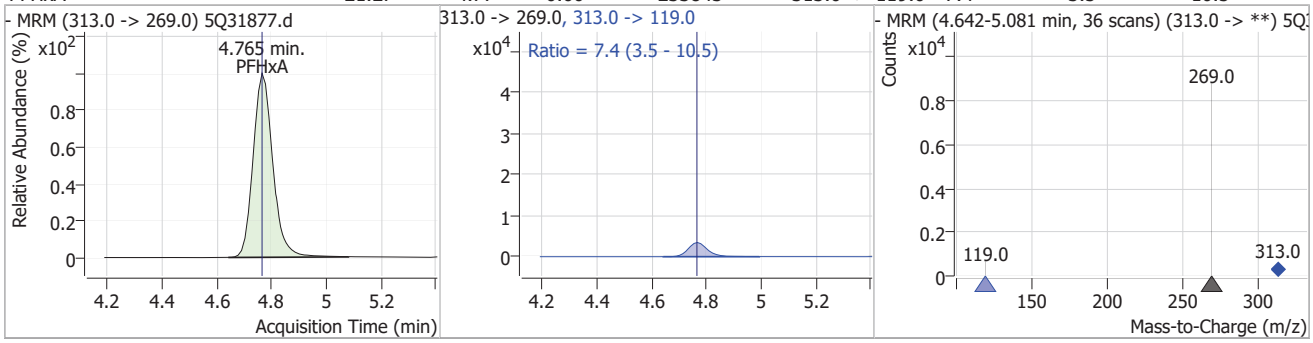
7

Perfluorinated Compounds by LC/MS/MS

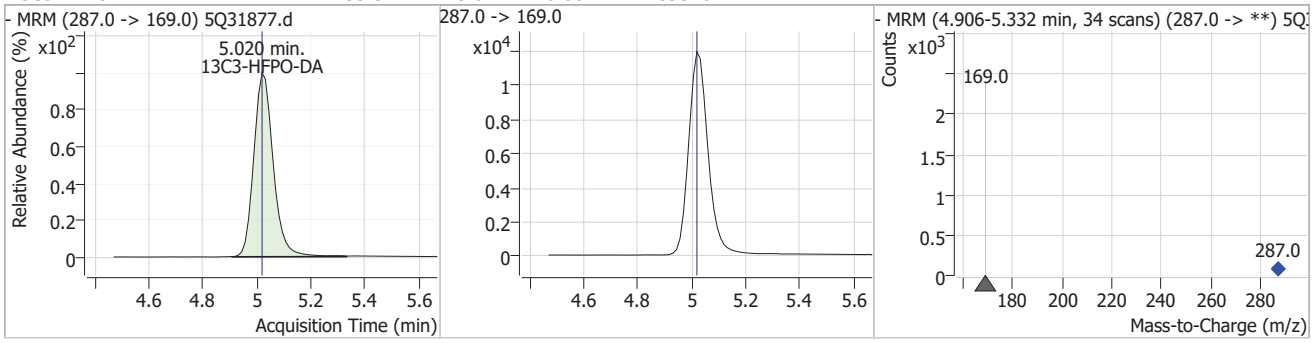
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	28.47	4.76	0.00	459626				



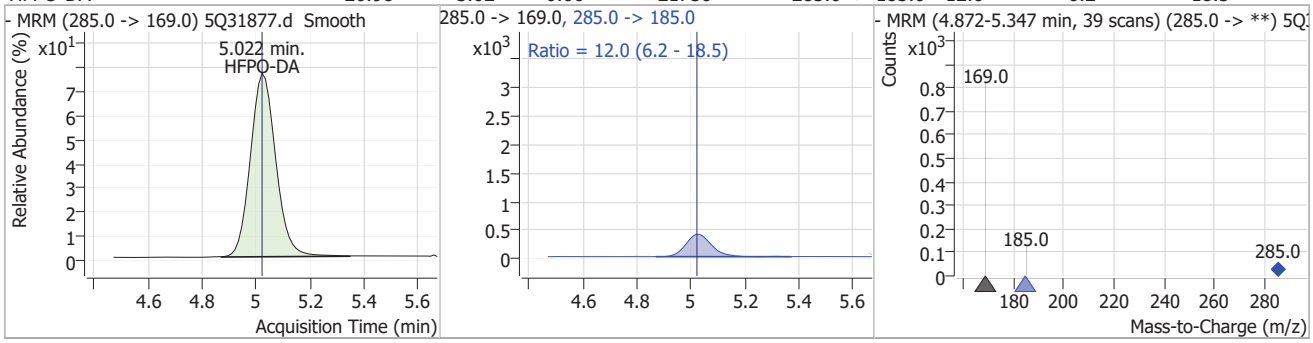
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	21.27	4.77	0.00	233843	313.0 -> 119.0	7.4	3.5	10.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	53.84	5.02	0.00	59526				

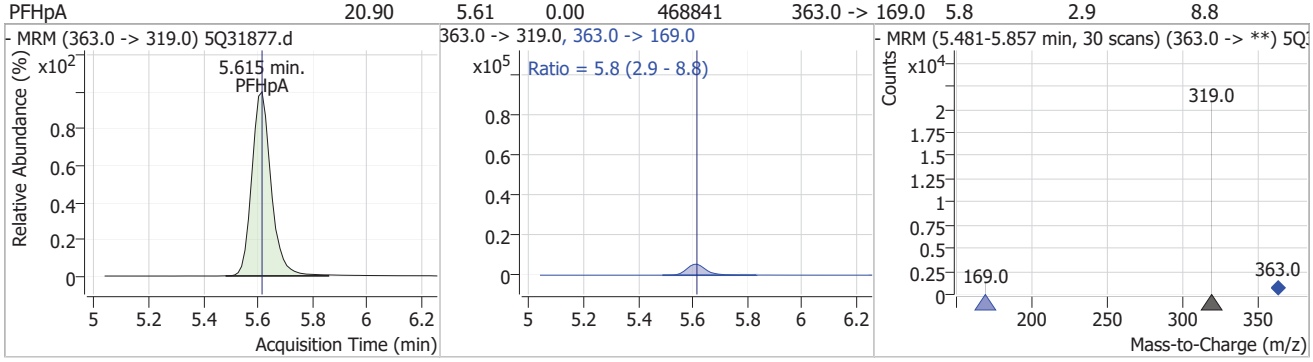


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	20.98	5.02	0.00	21750	285.0 -> 185.0	12.0	6.2	18.5

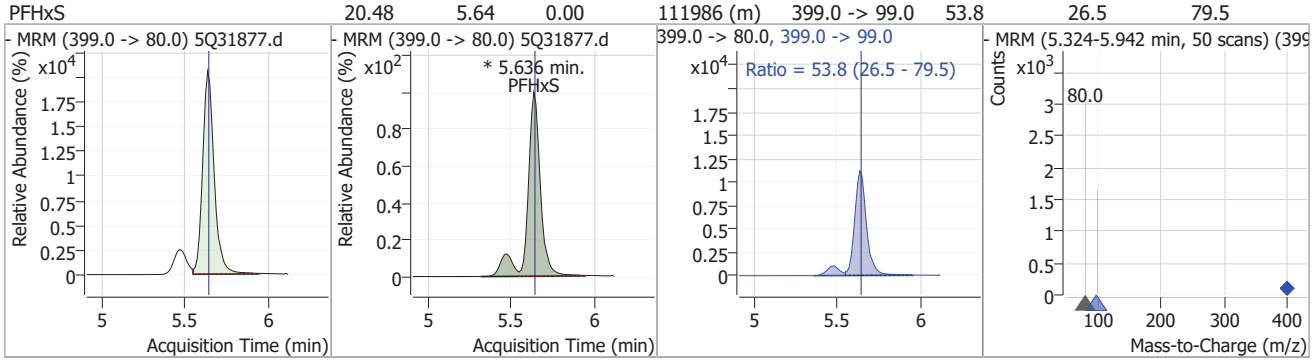


Perfluorinated Compounds by LC/MS/MS

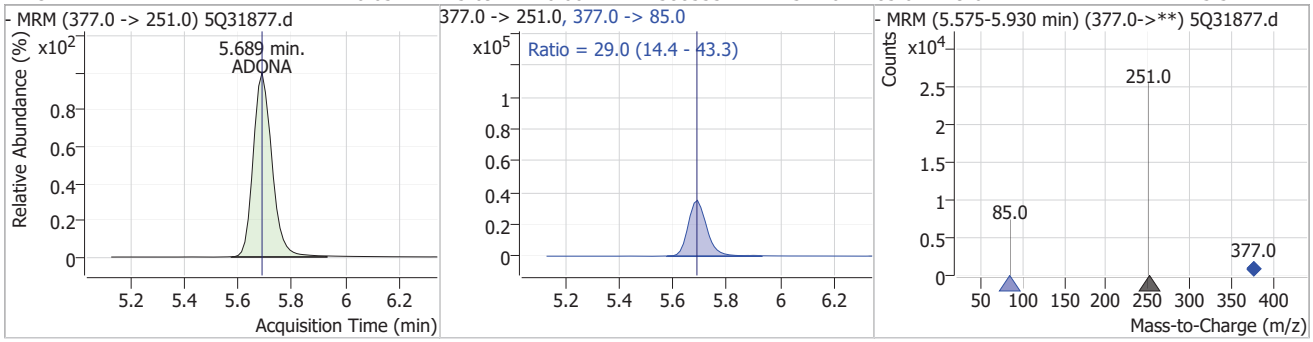
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.90	5.61	0.00	468841	363.0 -> 169.0	5.8	2.9	8.8



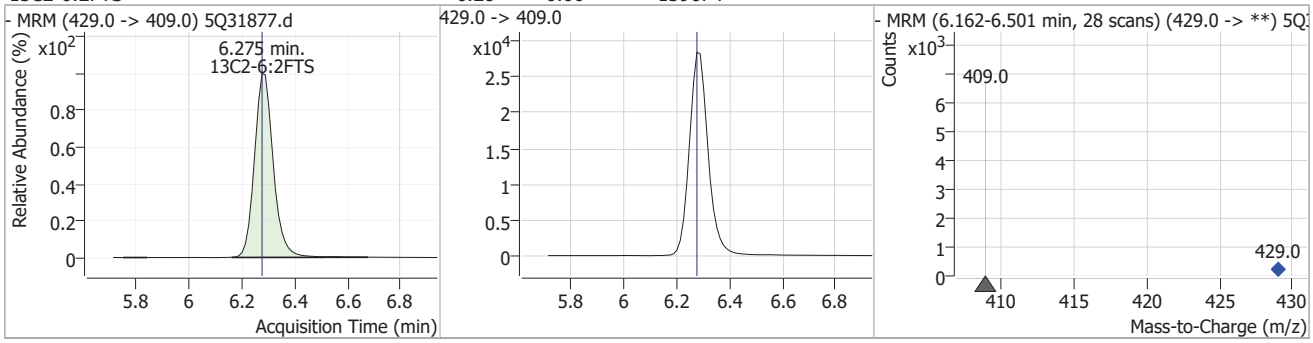
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	20.48	5.64	0.00	111986 (m)	399.0 -> 99.0	53.8	26.5	79.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.03	5.69	0.00	588555	377.0 -> 85.0	29.0	14.4	43.3

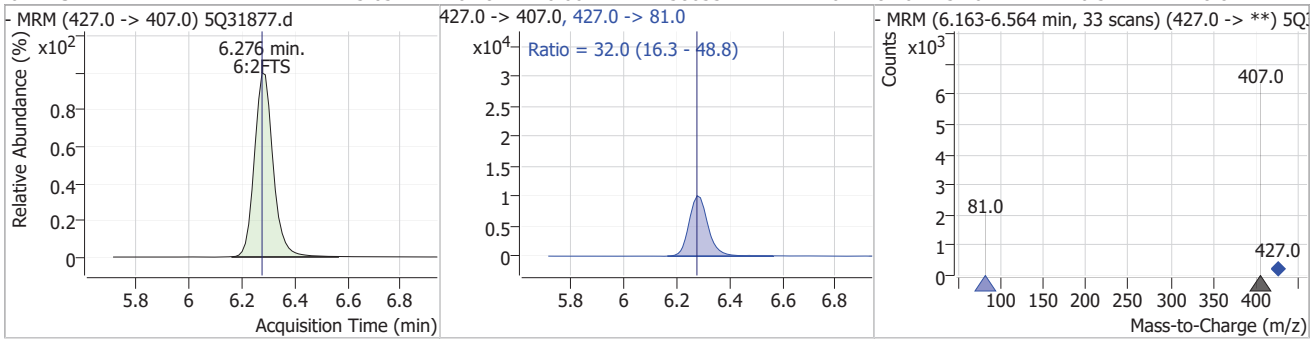


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	0.00	139674				

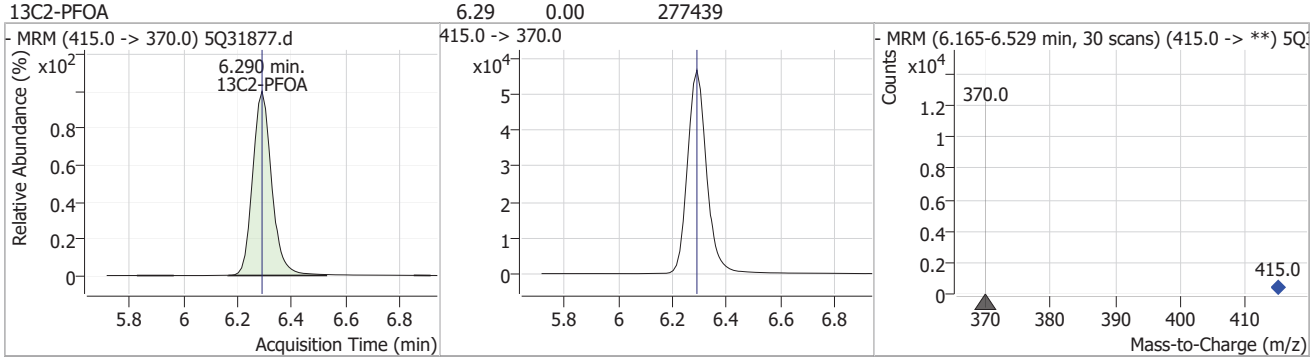


Perfluorinated Compounds by LC/MS/MS

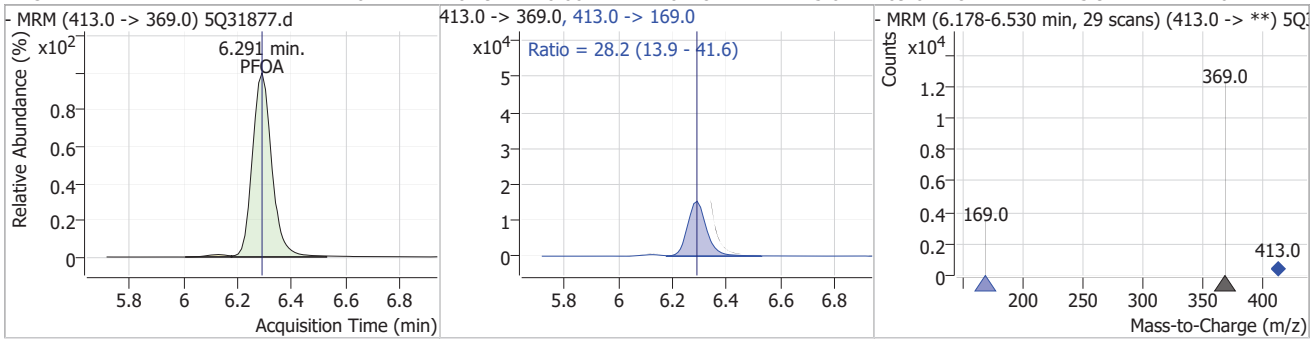
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	23.63	6.28	0.00	158033	427.0 -> 81.0	32.0	16.3	48.8



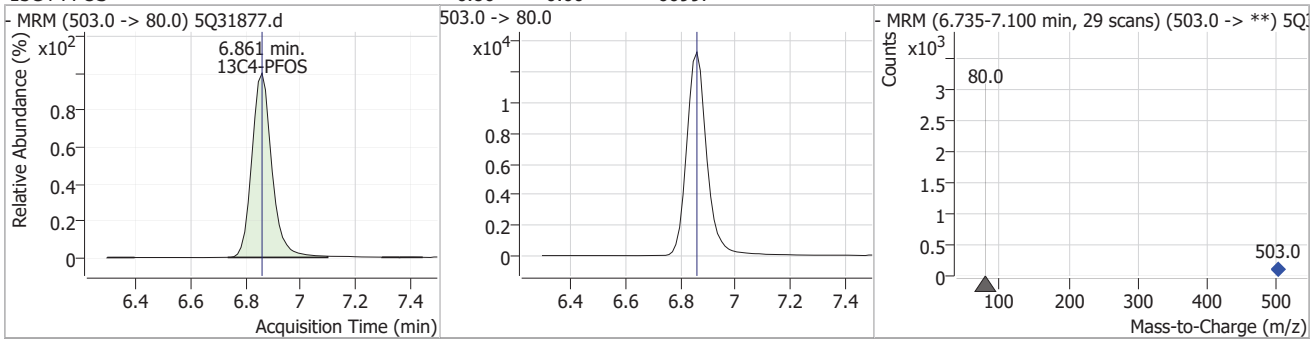
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	277439				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.74	6.29	0.00	267487	413.0 -> 169.0	28.2	13.9	41.6

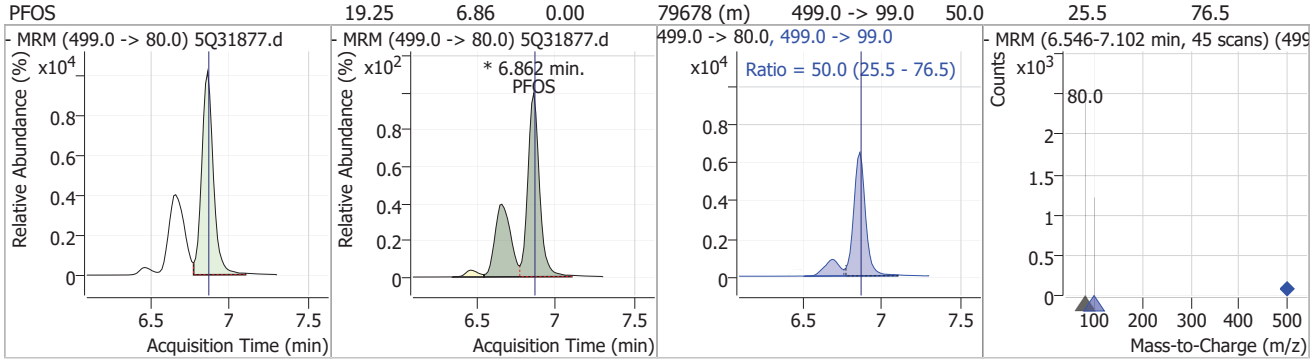


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	66997				

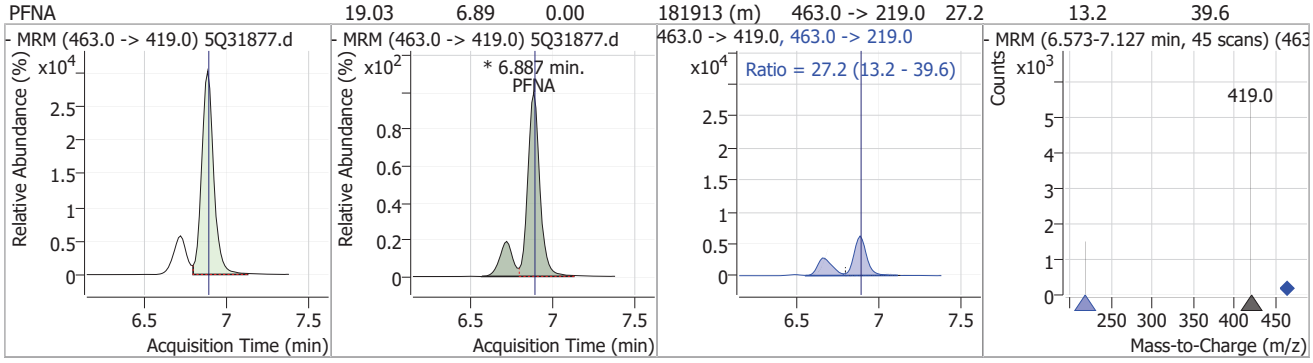


Perfluorinated Compounds by LC/MS/MS

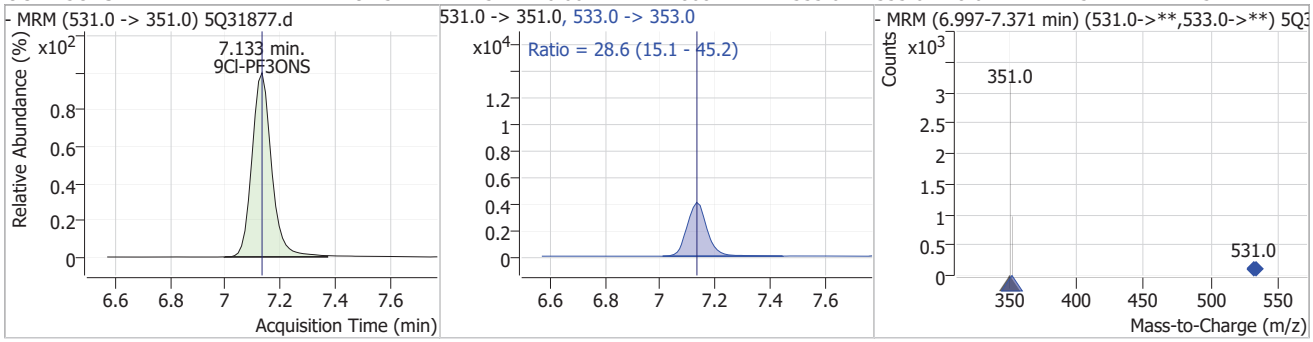
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.25	6.86	0.00	79678 (m)	499.0 -> 99.0	50.0	25.5	76.5



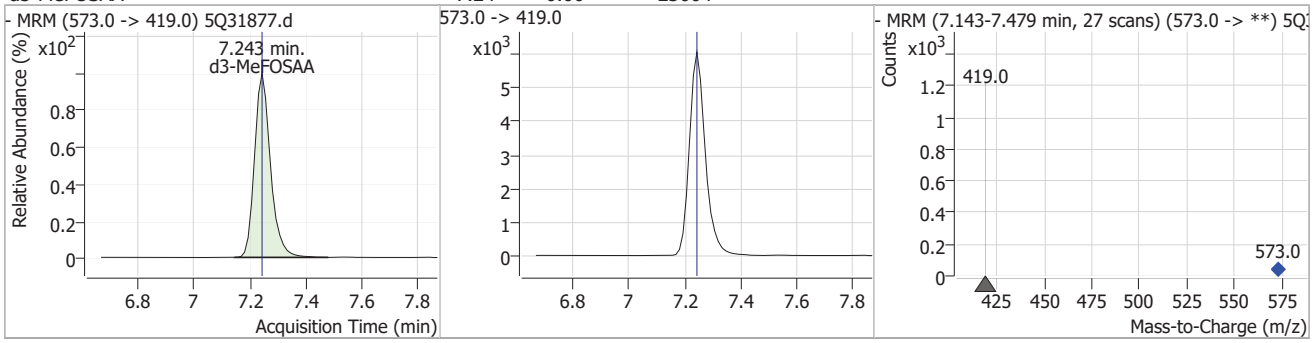
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.03	6.89	0.00	181913 (m)	463.0 -> 219.0	27.2	13.2	39.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	19.73	7.13	0.00	71808	533.0 -> 353.0	28.6	15.1	45.2

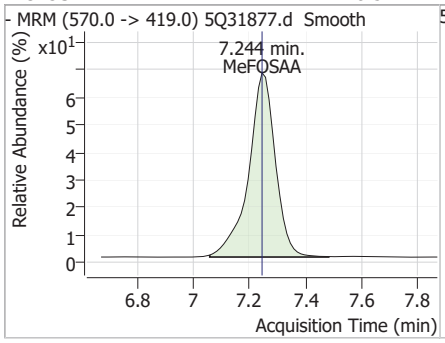


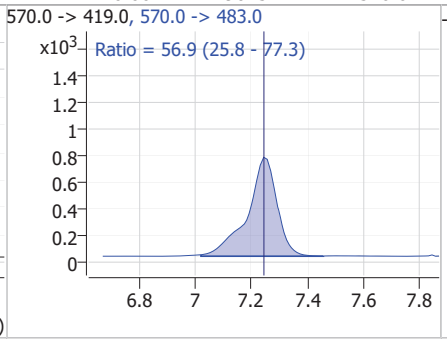
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	23604				

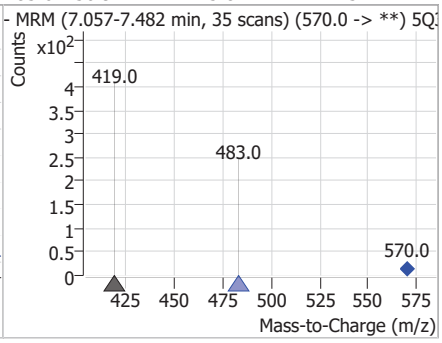


Perfluorinated Compounds by LC/MS/MS

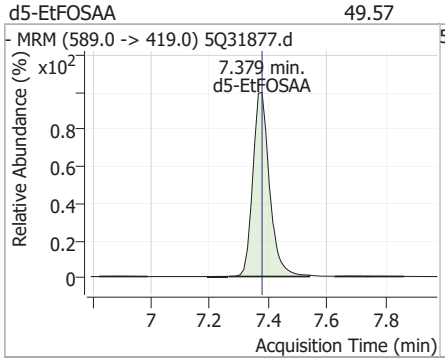
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	18.57	7.24	0.00	9613	570.0 -> 483.0	56.9	25.8	77.3

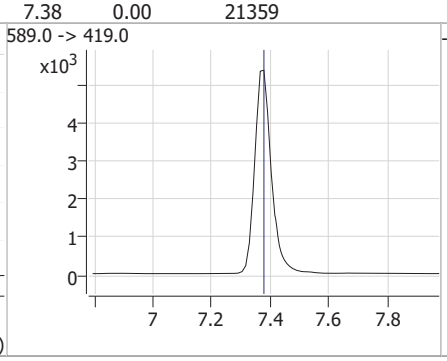


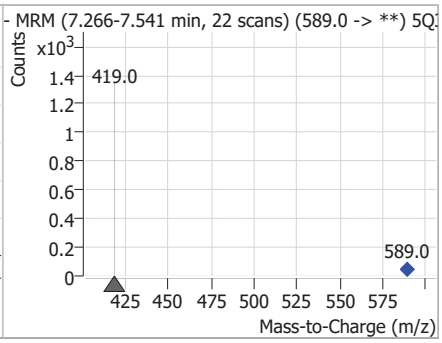




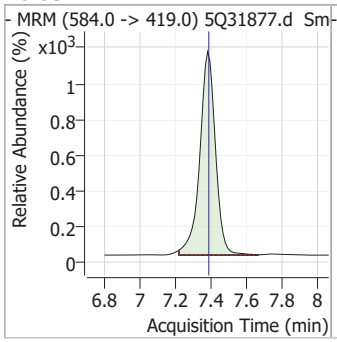
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	49.57	7.38	0.00	21359				

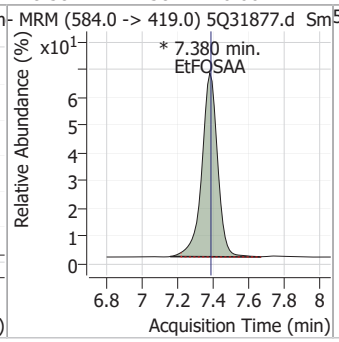


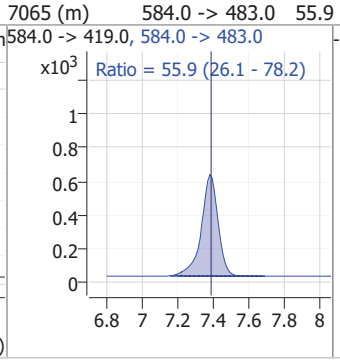


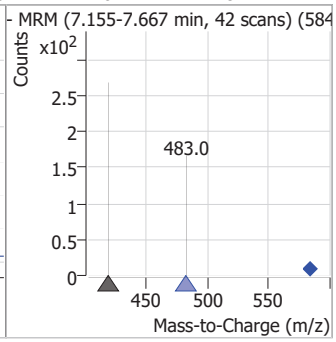


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	18.38	7.38	0.00	7065 (m)	584.0 -> 483.0	55.9	26.1	78.2

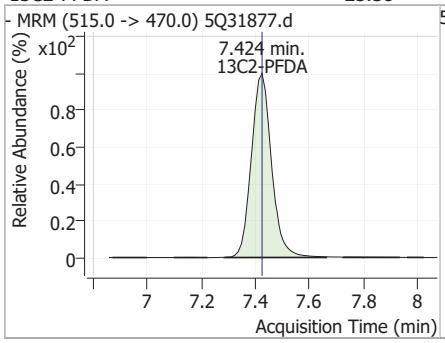


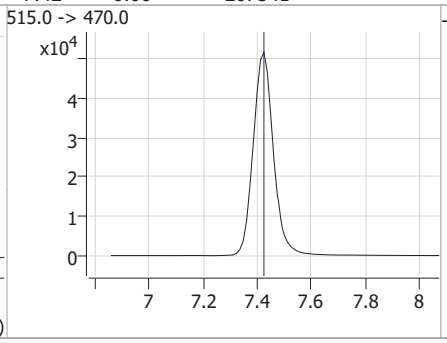


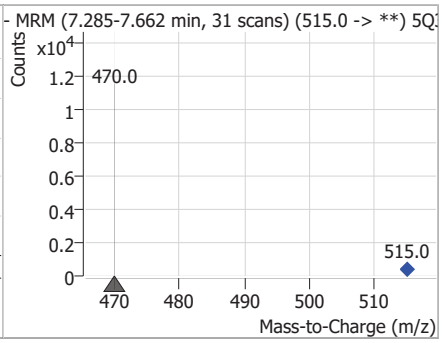




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	25.38	7.42	0.00	267541				

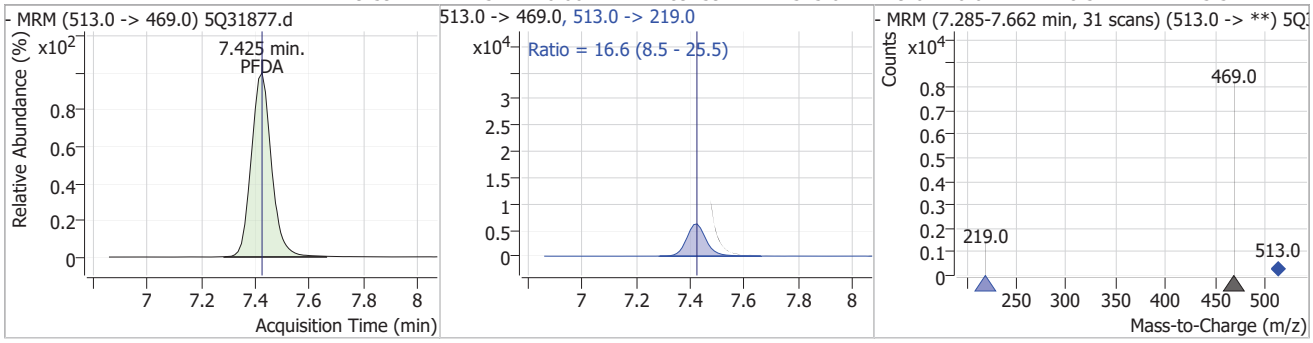




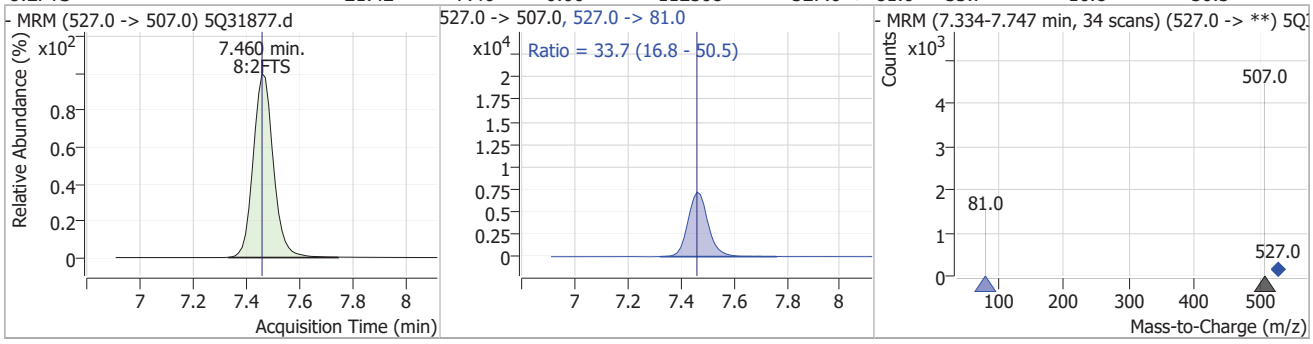


Perfluorinated Compounds by LC/MS/MS

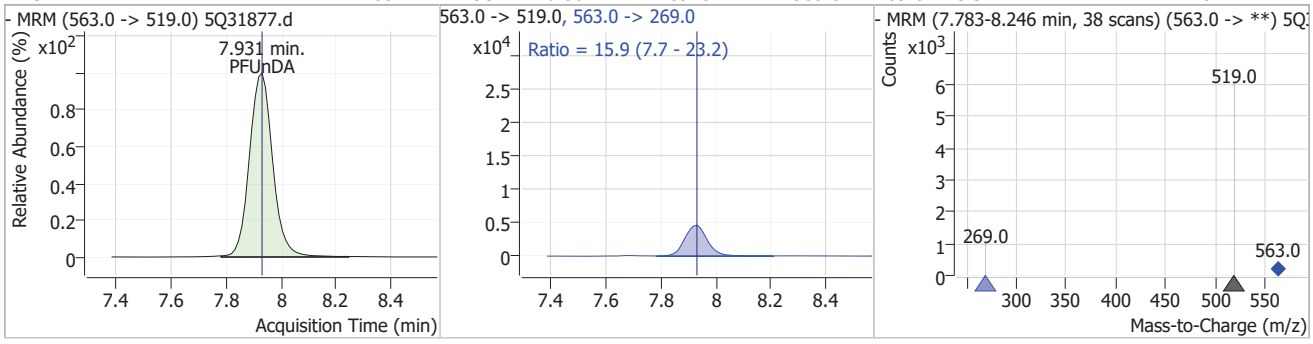
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.59	7.43	0.00	189259	513.0 -> 219.0	16.6	8.5	25.5



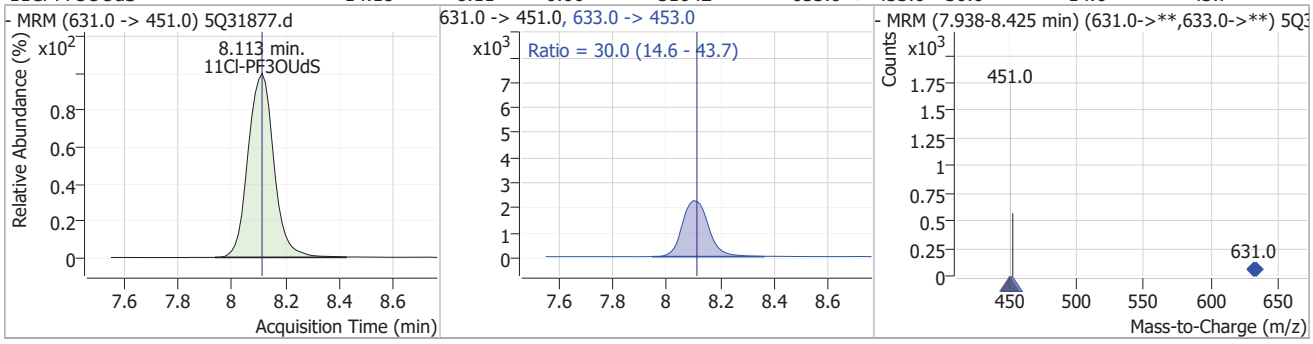
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.42	7.46	0.00	112508	527.0 -> 81.0	33.7	16.8	50.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	17.68	7.93	0.00	169752	563.0 -> 269.0	15.9	7.7	23.2

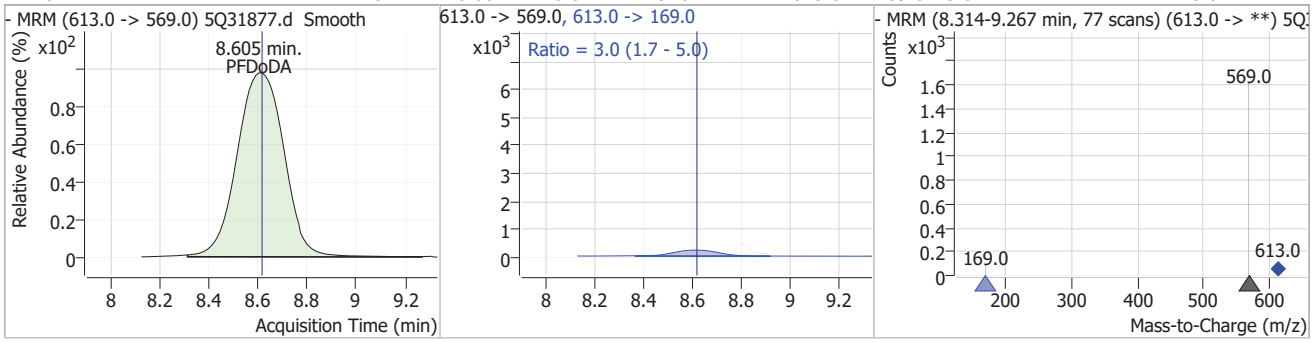


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	14.18	8.11	0.00	51042	633.0 -> 453.0	30.0	14.6	43.7

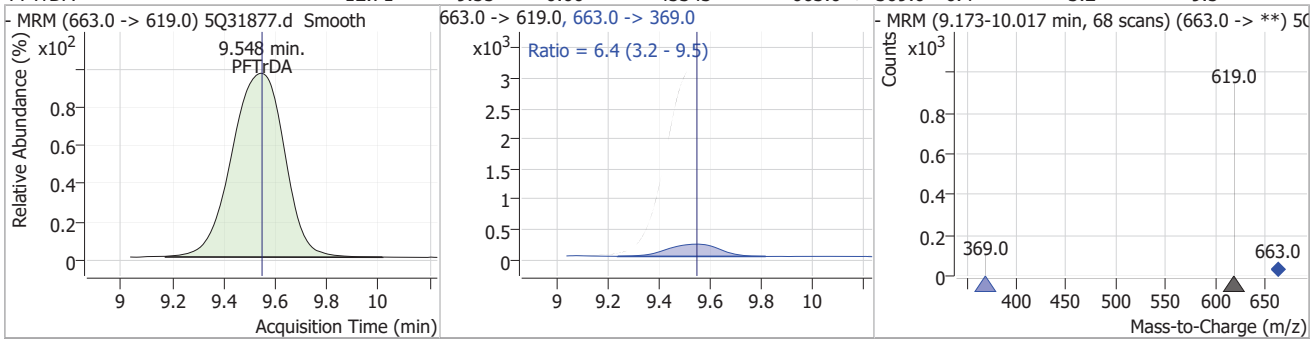


Perfluorinated Compounds by LC/MS/MS

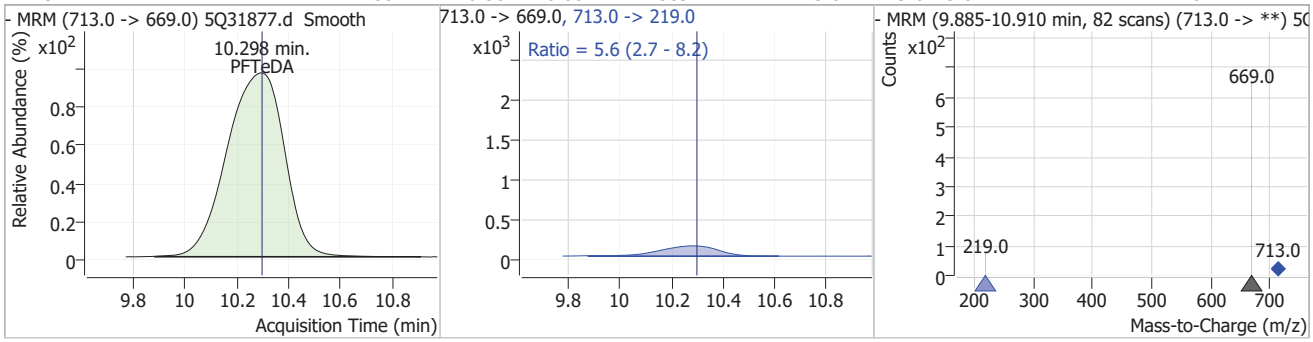
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	14.67	8.60	-0.01	91042	613.0 -> 169.0	3.0	1.7	5.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	12.71	9.55	0.00	45343	663.0 -> 369.0	6.4	3.2	9.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	11.08	10.30	0.00	36912	713.0 -> 219.0	5.6	2.7	8.2



7.3.3

7

Manual Integration Approval Summary

Sample Number: OP8904-BS
Lab FileID: 5Q31877.D
Injection Time: 04/18/25 17:13
Method: EPA 537.1 REV 2.0
Analyst approved: 04/21/25 09:54 (b) (6)
Supervisor approved: 04/21/25 10:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 10:39

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101527.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/17/2025 12:43:43 PM
Sample Name : op8907-ms:1
Vial : P3-C4
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1494.batch.bin
Sample Information : op8907,S3Q1494,285,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.447	415.0 -> 370.0	243304	10.00 µg/L	0.025
13C3-PFBA	2.344	216.0 -> 172.0	91913	10.00 µg/L	0.000
13C4-PFOS	8.008	503.0 -> 80.0	36091	10.00 µg/L	0.039
M4-PFBA	2.340	217.0 -> 172.0	127892	10.00 µg/L	0.000
M5-PFPeA	4.425	268.0 -> 223.0	157306	10.00 µg/L	0.013
M5-PFHxA	5.788	318.0 -> 273.0	203610	10.00 µg/L	0.013
M4-PFHpA	6.719	367.0 -> 322.0	172504	10.00 µg/L	0.025
M8-PFOA	7.447	421.0 -> 376.0	229733	10.00 µg/L	0.025
M9-PFNA	8.035	472.0 -> 427.0	248086	10.00 µg/L	0.038
M6-PFDA	8.558	519.0 -> 474.0	365271	10.00 µg/L	0.038
M7-PFUnDA	9.249	570.0 -> 525.0	599076	10.00 µg/L	0.064
M2-PFDoDA	10.196	615.0 -> 570.0	637140	10.00 µg/L	0.113
M3-PFBS	4.721	302.0 -> 99.0	17881	10.00 µg/L	0.013
M3-PFHxS	6.749	402.0 -> 99.0	25908	10.00 µg/L	0.025
M8-PFOS	8.008	507.0 -> 99.0	32461	10.00 µg/L	0.039
M2-4:2FTS	5.697	329.0 -> 309.0	67999	10.00 µg/L	0.025
M2-6:2FTS	7.445	429.0 -> 409.0	129668	10.00 µg/L	0.025
M2-8:2FTS	8.624	529.0 -> 509.0	204541	10.00 µg/L	0.039
M3-HFPO-DA	6.081	287.0 -> 169.0	2438	10.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.697	329.0 -> 309.0	67999	7.92 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.2%	
13C2-6:2FTS	7.445	429.0 -> 409.0	129668	8.04 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.4%	
13C2-8:2FTS	8.624	529.0 -> 509.0	204541	7.57 µg/L	0.039
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 75.7%	
13C2-PFDoDA	10.196	615.0 -> 570.0	637140	6.15 µg/L	0.113
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 61.5%	
13C3-PFBS	4.721	302.0 -> 99.0	17881	7.94 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.4%	
13C3-PFHxS	6.749	402.0 -> 99.0	25908	8.08 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.8%	
13C4-PFBA	2.340	217.0 -> 172.0	127892	8.20 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.0%	
13C4-PFHpA	6.719	367.0 -> 322.0	172504	8.38 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 83.8%	
13C5-PFHxA	5.788	318.0 -> 273.0	203610	8.26 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.6%	
13C5-PFPeA	4.425	268.0 -> 223.0	157306	8.37 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 83.7%	
13C6-PFDA	8.558	519.0 -> 474.0	365271	8.97 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.7%	
13C7-PFUnDA	9.249	570.0 -> 525.0	599076	7.37 µg/L	0.064
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 73.7%	
13C8-PFOA	7.447	421.0 -> 376.0	229737	8.60 µg/L	0.025

Perfluorinated Compounds by LC/MS/MS

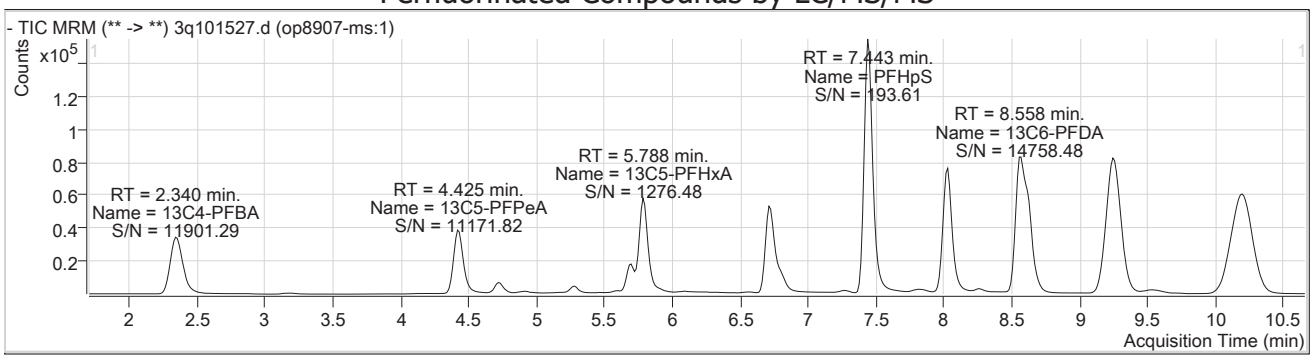
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 86.0%		
13C8-PFOS	8.008	507.0 -> 99.0	32461	7.91 µg/L		0.039
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.1%		
13C9-PFNA	8.035	472.0 -> 427.0	248086	8.54 µg/L		0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 85.4%		
13C3-HFPO-DA	6.081	287.0 -> 169.0	2438	6.88 µg/L		0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 68.8%		
Target Compounds						QValue
PFMPA	3.178	229.0 -> 85.0	4060	0.98 µg/L		100
4:2FTS	5.699	327.0 -> 307.0	7284	0.88 µg/L		96
		327.0 -> 81.0	3251			
6:2FTS	7.445	427.0 -> 407.0	10823	0.98 µg/L		99
		427.0 -> 81.0	4835			
8:2FTS	8.625	527.0 -> 507.0	15466	1.10 µg/L		95
		527.0 -> 81.0	5827			
PFMBA	4.913	279.0 -> 85.0	5517	0.95 µg/L		100
PFEESA	5.274	315.0 -> 135.0	15324	0.95 µg/L		100
		315.0 -> 69.0	1184			
NFDHA	5.607	201.0 -> 85.0	4587	0.90 µg/L		100
		295.0 -> 201.0	296			
PFBA	2.348	213.0 -> 169.0	6662	1.88 µg/L		100
PFBS	4.722	299.0 -> 80.0	8176	2.26 µg/L		95
		299.0 -> 99.0	3690			
PFDA	8.559	513.0 -> 469.0	19178	0.93 µg/L		97
		513.0 -> 219.0	4190			
PFDoDA	10.200	613.0 -> 569.0	38109	0.90 µg/L		97
		613.0 -> 169.0	3709			
PFHpA	6.720	363.0 -> 319.0	44541	1.84 µg/L		100
		363.0 -> 169.0	3726			
PFHpS	7.443	449.0 -> 80.0	4872	1.03 µg/L		99
		449.0 -> 99.0	2703			
PFHxA	5.791	313.0 -> 269.0	51063	2.66 µg/L		99
		313.0 -> 119.0	1895			
PFHxS	6.750	399.0 -> 80.0	12881	2.82 µg/L	m	99
		399.0 -> 99.0	6730			
PFNA	8.036	463.0 -> 419.0	20547	1.01 µg/L		97
		463.0 -> 219.0	5757			
PFOA	7.448	413.0 -> 369.0	46442	2.62 µg/L	m	96
		413.0 -> 169.0	18405			
PFOS	8.009	499.0 -> 80.0	20308	3.91 µg/L	m	90
		499.0 -> 99.0	9153			
PFPeA	4.427	263.0 -> 219.0	39601	3.34 µg/L		100
PFPeS	5.908	349.0 -> 80.0	3057	1.16 µg/L		97
		349.0 -> 99.0	1223			
PFUnDA	9.252	563.0 -> 519.0	35458	0.92 µg/L		96
		563.0 -> 269.0	6228			
11Cl-PF3OUdS	9.545	631.0 -> 451.0	16201	0.67 µg/L		100
		631.0 -> 83.0	816			
9Cl-PF3ONS	8.254	531.0 -> 351.0	6924	0.83 µg/L		99
		531.0 -> 83.0	334			
ADONA	6.805	377.0 -> 251.0	31906	0.85 µg/L		98
		377.0 -> 85.0	4019			
HFPO-DA	6.089	329.0 -> 169.0	57	0.93 µg/L		100
		285.0 -> 169.0	137			

 # = Qualifier out of range, m = manually integrated, + = Area summed

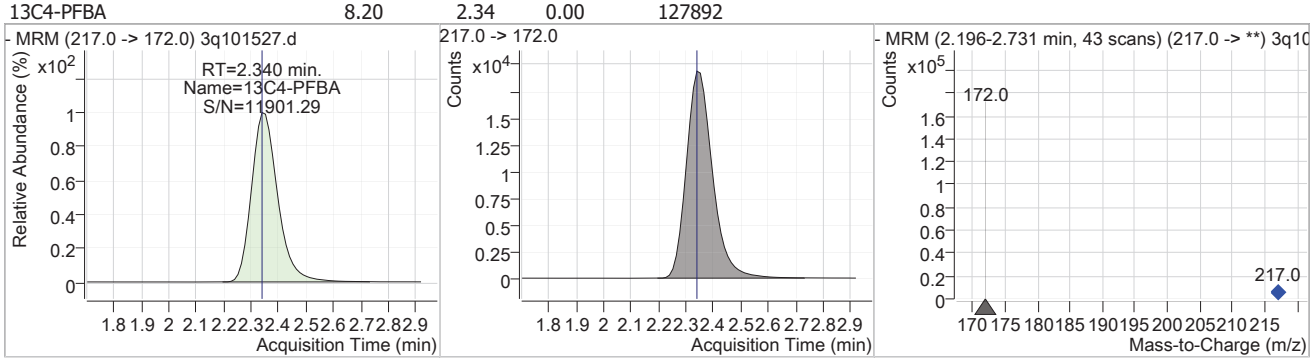
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

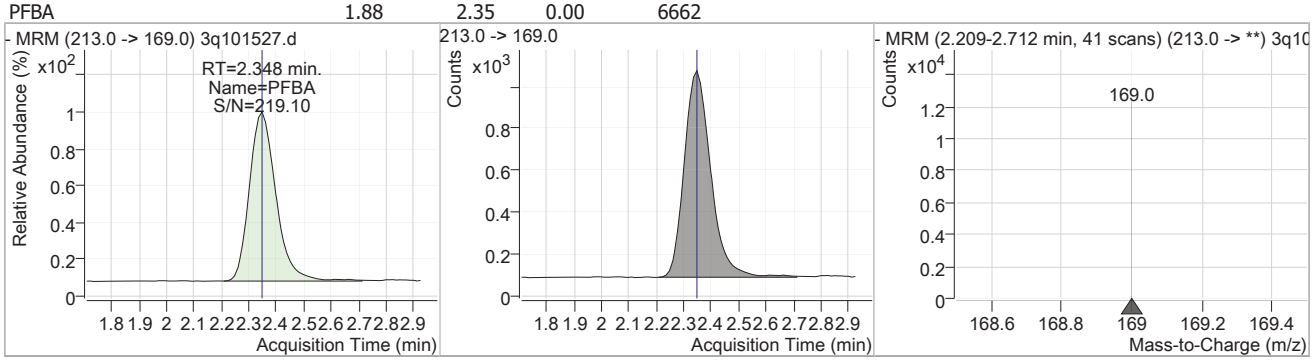
Perfluorinated Compounds by LC/MS/MS



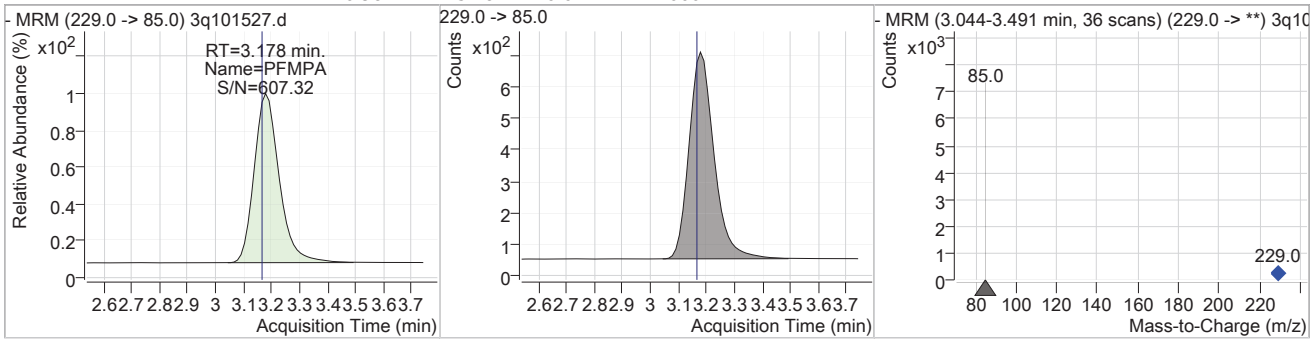
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	8.20	2.34	0.00	127892				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	1.88	2.35	0.00	6662				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	0.98	3.18	0.01	4060				



7.4.1

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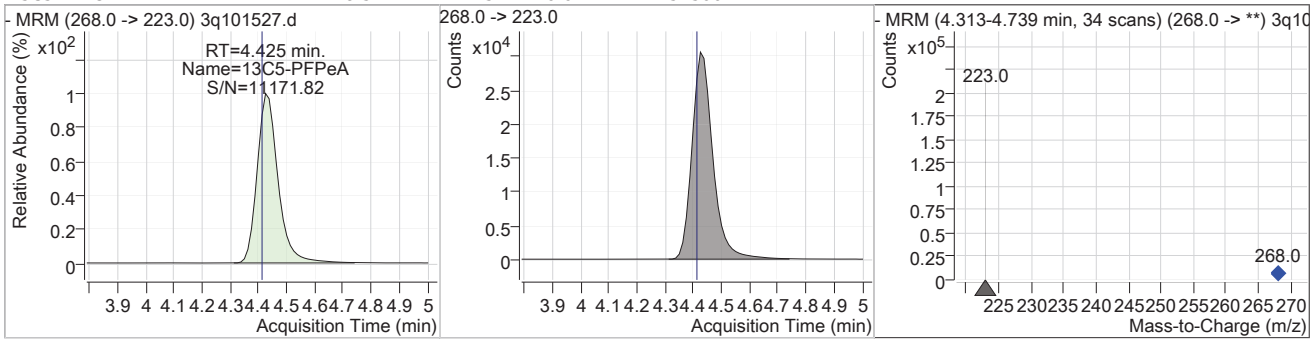
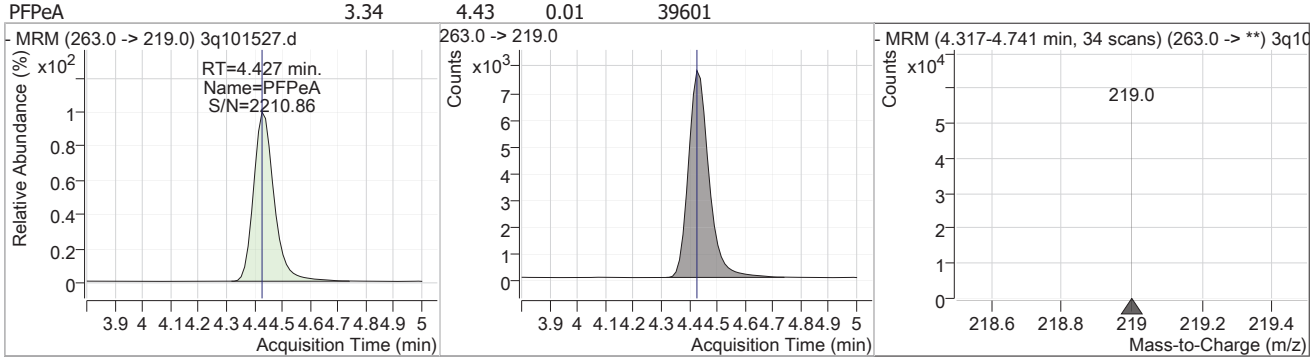
Perfluorinated Compounds by LC/MS/MS

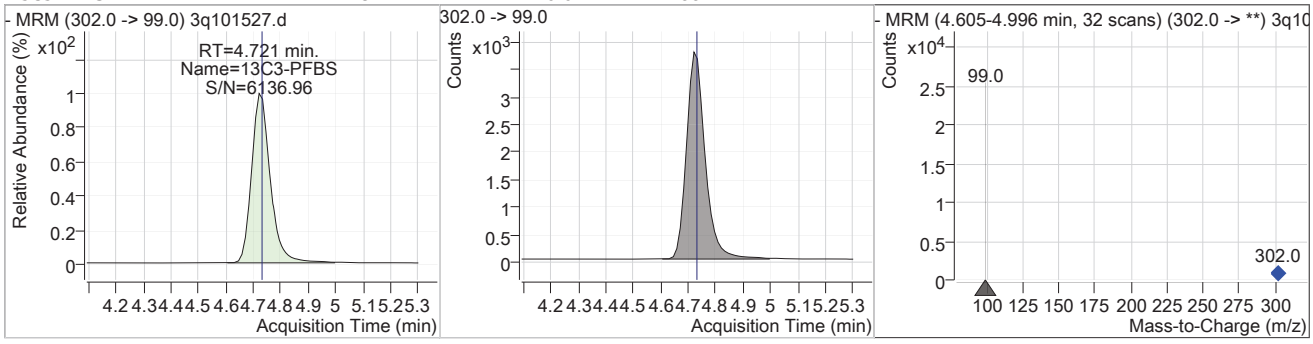
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	8.37	4.43	0.01	157306				



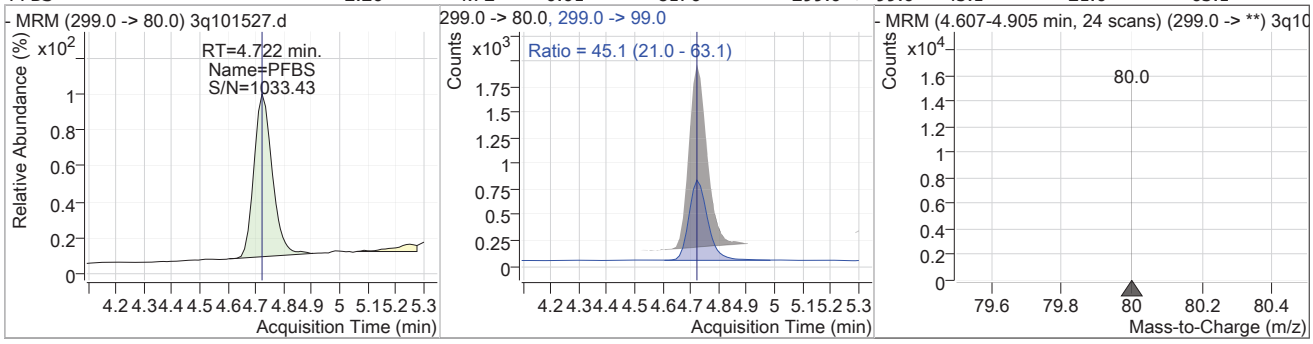
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	3.34	4.43	0.01	39601				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	7.94	4.72	0.01	17881				

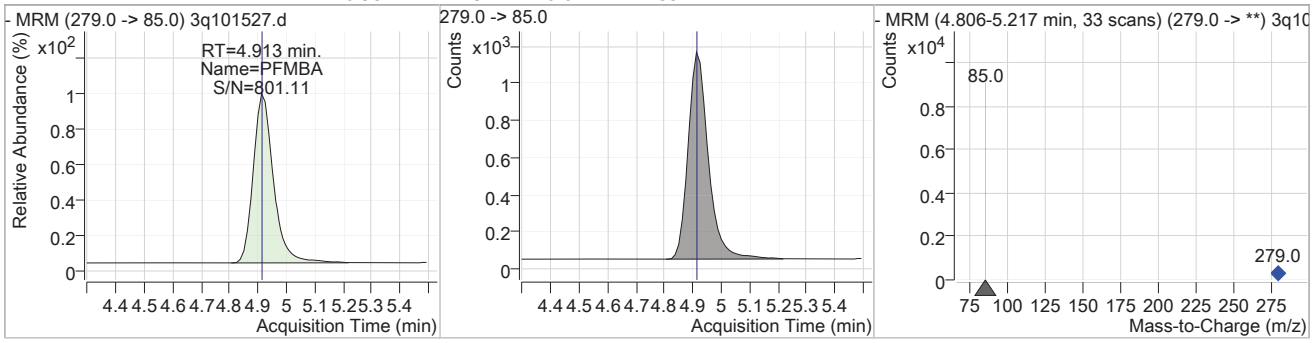


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.26	4.72	0.01	8176	299.0 -> 99.0	45.1	21.0	63.1

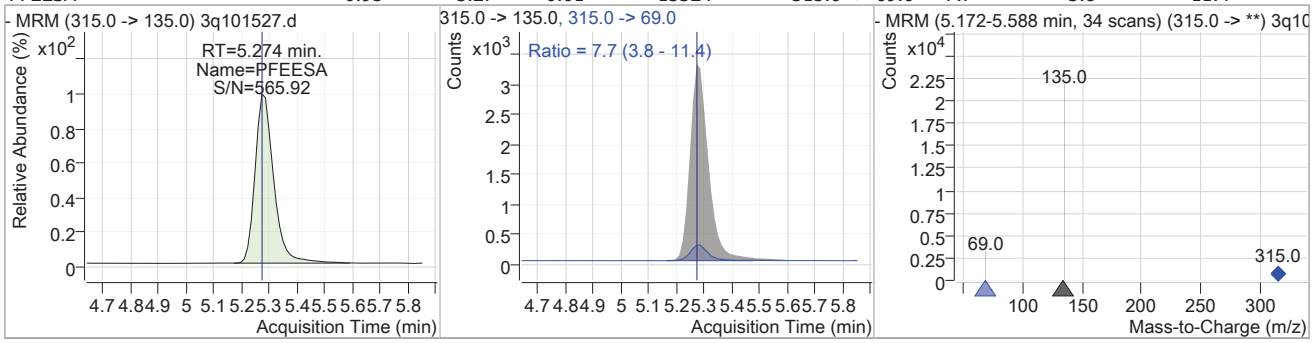


Perfluorinated Compounds by LC/MS/MS

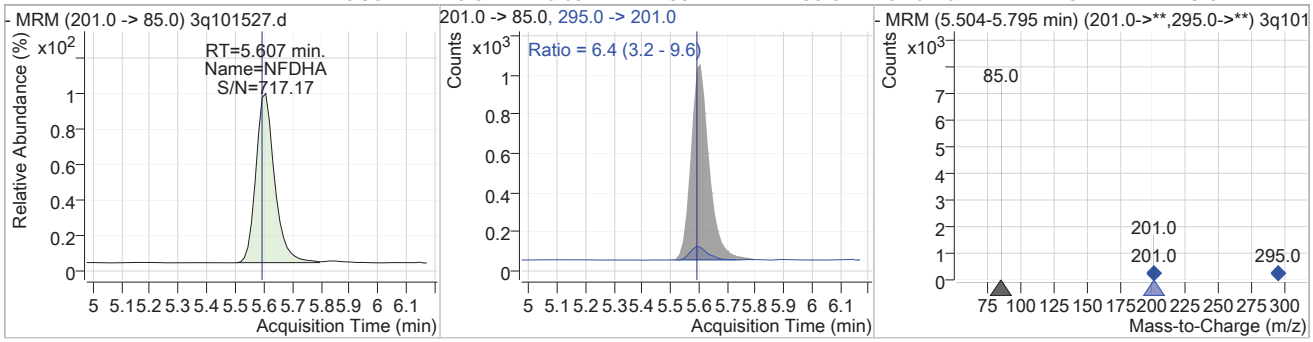
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.95	4.91	0.01	5517				



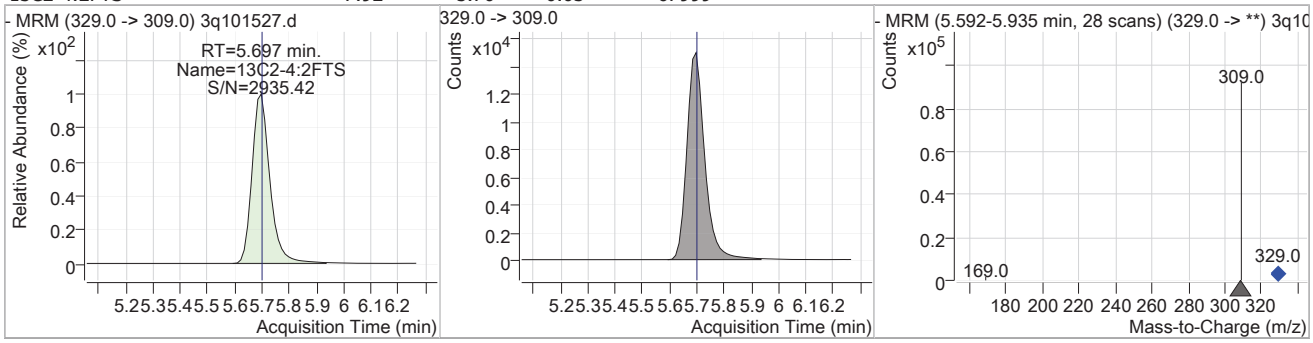
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.95	5.27	0.01	15324	315.0 -> 69.0	7.7	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	0.90	5.61	0.03	4587	295.0 -> 201.0	6.4	3.2	9.6

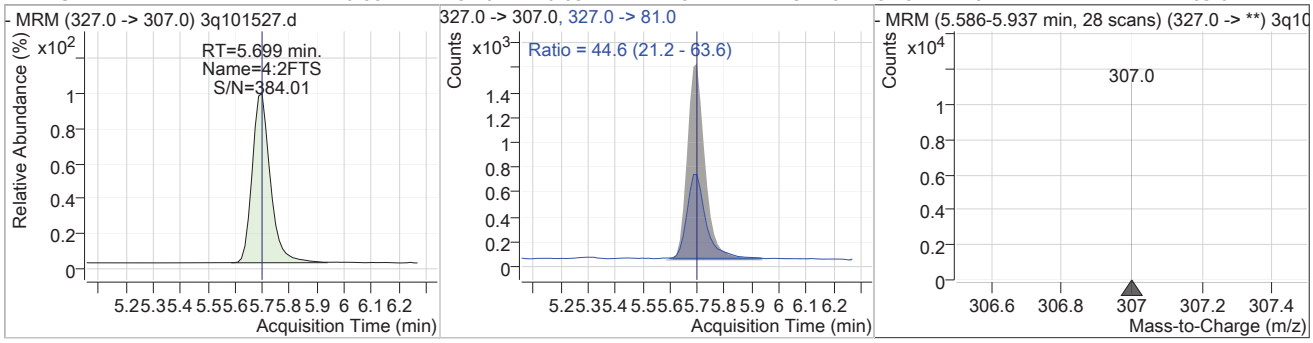


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	7.92	5.70	0.03	67999				

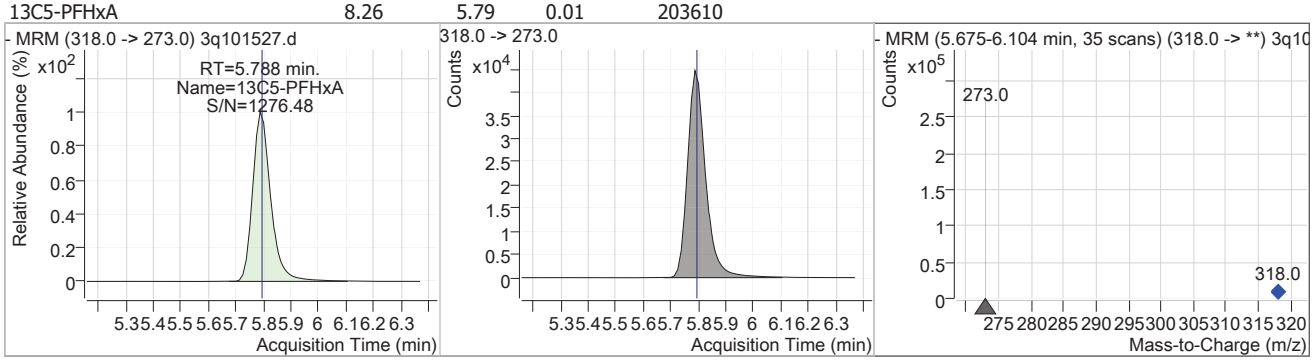


Perfluorinated Compounds by LC/MS/MS

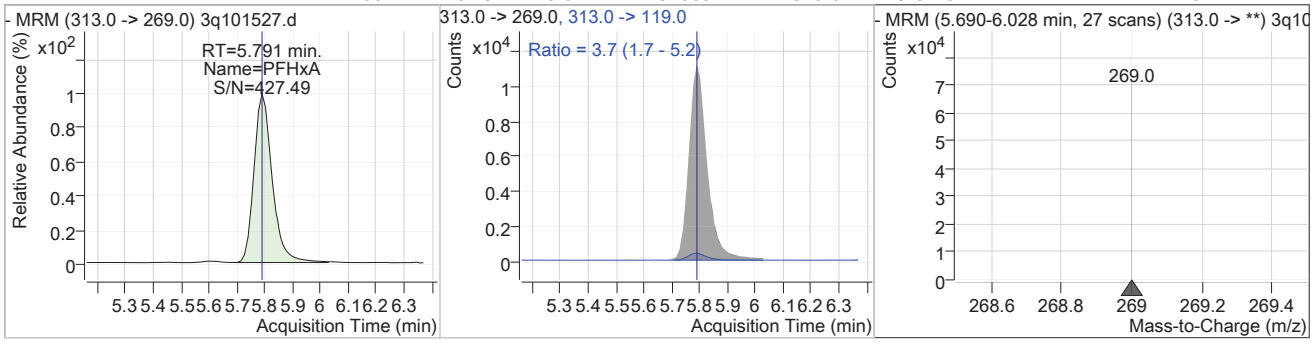
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	0.88	5.70	0.03	7284	327.0 -> 81.0	44.6	21.2	63.6



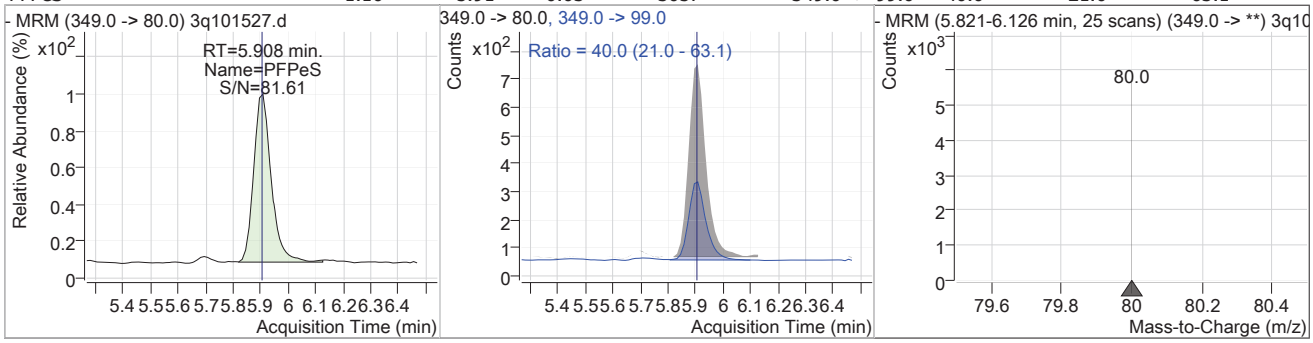
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	8.26	5.79	0.01	203610				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.66	5.79	0.01	51063	313.0 -> 119.0	3.7	1.7	5.2

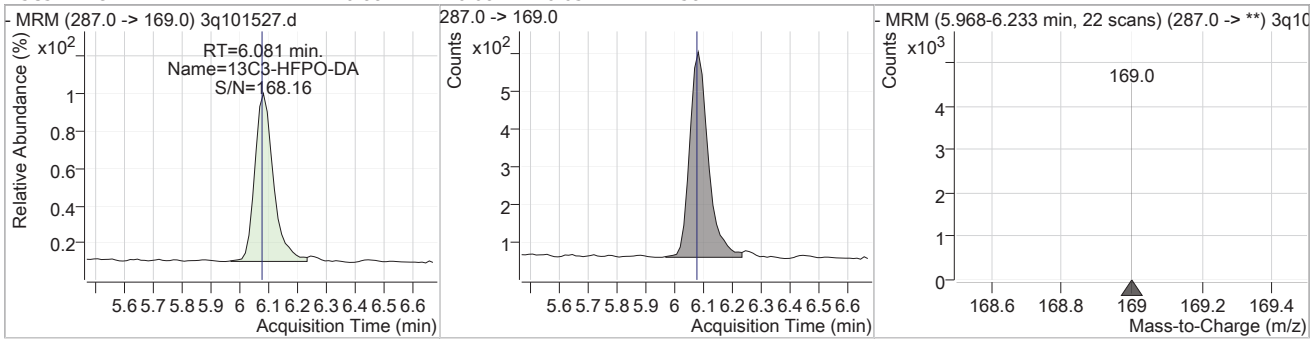


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	1.16	5.91	0.03	3057	349.0 -> 99.0	40.0	21.0	63.1

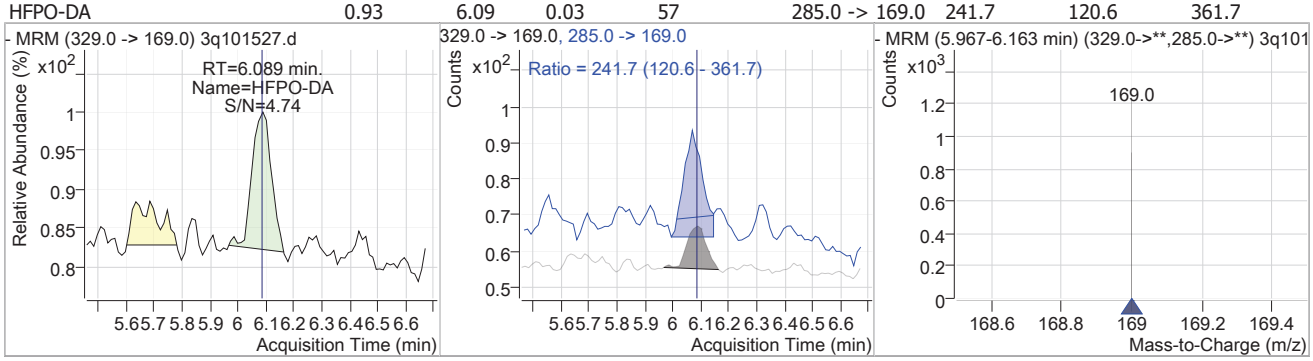


Perfluorinated Compounds by LC/MS/MS

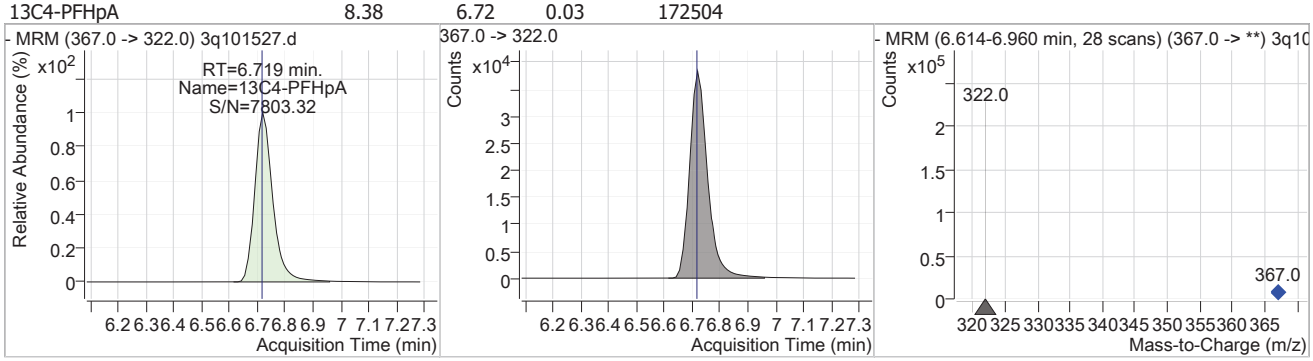
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	6.88	6.08	0.03	2438				



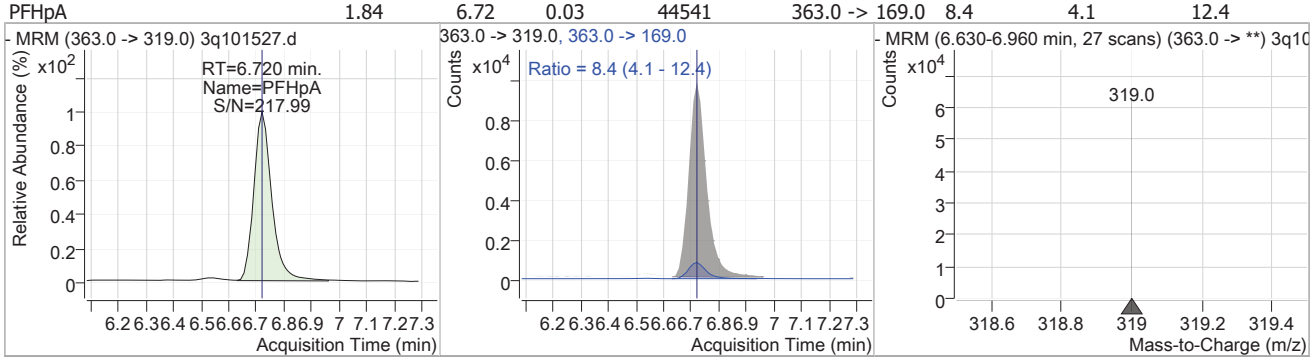
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.93	6.09	0.03	57	285.0 -> 169.0	241.7	120.6	361.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	8.38	6.72	0.03	172504				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.84	6.72	0.03	44541	363.0 -> 169.0	8.4	4.1	12.4



7.4.1

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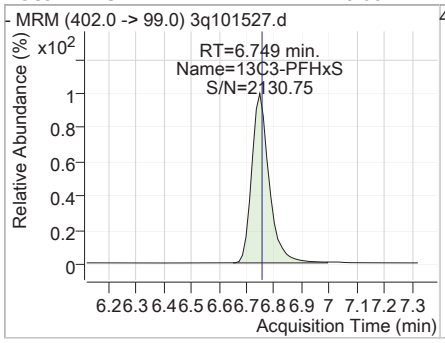
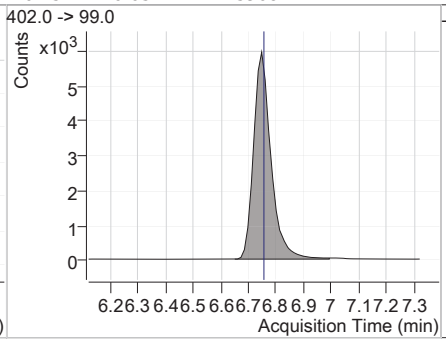
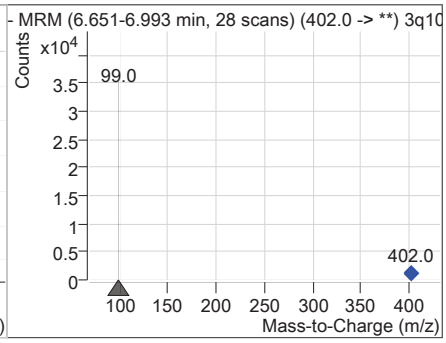
Perfluorinated Compounds by LC/MS/MS

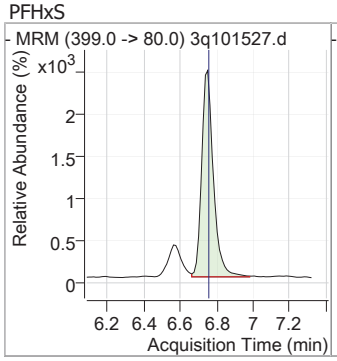
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	8.08	6.75	0.03	25908				

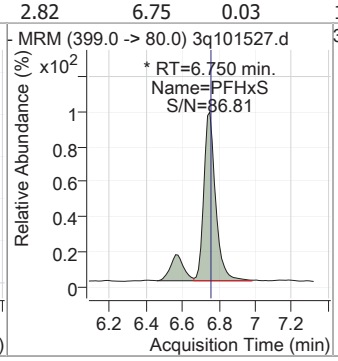


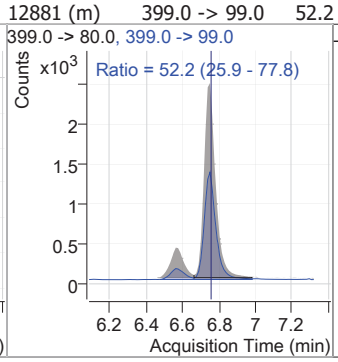


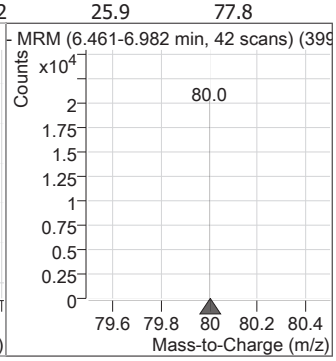


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.82	6.75	0.03	12881 (m)	399.0 -> 99.0	52.2	25.9	77.8

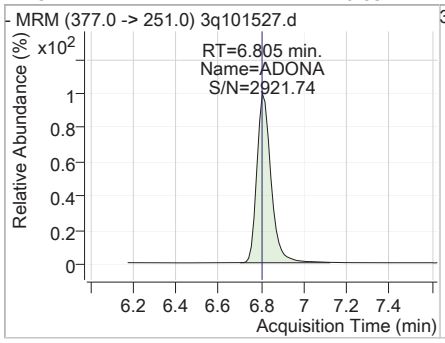


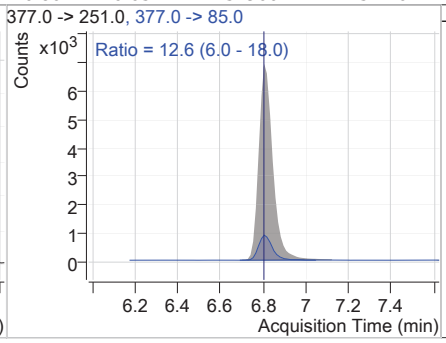


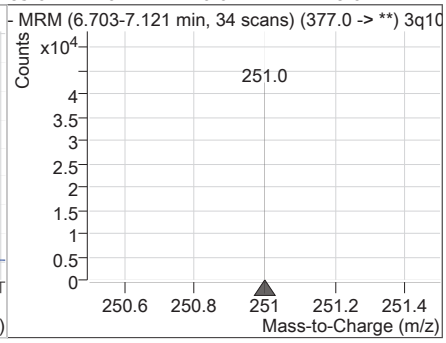




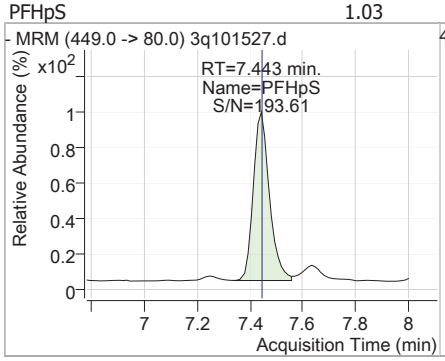
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.85	6.80	0.03	31906	377.0 -> 85.0	12.6	6.0	18.0

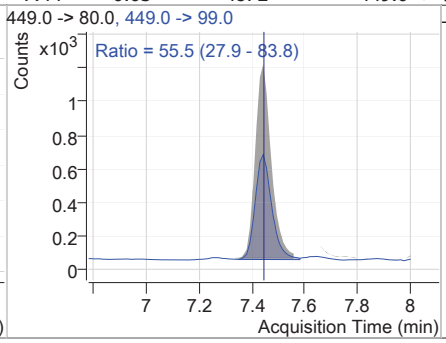


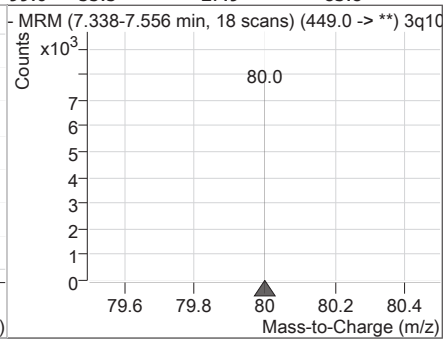




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	1.03	7.44	0.03	4872	449.0 -> 99.0	55.5	27.9	83.8

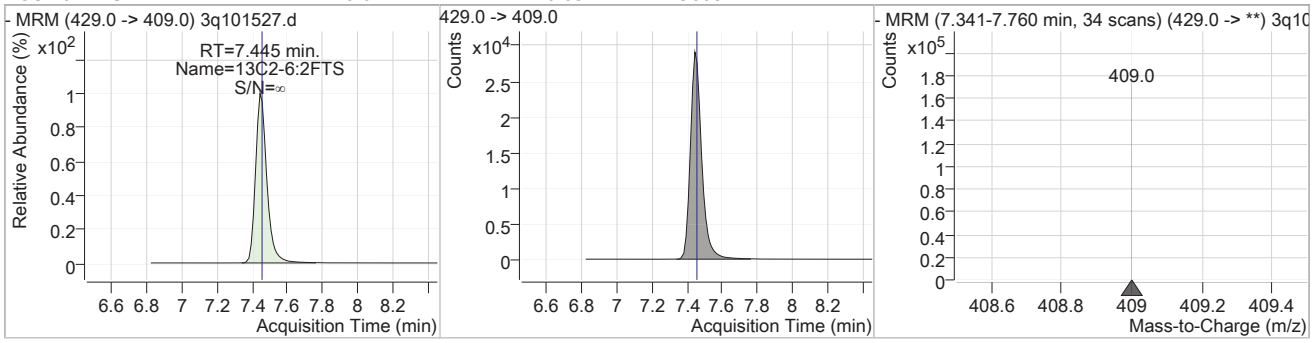




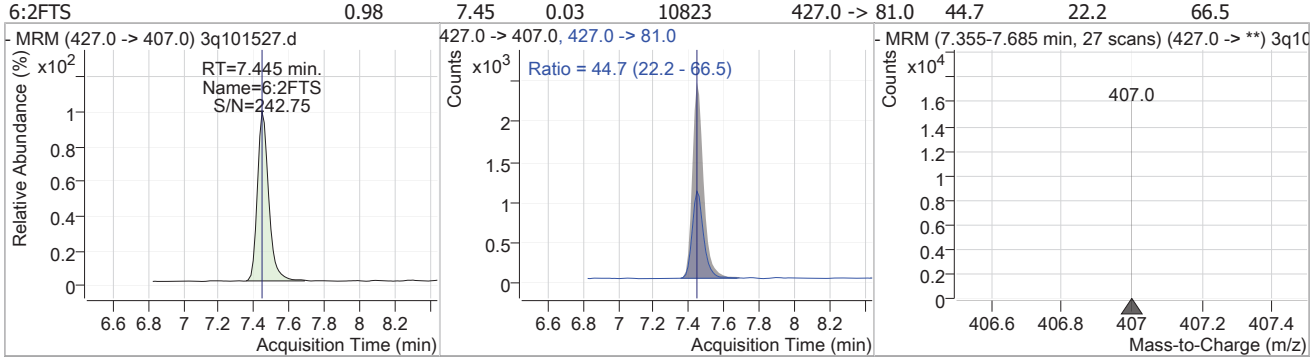


Perfluorinated Compounds by LC/MS/MS

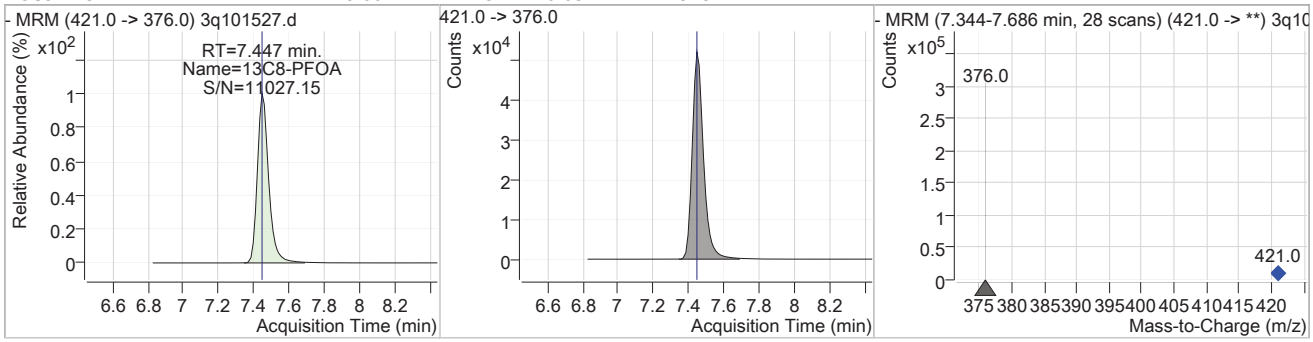
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	8.04	7.44	0.03	129668				



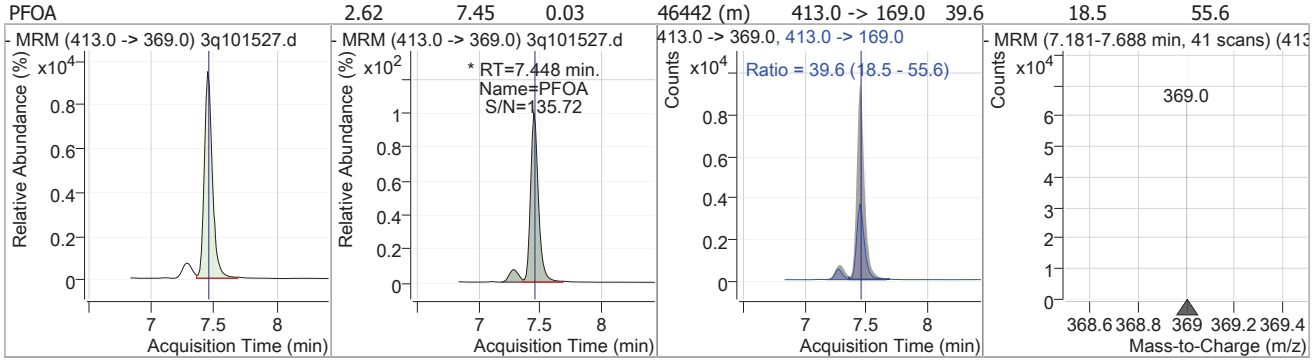
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.98	7.45	0.03	10823	427.0 -> 81.0	44.7	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	8.60	7.45	0.03	229737				

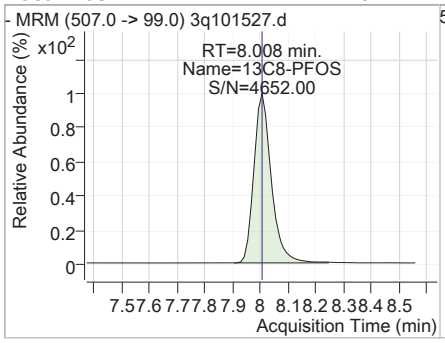


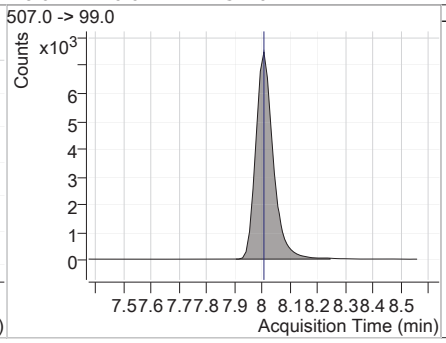
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	2.62	7.45	0.03	46442 (m)	413.0 -> 169.0	39.6	18.5	55.6

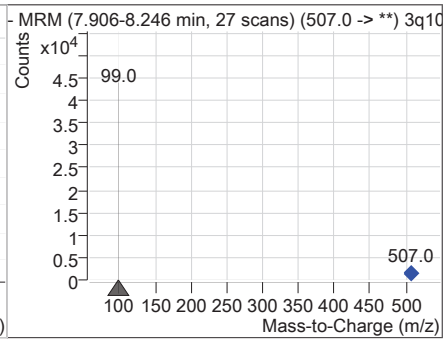


Perfluorinated Compounds by LC/MS/MS

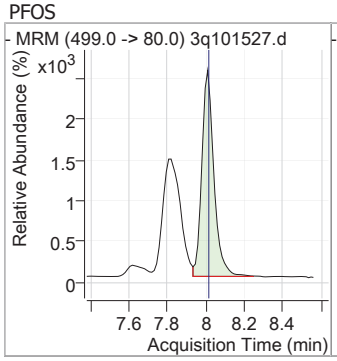
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	7.91	8.01	0.04	32461				

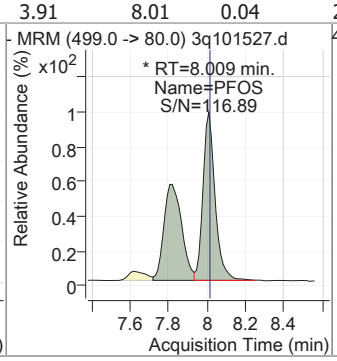


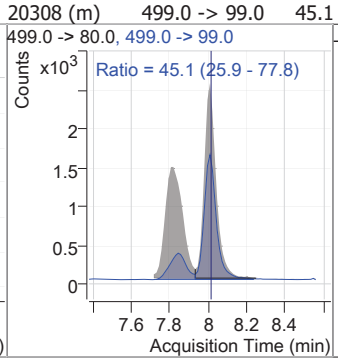


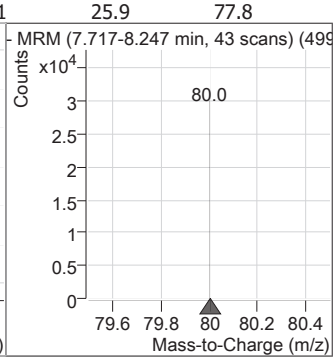


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	3.91	8.01	0.04	20308 (m)	499.0 -> 99.0	45.1	25.9	77.8

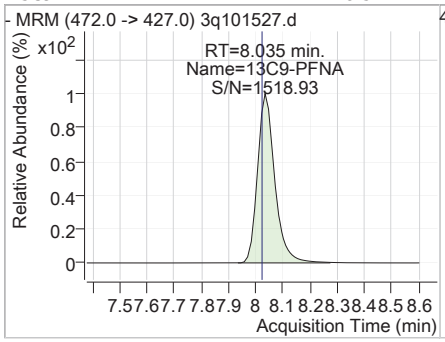


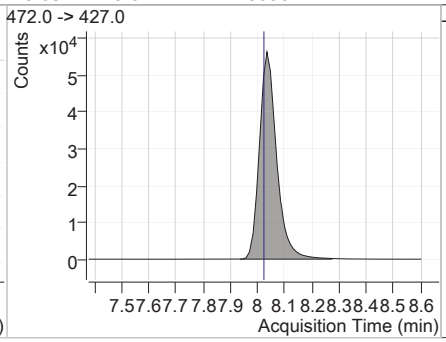


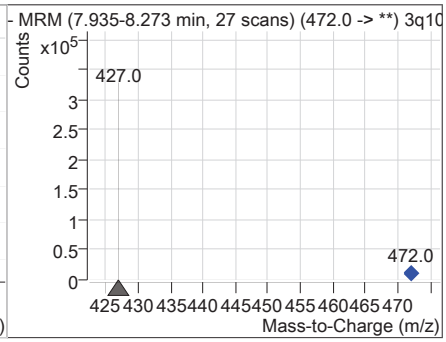




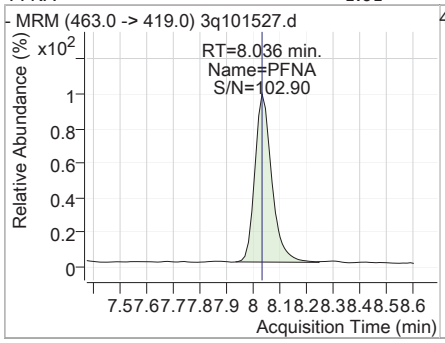
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	8.54	8.03	0.04	248086				

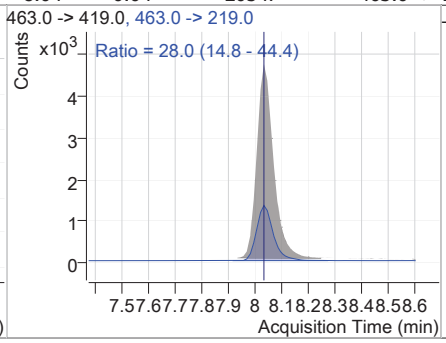


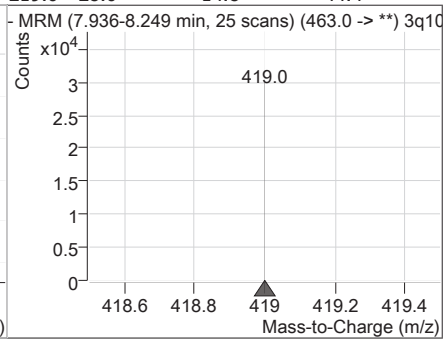




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.01	8.04	0.04	20547	463.0 -> 219.0	28.0	14.8	44.4

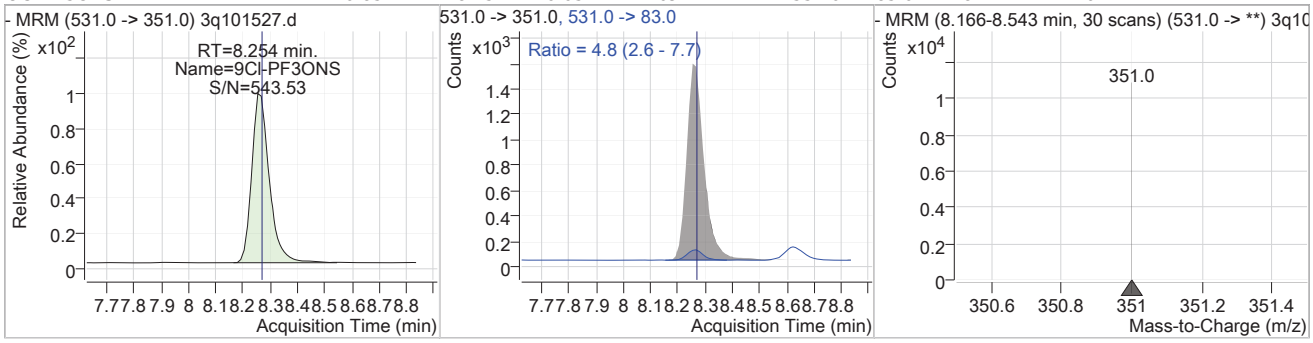




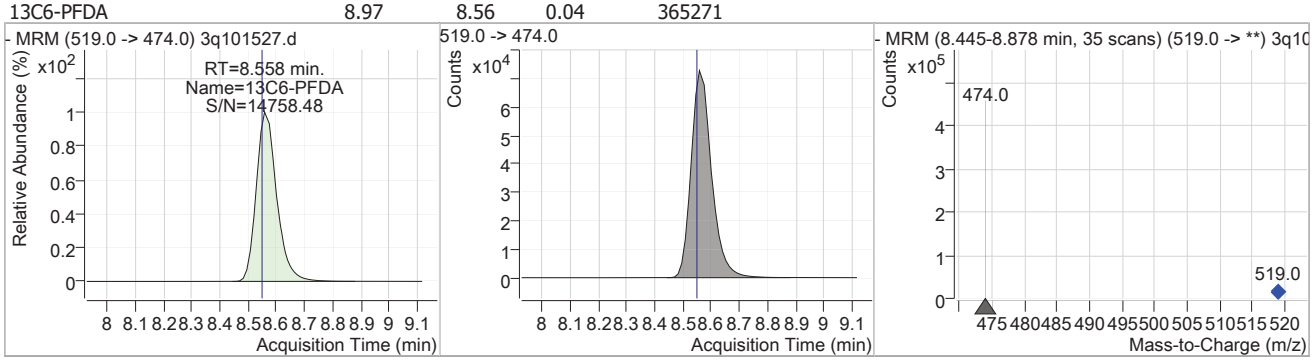


Perfluorinated Compounds by LC/MS/MS

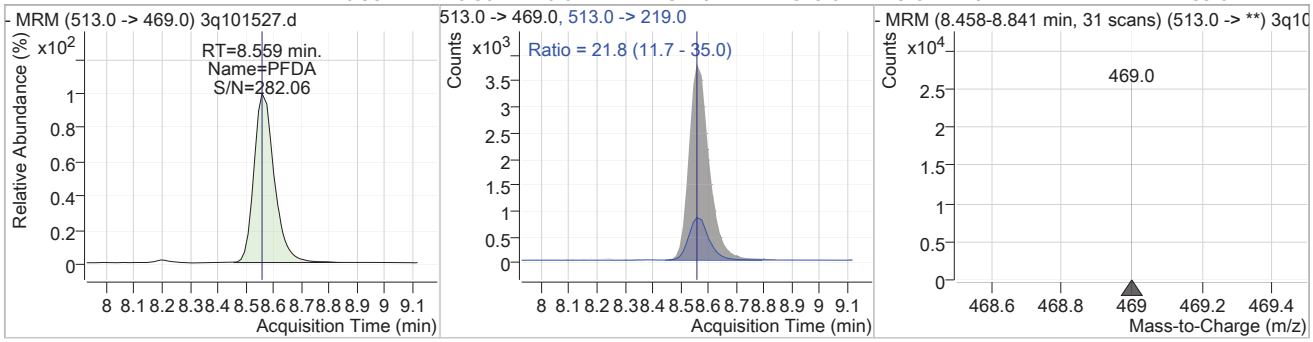
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.83	8.25	0.03	6924	531.0 -> 83.0	4.8	2.6	7.7



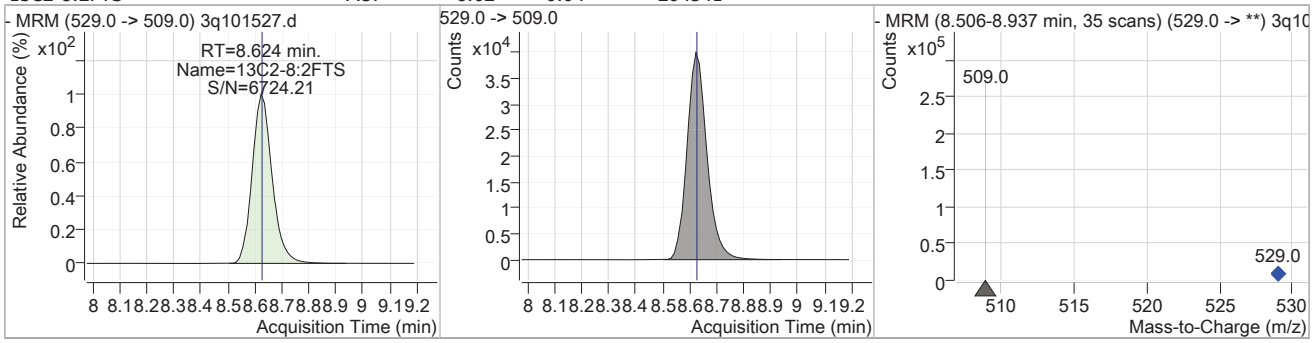
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	8.97	8.56	0.04	365271				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.93	8.56	0.04	19178	513.0 -> 219.0	21.8	11.7	35.0

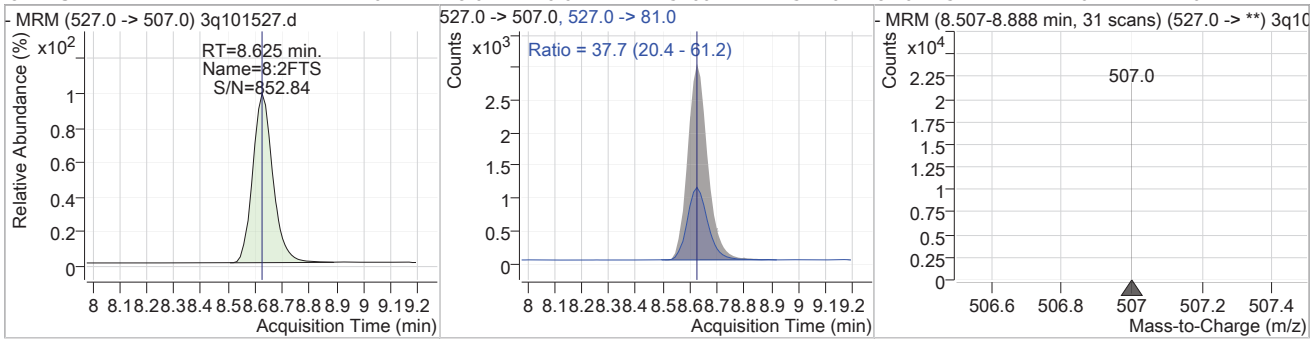


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	7.57	8.62	0.04	204541				

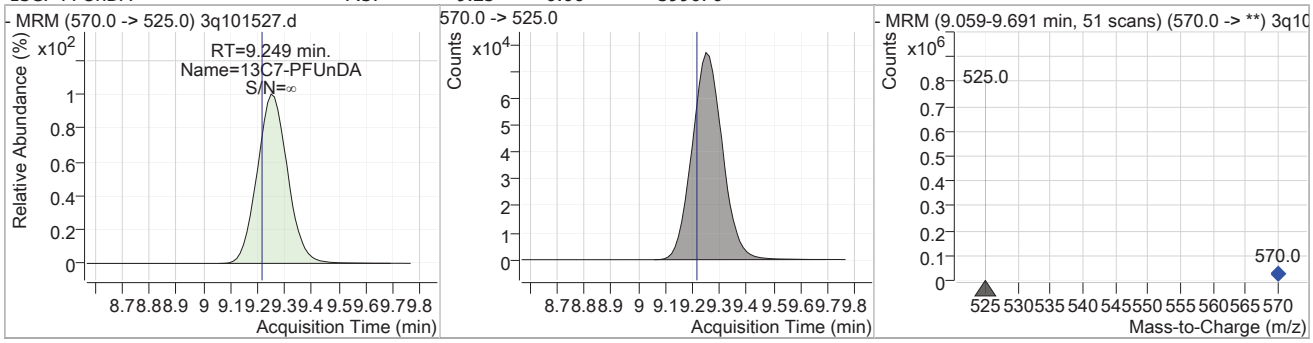


Perfluorinated Compounds by LC/MS/MS

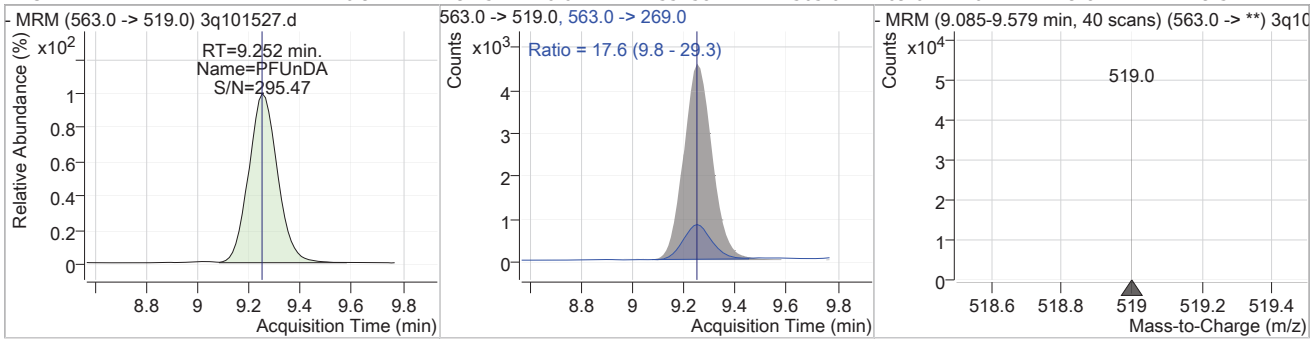
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	1.10	8.62	0.04	15466	527.0 -> 81.0	37.7	20.4	61.2



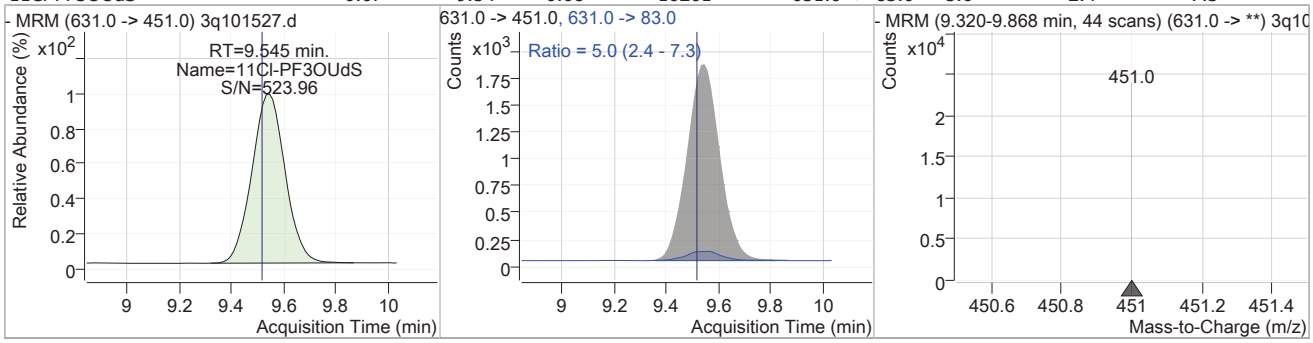
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	7.37	9.25	0.06	599076				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.92	9.25	0.07	35458	563.0 -> 269.0	17.6	9.8	29.3

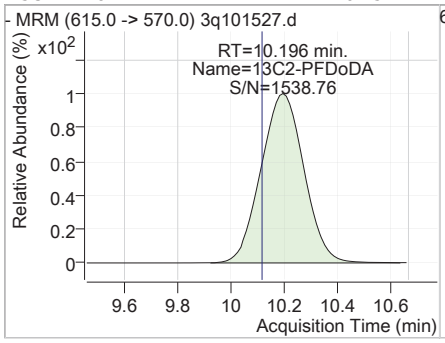


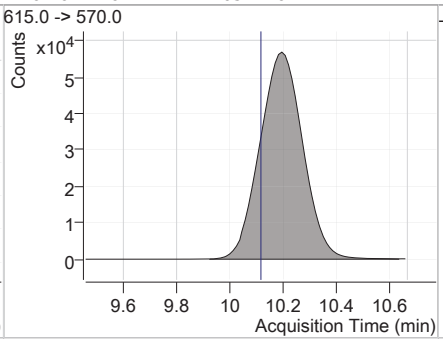
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.67	9.54	0.08	16201	631.0 -> 83.0	5.0	2.4	7.3

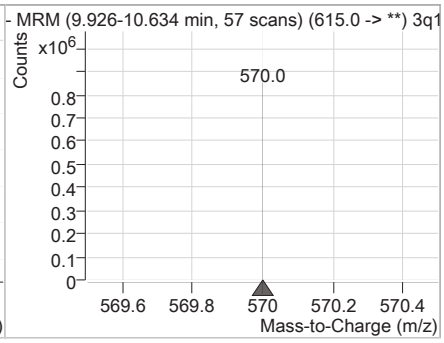


Perfluorinated Compounds by LC/MS/MS

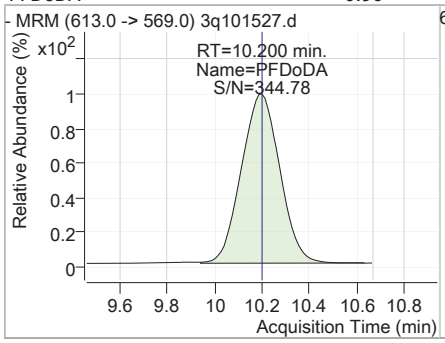
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	6.15	10.20	0.11	637140				

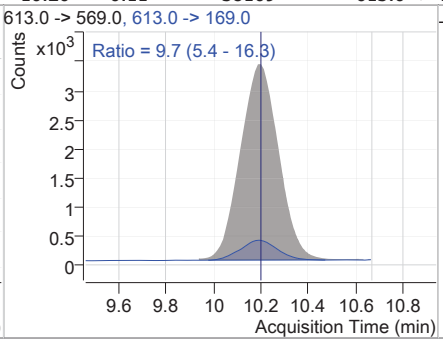


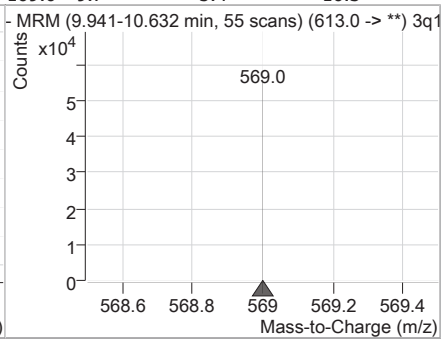




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.90	10.20	0.11	38109	613.0 -> 169.0	9.7	5.4	16.3







Manual Integration Approval Summary

Sample Number: OP8907-MS
Lab FileID: 3Q101527.D
Injection Time: 04/17/25 12:43
Method: EPA 533
Analyst approved: 04/18/25 10:32 (b) (6) [redacted]
Supervisor approved: 04/18/25 10:39 (b) (6) [redacted]

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.75	Split peak
Perfluorooctanoic acid	335-67-1		7.45	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.01	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/21/25 10:52

Perfluorinated Compounds by LC/MS/MS

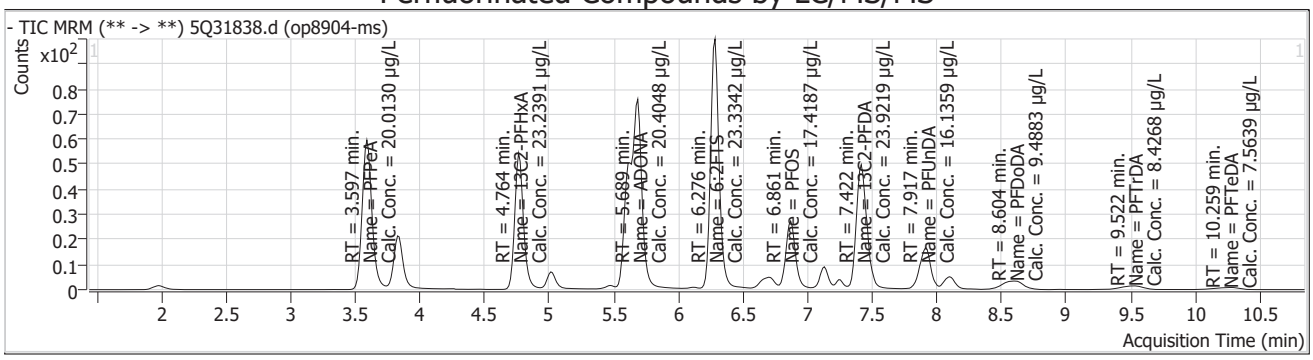
Data File : 5Q31838.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 5:34:44 PM
Sample Name : op8904-ms
Vial : P2-E7
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8904,S5Q523,280,,,1,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.275	429.0 -> 409.0	221139	20.00 µg/L		-0.012
13C2-PFOA	6.290	415.0 -> 370.0	395329	20.00 µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	489738	20.00 µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	98834	20.00 µg/L		0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	28577	40.00 µg/L		-0.012
System Monitoring Compounds						
13C2-PFDA	7.422	515.0 -> 470.0	404721	23.92 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 119.6%		
13C2-PFHxA	4.764	315.0 -> 270.0	582129	23.24 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 116.2%		
d5-EtFOSAA	7.378	589.0 -> 419.0	27343	50.42 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 126.1%		
13C3-HFPO-DA	5.020	287.0 -> 169.0	78251	44.21 µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 110.5%		
Target Compounds						QValue
6:2FTS	6.276	427.0 -> 407.0	258627	23.33 µg/L		97
8:2FTS	7.458	527.0 -> 507.0	171060	17.79 µg/L		99
EtFOSAA	7.379	584.0 -> 419.0	9935	20.77 µg/L	m	96
MeFOSAA	7.254	570.0 -> 419.0	13228	20.51 µg/L		96
PFBS	3.828	299.0 -> 80.0	257240	19.89 µg/L		99
PFDA	7.423	513.0 -> 469.0	273484	19.38 µg/L		100
PFDoDA	8.604	613.0 -> 569.0	134883	9.49 µg/L		99
PFHpA	5.615	363.0 -> 319.0	636696	19.65 µg/L		100
PFHxA	4.765	313.0 -> 269.0	299639	17.58 µg/L		100
PFHxS	5.636	399.0 -> 80.0	155447	19.27 µg/L	m	100
PFNA	6.887	463.0 -> 419.0	272192	21.28 µg/L	m	99
PFOA	6.291	413.0 -> 369.0	378654	20.09 µg/L		99
PFOS	6.861	499.0 -> 80.0	113565	17.42 µg/L	m	96
PFPeA	3.597	263.0 -> 219.0	631185	20.01 µg/L		100
PFTeDA	10.259	713.0 -> 669.0	37319	7.56 µg/L		100
PFTrDA	9.522	663.0 -> 619.0	60279	8.43 µg/L		98
PFUnDA	7.917	563.0 -> 519.0	261723	16.14 µg/L		100
ADONA	5.689	377.0 -> 251.0	856375	20.40 µg/L		99
9Cl-PF3ONS	7.131	531.0 -> 351.0	106914	19.93 µg/L		99
11Cl-PF3OUdS	8.100	631.0 -> 451.0	80924	14.55 µg/L		100
HFPO-DA	5.023	285.0 -> 169.0	29985	19.42 µg/L		99

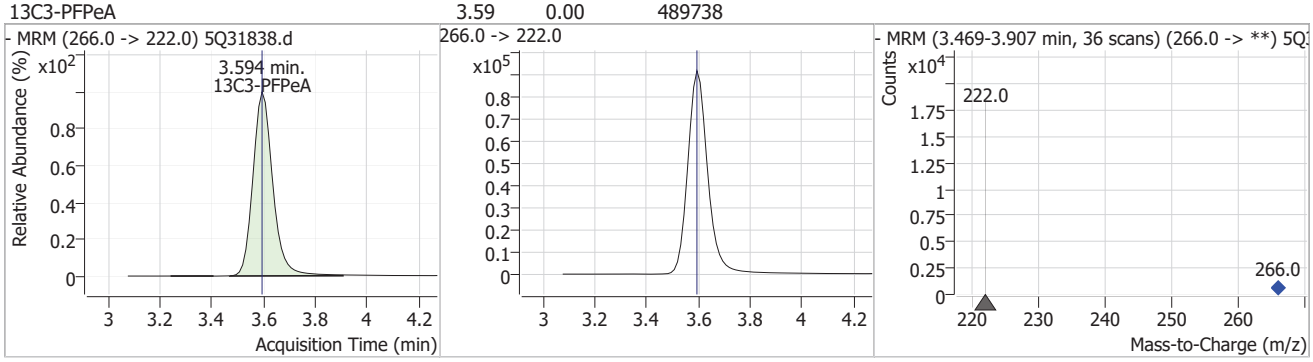
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.4.2
7

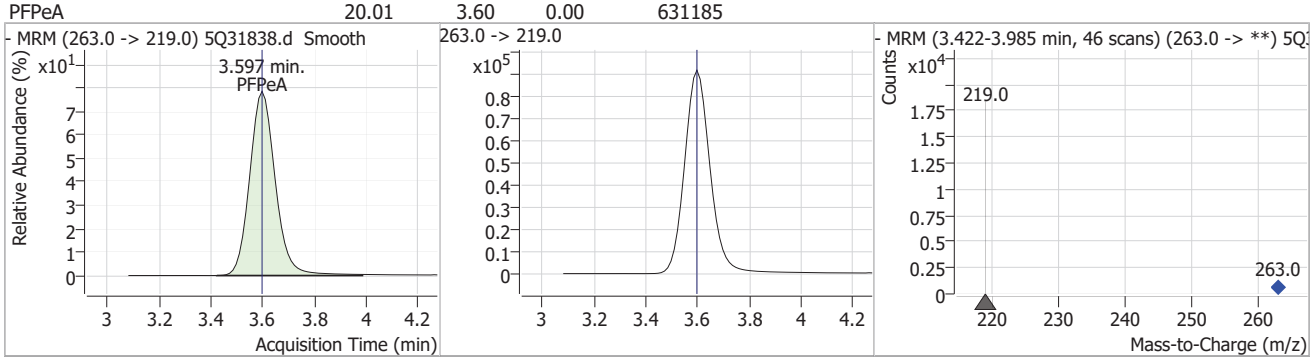
Perfluorinated Compounds by LC/MS/MS



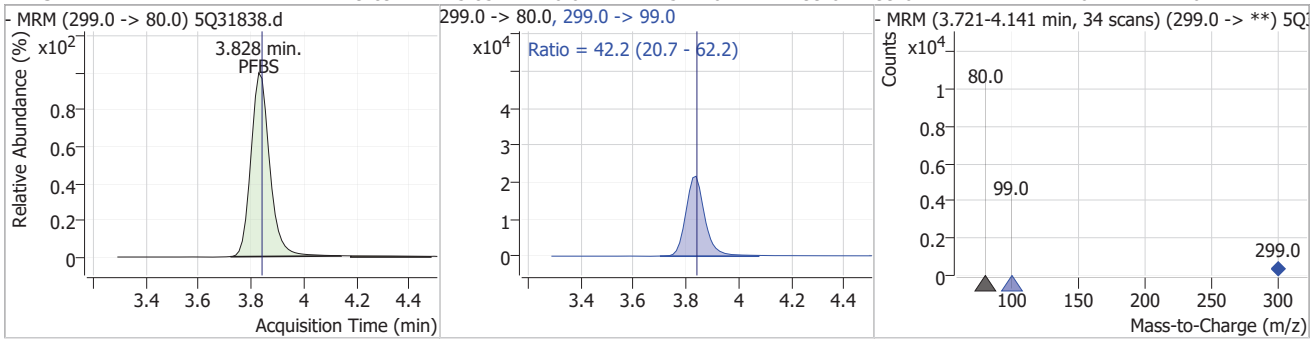
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	489738				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.01	3.60	0.00	631185				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.89	3.83	-0.01	257240	299.0 -> 99.0	42.2	20.7	62.2



7.4.2

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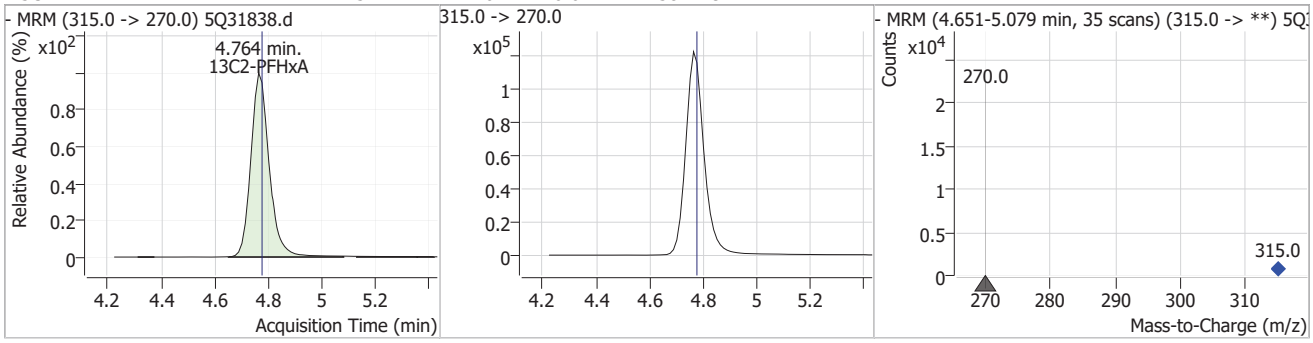
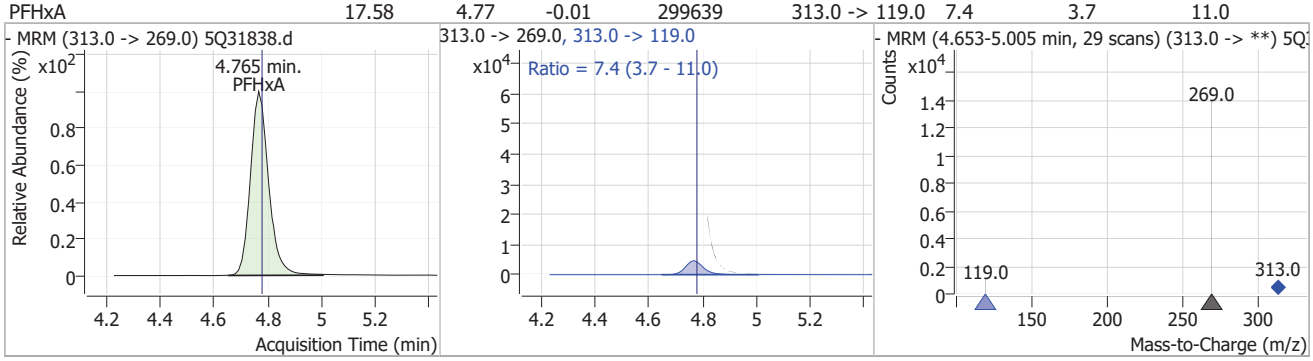
Perfluorinated Compounds by LC/MS/MS

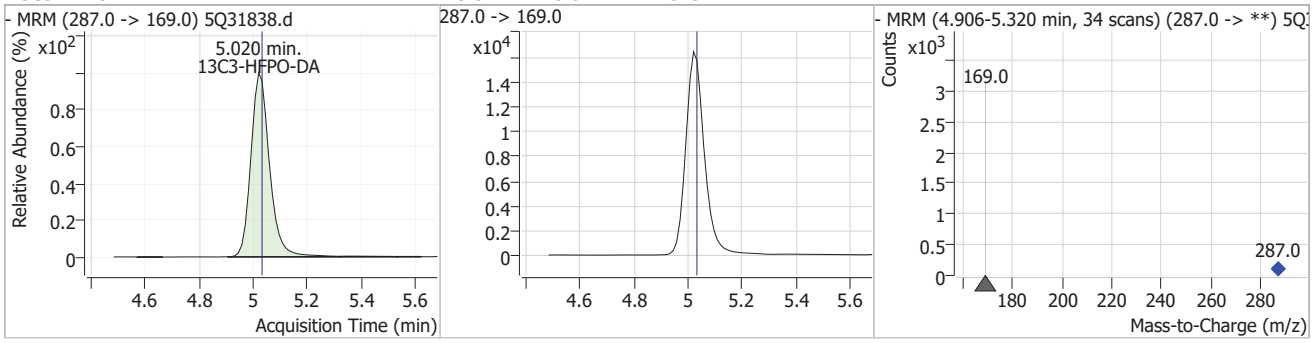
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	23.24	4.76	-0.01	582129				



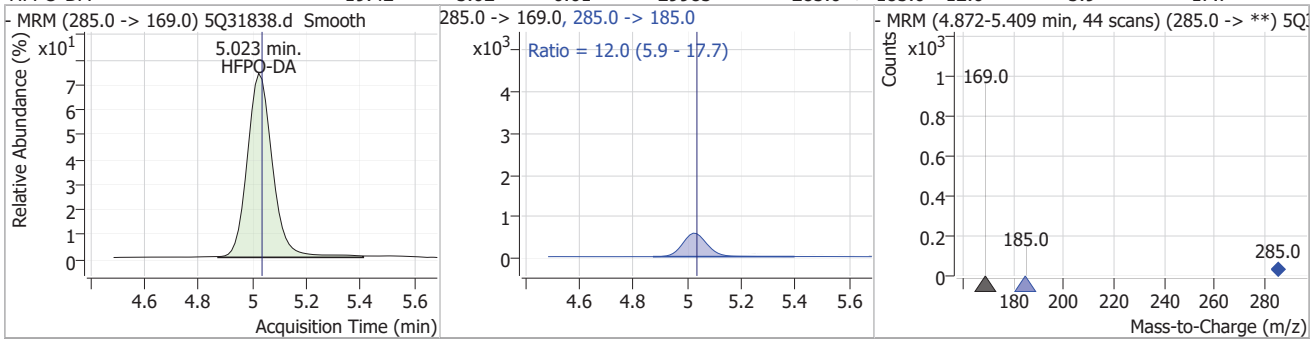
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	17.58	4.77	-0.01	299639	313.0 -> 119.0	7.4	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	44.21	5.02	-0.01	78251				

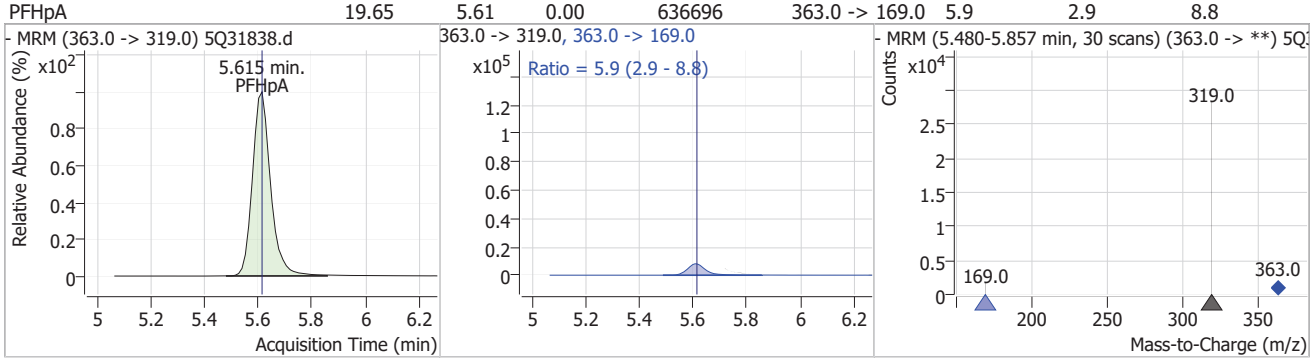


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.42	5.02	-0.01	29985	285.0 -> 185.0	12.0	5.9	17.7

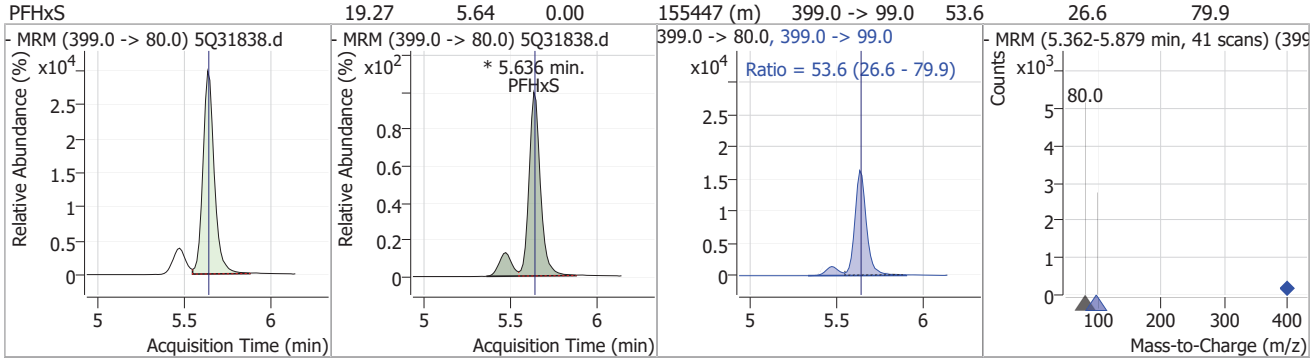


Perfluorinated Compounds by LC/MS/MS

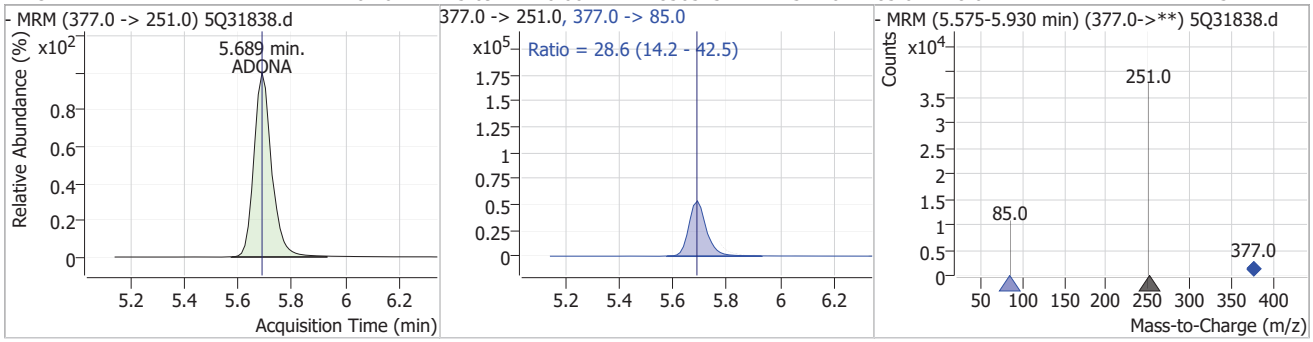
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.65	5.61	0.00	636696	363.0 -> 169.0	5.9	2.9	8.8



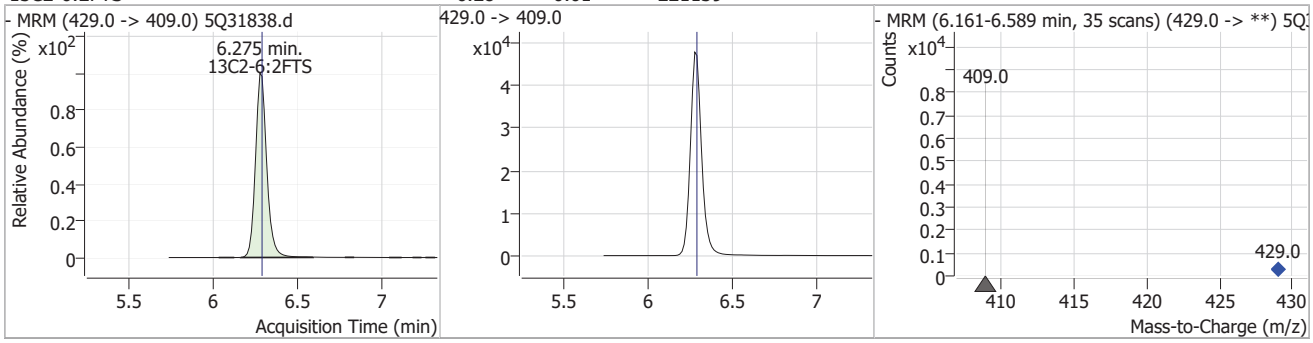
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.27	5.64	0.00	155447 (m)	399.0 -> 99.0	53.6	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.40	5.69	0.00	856375	377.0 -> 85.0	28.6	14.2	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	221139				



7.4.2

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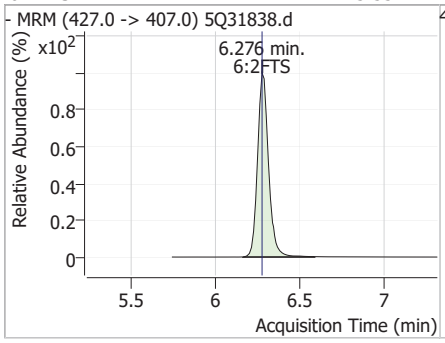
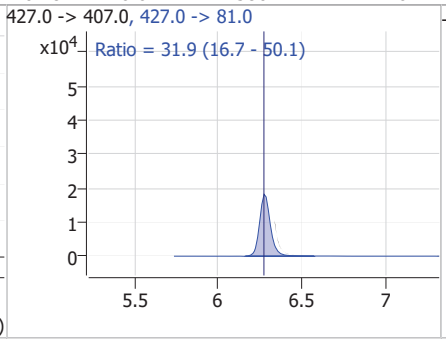
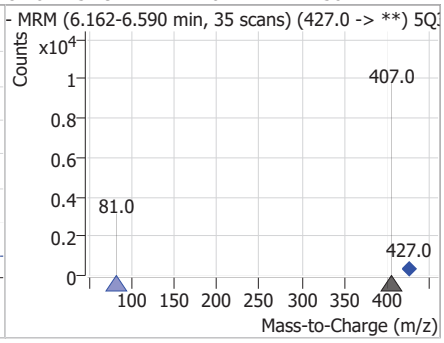
Perfluorinated Compounds by LC/MS/MS

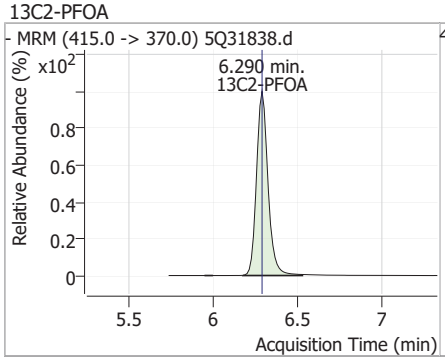
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	23.33	6.28	-0.01	258627	427.0 -> 81.0	31.9	16.7	50.1

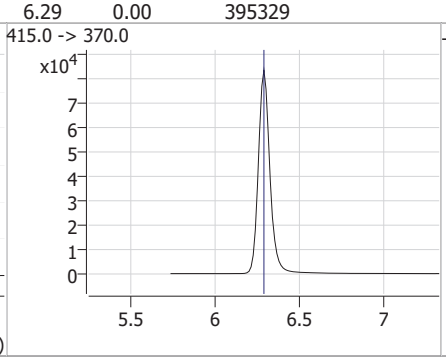


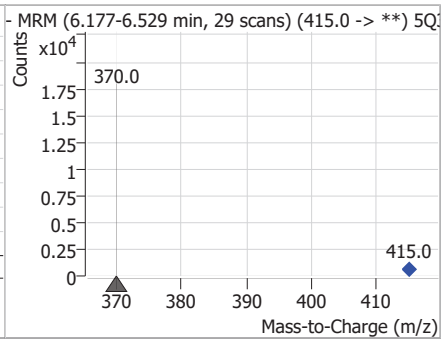




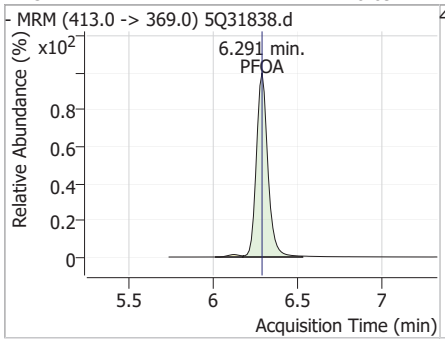
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	395329				

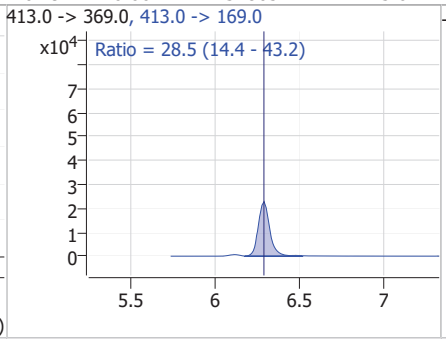


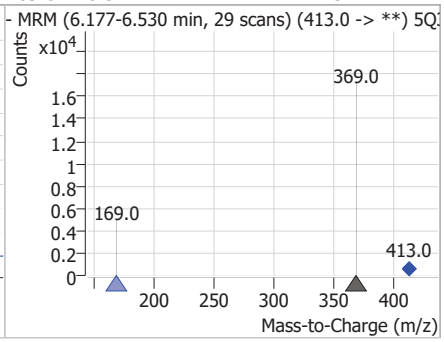




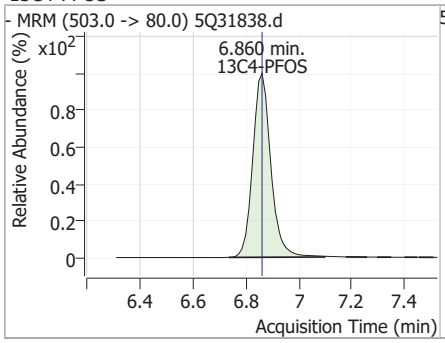
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.09	6.29	0.00	378654	413.0 -> 169.0	28.5	14.4	43.2

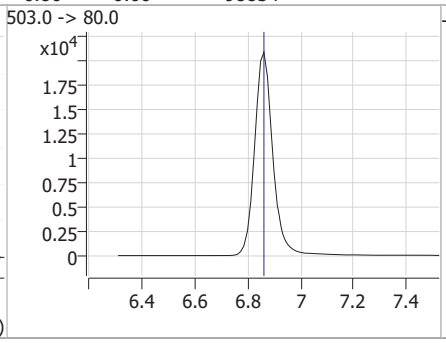


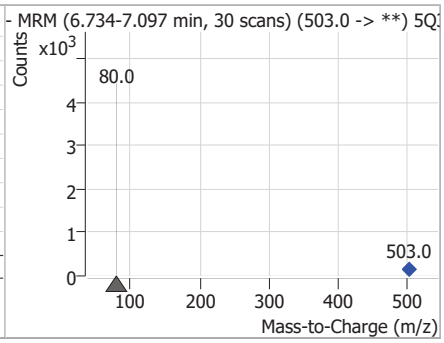




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	98834				







7.4.2

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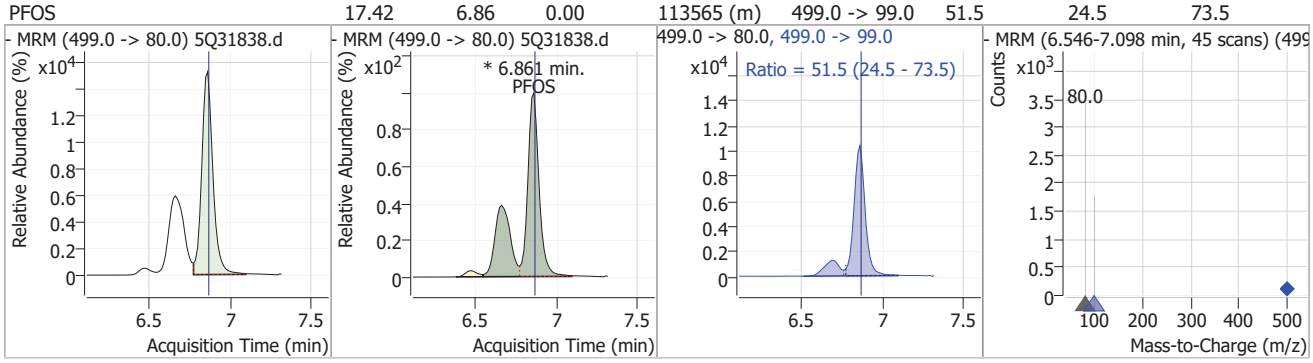
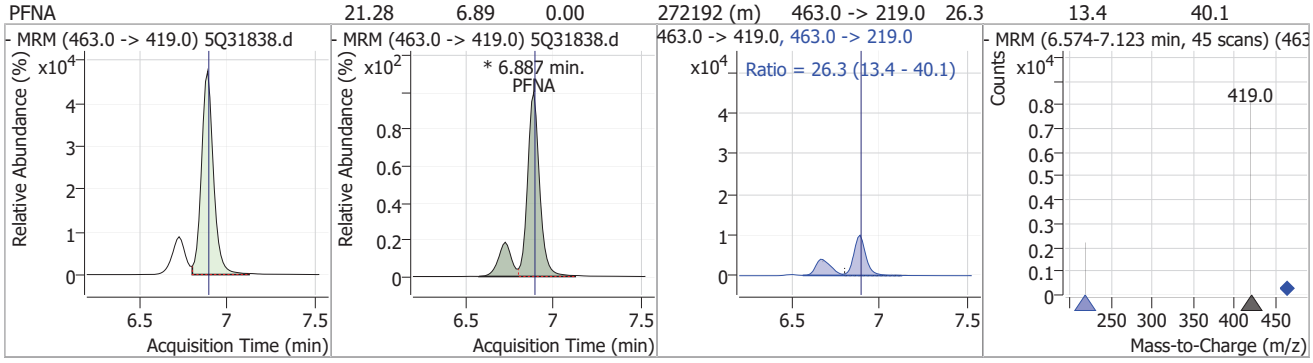
Perfluorinated Compounds by LC/MS/MS

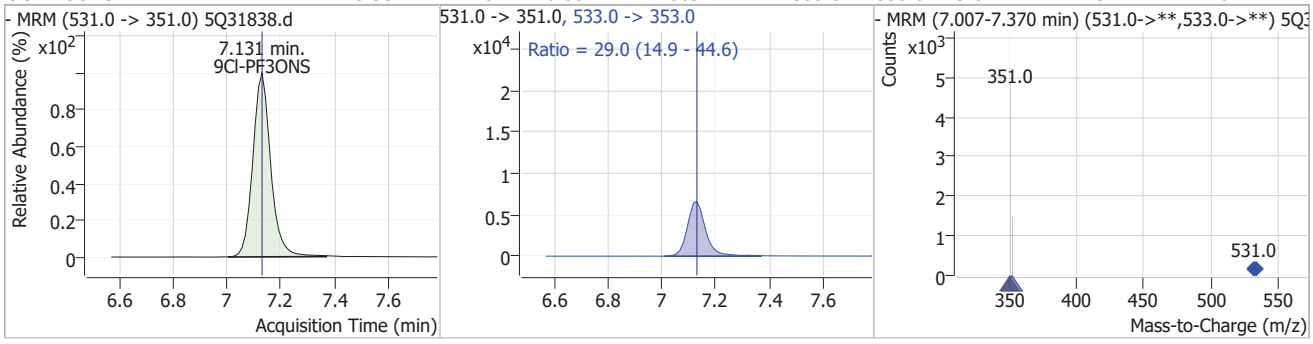
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	17.42	6.86	0.00	113565 (m)	499.0 -> 99.0	51.5	24.5	73.5



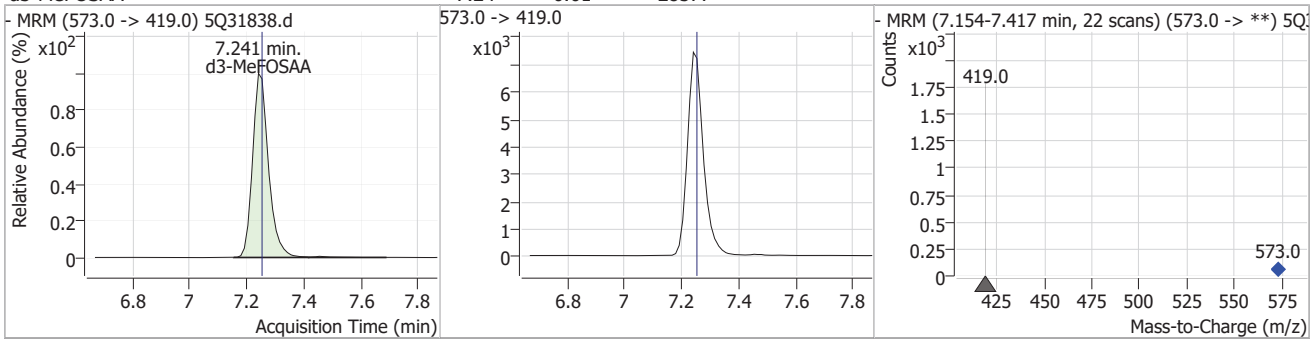
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	21.28	6.89	0.00	272192 (m)	463.0 -> 219.0	26.3	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	19.93	7.13	0.00	106914	533.0 -> 353.0	29.0	14.9	44.6

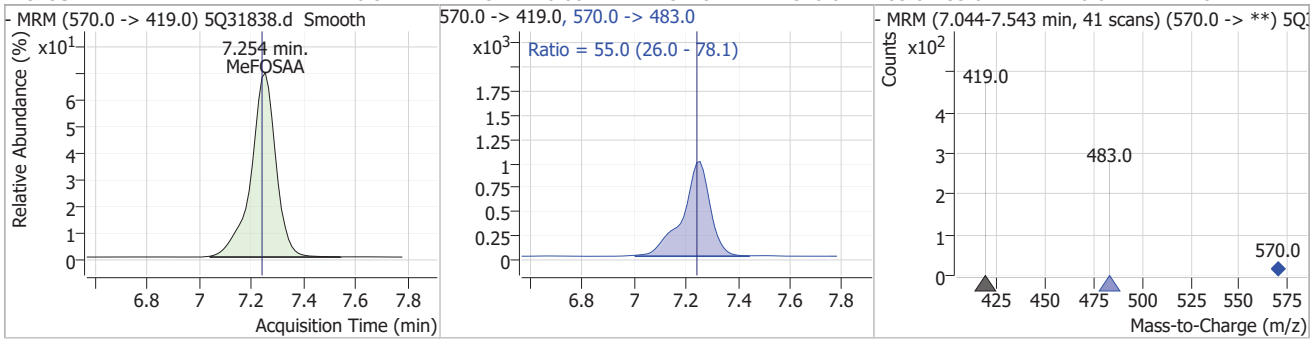


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	28577				

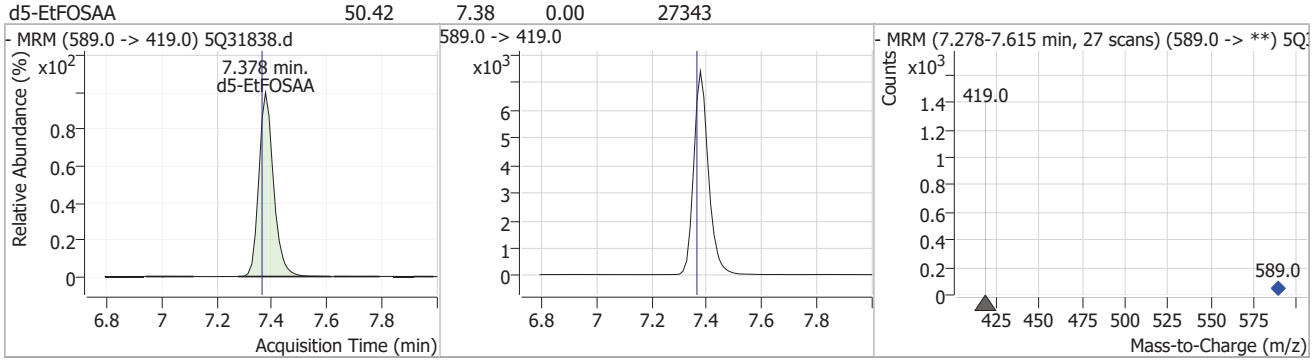


Perfluorinated Compounds by LC/MS/MS

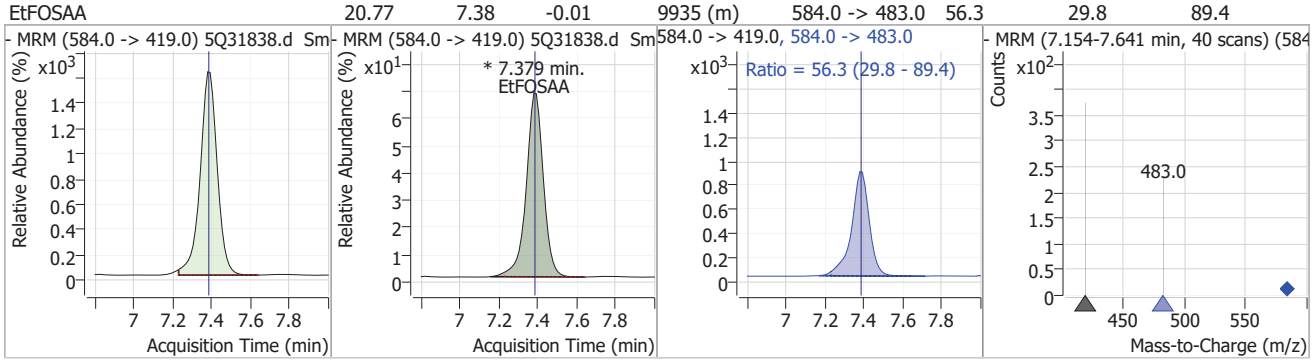
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	20.51	7.25	0.00	13228	570.0 -> 483.0	55.0	26.0	78.1



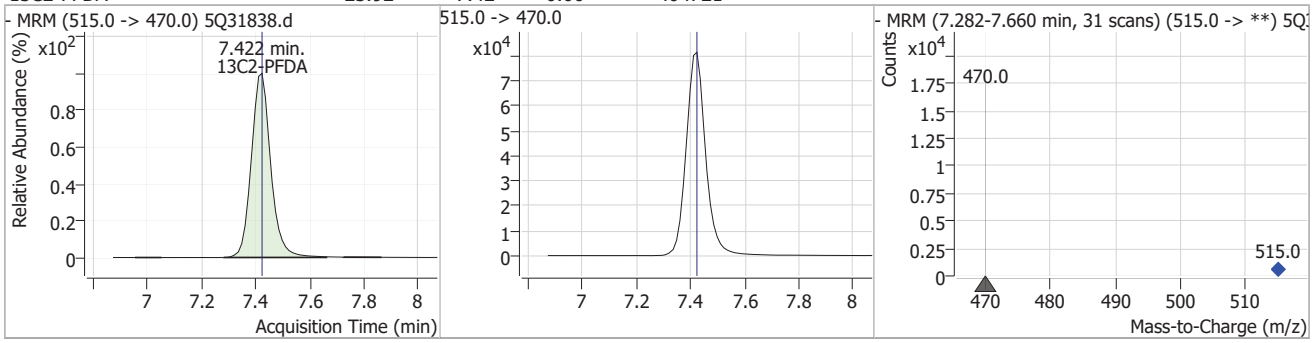
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	50.42	7.38	0.00	27343				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	20.77	7.38	-0.01	9935 (m)	584.0 -> 483.0	56.3	29.8	89.4

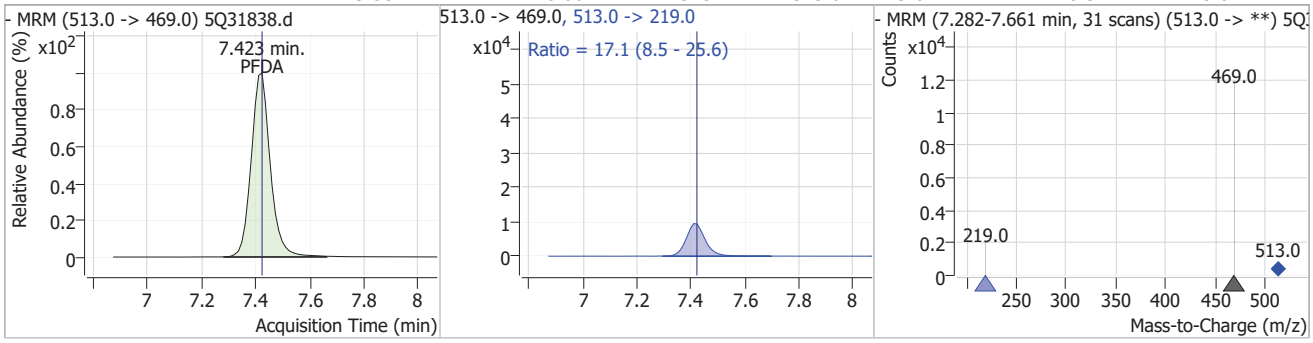


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	23.92	7.42	0.00	404721				

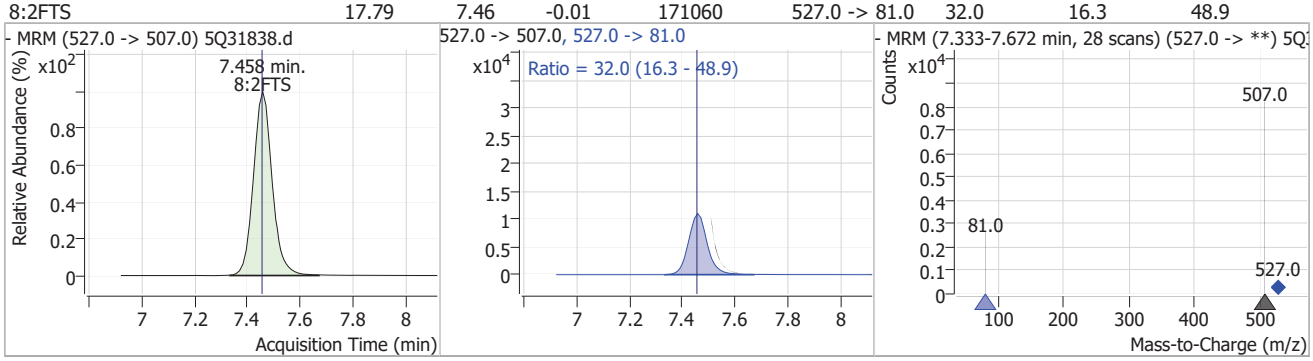


Perfluorinated Compounds by LC/MS/MS

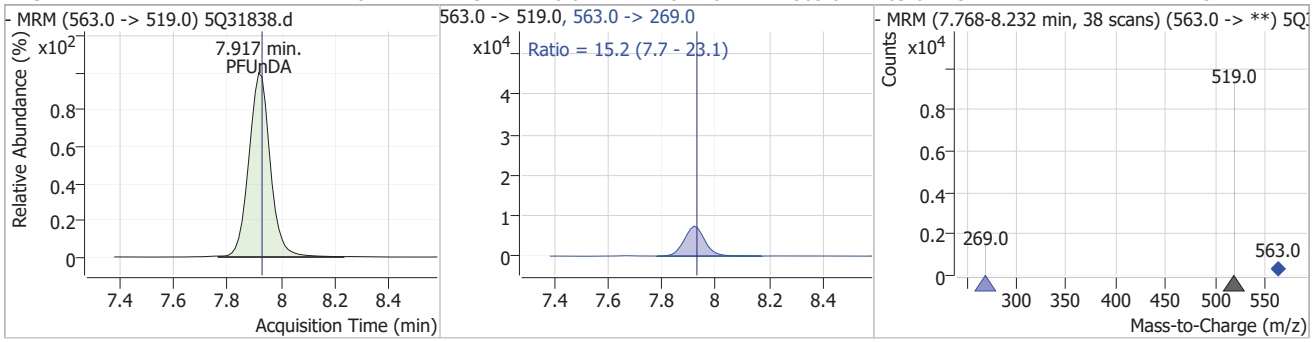
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.38	7.42	0.00	273484	513.0 -> 219.0	17.1	8.5	25.6



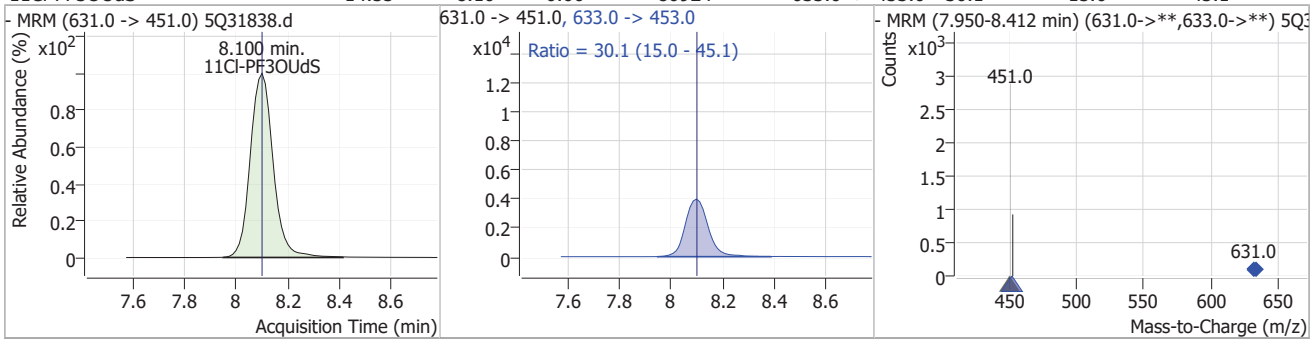
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	17.79	7.46	-0.01	171060	527.0 -> 81.0	32.0	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	16.14	7.92	-0.01	261723	563.0 -> 269.0	15.2	7.7	23.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	14.55	8.10	0.00	80924	633.0 -> 453.0	30.1	15.0	45.1



7.4.2

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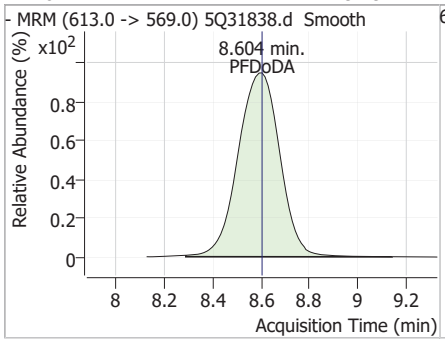
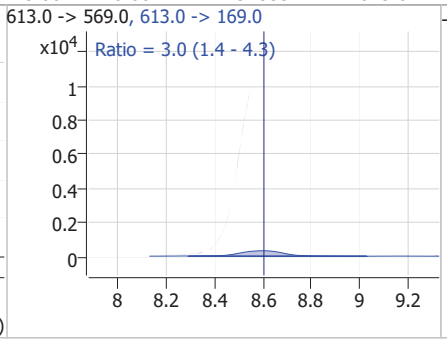
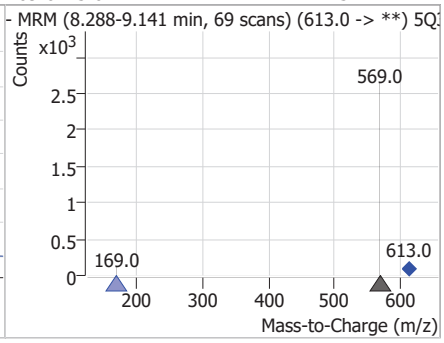
Perfluorinated Compounds by LC/MS/MS

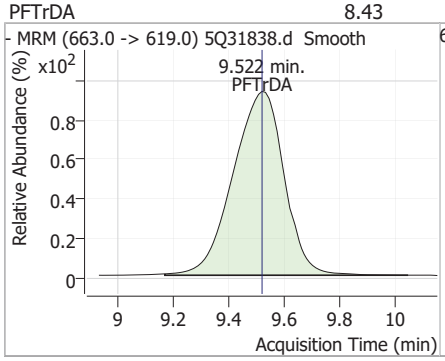
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	9.49	8.60	0.00	134883	613.0 -> 169.0	3.0	1.4	4.3

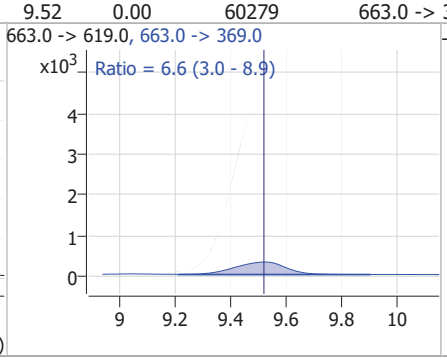


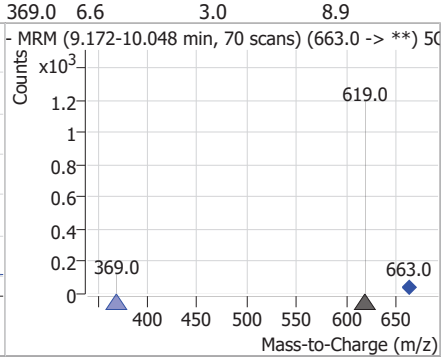




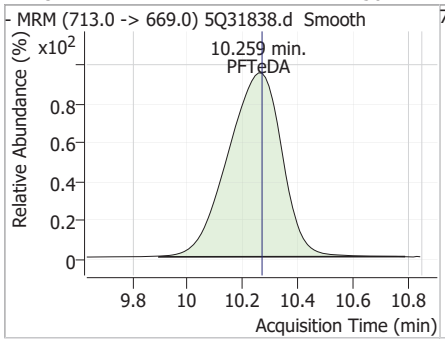
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	8.43	9.52	0.00	60279	663.0 -> 369.0	6.6	3.0	8.9

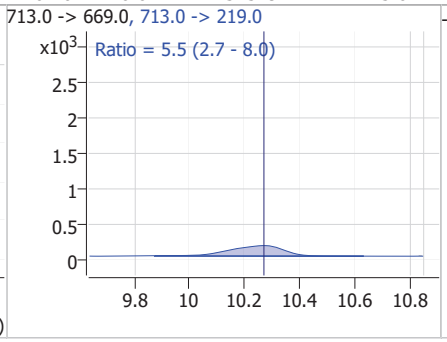


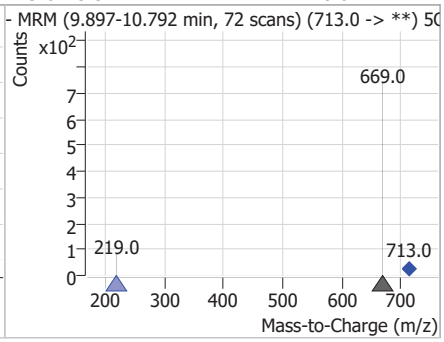




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	7.56	10.26	-0.01	37319	713.0 -> 219.0	5.5	2.7	8.0







7.4.2

7

Manual Integration Approval Summary

Sample Number:	OP8904-MS	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31838.D	**Analyst approved:**	04/21/25 10:03 (b) (6)
Injection Time:	04/17/25 17:34	**Supervisor approved:**	04/21/25 10:52 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101530.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/17/2025 1:31:59 PM
Sample Name : op8907-dup
Vial : P3-C7
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1494.batch.bin
Sample Information : op8907,S3Q1494,285,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.447	415.0 -> 370.0	245999	10.00 µg/L	0.025
13C3-PFBA	2.344	216.0 -> 172.0	92207	10.00 µg/L	0.000
13C4-PFOS	7.995	503.0 -> 80.0	35936	10.00 µg/L	0.026
M4-PFBA	2.352	217.0 -> 172.0	123934	10.00 µg/L	0.013
M5-PFPeA	4.438	268.0 -> 223.0	151147	10.00 µg/L	0.025
M5-PFHxA	5.788	318.0 -> 273.0	200989	10.00 µg/L	0.013
M4-PFHpA	6.719	367.0 -> 322.0	169607	10.00 µg/L	0.025
M8-PFOA	7.447	421.0 -> 376.0	225200	10.00 µg/L	0.025
M9-PFNA	8.022	472.0 -> 427.0	244891	10.00 µg/L	0.026
M6-PFDA	8.558	519.0 -> 474.0	340875	10.00 µg/L	0.038
M7-PFUnDA	9.212	570.0 -> 525.0	587681	10.00 µg/L	0.027
M2-PFDoDA	10.146	615.0 -> 570.0	608725	10.00 µg/L	0.063
M3-PFBS	4.733	302.0 -> 99.0	17061	10.00 µg/L	0.025
M3-PFHxS	6.749	402.0 -> 99.0	24764	10.00 µg/L	0.025
M8-PFOS	7.995	507.0 -> 99.0	32356	10.00 µg/L	0.026
M2-4:2FTS	5.697	329.0 -> 309.0	69488	10.00 µg/L	0.025
M2-6:2FTS	7.445	429.0 -> 409.0	126572	10.00 µg/L	0.025
M2-8:2FTS	8.611	529.0 -> 509.0	202830	10.00 µg/L	0.026
M3-HFPO-DA	6.081	287.0 -> 169.0	2329	10.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.697	329.0 -> 309.0	69488	8.12 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.2%	
13C2-6:2FTS	7.445	429.0 -> 409.0	126571	7.88 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.8%	
13C2-8:2FTS	8.611	529.0 -> 509.0	202830	7.54 µg/L	0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 75.4%	
13C2-PFDoDA	10.146	615.0 -> 570.0	608725	5.81 µg/L	0.063
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 58.1%	
13C3-PFBS	4.733	302.0 -> 99.0	17061	7.61 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.1%	
13C3-PFHxS	6.749	402.0 -> 99.0	24764	7.76 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.6%	
13C4-PFBA	2.352	217.0 -> 172.0	123934	7.92 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.2%	
13C4-PFHpA	6.719	367.0 -> 322.0	169607	8.15 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.5%	
13C5-PFHxA	5.788	318.0 -> 273.0	200989	8.07 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.7%	
13C5-PFPeA	4.438	268.0 -> 223.0	151147	8.02 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.2%	
13C6-PFDA	8.558	519.0 -> 474.0	340875	8.28 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.8%	
13C7-PFUnDA	9.212	570.0 -> 525.0	587681	7.15 µg/L	0.027
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 71.5%	
13C8-PFOA	7.447	421.0 -> 376.0	225200	8.33 µg/L	0.025

Perfluorinated Compounds by LC/MS/MS

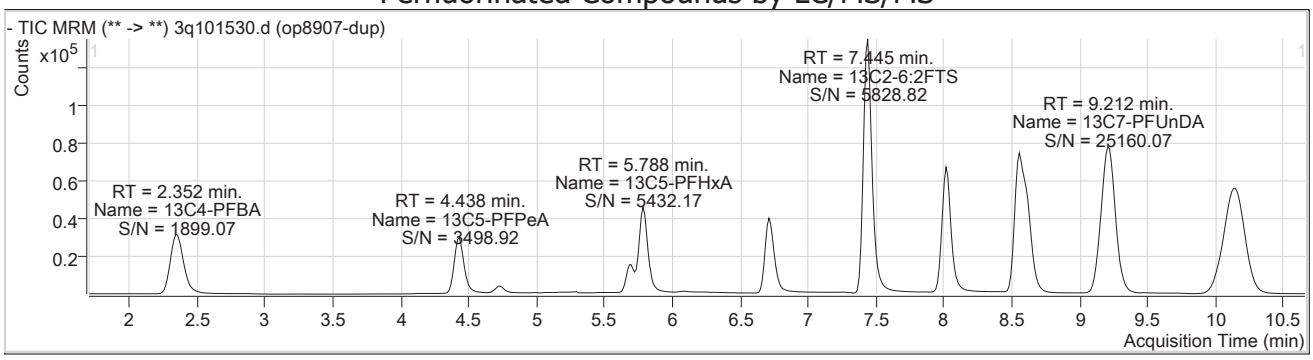
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 83.3%		
13C8-PFOS	7.995	507.0 -> 99.0	32356	7.92 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.2%		
13C9-PFNA	8.022	472.0 -> 427.0	244891	8.34 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 83.4%		
13C3-HFPO-DA	6.081	287.0 -> 169.0	2329	6.50 µg/L		0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 65.0%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	-	299.0 -> 80.0	-	N.D.		
		299.0 -> 99.0				
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	-	363.0 -> 319.0	-	N.D.		
		363.0 -> 169.0				
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	6.152	329.0 -> 169.0	0	0.00 µg/L	m	1
		285.0 -> 169.0	0			

 # = Qualifier out of range, m = manually integrated, + = Area summed

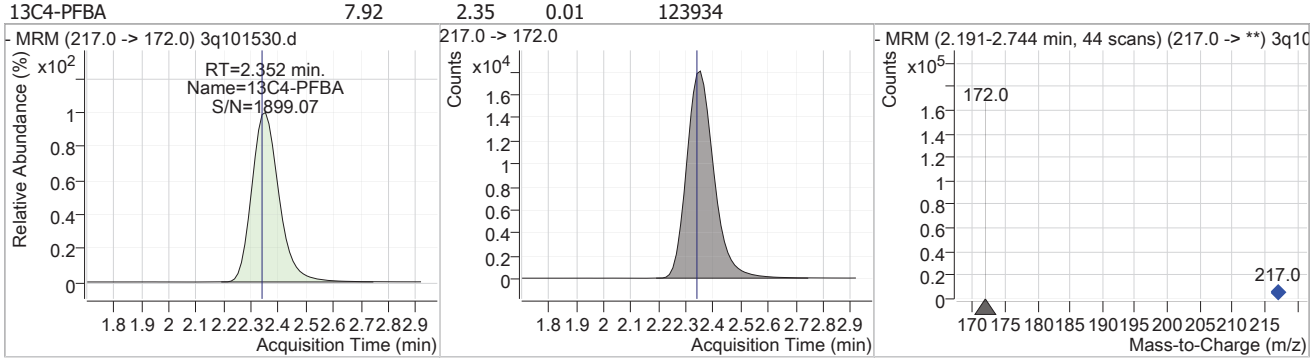
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

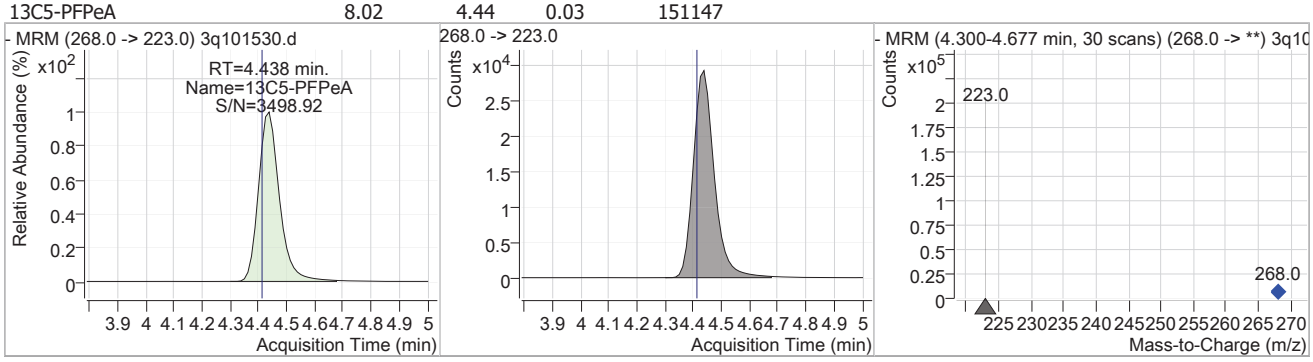
Perfluorinated Compounds by LC/MS/MS



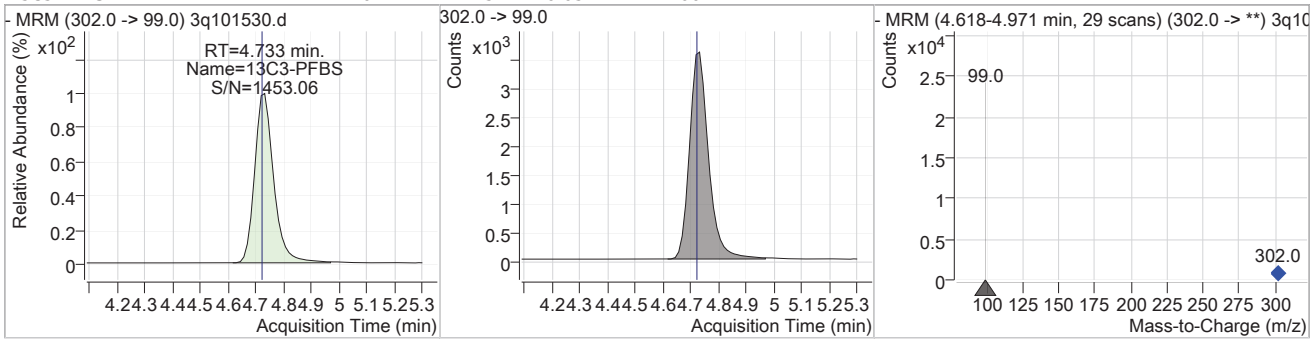
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	7.92	2.35	0.01	123934				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	8.02	4.44	0.03	151147				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	7.61	4.73	0.03	17061				



7.5.1

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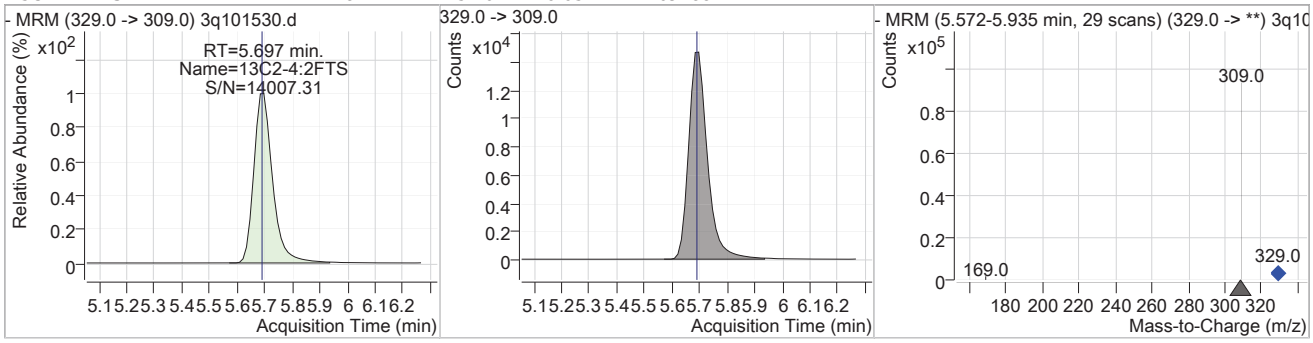
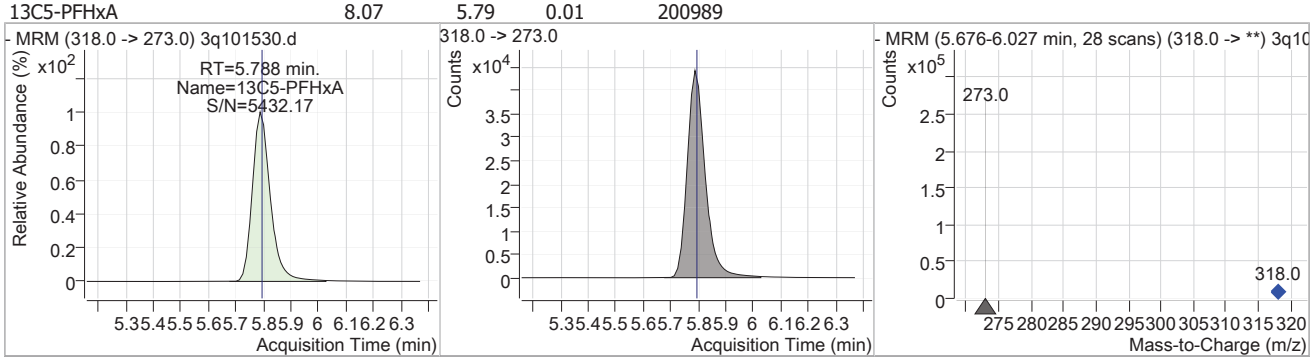
Perfluorinated Compounds by LC/MS/MS

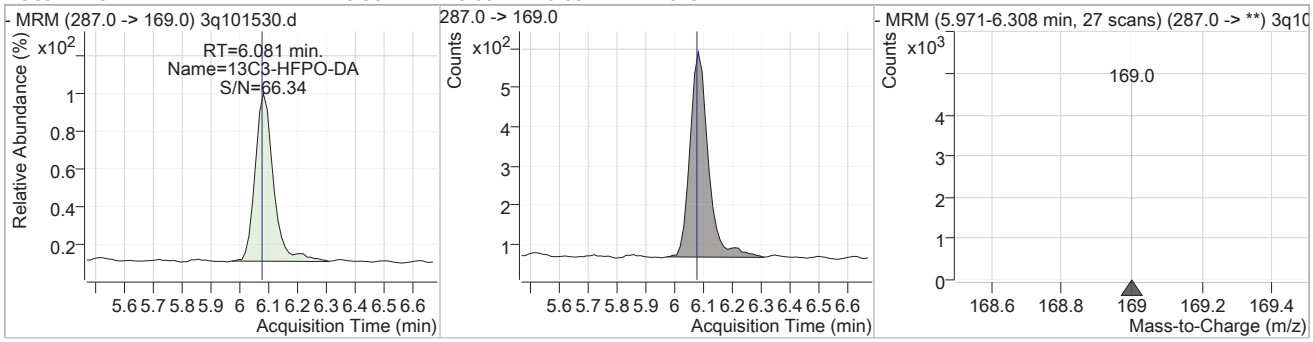
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	8.12	5.70	0.03	69488				



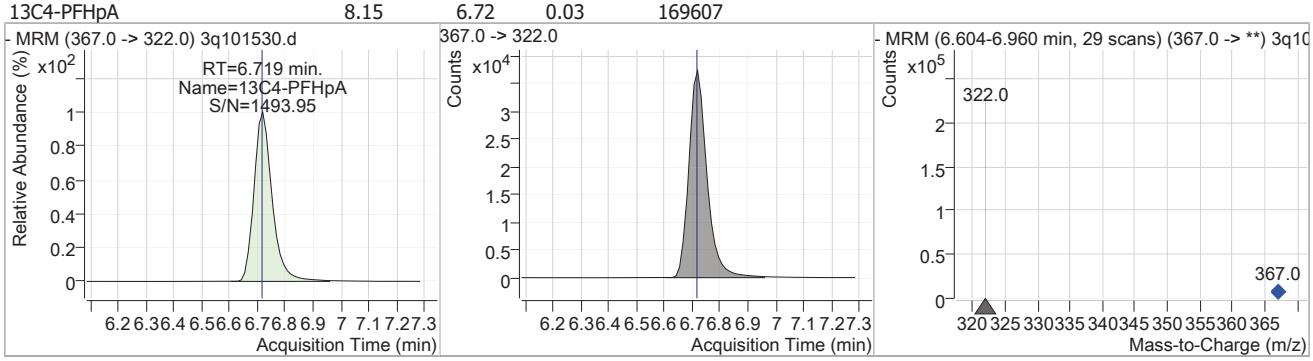
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	8.07	5.79	0.01	200989				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	6.50	6.08	0.03	2329				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	8.15	6.72	0.03	169607				

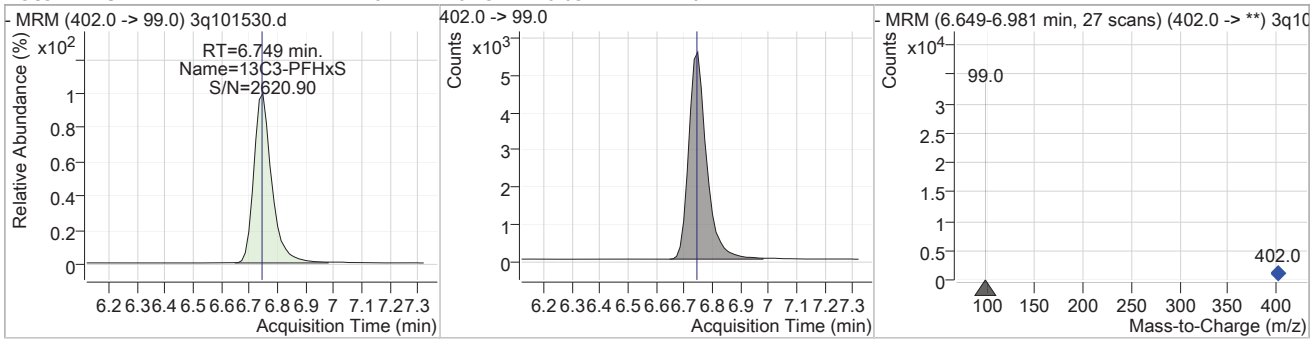


7.5.1

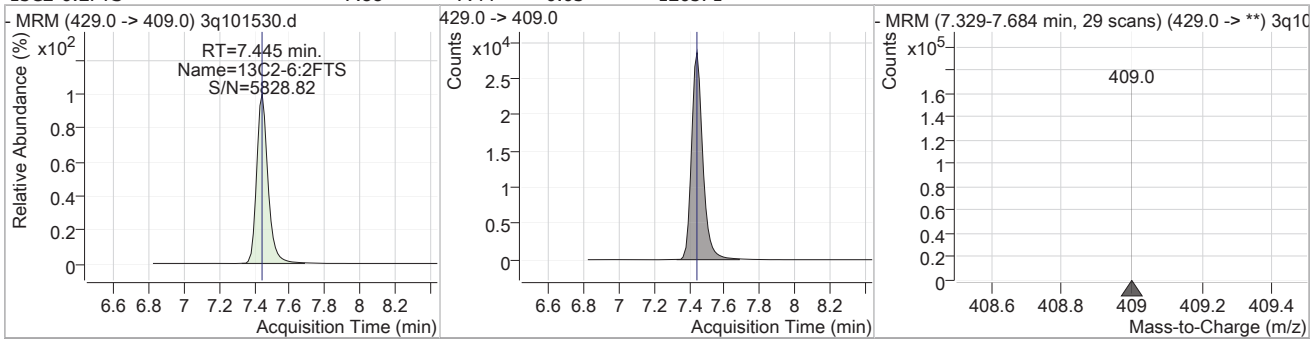
7

Perfluorinated Compounds by LC/MS/MS

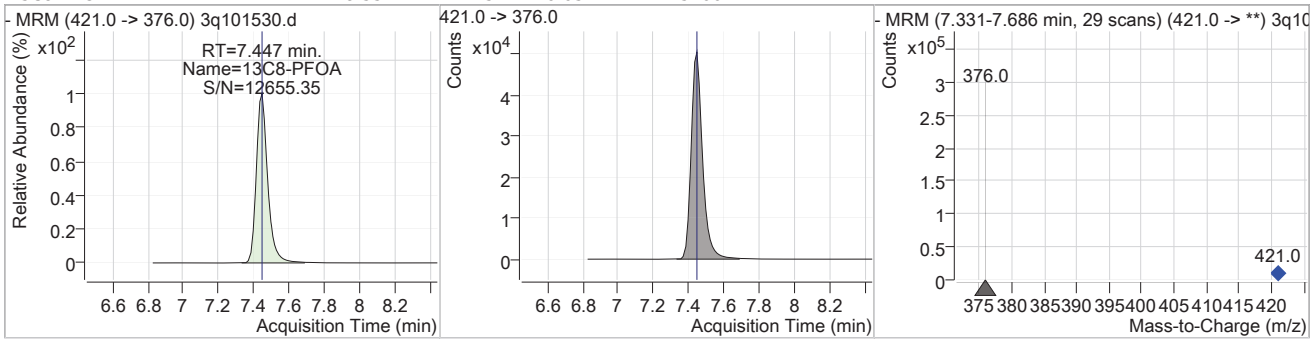
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	7.76	6.75	0.03	24764				



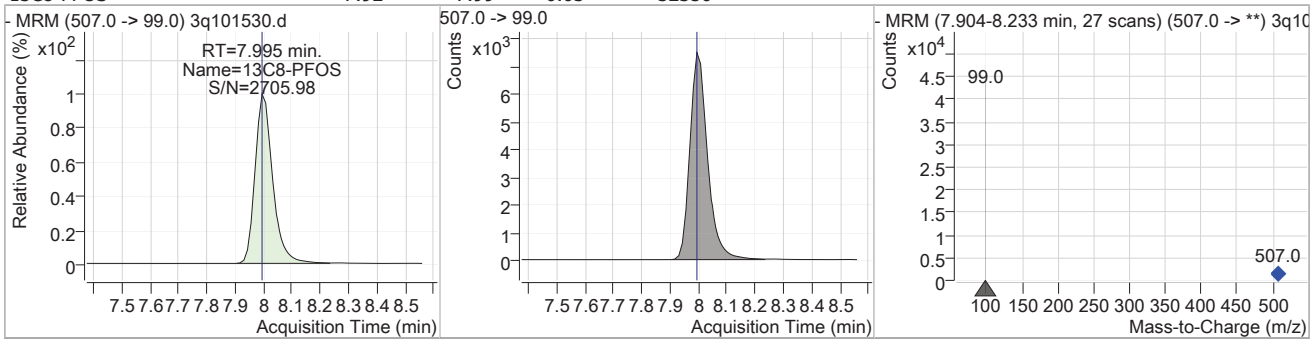
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	7.88	7.44	0.03	126571				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	8.33	7.45	0.03	225200				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	7.92	7.99	0.03	32356				



7.5.1

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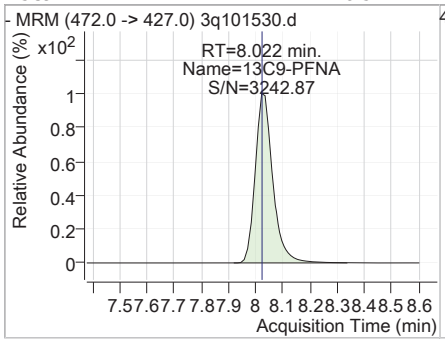
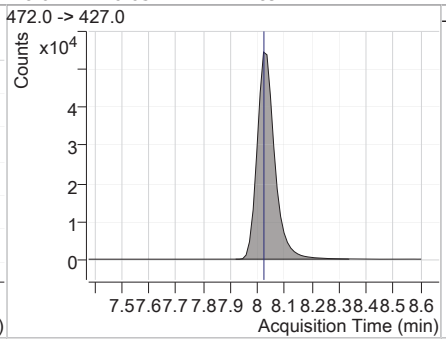
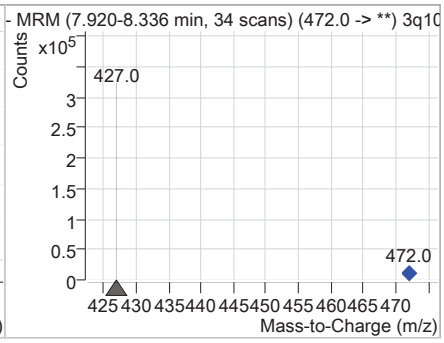
Perfluorinated Compounds by LC/MS/MS

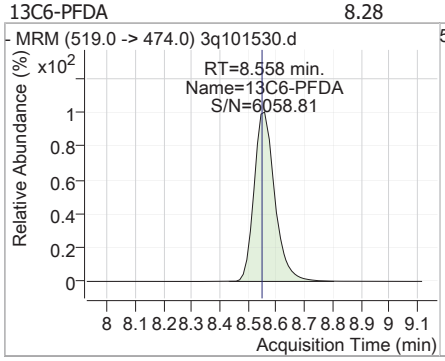
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	8.34	8.02	0.03	244891				

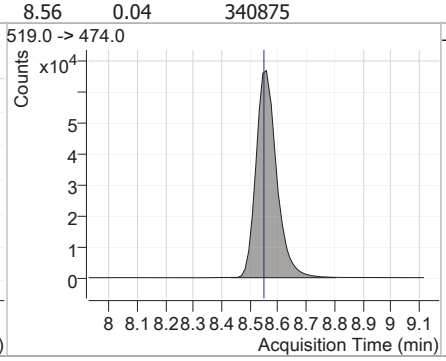


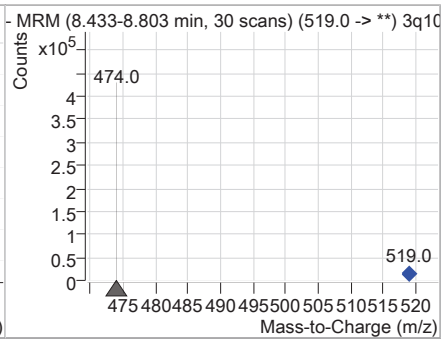




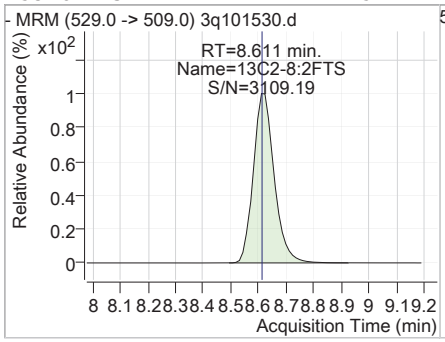
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	8.28	8.56	0.04	340875				

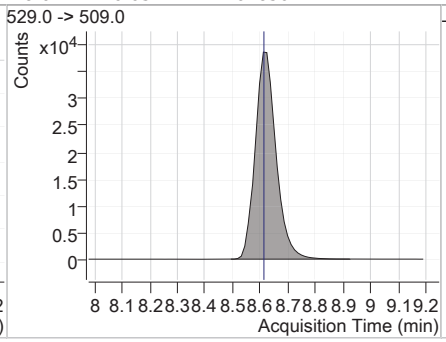


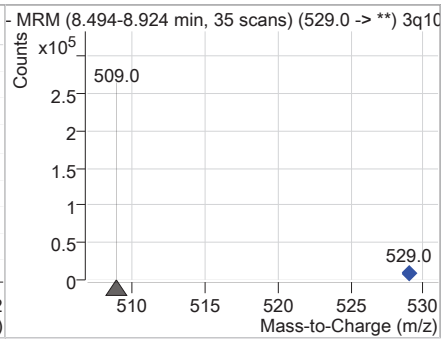




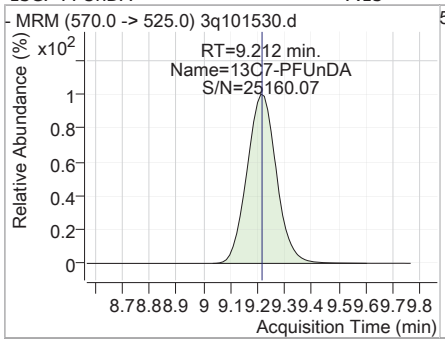
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	7.54	8.61	0.03	202830				

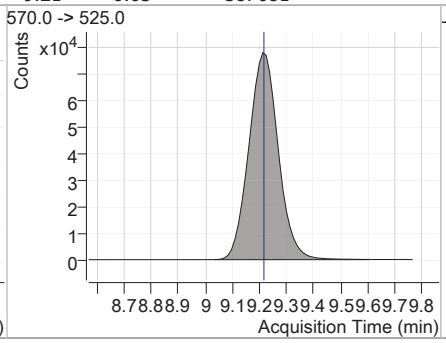


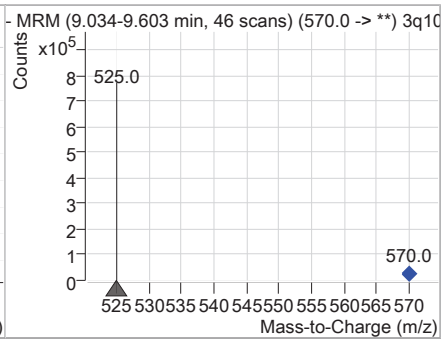




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	7.15	9.21	0.03	587681				







7.5.1

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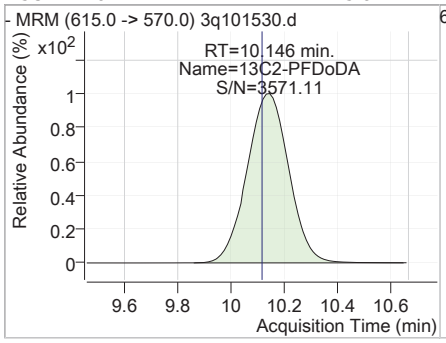
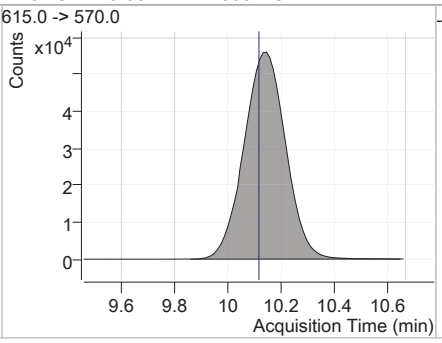
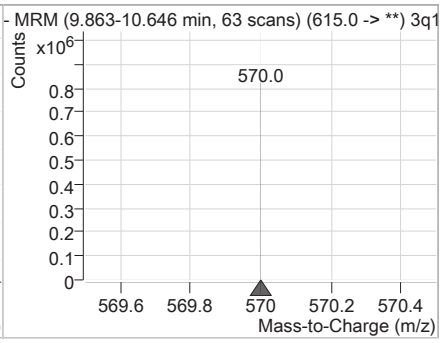
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	5.81	10.15	0.06	608725				







7.5.1

7

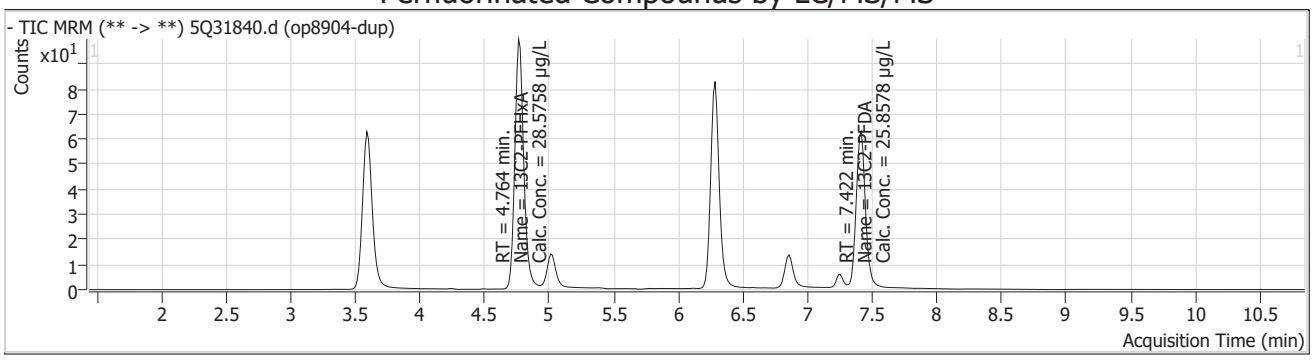
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31840.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 6:07:37 PM
Sample Name : op8904-dup
Vial : P2-E9
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8904,S5Q523,280,,,1,1,water

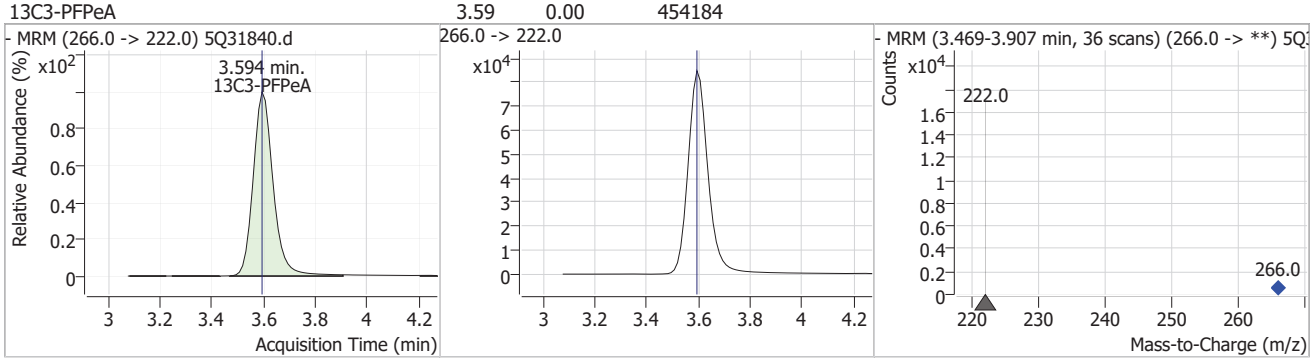
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.275	429.0 -> 409.0	167478	20.00	µg/L		-0.012
13C2-PFOA	6.290	415.0 -> 370.0	358687	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	454184	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	83610	20.00	µg/L		0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	27412	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.422	515.0 -> 470.0	396925	25.86	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 129.3%			
13C2-PFHxA	4.764	315.0 -> 270.0	649465	28.58	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 142.9%			
d5-EtFOSAA	7.378	589.0 -> 419.0	26943	51.80	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 129.5%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	86237	53.70	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 134.2%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	-	363.0 -> 319.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	-	413.0 -> 369.0	-	N.D.			
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	5.285	285.0 -> 169.0	0		µg/L	m	1

 # = Qualifier out of range, m = manually integrated, + = Area summed

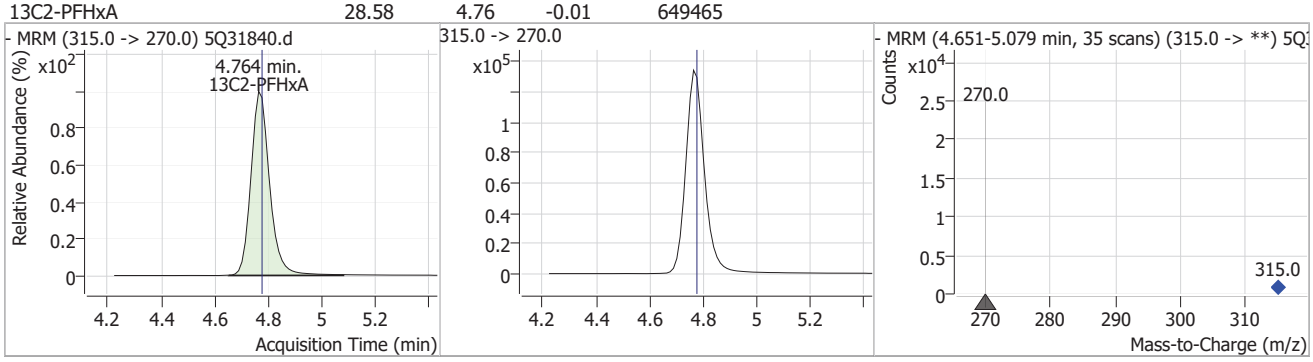
Perfluorinated Compounds by LC/MS/MS



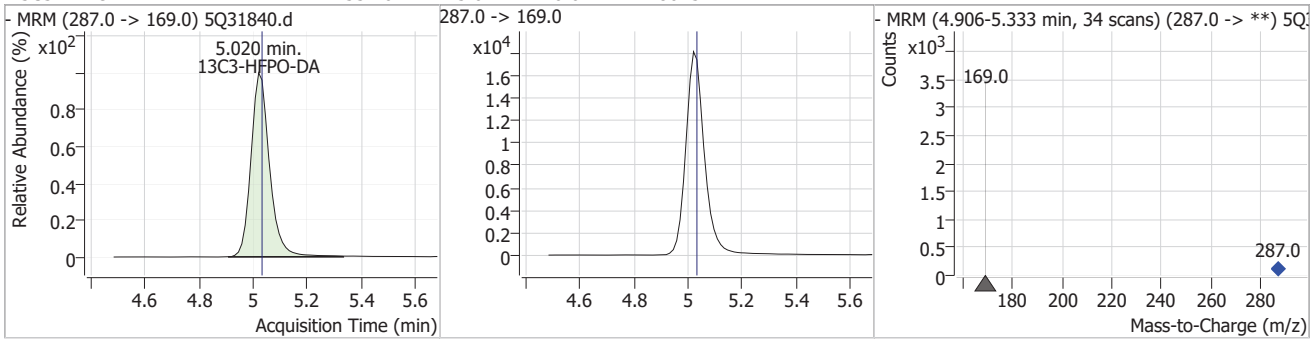
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	454184				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	28.58	4.76	-0.01	649465				

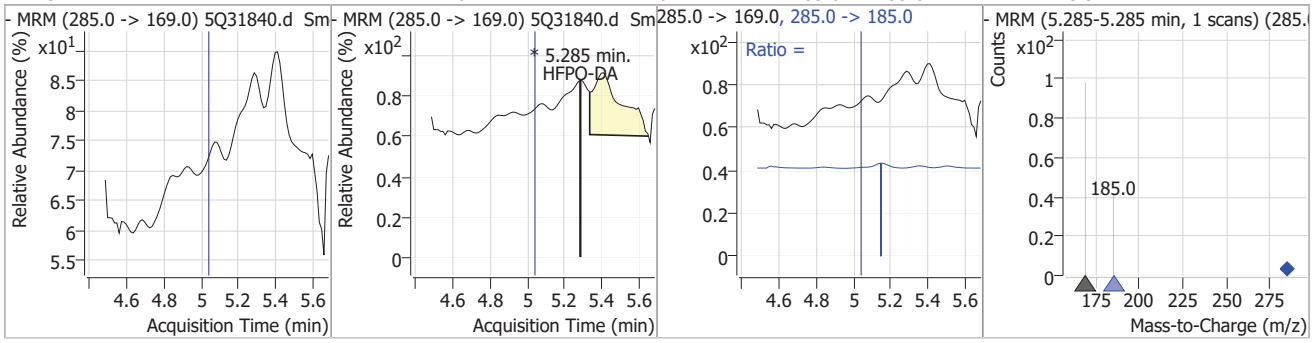


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	53.70	5.02	-0.01	86237				

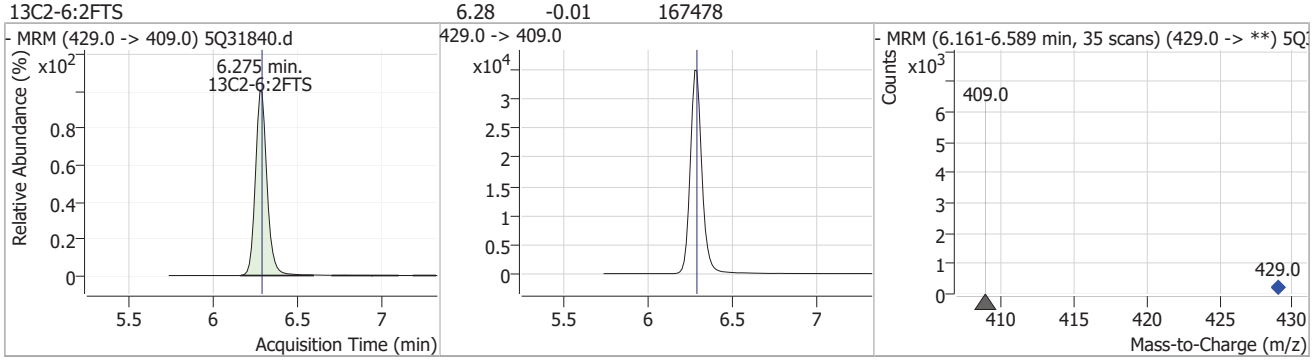


Perfluorinated Compounds by LC/MS/MS

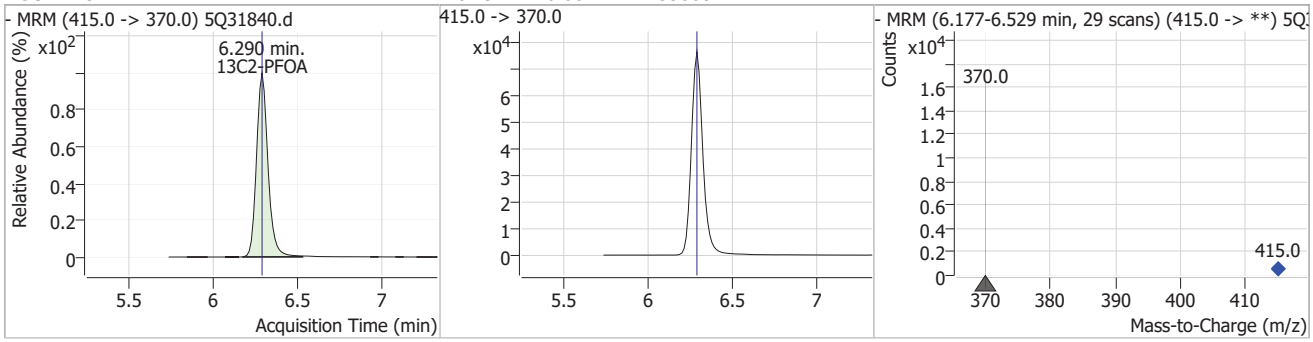
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA		0		0	285.0 -> 185.0		5.9	17.7



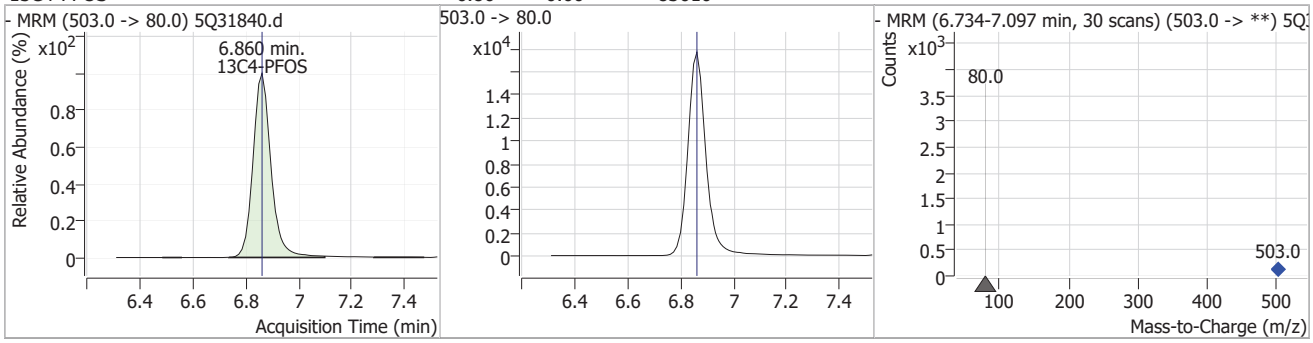
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	167478				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	358687				

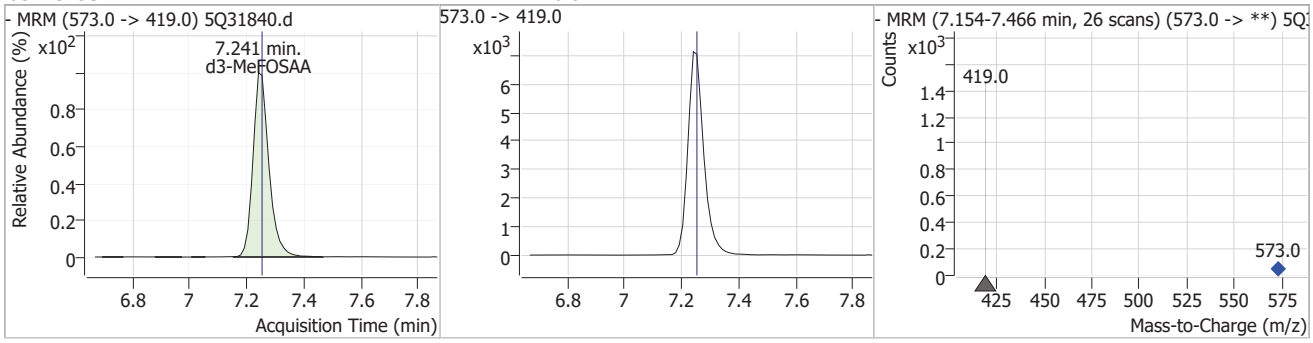


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	83610				

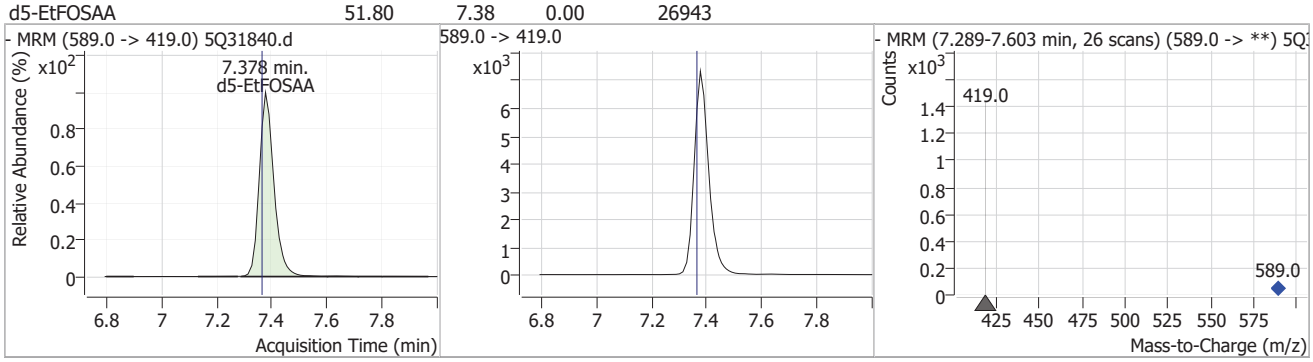


Perfluorinated Compounds by LC/MS/MS

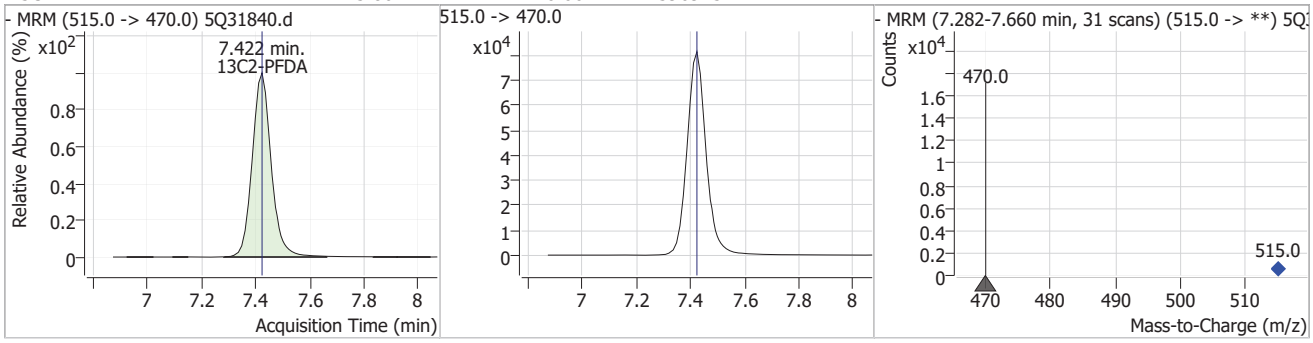
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	27412				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	51.80	7.38	0.00	26943				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	25.86	7.42	0.00	396925				



7.5.2

7

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101489.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/16/2025 11:29:39 AM
Sample Name : rt
Vial : P1-D2
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1493.batch.bin
Sample Information : op8141,S3Q1493,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.435	415.0 -> 370.0	279832	10.00 µg/L	0.013
13C3-PFBA	2.344	216.0 -> 172.0	107462	10.00 µg/L	0.000
13C4-PFOS	7.983	503.0 -> 80.0	41104	10.00 µg/L	0.014
M4-PFBA	2.340	217.0 -> 172.0	176474	10.00 µg/L	0.000
M5-PFPeA	4.413	268.0 -> 223.0	217236	10.00 µg/L	0.000
M5-PFHxA	5.776	318.0 -> 273.0	280903	10.00 µg/L	0.000
M4-PFHpA	6.706	367.0 -> 322.0	239787	10.00 µg/L	0.013
M8-PFOA	7.434	421.0 -> 376.0	312996	10.00 µg/L	0.013
M9-PFNA	8.010	472.0 -> 427.0	352520	10.00 µg/L	0.013
M6-PFDA	8.533	519.0 -> 474.0	469835	10.00 µg/L	0.013
M7-PFUnDA	9.199	570.0 -> 525.0	918040	10.00 µg/L	0.014
M2-PFDoDA	10.108	615.0 -> 570.0	1238710	10.00 µg/L	0.025
M3-PFBS	4.708	302.0 -> 99.0	24538	10.00 µg/L	0.000
M3-PFHxS	6.736	402.0 -> 99.0	34811	10.00 µg/L	0.013
M8-PFOS	7.982	507.0 -> 99.0	44888	10.00 µg/L	0.014
M2-4:2FTS	5.672	329.0 -> 309.0	92454	10.00 µg/L	0.000
M2-6:2FTS	7.432	429.0 -> 409.0	179487	10.00 µg/L	0.013
M2-8:2FTS	8.597	529.0 -> 509.0	309909	10.00 µg/L	0.013
M3-HFPO-DA	6.068	287.0 -> 169.0	3144	10.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.672	329.0 -> 309.0	92454	9.45 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.5%	
13C2-6:2FTS	7.432	429.0 -> 409.0	179492	9.77 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C2-8:2FTS	8.597	529.0 -> 509.0	309909	10.07 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C2-PFDoDA	10.108	615.0 -> 570.0	1238710	10.40 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C3-PFBS	4.708	302.0 -> 99.0	24538	9.57 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.7%	
13C3-PFHxS	6.736	402.0 -> 99.0	34811	9.53 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C4-PFBA	2.340	217.0 -> 172.0	176474	9.68 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C4-PFHpA	6.706	367.0 -> 322.0	239787	10.13 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C5-PFHxA	5.776	318.0 -> 273.0	280903	9.91 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C5-PFPeA	4.413	268.0 -> 223.0	217236	9.89 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C6-PFDA	8.533	519.0 -> 474.0	469835	10.04 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C7-PFUnDA	9.199	570.0 -> 525.0	918040	9.82 µg/L	0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C8-PFOA	7.434	421.0 -> 376.0	312996	10.18 µg/L	0.013

Perfluorinated Compounds by LC/MS/MS

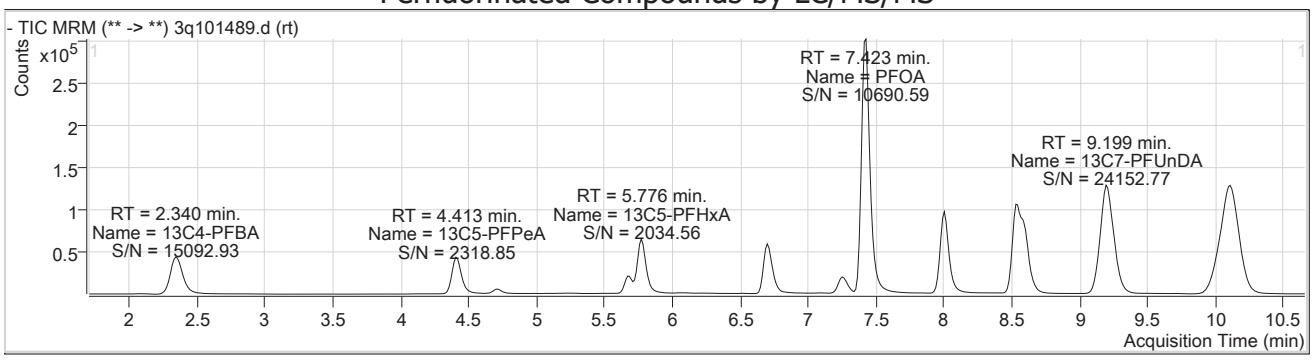
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.8%		
13C8-PFOS	7.982	507.0 -> 99.0	44888	9.60 µg/L		0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.0%		
13C9-PFNA	8.010	472.0 -> 427.0	352520	10.55 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.5%		
13C3-HFPO-DA	6.068	287.0 -> 169.0	3144	7.71 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.1%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	-	299.0 -> 80.0	-	N.D.		
		299.0 -> 99.0				
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	6.708	363.0 -> 319.0	6182	0.18 µg/L		99
		363.0 -> 169.0	545			
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	7.423	413.0 -> 369.0	419313	17.37 µg/L		99
		413.0 -> 169.0	154124			
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	6.023	329.0 -> 169.0	19	0.24 µg/L	#	15
		285.0 -> 169.0	74			

 # = Qualifier out of range, m = manually integrated, + = Area summed

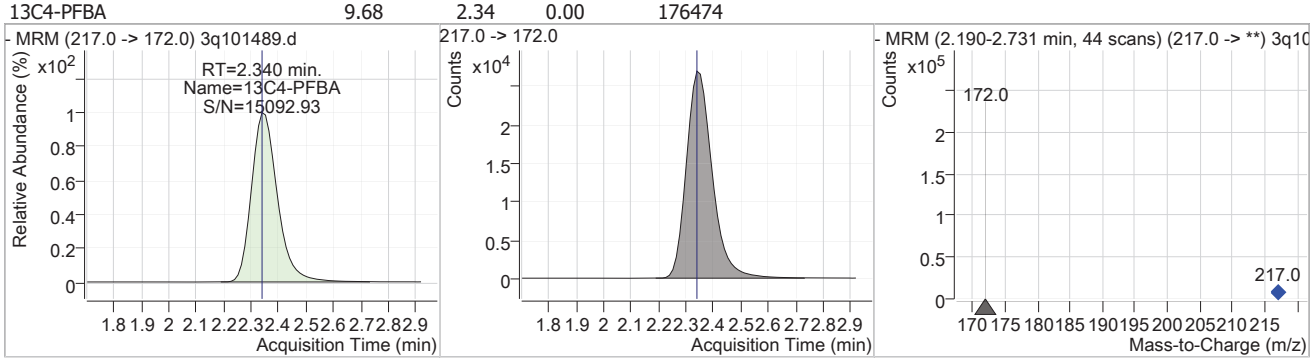
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

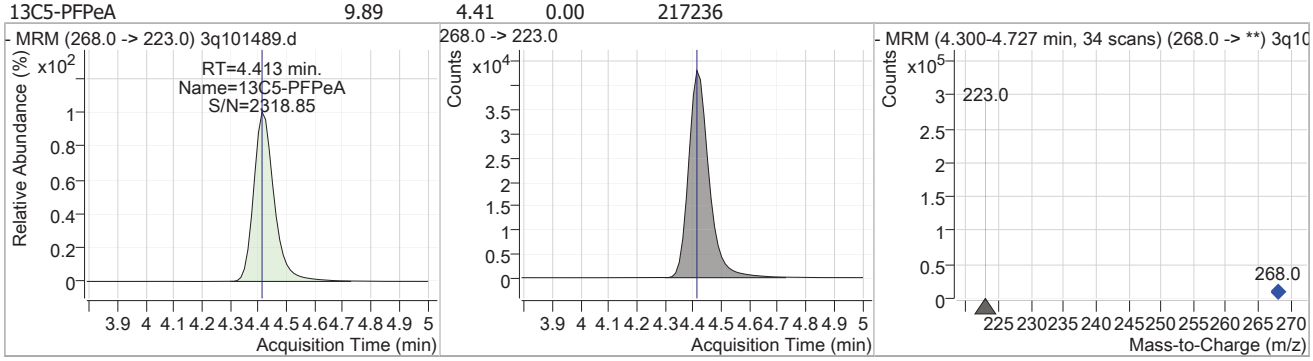
Perfluorinated Compounds by LC/MS/MS



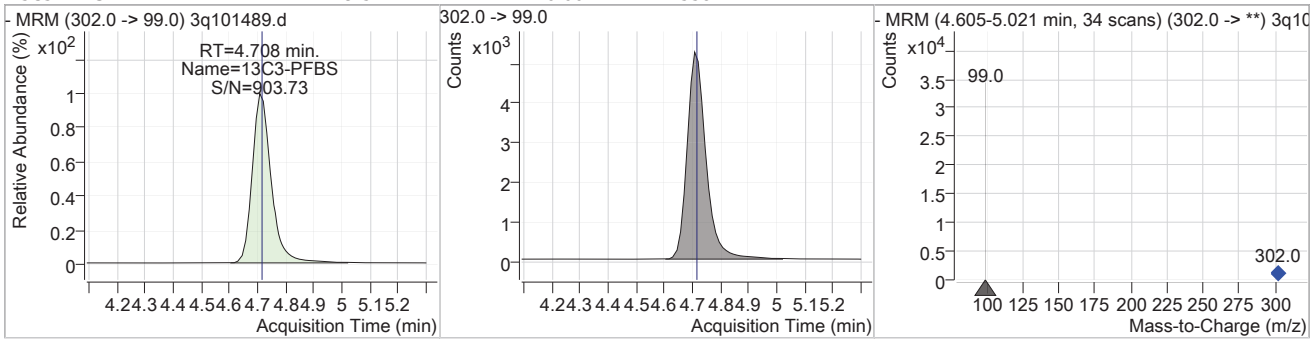
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	9.68	2.34	0.00	176474				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	9.89	4.41	0.00	217236				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	9.57	4.71	0.00	24538				

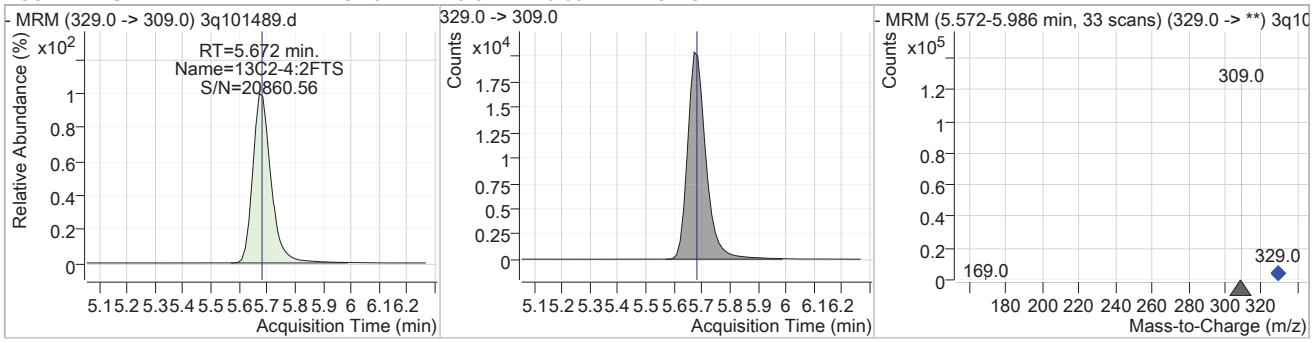


7.6.1

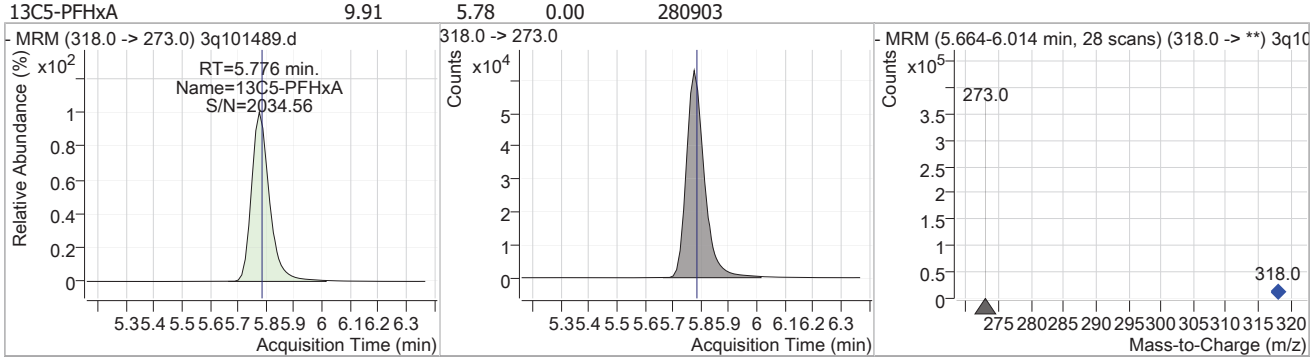
7

Perfluorinated Compounds by LC/MS/MS

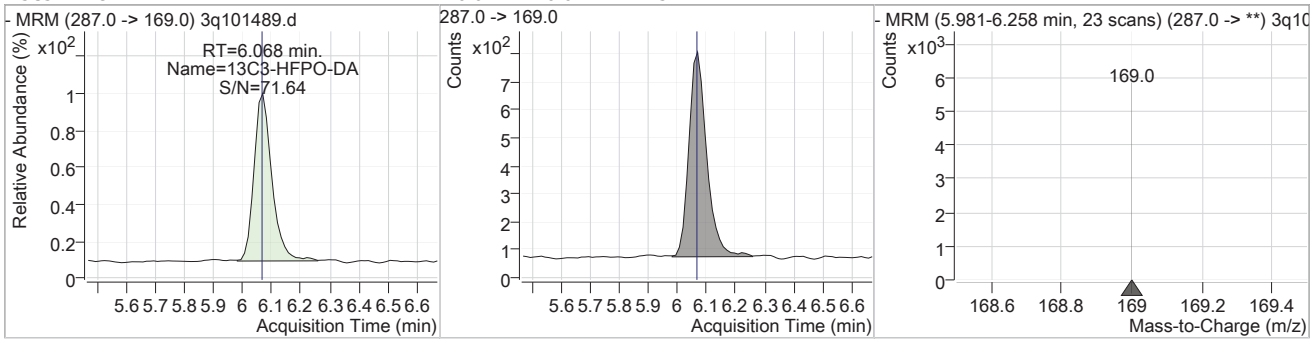
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	9.45	5.67	0.00	92454				



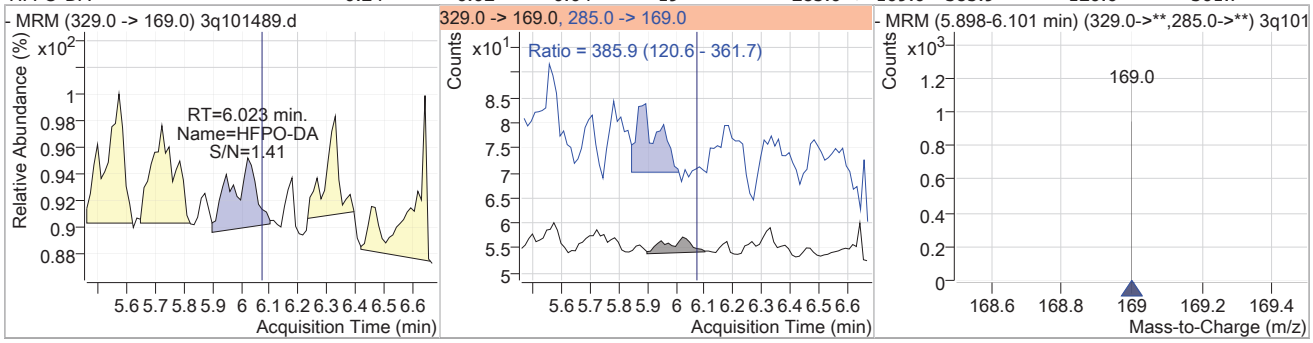
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	9.91	5.78	0.00	280903				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	7.71	6.07	0.01	3144				

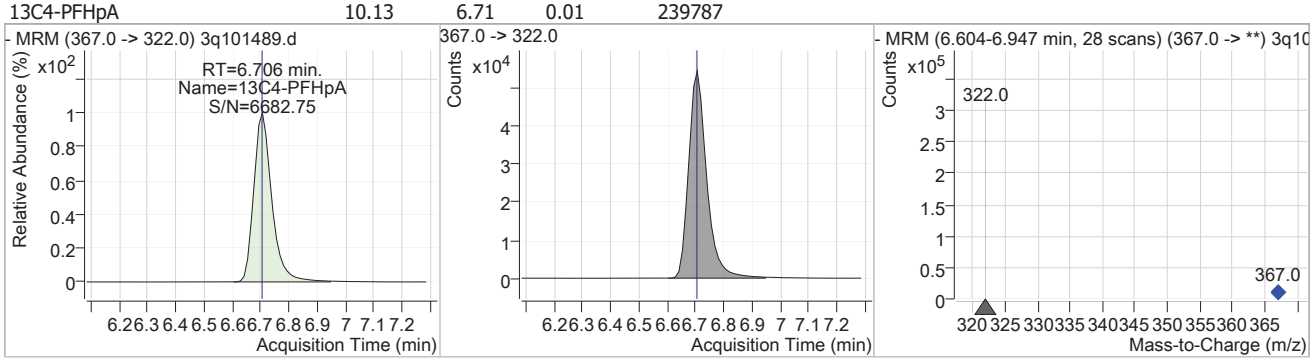


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.24	6.02	-0.04	19	285.0 -> 169.0	385.9	120.6	361.7

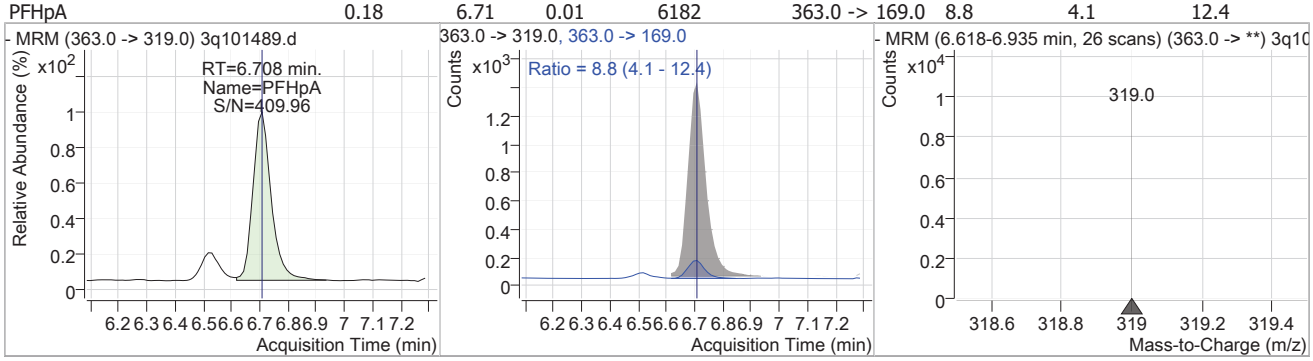


Perfluorinated Compounds by LC/MS/MS

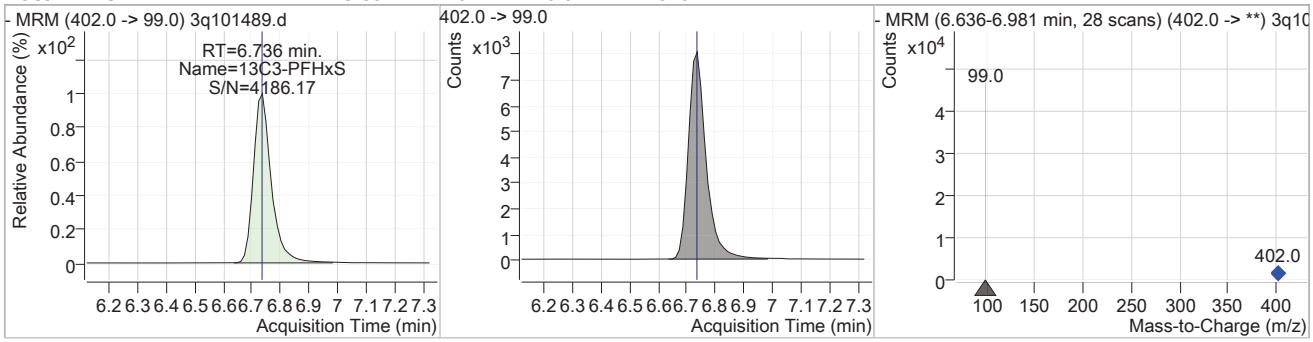
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.13	6.71	0.01	239787				



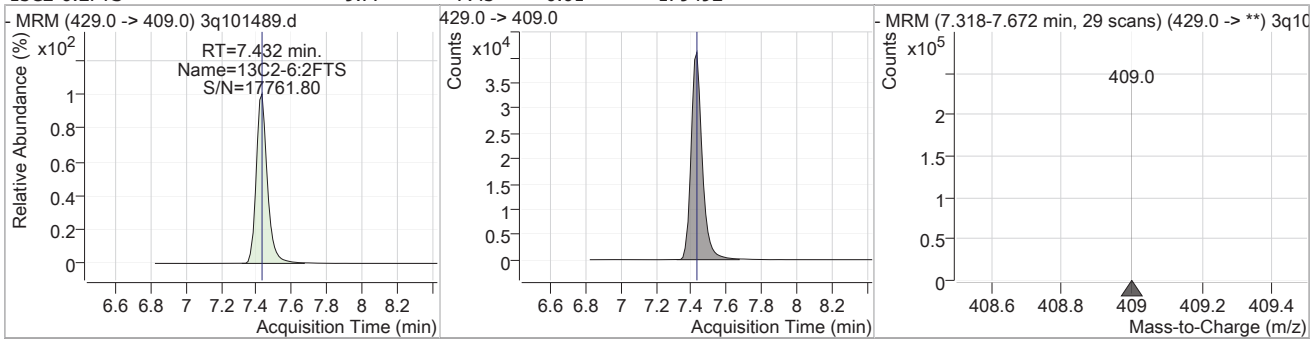
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.18	6.71	0.01	6182	363.0 -> 169.0	8.8	4.1	12.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	9.53	6.74	0.01	34811				

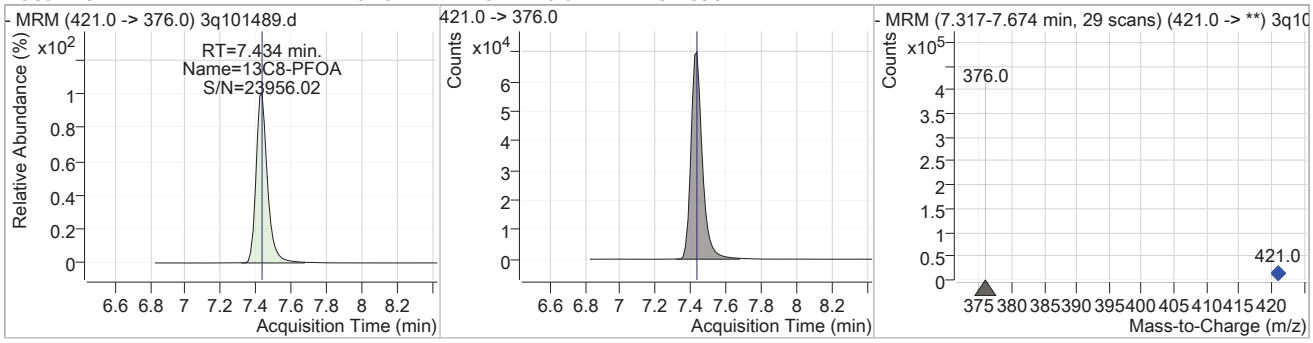


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	9.77	7.43	0.01	179492				

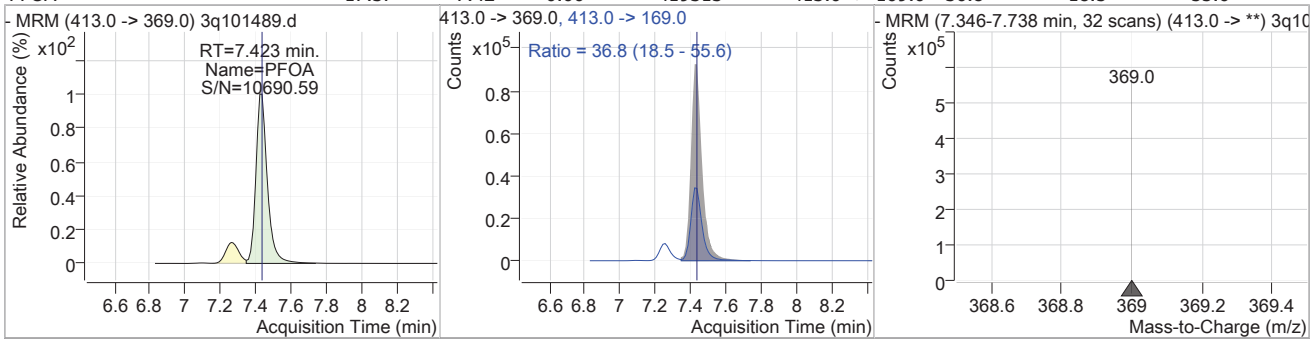


Perfluorinated Compounds by LC/MS/MS

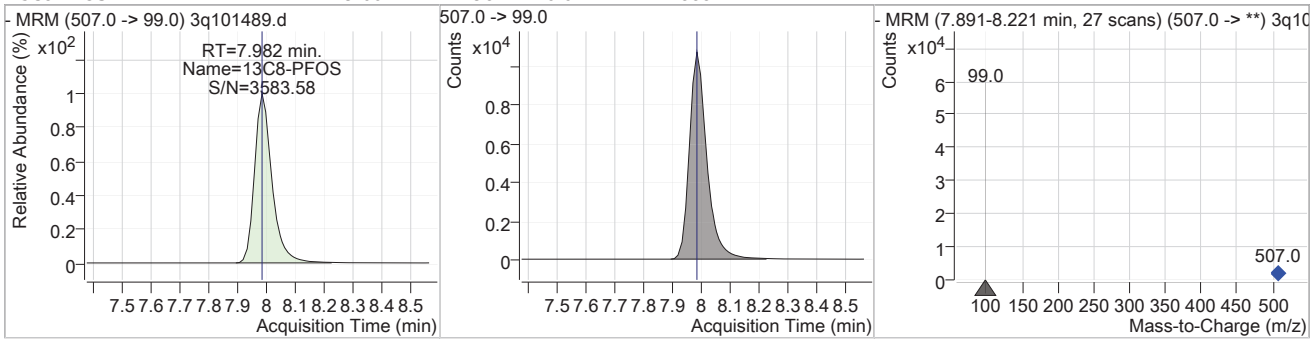
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.18	7.43	0.01	312996				



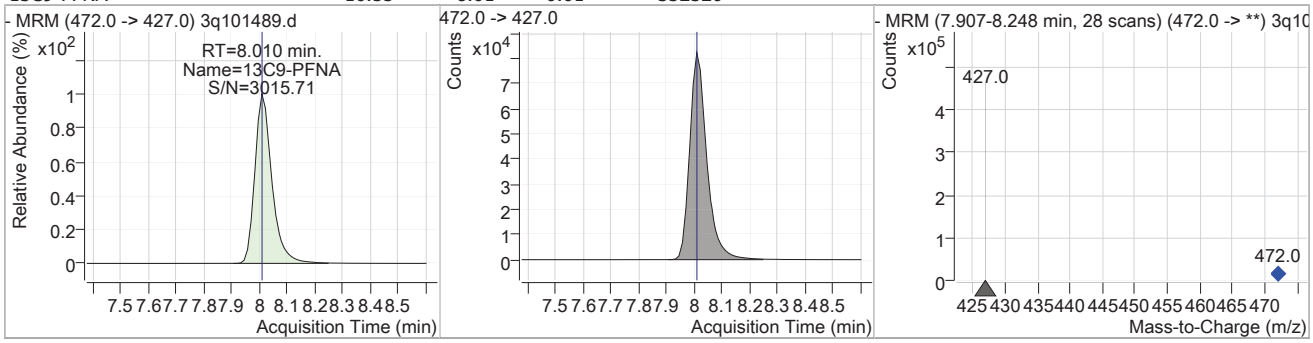
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	17.37	7.42	0.00	419313	413.0 -> 169.0	36.8	18.5	55.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	9.60	7.98	0.01	44888				

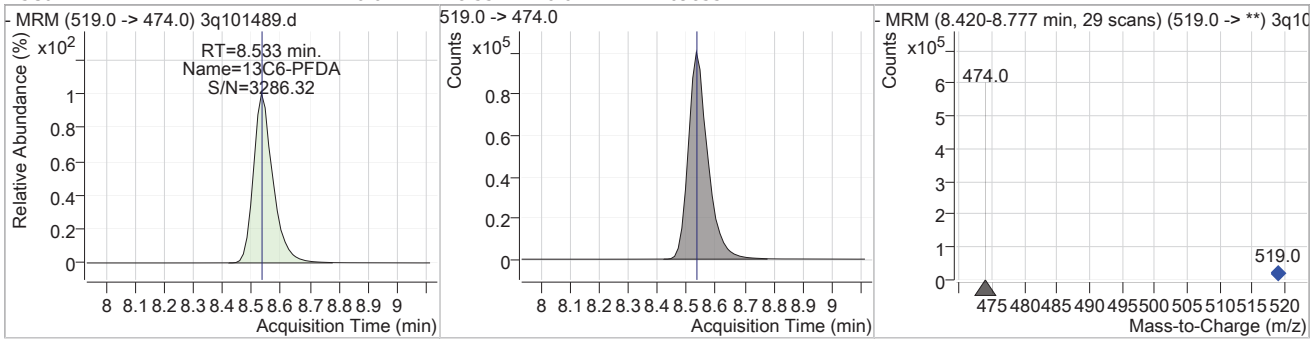


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.55	8.01	0.01	352520				

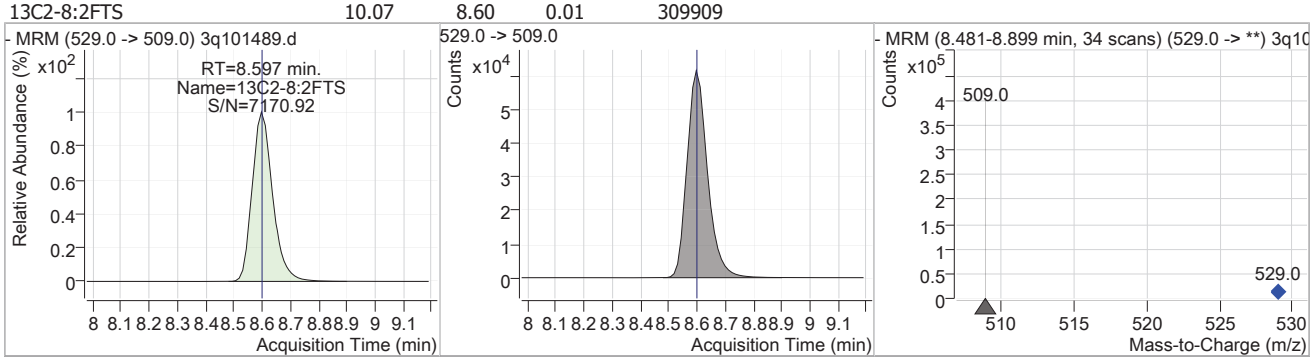


Perfluorinated Compounds by LC/MS/MS

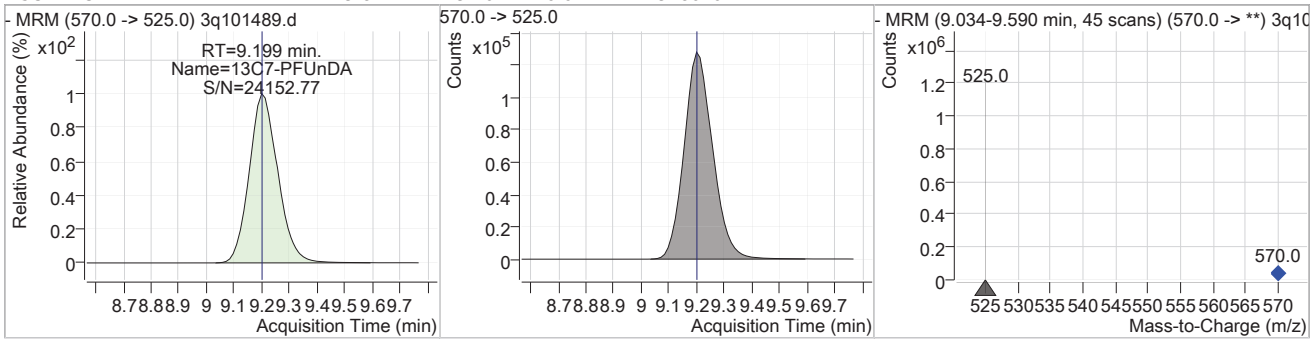
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	10.04	8.53	0.01	469835				



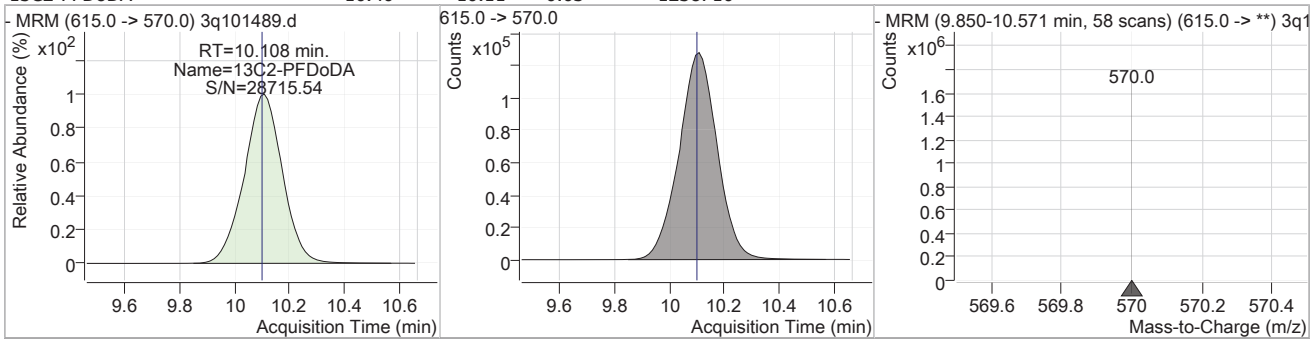
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	10.07	8.60	0.01	309909				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	9.82	9.20	0.01	918040				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.40	10.11	0.03	1238710				



Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 10:08

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101519.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/17/2025 10:35:00 AM
Sample Name : rt
Vial : P1-D2
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1494.batch.bin
Sample Information : op8907,S3Q1494,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.447	415.0 -> 370.0	266155	10.00 µg/L	0.025
13C3-PFBA	2.369	216.0 -> 172.0	102959	10.00 µg/L	0.025
13C4-PFOS	7.995	503.0 -> 80.0	39865	10.00 µg/L	0.026
M4-PFBA	2.365	217.0 -> 172.0	169350	10.00 µg/L	0.025
M5-PFPeA	4.438	268.0 -> 223.0	205059	10.00 µg/L	0.025
M5-PFHxA	5.788	318.0 -> 273.0	267530	10.00 µg/L	0.013
M4-PFHpA	6.719	367.0 -> 322.0	225191	10.00 µg/L	0.025
M8-PFOA	7.447	421.0 -> 376.0	296139	10.00 µg/L	0.025
M9-PFNA	8.035	472.0 -> 427.0	333581	10.00 µg/L	0.038
M6-PFDA	8.558	519.0 -> 474.0	429017	10.00 µg/L	0.038
M7-PFUnDA	9.237	570.0 -> 525.0	884218	10.00 µg/L	0.052
M2-PFDoDA	10.158	615.0 -> 570.0	1158347	10.00 µg/L	0.075
M3-PFBS	4.733	302.0 -> 99.0	22983	10.00 µg/L	0.025
M3-PFHxS	6.749	402.0 -> 99.0	33503	10.00 µg/L	0.025
M8-PFOS	7.995	507.0 -> 99.0	43971	10.00 µg/L	0.026
M2-4:2FTS	5.697	329.0 -> 309.0	89075	10.00 µg/L	0.025
M2-6:2FTS	7.445	429.0 -> 409.0	172469	10.00 µg/L	0.025
M2-8:2FTS	8.624	529.0 -> 509.0	297321	10.00 µg/L	0.039
M3-HFPO-DA	6.081	287.0 -> 169.0	3143	10.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.697	329.0 -> 309.0	89075	9.39 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.9%	
13C2-6:2FTS	7.445	429.0 -> 409.0	172469	9.68 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C2-8:2FTS	8.624	529.0 -> 509.0	297321	9.96 µg/L	0.039
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C2-PFDoDA	10.158	615.0 -> 570.0	1158347	10.22 µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C3-PFBS	4.733	302.0 -> 99.0	22983	9.24 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.4%	
13C3-PFHxS	6.749	402.0 -> 99.0	33503	9.46 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C4-PFBA	2.365	217.0 -> 172.0	169350	9.70 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C4-PFHpA	6.719	367.0 -> 322.0	225191	10.00 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C5-PFHxA	5.788	318.0 -> 273.0	267530	9.92 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C5-PFPeA	4.438	268.0 -> 223.0	205059	9.74 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C6-PFDA	8.558	519.0 -> 474.0	429017	9.64 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C7-PFUnDA	9.237	570.0 -> 525.0	884218	9.94 µg/L	0.052
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C8-PFOA	7.447	421.0 -> 376.0	296139	10.13 µg/L	0.025

Perfluorinated Compounds by LC/MS/MS

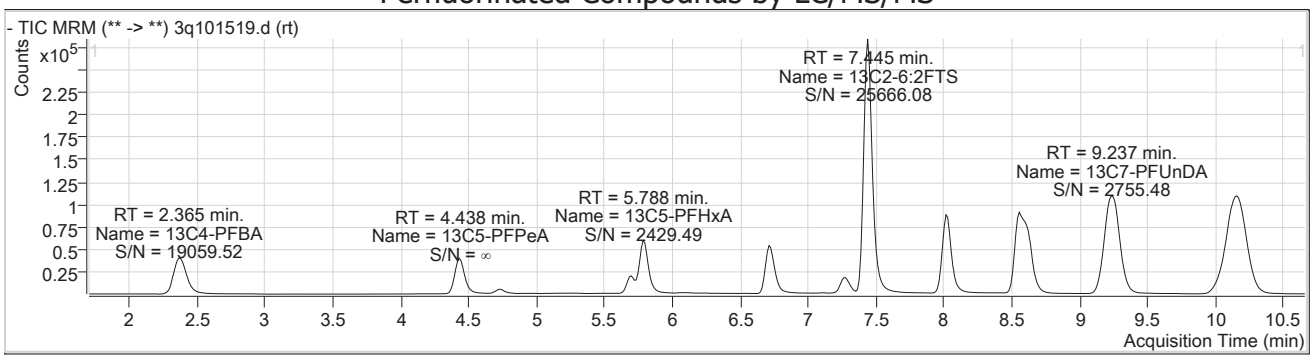
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%		
13C8-PFOS	7.995	507.0 -> 99.0	43971	9.70 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.0%		
13C9-PFNA	8.035	472.0 -> 427.0	333581	10.50 µg/L		0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.0%		
13C3-HFPO-DA	6.081	287.0 -> 169.0	3143	8.11 µg/L		0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.1%		
Target Compounds						QValue
PFMPA	-	229.0 -> 85.0	-	N.D.		
4:2FTS	-	327.0 -> 307.0	-	N.D.		
		327.0 -> 81.0				
6:2FTS	-	427.0 -> 407.0	-	N.D.		
		427.0 -> 81.0				
8:2FTS	-	527.0 -> 507.0	-	N.D.		
		527.0 -> 81.0				
PFMBA	-	279.0 -> 85.0	-	N.D.		
PFEESA	-	315.0 -> 135.0	-	N.D.		
		315.0 -> 69.0				
NFDHA	-	201.0 -> 85.0	-	N.D.		
		295.0 -> 201.0				
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	5.239	299.0 -> 80.0	0	0.00 µg/L	m	1
		299.0 -> 99.0	0			
PFDA	-	513.0 -> 469.0	-	N.D.		
		513.0 -> 219.0				
PFDoDA	-	613.0 -> 569.0	-	N.D.		
		613.0 -> 169.0				
PFHpA	6.720	363.0 -> 319.0	0	0.00 µg/L	m	1
		363.0 -> 169.0	0			
PFHpS	-	449.0 -> 80.0	-	N.D.		
		449.0 -> 99.0				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 119.0				
PFHxS	-	399.0 -> 80.0	-	N.D.		
		399.0 -> 99.0				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFOA	7.448	413.0 -> 369.0	453064	19.84 µg/L	m	97
		413.0 -> 169.0	177101			
PFOS	-	499.0 -> 80.0	-	N.D.		
		499.0 -> 99.0				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
		349.0 -> 99.0				
PFUnDA	-	563.0 -> 519.0	-	N.D.		
		563.0 -> 269.0				
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
		631.0 -> 83.0				
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
		531.0 -> 83.0				
ADONA	-	377.0 -> 251.0	-	N.D.		
		377.0 -> 85.0				
HFPO-DA	-	329.0 -> 169.0	-	N.D.		
		285.0 -> 169.0				

 # = Qualifier out of range, m = manually integrated, + = Area summed

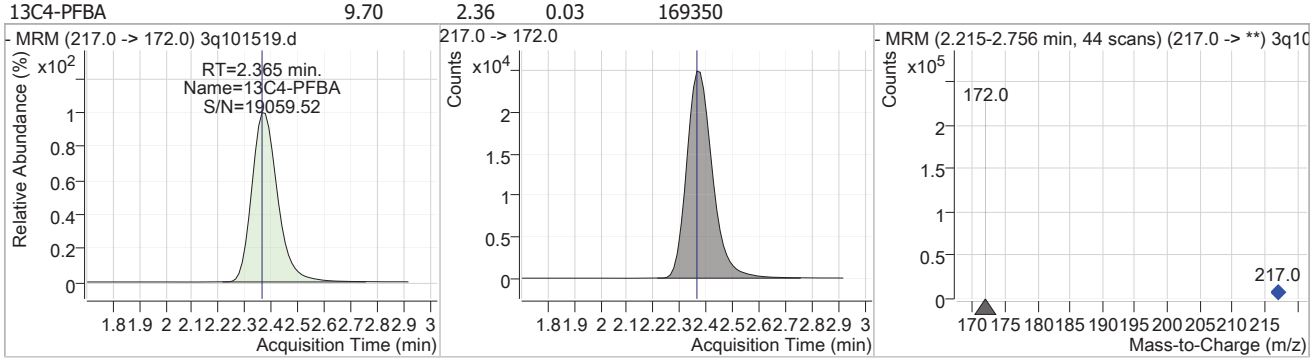
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

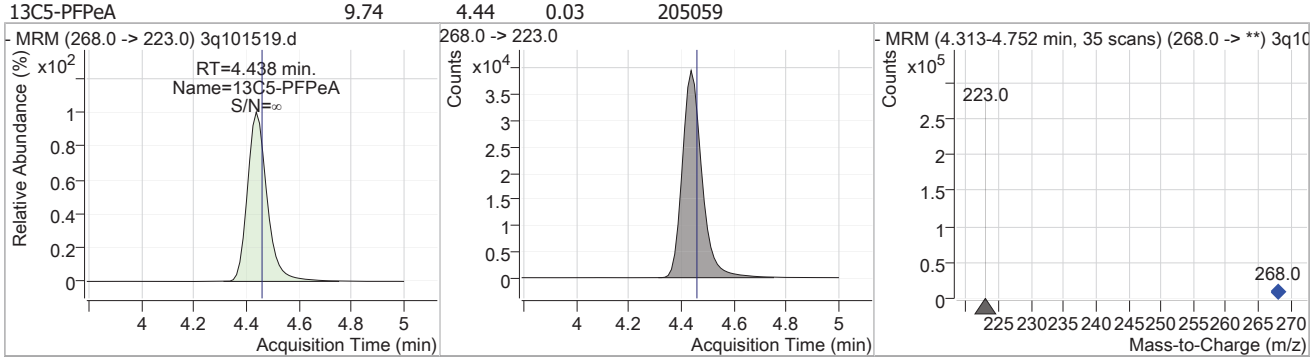
Perfluorinated Compounds by LC/MS/MS



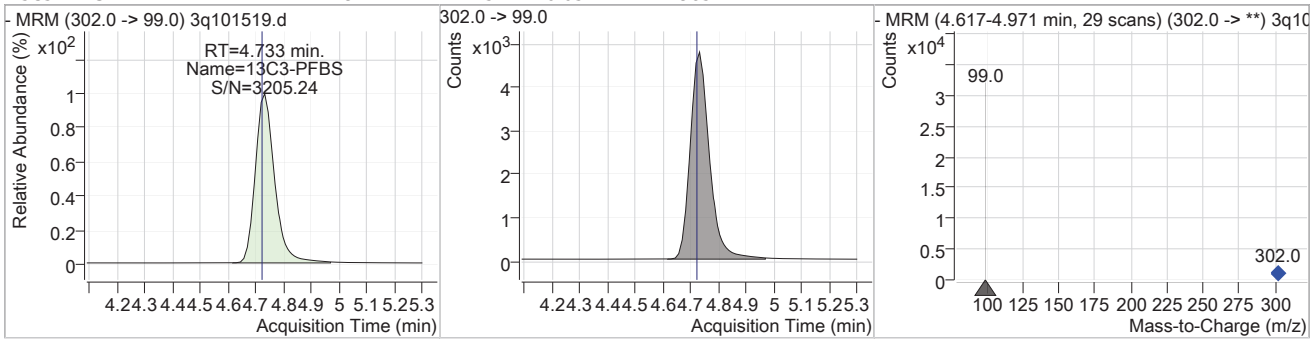
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	9.70	2.36	0.03	169350				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	9.74	4.44	0.03	205059				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	9.24	4.73	0.03	22983				

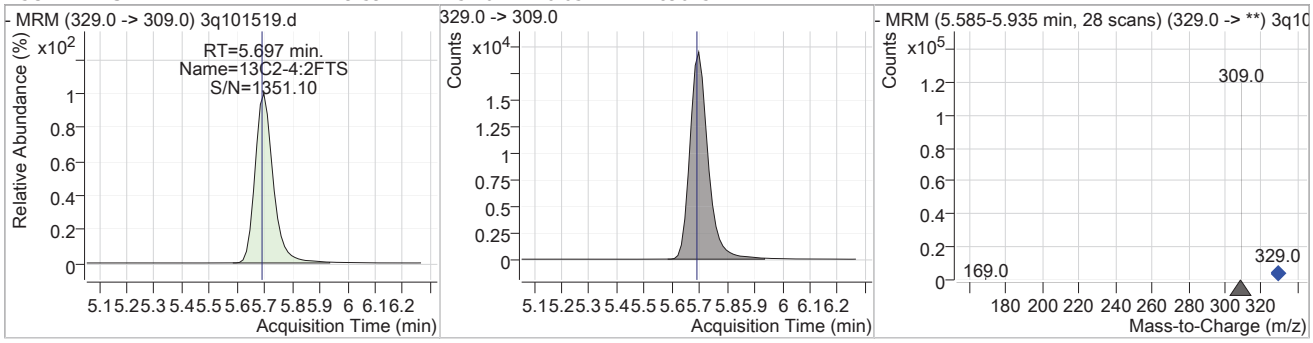


7.6.2

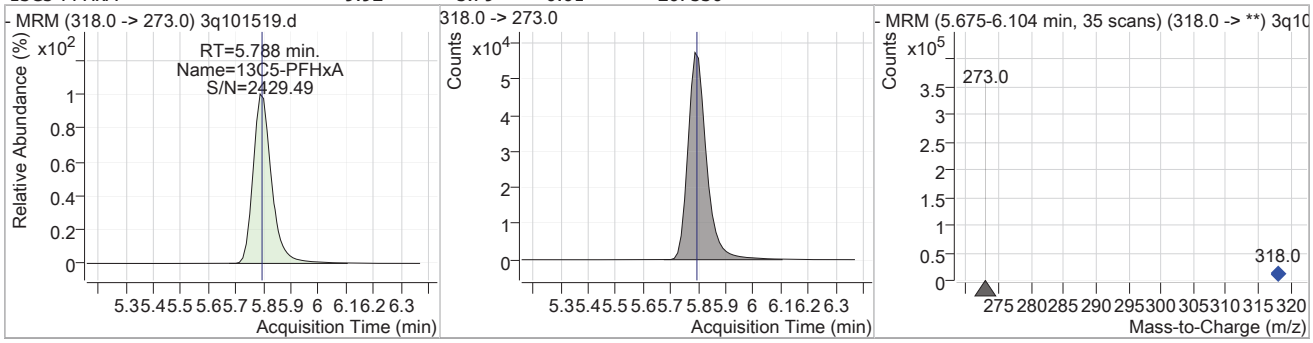
7

Perfluorinated Compounds by LC/MS/MS

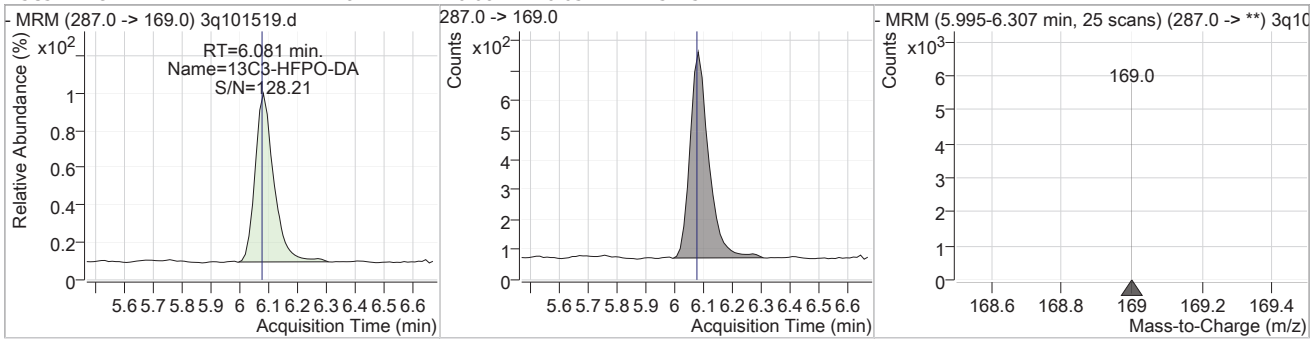
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	9.39	5.70	0.03	89075				



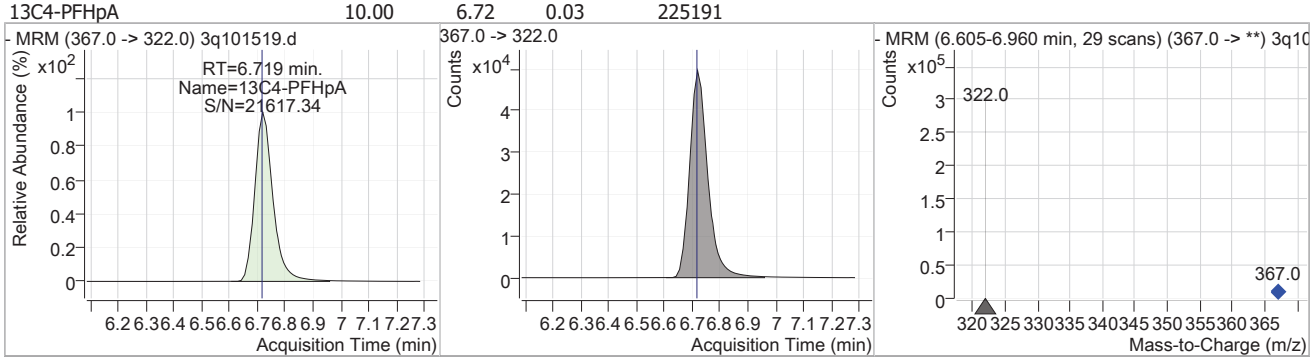
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	9.92	5.79	0.01	267530				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.11	6.08	0.03	3143				

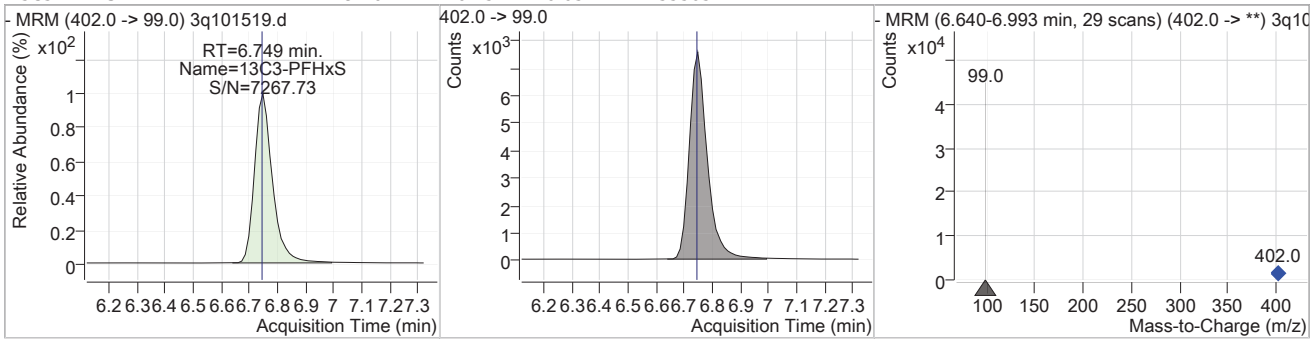


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.00	6.72	0.03	225191				

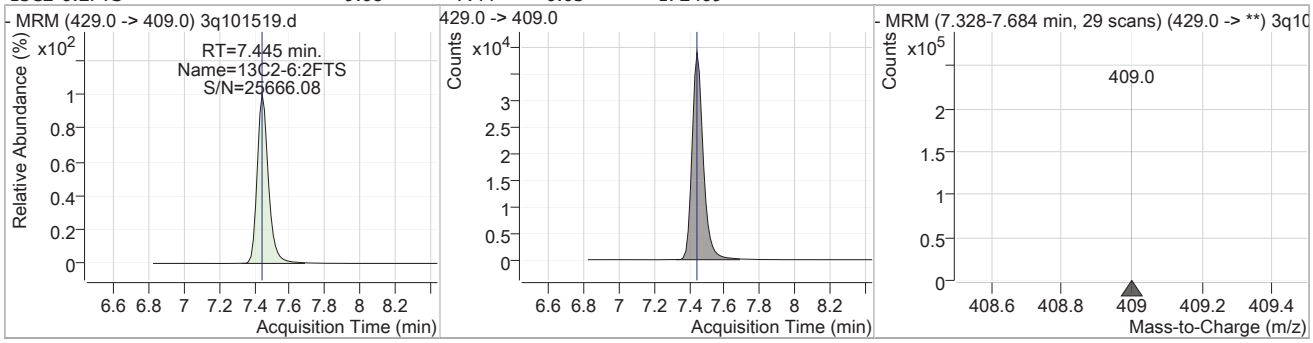


Perfluorinated Compounds by LC/MS/MS

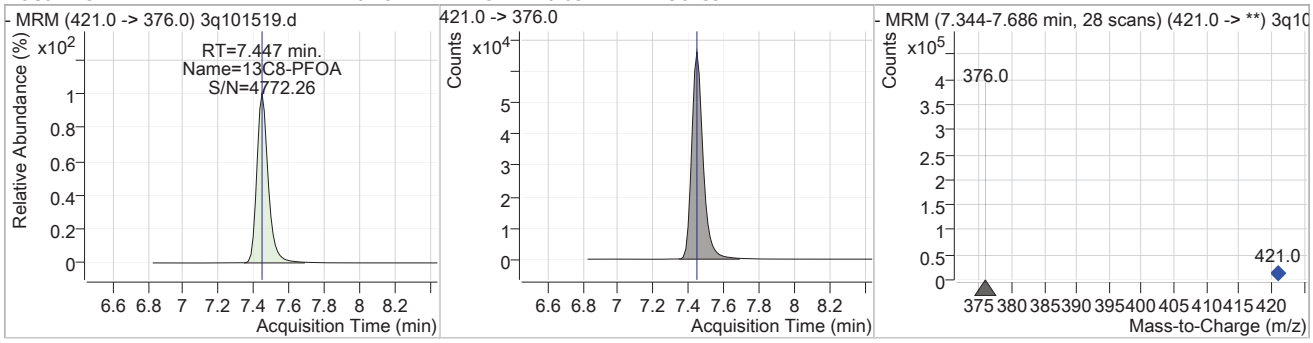
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	9.46	6.75	0.03	33503				



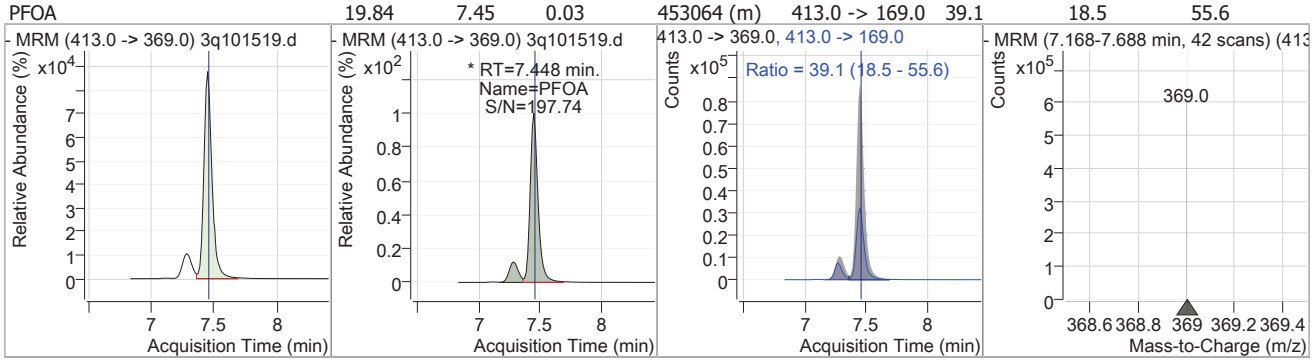
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	9.68	7.44	0.03	172469				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.13	7.45	0.03	296139				

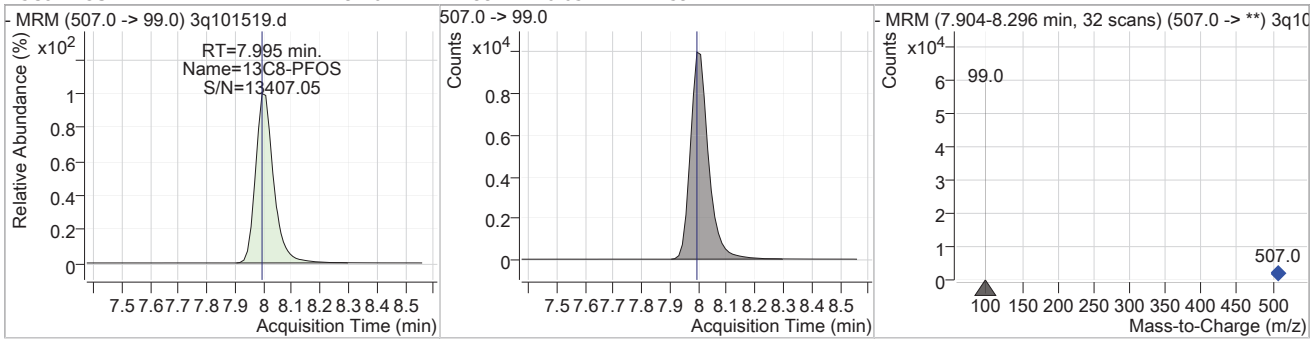


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.84	7.45	0.03	453064 (m)	413.0 -> 169.0	39.1	18.5	55.6

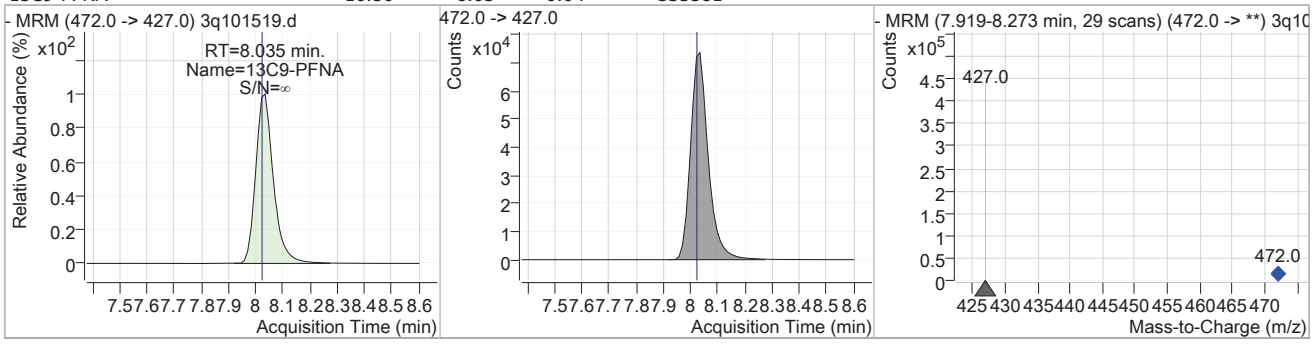


Perfluorinated Compounds by LC/MS/MS

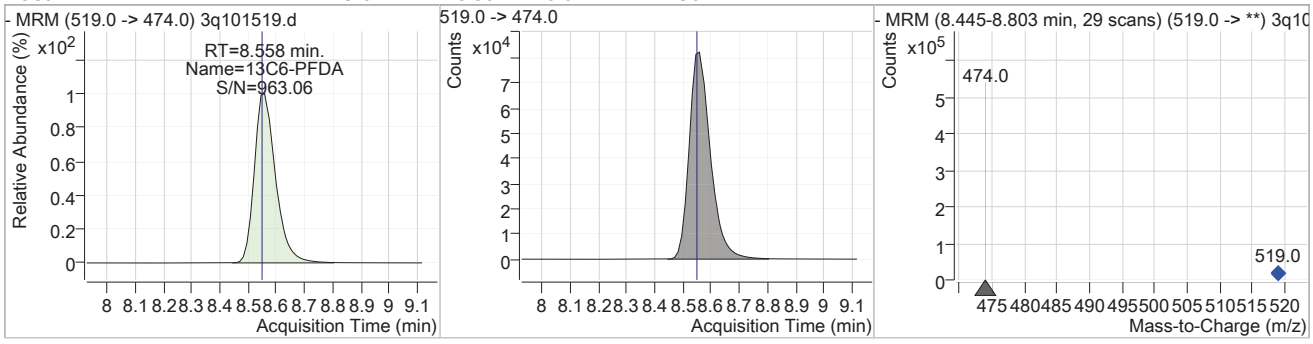
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	9.70	7.99	0.03	43971				



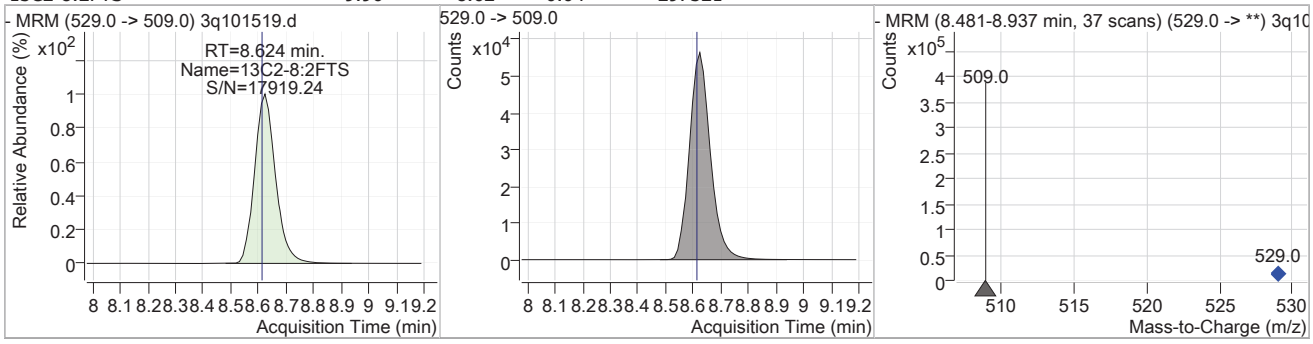
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.50	8.03	0.04	333581				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	9.64	8.56	0.04	429017				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	9.96	8.62	0.04	297321				

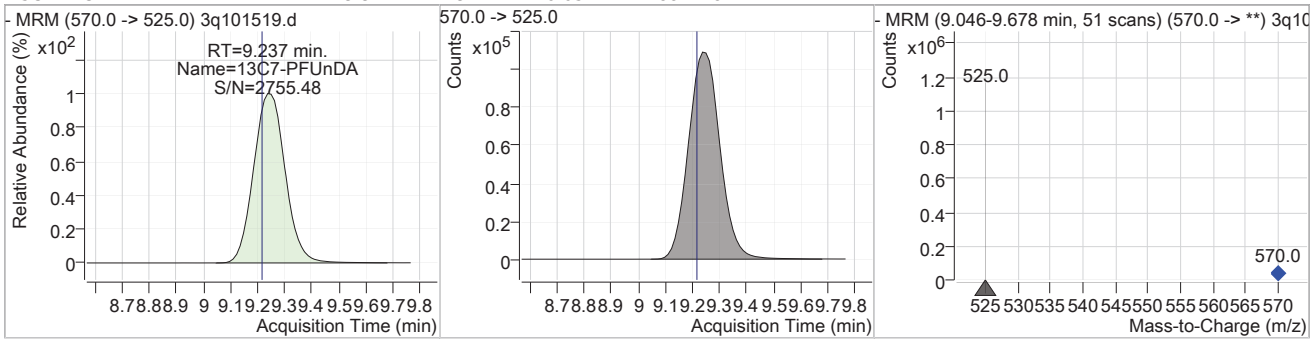


7.6.2

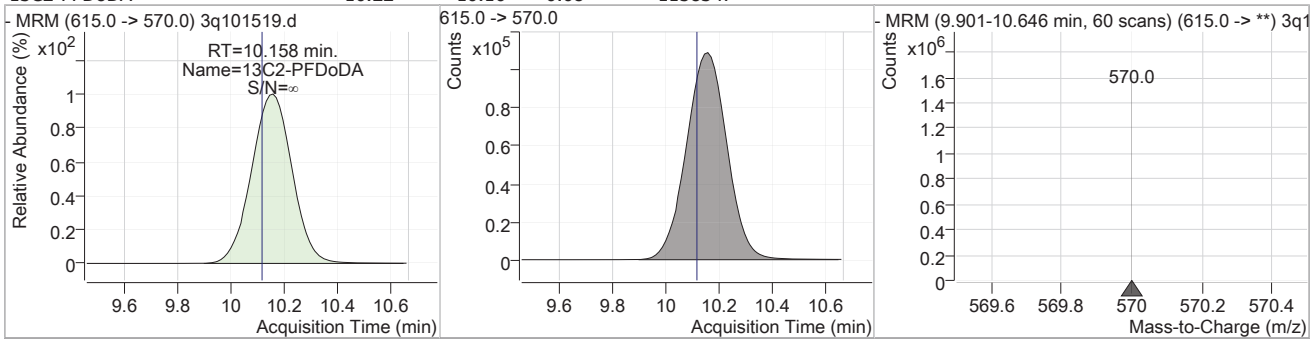
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	9.94	9.24	0.05	884218				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.22	10.16	0.08	1158347				



7.6.2

7

Manual Integration Approval Summary

Sample Number:	S3Q1494-RT	**Method:**	EPA 533
Lab FileID:	3Q101519.D	**Analyst approved:**	04/18/25 08:08 (b) (6)
Injection Time:	04/17/25 10:35	**Supervisor approved:**	04/18/25 10:08 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.45	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/24/25 12:51

Perfluorinated Compounds by LC/MS/MS

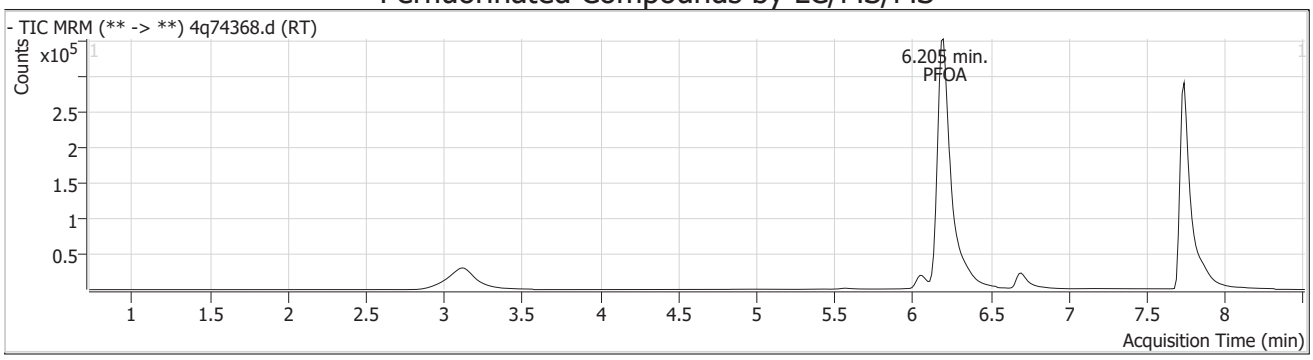
Data File : 4q74368.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/23/2025 11:55:46 PM
Sample Name : RT
Vial : P1-B2
DA Method File : 537_042325_S4q1106.quantmethod.xml
Batch Name : s4q1106.batch.bin
Sample Information : OP8985,S4Q1106,250,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.177	429.0 -> 409.0	467800	20.00	µg/L		0.013
13C2-PFOA	6.204	415.0 -> 370.0	934784	20.00	µg/L		0.000
13C3-PFPeA	3.119	266.0 -> 222.0	407733	20.00	µg/L		0.000
13C4-PFOS	6.700	503.0 -> 80.0	134802	20.00	µg/L		0.012
d3-MeFOSAA	7.745	573.0 -> 419.0	1426775	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.136	515.0 -> 470.0	0		µg/L	m	0.038
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C2-PFHxA	4.676	315.0 -> 270.0	0		µg/L	m	0.000
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = NA%			
d5-EtFOSAA	7.893	589.0 -> 419.0	0		µg/L	m	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C3-HFPO-DA	4.909	287.0 -> 169.0	0		µg/L	m	-0.050
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	7.894	584.0 -> 419.0	0		µg/L	m	1
MeFOSAA	7.746	570.0 -> 419.0	0		µg/L	m	1
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	5.570	363.0 -> 319.0	0		µg/L	m	1
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	6.205	413.0 -> 369.0	677930	21.64	µg/L	m	98
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	-	285.0 -> 169.0	-	N.D.			

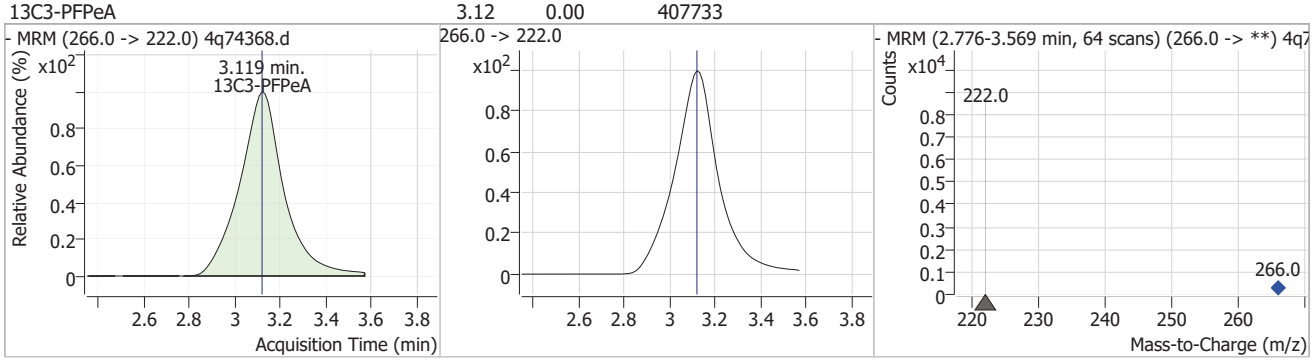
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.6.3
7

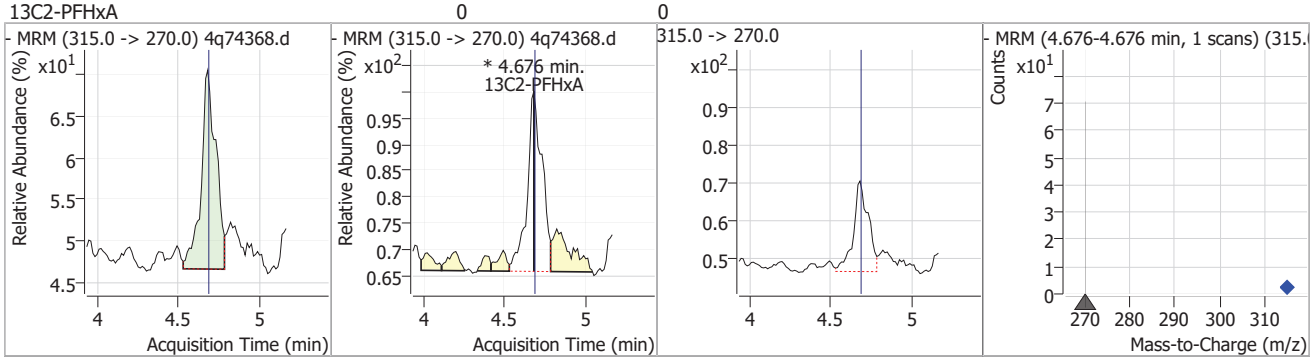
Perfluorinated Compounds by LC/MS/MS



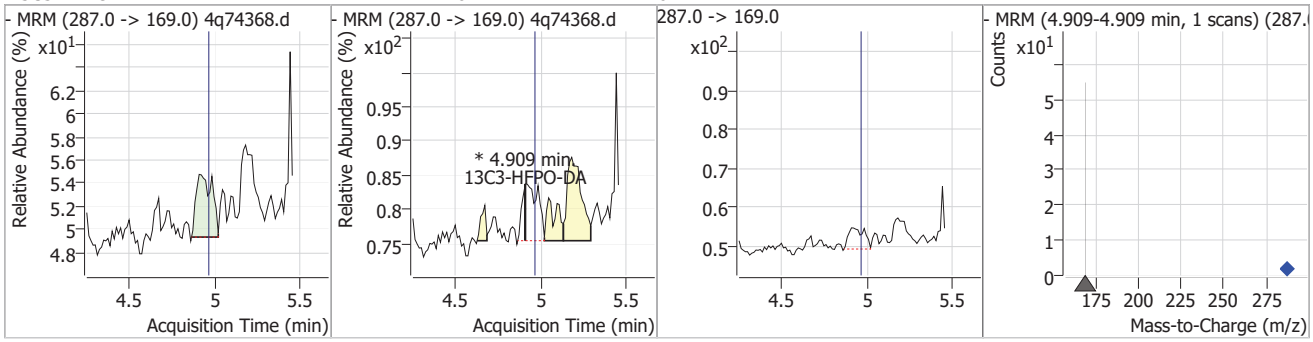
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.12	0.00	407733				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA		0		0				

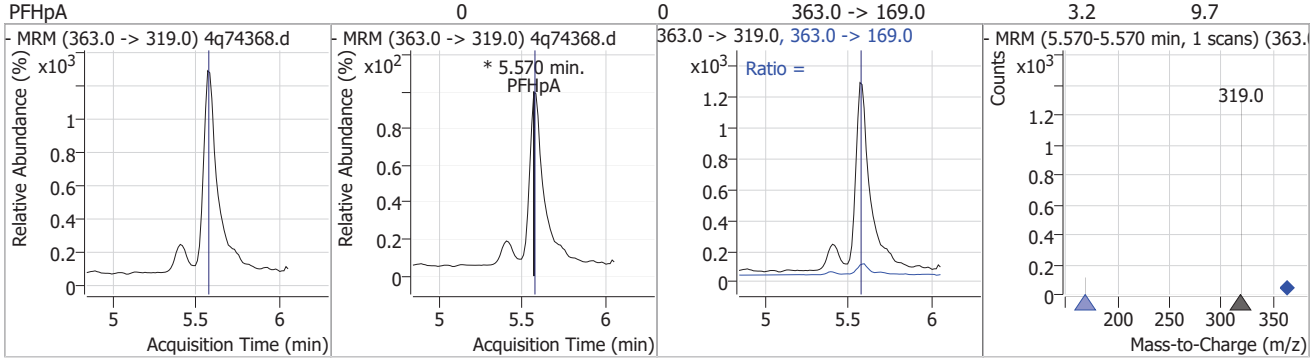


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA		0		0				

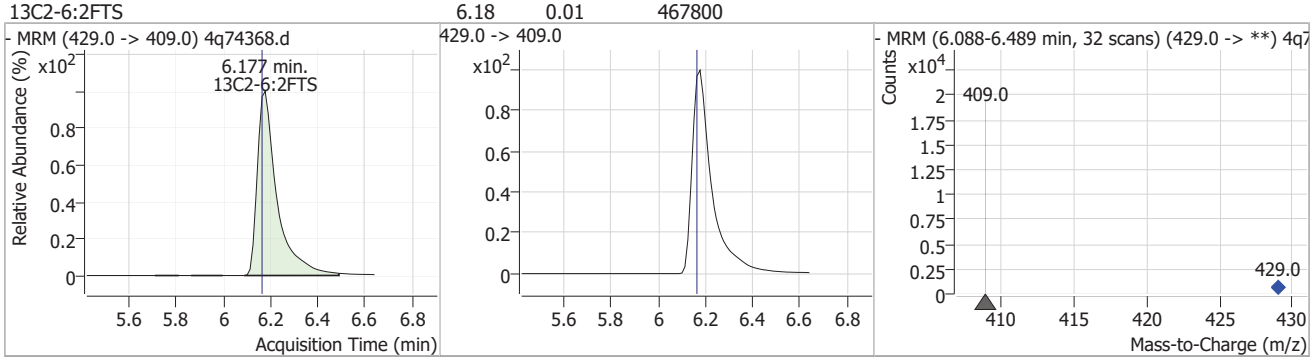


Perfluorinated Compounds by LC/MS/MS

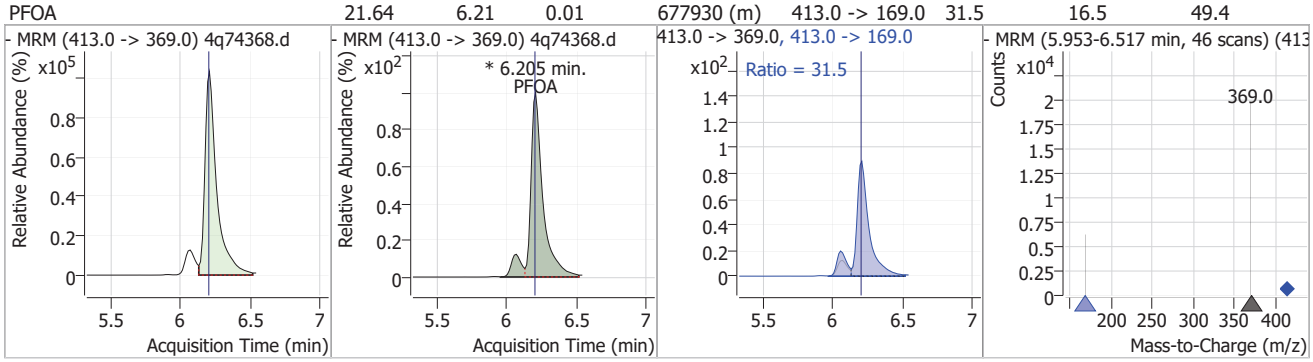
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA		0		0	363.0 -> 169.0		3.2	9.7



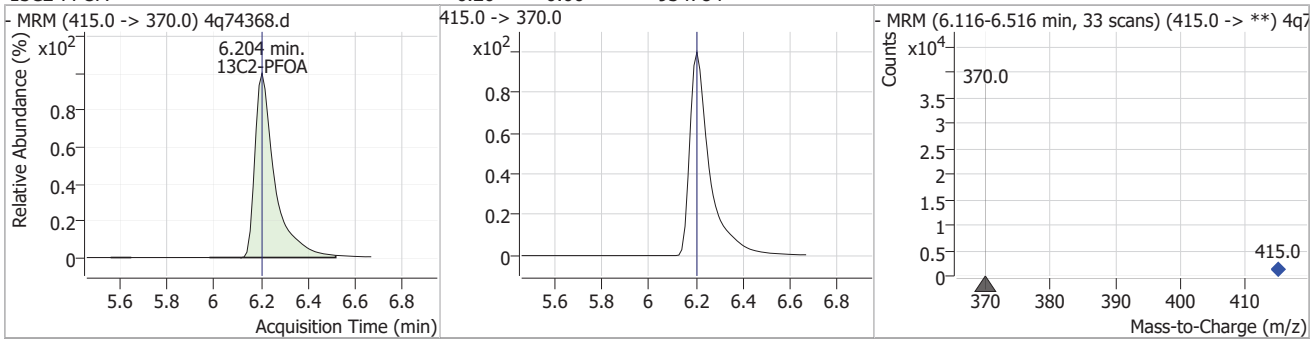
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.18	0.01	467800				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	21.64	6.21	0.01	677930 (m)	413.0 -> 169.0	31.5	16.5	49.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.20	0.00	934784				

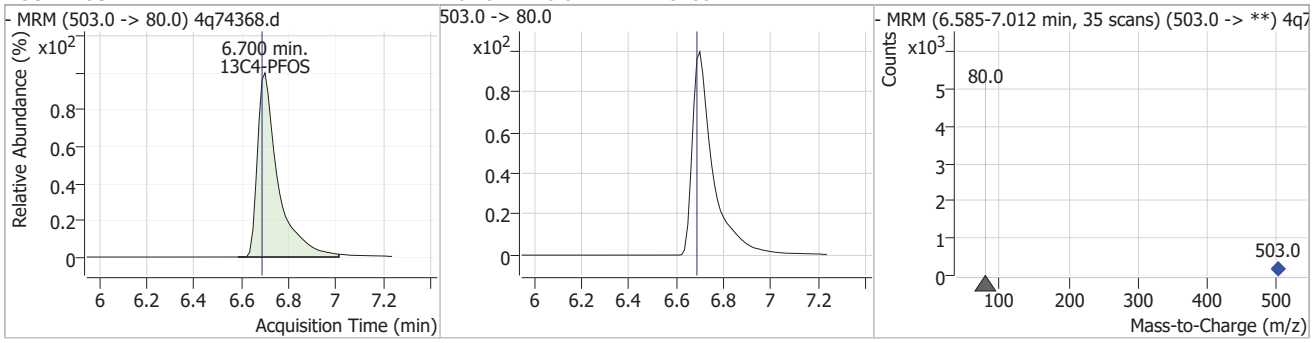


7.6.3

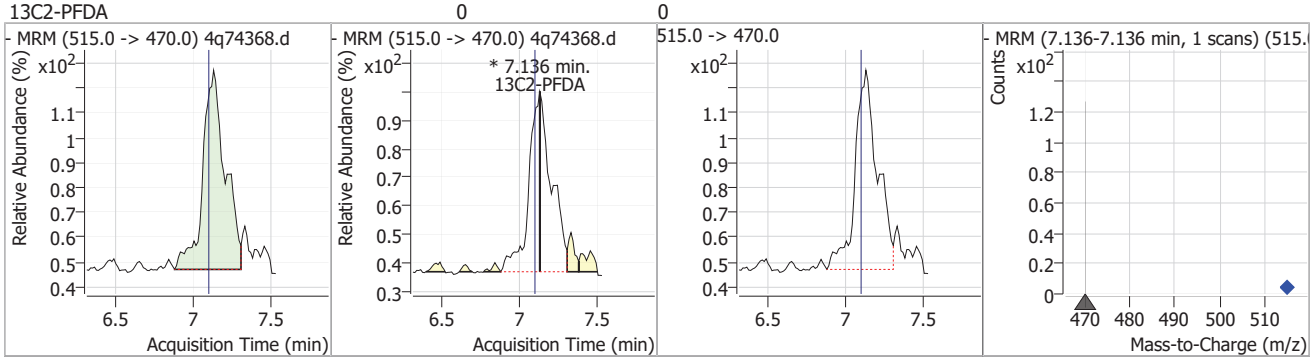
7

Perfluorinated Compounds by LC/MS/MS

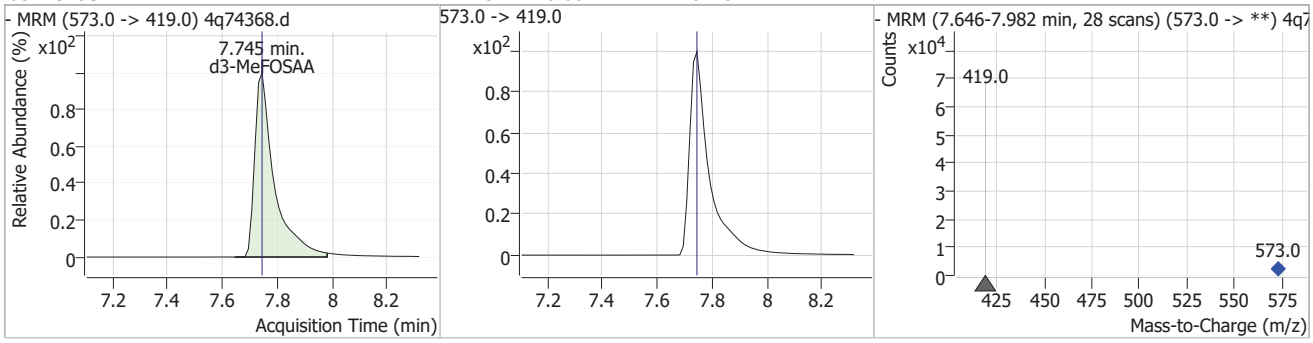
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.70	0.01	134802				



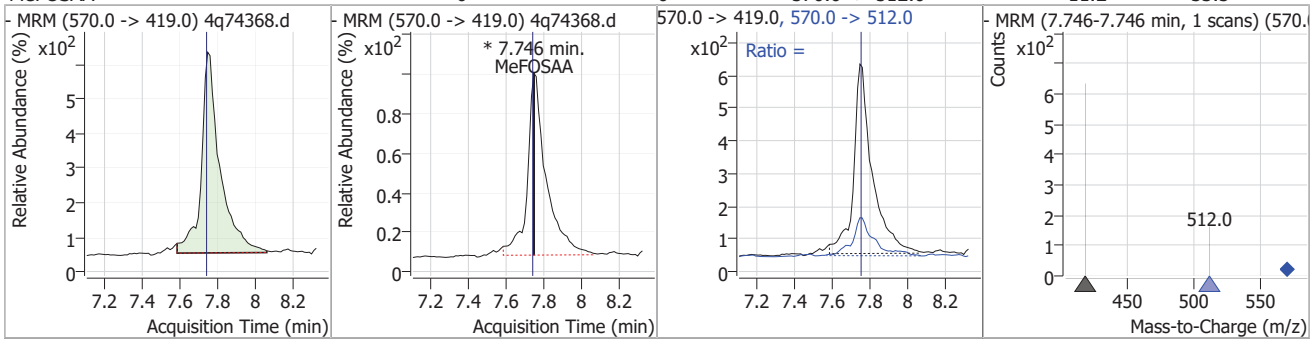
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA		0		0				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.75	0.00	1426775				

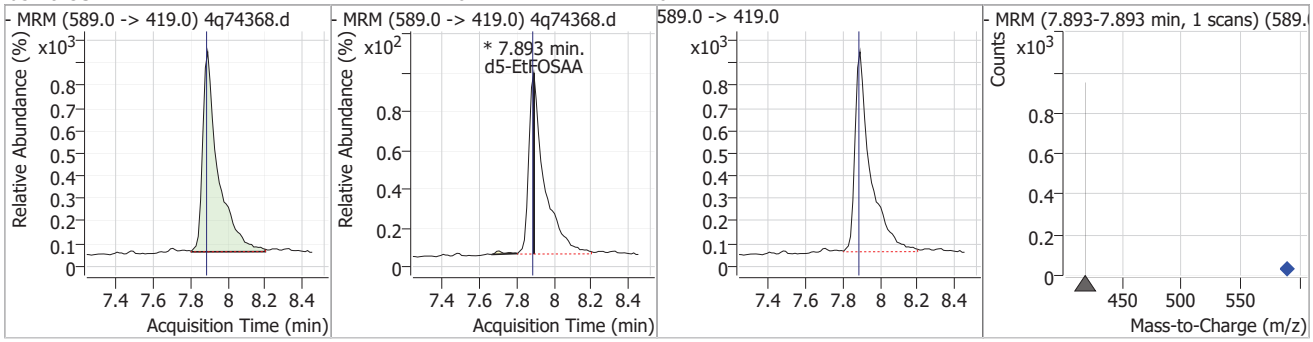


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA		0		0	570.0 -> 512.0		11.2	33.5

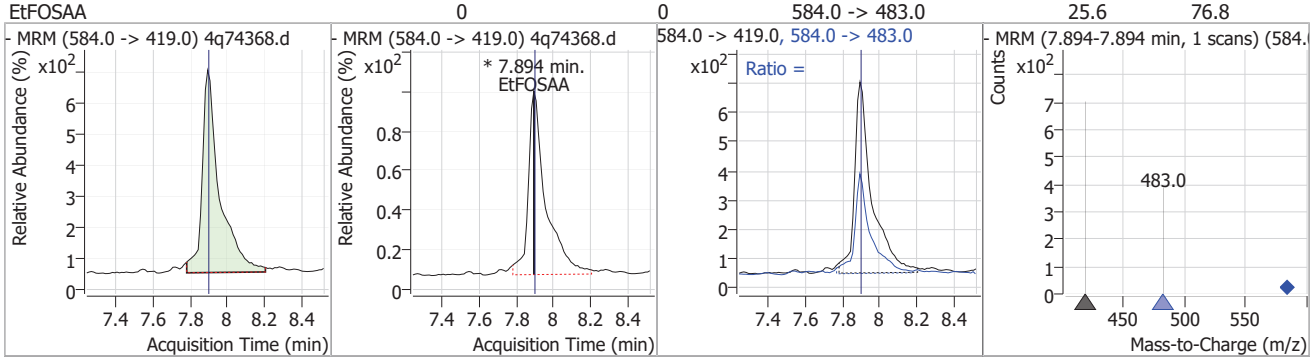


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA		0		0				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA		0		0	584.0 -> 483.0		25.6	76.8



Manual Integration Approval Summary

Sample Number:	S4Q1106-RT	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	4Q74368.D	**Analyst approved:**	04/24/25 11:46 (b) (6)
Injection Time:	04/23/25 23:55	**Supervisor approved:**	04/24/25 12:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		6.21	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 09:03

Perfluorinated Compounds by LC/MS/MS

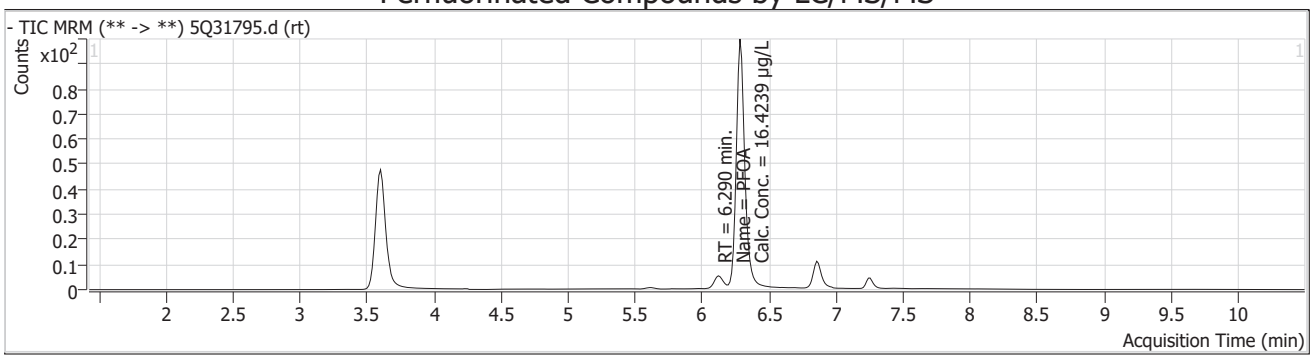
Data File : 5Q31795.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/16/2025 2:25:16 PM
Sample Name : rt
Vial : P1-B2
DA Method File : 537_041625_S5Q522.quantmethod
Batch Name : s5q522.batch.bin
Sample Information : OP8882,S5Q522,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.287	429.0 -> 409.0	156280	20.00	µg/L		0.000
13C2-PFOA	6.289	415.0 -> 370.0	352354	20.00	µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	472532	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	85982	20.00	µg/L		0.000
d3-MeFOSAA	7.255	573.0 -> 419.0	28662	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.460	515.0 -> 470.0	0		µg/L	m	0.037
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C2-PFHxA	4.775	315.0 -> 270.0	0		µg/L	m	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
d5-EtFOSAA	7.366	589.0 -> 419.0	0		µg/L	m	-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C3-HFPO-DA	4.932	287.0 -> 169.0	0		µg/L	m	-0.100
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	7.392	584.0 -> 419.0	0		µg/L	m	1
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	5.614	363.0 -> 319.0	0		µg/L	m	1
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	6.290	413.0 -> 369.0	276408	16.42	µg/L	m	96
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	5.608	285.0 -> 169.0	0		µg/L	m	1

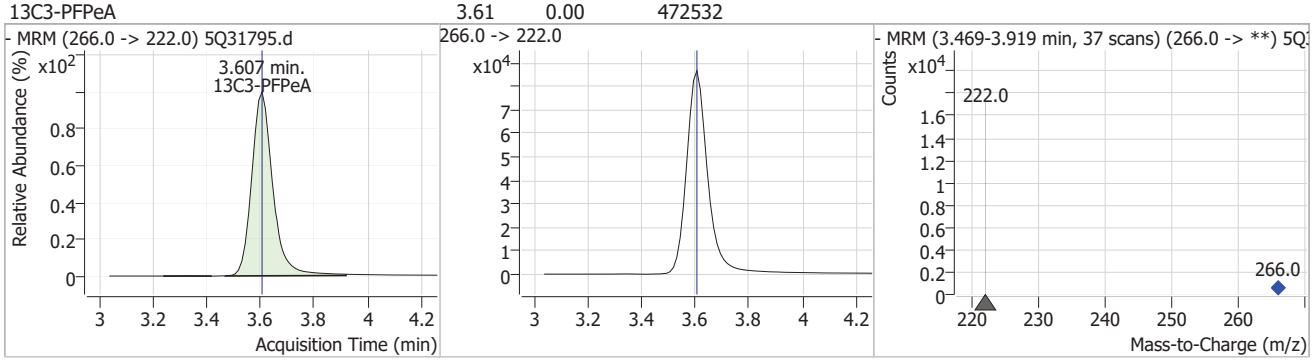
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.6.4
7

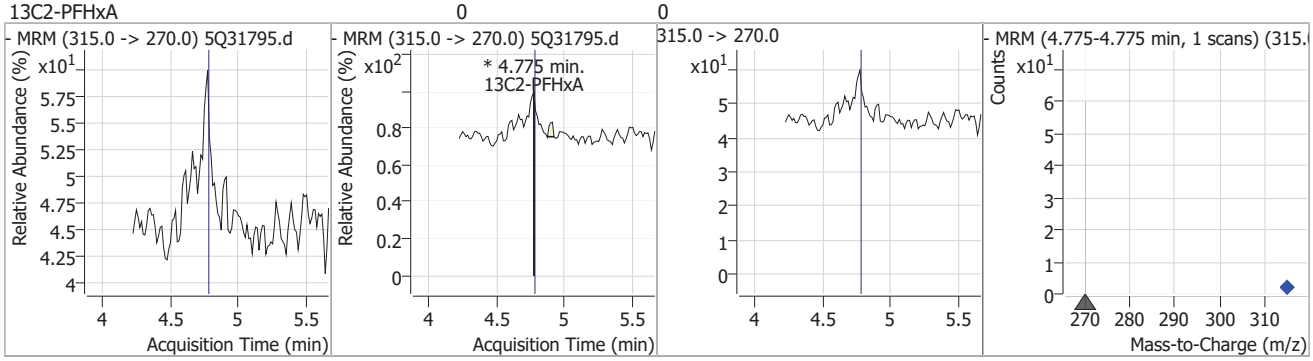
Perfluorinated Compounds by LC/MS/MS



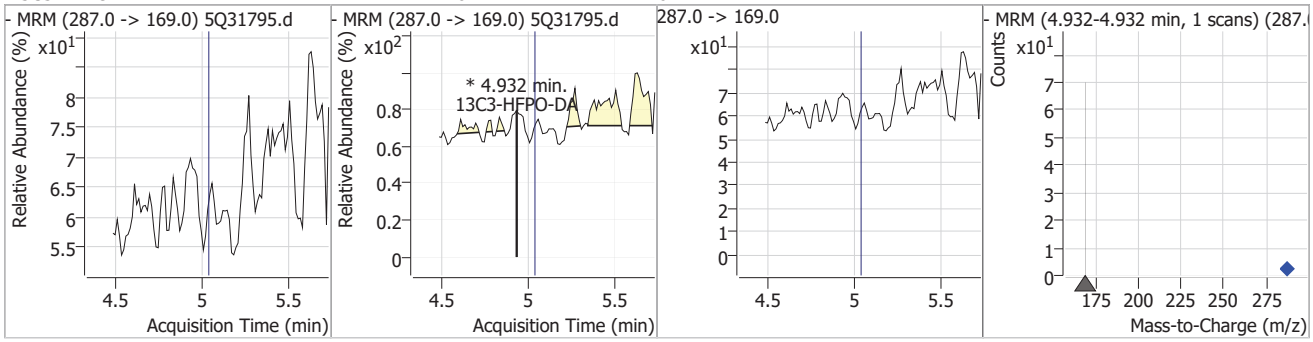
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.00	472532				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA		0		0				

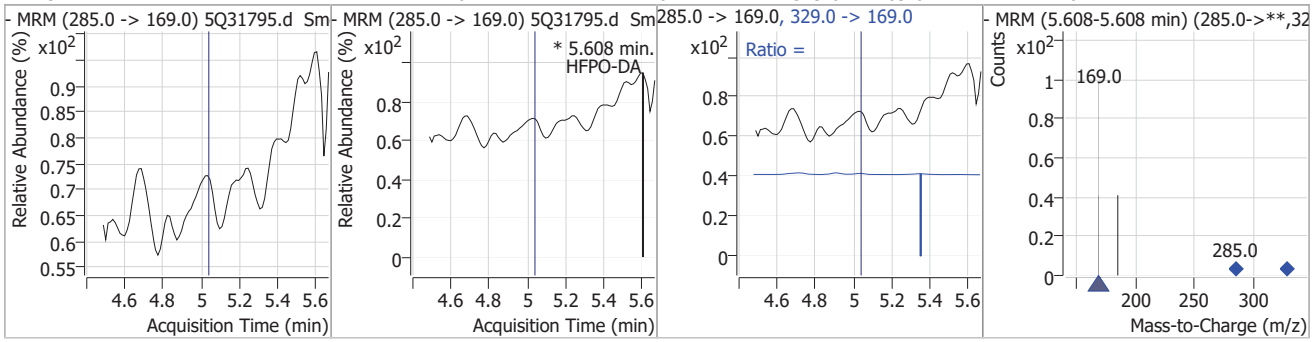


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA		0		0				

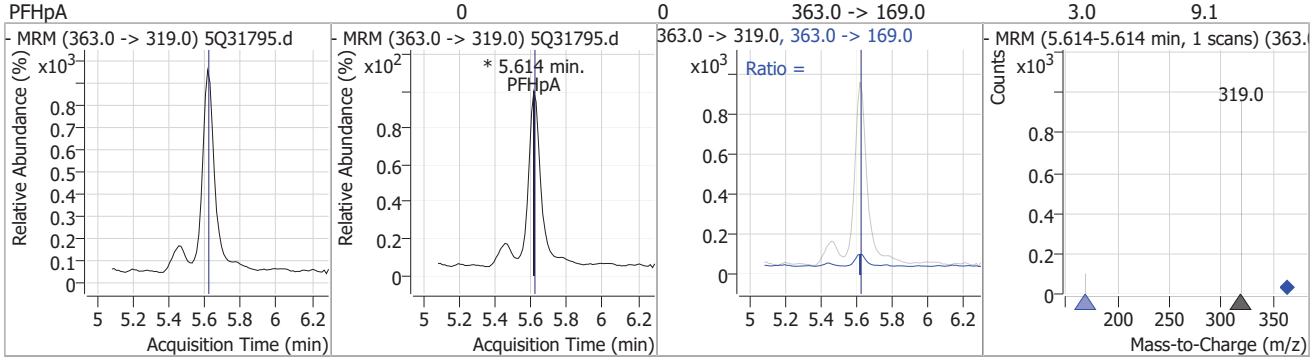


Perfluorinated Compounds by LC/MS/MS

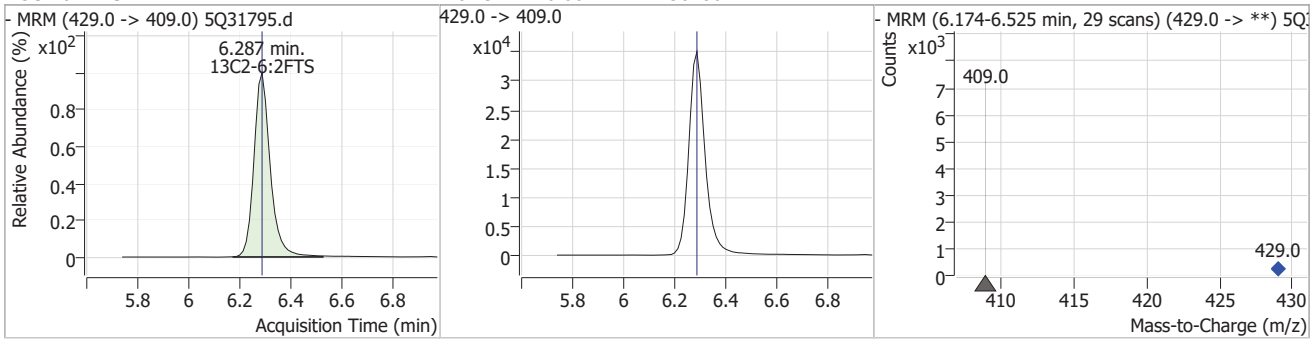
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA		0		0	329.0 -> 169.0		0.4	1.2



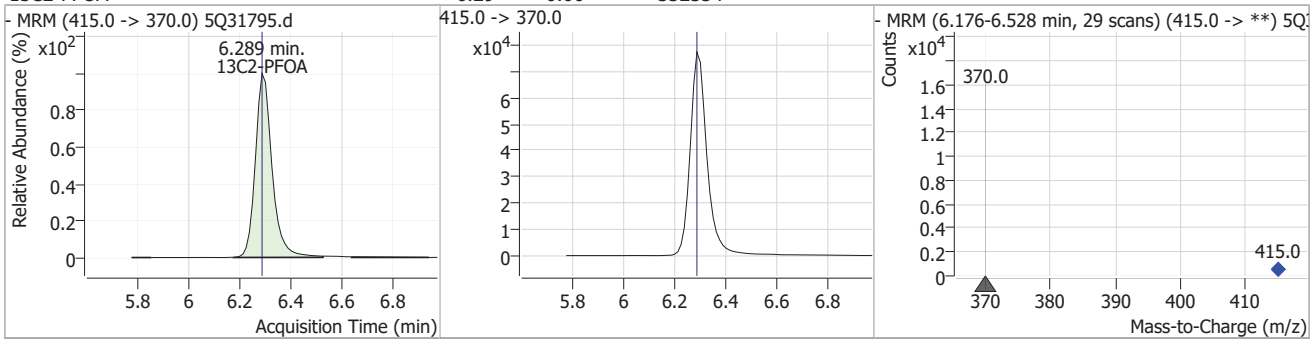
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA		0		0	363.0 -> 169.0		3.0	9.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	156280				

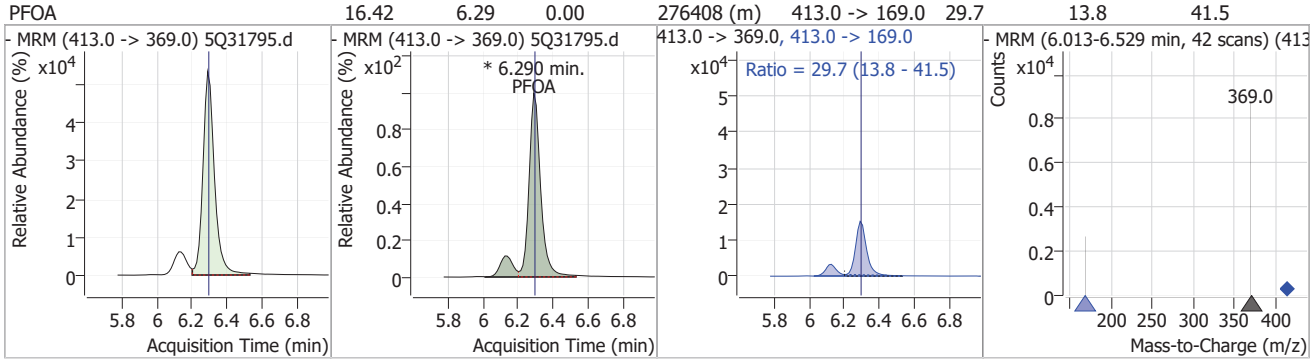


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	352354				

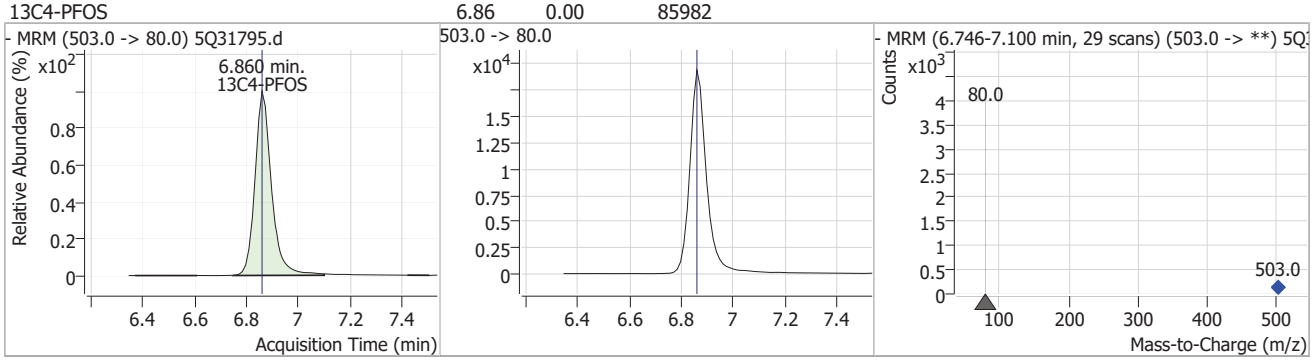


Perfluorinated Compounds by LC/MS/MS

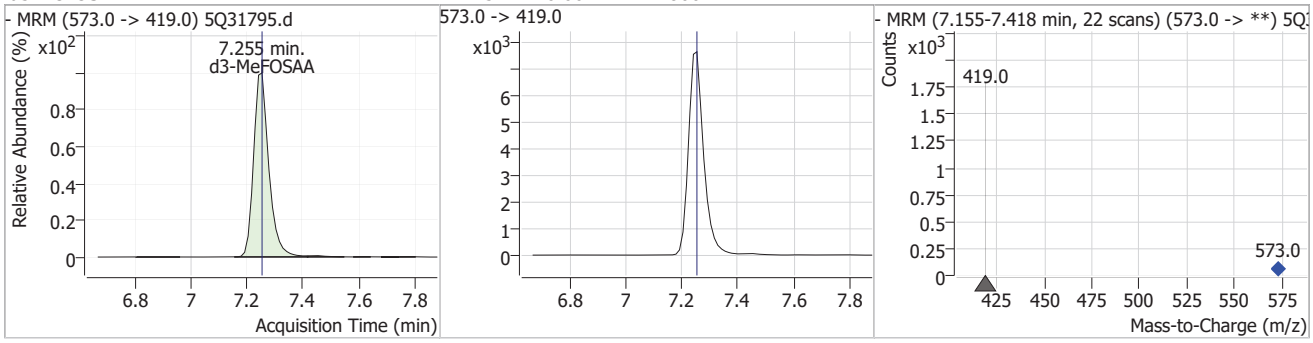
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	16.42	6.29	0.00	276408 (m)	413.0 -> 169.0	29.7	13.8	41.5



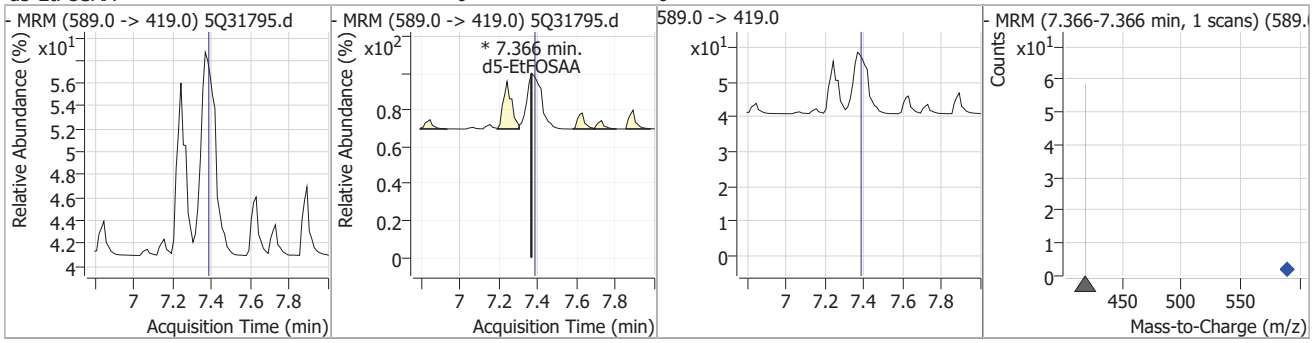
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	85982				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	28662				

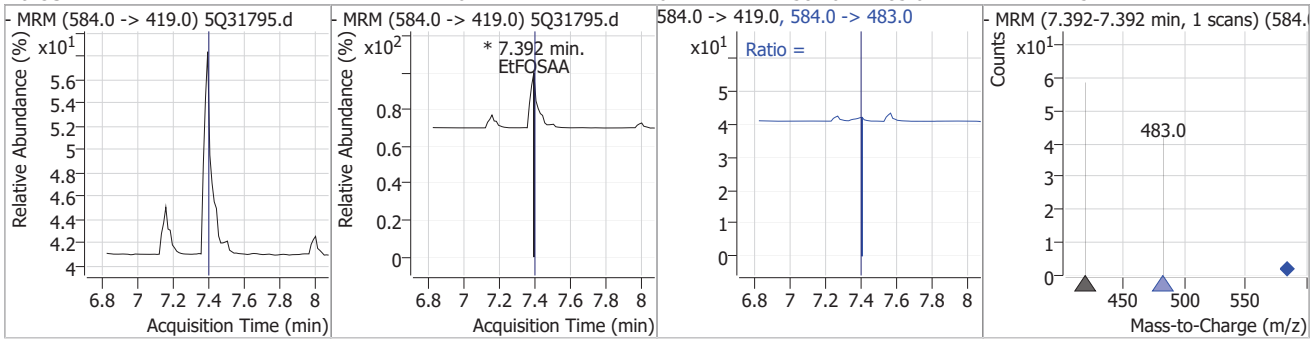


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA		0		0				

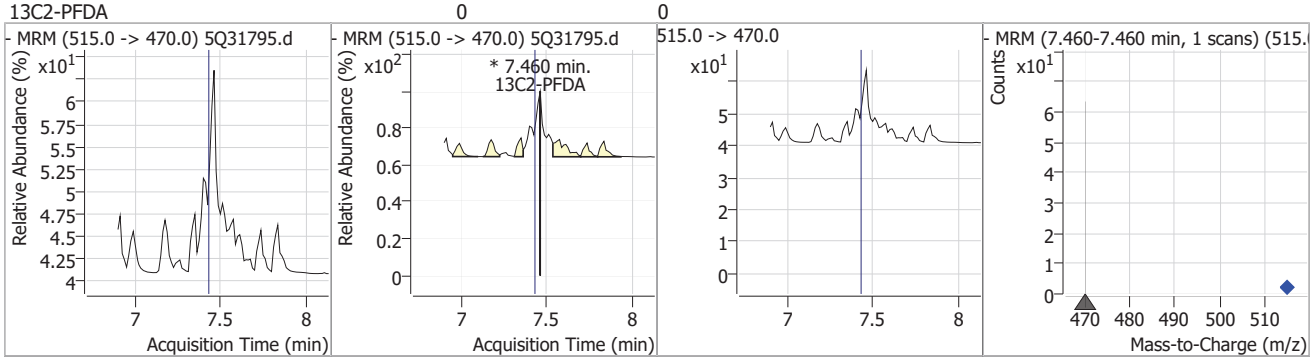


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA		0		0	584.0 -> 483.0		25.7	77.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA		0		0				



7.6.4

7

Manual Integration Approval Summary

Sample Number:	S5Q522-RT	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31795.D	**Analyst approved:**	04/17/25 07:52 (b) (6)
Injection Time:	04/16/25 14:25	**Supervisor approved:**	04/17/25 09:03 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		6.29	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

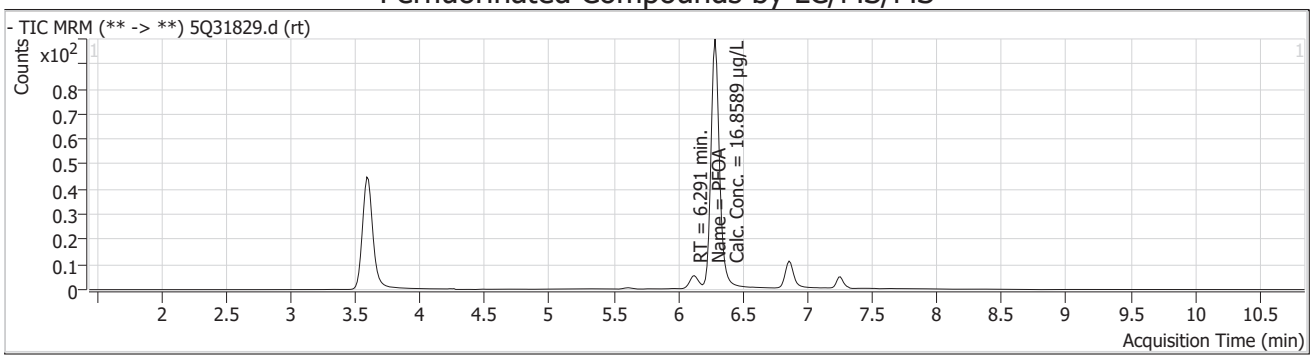
Data File : 5Q31829.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 3:07:04 PM
Sample Name : rt
Vial : P1-B2
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.288	429.0 -> 409.0	176883	20.00	µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	381361	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	488219	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	97082	20.00	µg/L		0.000
d3-MeFOSAA	7.254	573.0 -> 419.0	32235	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.435	515.0 -> 470.0	0		µg/L	m	0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C2-PFHxA	4.764	315.0 -> 270.0	0		µg/L	m	-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
d5-EtFOSAA	7.365	589.0 -> 419.0	0		µg/L	m	-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C3-HFPO-DA	5.070	287.0 -> 169.0	0		µg/L	m	0.038
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	7.254	570.0 -> 419.0	0		µg/L	m	1
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	5.615	363.0 -> 319.0	0		µg/L	m	1
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	6.291	413.0 -> 369.0	305824	16.86	µg/L	m	95
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	-	285.0 -> 169.0	-	N.D.			

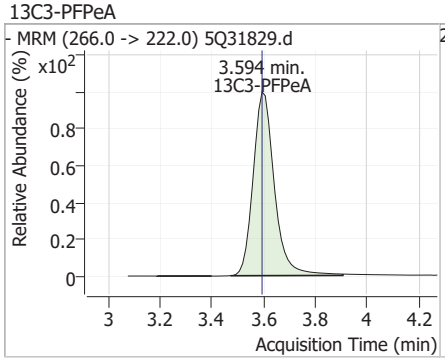
 # = Qualifier out of range, m = manually integrated, + = Area summed

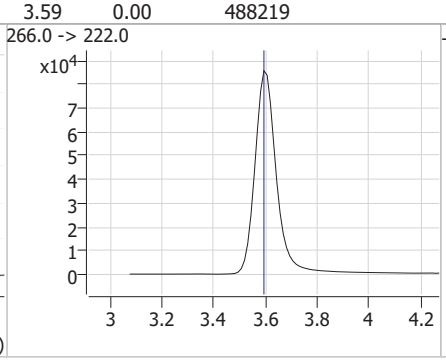
7.6.5
7

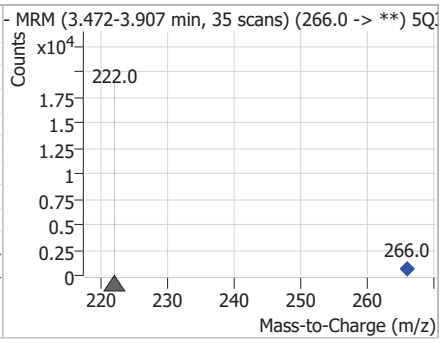
Perfluorinated Compounds by LC/MS/MS



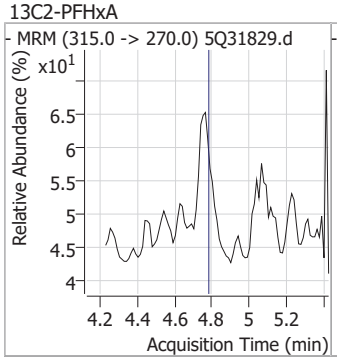
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	488219				

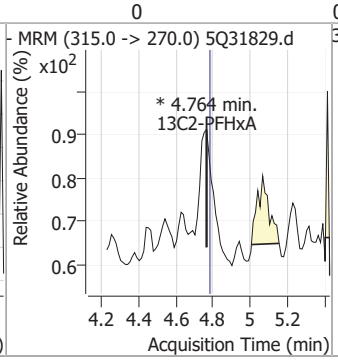


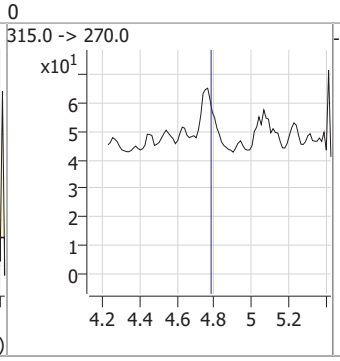


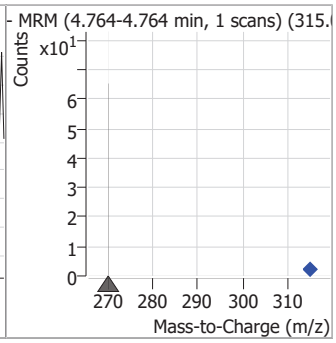


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA		0		0				

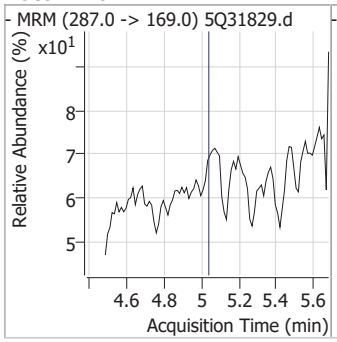


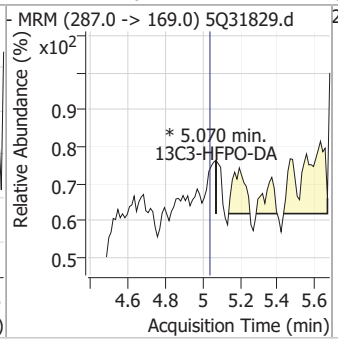


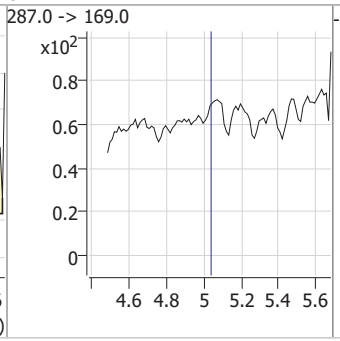


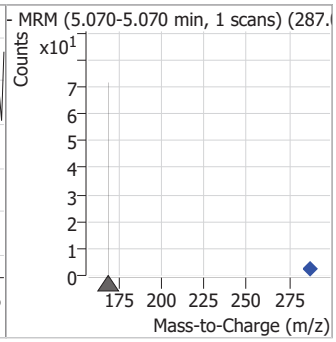


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA		0		0				



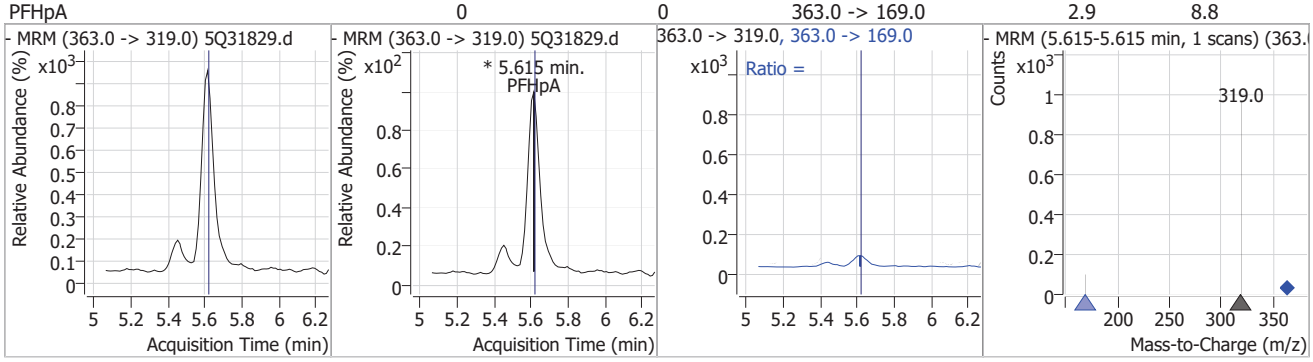




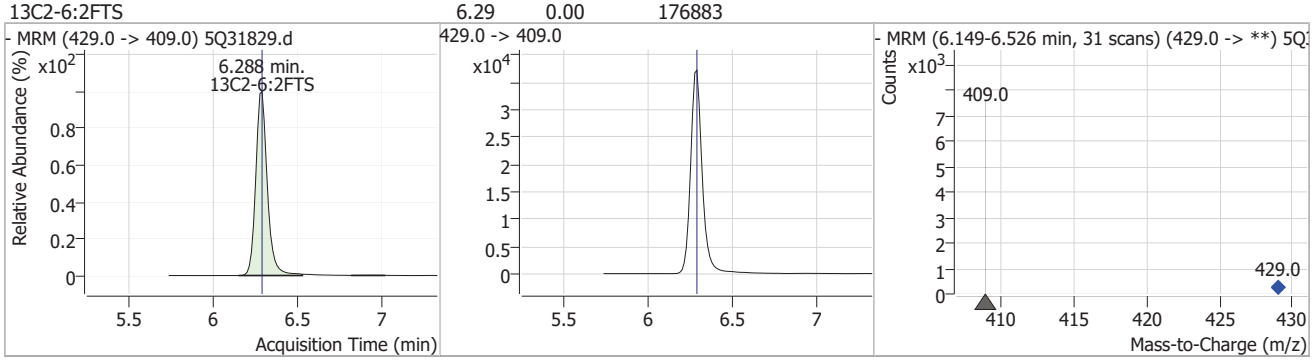


Perfluorinated Compounds by LC/MS/MS

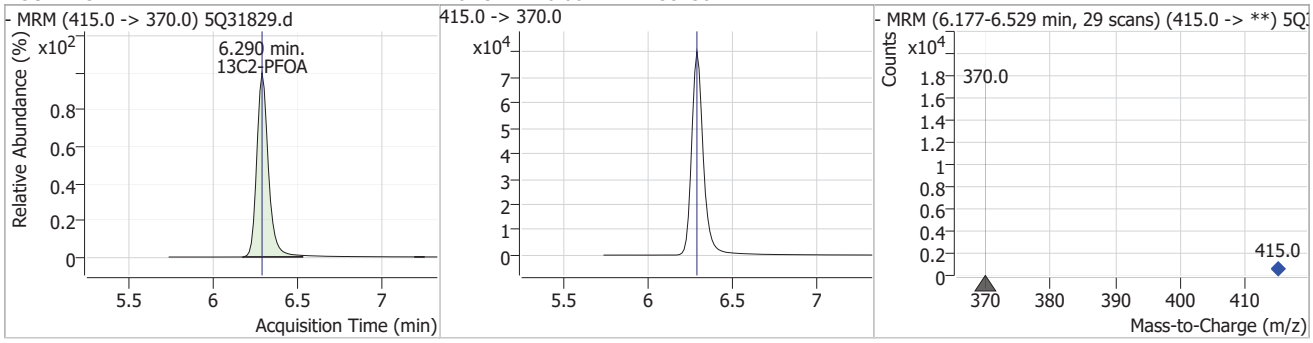
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA		0		0	363.0 -> 169.0		2.9	8.8



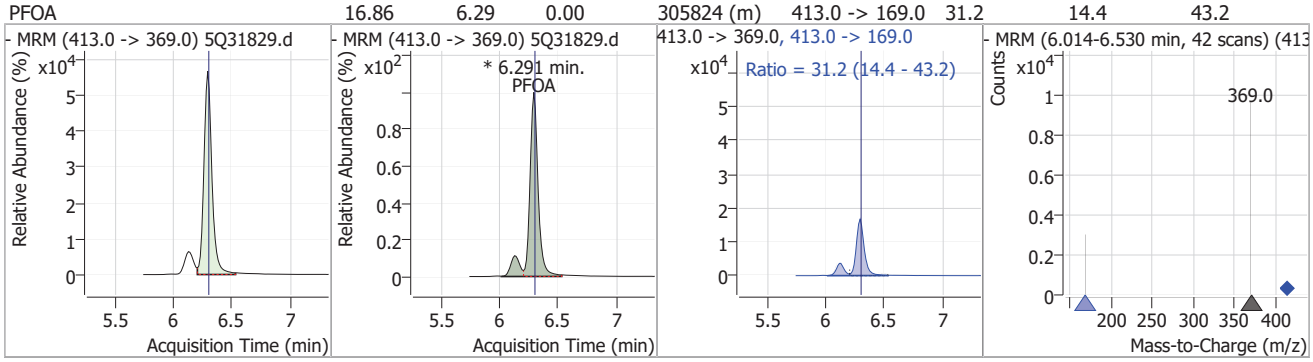
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	176883				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	381361				

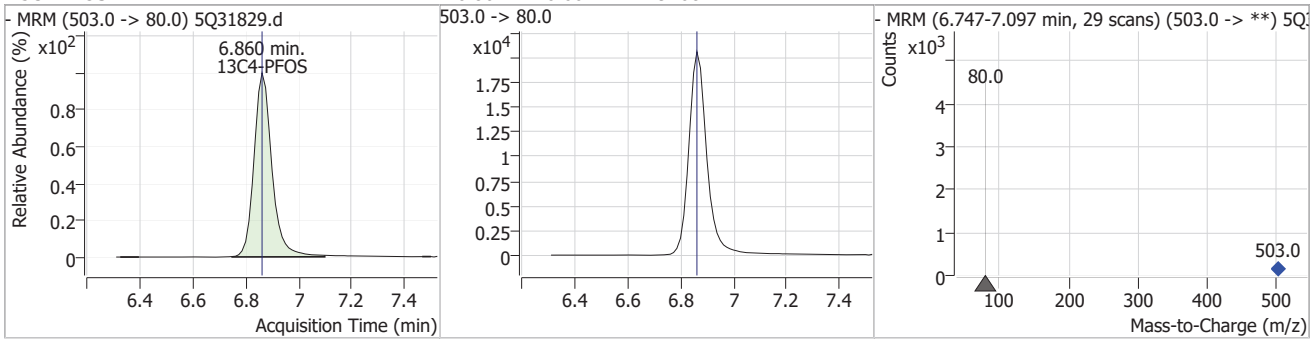


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	16.86	6.29	0.00	305824 (m)	413.0 -> 169.0	31.2	14.4	43.2

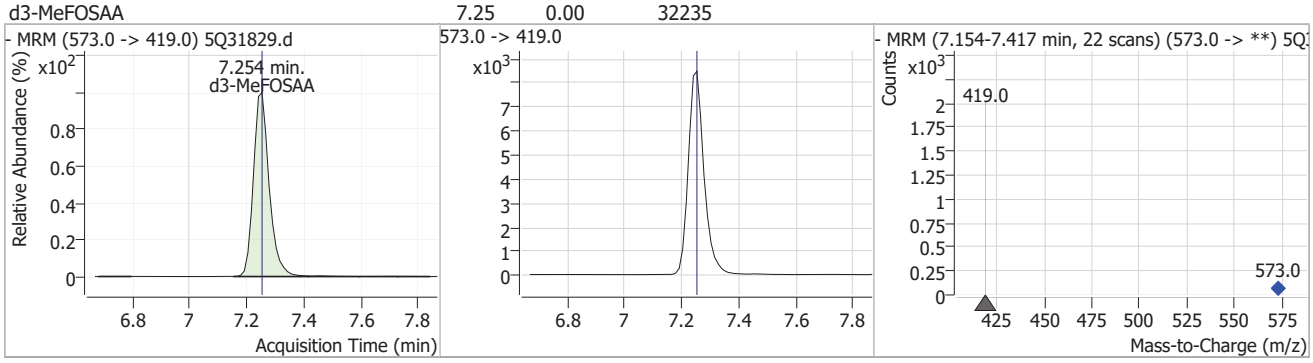


Perfluorinated Compounds by LC/MS/MS

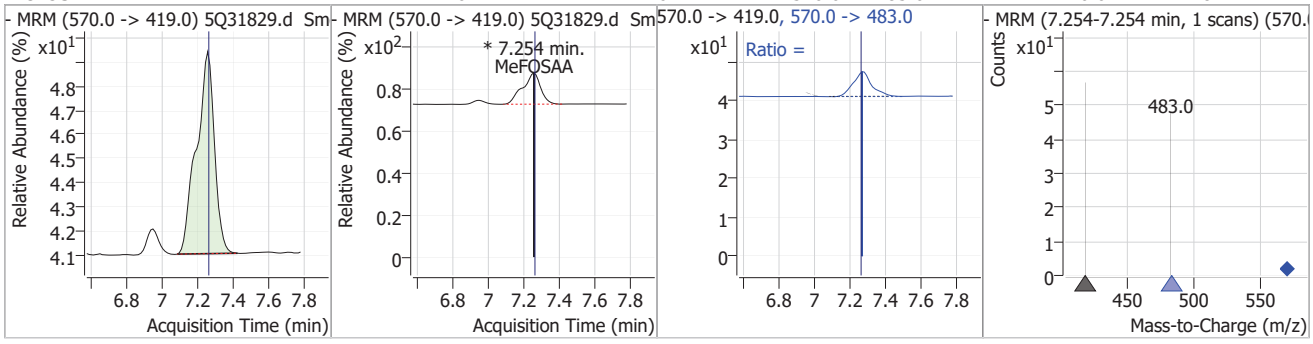
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	97082				



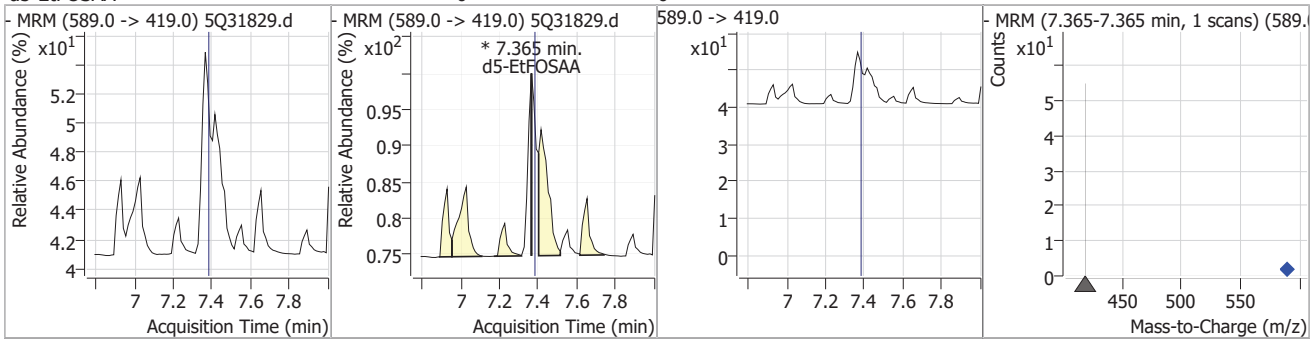
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	32235				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA		0		0	570.0 -> 483.0		26.0	78.1

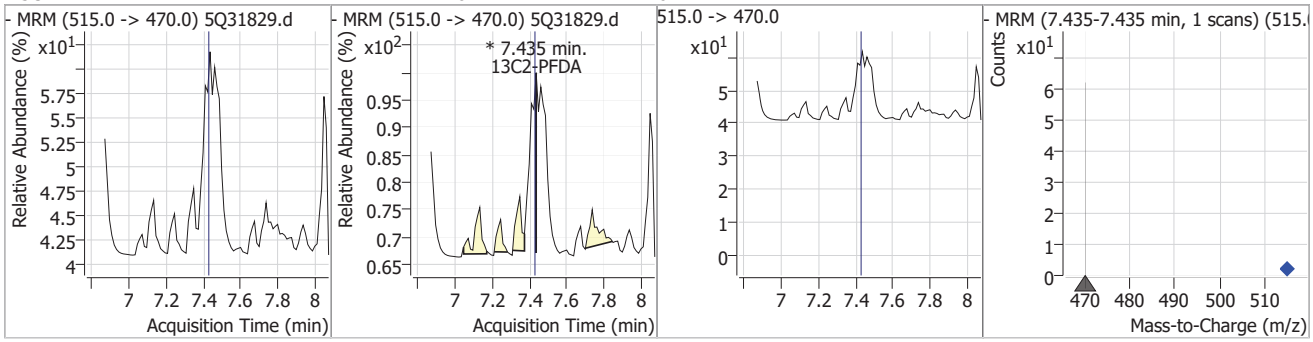


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA		0		0				



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA		0		0				



7.6.5

7

Manual Integration Approval Summary

Sample Number:	S5Q523-RT	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31829.D	**Analyst approved:**	04/18/25 07:39 (b) (6)
Injection Time:	04/17/25 15:07	**Supervisor approved:**	04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		6.29	Split peak

(b) (4)

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/21/25 10:51

Perfluorinated Compounds by LC/MS/MS

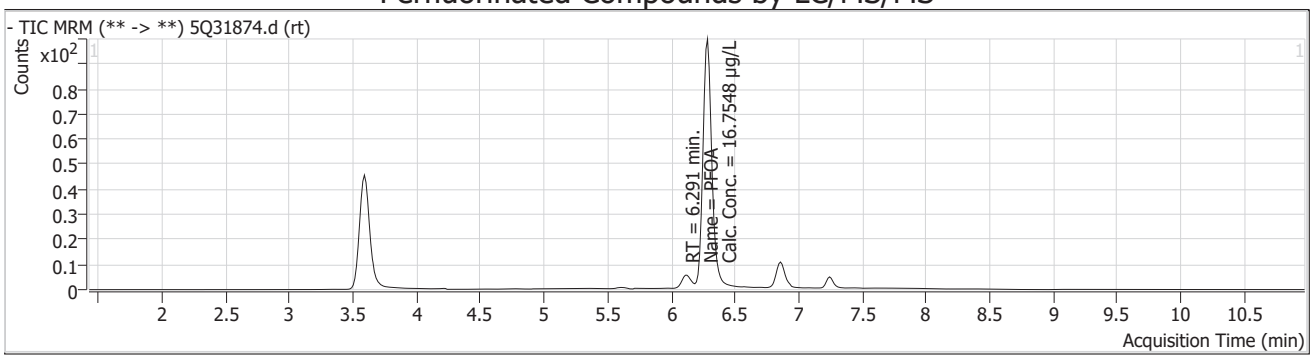
Data File : 5Q31874.d
Operator : (b) (6)
Acq. Method : 537_5Q.m
Acq. Date-Time : 4/18/2025 4:24:06 PM
Sample Name : rt
Vial : P1-B2
DA Method File : 537_041825_S5Q524.quantmethod.xml
Batch Name : s5q524.batch.bin
Sample Information : OP8882,S5Q524,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.275	429.0 -> 409.0	123224	20.00	µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	267034	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	328720	20.00	µg/L		0.000
13C4-PFOS	6.861	503.0 -> 80.0	62847	20.00	µg/L		0.000
d3-MeFOSAA	7.243	573.0 -> 419.0	22142	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.449	515.0 -> 470.0	0		µg/L	m	0.025
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C2-PFHxA	4.764	315.0 -> 270.0	0		µg/L	m	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
d5-EtFOSAA	7.379	589.0 -> 419.0	0		µg/L	m	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C3-HFPO-DA	5.108	287.0 -> 169.0	0		µg/L	m	0.088
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
Target Compounds							QValue
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFHpA	5.615	363.0 -> 319.0	0		µg/L	m	1
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFOA	6.291	413.0 -> 369.0	207966	16.75	µg/L	m	96
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	-	263.0 -> 219.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
HFPO-DA	-	285.0 -> 169.0	-	N.D.			

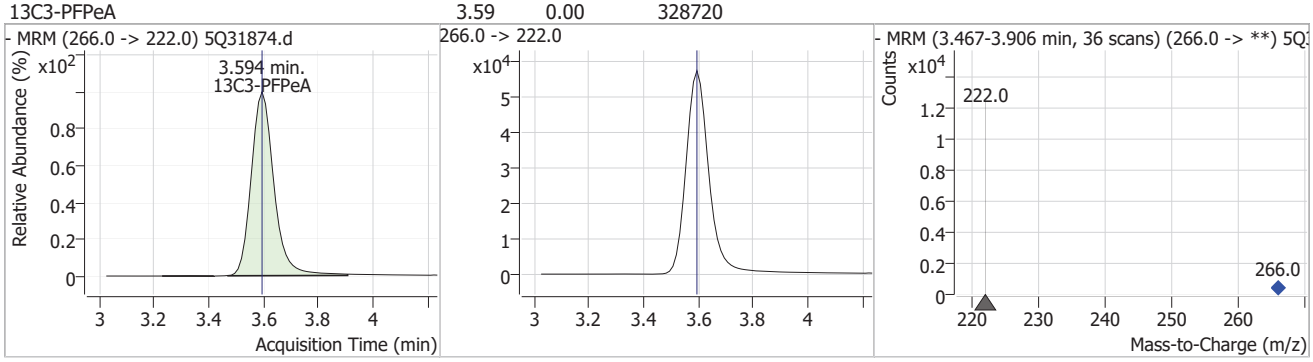
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.6.6
7

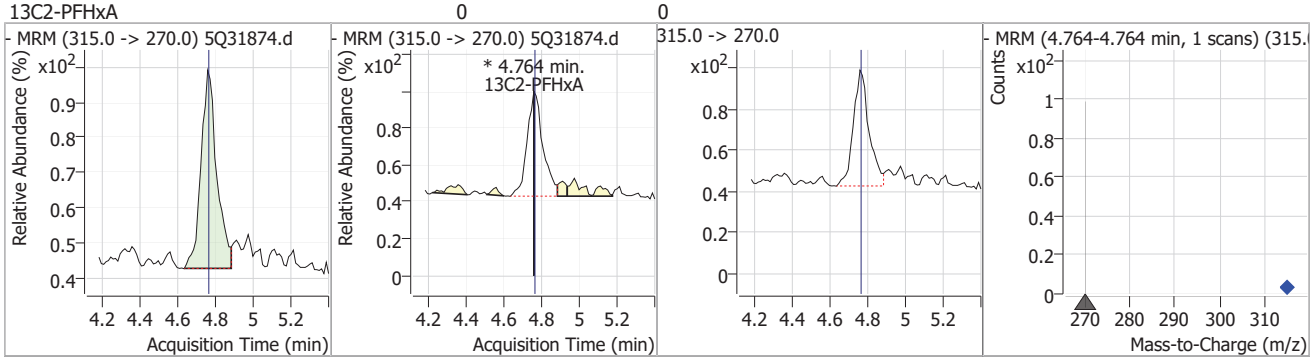
Perfluorinated Compounds by LC/MS/MS



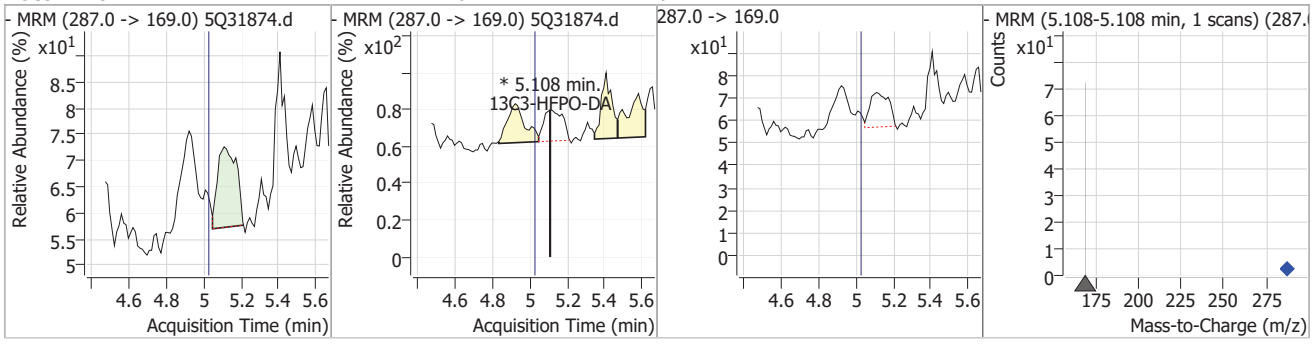
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	328720				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA		0		0				

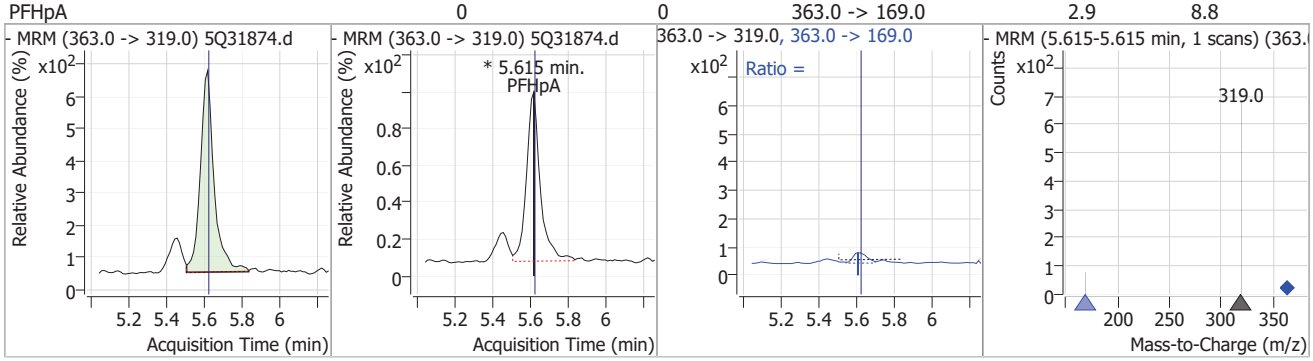


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA		0		0				

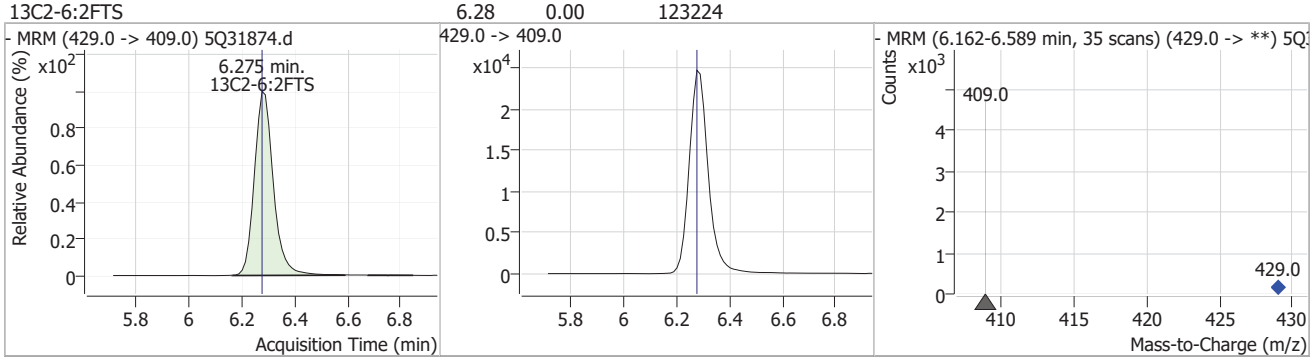


Perfluorinated Compounds by LC/MS/MS

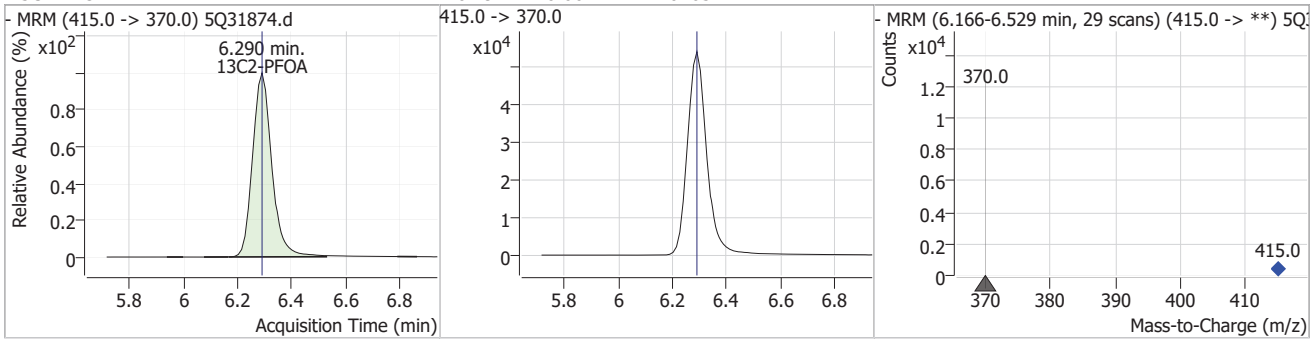
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA		0		0	363.0 -> 169.0		2.9	8.8



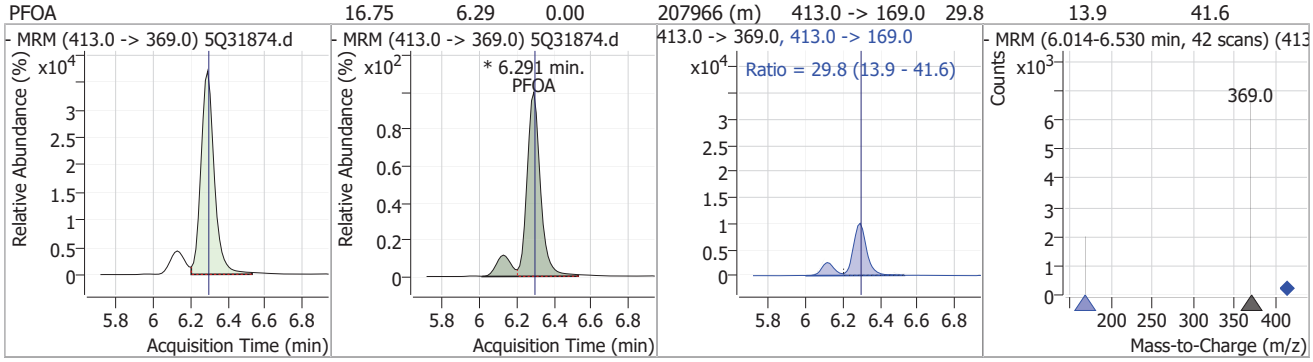
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	0.00	123224				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	267034				

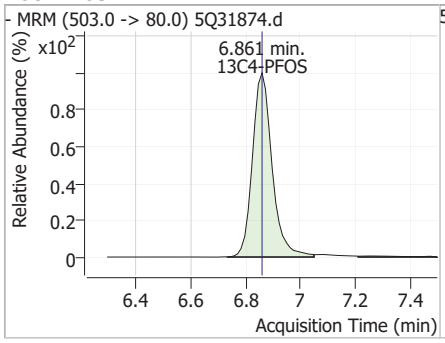


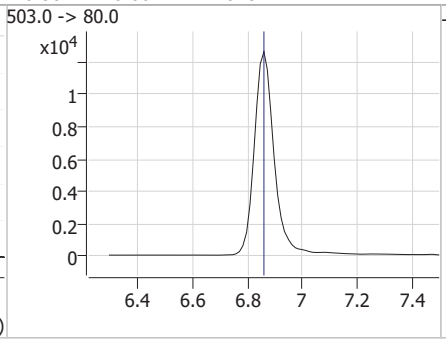
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	16.75	6.29	0.00	207966 (m)	413.0 -> 169.0	29.8	13.9	41.6

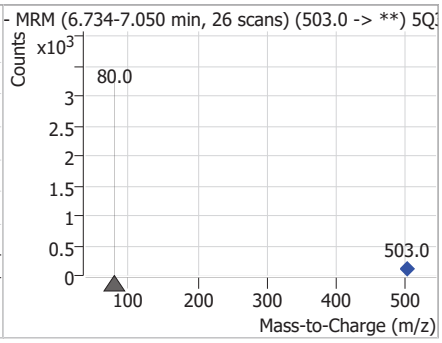


Perfluorinated Compounds by LC/MS/MS

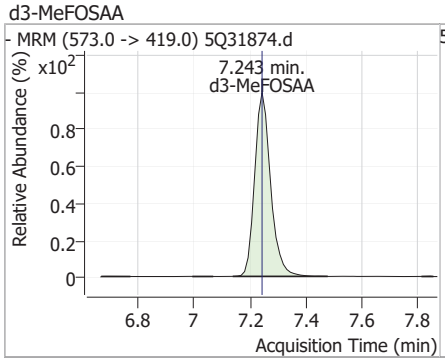
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	62847				

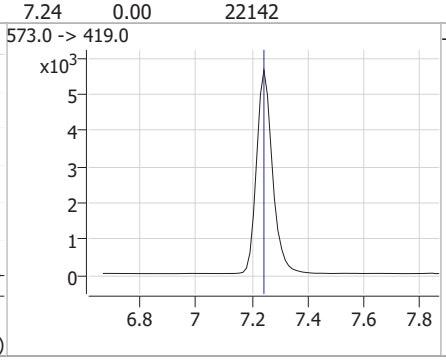


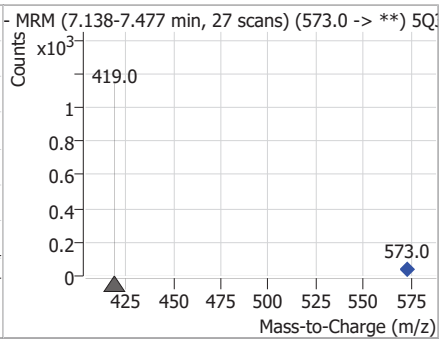




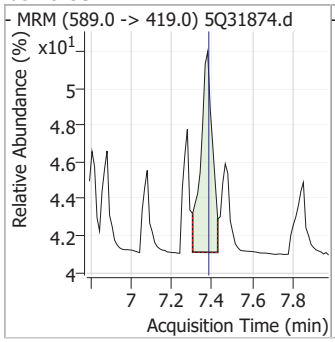
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	22142				

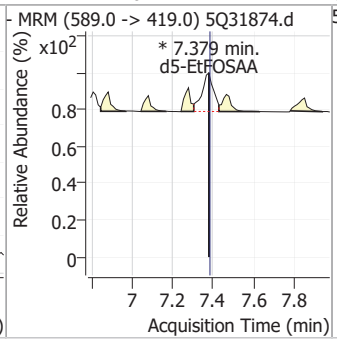


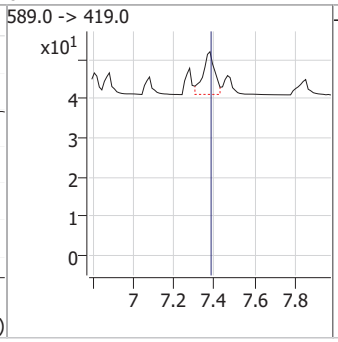


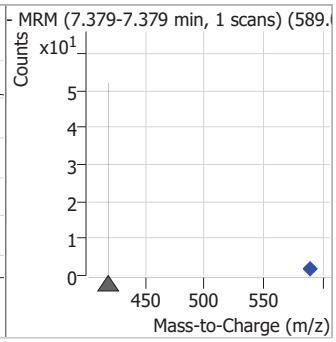


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA		0		0				

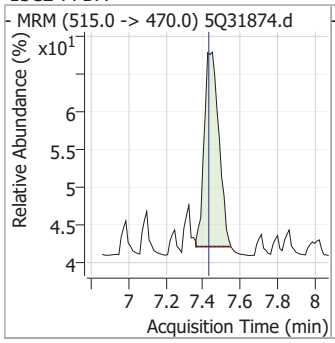


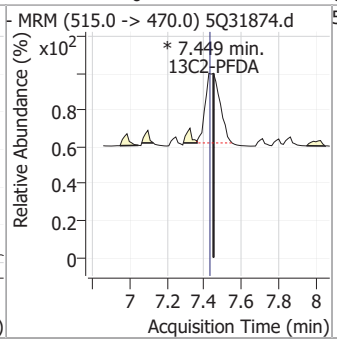


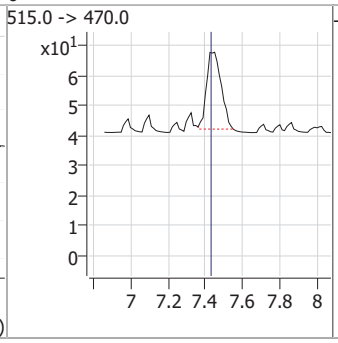


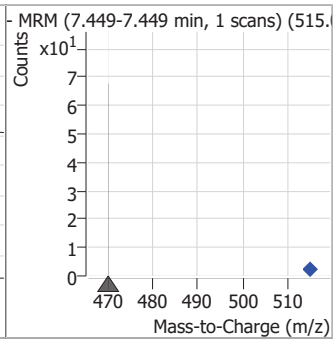


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA		0		0				









Manual Integration Approval Summary

Sample Number:	S5Q524-RT	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31874.D	**Analyst approved:**	04/21/25 09:54 (b) (6)
Injection Time:	04/18/25 16:24	**Supervisor approved:**	04/21/25 10:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		6.29	Split peak

QQQ Check Tune Report

Agilent Technologies

Instrument Name	Instrument 1
MS Model	G6470A
MS Instrument Serial	SG1752G107
Software_Firmware Version	B.08.02.B8260.0, FW: A.00.08.62
Tune Date & Time	14 April 2025 09:26:03
Data Path	D:\MassHunter\Tune\QQQ\G6470A\atunes.TUNE.XML
Ion Source	AJS ESI
Ionization Mode	AJS ESI
Tuned Resolution	All
Vacuum Pressure	1.58E+0[R]; 2.57E-5[H]

Source Parameters

Parameter	Value
Gas Temp	300
Gas Flow	8
Nebulizer	15
Capillary	4000
Nozzle Voltage	1500
Sheath Gas Temp	250
Sheath Gas Flow	7

7.7.1

7

QQQ Check Tune Report

Agilent Technologies

Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.99	0.00	Pass	0.70	0.72	0.02	Pass	209432
302.00	301.99	-0.01	Pass	0.70	0.71	0.01	Pass	200449
601.98	601.99	0.01	Pass	0.70	0.69	-0.01	Pass	282457
1033.99	1034.00	0.01	Pass	0.70	0.69	-0.01	Pass	803006
1633.95	1633.95	0.00	Pass	0.70	0.68	-0.02	Pass	2090450
2233.91	2233.96	0.05	Pass	0.70	0.72	0.02	Pass	1995453

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.06	0.06	Pass	0.70	0.64	-0.06	Pass	44255
112.99	112.98	-0.01	Pass	0.70	0.70	0.00	Pass	158865
302.00	302.00	0.00	Pass	0.70	0.70	0.00	Pass	143803
601.98	602.01	0.03	Pass	0.70	0.68	-0.02	Pass	230520
1033.99	1034.02	0.03	Pass	0.70	0.67	-0.03	Pass	639287
1633.95	1634.01	0.06	Pass	0.70	0.67	-0.03	Pass	1452625
2233.91	2233.98	0.07	Pass	0.70	0.72	0.02	Pass	1440513

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.99	0.00	Pass	1.20	1.34	0.14	Pass	252901
302.00	302.01	0.01	Pass	1.20	1.48	0.28	Pass	251529
601.98	602.03	0.05	Pass	1.20	1.46	0.26	Pass	411399
1033.99	1033.99	0.00	Pass	1.20	1.36	0.16	Pass	1342330
1633.95	1634.02	0.07	Pass	1.20	1.20	0.00	Pass	3190707
2233.91	2233.79	-0.12	Pass	1.20	0.95	-0.25	Pass	2441568

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.08	0.08	Pass	1.20	1.09	-0.11	Pass	51746
112.99	112.98	-0.01	Pass	1.20	1.19	-0.01	Pass	210496
302.00	302.02	0.02	Pass	1.20	1.28	0.08	Pass	205511
601.98	602.02	0.04	Pass	1.20	1.31	0.11	Pass	342867
1033.99	1034.05	0.06	Pass	1.20	1.34	0.14	Pass	1139604
1633.95	1634.01	0.06	Pass	1.20	1.35	0.15	Pass	2186216
2233.91	2233.93	0.02	Pass	1.20	1.11	-0.09	Pass	2399423

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.93	-0.06	Pass	2.50	2.35	-0.15	Pass	318482
302.00	302.00	0.00	Pass	2.50	2.55	0.05	Pass	301393
601.98	602.02	0.04	Pass	2.50	2.65	0.15	Pass	506698
1033.99	1034.03	0.04	Pass	2.50	2.65	0.15	Pass	2232811
1633.95	1633.97	0.02	Pass	2.50	2.72	0.22	Pass	6712137
2233.91	2233.89	-0.02	Pass	2.50	2.78	0.28	Pass	7952976

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.01	0.01	Pass	2.50	2.35	-0.15	Pass	70461
112.99	112.97	-0.02	Pass	2.50	2.43	-0.07	Pass	276344
302.00	301.99	-0.01	Pass	2.50	2.56	0.06	Pass	283568
601.98	601.87	-0.11	Pass	2.50	2.69	0.19	Pass	477110
1033.99	1034.09	0.10	Pass	2.50	2.82	0.32	Pass	1973647
1633.95	1633.99	0.04	Pass	2.50	2.77	0.27	Pass	6872676
2233.91	2233.89	-0.02	Pass	2.50	2.80	0.30	Pass	7795088

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:42

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101458.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 2:03:57 PM
Sample Name : ic1492-0.5
Vial : P1-C2
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.435	415.0 -> 370.0	216973	10.00 µg/L	0.000
13C3-PFBA	2.344	216.0 -> 172.0	82914	10.00 µg/L	0.213
13C4-PFOS	7.983	503.0 -> 80.0	32488	10.00 µg/L	-0.013
M4-PFBA	2.352	217.0 -> 172.0	148420	10.00 µg/L	0.213
M5-PFPeA	4.425	268.0 -> 223.0	179781	10.00 µg/L	0.088
M5-PFHxA	5.788	318.0 -> 273.0	229534	10.00 µg/L	0.038
M4-PFHpA	6.706	367.0 -> 322.0	191869	10.00 µg/L	0.000
M8-PFOA	7.434	421.0 -> 376.0	251483	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	271708	10.00 µg/L	-0.013
M6-PFDA	8.533	519.0 -> 474.0	369231	10.00 µg/L	-0.013
M7-PFUnDA	9.224	570.0 -> 525.0	755683	10.00 µg/L	0.000
M2-PFDoDA	10.133	615.0 -> 570.0	965772	10.00 µg/L	0.000
M3-PFBS	4.721	302.0 -> 99.0	20925	10.00 µg/L	0.075
M3-PFHxS	6.736	402.0 -> 99.0	30119	10.00 µg/L	0.000
M8-PFOS	7.982	507.0 -> 99.0	39058	10.00 µg/L	-0.013
M2-4:2FTS	5.684	329.0 -> 309.0	75029	10.00 µg/L	0.038
M2-6:2FTS	7.432	429.0 -> 409.0	144087	10.00 µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	234502	10.00 µg/L	-0.014
M3-HFPO-DA	6.069	287.0 -> 169.0	2979	10.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.684	329.0 -> 309.0	75029	9.70 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C2-6:2FTS	7.432	429.0 -> 409.0	144087	9.92 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C2-8:2FTS	8.597	529.0 -> 509.0	234502	9.64 µg/L	-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C2-PFDoDA	10.133	615.0 -> 570.0	965772	10.45 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C3-PFBS	4.721	302.0 -> 99.0	20925	10.32 µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C3-PFHxS	6.736	402.0 -> 99.0	30119	10.44 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C4-PFBA	2.352	217.0 -> 172.0	148420	10.55 µg/L	0.213
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C4-PFHpA	6.706	367.0 -> 322.0	191869	10.45 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C5-PFHxA	5.788	318.0 -> 273.0	229534	10.44 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C5-PFPeA	4.425	268.0 -> 223.0	179781	10.60 µg/L	0.088
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C6-PFDA	8.533	519.0 -> 474.0	369231	10.17 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C7-PFUnDA	9.224	570.0 -> 525.0	755683	10.42 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C8-PFOA	7.434	421.0 -> 376.0	251483	10.55 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

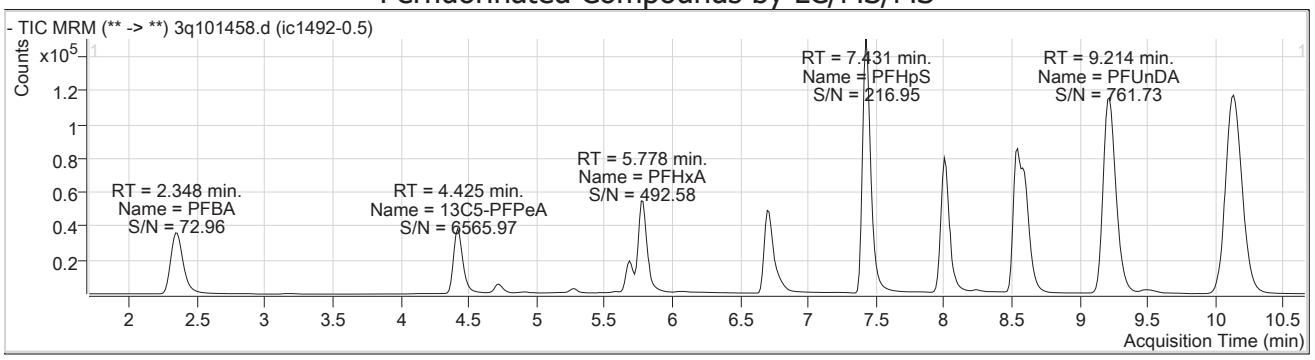
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.5%		
13C8-PFOS	7.982	507.0 -> 99.0	39058	10.57 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.7%		
13C9-PFNA	8.010	472.0 -> 427.0	271708	10.49 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.9%		
13C3-HFPO-DA	6.069	287.0 -> 169.0	2979	9.43 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.3%		
Target Compounds						QValue
PFMPA	3.178	229.0 -> 85.0	2162	0.45 µg/L		100
4:2FTS	5.686	327.0 -> 307.0	3908	0.43 µg/L		99
		327.0 -> 81.0	1638			
6:2FTS	7.433	427.0 -> 407.0	5276	0.43 µg/L		98
		427.0 -> 81.0	2418			
8:2FTS	8.598	527.0 -> 507.0	8325	0.52 µg/L		95
		527.0 -> 81.0	3647			
PFMBA	4.913	279.0 -> 85.0	3107	0.47 µg/L		100
PFEESA	5.274	315.0 -> 135.0	8290	0.44 µg/L		98
		315.0 -> 69.0	686			
NFDHA	5.594	201.0 -> 85.0	2835	0.49 µg/L		100
		295.0 -> 201.0	186			
PFBA	2.348	213.0 -> 169.0	1862	0.45 µg/L		100
PFBS	4.722	299.0 -> 80.0	1779	0.42 µg/L		88
		299.0 -> 99.0	883			
PFDA	8.534	513.0 -> 469.0	9246	0.44 µg/L		98
		513.0 -> 219.0	2252			
PFDoDA	10.138	613.0 -> 569.0	28981	0.45 µg/L		100
		613.0 -> 169.0	3175			
PFHpA	6.708	363.0 -> 319.0	11968	0.44 µg/L		99
		363.0 -> 169.0	1044			
PFHpS	7.431	449.0 -> 80.0	2470	0.45 µg/L		92
		449.0 -> 99.0	1528			
PFHxA	5.778	313.0 -> 269.0	9646	0.45 µg/L		99
		313.0 -> 119.0	313			
PFHxS	6.738	399.0 -> 80.0	2618	0.49 µg/L	m	93
		399.0 -> 99.0	1228			
PFNA	8.023	463.0 -> 419.0	10371	0.47 µg/L		99
		463.0 -> 219.0	2989			
PFOA	7.436	413.0 -> 369.0	8569	0.44 µg/L		97
		413.0 -> 169.0	3312			
PFOS	7.983	499.0 -> 80.0	3042	0.49 µg/L	m	99
		499.0 -> 99.0	1549			
PFPeA	4.427	263.0 -> 219.0	6106	0.45 µg/L		100
PFPeS	5.896	349.0 -> 80.0	1333	0.43 µg/L		95
		349.0 -> 99.0	605			
PFUnDA	9.214	563.0 -> 519.0	21796	0.45 µg/L		98
		563.0 -> 269.0	4426			
11Cl-PF3OUdS	9.507	631.0 -> 451.0	12792	0.44 µg/L		98
		631.0 -> 83.0	717			
9Cl-PF3ONS	8.241	531.0 -> 351.0	4269	0.42 µg/L		98
		531.0 -> 83.0	241			
ADONA	6.792	377.0 -> 251.0	18217	0.44 µg/L		99
		377.0 -> 85.0	2235			
HFPO-DA	6.073	329.0 -> 169.0	40	0.54 µg/L	m	96
		285.0 -> 169.0	94			

= Qualifier out of range, m = manually integrated, + = Area summed

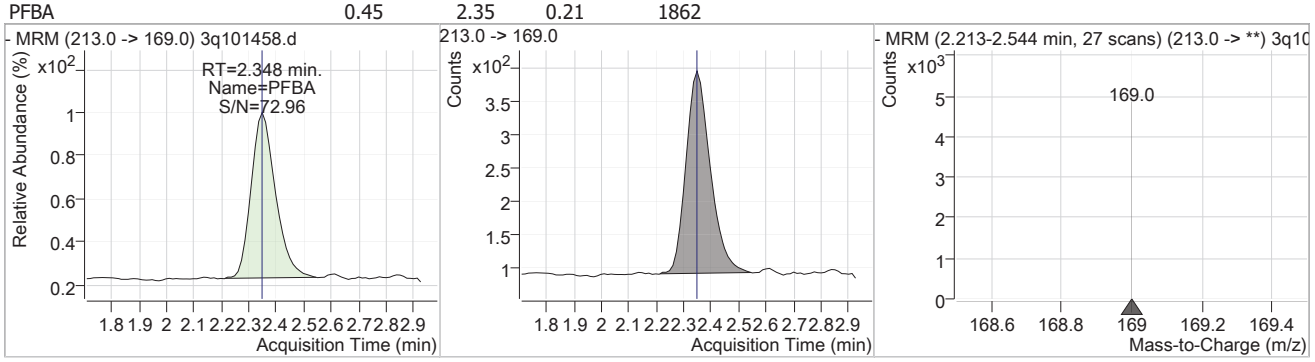
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

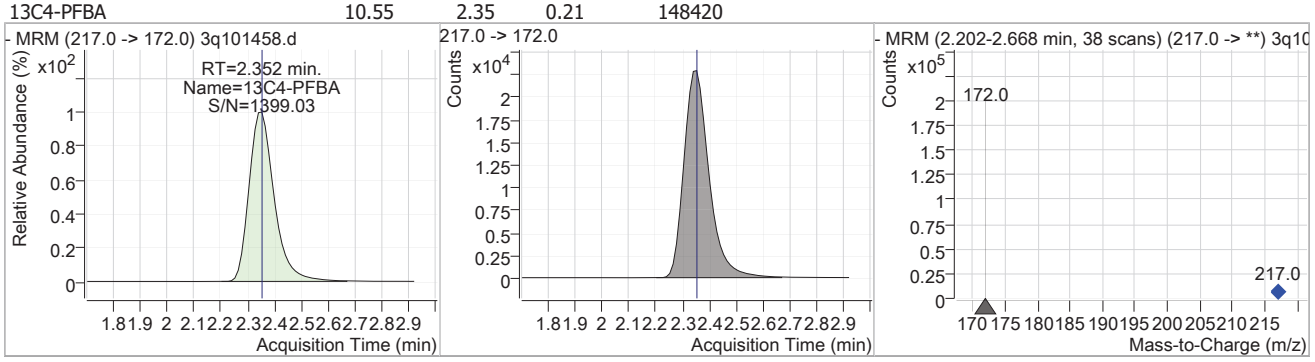
Perfluorinated Compounds by LC/MS/MS



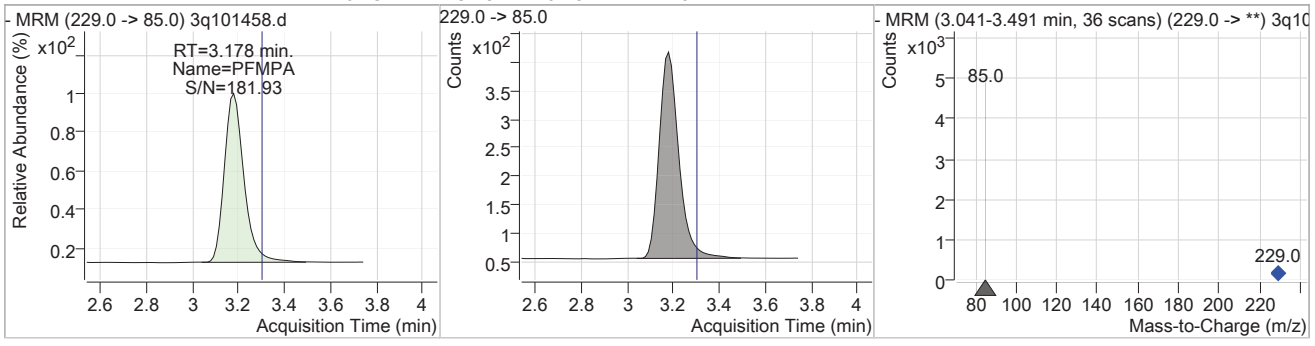
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.45	2.35	0.21	1862				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.55	2.35	0.21	148420				

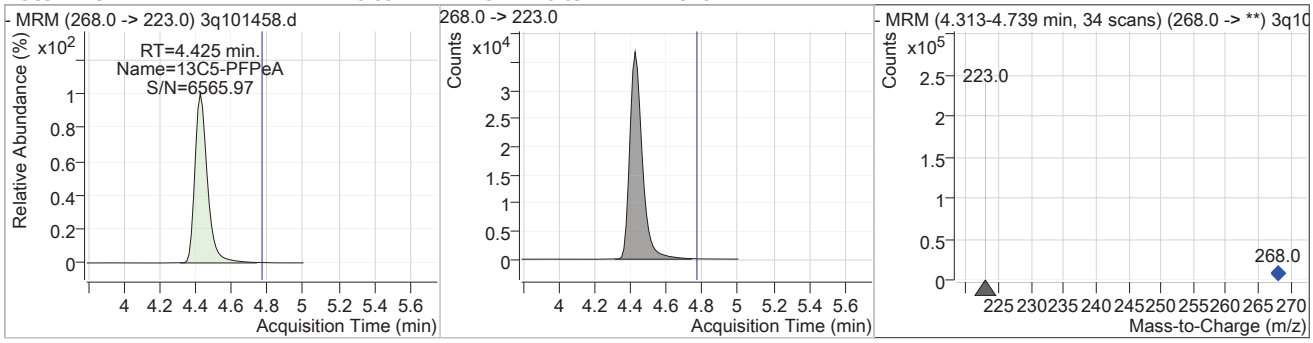


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	0.45	3.18	0.18	2162				

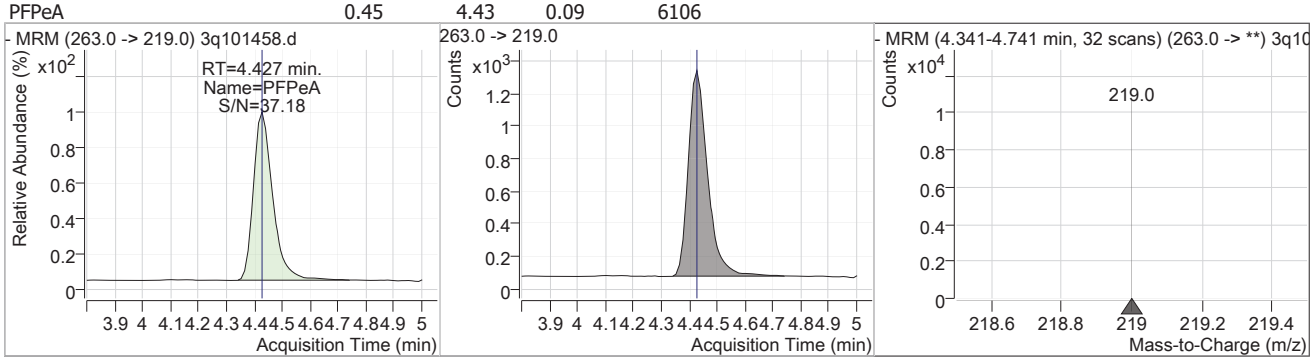


Perfluorinated Compounds by LC/MS/MS

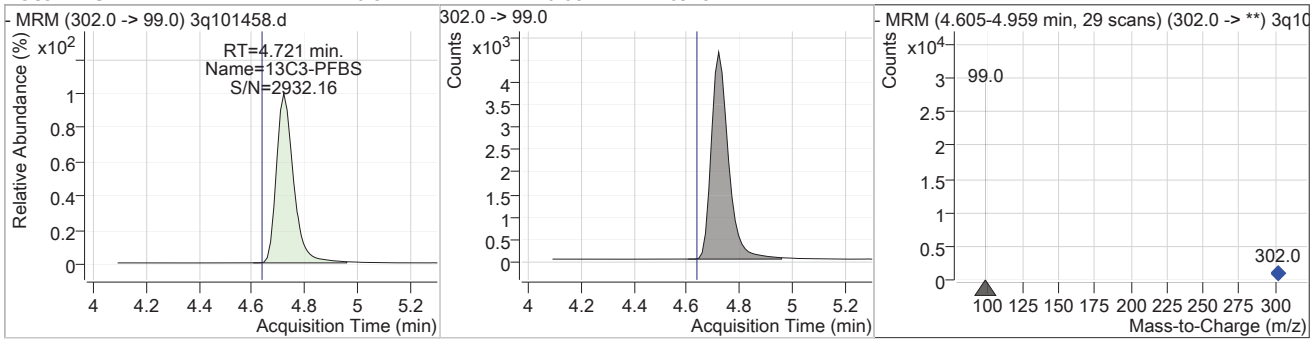
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.60	4.43	0.09	179781				



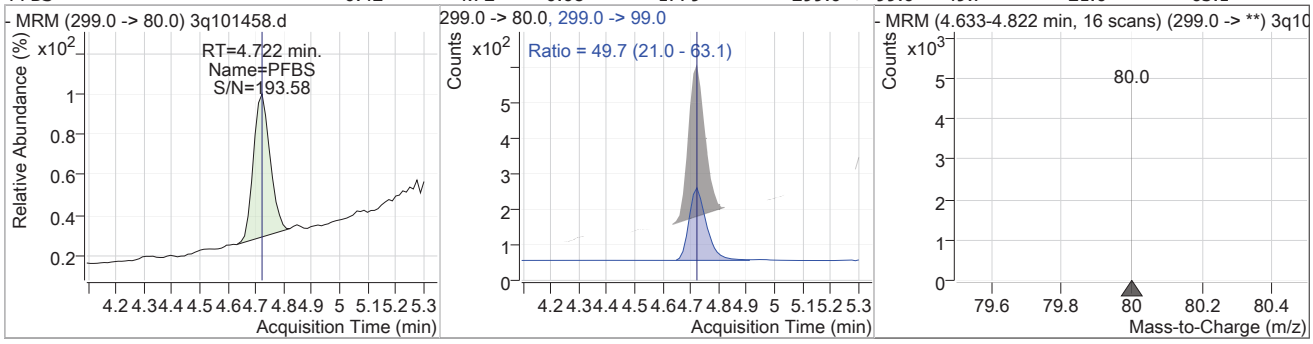
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.45	4.43	0.09	6106				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.32	4.72	0.08	20925				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.42	4.72	0.08	1779	299.0 -> 99.0	49.7	21.0	63.1



7.7.2

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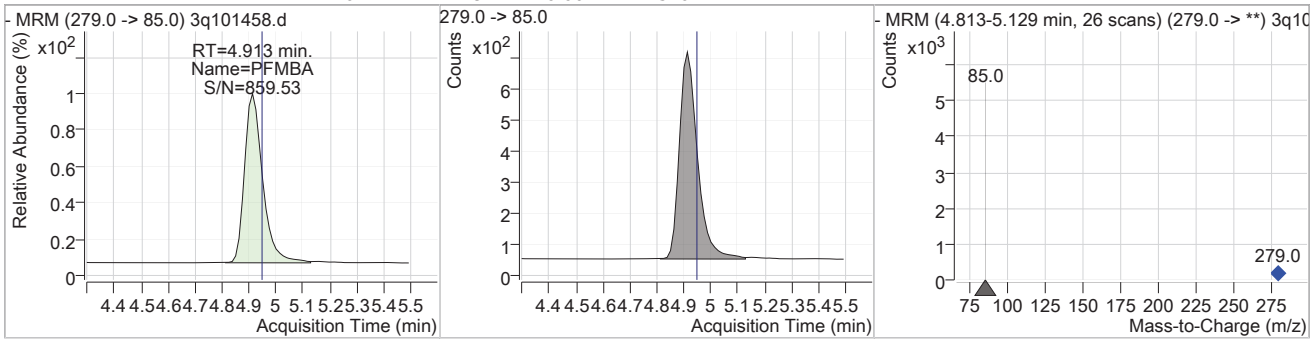
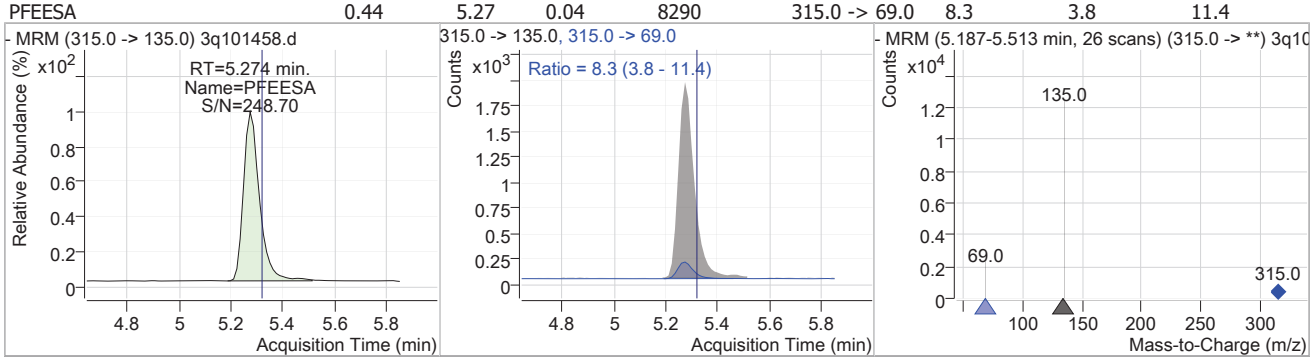
Perfluorinated Compounds by LC/MS/MS

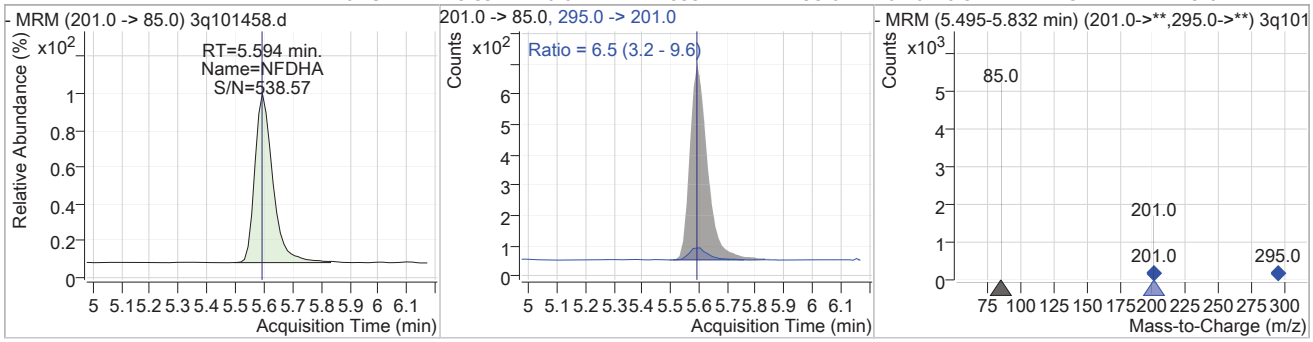
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.47	4.91	0.06	3107				



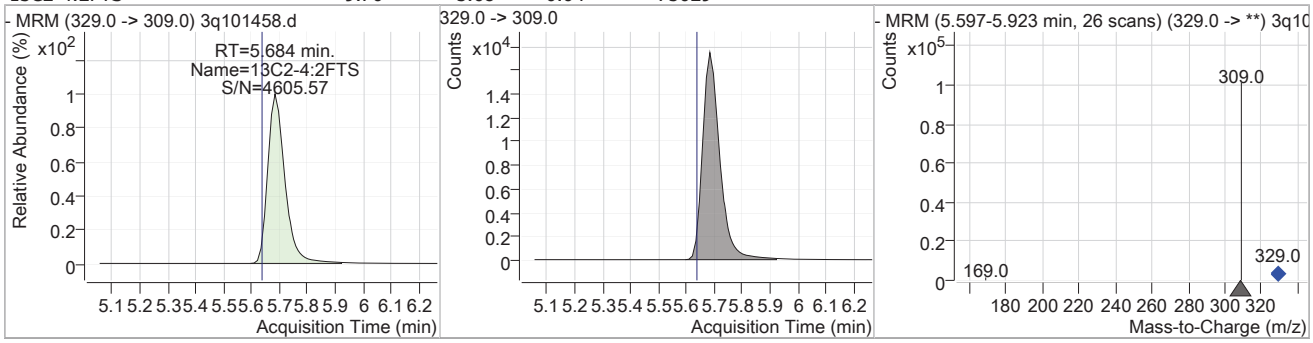
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.44	5.27	0.04	8290	315.0 -> 69.0	8.3	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	0.49	5.59	0.04	2835	295.0 -> 201.0	6.5	3.2	9.6

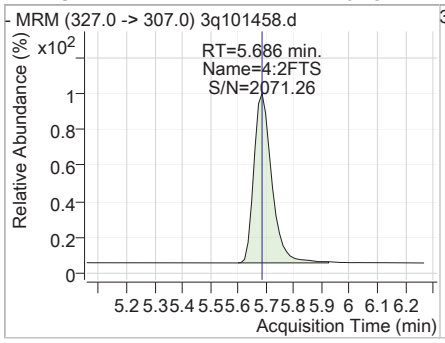


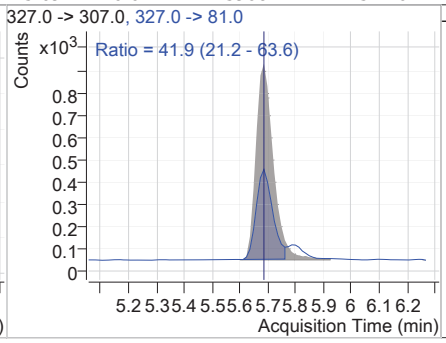
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	9.70	5.68	0.04	75029				

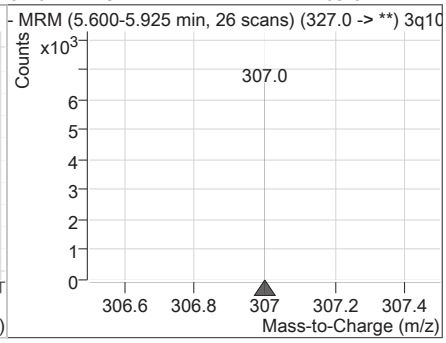


Perfluorinated Compounds by LC/MS/MS

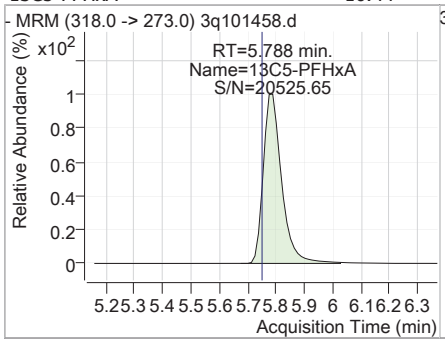
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	0.43	5.69	0.04	3908	327.0 -> 81.0	41.9	21.2	63.6

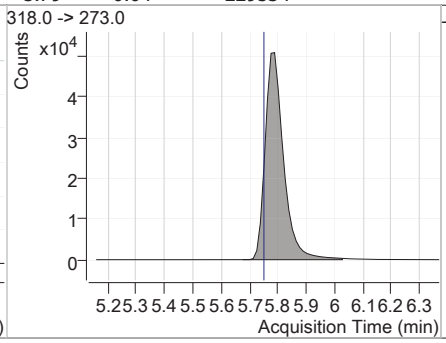


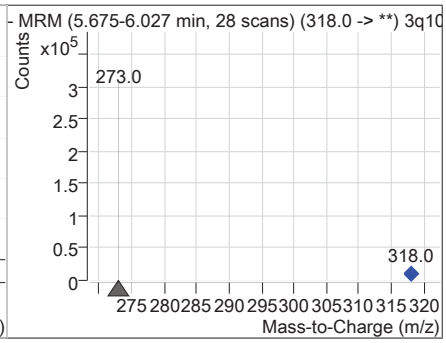




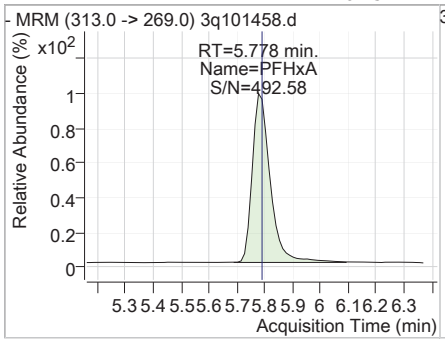
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.44	5.79	0.04	229534				

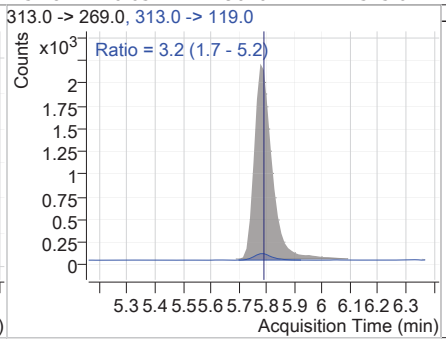


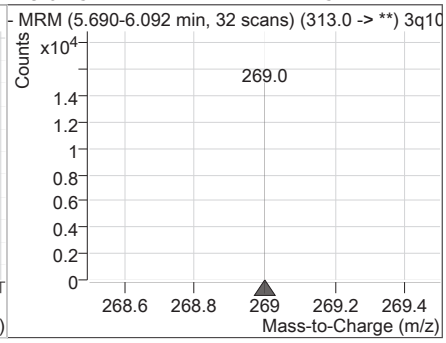




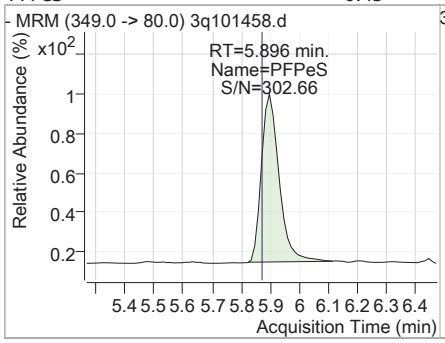
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.45	5.78	0.03	9646	313.0 -> 119.0	3.2	1.7	5.2

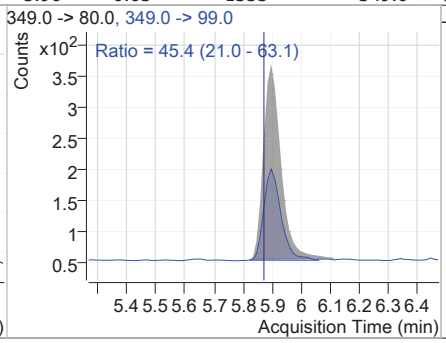


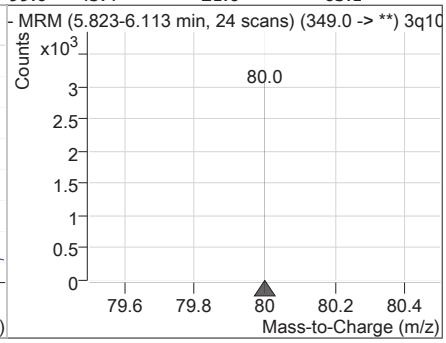




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.43	5.90	0.03	1333	349.0 -> 99.0	45.4	21.0	63.1







7.7.2

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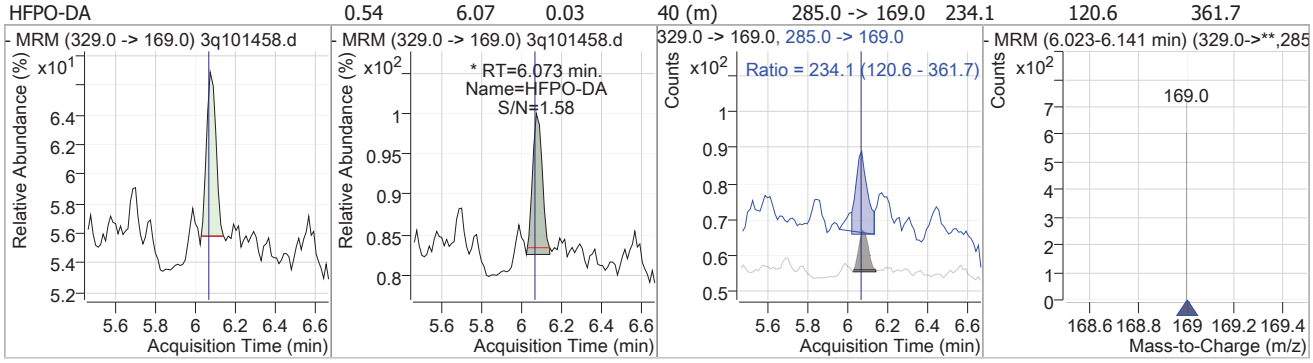
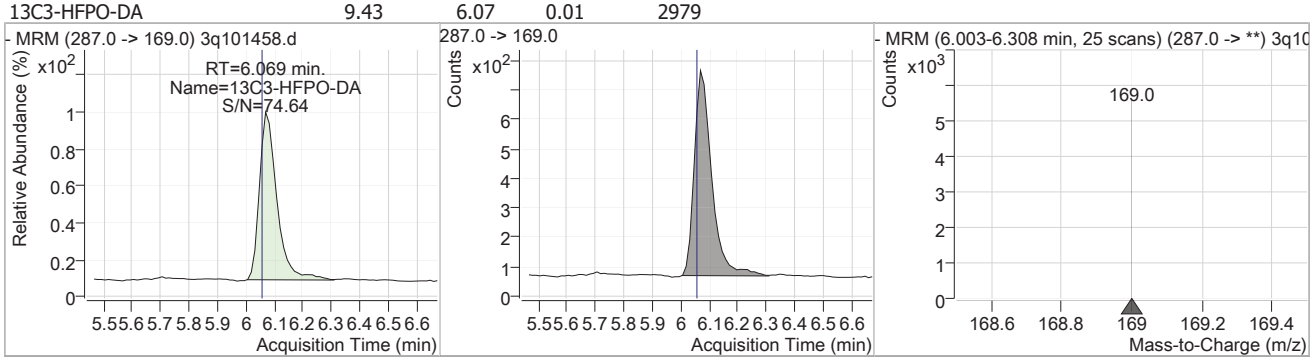
Perfluorinated Compounds by LC/MS/MS

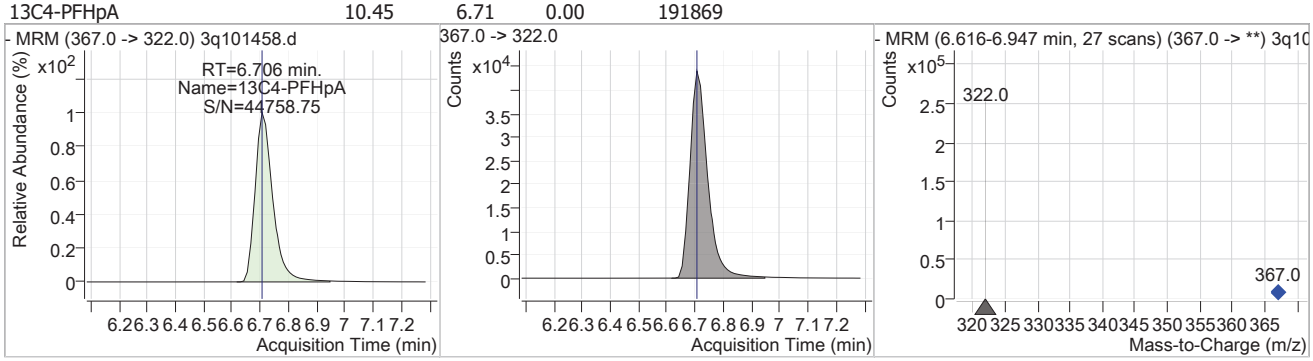
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.54	6.07	0.03	40 (m)	285.0 -> 169.0	234.1	120.6	361.7



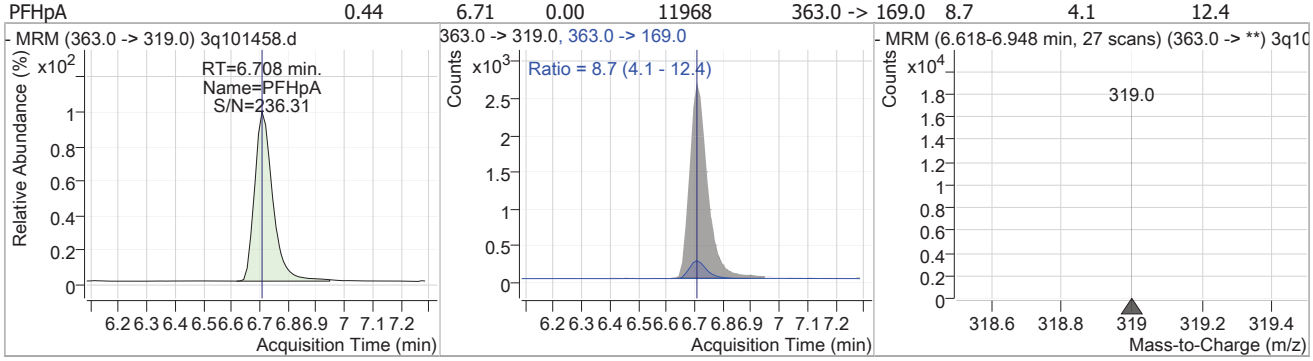
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.43	6.07	0.01	2979				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.45	6.71	0.00	191869				

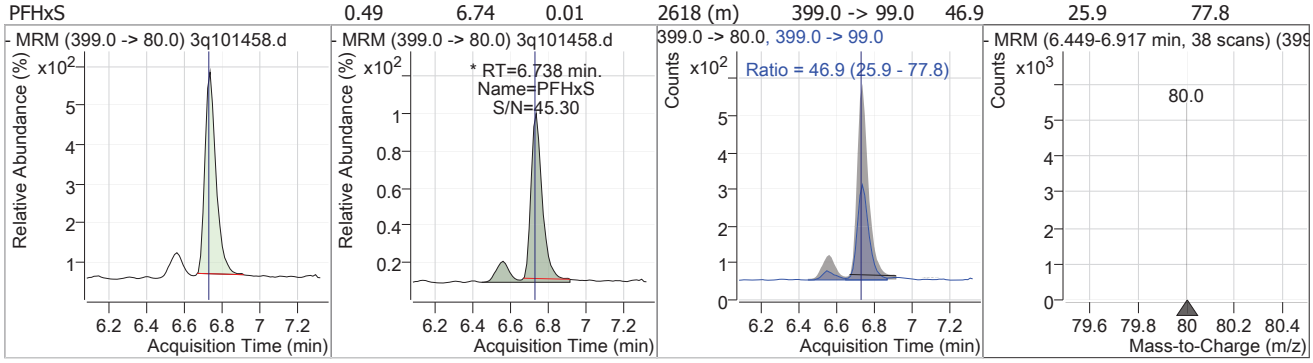


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.44	6.71	0.00	11968	363.0 -> 169.0	8.7	4.1	12.4

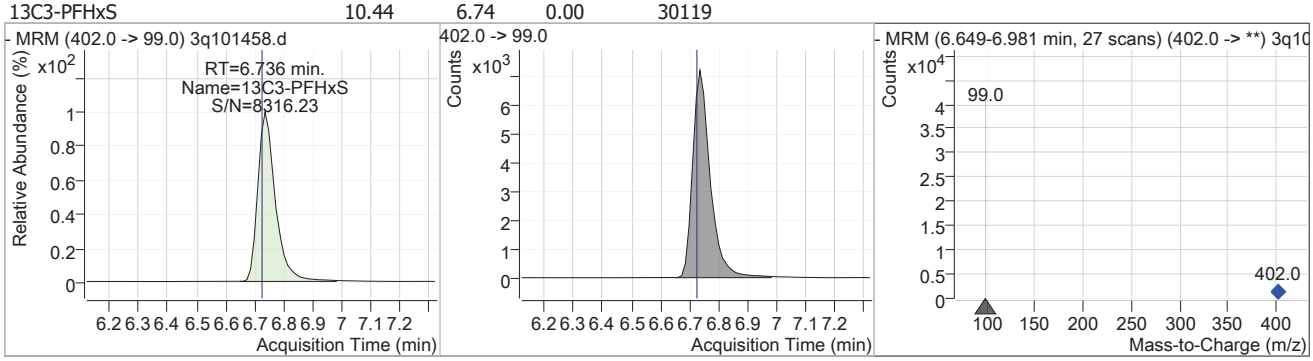


Perfluorinated Compounds by LC/MS/MS

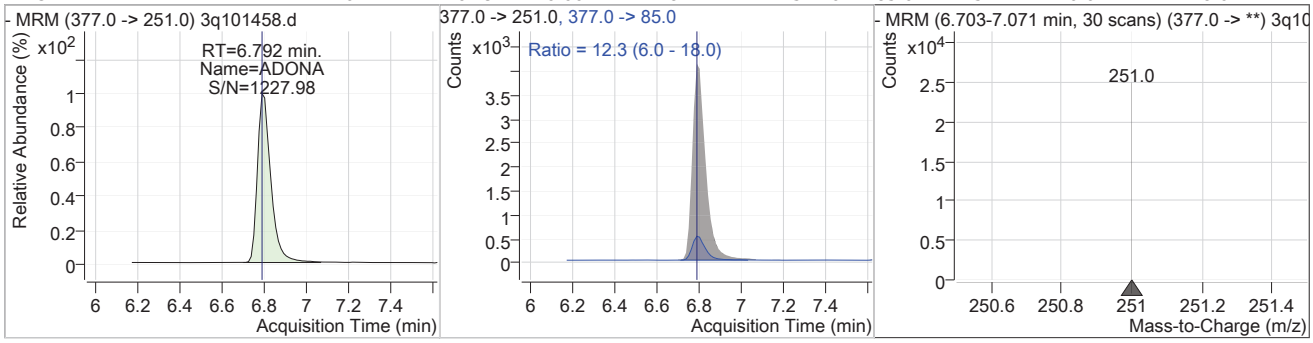
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.49	6.74	0.01	2618 (m)	399.0 -> 99.0	46.9	25.9	77.8



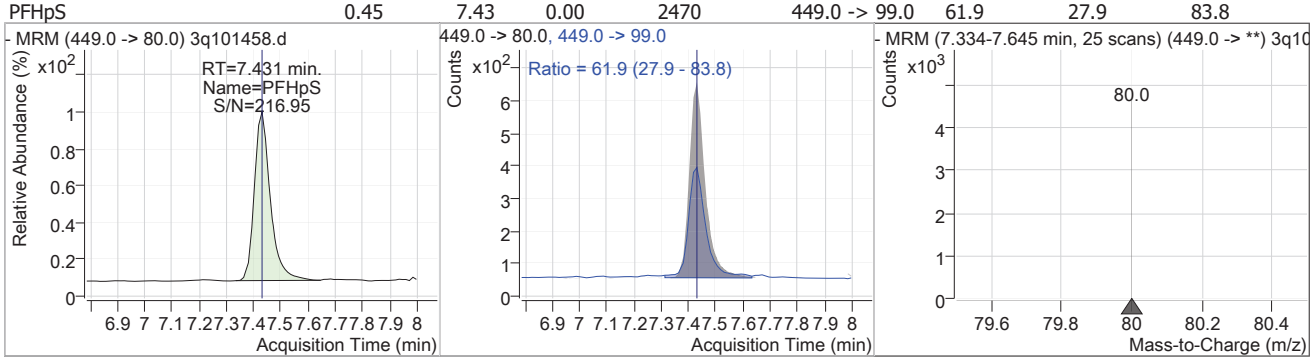
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.44	6.74	0.00	30119				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.44	6.79	0.00	18217	377.0 -> 85.0	12.3	6.0	18.0

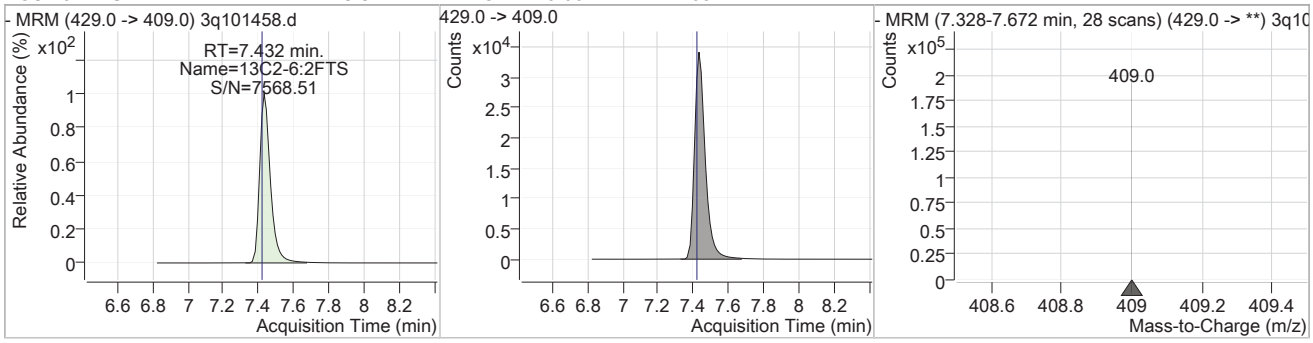


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.45	7.43	0.00	2470	449.0 -> 99.0	61.9	27.9	83.8

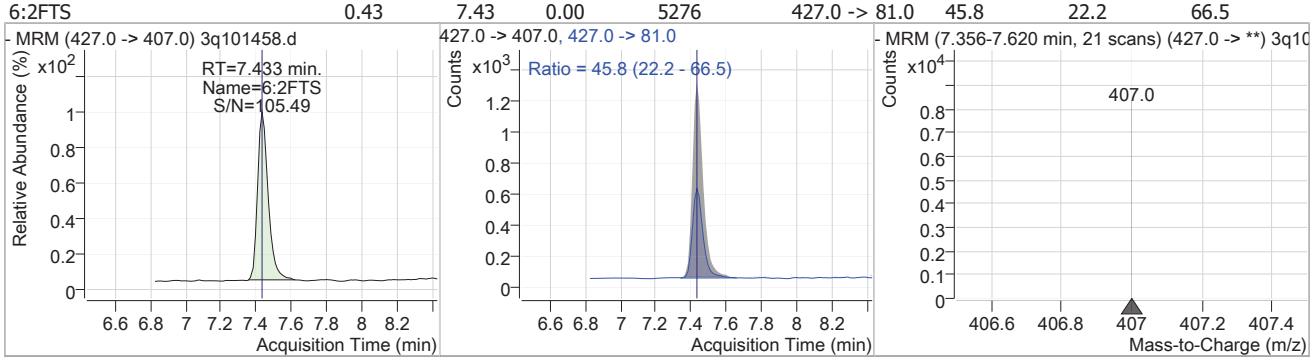


Perfluorinated Compounds by LC/MS/MS

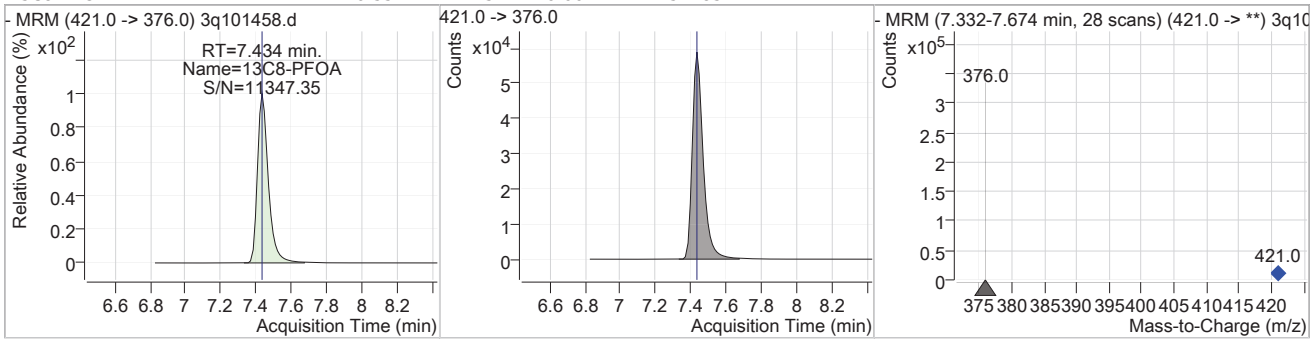
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	9.92	7.43	0.00	144087				



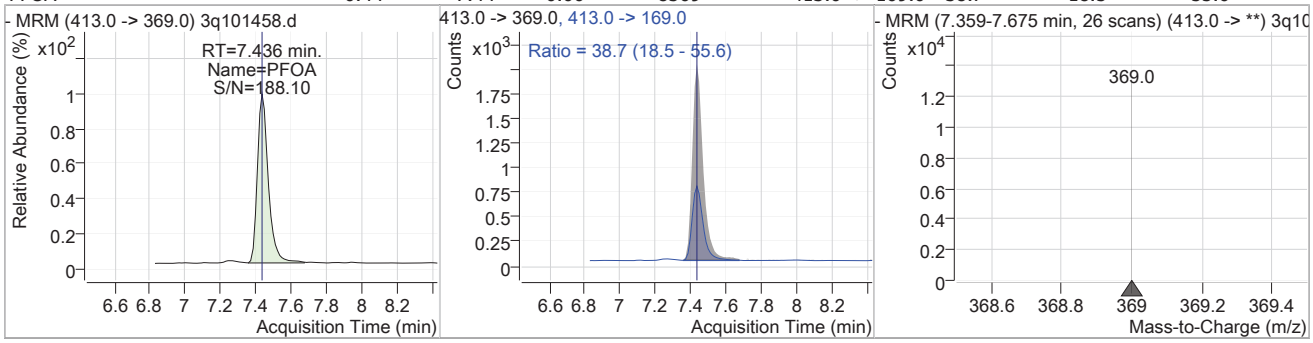
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.43	7.43	0.00	5276	427.0 -> 81.0	45.8	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.55	7.43	0.00	251483				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.44	7.44	0.00	8569	413.0 -> 169.0	38.7	18.5	55.6



7.7.2

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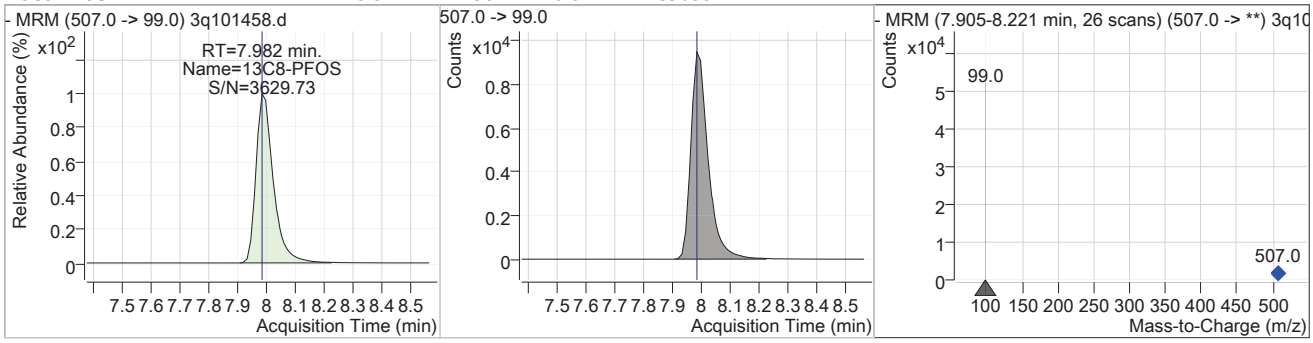
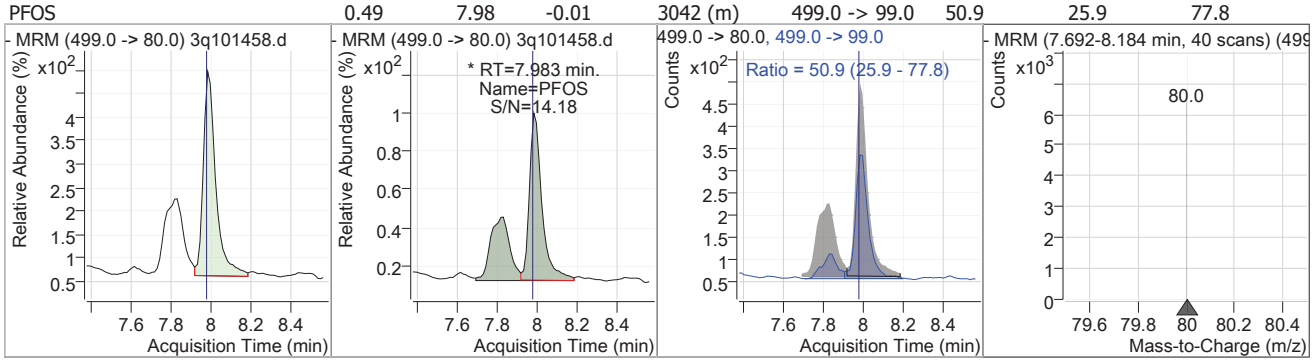
Perfluorinated Compounds by LC/MS/MS

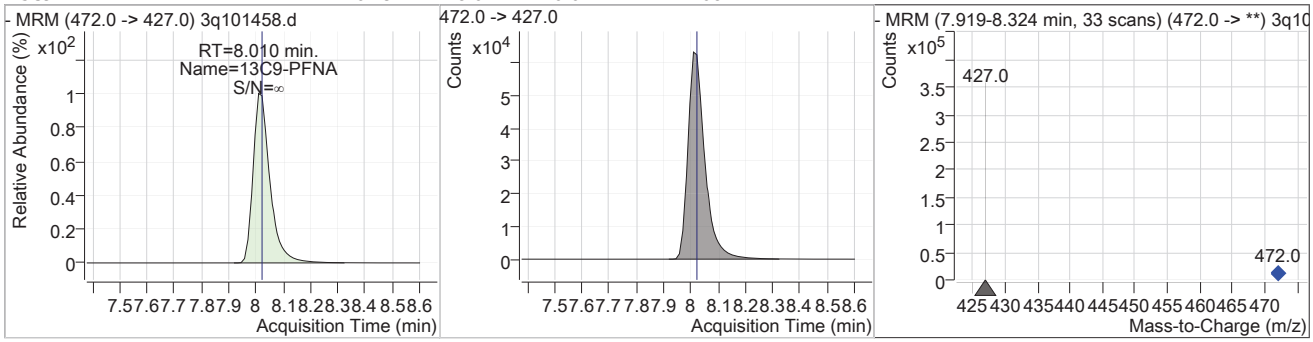
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.57	7.98	-0.01	39058				



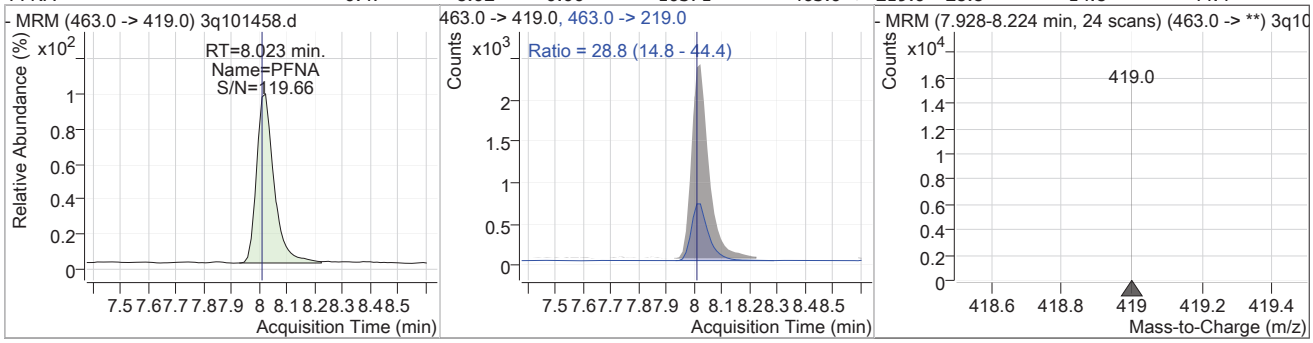
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.49	7.98	-0.01	3042 (m)	499.0 -> 99.0	50.9	25.9	77.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.49	8.01	-0.01	271708				

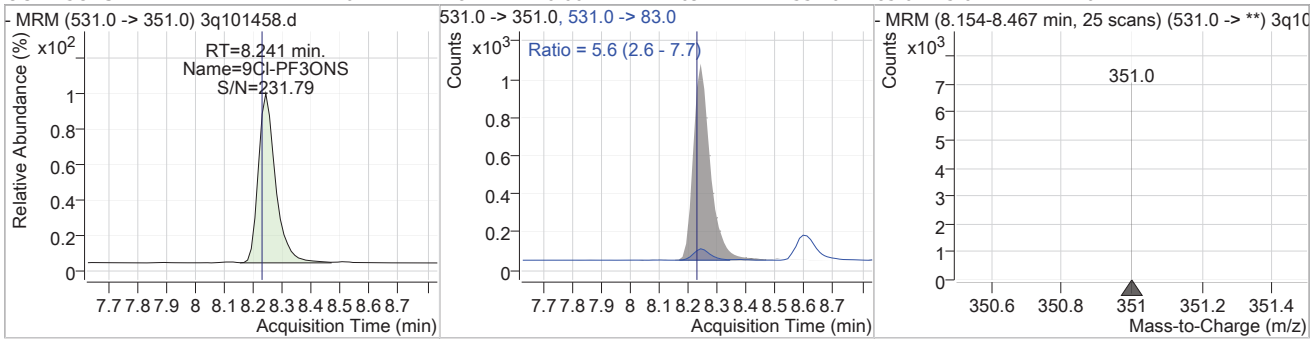


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.47	8.02	0.00	10371	463.0 -> 219.0	28.8	14.8	44.4

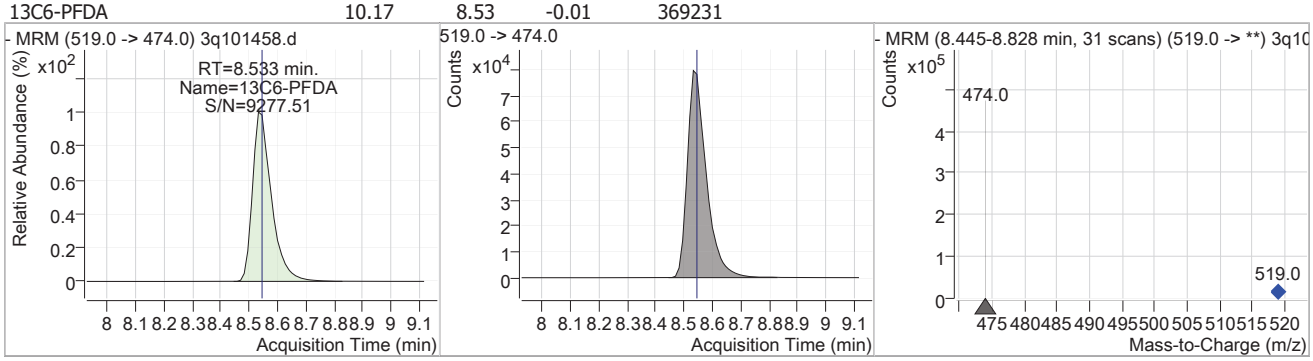


Perfluorinated Compounds by LC/MS/MS

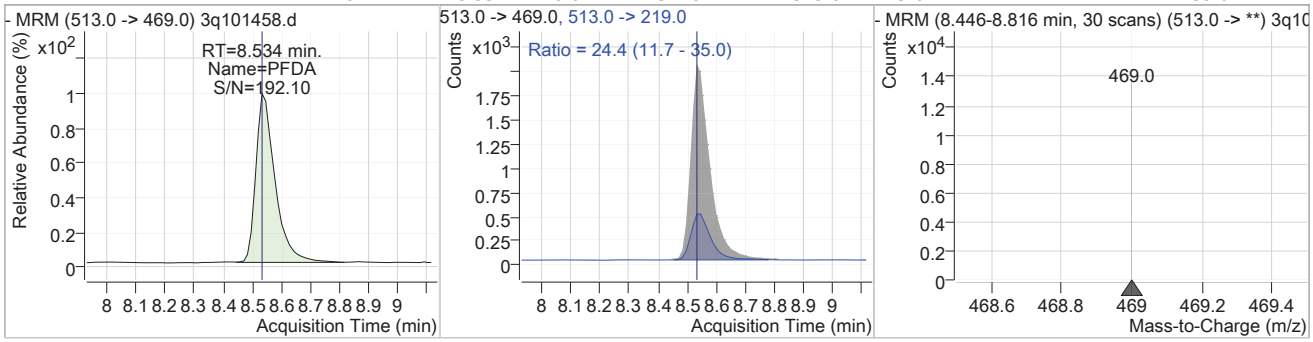
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.42	8.24	0.00	4269	531.0 -> 83.0	5.6	2.6	7.7



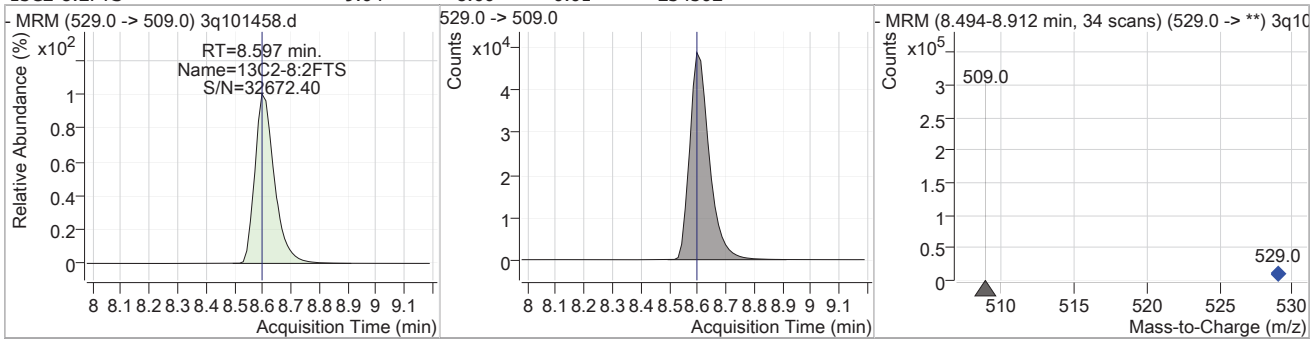
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	10.17	8.53	-0.01	369231				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.44	8.53	-0.01	9246	513.0 -> 219.0	24.4	11.7	35.0

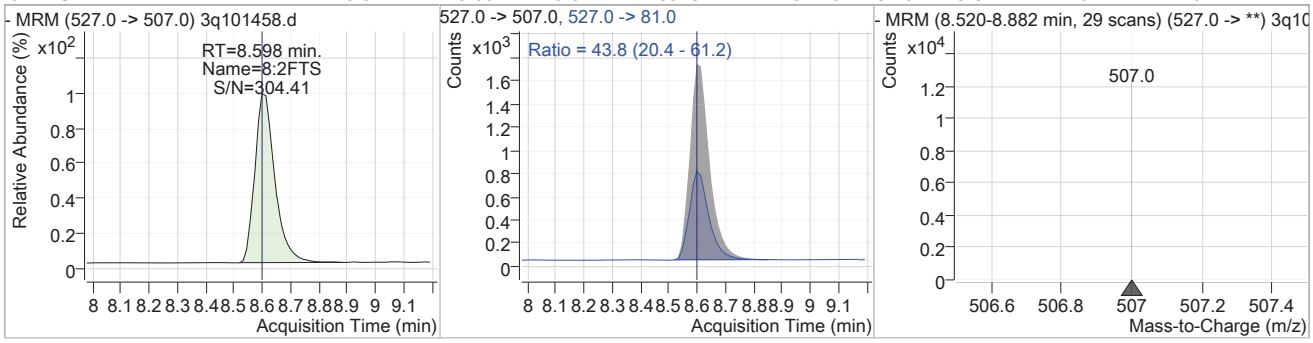


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	9.64	8.60	-0.01	234502				

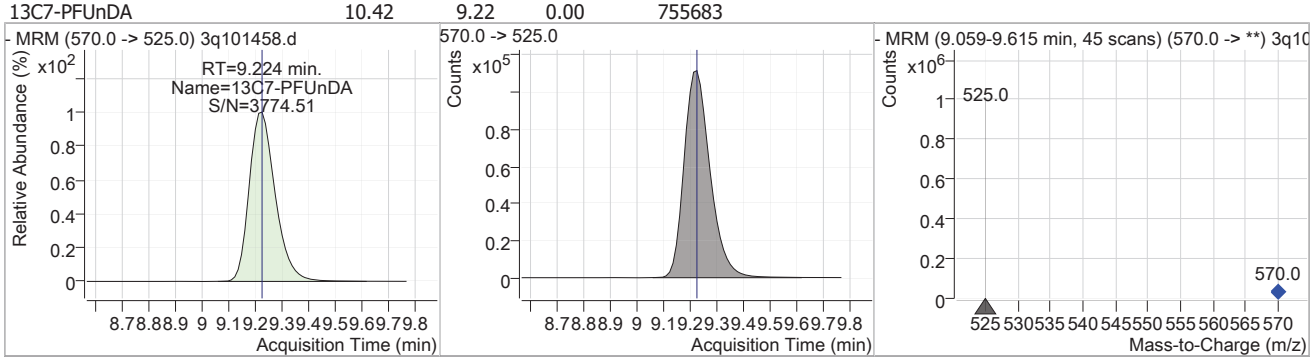


Perfluorinated Compounds by LC/MS/MS

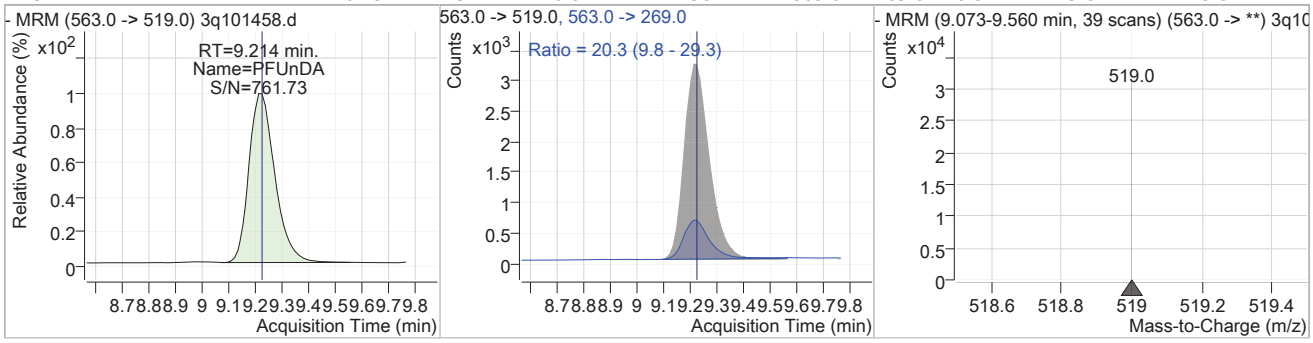
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.52	8.60	-0.01	8325	527.0 -> 81.0	43.8	20.4	61.2



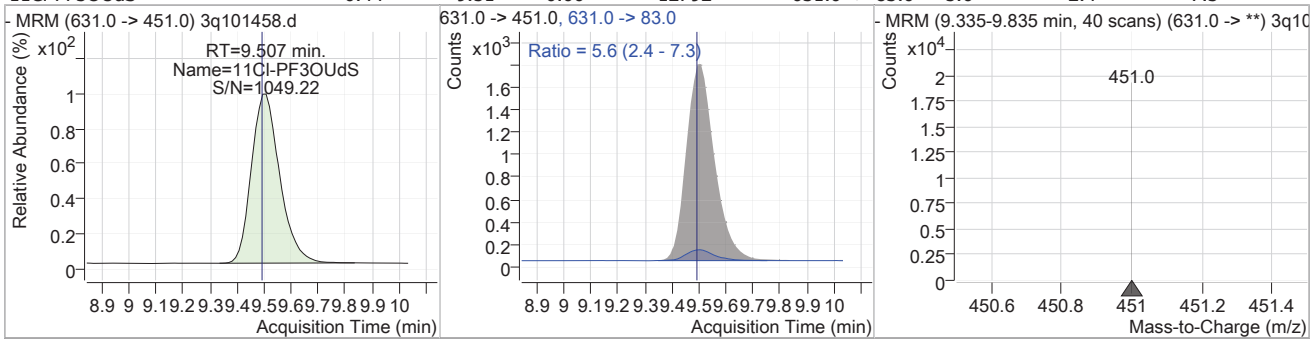
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	10.42	9.22	0.00	755683				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.45	9.21	-0.01	21796	563.0 -> 269.0	20.3	9.8	29.3

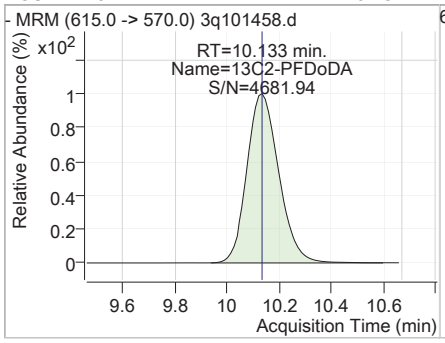


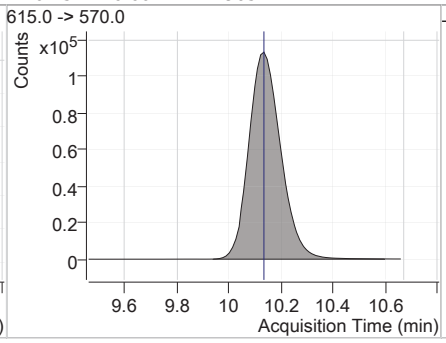
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.44	9.51	0.00	12792	631.0 -> 83.0	5.6	2.4	7.3

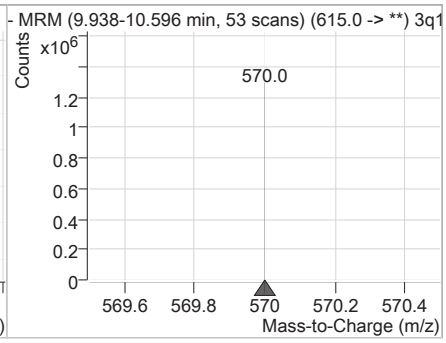


Perfluorinated Compounds by LC/MS/MS

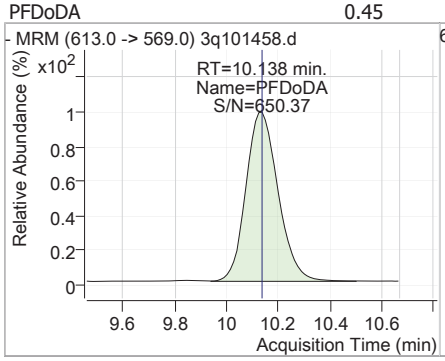
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.45	10.13	0.00	965772				

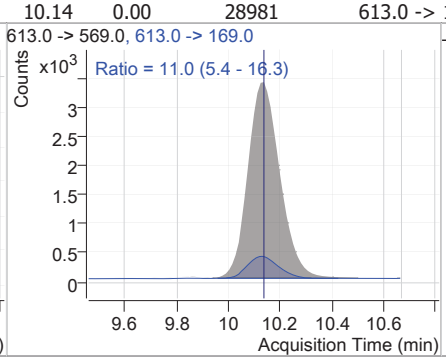


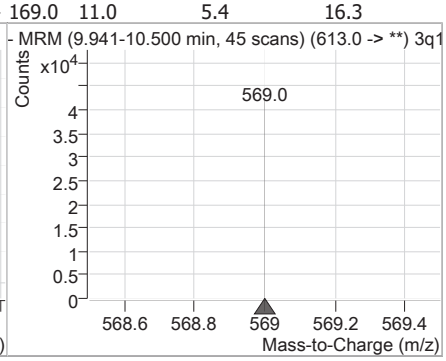




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.45	10.14	0.00	28981	613.0 -> 169.0	11.0	5.4	16.3







Manual Integration Approval Summary

Sample Number: S3Q1492-IC1492
Lab FileID: 3Q101458.D
Injection Time: 04/15/25 14:03
Method: EPA 533
Analyst approved: 04/16/25 08:55 (b) (6)
Supervisor approved: 04/17/25 11:42 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
HFPO-DA (GenX)	13252-13-6		6.07	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		6.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:42

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101459.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 2:20:02 PM
Sample Name : ic1492-1
Vial : P1-C3
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.435	415.0 -> 370.0	223145	10.00 µg/L	0.000
13C3-PFBA	2.357	216.0 -> 172.0	85518	10.00 µg/L	0.225
13C4-PFOS	7.983	503.0 -> 80.0	32777	10.00 µg/L	-0.013
M4-PFBA	2.352	217.0 -> 172.0	137639	10.00 µg/L	0.213
M5-PFPeA	4.425	268.0 -> 223.0	166322	10.00 µg/L	0.088
M5-PFHxA	5.788	318.0 -> 273.0	210802	10.00 µg/L	0.038
M4-PFHpA	6.706	367.0 -> 322.0	177903	10.00 µg/L	0.000
M8-PFOA	7.434	421.0 -> 376.0	230930	10.00 µg/L	0.000
M9-PFNA	8.022	472.0 -> 427.0	249672	10.00 µg/L	0.000
M6-PFDA	8.533	519.0 -> 474.0	350615	10.00 µg/L	-0.013
M7-PFUnDA	9.212	570.0 -> 525.0	683421	10.00 µg/L	-0.012
M2-PFDoDA	10.108	615.0 -> 570.0	884250	10.00 µg/L	-0.025
M3-PFBS	4.721	302.0 -> 99.0	19413	10.00 µg/L	0.075
M3-PFHxS	6.736	402.0 -> 99.0	28281	10.00 µg/L	0.000
M8-PFOS	7.982	507.0 -> 99.0	35990	10.00 µg/L	-0.013
M2-4:2FTS	5.684	329.0 -> 309.0	70098	10.00 µg/L	0.038
M2-6:2FTS	7.432	429.0 -> 409.0	133040	10.00 µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	224256	10.00 µg/L	-0.014
M3-HFPO-DA	6.069	287.0 -> 169.0	2688	10.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.684	329.0 -> 309.0	70098	8.99 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.9%	
13C2-6:2FTS	7.432	429.0 -> 409.0	133042	9.08 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.8%	
13C2-8:2FTS	8.597	529.0 -> 509.0	224256	9.14 µg/L	-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.4%	
13C2-PFDoDA	10.108	615.0 -> 570.0	884250	9.31 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.1%	
13C3-PFBS	4.721	302.0 -> 99.0	19413	9.49 µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.9%	
13C3-PFHxS	6.736	402.0 -> 99.0	28281	9.71 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C4-PFBA	2.352	217.0 -> 172.0	137639	9.49 µg/L	0.213
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.9%	
13C4-PFHpA	6.706	367.0 -> 322.0	177903	9.42 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.2%	
13C5-PFHxA	5.788	318.0 -> 273.0	210802	9.33 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.3%	
13C5-PFPeA	4.425	268.0 -> 223.0	166322	9.51 µg/L	0.088
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C6-PFDA	8.533	519.0 -> 474.0	350615	9.39 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.9%	
13C7-PFUnDA	9.212	570.0 -> 525.0	683421	9.17 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.7%	
13C8-PFOA	7.434	421.0 -> 376.0	230930	9.42 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

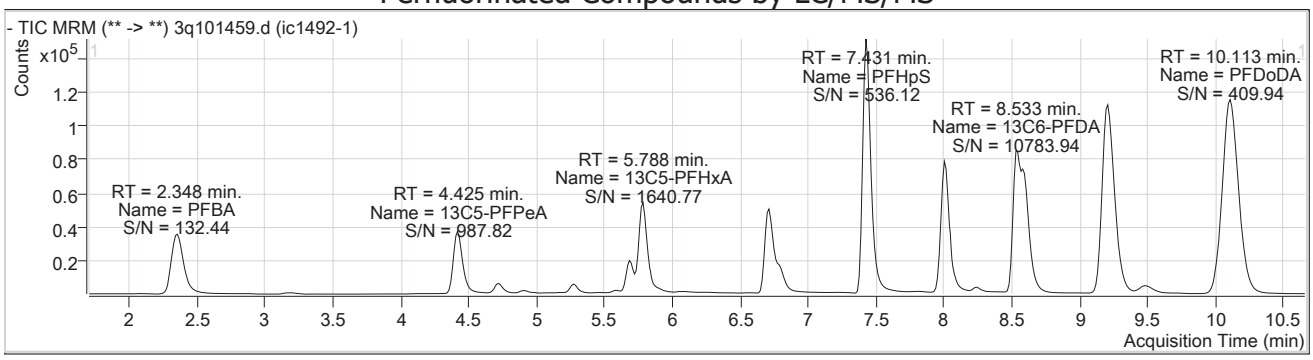
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.2%		
13C8-PFOS	7.982	507.0 -> 99.0	35990	9.66 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.6%		
13C9-PFNA	8.022	472.0 -> 427.0	249672	9.37 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.7%		
13C3-HFPO-DA	6.069	287.0 -> 169.0	2688	8.27 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.7%		
Target Compounds						QValue
PFMPA	3.178	229.0 -> 85.0	5082	1.14 µg/L		100
4:2FTS	5.686	327.0 -> 307.0	9080	1.06 µg/L		94
		327.0 -> 81.0	4221			
6:2FTS	7.433	427.0 -> 407.0	12435	1.09 µg/L		98
		427.0 -> 81.0	5684			
8:2FTS	8.598	527.0 -> 507.0	19942	1.29 µg/L		96
		527.0 -> 81.0	8633			
PFMBA	4.913	279.0 -> 85.0	6990	1.14 µg/L		100
PFEESA	5.274	315.0 -> 135.0	19571	1.12 µg/L		100
		315.0 -> 69.0	1478			
NFDHA	5.594	201.0 -> 85.0	6105	1.16 µg/L		98
		295.0 -> 201.0	424			
PFBA	2.348	213.0 -> 169.0	4411	1.16 µg/L		100
PFBS	4.722	299.0 -> 80.0	4278	1.09 µg/L		91
		299.0 -> 99.0	2028			
PFDA	8.534	513.0 -> 469.0	21954	1.11 µg/L		100
		513.0 -> 219.0	5083			
PFDoDA	10.113	613.0 -> 569.0	65223	1.11 µg/L		100
		613.0 -> 169.0	7140			
PFHpA	6.708	363.0 -> 319.0	28032	1.12 µg/L		99
		363.0 -> 169.0	2414			
PFHpS	7.431	449.0 -> 80.0	5893	1.14 µg/L		97
		449.0 -> 99.0	3172			
PFHxA	5.791	313.0 -> 269.0	21860	1.10 µg/L		100
		313.0 -> 119.0	798			
PFHxS	6.738	399.0 -> 80.0	5688	1.14 µg/L	m	99
		399.0 -> 99.0	2973			
PFNA	8.023	463.0 -> 419.0	23364	1.14 µg/L		99
		463.0 -> 219.0	6808			
PFOA	7.436	413.0 -> 369.0	19824	1.11 µg/L		99
		413.0 -> 169.0	7230			
PFOS	7.983	499.0 -> 80.0	6758	1.17 µg/L	m	98
		499.0 -> 99.0	3388			
PFPeA	4.427	263.0 -> 219.0	14013	1.12 µg/L		100
PFPeS	5.896	349.0 -> 80.0	3247	1.12 µg/L		99
		349.0 -> 99.0	1384			
PFUnDA	9.214	563.0 -> 519.0	48466	1.10 µg/L		99
		563.0 -> 269.0	9318			
11Cl-PF3OUdS	9.482	631.0 -> 451.0	28617	1.07 µg/L		99
		631.0 -> 83.0	1521			
9Cl-PF3ONS	8.241	531.0 -> 351.0	10051	1.08 µg/L		98
		531.0 -> 83.0	572			
ADONA	6.805	377.0 -> 251.0	41986	1.09 µg/L		100
		377.0 -> 85.0	5115			
HFPO-DA	6.073	329.0 -> 169.0	75	1.12 µg/L	m	69
		285.0 -> 169.0	222			

 # = Qualifier out of range, m = manually integrated, + = Area summed

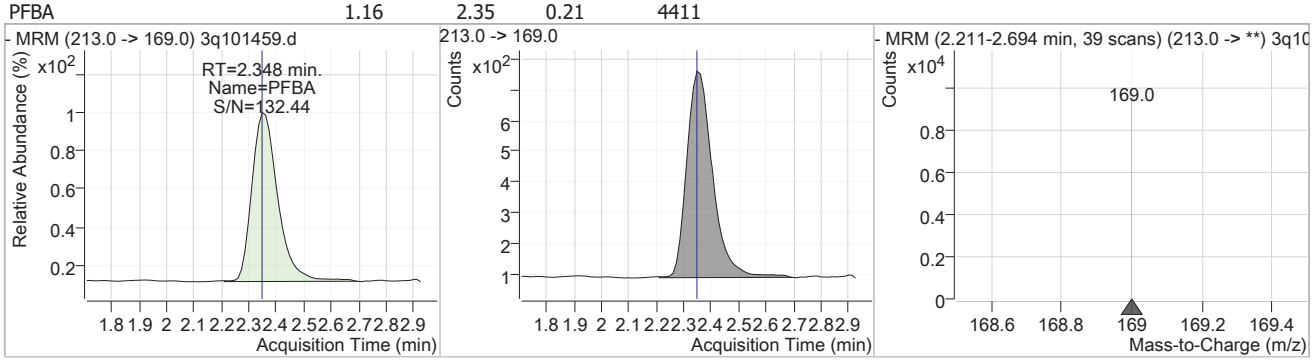
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

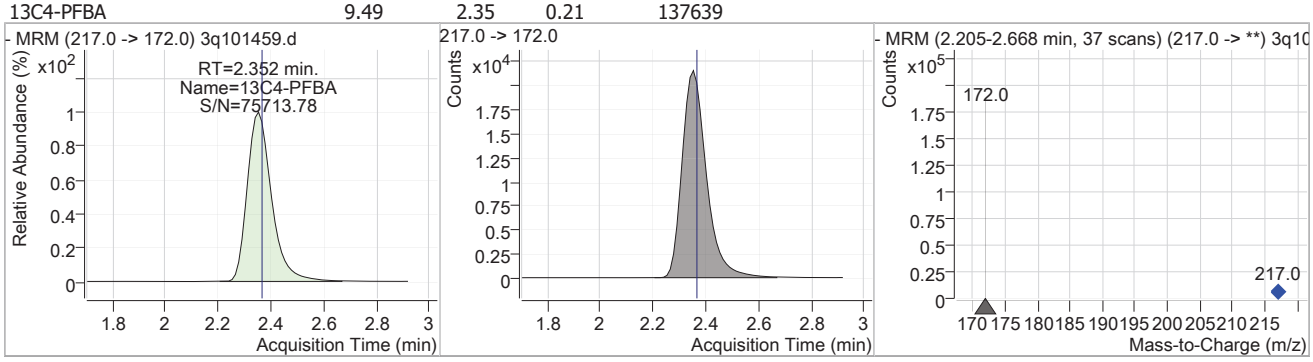
Perfluorinated Compounds by LC/MS/MS



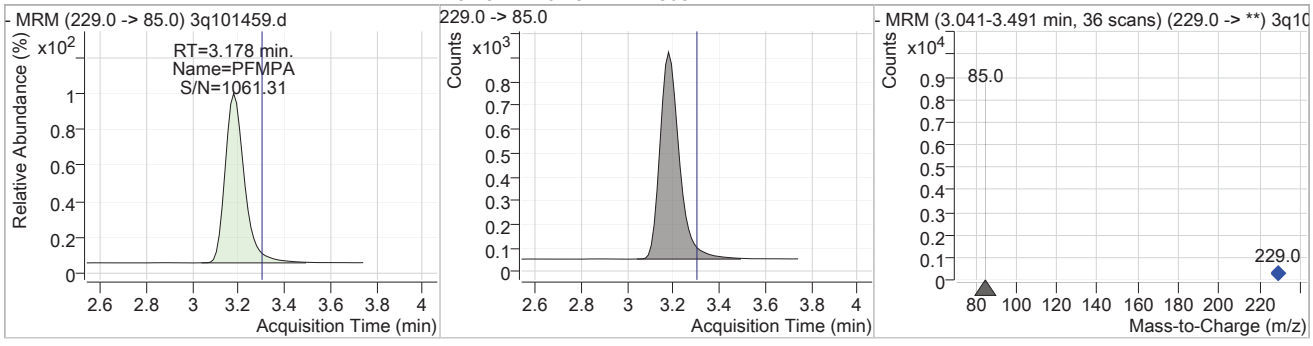
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	1.16	2.35	0.21	4411				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	9.49	2.35	0.21	137639				

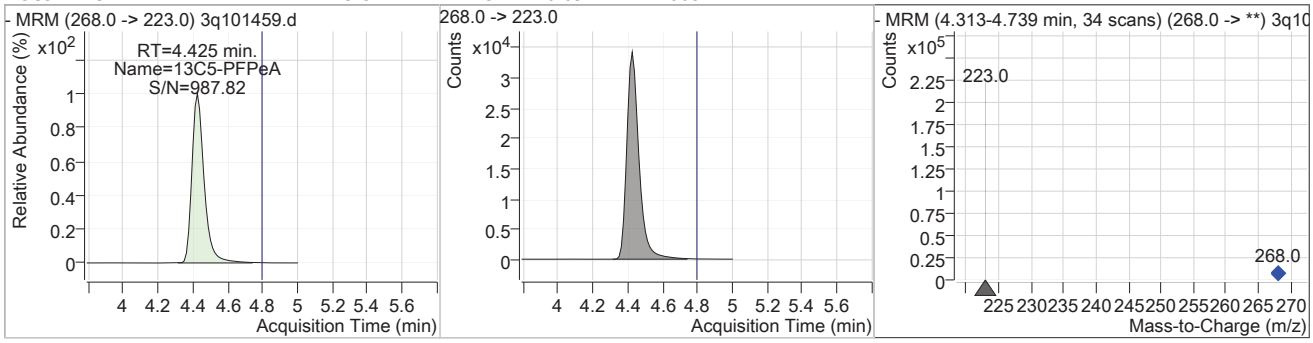


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	1.14	3.18	0.18	5082				

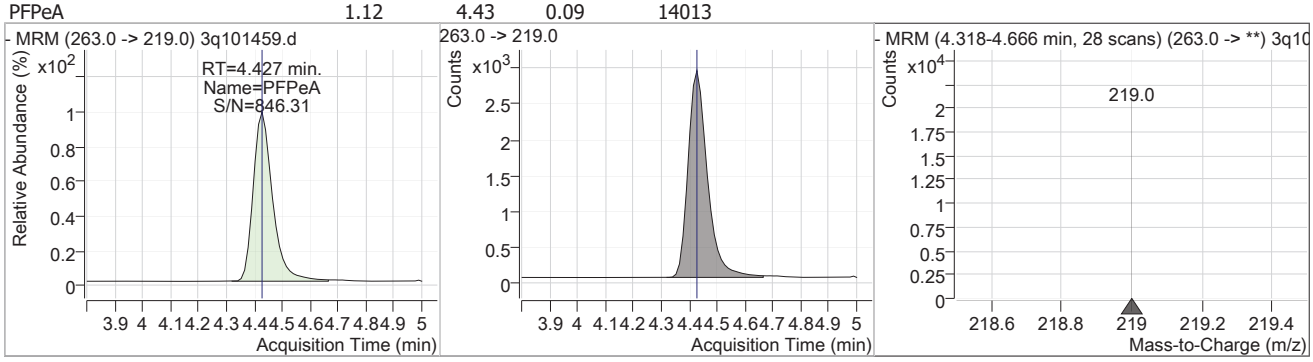


Perfluorinated Compounds by LC/MS/MS

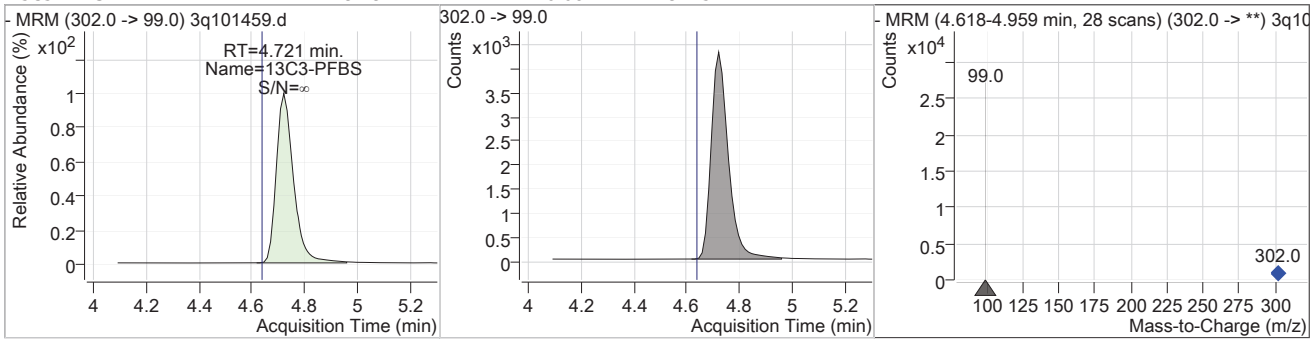
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	9.51	4.43	0.09	166322				



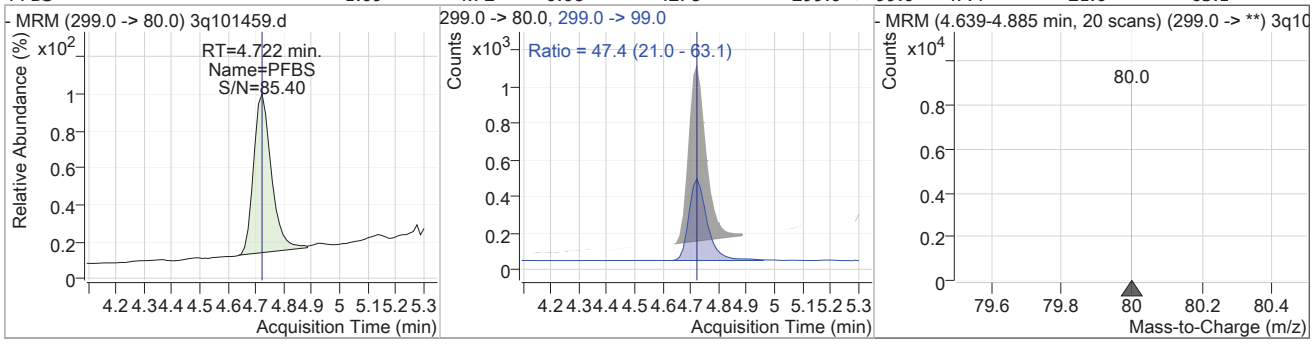
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.12	4.43	0.09	14013				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	9.49	4.72	0.08	19413				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.09	4.72	0.08	4278	299.0 -> 99.0	47.4	21.0	63.1

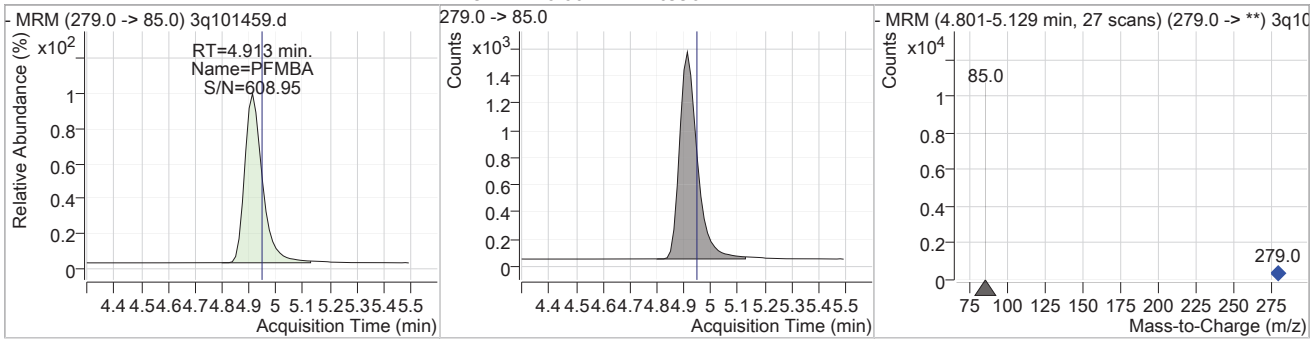


7.7.3

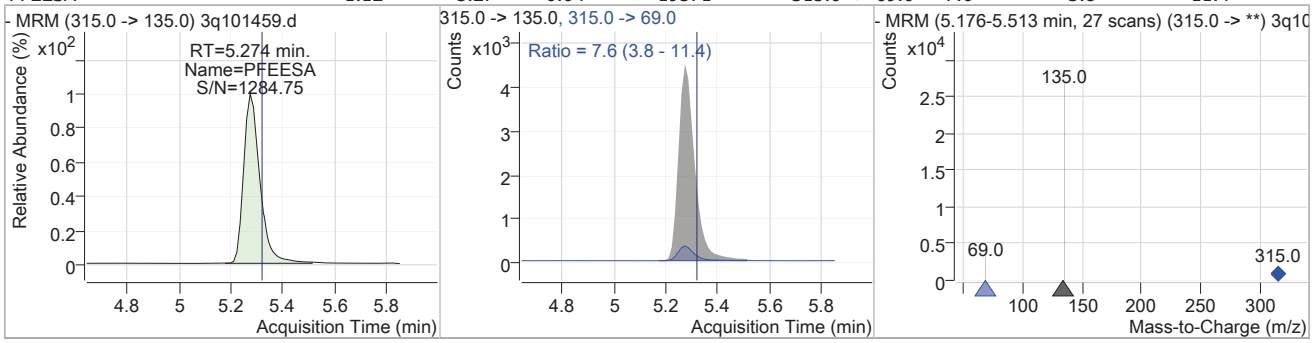
7

Perfluorinated Compounds by LC/MS/MS

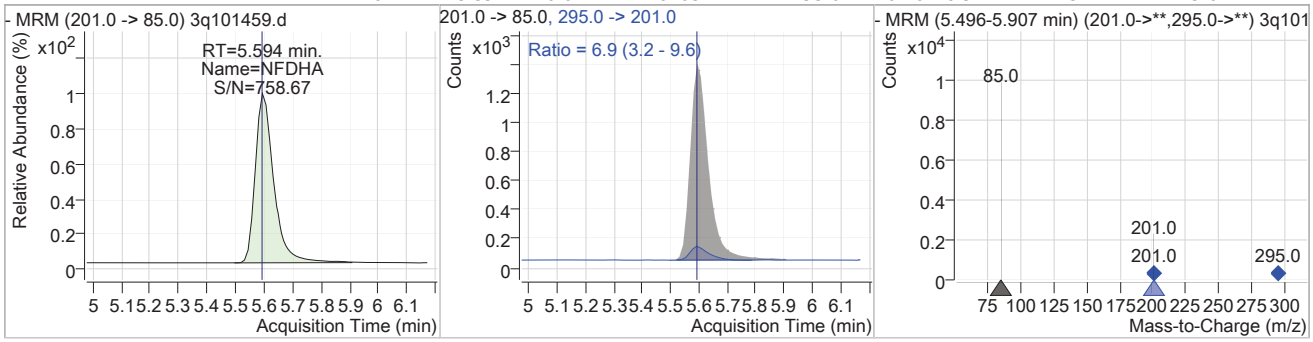
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	1.14	4.91	0.06	6990				



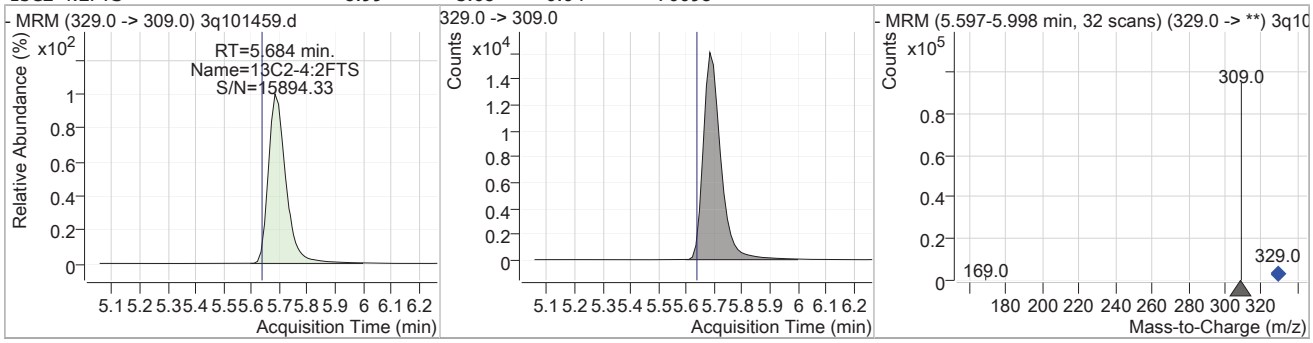
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	1.12	5.27	0.04	19571	315.0 -> 69.0	7.6	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	1.16	5.59	0.04	6105	295.0 -> 201.0	6.9	3.2	9.6

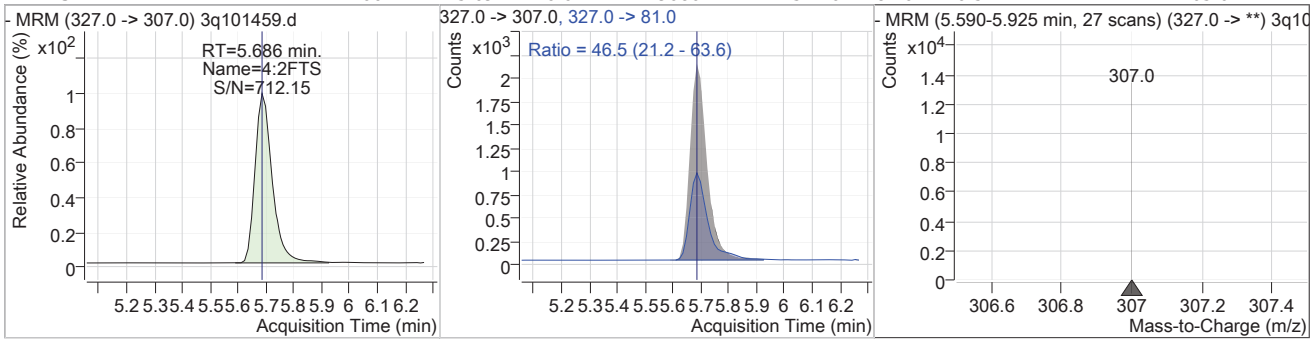


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	8.99	5.68	0.04	70098				

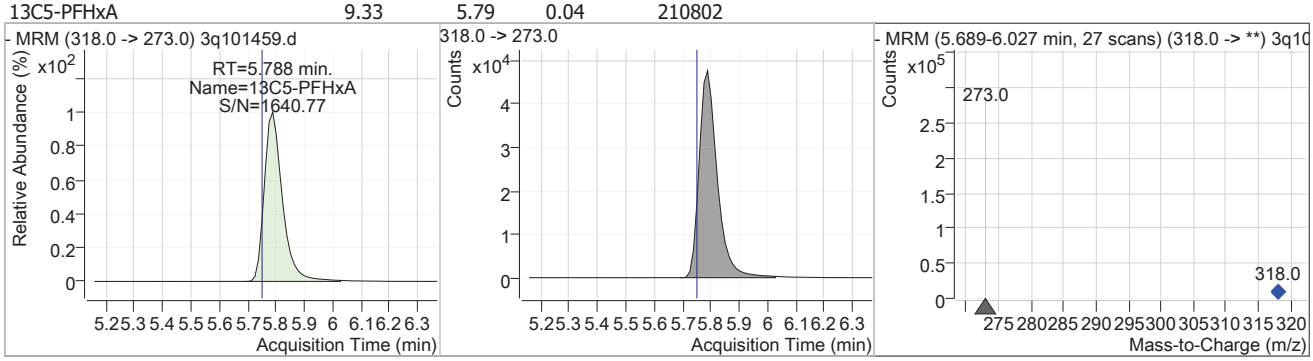


Perfluorinated Compounds by LC/MS/MS

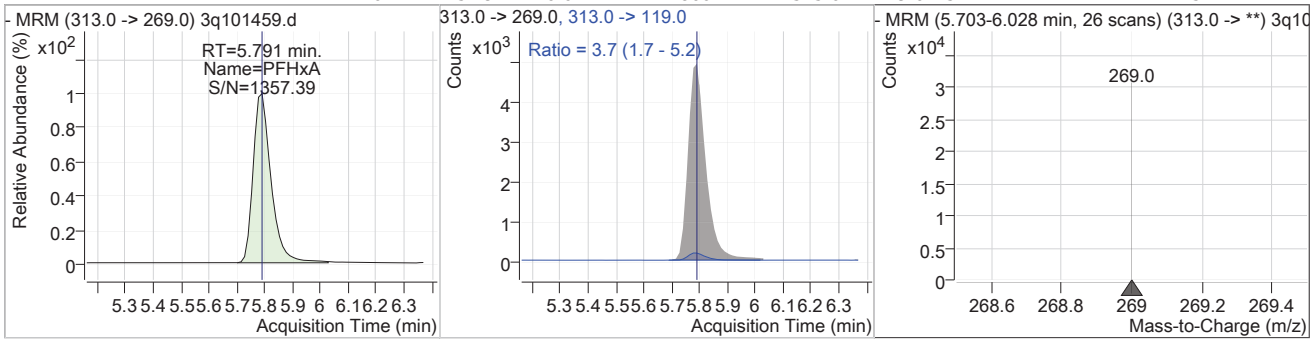
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	1.06	5.69	0.04	9080	327.0 -> 81.0	46.5	21.2	63.6



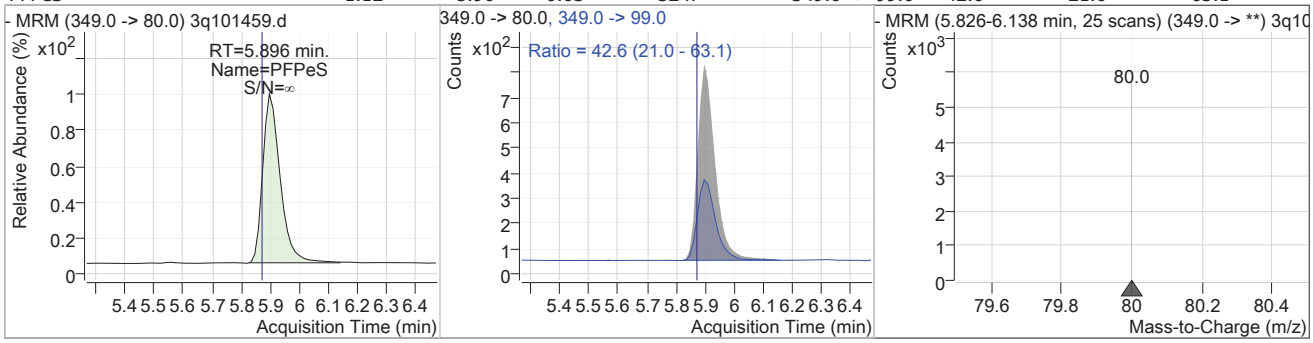
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	9.33	5.79	0.04	210802				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.10	5.79	0.04	21860	313.0 -> 119.0	3.7	1.7	5.2

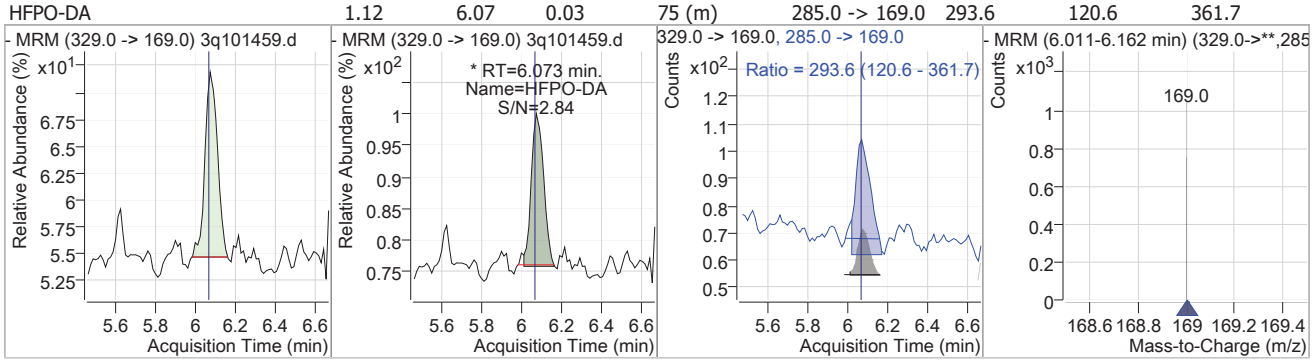


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	1.12	5.90	0.03	3247	349.0 -> 99.0	42.6	21.0	63.1

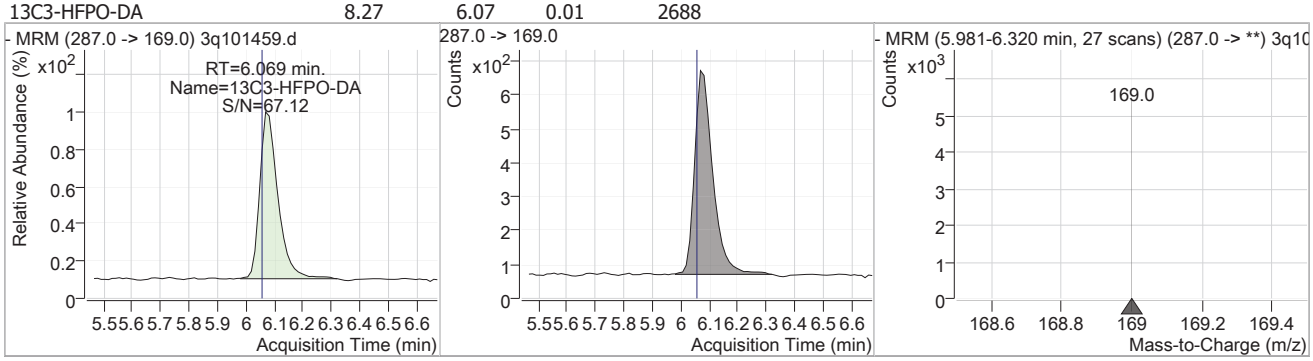


Perfluorinated Compounds by LC/MS/MS

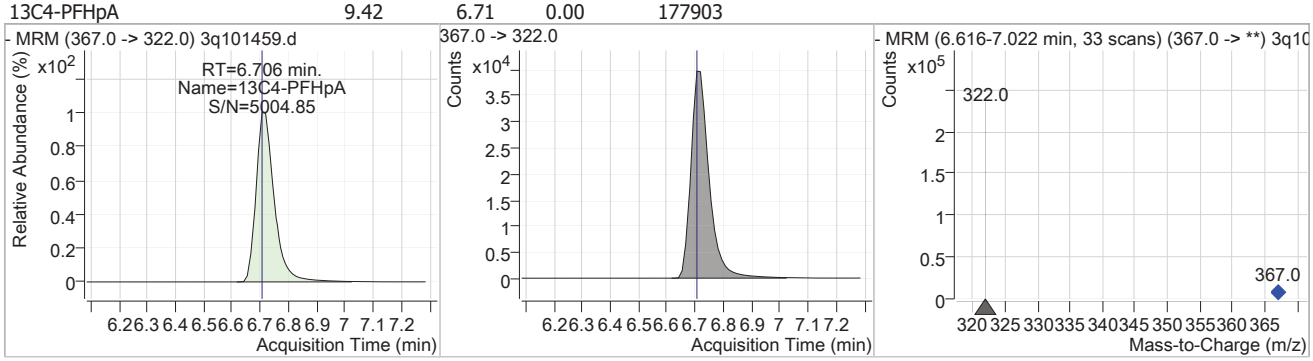
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	1.12	6.07	0.03	75 (m)	285.0 -> 169.0	293.6	120.6	361.7



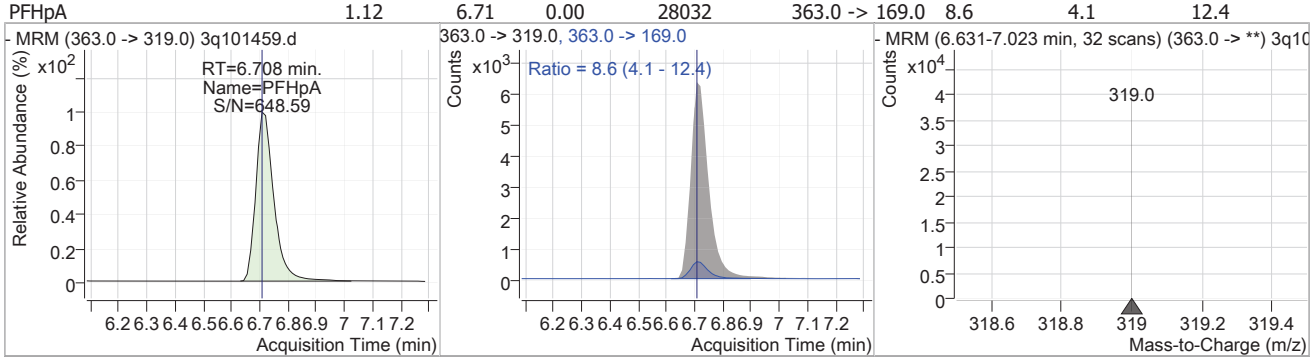
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.27	6.07	0.01	2688				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	9.42	6.71	0.00	177903				

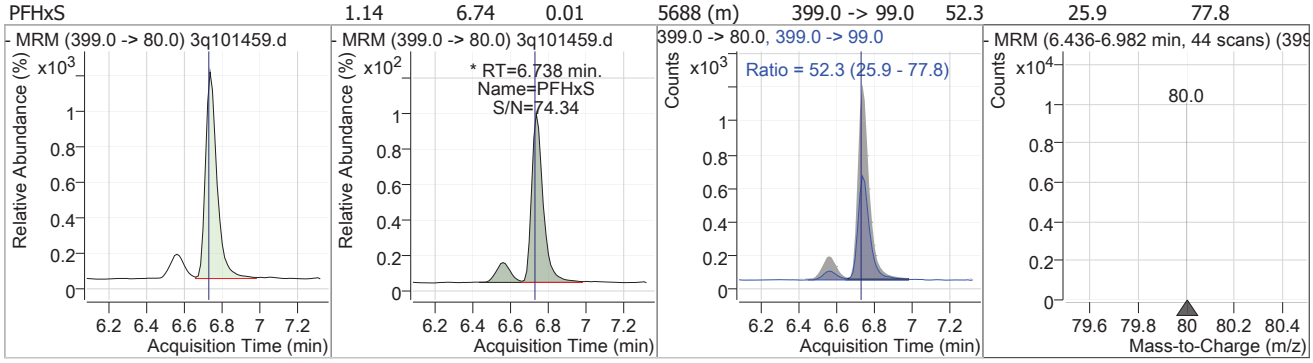


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.12	6.71	0.00	28032	363.0 -> 169.0	8.6	4.1	12.4

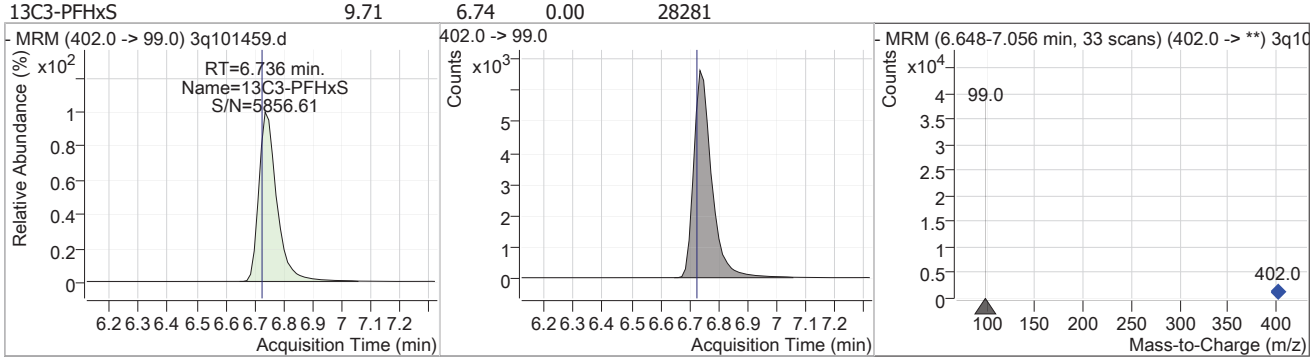


Perfluorinated Compounds by LC/MS/MS

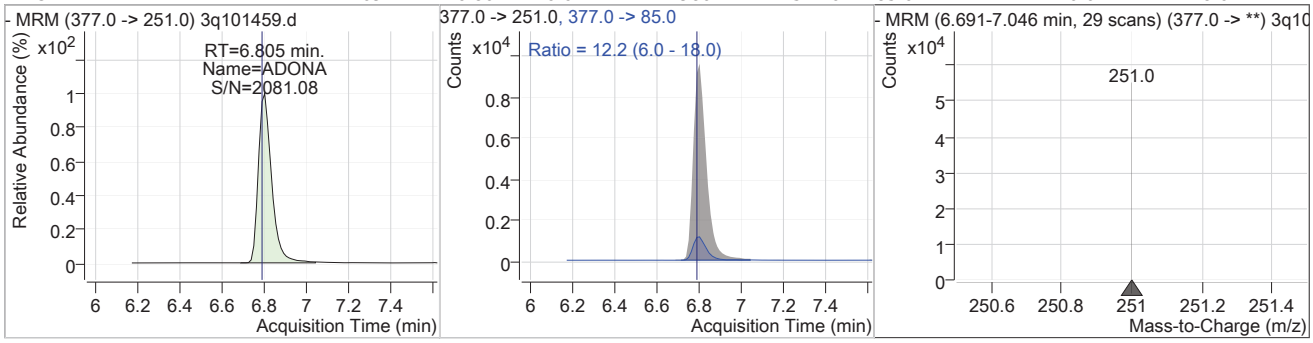
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.14	6.74	0.01	5688 (m)	399.0 -> 99.0	52.3	25.9	77.8



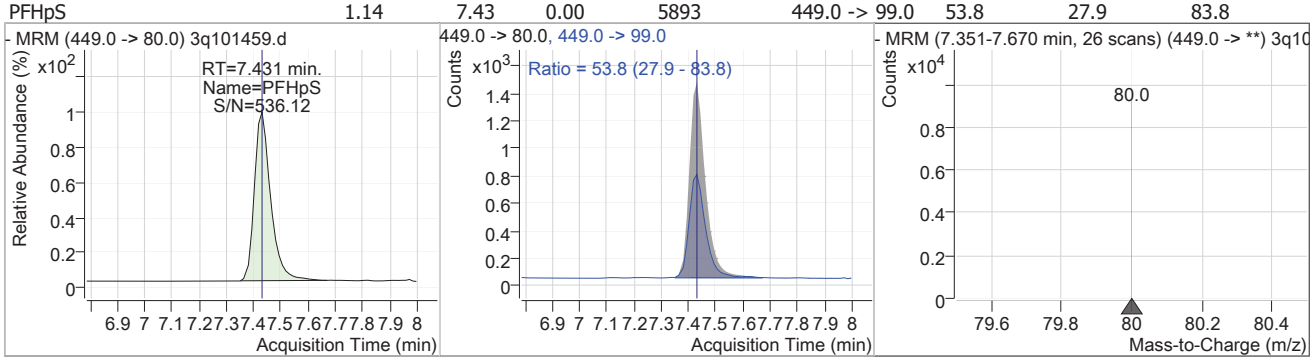
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	9.71	6.74	0.00	28281				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	1.09	6.80	0.01	41986	377.0 -> 85.0	12.2	6.0	18.0

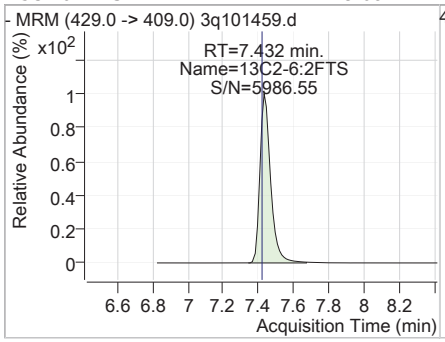


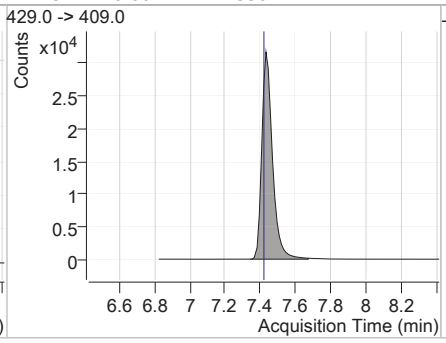
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	1.14	7.43	0.00	5893	449.0 -> 99.0	53.8	27.9	83.8

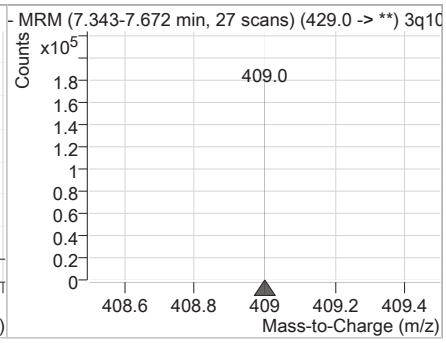


Perfluorinated Compounds by LC/MS/MS

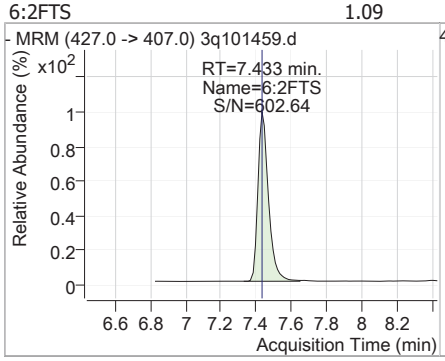
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	9.08	7.43	0.00	133042				

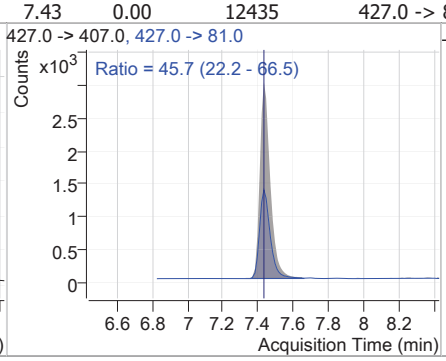


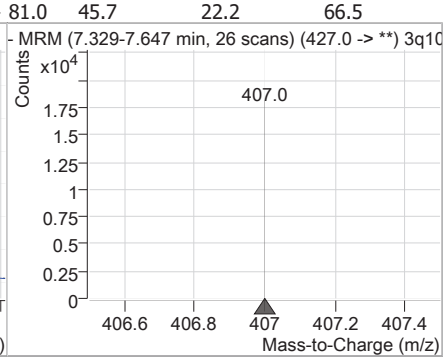




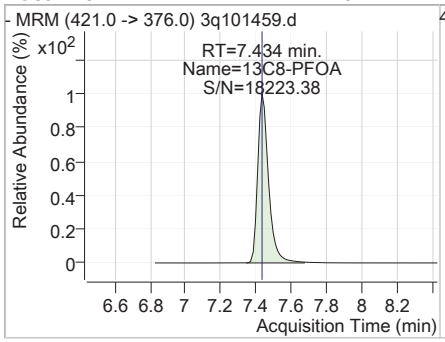
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.09	7.43	0.00	12435	427.0 -> 81.0	45.7	22.2	66.5

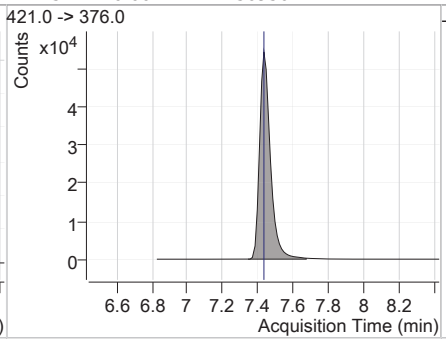


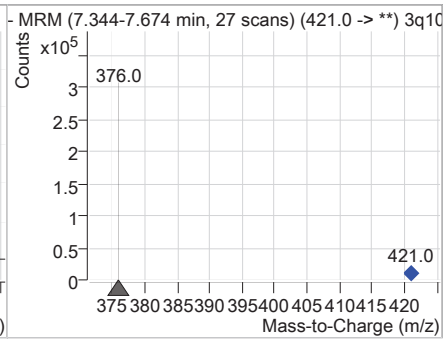




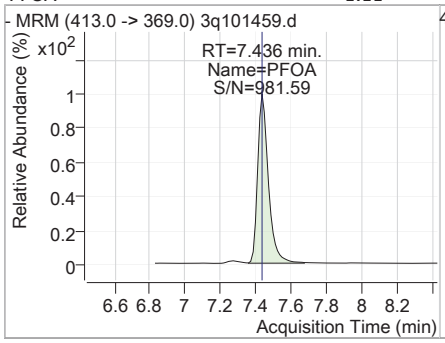
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	9.42	7.43	0.00	230930				

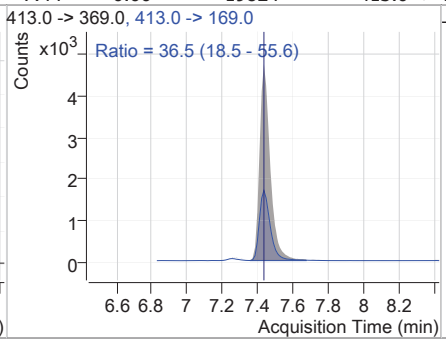


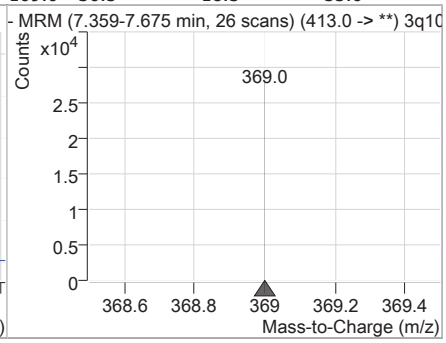




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.11	7.44	0.00	19824	413.0 -> 169.0	36.5	18.5	55.6

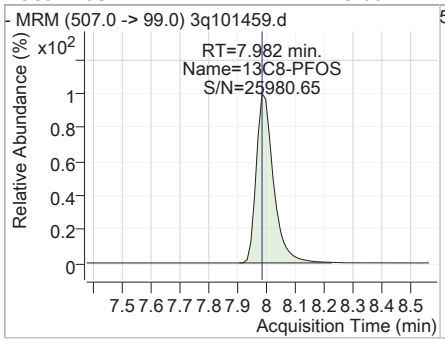


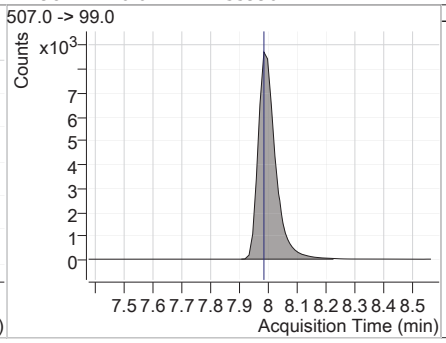


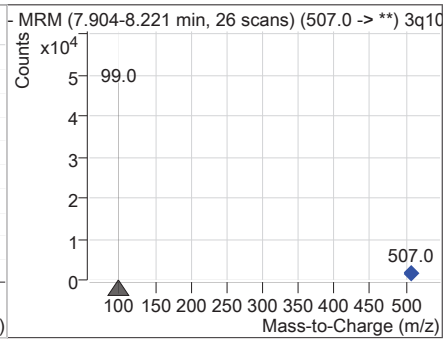


Perfluorinated Compounds by LC/MS/MS

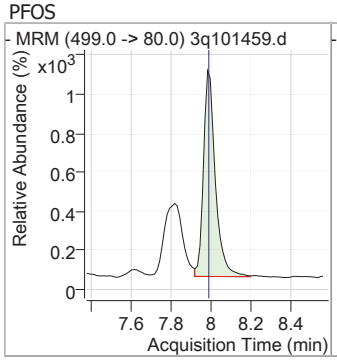
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	9.66	7.98	-0.01	35990				

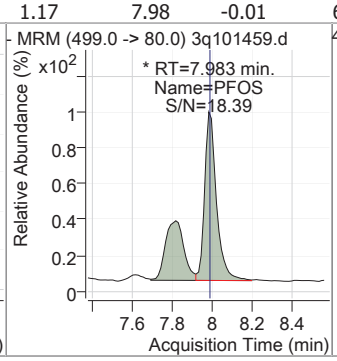


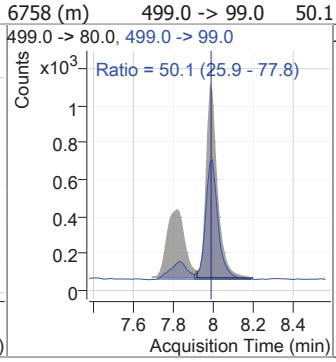


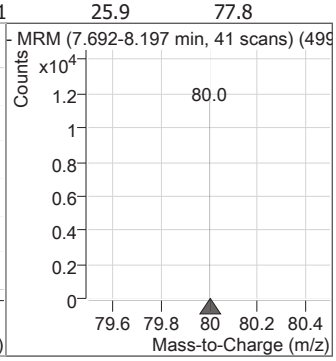


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.17	7.98	-0.01	6758 (m)	499.0 -> 99.0	50.1	25.9	77.8

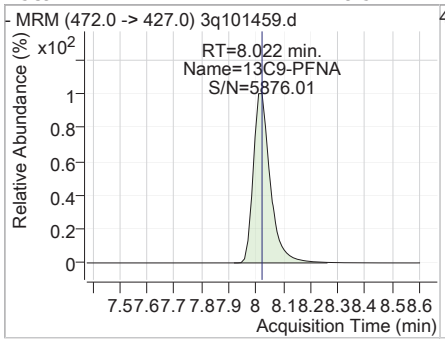


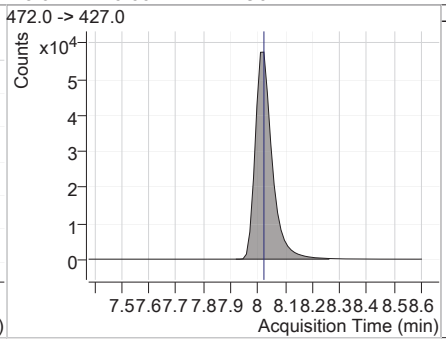


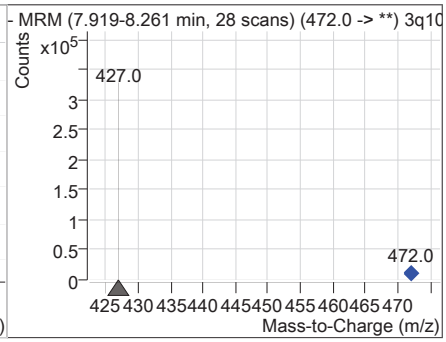




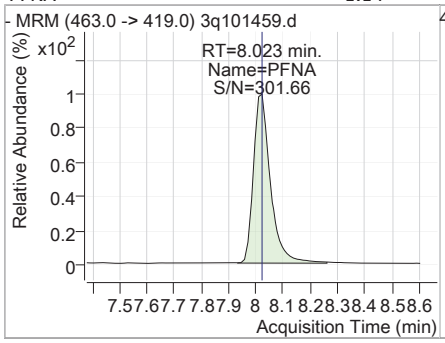
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	9.37	8.02	0.00	249672				

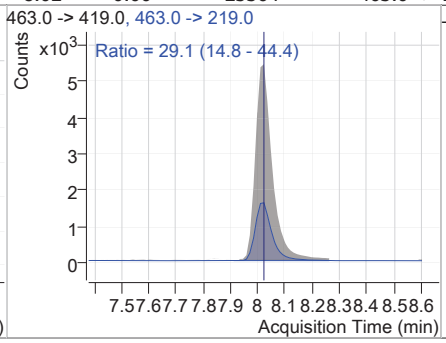


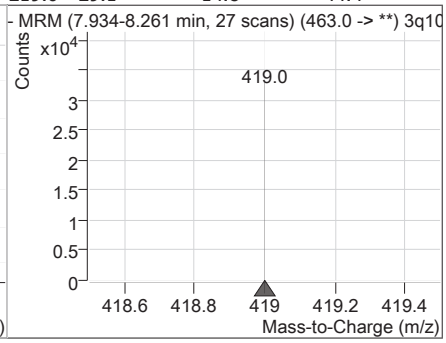




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.14	8.02	0.00	23364	463.0 -> 219.0	29.1	14.8	44.4

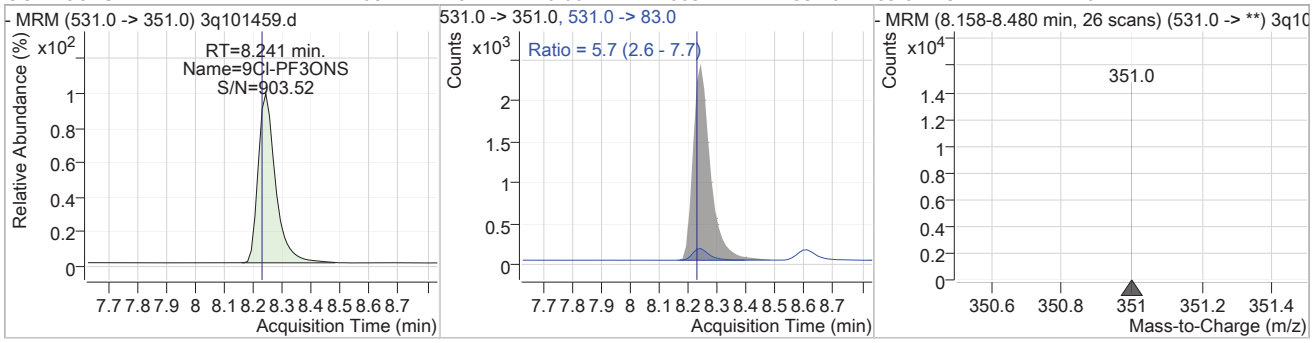




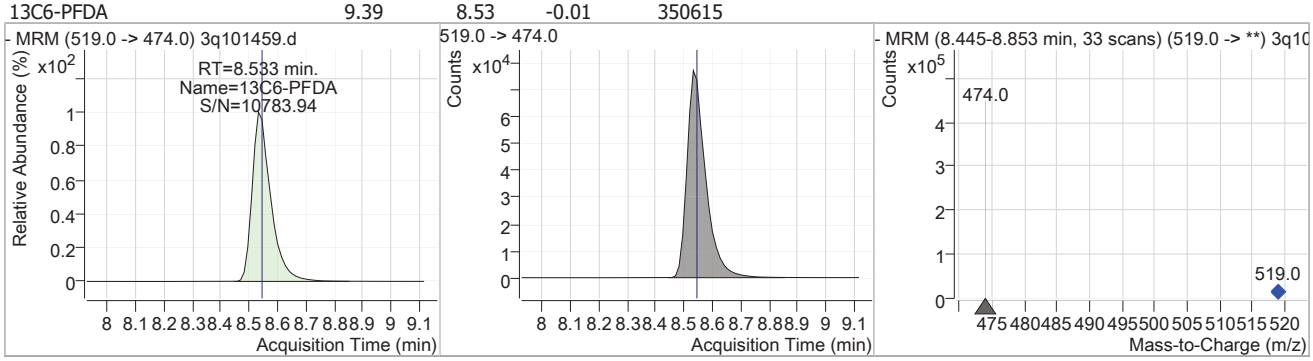


Perfluorinated Compounds by LC/MS/MS

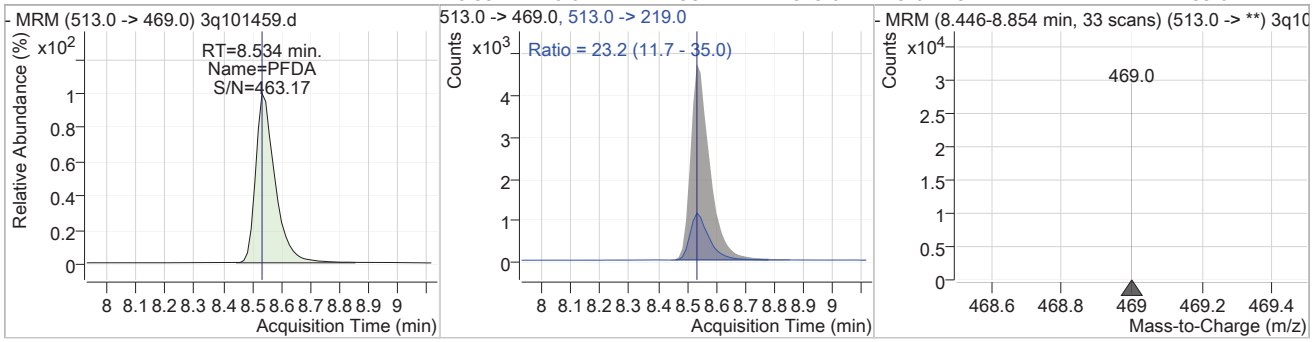
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	1.08	8.24	0.00	10051	531.0 -> 83.0	5.7	2.6	7.7



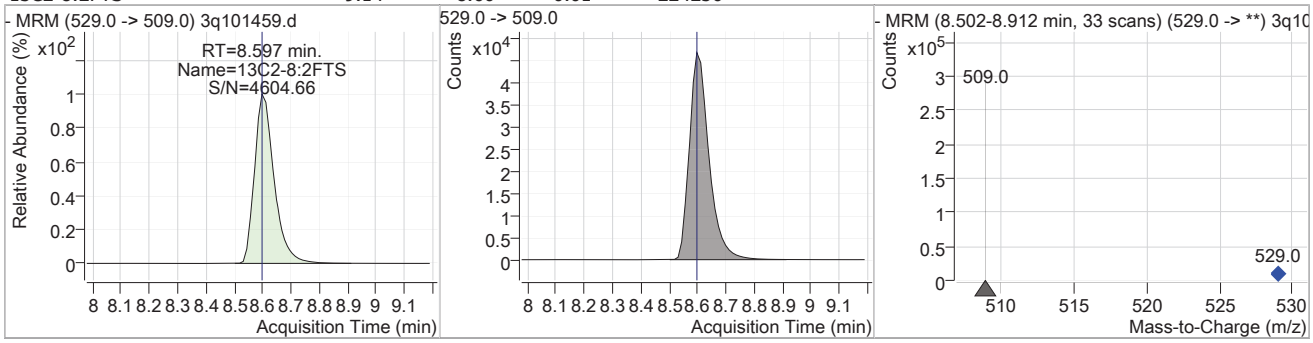
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	9.39	8.53	-0.01	350615				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.11	8.53	-0.01	21954	513.0 -> 219.0	23.2	11.7	35.0

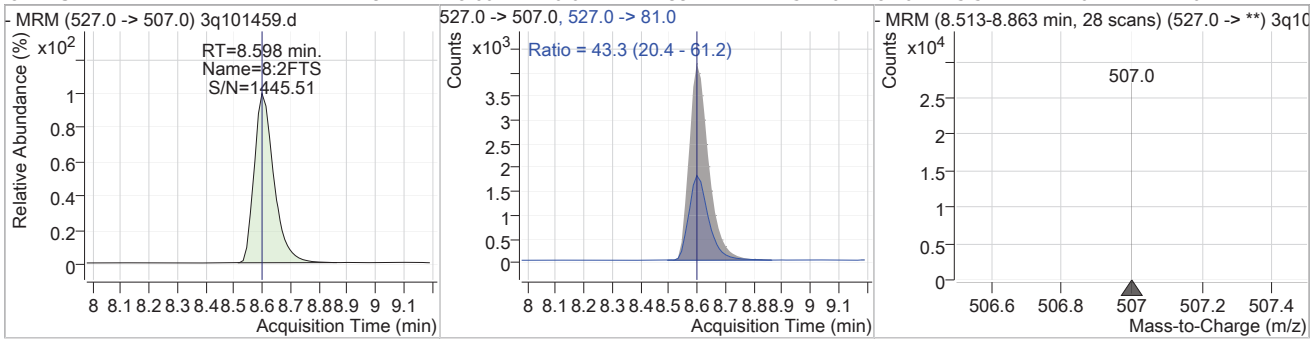


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	9.14	8.60	-0.01	224256				

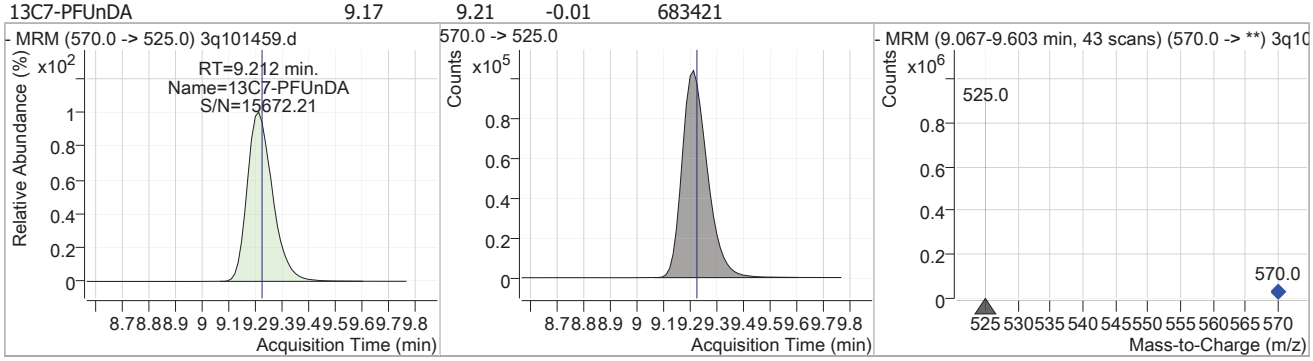


Perfluorinated Compounds by LC/MS/MS

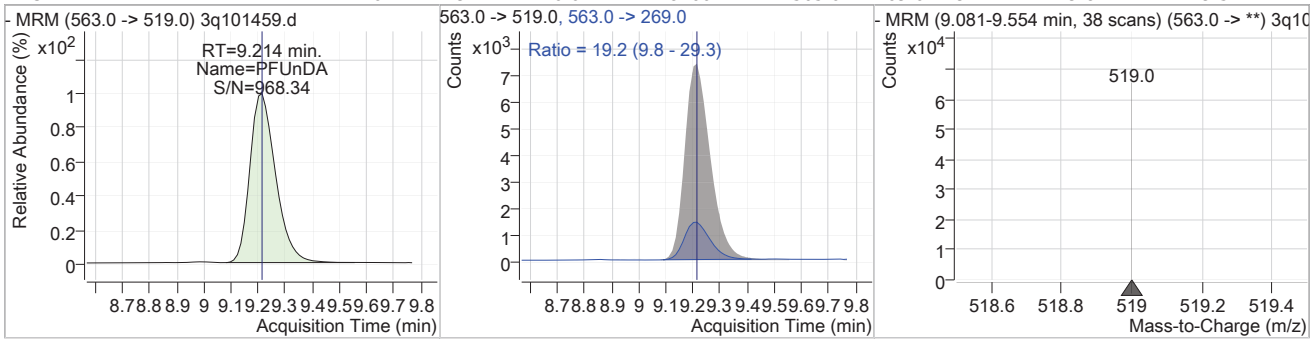
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	1.29	8.60	-0.01	19942	527.0 -> 81.0	43.3	20.4	61.2



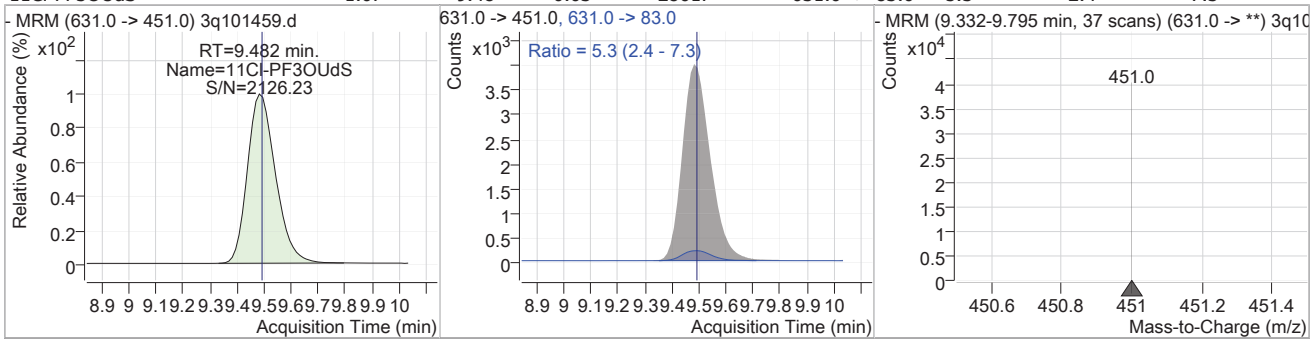
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	9.17	9.21	-0.01	683421				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.10	9.21	-0.01	48466	563.0 -> 269.0	19.2	9.8	29.3

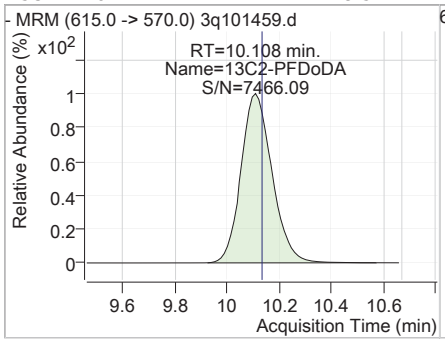


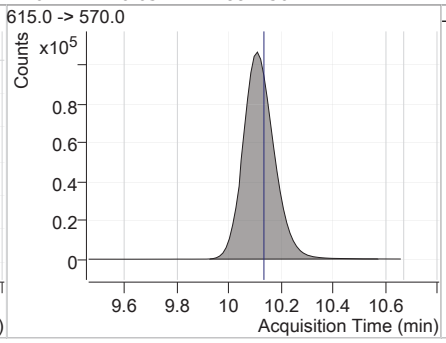
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	1.07	9.48	-0.03	28617	631.0 -> 83.0	5.3	2.4	7.3

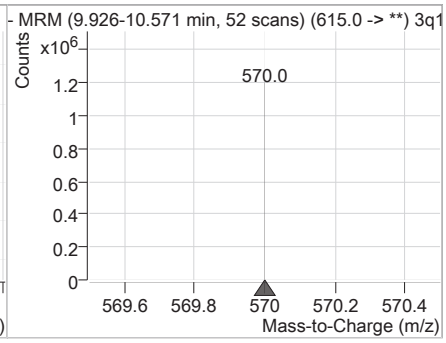


Perfluorinated Compounds by LC/MS/MS

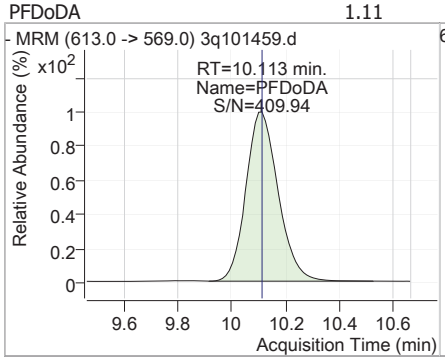
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	9.31	10.11	-0.03	884250				

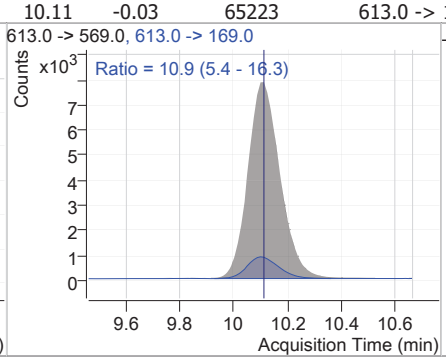


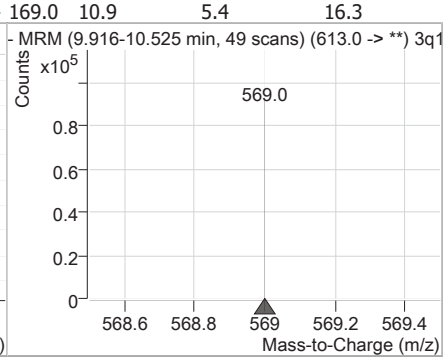




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	1.11	10.11	-0.03	65223	613.0 -> 169.0	10.9	5.4	16.3







7.7.3

7

Manual Integration Approval Summary

Sample Number:	S3Q1492-IC1492	**Method:**	EPA 533
Lab FileID:	3Q101459.D	**Analyst approved:**	04/16/25 08:55 (b) (6)
Injection Time:	04/15/25 14:20	**Supervisor approved:**	04/17/25 11:42 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
HFPO-DA (GenX)	13252-13-6		6.07	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		6.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:42

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101460.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 2:36:07 PM
Sample Name : ic1492-2
Vial : P1-C4
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.435	415.0 -> 370.0	223241	10.00 µg/L	0.000
13C3-PFBA	2.357	216.0 -> 172.0	85042	10.00 µg/L	0.225
13C4-PFOS	7.983	503.0 -> 80.0	33237	10.00 µg/L	-0.013
M4-PFBA	2.352	217.0 -> 172.0	137554	10.00 µg/L	0.213
M5-PFPeA	4.425	268.0 -> 223.0	166839	10.00 µg/L	0.088
M5-PFHxA	5.776	318.0 -> 273.0	211403	10.00 µg/L	0.025
M4-PFHpA	6.706	367.0 -> 322.0	176464	10.00 µg/L	0.000
M8-PFOA	7.434	421.0 -> 376.0	233908	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	247567	10.00 µg/L	-0.013
M6-PFDA	8.533	519.0 -> 474.0	337493	10.00 µg/L	-0.013
M7-PFUnDA	9.212	570.0 -> 525.0	677377	10.00 µg/L	-0.012
M2-PFDoDA	10.133	615.0 -> 570.0	888748	10.00 µg/L	0.000
M3-PFBS	4.721	302.0 -> 99.0	19515	10.00 µg/L	0.075
M3-PFHxS	6.736	402.0 -> 99.0	27470	10.00 µg/L	0.000
M8-PFOS	7.982	507.0 -> 99.0	35567	10.00 µg/L	-0.013
M2-4:2FTS	5.684	329.0 -> 309.0	68901	10.00 µg/L	0.038
M2-6:2FTS	7.432	429.0 -> 409.0	133670	10.00 µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	221002	10.00 µg/L	-0.014
M3-HFPO-DA	6.068	287.0 -> 169.0	2637	10.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.684	329.0 -> 309.0	68901	8.71 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 87.1%	
13C2-6:2FTS	7.432	429.0 -> 409.0	133670	9.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.0%	
13C2-8:2FTS	8.597	529.0 -> 509.0	221002	8.88 µg/L	-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.8%	
13C2-PFDoDA	10.133	615.0 -> 570.0	888748	9.35 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.5%	
13C3-PFBS	4.721	302.0 -> 99.0	19515	9.41 µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.1%	
13C3-PFHxS	6.736	402.0 -> 99.0	27470	9.30 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.0%	
13C4-PFBA	2.352	217.0 -> 172.0	137554	9.53 µg/L	0.213
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C4-PFHpA	6.706	367.0 -> 322.0	176464	9.34 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.4%	
13C5-PFHxA	5.776	318.0 -> 273.0	211403	9.35 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.5%	
13C5-PFPeA	4.425	268.0 -> 223.0	166839	9.59 µg/L	0.088
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.9%	
13C6-PFDA	8.533	519.0 -> 474.0	337493	9.04 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.4%	
13C7-PFUnDA	9.212	570.0 -> 525.0	677377	9.08 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.8%	
13C8-PFOA	7.434	421.0 -> 376.0	233908	9.54 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

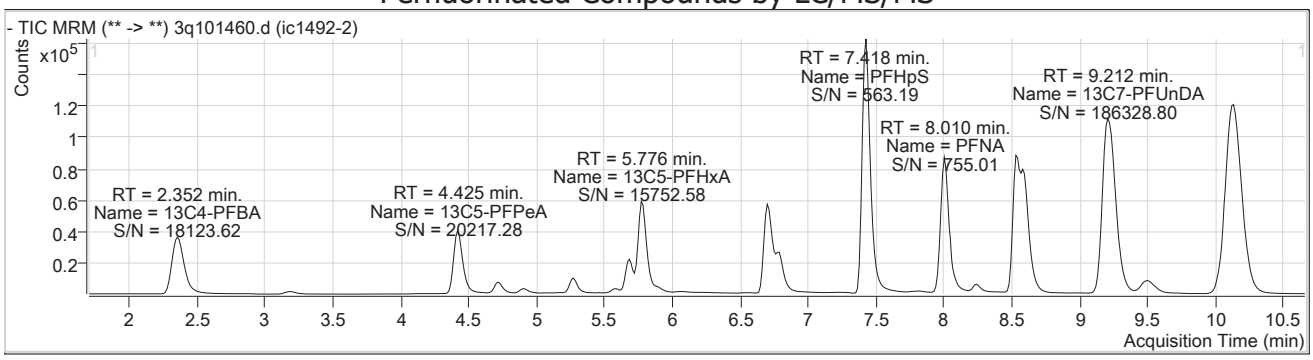
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.4%		
13C8-PFOS	7.982	507.0 -> 99.0	35567	9.41 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.1%		
13C9-PFNA	8.010	472.0 -> 427.0	247567	9.29 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.9%		
13C3-HFPO-DA	6.068	287.0 -> 169.0	2637	8.11 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.1%		
Target Compounds						QValue
PFMPA	3.178	229.0 -> 85.0	9466	2.13 µg/L		100
4:2FTS	5.686	327.0 -> 307.0	16873	2.02 µg/L		97
		327.0 -> 81.0	7524			
6:2FTS	7.433	427.0 -> 407.0	23147	2.03 µg/L		100
		427.0 -> 81.0	10276			
8:2FTS	8.598	527.0 -> 507.0	36588	2.41 µg/L		98
		527.0 -> 81.0	15341			
PFMBA	4.913	279.0 -> 85.0	12890	2.10 µg/L		100
PFEESA	5.274	315.0 -> 135.0	36903	2.10 µg/L		100
		315.0 -> 69.0	2842			
NFDHA	5.594	201.0 -> 85.0	11258	2.13 µg/L		98
		295.0 -> 201.0	809			
PFBA	2.361	213.0 -> 169.0	8011	2.11 µg/L		100
PFBS	4.722	299.0 -> 80.0	7777	1.97 µg/L		94
		299.0 -> 99.0	3565			
PFDA	8.534	513.0 -> 469.0	40246	2.11 µg/L		99
		513.0 -> 219.0	9173			
PFDoDA	10.125	613.0 -> 569.0	123971	2.10 µg/L		100
		613.0 -> 169.0	13284			
PFHpA	6.708	363.0 -> 319.0	51966	2.10 µg/L		100
		363.0 -> 169.0	4317			
PFHpS	7.418	449.0 -> 80.0	11185	2.22 µg/L		97
		449.0 -> 99.0	6007			
PFHxA	5.778	313.0 -> 269.0	41941	2.11 µg/L		99
		313.0 -> 119.0	1548			
PFHxS	6.738	399.0 -> 80.0	10297	2.13 µg/L	m	97
		399.0 -> 99.0	5561			
PFNA	8.010	463.0 -> 419.0	43280	2.13 µg/L		99
		463.0 -> 219.0	12676			
PFOA	7.436	413.0 -> 369.0	37916	2.10 µg/L		98
		413.0 -> 169.0	14411			
PFOS	7.983	499.0 -> 80.0	12249	2.15 µg/L	m	99
		499.0 -> 99.0	6273			
PFPeA	4.427	263.0 -> 219.0	26850	2.13 µg/L		100
PFPeS	5.896	349.0 -> 80.0	6034	2.15 µg/L		98
		349.0 -> 99.0	2627			
PFUnDA	9.214	563.0 -> 519.0	91166	2.09 µg/L		100
		563.0 -> 269.0	17874			
11Cl-PF3OUdS	9.495	631.0 -> 451.0	54331	2.06 µg/L		99
		631.0 -> 83.0	2798			
9Cl-PF3ONS	8.241	531.0 -> 351.0	18575	2.03 µg/L		99
		531.0 -> 83.0	913			
ADONA	6.792	377.0 -> 251.0	79005	2.07 µg/L		99
		377.0 -> 85.0	9674			
HFPO-DA	6.073	329.0 -> 169.0	129	1.97 µg/L	m	85
		285.0 -> 169.0	345			

 # = Qualifier out of range, m = manually integrated, + = Area summed

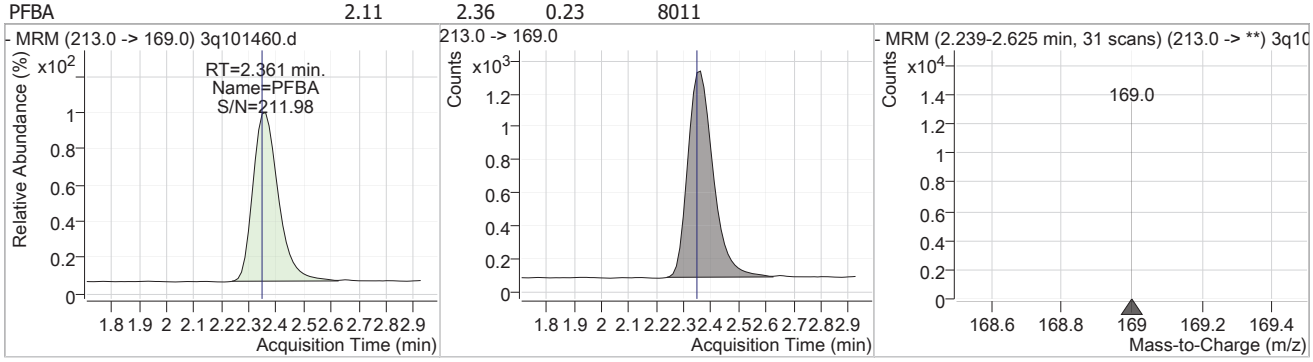
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

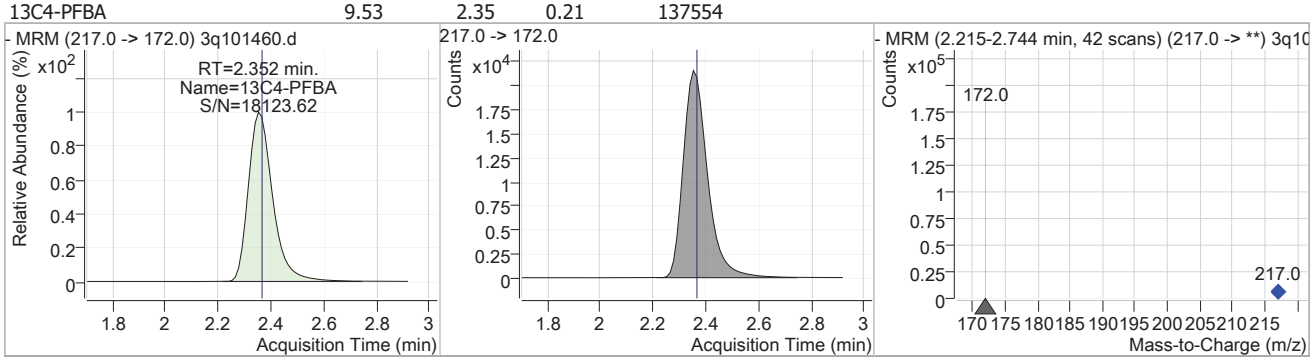
Perfluorinated Compounds by LC/MS/MS



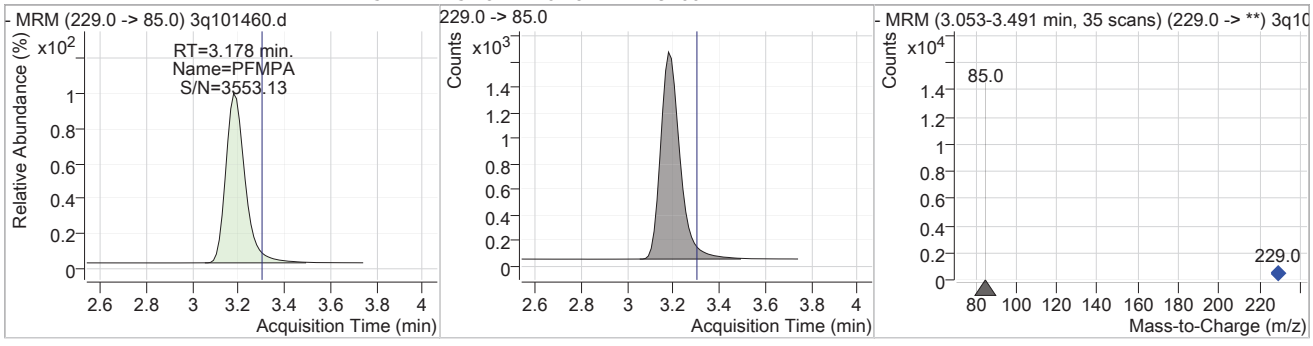
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	2.11	2.36	0.23	8011				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	9.53	2.35	0.21	137554				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	2.13	3.18	0.18	9466				



7.7.4

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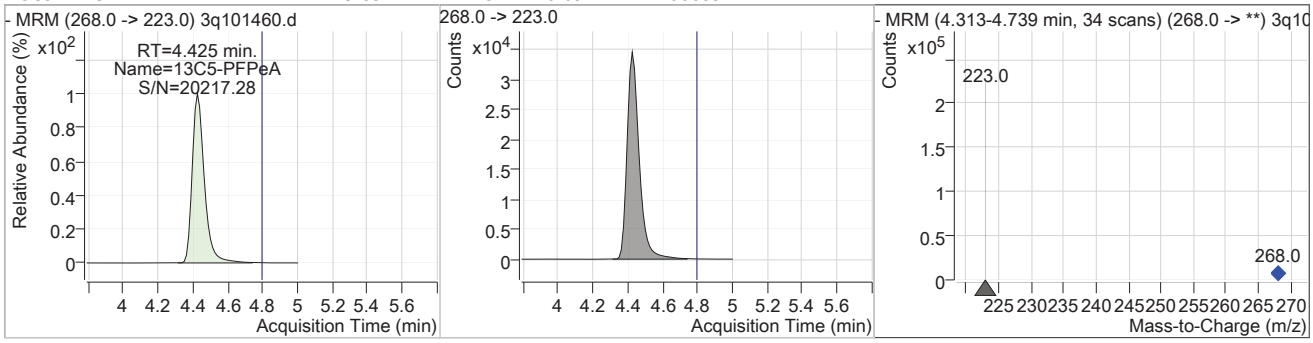
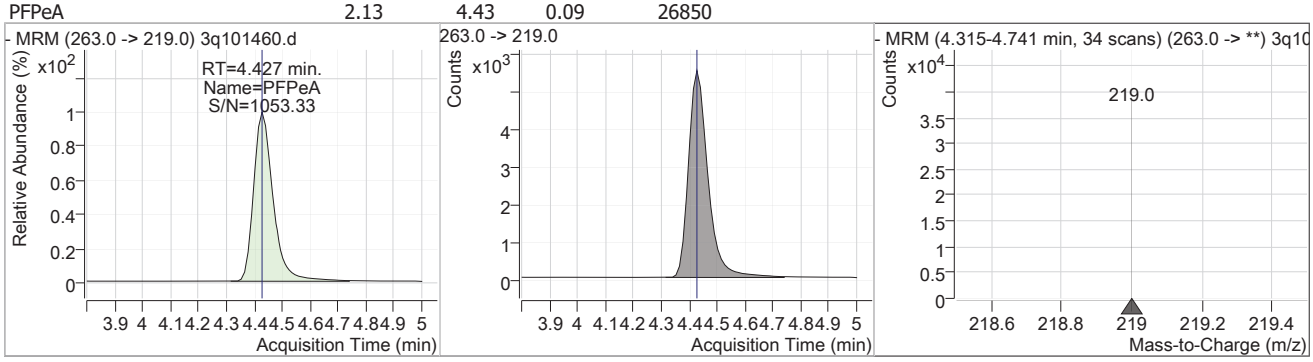
Perfluorinated Compounds by LC/MS/MS

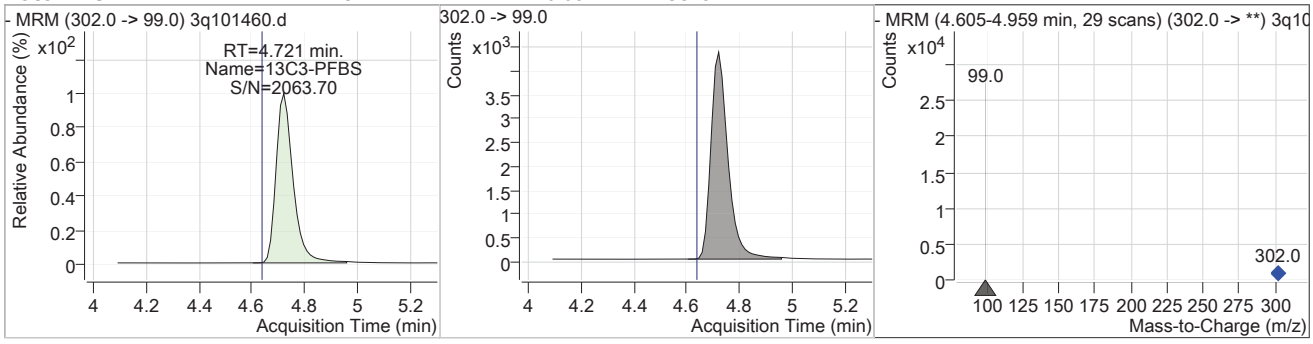
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	9.59	4.43	0.09	166839				



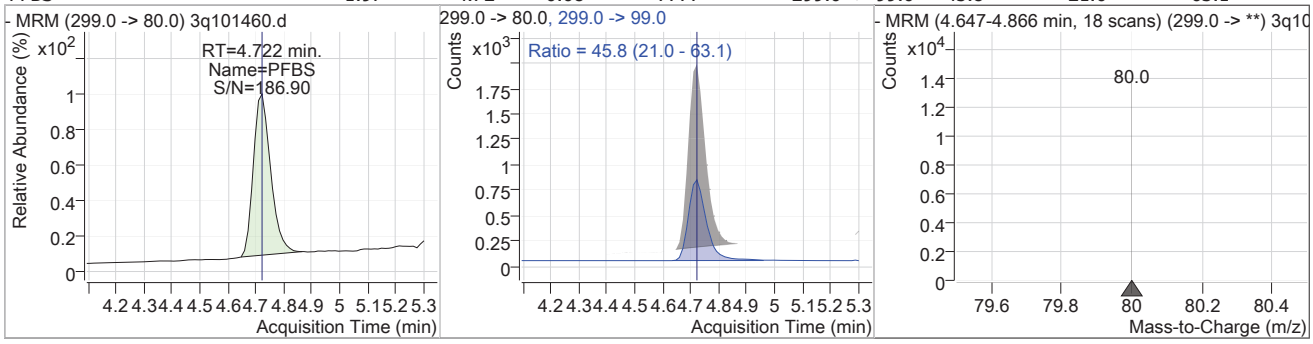
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	2.13	4.43	0.09	26850				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	9.41	4.72	0.08	19515				

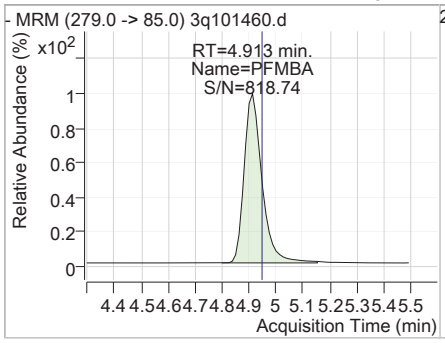


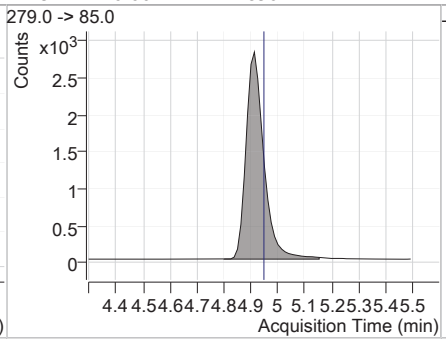
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.97	4.72	0.08	7777	299.0 -> 99.0	45.8	21.0	63.1

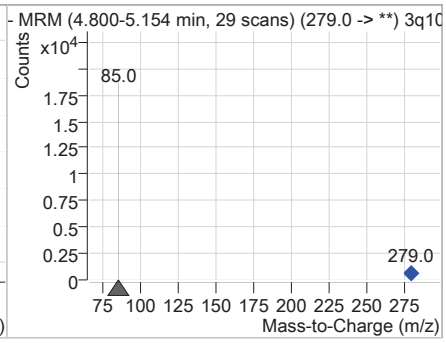


Perfluorinated Compounds by LC/MS/MS

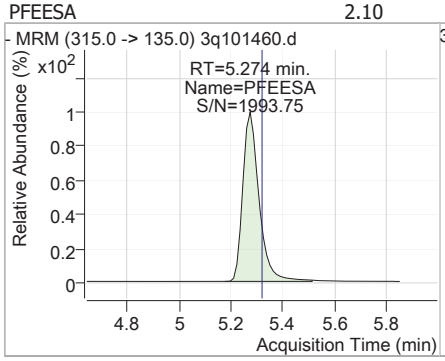
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	2.10	4.91	0.06	12890				

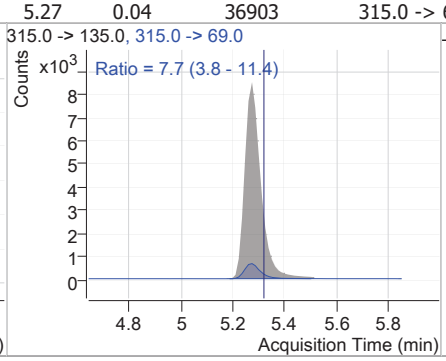


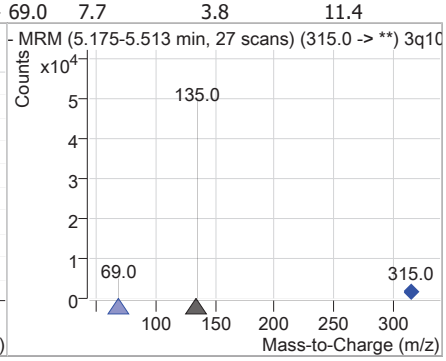




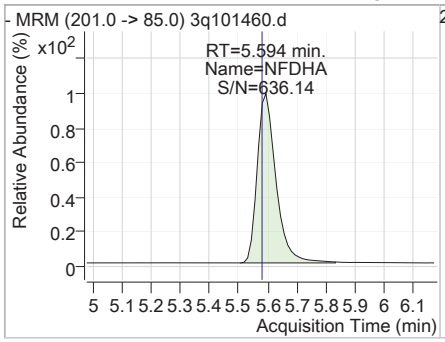
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	2.10	5.27	0.04	36903	315.0 -> 69.0	7.7	3.8	11.4

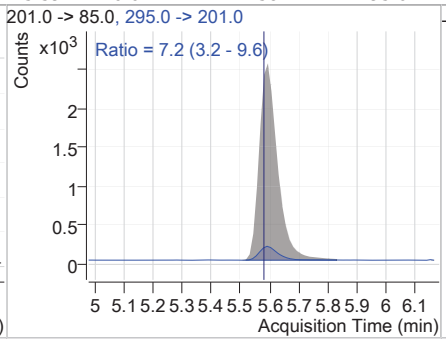


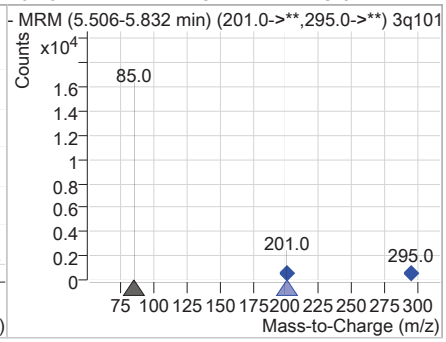




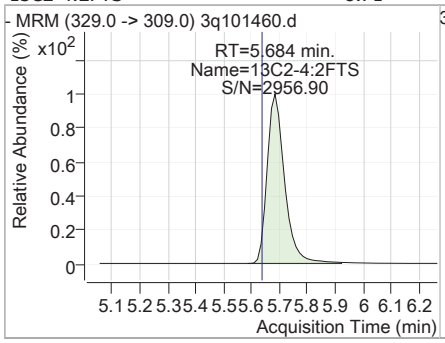
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	2.13	5.59	0.04	11258	295.0 -> 201.0	7.2	3.2	9.6

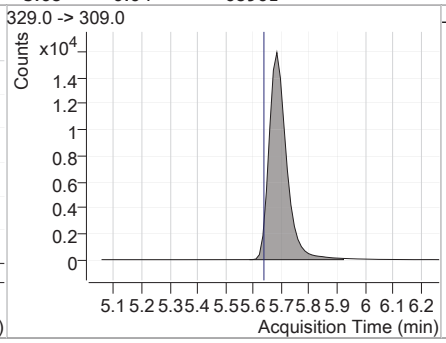


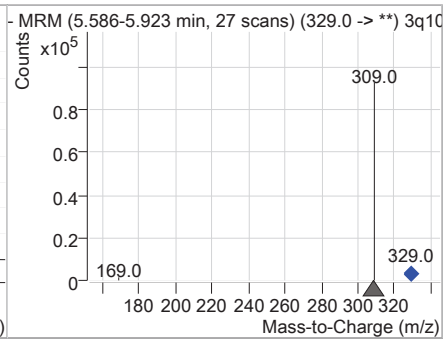




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	8.71	5.68	0.04	68901				







7.7.4

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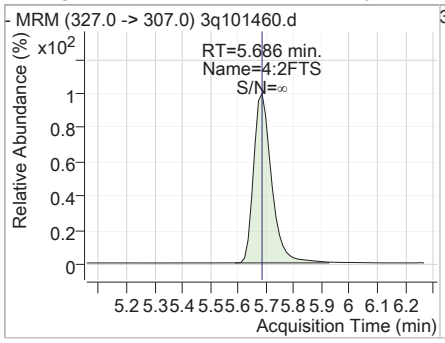
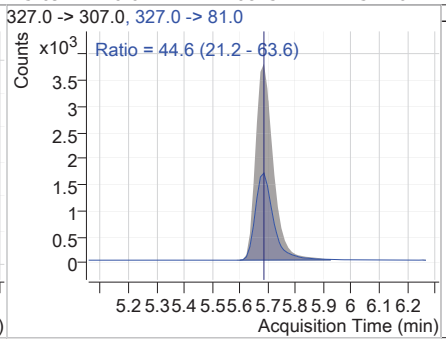
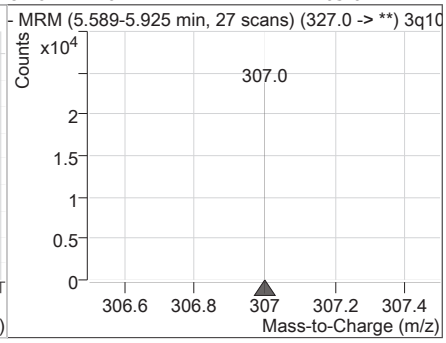
Perfluorinated Compounds by LC/MS/MS

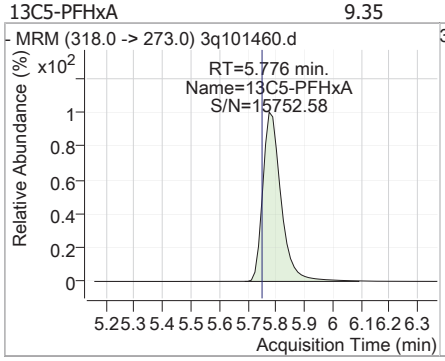
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	2.02	5.69	0.04	16873	327.0 -> 81.0	44.6	21.2	63.6

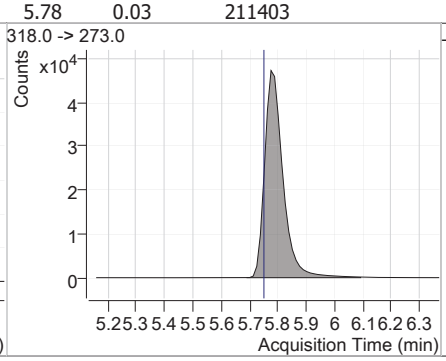


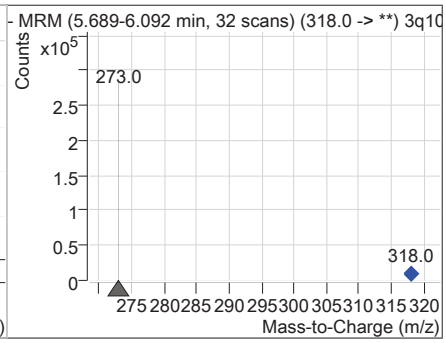




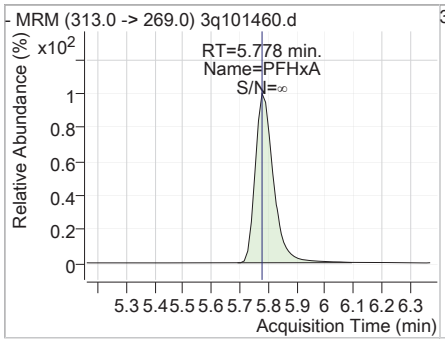
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	9.35	5.78	0.03	211403				

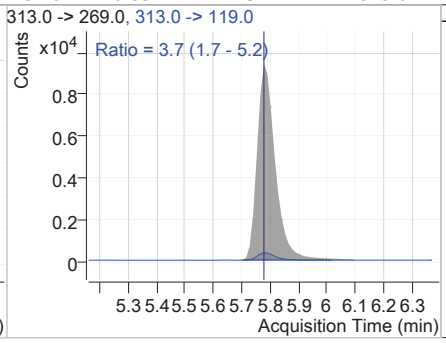


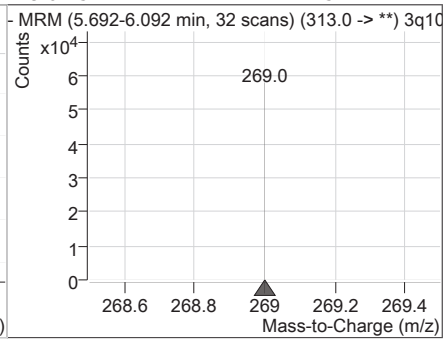




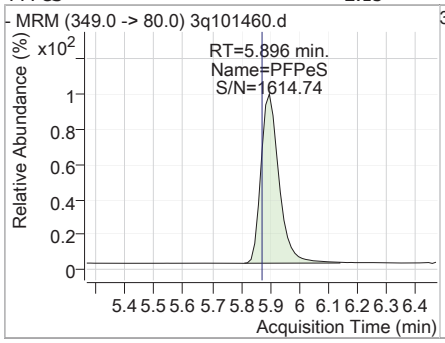
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.11	5.78	0.03	41941	313.0 -> 119.0	3.7	1.7	5.2

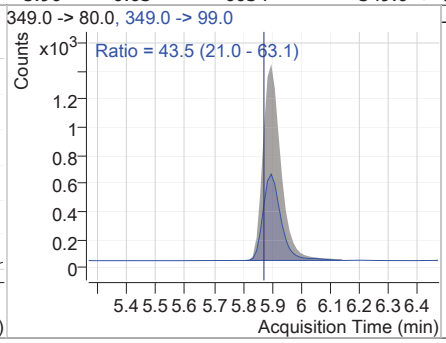


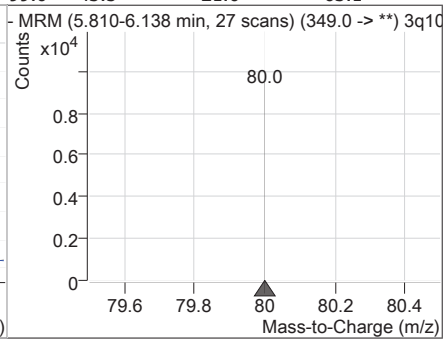




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.15	5.90	0.03	6034	349.0 -> 99.0	43.5	21.0	63.1





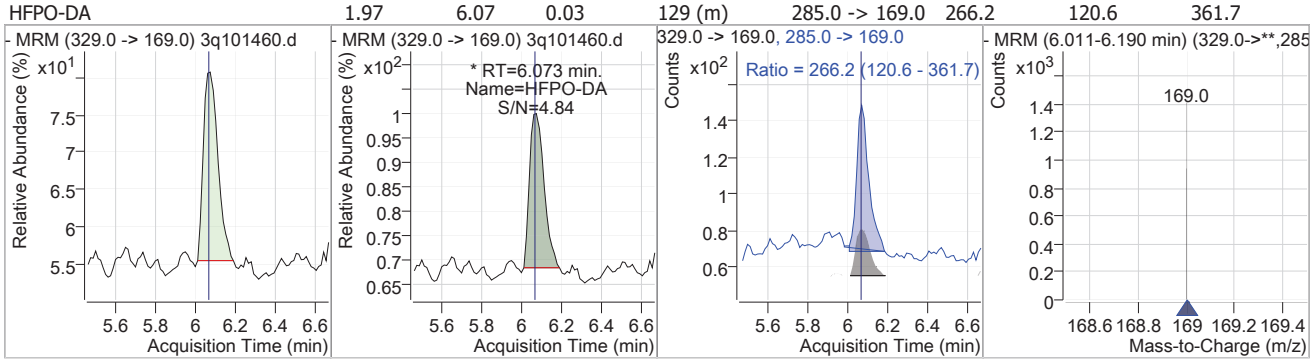


7.7.4

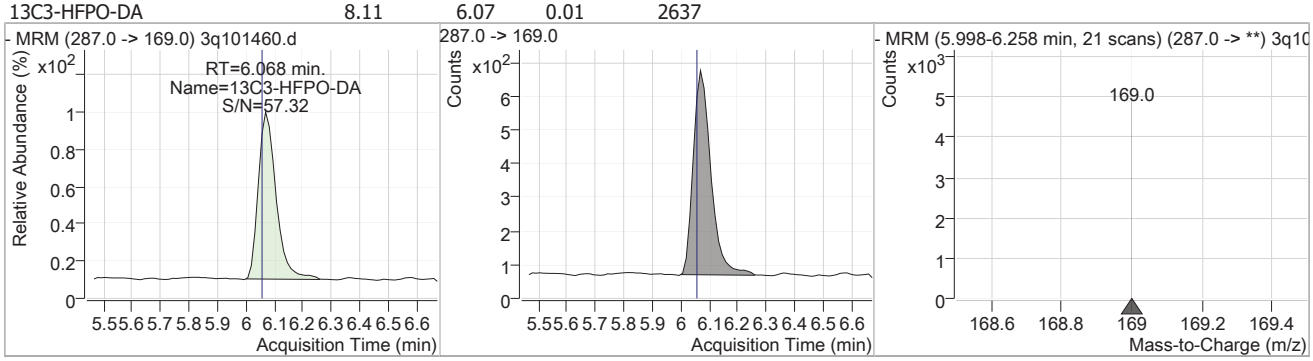
7

Perfluorinated Compounds by LC/MS/MS

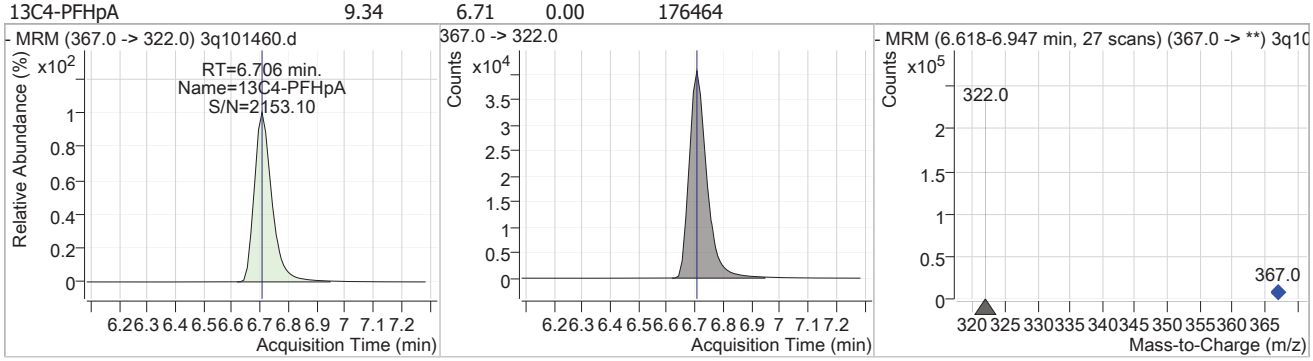
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	1.97	6.07	0.03	129 (m)	285.0 -> 169.0	266.2	120.6	361.7



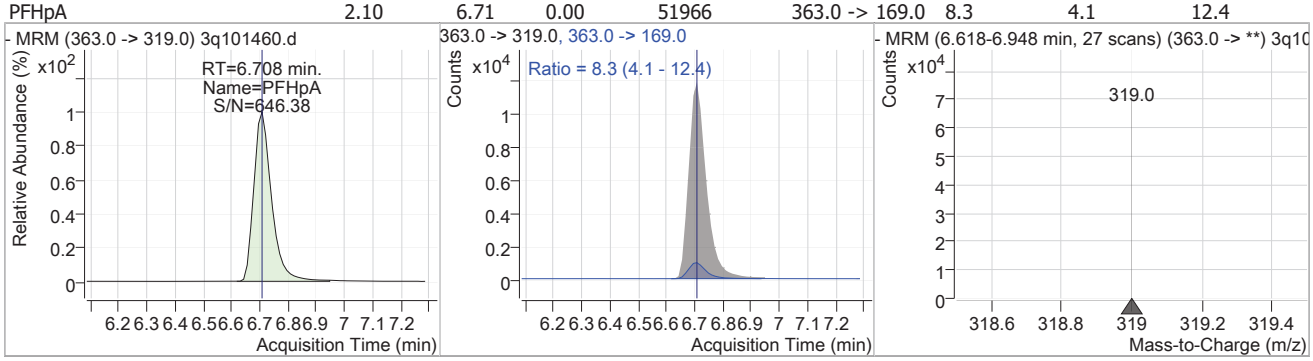
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.11	6.07	0.01	2637				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	9.34	6.71	0.00	176464				

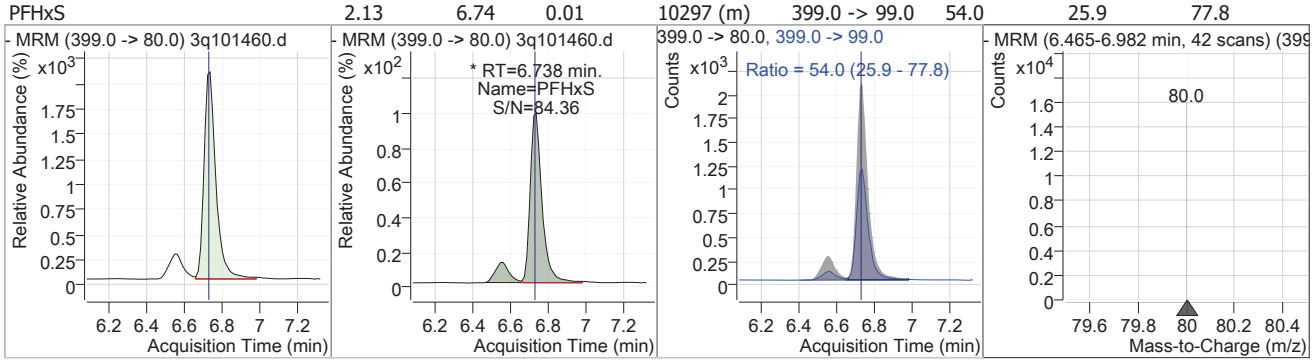


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.10	6.71	0.00	51966	363.0 -> 169.0	8.3	4.1	12.4

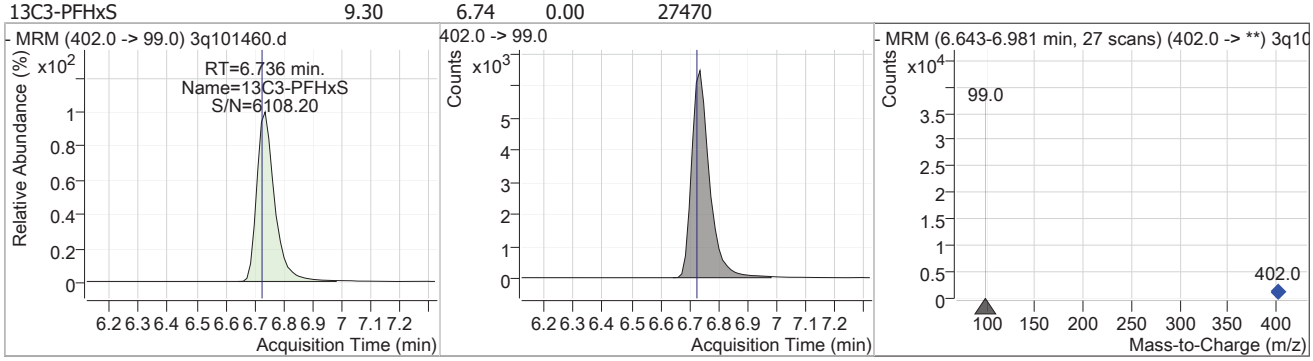


Perfluorinated Compounds by LC/MS/MS

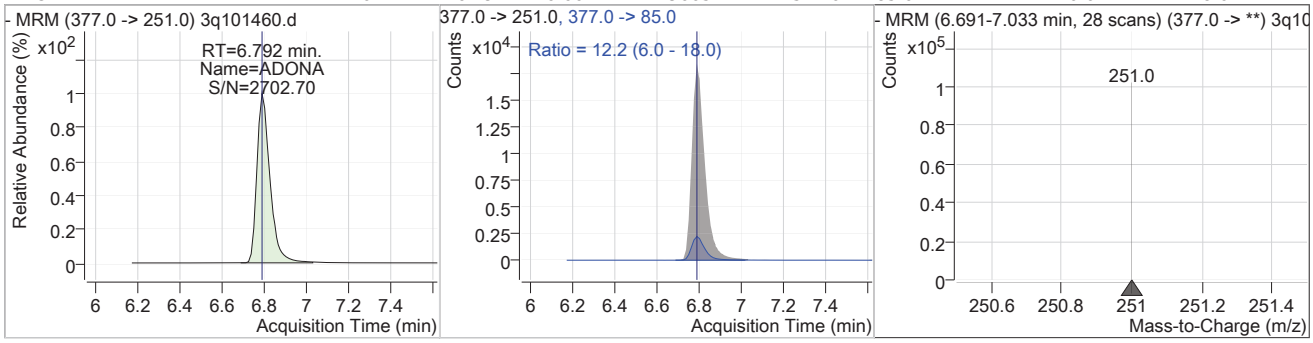
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.13	6.74	0.01	10297 (m)	399.0 -> 99.0	54.0	25.9	77.8



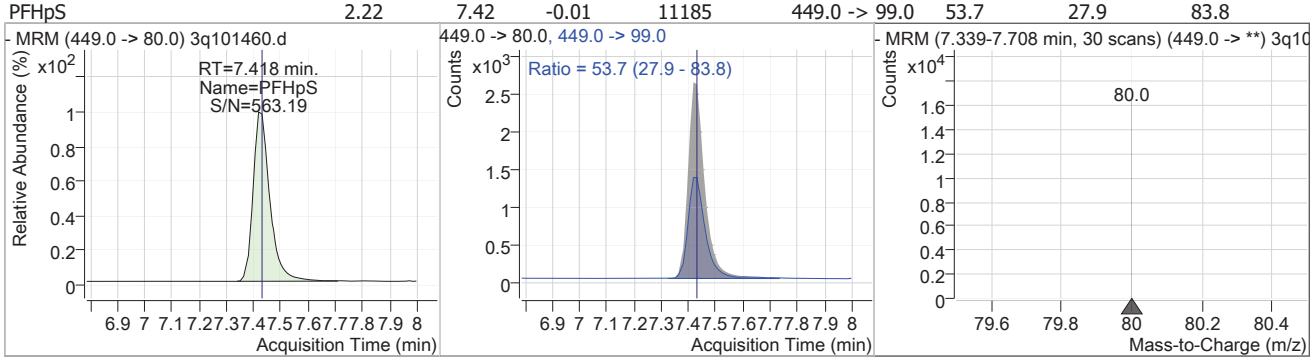
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	9.30	6.74	0.00	27470				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	2.07	6.79	0.00	79005	377.0 -> 85.0	12.2	6.0	18.0

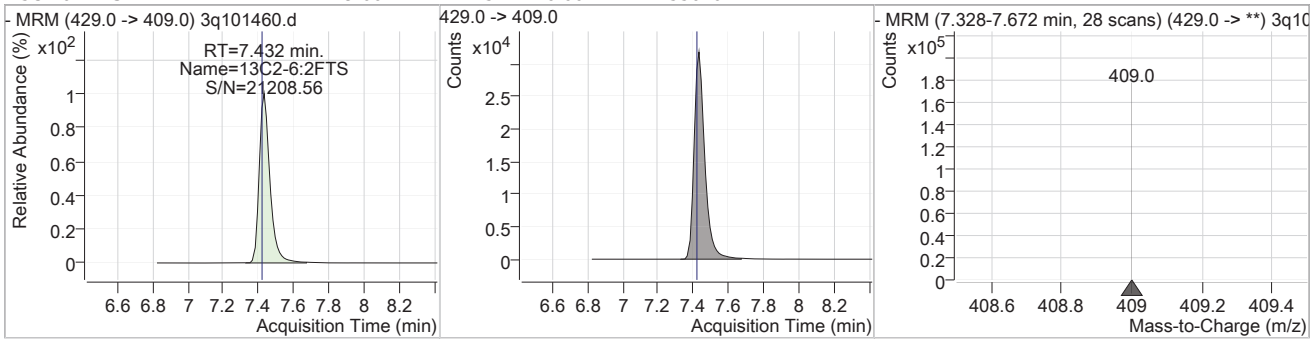


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.22	7.42	-0.01	11185	449.0 -> 99.0	53.7	27.9	83.8

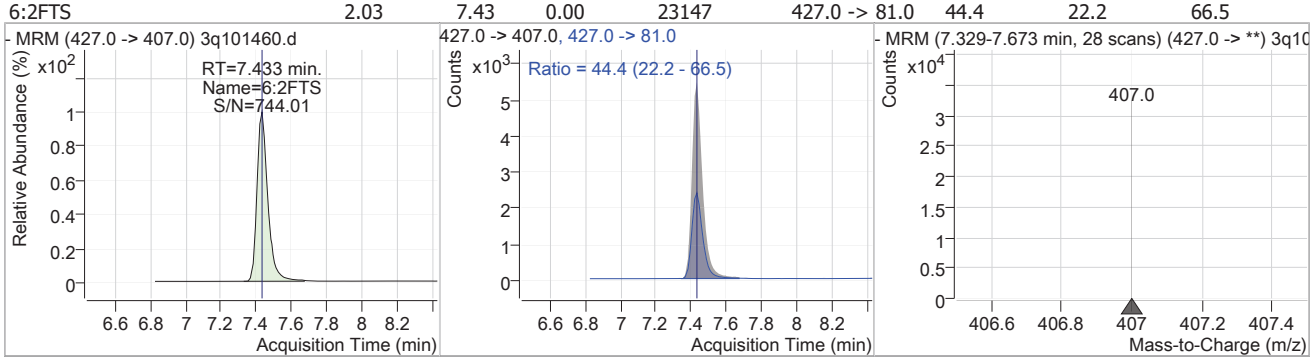


Perfluorinated Compounds by LC/MS/MS

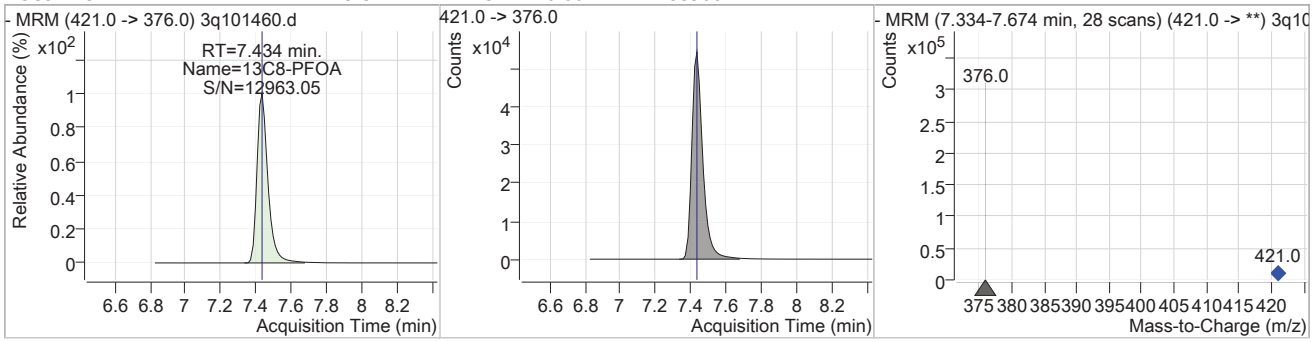
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	9.00	7.43	0.00	133670				



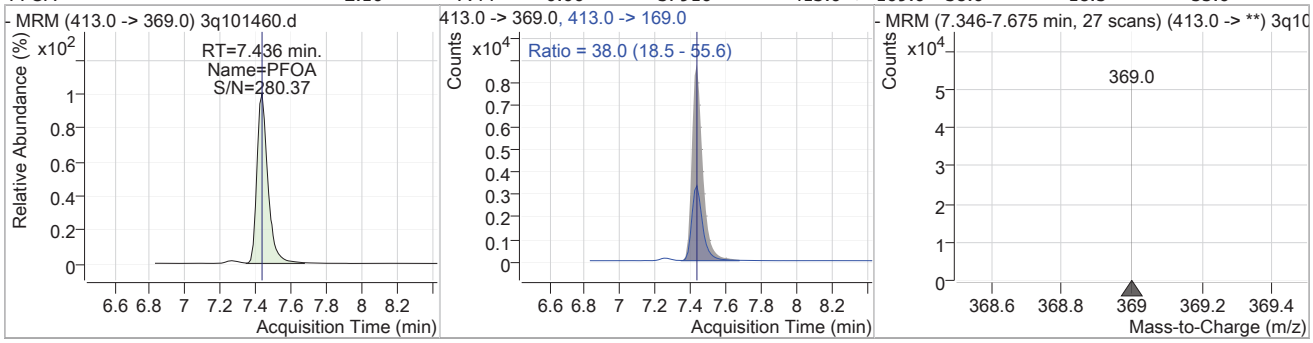
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	2.03	7.43	0.00	23147	427.0 -> 81.0	44.4	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	9.54	7.43	0.00	233908				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	2.10	7.44	0.00	37916	413.0 -> 169.0	38.0	18.5	55.6

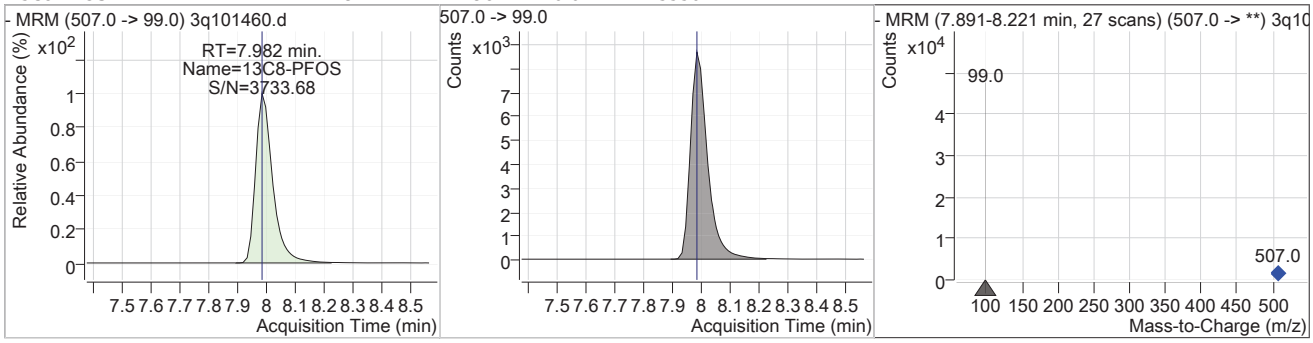


7.7.4

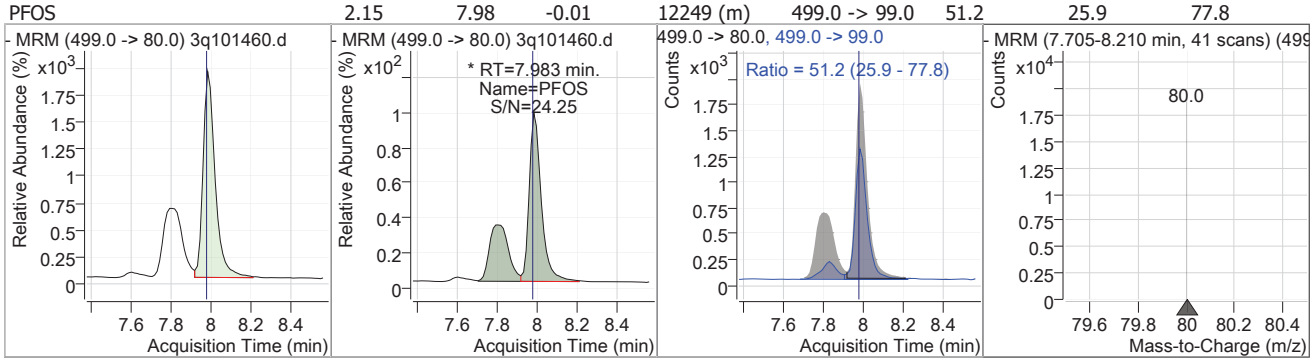
7

Perfluorinated Compounds by LC/MS/MS

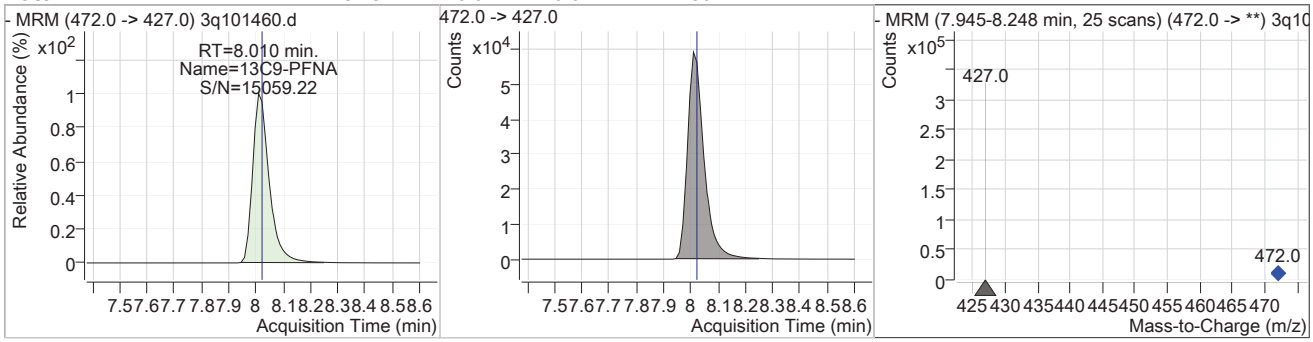
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	9.41	7.98	-0.01	35567				



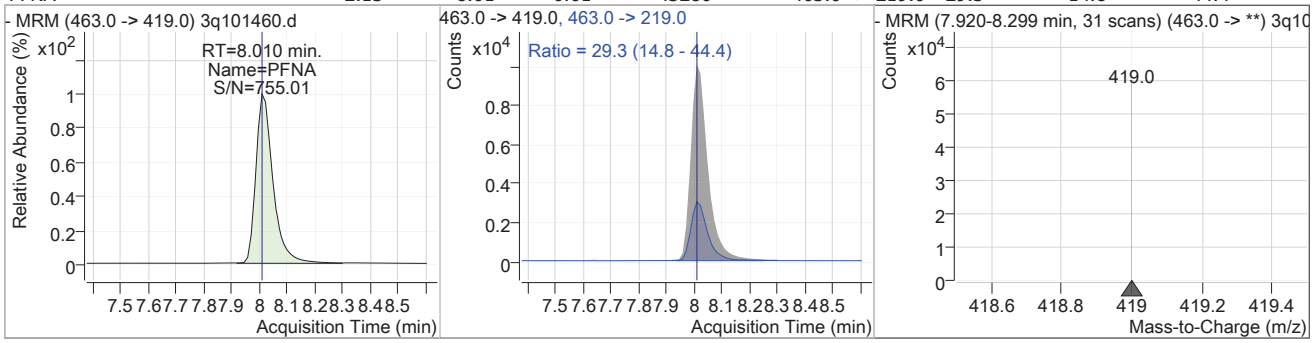
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.15	7.98	-0.01	12249 (m)	499.0 -> 99.0	51.2	25.9	77.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	9.29	8.01	-0.01	247567				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.13	8.01	-0.01	43280	463.0 -> 219.0	29.3	14.8	44.4

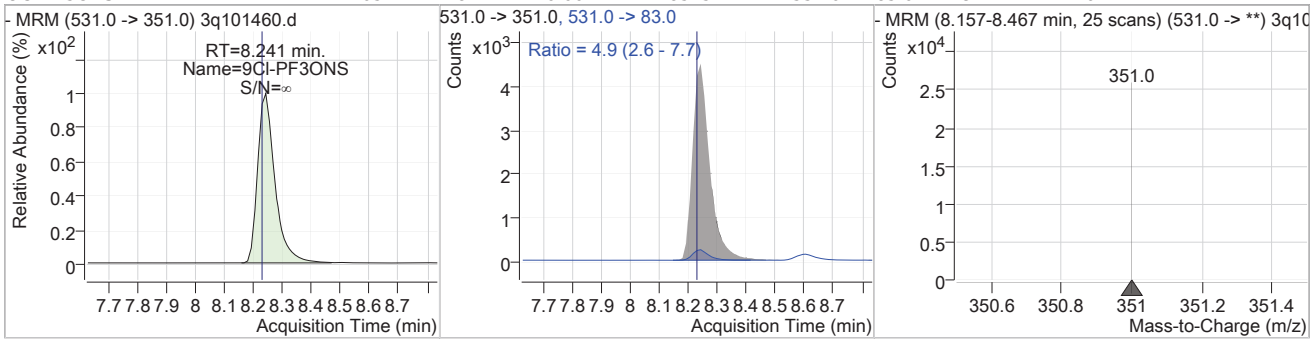


7.7.4

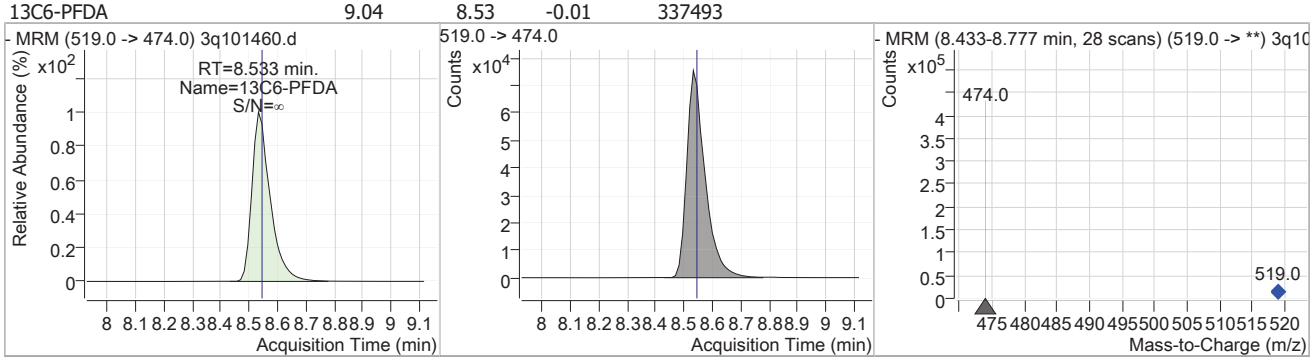
7

Perfluorinated Compounds by LC/MS/MS

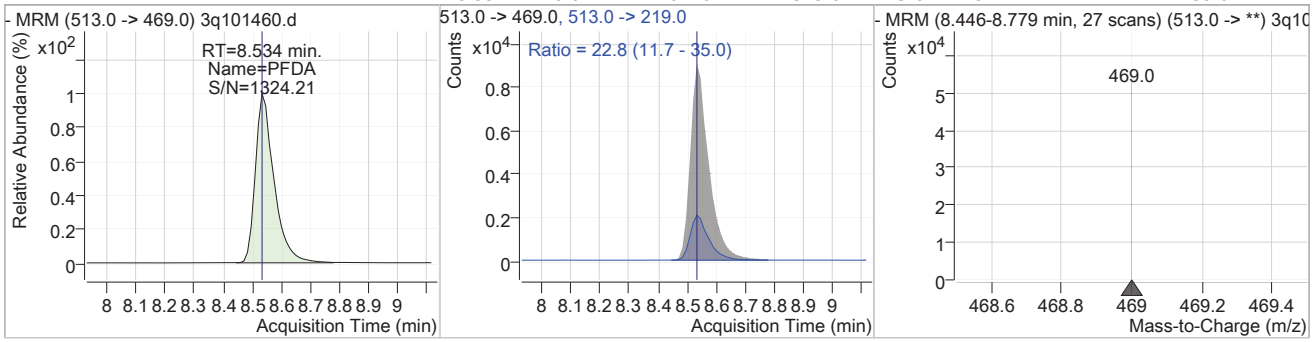
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	2.03	8.24	0.00	18575	531.0 -> 83.0	4.9	2.6	7.7



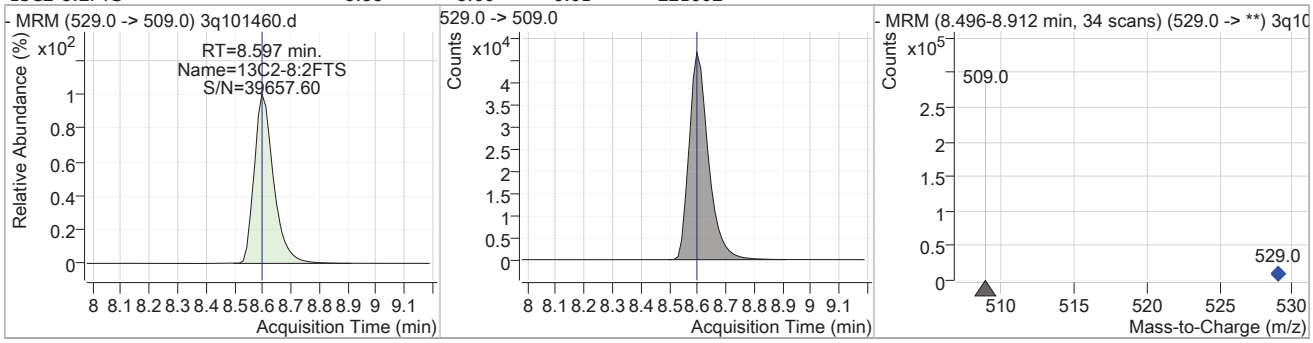
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	9.04	8.53	-0.01	337493				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.11	8.53	-0.01	40246	513.0 -> 219.0	22.8	11.7	35.0

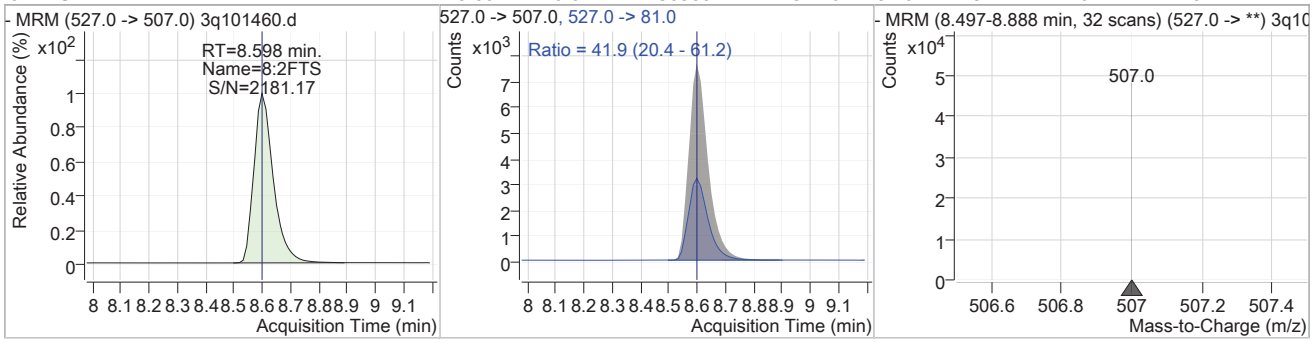


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	8.88	8.60	-0.01	221002				

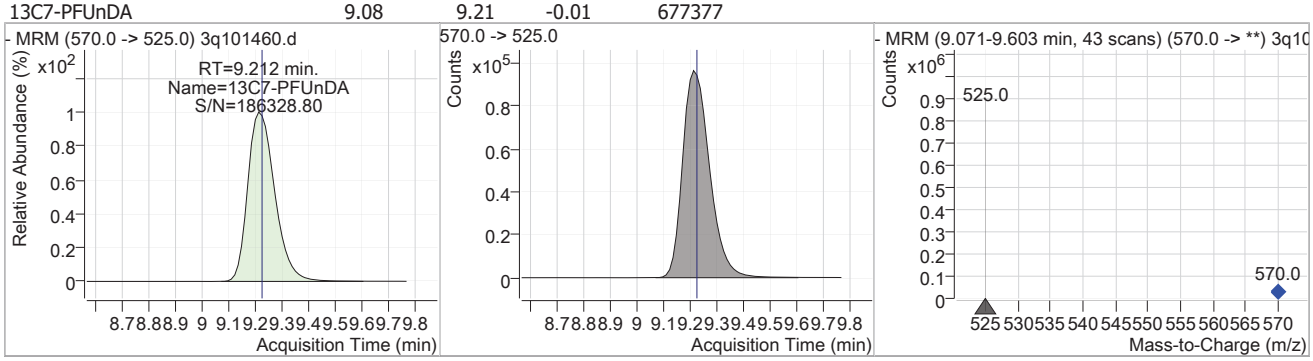


Perfluorinated Compounds by LC/MS/MS

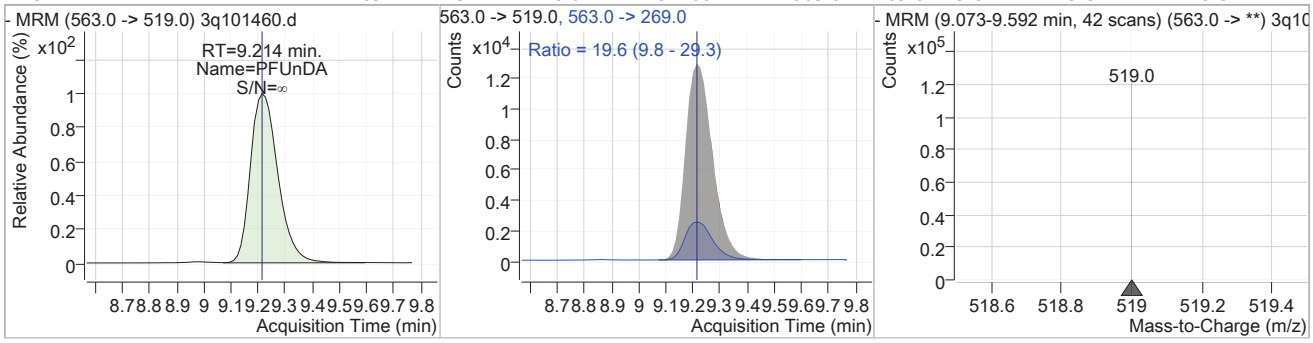
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	2.41	8.60	-0.01	36588	527.0 -> 81.0	41.9	20.4	61.2



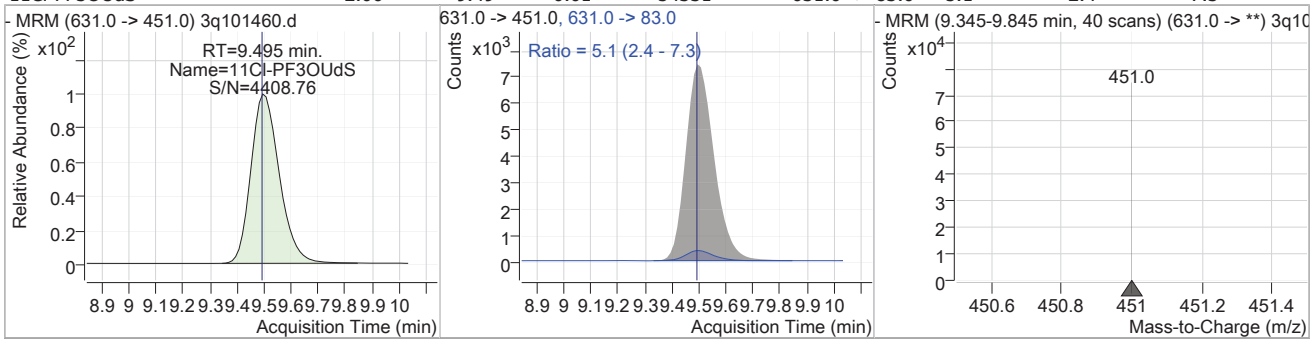
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	9.08	9.21	-0.01	677377				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.09	9.21	-0.01	91166	563.0 -> 269.0	19.6	9.8	29.3

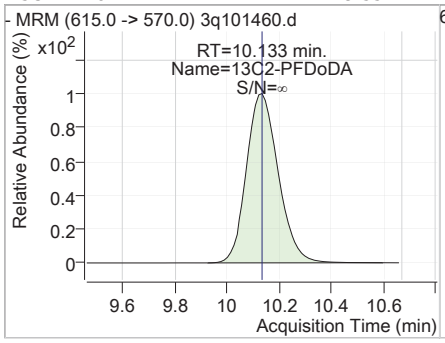


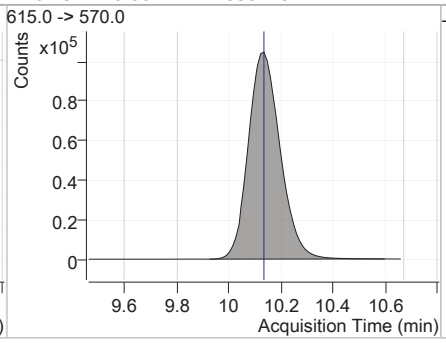
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	2.06	9.49	-0.01	54331	631.0 -> 83.0	5.1	2.4	7.3

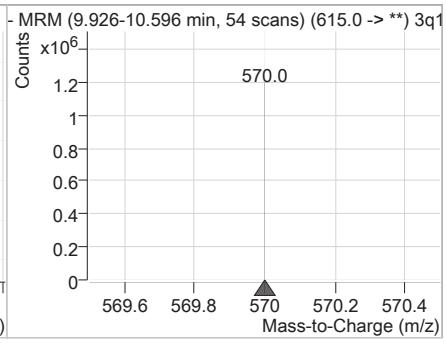


Perfluorinated Compounds by LC/MS/MS

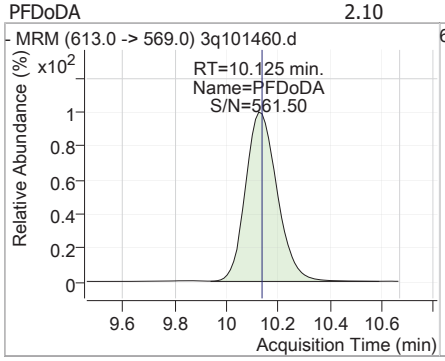
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	9.35	10.13	0.00	888748				

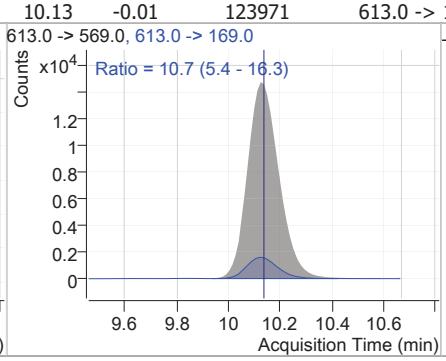


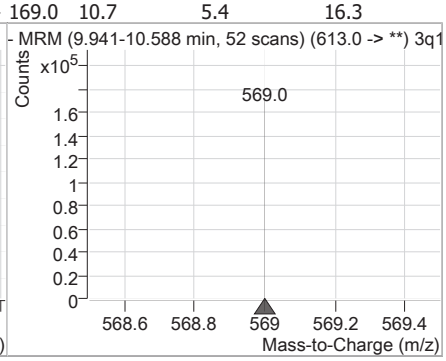




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	2.10	10.13	-0.01	123971	613.0 -> 169.0	10.7	5.4	16.3







7.7.4

7

Manual Integration Approval Summary

Sample Number:	S3Q1492-IC1492	**Method:**	EPA 533
Lab FileID:	3Q101460.D	**Analyst approved:**	04/16/25 08:55 (b) (6)
Injection Time:	04/15/25 14:36	**Supervisor approved:**	04/17/25 11:42 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
HFPO-DA (GenX)	13252-13-6		6.07	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		6.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:42

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101461.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 2:52:12 PM
Sample Name : ic1492-5
Vial : P1-C5
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.435	415.0 -> 370.0	220232	10.00 µg/L	0.000
13C3-PFBA	2.344	216.0 -> 172.0	84842	10.00 µg/L	0.213
13C4-PFOS	7.983	503.0 -> 80.0	32903	10.00 µg/L	-0.013
M4-PFBA	2.352	217.0 -> 172.0	136533	10.00 µg/L	0.213
M5-PFPeA	4.425	268.0 -> 223.0	164287	10.00 µg/L	0.088
M5-PFHxA	5.776	318.0 -> 273.0	207309	10.00 µg/L	0.025
M4-PFHpA	6.706	367.0 -> 322.0	174977	10.00 µg/L	0.000
M8-PFOA	7.434	421.0 -> 376.0	229668	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	248260	10.00 µg/L	-0.013
M6-PFDA	8.533	519.0 -> 474.0	347139	10.00 µg/L	-0.013
M7-PFUnDA	9.212	570.0 -> 525.0	686174	10.00 µg/L	-0.013
M2-PFDoDA	10.108	615.0 -> 570.0	871008	10.00 µg/L	-0.025
M3-PFBS	4.721	302.0 -> 99.0	19082	10.00 µg/L	0.075
M3-PFHxS	6.736	402.0 -> 99.0	27566	10.00 µg/L	0.000
M8-PFOS	7.982	507.0 -> 99.0	34814	10.00 µg/L	-0.013
M2-4:2FTS	5.684	329.0 -> 309.0	69072	10.00 µg/L	0.038
M2-6:2FTS	7.432	429.0 -> 409.0	131890	10.00 µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	225003	10.00 µg/L	-0.014
M3-HFPO-DA	6.069	287.0 -> 169.0	2856	10.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.684	329.0 -> 309.0	69072	8.82 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.2%	
13C2-6:2FTS	7.432	429.0 -> 409.0	131895	8.97 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.7%	
13C2-8:2FTS	8.597	529.0 -> 509.0	225003	9.13 µg/L	-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.3%	
13C2-PFDoDA	10.108	615.0 -> 570.0	871008	9.29 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.9%	
13C3-PFBS	4.721	302.0 -> 99.0	19082	9.29 µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.9%	
13C3-PFHxS	6.736	402.0 -> 99.0	27566	9.43 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C4-PFBA	2.352	217.0 -> 172.0	136533	9.49 µg/L	0.213
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.9%	
13C4-PFHpA	6.706	367.0 -> 322.0	174977	9.39 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.9%	
13C5-PFHxA	5.776	318.0 -> 273.0	207309	9.29 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.9%	
13C5-PFPeA	4.425	268.0 -> 223.0	164287	9.47 µg/L	0.088
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.7%	
13C6-PFDA	8.533	519.0 -> 474.0	347139	9.42 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.2%	
13C7-PFUnDA	9.212	570.0 -> 525.0	686174	9.32 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.2%	
13C8-PFOA	7.434	421.0 -> 376.0	229668	9.49 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

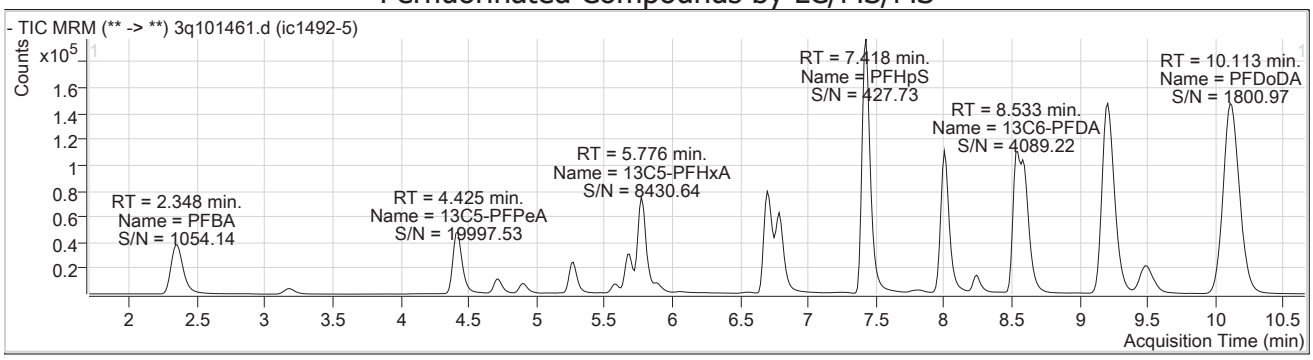
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.9%		
13C8-PFOS	7.982	507.0 -> 99.0	34814	9.30 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.0%		
13C9-PFNA	8.010	472.0 -> 427.0	248260	9.44 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.4%		
13C3-HFPO-DA	6.069	287.0 -> 169.0	2856	8.90 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.0%		
Target Compounds						QValue
PFMPA	3.178	229.0 -> 85.0	24689	5.58 µg/L		100
4:2FTS	5.674	327.0 -> 307.0	44878	5.45 µg/L		99
		327.0 -> 81.0	19175			
6:2FTS	7.433	427.0 -> 407.0	60024	5.42 µg/L		99
		427.0 -> 81.0	26367			
8:2FTS	8.598	527.0 -> 507.0	99543	6.44 µg/L		99
		527.0 -> 81.0	40267			
PFMBA	4.901	279.0 -> 85.0	34128	5.63 µg/L		100
PFEESA	5.274	315.0 -> 135.0	96268	5.59 µg/L		100
		315.0 -> 69.0	7396			
NFDHA	5.594	201.0 -> 85.0	28749	5.54 µg/L		98
		295.0 -> 201.0	2006			
PFBA	2.348	213.0 -> 169.0	20911	5.54 µg/L		100
PFBS	4.710	299.0 -> 80.0	21420	5.55 µg/L		98
		299.0 -> 99.0	9332			
PFDA	8.534	513.0 -> 469.0	109780	5.59 µg/L		100
		513.0 -> 219.0	25774			
PFDoDA	10.113	613.0 -> 569.0	323275	5.58 µg/L		99
		613.0 -> 169.0	34624			
PFHpA	6.708	363.0 -> 319.0	136888	5.58 µg/L		100
		363.0 -> 169.0	11483			
PFHpS	7.418	449.0 -> 80.0	28558	5.66 µg/L		99
		449.0 -> 99.0	15725			
PFHxA	5.778	313.0 -> 269.0	108978	5.58 µg/L		100
		313.0 -> 119.0	3757			
PFHxS	6.738	399.0 -> 80.0	27041	5.57 µg/L	m	99
		399.0 -> 99.0	14241			
PFNA	8.010	463.0 -> 419.0	113072	5.56 µg/L		100
		463.0 -> 219.0	33718			
PFOA	7.436	413.0 -> 369.0	99004	5.59 µg/L		100
		413.0 -> 169.0	36460			
PFOS	7.983	499.0 -> 80.0	31220	5.61 µg/L	m	98
		499.0 -> 99.0	15843			
PFPeA	4.427	263.0 -> 219.0	68867	5.56 µg/L		100
PFPeS	5.883	349.0 -> 80.0	15984	5.68 µg/L		100
		349.0 -> 99.0	6689			
PFUnDA	9.214	563.0 -> 519.0	245356	5.55 µg/L		100
		563.0 -> 269.0	47606			
11Cl-PF3OUdS	9.482	631.0 -> 451.0	143430	5.55 µg/L		100
		631.0 -> 83.0	7175			
9Cl-PF3ONS	8.241	531.0 -> 351.0	50540	5.64 µg/L		99
		531.0 -> 83.0	2690			
ADONA	6.792	377.0 -> 251.0	210272	5.55 µg/L		100
		377.0 -> 85.0	25048			
HFPO-DA	6.073	329.0 -> 169.0	409	5.89 µg/L		72
		285.0 -> 169.0	790			

 # = Qualifier out of range, m = manually integrated, + = Area summed

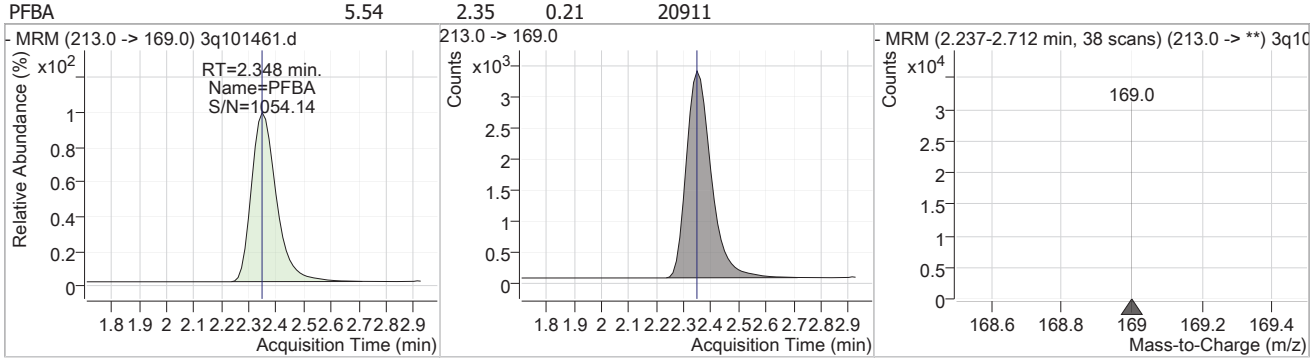
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

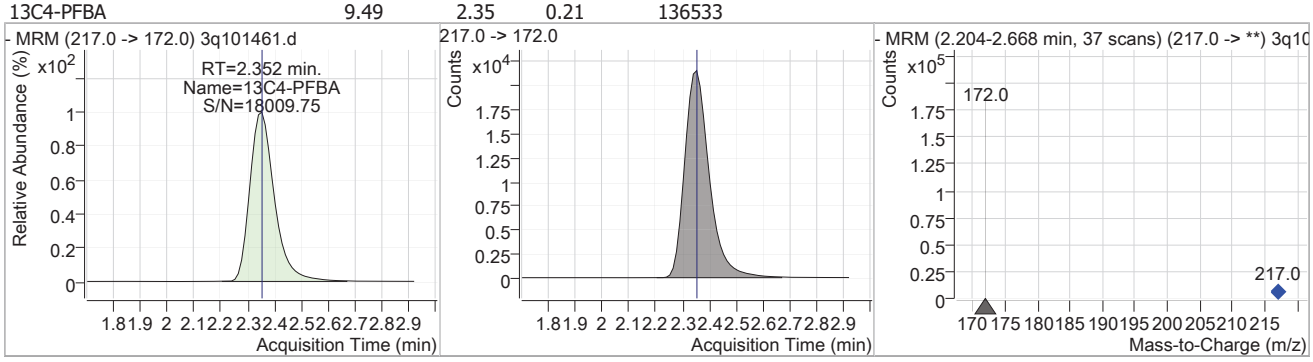
Perfluorinated Compounds by LC/MS/MS



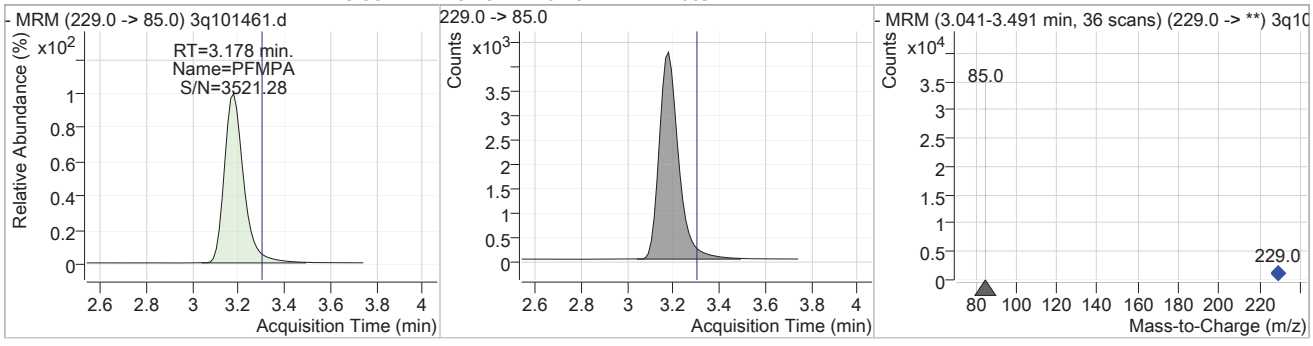
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	5.54	2.35	0.21	20911				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	9.49	2.35	0.21	136533				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	5.58	3.18	0.18	24689				

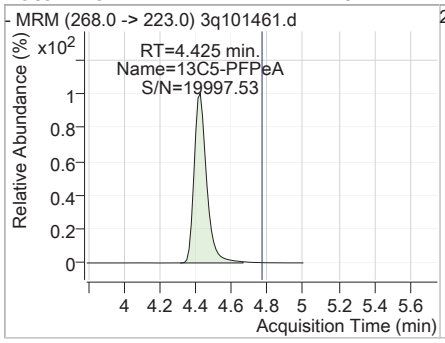


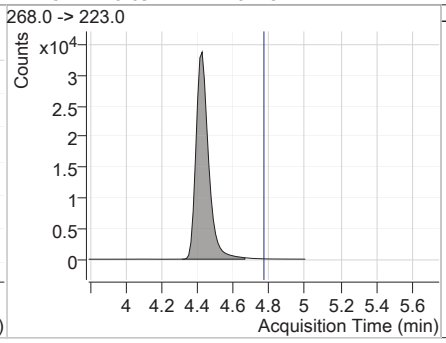
7.7.5

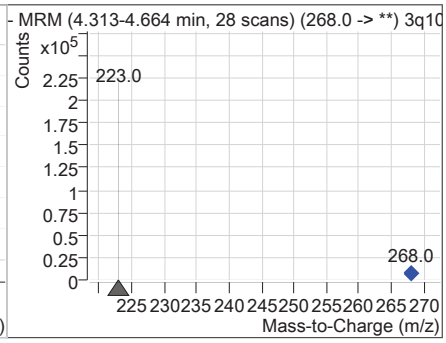
7

Perfluorinated Compounds by LC/MS/MS

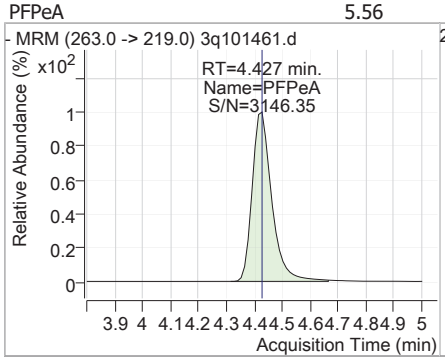
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	9.47	4.43	0.09	164287				

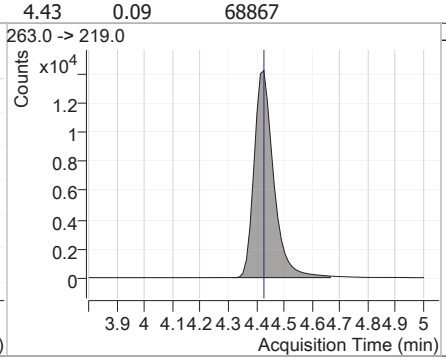


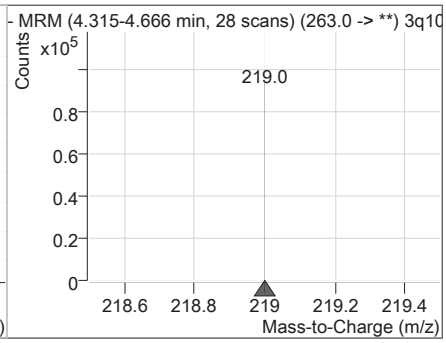




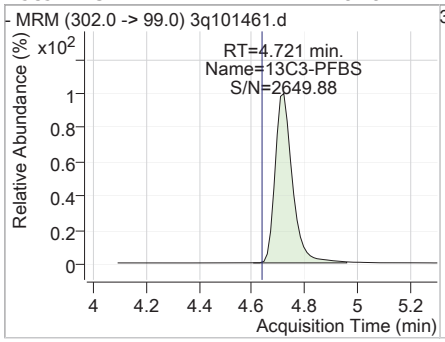
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	5.56	4.43	0.09	68867				

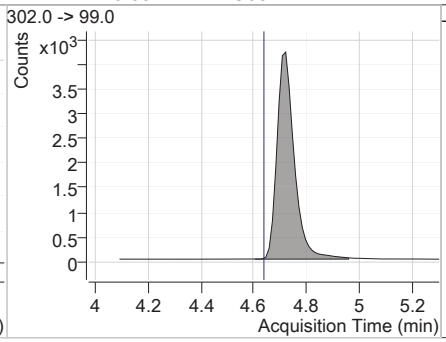


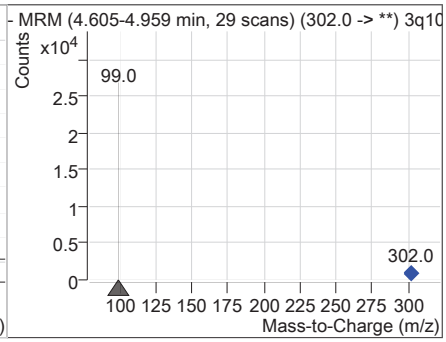




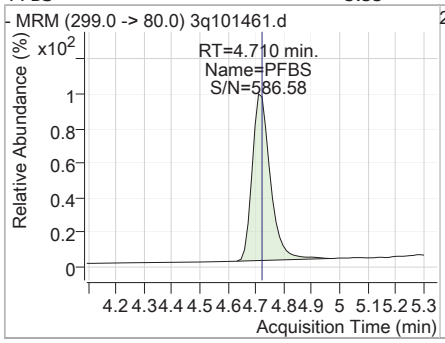
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	9.29	4.72	0.08	19082				

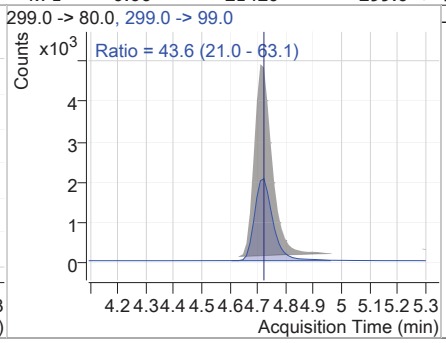


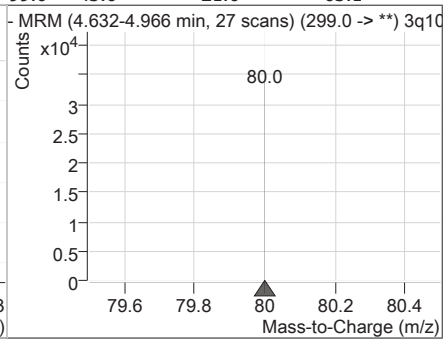




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	5.55	4.71	0.06	21420	299.0 -> 99.0	43.6	21.0	63.1

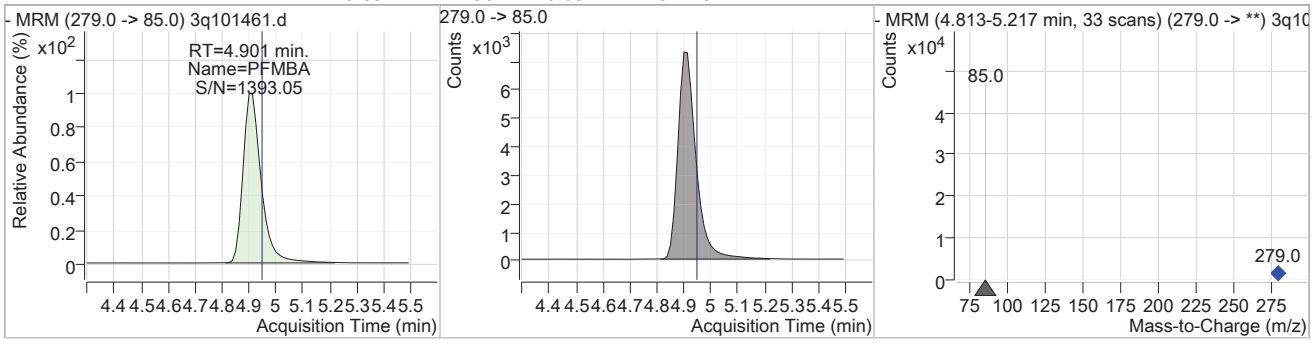




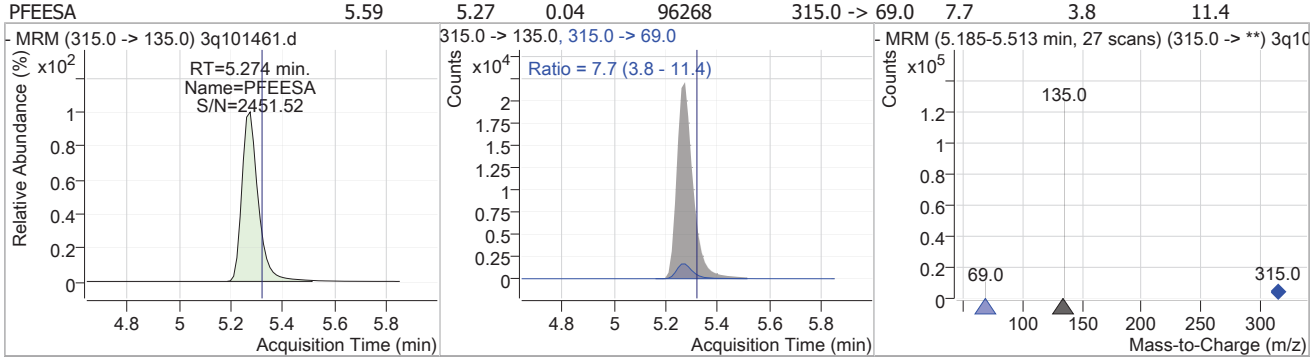


Perfluorinated Compounds by LC/MS/MS

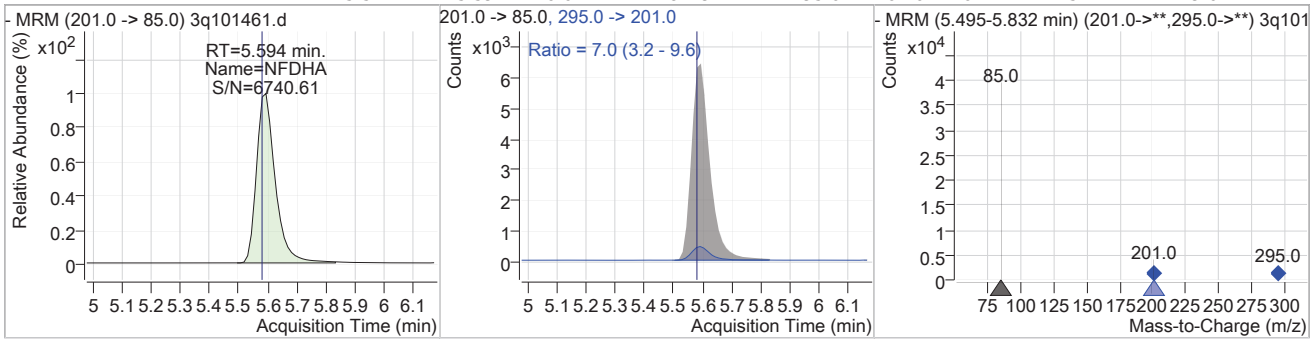
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	5.63	4.90	0.05	34128				



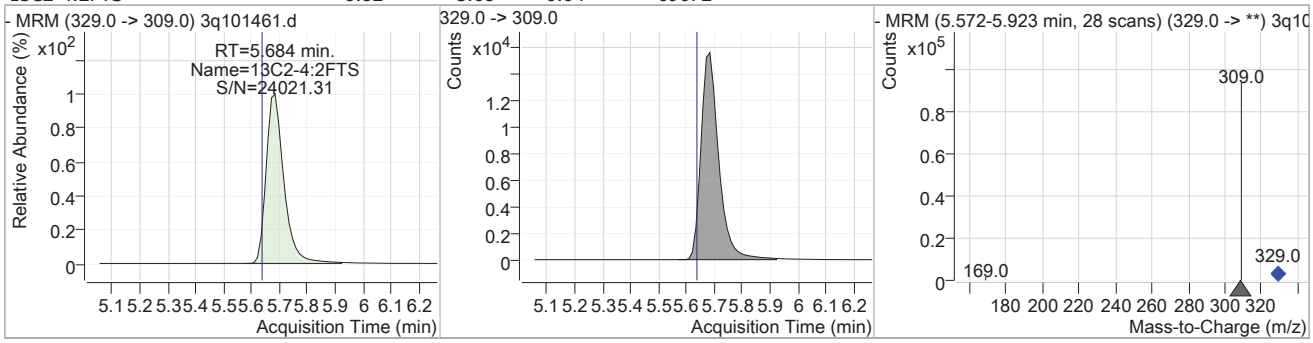
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	5.59	5.27	0.04	96268	315.0 -> 69.0	7.7	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	5.54	5.59	0.04	28749	295.0 -> 201.0	7.0	3.2	9.6



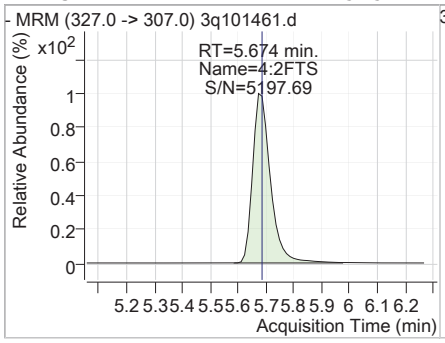
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	8.82	5.68	0.04	69072				

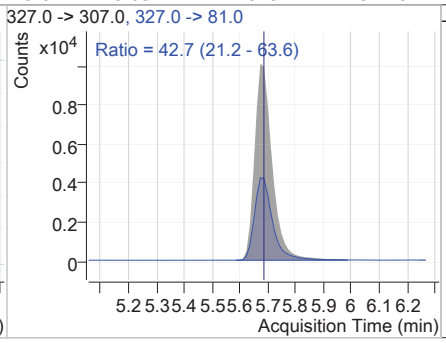


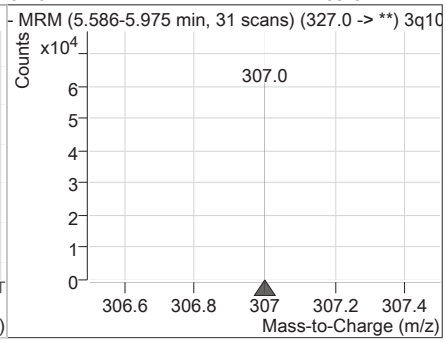
7.7.5

Perfluorinated Compounds by LC/MS/MS

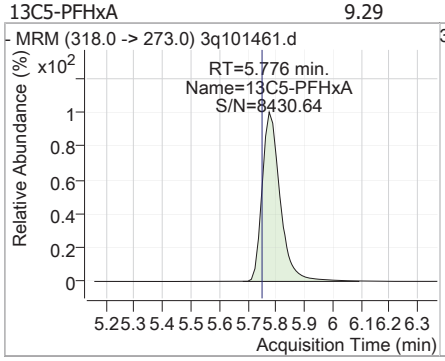
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	5.45	5.67	0.03	44878	327.0 -> 81.0	42.7	21.2	63.6

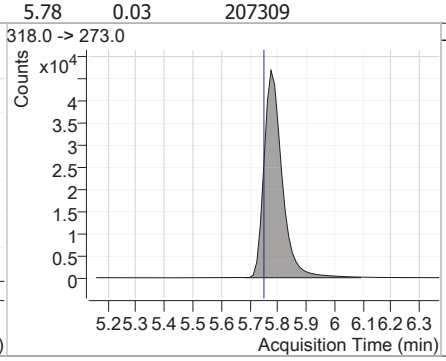


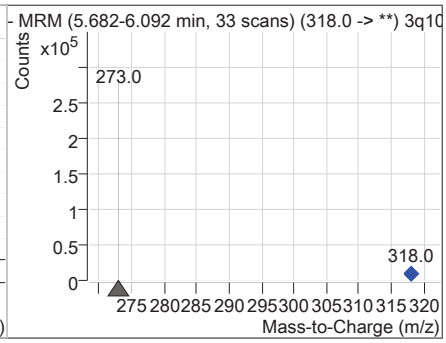




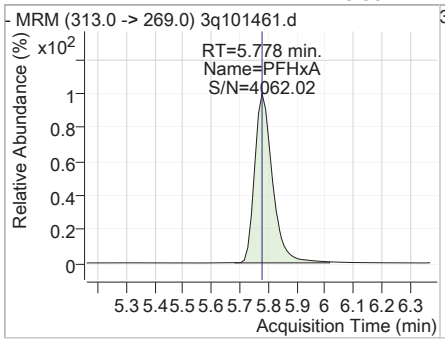
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	9.29	5.78	0.03	207309				

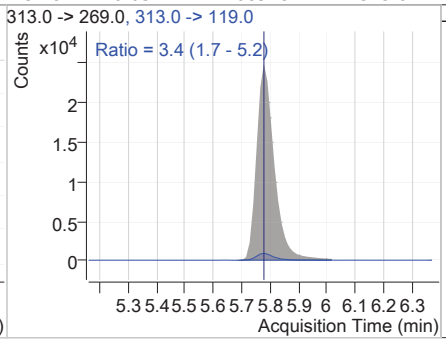


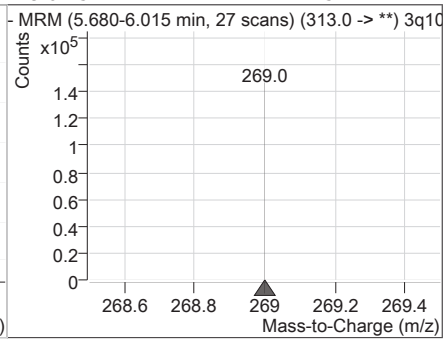




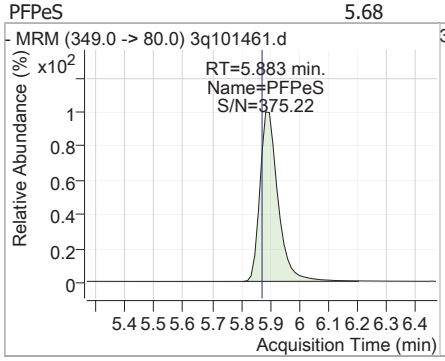
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	5.58	5.78	0.03	108978	313.0 -> 119.0	3.4	1.7	5.2

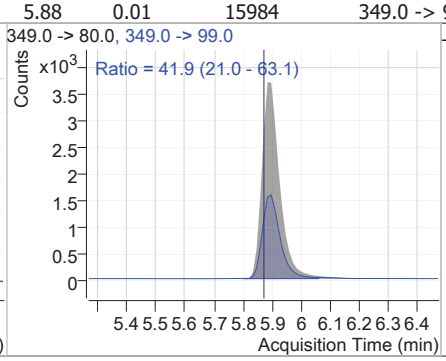


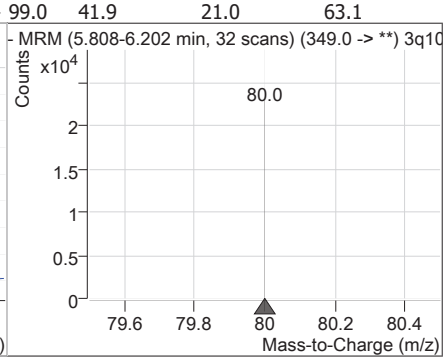




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	5.68	5.88	0.01	15984	349.0 -> 99.0	41.9	21.0	63.1



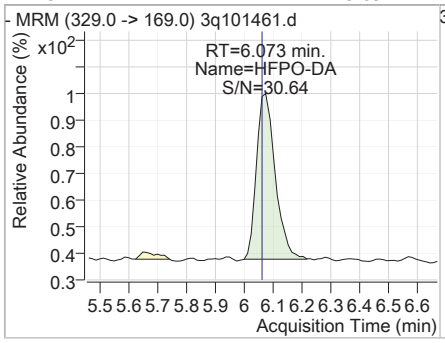


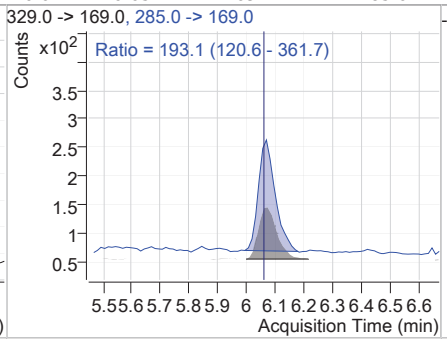


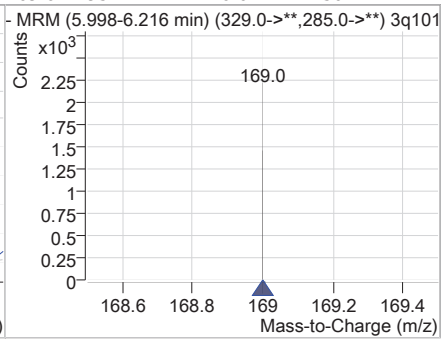
7.7.5

Perfluorinated Compounds by LC/MS/MS

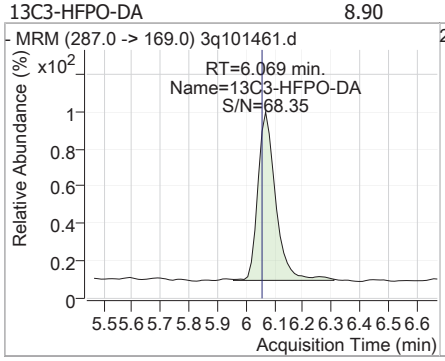
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.89	6.07	0.03	409	285.0 -> 169.0	193.1	120.6	361.7

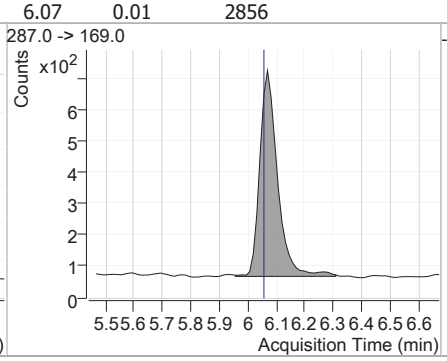


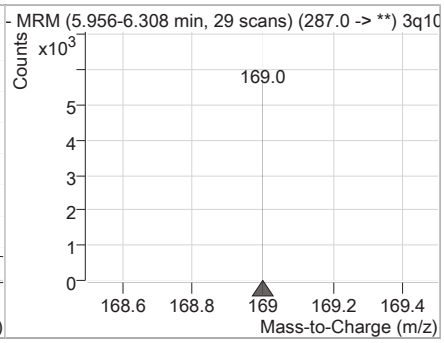




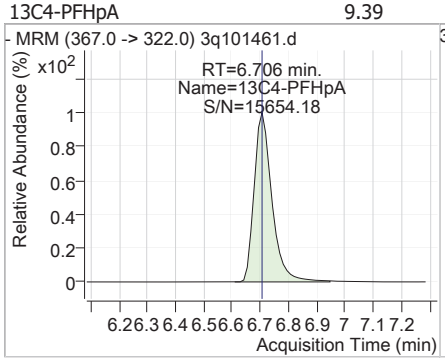
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.90	6.07	0.01	2856				

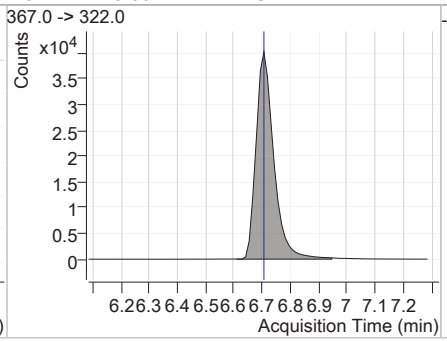


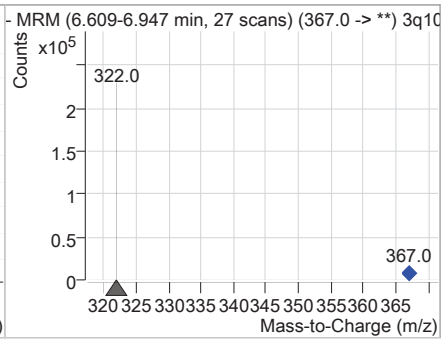




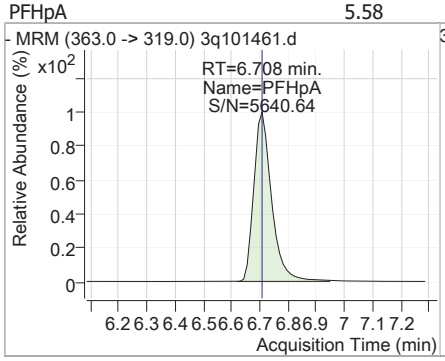
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	9.39	6.71	0.00	174977				

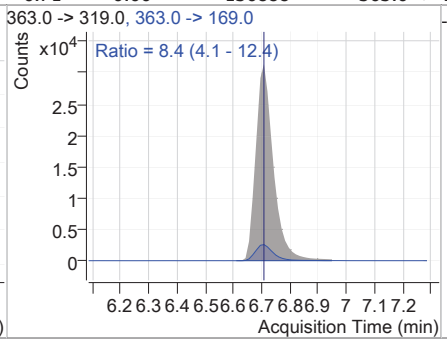


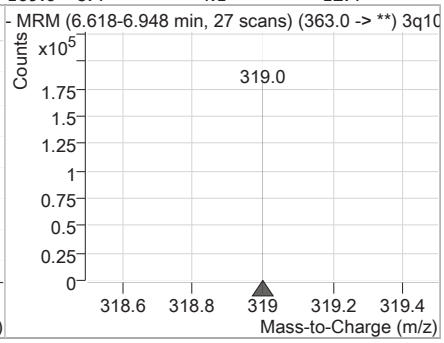




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	5.58	6.71	0.00	136888	363.0 -> 169.0	8.4	4.1	12.4

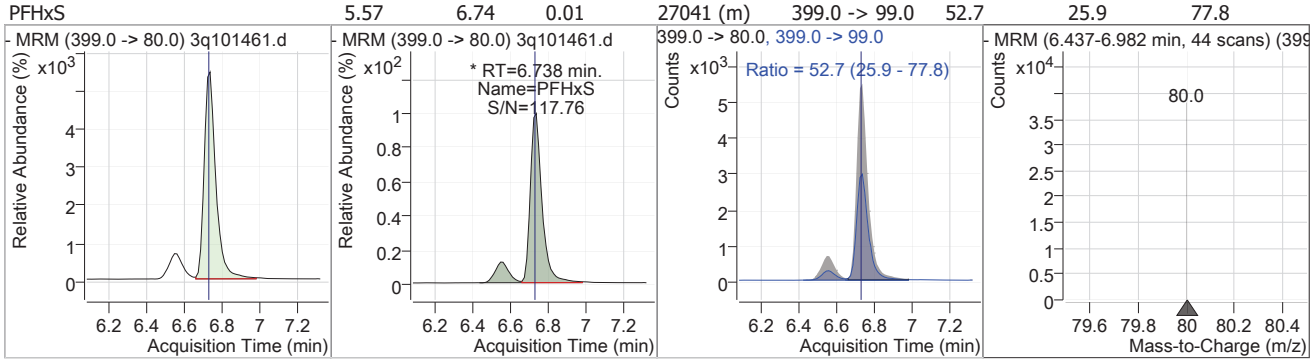




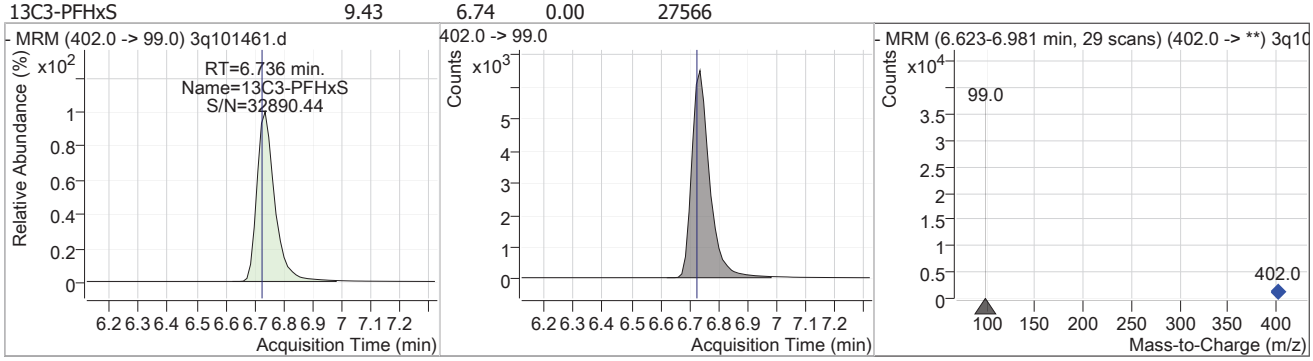


Perfluorinated Compounds by LC/MS/MS

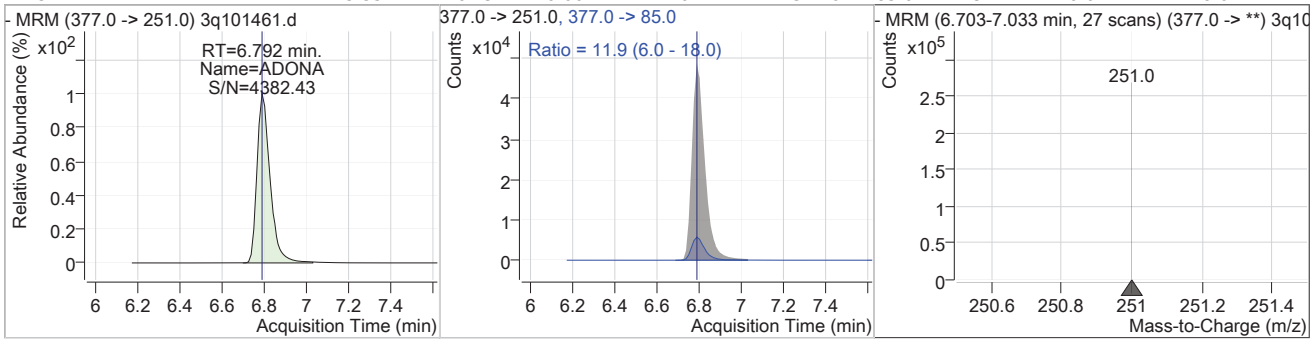
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	5.57	6.74	0.01	27041 (m)	399.0 -> 99.0	52.7	25.9	77.8



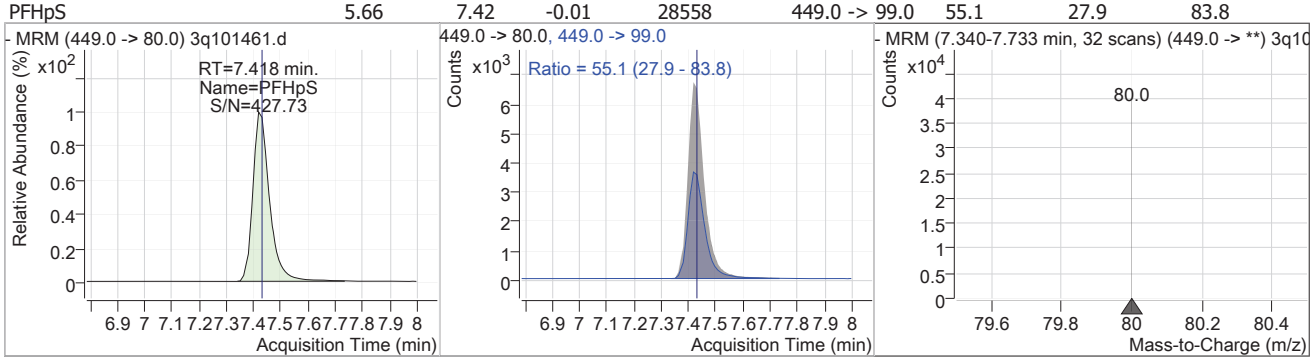
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	9.43	6.74	0.00	27566				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	5.55	6.79	0.00	210272	377.0 -> 85.0	11.9	6.0	18.0

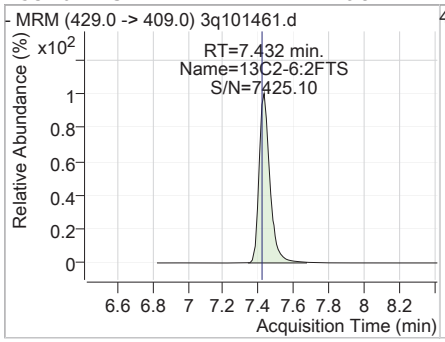


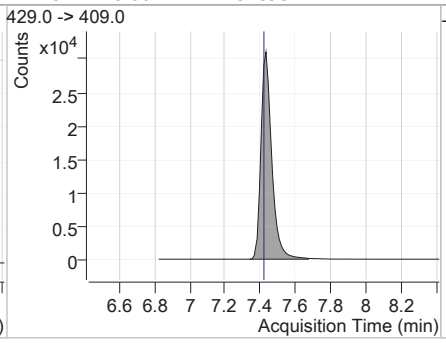
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	5.66	7.42	-0.01	28558	449.0 -> 99.0	55.1	27.9	83.8

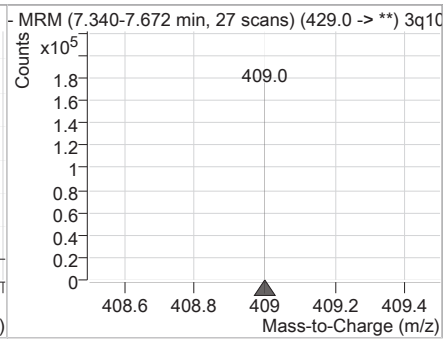


Perfluorinated Compounds by LC/MS/MS

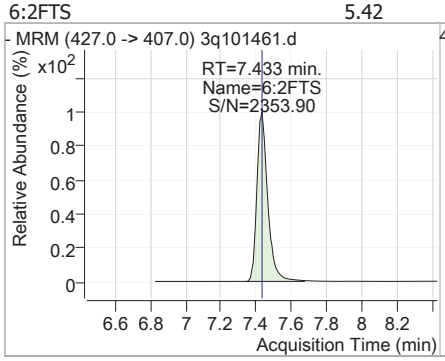
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	8.97	7.43	0.00	131895				

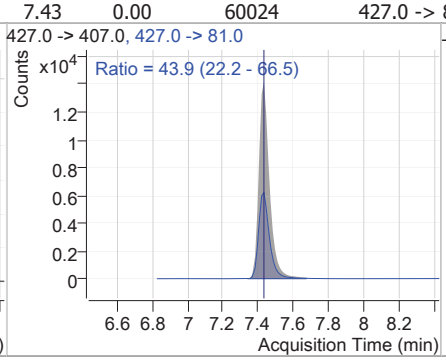


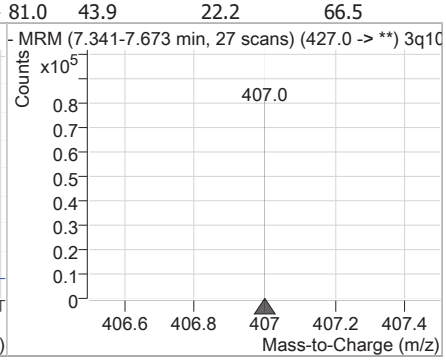




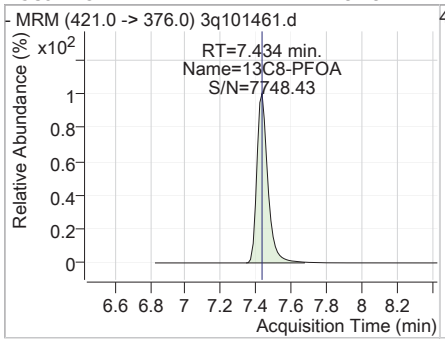
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	5.42	7.43	0.00	60024	427.0 -> 81.0	43.9	22.2	66.5

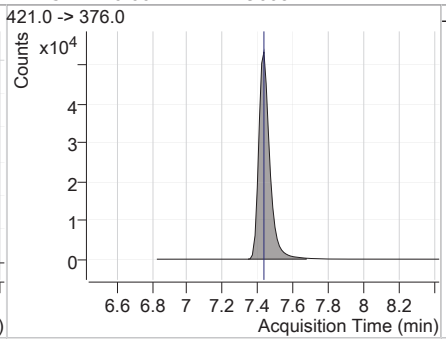


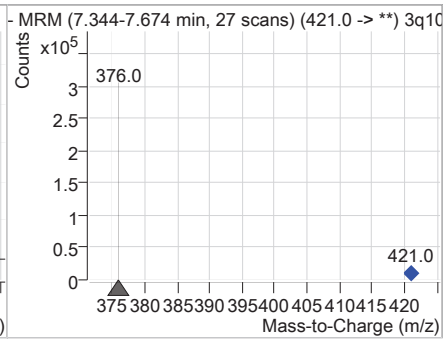




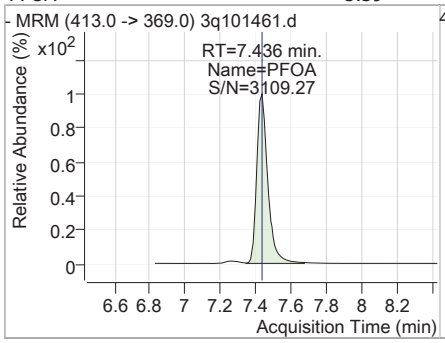
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	9.49	7.43	0.00	229668				

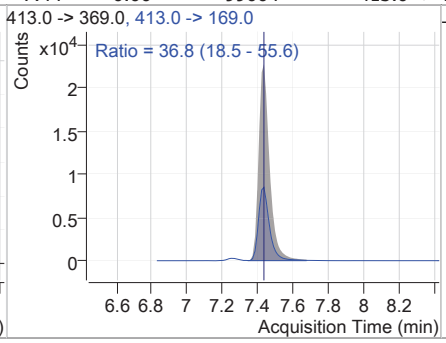


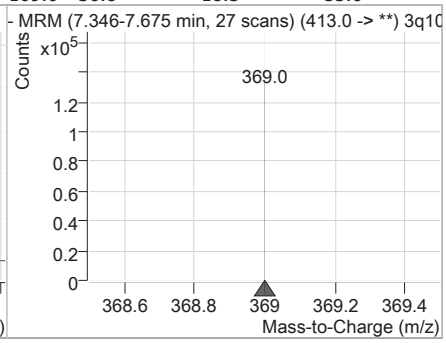




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	5.59	7.44	0.00	99004	413.0 -> 169.0	36.8	18.5	55.6







7.7.5

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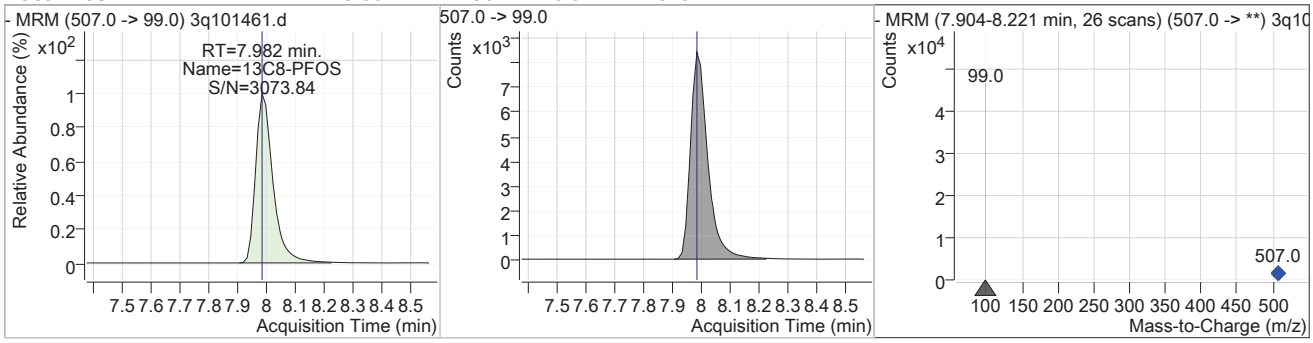
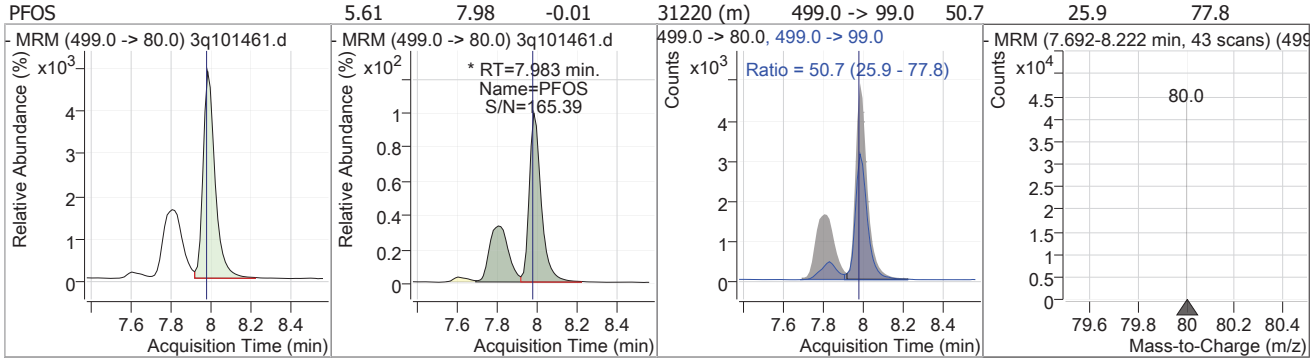
Perfluorinated Compounds by LC/MS/MS

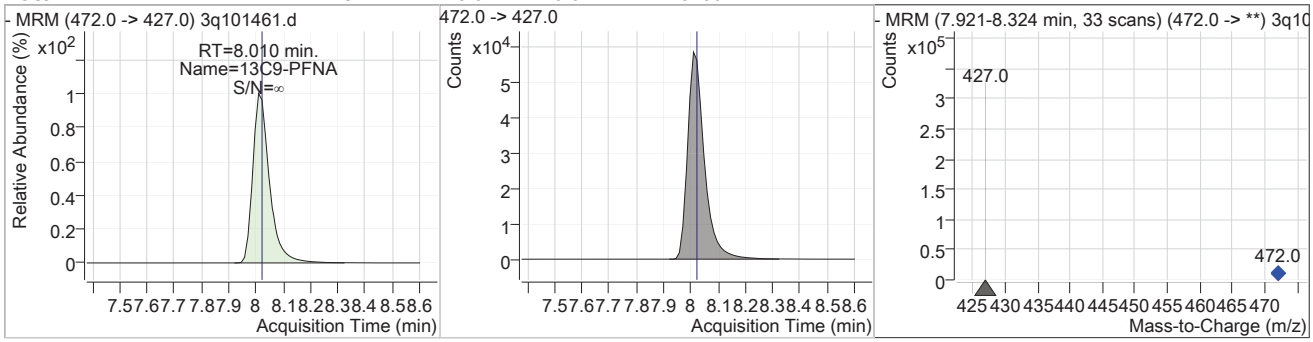
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	9.30	7.98	-0.01	34814				



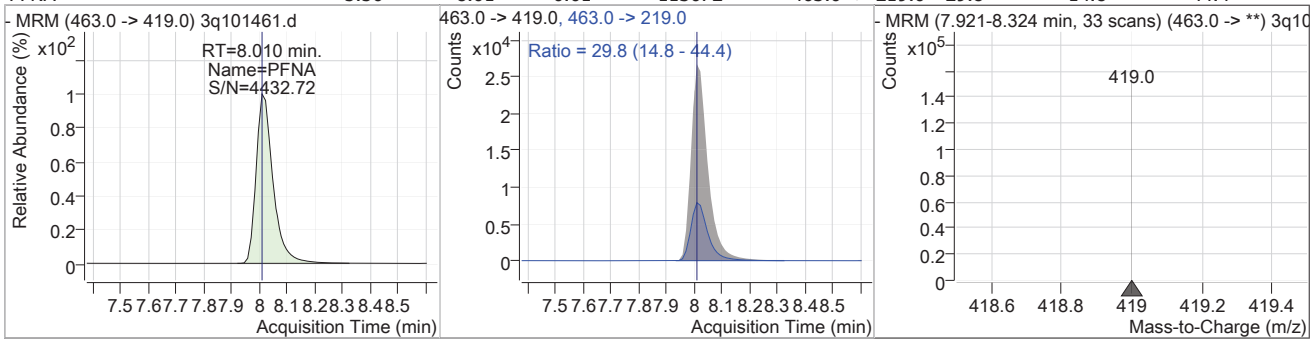
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	5.61	7.98	-0.01	31220 (m)	499.0 -> 99.0	50.7	25.9	77.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	9.44	8.01	-0.01	248260				

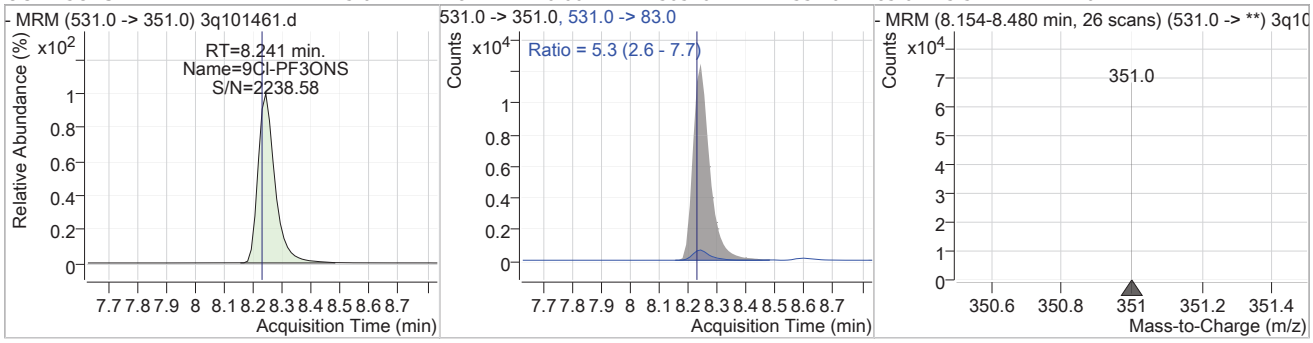


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	5.56	8.01	-0.01	113072	463.0 -> 219.0	29.8	14.8	44.4

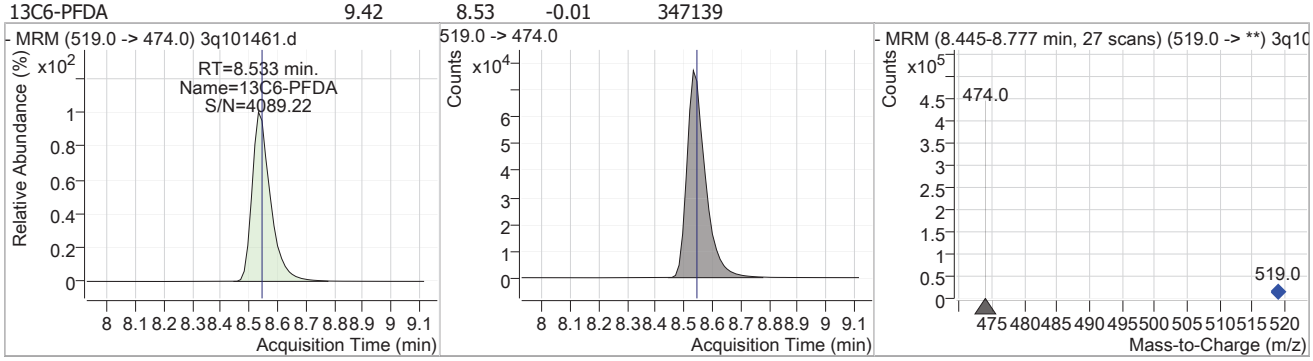


Perfluorinated Compounds by LC/MS/MS

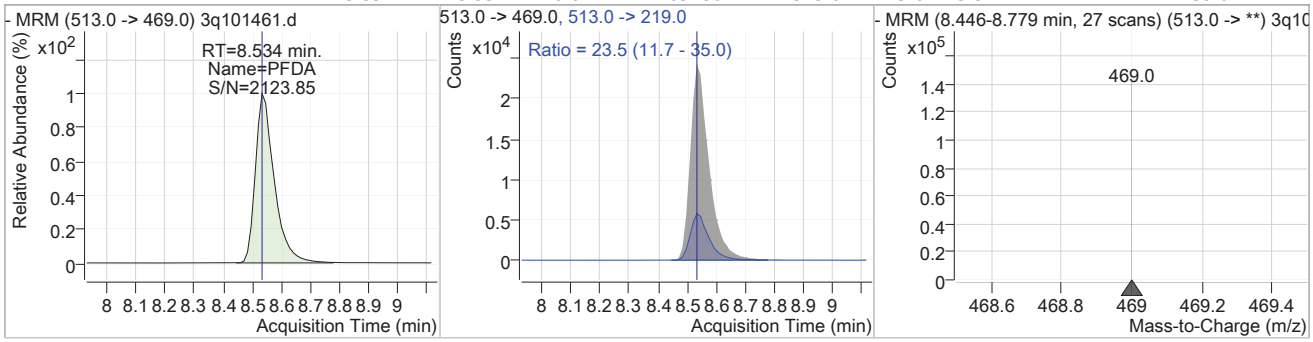
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	5.64	8.24	0.00	50540	531.0 -> 83.0	5.3	2.6	7.7



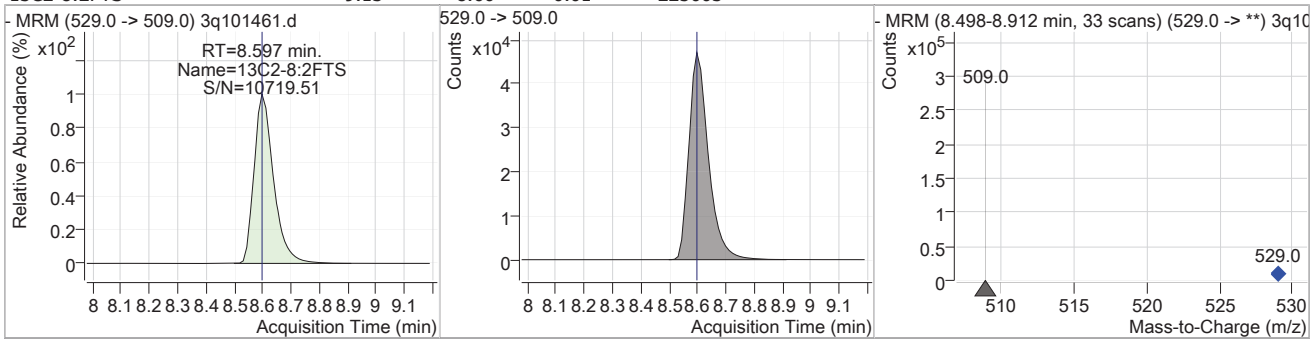
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	9.42	8.53	-0.01	347139				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	5.59	8.53	-0.01	109780	513.0 -> 219.0	23.5	11.7	35.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	9.13	8.60	-0.01	225003				



7.7.5

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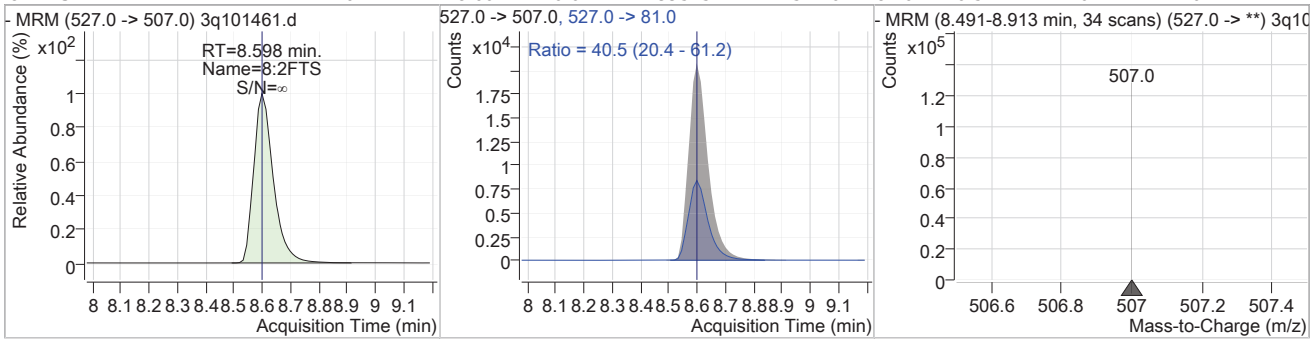
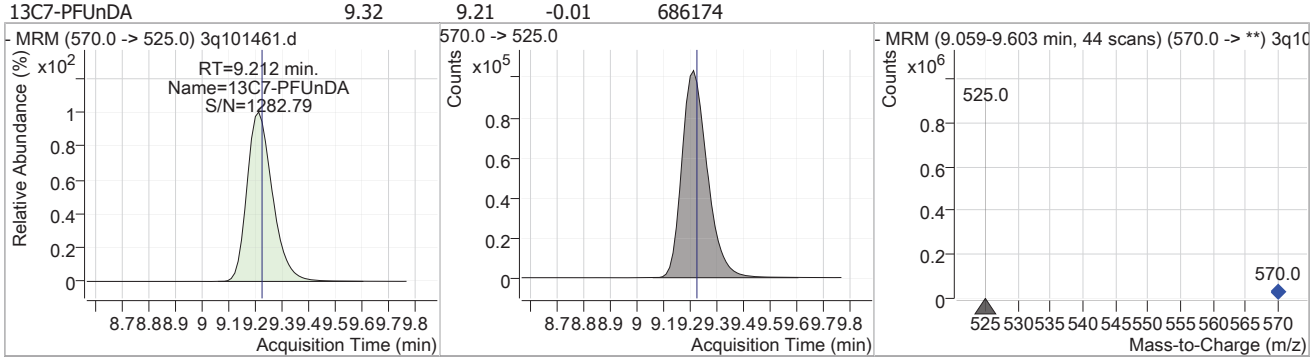
Perfluorinated Compounds by LC/MS/MS

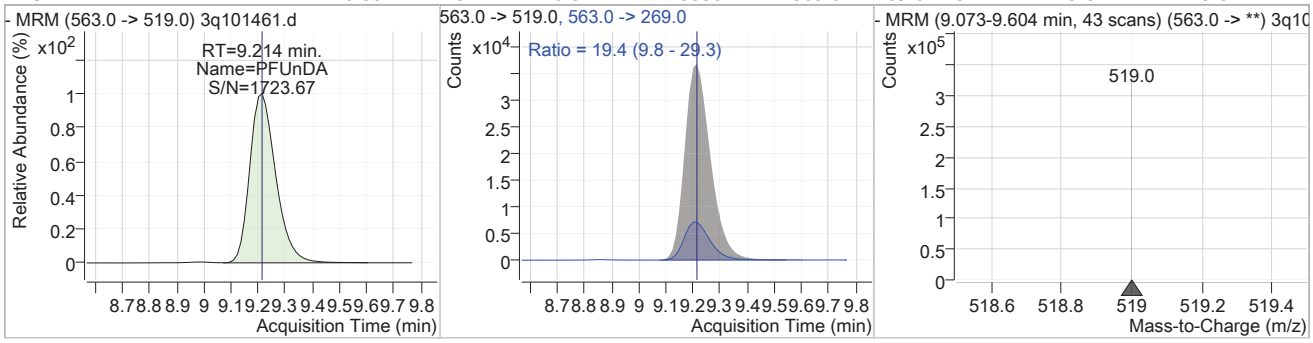
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	6.44	8.60	-0.01	99543	527.0 -> 81.0	40.5	20.4	61.2



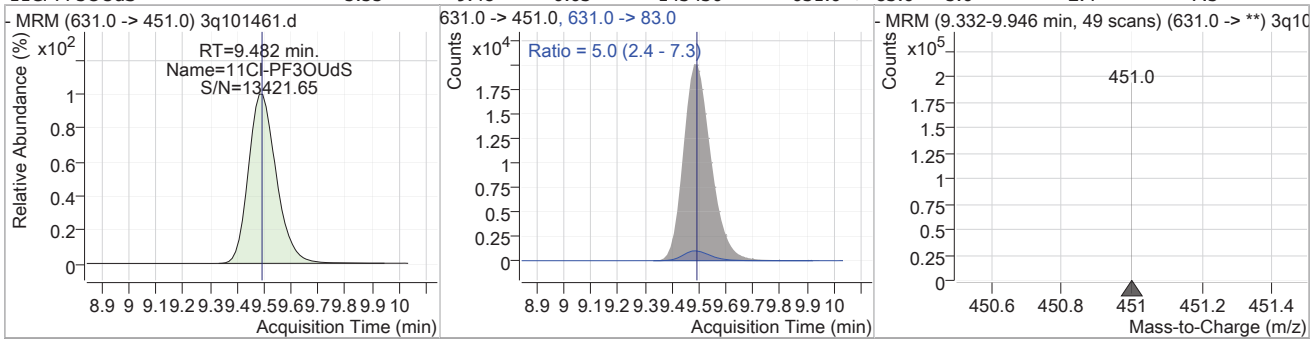
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	9.32	9.21	-0.01	686174				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	5.55	9.21	-0.01	245356	563.0 -> 269.0	19.4	9.8	29.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	5.55	9.48	-0.03	143430	631.0 -> 83.0	5.0	2.4	7.3



7.7.5

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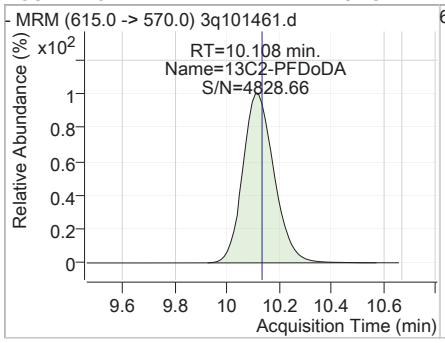
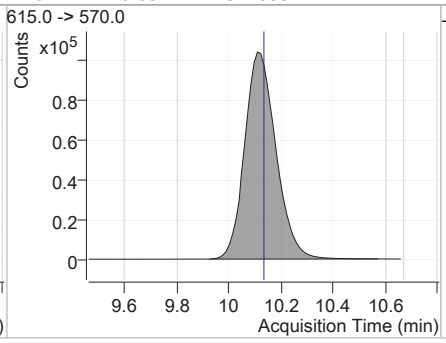
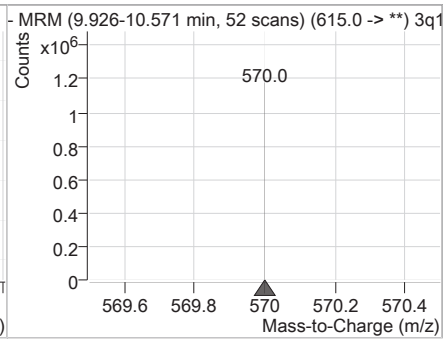
Perfluorinated Compounds by LC/MS/MS

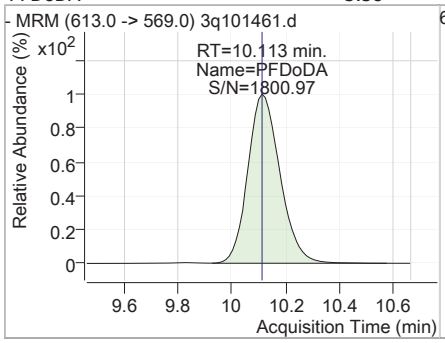
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	9.29	10.11	-0.03	871008				

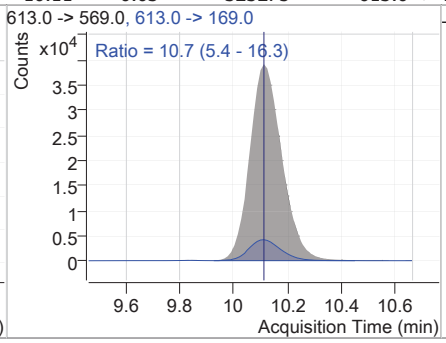


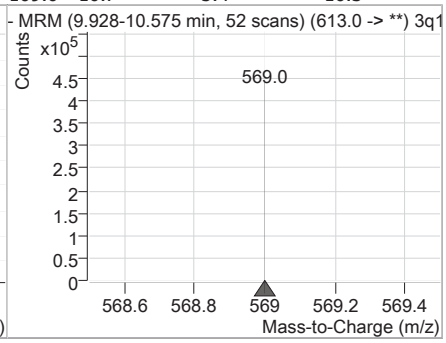




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	5.58	10.11	-0.03	323275	613.0 -> 169.0	10.7	5.4	16.3







7.7.5

7

Manual Integration Approval Summary

Sample Number:	S3Q1492-IC1492	**Method:**	EPA 533
Lab FileID:	3Q101461.D	**Analyst approved:**	04/16/25 08:55 (b) (6)
Injection Time:	04/15/25 14:52	**Supervisor approved:**	04/17/25 11:42 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:42

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101462.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 3:08:17 PM
Sample Name : ic1492-10
Vial : P1-C6
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.422	415.0 -> 370.0	202891	10.00 µg/L	-0.013
13C3-PFBA	2.394	216.0 -> 172.0	82118	10.00 µg/L	0.263
13C4-PFOS	7.983	503.0 -> 80.0	29957	10.00 µg/L	-0.013
M4-PFBA	2.390	217.0 -> 172.0	143383	10.00 µg/L	0.250
M5-PFPeA	4.425	268.0 -> 223.0	175842	10.00 µg/L	0.088
M5-PFHxA	5.725	318.0 -> 273.0	206776	10.00 µg/L	-0.025
M4-PFHpA	6.681	367.0 -> 322.0	172042	10.00 µg/L	-0.025
M8-PFOA	7.422	421.0 -> 376.0	230351	10.00 µg/L	-0.013
M9-PFNA	8.010	472.0 -> 427.0	247586	10.00 µg/L	-0.013
M6-PFDA	8.533	519.0 -> 474.0	350281	10.00 µg/L	-0.013
M7-PFUnDA	9.224	570.0 -> 525.0	713475	10.00 µg/L	0.000
M2-PFDoDA	10.158	615.0 -> 570.0	876531	10.00 µg/L	0.025
M3-PFBS	4.646	302.0 -> 99.0	20490	10.00 µg/L	0.000
M3-PFHxS	6.698	402.0 -> 99.0	27457	10.00 µg/L	-0.038
M8-PFOS	7.982	507.0 -> 99.0	34763	10.00 µg/L	-0.013
M2-4:2FTS	5.622	329.0 -> 309.0	72292	10.00 µg/L	-0.025
M2-6:2FTS	7.420	429.0 -> 409.0	139880	10.00 µg/L	-0.013
M2-8:2FTS	8.597	529.0 -> 509.0	226689	10.00 µg/L	-0.014
M3-HFPO-DA	6.018	287.0 -> 169.0	2959	10.00 µg/L	-0.038
System Monitoring Compounds					
13C2-4:2FTS	5.622	329.0 -> 309.0	72292	10.14 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C2-6:2FTS	7.420	429.0 -> 409.0	139880	10.45 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C2-8:2FTS	8.597	529.0 -> 509.0	226689	10.10 µg/L	-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C2-PFDoDA	10.158	615.0 -> 570.0	876531	10.15 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C3-PFBS	4.646	302.0 -> 99.0	20490	10.96 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.6%	
13C3-PFHxS	6.698	402.0 -> 99.0	27457	10.32 µg/L	-0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C4-PFBA	2.390	217.0 -> 172.0	143383	10.29 µg/L	0.250
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C4-PFHpA	6.681	367.0 -> 322.0	172042	10.02 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C5-PFHxA	5.725	318.0 -> 273.0	206776	10.06 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C5-PFPeA	4.425	268.0 -> 223.0	175842	10.47 µg/L	0.088
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C6-PFDA	8.533	519.0 -> 474.0	350281	10.32 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C7-PFUnDA	9.224	570.0 -> 525.0	713475	10.52 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C8-PFOA	7.422	421.0 -> 376.0	230351	10.34 µg/L	-0.013

Perfluorinated Compounds by LC/MS/MS

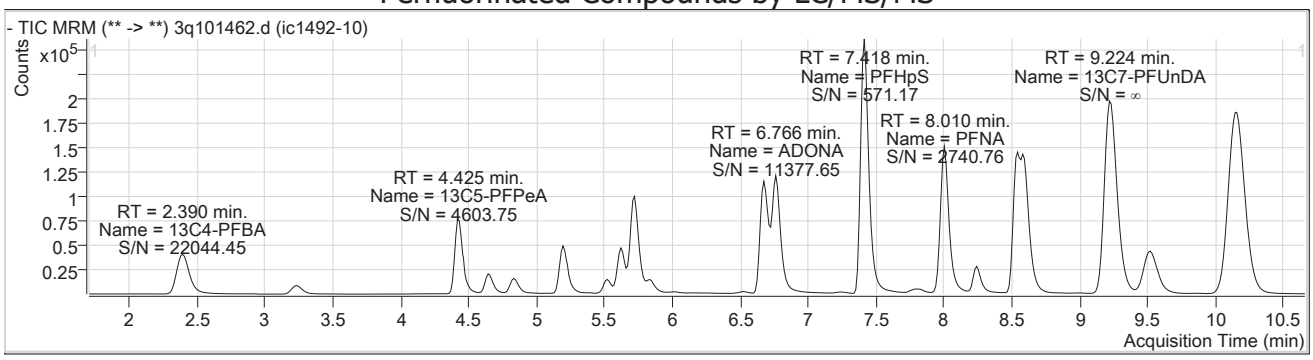
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.4%		
13C8-PFOS	7.982	507.0 -> 99.0	34763	10.20 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.0%		
13C9-PFNA	8.010	472.0 -> 427.0	247586	10.22 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.2%		
13C3-HFPO-DA	6.018	287.0 -> 169.0	2959	10.01 µg/L		-0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%		
Target Compounds						QValue
PFMPA	3.228	229.0 -> 85.0	50843	10.95 µg/L		100
4:2FTS	5.623	327.0 -> 307.0	91478	10.91 µg/L		99
		327.0 -> 81.0	39379			
6:2FTS	7.420	427.0 -> 407.0	126077	10.99 µg/L		100
		427.0 -> 81.0	55627			
8:2FTS	8.598	527.0 -> 507.0	199905	12.84 µg/L		99
		527.0 -> 81.0	82830			
PFMBA	4.838	279.0 -> 85.0	71345	11.00 µg/L		100
PFEESA	5.197	315.0 -> 135.0	198839	10.76 µg/L		100
		315.0 -> 69.0	15091			
NFDHA	5.531	201.0 -> 85.0	58885	11.39 µg/L		98
		295.0 -> 201.0	4080			
PFBA	2.398	213.0 -> 169.0	44873	11.32 µg/L		100
PFBS	4.647	299.0 -> 80.0	46811	11.30 µg/L		99
		299.0 -> 99.0	20004			
PFDA	8.534	513.0 -> 469.0	225848	11.40 µg/L		100
		513.0 -> 219.0	53108			
PFDoDA	10.150	613.0 -> 569.0	659655	11.32 µg/L		100
		613.0 -> 169.0	71443			
PFHpA	6.683	363.0 -> 319.0	273291	11.32 µg/L		100
		363.0 -> 169.0	22418			
PFHpS	7.418	449.0 -> 80.0	58856	11.71 µg/L		100
		449.0 -> 99.0	33014			
PFHxA	5.728	313.0 -> 269.0	221805	11.39 µg/L		100
		313.0 -> 119.0	7631			
PFHxS	6.700	399.0 -> 80.0	55478	11.48 µg/L	m	100
		399.0 -> 99.0	28863			
PFNA	8.010	463.0 -> 419.0	230252	11.35 µg/L		100
		463.0 -> 219.0	68497			
PFOA	7.423	413.0 -> 369.0	202509	11.40 µg/L		99
		413.0 -> 169.0	73952			
PFOS	7.983	499.0 -> 80.0	65152	11.72 µg/L	m	98
		499.0 -> 99.0	32614			
PFPeA	4.427	263.0 -> 219.0	151266	11.40 µg/L		100
PFPeS	5.833	349.0 -> 80.0	31779	11.33 µg/L		98
		349.0 -> 99.0	13673			
PFUnDA	9.227	563.0 -> 519.0	523071	11.37 µg/L		100
		563.0 -> 269.0	102212			
11Cl-PF3OUdS	9.520	631.0 -> 451.0	299903	11.62 µg/L		100
		631.0 -> 83.0	14496			
9Cl-PF3ONS	8.241	531.0 -> 351.0	104233	11.64 µg/L		99
		531.0 -> 83.0	5077			
ADONA	6.766	377.0 -> 251.0	431089	11.57 µg/L		100
		377.0 -> 85.0	51121			
HFPO-DA	6.023	329.0 -> 169.0	715	10.21 µg/L		96
		285.0 -> 169.0	1680			

 # = Qualifier out of range, m = manually integrated, + = Area summed

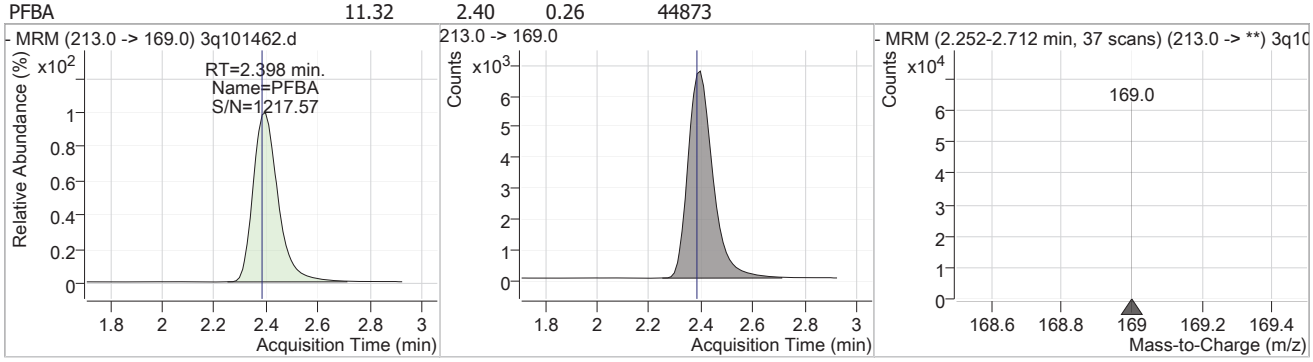
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

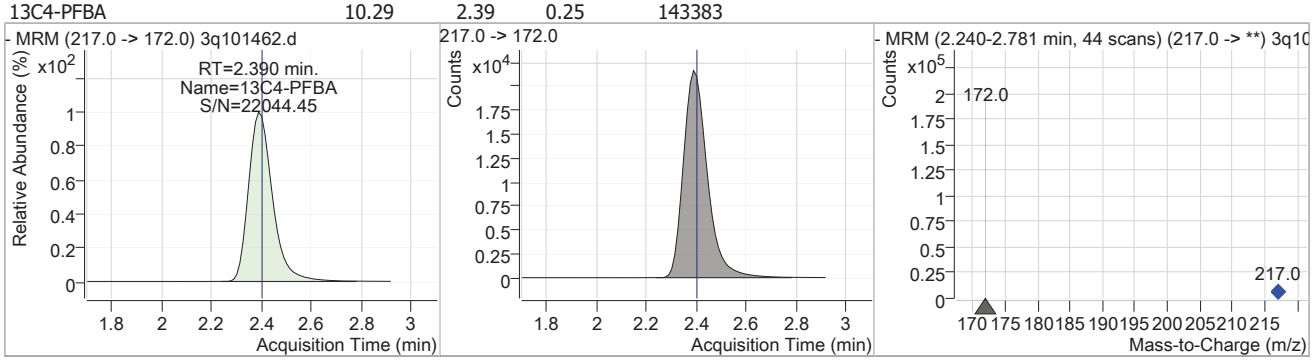
Perfluorinated Compounds by LC/MS/MS



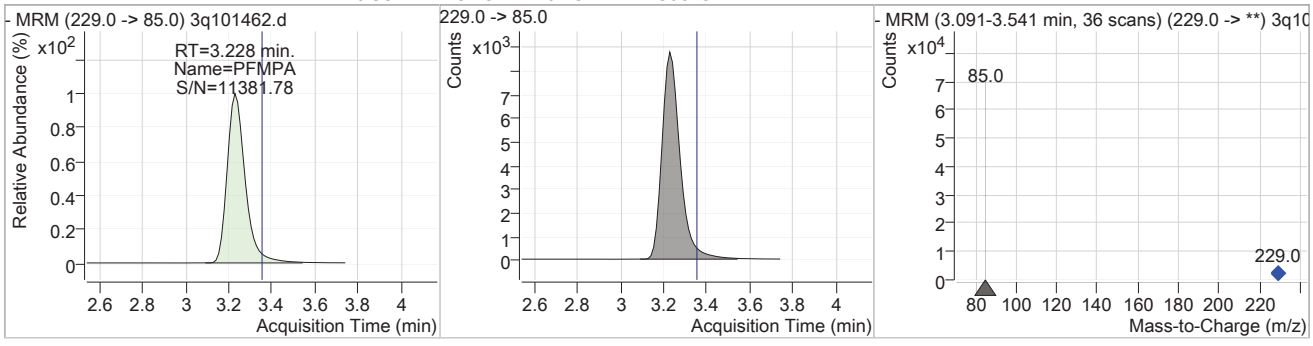
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	11.32	2.40	0.26	44873				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.29	2.39	0.25	143383				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	10.95	3.23	0.23	50843				



7.7.6

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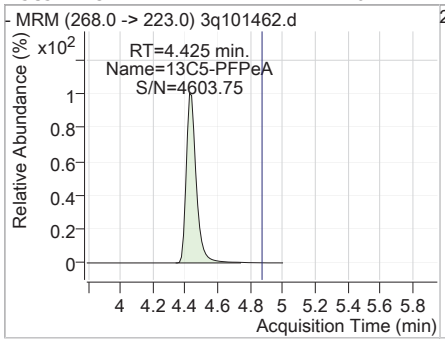
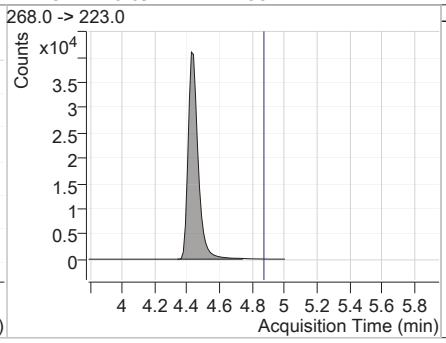
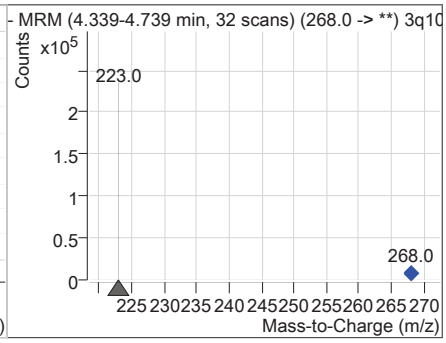
Perfluorinated Compounds by LC/MS/MS

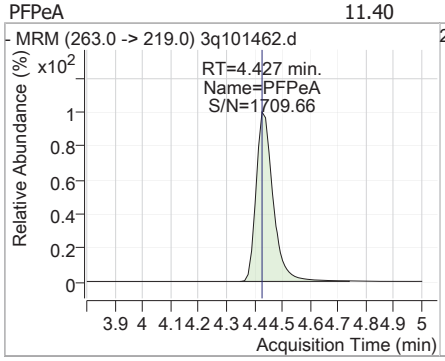
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.47	4.43	0.09	175842				

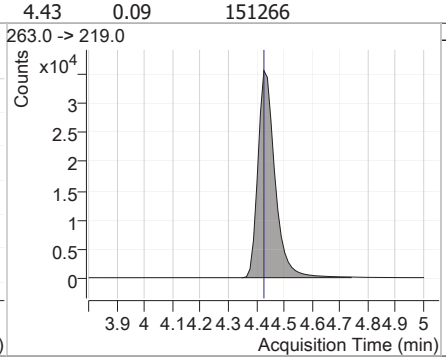


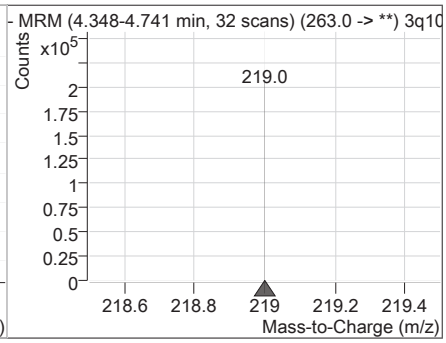




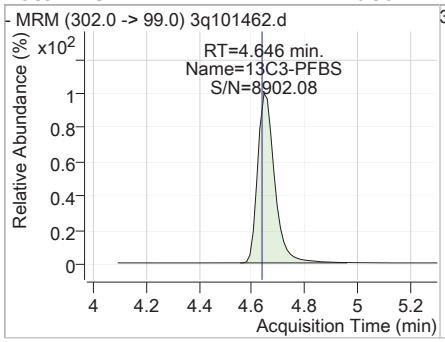
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	11.40	4.43	0.09	151266				

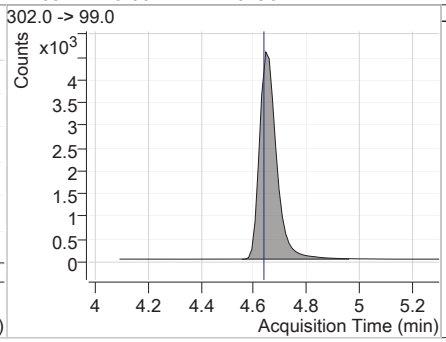


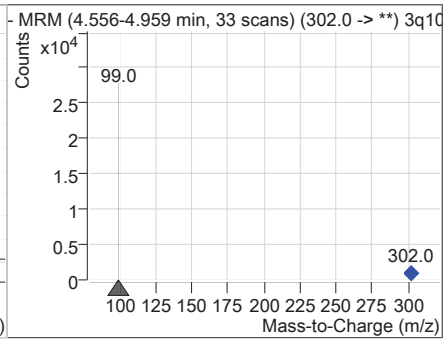




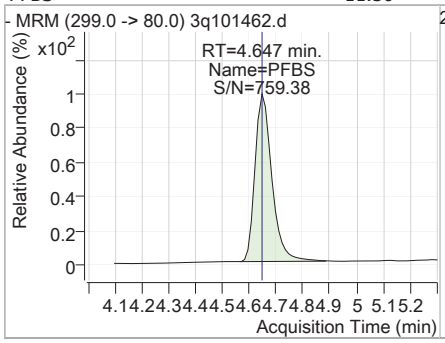
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.96	4.65	0.00	20490				

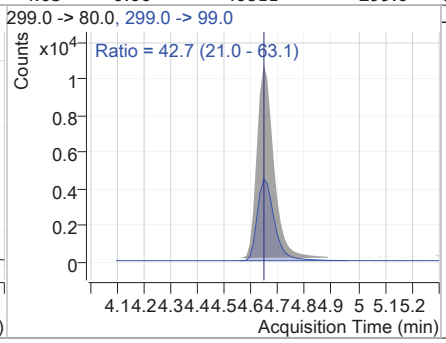


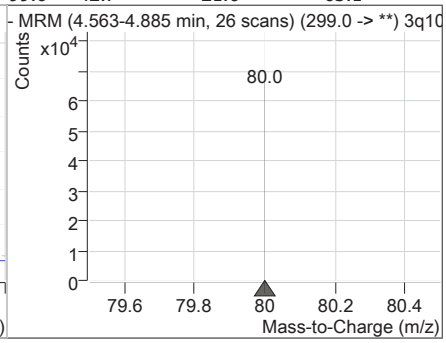




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	11.30	4.65	0.00	46811	299.0 -> 99.0	42.7	21.0	63.1

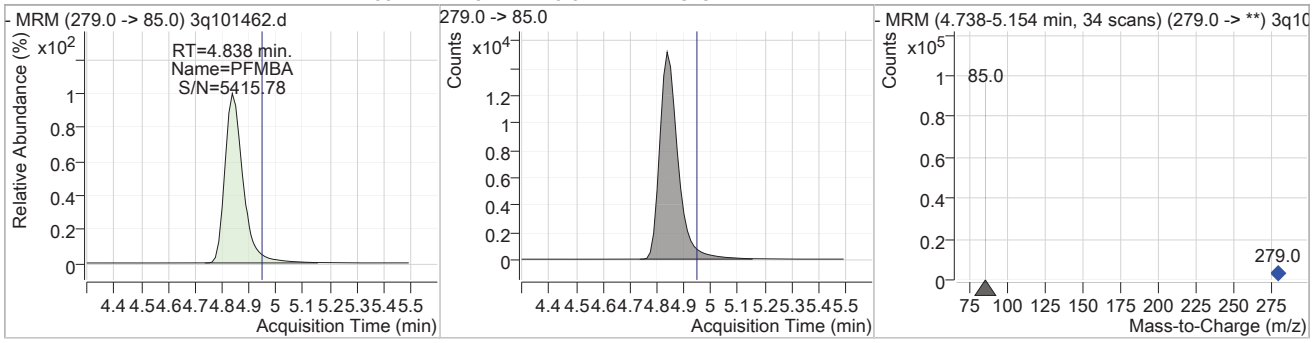




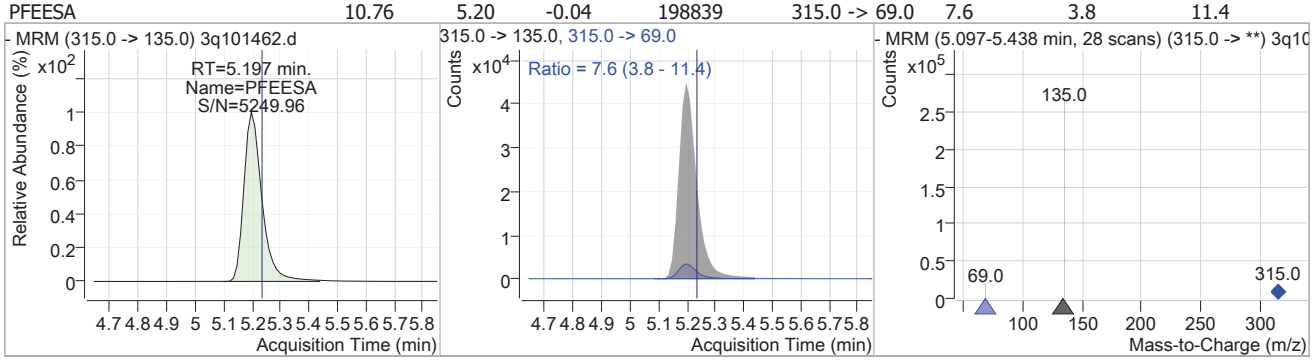


Perfluorinated Compounds by LC/MS/MS

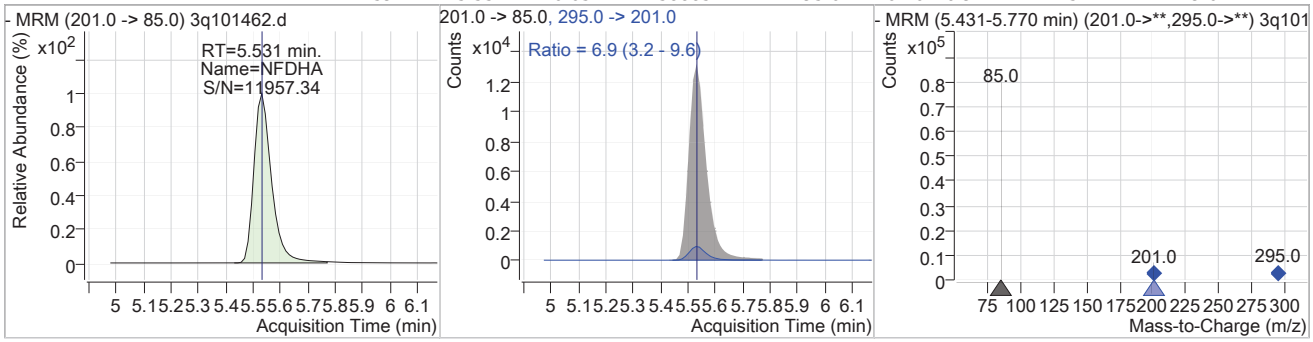
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	11.00	4.84	-0.01	71345				



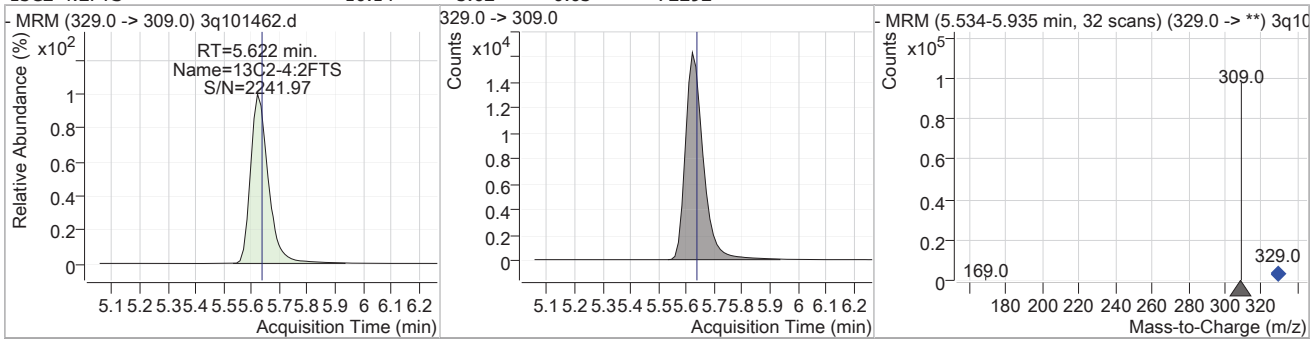
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	10.76	5.20	-0.04	198839	315.0 -> 69.0	7.6	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	11.39	5.53	-0.03	58885	295.0 -> 201.0	6.9	3.2	9.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	10.14	5.62	-0.03	72292				



7.7.6

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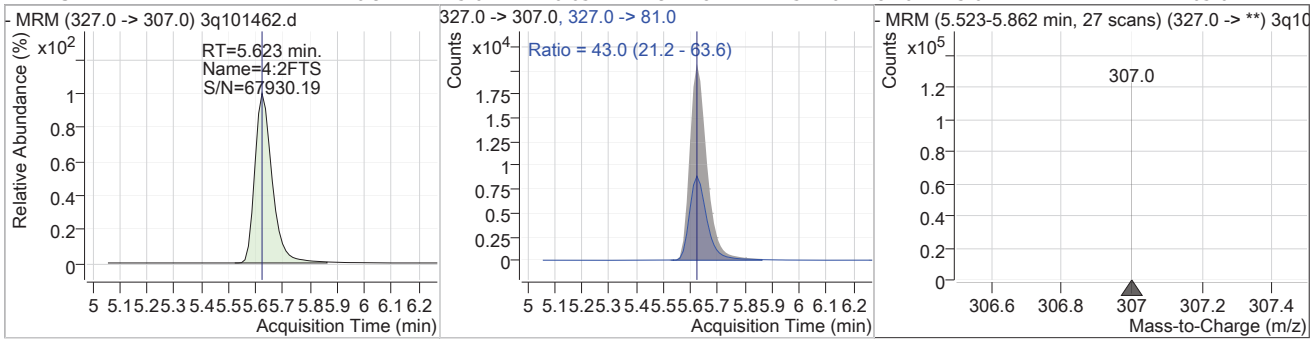
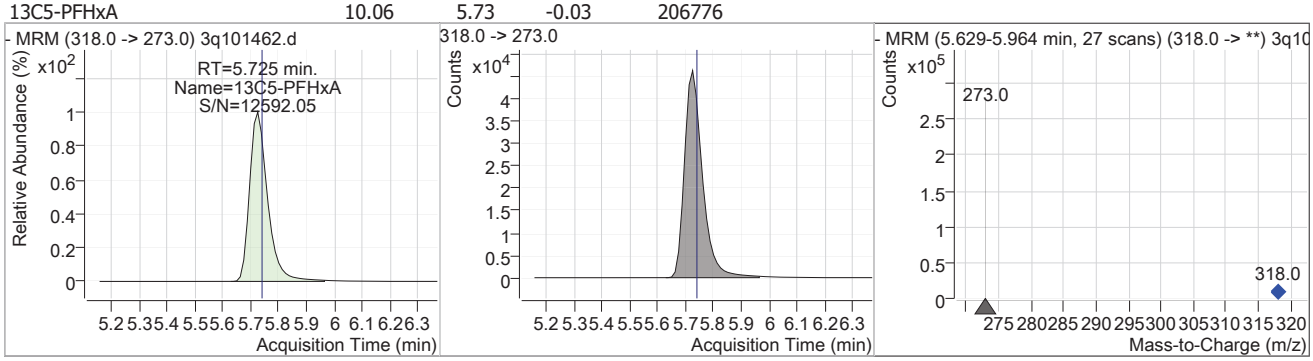
Perfluorinated Compounds by LC/MS/MS

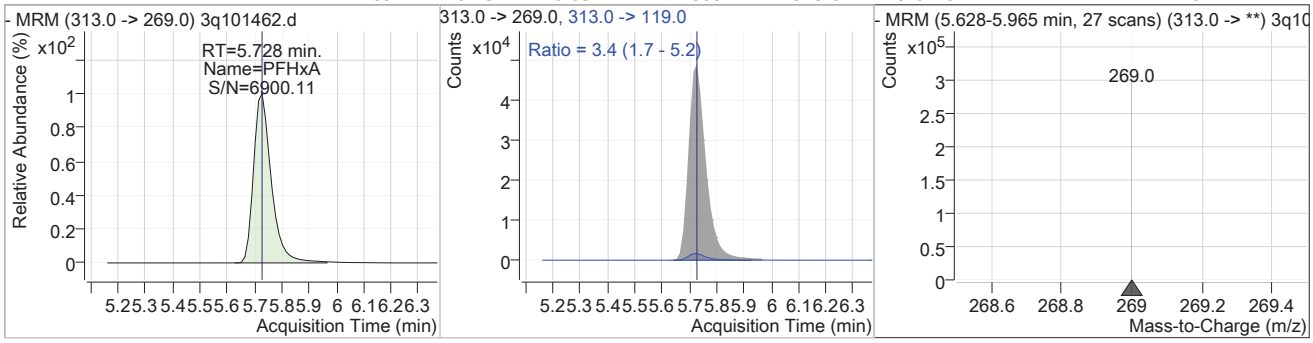
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	10.91	5.62	-0.03	91478	327.0 -> 81.0	43.0	21.2	63.6



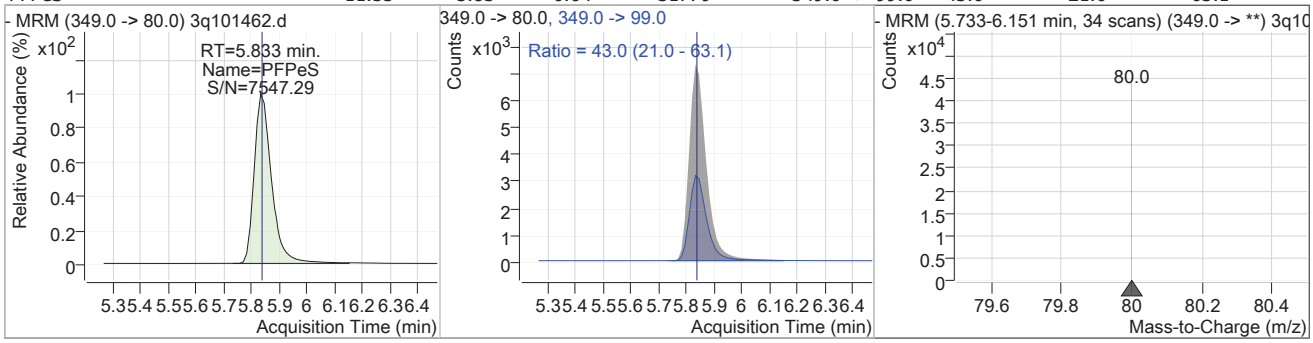
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.06	5.73	-0.03	206776				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	11.39	5.73	-0.03	221805	313.0 -> 119.0	3.4	1.7	5.2



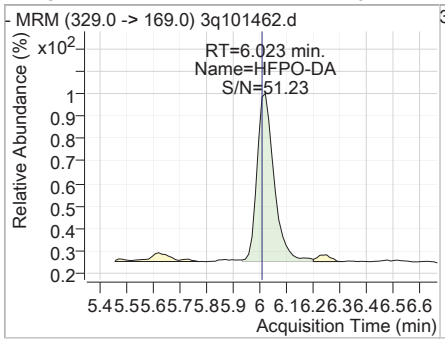
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	11.33	5.83	-0.04	31779	349.0 -> 99.0	43.0	21.0	63.1

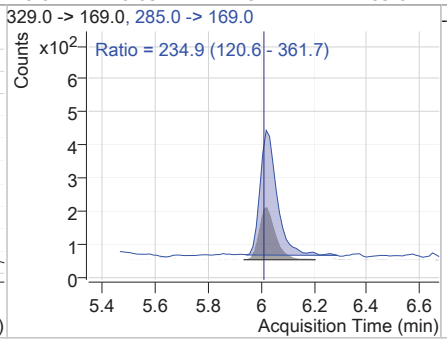


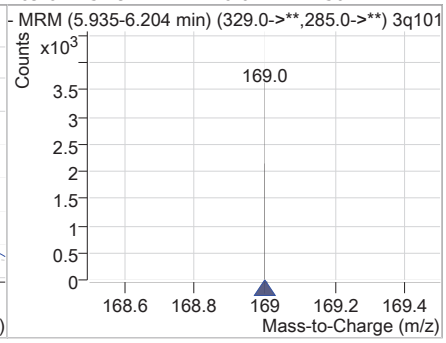
7.7.6

Perfluorinated Compounds by LC/MS/MS

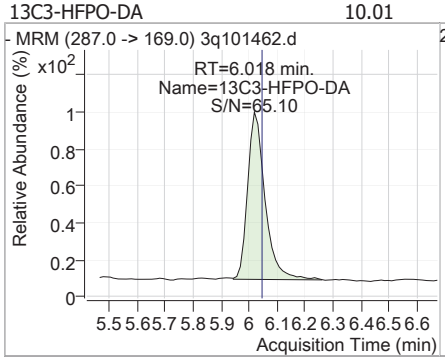
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	10.21	6.02	-0.03	715	285.0 -> 169.0	234.9	120.6	361.7

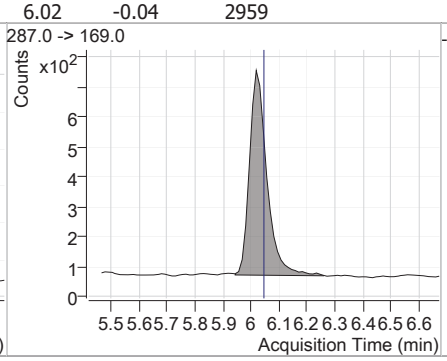


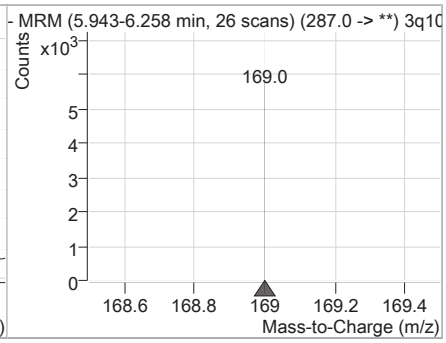




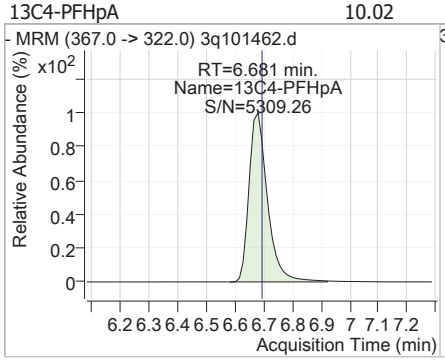
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.01	6.02	-0.04	2959				

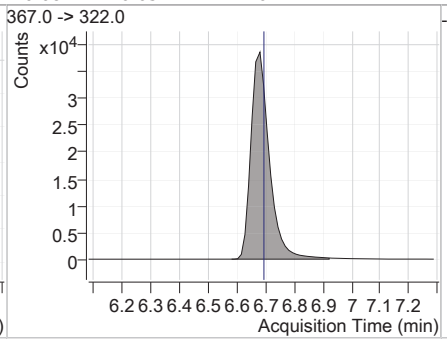


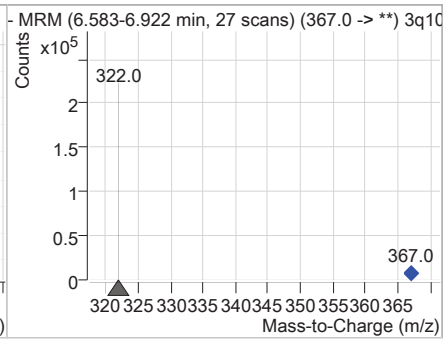




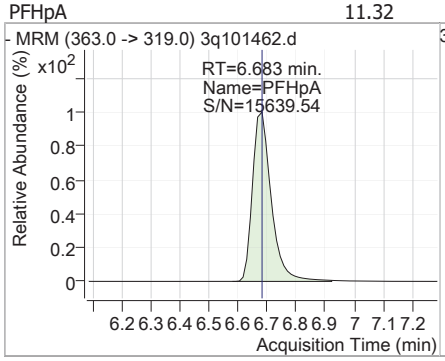
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.02	6.68	-0.03	172042				

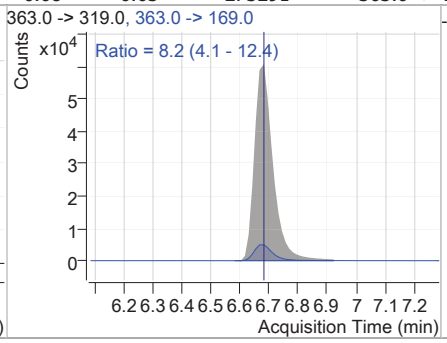


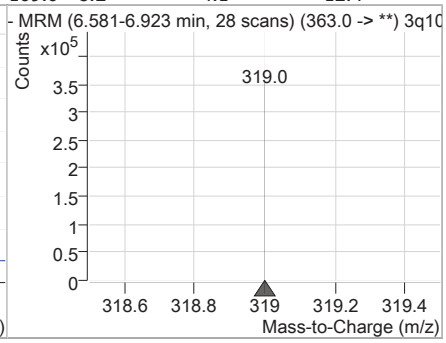




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	11.32	6.68	-0.03	273291	363.0 -> 169.0	8.2	4.1	12.4

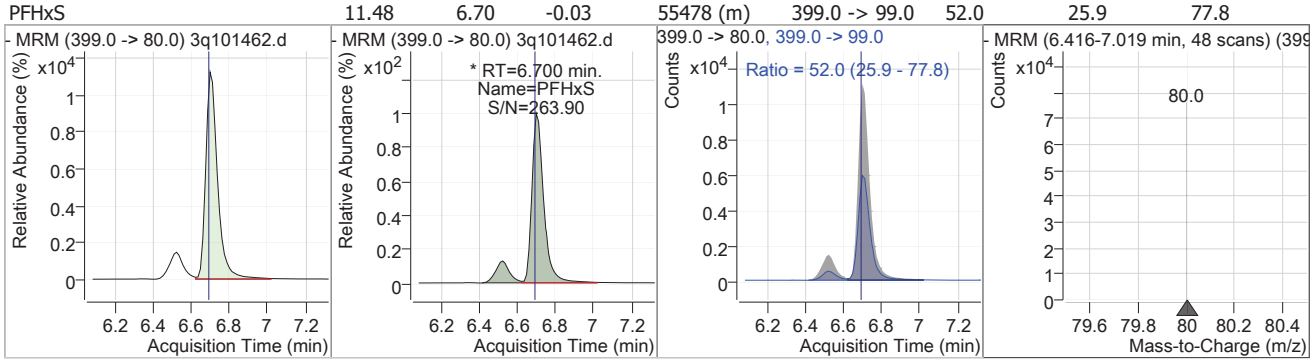




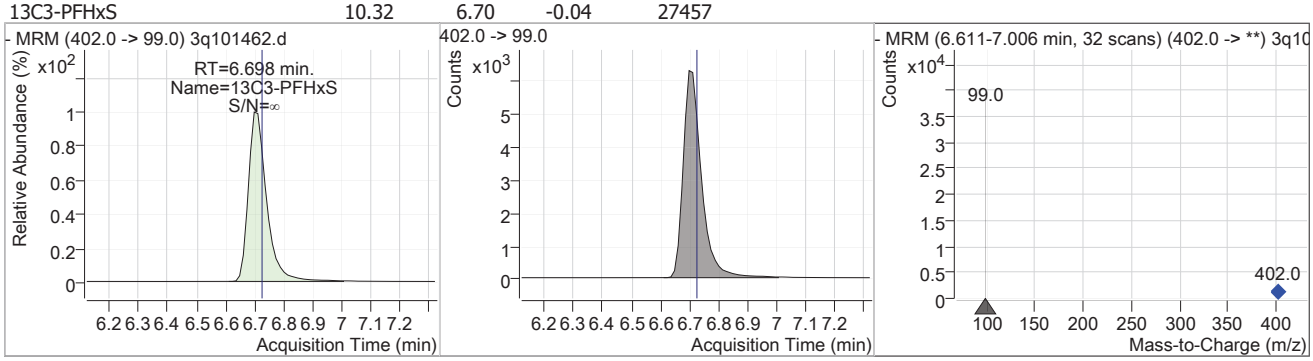


Perfluorinated Compounds by LC/MS/MS

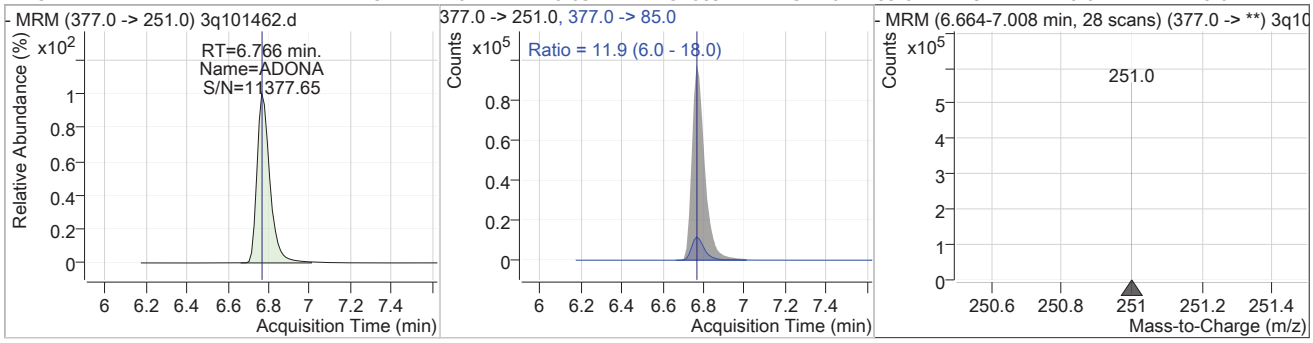
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	11.48	6.70	-0.03	55478 (m)	399.0 -> 99.0	52.0	25.9	77.8



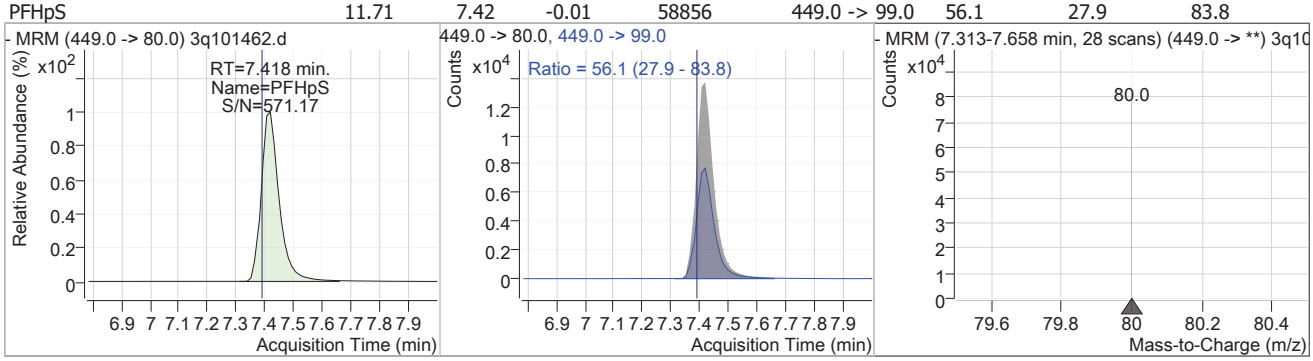
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.32	6.70	-0.04	27457				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	11.57	6.77	-0.03	431089	377.0 -> 85.0	11.9	6.0	18.0

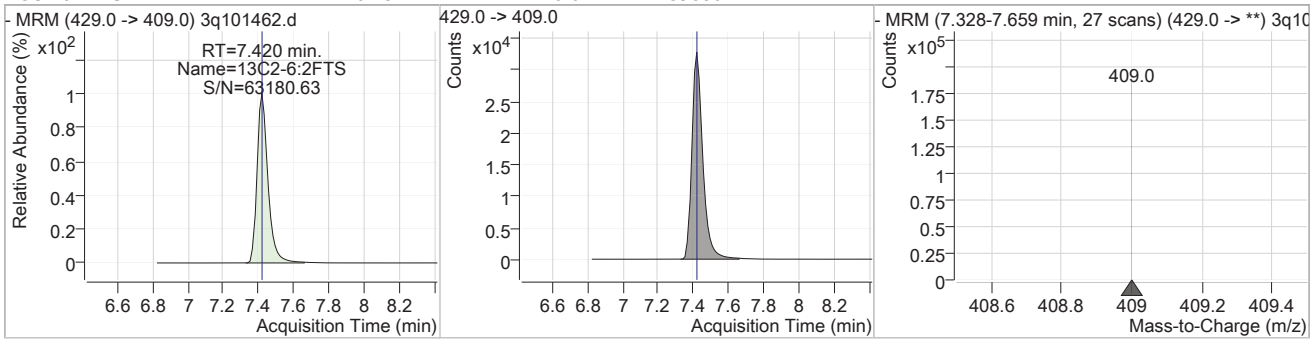


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	11.71	7.42	-0.01	58856	449.0 -> 99.0	56.1	27.9	83.8

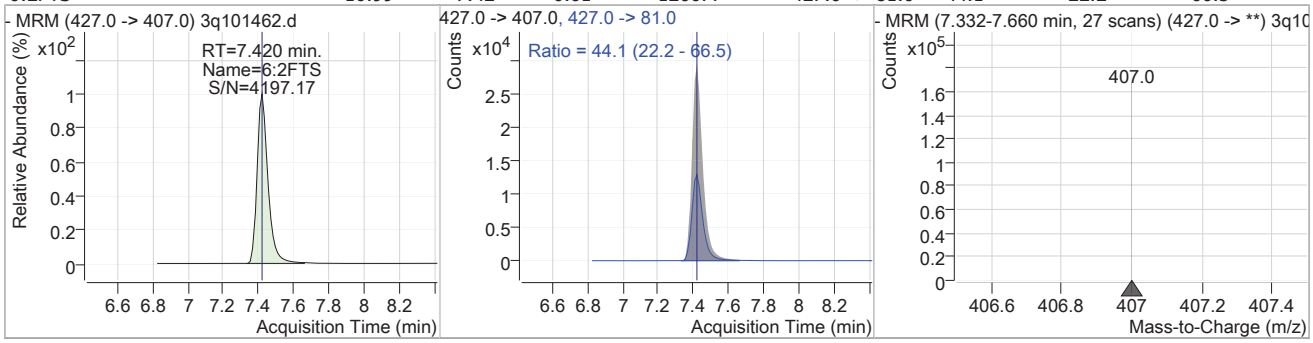


Perfluorinated Compounds by LC/MS/MS

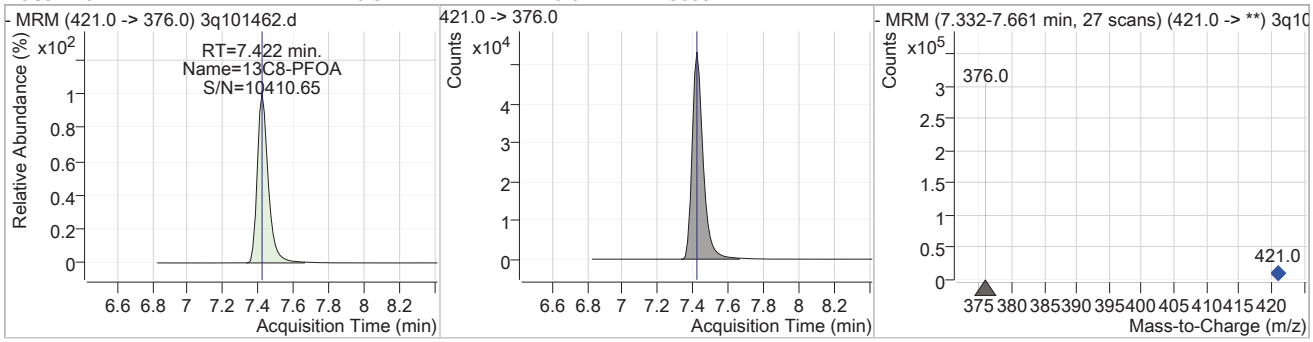
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	10.45	7.42	-0.01	139880				



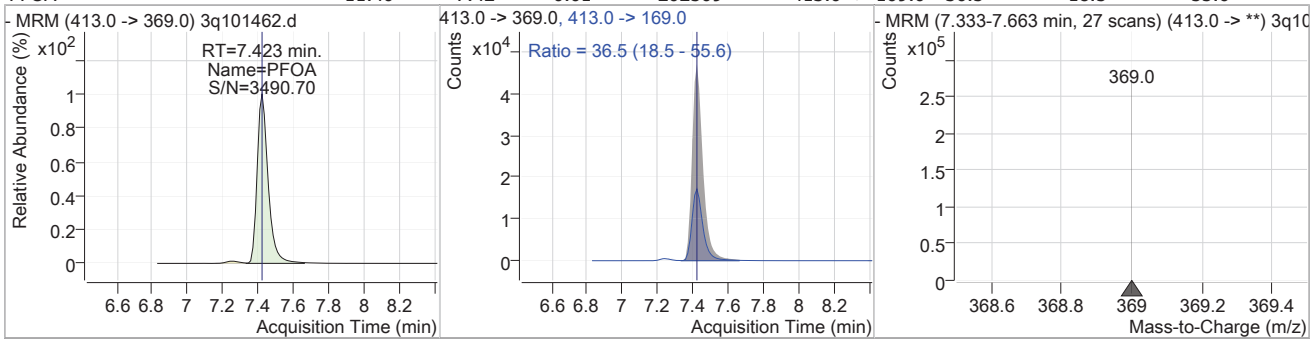
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	10.99	7.42	-0.01	126077	427.0 -> 81.0	44.1	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.34	7.42	-0.01	230351				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	11.40	7.42	-0.01	202509	413.0 -> 169.0	36.5	18.5	55.6

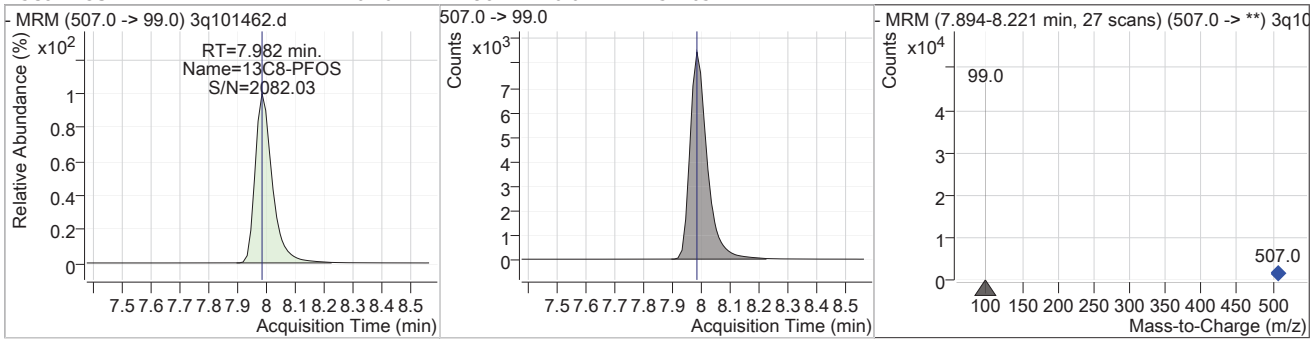


7.7.9

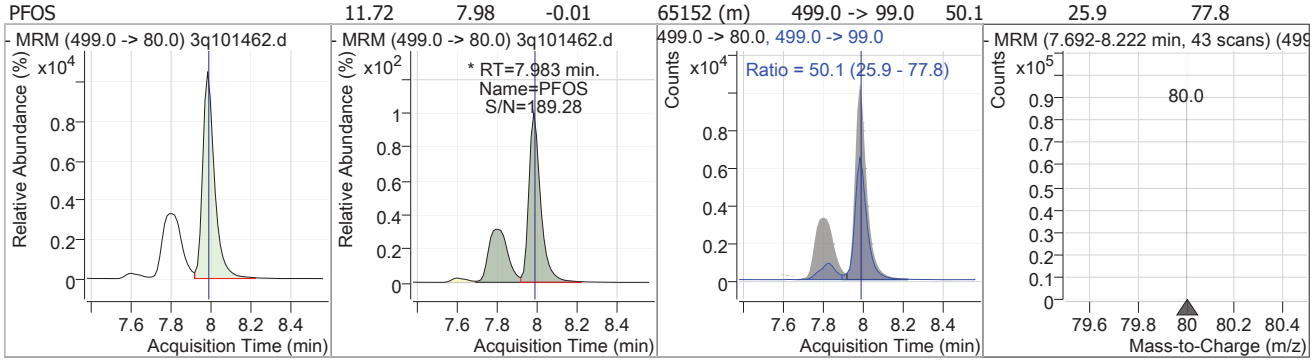
7

Perfluorinated Compounds by LC/MS/MS

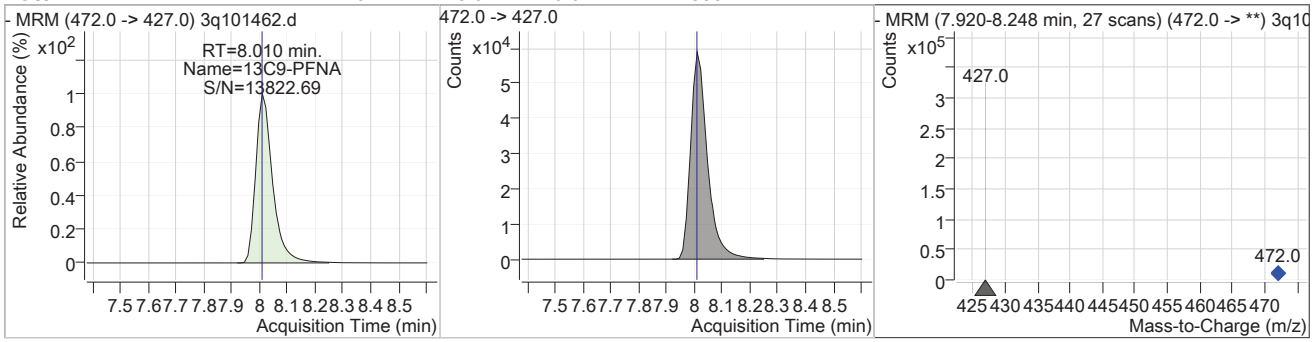
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.20	7.98	-0.01	34763				



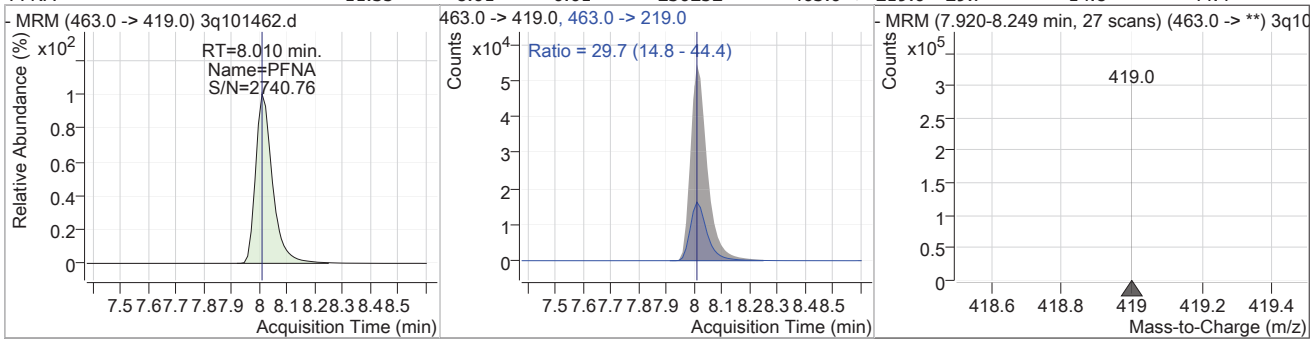
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	11.72	7.98	-0.01	65152 (m)	499.0 -> 99.0	50.1	25.9	77.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.22	8.01	-0.01	247586				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	11.35	8.01	-0.01	230252	463.0 -> 219.0	29.7	14.8	44.4

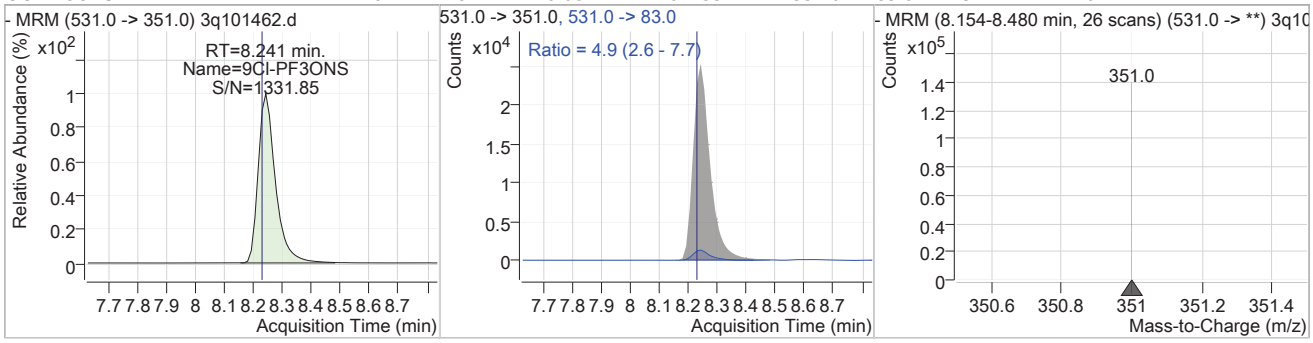


7.7.6

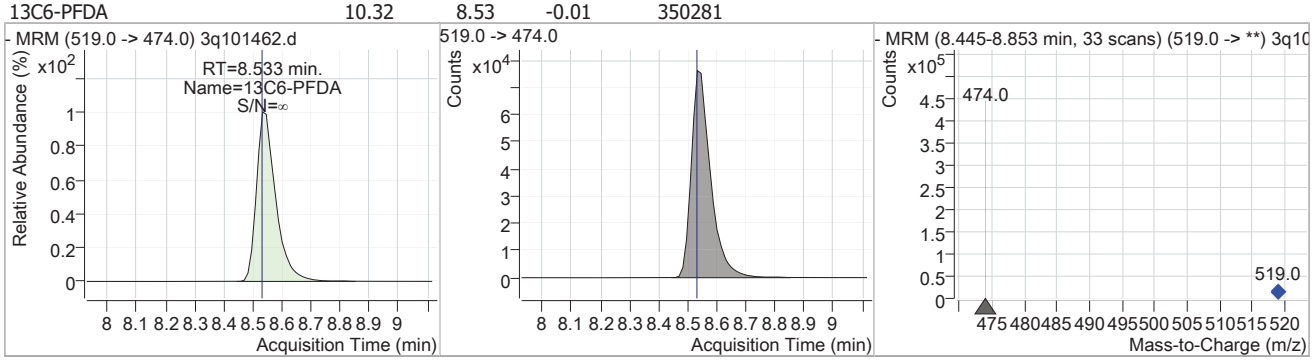
7

Perfluorinated Compounds by LC/MS/MS

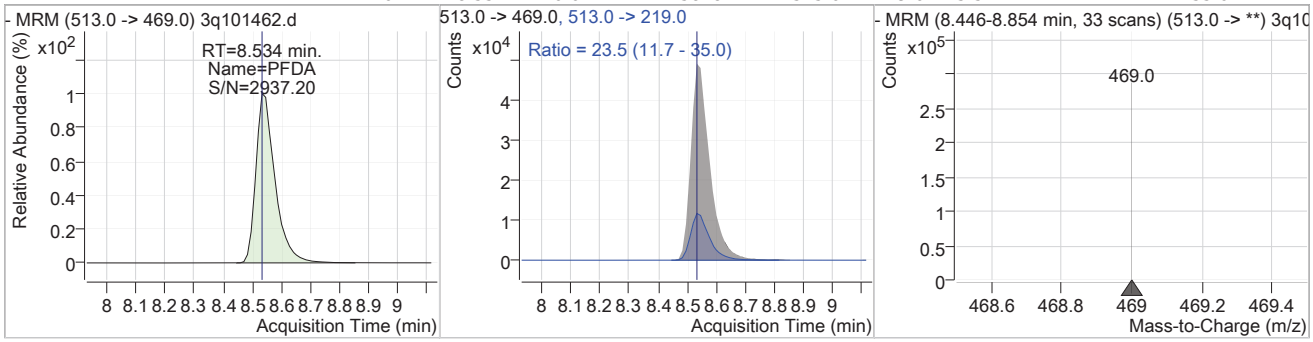
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	11.64	8.24	0.00	104233	531.0 -> 83.0	4.9	2.6	7.7



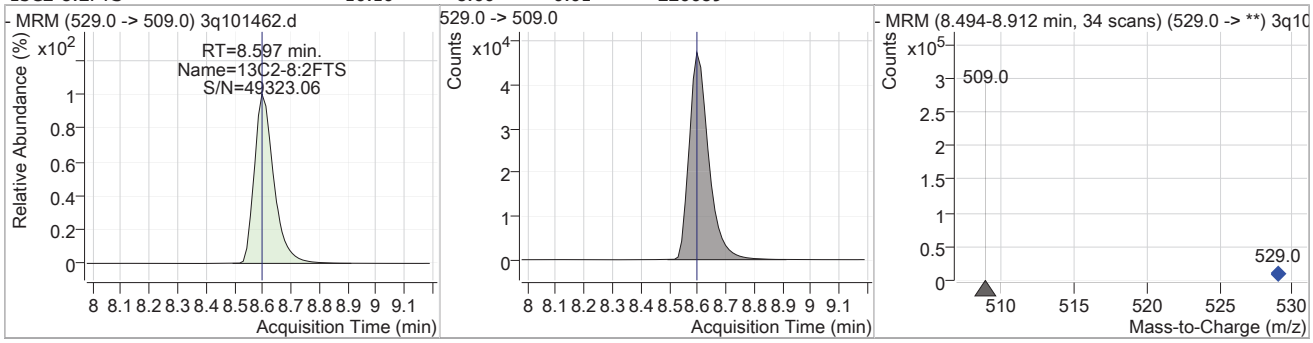
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	10.32	8.53	-0.01	350281				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	11.40	8.53	-0.01	225848	513.0 -> 219.0	23.5	11.7	35.0



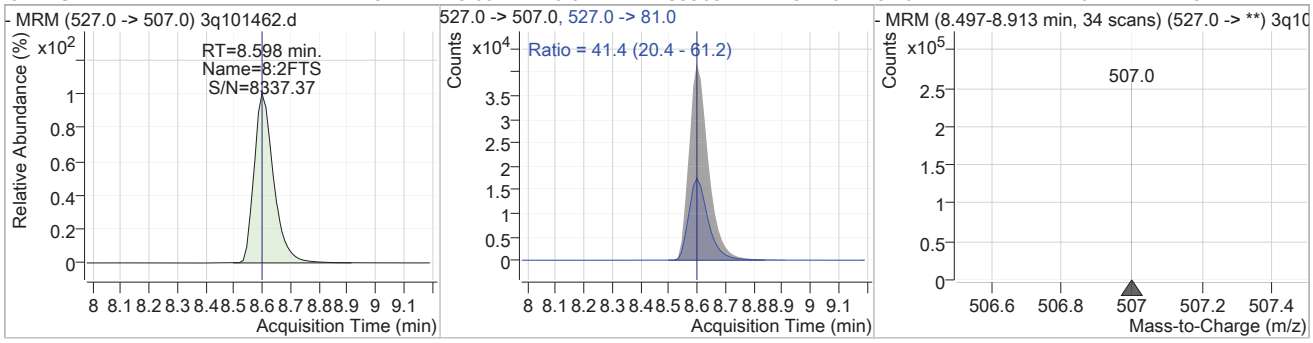
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	10.10	8.60	-0.01	226689				



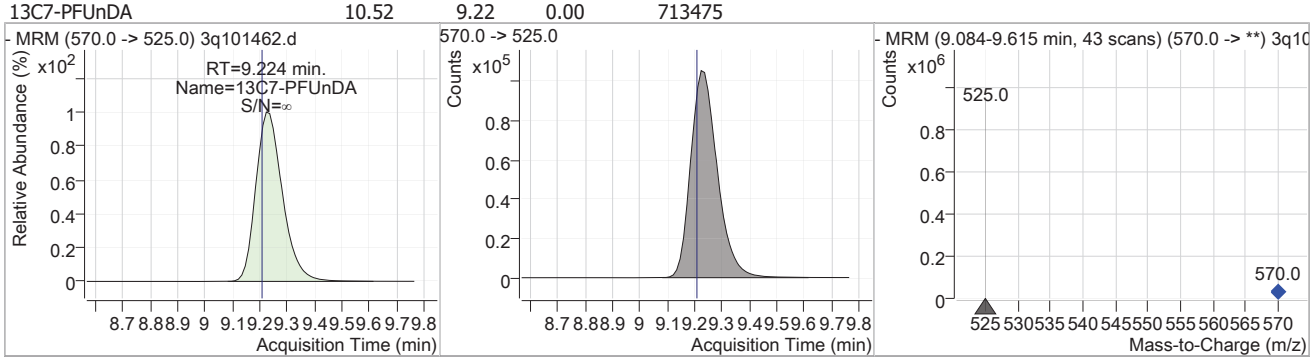
7.7.6

Perfluorinated Compounds by LC/MS/MS

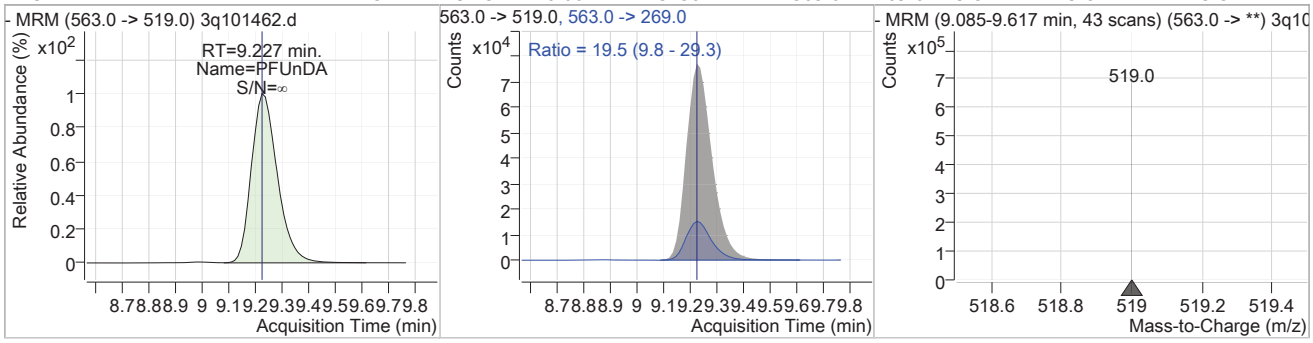
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	12.84	8.60	-0.01	199905	527.0 -> 81.0	41.4	20.4	61.2



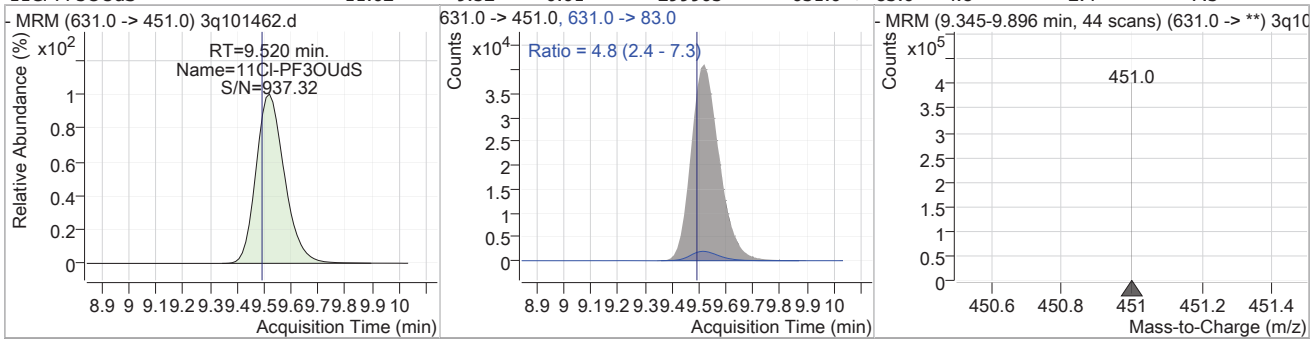
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	10.52	9.22	0.00	713475				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	11.37	9.23	0.00	523071	563.0 -> 269.0	19.5	9.8	29.3

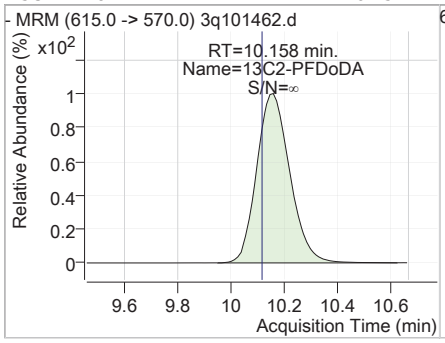


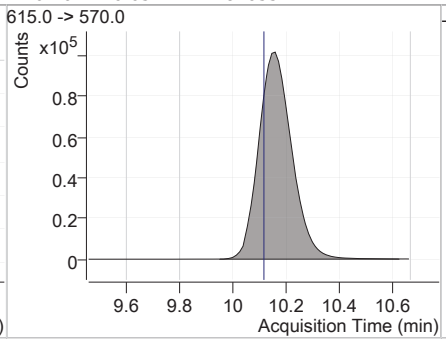
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	11.62	9.52	0.01	299903	631.0 -> 83.0	4.8	2.4	7.3

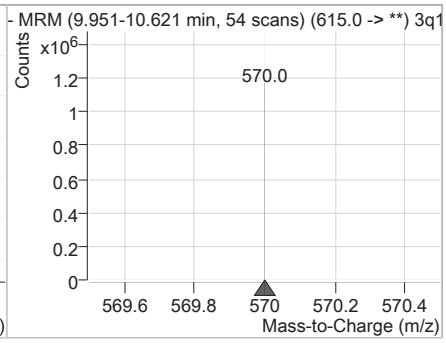


Perfluorinated Compounds by LC/MS/MS

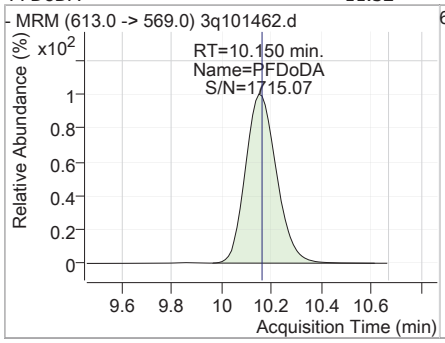
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.15	10.16	0.03	876531				

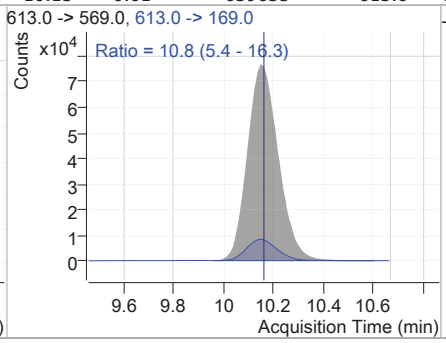


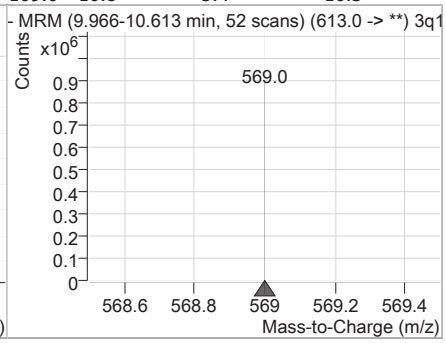




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	11.32	10.15	0.01	659655	613.0 -> 169.0	10.8	5.4	16.3







7.7.9

7

Manual Integration Approval Summary

Sample Number:	S3Q1492-IC1492	**Method:**	EPA 533
Lab FileID:	3Q101462.D	**Analyst approved:**	04/16/25 08:55 (b) (6)
Injection Time:	04/15/25 15:08	**Supervisor approved:**	04/17/25 11:42 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.70	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

3Q101463.D

Manual Integrations APPROVED (compounds with "m" flag)

(b) (6)

04/17/25 11:42

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101463.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 3:24:23 PM
Sample Name : icc1492-20
Vial : P1-C7
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.435	415.0 -> 370.0	208778	10.00 µg/L	0.000
13C3-PFBA	2.131	216.0 -> 172.0	84034	10.00 µg/L	0.000
13C4-PFOS	7.995	503.0 -> 80.0	31762	10.00 µg/L	0.000
M4-PFBA	2.140	217.0 -> 172.0	150771	10.00 µg/L	0.000
M5-PFPeA	4.338	268.0 -> 223.0	179212	10.00 µg/L	0.000
M5-PFHxA	5.750	318.0 -> 273.0	226599	10.00 µg/L	0.000
M4-PFHpA	6.706	367.0 -> 322.0	189090	10.00 µg/L	0.000
M8-PFOA	7.434	421.0 -> 376.0	245108	10.00 µg/L	0.000
M9-PFNA	8.022	472.0 -> 427.0	267922	10.00 µg/L	0.000
M6-PFDA	8.546	519.0 -> 474.0	378628	10.00 µg/L	0.000
M7-PFUnDA	9.224	570.0 -> 525.0	759188	10.00 µg/L	0.000
M2-PFDoDA	10.133	615.0 -> 570.0	958194	10.00 µg/L	0.000
M3-PFBS	4.646	302.0 -> 99.0	20815	10.00 µg/L	0.000
M3-PFHxS	6.736	402.0 -> 99.0	30057	10.00 µg/L	0.000
M8-PFOS	7.995	507.0 -> 99.0	39102	10.00 µg/L	0.000
M2-4:2FTS	5.647	329.0 -> 309.0	82020	10.00 µg/L	0.000
M2-6:2FTS	7.432	429.0 -> 409.0	153435	10.00 µg/L	0.000
M2-8:2FTS	8.611	529.0 -> 509.0	260237	10.00 µg/L	0.000
M3-HFPO-DA	6.056	287.0 -> 169.0	3279	10.00 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.647	329.0 -> 309.0	82020	10.85 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.5%	
13C2-6:2FTS	7.432	429.0 -> 409.0	153435	10.81 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.1%	
13C2-8:2FTS	8.611	529.0 -> 509.0	260237	10.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.4%	
13C2-PFDoDA	10.133	615.0 -> 570.0	958194	10.78 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.8%	
13C3-PFBS	4.646	302.0 -> 99.0	20815	10.50 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C3-PFHxS	6.736	402.0 -> 99.0	30057	10.65 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C4-PFBA	2.140	217.0 -> 172.0	150771	10.58 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.8%	
13C4-PFHpA	6.706	367.0 -> 322.0	189090	10.70 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C5-PFHxA	5.750	318.0 -> 273.0	226599	10.71 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.1%	
13C5-PFPeA	4.338	268.0 -> 223.0	179212	10.43 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C6-PFDA	8.546	519.0 -> 474.0	378628	10.84 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C7-PFUnDA	9.224	570.0 -> 525.0	759188	10.88 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.8%	
13C8-PFOA	7.434	421.0 -> 376.0	245108	10.69 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

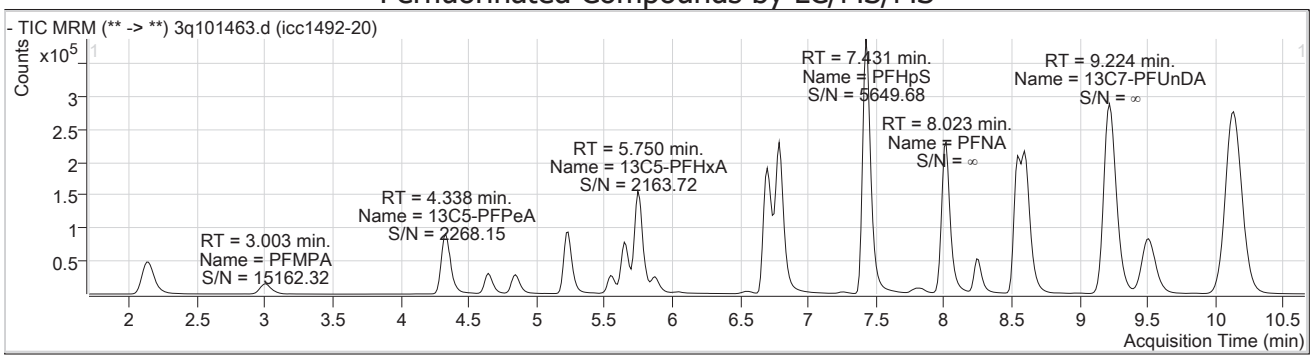
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.9%		
13C8-PFOS	7.995	507.0 -> 99.0	39102	10.83 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.3%		
13C9-PFNA	8.022	472.0 -> 427.0	267922	10.75 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.5%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	3279	10.78 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.8%		
Target Compounds						QValue
PFMPA	3.003	229.0 -> 85.0	96051	19.68 µg/L		100
4:2FTS	5.648	327.0 -> 307.0	177347	19.48 µg/L		100
		327.0 -> 81.0	75159			
6:2FTS	7.433	427.0 -> 407.0	235061	19.40 µg/L		100
		427.0 -> 81.0	104178			
8:2FTS	8.612	527.0 -> 507.0	389254	21.77 µg/L		100
		527.0 -> 81.0	158872			
PFMBA	4.851	279.0 -> 85.0	132841	20.10 µg/L		100
PFEESA	5.235	315.0 -> 135.0	383681	20.44 µg/L		100
		315.0 -> 69.0	29156			
NFDHA	5.556	201.0 -> 85.0	113529	20.03 µg/L		100
		295.0 -> 201.0	7243			
PFBA	2.136	213.0 -> 169.0	83609	20.06 µg/L		100
PFBS	4.647	299.0 -> 80.0	84682	20.12 µg/L		100
		299.0 -> 99.0	35607			
PFDA	8.546	513.0 -> 469.0	430596	20.11 µg/L		100
		513.0 -> 219.0	100409			
PFDoDA	10.138	613.0 -> 569.0	1276051	20.02 µg/L		100
		613.0 -> 169.0	138918			
PFHpA	6.708	363.0 -> 319.0	537593	20.26 µg/L		100
		363.0 -> 169.0	44511			
PFHpS	7.431	449.0 -> 80.0	111774	20.31 µg/L		100
		449.0 -> 99.0	62469			
PFHxA	5.753	313.0 -> 269.0	425272	19.92 µg/L		100
		313.0 -> 119.0	14796			
PFHxS	6.725	399.0 -> 80.0	107439	20.31 µg/L	m	100
		399.0 -> 99.0	55698			
PFNA	8.023	463.0 -> 419.0	440800	20.09 µg/L		100
		463.0 -> 219.0	130376			
PFOA	7.436	413.0 -> 369.0	375976	19.89 µg/L		100
		413.0 -> 169.0	139467			
PFOS	7.996	499.0 -> 80.0	124154	19.86 µg/L	m	100
		499.0 -> 99.0	64369			
PFPeA	4.340	263.0 -> 219.0	270642	20.02 µg/L		100
PFPeS	5.871	349.0 -> 80.0	61635	20.08 µg/L		100
		349.0 -> 99.0	25917			
PFUnDA	9.227	563.0 -> 519.0	975044	19.92 µg/L		100
		563.0 -> 269.0	190388			
11Cl-PF3OUdS	9.507	631.0 -> 451.0	575947	19.83 µg/L		100
		631.0 -> 83.0	28130			
9Cl-PF3ONS	8.241	531.0 -> 351.0	202201	20.07 µg/L		100
		531.0 -> 83.0	10378			
ADONA	6.792	377.0 -> 251.0	815567	19.91 µg/L		100
		377.0 -> 85.0	97597			
HFPO-DA	6.048	329.0 -> 169.0	1479	20.42 µg/L		100
		285.0 -> 169.0	3566			

 # = Qualifier out of range, m = manually integrated, + = Area summed

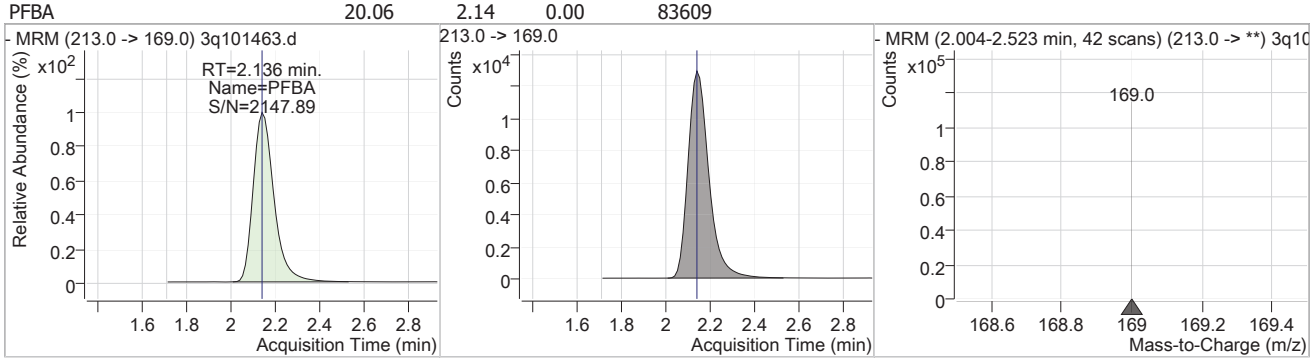
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

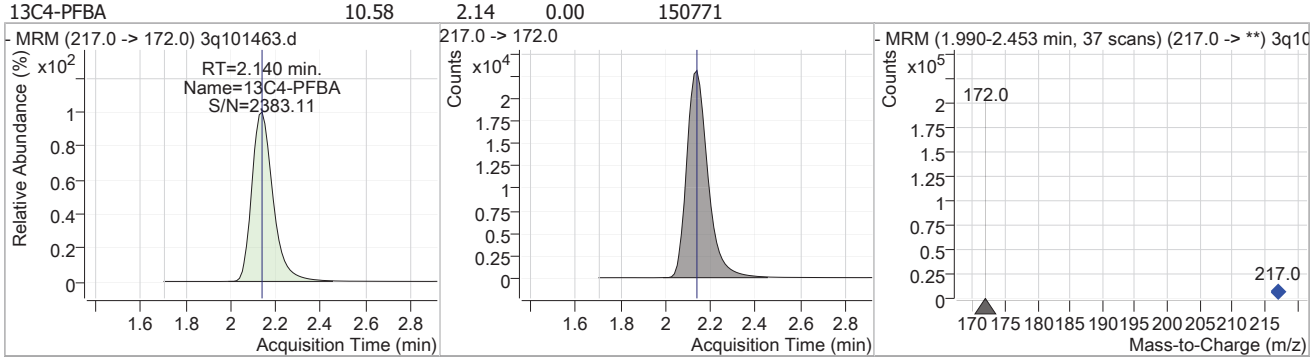
Perfluorinated Compounds by LC/MS/MS



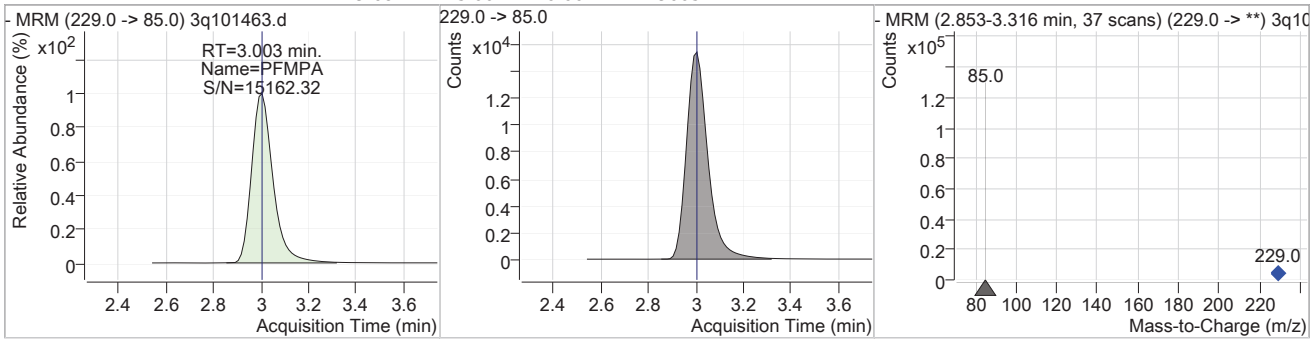
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	20.06	2.14	0.00	83609				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.58	2.14	0.00	150771				

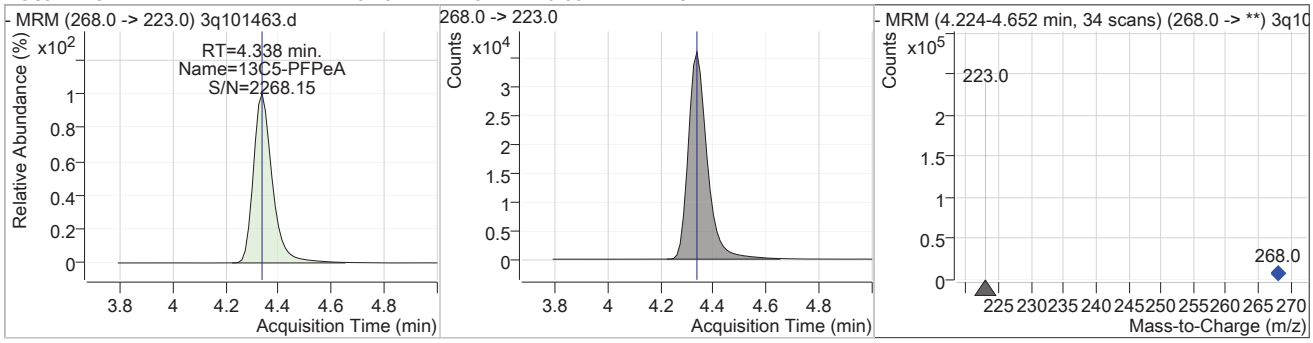


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	19.68	3.00	0.00	96051				

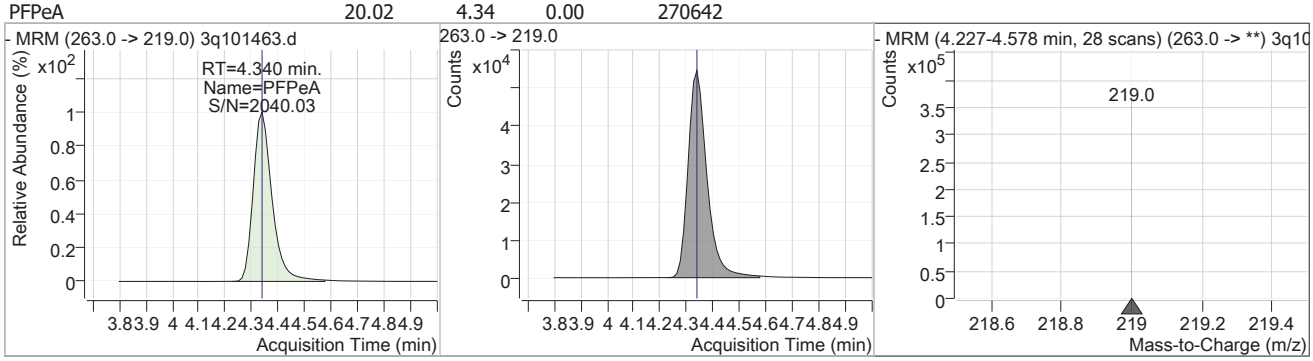


Perfluorinated Compounds by LC/MS/MS

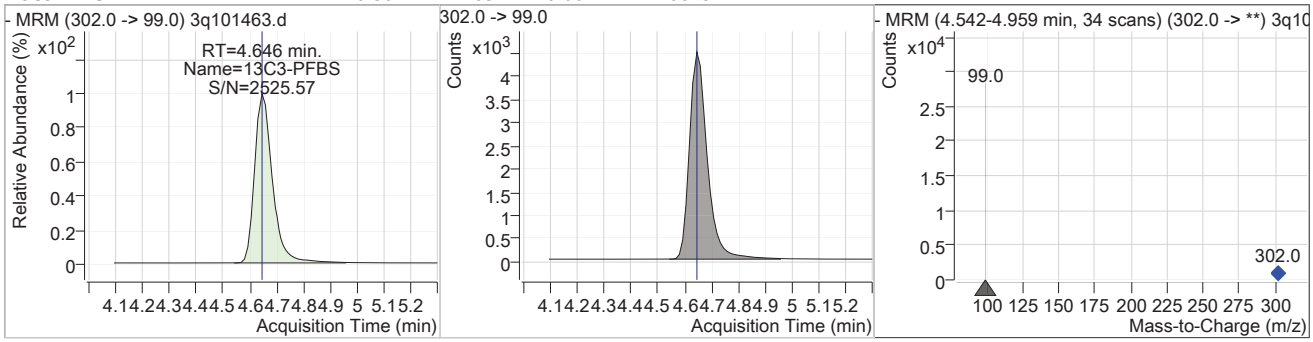
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.43	4.34	0.00	179212				



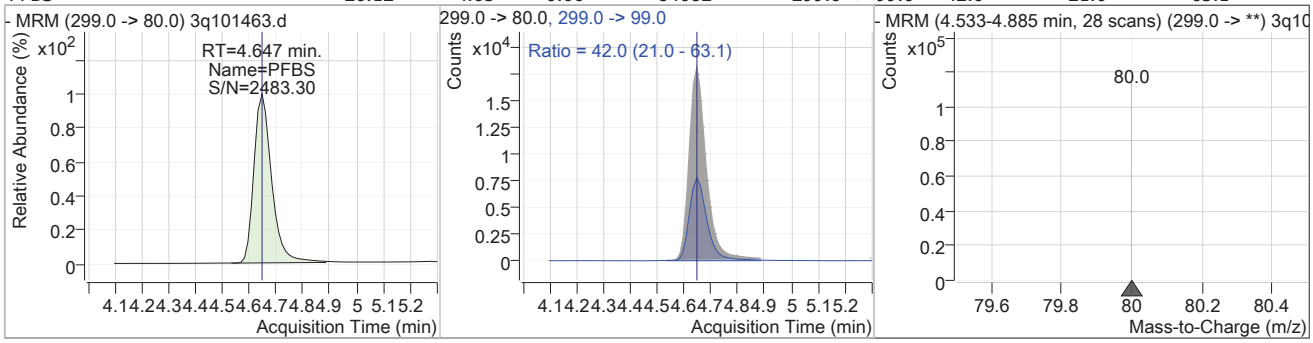
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.02	4.34	0.00	270642				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.50	4.65	0.00	20815				



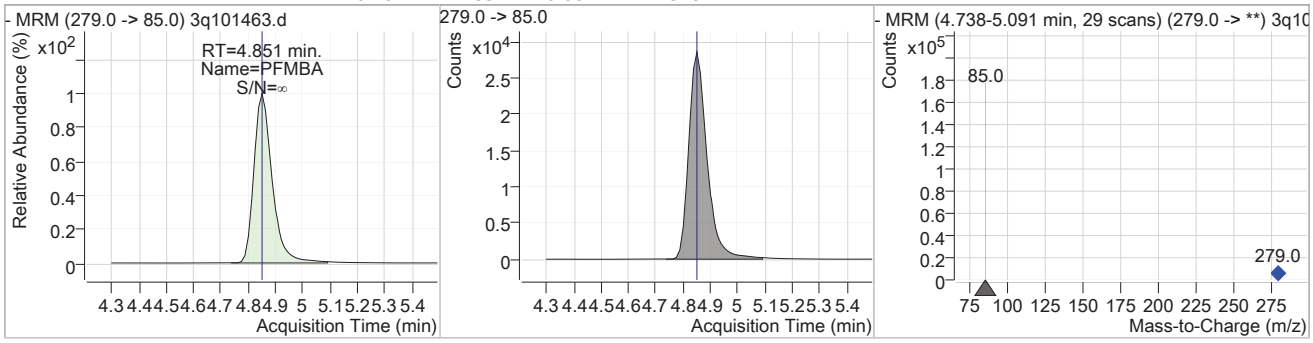
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.12	4.65	0.00	84682	299.0 -> 99.0	42.0	21.0	63.1



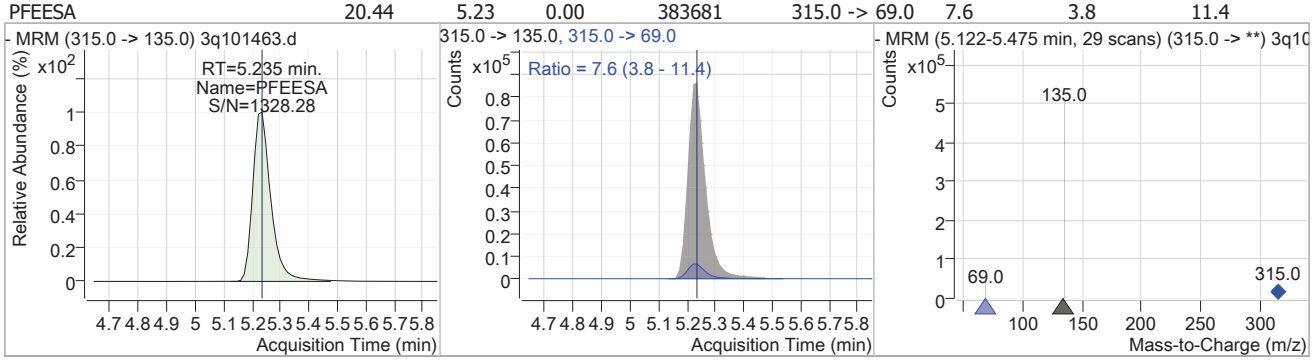
7.7.7

Perfluorinated Compounds by LC/MS/MS

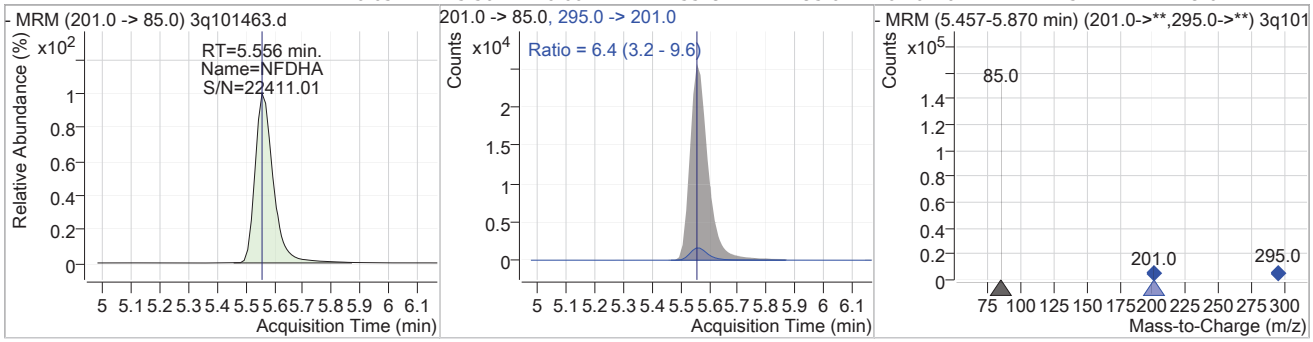
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	20.10	4.85	0.00	132841				



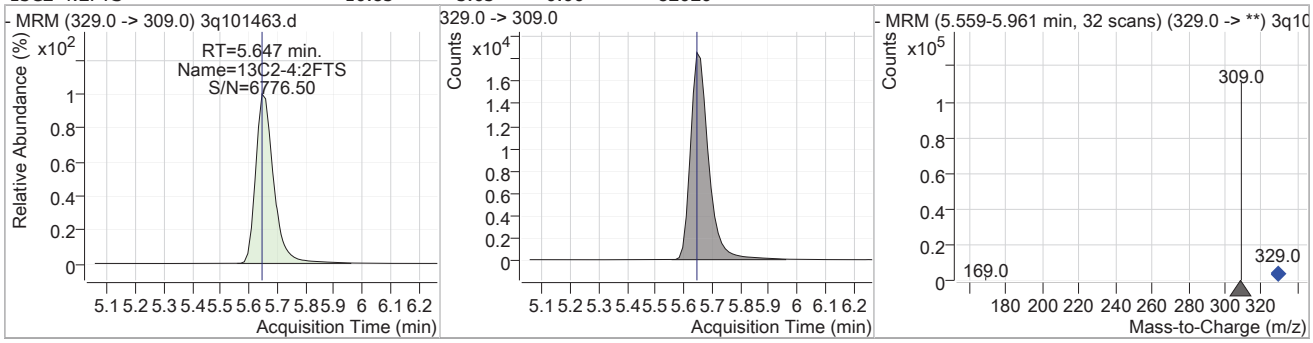
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	20.44	5.23	0.00	383681	315.0 -> 69.0	7.6	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	20.03	5.56	0.00	113529	295.0 -> 201.0	6.4	3.2	9.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	10.85	5.65	0.00	82020				

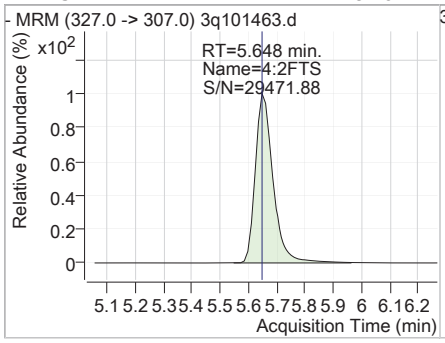


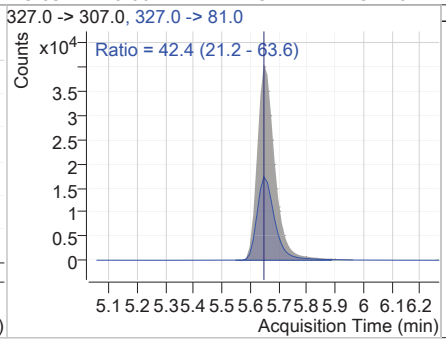
7.7.7

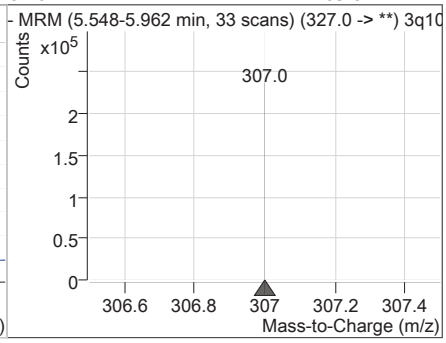
7

Perfluorinated Compounds by LC/MS/MS

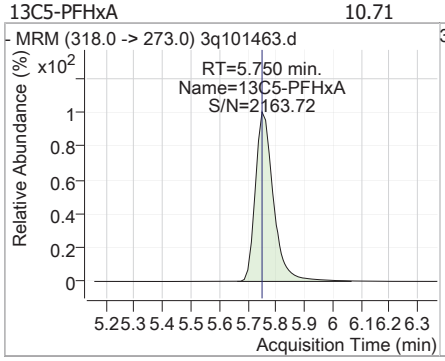
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.48	5.65	0.00	177347	327.0 -> 81.0	42.4	21.2	63.6

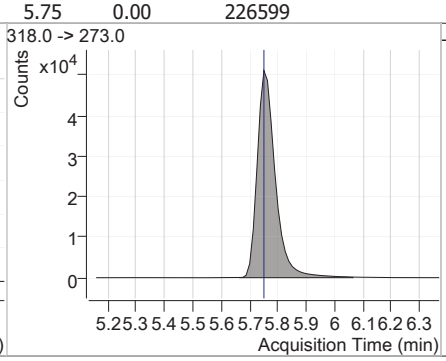


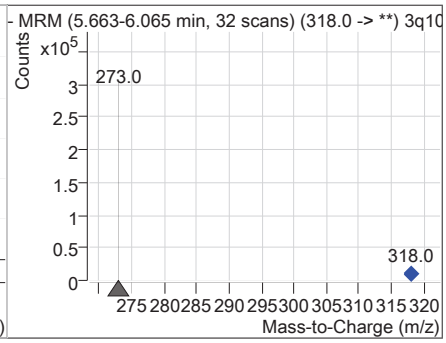




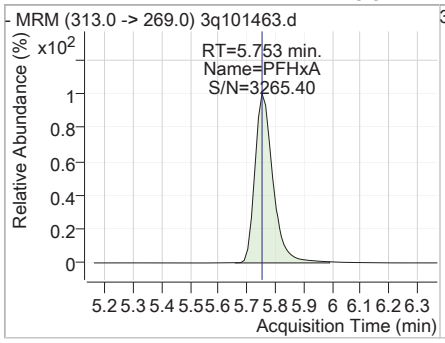
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.71	5.75	0.00	226599				

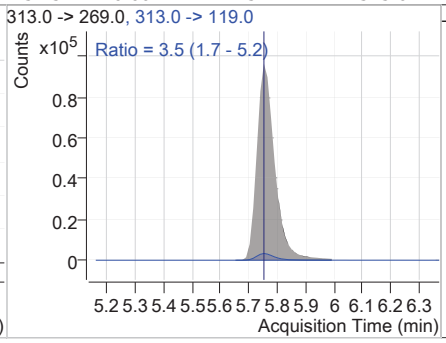


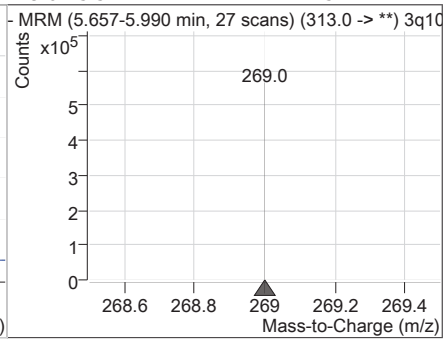




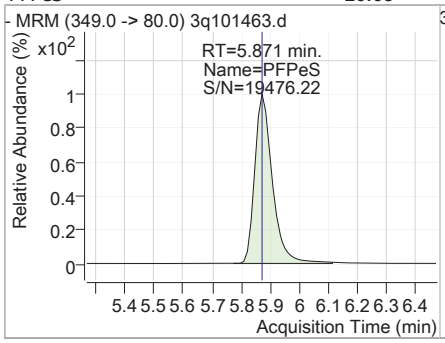
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.92	5.75	0.00	425272	313.0 -> 119.0	3.5	1.7	5.2

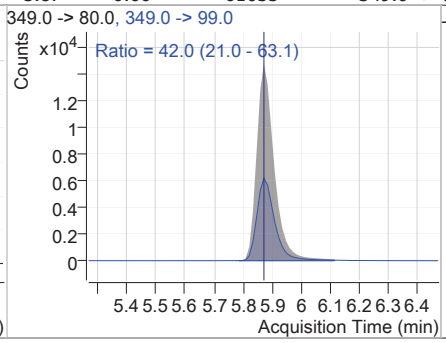


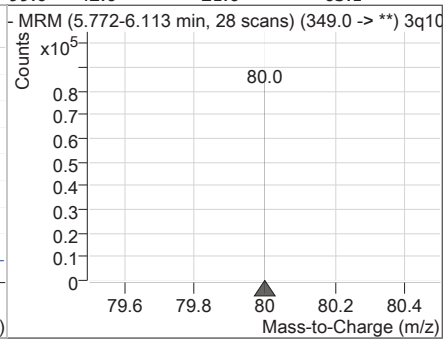




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	20.08	5.87	0.00	61635	349.0 -> 99.0	42.0	21.0	63.1







7.7.7

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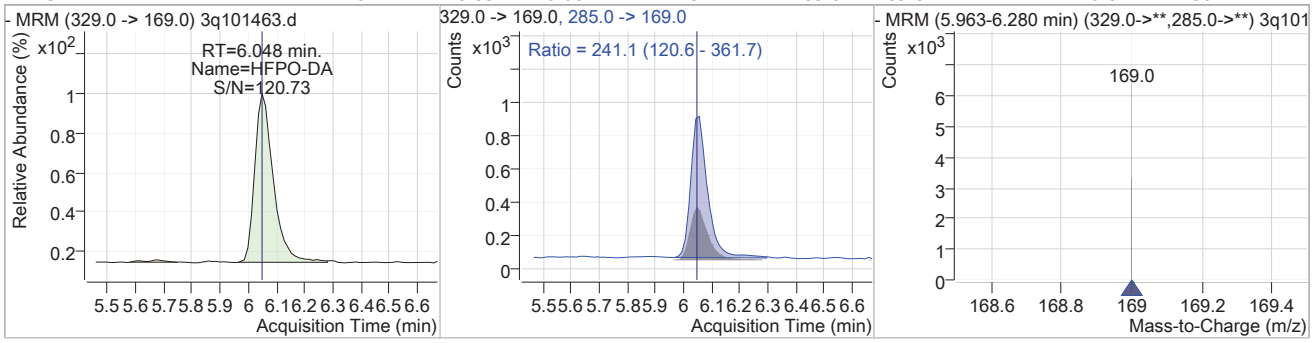
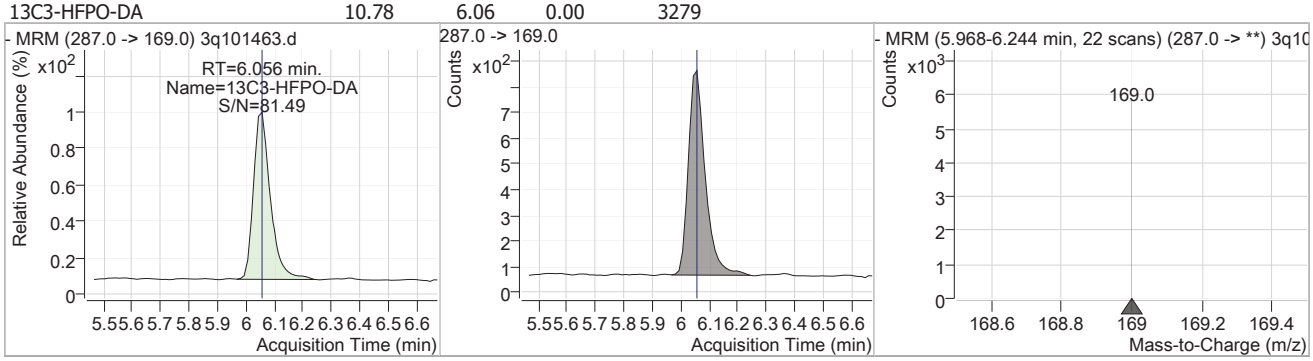
Perfluorinated Compounds by LC/MS/MS

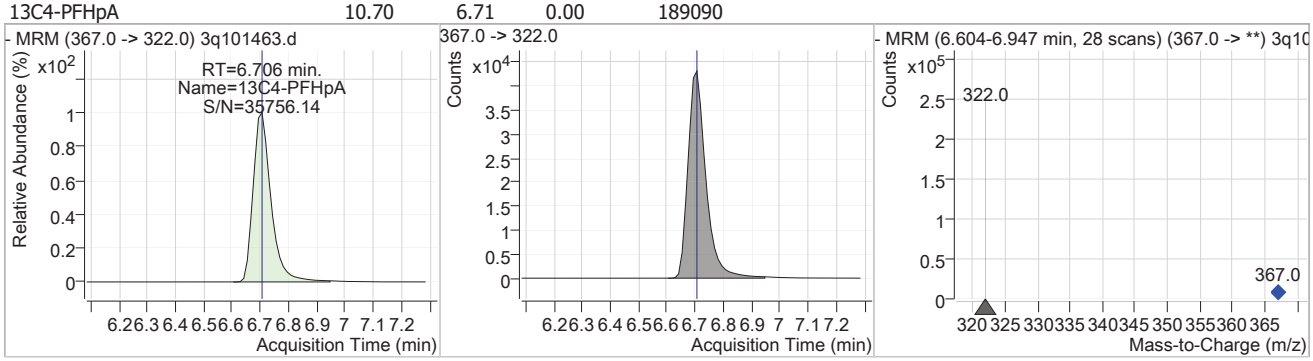
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	20.42	6.05	0.00	1479	285.0 -> 169.0	241.1	120.6	361.7



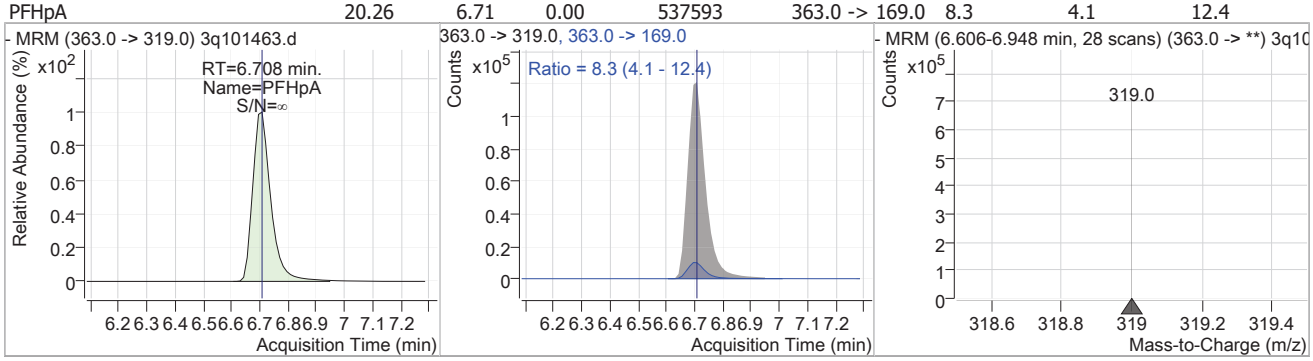
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.78	6.06	0.00	3279				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.70	6.71	0.00	189090				

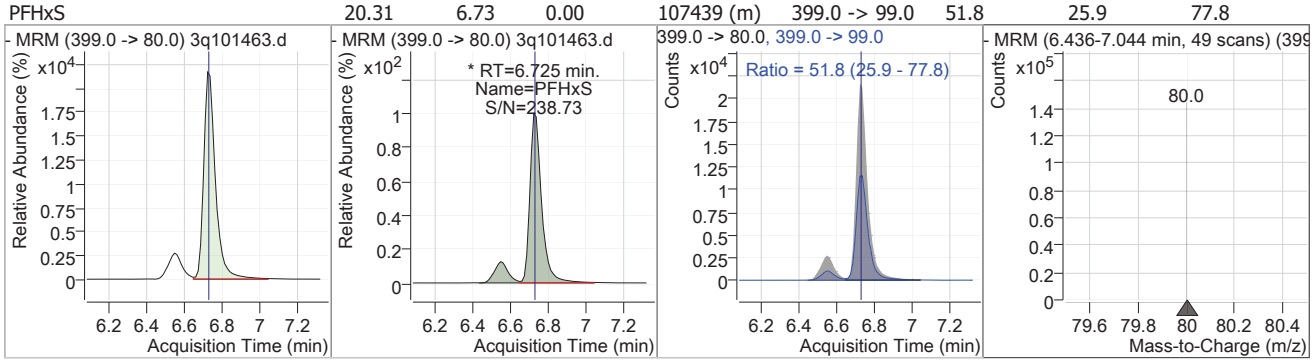


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.26	6.71	0.00	537593	363.0 -> 169.0	8.3	4.1	12.4

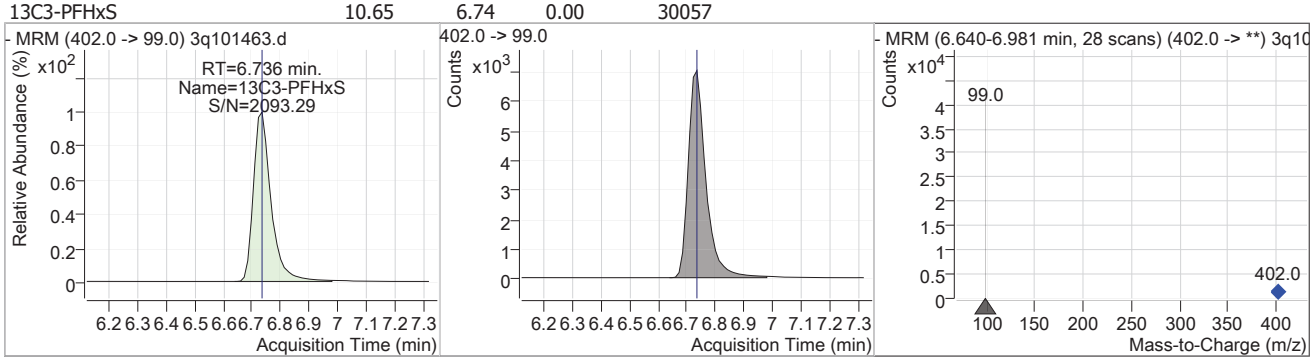


Perfluorinated Compounds by LC/MS/MS

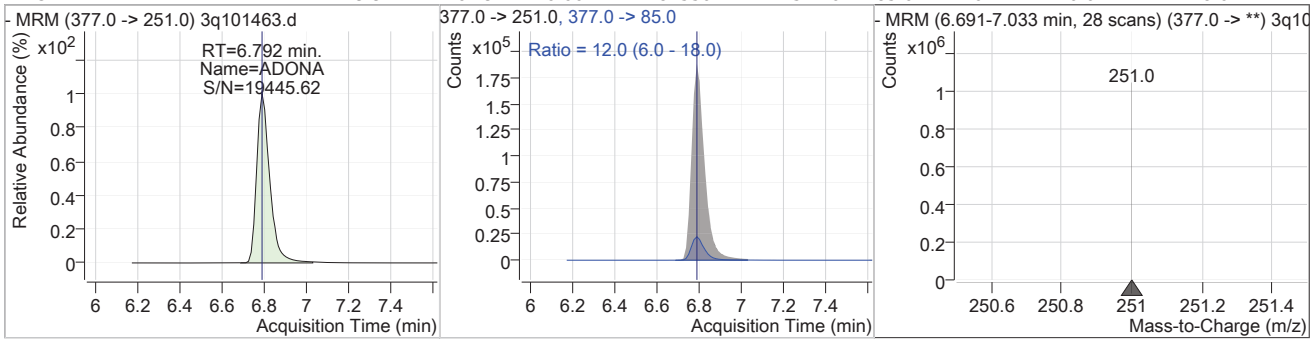
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	20.31	6.73	0.00	107439 (m)	399.0 -> 99.0	51.8	25.9	77.8



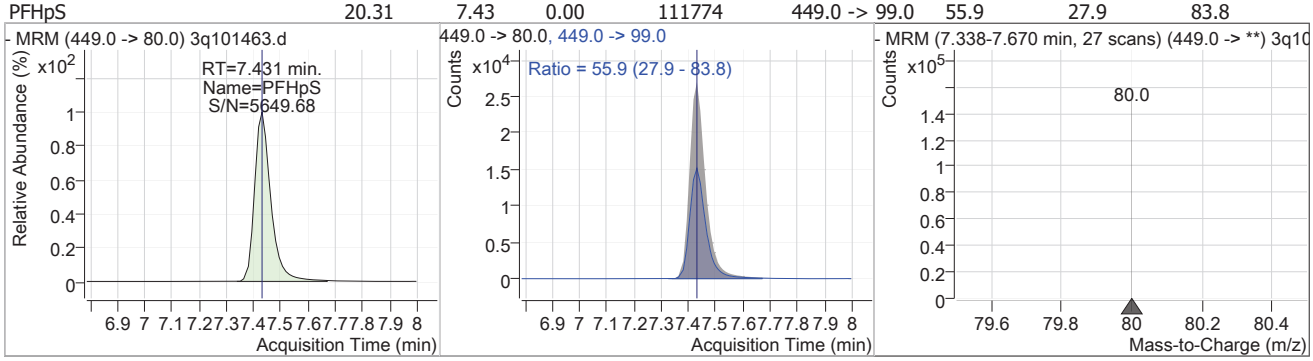
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.65	6.74	0.00	30057				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.91	6.79	0.00	815567	377.0 -> 85.0	12.0	6.0	18.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	20.31	7.43	0.00	111774	449.0 -> 99.0	55.9	27.9	83.8

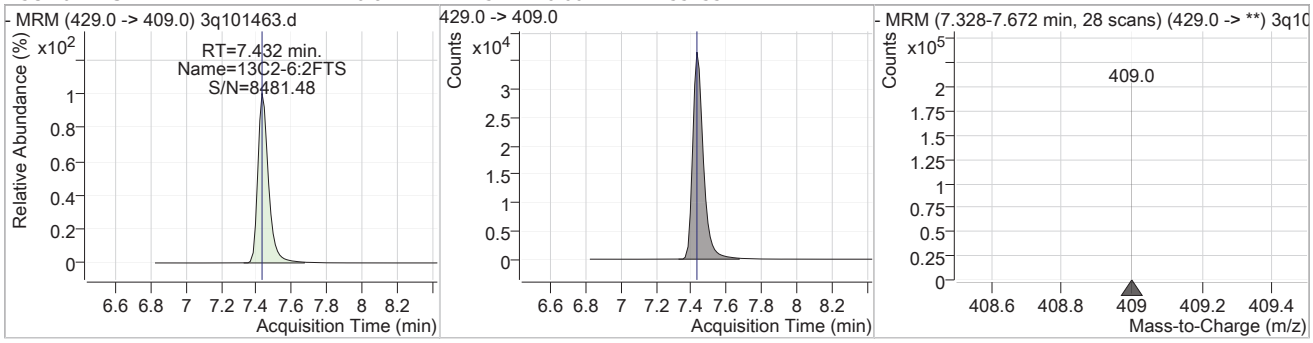


7.7.7

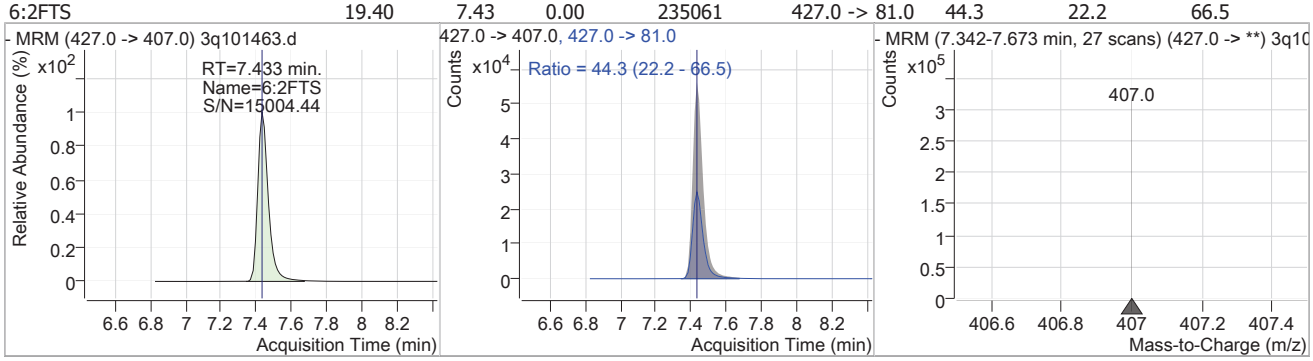
7

Perfluorinated Compounds by LC/MS/MS

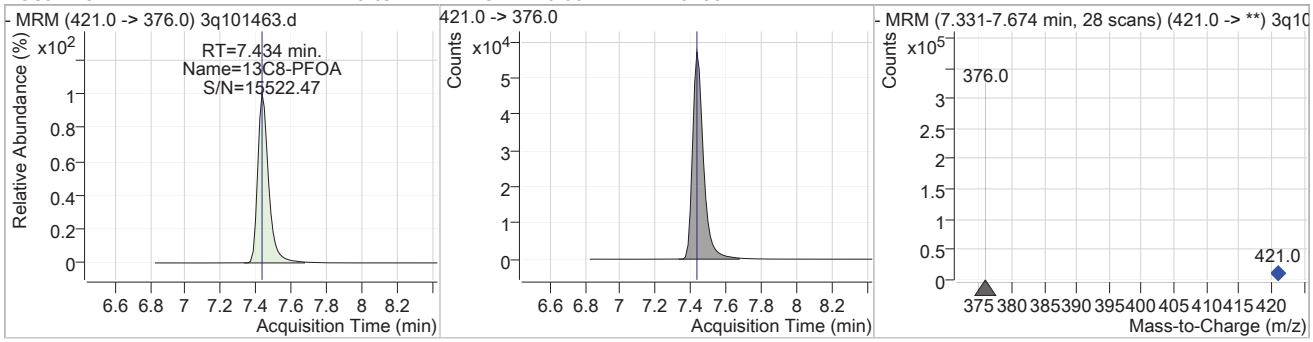
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	10.81	7.43	0.00	153435				



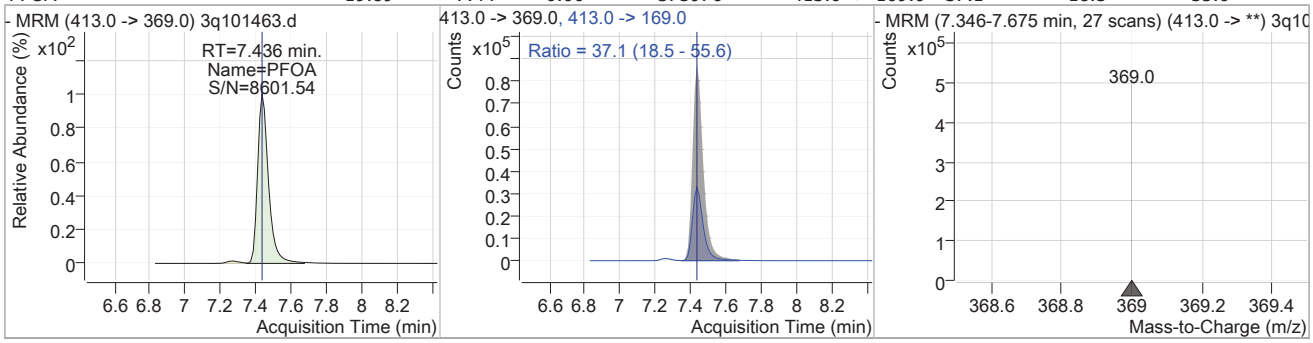
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.40	7.43	0.00	235061	427.0 -> 81.0	44.3	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.69	7.43	0.00	245108				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.89	7.44	0.00	375976	413.0 -> 169.0	37.1	18.5	55.6

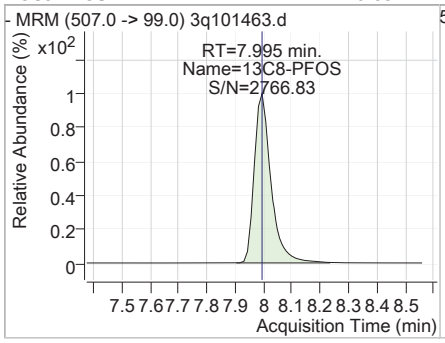


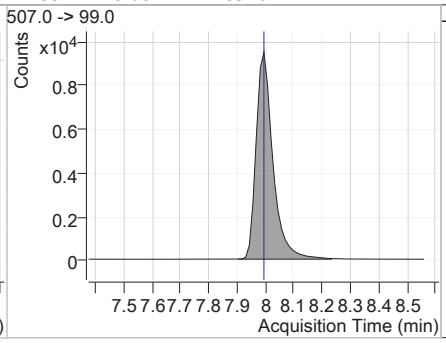
7.2.7

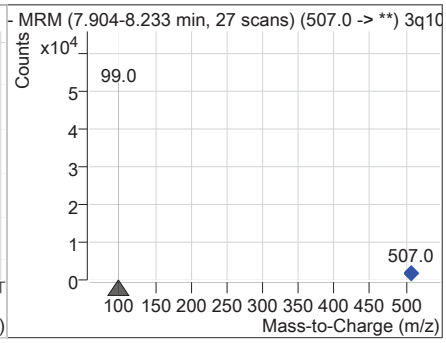
7

Perfluorinated Compounds by LC/MS/MS

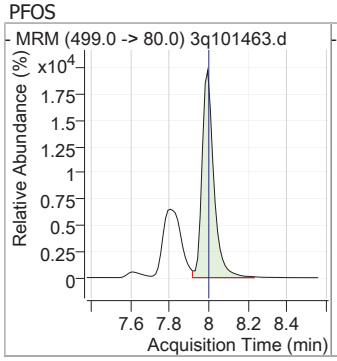
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.83	7.99	0.00	39102				

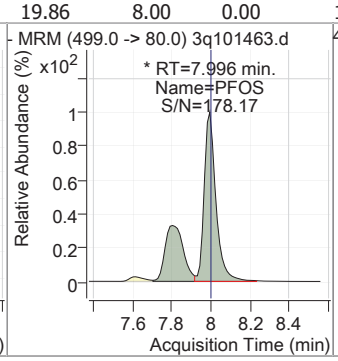


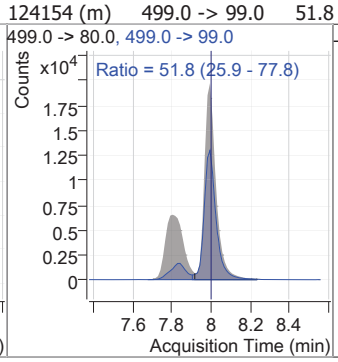


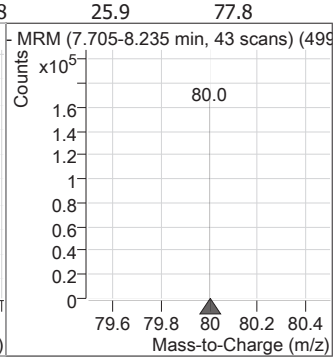


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.86	8.00	0.00	124154 (m)	499.0 -> 99.0	51.8	25.9	77.8

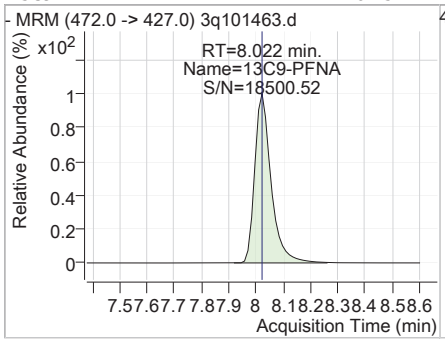


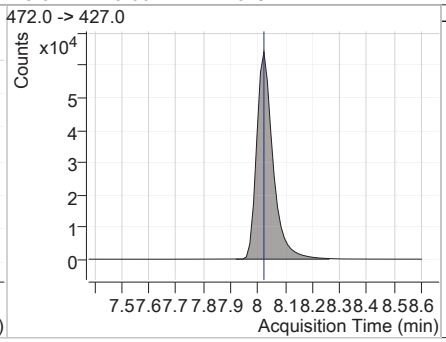


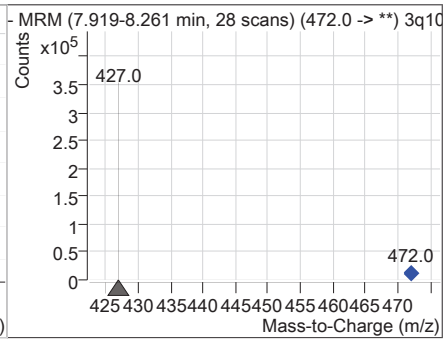




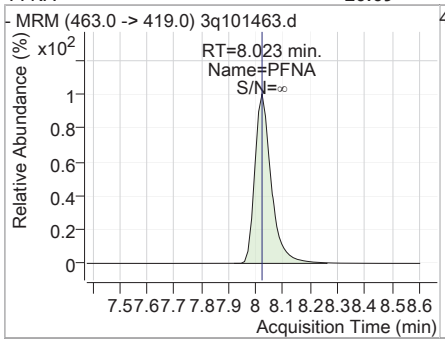
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.75	8.02	0.00	267922				

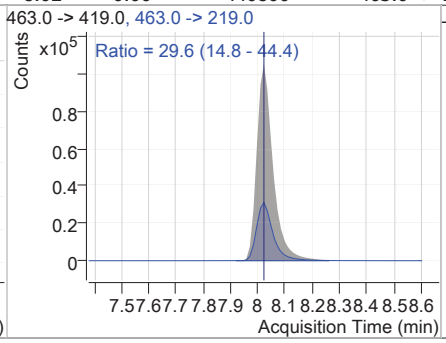


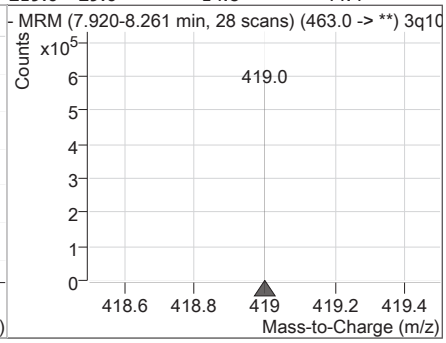




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	20.09	8.02	0.00	440800	463.0 -> 219.0	29.6	14.8	44.4





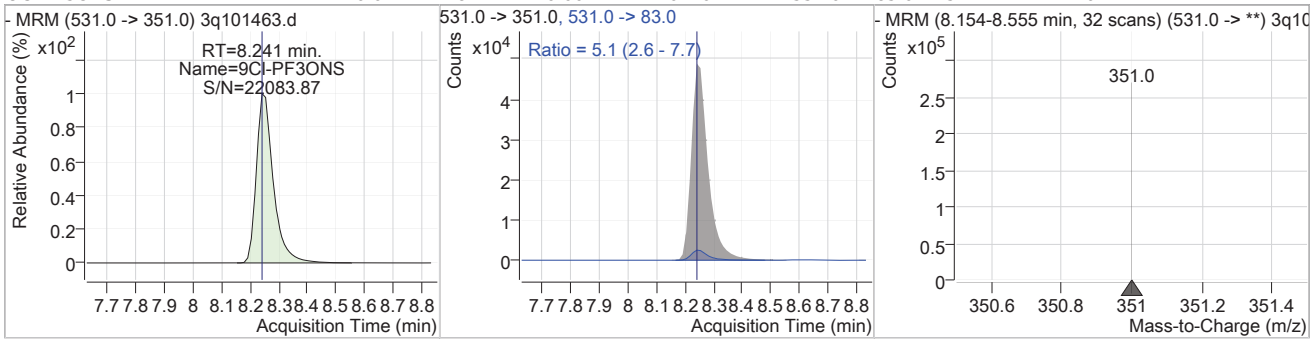


7.7.7

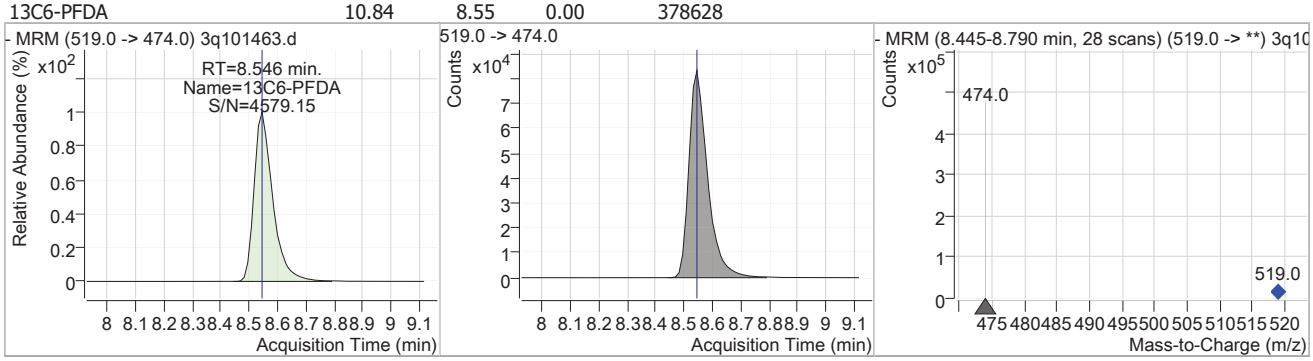
7

Perfluorinated Compounds by LC/MS/MS

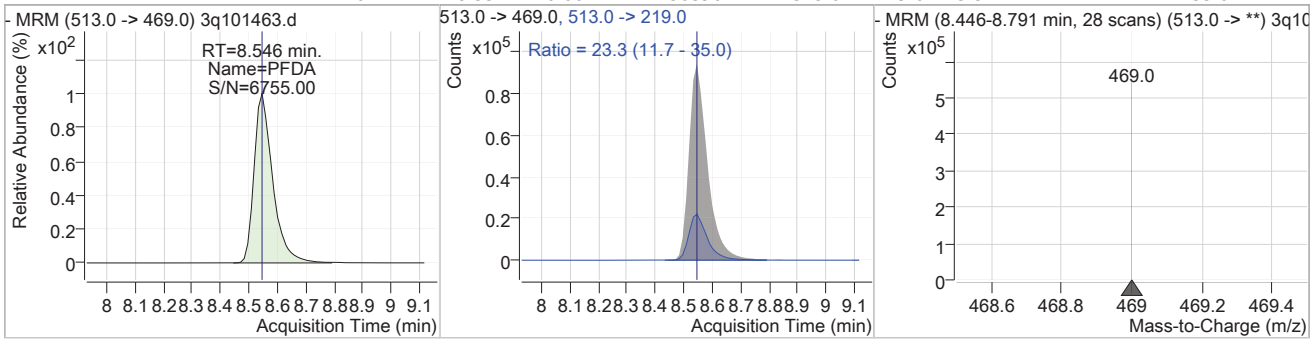
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	20.07	8.24	0.00	202201	531.0 -> 83.0	5.1	2.6	7.7



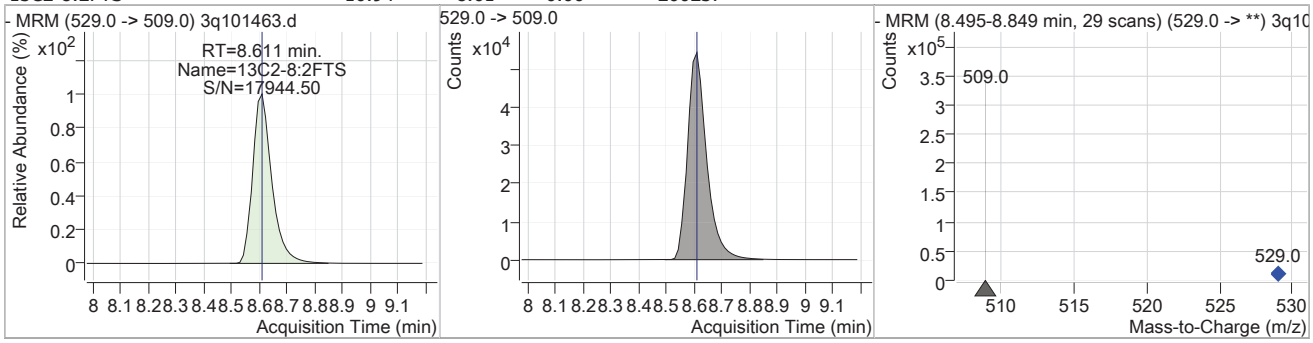
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	10.84	8.55	0.00	378628				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.11	8.55	0.00	430596	513.0 -> 219.0	23.3	11.7	35.0



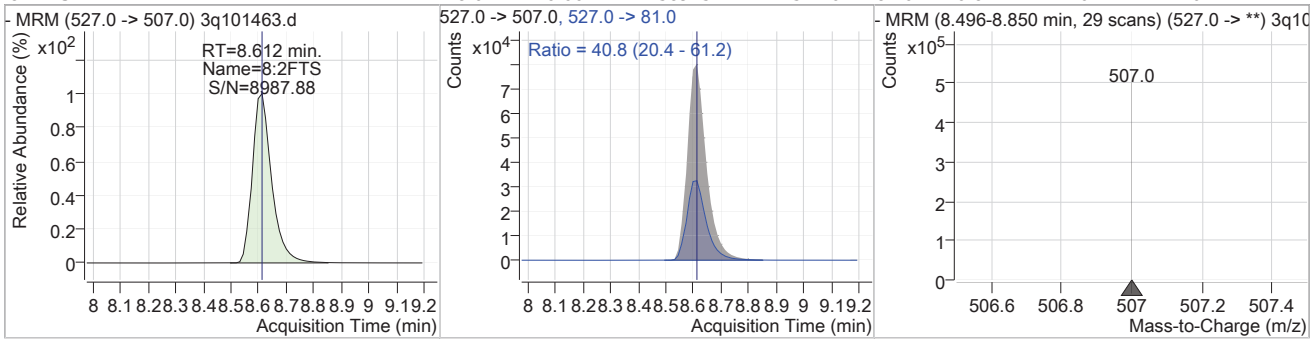
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	10.94	8.61	0.00	260237				



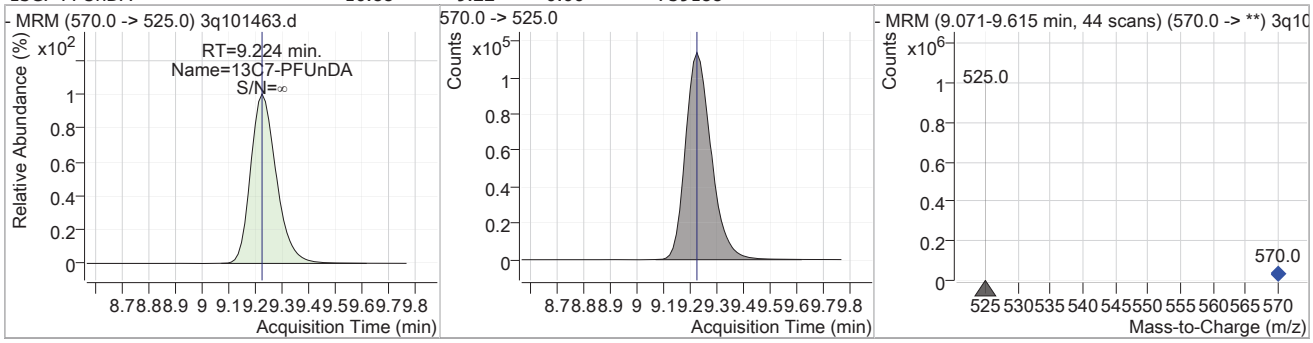
7.7.7

Perfluorinated Compounds by LC/MS/MS

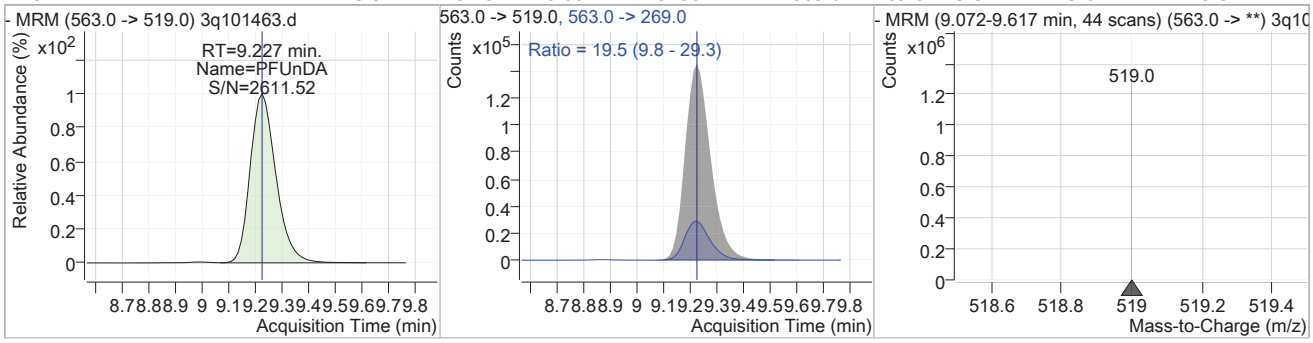
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.77	8.61	0.00	389254	527.0 -> 81.0	40.8	20.4	61.2



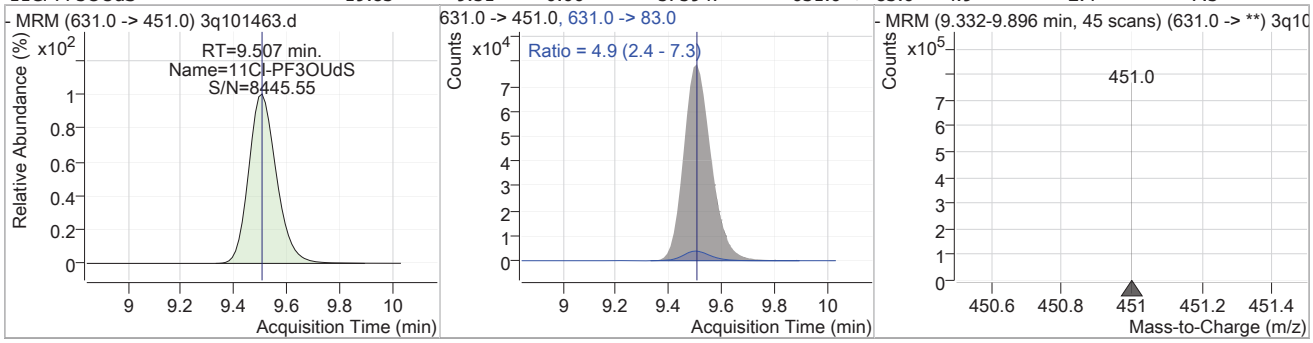
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	10.88	9.22	0.00	759188				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.92	9.23	0.00	975044	563.0 -> 269.0	19.5	9.8	29.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	19.83	9.51	0.00	575947	631.0 -> 83.0	4.9	2.4	7.3

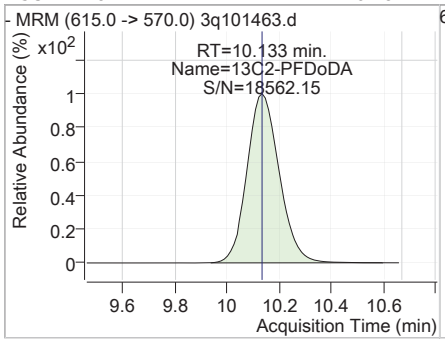


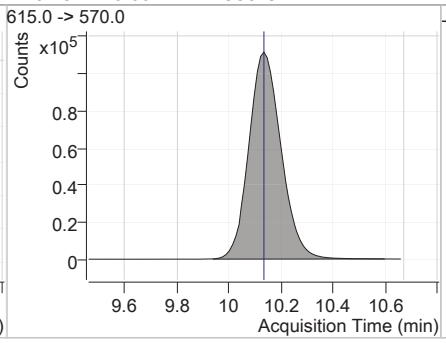
7.7.7

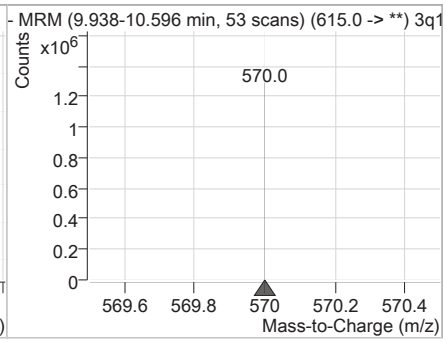
7

Perfluorinated Compounds by LC/MS/MS

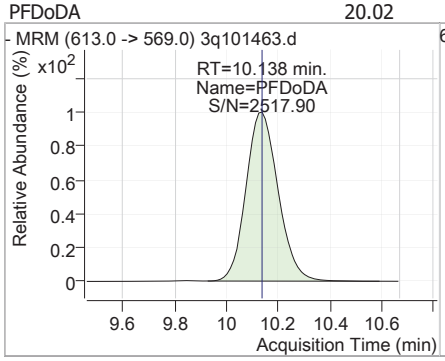
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.78	10.13	0.00	958194				

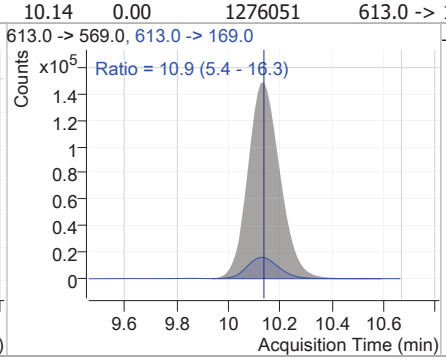


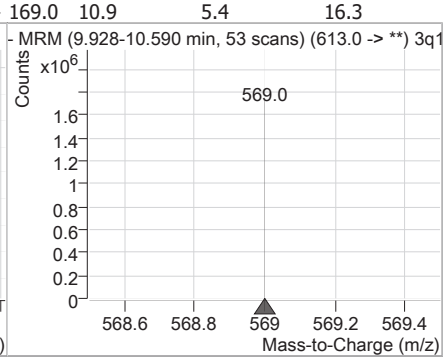




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	20.02	10.14	0.00	1276051	613.0 -> 169.0	10.9	5.4	16.3







7.7.7

7

Manual Integration Approval Summary

Sample Number:	S3Q1492-ICC1492	**Method:**	EPA 533
Lab FileID:	3Q101463.D	**Analyst approved:**	04/16/25 08:55 (b) (6)
Injection Time:	04/15/25 15:24	**Supervisor approved:**	04/17/25 11:42 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.72	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.00	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:42

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101464.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 3:40:29 PM
Sample Name : ic1492-40
Vial : P1-C8
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.435	415.0 -> 370.0	209676	10.00 µg/L	0.000
13C3-PFBA	2.357	216.0 -> 172.0	86424	10.00 µg/L	0.225
13C4-PFOS	7.983	503.0 -> 80.0	32531	10.00 µg/L	-0.013
M4-PFBA	2.352	217.0 -> 172.0	147952	10.00 µg/L	0.213
M5-PFPeA	4.425	268.0 -> 223.0	175506	10.00 µg/L	0.088
M5-PFHxA	5.776	318.0 -> 273.0	220560	10.00 µg/L	0.025
M4-PFHpA	6.706	367.0 -> 322.0	183068	10.00 µg/L	0.000
M8-PFOA	7.434	421.0 -> 376.0	229935	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	257374	10.00 µg/L	-0.013
M6-PFDA	8.533	519.0 -> 474.0	366919	10.00 µg/L	-0.013
M7-PFUnDA	9.212	570.0 -> 525.0	716283	10.00 µg/L	-0.013
M2-PFDoDA	10.108	615.0 -> 570.0	916740	10.00 µg/L	-0.025
M3-PFBS	4.721	302.0 -> 99.0	20582	10.00 µg/L	0.075
M3-PFHxS	6.736	402.0 -> 99.0	29634	10.00 µg/L	0.000
M8-PFOS	7.982	507.0 -> 99.0	37709	10.00 µg/L	-0.013
M2-4:2FTS	5.684	329.0 -> 309.0	87742	10.00 µg/L	0.038
M2-6:2FTS	7.432	429.0 -> 409.0	159072	10.00 µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	271157	10.00 µg/L	-0.014
M3-HFPO-DA	6.068	287.0 -> 169.0	3585	10.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.684	329.0 -> 309.0	87742	11.33 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.3%	
13C2-6:2FTS	7.432	429.0 -> 409.0	159072	10.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.4%	
13C2-8:2FTS	8.597	529.0 -> 509.0	271157	11.13 µg/L	-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.3%	
13C2-PFDoDA	10.108	615.0 -> 570.0	916740	10.27 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C3-PFBS	4.721	302.0 -> 99.0	20582	10.14 µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C3-PFHxS	6.736	402.0 -> 99.0	29634	10.25 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C4-PFBA	2.352	217.0 -> 172.0	147952	10.09 µg/L	0.213
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C4-PFHpA	6.706	367.0 -> 322.0	183068	10.32 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C5-PFHxA	5.776	318.0 -> 273.0	220560	10.38 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C5-PFPeA	4.425	268.0 -> 223.0	175506	9.93 µg/L	0.088
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C6-PFDA	8.533	519.0 -> 474.0	366919	10.46 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C7-PFUnDA	9.212	570.0 -> 525.0	716283	10.22 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C8-PFOA	7.434	421.0 -> 376.0	229935	9.98 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

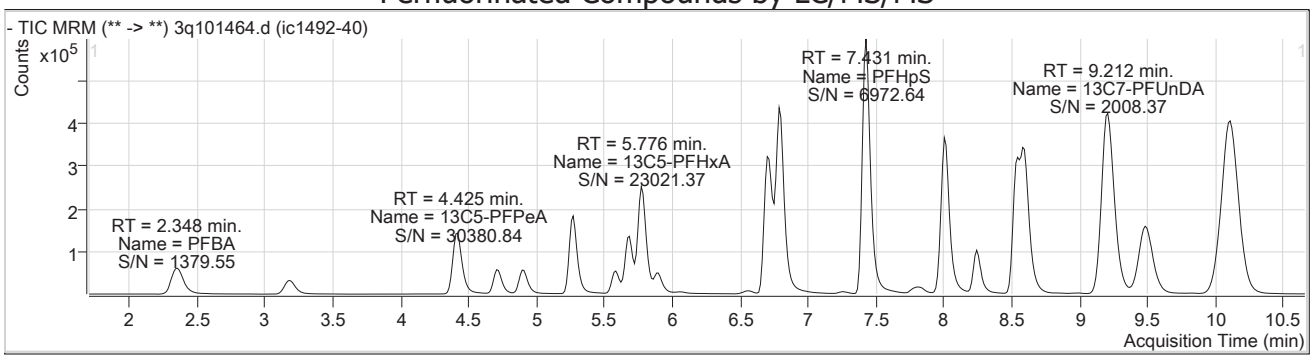
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%		
13C8-PFOS	7.982	507.0 -> 99.0	37709	10.19 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.9%		
13C9-PFNA	8.010	472.0 -> 427.0	257374	10.28 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.8%		
13C3-HFPO-DA	6.068	287.0 -> 169.0	3585	11.74 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 117.4%		
Target Compounds						QValue
PFMPA	3.178	229.0 -> 85.0	189828	39.63 µg/L		100
4:2FTS	5.686	327.0 -> 307.0	343401	39.31 µg/L		100
		327.0 -> 81.0	146459			
6:2FTS	7.433	427.0 -> 407.0	450064	39.41 µg/L		99
		427.0 -> 81.0	197231			
8:2FTS	8.598	527.0 -> 507.0	742583	39.86 µg/L		100
		527.0 -> 81.0	305220			
PFMBA	4.901	279.0 -> 85.0	258637	39.97 µg/L		100
PFEESA	5.274	315.0 -> 135.0	735629	39.63 µg/L		100
		315.0 -> 69.0	55643			
NFDHA	5.594	201.0 -> 85.0	217159	39.37 µg/L		99
		295.0 -> 201.0	14781			
PFBA	2.348	213.0 -> 169.0	161591	39.50 µg/L		100
PFBS	4.710	299.0 -> 80.0	166069	39.91 µg/L		99
		299.0 -> 99.0	70476			
PFDA	8.534	513.0 -> 469.0	813360	39.20 µg/L		99
		513.0 -> 219.0	191875			
PFDoDA	10.113	613.0 -> 569.0	2412423	39.57 µg/L		100
		613.0 -> 169.0	262732			
PFHpA	6.708	363.0 -> 319.0	1020674	39.73 µg/L		100
		363.0 -> 169.0	84472			
PFHpS	7.431	449.0 -> 80.0	214685	39.56 µg/L		99
		449.0 -> 99.0	119034			
PFHxA	5.778	313.0 -> 269.0	825498	39.73 µg/L		100
		313.0 -> 119.0	28618			
PFHxS	6.738	399.0 -> 80.0	206885	39.66 µg/L	m	99
		399.0 -> 99.0	108137			
PFNA	8.023	463.0 -> 419.0	832407	39.49 µg/L		100
		463.0 -> 219.0	246857			
PFOA	7.436	413.0 -> 369.0	706326	39.83 µg/L		100
		413.0 -> 169.0	260183			
PFOS	7.983	499.0 -> 80.0	239440	39.71 µg/L	m	98
		499.0 -> 99.0	121151			
PFPeA	4.427	263.0 -> 219.0	528721	39.93 µg/L		100
PFPeS	5.896	349.0 -> 80.0	119701	39.55 µg/L		98
		349.0 -> 99.0	51478			
PFUnDA	9.214	563.0 -> 519.0	1829143	39.62 µg/L		99
		563.0 -> 269.0	362020			
11Cl-PF3OUdS	9.482	631.0 -> 451.0	1108153	39.57 µg/L		100
		631.0 -> 83.0	54192			
9Cl-PF3ONS	8.241	531.0 -> 351.0	387251	39.87 µg/L		100
		531.0 -> 83.0	20204			
ADONA	6.792	377.0 -> 251.0	1576478	39.75 µg/L		100
		377.0 -> 85.0	187136			
HFPO-DA	6.061	329.0 -> 169.0	2635	37.85 µg/L		79
		285.0 -> 169.0	7280			

 # = Qualifier out of range, m = manually integrated, + = Area summed

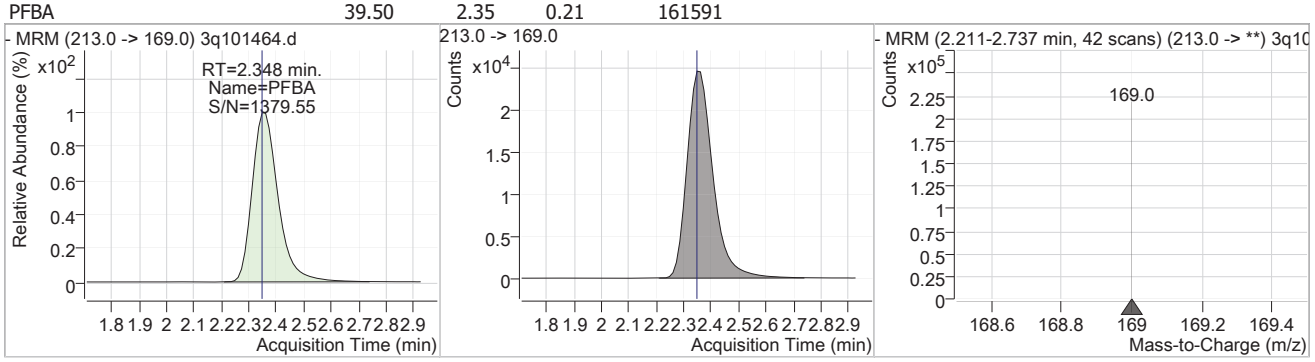
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

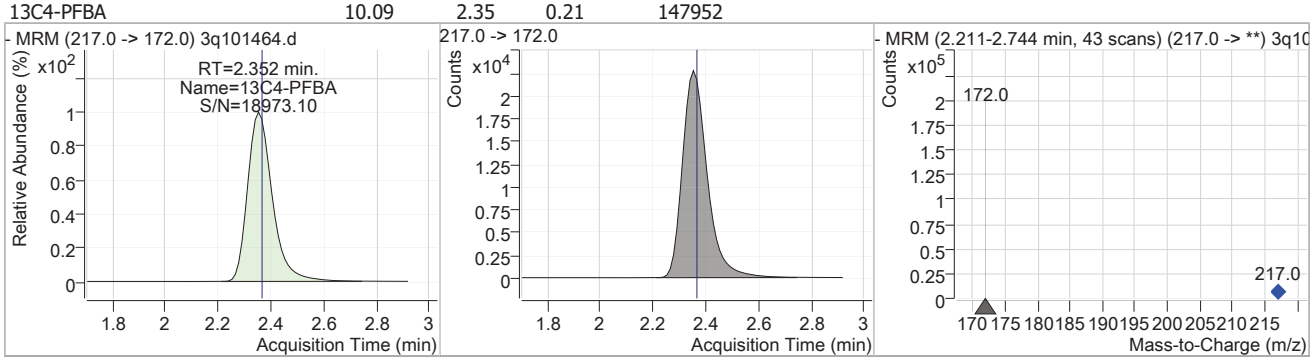
Perfluorinated Compounds by LC/MS/MS



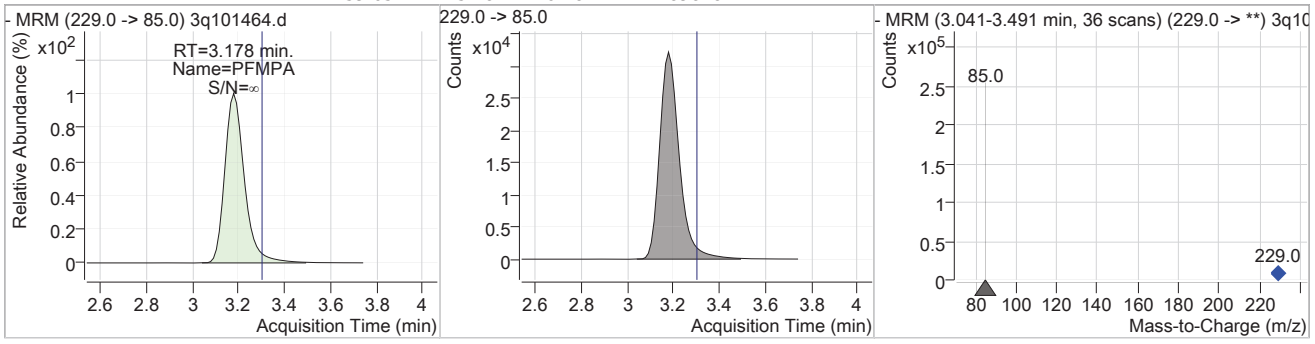
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	39.50	2.35	0.21	161591				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.09	2.35	0.21	147952				

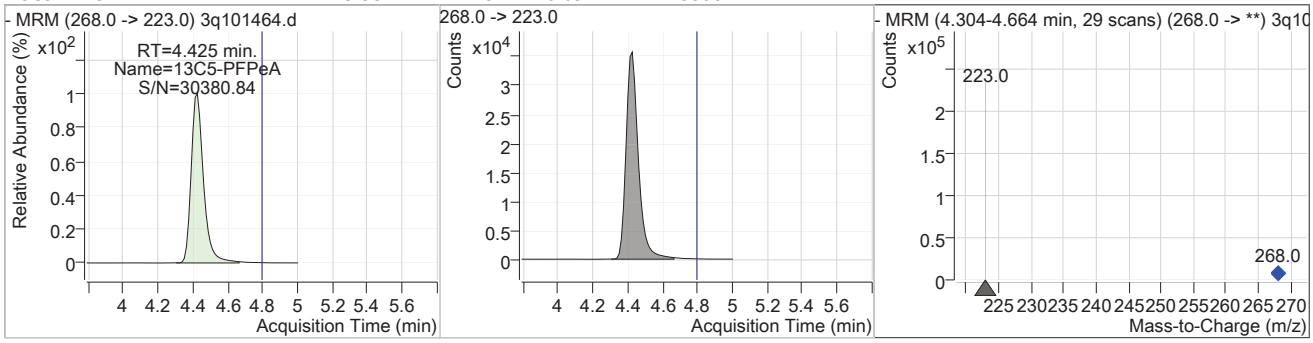


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	39.63	3.18	0.18	189828				

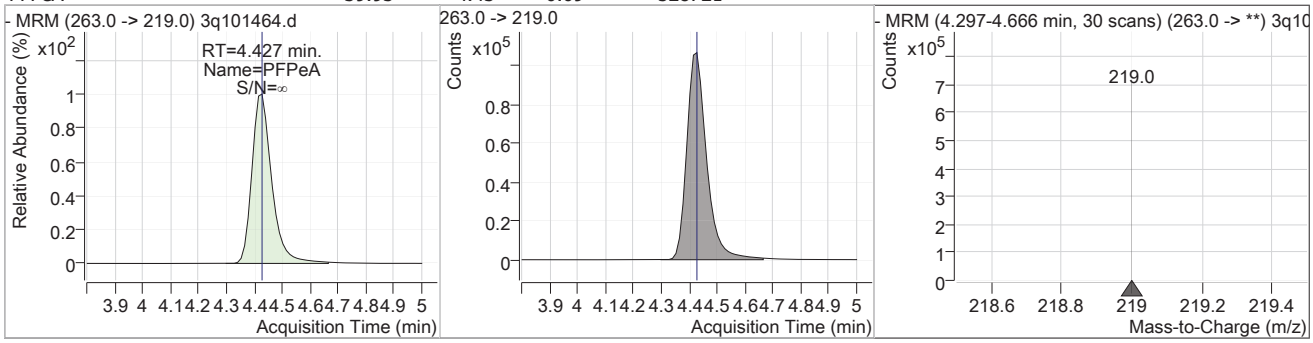


Perfluorinated Compounds by LC/MS/MS

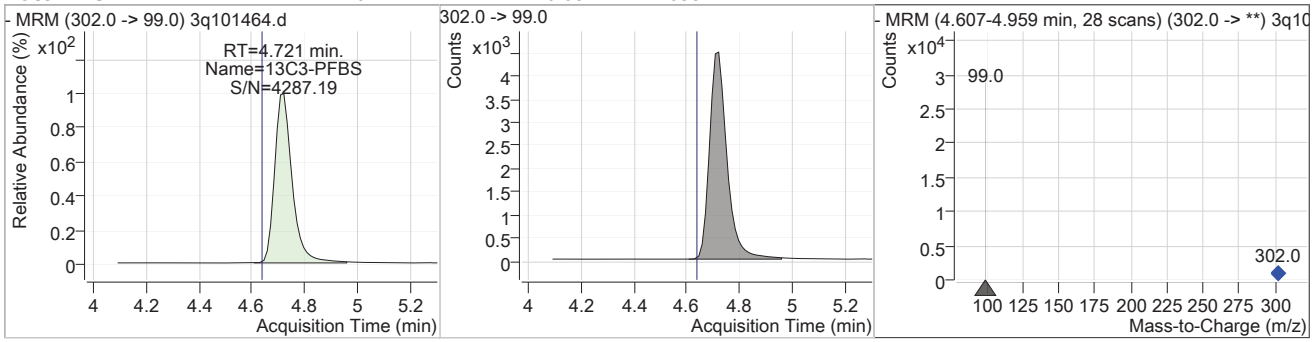
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	9.93	4.43	0.09	175506				



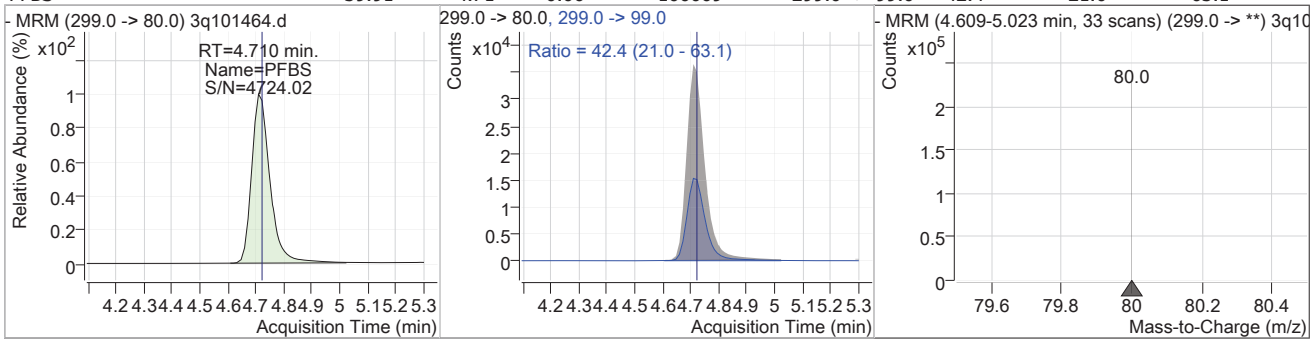
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	39.93	4.43	0.09	528721				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.14	4.72	0.08	20582				

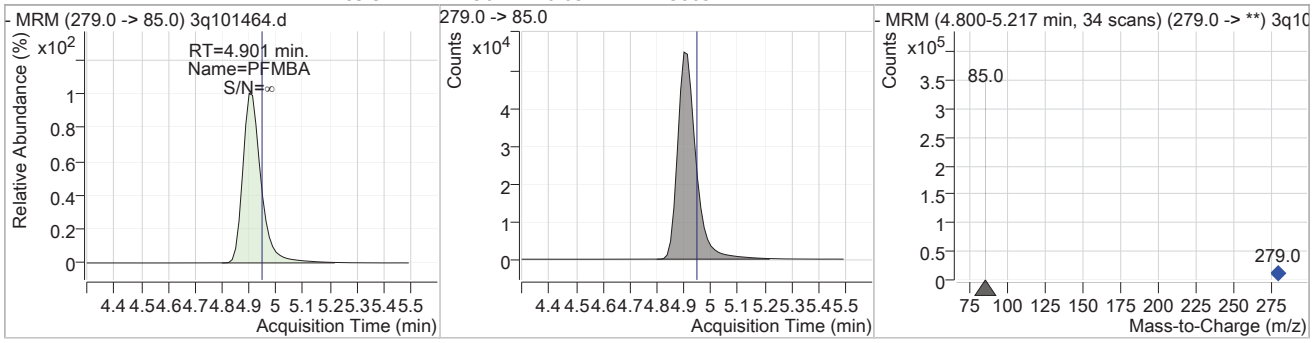


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	39.91	4.71	0.06	166069	299.0 -> 99.0	42.4	21.0	63.1

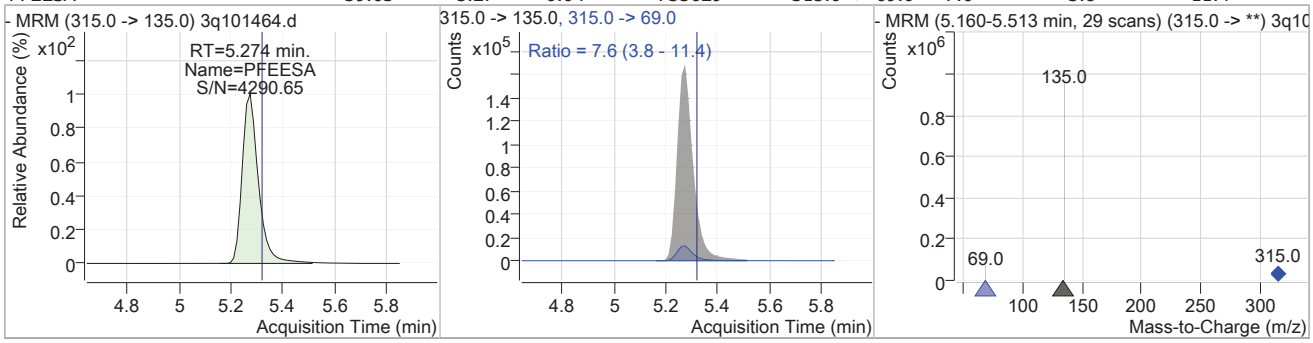


Perfluorinated Compounds by LC/MS/MS

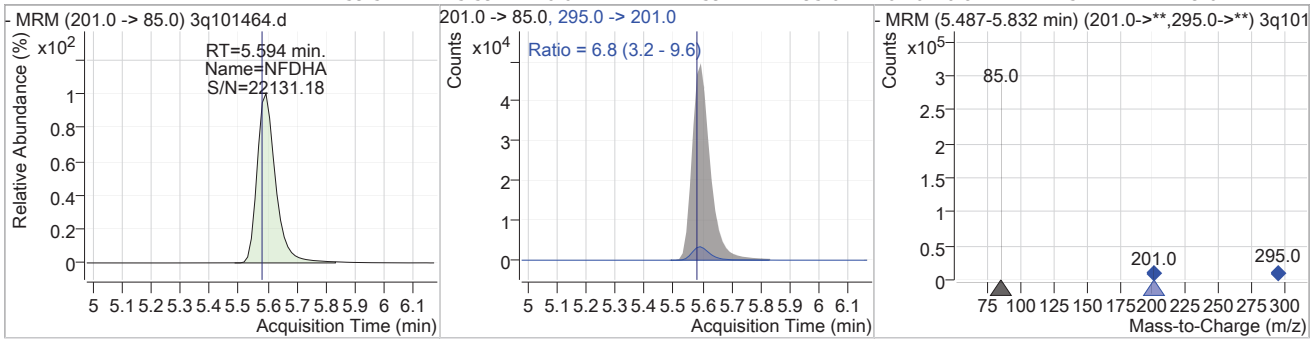
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	39.97	4.90	0.05	258637				



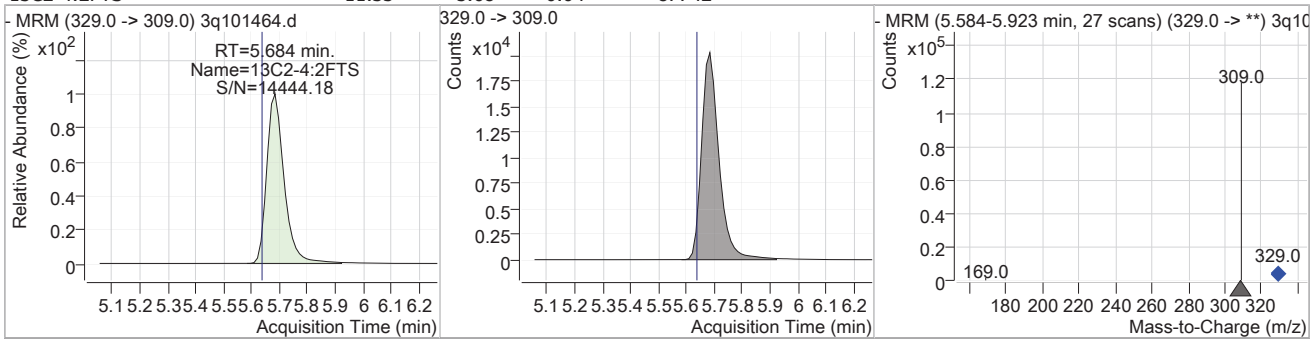
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	39.63	5.27	0.04	735629	315.0 -> 69.0	7.6	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	39.37	5.59	0.04	217159	295.0 -> 201.0	6.8	3.2	9.6

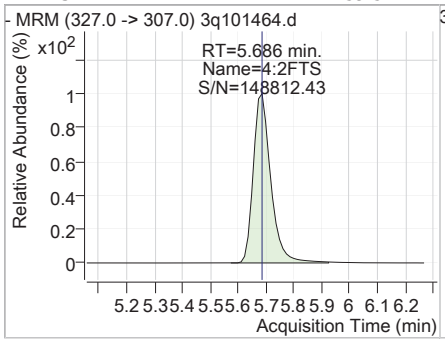


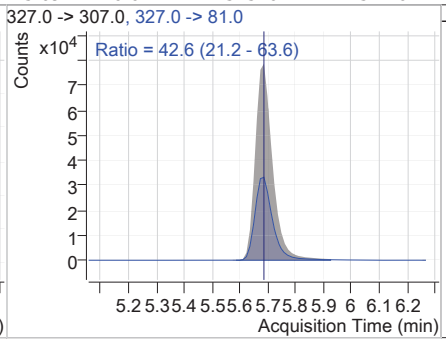
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	11.33	5.68	0.04	87742				

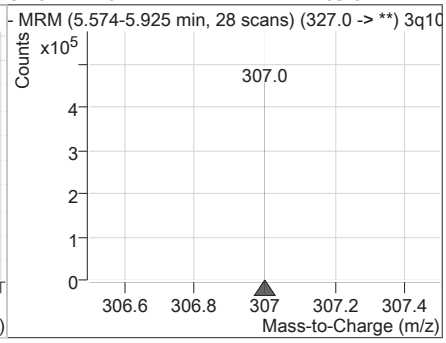


Perfluorinated Compounds by LC/MS/MS

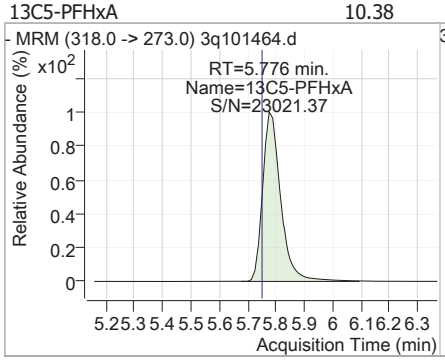
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	39.31	5.69	0.04	343401	327.0 -> 81.0	42.6	21.2	63.6

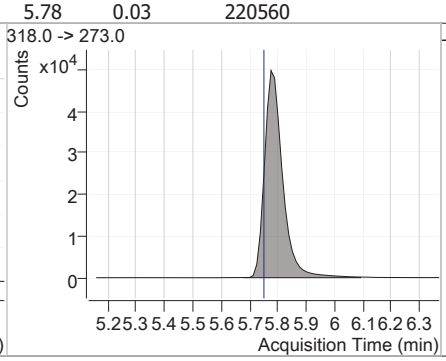


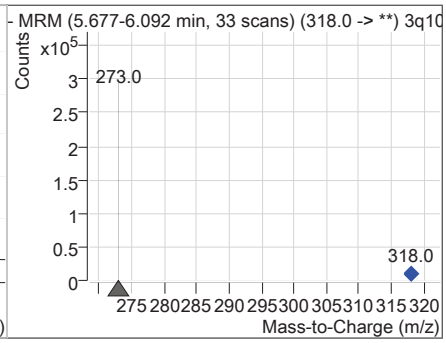




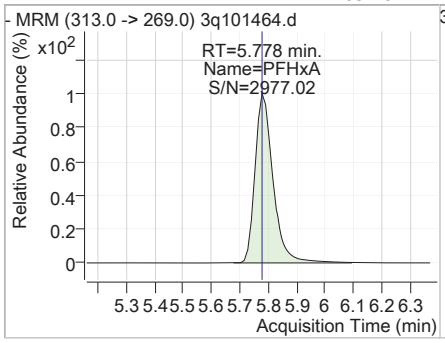
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.38	5.78	0.03	220560				

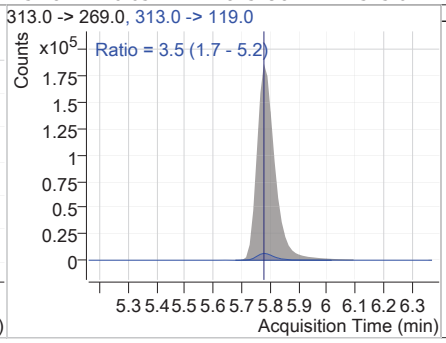


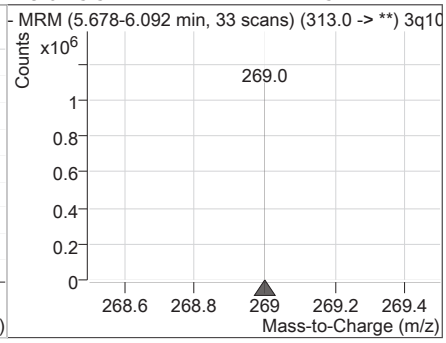




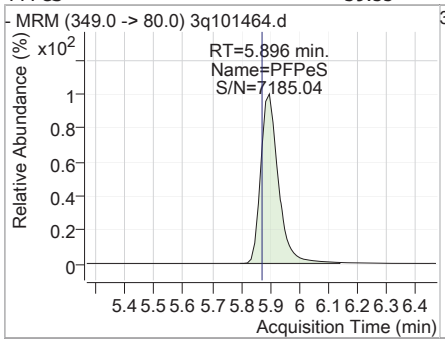
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	39.73	5.78	0.03	825498	313.0 -> 119.0	3.5	1.7	5.2

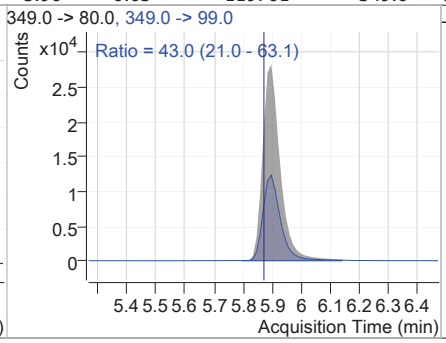


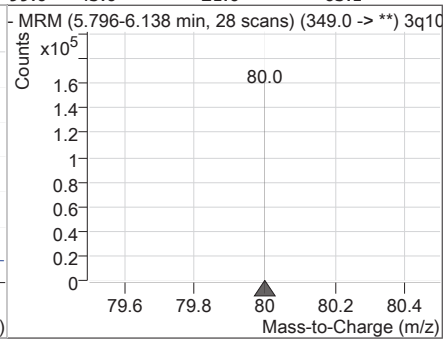




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	39.55	5.90	0.03	119701	349.0 -> 99.0	43.0	21.0	63.1

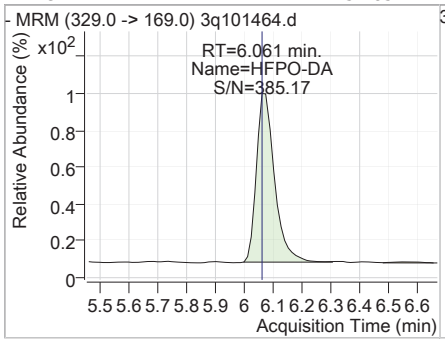


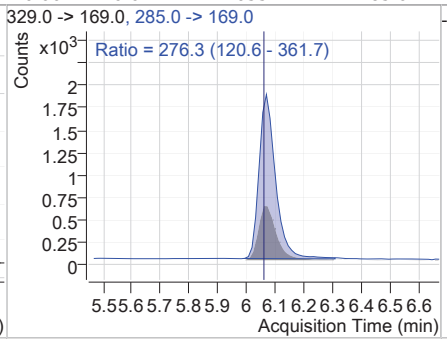


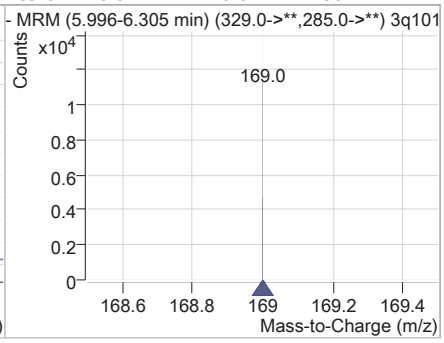


Perfluorinated Compounds by LC/MS/MS

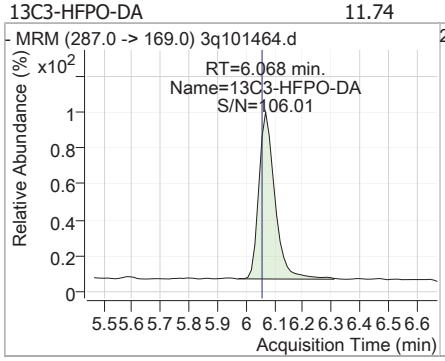
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	37.85	6.06	0.01	2635	285.0 -> 169.0	276.3	120.6	361.7

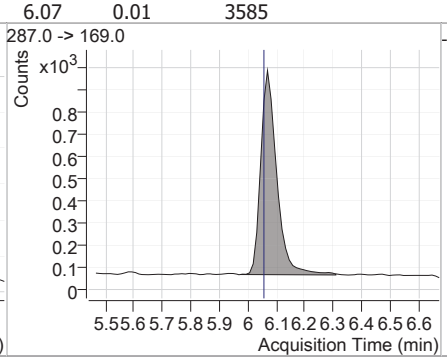


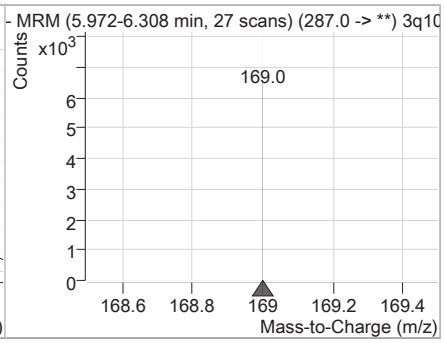




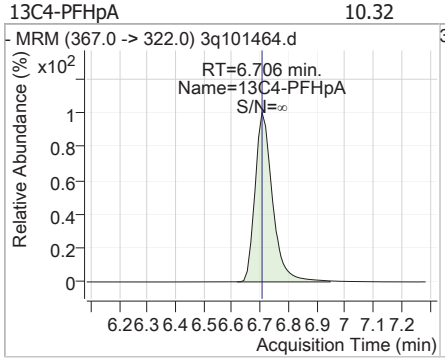
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	11.74	6.07	0.01	3585				

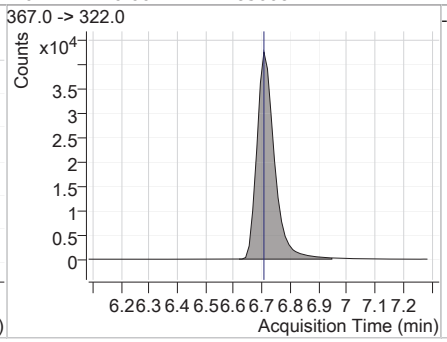


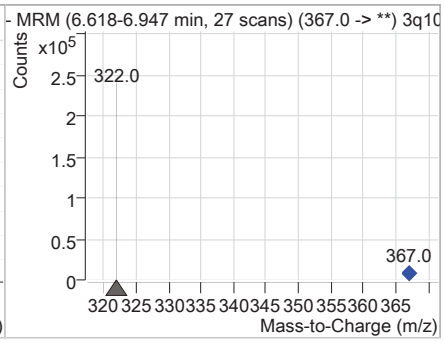




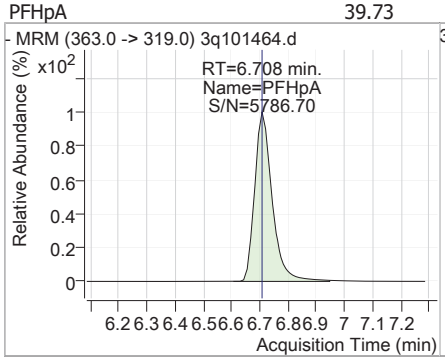
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.32	6.71	0.00	183068				

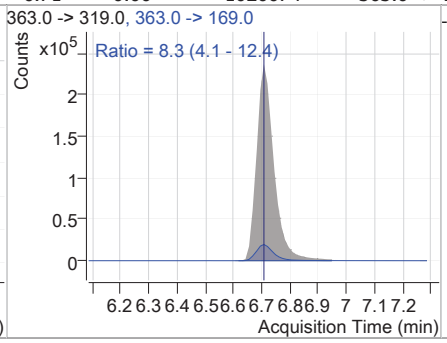


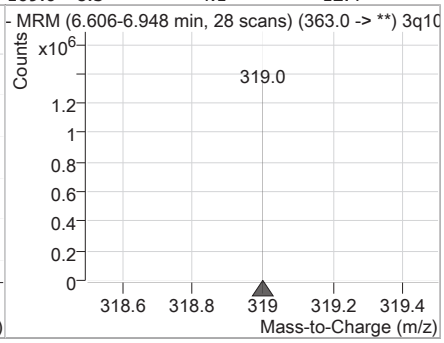




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	39.73	6.71	0.00	1020674	363.0 -> 169.0	8.3	4.1	12.4



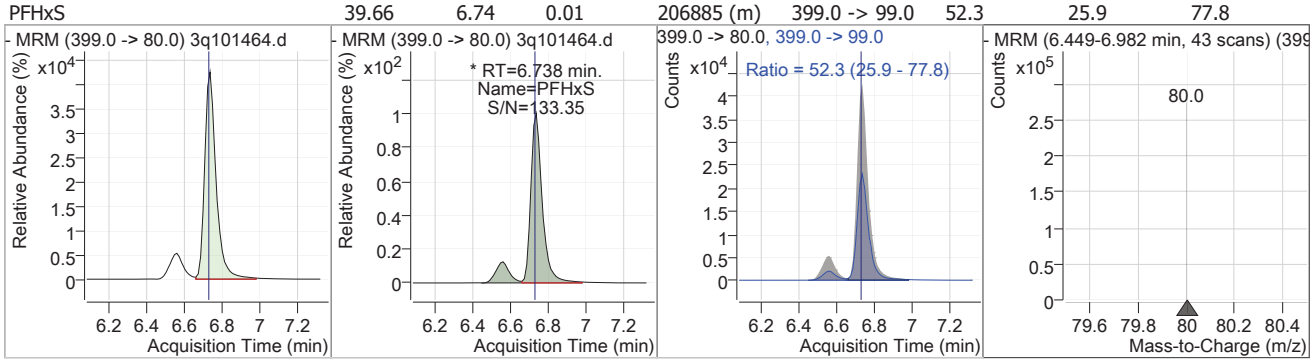




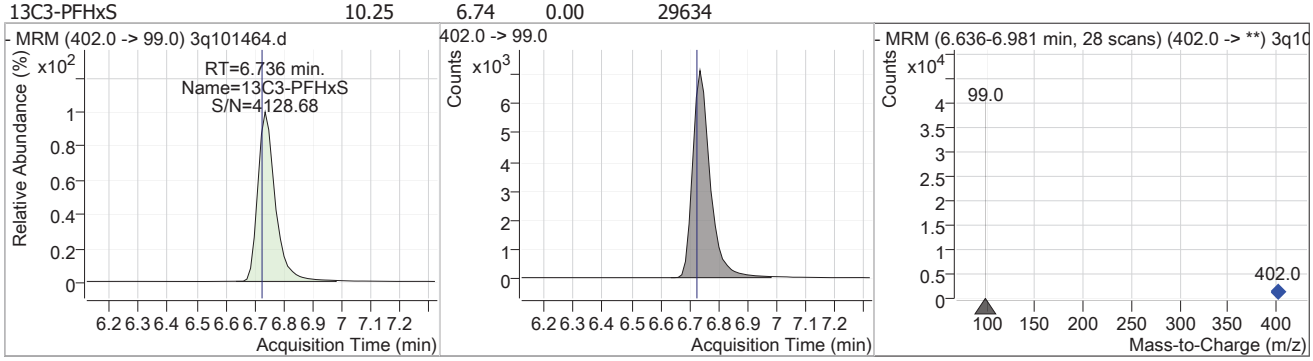
7.7.8

Perfluorinated Compounds by LC/MS/MS

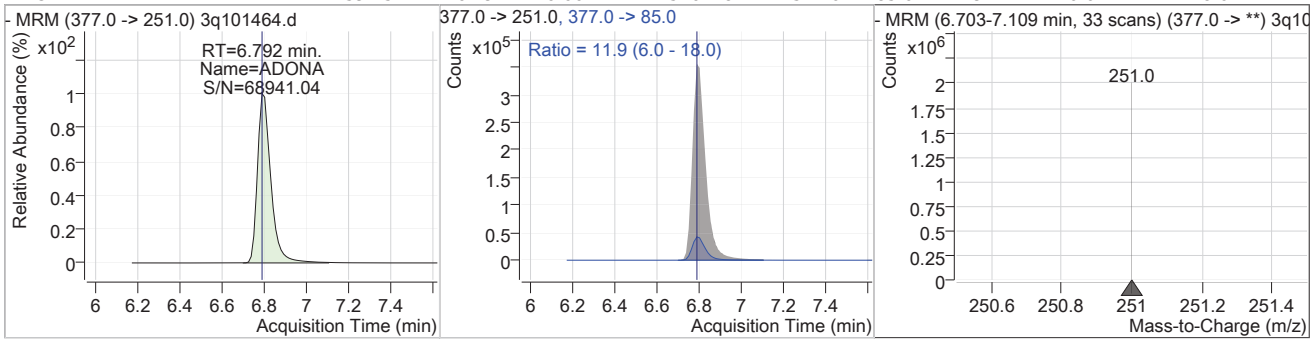
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	39.66	6.74	0.01	206885 (m)	399.0 -> 99.0	52.3	25.9	77.8



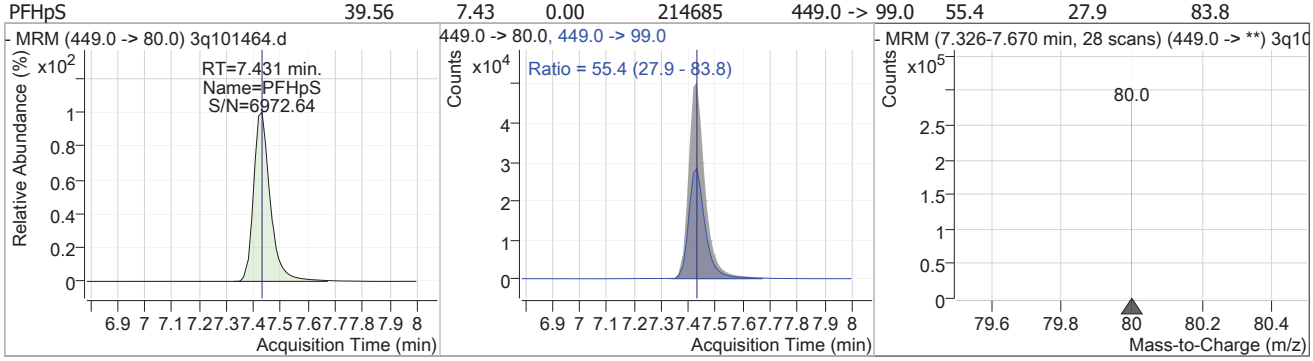
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.25	6.74	0.00	29634				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	39.75	6.79	0.00	1576478	377.0 -> 85.0	11.9	6.0	18.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	39.56	7.43	0.00	214685	449.0 -> 99.0	55.4	27.9	83.8

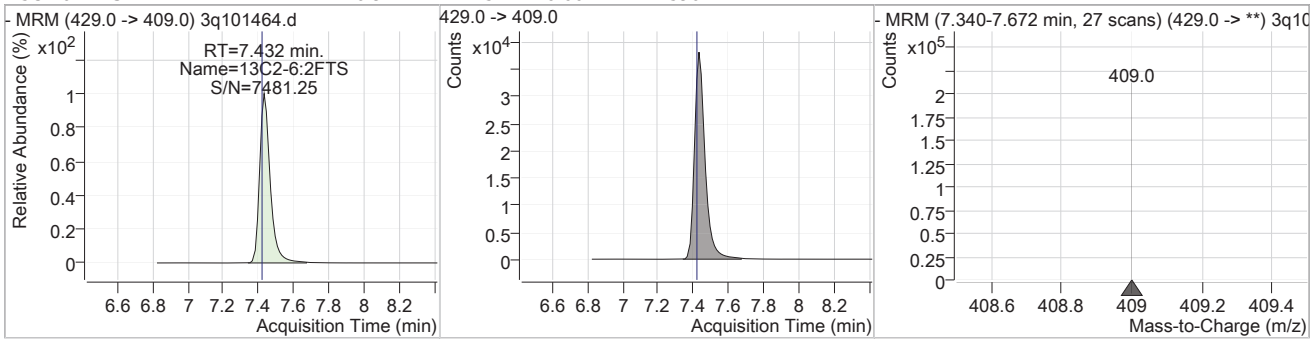


7.7.8

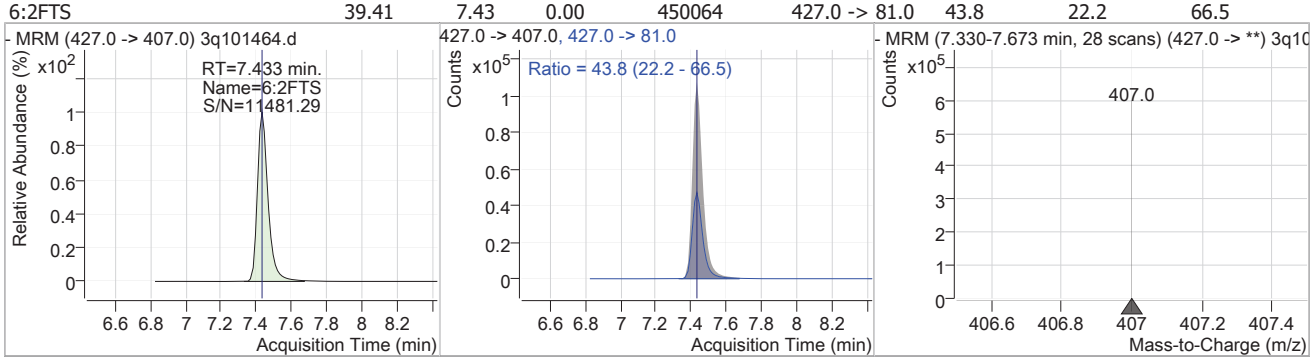
7

Perfluorinated Compounds by LC/MS/MS

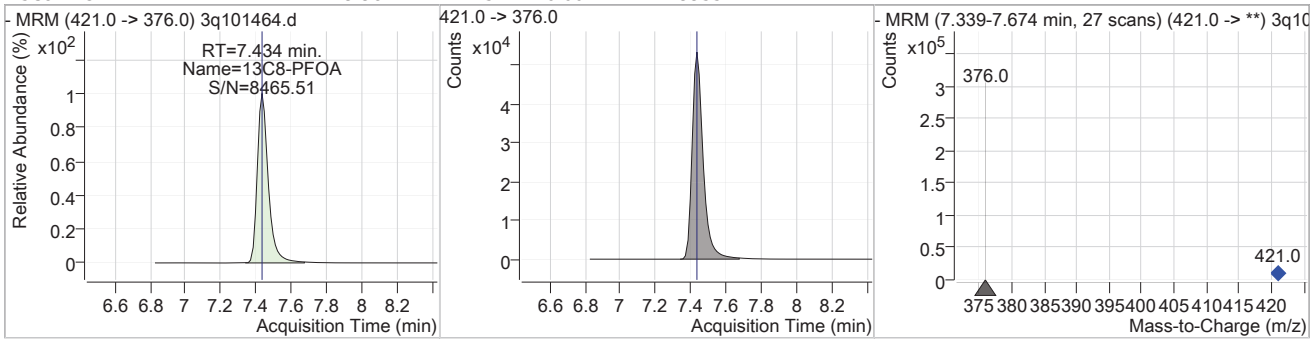
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	10.94	7.43	0.00	159072				



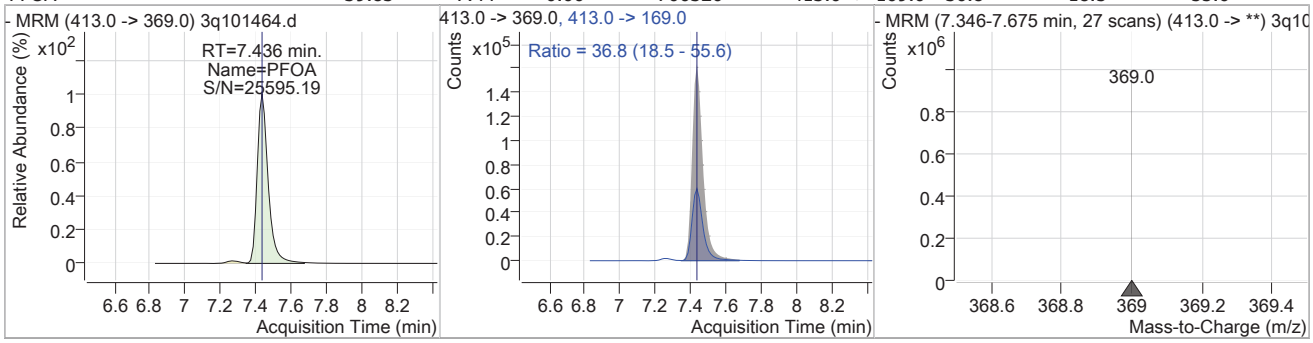
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	39.41	7.43	0.00	450064	427.0 -> 81.0	43.8	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	9.98	7.43	0.00	229935				

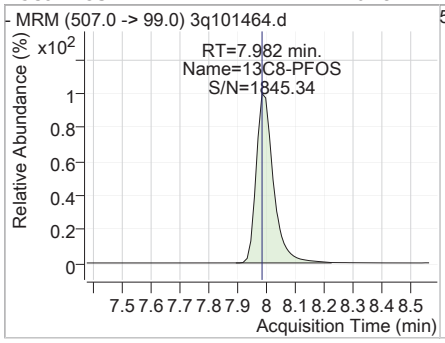


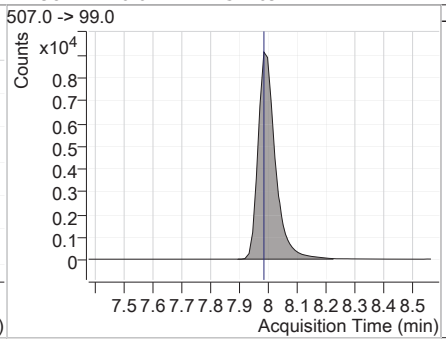
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	39.83	7.44	0.00	706326	413.0 -> 169.0	36.8	18.5	55.6

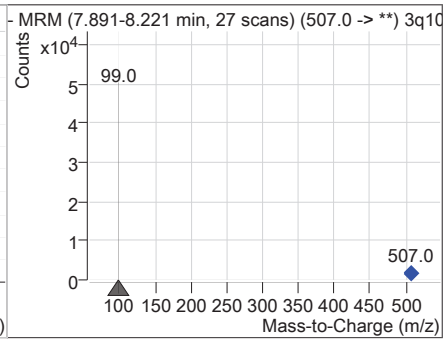


Perfluorinated Compounds by LC/MS/MS

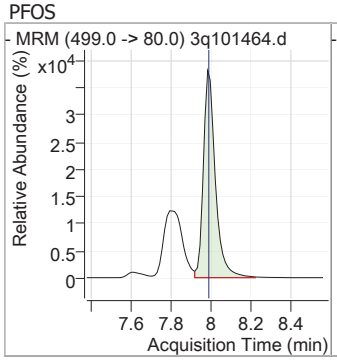
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.19	7.98	-0.01	37709				

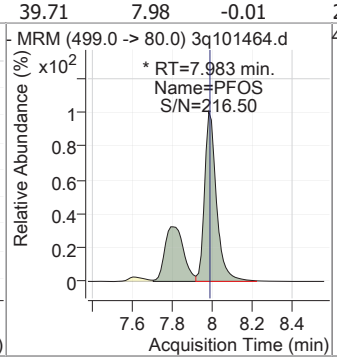


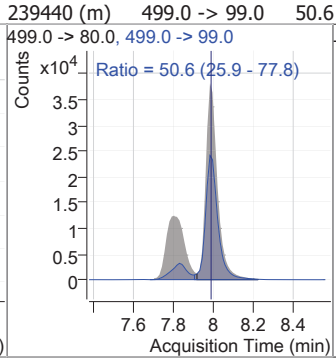


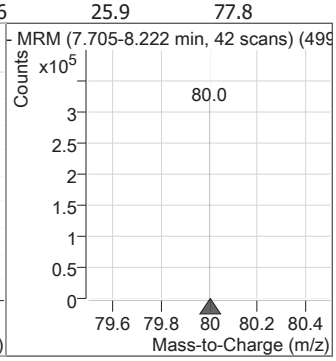


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	39.71	7.98	-0.01	239440 (m)	499.0 -> 99.0	50.6	25.9	77.8

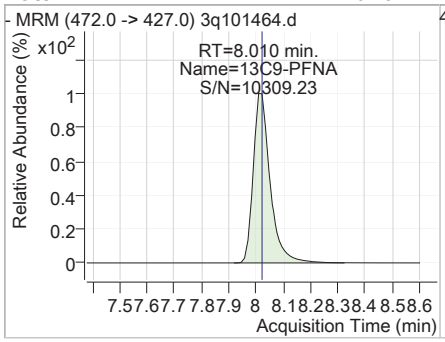


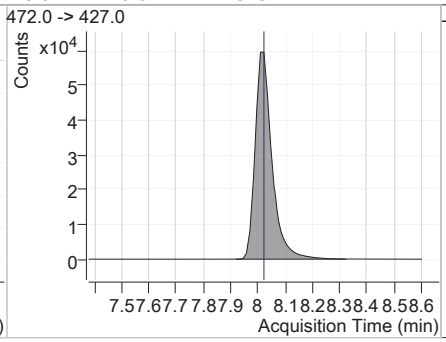


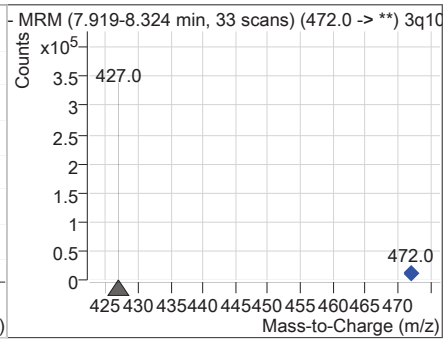




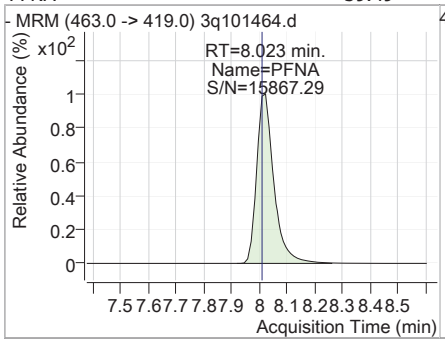
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.28	8.01	-0.01	257374				

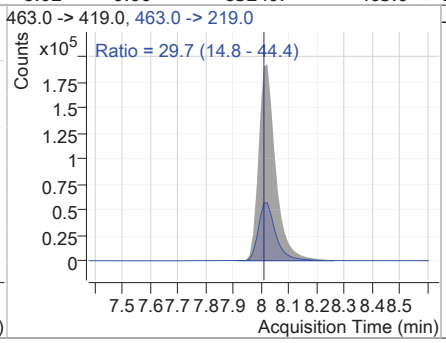


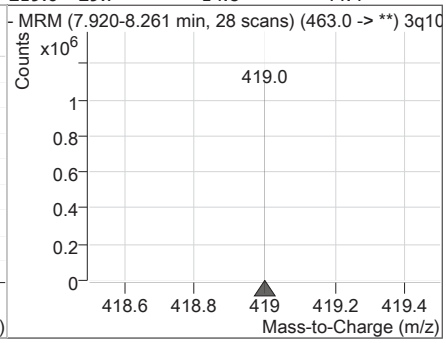




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	39.49	8.02	0.00	832407	463.0 -> 219.0	29.7	14.8	44.4



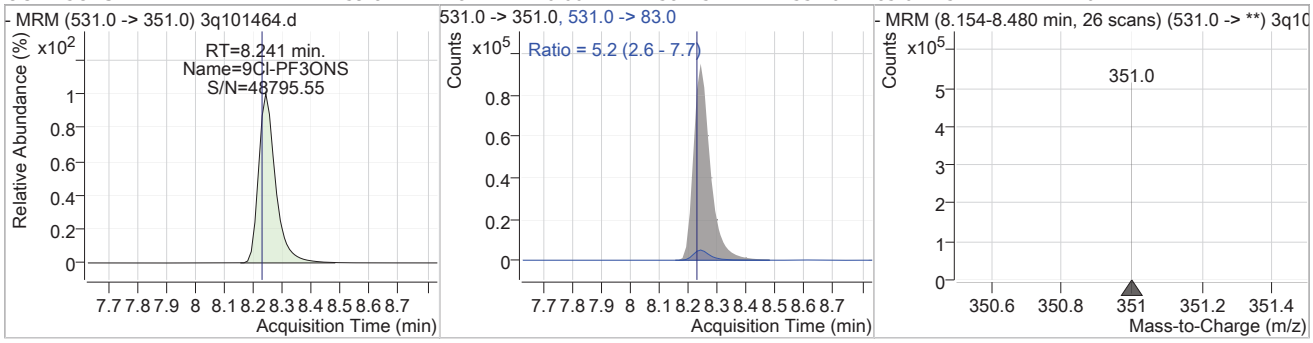




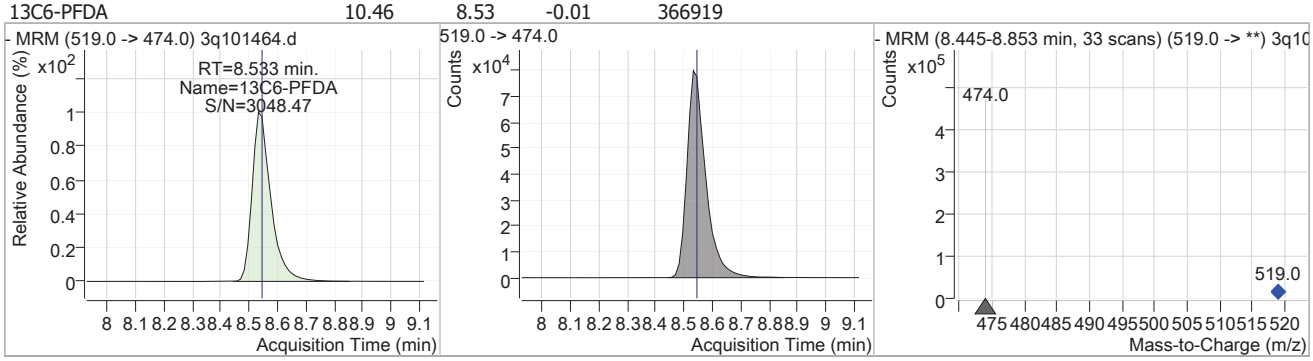
7.7.8

Perfluorinated Compounds by LC/MS/MS

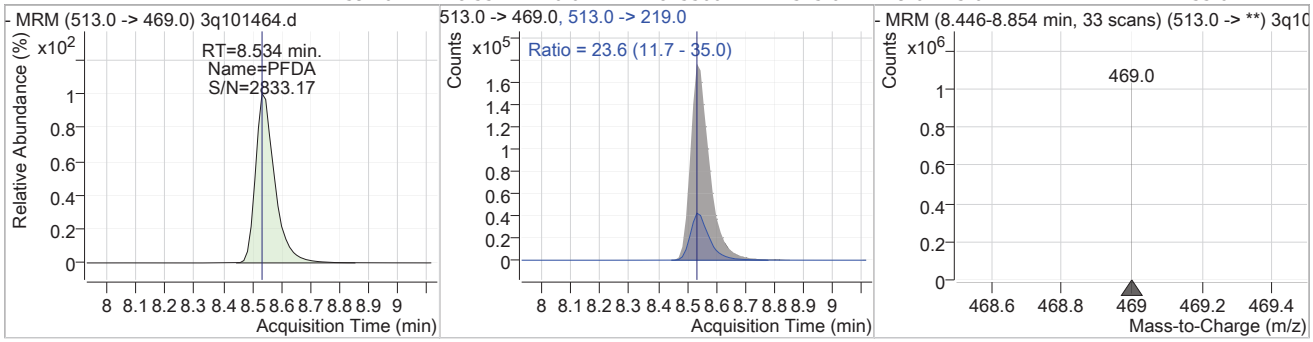
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	39.87	8.24	0.00	387251	531.0 -> 83.0	5.2	2.6	7.7



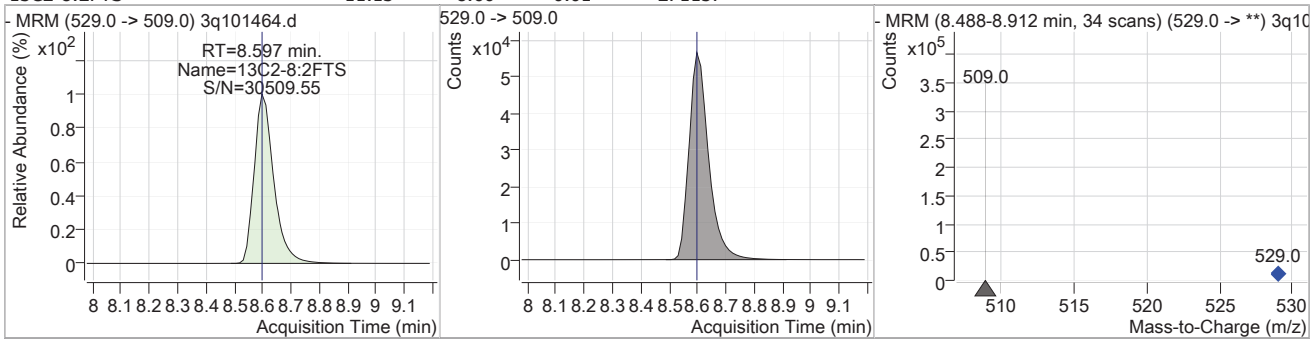
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	10.46	8.53	-0.01	366919				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	39.20	8.53	-0.01	813360	513.0 -> 219.0	23.6	11.7	35.0

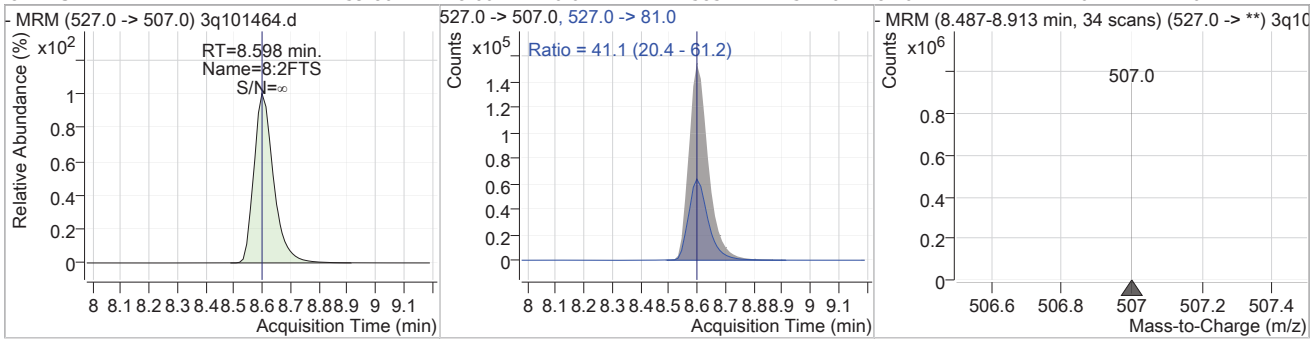


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	11.13	8.60	-0.01	271157				

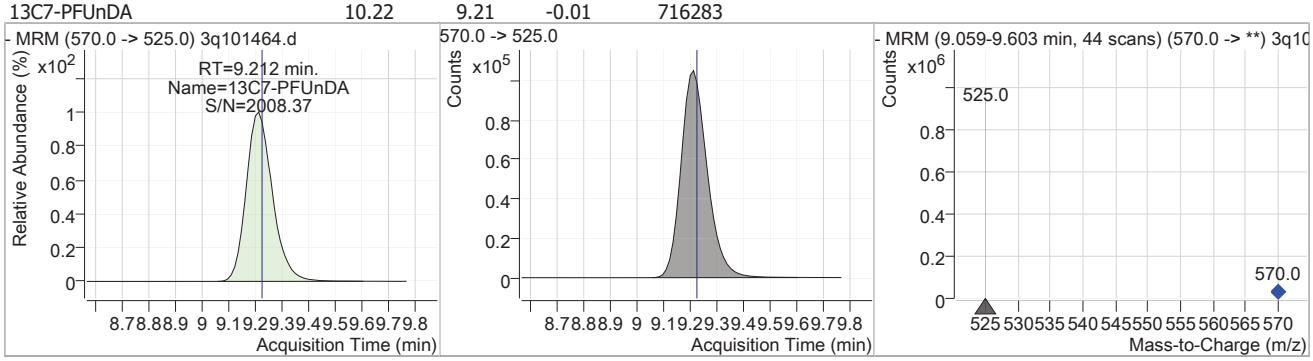


Perfluorinated Compounds by LC/MS/MS

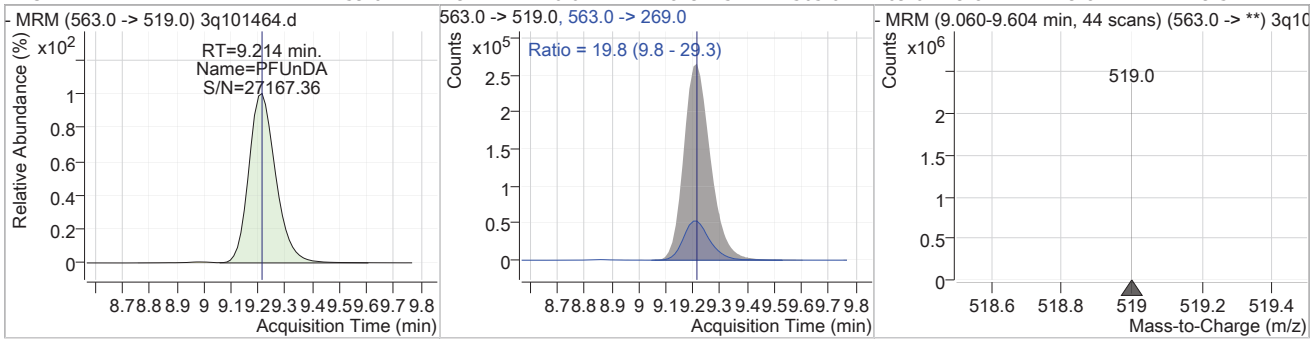
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	39.86	8.60	-0.01	742583	527.0 -> 81.0	41.1	20.4	61.2



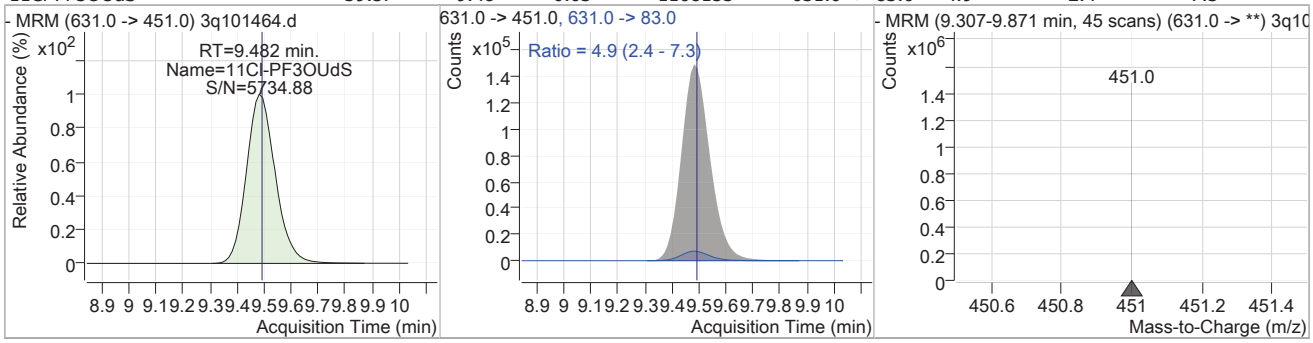
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	10.22	9.21	-0.01	716283				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	39.62	9.21	-0.01	1829143	563.0 -> 269.0	19.8	9.8	29.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	39.57	9.48	-0.03	1108153	631.0 -> 83.0	4.9	2.4	7.3

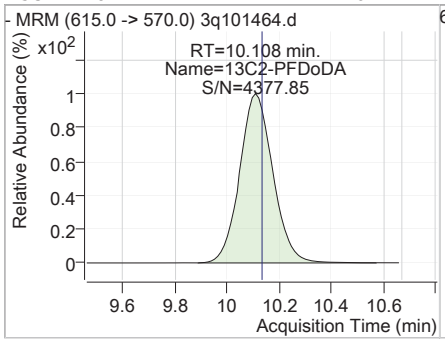


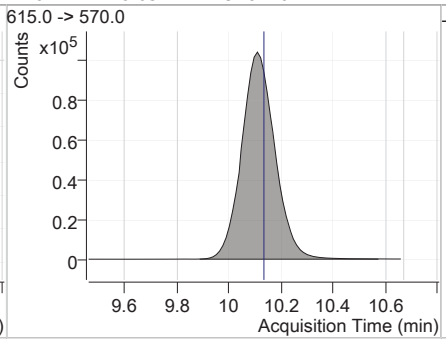
7.7.8

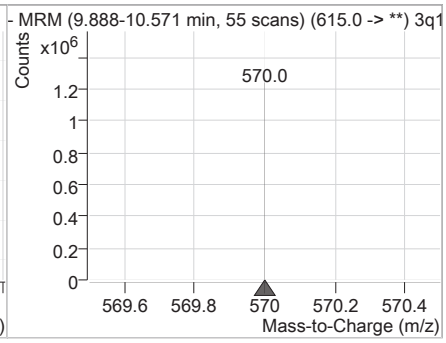
7

Perfluorinated Compounds by LC/MS/MS

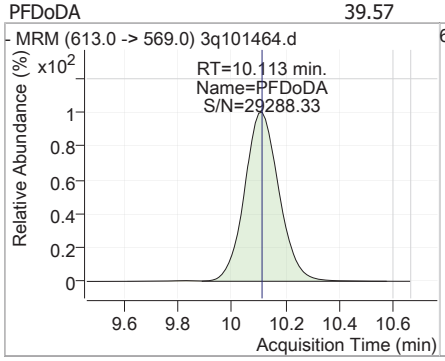
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.27	10.11	-0.03	916740				

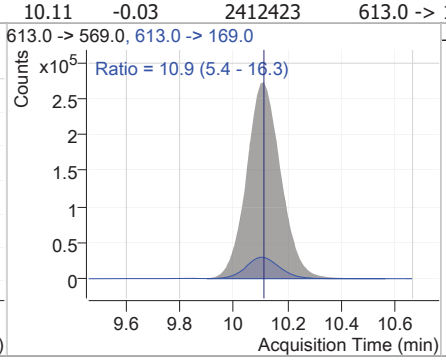


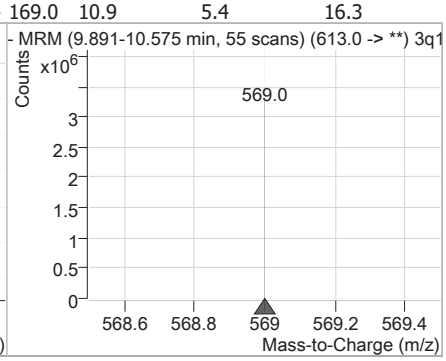




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	39.57	10.11	-0.03	2412423	613.0 -> 169.0	10.9	5.4	16.3







7.7.8

7

Manual Integration Approval Summary

Sample Number:	S3Q1492-IC1492	**Method:**	EPA 533
Lab FileID:	3Q101464.D	**Analyst approved:**	04/16/25 08:55 (b) (6)
Injection Time:	04/15/25 15:40	**Supervisor approved:**	04/17/25 11:42 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:42

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101465.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 3:56:34 PM
Sample Name : ic1492-50
Vial : P1-C9
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.435	415.0 -> 370.0	205302	10.00 µg/L	0.000
13C3-PFBA	2.357	216.0 -> 172.0	85777	10.00 µg/L	0.225
13C4-PFOS	7.983	503.0 -> 80.0	33313	10.00 µg/L	-0.013
M4-PFBA	2.352	217.0 -> 172.0	145176	10.00 µg/L	0.213
M5-PFPeA	4.425	268.0 -> 223.0	175238	10.00 µg/L	0.088
M5-PFHxA	5.788	318.0 -> 273.0	216958	10.00 µg/L	0.038
M4-PFHpA	6.706	367.0 -> 322.0	179949	10.00 µg/L	0.000
M8-PFOA	7.434	421.0 -> 376.0	225334	10.00 µg/L	0.000
M9-PFNA	8.022	472.0 -> 427.0	248574	10.00 µg/L	0.000
M6-PFDA	8.546	519.0 -> 474.0	355444	10.00 µg/L	0.000
M7-PFUnDA	9.212	570.0 -> 525.0	711762	10.00 µg/L	-0.013
M2-PFDoDA	10.121	615.0 -> 570.0	909382	10.00 µg/L	-0.013
M3-PFBS	4.721	302.0 -> 99.0	20520	10.00 µg/L	0.075
M3-PFHxS	6.736	402.0 -> 99.0	29264	10.00 µg/L	0.000
M8-PFOS	7.982	507.0 -> 99.0	37248	10.00 µg/L	-0.013
M2-4:2FTS	5.684	329.0 -> 309.0	90848	10.00 µg/L	0.038
M2-6:2FTS	7.432	429.0 -> 409.0	161489	10.00 µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	275525	10.00 µg/L	-0.014
M3-HFPO-DA	6.068	287.0 -> 169.0	3816	10.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.684	329.0 -> 309.0	90848	11.46 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.6%	
13C2-6:2FTS	7.432	429.0 -> 409.0	161489	10.84 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C2-8:2FTS	8.597	529.0 -> 509.0	275525	11.04 µg/L	-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.4%	
13C2-PFDoDA	10.121	615.0 -> 570.0	909382	10.40 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C3-PFBS	4.721	302.0 -> 99.0	20520	9.87 µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C3-PFHxS	6.736	402.0 -> 99.0	29264	9.89 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C4-PFBA	2.352	217.0 -> 172.0	145176	9.98 µg/L	0.213
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFHpA	6.706	367.0 -> 322.0	179949	10.36 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C5-PFHxA	5.788	318.0 -> 273.0	216958	10.43 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C5-PFPeA	4.425	268.0 -> 223.0	175238	9.99 µg/L	0.088
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C6-PFDA	8.546	519.0 -> 474.0	355444	10.35 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C7-PFUnDA	9.212	570.0 -> 525.0	711762	10.38 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C8-PFOA	7.434	421.0 -> 376.0	225334	9.99 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

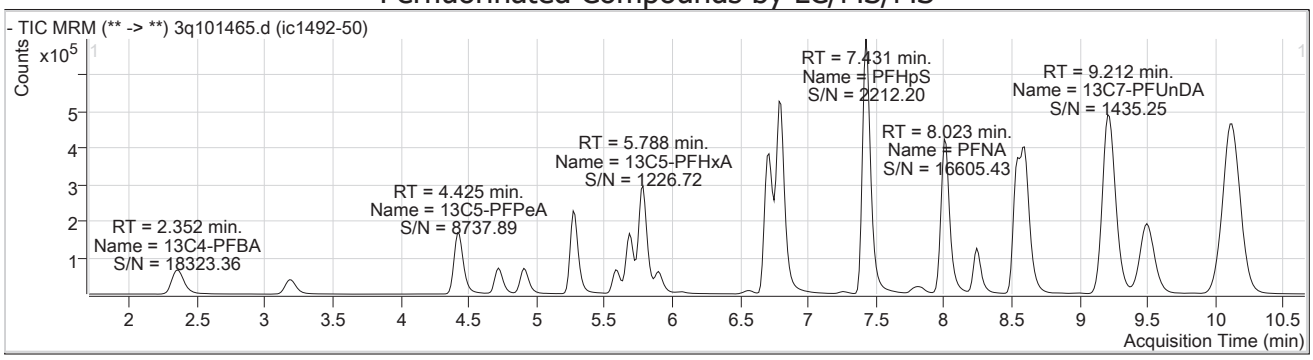
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
13C8-PFOS	7.982	507.0 -> 99.0	37248	9.83 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.3%		
13C9-PFNA	8.022	472.0 -> 427.0	248574	10.14 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.4%		
13C3-HFPO-DA	6.068	287.0 -> 169.0	3816	12.76 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 127.6%		
Target Compounds						QValue
PFMPA	3.178	229.0 -> 85.0	235834	50.17 µg/L		100
4:2FTS	5.686	327.0 -> 307.0	427670	50.59 µg/L		100
		327.0 -> 81.0	182085			
6:2FTS	7.433	427.0 -> 407.0	553031	50.50 µg/L		100
		427.0 -> 81.0	244099			
8:2FTS	8.598	527.0 -> 507.0	921311	48.67 µg/L		100
		527.0 -> 81.0	377754			
PFMBA	4.913	279.0 -> 85.0	321242	49.72 µg/L		100
PFEESA	5.274	315.0 -> 135.0	923699	49.91 µg/L		100
		315.0 -> 69.0	70877			
NFDHA	5.594	201.0 -> 85.0	272145	50.15 µg/L		99
		295.0 -> 201.0	18280			
PFBA	2.361	213.0 -> 169.0	200882	50.05 µg/L		100
PFBS	4.722	299.0 -> 80.0	206253	49.71 µg/L		99
		299.0 -> 99.0	88208			
PFDA	8.546	513.0 -> 469.0	1010157	50.25 µg/L		100
		513.0 -> 219.0	237257			
PFDoDA	10.113	613.0 -> 569.0	3024340	50.01 µg/L		100
		613.0 -> 169.0	329267			
PFHpA	6.708	363.0 -> 319.0	1257040	49.78 µg/L		100
		363.0 -> 169.0	105009			
PFHpS	7.431	449.0 -> 80.0	266922	49.81 µg/L		99
		449.0 -> 99.0	146964			
PFHxA	5.791	313.0 -> 269.0	1020159	49.91 µg/L		100
		313.0 -> 119.0	35386			
PFHxS	6.738	399.0 -> 80.0	256420	49.78 µg/L	m	100
		399.0 -> 99.0	133243			
PFNA	8.023	463.0 -> 419.0	1018849	50.04 µg/L		100
		463.0 -> 219.0	303605			
PFOA	7.436	413.0 -> 369.0	866070	49.84 µg/L		100
		413.0 -> 169.0	319841			
PFOS	7.983	499.0 -> 80.0	296994	49.87 µg/L	m	99
		499.0 -> 99.0	151077			
PFPeA	4.427	263.0 -> 219.0	657220	49.71 µg/L		100
PFPeS	5.896	349.0 -> 80.0	149396	49.99 µg/L		99
		349.0 -> 99.0	63478			
PFUnDA	9.214	563.0 -> 519.0	2294179	50.00 µg/L		99
		563.0 -> 269.0	453005			
11Cl-PF3OUdS	9.495	631.0 -> 451.0	1384109	50.03 µg/L		100
		631.0 -> 83.0	66880			
9Cl-PF3ONS	8.241	531.0 -> 351.0	476737	49.69 µg/L		100
		531.0 -> 83.0	24894			
ADONA	6.805	377.0 -> 251.0	1943684	49.86 µg/L		100
		377.0 -> 85.0	232670			
HFPO-DA	6.073	329.0 -> 169.0	3414	51.73 µg/L		80
		285.0 -> 169.0	9419			

 # = Qualifier out of range, m = manually integrated, + = Area summed

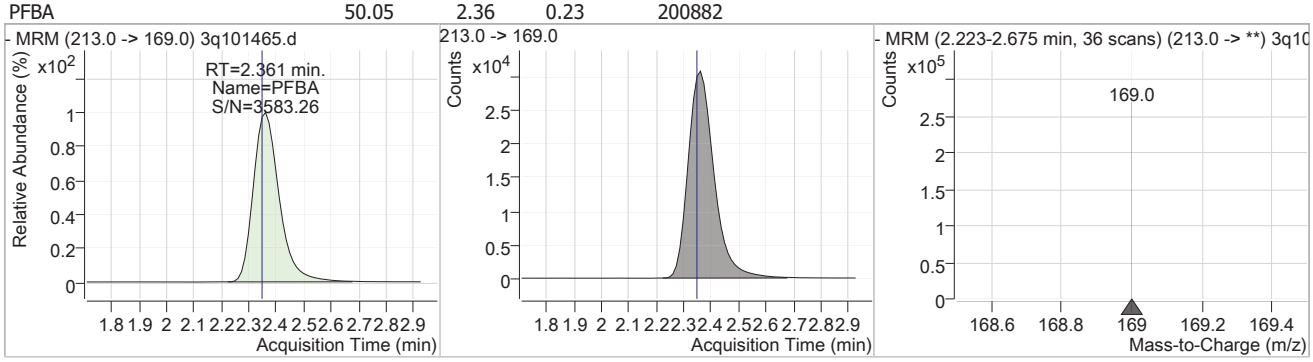
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

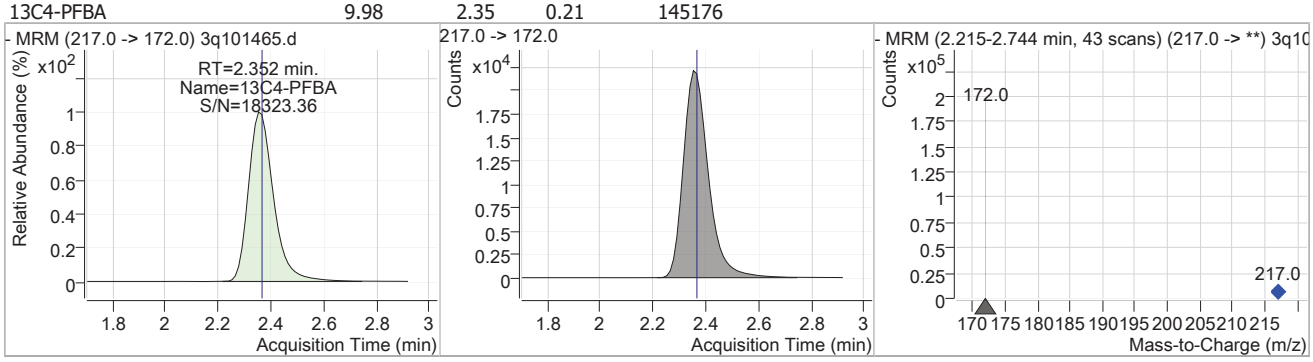
Perfluorinated Compounds by LC/MS/MS



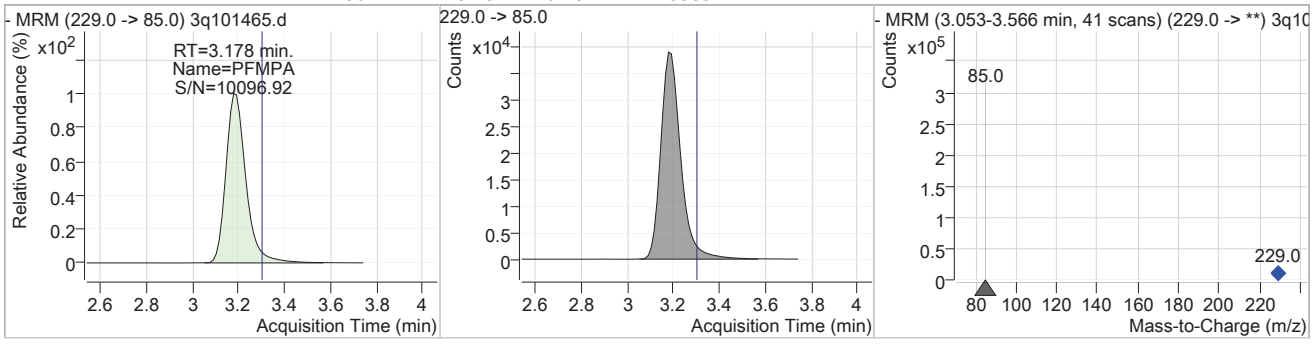
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	50.05	2.36	0.23	200882				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	9.98	2.35	0.21	145176				

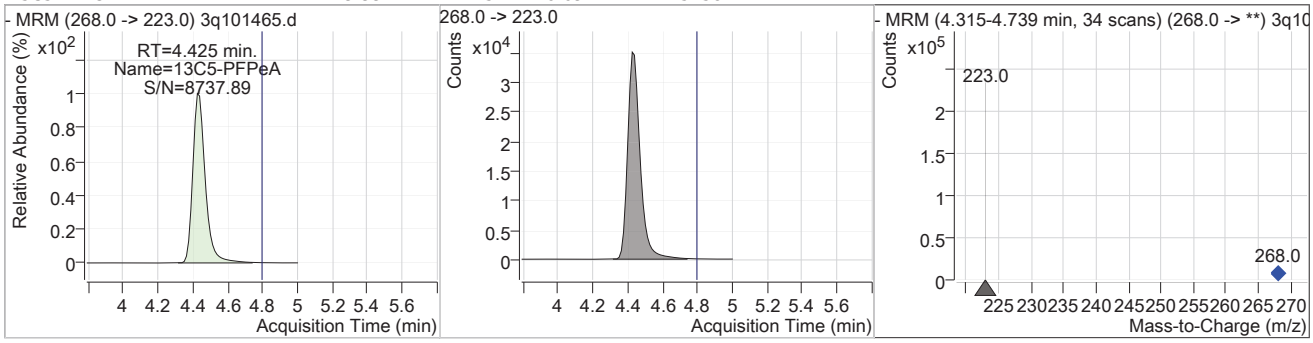


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	50.17	3.18	0.18	235834				

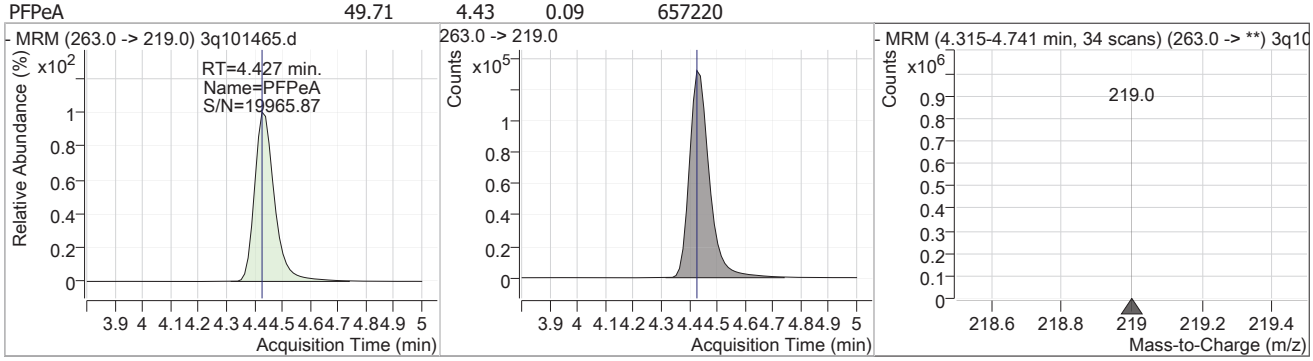


Perfluorinated Compounds by LC/MS/MS

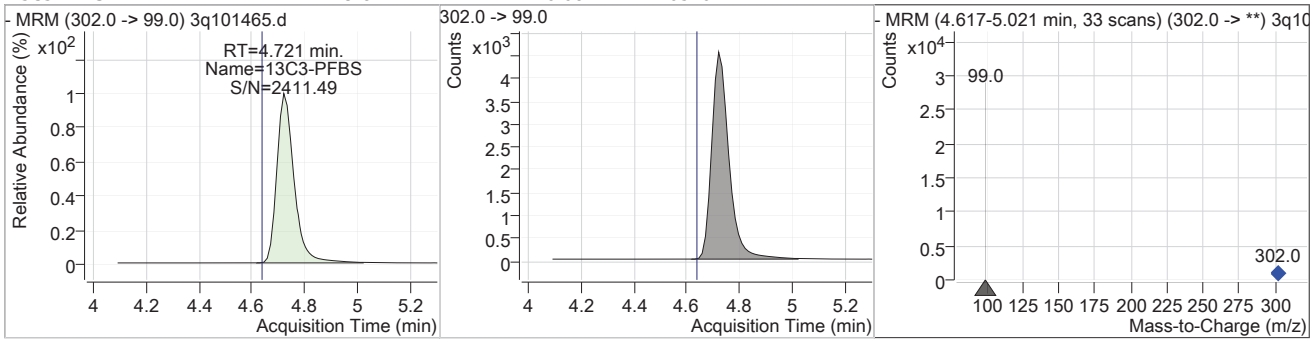
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	9.99	4.43	0.09	175238				



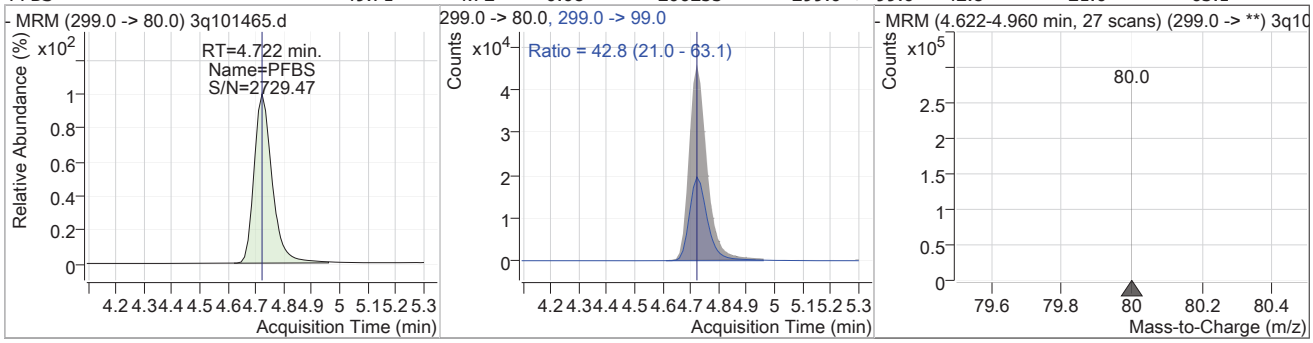
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	49.71	4.43	0.09	657220				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	9.87	4.72	0.08	20520				



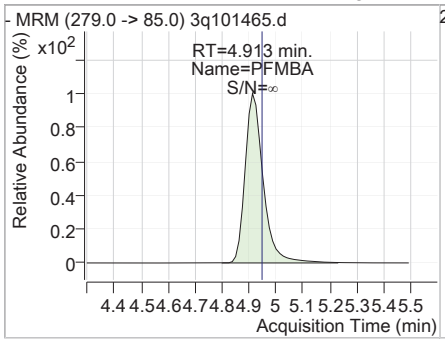
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	49.71	4.72	0.08	206253	299.0 -> 99.0	42.8	21.0	63.1

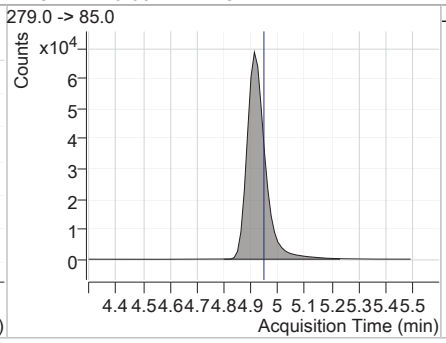


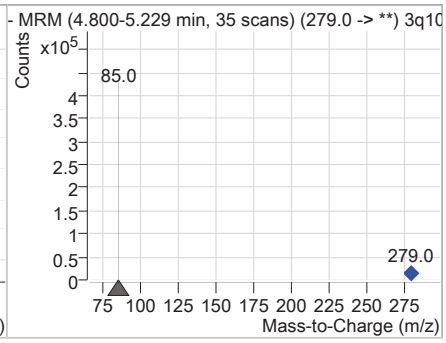
7.7.9

Perfluorinated Compounds by LC/MS/MS

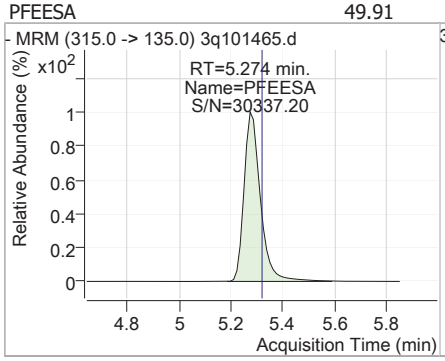
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	49.72	4.91	0.06	321242				

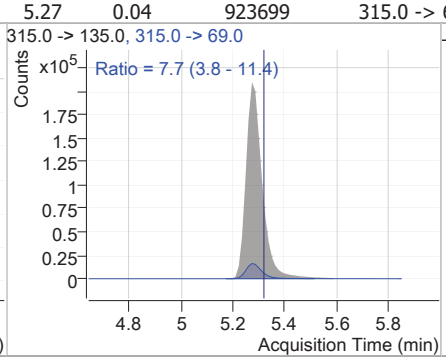


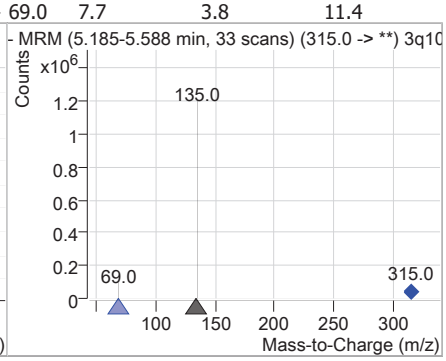




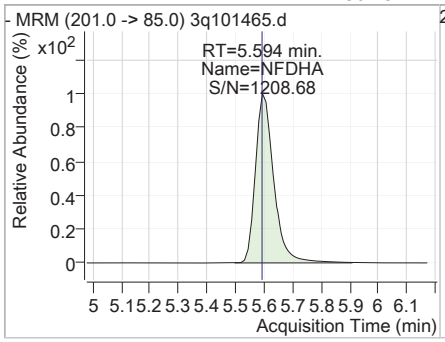
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	49.91	5.27	0.04	923699	315.0 -> 69.0	7.7	3.8	11.4

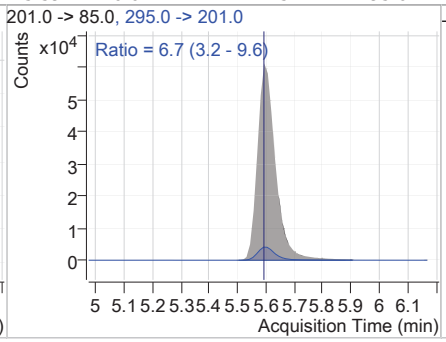


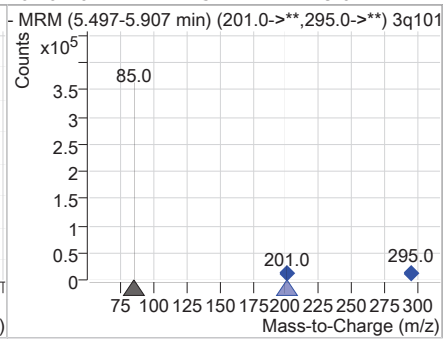




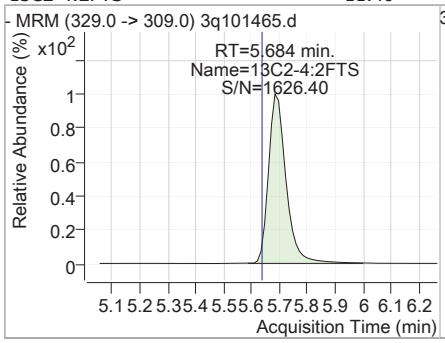
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	50.15	5.59	0.04	272145	295.0 -> 201.0	6.7	3.2	9.6

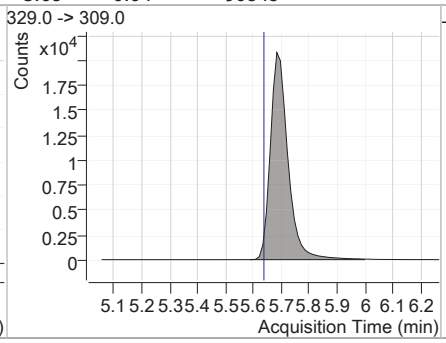


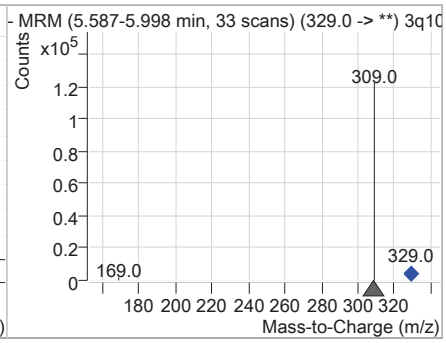




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	11.46	5.68	0.04	90848				





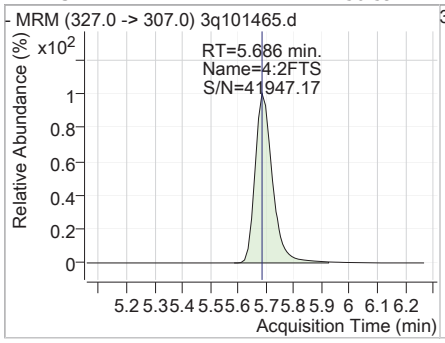


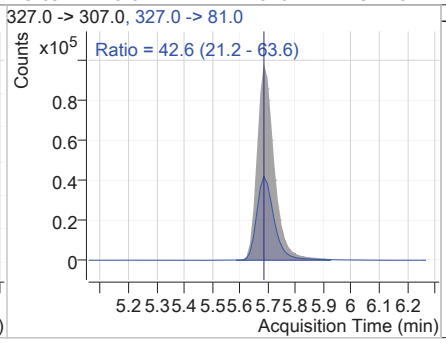
7.7.9

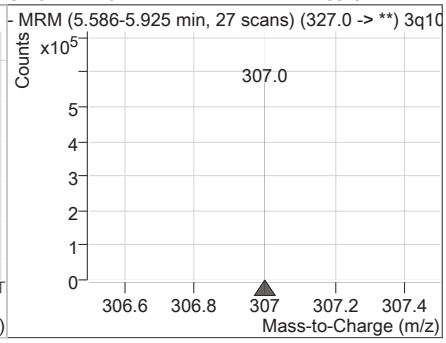
7

Perfluorinated Compounds by LC/MS/MS

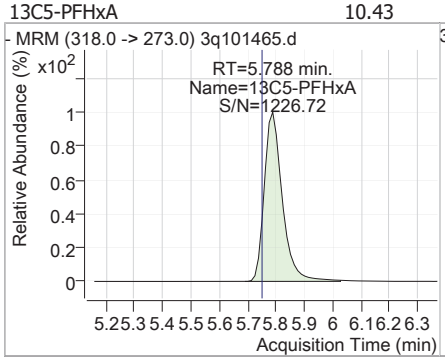
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	50.59	5.69	0.04	427670	327.0 -> 81.0	42.6	21.2	63.6

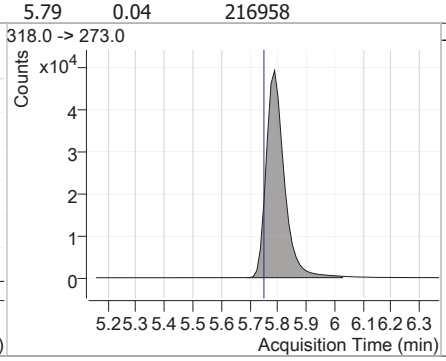


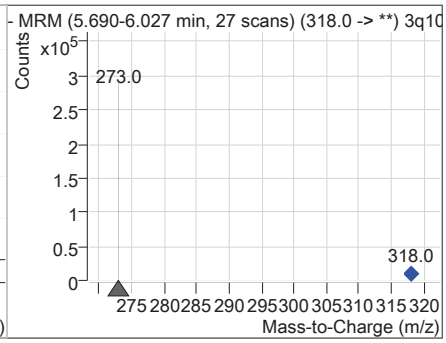




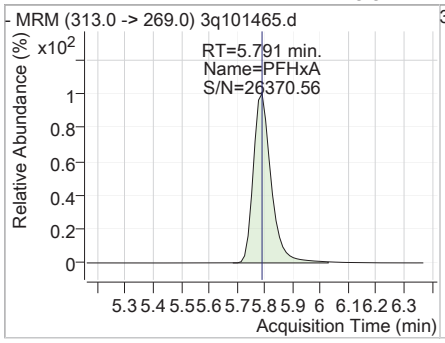
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.43	5.79	0.04	216958				

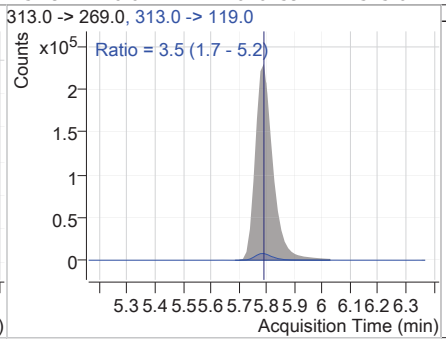


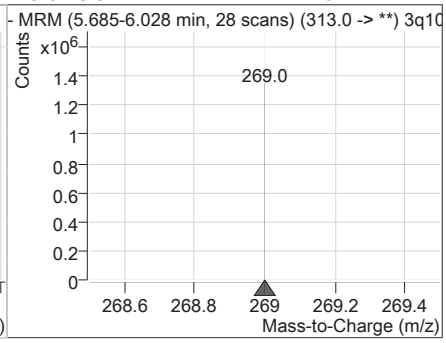




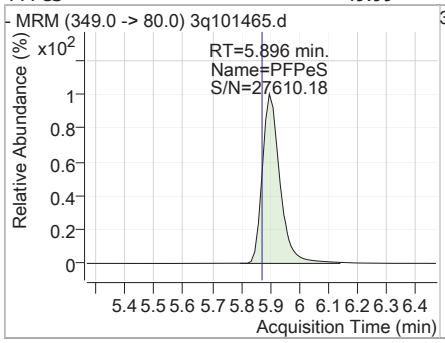
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	49.91	5.79	0.04	1020159	313.0 -> 119.0	3.5	1.7	5.2

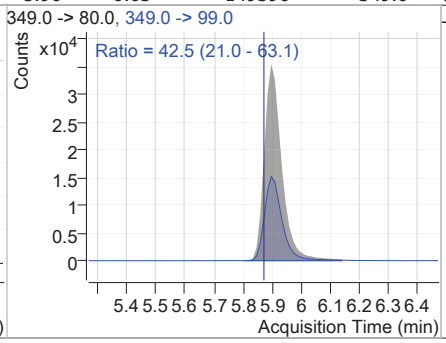


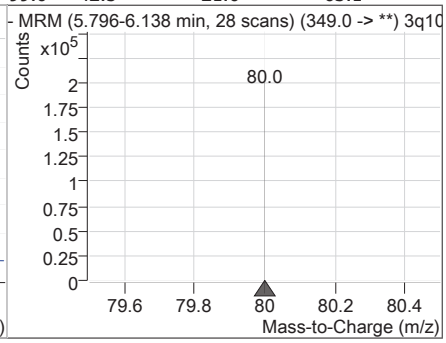




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	49.99	5.90	0.03	149396	349.0 -> 99.0	42.5	21.0	63.1



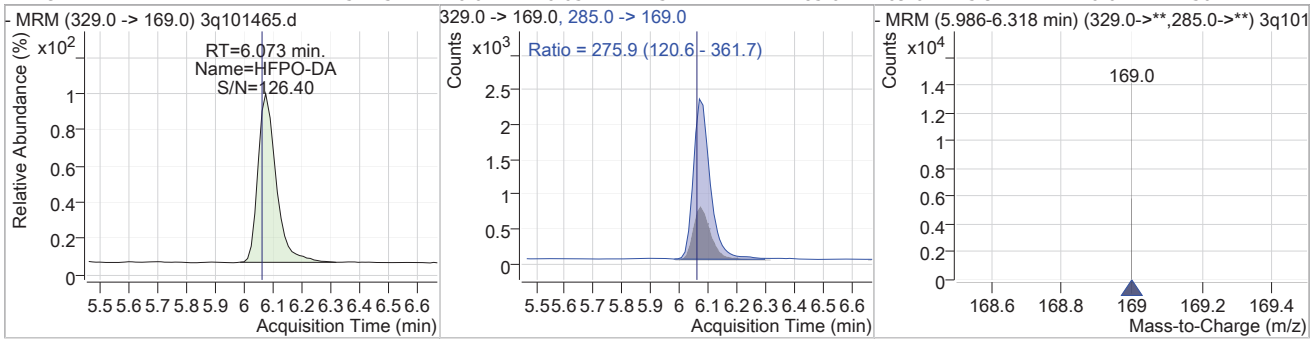




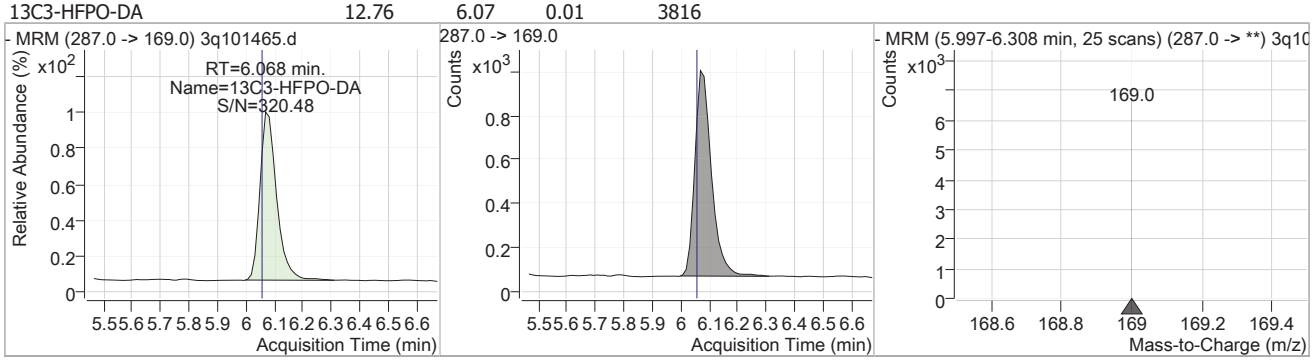
7.7.9

Perfluorinated Compounds by LC/MS/MS

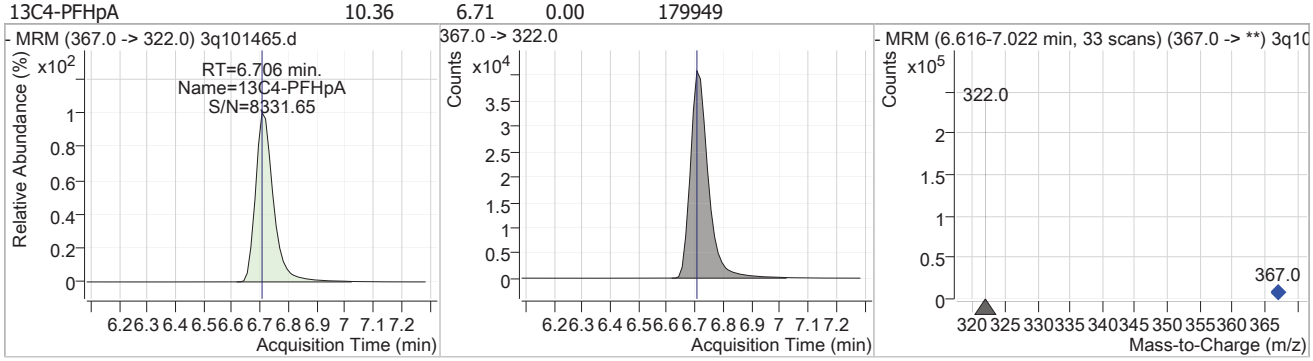
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	51.73	6.07	0.03	3414	285.0 -> 169.0	275.9	120.6	361.7



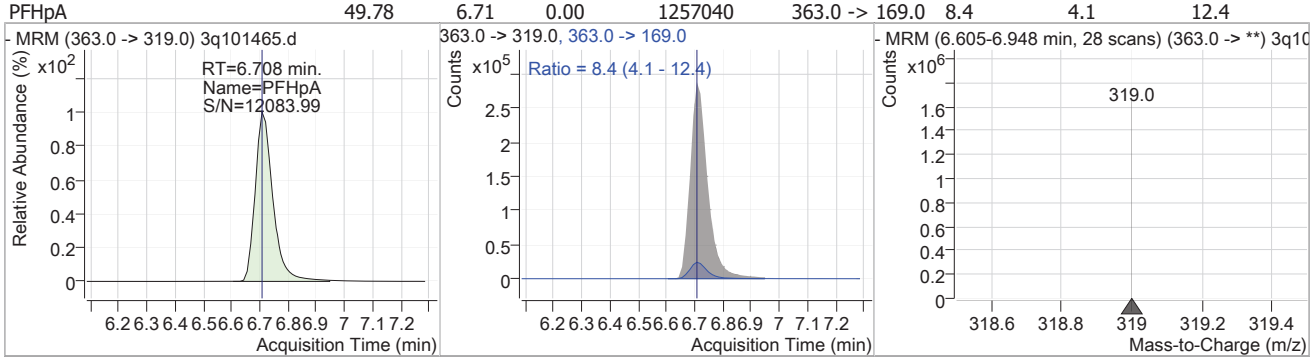
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	12.76	6.07	0.01	3816				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.36	6.71	0.00	179949				

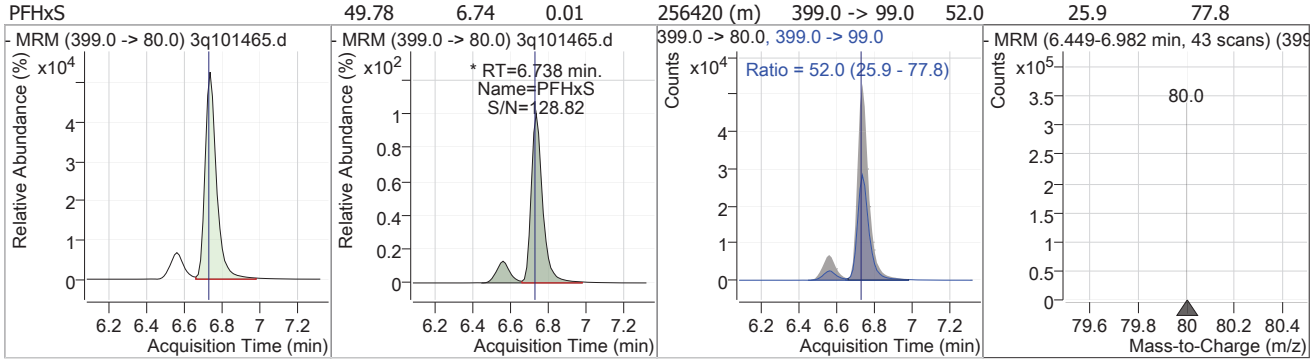


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	49.78	6.71	0.00	1257040	363.0 -> 169.0	8.4	4.1	12.4

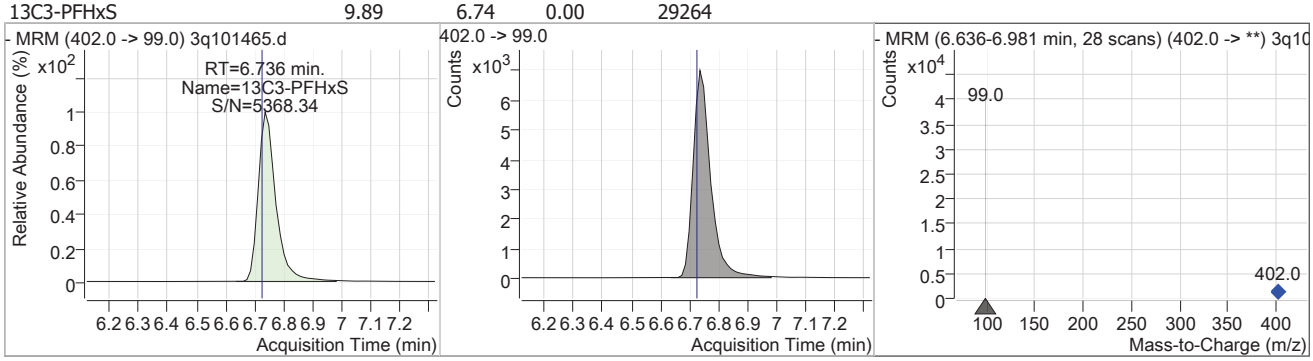


Perfluorinated Compounds by LC/MS/MS

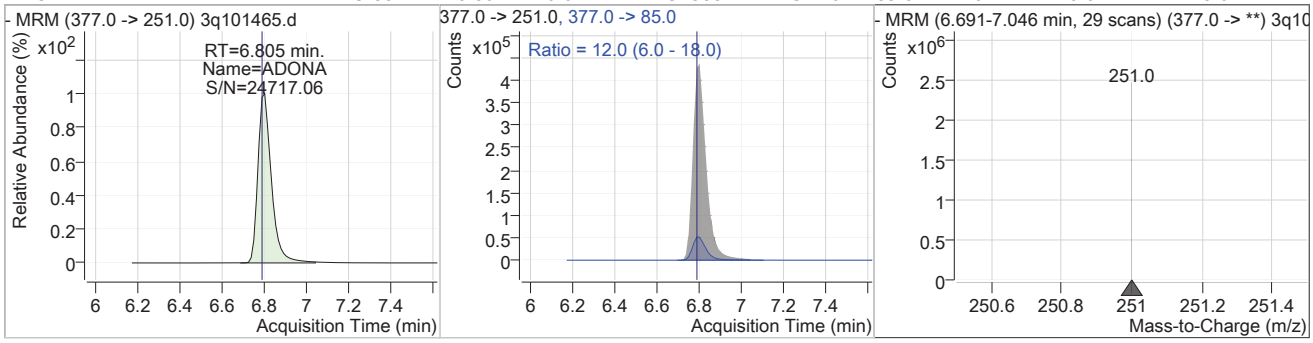
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	49.78	6.74	0.01	256420 (m)	399.0 -> 99.0	52.0	25.9	77.8



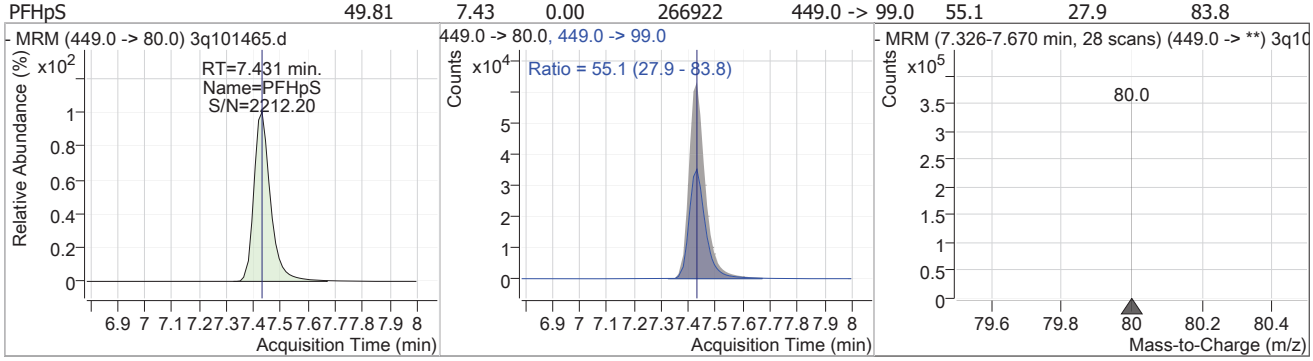
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	9.89	6.74	0.00	29264				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	49.86	6.80	0.01	1943684	377.0 -> 85.0	12.0	6.0	18.0

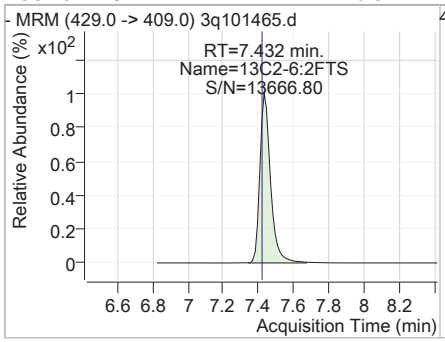


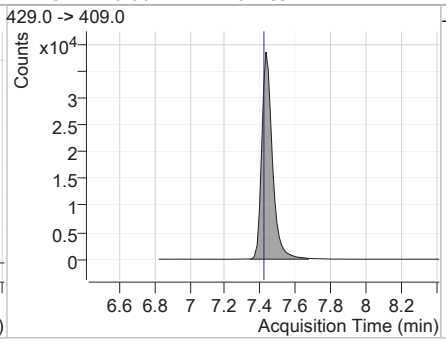
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	49.81	7.43	0.00	266922	449.0 -> 99.0	55.1	27.9	83.8

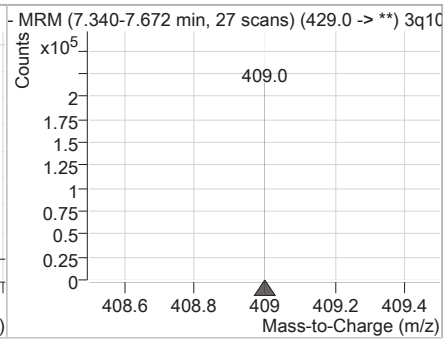


Perfluorinated Compounds by LC/MS/MS

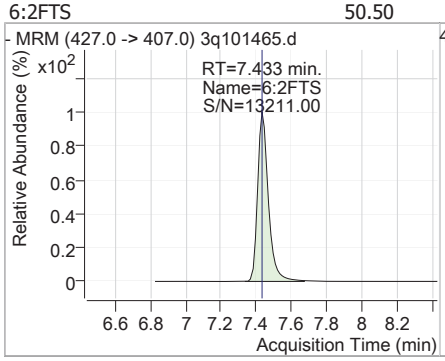
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	10.84	7.43	0.00	161489				

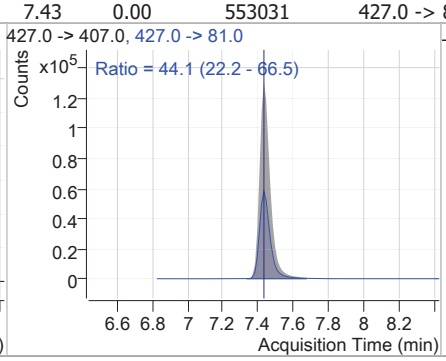


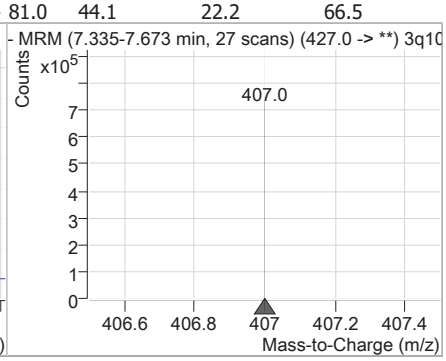




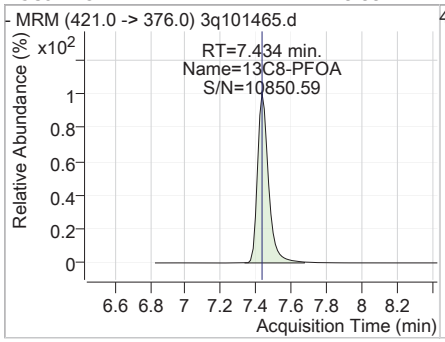
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	50.50	7.43	0.00	553031	427.0 -> 81.0	44.1	22.2	66.5

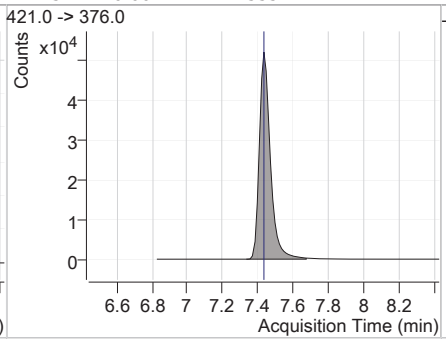


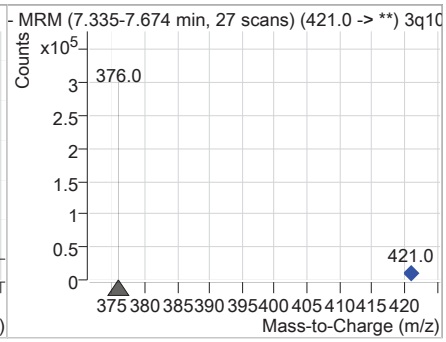




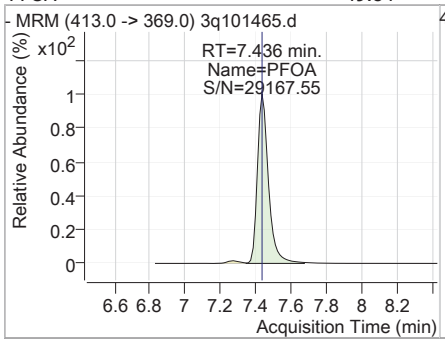
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	9.99	7.43	0.00	225334				

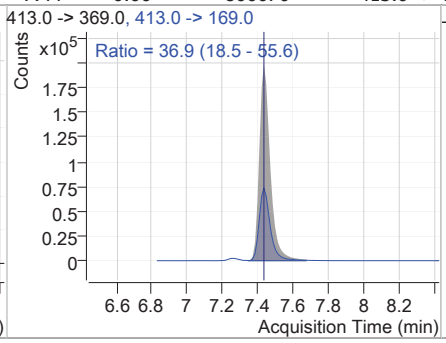


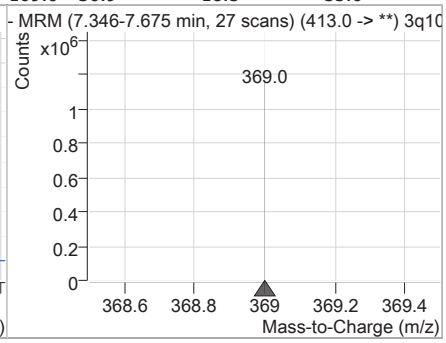




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	49.84	7.44	0.00	866070	413.0 -> 169.0	36.9	18.5	55.6

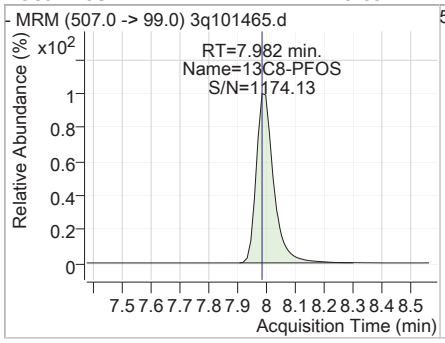


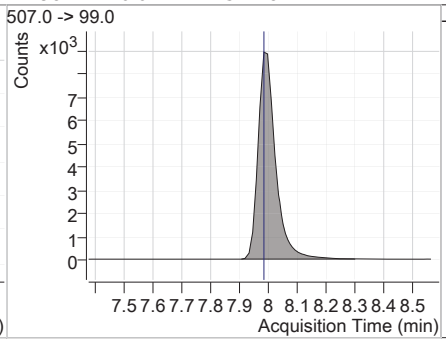


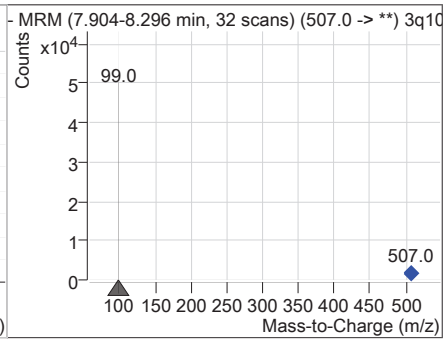


Perfluorinated Compounds by LC/MS/MS

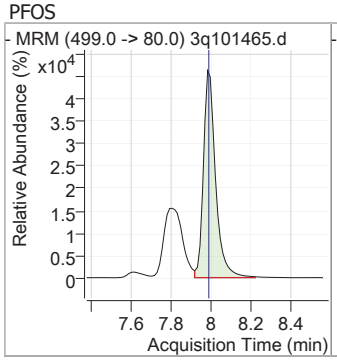
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	9.83	7.98	-0.01	37248				

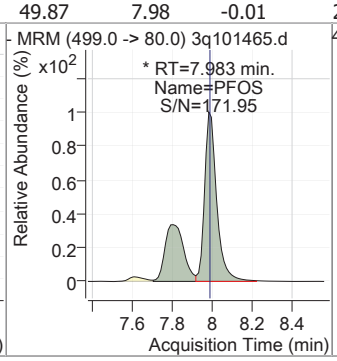


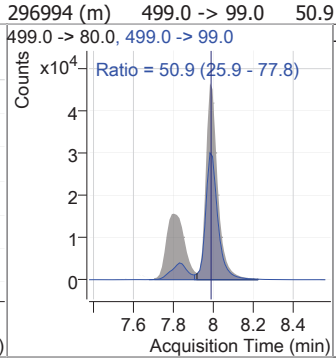


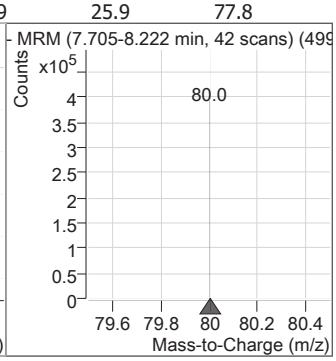


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	49.87	7.98	-0.01	296994 (m)	499.0 -> 99.0	50.9	25.9	77.8

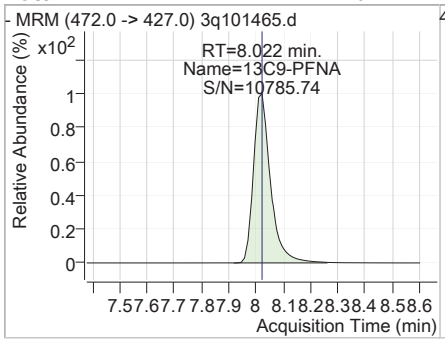


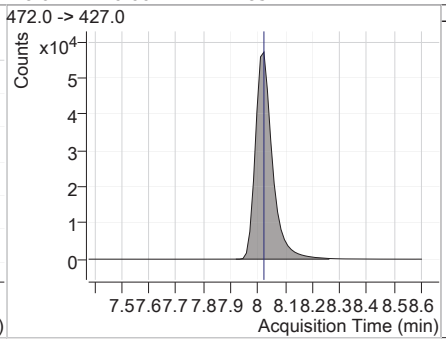


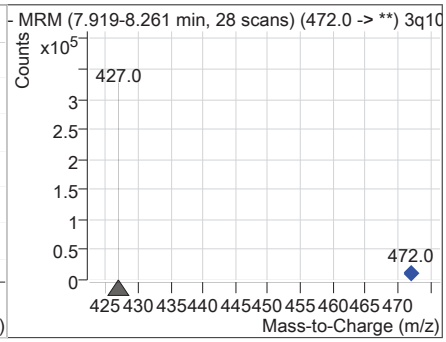




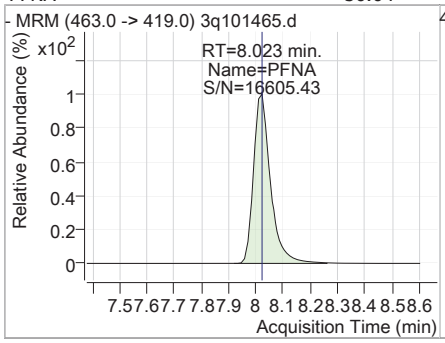
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.14	8.02	0.00	248574				

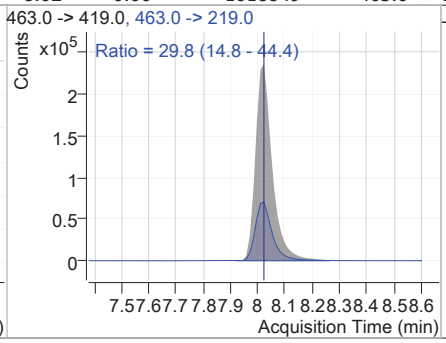


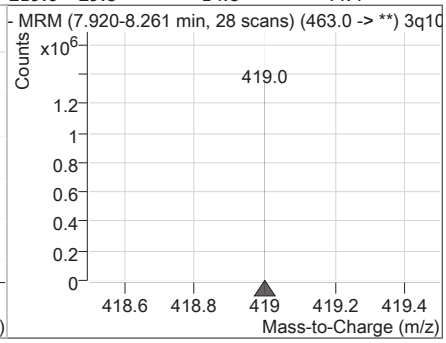




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	50.04	8.02	0.00	1018849	463.0 -> 219.0	29.8	14.8	44.4





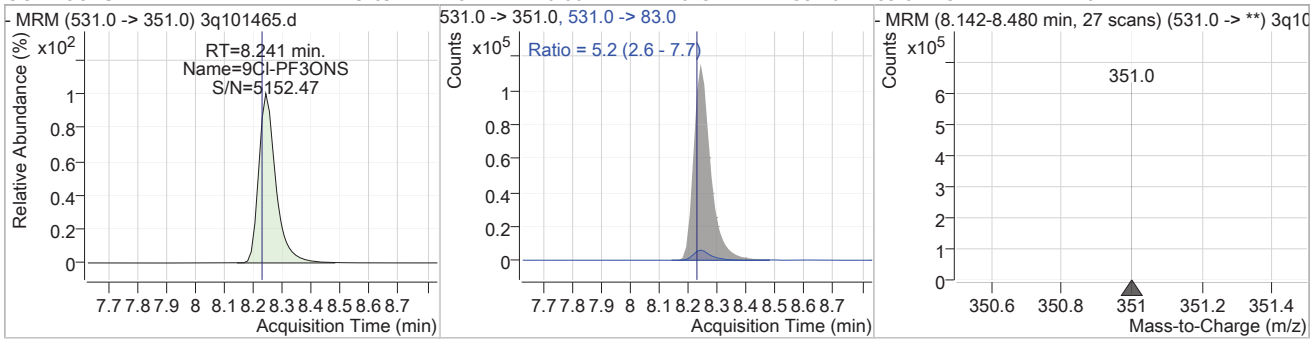


7.7.9

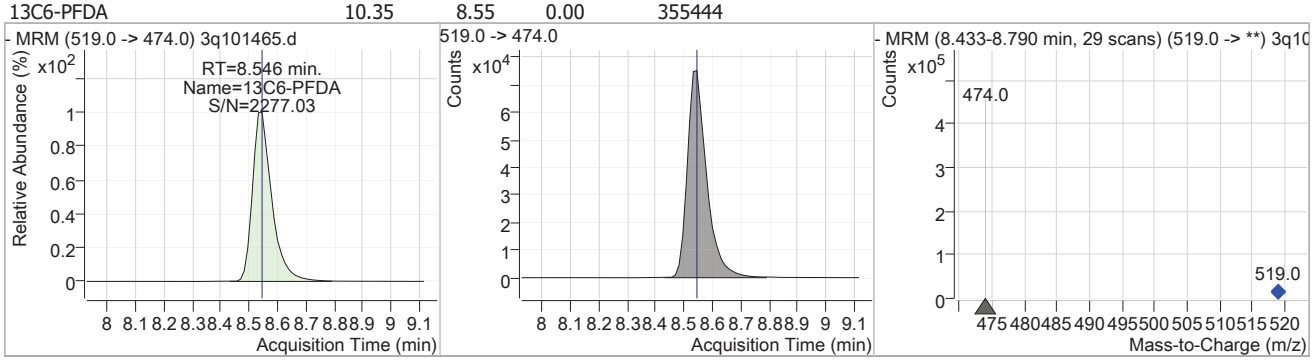
7

Perfluorinated Compounds by LC/MS/MS

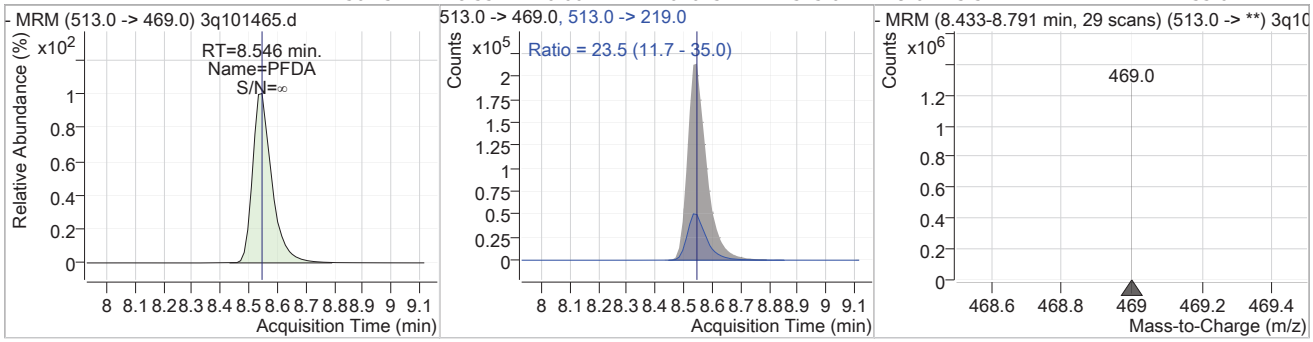
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	49.69	8.24	0.00	476737	531.0 -> 83.0	5.2	2.6	7.7



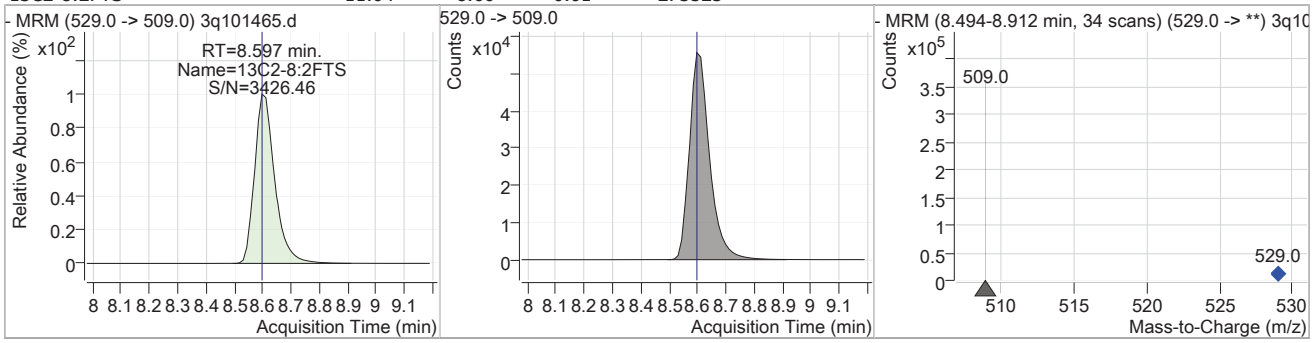
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	10.35	8.55	0.00	355444				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	50.25	8.55	0.00	1010157	513.0 -> 219.0	23.5	11.7	35.0

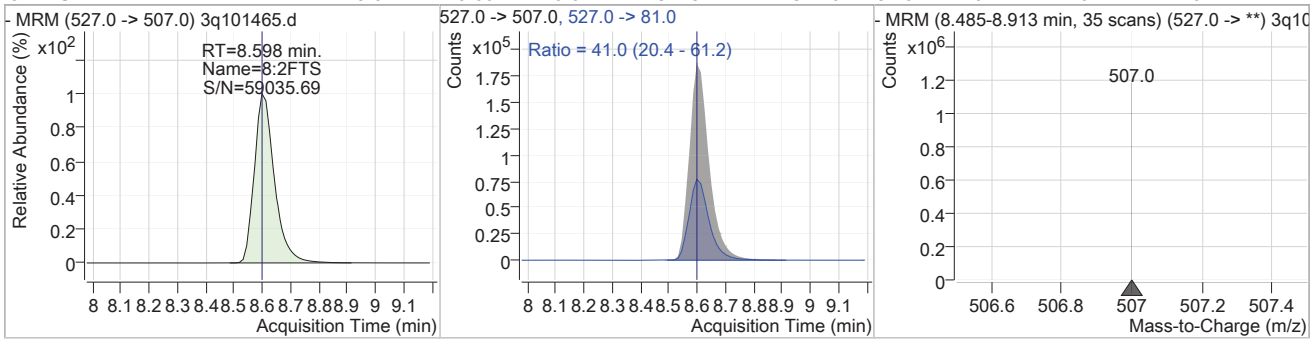


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	11.04	8.60	-0.01	275525				

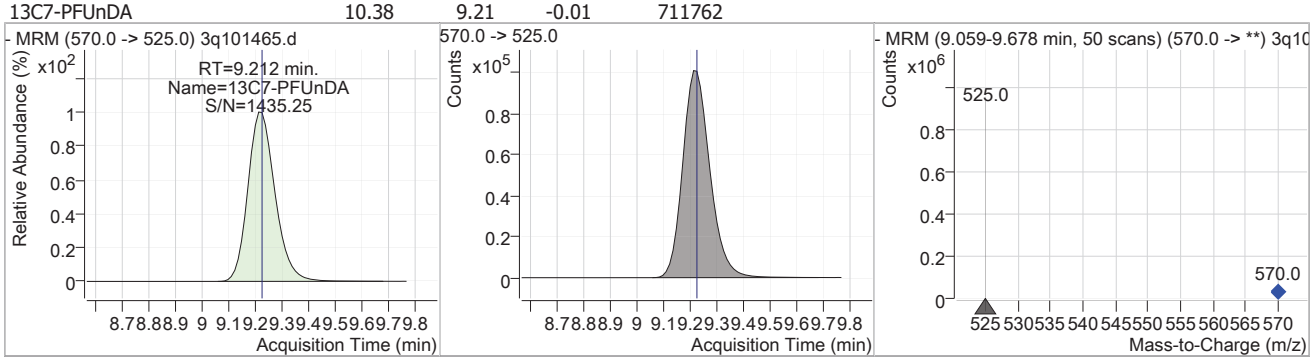


Perfluorinated Compounds by LC/MS/MS

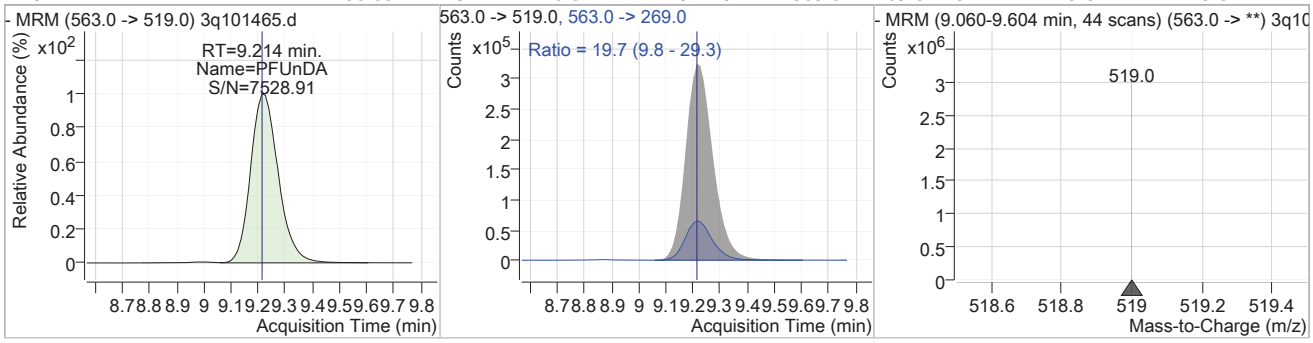
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	48.67	8.60	-0.01	921311	527.0 -> 81.0	41.0	20.4	61.2



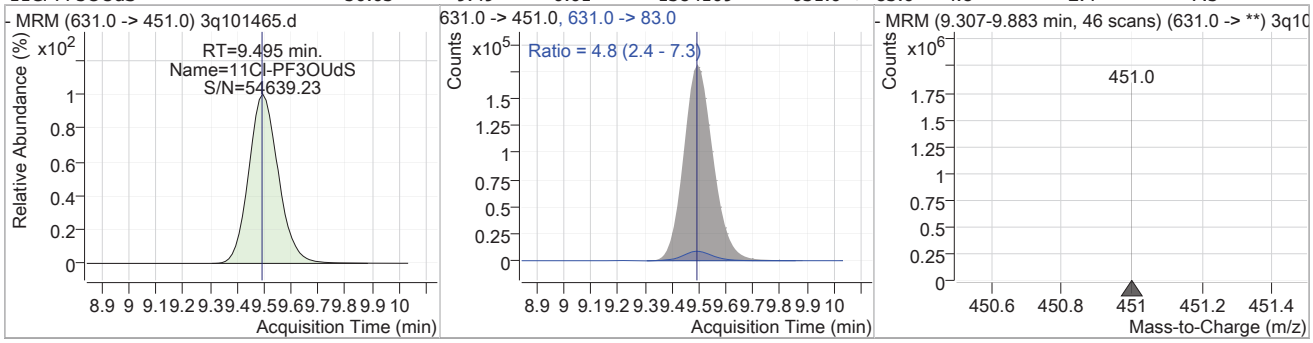
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	10.38	9.21	-0.01	711762				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	50.00	9.21	-0.01	2294179	563.0 -> 269.0	19.7	9.8	29.3

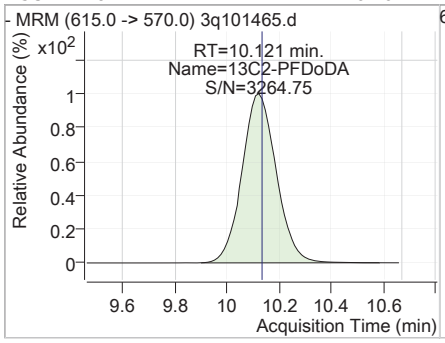


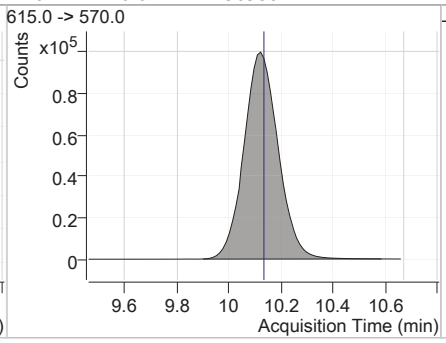
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	50.03	9.49	-0.01	1384109	631.0 -> 83.0	4.8	2.4	7.3

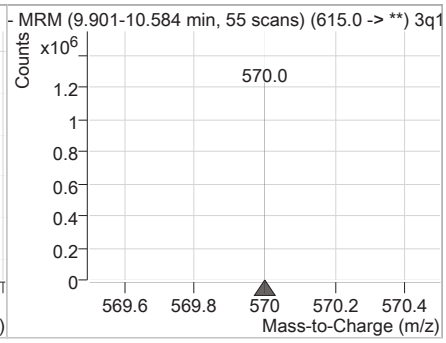


Perfluorinated Compounds by LC/MS/MS

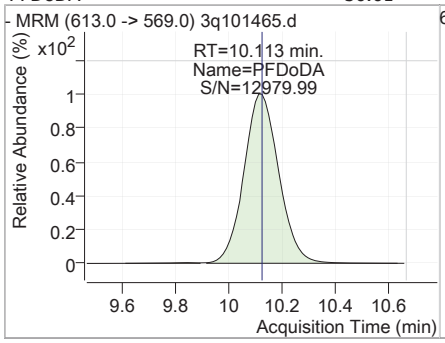
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.40	10.12	-0.01	909382				

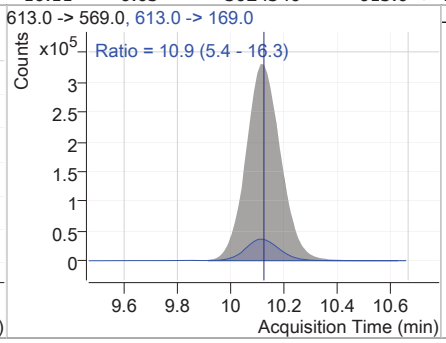


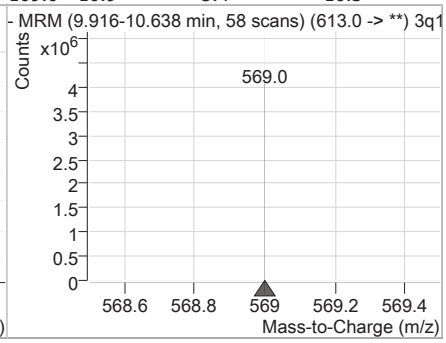




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	50.01	10.11	-0.03	3024340	613.0 -> 169.0	10.9	5.4	16.3







7.7.9

7

Manual Integration Approval Summary

Sample Number:	S3Q1492-IC1492	**Method:**	EPA 533
Lab FileID:	3Q101465.D	**Analyst approved:**	04/16/25 08:55 (b) (6)
Injection Time:	04/15/25 15:56	**Supervisor approved:**	04/17/25 11:42 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:42

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101467.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 4:28:44 PM
Sample Name : icv1492-20
Vial : P1-D1
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.435	415.0 -> 370.0	228363	10.00 µg/L	0.000
13C3-PFBA	2.344	216.0 -> 172.0	91327	10.00 µg/L	0.213
13C4-PFOS	7.983	503.0 -> 80.0	34151	10.00 µg/L	-0.013
M4-PFBA	2.352	217.0 -> 172.0	136986	10.00 µg/L	0.213
M5-PFPeA	4.413	268.0 -> 223.0	164253	10.00 µg/L	0.075
M5-PFHxA	5.776	318.0 -> 273.0	205882	10.00 µg/L	0.025
M4-PFHpA	6.706	367.0 -> 322.0	173109	10.00 µg/L	0.000
M8-PFOA	7.434	421.0 -> 376.0	222617	10.00 µg/L	0.000
M9-PFNA	8.022	472.0 -> 427.0	242123	10.00 µg/L	0.000
M6-PFDA	8.546	519.0 -> 474.0	332312	10.00 µg/L	0.000
M7-PFUnDA	9.212	570.0 -> 525.0	673179	10.00 µg/L	-0.013
M2-PFDoDA	10.121	615.0 -> 570.0	858435	10.00 µg/L	-0.013
M3-PFBS	4.708	302.0 -> 99.0	19244	10.00 µg/L	0.063
M3-PFHxS	6.736	402.0 -> 99.0	27504	10.00 µg/L	0.000
M8-PFOS	7.982	507.0 -> 99.0	35394	10.00 µg/L	-0.013
M2-4:2FTS	5.684	329.0 -> 309.0	74317	10.00 µg/L	0.038
M2-6:2FTS	7.432	429.0 -> 409.0	138412	10.00 µg/L	0.000
M2-8:2FTS	8.611	529.0 -> 509.0	237645	10.00 µg/L	0.000
M3-HFPO-DA	6.068	287.0 -> 169.0	2886	10.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.684	329.0 -> 309.0	74317	9.14 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.4%	
13C2-6:2FTS	7.432	429.0 -> 409.0	138412	9.07 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.7%	
13C2-8:2FTS	8.611	529.0 -> 509.0	237645	9.29 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.9%	
13C2-PFDoDA	10.121	615.0 -> 570.0	858435	8.83 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.3%	
13C3-PFBS	4.708	302.0 -> 99.0	19244	9.03 µg/L	0.063
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.3%	
13C3-PFHxS	6.736	402.0 -> 99.0	27504	9.07 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.7%	
13C4-PFBA	2.352	217.0 -> 172.0	136986	8.84 µg/L	0.213
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.4%	
13C4-PFHpA	6.706	367.0 -> 322.0	173109	8.96 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.6%	
13C5-PFHxA	5.776	318.0 -> 273.0	205882	8.90 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.0%	
13C5-PFPeA	4.413	268.0 -> 223.0	164253	8.80 µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.0%	
13C6-PFDA	8.546	519.0 -> 474.0	332312	8.70 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 87.0%	
13C7-PFUnDA	9.212	570.0 -> 525.0	673179	8.82 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.2%	
13C8-PFOA	7.434	421.0 -> 376.0	222617	8.87 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

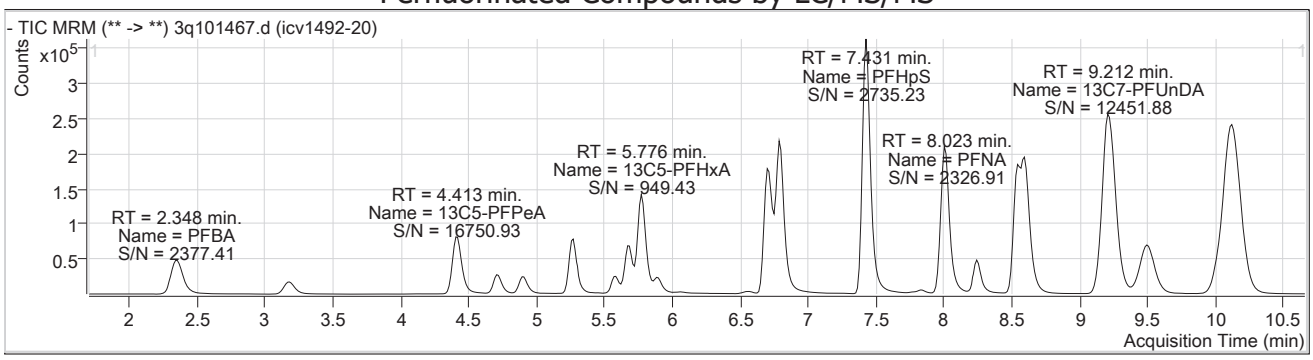
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.7%		
13C8-PFOS	7.982	507.0 -> 99.0	35394	9.11 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.1%		
13C9-PFNA	8.022	472.0 -> 427.0	242123	8.88 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.8%		
13C3-HFPO-DA	6.068	287.0 -> 169.0	2886	8.67 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 86.7%		
Target Compounds						QValue
PFMPA	3.178	229.0 -> 85.0	102941	23.21 µg/L		100
4:2FTS	5.674	327.0 -> 307.0	156834	18.96 µg/L		100
		327.0 -> 81.0	66497			
6:2FTS	7.433	427.0 -> 407.0	210465	19.24 µg/L		99
		427.0 -> 81.0	92147			
8:2FTS	8.598	527.0 -> 507.0	372552	22.82 µg/L		99
		527.0 -> 81.0	153588			
PFMBA	4.901	279.0 -> 85.0	112563	18.59 µg/L		100
PFEESA	5.274	315.0 -> 135.0	317324	18.28 µg/L		100
		315.0 -> 69.0	24363			
NFDHA	5.594	201.0 -> 85.0	101349	19.68 µg/L		99
		295.0 -> 201.0	6707			
PFBA	2.348	213.0 -> 169.0	82409	21.76 µg/L		100
PFBS	4.710	299.0 -> 80.0	72457	18.62 µg/L		99
		299.0 -> 99.0	30872			
PFDA	8.546	513.0 -> 469.0	367468	19.55 µg/L		100
		513.0 -> 219.0	86273			
PFDoDA	10.125	613.0 -> 569.0	1259680	22.07 µg/L		100
		613.0 -> 169.0	134947			
PFHpA	6.708	363.0 -> 319.0	506787	20.86 µg/L		100
		363.0 -> 169.0	42521			
PFHpS	7.431	449.0 -> 80.0	93986	18.66 µg/L		99
		449.0 -> 99.0	51954			
PFHxA	5.778	313.0 -> 269.0	386025	19.90 µg/L		100
		313.0 -> 119.0	13269			
PFHxS	6.738	399.0 -> 80.0	96527	19.94 µg/L	m	99
		399.0 -> 99.0	50615			
PFNA	8.023	463.0 -> 419.0	382196	19.27 µg/L		100
		463.0 -> 219.0	113959			
PFOA	7.436	413.0 -> 369.0	370678	21.59 µg/L		99
		413.0 -> 169.0	135794			
PFOS	7.983	499.0 -> 80.0	118542	20.95 µg/L	m	92
		499.0 -> 99.0	68266			
PFPeA	4.415	263.0 -> 219.0	243359	19.64 µg/L		100
PFPeS	5.896	349.0 -> 80.0	54633	19.45 µg/L		99
		349.0 -> 99.0	23155			
PFUnDA	9.214	563.0 -> 519.0	978109	22.54 µg/L		99
		563.0 -> 269.0	193613			
11Cl-PF3OUdS	9.495	631.0 -> 451.0	511180	19.45 µg/L		100
		631.0 -> 83.0	24817			
9Cl-PF3ONS	8.241	531.0 -> 351.0	183372	20.11 µg/L		100
		531.0 -> 83.0	9480			
ADONA	6.792	377.0 -> 251.0	785030	20.93 µg/L		100
		377.0 -> 85.0	93285			
HFPO-DA	6.061	329.0 -> 169.0	1234	19.19 µg/L		92
		285.0 -> 169.0	2816			

 # = Qualifier out of range, m = manually integrated, + = Area summed

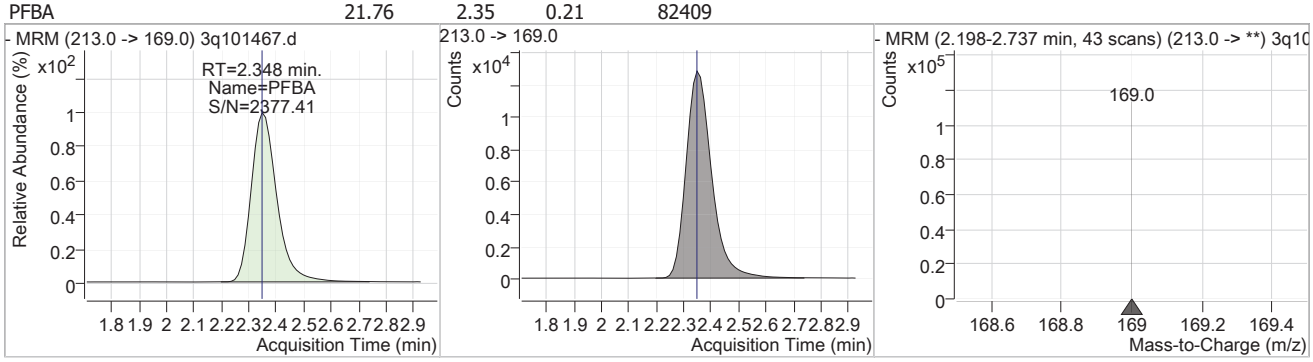
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

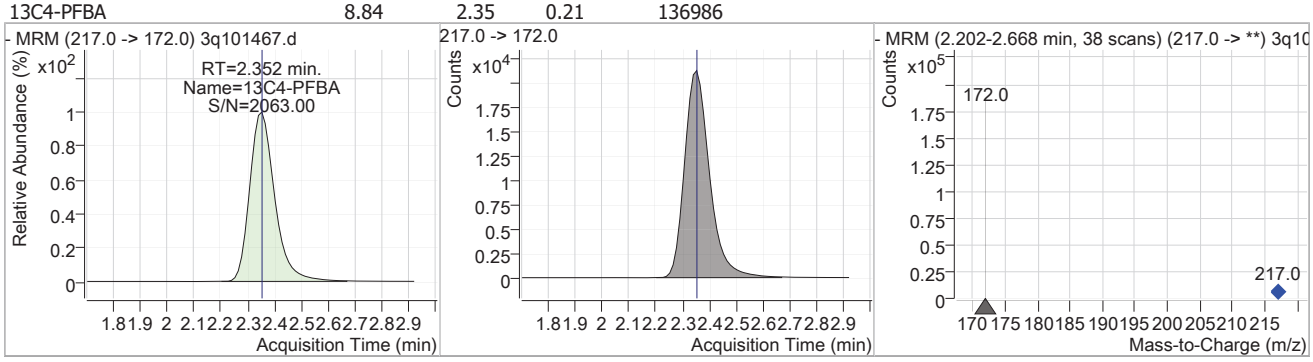
Perfluorinated Compounds by LC/MS/MS



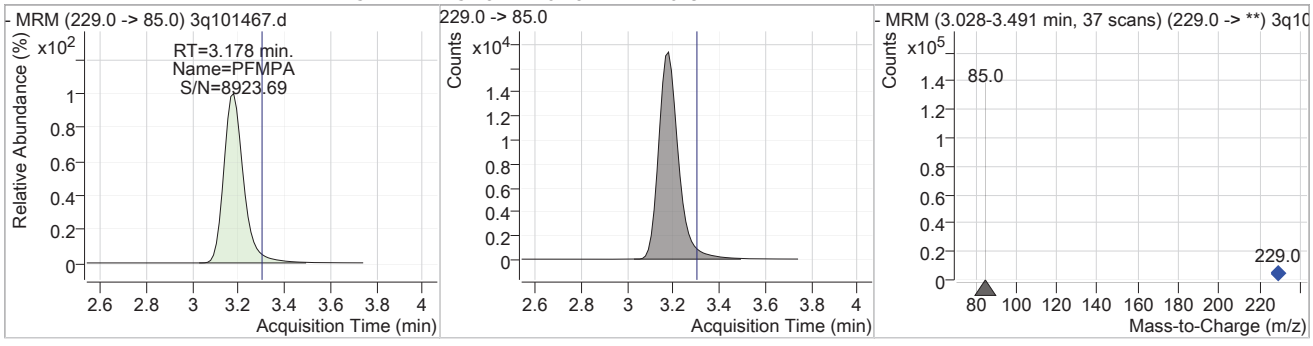
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	21.76	2.35	0.21	82409				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	8.84	2.35	0.21	136986				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	23.21	3.18	0.18	102941				

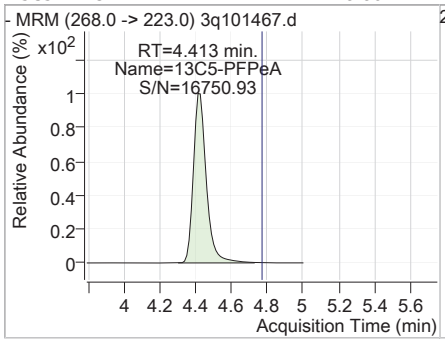


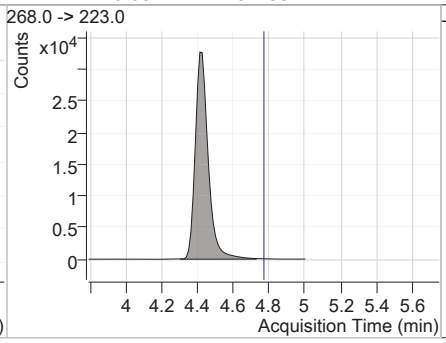
7.7.10

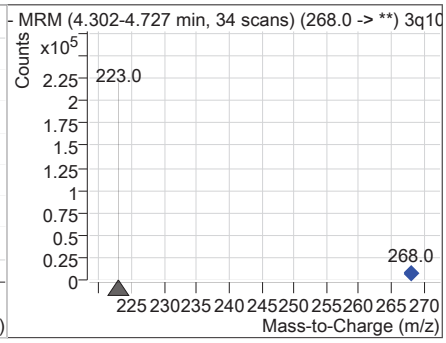
7

Perfluorinated Compounds by LC/MS/MS

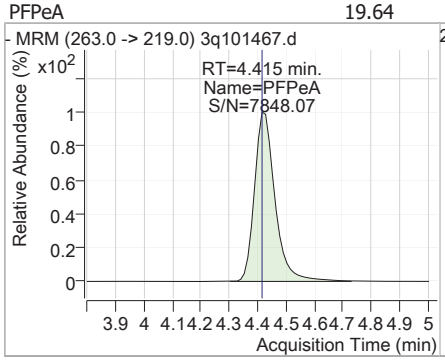
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	8.80	4.41	0.08	164253				

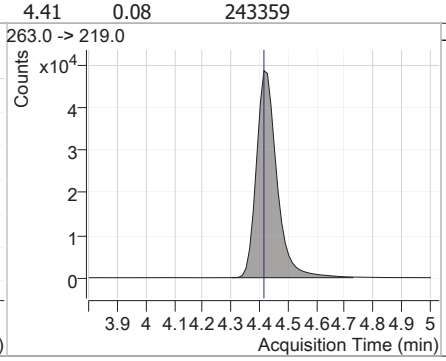


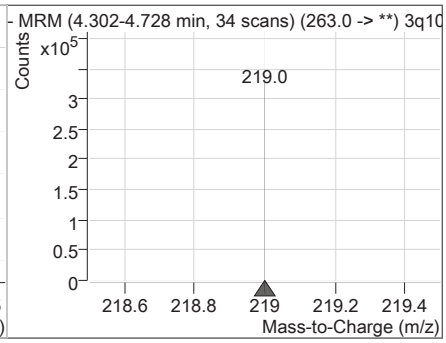




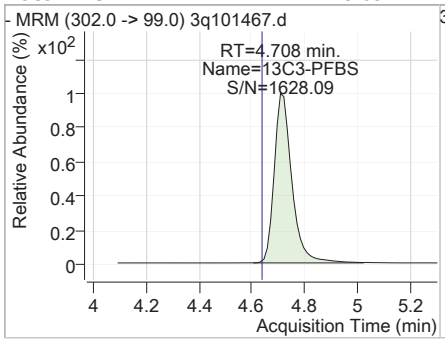
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.64	4.41	0.08	243359				

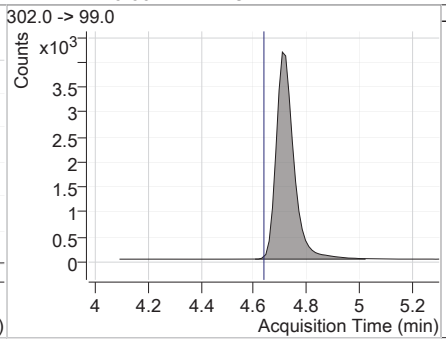


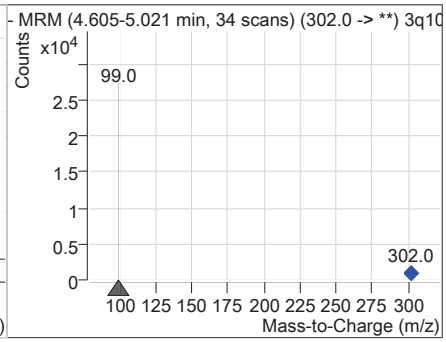




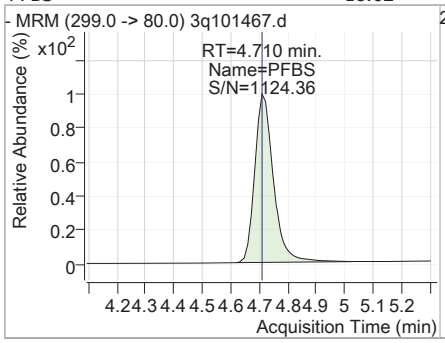
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	9.03	4.71	0.06	19244				

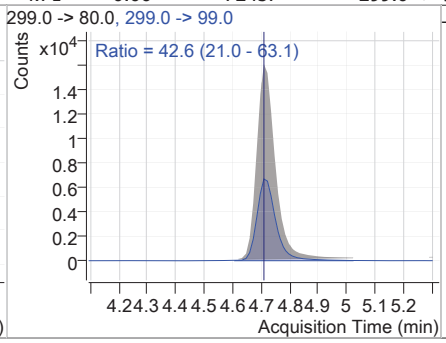


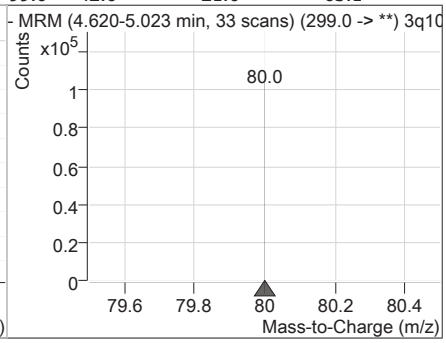




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	18.62	4.71	0.06	72457	299.0 -> 99.0	42.6	21.0	63.1

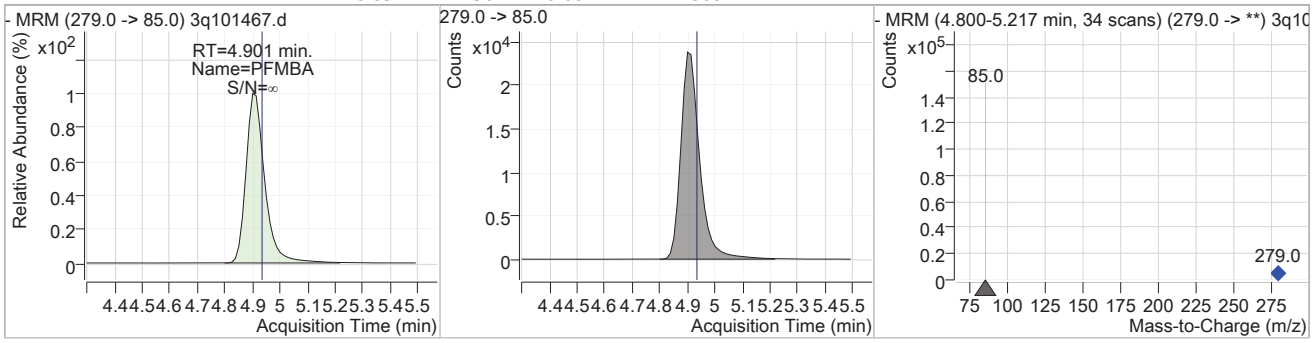




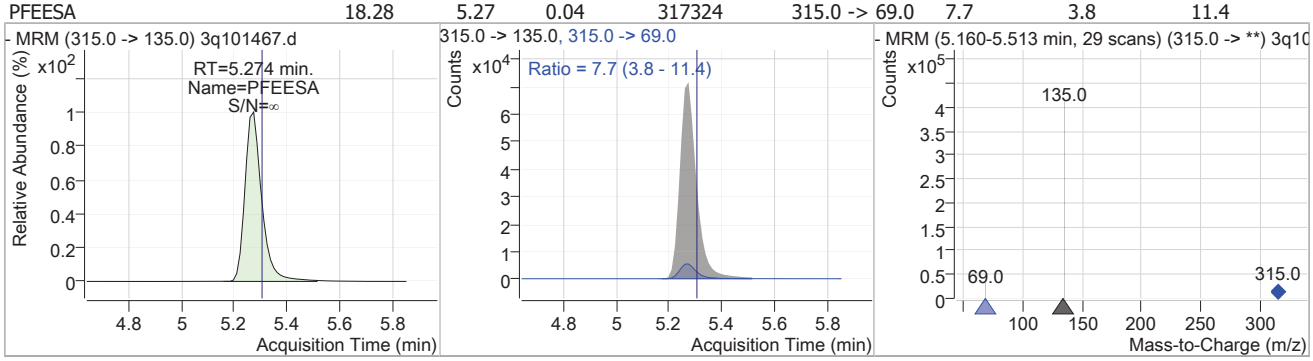


Perfluorinated Compounds by LC/MS/MS

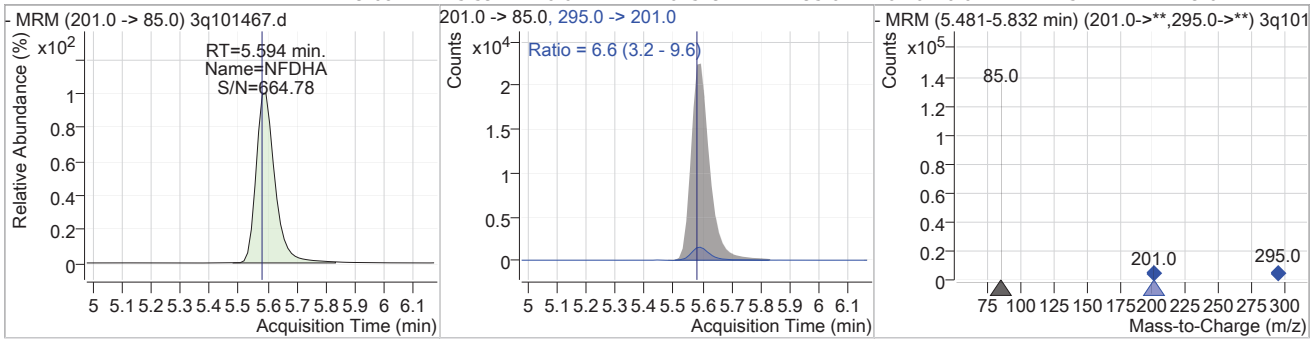
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	18.59	4.90	0.05	112563				



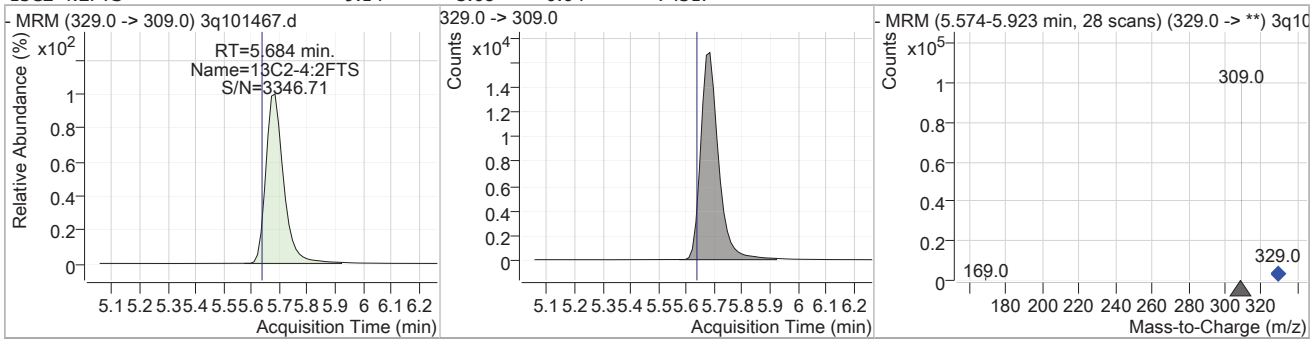
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	18.28	5.27	0.04	317324	315.0 -> 69.0	7.7	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	19.68	5.59	0.04	101349	295.0 -> 201.0	6.6	3.2	9.6

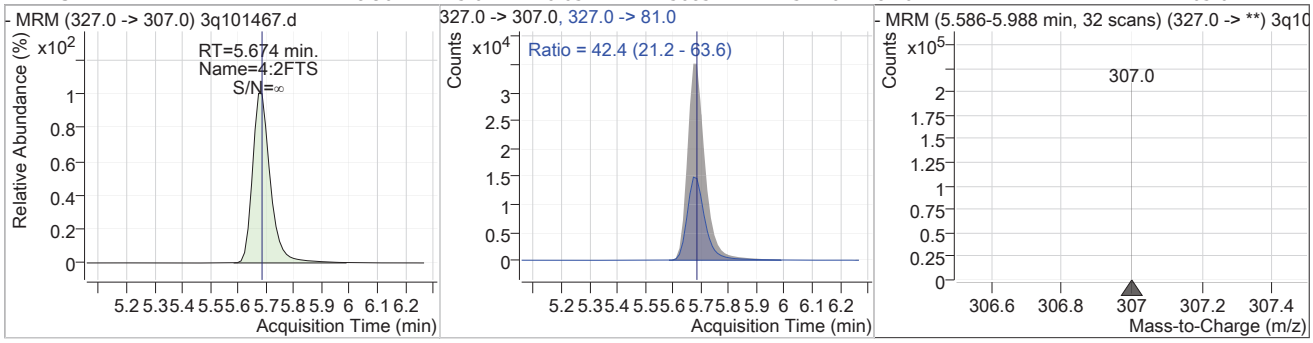


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	9.14	5.68	0.04	74317				

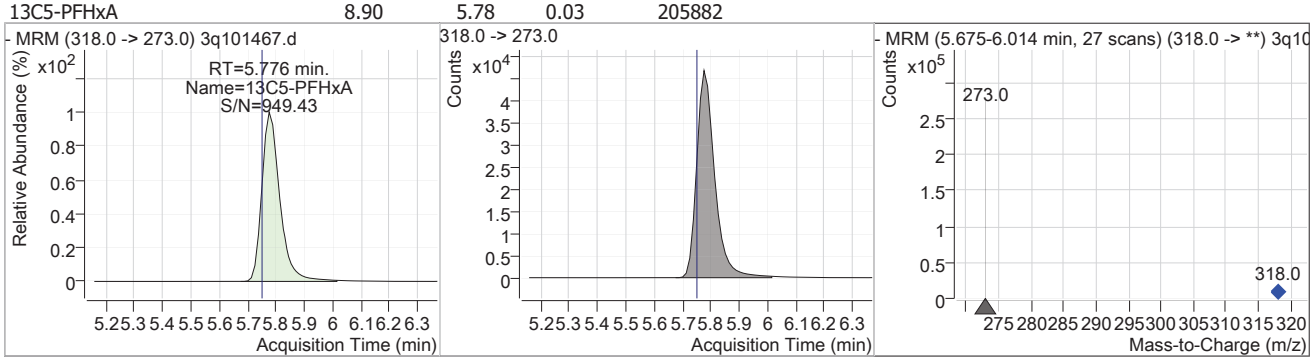


Perfluorinated Compounds by LC/MS/MS

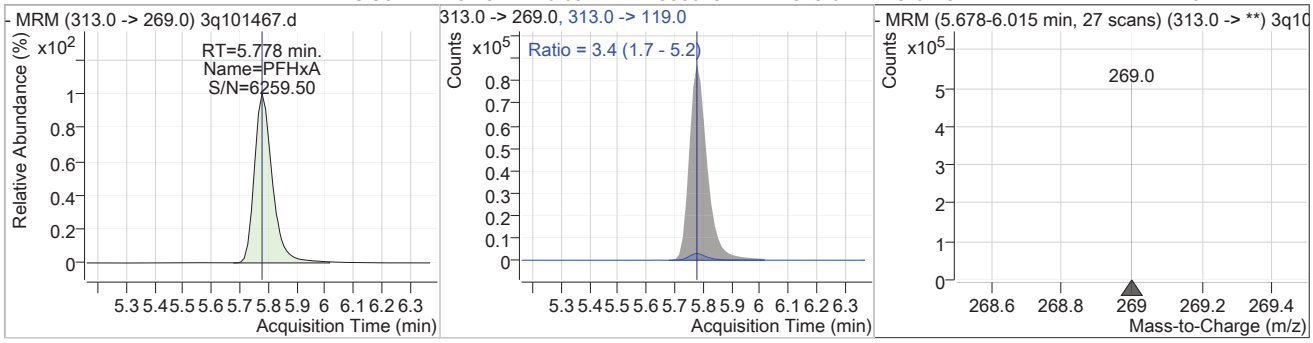
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	18.96	5.67	0.03	156834	327.0 -> 81.0	42.4	21.2	63.6



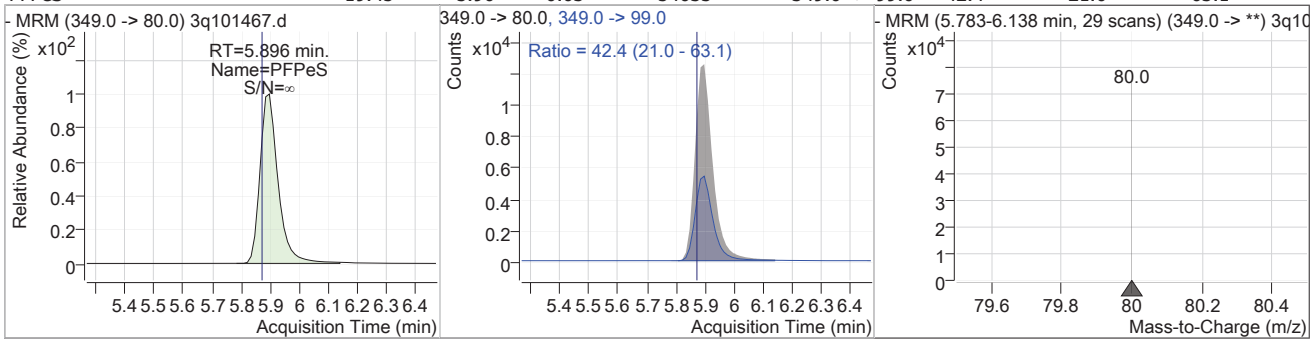
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	8.90	5.78	0.03	205882				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.90	5.78	0.03	386025	313.0 -> 119.0	3.4	1.7	5.2

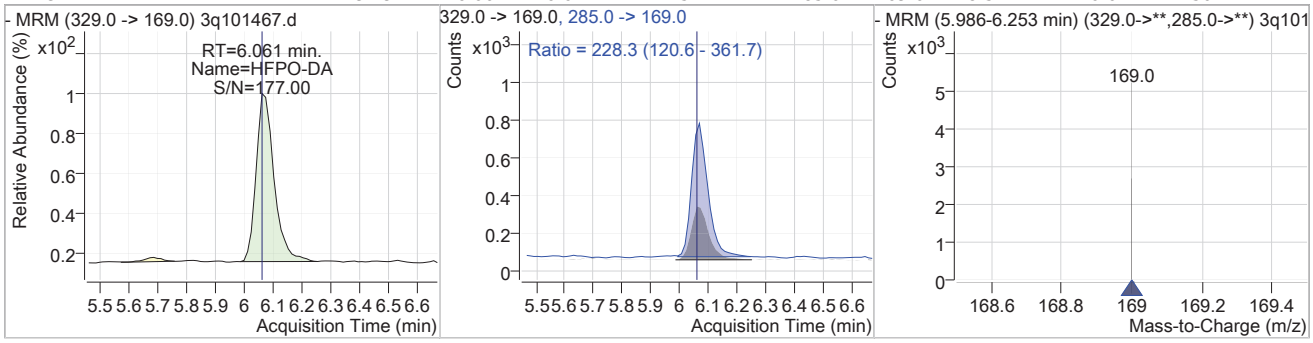


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	19.45	5.90	0.03	54633	349.0 -> 99.0	42.4	21.0	63.1

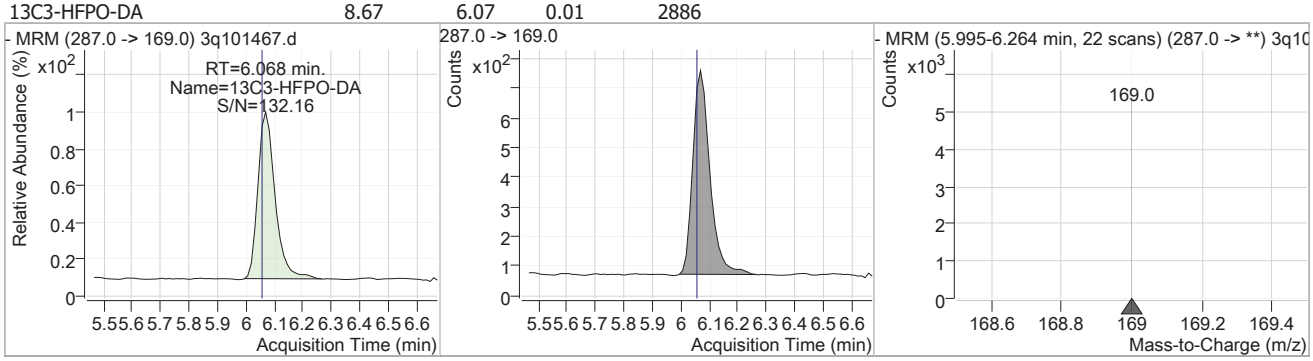


Perfluorinated Compounds by LC/MS/MS

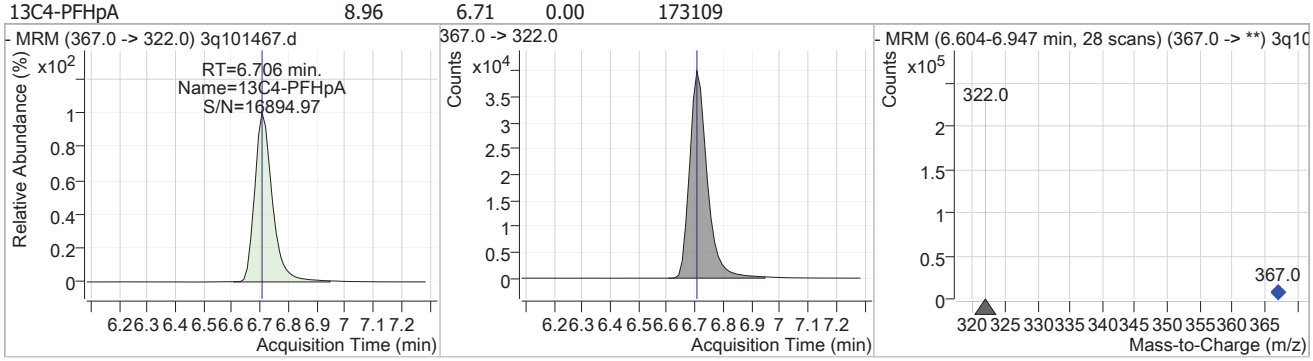
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.19	6.06	0.01	1234	285.0 -> 169.0	228.3	120.6	361.7



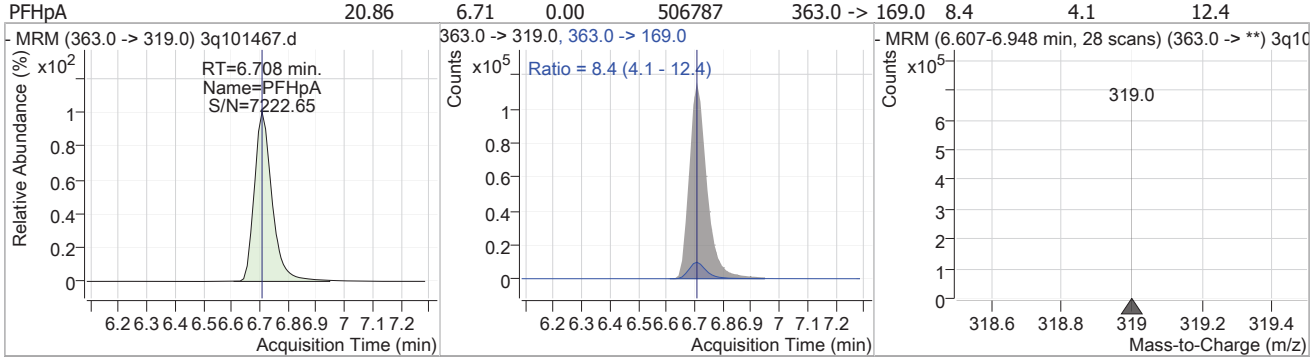
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.67	6.07	0.01	2886				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	8.96	6.71	0.00	173109				

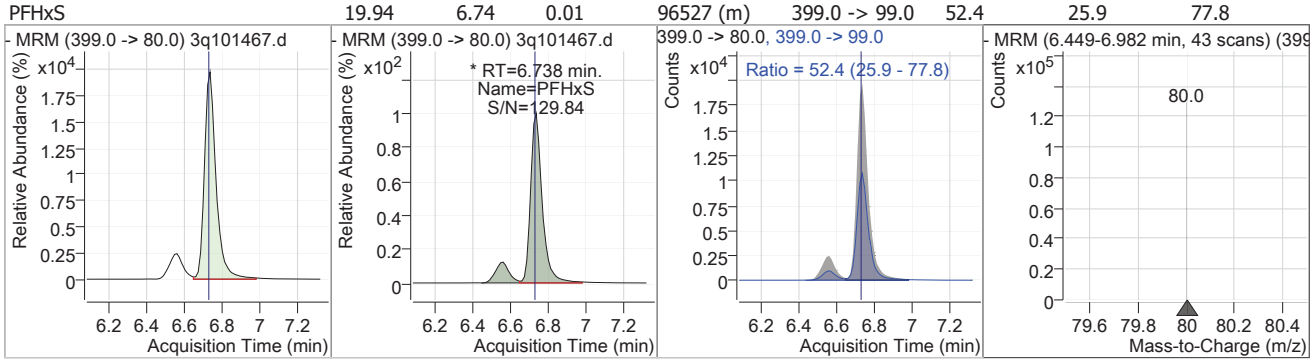


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.86	6.71	0.00	506787	363.0 -> 169.0	8.4	4.1	12.4

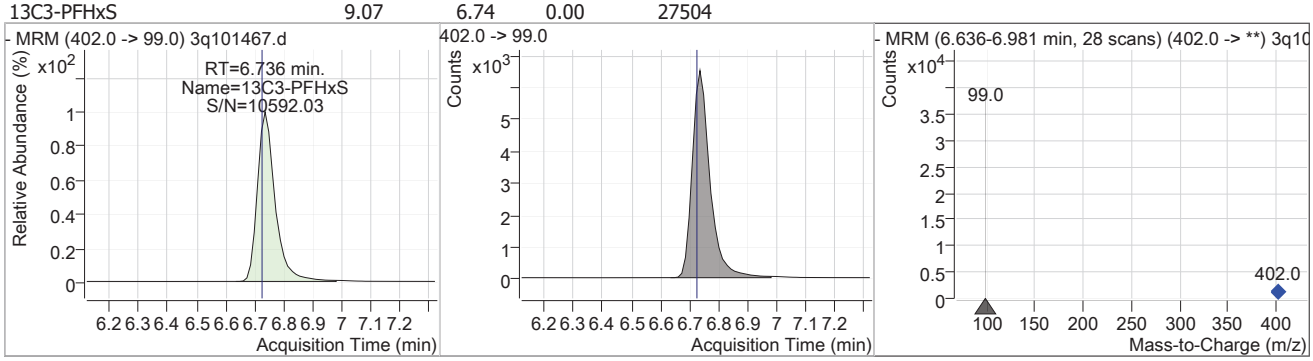


Perfluorinated Compounds by LC/MS/MS

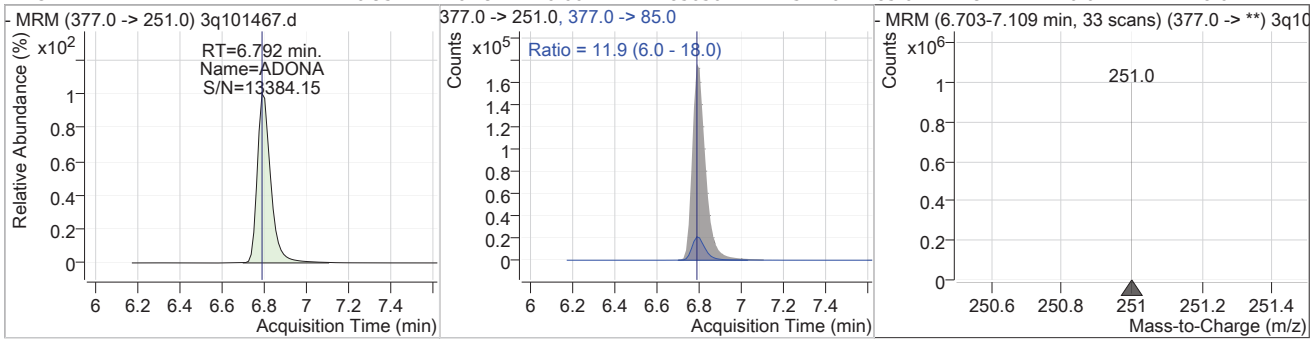
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.94	6.74	0.01	96527 (m)	399.0 -> 99.0	52.4	25.9	77.8



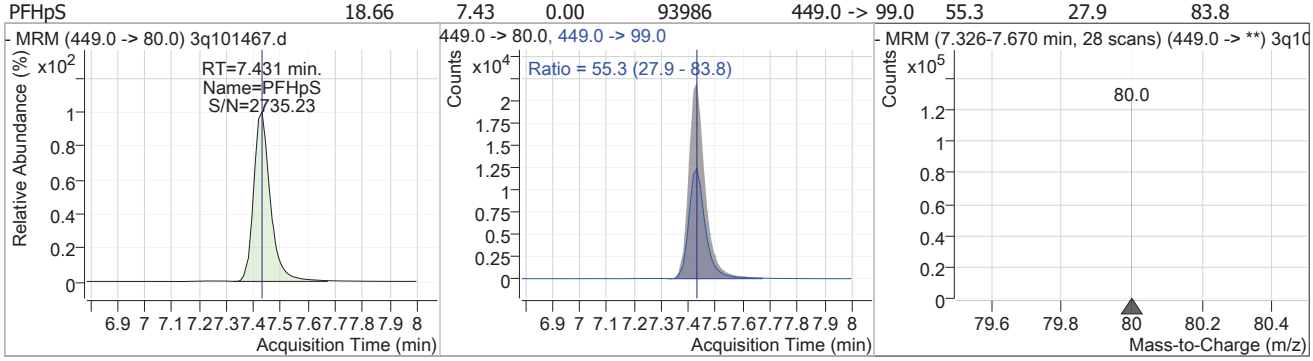
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	9.07	6.74	0.00	27504				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.93	6.79	0.00	785030	377.0 -> 85.0	11.9	6.0	18.0

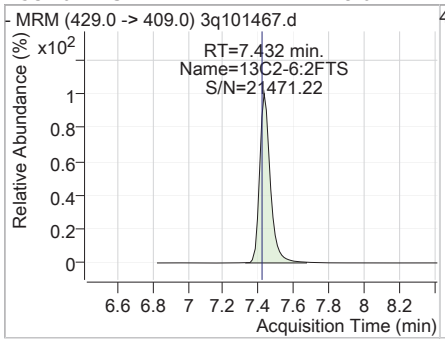


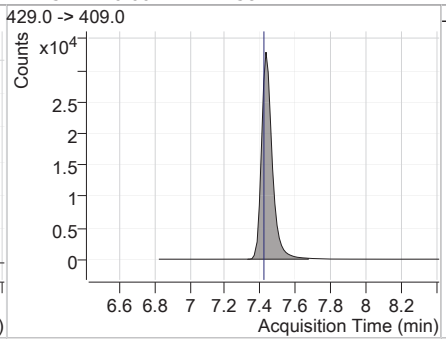
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	18.66	7.43	0.00	93986	449.0 -> 99.0	55.3	27.9	83.8

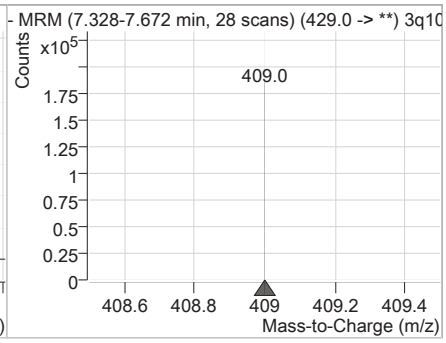


Perfluorinated Compounds by LC/MS/MS

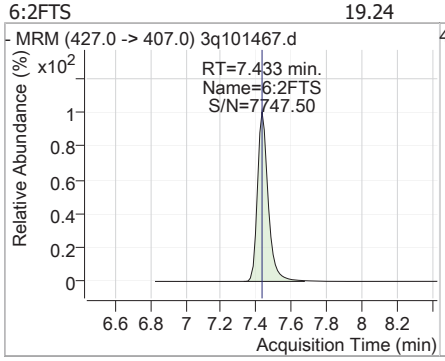
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	9.07	7.43	0.00	138412				

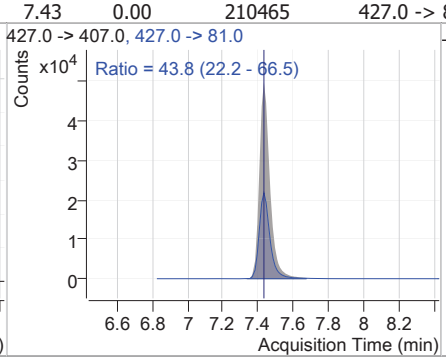


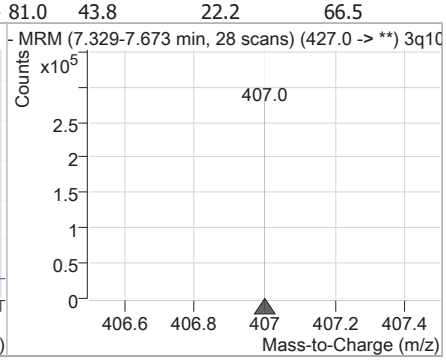




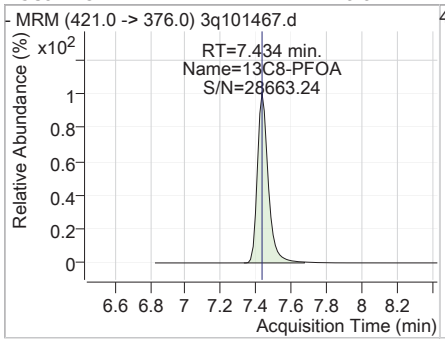
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.24	7.43	0.00	210465	427.0 -> 81.0	43.8	22.2	66.5

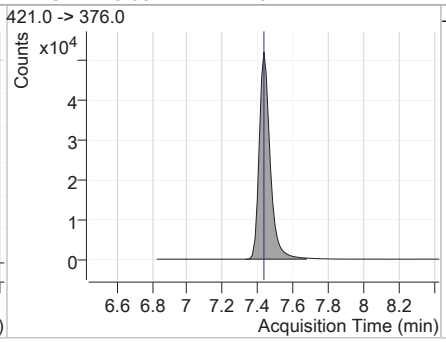


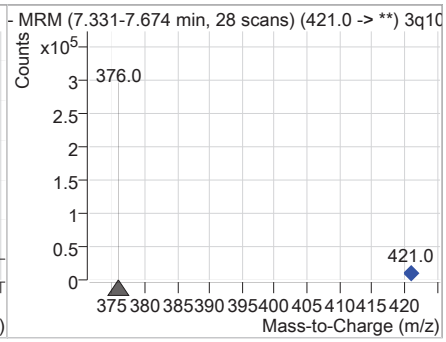




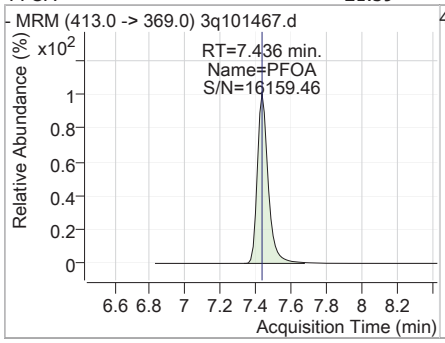
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	8.87	7.43	0.00	222617				

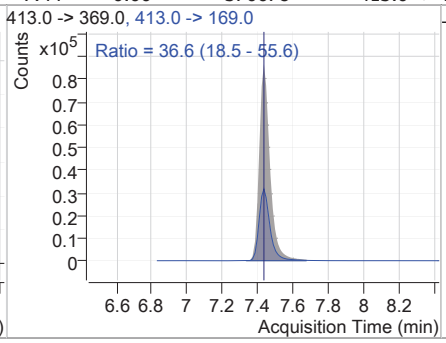


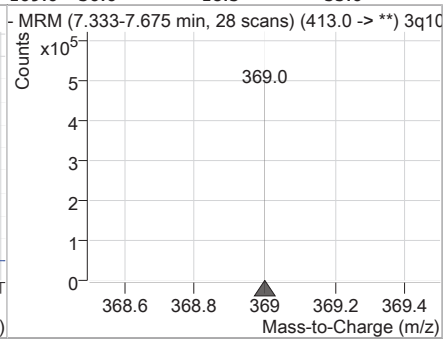




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	21.59	7.44	0.00	370678	413.0 -> 169.0	36.6	18.5	55.6

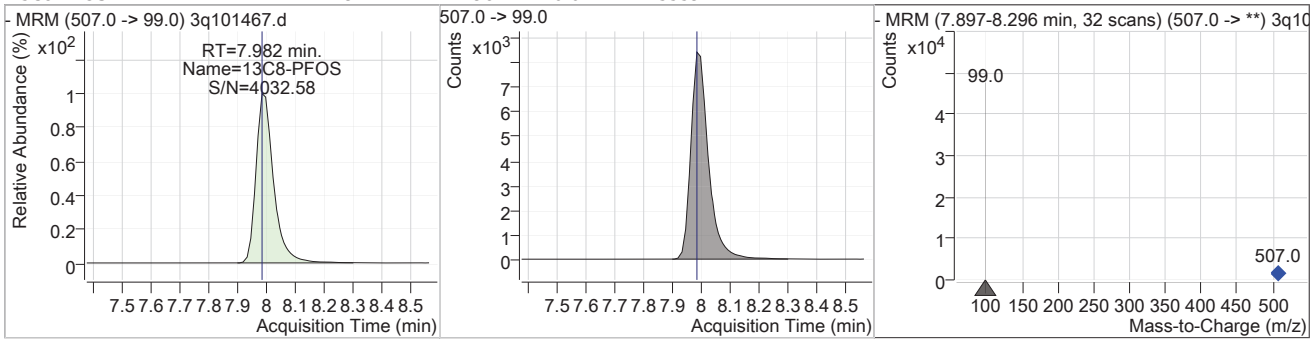




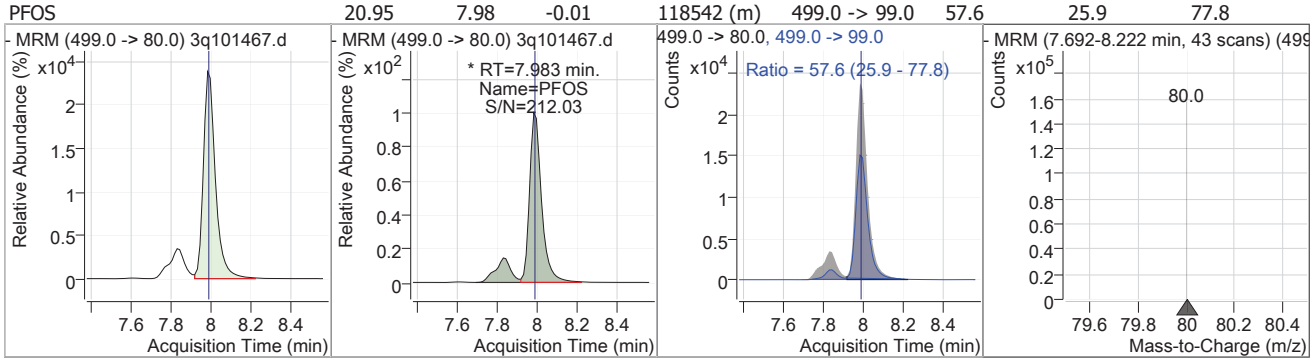


Perfluorinated Compounds by LC/MS/MS

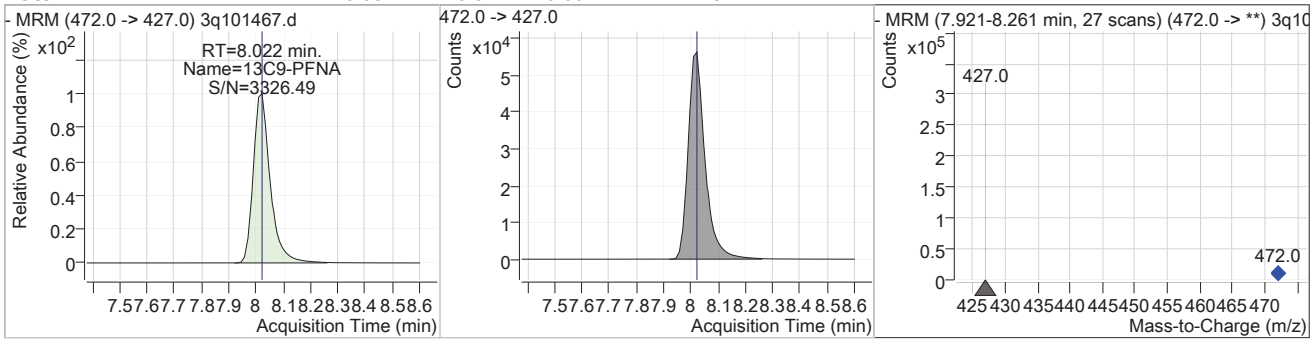
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	9.11	7.98	-0.01	35394				



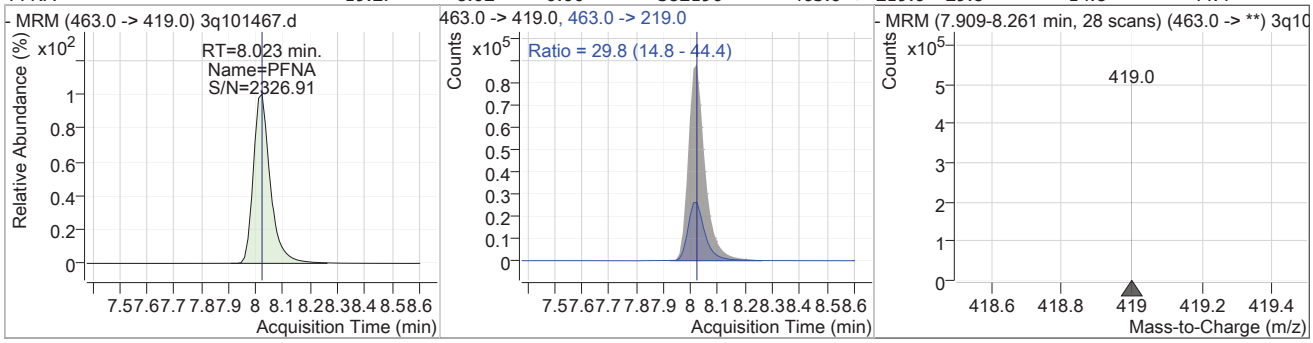
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	20.95	7.98	-0.01	118542 (m)	499.0 -> 99.0	57.6	25.9	77.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	8.88	8.02	0.00	242123				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.27	8.02	0.00	382196	463.0 -> 219.0	29.8	14.8	44.4

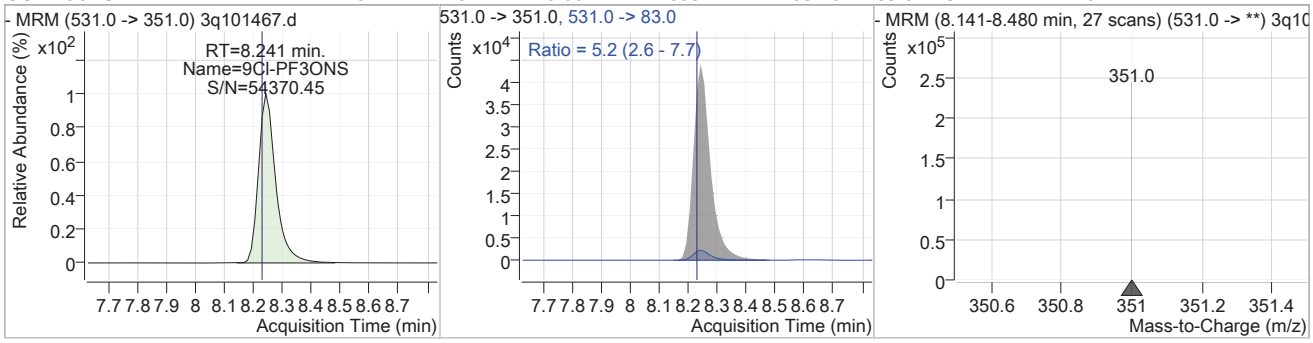


7.7.10

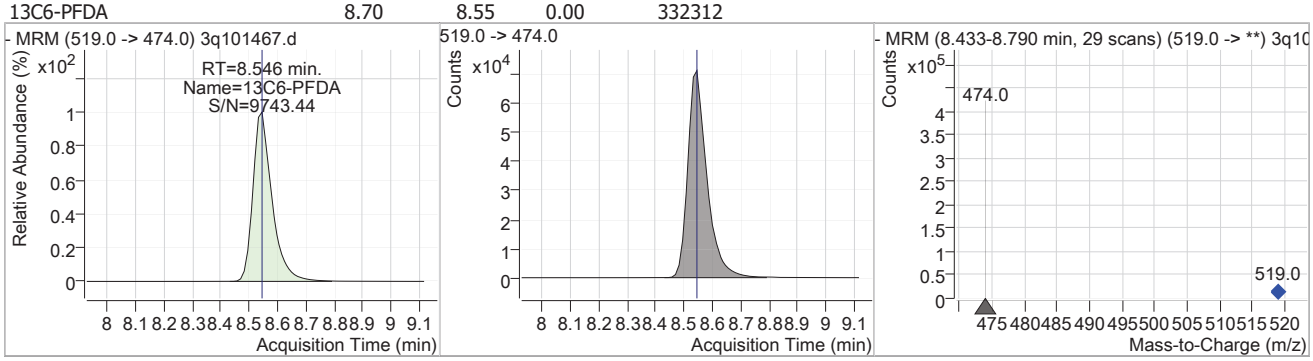
7

Perfluorinated Compounds by LC/MS/MS

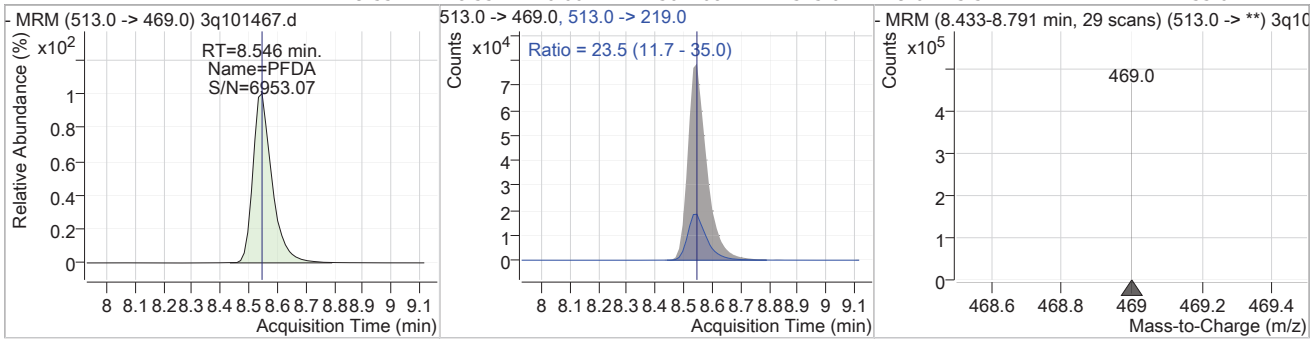
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	20.11	8.24	0.00	183372	531.0 -> 83.0	5.2	2.6	7.7



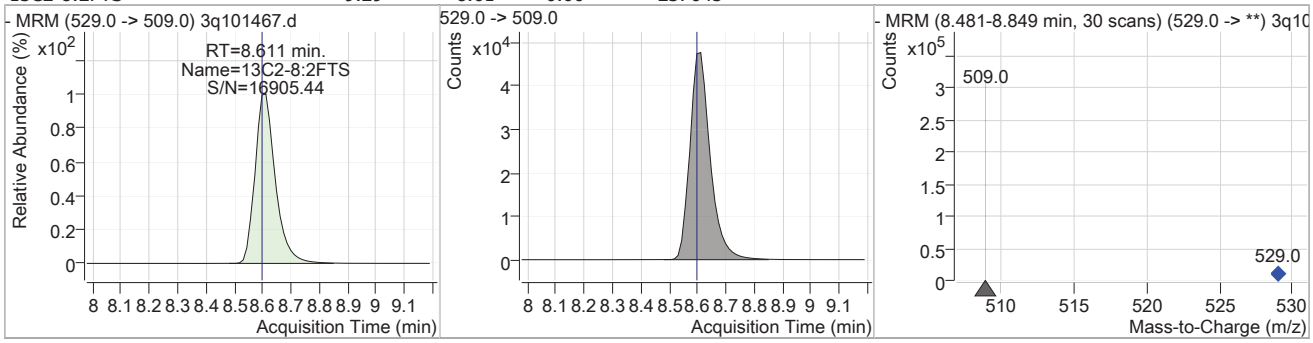
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	8.70	8.55	0.00	332312				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.55	8.55	0.00	367468	513.0 -> 219.0	23.5	11.7	35.0

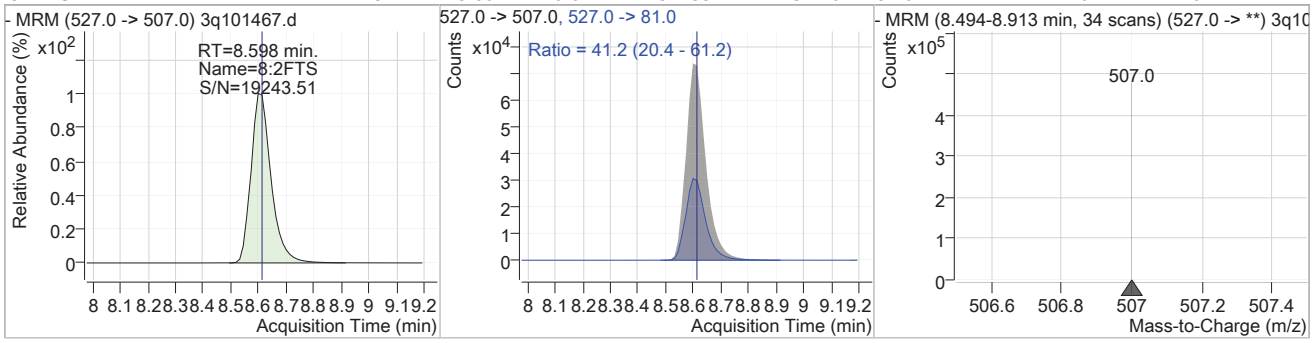


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	9.29	8.61	0.00	237645				

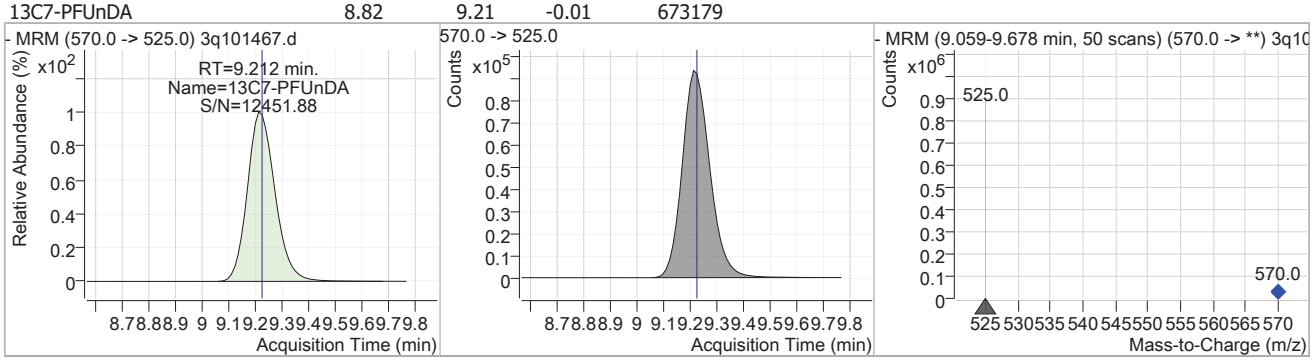


Perfluorinated Compounds by LC/MS/MS

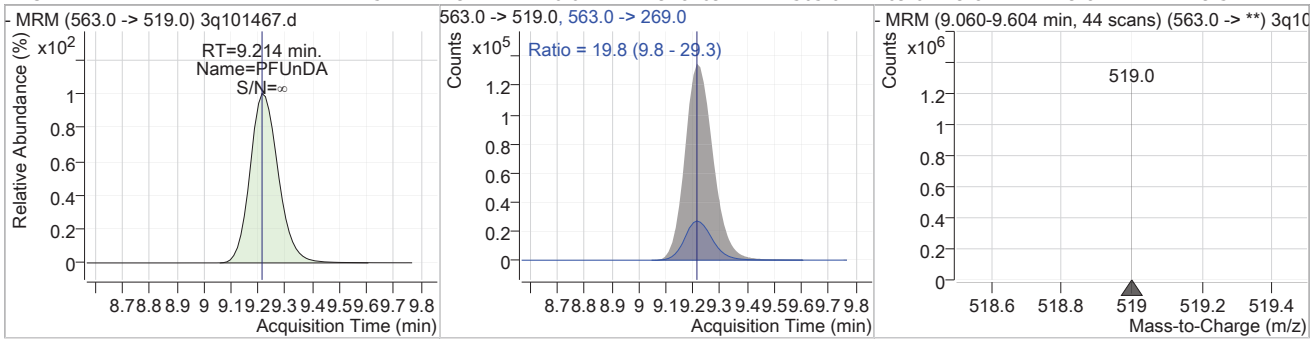
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	22.82	8.60	-0.01	372552	527.0 -> 81.0	41.2	20.4	61.2



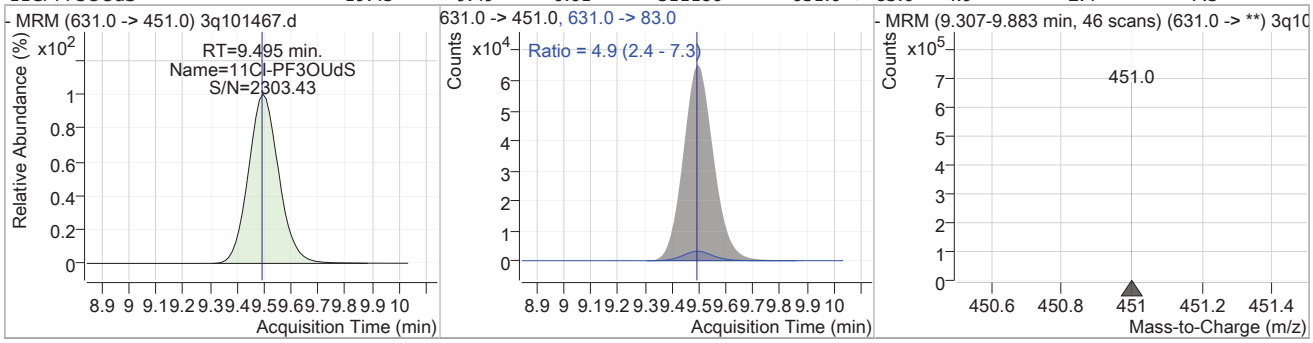
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	8.82	9.21	-0.01	673179				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	22.54	9.21	-0.01	978109	563.0 -> 269.0	19.8	9.8	29.3

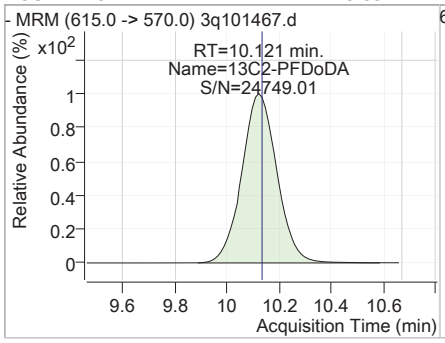


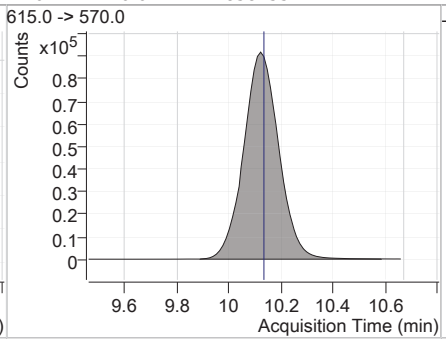
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	19.45	9.49	-0.01	511180	631.0 -> 83.0	4.9	2.4	7.3

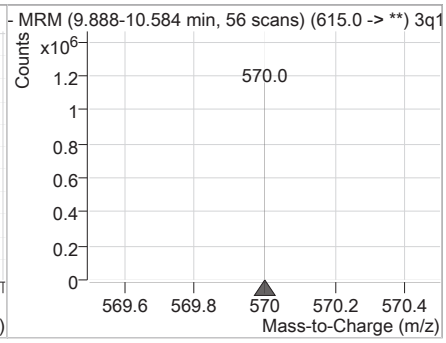


Perfluorinated Compounds by LC/MS/MS

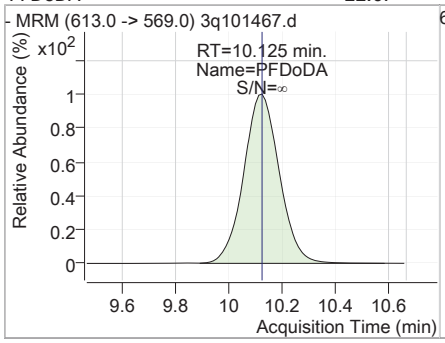
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	8.83	10.12	-0.01	858435				

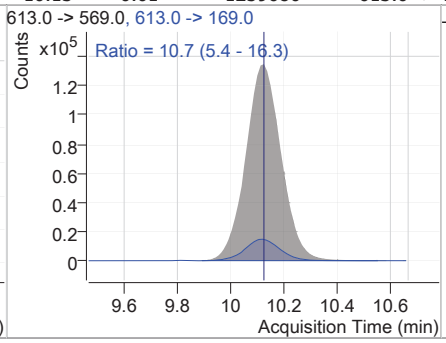


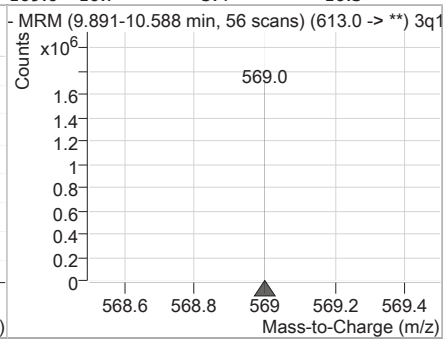




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	22.07	10.13	-0.01	1259680	613.0 -> 169.0	10.7	5.4	16.3







Manual Integration Approval Summary

Sample Number:	S3Q1492-ICV1492	**Method:**	EPA 533
Lab FileID:	3Q101467.D	**Analyst approved:**	04/16/25 08:55 (b) (6)
Injection Time:	04/15/25 16:28	**Supervisor approved:**	04/17/25 11:42 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:42

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101469.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 5:00:54 PM
Sample Name : cc1492-20
Vial : P1-C7
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.435	415.0 -> 370.0	207611	10.00 µg/L	0.000
13C3-PFBA	2.344	216.0 -> 172.0	83723	10.00 µg/L	0.213
13C4-PFOS	7.983	503.0 -> 80.0	31995	10.00 µg/L	-0.013
M4-PFBA	2.340	217.0 -> 172.0	150975	10.00 µg/L	0.200
M5-PFPeA	4.413	268.0 -> 223.0	179137	10.00 µg/L	0.075
M5-PFHxA	5.776	318.0 -> 273.0	226317	10.00 µg/L	0.025
M4-PFHpA	6.706	367.0 -> 322.0	187360	10.00 µg/L	0.000
M8-PFOA	7.434	421.0 -> 376.0	245778	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	266834	10.00 µg/L	-0.013
M6-PFDA	8.533	519.0 -> 474.0	394032	10.00 µg/L	-0.013
M7-PFUnDA	9.199	570.0 -> 525.0	734816	10.00 µg/L	-0.025
M2-PFDoDA	10.096	615.0 -> 570.0	932334	10.00 µg/L	-0.038
M3-PFBS	4.708	302.0 -> 99.0	21072	10.00 µg/L	0.063
M3-PFHxS	6.736	402.0 -> 99.0	30310	10.00 µg/L	0.000
M8-PFOS	7.982	507.0 -> 99.0	38204	10.00 µg/L	-0.013
M2-4:2FTS	5.672	329.0 -> 309.0	81462	10.00 µg/L	0.025
M2-6:2FTS	7.432	429.0 -> 409.0	151721	10.00 µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	255056	10.00 µg/L	-0.014
M3-HFPO-DA	6.056	287.0 -> 169.0	3198	10.00 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.672	329.0 -> 309.0	81462	10.70 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C2-6:2FTS	7.432	429.0 -> 409.0	151708	10.61 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C2-8:2FTS	8.597	529.0 -> 509.0	255056	10.64 µg/L	-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C2-PFDoDA	10.096	615.0 -> 570.0	932334	10.55 µg/L	-0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C3-PFBS	4.708	302.0 -> 99.0	21072	10.56 µg/L	0.063
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C3-PFHxS	6.736	402.0 -> 99.0	30310	10.66 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.6%	
13C4-PFBA	2.340	217.0 -> 172.0	150975	10.63 µg/L	0.200
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C4-PFHpA	6.706	367.0 -> 322.0	187360	10.66 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.6%	
13C5-PFHxA	5.776	318.0 -> 273.0	226317	10.76 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.6%	
13C5-PFPeA	4.413	268.0 -> 223.0	179137	10.46 µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C6-PFDA	8.533	519.0 -> 474.0	394032	11.35 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.5%	
13C7-PFUnDA	9.199	570.0 -> 525.0	734816	10.59 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C8-PFOA	7.434	421.0 -> 376.0	245778	10.78 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

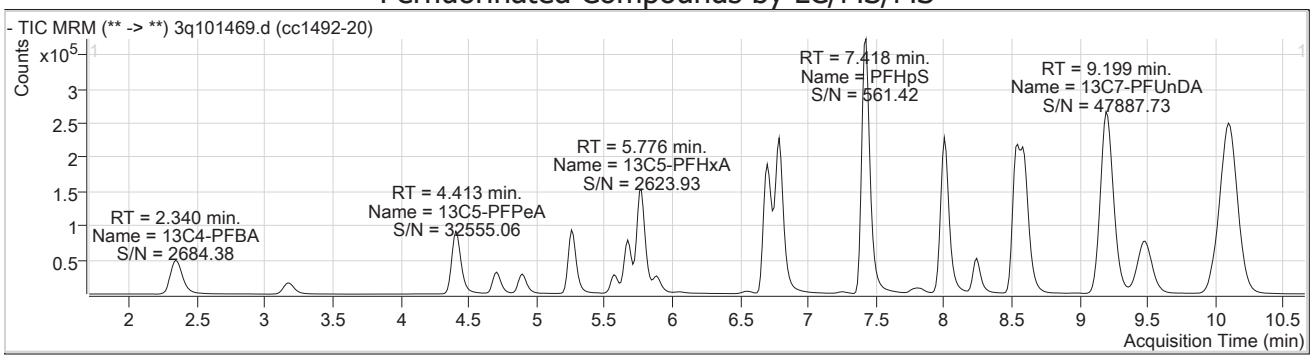
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.8%		
13C8-PFOS	7.982	507.0 -> 99.0	38204	10.50 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.0%		
13C9-PFNA	8.010	472.0 -> 427.0	266834	10.77 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.7%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	3198	10.58 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.8%		
Target Compounds						QValue
PFMPA	3.166	229.0 -> 85.0	97380	19.92 µg/L		100
4:2FTS	5.674	327.0 -> 307.0	177028	19.59 µg/L		100
		327.0 -> 81.0	74524			
6:2FTS	7.433	427.0 -> 407.0	234094	19.55 µg/L		100
		427.0 -> 81.0	103054			
8:2FTS	8.598	527.0 -> 507.0	385017	21.97 µg/L		99
		527.0 -> 81.0	158301			
PFMBA	4.901	279.0 -> 85.0	131229	19.87 µg/L		100
PFEESA	5.260	315.0 -> 135.0	376587	19.81 µg/L		100
		315.0 -> 69.0	28731			
NFDHA	5.582	201.0 -> 85.0	112528	19.88 µg/L		98
		295.0 -> 201.0	7845			
PFBA	2.348	213.0 -> 169.0	83116	19.91 µg/L		100
PFBS	4.710	299.0 -> 80.0	84317	19.79 µg/L		98
		299.0 -> 99.0	36462			
PFDA	8.534	513.0 -> 469.0	445741	20.00 µg/L		99
		513.0 -> 219.0	105347			
PFDoDA	10.100	613.0 -> 569.0	1249699	20.16 µg/L		100
		613.0 -> 169.0	134631			
PFHpA	6.708	363.0 -> 319.0	529672	20.15 µg/L		100
		363.0 -> 169.0	43982			
PFHpS	7.418	449.0 -> 80.0	112373	20.25 µg/L		97
		449.0 -> 99.0	60587			
PFHxA	5.778	313.0 -> 269.0	425695	19.97 µg/L		100
		313.0 -> 119.0	14582			
PFHxS	6.725	399.0 -> 80.0	105886	19.85 µg/L	m	100
		399.0 -> 99.0	55114			
PFNA	8.010	463.0 -> 419.0	438897	20.08 µg/L		100
		463.0 -> 219.0	130577			
PFOA	7.436	413.0 -> 369.0	377583	19.92 µg/L		99
		413.0 -> 169.0	138623			
PFOS	7.983	499.0 -> 80.0	123191	20.17 µg/L	m	98
		499.0 -> 99.0	62436			
PFPeA	4.415	263.0 -> 219.0	271634	20.10 µg/L		100
PFPeS	5.883	349.0 -> 80.0	61174	19.76 µg/L		100
		349.0 -> 99.0	25727			
PFUnDA	9.202	563.0 -> 519.0	945688	19.97 µg/L		100
		563.0 -> 269.0	185045			
11Cl-PF3OUdS	9.482	631.0 -> 451.0	561120	19.78 µg/L		100
		631.0 -> 83.0	27229			
9Cl-PF3ONS	8.241	531.0 -> 351.0	197965	20.12 µg/L		99
		531.0 -> 83.0	10428			
ADONA	6.792	377.0 -> 251.0	814134	20.06 µg/L		100
		377.0 -> 85.0	96924			
HFPO-DA	6.061	329.0 -> 169.0	1417	20.00 µg/L		99
		285.0 -> 169.0	3452			

 # = Qualifier out of range, m = manually integrated, + = Area summed

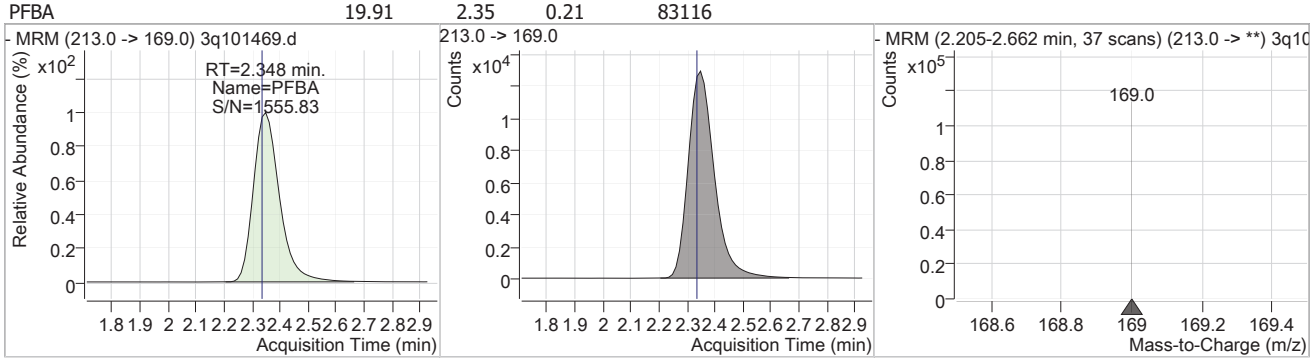
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

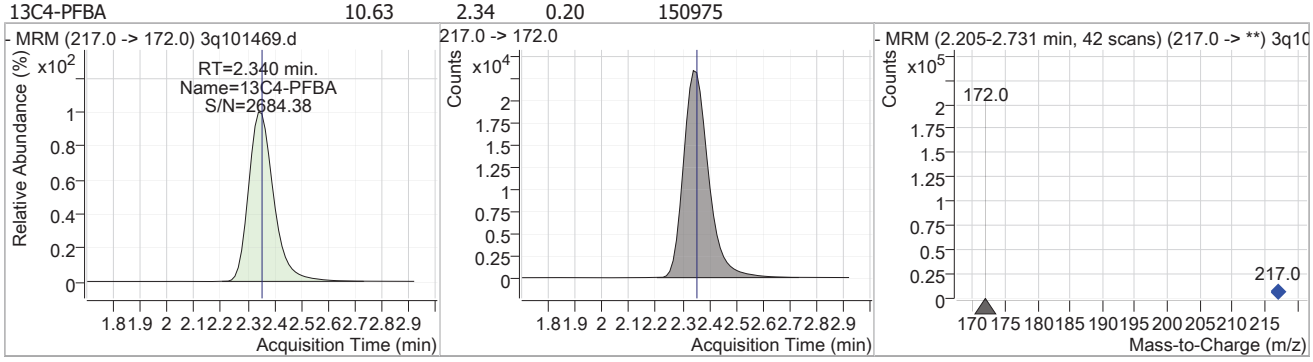
Perfluorinated Compounds by LC/MS/MS



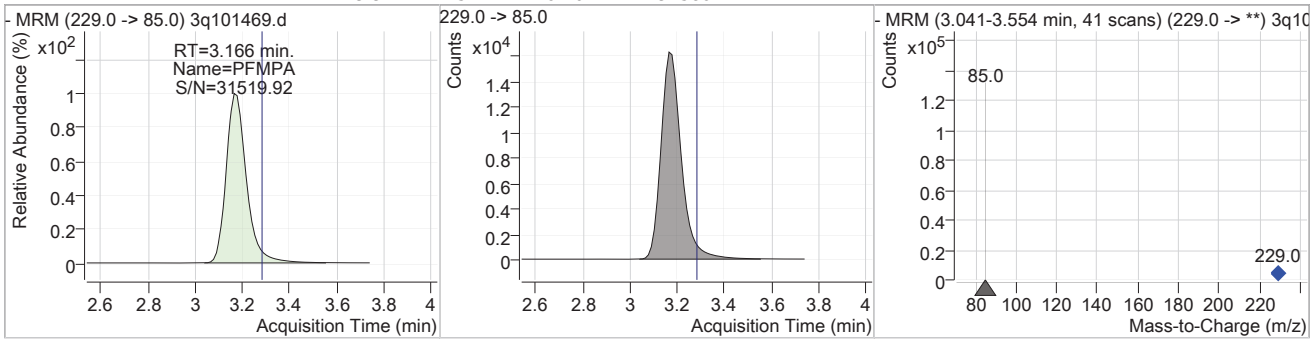
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.91	2.35	0.21	83116				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.63	2.34	0.20	150975				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	19.92	3.17	0.16	97380				



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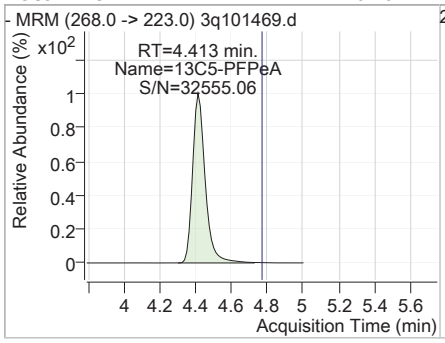
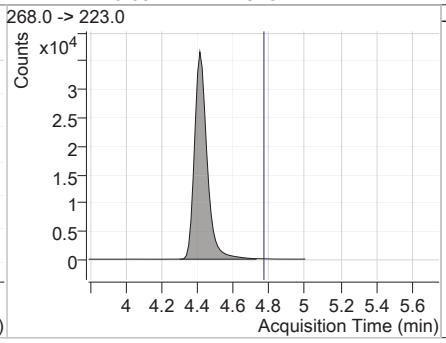
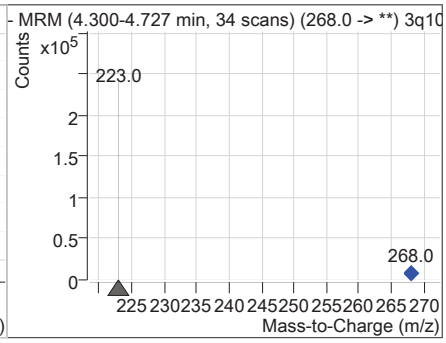
Perfluorinated Compounds by LC/MS/MS

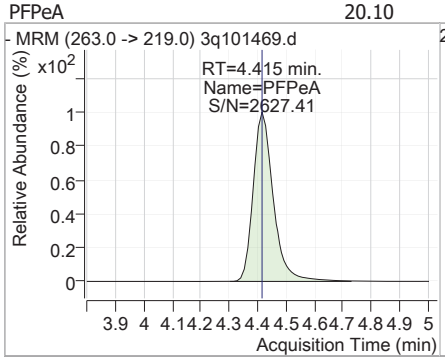
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.46	4.41	0.08	179137				

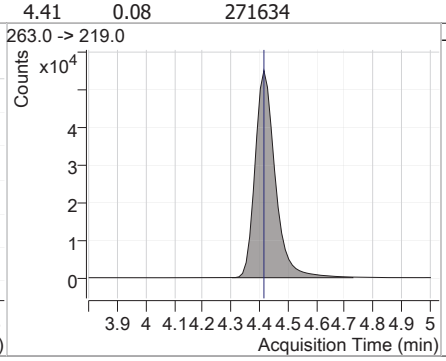


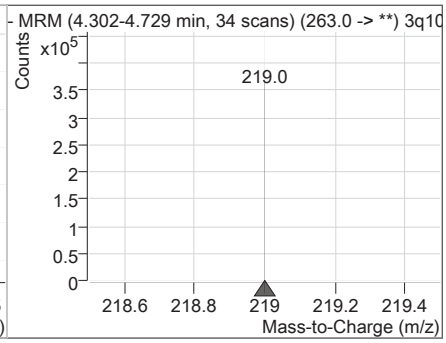




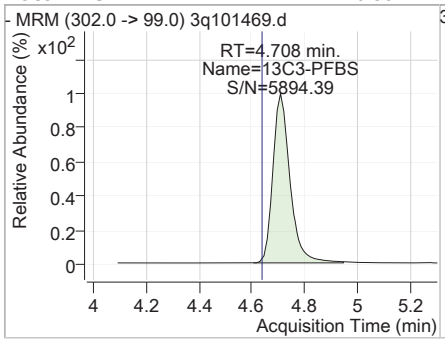
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.10	4.41	0.08	271634				

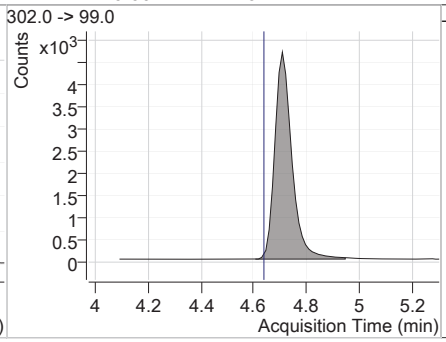


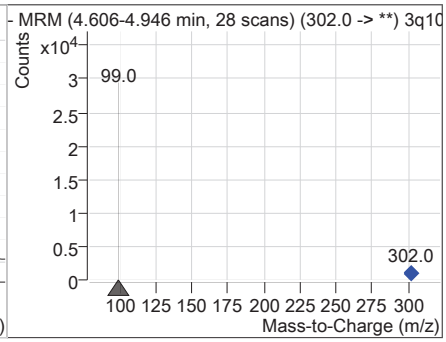




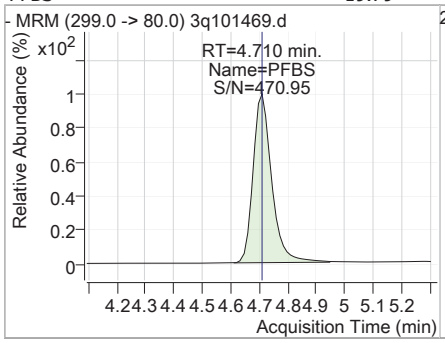
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.56	4.71	0.06	21072				

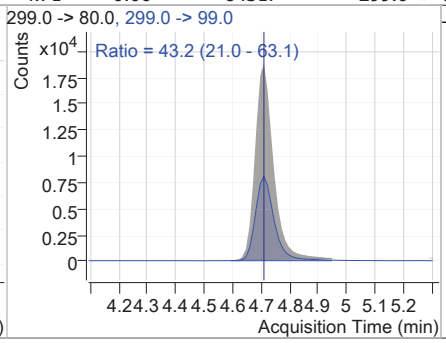


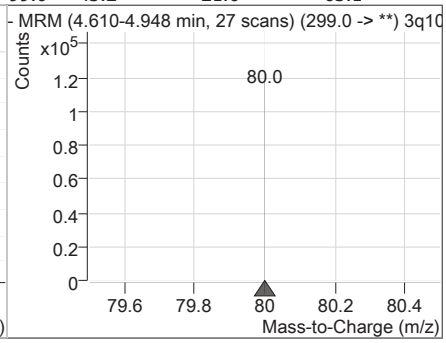




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.79	4.71	0.06	84317	299.0 -> 99.0	43.2	21.0	63.1







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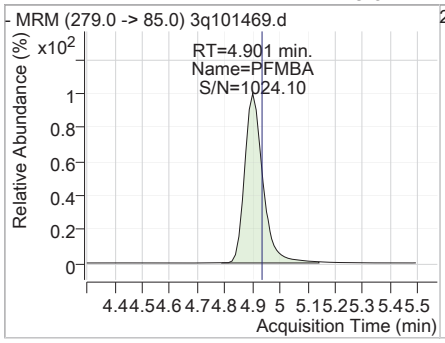
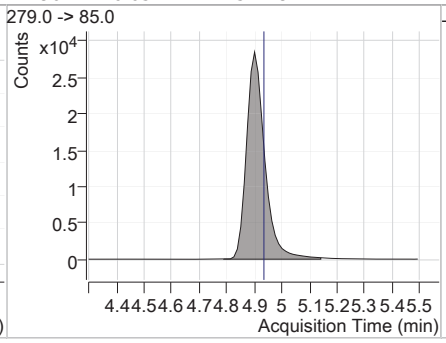
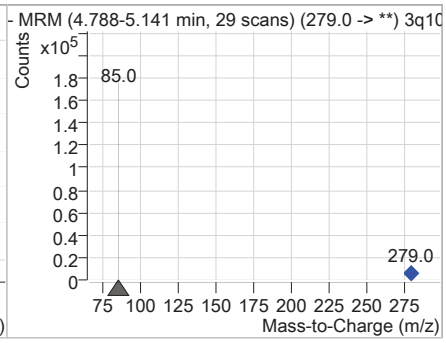
Perfluorinated Compounds by LC/MS/MS

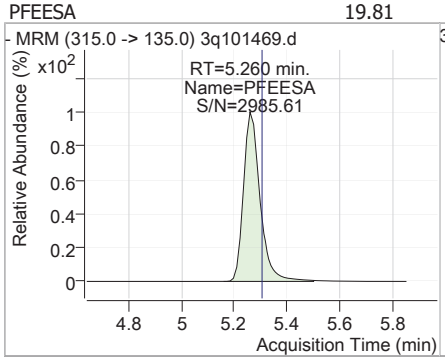
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	19.87	4.90	0.05	131229				

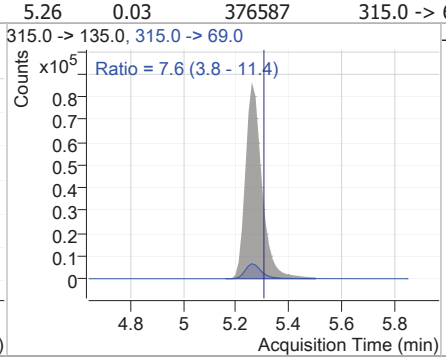


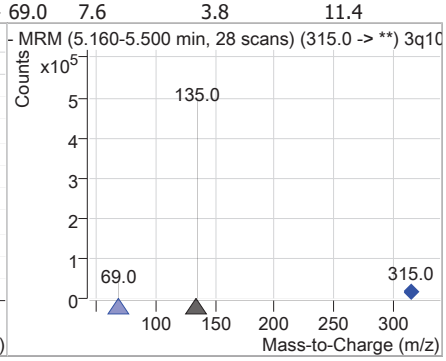




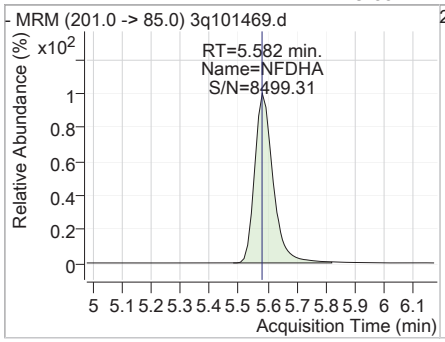
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	19.81	5.26	0.03	376587	315.0 -> 69.0	7.6	3.8	11.4

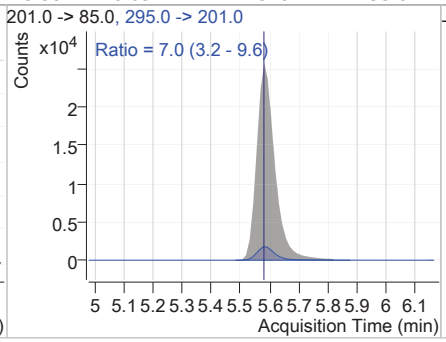


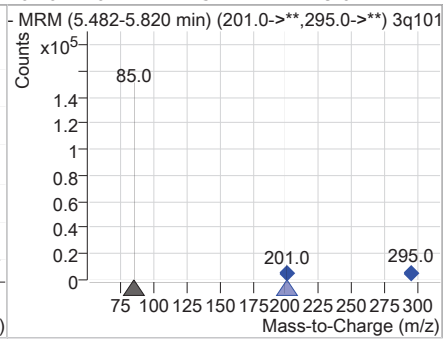




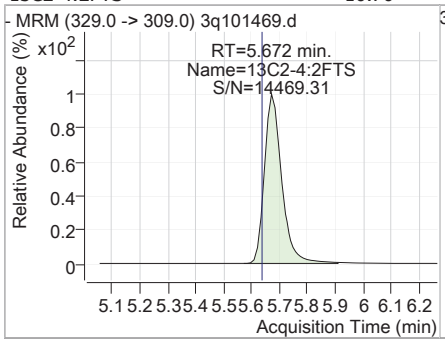
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	19.88	5.58	0.03	112528	295.0 -> 201.0	7.0	3.2	9.6

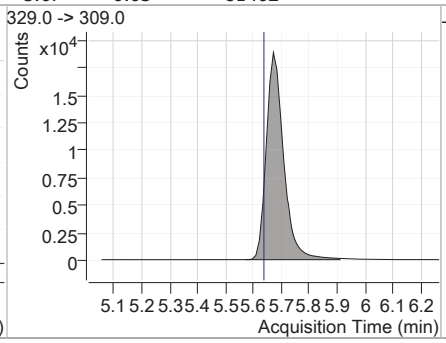


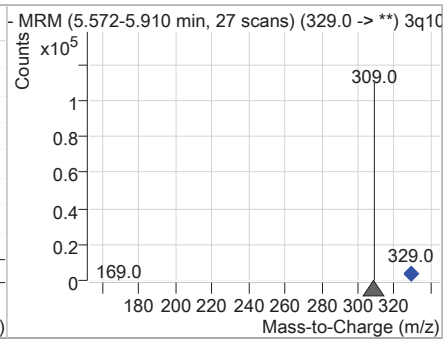




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	10.70	5.67	0.03	81462				

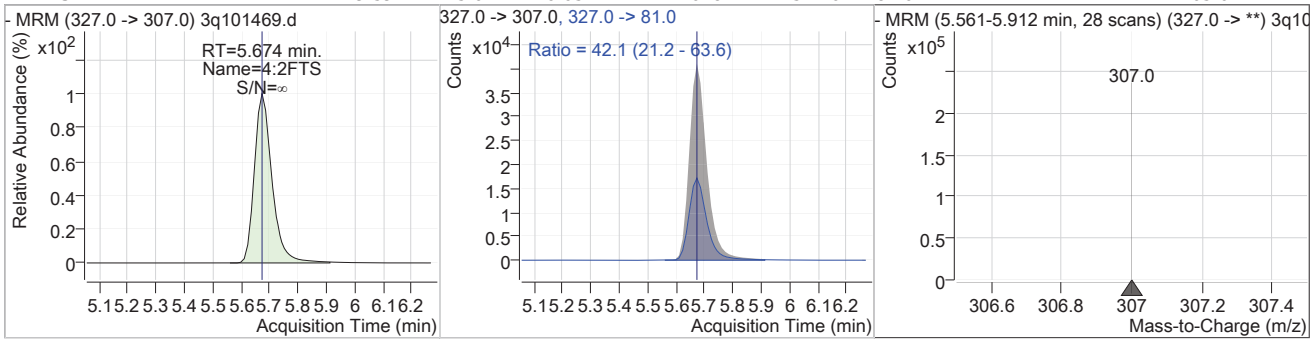




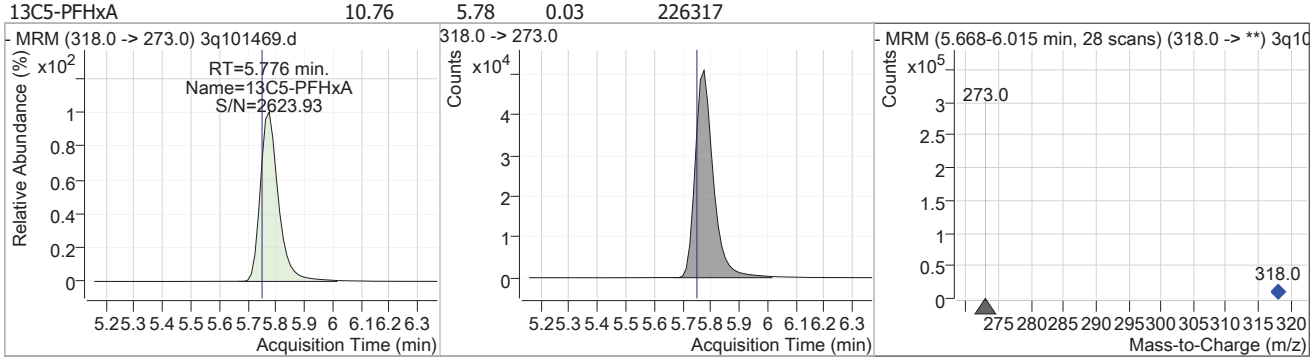


Perfluorinated Compounds by LC/MS/MS

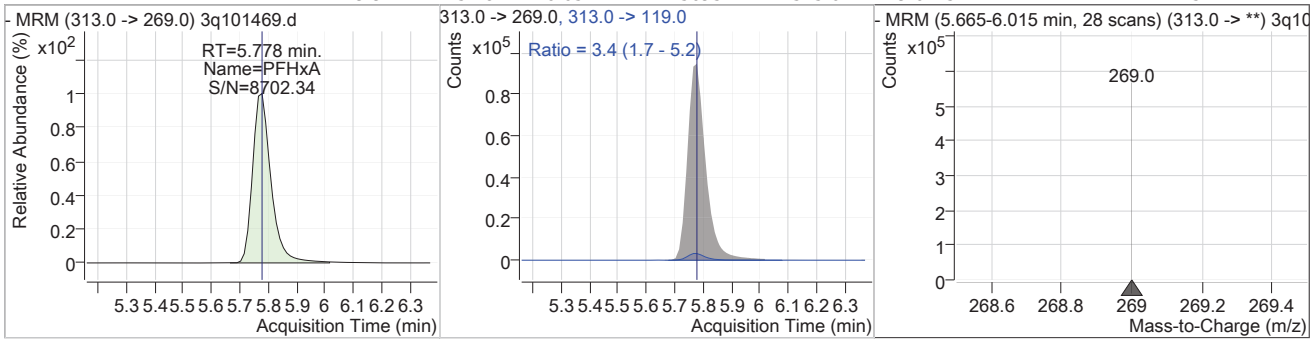
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.59	5.67	0.03	177028	327.0 -> 81.0	42.1	21.2	63.6



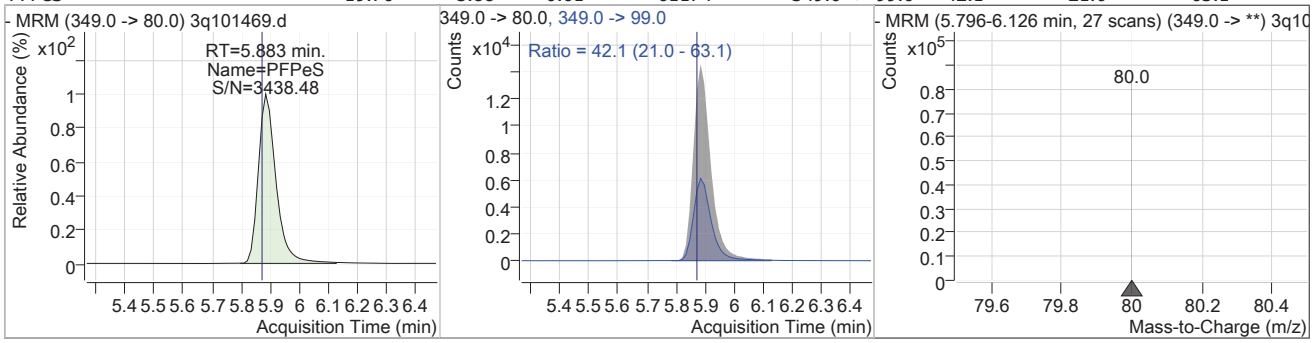
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.76	5.78	0.03	226317				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.97	5.78	0.03	425695	313.0 -> 119.0	3.4	1.7	5.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	19.76	5.88	0.01	61174	349.0 -> 99.0	42.1	21.0	63.1



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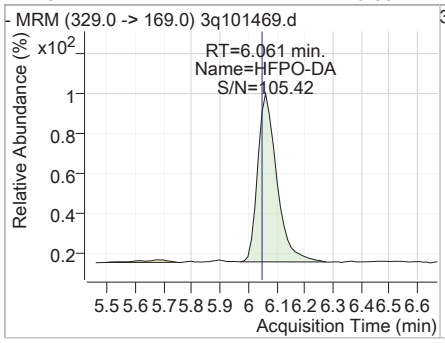
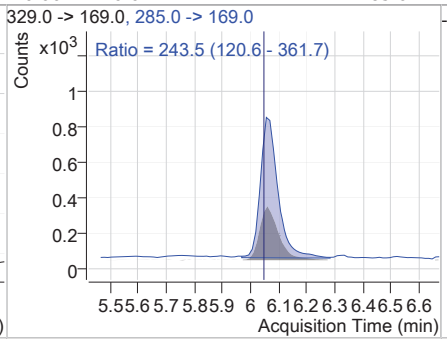
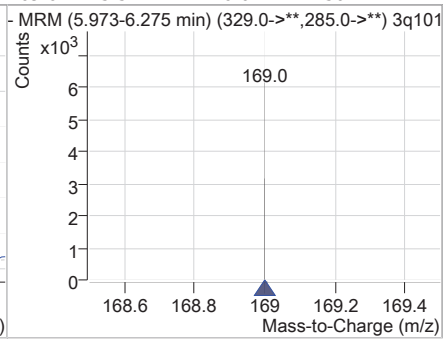
Perfluorinated Compounds by LC/MS/MS

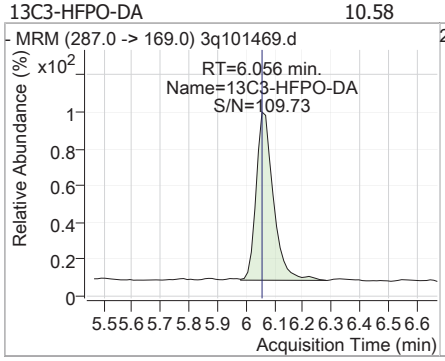
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	20.00	6.06	0.01	1417	285.0 -> 169.0	243.5	120.6	361.7

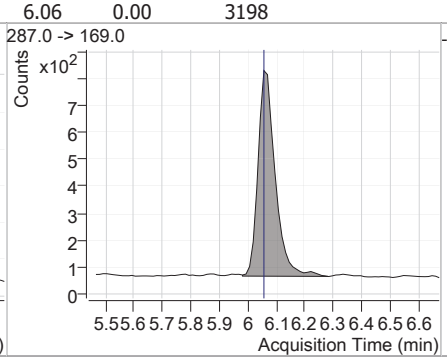


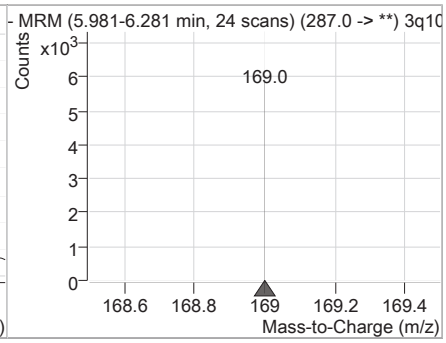




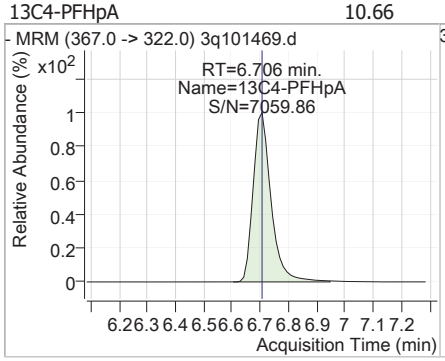
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.58	6.06	0.00	3198				

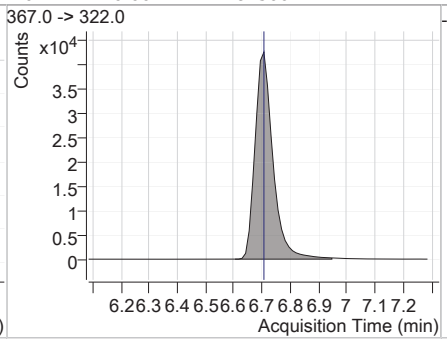


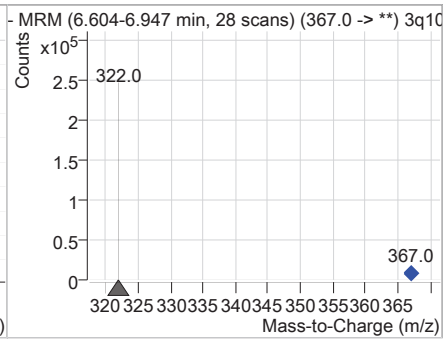




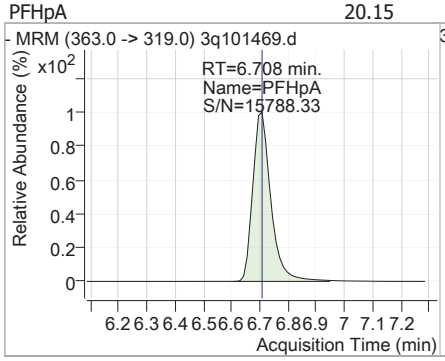
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.66	6.71	0.00	187360				

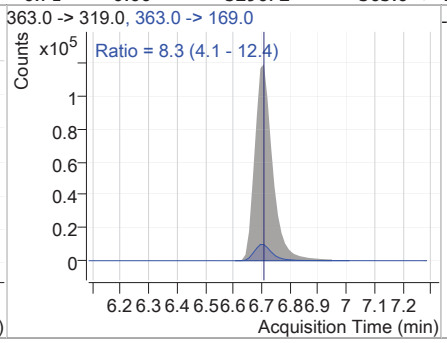


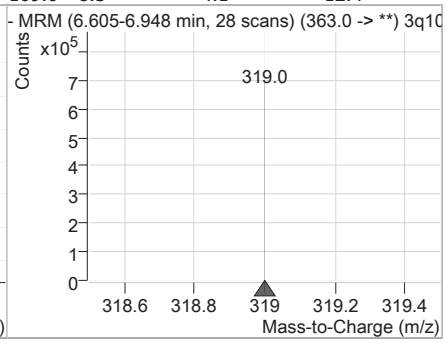




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.15	6.71	0.00	529672	363.0 -> 169.0	8.3	4.1	12.4

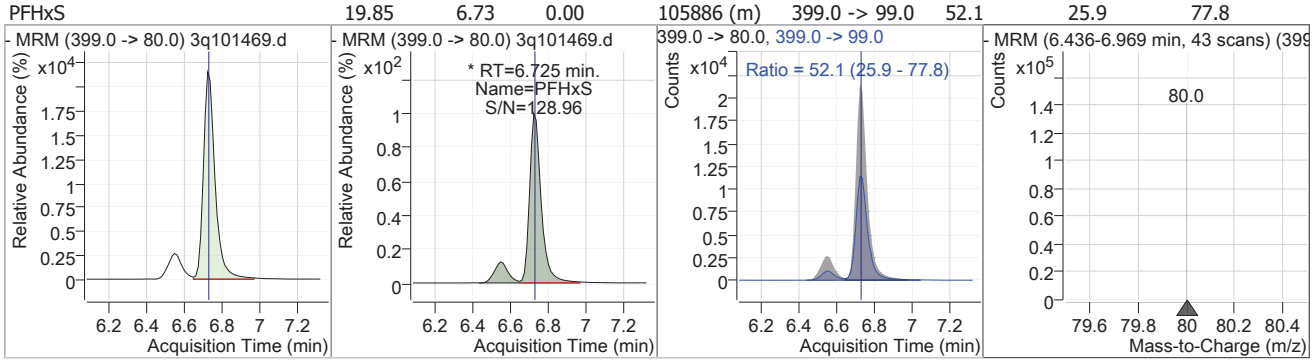




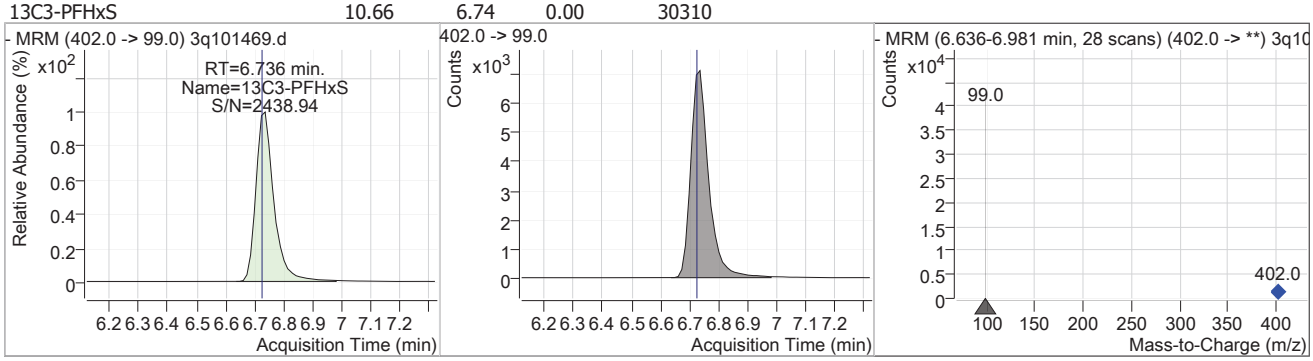


Perfluorinated Compounds by LC/MS/MS

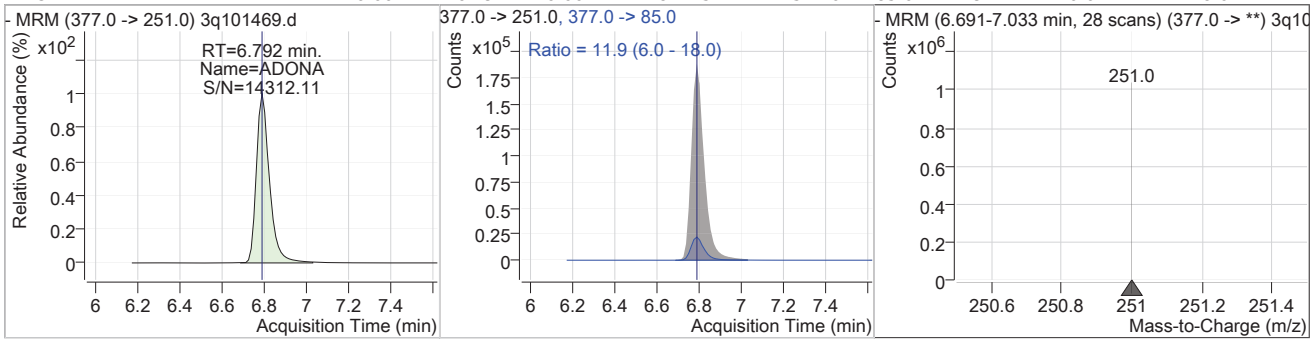
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.85	6.73	0.00	105886 (m)	399.0 -> 99.0	52.1	25.9	77.8



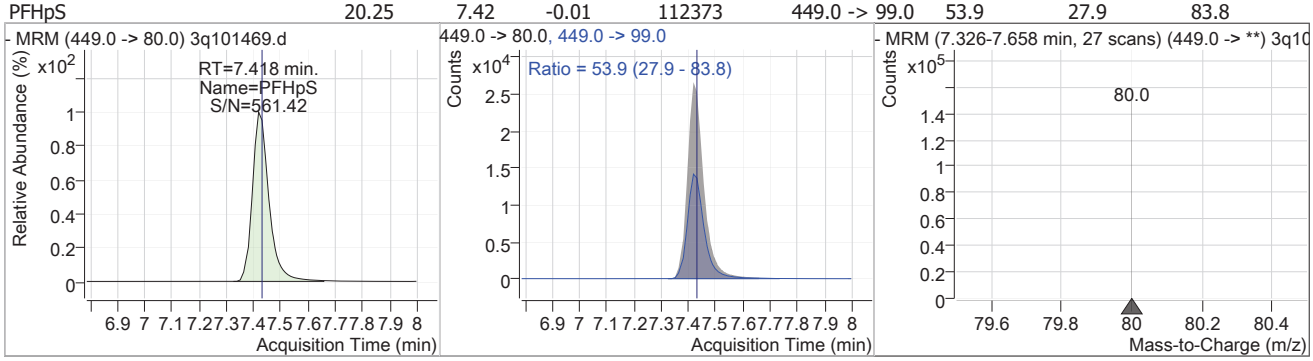
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.66	6.74	0.00	30310				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.06	6.79	0.00	814134	377.0 -> 85.0	11.9	6.0	18.0

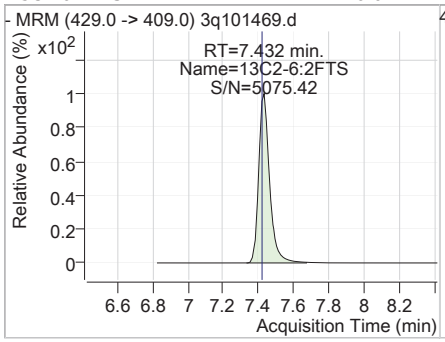


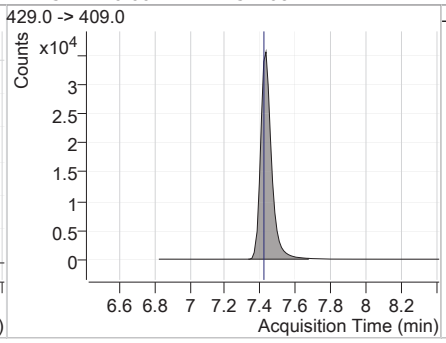
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	20.25	7.42	-0.01	112373	449.0 -> 99.0	53.9	27.9	83.8

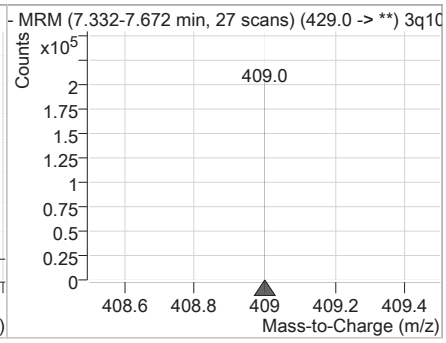


Perfluorinated Compounds by LC/MS/MS

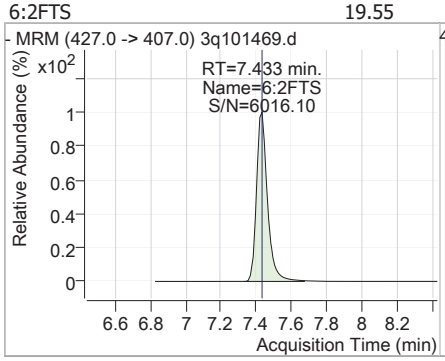
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	10.61	7.43	0.00	151708				

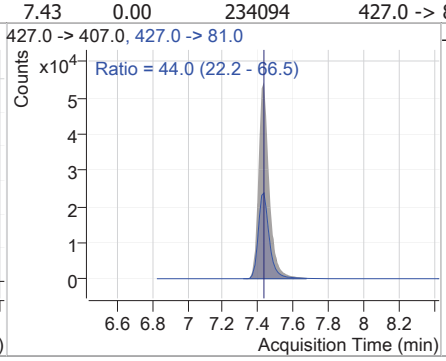


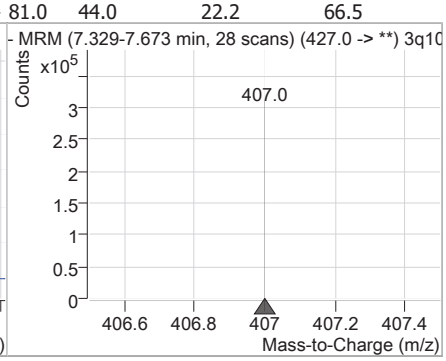




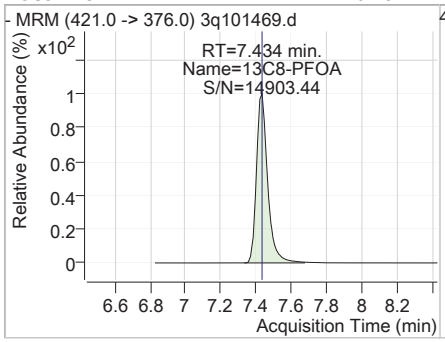
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.55	7.43	0.00	234094	427.0 -> 81.0	44.0	22.2	66.5

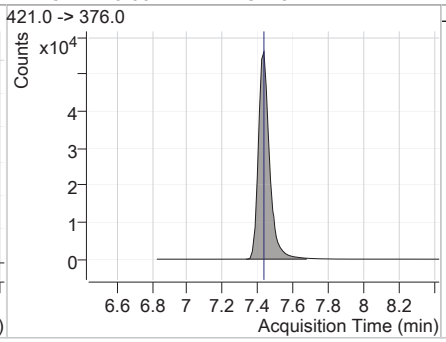


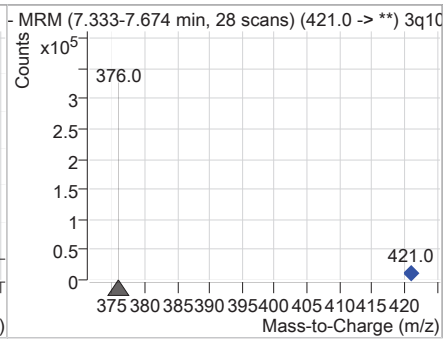




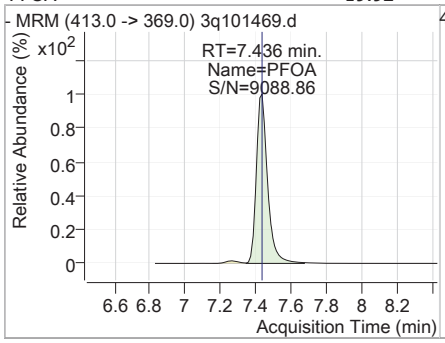
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.78	7.43	0.00	245778				

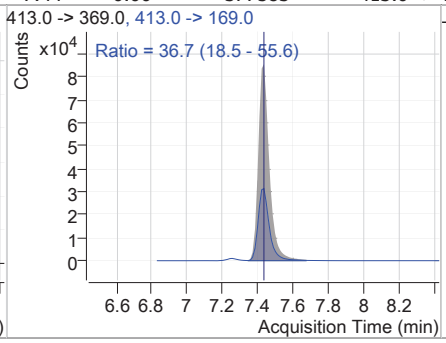


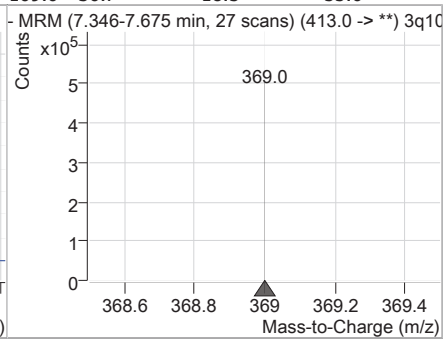




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.92	7.44	0.00	377583	413.0 -> 169.0	36.7	18.5	55.6







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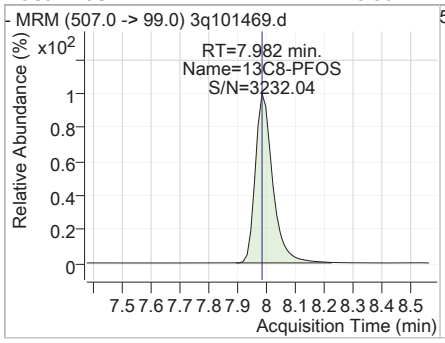
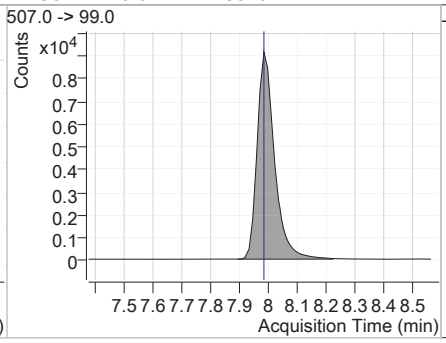
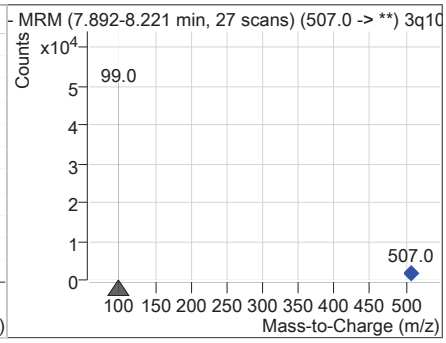
Perfluorinated Compounds by LC/MS/MS

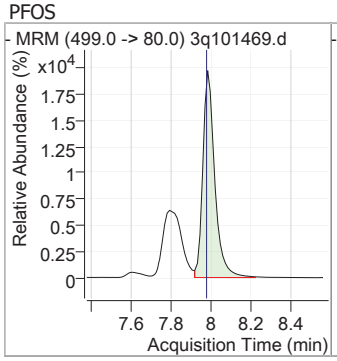
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.50	7.98	-0.01	38204				

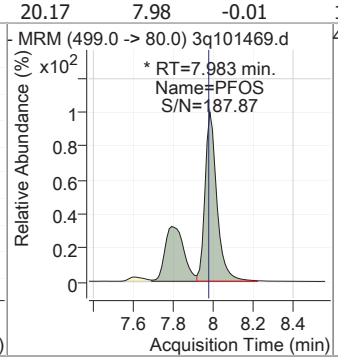


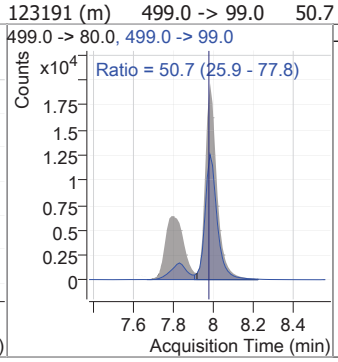


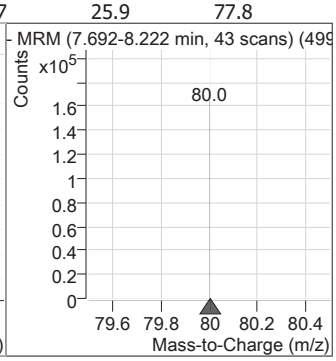


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	20.17	7.98	-0.01	123191 (m)	499.0 -> 99.0	50.7	25.9	77.8

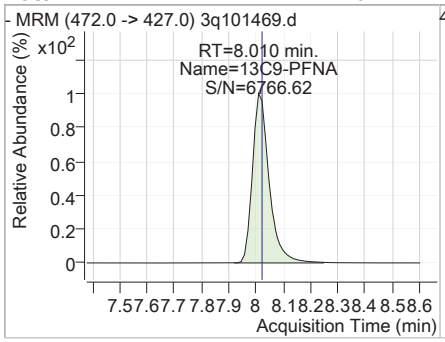


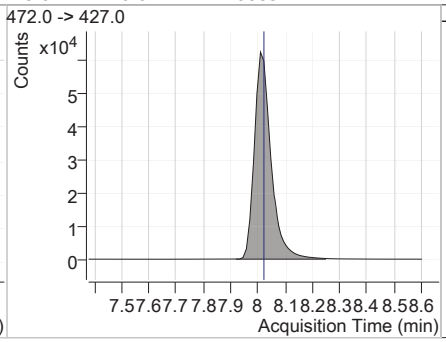


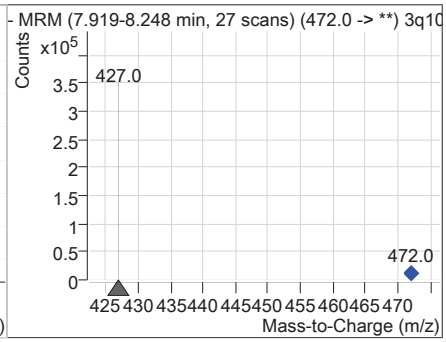




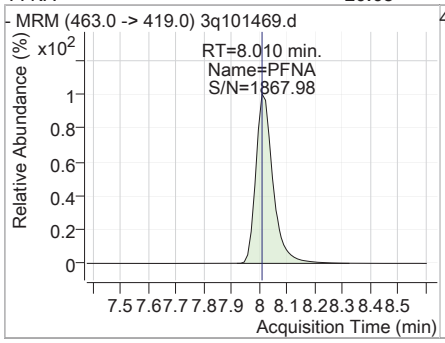
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.77	8.01	-0.01	266834				

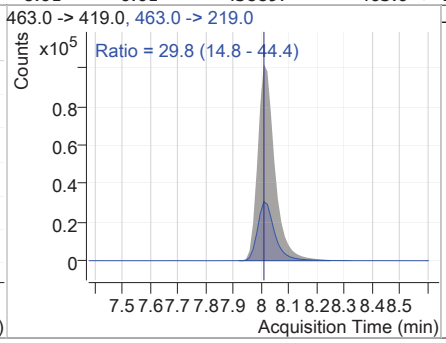


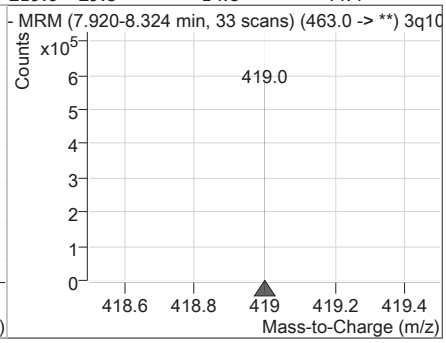




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	20.08	8.01	-0.01	438897	463.0 -> 219.0	29.8	14.8	44.4







7.7.11

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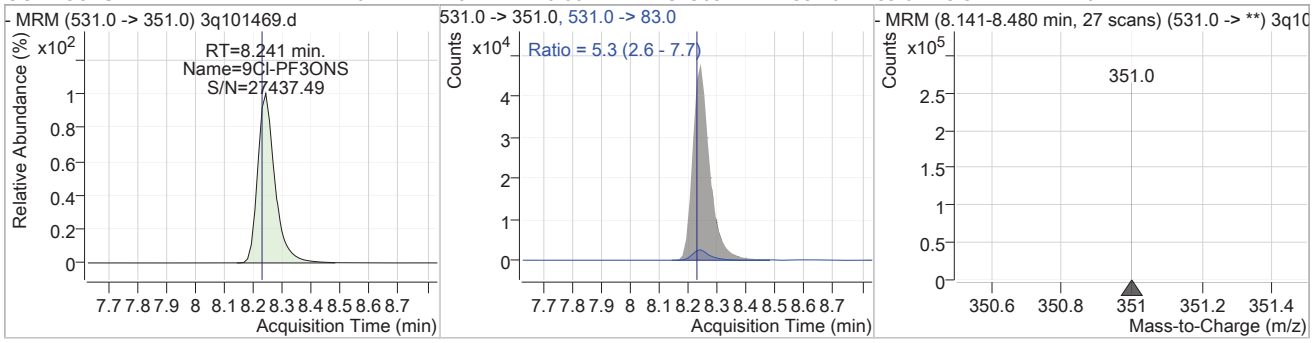
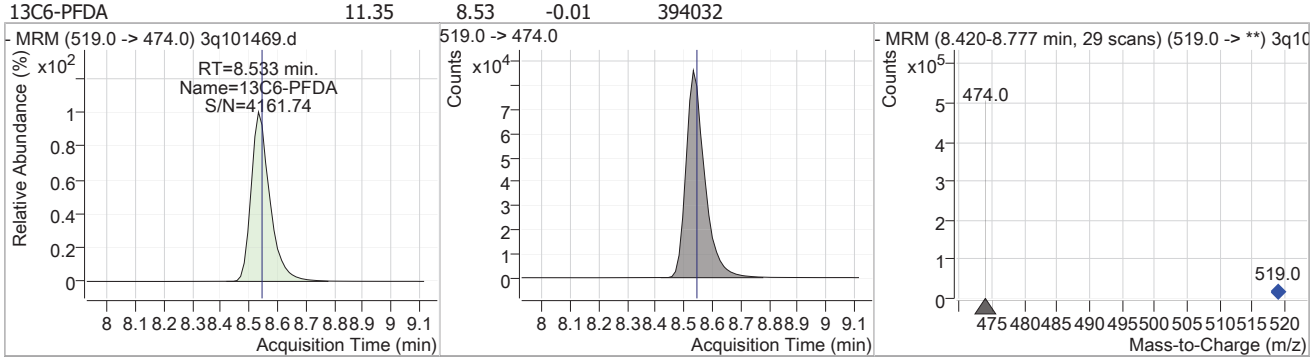
Perfluorinated Compounds by LC/MS/MS

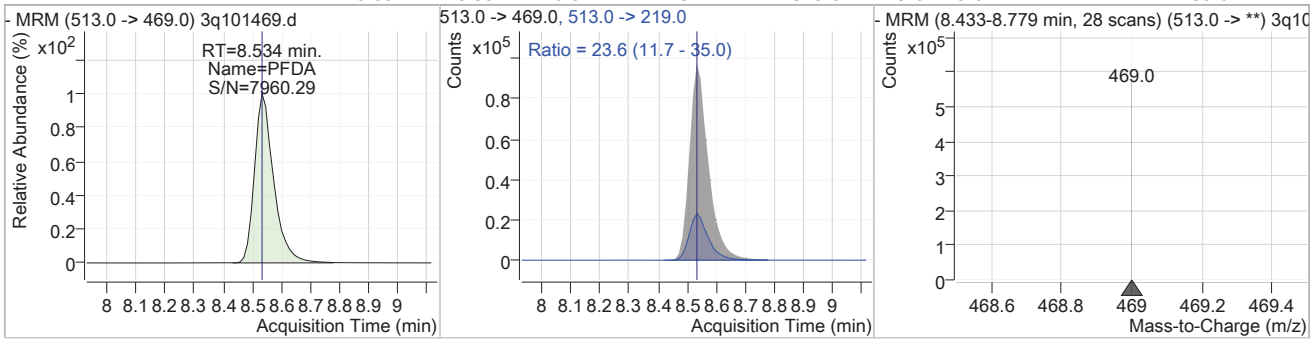
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	20.12	8.24	0.00	197965	531.0 -> 83.0	5.3	2.6	7.7



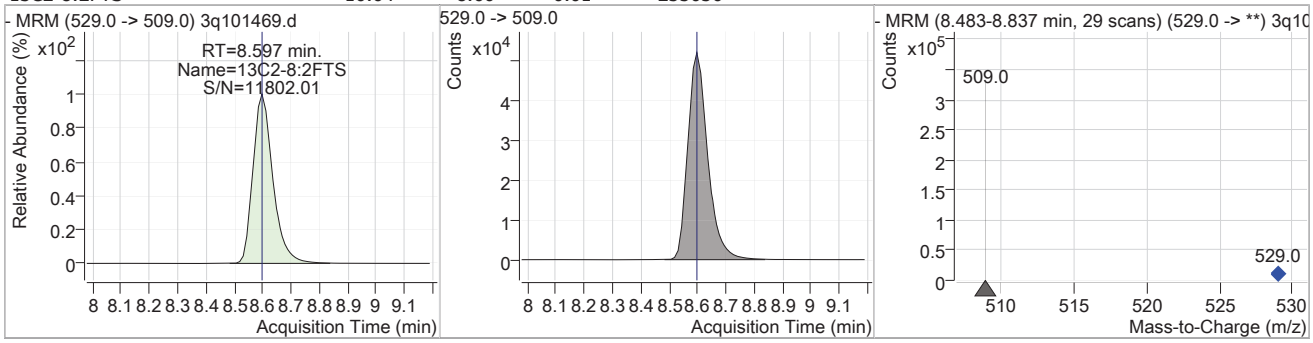
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	11.35	8.53	-0.01	394032				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.00	8.53	-0.01	445741	513.0 -> 219.0	23.6	11.7	35.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	10.64	8.60	-0.01	255056				

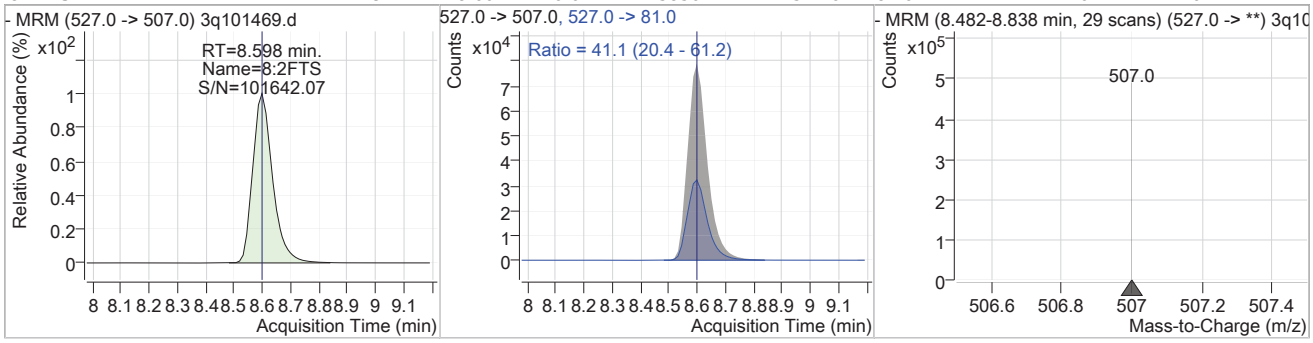


7.7.11

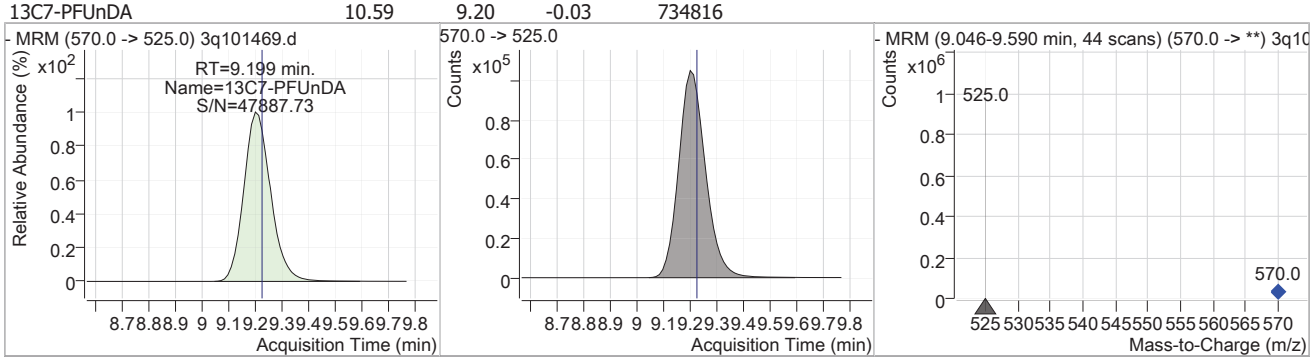
7

Perfluorinated Compounds by LC/MS/MS

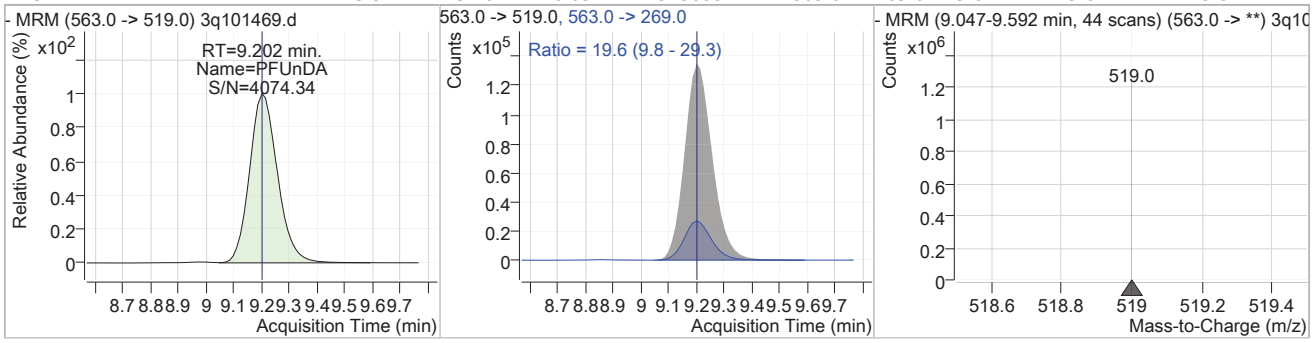
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.97	8.60	-0.01	385017	527.0 -> 81.0	41.1	20.4	61.2



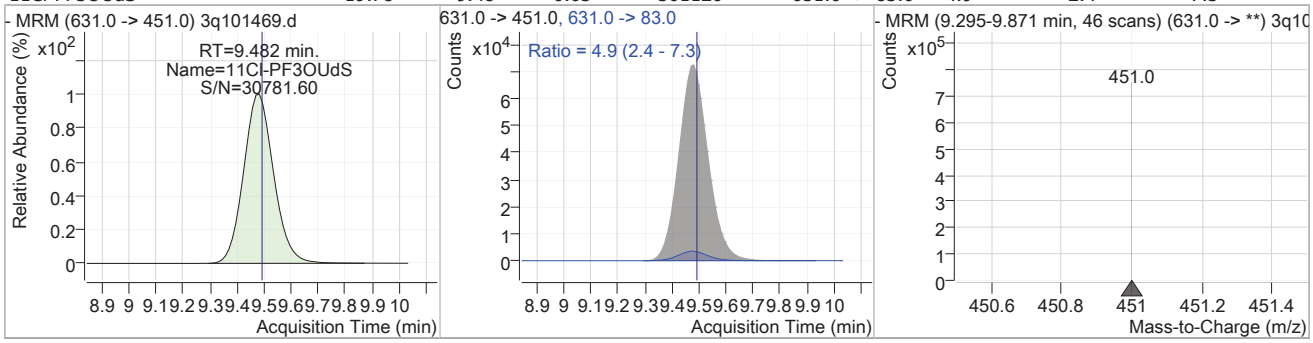
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	10.59	9.20	-0.03	734816				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.97	9.20	-0.03	945688	563.0 -> 269.0	19.6	9.8	29.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	19.78	9.48	-0.03	561120	631.0 -> 83.0	4.9	2.4	7.3



7.7.11

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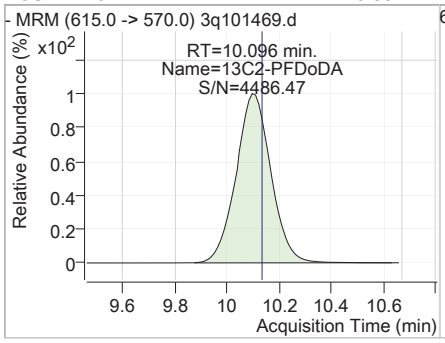
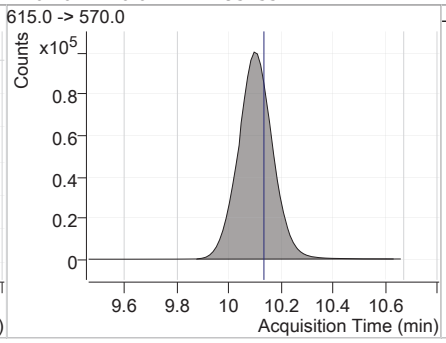
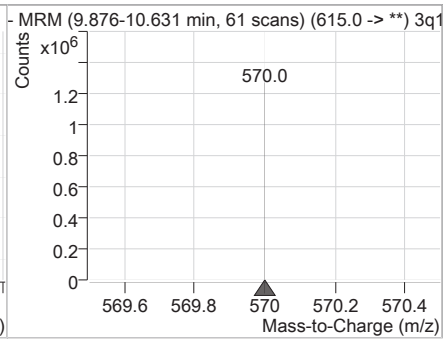
Perfluorinated Compounds by LC/MS/MS

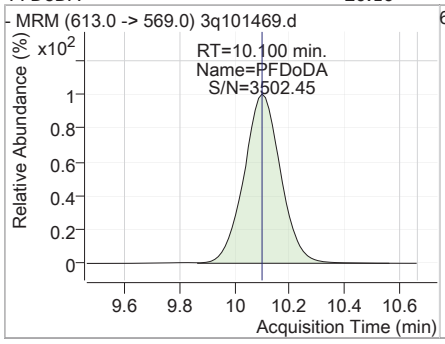
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.55	10.10	-0.04	932334				

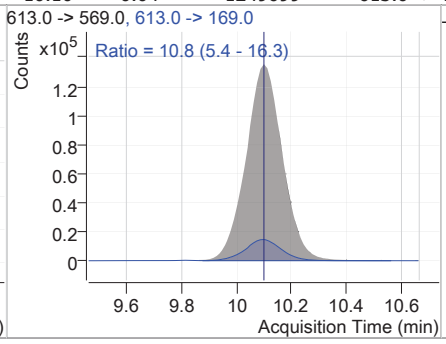


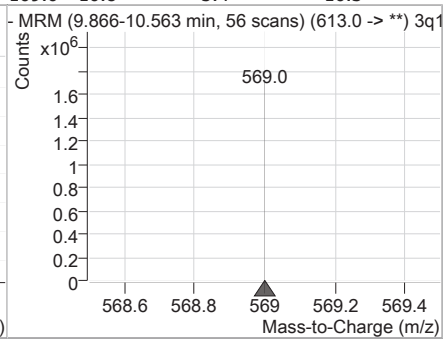




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	20.16	10.10	-0.04	1249699	613.0 -> 169.0	10.8	5.4	16.3







Manual Integration Approval Summary

Sample Number:	S3Q1492-CC1492	**Method:**	EPA 533
Lab FileID:	3Q101469.D	**Analyst approved:**	04/16/25 08:55 (b) (6)
Injection Time:	04/15/25 17:00	**Supervisor approved:**	04/17/25 11:42 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.72	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/17/25 11:42

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101470.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/15/2025 5:16:59 PM
Sample Name : cc1492-0.5LL
Vial : P1-C2
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1942.batch.bin
Sample Information : op8141,S3Q1492,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.435	415.0 -> 370.0	215453	10.00 µg/L	0.000
13C3-PFBA	2.344	216.0 -> 172.0	82751	10.00 µg/L	0.213
13C4-PFOS	7.983	503.0 -> 80.0	31565	10.00 µg/L	-0.013
M4-PFBA	2.340	217.0 -> 172.0	147527	10.00 µg/L	0.200
M5-PFPeA	4.413	268.0 -> 223.0	175889	10.00 µg/L	0.075
M5-PFHxA	5.776	318.0 -> 273.0	224566	10.00 µg/L	0.025
M4-PFHpA	6.694	367.0 -> 322.0	187283	10.00 µg/L	-0.013
M8-PFOA	7.434	421.0 -> 376.0	249764	10.00 µg/L	0.000
M9-PFNA	8.010	472.0 -> 427.0	267714	10.00 µg/L	-0.013
M6-PFDA	8.546	519.0 -> 474.0	407127	10.00 µg/L	0.000
M7-PFUnDA	9.224	570.0 -> 525.0	756108	10.00 µg/L	0.000
M2-PFDoDA	10.171	615.0 -> 570.0	940947	10.00 µg/L	0.038
M3-PFBS	4.708	302.0 -> 99.0	20720	10.00 µg/L	0.063
M3-PFHxS	6.723	402.0 -> 99.0	29386	10.00 µg/L	-0.013
M8-PFOS	7.982	507.0 -> 99.0	37957	10.00 µg/L	-0.013
M2-4:2FTS	5.672	329.0 -> 309.0	72162	10.00 µg/L	0.025
M2-6:2FTS	7.432	429.0 -> 409.0	142366	10.00 µg/L	0.000
M2-8:2FTS	8.597	529.0 -> 509.0	226063	10.00 µg/L	-0.014
M3-HFPO-DA	6.056	287.0 -> 169.0	2672	10.00 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.672	329.0 -> 309.0	72162	9.61 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C2-6:2FTS	7.432	429.0 -> 409.0	142366	10.09 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C2-8:2FTS	8.597	529.0 -> 509.0	226063	9.56 µg/L	-0.014
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C2-PFDoDA	10.171	615.0 -> 570.0	940947	10.26 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C3-PFBS	4.708	302.0 -> 99.0	20720	10.52 µg/L	0.063
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C3-PFHxS	6.723	402.0 -> 99.0	29386	10.48 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C4-PFBA	2.340	217.0 -> 172.0	147527	10.51 µg/L	0.200
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.1%	
13C4-PFHpA	6.694	367.0 -> 322.0	187283	10.27 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C5-PFHxA	5.776	318.0 -> 273.0	224566	10.29 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C5-PFPeA	4.413	268.0 -> 223.0	175889	10.39 µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C6-PFDA	8.546	519.0 -> 474.0	407127	11.30 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.0%	
13C7-PFUnDA	9.224	570.0 -> 525.0	756108	10.50 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C8-PFOA	7.434	421.0 -> 376.0	249764	10.55 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

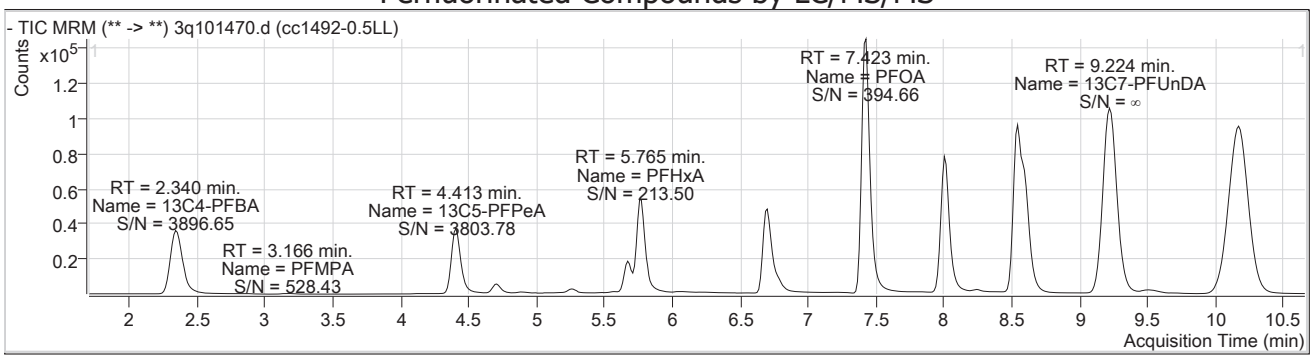
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.5%		
13C8-PFOS	7.982	507.0 -> 99.0	37957	10.57 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.7%		
13C9-PFNA	8.010	472.0 -> 427.0	267714	10.41 µg/L		-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.1%		
13C3-HFPO-DA	6.056	287.0 -> 169.0	2672	8.51 µg/L		0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 85.1%		
Target Compounds						QValue
PFMPA	3.166	229.0 -> 85.0	2187	0.46 µg/L		100
4:2FTS	5.674	327.0 -> 307.0	3819	0.43 µg/L		95
		327.0 -> 81.0	1741			
6:2FTS	7.433	427.0 -> 407.0	5224	0.43 µg/L		96
		427.0 -> 81.0	2442			
8:2FTS	8.598	527.0 -> 507.0	8239	0.53 µg/L		98
		527.0 -> 81.0	3464			
PFMBA	4.901	279.0 -> 85.0	2902	0.45 µg/L		100
PFEESA	5.260	315.0 -> 135.0	8106	0.43 µg/L		99
		315.0 -> 69.0	585			
NFDHA	5.582	201.0 -> 85.0	2539	0.45 µg/L		100
		295.0 -> 201.0	165			
PFBA	2.348	213.0 -> 169.0	1883	0.46 µg/L		100
PFBS	4.710	299.0 -> 80.0	1800	0.43 µg/L		96
		299.0 -> 99.0	799			
PFDA	8.546	513.0 -> 469.0	10462	0.45 µg/L		99
		513.0 -> 219.0	2480			
PFDoDA	10.175	613.0 -> 569.0	29141	0.47 µg/L		100
		613.0 -> 169.0	3191			
PFHpA	6.695	363.0 -> 319.0	11981	0.46 µg/L		100
		363.0 -> 169.0	1002			
PFHpS	7.418	449.0 -> 80.0	2637	0.49 µg/L		97
		449.0 -> 99.0	1415			
PFHxA	5.765	313.0 -> 269.0	9355	0.44 µg/L		99
		313.0 -> 119.0	350			
PFHxS	6.725	399.0 -> 80.0	2420	0.47 µg/L	m	98
		399.0 -> 99.0	1286			
PFNA	8.023	463.0 -> 419.0	10101	0.46 µg/L		98
		463.0 -> 219.0	3104			
PFOA	7.423	413.0 -> 369.0	8640	0.45 µg/L		98
		413.0 -> 169.0	3329			
PFOS	7.983	499.0 -> 80.0	3015	0.50 µg/L	m	95
		499.0 -> 99.0	1453			
PFPeA	4.415	263.0 -> 219.0	5981	0.45 µg/L		100
PFPeS	5.883	349.0 -> 80.0	1381	0.46 µg/L		98
		349.0 -> 99.0	599			
PFUnDA	9.227	563.0 -> 519.0	21939	0.45 µg/L		98
		563.0 -> 269.0	4477			
11Cl-PF3OUdS	9.520	631.0 -> 451.0	12809	0.45 µg/L		99
		631.0 -> 83.0	659			
9Cl-PF3ONS	8.241	531.0 -> 351.0	4354	0.45 µg/L		99
		531.0 -> 83.0	203			
ADONA	6.792	377.0 -> 251.0	17971	0.44 µg/L		100
		377.0 -> 85.0	2161			
HFPO-DA	6.048	329.0 -> 169.0	38	0.56 µg/L		82
		285.0 -> 169.0	79			

 # = Qualifier out of range, m = manually integrated, + = Area summed

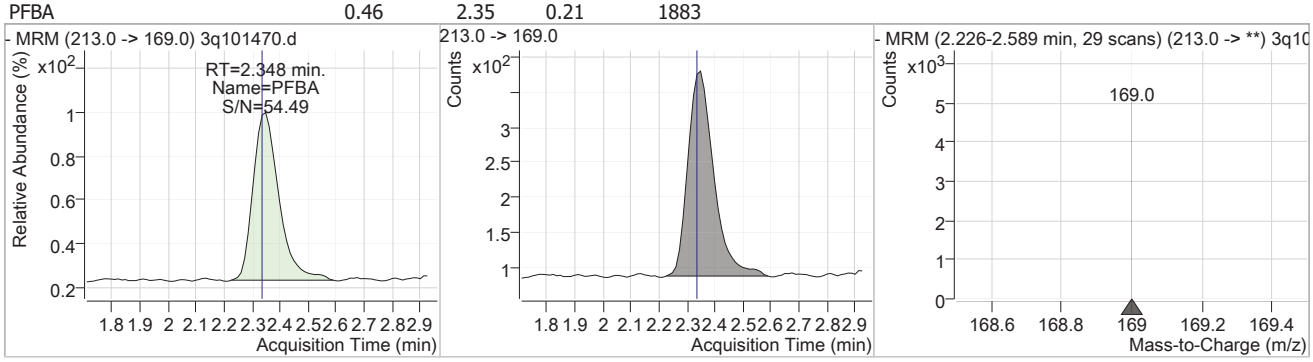
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

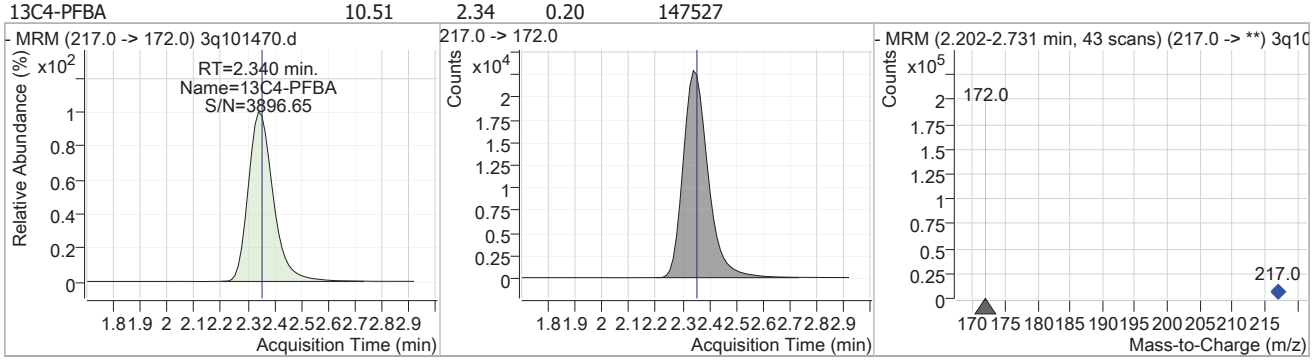
Perfluorinated Compounds by LC/MS/MS



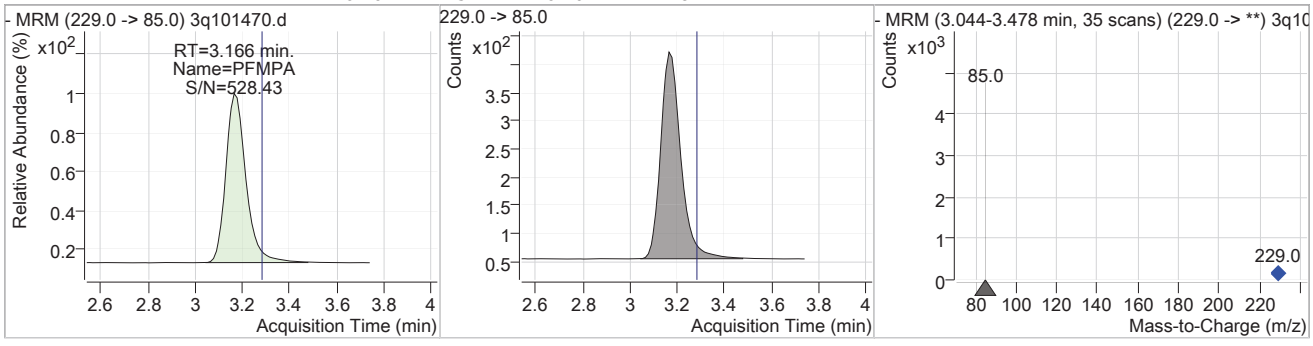
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.46	2.35	0.21	1883				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.51	2.34	0.20	147527				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	0.46	3.17	0.16	2187				



7.7.12

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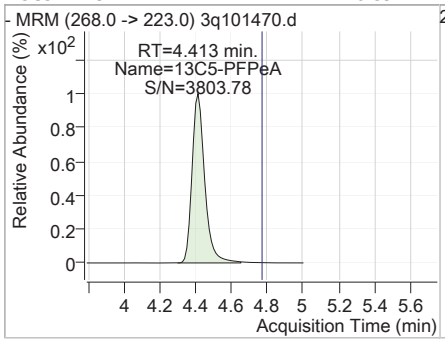
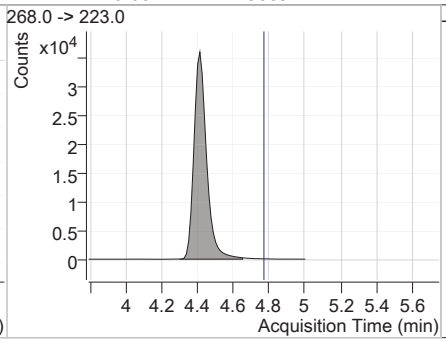
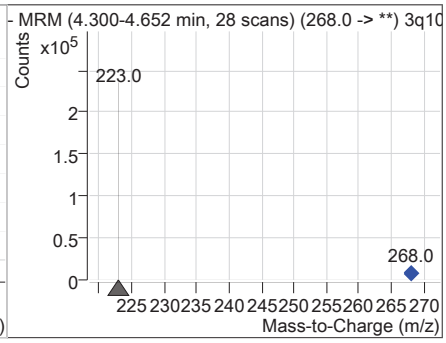
Perfluorinated Compounds by LC/MS/MS

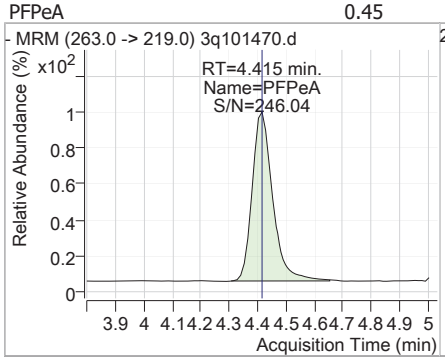
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.39	4.41	0.08	175889				

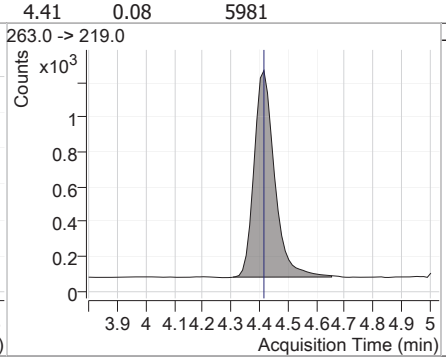


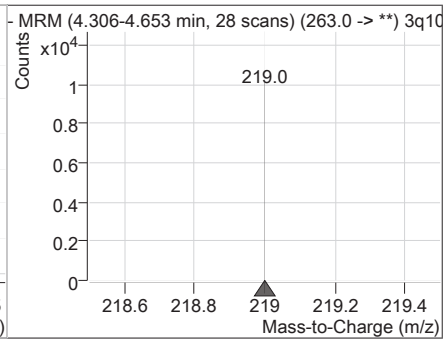




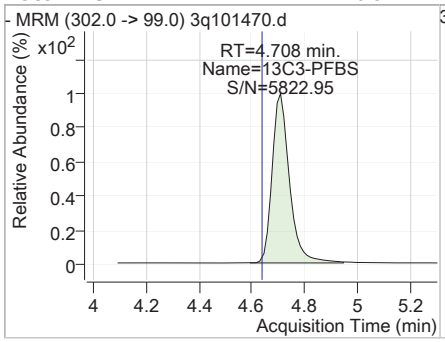
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.45	4.41	0.08	5981				

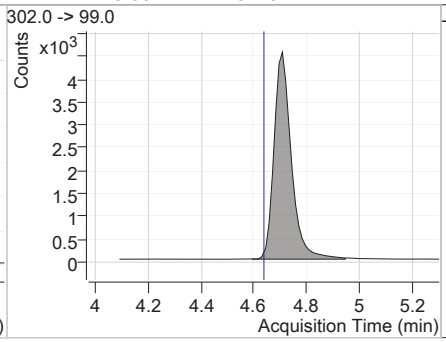


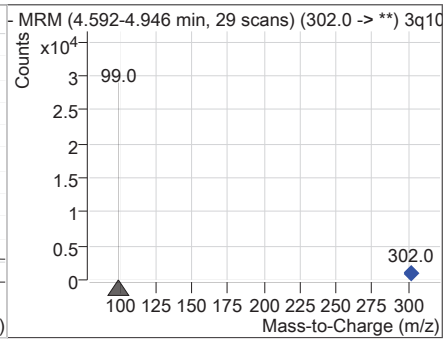




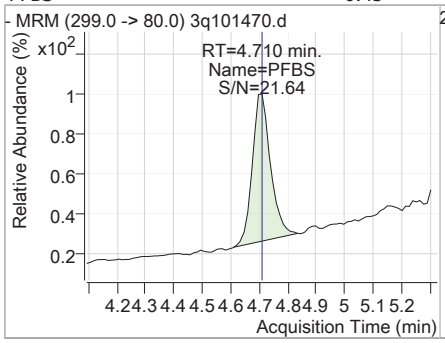
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.52	4.71	0.06	20720				

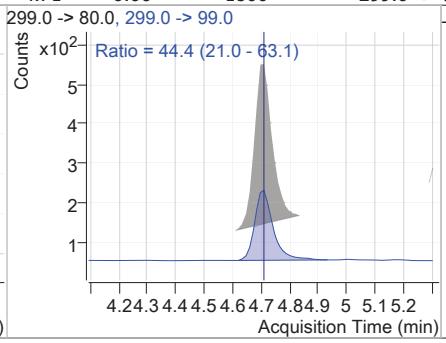


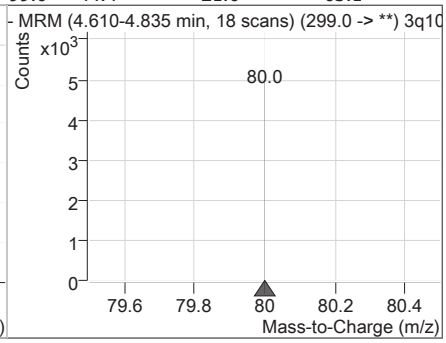




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.43	4.71	0.06	1800	299.0 -> 99.0	44.4	21.0	63.1

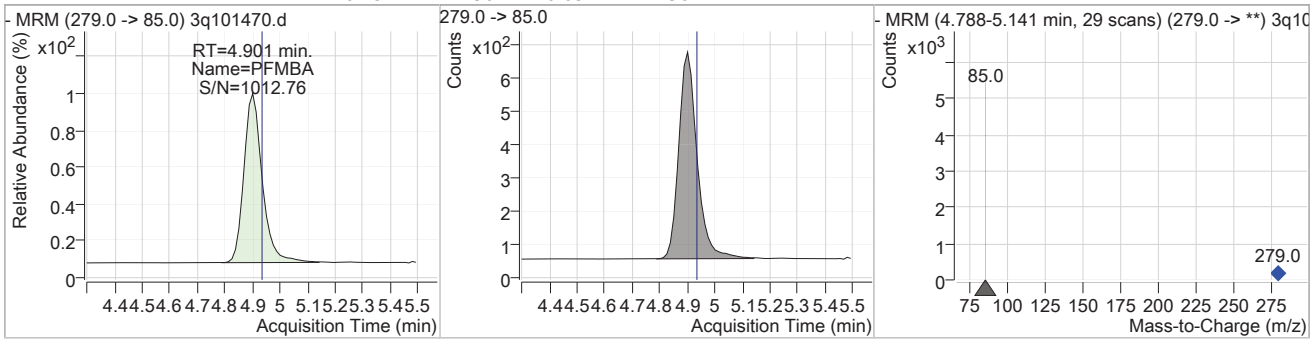




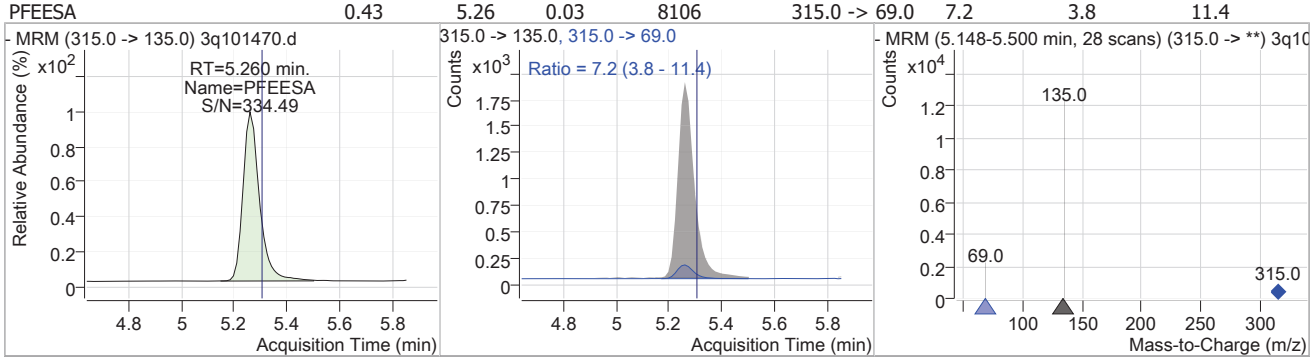


Perfluorinated Compounds by LC/MS/MS

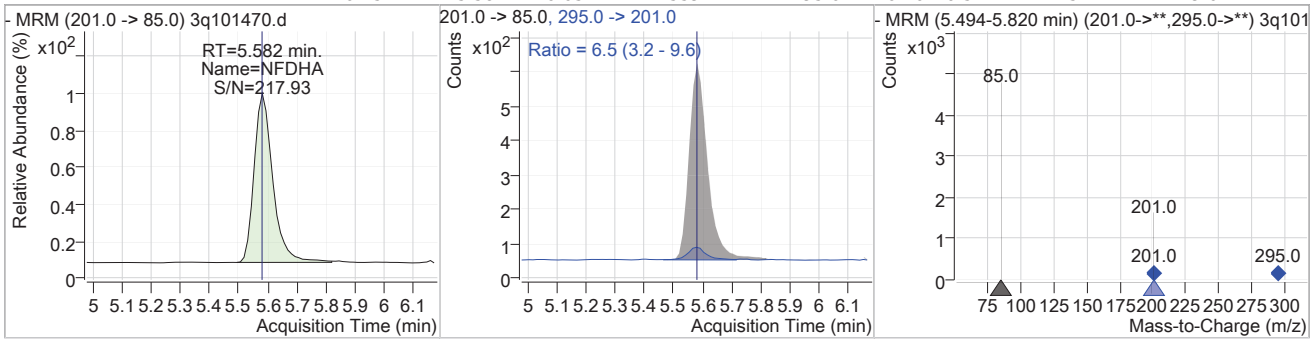
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.45	4.90	0.05	2902				



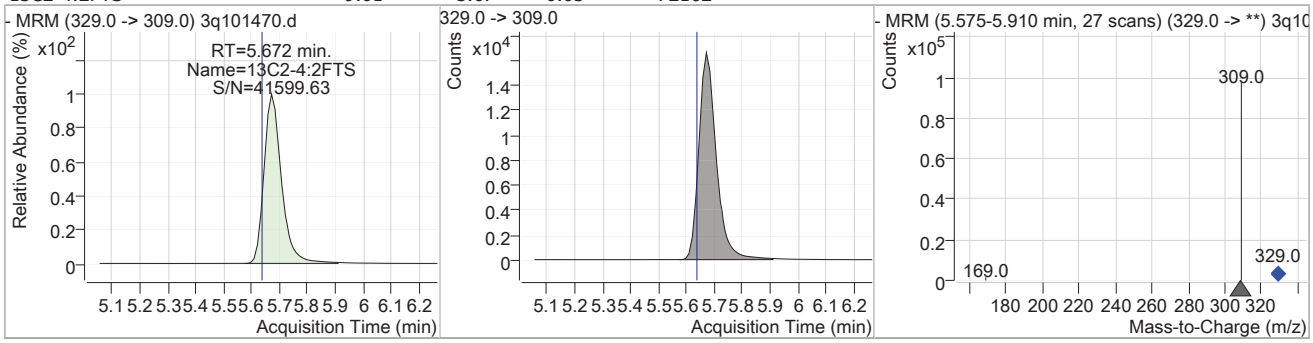
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.43	5.26	0.03	8106	315.0 -> 69.0	7.2	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	0.45	5.58	0.03	2539	295.0 -> 201.0	6.5	3.2	9.6

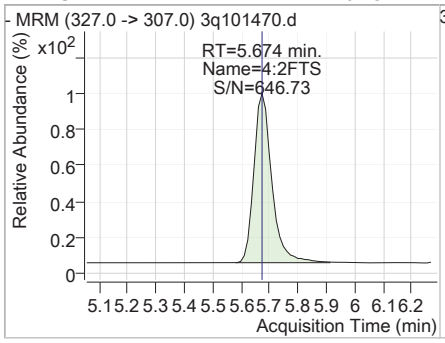


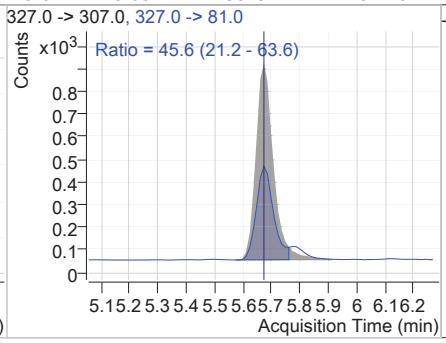
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	9.61	5.67	0.03	72162				

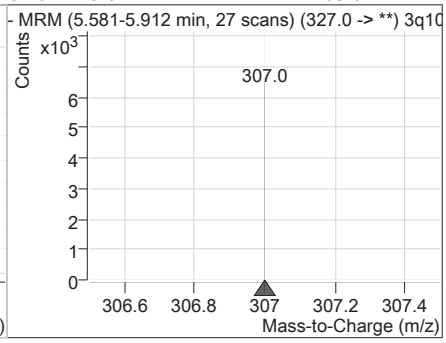


Perfluorinated Compounds by LC/MS/MS

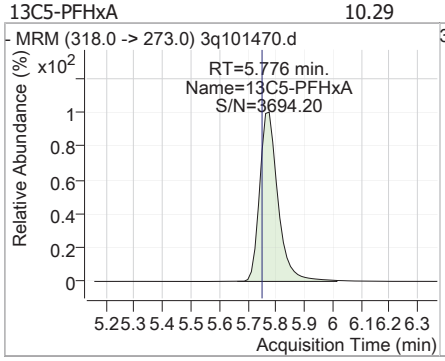
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	0.43	5.67	0.03	3819	327.0 -> 81.0	45.6	21.2	63.6

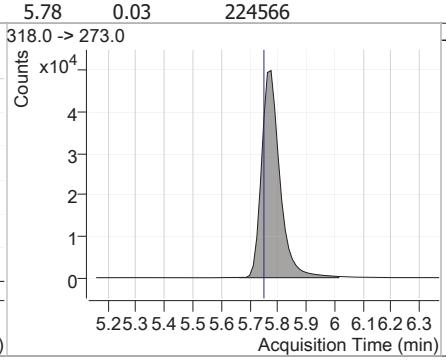


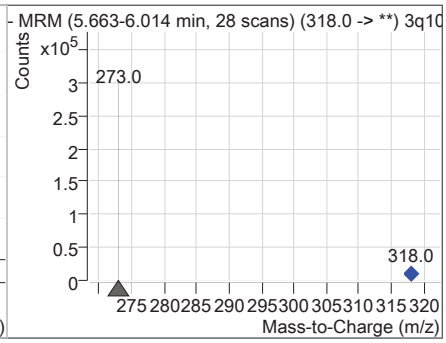




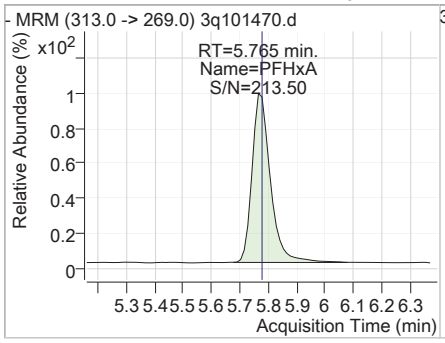
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.29	5.78	0.03	224566				

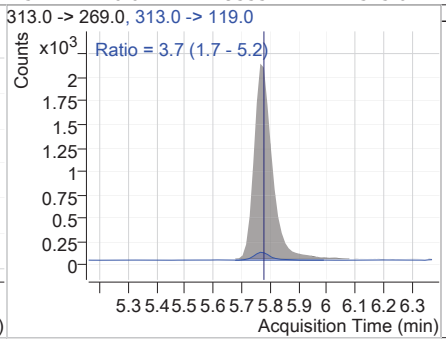


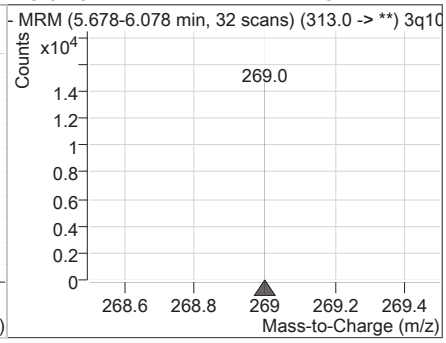




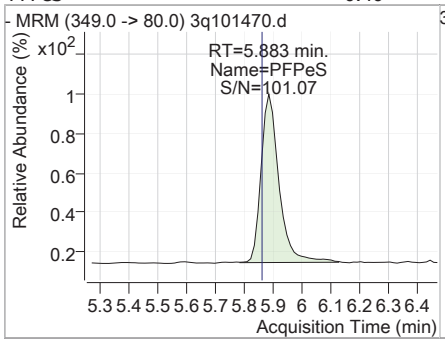
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.44	5.77	0.01	9355	313.0 -> 119.0	3.7	1.7	5.2

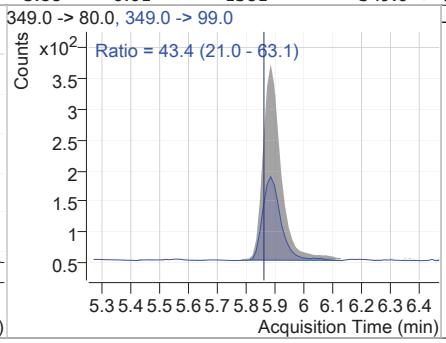


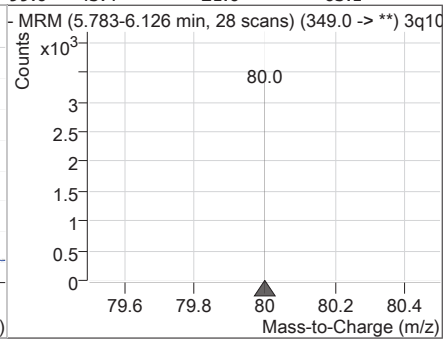




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.46	5.88	0.01	1381	349.0 -> 99.0	43.4	21.0	63.1







7.7.12

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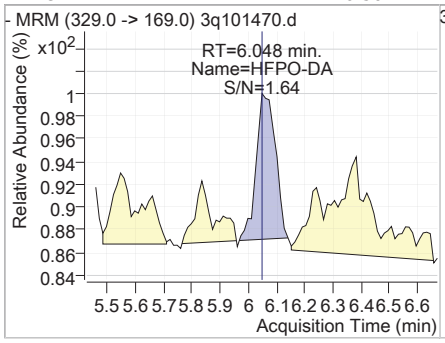
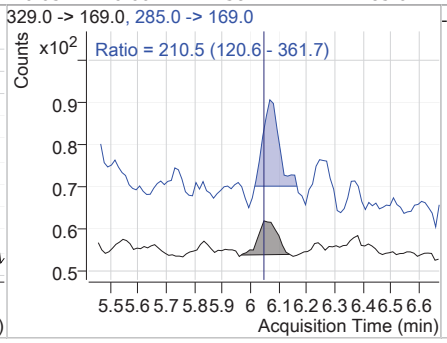
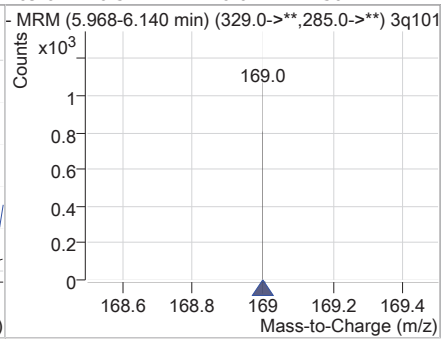
Perfluorinated Compounds by LC/MS/MS

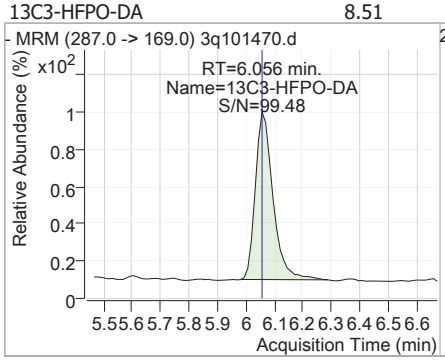
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.56	6.05	0.00	38	285.0 -> 169.0	210.5	120.6	361.7

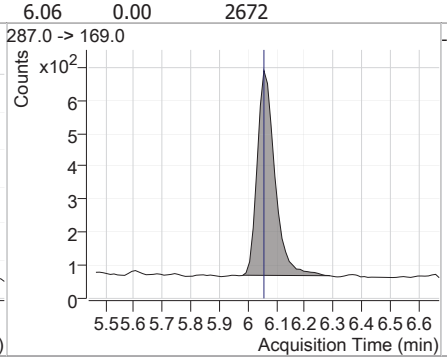


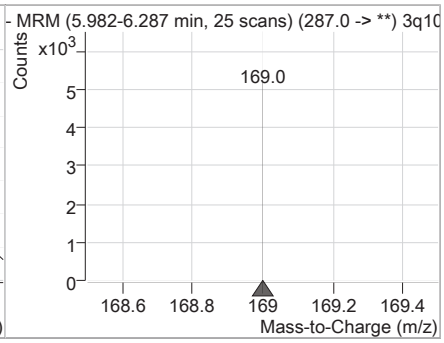




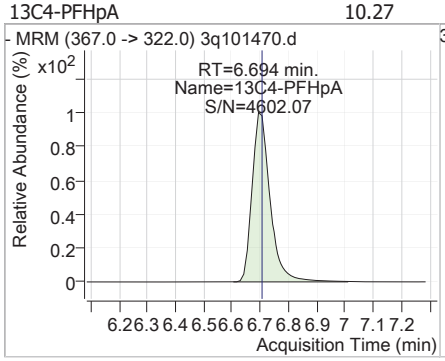
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.51	6.06	0.00	2672				

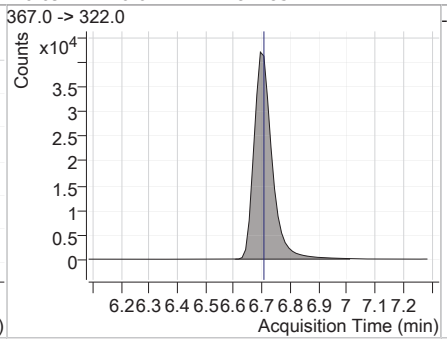


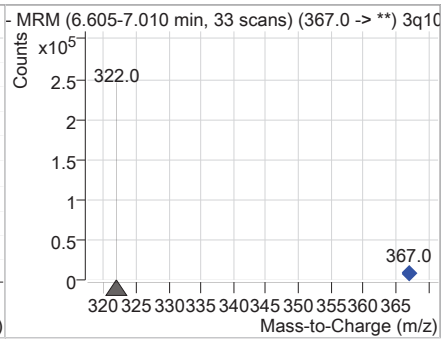




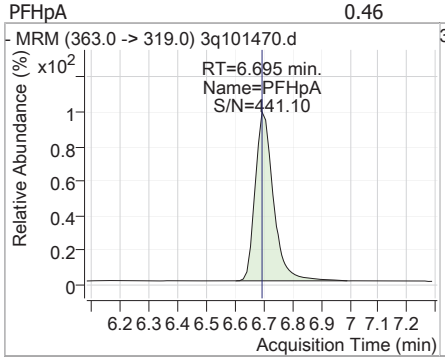
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.27	6.69	-0.01	187283				

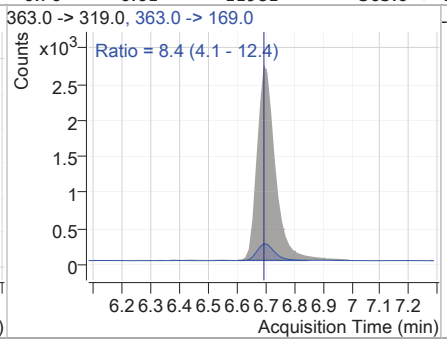


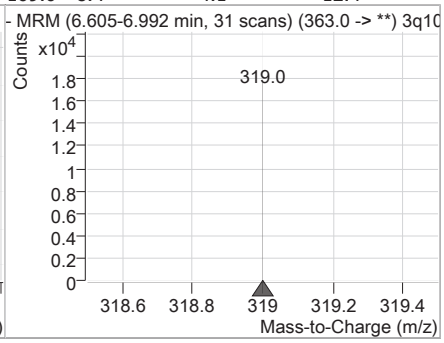




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.46	6.70	-0.01	11981	363.0 -> 169.0	8.4	4.1	12.4

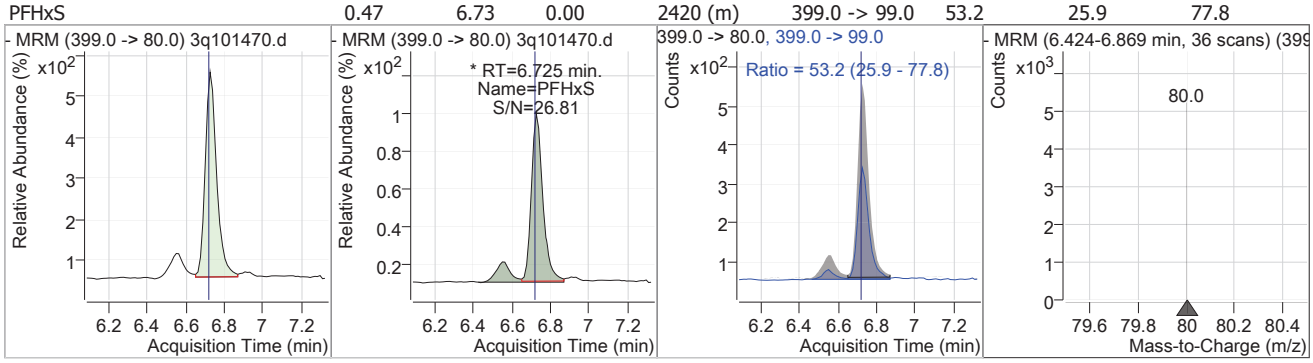




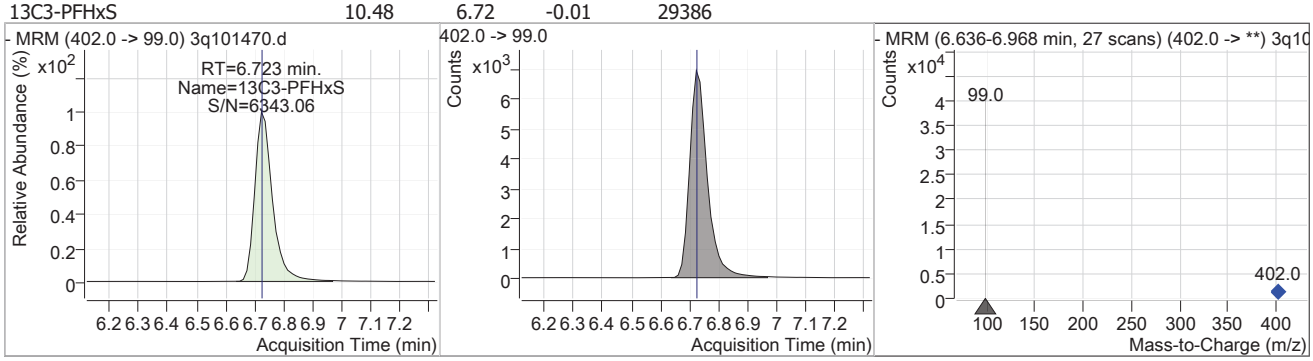


Perfluorinated Compounds by LC/MS/MS

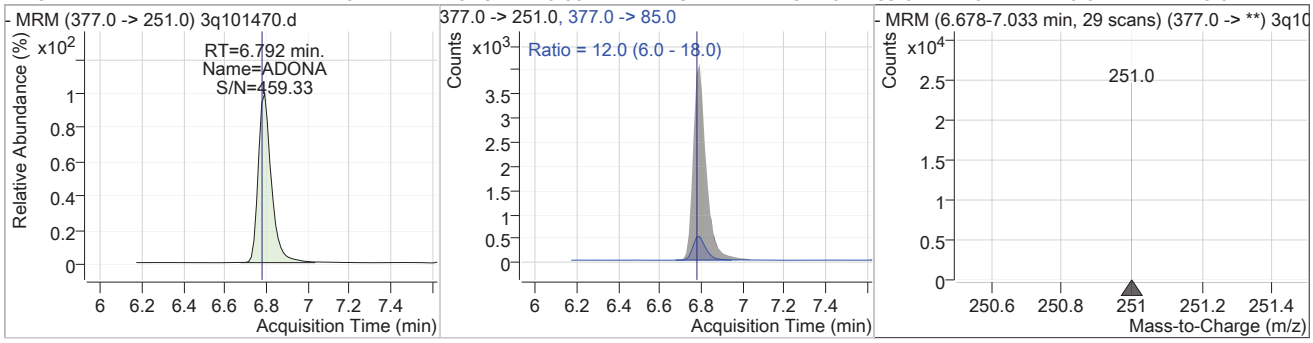
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.47	6.73	0.00	2420 (m)	399.0 -> 99.0	53.2	25.9	77.8



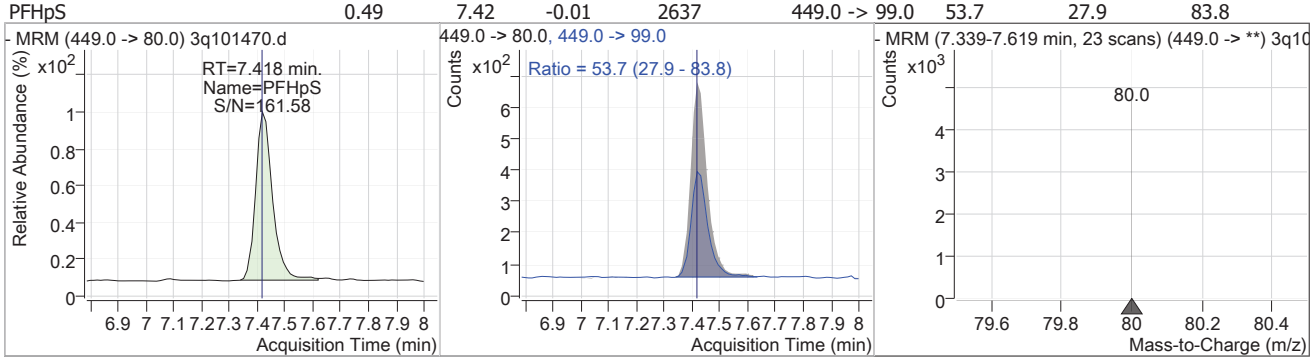
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.48	6.72	-0.01	29386				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.44	6.79	0.00	17971	377.0 -> 85.0	12.0	6.0	18.0

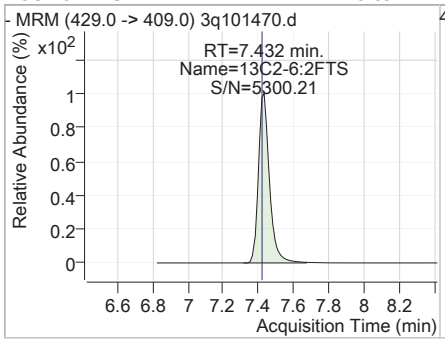


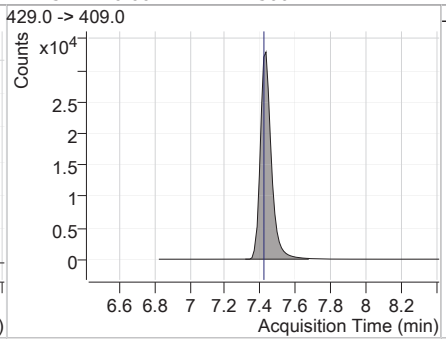
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.49	7.42	-0.01	2637	449.0 -> 99.0	53.7	27.9	83.8

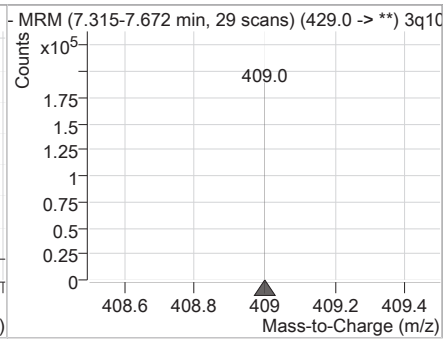


Perfluorinated Compounds by LC/MS/MS

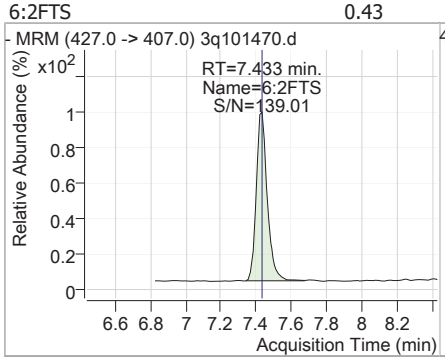
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	10.09	7.43	0.00	142366				

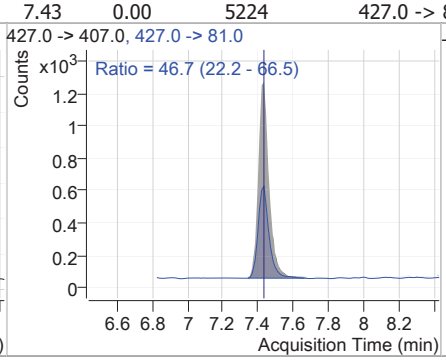


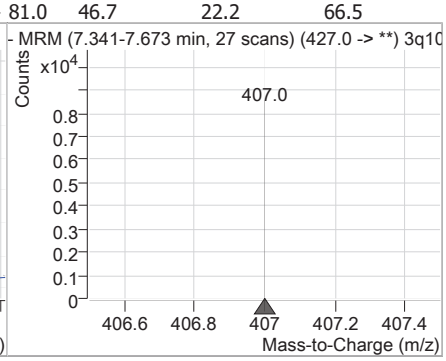




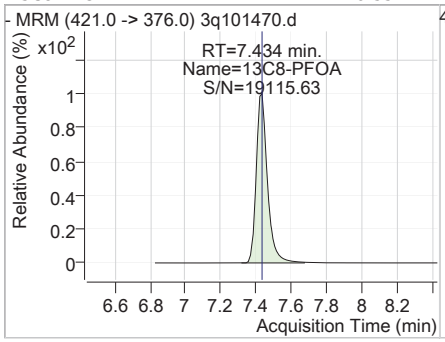
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.43	7.43	0.00	5224	427.0 -> 81.0	46.7	22.2	66.5

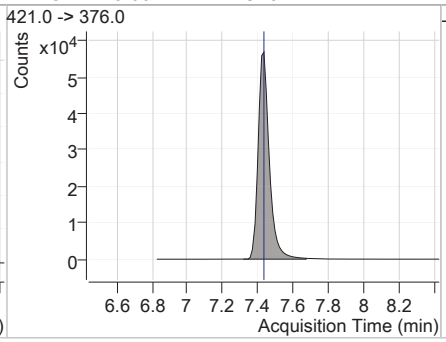


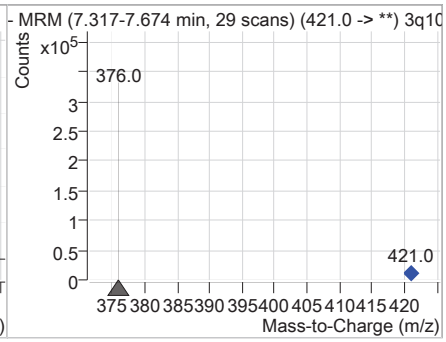




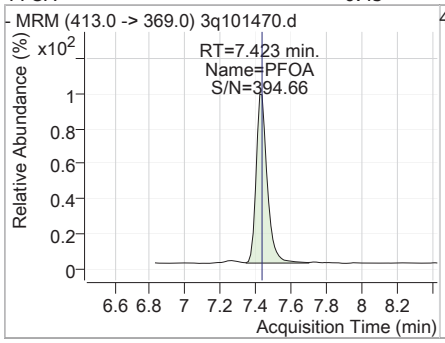
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	10.55	7.43	0.00	249764				

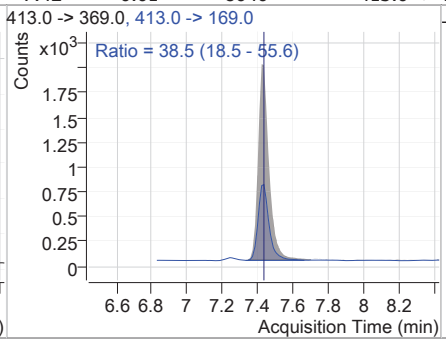


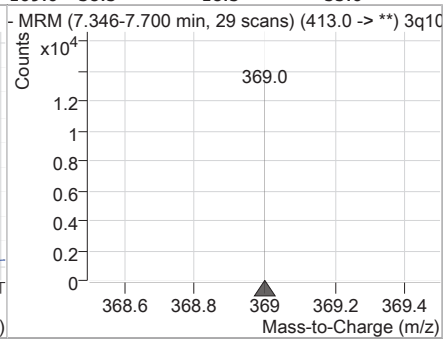




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.45	7.42	-0.01	8640	413.0 -> 169.0	38.5	18.5	55.6

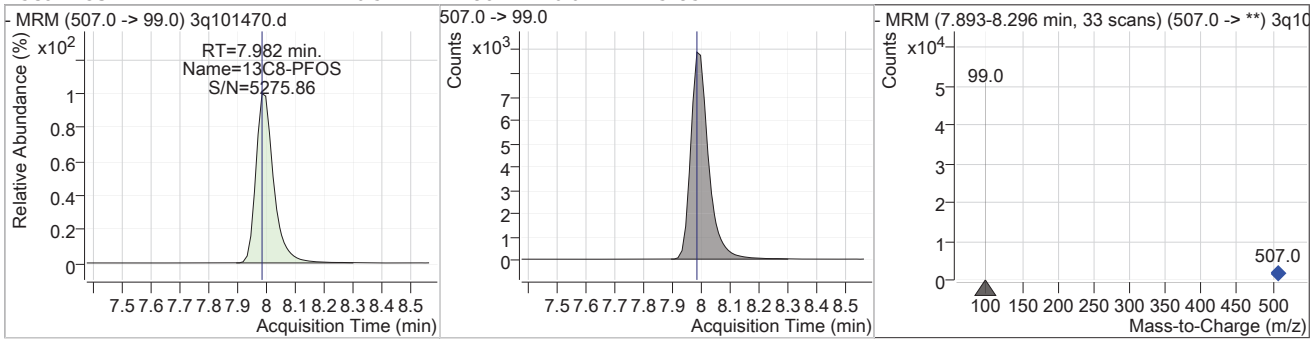




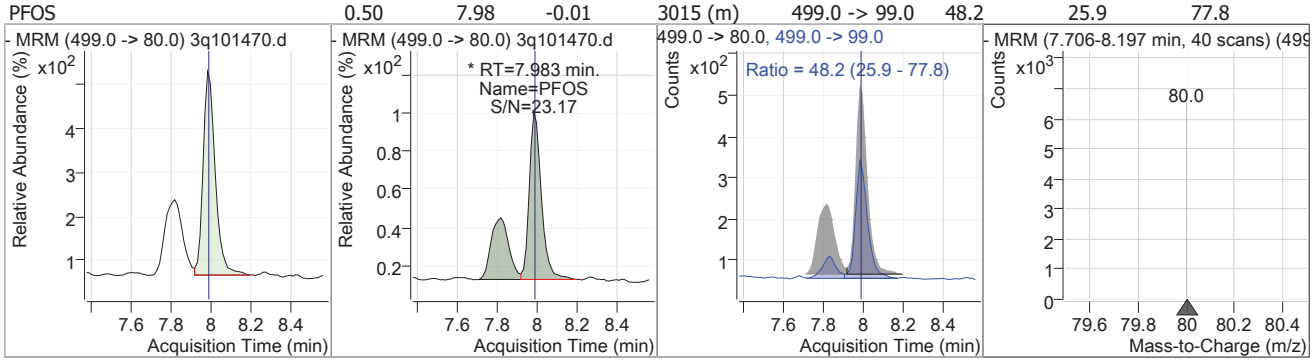


Perfluorinated Compounds by LC/MS/MS

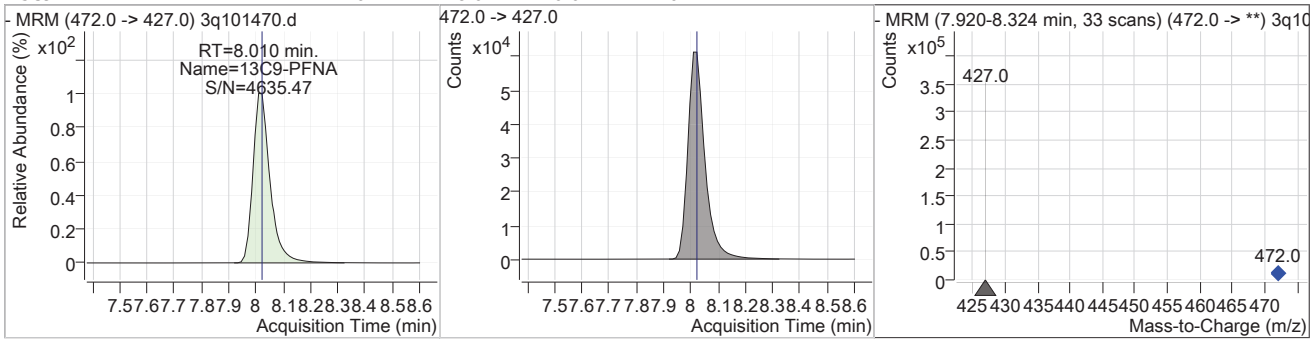
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.57	7.98	-0.01	37957				



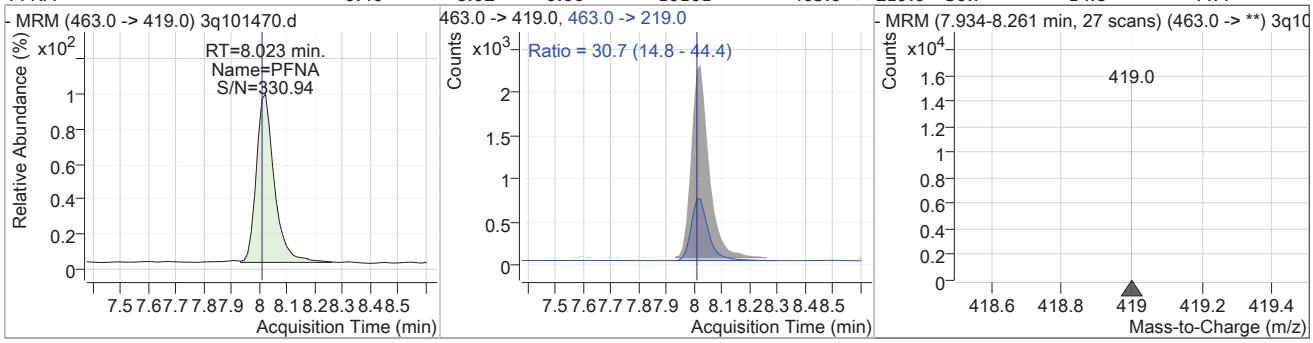
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.50	7.98	-0.01	3015 (m)	499.0 -> 99.0	48.2	25.9	77.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	10.41	8.01	-0.01	267714				

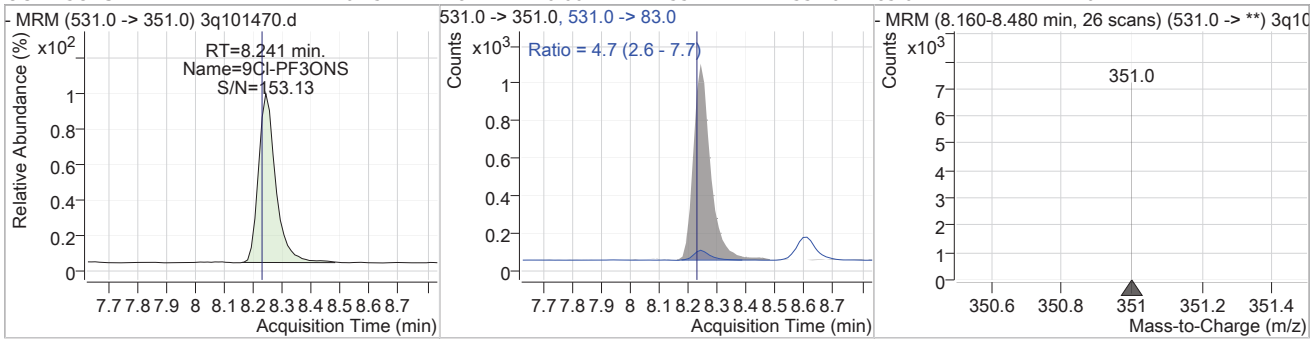


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.46	8.02	0.00	10101	463.0 -> 219.0	30.7	14.8	44.4

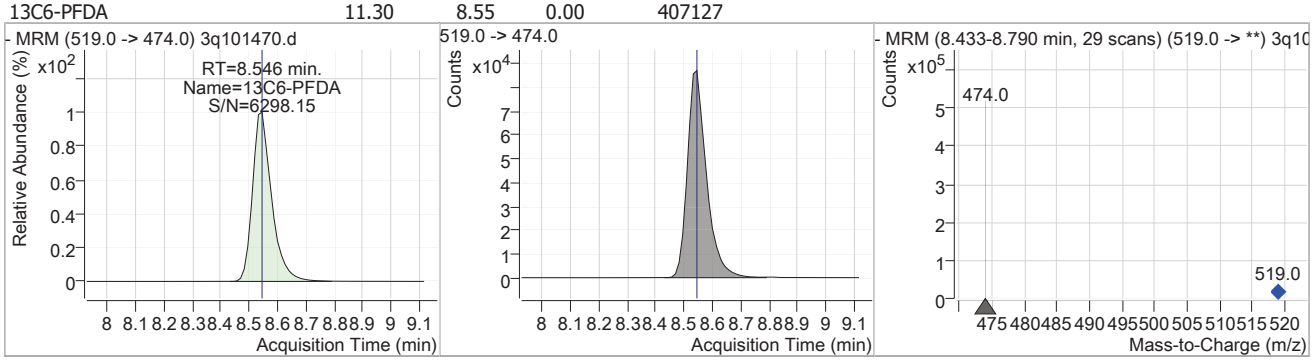


Perfluorinated Compounds by LC/MS/MS

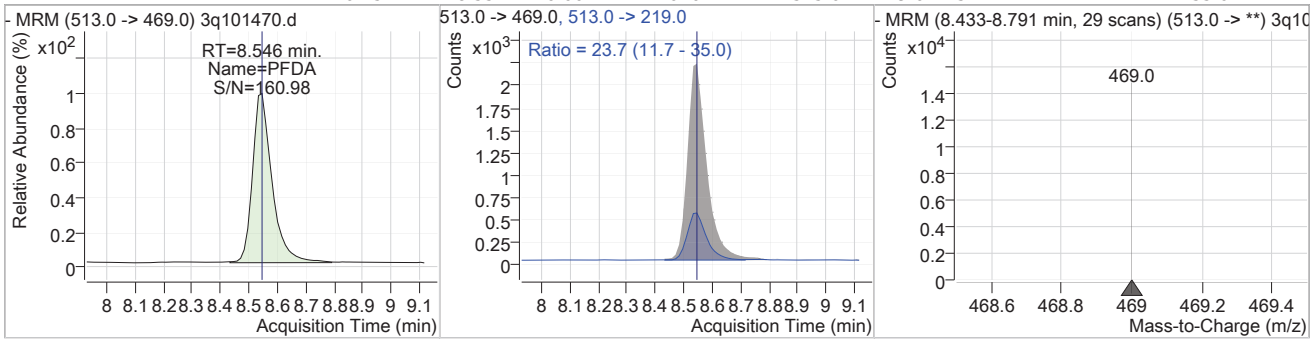
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.45	8.24	0.00	4354	531.0 -> 83.0	4.7	2.6	7.7



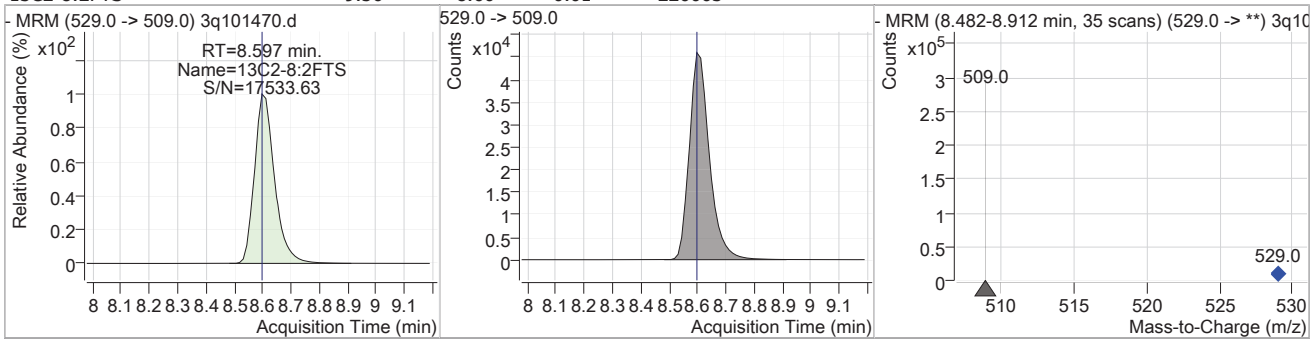
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	11.30	8.55	0.00	407127				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.45	8.55	0.00	10462	513.0 -> 219.0	23.7	11.7	35.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	9.56	8.60	-0.01	226063				

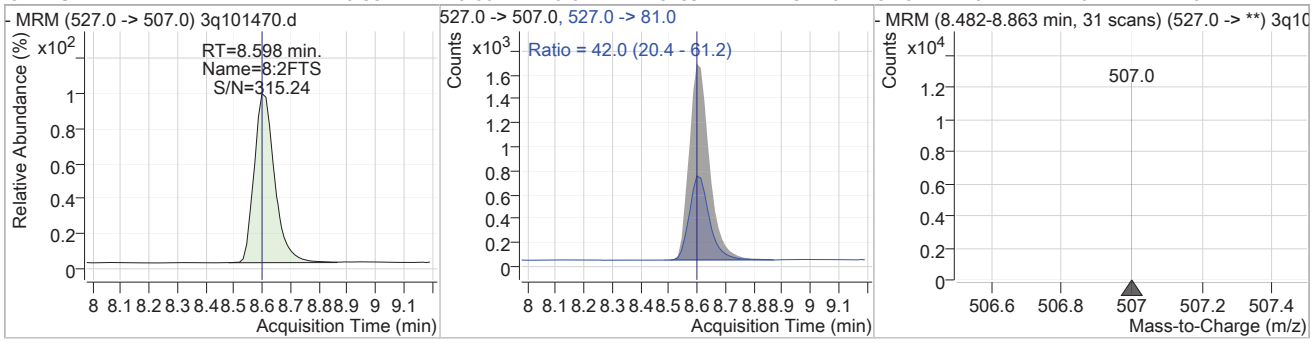


7.7.12

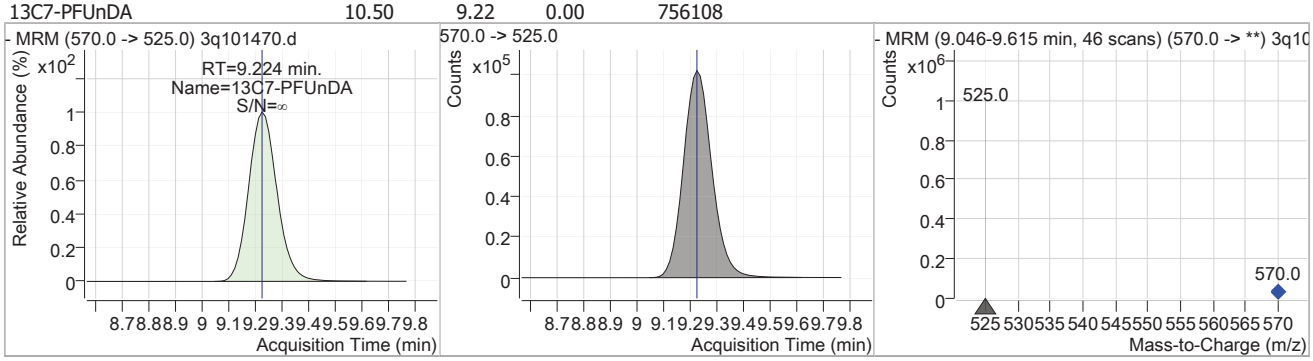
7

Perfluorinated Compounds by LC/MS/MS

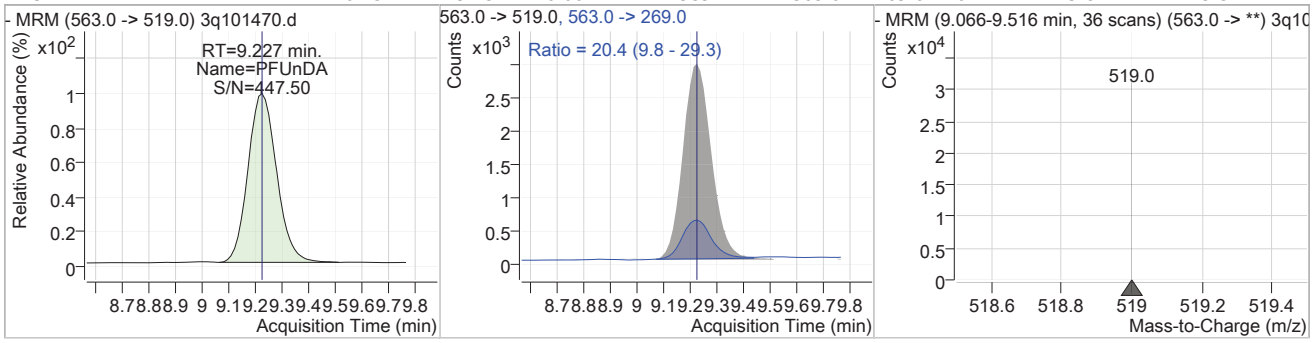
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.53	8.60	-0.01	8239	527.0 -> 81.0	42.0	20.4	61.2



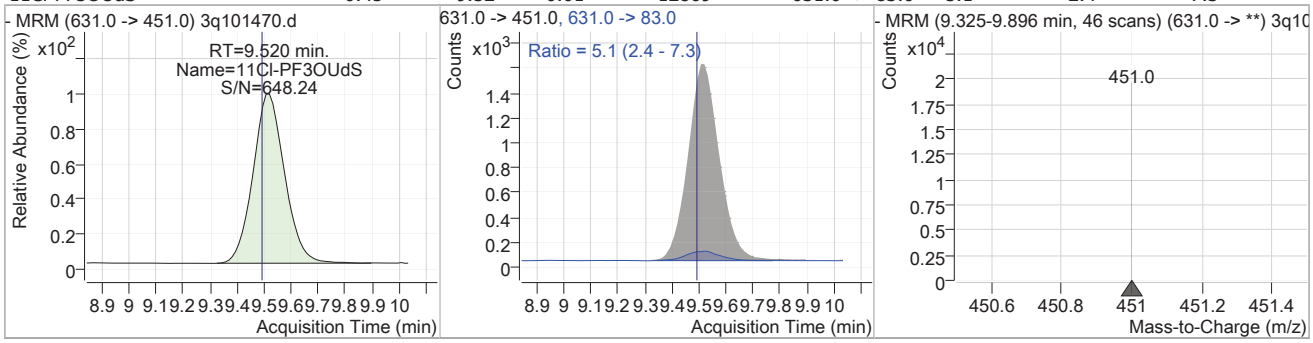
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	10.50	9.22	0.00	756108				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.45	9.23	0.00	21939	563.0 -> 269.0	20.4	9.8	29.3

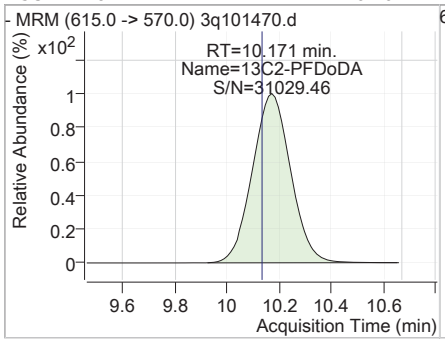


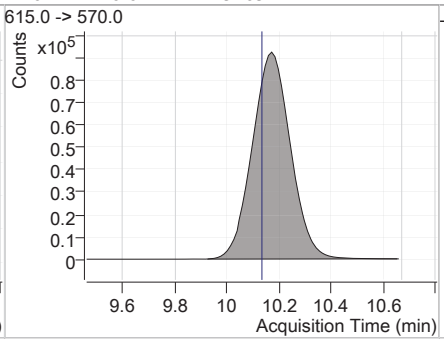
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.45	9.52	0.01	12809	631.0 -> 83.0	5.1	2.4	7.3

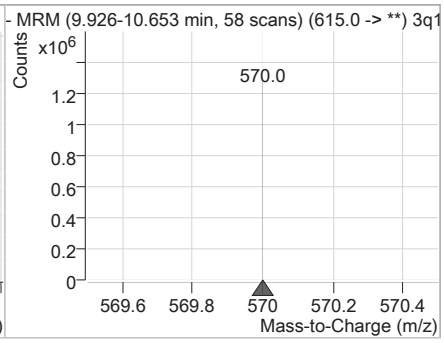


Perfluorinated Compounds by LC/MS/MS

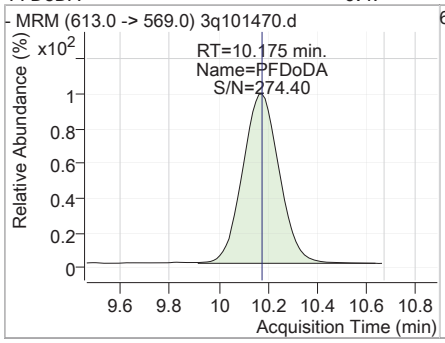
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.26	10.17	0.04	940947				

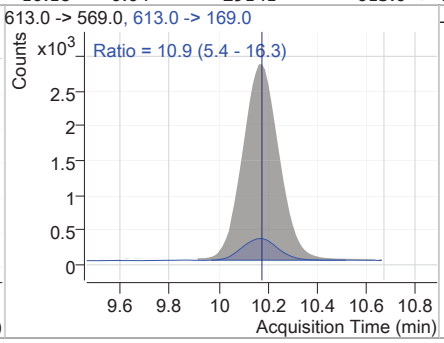


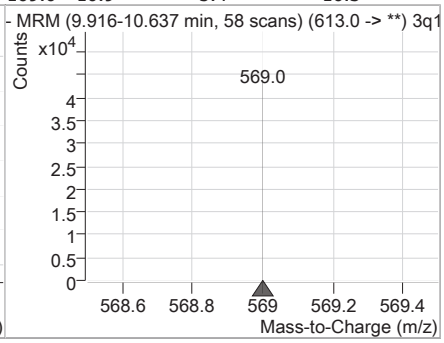




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.47	10.18	0.04	29141	613.0 -> 169.0	10.9	5.4	16.3







Manual Integration Approval Summary

Sample Number:	S3Q1492-CC1492	**Method:**	EPA 533
Lab FileID:	3Q101470.D	**Analyst approved:**	04/16/25 08:55 (b) (6)
Injection Time:	04/15/25 17:16	**Supervisor approved:**	04/17/25 11:42 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.72	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.98	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 10:08

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101520.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/17/2025 10:51:06 AM
Sample Name : cc1492-20
Vial : P1-C7
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1494.batch.bin
Sample Information : op8907,S3Q1494,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.447	415.0 -> 370.0	258564	10.00 µg/L	0.025
13C3-PFBA	2.369	216.0 -> 172.0	102753	10.00 µg/L	0.025
13C4-PFOS	7.995	503.0 -> 80.0	39230	10.00 µg/L	0.026
M4-PFBA	2.365	217.0 -> 172.0	187266	10.00 µg/L	0.025
M5-PFPeA	4.438	268.0 -> 223.0	225283	10.00 µg/L	0.025
M5-PFHxA	5.801	318.0 -> 273.0	290103	10.00 µg/L	0.025
M4-PFHpA	6.719	367.0 -> 322.0	244995	10.00 µg/L	0.025
M8-PFOA	7.447	421.0 -> 376.0	317834	10.00 µg/L	0.025
M9-PFNA	8.022	472.0 -> 427.0	354687	10.00 µg/L	0.026
M6-PFDA	8.558	519.0 -> 474.0	486060	10.00 µg/L	0.038
M7-PFUnDA	9.249	570.0 -> 525.0	983488	10.00 µg/L	0.064
M2-PFDoDA	10.158	615.0 -> 570.0	1242577	10.00 µg/L	0.075
M3-PFBS	4.733	302.0 -> 99.0	25677	10.00 µg/L	0.025
M3-PFHxS	6.749	402.0 -> 99.0	36401	10.00 µg/L	0.025
M8-PFOS	7.995	507.0 -> 99.0	46618	10.00 µg/L	0.026
M2-4:2FTS	5.697	329.0 -> 309.0	106490	10.00 µg/L	0.025
M2-6:2FTS	7.445	429.0 -> 409.0	197980	10.00 µg/L	0.025
M2-8:2FTS	8.624	529.0 -> 509.0	345911	10.00 µg/L	0.039
M3-HFPO-DA	6.081	287.0 -> 169.0	3413	10.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.697	329.0 -> 309.0	106490	11.41 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.1%	
13C2-6:2FTS	7.445	429.0 -> 409.0	197980	11.29 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.9%	
13C2-8:2FTS	8.624	529.0 -> 509.0	345911	11.77 µg/L	0.039
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 117.7%	
13C2-PFDoDA	10.158	615.0 -> 570.0	1242577	11.29 µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.9%	
13C3-PFBS	4.733	302.0 -> 99.0	25677	10.49 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C3-PFHxS	6.749	402.0 -> 99.0	36401	10.45 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C4-PFBA	2.365	217.0 -> 172.0	187266	10.74 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C4-PFHpA	6.719	367.0 -> 322.0	244995	11.20 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.0%	
13C5-PFHxA	5.801	318.0 -> 273.0	290103	11.08 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.8%	
13C5-PFPeA	4.438	268.0 -> 223.0	225283	10.72 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.2%	
13C6-PFDA	8.558	519.0 -> 474.0	486060	11.24 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.4%	
13C7-PFUnDA	9.249	570.0 -> 525.0	983488	11.38 µg/L	0.064
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.8%	
13C8-PFOA	7.447	421.0 -> 376.0	317840	11.19 µg/L	0.025

Perfluorinated Compounds by LC/MS/MS

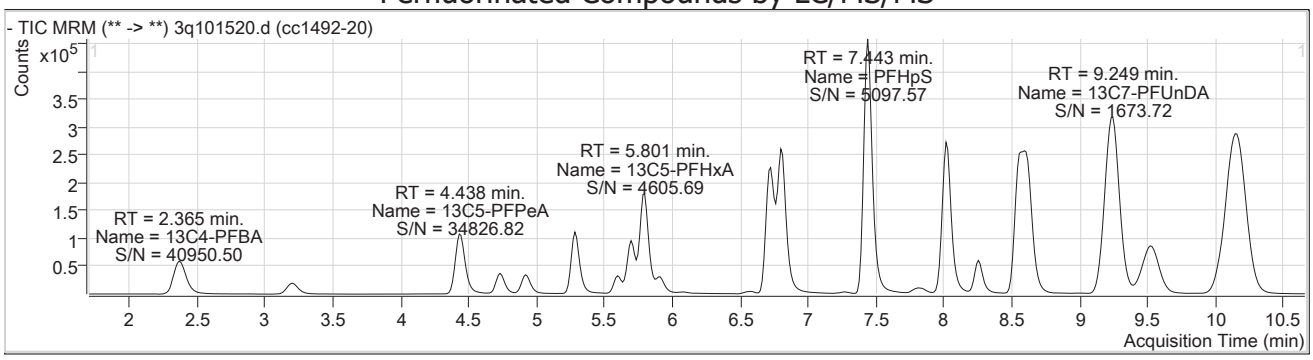
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.9%		
13C8-PFOS	7.995	507.0 -> 99.0	46618	10.45 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.5%		
13C9-PFNA	8.022	472.0 -> 427.0	354687	11.49 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.9%		
13C3-HFPO-DA	6.081	287.0 -> 169.0	3413	9.06 µg/L		0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.6%		
Target Compounds						QValue
PFMPA	3.203	229.0 -> 85.0	120446	19.86 µg/L		100
4:2FTS	5.699	327.0 -> 307.0	225563	19.04 µg/L		99
		327.0 -> 81.0	93832			
6:2FTS	7.445	427.0 -> 407.0	302705	19.36 µg/L		96
		427.0 -> 81.0	126922			
8:2FTS	8.625	527.0 -> 507.0	516254	21.72 µg/L		94
		527.0 -> 81.0	192721			
PFMBA	4.926	279.0 -> 85.0	164385	19.79 µg/L		100
PFEESA	5.286	315.0 -> 135.0	468166	20.21 µg/L		100
		315.0 -> 69.0	35057			
NFDHA	5.607	201.0 -> 85.0	137571	18.96 µg/L		98
		295.0 -> 201.0	9521			
PFBA	2.373	213.0 -> 169.0	102350	19.77 µg/L		100
PFBS	4.735	299.0 -> 80.0	102449	19.73 µg/L		98
		299.0 -> 99.0	44239			
PFDA	8.559	513.0 -> 469.0	548220	19.94 µg/L		96
		513.0 -> 219.0	116605			
PFDoDA	10.150	613.0 -> 569.0	1658408	20.07 µg/L		96
		613.0 -> 169.0	156799			
PFHpA	6.720	363.0 -> 319.0	646369	18.80 µg/L		100
		363.0 -> 169.0	53122			
PFHpS	7.443	449.0 -> 80.0	137724	20.66 µg/L		98
		449.0 -> 99.0	75358			
PFHxA	5.803	313.0 -> 269.0	506649	18.54 µg/L		100
		313.0 -> 119.0	17688			
PFHxS	6.750	399.0 -> 80.0	132721	20.72 µg/L	m	100
		399.0 -> 99.0	68316			
PFNA	8.036	463.0 -> 419.0	546787	18.82 µg/L		98
		463.0 -> 219.0	155882			
PFOA	7.448	413.0 -> 369.0	466064	19.01 µg/L		99
		413.0 -> 169.0	170126			
PFOS	7.996	499.0 -> 80.0	152187	20.42 µg/L	m	99
		499.0 -> 99.0	77912			
PFPeA	4.440	263.0 -> 219.0	338115	19.89 µg/L		100
PFPeS	5.908	349.0 -> 80.0	75315	20.26 µg/L		100
		349.0 -> 99.0	31444			
PFUnDA	9.252	563.0 -> 519.0	1284335	20.26 µg/L		96
		563.0 -> 269.0	225502			
11Cl-PF3OUdS	9.520	631.0 -> 451.0	717072	20.71 µg/L		99
		631.0 -> 83.0	33566			
9Cl-PF3ONS	8.254	531.0 -> 351.0	243287	20.26 µg/L		99
		531.0 -> 83.0	12825			
ADONA	6.817	377.0 -> 251.0	972973	18.33 µg/L		99
		377.0 -> 85.0	119661			
HFPO-DA	6.089	329.0 -> 169.0	1724	23.34 µg/L		84
		285.0 -> 169.0	3675			

 # = Qualifier out of range, m = manually integrated, + = Area summed

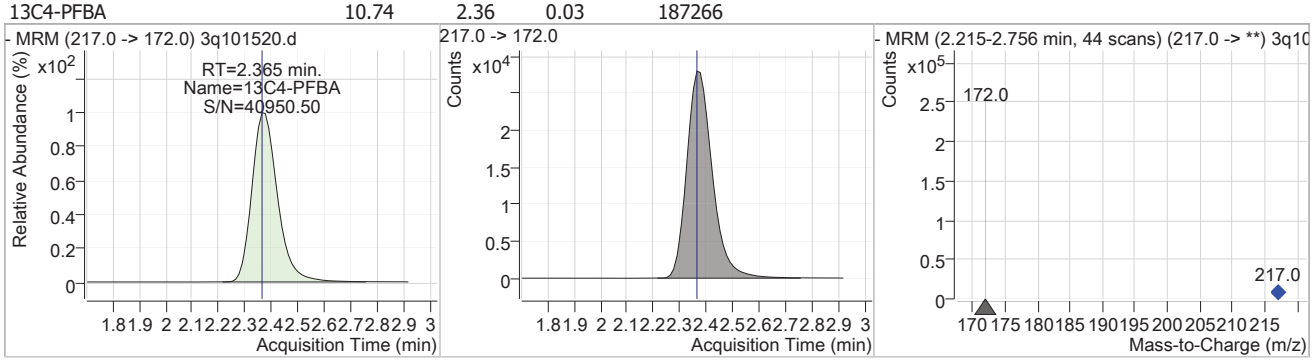
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

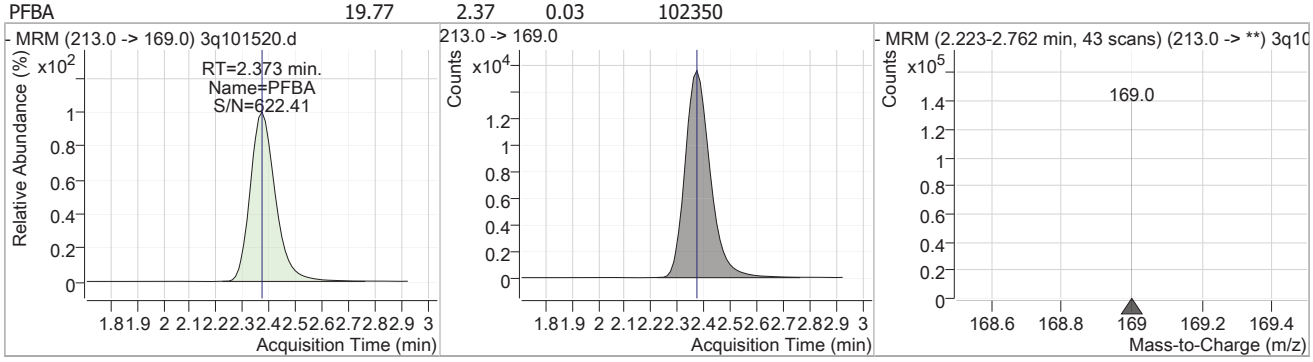
Perfluorinated Compounds by LC/MS/MS



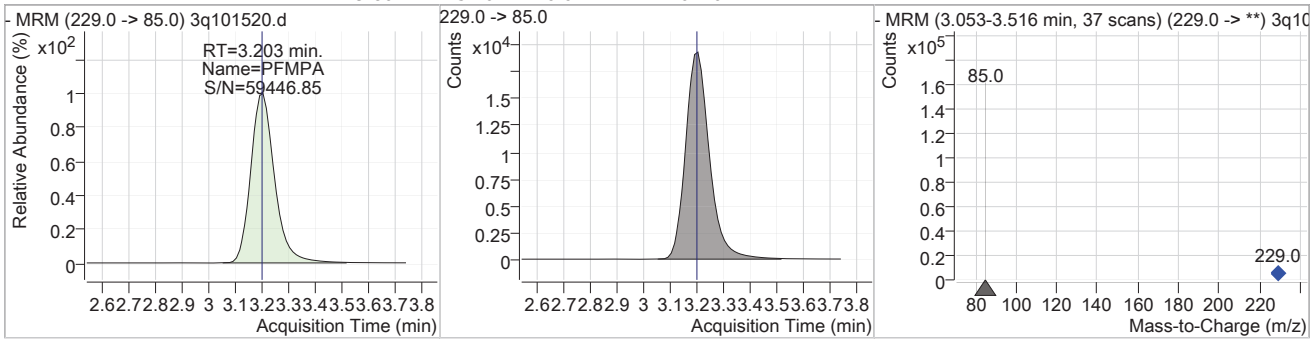
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.74	2.36	0.03	187266				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.77	2.37	0.03	102350				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	19.86	3.20	0.04	120446				



7.7.13

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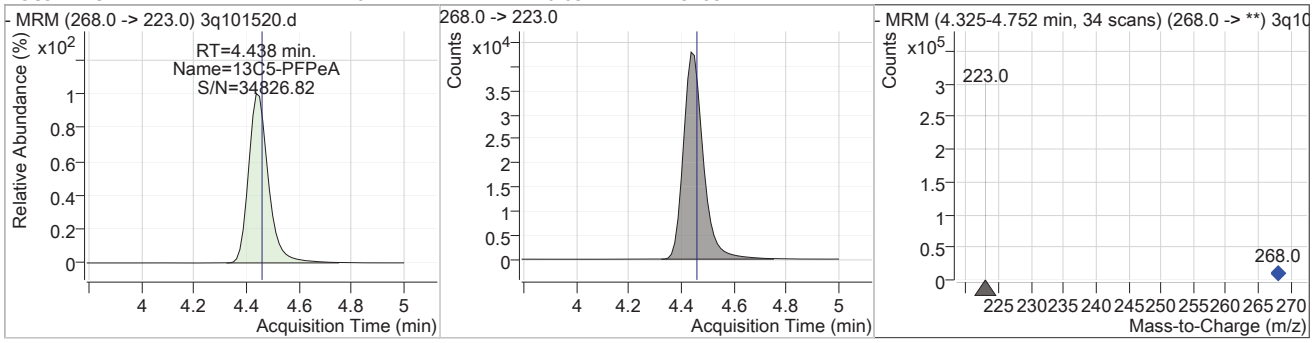
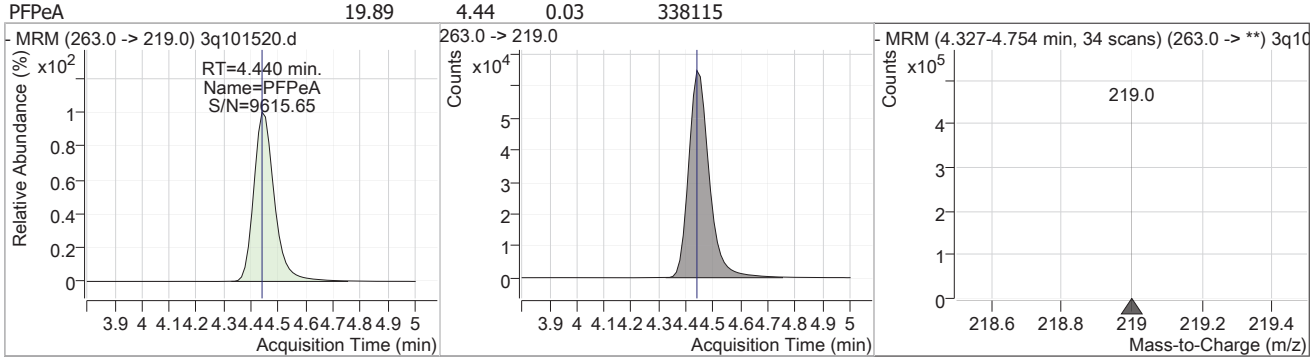
Perfluorinated Compounds by LC/MS/MS

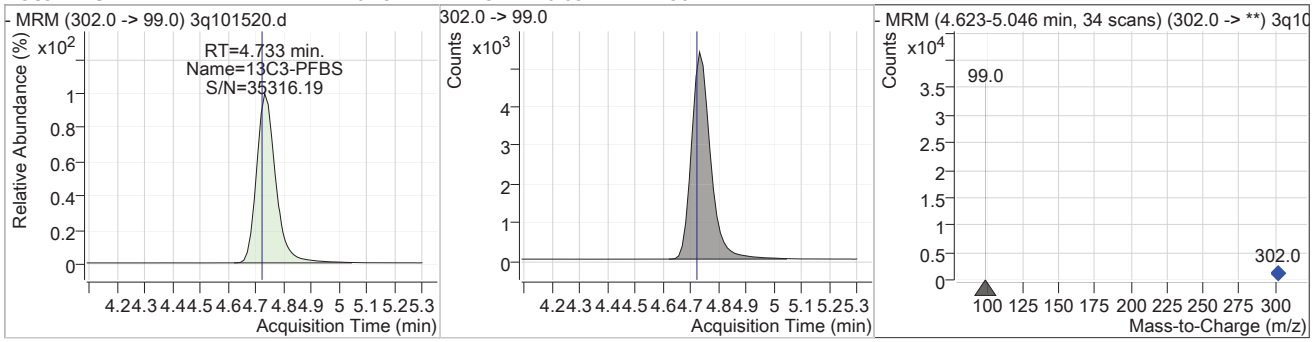
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.72	4.44	0.03	225283				



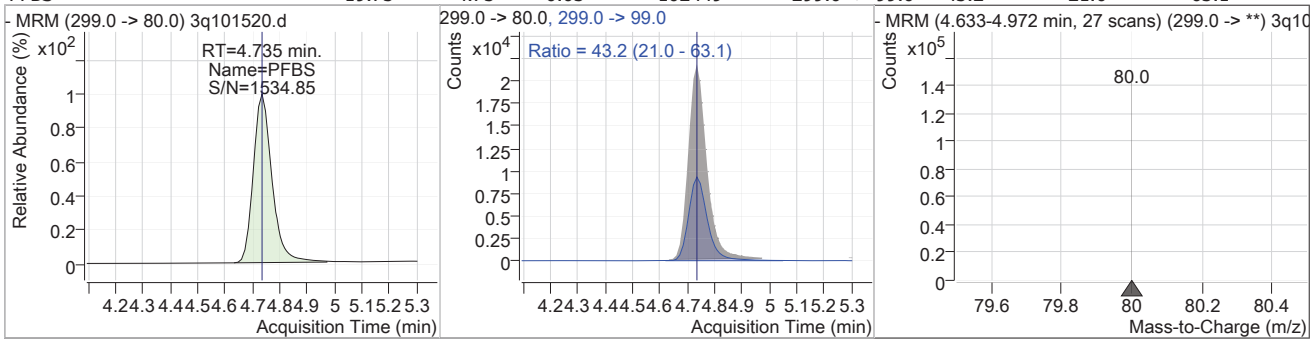
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.89	4.44	0.03	338115				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.49	4.73	0.03	25677				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.73	4.73	0.03	102449	299.0 -> 99.0	43.2	21.0	63.1

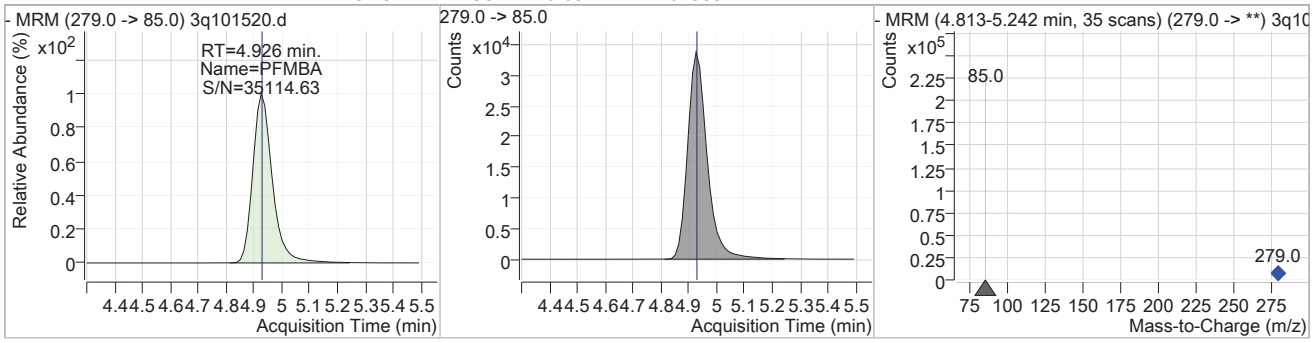


7.7.13

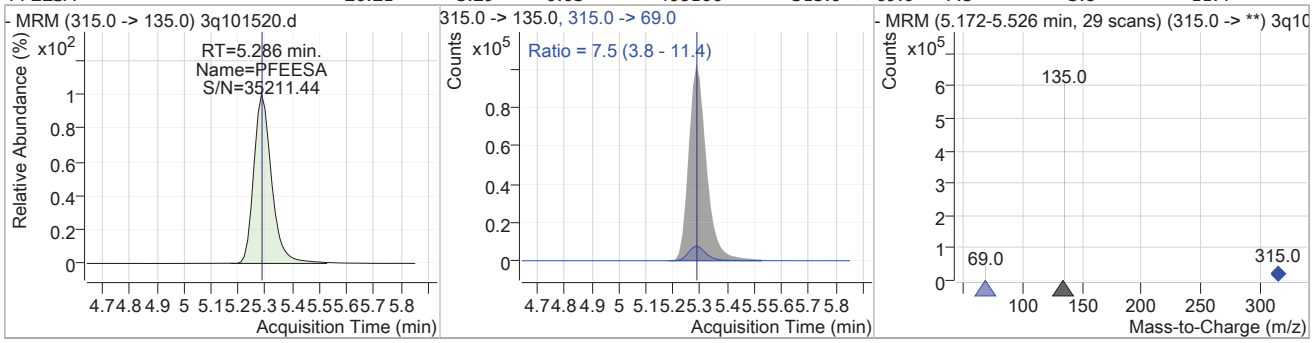
7

Perfluorinated Compounds by LC/MS/MS

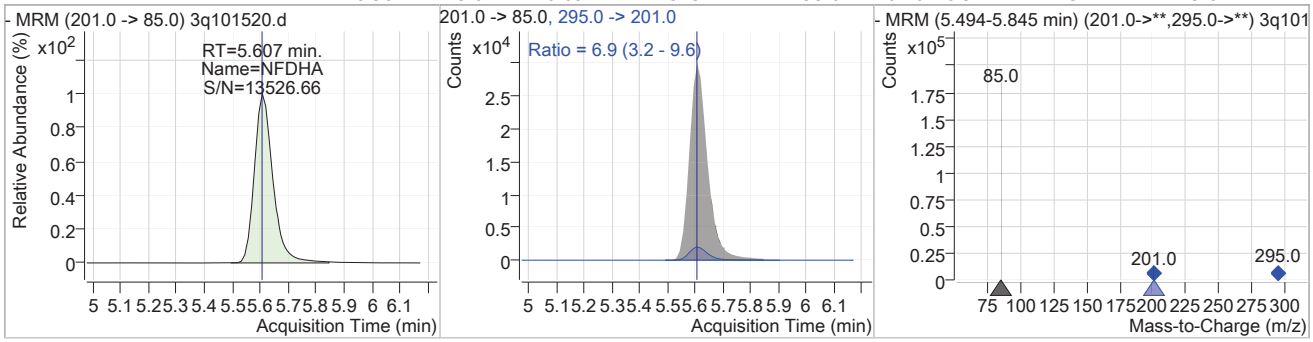
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	19.79	4.93	0.03	164385				



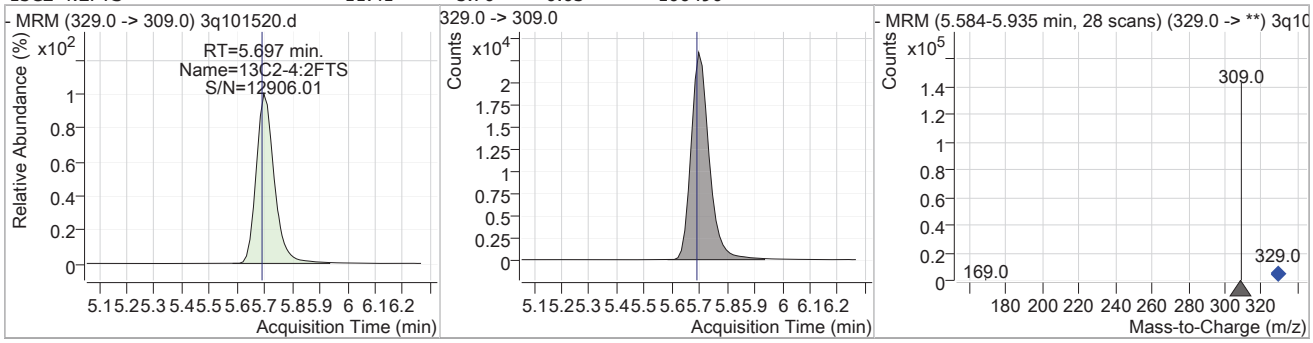
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	20.21	5.29	0.03	468166	315.0 -> 69.0	7.5	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	18.96	5.61	0.03	137571	295.0 -> 201.0	6.9	3.2	9.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	11.41	5.70	0.03	106490				



7.7.13

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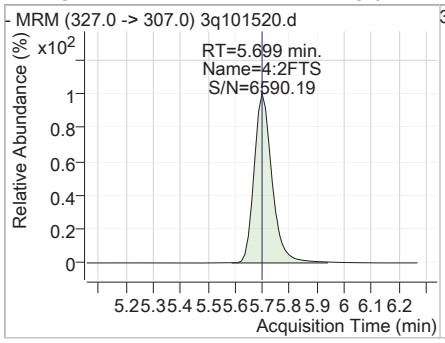
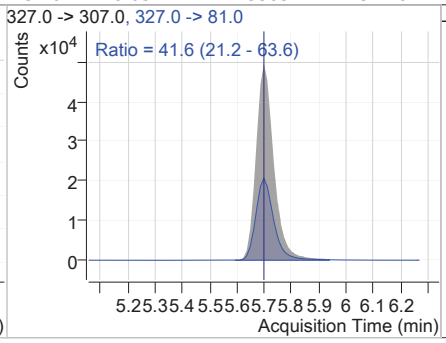
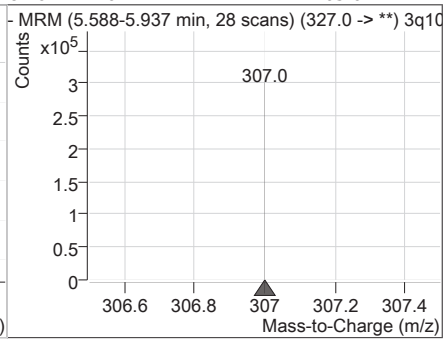
Perfluorinated Compounds by LC/MS/MS

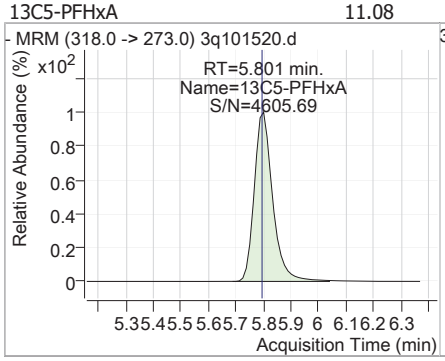
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.04	5.70	0.03	225563	327.0 -> 81.0	41.6	21.2	63.6

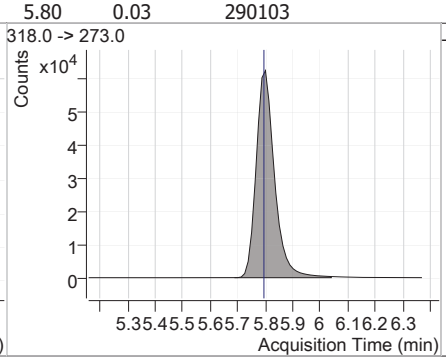


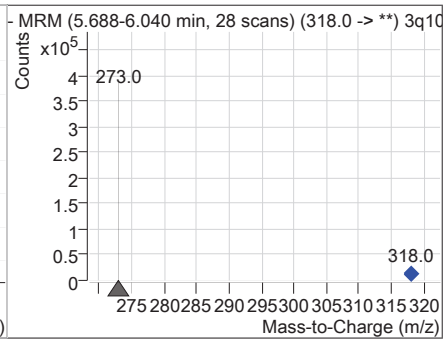




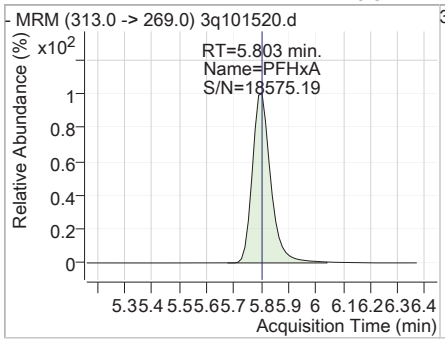
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	11.08	5.80	0.03	290103				

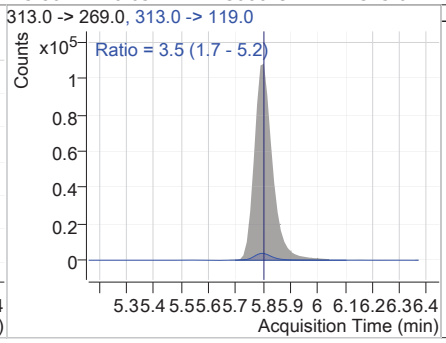


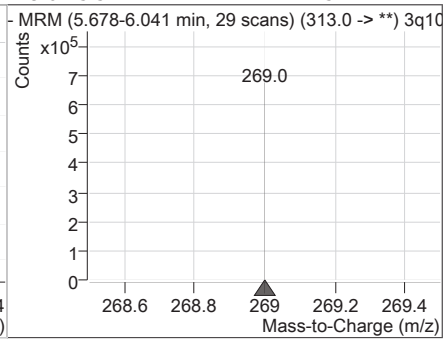




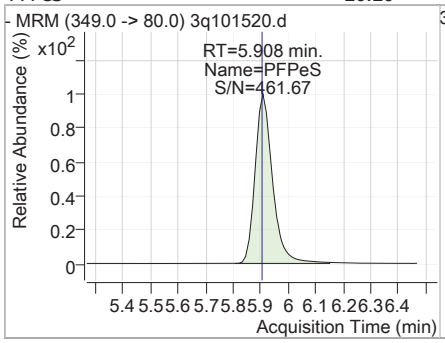
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	18.54	5.80	0.03	506649	313.0 -> 119.0	3.5	1.7	5.2

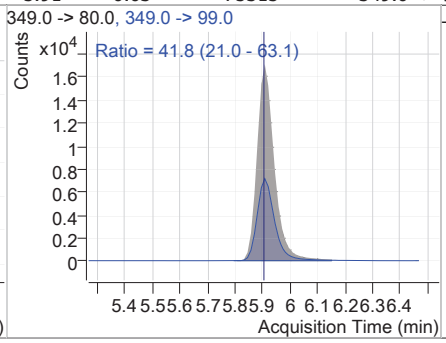


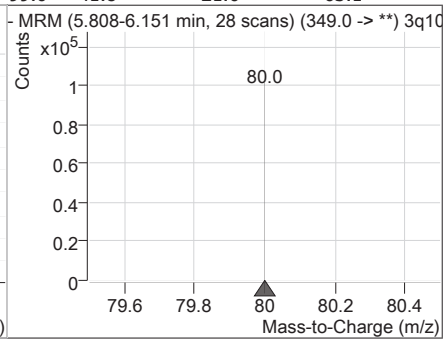




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	20.26	5.91	0.03	75315	349.0 -> 99.0	41.8	21.0	63.1

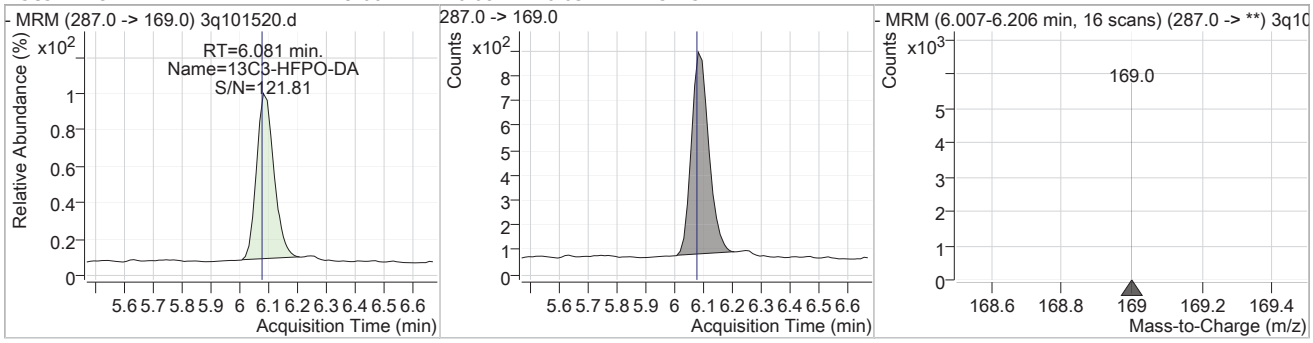




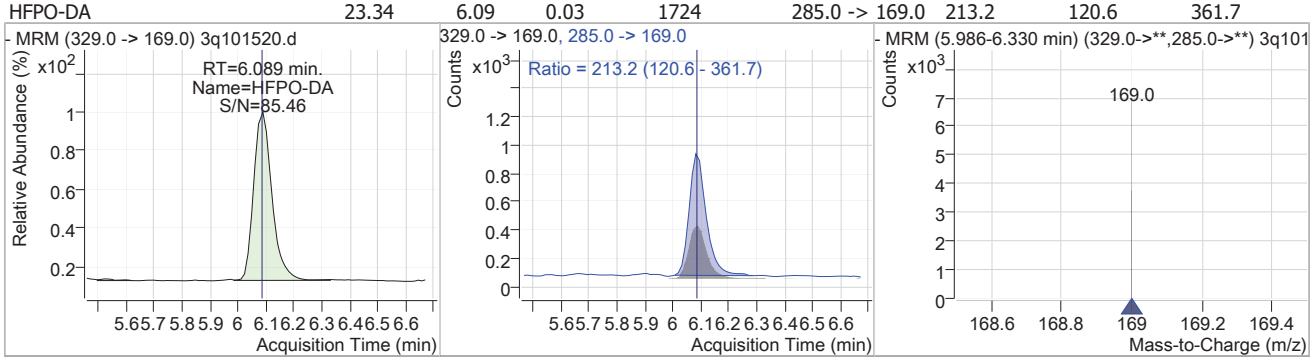


Perfluorinated Compounds by LC/MS/MS

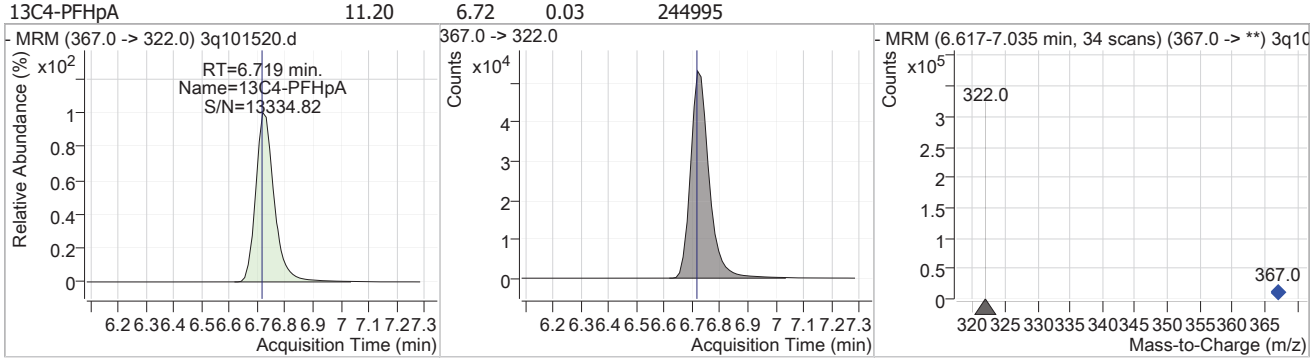
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.06	6.08	0.03	3413				



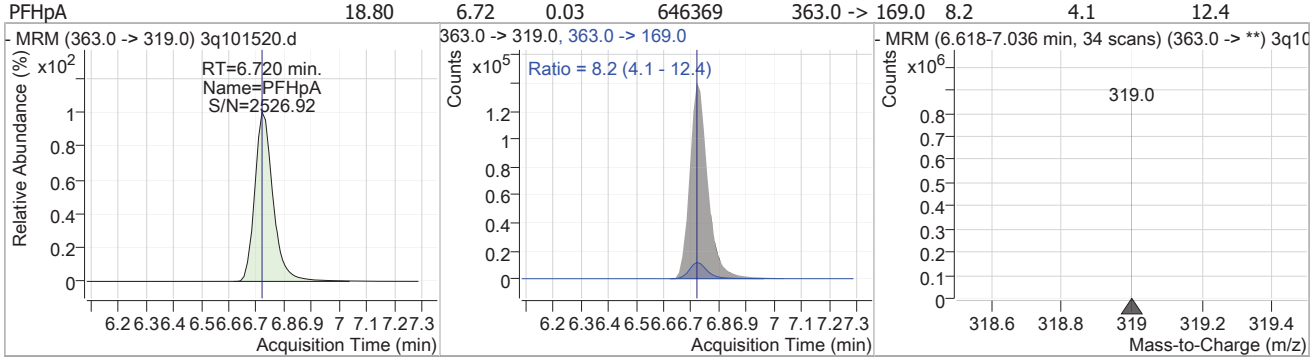
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	23.34	6.09	0.03	1724	285.0 -> 169.0	213.2	120.6	361.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	11.20	6.72	0.03	244995				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	18.80	6.72	0.03	646369	363.0 -> 169.0	8.2	4.1	12.4

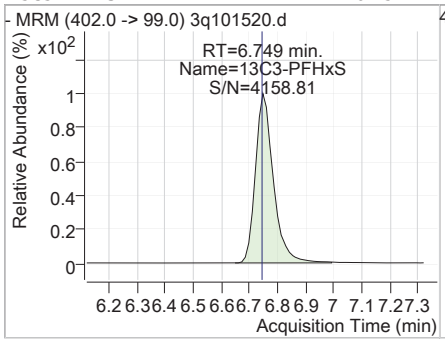


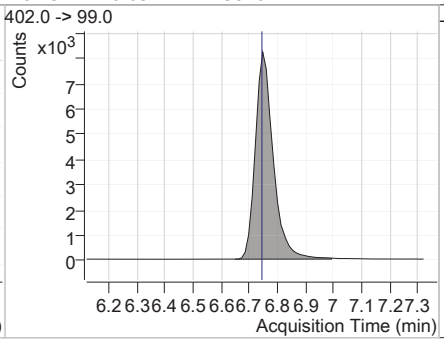
7.7.13

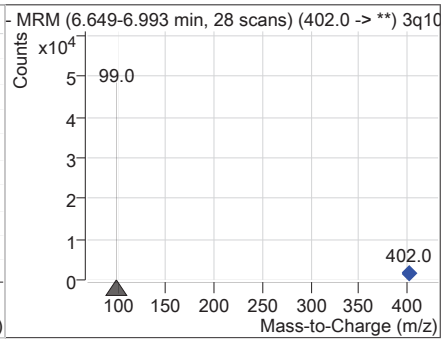
7

Perfluorinated Compounds by LC/MS/MS

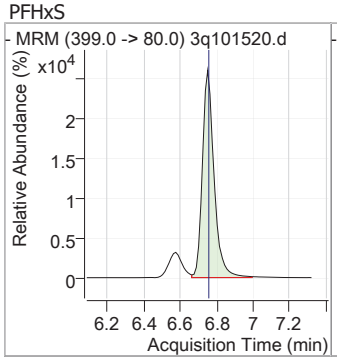
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.45	6.75	0.03	36401				

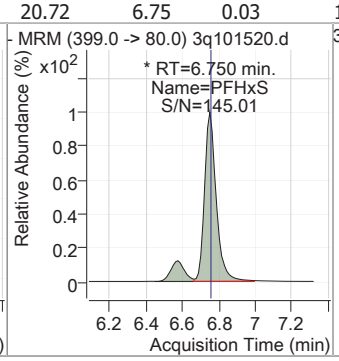


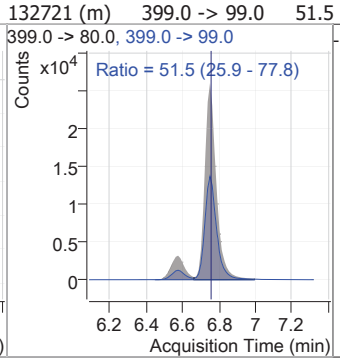


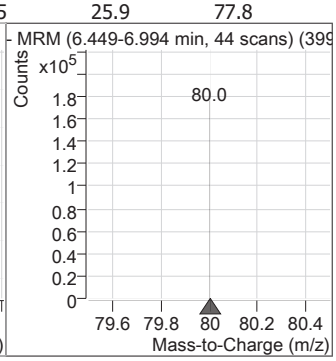


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	20.72	6.75	0.03	132721 (m)	399.0 -> 99.0	51.5	25.9	77.8

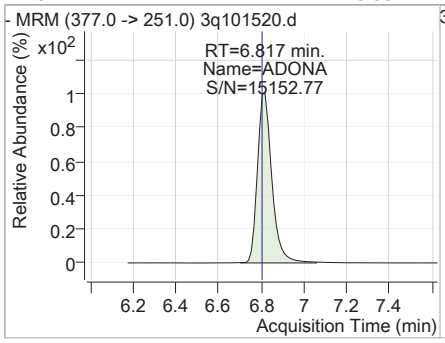


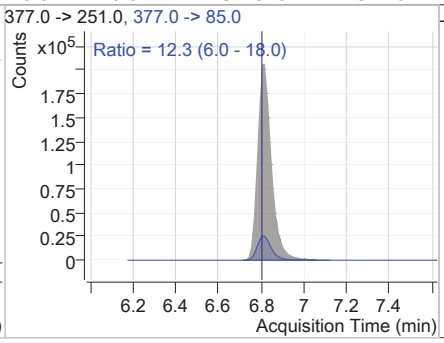


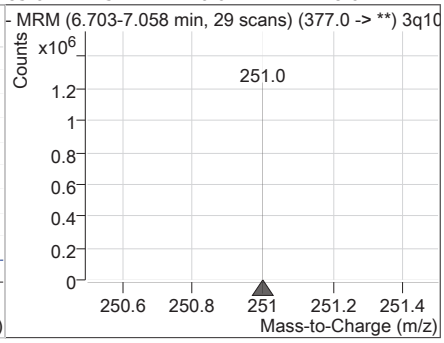




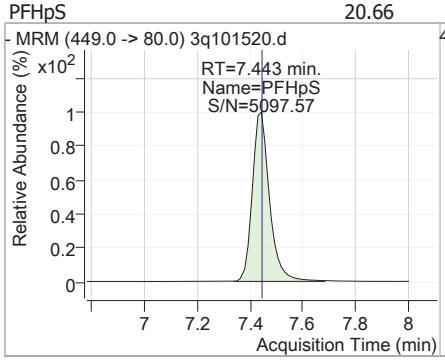
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	18.33	6.82	0.04	972973	377.0 -> 85.0	12.3	6.0	18.0

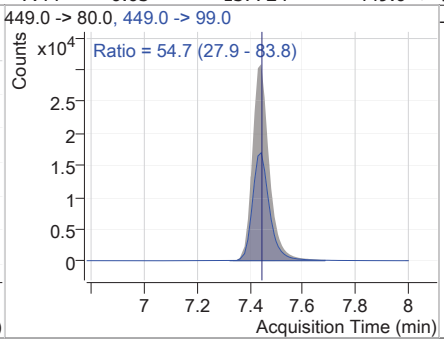


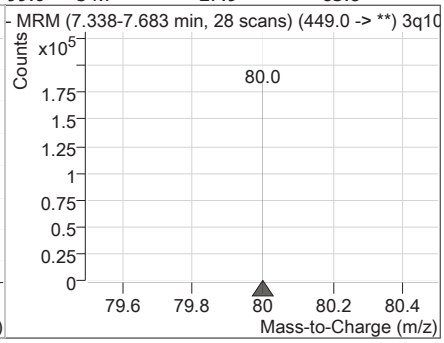




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	20.66	7.44	0.03	137724	449.0 -> 99.0	54.7	27.9	83.8

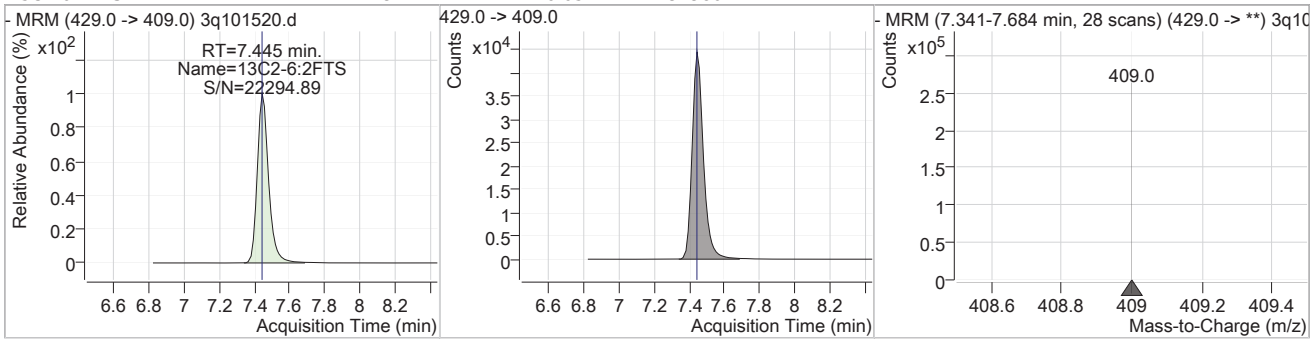




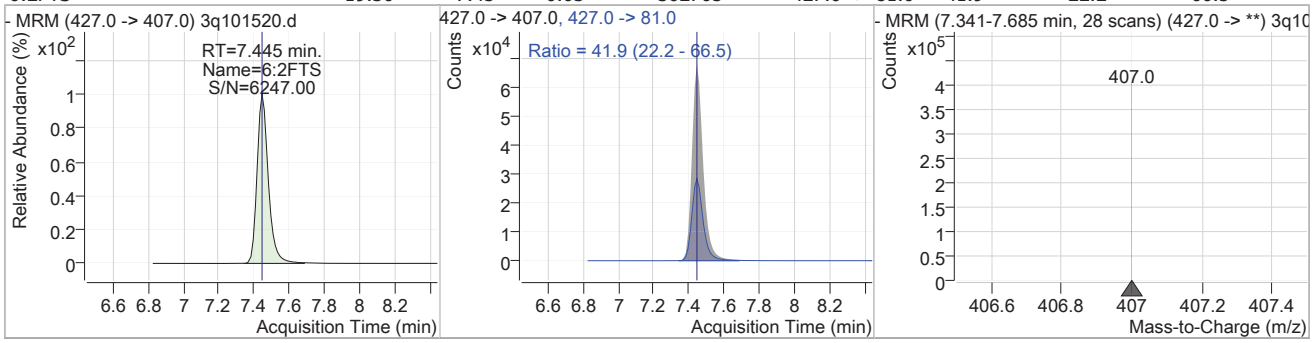


Perfluorinated Compounds by LC/MS/MS

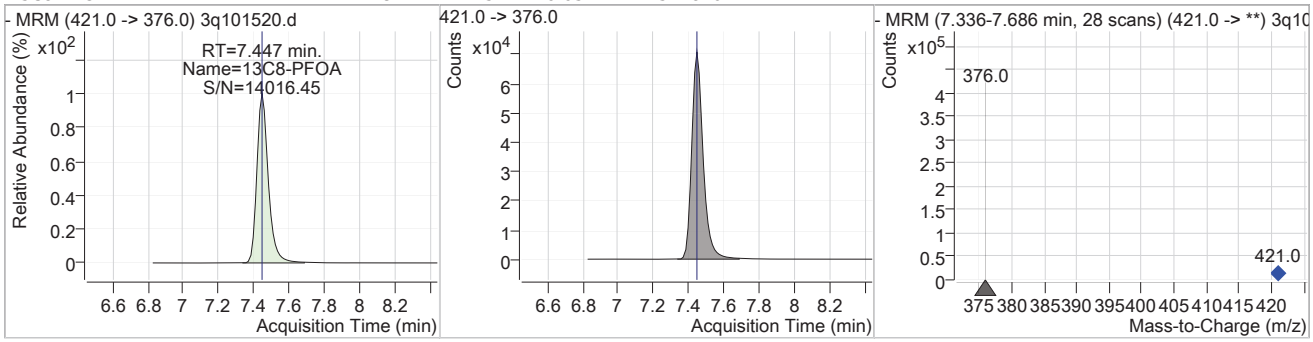
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	11.29	7.44	0.03	197980				



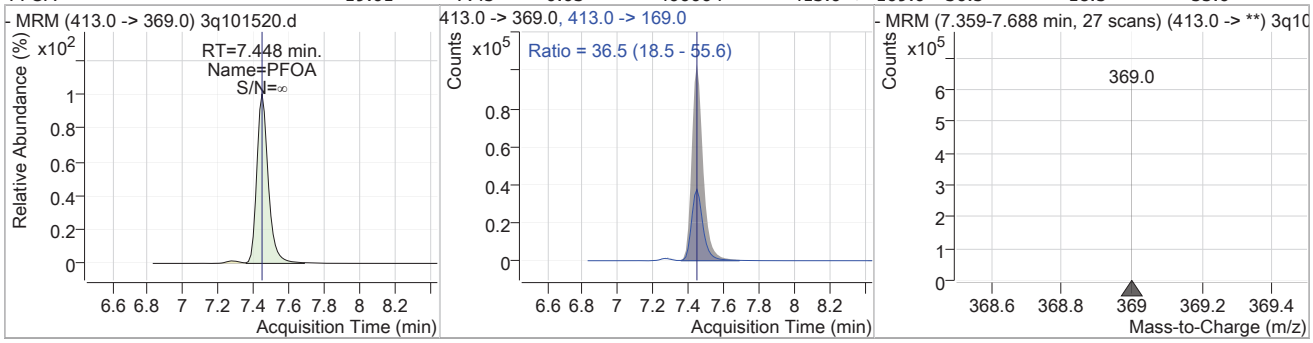
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.36	7.45	0.03	302705	427.0 -> 81.0	41.9	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	11.19	7.45	0.03	317840				

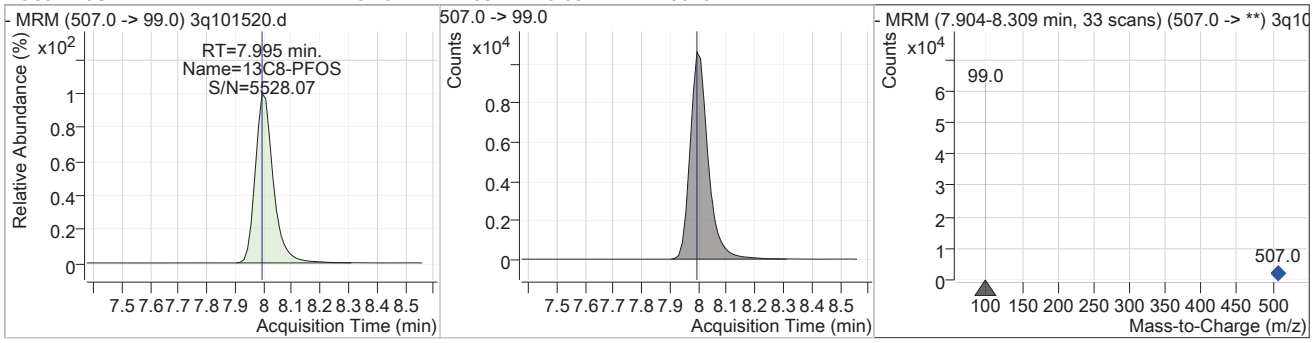


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.01	7.45	0.03	466064	413.0 -> 169.0	36.5	18.5	55.6

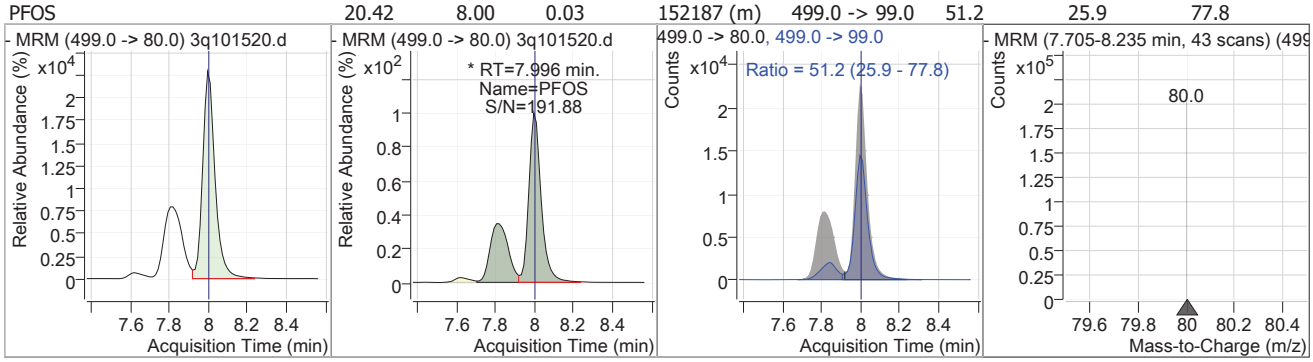


Perfluorinated Compounds by LC/MS/MS

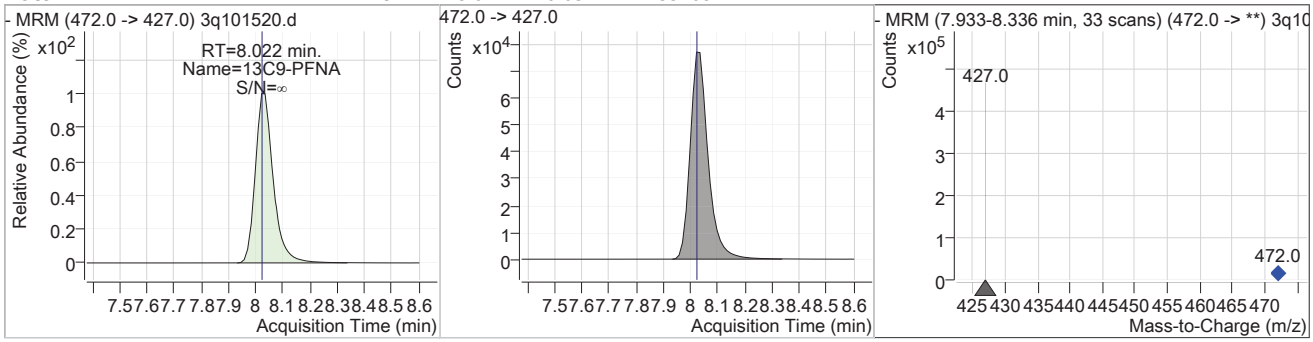
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.45	7.99	0.03	46618				



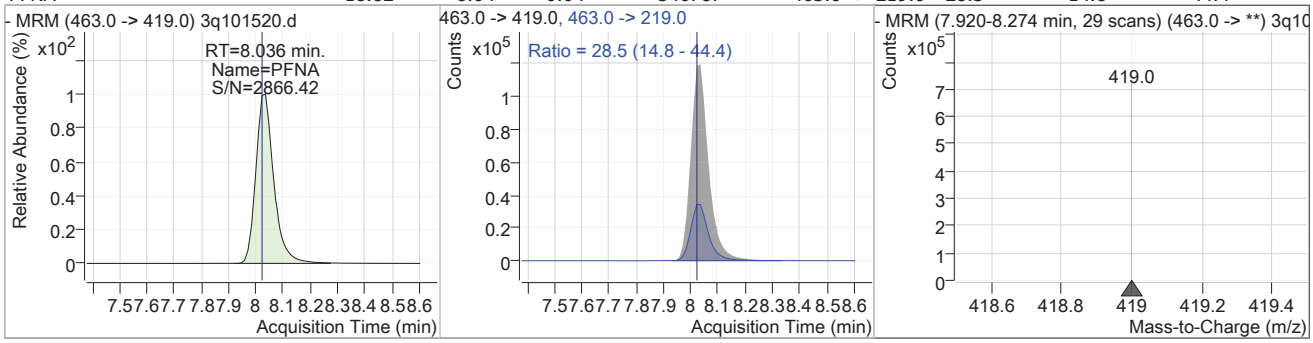
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	20.42	8.00	0.03	152187 (m)	499.0 -> 99.0	51.2	25.9	77.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	11.49	8.02	0.03	354687				

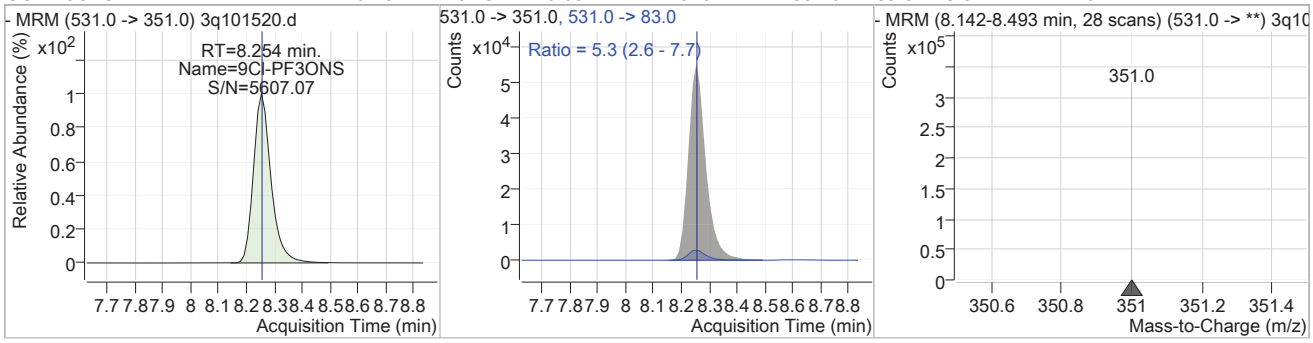


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	18.82	8.04	0.04	546787	463.0 -> 219.0	28.5	14.8	44.4

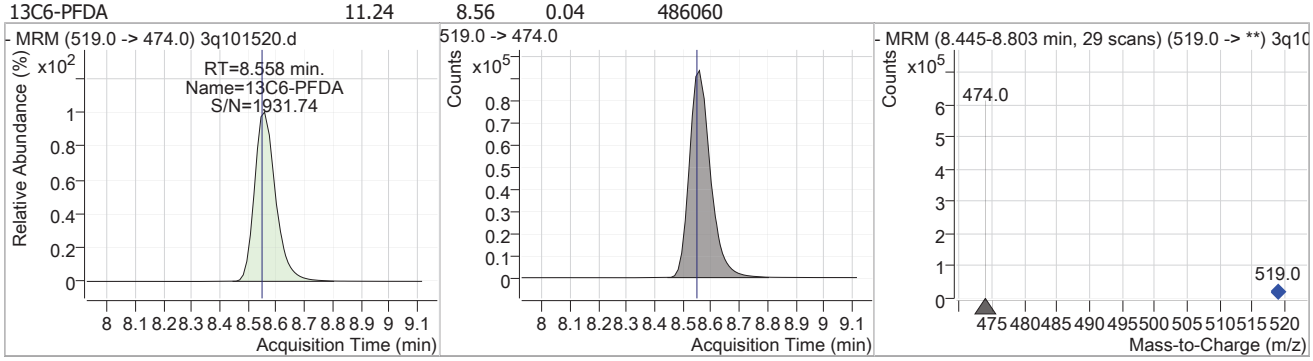


Perfluorinated Compounds by LC/MS/MS

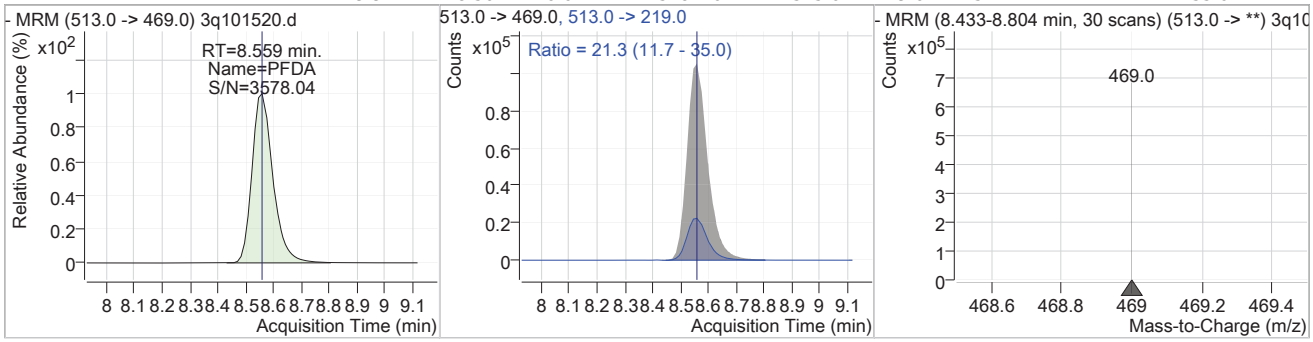
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	20.26	8.25	0.03	243287	531.0 -> 83.0	5.3	2.6	7.7



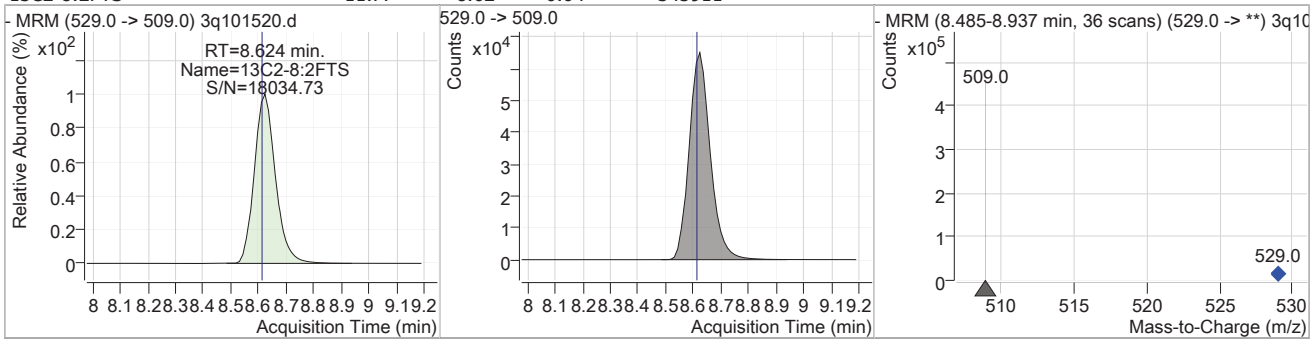
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	11.24	8.56	0.04	486060				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.94	8.56	0.04	548220	513.0 -> 219.0	21.3	11.7	35.0

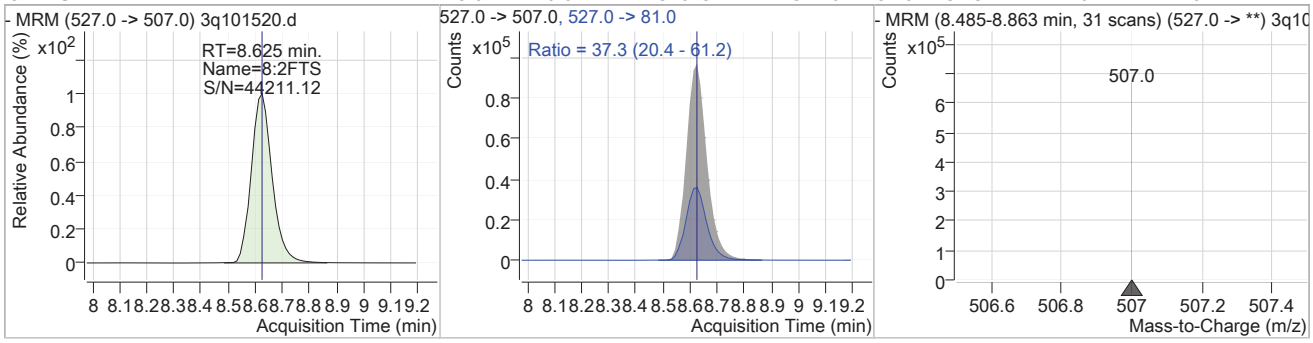


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	11.77	8.62	0.04	345911				

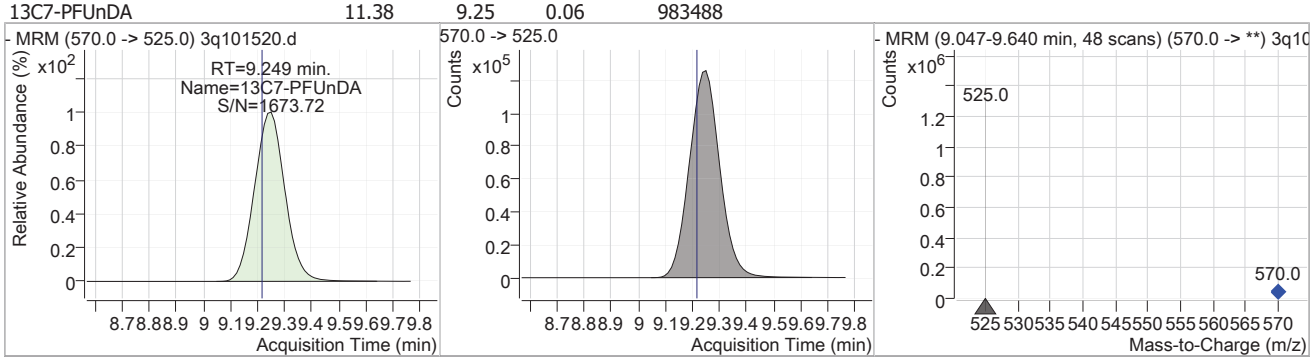


Perfluorinated Compounds by LC/MS/MS

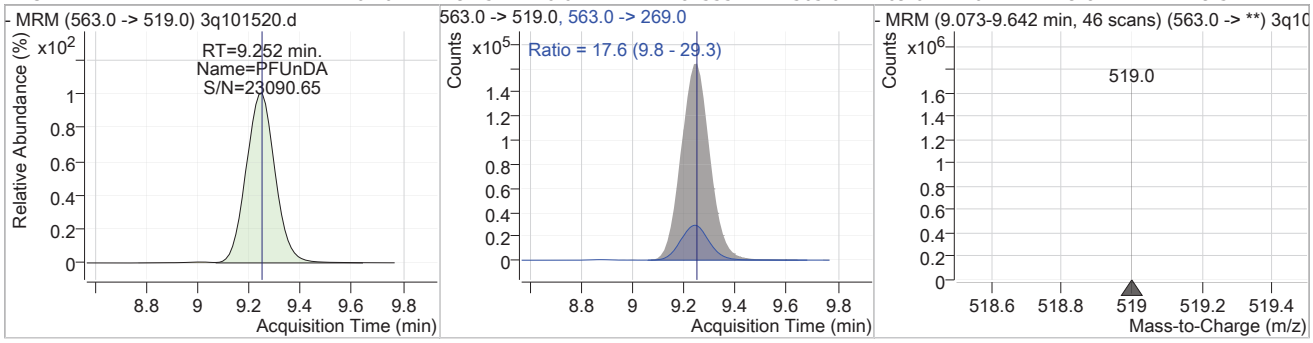
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.72	8.62	0.04	516254	527.0 -> 81.0	37.3	20.4	61.2



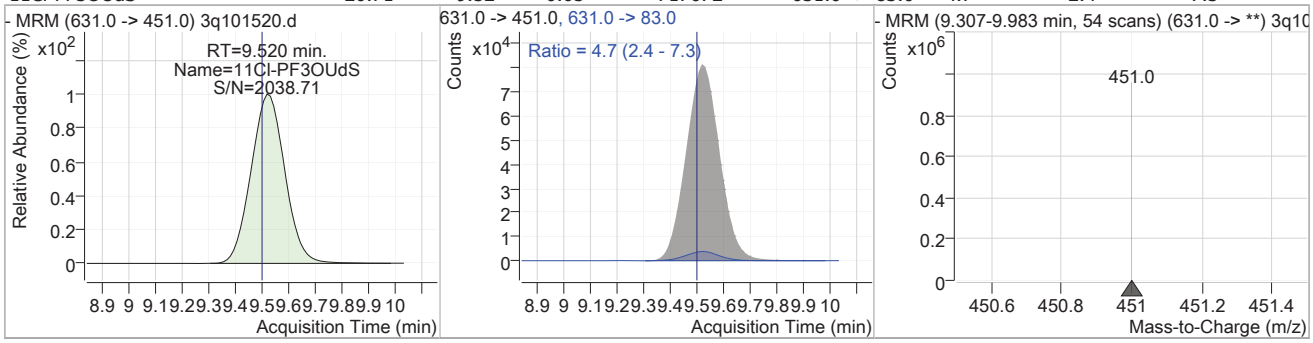
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	11.38	9.25	0.06	983488				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	20.26	9.25	0.07	1284335	563.0 -> 269.0	17.6	9.8	29.3

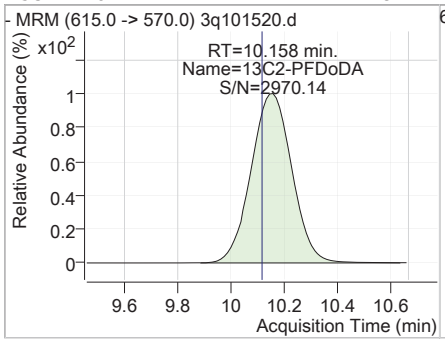


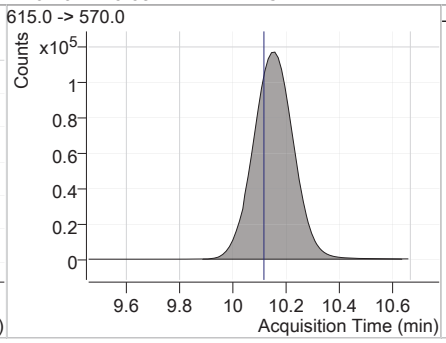
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	20.71	9.52	0.05	717072	631.0 -> 83.0	4.7	2.4	7.3

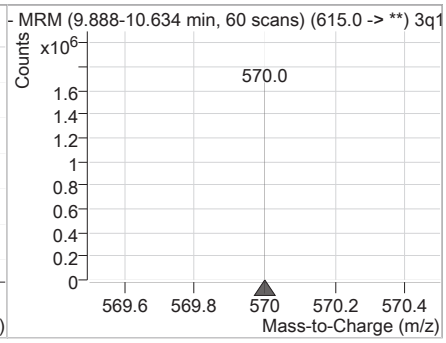


Perfluorinated Compounds by LC/MS/MS

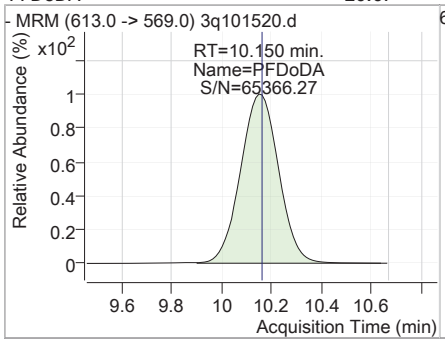
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	11.29	10.16	0.08	1242577				

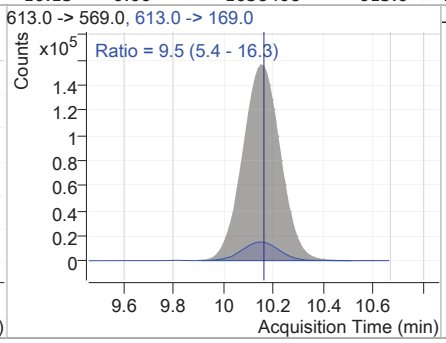


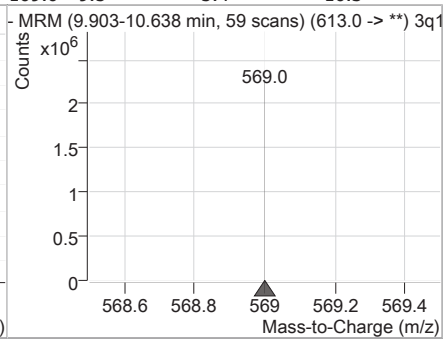




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	20.07	10.15	0.06	1658408	613.0 -> 169.0	9.5	5.4	16.3







Manual Integration Approval Summary

Sample Number:	S3Q1494-CC1492	**Method:**	EPA 533
Lab FileID:	3Q101520.D	**Analyst approved:**	04/18/25 08:08 (b) (6)
Injection Time:	04/17/25 10:51	**Supervisor approved:**	04/18/25 10:08 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.75	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.00	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 10:08

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101521.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/17/2025 11:07:11 AM
Sample Name : cc1492-0.5LL
Vial : P1-C2
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1494.batch.bin
Sample Information : op8907,S3Q1494,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.447	415.0 -> 370.0	270585	10.00 µg/L	0.025
13C3-PFBA	2.369	216.0 -> 172.0	104981	10.00 µg/L	0.025
13C4-PFOS	7.995	503.0 -> 80.0	40958	10.00 µg/L	0.026
M4-PFBA	2.365	217.0 -> 172.0	189674	10.00 µg/L	0.025
M5-PFPeA	4.438	268.0 -> 223.0	227822	10.00 µg/L	0.025
M5-PFHxA	5.801	318.0 -> 273.0	294517	10.00 µg/L	0.025
M4-PFHpA	6.719	367.0 -> 322.0	248477	10.00 µg/L	0.025
M8-PFOA	7.447	421.0 -> 376.0	331277	10.00 µg/L	0.025
M9-PFNA	8.035	472.0 -> 427.0	368996	10.00 µg/L	0.038
M6-PFDA	8.558	519.0 -> 474.0	489752	10.00 µg/L	0.038
M7-PFUnDA	9.249	570.0 -> 525.0	1005710	10.00 µg/L	0.064
M2-PFDoDA	10.158	615.0 -> 570.0	1279429	10.00 µg/L	0.075
M3-PFBS	4.733	302.0 -> 99.0	25653	10.00 µg/L	0.025
M3-PFHxS	6.749	402.0 -> 99.0	37117	10.00 µg/L	0.025
M8-PFOS	8.008	507.0 -> 99.0	47962	10.00 µg/L	0.039
M2-4:2FTS	5.697	329.0 -> 309.0	98069	10.00 µg/L	0.025
M2-6:2FTS	7.445	429.0 -> 409.0	191245	10.00 µg/L	0.025
M2-8:2FTS	8.624	529.0 -> 509.0	325180	10.00 µg/L	0.039
M3-HFPO-DA	6.081	287.0 -> 169.0	3391	10.00 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.697	329.0 -> 309.0	98069	10.06 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C2-6:2FTS	7.445	429.0 -> 409.0	191249	10.45 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C2-8:2FTS	8.624	529.0 -> 509.0	325180	10.60 µg/L	0.039
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C2-PFDoDA	10.158	615.0 -> 570.0	1279429	11.11 µg/L	0.075
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.1%	
13C3-PFBS	4.733	302.0 -> 99.0	25653	10.04 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C3-PFHxS	6.749	402.0 -> 99.0	37117	10.20 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C4-PFBA	2.365	217.0 -> 172.0	189674	10.65 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C4-PFHpA	6.719	367.0 -> 322.0	248477	10.85 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.5%	
13C5-PFHxA	5.801	318.0 -> 273.0	294517	10.74 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C5-PFPeA	4.438	268.0 -> 223.0	227822	10.61 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C6-PFDA	8.558	519.0 -> 474.0	489752	10.82 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.2%	
13C7-PFUnDA	9.249	570.0 -> 525.0	1005710	11.12 µg/L	0.064
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.2%	
13C8-PFOA	7.447	421.0 -> 376.0	331277	11.15 µg/L	0.025

Perfluorinated Compounds by LC/MS/MS

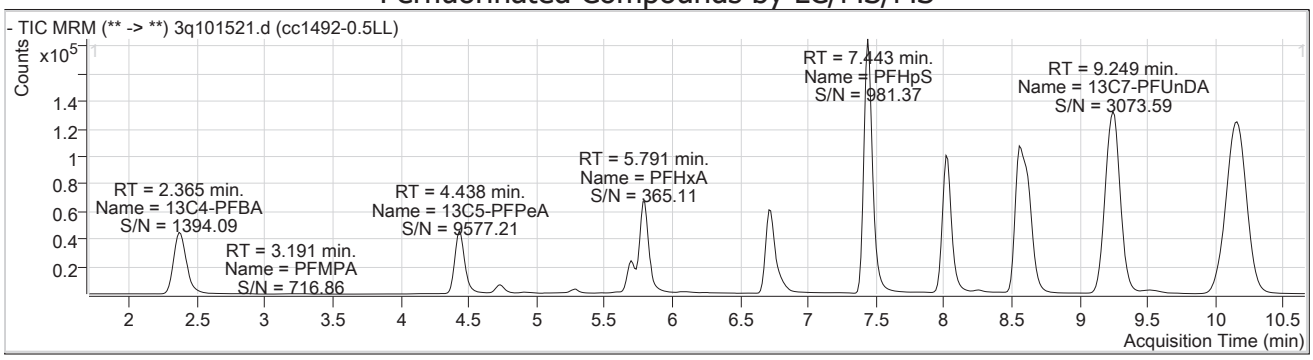
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.5%		
13C8-PFOS	8.008	507.0 -> 99.0	47962	10.30 µg/L		0.039
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.0%		
13C9-PFNA	8.035	472.0 -> 427.0	368996	11.42 µg/L		0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.2%		
13C3-HFPO-DA	6.081	287.0 -> 169.0	3391	8.60 µg/L		0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 86.0%		
Target Compounds						QValue
PFMPA	3.191	229.0 -> 85.0	2719	0.44 µg/L		100
4:2FTS	5.699	327.0 -> 307.0	5156	0.43 µg/L		98
		327.0 -> 81.0	2130			
6:2FTS	7.445	427.0 -> 407.0	7009	0.43 µg/L		98
		427.0 -> 81.0	3028			
8:2FTS	8.625	527.0 -> 507.0	11423	0.51 µg/L		99
		527.0 -> 81.0	4556			
PFMBA	4.926	279.0 -> 85.0	3638	0.43 µg/L		100
PFEESA	5.286	315.0 -> 135.0	10320	0.45 µg/L		99
		315.0 -> 69.0	761			
NFDHA	5.607	201.0 -> 85.0	3285	0.45 µg/L		99
		295.0 -> 201.0	200			
PFBA	2.373	213.0 -> 169.0	2229	0.43 µg/L		100
PFBS	4.735	299.0 -> 80.0	2082	0.40 µg/L		90
		299.0 -> 99.0	1012			
PFDA	8.559	513.0 -> 469.0	12293	0.44 µg/L		97
		513.0 -> 219.0	2700			
PFDoDA	10.150	613.0 -> 569.0	38885	0.46 µg/L		97
		613.0 -> 169.0	3794			
PFHpA	6.720	363.0 -> 319.0	14847	0.43 µg/L		100
		363.0 -> 169.0	1223			
PFHpS	7.443	449.0 -> 80.0	3199	0.47 µg/L		98
		449.0 -> 99.0	1833			
PFHxA	5.791	313.0 -> 269.0	11554	0.42 µg/L		99
		313.0 -> 119.0	437			
PFHxS	6.750	399.0 -> 80.0	3084	0.47 µg/L	m	96
		399.0 -> 99.0	1681			
PFNA	8.036	463.0 -> 419.0	12321	0.41 µg/L		100
		463.0 -> 219.0	3624			
PFOA	7.448	413.0 -> 369.0	10869	0.43 µg/L		98
		413.0 -> 169.0	4187			
PFOS	7.996	499.0 -> 80.0	3615	0.47 µg/L	m	98
		499.0 -> 99.0	1930			
PFPeA	4.440	263.0 -> 219.0	7604	0.44 µg/L		100
PFPeS	5.908	349.0 -> 80.0	1710	0.45 µg/L		99
		349.0 -> 99.0	729			
PFUnDA	9.252	563.0 -> 519.0	28808	0.44 µg/L		98
		563.0 -> 269.0	5862			
11Cl-PF3OUdS	9.532	631.0 -> 451.0	16517	0.46 µg/L		99
		631.0 -> 83.0	844			
9Cl-PF3ONS	8.254	531.0 -> 351.0	5506	0.45 µg/L		99
		531.0 -> 83.0	298			
ADONA	6.805	377.0 -> 251.0	21723	0.40 µg/L		99
		377.0 -> 85.0	2714			
HFPO-DA	6.073	329.0 -> 169.0	43	0.51 µg/L		92
		285.0 -> 169.0	99			

 # = Qualifier out of range, m = manually integrated, + = Area summed

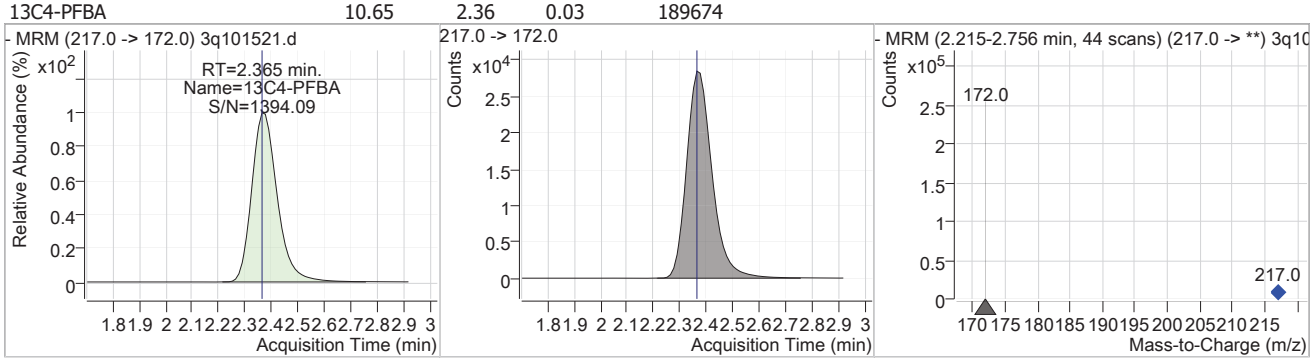
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

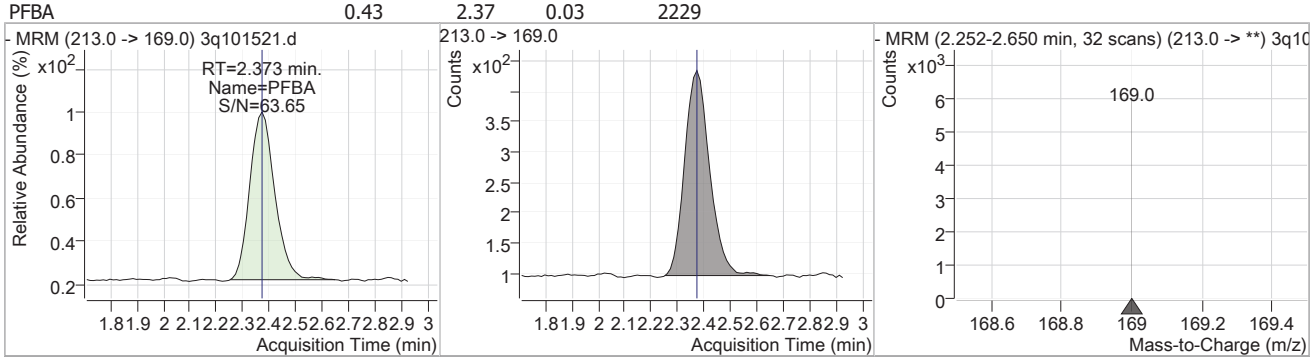
Perfluorinated Compounds by LC/MS/MS



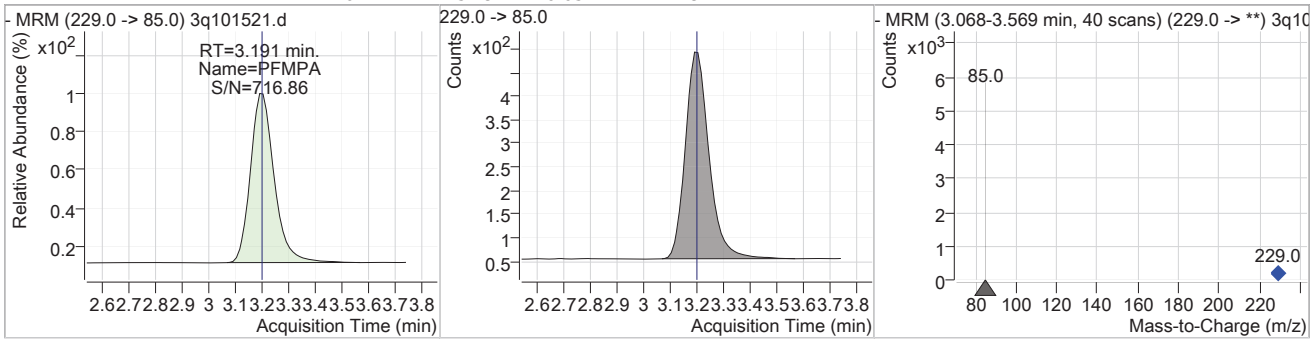
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.65	2.36	0.03	189674				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.43	2.37	0.03	2229				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	0.44	3.19	0.03	2719				



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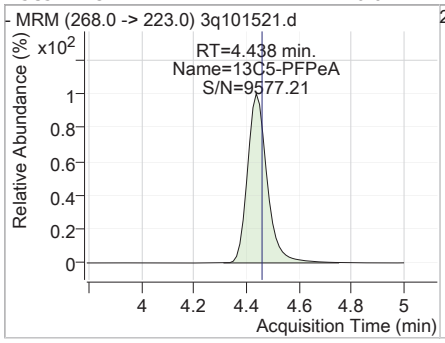
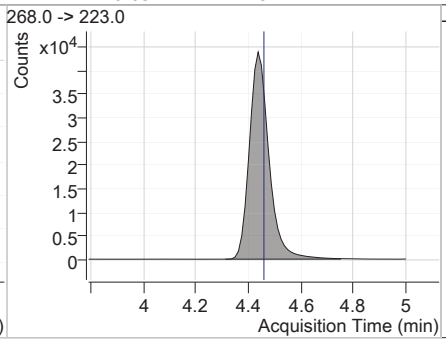
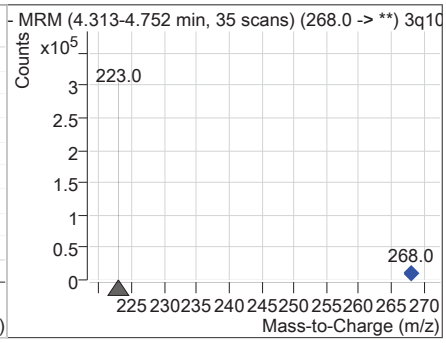
Perfluorinated Compounds by LC/MS/MS

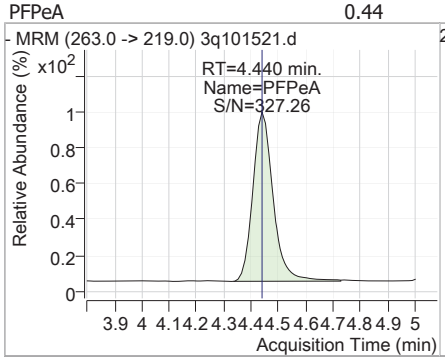
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.61	4.44	0.03	227822				

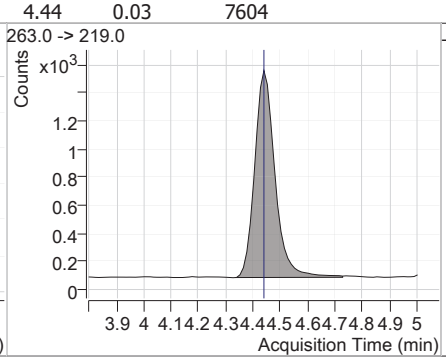


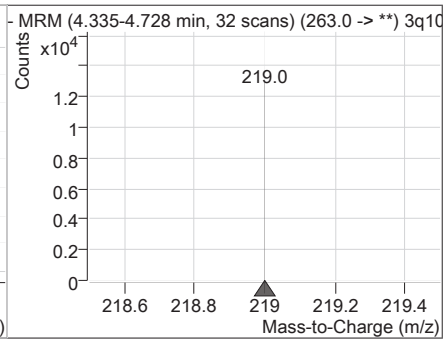




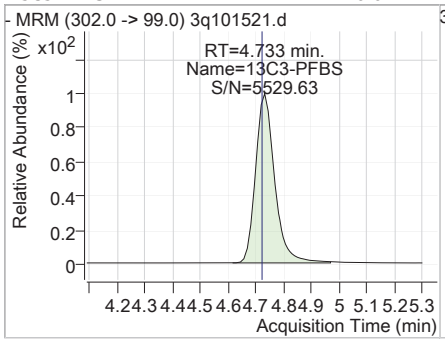
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.44	4.44	0.03	7604				

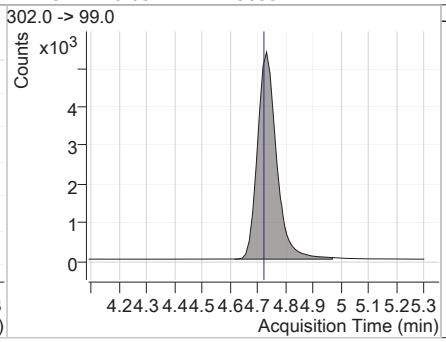


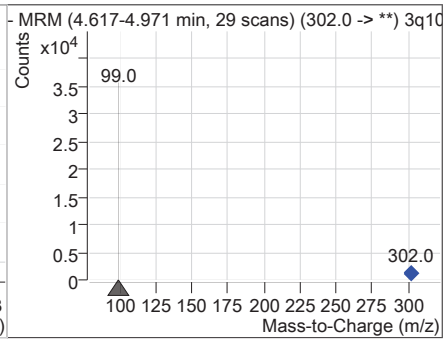




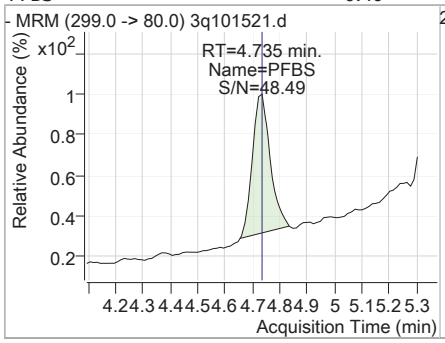
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.04	4.73	0.03	25653				

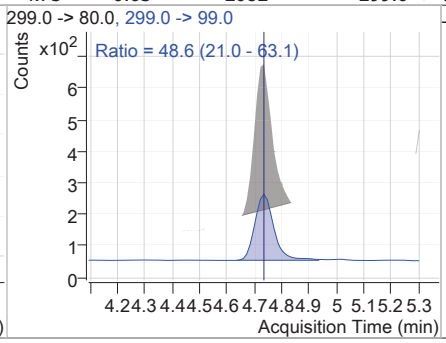


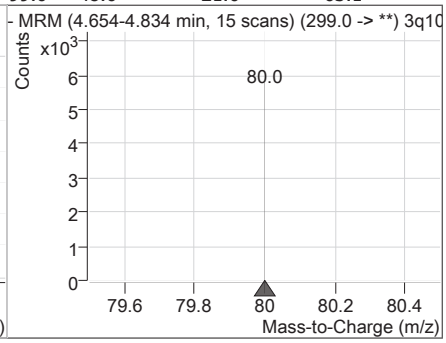




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.40	4.73	0.03	2082	299.0 -> 99.0	48.6	21.0	63.1

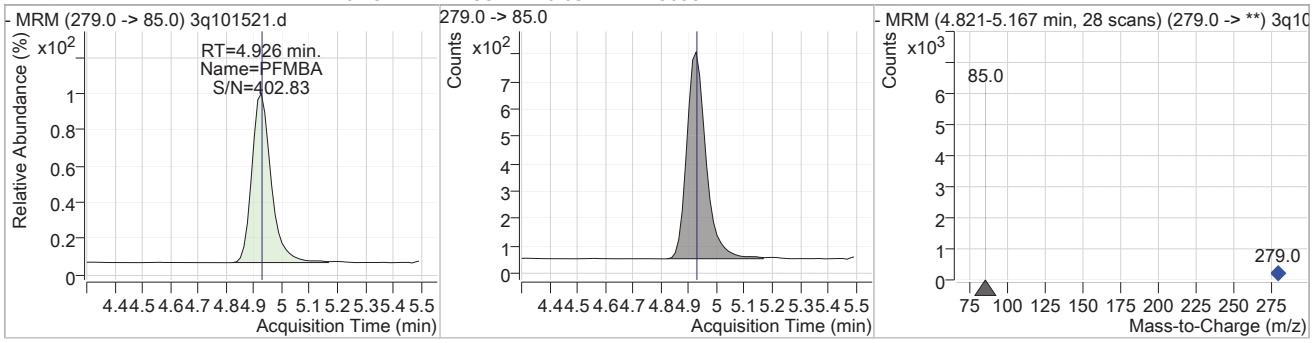




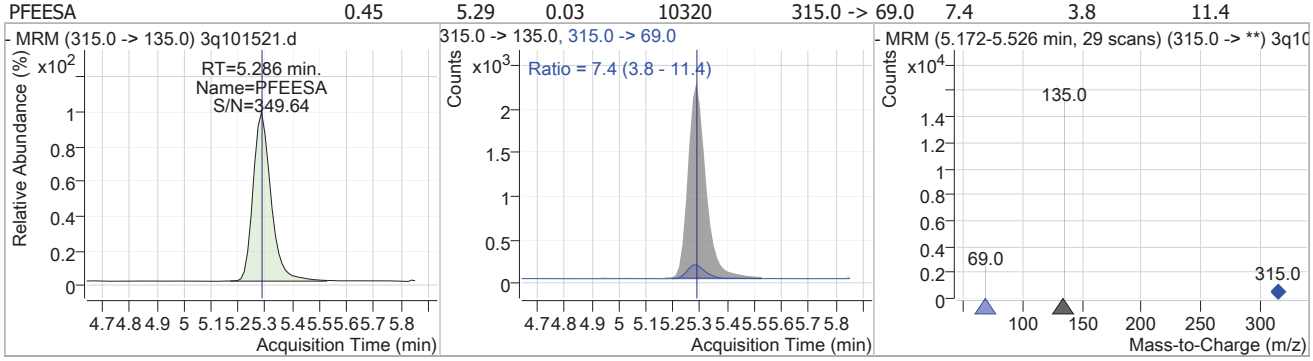


Perfluorinated Compounds by LC/MS/MS

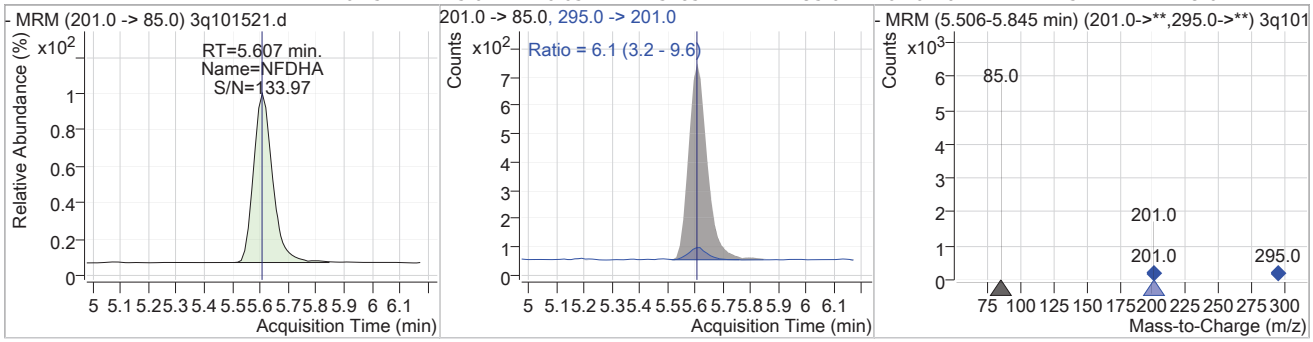
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.43	4.93	0.03	3638				



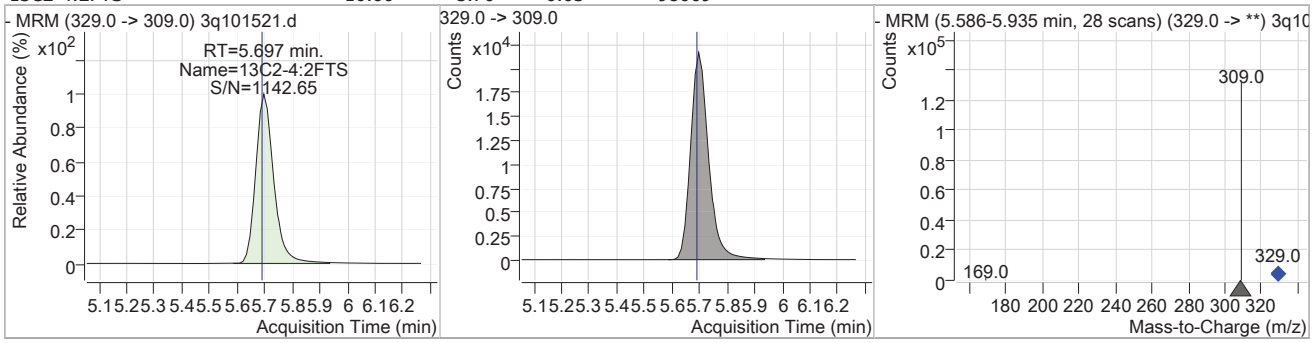
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.45	5.29	0.03	10320	315.0 -> 69.0	7.4	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	0.45	5.61	0.03	3285	295.0 -> 201.0	6.1	3.2	9.6

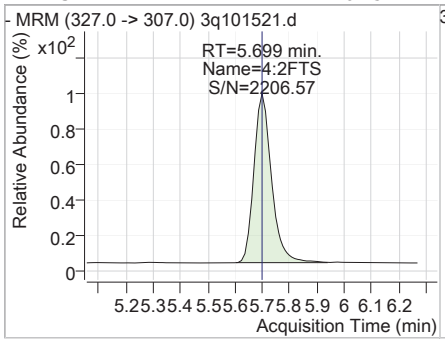


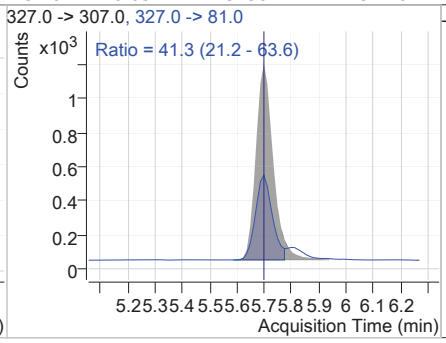
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	10.06	5.70	0.03	98069				

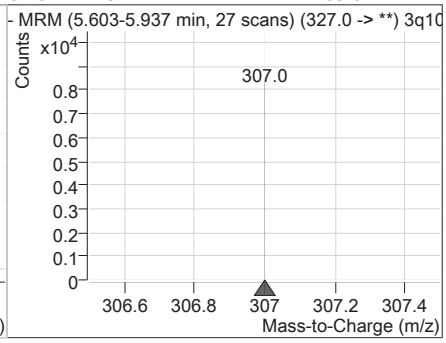


Perfluorinated Compounds by LC/MS/MS

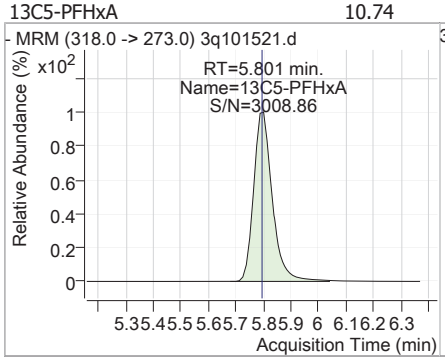
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	0.43	5.70	0.03	5156	327.0 -> 81.0	41.3	21.2	63.6

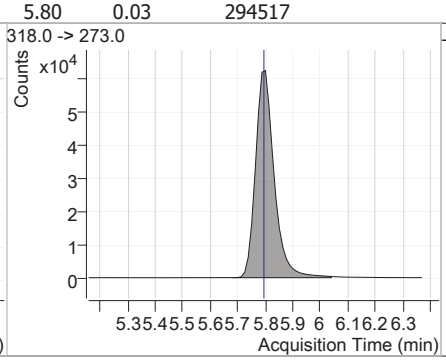


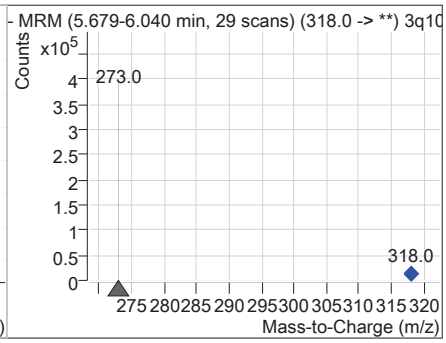




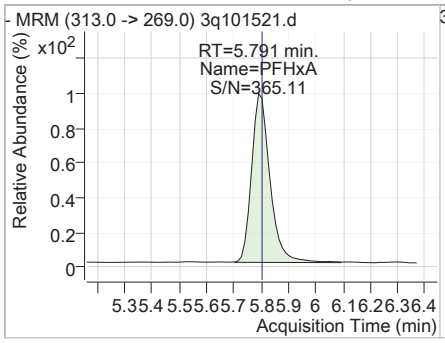
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.74	5.80	0.03	294517				

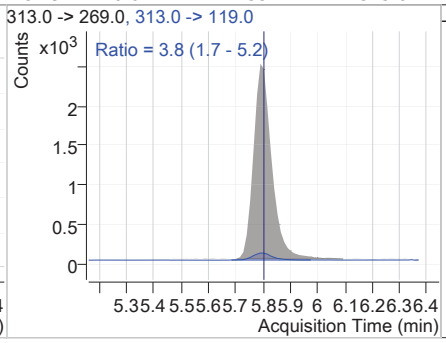


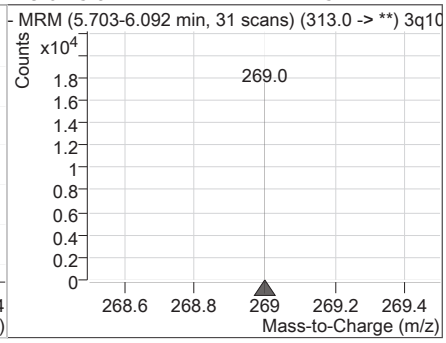




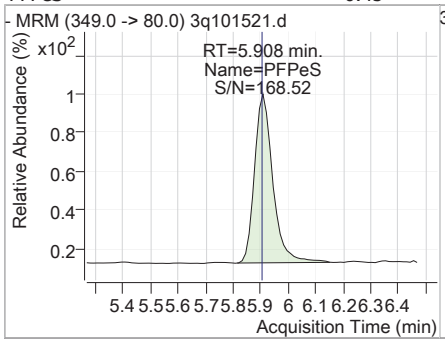
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.42	5.79	0.01	11554	313.0 -> 119.0	3.8	1.7	5.2

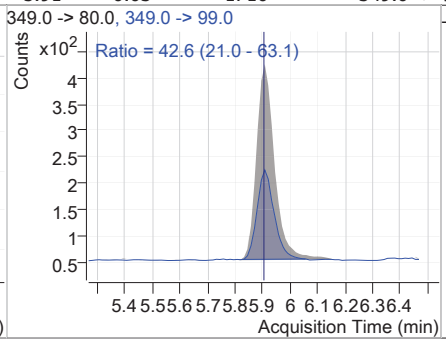


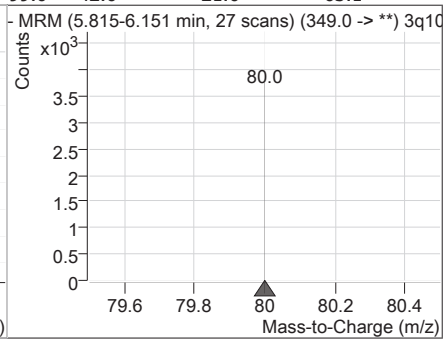




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.45	5.91	0.03	1710	349.0 -> 99.0	42.6	21.0	63.1







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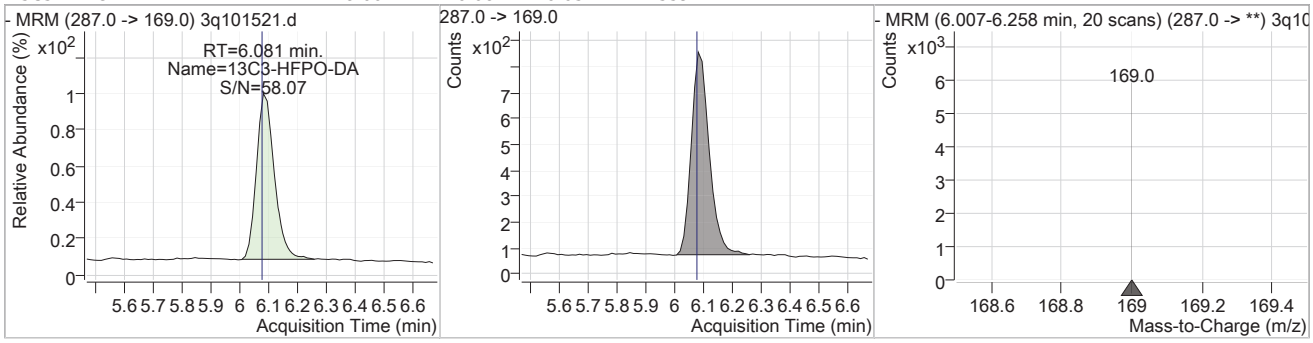
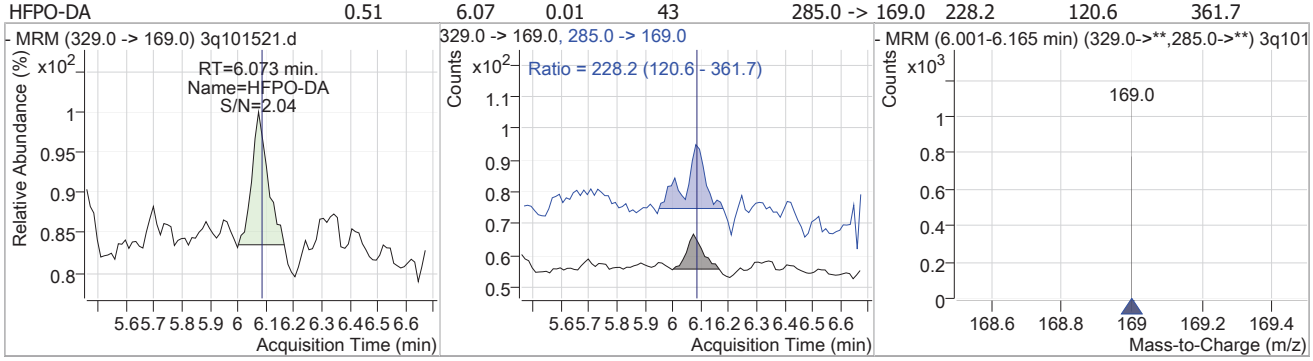
Perfluorinated Compounds by LC/MS/MS

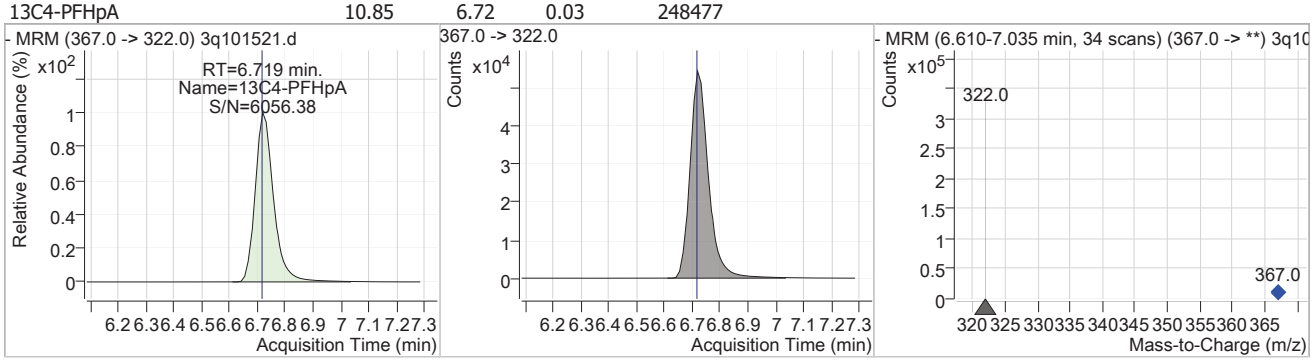
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.60	6.08	0.03	3391				



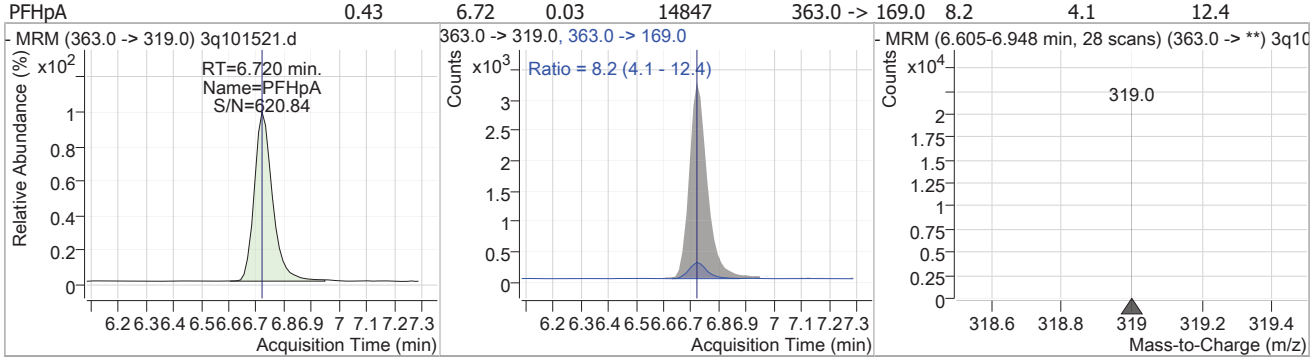
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.51	6.07	0.01	43	285.0 -> 169.0	228.2	120.6	361.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	10.85	6.72	0.03	248477				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.43	6.72	0.03	14847	363.0 -> 169.0	8.2	4.1	12.4



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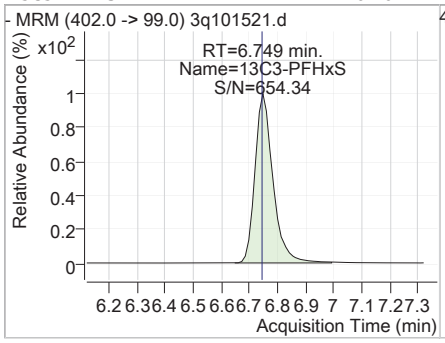
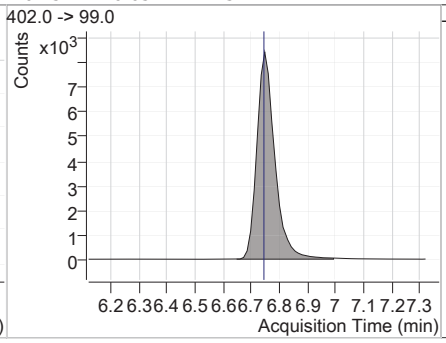
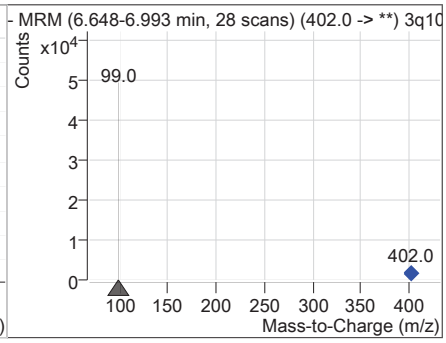
Perfluorinated Compounds by LC/MS/MS

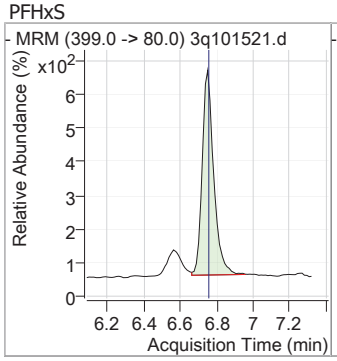
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.20	6.75	0.03	37117				

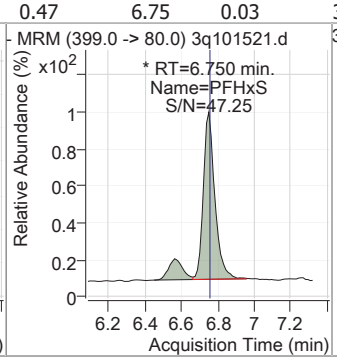


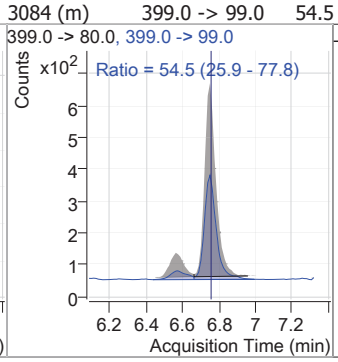


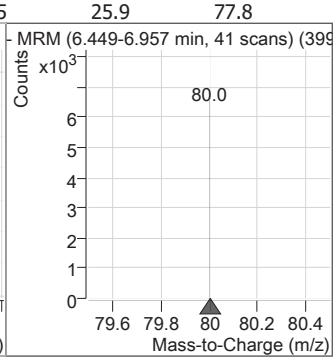


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.47	6.75	0.03	3084 (m)	399.0 -> 99.0	54.5	25.9	77.8

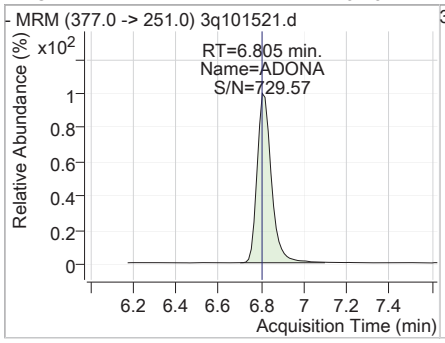


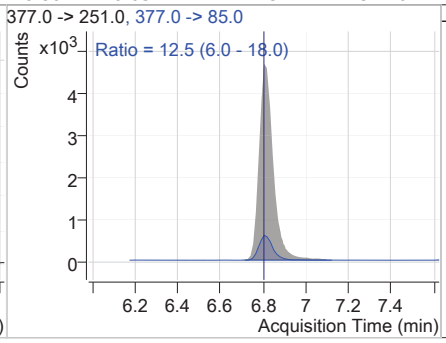


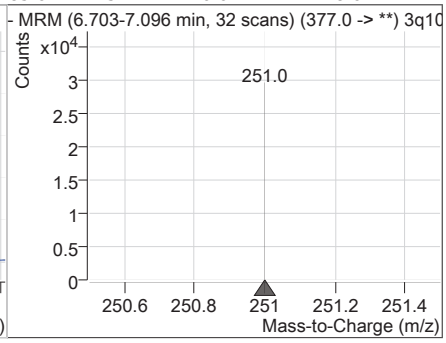




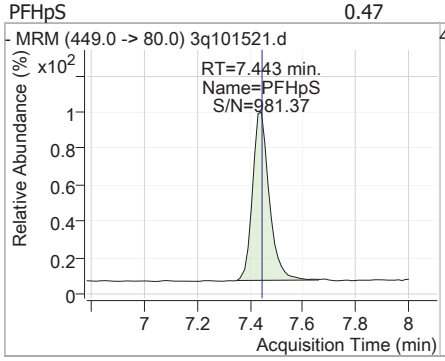
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.40	6.80	0.03	21723	377.0 -> 85.0	12.5	6.0	18.0

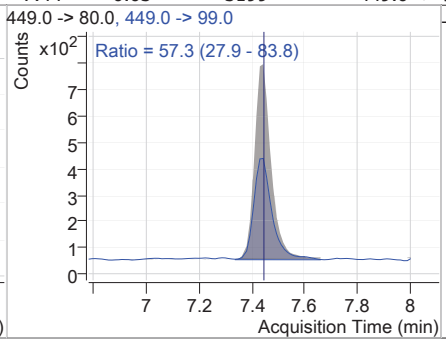


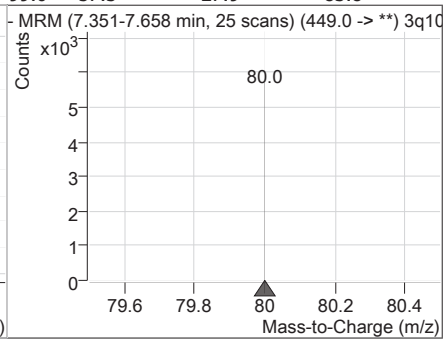




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.47	7.44	0.03	3199	449.0 -> 99.0	57.3	27.9	83.8







7.7.14

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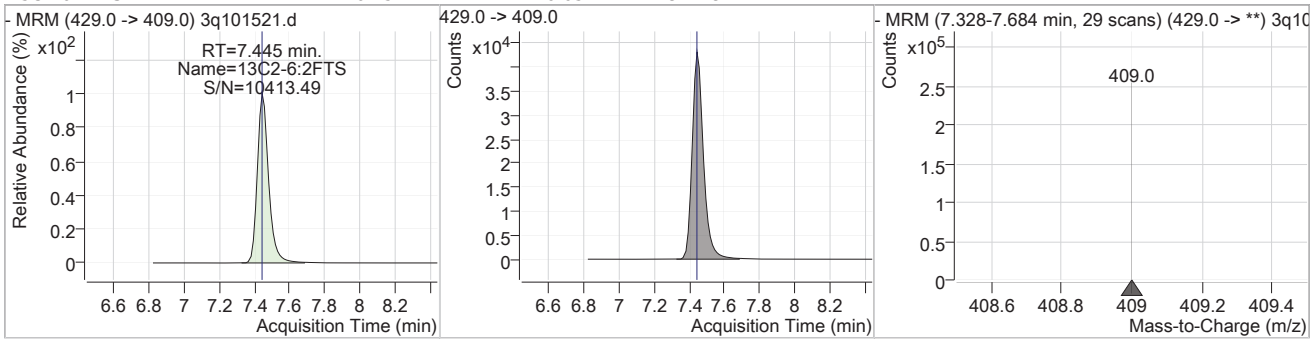
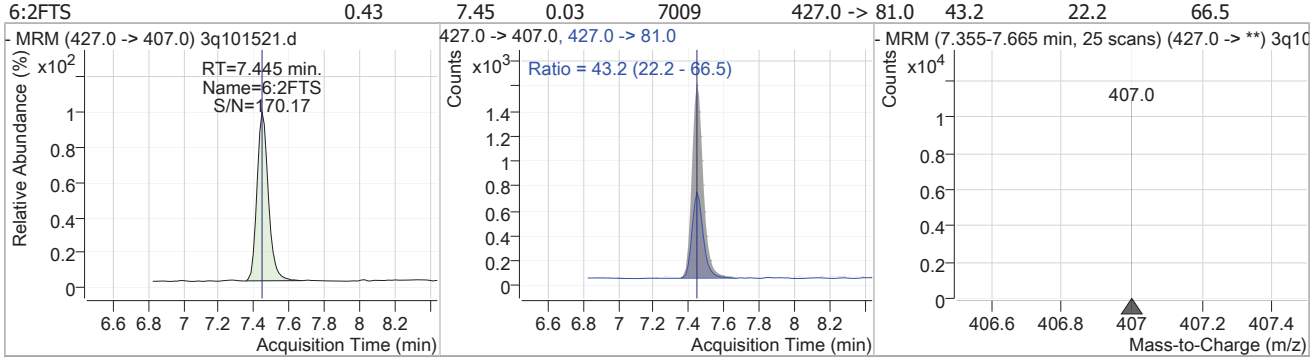
Perfluorinated Compounds by LC/MS/MS

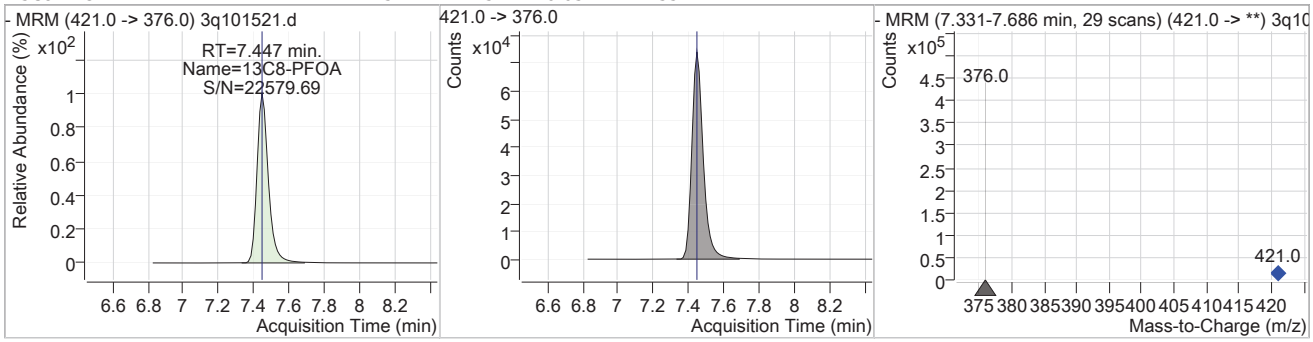
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	10.45	7.44	0.03	191249				



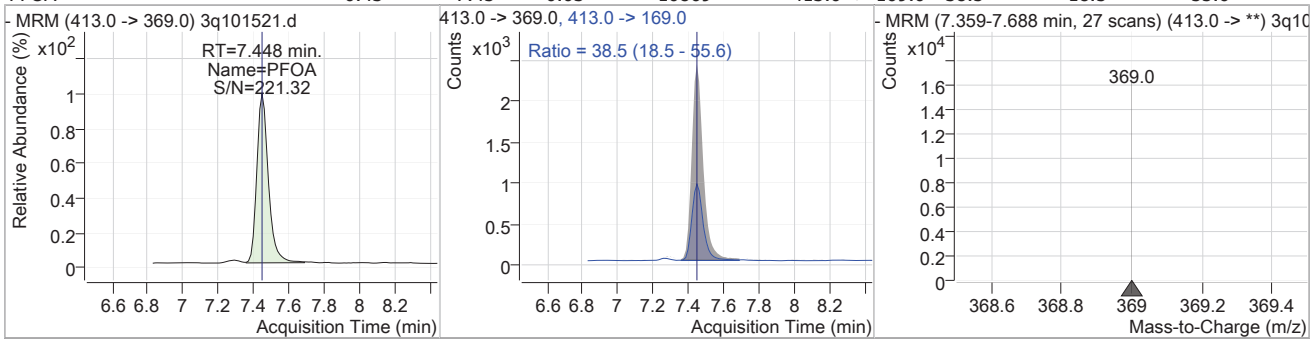
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.43	7.45	0.03	7009	427.0 -> 81.0	43.2	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	11.15	7.45	0.03	331277				

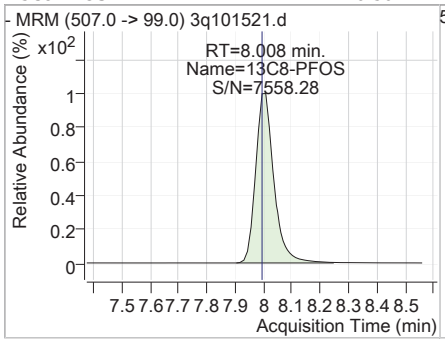


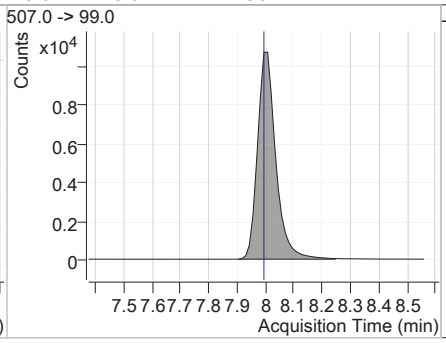
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.43	7.45	0.03	10869	413.0 -> 169.0	38.5	18.5	55.6

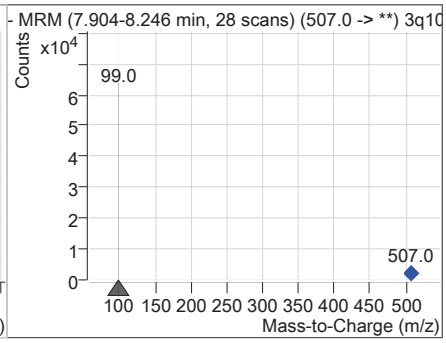


Perfluorinated Compounds by LC/MS/MS

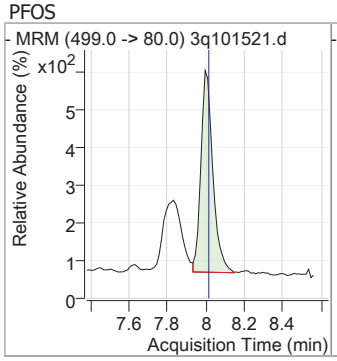
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.30	8.01	0.04	47962				

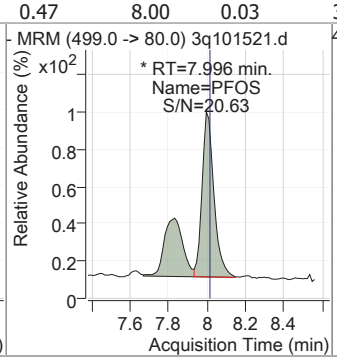


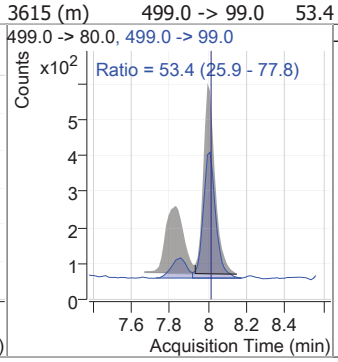


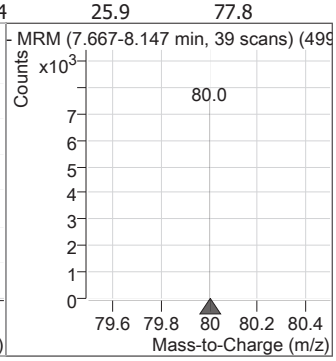


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.47	8.00	0.03	3615 (m)	499.0 -> 99.0	53.4	25.9	77.8

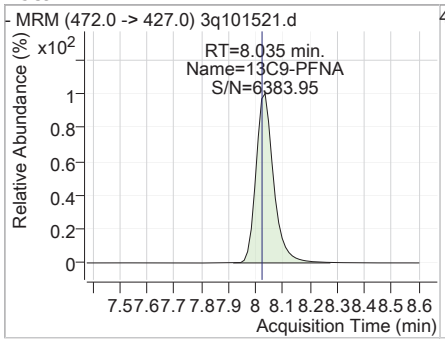


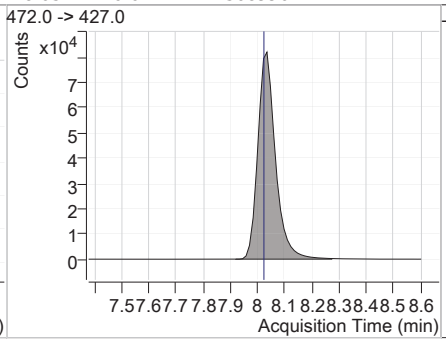


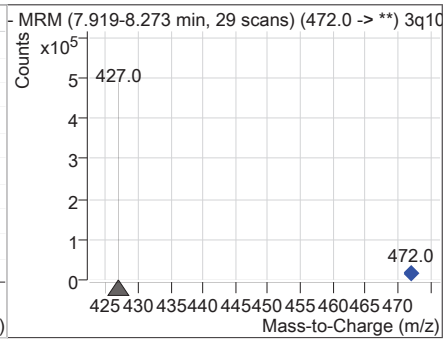




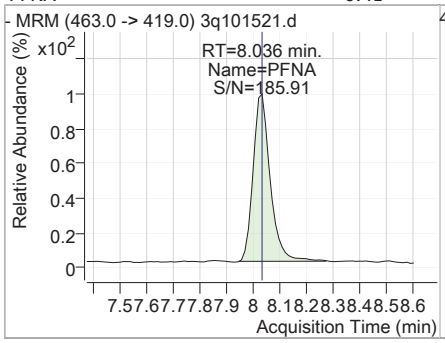
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	11.42	8.03	0.04	368996				

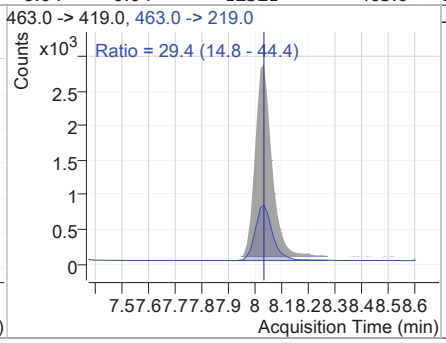


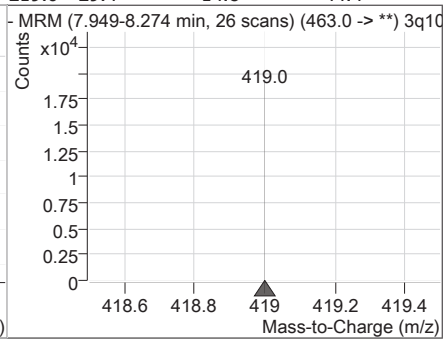




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.41	8.04	0.04	12321	463.0 -> 219.0	29.4	14.8	44.4

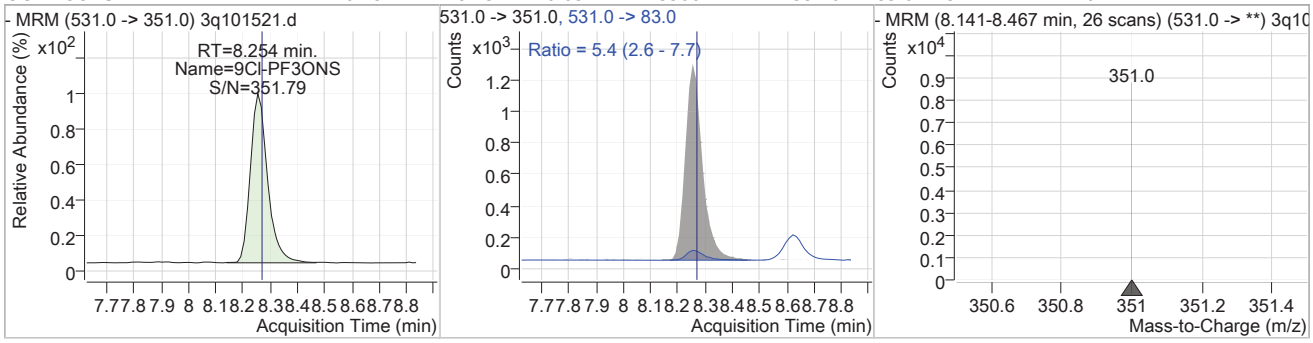




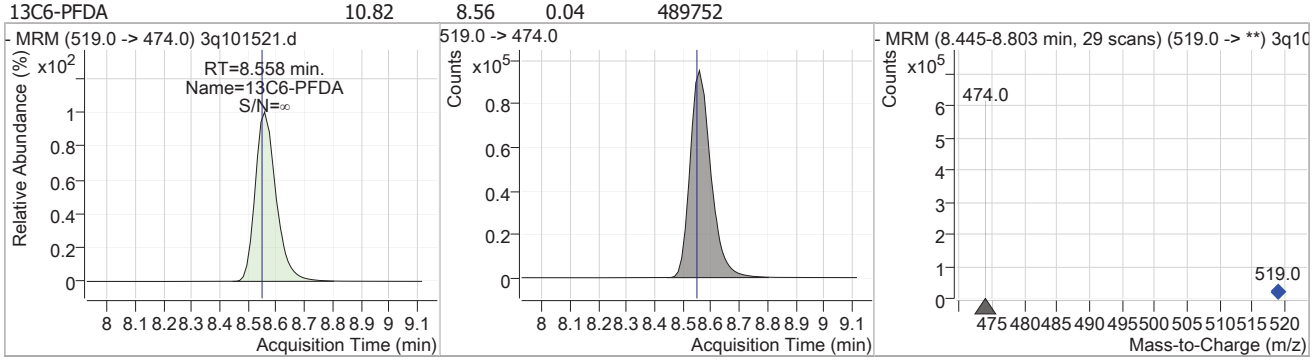


Perfluorinated Compounds by LC/MS/MS

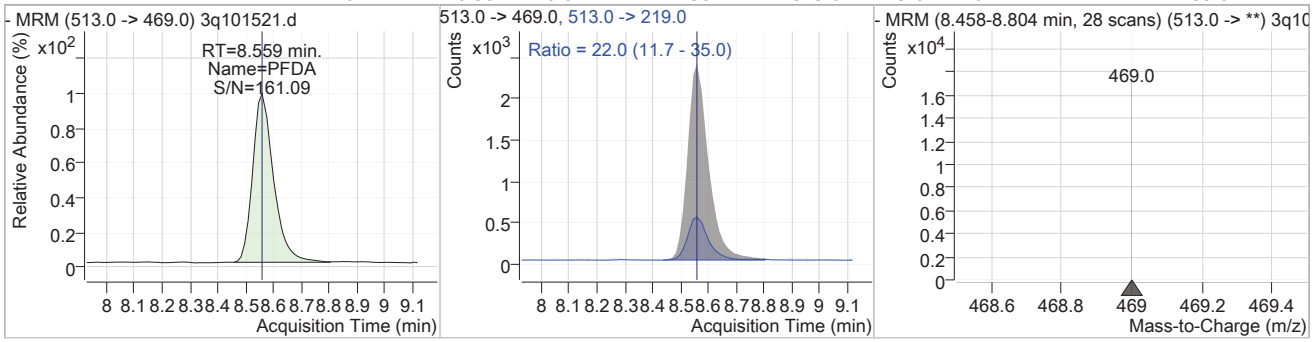
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.45	8.25	0.03	5506	531.0 -> 83.0	5.4	2.6	7.7



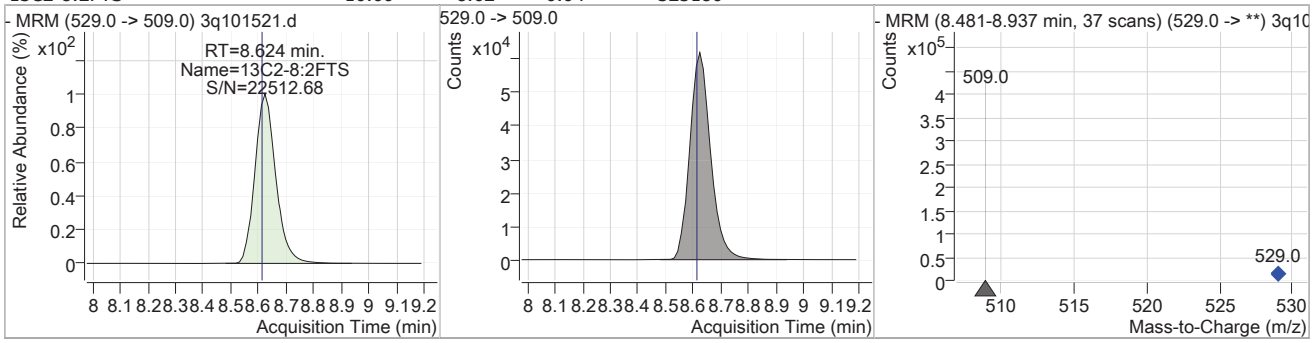
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	10.82	8.56	0.04	489752				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.44	8.56	0.04	12293	513.0 -> 219.0	22.0	11.7	35.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	10.60	8.62	0.04	325180				



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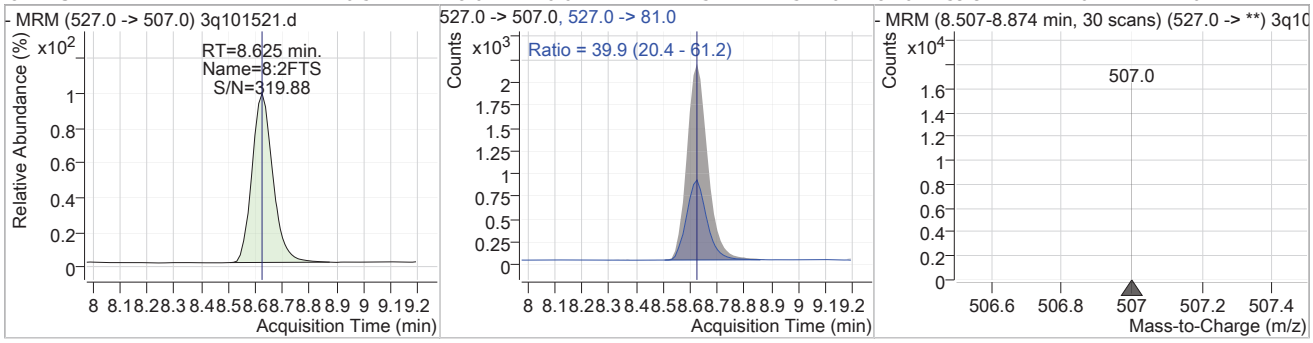
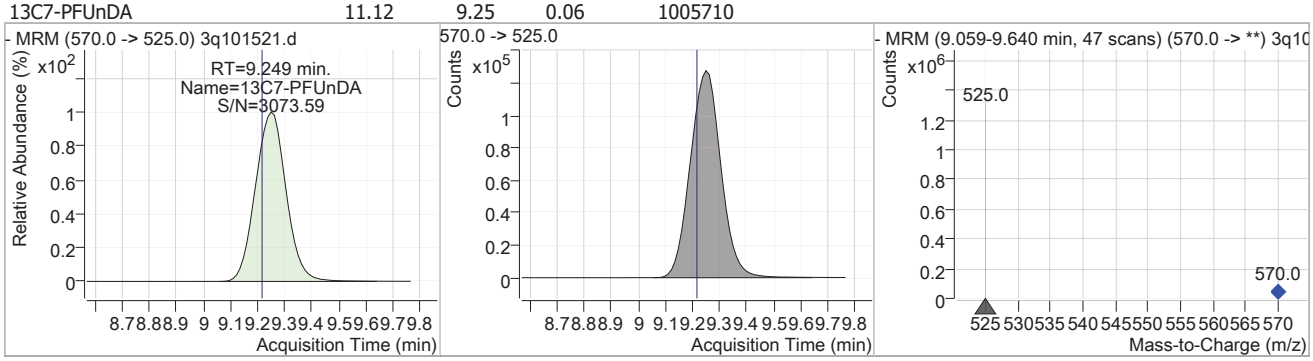
Perfluorinated Compounds by LC/MS/MS

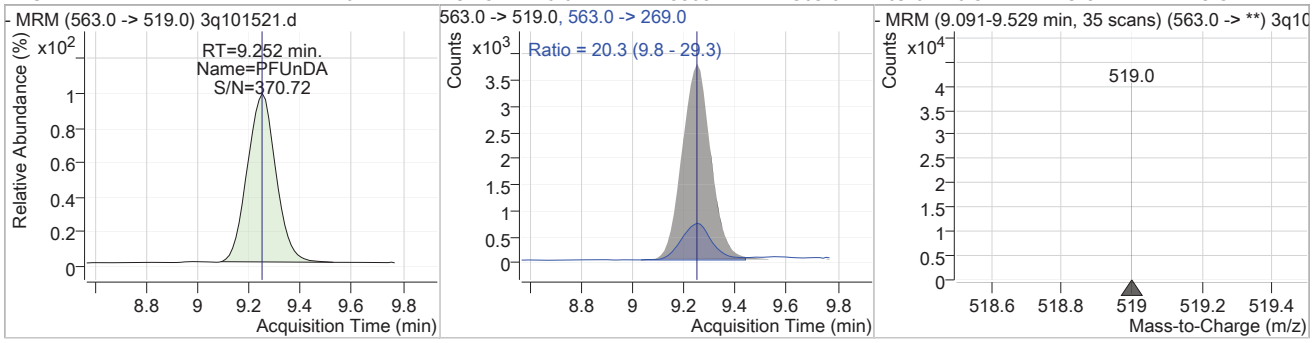
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.51	8.62	0.04	11423	527.0 -> 81.0	39.9	20.4	61.2



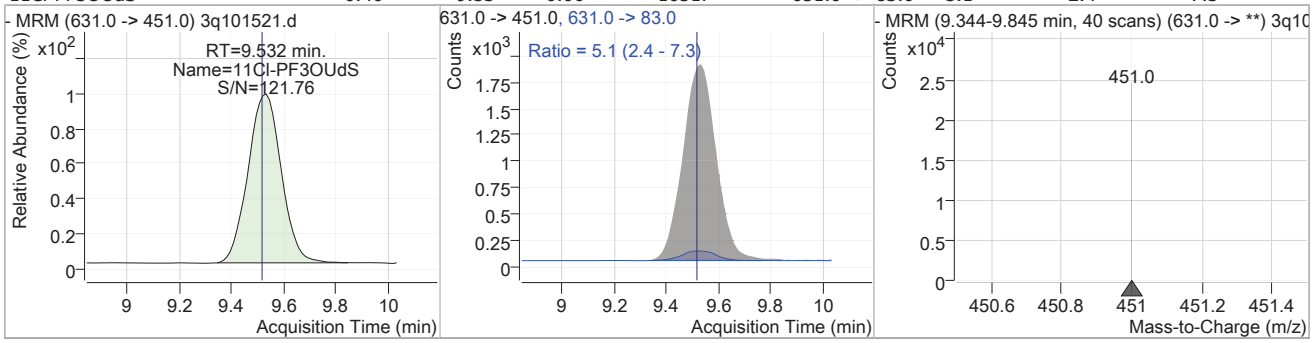
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	11.12	9.25	0.06	1005710				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.44	9.25	0.07	28808	563.0 -> 269.0	20.3	9.8	29.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.46	9.53	0.06	16517	631.0 -> 83.0	5.1	2.4	7.3



7.7.14

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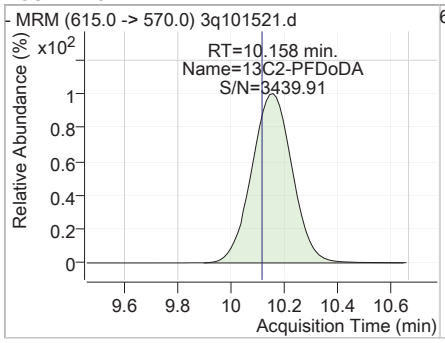
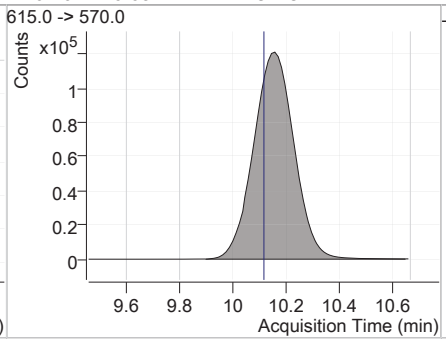
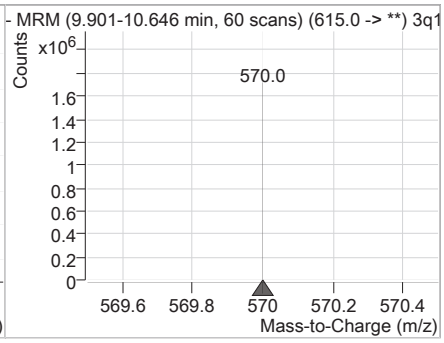
Perfluorinated Compounds by LC/MS/MS

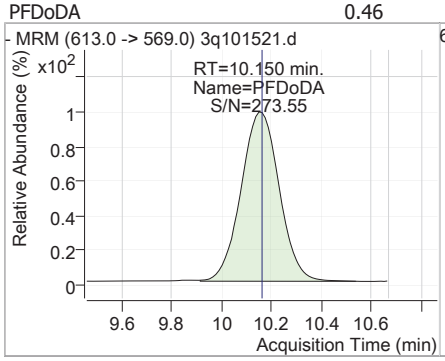
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	11.11	10.16	0.08	1279429				

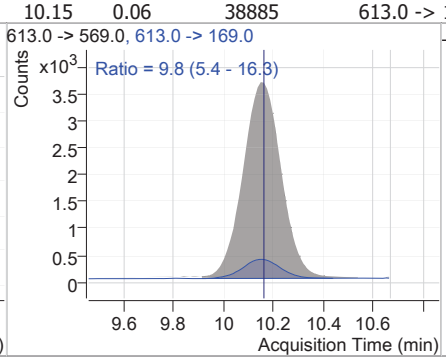


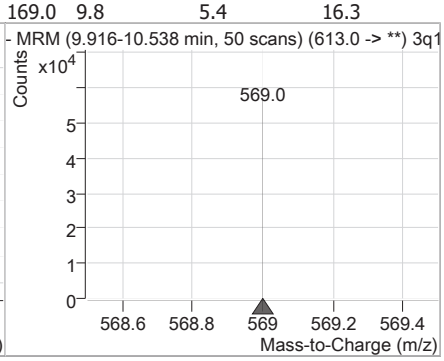




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.46	10.15	0.06	38885	613.0 -> 169.0	9.8	5.4	16.3







Manual Integration Approval Summary

Sample Number:	S3Q1494-CC1492	**Method:**	EPA 533
Lab FileID:	3Q101521.D	**Analyst approved:**	04/18/25 08:08 (b) (6)
Injection Time:	04/17/25 11:07	**Supervisor approved:**	04/18/25 10:08 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.75	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.00	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 10:08

Perfluorinated Compounds by LC/MS/MS

Data File : 3q101533.d
Operator : (b) (6)
Acq. Method : 533.m
Acq. Date-Time : 4/17/2025 2:20:15 PM
Sample Name : cc1492-20
Vial : P1-C7
DA Method File : 533_041525_S3Q1492.quantmethod.xml
Batch Name : s3q1494.batch.bin
Sample Information : op8907,S3Q1494,250,,,1,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	7.447	415.0 -> 370.0	257894	10.00 µg/L	0.025
13C3-PFBA	2.357	216.0 -> 172.0	104192	10.00 µg/L	0.013
13C4-PFOS	7.995	503.0 -> 80.0	38759	10.00 µg/L	0.026
M4-PFBA	2.352	217.0 -> 172.0	190123	10.00 µg/L	0.013
M5-PFPeA	4.425	268.0 -> 223.0	224937	10.00 µg/L	0.013
M5-PFHxA	5.788	318.0 -> 273.0	286412	10.00 µg/L	0.013
M4-PFHpA	6.719	367.0 -> 322.0	240523	10.00 µg/L	0.025
M8-PFOA	7.447	421.0 -> 376.0	318657	10.00 µg/L	0.025
M9-PFNA	8.035	472.0 -> 427.0	355866	10.00 µg/L	0.038
M6-PFDA	8.558	519.0 -> 474.0	483696	10.00 µg/L	0.038
M7-PFUnDA	9.249	570.0 -> 525.0	1005909	10.00 µg/L	0.064
M2-PFDoDA	10.196	615.0 -> 570.0	1199293	10.00 µg/L	0.113
M3-PFBS	4.721	302.0 -> 99.0	24853	10.00 µg/L	0.013
M3-PFHxS	6.736	402.0 -> 99.0	36316	10.00 µg/L	0.013
M8-PFOS	7.995	507.0 -> 99.0	47130	10.00 µg/L	0.026
M2-4:2FTS	5.684	329.0 -> 309.0	106719	10.00 µg/L	0.013
M2-6:2FTS	7.445	429.0 -> 409.0	197647	10.00 µg/L	0.025
M2-8:2FTS	8.624	529.0 -> 509.0	341028	10.00 µg/L	0.039
M3-HFPO-DA	6.068	287.0 -> 169.0	3696	10.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.684	329.0 -> 309.0	106719	11.57 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 115.7%	
13C2-6:2FTS	7.445	429.0 -> 409.0	197649	11.41 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.1%	
13C2-8:2FTS	8.624	529.0 -> 509.0	341028	11.75 µg/L	0.039
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 117.5%	
13C2-PFDoDA	10.196	615.0 -> 570.0	1199293	10.92 µg/L	0.113
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C3-PFBS	4.721	302.0 -> 99.0	24853	10.28 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C3-PFHxS	6.736	402.0 -> 99.0	36316	10.55 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C4-PFBA	2.352	217.0 -> 172.0	190123	10.76 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.6%	
13C4-PFHpA	6.719	367.0 -> 322.0	240523	11.02 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.2%	
13C5-PFHxA	5.788	318.0 -> 273.0	286412	10.96 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.6%	
13C5-PFPeA	4.425	268.0 -> 223.0	224937	10.56 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C6-PFDA	8.558	519.0 -> 474.0	483696	11.21 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.1%	
13C7-PFUnDA	9.249	570.0 -> 525.0	1005909	11.67 µg/L	0.064
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 116.7%	
13C8-PFOA	7.447	421.0 -> 376.0	318657	11.25 µg/L	0.025

Perfluorinated Compounds by LC/MS/MS

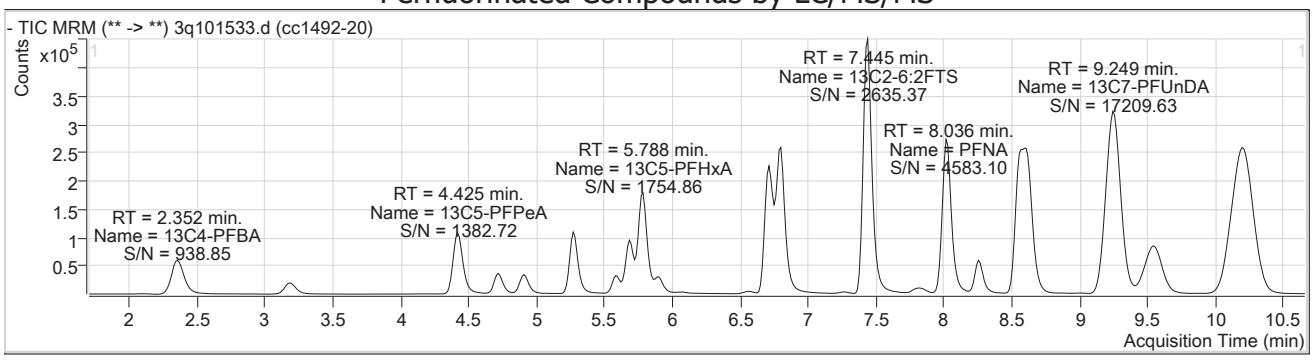
Compound	RT	Transition	Response	Conc. Units		Dev(Min)
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.5%		
13C8-PFOS	7.995	507.0 -> 99.0	47130	10.69 µg/L		0.026
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.9%		
13C9-PFNA	8.035	472.0 -> 427.0	355866	11.56 µg/L		0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 115.6%		
13C3-HFPO-DA	6.068	287.0 -> 169.0	3696	9.84 µg/L		0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.4%		
Target Compounds						QValue
PFMPA	3.178	229.0 -> 85.0	121504	19.74 µg/L		100
4:2FTS	5.686	327.0 -> 307.0	223849	18.83 µg/L		98
		327.0 -> 81.0	92608			
6:2FTS	7.445	427.0 -> 407.0	304966	19.55 µg/L		95
		427.0 -> 81.0	126154			
8:2FTS	8.625	527.0 -> 507.0	509229	21.73 µg/L		95
		527.0 -> 81.0	190902			
PFMBA	4.913	279.0 -> 85.0	162534	19.60 µg/L		100
PFEESA	5.274	315.0 -> 135.0	460653	20.55 µg/L		99
		315.0 -> 69.0	34119			
NFDHA	5.594	201.0 -> 85.0	137771	19.23 µg/L		100
		295.0 -> 201.0	8953			
PFBA	2.361	213.0 -> 169.0	103177	19.63 µg/L		100
PFBS	4.722	299.0 -> 80.0	101401	20.18 µg/L		99
		299.0 -> 99.0	43011			
PFDA	8.559	513.0 -> 469.0	538723	19.69 µg/L		96
		513.0 -> 219.0	115380			
PFDoDA	10.200	613.0 -> 569.0	1596028	20.01 µg/L		96
		613.0 -> 169.0	152000			
PFHpA	6.720	363.0 -> 319.0	637441	18.89 µg/L		100
		363.0 -> 169.0	52843			
PFHpS	7.431	449.0 -> 80.0	138662	20.85 µg/L		99
		449.0 -> 99.0	76119			
PFHxA	5.791	313.0 -> 269.0	504035	18.68 µg/L		100
		313.0 -> 119.0	17907			
PFHxS	6.738	399.0 -> 80.0	126520	19.79 µg/L	m	97
		399.0 -> 99.0	67997			
PFNA	8.036	463.0 -> 419.0	551727	18.93 µg/L		97
		463.0 -> 219.0	153222			
PFOA	7.448	413.0 -> 369.0	464211	18.89 µg/L		99
		413.0 -> 169.0	170693			
PFOS	7.996	499.0 -> 80.0	151556	20.11 µg/L	m	99
		499.0 -> 99.0	77784			
PFPeA	4.427	263.0 -> 219.0	337210	19.87 µg/L		100
PFPeS	5.896	349.0 -> 80.0	74315	20.04 µg/L		100
		349.0 -> 99.0	31285			
PFUnDA	9.252	563.0 -> 519.0	1308030	20.17 µg/L		96
		563.0 -> 269.0	230648			
11Cl-PF3OUdS	9.545	631.0 -> 451.0	728022	20.80 µg/L		99
		631.0 -> 83.0	34337			
9Cl-PF3ONS	8.254	531.0 -> 351.0	240010	19.77 µg/L		100
		531.0 -> 83.0	12534			
ADONA	6.805	377.0 -> 251.0	969819	18.61 µg/L		99
		377.0 -> 85.0	118493			
HFPO-DA	6.073	329.0 -> 169.0	1603	19.51 µg/L		94
		285.0 -> 169.0	3714			

 # = Qualifier out of range, m = manually integrated, + = Area summed

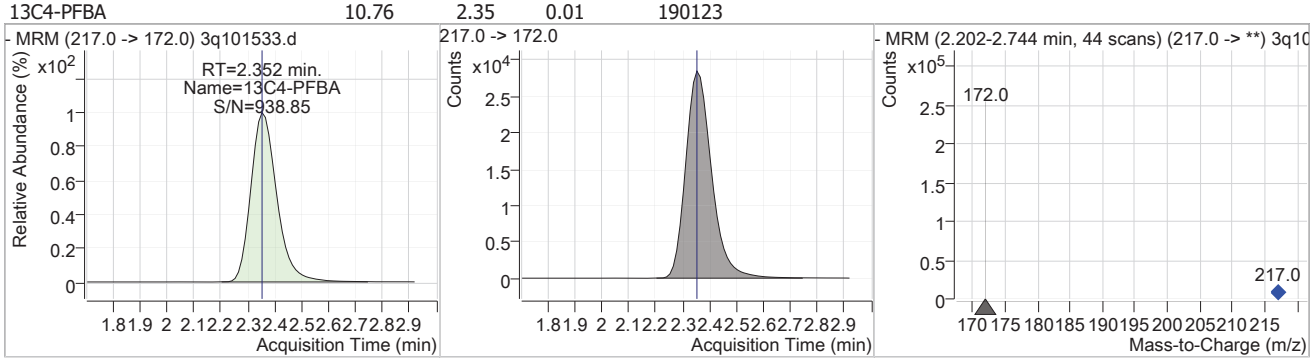
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)

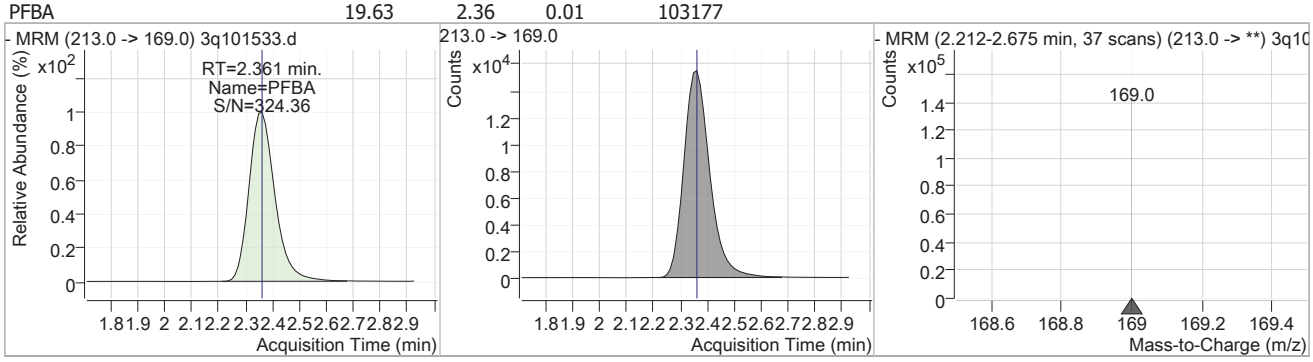
Perfluorinated Compounds by LC/MS/MS



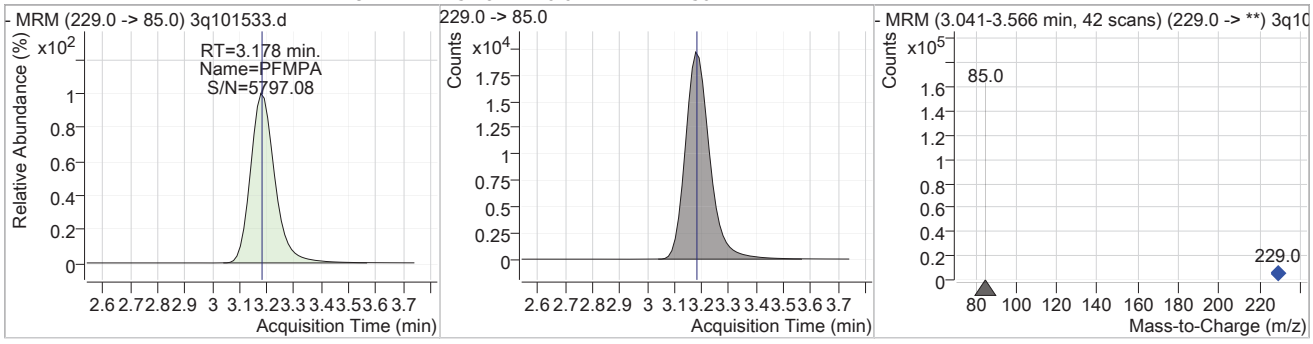
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	10.76	2.35	0.01	190123				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.63	2.36	0.01	103177				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMPA	19.74	3.18	0.01	121504				



7.7.15

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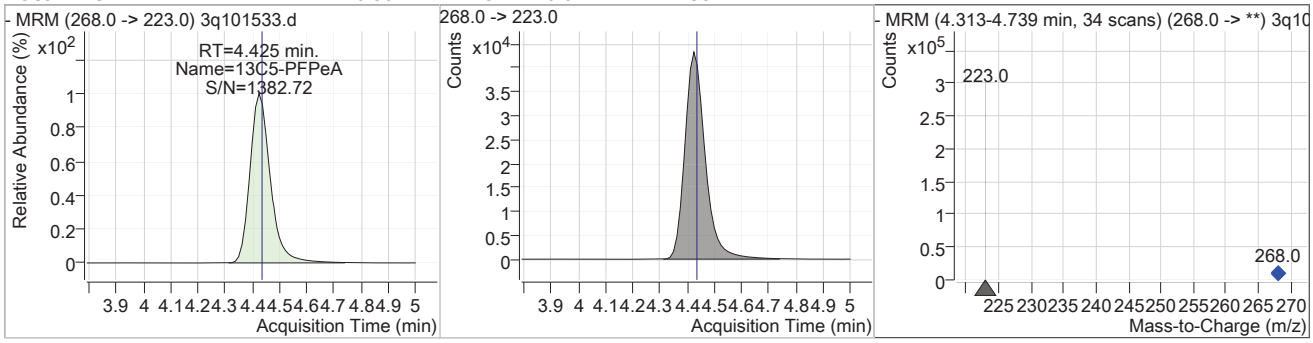
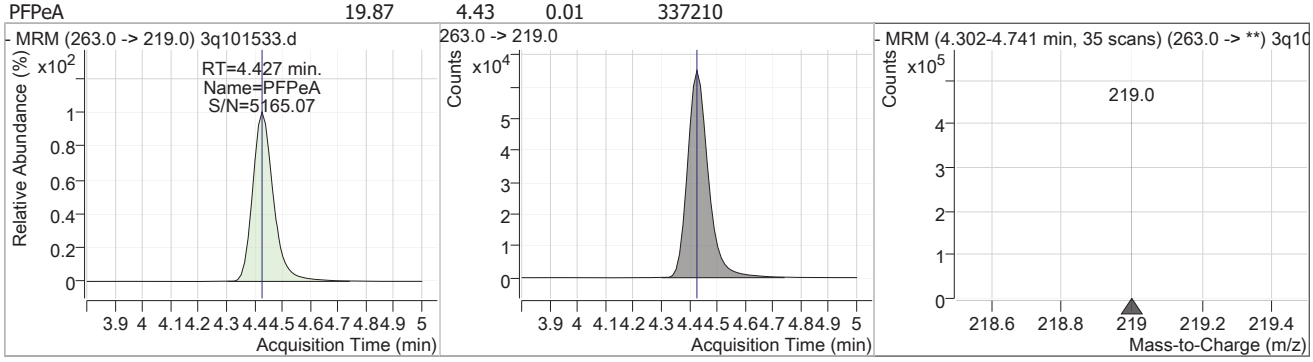
Perfluorinated Compounds by LC/MS/MS

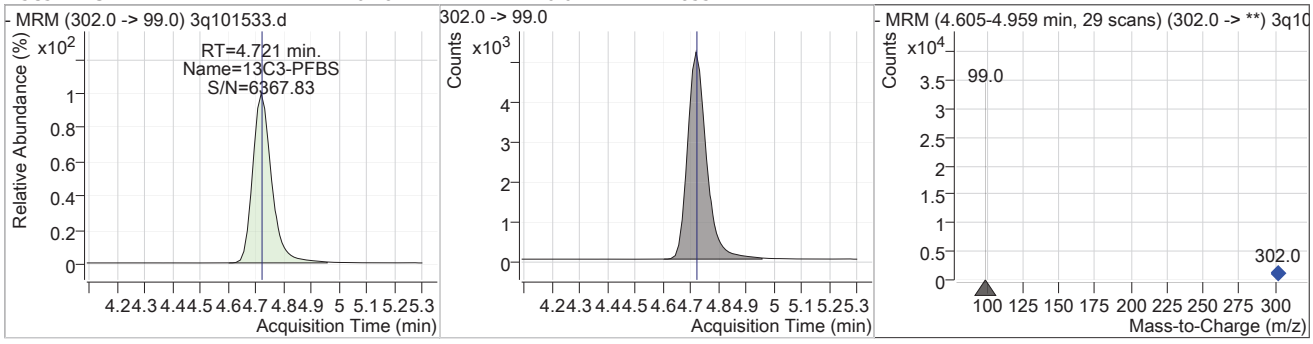
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	10.56	4.43	0.01	224937				



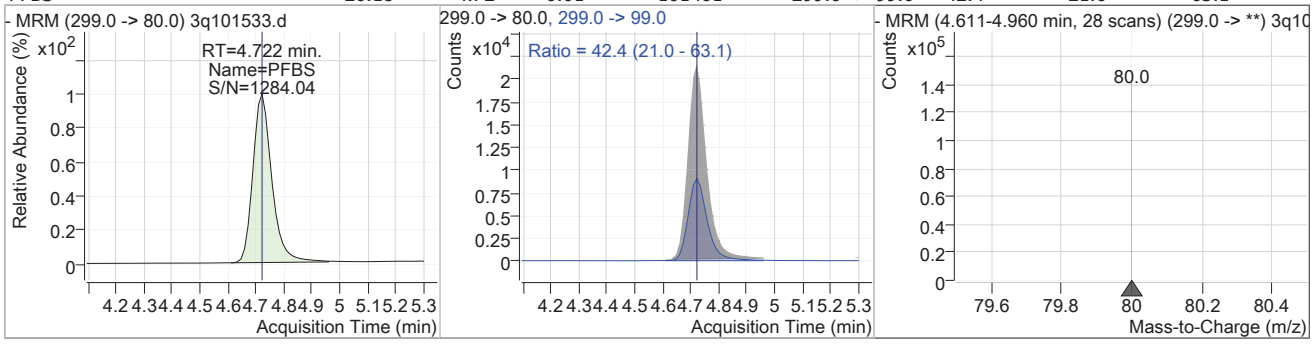
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.87	4.43	0.01	337210				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	10.28	4.72	0.01	24853				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.18	4.72	0.01	101401	299.0 -> 99.0	42.4	21.0	63.1

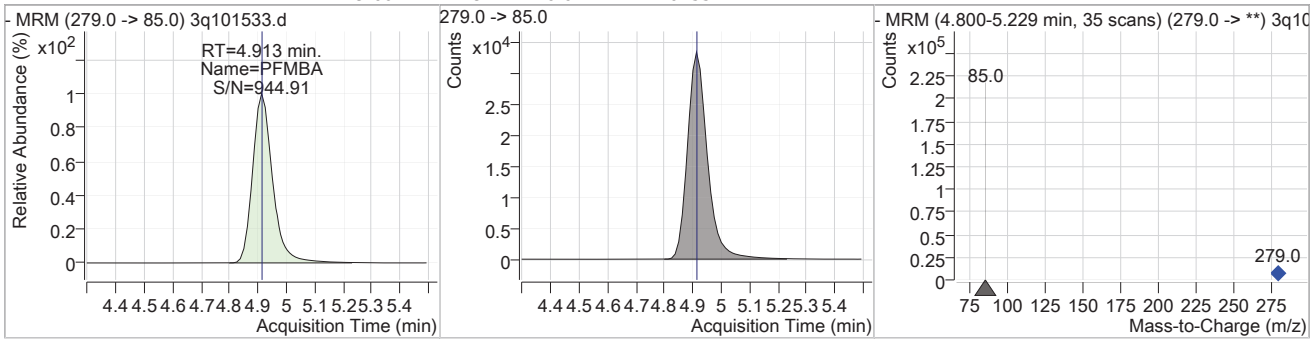


7.7.15

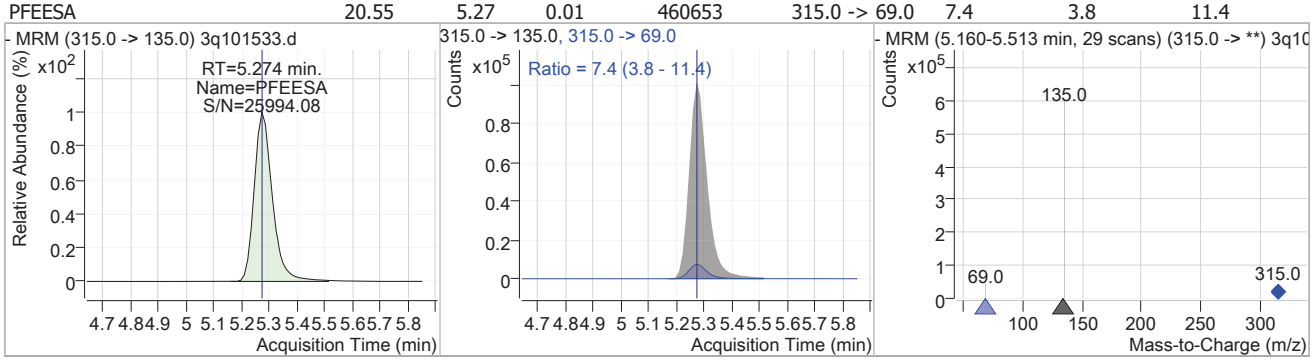
7

Perfluorinated Compounds by LC/MS/MS

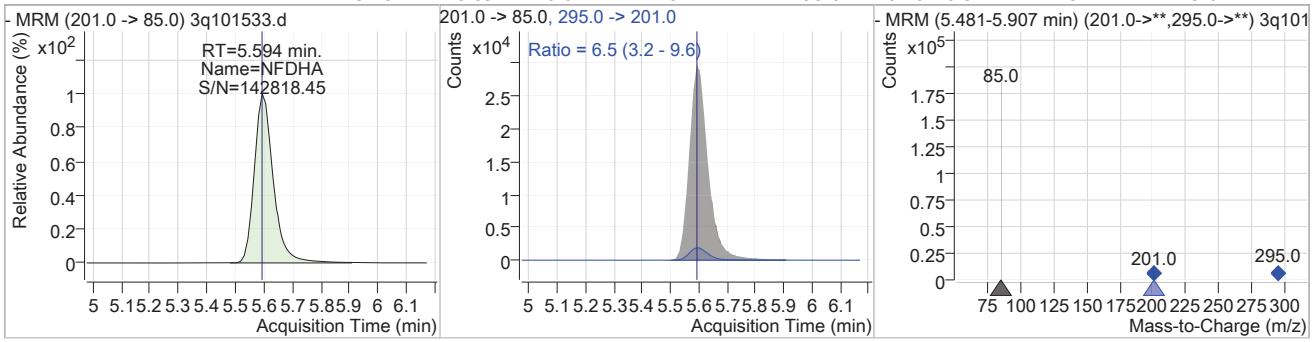
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	19.60	4.91	0.01	162534				



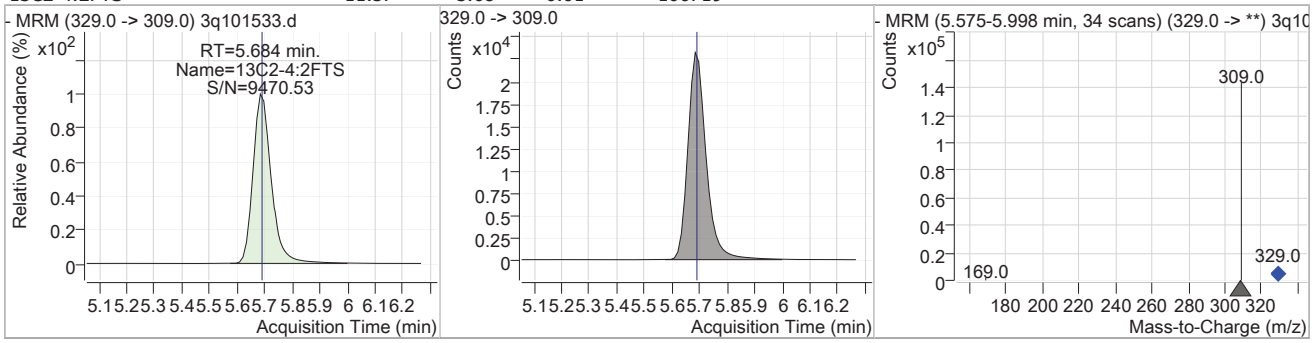
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	20.55	5.27	0.01	460653	315.0 -> 69.0	7.4	3.8	11.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	19.23	5.59	0.01	137771	295.0 -> 201.0	6.5	3.2	9.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	11.57	5.68	0.01	106719				



7.7.15

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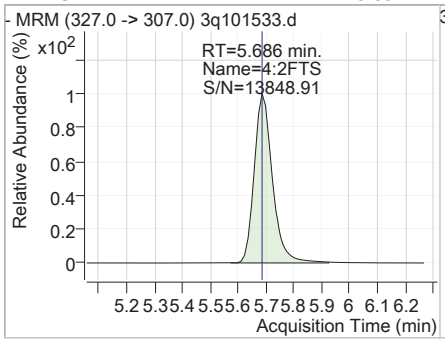
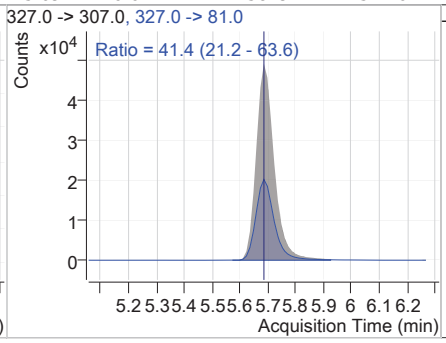
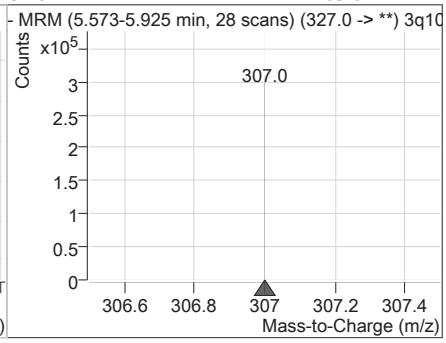
Perfluorinated Compounds by LC/MS/MS

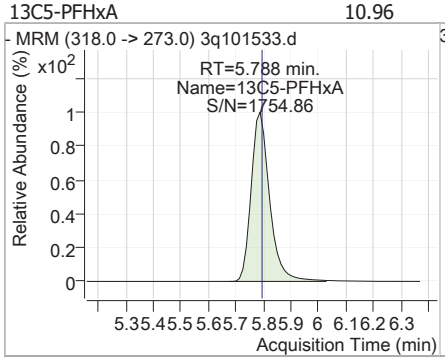
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	18.83	5.69	0.01	223849	327.0 -> 81.0	41.4	21.2	63.6

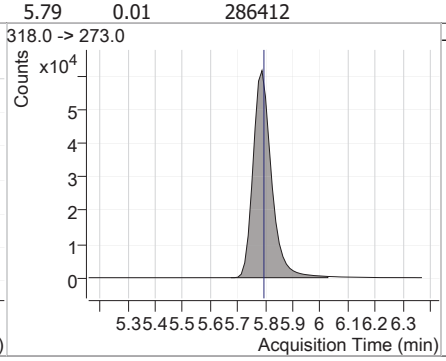


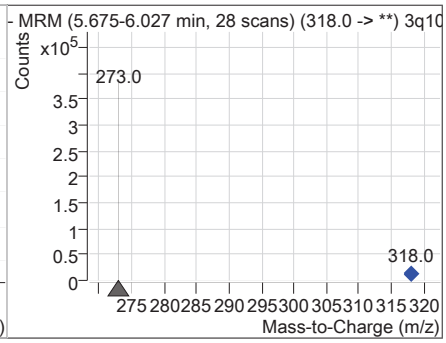




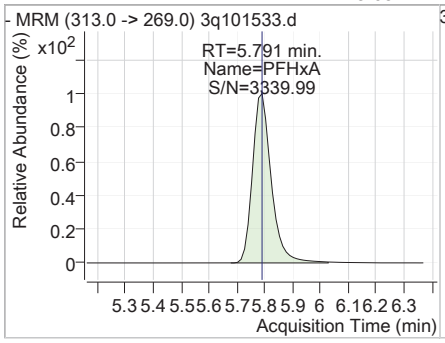
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	10.96	5.79	0.01	286412				

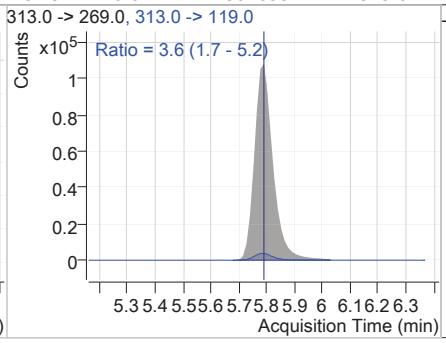


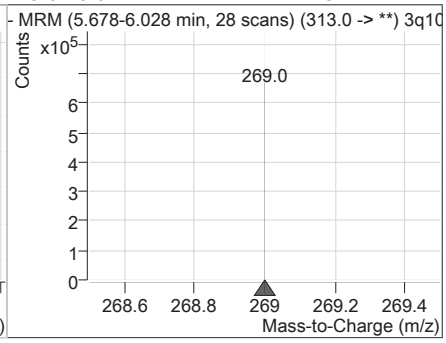




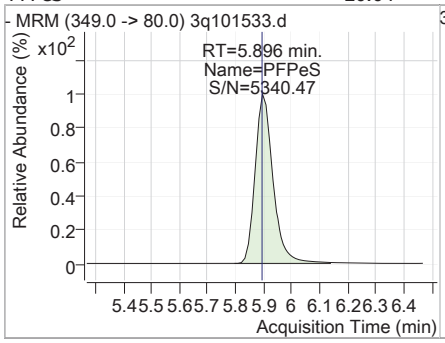
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	18.68	5.79	0.01	504035	313.0 -> 119.0	3.6	1.7	5.2

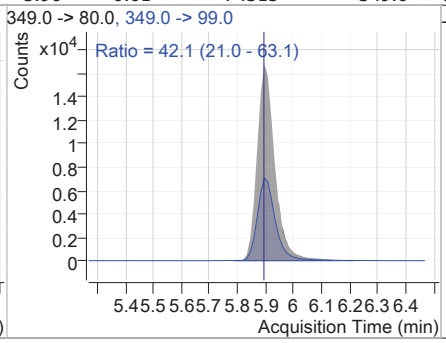


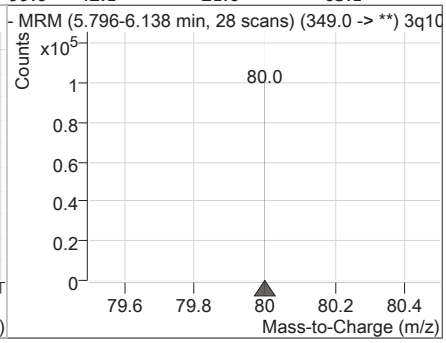




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	20.04	5.90	0.01	74315	349.0 -> 99.0	42.1	21.0	63.1

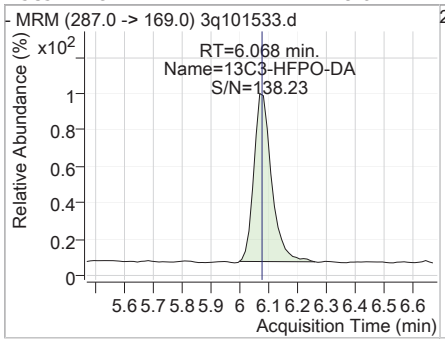


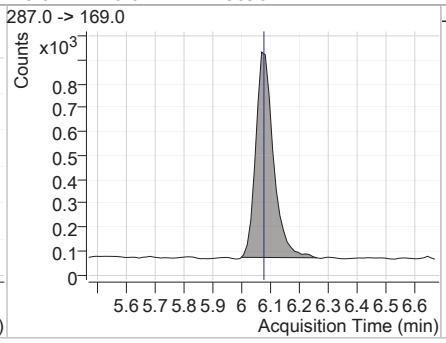


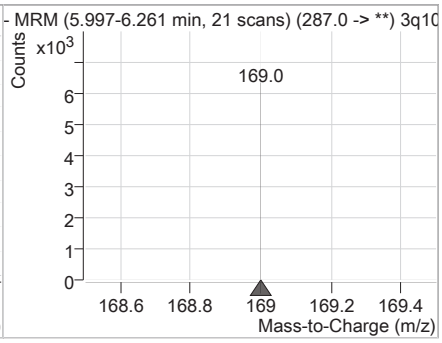


Perfluorinated Compounds by LC/MS/MS

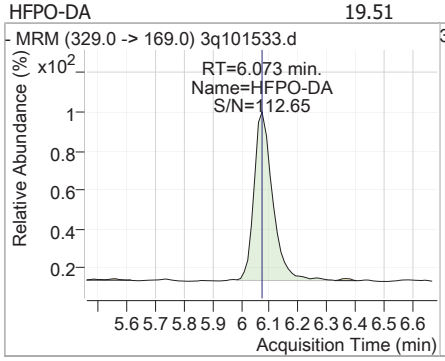
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.84	6.07	0.01	3696				

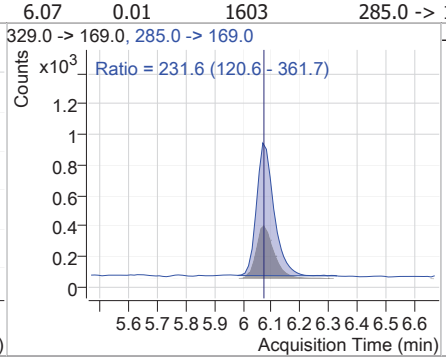


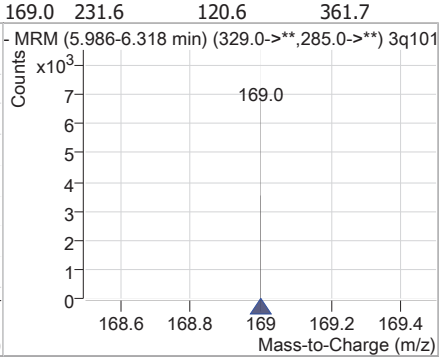




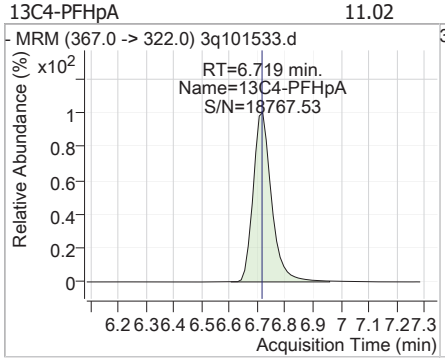
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.51	6.07	0.01	1603	285.0 -> 169.0	231.6	120.6	361.7

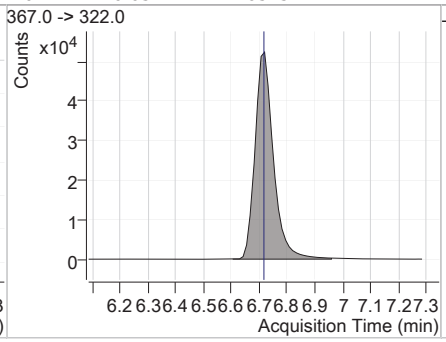


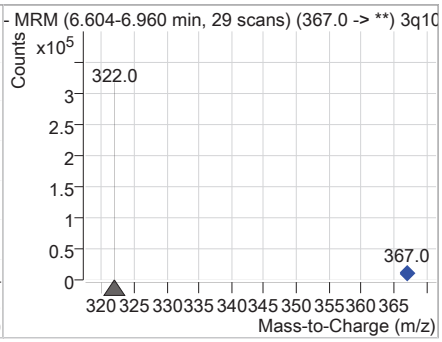




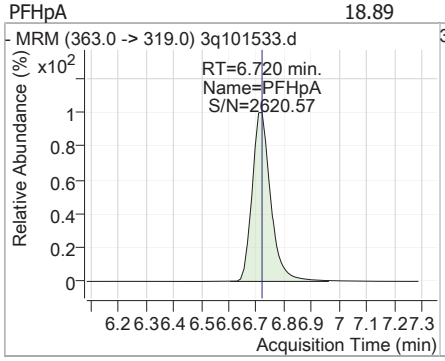
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	11.02	6.72	0.03	240523				

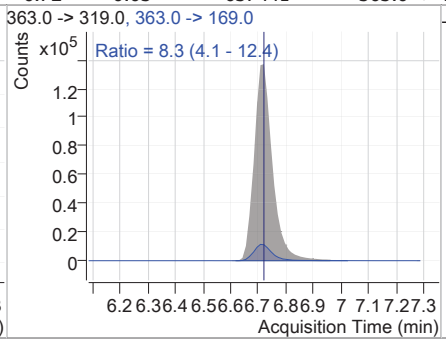


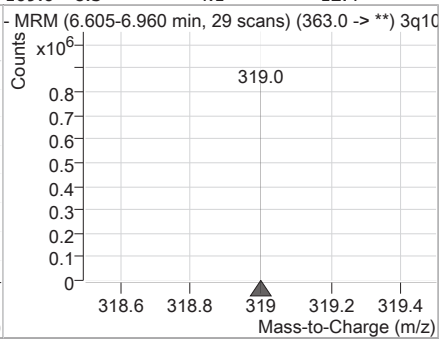




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	18.89	6.72	0.03	637441	363.0 -> 169.0	8.3	4.1	12.4





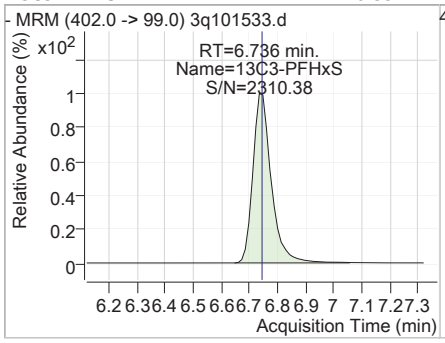


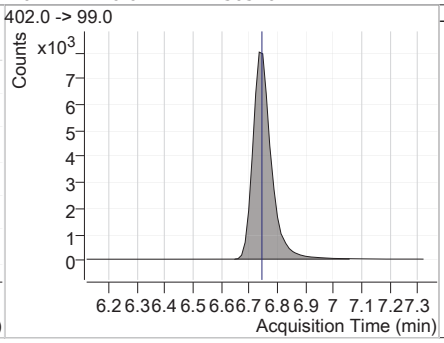
7.7.15

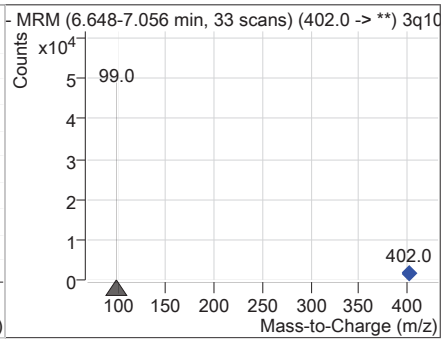
7

Perfluorinated Compounds by LC/MS/MS

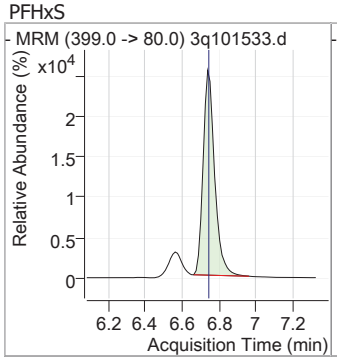
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	10.55	6.74	0.01	36316				

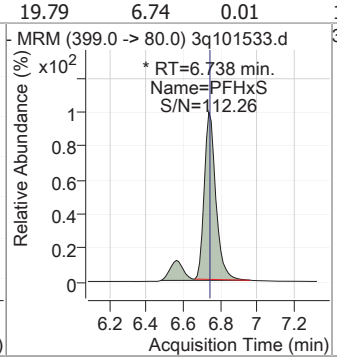


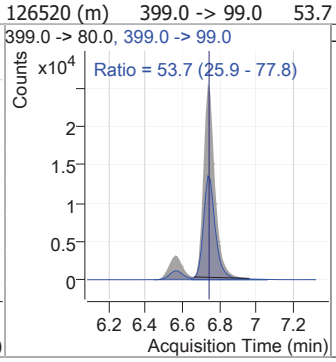


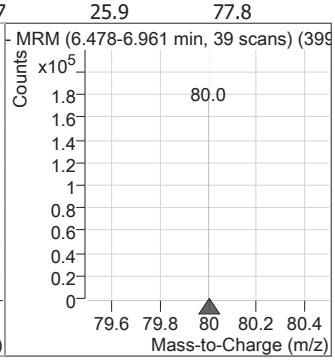


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.79	6.74	0.01	126520 (m)	399.0 -> 99.0	53.7	25.9	77.8

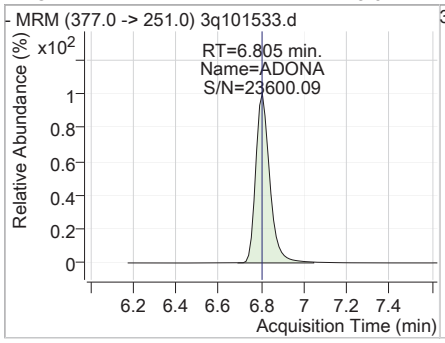


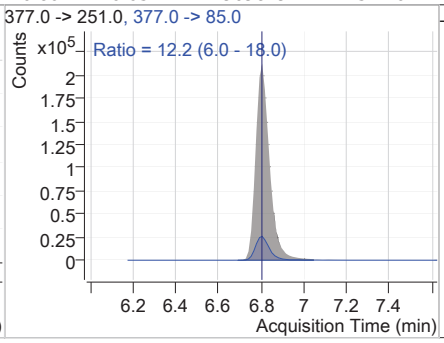


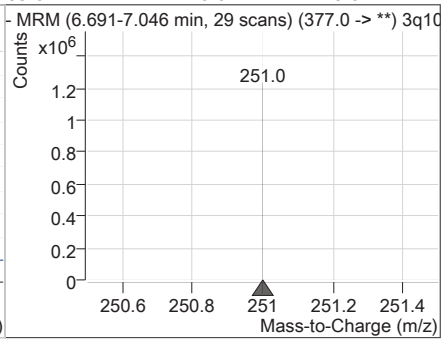




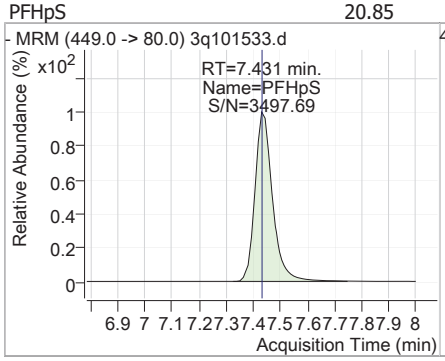
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	18.61	6.80	0.03	969819	377.0 -> 85.0	12.2	6.0	18.0

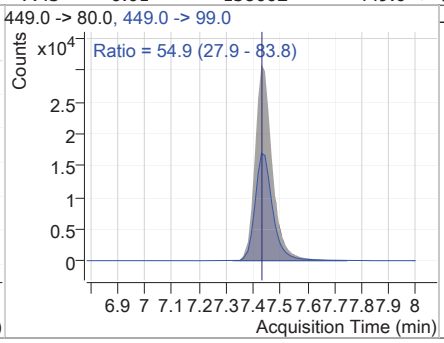


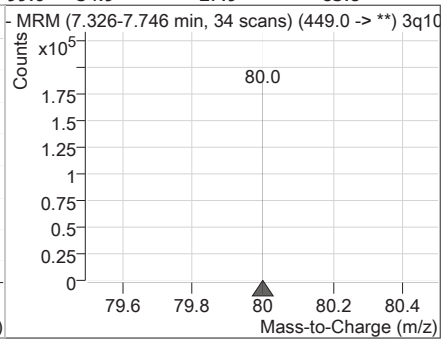




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	20.85	7.43	0.01	138662	449.0 -> 99.0	54.9	27.9	83.8

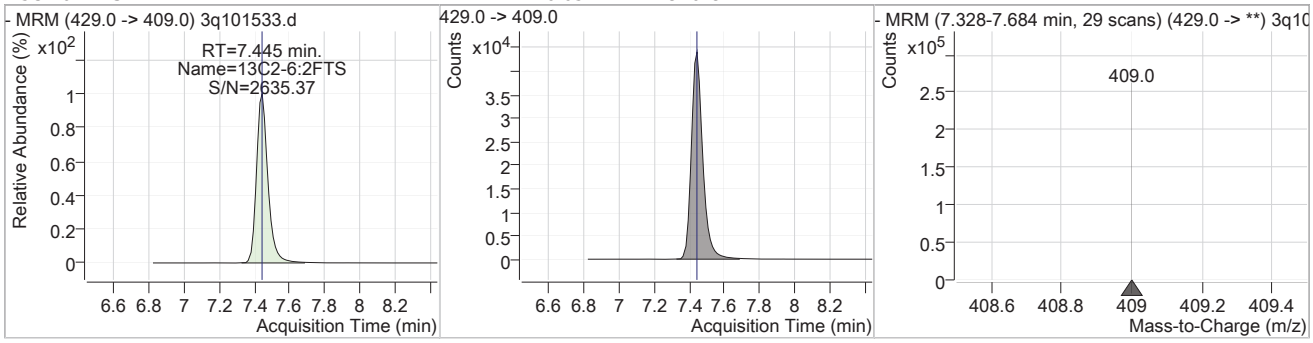




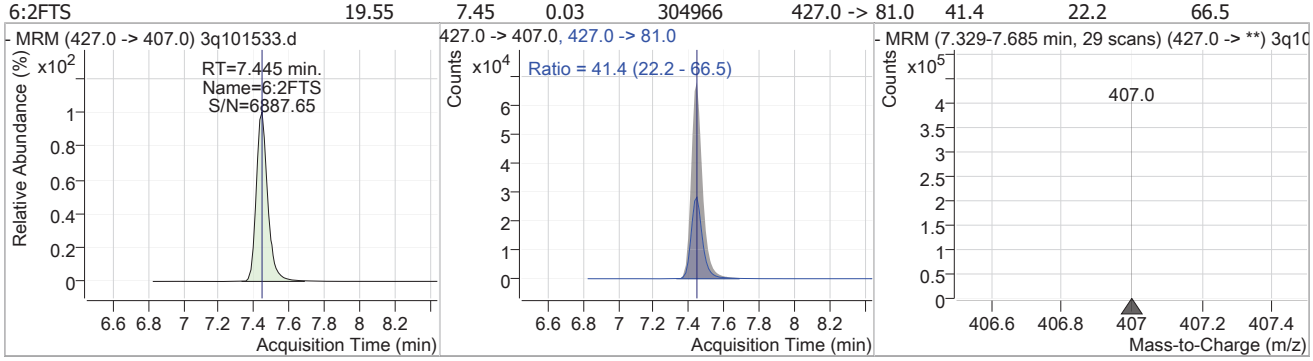


Perfluorinated Compounds by LC/MS/MS

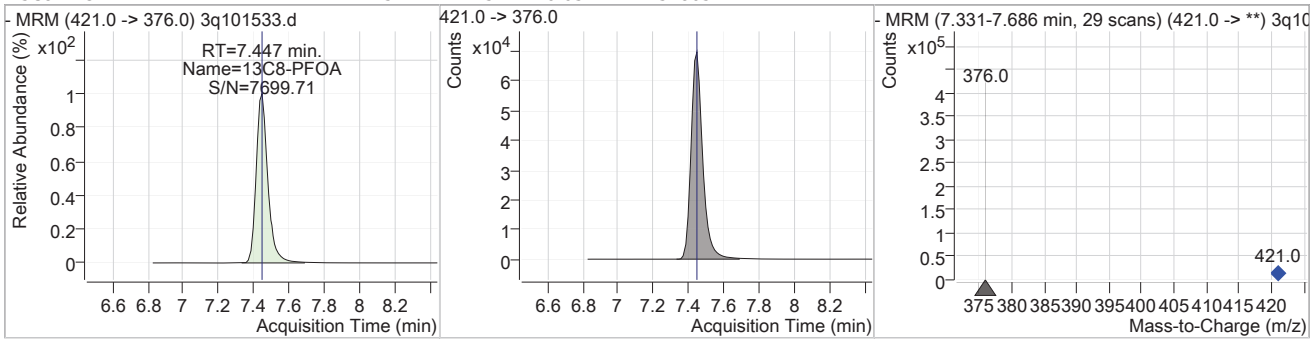
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	11.41	7.44	0.03	197649				



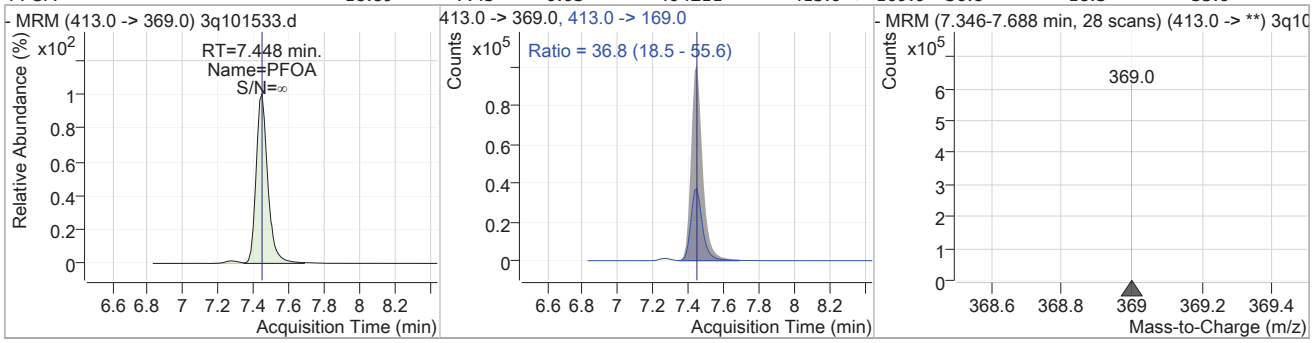
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.55	7.45	0.03	304966	427.0 -> 81.0	41.4	22.2	66.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	11.25	7.45	0.03	318657				

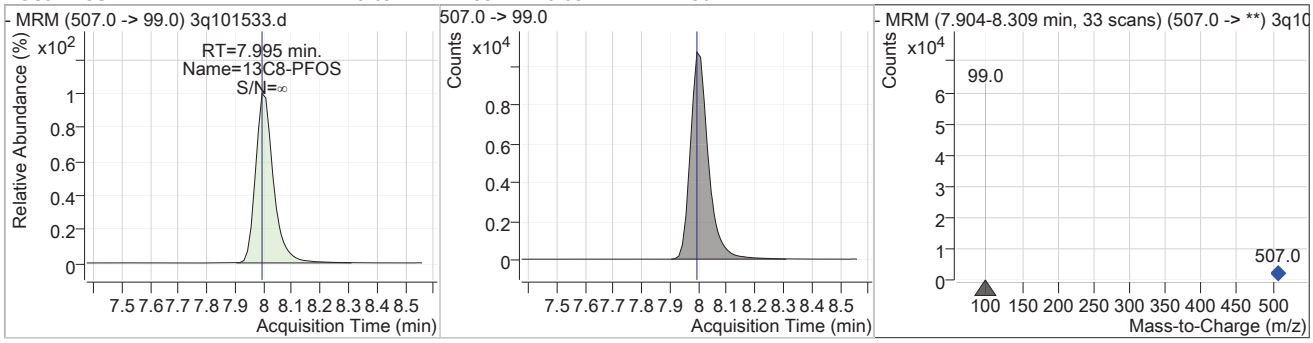


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	18.89	7.45	0.03	464211	413.0 -> 169.0	36.8	18.5	55.6

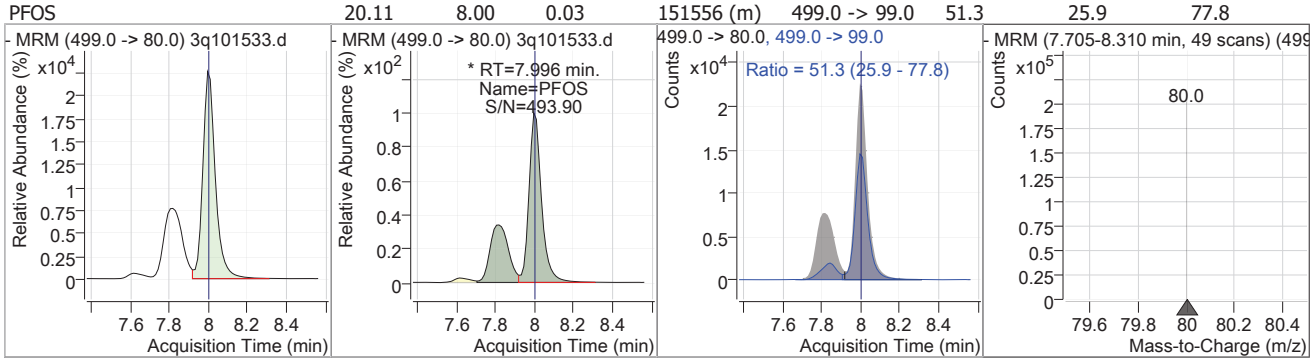


Perfluorinated Compounds by LC/MS/MS

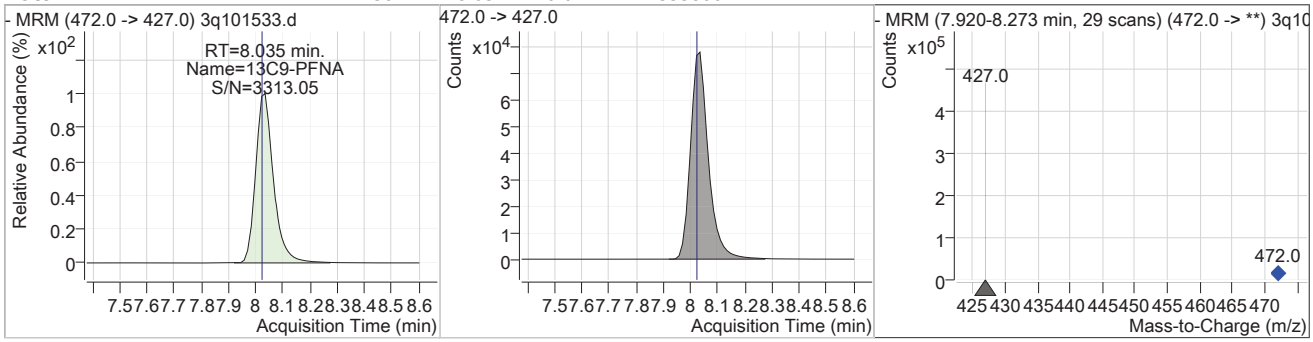
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	10.69	7.99	0.03	47130				



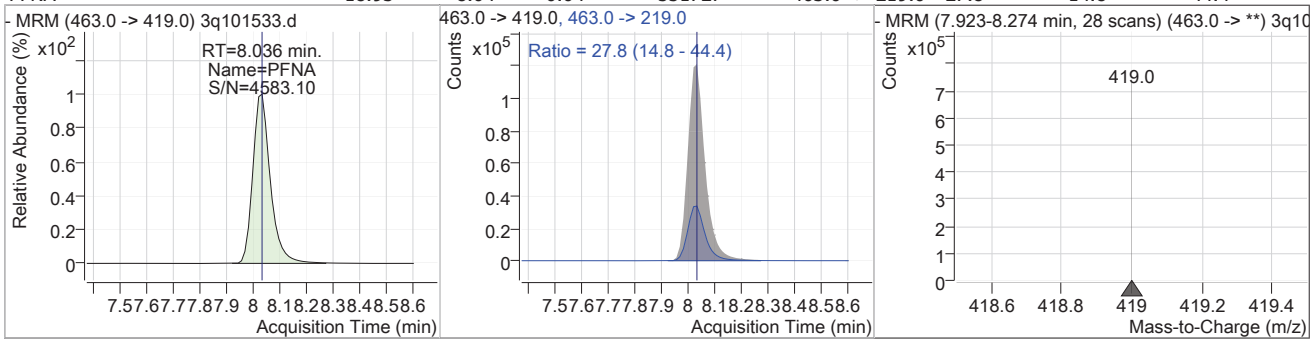
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	20.11	8.00	0.03	151556 (m)	499.0 -> 99.0	51.3	25.9	77.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	11.56	8.03	0.04	355866				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	18.93	8.04	0.04	551727	463.0 -> 219.0	27.8	14.8	44.4



7.7.15

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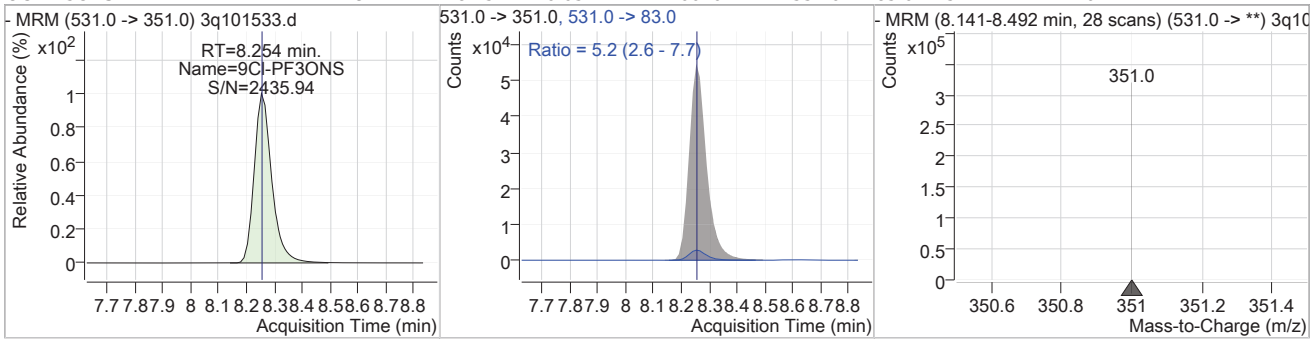
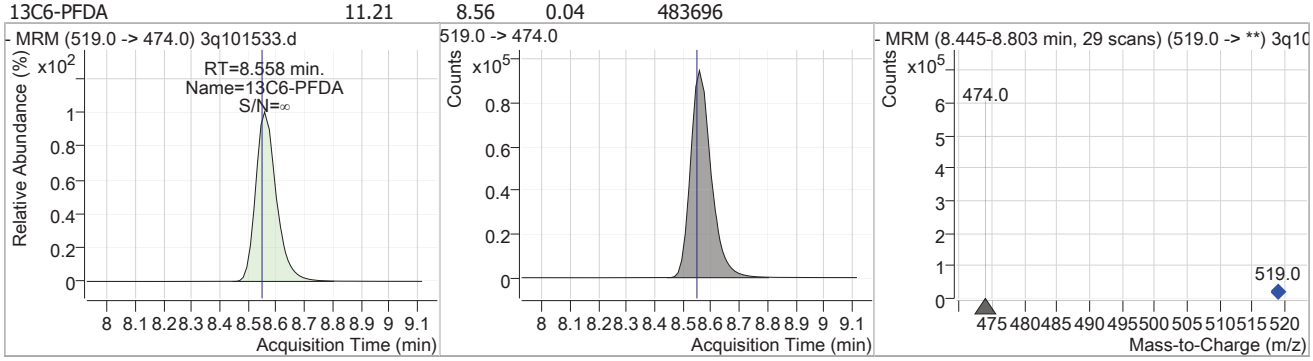
Perfluorinated Compounds by LC/MS/MS

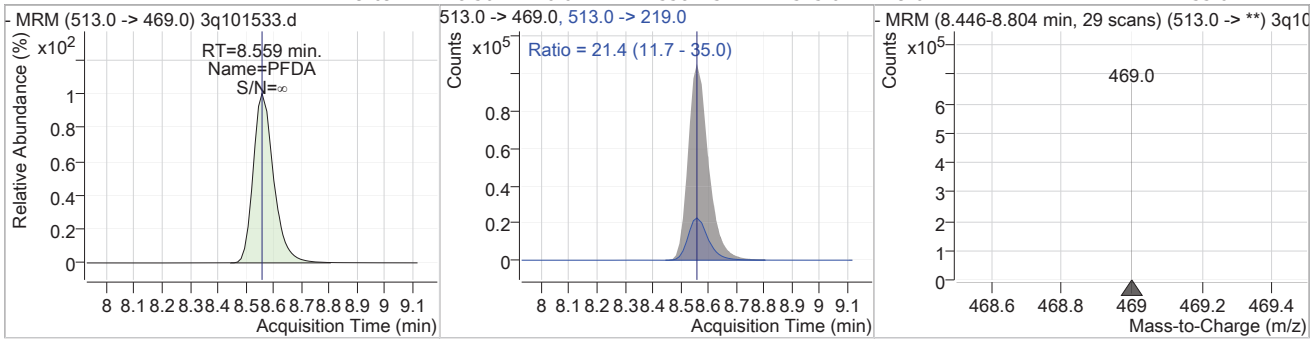
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	19.77	8.25	0.03	240010	531.0 -> 83.0	5.2	2.6	7.7



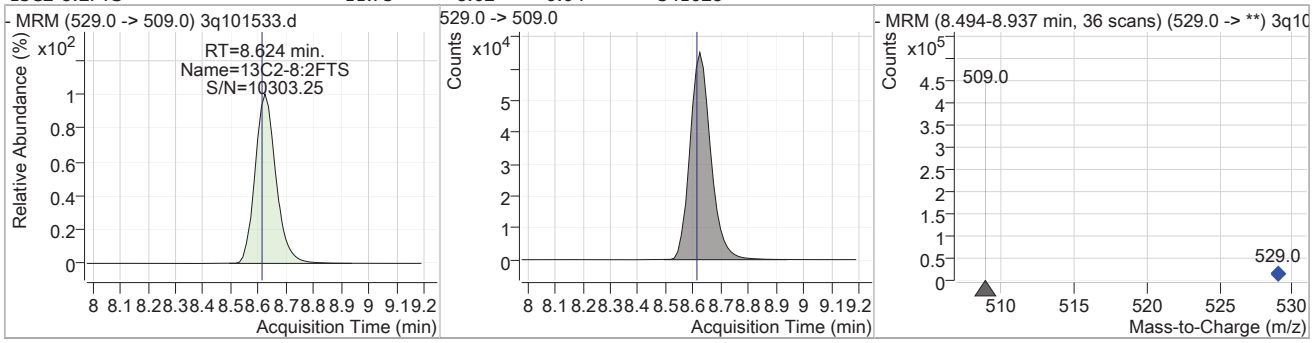
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	11.21	8.56	0.04	483696				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.69	8.56	0.04	538723	513.0 -> 219.0	21.4	11.7	35.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	11.75	8.62	0.04	341028				



7.7.15

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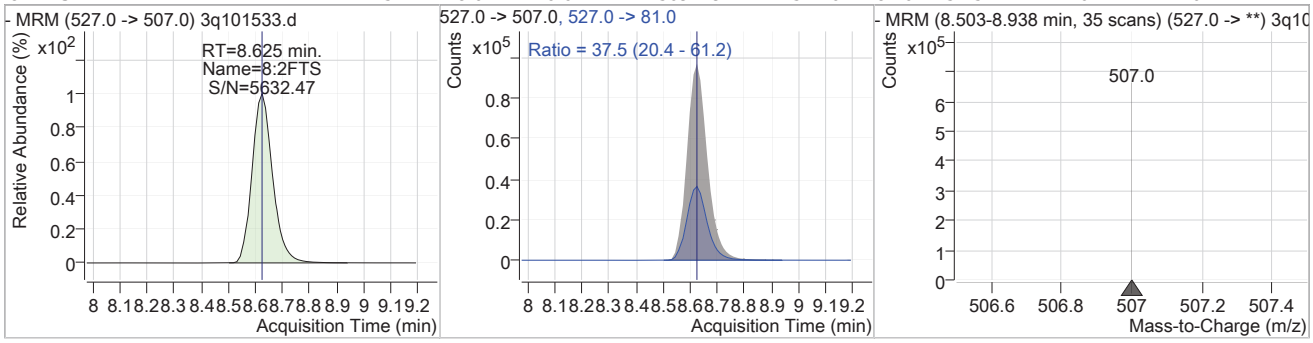
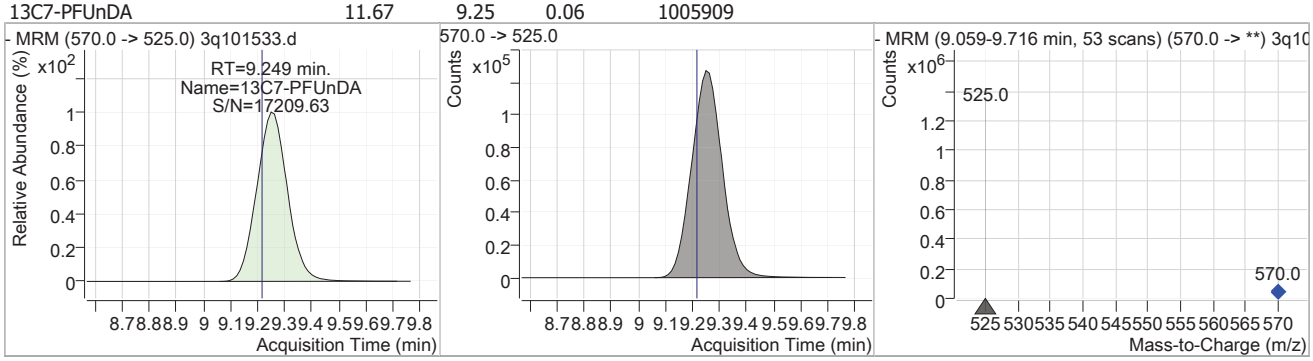
Perfluorinated Compounds by LC/MS/MS

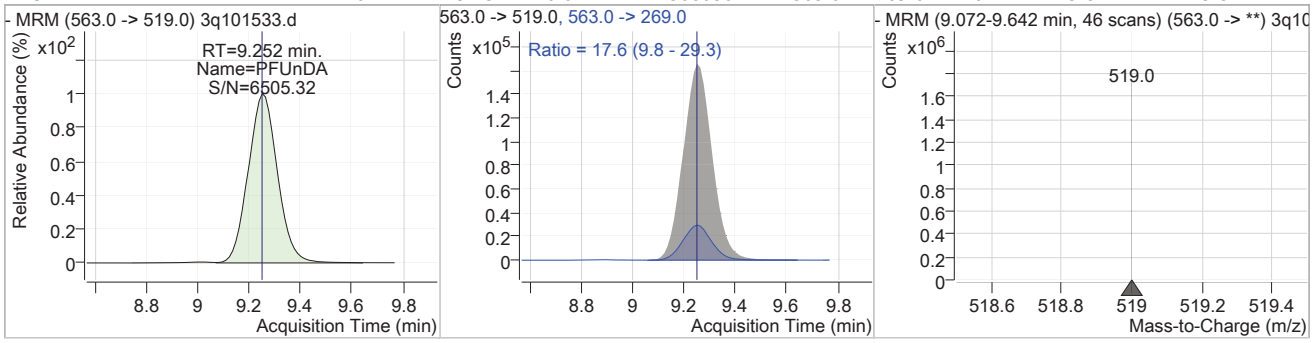
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.73	8.62	0.04	509229	527.0 -> 81.0	37.5	20.4	61.2



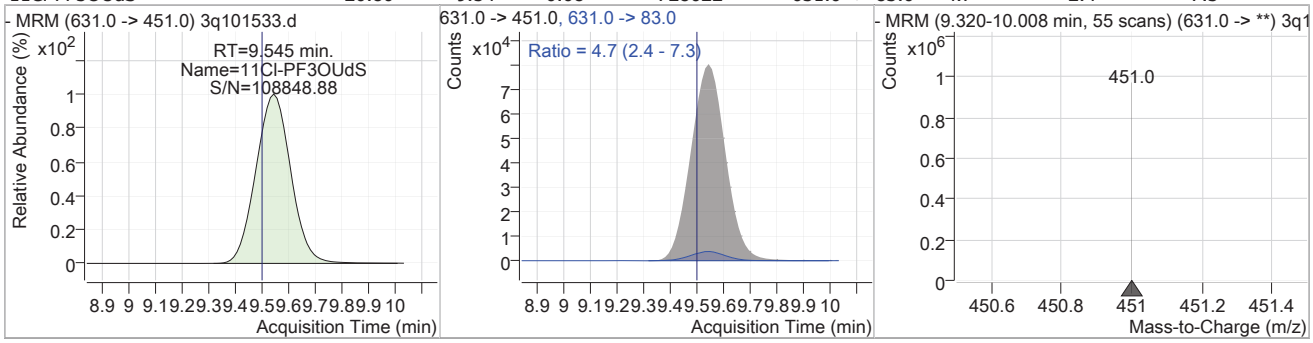
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	11.67	9.25	0.06	1005909				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	20.17	9.25	0.07	1308030	563.0 -> 269.0	17.6	9.8	29.3

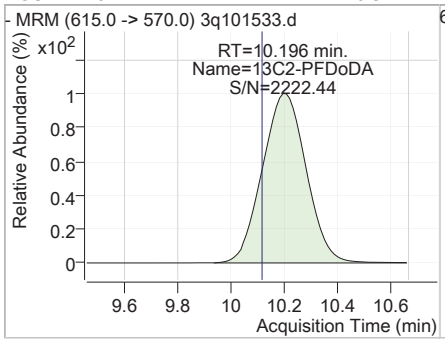


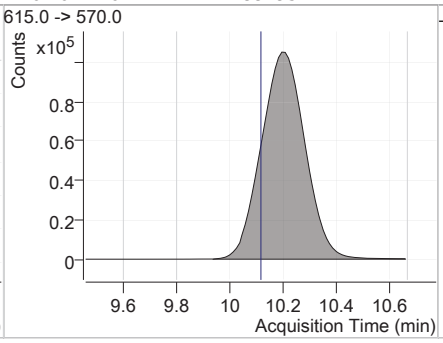
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	20.80	9.54	0.08	728022	631.0 -> 83.0	4.7	2.4	7.3

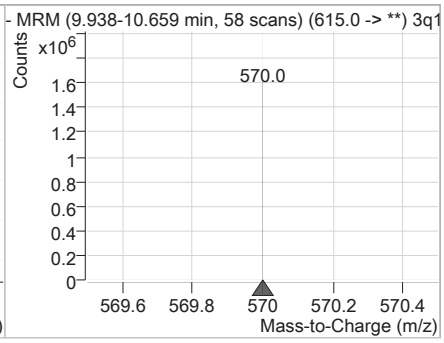


Perfluorinated Compounds by LC/MS/MS

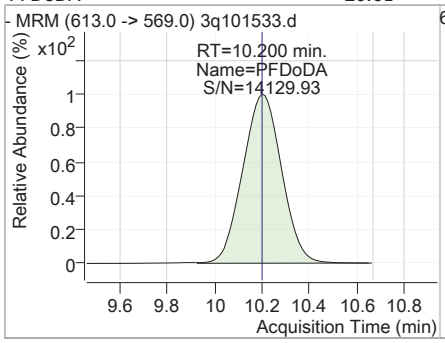
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	10.92	10.20	0.11	1199293				

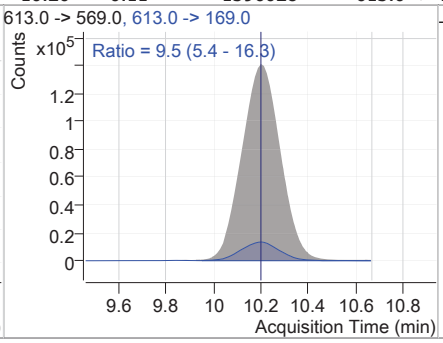


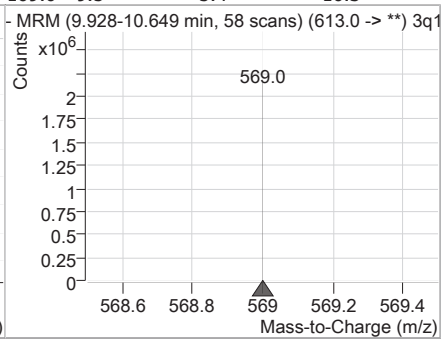




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	20.01	10.20	0.11	1596028	613.0 -> 169.0	9.5	5.4	16.3







Manual Integration Approval Summary

Sample Number:	S3Q1494-CC1492	**Method:**	EPA 533
Lab FileID:	3Q101533.D	**Analyst approved:**	04/18/25 08:08 (b) (6)
Injection Time:	04/17/25 14:20	**Supervisor approved:**	04/18/25 10:08 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.00	Split peak

QQQ Check Tune Report

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Instrument Name	LCMS-4Q
MS Model	G6470A
MS Instrument Serial	SG2004G105
Software_Firmware Version	10.1.67, FW: A.00.08.112
Tune Date & Time	21 April 2025 09:26:50
File Path	D:\MassHunter\Tune\QQQ\G6470A\atunes.TUNE.XML
Ion Source	AJS ESI
Ionization Mode	AJS ESI
Tuned Resolution	All
Vacuum Pressure	1.75E+0 [R] (Torr); 3.56E-5 [H] (Torr)

Source Parameters

Parameter	Negative
Gas Temp (°C)	300
Gas Flow (l/min)	8
Nebulizer (psi)	15
Capillary (V)	3500
Nozzle Voltage (V)	1500
Sheath Gas Temp (°C)	250
Sheath Gas Flow (l/min)	7

QQQ Check Tune Report

Agilent | Trusted Answers

Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.99	0.00	Pass	0.70	0.68	-0.02	Pass	330706
302.00	301.98	-0.02	Pass	0.70	0.71	0.01	Pass	158344
601.98	601.95	-0.03	Pass	0.70	0.73	0.03	Pass	231584
1033.99	1033.95	-0.04	Pass	0.70	0.73	0.03	Pass	469776
1633.95	1633.92	-0.03	Pass	0.70	0.70	0.00	Pass	772484
2233.91	2233.89	-0.02	Pass	0.70	0.74	0.04	Pass	251470

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.08	0.08	Pass	0.70	0.58	-0.12	Pass	84144
112.99	112.98	-0.01	Pass	0.70	0.70	0.00	Pass	262329
302.00	301.96	-0.04	Pass	0.70	0.71	0.01	Pass	180238
601.98	602.01	0.03	Pass	0.70	0.69	-0.01	Pass	183853
1033.99	1034.01	0.02	Pass	0.70	0.66	-0.04	Pass	410486
1633.95	1633.96	0.01	Pass	0.70	0.67	-0.03	Pass	901086
2233.91	2233.89	-0.02	Pass	0.70	0.74	0.04	Pass	1004278

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	113.01	0.02	Pass	1.20	1.26	0.06	Pass	385340
302.00	301.96	-0.04	Pass	1.20	1.02	-0.18	Pass	187116
601.98	601.92	-0.06	Pass	1.20	0.92	-0.28	Pass	254506
1033.99	1033.92	-0.07	Pass	1.20	0.93	-0.27	Pass	599532
1633.95	1633.91	-0.04	Pass	1.20	1.05	-0.15	Pass	1679266
2233.91	2233.85	-0.06	Pass	1.20	1.17	-0.03	Pass	1263914

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.08	0.08	Pass	1.20	1.08	-0.12	Pass	109941
112.99	112.95	-0.04	Pass	1.20	1.21	0.01	Pass	362224
302.00	302.07	0.07	Pass	1.20	1.43	0.23	Pass	262130
601.98	602.07	0.09	Pass	1.20	1.48	0.28	Pass	385636
1033.99	1033.98	-0.01	Pass	1.20	1.47	0.27	Pass	1025927
1633.95	1633.83	-0.12	Pass	1.20	1.32	0.12	Pass	3115429
2233.91	2233.78	-0.13	Pass	1.20	1.21	0.01	Pass	2673683

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.98	-0.01	Pass	2.50	2.49	-0.01	Pass	450793
302.00	301.96	-0.04	Pass	2.50	2.21	-0.29	Pass	230932
601.98	601.92	-0.06	Pass	2.50	2.11	-0.39	Pass	414244
1033.99	1033.93	-0.06	Pass	2.50	2.13	-0.37	Pass	1180454
1633.95	1633.93	-0.02	Pass	2.50	2.28	-0.22	Pass	4219063
2233.91	2233.79	-0.12	Pass	2.50	2.36	-0.14	Pass	3637965

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.09	0.09	Pass	2.50	2.25	-0.25	Pass	131224
112.99	113.03	0.04	Pass	2.50	2.39	-0.11	Pass	447848
302.00	302.10	0.10	Pass	2.50	2.67	0.17	Pass	323820
601.98	602.02	0.04	Pass	2.50	2.68	0.18	Pass	511442
1033.99	1034.01	0.02	Pass	2.50	2.68	0.18	Pass	1676412
1633.95	1633.95	0.00	Pass	2.50	2.48	-0.02	Pass	6669143
2233.91	2233.86	-0.05	Pass	2.50	2.58	0.08	Pass	7530376

Cal Report: 4Q74360.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/24/25 12:51

Perfluorinated Compounds by LC/MS/MS

Data File : 4q74360.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/23/2025 10:01:34 PM
Sample Name : ic1106-0.5
Vial : P1-A2
DA Method File : 537_042325_S4q1106.quantmethod.xml
Batch Name : s4q1106.batch.bin
Sample Information : OP8985,S4Q1106,250,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.164	429.0 -> 409.0	504885	20.00	µg/L		0.000
13C2-PFOA	6.192	415.0 -> 370.0	1024958	20.00	µg/L		-0.012
13C3-PFPeA	3.107	266.0 -> 222.0	446034	20.00	µg/L		-0.012
13C4-PFOS	6.675	503.0 -> 80.0	146272	20.00	µg/L		-0.012
d3-MeFOSAA	7.733	573.0 -> 419.0	1584493	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.086	515.0 -> 470.0	18907	0.25	µg/L		-0.012
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = 2.5%			
13C2-PFHxA	4.664	315.0 -> 270.0	6899	0.29	µg/L		-0.012
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = 2.9%			
d5-EtFOSAA	7.880	589.0 -> 419.0	22755	0.54	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 2.7%			
13C3-HFPO-DA	4.959	287.0 -> 169.0	171	0.45	µg/L	m	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 2.2%			
Target Compounds							QValue
6:2FTS	6.165	427.0 -> 407.0	14782	0.55	µg/L		95
8:2FTS	7.084	527.0 -> 507.0	15747	0.57	µg/L		97
EtFOSAA	7.882	584.0 -> 419.0	18304	0.56	µg/L	m	98
MeFOSAA	7.746	570.0 -> 419.0	19194	0.47	µg/L	m	98
PFBS	3.541	299.0 -> 80.0	3426	0.52	µg/L		99
PFDA	7.087	513.0 -> 469.0	26625	0.51	µg/L		98
PFDoDA	7.678	613.0 -> 569.0	24747	0.51	µg/L		98
PFHpA	5.558	363.0 -> 319.0	21869	0.46	µg/L		98
PFHxA	4.666	313.0 -> 269.0	7726	0.55	µg/L		99
PFHxS	5.617	399.0 -> 80.0	3459	0.50	µg/L	m	99
PFNA	6.677	463.0 -> 419.0	20995	0.48	µg/L		99
PFOA	6.193	413.0 -> 369.0	17109	0.50	µg/L	m	98
PFOS	6.676	499.0 -> 80.0	4000	0.48	µg/L	m	99
PFPeA	3.110	263.0 -> 219.0	13390	0.48	µg/L		100
PFTeDA	8.085	713.0 -> 669.0	16040	0.58	µg/L		99
PFTrDA	7.900	663.0 -> 619.0	17191	0.48	µg/L		96
PFUnDA	7.422	563.0 -> 519.0	26522	0.53	µg/L		99
ADONA	5.656	377.0 -> 251.0	33806	0.48	µg/L		97
9Cl-PF3ONS	6.908	531.0 -> 351.0	4158	0.57	µg/L		96
11Cl-PF3OUdS	7.541	631.0 -> 451.0	15192	0.53	µg/L		96
HFPO-DA	4.960	285.0 -> 169.0	214	0.68	µg/L	#m	87

 # = Qualifier out of range, m = manually integrated, + = Area summed

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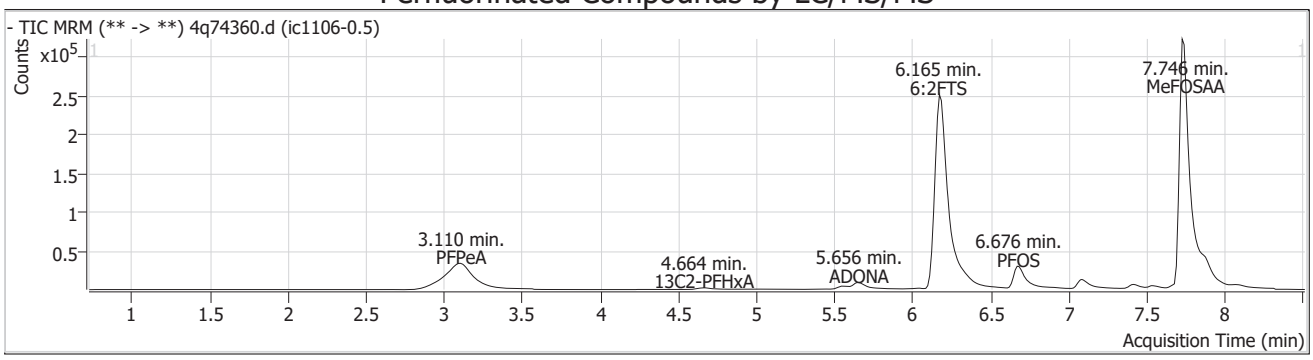
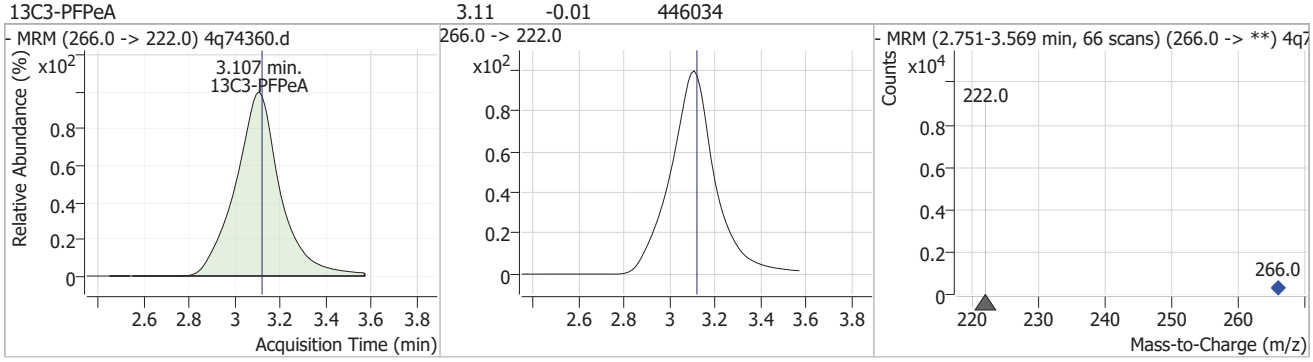
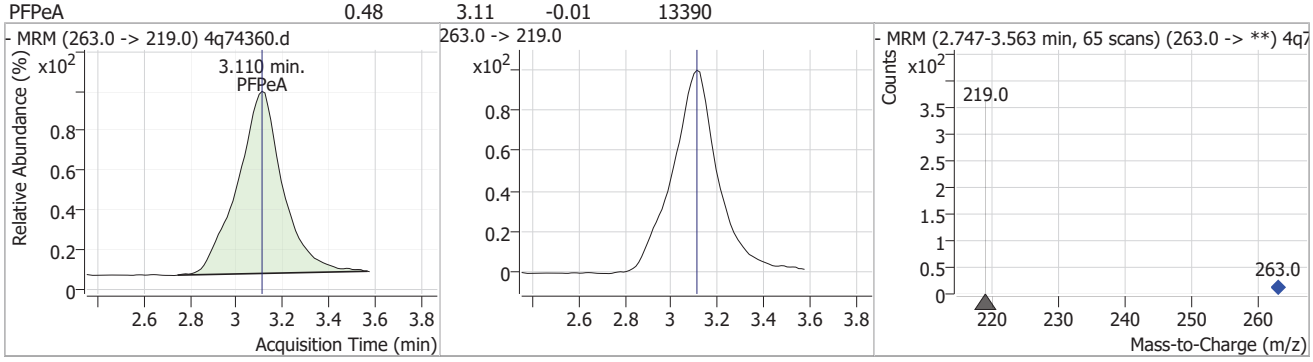
Perfluorinated Compounds by LC/MS/MS



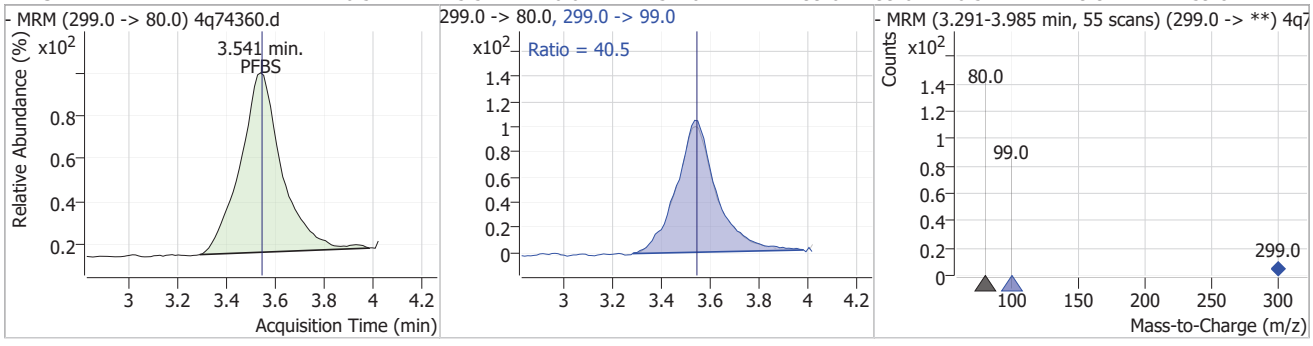
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.11	-0.01	446034				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.48	3.11	-0.01	13390				

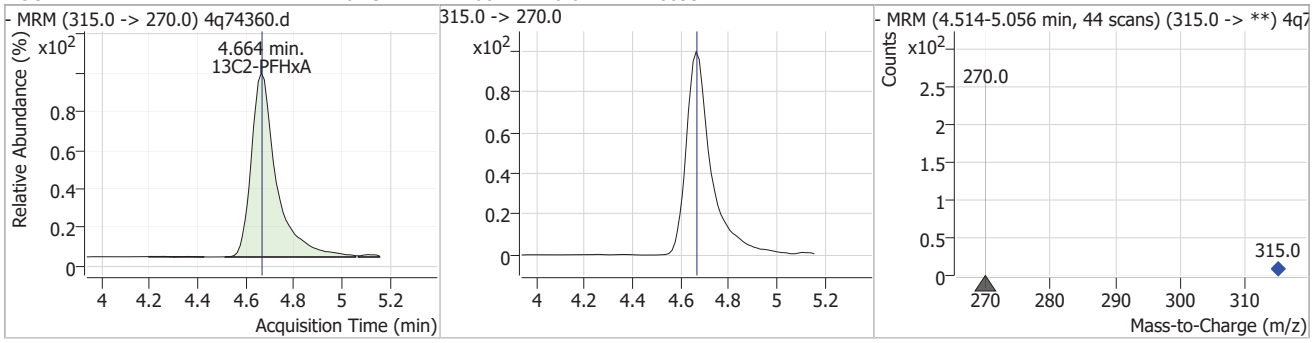


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.52	3.54	-0.01	3426	299.0 -> 99.0	40.5	19.9	59.8

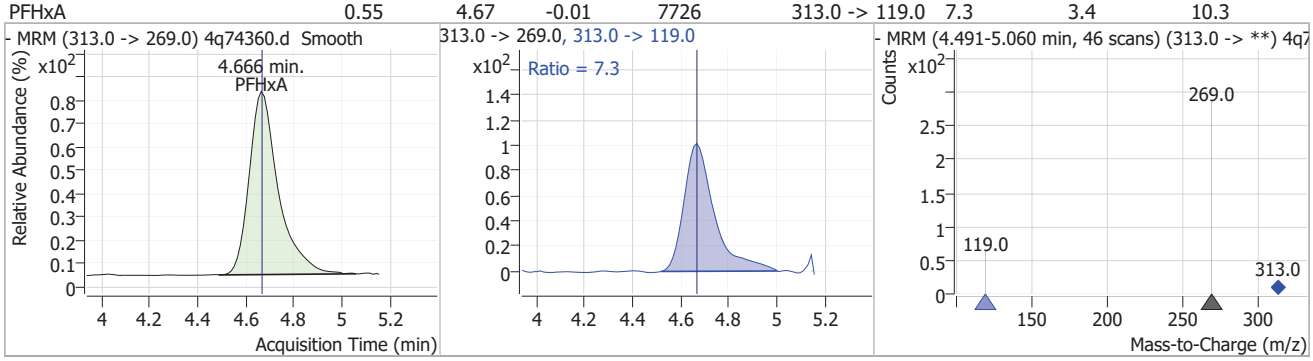


Perfluorinated Compounds by LC/MS/MS

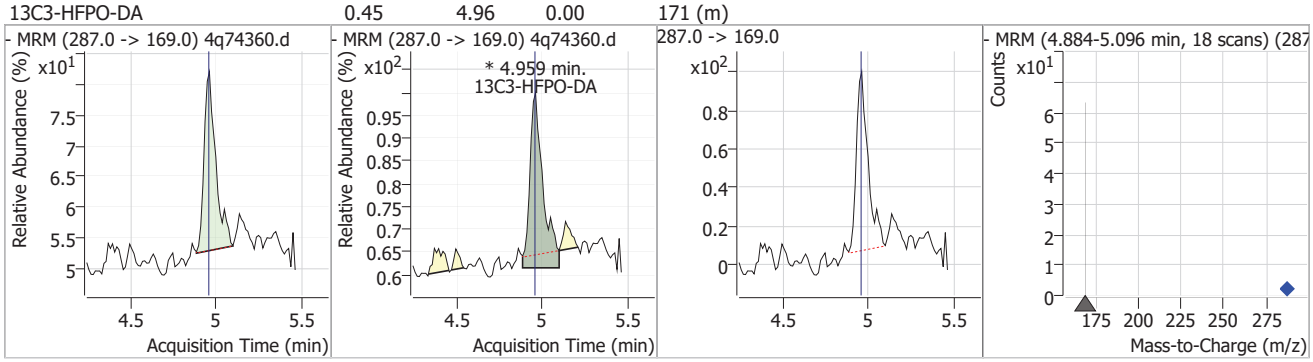
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.29	4.66	-0.01	6899				



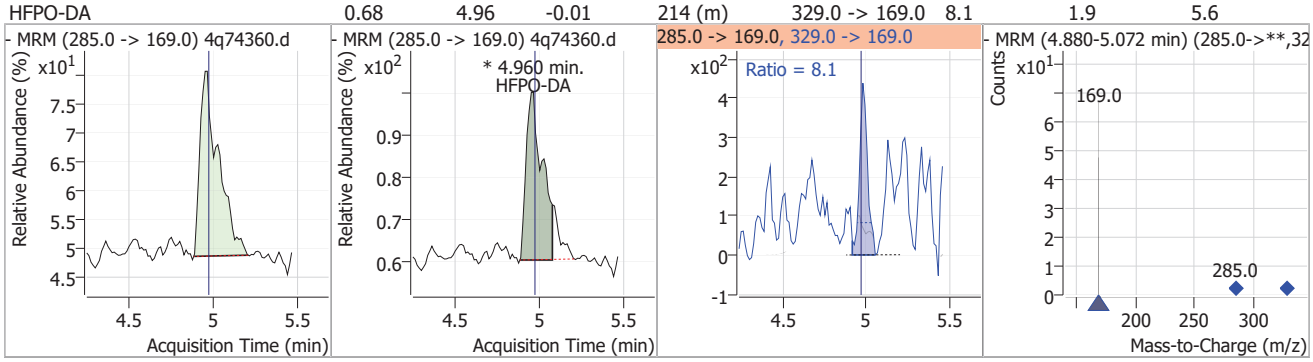
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.55	4.67	-0.01	7726	313.0 -> 119.0	7.3	3.4	10.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.45	4.96	0.00	171 (m)				

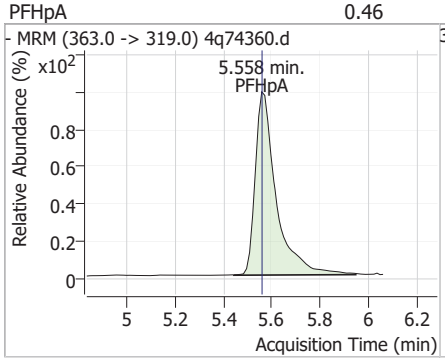


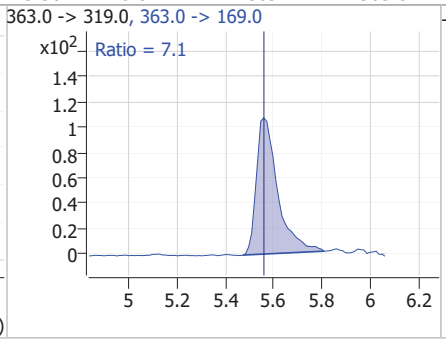
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.68	4.96	-0.01	214 (m)	329.0 -> 169.0	8.1	1.9	5.6

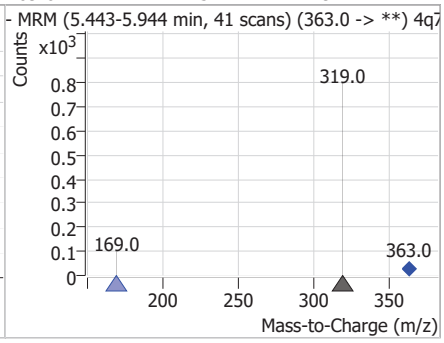


Perfluorinated Compounds by LC/MS/MS

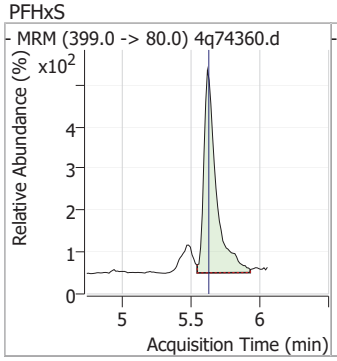
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.46	5.56	-0.01	21869	363.0 -> 169.0	7.1	3.2	9.7

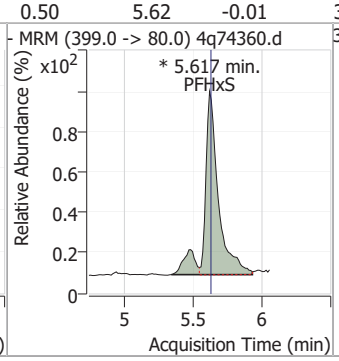


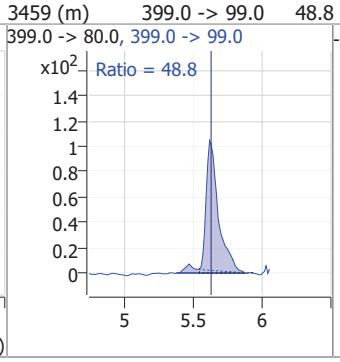


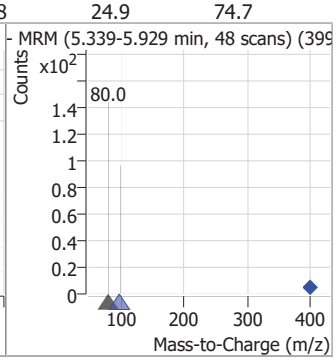


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.50	5.62	-0.01	3459 (m)	399.0 -> 99.0	48.8	24.9	74.7

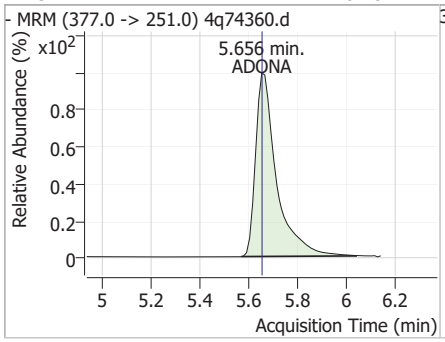


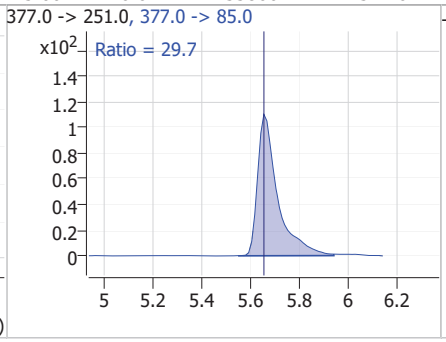


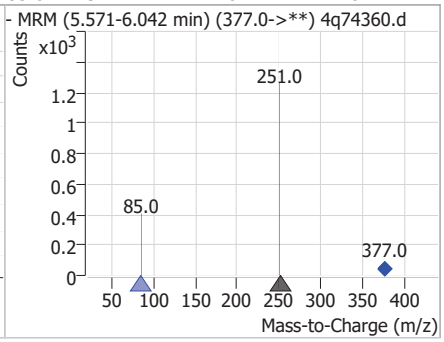




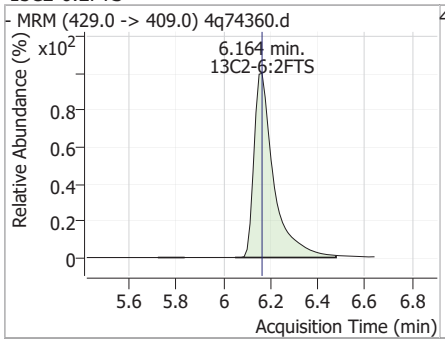
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.48	5.66	-0.01	33806	377.0 -> 85.0	29.7	14.0	42.0

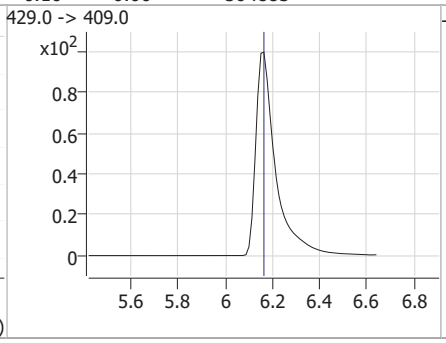


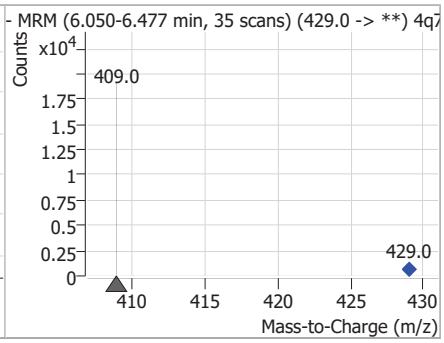




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.16	0.00	504885				







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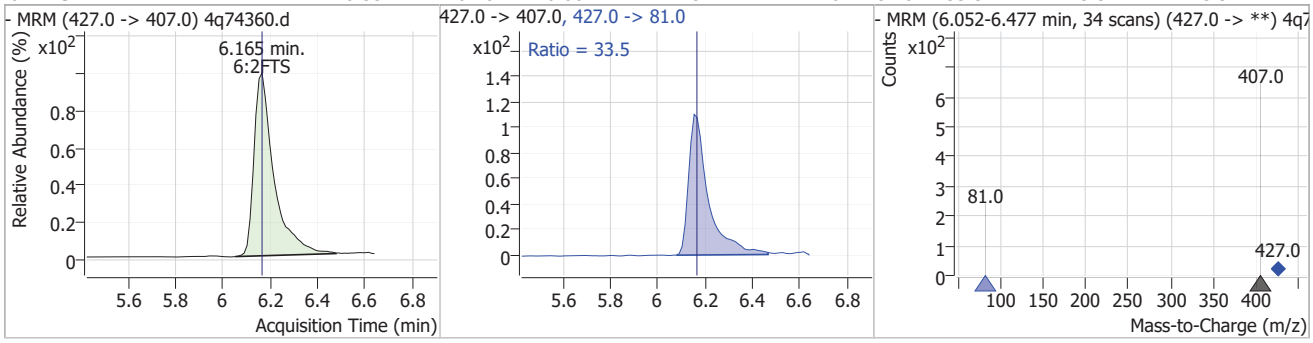
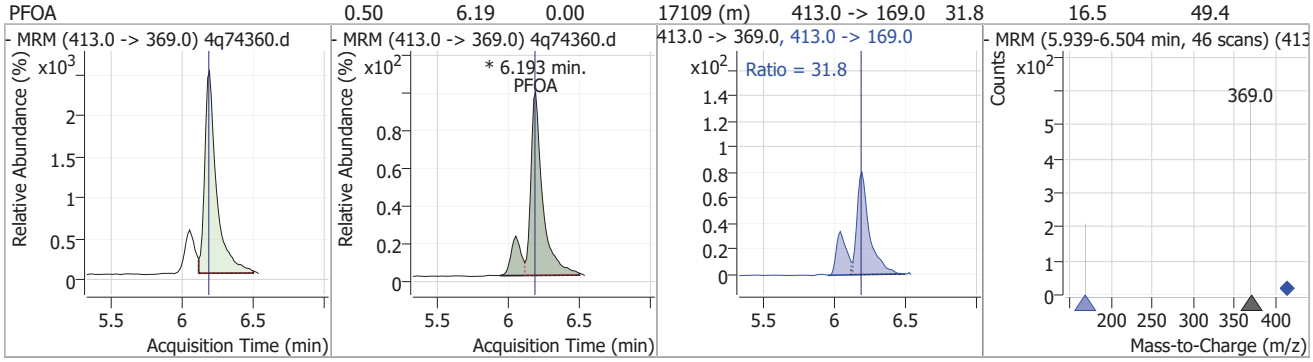
Perfluorinated Compounds by LC/MS/MS

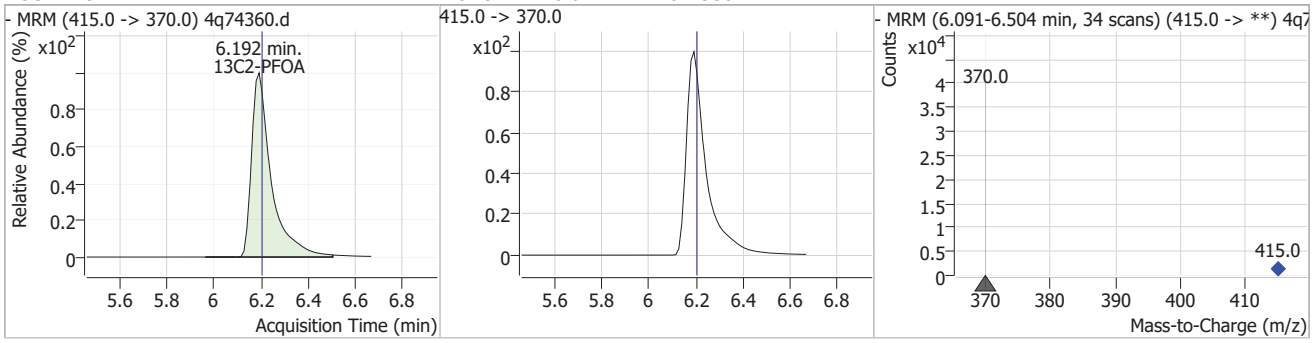
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.55	6.16	0.00	14782	427.0 -> 81.0	33.5	15.3	45.9



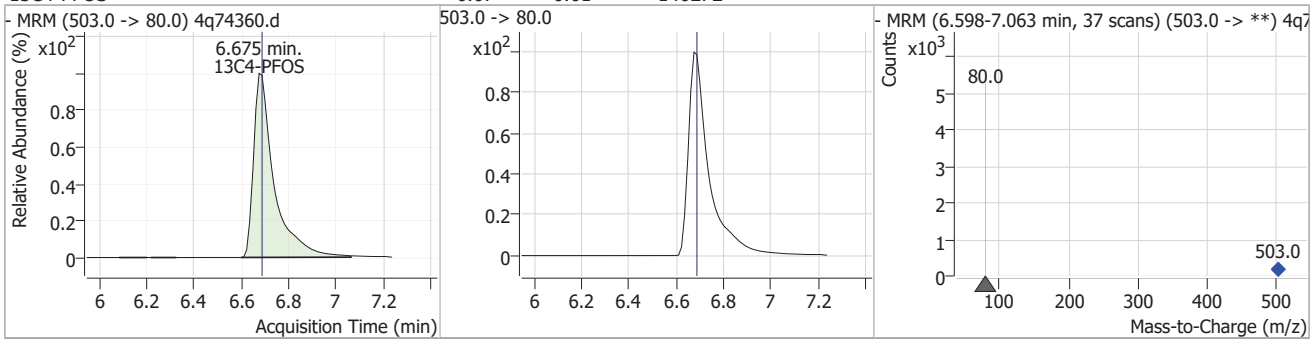
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.50	6.19	0.00	17109 (m)	413.0 -> 169.0	31.8	16.5	49.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.19	-0.01	1024958				

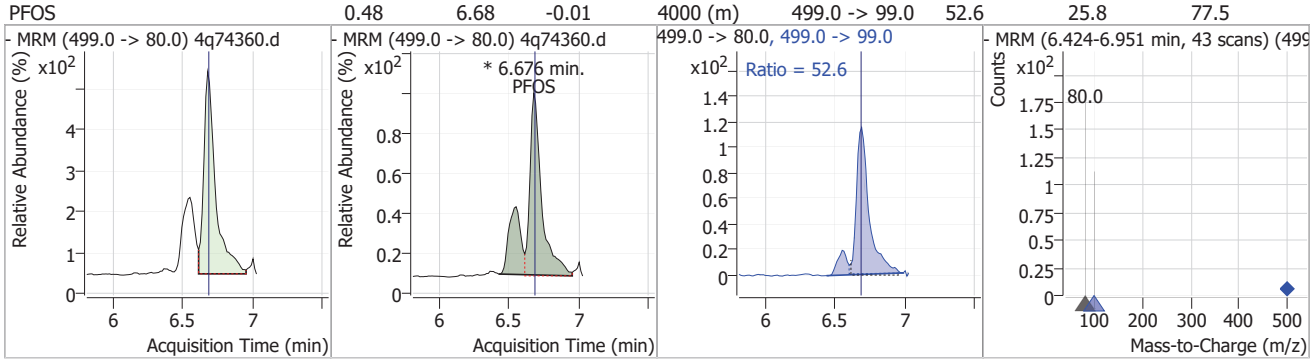


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.67	-0.01	146272				

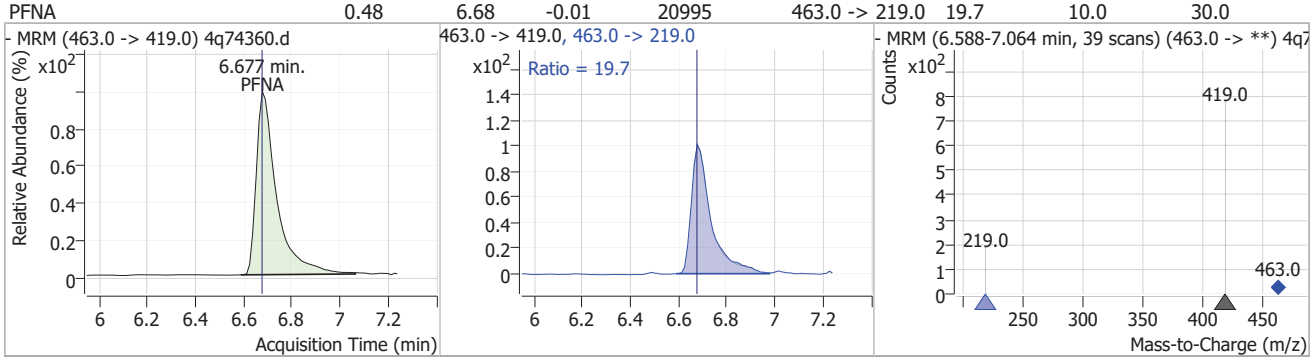


Perfluorinated Compounds by LC/MS/MS

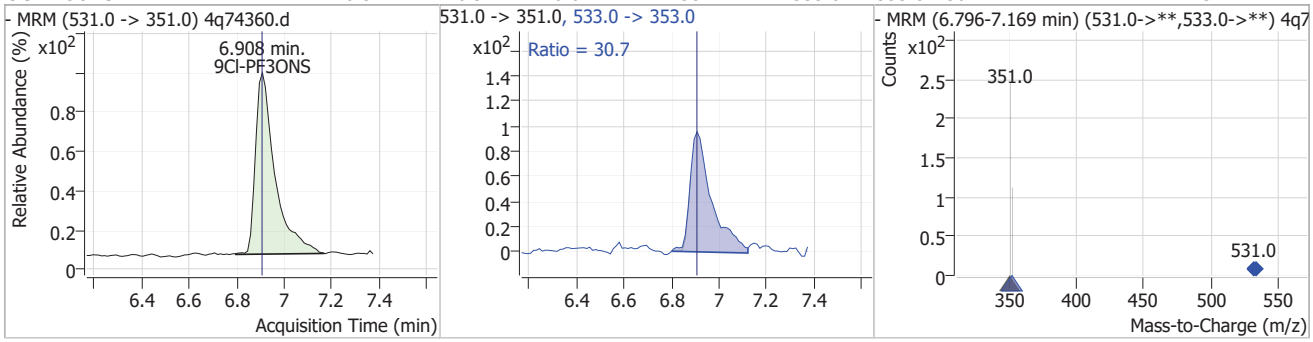
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.48	6.68	-0.01	4000 (m)	499.0 -> 99.0	52.6	25.8	77.5



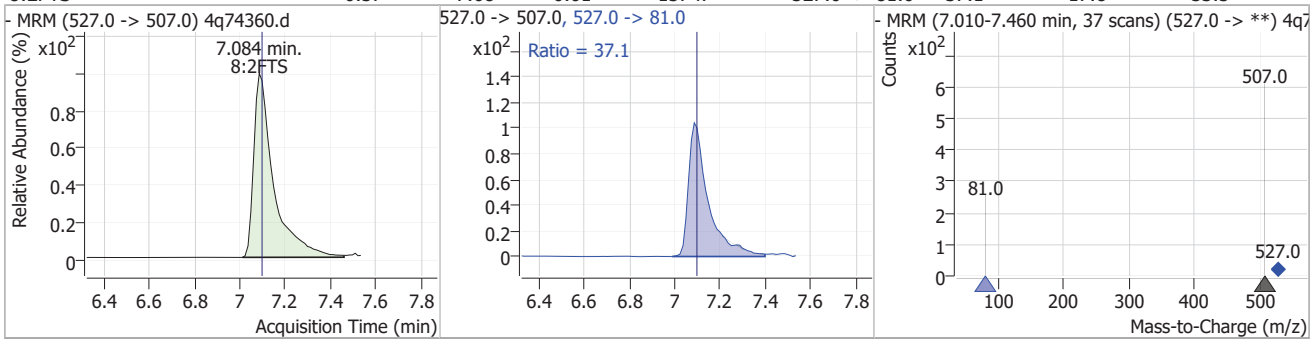
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.48	6.68	-0.01	20995	463.0 -> 219.0	19.7	10.0	30.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.57	6.91	-0.01	4158	533.0 -> 353.0	30.7	14.4	43.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.57	7.08	-0.01	15747	527.0 -> 81.0	37.1	17.8	53.5



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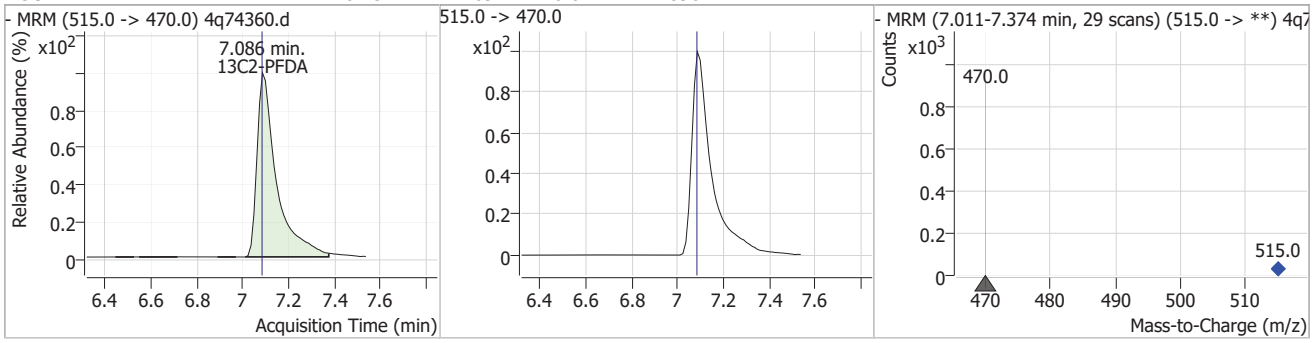
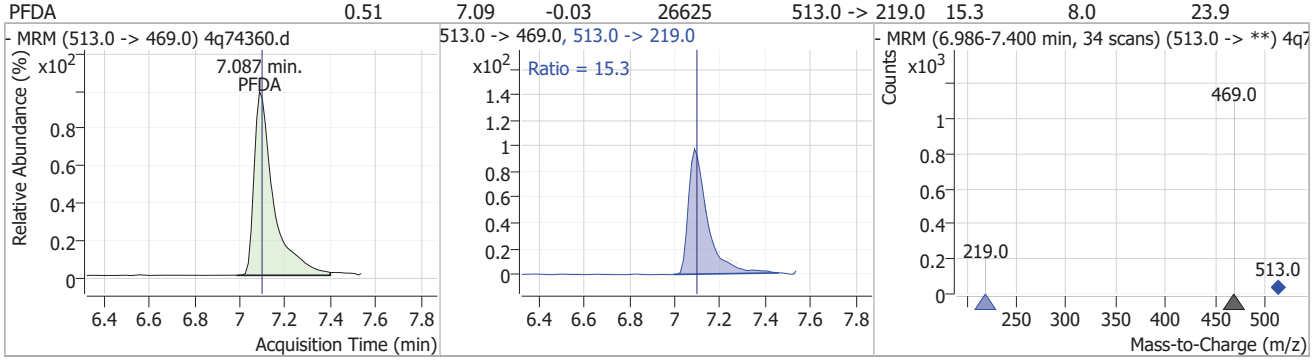
Perfluorinated Compounds by LC/MS/MS

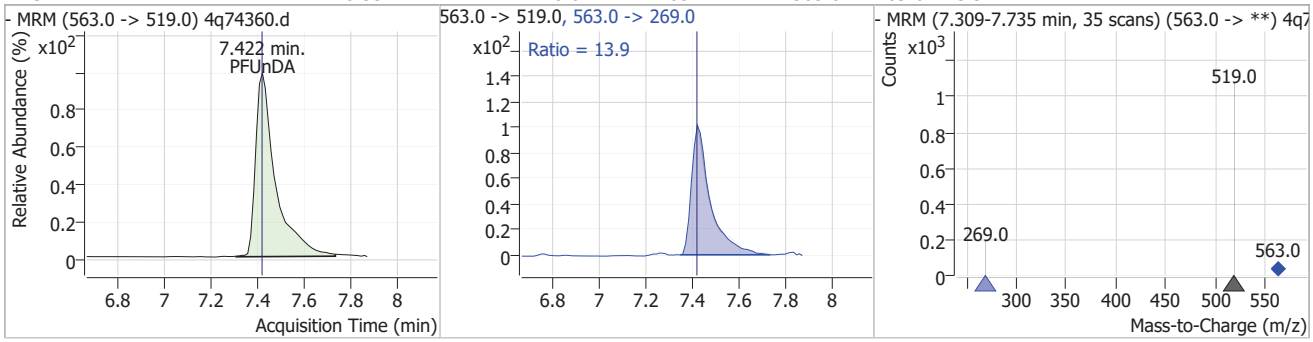
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.25	7.09	-0.01	18907				



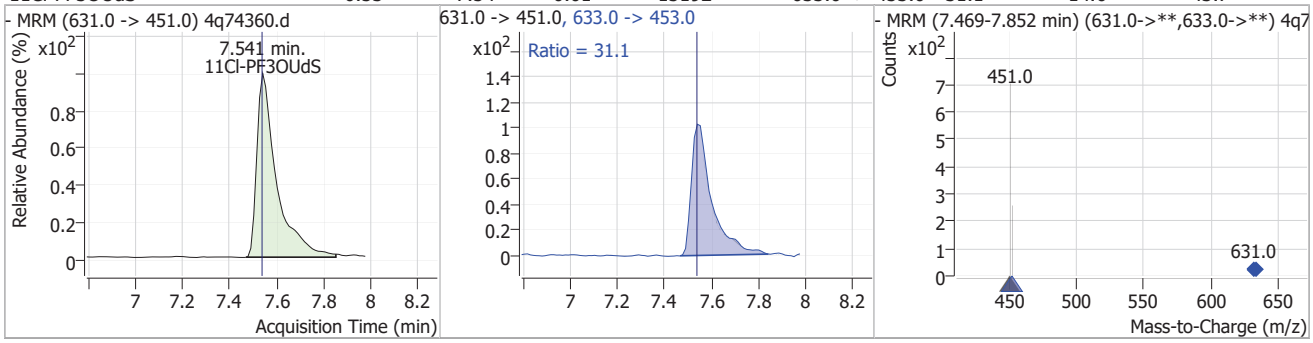
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.51	7.09	-0.03	26625	513.0 -> 219.0	15.3	8.0	23.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.53	7.42	-0.01	26522	563.0 -> 269.0	13.9	7.2	21.7

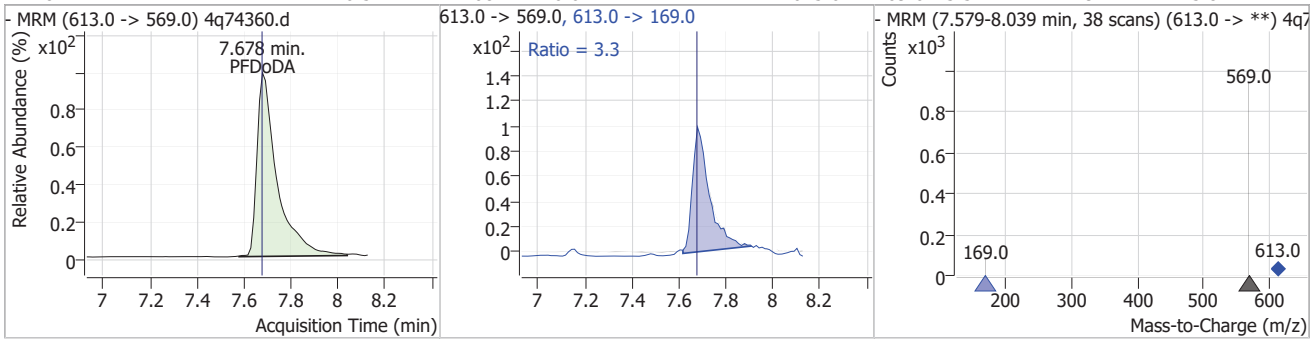


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.53	7.54	-0.01	15192	633.0 -> 453.0	31.1	14.6	43.7

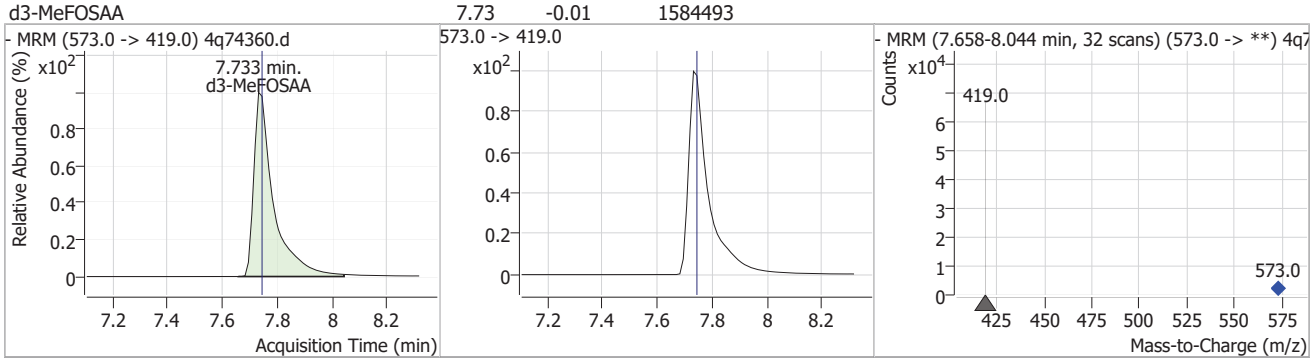


Perfluorinated Compounds by LC/MS/MS

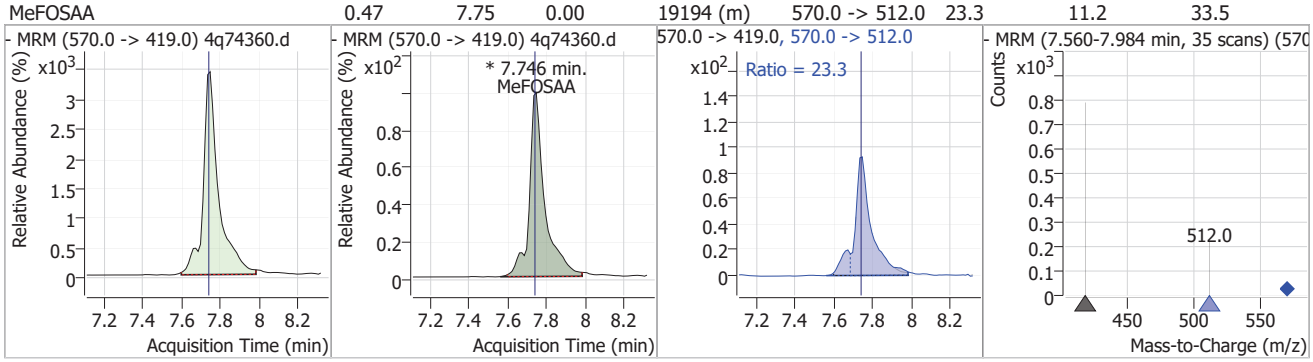
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.51	7.68	-0.01	24747	613.0 -> 169.0	3.3	1.9	5.8



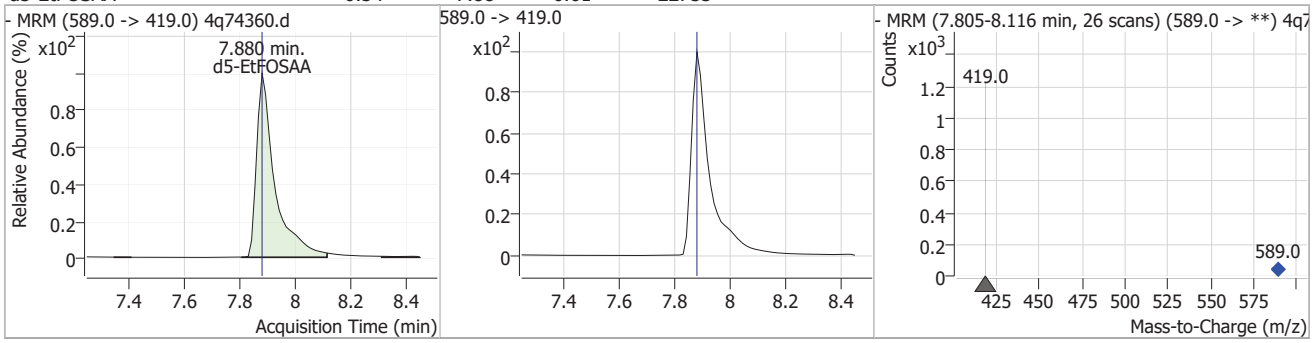
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.73	-0.01	1584493				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.47	7.75	0.00	19194 (m)	570.0 -> 512.0	23.3	11.2	33.5

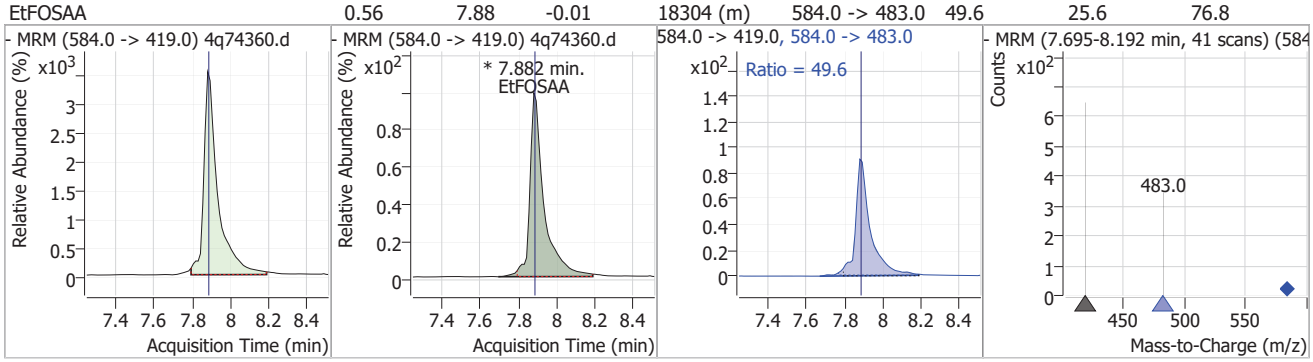


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	0.54	7.88	-0.01	22755				

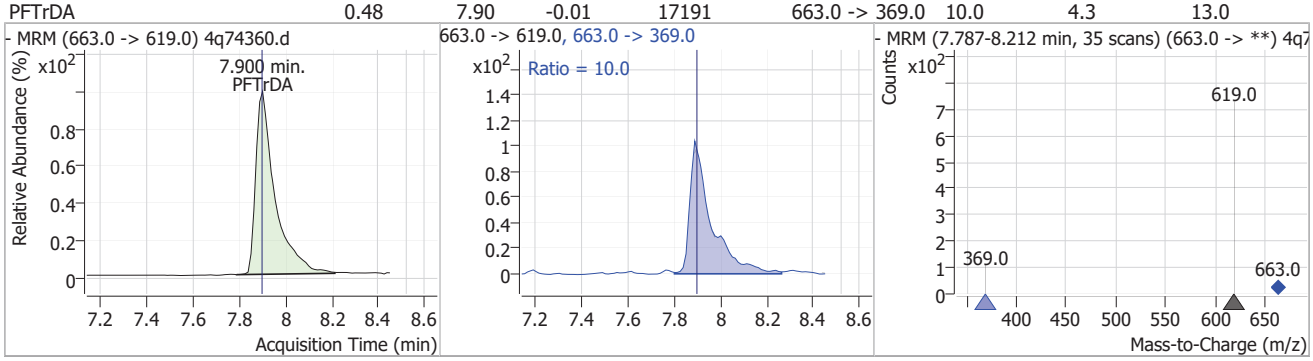


Perfluorinated Compounds by LC/MS/MS

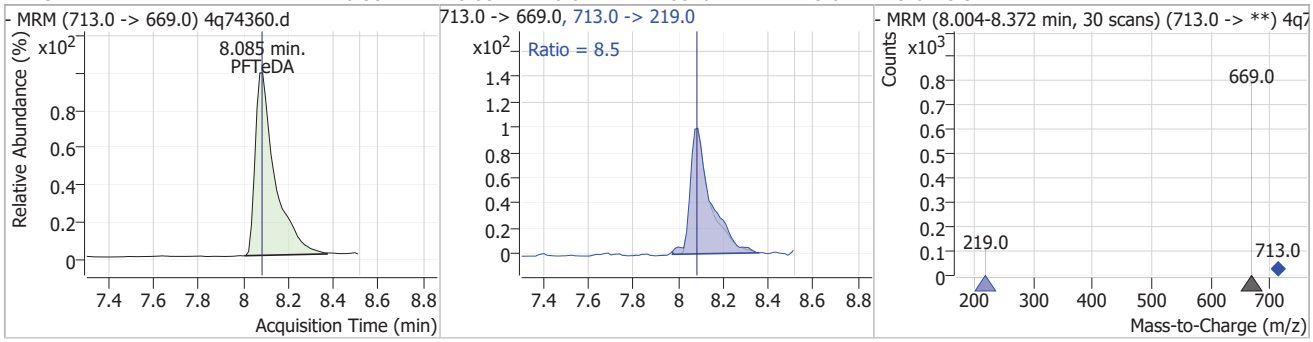
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.56	7.88	-0.01	18304 (m)	584.0 -> 483.0	49.6	25.6	76.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.48	7.90	-0.01	17191	663.0 -> 369.0	10.0	4.3	13.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.58	8.08	-0.01	16040	713.0 -> 219.0	8.5	4.1	12.2



Manual Integration Approval Summary

Sample Number:	S4Q1106-IC1106	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	4Q74360.D	**Analyst approved:**	04/24/25 11:46 (b) (6)
Injection Time:	04/23/25 22:01	**Supervisor approved:**	04/24/25 12:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C3-HFPO-DA			4.96	Poor instrument integration
HFPO-DA (GenX)	13252-13-6		4.96	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		5.62	Split peak
Perfluorooctanoic acid	335-67-1		6.19	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.68	Split peak
MeFOSAA	2355-31-9		7.75	Split peak
EtFOSAA	2991-50-6		7.88	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/24/25 12:51

Perfluorinated Compounds by LC/MS/MS

Data File : 4q74361.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/23/2025 10:15:50 PM
Sample Name : ic1106-1
Vial : P1-A3
DA Method File : 537_042325_S4q1106.quantmethod.xml
Batch Name : s4q1106.batch.bin
Sample Information : OP8985,S4Q1106,250,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.151	429.0 -> 409.0	492409	20.00	µg/L		-0.012
13C2-PFOA	6.192	415.0 -> 370.0	993672	20.00	µg/L		-0.012
13C3-PFPeA	3.107	266.0 -> 222.0	432303	20.00	µg/L		-0.012
13C4-PFOS	6.687	503.0 -> 80.0	143648	20.00	µg/L		0.000
d3-MeFOSAA	7.733	573.0 -> 419.0	1520625	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.086	515.0 -> 470.0	37472	0.51	µg/L		-0.012
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = 5.1%			
13C2-PFHxA	4.664	315.0 -> 270.0	13233	0.57	µg/L		-0.012
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = 5.7%			
d5-EtFOSAA	7.880	589.0 -> 419.0	43751	1.08	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 5.4%			
13C3-HFPO-DA	4.972	287.0 -> 169.0	414	1.12	µg/L	m	0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 5.6%			
Target Compounds							QValue
6:2FTS	6.152	427.0 -> 407.0	30761	1.18	µg/L		100
8:2FTS	7.084	527.0 -> 507.0	31059	1.15	µg/L		99
EtFOSAA	7.882	584.0 -> 419.0	34196	1.09	µg/L	m	98
MeFOSAA	7.746	570.0 -> 419.0	35984	0.92	µg/L	m	99
PFBS	3.541	299.0 -> 80.0	6542	1.00	µg/L		96
PFDA	7.087	513.0 -> 469.0	52947	1.04	µg/L		99
PFDoDA	7.678	613.0 -> 569.0	48296	1.00	µg/L		99
PFHpA	5.558	363.0 -> 319.0	43900	0.96	µg/L		99
PFHxA	4.666	313.0 -> 269.0	14765	1.08	µg/L		99
PFHxS	5.617	399.0 -> 80.0	6690	0.99	µg/L	m	99
PFNA	6.677	463.0 -> 419.0	41437	0.97	µg/L		100
PFOA	6.193	413.0 -> 369.0	31967	0.96	µg/L	m	100
PFOS	6.689	499.0 -> 80.0	7626	0.94	µg/L	m	96
PFPeA	3.110	263.0 -> 219.0	25661	0.95	µg/L		100
PFTeDA	8.085	713.0 -> 669.0	31024	1.13	µg/L		99
PFTrDA	7.900	663.0 -> 619.0	33348	0.96	µg/L		99
PFUnDA	7.422	563.0 -> 519.0	51844	1.06	µg/L		100
ADONA	5.656	377.0 -> 251.0	68025	0.99	µg/L		99
9Cl-PF3ONS	6.908	531.0 -> 351.0	7408	1.05	µg/L		91
11Cl-PF3OUdS	7.541	631.0 -> 451.0	30569	1.09	µg/L		97
HFPO-DA	4.948	285.0 -> 169.0	305	0.99	µg/L	#m	91

 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.18

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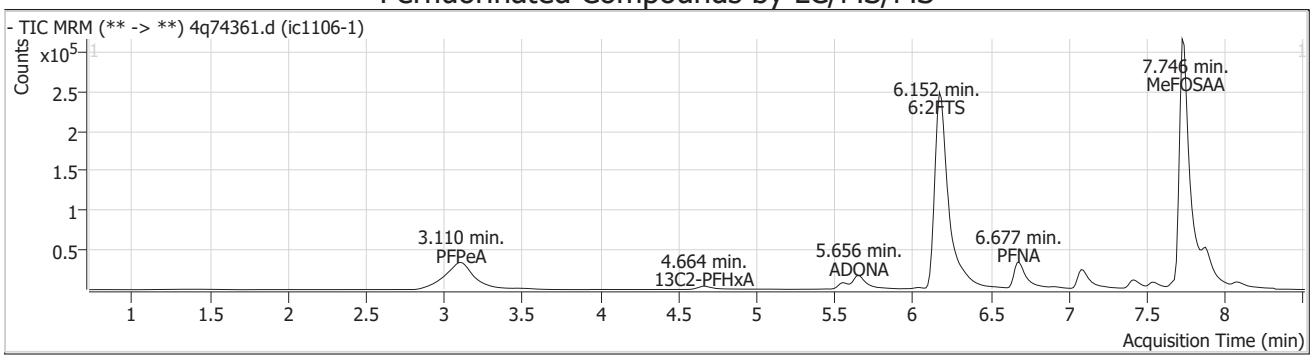
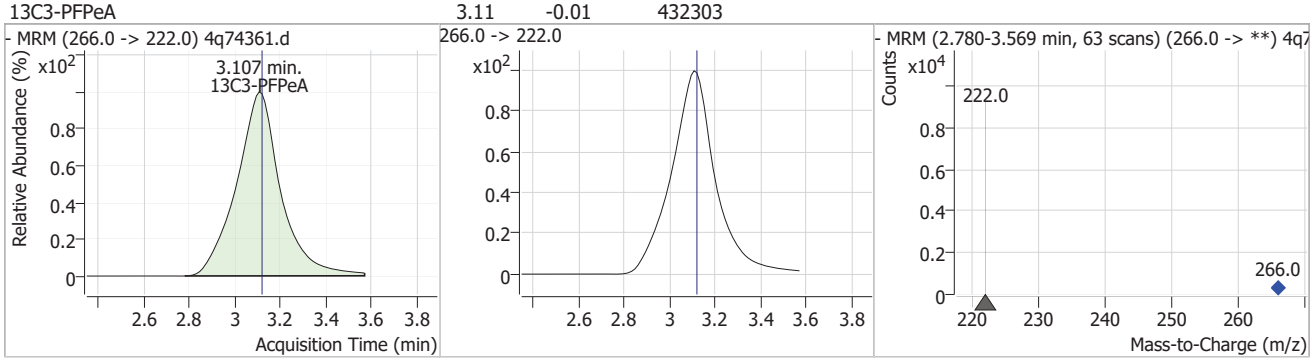
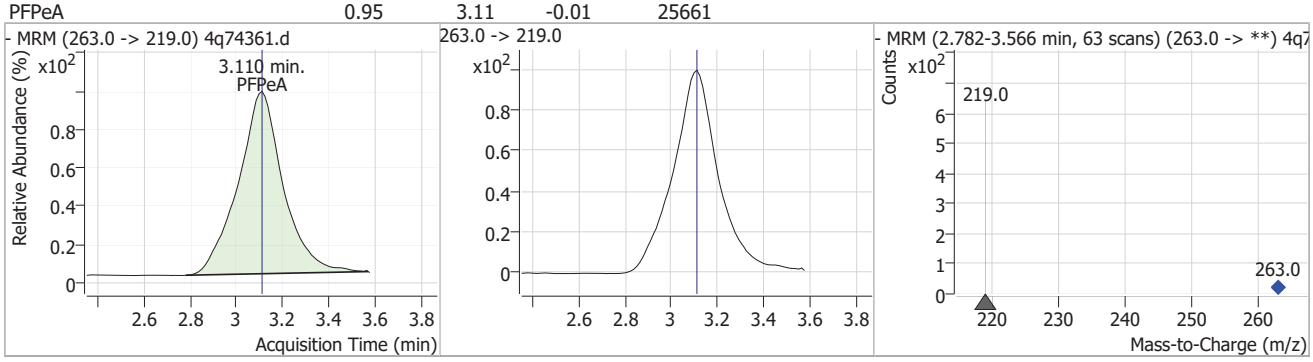
Perfluorinated Compounds by LC/MS/MS



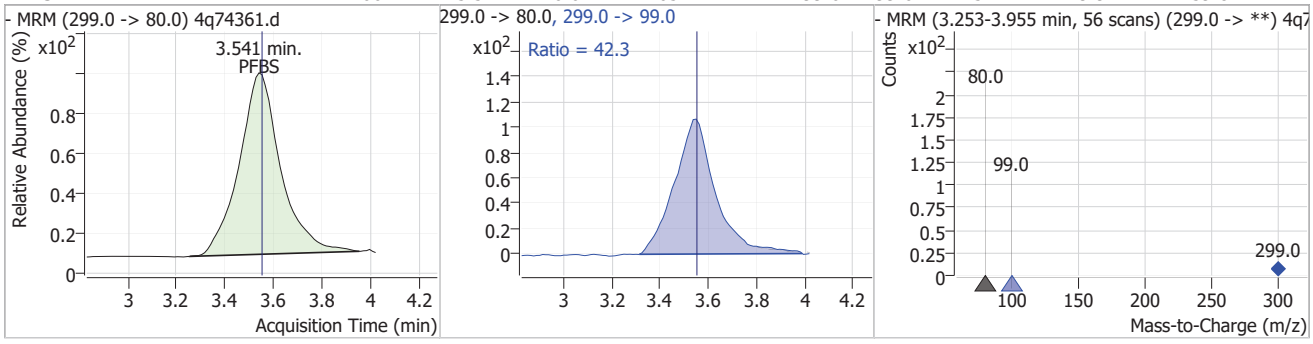
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.11	-0.01	432303				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.95	3.11	-0.01	25661				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.00	3.54	-0.01	6542	299.0 -> 99.0	42.3	19.9	59.8



7.7.18

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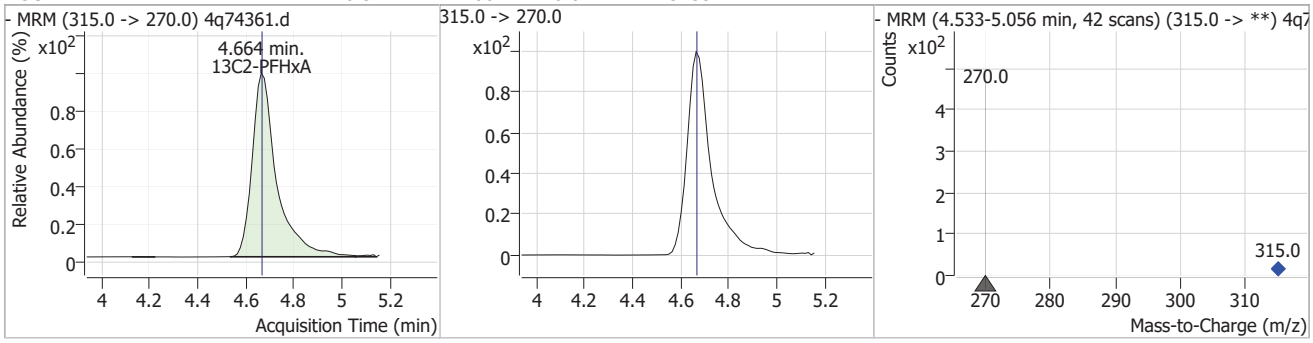
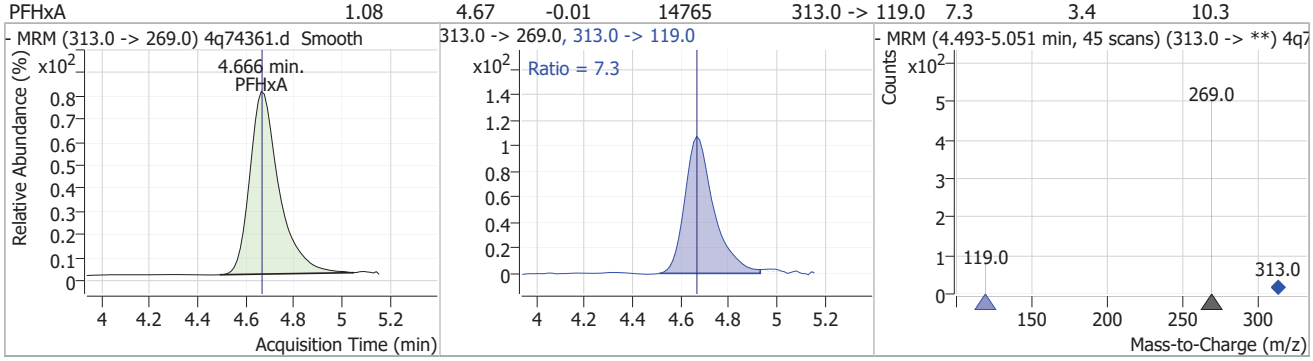
Perfluorinated Compounds by LC/MS/MS

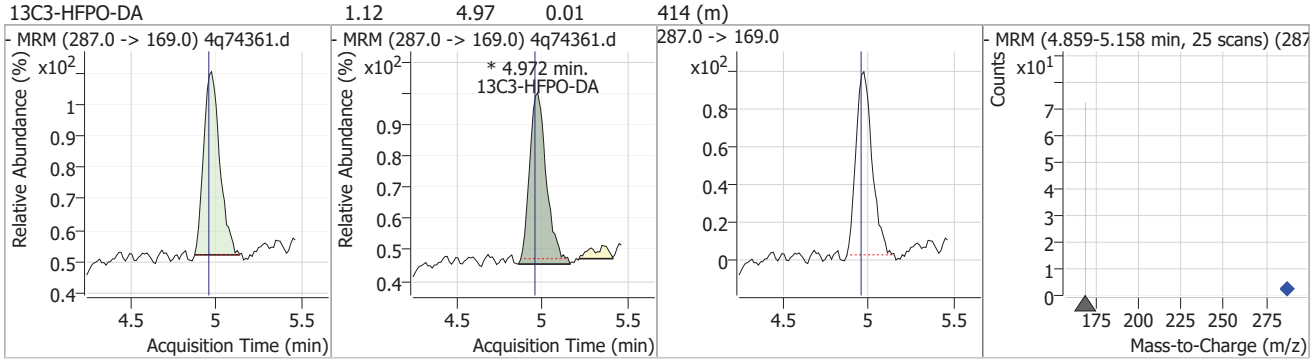
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.57	4.66	-0.01	13233				



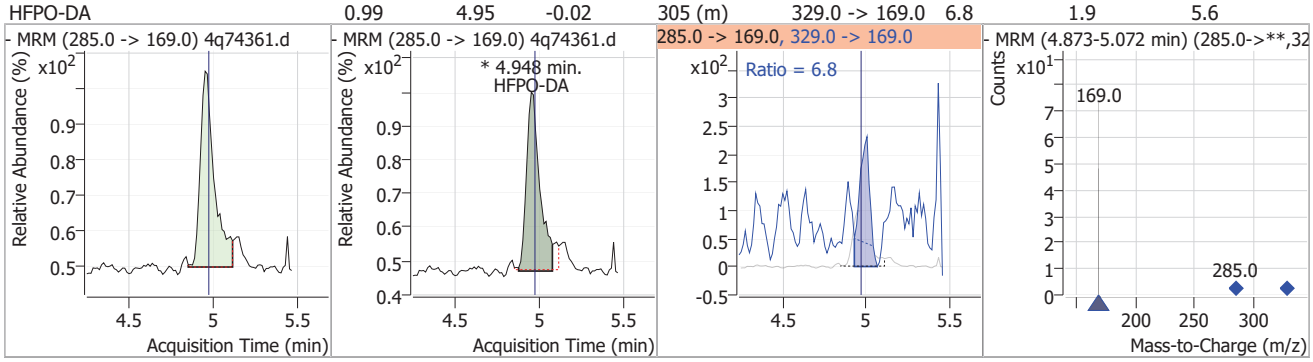
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.08	4.67	-0.01	14765	313.0 -> 119.0	7.3	3.4	10.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	1.12	4.97	0.01	414 (m)				

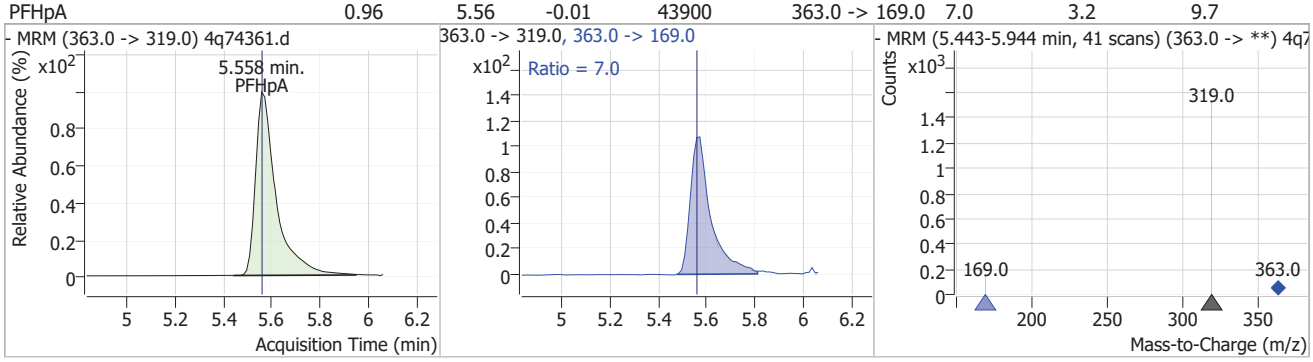


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.99	4.95	-0.02	305 (m)	329.0 -> 169.0	6.8	1.9	5.6

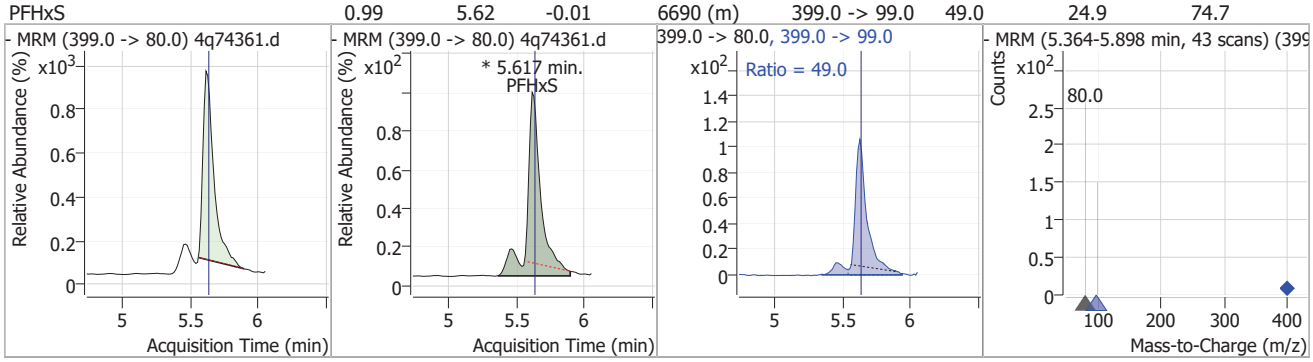


Perfluorinated Compounds by LC/MS/MS

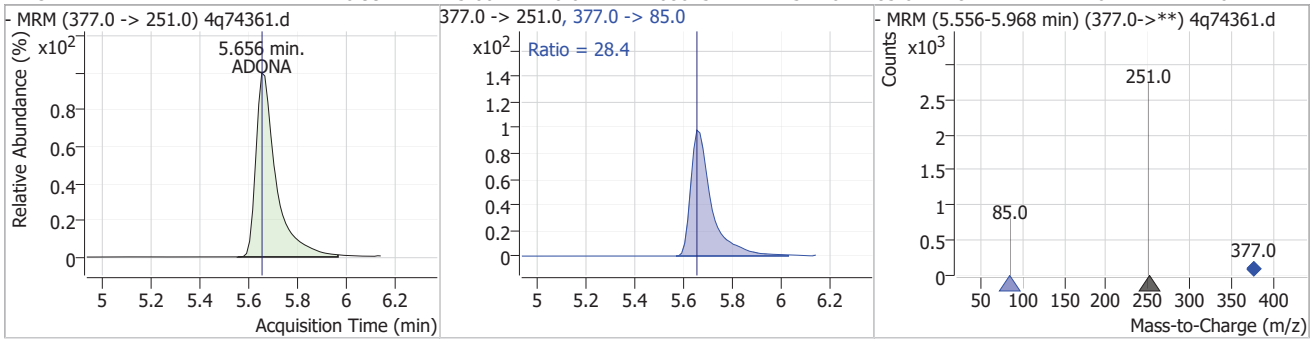
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.96	5.56	-0.01	43900	363.0 -> 169.0	7.0	3.2	9.7



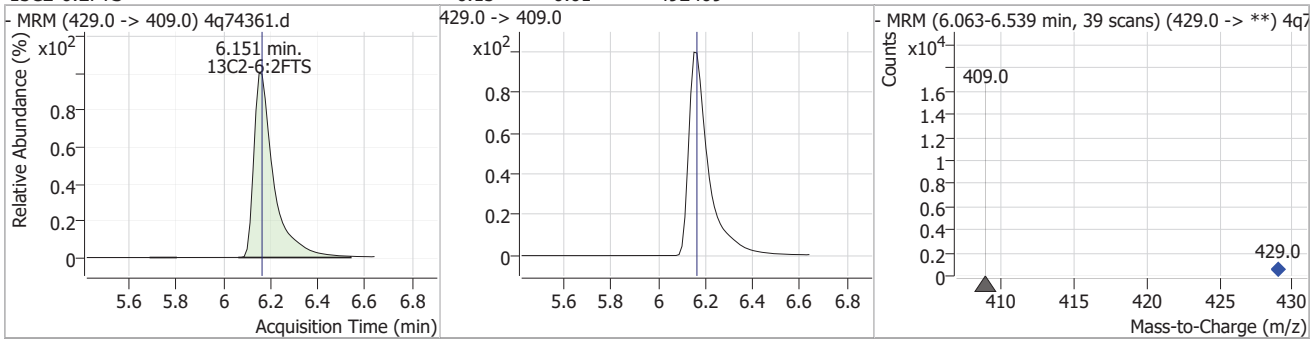
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.99	5.62	-0.01	6690 (m)	399.0 -> 99.0	49.0	24.9	74.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.99	5.66	-0.01	68025	377.0 -> 85.0	28.4	14.0	42.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.15	-0.01	492409				



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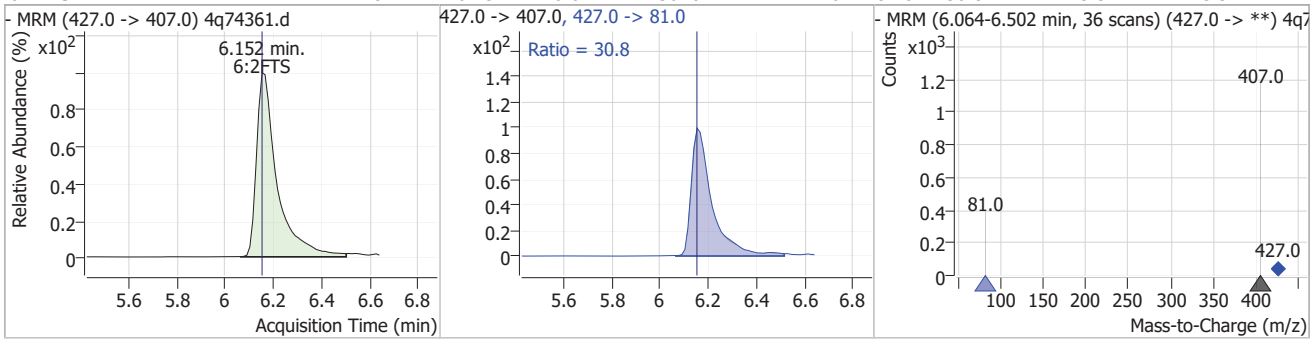
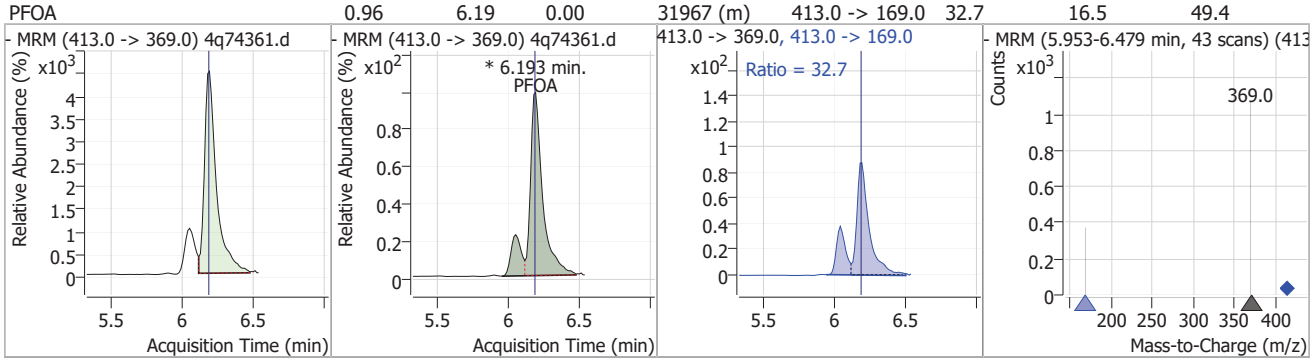
Perfluorinated Compounds by LC/MS/MS

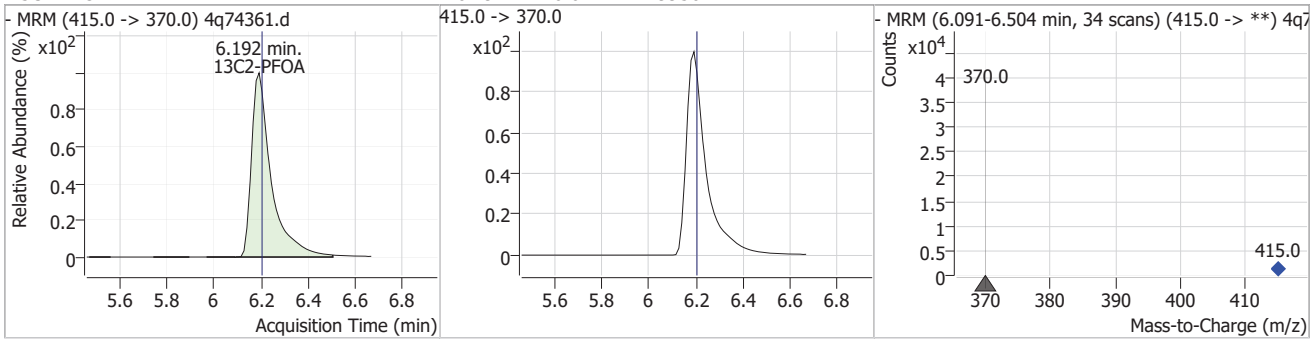
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.18	6.15	-0.01	30761	427.0 -> 81.0	30.8	15.3	45.9



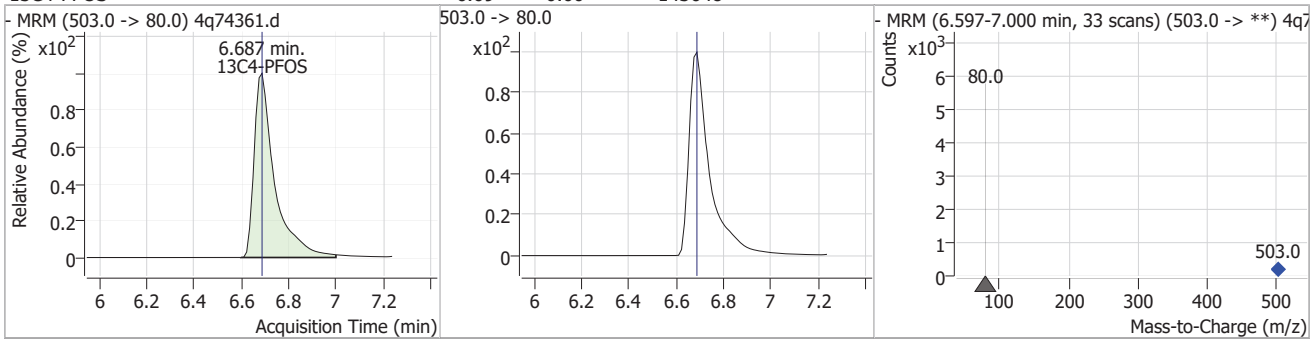
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.96	6.19	0.00	31967 (m)	413.0 -> 169.0	32.7	16.5	49.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.19	-0.01	993672				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.69	0.00	143648				



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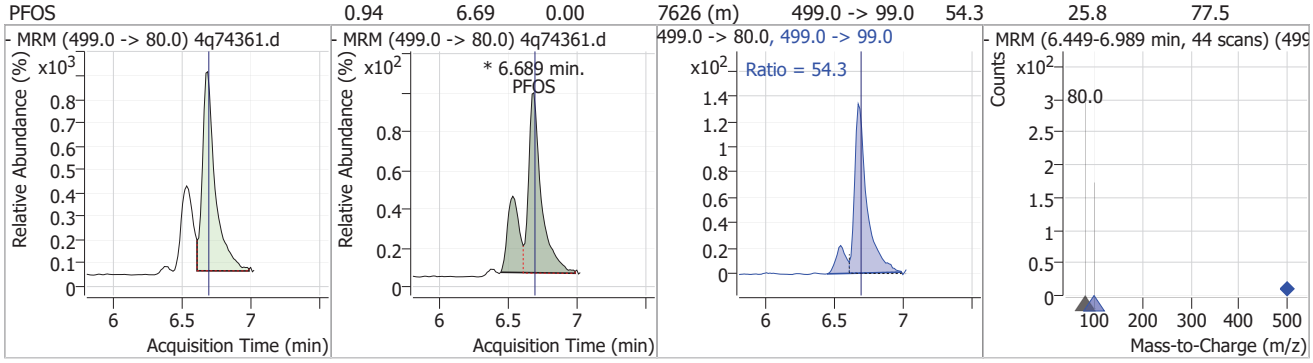
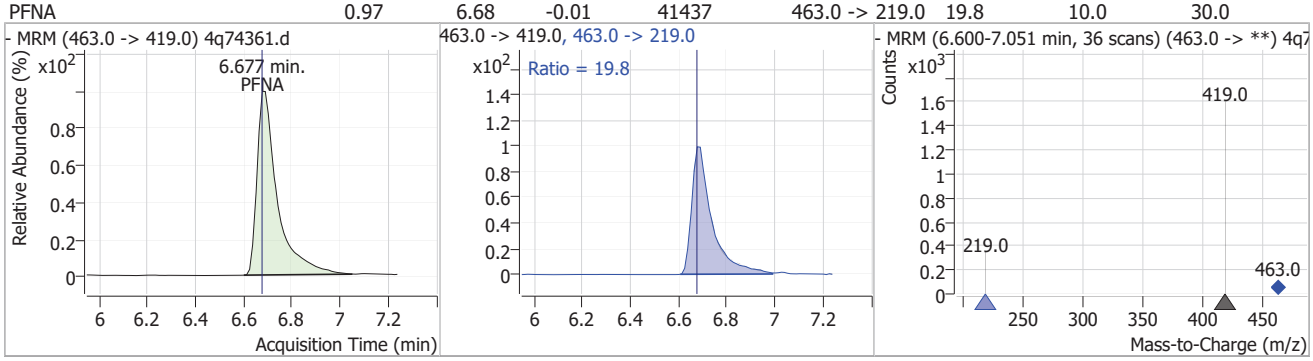
Perfluorinated Compounds by LC/MS/MS

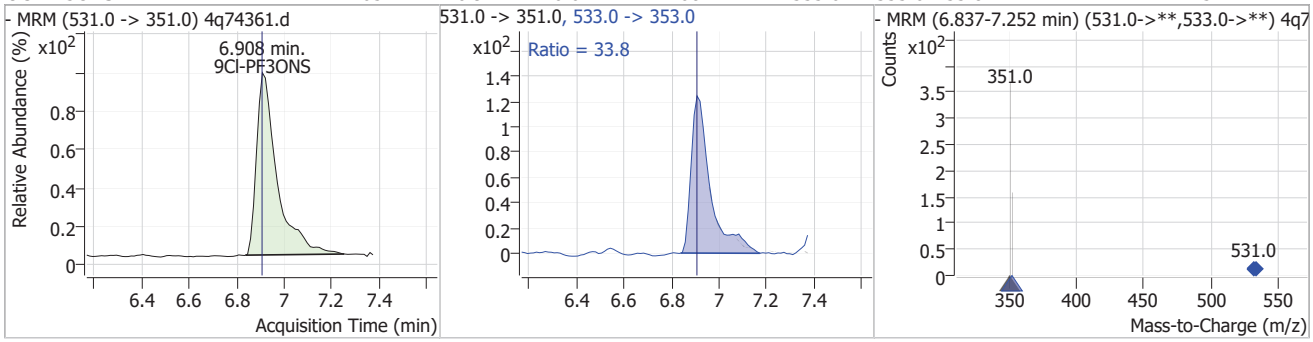
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.94	6.69	0.00	7626 (m)	499.0 -> 99.0	54.3	25.8	77.5



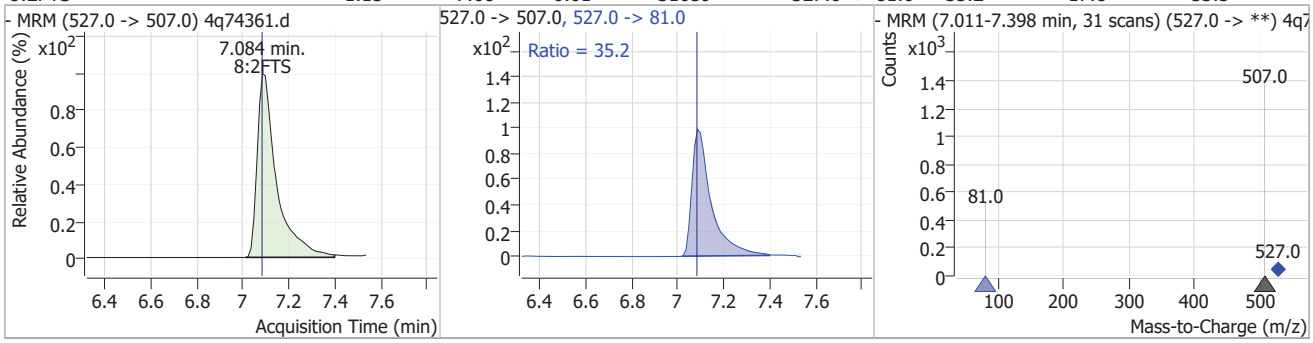
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.97	6.68	-0.01	41437	463.0 -> 219.0	19.8	10.0	30.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	1.05	6.91	-0.01	7408	533.0 -> 353.0	33.8	14.4	43.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	1.15	7.08	-0.01	31059	527.0 -> 81.0	35.2	17.8	53.5



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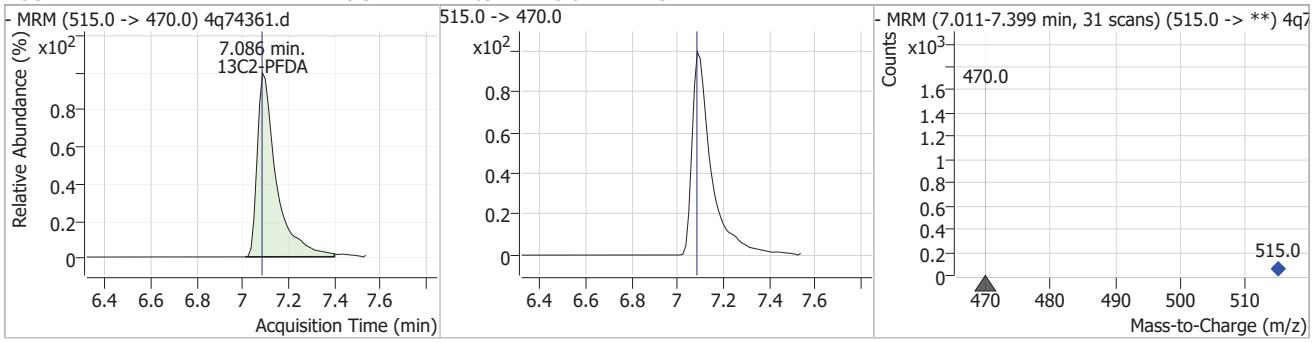
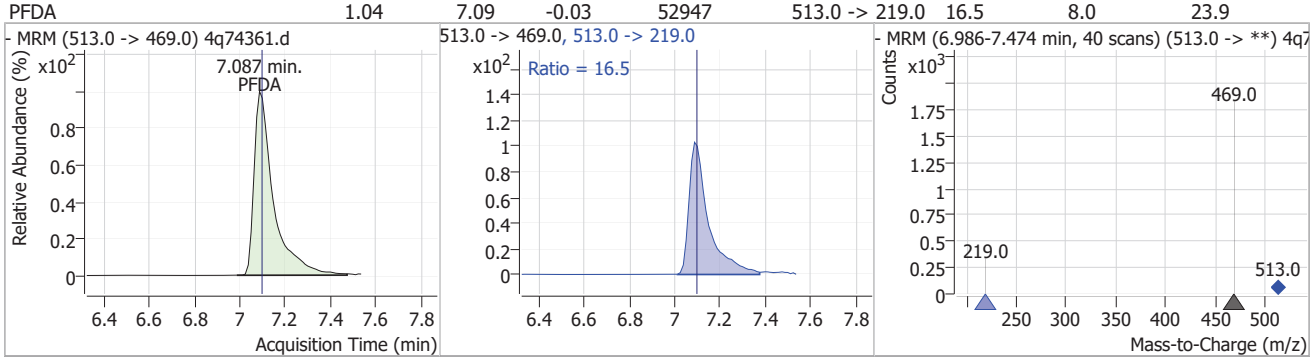
Perfluorinated Compounds by LC/MS/MS

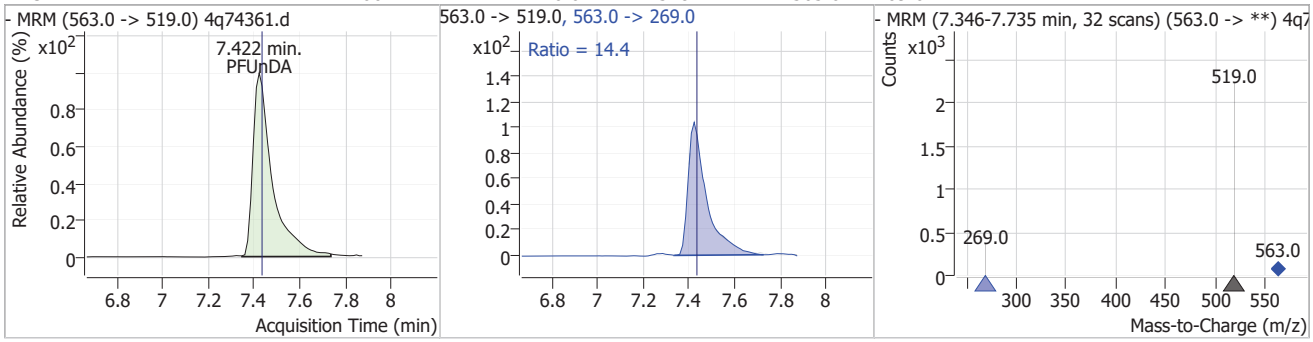
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.51	7.09	-0.01	37472				



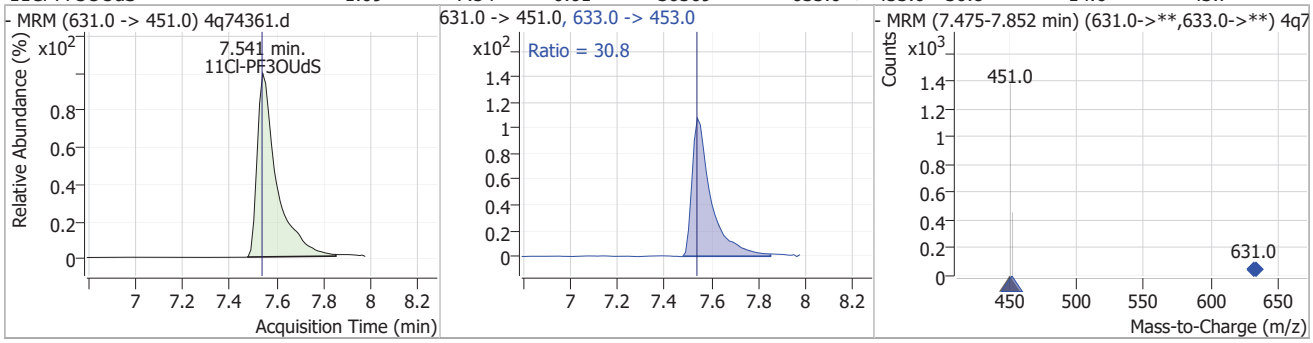
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.04	7.09	-0.03	52947	513.0 -> 219.0	16.5	8.0	23.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.06	7.42	-0.01	51844	563.0 -> 269.0	14.4	7.2	21.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	1.09	7.54	-0.01	30569	633.0 -> 453.0	30.8	14.6	43.7



7.7.18

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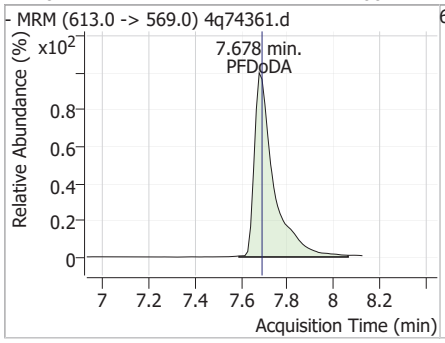
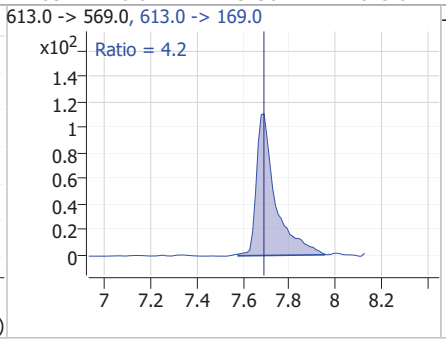
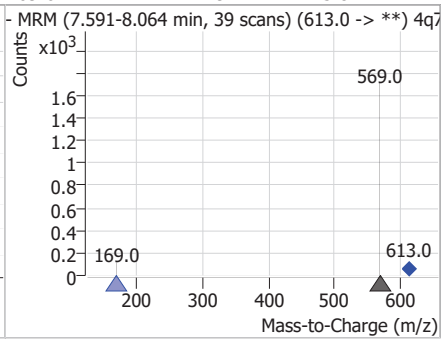
Perfluorinated Compounds by LC/MS/MS

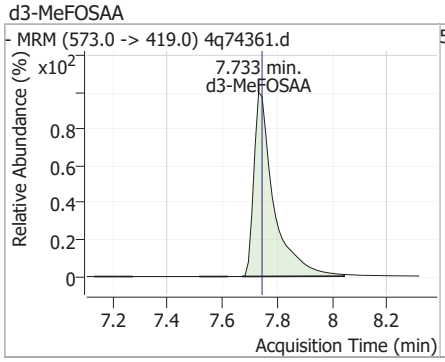
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	1.00	7.68	-0.01	48296	613.0 -> 169.0	4.2	1.9	5.8

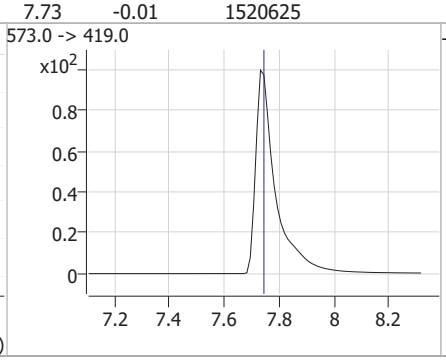


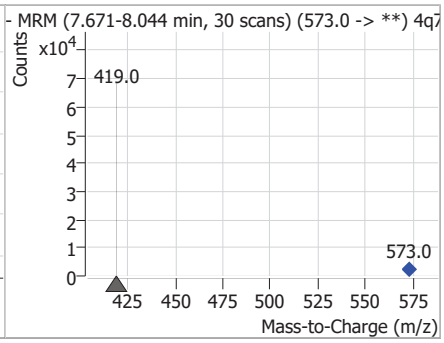




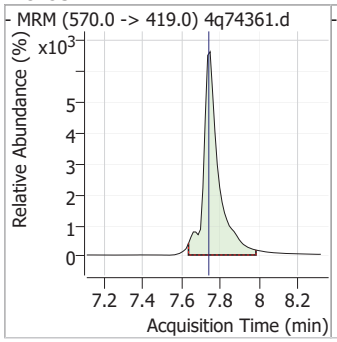
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.73	-0.01	1520625				

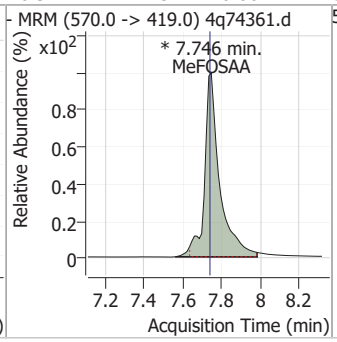


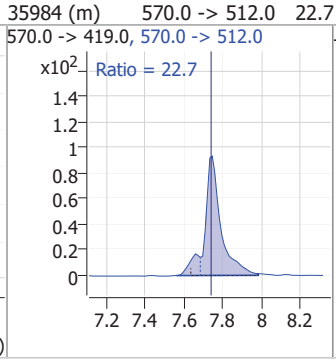


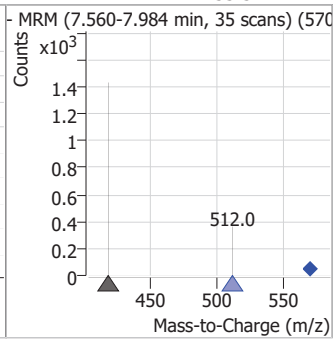


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.92	7.75	0.00	35984 (m)	570.0 -> 512.0	22.7	11.2	33.5

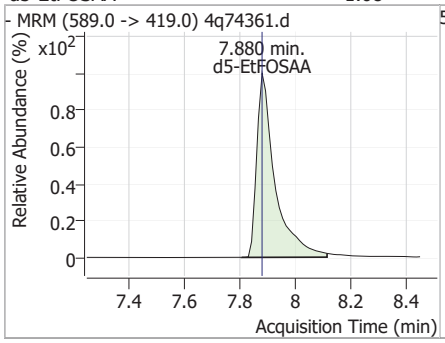


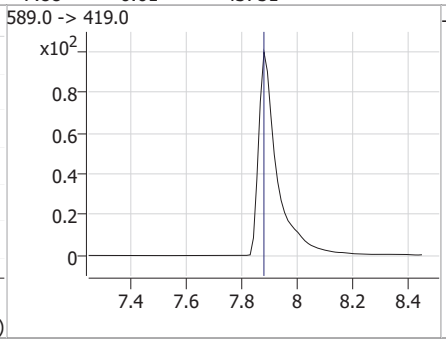


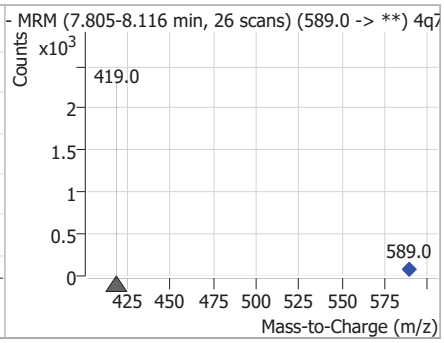




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	1.08	7.88	-0.01	43751				







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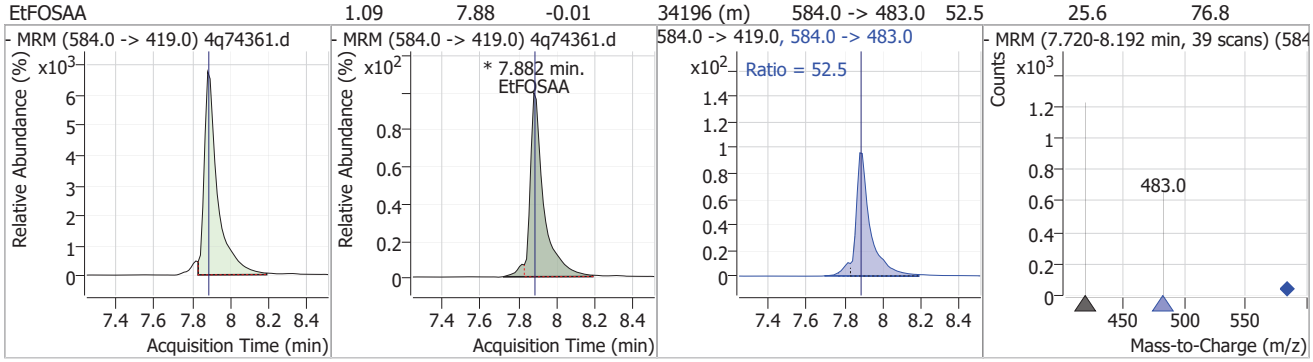
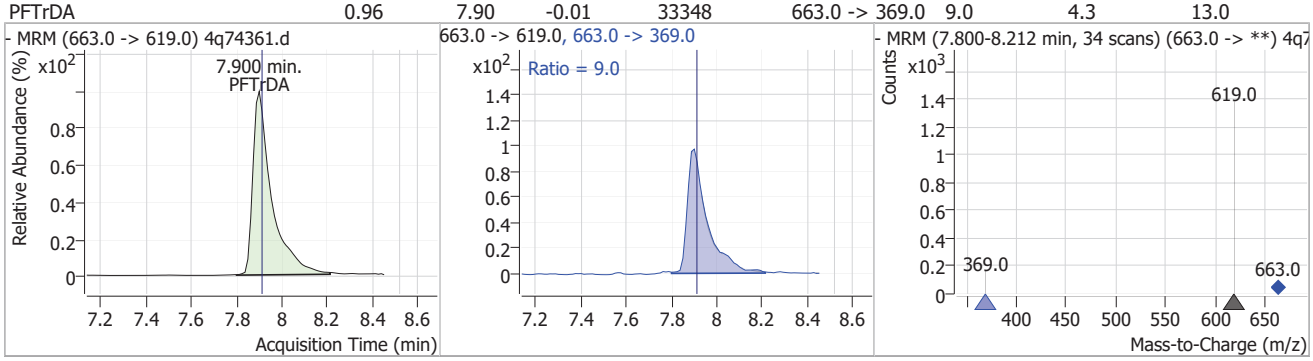
Perfluorinated Compounds by LC/MS/MS

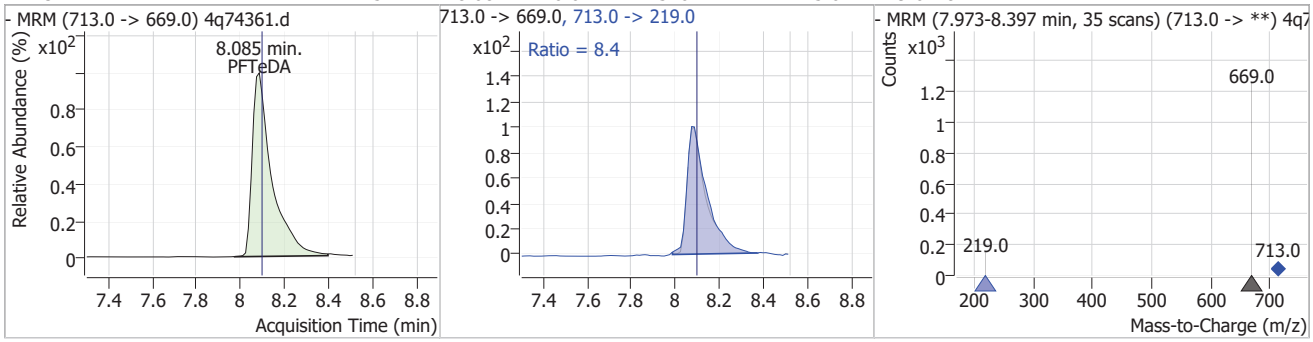
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.09	7.88	-0.01	34196 (m)	584.0 -> 483.0	52.5	25.6	76.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.96	7.90	-0.01	33348	663.0 -> 369.0	9.0	4.3	13.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.13	8.08	-0.01	31024	713.0 -> 219.0	8.4	4.1	12.2



7.7.18

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Manual Integration Approval Summary

Sample Number: S4Q1106-IC1106
Lab FileID: 4Q74361.D
Injection Time: 04/23/25 22:15
Method: EPA 537.1 REV 2.0
Analyst approved: 04/24/25 11:46 (b) (6)
Supervisor approved: 04/24/25 12:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
HFPO-DA (GenX)	13252-13-6		4.95	Poor instrument integration
13C3-HFPO-DA			4.97	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		5.62	Split peak
Perfluorooctanoic acid	335-67-1		6.19	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.69	Split peak
MeFOSAA	2355-31-9		7.75	Split peak
EtFOSAA	2991-50-6		7.88	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/24/25 12:51

Perfluorinated Compounds by LC/MS/MS

Data File : 4q74362.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/23/2025 10:30:06 PM
Sample Name : ic1106-2
Vial : P1-A4
DA Method File : 537_042325_S4q1106.quantmethod.xml
Batch Name : s4q1106.batch.bin
Sample Information : OP8985,S4Q1106,250,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.164	429.0 -> 409.0	526602	20.00	µg/L		0.000
13C2-PFOA	6.192	415.0 -> 370.0	1062013	20.00	µg/L		-0.012
13C3-PFPeA	3.107	266.0 -> 222.0	463200	20.00	µg/L		-0.012
13C4-PFOS	6.687	503.0 -> 80.0	151768	20.00	µg/L		0.000
d3-MeFOSAA	7.745	573.0 -> 419.0	1618027	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.098	515.0 -> 470.0	69434	0.89	µg/L		0.000
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = 8.9%			
13C2-PFHxA	4.664	315.0 -> 270.0	23493	0.94	µg/L		-0.012
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = 9.4%			
d5-EtFOSAA	7.880	589.0 -> 419.0	80240	1.86	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 9.3%			
13C3-HFPO-DA	4.959	287.0 -> 169.0	704	1.78	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 8.9%			
Target Compounds							QValue
6:2FTS	6.165	427.0 -> 407.0	53602	1.92	µg/L		99
8:2FTS	7.084	527.0 -> 507.0	56226	1.95	µg/L		98
EtFOSAA	7.894	584.0 -> 419.0	62250	1.86	µg/L	m	100
MeFOSAA	7.746	570.0 -> 419.0	65505	1.57	µg/L	m	99
PFBS	3.541	299.0 -> 80.0	12270	1.78	µg/L		97
PFDA	7.087	513.0 -> 469.0	96612	1.78	µg/L		99
PFDoDA	7.691	613.0 -> 569.0	86764	1.71	µg/L		100
PFHpA	5.570	363.0 -> 319.0	80928	1.65	µg/L		100
PFHxA	4.666	313.0 -> 269.0	26911	1.85	µg/L		99
PFHxS	5.630	399.0 -> 80.0	12115	1.69	µg/L	m	100
PFNA	6.689	463.0 -> 419.0	74669	1.63	µg/L		100
PFOA	6.193	413.0 -> 369.0	57640	1.62	µg/L	m	98
PFOS	6.676	499.0 -> 80.0	14748	1.72	µg/L	m	98
PFPeA	3.110	263.0 -> 219.0	46004	1.59	µg/L		100
PFTeDA	8.085	713.0 -> 669.0	56017	1.93	µg/L		99
PFTrDA	7.900	663.0 -> 619.0	60171	1.63	µg/L		99
PFUnDA	7.422	563.0 -> 519.0	91293	1.77	µg/L		98
ADONA	5.668	377.0 -> 251.0	123617	1.68	µg/L		100
9Cl-PF3ONS	6.908	531.0 -> 351.0	14101	1.86	µg/L		99
11Cl-PF3OUdS	7.541	631.0 -> 451.0	55957	1.87	µg/L		97
HFPO-DA	4.973	285.0 -> 169.0	644	1.96	µg/L		99

 # = Qualifier out of range, m = manually integrated, + = Area summed

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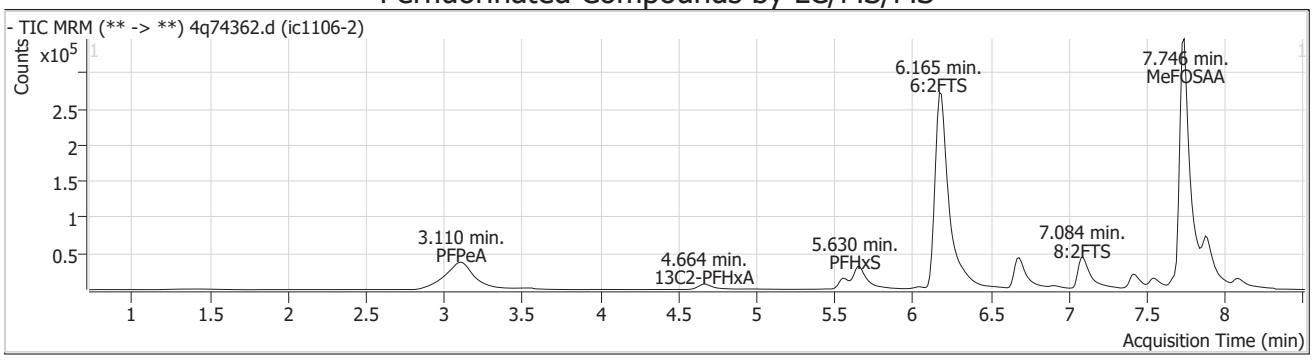
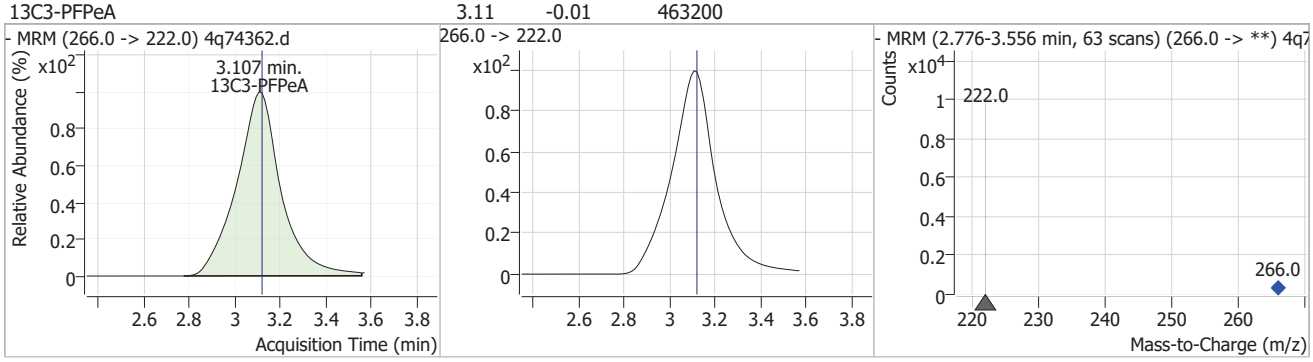
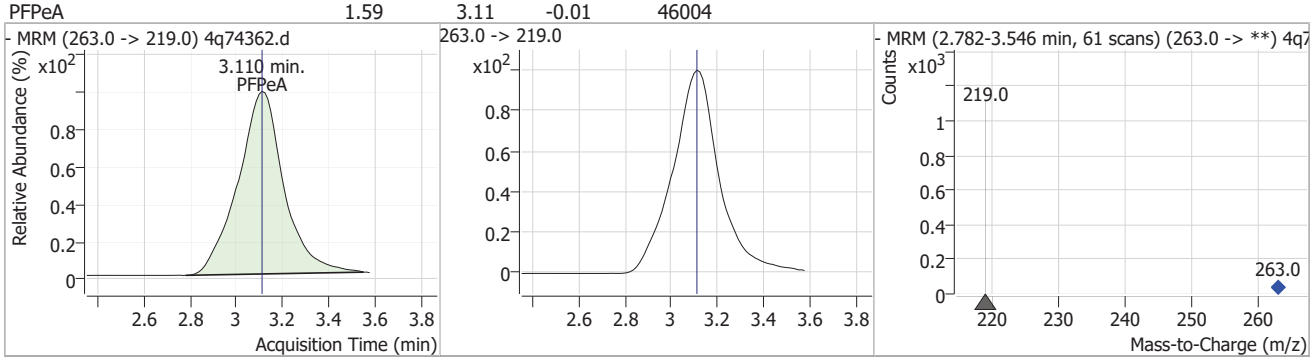
Perfluorinated Compounds by LC/MS/MS



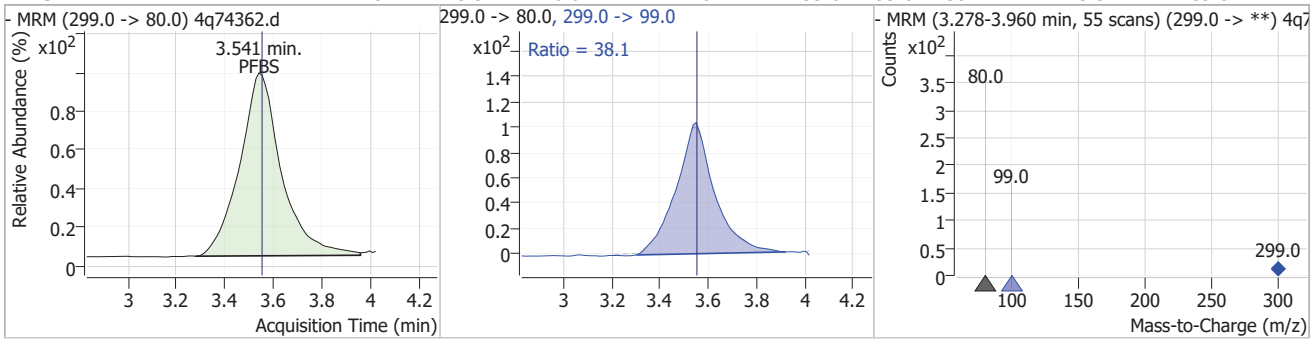
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.11	-0.01	463200				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.59	3.11	-0.01	46004				

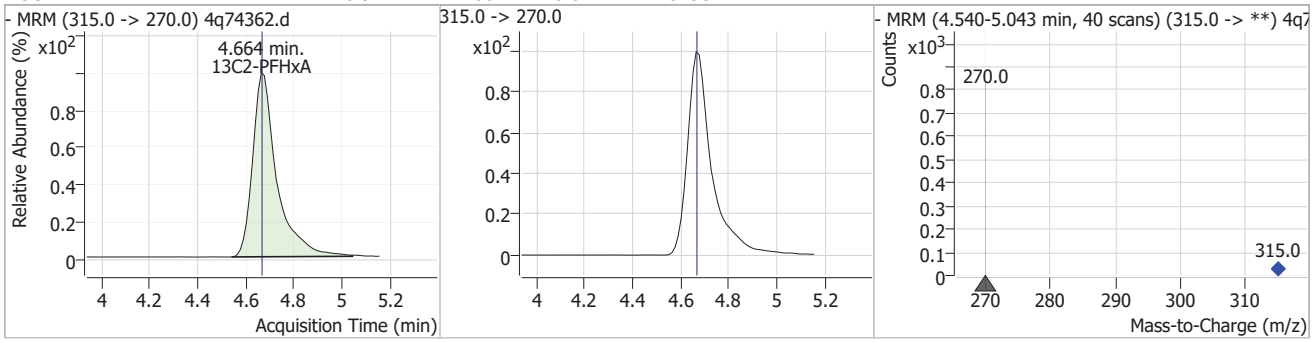


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.78	3.54	-0.01	12270	299.0 -> 99.0	38.1	19.9	59.8

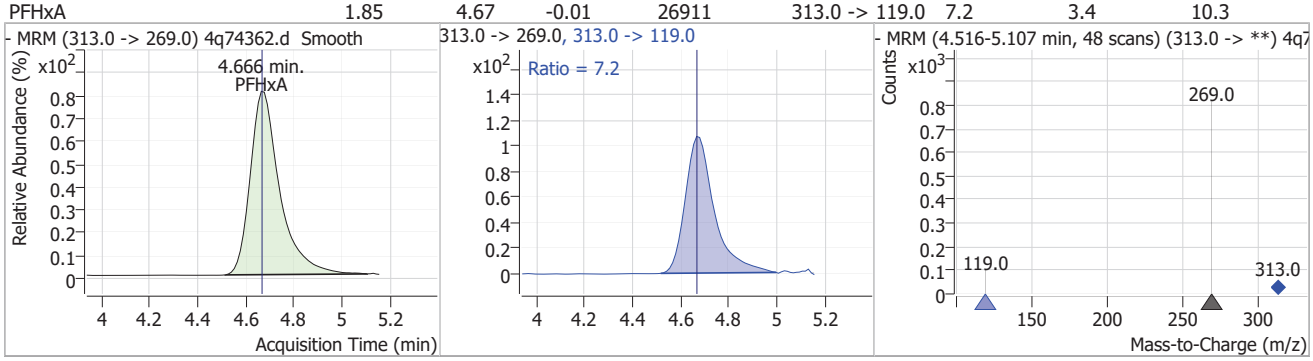


Perfluorinated Compounds by LC/MS/MS

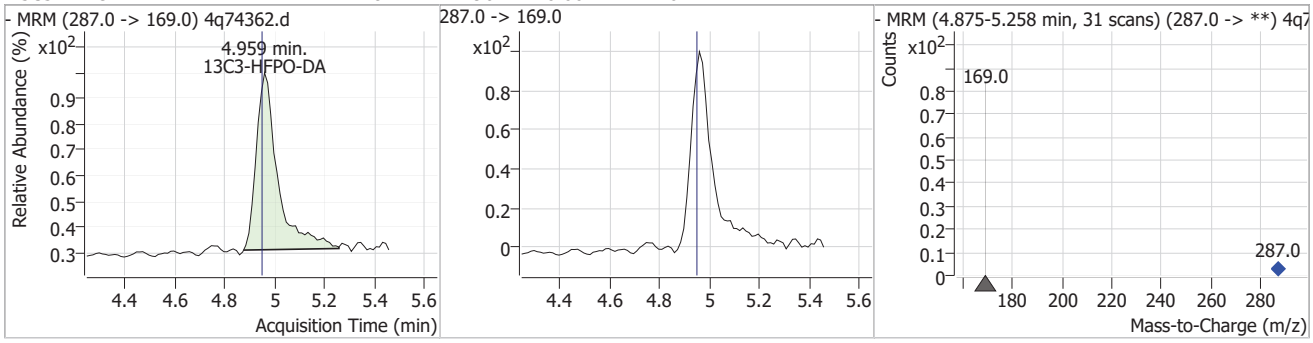
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.94	4.66	-0.01	23493				



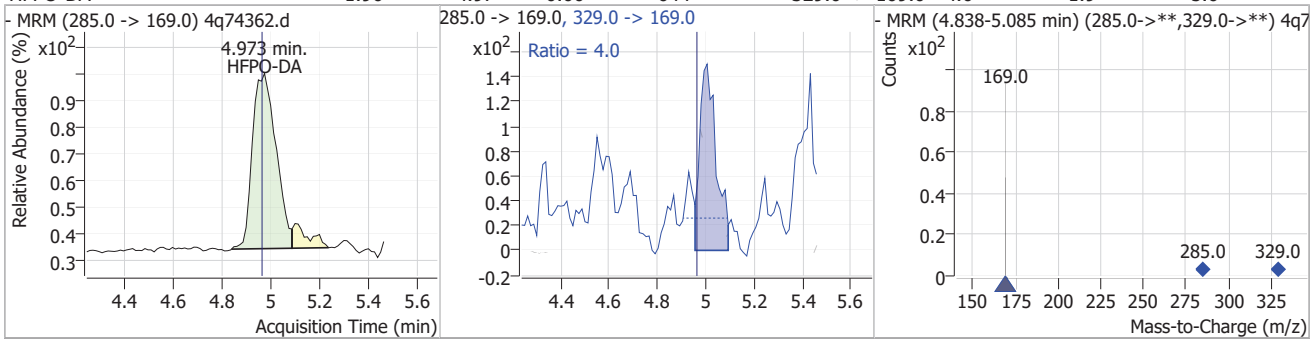
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.85	4.67	-0.01	26911	313.0 -> 119.0	7.2	3.4	10.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	1.78	4.96	0.00	704				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	1.96	4.97	0.00	644	329.0 -> 169.0	4.0	1.9	5.6



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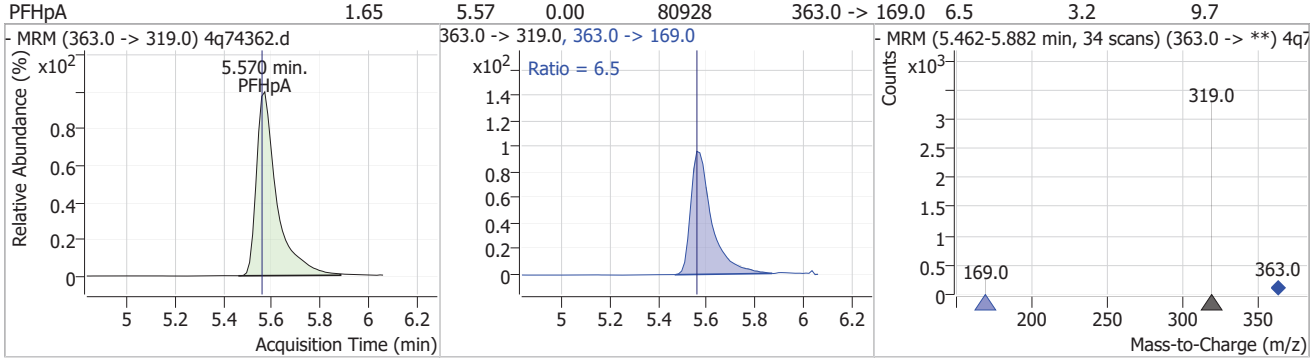
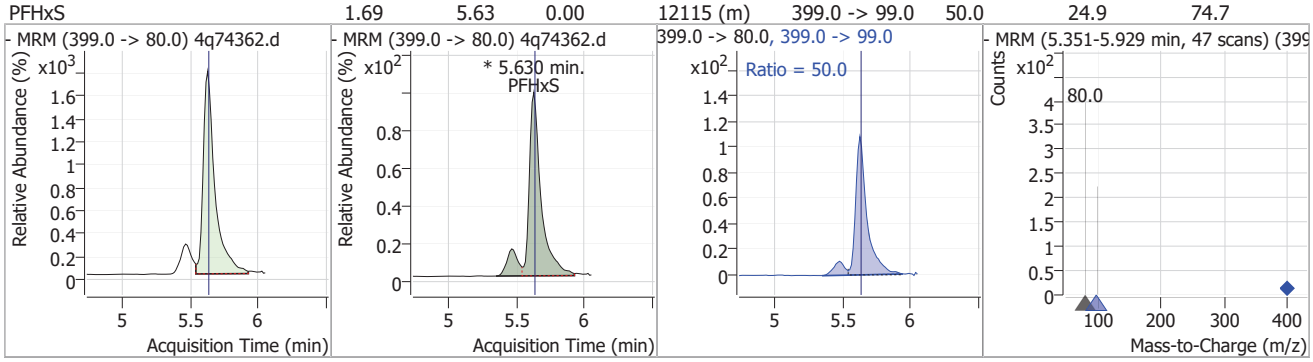
Perfluorinated Compounds by LC/MS/MS

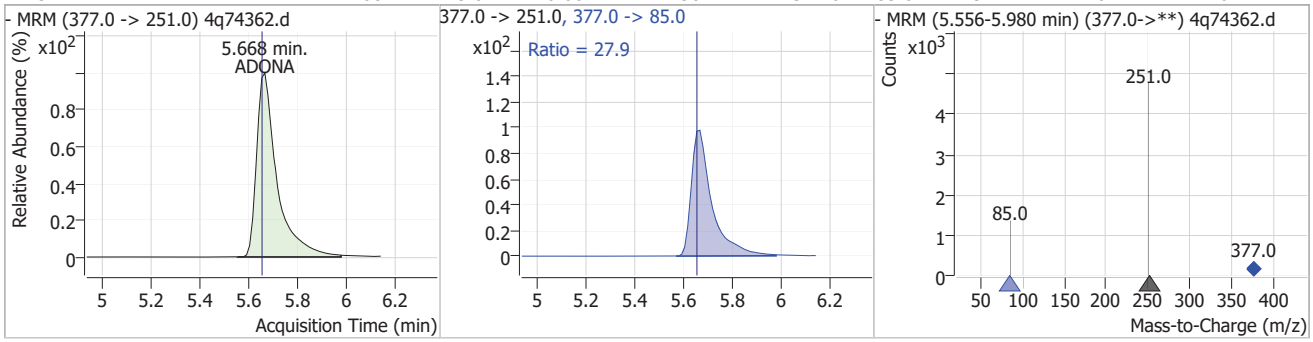
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.65	5.57	0.00	80928	363.0 -> 169.0	6.5	3.2	9.7



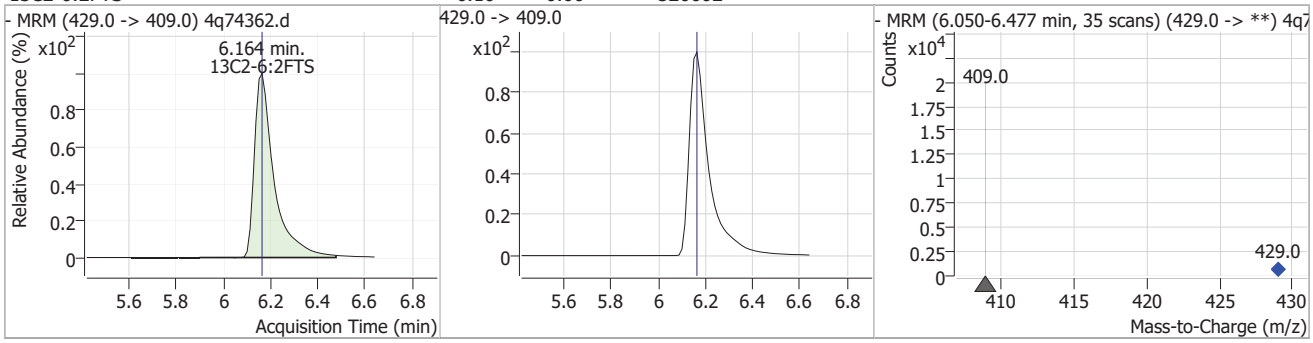
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.69	5.63	0.00	12115 (m)	399.0 -> 99.0	50.0	24.9	74.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	1.68	5.67	0.00	123617	377.0 -> 85.0	27.9	14.0	42.0

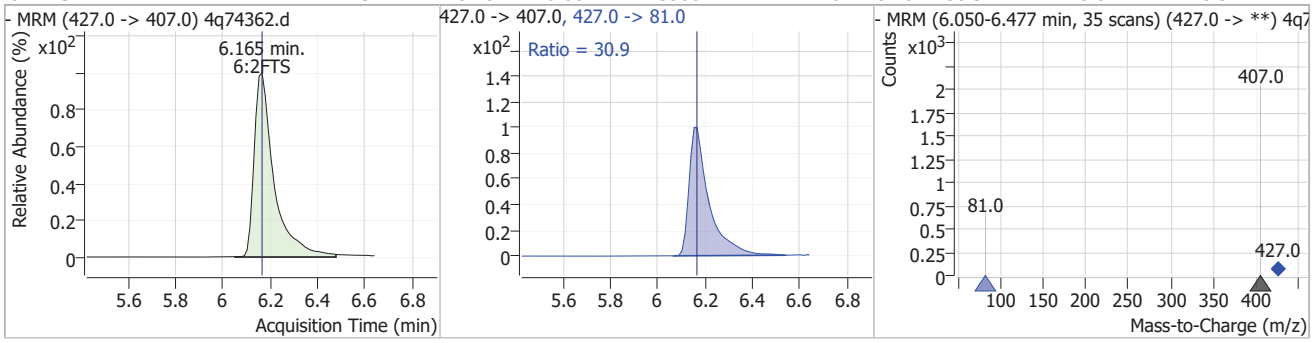


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.16	0.00	526602				

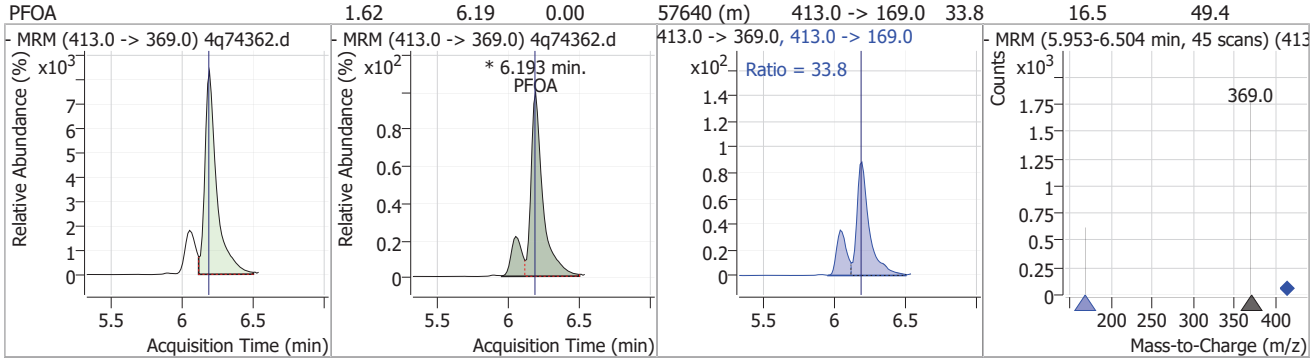


Perfluorinated Compounds by LC/MS/MS

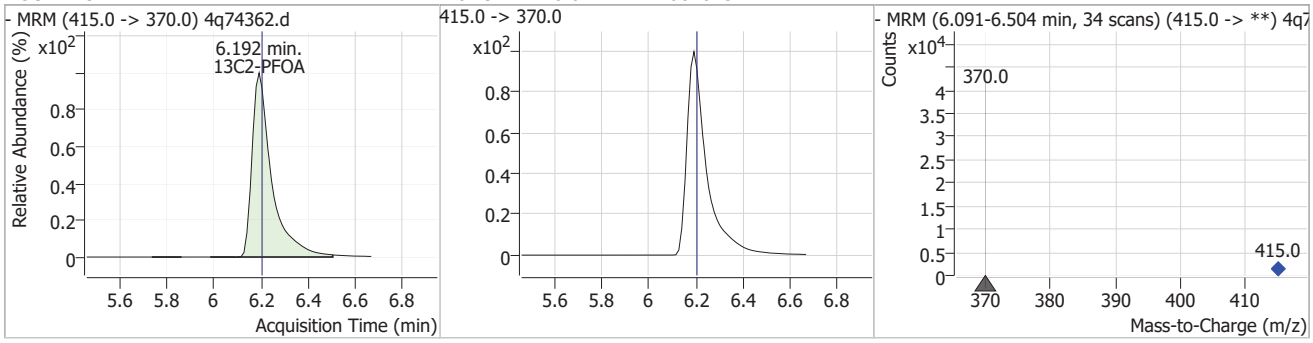
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.92	6.16	0.00	53602	427.0 -> 81.0	30.9	15.3	45.9



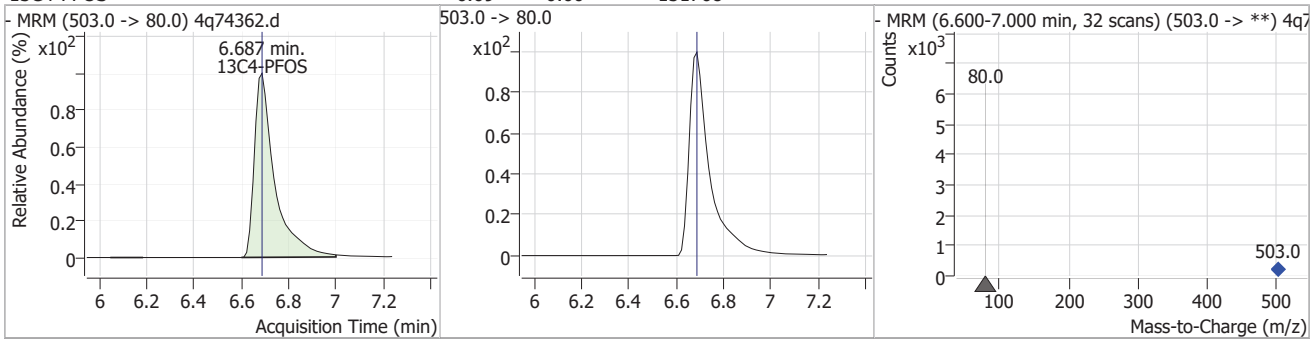
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.62	6.19	0.00	57640 (m)	413.0 -> 169.0	33.8	16.5	49.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.19	-0.01	1062013				

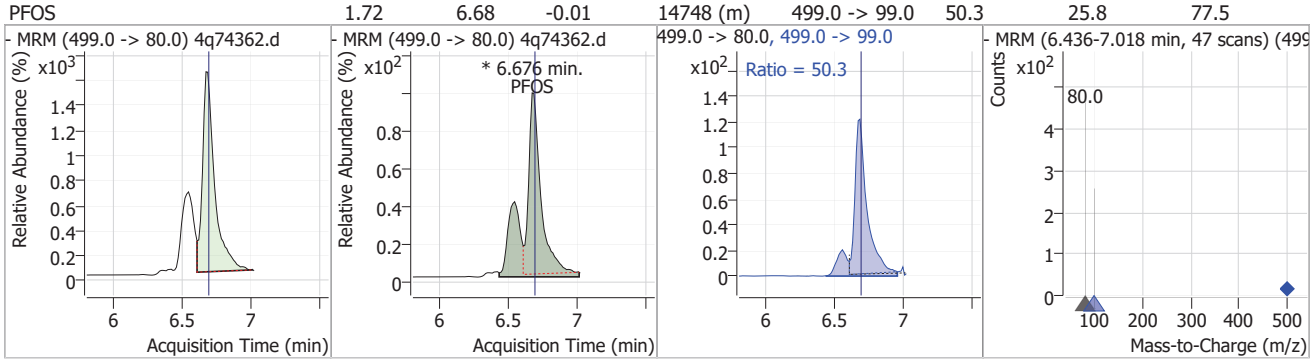


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.69	0.00	151768				

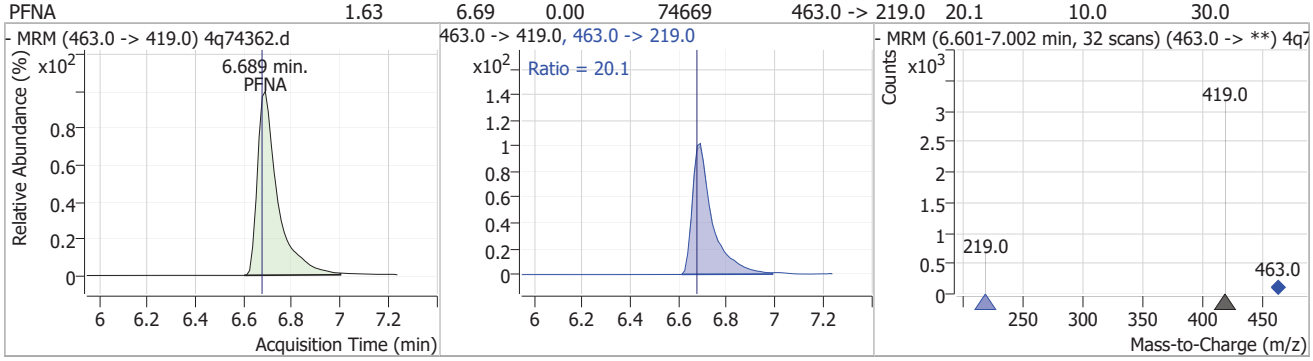


Perfluorinated Compounds by LC/MS/MS

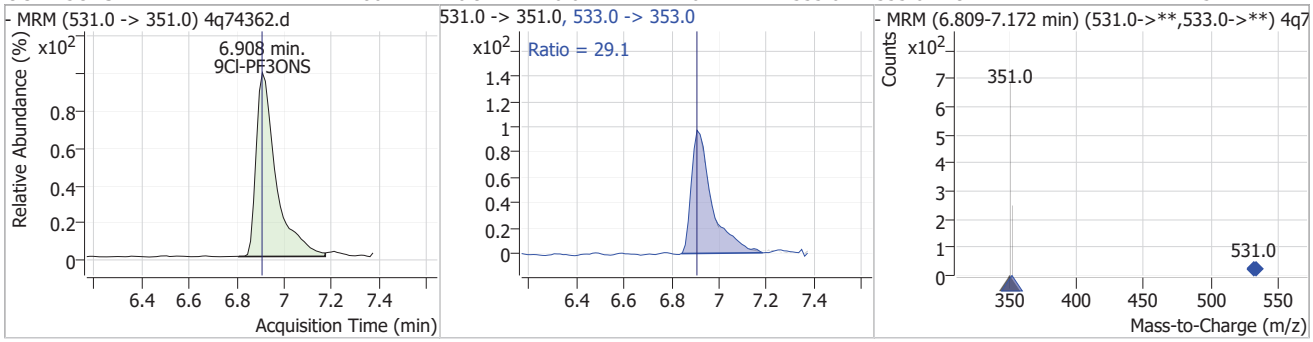
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.72	6.68	-0.01	14748 (m)	499.0 -> 99.0	50.3	25.8	77.5



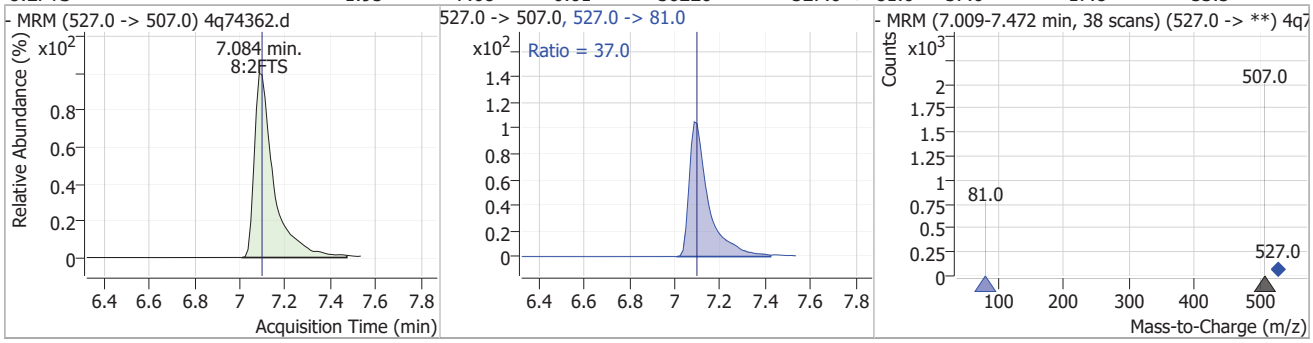
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.63	6.69	0.00	74669	463.0 -> 219.0	20.1	10.0	30.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	1.86	6.91	-0.01	14101	533.0 -> 353.0	29.1	14.4	43.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	1.95	7.08	-0.01	56226	527.0 -> 81.0	37.0	17.8	53.5



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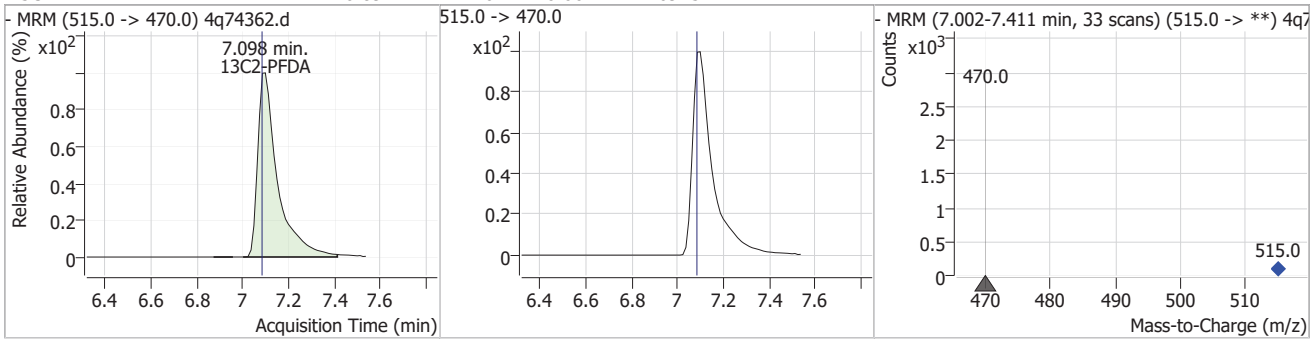
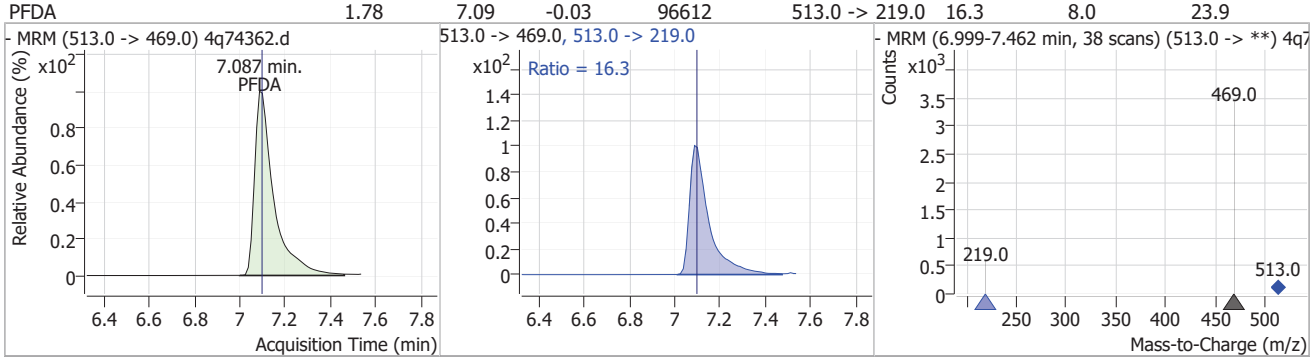
Perfluorinated Compounds by LC/MS/MS

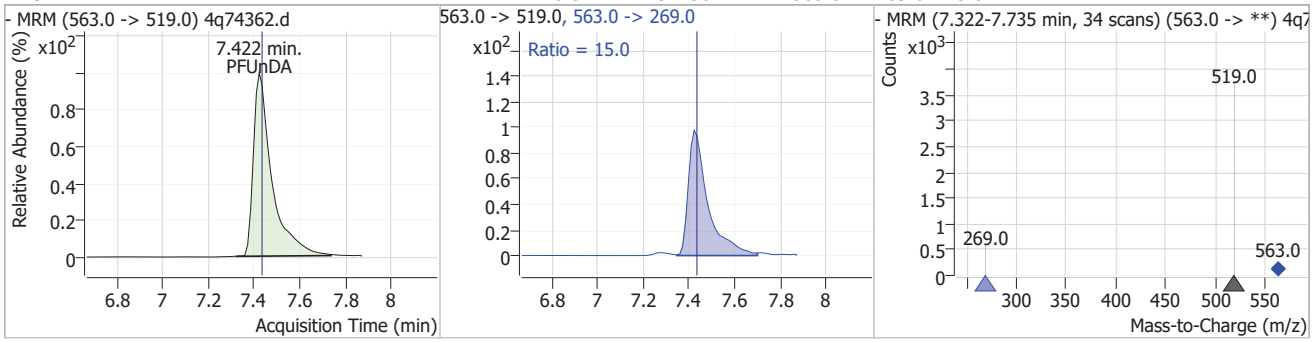
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.89	7.10	0.00	69434				



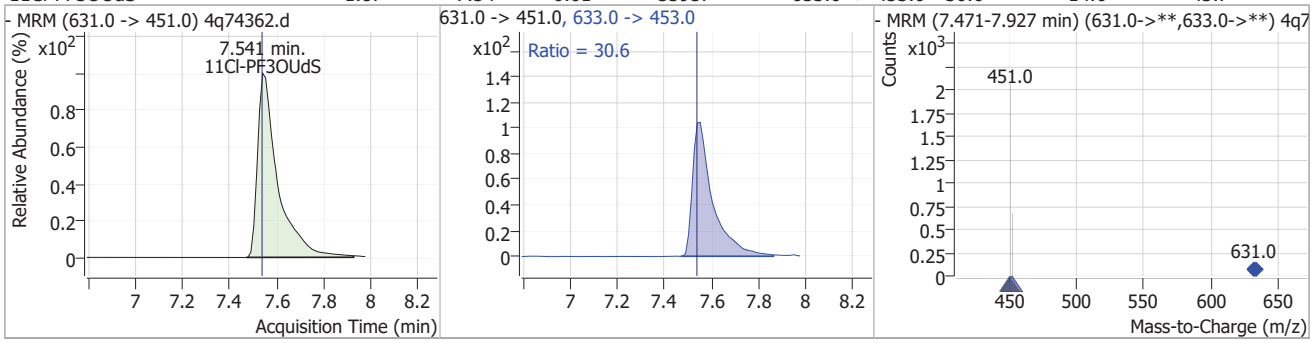
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.78	7.09	-0.03	96612	513.0 -> 219.0	16.3	8.0	23.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.77	7.42	-0.01	91293	563.0 -> 269.0	15.0	7.2	21.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	1.87	7.54	-0.01	55957	633.0 -> 453.0	30.6	14.6	43.7



7.7.19

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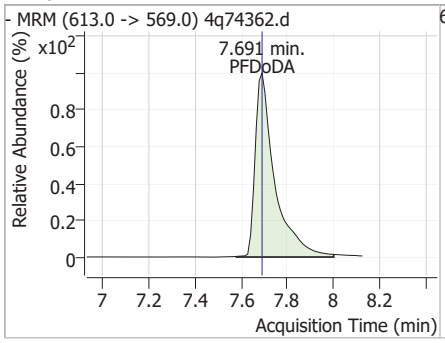
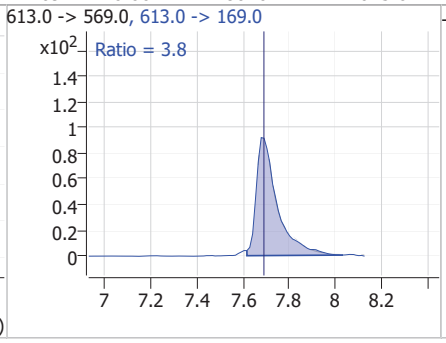
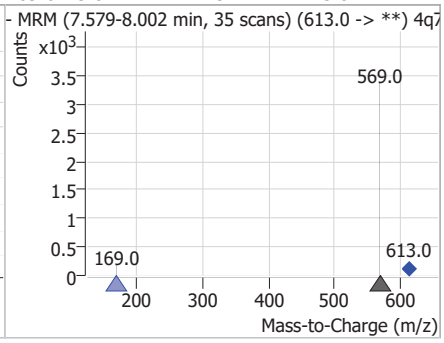
Perfluorinated Compounds by LC/MS/MS

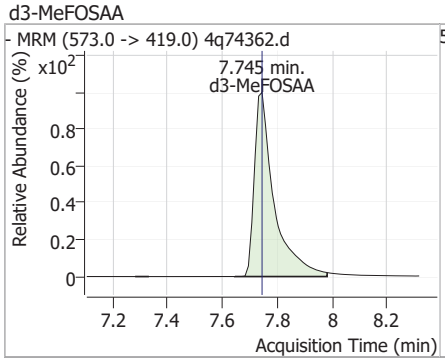
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	1.71	7.69	0.00	86764	613.0 -> 169.0	3.8	1.9	5.8

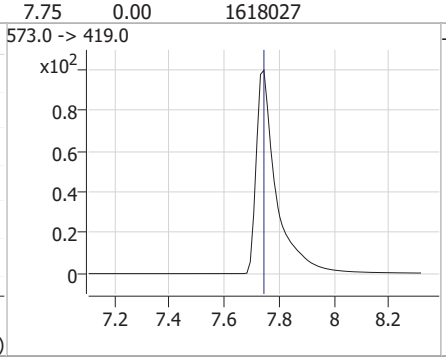


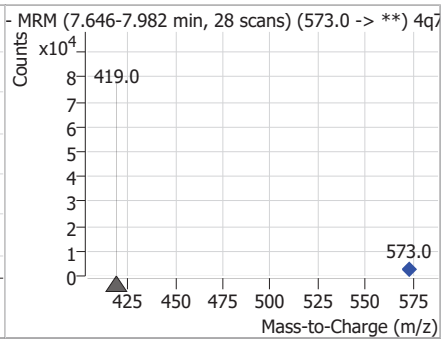




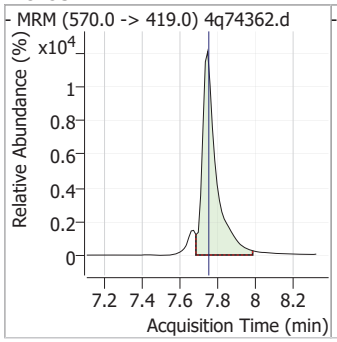
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.75	0.00	1618027				

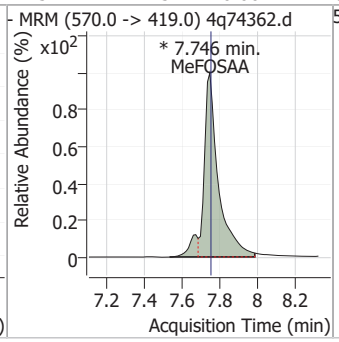


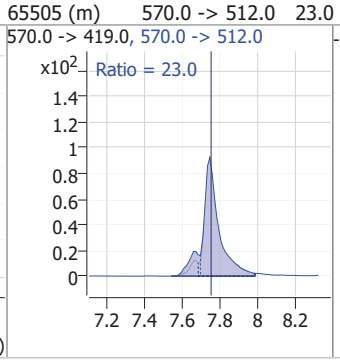


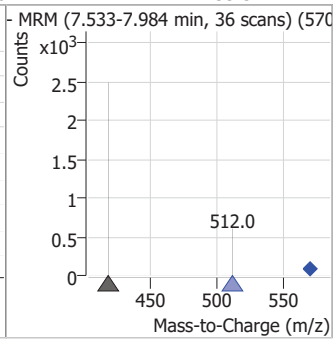


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	1.57	7.75	0.00	65505 (m)	570.0 -> 512.0	23.0	11.2	33.5

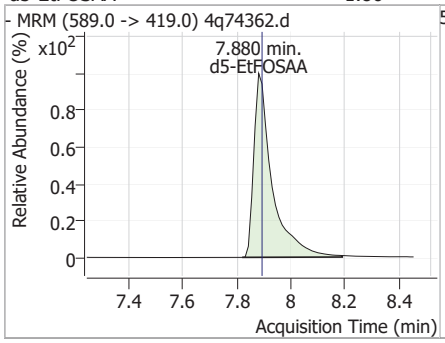


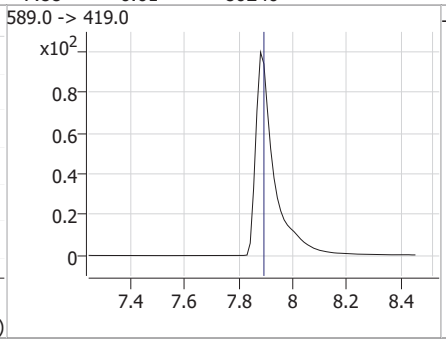


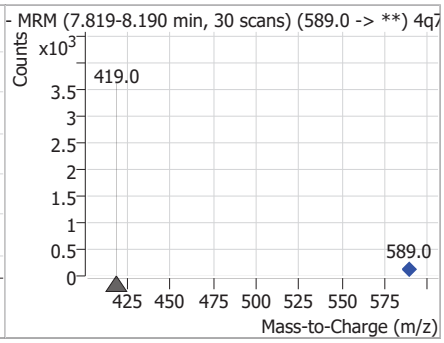




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	1.86	7.88	-0.01	80240				







7.7.19

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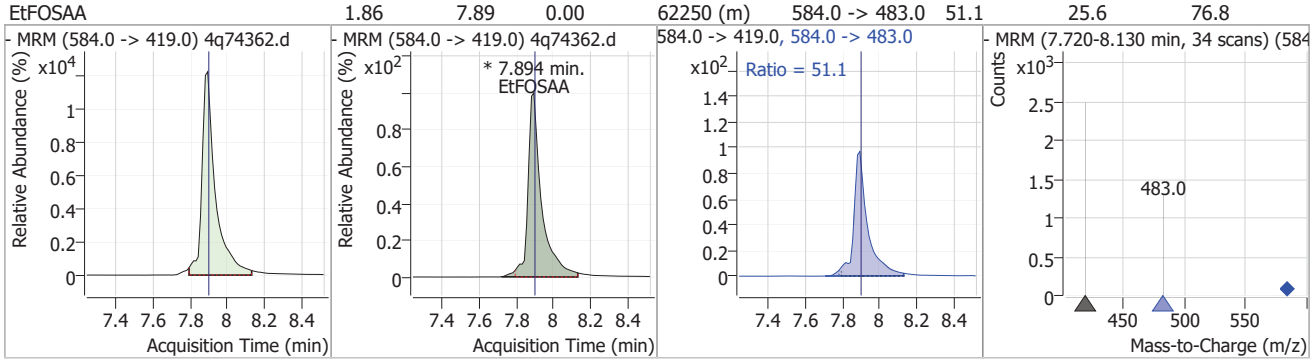
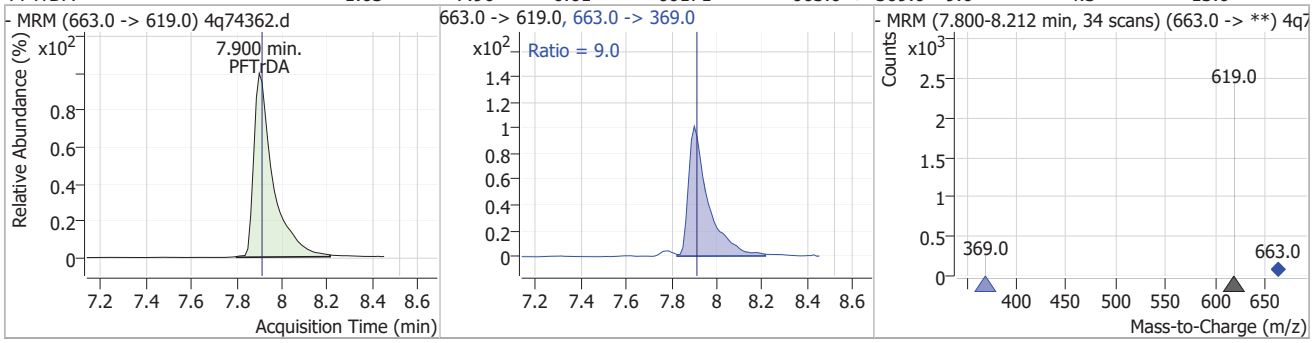
Perfluorinated Compounds by LC/MS/MS

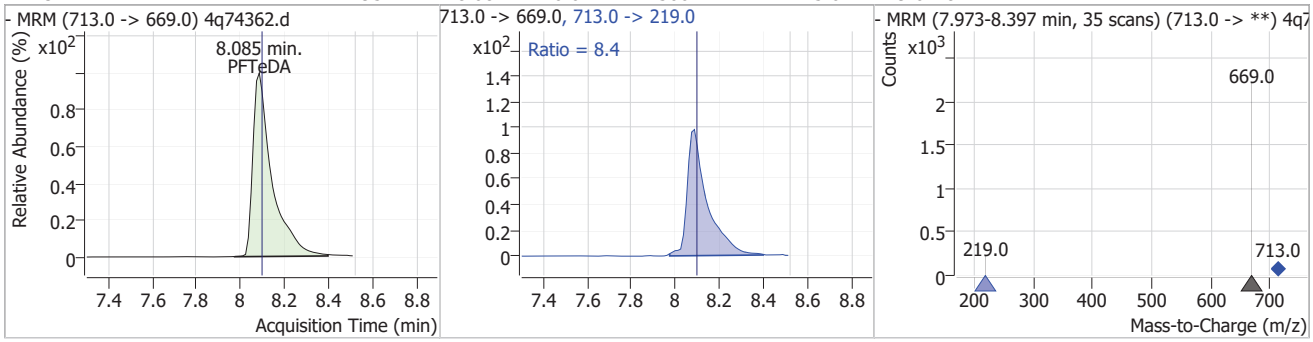
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.86	7.89	0.00	62250 (m)	584.0 -> 483.0	51.1	25.6	76.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	1.63	7.90	-0.01	60171	663.0 -> 369.0	9.0	4.3	13.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.93	8.08	-0.01	56017	713.0 -> 219.0	8.4	4.1	12.2



Manual Integration Approval Summary

Sample Number: S4Q1106-IC1106
Lab FileID: 4Q74362.D
Injection Time: 04/23/25 22:30
Method: EPA 537.1 REV 2.0
Analyst approved: 04/24/25 11:46 (b) (6)
Supervisor approved: 04/24/25 12:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanoic acid	335-67-1		6.19	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.68	Split peak
MeFOSAA	2355-31-9		7.75	Split peak
EtFOSAA	2991-50-6		7.89	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/24/25 12:51

Perfluorinated Compounds by LC/MS/MS

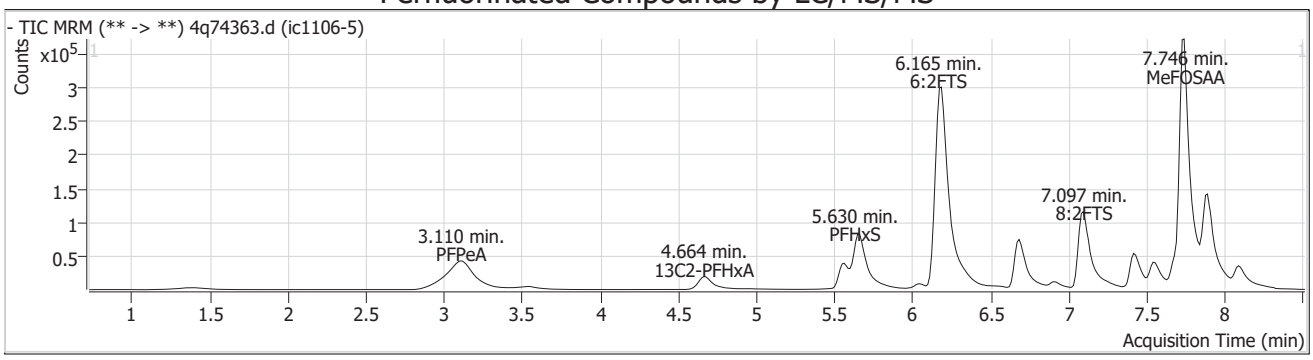
Data File : 4q74363.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/23/2025 10:44:23 PM
Sample Name : ic1106-5
Vial : P1-A5
DA Method File : 537_042325_S4q1106.quantmethod.xml
Batch Name : s4q1106.batch.bin
Sample Information : OP8985,S4Q1106,250,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.164	429.0 -> 409.0	520140	20.00	µg/L		0.000
13C2-PFOA	6.192	415.0 -> 370.0	1035013	20.00	µg/L		-0.012
13C3-PFPeA	3.119	266.0 -> 222.0	447681	20.00	µg/L		0.000
13C4-PFOS	6.687	503.0 -> 80.0	149053	20.00	µg/L		0.000
d3-MeFOSAA	7.745	573.0 -> 419.0	1563534	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.098	515.0 -> 470.0	181607	2.39	µg/L		0.000
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = 23.9%			
13C2-PFHxA	4.664	315.0 -> 270.0	61025	2.50	µg/L		-0.012
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = 25.0%			
d5-EtFOSAA	7.880	589.0 -> 419.0	207686	4.97	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 24.9%			
13C3-HFPO-DA	4.959	287.0 -> 169.0	1651	4.29	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 21.5%			
Target Compounds							QValue
6:2FTS	6.165	427.0 -> 407.0	140432	5.11	µg/L		99
8:2FTS	7.097	527.0 -> 507.0	147493	5.22	µg/L		100
EtFOSAA	7.894	584.0 -> 419.0	160764	4.95	µg/L	m	100
MeFOSAA	7.746	570.0 -> 419.0	169165	4.20	µg/L	m	100
PFBS	3.553	299.0 -> 80.0	31581	4.67	µg/L		98
PFDA	7.099	513.0 -> 469.0	254326	4.80	µg/L		100
PFDoDA	7.691	613.0 -> 569.0	229696	4.60	µg/L		100
PFHpA	5.570	363.0 -> 319.0	211233	4.42	µg/L		100
PFHxA	4.666	313.0 -> 269.0	70374	4.96	µg/L		99
PFHxS	5.630	399.0 -> 80.0	30535	4.33	µg/L	m	99
PFNA	6.689	463.0 -> 419.0	198439	4.45	µg/L		100
PFOA	6.193	413.0 -> 369.0	154181	4.45	µg/L	m	100
PFOS	6.689	499.0 -> 80.0	36980	4.38	µg/L	m	100
PFPeA	3.110	263.0 -> 219.0	123267	4.42	µg/L		100
PFTeDA	8.085	713.0 -> 669.0	153234	5.33	µg/L		100
PFTrDA	7.900	663.0 -> 619.0	163036	4.50	µg/L		100
PFUnDA	7.422	563.0 -> 519.0	246908	4.87	µg/L		99
ADONA	5.668	377.0 -> 251.0	325382	4.55	µg/L		99
9Cl-PF3ONS	6.908	531.0 -> 351.0	38659	5.19	µg/L		98
11Cl-PF3OUdS	7.553	631.0 -> 451.0	149189	5.08	µg/L		99
HFPO-DA	4.973	285.0 -> 169.0	1587	4.92	µg/L		95

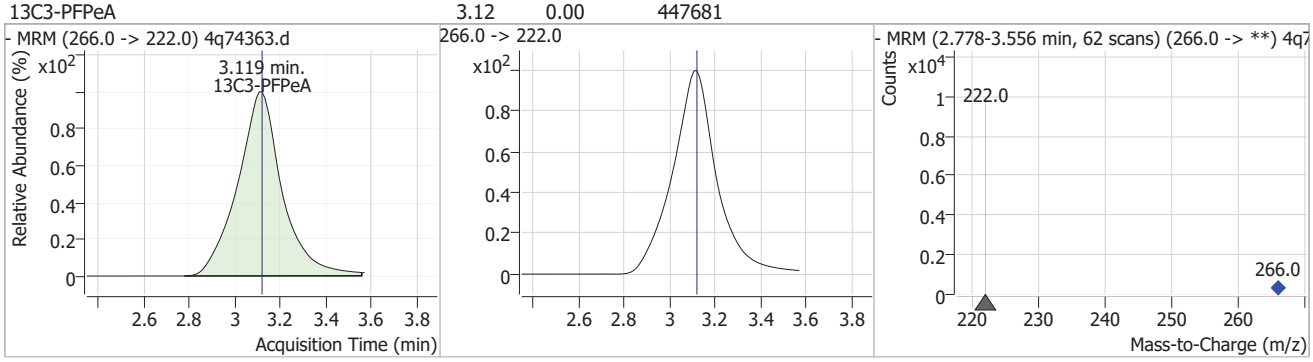
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.20
7

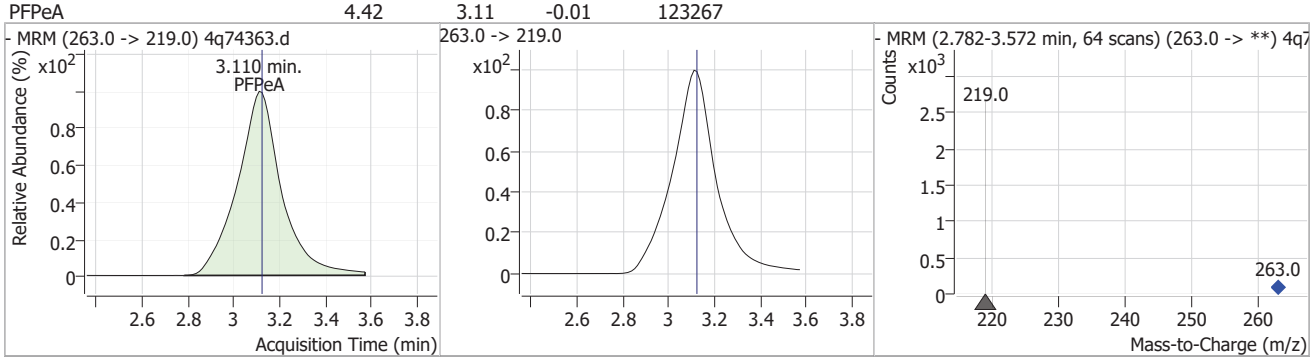
Perfluorinated Compounds by LC/MS/MS



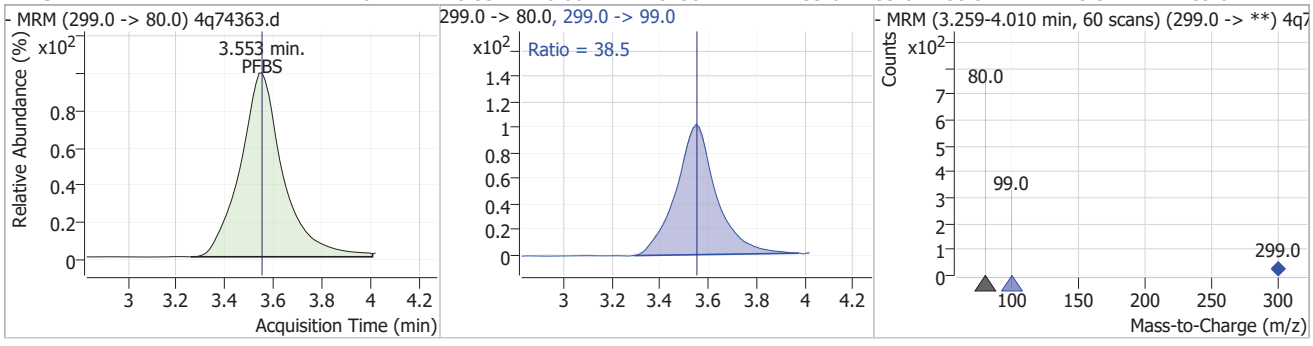
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.12	0.00	447681				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.42	3.11	-0.01	123267				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	4.67	3.55	0.00	31581	299.0 -> 99.0	38.5	19.9	59.8



7.7.20

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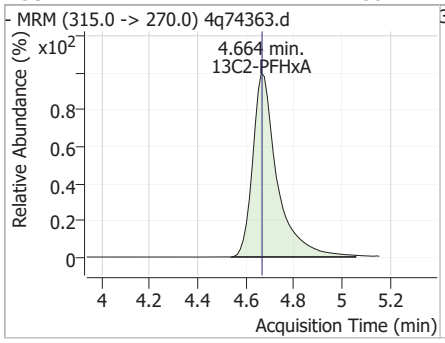
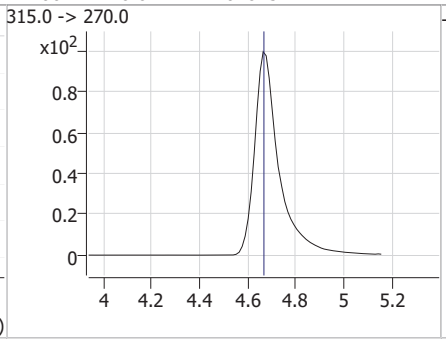
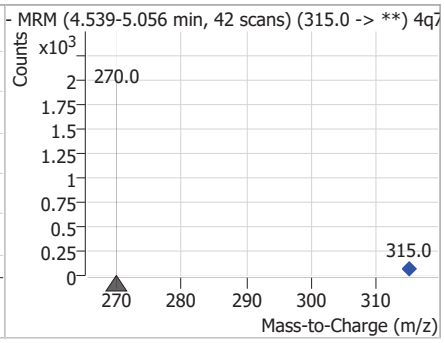
Perfluorinated Compounds by LC/MS/MS

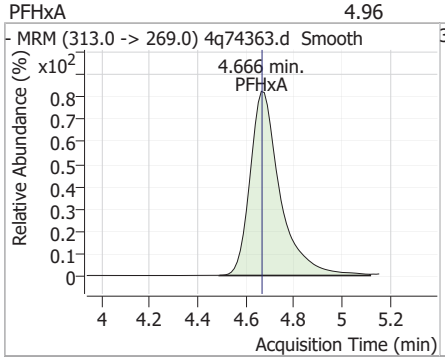
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	2.50	4.66	-0.01	61025				

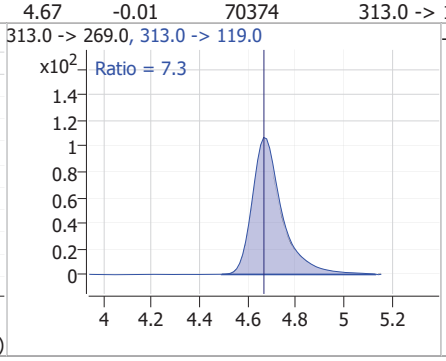


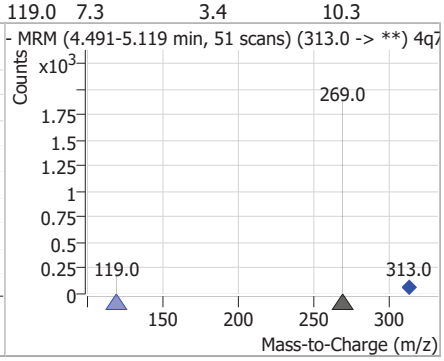




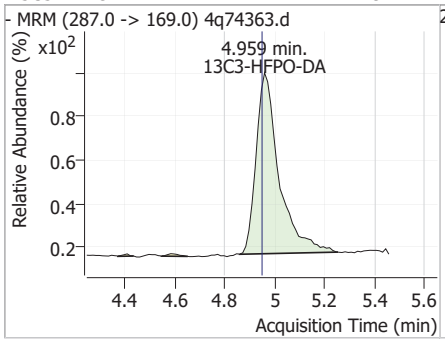
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	4.96	4.67	-0.01	70374	313.0 -> 119.0	7.3	3.4	10.3

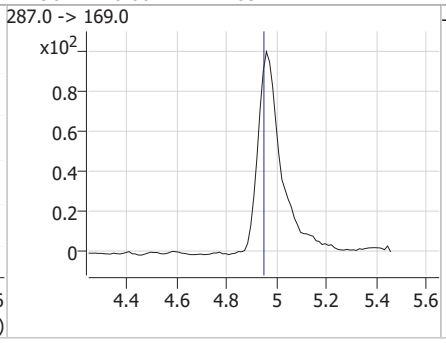


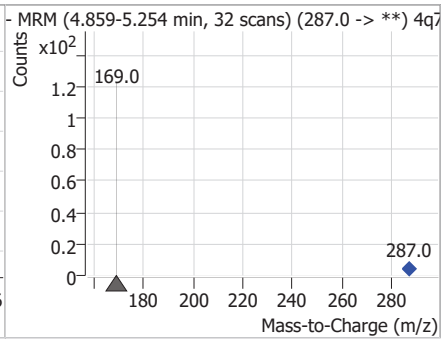




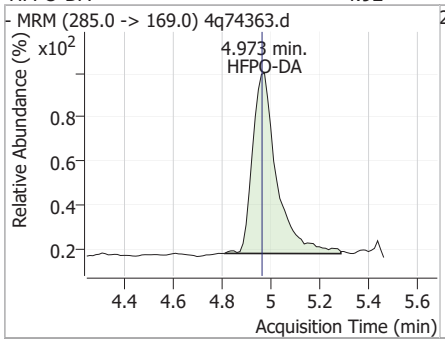
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	4.29	4.96	0.00	1651				

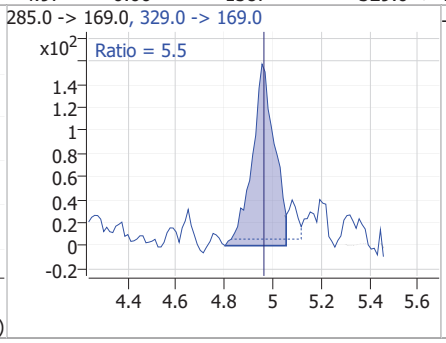


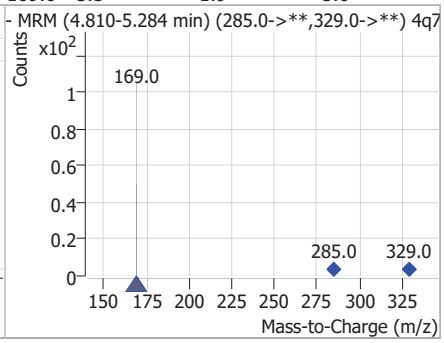




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.92	4.97	0.00	1587	329.0 -> 169.0	5.5	1.9	5.6

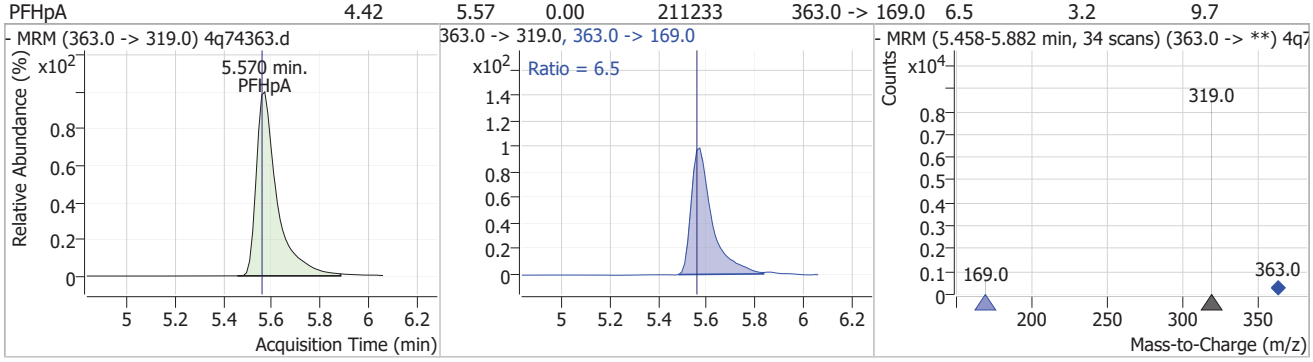




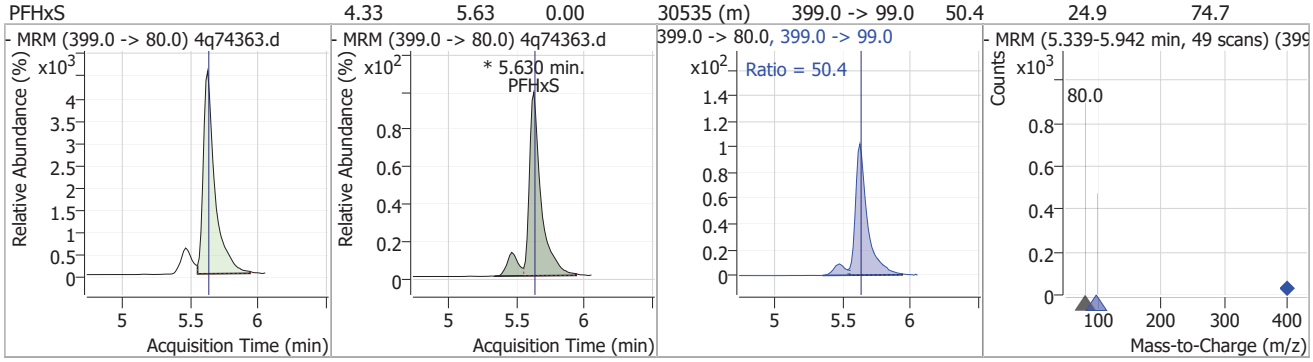


Perfluorinated Compounds by LC/MS/MS

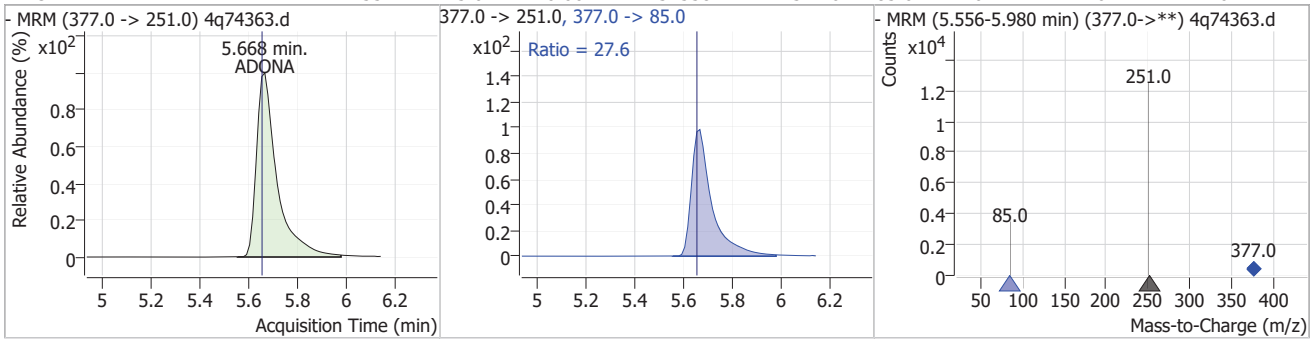
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	4.42	5.57	0.00	211233	363.0 -> 169.0	6.5	3.2	9.7



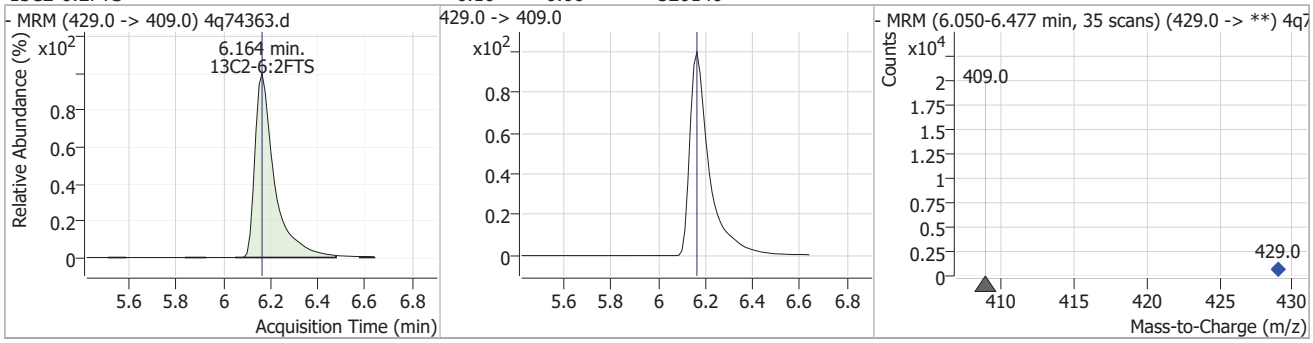
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	4.33	5.63	0.00	30535 (m)	399.0 -> 99.0	50.4	24.9	74.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	4.55	5.67	0.00	325382	377.0 -> 85.0	27.6	14.0	42.0

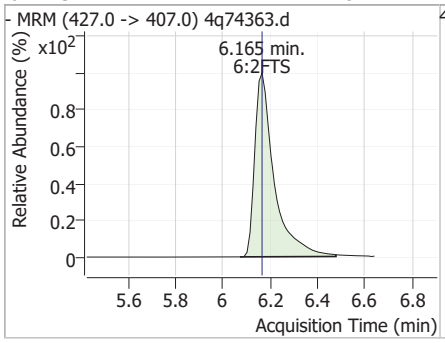


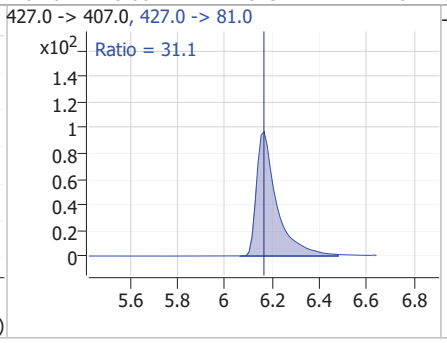
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.16	0.00	520140				

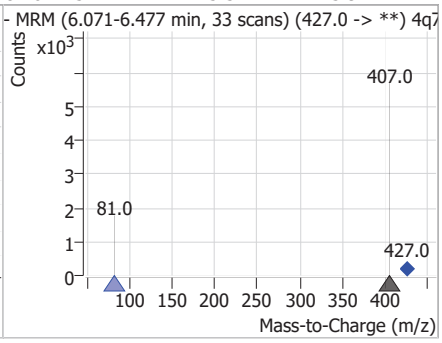


Perfluorinated Compounds by LC/MS/MS

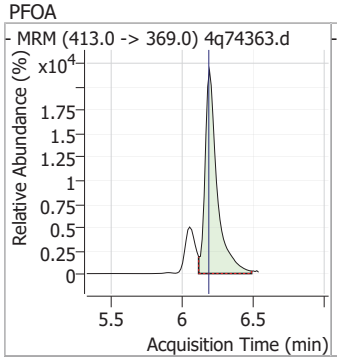
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	5.11	6.16	0.00	140432	427.0 -> 81.0	31.1	15.3	45.9

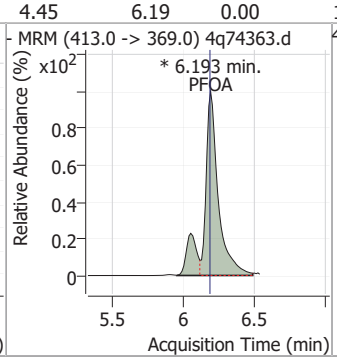


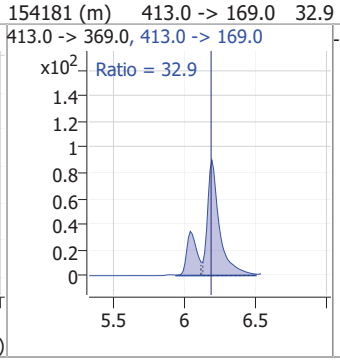


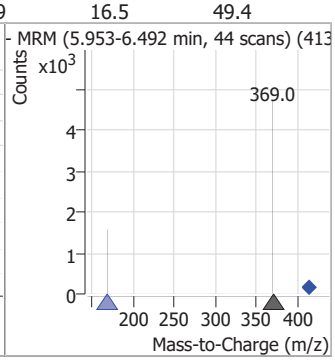


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	4.45	6.19	0.00	154181 (m)	413.0 -> 169.0	32.9	16.5	49.4

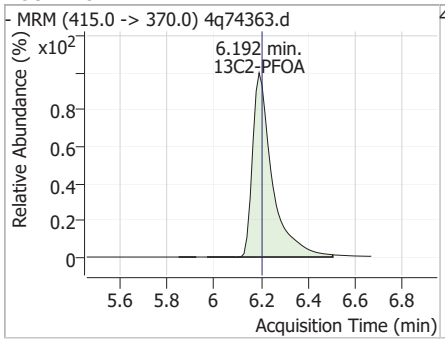


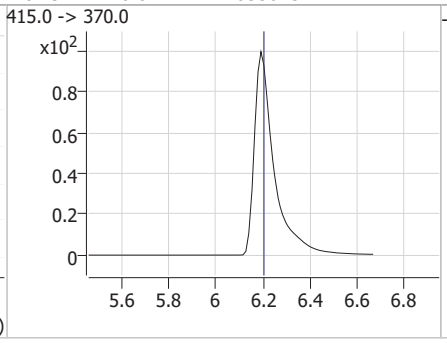


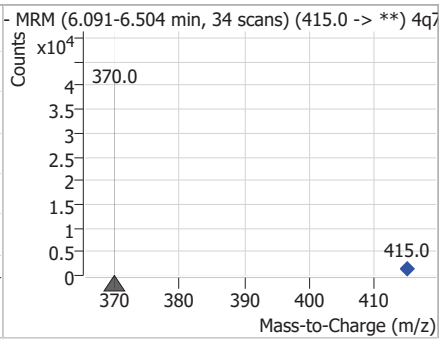




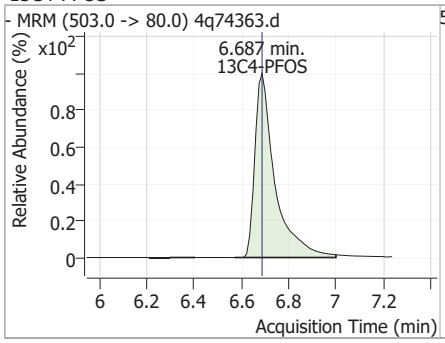
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.19	-0.01	1035013				

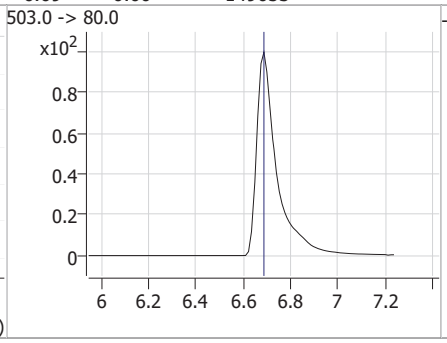


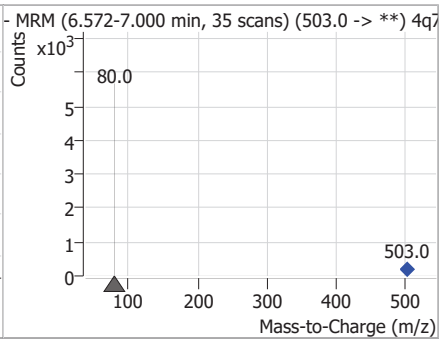




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.69	0.00	149053				







7.7.20

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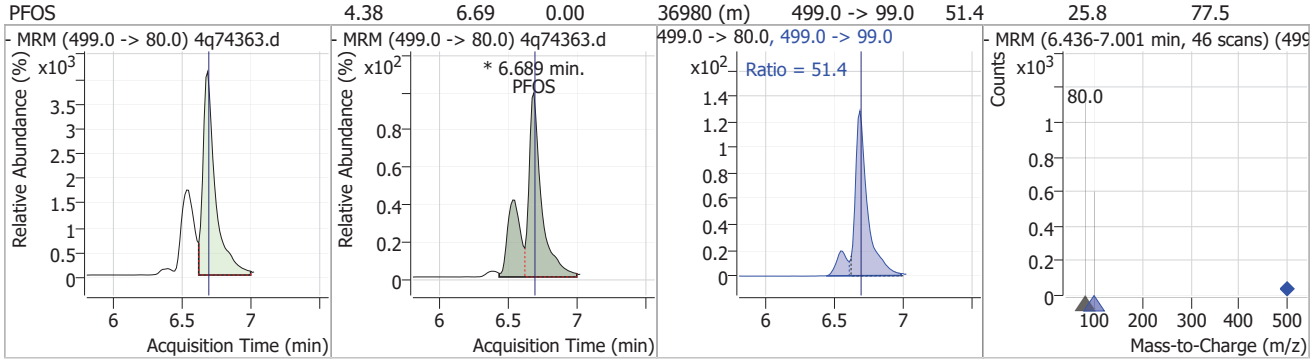
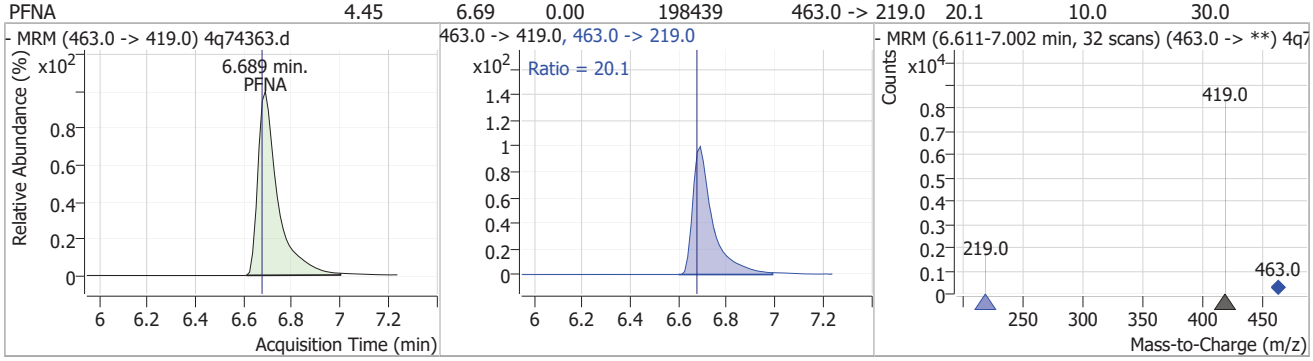
Perfluorinated Compounds by LC/MS/MS

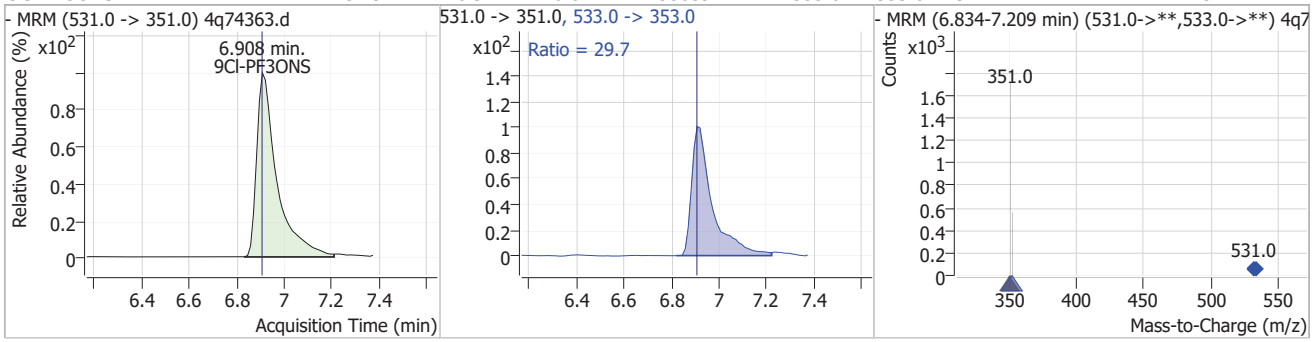
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	4.38	6.69	0.00	36980 (m)	499.0 -> 99.0	51.4	25.8	77.5



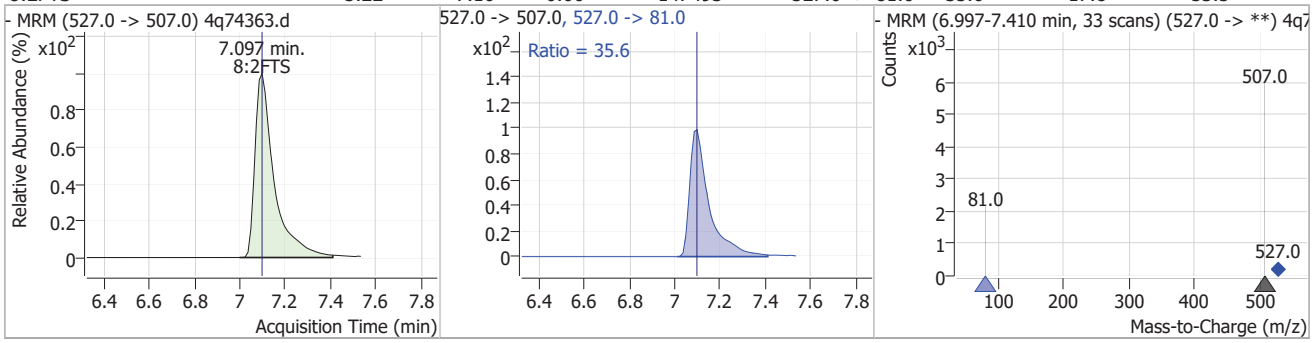
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	4.45	6.69	0.00	198439	463.0 -> 219.0	20.1	10.0	30.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	5.19	6.91	-0.01	38659	533.0 -> 353.0	29.7	14.4	43.2

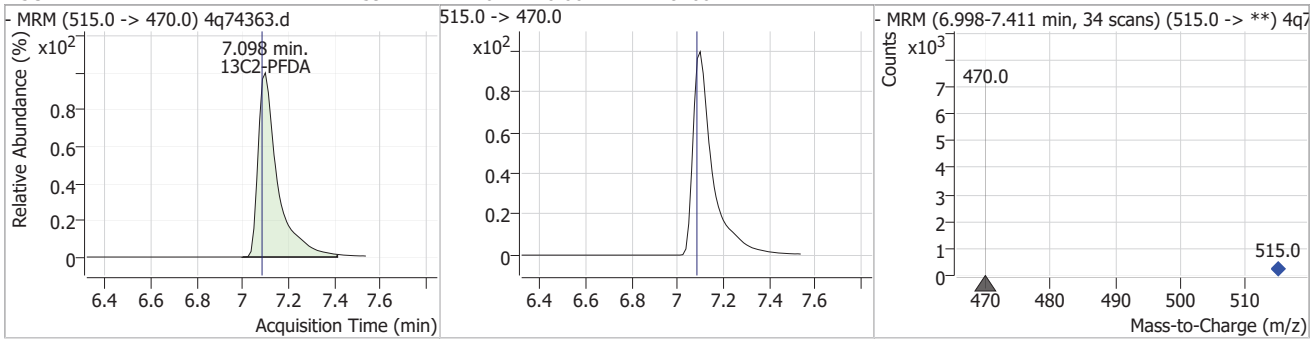


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	5.22	7.10	0.00	147493	527.0 -> 81.0	35.6	17.8	53.5

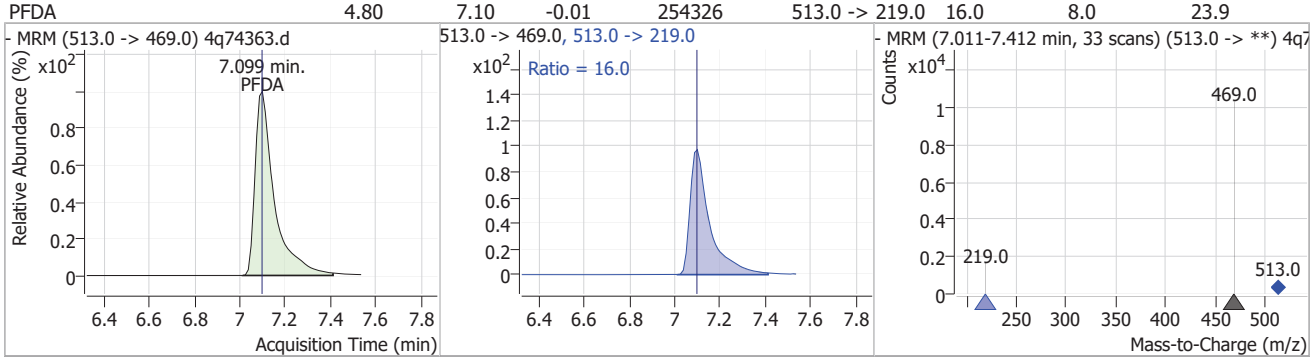


Perfluorinated Compounds by LC/MS/MS

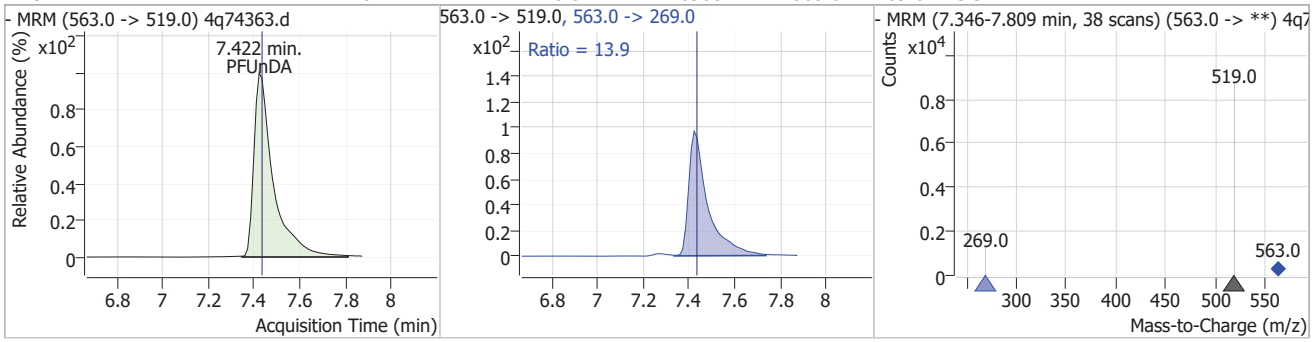
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	2.39	7.10	0.00	181607				



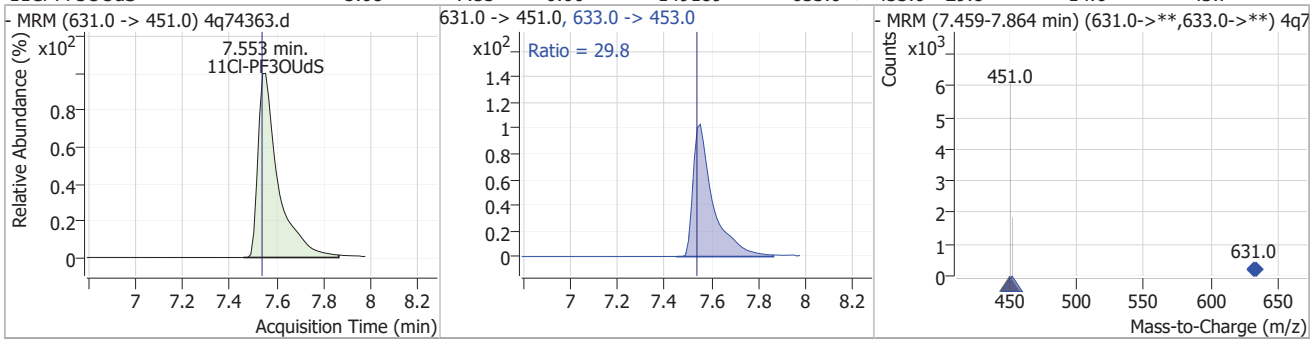
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	4.80	7.10	-0.01	254326	513.0 -> 219.0	16.0	8.0	23.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	4.87	7.42	-0.01	246908	563.0 -> 269.0	13.9	7.2	21.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	5.08	7.55	0.00	149189	633.0 -> 453.0	29.8	14.6	43.7

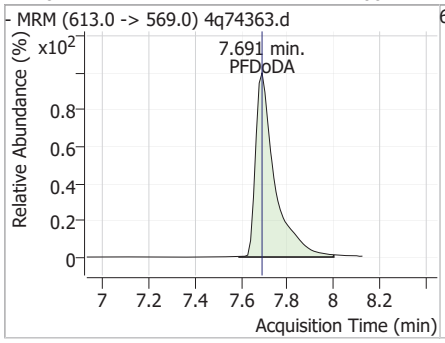


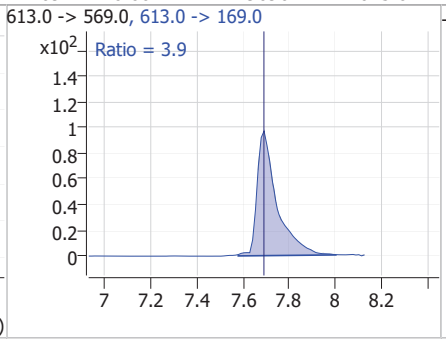
7.7.20

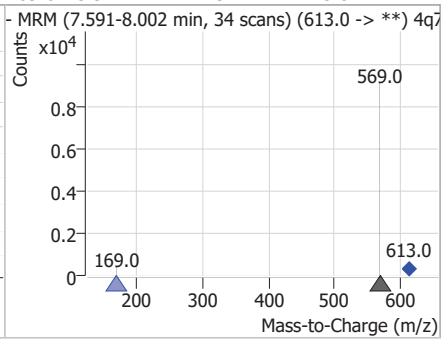
7

Perfluorinated Compounds by LC/MS/MS

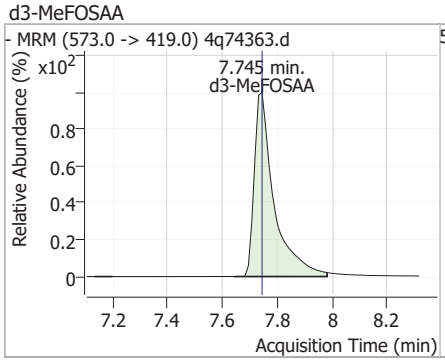
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	4.60	7.69	0.00	229696	613.0 -> 169.0	3.9	1.9	5.8

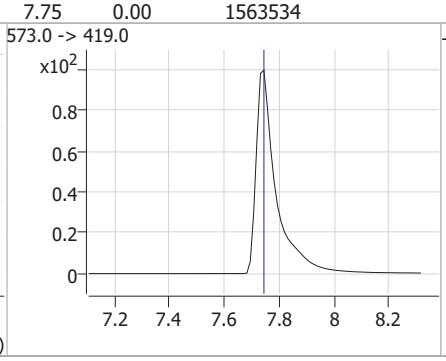


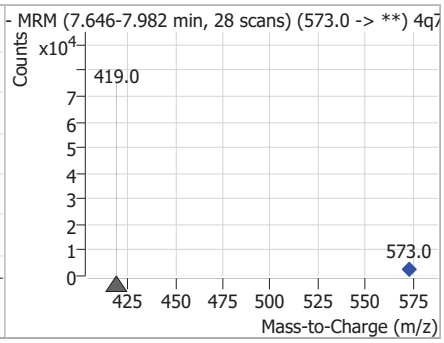




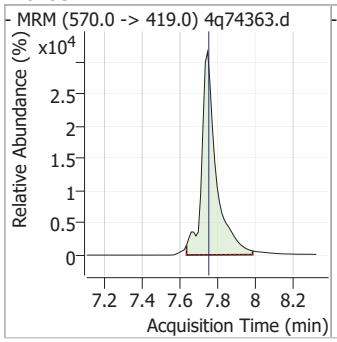
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.75	0.00	1563534				

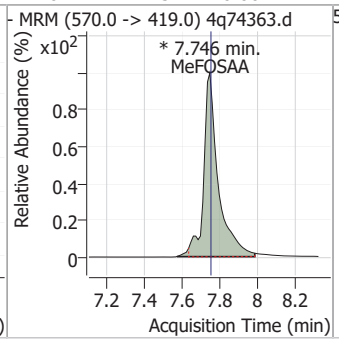


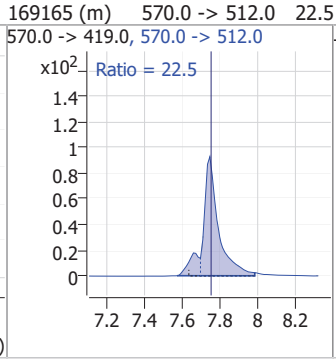


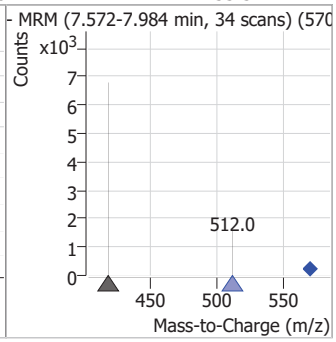


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	4.20	7.75	0.00	169165 (m)	570.0 -> 512.0	22.5	11.2	33.5

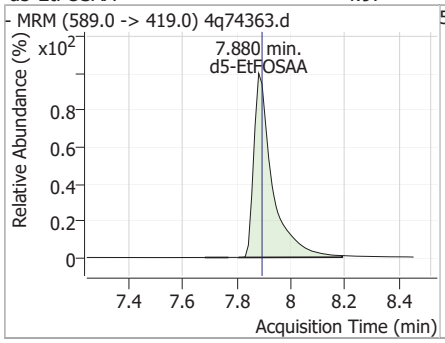


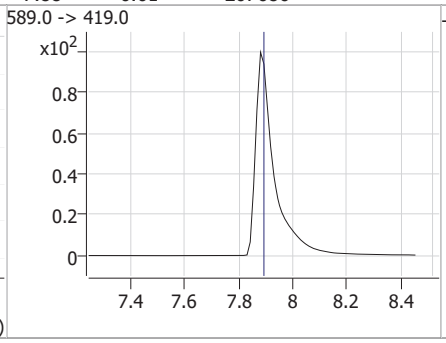


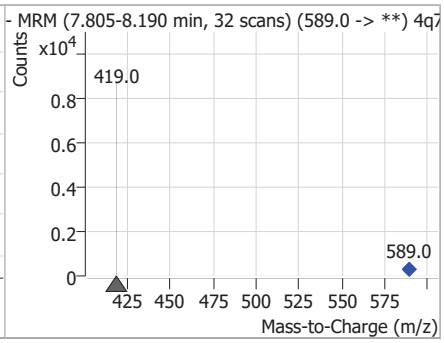




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.97	7.88	-0.01	207686				

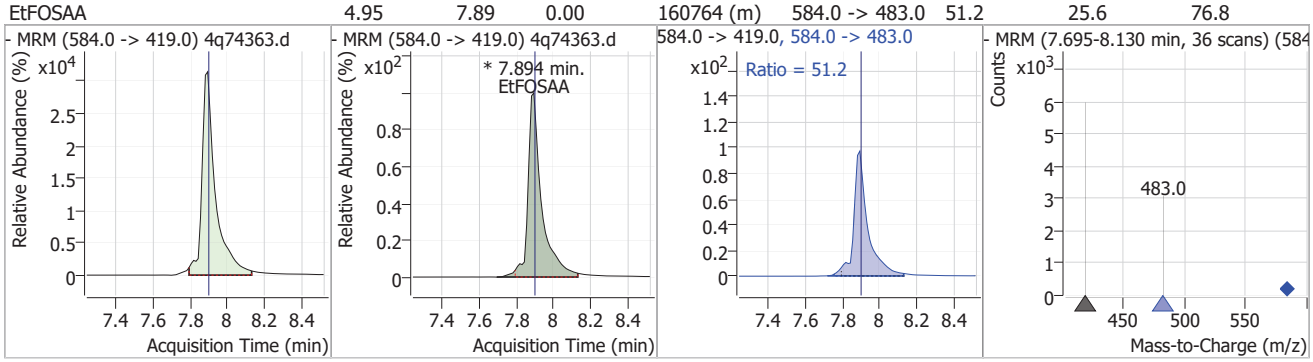




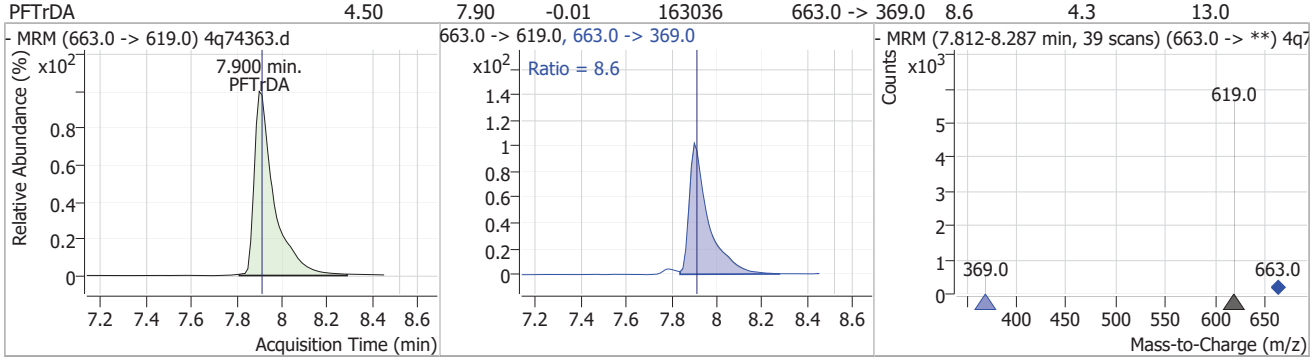


Perfluorinated Compounds by LC/MS/MS

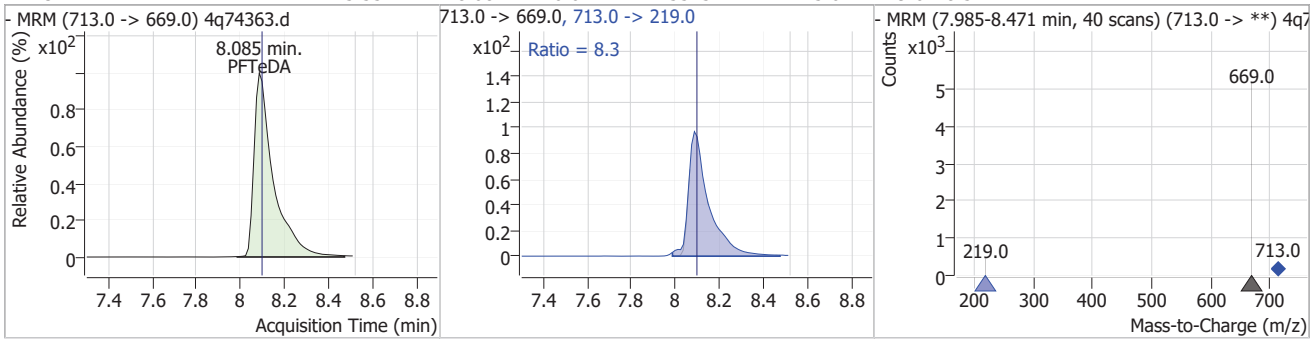
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	4.95	7.89	0.00	160764 (m)	584.0 -> 483.0	51.2	25.6	76.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	4.50	7.90	-0.01	163036	663.0 -> 369.0	8.6	4.3	13.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	5.33	8.08	-0.01	153234	713.0 -> 219.0	8.3	4.1	12.2



7.7.20

7

Manual Integration Approval Summary

Sample Number:	S4Q1106-IC1106	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	4Q74363.D	**Analyst approved:**	04/24/25 11:46 (b) (6)
Injection Time:	04/23/25 22:44	**Supervisor approved:**	04/24/25 12:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanoic acid	335-67-1		6.19	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.69	Split peak
MeFOSAA	2355-31-9		7.75	Split peak
EtFOSAA	2991-50-6		7.89	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/24/25 12:51

Perfluorinated Compounds by LC/MS/MS

Data File : 4q74364.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/23/2025 10:58:39 PM
Sample Name : ic1106-10
Vial : P1-A6
DA Method File : 537_042325_S4q1106.quantmethod.xml
Batch Name : s4q1106.batch.bin
Sample Information : OP8985,S4Q1106,250,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.164	429.0 -> 409.0	495730	20.00	µg/L		0.000
13C2-PFOA	6.192	415.0 -> 370.0	974889	20.00	µg/L		-0.012
13C3-PFPeA	3.119	266.0 -> 222.0	423312	20.00	µg/L		0.000
13C4-PFOS	6.687	503.0 -> 80.0	139030	20.00	µg/L		0.000
d3-MeFOSAA	7.733	573.0 -> 419.0	1454261	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.098	515.0 -> 470.0	367876	5.14	µg/L		0.000
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = 51.4%			
13C2-PFHxA	4.664	315.0 -> 270.0	122455	5.33	µg/L		-0.012
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = 53.3%			
d5-EtFOSAA	7.880	589.0 -> 419.0	418688	10.69	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 53.5%			
13C3-HFPO-DA	4.959	287.0 -> 169.0	3522	9.72	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 48.6%			
Target Compounds							QValue
6:2FTS	6.165	427.0 -> 407.0	283690	10.92	µg/L		100
8:2FTS	7.097	527.0 -> 507.0	297744	11.18	µg/L		100
EtFOSAA	7.882	584.0 -> 419.0	328866	10.79	µg/L	m	98
MeFOSAA	7.746	570.0 -> 419.0	347714	9.28	µg/L	m	100
PFBS	3.541	299.0 -> 80.0	62766	9.95	µg/L		99
PFDA	7.099	513.0 -> 469.0	506932	10.15	µg/L		100
PFDoDA	7.691	613.0 -> 569.0	466045	10.02	µg/L		100
PFHpA	5.570	363.0 -> 319.0	428386	9.52	µg/L		100
PFHxA	4.678	313.0 -> 269.0	142200	10.64	µg/L		100
PFHxS	5.630	399.0 -> 80.0	63272	9.63	µg/L	m	99
PFNA	6.689	463.0 -> 419.0	402655	9.60	µg/L		100
PFOA	6.193	413.0 -> 369.0	310625	9.51	µg/L	m	99
PFOS	6.689	499.0 -> 80.0	74540	9.47	µg/L	m	96
PFPeA	3.110	263.0 -> 219.0	251193	9.53	µg/L		100
PFTeDA	8.085	713.0 -> 669.0	309500	11.32	µg/L		100
PFTrDA	7.900	663.0 -> 619.0	328471	9.73	µg/L		100
PFUnDA	7.422	563.0 -> 519.0	495630	10.48	µg/L		100
ADONA	5.668	377.0 -> 251.0	656984	9.75	µg/L		100
9Cl-PF3ONS	6.921	531.0 -> 351.0	77660	10.91	µg/L		98
11Cl-PF3OUdS	7.553	631.0 -> 451.0	305122	10.92	µg/L		99
HFPO-DA	4.973	285.0 -> 169.0	3404	11.05	µg/L	m	100

 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.21
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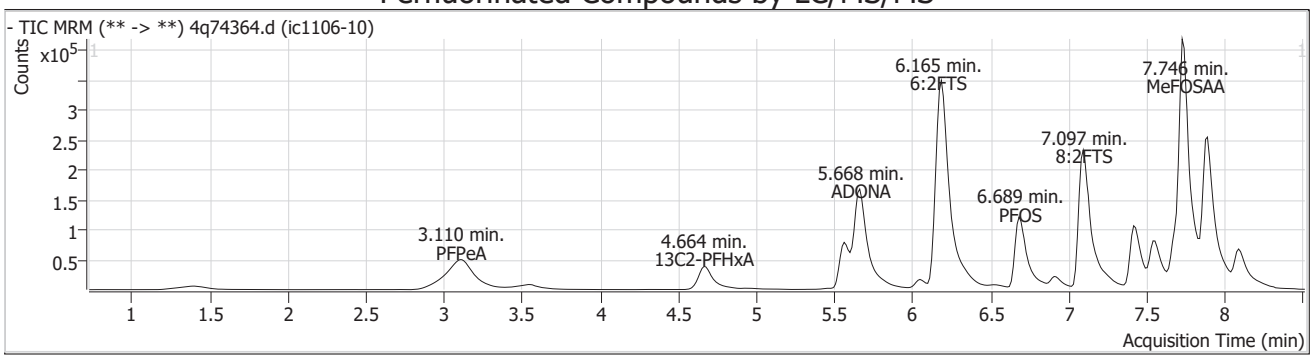
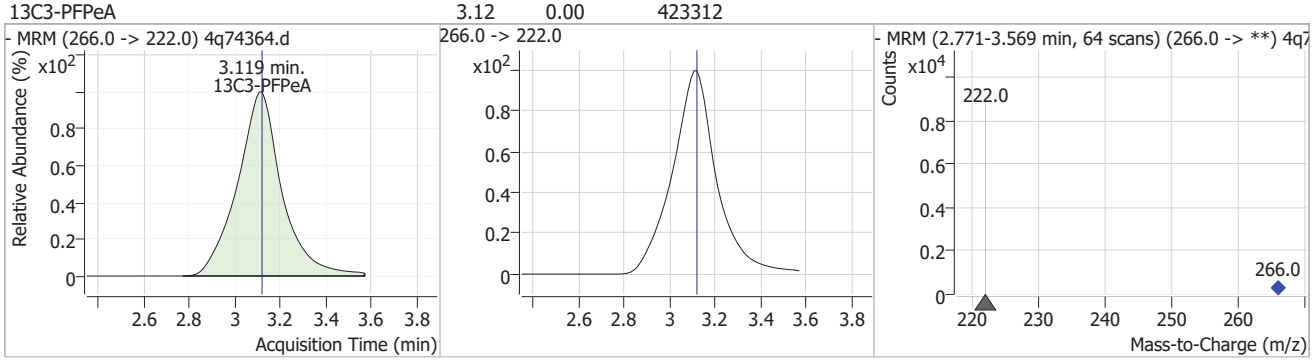
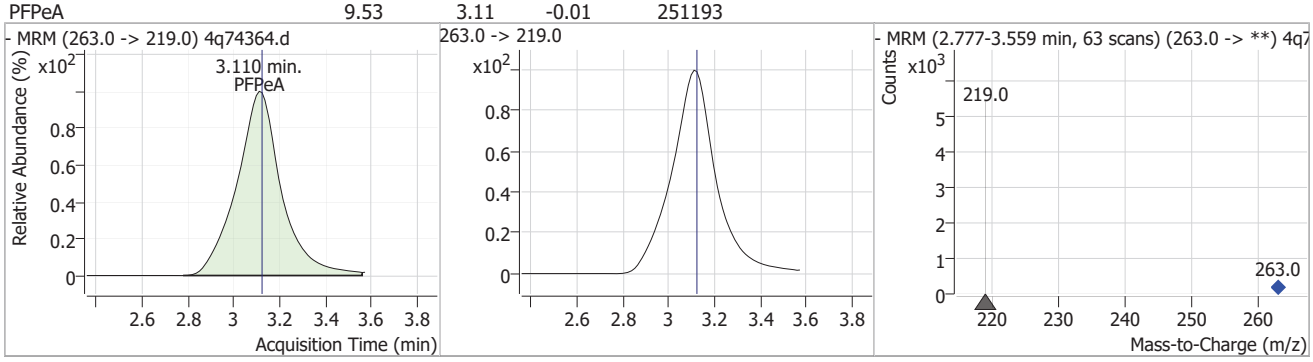
Perfluorinated Compounds by LC/MS/MS



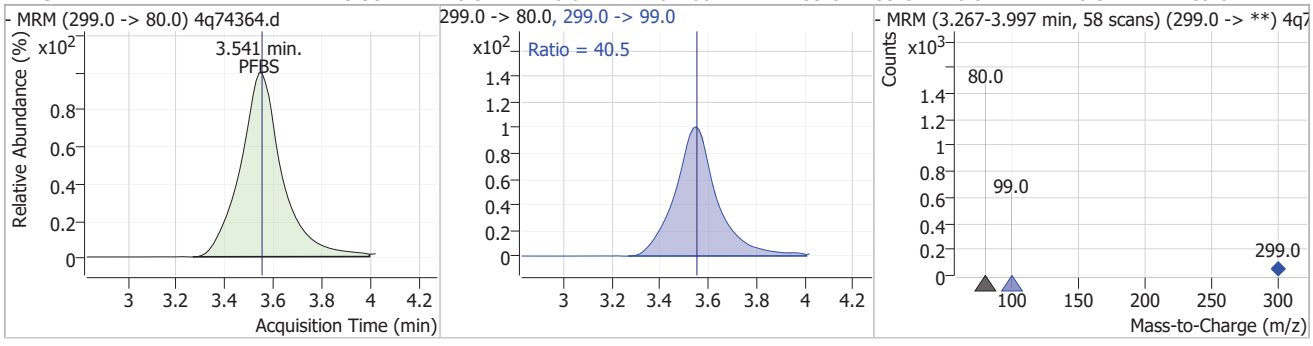
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.12	0.00	423312				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	9.53	3.11	-0.01	251193				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	9.95	3.54	-0.01	62766	299.0 -> 99.0	40.5	19.9	59.8



7.7.21

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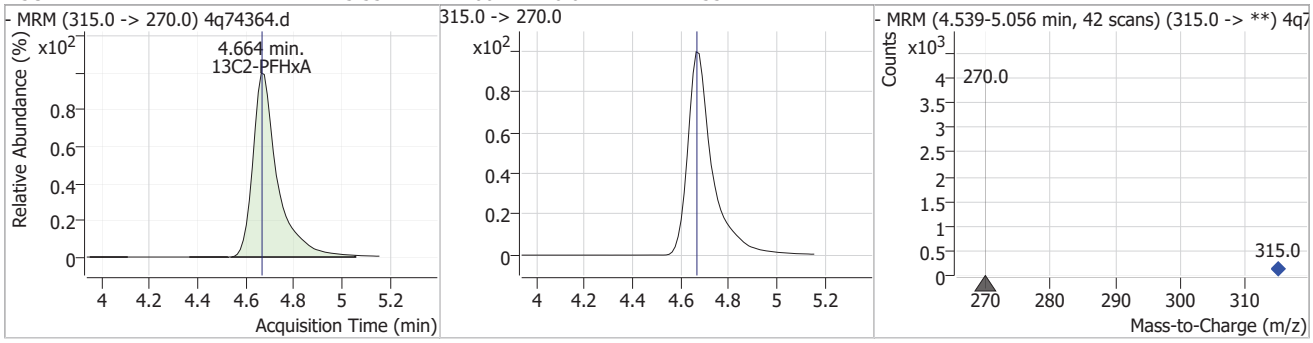
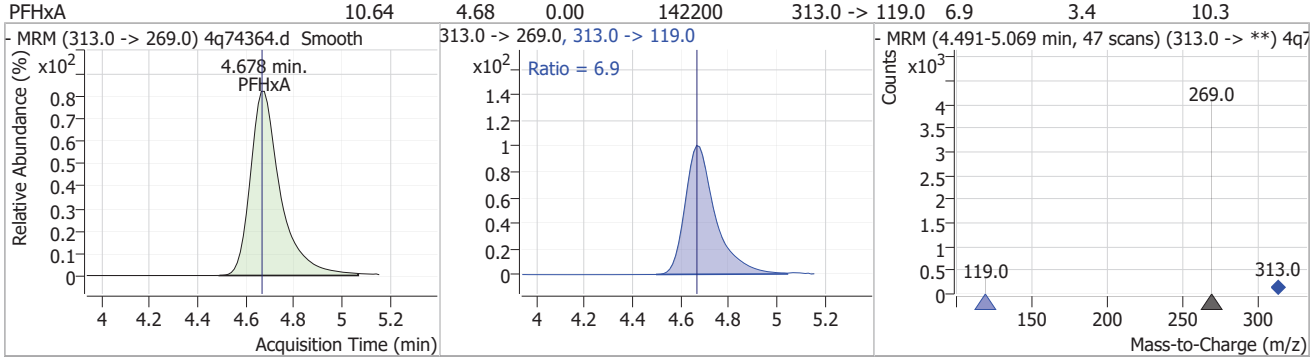
Perfluorinated Compounds by LC/MS/MS

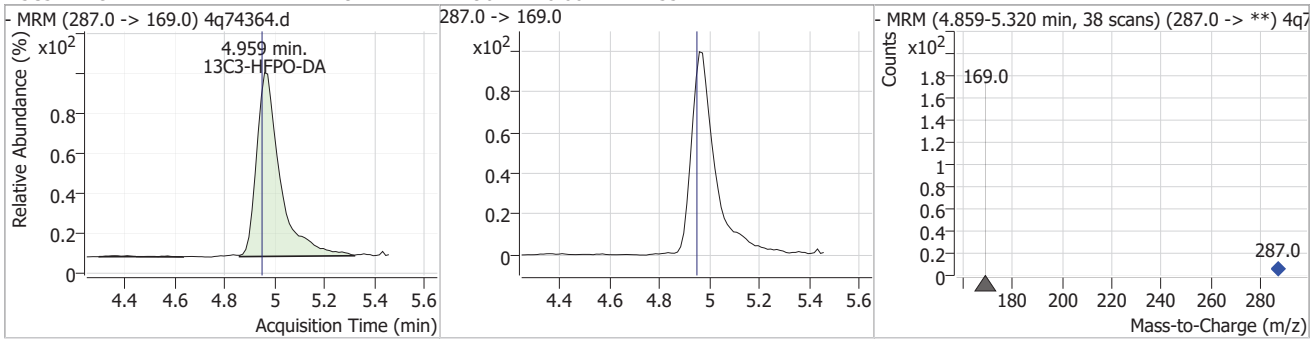
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	5.33	4.66	-0.01	122455				



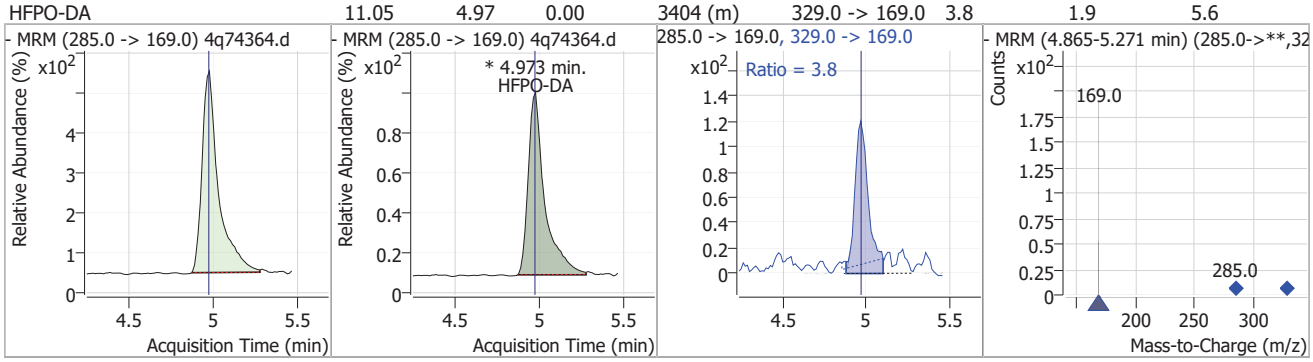
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	10.64	4.68	0.00	142200	313.0 -> 119.0	6.9	3.4	10.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.72	4.96	0.00	3522				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	11.05	4.97	0.00	3404 (m)	329.0 -> 169.0	3.8	1.9	5.6



7.7.21

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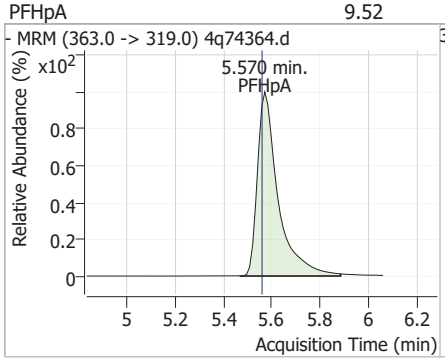
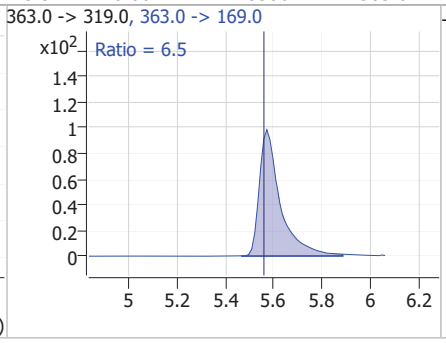
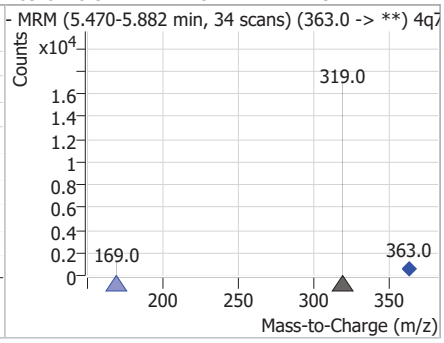
Perfluorinated Compounds by LC/MS/MS

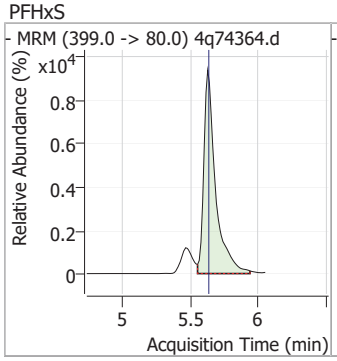
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	9.52	5.57	0.00	428386	363.0 -> 169.0	6.5	3.2	9.7

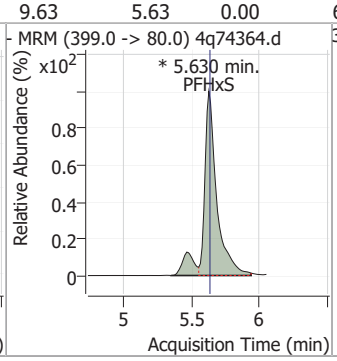


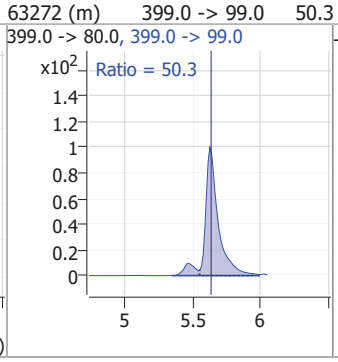


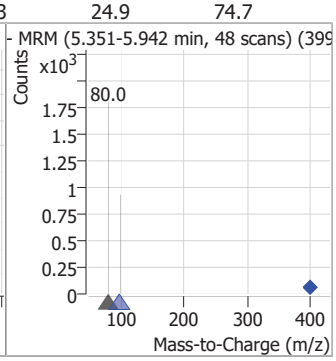


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	9.63	5.63	0.00	63272 (m)	399.0 -> 99.0	50.3	24.9	74.7

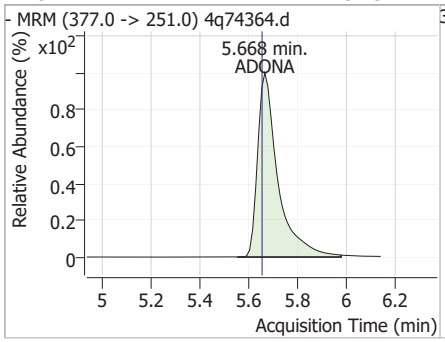


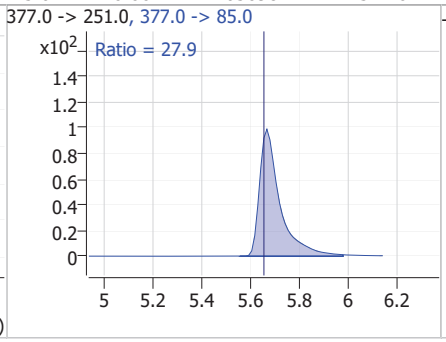


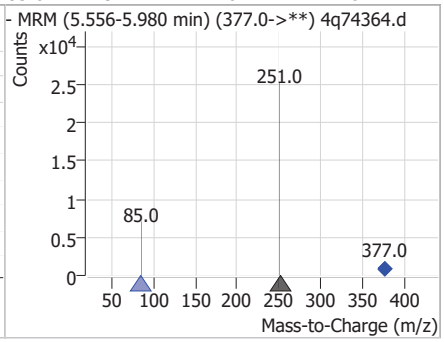




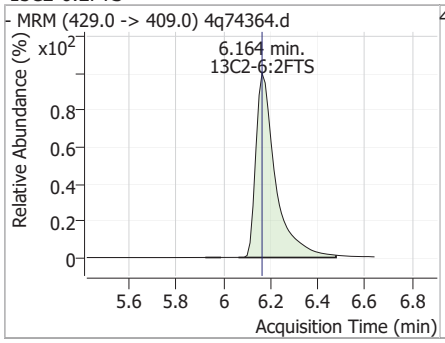
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	9.75	5.67	0.00	656984	377.0 -> 85.0	27.9	14.0	42.0

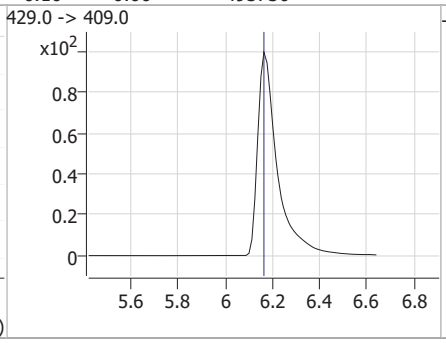


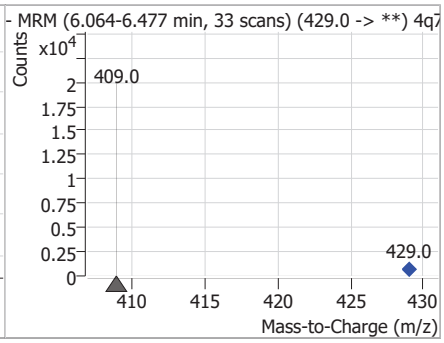




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.16	0.00	495730				







7.7.21

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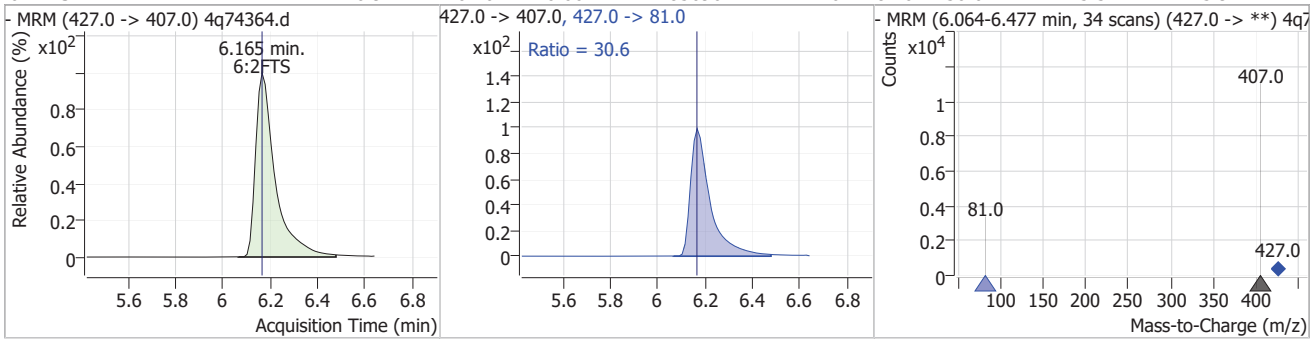
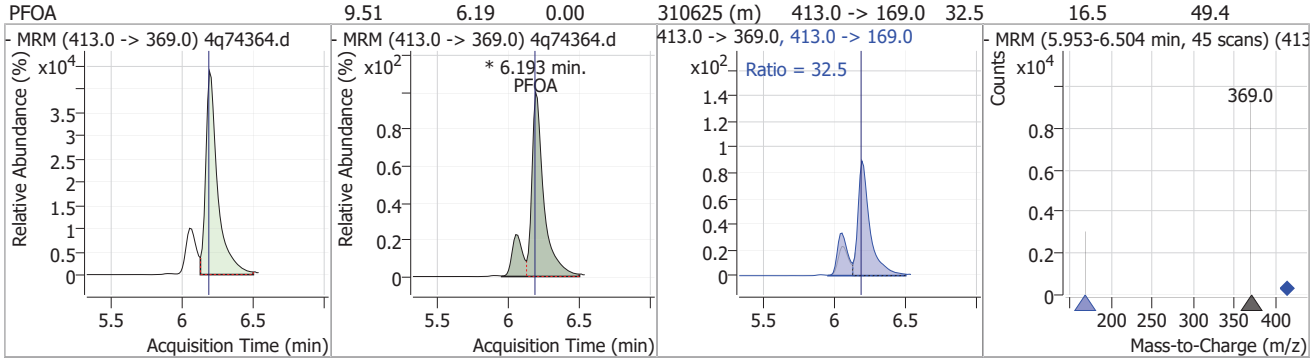
Perfluorinated Compounds by LC/MS/MS

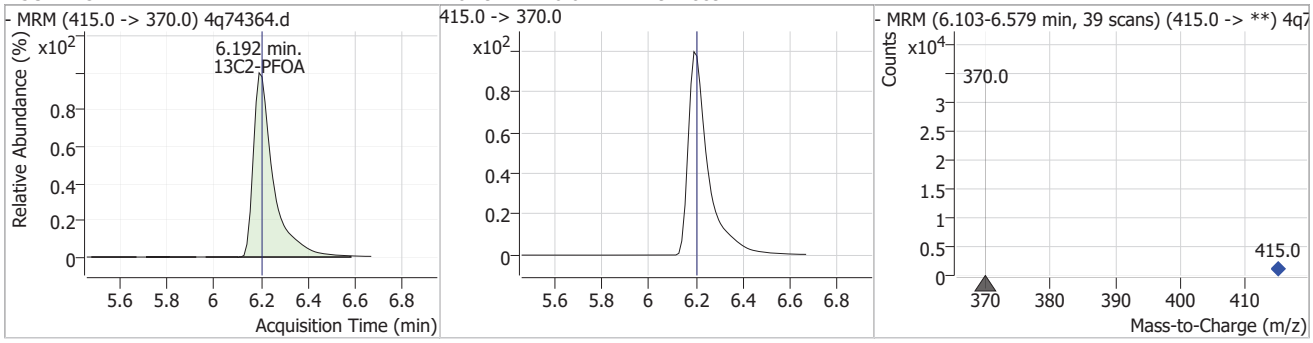
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	10.92	6.16	0.00	283690	427.0 -> 81.0	30.6	15.3	45.9



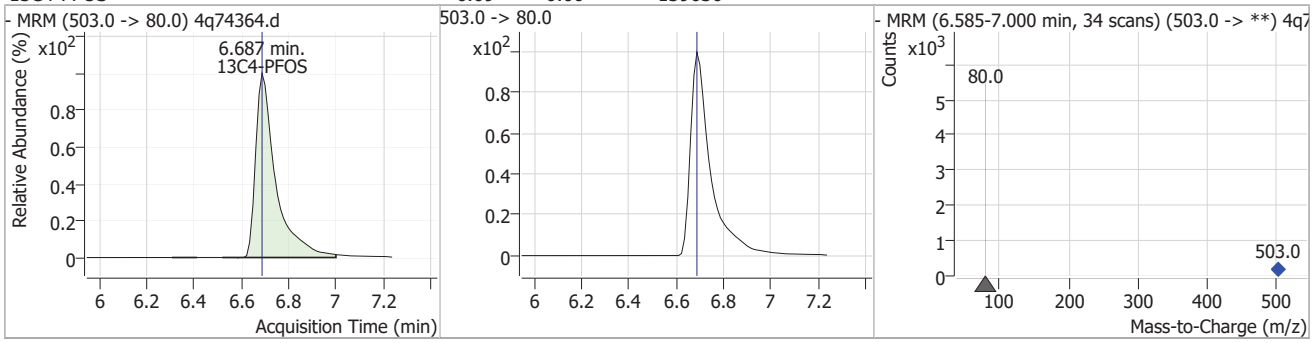
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	9.51	6.19	0.00	310625 (m)	413.0 -> 169.0	32.5	16.5	49.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.19	-0.01	974889				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.69	0.00	139030				



7.7.21

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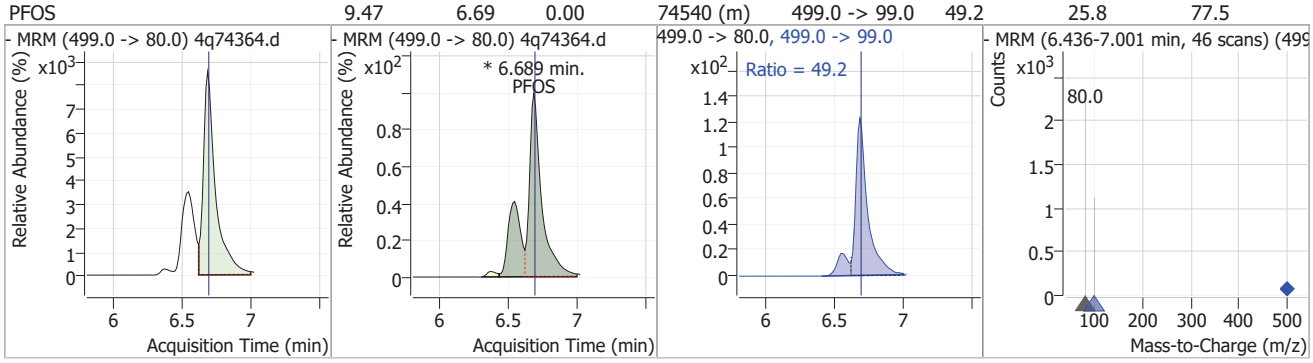
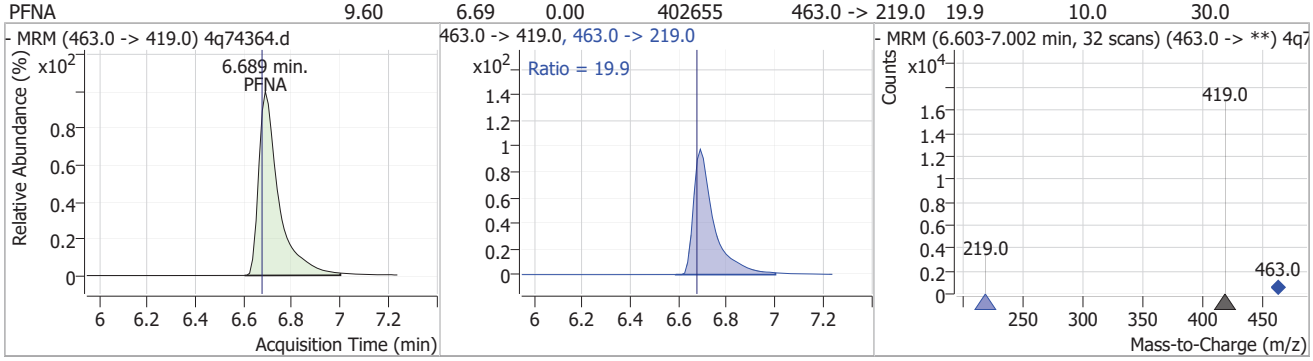
Perfluorinated Compounds by LC/MS/MS

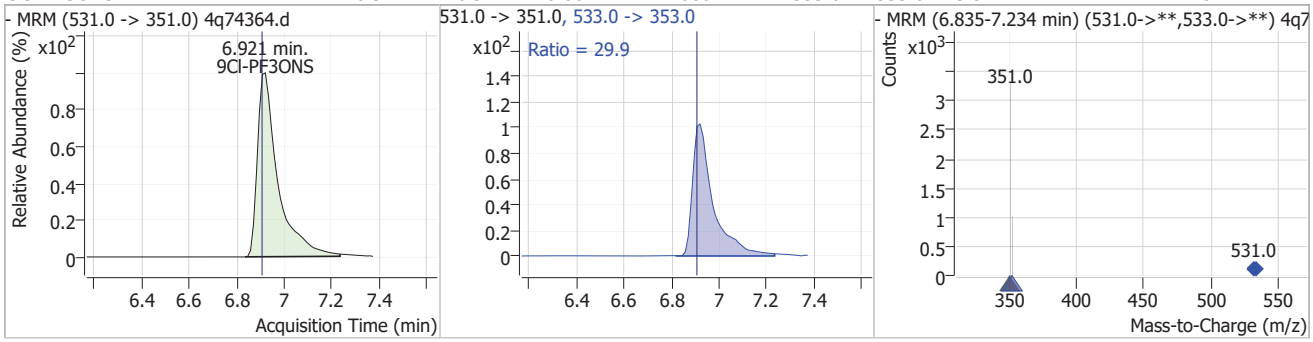
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	9.47	6.69	0.00	74540 (m)	499.0 -> 99.0	49.2	25.8	77.5



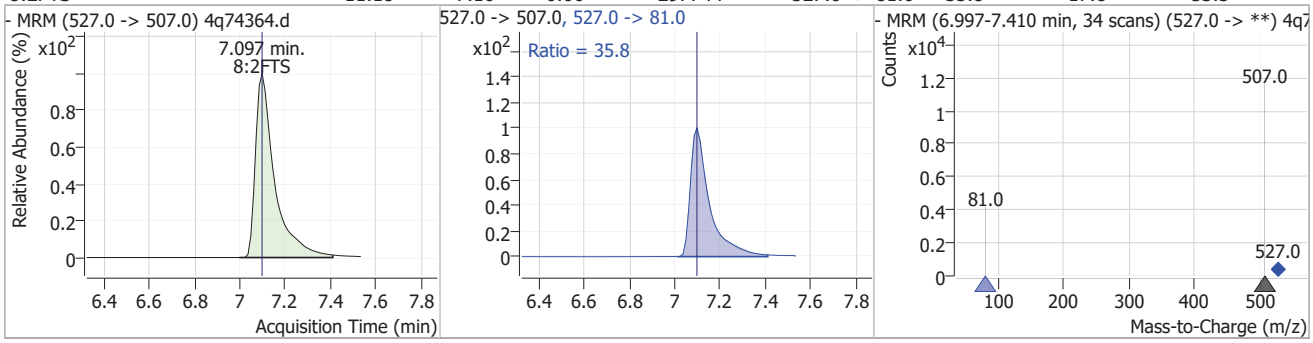
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	9.60	6.69	0.00	402655	463.0 -> 219.0	19.9	10.0	30.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	10.91	6.92	0.00	77660	533.0 -> 353.0	29.9	14.4	43.2

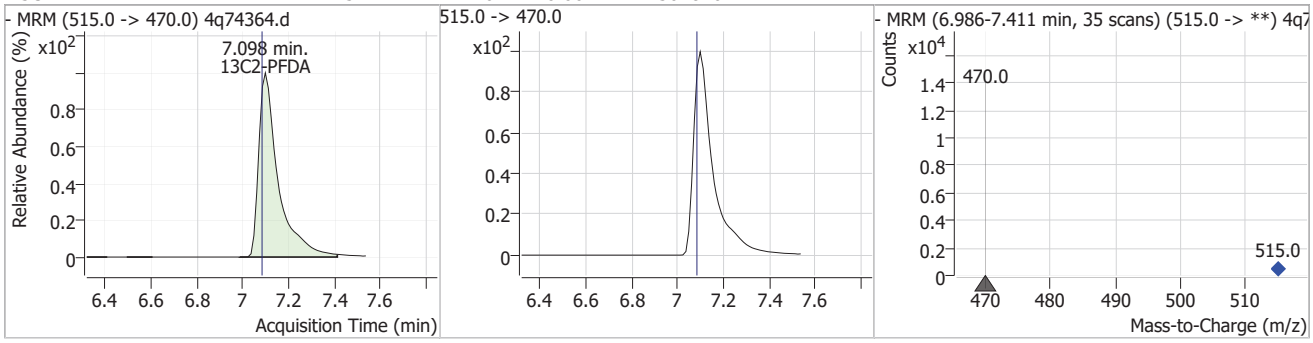


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	11.18	7.10	0.00	297744	527.0 -> 81.0	35.8	17.8	53.5

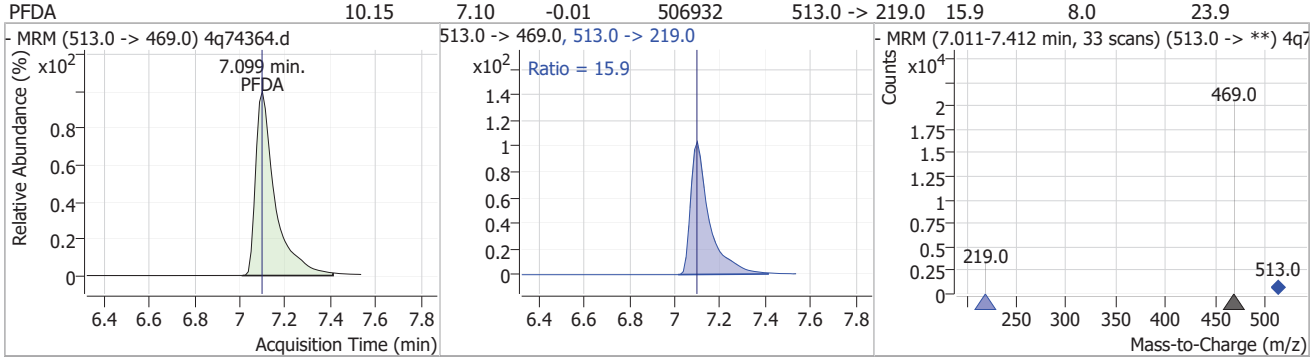


Perfluorinated Compounds by LC/MS/MS

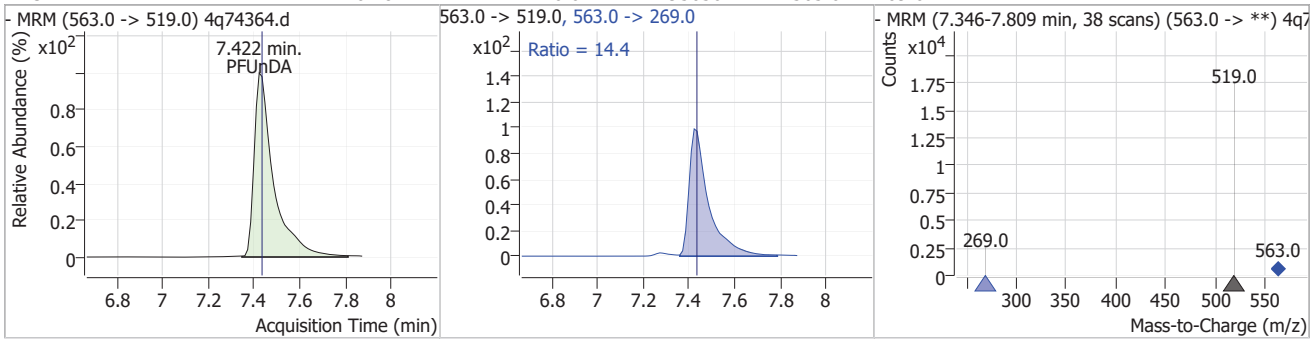
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	5.14	7.10	0.00	367876				



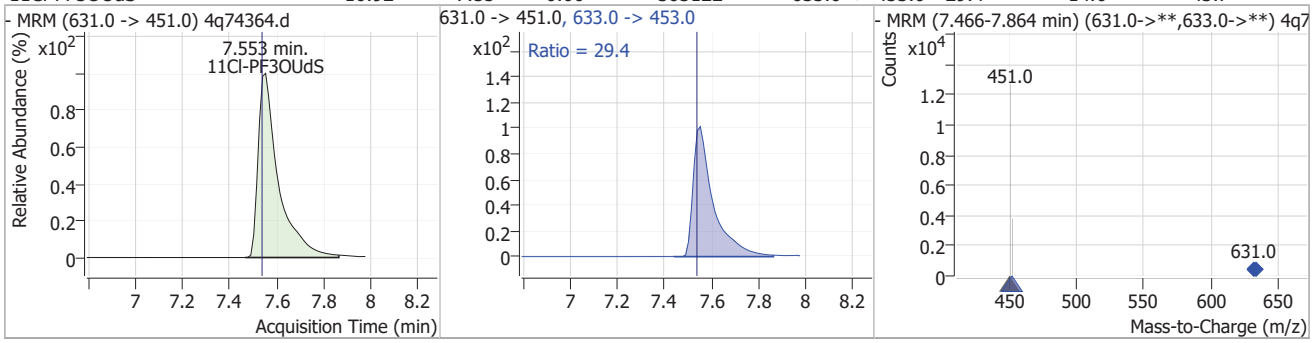
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	10.15	7.10	-0.01	506932	513.0 -> 219.0	15.9	8.0	23.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	10.48	7.42	-0.01	495630	563.0 -> 269.0	14.4	7.2	21.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	10.92	7.55	0.00	305122	633.0 -> 453.0	29.4	14.6	43.7



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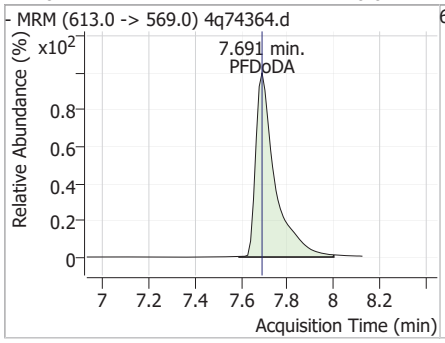
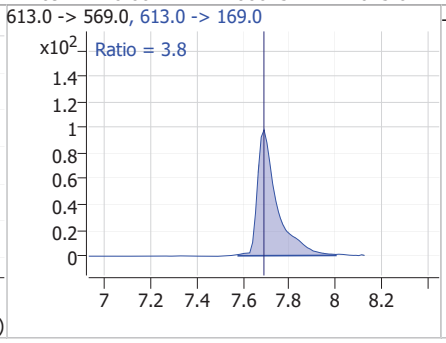
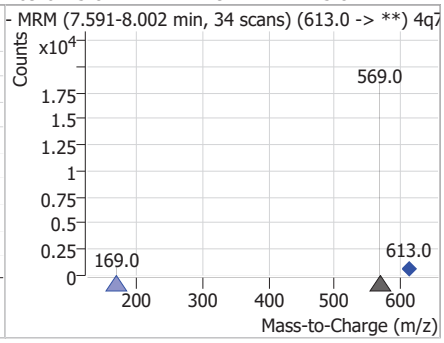
Perfluorinated Compounds by LC/MS/MS

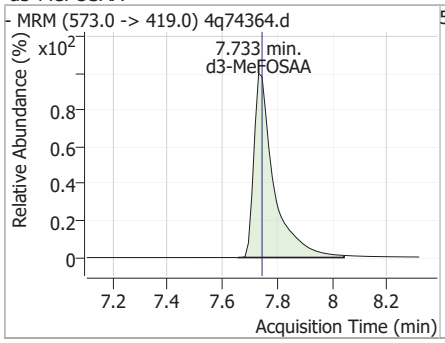
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	10.02	7.69	0.00	466045	613.0 -> 169.0	3.8	1.9	5.8

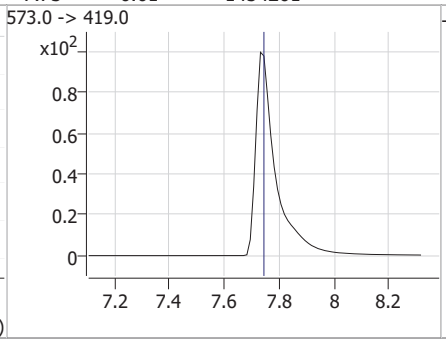


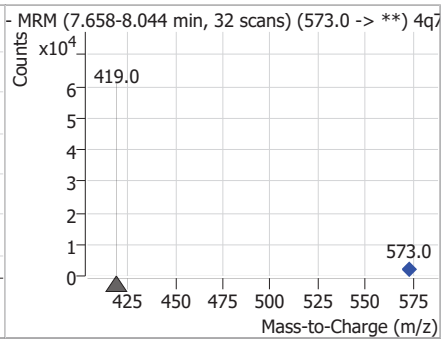




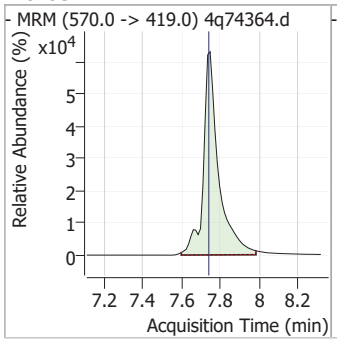
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.73	-0.01	1454261				

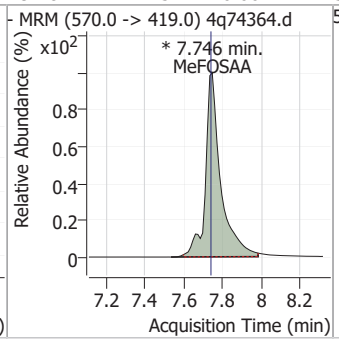


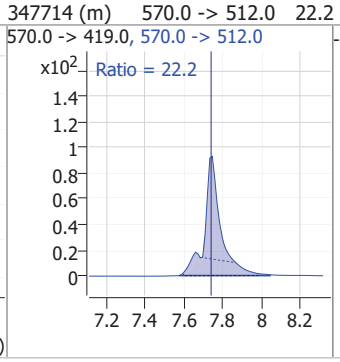


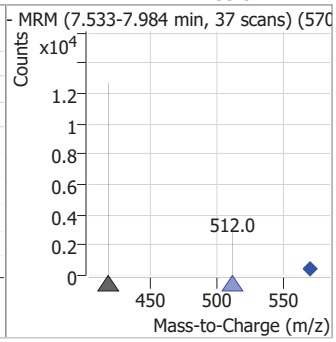


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	9.28	7.75	0.00	347714 (m)	570.0 -> 512.0	22.2	11.2	33.5

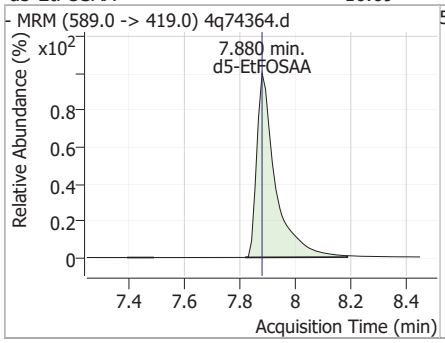


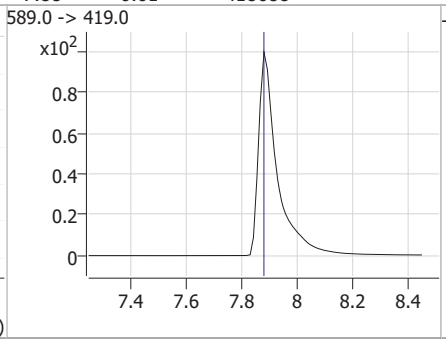


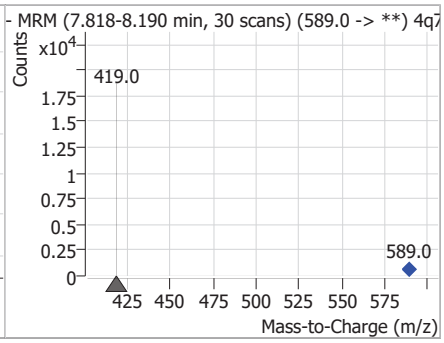




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	10.69	7.88	-0.01	418688				







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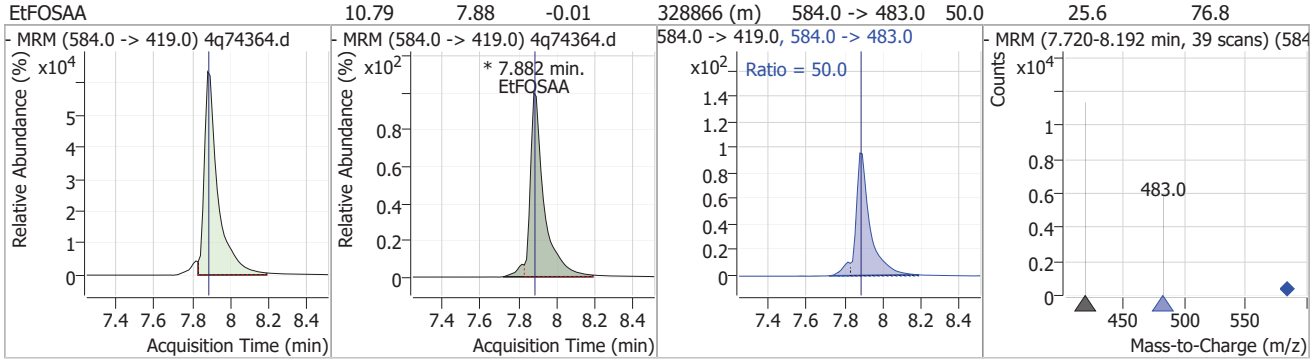
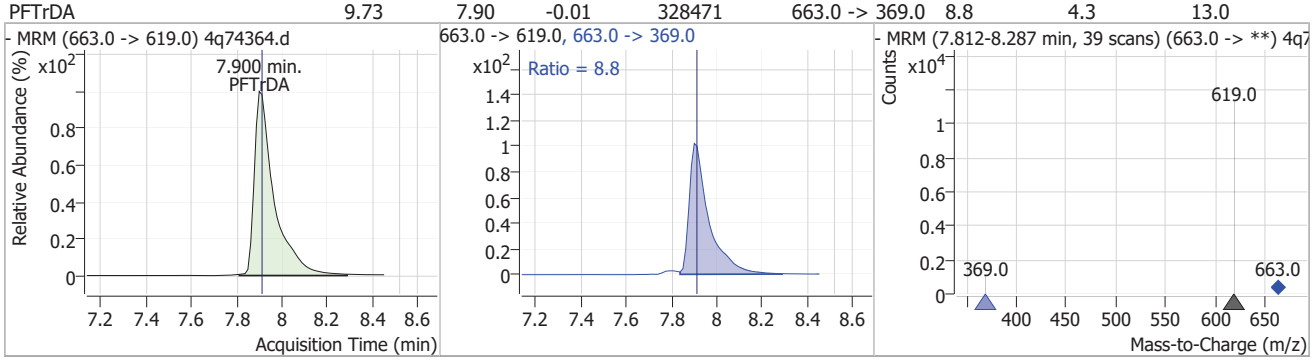
Perfluorinated Compounds by LC/MS/MS

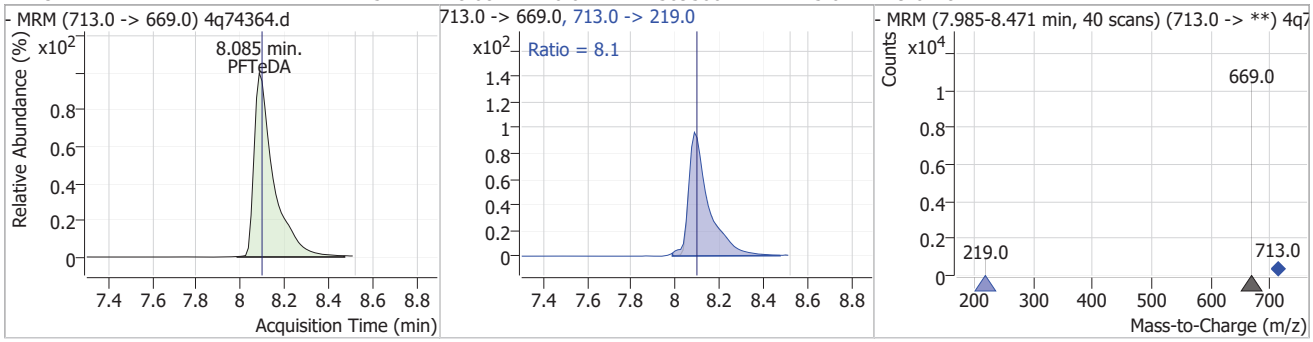
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	10.79	7.88	-0.01	328866 (m)	584.0 -> 483.0	50.0	25.6	76.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	9.73	7.90	-0.01	328471	663.0 -> 369.0	8.8	4.3	13.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	11.32	8.08	-0.01	309500	713.0 -> 219.0	8.1	4.1	12.2



7.7.21

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Manual Integration Approval Summary

Sample Number: S4Q1106-IC1106
Lab FileID: 4Q74364.D
Injection Time: 04/23/25 22:58
Method: EPA 537.1 REV 2.0
Analyst approved: 04/24/25 11:46 (b) (6)
Supervisor approved: 04/24/25 12:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
HFPO-DA (GenX)	13252-13-6		4.97	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanoic acid	335-67-1		6.19	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.69	Split peak
MeFOSAA	2355-31-9		7.75	Split peak
EtFOSAA	2991-50-6		7.88	Split peak

4Q74365.D

Manual Integrations APPROVED (compounds with "m" flag)

(b) (6)

04/24/25 13:14

Perfluorinated Compounds by LC/MS/MS

Data File : 4q74365.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/23/2025 11:12:55 PM
Sample Name : icc1106-20
Vial : P1-A7
DA Method File : 537_042325_S4q1106.quantmethod.xml
Batch Name : s4q1106.batch.bin
Sample Information : OP8985,S4Q1106,250,,,1.0,1,water

Compound	RT	QIon	Resp.	Symmetry	Conc.	Units		Dev(Min)
Internal Standards								
13C2-6:2FTS	6.164	429.0 -> 409.0	515180		20.00	µg/L		0.000
13C2-PFOA	6.204	415.0 -> 370.0	981273		20.00	µg/L		0.000
13C3-PFPeA	3.119	266.0 -> 222.0	425521		20.00	µg/L		0.000
13C4-PFOS	6.687	503.0 -> 80.0	139527		20.00	µg/L		0.000
d3-MeFOSAA	7.745	573.0 -> 419.0	1412949		40.00	µg/L		0.000
System Monitoring Compounds								
13C2-PFDA	7.098	515.0 -> 470.0	749494		10.40	µg/L		0.000
Spiked Amount: 10.00	Range: 70.0 - 130.0%				Recovery = 104.0%			
13C2-PFHxA	4.676	315.0 -> 270.0	244398		10.57	µg/L		0.000
Spiked Amount: 10.00	Range: 70.0 - 130.0%				Recovery = 105.7%			
d5-EtFOSAA	7.893	589.0 -> 419.0	827918		21.44	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%				Recovery = 107.2%			
13C3-HFPO-DA	4.959	287.0 -> 169.0	6757		18.53	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%				Recovery = 92.7%			
Target Compounds								QValue
6:2FTS	6.165	427.0 -> 407.0	578865		21.74	µg/L		100
8:2FTS	7.097	527.0 -> 507.0	600959		22.17	µg/L		100
EtFOSAA	7.894	584.0 -> 419.0	653002		21.71	µg/L	m	100
MeFOSAA	7.746	570.0 -> 419.0	698041		19.18	µg/L	m	100
PFBS	3.553	299.0 -> 80.0	127777	1.15	20.19	µg/L		100
PFDA	7.099	513.0 -> 469.0	1034532		20.58	µg/L		100
PFDoDA	7.691	613.0 -> 569.0	958613		20.53	µg/L		100
PFHpA	5.570	363.0 -> 319.0	874968		19.31	µg/L		100
PFHxA	4.678	313.0 -> 269.0	288522	1.79	21.44	µg/L		100
PFHxS	5.630	399.0 -> 80.0	128401		19.47	µg/L	m	100
PFNA	6.689	463.0 -> 419.0	817942		19.37	µg/L		100
PFOA	6.193	413.0 -> 369.0	636118		19.34	µg/L	m	100
PFOS	6.689	499.0 -> 80.0	150234		19.02	µg/L	m	100
PFPeA	3.122	263.0 -> 219.0	515414		19.45	µg/L		100
PFTeDA	8.097	713.0 -> 669.0	633943		22.34	µg/L		100
PFTrDA	7.912	663.0 -> 619.0	671726		19.83	µg/L		100
PFUnDA	7.434	563.0 -> 519.0	995168		20.96	µg/L		100
ADONA	5.668	377.0 -> 251.0	1348381		19.88	µg/L		100
9Cl-PF3ONS	6.921	531.0 -> 351.0	162074		22.07	µg/L		100
11Cl-PF3OUdS	7.553	631.0 -> 451.0	625560		21.82	µg/L		100
HFPO-DA	4.973	285.0 -> 169.0	7116		22.40	µg/L		100

 # = Qualifier out of range, m = manually integrated, + = Area summed

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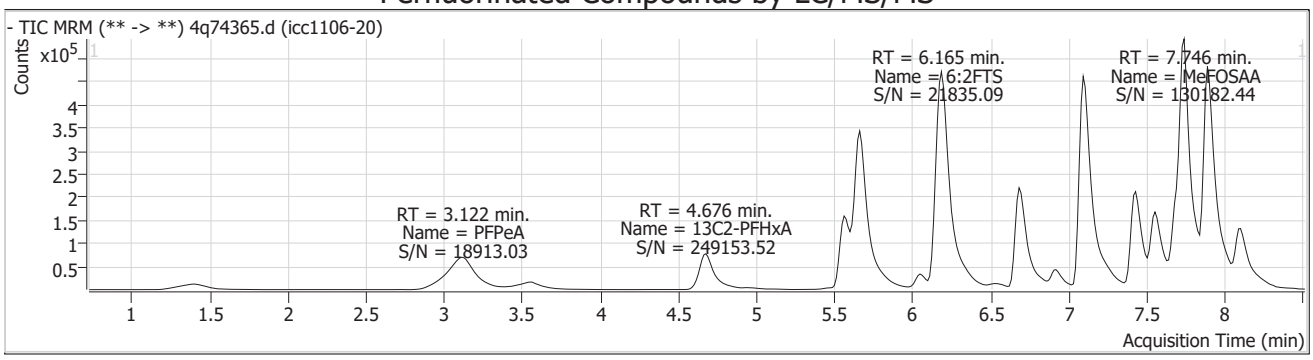
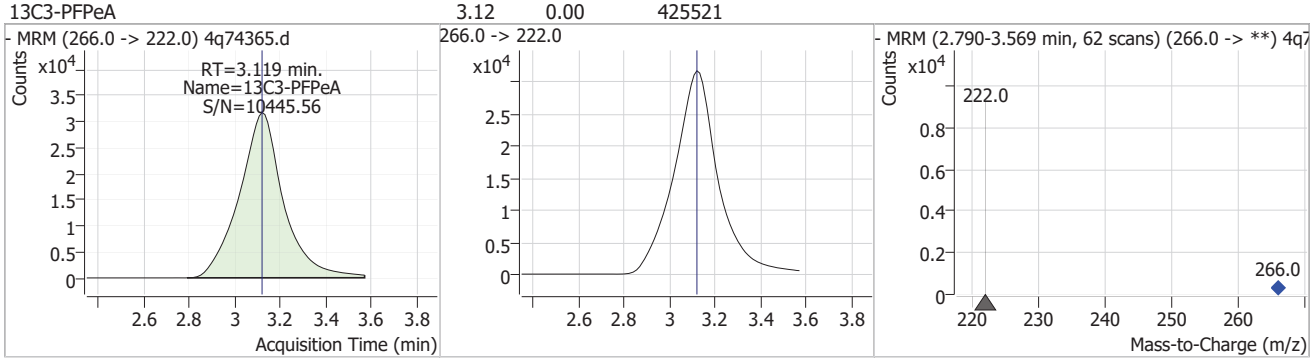
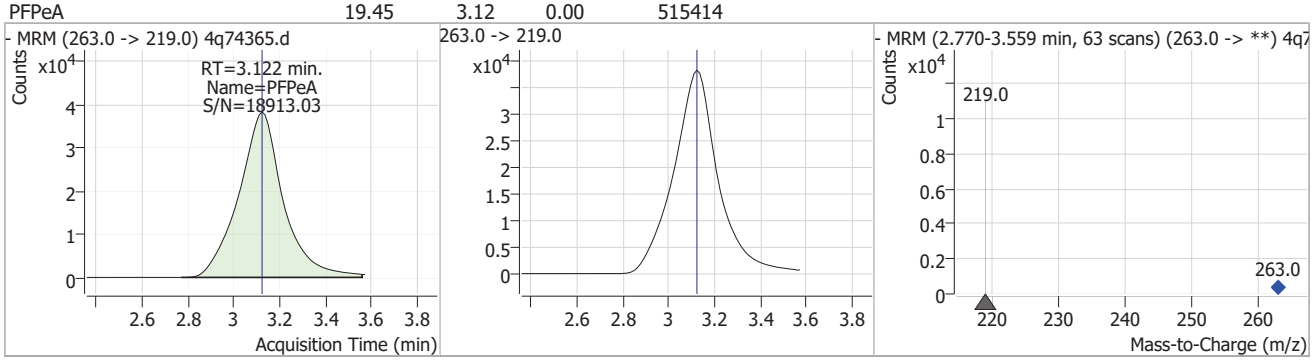
Perfluorinated Compounds by LC/MS/MS



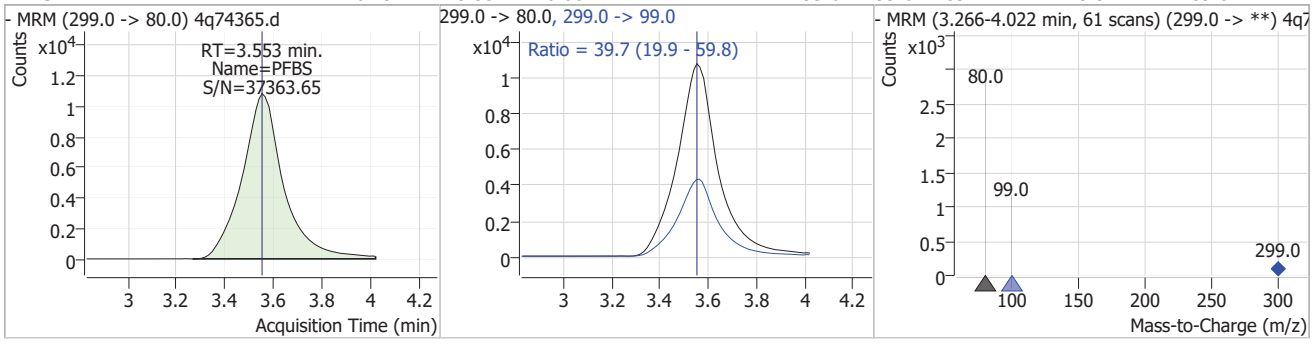
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.12	0.00	425521				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.45	3.12	0.00	515414				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.19	3.55	0.00	127777	299.0 -> 99.0	39.7	19.9	59.8



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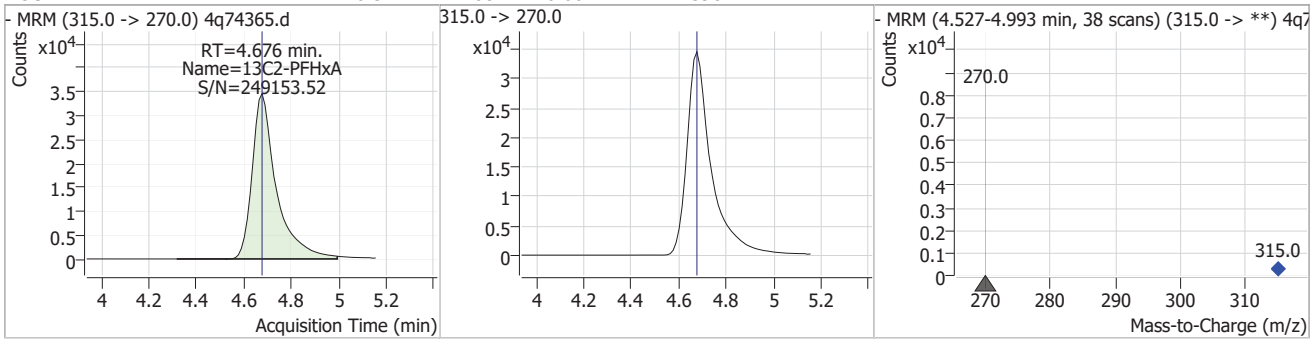
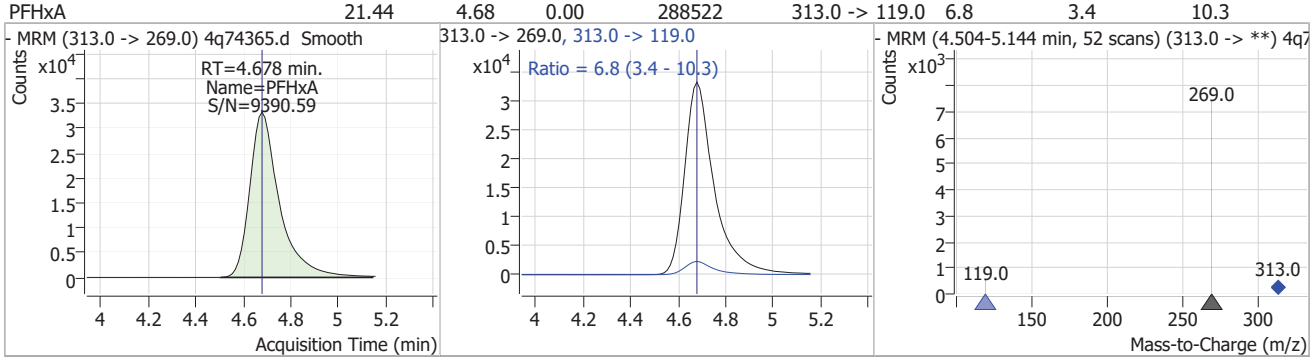
Perfluorinated Compounds by LC/MS/MS

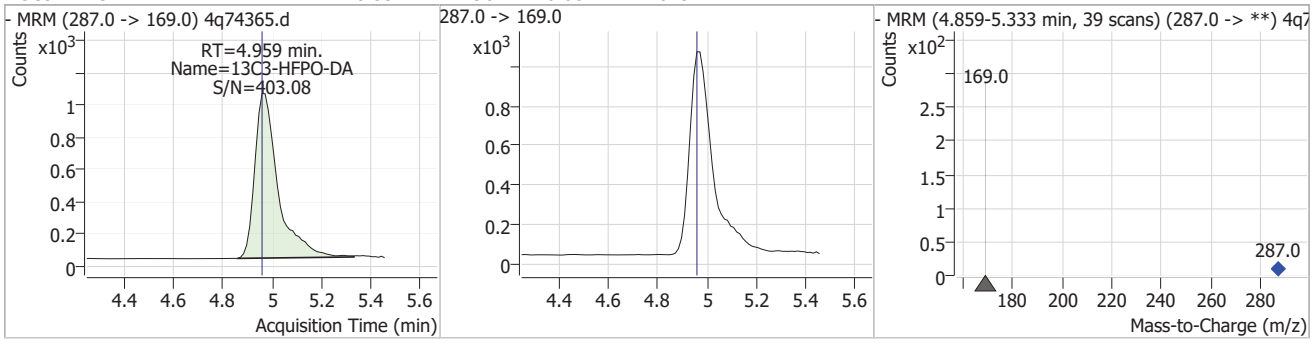
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	10.57	4.68	0.00	244398				



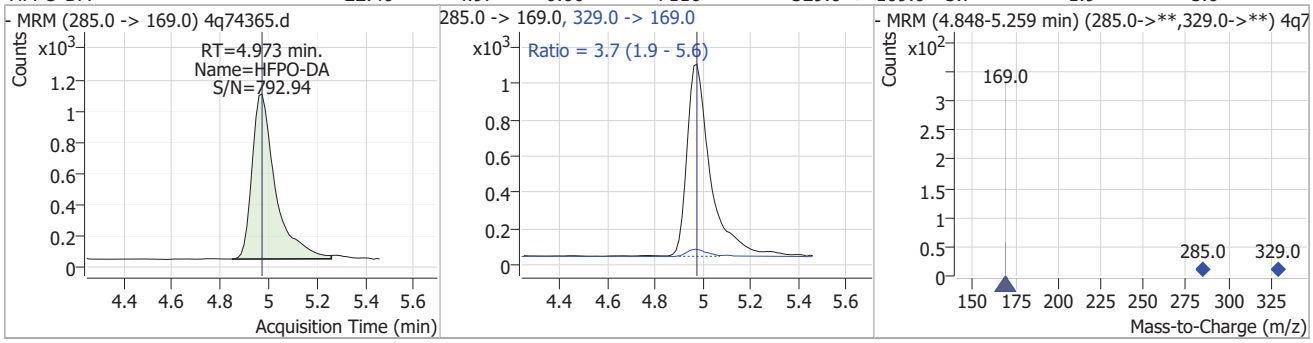
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	21.44	4.68	0.00	288522	313.0 -> 119.0	6.8	3.4	10.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	18.53	4.96	0.00	6757				

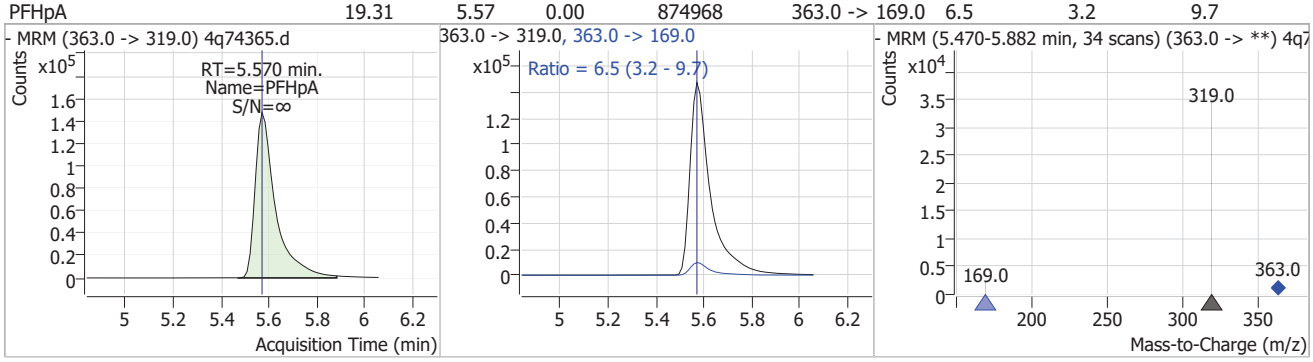


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	22.40	4.97	0.00	7116	329.0 -> 169.0	3.7	1.9	5.6

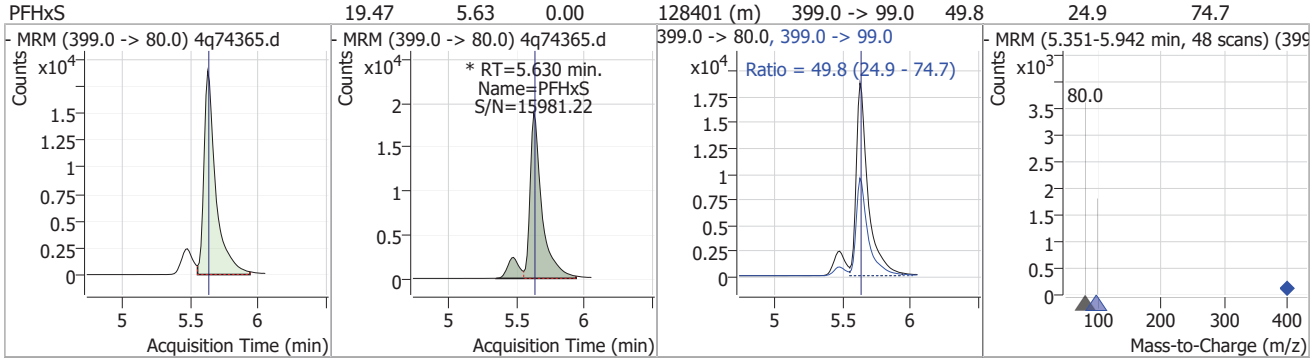


Perfluorinated Compounds by LC/MS/MS

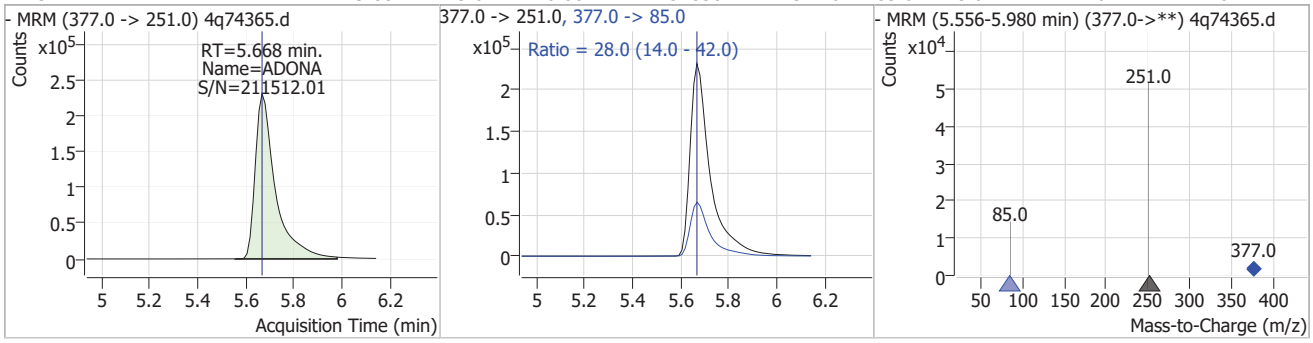
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.31	5.57	0.00	874968	363.0 -> 169.0	6.5	3.2	9.7



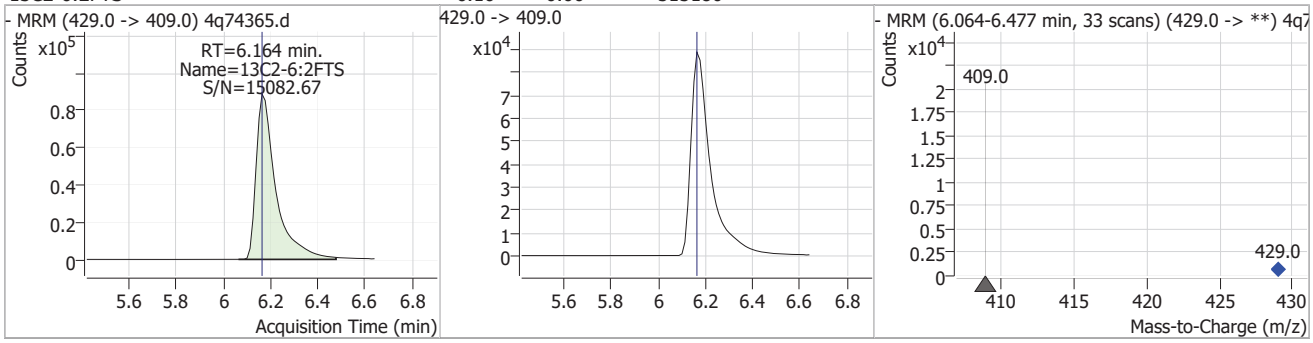
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.47	5.63	0.00	128401 (m)	399.0 -> 99.0	49.8	24.9	74.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.88	5.67	0.00	1348381	377.0 -> 85.0	28.0	14.0	42.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.16	0.00	515180				



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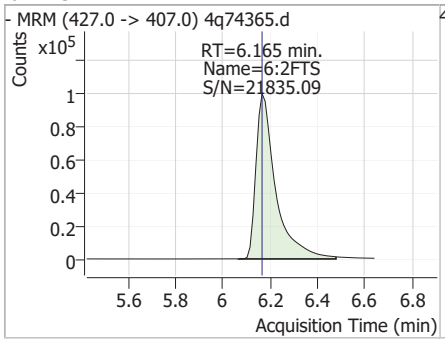
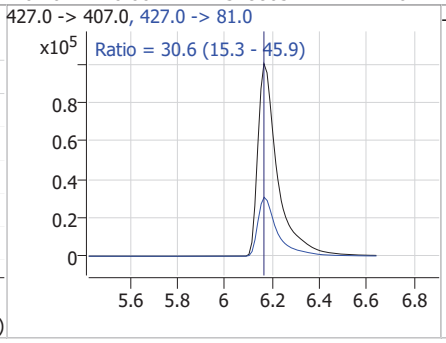
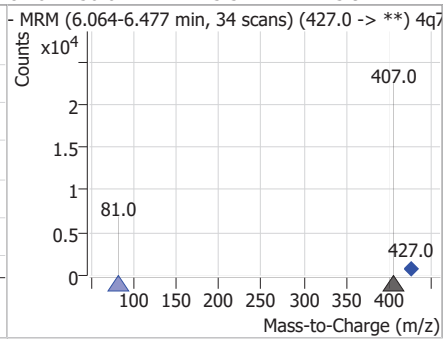
Perfluorinated Compounds by LC/MS/MS

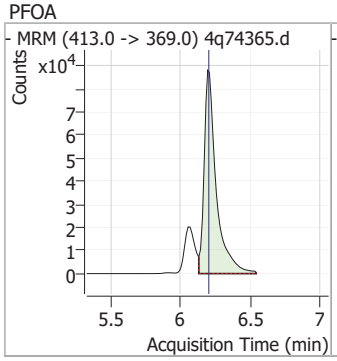
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	21.74	6.16	0.00	578865	427.0 -> 81.0	30.6	15.3	45.9

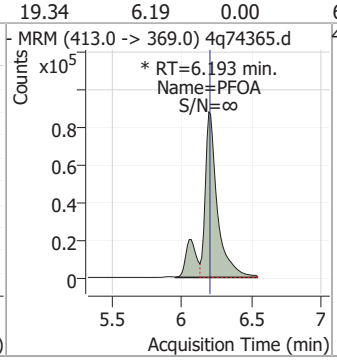


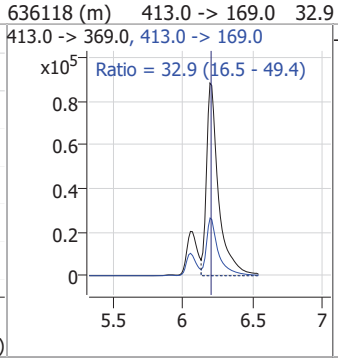


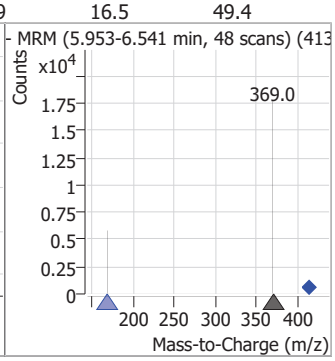


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.34	6.19	0.00	636118 (m)	413.0 -> 169.0	32.9	16.5	49.4

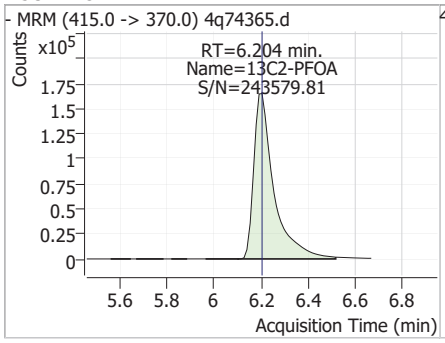


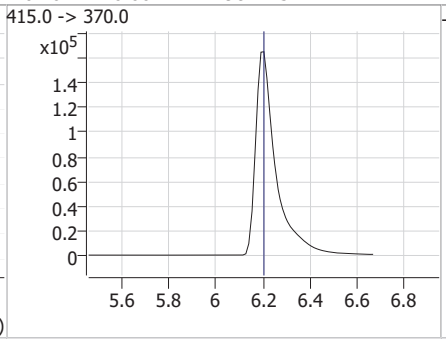


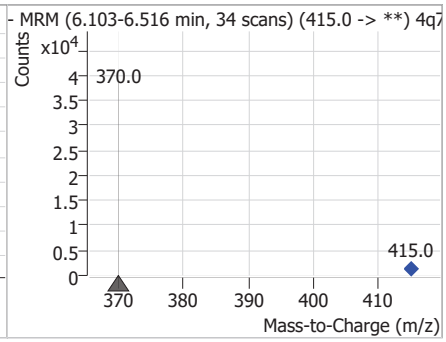




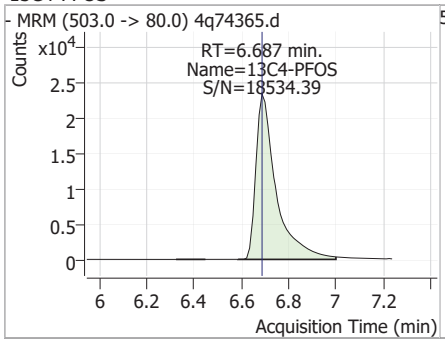
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.20	0.00	981273				

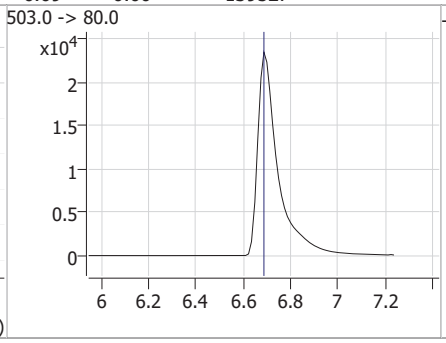


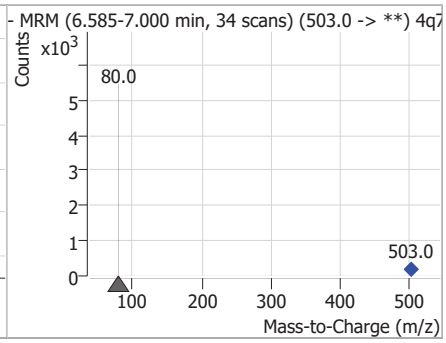




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.69	0.00	139527				







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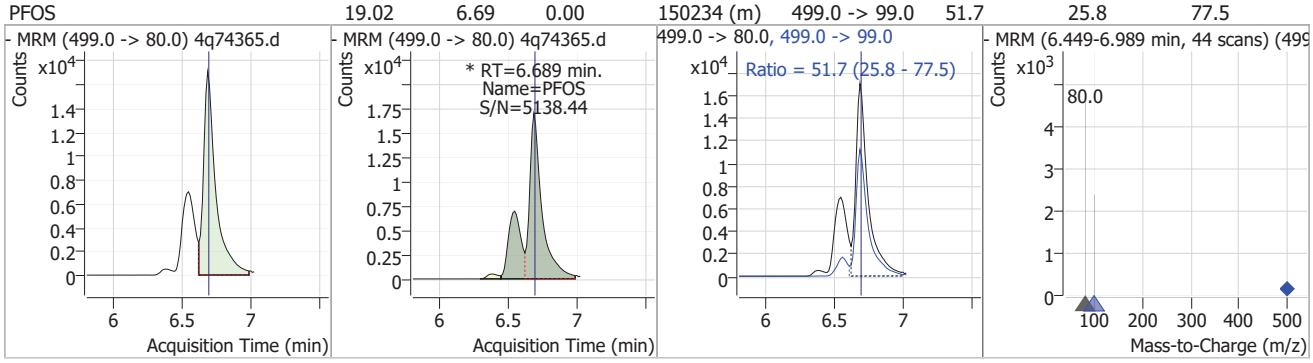
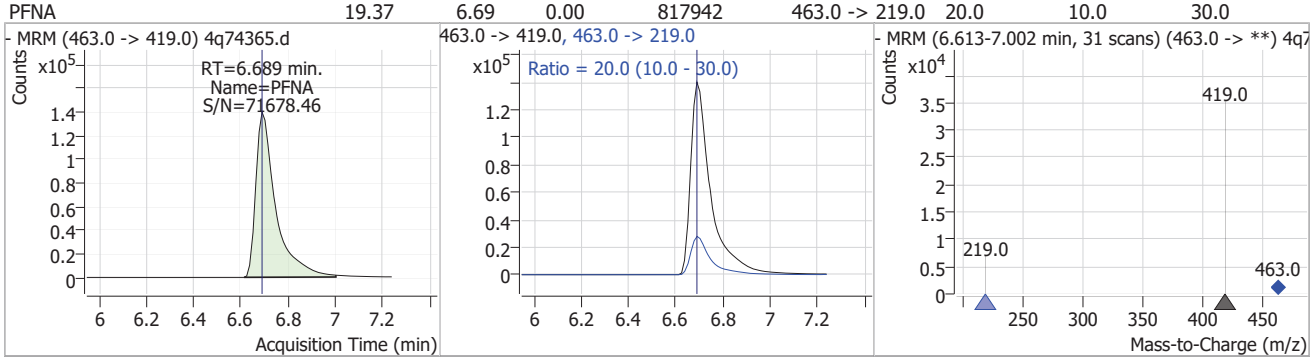
Perfluorinated Compounds by LC/MS/MS

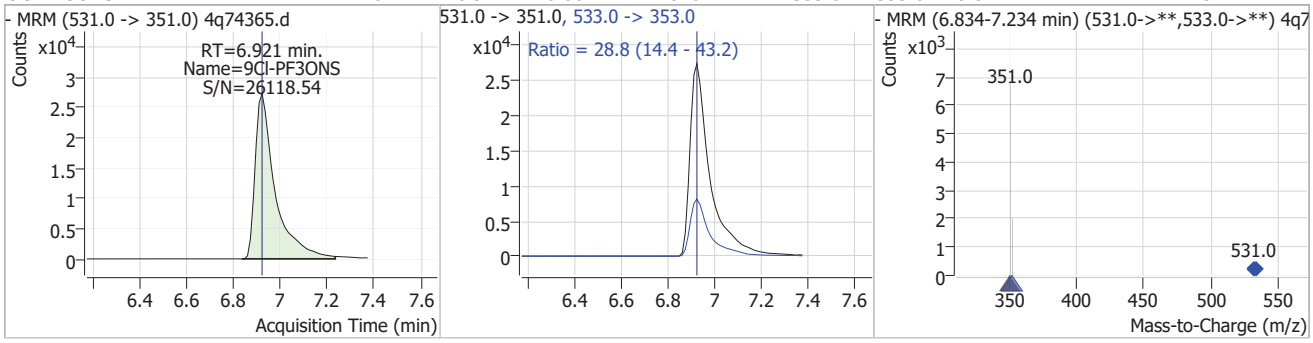
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.02	6.69	0.00	150234 (m)	499.0 -> 99.0	51.7	25.8	77.5



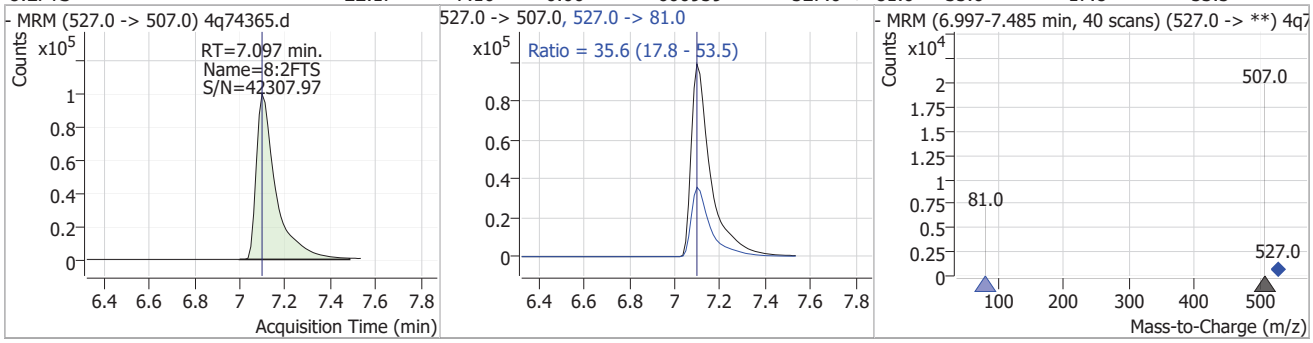
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.37	6.69	0.00	817942	463.0 -> 219.0	20.0	10.0	30.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	22.07	6.92	0.00	162074	533.0 -> 353.0	28.8	14.4	43.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	22.17	7.10	0.00	600959	527.0 -> 81.0	35.6	17.8	53.5



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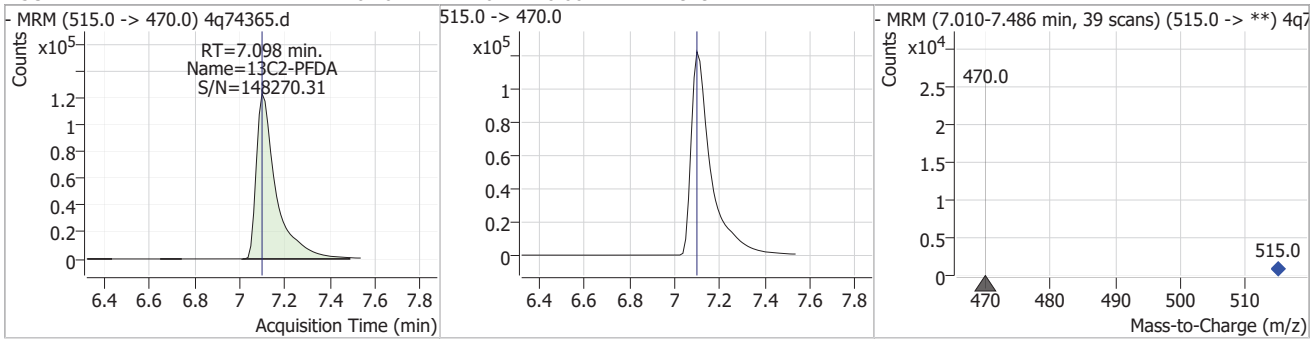
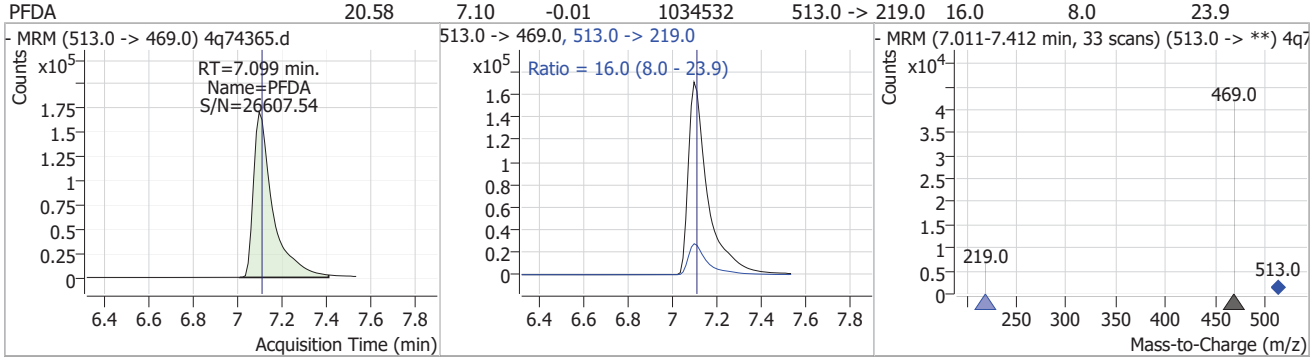
Perfluorinated Compounds by LC/MS/MS

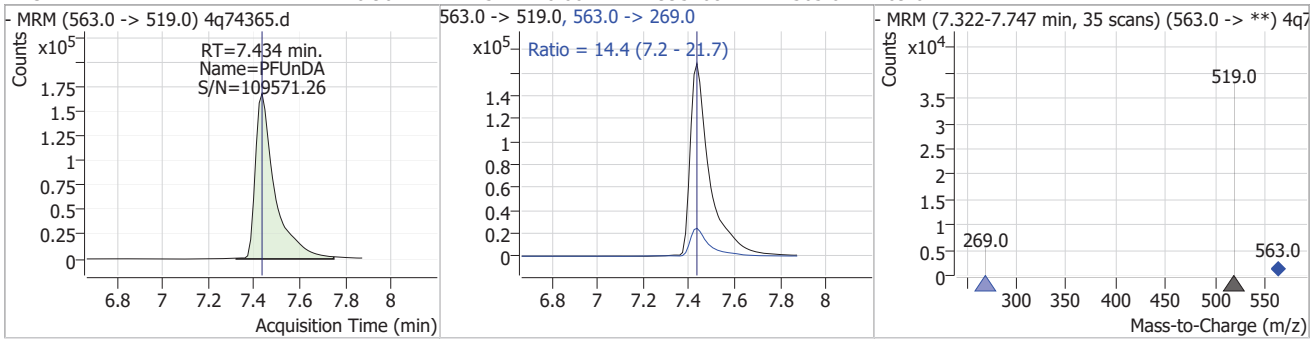
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	10.40	7.10	0.00	749494				



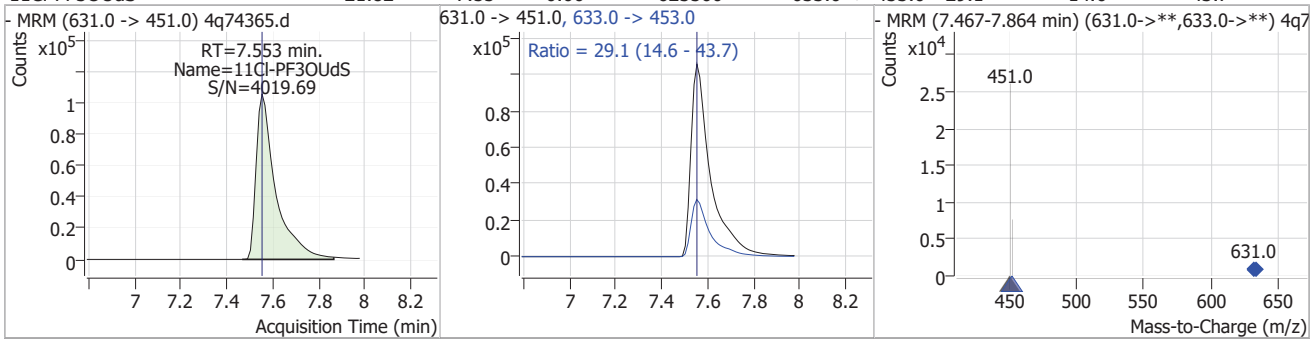
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.58	7.10	-0.01	1034532	513.0 -> 219.0	16.0	8.0	23.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	20.96	7.43	0.00	995168	563.0 -> 269.0	14.4	7.2	21.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	21.82	7.55	0.00	625560	633.0 -> 453.0	29.1	14.6	43.7



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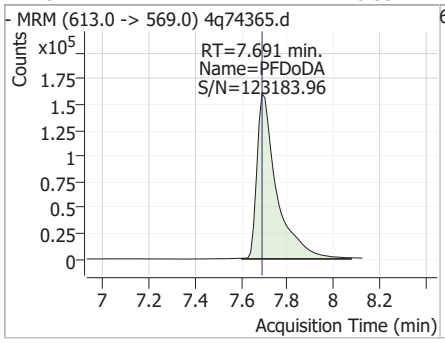
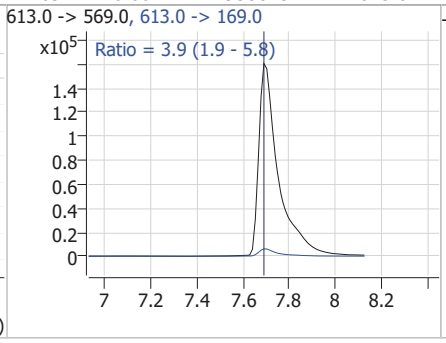
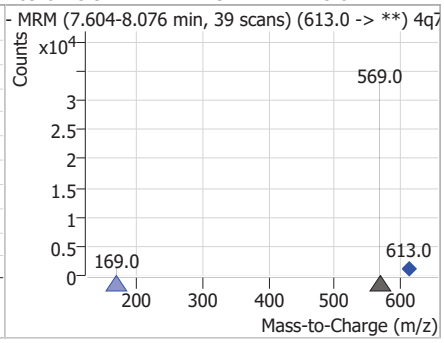
Perfluorinated Compounds by LC/MS/MS

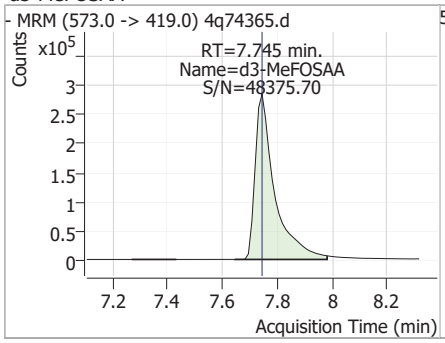
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	20.53	7.69	0.00	958613	613.0 -> 169.0	3.9	1.9	5.8

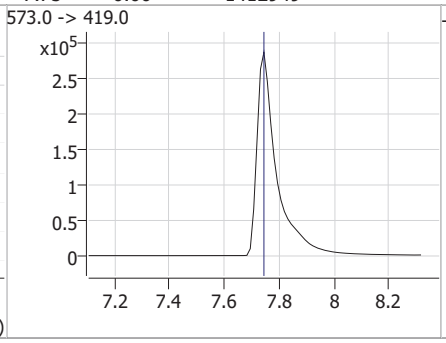


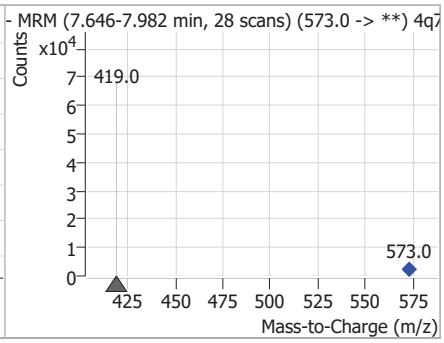




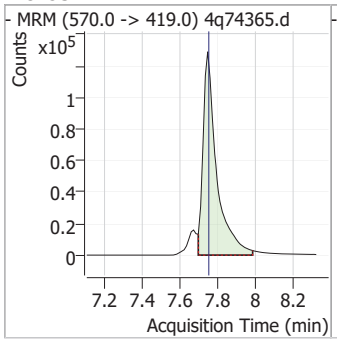
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.75	0.00	1412949				

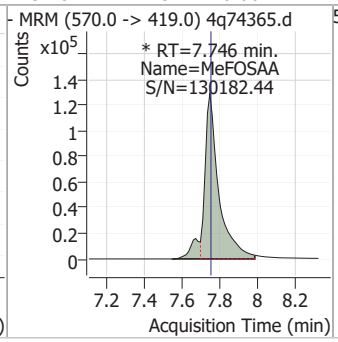


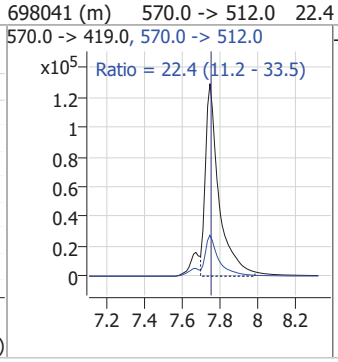


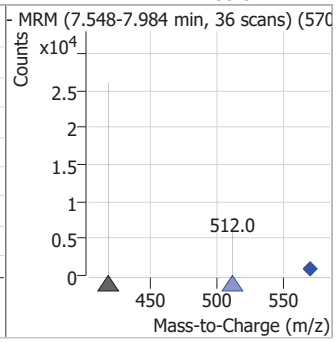


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.18	7.75	0.00	698041 (m)	570.0 -> 512.0	22.4	11.2	33.5

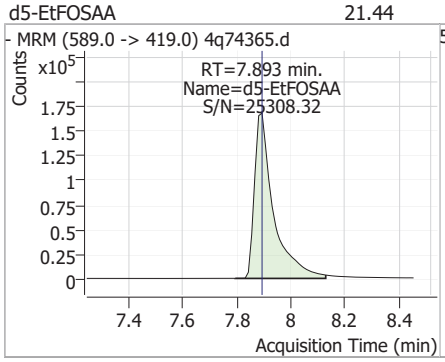


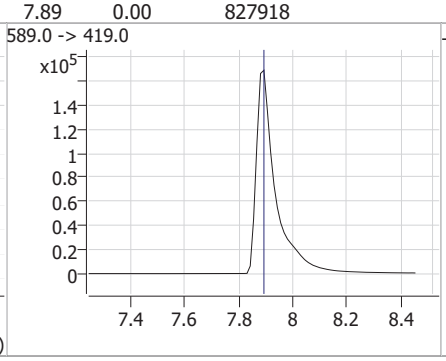


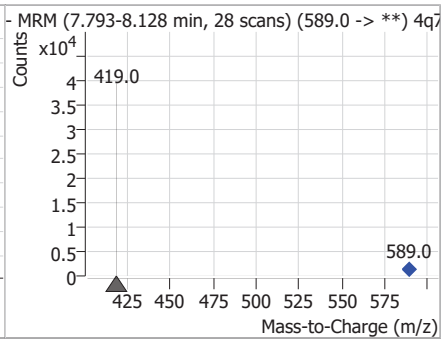




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	21.44	7.89	0.00	827918				







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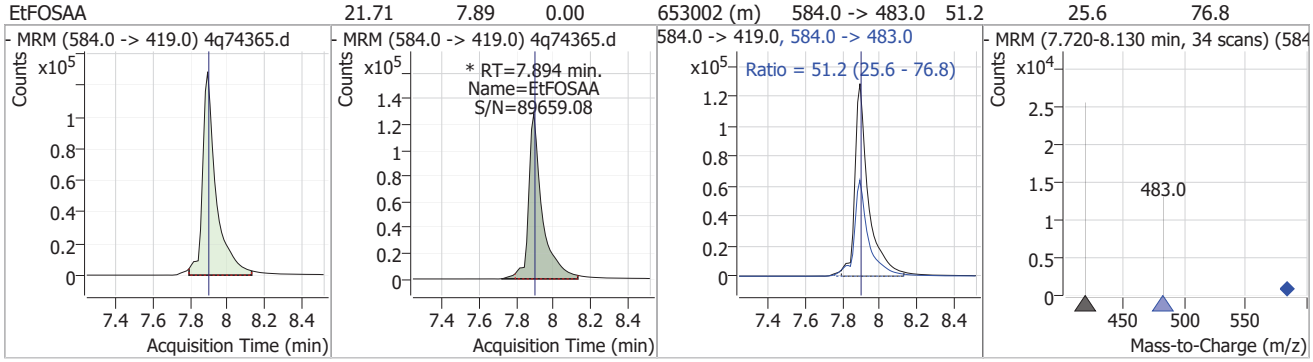
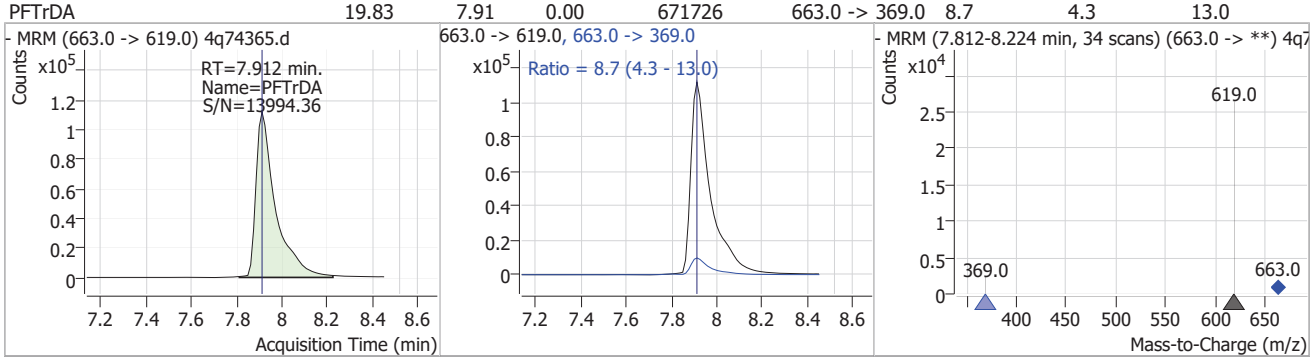
Perfluorinated Compounds by LC/MS/MS

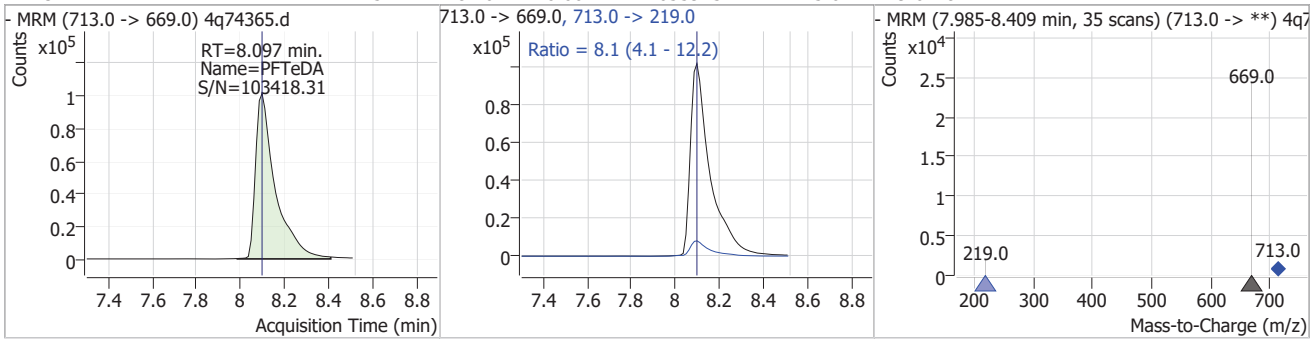
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	21.71	7.89	0.00	653002 (m)	584.0 -> 483.0	51.2	25.6	76.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	19.83	7.91	0.00	671726	663.0 -> 369.0	8.7	4.3	13.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	22.34	8.10	0.00	633943	713.0 -> 219.0	8.1	4.1	12.2



Manual Integration Approval Summary

Sample Number: S4Q1106-ICC1106
Lab FileID: 4Q74365.D
Injection Time: 04/23/25 23:12
Method: EPA 537.1 REV 2.0
Analyst approved: 04/24/25 11:46 (b) (6)
Supervisor approved: 04/24/25 13:14 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanoic acid	335-67-1		6.19	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.69	Split peak
MeFOSAA	2355-31-9		7.75	Split peak
EtFOSAA	2991-50-6		7.89	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/24/25 12:51

Perfluorinated Compounds by LC/MS/MS

Data File : 4q74366.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/23/2025 11:27:12 PM
Sample Name : ic1106-50
Vial : P1-A8
DA Method File : 537_042325_S4q1106.quantmethod.xml
Batch Name : s4q1106.batch.bin
Sample Information : OP8985,S4Q1106,250,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.164	429.0 -> 409.0	602462	20.00 µg/L		0.000
13C2-PFOA	6.204	415.0 -> 370.0	1067221	20.00 µg/L		0.000
13C3-PFPeA	3.119	266.0 -> 222.0	470126	20.00 µg/L		0.000
13C4-PFOS	6.687	503.0 -> 80.0	154539	20.00 µg/L		0.000
d3-MeFOSAA	7.745	573.0 -> 419.0	1418390	40.00 µg/L		0.000
System Monitoring Compounds						
13C2-PFDA	7.098	515.0 -> 470.0	1813894	23.15 µg/L		0.000
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = 231.5%		
13C2-PFHxA	4.676	315.0 -> 270.0	595803	23.70 µg/L		0.000
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = 237.0%		
d5-EtFOSAA	7.880	589.0 -> 419.0	1969662	48.93 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 244.7%		
13C3-HFPO-DA	4.959	287.0 -> 169.0	17981	45.34 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 226.7%		
Target Compounds						QValue
6:2FTS	6.165	427.0 -> 407.0	1454276	48.40 µg/L		100
8:2FTS	7.097	527.0 -> 507.0	1444870	47.89 µg/L		98
EtFOSAA	7.894	584.0 -> 419.0	1528231	48.75 µg/L	m	99
MeFOSAA	7.746	570.0 -> 419.0	1643313	44.99 µg/L	m	98
PFBS	3.553	299.0 -> 80.0	317841	45.33 µg/L		100
PFDA	7.099	513.0 -> 469.0	2561565	46.85 µg/L		100
PFDoDA	7.691	613.0 -> 569.0	2366284	45.75 µg/L		100
PFHpA	5.570	363.0 -> 319.0	2224882	45.16 µg/L		100
PFHxA	4.678	313.0 -> 269.0	694226	47.44 µg/L		99
PFHxS	5.630	399.0 -> 80.0	326305	44.67 µg/L	m	98
PFNA	6.689	463.0 -> 419.0	2082188	45.33 µg/L		100
PFOA	6.193	413.0 -> 369.0	1633108	45.66 µg/L	m	100
PFOS	6.689	499.0 -> 80.0	383230	43.81 µg/L	m	100
PFPeA	3.122	263.0 -> 219.0	1327369	45.33 µg/L		100
PFTeDA	8.097	713.0 -> 669.0	1634806	48.27 µg/L		100
PFTrDA	7.912	663.0 -> 619.0	1692908	45.11 µg/L		100
PFUnDA	7.434	563.0 -> 519.0	2437801	46.36 µg/L		100
ADONA	5.668	377.0 -> 251.0	3387753	45.93 µg/L		99
9Cl-PF3ONS	6.921	531.0 -> 351.0	410356	48.52 µg/L		98
11Cl-PF3OUdS	7.553	631.0 -> 451.0	1587604	48.64 µg/L		98
HFPO-DA	4.973	285.0 -> 169.0	17613	48.31 µg/L		98

 # = Qualifier out of range, m = manually integrated, + = Area summed

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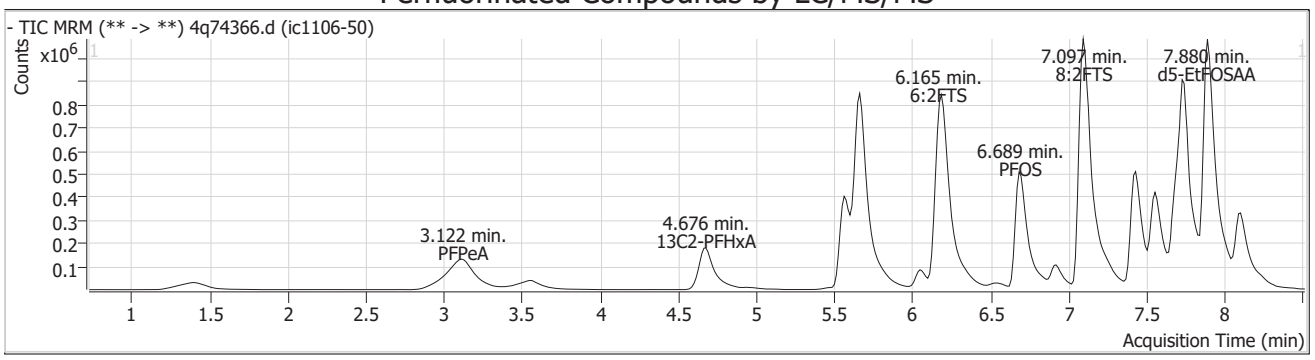
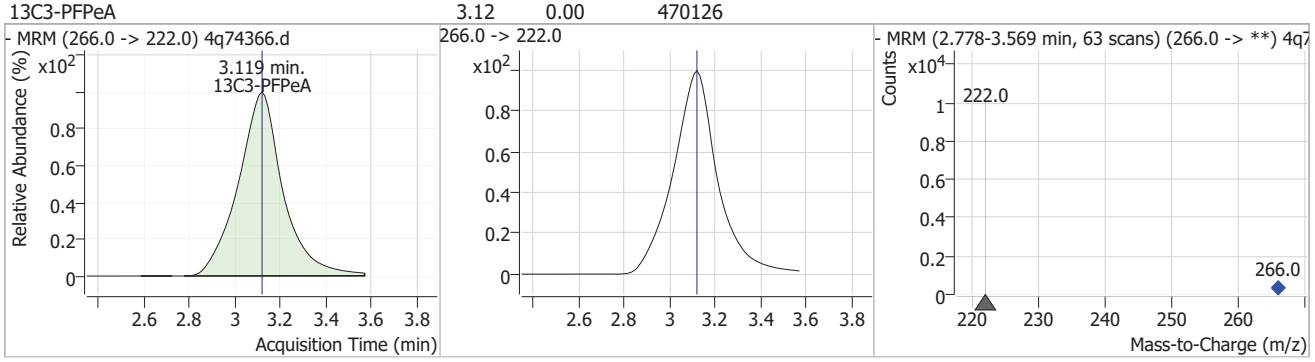
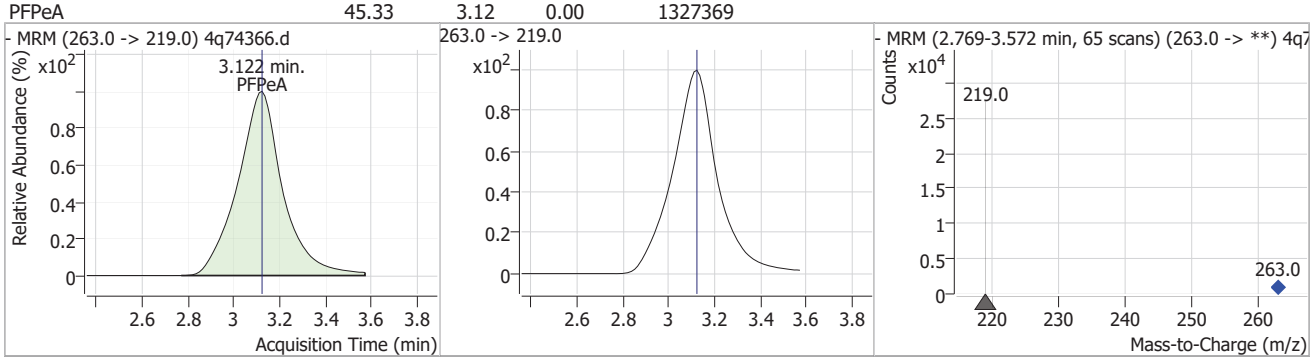
Perfluorinated Compounds by LC/MS/MS



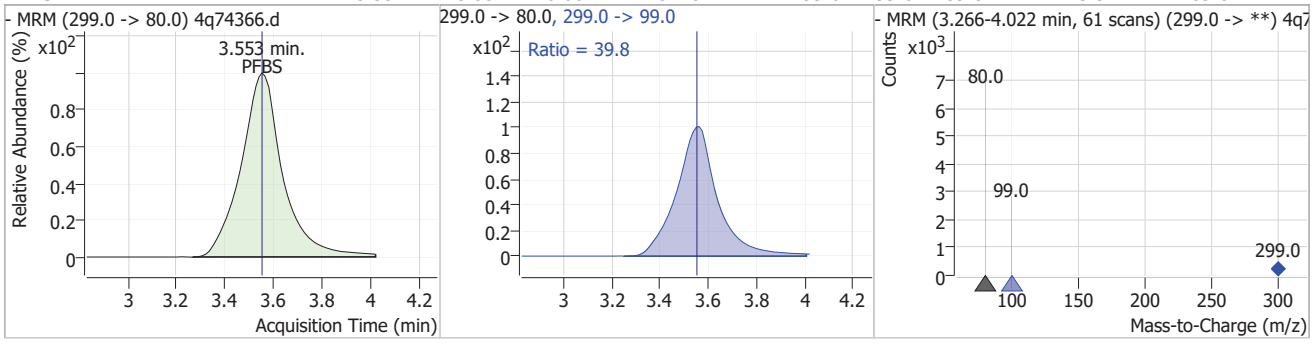
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.12	0.00	470126				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	45.33	3.12	0.00	1327369				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	45.33	3.55	0.00	317841	299.0 -> 99.0	39.8	19.9	59.8



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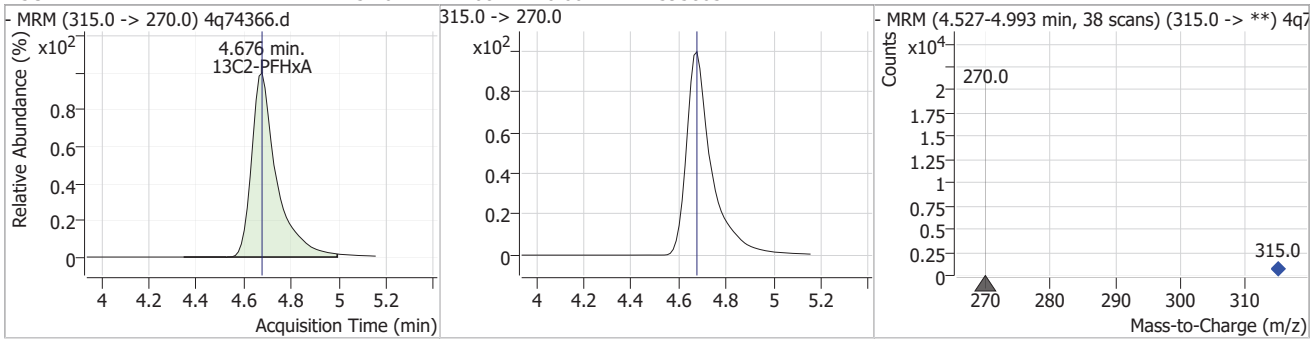
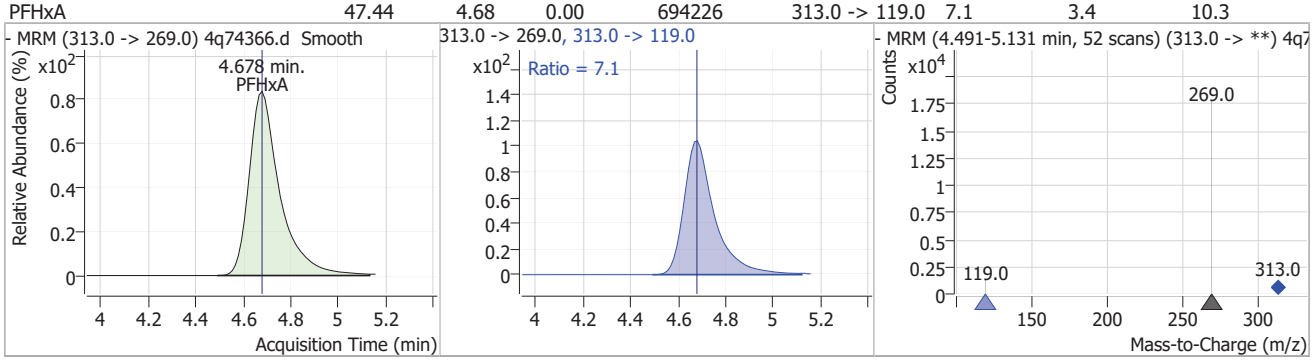
Perfluorinated Compounds by LC/MS/MS

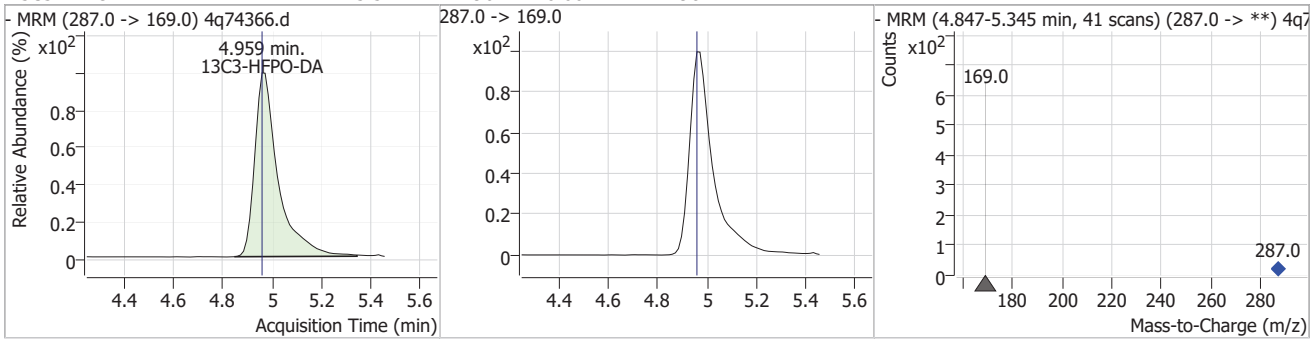
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	23.70	4.68	0.00	595803				



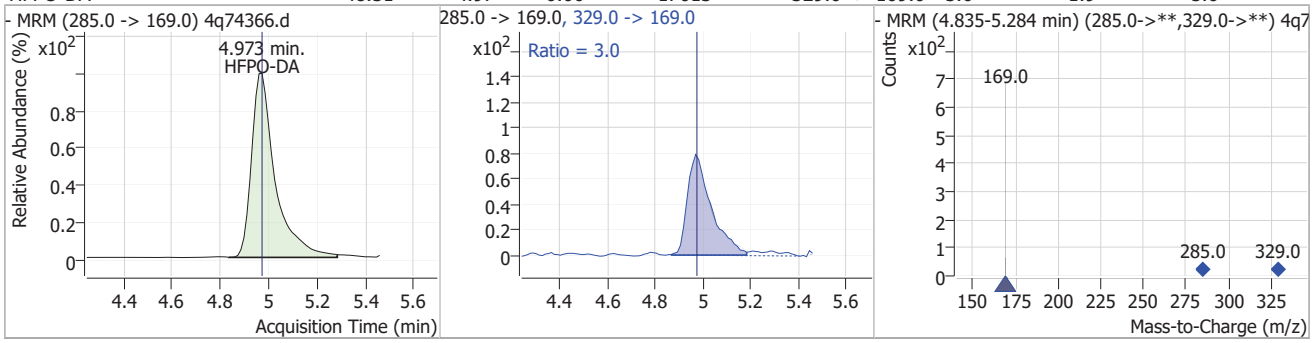
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	47.44	4.68	0.00	694226	313.0 -> 119.0	7.1	3.4	10.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	45.34	4.96	0.00	17981				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	48.31	4.97	0.00	17613	329.0 -> 169.0	3.0	1.9	5.6



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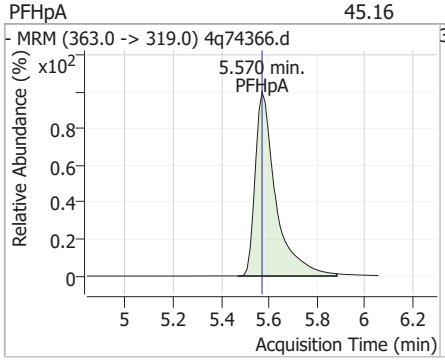
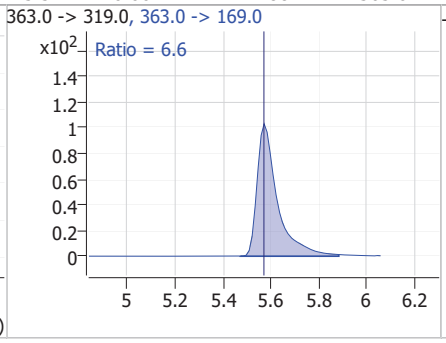
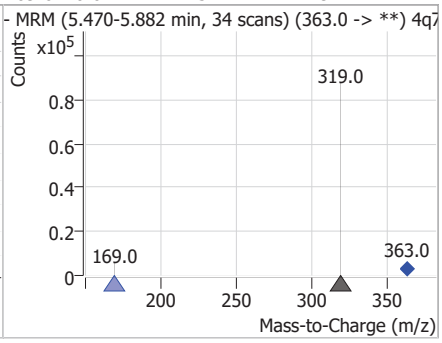
Perfluorinated Compounds by LC/MS/MS

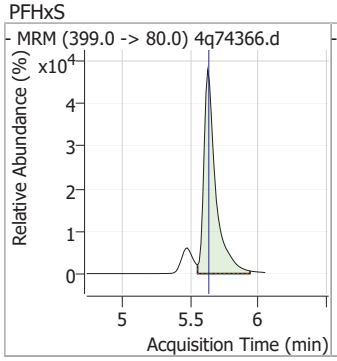
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	45.16	5.57	0.00	2224882	363.0 -> 169.0	6.6	3.2	9.7

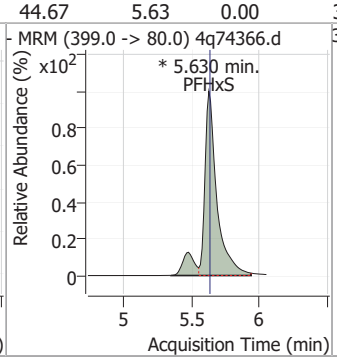


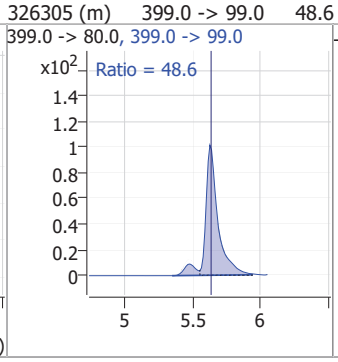


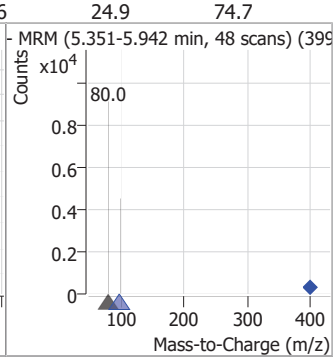


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	44.67	5.63	0.00	326305 (m)	399.0 -> 99.0	48.6	24.9	74.7

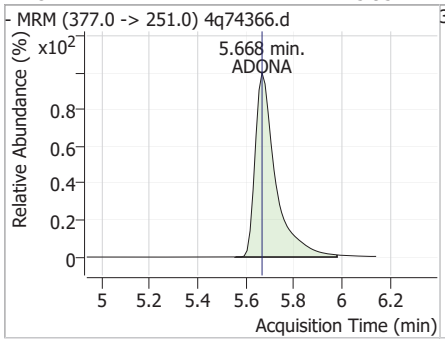


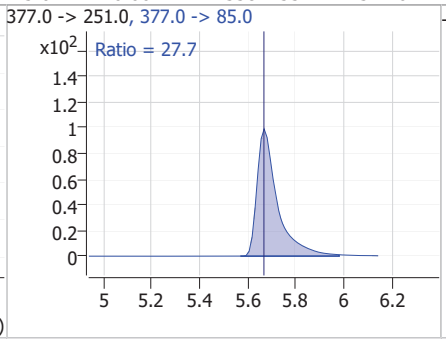


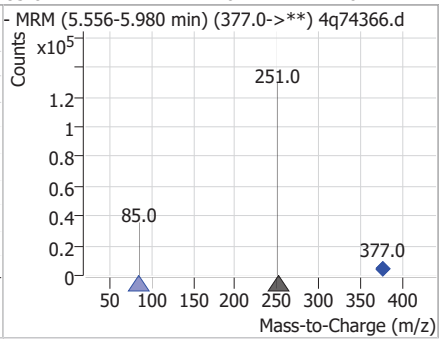




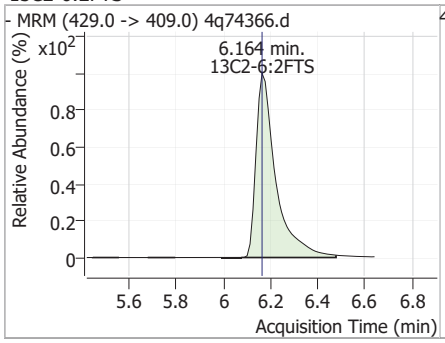
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	45.93	5.67	0.00	3387753	377.0 -> 85.0	27.7	14.0	42.0

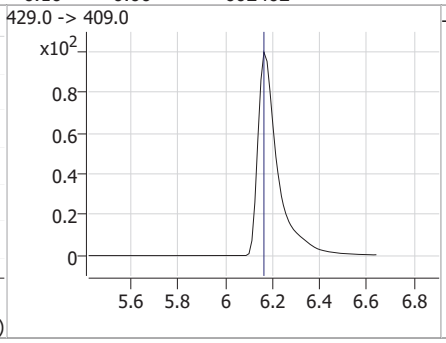


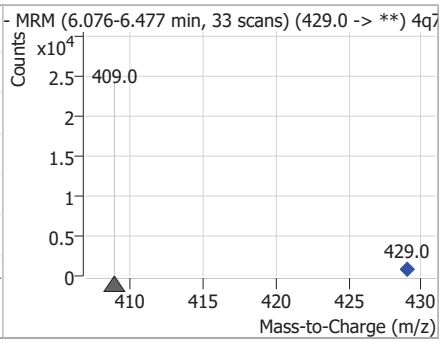




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.16	0.00	602462				







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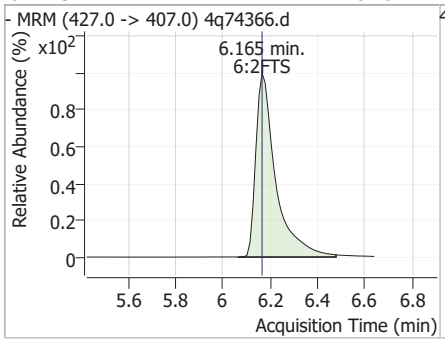
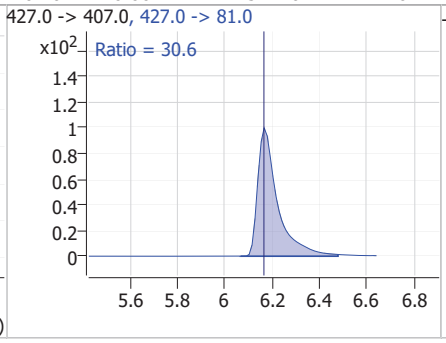
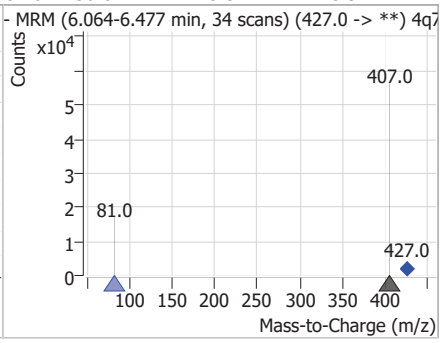
Perfluorinated Compounds by LC/MS/MS

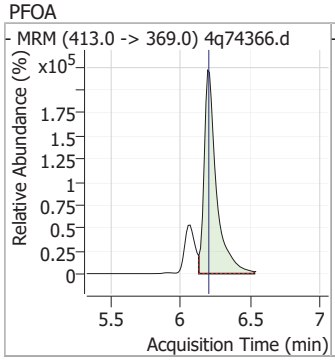
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	48.40	6.16	0.00	1454276	427.0 -> 81.0	30.6	15.3	45.9

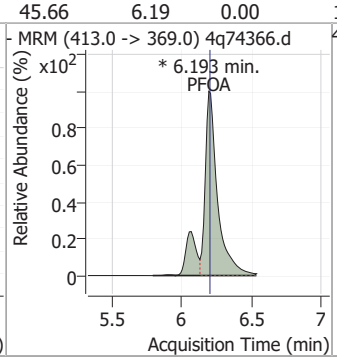


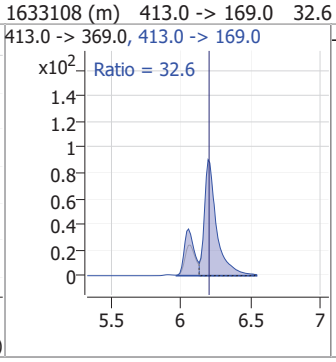


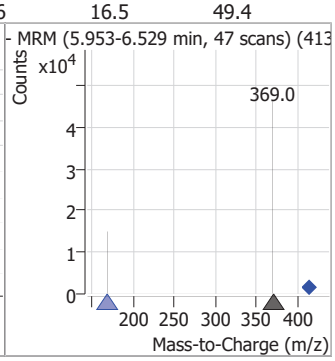


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	45.66	6.19	0.00	1633108 (m)	413.0 -> 169.0	32.6	16.5	49.4

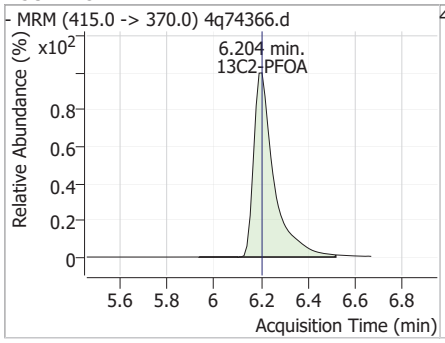


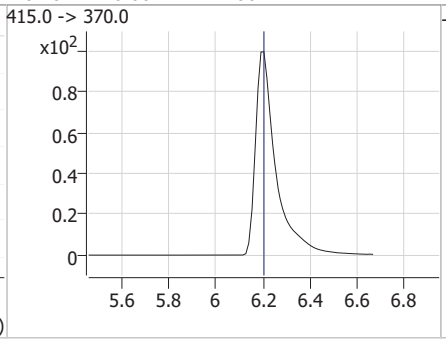


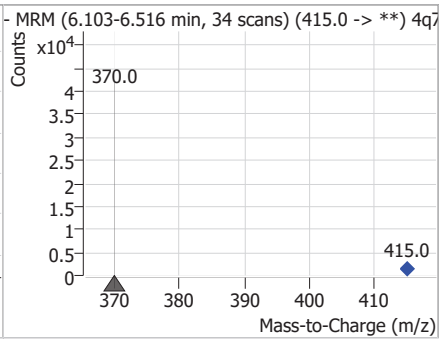




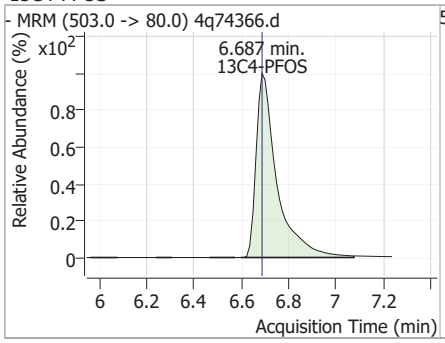
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.20	0.00	1067221				

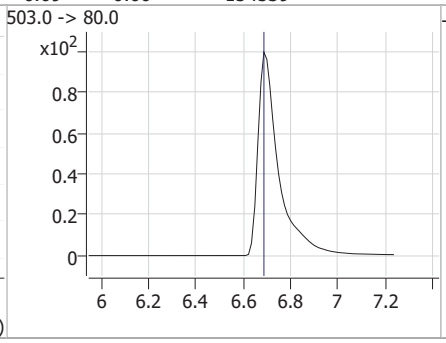


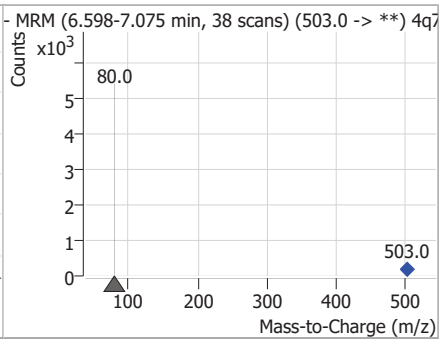




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.69	0.00	154539				







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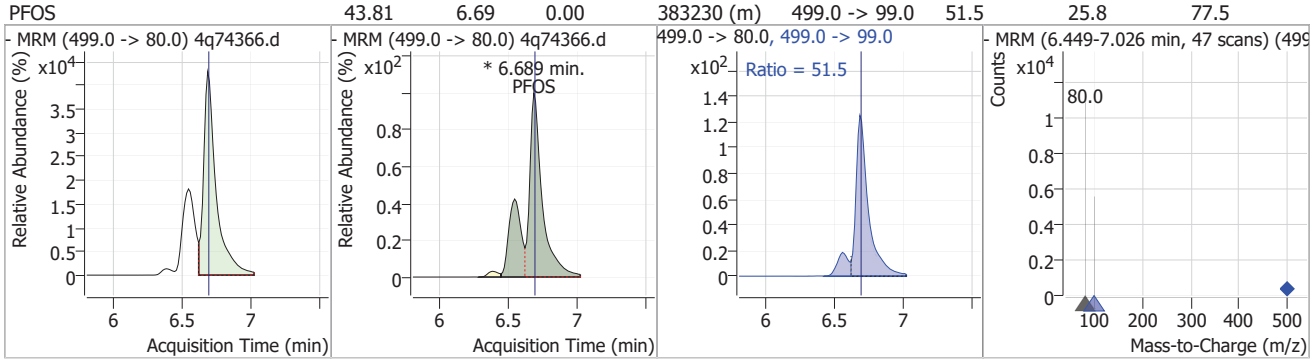
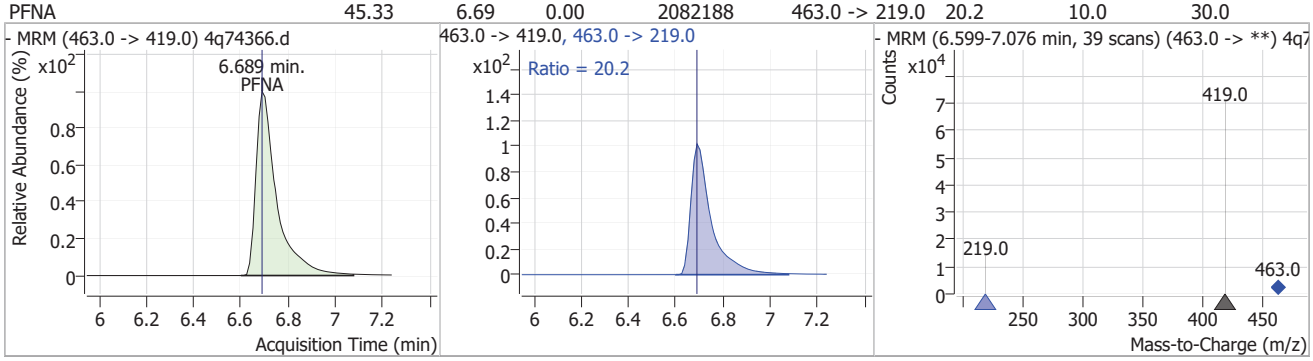
Perfluorinated Compounds by LC/MS/MS

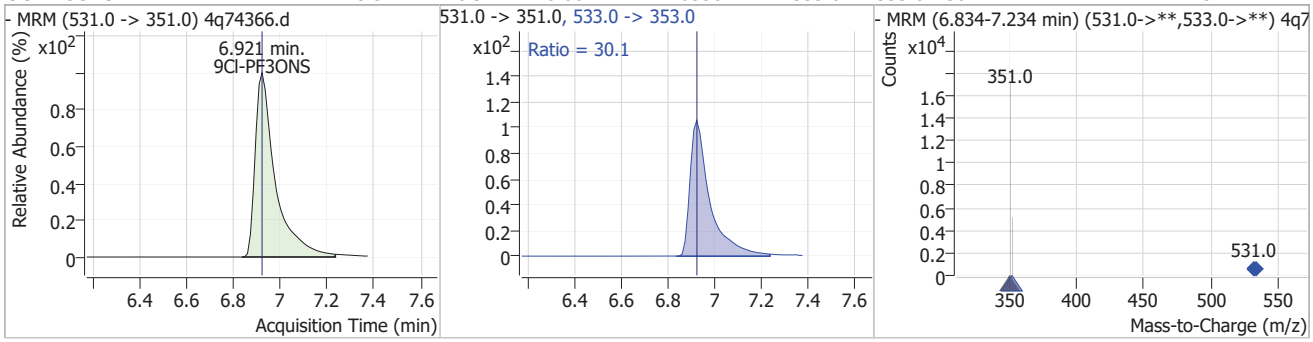
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	43.81	6.69	0.00	383230 (m)	499.0 -> 99.0	51.5	25.8	77.5



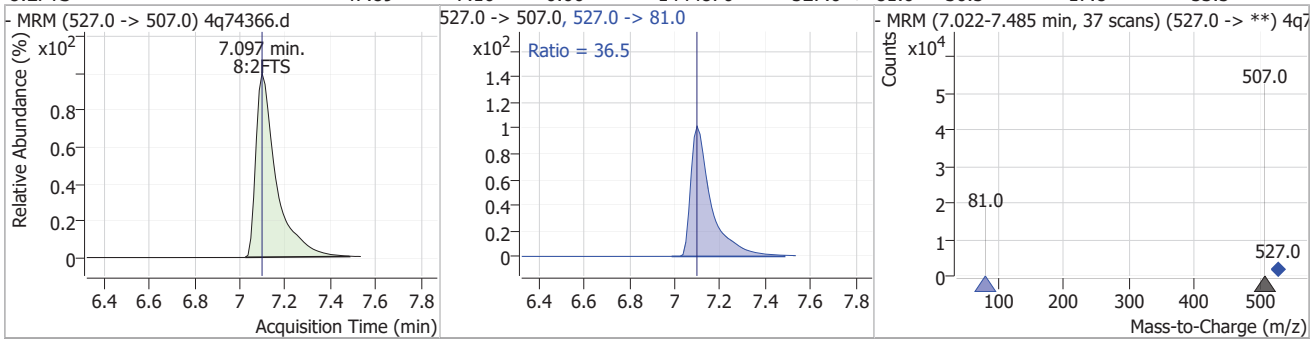
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	45.33	6.69	0.00	2082188	463.0 -> 219.0	20.2	10.0	30.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	48.52	6.92	0.00	410356	533.0 -> 353.0	30.1	14.4	43.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	47.89	7.10	0.00	1444870	527.0 -> 81.0	36.5	17.8	53.5



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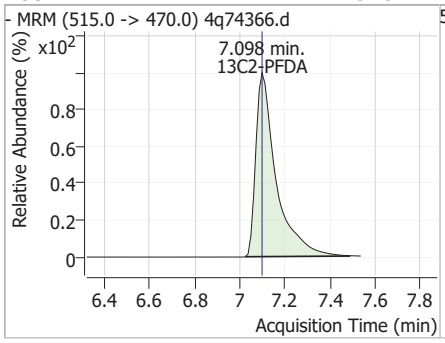
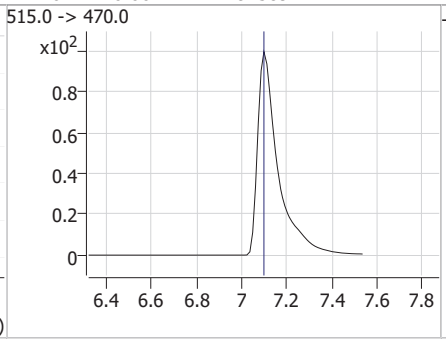
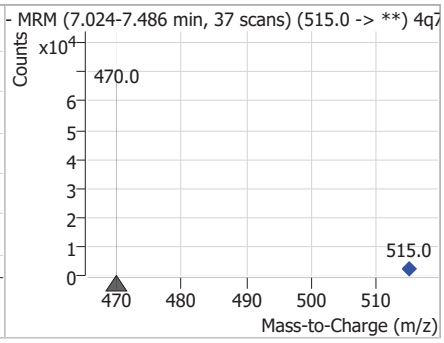
Perfluorinated Compounds by LC/MS/MS

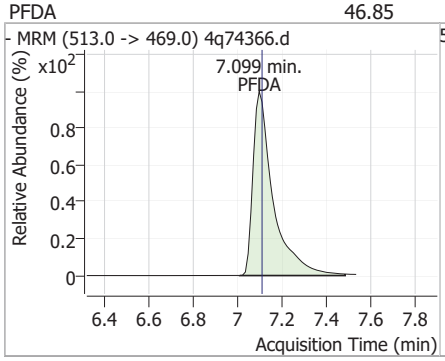
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	23.15	7.10	0.00	1813894				

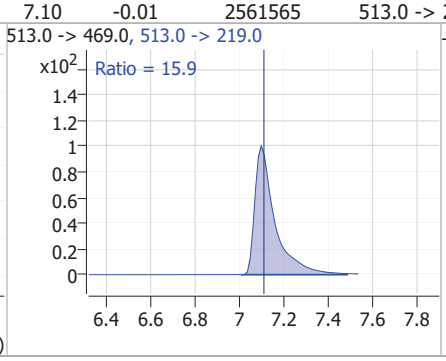


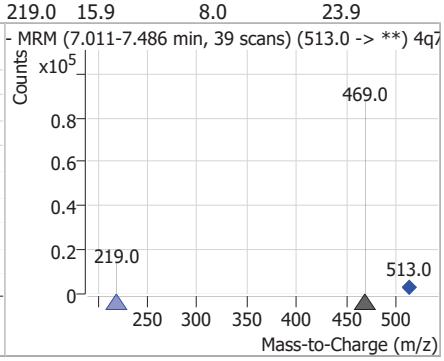




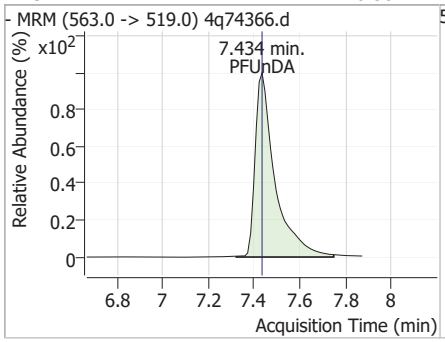
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	46.85	7.10	-0.01	2561565	513.0 -> 219.0	15.9	8.0	23.9

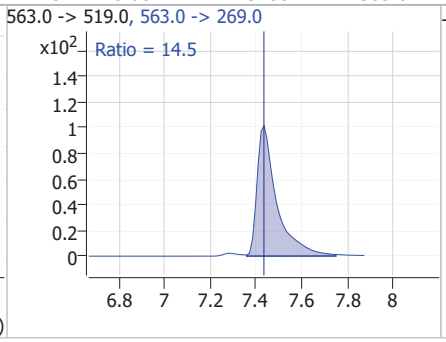


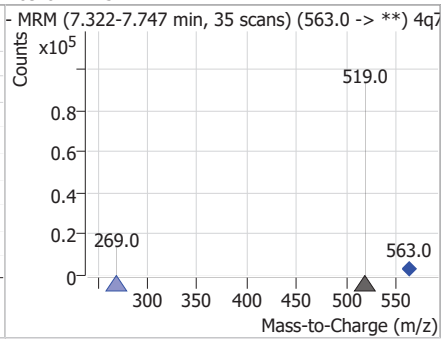




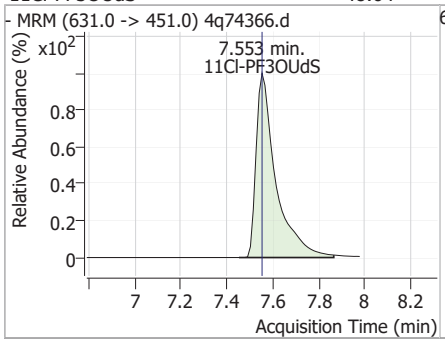
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	46.36	7.43	0.00	2437801	563.0 -> 269.0	14.5	7.2	21.7

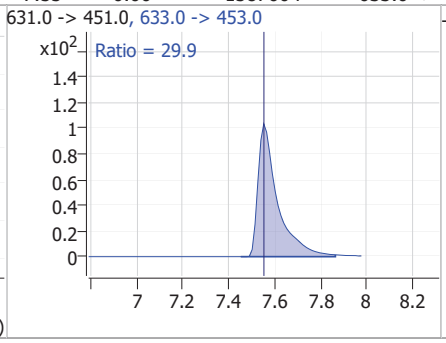


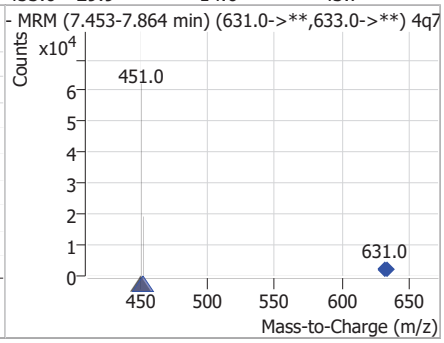




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	48.64	7.55	0.00	1587604	633.0 -> 453.0	29.9	14.6	43.7

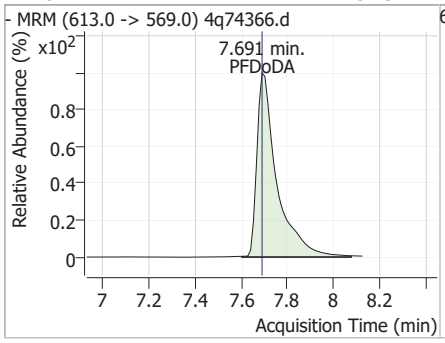


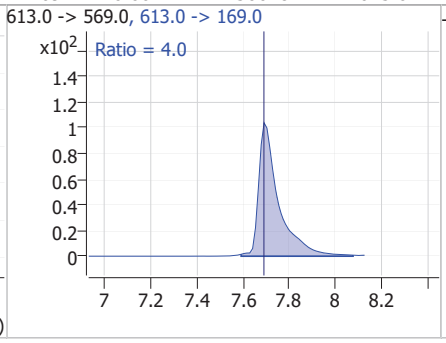


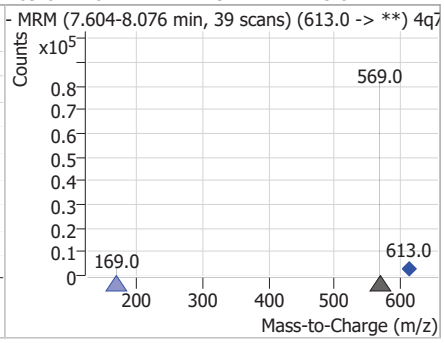


Perfluorinated Compounds by LC/MS/MS

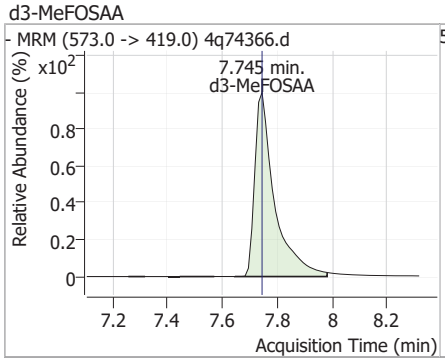
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	45.75	7.69	0.00	2366284	613.0 -> 169.0	4.0	1.9	5.8

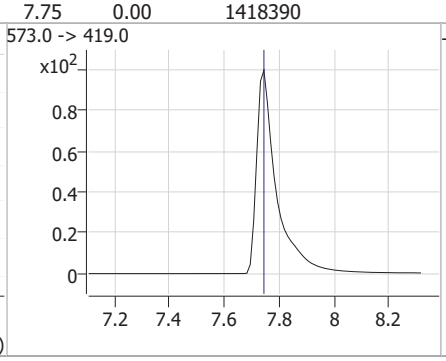


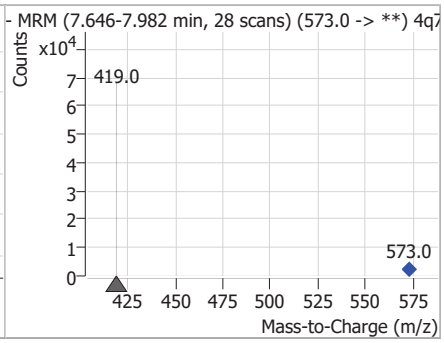




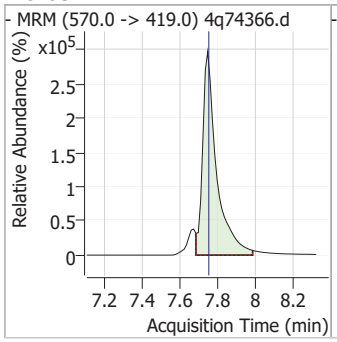
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.75	0.00	1418390				

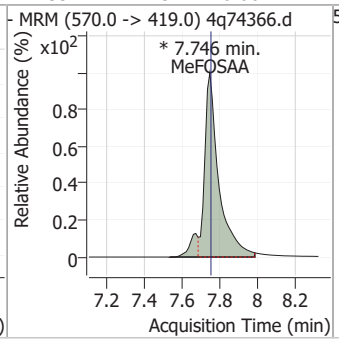


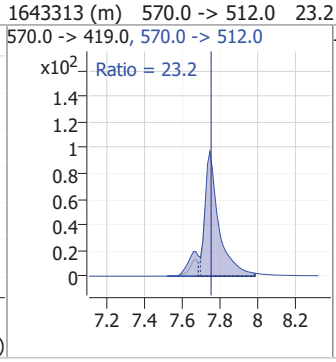


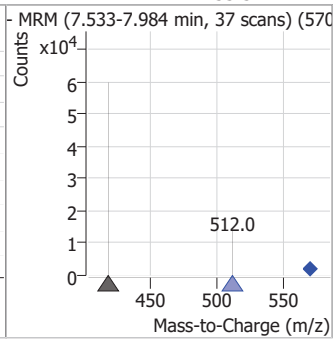


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	44.99	7.75	0.00	1643313 (m)	570.0 -> 512.0	23.2	11.2	33.5

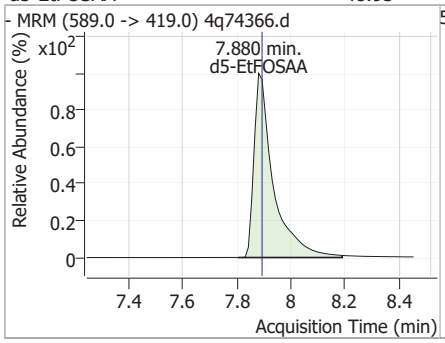


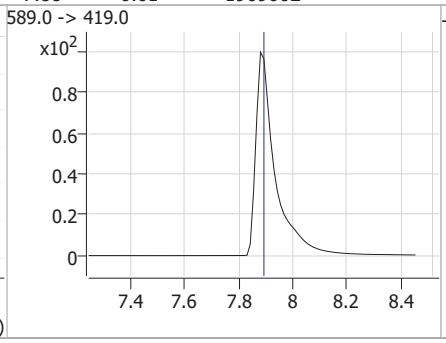


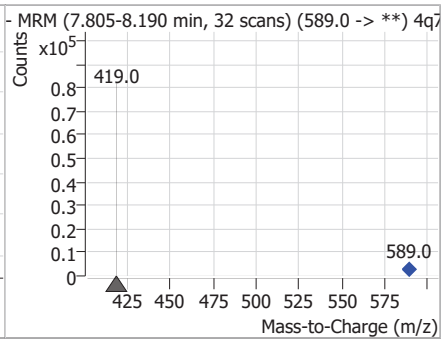




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	48.93	7.88	-0.01	1969662				

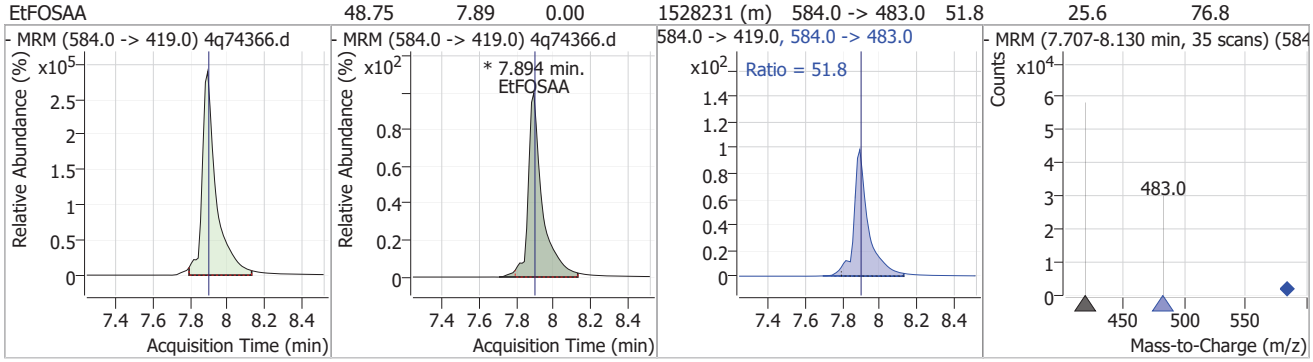




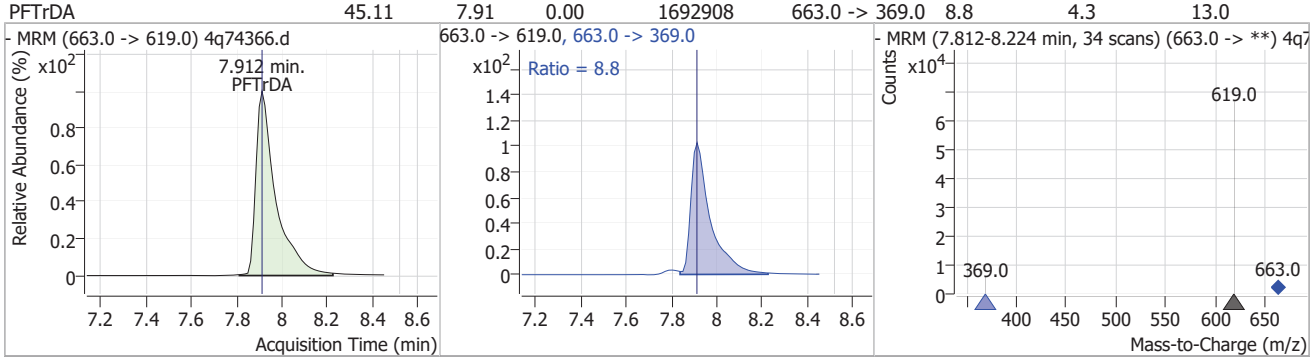


Perfluorinated Compounds by LC/MS/MS

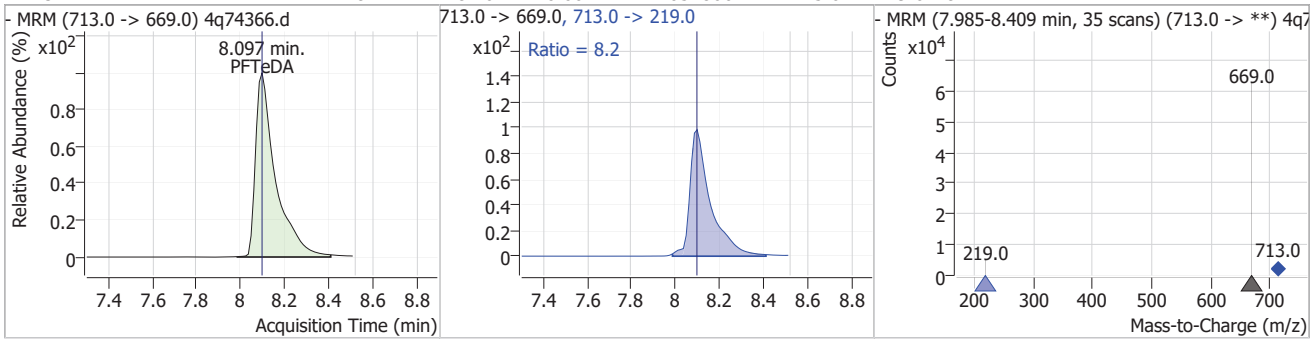
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	48.75	7.89	0.00	1528231 (m)	584.0 -> 483.0	51.8	25.6	76.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	45.11	7.91	0.00	1692908	663.0 -> 369.0	8.8	4.3	13.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	48.27	8.10	0.00	1634806	713.0 -> 219.0	8.2	4.1	12.2



7.7.23

7

Manual Integration Approval Summary

Sample Number: S4Q1106-IC1106
Lab FileID: 4Q74366.D
Injection Time: 04/23/25 23:27
Method: EPA 537.1 REV 2.0
Analyst approved: 04/24/25 11:46 (b) (6)
Supervisor approved: 04/24/25 12:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanoic acid	335-67-1		6.19	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.69	Split peak
MeFOSAA	2355-31-9		7.75	Split peak
EtFOSAA	2991-50-6		7.89	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/24/25 12:51

Perfluorinated Compounds by LC/MS/MS

Data File : 4q74367.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/23/2025 11:41:28 PM
Sample Name : ic1106-100
Vial : P1-A9
DA Method File : 537_042325_S4q1106.quantmethod.xml
Batch Name : s4q1106.batch.bin
Sample Information : OP8985,S4Q1106,250,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.164	429.0 -> 409.0	622178	20.00 µg/L		0.000
13C2-PFOA	6.204	415.0 -> 370.0	956611	20.00 µg/L		0.000
13C3-PFPeA	3.119	266.0 -> 222.0	426814	20.00 µg/L		0.000
13C4-PFOS	6.687	503.0 -> 80.0	134544	20.00 µg/L		0.000
d3-MeFOSAA	7.745	573.0 -> 419.0	1159253	40.00 µg/L		0.000
System Monitoring Compounds						
13C2-PFDA	7.098	515.0 -> 470.0	3571154	50.84 µg/L		0.000
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = 508.4%		
13C2-PFHxA	4.676	315.0 -> 270.0	1137888	50.50 µg/L		0.000
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = 505.0%		
d5-EtFOSAA	7.880	589.0 -> 419.0	3522059	100.18 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 500.9%		
13C3-HFPO-DA	4.972	287.0 -> 169.0	36506	102.69 µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 513.5%		
Target Compounds						QValue
6:2FTS	6.165	427.0 -> 407.0	2895032	100.37 µg/L		100
8:2FTS	7.097	527.0 -> 507.0	2807387	100.54 µg/L		99
EtFOSAA	7.894	584.0 -> 419.0	2747176	100.22 µg/L	m	100
MeFOSAA	7.746	570.0 -> 419.0	3068777	102.79 µg/L	m	97
PFBS	3.553	299.0 -> 80.0	624566	102.32 µg/L		99
PFDA	7.099	513.0 -> 469.0	4971745	101.46 µg/L		100
PFDoDA	7.691	613.0 -> 569.0	4594840	102.04 µg/L		99
PFHpA	5.570	363.0 -> 319.0	4533243	102.64 µg/L		100
PFHxA	4.678	313.0 -> 269.0	1323799	100.93 µg/L		99
PFHxS	5.630	399.0 -> 80.0	654050	102.85 µg/L	m	100
PFNA	6.689	463.0 -> 419.0	4221953	102.54 µg/L		100
PFOA	6.205	413.0 -> 369.0	3282077	102.38 µg/L	m	100
PFOS	6.689	499.0 -> 80.0	787405	103.38 µg/L	m	100
PFPeA	3.122	263.0 -> 219.0	2725554	102.53 µg/L		100
PFTeDA	8.097	713.0 -> 669.0	3383598	100.27 µg/L		100
PFTrDA	7.912	663.0 -> 619.0	3350052	102.54 µg/L		100
PFUnDA	7.434	563.0 -> 519.0	4651287	101.59 µg/L		99
ADONA	5.668	377.0 -> 251.0	6750404	102.11 µg/L		99
9Cl-PF3ONS	6.921	531.0 -> 351.0	842762	100.24 µg/L		98
11Cl-PF3OUdS	7.553	631.0 -> 451.0	3184167	100.23 µg/L		99
HFPO-DA	4.973	285.0 -> 169.0	36196	100.28 µg/L	m	98

 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.24
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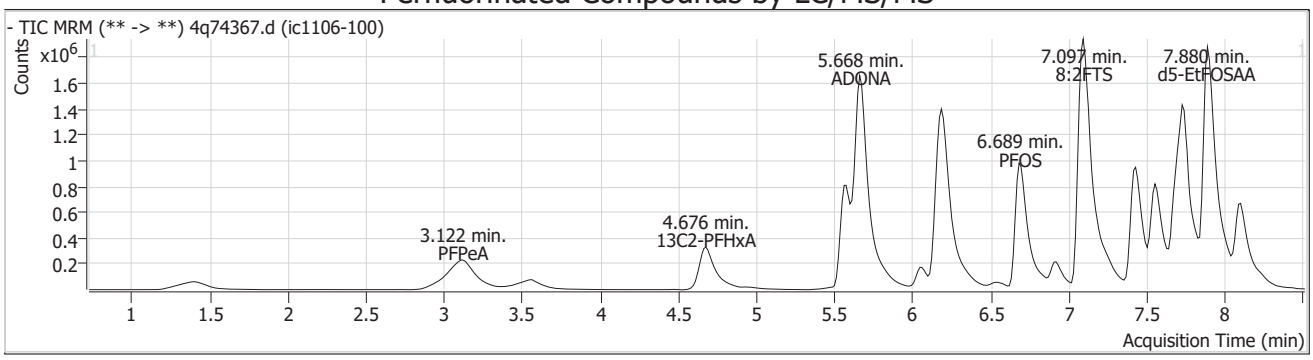
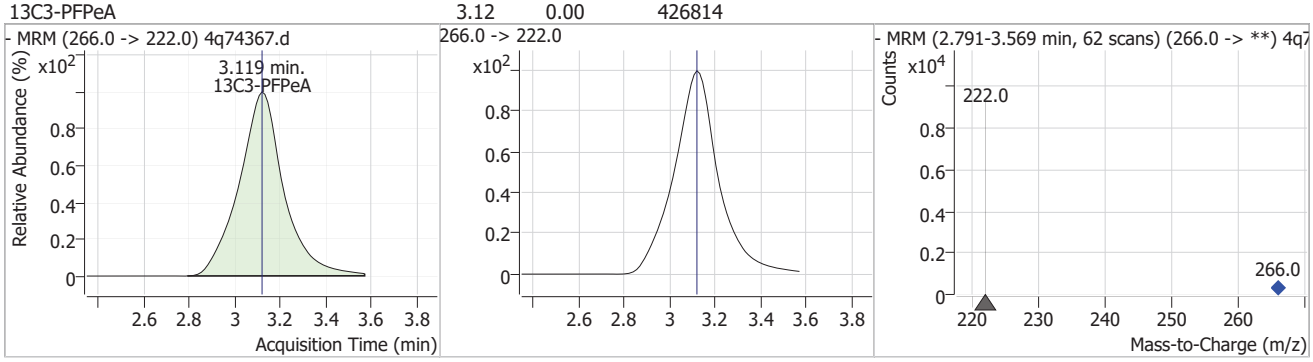
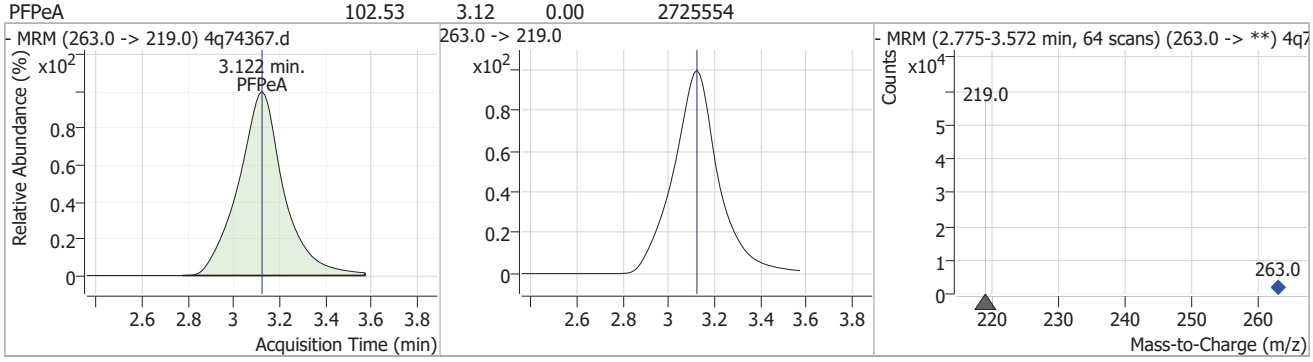
Perfluorinated Compounds by LC/MS/MS



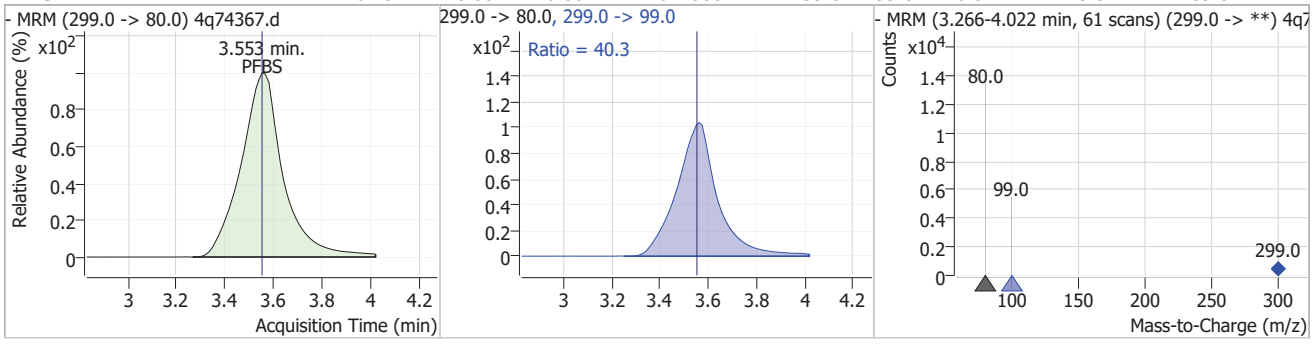
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.12	0.00	426814				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	102.53	3.12	0.00	2725554				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	102.32	3.55	0.00	624566	299.0 -> 99.0	40.3	19.9	59.8



7.7.24

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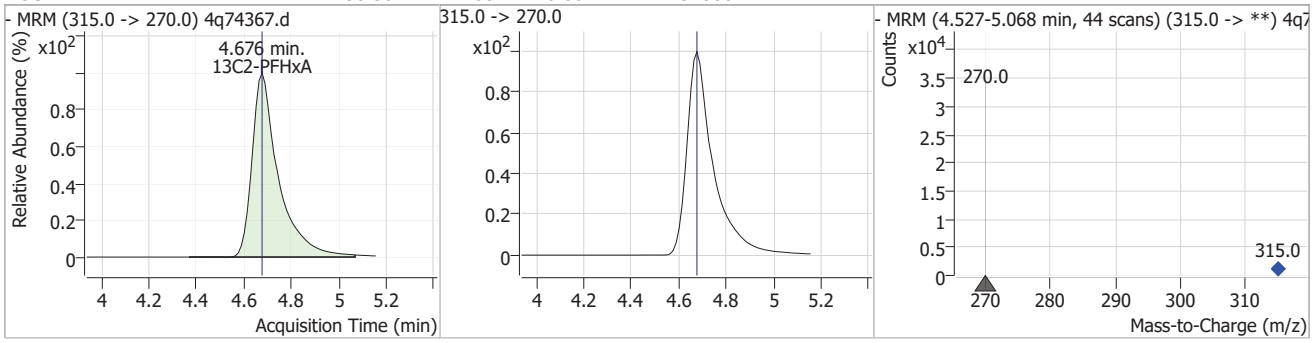
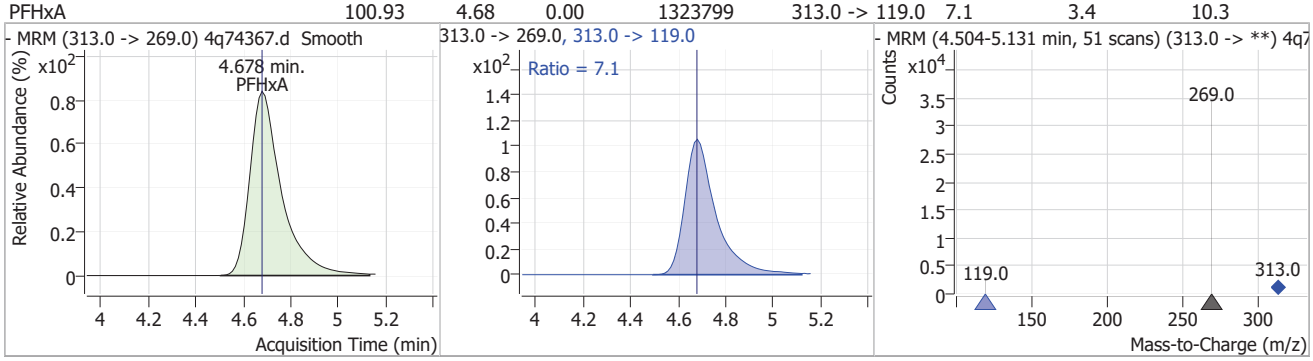
Perfluorinated Compounds by LC/MS/MS

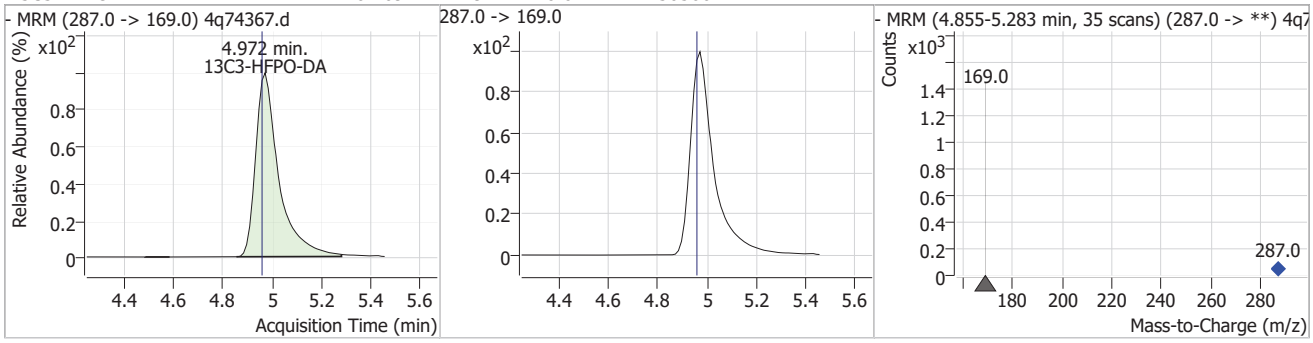
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	50.50	4.68	0.00	1137888				



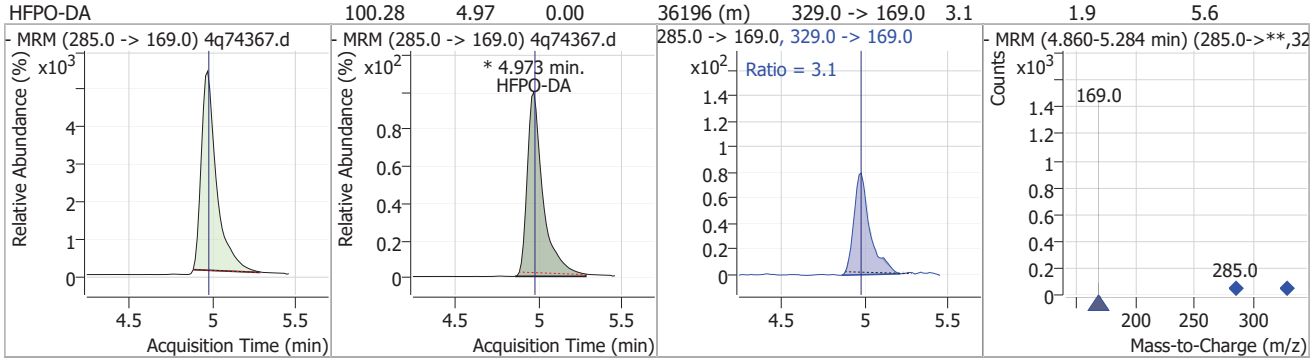
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	100.93	4.68	0.00	1323799	313.0 -> 119.0	7.1	3.4	10.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	102.69	4.97	0.01	36506				

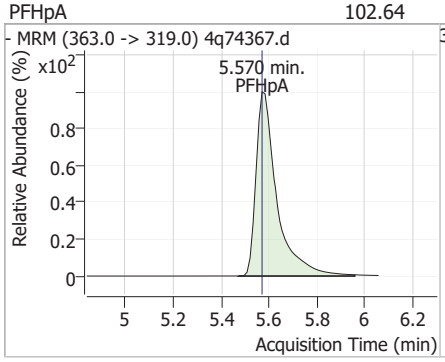


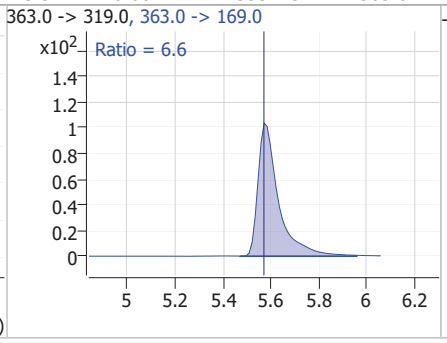
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	100.28	4.97	0.00	36196 (m)	329.0 -> 169.0	3.1	1.9	5.6

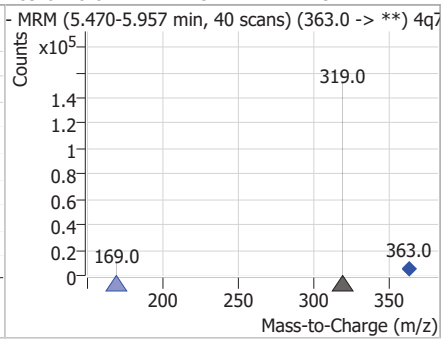


Perfluorinated Compounds by LC/MS/MS

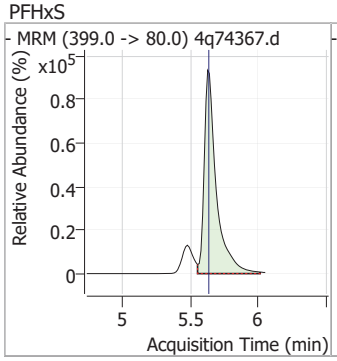
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	102.64	5.57	0.00	4533243	363.0 -> 169.0	6.6	3.2	9.7

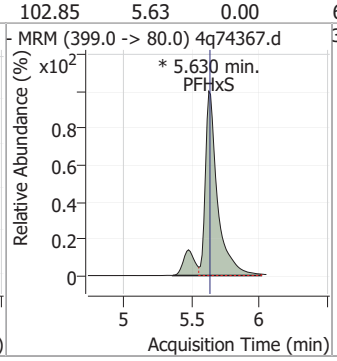


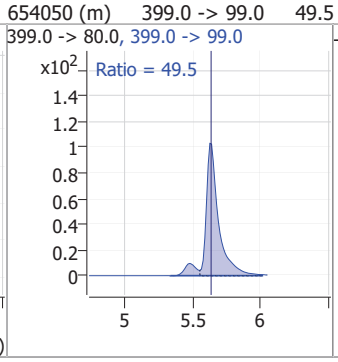


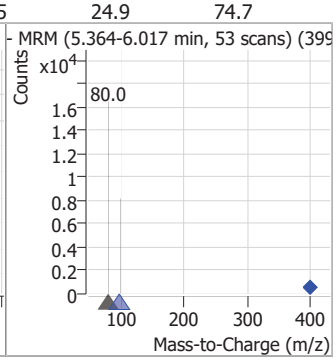


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	102.85	5.63	0.00	654050 (m)	399.0 -> 99.0	49.5	24.9	74.7

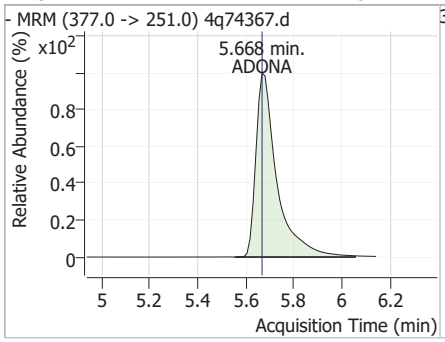


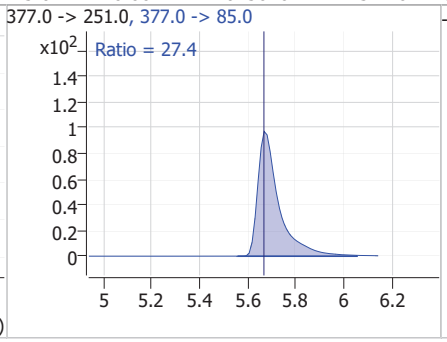


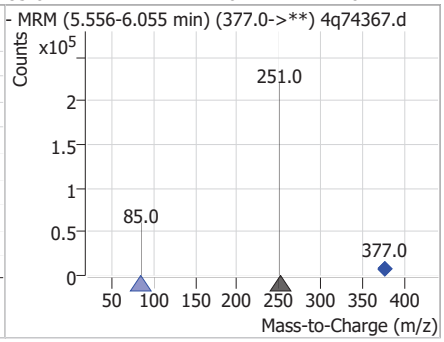




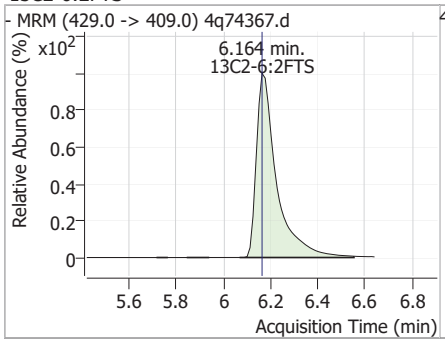
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	102.11	5.67	0.00	6750404	377.0 -> 85.0	27.4	14.0	42.0

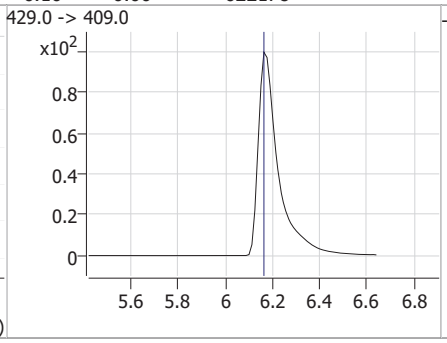


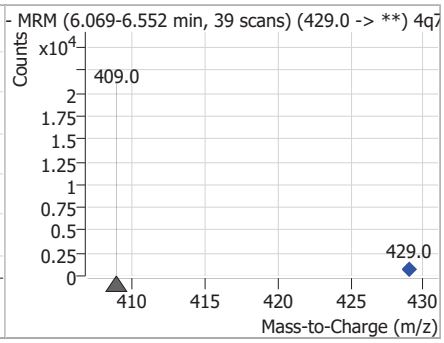




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.16	0.00	622178				







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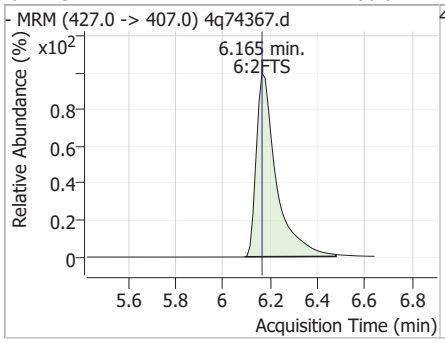
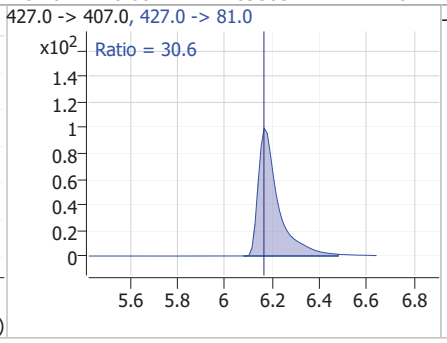
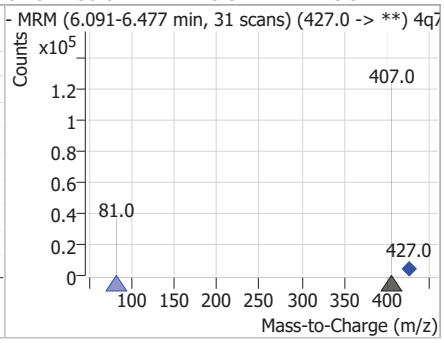
Perfluorinated Compounds by LC/MS/MS

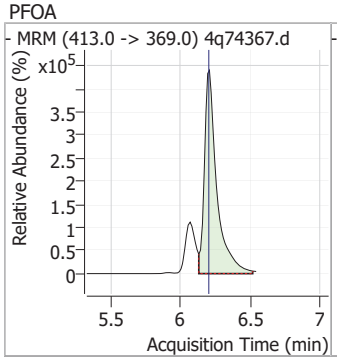
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	100.37	6.16	0.00	2895032	427.0 -> 81.0	30.6	15.3	45.9

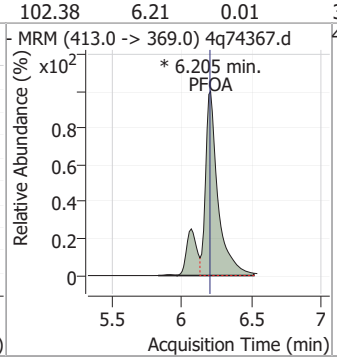


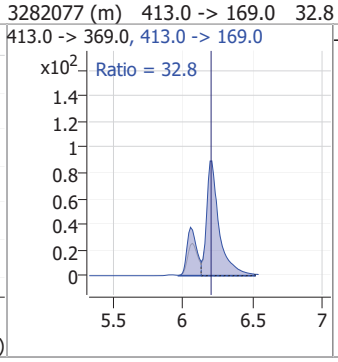


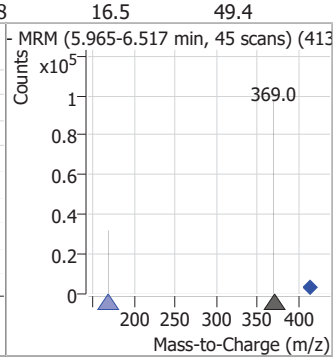


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	102.38	6.21	0.01	3282077 (m)	413.0 -> 169.0	32.8	16.5	49.4

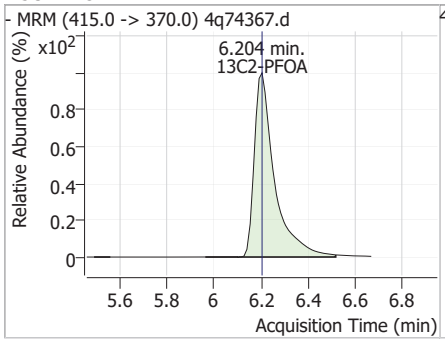


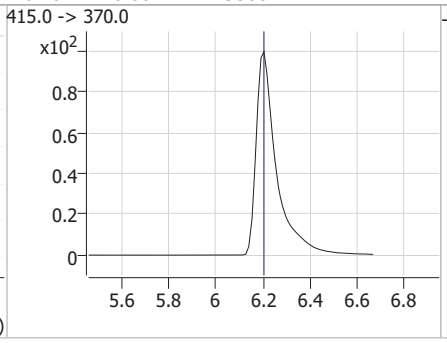


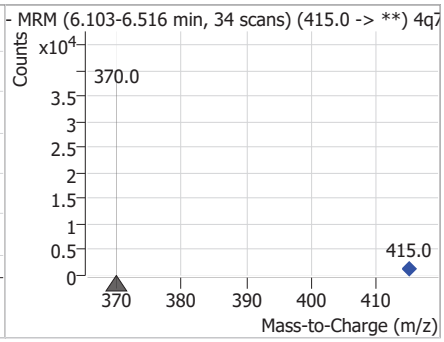




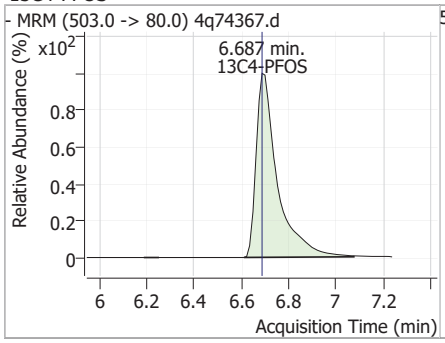
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.20	0.00	956611				

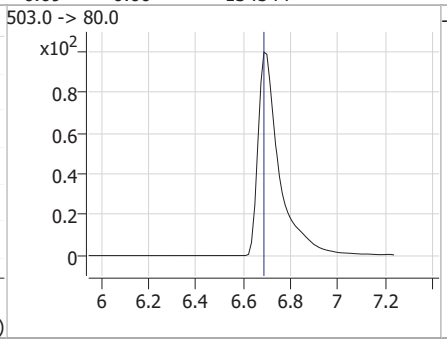


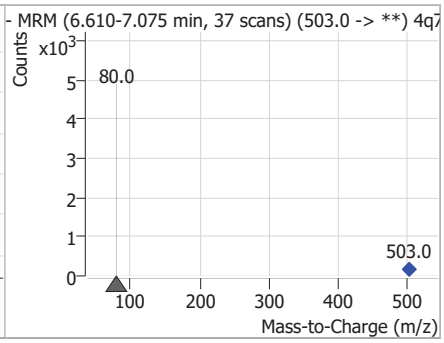




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.69	0.00	134544				







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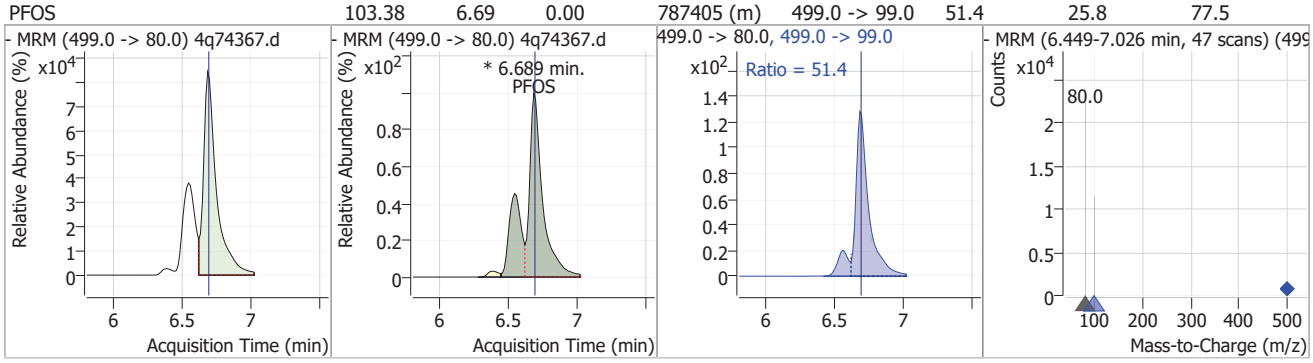
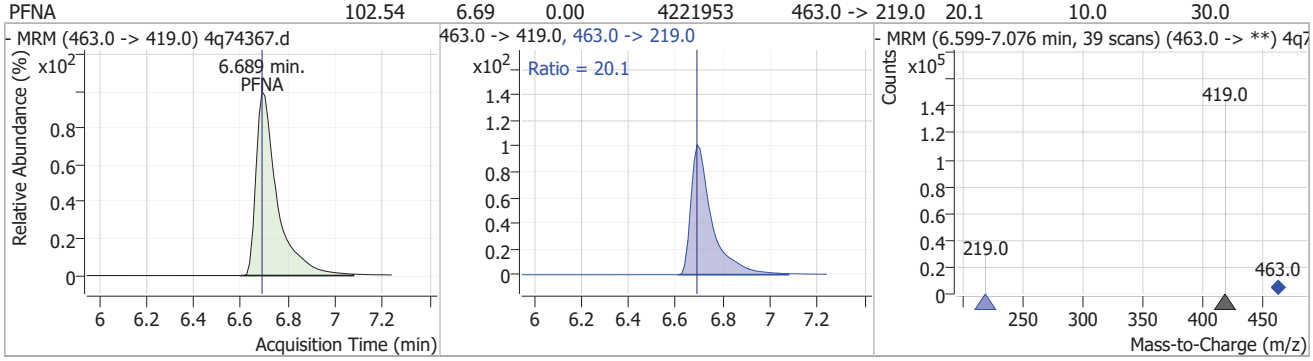
Perfluorinated Compounds by LC/MS/MS

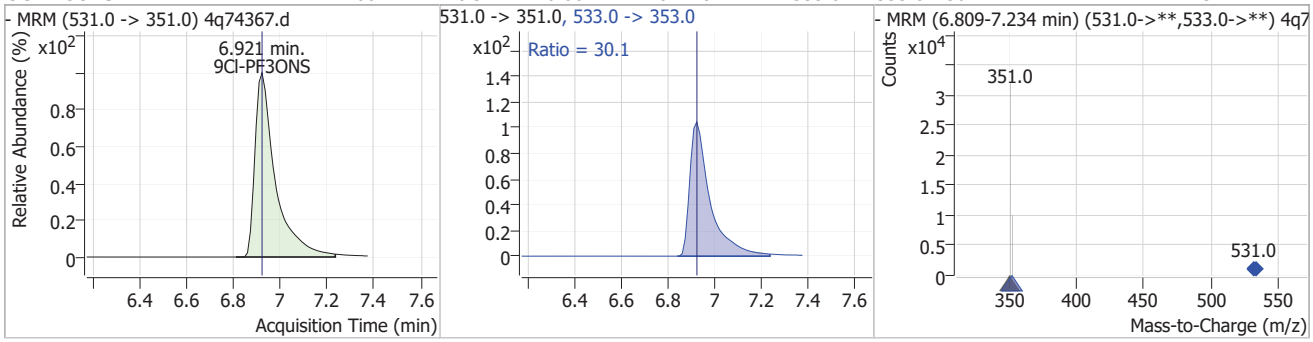
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	103.38	6.69	0.00	787405 (m)	499.0 -> 99.0	51.4	25.8	77.5



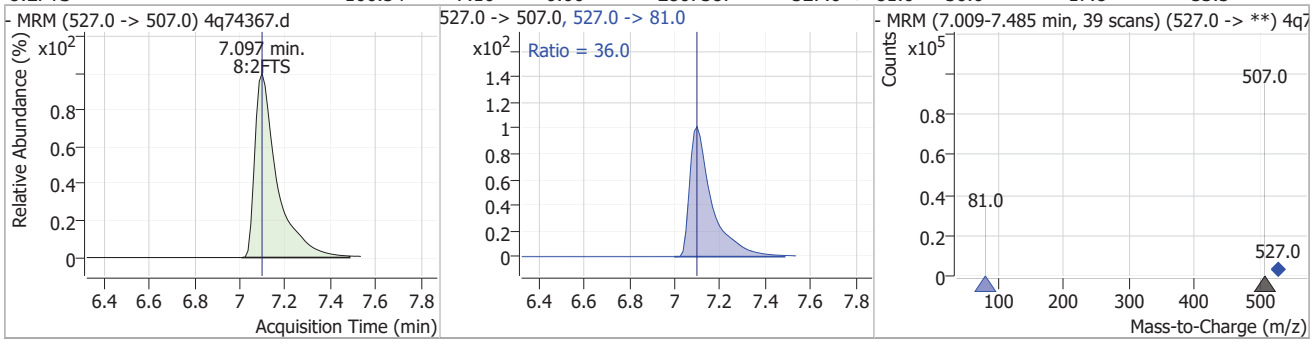
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	102.54	6.69	0.00	4221953	463.0 -> 219.0	20.1	10.0	30.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	100.24	6.92	0.00	842762	533.0 -> 353.0	30.1	14.4	43.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	100.54	7.10	0.00	2807387	527.0 -> 81.0	36.0	17.8	53.5



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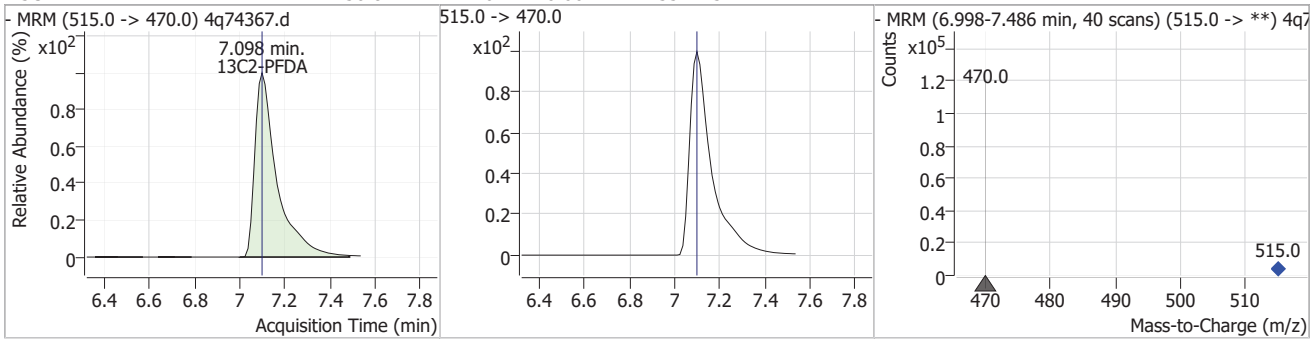
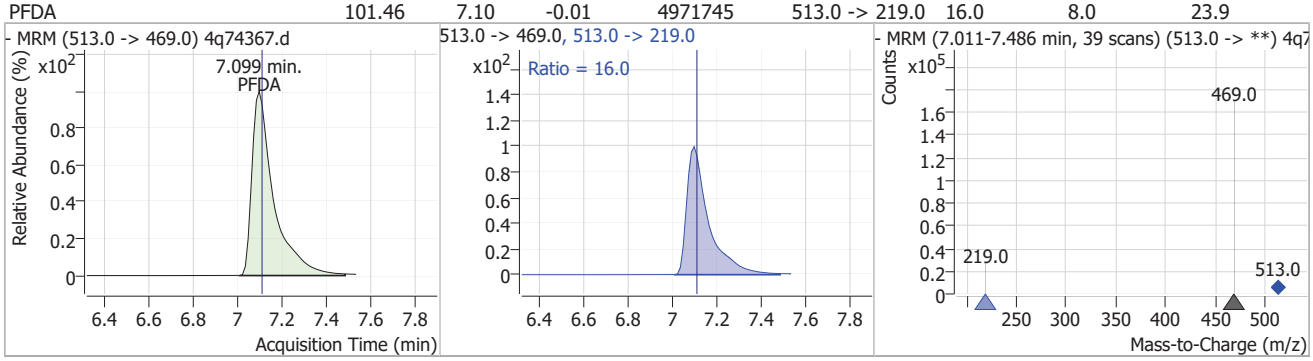
Perfluorinated Compounds by LC/MS/MS

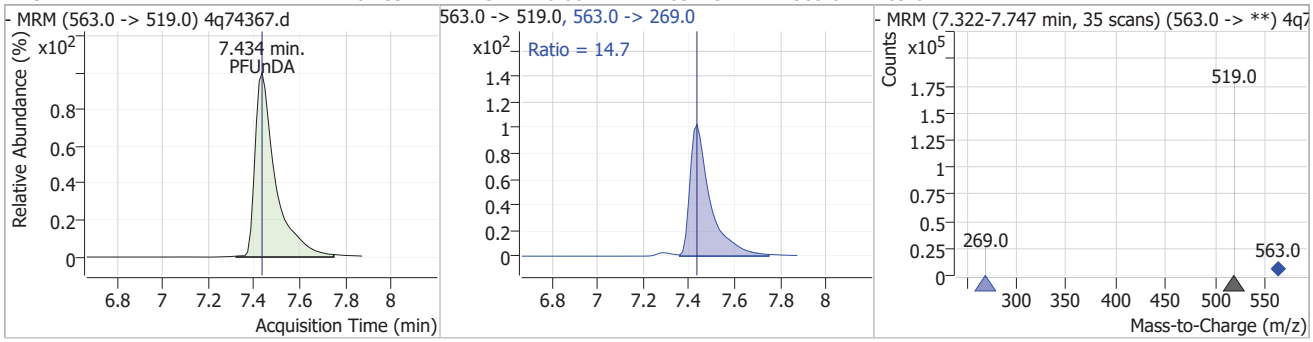
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	50.84	7.10	0.00	3571154				



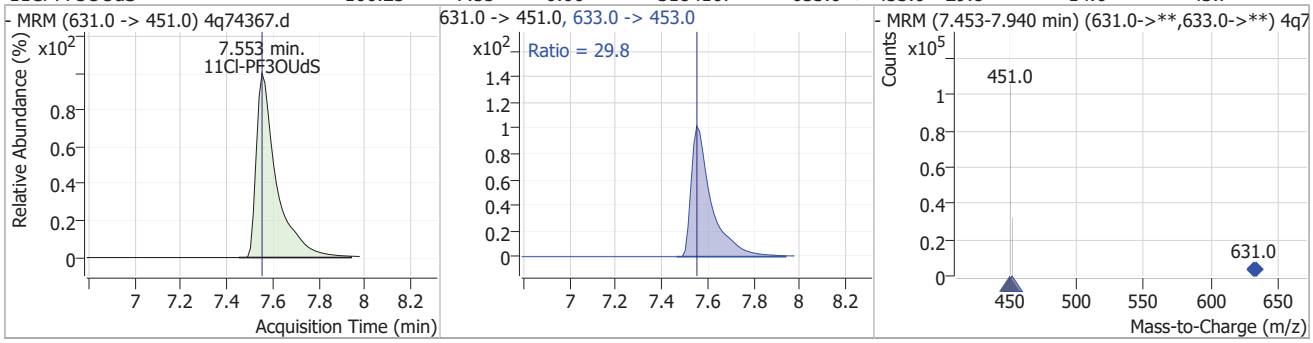
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	101.46	7.10	-0.01	4971745	513.0 -> 219.0	16.0	8.0	23.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	101.59	7.43	0.00	4651287	563.0 -> 269.0	14.7	7.2	21.7

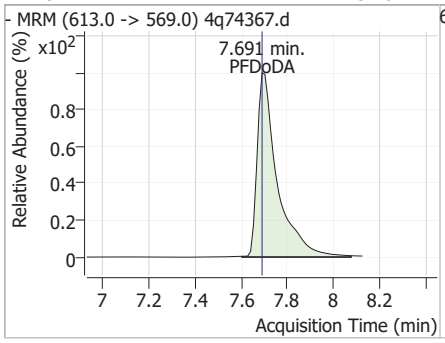


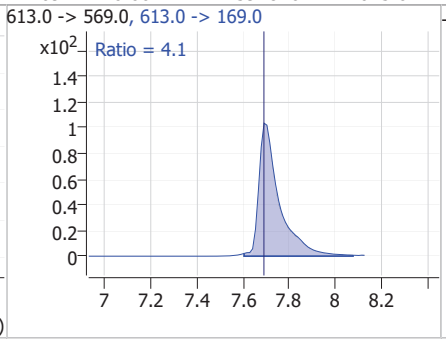
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	100.23	7.55	0.00	3184167	633.0 -> 453.0	29.8	14.6	43.7

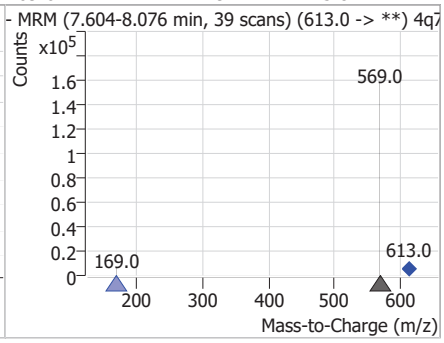


Perfluorinated Compounds by LC/MS/MS

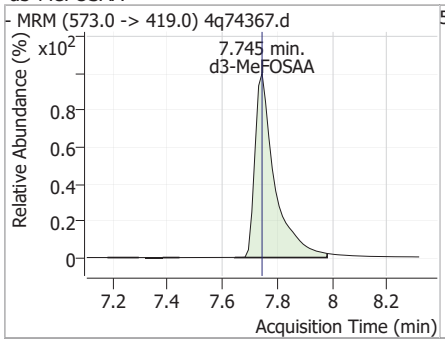
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	102.04	7.69	0.00	4594840	613.0 -> 169.0	4.1	1.9	5.8

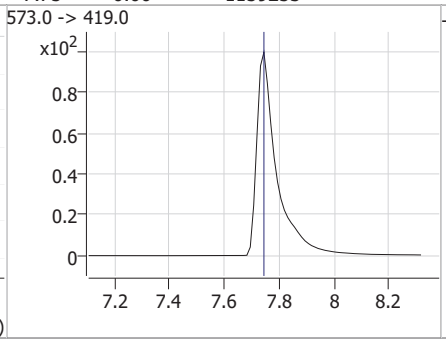


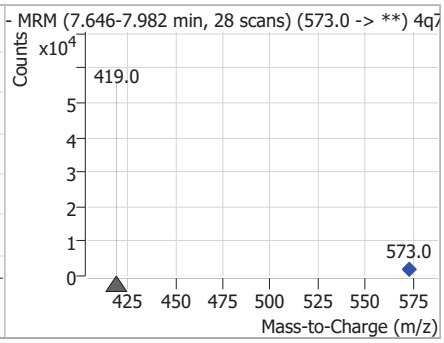




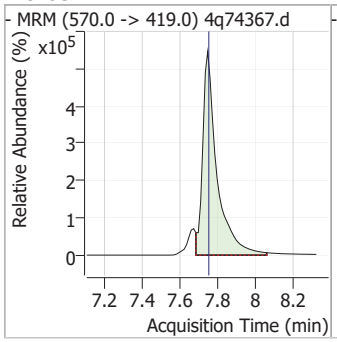
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.75	0.00	1159253				

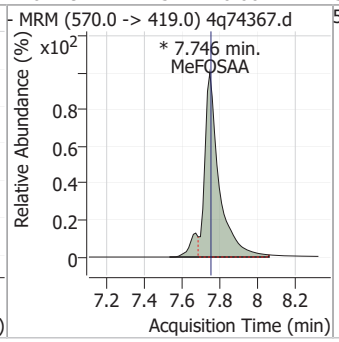


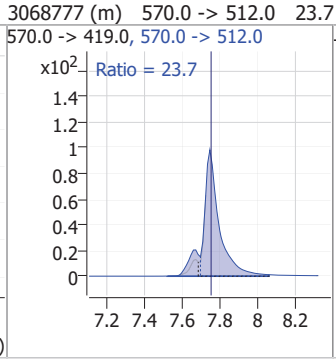


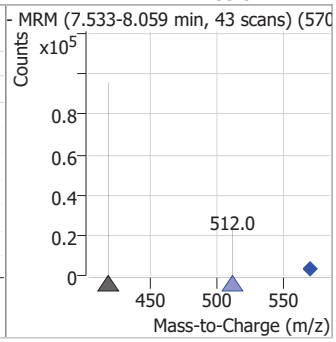


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	102.79	7.75	0.00	3068777 (m)	570.0 -> 512.0	23.7	11.2	33.5

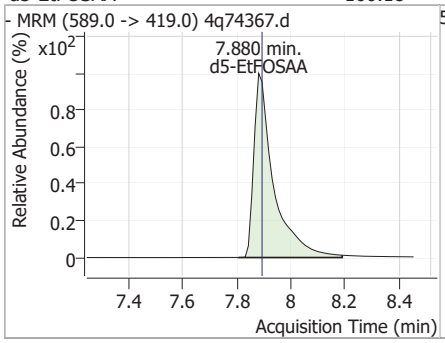


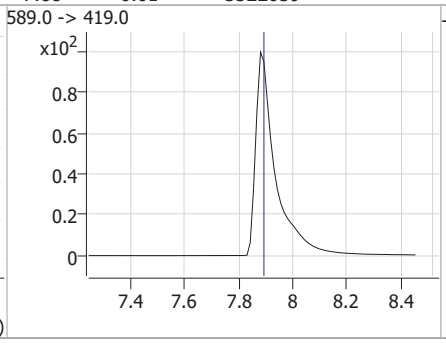


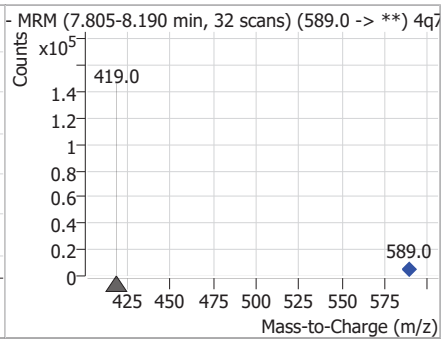




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	100.18	7.88	-0.01	3522059				







7.7.24

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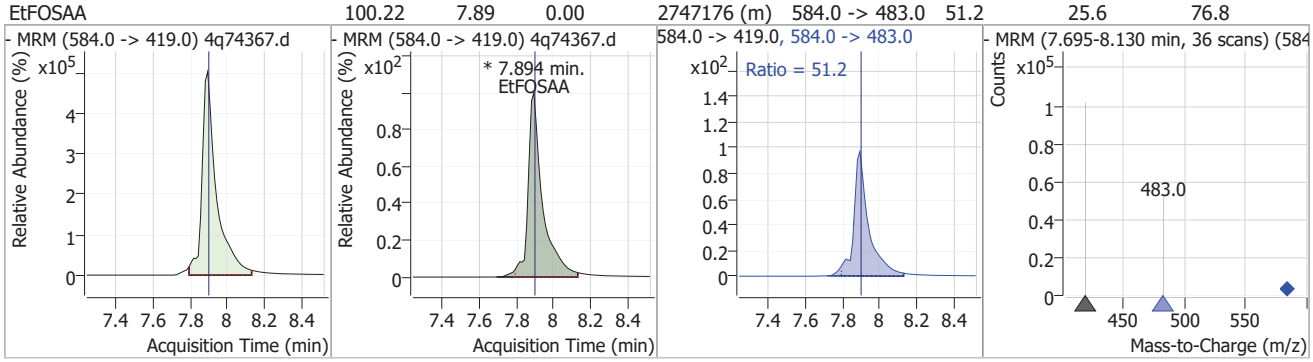
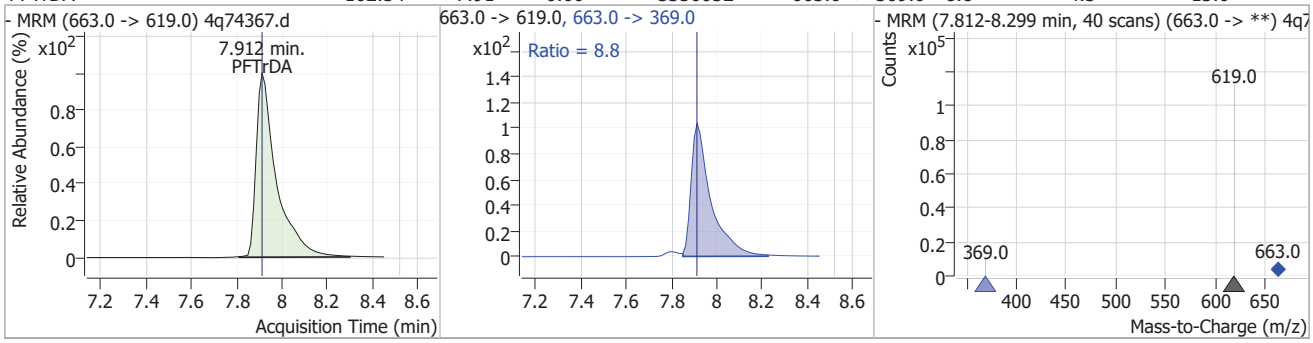
Perfluorinated Compounds by LC/MS/MS

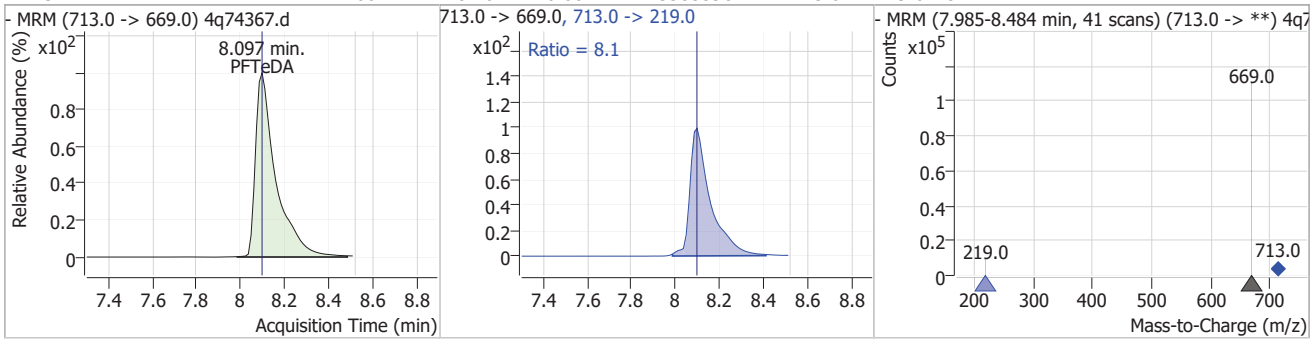
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	100.22	7.89	0.00	2747176 (m)	584.0 -> 483.0	51.2	25.6	76.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	102.54	7.91	0.00	3350052	663.0 -> 369.0	8.8	4.3	13.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	100.27	8.10	0.00	3383598	713.0 -> 219.0	8.1	4.1	12.2



7.7.24

7

Manual Integration Approval Summary

Sample Number: S4Q1106-IC1106
Lab FileID: 4Q74367.D
Injection Time: 04/23/25 23:41
Method: EPA 537.1 REV 2.0
Analyst approved: 04/24/25 11:46 (b) (6)
Supervisor approved: 04/24/25 12:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
HFPO-DA (GenX)	13252-13-6		4.97	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		5.63	Split peak
Perfluorooctanoic acid	335-67-1		6.21	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.69	Split peak
MeFOSAA	2355-31-9		7.75	Split peak
EtFOSAA	2991-50-6		7.89	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/24/25 12:51

Perfluorinated Compounds by LC/MS/MS

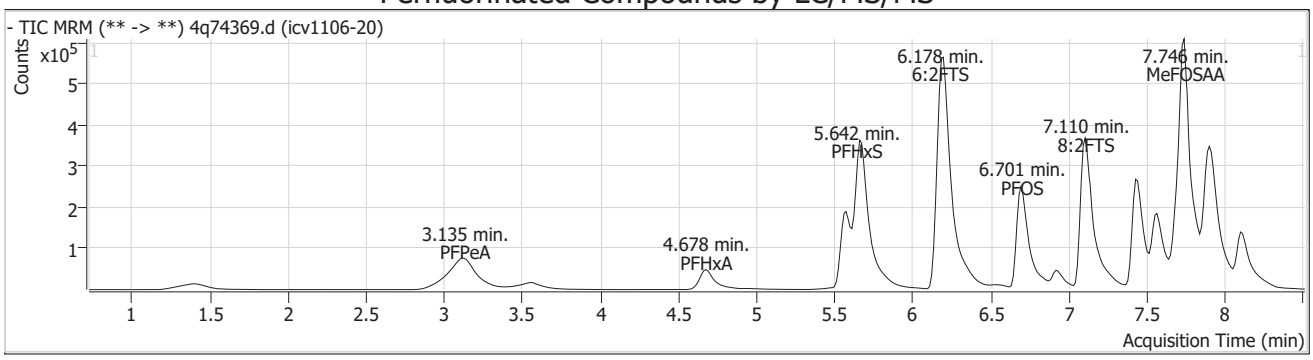
Data File : 4q74369.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/24/2025 12:10:04 AM
Sample Name : icv1106-20
Vial : P1-B1
DA Method File : 537_042325_S4q1106.quantmethod.xml
Batch Name : s4q1106.batch.bin
Sample Information : OP8985,S4Q1106,250,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.177	429.0 -> 409.0	523760	20.00	µg/L		0.013
13C2-PFOA	6.204	415.0 -> 370.0	981572	20.00	µg/L		0.000
13C3-PFPeA	3.132	266.0 -> 222.0	426529	20.00	µg/L		0.012
13C4-PFOS	6.700	503.0 -> 80.0	141904	20.00	µg/L		0.012
d3-MeFOSAA	7.745	573.0 -> 419.0	1407691	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.111	515.0 -> 470.0	0		µg/L	m	0.013
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C2-PFHxA	4.676	315.0 -> 270.0	0		µg/L	m	0.000
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = NA%			
d5-EtFOSAA	7.893	589.0 -> 419.0	0		µg/L	m	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C3-HFPO-DA	4.959	287.0 -> 169.0	0		µg/L	m	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
Target Compounds							QValue
6:2FTS	6.178	427.0 -> 407.0	597281	22.08	µg/L		100
8:2FTS	7.110	527.0 -> 507.0	659368	24.01	µg/L		100
EtFOSAA	7.894	584.0 -> 419.0	754297	25.05	µg/L	m	97
MeFOSAA	7.746	570.0 -> 419.0	773669	21.34	µg/L	m	98
PFBS	3.566	299.0 -> 80.0	132892	20.64	µg/L		99
PFDA	7.112	513.0 -> 469.0	1132634	22.53	µg/L		100
PFDoDA	7.703	613.0 -> 569.0	1231761	25.94	µg/L		100
PFHpA	5.583	363.0 -> 319.0	1055073	23.28	µg/L		100
PFHxA	4.678	313.0 -> 269.0	325249	24.17	µg/L		100
PFHxS	5.642	399.0 -> 80.0	129480	19.30	µg/L	m	99
PFNA	6.702	463.0 -> 419.0	925618	21.91	µg/L		100
PFOA	6.205	413.0 -> 369.0	953330	28.98	µg/L		94
PFOS	6.701	499.0 -> 80.0	173924	21.65	µg/L	m	94
PFPeA	3.135	263.0 -> 219.0	604299	22.75	µg/L		100
PFTeDA	8.110	713.0 -> 669.0	683611	23.60	µg/L		99
PFTrDA	7.925	663.0 -> 619.0	933509	27.09	µg/L		100
PFUnDA	7.434	563.0 -> 519.0	1301313	26.95	µg/L		100
ADONA	5.680	377.0 -> 251.0	1437258	21.19	µg/L		100
9Cl-PF3ONS	6.921	531.0 -> 351.0	171738	23.31	µg/L		99
11Cl-PF3OUdS	7.566	631.0 -> 451.0	675289	23.48	µg/L		99
HFPO-DA	4.973	285.0 -> 169.0	7717	24.19	µg/L		100

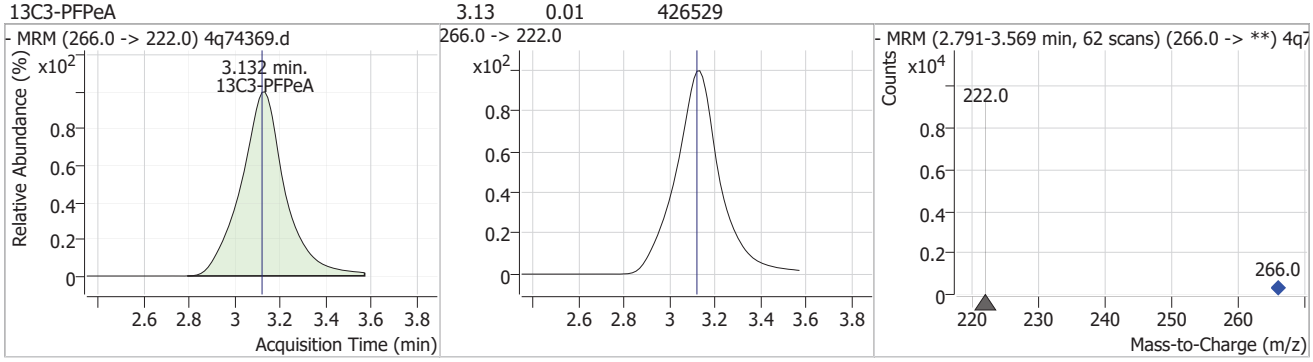
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.25
7

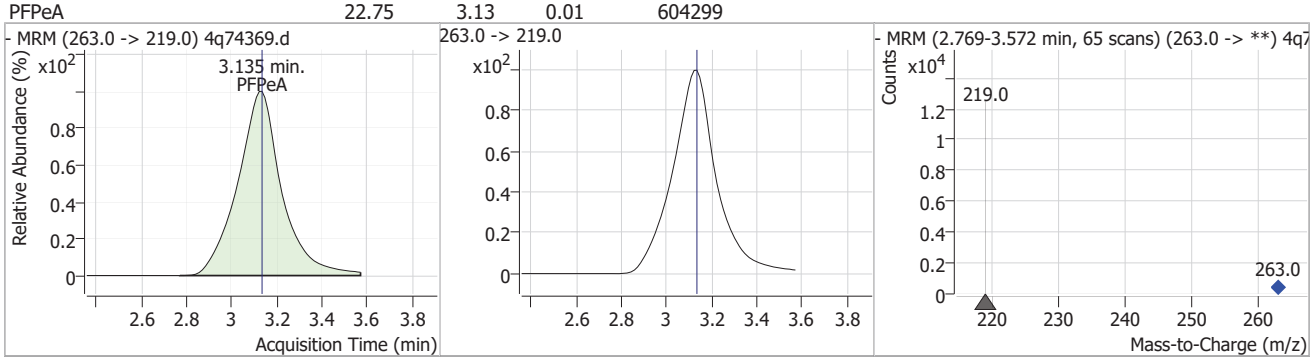
Perfluorinated Compounds by LC/MS/MS



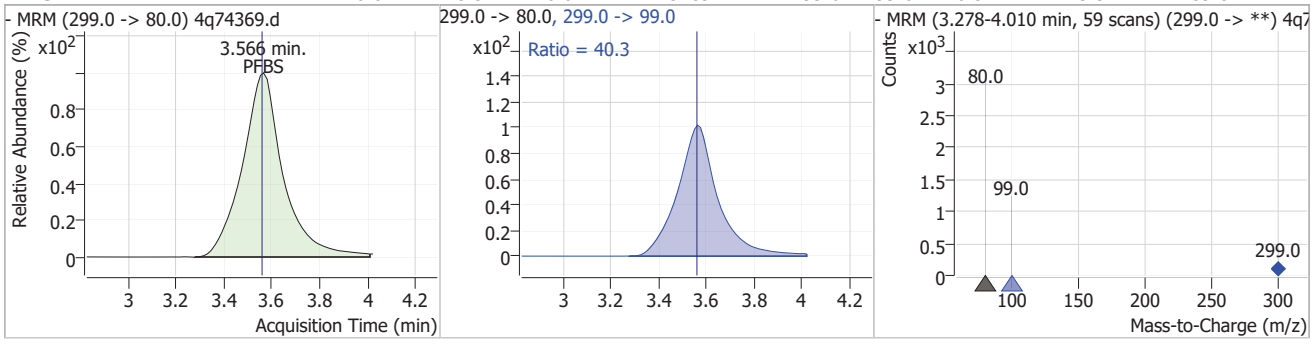
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.13	0.01	426529				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	22.75	3.13	0.01	604299				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.64	3.57	0.01	132892	299.0 -> 99.0	40.3	19.9	59.8



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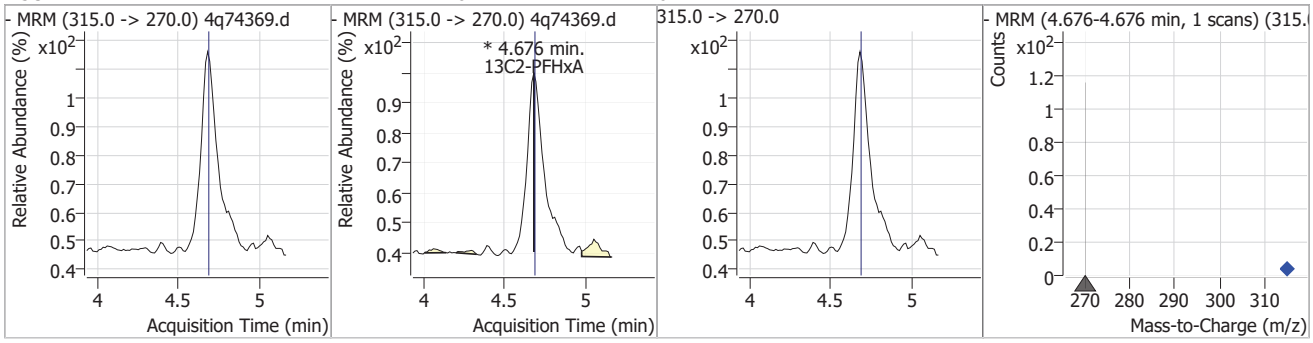
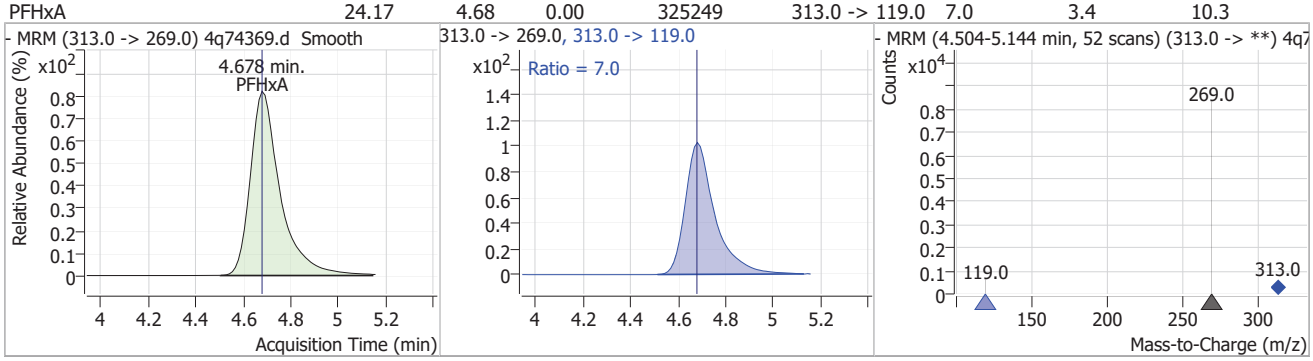
Perfluorinated Compounds by LC/MS/MS

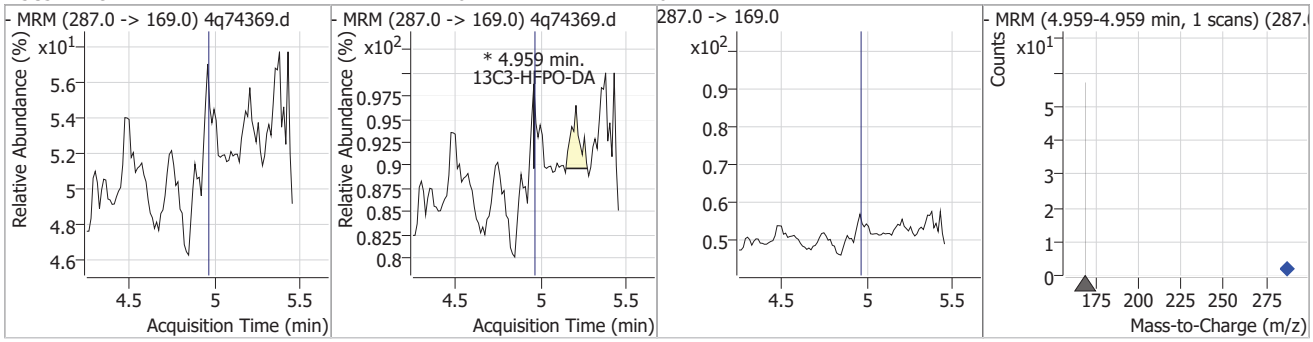
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA		0		0				



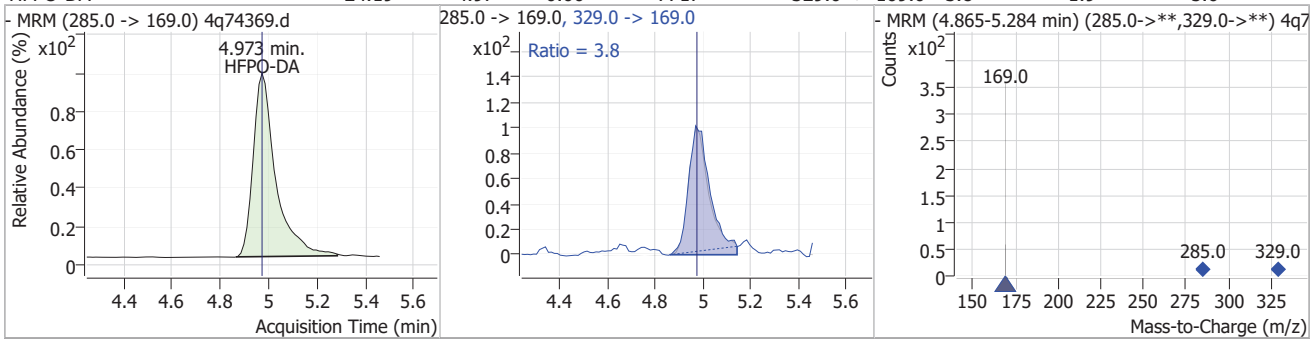
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	24.17	4.68	0.00	325249	313.0 -> 119.0	7.0	3.4	10.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA		0		0				

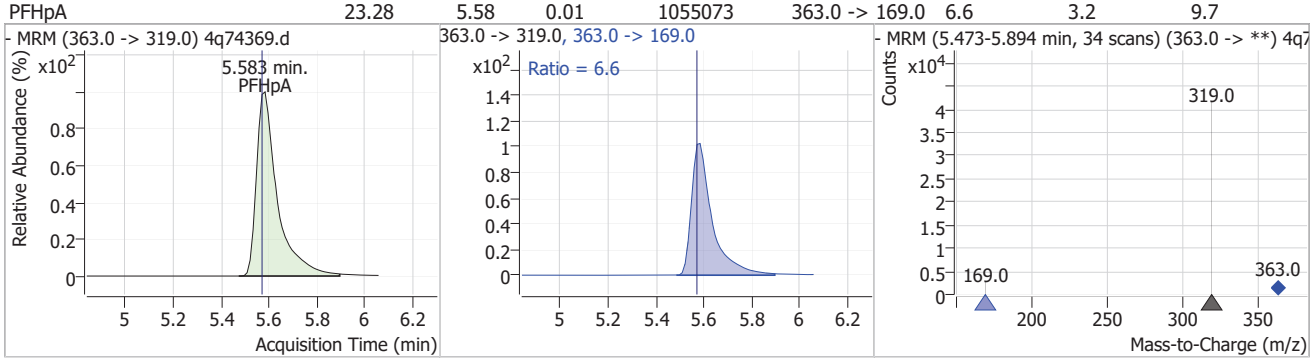


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	24.19	4.97	0.00	7717	329.0 -> 169.0	3.8	1.9	5.6

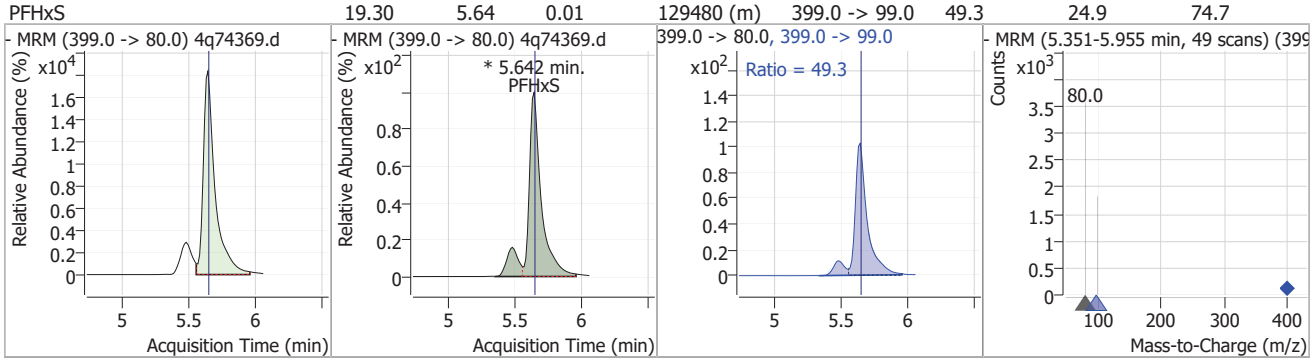


Perfluorinated Compounds by LC/MS/MS

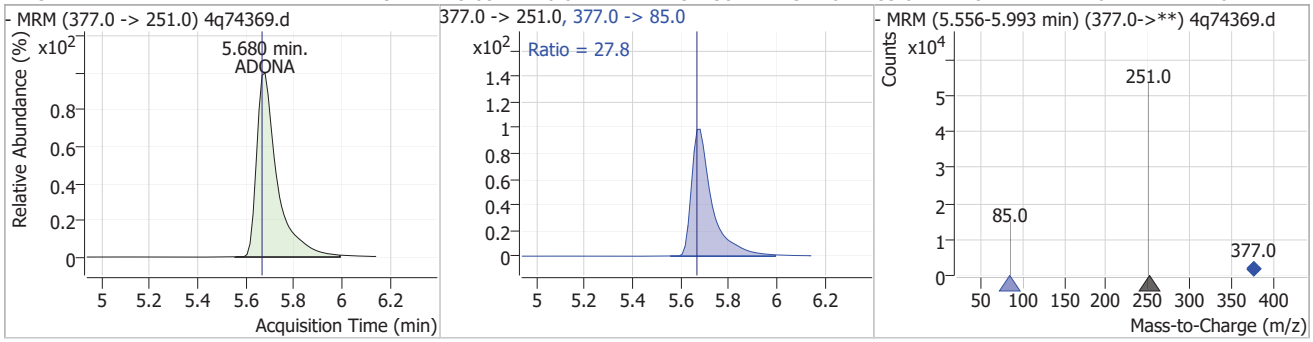
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	23.28	5.58	0.01	1055073	363.0 -> 169.0	6.6	3.2	9.7



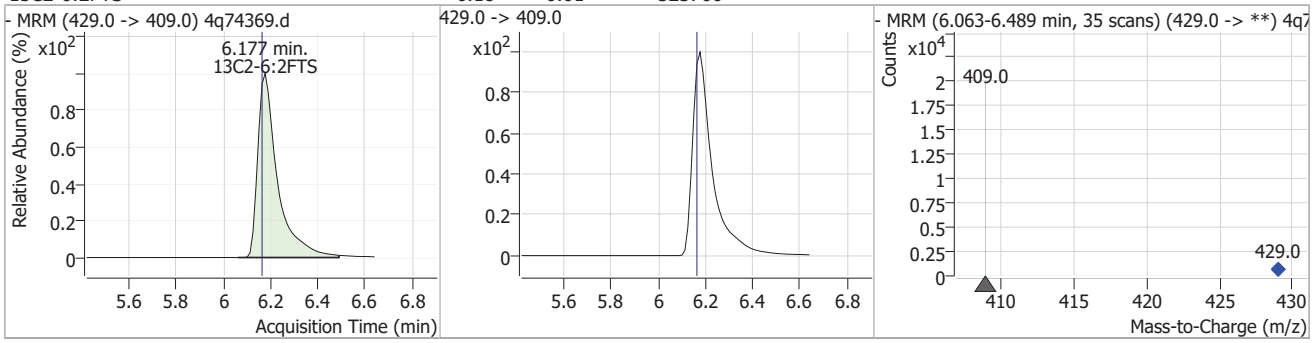
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.30	5.64	0.01	129480 (m)	399.0 -> 99.0	49.3	24.9	74.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	21.19	5.68	0.01	1437258	377.0 -> 85.0	27.8	14.0	42.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.18	0.01	523760				



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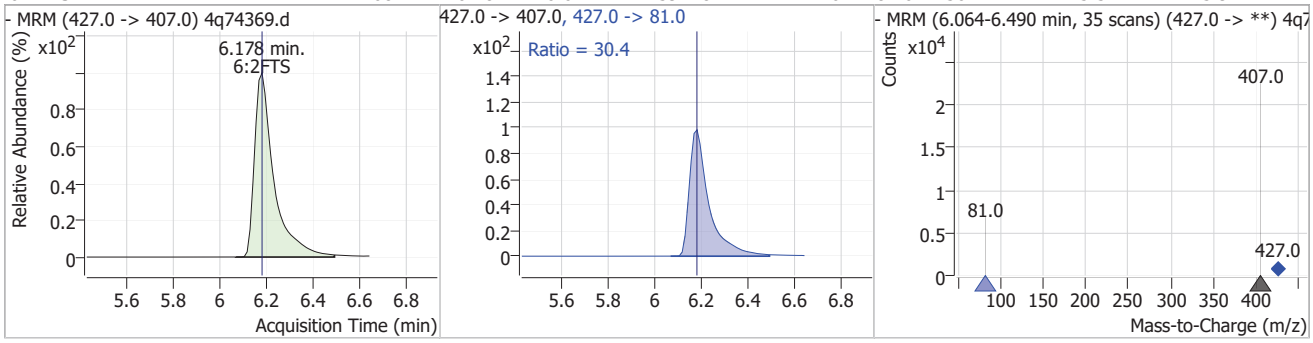
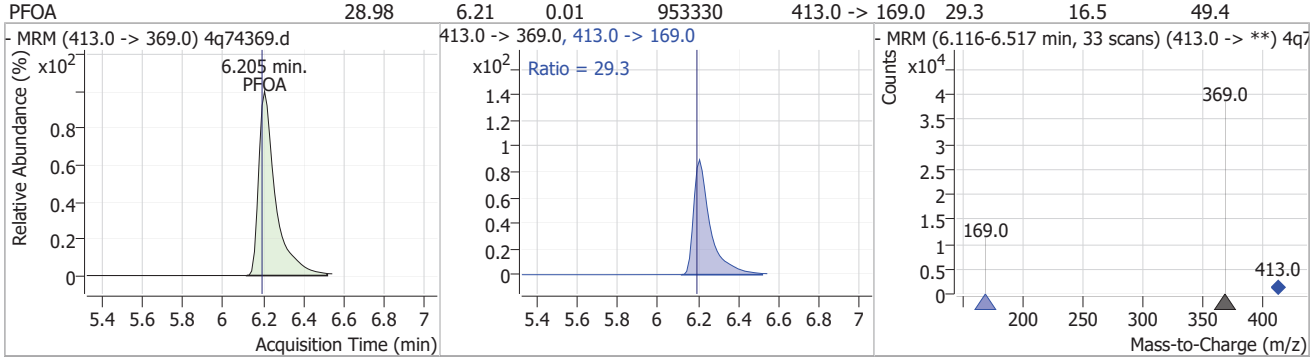
Perfluorinated Compounds by LC/MS/MS

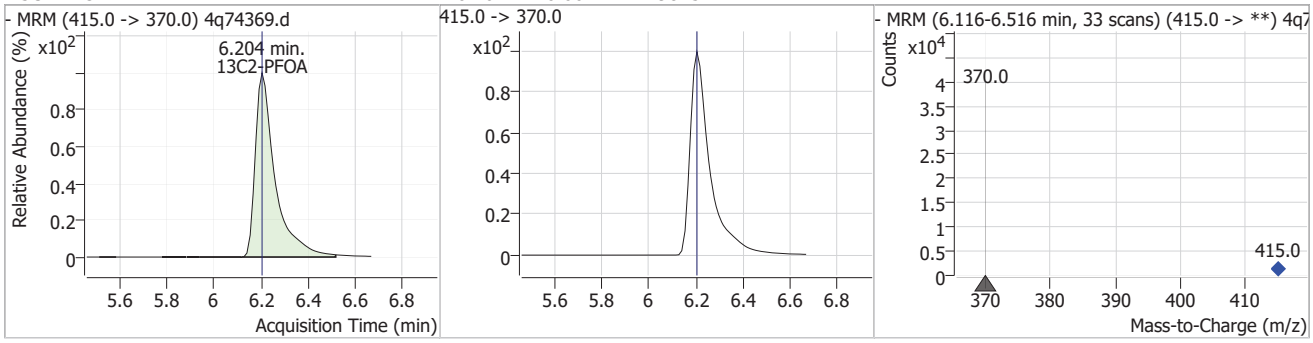
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	22.08	6.18	0.01	597281	427.0 -> 81.0	30.4	15.3	45.9



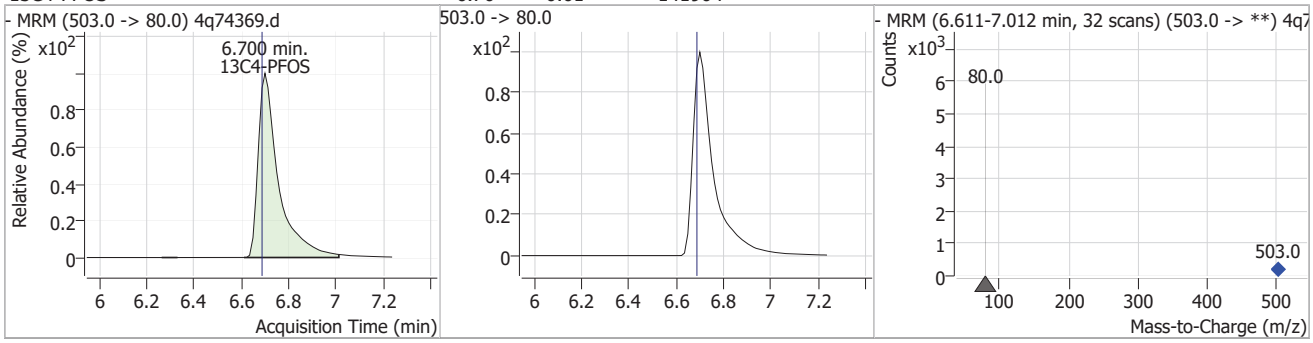
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	28.98	6.21	0.01	953330	413.0 -> 169.0	29.3	16.5	49.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.20	0.00	981572				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.70	0.01	141904				



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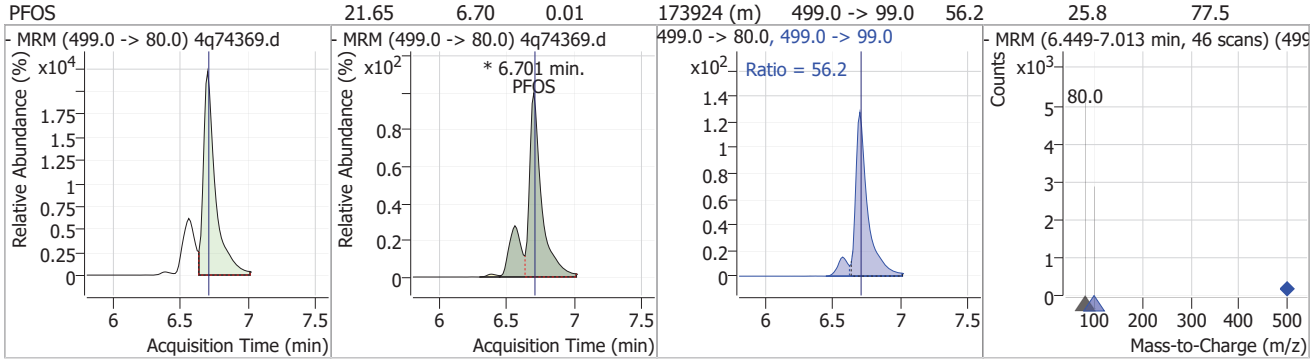
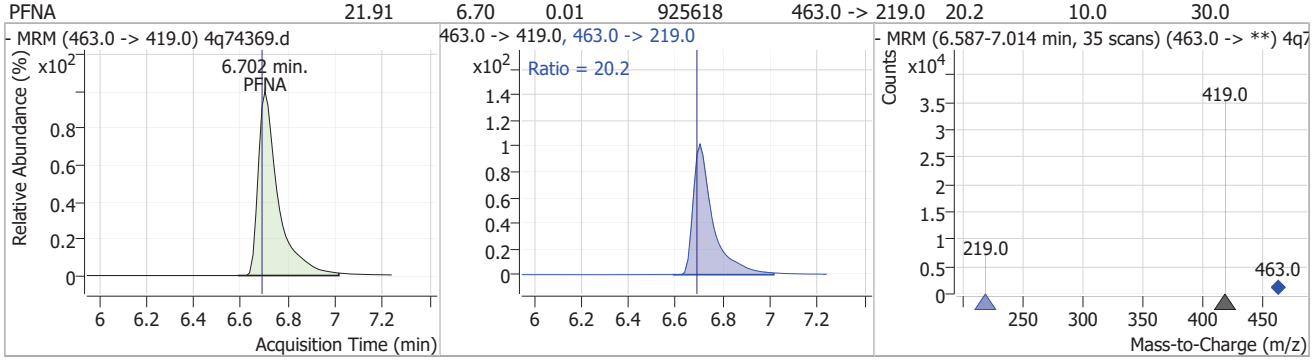
Perfluorinated Compounds by LC/MS/MS

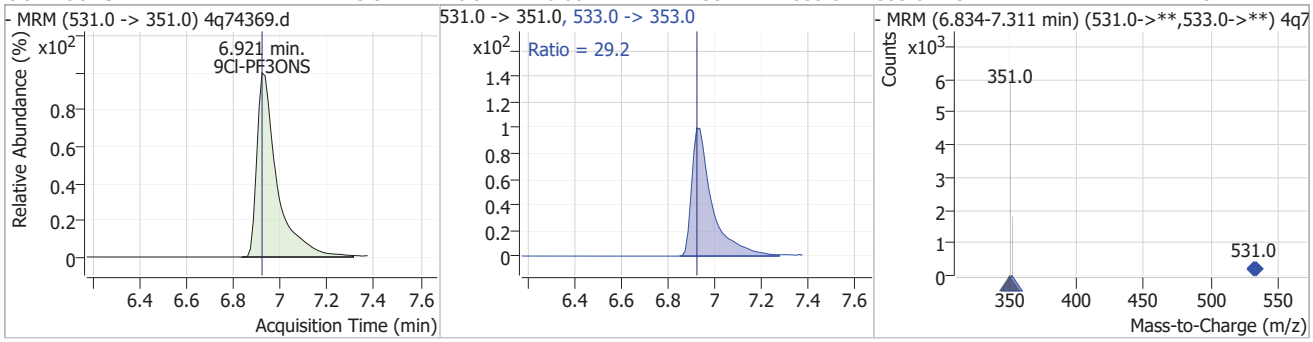
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	21.65	6.70	0.01	173924 (m)	499.0 -> 99.0	56.2	25.8	77.5



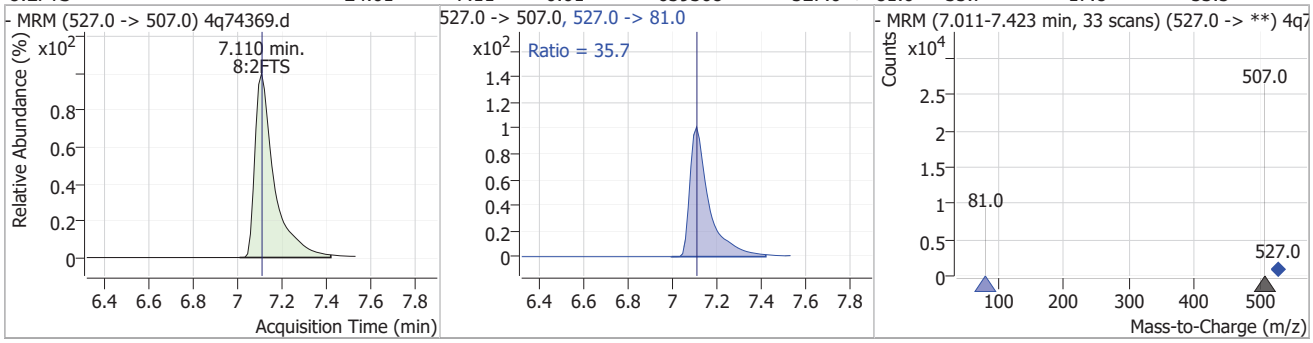
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	21.91	6.70	0.01	925618	463.0 -> 219.0	20.2	10.0	30.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	23.31	6.92	0.00	171738	533.0 -> 353.0	29.2	14.4	43.2

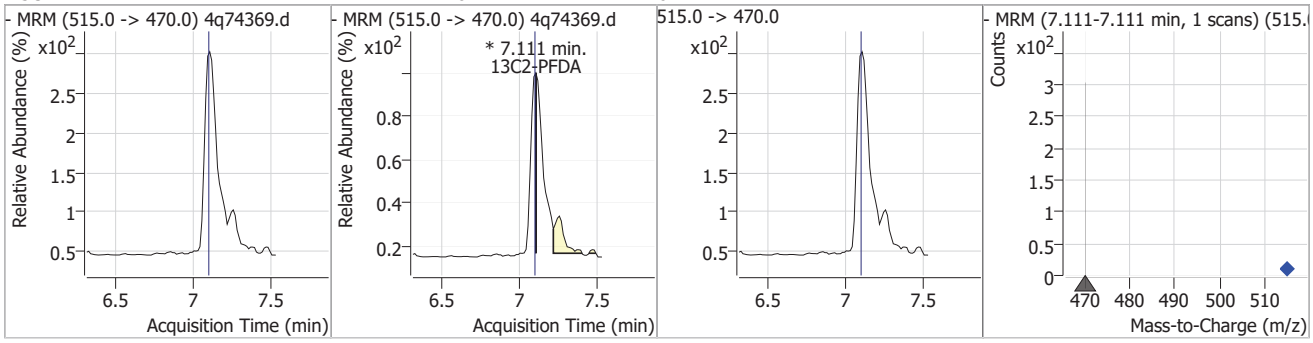


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	24.01	7.11	0.01	659368	527.0 -> 81.0	35.7	17.8	53.5

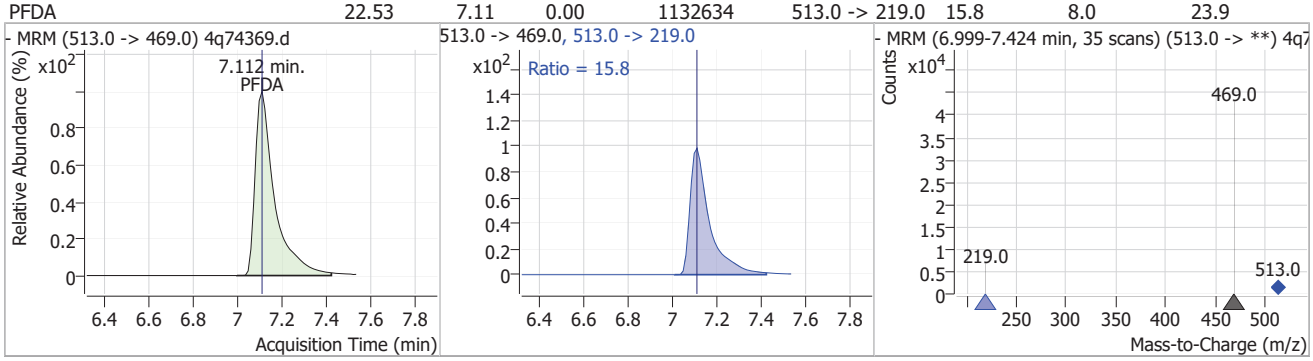


Perfluorinated Compounds by LC/MS/MS

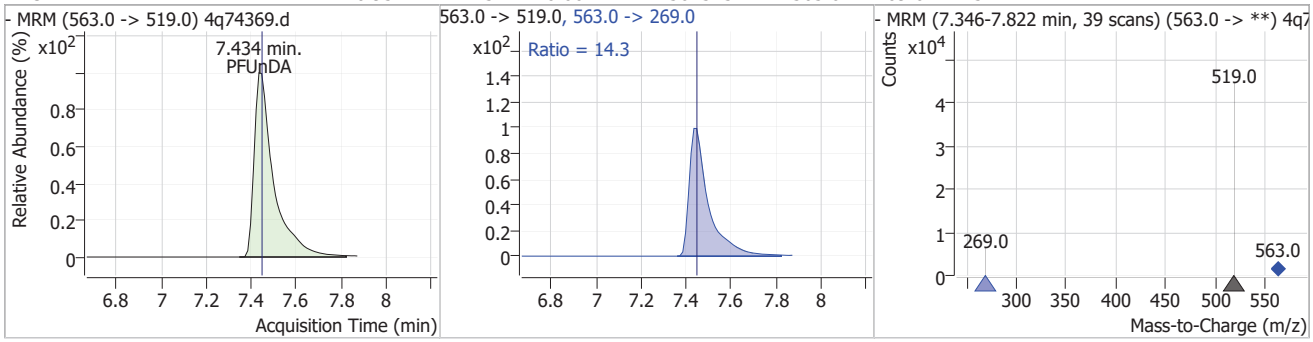
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA		0		0				



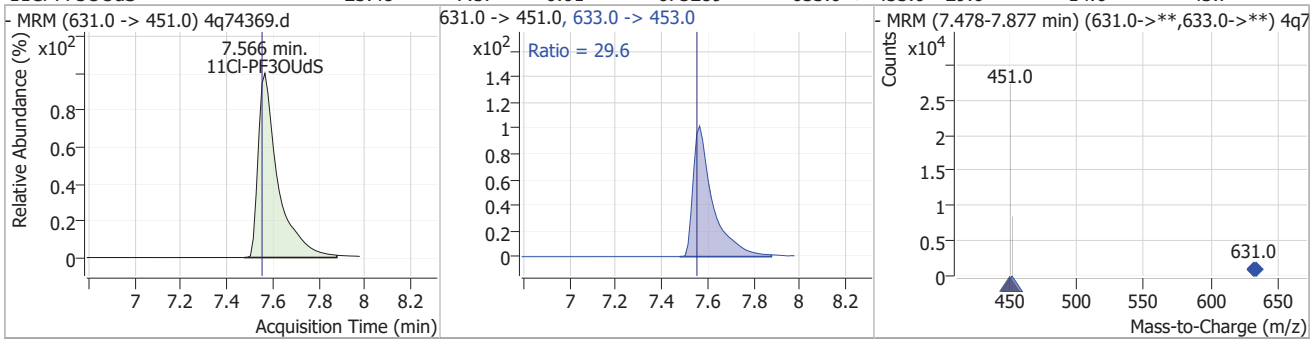
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	22.53	7.11	0.00	1132634	513.0 -> 219.0	15.8	8.0	23.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	26.95	7.43	0.00	1301313	563.0 -> 269.0	14.3	7.2	21.7

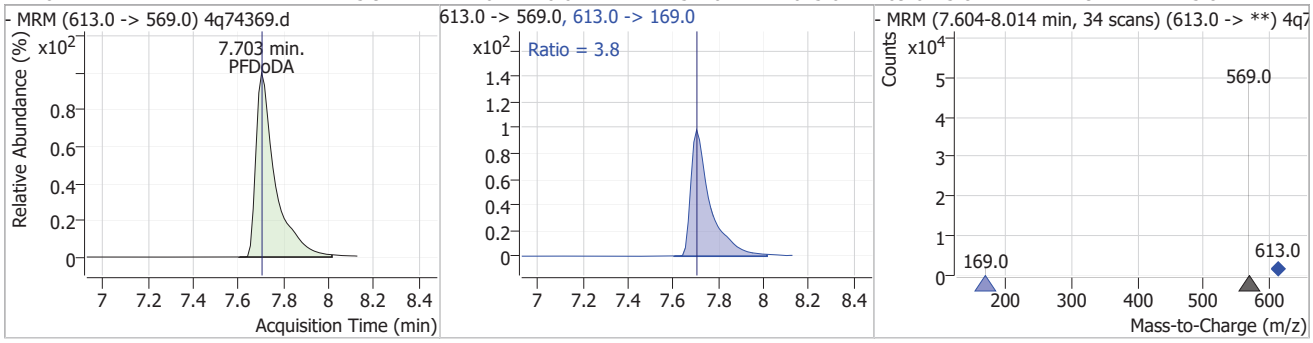


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	23.48	7.57	0.01	675289	633.0 -> 453.0	29.6	14.6	43.7

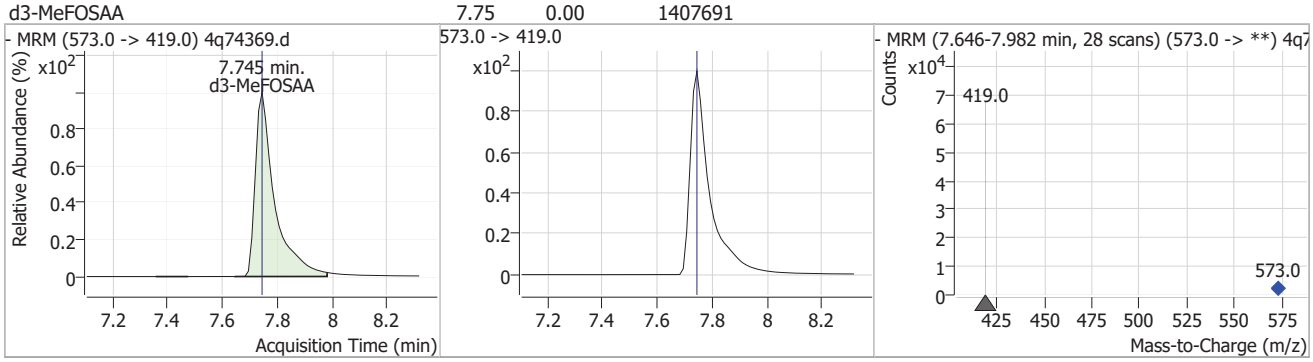


Perfluorinated Compounds by LC/MS/MS

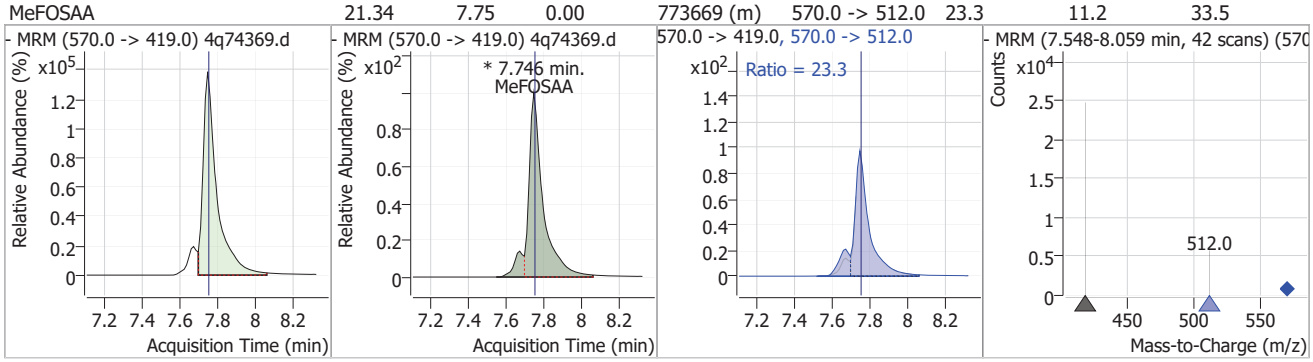
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	25.94	7.70	0.01	1231761	613.0 -> 169.0	3.8	1.9	5.8



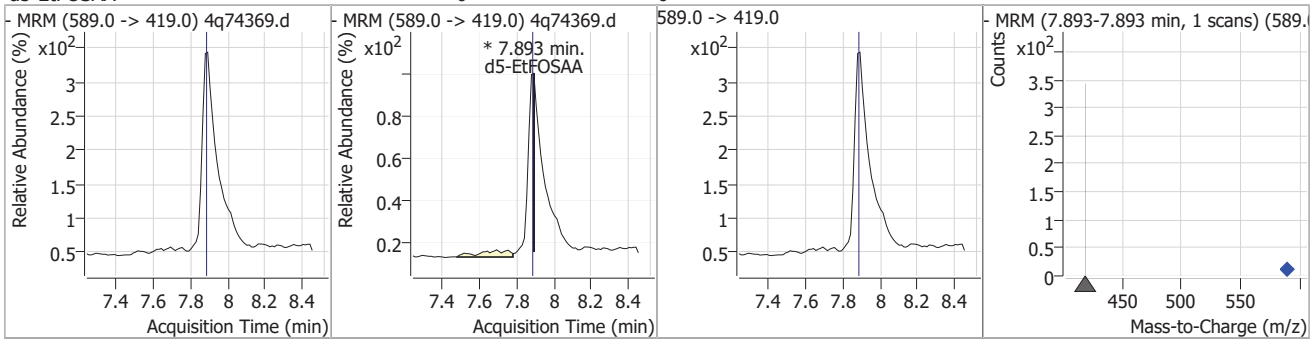
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.75	0.00	1407691				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	21.34	7.75	0.00	773669 (m)	570.0 -> 512.0	23.3	11.2	33.5

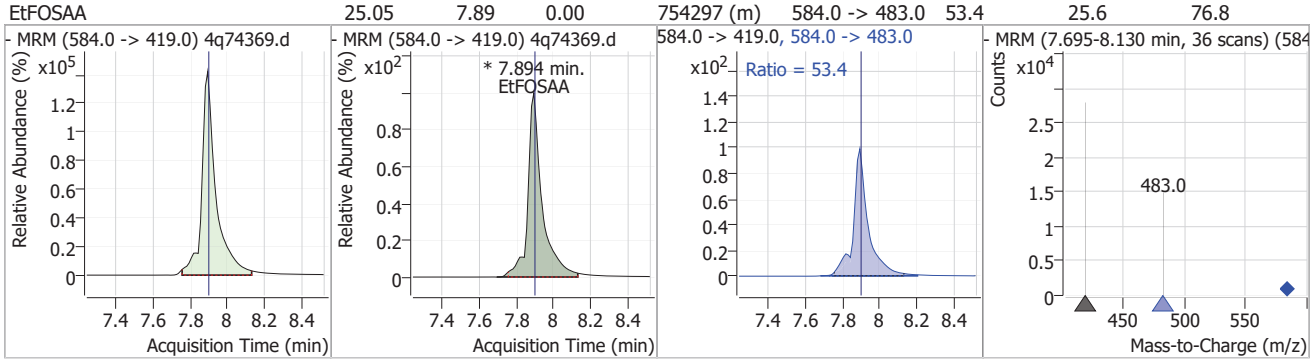


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA		0		0				

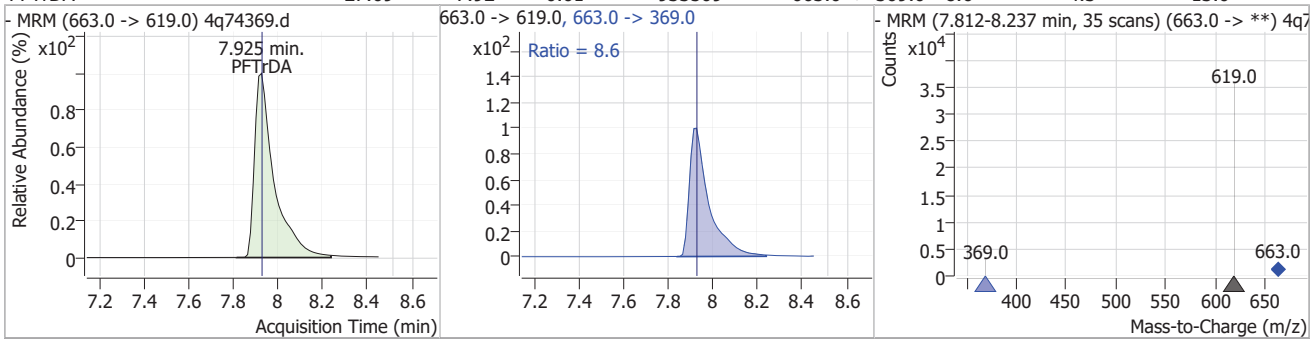


Perfluorinated Compounds by LC/MS/MS

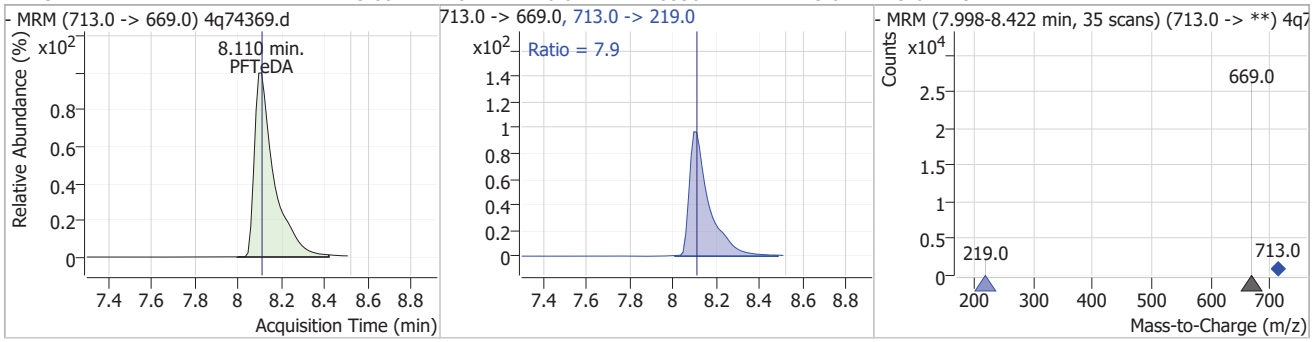
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	25.05	7.89	0.00	754297 (m)	584.0 -> 483.0	53.4	25.6	76.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	27.09	7.92	0.01	933509	663.0 -> 369.0	8.6	4.3	13.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	23.60	8.11	0.01	683611	713.0 -> 219.0	7.9	4.1	12.2



7.7.25

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Manual Integration Approval Summary

Sample Number: S4Q1106-ICV1106
Lab FileID: 4Q74369.D
Injection Time: 04/24/25 00:10
Method: EPA 537.1 REV 2.0
Analyst approved: 04/24/25 11:46 (b) (6)
Supervisor approved: 04/24/25 12:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.70	Split peak
MeFOSAA	2355-31-9		7.75	Split peak
EtFOSAA	2991-50-6		7.89	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/24/25 12:51

Perfluorinated Compounds by LC/MS/MS

Data File : 4q74370.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/24/2025 12:24:20 AM
Sample Name : cc1106-20
Vial : P1-A7
DA Method File : 537_042325_S4q1106.quantmethod.xml
Batch Name : s4q1106.batch.bin
Sample Information : OP8985,S4Q1106,250,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.177	429.0 -> 409.0	511875	20.00 µg/L		0.013
13C2-PFOA	6.204	415.0 -> 370.0	965091	20.00 µg/L		0.000
13C3-PFPeA	3.132	266.0 -> 222.0	419946	20.00 µg/L		0.012
13C4-PFOS	6.700	503.0 -> 80.0	138454	20.00 µg/L		0.012
d3-MeFOSAA	7.745	573.0 -> 419.0	1394156	40.00 µg/L		0.000
System Monitoring Compounds						
13C2-PFDA	7.111	515.0 -> 470.0	735849	10.38 µg/L		0.013
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = 103.8%		
13C2-PFHxA	4.676	315.0 -> 270.0	243015	10.69 µg/L		0.000
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = 106.9%		
d5-EtFOSAA	7.880	589.0 -> 419.0	831446	21.81 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 109.0%		
13C3-HFPO-DA	4.972	287.0 -> 169.0	6989	19.49 µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 97.4%		
Target Compounds						QValue
6:2FTS	6.178	427.0 -> 407.0	577724	21.84 µg/L		100
8:2FTS	7.110	527.0 -> 507.0	594057	22.05 µg/L		100
EtFOSAA	7.894	584.0 -> 419.0	643285	21.67 µg/L	m	99
MeFOSAA	7.746	570.0 -> 419.0	687981	19.16 µg/L	m	100
PFBS	3.566	299.0 -> 80.0	126094	20.07 µg/L		100
PFDA	7.112	513.0 -> 469.0	1016484	20.56 µg/L		100
PFDoDA	7.703	613.0 -> 569.0	944308	20.38 µg/L		100
PFHpA	5.583	363.0 -> 319.0	866274	19.44 µg/L		100
PFHxA	4.691	313.0 -> 269.0	281906	21.30 µg/L		99
PFHxS	5.642	399.0 -> 80.0	124966	19.10 µg/L	m	99
PFNA	6.702	463.0 -> 419.0	811461	19.53 µg/L		100
PFOA	6.205	413.0 -> 369.0	627996	19.42 µg/L	m	99
PFOS	6.701	499.0 -> 80.0	147956	18.88 µg/L	m	100
PFPeA	3.122	263.0 -> 219.0	507870	19.42 µg/L		100
PFTeDA	8.110	713.0 -> 669.0	626026	22.24 µg/L		100
PFTrDA	7.925	663.0 -> 619.0	665401	19.79 µg/L		100
PFUnDA	7.446	563.0 -> 519.0	977022	20.74 µg/L		100
ADONA	5.680	377.0 -> 251.0	1315743	19.73 µg/L		100
9Cl-PF3ONS	6.921	531.0 -> 351.0	160057	22.15 µg/L		99
11Cl-PF3OUdS	7.566	631.0 -> 451.0	621355	22.03 µg/L		99
HFPO-DA	4.973	285.0 -> 169.0	6572	21.09 µg/L		99

 # = Qualifier out of range, m = manually integrated, + = Area summed

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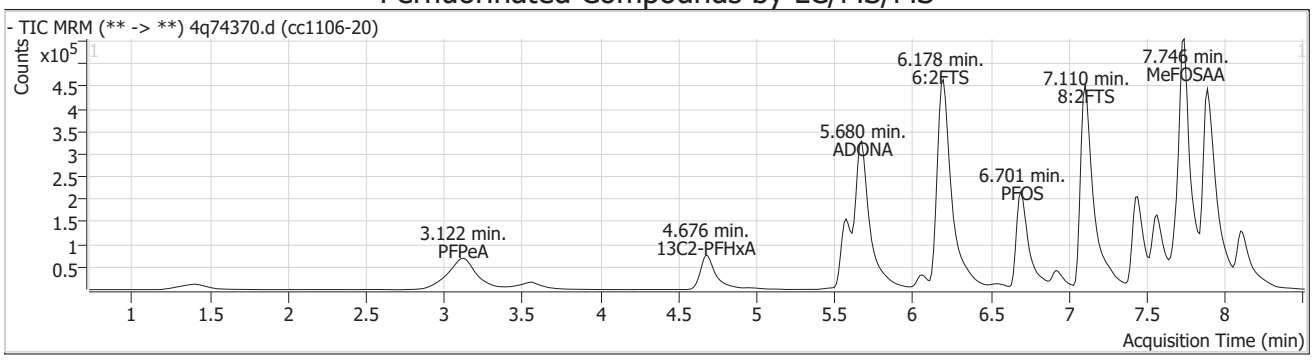
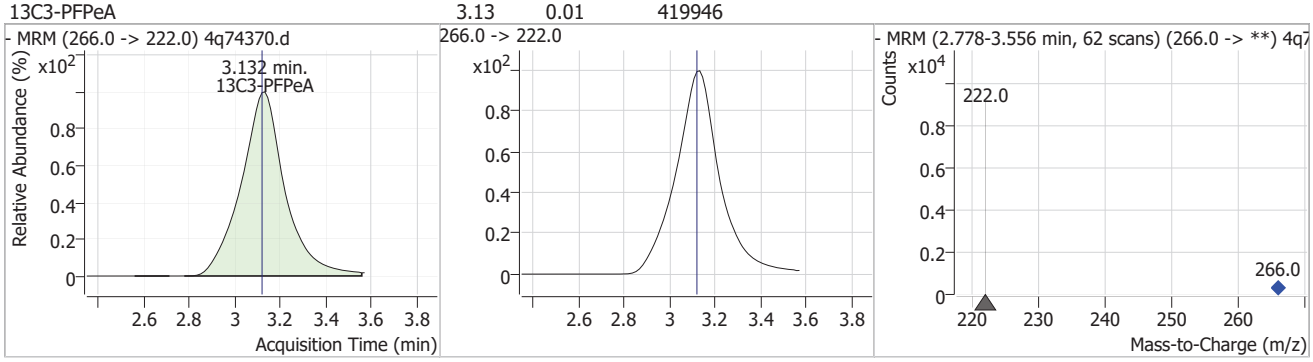
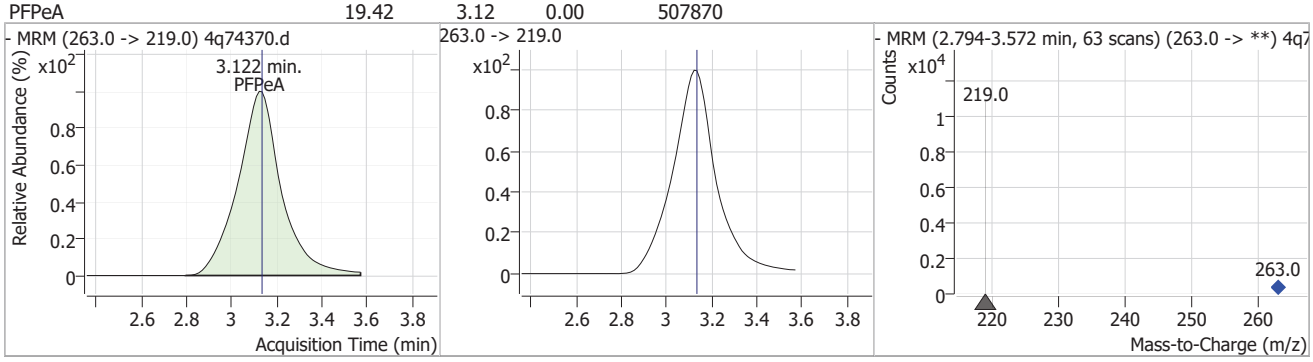
Perfluorinated Compounds by LC/MS/MS



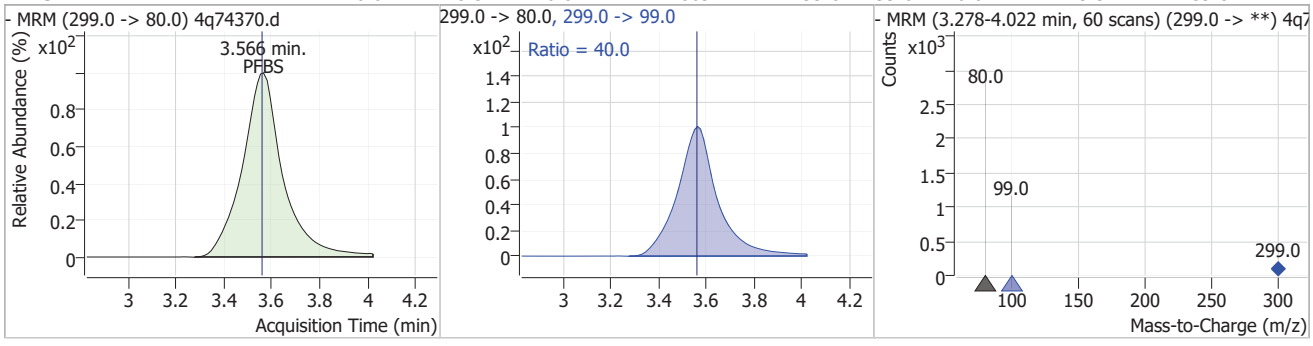
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.13	0.01	419946				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.42	3.12	0.00	507870				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.07	3.57	0.01	126094	299.0 -> 99.0	40.0	19.9	59.8



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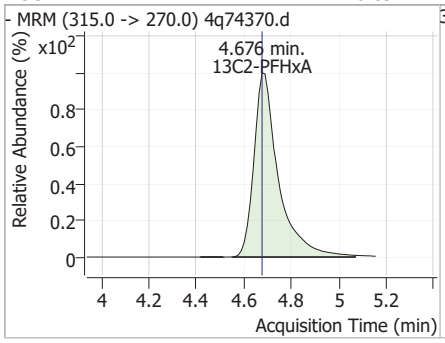
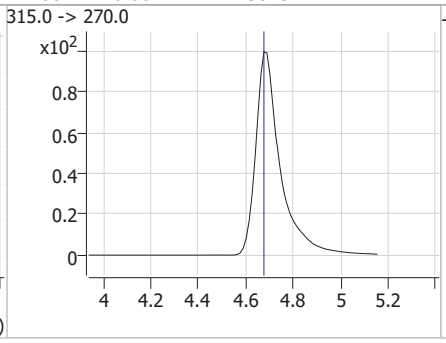
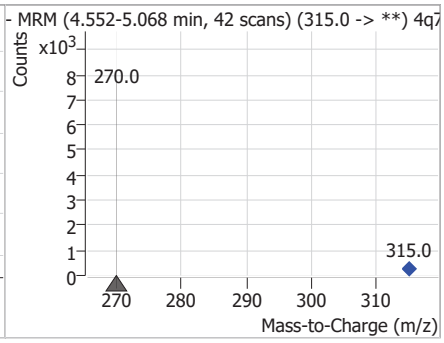
Perfluorinated Compounds by LC/MS/MS

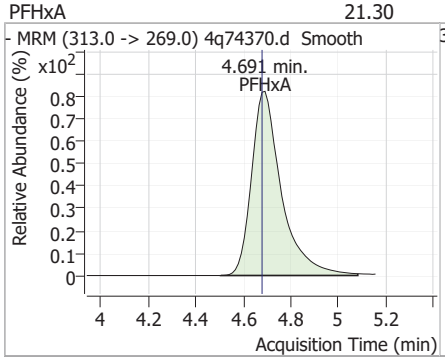
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	10.69	4.68	0.00	243015				

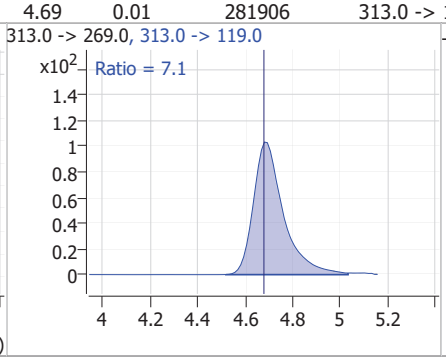


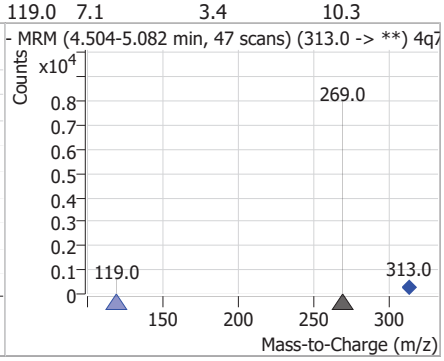




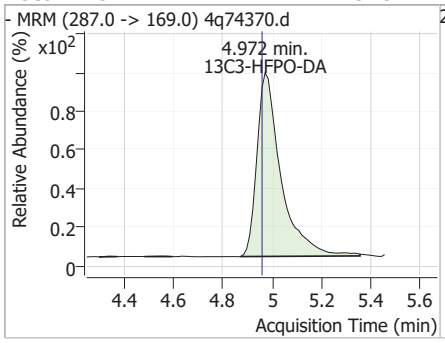
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	21.30	4.69	0.01	281906	313.0 -> 119.0	7.1	3.4	10.3

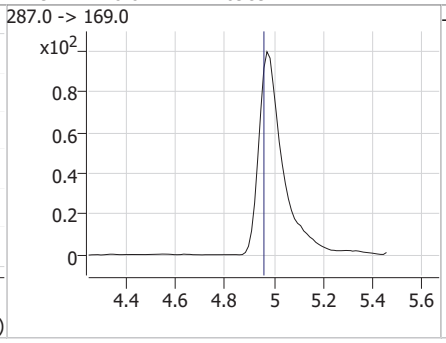


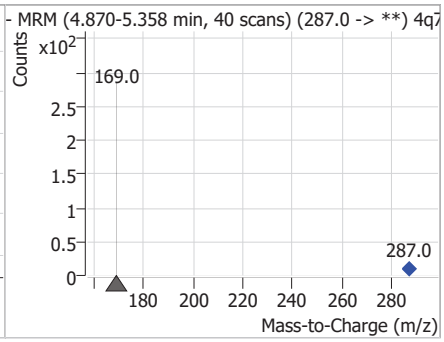




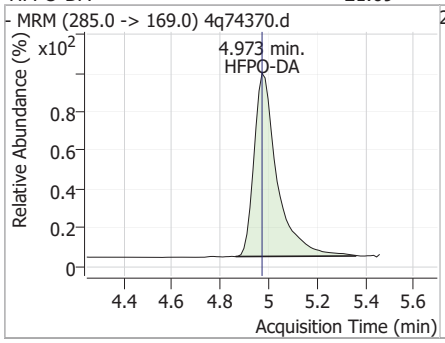
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	19.49	4.97	0.01	6989				

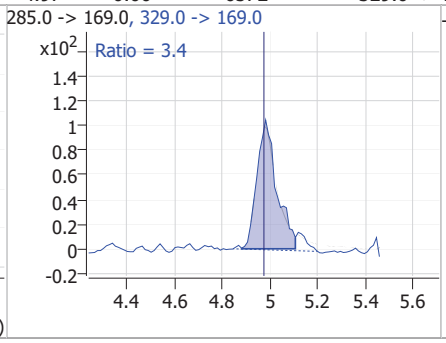


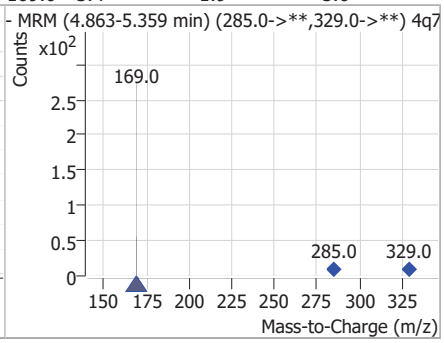




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	21.09	4.97	0.00	6572	329.0 -> 169.0	3.4	1.9	5.6







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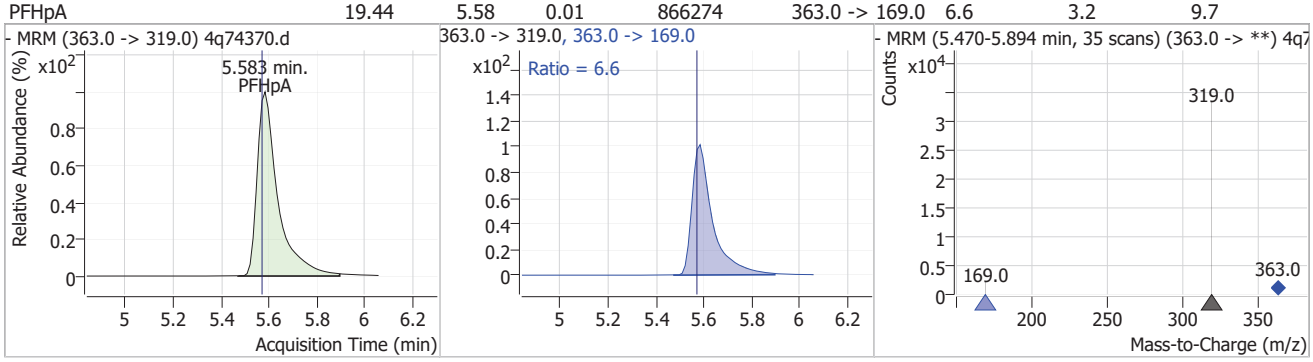
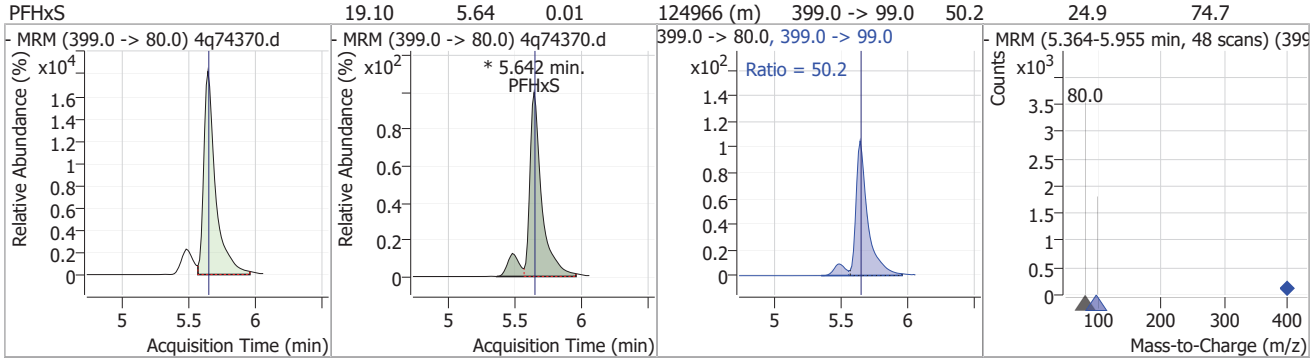
Perfluorinated Compounds by LC/MS/MS

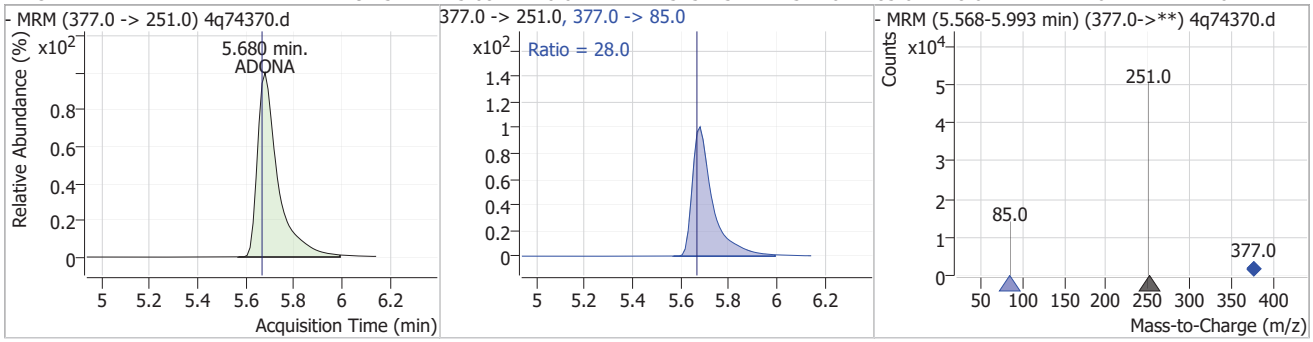
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.44	5.58	0.01	866274	363.0 -> 169.0	6.6	3.2	9.7



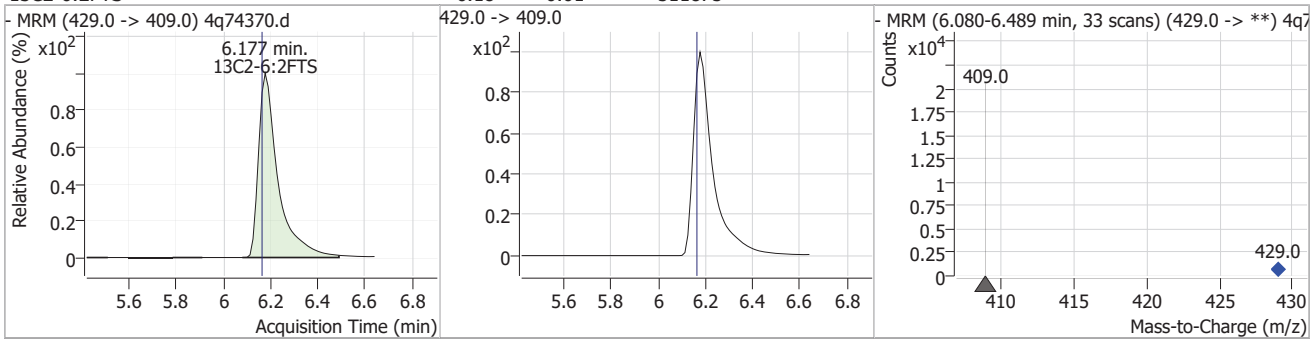
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.10	5.64	0.01	124966 (m)	399.0 -> 99.0	50.2	24.9	74.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.73	5.68	0.01	1315743	377.0 -> 85.0	28.0	14.0	42.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.18	0.01	511875				



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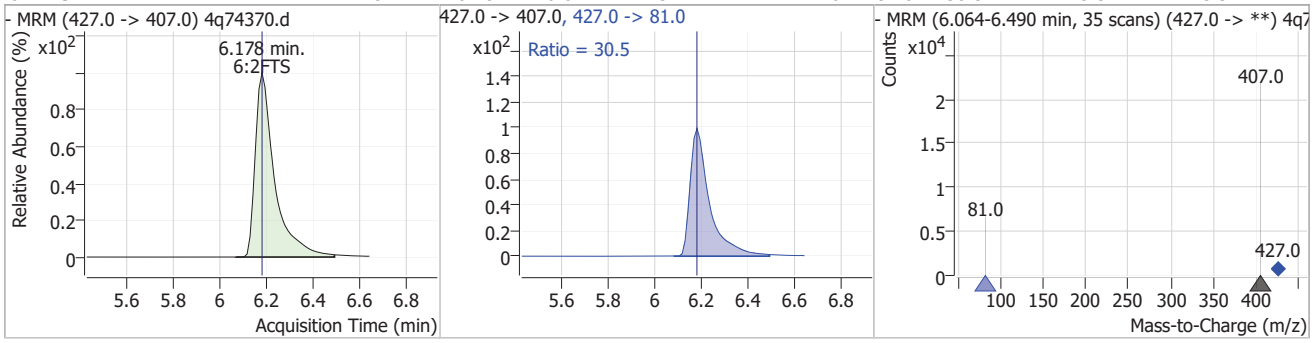
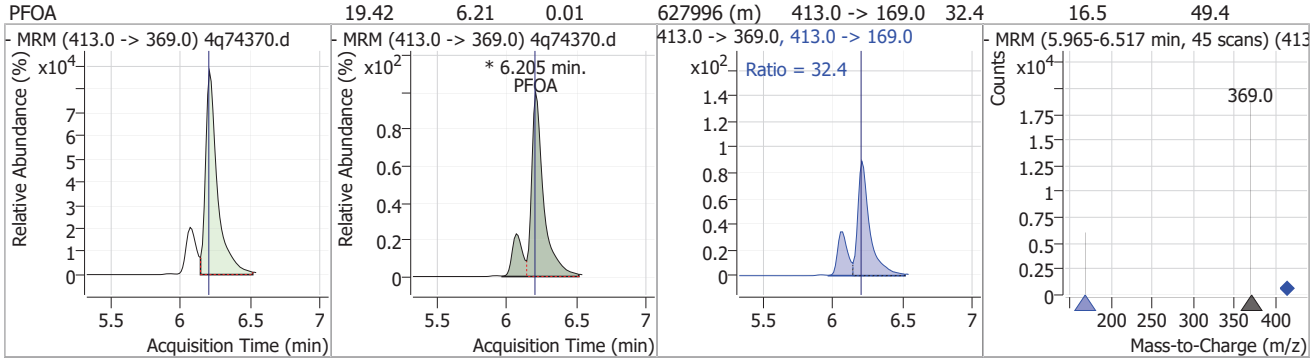
Perfluorinated Compounds by LC/MS/MS

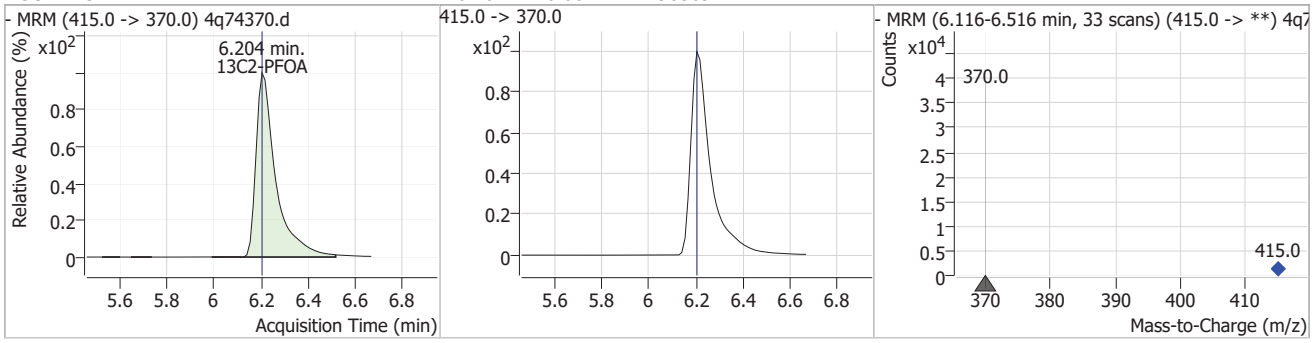
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	21.84	6.18	0.01	577724	427.0 -> 81.0	30.5	15.3	45.9



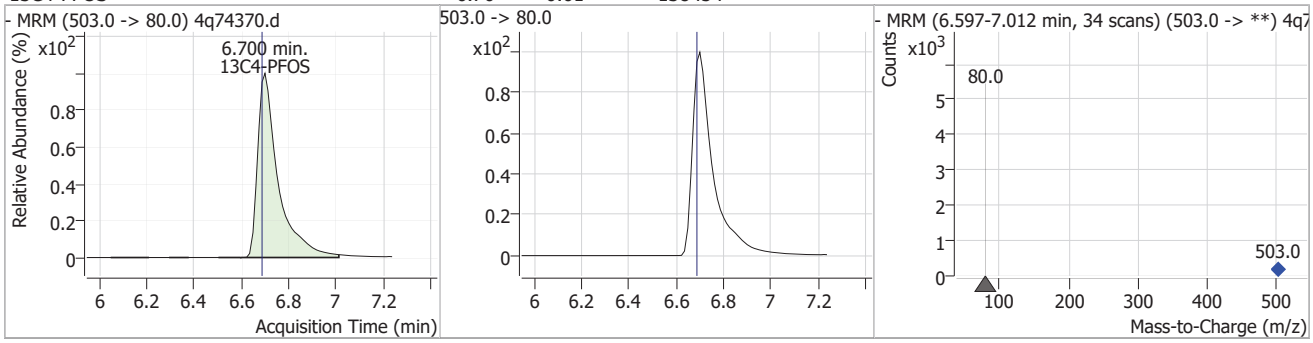
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.42	6.21	0.01	627996 (m)	413.0 -> 169.0	32.4	16.5	49.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.20	0.00	965091				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.70	0.01	138454				



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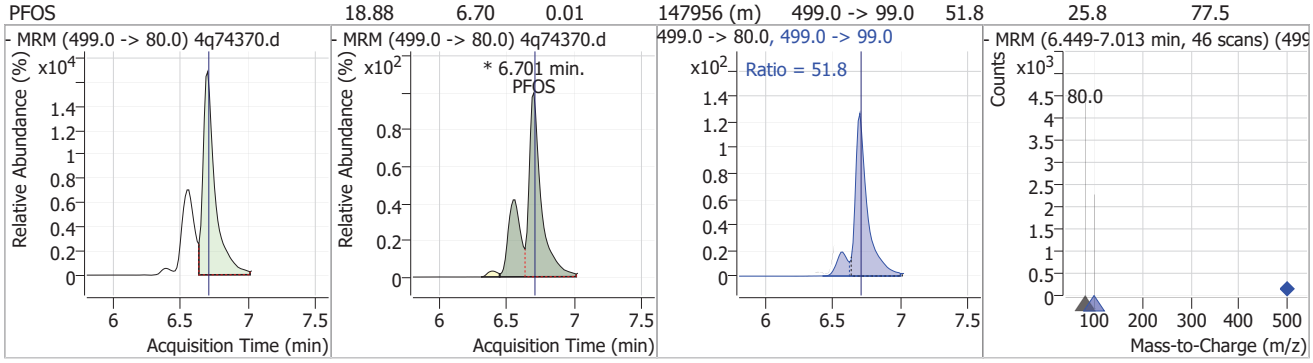
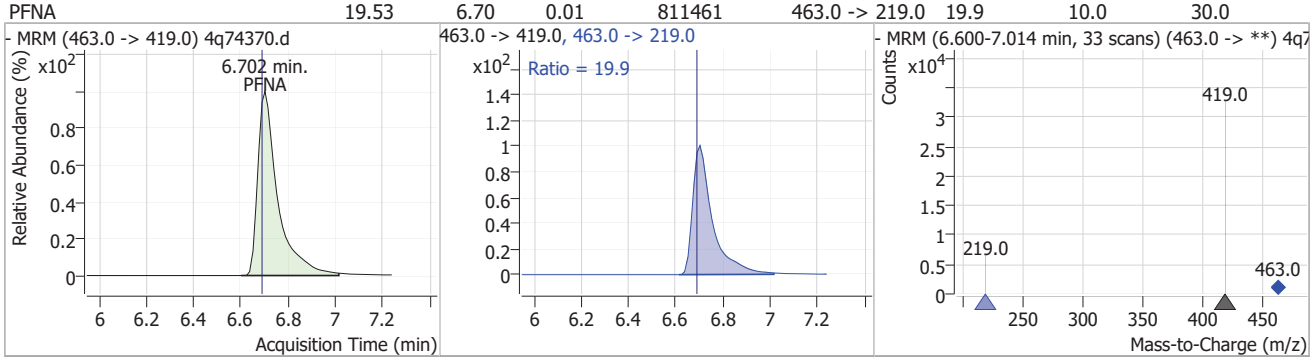
Perfluorinated Compounds by LC/MS/MS

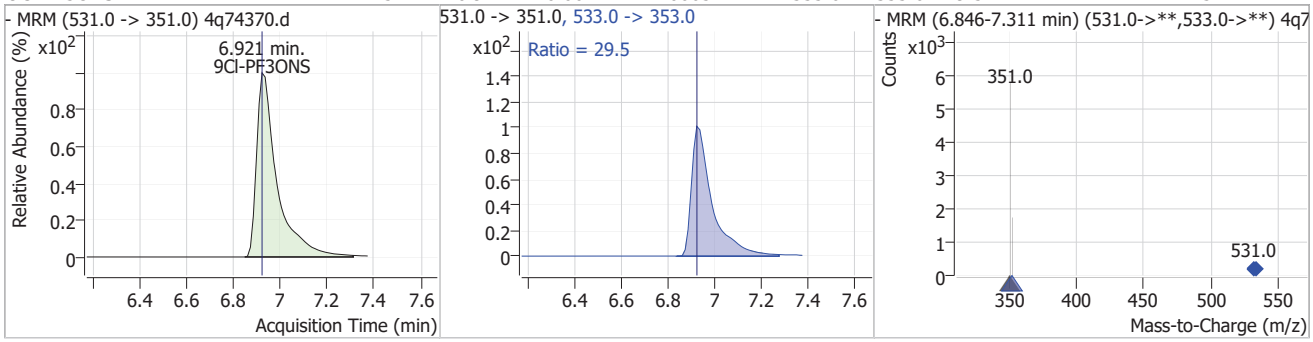
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.88	6.70	0.01	147956 (m)	499.0 -> 99.0	51.8	25.8	77.5



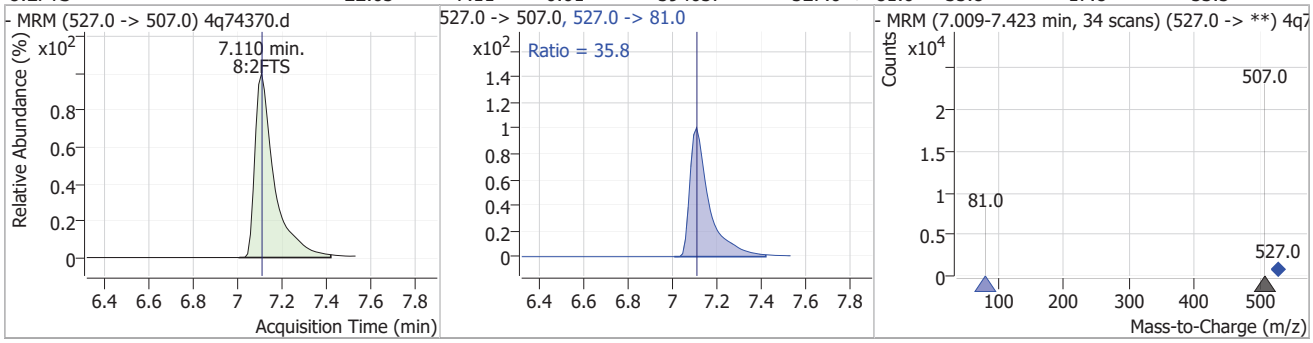
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.53	6.70	0.01	811461	463.0 -> 219.0	19.9	10.0	30.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	22.15	6.92	0.00	160057	533.0 -> 353.0	29.5	14.4	43.2

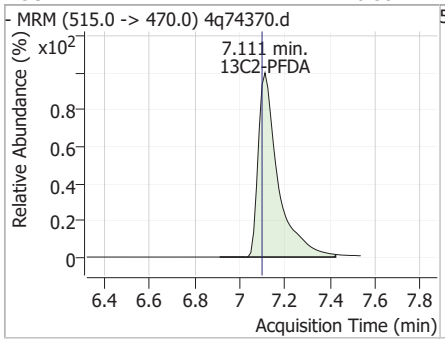


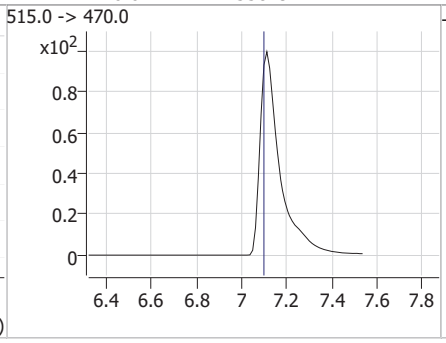
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	22.05	7.11	0.01	594057	527.0 -> 81.0	35.8	17.8	53.5

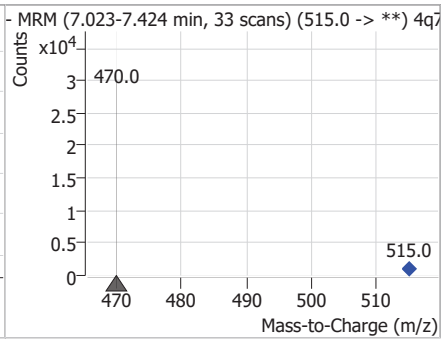


Perfluorinated Compounds by LC/MS/MS

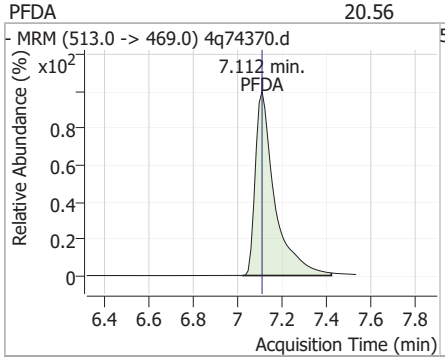
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	10.38	7.11	0.01	735849				

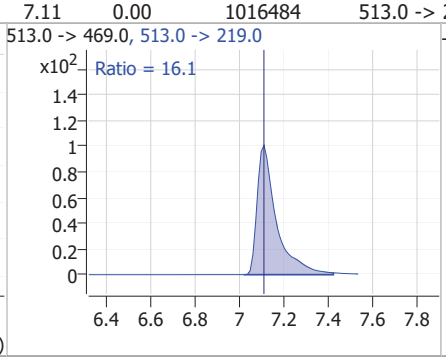


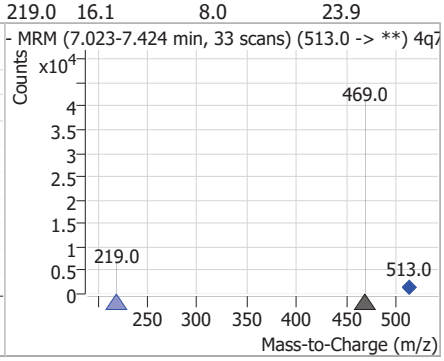




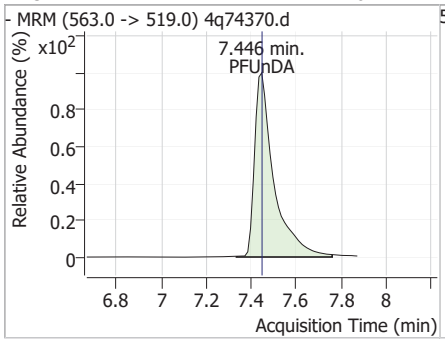
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.56	7.11	0.00	1016484	513.0 -> 219.0	16.1	8.0	23.9

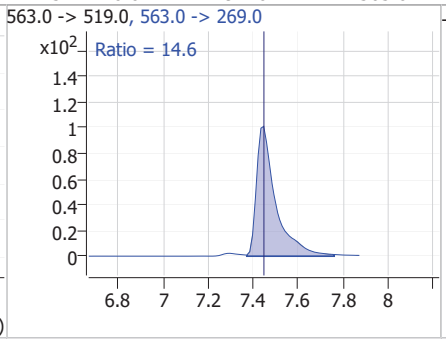


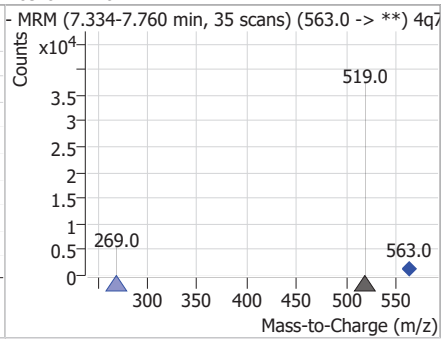




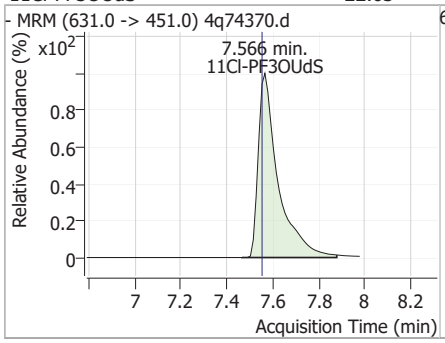
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	20.74	7.45	0.01	977022	563.0 -> 269.0	14.6	7.2	21.7

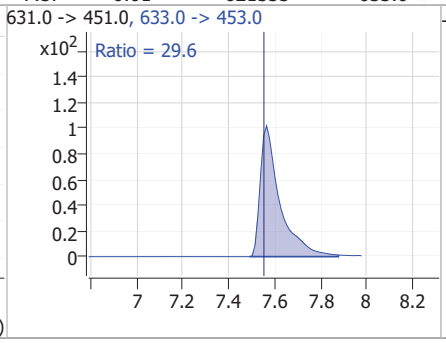


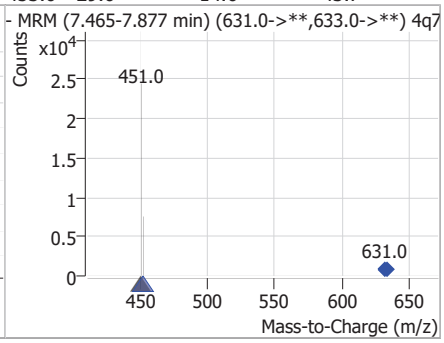




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	22.03	7.57	0.01	621355	633.0 -> 453.0	29.6	14.6	43.7







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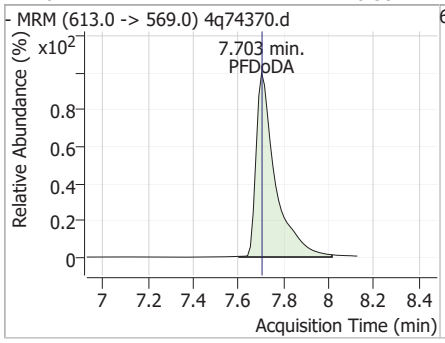
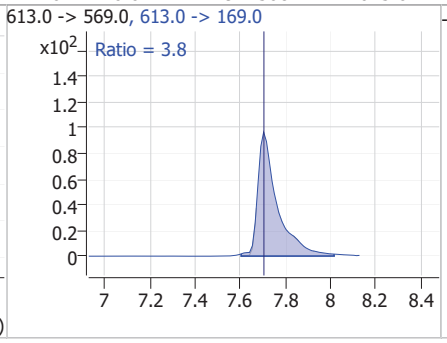
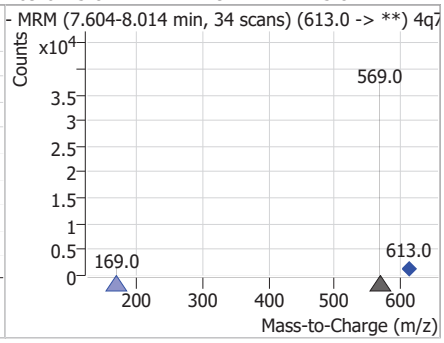
Perfluorinated Compounds by LC/MS/MS

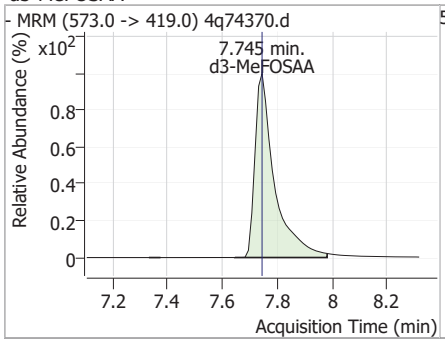
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	20.38	7.70	0.01	944308	613.0 -> 169.0	3.8	1.9	5.8

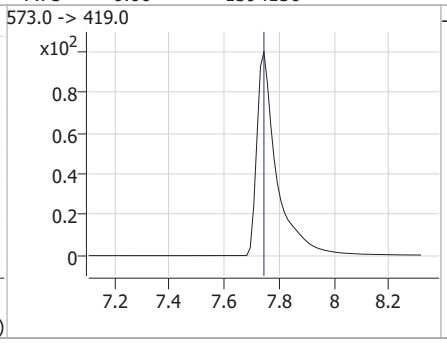


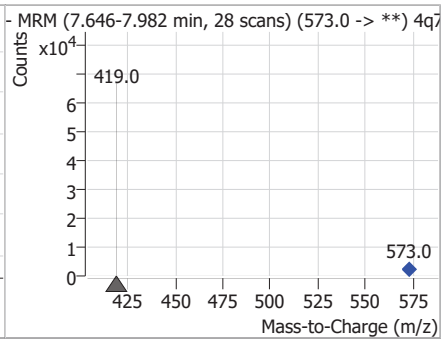




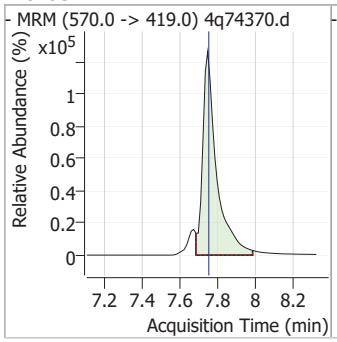
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.75	0.00	1394156				

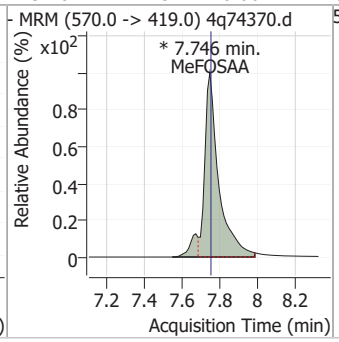


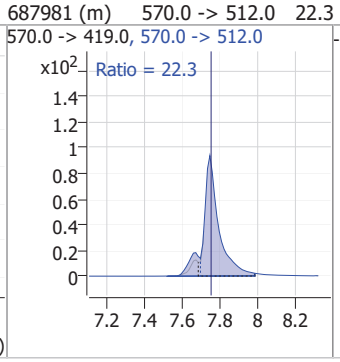


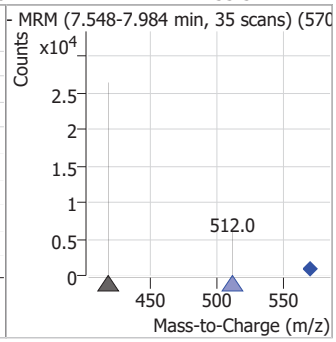


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.16	7.75	0.00	687981 (m)	570.0 -> 512.0	22.3	11.2	33.5

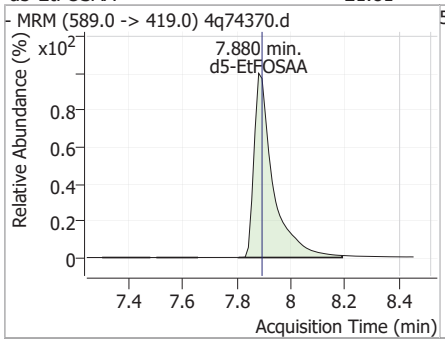


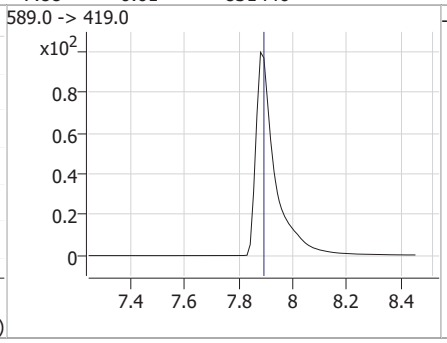


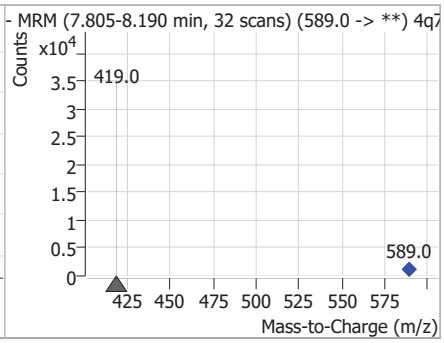




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	21.81	7.88	-0.01	831446				







7.7.26

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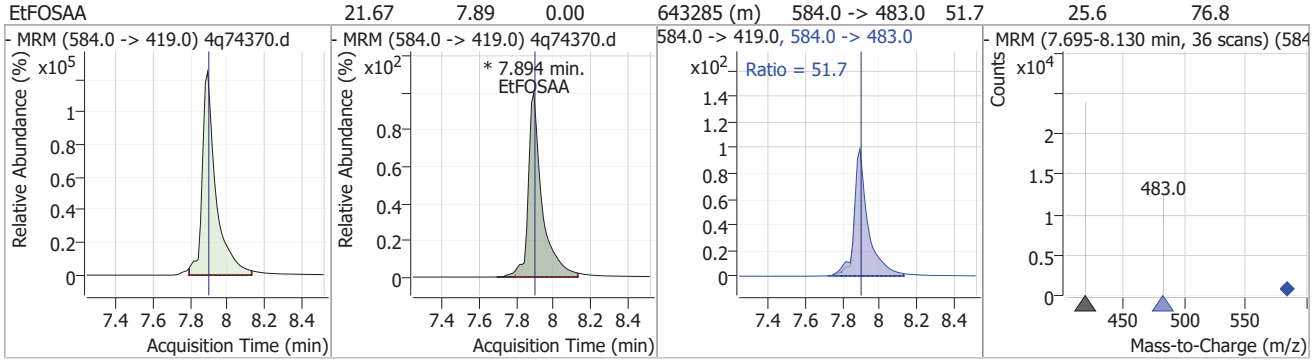
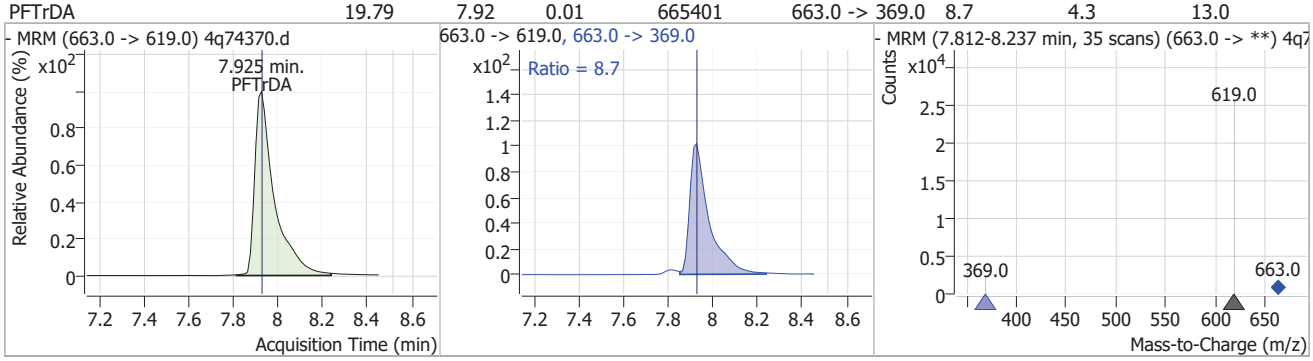
Perfluorinated Compounds by LC/MS/MS

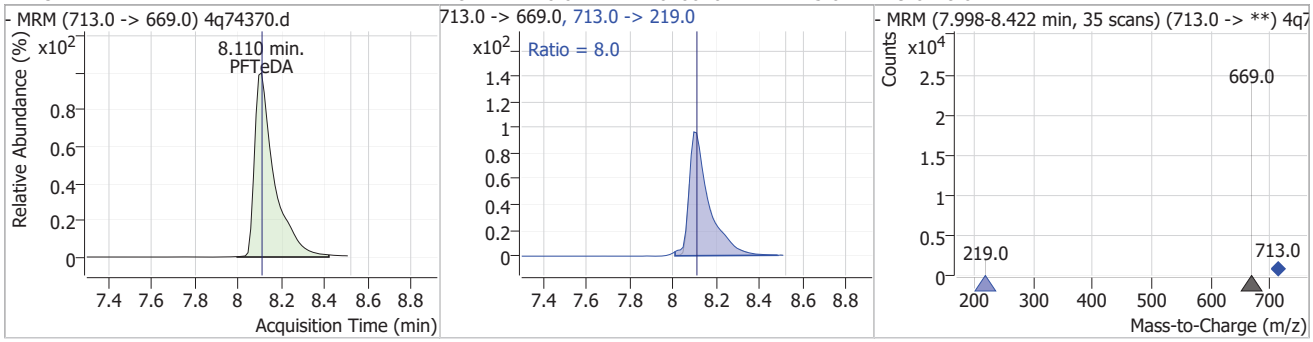
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	21.67	7.89	0.00	643285 (m)	584.0 -> 483.0	51.7	25.6	76.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	19.79	7.92	0.01	665401	663.0 -> 369.0	8.7	4.3	13.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	22.24	8.11	0.01	626026	713.0 -> 219.0	8.0	4.1	12.2



7.7.26

7

Manual Integration Approval Summary

Sample Number:	S4Q1106-CC1106	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	4Q74370.D	**Analyst approved:**	04/24/25 11:46 (b) (6)
Injection Time:	04/24/25 00:24	**Supervisor approved:**	04/24/25 12:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanoic acid	335-67-1		6.21	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.70	Split peak
MeFOSAA	2355-31-9		7.75	Split peak
EtFOSAA	2991-50-6		7.89	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/24/25 12:51

Perfluorinated Compounds by LC/MS/MS

Data File : 4q74371.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/24/2025 12:38:37 AM
Sample Name : cc1106-0.5LL
Vial : P1-A2
DA Method File : 537_042325_S4q1106.quantmethod.xml
Batch Name : s4q1106.batch.bin
Sample Information : OP8985,S4Q1106,250,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.177	429.0 -> 409.0	511676	20.00	µg/L		0.013
13C2-PFOA	6.204	415.0 -> 370.0	1020793	20.00	µg/L		0.000
13C3-PFPeA	3.132	266.0 -> 222.0	441348	20.00	µg/L		0.012
13C4-PFOS	6.700	503.0 -> 80.0	146308	20.00	µg/L		0.012
d3-MeFOSAA	7.745	573.0 -> 419.0	1526042	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.111	515.0 -> 470.0	18980	0.25	µg/L		0.013
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = 2.5%			
13C2-PFHxA	4.689	315.0 -> 270.0	6479	0.27	µg/L		0.012
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = 2.7%			
d5-EtFOSAA	7.880	589.0 -> 419.0	22452	0.55	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 2.8%			
13C3-HFPO-DA	4.972	287.0 -> 169.0	204	0.54	µg/L	m	0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 2.7%			
Target Compounds							QValue
6:2FTS	6.178	427.0 -> 407.0	14173	0.52	µg/L		92
8:2FTS	7.110	527.0 -> 507.0	16118	0.58	µg/L		98
EtFOSAA	7.894	584.0 -> 419.0	18038	0.57	µg/L	m	99
MeFOSAA	7.746	570.0 -> 419.0	18476	0.47	µg/L	m	98
PFBS	3.566	299.0 -> 80.0	3327	0.50	µg/L		95
PFDA	7.112	513.0 -> 469.0	26223	0.50	µg/L		98
PFDoDA	7.703	613.0 -> 569.0	24468	0.50	µg/L		99
PFHpA	5.583	363.0 -> 319.0	21934	0.47	µg/L		100
PFHxA	4.691	313.0 -> 269.0	7534	0.54	µg/L		100
PFHxS	5.642	399.0 -> 80.0	3256	0.47	µg/L	m	100
PFNA	6.702	463.0 -> 419.0	21120	0.48	µg/L		98
PFOA	6.205	413.0 -> 369.0	16769	0.49	µg/L	m	99
PFOS	6.701	499.0 -> 80.0	4233	0.51	µg/L	m	98
PFPeA	3.135	263.0 -> 219.0	12869	0.47	µg/L		100
PFTeDA	8.110	713.0 -> 669.0	16321	0.59	µg/L		99
PFTrDA	7.925	663.0 -> 619.0	17225	0.48	µg/L		99
PFUnDA	7.446	563.0 -> 519.0	26984	0.54	µg/L		99
ADONA	5.680	377.0 -> 251.0	34048	0.48	µg/L		98
9Cl-PF3ONS	6.934	531.0 -> 351.0	3911	0.54	µg/L		95
11Cl-PF3OUdS	7.566	631.0 -> 451.0	16206	0.56	µg/L		100
HFPO-DA	4.973	285.0 -> 169.0	165	0.52	µg/L	#m	74

 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.27
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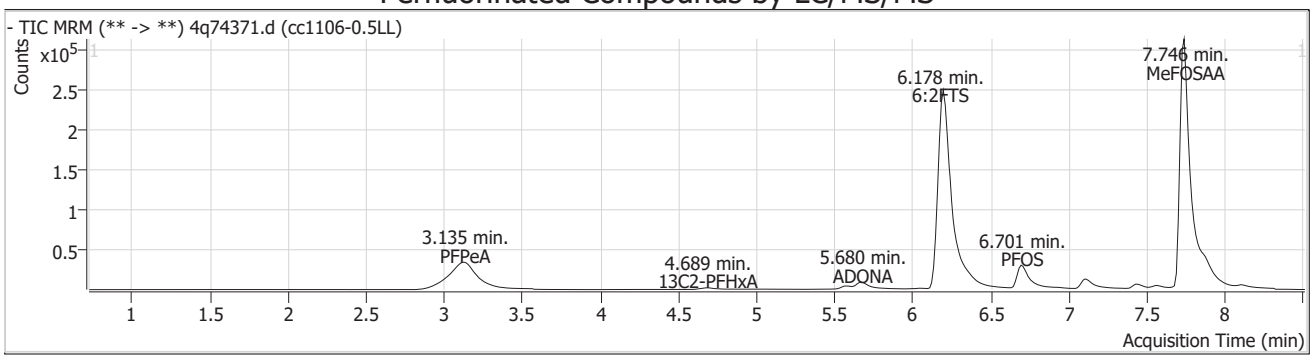
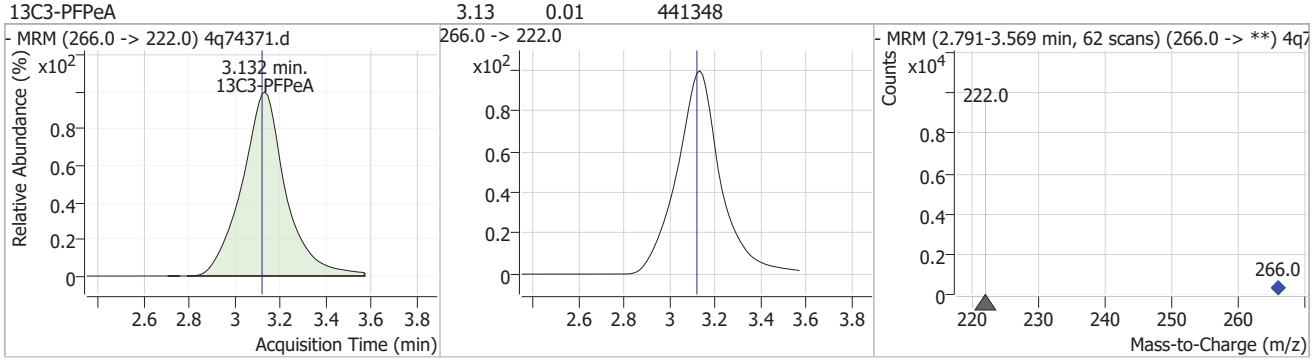
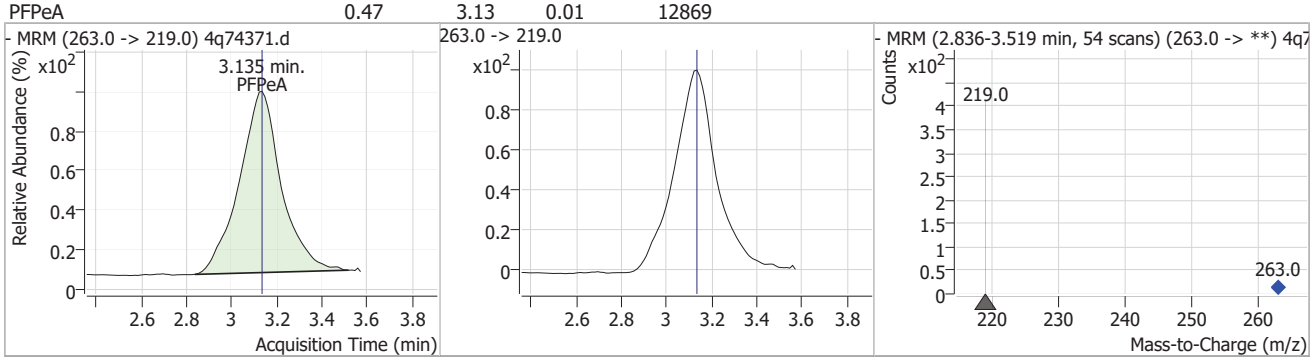
Perfluorinated Compounds by LC/MS/MS



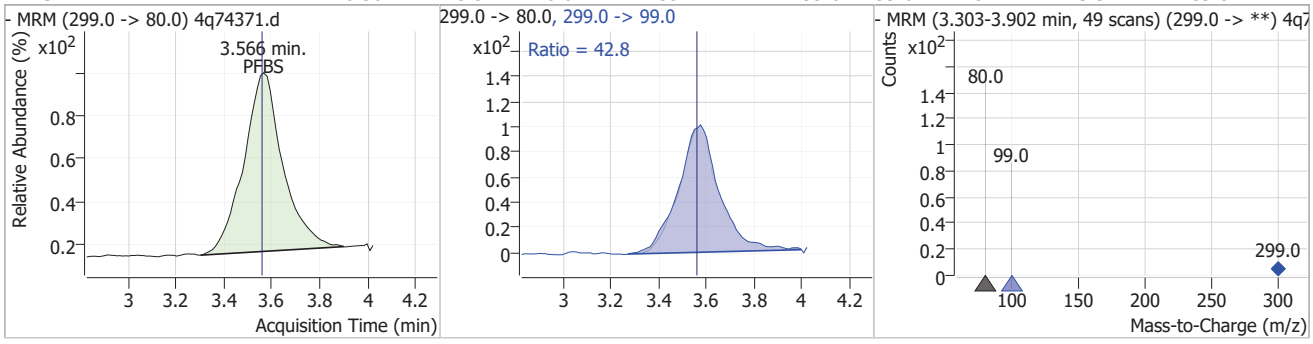
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.13	0.01	441348				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.47	3.13	0.01	12869				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.50	3.57	0.01	3327	299.0 -> 99.0	42.8	19.9	59.8

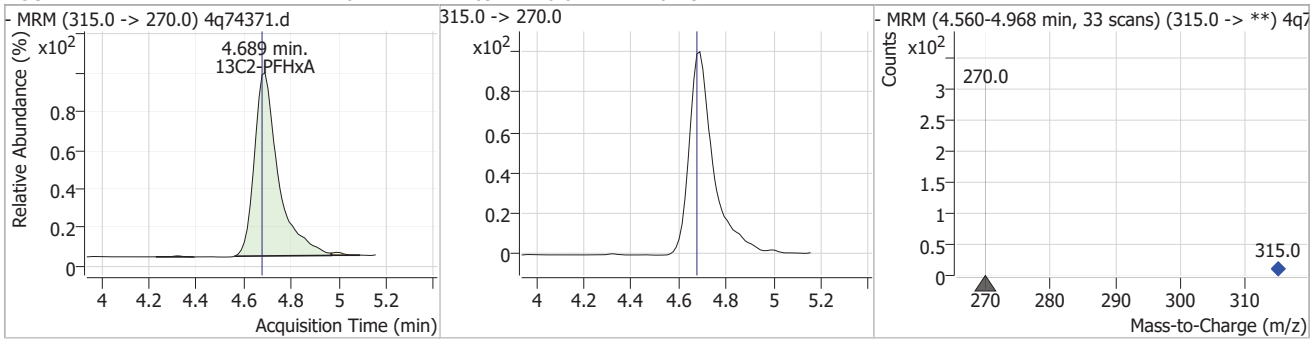


7.7.27

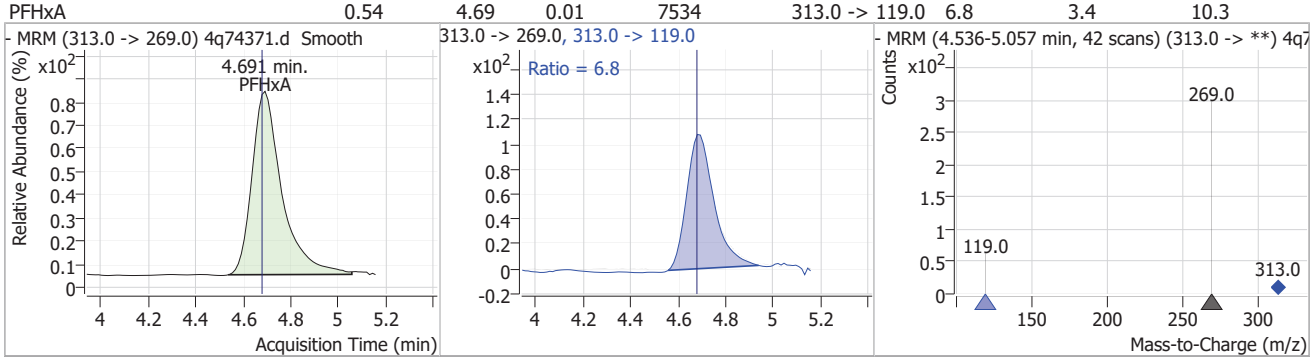
7

Perfluorinated Compounds by LC/MS/MS

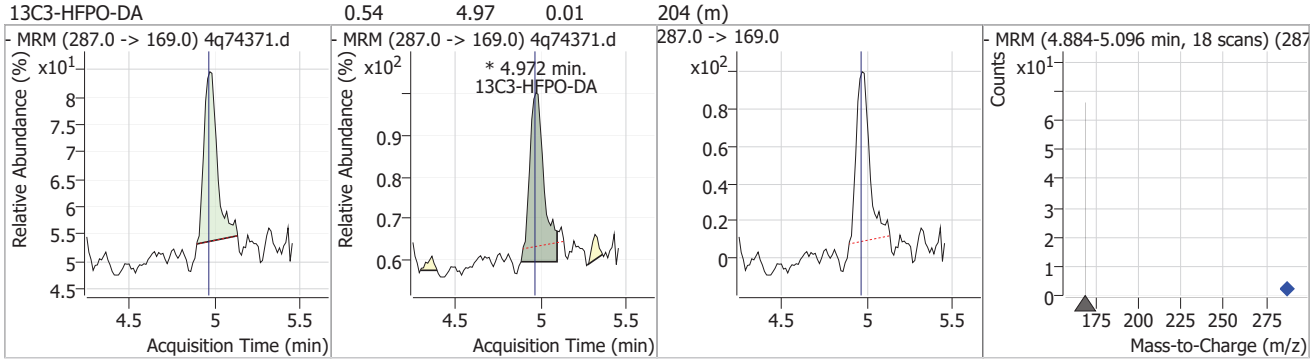
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.27	4.69	0.01	6479				



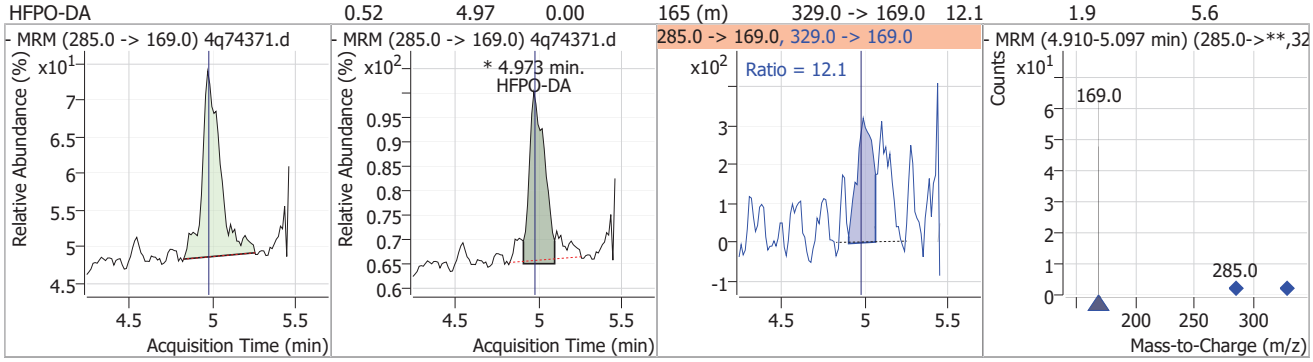
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.54	4.69	0.01	7534	313.0 -> 119.0	6.8	3.4	10.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.54	4.97	0.01	204 (m)				

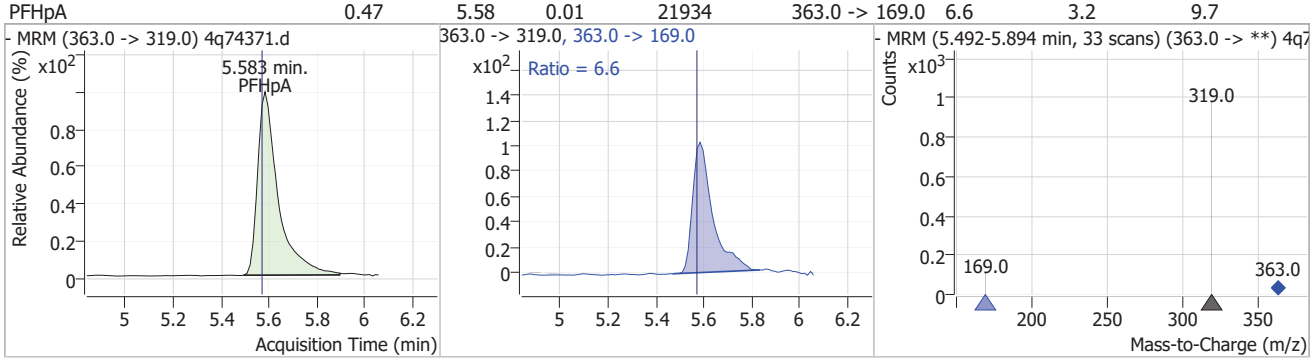


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.52	4.97	0.00	165 (m)	329.0 -> 169.0	12.1	1.9	5.6

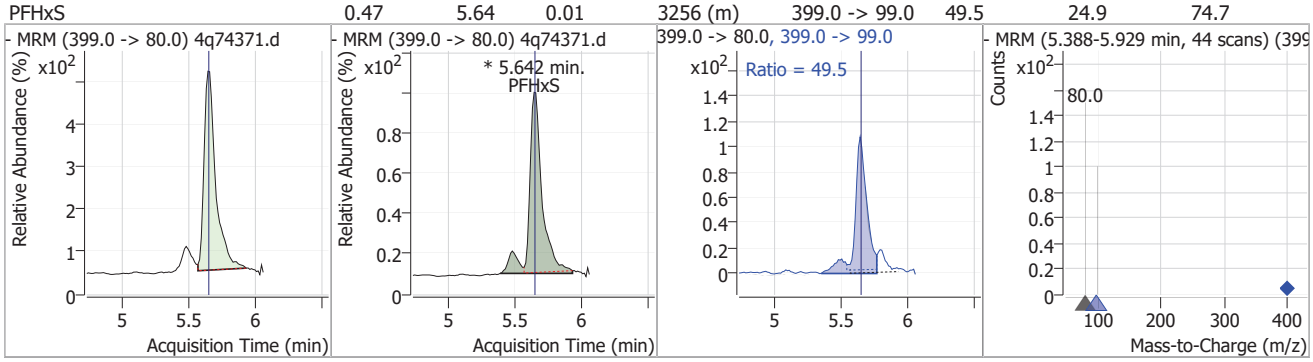


Perfluorinated Compounds by LC/MS/MS

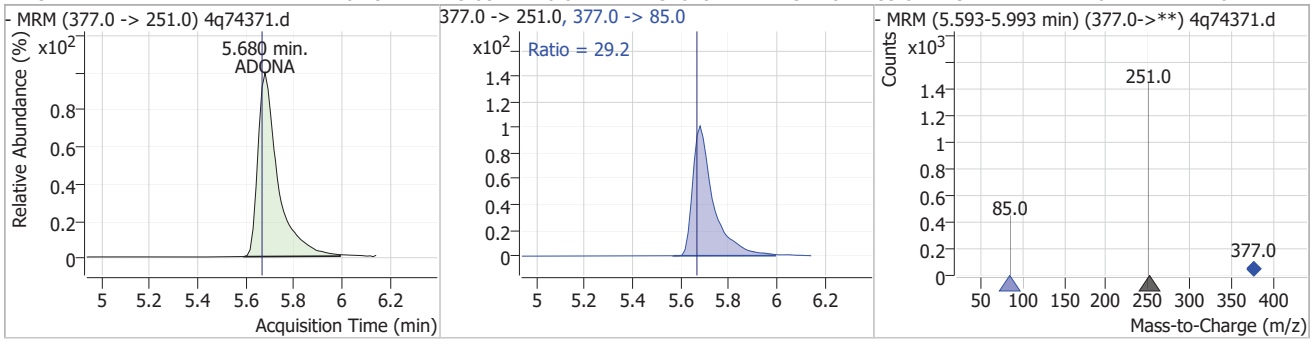
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.47	5.58	0.01	21934	363.0 -> 169.0	6.6	3.2	9.7



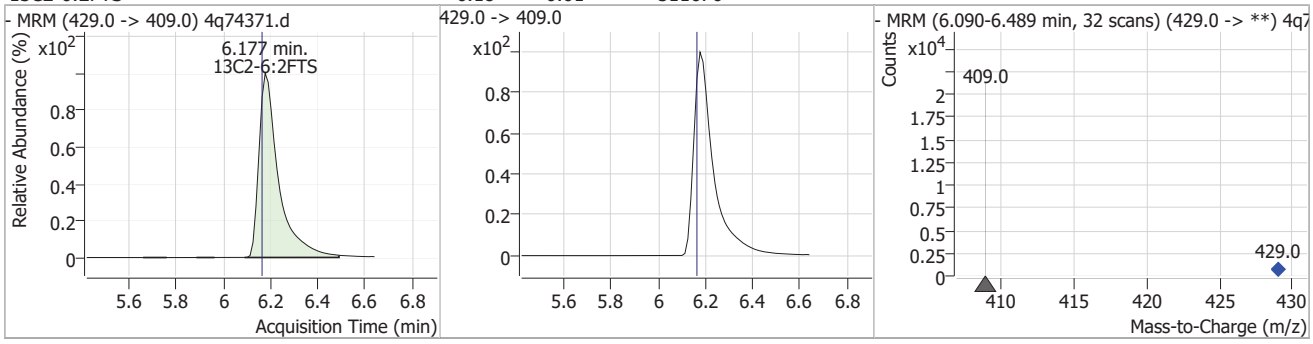
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.47	5.64	0.01	3256 (m)	399.0 -> 99.0	49.5	24.9	74.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.48	5.68	0.01	34048	377.0 -> 85.0	29.2	14.0	42.0

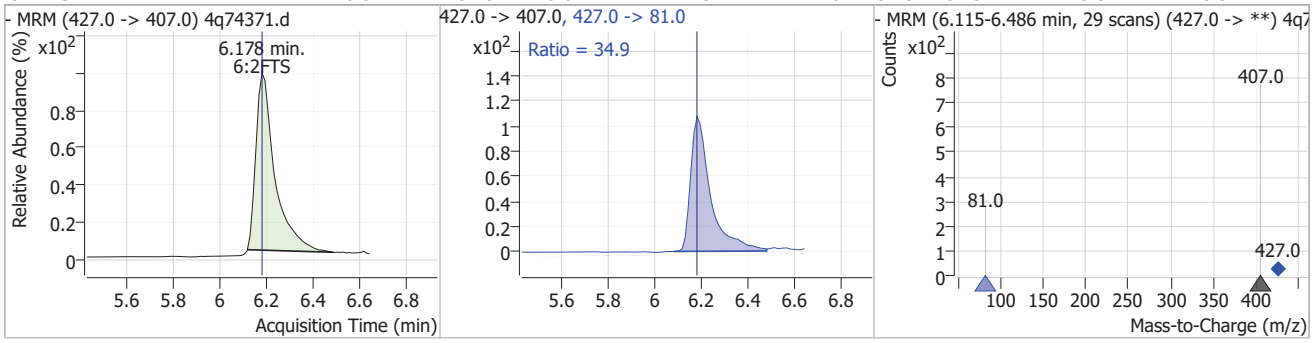


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.18	0.01	511676				

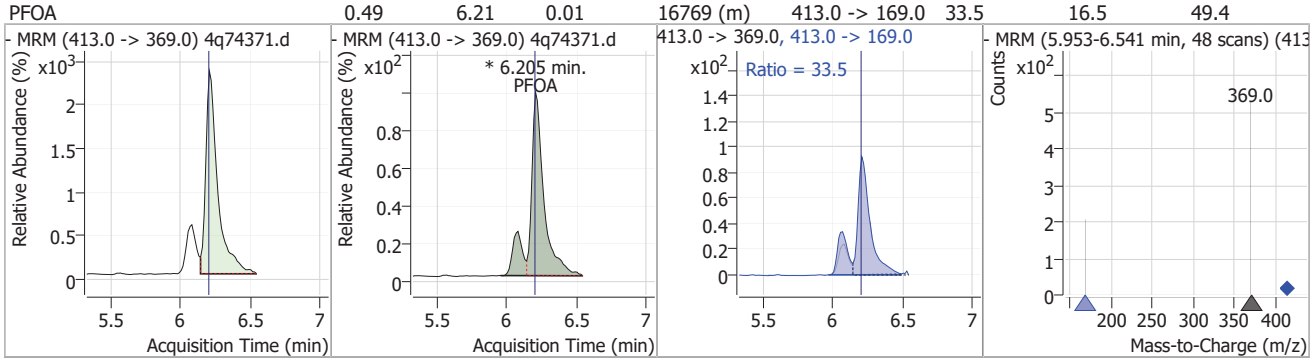


Perfluorinated Compounds by LC/MS/MS

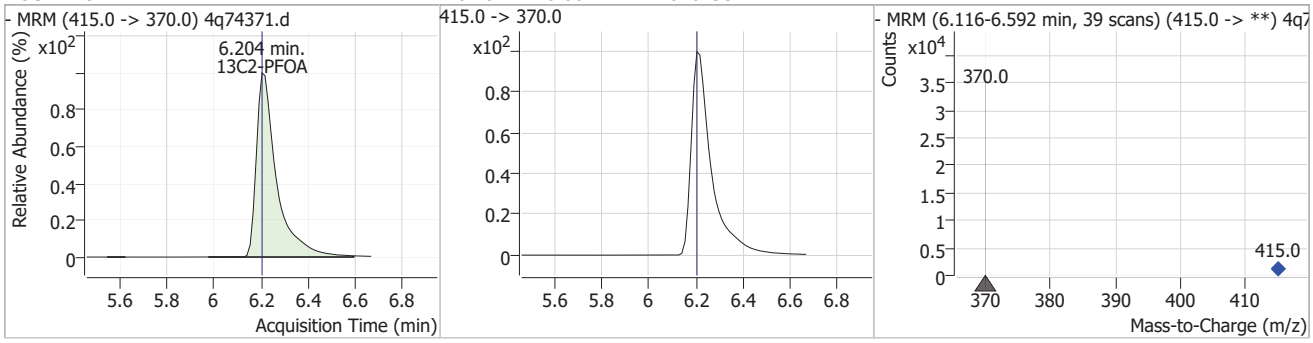
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.52	6.18	0.01	14173	427.0 -> 81.0	34.9	15.3	45.9



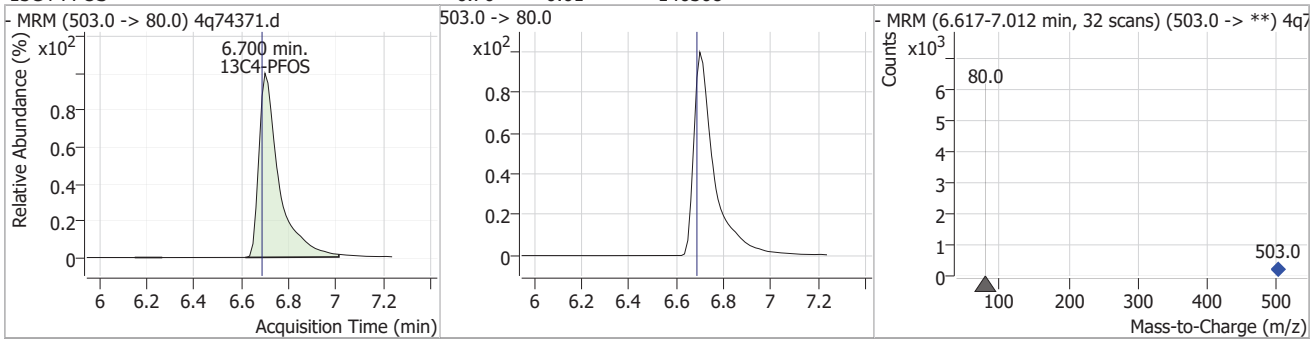
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.49	6.21	0.01	16769 (m)	413.0 -> 169.0	33.5	16.5	49.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.20	0.00	1020793				

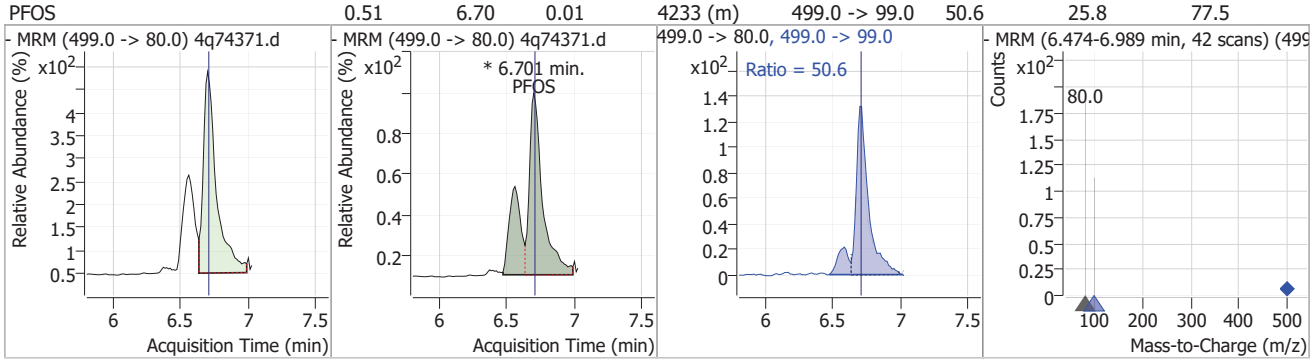


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.70	0.01	146308				

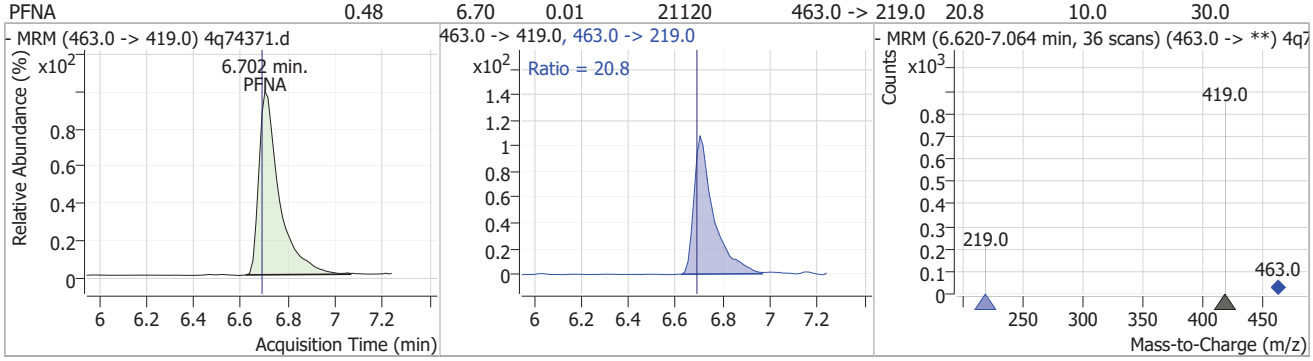


Perfluorinated Compounds by LC/MS/MS

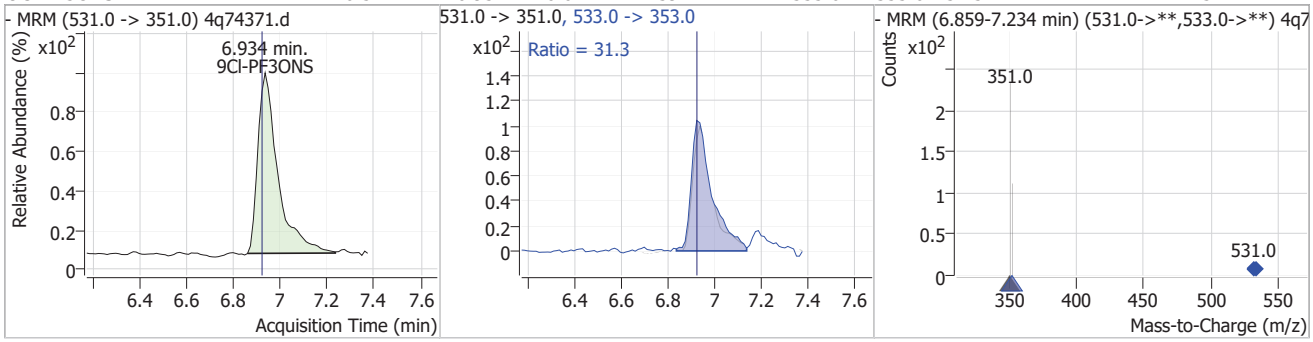
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.51	6.70	0.01	4233 (m)	499.0 -> 99.0	50.6	25.8	77.5



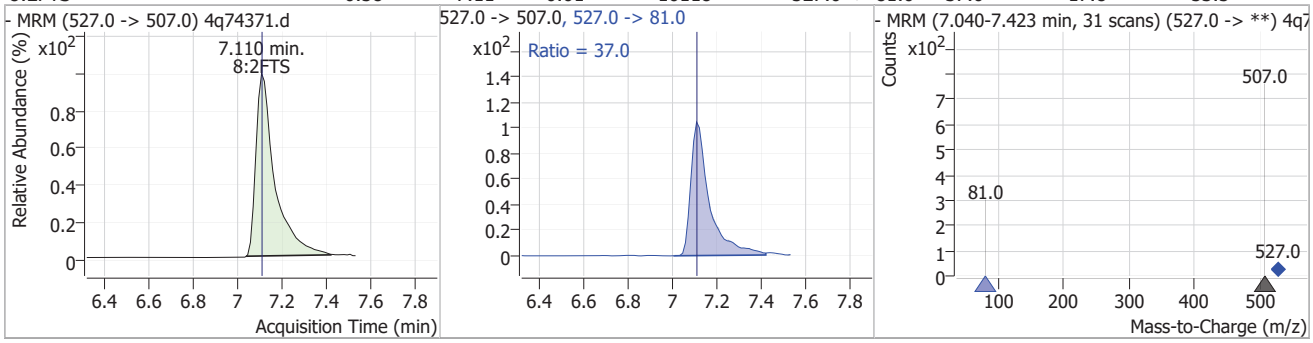
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.48	6.70	0.01	21120	463.0 -> 219.0	20.8	10.0	30.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.54	6.93	0.01	3911	533.0 -> 353.0	31.3	14.4	43.2

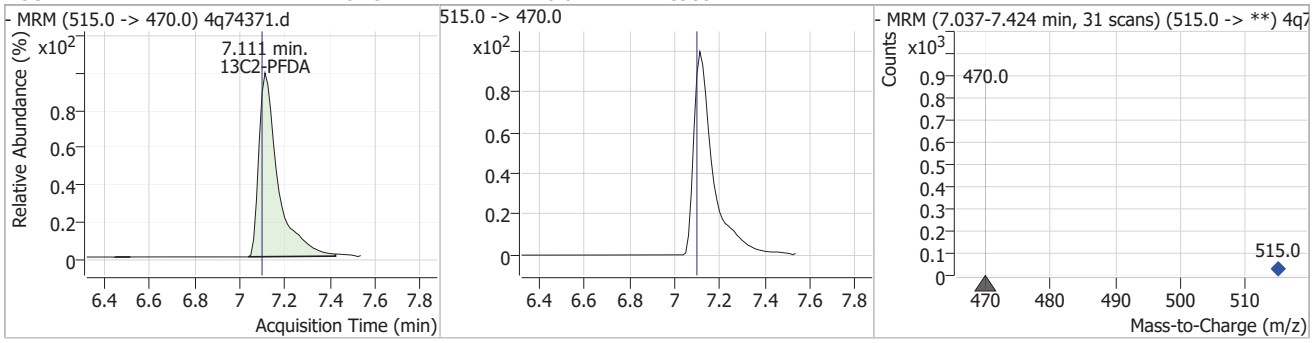


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.58	7.11	0.01	16118	527.0 -> 81.0	37.0	17.8	53.5

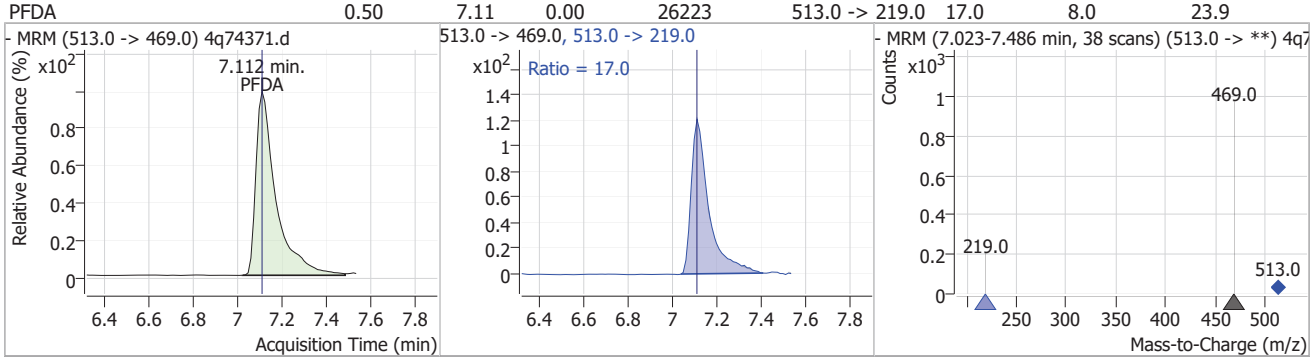


Perfluorinated Compounds by LC/MS/MS

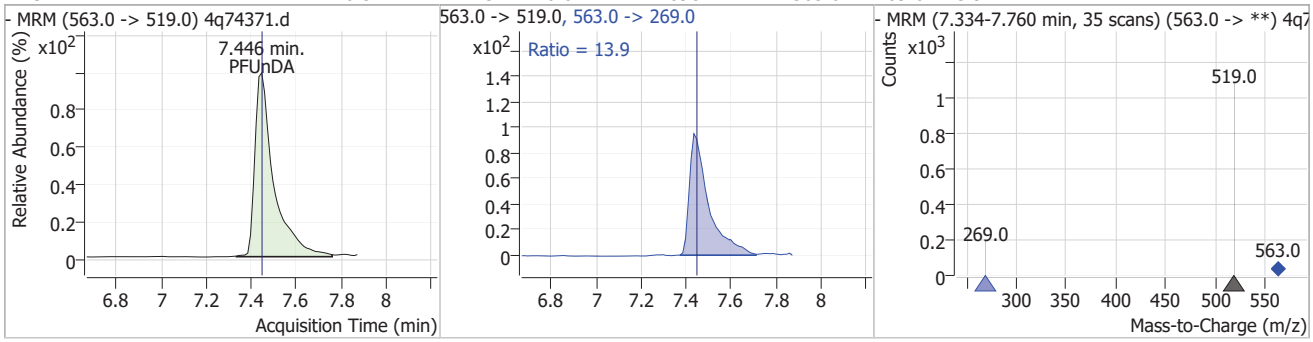
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.25	7.11	0.01	18980				



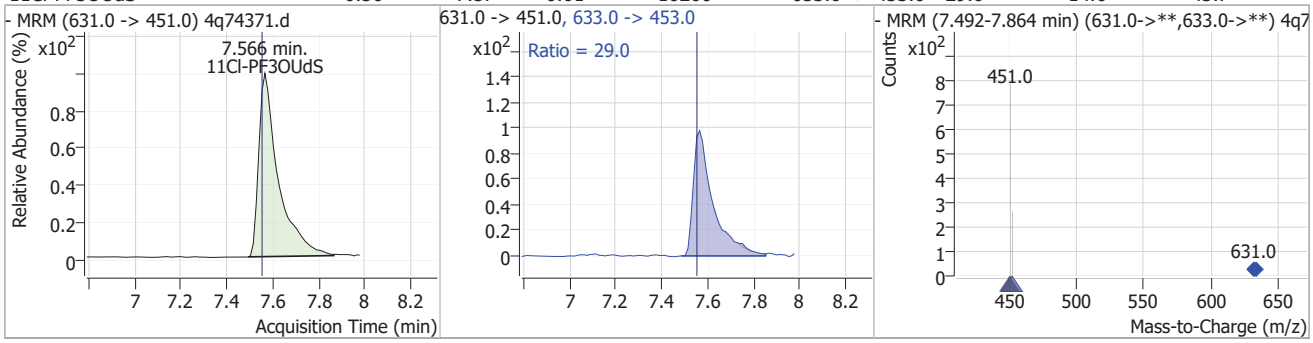
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.50	7.11	0.00	26223	513.0 -> 219.0	17.0	8.0	23.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.54	7.45	0.01	26984	563.0 -> 269.0	13.9	7.2	21.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.56	7.57	0.01	16206	633.0 -> 453.0	29.0	14.6	43.7



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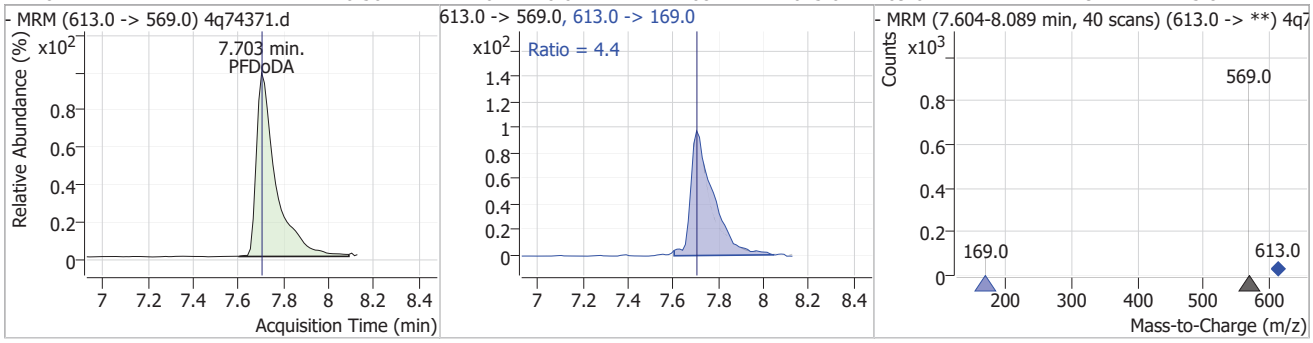
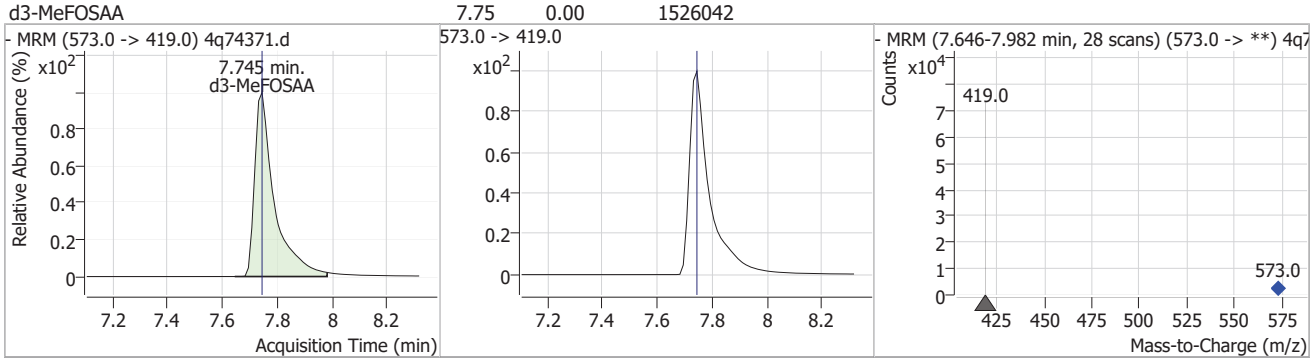
Perfluorinated Compounds by LC/MS/MS

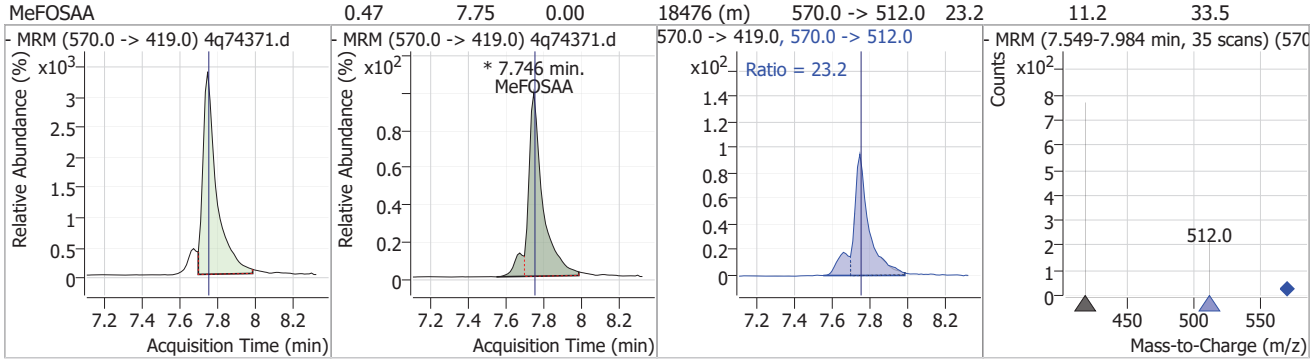
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.50	7.70	0.01	24468	613.0 -> 169.0	4.4	1.9	5.8



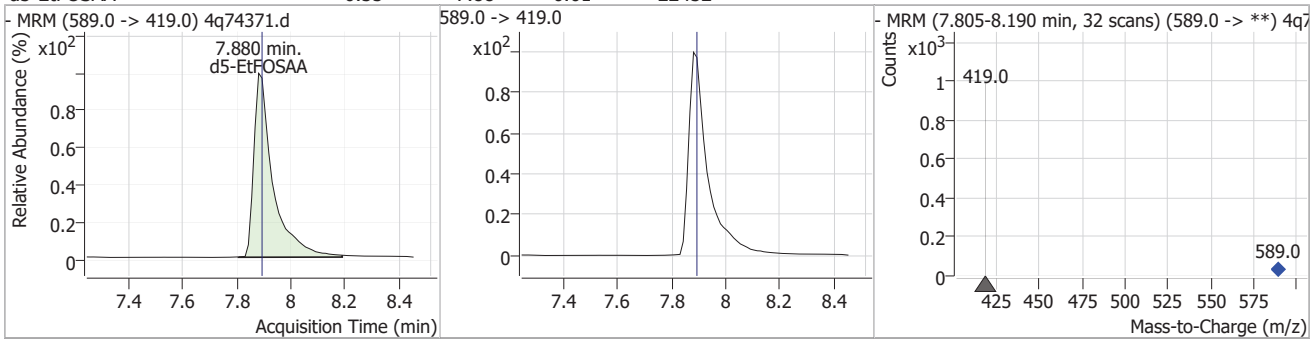
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.75	0.00	1526042				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.47	7.75	0.00	18476 (m)	570.0 -> 512.0	23.2	11.2	33.5

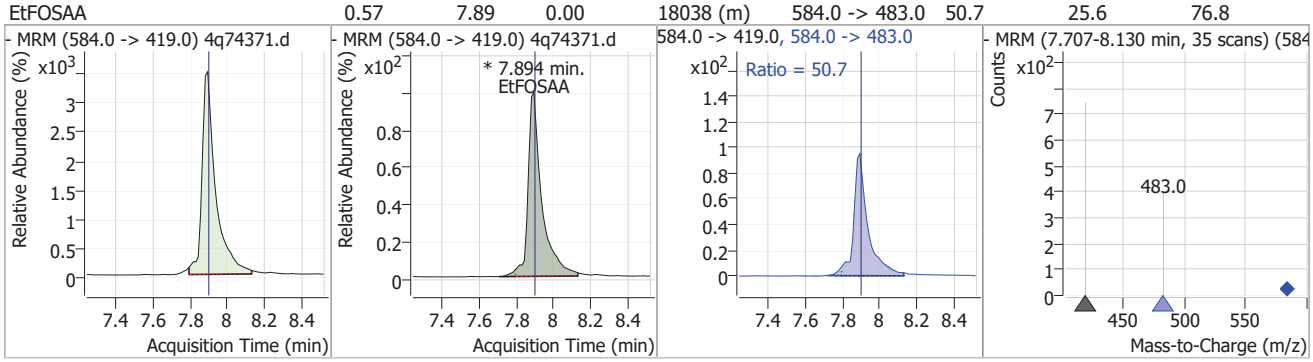


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	0.55	7.88	-0.01	22452				

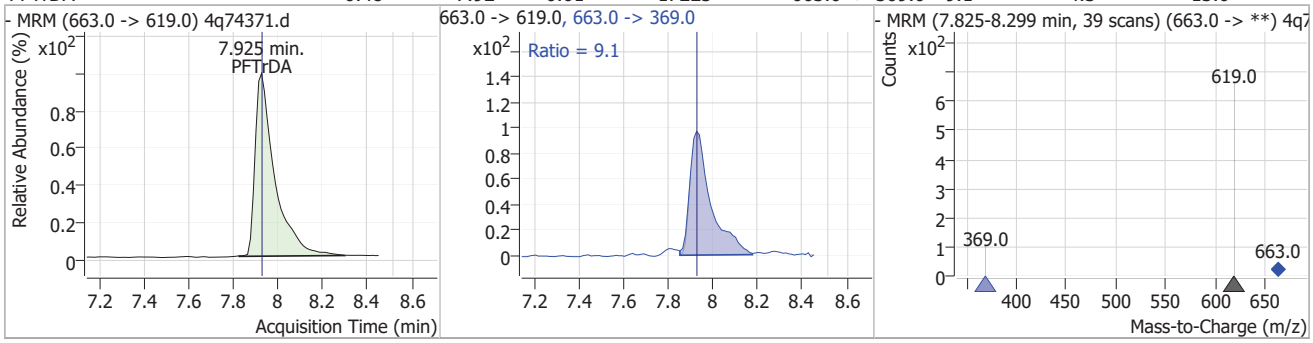


Perfluorinated Compounds by LC/MS/MS

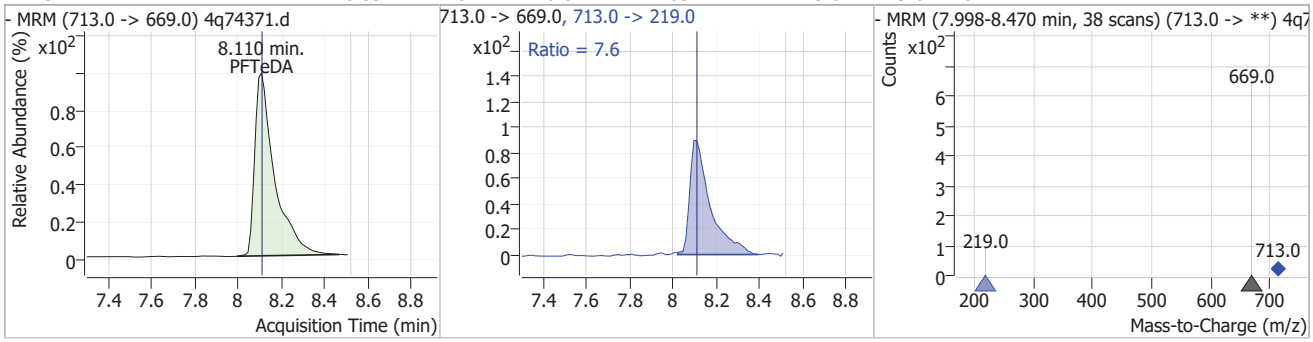
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.57	7.89	0.00	18038 (m)	584.0 -> 483.0	50.7	25.6	76.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.48	7.92	0.01	17225	663.0 -> 369.0	9.1	4.3	13.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.59	8.11	0.01	16321	713.0 -> 219.0	7.6	4.1	12.2



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Manual Integration Approval Summary

Sample Number: S4Q1106-CC1106
Lab FileID: 4Q74371.D
Injection Time: 04/24/25 00:38
Method: EPA 537.1 REV 2.0
Analyst approved: 04/24/25 11:46 (b) (6)
Supervisor approved: 04/24/25 12:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C3-HFPO-DA			4.97	Poor instrument integration
HFPO-DA (GenX)	13252-13-6		4.97	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanoic acid	335-67-1		6.21	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.70	Split peak
MeFOSAA	2355-31-9		7.75	Split peak
EtFOSAA	2991-50-6		7.89	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/24/25 12:51

Perfluorinated Compounds by LC/MS/MS

Data File : 4q74382.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/24/2025 3:15:35 AM
Sample Name : ecc1106-20
Vial : P1-A7
DA Method File : 537_042325_S4q1106.quantmethod.xml
Batch Name : s4q1106.batch.bin
Sample Information : OP8985,S4Q1106,250,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.189	429.0 -> 409.0	522823	20.00 µg/L		0.026
13C2-PFOA	6.229	415.0 -> 370.0	968409	20.00 µg/L		0.025
13C3-PFPeA	3.144	266.0 -> 222.0	419179	20.00 µg/L		0.025
13C4-PFOS	6.724	503.0 -> 80.0	140180	20.00 µg/L		0.037
d3-MeFOSAA	7.745	573.0 -> 419.0	1402431	40.00 µg/L		0.000
System Monitoring Compounds						
13C2-PFDA	7.136	515.0 -> 470.0	722682	10.16 µg/L		0.038
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = 101.6%		
13C2-PFHxA	4.689	315.0 -> 270.0	244334	10.71 µg/L		0.012
Spiked Amount: 10.00	Range: 70.0 - 130.0%			Recovery = 107.1%		
d5-EtFOSAA	7.893	589.0 -> 419.0	819747	21.39 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 106.9%		
13C3-HFPO-DA	4.984	287.0 -> 169.0	6717	18.66 µg/L		0.025
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 93.3%		
Target Compounds						QValue
6:2FTS	6.190	427.0 -> 407.0	589639	21.83 µg/L		99
8:2FTS	7.135	527.0 -> 507.0	603858	21.94 µg/L		99
EtFOSAA	7.894	584.0 -> 419.0	645322	21.61 µg/L	m	99
MeFOSAA	7.746	570.0 -> 419.0	694903	19.24 µg/L	m	99
PFBS	3.581	299.0 -> 80.0	126218	19.85 µg/L		100
PFDA	7.137	513.0 -> 469.0	1027056	20.70 µg/L		99
PFDoDA	7.728	613.0 -> 569.0	948971	20.23 µg/L		100
PFHpA	5.595	363.0 -> 319.0	866459	19.38 µg/L		100
PFHxA	4.703	313.0 -> 269.0	280834	21.15 µg/L		99
PFHxS	5.655	399.0 -> 80.0	126744	19.13 µg/L	m	100
PFNA	6.727	463.0 -> 419.0	815942	19.58 µg/L		100
PFOA	6.218	413.0 -> 369.0	632499	19.49 µg/L	m	100
PFOS	6.713	499.0 -> 80.0	149061	18.78 µg/L	m	99
PFPeA	3.147	263.0 -> 219.0	509656	19.52 µg/L		100
PFTeDA	8.135	713.0 -> 669.0	629616	22.10 µg/L		100
PFTrDA	7.949	663.0 -> 619.0	670113	19.69 µg/L		100
PFUnDA	7.471	563.0 -> 519.0	986729	20.69 µg/L		100
ADONA	5.693	377.0 -> 251.0	1324049	19.78 µg/L		100
9Cl-PF3ONS	6.946	531.0 -> 351.0	159958	22.07 µg/L		98
11Cl-PF3OUdS	7.590	631.0 -> 451.0	617620	21.83 µg/L		99
HFPO-DA	4.998	285.0 -> 169.0	6621	21.17 µg/L		98

 # = Qualifier out of range, m = manually integrated, + = Area summed

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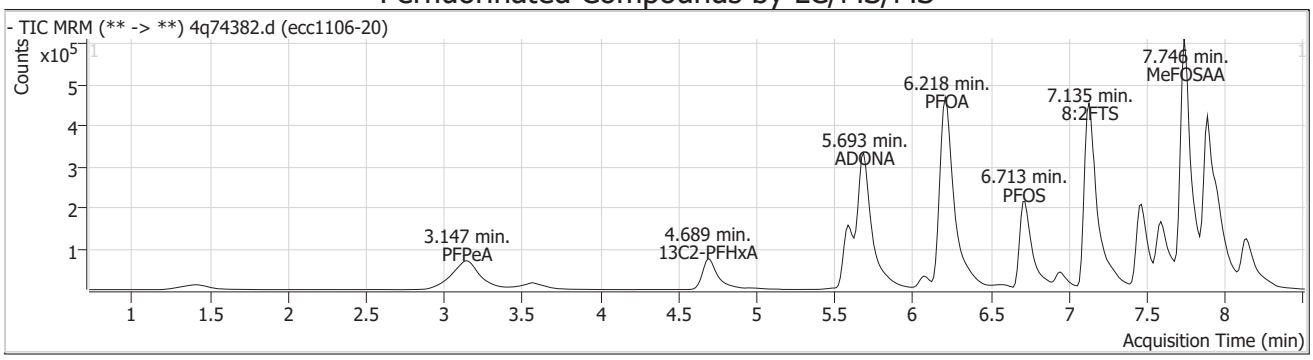
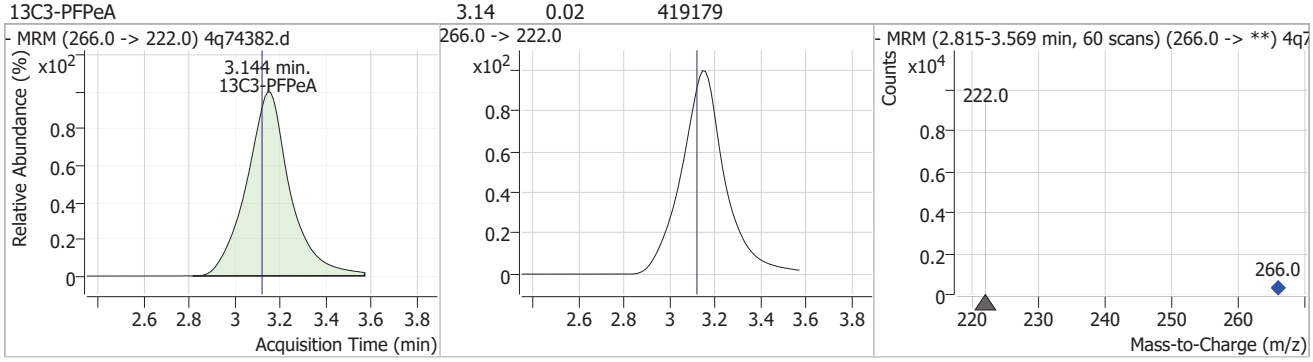
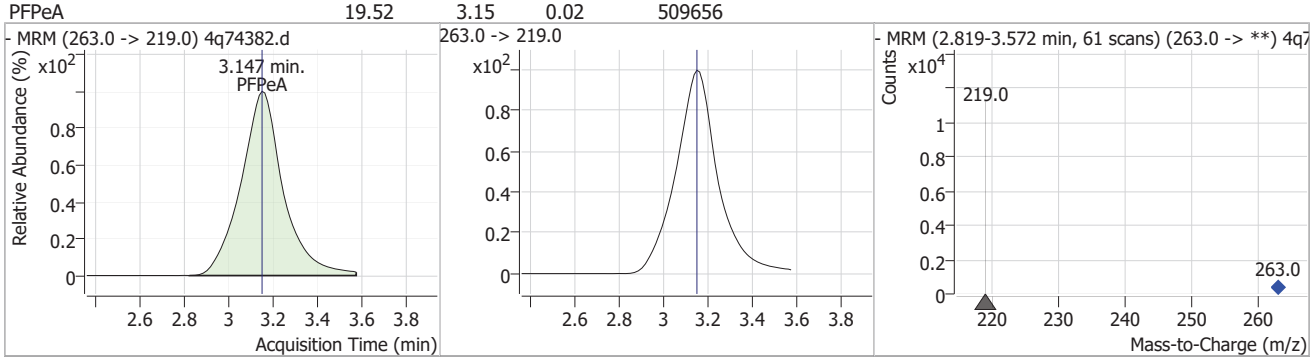
Perfluorinated Compounds by LC/MS/MS



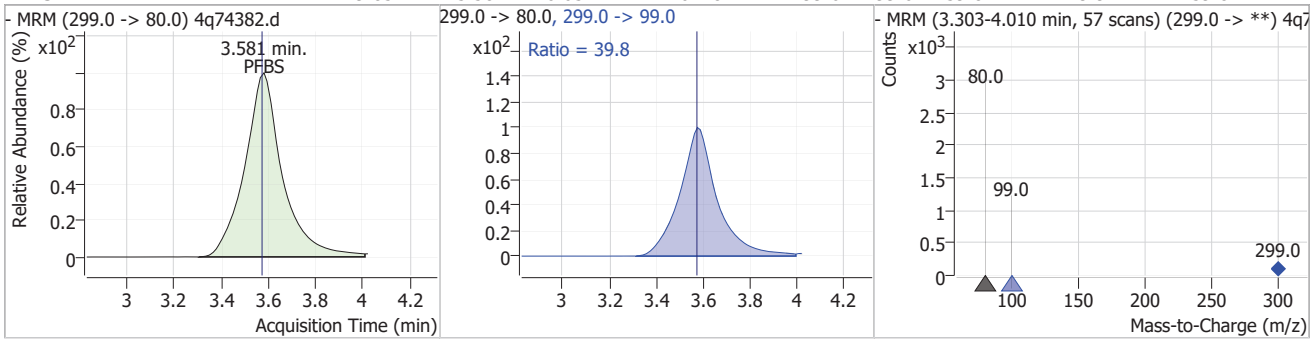
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.14	0.02	419179				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.52	3.15	0.02	509656				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.85	3.58	0.03	126218	299.0 -> 99.0	39.8	19.9	59.8



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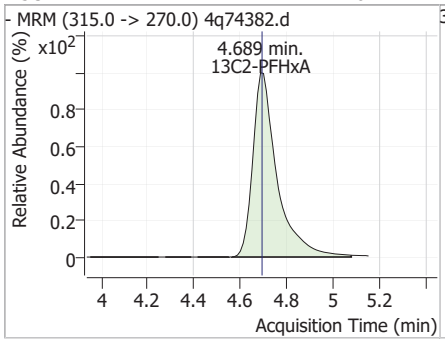
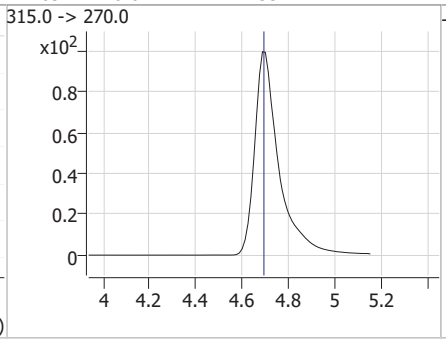
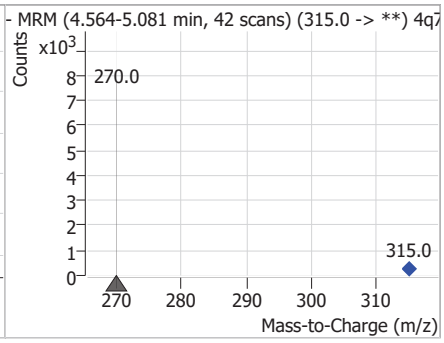
Perfluorinated Compounds by LC/MS/MS

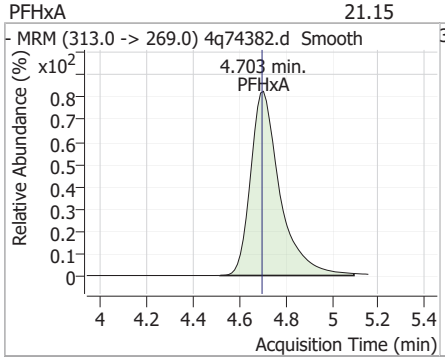
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	10.71	4.69	0.01	244334				

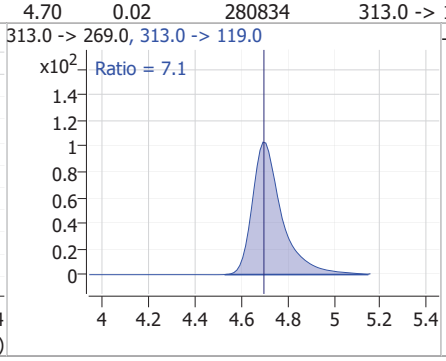


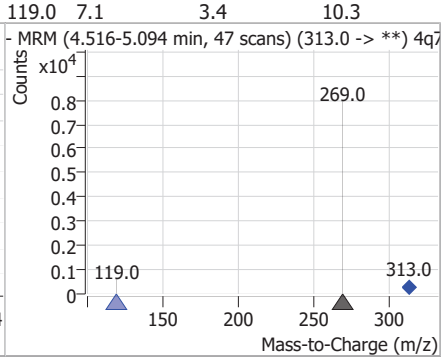




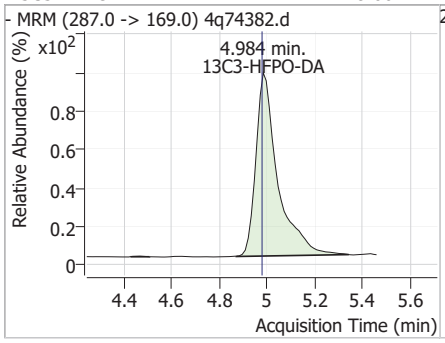
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	21.15	4.70	0.02	280834	313.0 -> 119.0	7.1	3.4	10.3

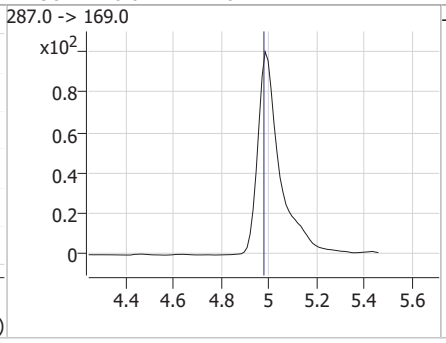


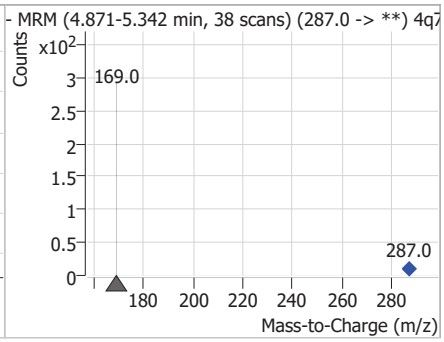




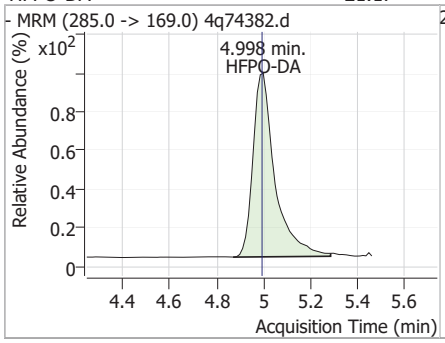
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	18.66	4.98	0.02	6717				

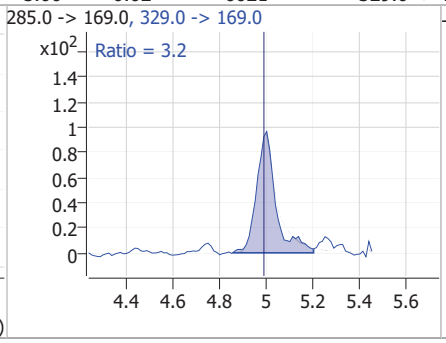


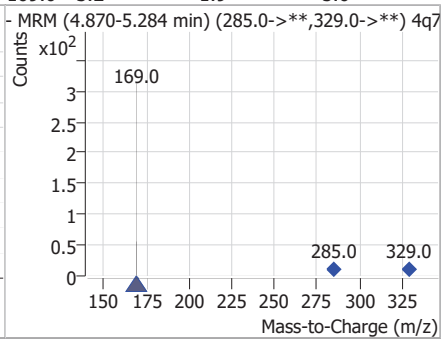




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	21.17	5.00	0.02	6621	329.0 -> 169.0	3.2	1.9	5.6

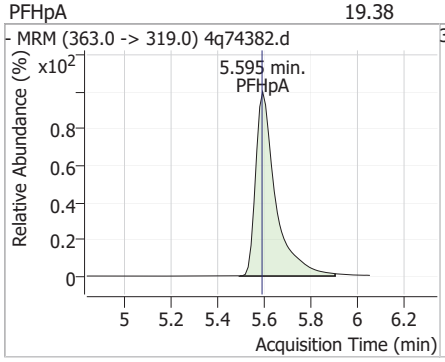


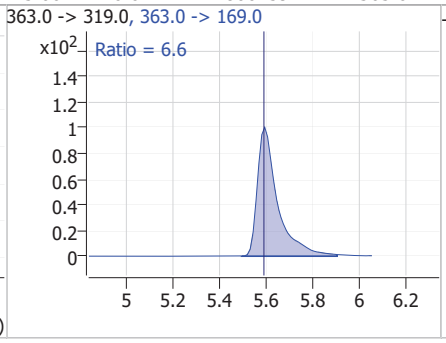


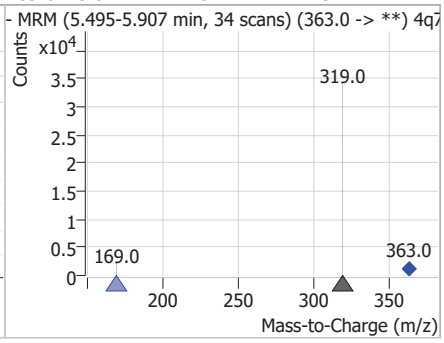


Perfluorinated Compounds by LC/MS/MS

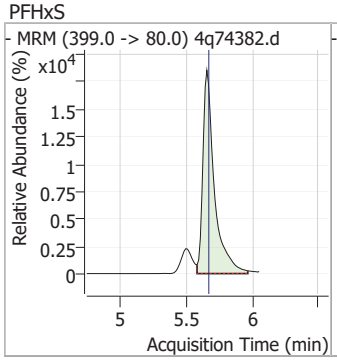
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.38	5.60	0.02	866459	363.0 -> 169.0	6.6	3.2	9.7

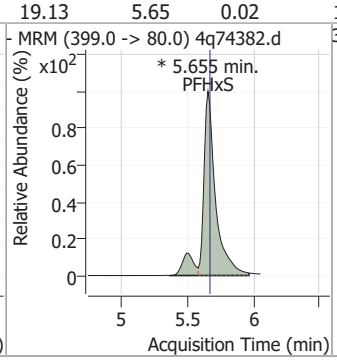


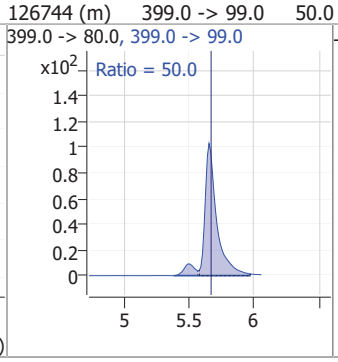


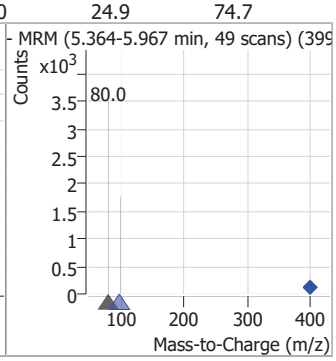


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.13	5.65	0.02	126744 (m)	399.0 -> 99.0	50.0	24.9	74.7

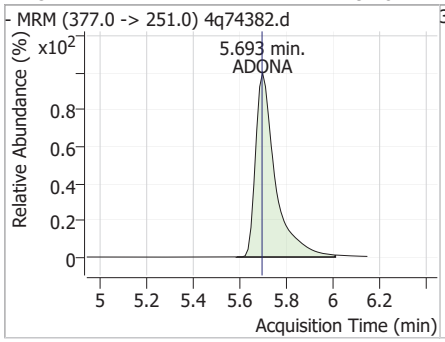


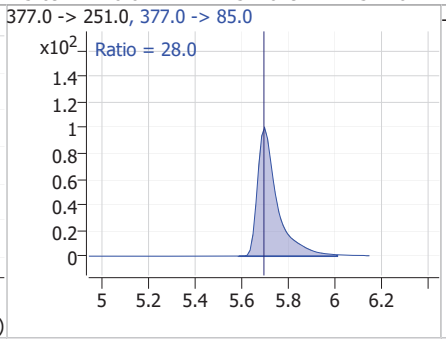


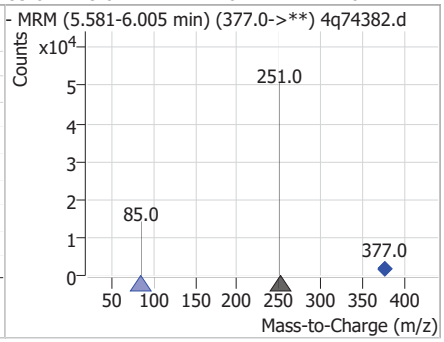




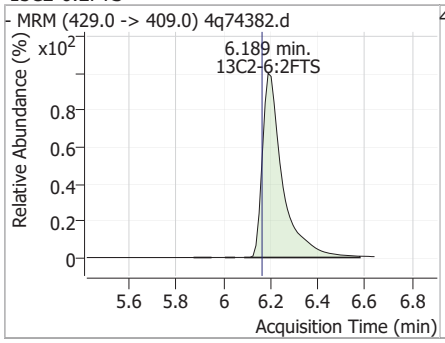
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.78	5.69	0.02	1324049	377.0 -> 85.0	28.0	14.0	42.0

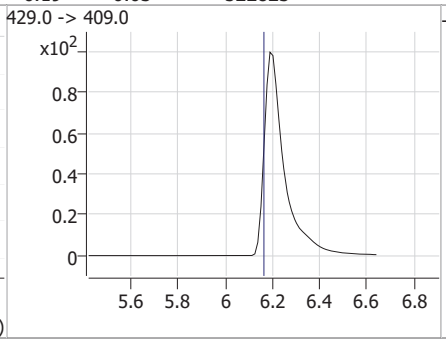


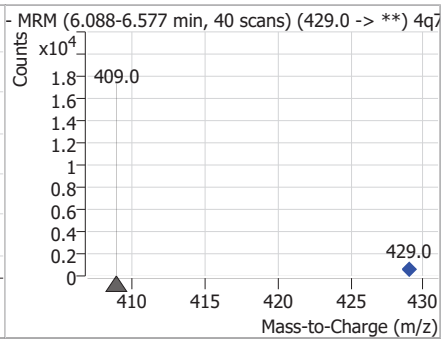




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.19	0.03	522823				







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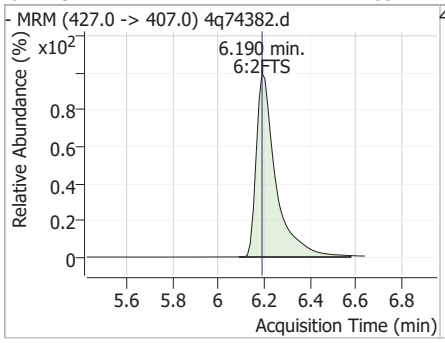
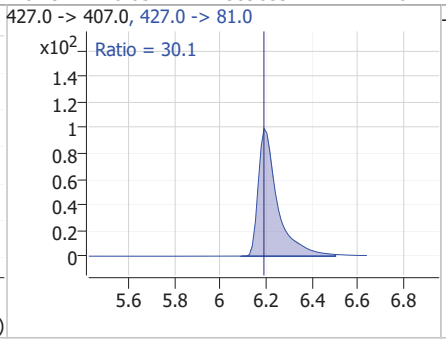
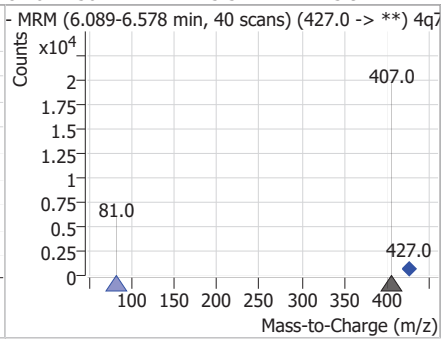
Perfluorinated Compounds by LC/MS/MS

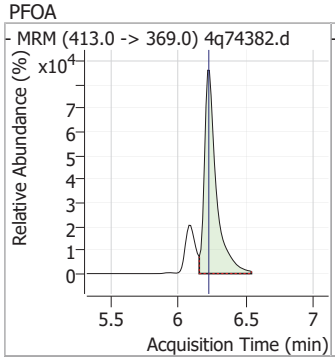
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	21.83	6.19	0.03	589639	427.0 -> 81.0	30.1	15.3	45.9

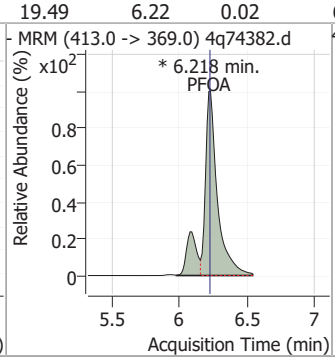


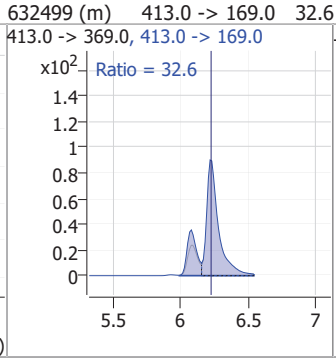


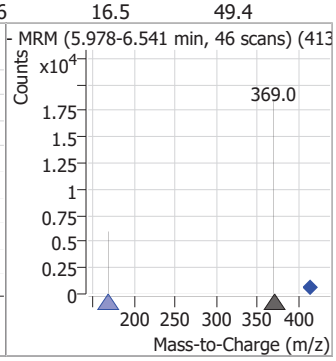


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.49	6.22	0.02	632499 (m)	413.0 -> 169.0	32.6	16.5	49.4

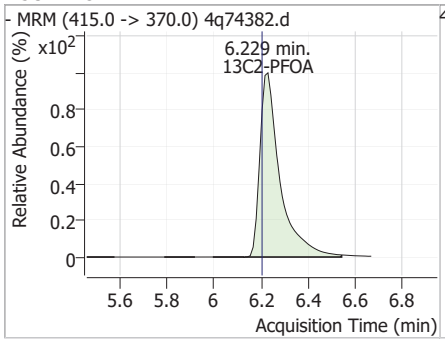


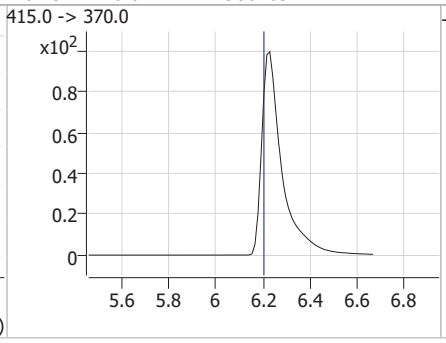


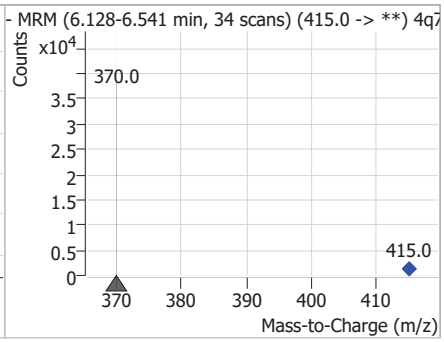




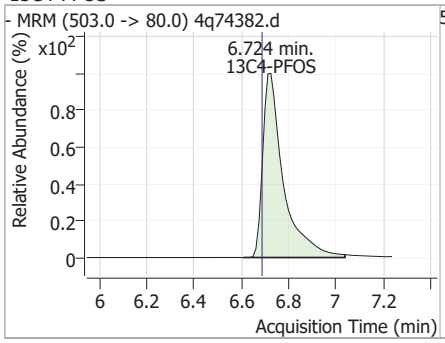
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.23	0.02	968409				

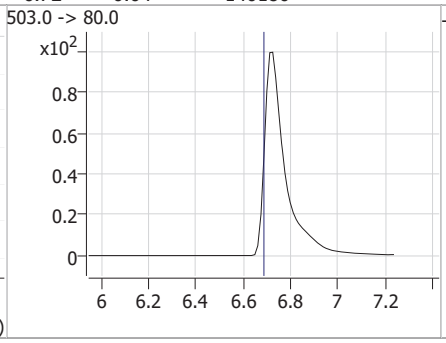


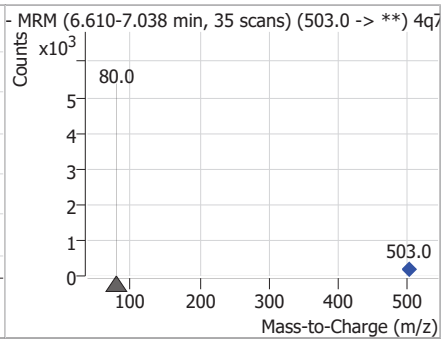




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.72	0.04	140180				

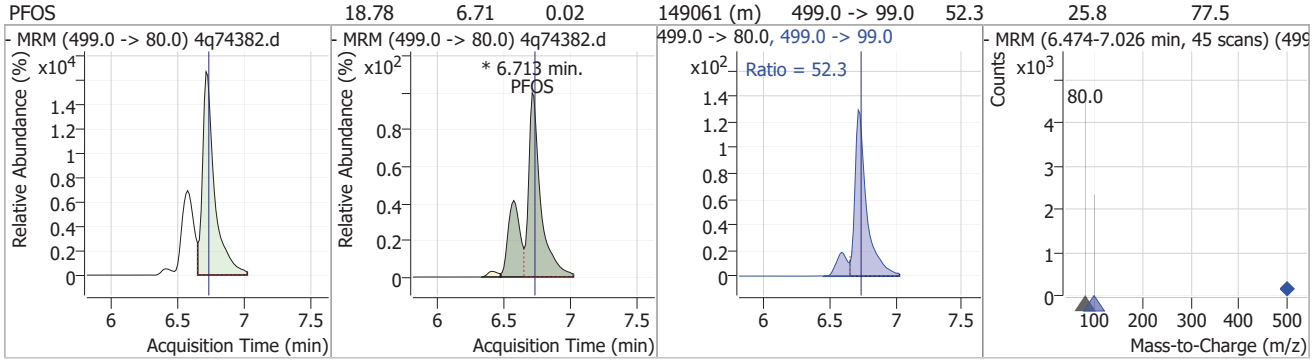




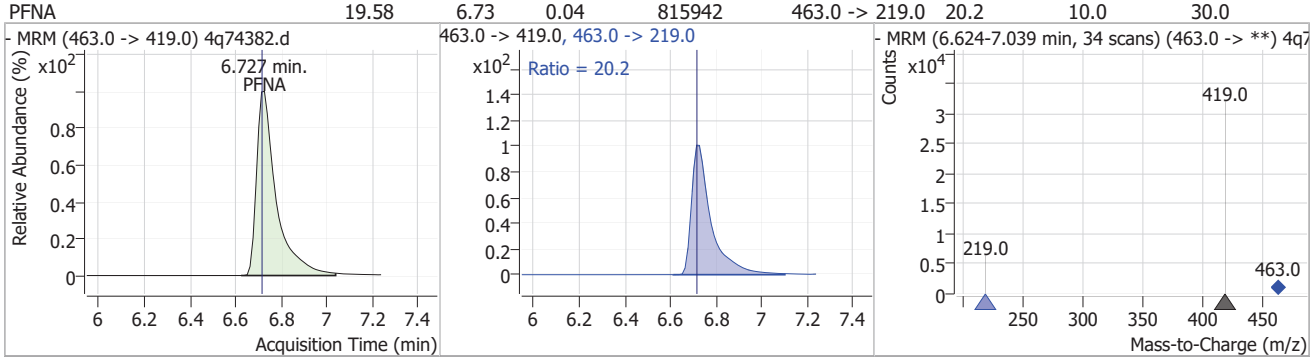


Perfluorinated Compounds by LC/MS/MS

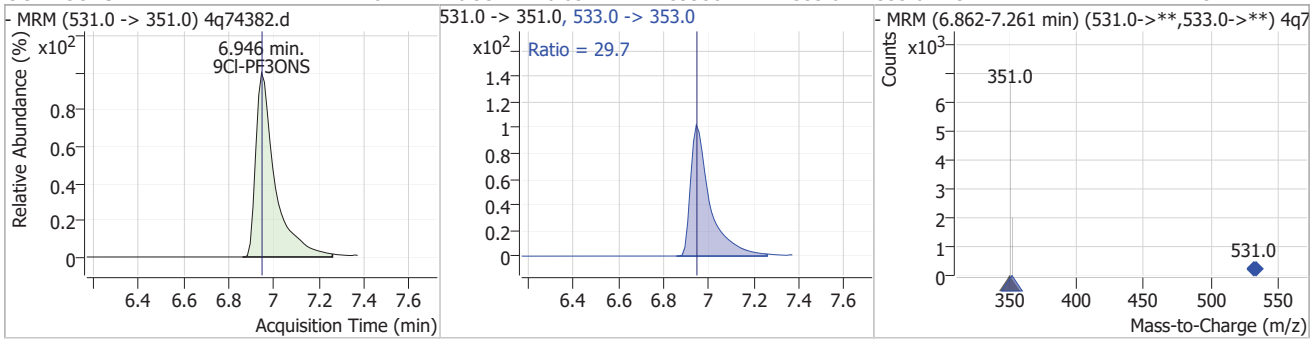
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.78	6.71	0.02	149061 (m)	499.0 -> 99.0	52.3	25.8	77.5



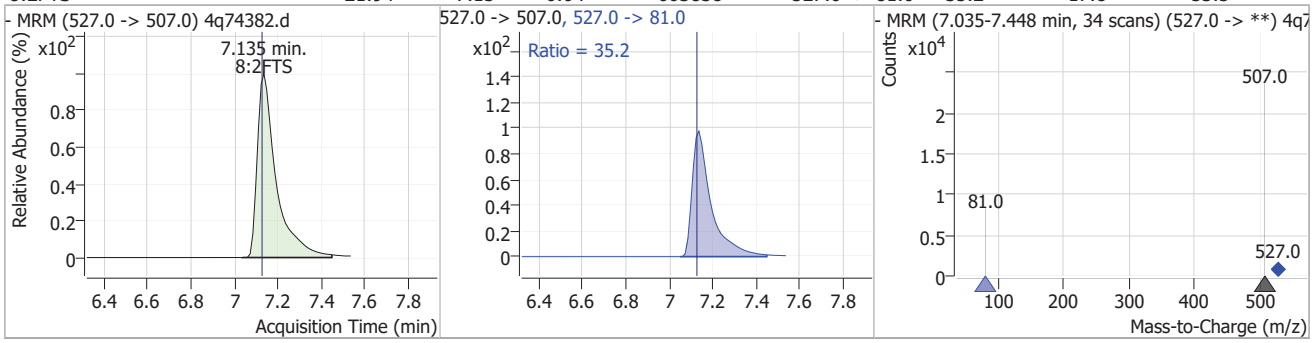
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.58	6.73	0.04	815942	463.0 -> 219.0	20.2	10.0	30.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	22.07	6.95	0.03	159958	533.0 -> 353.0	29.7	14.4	43.2

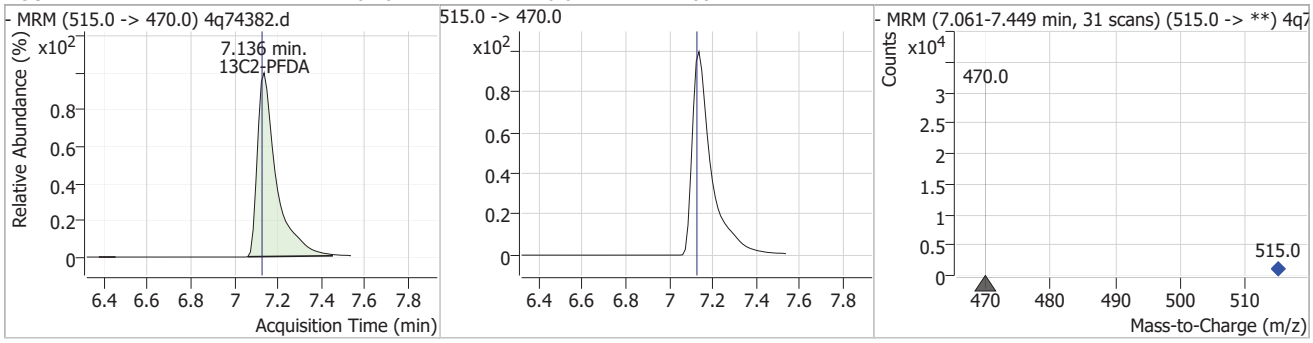


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.94	7.13	0.04	603858	527.0 -> 81.0	35.2	17.8	53.5

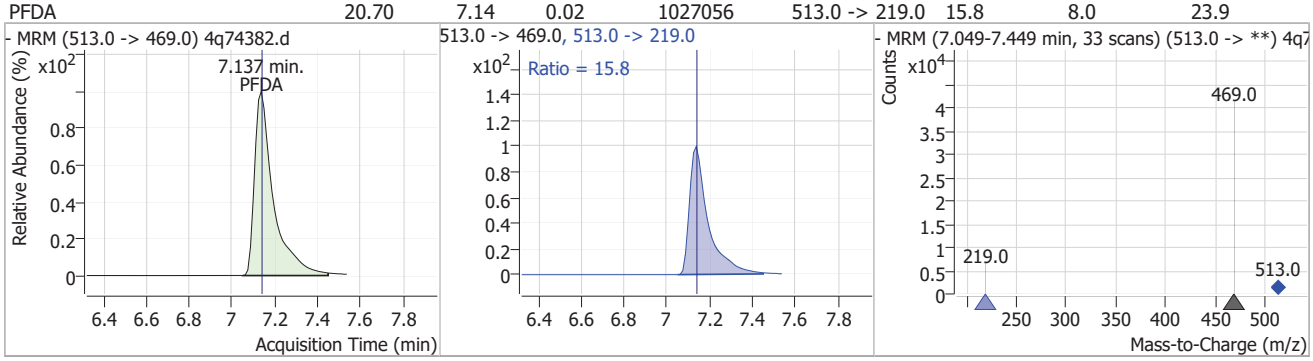


Perfluorinated Compounds by LC/MS/MS

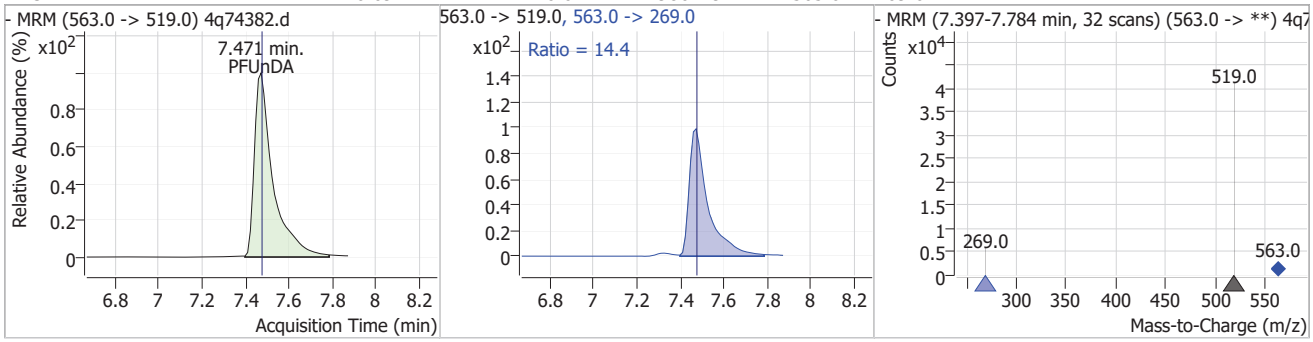
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	10.16	7.14	0.04	722682				



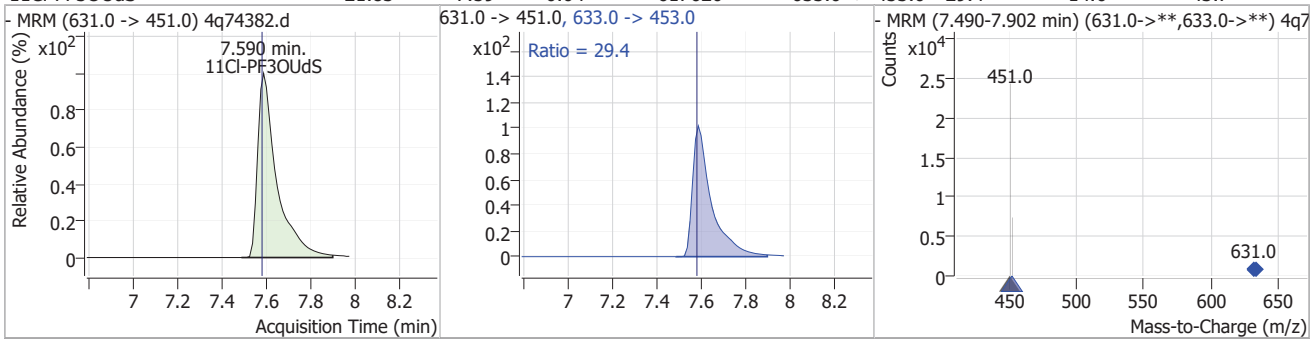
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.70	7.14	0.02	1027056	513.0 -> 219.0	15.8	8.0	23.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	20.69	7.47	0.04	986729	563.0 -> 269.0	14.4	7.2	21.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	21.83	7.59	0.04	617620	633.0 -> 453.0	29.4	14.6	43.7



7.7.28

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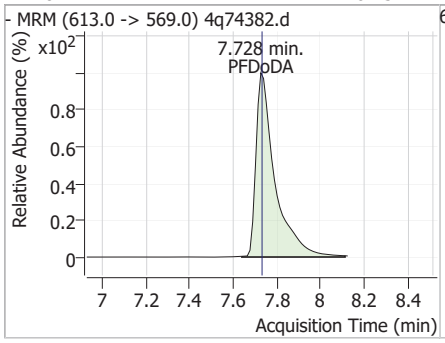
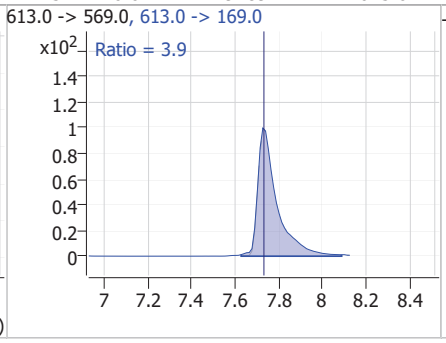
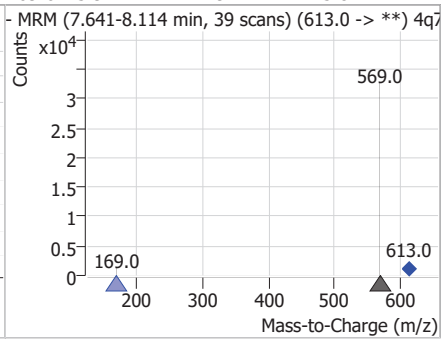
Perfluorinated Compounds by LC/MS/MS

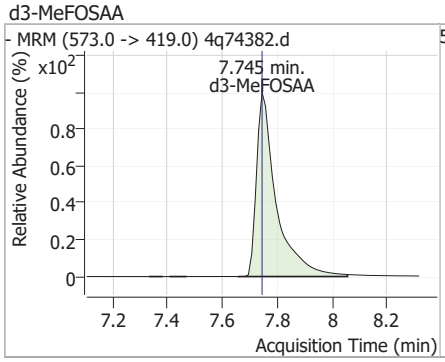
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	20.23	7.73	0.04	948971	613.0 -> 169.0	3.9	1.9	5.8

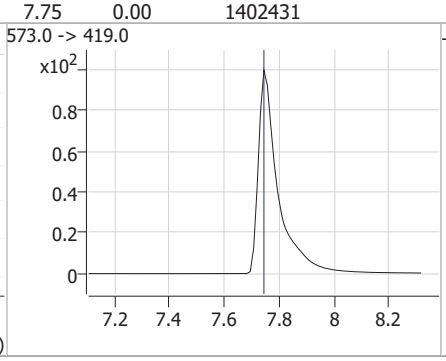


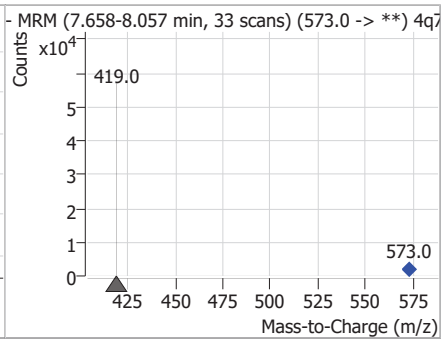




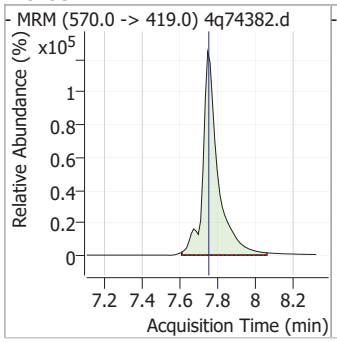
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.75	0.00	1402431				

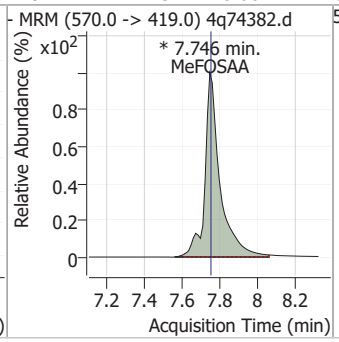


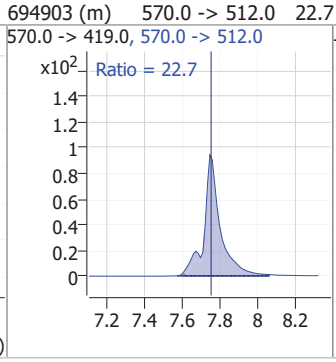


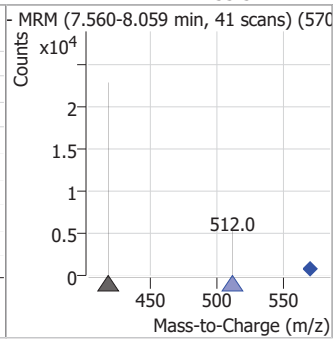


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.24	7.75	0.00	694903 (m)	570.0 -> 512.0	22.7	11.2	33.5

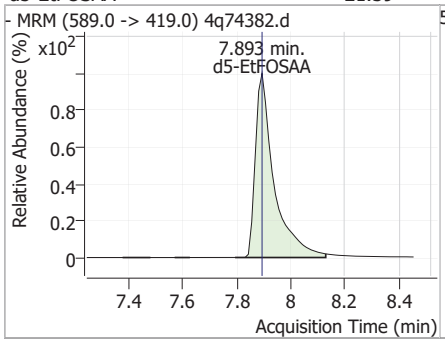


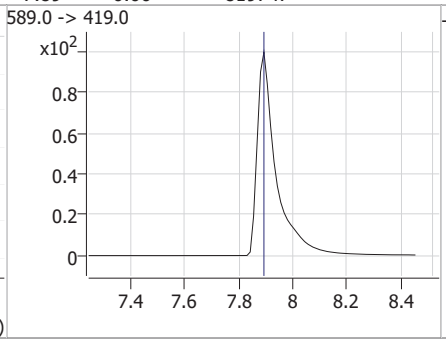


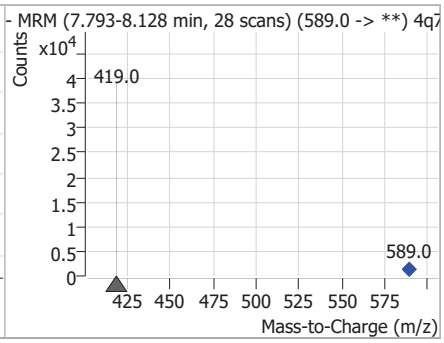




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	21.39	7.89	0.00	819747				

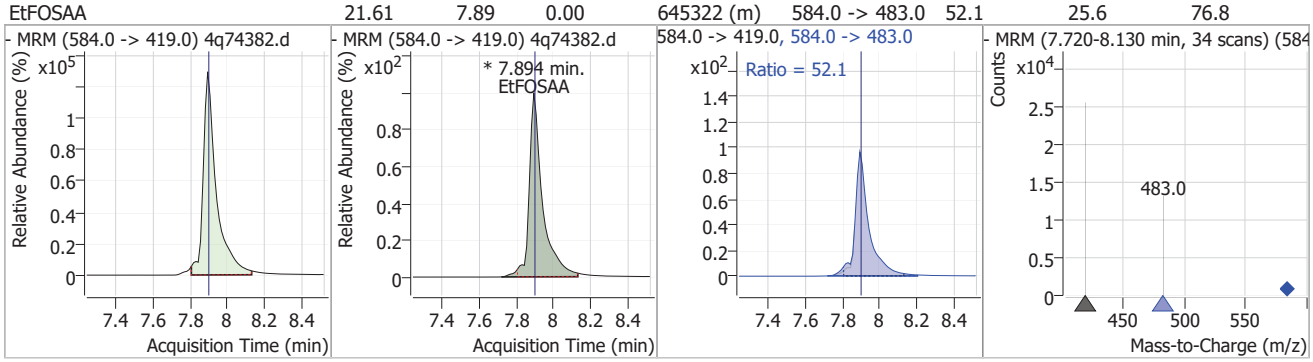




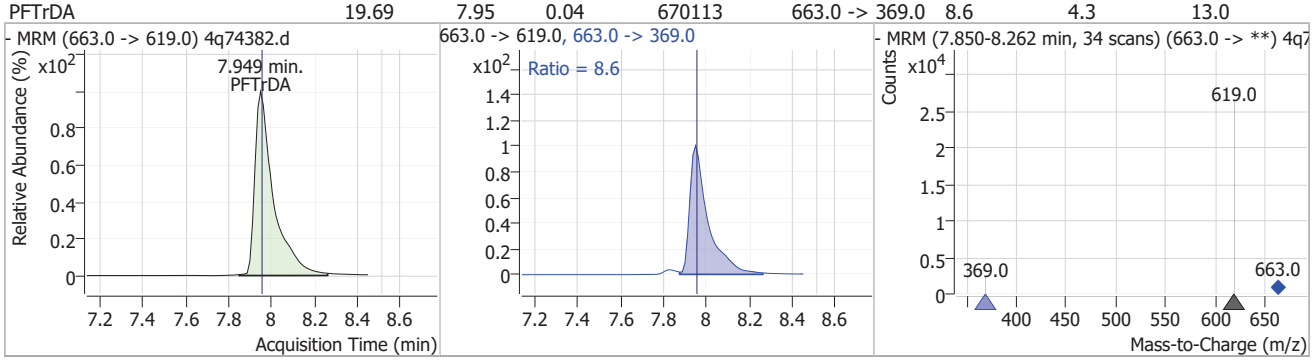


Perfluorinated Compounds by LC/MS/MS

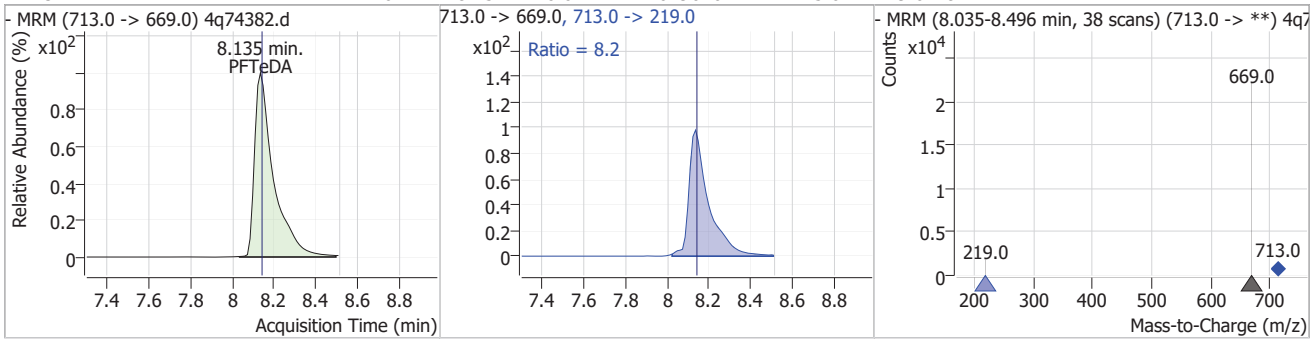
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	21.61	7.89	0.00	645322 (m)	584.0 -> 483.0	52.1	25.6	76.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	19.69	7.95	0.04	670113	663.0 -> 369.0	8.6	4.3	13.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	22.10	8.13	0.04	629616	713.0 -> 219.0	8.2	4.1	12.2



Manual Integration Approval Summary

Sample Number:	S4Q1106-ECC1106	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	4Q74382.D	**Analyst approved:**	04/24/25 11:46 (b) (6)
Injection Time:	04/24/25 03:15	**Supervisor approved:**	04/24/25 12:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.66	Split peak
Perfluorooctanoic acid	335-67-1		6.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.71	Split peak
MeFOSAA	2355-31-9		7.75	Split peak
EtFOSAA	2991-50-6		7.89	Split peak

QQQ Check Tune Report

Agilent | Trusted Answers

Instrument Name	LCMS5Q
MS Model	G6470B
MS Instrument Serial	SG2221G211
Software_Firmware Version	10.1.67, FW: A.00.08.112
Tune Date & Time	14 April 2025 09:23:21
File Path	D:\MassHunter\Tune\QQQ\G6470B\atunes.TUNE.XML
Ion Source	AJS ESI
Ionization Mode	AJS ESI
Tuned Resolution	All
Vacuum Pressure	1.29E+0 [R] (Torr); 3.37E-5 [H] (Torr)

Source Parameters

Parameter	Negative
Gas Temp (°C)	300
Gas Flow (l/min)	8
Nebulizer (psi)	15
Capillary (V)	3500
Nozzle Voltage (V)	1500
Sheath Gas Temp (°C)	250
Sheath Gas Flow (l/min)	7

QQQ Check Tune Report

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Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.99	0.00	Pass	0.70	0.68	-0.02	Pass	63164
302.00	302.07	0.07	Pass	0.70	0.71	0.01	Pass	46772
601.98	602.03	0.05	Pass	0.70	0.70	0.00	Pass	106524
1033.99	1034.06	0.07	Pass	0.70	0.68	-0.02	Pass	168600
1633.95	1634.05	0.10	Pass	0.70	0.64	-0.06	Pass	576560
2233.91	2234.00	0.09	Pass	0.70	0.58	-0.12	Pass	230330

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.98	-0.02	Pass	0.70	0.66	-0.04	Pass	14469
112.99	112.99	0.00	Pass	0.70	0.70	0.00	Pass	45487
302.00	302.00	0.00	Pass	0.70	0.70	0.00	Pass	38497
601.98	601.92	-0.06	Pass	0.70	0.74	0.04	Pass	82452
1033.99	1033.95	-0.04	Pass	0.70	0.74	0.04	Pass	150073
1633.95	1633.90	-0.05	Pass	0.70	0.75	0.05	Pass	482147
2233.91	2233.91	0.00	Pass	0.70	0.73	0.03	Pass	204643

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	113.00	0.01	Pass	1.20	1.28	0.08	Pass	76882
302.00	302.02	0.02	Pass	1.20	1.42	0.22	Pass	60436
601.98	602.02	0.04	Pass	1.20	1.51	0.31	Pass	169034
1033.99	1034.04	0.05	Pass	1.20	1.49	0.29	Pass	303637
1633.95	1634.01	0.06	Pass	1.20	1.40	0.20	Pass	895413
2233.91	2233.93	0.02	Pass	1.20	1.09	-0.11	Pass	499569

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.94	-0.06	Pass	1.20	1.28	0.08	Pass	17547
112.99	112.98	-0.01	Pass	1.20	1.24	0.04	Pass	71681
302.00	301.96	-0.04	Pass	1.20	1.15	-0.05	Pass	46328
601.98	601.90	-0.08	Pass	1.20	1.08	-0.12	Pass	100357
1033.99	1033.91	-0.08	Pass	1.20	1.14	-0.06	Pass	212087
1633.95	1633.85	-0.10	Pass	1.20	1.30	0.10	Pass	824024
2233.91	2233.95	0.04	Pass	1.20	1.35	0.15	Pass	396130

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.98	-0.01	Pass	2.50	2.47	-0.03	Pass	96749
302.00	302.03	0.03	Pass	2.50	2.71	0.21	Pass	70573
601.98	602.02	0.04	Pass	2.50	2.86	0.36	Pass	189021
1033.99	1034.01	0.02	Pass	2.50	2.93	0.43	Pass	591197
1633.95	1633.96	0.01	Pass	2.50	2.77	0.27	Pass	2441107
2233.91	2233.80	-0.11	Pass	2.50	2.89	0.39	Pass	1642805

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.95	-0.05	Pass	2.50	2.40	-0.10	Pass	22938
112.99	112.98	-0.01	Pass	2.50	2.44	-0.06	Pass	88146
302.00	301.97	-0.03	Pass	2.50	2.29	-0.21	Pass	64094
601.98	601.92	-0.06	Pass	2.50	2.30	-0.20	Pass	163732
1033.99	1033.91	-0.08	Pass	2.50	2.26	-0.24	Pass	434415
1633.95	1633.91	-0.04	Pass	2.50	2.40	-0.10	Pass	1901064
2233.91	2233.85	-0.06	Pass	2.50	2.47	-0.03	Pass	1169263

Cal Report: 5Q31820.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

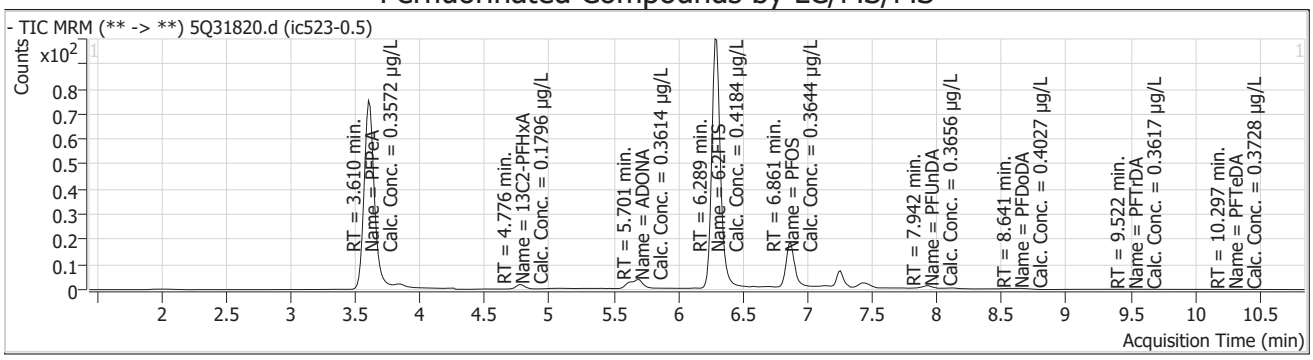
Data File : 5Q31820.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 12:39:17 PM
Sample Name : ic523-0.5
Vial : P1-A2
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.288	429.0 -> 409.0	170462	20.00	µg/L		0.000
13C2-PFOA	6.303	415.0 -> 370.0	376095	20.00	µg/L		0.012
13C3-PFPeA	3.607	266.0 -> 222.0	481778	20.00	µg/L		0.012
13C4-PFOS	6.873	503.0 -> 80.0	93141	20.00	µg/L		0.013
d3-MeFOSAA	7.254	573.0 -> 419.0	28351	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.435	515.0 -> 470.0	3263	0.20	µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 1.0%			
13C2-PFHxA	4.776	315.0 -> 270.0	4280	0.18	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 0.9%			
d5-EtFOSAA	7.378	589.0 -> 419.0	323	0.60	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 1.5%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	682	0.41	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 1.0%			
Target Compounds							QValue
6:2FTS	6.289	427.0 -> 407.0	3575	0.42	µg/L		95
8:2FTS	7.471	527.0 -> 507.0	3302	0.45	µg/L		91
EtFOSAA	7.391	584.0 -> 419.0	237	0.50	µg/L	m	77
MeFOSAA	7.254	570.0 -> 419.0	182	0.29	µg/L	#m	13
PFBS	3.841	299.0 -> 80.0	4729	0.39	µg/L		98
PFDA	7.423	513.0 -> 469.0	5042	0.38	µg/L		99
PFDoDA	8.641	613.0 -> 569.0	5319	0.40	µg/L	m	100
PFHpA	5.627	363.0 -> 319.0	11464	0.38	µg/L		100
PFHxA	4.778	313.0 -> 269.0	5722	0.35	µg/L		95
PFHxS	5.648	399.0 -> 80.0	2944	0.40	µg/L	m	94
PFNA	6.900	463.0 -> 419.0	4829	0.42	µg/L	m	99
PFOA	6.304	413.0 -> 369.0	6390	0.36	µg/L		90
PFOS	6.861	499.0 -> 80.0	2239	0.36	µg/L	m	88
PFPeA	3.610	263.0 -> 219.0	10978	0.36	µg/L		100
PFTeDA	10.297	713.0 -> 669.0	1704	0.37	µg/L		99
PFTrDA	9.522	663.0 -> 619.0	2438	0.36	µg/L		98
PFUnDA	7.942	563.0 -> 519.0	5588	0.37	µg/L		93
ADONA	5.701	377.0 -> 251.0	13932	0.36	µg/L		95
9Cl-PF3ONS	7.131	531.0 -> 351.0	2052	0.43	µg/L		92
11Cl-PF3OUdS	8.125	631.0 -> 451.0	2197	0.44	µg/L		86
HFPO-DA	5.035	285.0 -> 169.0	638	0.45	µg/L		100

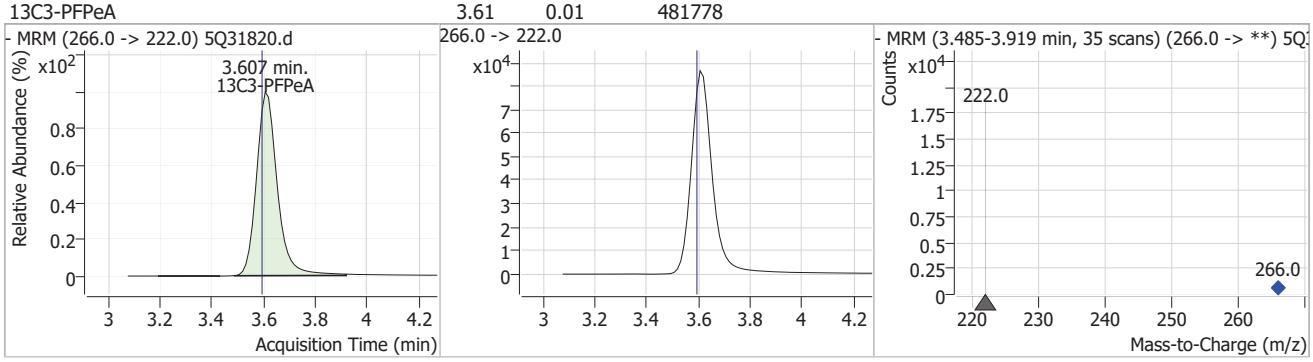
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.30
7

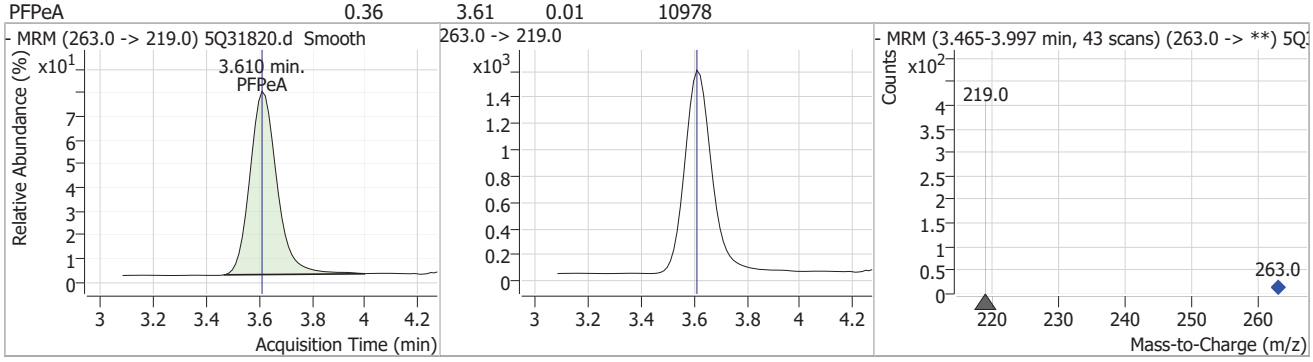
Perfluorinated Compounds by LC/MS/MS



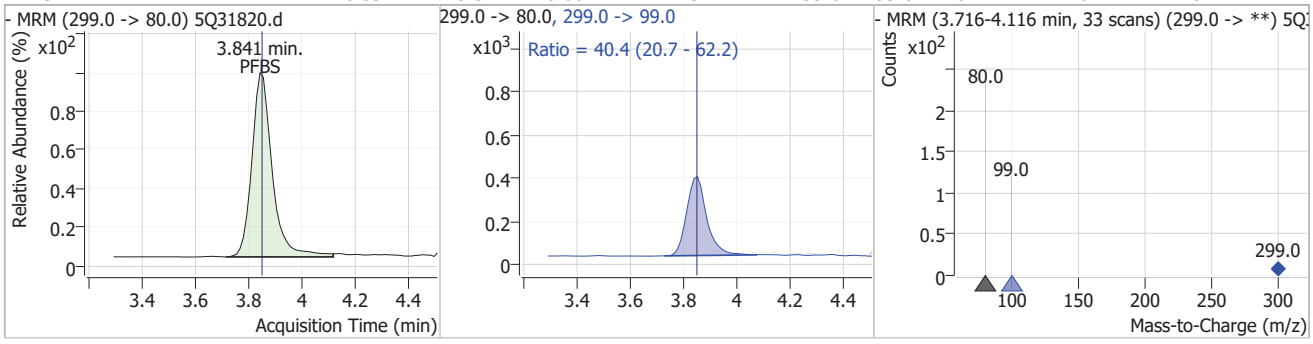
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.01	481778				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.36	3.61	0.01	10978				

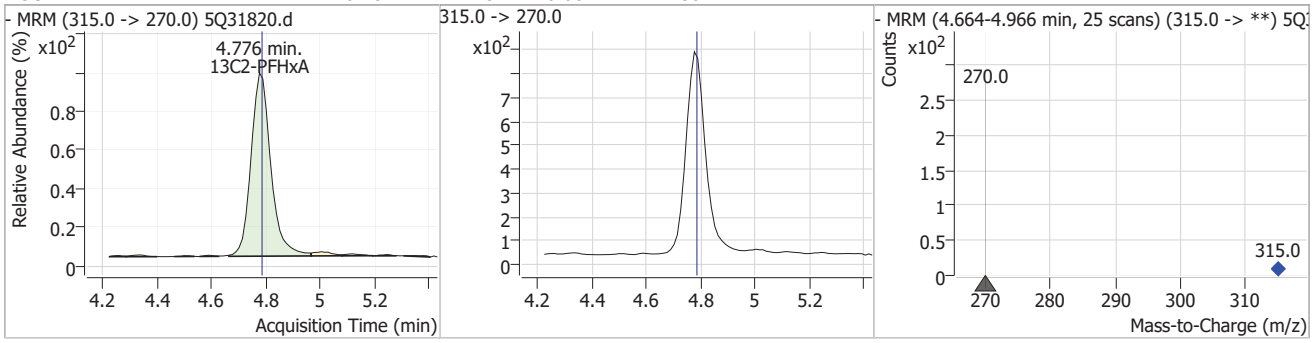


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.39	3.84	0.00	4729	299.0 -> 99.0	40.4	20.7	62.2

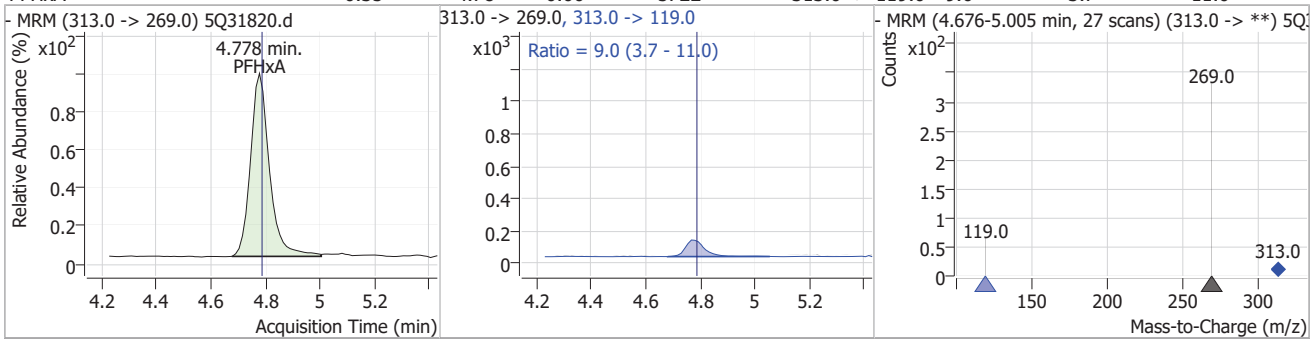


Perfluorinated Compounds by LC/MS/MS

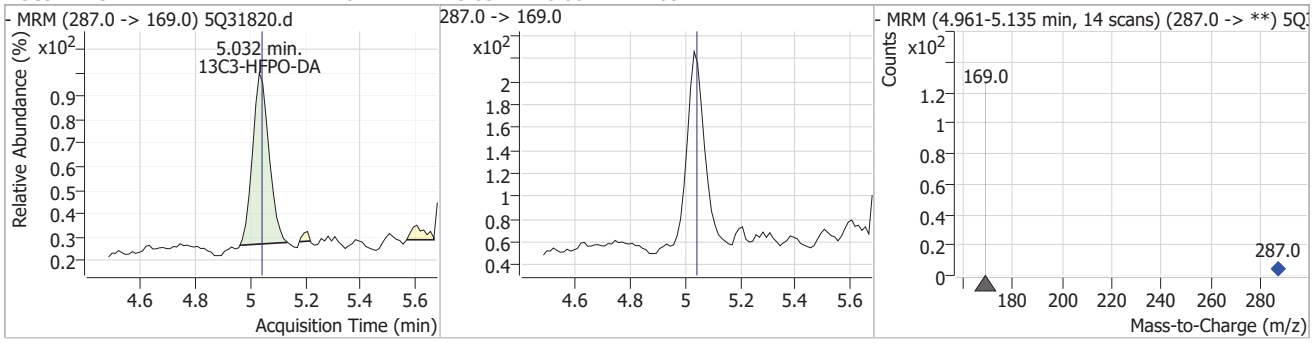
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.18	4.78	0.00	4280				



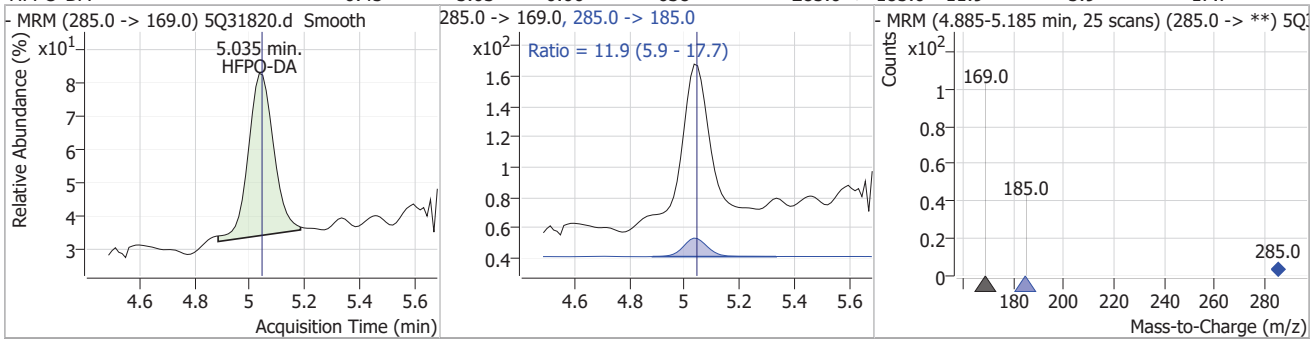
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.35	4.78	0.00	5722	313.0 -> 119.0	9.0	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.41	5.03	0.00	682				

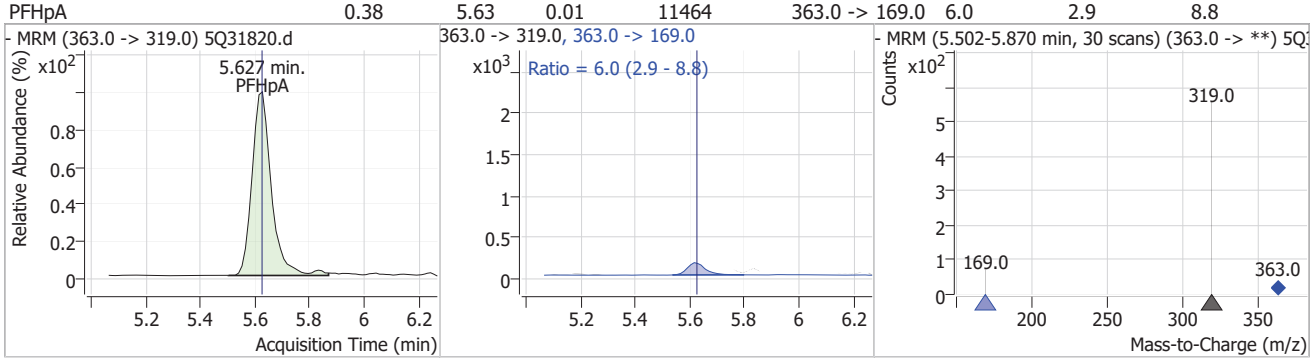


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.45	5.03	0.00	638	285.0 -> 185.0	11.9	5.9	17.7

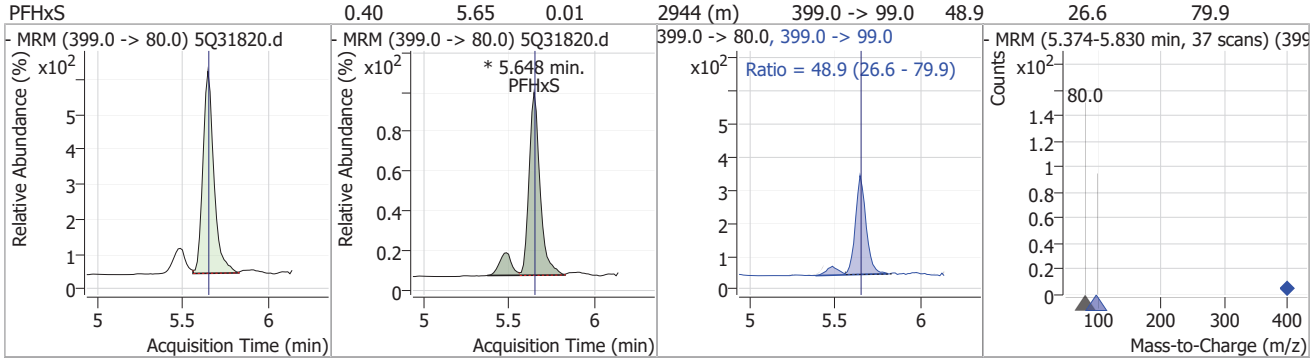


Perfluorinated Compounds by LC/MS/MS

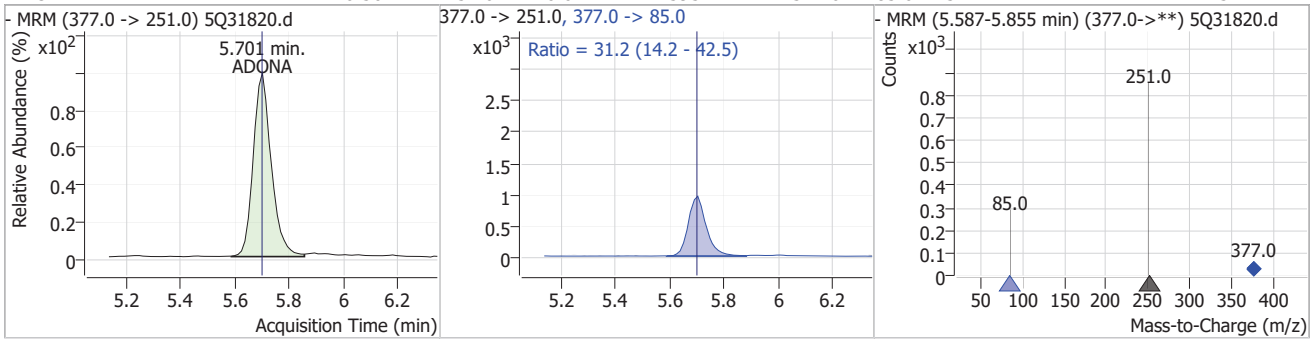
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.38	5.63	0.01	11464	363.0 -> 169.0	6.0	2.9	8.8



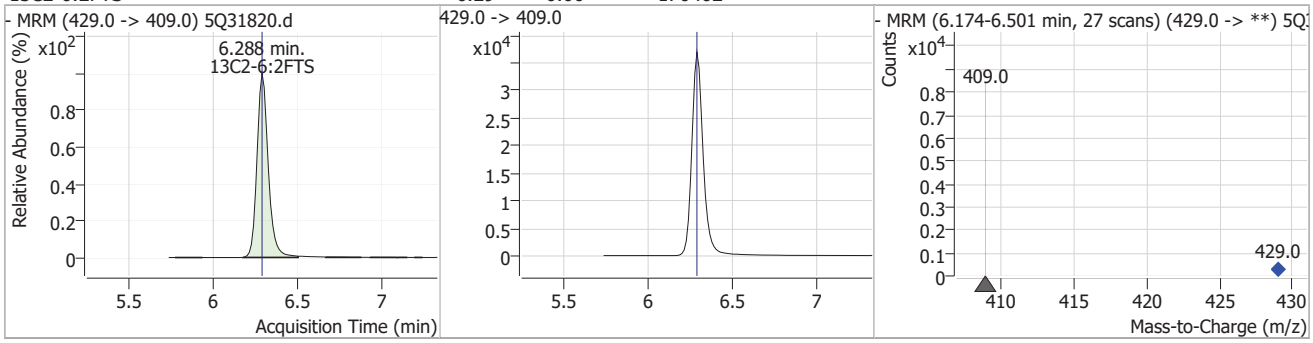
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.40	5.65	0.01	2944 (m)	399.0 -> 99.0	48.9	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.36	5.70	0.01	13932	377.0 -> 85.0	31.2	14.2	42.5

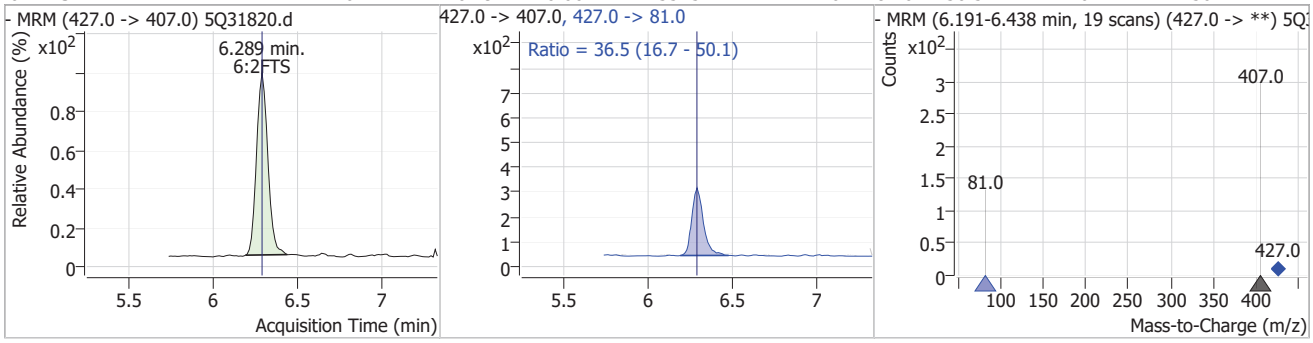


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	170462				

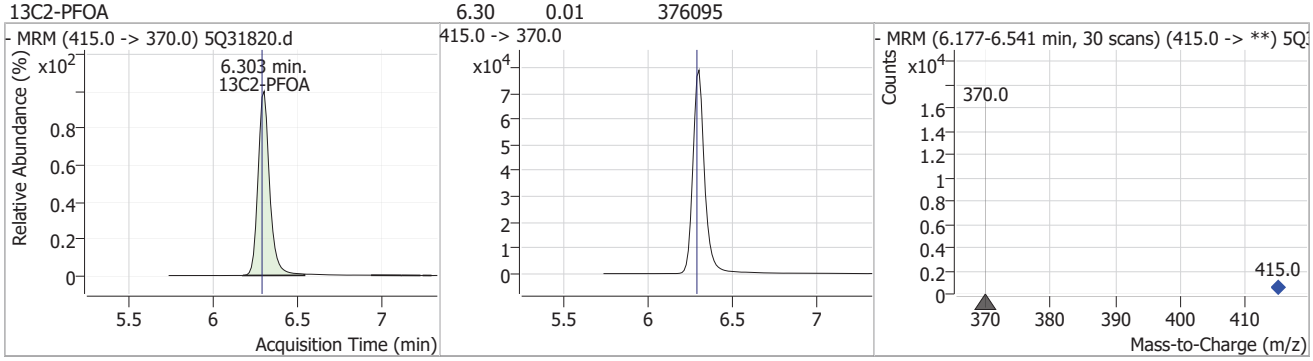


Perfluorinated Compounds by LC/MS/MS

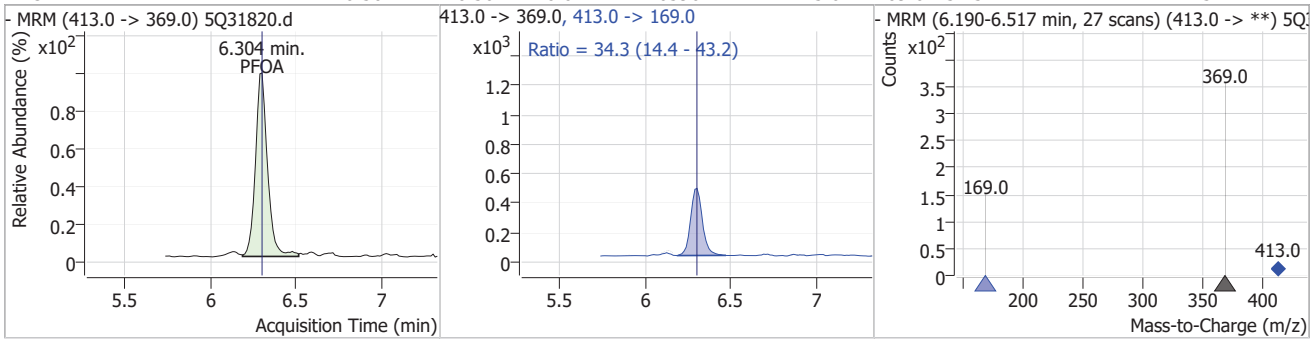
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.42	6.29	0.00	3575	427.0 -> 81.0	36.5	16.7	50.1



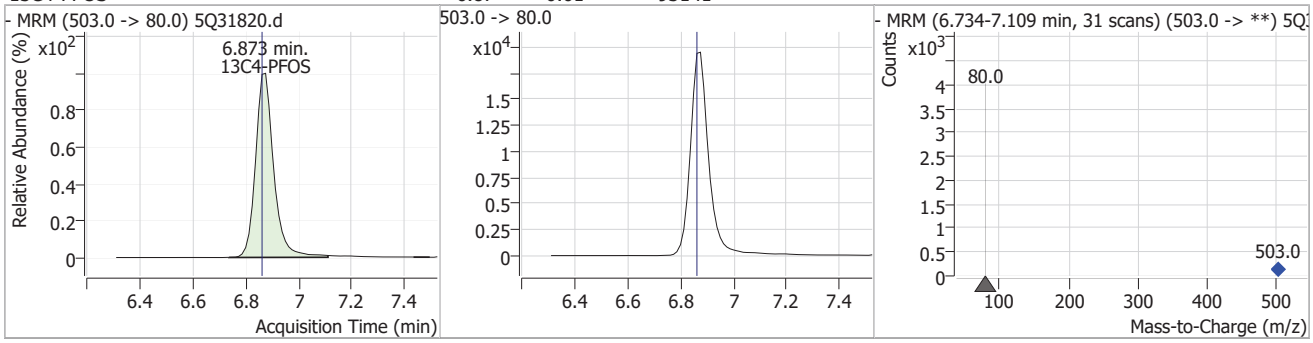
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.30	0.01	376095				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.36	6.30	0.01	6390	413.0 -> 169.0	34.3	14.4	43.2

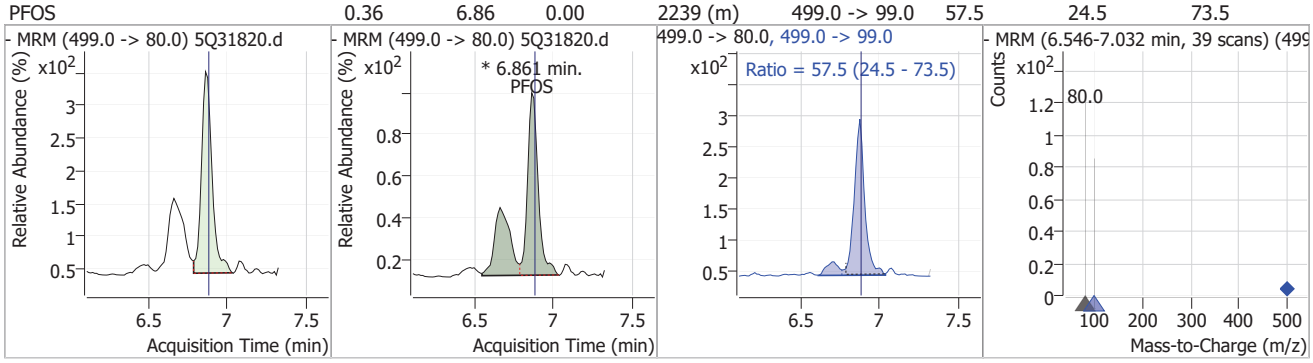


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.87	0.01	93141				

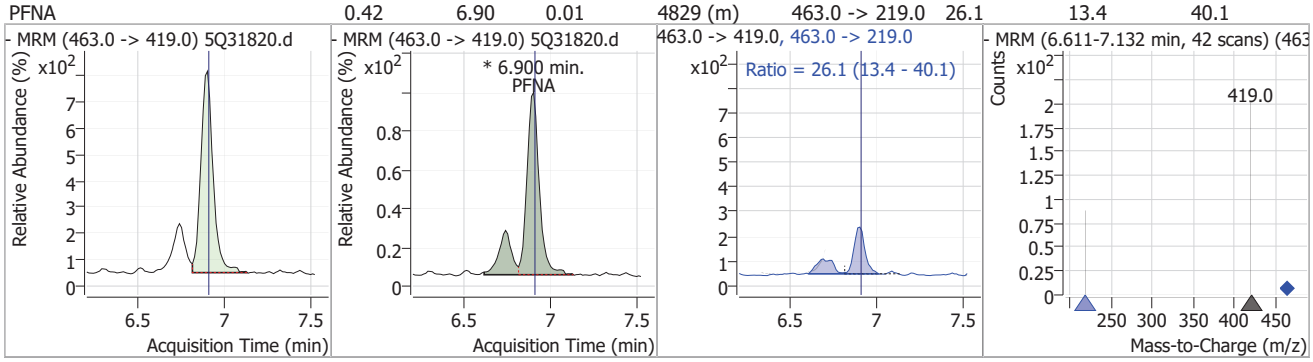


Perfluorinated Compounds by LC/MS/MS

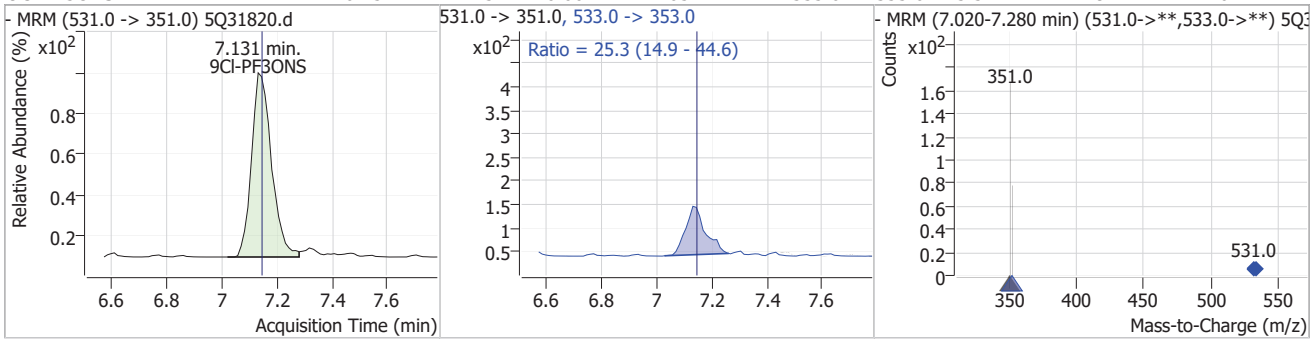
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.36	6.86	0.00	2239 (m)	499.0 -> 99.0	57.5	24.5	73.5



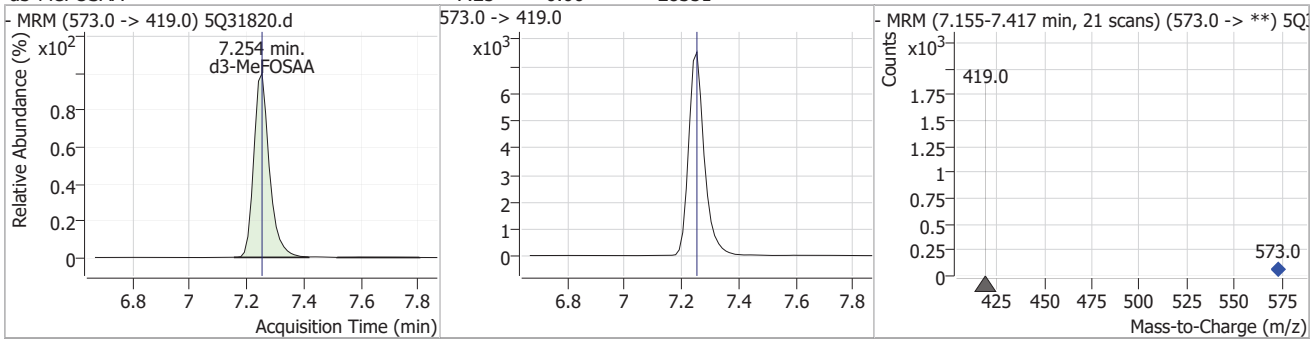
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.42	6.90	0.01	4829 (m)	463.0 -> 219.0	26.1	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.43	7.13	0.00	2052	533.0 -> 353.0	25.3	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	28351				



7.7.30

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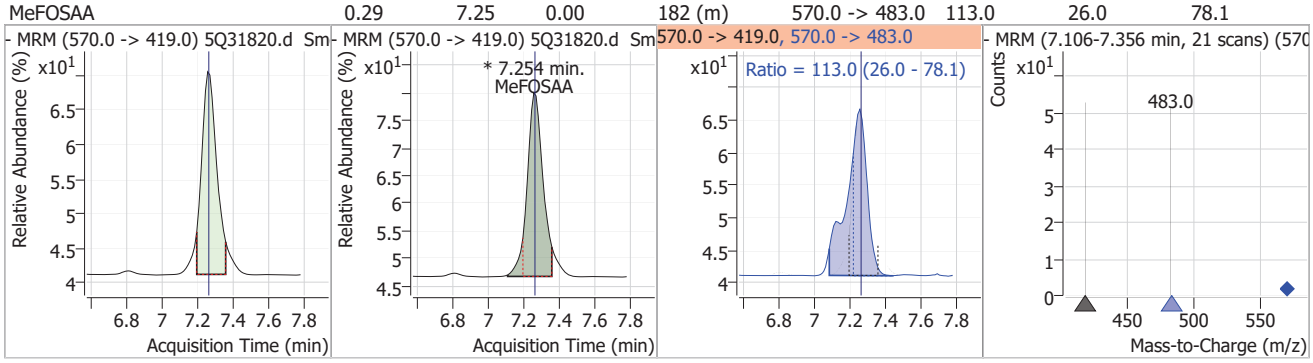
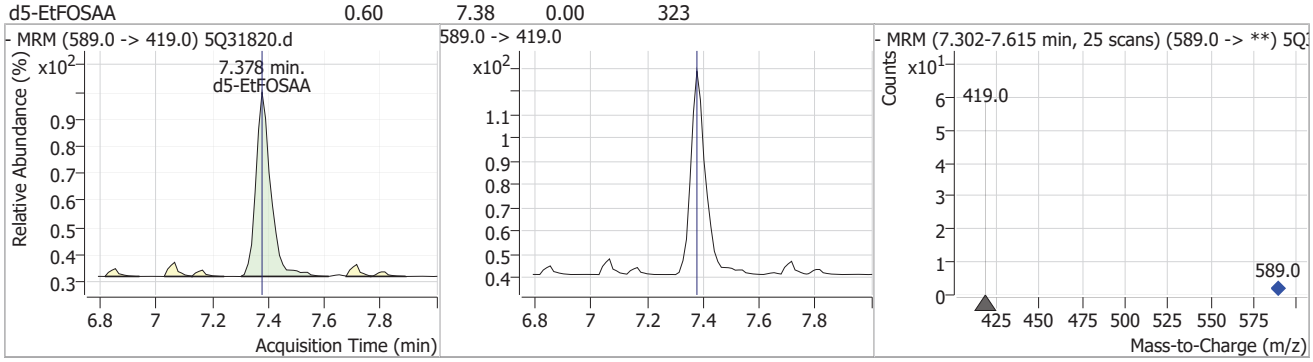
Perfluorinated Compounds by LC/MS/MS

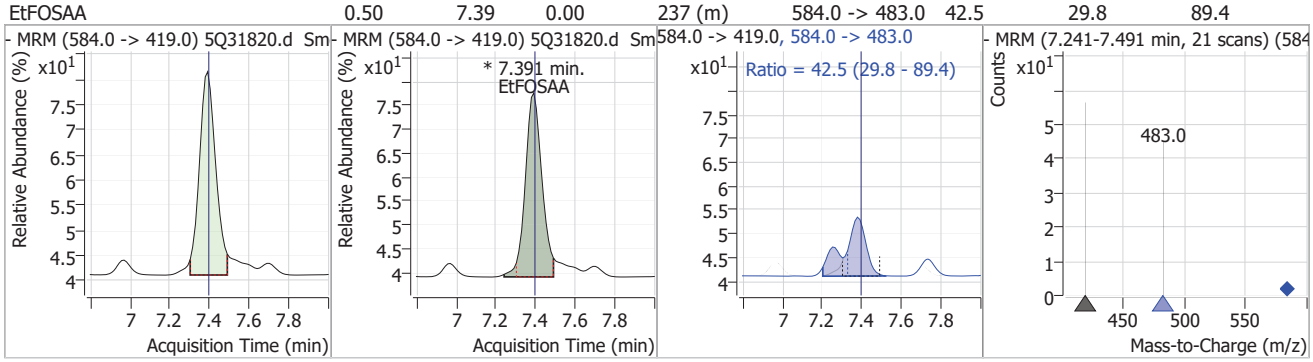
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.29	7.25	0.00	182 (m)	570.0 -> 483.0	113.0	26.0	78.1



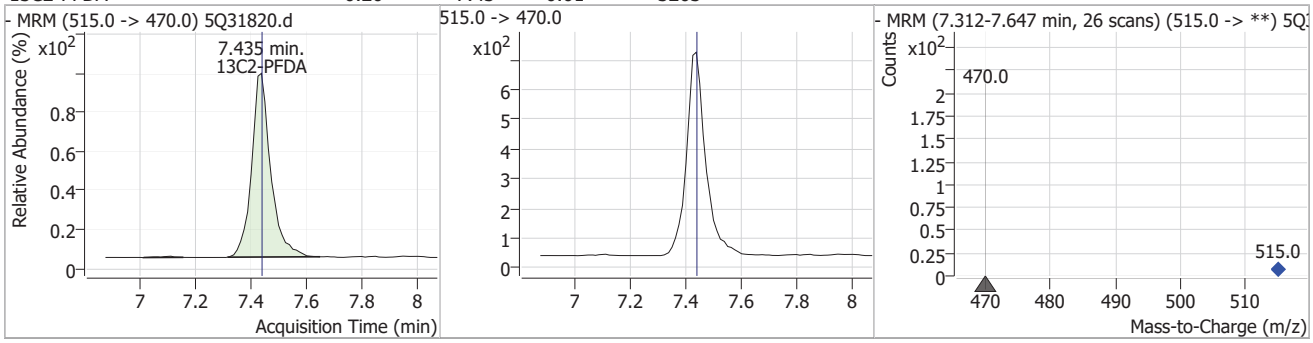
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	0.60	7.38	0.00	323				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.50	7.39	0.00	237 (m)	584.0 -> 483.0	42.5	29.8	89.4

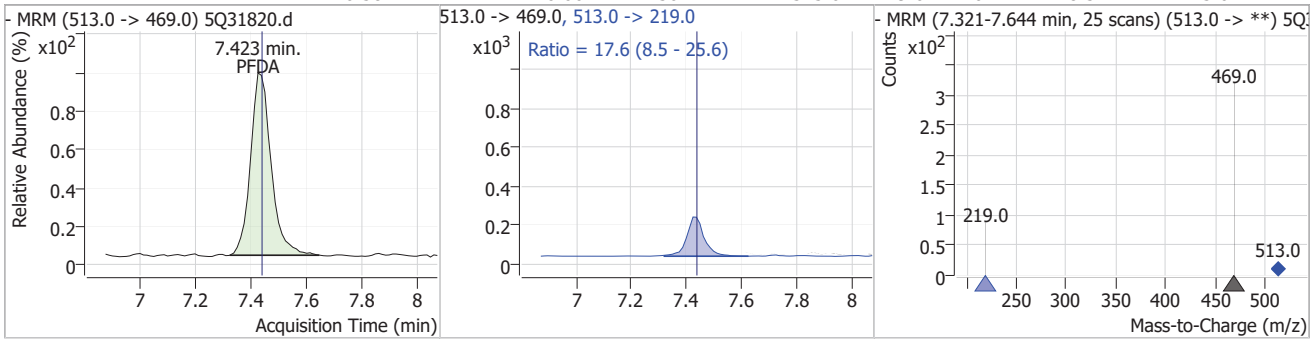


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.20	7.43	0.01	3263				

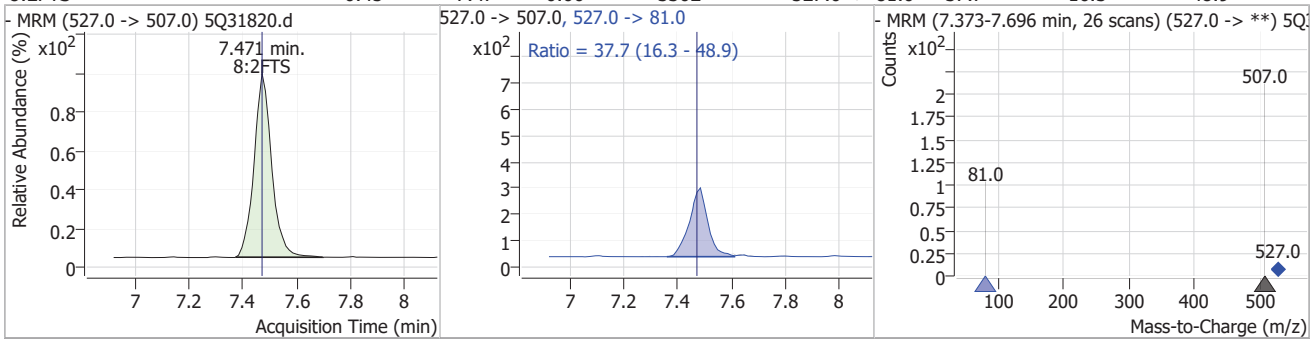


Perfluorinated Compounds by LC/MS/MS

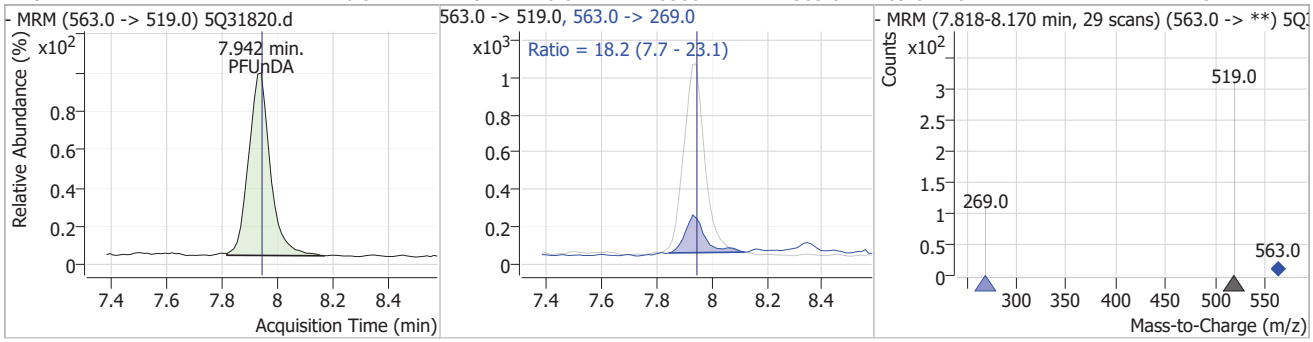
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.38	7.42	0.00	5042	513.0 -> 219.0	17.6	8.5	25.6



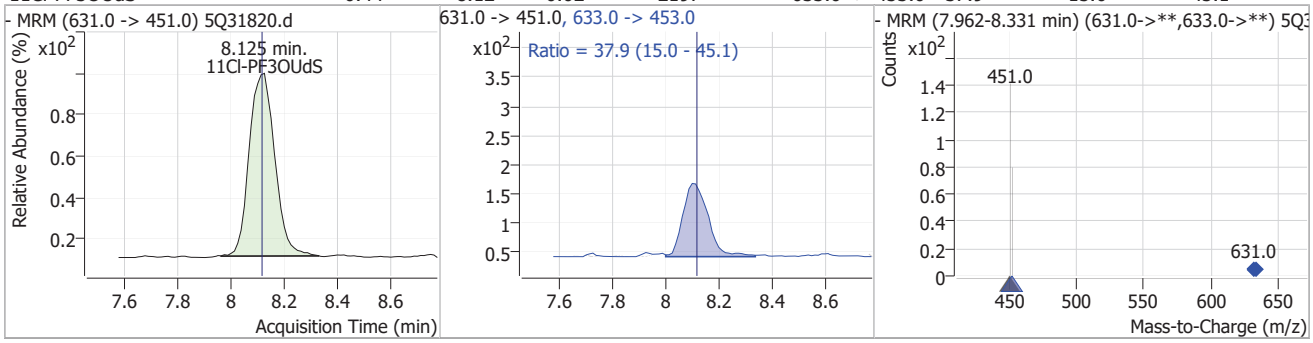
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.45	7.47	0.00	3302	527.0 -> 81.0	37.7	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.37	7.94	0.01	5588	563.0 -> 269.0	18.2	7.7	23.1

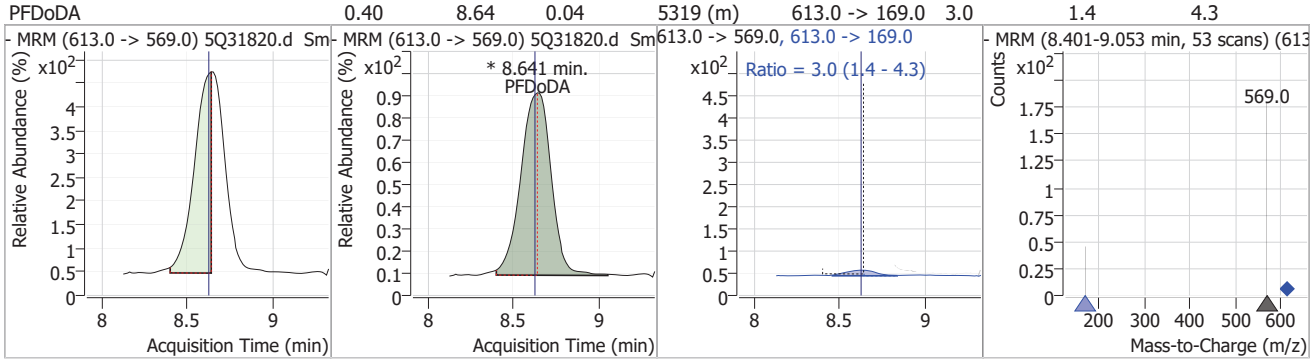


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.44	8.12	0.02	2197	633.0 -> 453.0	37.9	15.0	45.1

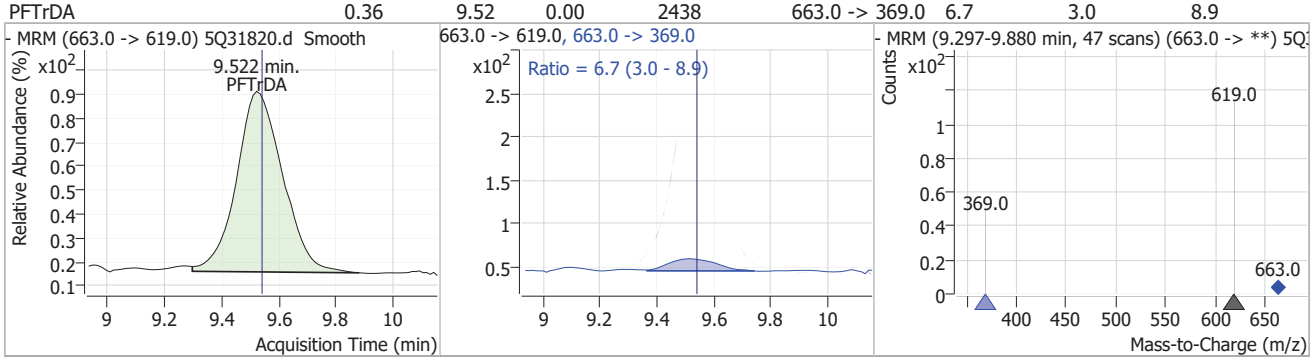


Perfluorinated Compounds by LC/MS/MS

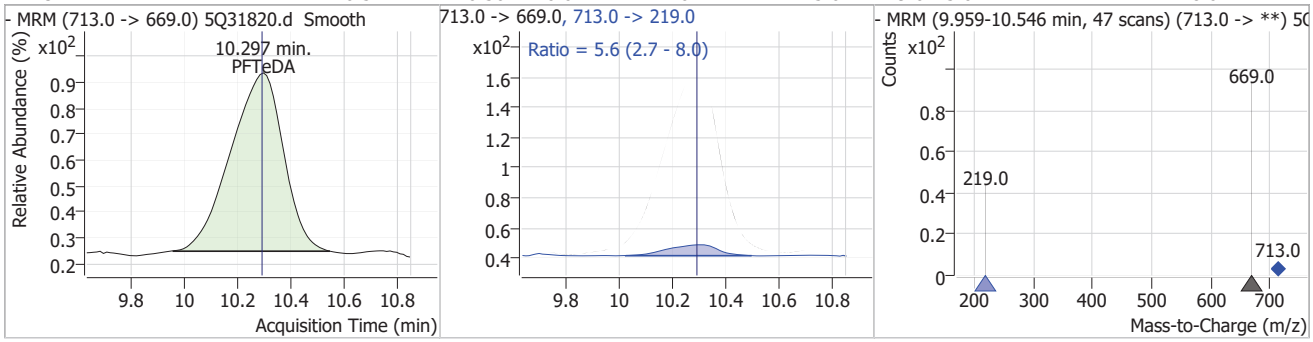
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.40	8.64	0.04	5319 (m)	613.0 -> 169.0	3.0	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.36	9.52	0.00	2438	663.0 -> 369.0	6.7	3.0	8.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.37	10.30	0.02	1704	713.0 -> 219.0	5.6	2.7	8.0



Manual Integration Approval Summary

Sample Number: S5Q523-IC523
Lab FileID: 5Q31820.D
Injection Time: 04/17/25 12:39
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6)
Supervisor approved: 04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.90	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak
Perfluorododecanoic acid	307-55-1		8.64	Poor instrument integration

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

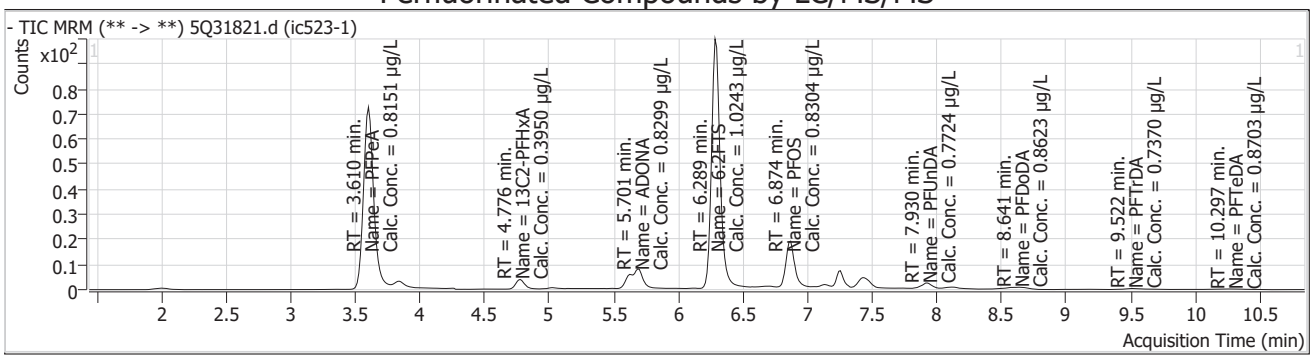
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31821.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 12:55:41 PM
Sample Name : ic523-1
Vial : P1-A3
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

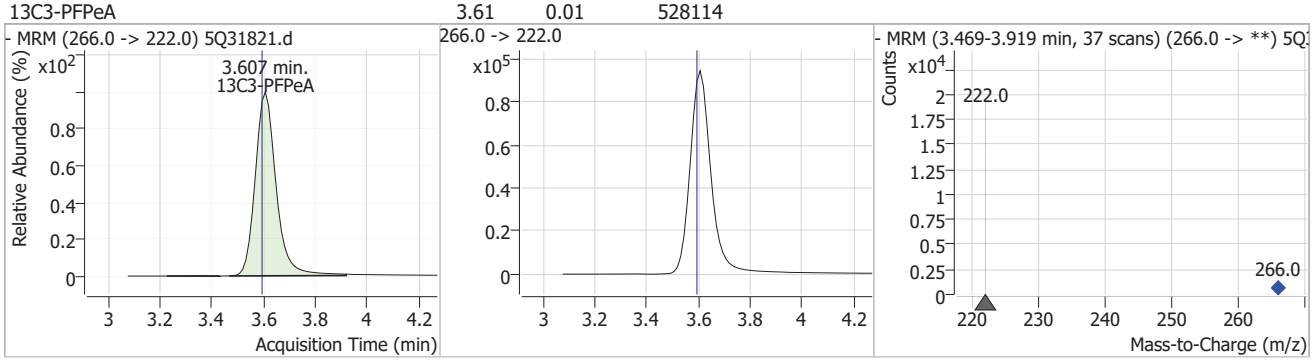
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.288	429.0 -> 409.0	187895	20.00	µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	418170	20.00	µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	528114	20.00	µg/L		0.012
13C4-PFOS	6.860	503.0 -> 80.0	105227	20.00	µg/L		0.000
d3-MeFOSAA	7.254	573.0 -> 419.0	33366	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.435	515.0 -> 470.0	6914	0.39	µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 1.9%			
13C2-PFHxA	4.776	315.0 -> 270.0	10466	0.39	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 2.0%			
d5-EtFOSAA	7.378	589.0 -> 419.0	610	0.96	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 2.4%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	1447	0.77	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 1.9%			
Target Compounds							QValue
6:2FTS	6.289	427.0 -> 407.0	9646	1.02	µg/L		100
8:2FTS	7.471	527.0 -> 507.0	8700	1.06	µg/L		94
EtFOSAA	7.391	584.0 -> 419.0	418	0.75	µg/L	m	63
MeFOSAA	7.254	570.0 -> 419.0	661	0.89	µg/L	m	95
PFBS	3.841	299.0 -> 80.0	11510	0.84	µg/L		98
PFDA	7.435	513.0 -> 469.0	13405	0.92	µg/L		93
PFDoDA	8.641	613.0 -> 569.0	12879	0.86	µg/L		99
PFHpA	5.615	363.0 -> 319.0	27628	0.83	µg/L		98
PFHxA	4.778	313.0 -> 269.0	14178	0.79	µg/L		99
PFHxS	5.648	399.0 -> 80.0	6760	0.80	µg/L	m	99
PFNA	6.887	463.0 -> 419.0	11745	0.91	µg/L	m	99
PFOA	6.291	413.0 -> 369.0	16548	0.84	µg/L		97
PFOS	6.874	499.0 -> 80.0	5764	0.83	µg/L	m	99
PFPeA	3.610	263.0 -> 219.0	27463	0.82	µg/L		100
PFTeDA	10.297	713.0 -> 669.0	4501	0.87	µg/L		100
PFTrDA	9.522	663.0 -> 619.0	5613	0.74	µg/L		100
PFUnDA	7.930	563.0 -> 519.0	13339	0.77	µg/L		97
ADONA	5.701	377.0 -> 251.0	35599	0.83	µg/L		99
9Cl-PF3ONS	7.131	531.0 -> 351.0	4732	0.88	µg/L		90
11Cl-PF3OUdS	8.112	631.0 -> 451.0	5474	0.98	µg/L		99
HFPO-DA	5.035	285.0 -> 169.0	1401	0.88	µg/L		91

 # = Qualifier out of range, m = manually integrated, + = Area summed

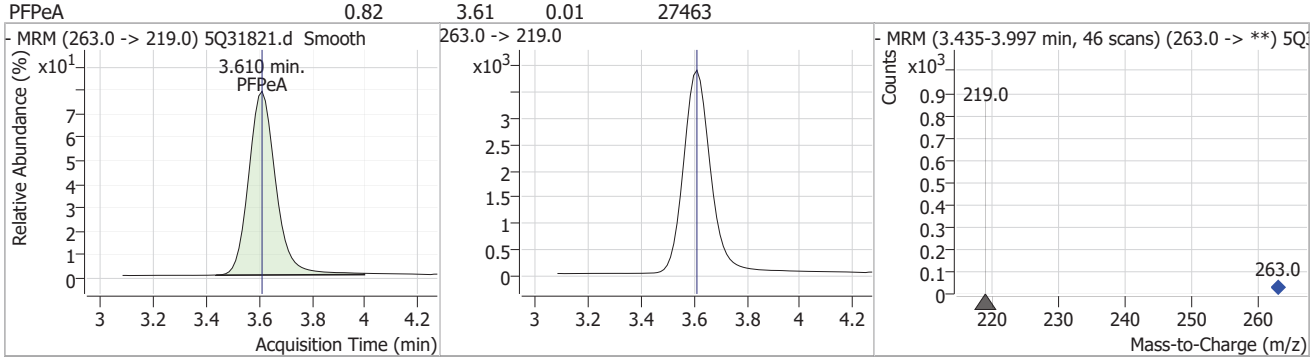
Perfluorinated Compounds by LC/MS/MS



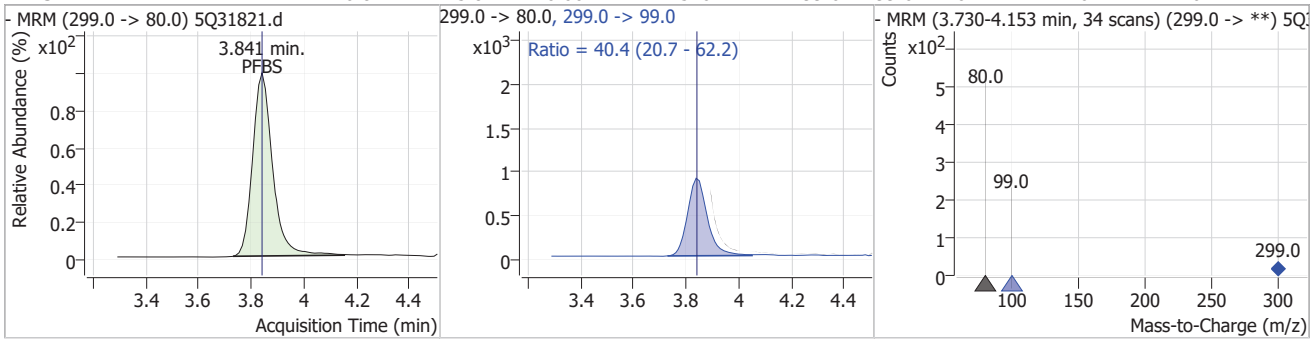
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.01	528114				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.82	3.61	0.01	27463				

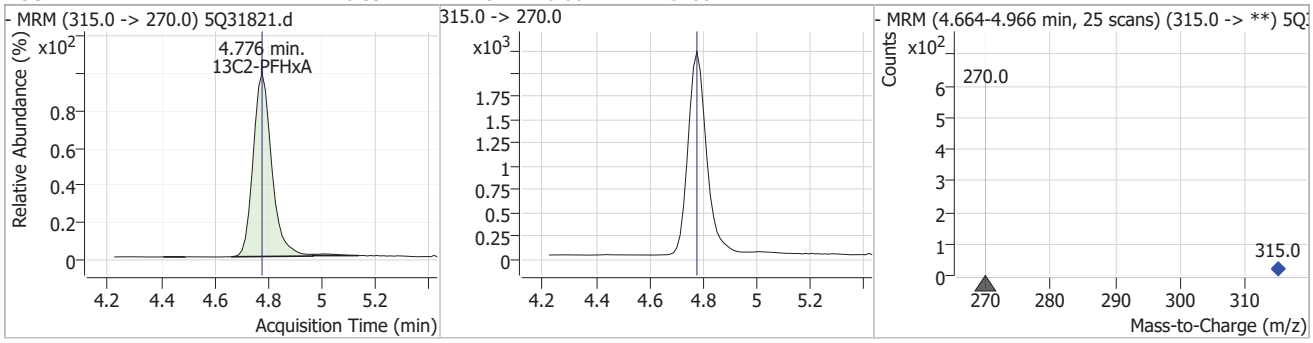


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.84	3.84	0.00	11510	299.0 -> 99.0	40.4	20.7	62.2

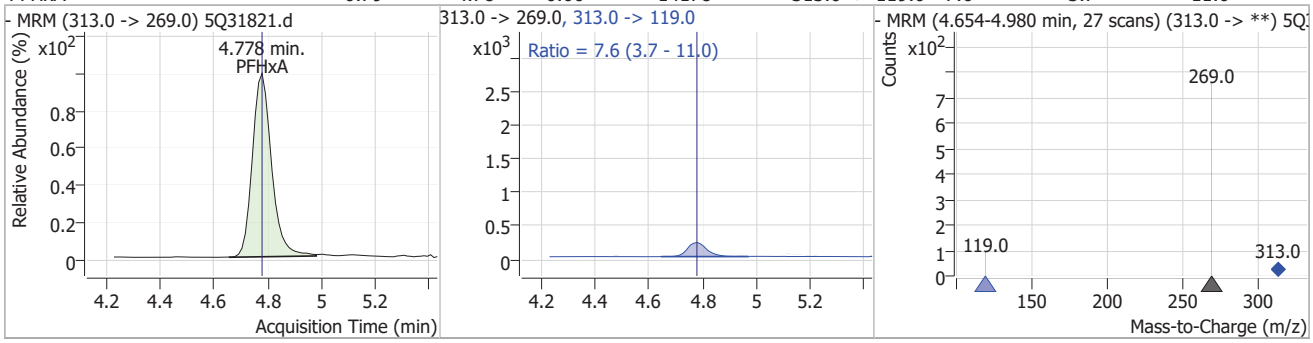


Perfluorinated Compounds by LC/MS/MS

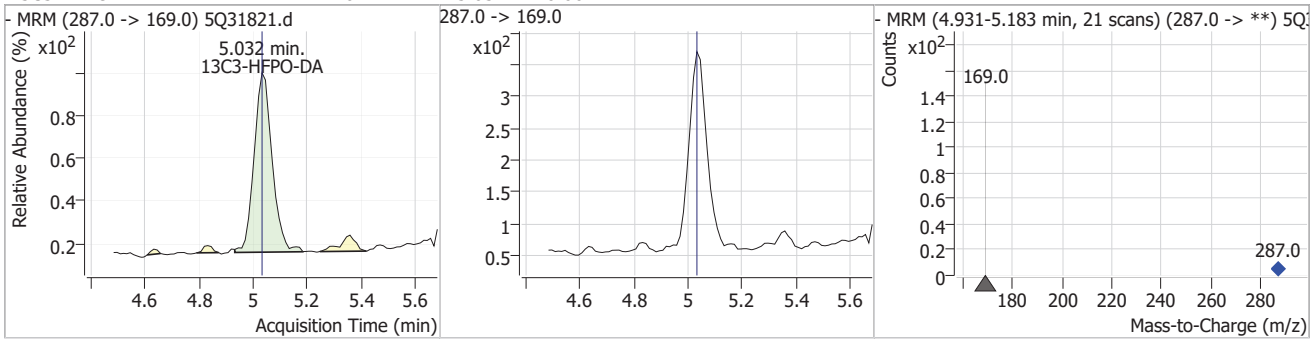
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.39	4.78	0.00	10466				



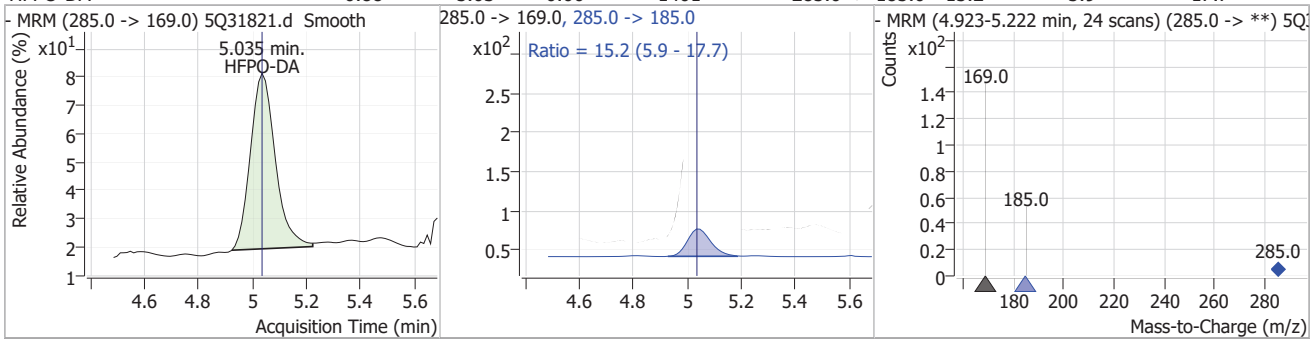
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.79	4.78	0.00	14178	313.0 -> 119.0	7.6	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.77	5.03	0.00	1447				

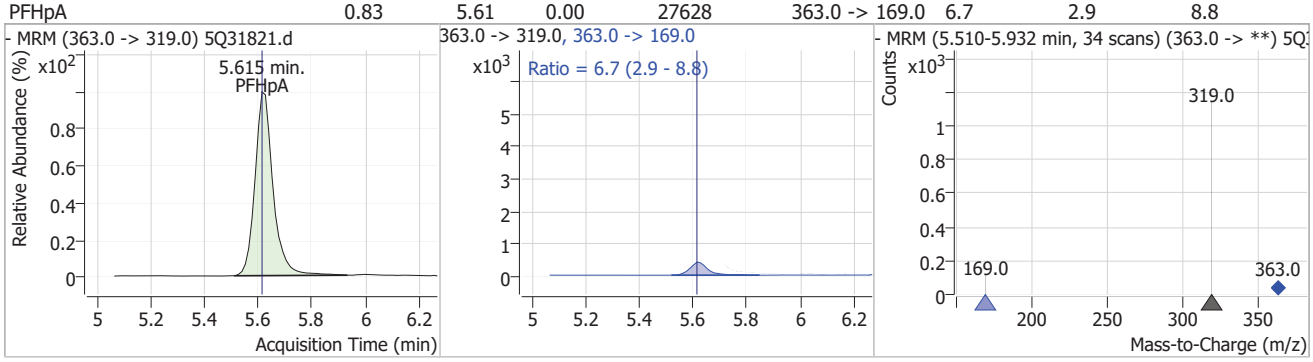


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.88	5.03	0.00	1401	285.0 -> 185.0	15.2	5.9	17.7

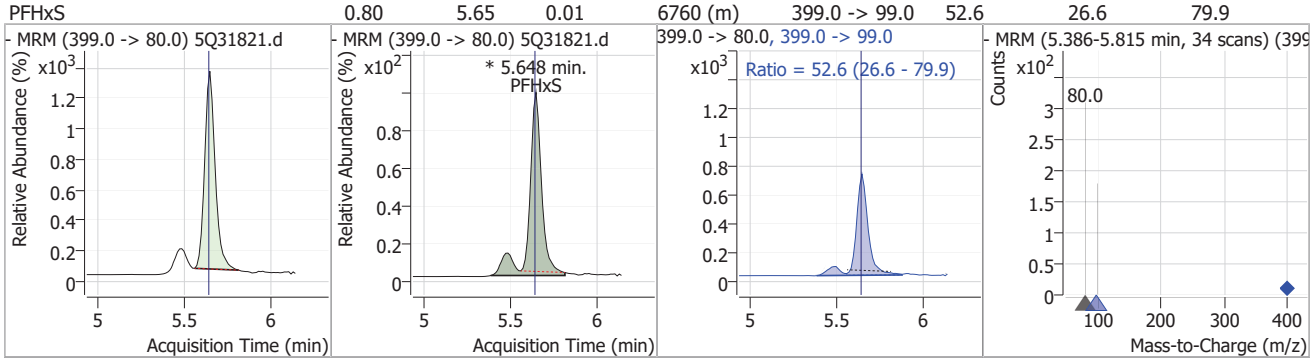


Perfluorinated Compounds by LC/MS/MS

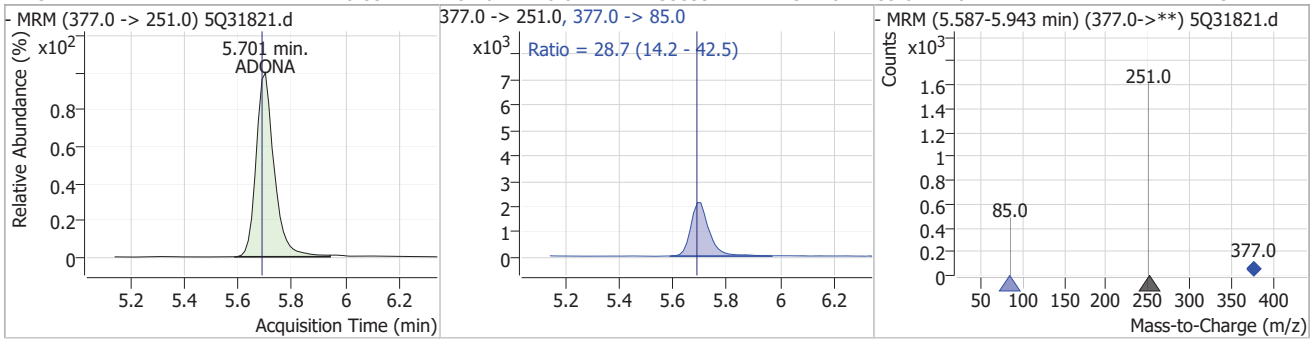
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.83	5.61	0.00	27628	363.0 -> 169.0	6.7	2.9	8.8



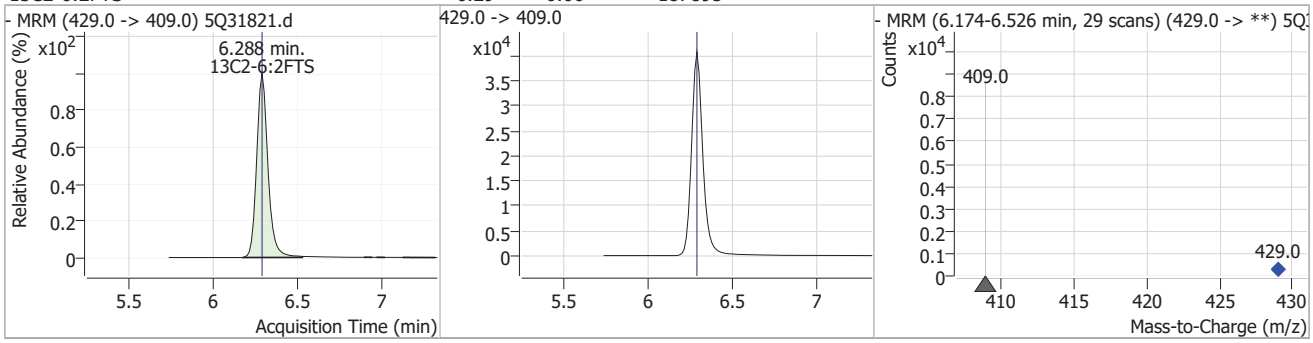
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.80	5.65	0.01	6760 (m)	399.0 -> 99.0	52.6	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.83	5.70	0.01	35599	377.0 -> 85.0	28.7	14.2	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	187895				

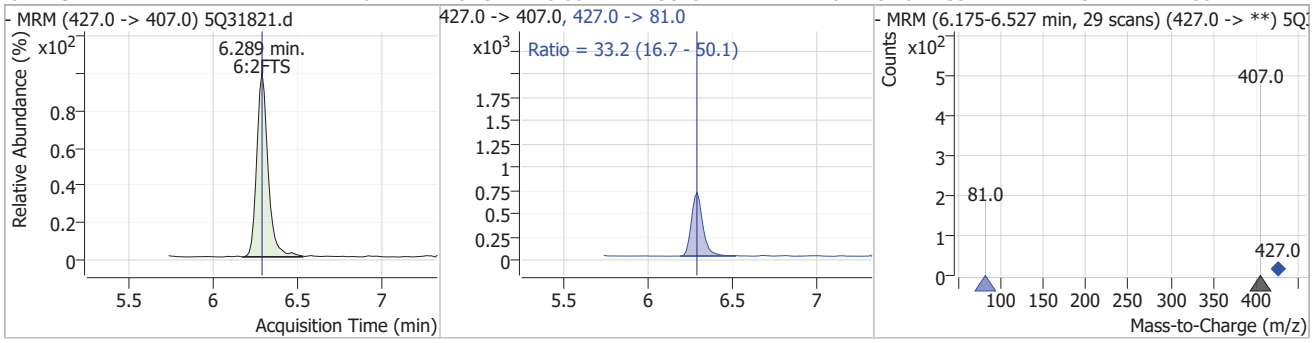


7.7.31

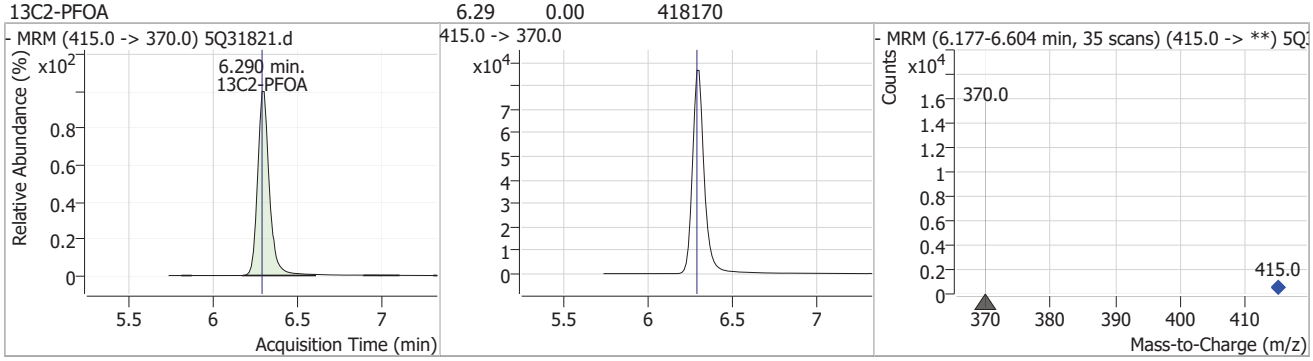
7

Perfluorinated Compounds by LC/MS/MS

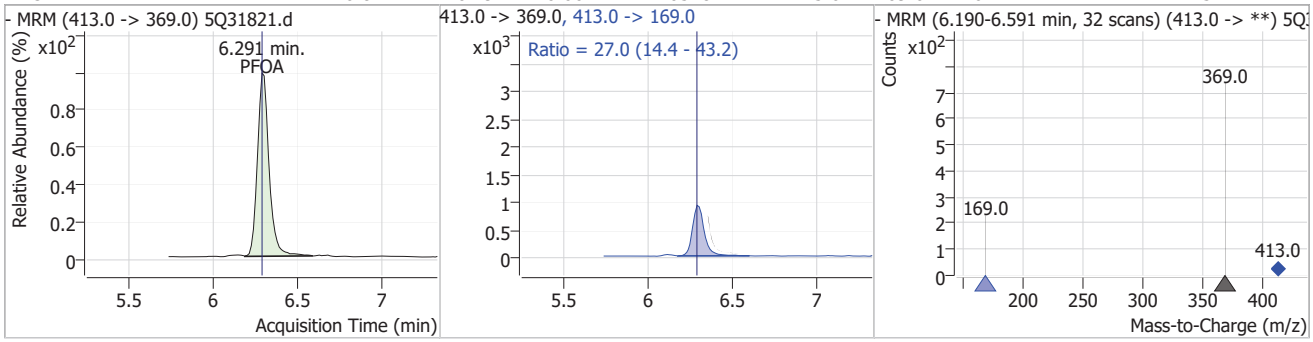
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.02	6.29	0.00	9646	427.0 -> 81.0	33.2	16.7	50.1



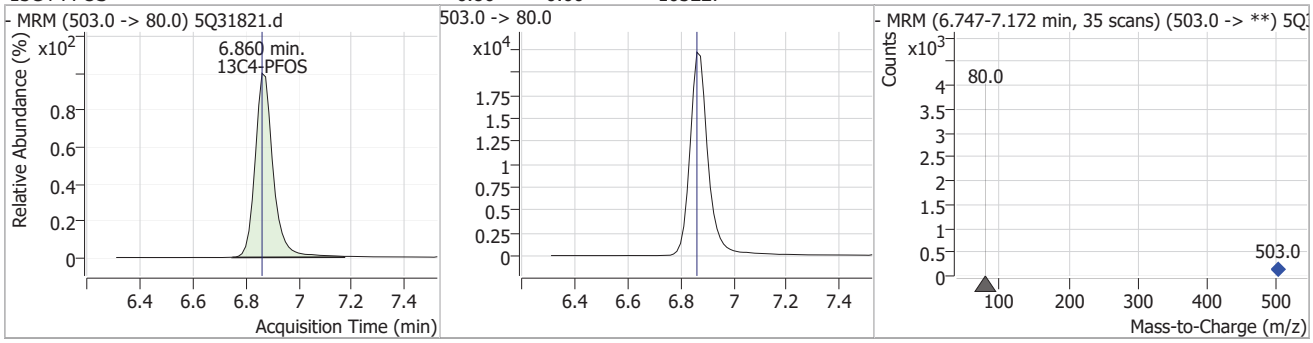
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	418170				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.84	6.29	0.00	16548	413.0 -> 169.0	27.0	14.4	43.2

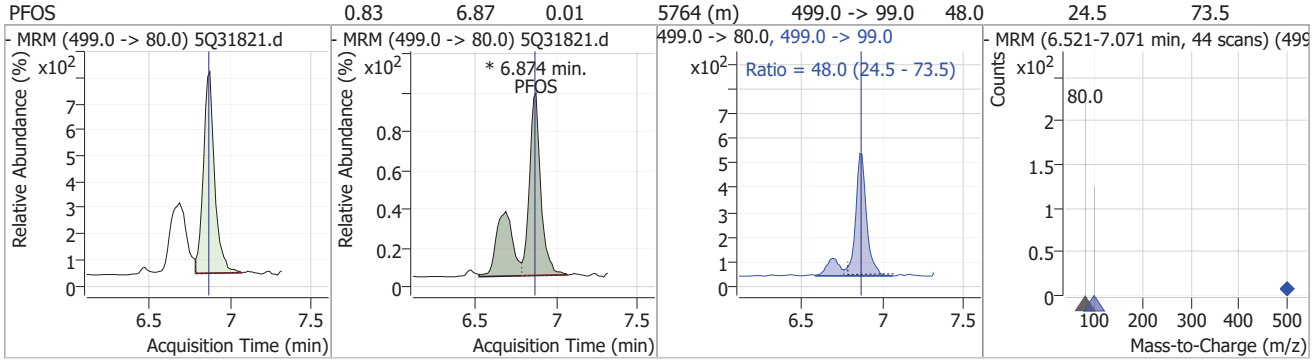


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	105227				

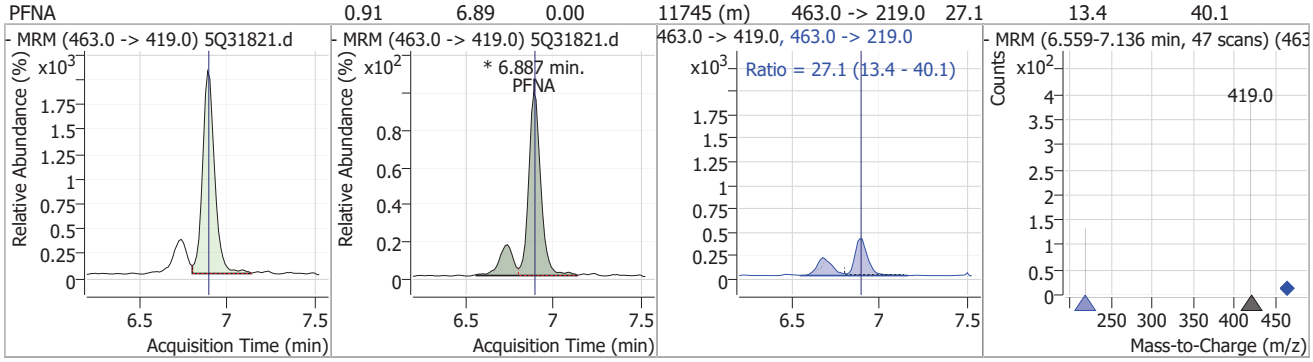


Perfluorinated Compounds by LC/MS/MS

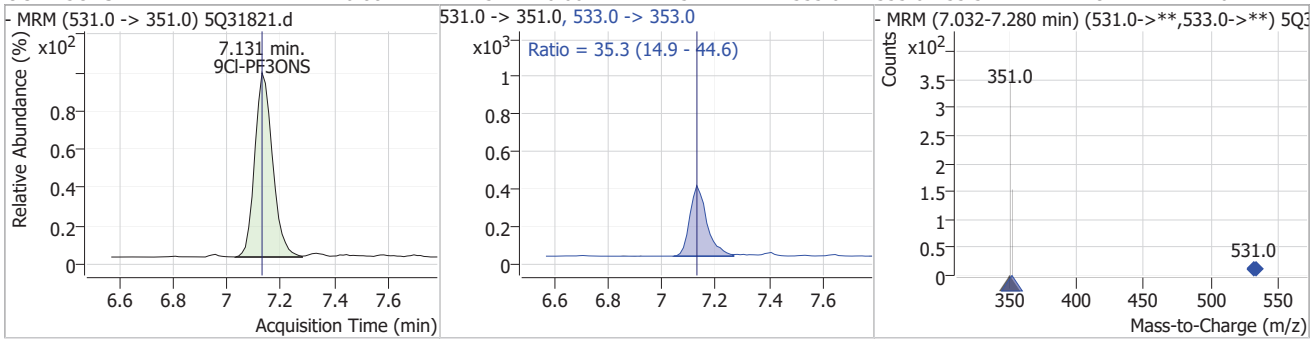
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.83	6.87	0.01	5764 (m)	499.0 -> 99.0	48.0	24.5	73.5



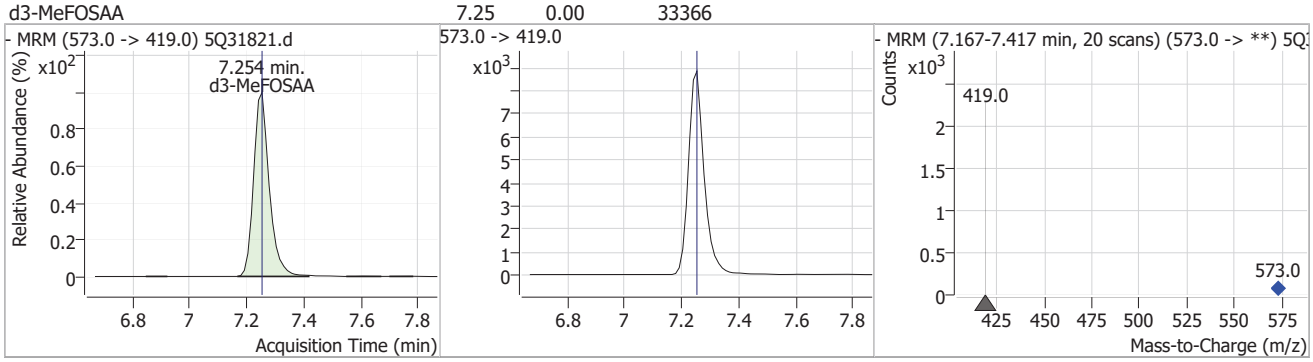
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.91	6.89	0.00	11745 (m)	463.0 -> 219.0	27.1	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.88	7.13	0.00	4732	533.0 -> 353.0	35.3	14.9	44.6

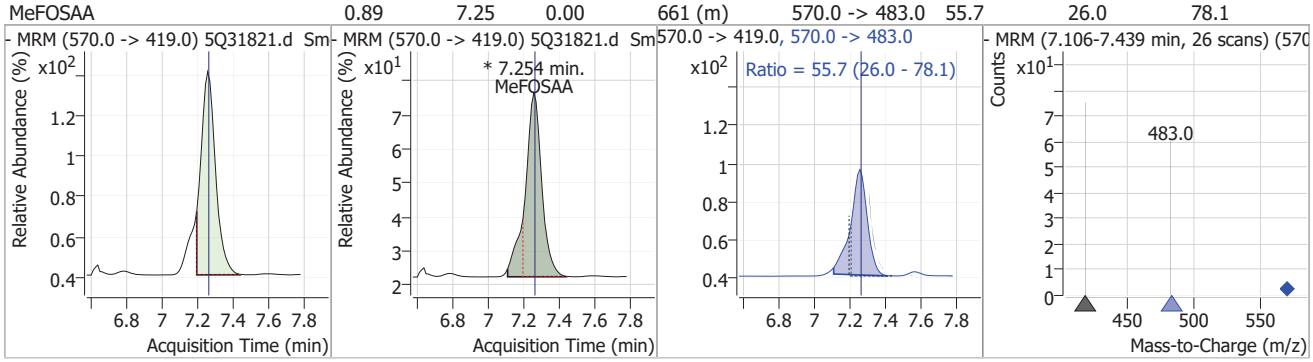


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	33366				

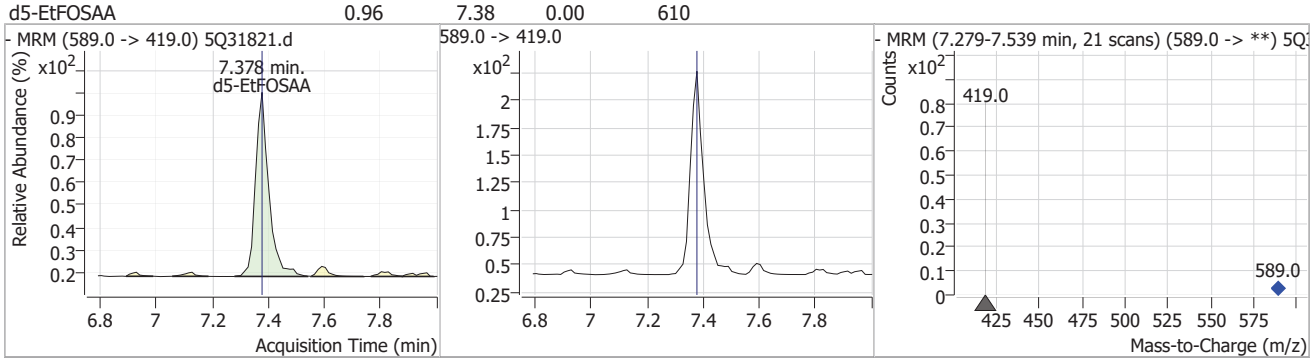


Perfluorinated Compounds by LC/MS/MS

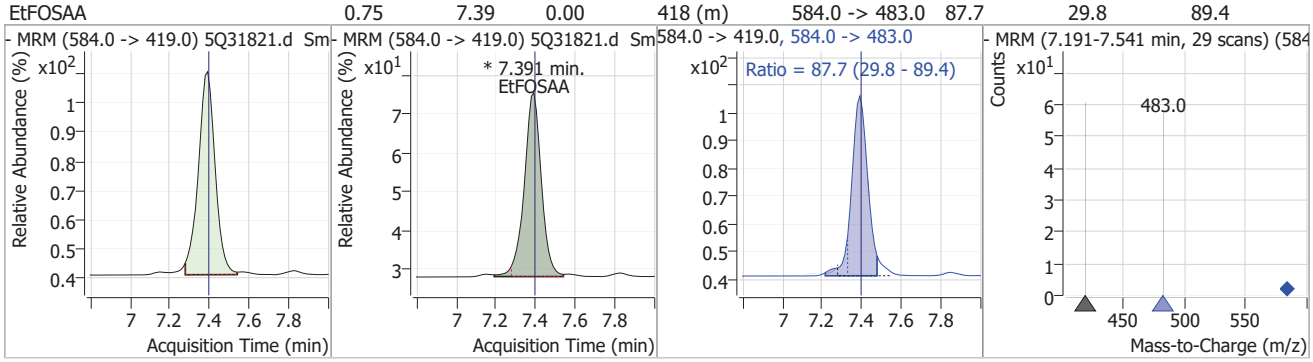
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.89	7.25	0.00	661 (m)	570.0 -> 483.0	55.7	26.0	78.1



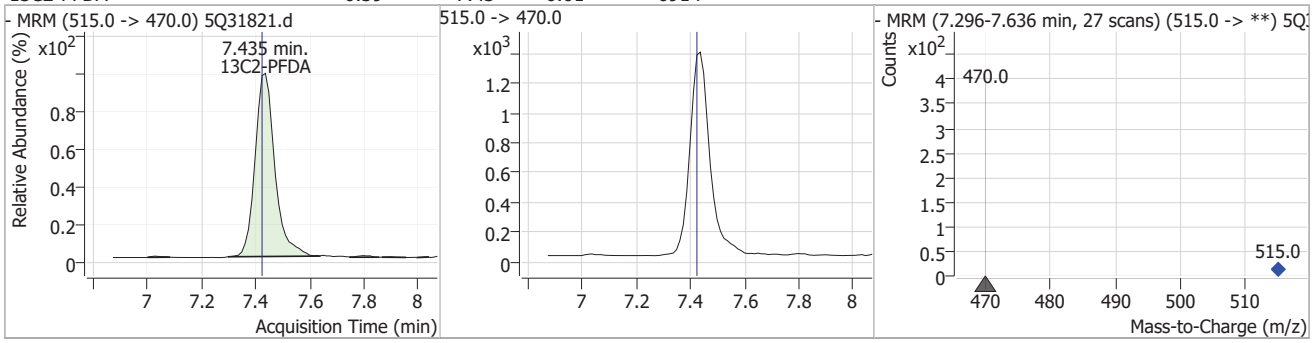
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	0.96	7.38	0.00	610				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.75	7.39	0.00	418 (m)	584.0 -> 483.0	87.7	29.8	89.4

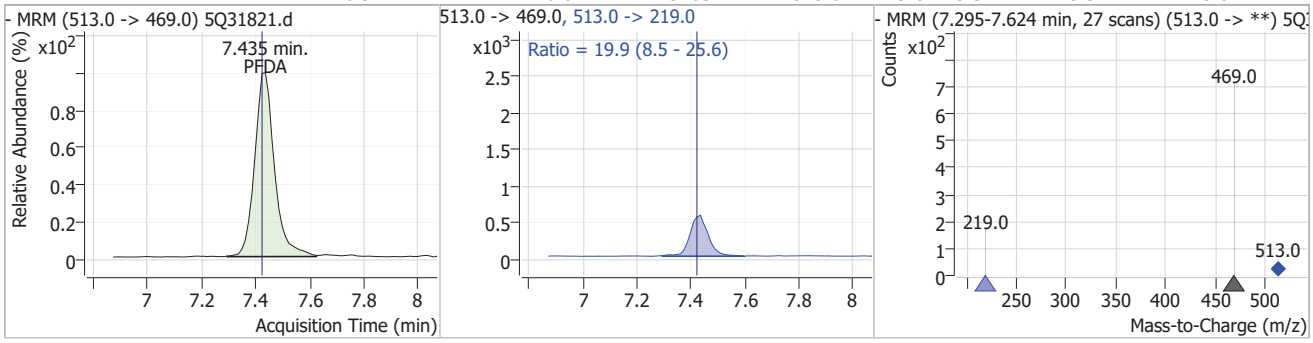


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.39	7.43	0.01	6914				

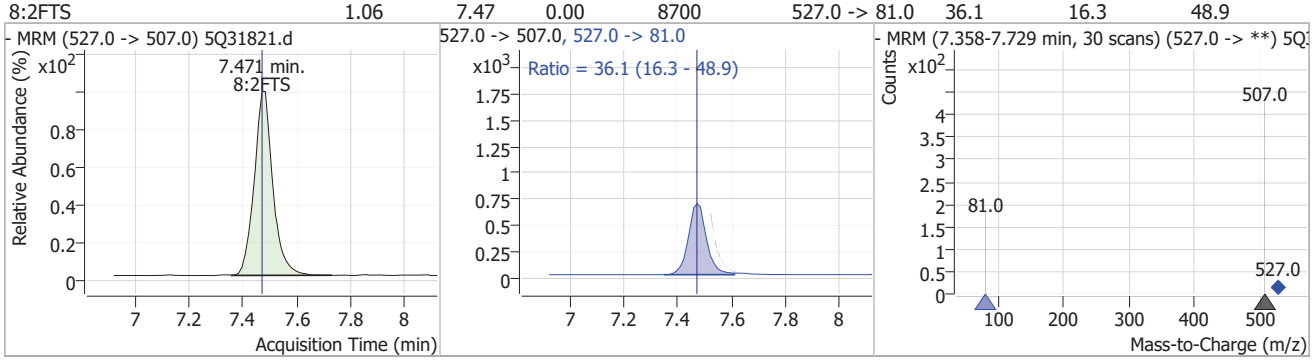


Perfluorinated Compounds by LC/MS/MS

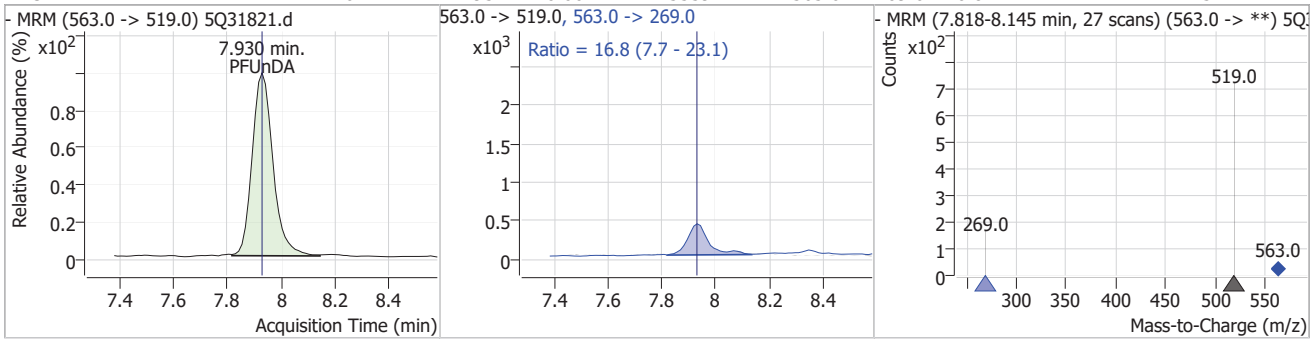
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.92	7.44	0.01	13405	513.0 -> 219.0	19.9	8.5	25.6



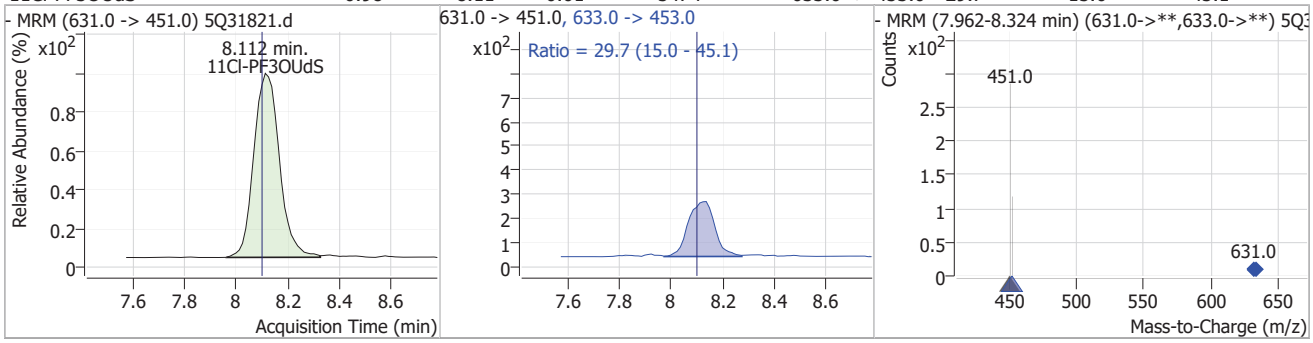
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	1.06	7.47	0.00	8700	527.0 -> 81.0	36.1	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.77	7.93	0.00	13339	563.0 -> 269.0	16.8	7.7	23.1

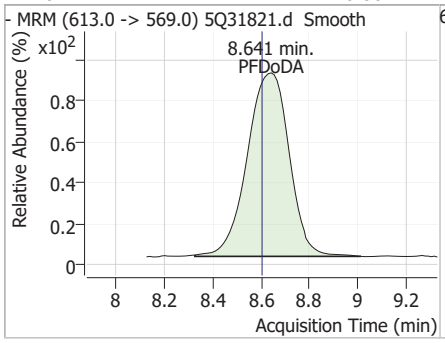


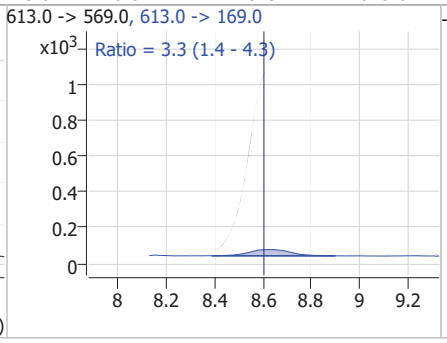
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.98	8.11	0.01	5474	633.0 -> 453.0	29.7	15.0	45.1

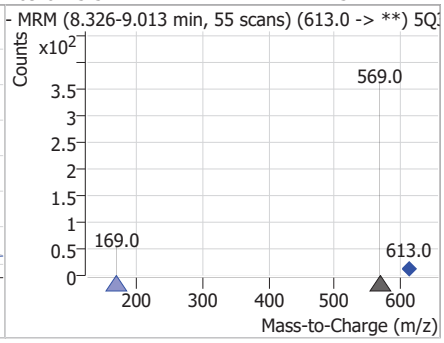


Perfluorinated Compounds by LC/MS/MS

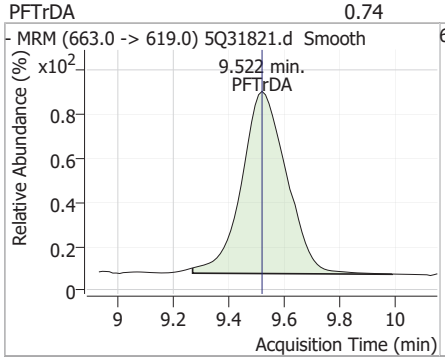
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.86	8.64	0.04	12879	613.0 -> 169.0	3.3	1.4	4.3

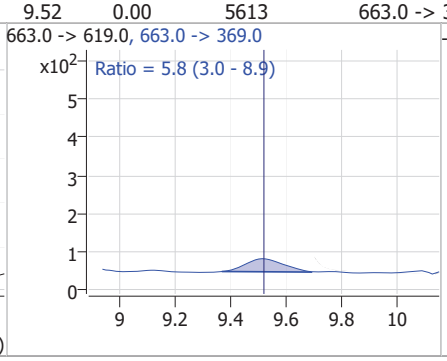


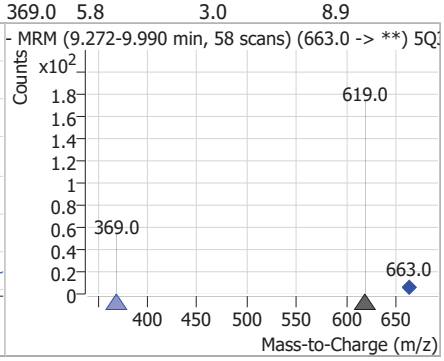




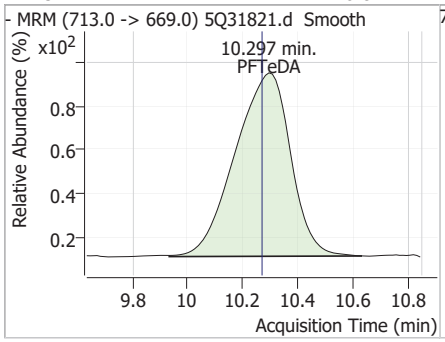
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.74	9.52	0.00	5613	663.0 -> 369.0	5.8	3.0	8.9

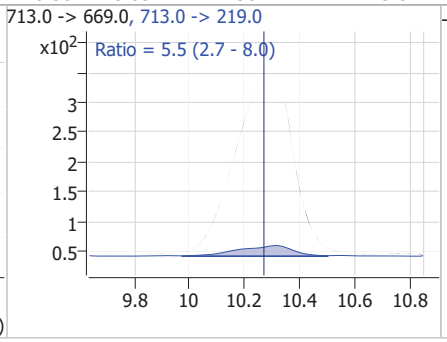


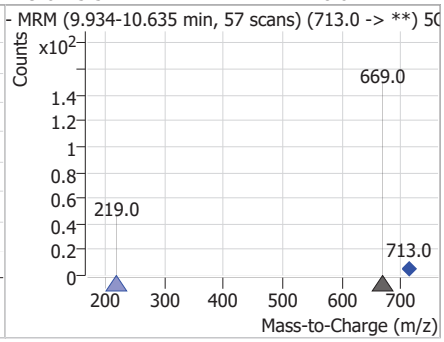




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.87	10.30	0.03	4501	713.0 -> 219.0	5.5	2.7	8.0







Manual Integration Approval Summary

Sample Number: S5Q523-IC523
Lab FileID: 5Q31821.D
Injection Time: 04/17/25 12:55
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6)
Supervisor approved: 04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.87	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31822.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 1:12:06 PM
Sample Name : ic523-2
Vial : P1-A4
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.288	429.0 -> 409.0	176876	20.00	µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	392988	20.00	µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	501309	20.00	µg/L		0.012
13C4-PFOS	6.860	503.0 -> 80.0	98059	20.00	µg/L		0.000
d3-MeFOSAA	7.254	573.0 -> 419.0	29802	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.435	515.0 -> 470.0	13389	0.80	µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 4.0%			
13C2-PFHxA	4.776	315.0 -> 270.0	20002	0.80	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 4.0%			
d5-EtFOSAA	7.378	589.0 -> 419.0	911	1.61	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 4.0%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	2916	1.66	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 4.1%			
Target Compounds							QValue
6:2FTS	6.289	427.0 -> 407.0	18396	2.08	µg/L		98
8:2FTS	7.471	527.0 -> 507.0	16014	2.08	µg/L		97
EtFOSAA	7.391	584.0 -> 419.0	1182	2.37	µg/L	m	97
MeFOSAA	7.254	570.0 -> 419.0	1449	2.18	µg/L	m	91
PFBS	3.841	299.0 -> 80.0	22576	1.76	µg/L		100
PFDA	7.435	513.0 -> 469.0	25527	1.85	µg/L		100
PFDoDA	8.629	613.0 -> 569.0	26728	1.92	µg/L		99
PFHpA	5.615	363.0 -> 319.0	56216	1.79	µg/L		99
PFHxA	4.778	313.0 -> 269.0	27998	1.65	µg/L		98
PFHxS	5.648	399.0 -> 80.0	13162	1.68	µg/L	m	97
PFNA	6.887	463.0 -> 419.0	22488	1.86	µg/L	m	96
PFOA	6.291	413.0 -> 369.0	31366	1.70	µg/L		97
PFOS	6.861	499.0 -> 80.0	9688	1.50	µg/L	m	96
PFPeA	3.610	263.0 -> 219.0	54261	1.70	µg/L		100
PFTeDA	10.284	713.0 -> 669.0	9074	1.88	µg/L		98
PFTrDA	9.522	663.0 -> 619.0	12144	1.71	µg/L		98
PFUnDA	7.930	563.0 -> 519.0	27429	1.70	µg/L		100
ADONA	5.701	377.0 -> 251.0	72441	1.79	µg/L		99
9Cl-PF3ONS	7.144	531.0 -> 351.0	10201	2.02	µg/L		91
11Cl-PF3OUdS	8.112	631.0 -> 451.0	10483	1.99	µg/L		98
HFPO-DA	5.035	285.0 -> 169.0	2763	1.85	µg/L		98

 # = Qualifier out of range, m = manually integrated, + = Area summed

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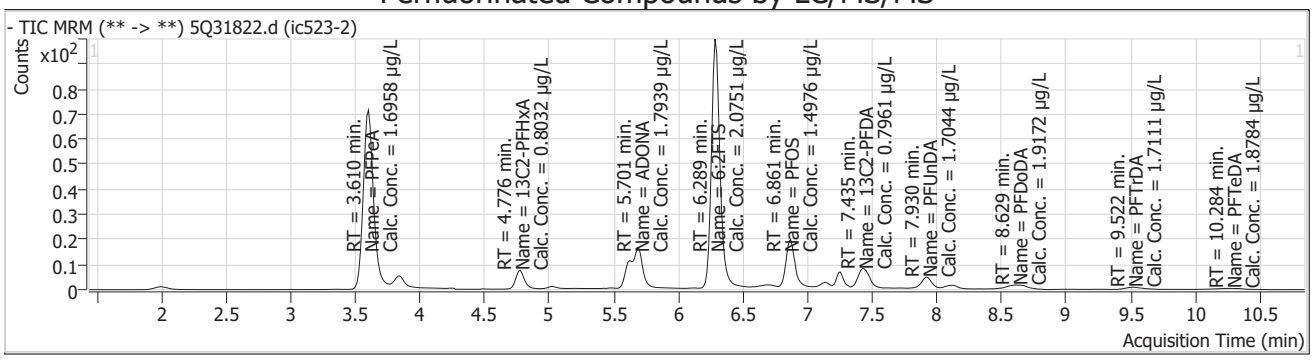
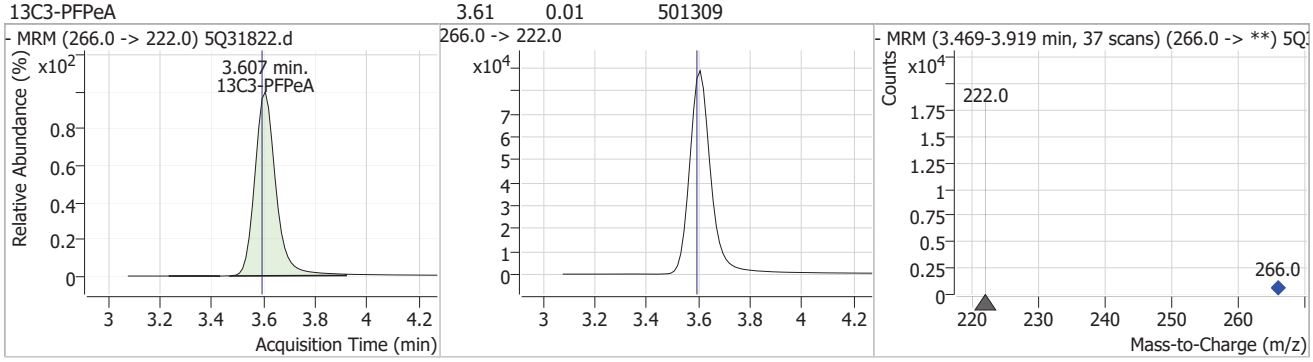
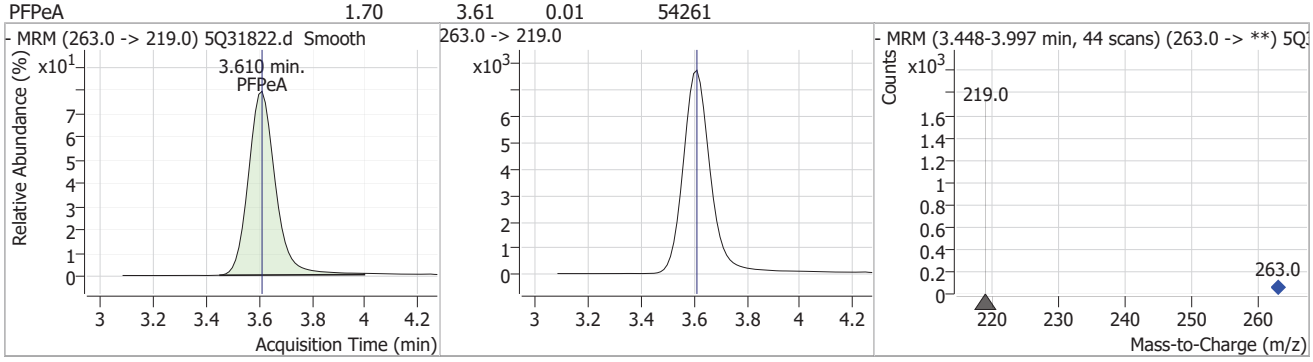
Perfluorinated Compounds by LC/MS/MS



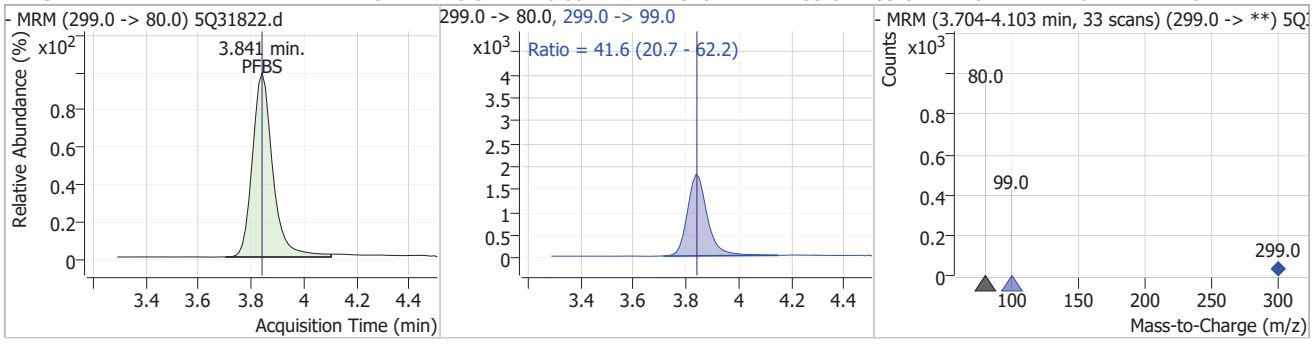
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.01	501309				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.70	3.61	0.01	54261				

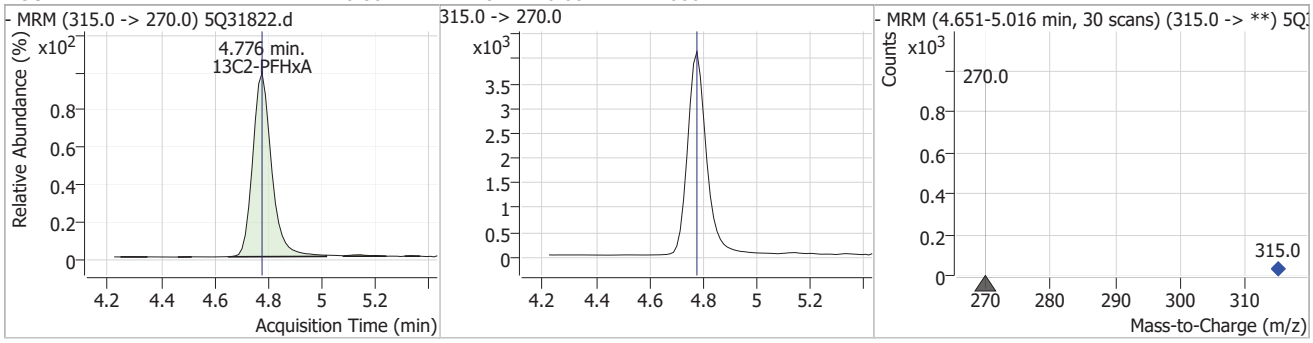


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.76	3.84	0.00	22576	299.0 -> 99.0	41.6	20.7	62.2

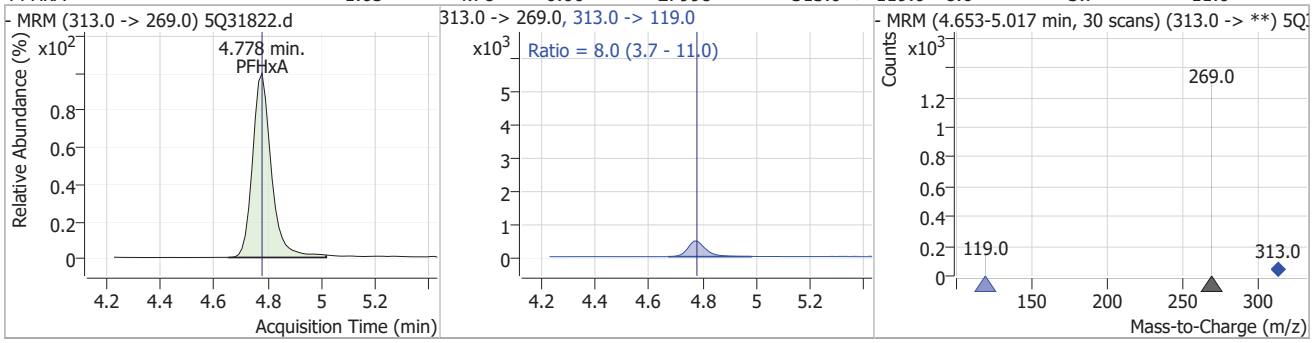


Perfluorinated Compounds by LC/MS/MS

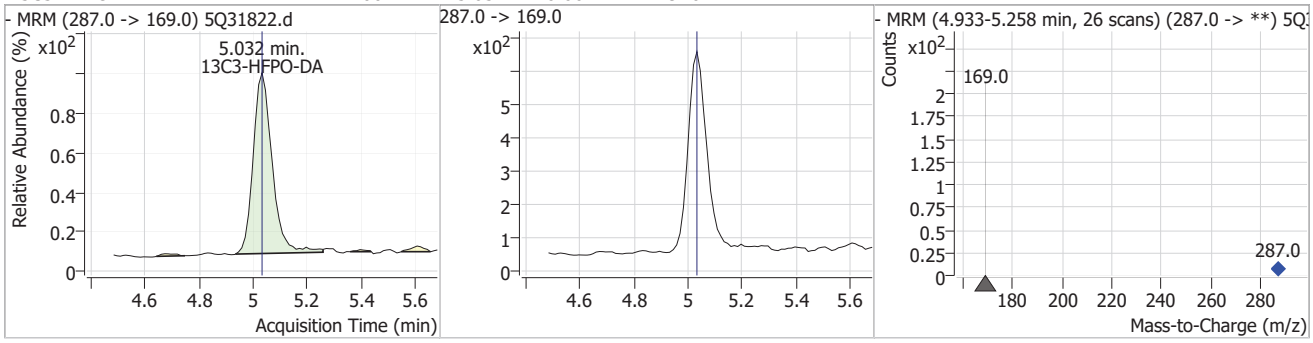
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.80	4.78	0.00	20002				



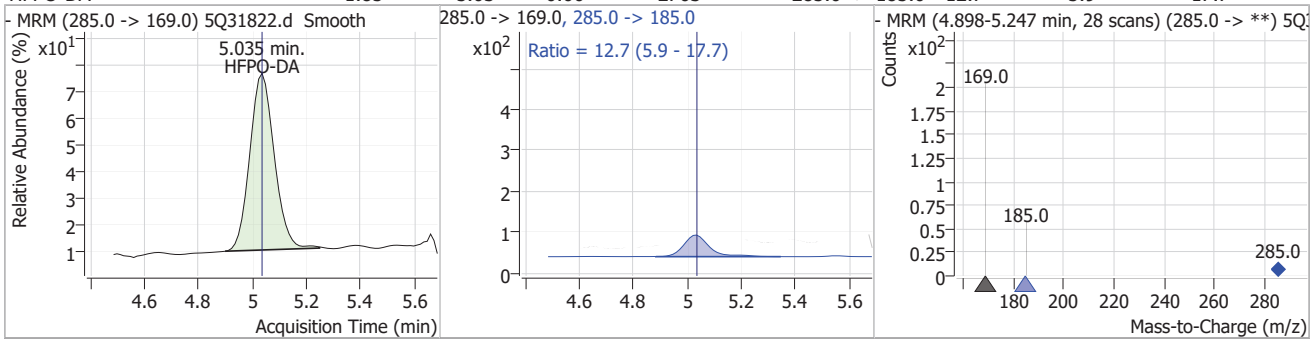
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.65	4.78	0.00	27998	313.0 -> 119.0	8.0	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	1.66	5.03	0.00	2916				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	1.85	5.03	0.00	2763	285.0 -> 185.0	12.7	5.9	17.7



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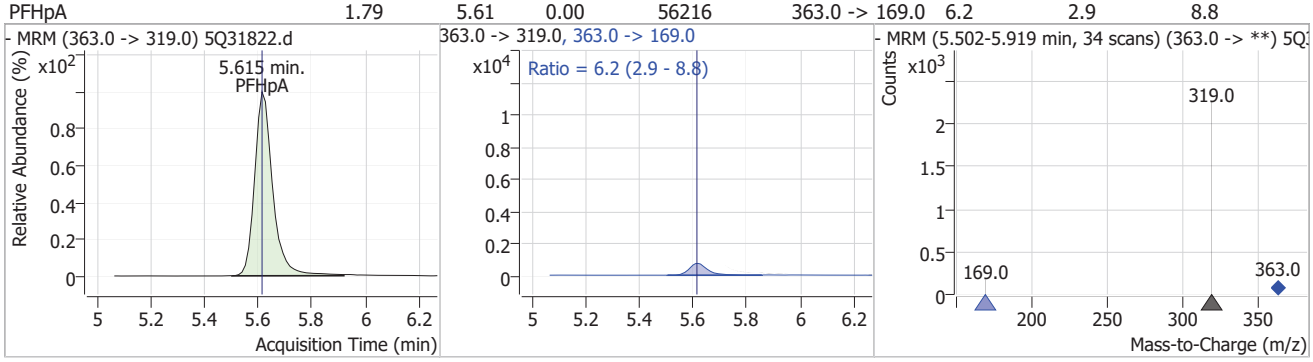
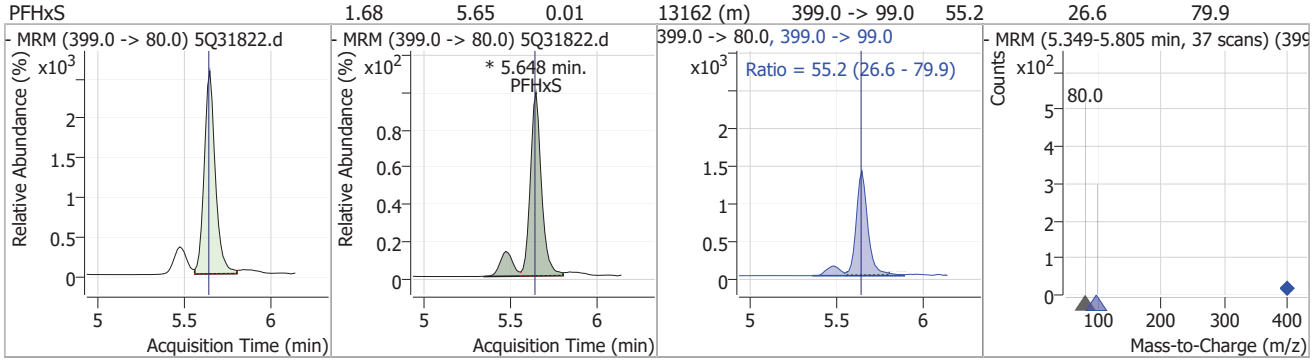
Perfluorinated Compounds by LC/MS/MS

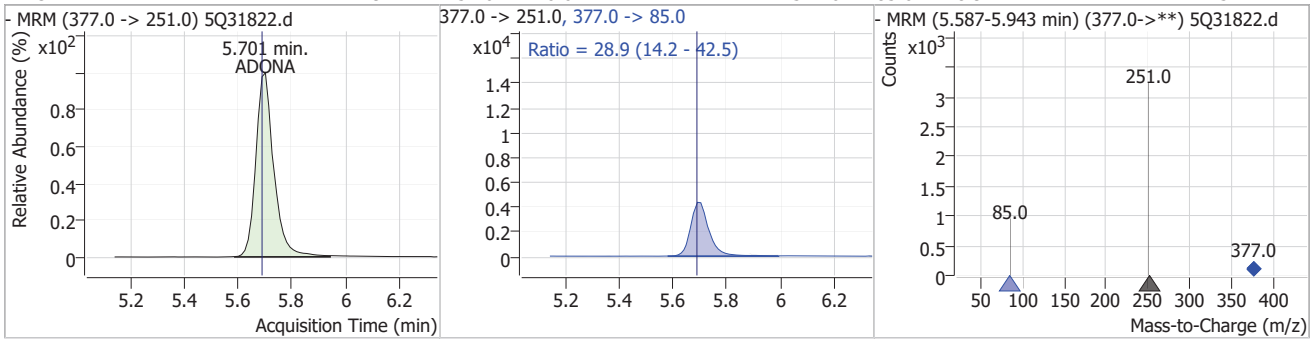
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.79	5.61	0.00	56216	363.0 -> 169.0	6.2	2.9	8.8



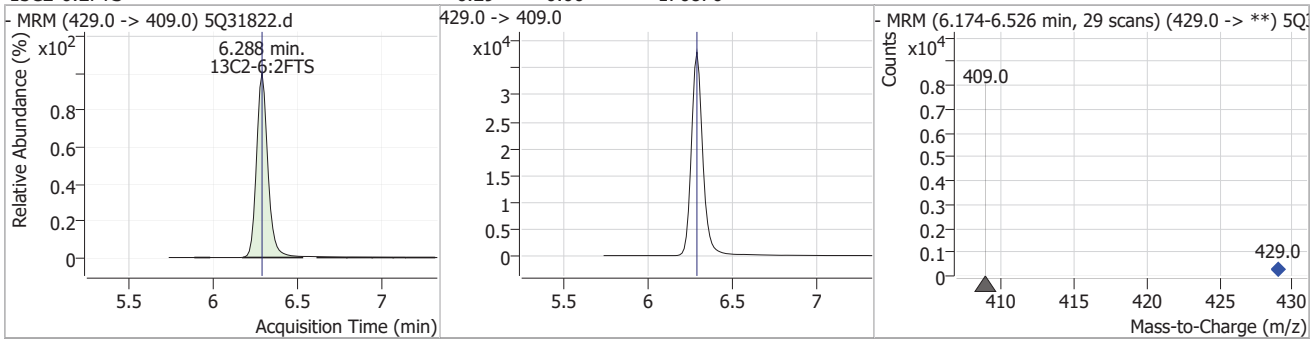
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.68	5.65	0.01	13162 (m)	399.0 -> 99.0	55.2	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	1.79	5.70	0.01	72441	377.0 -> 85.0	28.9	14.2	42.5

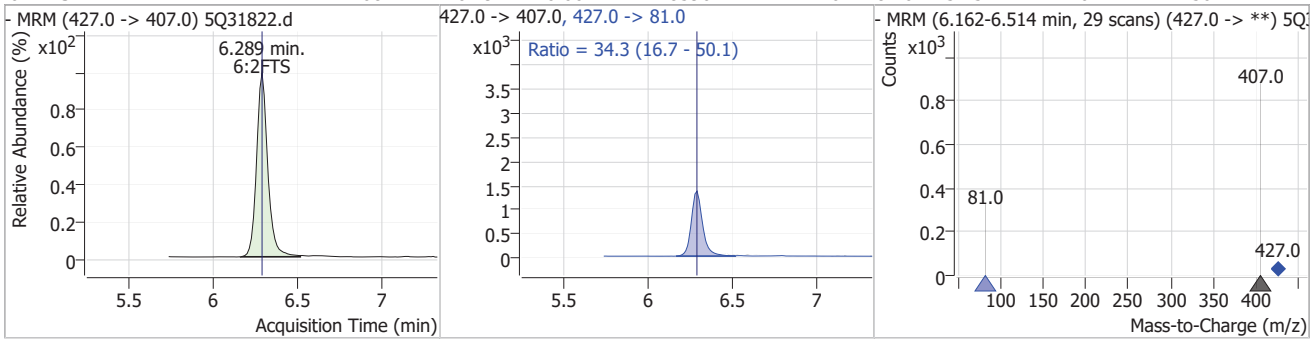


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	176876				

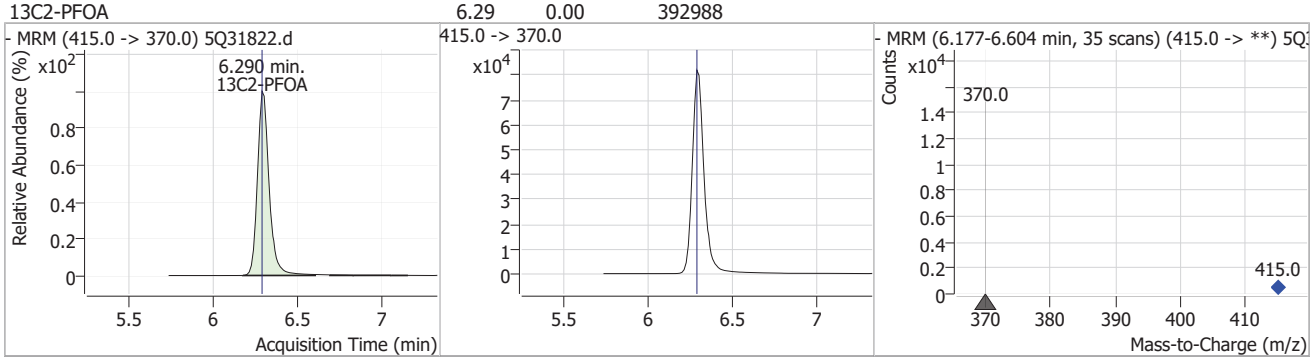


Perfluorinated Compounds by LC/MS/MS

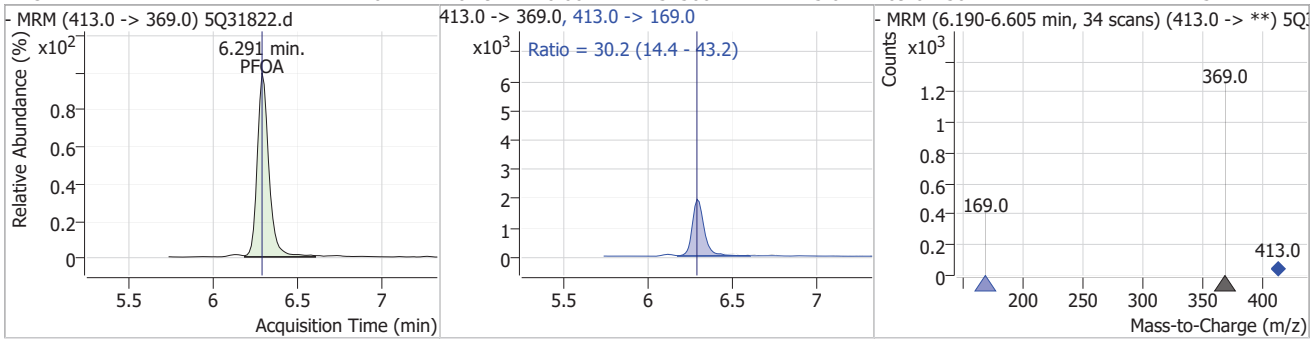
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	2.08	6.29	0.00	18396	427.0 -> 81.0	34.3	16.7	50.1



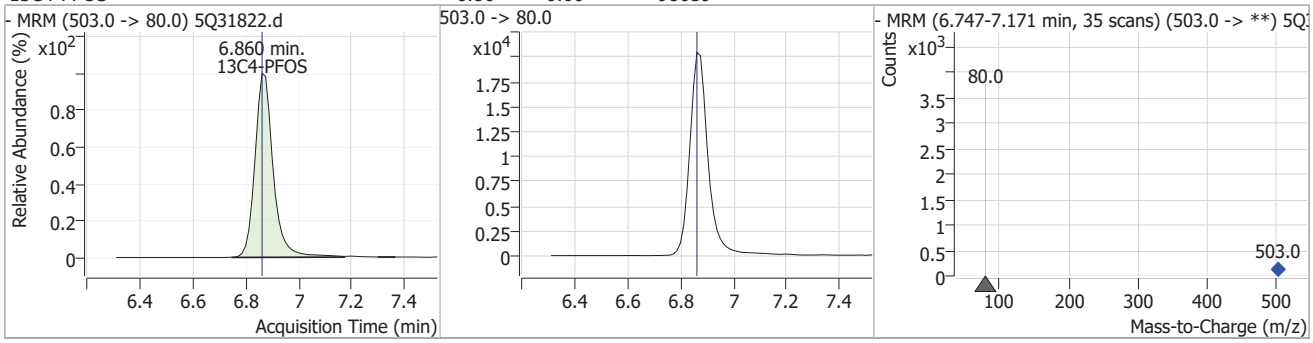
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	392988				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.70	6.29	0.00	31366	413.0 -> 169.0	30.2	14.4	43.2

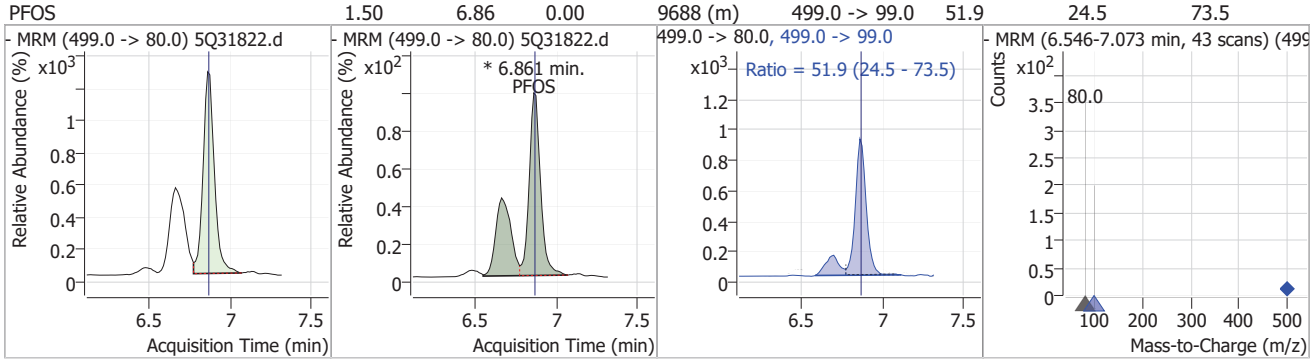


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	98059				

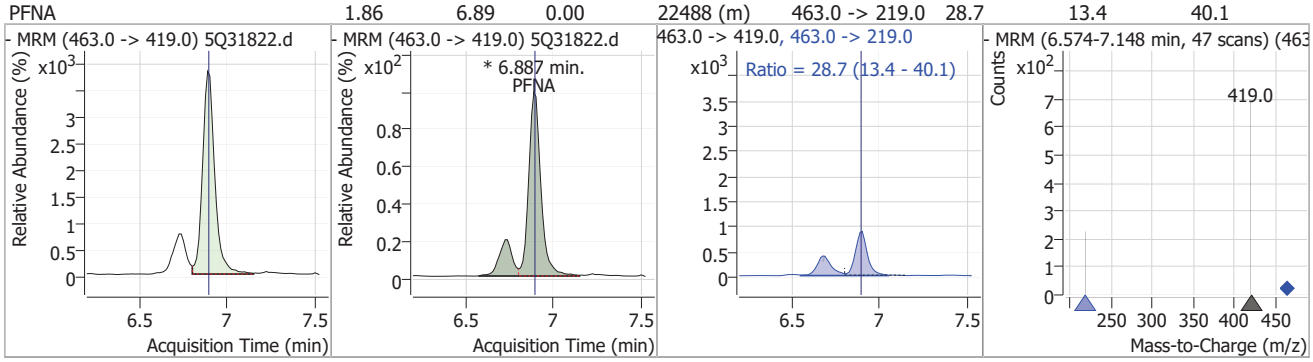


Perfluorinated Compounds by LC/MS/MS

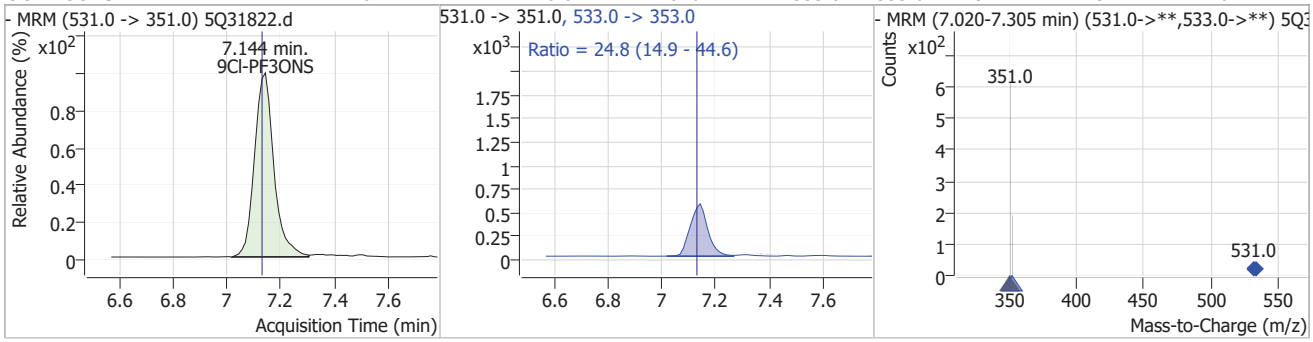
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.50	6.86	0.00	9688 (m)	499.0 -> 99.0	51.9	24.5	73.5



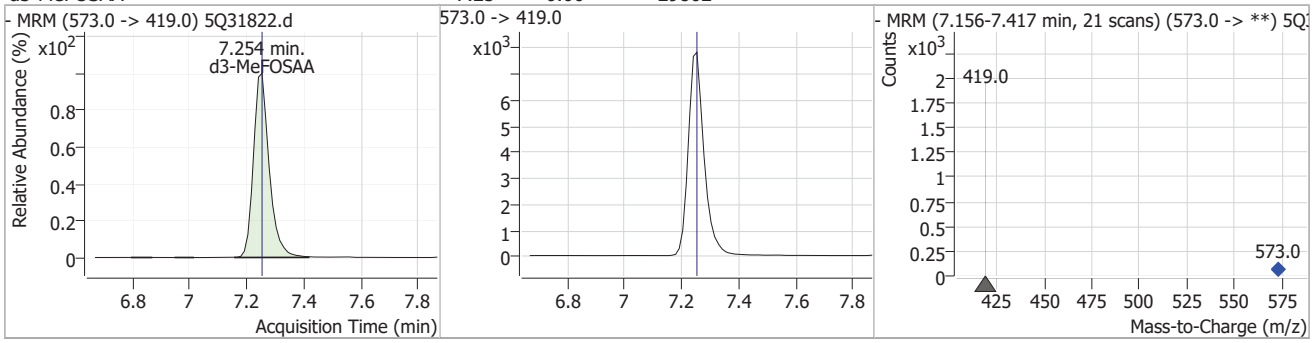
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.86	6.89	0.00	22488 (m)	463.0 -> 219.0	28.7	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	2.02	7.14	0.01	10201	533.0 -> 353.0	24.8	14.9	44.6

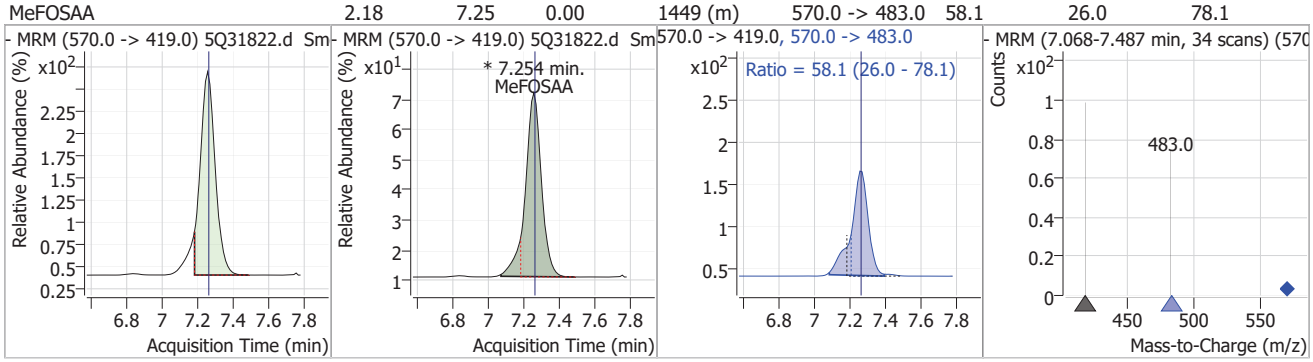


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	29802				

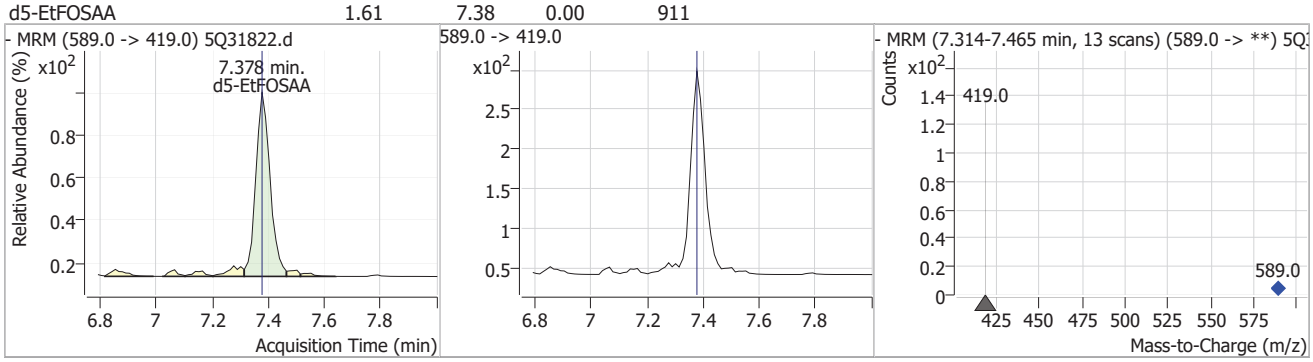


Perfluorinated Compounds by LC/MS/MS

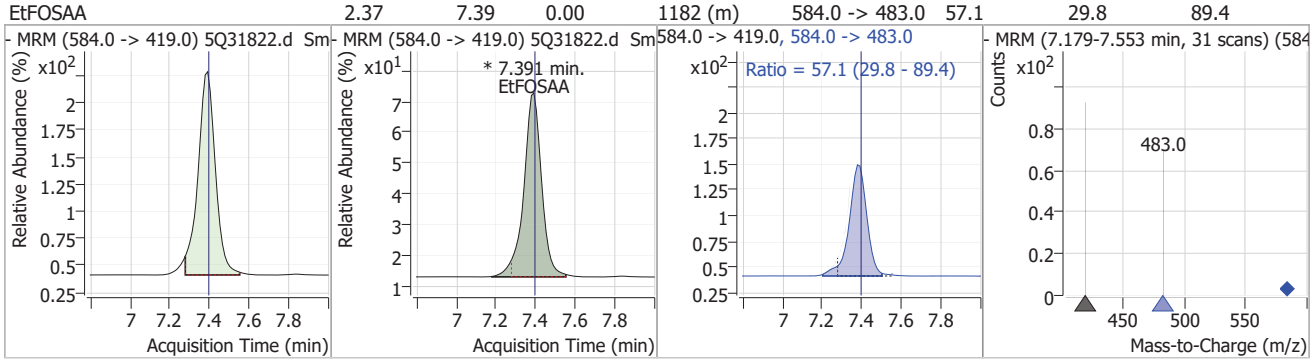
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.18	7.25	0.00	1449 (m)	570.0 -> 483.0	58.1	26.0	78.1



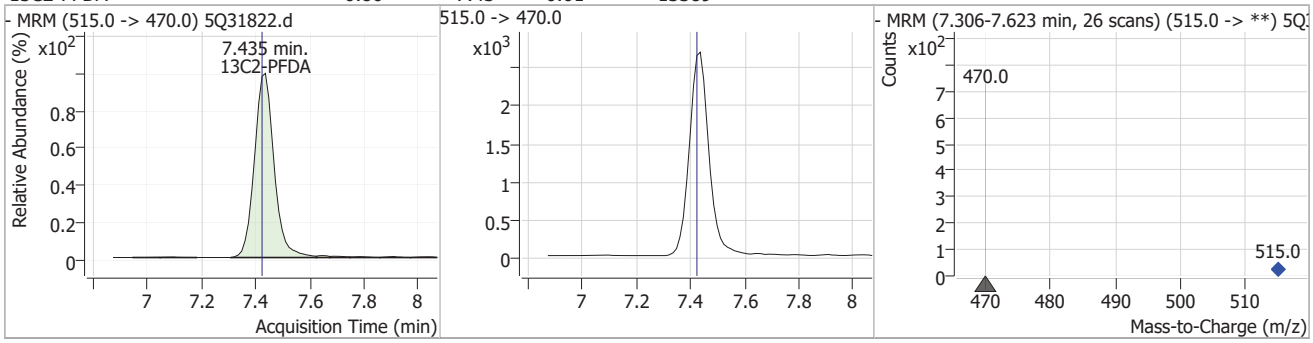
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	1.61	7.38	0.00	911				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.37	7.39	0.00	1182 (m)	584.0 -> 483.0	57.1	29.8	89.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.80	7.43	0.01	13389				



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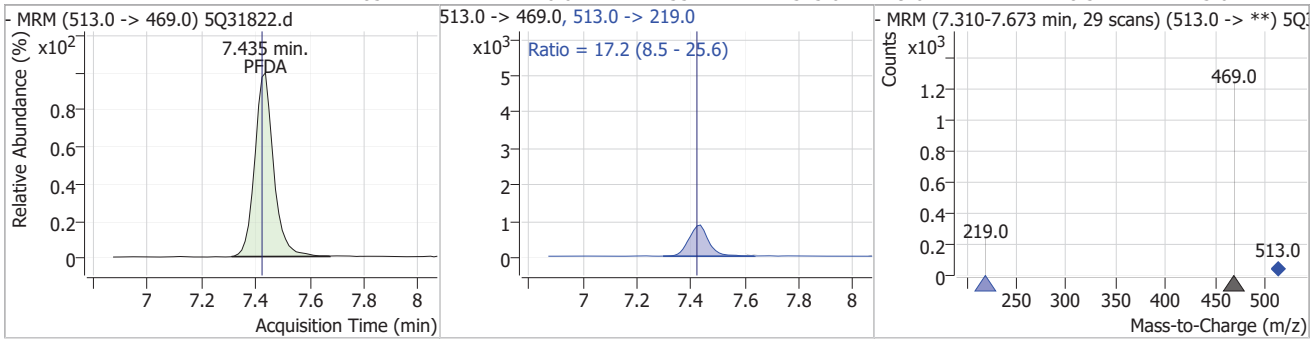
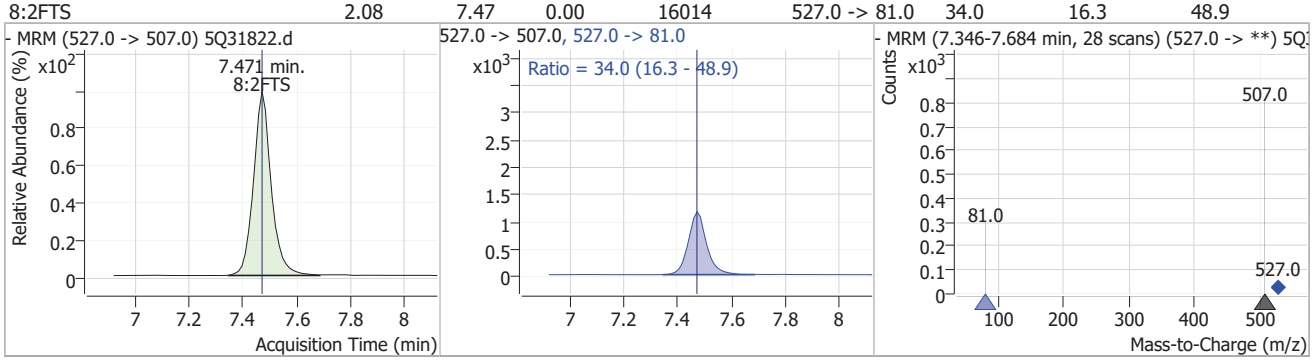
Perfluorinated Compounds by LC/MS/MS

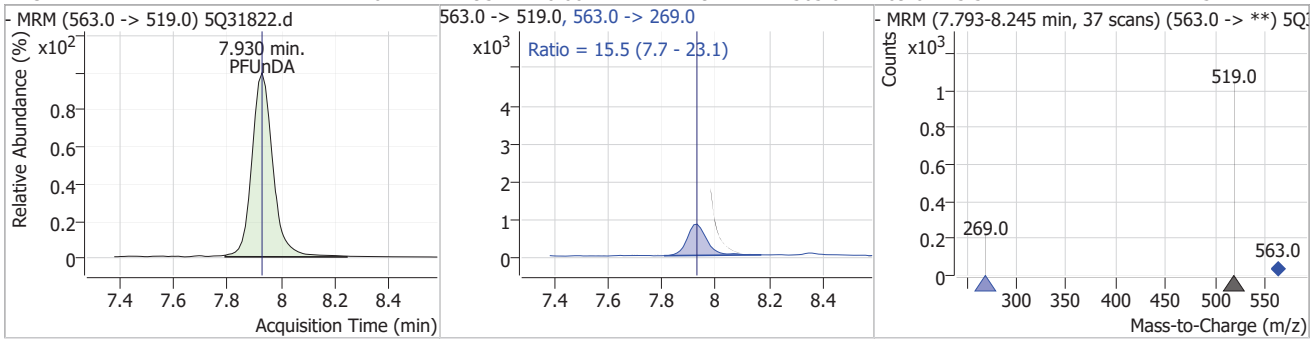
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.85	7.44	0.01	25527	513.0 -> 219.0	17.2	8.5	25.6



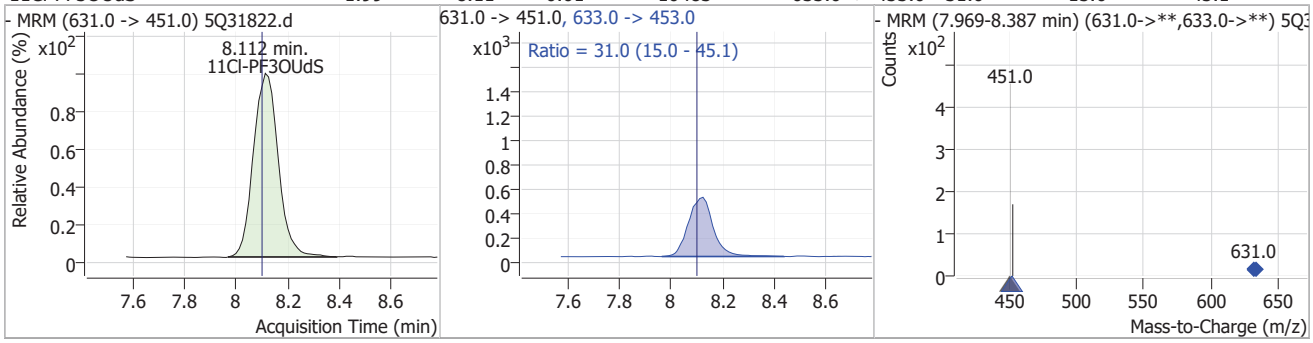
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	2.08	7.47	0.00	16014	527.0 -> 81.0	34.0	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.70	7.93	0.00	27429	563.0 -> 269.0	15.5	7.7	23.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	1.99	8.11	0.01	10483	633.0 -> 453.0	31.0	15.0	45.1



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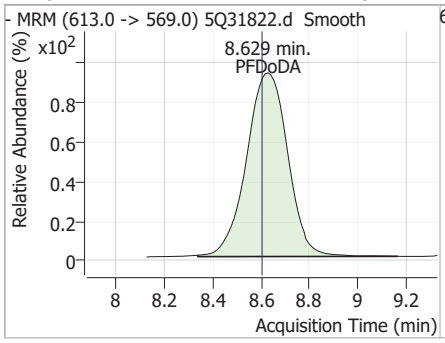
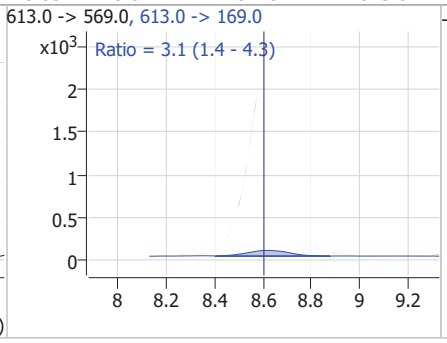
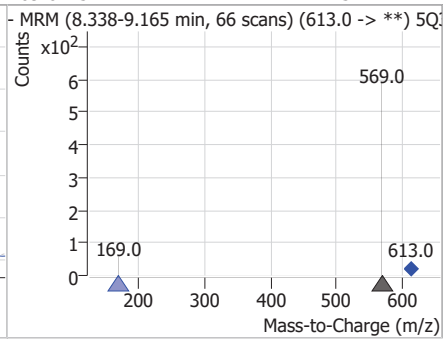
Perfluorinated Compounds by LC/MS/MS

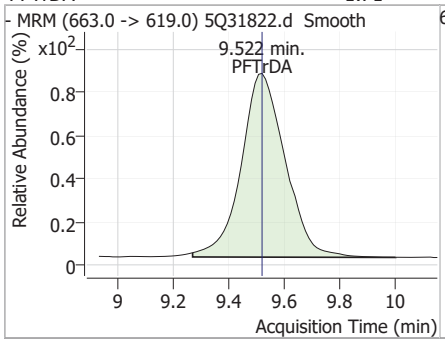
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	1.92	8.63	0.02	26728	613.0 -> 169.0	3.1	1.4	4.3

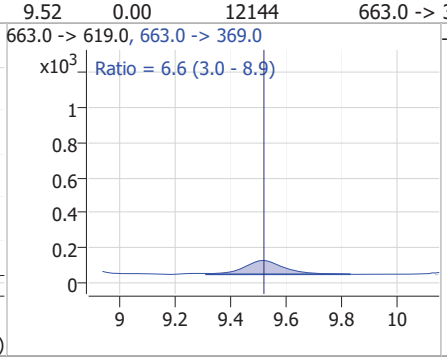


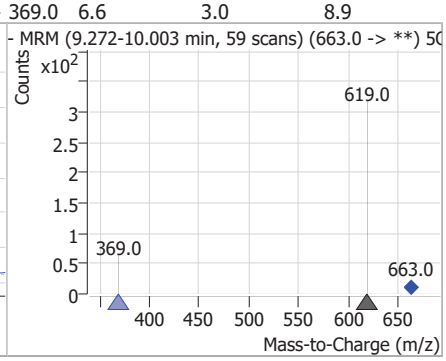




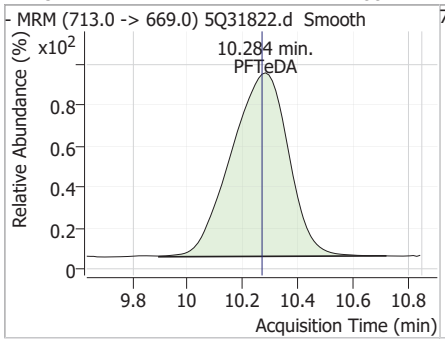
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	1.71	9.52	0.00	12144	663.0 -> 369.0	6.6	3.0	8.9

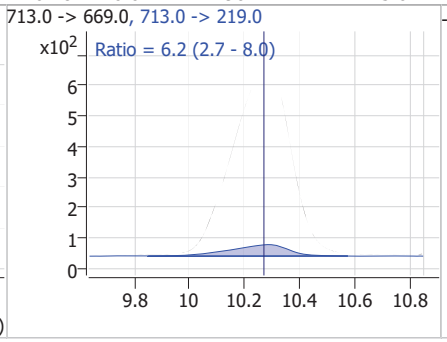


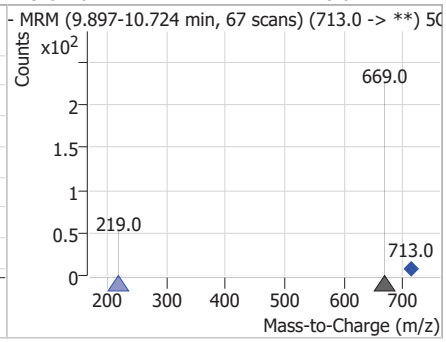




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.88	10.28	0.01	9074	713.0 -> 219.0	6.2	2.7	8.0







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Manual Integration Approval Summary

Sample Number: S5Q523-IC523
Lab FileID: 5Q31822.D
Injection Time: 04/17/25 13:12
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6)
Supervisor approved: 04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31823.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 1:28:32 PM
Sample Name : ic523-5
Vial : P1-A5
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.288	429.0 -> 409.0	183368	20.00	µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	403054	20.00	µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	506505	20.00	µg/L		0.012
13C4-PFOS	6.860	503.0 -> 80.0	99224	20.00	µg/L		0.000
d3-MeFOSAA	7.254	573.0 -> 419.0	31569	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.422	515.0 -> 470.0	36936	2.14	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 10.7%			
13C2-PFHxA	4.776	315.0 -> 270.0	55232	2.16	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 10.8%			
d5-EtFOSAA	7.378	589.0 -> 419.0	2656	4.43	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 11.1%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	7370	4.08	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 10.2%			
Target Compounds							QValue
6:2FTS	6.289	427.0 -> 407.0	49664	5.40	µg/L		98
8:2FTS	7.471	527.0 -> 507.0	41857	5.25	µg/L		99
EtFOSAA	7.391	584.0 -> 419.0	2194	4.15	µg/L	m	99
MeFOSAA	7.254	570.0 -> 419.0	2666	3.77	µg/L	#m	63
PFBS	3.841	299.0 -> 80.0	61607	4.75	µg/L		98
PFDA	7.423	513.0 -> 469.0	67060	4.74	µg/L		98
PFDoDA	8.604	613.0 -> 569.0	64076	4.52	µg/L		99
PFHpA	5.615	363.0 -> 319.0	151502	4.68	µg/L		100
PFHxA	4.778	313.0 -> 269.0	75952	4.37	µg/L		99
PFHxS	5.648	399.0 -> 80.0	35860	4.51	µg/L	m	100
PFNA	6.887	463.0 -> 419.0	64507	5.15	µg/L	m	99
PFOA	6.291	413.0 -> 369.0	84652	4.45	µg/L		99
PFOS	6.861	499.0 -> 80.0	27585	4.21	µg/L	m	100
PFPeA	3.610	263.0 -> 219.0	147044	4.54	µg/L		100
PFTeDA	10.284	713.0 -> 669.0	22055	4.48	µg/L		100
PFTrDA	9.522	663.0 -> 619.0	27200	3.79	µg/L		97
PFUnDA	7.930	563.0 -> 519.0	71206	4.37	µg/L		100
ADONA	5.689	377.0 -> 251.0	195292	4.69	µg/L		99
9Cl-PF3ONS	7.131	531.0 -> 351.0	25637	4.90	µg/L		96
11Cl-PF3OUdS	8.112	631.0 -> 451.0	27621	5.06	µg/L		99
HFPO-DA	5.035	285.0 -> 169.0	7077	4.61	µg/L		93

 # = Qualifier out of range, m = manually integrated, + = Area summed

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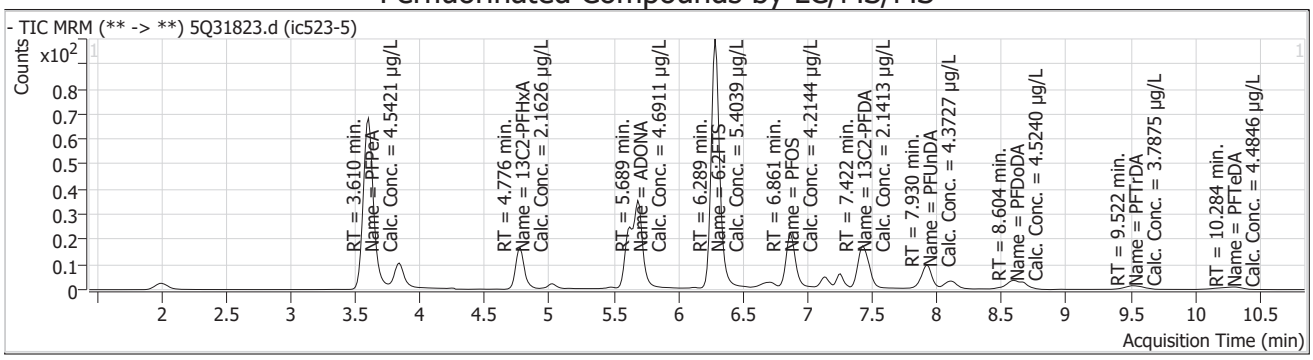
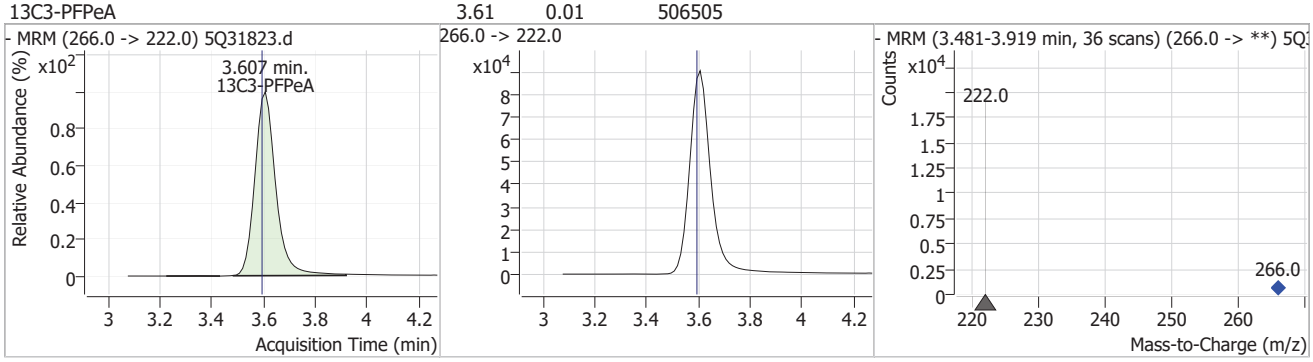
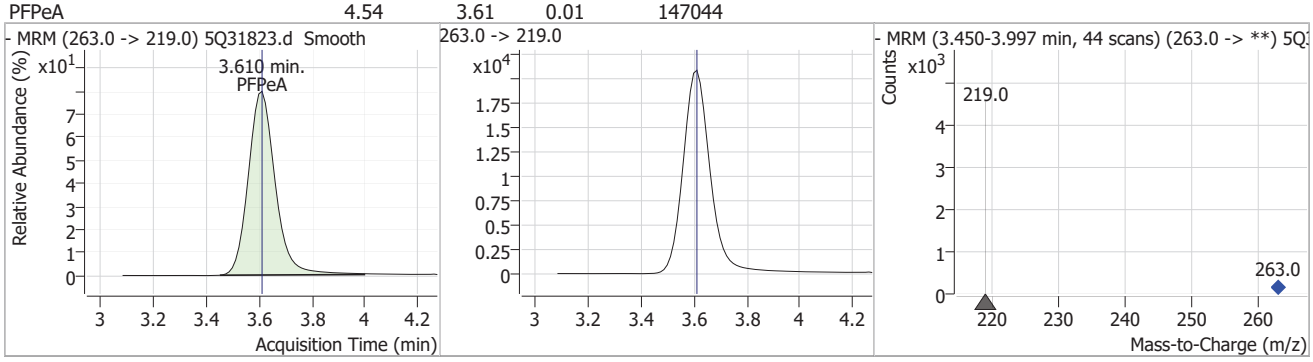
Perfluorinated Compounds by LC/MS/MS



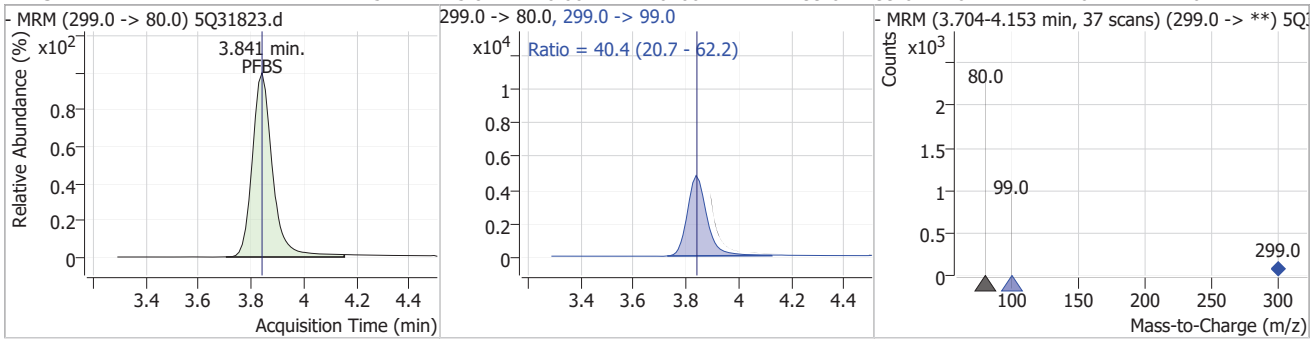
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.01	506505				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.54	3.61	0.01	147044				

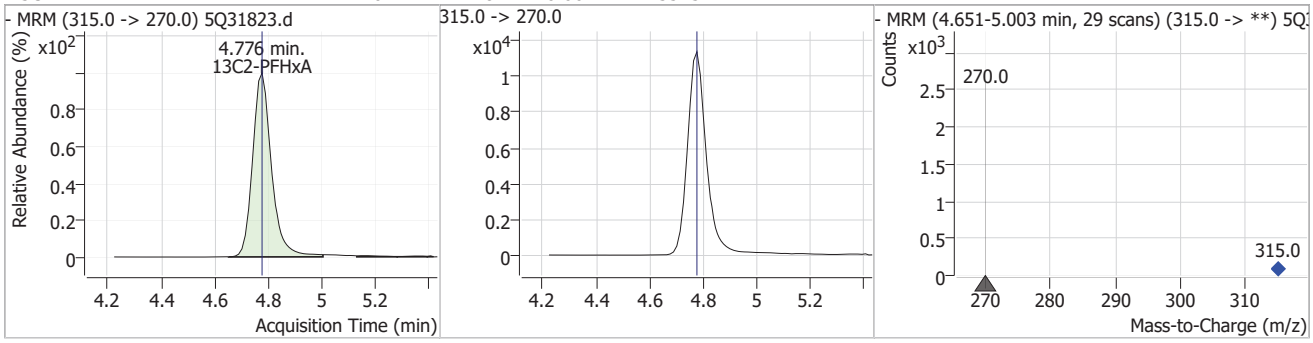


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	4.75	3.84	0.00	61607	299.0 -> 99.0	40.4	20.7	62.2

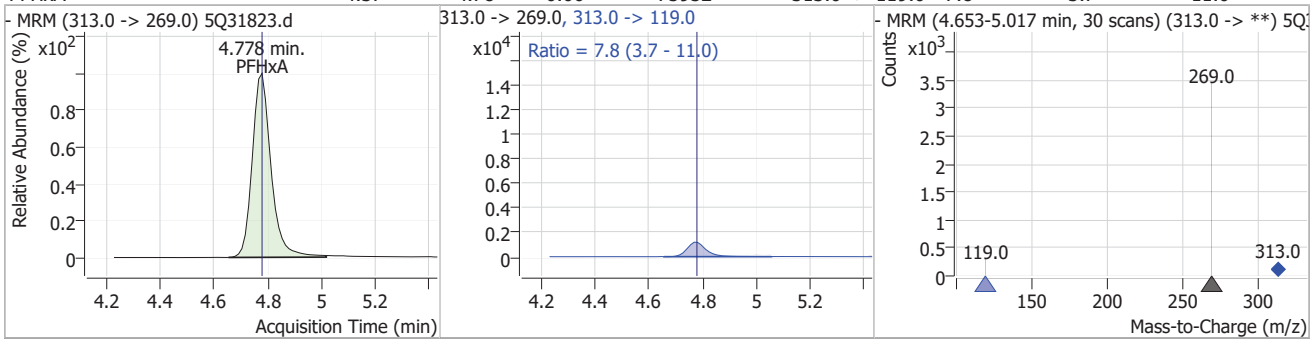


Perfluorinated Compounds by LC/MS/MS

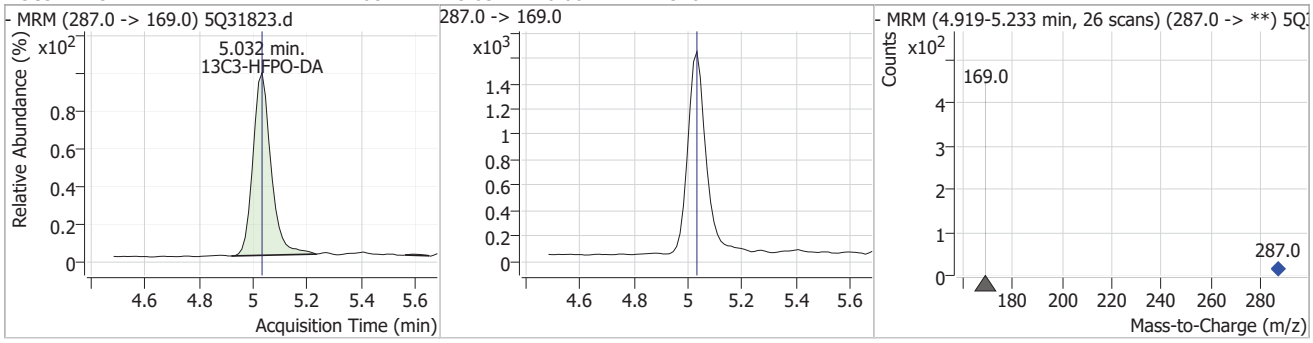
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	2.16	4.78	0.00	55232				



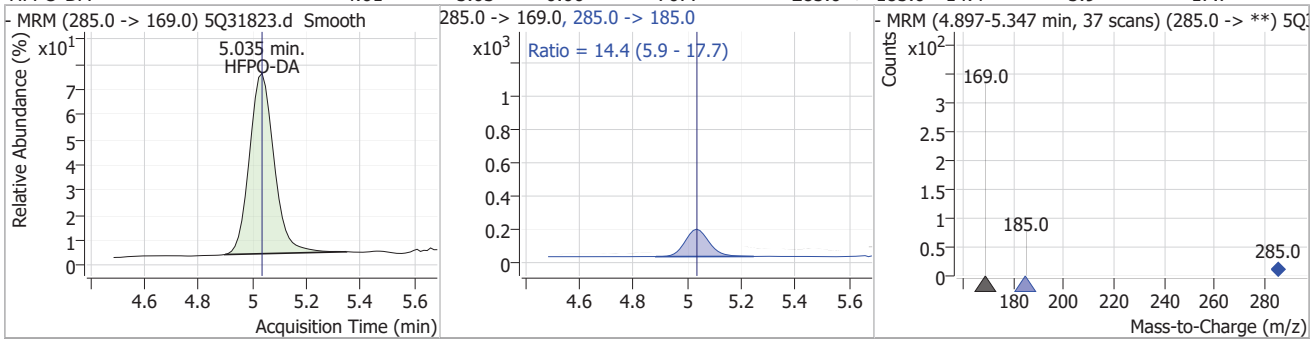
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	4.37	4.78	0.00	75952	313.0 -> 119.0	7.8	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	4.08	5.03	0.00	7370				

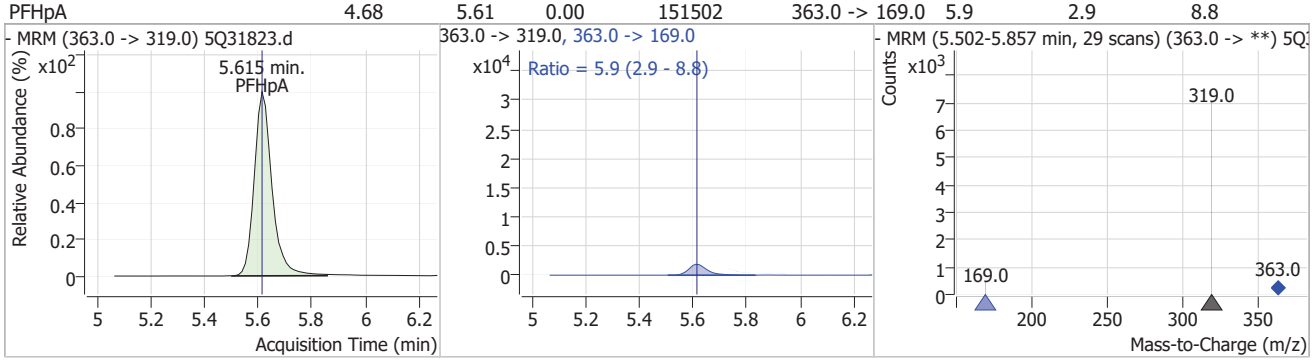


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.61	5.03	0.00	7077	285.0 -> 185.0	14.4	5.9	17.7

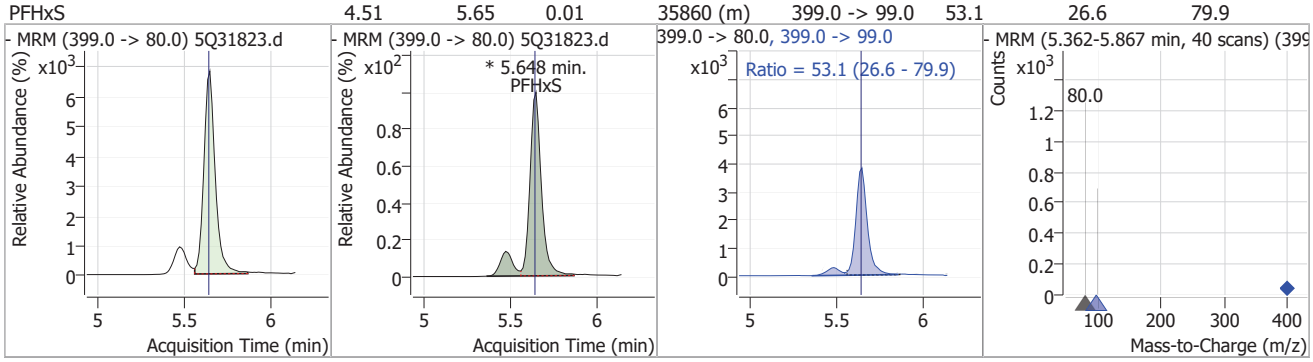


Perfluorinated Compounds by LC/MS/MS

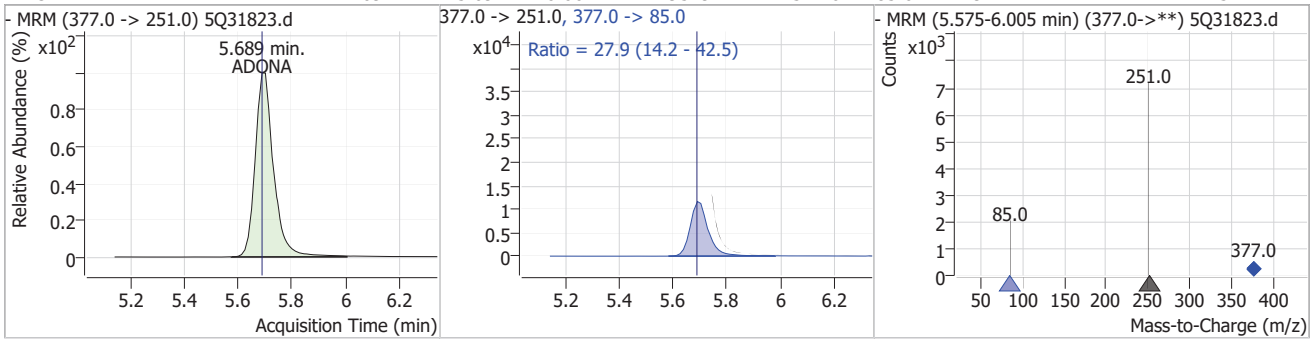
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	4.68	5.61	0.00	151502	363.0 -> 169.0	5.9	2.9	8.8



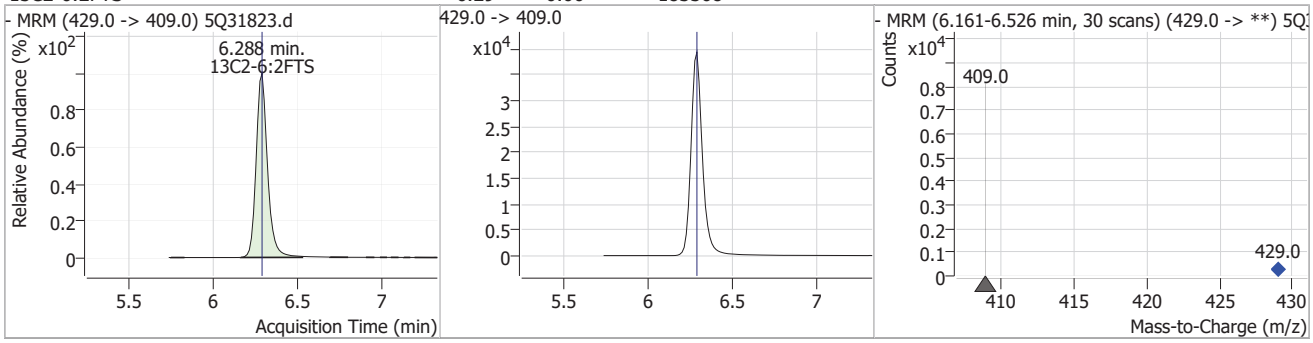
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	4.51	5.65	0.01	35860 (m)	399.0 -> 99.0	53.1	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	4.69	5.69	0.00	195292	377.0 -> 85.0	27.9	14.2	42.5

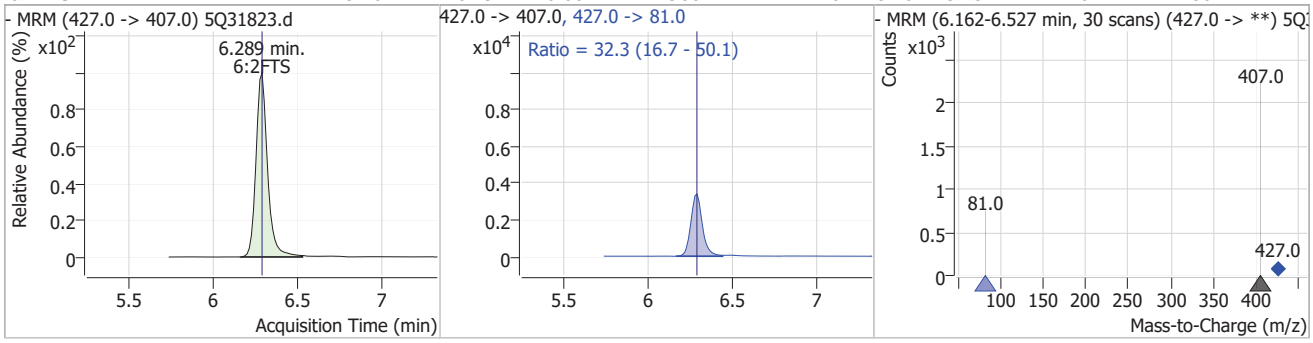


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	183368				

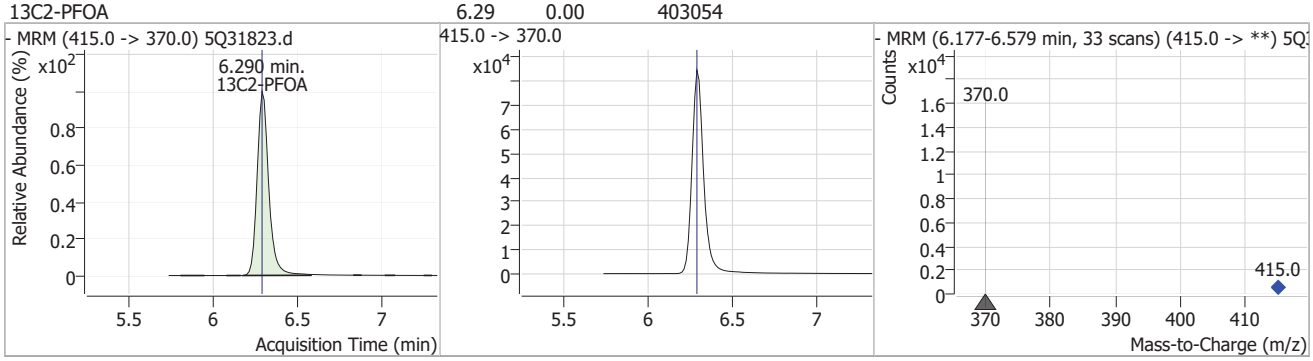


Perfluorinated Compounds by LC/MS/MS

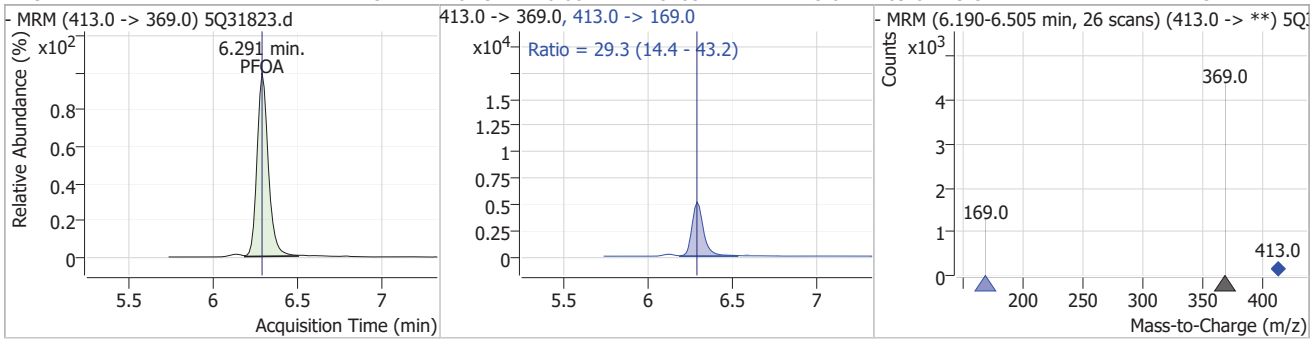
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	5.40	6.29	0.00	49664	427.0 -> 81.0	32.3	16.7	50.1



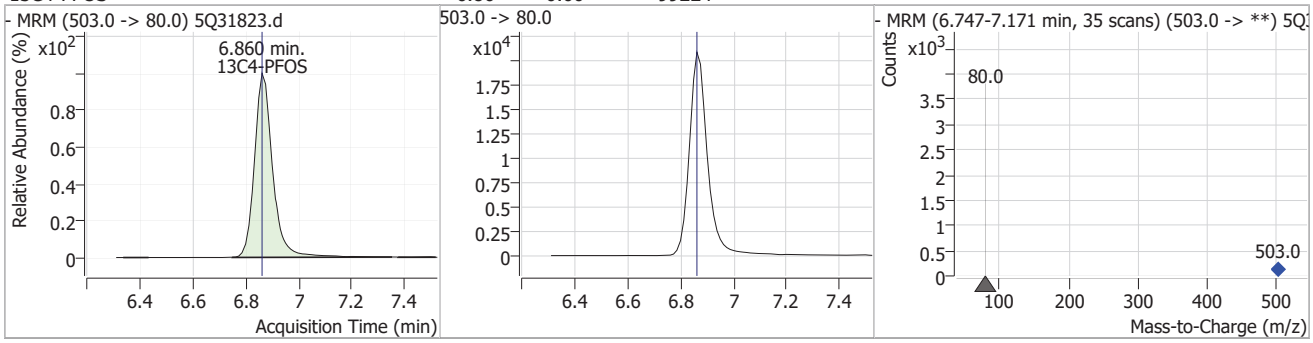
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	403054				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	4.45	6.29	0.00	84652	413.0 -> 169.0	29.3	14.4	43.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	99224				



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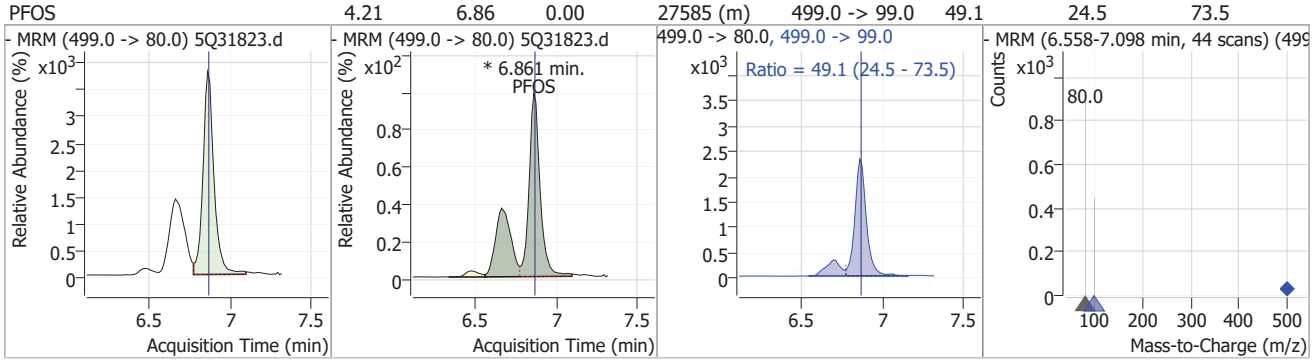
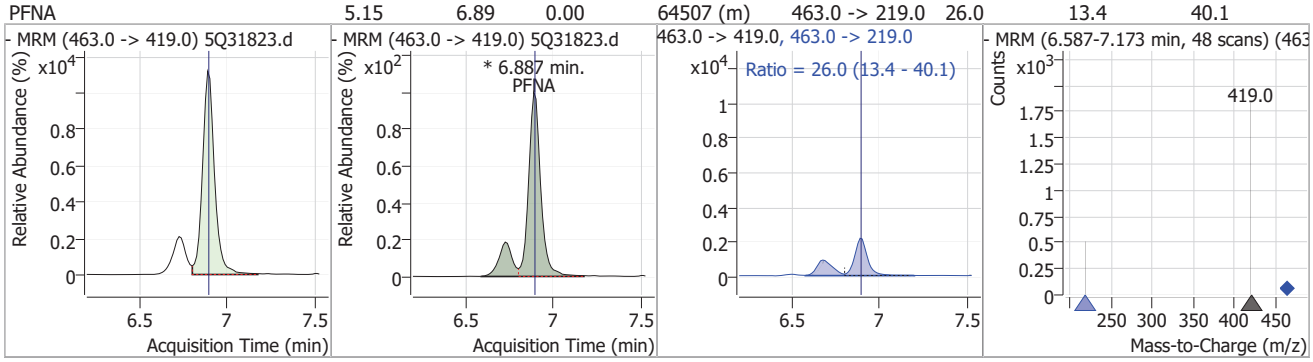
Perfluorinated Compounds by LC/MS/MS

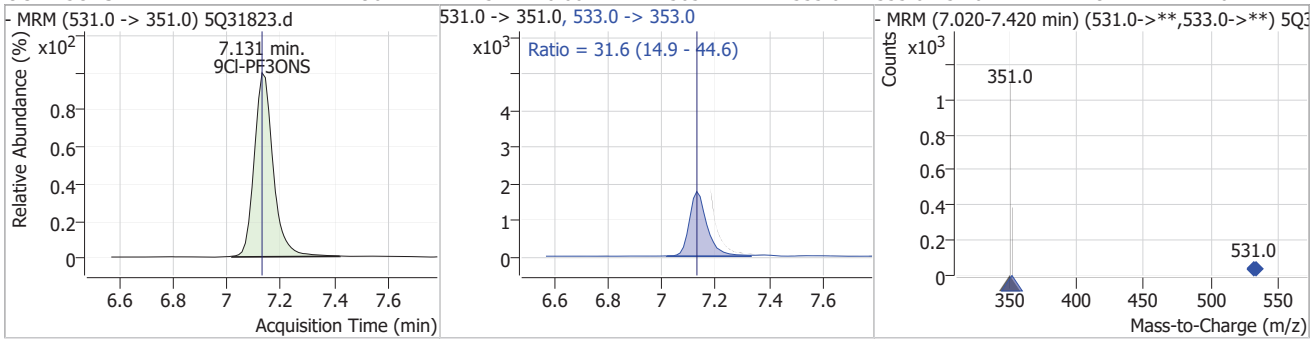
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	4.21	6.86	0.00	27585 (m)	499.0 -> 99.0	49.1	24.5	73.5



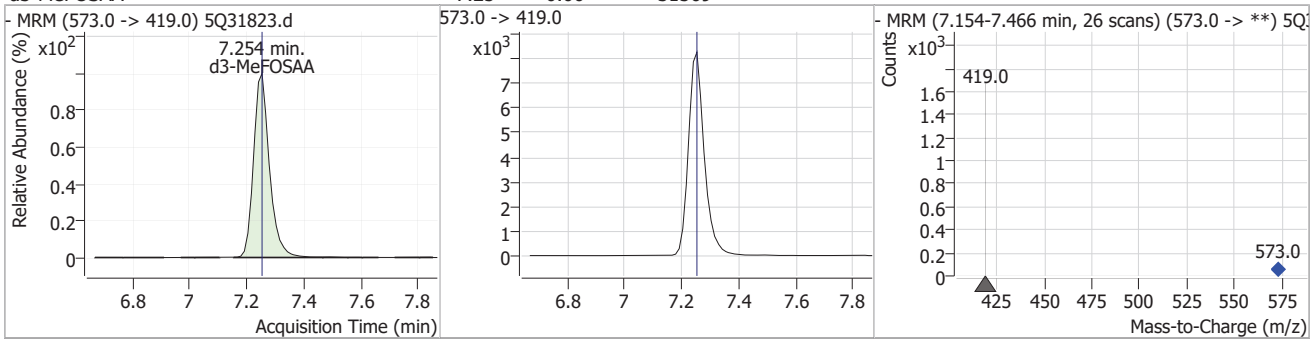
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	5.15	6.89	0.00	64507 (m)	463.0 -> 219.0	26.0	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	4.90	7.13	0.00	25637	533.0 -> 353.0	31.6	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	31569				



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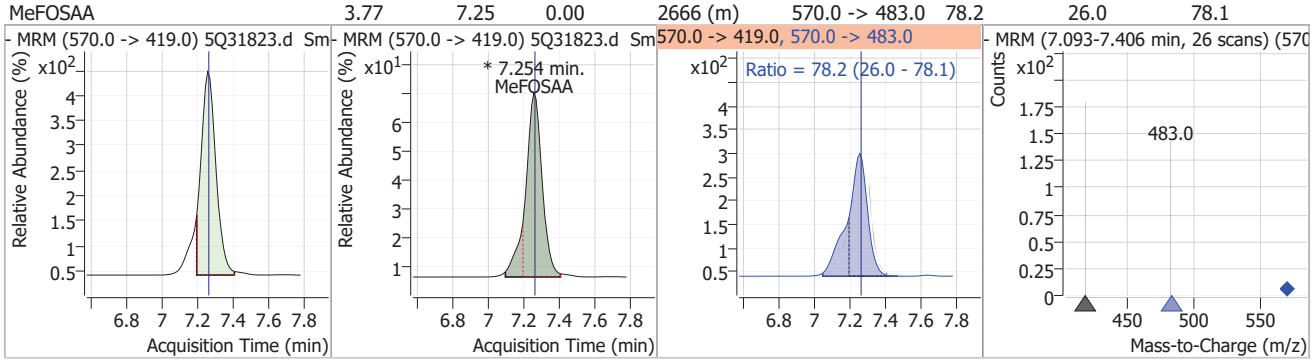
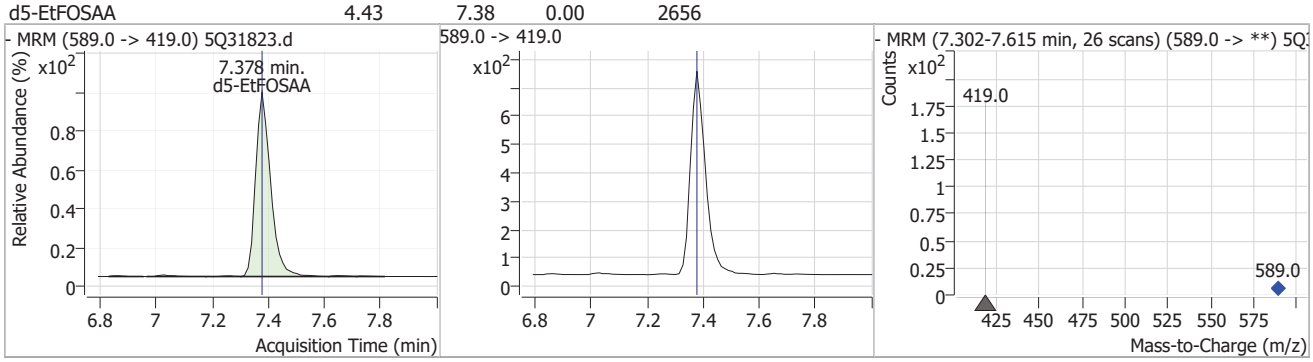
Perfluorinated Compounds by LC/MS/MS

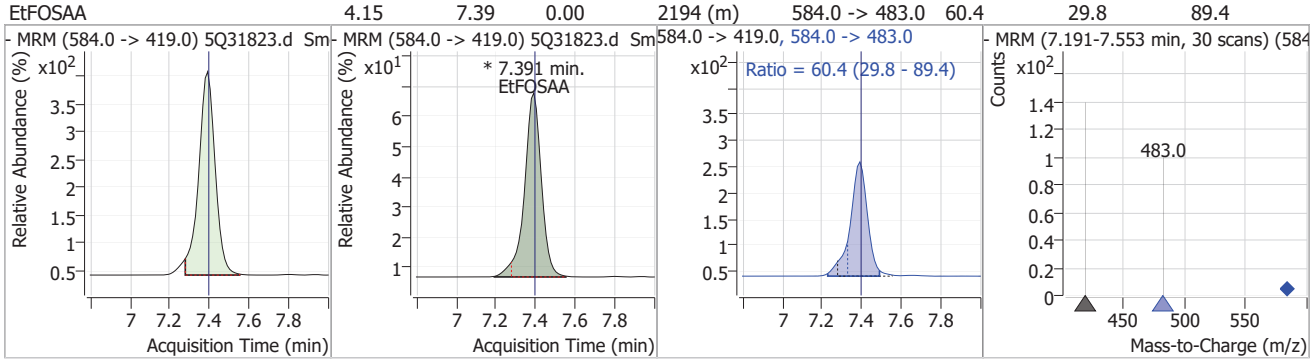
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	3.77	7.25	0.00	2666 (m)	570.0 -> 483.0	78.2	26.0	78.1



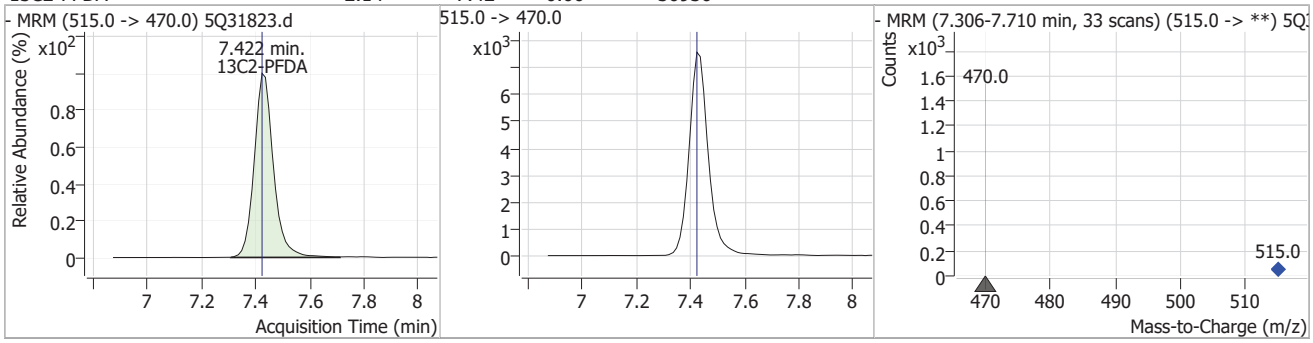
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.43	7.38	0.00	2656				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	4.15	7.39	0.00	2194 (m)	584.0 -> 483.0	60.4	29.8	89.4

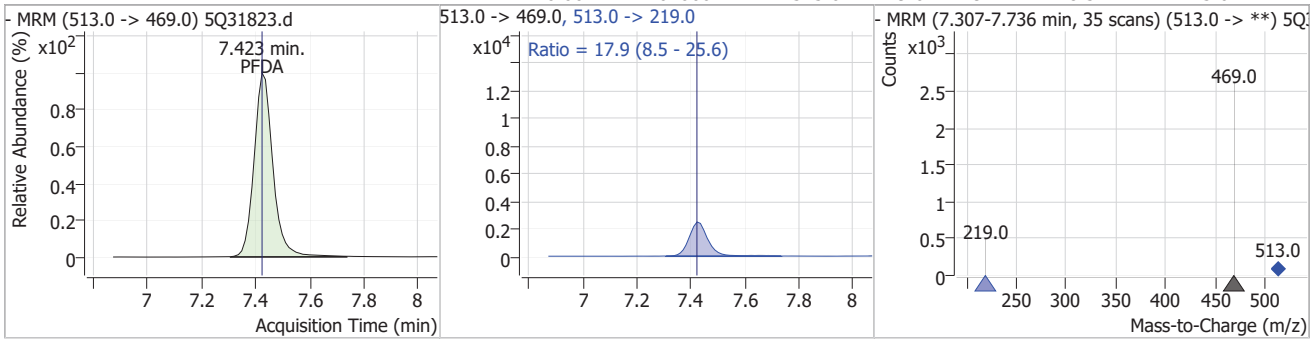


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	2.14	7.42	0.00	36936				

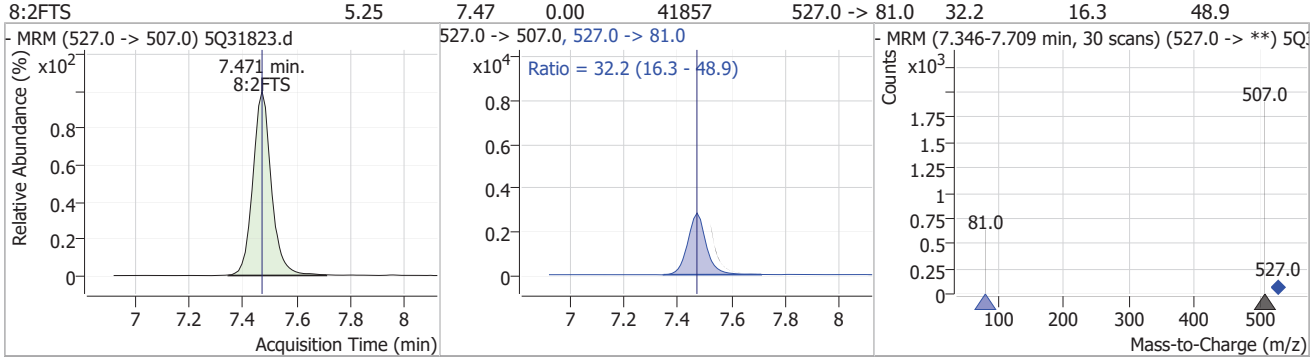


Perfluorinated Compounds by LC/MS/MS

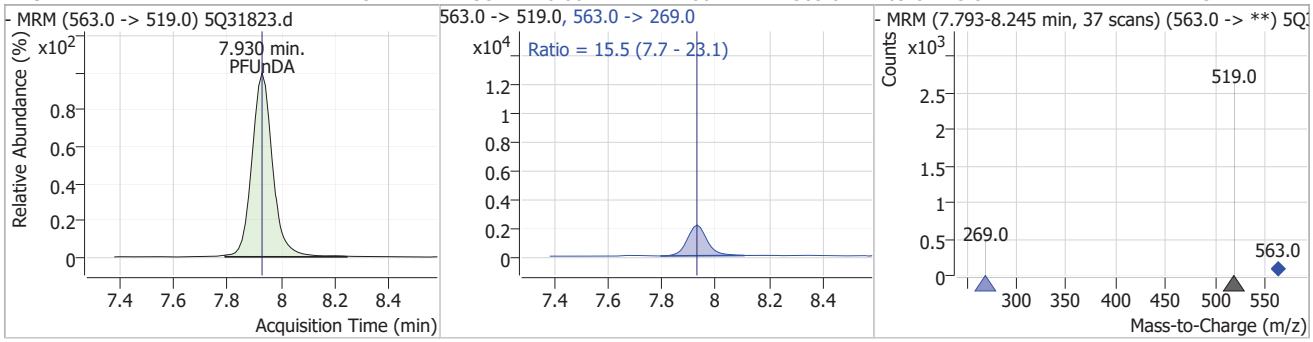
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	4.74	7.42	0.00	67060	513.0 -> 219.0	17.9	8.5	25.6



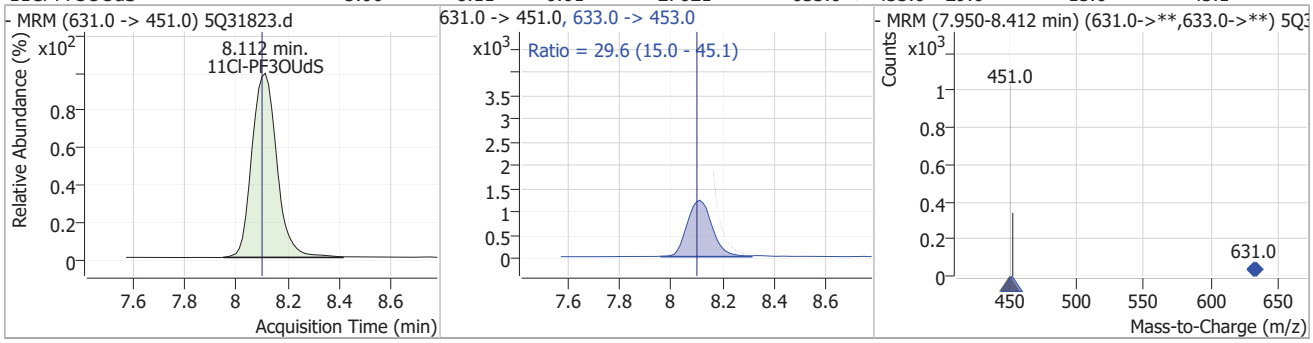
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	5.25	7.47	0.00	41857	527.0 -> 81.0	32.2	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	4.37	7.93	0.00	71206	563.0 -> 269.0	15.5	7.7	23.1

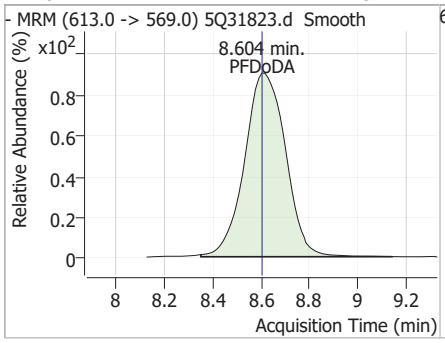


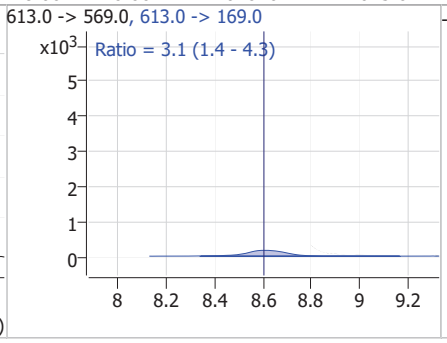
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	5.06	8.11	0.01	27621	633.0 -> 453.0	29.6	15.0	45.1

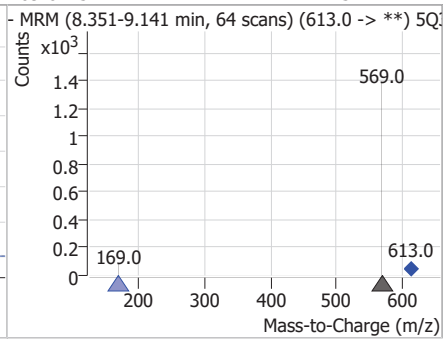


Perfluorinated Compounds by LC/MS/MS

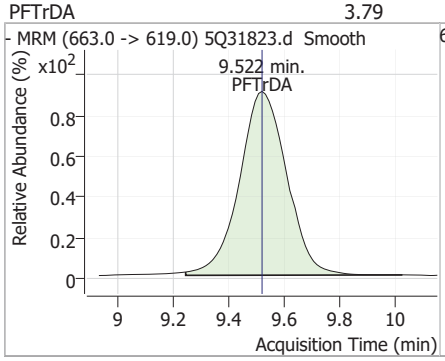
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	4.52	8.60	0.00	64076	613.0 -> 169.0	3.1	1.4	4.3

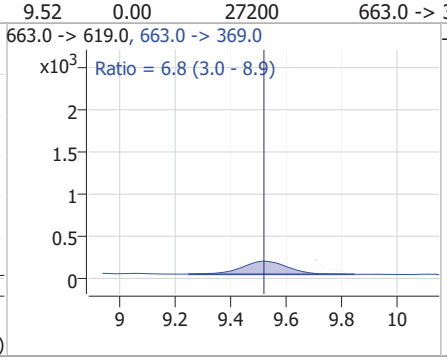


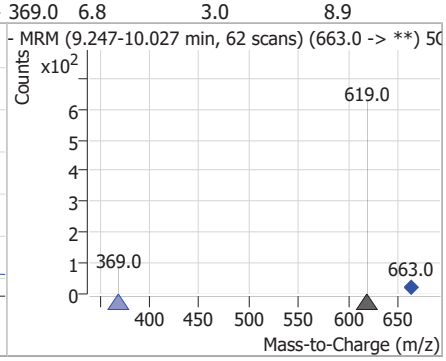




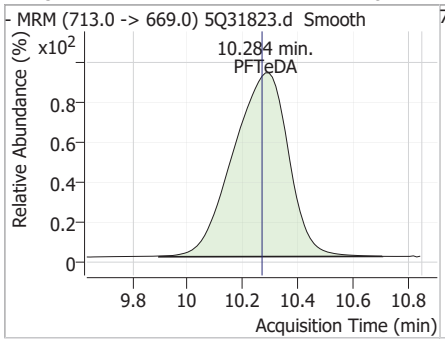
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	3.79	9.52	0.00	27200	663.0 -> 369.0	6.8	3.0	8.9

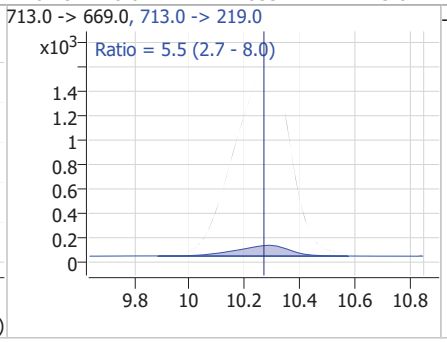


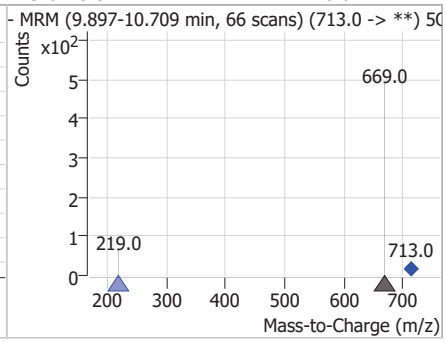




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	4.48	10.28	0.01	22055	713.0 -> 219.0	5.5	2.7	8.0







Manual Integration Approval Summary

Sample Number:	S5Q523-IC523	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31823.D	**Analyst approved:**	04/18/25 07:39 (b) (6)
Injection Time:	04/17/25 13:28	**Supervisor approved:**	04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31824.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 1:44:57 PM
Sample Name : ic523-10
Vial : P1-A6
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.288	429.0 -> 409.0	203951	20.00	µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	433345	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	542680	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	105701	20.00	µg/L		0.000
d3-MeFOSAA	7.254	573.0 -> 419.0	31471	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.422	515.0 -> 470.0	90239	4.87	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 24.3%			
13C2-PFHxA	4.776	315.0 -> 270.0	136859	4.98	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 24.9%			
d5-EtFOSAA	7.378	589.0 -> 419.0	6164	10.32	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 25.8%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	18304	9.43	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 23.6%			
Target Compounds							QValue
6:2FTS	6.289	427.0 -> 407.0	121557	11.89	µg/L		98
8:2FTS	7.471	527.0 -> 507.0	96381	10.87	µg/L		98
EtFOSAA	7.391	584.0 -> 419.0	6049	11.48	µg/L	m	90
MeFOSAA	7.254	570.0 -> 419.0	7079	10.02	µg/L	m	81
PFBS	3.841	299.0 -> 80.0	143181	10.35	µg/L		97
PFDA	7.423	513.0 -> 469.0	164327	10.72	µg/L		99
PFDoDA	8.616	613.0 -> 569.0	109833	7.25	µg/L		99
PFHpA	5.615	363.0 -> 319.0	377013	10.74	µg/L		100
PFHxA	4.765	313.0 -> 269.0	187789	10.05	µg/L		100
PFHxS	5.648	399.0 -> 80.0	88995	10.42	µg/L	m	99
PFNA	6.887	463.0 -> 419.0	149164	10.92	µg/L	m	99
PFOA	6.291	413.0 -> 369.0	213618	10.41	µg/L		99
PFOS	6.861	499.0 -> 80.0	66764	9.57	µg/L	m	99
PFPeA	3.597	263.0 -> 219.0	360662	10.37	µg/L		100
PFTeDA	10.284	713.0 -> 669.0	52042	9.81	µg/L		99
PFTrDA	9.534	663.0 -> 619.0	56521	7.39	µg/L		98
PFUnDA	7.930	563.0 -> 519.0	162667	9.38	µg/L		100
ADONA	5.689	377.0 -> 251.0	480631	10.63	µg/L		100
9Cl-PF3ONS	7.131	531.0 -> 351.0	60069	10.50	µg/L		98
11Cl-PF3OUdS	8.100	631.0 -> 451.0	59715	9.97	µg/L		98
HFPO-DA	5.035	285.0 -> 169.0	17779	10.66	µg/L		100

 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.34
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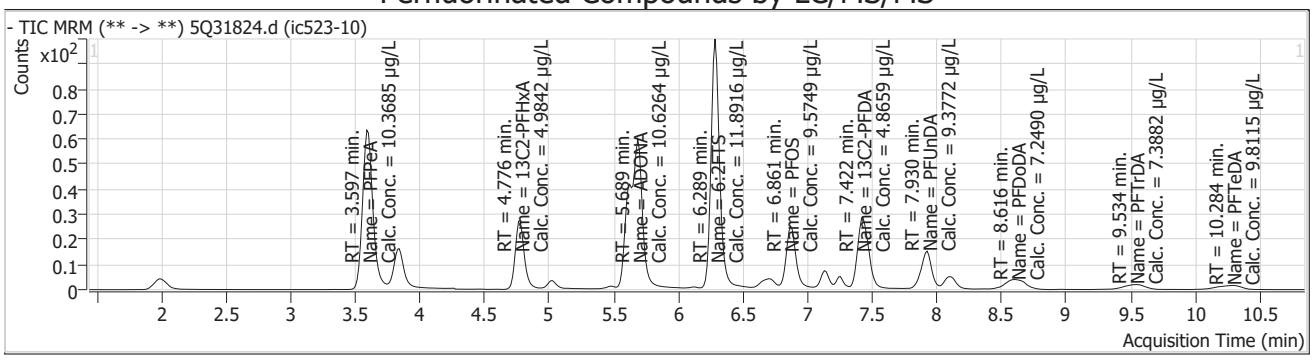
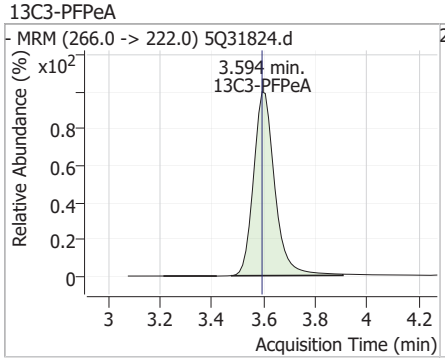
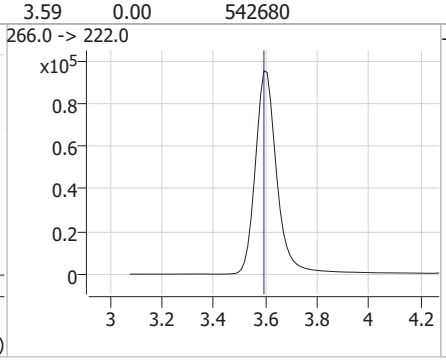
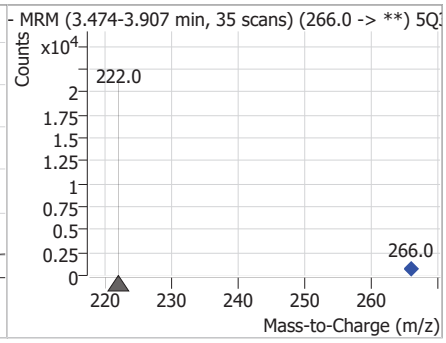
Perfluorinated Compounds by LC/MS/MS



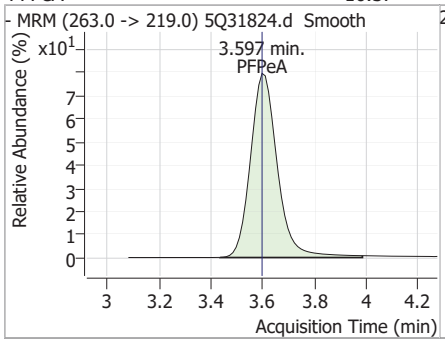
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	542680				

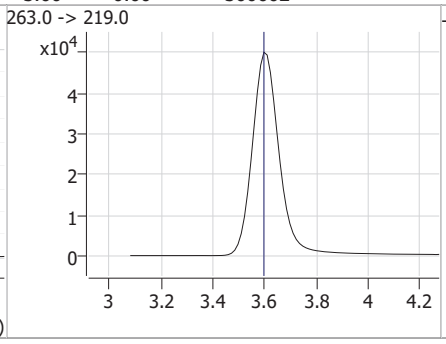


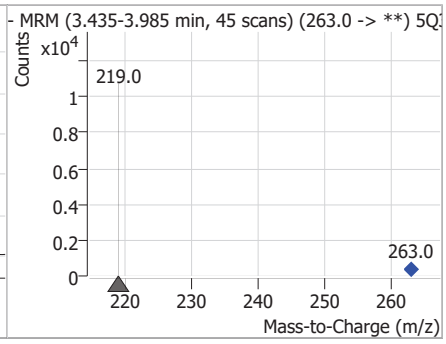




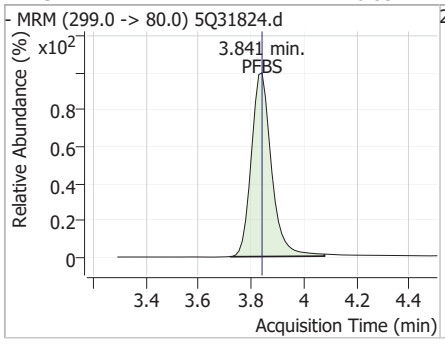
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	10.37	3.60	0.00	360662				

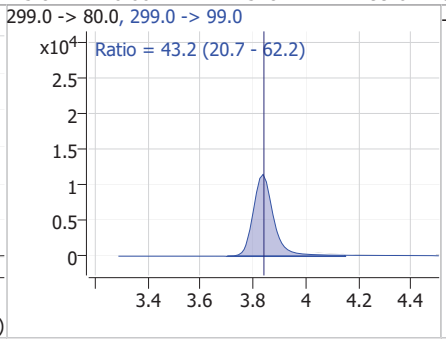


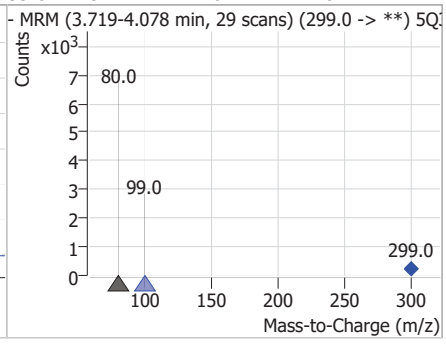




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	10.35	3.84	0.00	143181	299.0 -> 99.0	43.2	20.7	62.2







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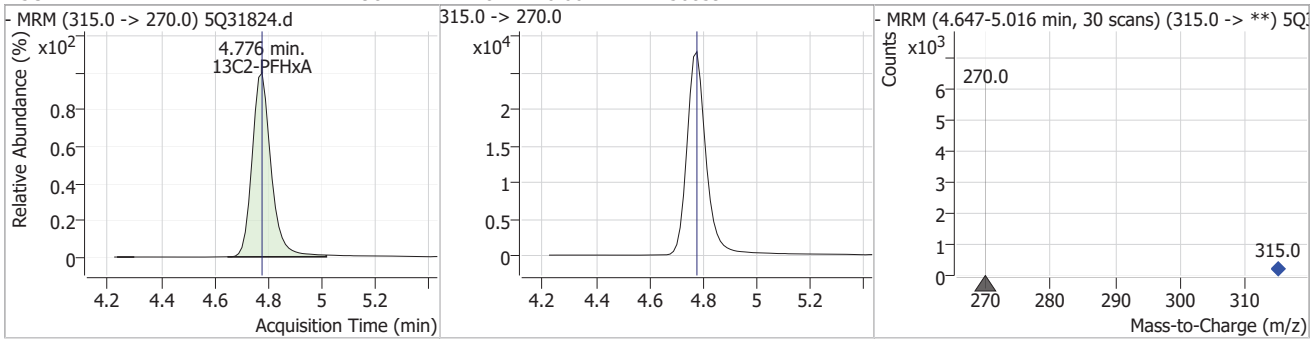
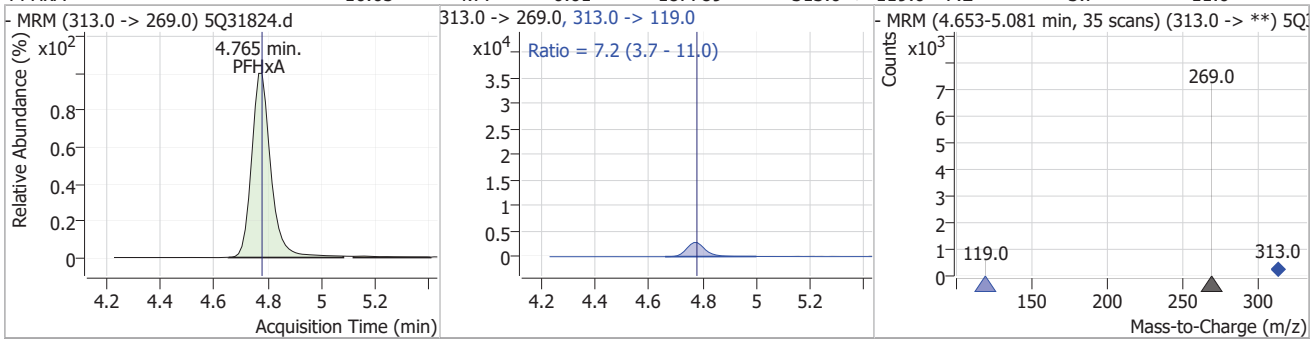
Perfluorinated Compounds by LC/MS/MS

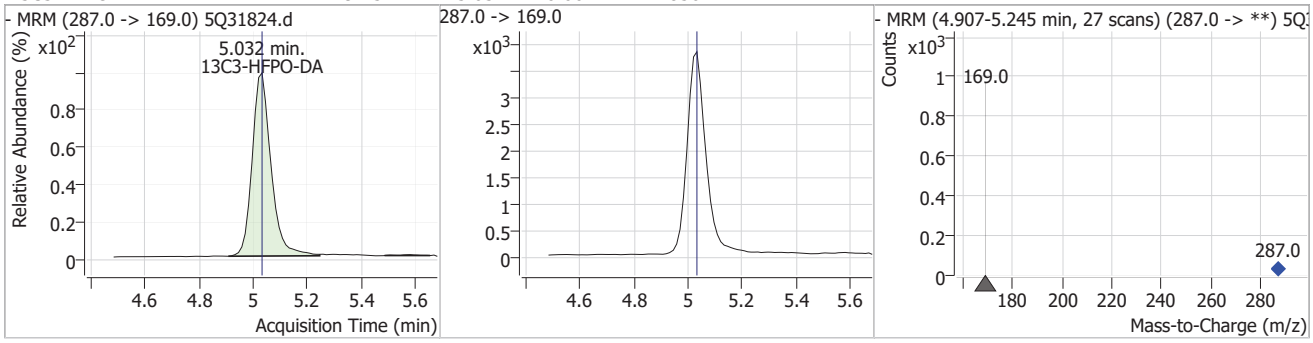
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	4.98	4.78	0.00	136859				



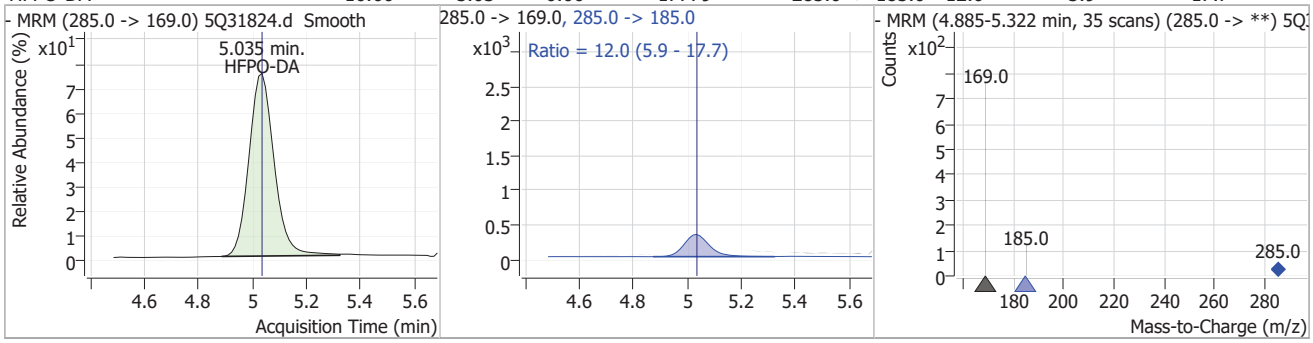
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	10.05	4.77	-0.01	187789	313.0 -> 119.0	7.2	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.43	5.03	0.00	18304				

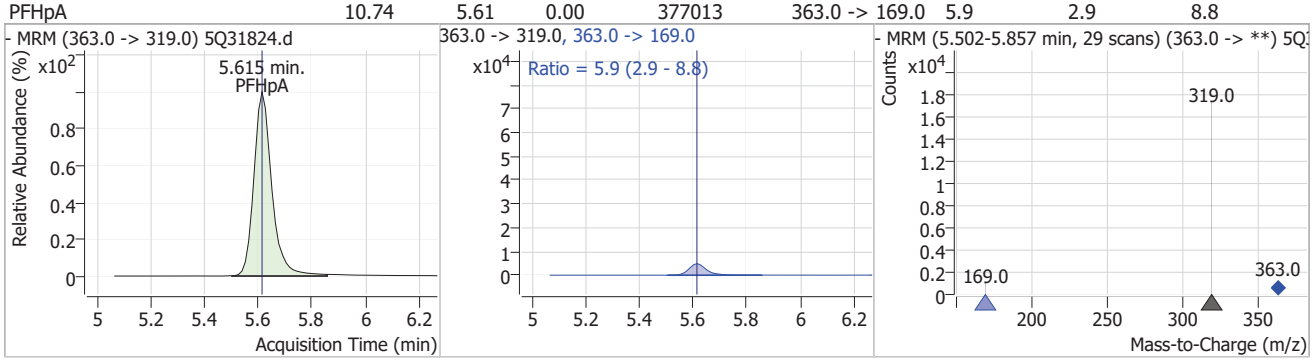


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	10.66	5.03	0.00	17779	285.0 -> 185.0	12.0	5.9	17.7

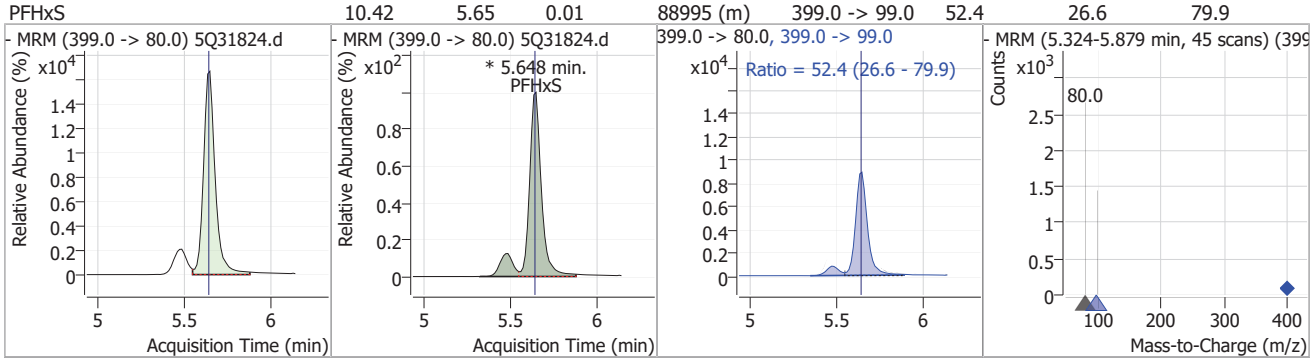


Perfluorinated Compounds by LC/MS/MS

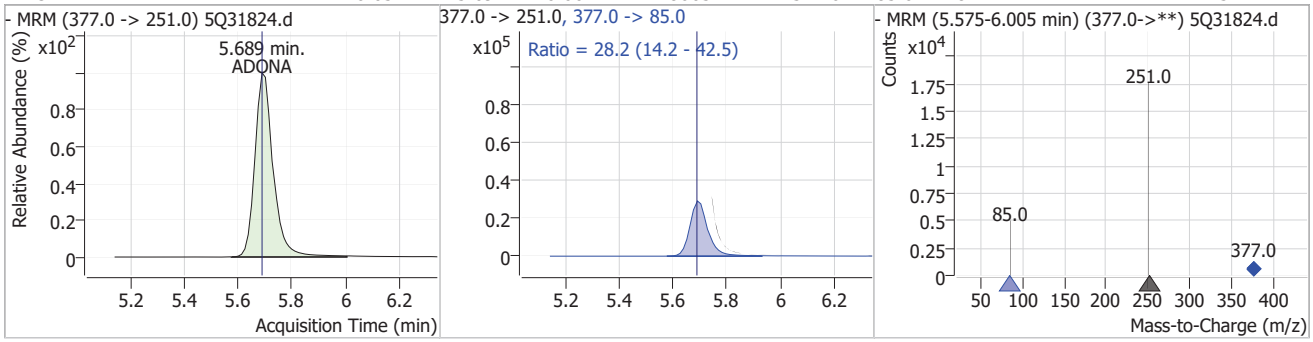
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	10.74	5.61	0.00	377013	363.0 -> 169.0	5.9	2.9	8.8



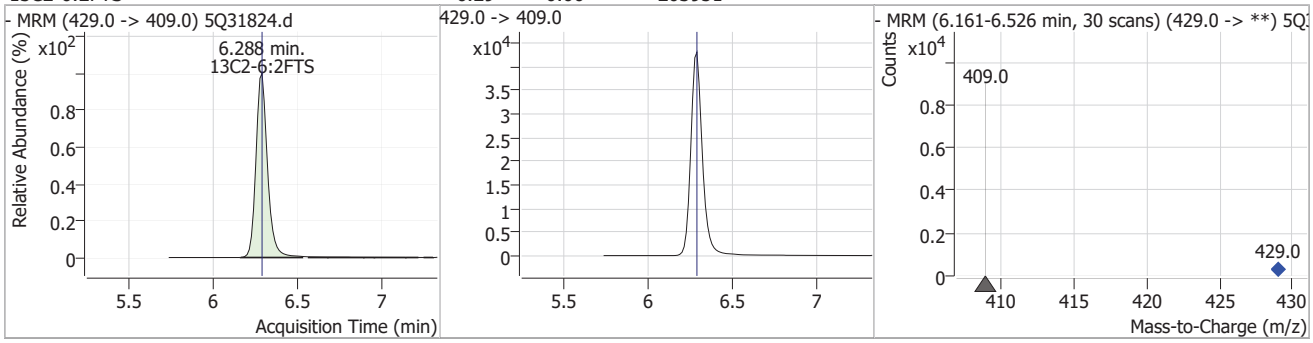
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	10.42	5.65	0.01	88995 (m)	399.0 -> 99.0	52.4	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	10.63	5.69	0.00	480631	377.0 -> 85.0	28.2	14.2	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	203951				



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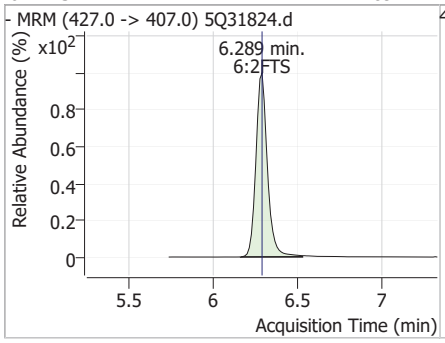
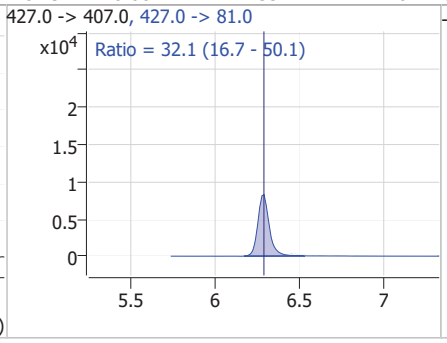
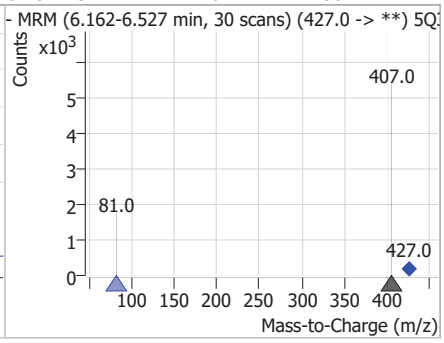
Perfluorinated Compounds by LC/MS/MS

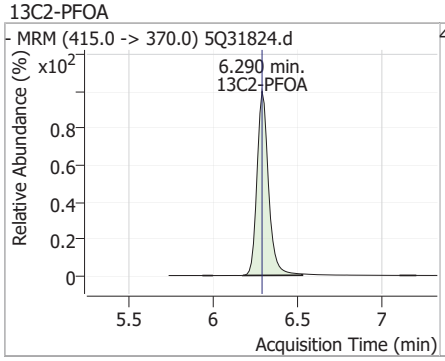
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	11.89	6.29	0.00	121557	427.0 -> 81.0	32.1	16.7	50.1

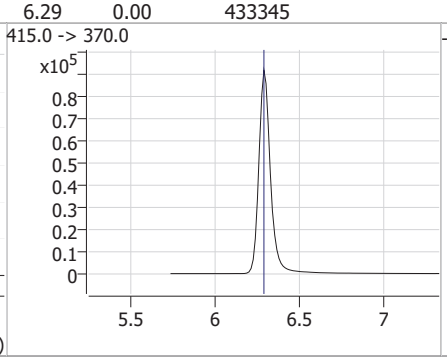


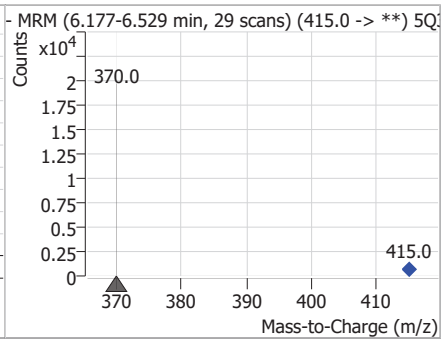




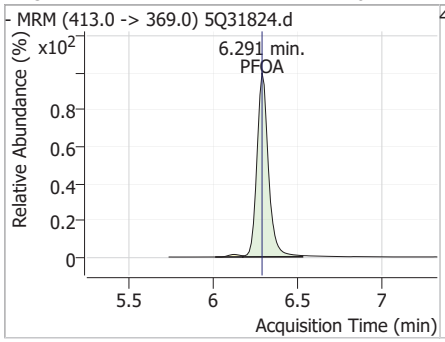
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	433345				

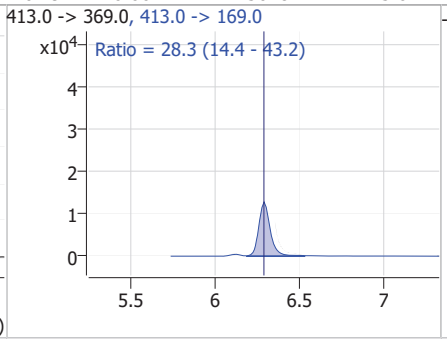


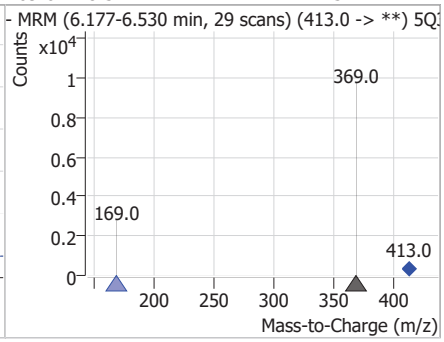




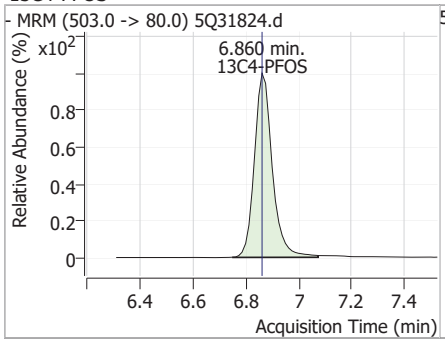
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	10.41	6.29	0.00	213618	413.0 -> 169.0	28.3	14.4	43.2

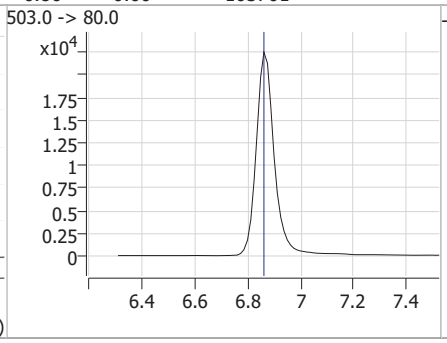


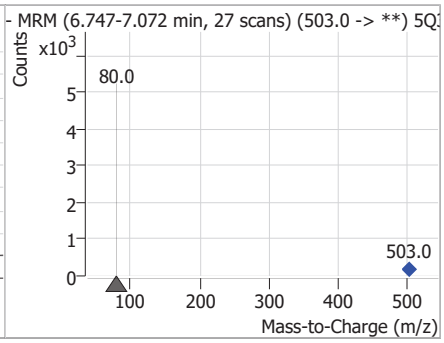




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	105701				







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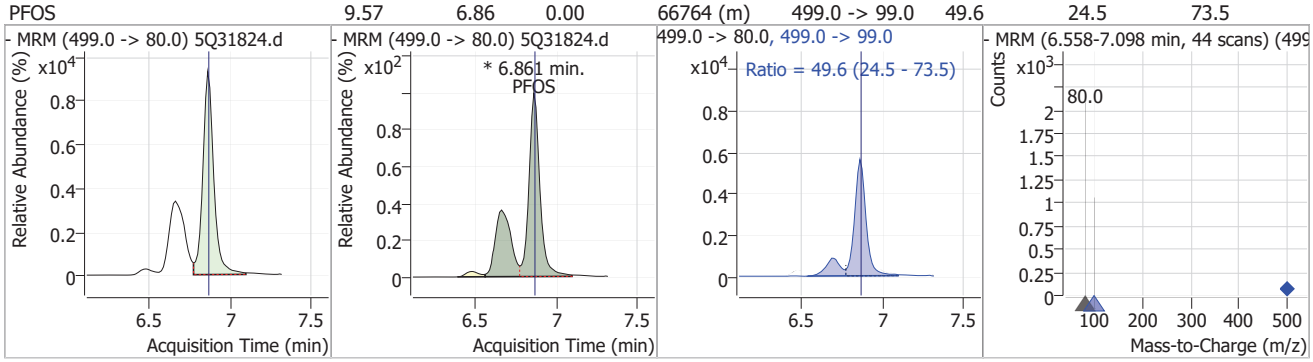
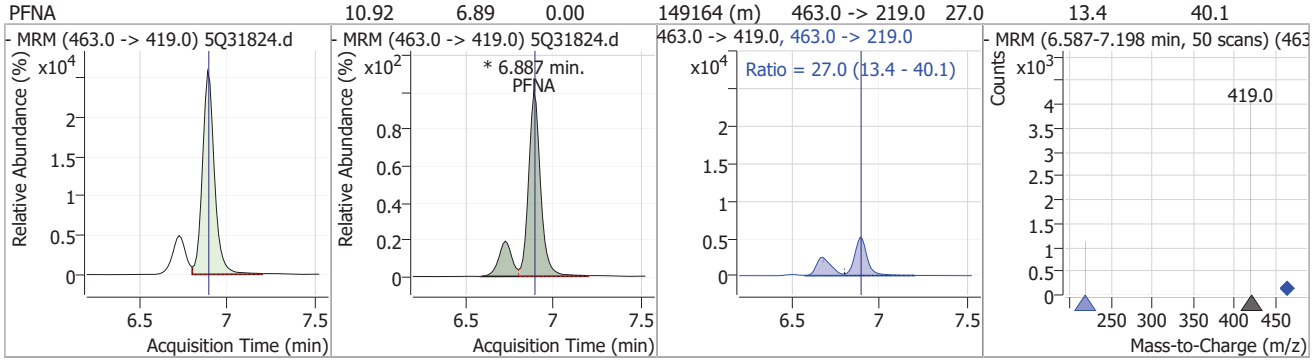
Perfluorinated Compounds by LC/MS/MS

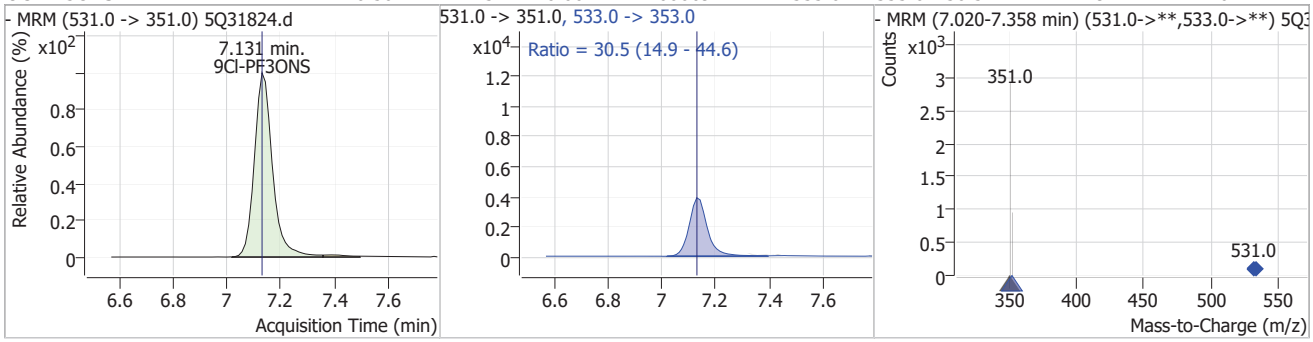
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	9.57	6.86	0.00	66764 (m)	499.0 -> 99.0	49.6	24.5	73.5



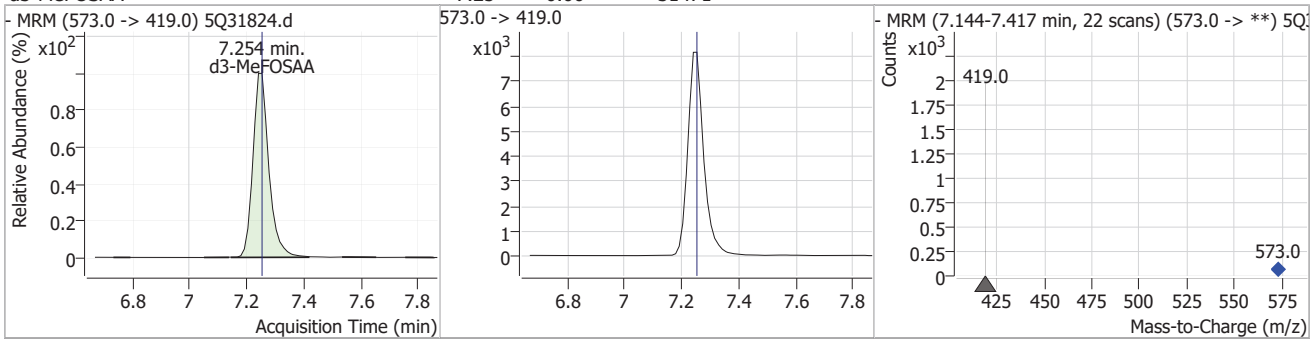
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	10.92	6.89	0.00	149164 (m)	463.0 -> 219.0	27.0	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	10.50	7.13	0.00	60069	533.0 -> 353.0	30.5	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	31471				



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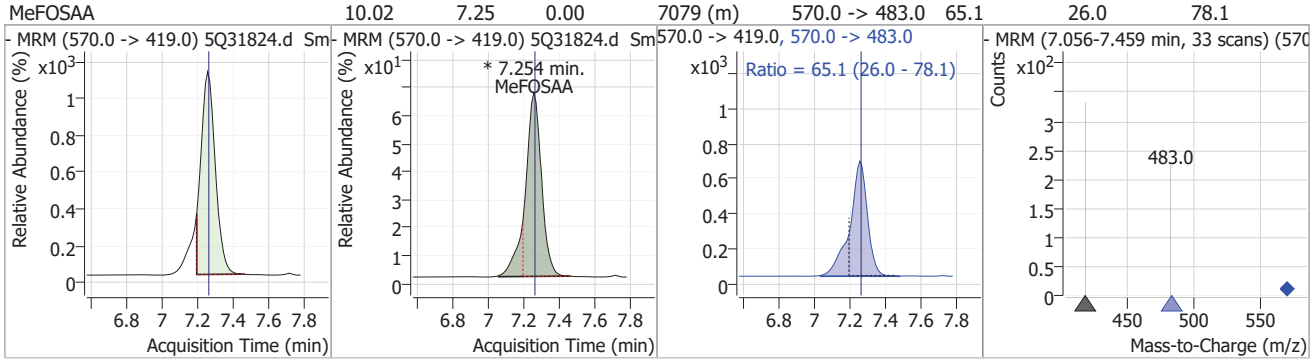
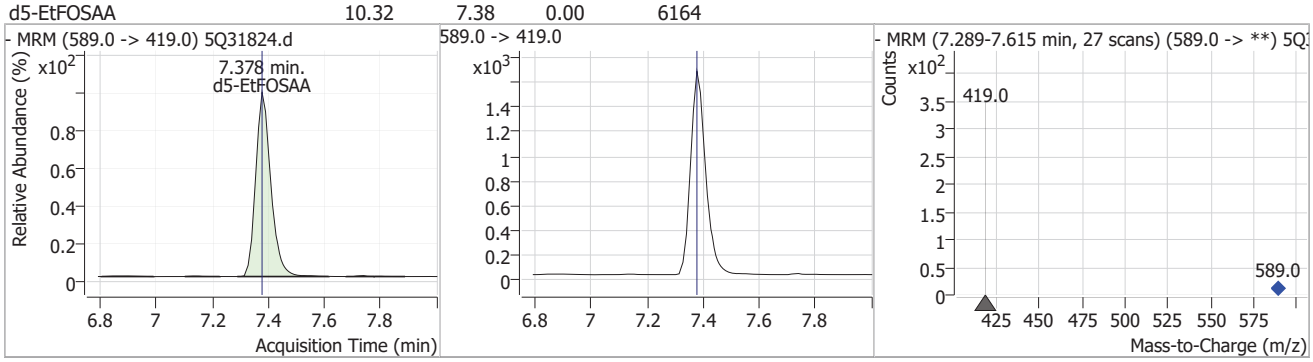
Perfluorinated Compounds by LC/MS/MS

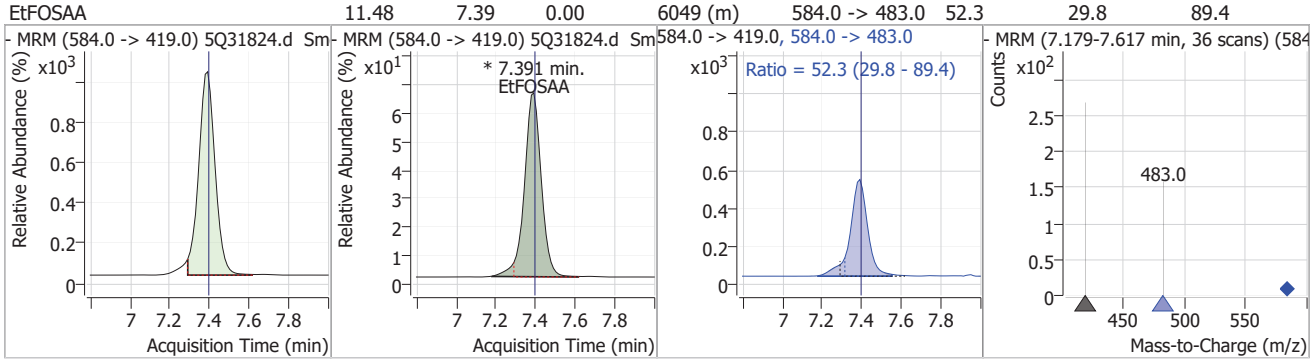
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	10.02	7.25	0.00	7079 (m)	570.0 -> 483.0	65.1	26.0	78.1



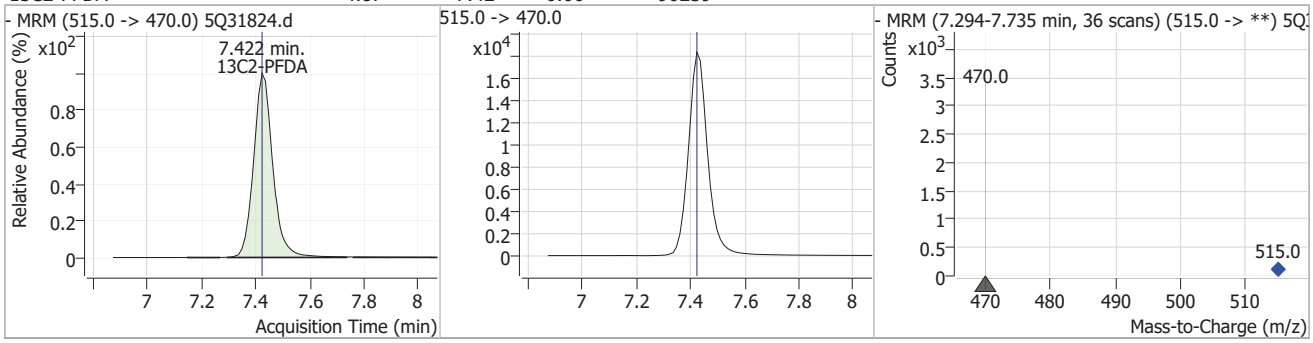
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	10.32	7.38	0.00	6164				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	11.48	7.39	0.00	6049 (m)	584.0 -> 483.0	52.3	29.8	89.4

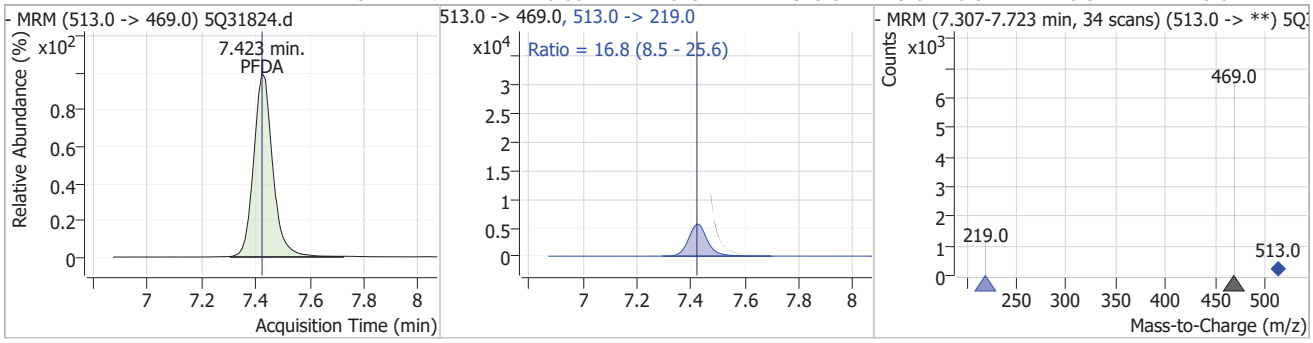


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	4.87	7.42	0.00	90239				

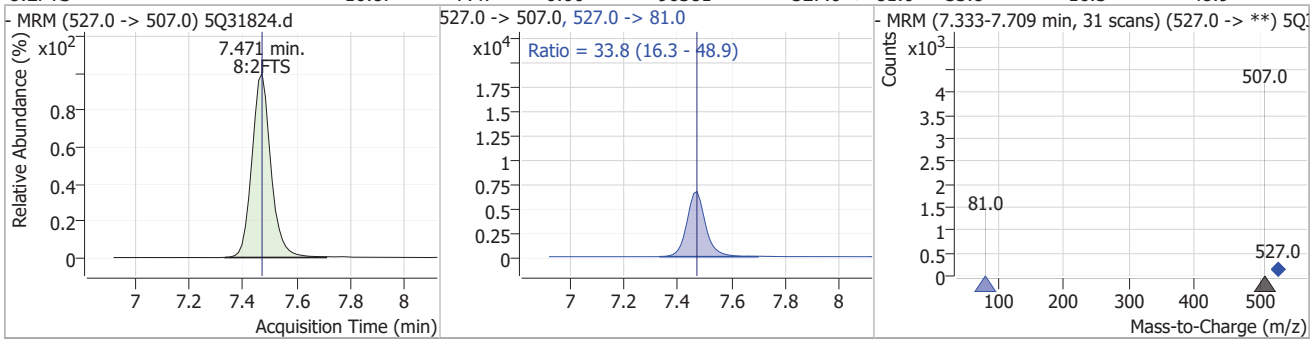


Perfluorinated Compounds by LC/MS/MS

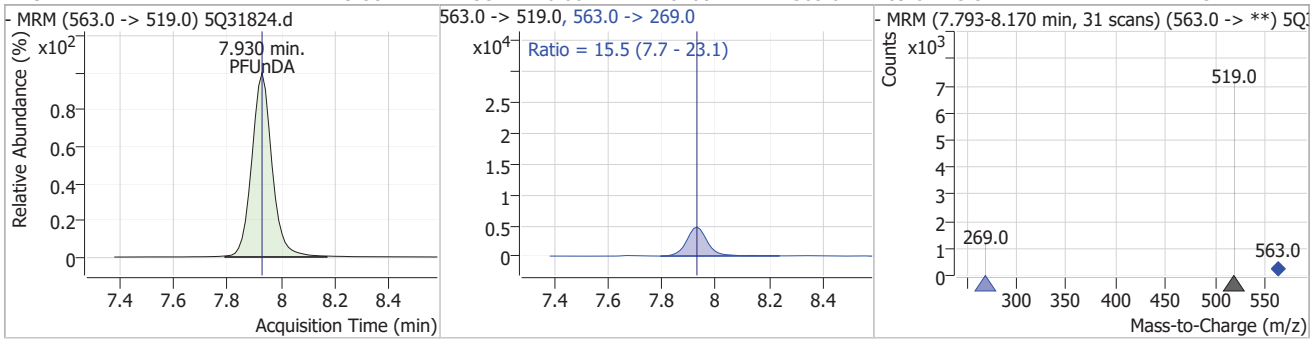
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	10.72	7.42	0.00	164327	513.0 -> 219.0	16.8	8.5	25.6



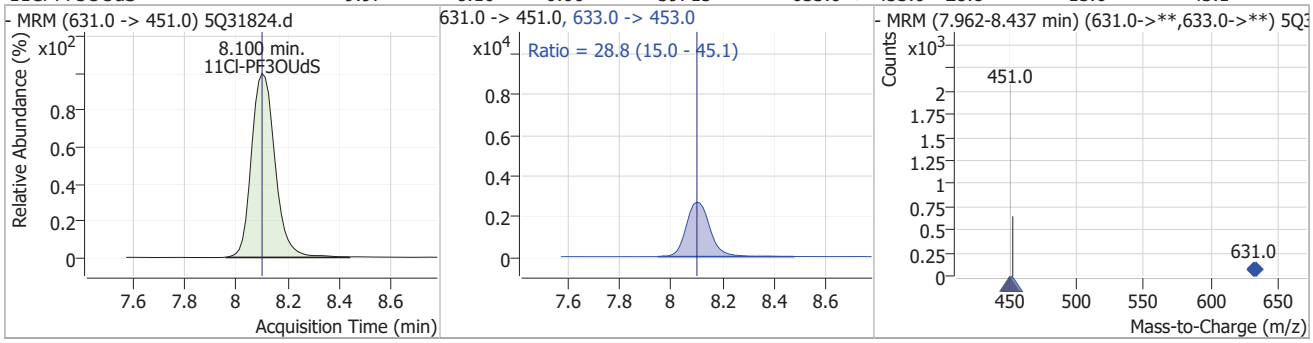
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	10.87	7.47	0.00	96381	527.0 -> 81.0	33.8	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	9.38	7.93	0.00	162667	563.0 -> 269.0	15.5	7.7	23.1

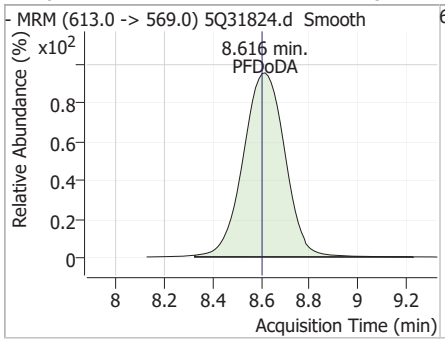


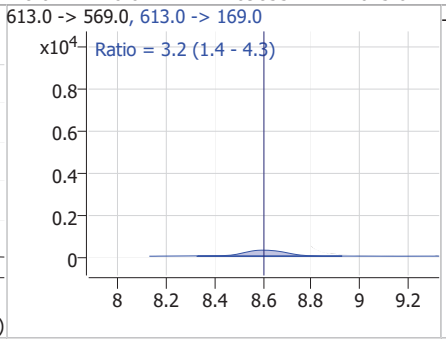
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	9.97	8.10	0.00	59715	633.0 -> 453.0	28.8	15.0	45.1

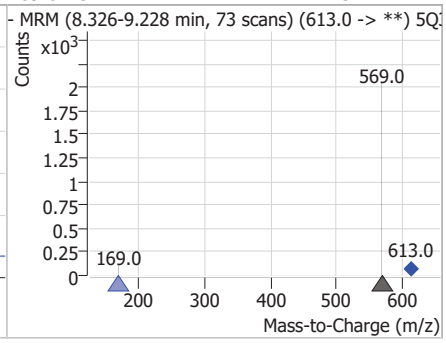


Perfluorinated Compounds by LC/MS/MS

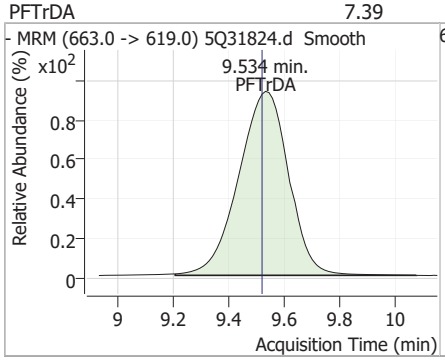
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	7.25	8.62	0.01	109833	613.0 -> 169.0	3.2	1.4	4.3

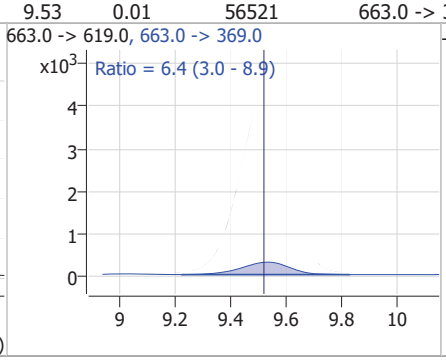


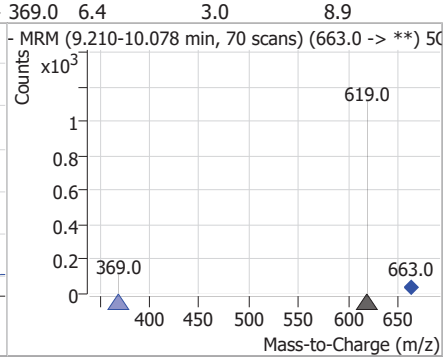




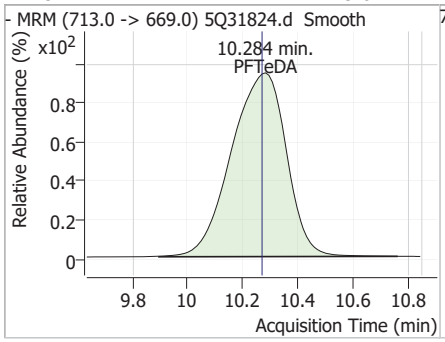
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	7.39	9.53	0.01	56521	663.0 -> 369.0	6.4	3.0	8.9

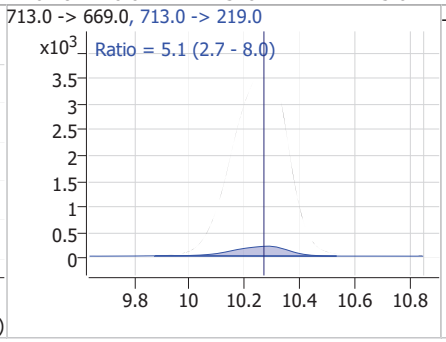


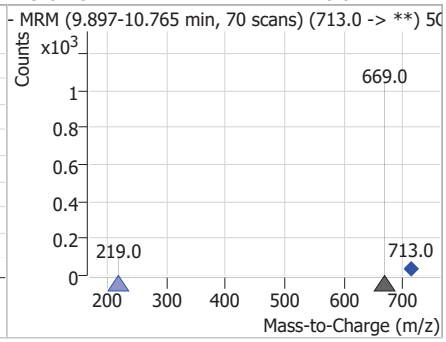




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	9.81	10.28	0.01	52042	713.0 -> 219.0	5.1	2.7	8.0







7.7.34

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Manual Integration Approval Summary

Sample Number:	S5Q523-IC523	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31824.D	**Analyst approved:**	04/18/25 07:39 (b) (6)
Injection Time:	04/17/25 13:44	**Supervisor approved:**	04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

5Q31825.D

Manual Integrations APPROVED (compounds with "m" flag)

(b) (6)

04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31825.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 2:01:21 PM
Sample Name : icc523-20
Vial : P1-A7
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.288	429.0 -> 409.0	200480	20.00	µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	416202	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	511459	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	97672	20.00	µg/L		0.000
d3-MeFOSAA	7.254	573.0 -> 419.0	29996	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.422	515.0 -> 470.0	163629	9.19	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 45.9%			
13C2-PFHxA	4.776	315.0 -> 270.0	244472	9.27	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 46.4%			
d5-EtFOSAA	7.378	589.0 -> 419.0	12403	21.79	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 54.5%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	32626	17.51	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 43.8%			
Target Compounds							QValue
6:2FTS	6.289	427.0 -> 407.0	228827	22.77	µg/L		100
8:2FTS	7.471	527.0 -> 507.0	188311	21.60	µg/L		100
EtFOSAA	7.391	584.0 -> 419.0	10107	20.13	µg/L	m	100
MeFOSAA	7.254	570.0 -> 419.0	14346	21.19	µg/L	m	100
PFBS	3.841	299.0 -> 80.0	266227	20.83	µg/L		99
PFDA	7.423	513.0 -> 469.0	304299	20.46	µg/L		100
PFDoDA	8.604	613.0 -> 569.0	270954	19.01	µg/L		100
PFHpA	5.615	363.0 -> 319.0	671426	19.69	µg/L		100
PFHxA	4.765	313.0 -> 269.0	338585	18.87	µg/L		100
PFHxS	5.636	399.0 -> 80.0	161508	20.24	µg/L	m	100
PFNA	6.887	463.0 -> 419.0	281368	20.91	µg/L	m	100
PFOA	6.291	413.0 -> 369.0	397717	20.05	µg/L		100
PFOS	6.861	499.0 -> 80.0	122325	18.99	µg/L	m	100
PFPeA	3.597	263.0 -> 219.0	654039	19.86	µg/L		100
PFTeDA	10.284	713.0 -> 669.0	98893	19.73	µg/L		100
PFTrDA	9.522	663.0 -> 619.0	115573	16.35	µg/L		100
PFUnDA	7.930	563.0 -> 519.0	315528	19.68	µg/L		100
ADONA	5.689	377.0 -> 251.0	870356	19.72	µg/L		100
9Cl-PF3ONS	7.131	531.0 -> 351.0	114560	20.27	µg/L		100
11Cl-PF3OUdS	8.100	631.0 -> 451.0	118950	19.91	µg/L		100
HFPO-DA	5.035	285.0 -> 169.0	31778	19.55	µg/L		99

 # = Qualifier out of range, m = manually integrated, + = Area summed

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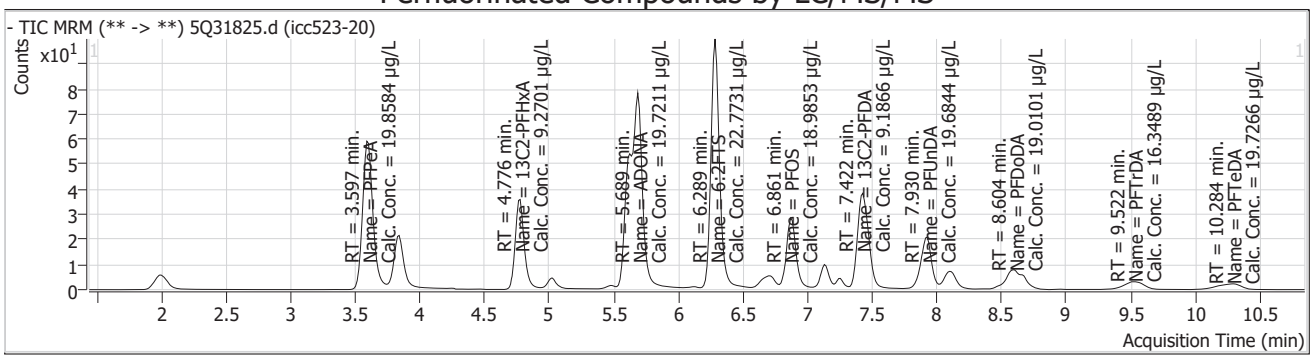
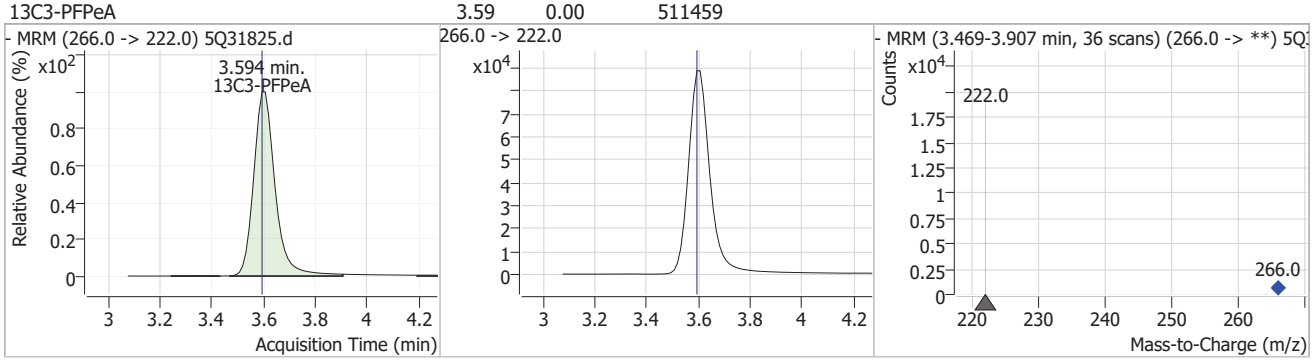
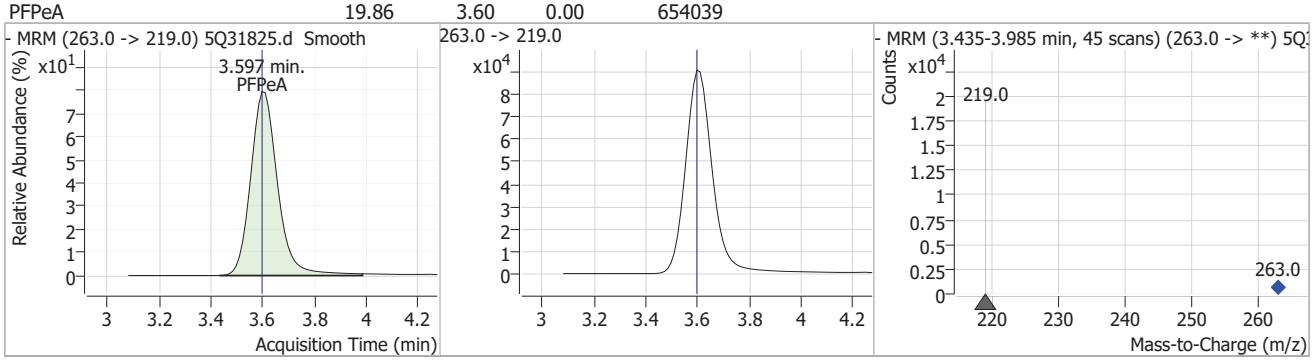
Perfluorinated Compounds by LC/MS/MS



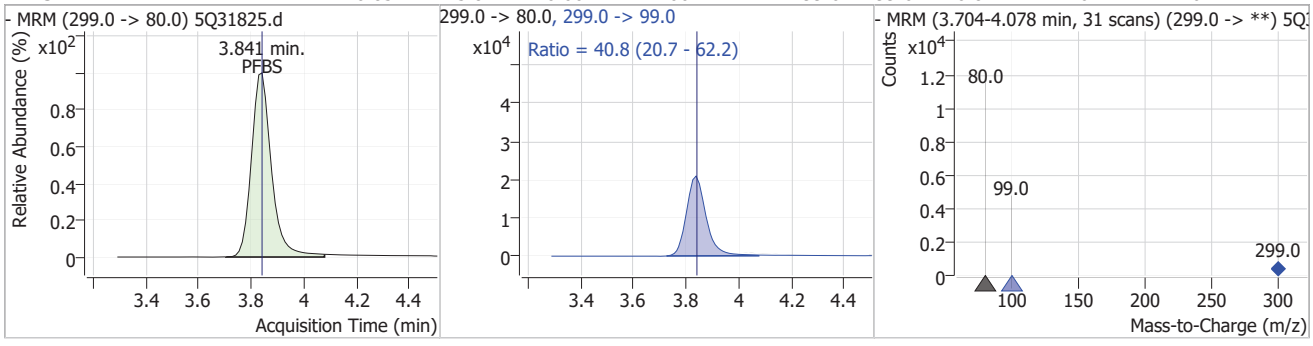
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	511459				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.86	3.60	0.00	654039				

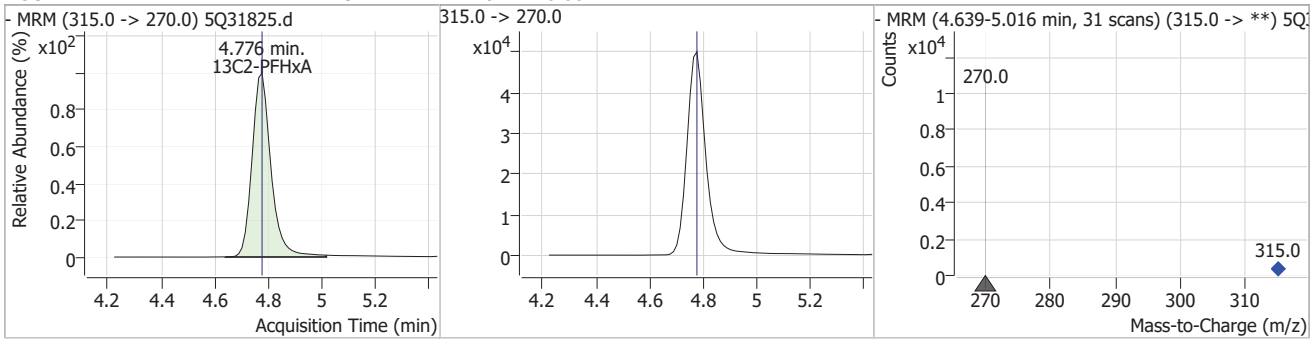


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.83	3.84	0.00	266227	299.0 -> 99.0	40.8	20.7	62.2

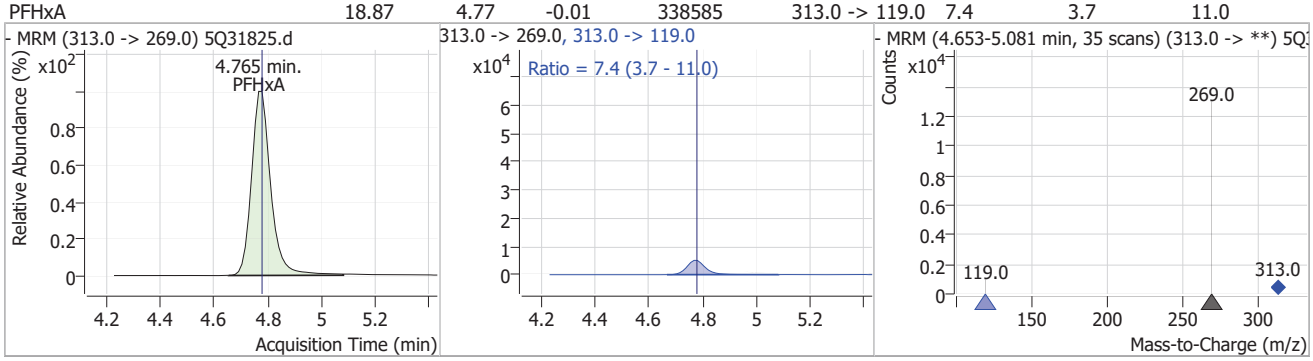


Perfluorinated Compounds by LC/MS/MS

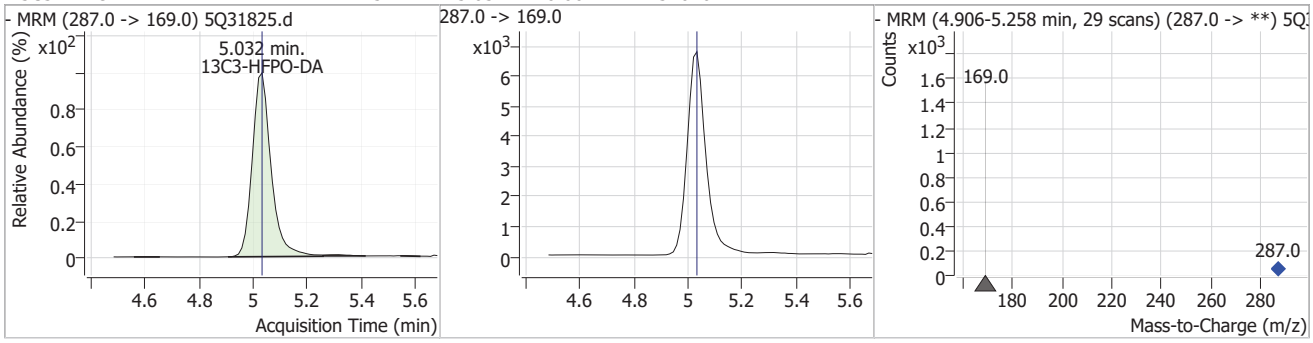
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	9.27	4.78	0.00	244472				



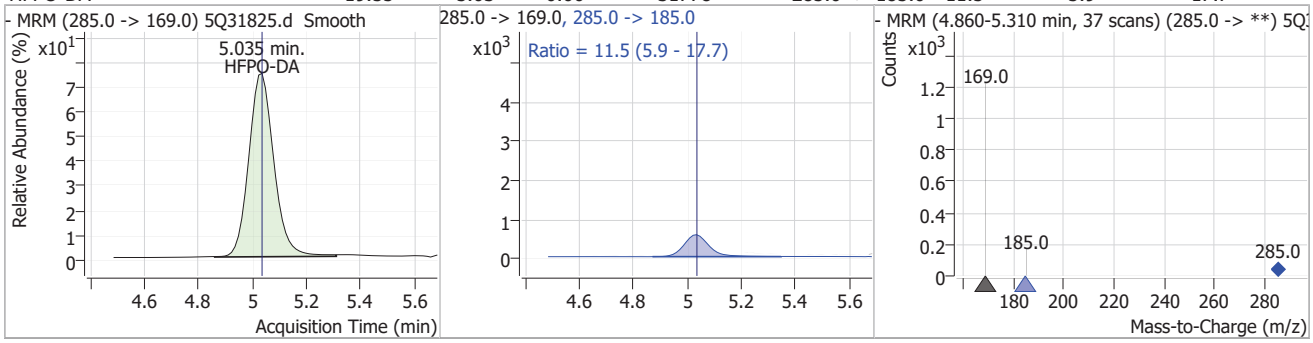
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	18.87	4.77	-0.01	338585	313.0 -> 119.0	7.4	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	17.51	5.03	0.00	32626				

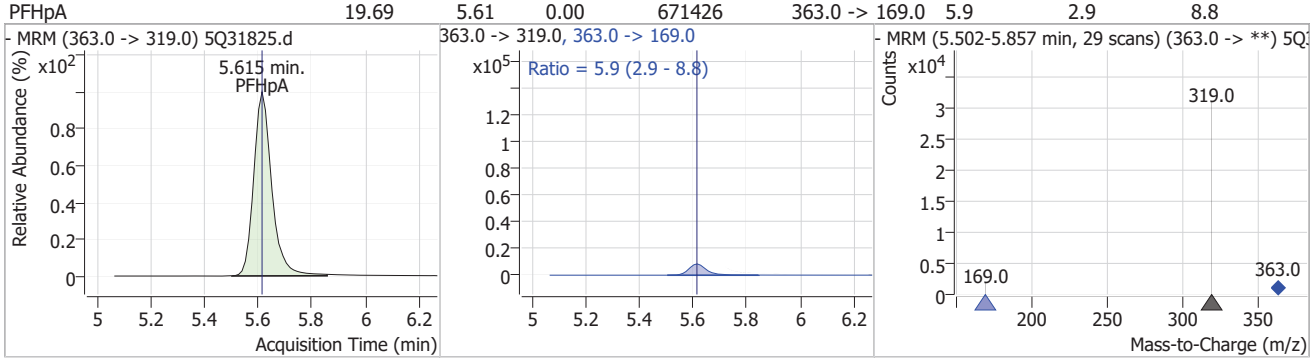


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.55	5.03	0.00	31778	285.0 -> 185.0	11.5	5.9	17.7

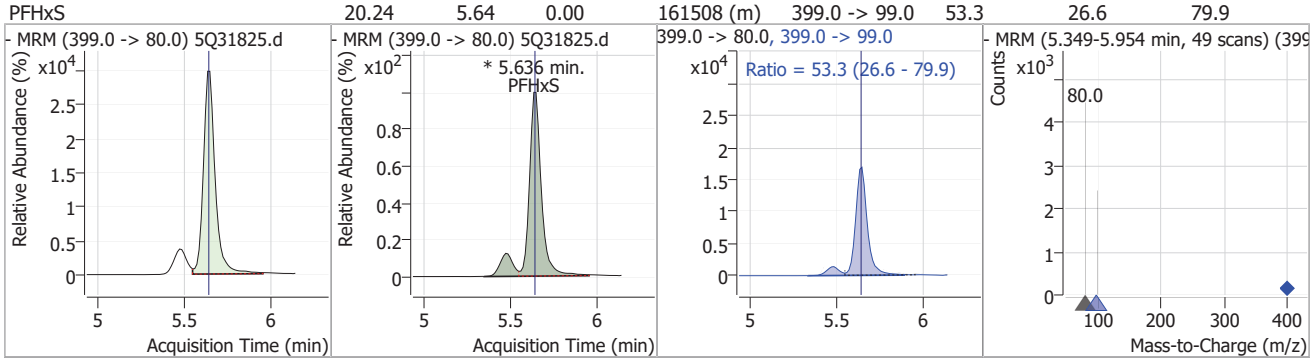


Perfluorinated Compounds by LC/MS/MS

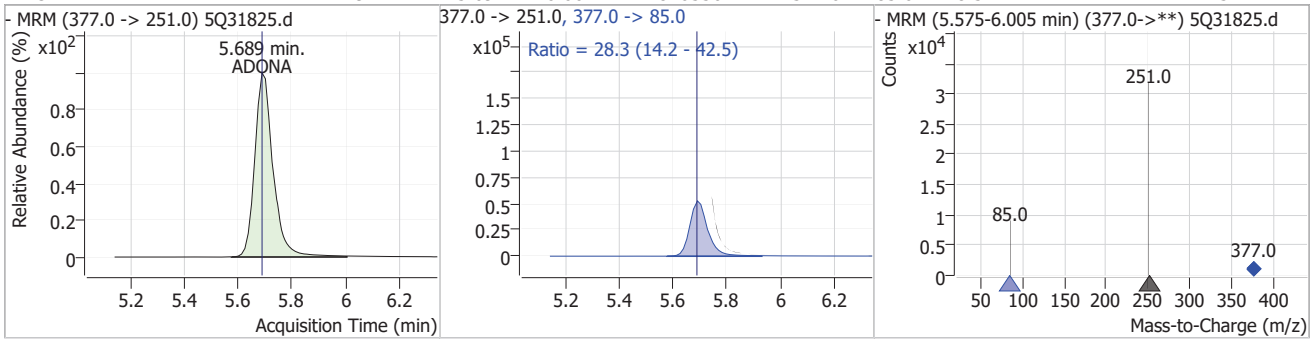
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.69	5.61	0.00	671426	363.0 -> 169.0	5.9	2.9	8.8



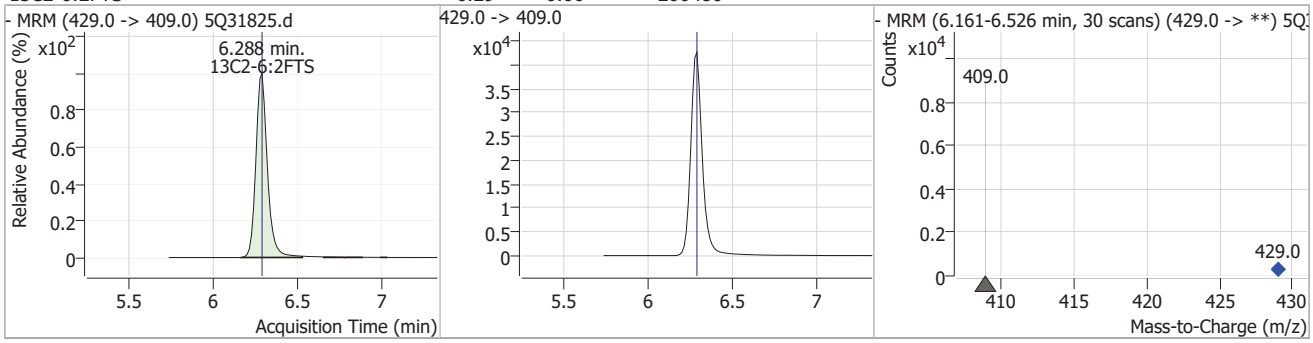
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	20.24	5.64	0.00	161508 (m)	399.0 -> 99.0	53.3	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.72	5.69	0.00	870356	377.0 -> 85.0	28.3	14.2	42.5

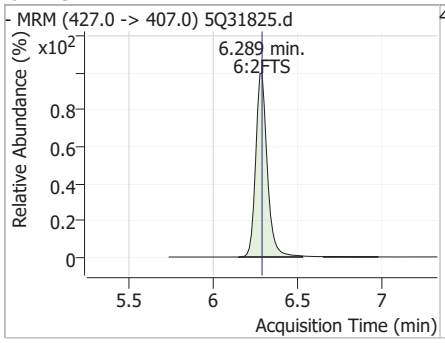


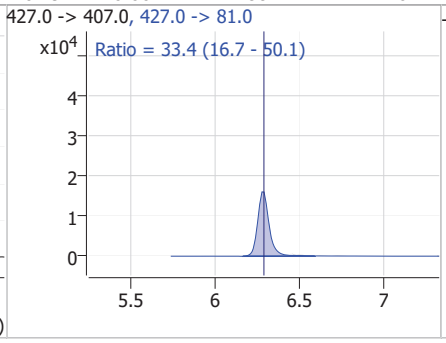
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.00	200480				

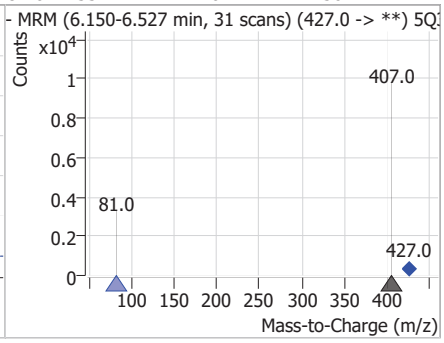


Perfluorinated Compounds by LC/MS/MS

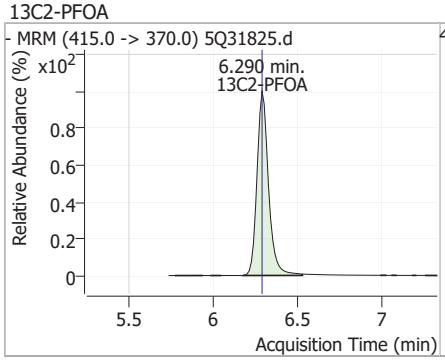
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	22.77	6.29	0.00	228827	427.0 -> 81.0	33.4	16.7	50.1

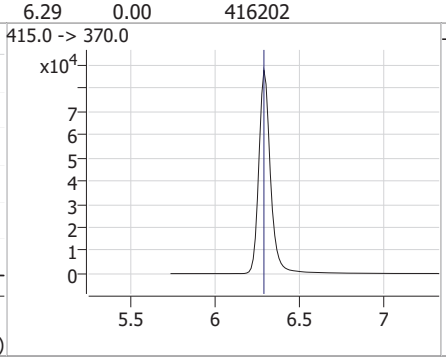


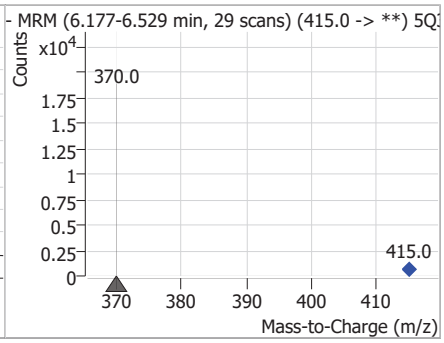




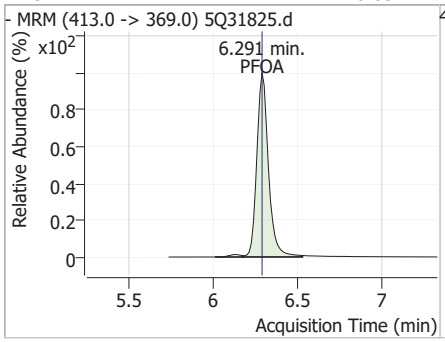
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	416202				

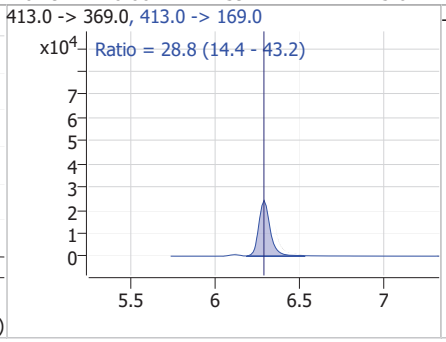


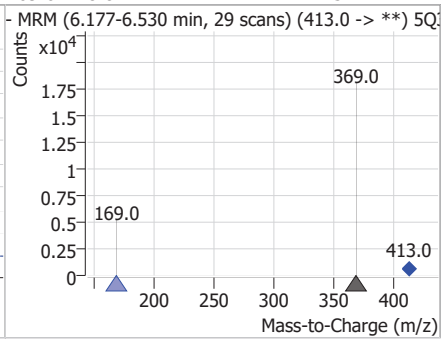




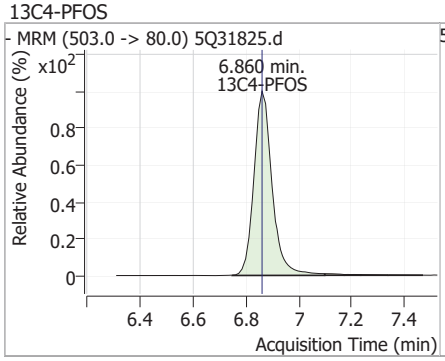
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.05	6.29	0.00	397717	413.0 -> 169.0	28.8	14.4	43.2

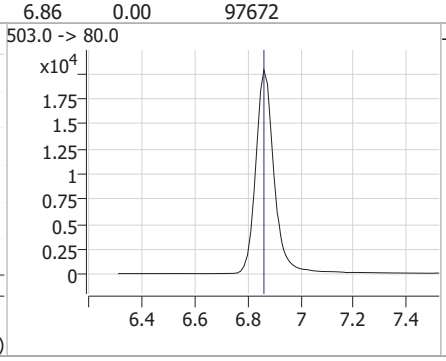


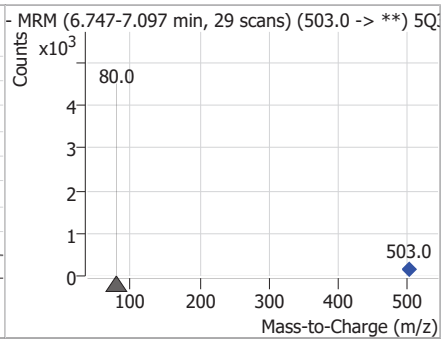




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	97672				







7.7.35

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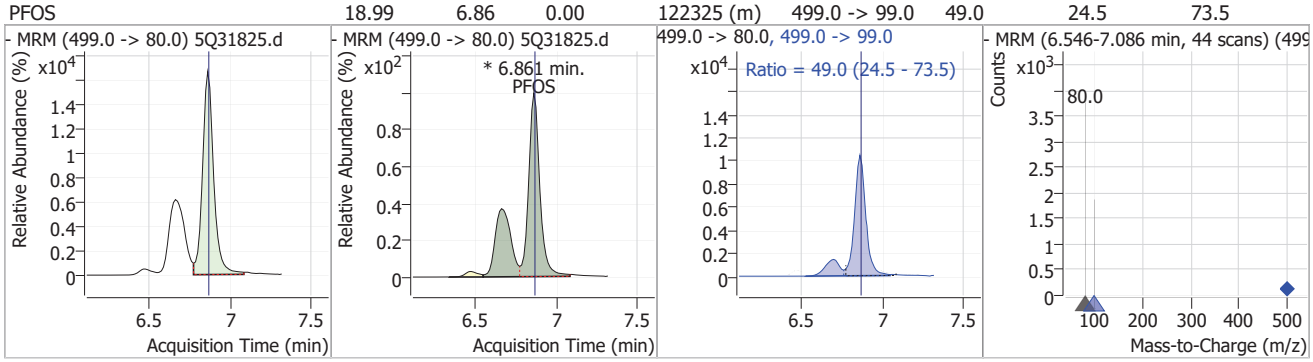
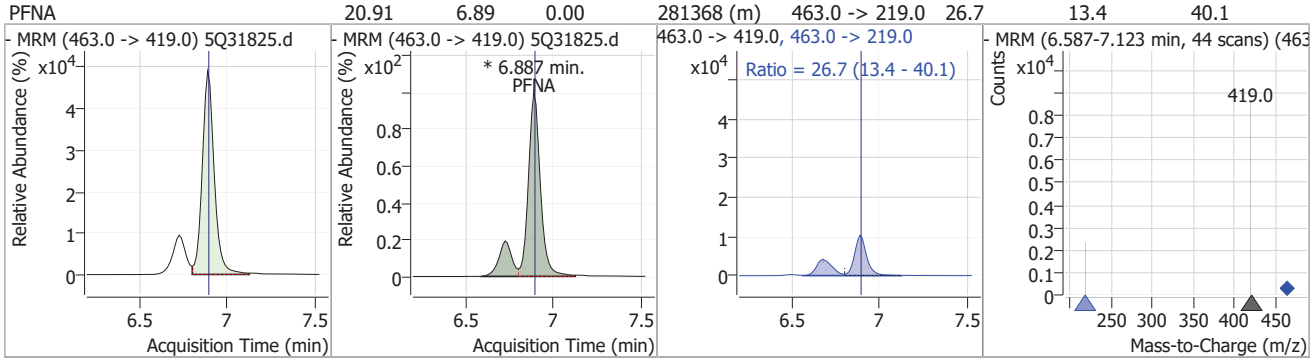
Perfluorinated Compounds by LC/MS/MS

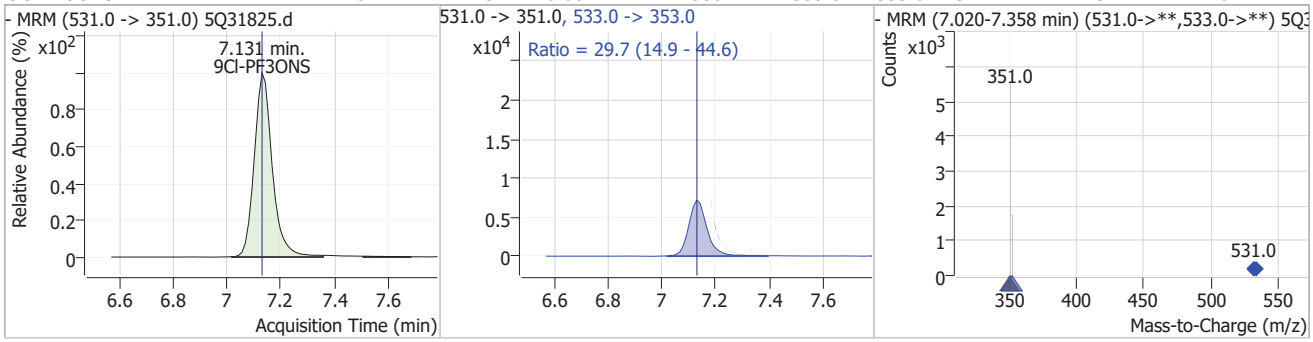
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.99	6.86	0.00	122325 (m)	499.0 -> 99.0	49.0	24.5	73.5



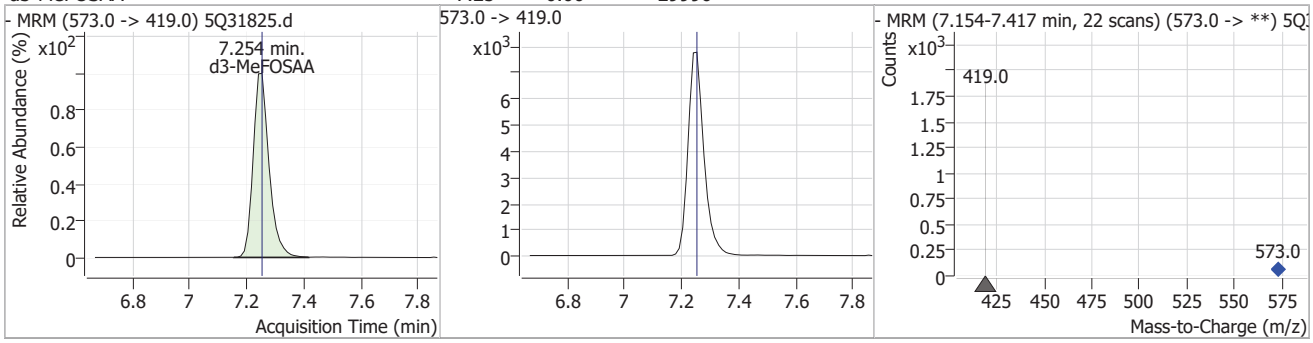
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	20.91	6.89	0.00	281368 (m)	463.0 -> 219.0	26.7	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	20.27	7.13	0.00	114560	533.0 -> 353.0	29.7	14.9	44.6

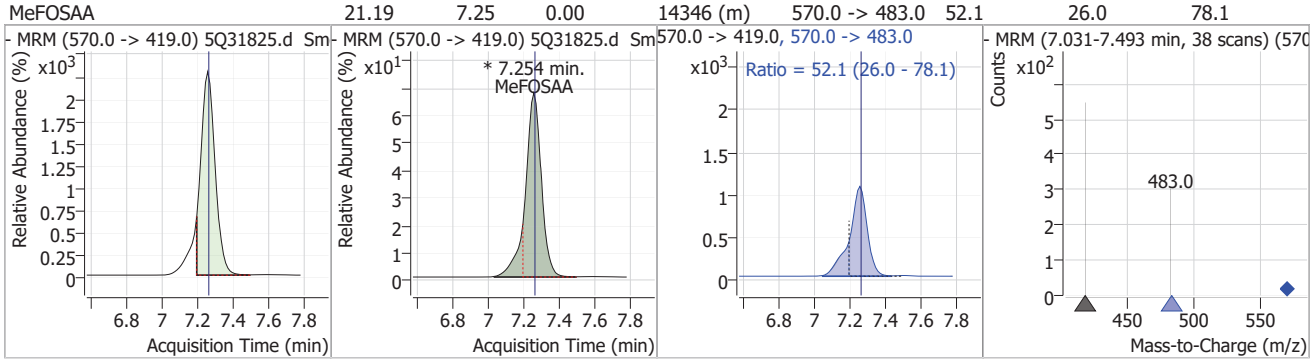


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.25	0.00	29996				

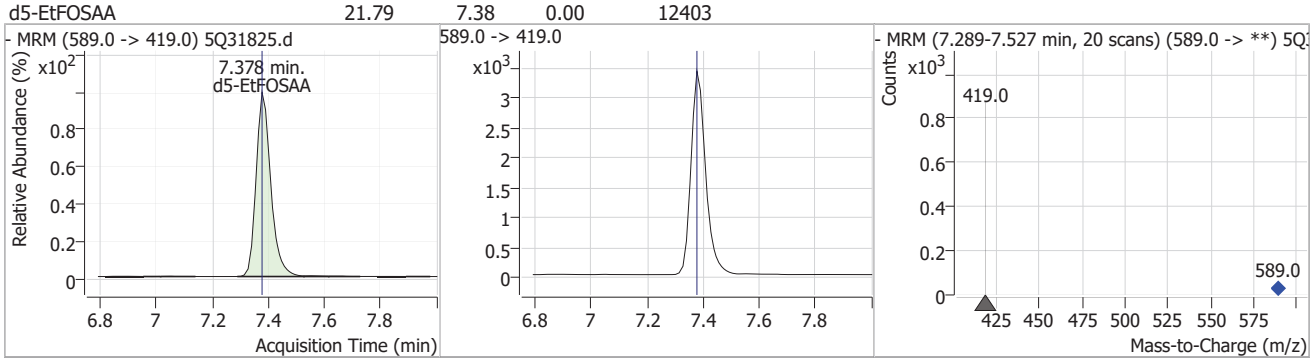


Perfluorinated Compounds by LC/MS/MS

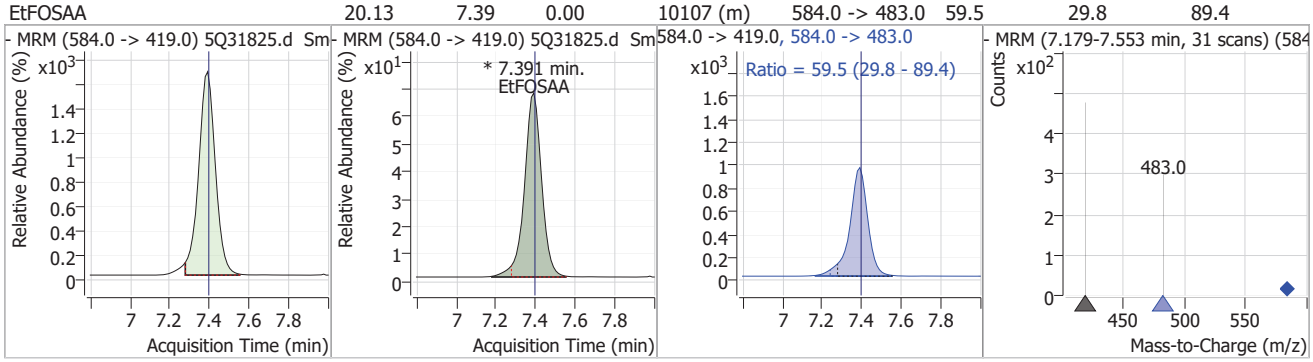
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	21.19	7.25	0.00	14346 (m)	570.0 -> 483.0	52.1	26.0	78.1



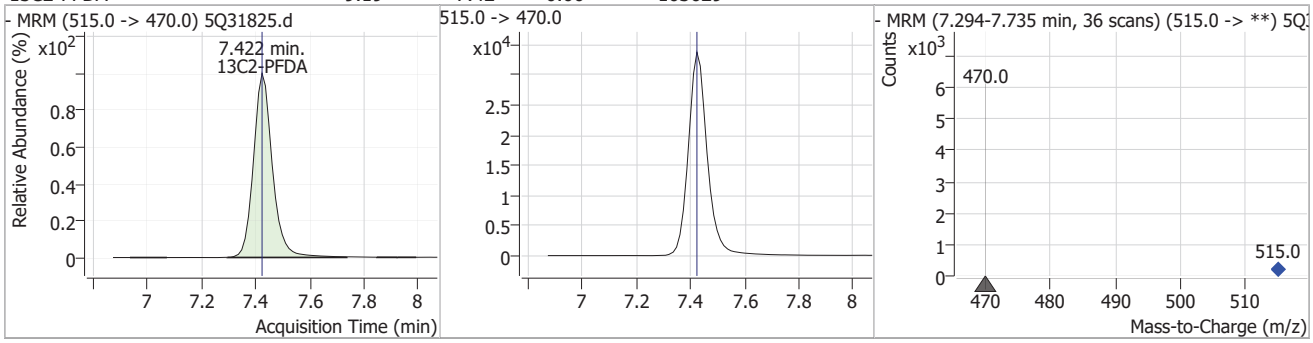
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	21.79	7.38	0.00	12403				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	20.13	7.39	0.00	10107 (m)	584.0 -> 483.0	59.5	29.8	89.4

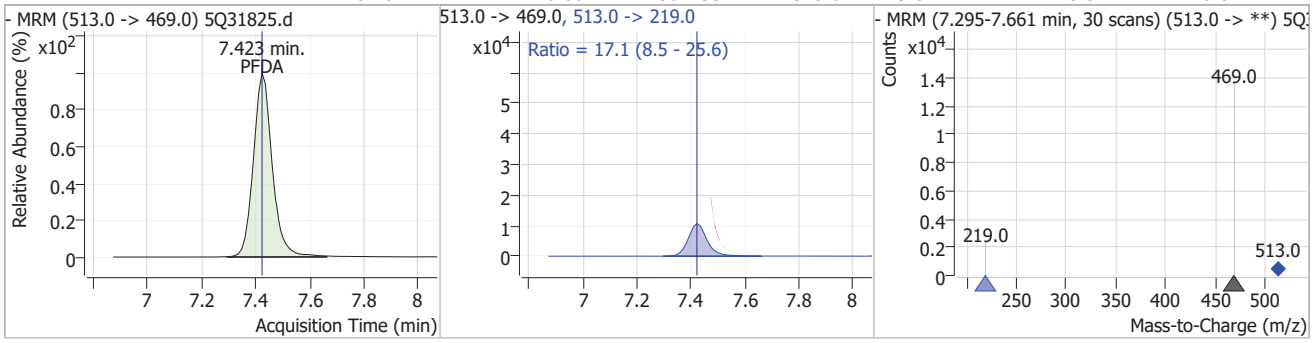


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	9.19	7.42	0.00	163629				

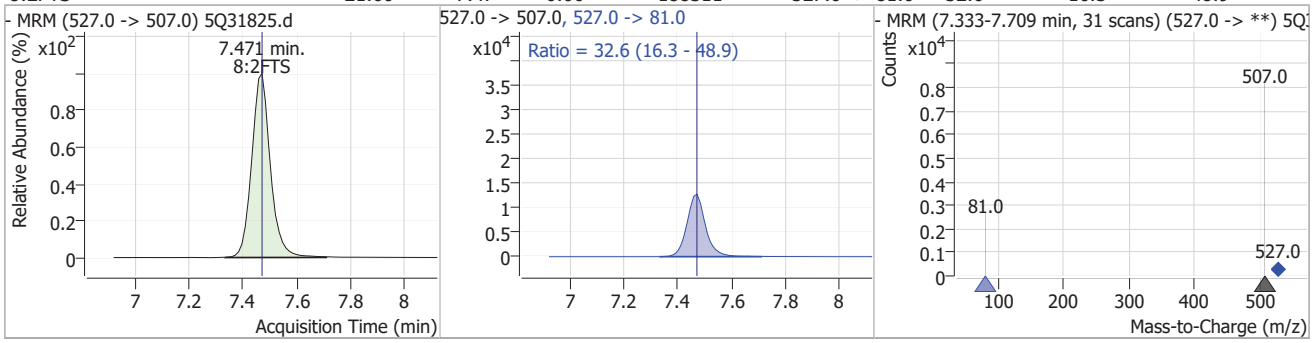


Perfluorinated Compounds by LC/MS/MS

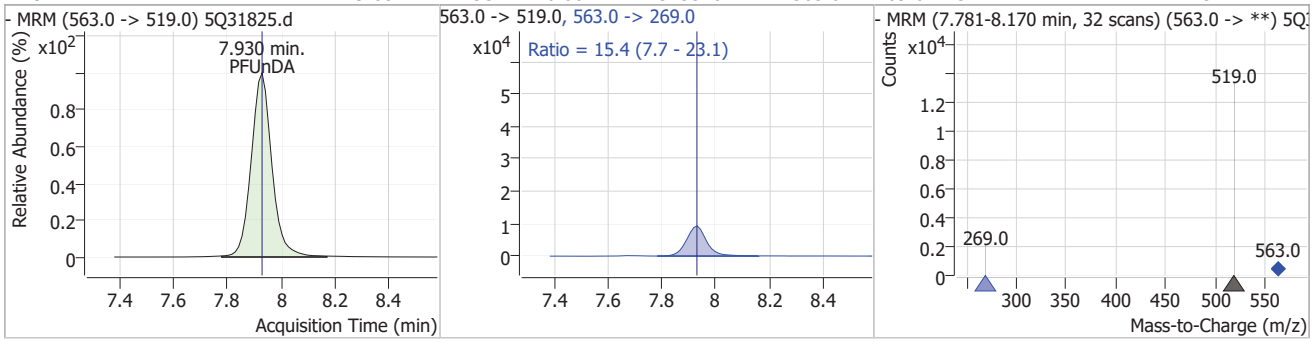
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.46	7.42	0.00	304299	513.0 -> 219.0	17.1	8.5	25.6



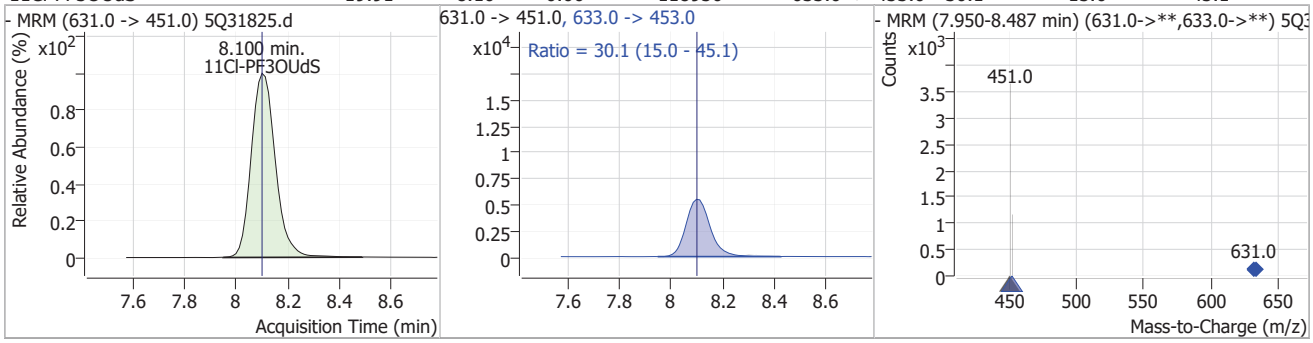
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.60	7.47	0.00	188311	527.0 -> 81.0	32.6	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.68	7.93	0.00	315528	563.0 -> 269.0	15.4	7.7	23.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	19.91	8.10	0.00	118950	633.0 -> 453.0	30.1	15.0	45.1



7.7.35

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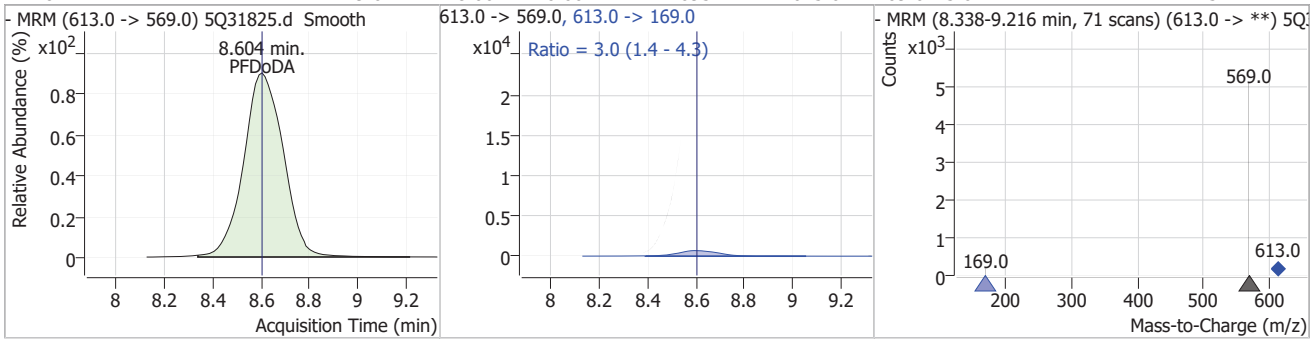
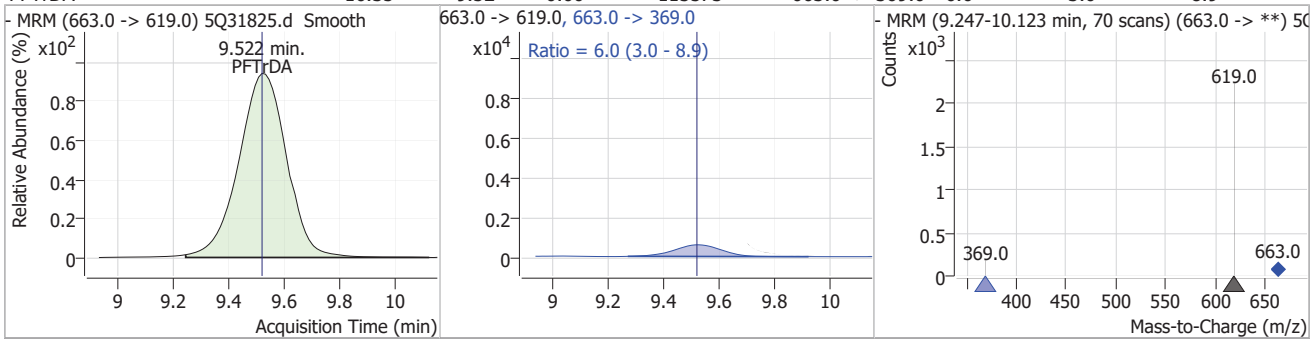
Perfluorinated Compounds by LC/MS/MS

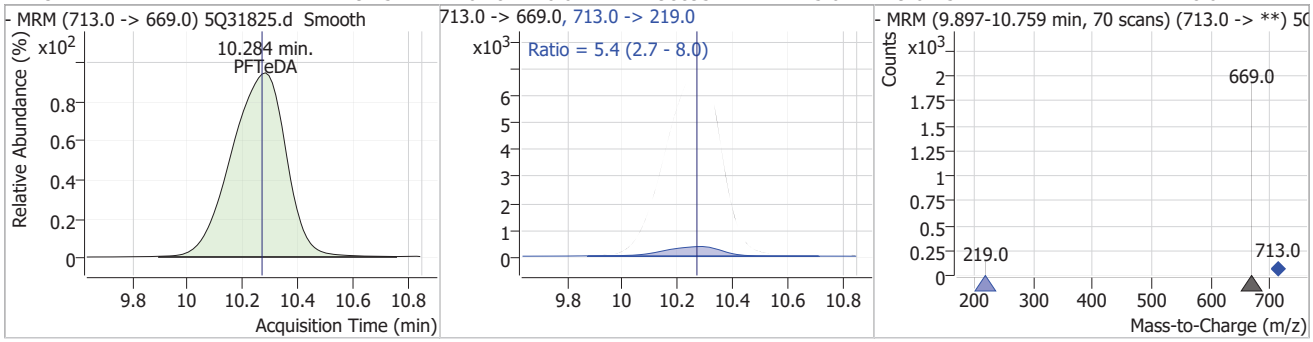
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.01	8.60	0.00	270954	613.0 -> 169.0	3.0	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	16.35	9.52	0.00	115573	663.0 -> 369.0	6.0	3.0	8.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.73	10.28	0.01	98893	713.0 -> 219.0	5.4	2.7	8.0



Manual Integration Approval Summary

Sample Number: S5Q523-ICC523
Lab FileID: 5Q31825.D
Injection Time: 04/17/25 14:01
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6)
Supervisor approved: 04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

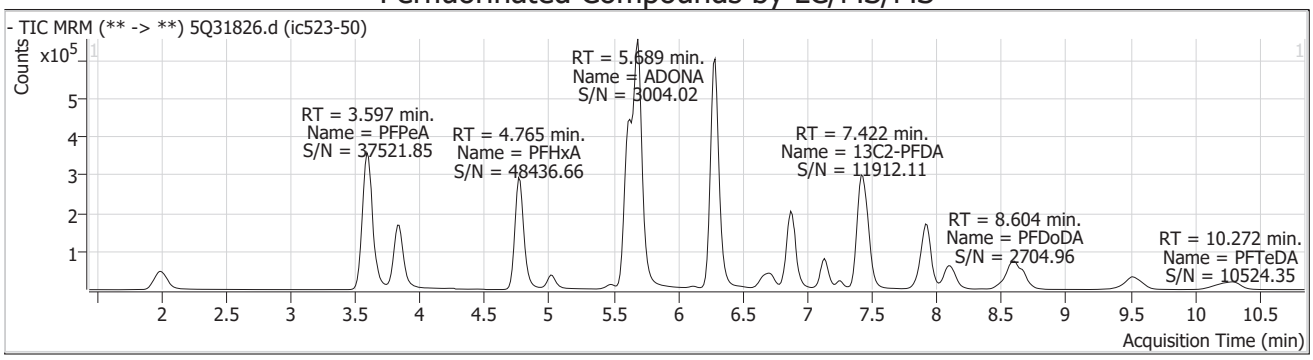
Data File : 5Q31826.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 2:17:47 PM
Sample Name : ic523-50
Vial : P1-A8
DA Method File
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Symmetry	Conc. Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.275	429.0 -> 409.0	201860		20.00 µg/L		-0.012
13C2-PFOA	6.290	415.0 -> 370.0	377955		20.00 µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	485159		20.00 µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	93502		20.00 µg/L		0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	28275		40.00 µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.422	515.0 -> 470.0	386194		23.88 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%				Recovery = 119.4%		
13C2-PFHxA	4.764	315.0 -> 270.0	593671		24.79 µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%				Recovery = 123.9%		
d5-EtFOSAA	7.378	589.0 -> 419.0	26654		49.68 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%				Recovery = 124.2%		
13C3-HFPO-DA	5.020	287.0 -> 169.0	81704		48.28 µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%				Recovery = 120.7%		
Target Compounds							QValue
6:2FTS	6.276	427.0 -> 407.0	542260		53.60 µg/L		99
8:2FTS	7.458	527.0 -> 507.0	453875		51.71 µg/L		100
EtFOSAA	7.391	584.0 -> 419.0	24610		52.00 µg/L	m	93
MeFOSAA	7.254	570.0 -> 419.0	33660		51.94 µg/L	m	96
PFBS	3.828	299.0 -> 80.0	623259	1.49	50.94 µg/L		99
PFDA	7.423	513.0 -> 469.0	690275		49.55 µg/L		100
PFDoDA	8.604	613.0 -> 569.0	737874		51.55 µg/L		100
PFHpA	5.615	363.0 -> 319.0	1610575		50.02 µg/L		99
PFHxA	4.765	313.0 -> 269.0	806825	1.43	49.51 µg/L		99
PFHxS	5.636	399.0 -> 80.0	402957		50.89 µg/L	m	98
PFNA	6.887	463.0 -> 419.0	643091		49.20 µg/L	m	97
PFOA	6.291	413.0 -> 369.0	918781		49.96 µg/L		100
PFOS	6.861	499.0 -> 80.0	293796		47.63 µg/L	m	98
PFPeA	3.597	263.0 -> 219.0	1587420		50.08 µg/L		100
PFTeDA	10.272	713.0 -> 669.0	258063		50.31 µg/L		99
PFTrDA	9.522	663.0 -> 619.0	317302		46.89 µg/L		99
PFUnDA	7.930	563.0 -> 519.0	752388		49.03 µg/L		100
ADONA	5.689	377.0 -> 251.0	2110241		50.04 µg/L		99
9Cl-PF3ONS	7.131	531.0 -> 351.0	276506		49.72 µg/L		100
11Cl-PF3OUdS	8.100	631.0 -> 451.0	302523		50.05 µg/L		99
HFPO-DA	5.023	285.0 -> 169.0	77693		50.13 µg/L		100

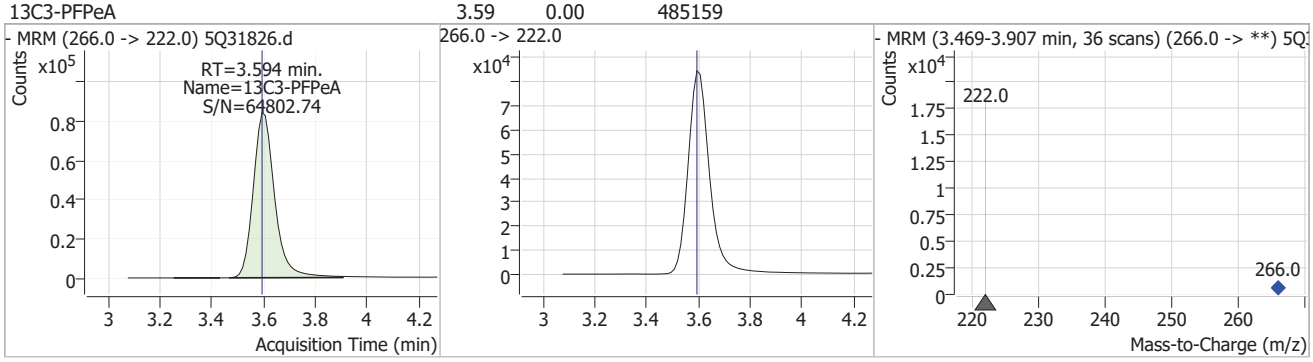
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.36

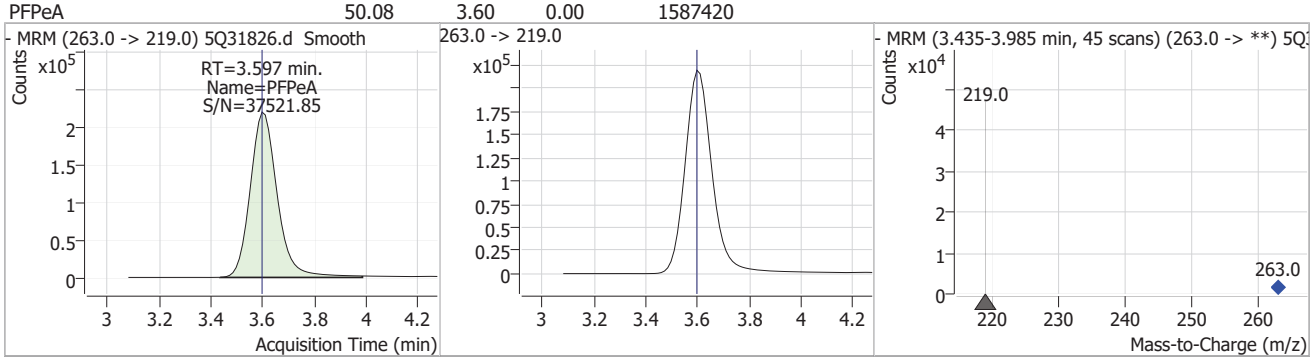
Perfluorinated Compounds by LC/MS/MS



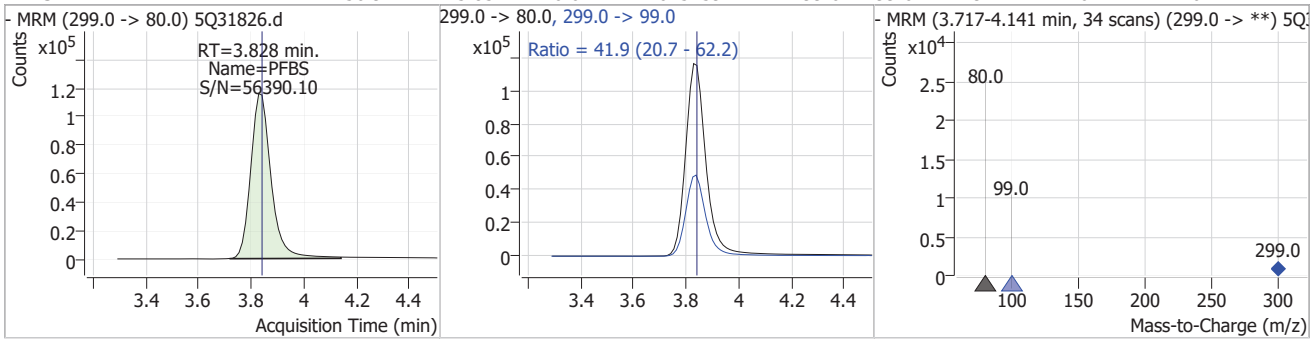
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	485159				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	50.08	3.60	0.00	1587420				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	50.94	3.83	-0.01	623259	299.0 -> 99.0	41.9	20.7	62.2



7.7.36

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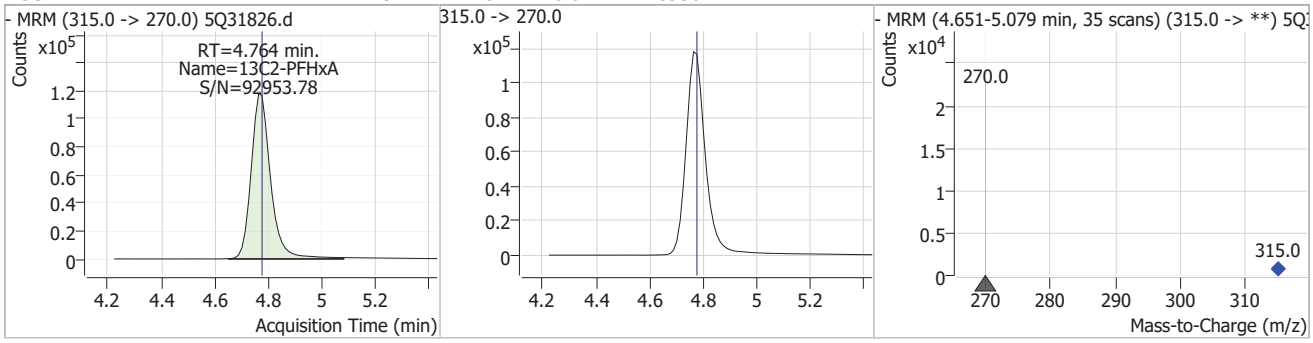
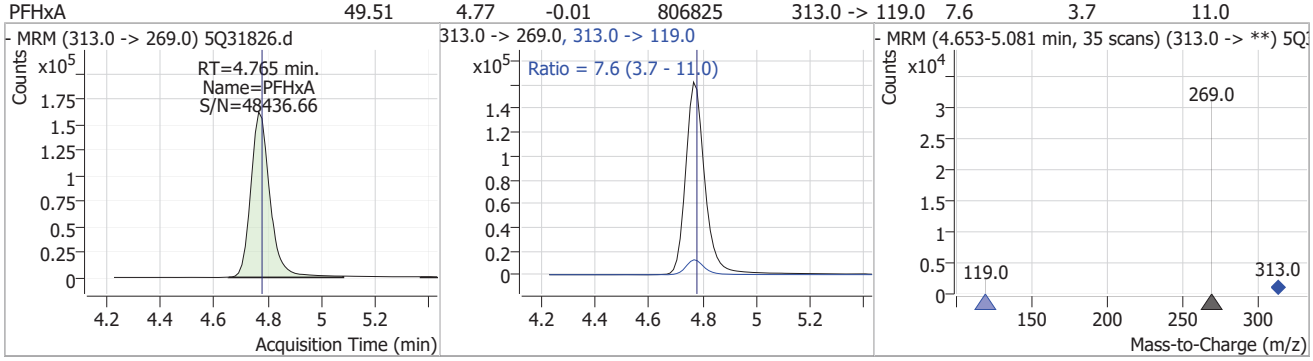
Perfluorinated Compounds by LC/MS/MS

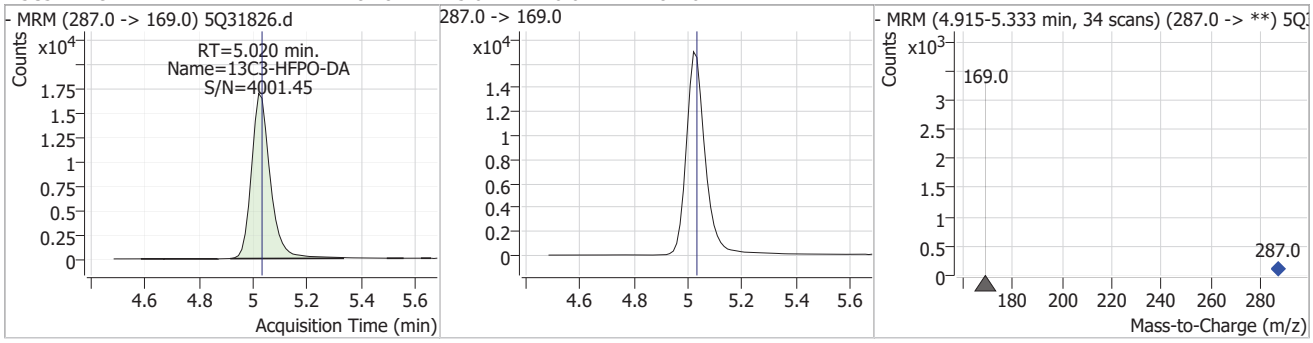
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	24.79	4.76	-0.01	593671				



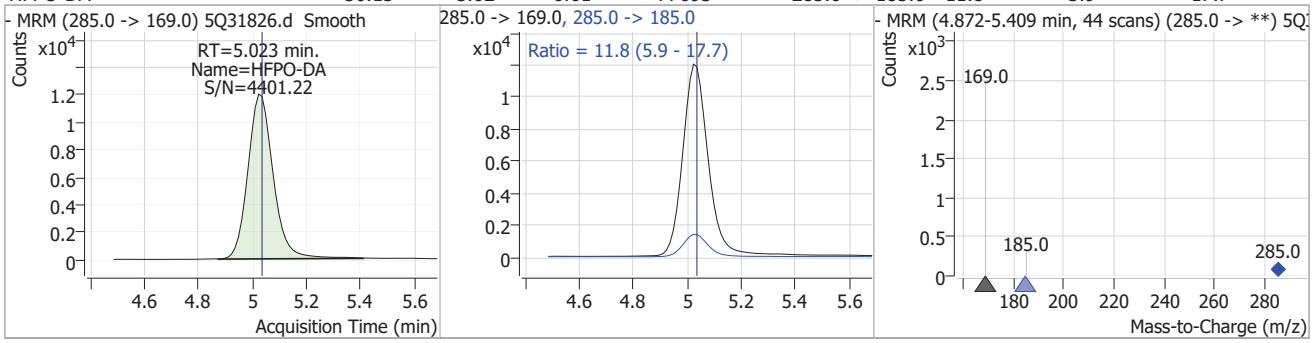
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	49.51	4.77	-0.01	806825	313.0 -> 119.0	7.6	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	48.28	5.02	-0.01	81704				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	50.13	5.02	-0.01	77693	285.0 -> 185.0	11.8	5.9	17.7



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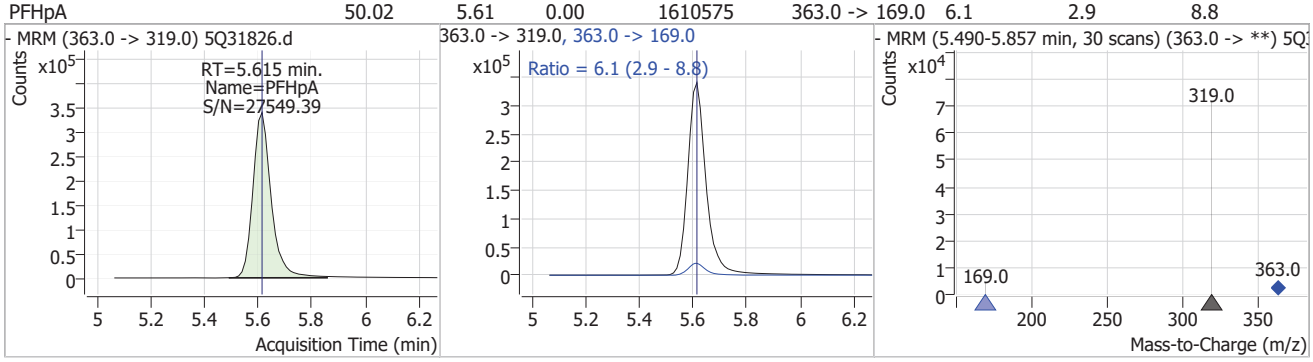
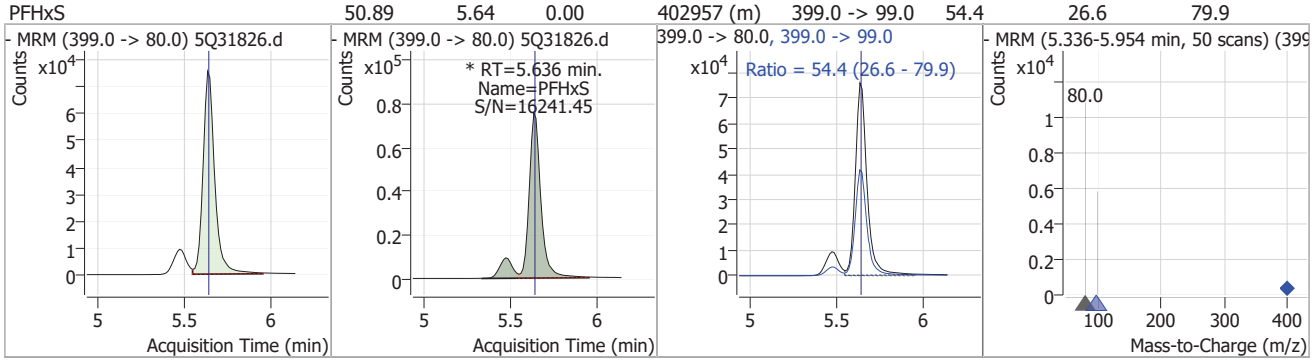
Perfluorinated Compounds by LC/MS/MS

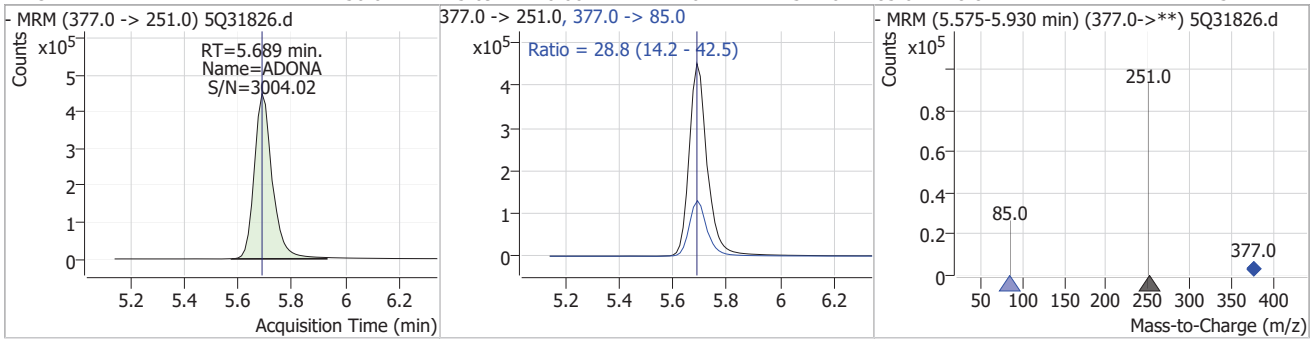
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	50.02	5.61	0.00	1610575	363.0 -> 169.0	6.1	2.9	8.8



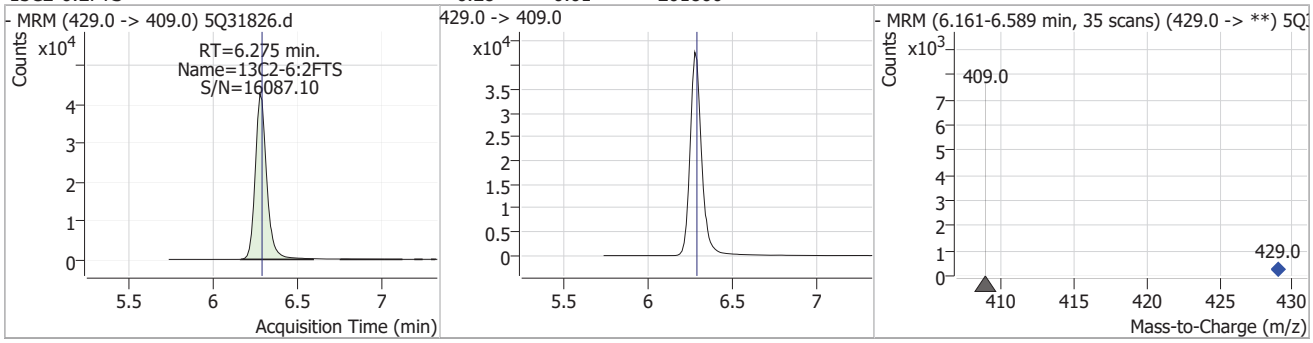
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	50.89	5.64	0.00	402957 (m)	399.0 -> 99.0	54.4	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	50.04	5.69	0.00	2110241	377.0 -> 85.0	28.8	14.2	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	201860				



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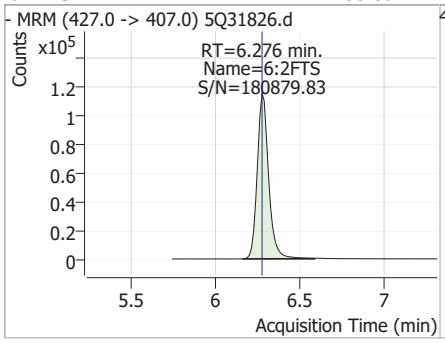
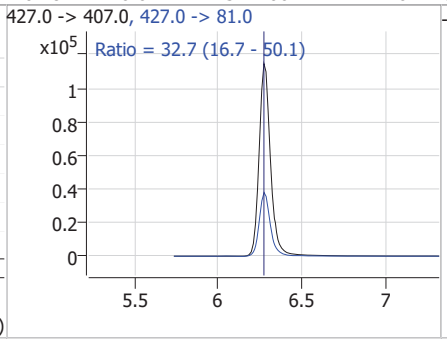
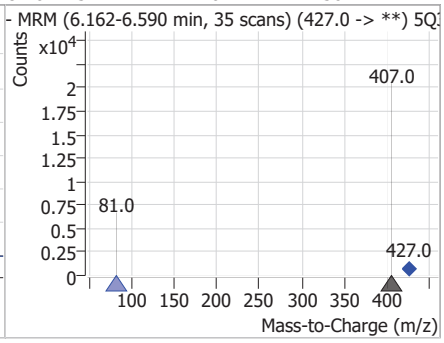
Perfluorinated Compounds by LC/MS/MS

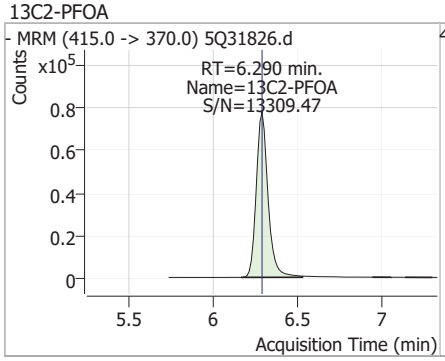
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	53.60	6.28	-0.01	542260	427.0 -> 81.0	32.7	16.7	50.1

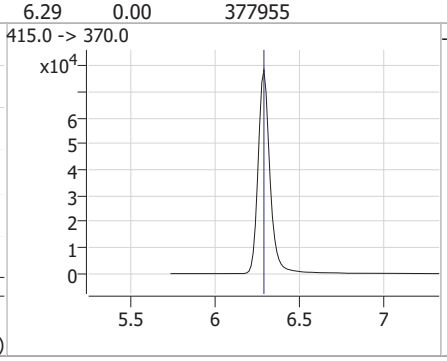


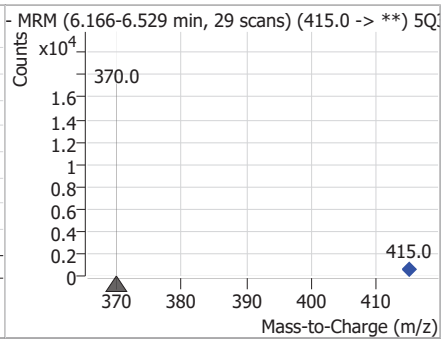




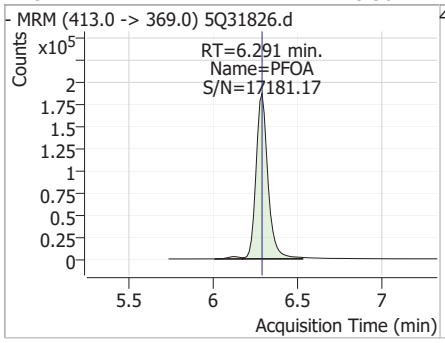
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	377955				

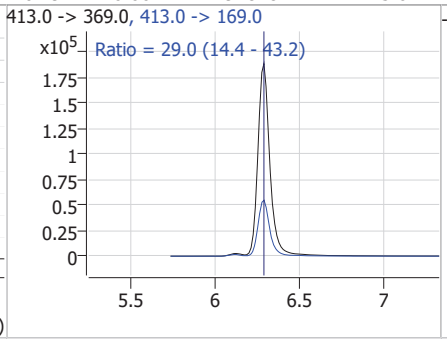


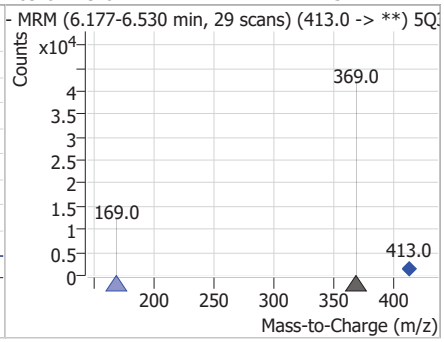




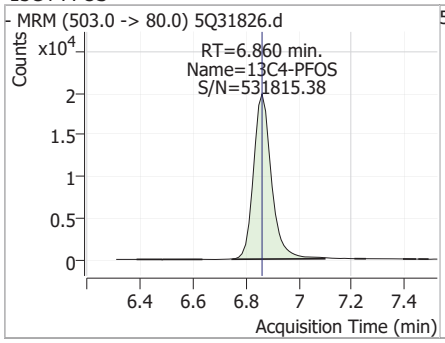
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	49.96	6.29	0.00	918781	413.0 -> 169.0	29.0	14.4	43.2

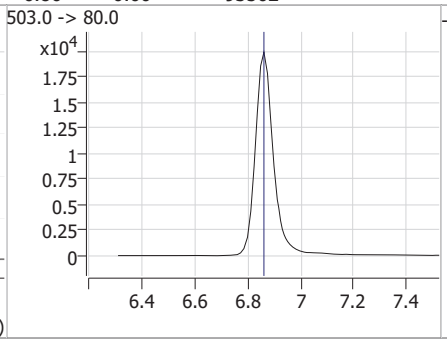


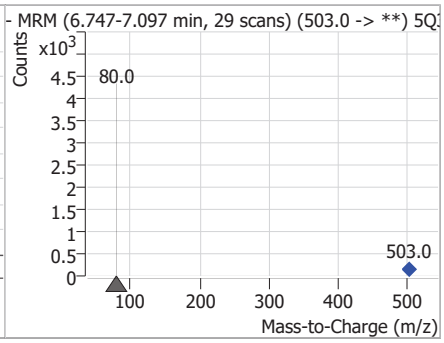




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	93502				







7.7.36

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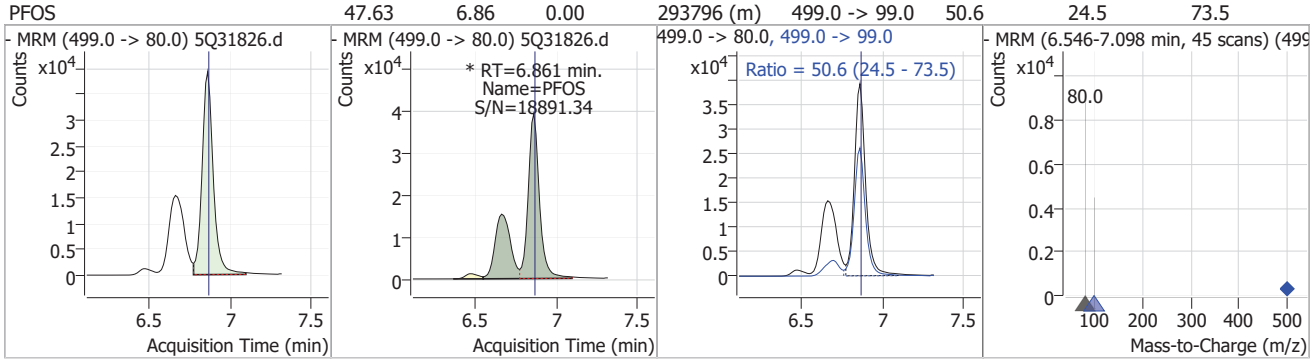
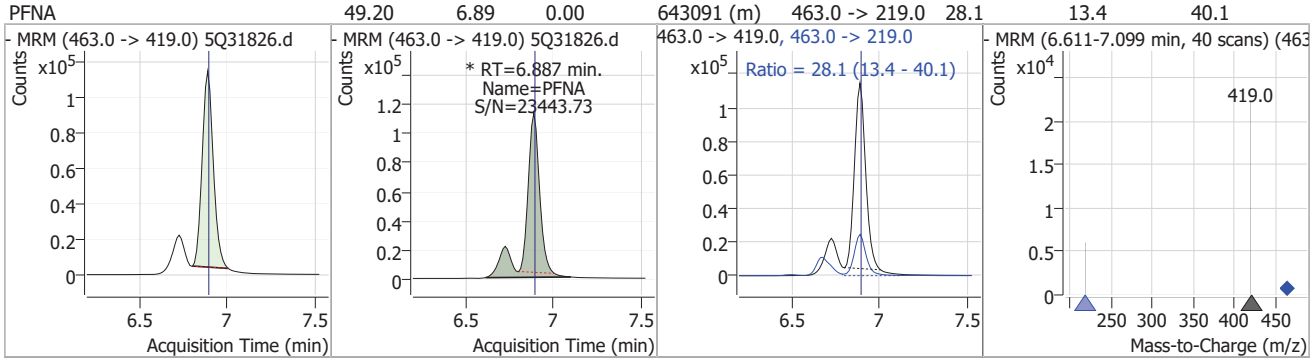
Perfluorinated Compounds by LC/MS/MS

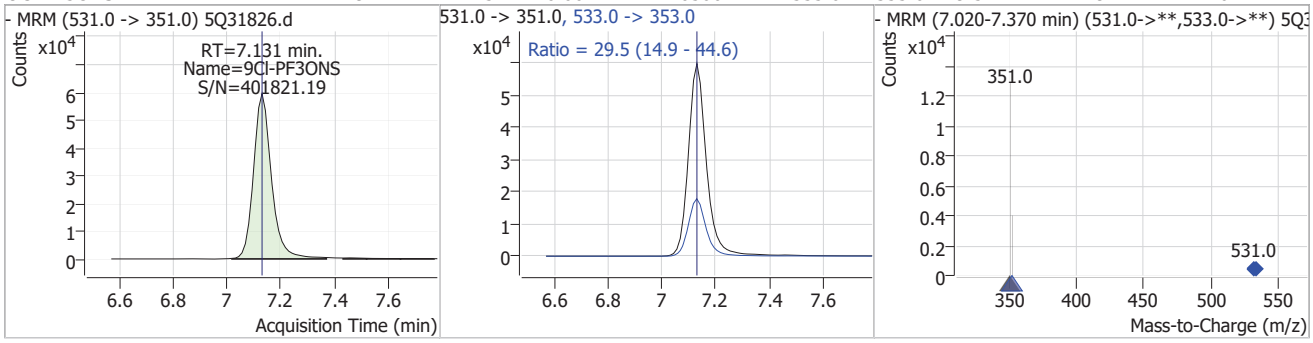
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	47.63	6.86	0.00	293796 (m)	499.0 -> 99.0	50.6	24.5	73.5



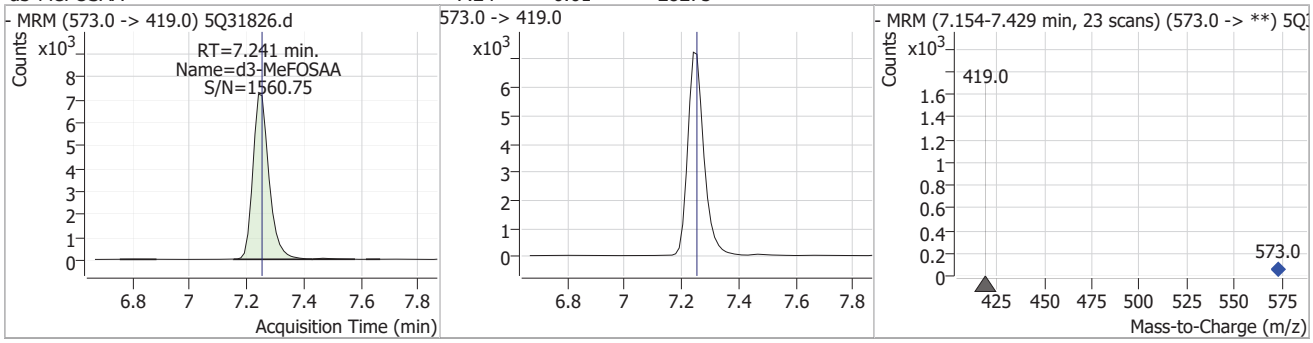
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	49.20	6.89	0.00	643091 (m)	463.0 -> 219.0	28.1	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	49.72	7.13	0.00	276506	533.0 -> 353.0	29.5	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	28275				



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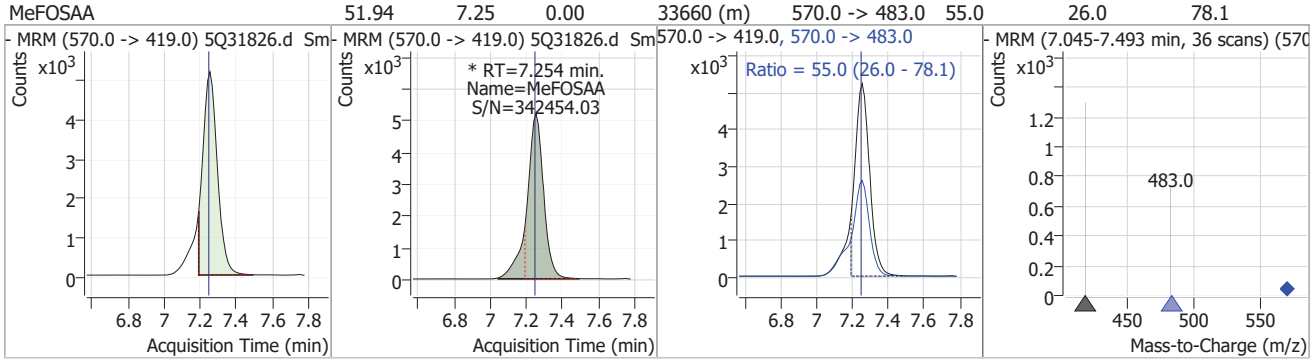
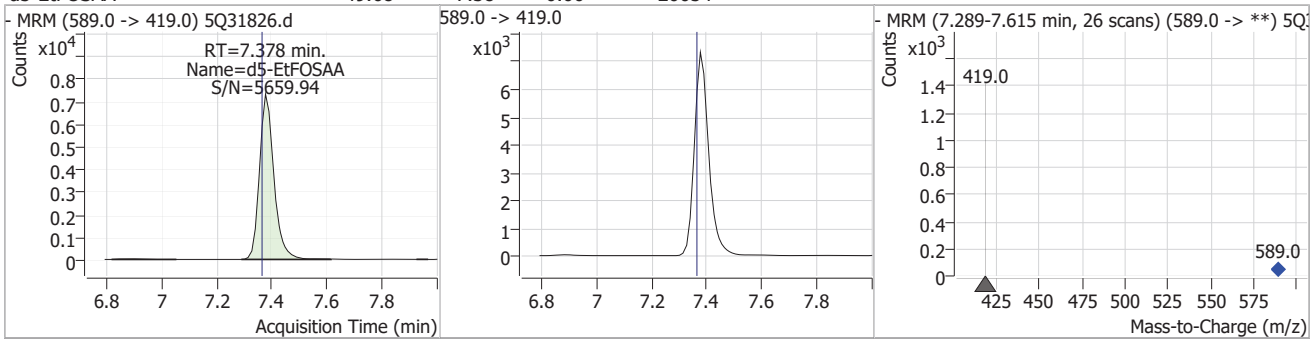
Perfluorinated Compounds by LC/MS/MS

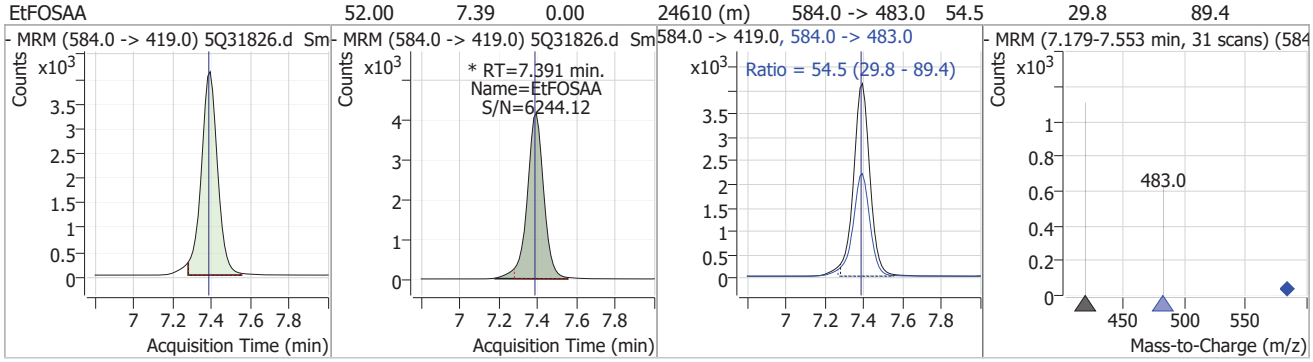
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	51.94	7.25	0.00	33660 (m)	570.0 -> 483.0	55.0	26.0	78.1



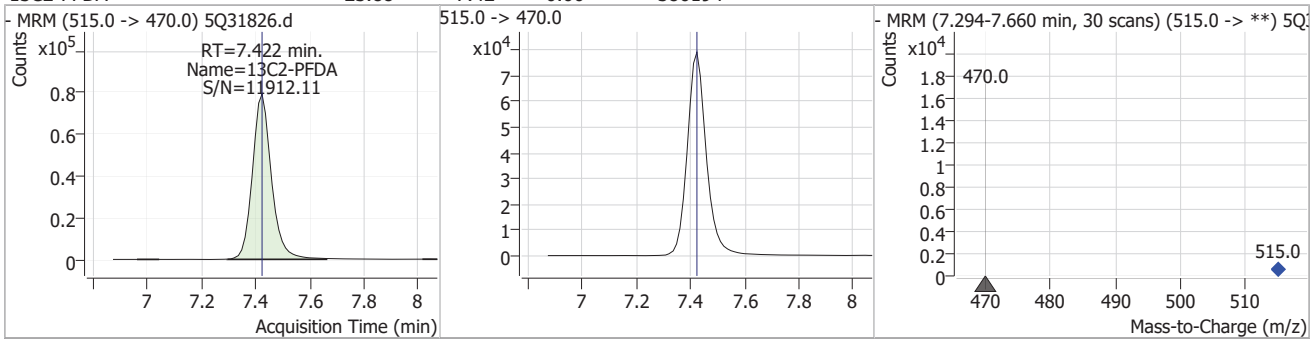
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	49.68	7.38	0.00	26654				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	52.00	7.39	0.00	24610 (m)	584.0 -> 483.0	54.5	29.8	89.4

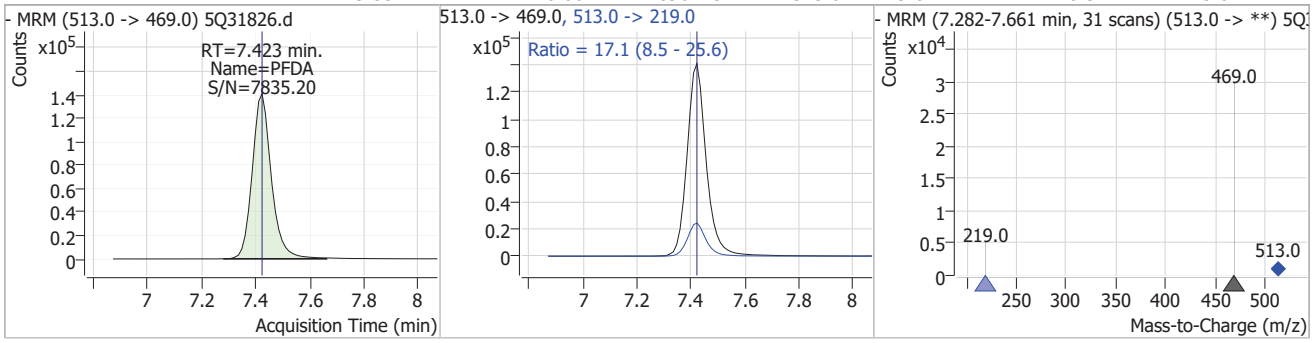


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	23.88	7.42	0.00	386194				

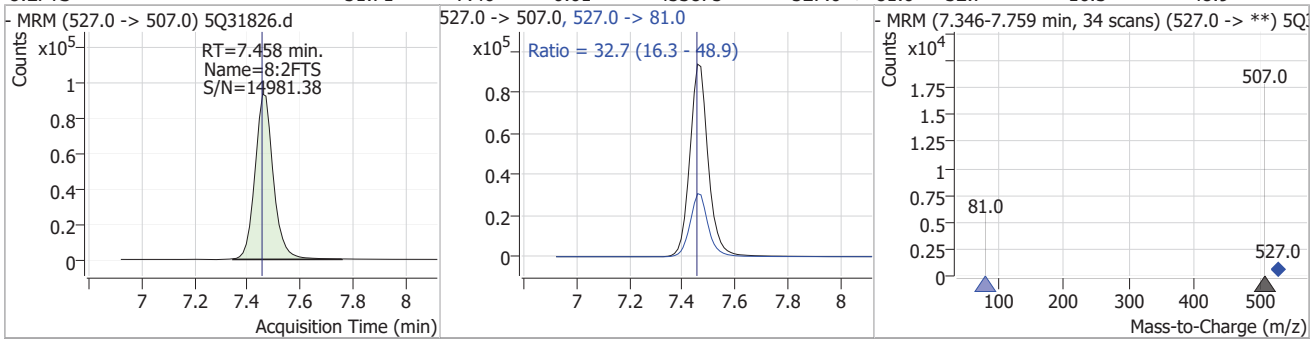


Perfluorinated Compounds by LC/MS/MS

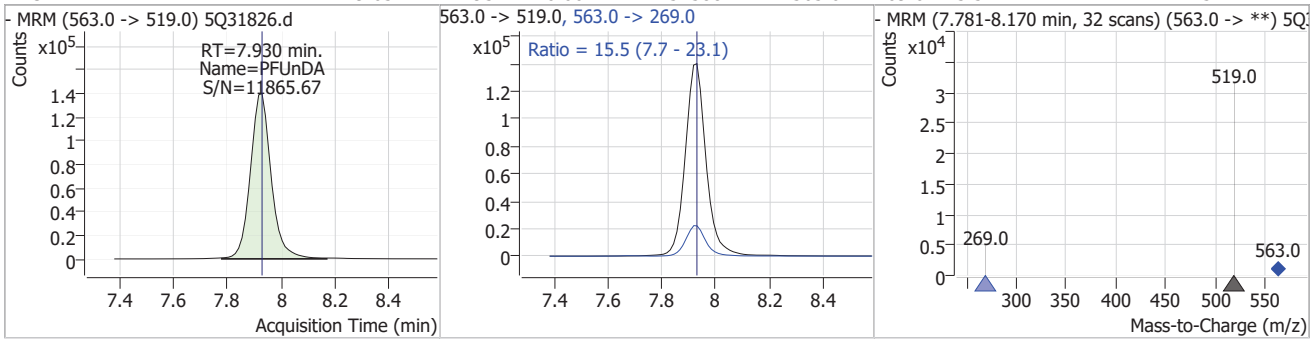
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	49.55	7.42	0.00	690275	513.0 -> 219.0	17.1	8.5	25.6



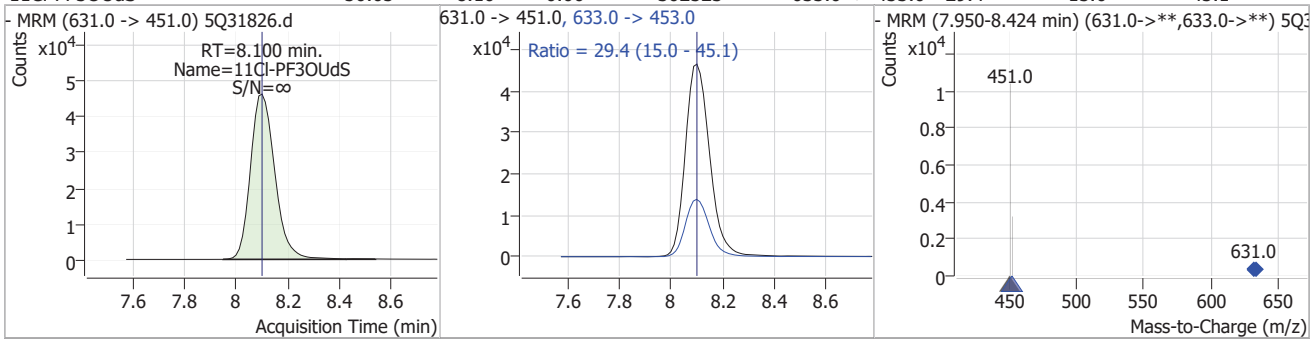
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	51.71	7.46	-0.01	453875	527.0 -> 81.0	32.7	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	49.03	7.93	0.00	752388	563.0 -> 269.0	15.5	7.7	23.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	50.05	8.10	0.00	302523	633.0 -> 453.0	29.4	15.0	45.1



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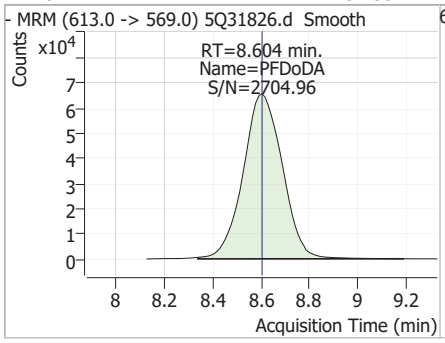
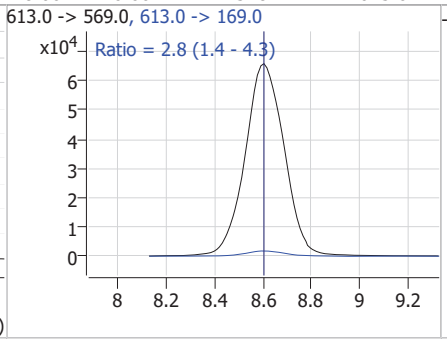
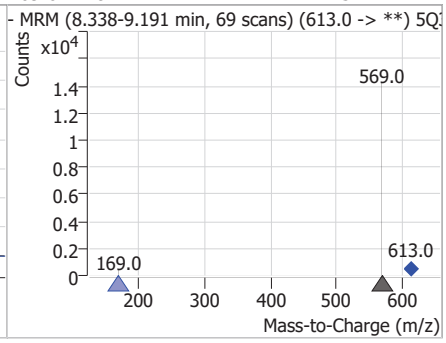
Perfluorinated Compounds by LC/MS/MS

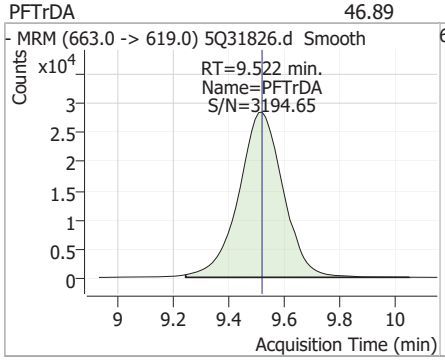
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	51.55	8.60	0.00	737874	613.0 -> 169.0	2.8	1.4	4.3

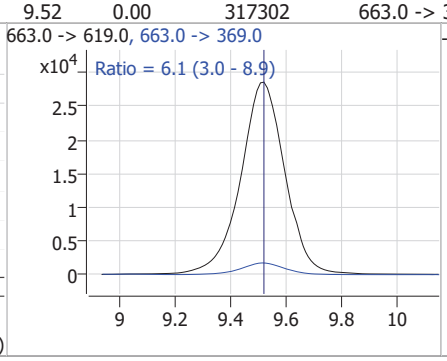


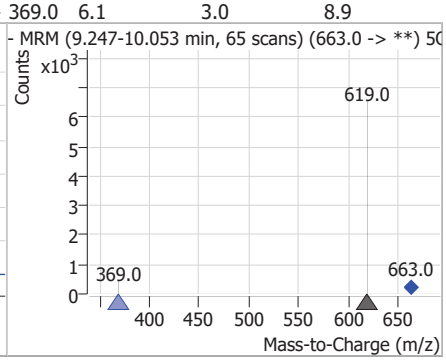




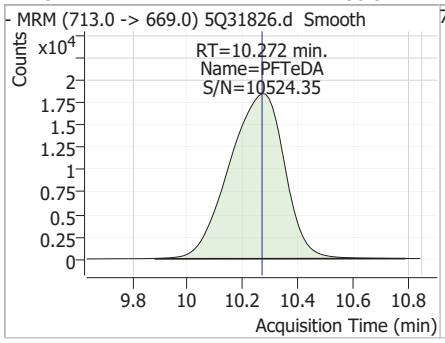
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	46.89	9.52	0.00	317302	663.0 -> 369.0	6.1	3.0	8.9

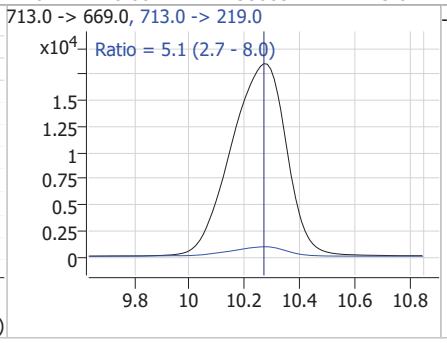


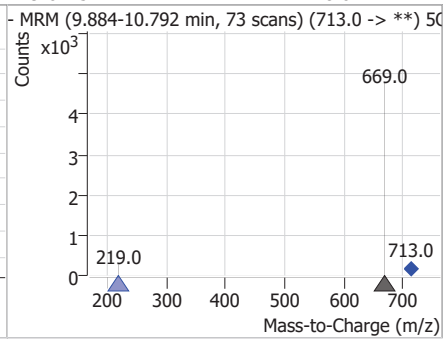




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	50.31	10.27	0.00	258063	713.0 -> 219.0	5.1	2.7	8.0







7.7.36

7

Manual Integration Approval Summary

Sample Number: S5Q523-IC523
Lab FileID: 5Q31826.D
Injection Time: 04/17/25 14:17
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6)
Supervisor approved: 04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31827.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 2:34:12 PM
Sample Name : ic523-100
Vial : P1-A9
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.275	429.0 -> 409.0	236437	20.00	µg/L		-0.012
13C2-PFOA	6.290	415.0 -> 370.0	380493	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	519961	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	100503	20.00	µg/L		0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	31812	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.410	515.0 -> 470.0	826575	50.76	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 253.8%			
13C2-PFHxA	4.764	315.0 -> 270.0	1212107	50.28	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 251.4%			
d5-EtFOSAA	7.378	589.0 -> 419.0	60249	99.81	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 249.5%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	172873	101.47	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 253.7%			
Target Compounds							QValue
6:2FTS	6.276	427.0 -> 407.0	1154652	97.44	µg/L		99
8:2FTS	7.458	527.0 -> 507.0	1014930	98.72	µg/L		99
EtFOSAA	7.391	584.0 -> 419.0	52646	98.86	µg/L	m	93
MeFOSAA	7.254	570.0 -> 419.0	73828	98.96	µg/L	m	93
PFBS	3.828	299.0 -> 80.0	1306437	99.35	µg/L		99
PFDA	7.411	513.0 -> 469.0	1477844	100.08	µg/L		99
PFDoDA	8.591	613.0 -> 569.0	1640239	99.71	µg/L		100
PFHpA	5.602	363.0 -> 319.0	3444074	100.00	µg/L		100
PFHxA	4.765	313.0 -> 269.0	1648949	100.51	µg/L		99
PFHxS	5.636	399.0 -> 80.0	894508	99.55	µg/L	m	100
PFNA	6.887	463.0 -> 419.0	1472543	100.13	µg/L	m	97
PFOA	6.291	413.0 -> 369.0	1914120	100.01	µg/L		100
PFOS	6.861	499.0 -> 80.0	672807	101.48	µg/L	m	98
PFPeA	3.597	263.0 -> 219.0	3478067	99.98	µg/L		100
PFTeDA	10.272	713.0 -> 669.0	608728	99.95	µg/L		99
PFTrDA	9.509	663.0 -> 619.0	746444	102.62	µg/L		100
PFUnDA	7.917	563.0 -> 519.0	1660110	100.65	µg/L		100
ADONA	5.689	377.0 -> 251.0	4593414	100.00	µg/L		100
9Cl-PF3ONS	7.131	531.0 -> 351.0	633743	100.05	µg/L		99
11Cl-PF3OUdS	8.087	631.0 -> 451.0	711615	99.99	µg/L		98
HFPO-DA	5.023	285.0 -> 169.0	168027	99.98	µg/L		99

 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.37
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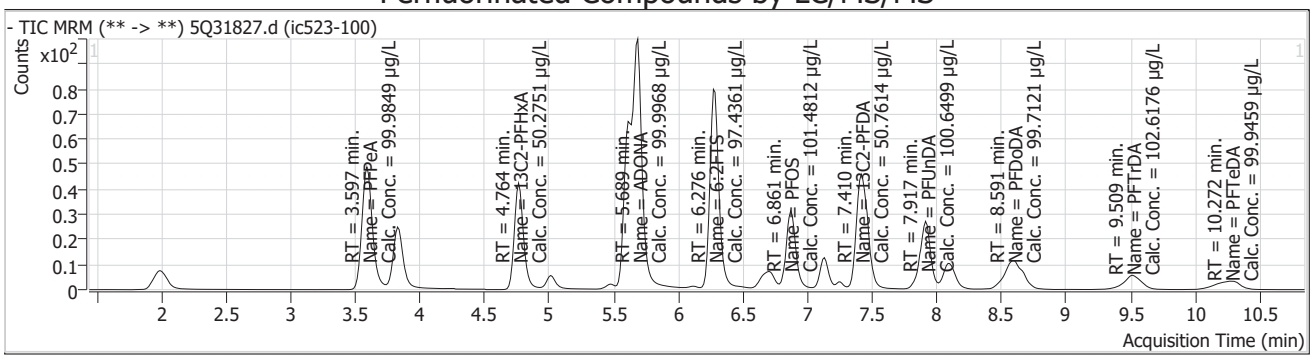
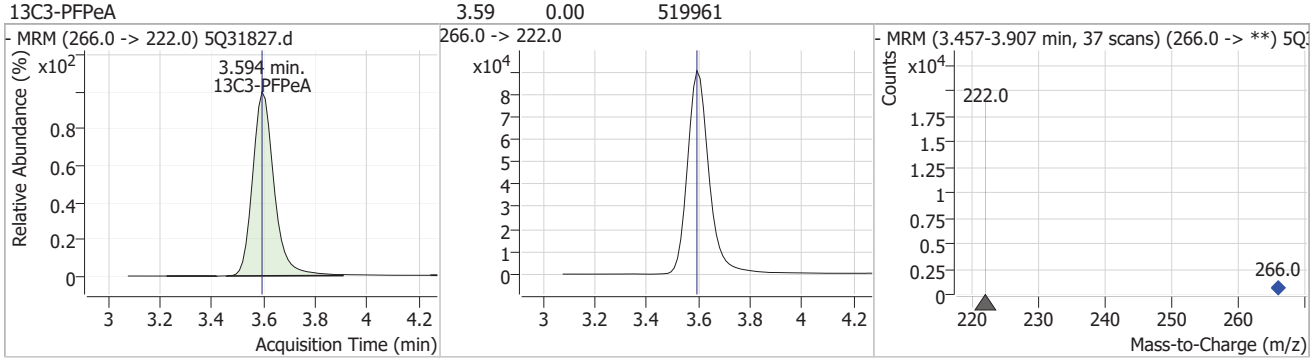
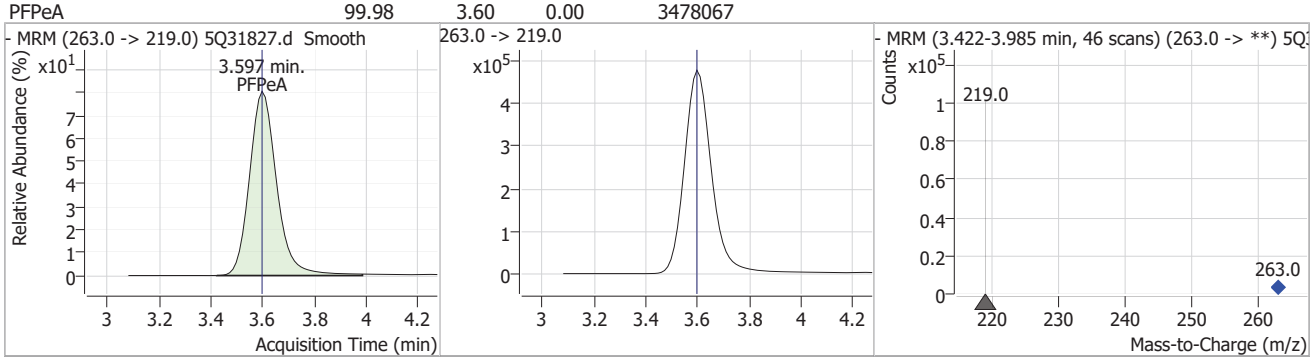
Perfluorinated Compounds by LC/MS/MS



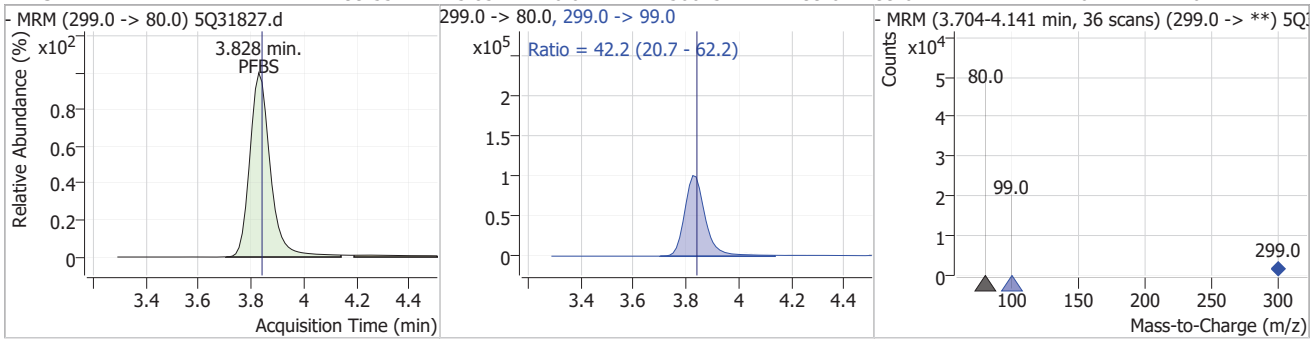
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	519961				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	99.98	3.60	0.00	3478067				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	99.35	3.83	-0.01	1306437	299.0 -> 99.0	42.2	20.7	62.2



7.7.37

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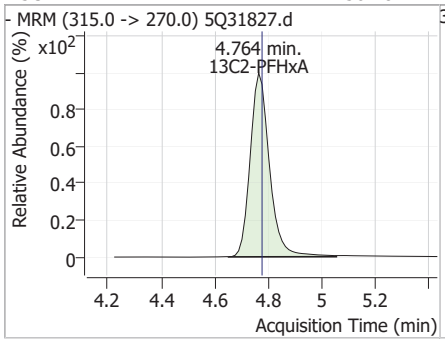
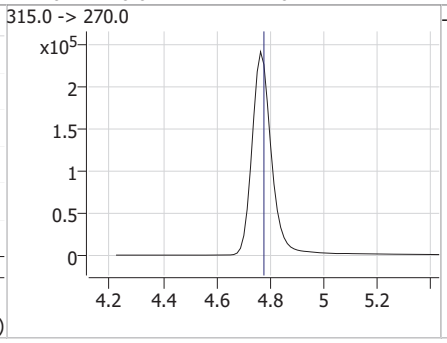
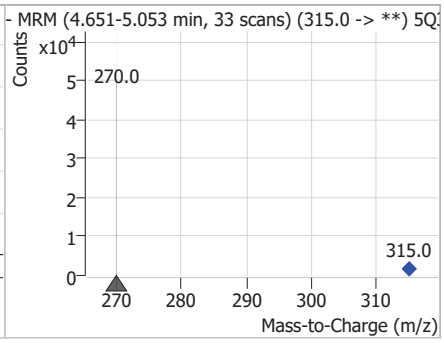
Perfluorinated Compounds by LC/MS/MS

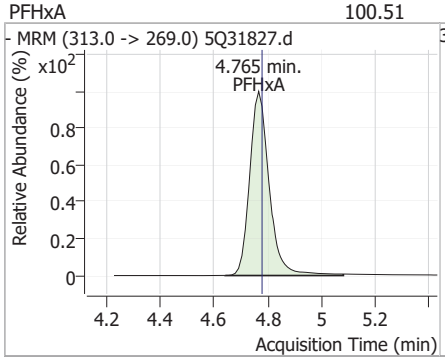
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	50.28	4.76	-0.01	1212107				

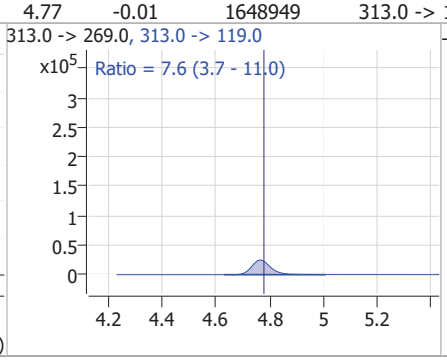


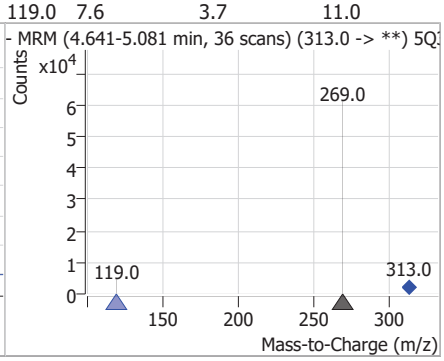




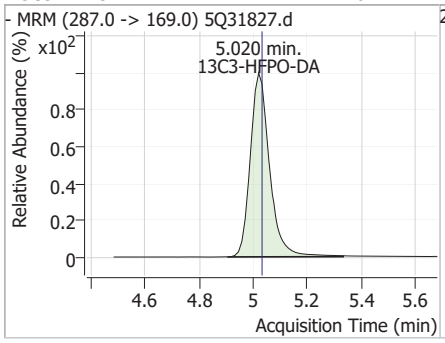
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	100.51	4.77	-0.01	1648949	313.0 -> 119.0	7.6	3.7	11.0

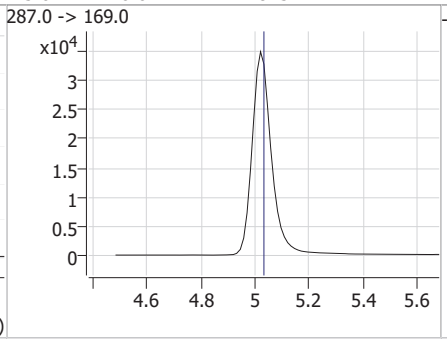


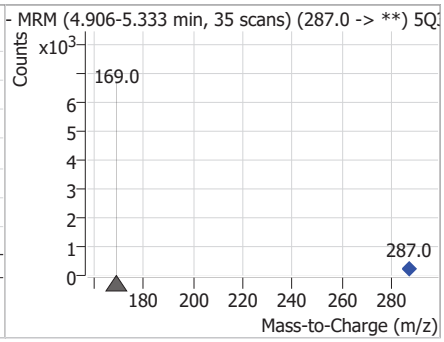




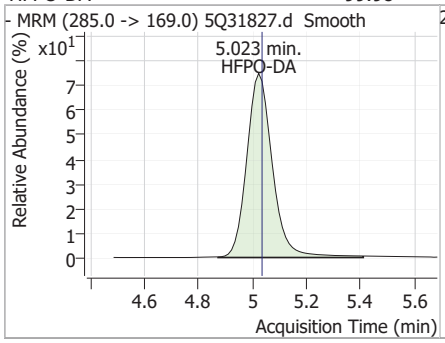
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	101.47	5.02	-0.01	172873				

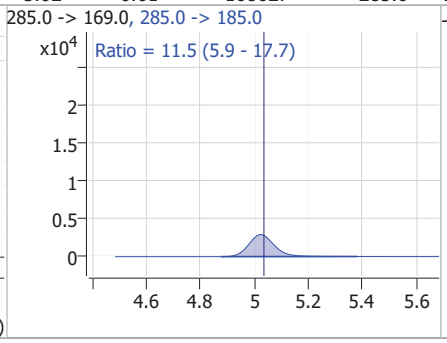


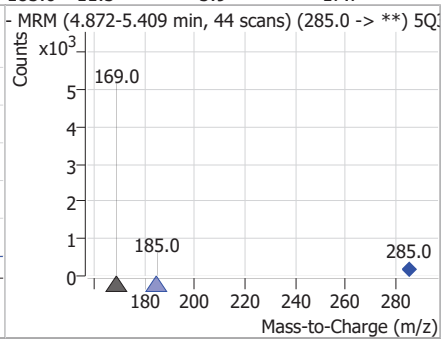




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	99.98	5.02	-0.01	168027	285.0 -> 185.0	11.5	5.9	17.7

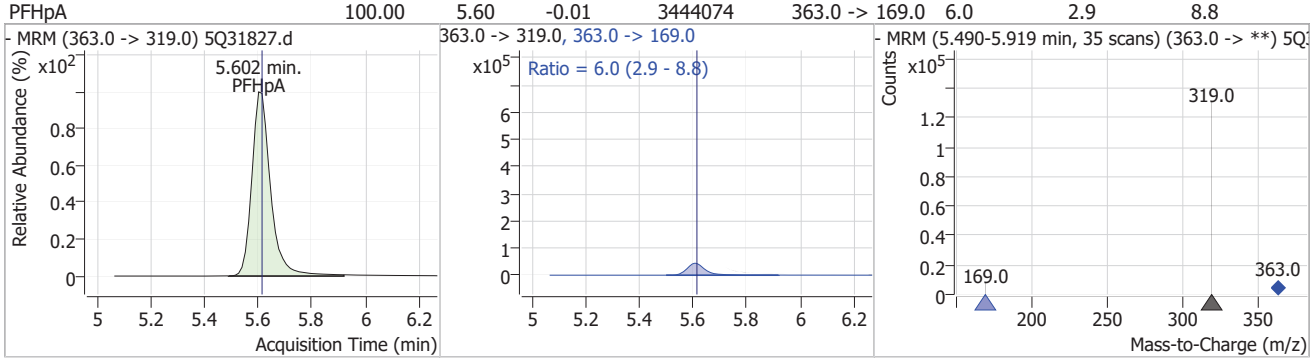




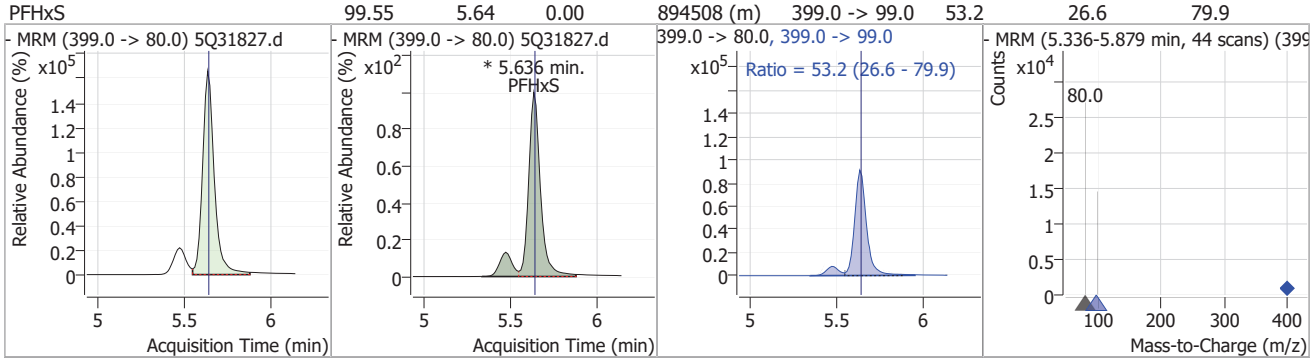


Perfluorinated Compounds by LC/MS/MS

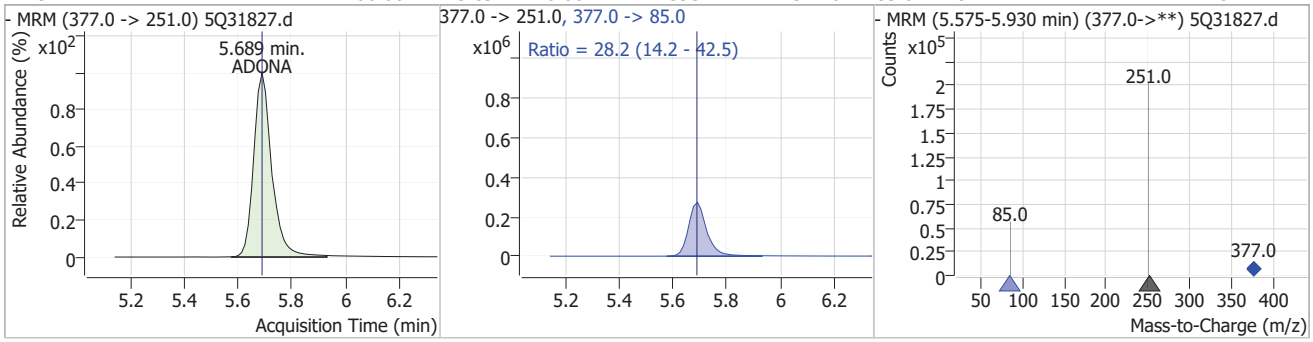
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	100.00	5.60	-0.01	3444074	363.0 -> 169.0	6.0	2.9	8.8



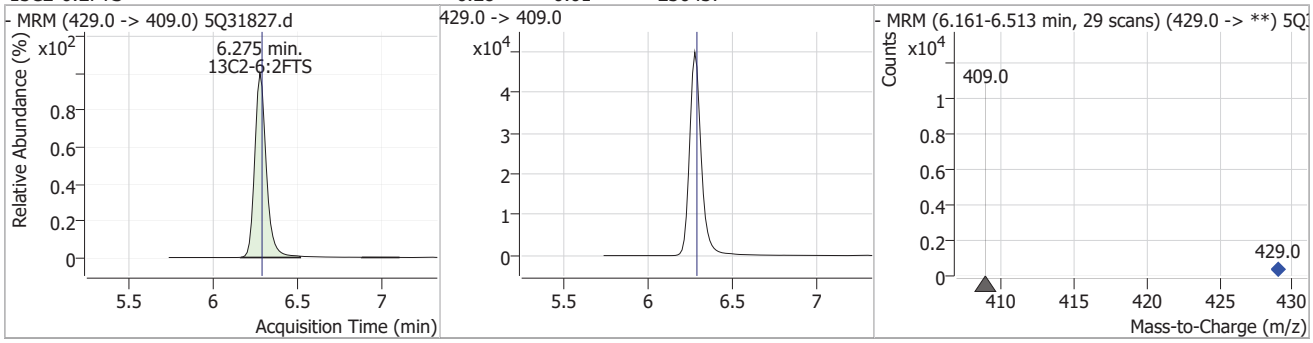
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	99.55	5.64	0.00	894508 (m)	399.0 -> 99.0	53.2	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	100.00	5.69	0.00	4593414	377.0 -> 85.0	28.2	14.2	42.5

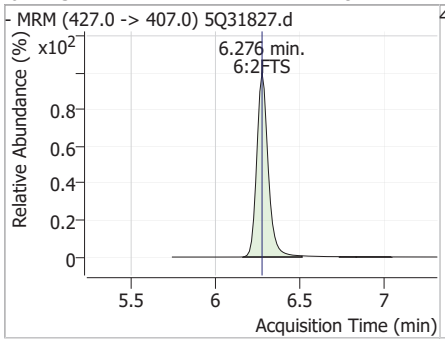


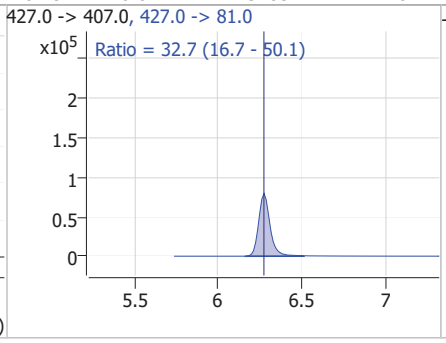
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	236437				

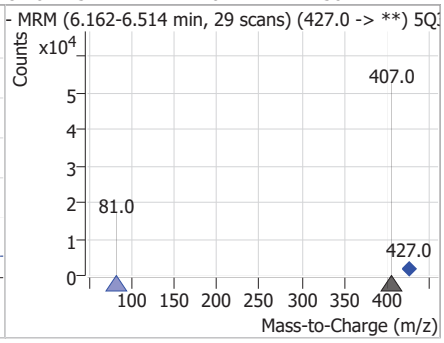


Perfluorinated Compounds by LC/MS/MS

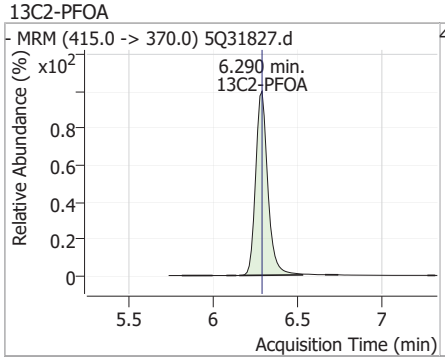
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	97.44	6.28	-0.01	1154652	427.0 -> 81.0	32.7	16.7	50.1

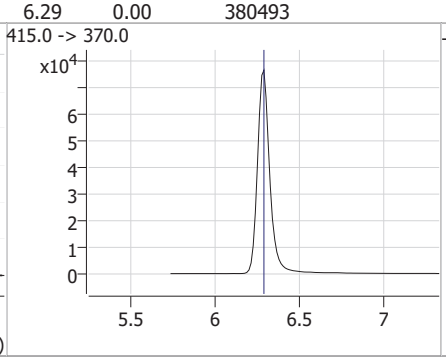


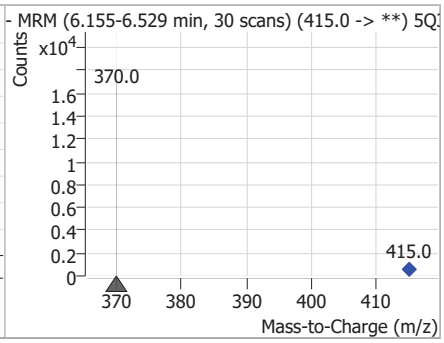




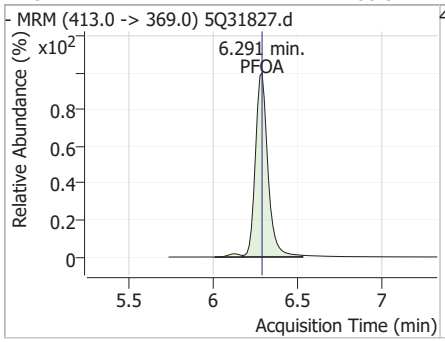
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	380493				

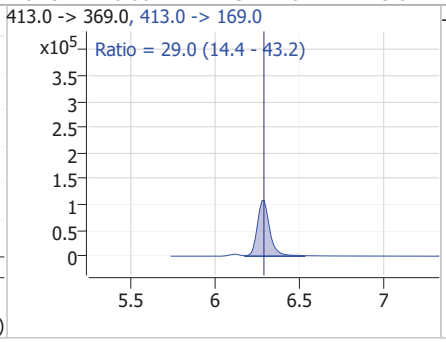


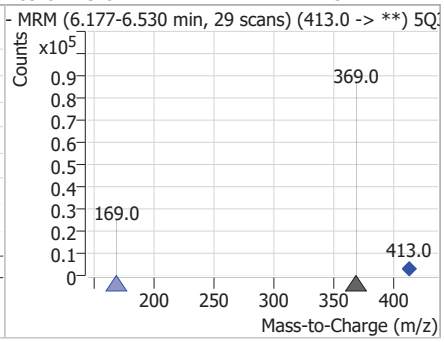




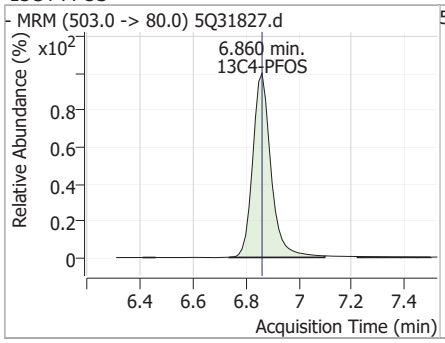
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	100.01	6.29	0.00	1914120	413.0 -> 169.0	29.0	14.4	43.2

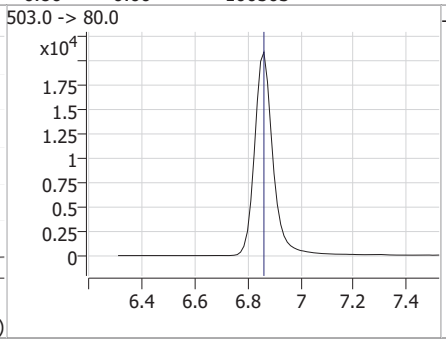


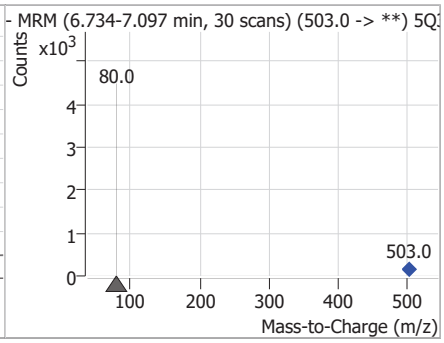




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	100503				

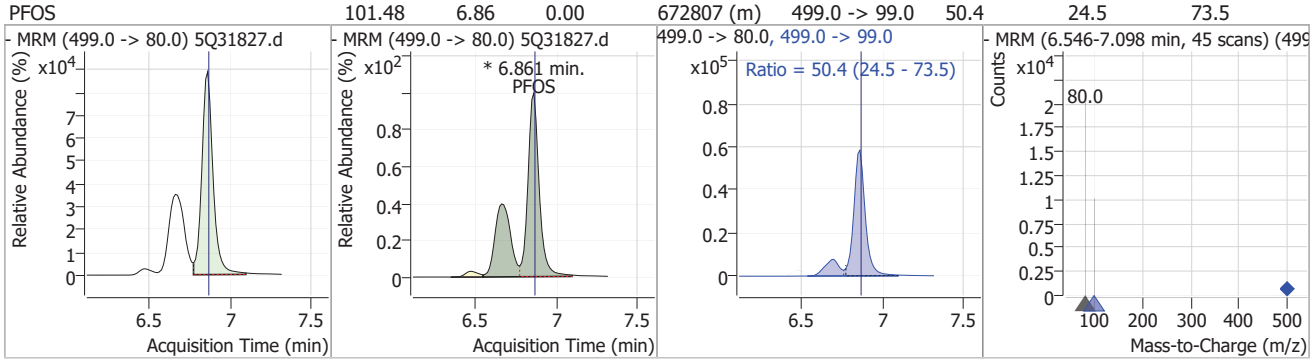




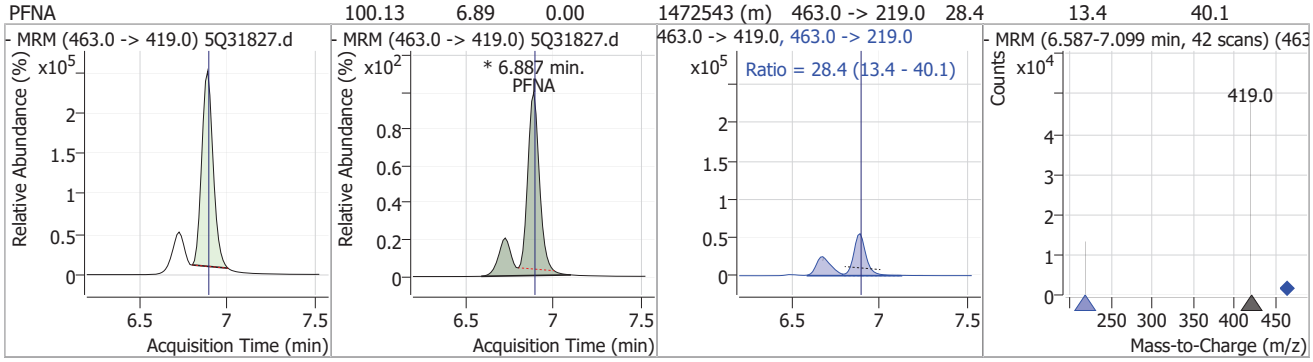


Perfluorinated Compounds by LC/MS/MS

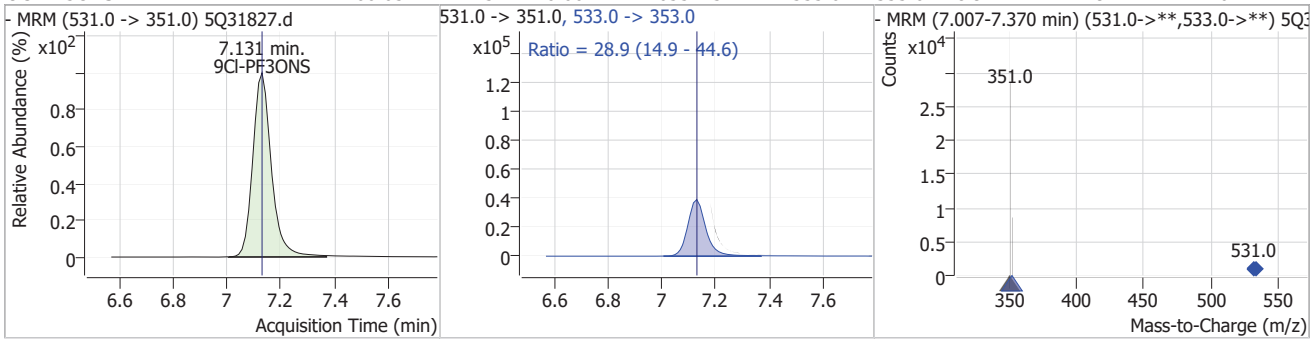
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	101.48	6.86	0.00	672807 (m)	499.0 -> 99.0	50.4	24.5	73.5



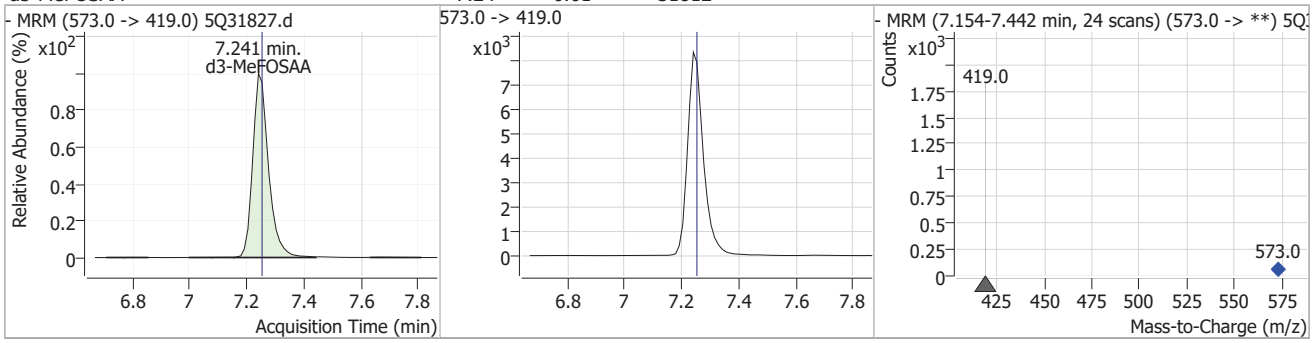
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	100.13	6.89	0.00	1472543 (m)	463.0 -> 219.0	28.4	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	100.05	7.13	0.00	633743	533.0 -> 353.0	28.9	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	31812				



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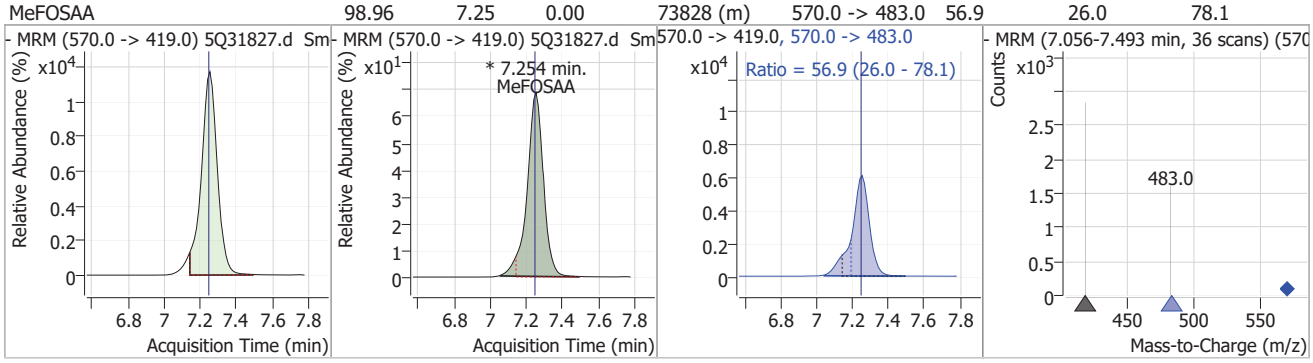
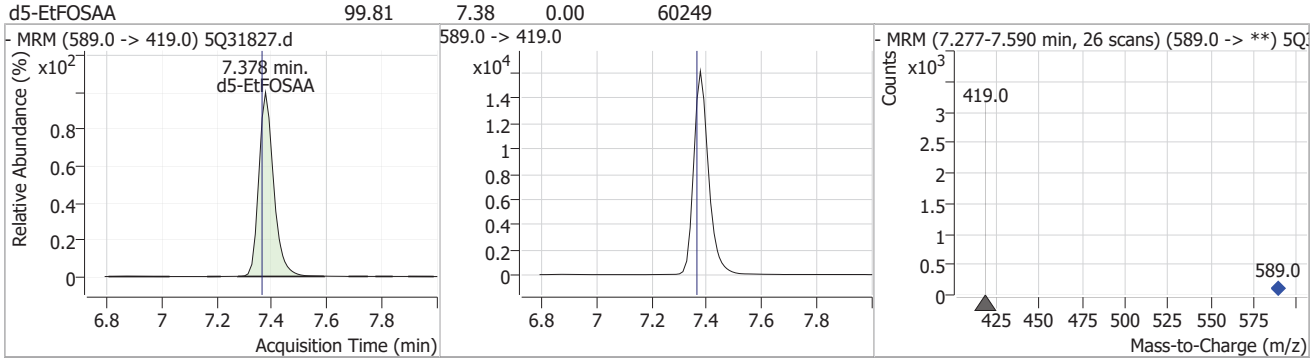
Perfluorinated Compounds by LC/MS/MS

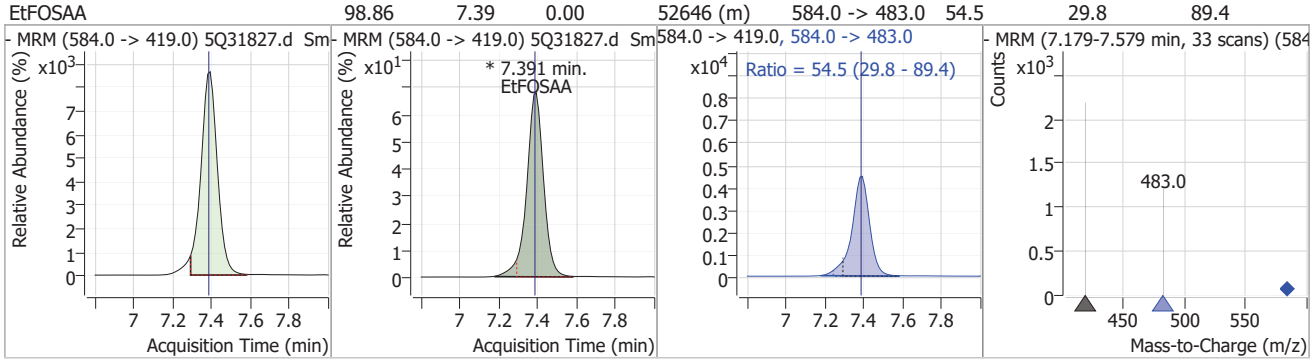
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	98.96	7.25	0.00	73828 (m)	570.0 -> 483.0	56.9	26.0	78.1



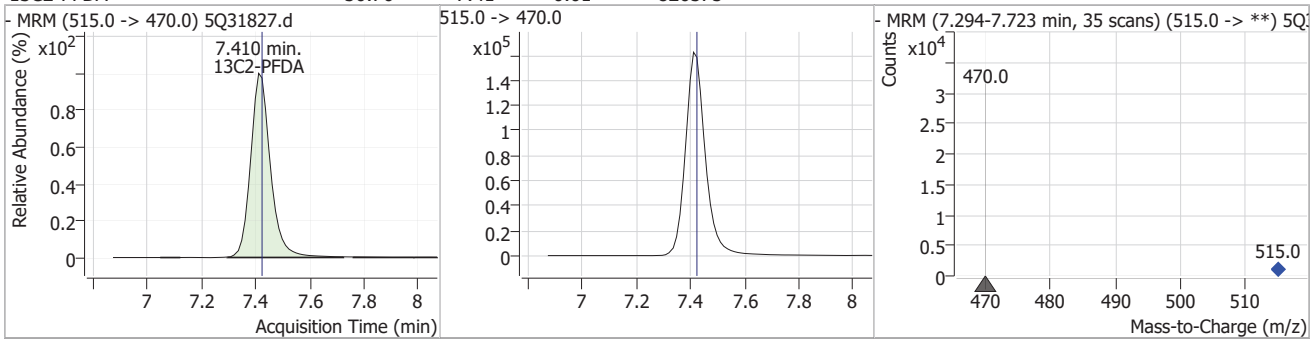
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	99.81	7.38	0.00	60249				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	98.86	7.39	0.00	52646 (m)	584.0 -> 483.0	54.5	29.8	89.4

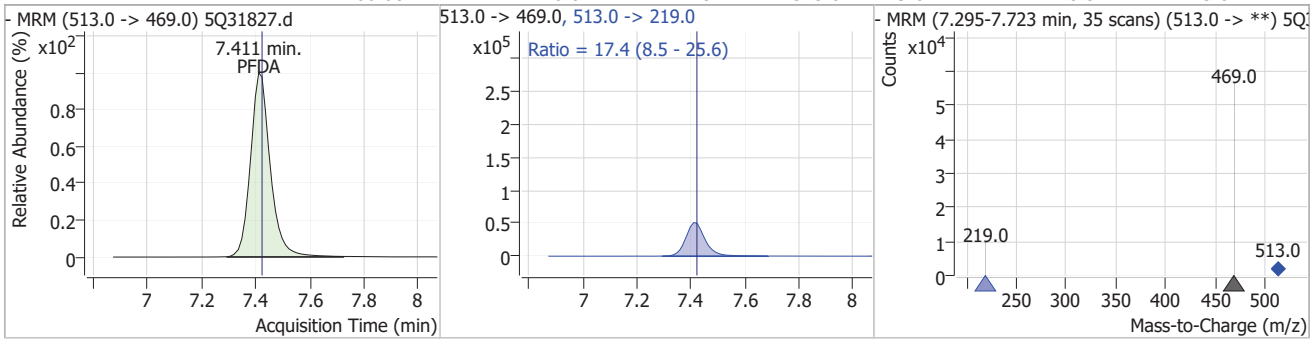


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	50.76	7.41	-0.01	826575				

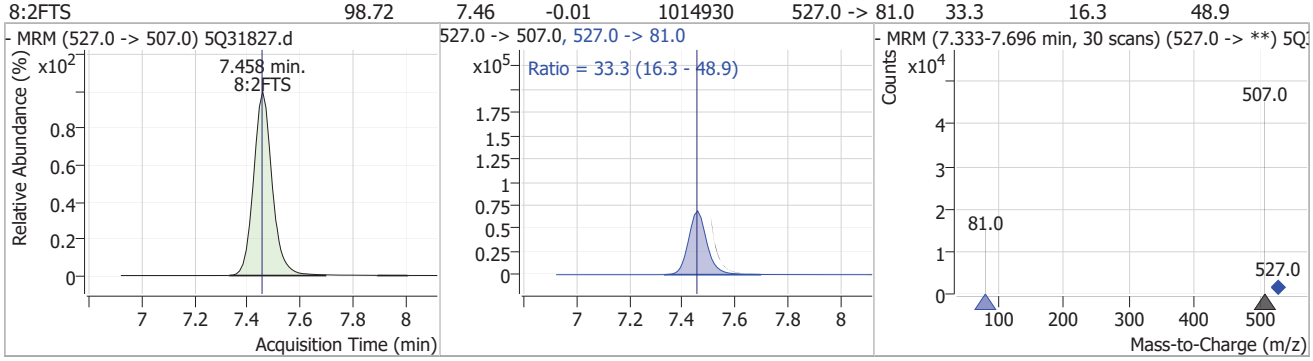


Perfluorinated Compounds by LC/MS/MS

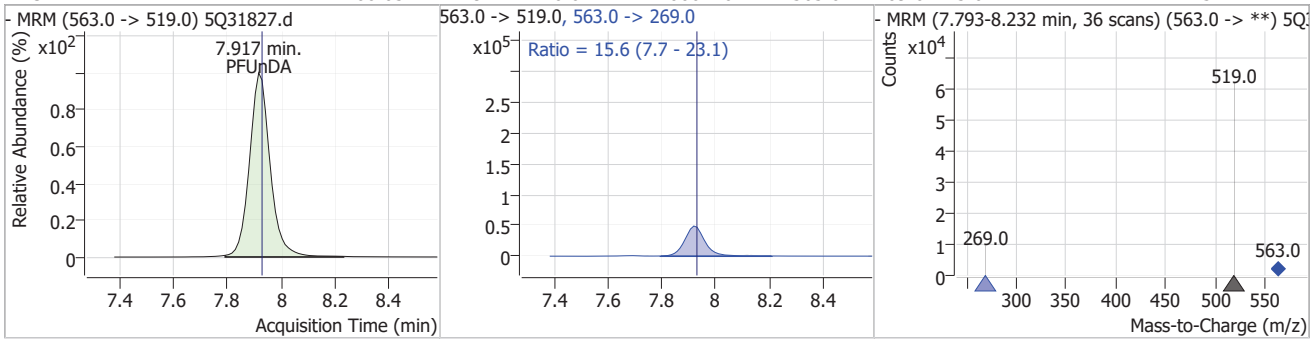
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	100.08	7.41	-0.01	1477844	513.0 -> 219.0	17.4	8.5	25.6



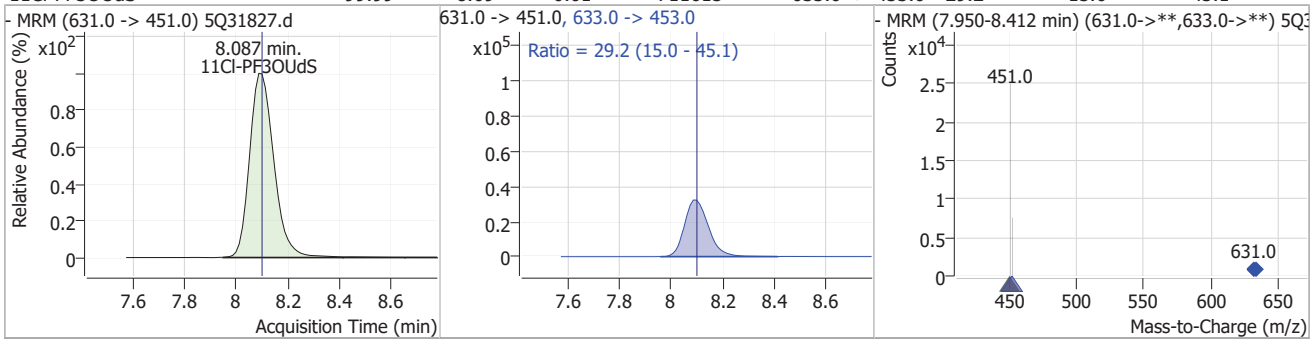
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	98.72	7.46	-0.01	1014930	527.0 -> 81.0	33.3	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	100.65	7.92	-0.01	1660110	563.0 -> 269.0	15.6	7.7	23.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	99.99	8.09	-0.01	711615	633.0 -> 453.0	29.2	15.0	45.1



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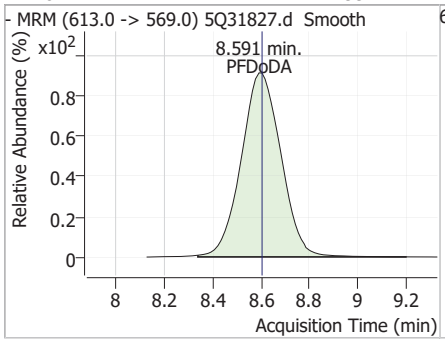
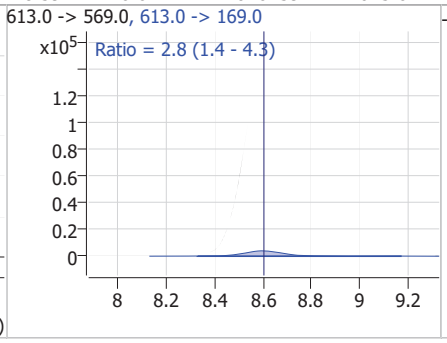
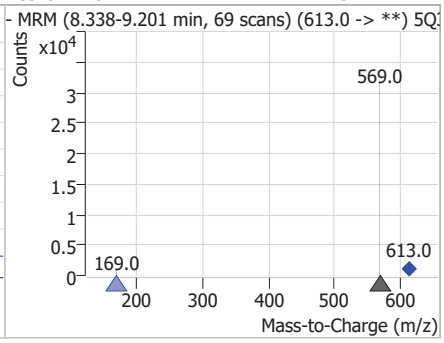
Perfluorinated Compounds by LC/MS/MS

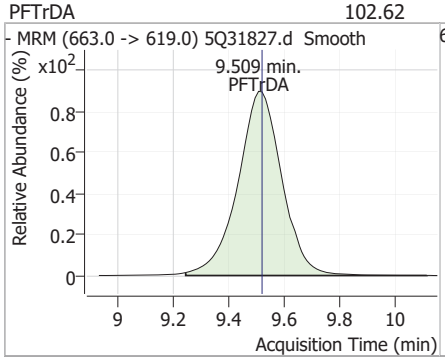
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	99.71	8.59	-0.01	1640239	613.0 -> 169.0	2.8	1.4	4.3

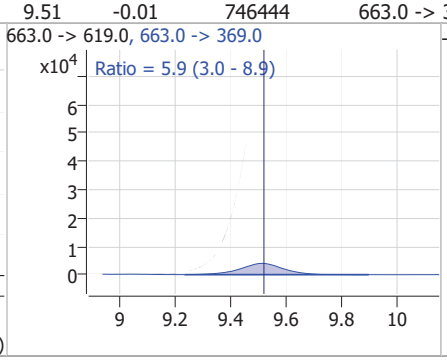


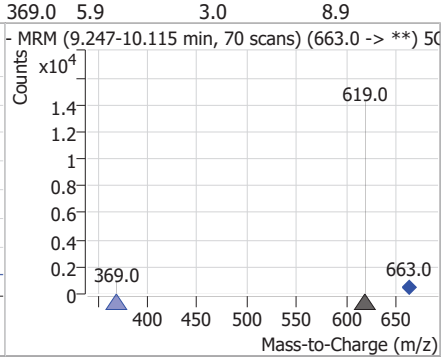




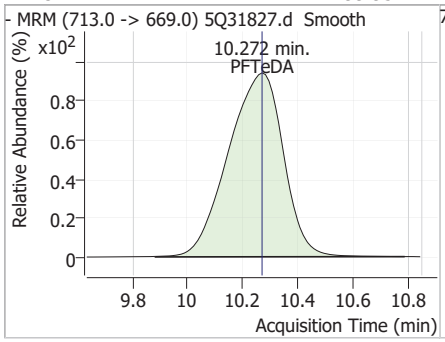
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	102.62	9.51	-0.01	746444	663.0 -> 369.0	5.9	3.0	8.9

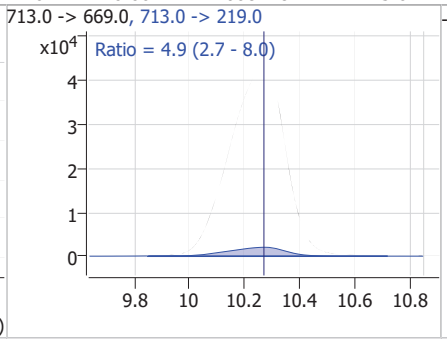


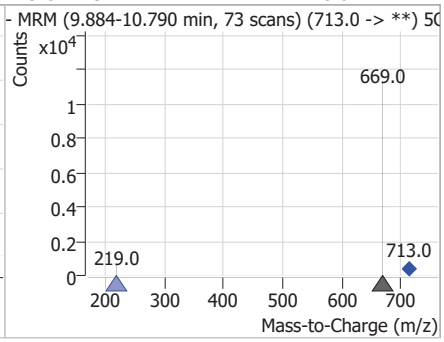




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	99.95	10.27	0.00	608728	713.0 -> 219.0	4.9	2.7	8.0







Manual Integration Approval Summary

Sample Number: S5Q523-IC523
Lab FileID: 5Q31827.D
Injection Time: 04/17/25 14:34
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6)
Supervisor approved: 04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31828.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 2:50:37 PM
Sample Name : icv523-20
Vial : P1-B1
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.275	429.0 -> 409.0	199433	20.00	µg/L		-0.012
13C2-PFOA	6.290	415.0 -> 370.0	407022	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	511537	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	96913	20.00	µg/L		0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	30673	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.435	515.0 -> 470.0	0		µg/L	m	0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C2-PFHxA	4.751	315.0 -> 270.0	0		µg/L	m	-0.025
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
d5-EtFOSAA	7.378	589.0 -> 419.0	0		µg/L	m	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	0		µg/L	m	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
Target Compounds							QValue
6:2FTS	6.276	427.0 -> 407.0	204752	20.48	µg/L		99
8:2FTS	7.471	527.0 -> 507.0	178824	20.62	µg/L		100
EtFOSAA	7.391	584.0 -> 419.0	10110	19.69	µg/L	m	96
MeFOSAA	7.254	570.0 -> 419.0	13328	19.27	µg/L	m	99
PFBS	3.828	299.0 -> 80.0	230840	18.20	µg/L		99
PFDA	7.423	513.0 -> 469.0	274943	18.93	µg/L		100
PFDoDA	8.604	613.0 -> 569.0	363204	25.44	µg/L		100
PFHpA	5.615	363.0 -> 319.0	683772	20.48	µg/L		100
PFHxA	4.765	313.0 -> 269.0	310467	17.69	µg/L		100
PFHxS	5.636	399.0 -> 80.0	139365	17.65	µg/L	m	99
PFNA	6.887	463.0 -> 419.0	312100	23.57	µg/L		89
PFOA	6.291	413.0 -> 369.0	396109	20.41	µg/L		98
PFOS	6.861	499.0 -> 80.0	115931	18.13	µg/L	m	92
PFPeA	3.597	263.0 -> 219.0	664327	20.16	µg/L		100
PFTeDA	10.272	713.0 -> 669.0	98511	19.80	µg/L		99
PFTrDA	9.509	663.0 -> 619.0	177271	25.27	µg/L		100
PFUnDA	7.930	563.0 -> 519.0	353943	22.25	µg/L		99
ADONA	5.689	377.0 -> 251.0	793286	18.42	µg/L		99
9Cl-PF3ONS	7.131	531.0 -> 351.0	102524	18.63	µg/L		97
11Cl-PF3OUdS	8.100	631.0 -> 451.0	120882	20.63	µg/L		99
HFPO-DA	5.023	285.0 -> 169.0	31309	19.69	µg/L		99

 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.38
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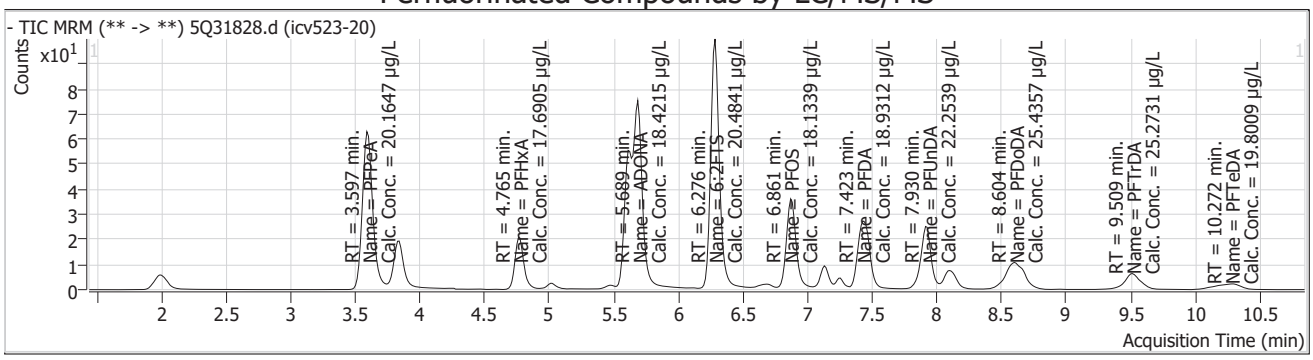
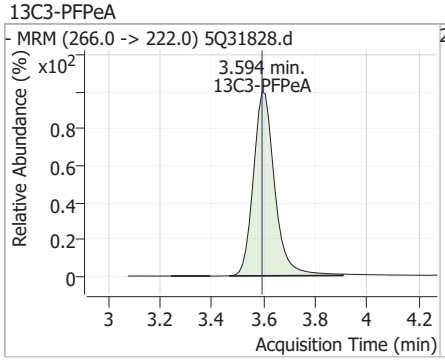
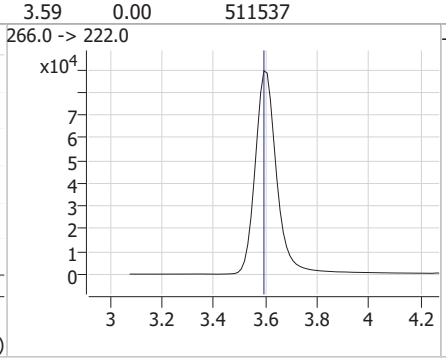
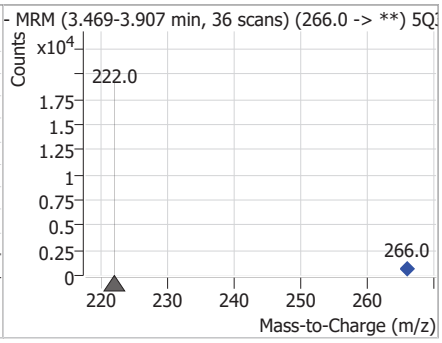
Perfluorinated Compounds by LC/MS/MS



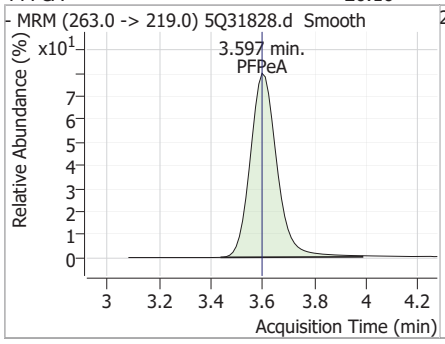
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	511537				

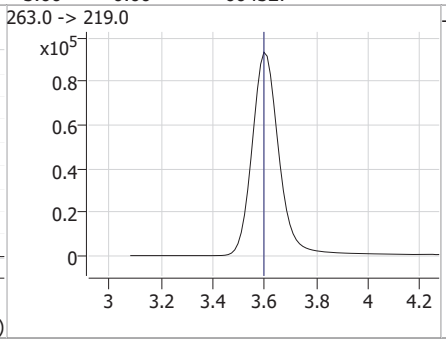


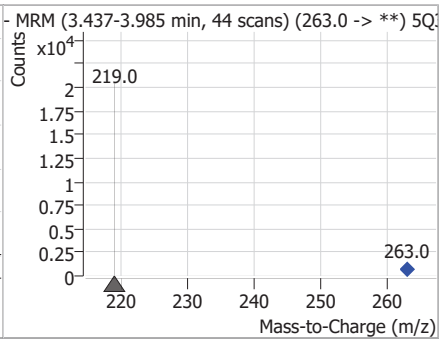




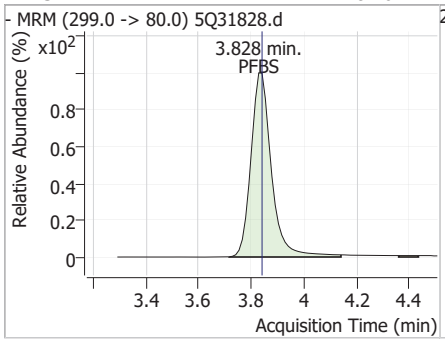
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.16	3.60	0.00	664327				

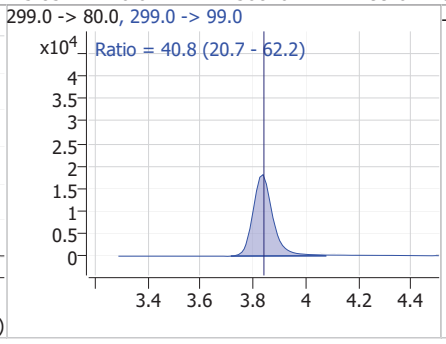


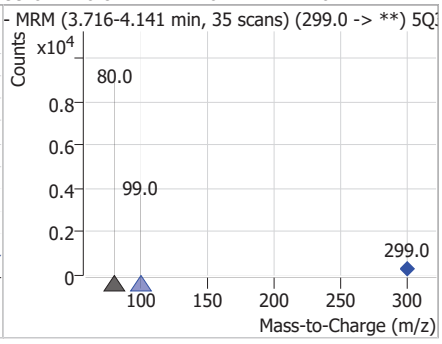




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	18.20	3.83	-0.01	230840	299.0 -> 99.0	40.8	20.7	62.2







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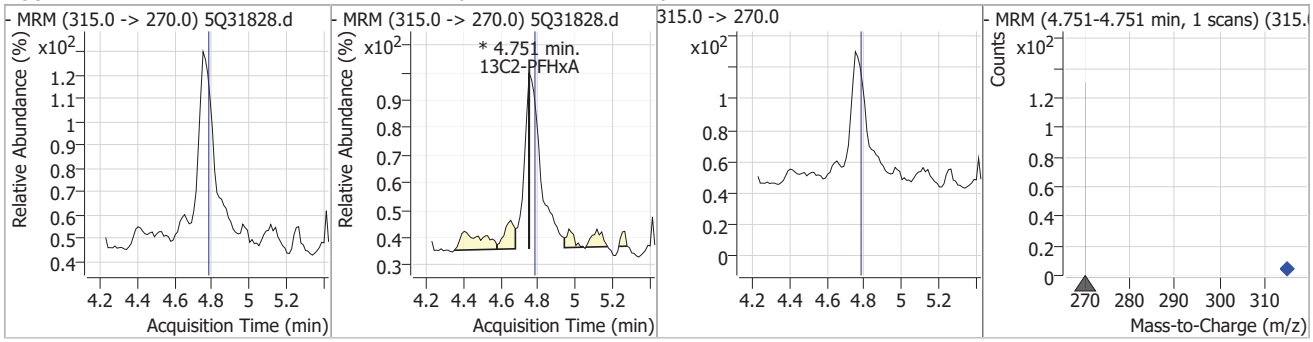
(b) (4)

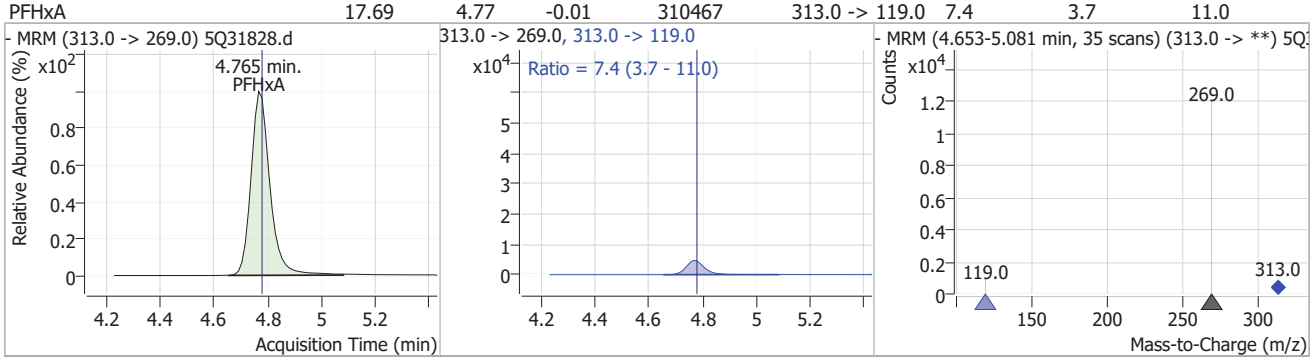
FC23948

Perfluorinated Compounds by LC/MS/MS

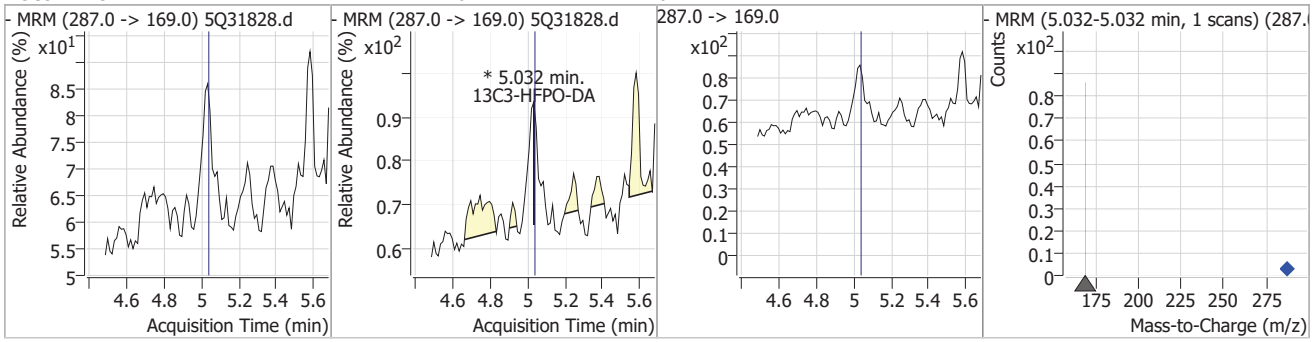
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA		0		0				



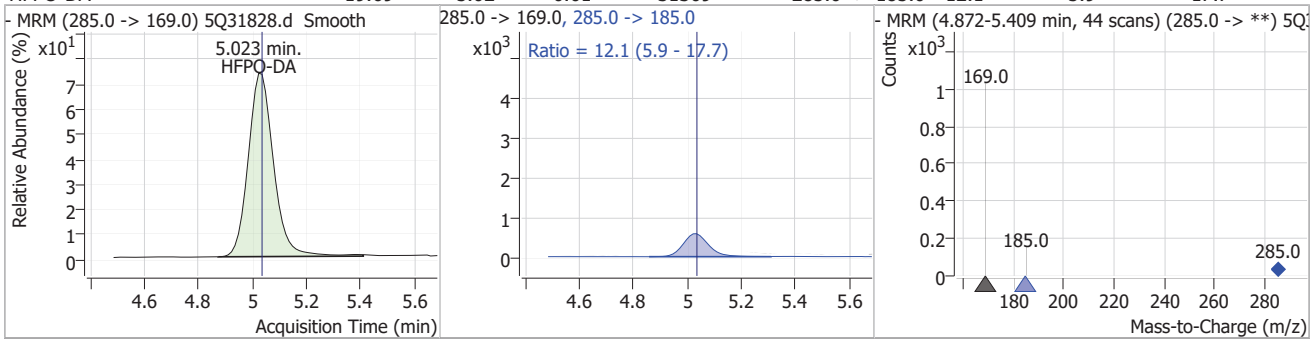
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	17.69	4.77	-0.01	310467	313.0 -> 119.0	7.4	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA		0		0				

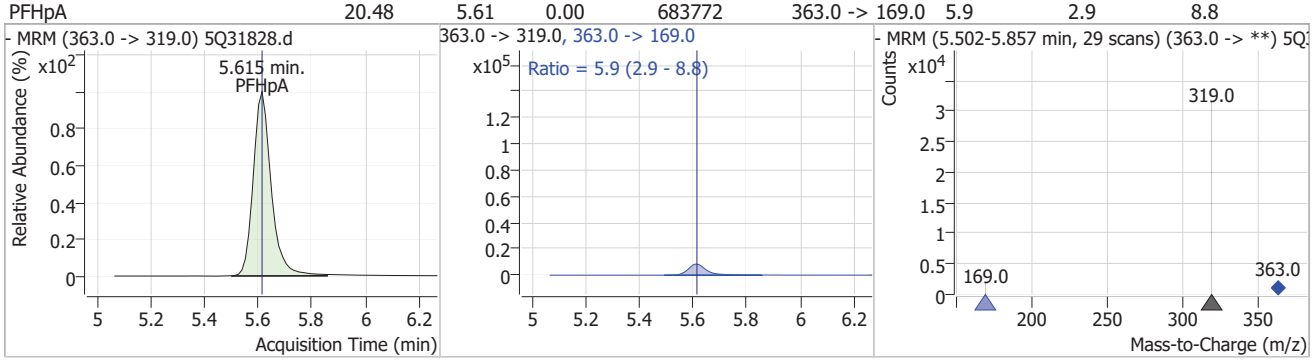


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.69	5.02	-0.01	31309	285.0 -> 185.0	12.1	5.9	17.7

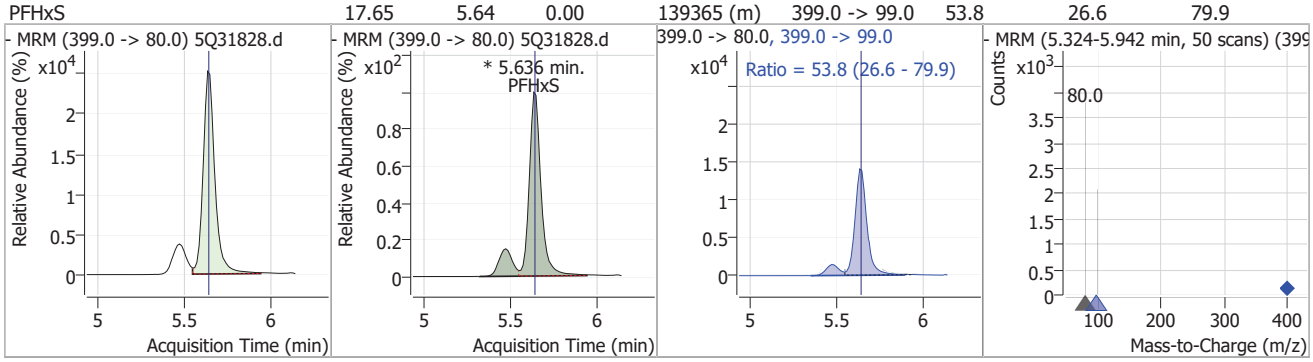


Perfluorinated Compounds by LC/MS/MS

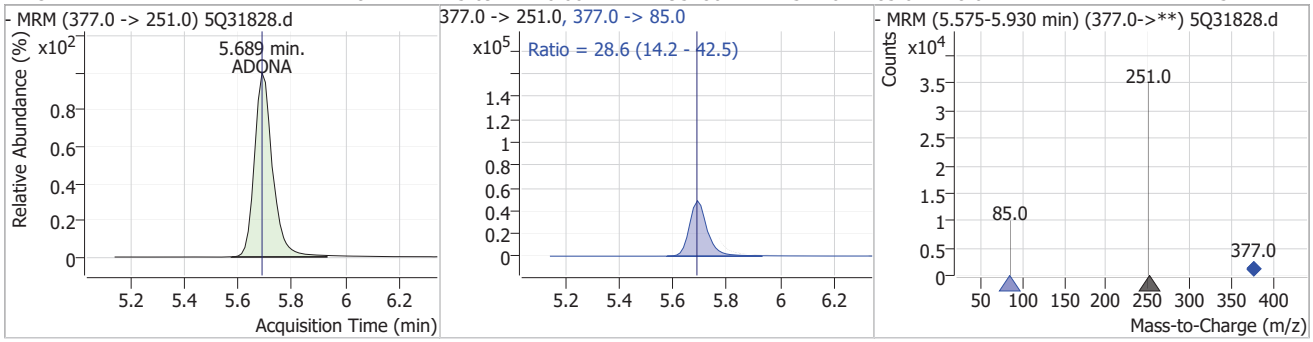
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.48	5.61	0.00	683772	363.0 -> 169.0	5.9	2.9	8.8



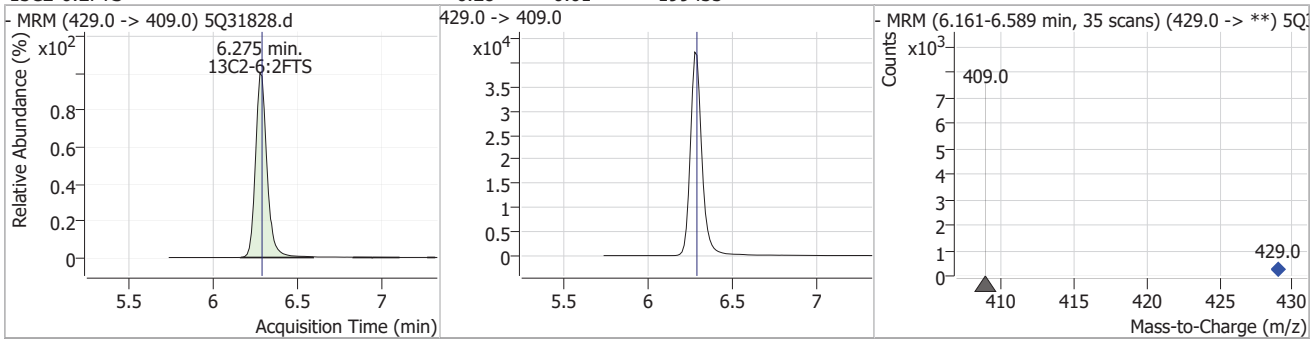
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	17.65	5.64	0.00	139365 (m)	399.0 -> 99.0	53.8	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	18.42	5.69	0.00	793286	377.0 -> 85.0	28.6	14.2	42.5

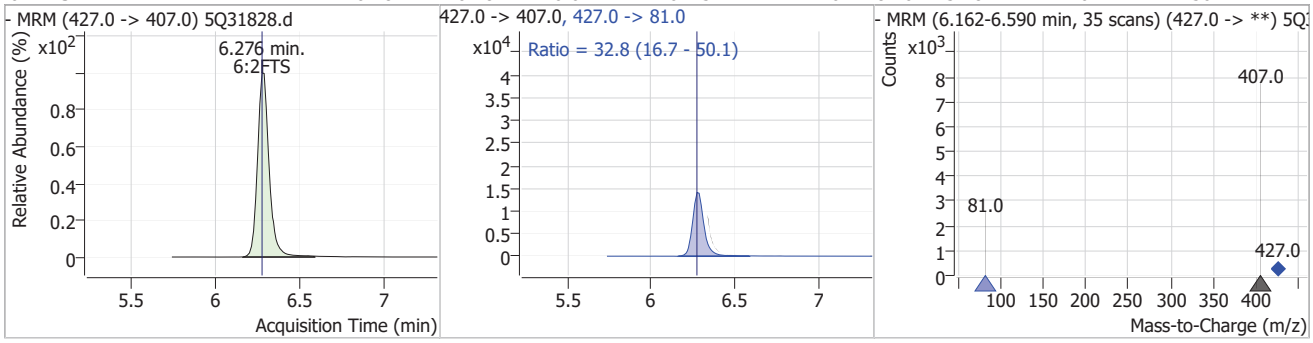


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	199433				

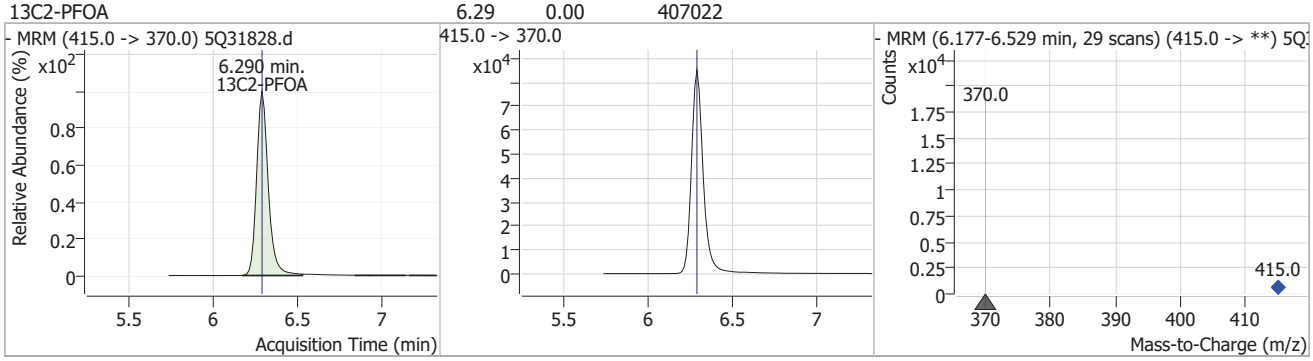


Perfluorinated Compounds by LC/MS/MS

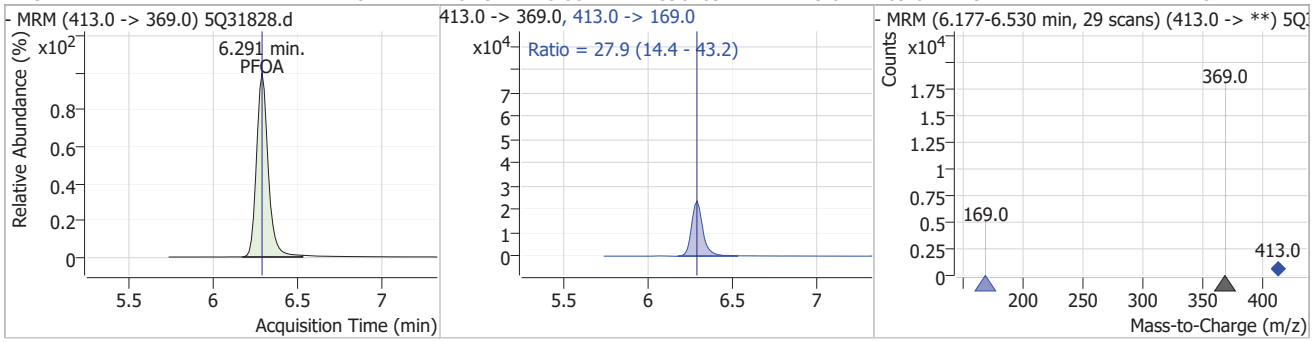
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	20.48	6.28	-0.01	204752	427.0 -> 81.0	32.8	16.7	50.1



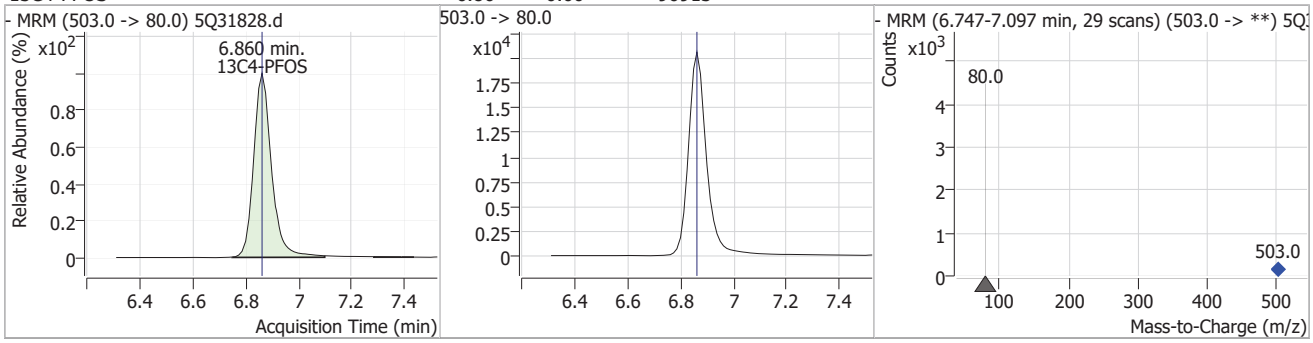
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	407022				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.41	6.29	0.00	396109	413.0 -> 169.0	27.9	14.4	43.2



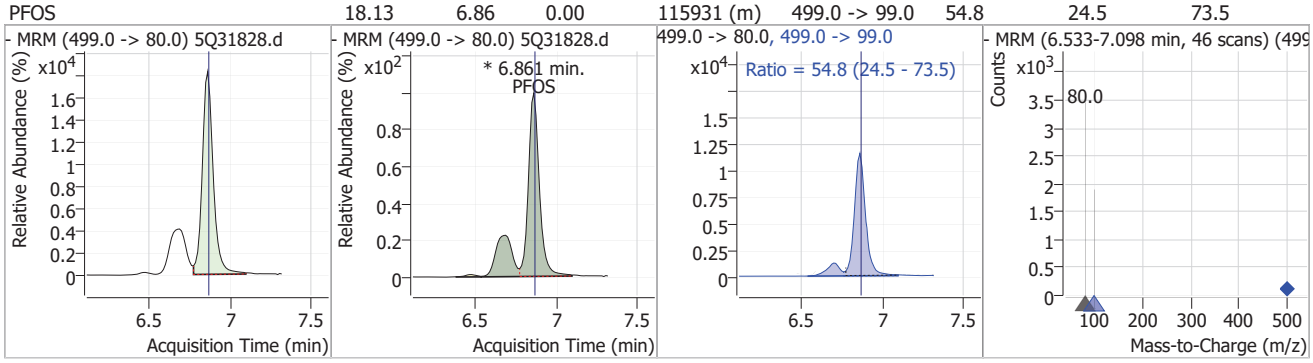
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	96913				



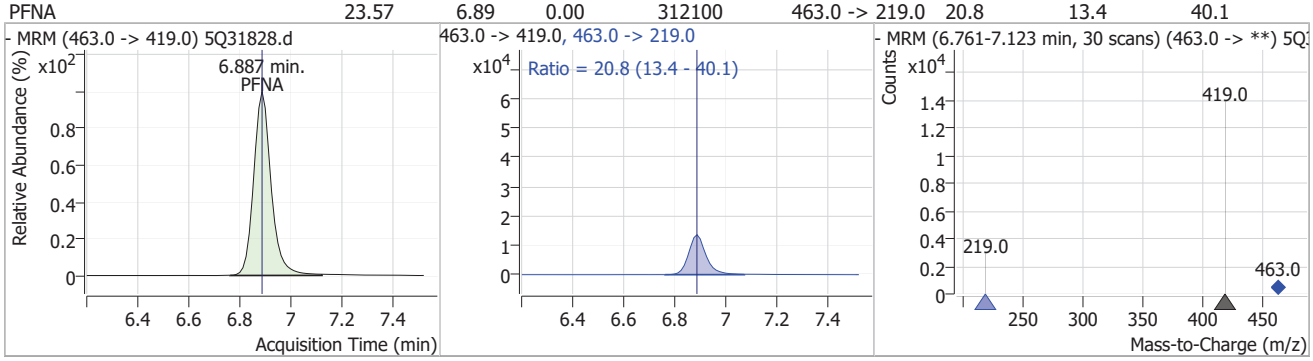
(b) (4) 5Q31828.d Page 5 of 9 Generated at 6:55 AM on 4/18/2025
741 of 951
(b) (4)
FC23948
5Q31828.D: S5Q523-ICV523 Initial Calibration Verification (20) page 5 of 9

Perfluorinated Compounds by LC/MS/MS

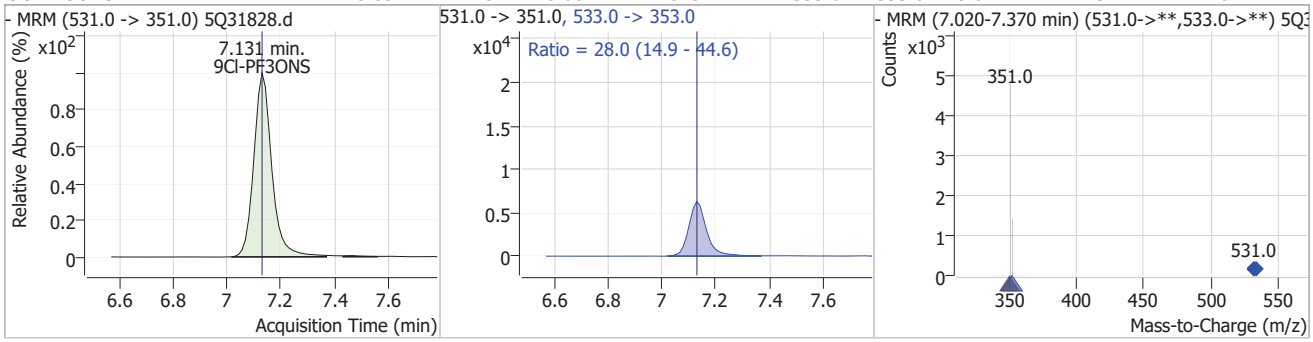
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.13	6.86	0.00	115931 (m)	499.0 -> 99.0	54.8	24.5	73.5



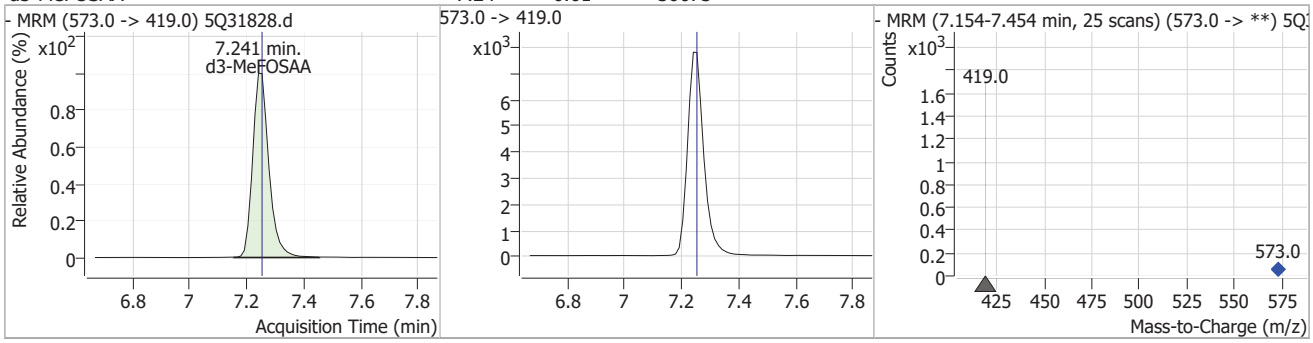
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	23.57	6.89	0.00	312100	463.0 -> 219.0	20.8	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	18.63	7.13	0.00	102524	533.0 -> 353.0	28.0	14.9	44.6

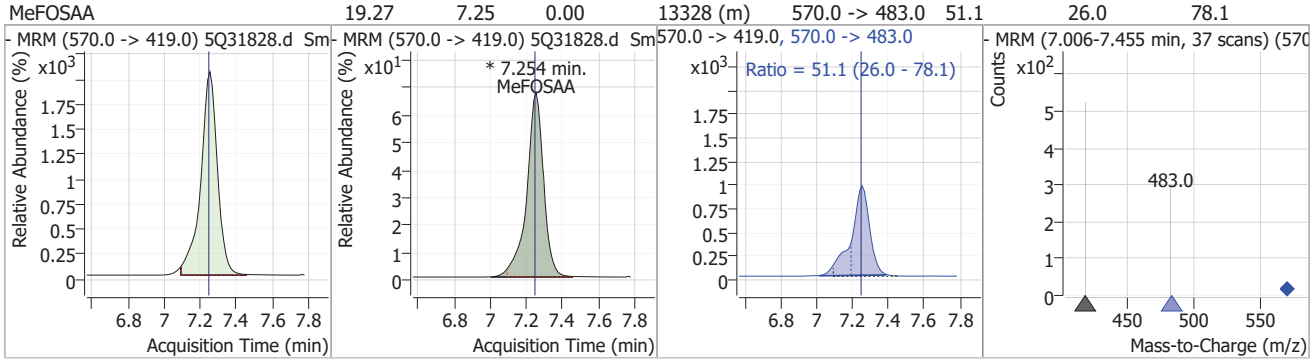


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	30673				

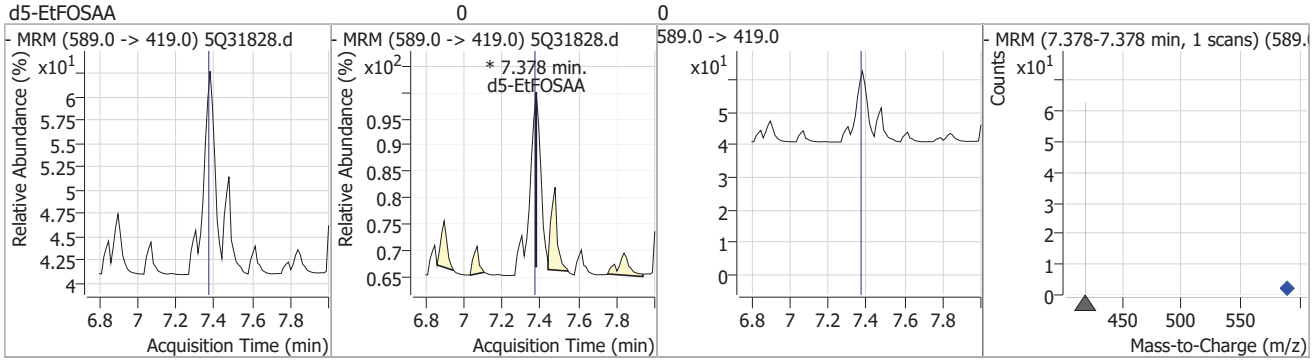


Perfluorinated Compounds by LC/MS/MS

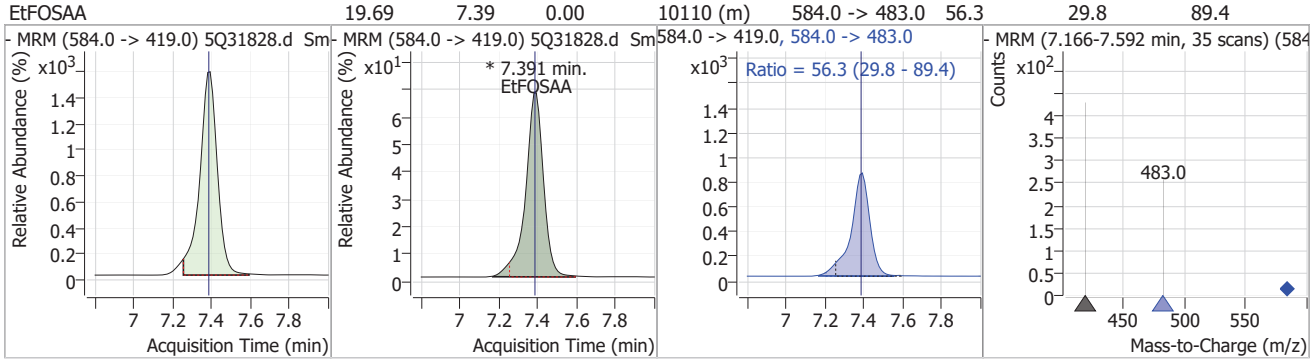
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.27	7.25	0.00	13328 (m)	570.0 -> 483.0	51.1	26.0	78.1



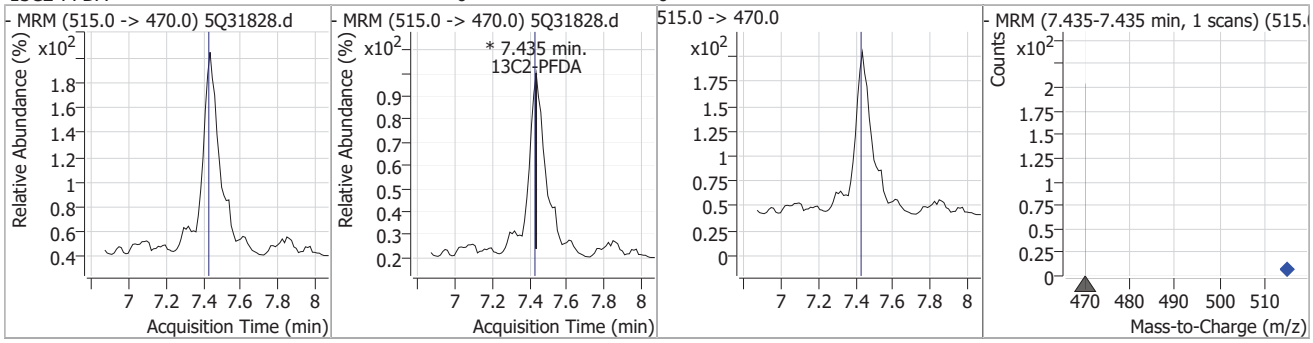
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA		0		0				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.69	7.39	0.00	10110 (m)	584.0 -> 483.0	56.3	29.8	89.4

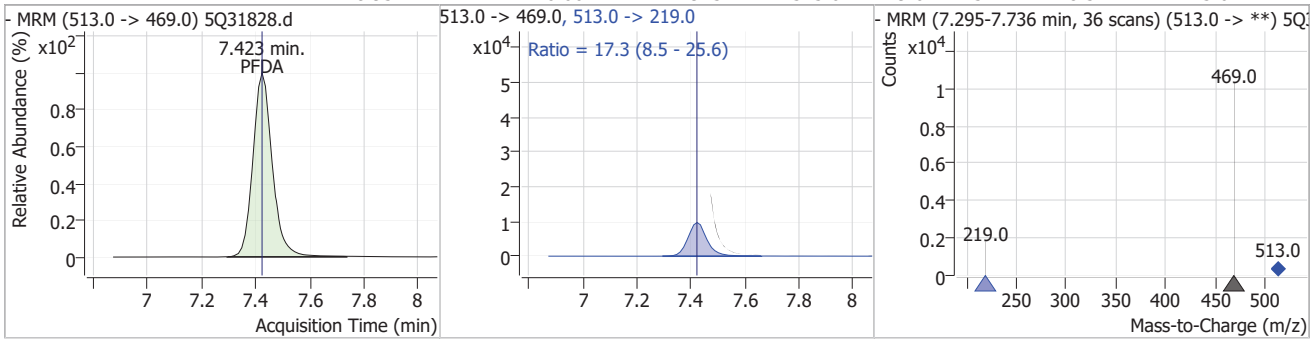


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA		0		0				

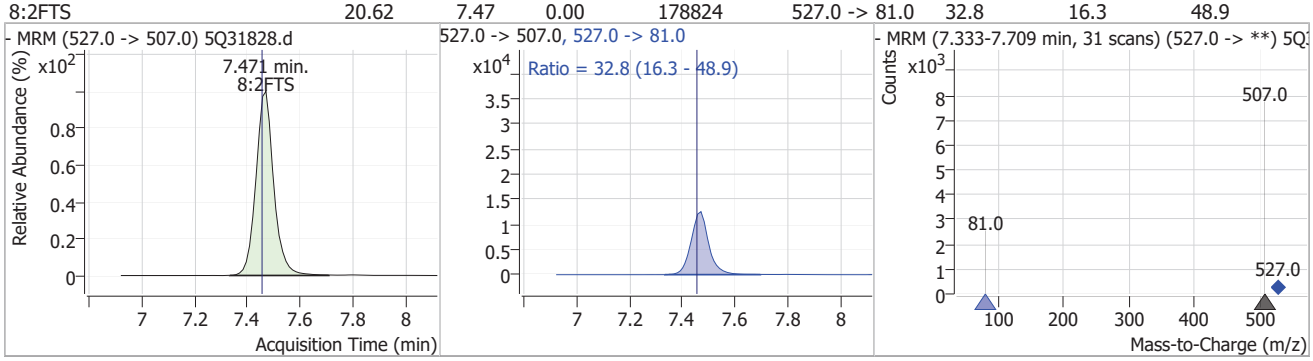


Perfluorinated Compounds by LC/MS/MS

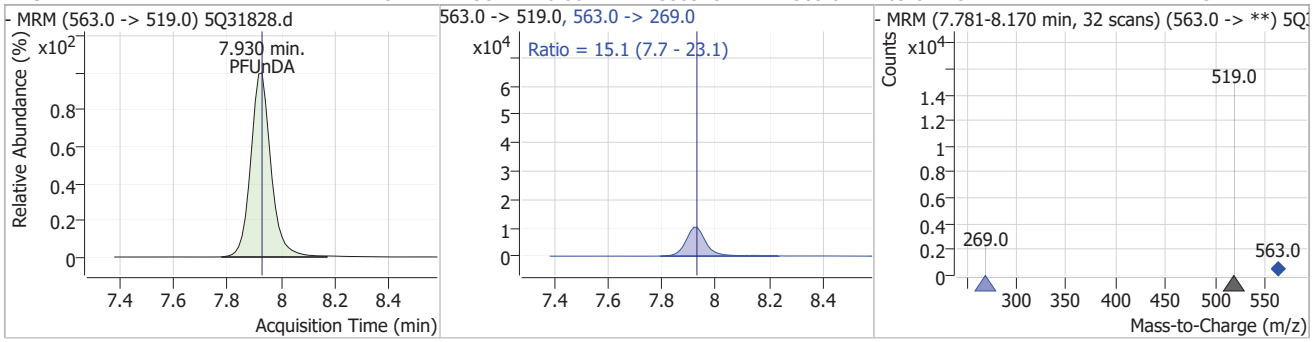
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	18.93	7.42	0.00	274943	513.0 -> 219.0	17.3	8.5	25.6



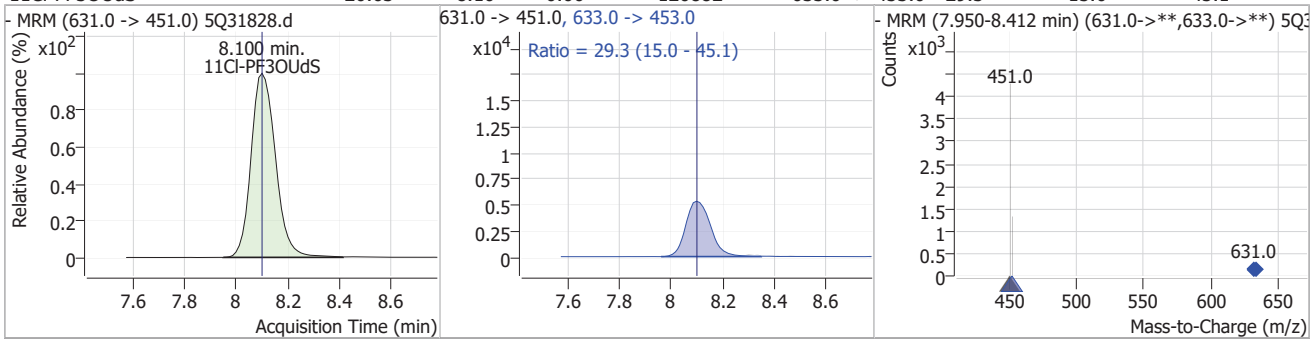
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	20.62	7.47	0.00	178824	527.0 -> 81.0	32.8	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	22.25	7.93	0.00	353943	563.0 -> 269.0	15.1	7.7	23.1

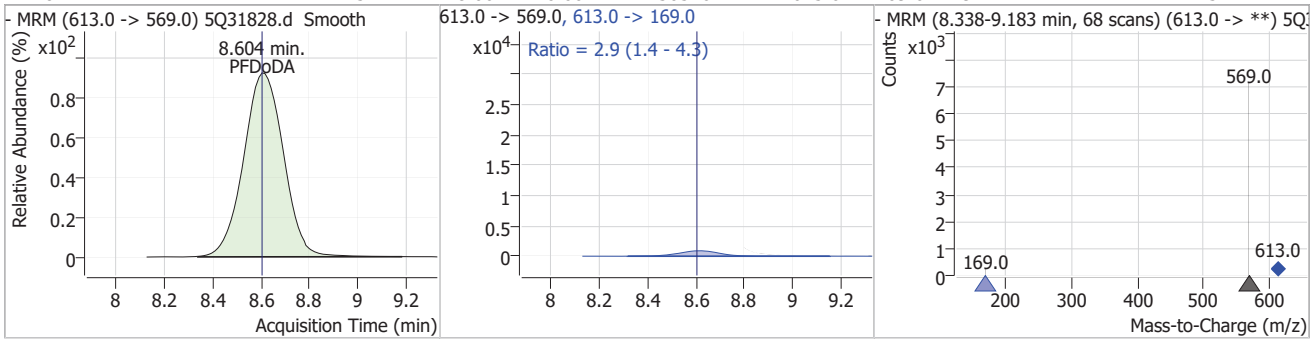


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	20.63	8.10	0.00	120882	633.0 -> 453.0	29.3	15.0	45.1

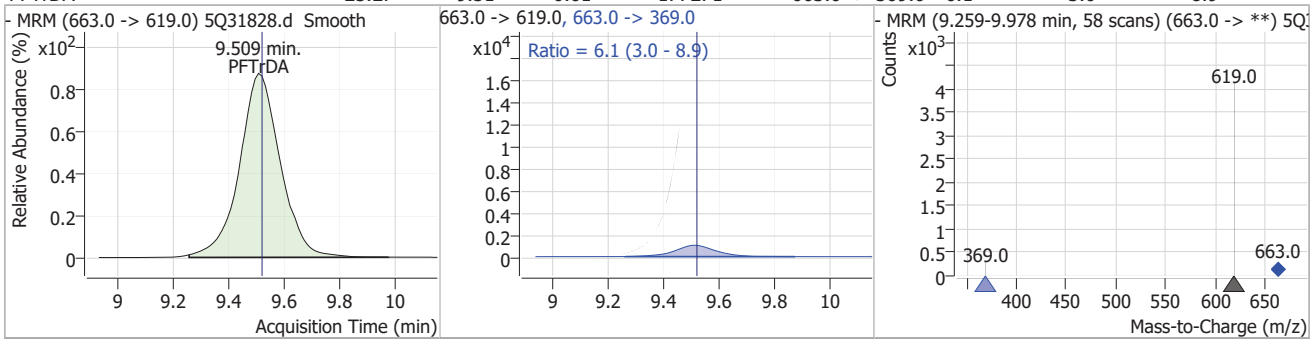


Perfluorinated Compounds by LC/MS/MS

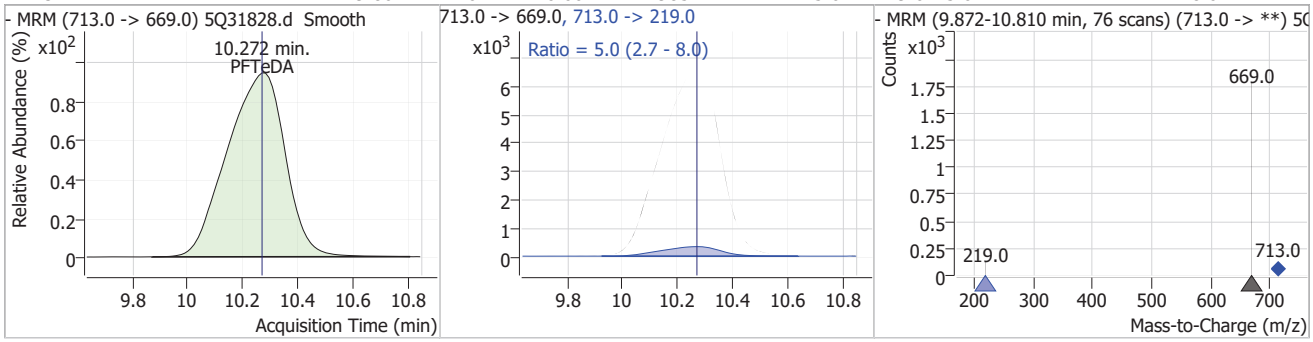
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	25.44	8.60	0.00	363204	613.0 -> 169.0	2.9	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	25.27	9.51	-0.01	177271	663.0 -> 369.0	6.1	3.0	8.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.80	10.27	0.00	98511	713.0 -> 219.0	5.0	2.7	8.0



7.7.38

7

Manual Integration Approval Summary

Sample Number:	S5Q523-ICV523	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31828.D	**Analyst approved:**	04/18/25 07:39 (b) (6)
Injection Time:	04/17/25 14:50	**Supervisor approved:**	04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

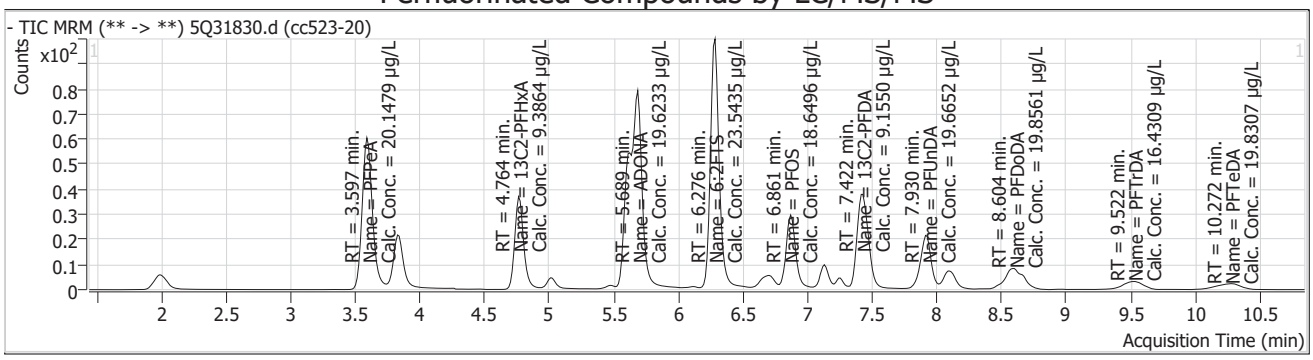
Data File : 5Q31830.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 3:23:28 PM
Sample Name : cc523-20
Vial : P1-A7
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.275	429.0 -> 409.0	201547	20.00	µg/L		-0.012
13C2-PFOA	6.290	415.0 -> 370.0	421900	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	512699	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	100208	20.00	µg/L		0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	32420	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.422	515.0 -> 470.0	165298	9.15	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 45.8%			
13C2-PFHxA	4.764	315.0 -> 270.0	250929	9.39	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 46.9%			
d5-EtFOSAA	7.378	589.0 -> 419.0	11922	19.38	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 48.4%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	33446	17.71	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 44.3%			
Target Compounds							QValue
6:2FTS	6.276	427.0 -> 407.0	237827	23.54	µg/L		97
8:2FTS	7.458	527.0 -> 507.0	185195	21.13	µg/L		98
EtFOSAA	7.391	584.0 -> 419.0	11244	20.72	µg/L	m	86
MeFOSAA	7.254	570.0 -> 419.0	13703	18.75	µg/L	m	84
PFBS	3.828	299.0 -> 80.0	272245	20.76	µg/L		99
PFDA	7.423	513.0 -> 469.0	308601	20.47	µg/L		99
PFDoDA	8.604	613.0 -> 569.0	290730	19.86	µg/L		99
PFHpA	5.615	363.0 -> 319.0	676030	19.56	µg/L		100
PFHxA	4.765	313.0 -> 269.0	339925	18.69	µg/L		100
PFHxS	5.636	399.0 -> 80.0	164168	20.05	µg/L	m	99
PFNA	6.887	463.0 -> 419.0	293061	21.46	µg/L	m	99
PFOA	6.291	413.0 -> 369.0	408261	20.30	µg/L		99
PFOS	6.861	499.0 -> 80.0	123281	18.65	µg/L	m	97
PFPeA	3.597	263.0 -> 219.0	665277	20.15	µg/L		100
PFTeDA	10.272	713.0 -> 669.0	102020	19.83	µg/L		100
PFTrDA	9.522	663.0 -> 619.0	119168	16.43	µg/L		100
PFUnDA	7.930	563.0 -> 519.0	323403	19.67	µg/L		99
ADONA	5.689	377.0 -> 251.0	877750	19.62	µg/L		98
9Cl-PF3ONS	7.131	531.0 -> 351.0	114980	20.08	µg/L		99
11Cl-PF3OUdS	8.100	631.0 -> 451.0	122027	20.13	µg/L		100
HFPO-DA	5.023	285.0 -> 169.0	32924	19.97	µg/L		98

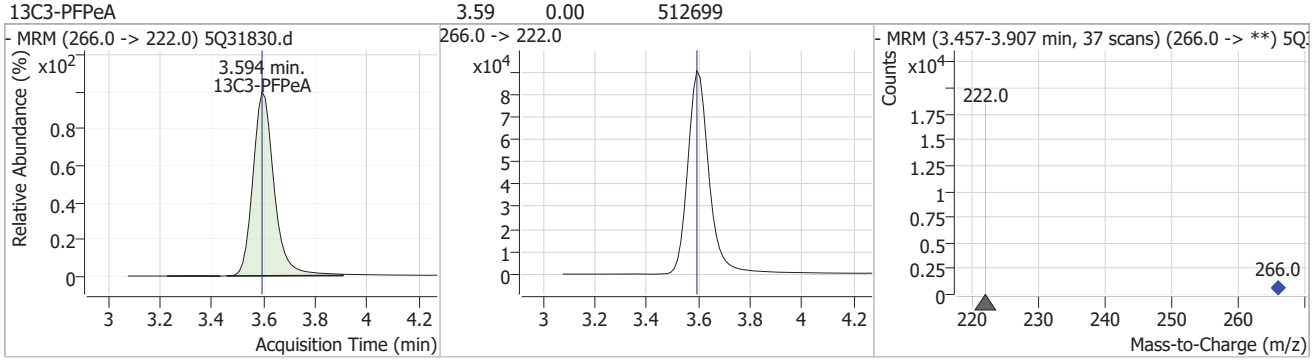
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.39
7

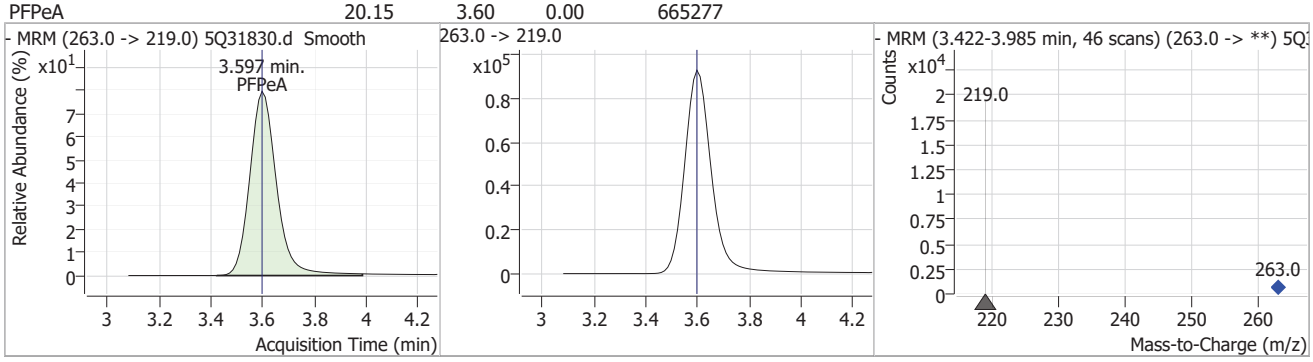
Perfluorinated Compounds by LC/MS/MS



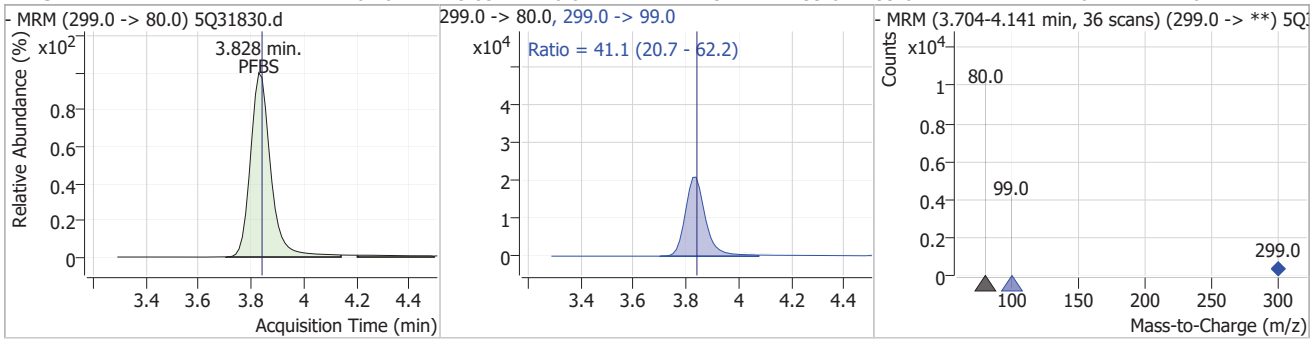
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	512699				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.15	3.60	0.00	665277				

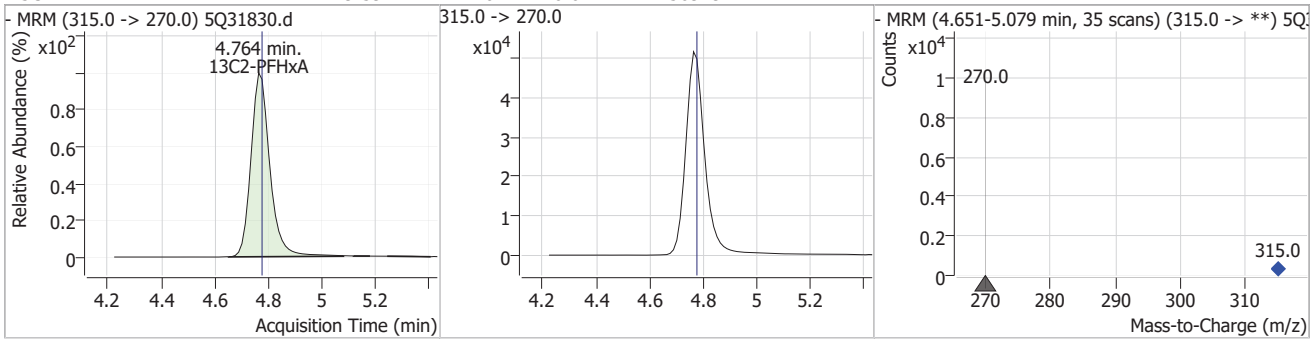


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.76	3.83	-0.01	272245	299.0 -> 99.0	41.1	20.7	62.2

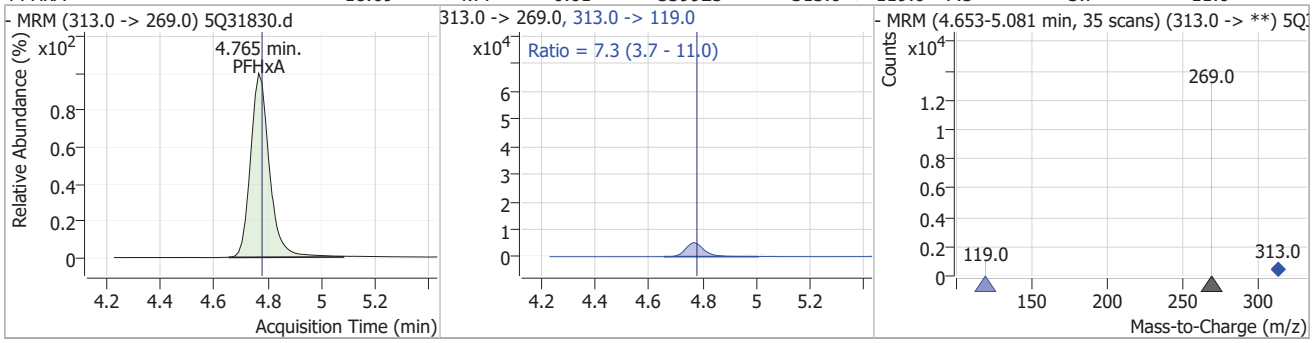


Perfluorinated Compounds by LC/MS/MS

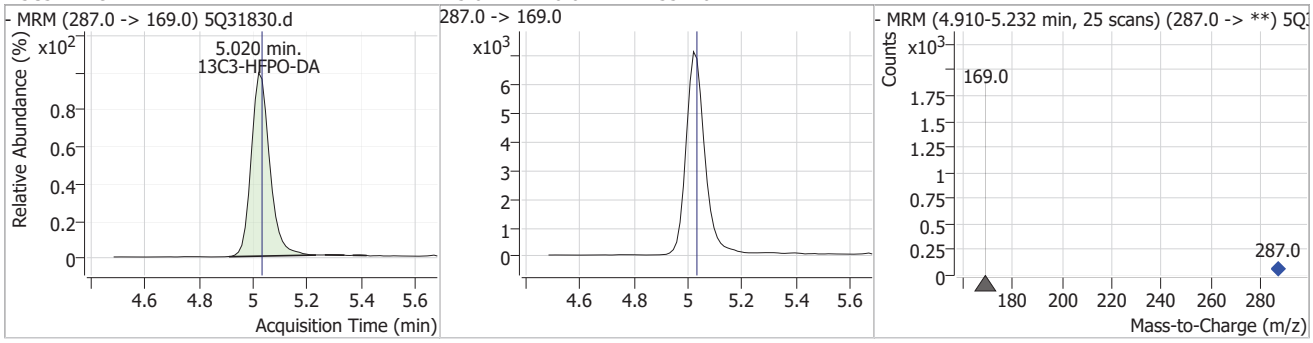
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	9.39	4.76	-0.01	250929				



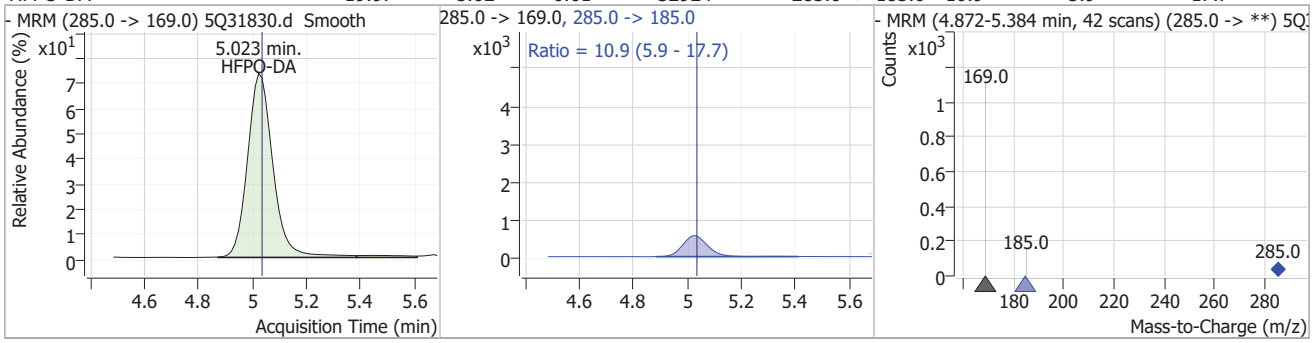
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	18.69	4.77	-0.01	339925	313.0 -> 119.0	7.3	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	17.71	5.02	-0.01	33446				

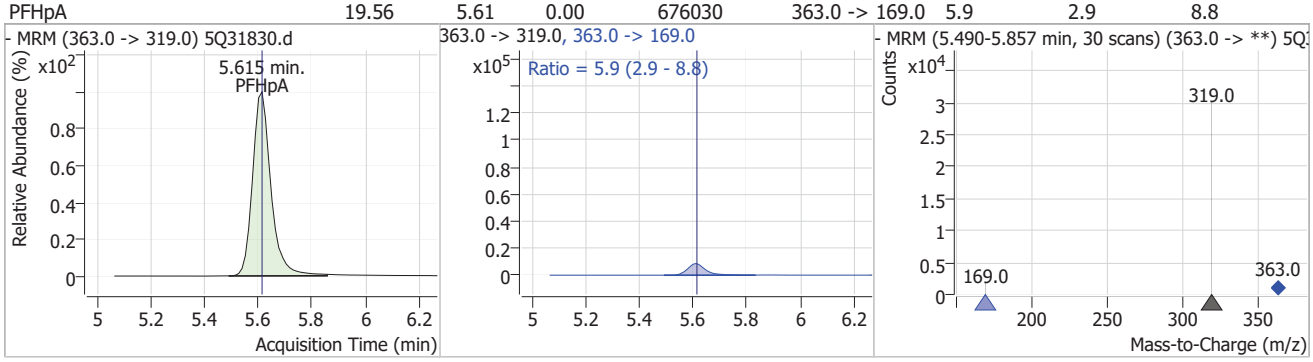


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.97	5.02	-0.01	32924	285.0 -> 185.0	10.9	5.9	17.7

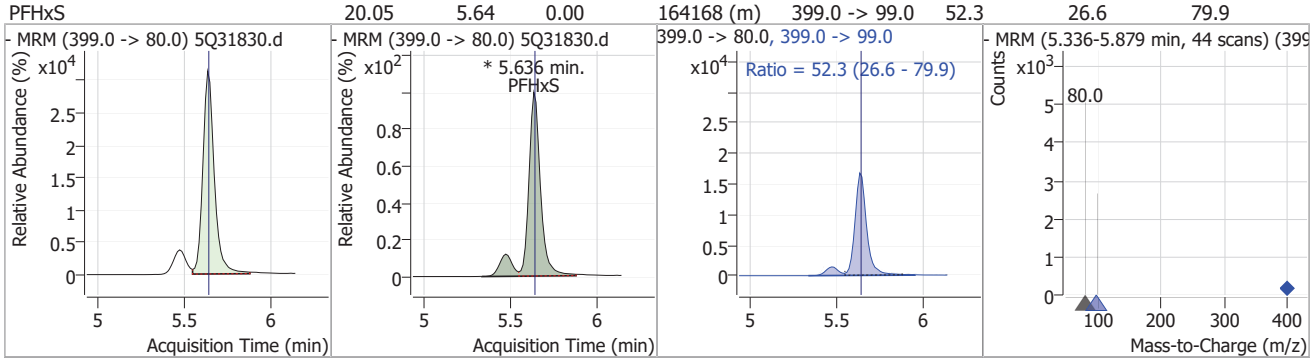


Perfluorinated Compounds by LC/MS/MS

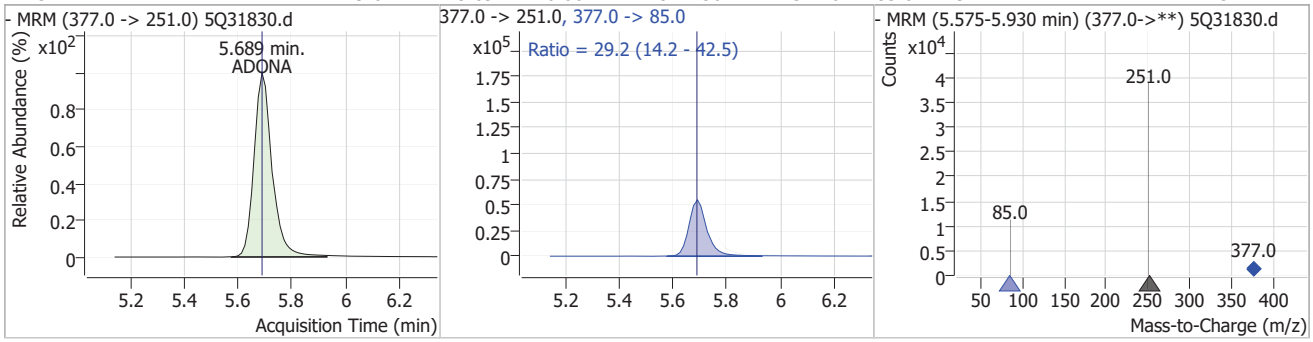
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.56	5.61	0.00	676030	363.0 -> 169.0	5.9	2.9	8.8



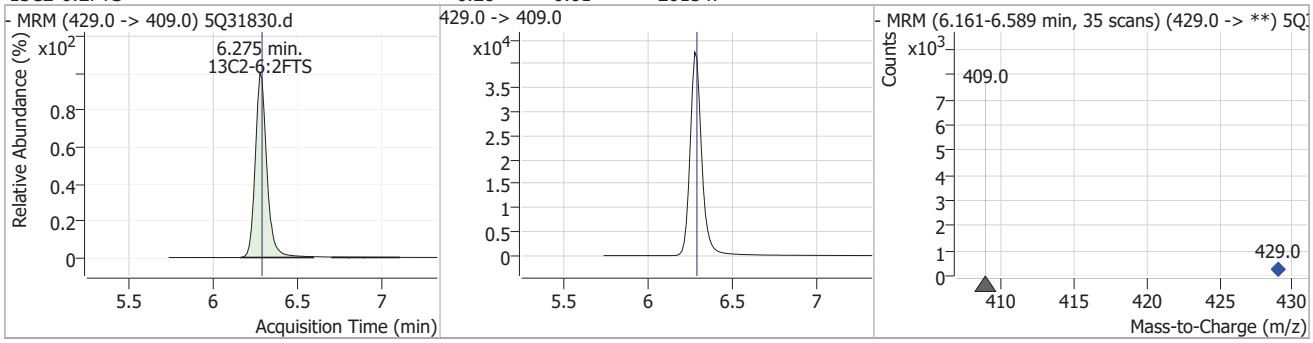
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	20.05	5.64	0.00	164168 (m)	399.0 -> 99.0	52.3	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.62	5.69	0.00	877750	377.0 -> 85.0	29.2	14.2	42.5

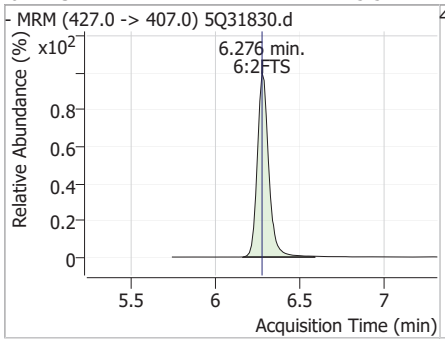


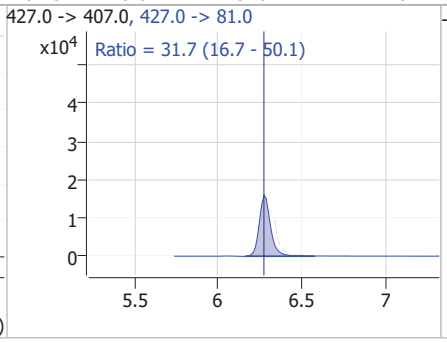
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	201547				

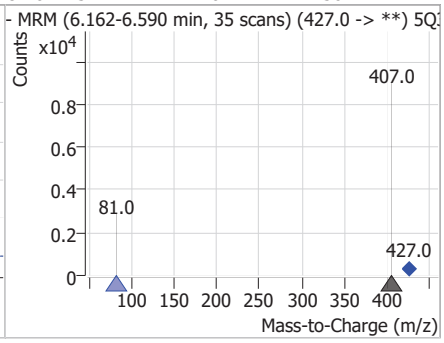


Perfluorinated Compounds by LC/MS/MS

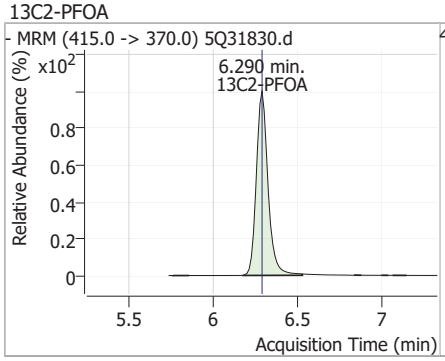
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	23.54	6.28	-0.01	237827	427.0 -> 81.0	31.7	16.7	50.1

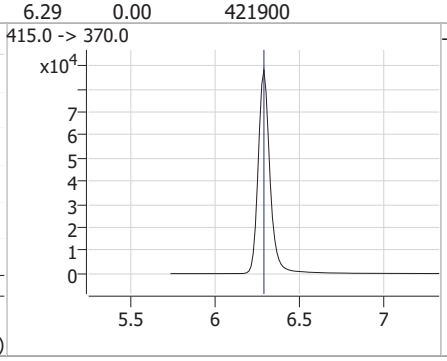


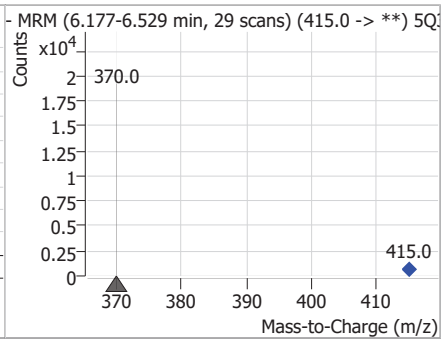




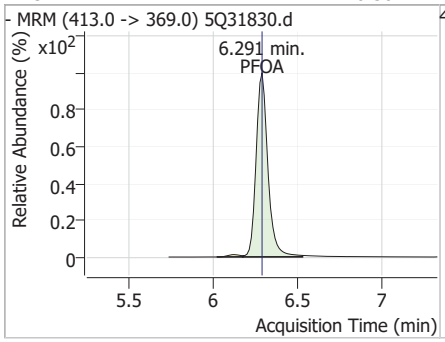
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	421900				

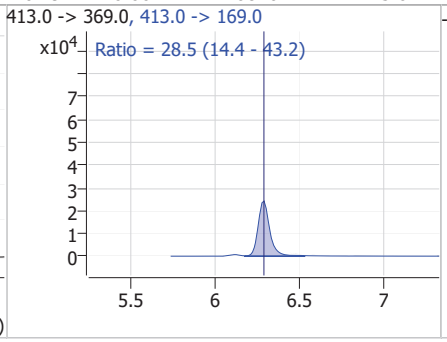


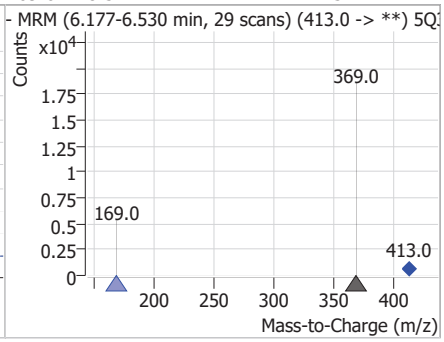




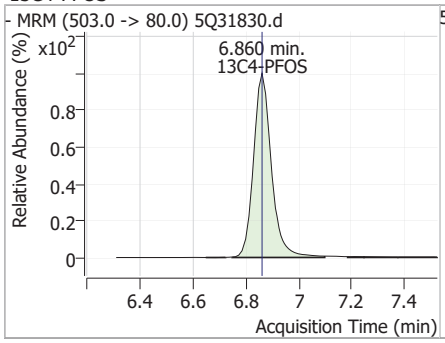
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.30	6.29	0.00	408261	413.0 -> 169.0	28.5	14.4	43.2

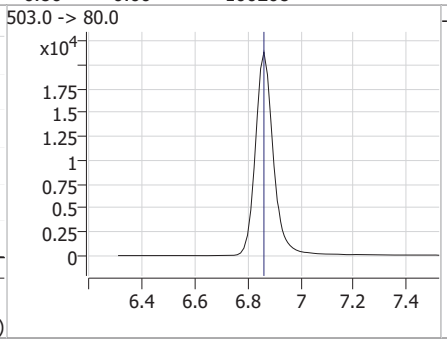


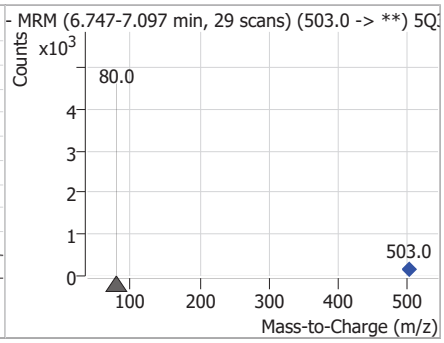




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	100208				







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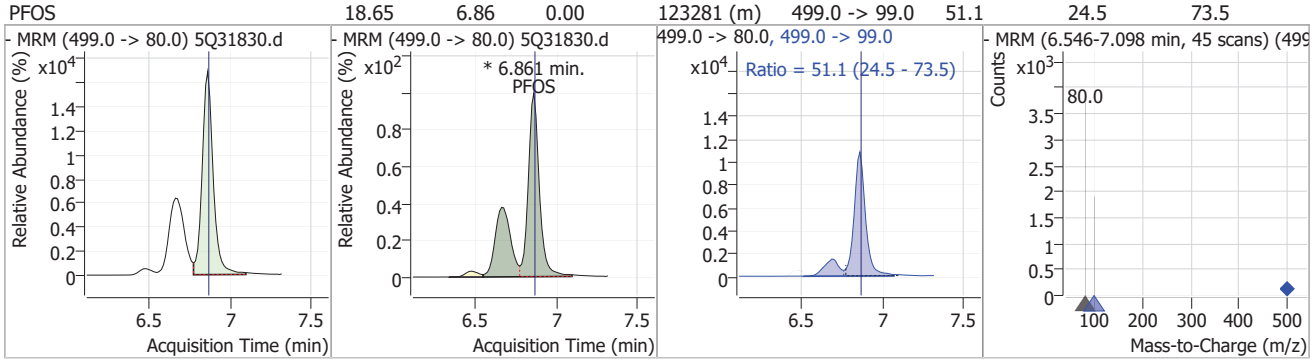
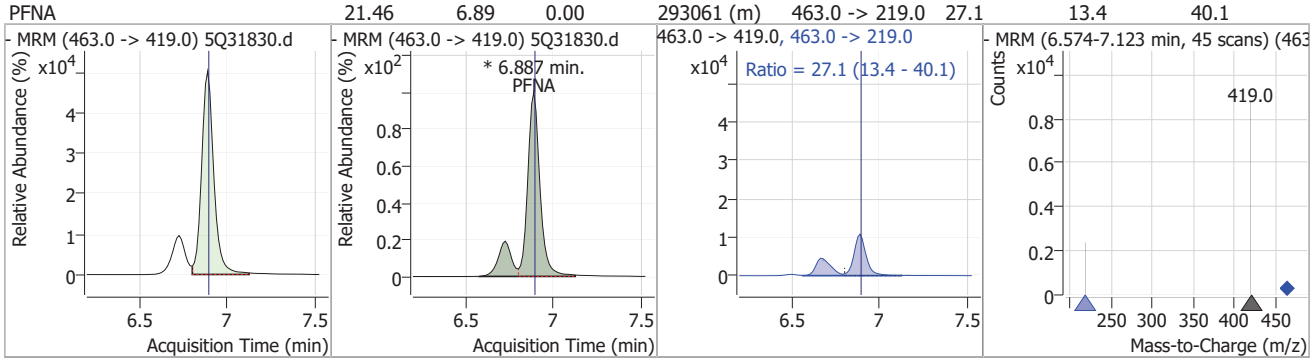
Perfluorinated Compounds by LC/MS/MS

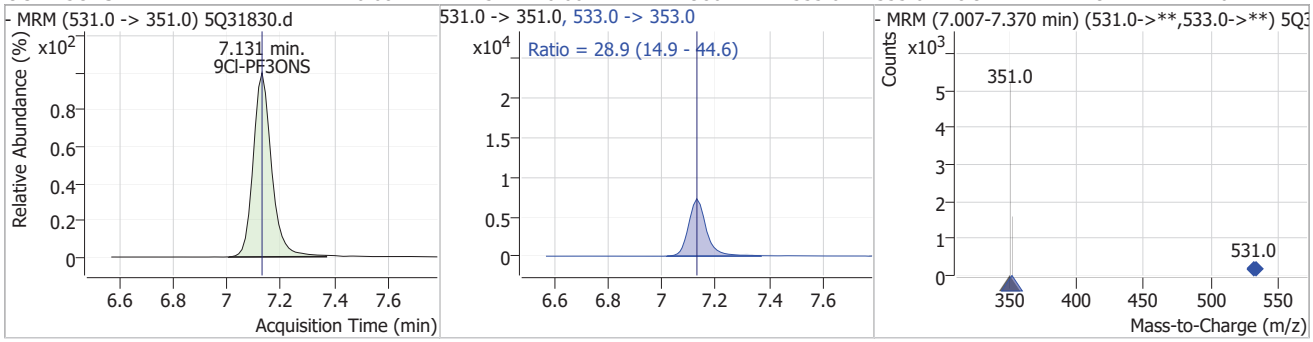
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.65	6.86	0.00	123281 (m)	499.0 -> 99.0	51.1	24.5	73.5



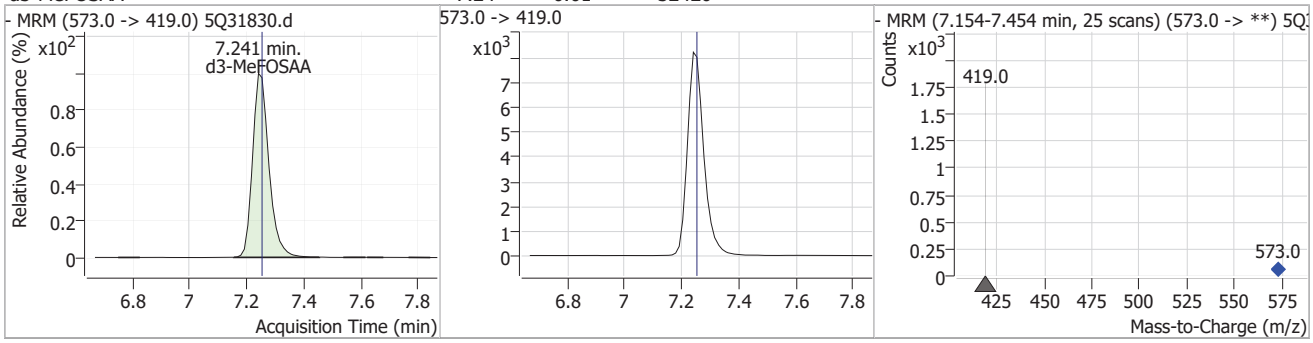
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	21.46	6.89	0.00	293061 (m)	463.0 -> 219.0	27.1	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	20.08	7.13	0.00	114980	533.0 -> 353.0	28.9	14.9	44.6

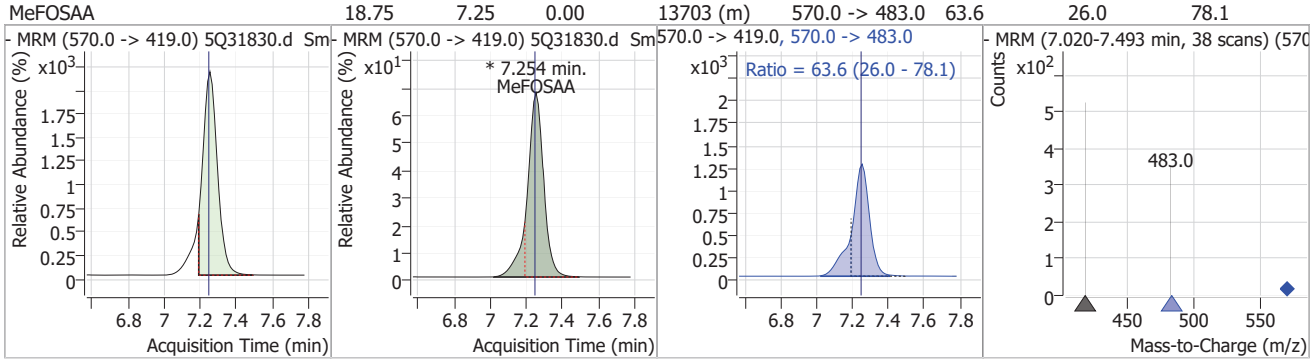


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	32420				

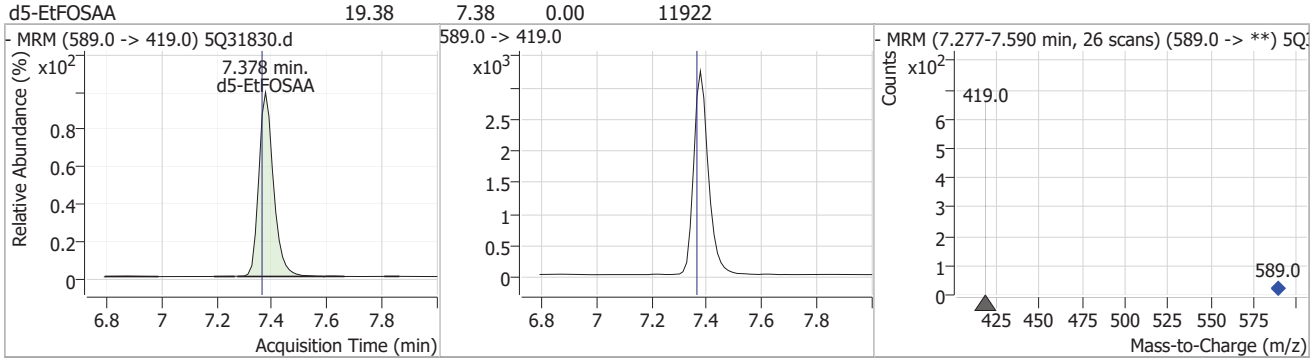


Perfluorinated Compounds by LC/MS/MS

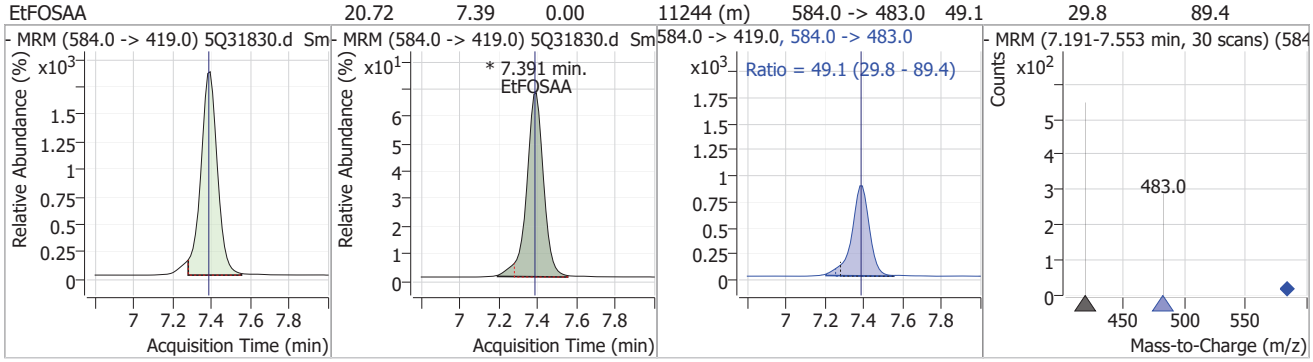
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	18.75	7.25	0.00	13703 (m)	570.0 -> 483.0	63.6	26.0	78.1



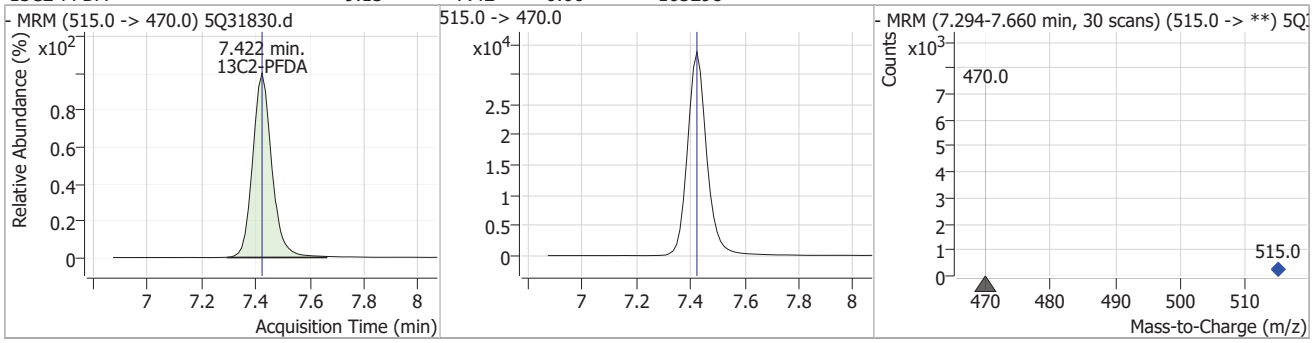
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	19.38	7.38	0.00	11922				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	20.72	7.39	0.00	11244 (m)	584.0 -> 483.0	49.1	29.8	89.4

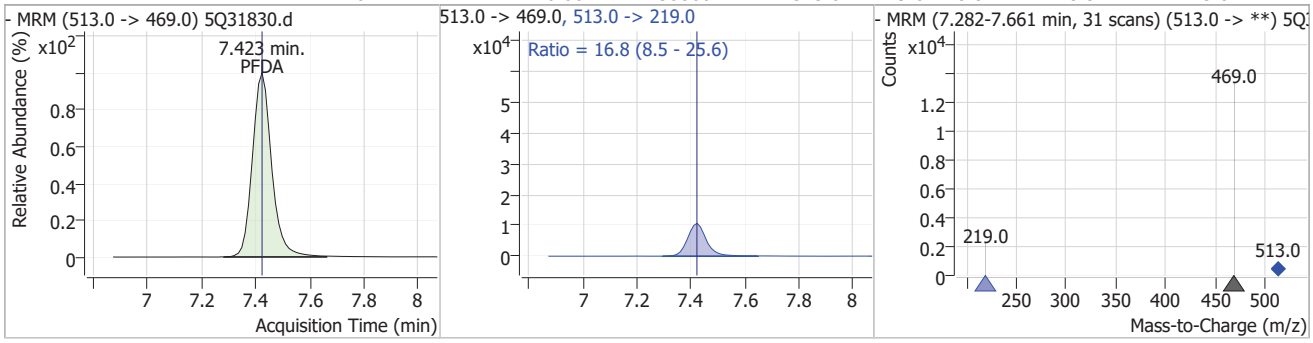


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	9.15	7.42	0.00	165298				

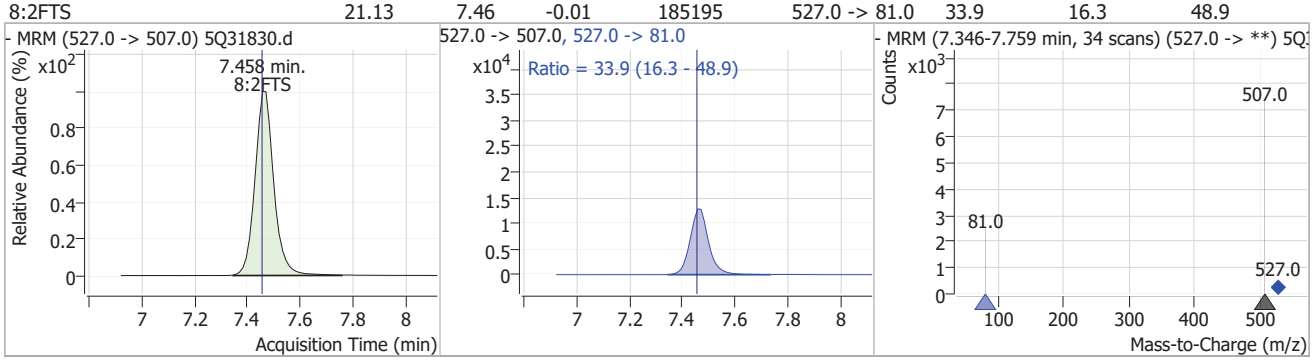


Perfluorinated Compounds by LC/MS/MS

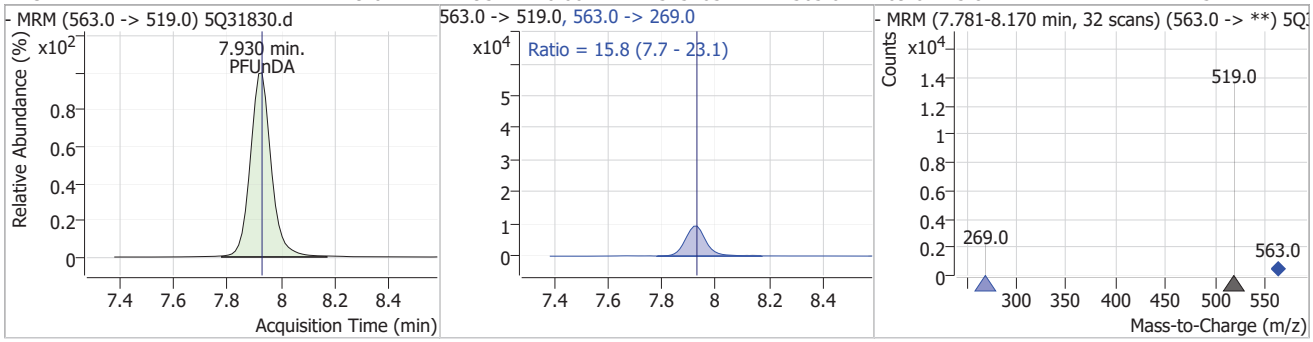
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.47	7.42	0.00	308601	513.0 -> 219.0	16.8	8.5	25.6



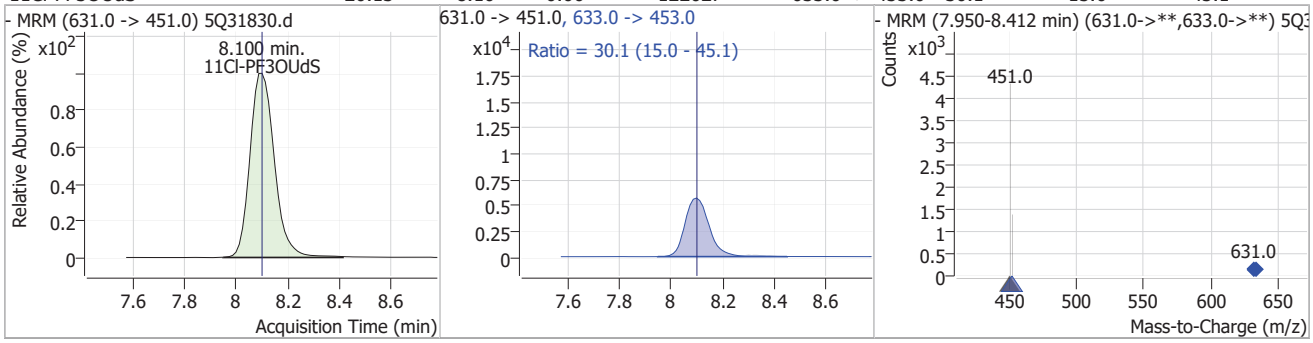
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.13	7.46	-0.01	185195	527.0 -> 81.0	33.9	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.67	7.93	0.00	323403	563.0 -> 269.0	15.8	7.7	23.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	20.13	8.10	0.00	122027	633.0 -> 453.0	30.1	15.0	45.1



7.7.39

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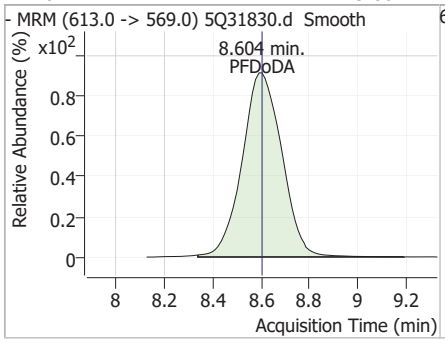
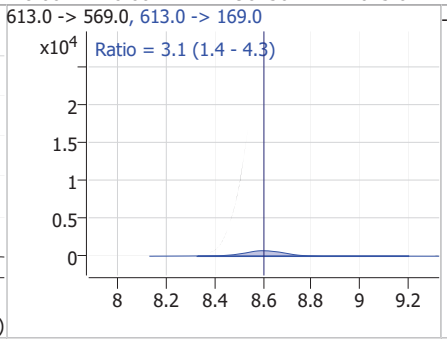
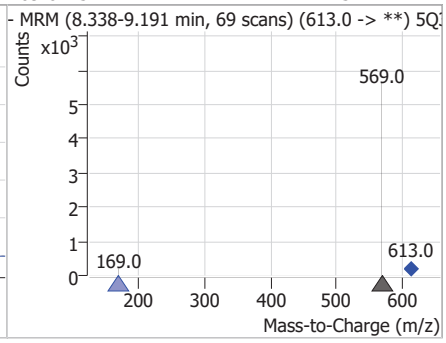
Perfluorinated Compounds by LC/MS/MS

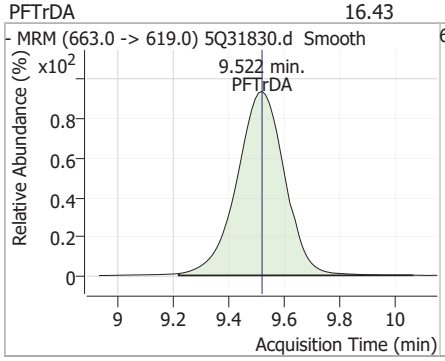
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.86	8.60	0.00	290730	613.0 -> 169.0	3.1	1.4	4.3

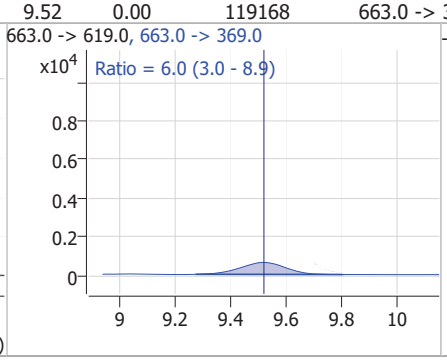


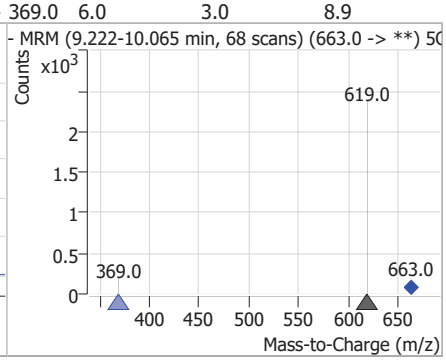




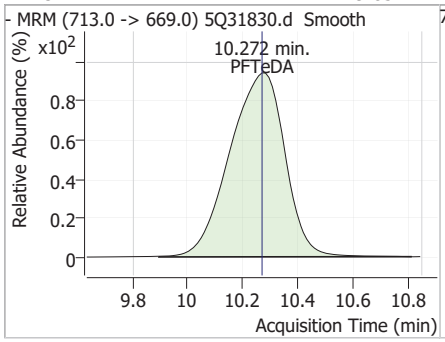
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	16.43	9.52	0.00	119168	663.0 -> 369.0	6.0	3.0	8.9

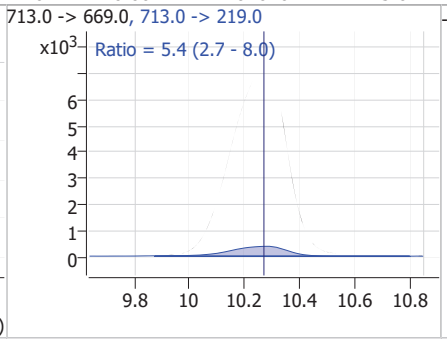


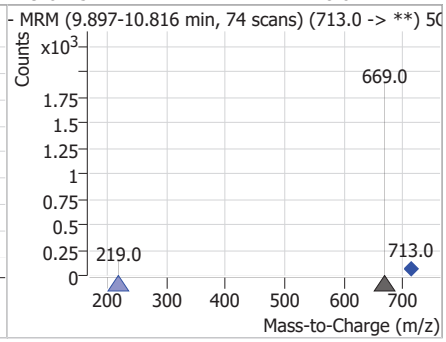




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.83	10.27	0.00	102020	713.0 -> 219.0	5.4	2.7	8.0







Manual Integration Approval Summary

Sample Number: S5Q523-CC523
Lab FileID: 5Q31830.D
Injection Time: 04/17/25 15:23
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6)
Supervisor approved: 04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31831.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 3:39:53 PM
Sample Name : cc523-0.5LL
Vial : P1-A2
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.275	429.0 -> 409.0	177502	20.00	µg/L		-0.012
13C2-PFOA	6.290	415.0 -> 370.0	388263	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	489132	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	96369	20.00	µg/L		0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	31006	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.422	515.0 -> 470.0	2960	0.18	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 0.9%			
13C2-PFHxA	4.764	315.0 -> 270.0	4331	0.18	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 0.9%			
d5-EtFOSAA	7.378	589.0 -> 419.0	364	0.62	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 1.5%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	609	0.35	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 0.9%			
Target Compounds							QValue
6:2FTS	6.276	427.0 -> 407.0	4008	0.45	µg/L		98
8:2FTS	7.471	527.0 -> 507.0	3279	0.42	µg/L		95
EtFOSAA	7.379	584.0 -> 419.0	237	0.46	µg/L	m	91
MeFOSAA	7.254	570.0 -> 419.0	360	0.52	µg/L	m	92
PFBS	3.828	299.0 -> 80.0	4801	0.38	µg/L		98
PFDA	7.423	513.0 -> 469.0	5091	0.37	µg/L		97
PFDoDA	8.604	613.0 -> 569.0	6195	0.45	µg/L		97
PFHpA	5.615	363.0 -> 319.0	11966	0.39	µg/L		100
PFHxA	4.765	313.0 -> 269.0	6044	0.36	µg/L		98
PFHxS	5.636	399.0 -> 80.0	2767	0.36	µg/L	m	94
PFNA	6.875	463.0 -> 419.0	5158	0.43	µg/L	m	89
PFOA	6.291	413.0 -> 369.0	7061	0.39	µg/L		100
PFOS	6.861	499.0 -> 80.0	2545	0.40	µg/L	m	98
PFPeA	3.597	263.0 -> 219.0	11466	0.37	µg/L		100
PFTeDA	10.272	713.0 -> 669.0	2127	0.45	µg/L		100
PFTrDA	9.509	663.0 -> 619.0	2806	0.40	µg/L		97
PFUnDA	7.930	563.0 -> 519.0	5789	0.37	µg/L		99
ADONA	5.689	377.0 -> 251.0	14437	0.36	µg/L		96
9Cl-PF3ONS	7.131	531.0 -> 351.0	2371	0.48	µg/L		87
11Cl-PF3OUdS	8.100	631.0 -> 451.0	2257	0.44	µg/L		91
HFPO-DA	5.035	285.0 -> 169.0	597	0.41	µg/L	m	89

 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.40
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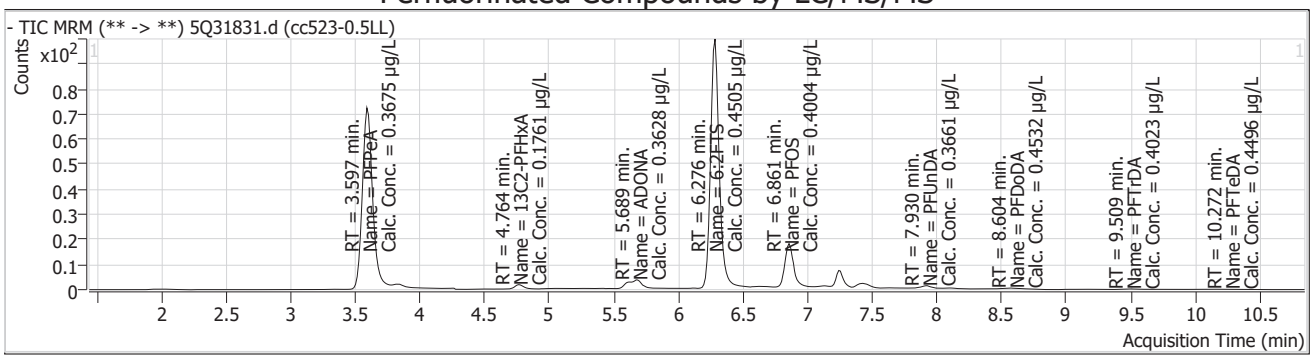
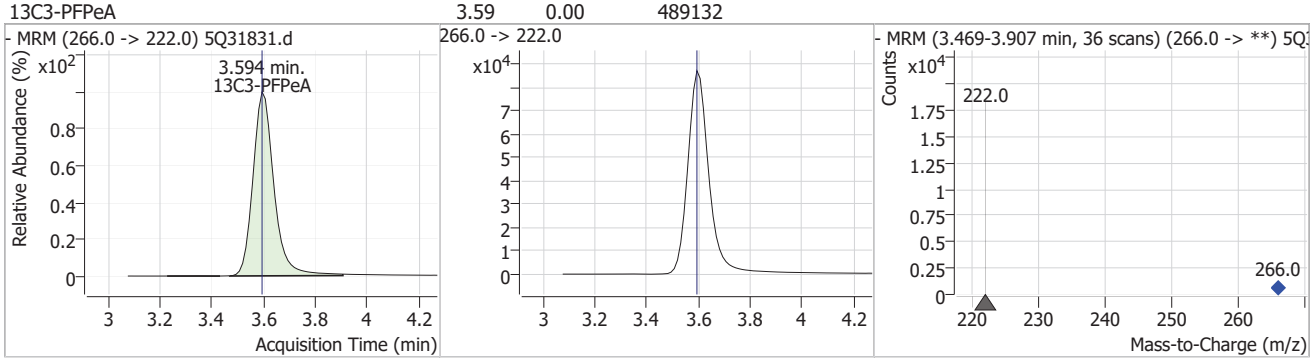
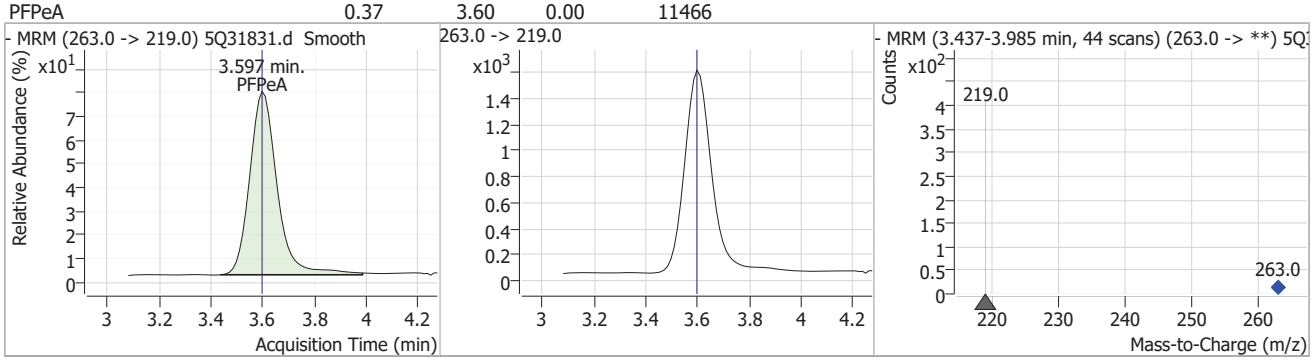
Perfluorinated Compounds by LC/MS/MS



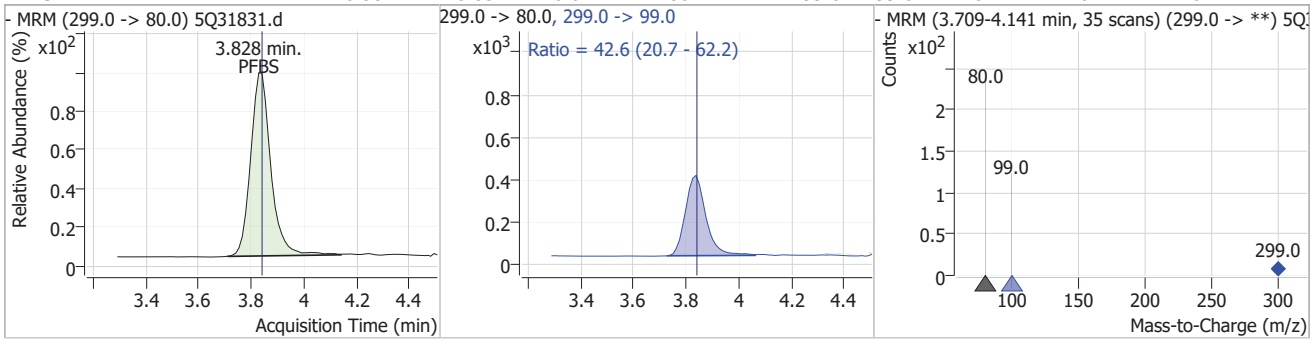
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	489132				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.37	3.60	0.00	11466				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.38	3.83	-0.01	4801	299.0 -> 99.0	42.6	20.7	62.2

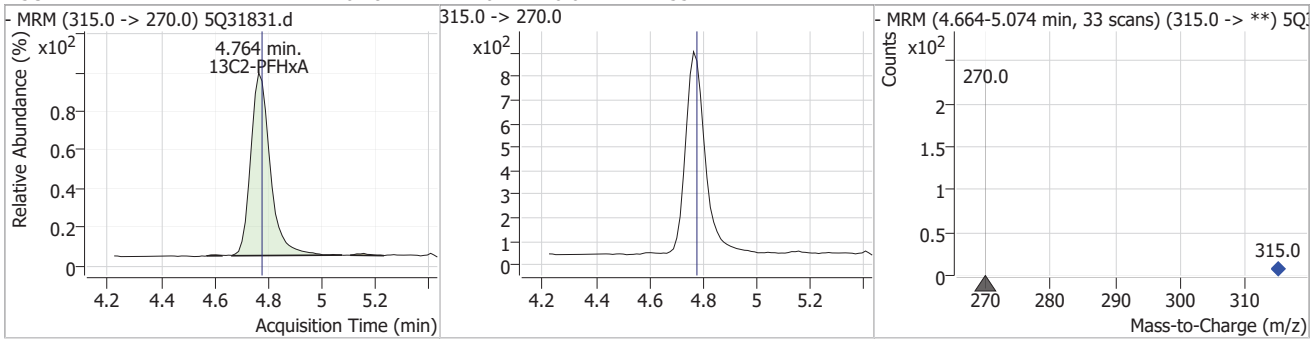


7.7.40

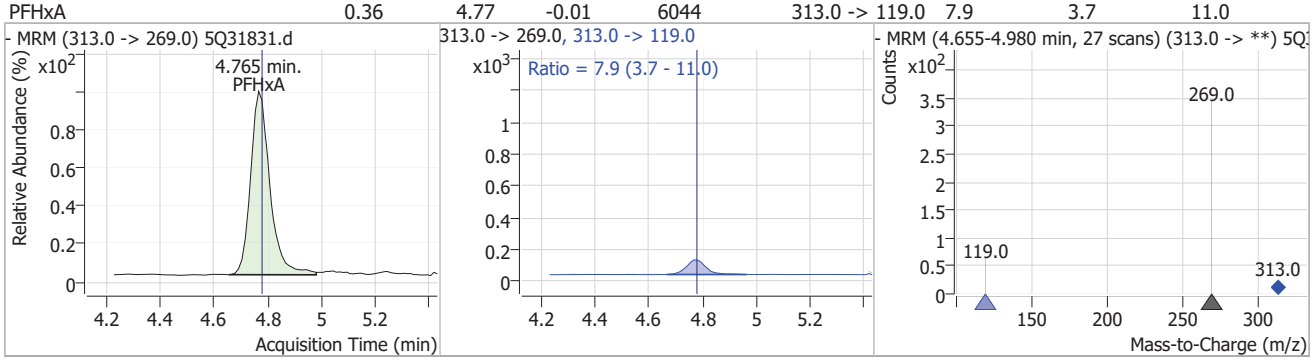
7

Perfluorinated Compounds by LC/MS/MS

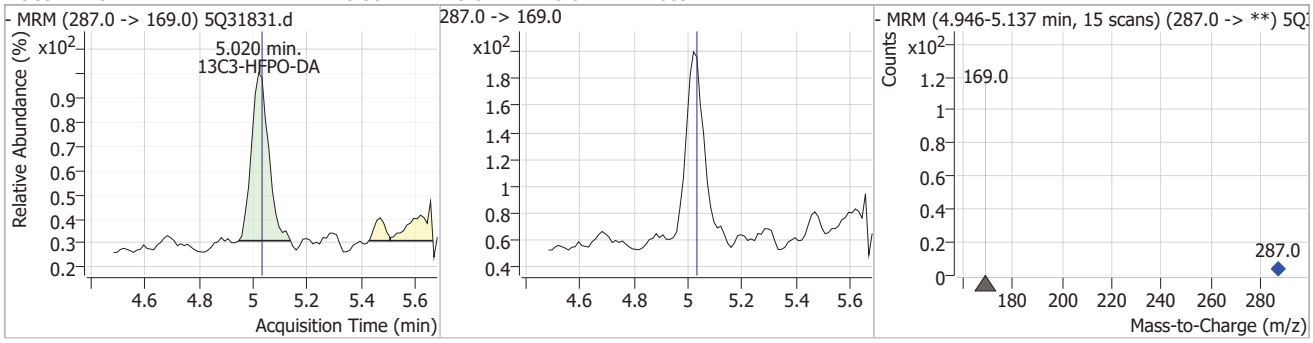
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.18	4.76	-0.01	4331				



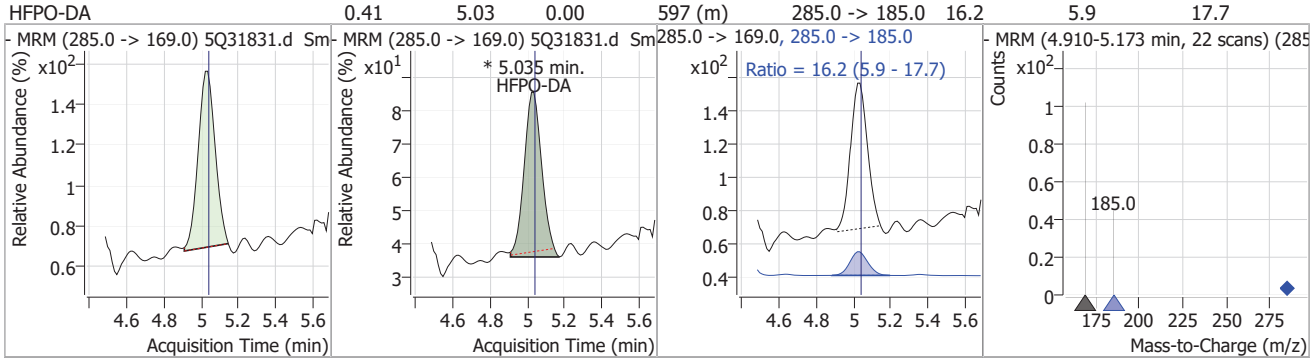
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.36	4.77	-0.01	6044	313.0 -> 119.0	7.9	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.35	5.02	-0.01	609				

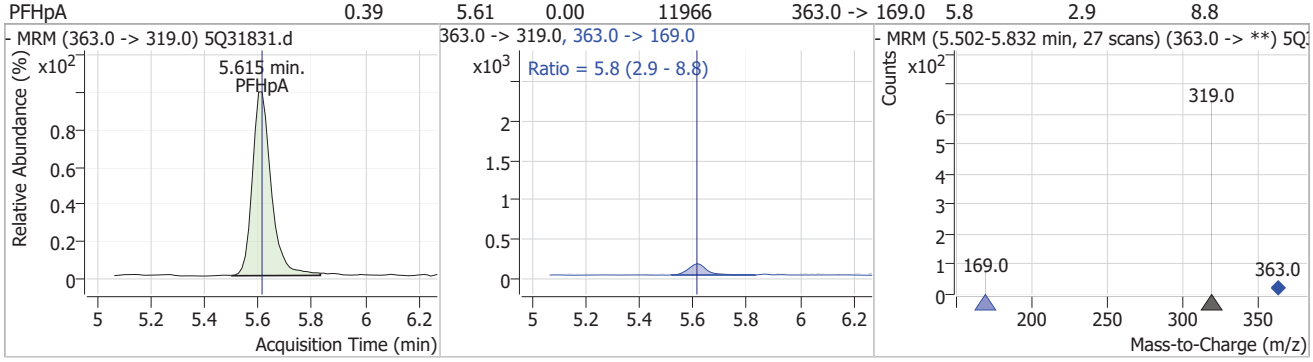


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.41	5.03	0.00	597 (m)	285.0 -> 185.0	16.2	5.9	17.7

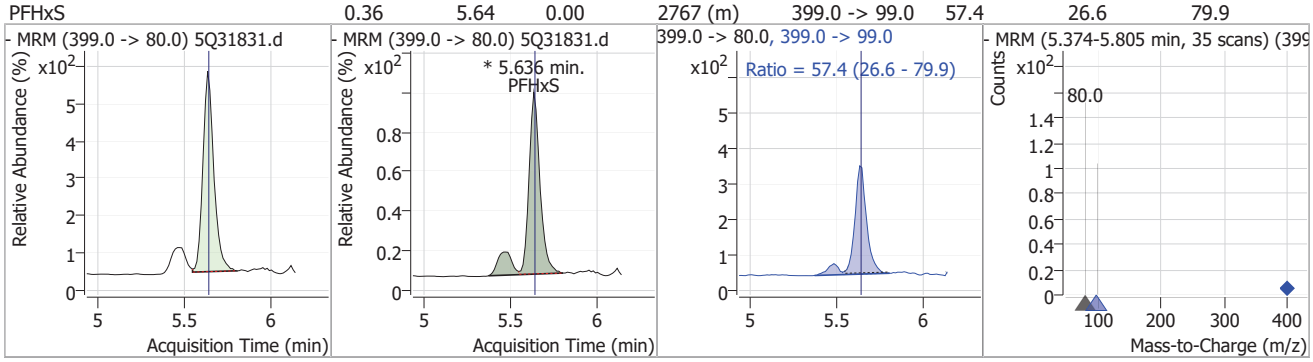


Perfluorinated Compounds by LC/MS/MS

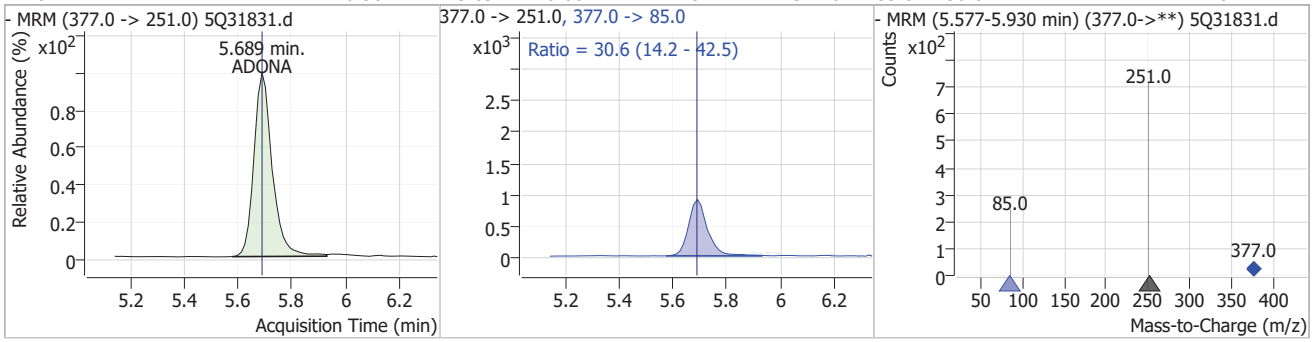
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.39	5.61	0.00	11966	363.0 -> 169.0	5.8	2.9	8.8



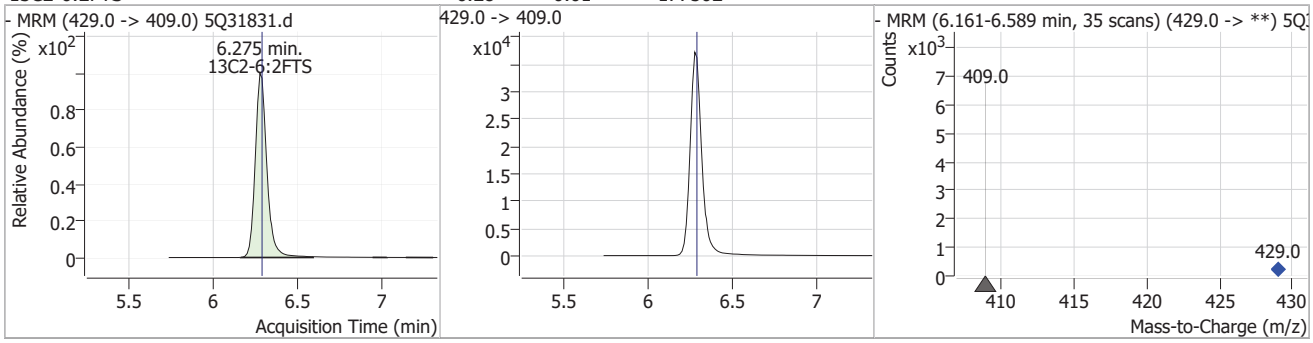
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.36	5.64	0.00	2767 (m)	399.0 -> 99.0	57.4	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.36	5.69	0.00	14437	377.0 -> 85.0	30.6	14.2	42.5

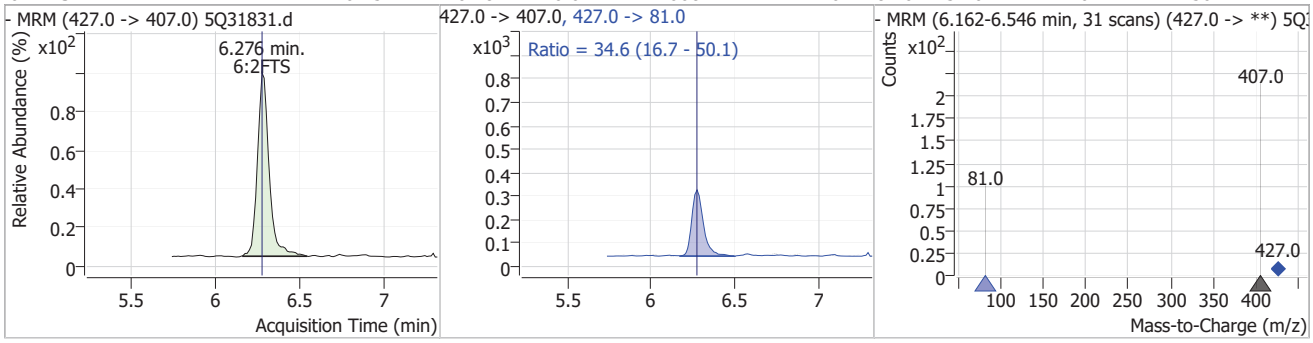


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	177502				

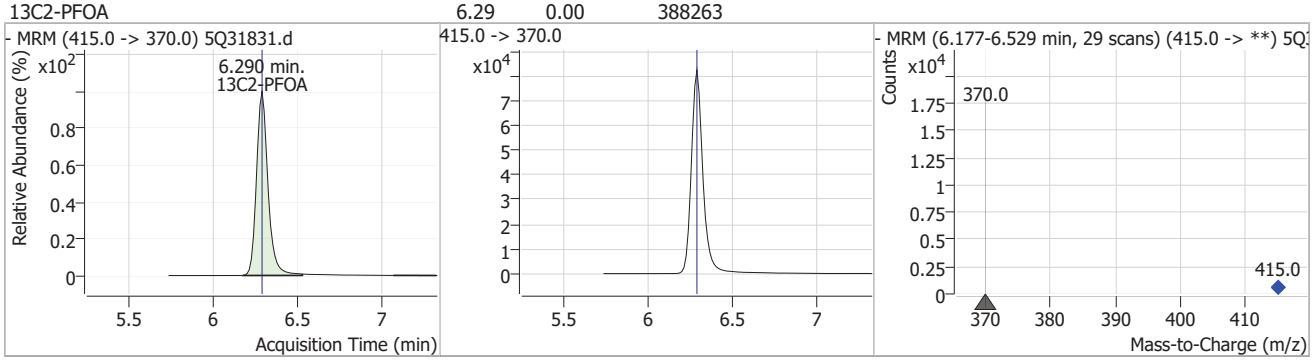


Perfluorinated Compounds by LC/MS/MS

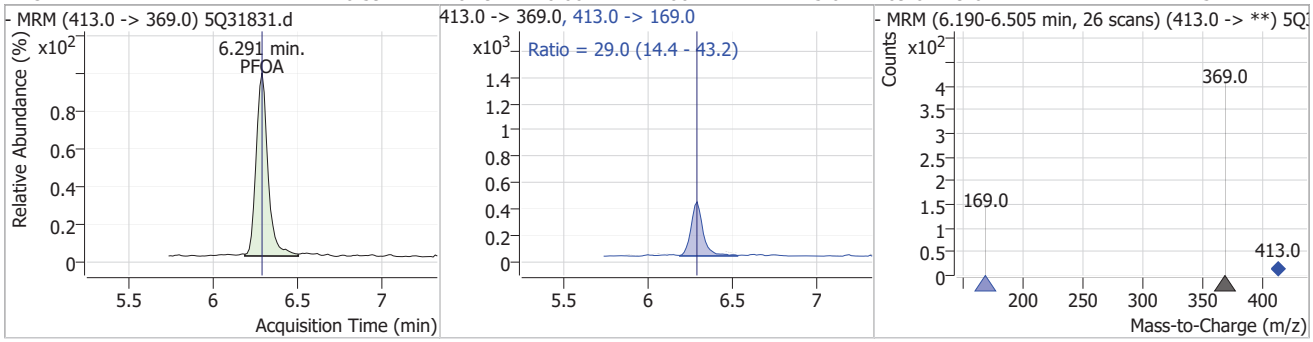
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.45	6.28	-0.01	4008	427.0 -> 81.0	34.6	16.7	50.1



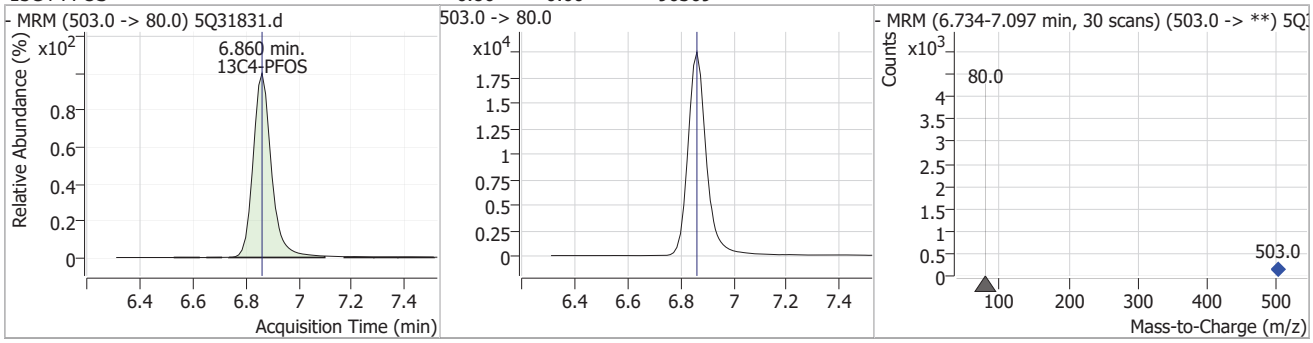
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	388263				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.39	6.29	0.00	7061	413.0 -> 169.0	29.0	14.4	43.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	96369				

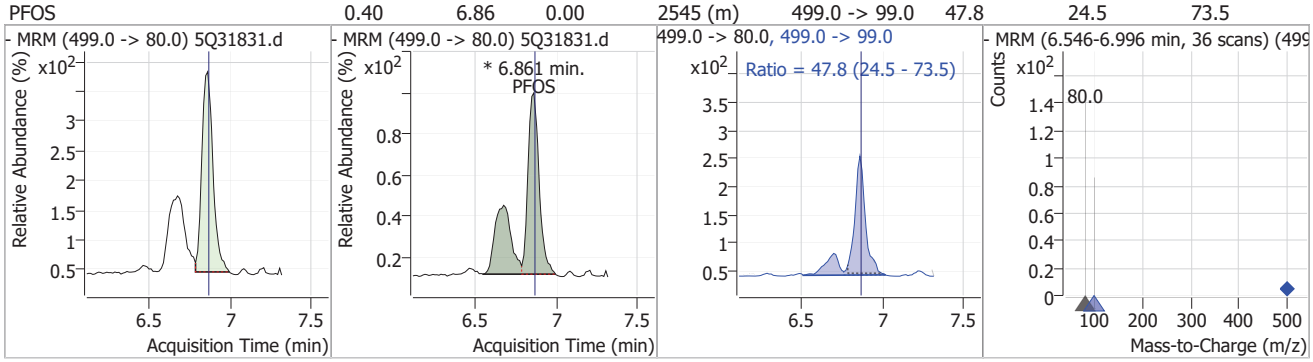


7.7.40

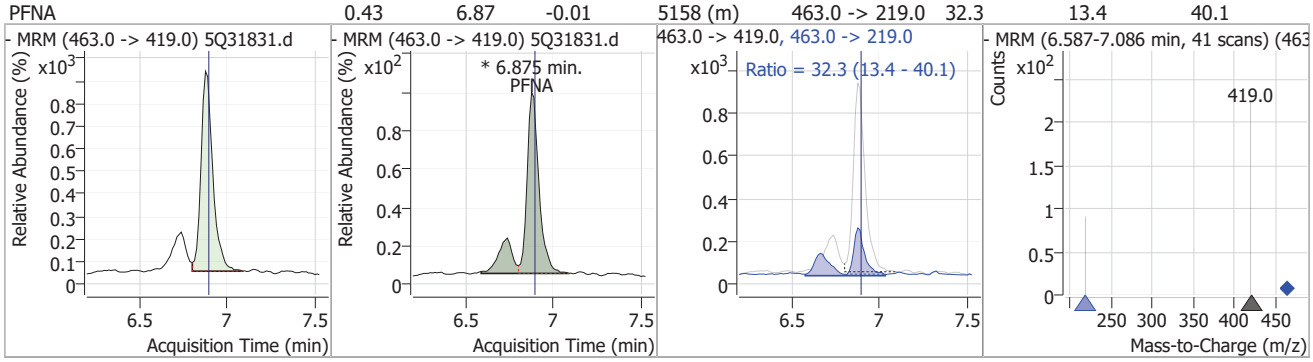
7

Perfluorinated Compounds by LC/MS/MS

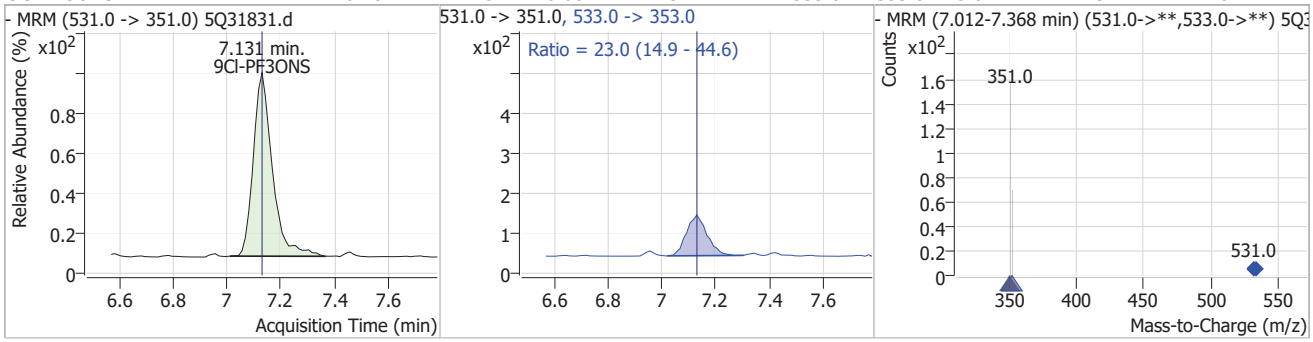
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.40	6.86	0.00	2545 (m)	499.0 -> 99.0	47.8	24.5	73.5



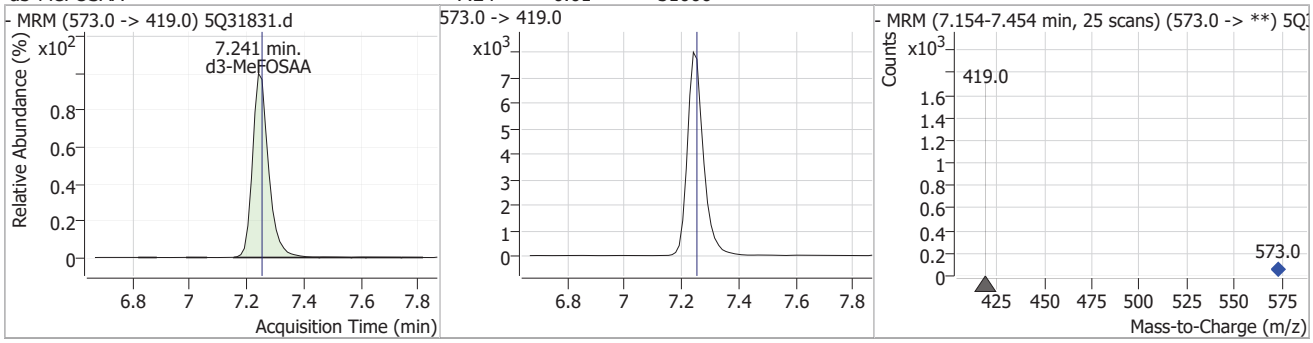
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.43	6.87	-0.01	5158 (m)	463.0 -> 219.0	32.3	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.48	7.13	0.00	2371	533.0 -> 353.0	23.0	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	31006				



7.7.40

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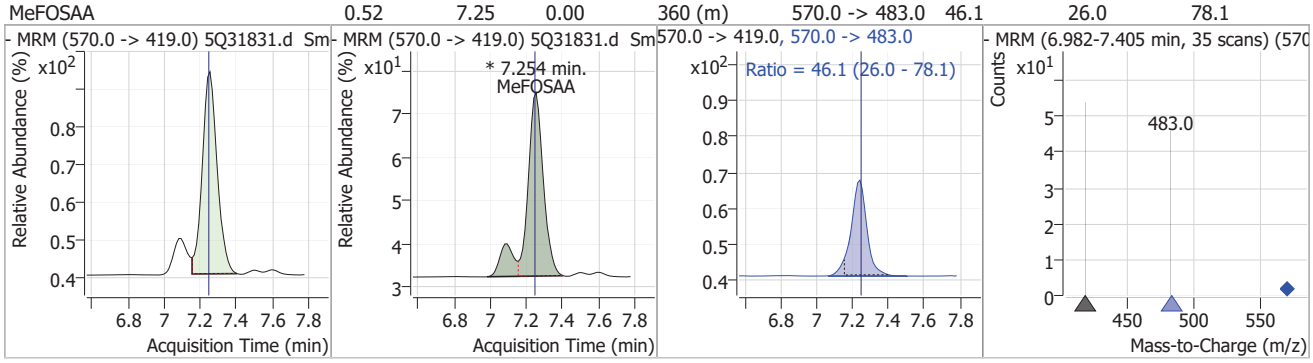
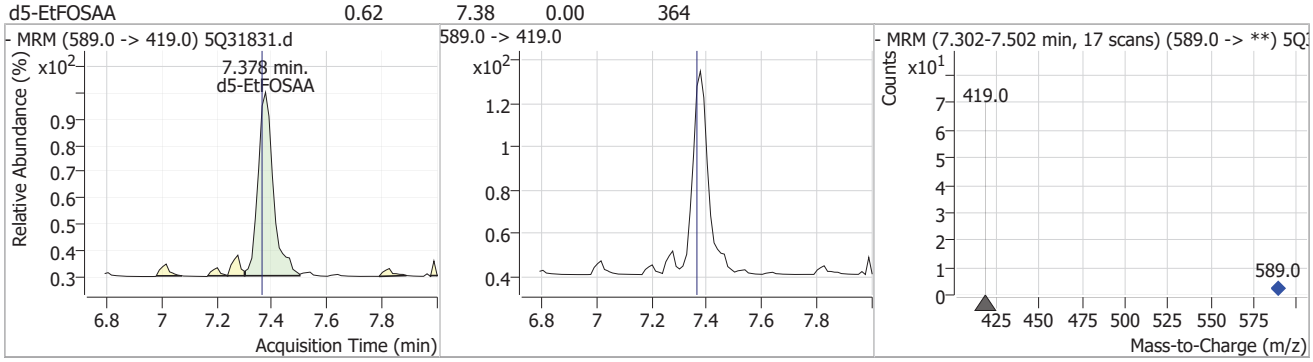
Perfluorinated Compounds by LC/MS/MS

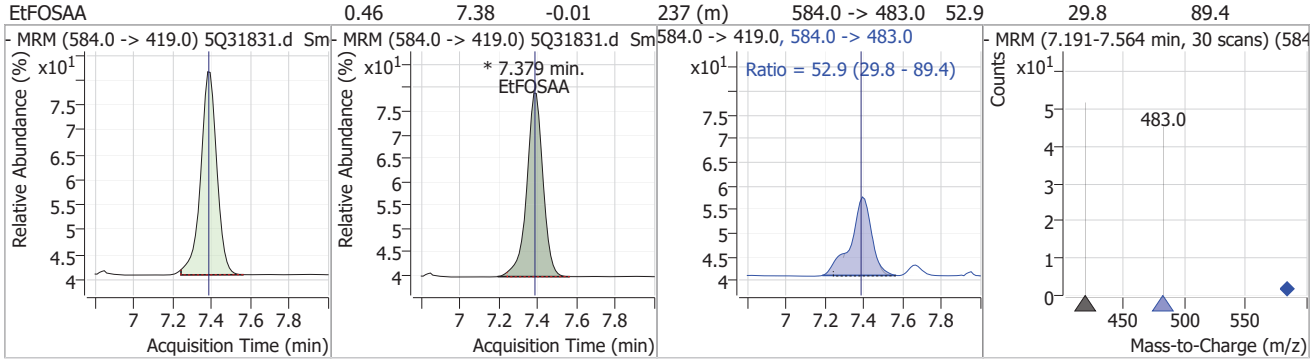
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.52	7.25	0.00	360 (m)	570.0 -> 483.0	46.1	26.0	78.1



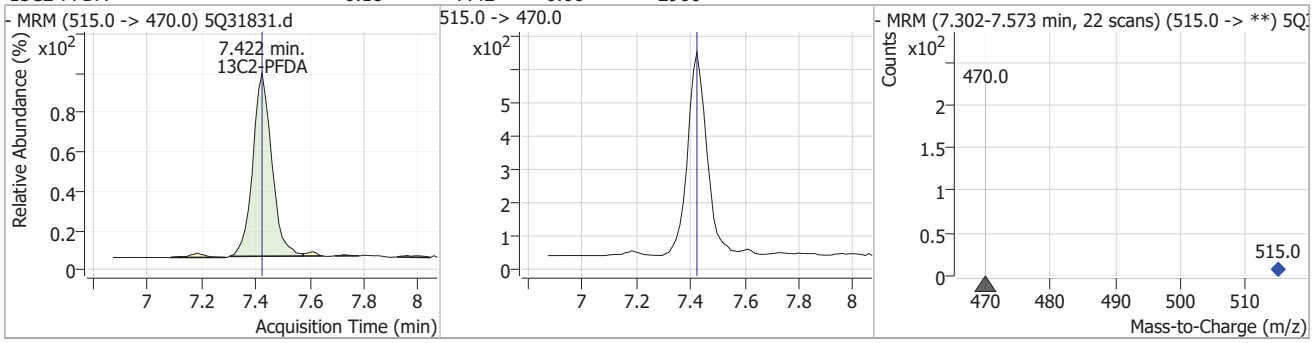
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	0.62	7.38	0.00	364				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.46	7.38	-0.01	237 (m)	584.0 -> 483.0	52.9	29.8	89.4

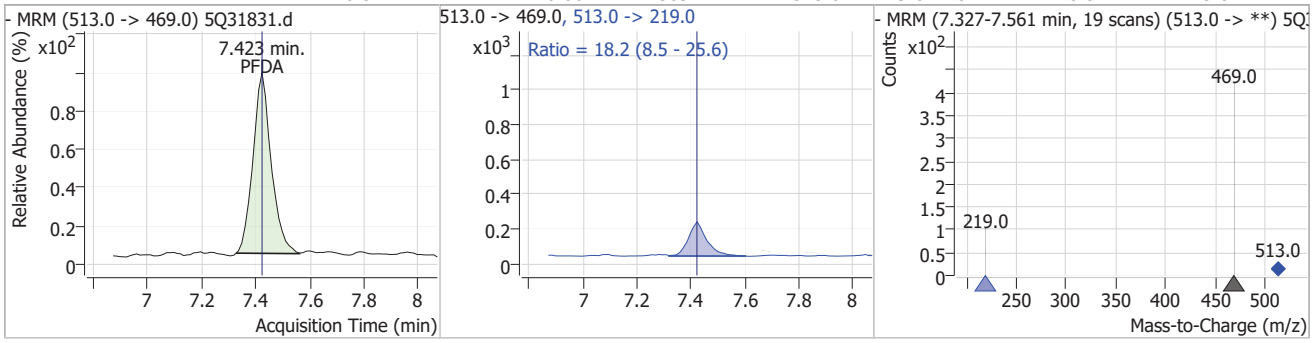


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.18	7.42	0.00	2960				

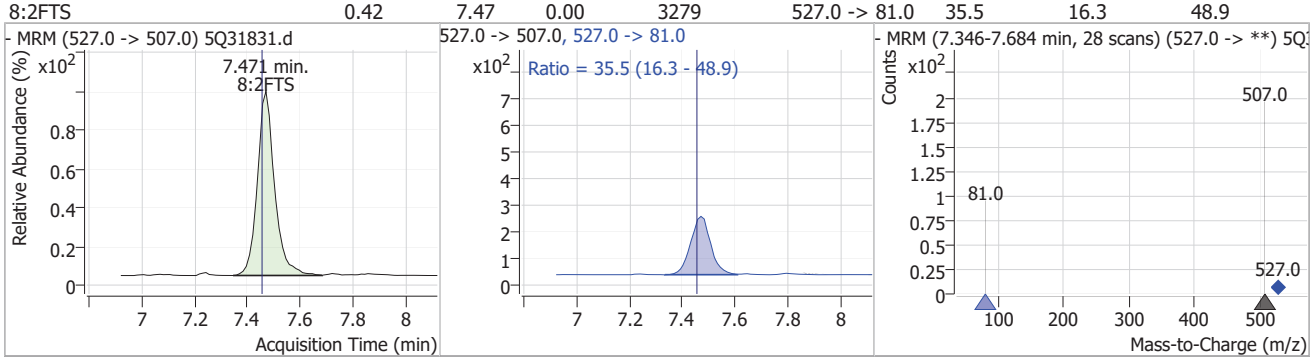


Perfluorinated Compounds by LC/MS/MS

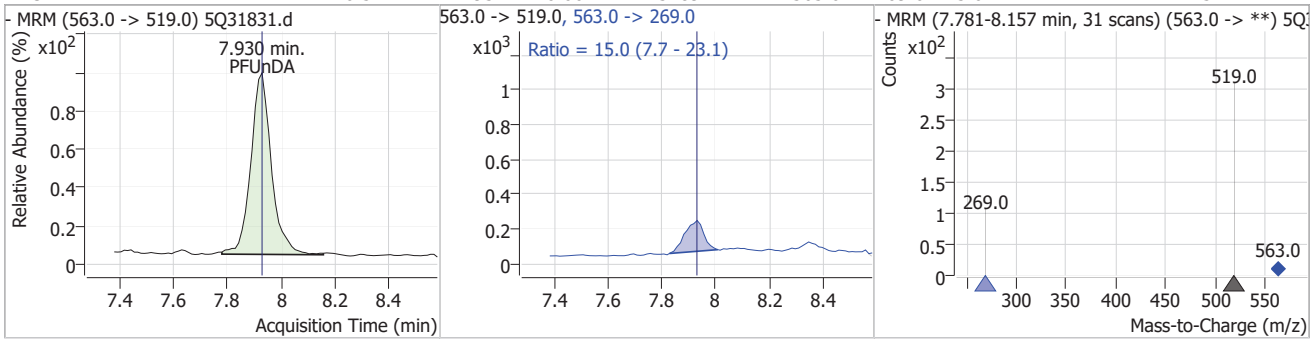
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.37	7.42	0.00	5091	513.0 -> 219.0	18.2	8.5	25.6



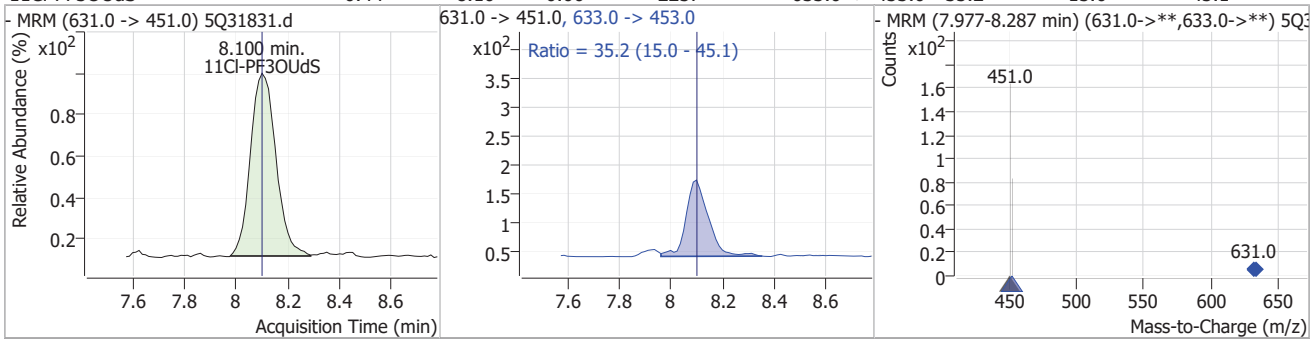
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.42	7.47	0.00	3279	527.0 -> 81.0	35.5	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.37	7.93	0.00	5789	563.0 -> 269.0	15.0	7.7	23.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.44	8.10	0.00	2257	633.0 -> 453.0	35.2	15.0	45.1

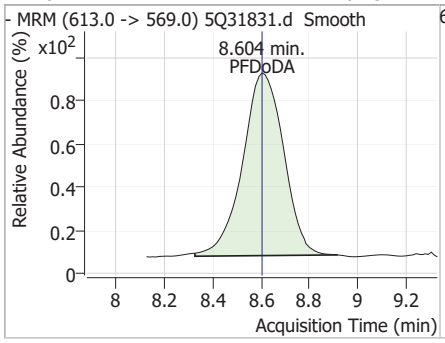


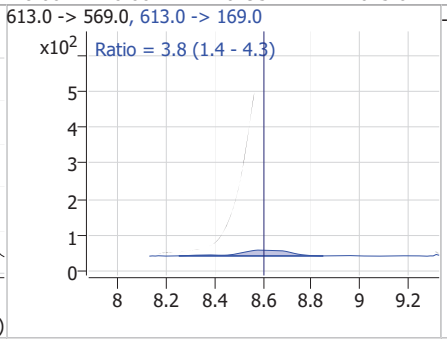
7.7.40

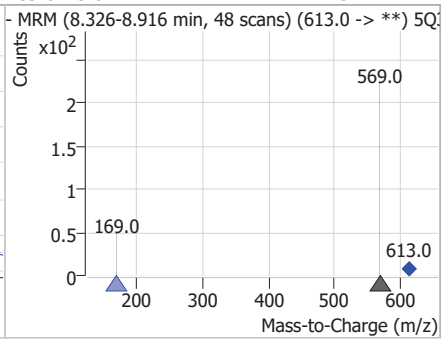
7

Perfluorinated Compounds by LC/MS/MS

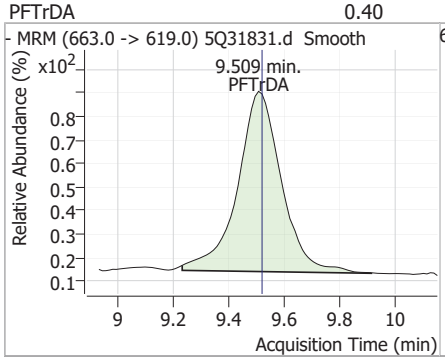
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.45	8.60	0.00	6195	613.0 -> 169.0	3.8	1.4	4.3

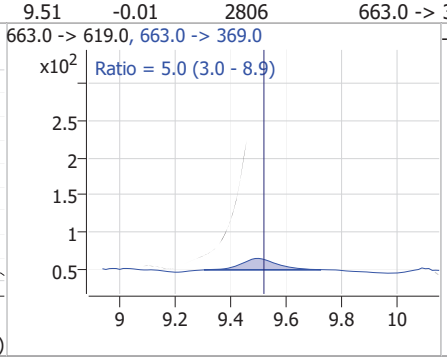


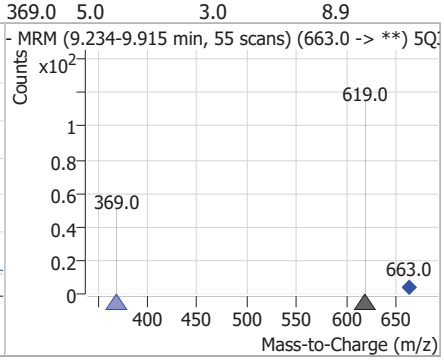




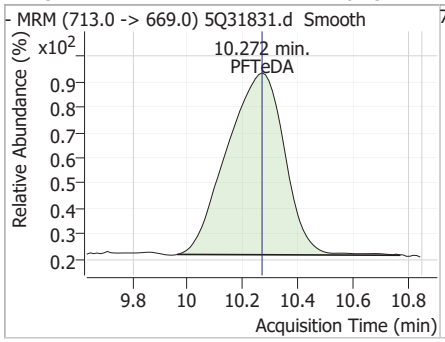
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.40	9.51	-0.01	2806	663.0 -> 369.0	5.0	3.0	8.9

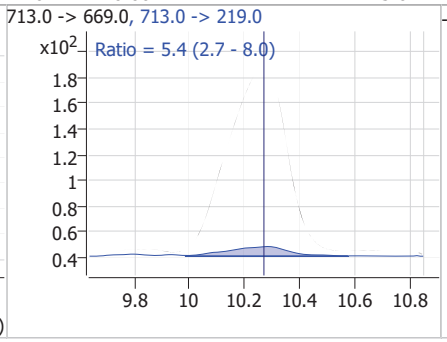


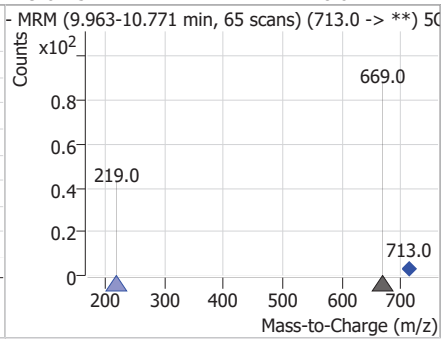




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.45	10.27	0.00	2127	713.0 -> 219.0	5.4	2.7	8.0







Manual Integration Approval Summary

Sample Number:	S5Q523-CC523	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31831.D	**Analyst approved:**	04/18/25 07:39 (b) (6)
Injection Time:	04/17/25 15:39	**Supervisor approved:**	04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
HFPO-DA (GenX)	13252-13-6		5.04	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.88	Split peak
MeFOSAA	2355-31-9		7.25	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/18/25 11:00

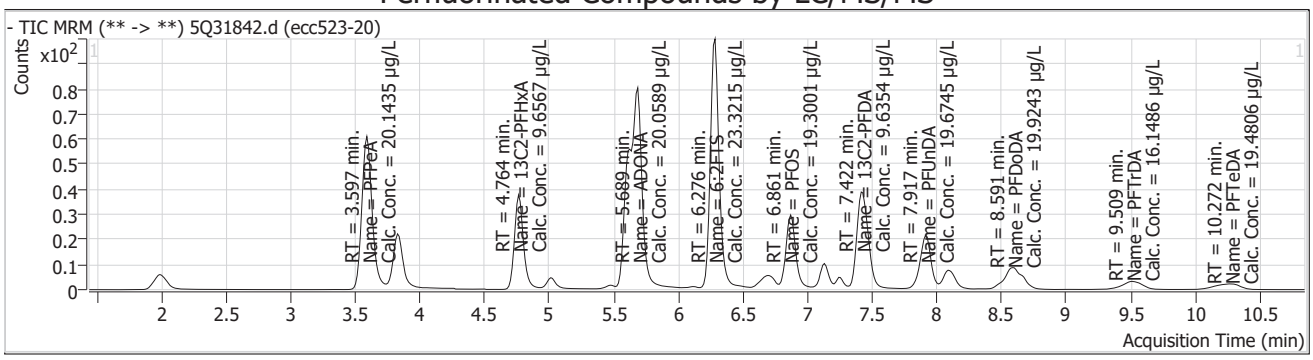
Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31842.d
Operator : (b) (6)
Acq. Method : 537.m
Acq. Date-Time : 4/17/2025 6:40:25 PM
Sample Name : ecc523-20
Vial : P1-A7
DA Method File : 537_041725_S5Q523.quantmethod.xml
Batch Name : s5q523.batch.bin
Sample Information : OP8882,S5Q523,250,,,1,1,water

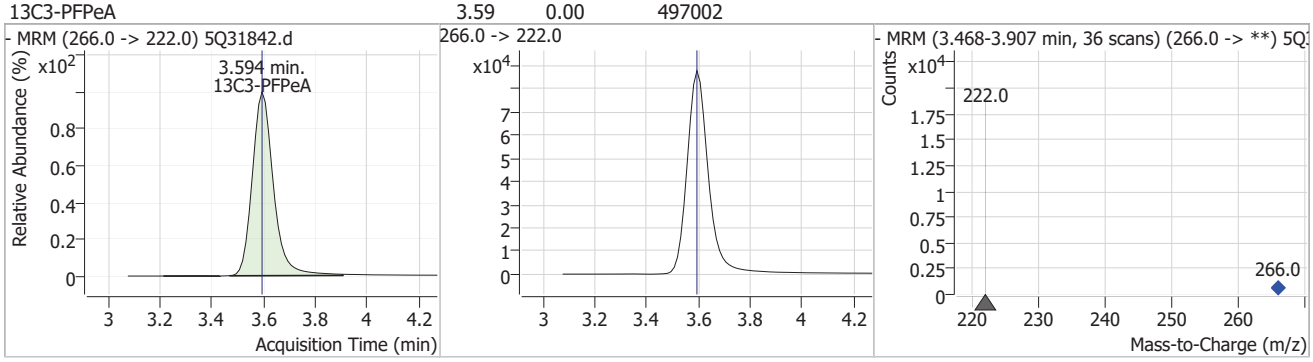
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.275	429.0 -> 409.0	197588	20.00	µg/L		-0.012
13C2-PFOA	6.290	415.0 -> 370.0	404862	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	497002	20.00	µg/L		0.000
13C4-PFOS	6.860	503.0 -> 80.0	97933	20.00	µg/L		0.000
d3-MeFOSAA	7.241	573.0 -> 419.0	33337	40.00	µg/L		-0.012
System Monitoring Compounds							
13C2-PFDA	7.422	515.0 -> 470.0	166947	9.64	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 48.2%			
13C2-PFHxA	4.764	315.0 -> 270.0	247729	9.66	µg/L		-0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 48.3%			
d5-EtFOSAA	7.378	589.0 -> 419.0	12462	19.70	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 49.2%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	32777	18.08	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 45.2%			
Target Compounds							QValue
6:2FTS	6.276	427.0 -> 407.0	230958	23.32	µg/L		98
8:2FTS	7.458	527.0 -> 507.0	183653	21.38	µg/L		100
EtFOSAA	7.391	584.0 -> 419.0	11136	19.96	µg/L	m	94
MeFOSAA	7.254	570.0 -> 419.0	14191	18.88	µg/L		93
PFBS	3.828	299.0 -> 80.0	265650	20.73	µg/L		100
PFDA	7.423	513.0 -> 469.0	296238	20.47	µg/L		99
PFDoDA	8.591	613.0 -> 569.0	285135	19.92	µg/L		100
PFHpA	5.615	363.0 -> 319.0	668358	20.13	µg/L		100
PFHxA	4.765	313.0 -> 269.0	333655	19.11	µg/L		100
PFHxS	5.636	399.0 -> 80.0	163748	20.46	µg/L	m	99
PFNA	6.887	463.0 -> 419.0	275162	21.02	µg/L	m	100
PFOA	6.291	413.0 -> 369.0	391388	20.28	µg/L		99
PFOS	6.861	499.0 -> 80.0	124685	19.30	µg/L	m	100
PFPeA	3.597	263.0 -> 219.0	644765	20.14	µg/L		100
PFTeDA	10.272	713.0 -> 669.0	97867	19.48	µg/L		100
PFTrDA	9.509	663.0 -> 619.0	114462	16.15	µg/L		100
PFUnDA	7.917	563.0 -> 519.0	316212	19.67	µg/L		99
ADONA	5.689	377.0 -> 251.0	861647	20.06	µg/L		99
9Cl-PF3ONS	7.131	531.0 -> 351.0	116332	21.11	µg/L		98
11Cl-PF3OUdS	8.087	631.0 -> 451.0	120637	20.69	µg/L		100
HFPO-DA	5.023	285.0 -> 169.0	31613	19.98	µg/L		99

 # = Qualifier out of range, m = manually integrated, + = Area summed

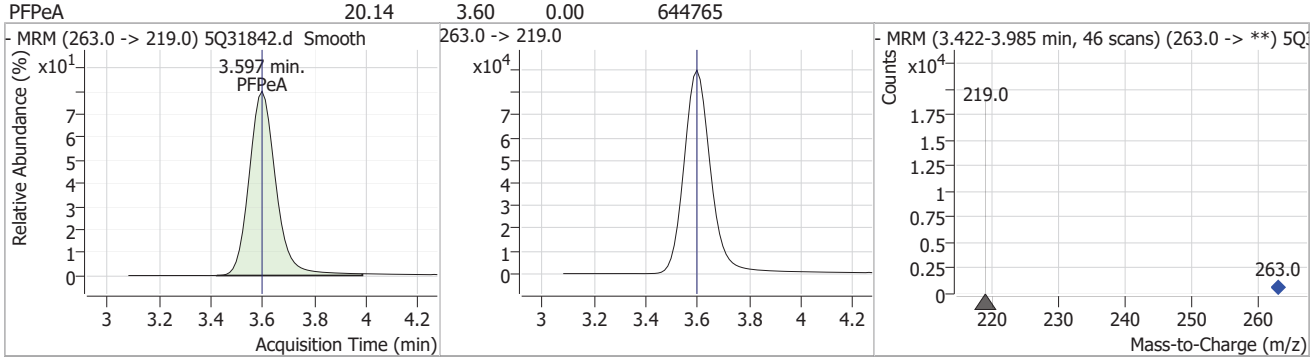
Perfluorinated Compounds by LC/MS/MS



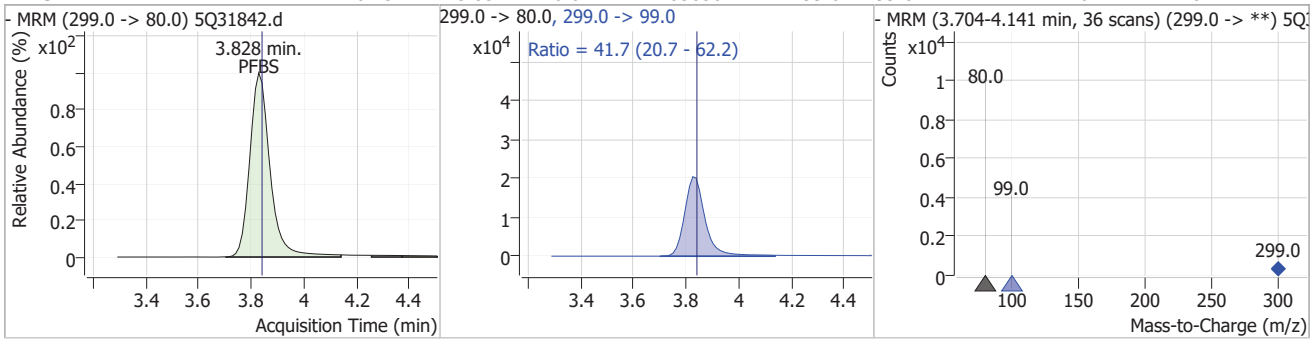
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	497002				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.14	3.60	0.00	644765				

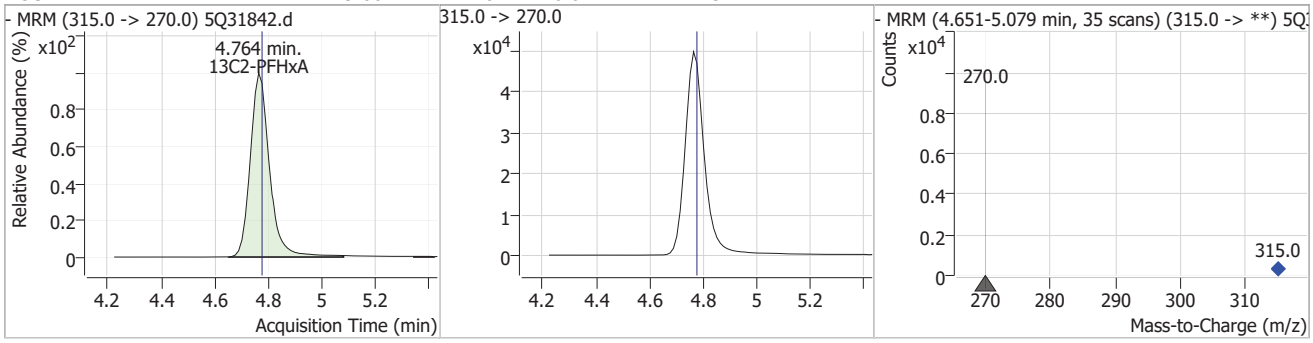


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.73	3.83	-0.01	265650	299.0 -> 99.0	41.7	20.7	62.2

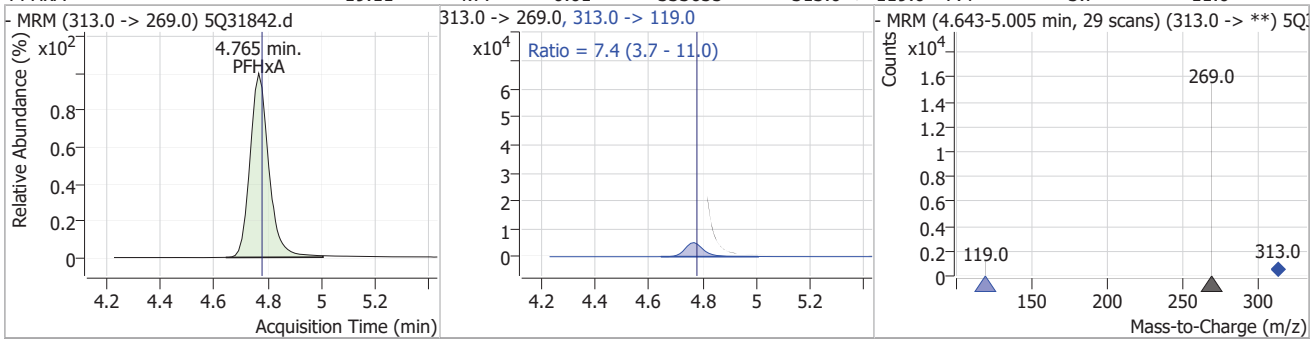


Perfluorinated Compounds by LC/MS/MS

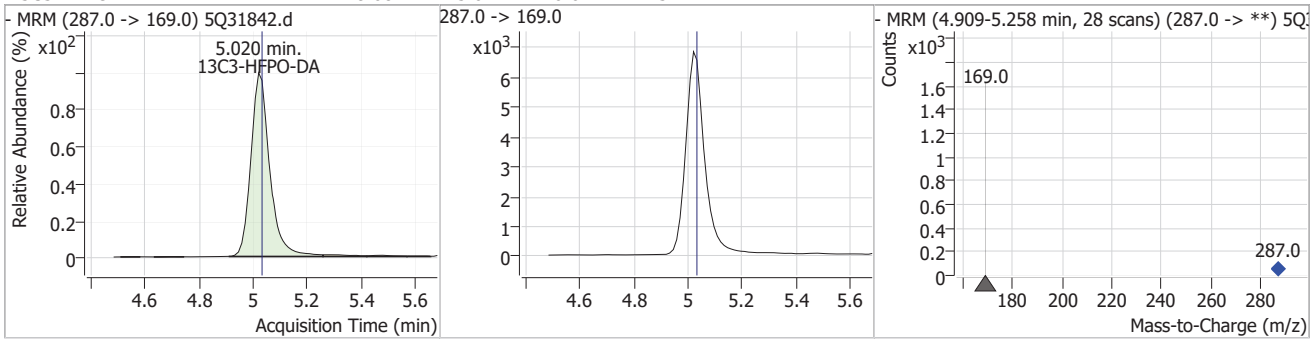
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	9.66	4.76	-0.01	247729				



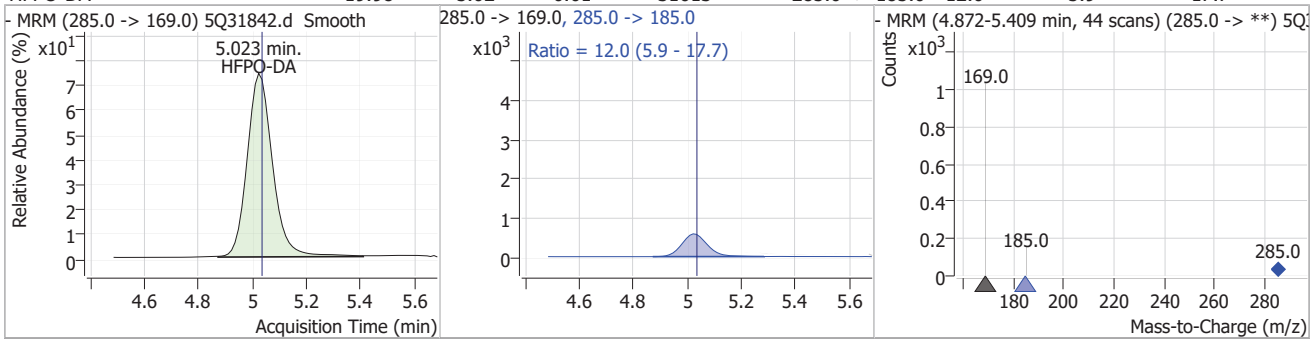
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.11	4.77	-0.01	333655	313.0 -> 119.0	7.4	3.7	11.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	18.08	5.02	-0.01	32777				

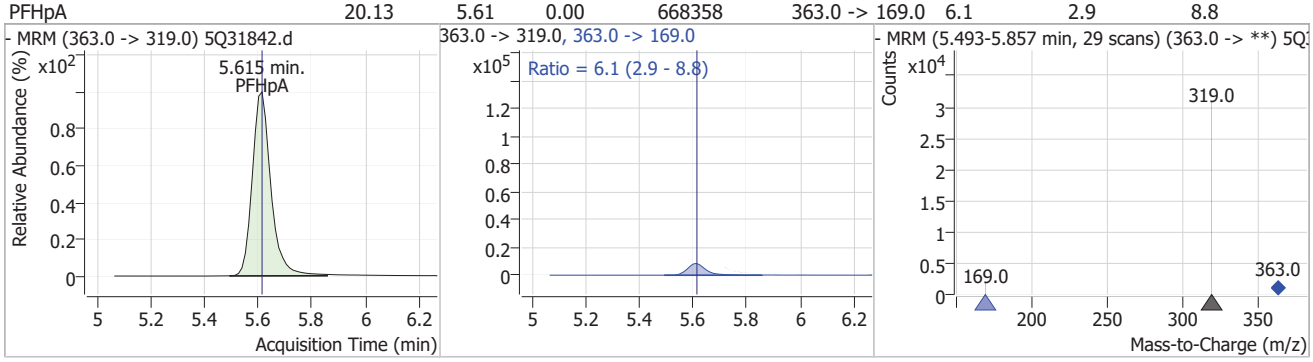


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.98	5.02	-0.01	31613	285.0 -> 185.0	12.0	5.9	17.7

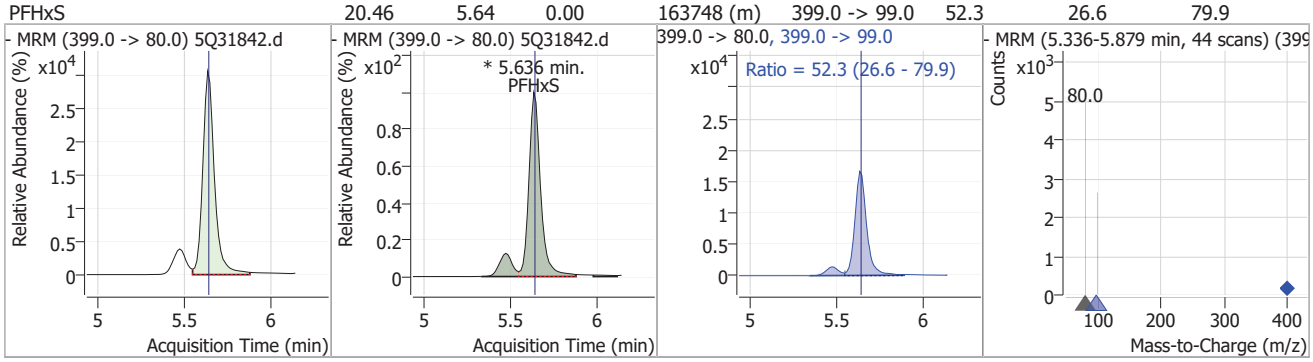


Perfluorinated Compounds by LC/MS/MS

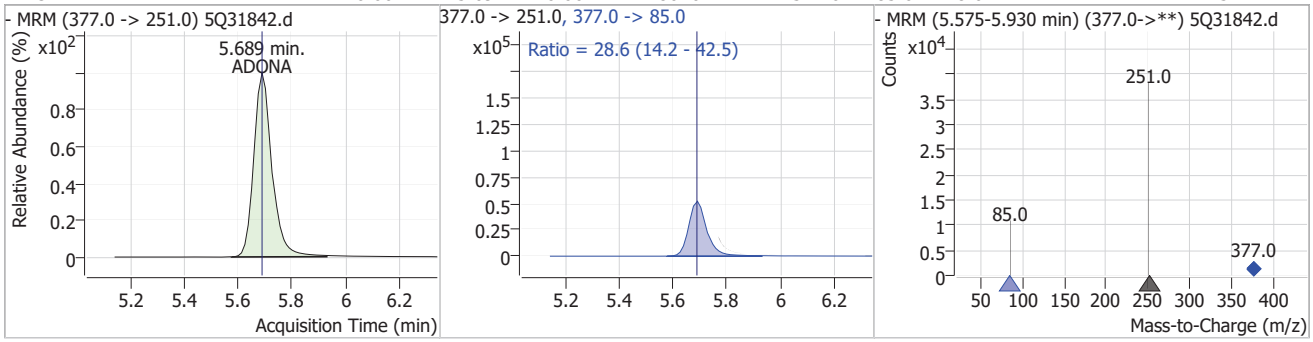
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.13	5.61	0.00	668358	363.0 -> 169.0	6.1	2.9	8.8



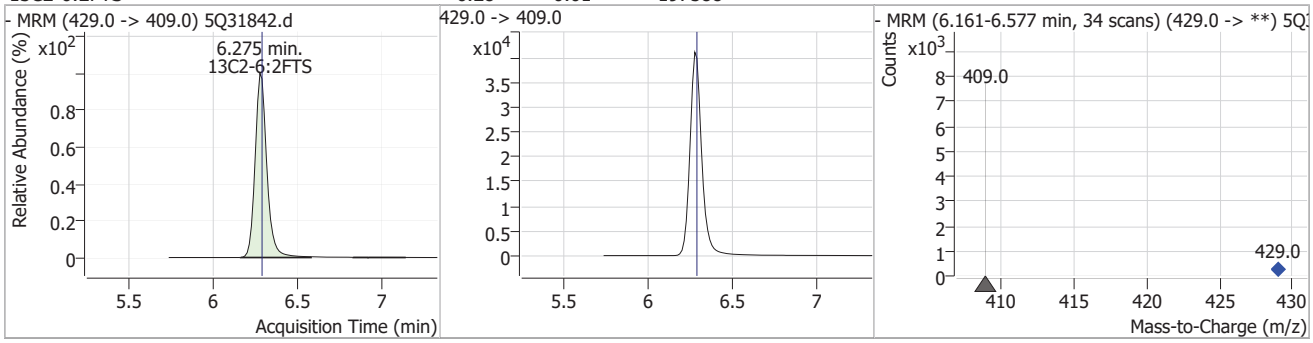
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	20.46	5.64	0.00	163748 (m)	399.0 -> 99.0	52.3	26.6	79.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.06	5.69	0.00	861647	377.0 -> 85.0	28.6	14.2	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	-0.01	197588				



7.7.41

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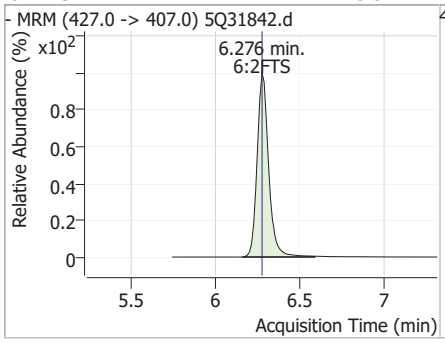
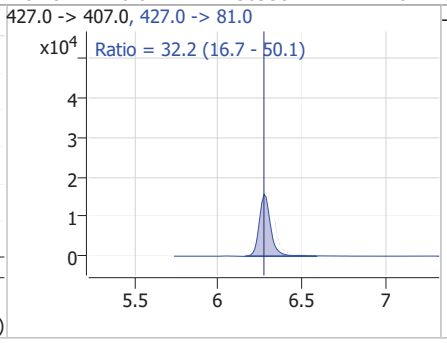
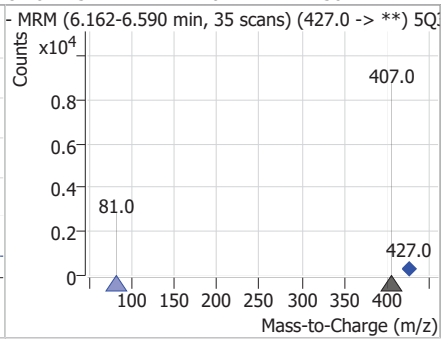
Perfluorinated Compounds by LC/MS/MS

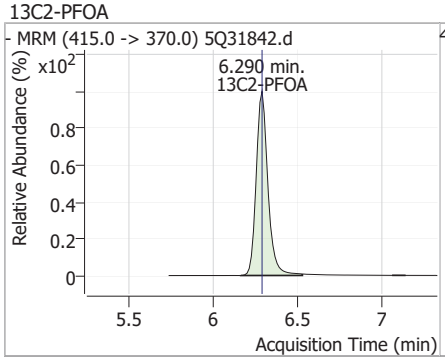
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	23.32	6.28	-0.01	230958	427.0 -> 81.0	32.2	16.7	50.1

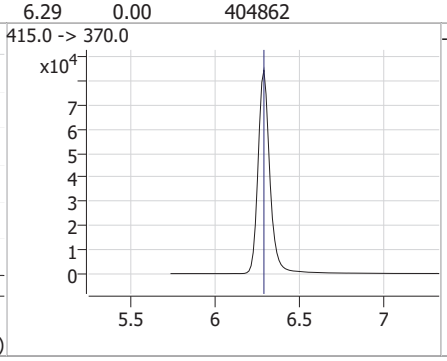


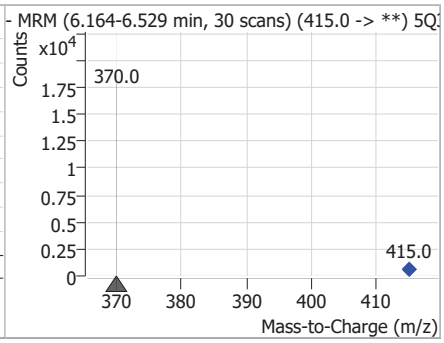




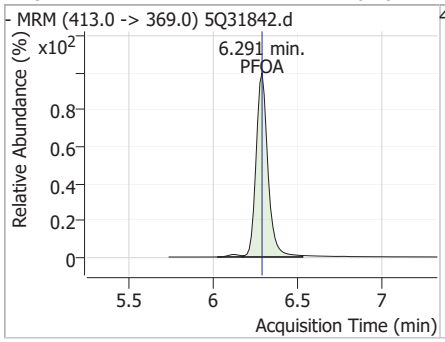
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	404862				

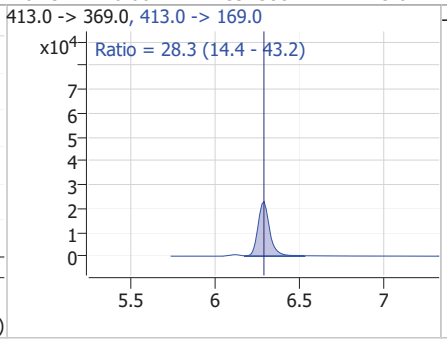


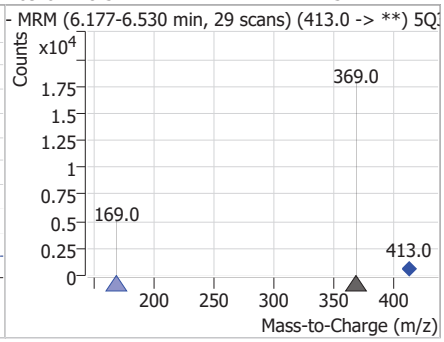




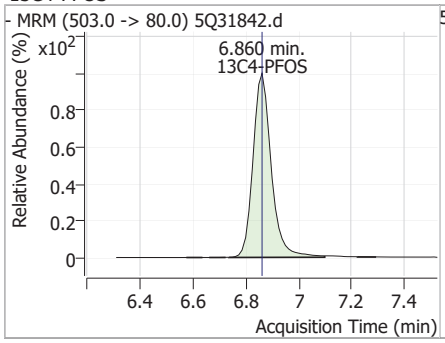
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.28	6.29	0.00	391388	413.0 -> 169.0	28.3	14.4	43.2

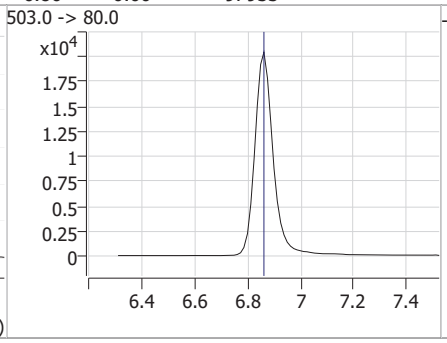


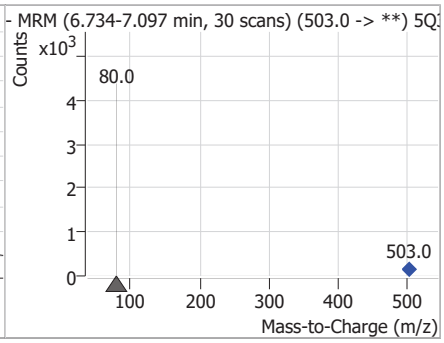




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	97933				







7.7.41

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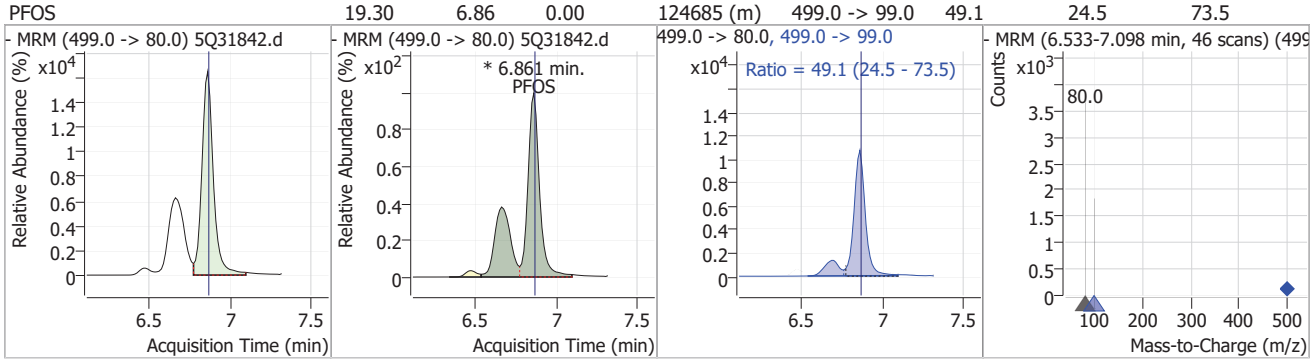
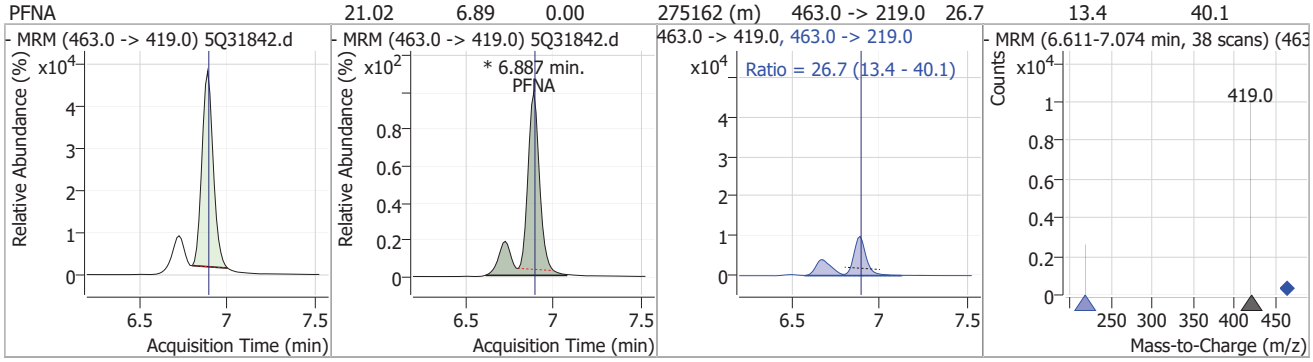
Perfluorinated Compounds by LC/MS/MS

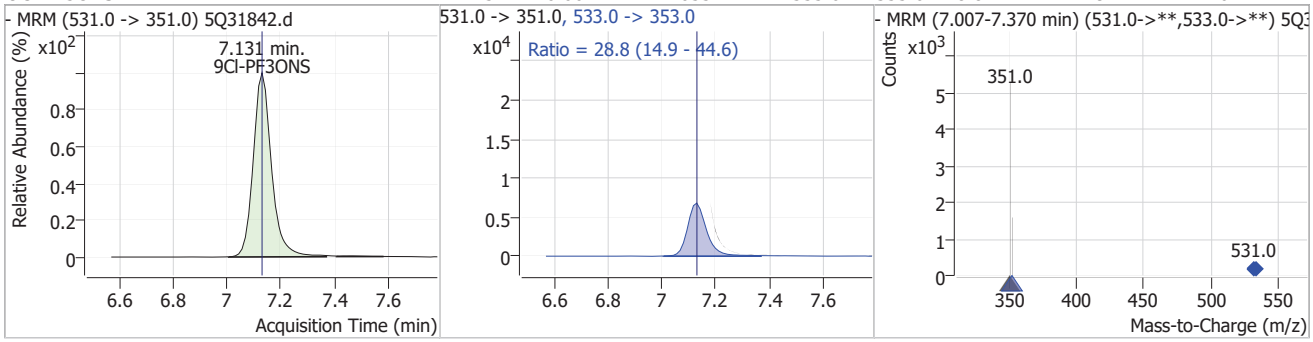
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.30	6.86	0.00	124685 (m)	499.0 -> 99.0	49.1	24.5	73.5



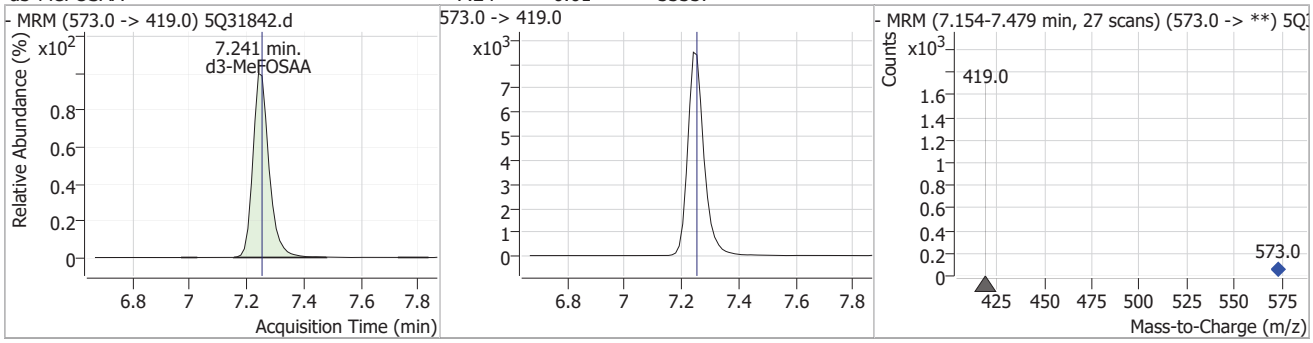
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	21.02	6.89	0.00	275162 (m)	463.0 -> 219.0	26.7	13.4	40.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	21.11	7.13	0.00	116332	533.0 -> 353.0	28.8	14.9	44.6

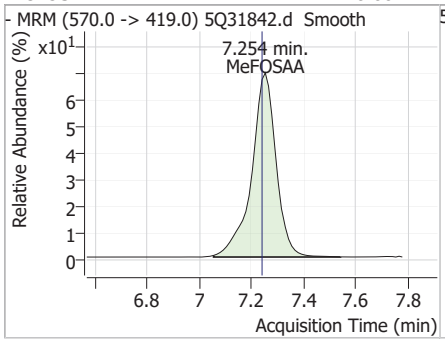


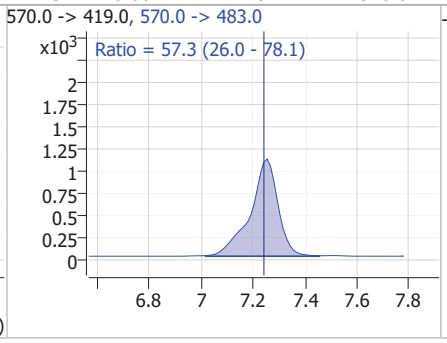
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	-0.01	33337				

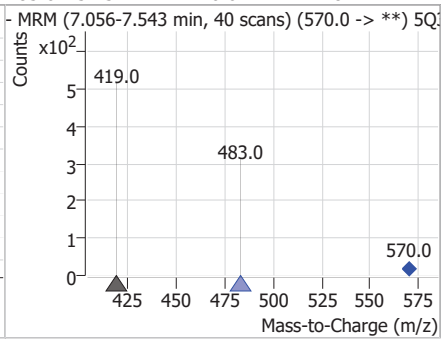


Perfluorinated Compounds by LC/MS/MS

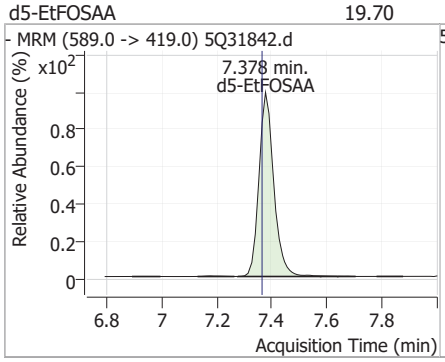
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	18.88	7.25	0.00	14191	570.0 -> 483.0	57.3	26.0	78.1

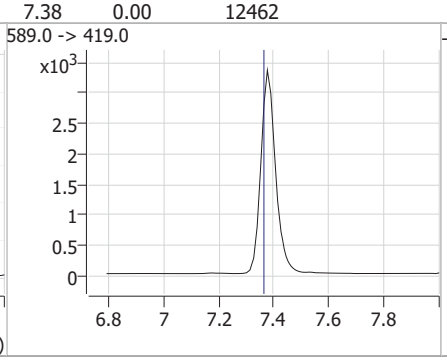


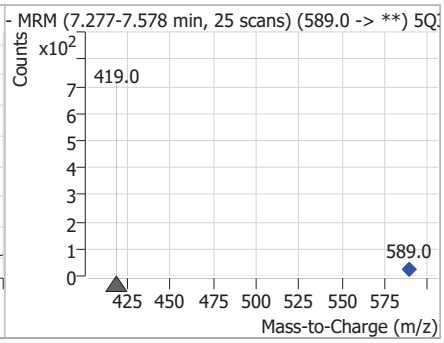




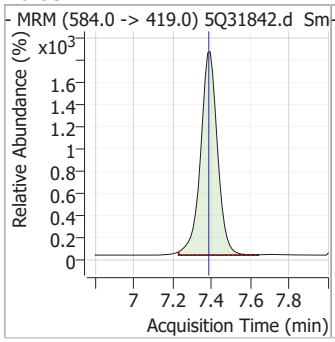
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	19.70	7.38	0.00	12462				

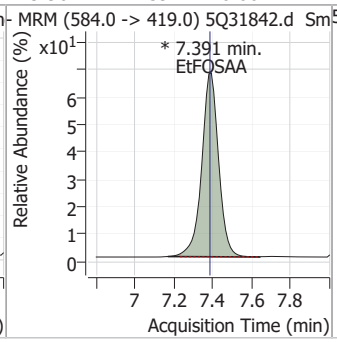


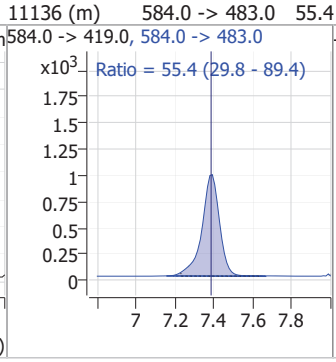


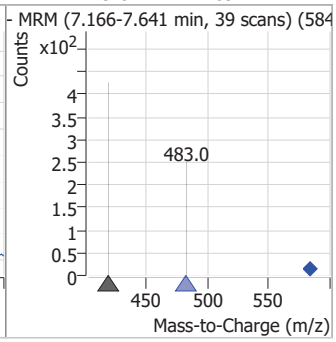


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.96	7.39	0.00	11136 (m)	584.0 -> 483.0	55.4	29.8	89.4

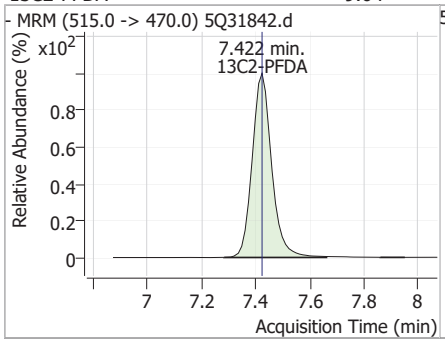


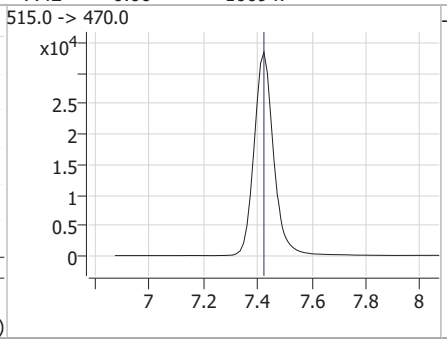


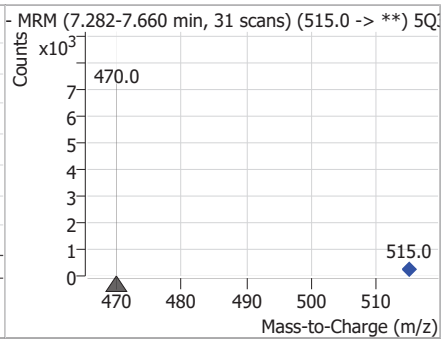




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	9.64	7.42	0.00	166947				

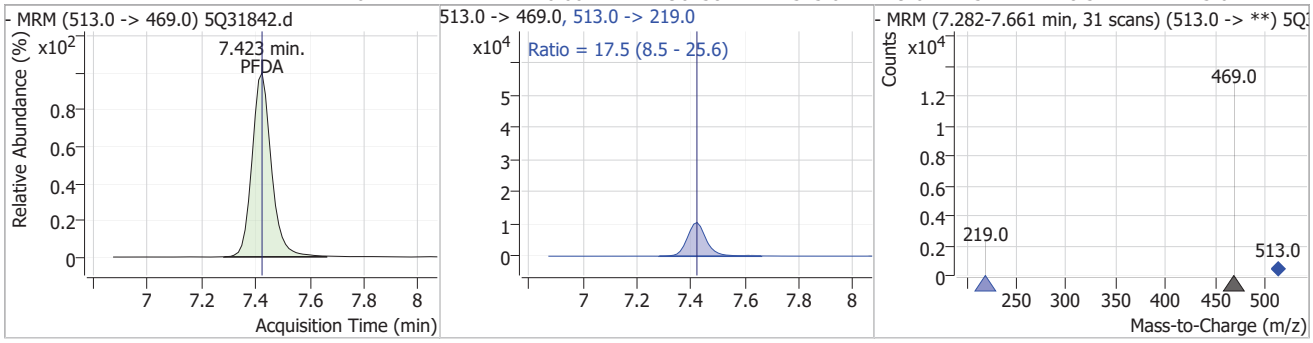




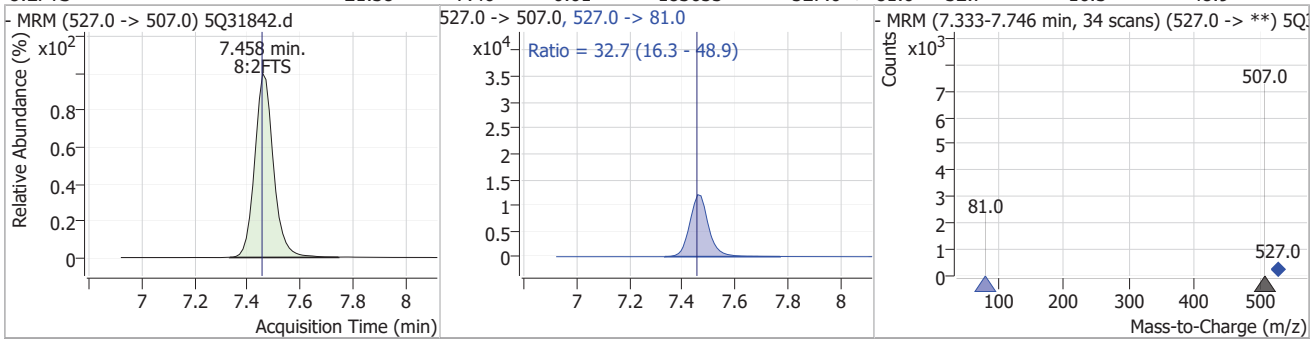


Perfluorinated Compounds by LC/MS/MS

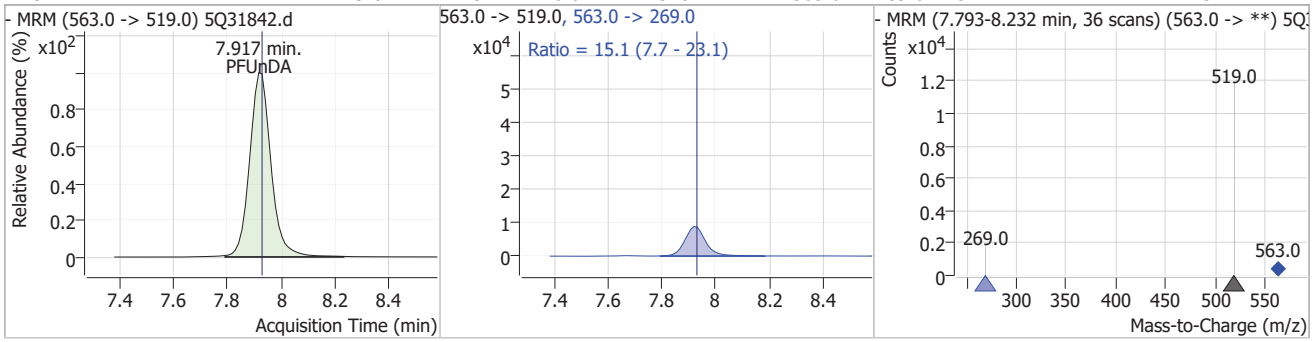
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.47	7.42	0.00	296238	513.0 -> 219.0	17.5	8.5	25.6



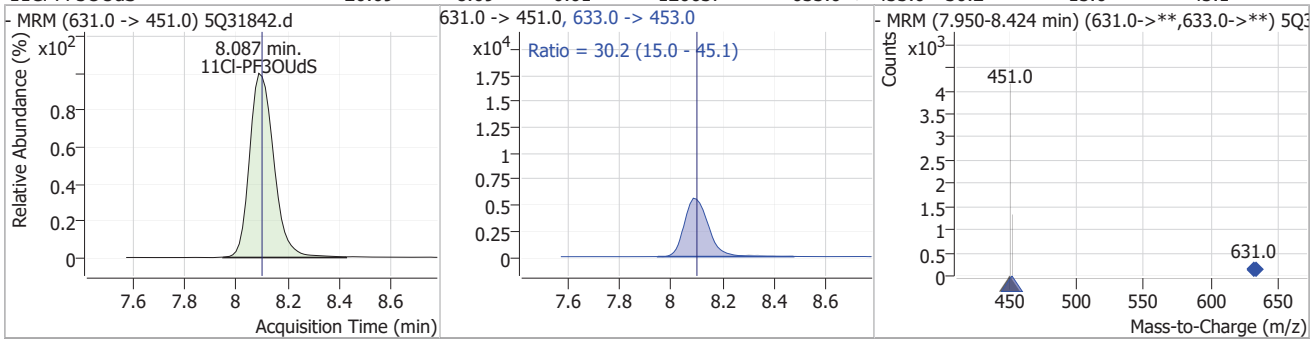
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.38	7.46	-0.01	183653	527.0 -> 81.0	32.7	16.3	48.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.67	7.92	-0.01	316212	563.0 -> 269.0	15.1	7.7	23.1

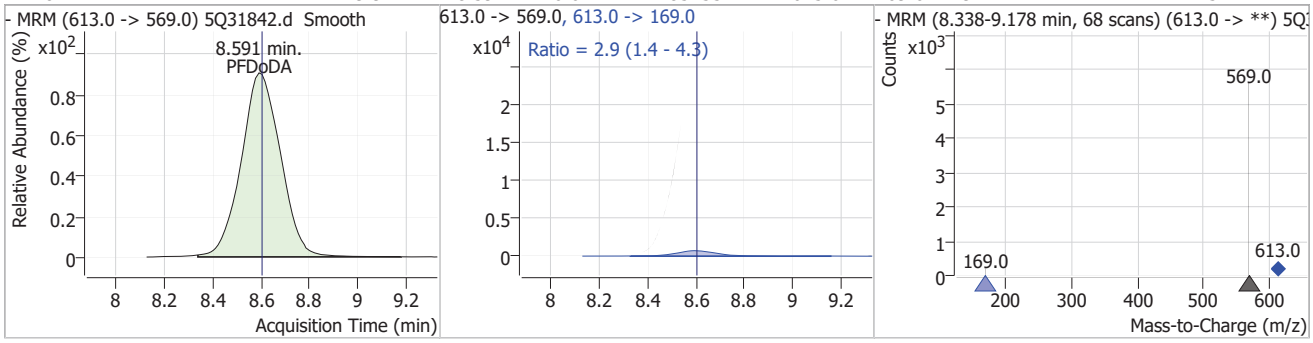


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	20.69	8.09	-0.01	120637	633.0 -> 453.0	30.2	15.0	45.1

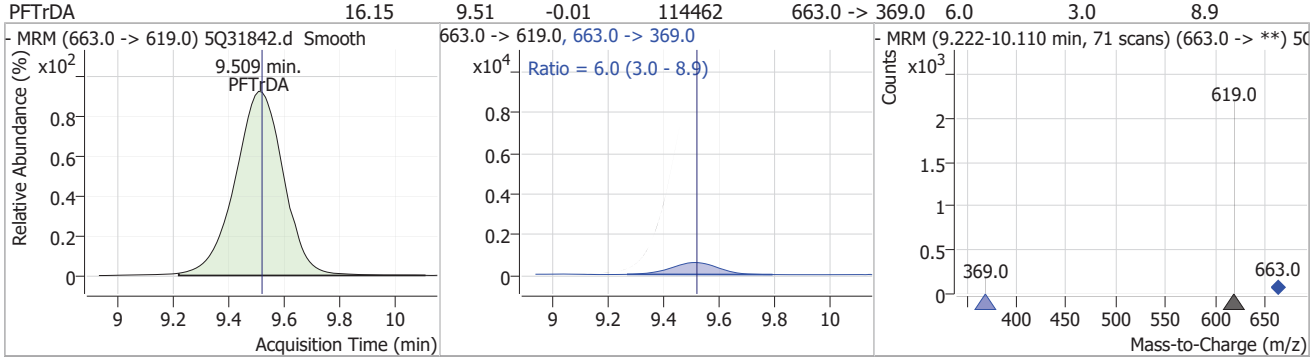


Perfluorinated Compounds by LC/MS/MS

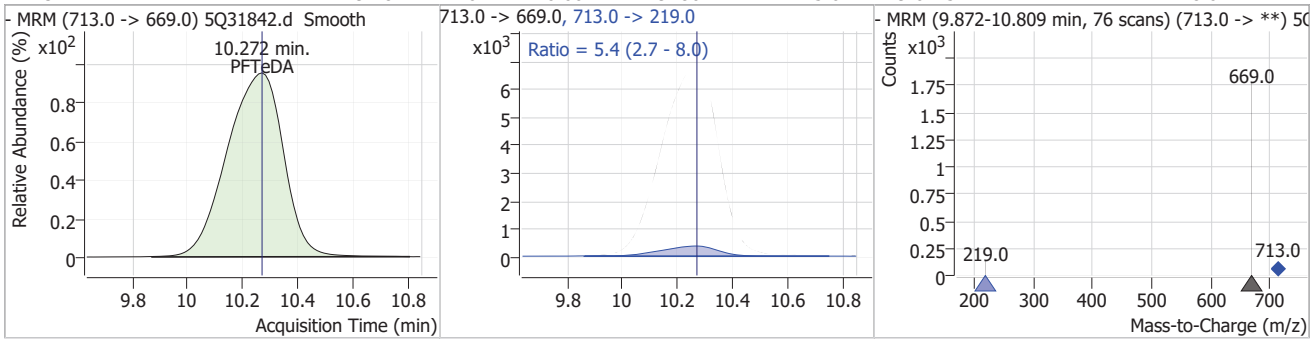
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.92	8.59	-0.01	285135	613.0 -> 169.0	2.9	1.4	4.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	16.15	9.51	-0.01	114462	663.0 -> 369.0	6.0	3.0	8.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.48	10.27	0.00	97867	713.0 -> 219.0	5.4	2.7	8.0



Manual Integration Approval Summary

Sample Number: S5Q523-ECC523
Lab FileID: 5Q31842.D
Injection Time: 04/17/25 18:40
Method: EPA 537.1 REV 2.0
Analyst approved: 04/18/25 07:39 (b) (6)
Supervisor approved: 04/18/25 11:00 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

QQQ Check Tune Report

Agilent | Trusted Answers

Instrument Name	LCMS5Q
MS Model	G6470B
MS Instrument Serial	SG2221G211
Software_Firmware Version	10.1.67, FW: A.00.08.112
Tune Date & Time	14 April 2025 09:23:21
File Path	D:\MassHunter\Tune\QQQ\G6470B\atunes.TUNE.XML
Ion Source	AJS ESI
Ionization Mode	AJS ESI
Tuned Resolution	All
Vacuum Pressure	1.29E+0 [R] (Torr); 3.37E-5 [H] (Torr)

Source Parameters

Parameter	Negative
Gas Temp (°C)	300
Gas Flow (l/min)	8
Nebulizer (psi)	15
Capillary (V)	3500
Nozzle Voltage (V)	1500
Sheath Gas Temp (°C)	250
Sheath Gas Flow (l/min)	7

QQQ Check Tune Report

Agilent | Trusted Answers

Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.99	0.00	Pass	0.70	0.68	-0.02	Pass	63164
302.00	302.07	0.07	Pass	0.70	0.71	0.01	Pass	46772
601.98	602.03	0.05	Pass	0.70	0.70	0.00	Pass	106524
1033.99	1034.06	0.07	Pass	0.70	0.68	-0.02	Pass	168600
1633.95	1634.05	0.10	Pass	0.70	0.64	-0.06	Pass	576560
2233.91	2234.00	0.09	Pass	0.70	0.58	-0.12	Pass	230330

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.98	-0.02	Pass	0.70	0.66	-0.04	Pass	14469
112.99	112.99	0.00	Pass	0.70	0.70	0.00	Pass	45487
302.00	302.00	0.00	Pass	0.70	0.70	0.00	Pass	38497
601.98	601.92	-0.06	Pass	0.70	0.74	0.04	Pass	82452
1033.99	1033.95	-0.04	Pass	0.70	0.74	0.04	Pass	150073
1633.95	1633.90	-0.05	Pass	0.70	0.75	0.05	Pass	482147
2233.91	2233.91	0.00	Pass	0.70	0.73	0.03	Pass	204643

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	113.00	0.01	Pass	1.20	1.28	0.08	Pass	76882
302.00	302.02	0.02	Pass	1.20	1.42	0.22	Pass	60436
601.98	602.02	0.04	Pass	1.20	1.51	0.31	Pass	169034
1033.99	1034.04	0.05	Pass	1.20	1.49	0.29	Pass	303637
1633.95	1634.01	0.06	Pass	1.20	1.40	0.20	Pass	895413
2233.91	2233.93	0.02	Pass	1.20	1.09	-0.11	Pass	499569

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.94	-0.06	Pass	1.20	1.28	0.08	Pass	17547
112.99	112.98	-0.01	Pass	1.20	1.24	0.04	Pass	71681
302.00	301.96	-0.04	Pass	1.20	1.15	-0.05	Pass	46328
601.98	601.90	-0.08	Pass	1.20	1.08	-0.12	Pass	100357
1033.99	1033.91	-0.08	Pass	1.20	1.14	-0.06	Pass	212087
1633.95	1633.85	-0.10	Pass	1.20	1.30	0.10	Pass	824024
2233.91	2233.95	0.04	Pass	1.20	1.35	0.15	Pass	396130

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.98	-0.01	Pass	2.50	2.47	-0.03	Pass	96749
302.00	302.03	0.03	Pass	2.50	2.71	0.21	Pass	70573
601.98	602.02	0.04	Pass	2.50	2.86	0.36	Pass	189021
1033.99	1034.01	0.02	Pass	2.50	2.93	0.43	Pass	591197
1633.95	1633.96	0.01	Pass	2.50	2.77	0.27	Pass	2441107
2233.91	2233.80	-0.11	Pass	2.50	2.89	0.39	Pass	1642805

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.95	-0.05	Pass	2.50	2.40	-0.10	Pass	22938
112.99	112.98	-0.01	Pass	2.50	2.44	-0.06	Pass	88146
302.00	301.97	-0.03	Pass	2.50	2.29	-0.21	Pass	64094
601.98	601.92	-0.06	Pass	2.50	2.30	-0.20	Pass	163732
1033.99	1033.91	-0.08	Pass	2.50	2.26	-0.24	Pass	434415
1633.95	1633.91	-0.04	Pass	2.50	2.40	-0.10	Pass	1901064
2233.91	2233.85	-0.06	Pass	2.50	2.47	-0.03	Pass	1169263

Cal Report: 5Q31865.D

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/21/25 10:51

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31865.d
Operator : (b) (6)
Acq. Method : 537_5Q.m
Acq. Date-Time : 4/18/2025 1:55:35 PM
Sample Name : ic524-0.5
Vial : P1-A2
DA Method File : 537_041825_S5Q524.quantmethod.xml
Batch Name : s5q524.batch.bin
Sample Information : OP8882,S5Q524,250,,,1,1,water

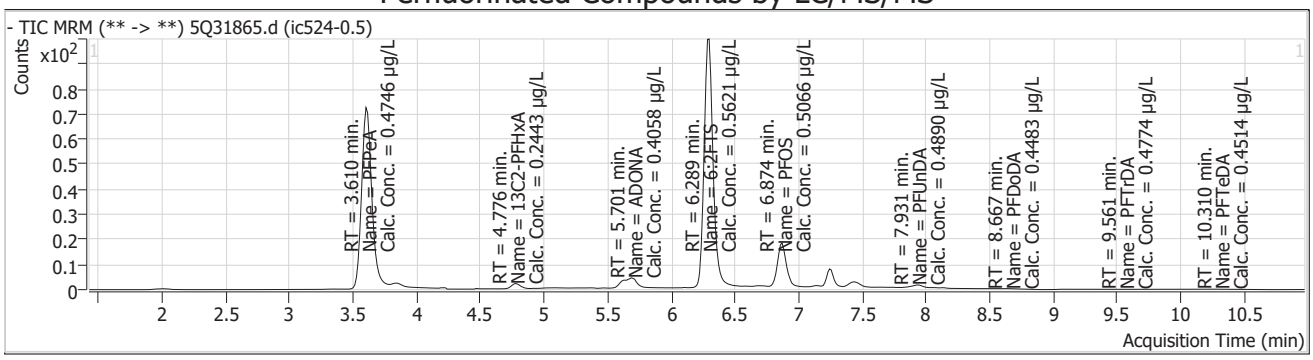
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.288	429.0 -> 409.0	127844	20.00	µg/L		0.012
13C2-PFOA	6.303	415.0 -> 370.0	275020	20.00	µg/L		0.013
13C3-PFPeA	3.607	266.0 -> 222.0	338020	20.00	µg/L		0.012
13C4-PFOS	6.873	503.0 -> 80.0	66334	20.00	µg/L		0.012
d3-MeFOSAA	7.243	573.0 -> 419.0	23770	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.437	515.0 -> 470.0	2252	0.22	µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 1.1%			
13C2-PFHxA	4.776	315.0 -> 270.0	3910	0.24	µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 1.2%			
d5-EtFOSAA	7.366	589.0 -> 419.0	321	0.74	µg/L		-0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 1.9%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	480	0.44	µg/L	m	0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 1.1%			
Target Compounds							QValue
6:2FTS	6.289	427.0 -> 407.0	3441	0.56	µg/L		97
8:2FTS	7.473	527.0 -> 507.0	2487	0.52	µg/L		89
EtFOSAA	7.393	584.0 -> 419.0	208	0.54	µg/L	m	96
MeFOSAA	7.244	570.0 -> 419.0	245	0.47	µg/L	m	100
PFBS	3.841	299.0 -> 80.0	4028	0.48	µg/L		97
PFDA	7.437	513.0 -> 469.0	4473	0.47	µg/L		94
PFDoDA	8.667	613.0 -> 569.0	2734	0.45	µg/L		97
PFHpA	5.615	363.0 -> 319.0	9711	0.44	µg/L		99
PFHxA	4.778	313.0 -> 269.0	4903	0.45	µg/L		98
PFHxS	5.648	399.0 -> 80.0	2563	0.47	µg/L	m	98
PFNA	6.900	463.0 -> 419.0	4157	0.44	µg/L	m	95
PFOA	6.304	413.0 -> 369.0	6234	0.49	µg/L		98
PFOS	6.874	499.0 -> 80.0	2076	0.51	µg/L	m	100
PFPeA	3.610	263.0 -> 219.0	9870	0.47	µg/L		100
PFTeDA	10.310	713.0 -> 669.0	1488	0.45	µg/L	#	91
PFTrDA	9.561	663.0 -> 619.0	1687	0.48	µg/L		99
PFUnDA	7.931	563.0 -> 519.0	4647	0.49	µg/L		93
ADONA	5.701	377.0 -> 251.0	11820	0.41	µg/L		94
9Cl-PF3ONS	7.146	531.0 -> 351.0	1938	0.55	µg/L		98
11Cl-PF3OUdS	8.126	631.0 -> 451.0	1601	0.45	µg/L		99
HFPO-DA	5.035	285.0 -> 169.0	655	0.64	µg/L	m	99

 # = Qualifier out of range, m = manually integrated, + = Area summed

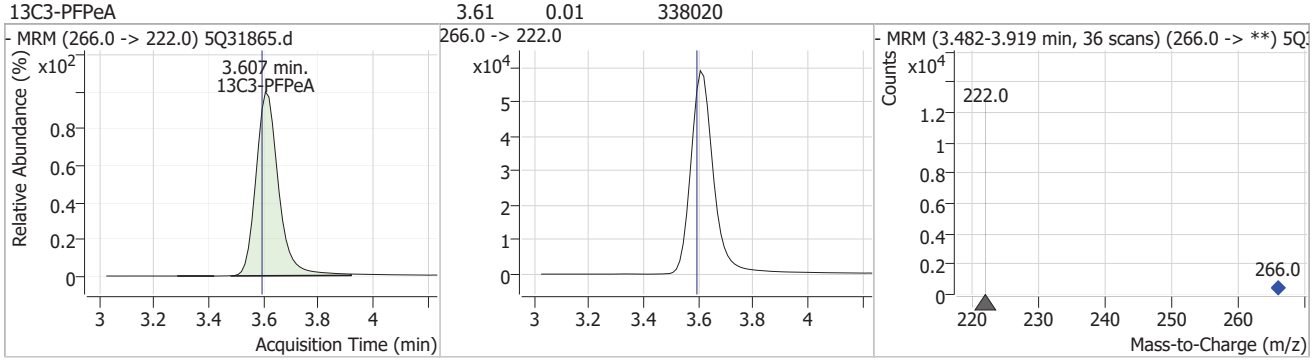
7.7.43

7

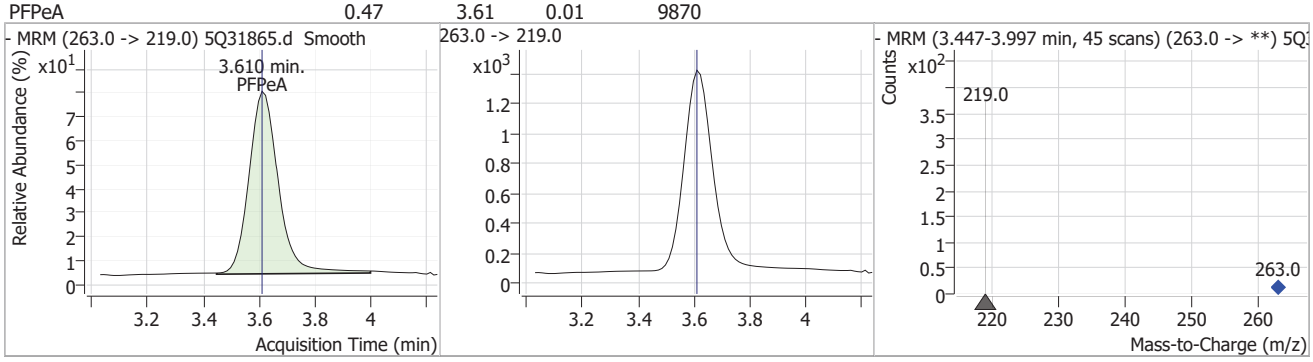
Perfluorinated Compounds by LC/MS/MS



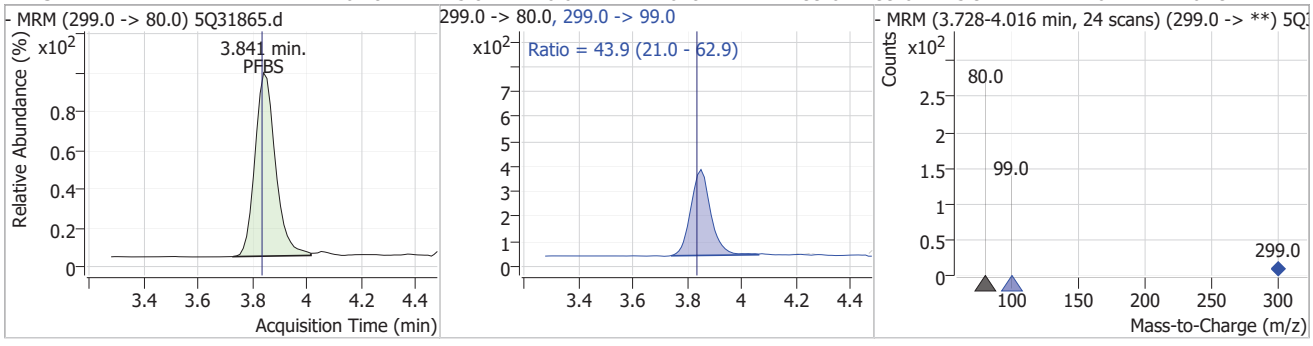
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.01	338020				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.47	3.61	0.01	9870				

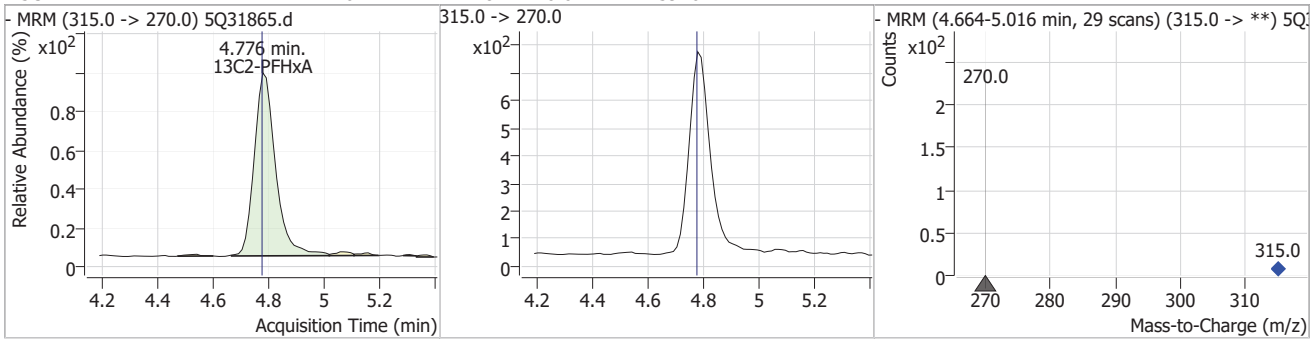


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.48	3.84	0.01	4028	299.0 -> 99.0	43.9	21.0	62.9

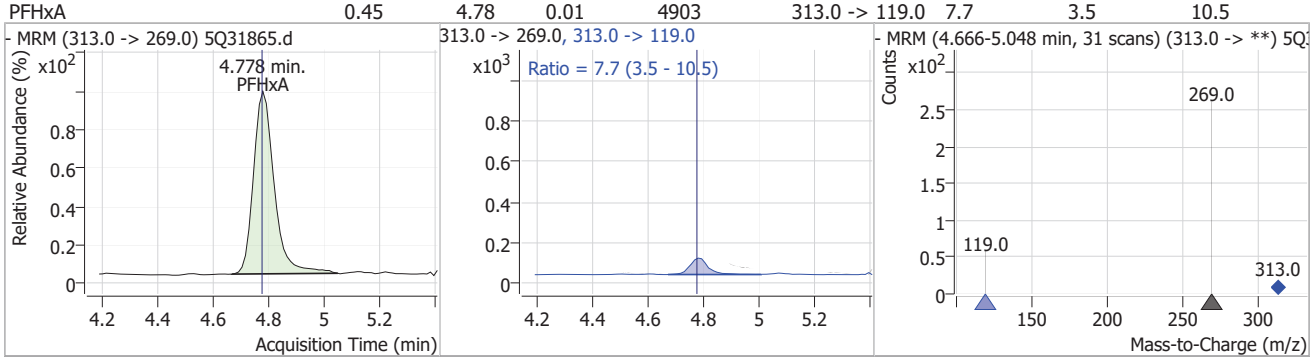


Perfluorinated Compounds by LC/MS/MS

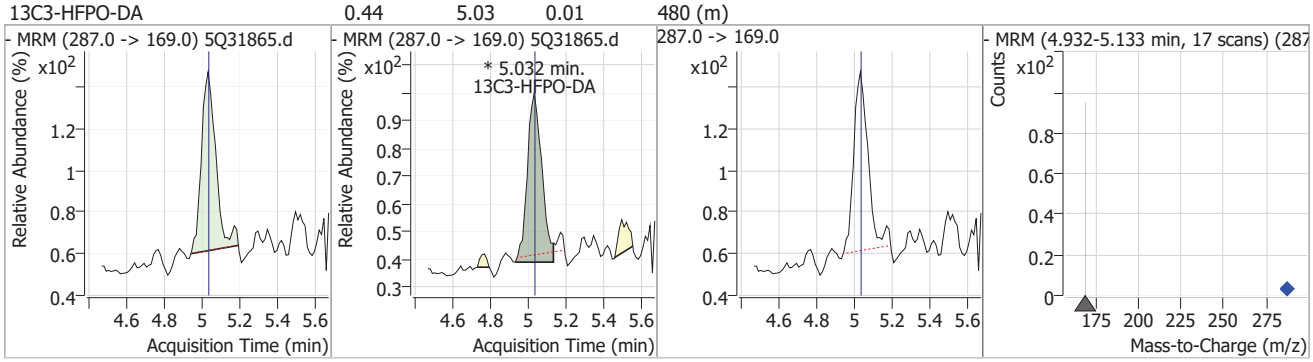
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.24	4.78	0.01	3910				



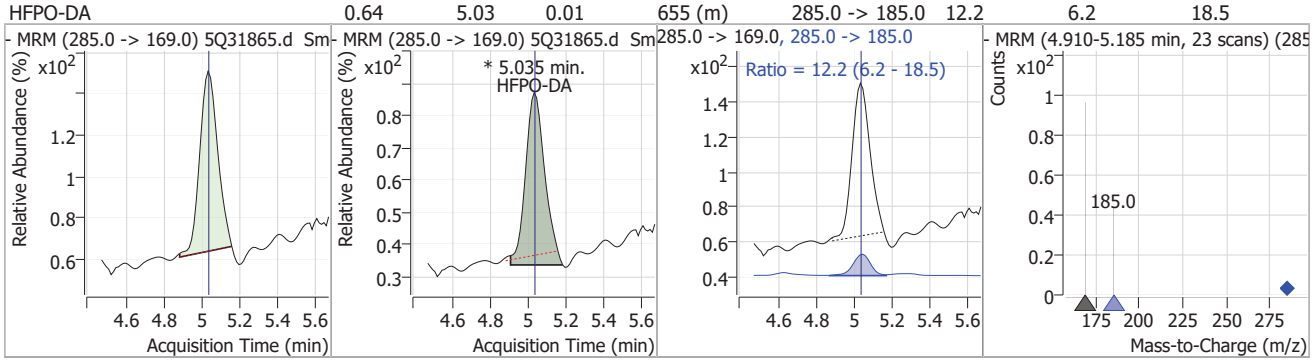
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.45	4.78	0.01	4903	313.0 -> 119.0	7.7	3.5	10.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.44	5.03	0.01	480 (m)				

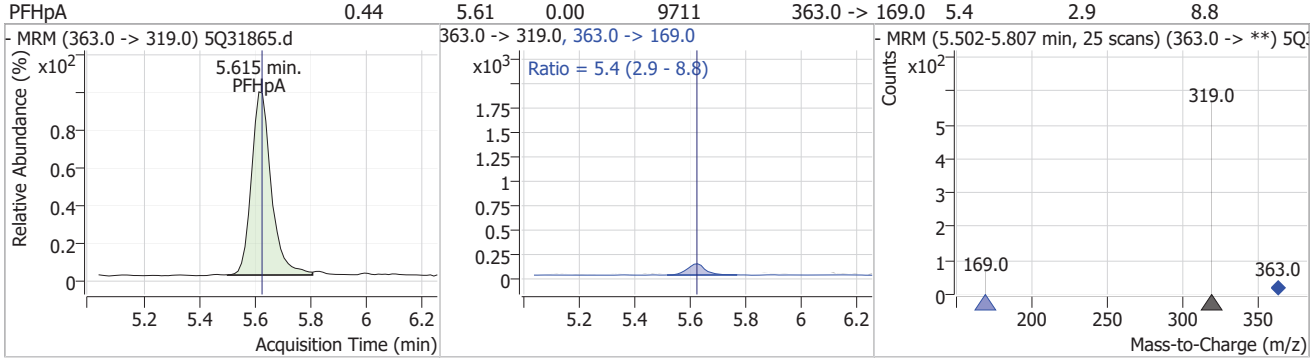


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.64	5.03	0.01	655 (m)	285.0 -> 185.0	12.2	6.2	18.5

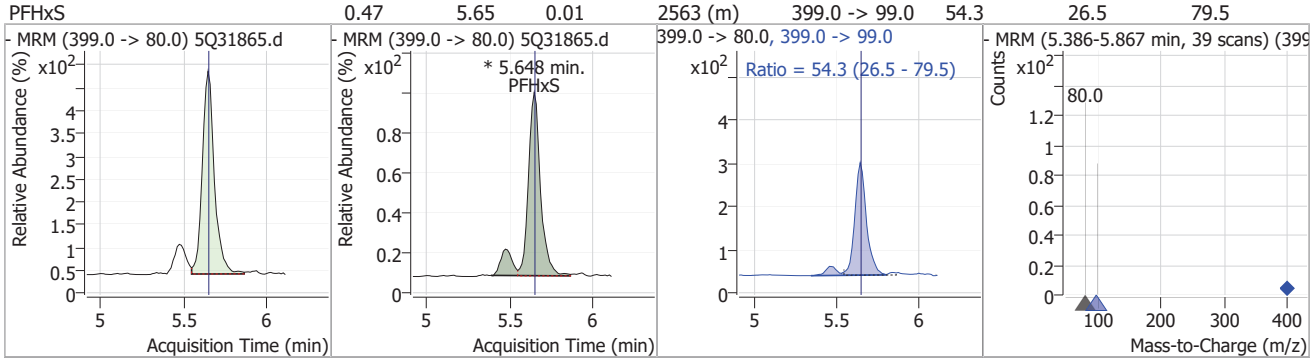


Perfluorinated Compounds by LC/MS/MS

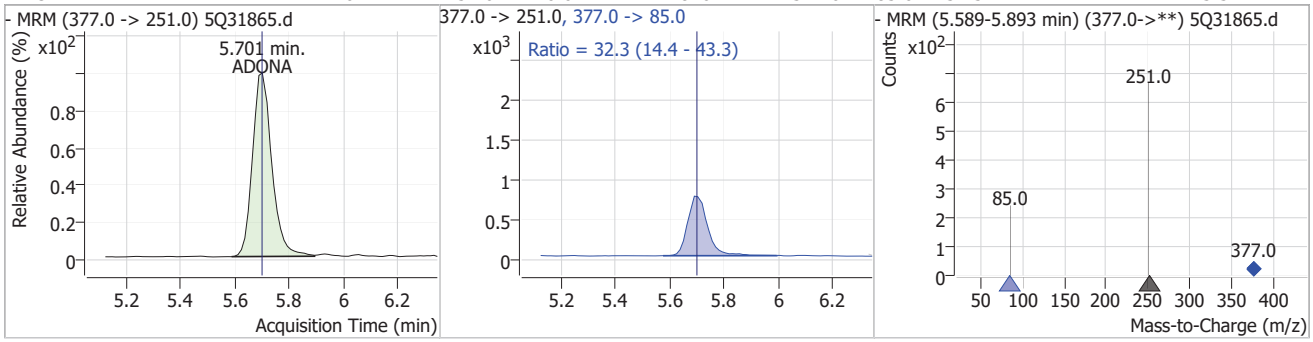
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.44	5.61	0.00	9711	363.0 -> 169.0	5.4	2.9	8.8



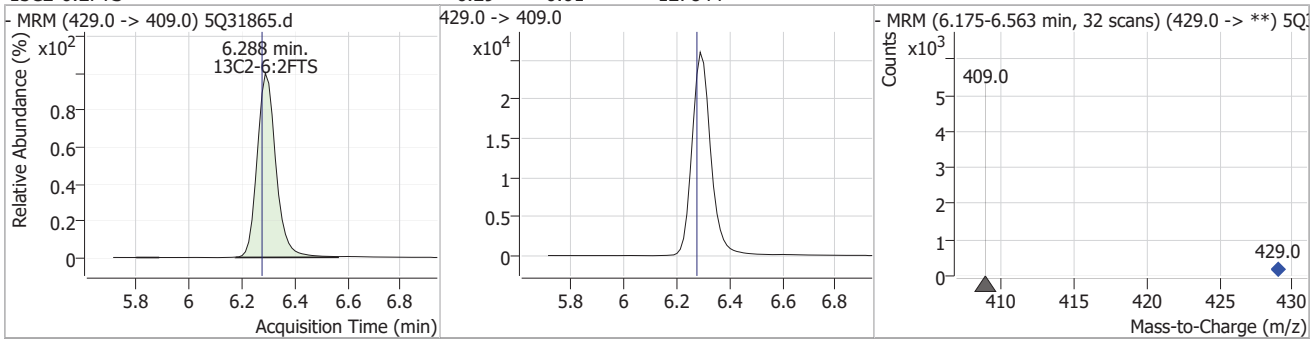
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.47	5.65	0.01	2563 (m)	399.0 -> 99.0	54.3	26.5	79.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.41	5.70	0.01	11820	377.0 -> 85.0	32.3	14.4	43.3

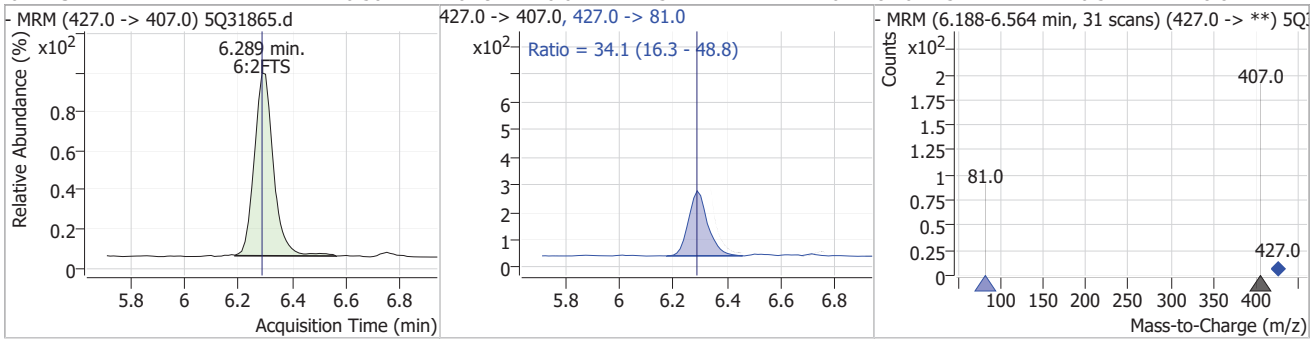


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.01	127844				

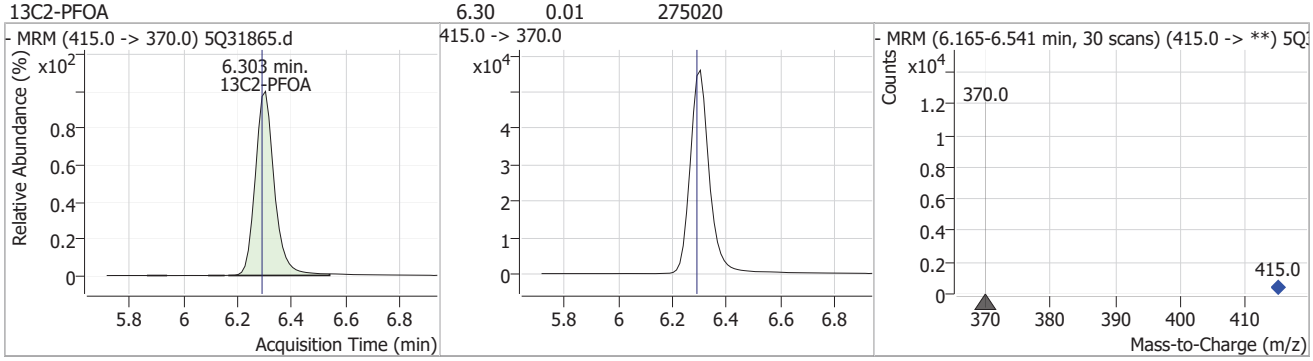


Perfluorinated Compounds by LC/MS/MS

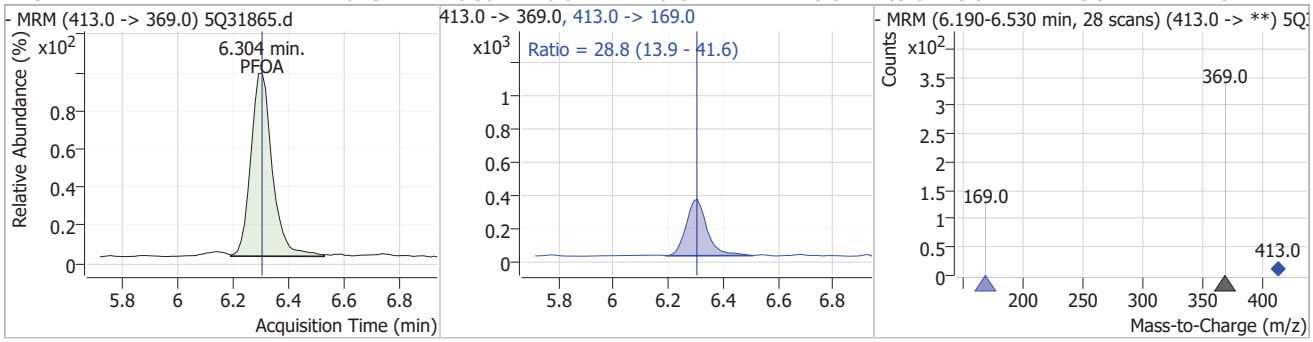
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.56	6.29	0.01	3441	427.0 -> 81.0	34.1	16.3	48.8



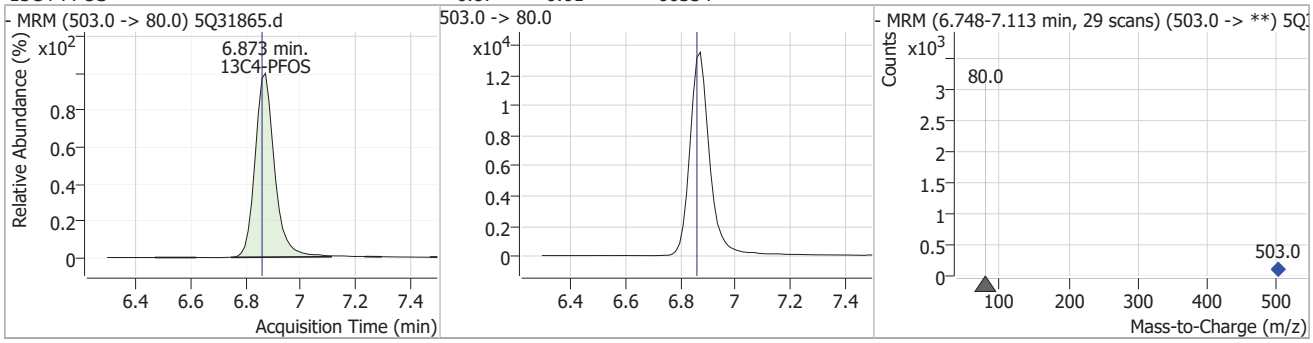
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.30	0.01	275020				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.49	6.30	0.01	6234	413.0 -> 169.0	28.8	13.9	41.6

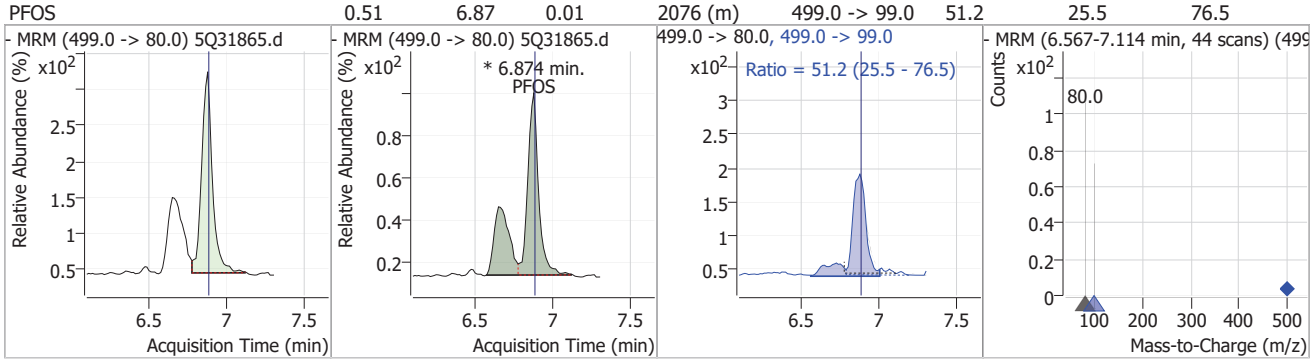


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.87	0.01	66334				

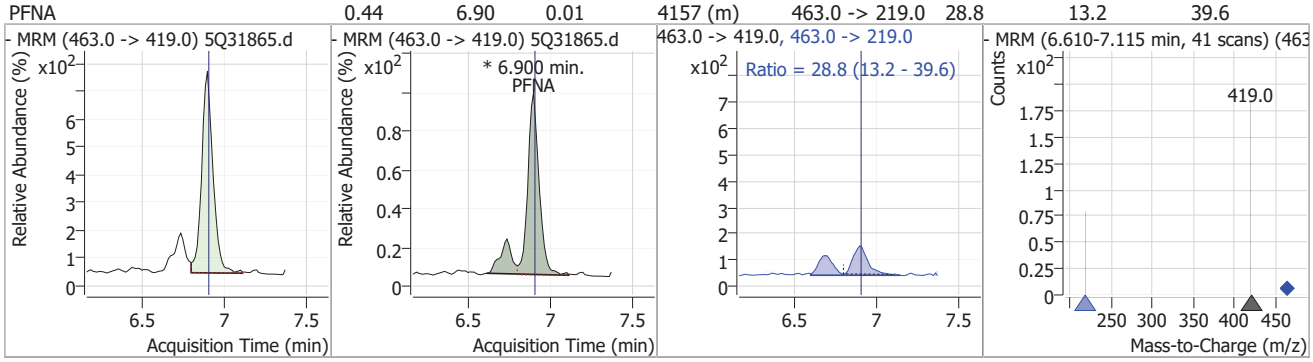


Perfluorinated Compounds by LC/MS/MS

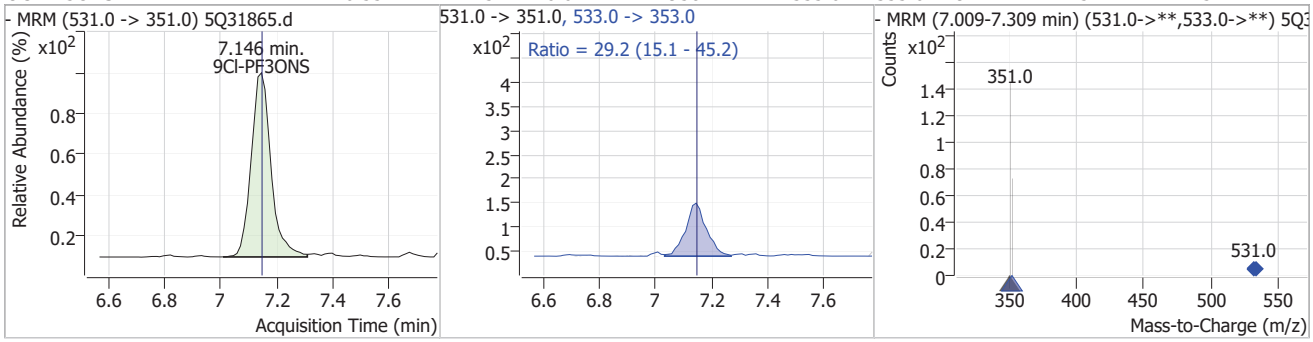
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.51	6.87	0.01	2076 (m)	499.0 -> 99.0	51.2	25.5	76.5



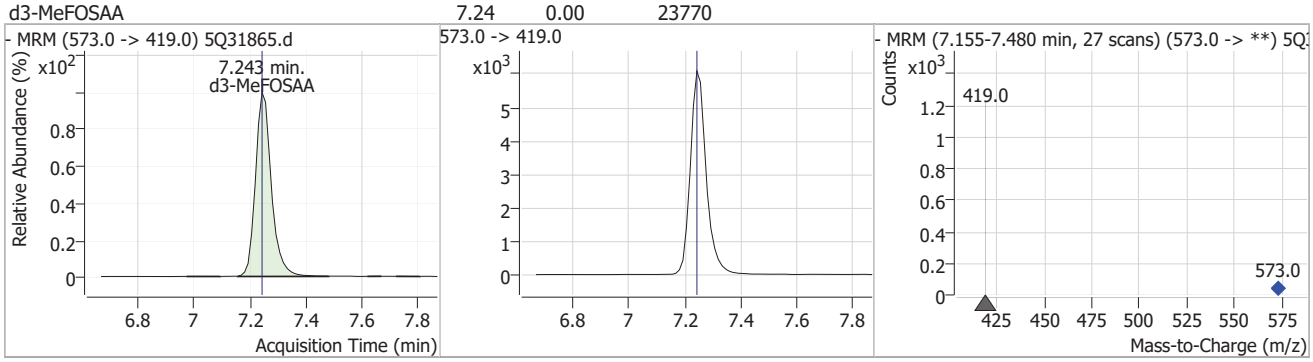
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.44	6.90	0.01	4157 (m)	463.0 -> 219.0	28.8	13.2	39.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.55	7.15	0.01	1938	533.0 -> 353.0	29.2	15.1	45.2

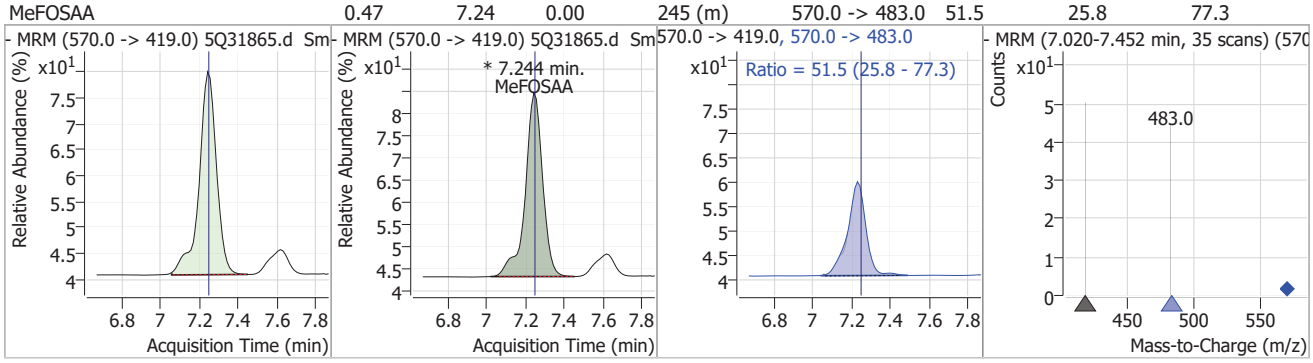


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	23770				

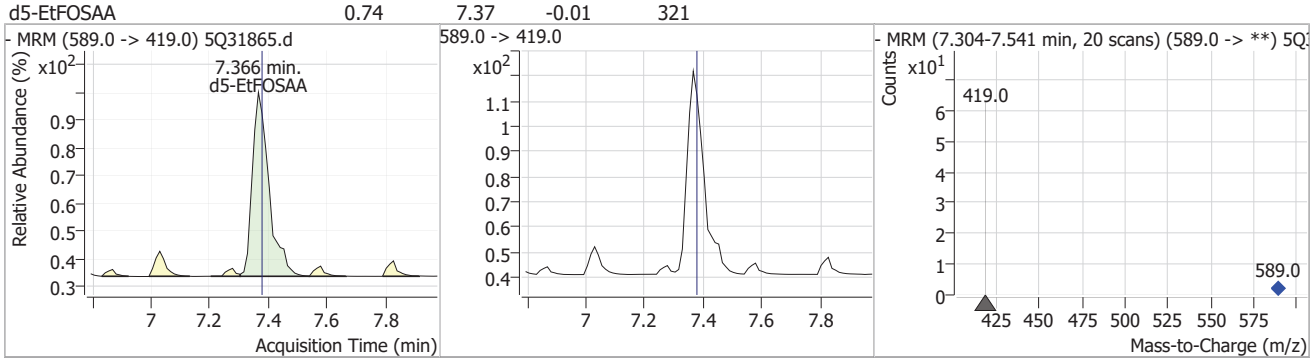


Perfluorinated Compounds by LC/MS/MS

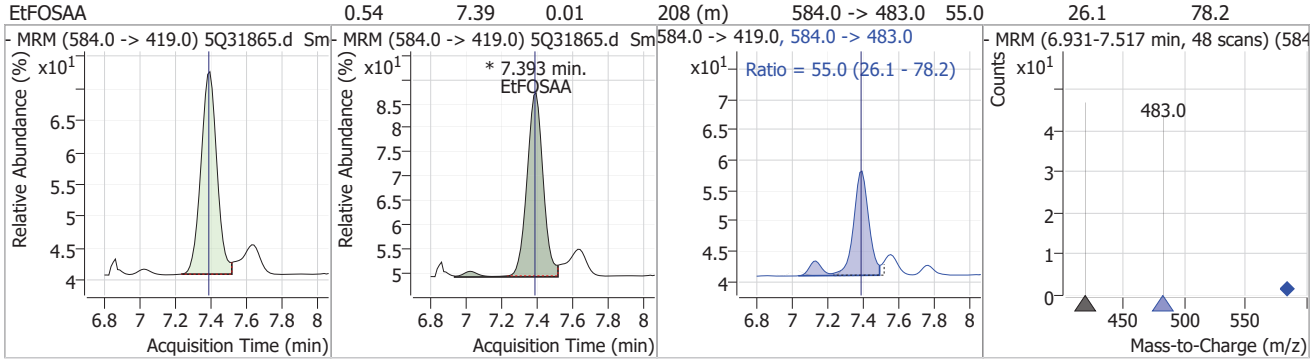
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.47	7.24	0.00	245 (m)	570.0 -> 483.0	51.5	25.8	77.3



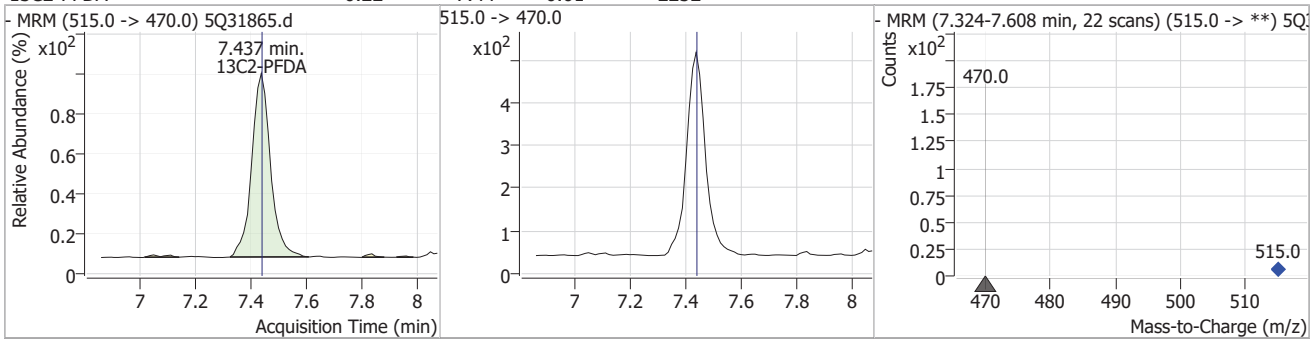
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	0.74	7.37	-0.01	321				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.54	7.39	0.01	208 (m)	584.0 -> 483.0	55.0	26.1	78.2

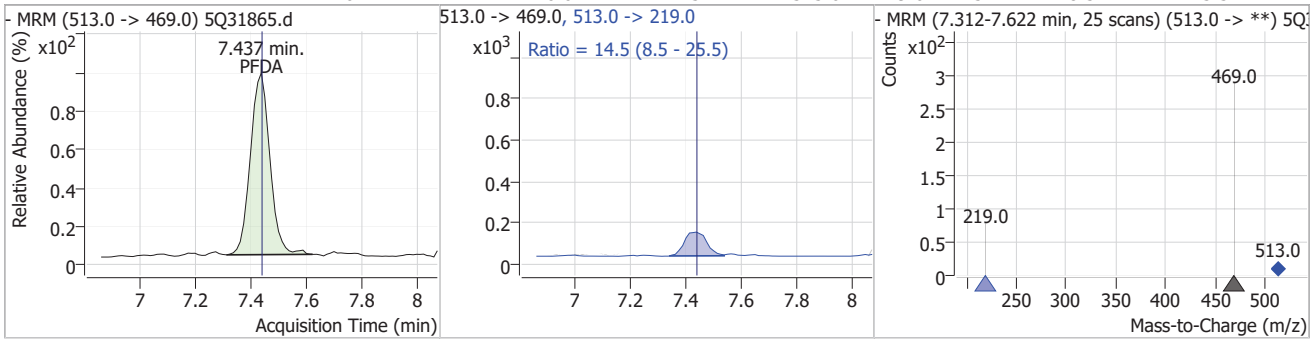


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.22	7.44	0.01	2252				

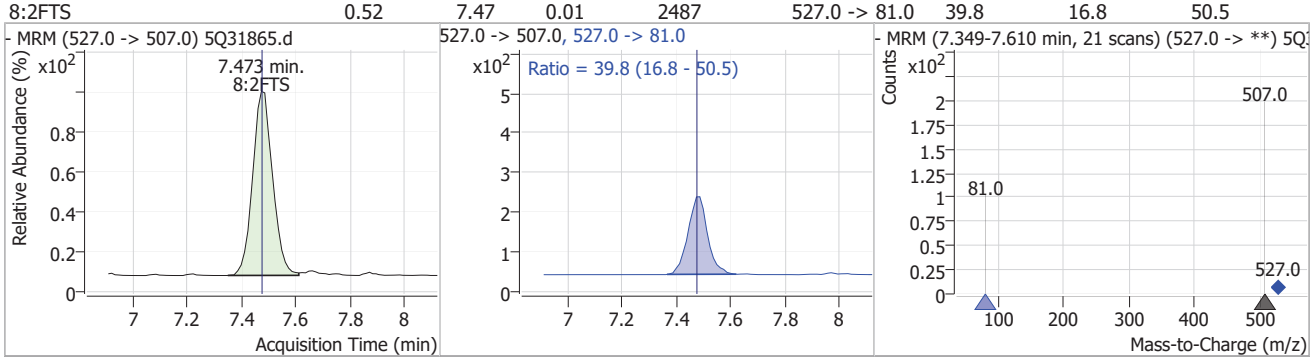


Perfluorinated Compounds by LC/MS/MS

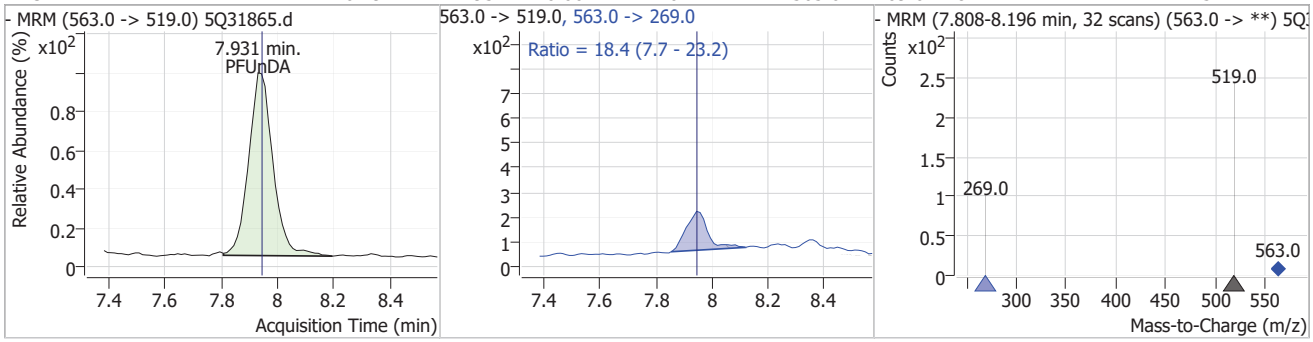
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.47	7.44	0.01	4473	513.0 -> 219.0	14.5	8.5	25.5



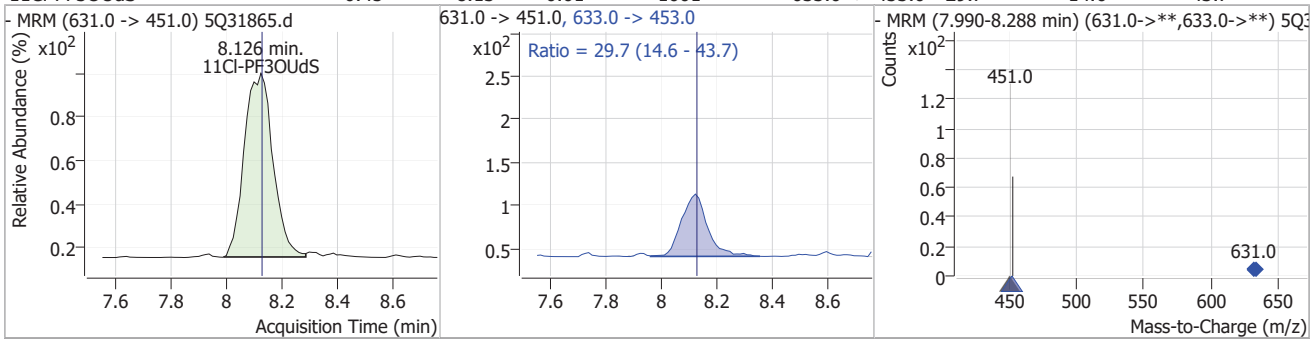
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.52	7.47	0.01	2487	527.0 -> 81.0	39.8	16.8	50.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.49	7.93	0.00	4647	563.0 -> 269.0	18.4	7.7	23.2

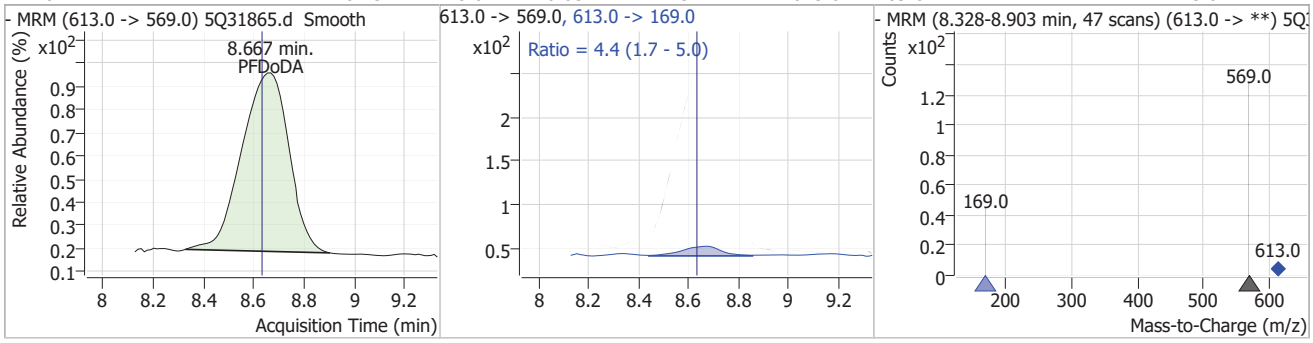


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.45	8.13	0.01	1601	633.0 -> 453.0	29.7	14.6	43.7

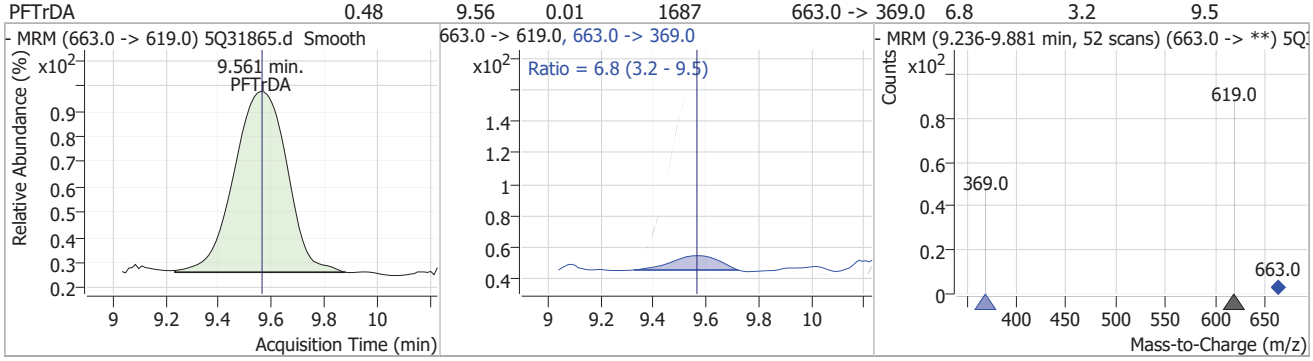


Perfluorinated Compounds by LC/MS/MS

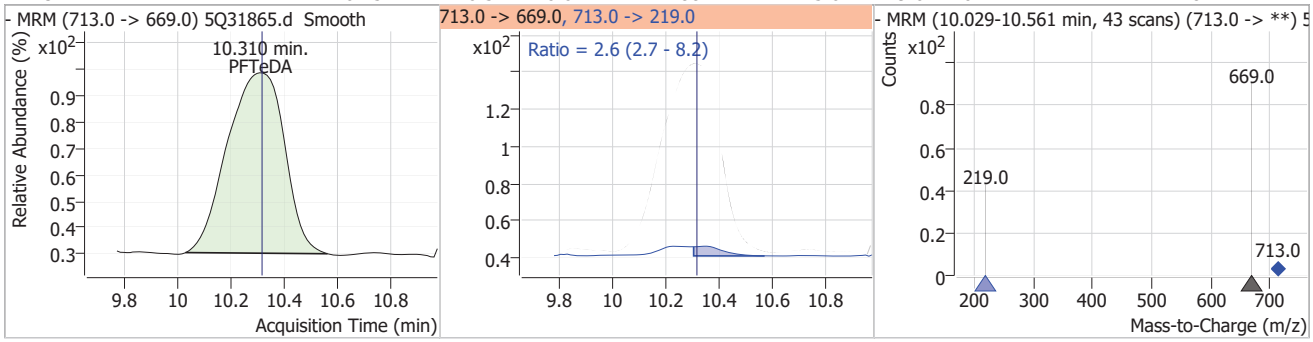
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.45	8.67	0.05	2734	613.0 -> 169.0	4.4	1.7	5.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.48	9.56	0.01	1687	663.0 -> 369.0	6.8	3.2	9.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.45	10.31	0.01	1488	713.0 -> 219.0	2.6	2.7	8.2



7.7.43

7

Manual Integration Approval Summary

Sample Number: S5Q524-IC524
Lab FileID: 5Q31865.D
Injection Time: 04/18/25 13:55
Method: EPA 537.1 REV 2.0
Analyst approved: 04/21/25 09:54 (b) (6)
Supervisor approved: 04/21/25 10:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C3-HFPO-DA			5.03	Poor instrument integration
HFPO-DA (GenX)	13252-13-6		5.04	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.87	Split peak
Perfluorononanoic acid	375-95-1		6.90	Split peak
MeFOSAA	2355-31-9		7.24	Split peak
EtFOSAA	2991-50-6		7.39	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/21/25 10:51

Perfluorinated Compounds by LC/MS/MS

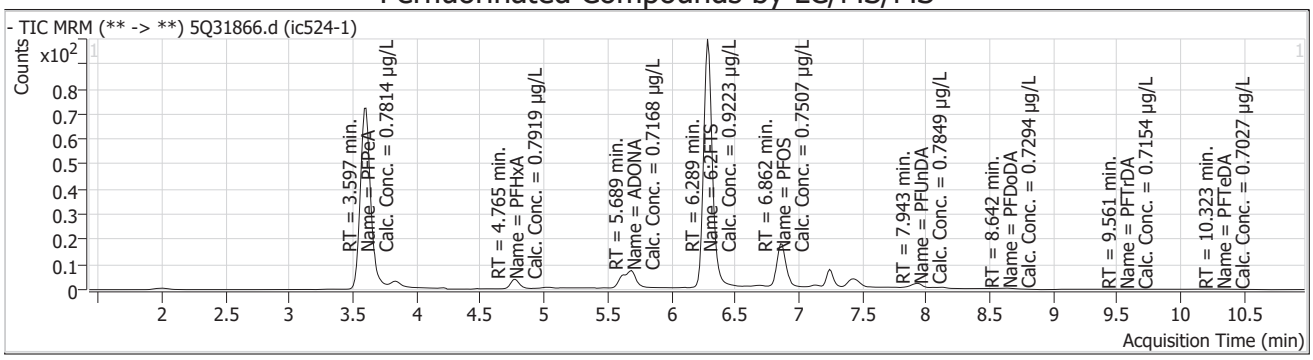
Data File : 5Q31866.d
Operator : (b) (6)
Acq. Method : 537_5Q.m
Acq. Date-Time : 4/18/2025 2:12:06 PM
Sample Name : ic524-1
Vial : P1-A3
DA Method File : 537_041825_S5Q524.quantmethod.xml
Batch Name : s5q524.batch.bin
Sample Information : OP8882,S5Q524,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.288	429.0 -> 409.0	121103	20.00	µg/L		0.012
13C2-PFOA	6.290	415.0 -> 370.0	256182	20.00	µg/L		0.000
13C3-PFPeA	3.607	266.0 -> 222.0	325755	20.00	µg/L		0.012
13C4-PFOS	6.861	503.0 -> 80.0	63549	20.00	µg/L		0.000
d3-MeFOSAA	7.243	573.0 -> 419.0	22067	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.437	515.0 -> 470.0	4010	0.41	µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 2.1%			
13C2-PFHxA	4.776	315.0 -> 270.0	6866	0.46	µg/L		0.012
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 2.3%			
d5-EtFOSAA	7.379	589.0 -> 419.0	401	1.00	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 2.5%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	875	0.86	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 2.1%			
Target Compounds							QValue
6:2FTS	6.289	427.0 -> 407.0	5348	0.92	µg/L		93
8:2FTS	7.473	527.0 -> 507.0	4369	0.96	µg/L		99
EtFOSAA	7.380	584.0 -> 419.0	251	0.70	µg/L	m	70
MeFOSAA	7.256	570.0 -> 419.0	356	0.74	µg/L	m	87
PFBS	3.841	299.0 -> 80.0	6649	0.83	µg/L		97
PFDA	7.425	513.0 -> 469.0	6660	0.75	µg/L		95
PFDoDA	8.642	613.0 -> 569.0	4262	0.73	µg/L		97
PFHpA	5.615	363.0 -> 319.0	15685	0.76	µg/L		99
PFHxA	4.765	313.0 -> 269.0	8037	0.79	µg/L		97
PFHxS	5.648	399.0 -> 80.0	3801	0.73	µg/L	m	92
PFNA	6.887	463.0 -> 419.0	6268	0.71	µg/L	m	89
PFOA	6.291	413.0 -> 369.0	9360	0.79	µg/L		97
PFOS	6.862	499.0 -> 80.0	2948	0.75	µg/L	m	99
PFPeA	3.597	263.0 -> 219.0	15660	0.78	µg/L		100
PFTeDA	10.323	713.0 -> 669.0	2220	0.70	µg/L		97
PFTrDA	9.561	663.0 -> 619.0	2422	0.72	µg/L		98
PFUnDA	7.943	563.0 -> 519.0	7147	0.78	µg/L		99
ADONA	5.689	377.0 -> 251.0	19451	0.72	µg/L		96
9Cl-PF3ONS	7.133	531.0 -> 351.0	2579	0.79	µg/L		96
11Cl-PF3OUdS	8.126	631.0 -> 451.0	2328	0.70	µg/L		98
HFPO-DA	5.035	285.0 -> 169.0	958	1.00	µg/L	m	98

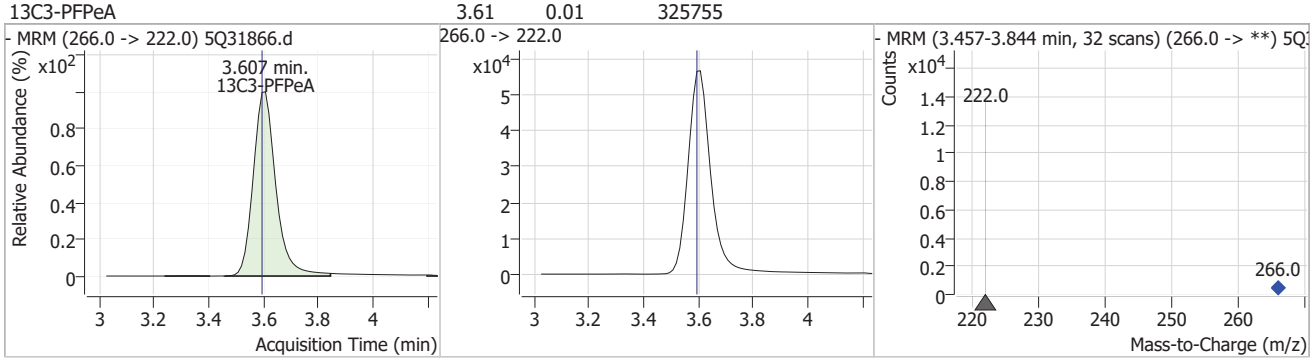
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.44
7

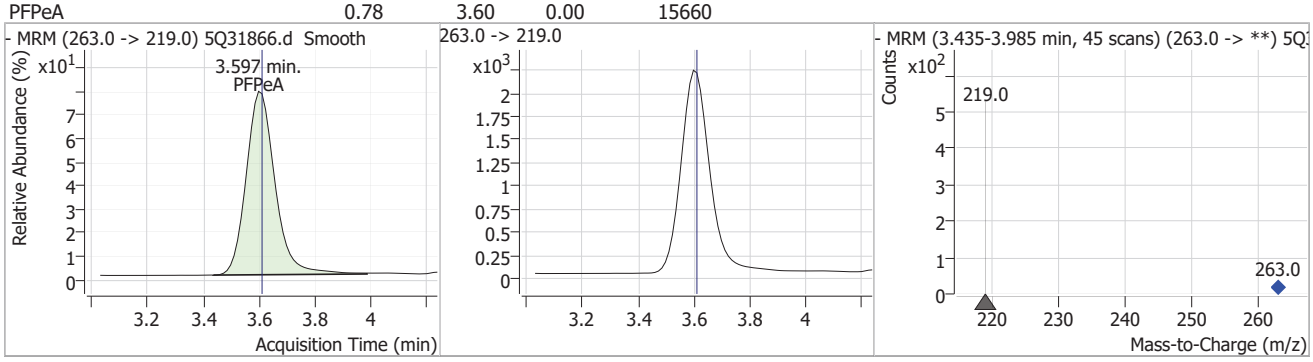
Perfluorinated Compounds by LC/MS/MS



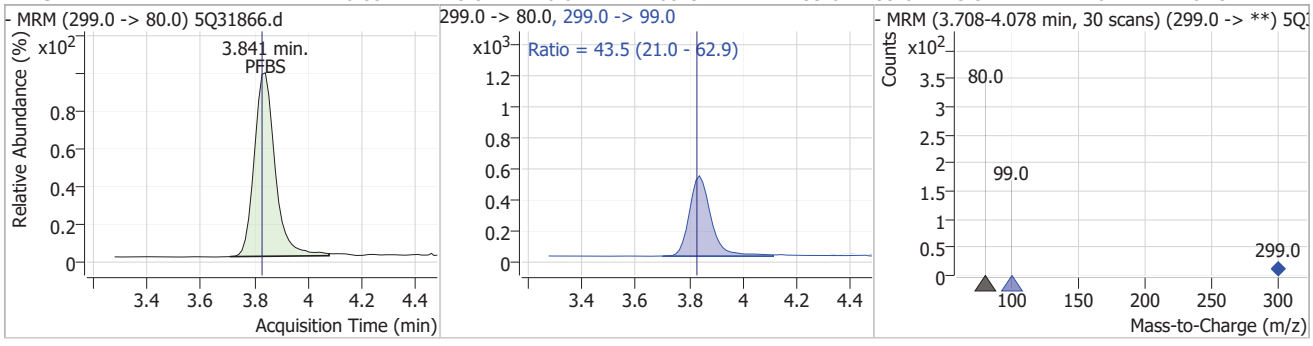
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.61	0.01	325755				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.78	3.60	0.00	15660				



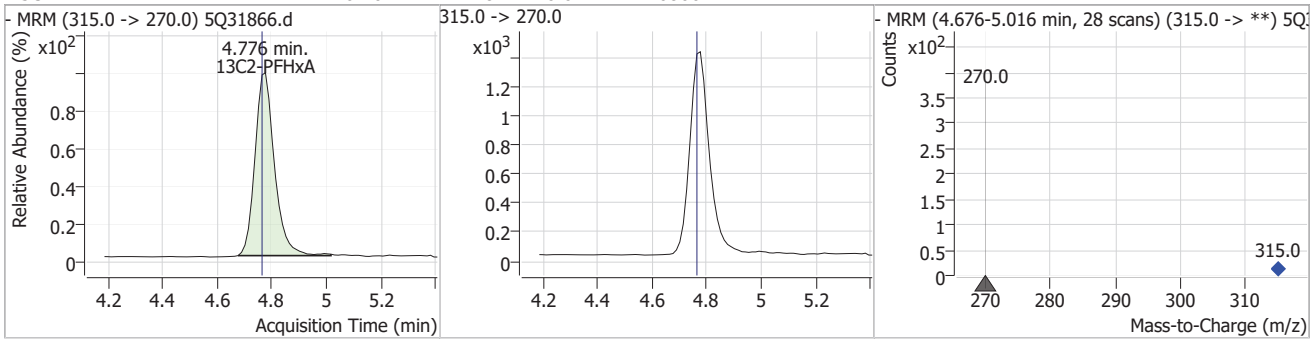
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.83	3.84	0.01	6649	299.0 -> 99.0	43.5	21.0	62.9



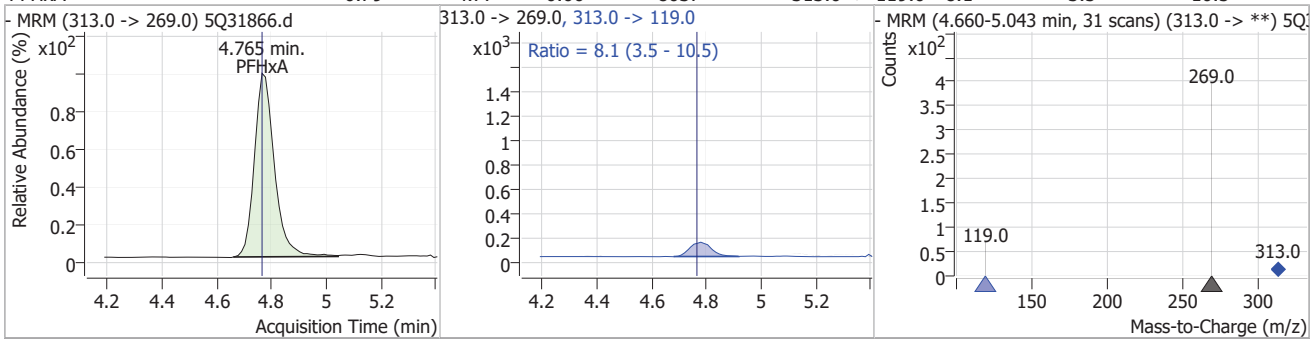
7.7.44
7

Perfluorinated Compounds by LC/MS/MS

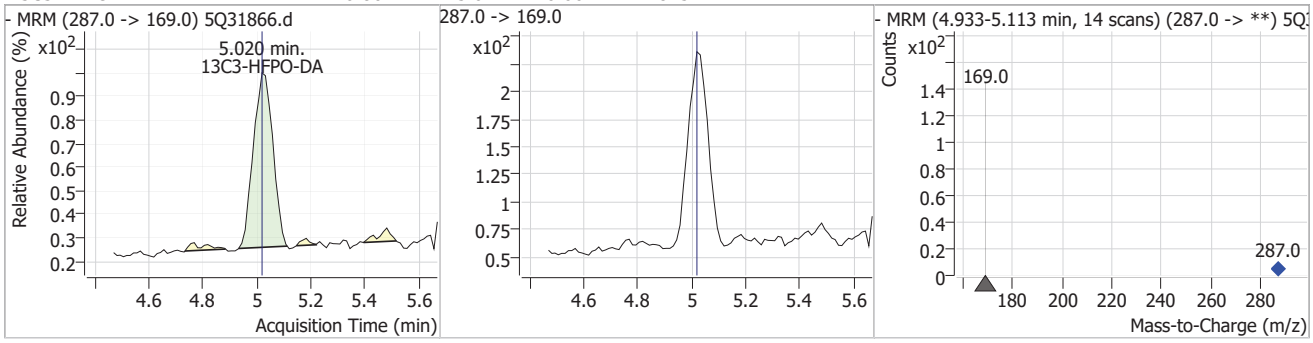
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.46	4.78	0.01	6866				



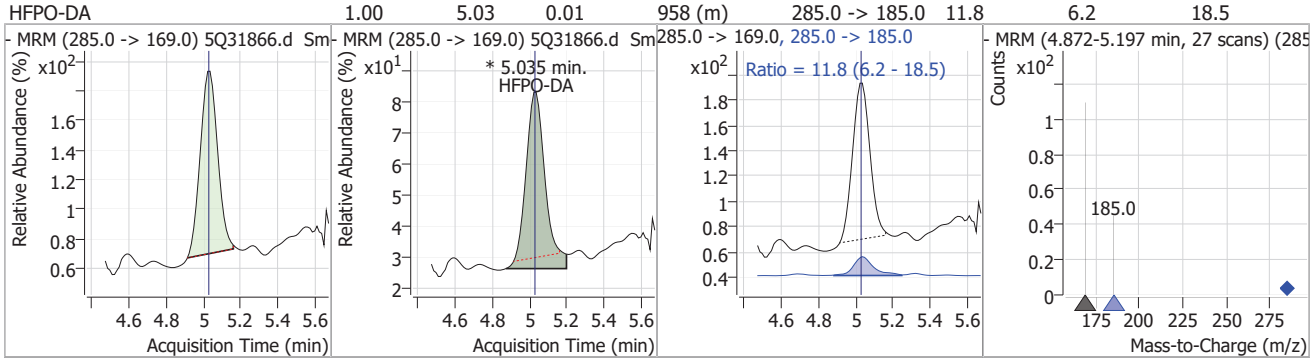
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.79	4.77	0.00	8037	313.0 -> 119.0	8.1	3.5	10.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.86	5.02	0.00	875				

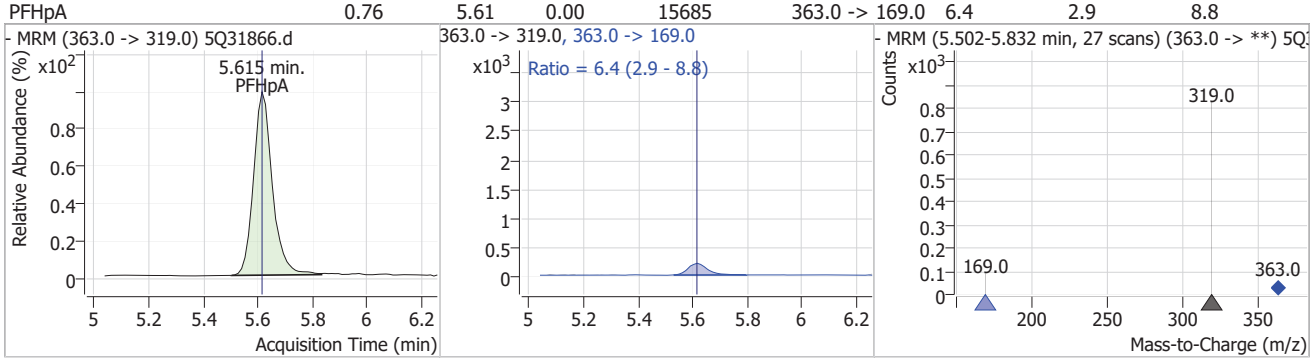


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	1.00	5.03	0.01	958 (m)	285.0 -> 185.0	11.8	6.2	18.5

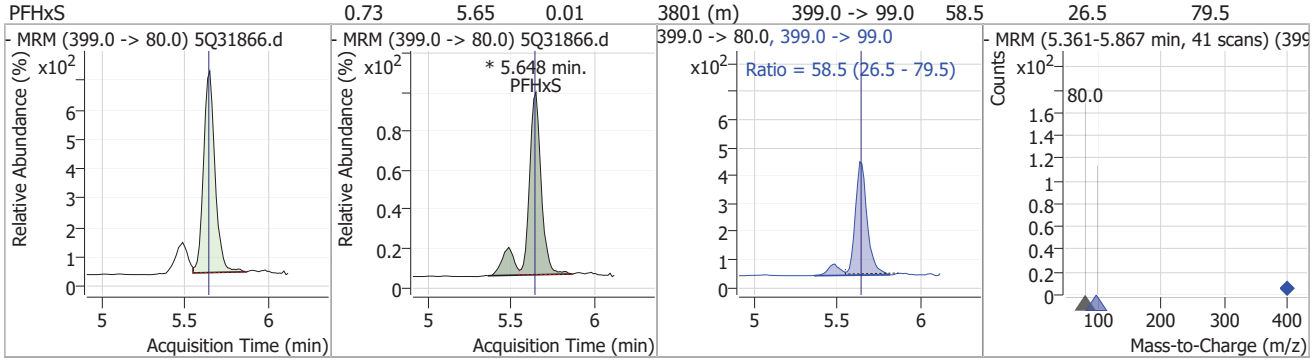


Perfluorinated Compounds by LC/MS/MS

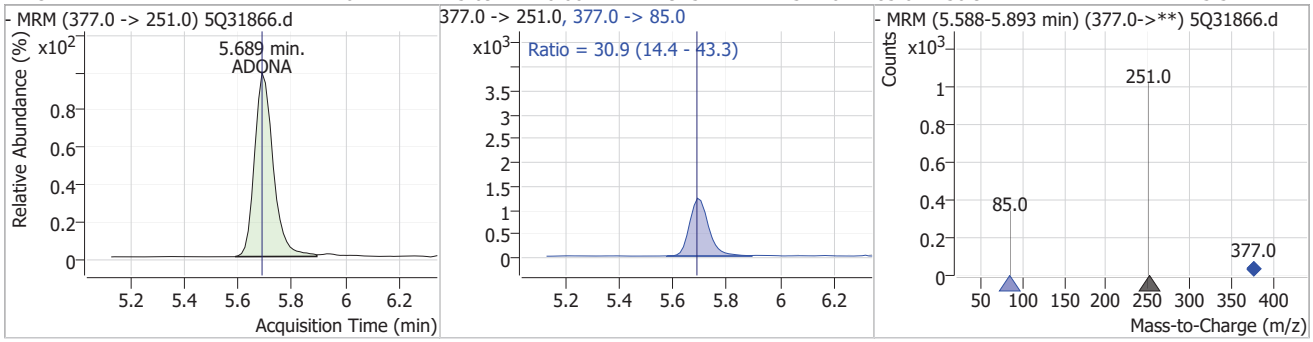
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.76	5.61	0.00	15685	363.0 -> 169.0	6.4	2.9	8.8



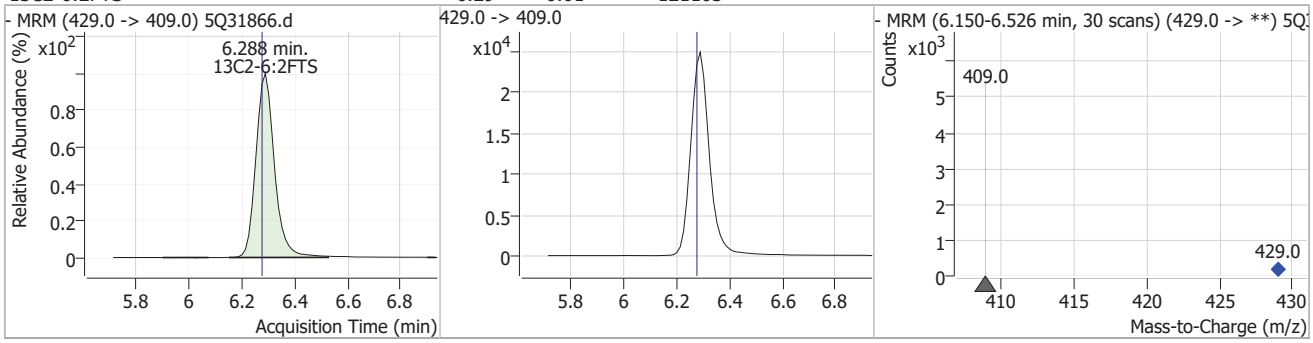
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.73	5.65	0.01	3801 (m)	399.0 -> 99.0	58.5	26.5	79.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.72	5.69	0.00	19451	377.0 -> 85.0	30.9	14.4	43.3

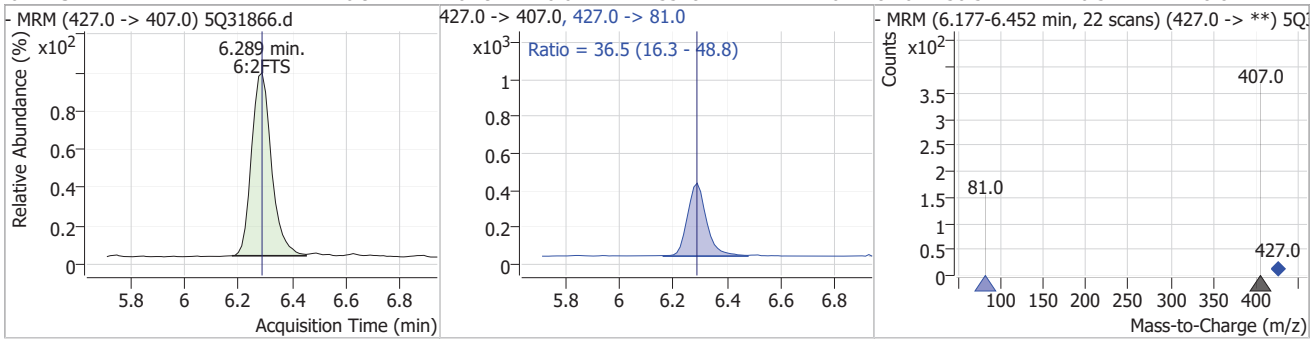


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.01	121103				

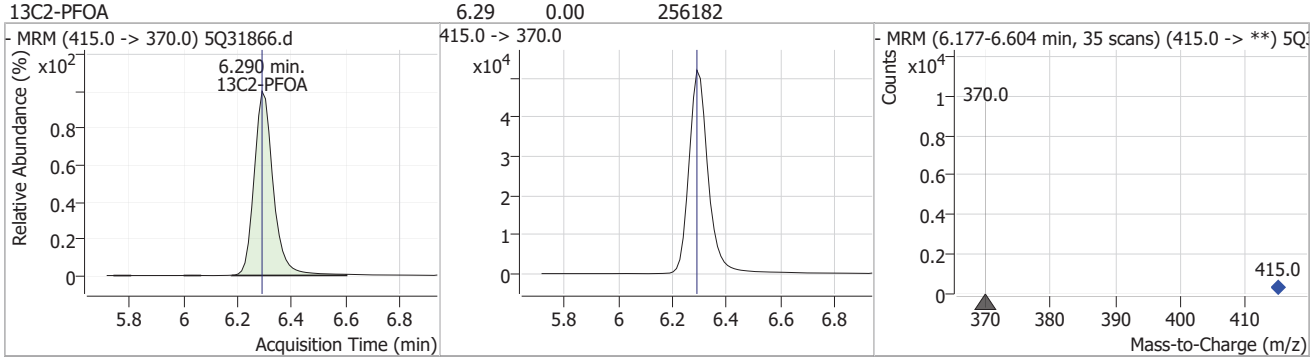


Perfluorinated Compounds by LC/MS/MS

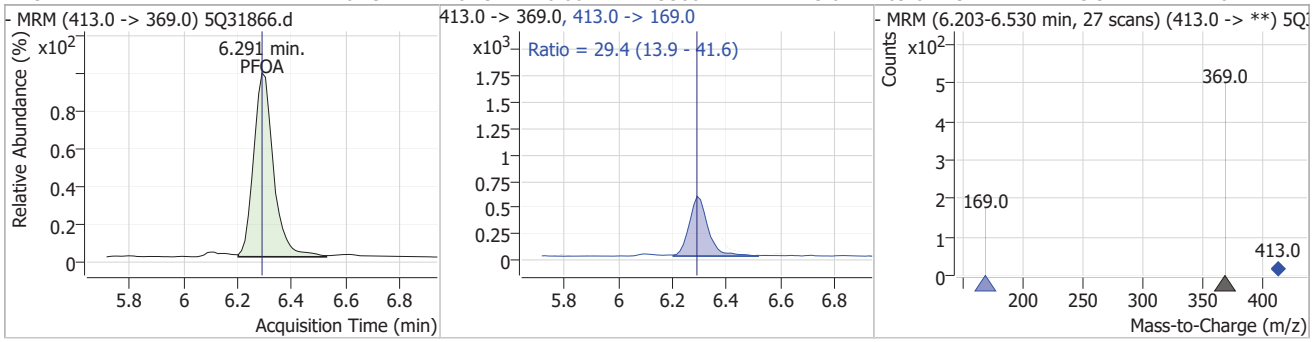
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.92	6.29	0.01	5348	427.0 -> 81.0	36.5	16.3	48.8



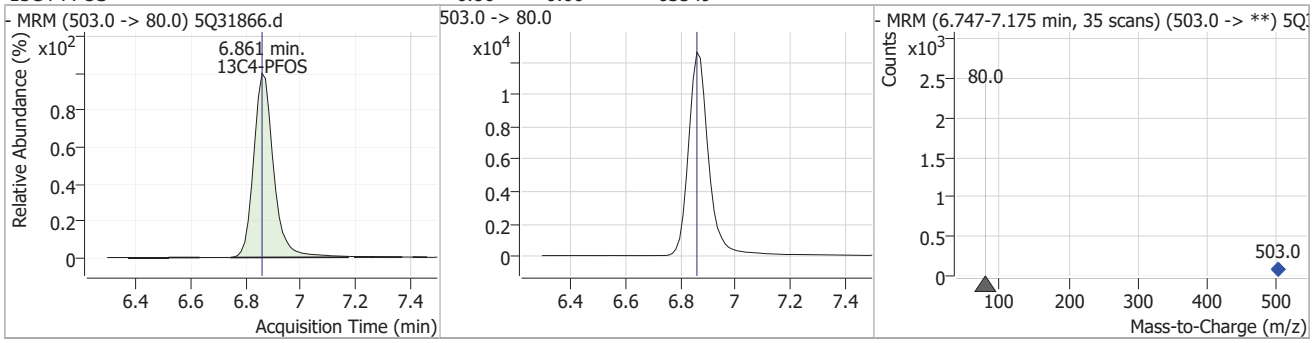
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	256182				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.79	6.29	0.00	9360	413.0 -> 169.0	29.4	13.9	41.6

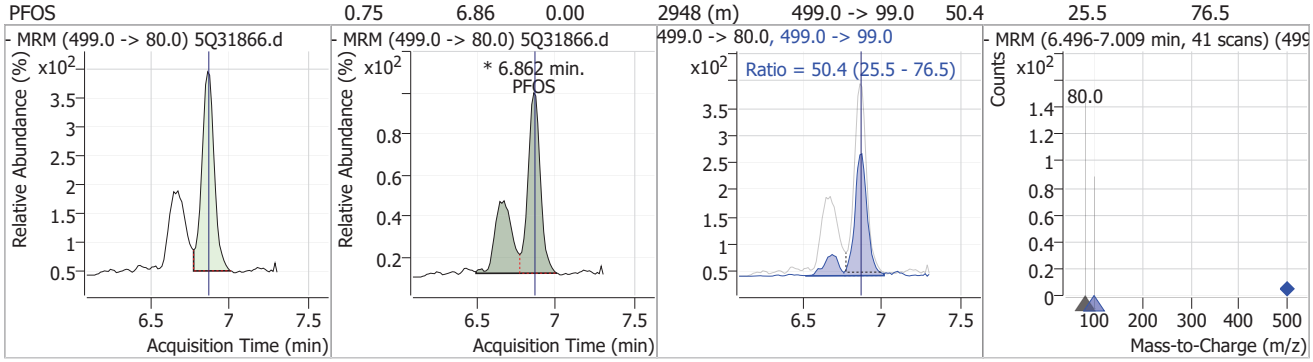


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	63549				

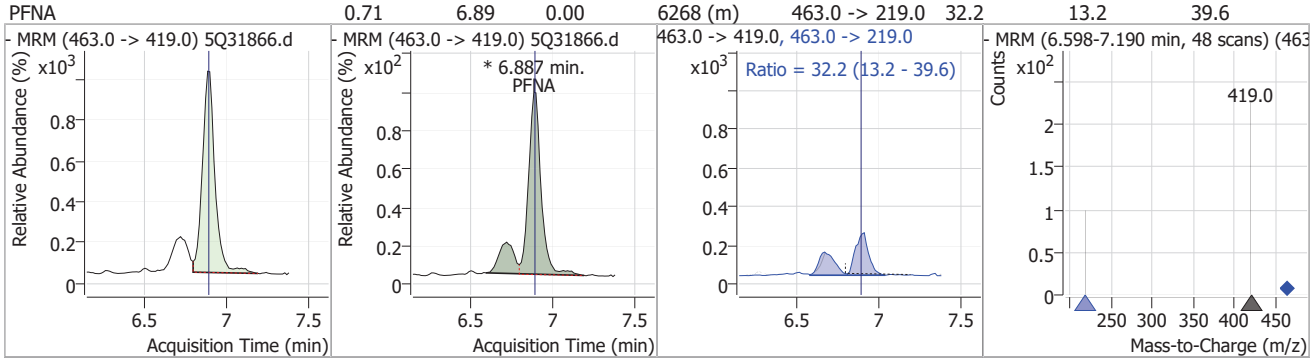


Perfluorinated Compounds by LC/MS/MS

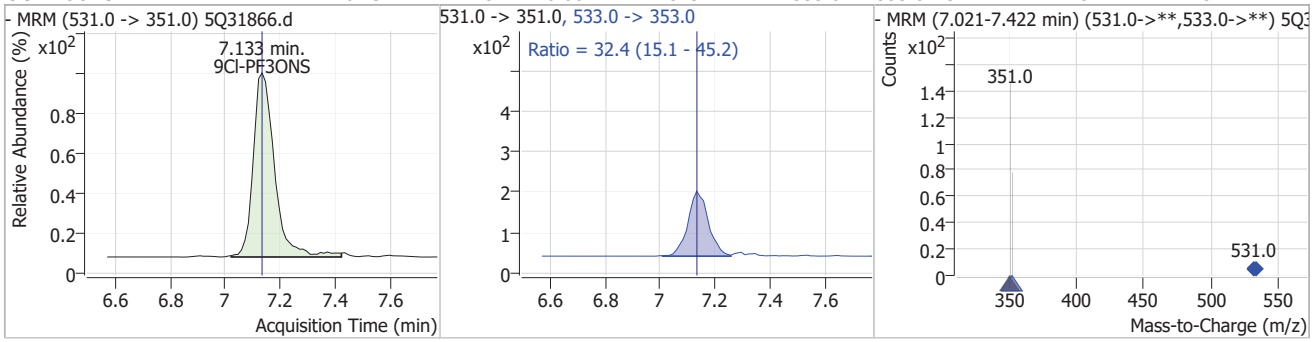
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.75	6.86	0.00	2948 (m)	499.0 -> 99.0	50.4	25.5	76.5



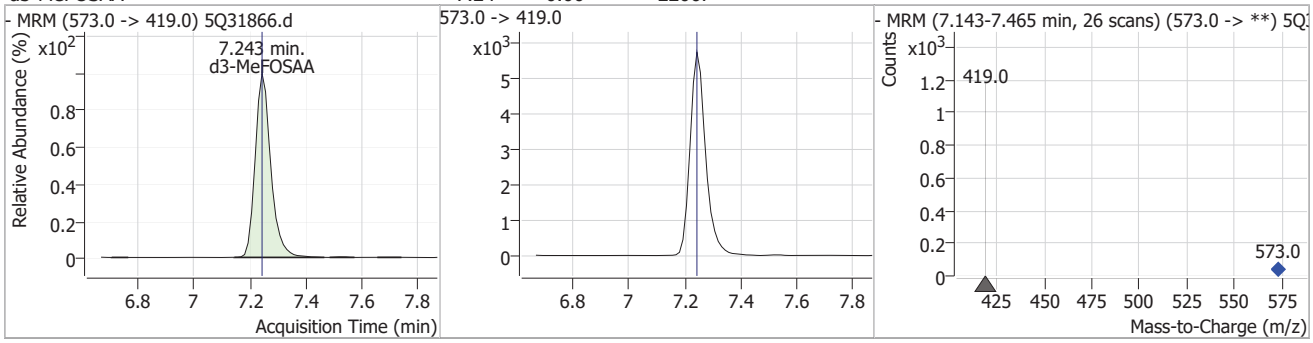
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.71	6.89	0.00	6268 (m)	463.0 -> 219.0	32.2	13.2	39.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.79	7.13	0.00	2579	533.0 -> 353.0	32.4	15.1	45.2



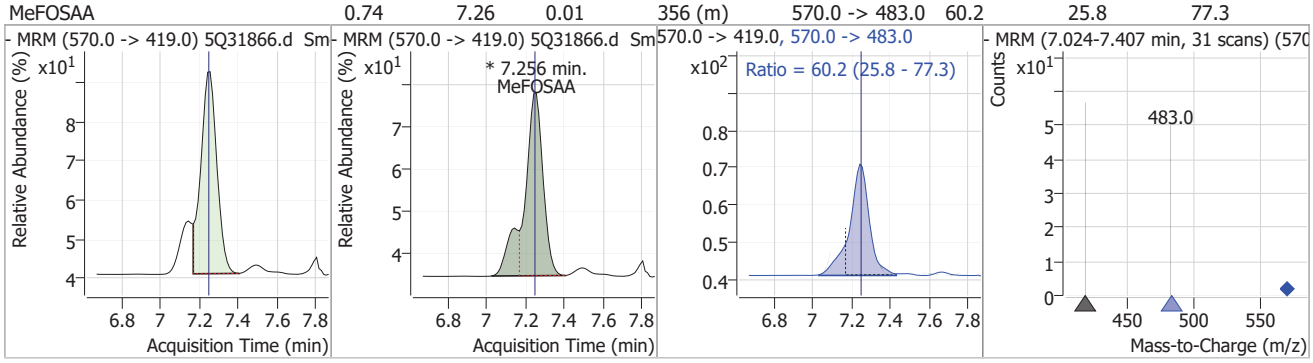
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	22067				



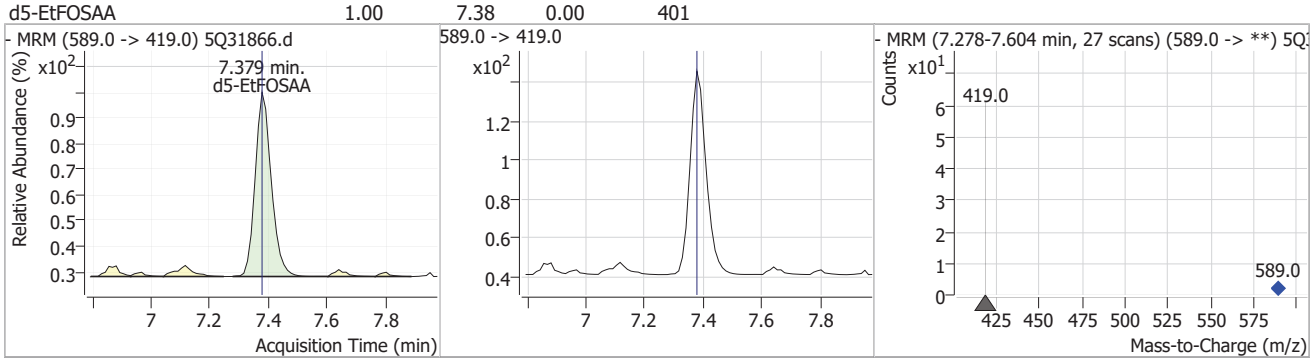
7.7.44 7

Perfluorinated Compounds by LC/MS/MS

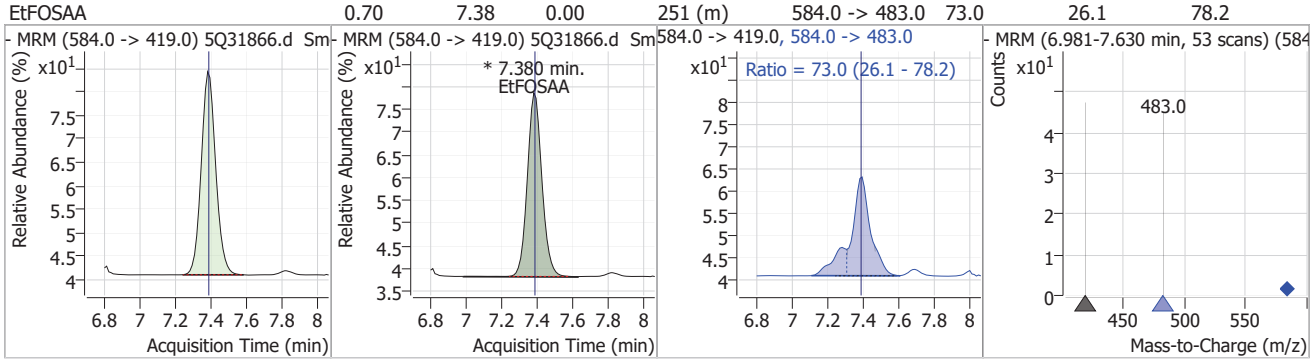
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.74	7.26	0.01	356 (m)	570.0 -> 483.0	60.2	25.8	77.3



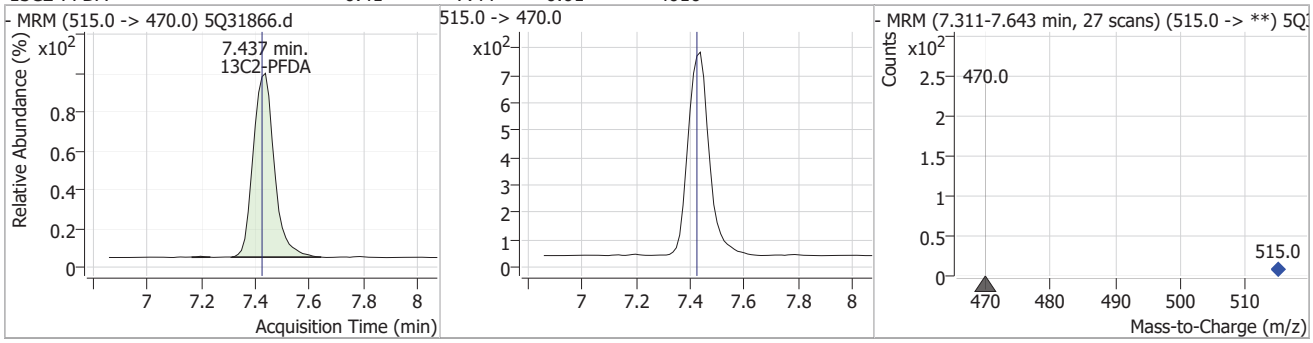
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	1.00	7.38	0.00	401				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.70	7.38	0.00	251 (m)	584.0 -> 483.0	73.0	26.1	78.2

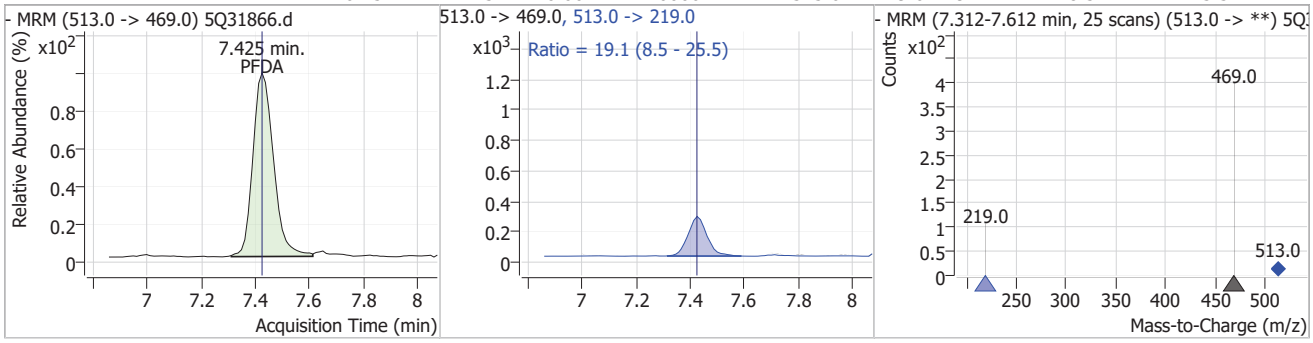


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.41	7.44	0.01	4010				

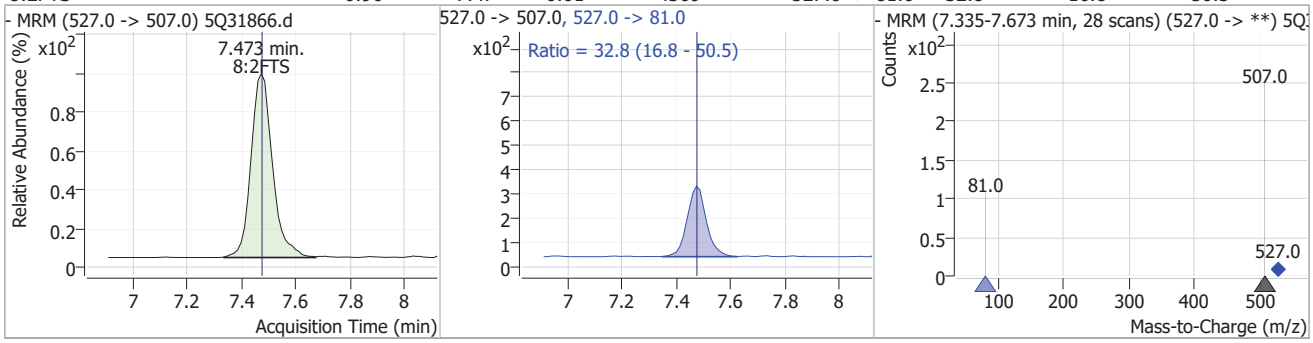


Perfluorinated Compounds by LC/MS/MS

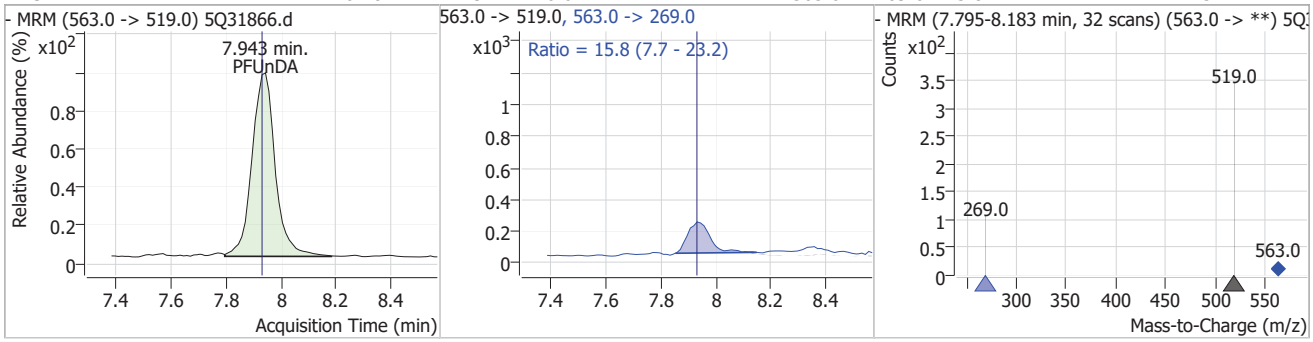
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.75	7.43	0.00	6660	513.0 -> 219.0	19.1	8.5	25.5



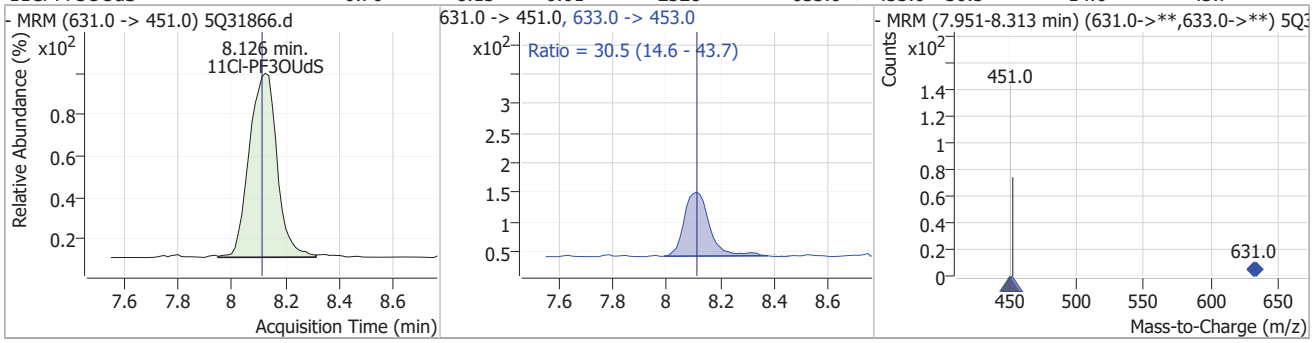
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.96	7.47	0.01	4369	527.0 -> 81.0	32.8	16.8	50.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.78	7.94	0.01	7147	563.0 -> 269.0	15.8	7.7	23.2

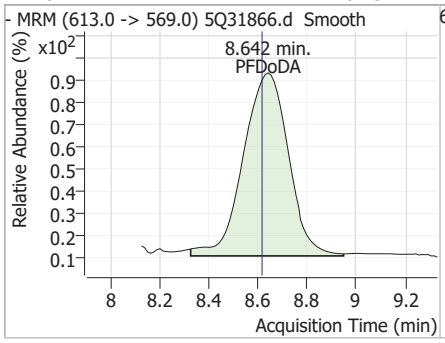


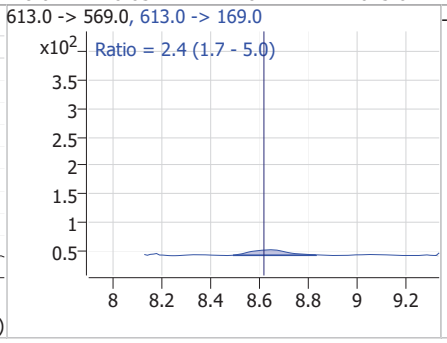
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.70	8.13	0.01	2328	633.0 -> 453.0	30.5	14.6	43.7

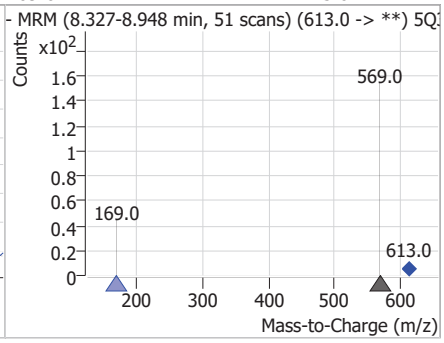


Perfluorinated Compounds by LC/MS/MS

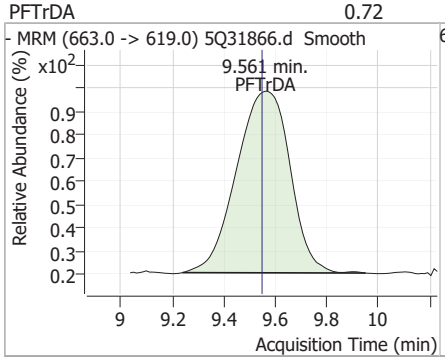
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.73	8.64	0.03	4262	613.0 -> 169.0	2.4	1.7	5.0

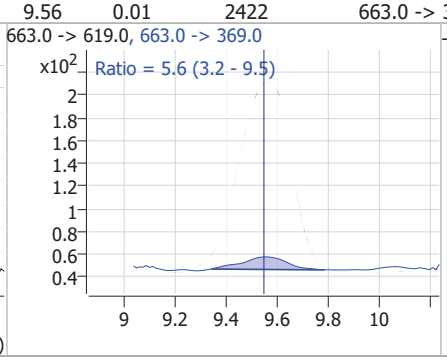


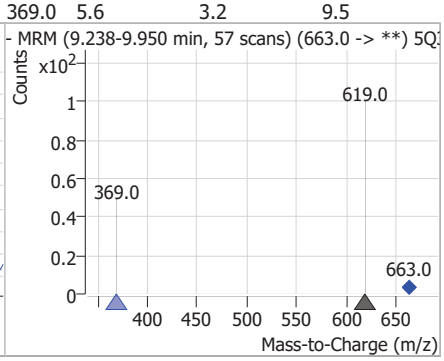




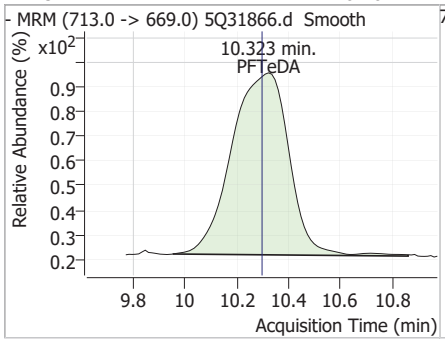
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.72	9.56	0.01	2422	663.0 -> 369.0	5.6	3.2	9.5

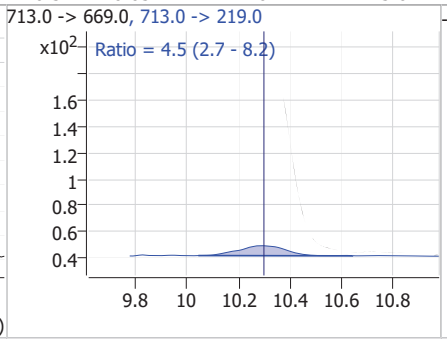


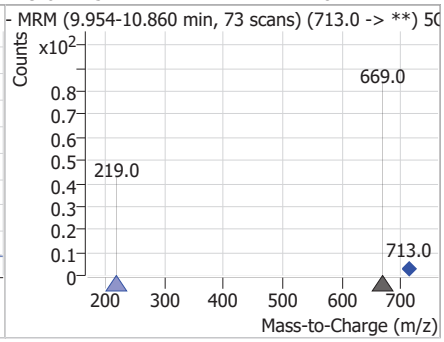




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.70	10.32	0.03	2220	713.0 -> 219.0	4.5	2.7	8.2







Manual Integration Approval Summary

Sample Number: S5Q524-IC524
Lab FileID: 5Q31866.D
Injection Time: 04/18/25 14:12
Method: EPA 537.1 REV 2.0
Analyst approved: 04/21/25 09:54 (b) (6)
Supervisor approved: 04/21/25 10:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
HFPO-DA (GenX)	13252-13-6		5.04	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		5.65	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.26	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/21/25 10:51

Perfluorinated Compounds by LC/MS/MS

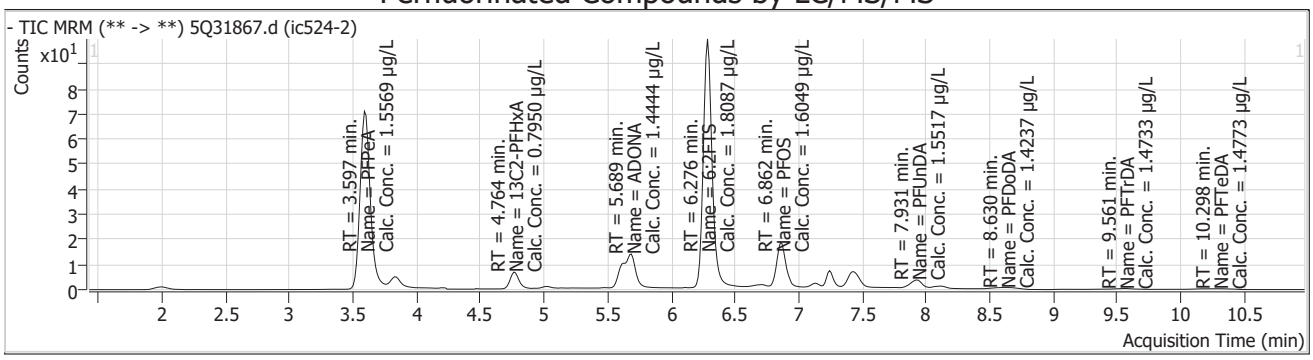
Data File : 5Q31867.d
Operator : (b) (6)
Acq. Method : 537_5Q.m
Acq. Date-Time : 4/18/2025 2:28:35 PM
Sample Name : ic524-2
Vial : P1-A4
DA Method File : 537_041825_S5Q524.quantmethod.xml
Batch Name : s5q524.batch.bin
Sample Information : OP8882,S5Q524,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.288	429.0 -> 409.0	129832	20.00	µg/L		0.012
13C2-PFOA	6.290	415.0 -> 370.0	283529	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	355447	20.00	µg/L		0.000
13C4-PFOS	6.861	503.0 -> 80.0	66656	20.00	µg/L		0.000
d3-MeFOSAA	7.243	573.0 -> 419.0	23376	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.424	515.0 -> 470.0	8365	0.78	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 3.9%			
13C2-PFHxA	4.764	315.0 -> 270.0	13114	0.79	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 4.0%			
d5-EtFOSAA	7.379	589.0 -> 419.0	740	1.74	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 4.3%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	1742	1.54	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 3.9%			
Target Compounds							QValue
6:2FTS	6.276	427.0 -> 407.0	11245	1.81	µg/L		93
8:2FTS	7.473	527.0 -> 507.0	9395	1.92	µg/L		100
EtFOSAA	7.380	584.0 -> 419.0	765	2.01	µg/L	m	97
MeFOSAA	7.244	570.0 -> 419.0	916	1.79	µg/L		92
PFBS	3.828	299.0 -> 80.0	14329	1.71	µg/L		99
PFDA	7.425	513.0 -> 469.0	14383	1.46	µg/L		99
PFDoDA	8.630	613.0 -> 569.0	8729	1.42	µg/L		100
PFHpA	5.615	363.0 -> 319.0	34764	1.52	µg/L		100
PFHxA	4.765	313.0 -> 269.0	17908	1.59	µg/L		98
PFHxS	5.636	399.0 -> 80.0	9215	1.69	µg/L	m	99
PFNA	6.887	463.0 -> 419.0	14109	1.44	µg/L	m	97
PFOA	6.291	413.0 -> 369.0	20044	1.52	µg/L		99
PFOS	6.862	499.0 -> 80.0	6610	1.60	µg/L	m	93
PFPeA	3.597	263.0 -> 219.0	34046	1.56	µg/L		100
PFTeDA	10.298	713.0 -> 669.0	4895	1.48	µg/L		99
PFTrDA	9.561	663.0 -> 619.0	5231	1.47	µg/L		94
PFUnDA	7.931	563.0 -> 519.0	14819	1.55	µg/L		90
ADONA	5.689	377.0 -> 251.0	43376	1.44	µg/L		99
9Cl-PF3ONS	7.133	531.0 -> 351.0	5689	1.57	µg/L		90
11Cl-PF3OUdS	8.113	631.0 -> 451.0	5168	1.40	µg/L		98
HFPO-DA	5.035	285.0 -> 169.0	1970	1.86	µg/L	m	98

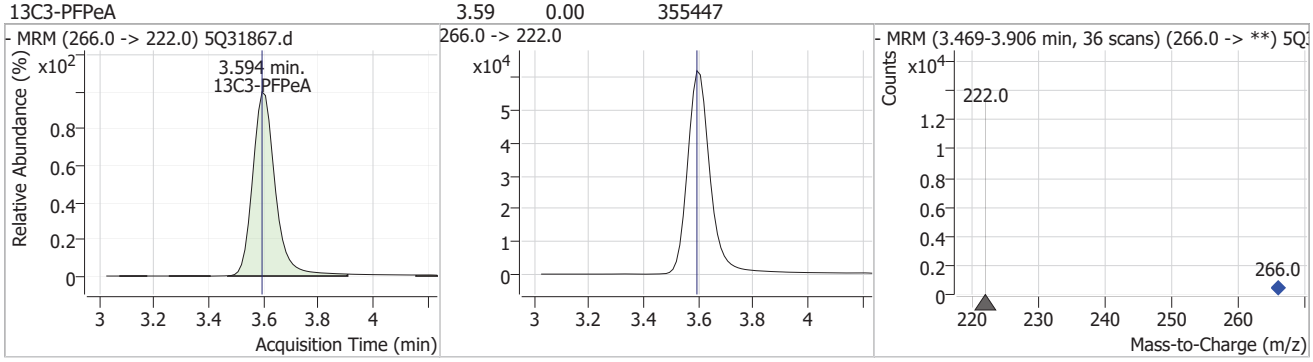
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.45
7

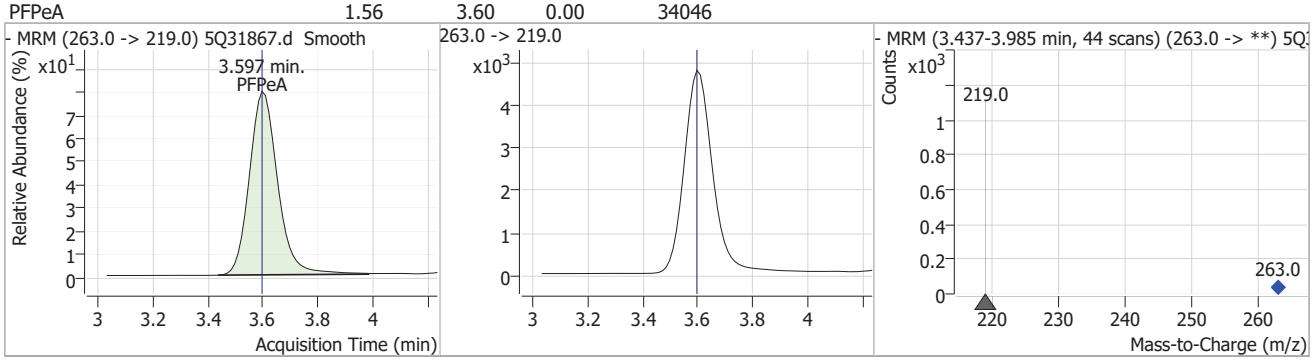
Perfluorinated Compounds by LC/MS/MS



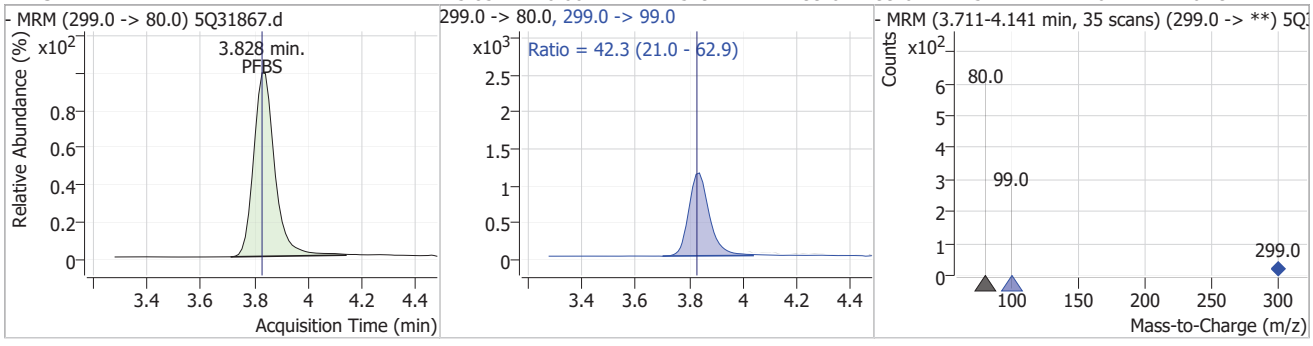
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	355447				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.56	3.60	0.00	34046				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.71	3.83	0.00	14329	299.0 -> 99.0	42.3	21.0	62.9



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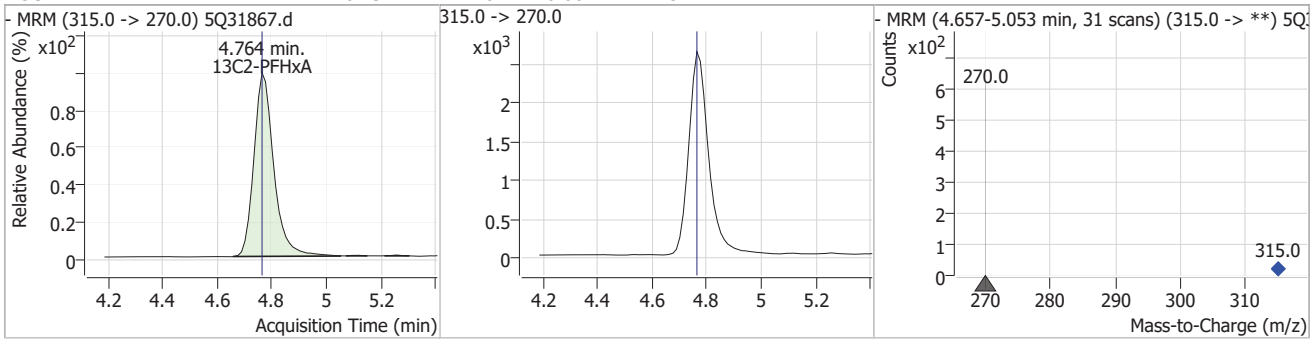
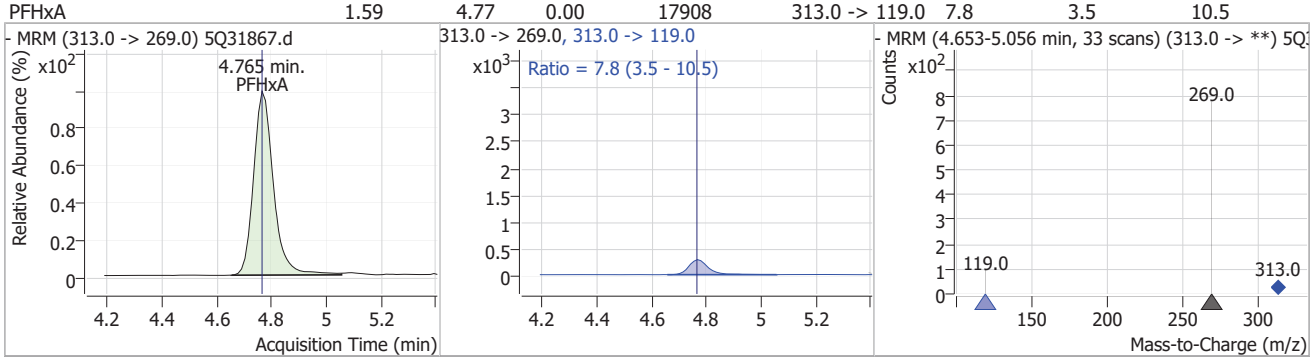
Perfluorinated Compounds by LC/MS/MS

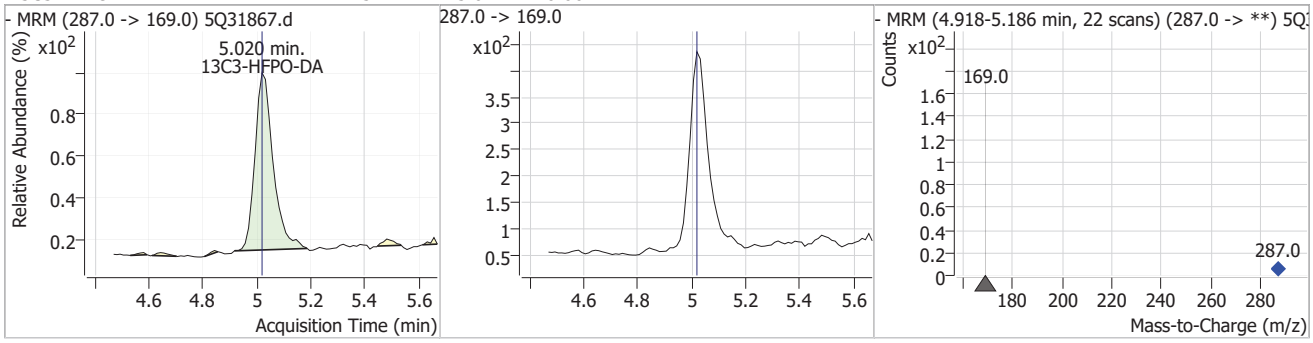
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.79	4.76	0.00	13114				



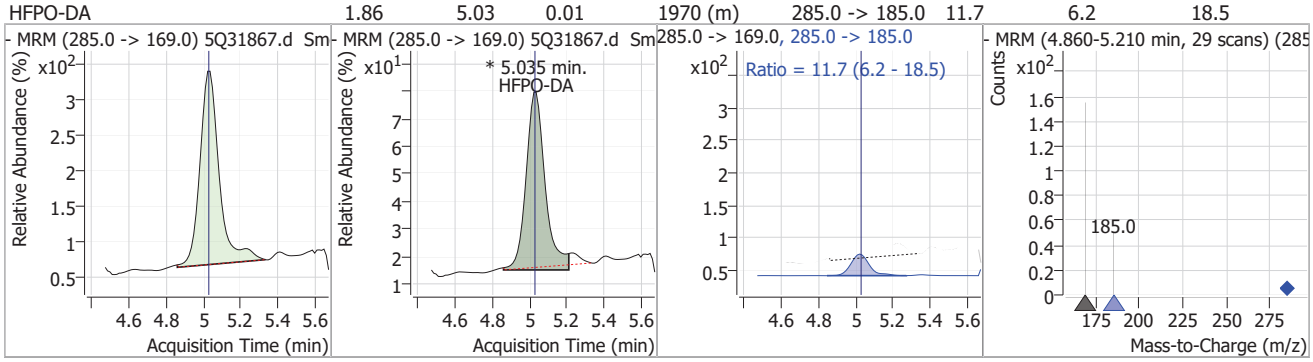
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.59	4.77	0.00	17908	313.0 -> 119.0	7.8	3.5	10.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	1.54	5.02	0.00	1742				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	1.86	5.03	0.01	1970 (m)	285.0 -> 185.0	11.7	6.2	18.5



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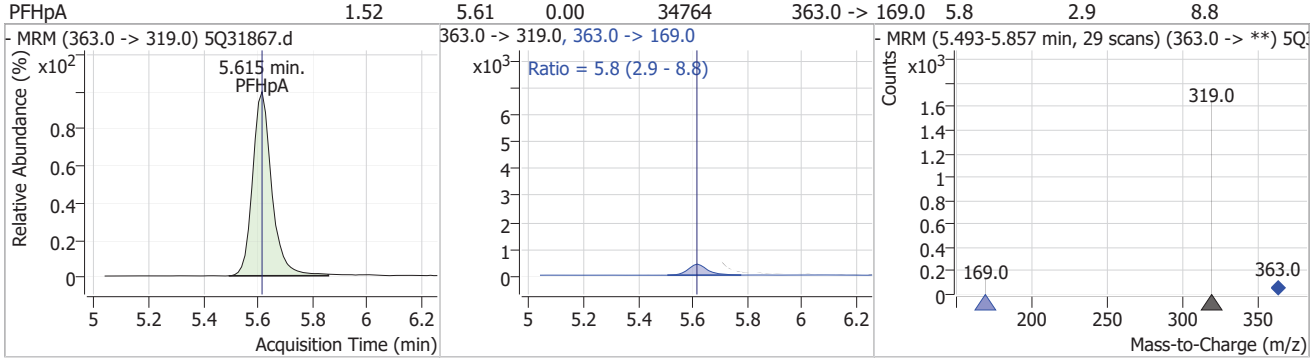
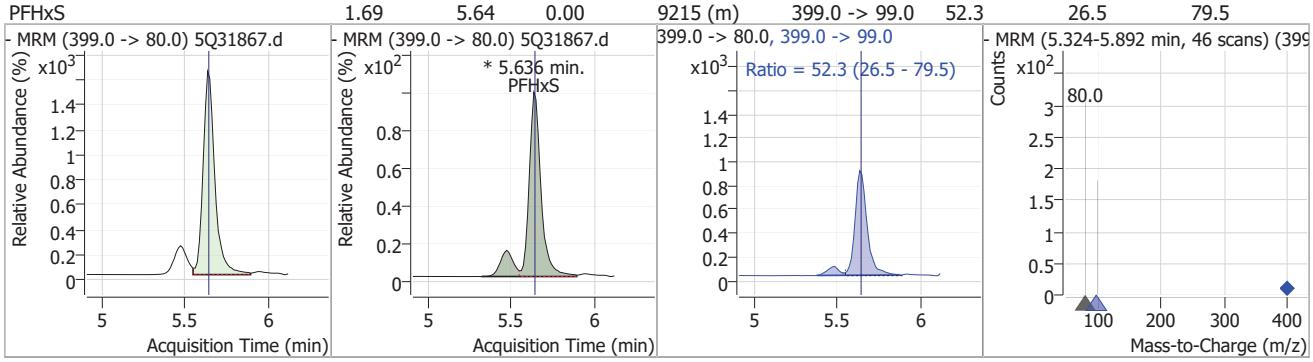
Perfluorinated Compounds by LC/MS/MS

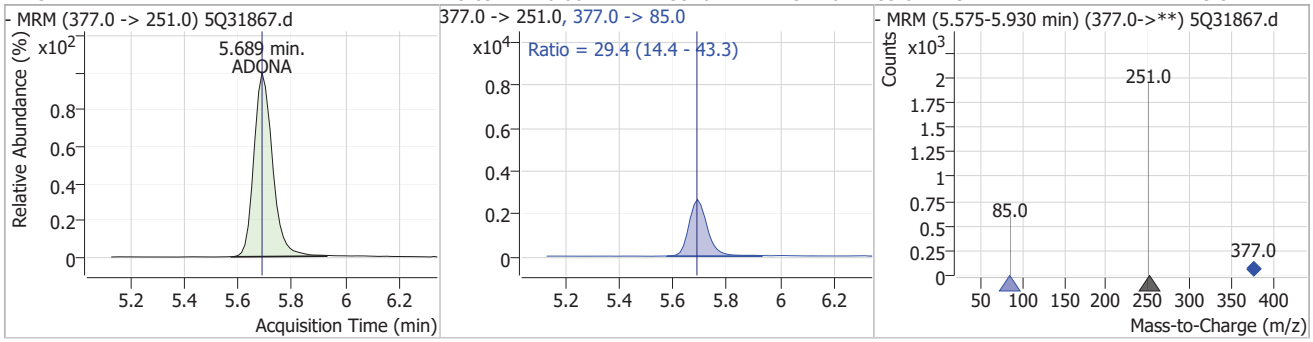
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.52	5.61	0.00	34764	363.0 -> 169.0	5.8	2.9	8.8



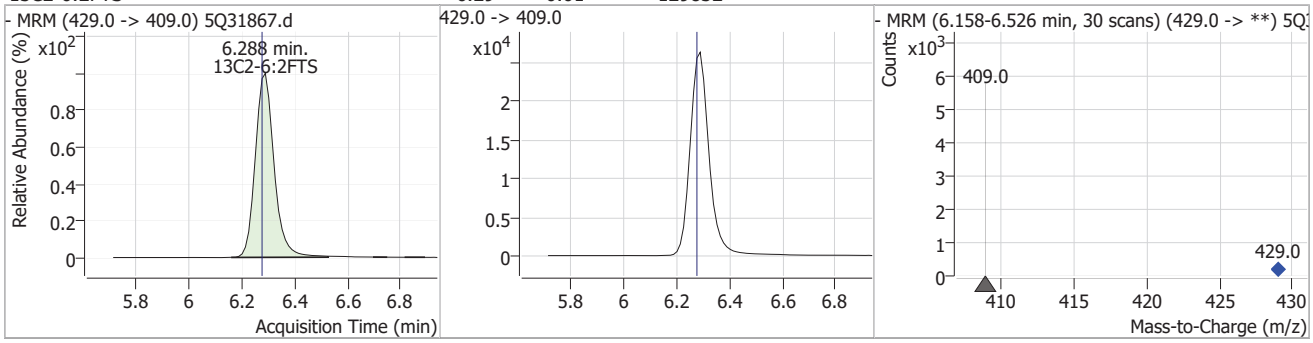
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.69	5.64	0.00	9215 (m)	399.0 -> 99.0	52.3	26.5	79.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	1.44	5.69	0.00	43376	377.0 -> 85.0	29.4	14.4	43.3

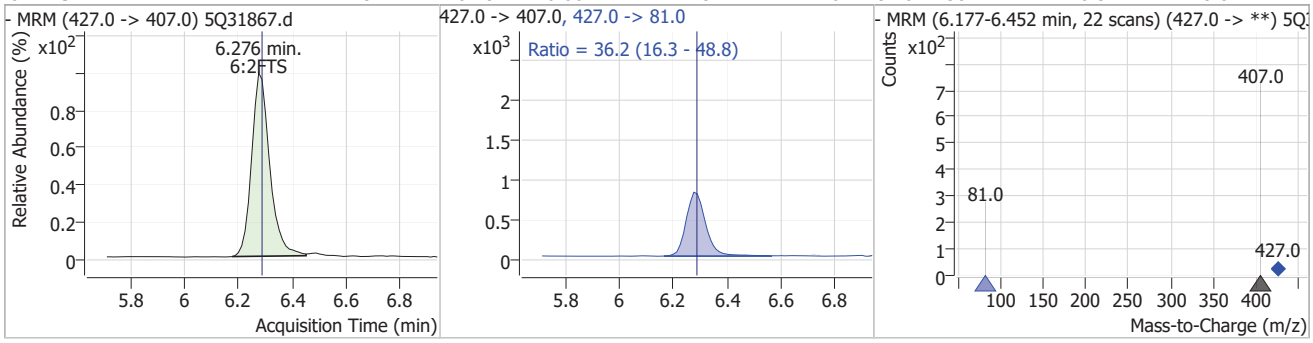


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.01	129832				

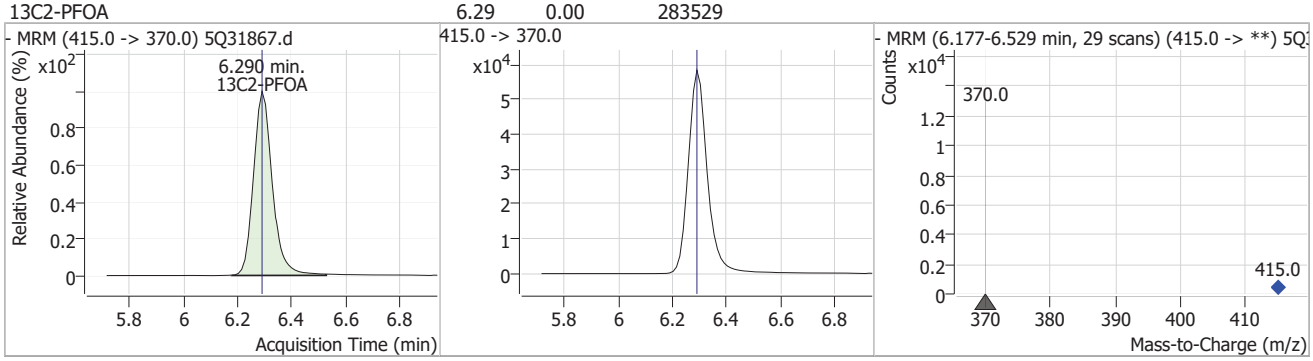


Perfluorinated Compounds by LC/MS/MS

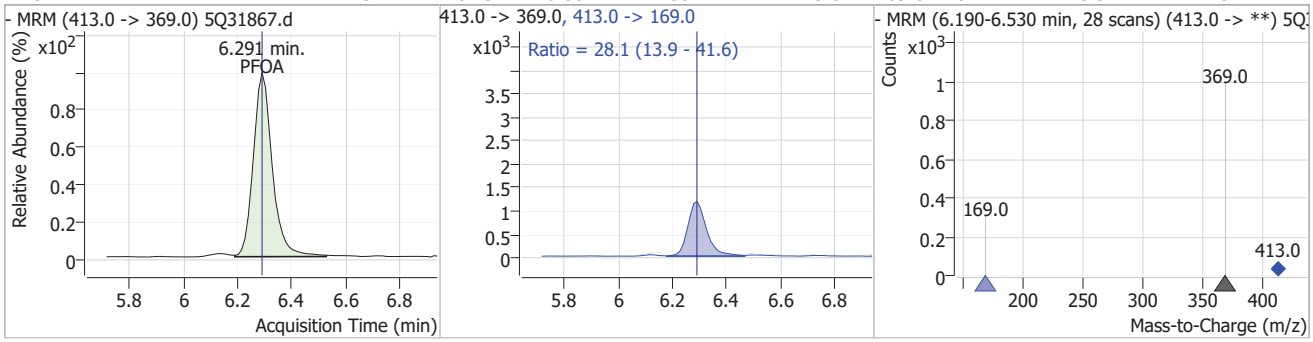
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.81	6.28	0.00	11245	427.0 -> 81.0	36.2	16.3	48.8



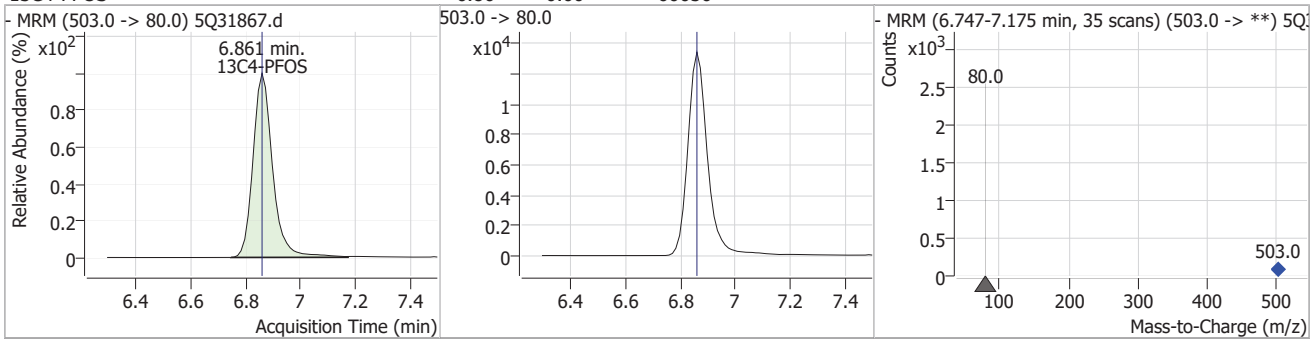
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	283529				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.52	6.29	0.00	20044	413.0 -> 169.0	28.1	13.9	41.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	66656				



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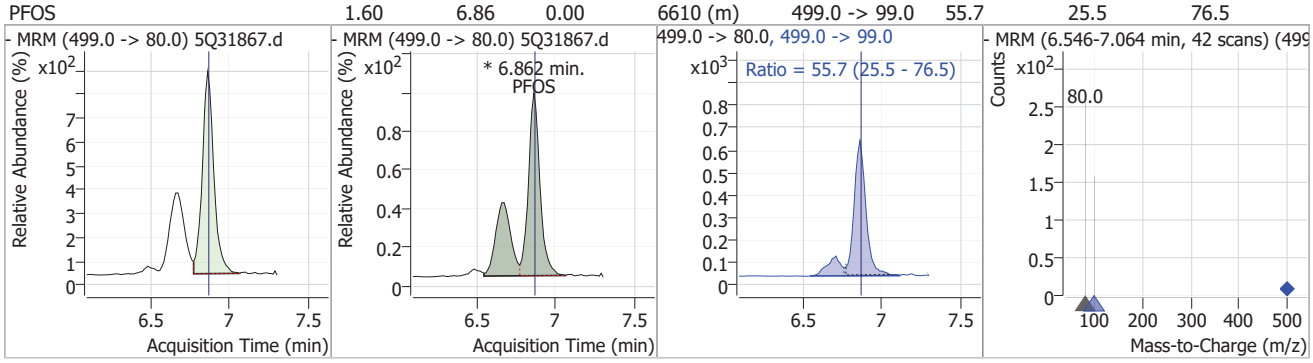
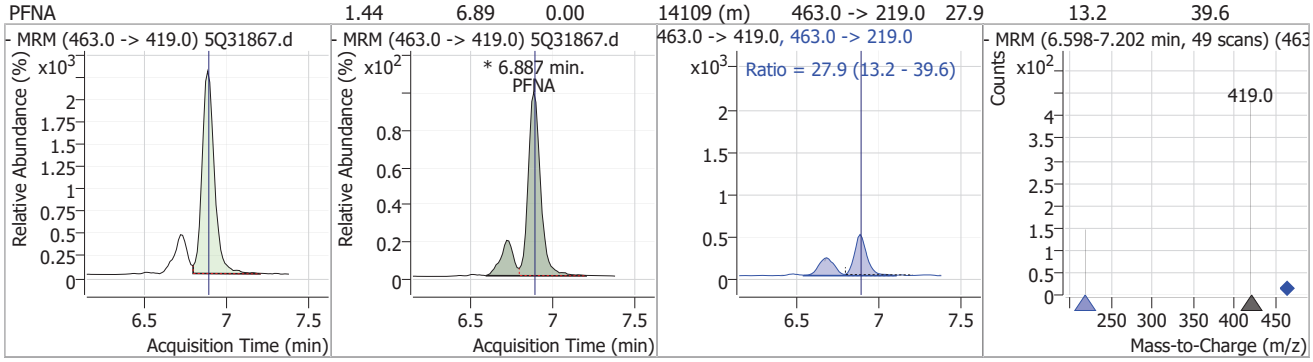
Perfluorinated Compounds by LC/MS/MS

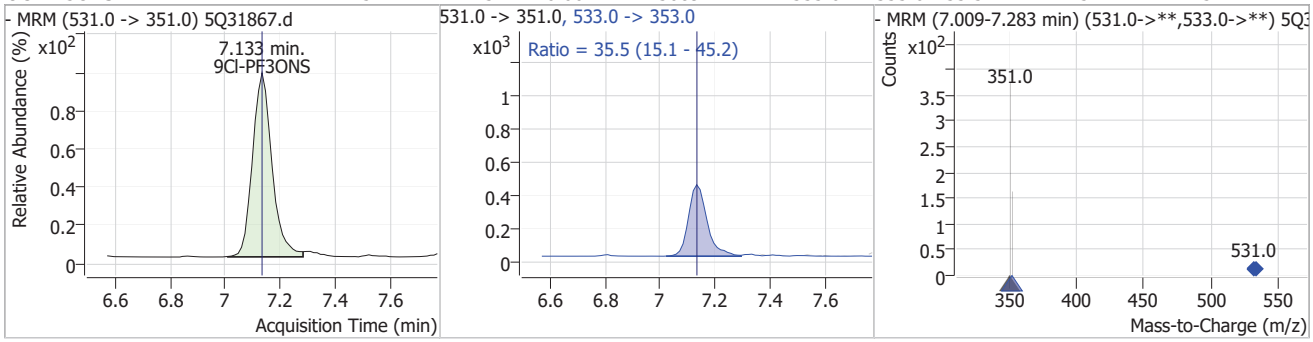
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.60	6.86	0.00	6610 (m)	499.0 -> 99.0	55.7	25.5	76.5



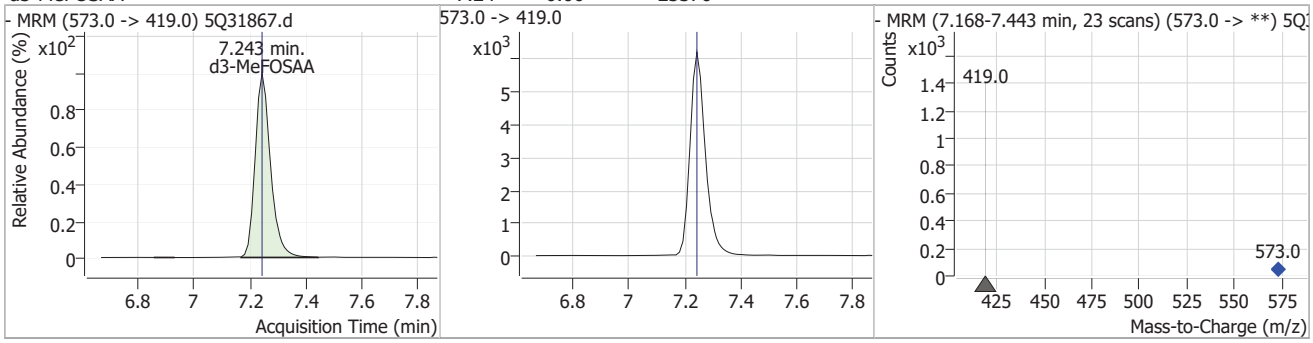
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.44	6.89	0.00	14109 (m)	463.0 -> 219.0	27.9	13.2	39.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	1.57	7.13	0.00	5689	533.0 -> 353.0	35.5	15.1	45.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	23376				



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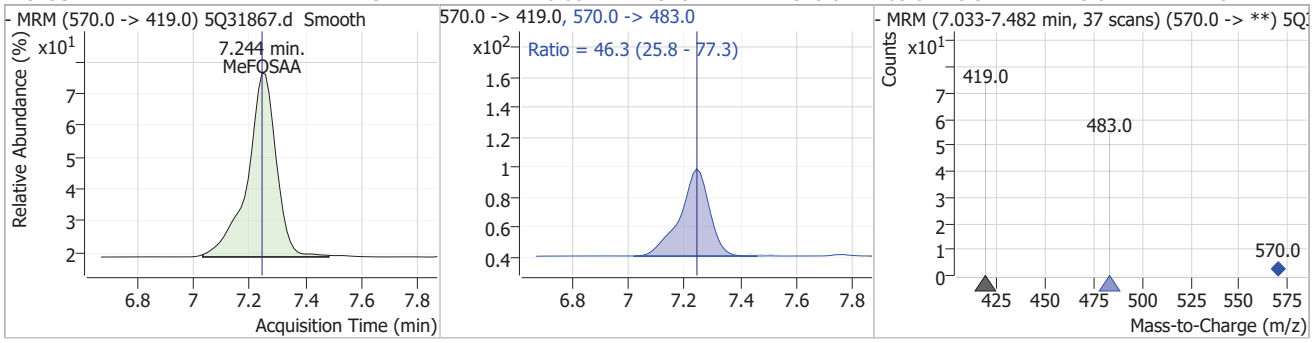
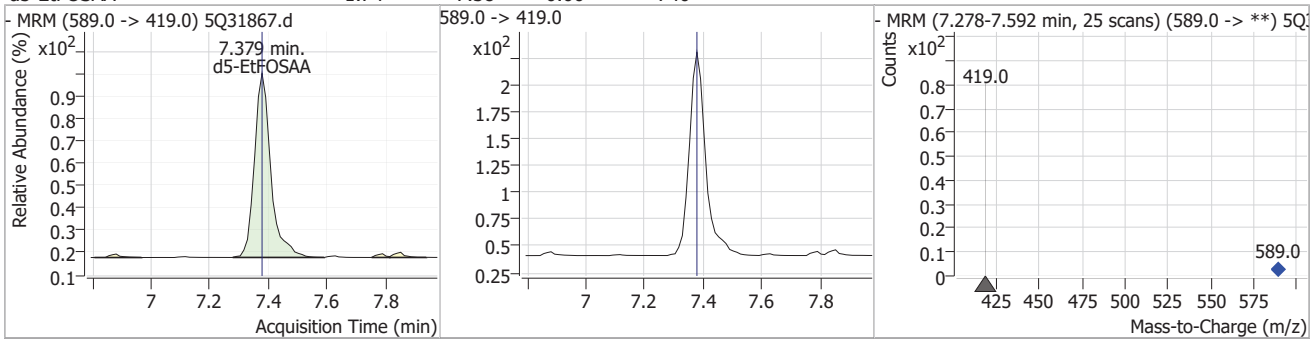
Perfluorinated Compounds by LC/MS/MS

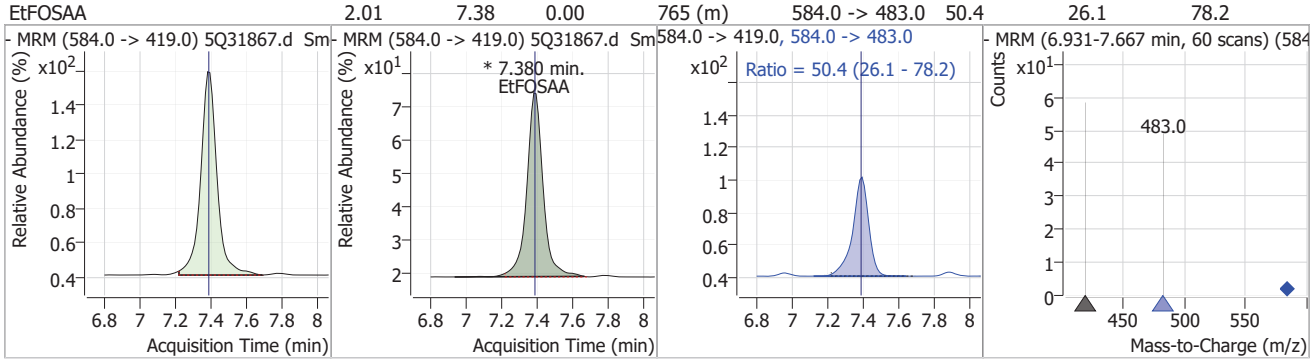
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	1.79	7.24	0.00	916	570.0 -> 483.0	46.3	25.8	77.3



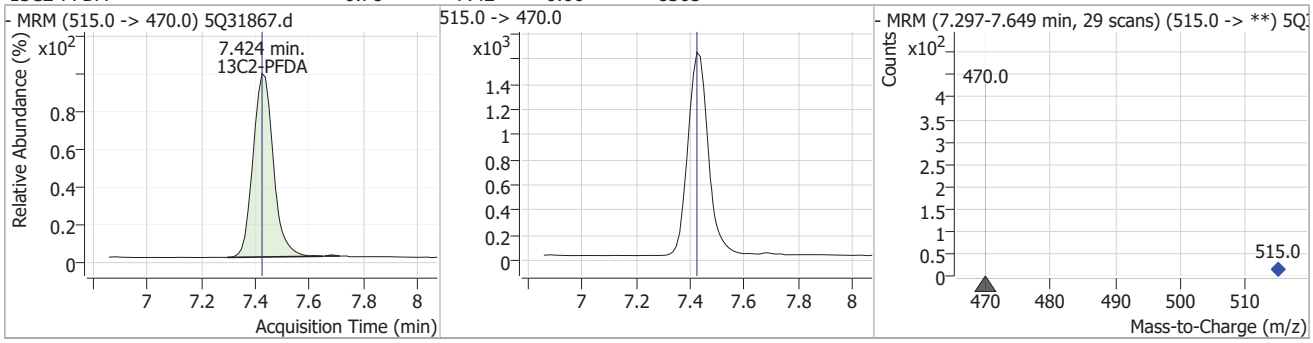
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	1.74	7.38	0.00	740				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.01	7.38	0.00	765 (m)	584.0 -> 483.0	50.4	26.1	78.2

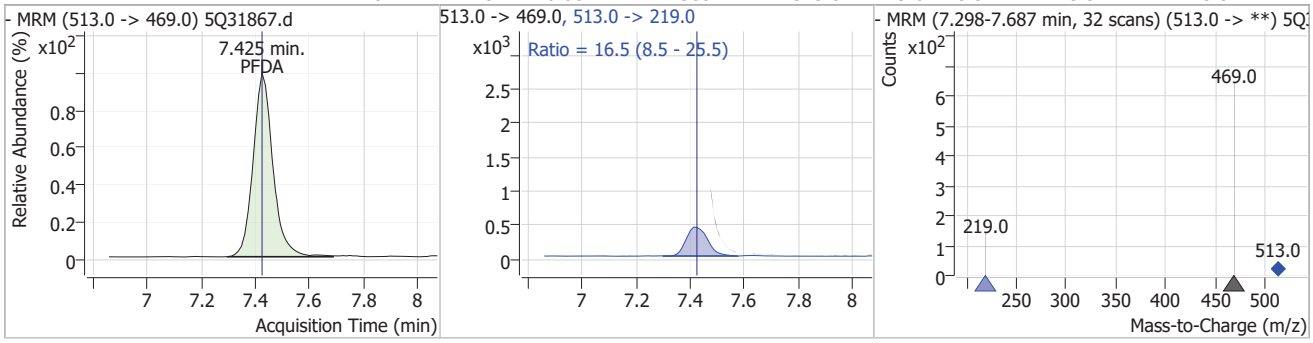


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.78	7.42	0.00	8365				

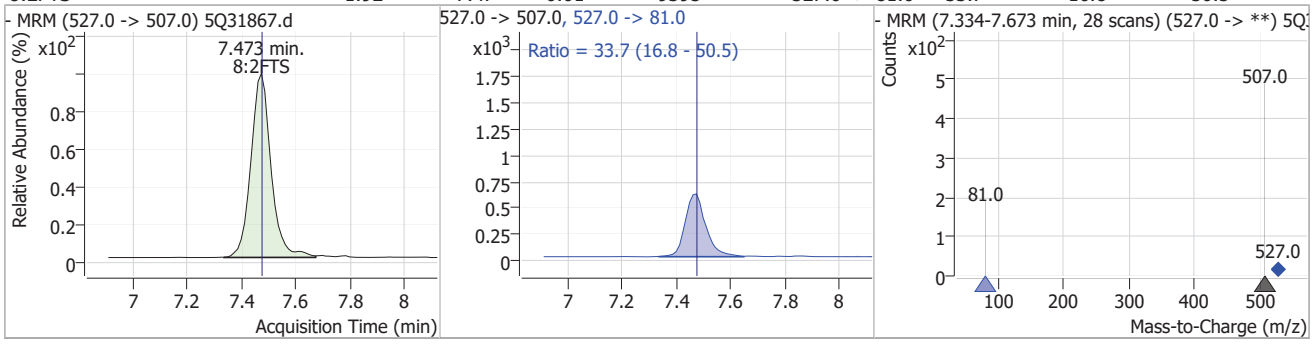


Perfluorinated Compounds by LC/MS/MS

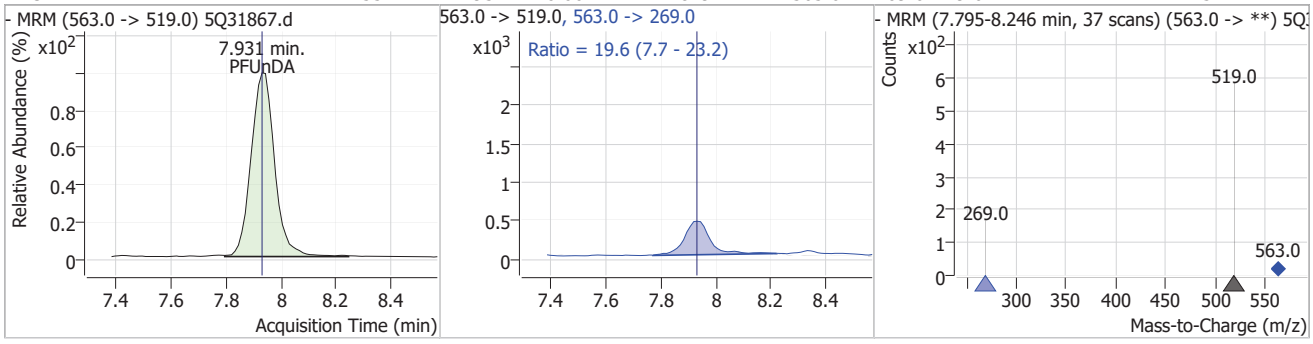
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.46	7.43	0.00	14383	513.0 -> 219.0	16.5	8.5	25.5



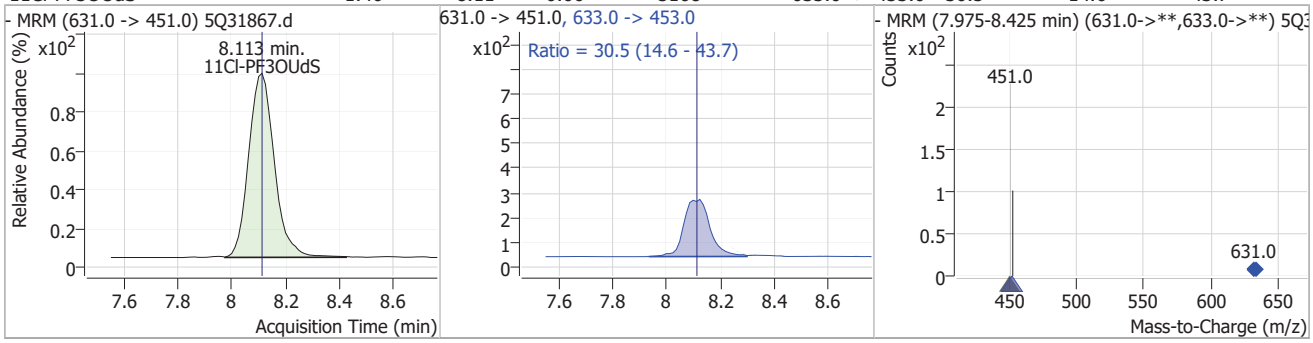
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	1.92	7.47	0.01	9395	527.0 -> 81.0	33.7	16.8	50.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.55	7.93	0.00	14819	563.0 -> 269.0	19.6	7.7	23.2

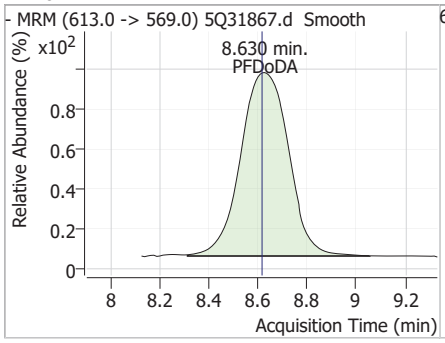


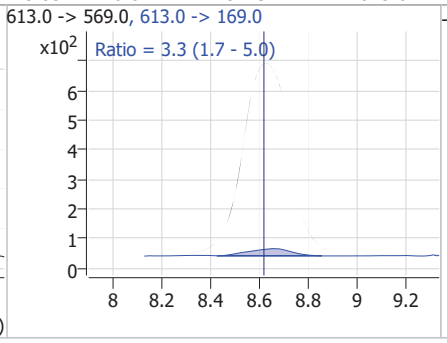
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	1.40	8.11	0.00	5168	633.0 -> 453.0	30.5	14.6	43.7

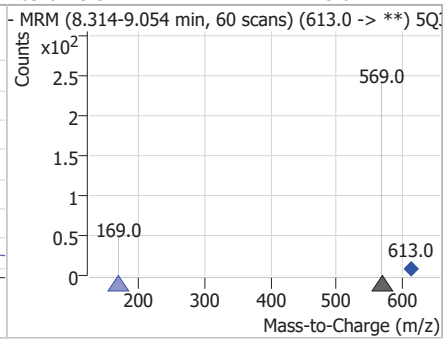


Perfluorinated Compounds by LC/MS/MS

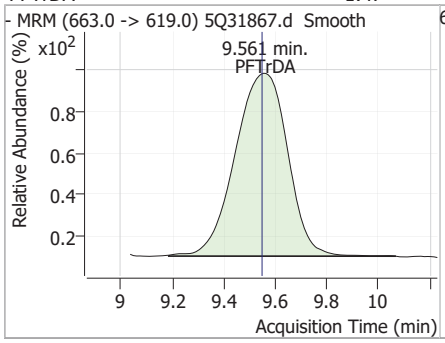
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	1.42	8.63	0.01	8729	613.0 -> 169.0	3.3	1.7	5.0

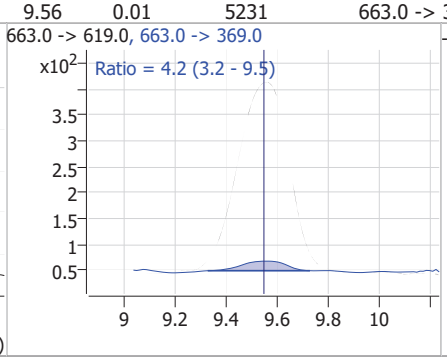


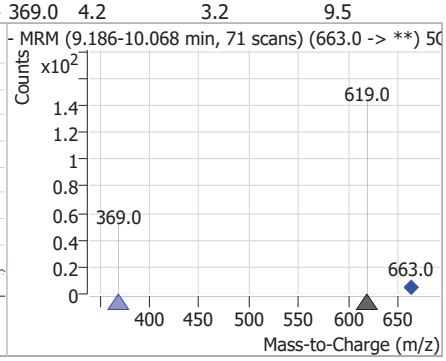




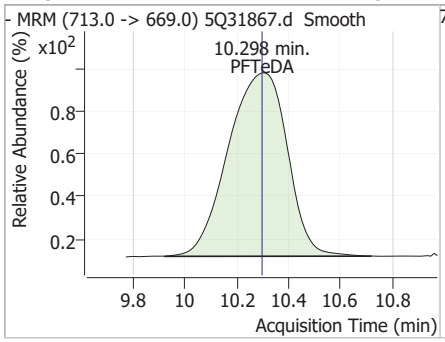
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	1.47	9.56	0.01	5231	663.0 -> 369.0	4.2	3.2	9.5

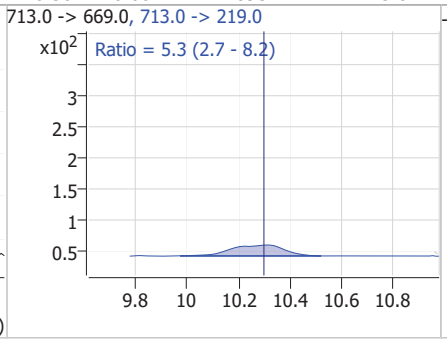


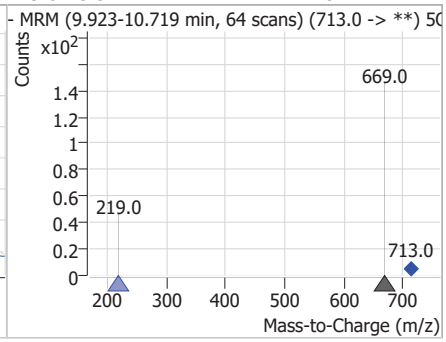




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.48	10.30	0.00	4895	713.0 -> 219.0	5.3	2.7	8.2







Manual Integration Approval Summary

Sample Number: S5Q524-IC524
Lab FileID: 5Q31867.D
Injection Time: 04/18/25 14:28
Method: EPA 537.1 REV 2.0
Analyst approved: 04/21/25 09:54 (b) (6)
Supervisor approved: 04/21/25 10:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
HFPO-DA (GenX)	13252-13-6		5.04	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/21/25 10:51

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31868.d
Operator : (b) (6)
Acq. Method : 537_5Q.m
Acq. Date-Time : 4/18/2025 2:45:04 PM
Sample Name : ic524-5
Vial : P1-A5
DA Method File : 537_041825_S5Q524.quantmethod.xml
Batch Name : s5q524.batch.bin
Sample Information : OP8882,S5Q524,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.275	429.0 -> 409.0	124389	20.00	µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	258136	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	328974	20.00	µg/L		0.000
13C4-PFOS	6.861	503.0 -> 80.0	63647	20.00	µg/L		0.000
d3-MeFOSAA	7.243	573.0 -> 419.0	22142	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.424	515.0 -> 470.0	23719	2.42	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 12.1%			
13C2-PFHxA	4.764	315.0 -> 270.0	35848	2.39	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 11.9%			
d5-EtFOSAA	7.379	589.0 -> 419.0	1945	4.81	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 12.0%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	5106	4.96	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 12.4%			
Target Compounds							QValue
6:2FTS	6.276	427.0 -> 407.0	33603	5.64	µg/L		99
8:2FTS	7.473	527.0 -> 507.0	26052	5.57	µg/L		100
EtFOSAA	7.380	584.0 -> 419.0	1745	4.84	µg/L	m	79
MeFOSAA	7.244	570.0 -> 419.0	2343	4.83	µg/L		93
PFBS	3.828	299.0 -> 80.0	39588	4.94	µg/L		99
PFDA	7.425	513.0 -> 469.0	41192	4.58	µg/L		97
PFDoDA	8.630	613.0 -> 569.0	26201	4.47	µg/L		99
PFHpA	5.615	363.0 -> 319.0	100256	4.80	µg/L		100
PFHxA	4.765	313.0 -> 269.0	48924	4.78	µg/L		98
PFHxS	5.636	399.0 -> 80.0	23943	4.61	µg/L	m	99
PFNA	6.887	463.0 -> 419.0	40633	4.57	µg/L	m	96
PFOA	6.291	413.0 -> 369.0	57278	4.77	µg/L		100
PFOS	6.862	499.0 -> 80.0	18157	4.62	µg/L	m	96
PFPeA	3.597	263.0 -> 219.0	96113	4.75	µg/L		100
PFTeDA	10.310	713.0 -> 669.0	13746	4.34	µg/L		100
PFTrDA	9.548	663.0 -> 619.0	14153	4.17	µg/L		98
PFUnDA	7.931	563.0 -> 519.0	41475	4.55	µg/L		97
ADONA	5.689	377.0 -> 251.0	124537	4.55	µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	16666	5.03	µg/L		97
11Cl-PF3OUdS	8.101	631.0 -> 451.0	15222	4.55	µg/L		99
HFPO-DA	5.022	285.0 -> 169.0	4613	4.78	µg/L		99

 # = Qualifier out of range, m = manually integrated, + = Area summed

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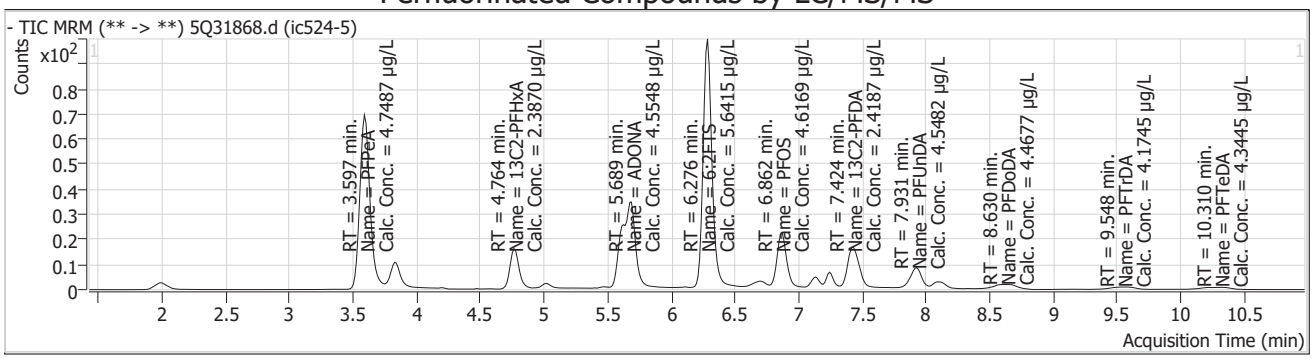
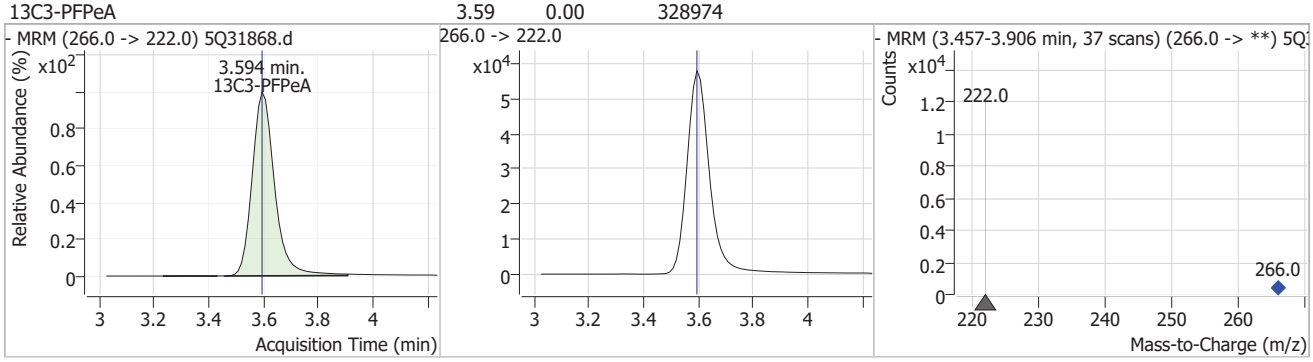
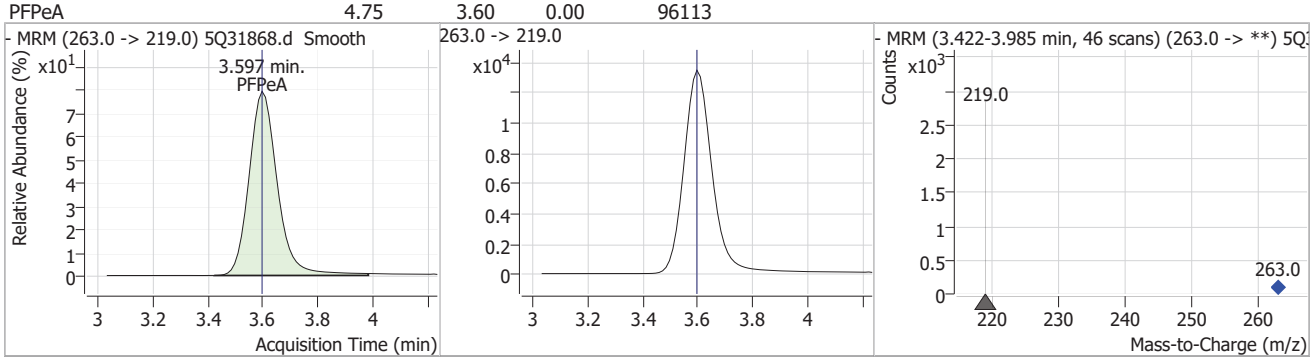
Perfluorinated Compounds by LC/MS/MS



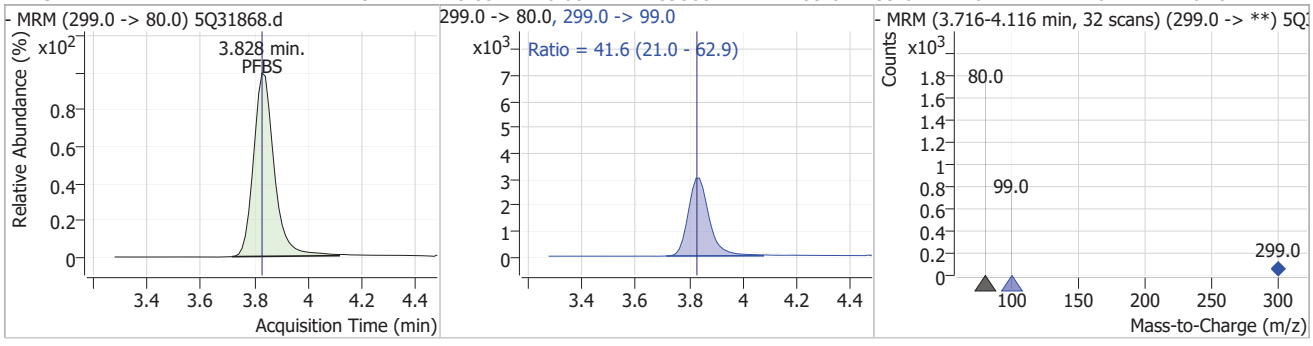
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	328974				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.75	3.60	0.00	96113				

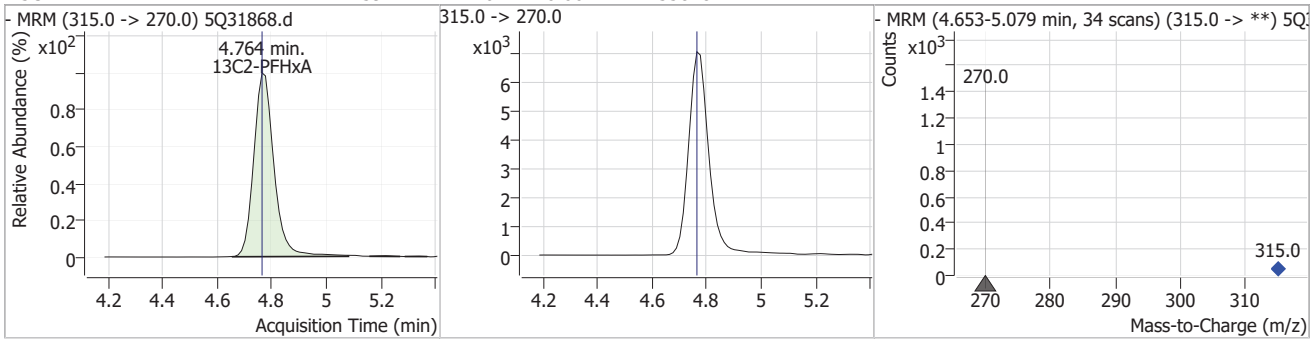


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	4.94	3.83	0.00	39588	299.0 -> 99.0	41.6	21.0	62.9

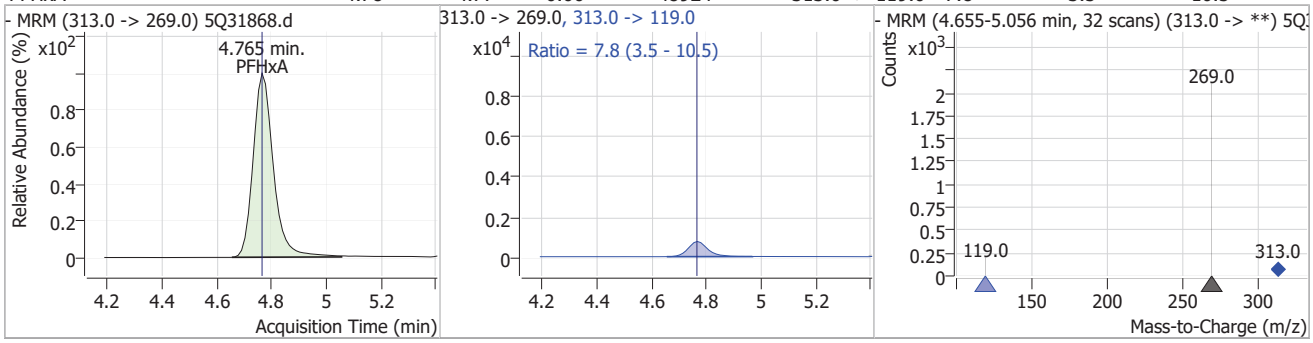


Perfluorinated Compounds by LC/MS/MS

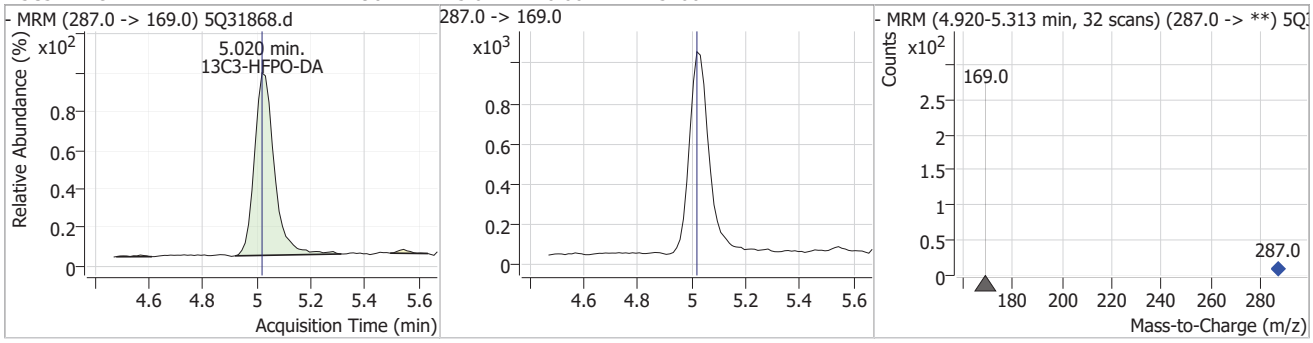
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	2.39	4.76	0.00	35848				



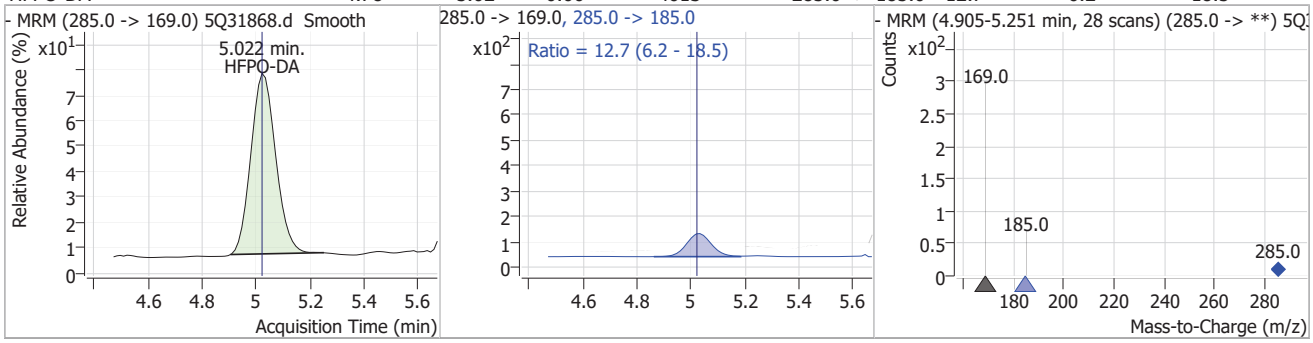
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	4.78	4.77	0.00	48924	313.0 -> 119.0	7.8	3.5	10.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	4.96	5.02	0.00	5106				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.78	5.02	0.00	4613	285.0 -> 185.0	12.7	6.2	18.5



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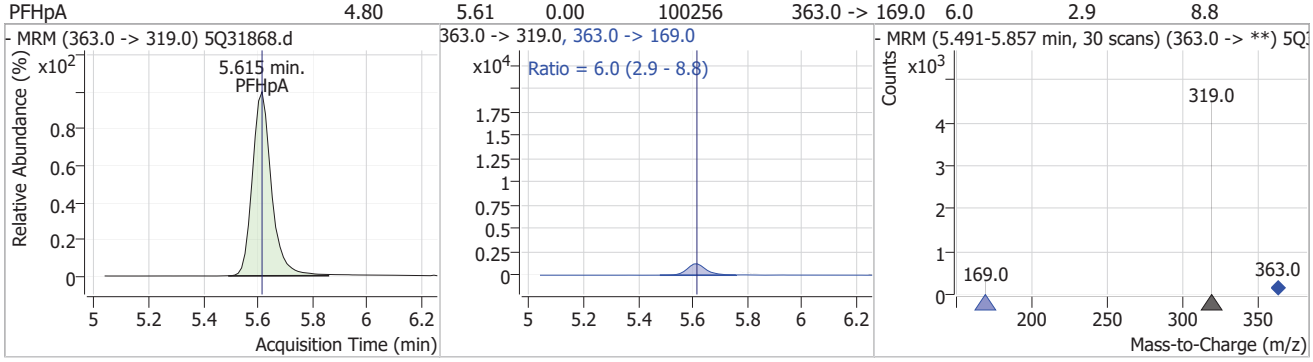
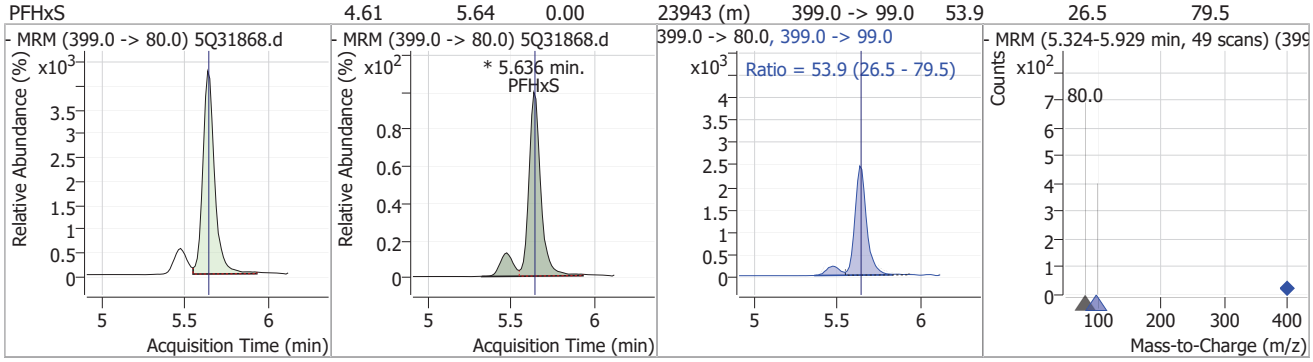
Perfluorinated Compounds by LC/MS/MS

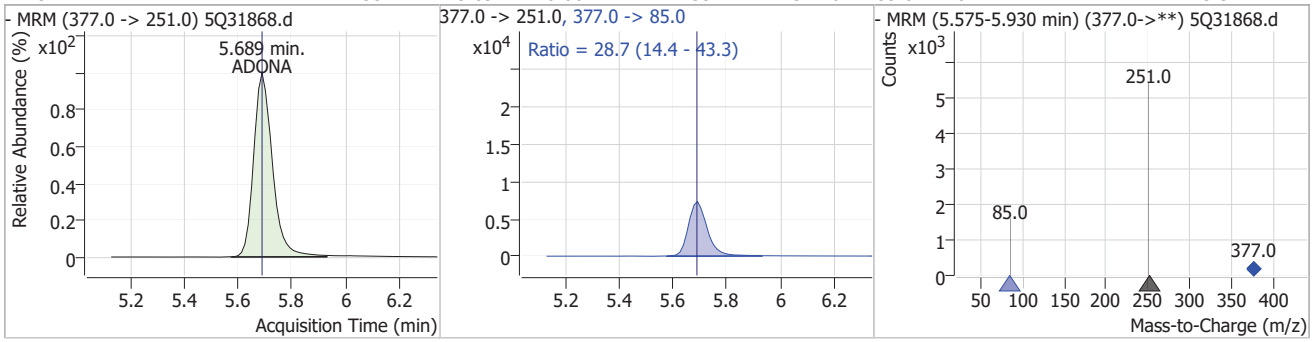
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	4.80	5.61	0.00	100256	363.0 -> 169.0	6.0	2.9	8.8



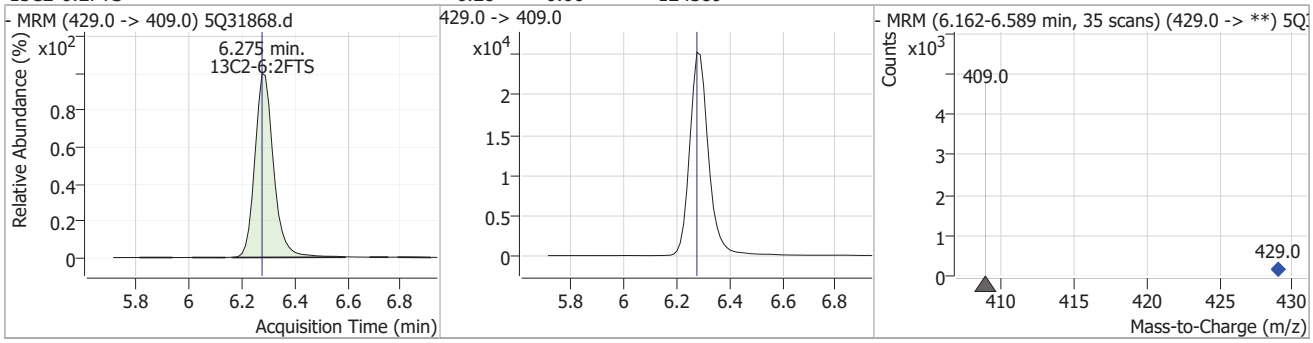
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	4.61	5.64	0.00	23943 (m)	399.0 -> 99.0	53.9	26.5	79.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	4.55	5.69	0.00	124537	377.0 -> 85.0	28.7	14.4	43.3

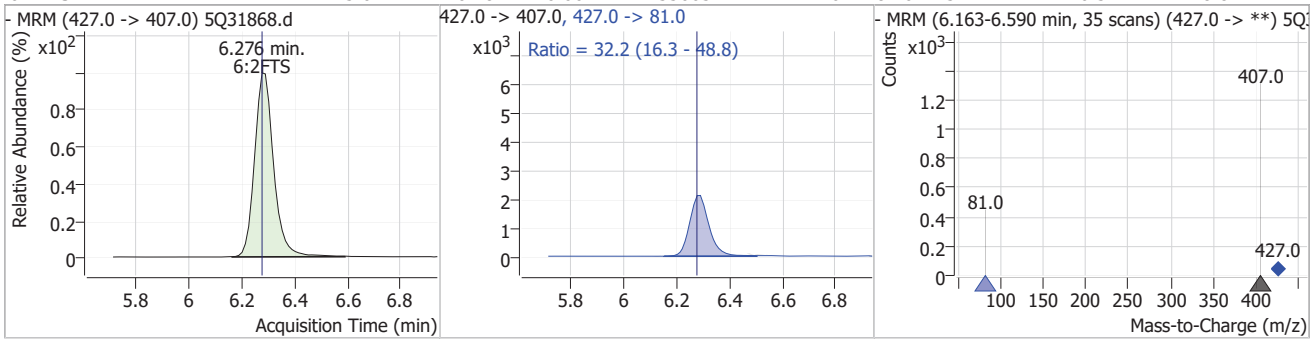


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	0.00	124389				

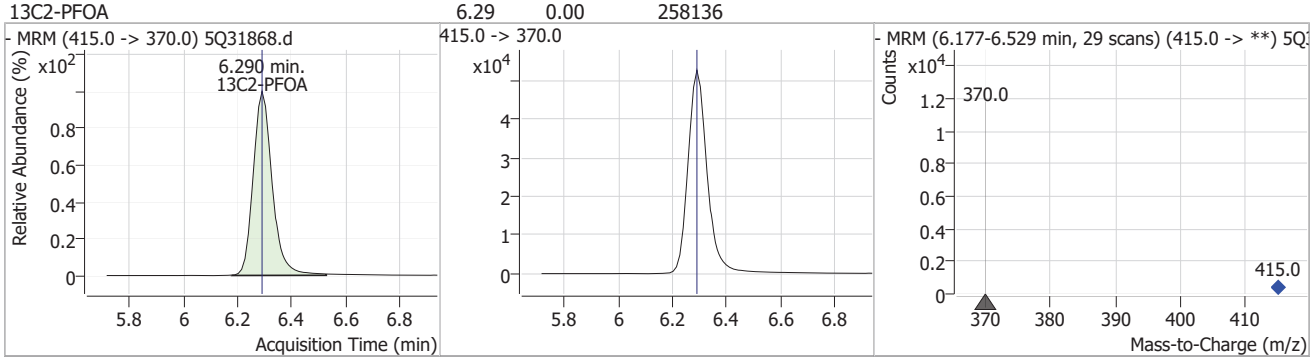


Perfluorinated Compounds by LC/MS/MS

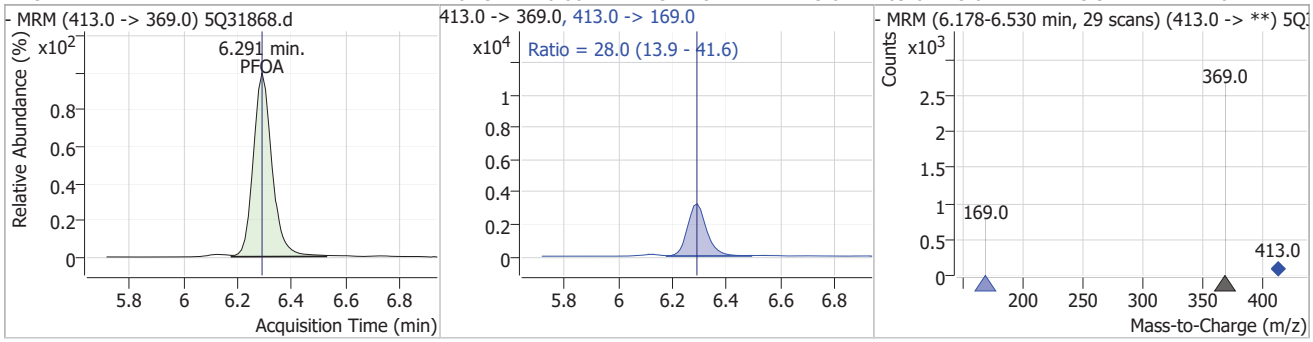
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	5.64	6.28	0.00	33603	427.0 -> 81.0	32.2	16.3	48.8



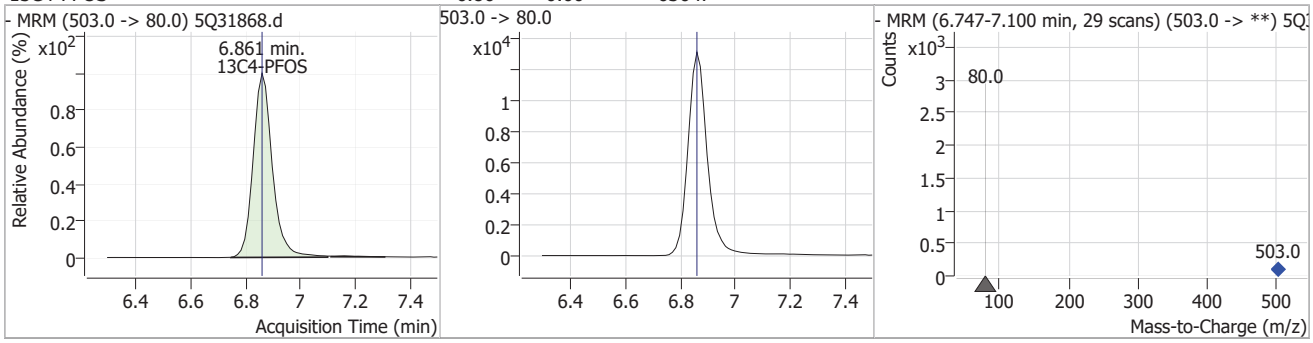
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	258136				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	4.77	6.29	0.00	57278	413.0 -> 169.0	28.0	13.9	41.6

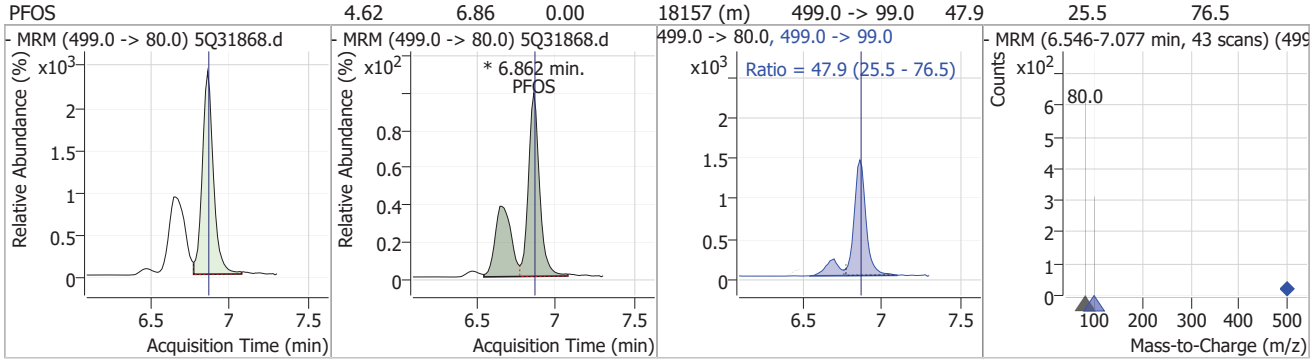


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	63647				

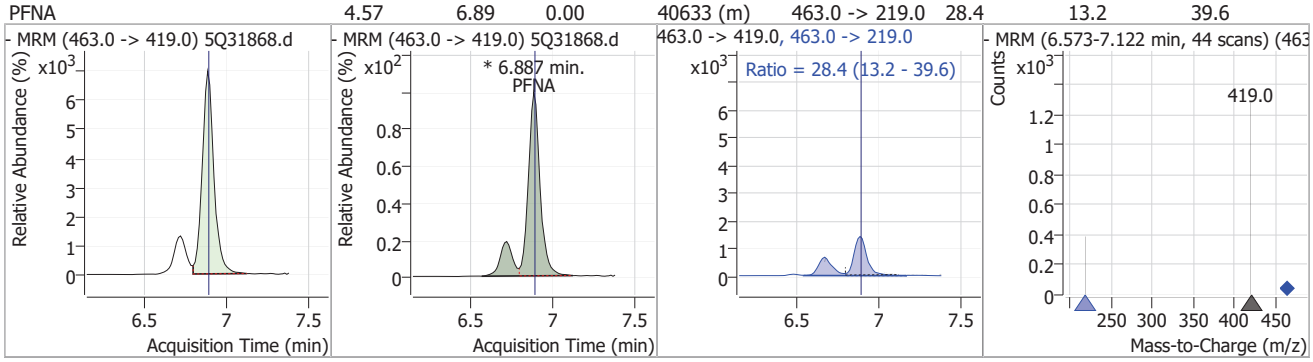


Perfluorinated Compounds by LC/MS/MS

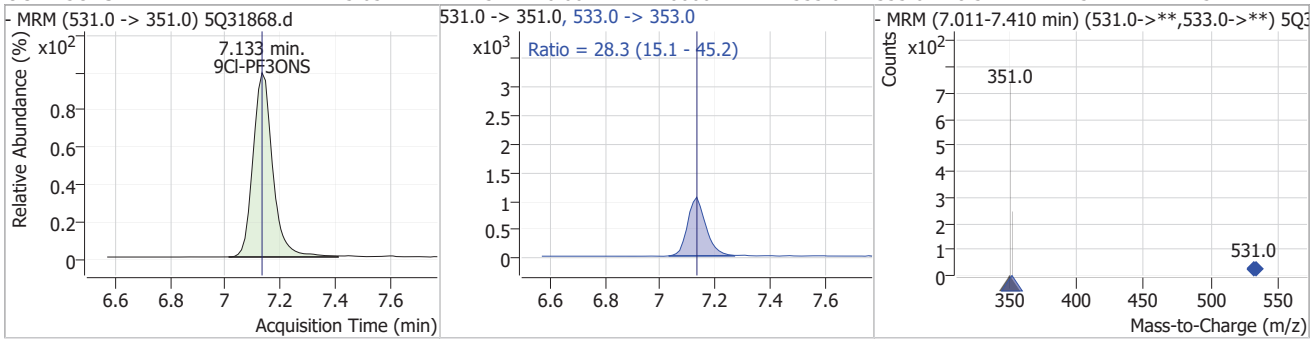
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	4.62	6.86	0.00	18157 (m)	499.0 -> 99.0	47.9	25.5	76.5



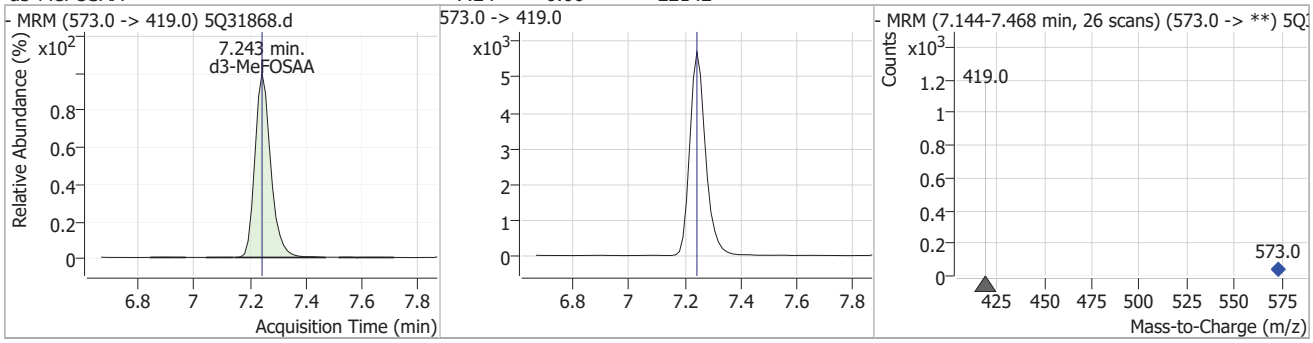
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	4.57	6.89	0.00	40633 (m)	463.0 -> 219.0	28.4	13.2	39.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	5.03	7.13	0.00	16666	533.0 -> 353.0	28.3	15.1	45.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	22142				



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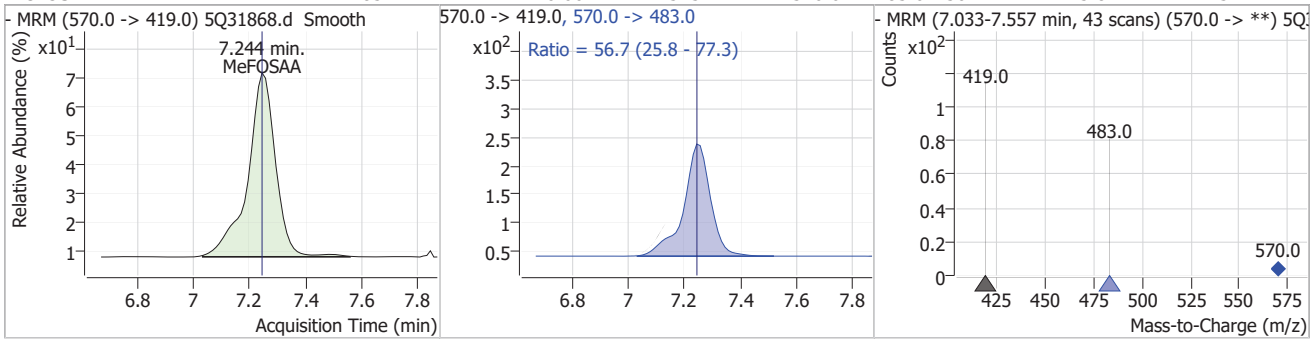
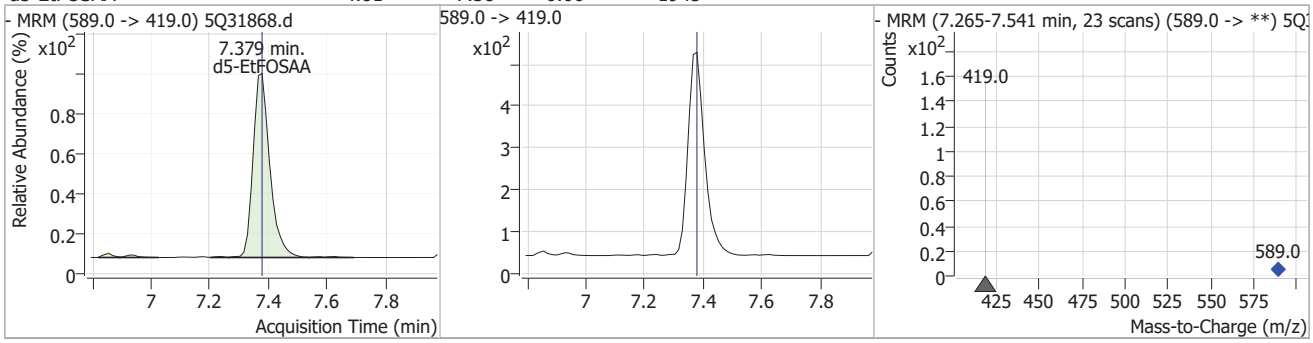
Perfluorinated Compounds by LC/MS/MS

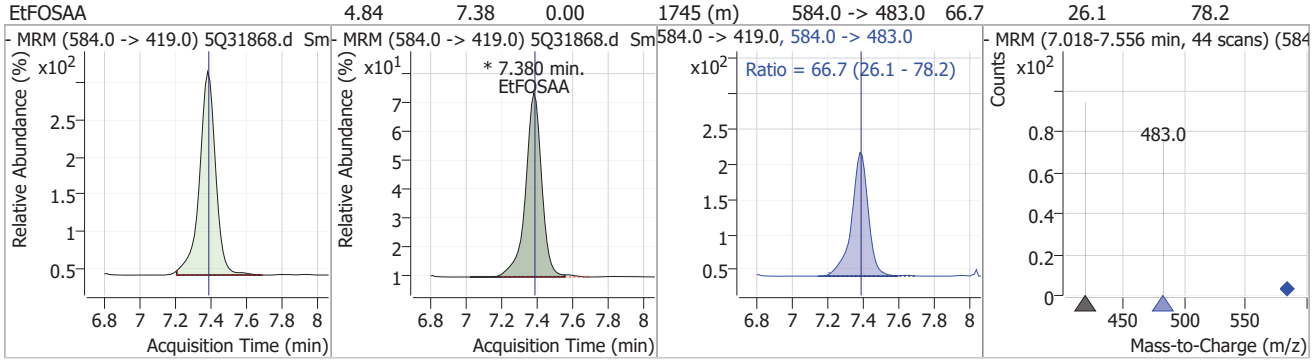
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	4.83	7.24	0.00	2343	570.0 -> 483.0	56.7	25.8	77.3



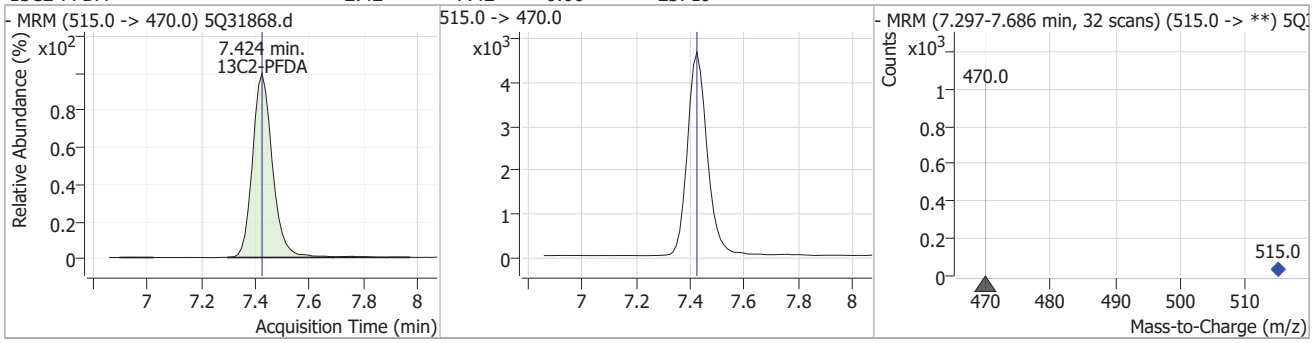
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.81	7.38	0.00	1945				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	4.84	7.38	0.00	1745 (m)	584.0 -> 483.0	66.7	26.1	78.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	2.42	7.42	0.00	23719				



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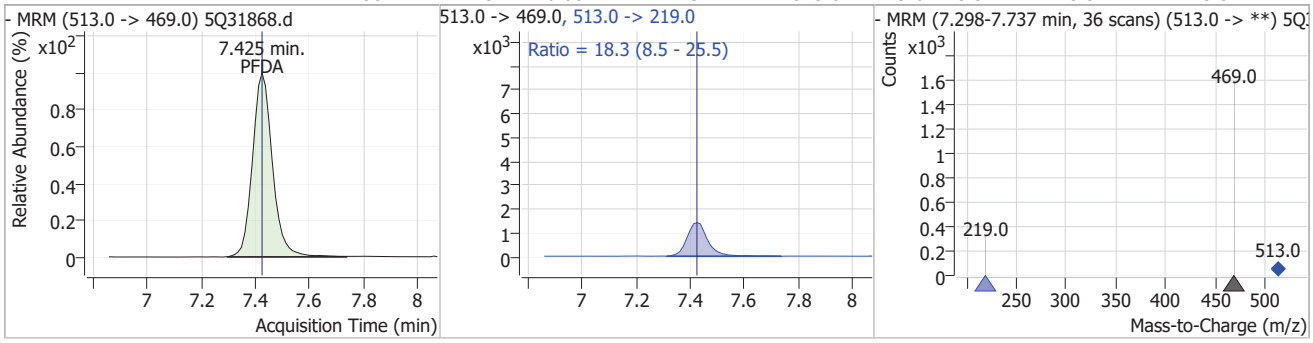
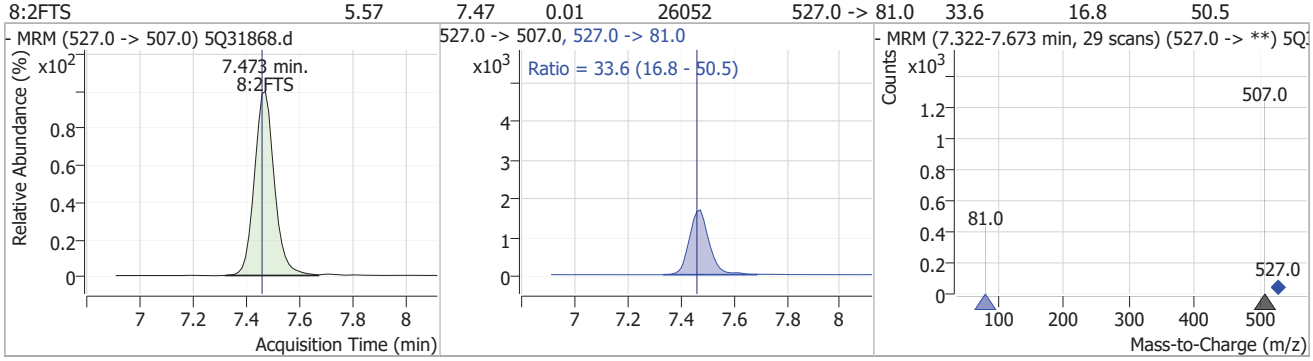
Perfluorinated Compounds by LC/MS/MS

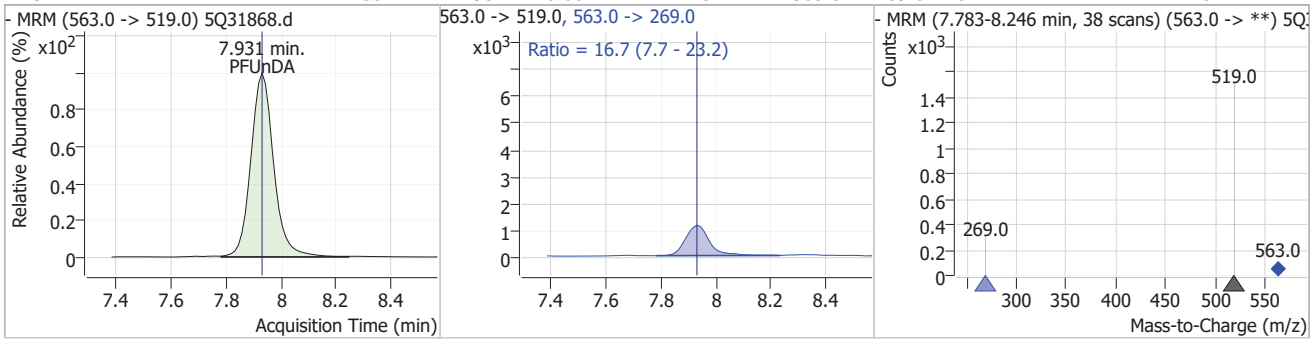
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	4.58	7.43	0.00	41192	513.0 -> 219.0	18.3	8.5	25.5



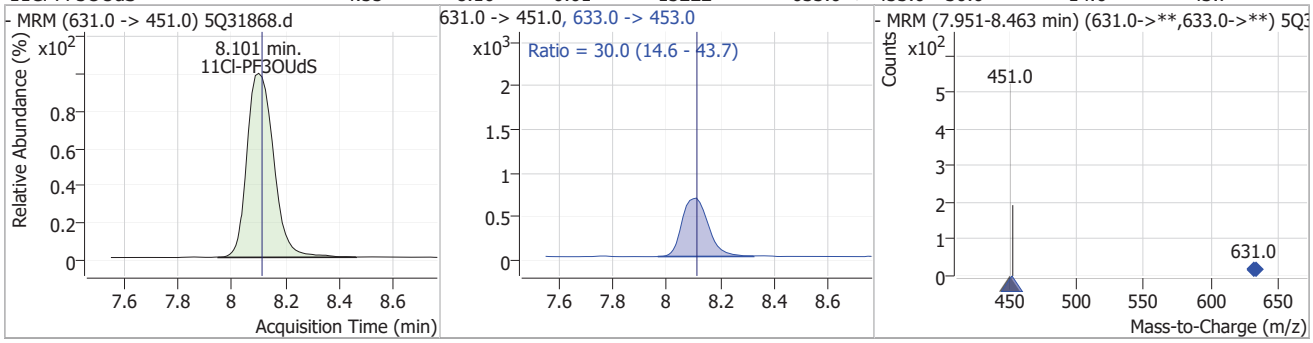
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	5.57	7.47	0.01	26052	527.0 -> 81.0	33.6	16.8	50.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	4.55	7.93	0.00	41475	563.0 -> 269.0	16.7	7.7	23.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	4.55	8.10	-0.01	15222	633.0 -> 453.0	30.0	14.6	43.7



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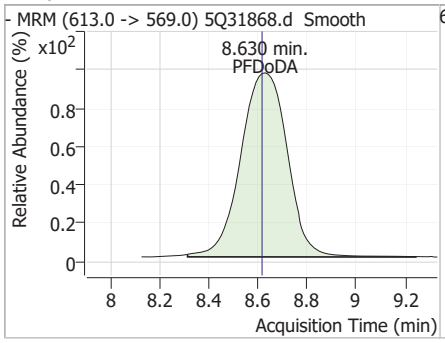
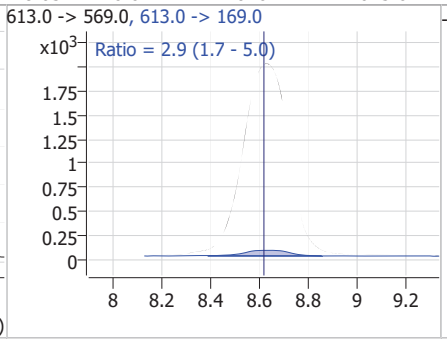
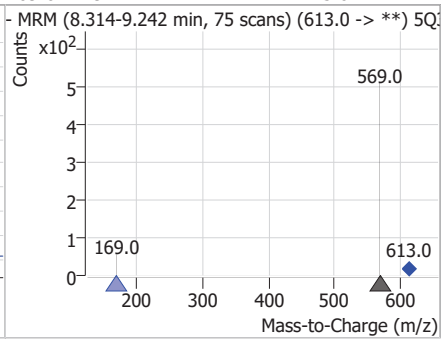
Perfluorinated Compounds by LC/MS/MS

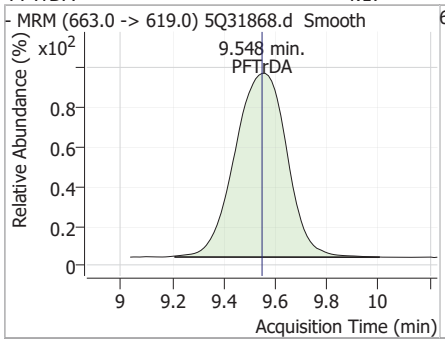
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	4.47	8.63	0.01	26201	613.0 -> 169.0	2.9	1.7	5.0

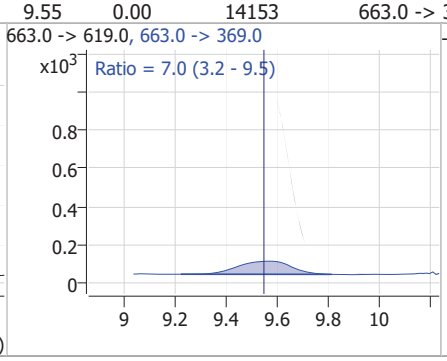


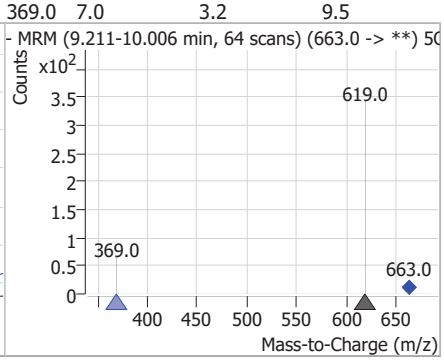




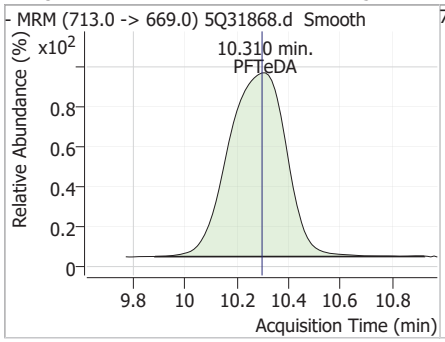
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	4.17	9.55	0.00	14153	663.0 -> 369.0	7.0	3.2	9.5

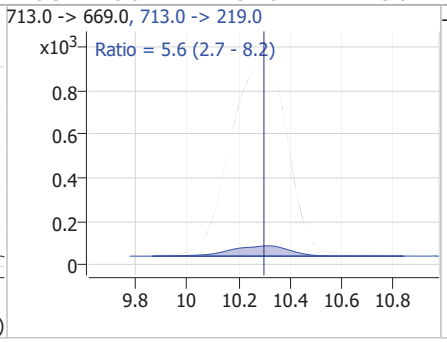


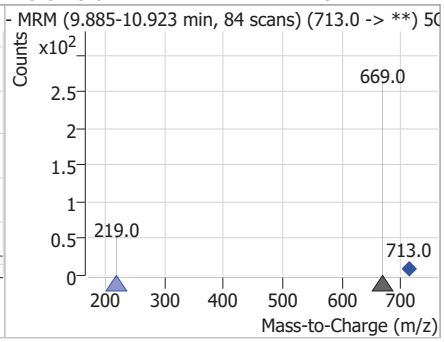




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	4.34	10.31	0.01	13746	713.0 -> 219.0	5.6	2.7	8.2







7.7.46

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Manual Integration Approval Summary

Sample Number: S5Q524-IC524
Lab FileID: 5Q31868.D
Injection Time: 04/18/25 14:45
Method: EPA 537.1 REV 2.0
Analyst approved: 04/21/25 09:54 (b) (6)
Supervisor approved: 04/21/25 10:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/21/25 10:51

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31869.d
Operator : (b) (6)
Acq. Method : 537_5Q.m
Acq. Date-Time : 4/18/2025 3:01:37 PM
Sample Name : ic524-10
Vial : P1-A6
DA Method File : 537_041825_S5Q524.quantmethod.xml
Batch Name : s5q524.batch.bin
Sample Information : OP8882,S5Q524,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.288	429.0 -> 409.0	127508	20.00	µg/L		0.012
13C2-PFOA	6.290	415.0 -> 370.0	263597	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	329517	20.00	µg/L		0.000
13C4-PFOS	6.861	503.0 -> 80.0	64347	20.00	µg/L		0.000
d3-MeFOSAA	7.243	573.0 -> 419.0	21757	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.424	515.0 -> 470.0	52898	5.28	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 26.4%			
13C2-PFHxA	4.764	315.0 -> 270.0	80436	5.24	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 26.2%			
d5-EtFOSAA	7.379	589.0 -> 419.0	4376	11.02	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 27.5%			
13C3-HFPO-DA	5.032	287.0 -> 169.0	11192	10.65	µg/L		0.012
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 26.6%			
Target Compounds							QValue
6:2FTS	6.276	427.0 -> 407.0	75996	12.45	µg/L		99
8:2FTS	7.473	527.0 -> 507.0	57227	11.94	µg/L		99
EtFOSAA	7.380	584.0 -> 419.0	4362	12.31	µg/L	m	98
MeFOSAA	7.244	570.0 -> 419.0	5150	10.79	µg/L	m	98
PFBS	3.828	299.0 -> 80.0	87524	10.79	µg/L		99
PFDA	7.425	513.0 -> 469.0	96843	10.55	µg/L		99
PFDoDA	8.630	613.0 -> 569.0	55181	9.28	µg/L		99
PFHpA	5.615	363.0 -> 319.0	222949	10.46	µg/L		100
PFHxA	4.765	313.0 -> 269.0	110301	10.56	µg/L		99
PFHxS	5.636	399.0 -> 80.0	52062	9.91	µg/L	m	98
PFNA	6.887	463.0 -> 419.0	90864	10.00	µg/L	m	99
PFOA	6.291	413.0 -> 369.0	128733	10.51	µg/L		98
PFOS	6.862	499.0 -> 80.0	40403	10.16	µg/L	m	98
PFPeA	3.597	263.0 -> 219.0	211783	10.45	µg/L		100
PFTeDA	10.298	713.0 -> 669.0	30272	9.46	µg/L		100
PFTrDA	9.548	663.0 -> 619.0	31064	9.06	µg/L		99
PFUnDA	7.931	563.0 -> 519.0	94698	10.27	µg/L		99
ADONA	5.689	377.0 -> 251.0	281556	10.08	µg/L		99
9Cl-PF3ONS	7.133	531.0 -> 351.0	36958	10.82	µg/L		95
11Cl-PF3OUdS	8.101	631.0 -> 451.0	33043	9.66	µg/L		100
HFPO-DA	5.022	285.0 -> 169.0	10518	10.68	µg/L		100

 # = Qualifier out of range, m = manually integrated, + = Area summed

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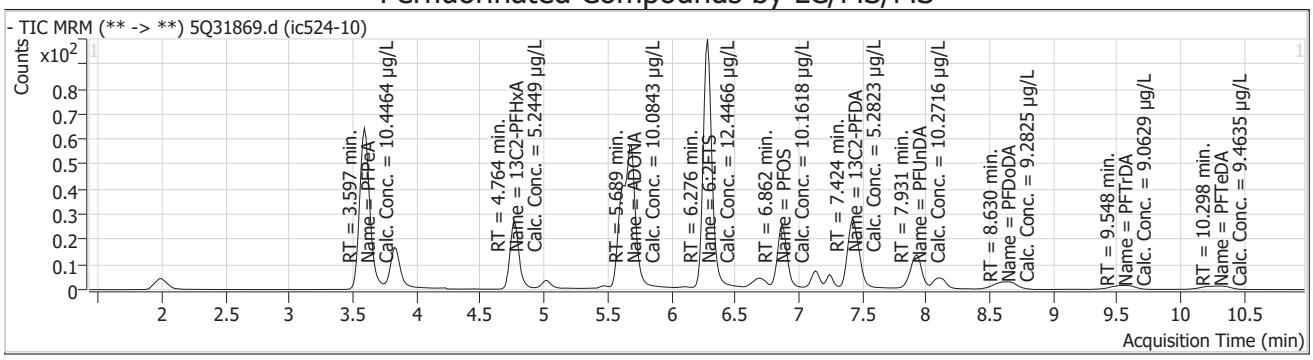
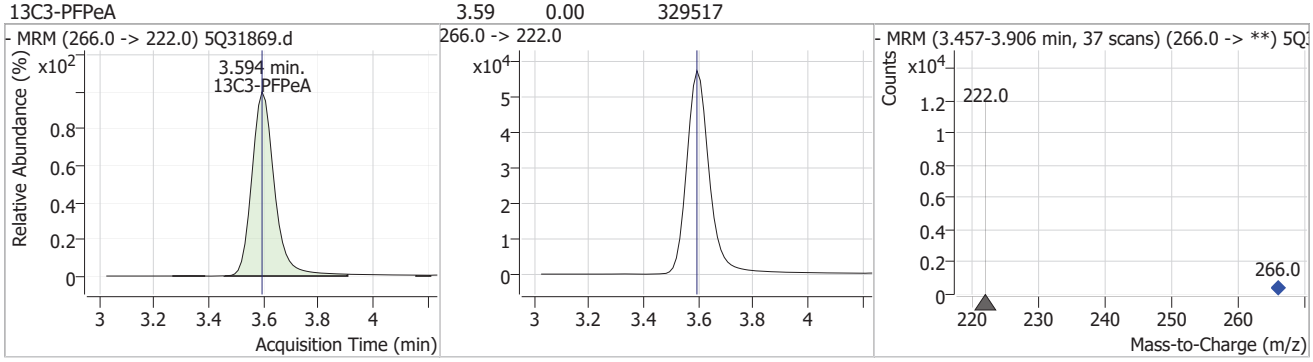
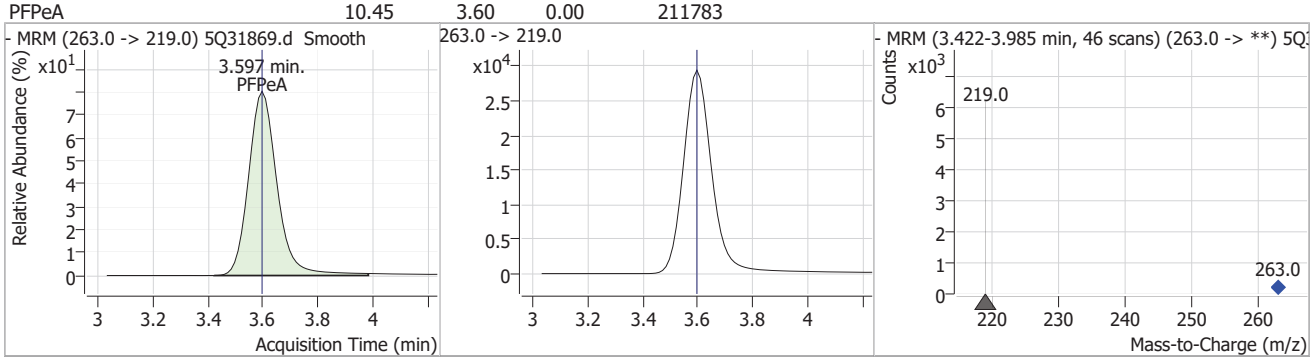
Perfluorinated Compounds by LC/MS/MS



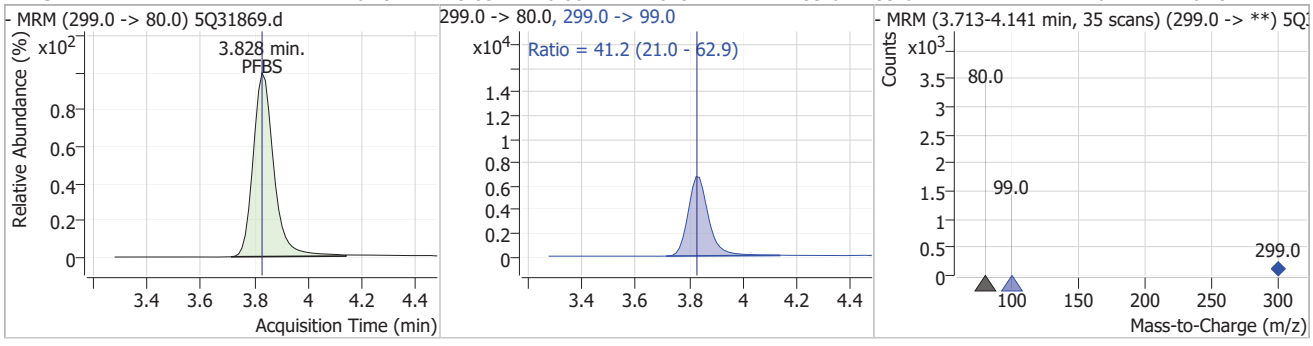
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	329517				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	10.45	3.60	0.00	211783				

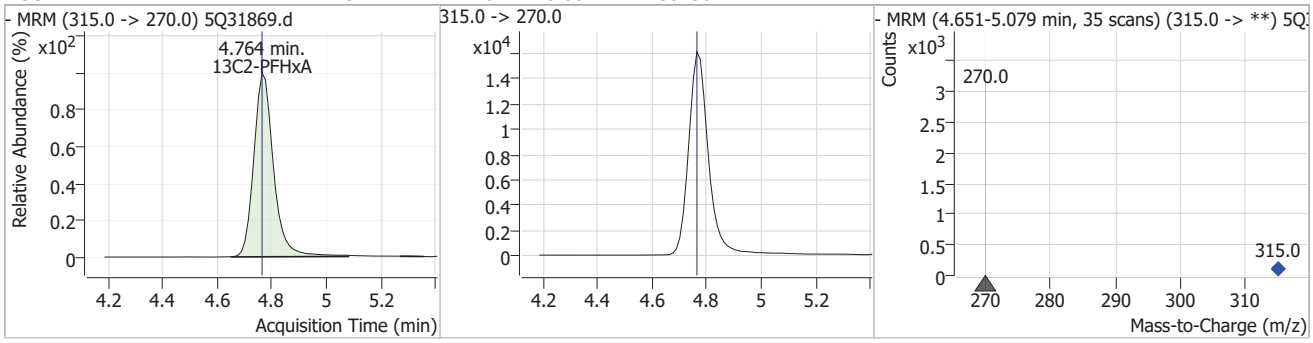


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	10.79	3.83	0.00	87524	299.0 -> 99.0	41.2	21.0	62.9

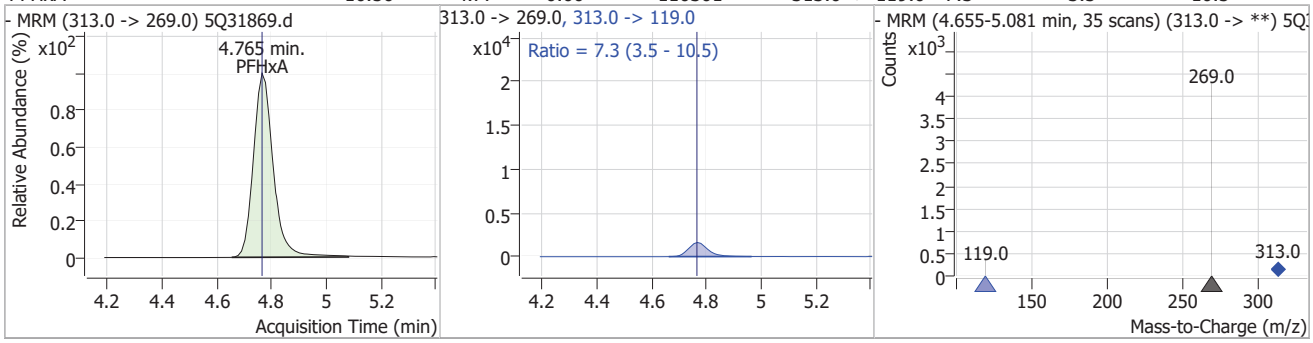


Perfluorinated Compounds by LC/MS/MS

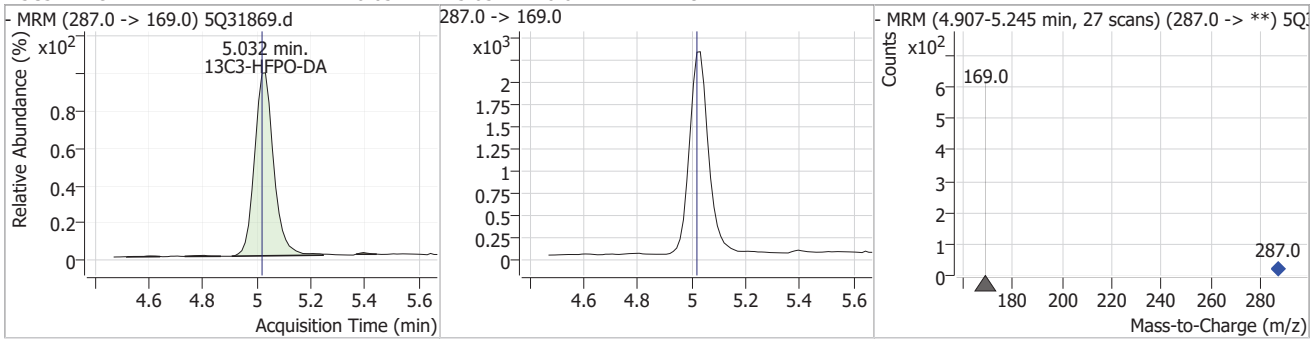
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	5.24	4.76	0.00	80436				



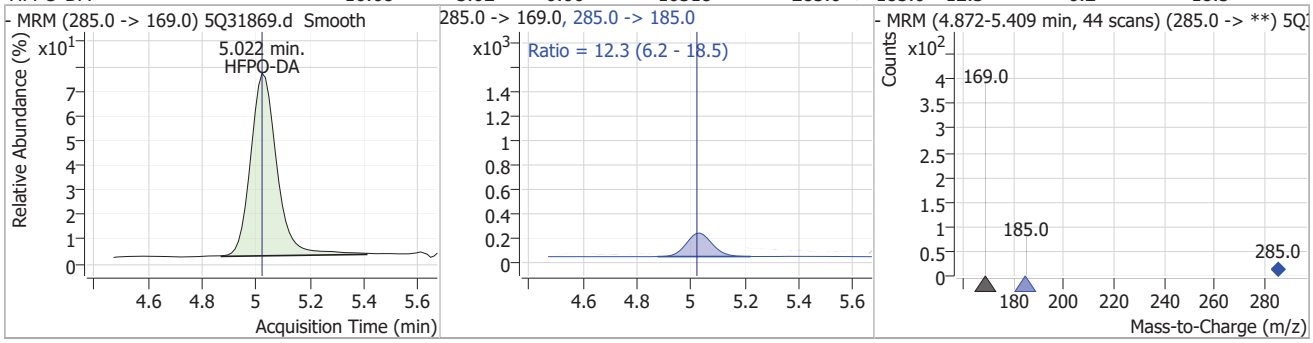
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	10.56	4.77	0.00	110301	313.0 -> 119.0	7.3	3.5	10.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.65	5.03	0.01	11192				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	10.68	5.02	0.00	10518	285.0 -> 185.0	12.3	6.2	18.5



7.7.47

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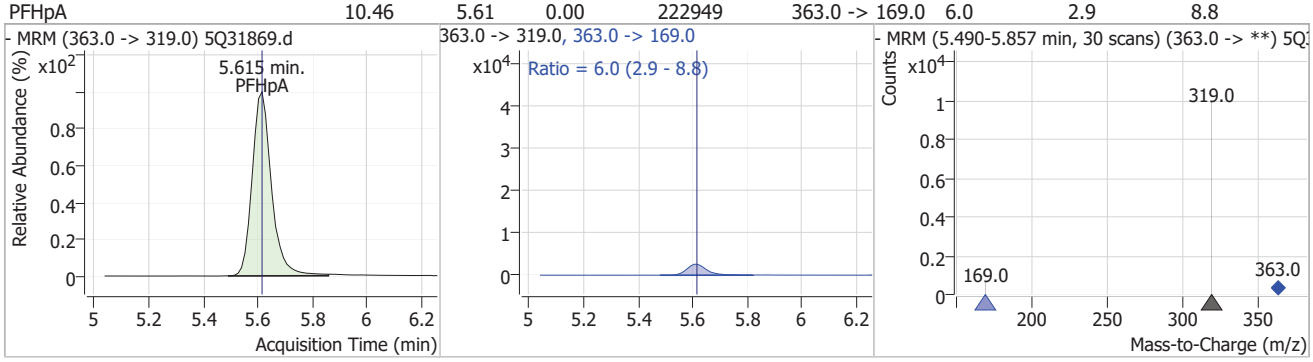
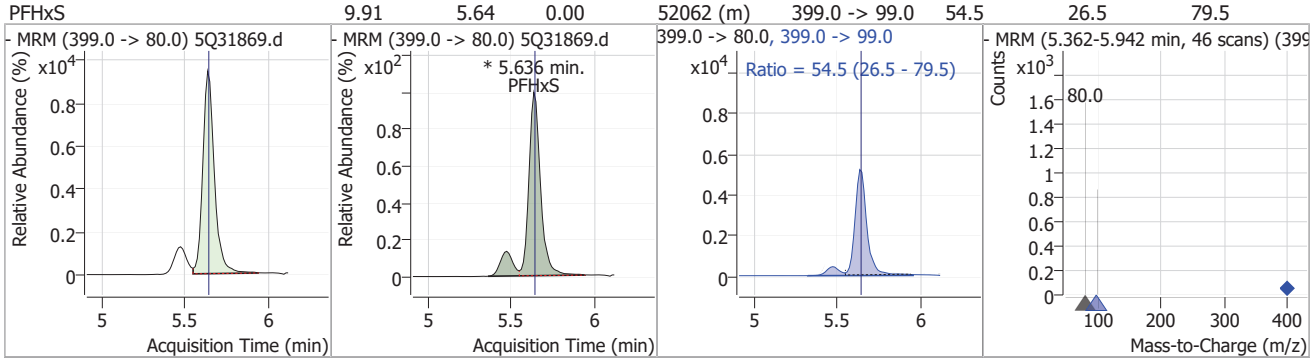
Perfluorinated Compounds by LC/MS/MS

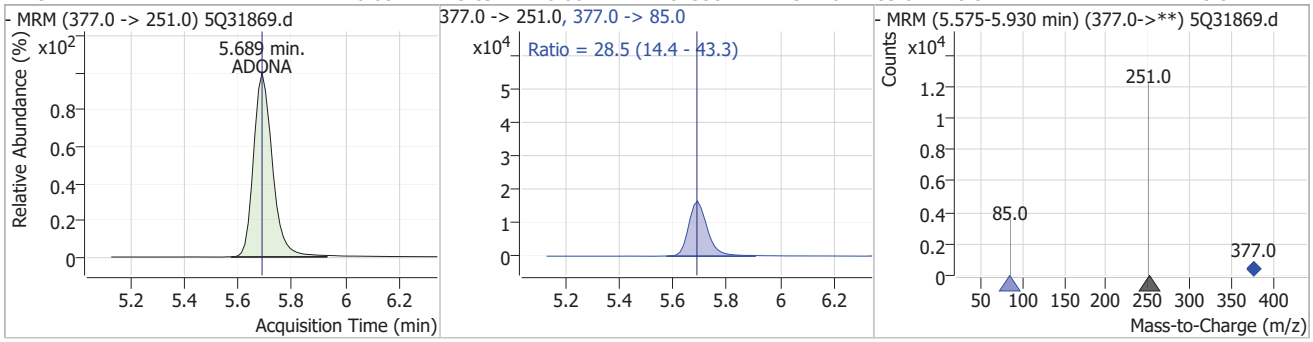
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	10.46	5.61	0.00	222949	363.0 -> 169.0	6.0	2.9	8.8



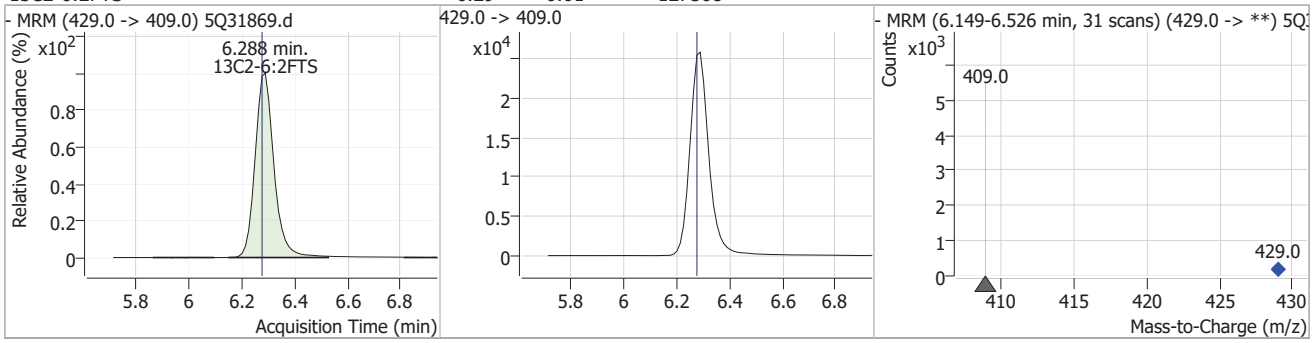
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	9.91	5.64	0.00	52062 (m)	399.0 -> 99.0	54.5	26.5	79.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	10.08	5.69	0.00	281556	377.0 -> 85.0	28.5	14.4	43.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.29	0.01	127508				

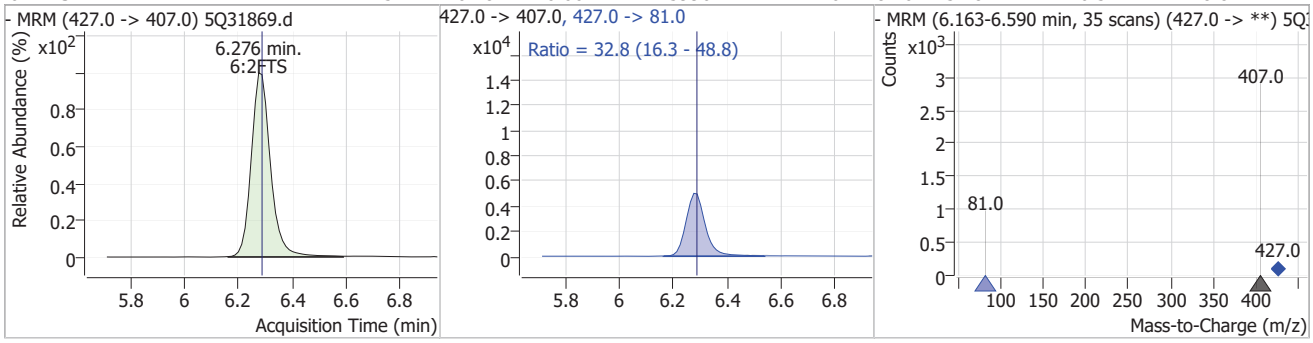


7.7.47

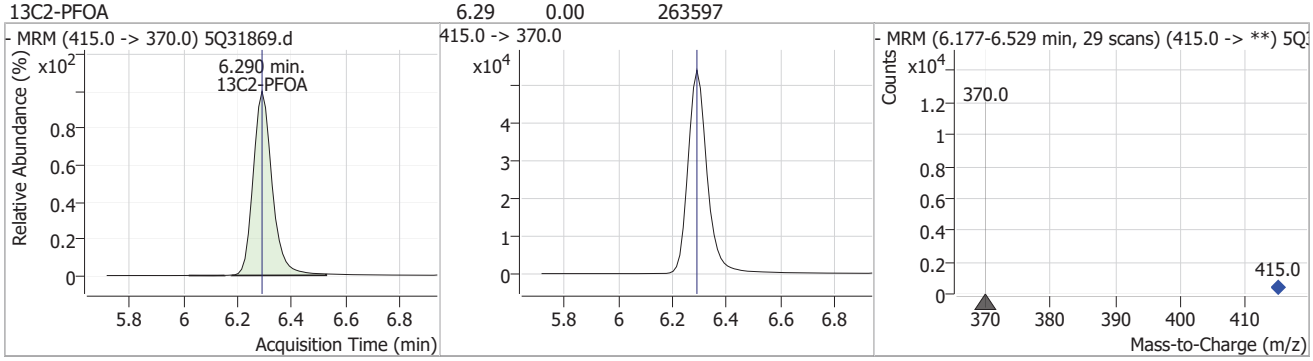
7

Perfluorinated Compounds by LC/MS/MS

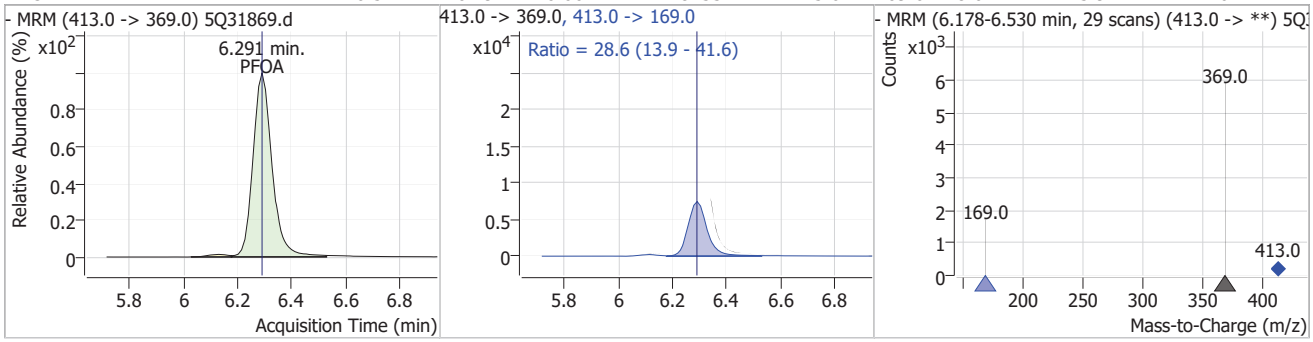
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	12.45	6.28	0.00	75996	427.0 -> 81.0	32.8	16.3	48.8



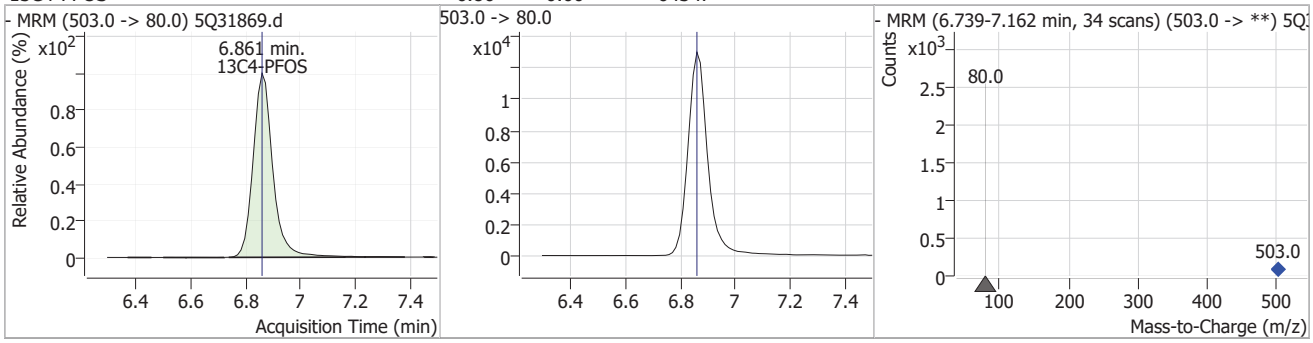
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	263597				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	10.51	6.29	0.00	128733	413.0 -> 169.0	28.6	13.9	41.6

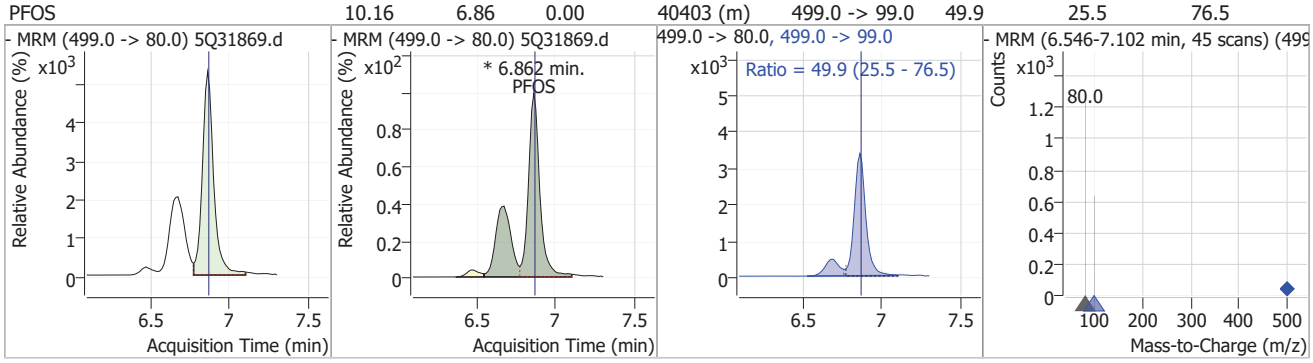


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	64347				

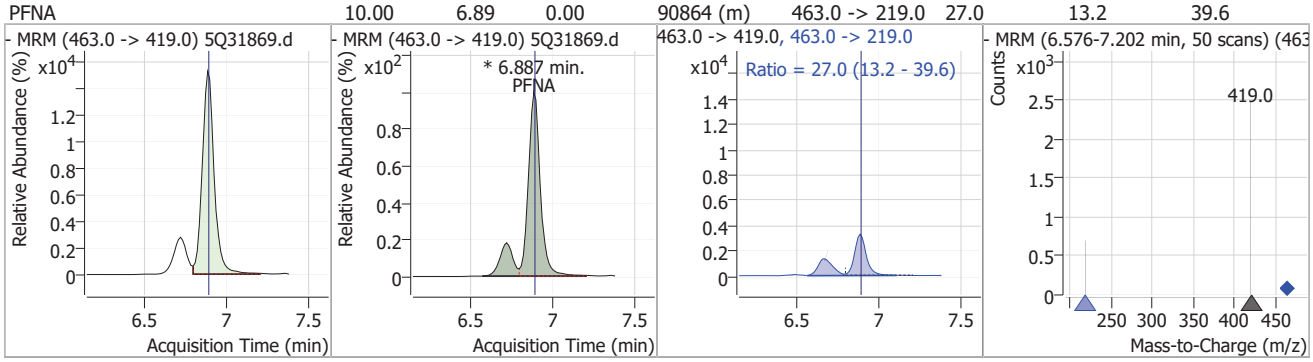


Perfluorinated Compounds by LC/MS/MS

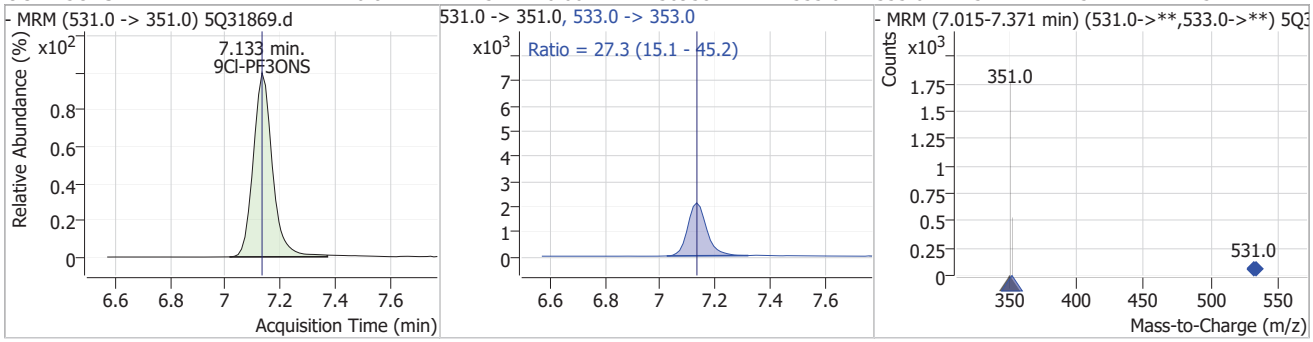
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	10.16	6.86	0.00	40403 (m)	499.0 -> 99.0	49.9	25.5	76.5



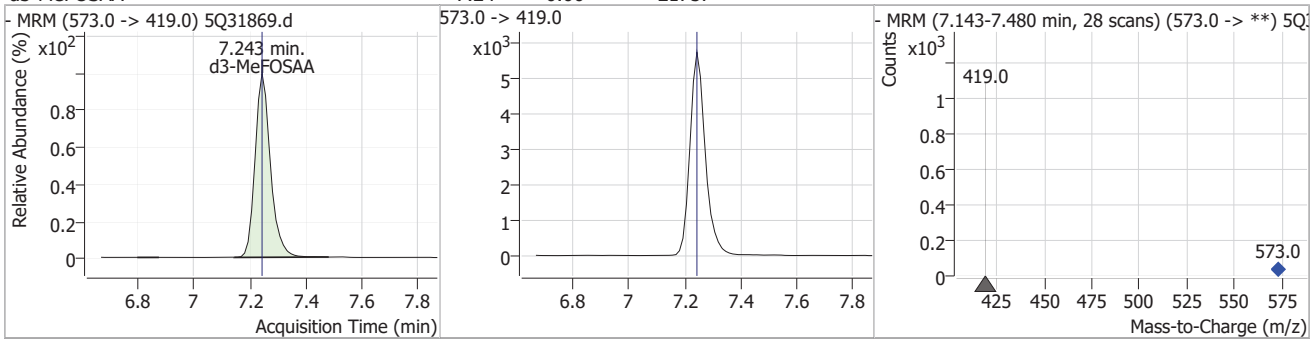
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	10.00	6.89	0.00	90864 (m)	463.0 -> 219.0	27.0	13.2	39.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	10.82	7.13	0.00	36958	533.0 -> 353.0	27.3	15.1	45.2

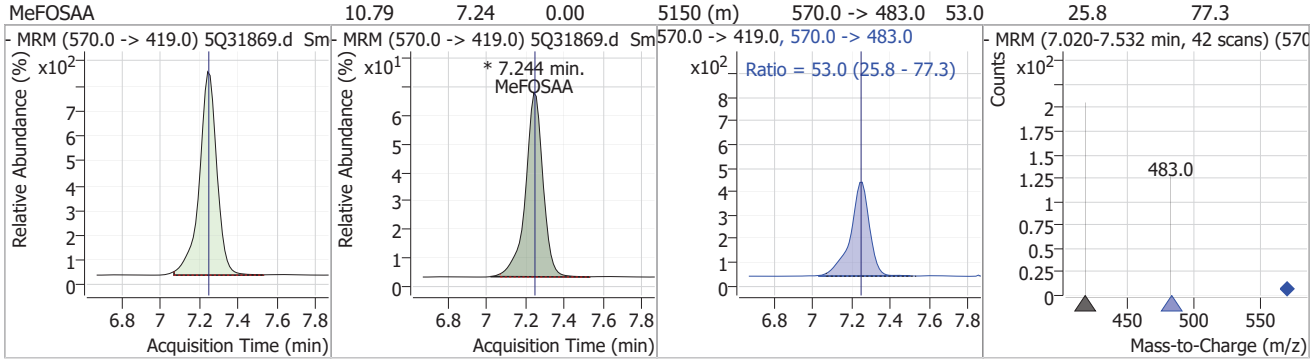


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	21757				

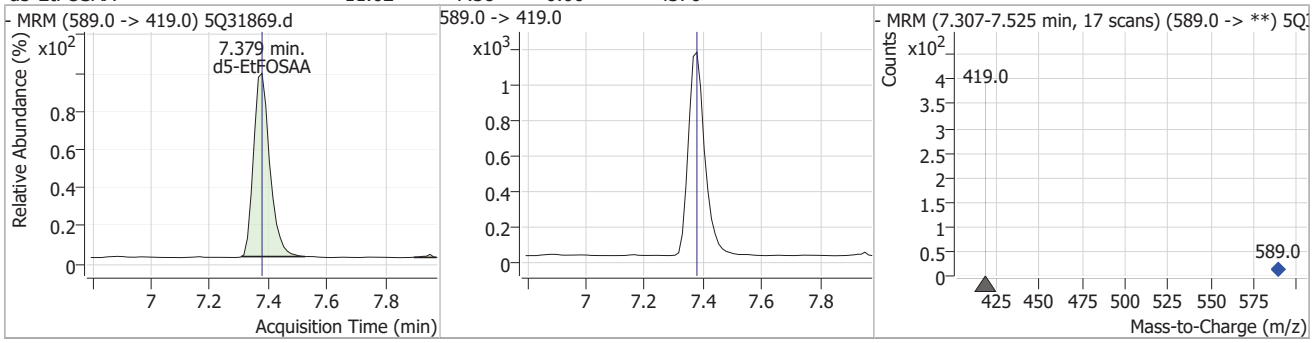


Perfluorinated Compounds by LC/MS/MS

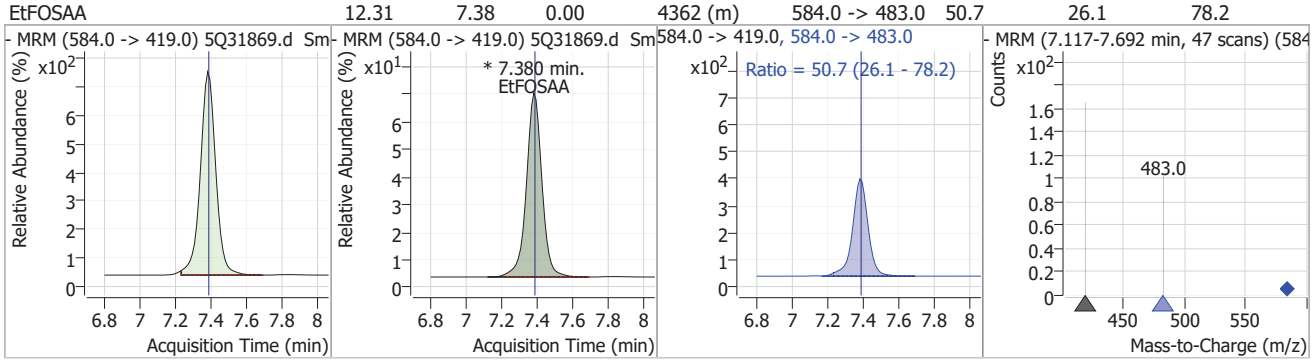
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	10.79	7.24	0.00	5150 (m)	570.0 -> 483.0	53.0	25.8	77.3



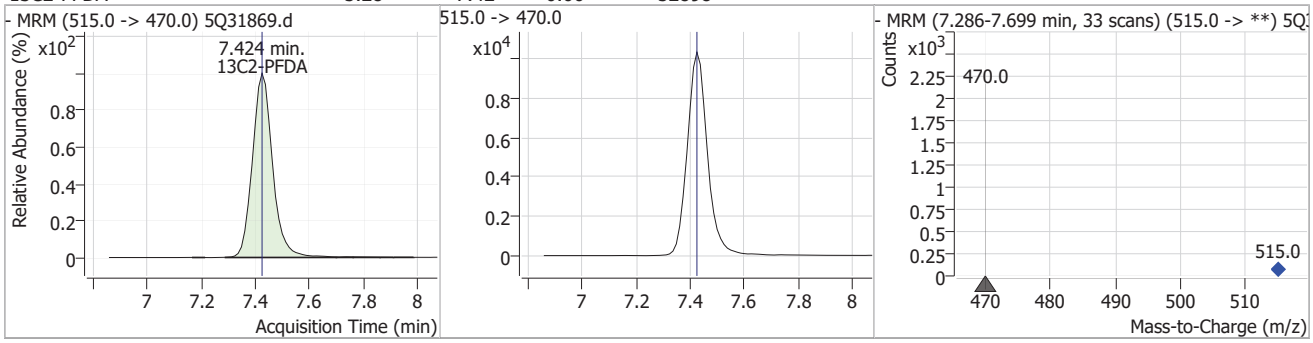
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	11.02	7.38	0.00	4376				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	12.31	7.38	0.00	4362 (m)	584.0 -> 483.0	50.7	26.1	78.2

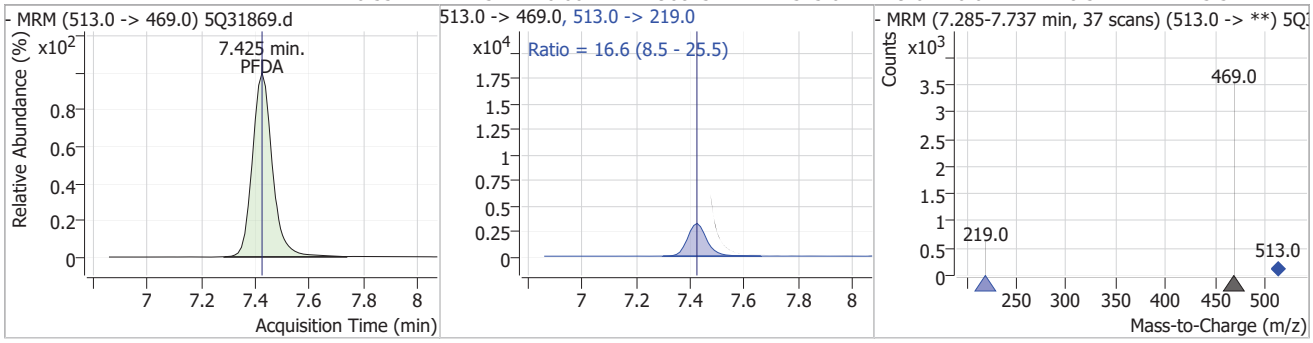


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	5.28	7.42	0.00	52898				

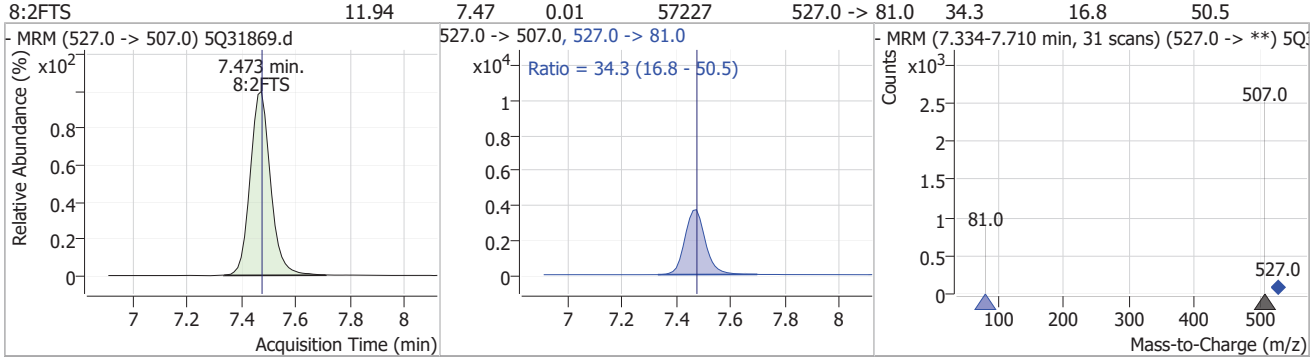


Perfluorinated Compounds by LC/MS/MS

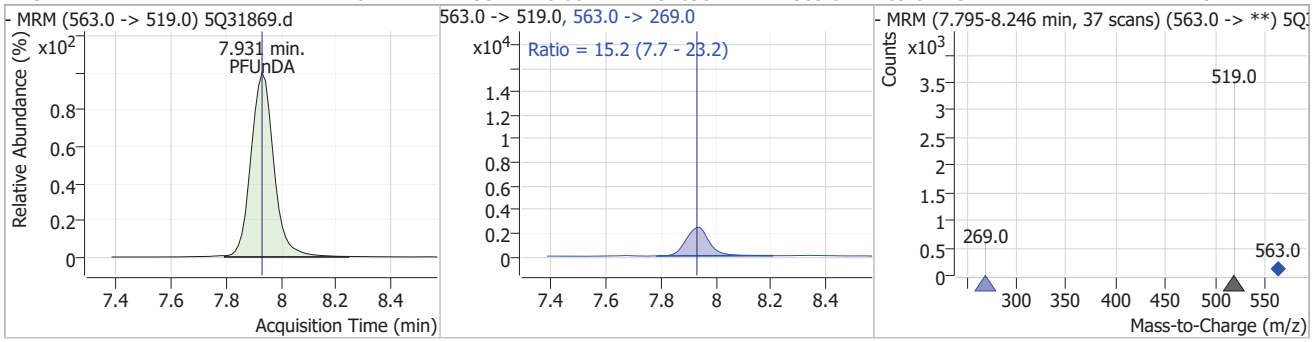
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	10.55	7.43	0.00	96843	513.0 -> 219.0	16.6	8.5	25.5



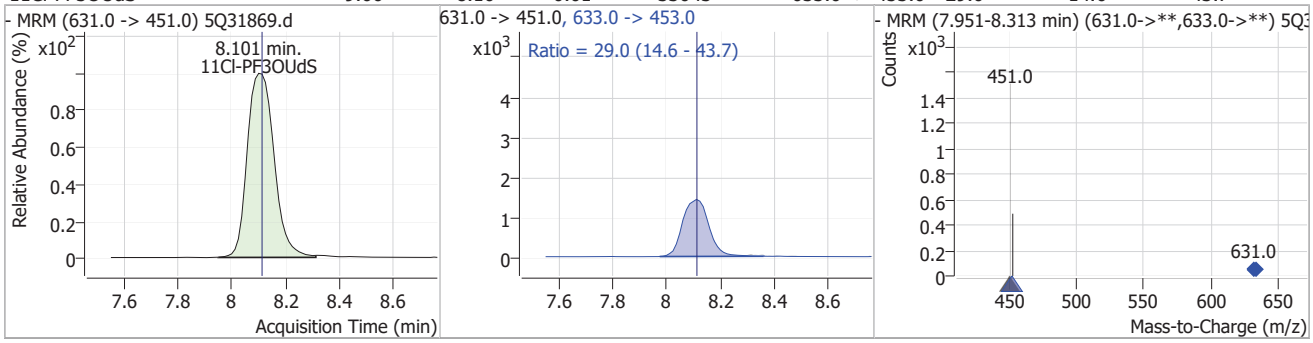
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	11.94	7.47	0.01	57227	527.0 -> 81.0	34.3	16.8	50.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	10.27	7.93	0.00	94698	563.0 -> 269.0	15.2	7.7	23.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	9.66	8.10	-0.01	33043	633.0 -> 453.0	29.0	14.6	43.7



7.7.47

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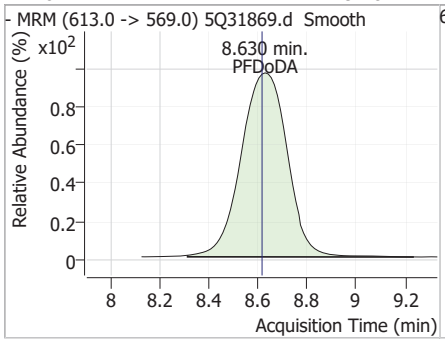
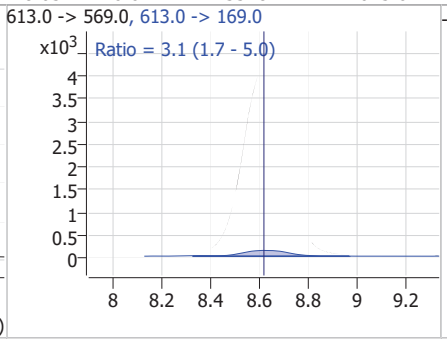
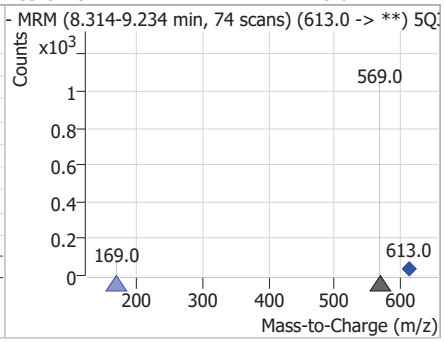
Perfluorinated Compounds by LC/MS/MS

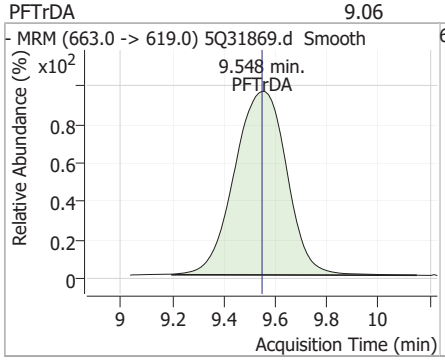
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	9.28	8.63	0.01	55181	613.0 -> 169.0	3.1	1.7	5.0

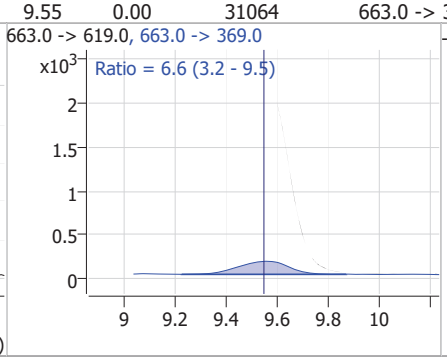


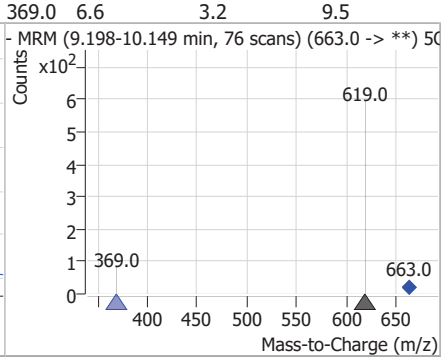




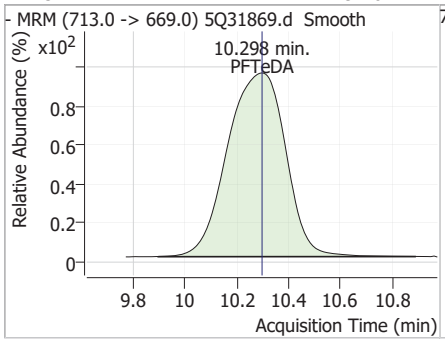
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	9.06	9.55	0.00	31064	663.0 -> 369.0	6.6	3.2	9.5

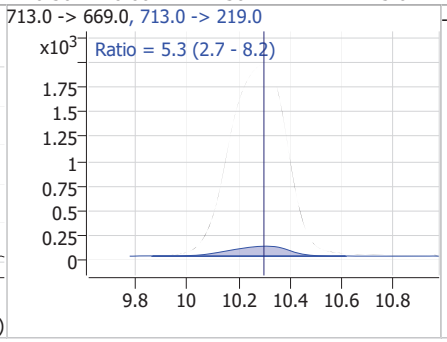


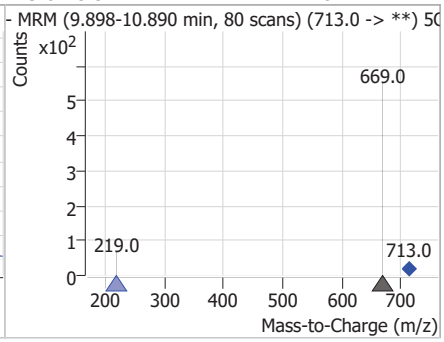




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	9.46	10.30	0.00	30272	713.0 -> 219.0	5.3	2.7	8.2







Manual Integration Approval Summary

Sample Number:	S5Q524-IC524	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31869.D	**Analyst approved:**	04/21/25 09:54 (b) (6)
Injection Time:	04/18/25 15:01	**Supervisor approved:**	04/21/25 10:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.24	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

5Q31870.D

Manual Integrations APPROVED (compounds with "m" flag)

(b) (6)

04/21/25 10:51

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31870.d
Operator : (b) (6)
Acq. Method : 537_5Q.m
Acq. Date-Time : 4/18/2025 3:18:07 PM
Sample Name : icc524-20
Vial : P1-A7
DA Method File : 537_041825_S5Q524.quantmethod.xml
Batch Name : s5q524.batch.bin
Sample Information : OP8882,S5Q524,250,,,1,1,water

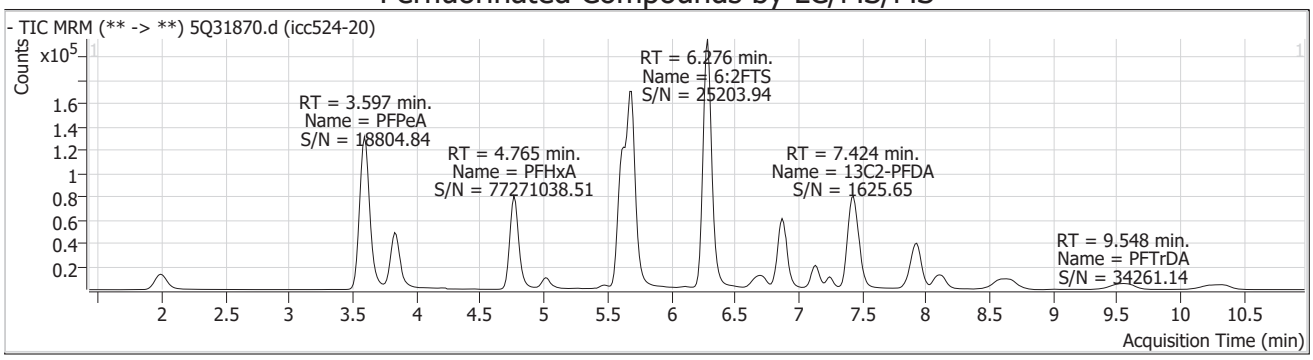
Compound	RT	QIon	Resp.	Symmetry	Conc.	Units		Dev(Min)
Internal Standards								
13C2-6:2FTS	6.275	429.0 -> 409.0	133860		20.00	µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	268029		20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	332030		20.00	µg/L		0.000
13C4-PFOS	6.861	503.0 -> 80.0	62163		20.00	µg/L		0.000
d3-MeFOSAA	7.243	573.0 -> 419.0	23013		40.00	µg/L		0.000
System Monitoring Compounds								
13C2-PFDA	7.424	515.0 -> 470.0	101308		9.95	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%				Recovery = 49.7%			
13C2-PFHxA	4.764	315.0 -> 270.0	162166		10.40	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%				Recovery = 52.0%			
d5-EtFOSAA	7.379	589.0 -> 419.0	8181		19.48	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%				Recovery = 48.7%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	21083		19.74	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%				Recovery = 49.3%			
Target Compounds								QValue
6:2FTS	6.276	427.0 -> 407.0	157062		24.50	µg/L		100
8:2FTS	7.460	527.0 -> 507.0	116991		23.24	µg/L		100
EtFOSAA	7.380	584.0 -> 419.0	8458		22.57	µg/L	m	100
MeFOSAA	7.244	570.0 -> 419.0	10634		21.07	µg/L	m	100
PFBS	3.828	299.0 -> 80.0	178215	1.35	22.75	µg/L		100
PFDA	7.425	513.0 -> 469.0	191504		20.52	µg/L		100
PFDoDA	8.617	613.0 -> 569.0	114050		19.75	µg/L		100
PFHpA	5.615	363.0 -> 319.0	452593		20.88	µg/L		100
PFHxA	4.765	313.0 -> 269.0	227577	1.29	21.43	µg/L		100
PFHxS	5.636	399.0 -> 80.0	106923		21.07	µg/L	m	100
PFNA	6.887	463.0 -> 419.0	182007		19.71	µg/L	m	100
PFOA	6.291	413.0 -> 369.0	262275		21.05	µg/L		100
PFOS	6.862	499.0 -> 80.0	78612		20.47	µg/L	m	100
PFPeA	3.597	263.0 -> 219.0	428057		20.95	µg/L		100
PFTeDA	10.298	713.0 -> 669.0	60919		19.71	µg/L		100
PFTrDA	9.548	663.0 -> 619.0	66133		19.97	µg/L		100
PFUnDA	7.931	563.0 -> 519.0	187107		21.01	µg/L		100
ADONA	5.689	377.0 -> 251.0	568118		20.01	µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	72960		20.72	µg/L		100
11Cl-PF3OUdS	8.113	631.0 -> 451.0	63815		18.35	µg/L		100
HFPO-DA	5.022	285.0 -> 169.0	21034		21.00	µg/L		100

 # = Qualifier out of range, m = manually integrated, + = Area summed

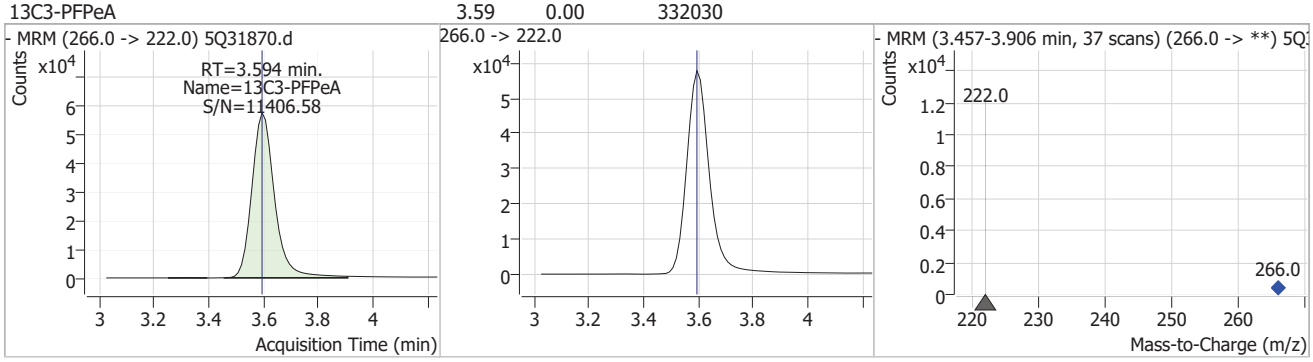
7.7.48

7

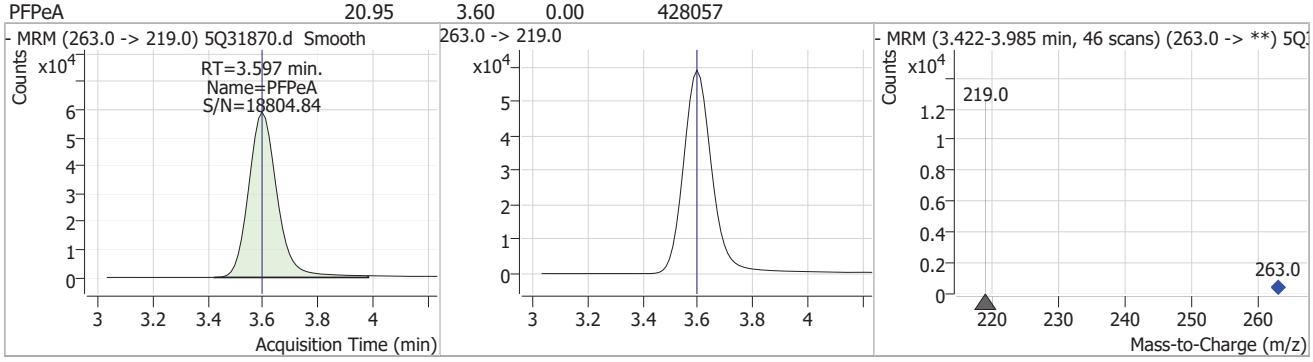
Perfluorinated Compounds by LC/MS/MS



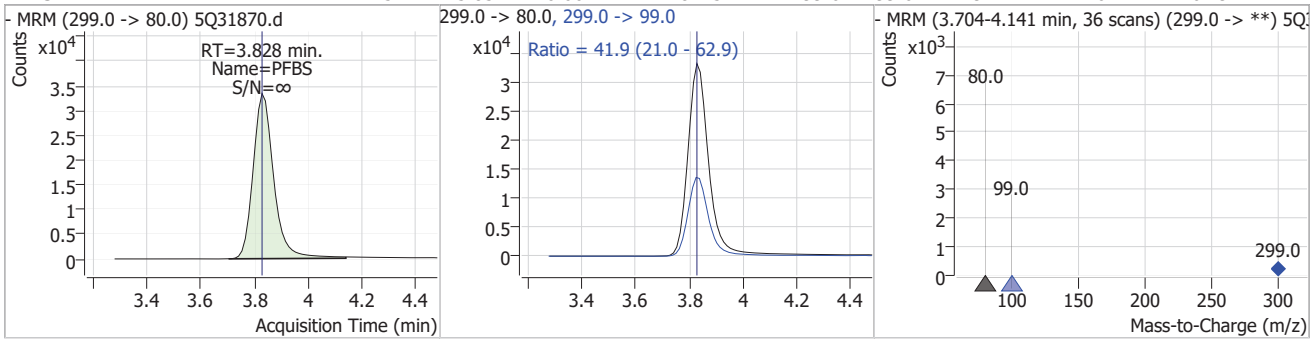
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	332030				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.95	3.60	0.00	428057				

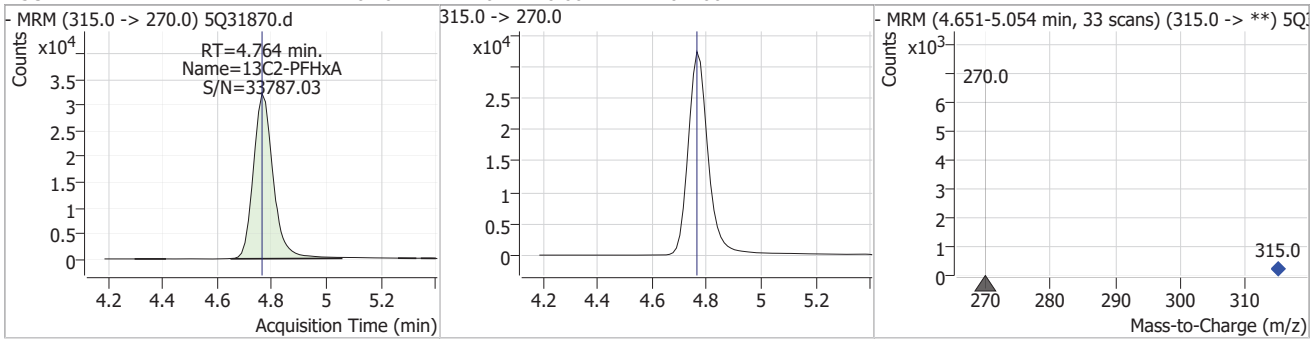


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	22.75	3.83	0.00	178215	299.0 -> 99.0	41.9	21.0	62.9

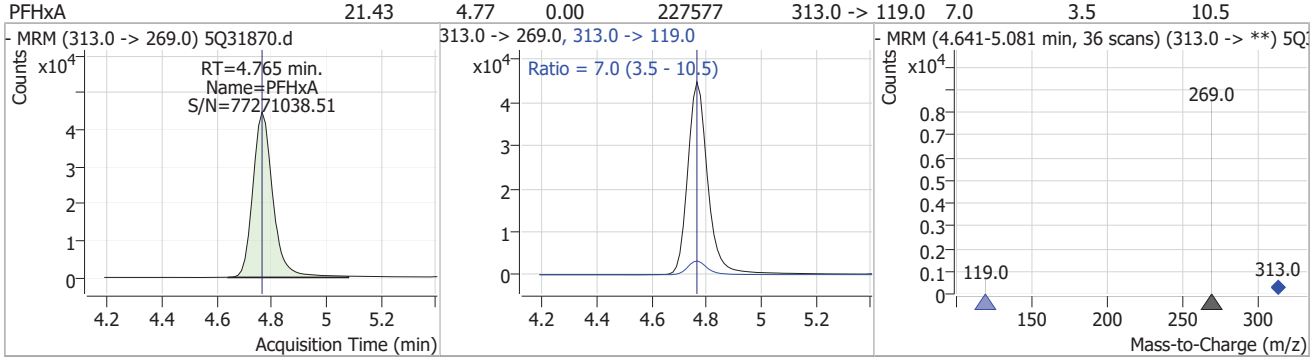


Perfluorinated Compounds by LC/MS/MS

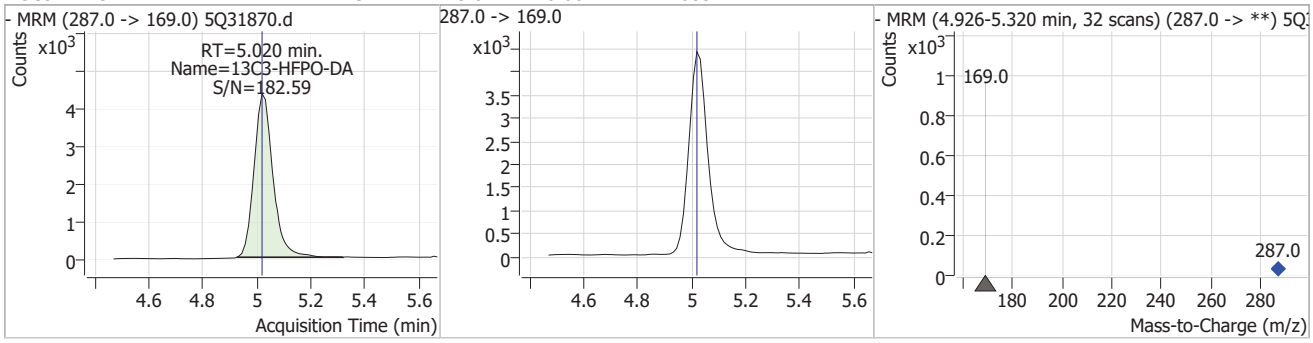
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	10.40	4.76	0.00	162166				



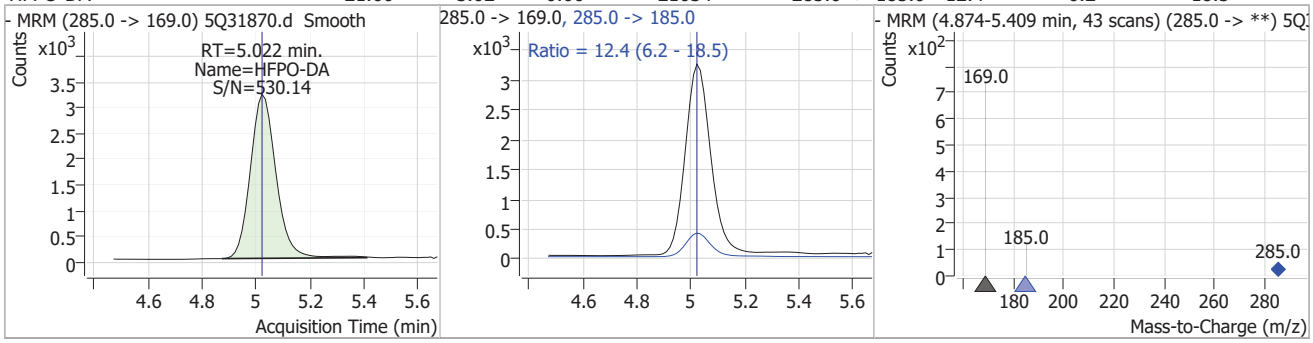
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	21.43	4.77	0.00	227577	313.0 -> 119.0	7.0	3.5	10.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	19.74	5.02	0.00	21083				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	21.00	5.02	0.00	21034	285.0 -> 185.0	12.4	6.2	18.5



7.7.48

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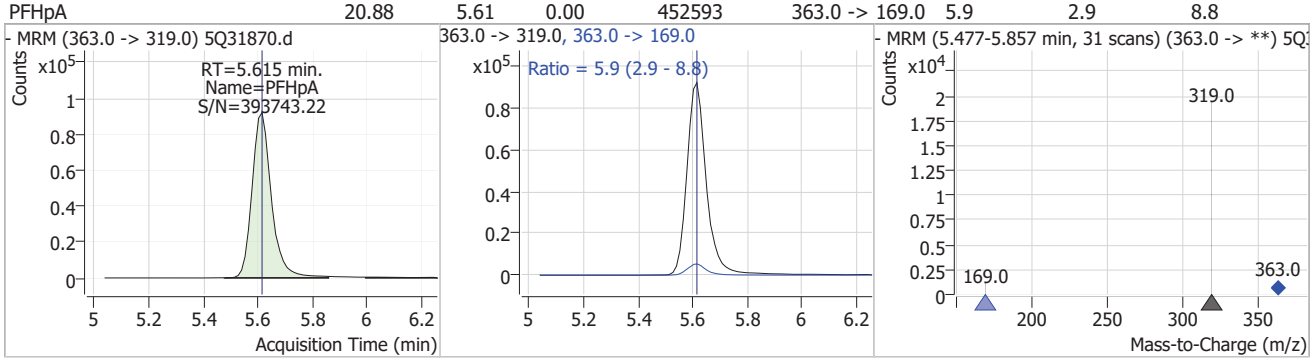
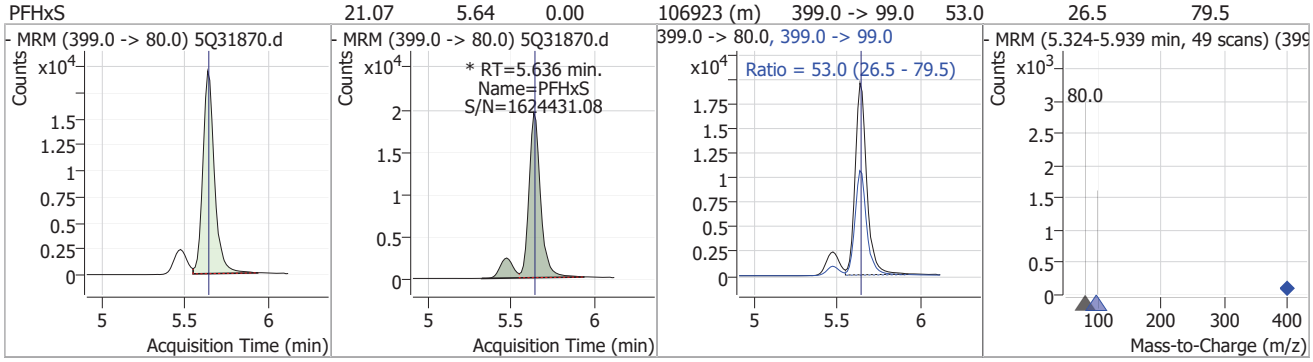
Perfluorinated Compounds by LC/MS/MS

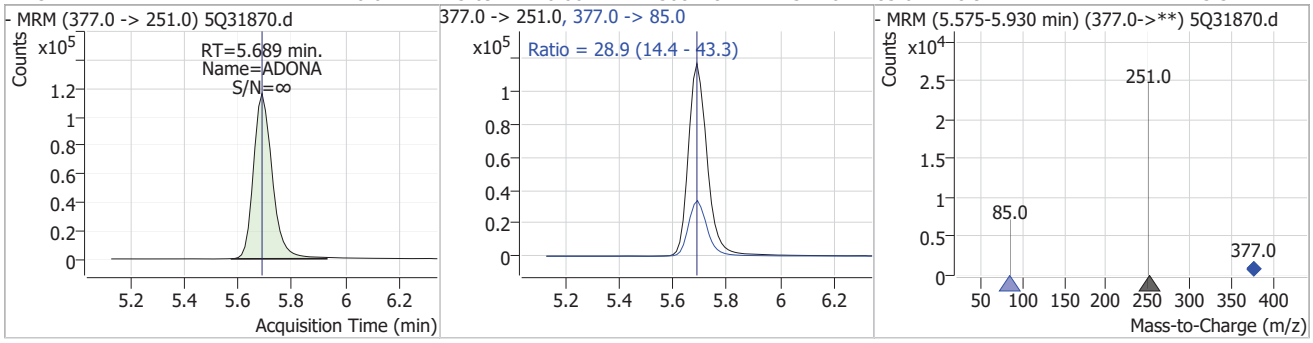
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.88	5.61	0.00	452593	363.0 -> 169.0	5.9	2.9	8.8



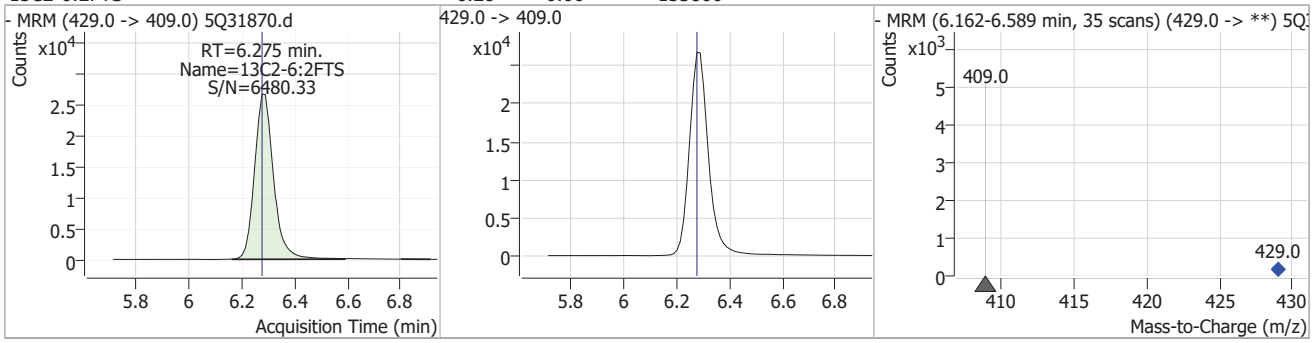
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	21.07	5.64	0.00	106923 (m)	399.0 -> 99.0	53.0	26.5	79.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.01	5.69	0.00	568118	377.0 -> 85.0	28.9	14.4	43.3

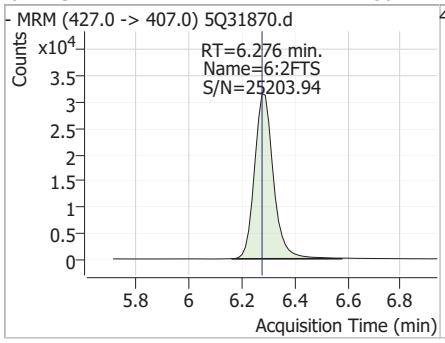


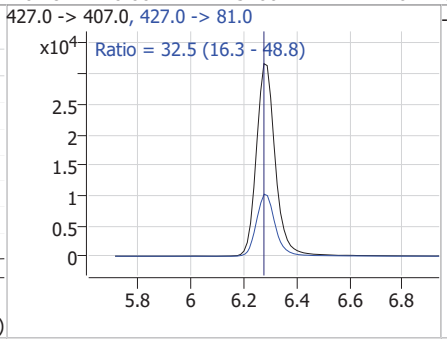
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	0.00	133860				

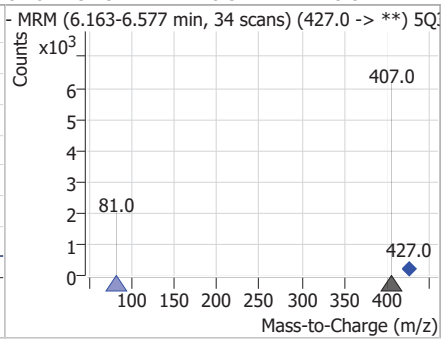


Perfluorinated Compounds by LC/MS/MS

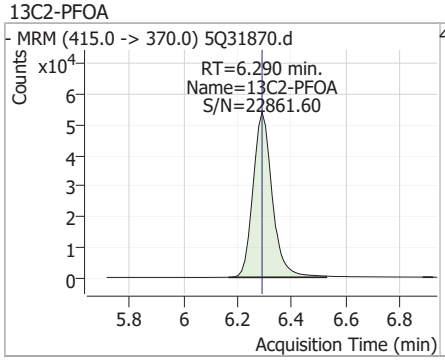
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	24.50	6.28	0.00	157062	427.0 -> 81.0	32.5	16.3	48.8

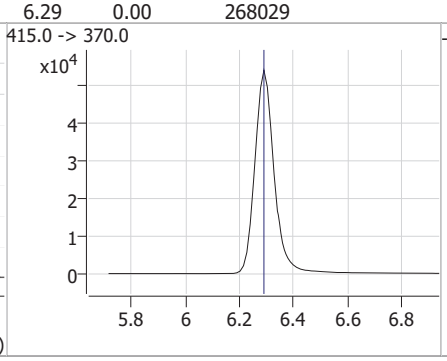


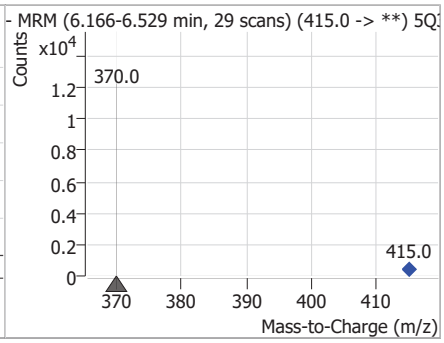




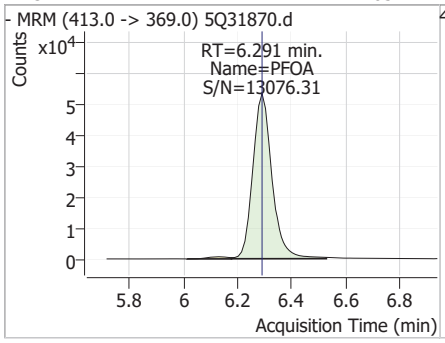
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	268029				

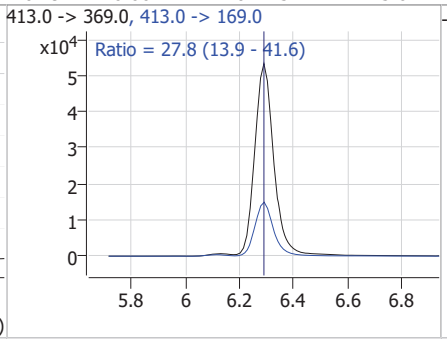


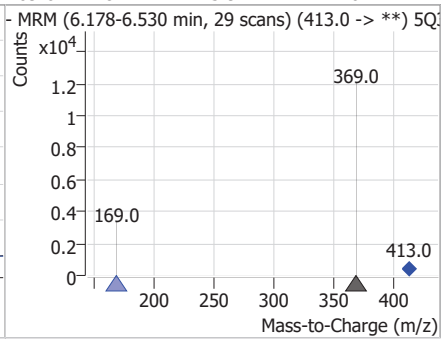




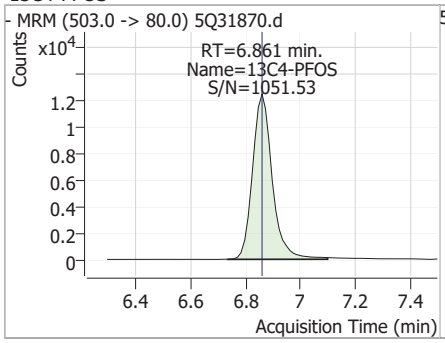
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	21.05	6.29	0.00	262275	413.0 -> 169.0	27.8	13.9	41.6

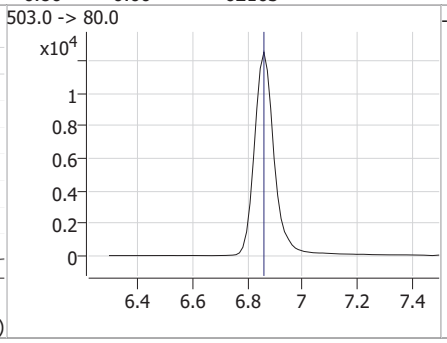


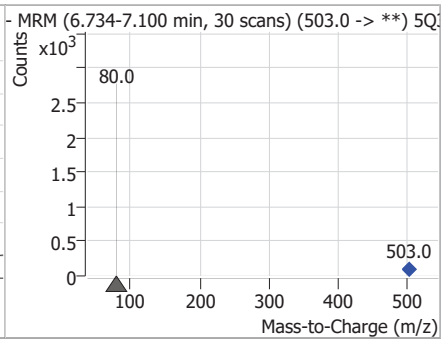




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	62163				







7.7.48

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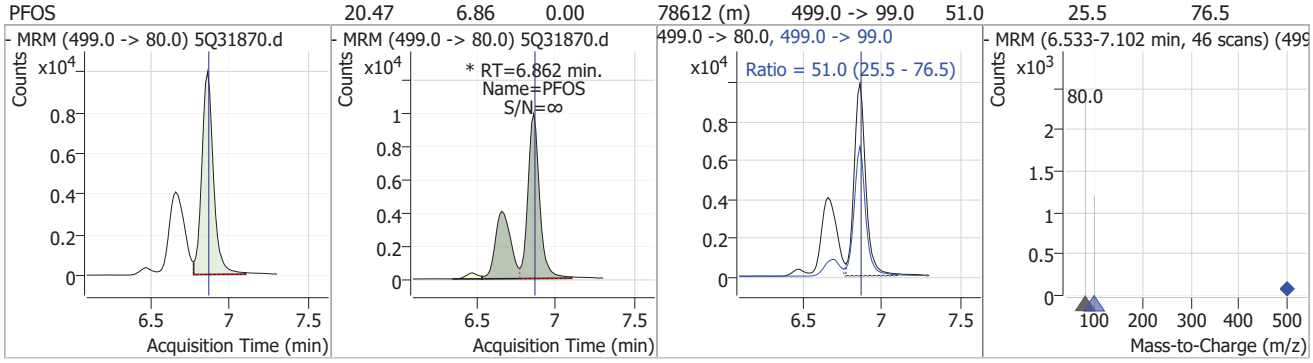
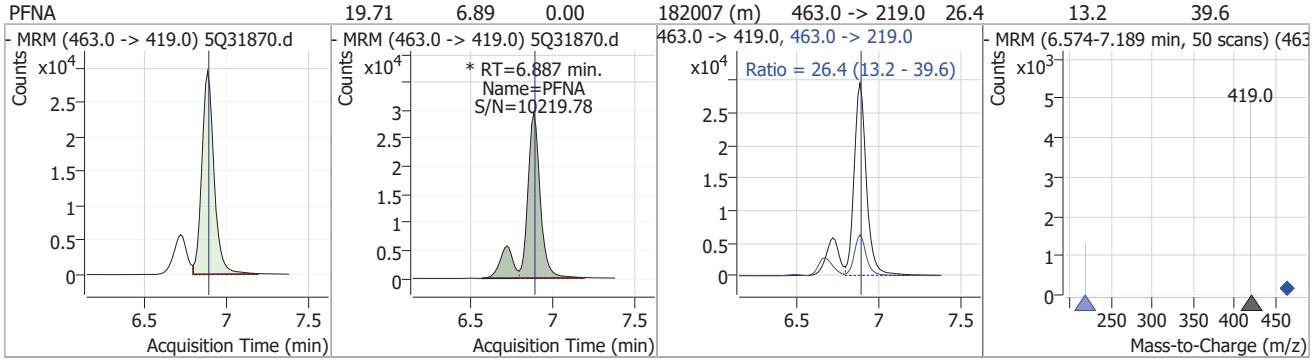
Perfluorinated Compounds by LC/MS/MS

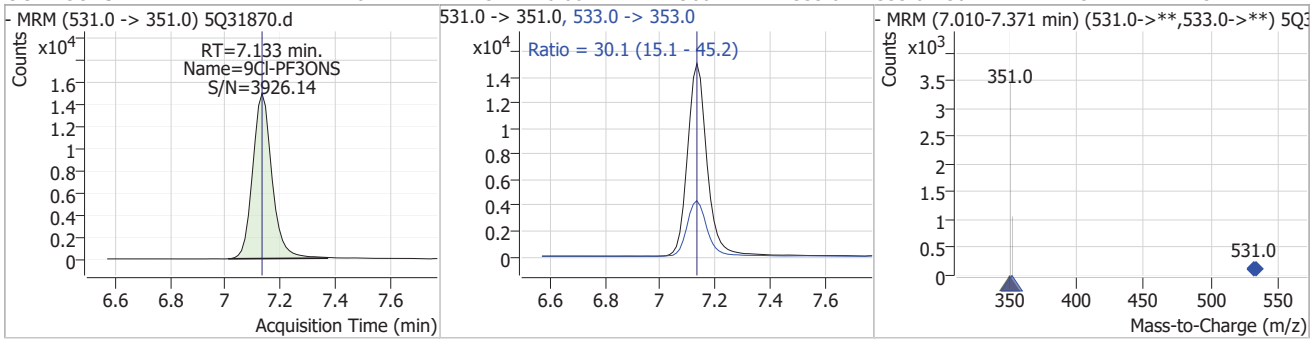
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	20.47	6.86	0.00	78612 (m)	499.0 -> 99.0	51.0	25.5	76.5



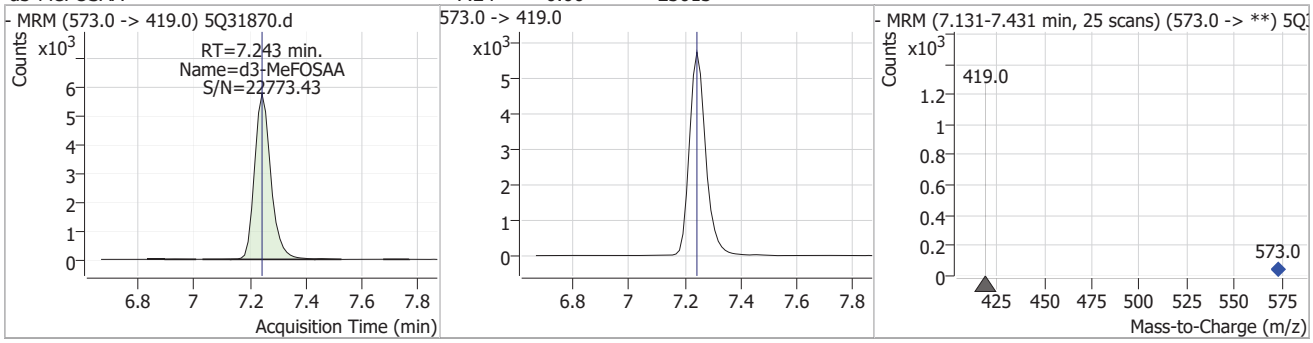
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.71	6.89	0.00	182007 (m)	463.0 -> 219.0	26.4	13.2	39.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	20.72	7.13	0.00	72960	533.0 -> 353.0	30.1	15.1	45.2

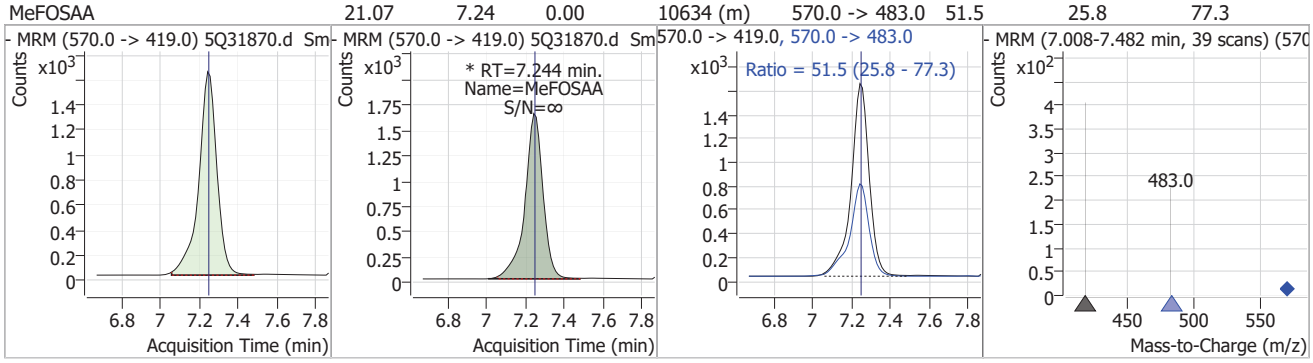


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	23013				

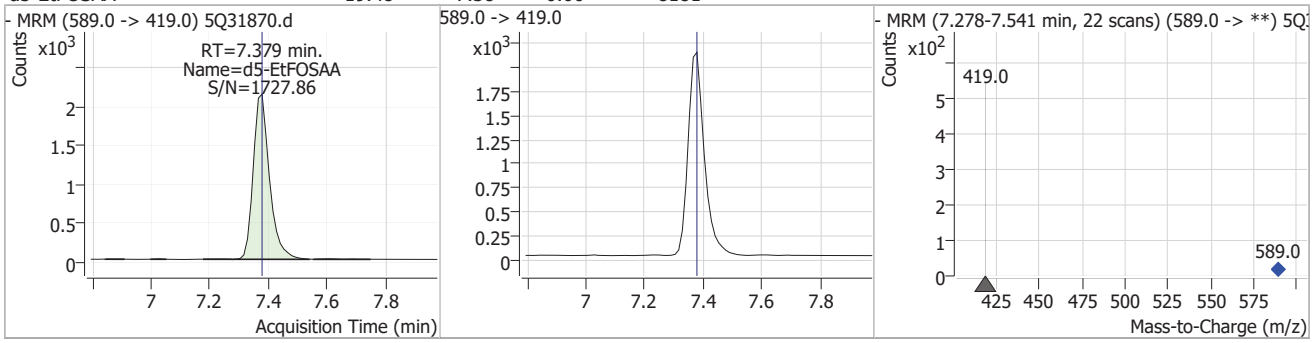


Perfluorinated Compounds by LC/MS/MS

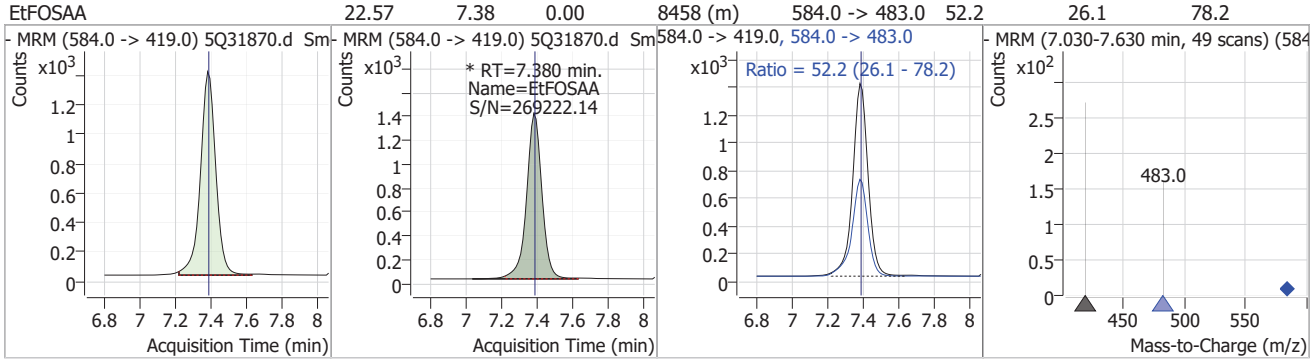
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	21.07	7.24	0.00	10634 (m)	570.0 -> 483.0	51.5	25.8	77.3



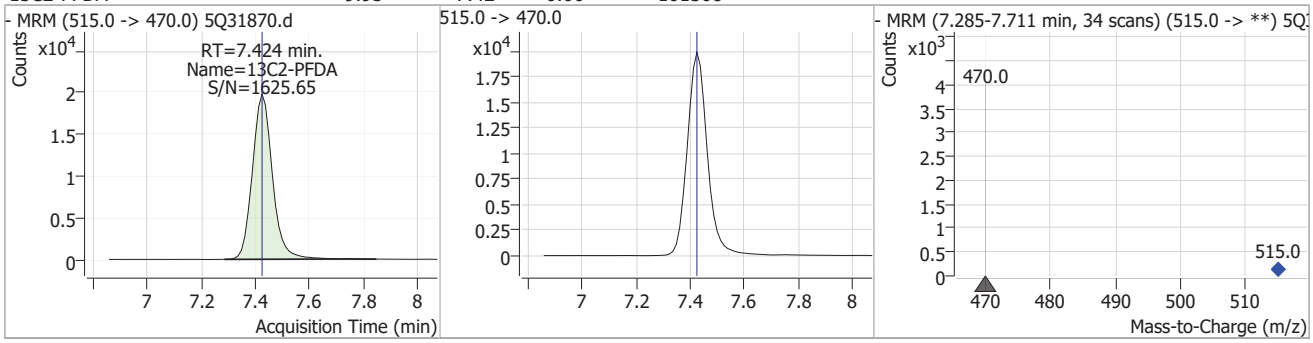
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	19.48	7.38	0.00	8181				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	22.57	7.38	0.00	8458 (m)	584.0 -> 483.0	52.2	26.1	78.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	9.95	7.42	0.00	101308				



7.7.48

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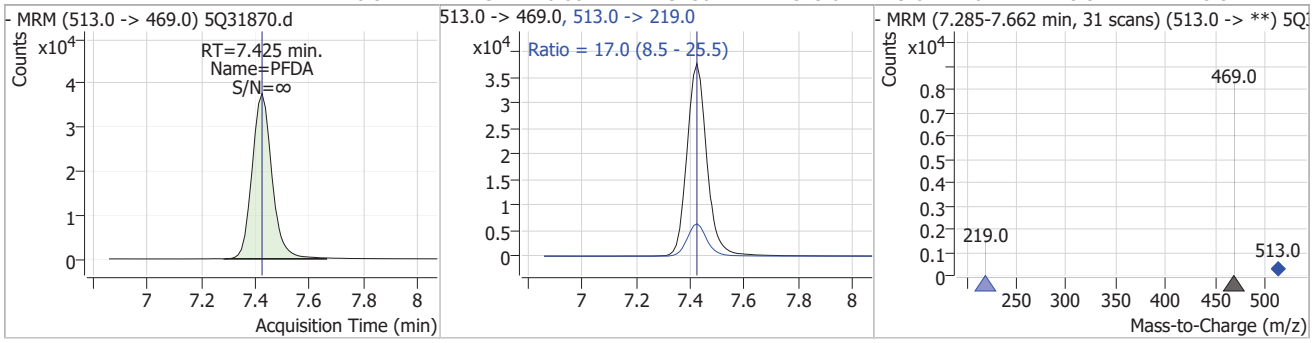
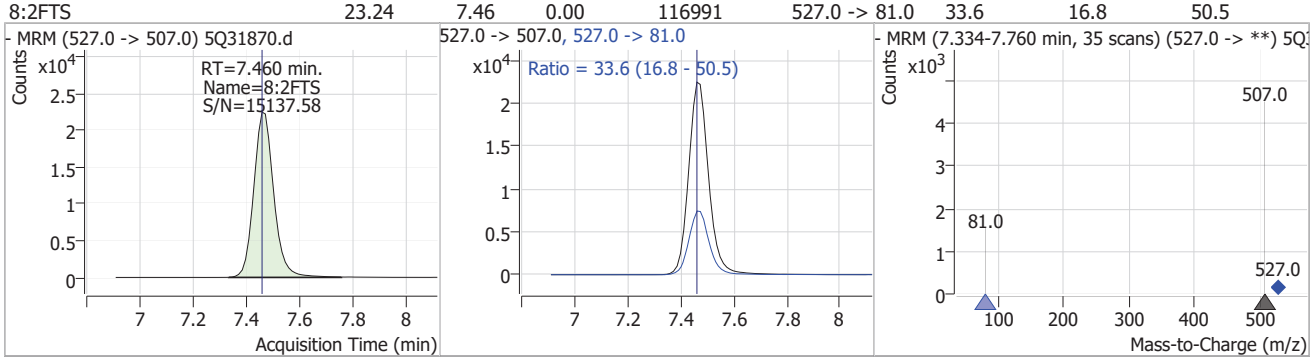
Perfluorinated Compounds by LC/MS/MS

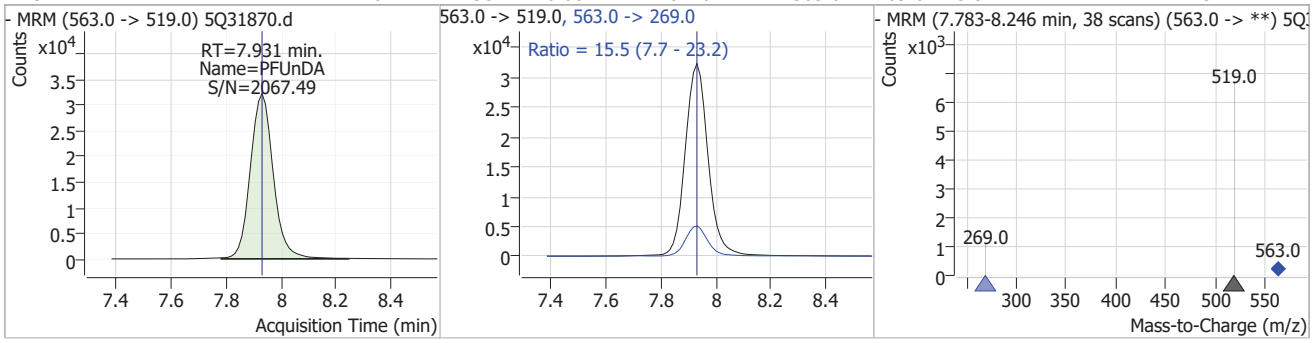
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.52	7.43	0.00	191504	513.0 -> 219.0	17.0	8.5	25.5



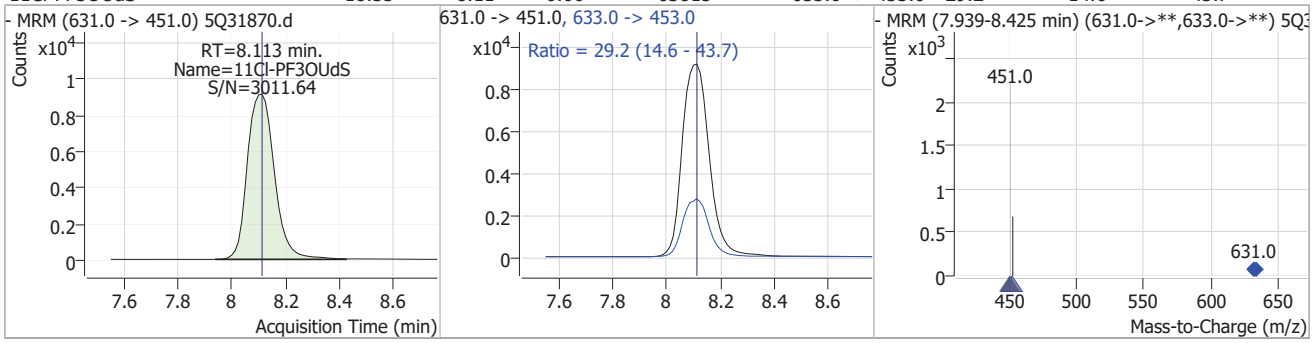
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	23.24	7.46	0.00	116991	527.0 -> 81.0	33.6	16.8	50.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	21.01	7.93	0.00	187107	563.0 -> 269.0	15.5	7.7	23.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	18.35	8.11	0.00	63815	633.0 -> 453.0	29.2	14.6	43.7



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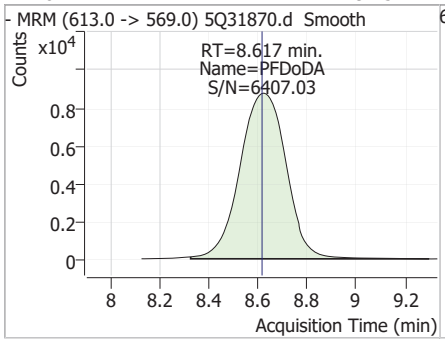
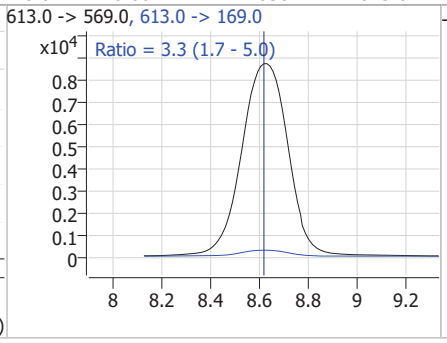
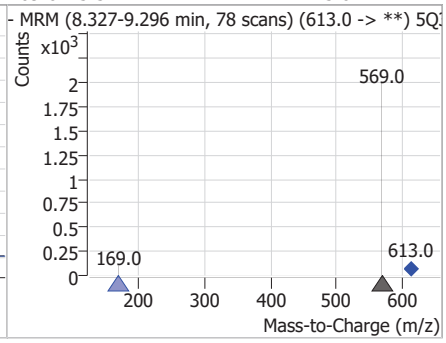
Perfluorinated Compounds by LC/MS/MS

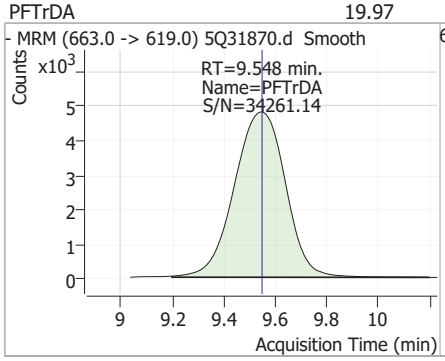
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.75	8.62	0.00	114050	613.0 -> 169.0	3.3	1.7	5.0

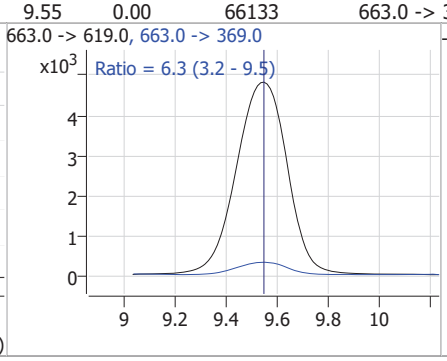


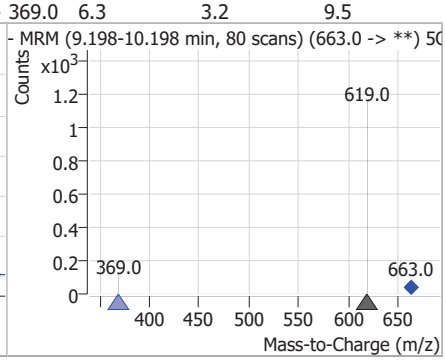




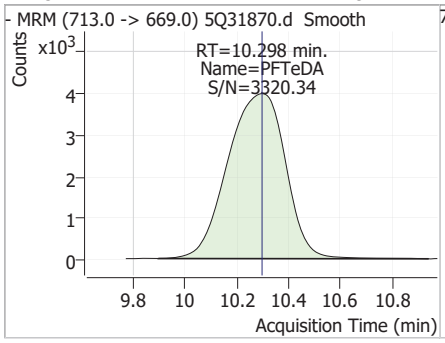
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	19.97	9.55	0.00	66133	663.0 -> 369.0	6.3	3.2	9.5

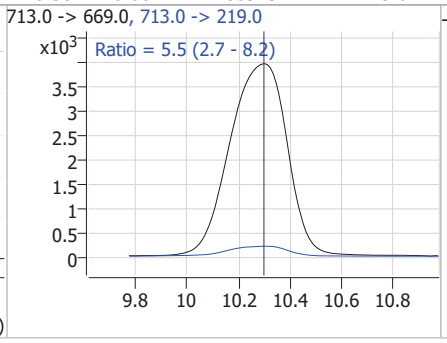


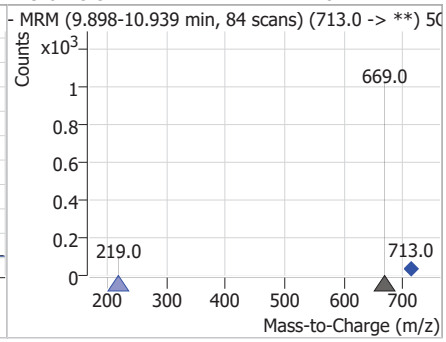




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.71	10.30	0.00	60919	713.0 -> 219.0	5.5	2.7	8.2







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Manual Integration Approval Summary

Sample Number:	S5Q524-ICC524	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31870.D	**Analyst approved:**	04/21/25 09:54 (b) (6)
Injection Time:	04/18/25 15:18	**Supervisor approved:**	04/21/25 10:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.24	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/21/25 10:51

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31871.d
Operator : (b) (6)
Acq. Method : 537_5Q.m
Acq. Date-Time : 4/18/2025 3:34:36 PM
Sample Name : ic524-50
Vial : P1-A8
DA Method File : 537_041825_S5Q524.quantmethod.xml
Batch Name : s5q524.batch.bin
Sample Information : OP8882,S5Q524,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.275	429.0 -> 409.0	159345	20.00 µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	292118	20.00 µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	359134	20.00 µg/L		0.000
13C4-PFOS	6.861	503.0 -> 80.0	69022	20.00 µg/L		0.000
d3-MeFOSAA	7.243	573.0 -> 419.0	25885	40.00 µg/L		0.000
System Monitoring Compounds						
13C2-PFDA	7.424	515.0 -> 470.0	270511	24.38 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 121.9%		
13C2-PFHxA	4.764	315.0 -> 270.0	412665	24.28 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 121.4%		
d5-EtFOSAA	7.379	589.0 -> 419.0	22282	47.16 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 117.9%		
13C3-HFPO-DA	5.020	287.0 -> 169.0	55163	47.39 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 118.5%		
Target Compounds						QValue
6:2FTS	6.276	427.0 -> 407.0	405198	53.10 µg/L		100
8:2FTS	7.460	527.0 -> 507.0	314734	52.53 µg/L		98
EtFOSAA	7.380	584.0 -> 419.0	20458	48.53 µg/L	m	96
MeFOSAA	7.244	570.0 -> 419.0	26928	47.44 µg/L	m	91
PFBS	3.828	299.0 -> 80.0	439977	50.58 µg/L		99
PFDA	7.425	513.0 -> 469.0	491594	48.34 µg/L		99
PFDoDA	8.592	613.0 -> 569.0	365252	55.86 µg/L		99
PFHpA	5.615	363.0 -> 319.0	1134382	48.02 µg/L		100
PFHxA	4.765	313.0 -> 269.0	563542	48.69 µg/L		99
PFHxS	5.636	399.0 -> 80.0	281718	50.00 µg/L	m	99
PFNA	6.887	463.0 -> 419.0	472407	46.93 µg/L	m	100
PFOA	6.291	413.0 -> 369.0	655709	48.29 µg/L		99
PFOS	6.862	499.0 -> 80.0	207227	48.59 µg/L	m	100
PFPeA	3.597	263.0 -> 219.0	1083562	49.04 µg/L		100
PFTeDA	10.298	713.0 -> 669.0	162456	47.35 µg/L		99
PFTrDA	9.536	663.0 -> 619.0	177066	48.16 µg/L		100
PFUnDA	7.931	563.0 -> 519.0	500708	50.63 µg/L		100
ADONA	5.689	377.0 -> 251.0	1451821	46.92 µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	196958	49.34 µg/L		99
11Cl-PF3OUdS	8.101	631.0 -> 451.0	182008	48.03 µg/L		100
HFPO-DA	5.022	285.0 -> 169.0	52003	47.64 µg/L		100

 # = Qualifier out of range, m = manually integrated, + = Area summed

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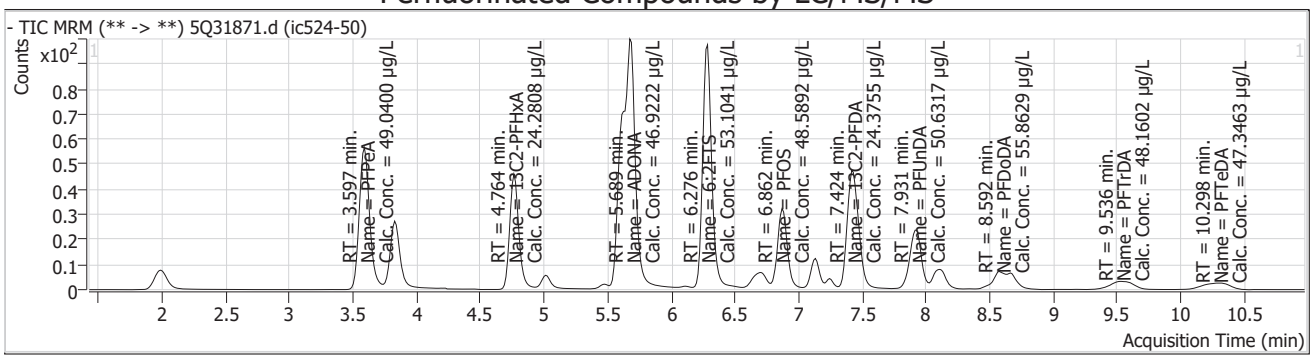
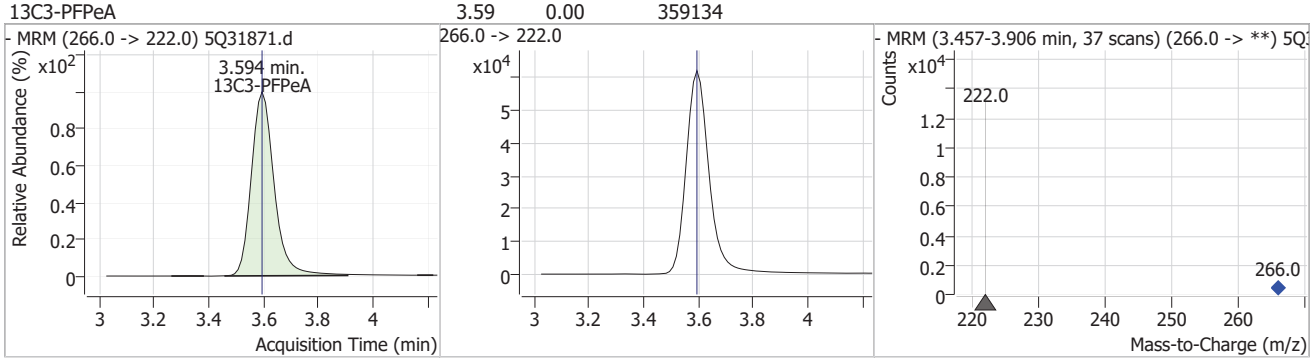
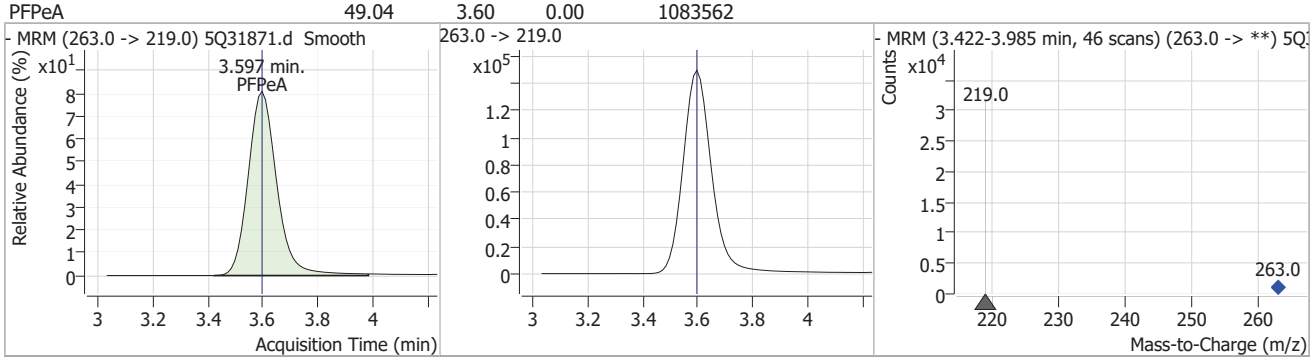
Perfluorinated Compounds by LC/MS/MS



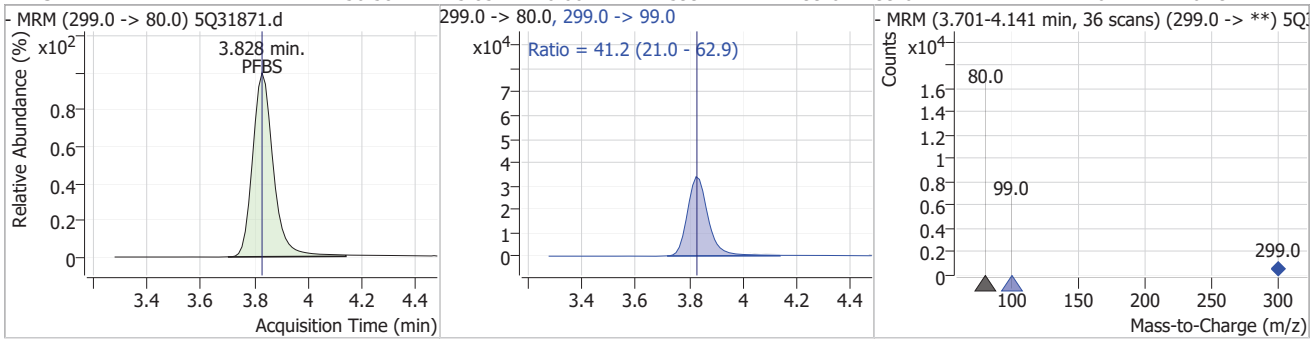
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	359134				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	49.04	3.60	0.00	1083562				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	50.58	3.83	0.00	439977	299.0 -> 99.0	41.2	21.0	62.9



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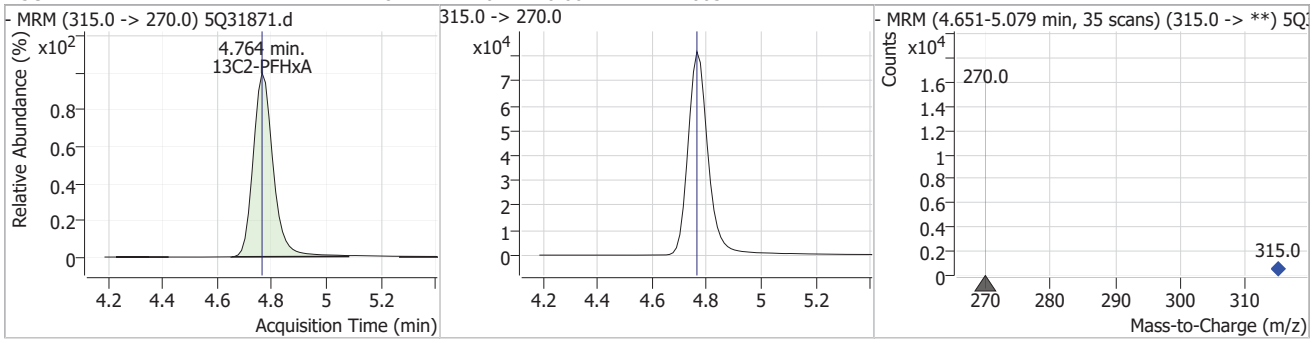
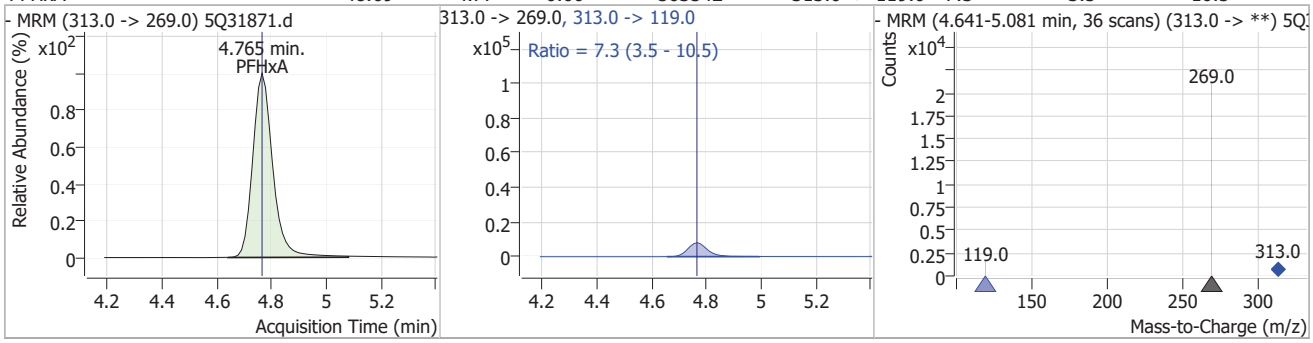
Perfluorinated Compounds by LC/MS/MS

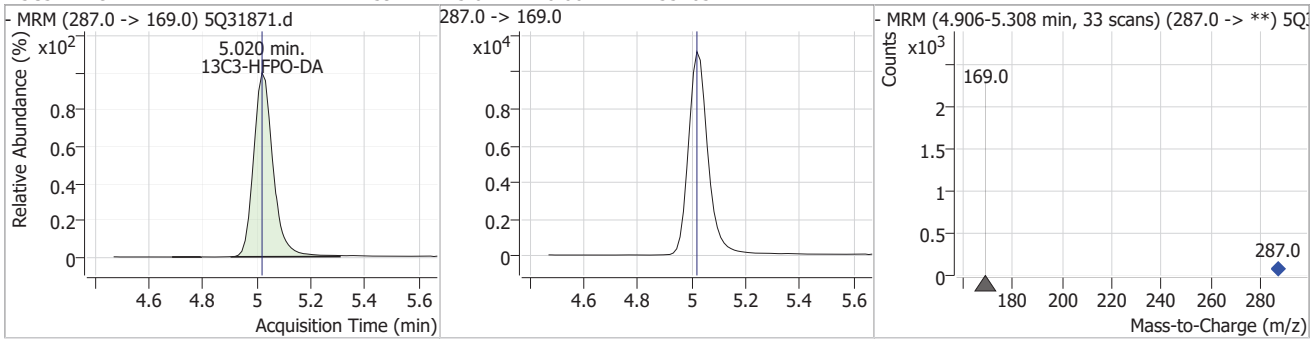
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	24.28	4.76	0.00	412665				



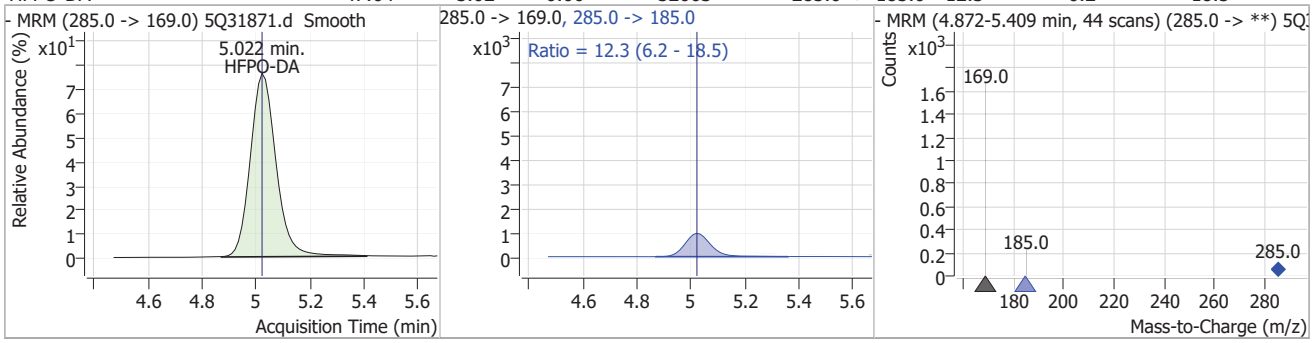
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	48.69	4.77	0.00	563542	313.0 -> 119.0	7.3	3.5	10.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	47.39	5.02	0.00	55163				

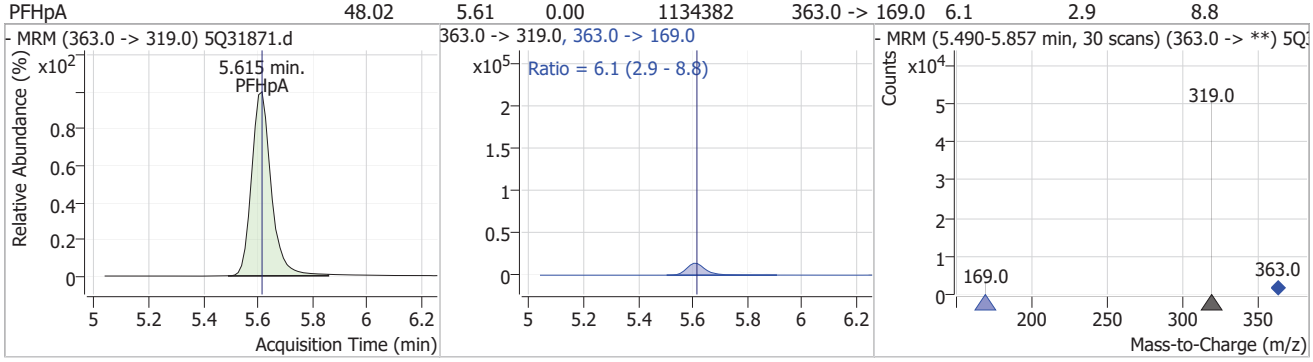


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	47.64	5.02	0.00	52003	285.0 -> 185.0	12.3	6.2	18.5

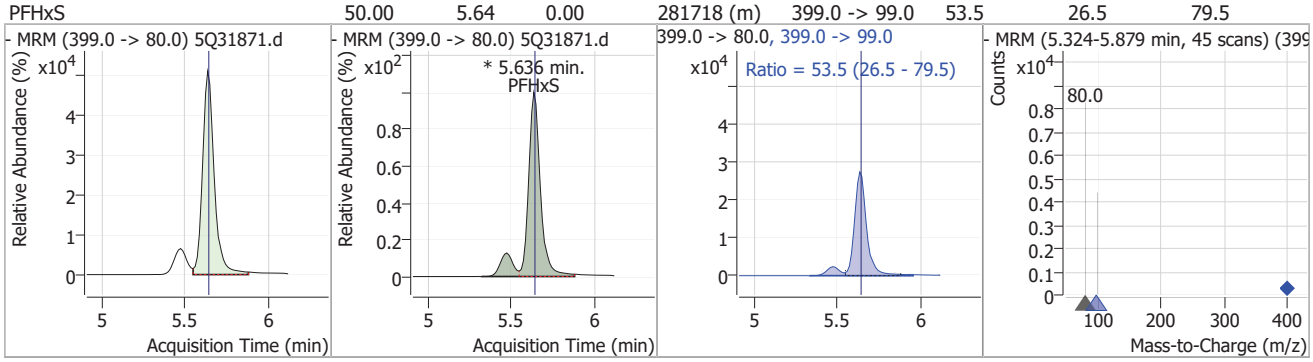


Perfluorinated Compounds by LC/MS/MS

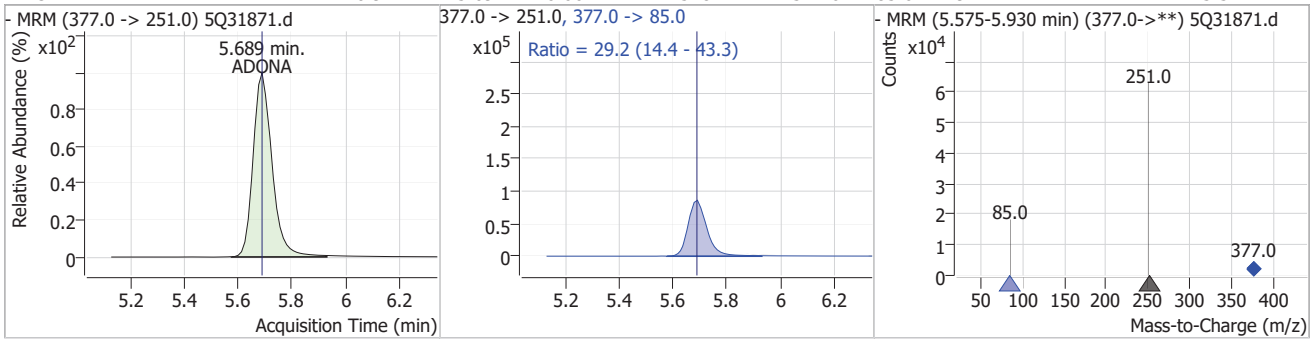
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	48.02	5.61	0.00	1134382	363.0 -> 169.0	6.1	2.9	8.8



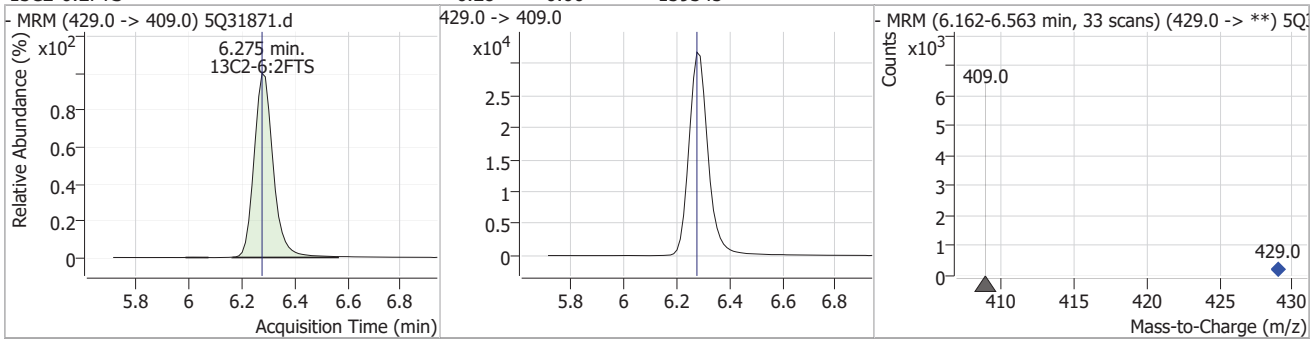
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	50.00	5.64	0.00	281718 (m)	399.0 -> 99.0	53.5	26.5	79.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	46.92	5.69	0.00	1451821	377.0 -> 85.0	29.2	14.4	43.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	0.00	159345				



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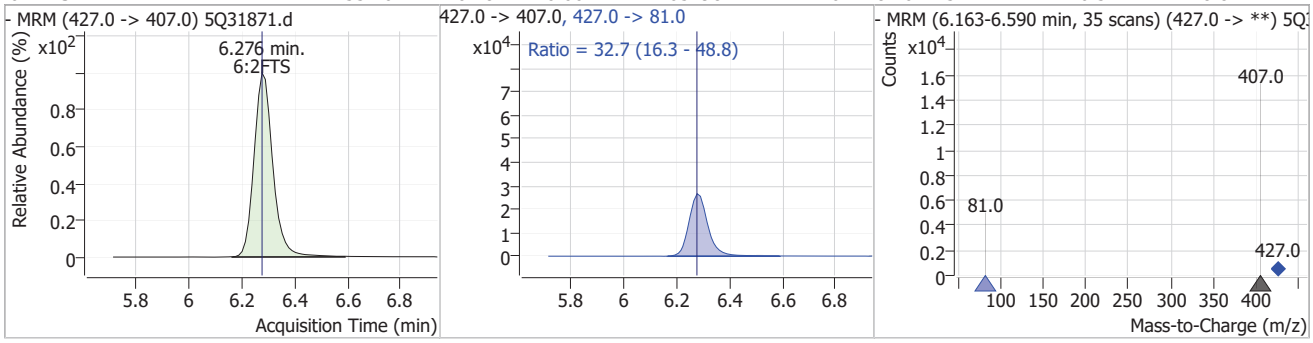
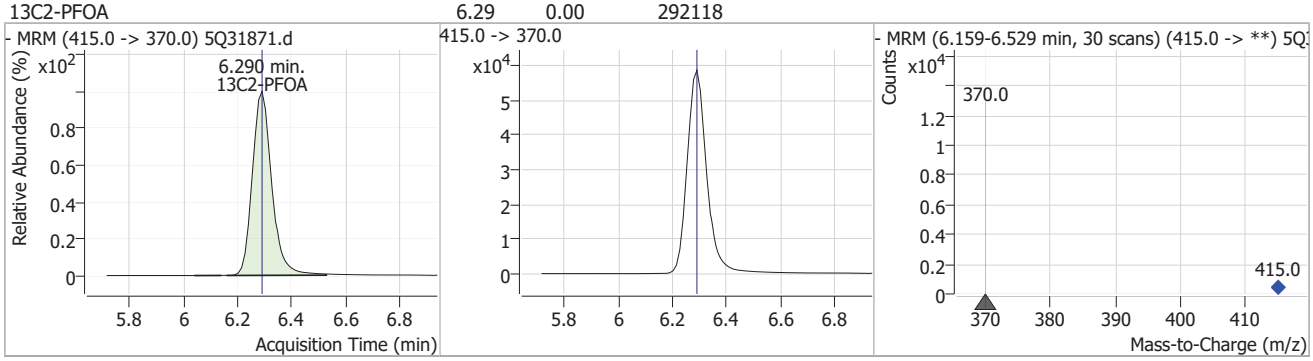
Perfluorinated Compounds by LC/MS/MS

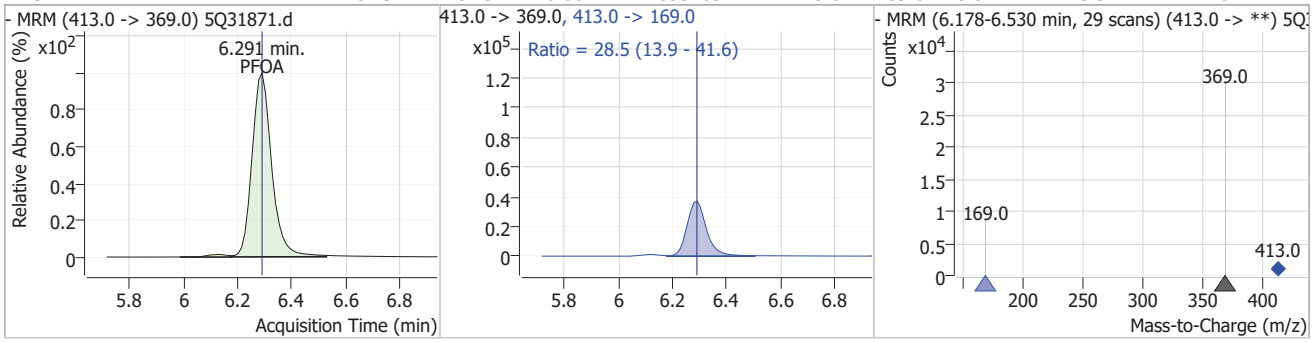
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	53.10	6.28	0.00	405198	427.0 -> 81.0	32.7	16.3	48.8



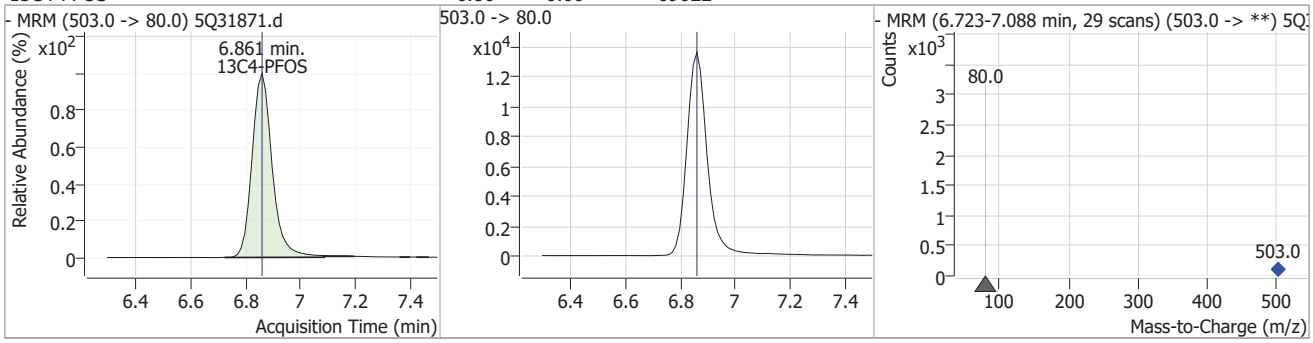
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	292118				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	48.29	6.29	0.00	655709	413.0 -> 169.0	28.5	13.9	41.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	69022				



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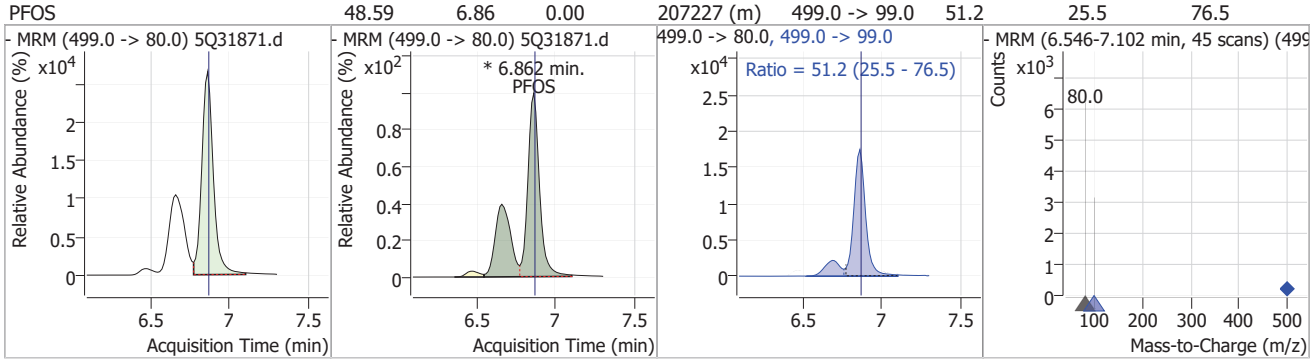
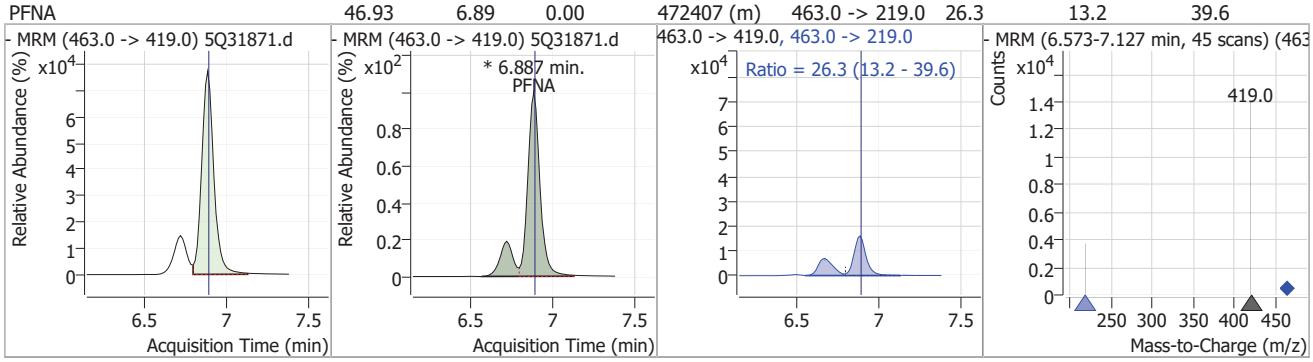
Perfluorinated Compounds by LC/MS/MS

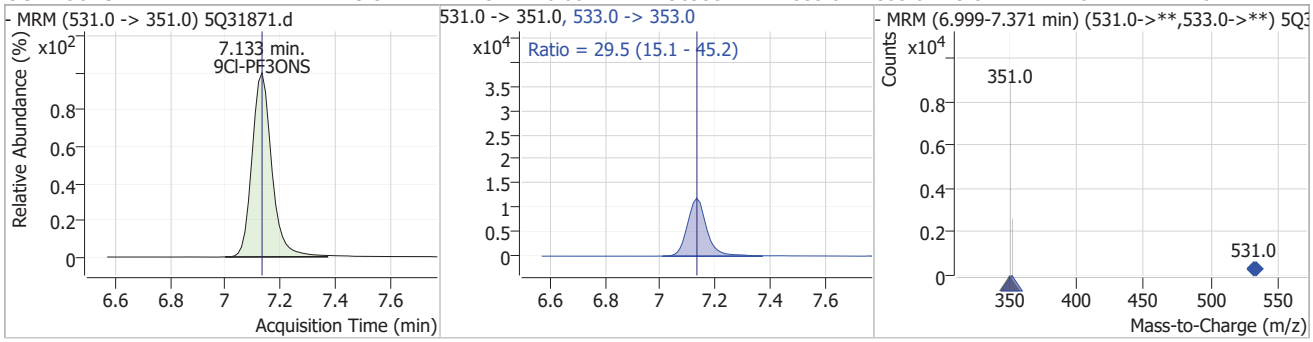
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	48.59	6.86	0.00	207227 (m)	499.0 -> 99.0	51.2	25.5	76.5



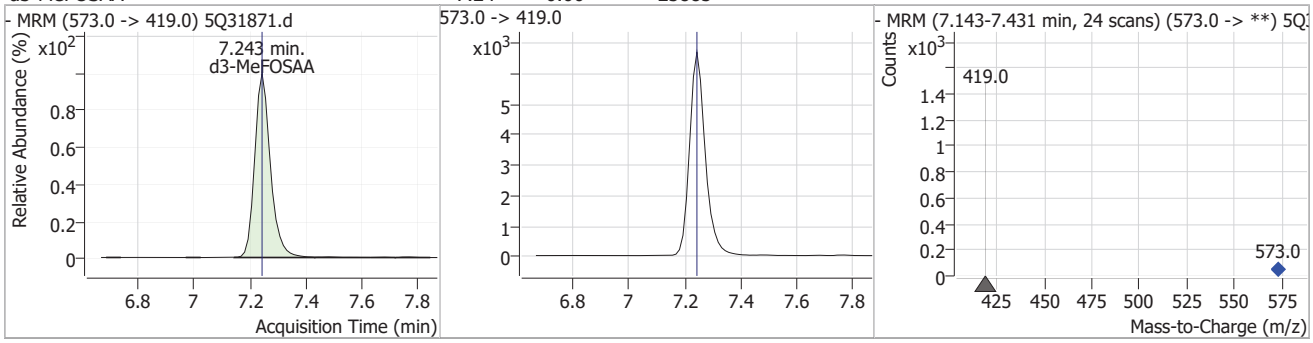
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	46.93	6.89	0.00	472407 (m)	463.0 -> 219.0	26.3	13.2	39.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	49.34	7.13	0.00	196958	533.0 -> 353.0	29.5	15.1	45.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	25885				



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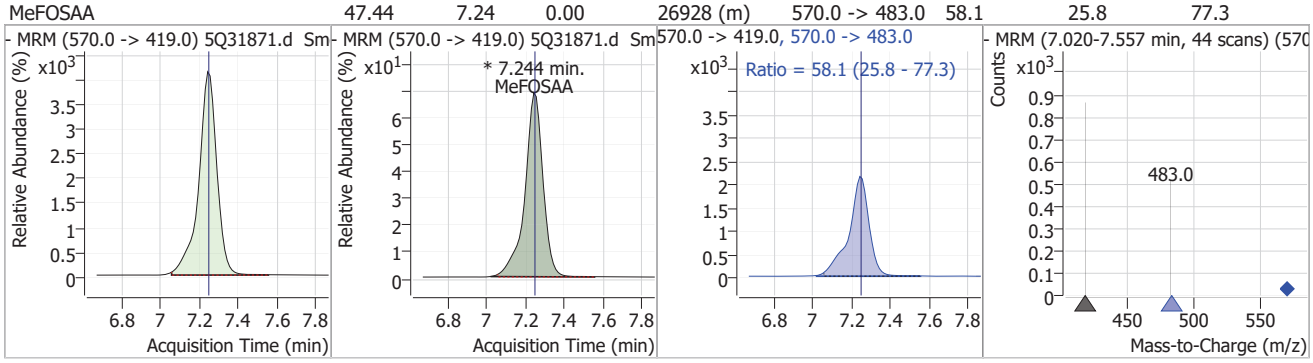
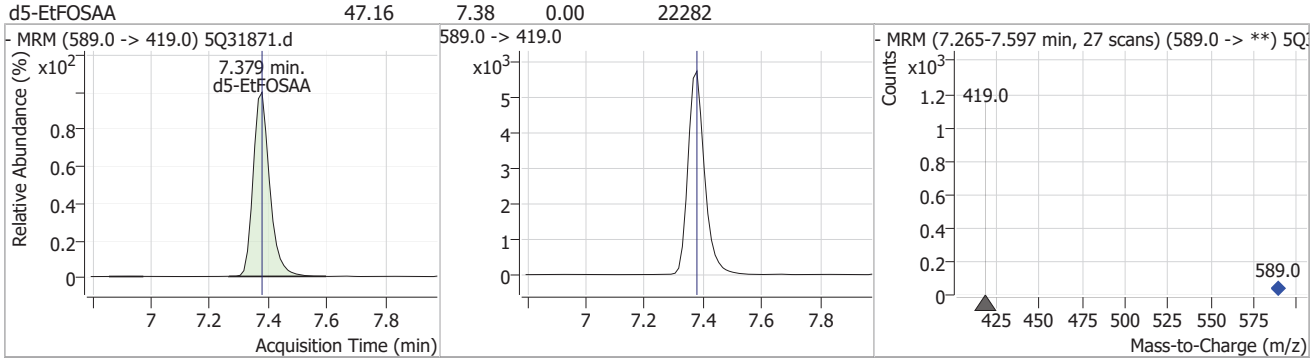
Perfluorinated Compounds by LC/MS/MS

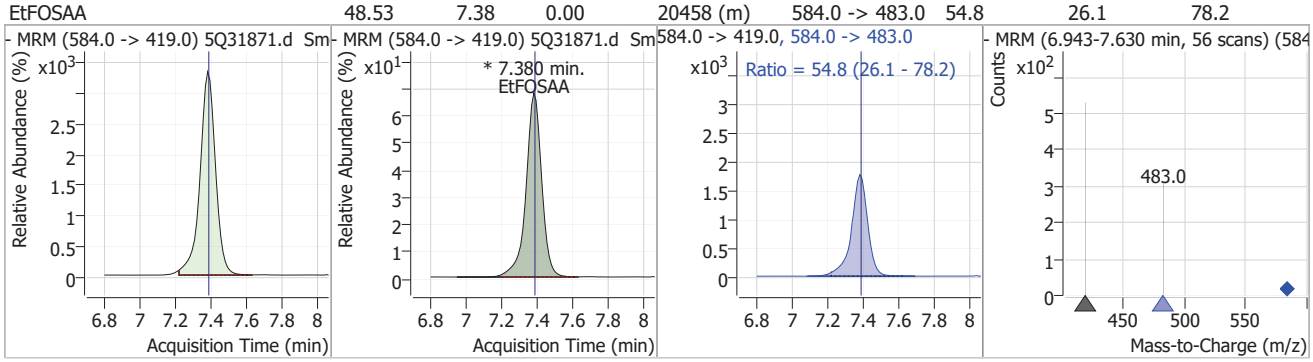
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	47.44	7.24	0.00	26928 (m)	570.0 -> 483.0	58.1	25.8	77.3



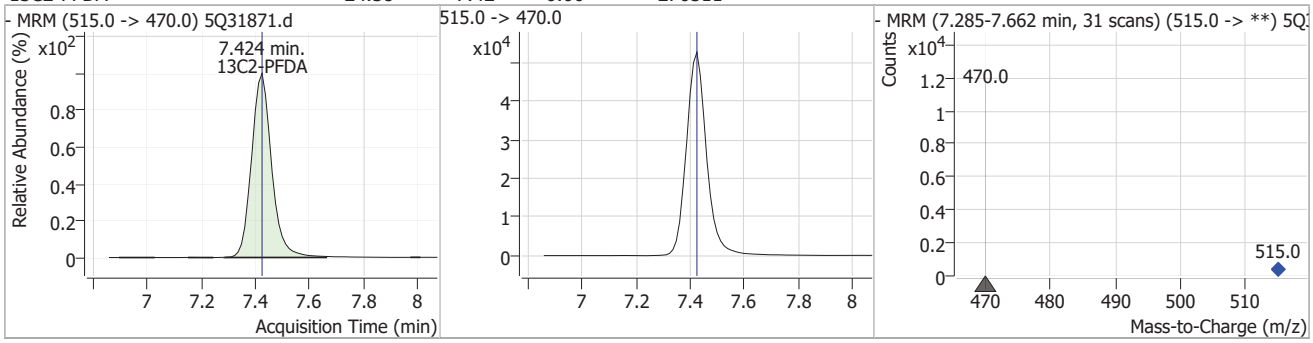
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	47.16	7.38	0.00	22282				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	48.53	7.38	0.00	20458 (m)	584.0 -> 483.0	54.8	26.1	78.2

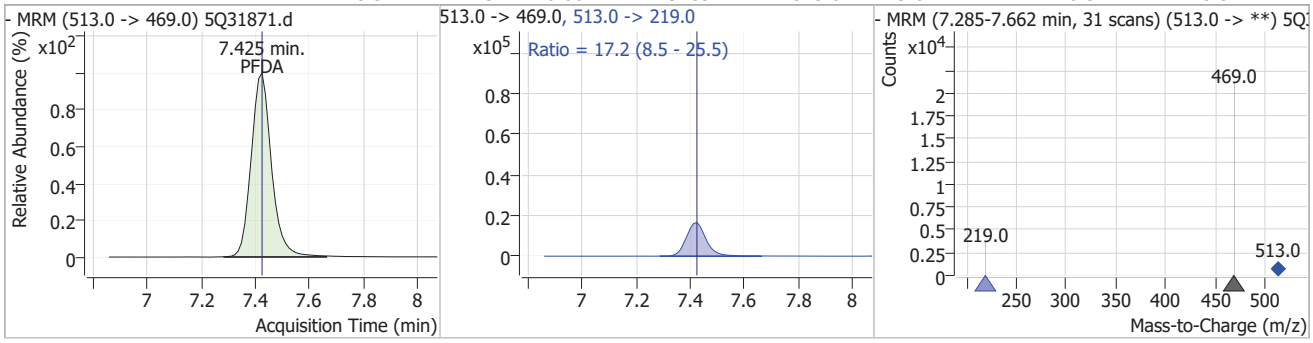


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	24.38	7.42	0.00	270511				

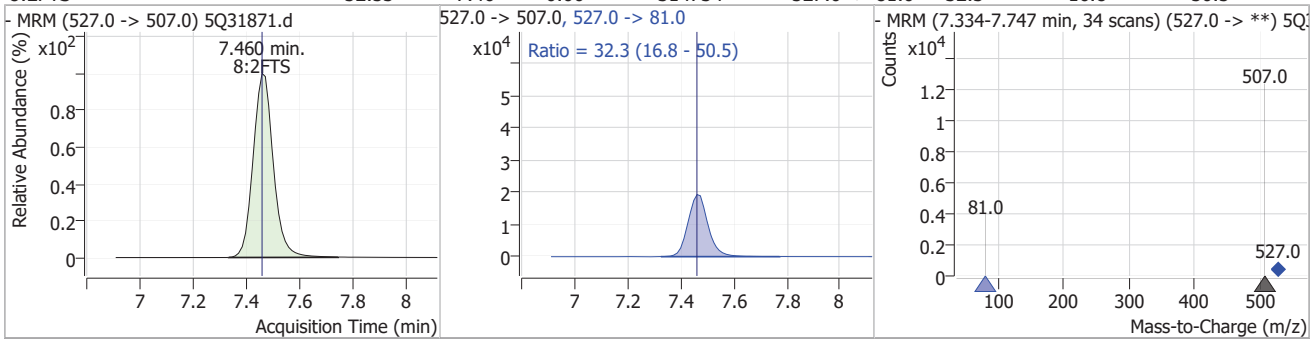


Perfluorinated Compounds by LC/MS/MS

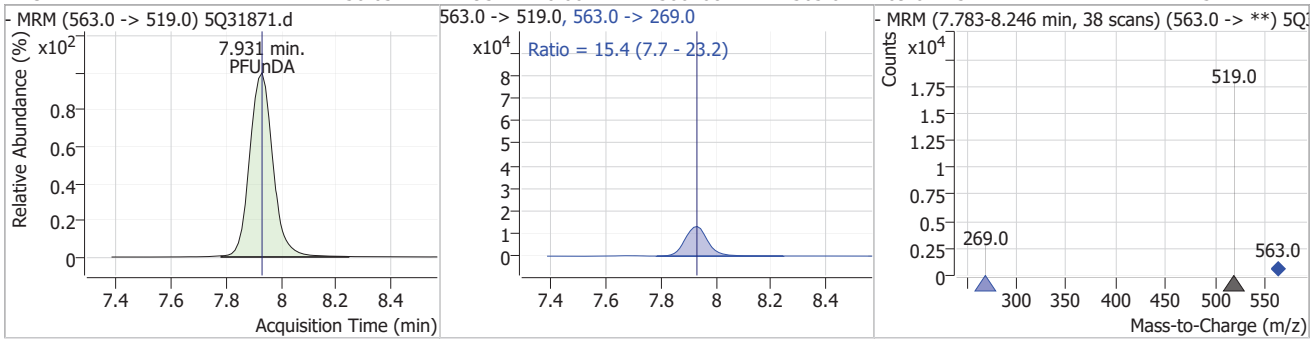
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	48.34	7.43	0.00	491594	513.0 -> 219.0	17.2	8.5	25.5



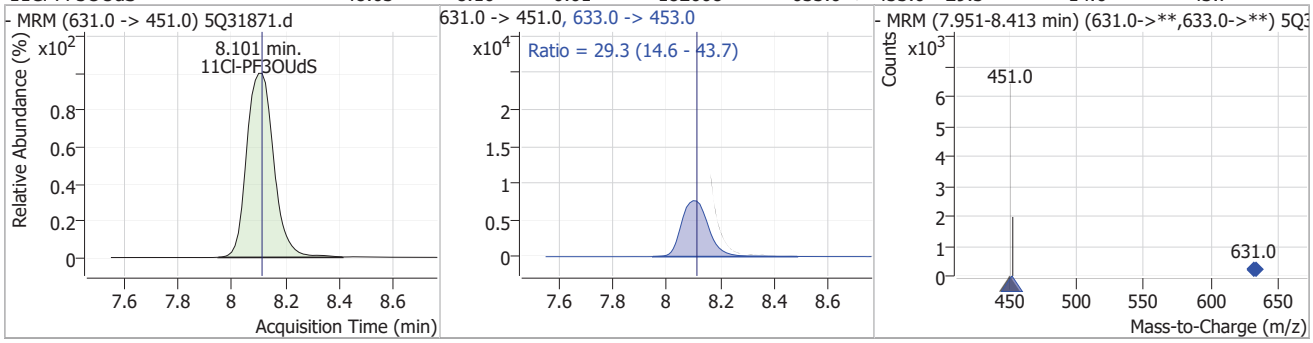
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	52.53	7.46	0.00	314734	527.0 -> 81.0	32.3	16.8	50.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	50.63	7.93	0.00	500708	563.0 -> 269.0	15.4	7.7	23.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	48.03	8.10	-0.01	182008	633.0 -> 453.0	29.3	14.6	43.7



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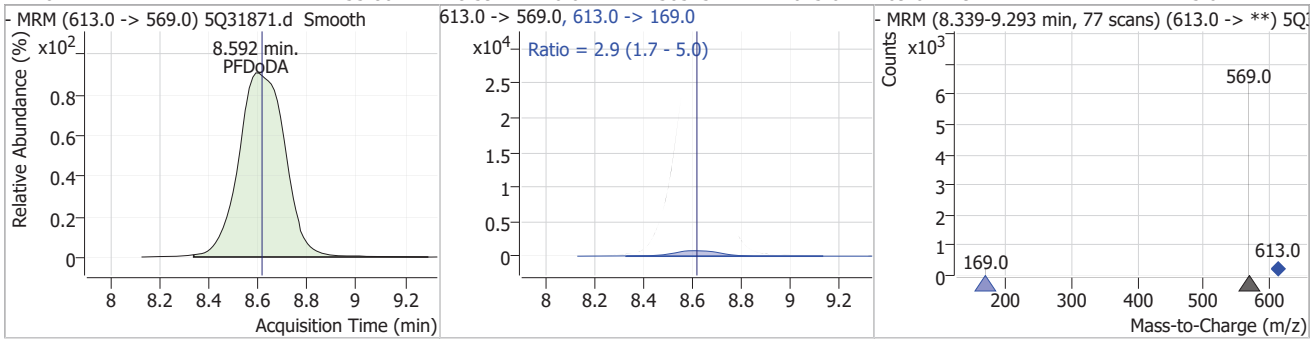
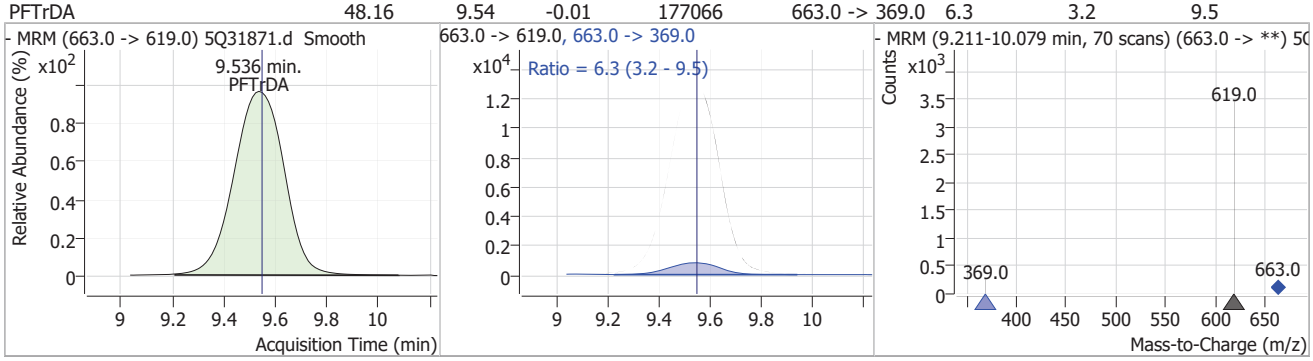
Perfluorinated Compounds by LC/MS/MS

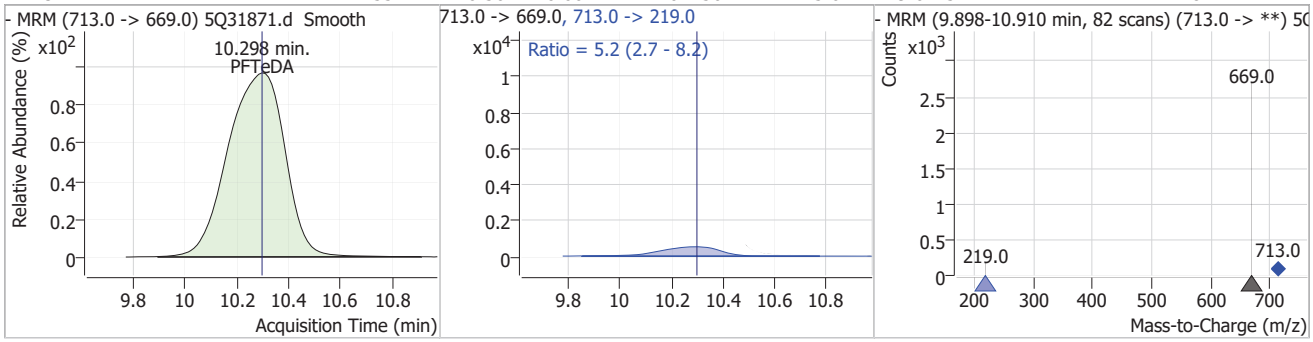
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	55.86	8.59	-0.02	365252	613.0 -> 169.0	2.9	1.7	5.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	48.16	9.54	-0.01	177066	663.0 -> 369.0	6.3	3.2	9.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	47.35	10.30	0.00	162456	713.0 -> 219.0	5.2	2.7	8.2



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Manual Integration Approval Summary

Sample Number:	S5Q524-IC524	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31871.D	**Analyst approved:**	04/21/25 09:54 (b) (6)
Injection Time:	04/18/25 15:34	**Supervisor approved:**	04/21/25 10:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.24	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/21/25 10:51

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31872.d
Operator : (b) (6)
Acq. Method : 537_5Q.m
Acq. Date-Time : 4/18/2025 3:51:06 PM
Sample Name : ic524-100
Vial : P1-A9
DA Method File : 537_041825_S5Q524.quantmethod.xml
Batch Name : s5q524.batch.bin
Sample Information : OP8882,S5Q524,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.275	429.0 -> 409.0	167719	20.00 µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	271836	20.00 µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	354071	20.00 µg/L		0.000
13C4-PFOS	6.861	503.0 -> 80.0	68685	20.00 µg/L		0.000
d3-MeFOSAA	7.243	573.0 -> 419.0	24037	40.00 µg/L		0.000
System Monitoring Compounds						
13C2-PFDA	7.424	515.0 -> 470.0	519495	50.30 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 251.5%		
13C2-PFHxA	4.764	315.0 -> 270.0	794972	50.27 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 251.3%		
d5-EtFOSAA	7.379	589.0 -> 419.0	44507	101.44 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 253.6%		
13C3-HFPO-DA	5.020	287.0 -> 169.0	109744	101.31 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 253.3%		
Target Compounds						QValue
6:2FTS	6.276	427.0 -> 407.0	781242	97.27 µg/L		99
8:2FTS	7.460	527.0 -> 507.0	617197	97.87 µg/L		99
EtFOSAA	7.380	584.0 -> 419.0	39332	100.48 µg/L	m	94
MeFOSAA	7.244	570.0 -> 419.0	53232	101.00 µg/L	m	89
PFBS	3.828	299.0 -> 80.0	857806	99.09 µg/L		100
PFDA	7.413	513.0 -> 469.0	953074	100.71 µg/L		99
PFDoDA	8.617	613.0 -> 569.0	649577	97.67 µg/L		99
PFHpA	5.602	363.0 -> 319.0	2215390	100.79 µg/L		99
PFHxA	4.765	313.0 -> 269.0	1080531	100.33 µg/L		99
PFHxS	5.636	399.0 -> 80.0	559662	99.82 µg/L	m	99
PFNA	6.887	463.0 -> 419.0	951993	101.63 µg/L	m	99
PFOA	6.291	413.0 -> 369.0	1271341	100.62 µg/L		98
PFOS	6.862	499.0 -> 80.0	427061	100.63 µg/L	m	97
PFPeA	3.597	263.0 -> 219.0	2184241	100.27 µg/L		100
PFTeDA	10.298	713.0 -> 669.0	346516	101.48 µg/L		99
PFTrDA	9.548	663.0 -> 619.0	369794	101.07 µg/L		99
PFUnDA	7.931	563.0 -> 519.0	979067	99.49 µg/L		99
ADONA	5.689	377.0 -> 251.0	2924333	101.56 µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	397417	100.12 µg/L		98
11Cl-PF3OUdS	8.101	631.0 -> 451.0	357571	101.39 µg/L		99
HFPO-DA	5.022	285.0 -> 169.0	102531	100.93 µg/L		99

 # = Qualifier out of range, m = manually integrated, + = Area summed

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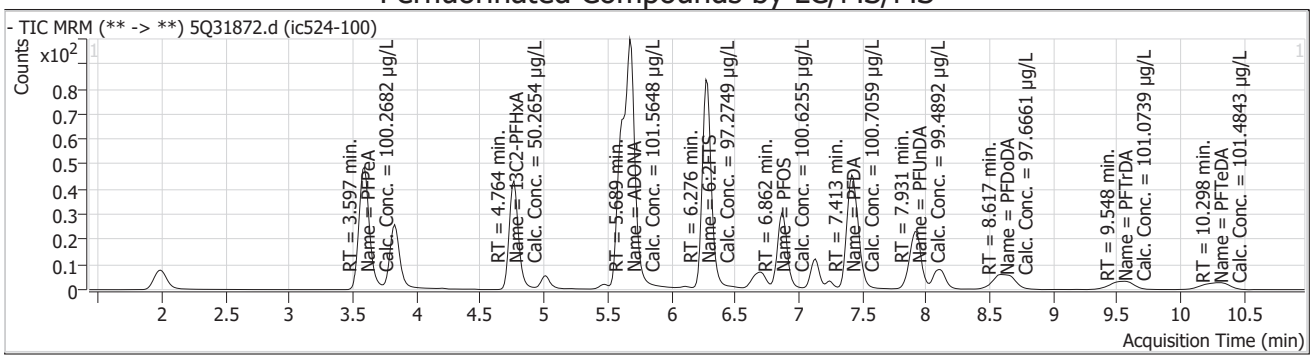
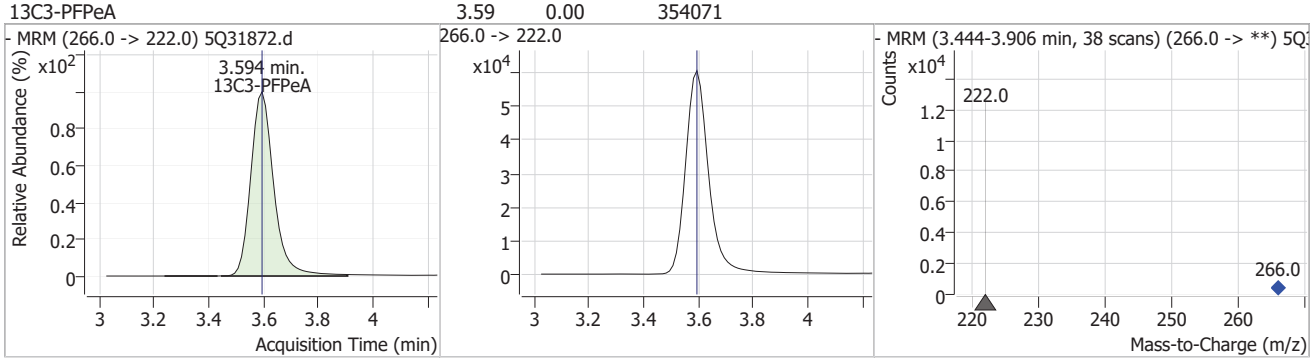
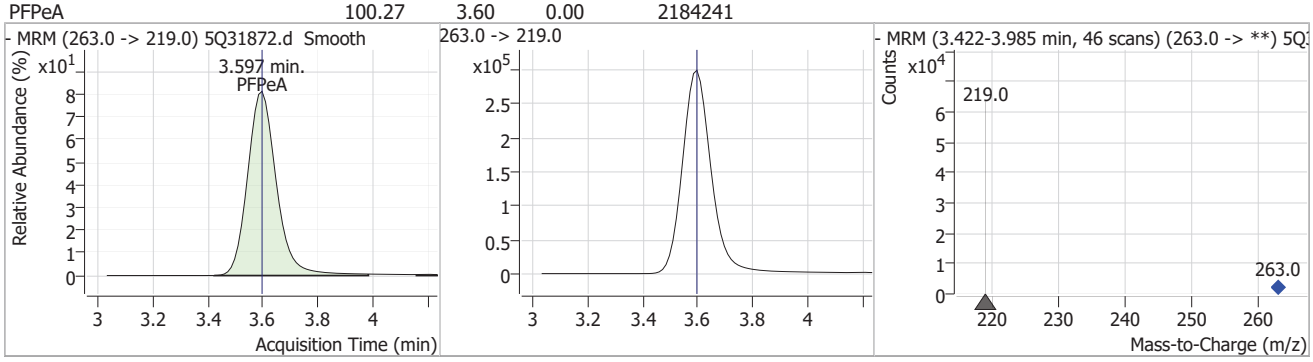
Perfluorinated Compounds by LC/MS/MS



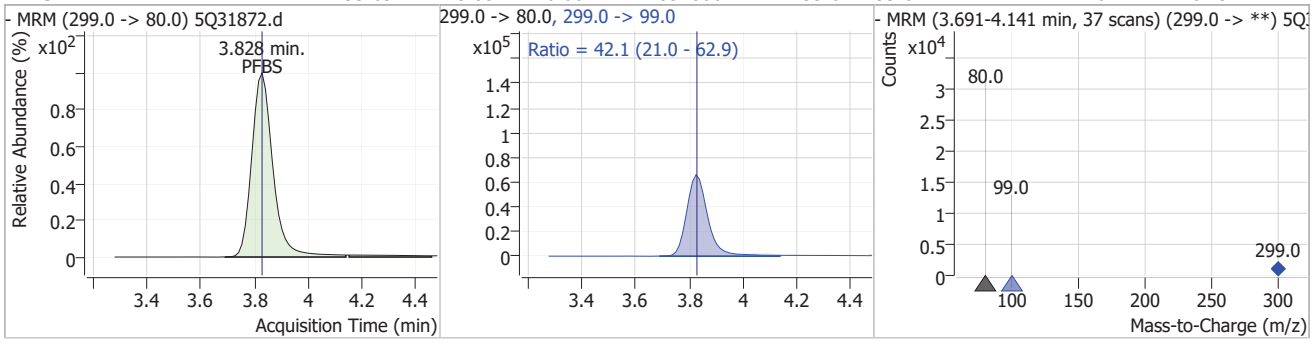
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	354071				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	100.27	3.60	0.00	2184241				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	99.09	3.83	0.00	857806	299.0 -> 99.0	42.1	21.0	62.9



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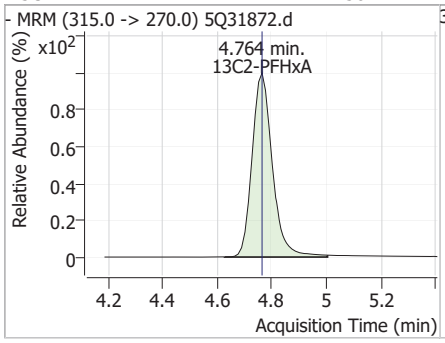
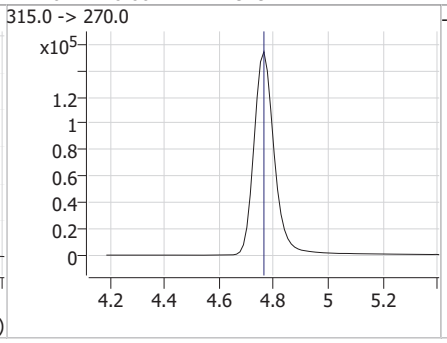
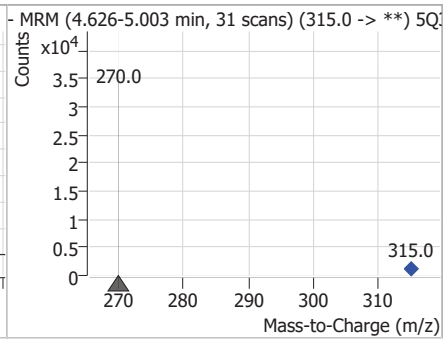
Perfluorinated Compounds by LC/MS/MS

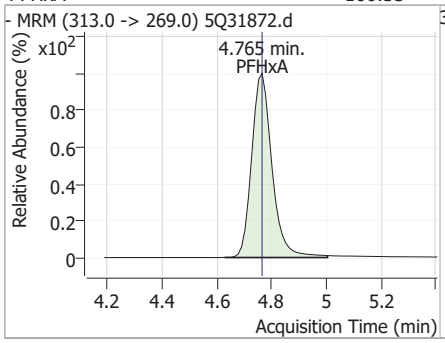
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	50.27	4.76	0.00	794972				

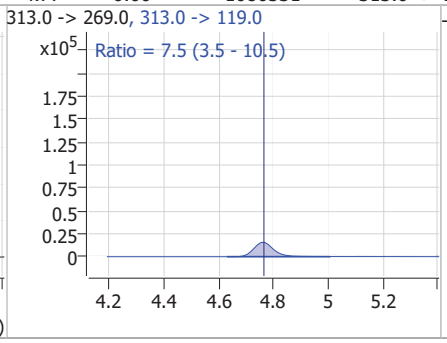


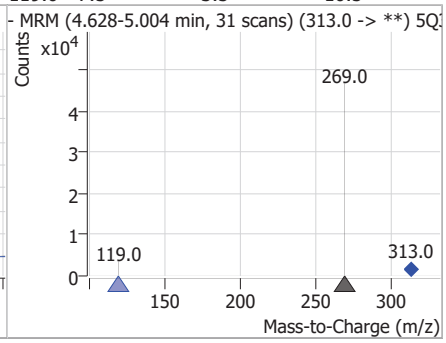




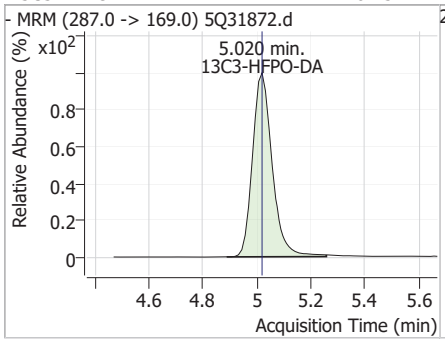
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	100.33	4.77	0.00	1080531	313.0 -> 119.0	7.5	3.5	10.5

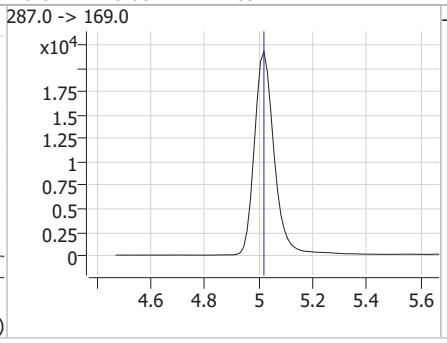


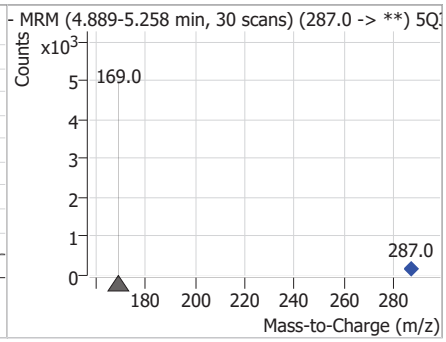




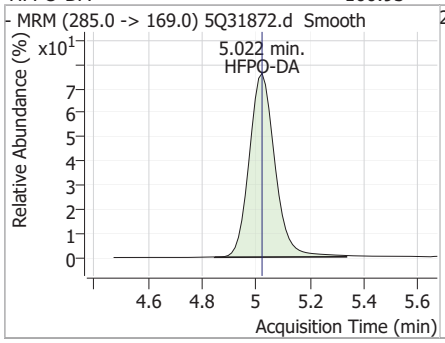
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	101.31	5.02	0.00	109744				

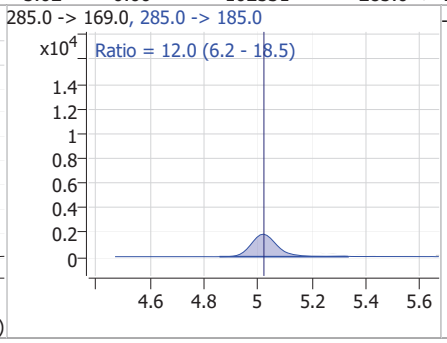


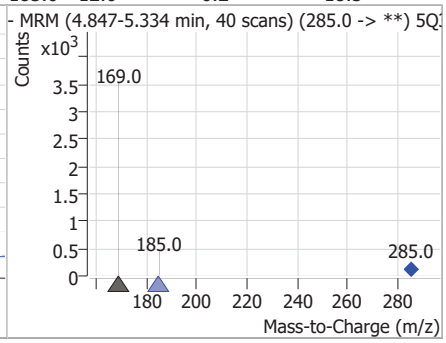




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	100.93	5.02	0.00	102531	285.0 -> 185.0	12.0	6.2	18.5

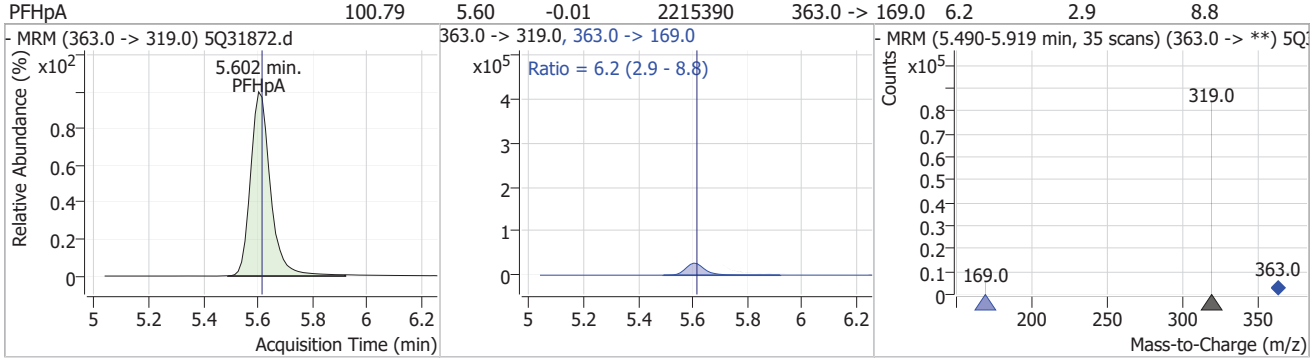




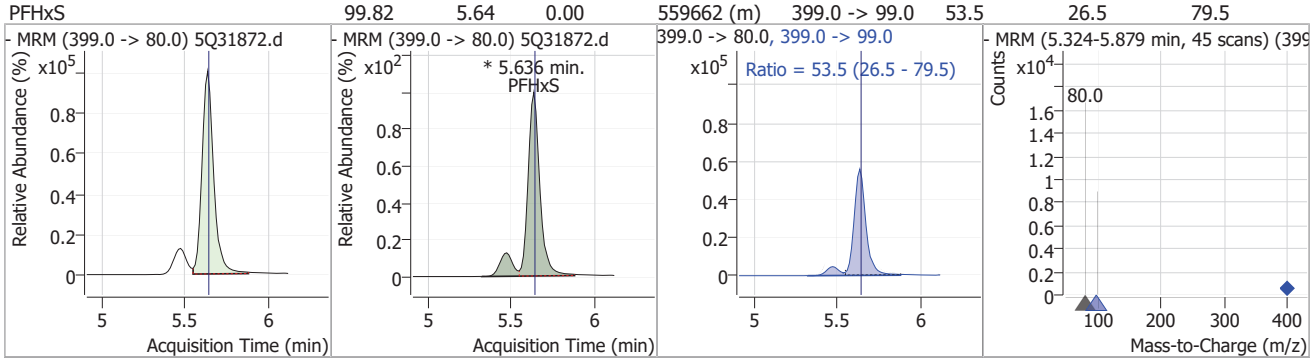


Perfluorinated Compounds by LC/MS/MS

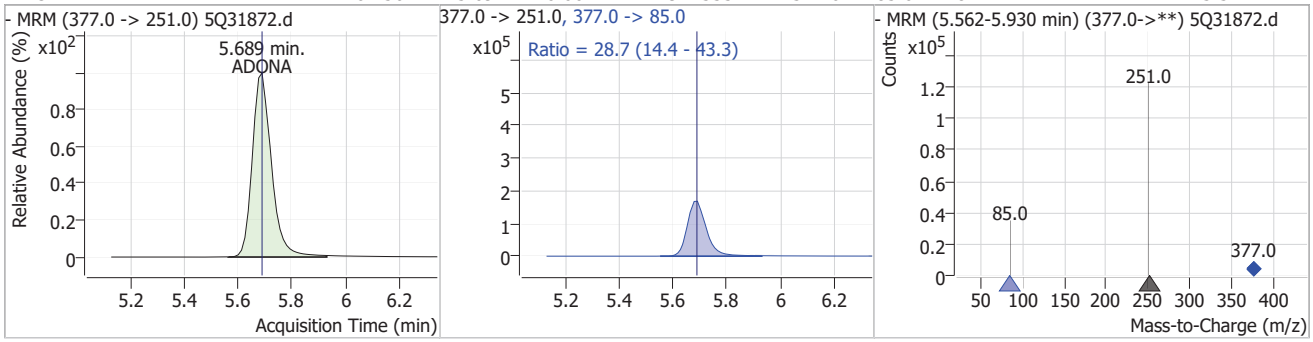
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	100.79	5.60	-0.01	2215390	363.0 -> 169.0	6.2	2.9	8.8



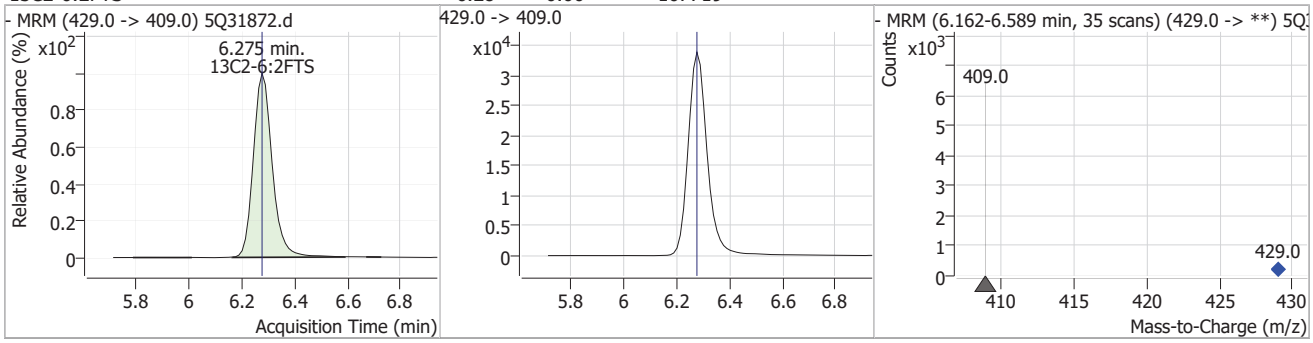
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	99.82	5.64	0.00	559662 (m)	399.0 -> 99.0	53.5	26.5	79.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	101.56	5.69	0.00	2924333	377.0 -> 85.0	28.7	14.4	43.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	0.00	167719				



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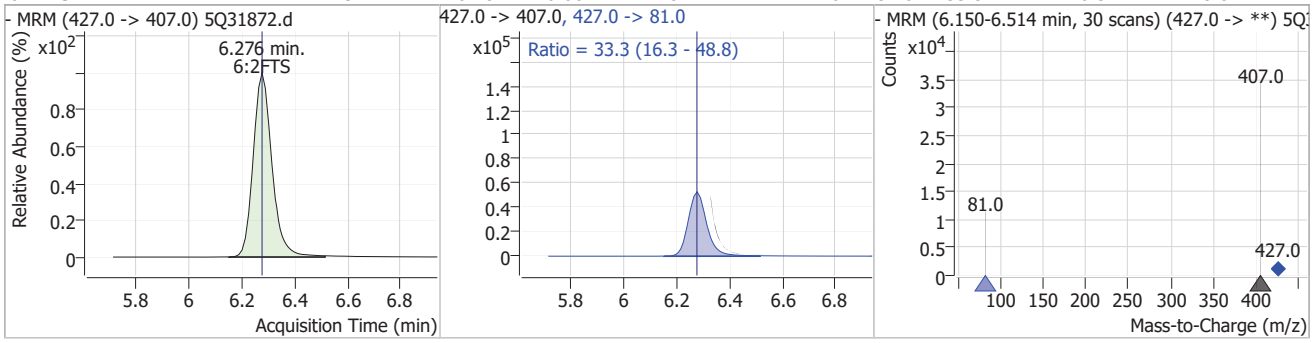
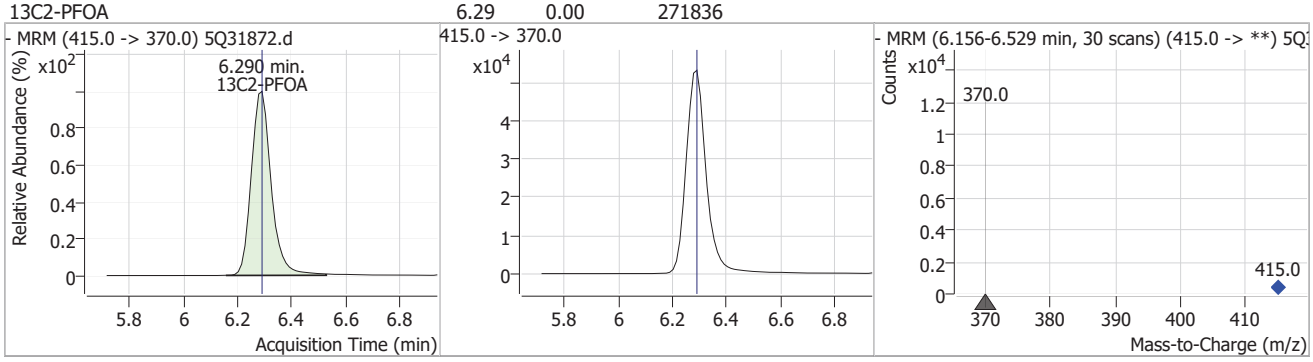
Perfluorinated Compounds by LC/MS/MS

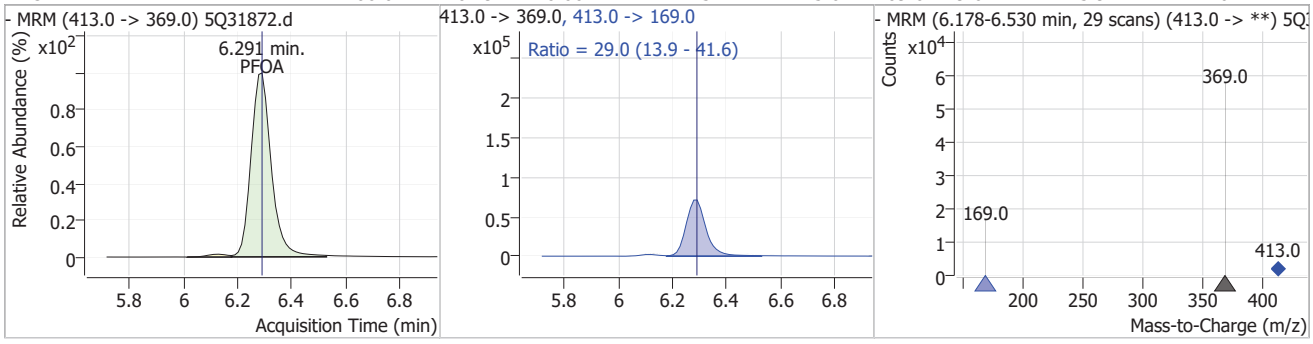
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	97.27	6.28	0.00	781242	427.0 -> 81.0	33.3	16.3	48.8



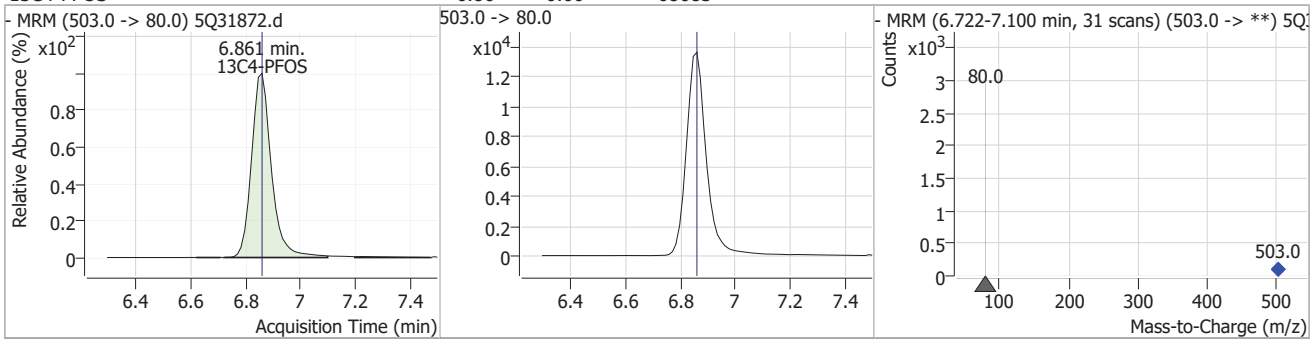
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	271836				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	100.62	6.29	0.00	1271341	413.0 -> 169.0	29.0	13.9	41.6

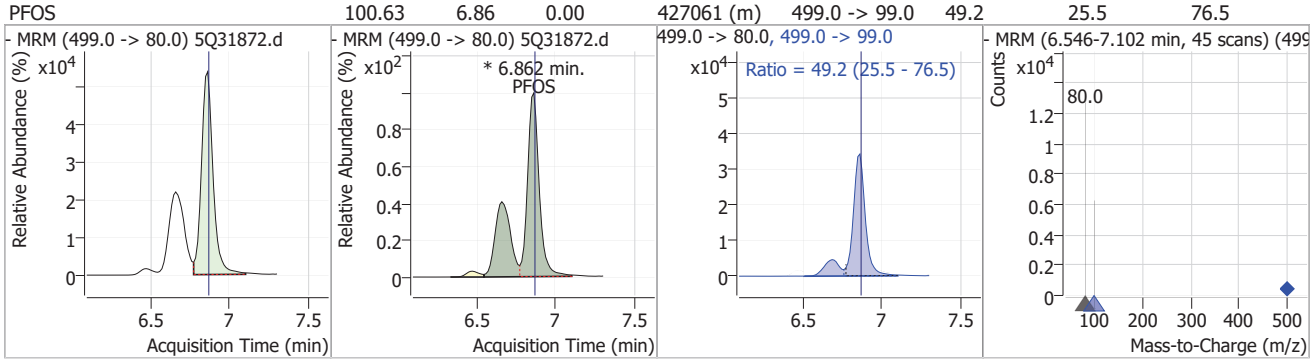


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	68685				

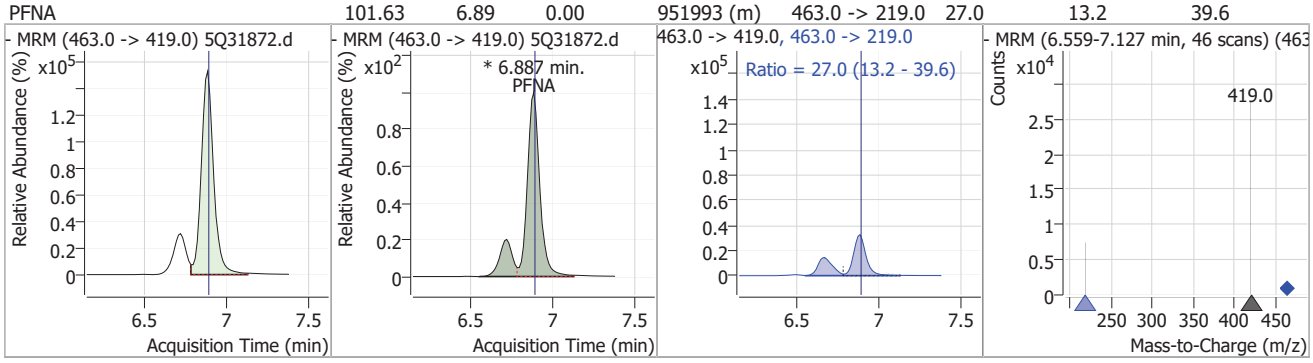


Perfluorinated Compounds by LC/MS/MS

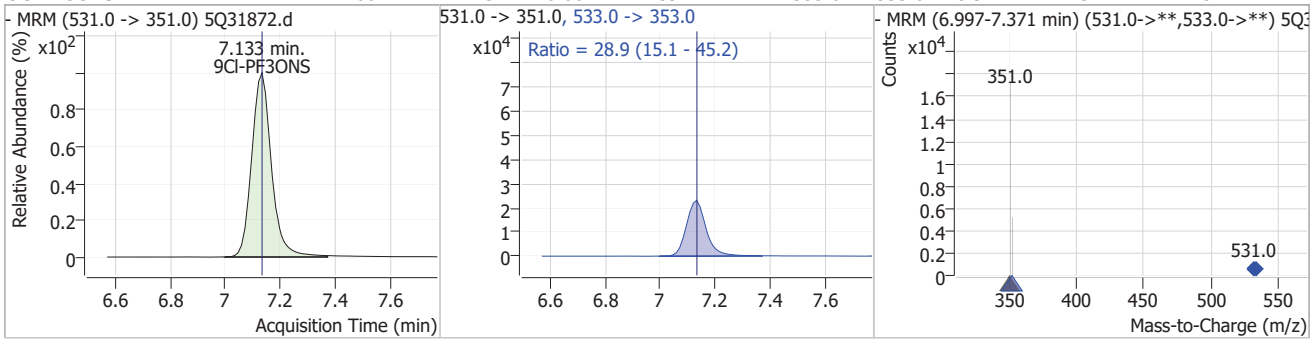
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	100.63	6.86	0.00	427061 (m)	499.0 -> 99.0	49.2	25.5	76.5



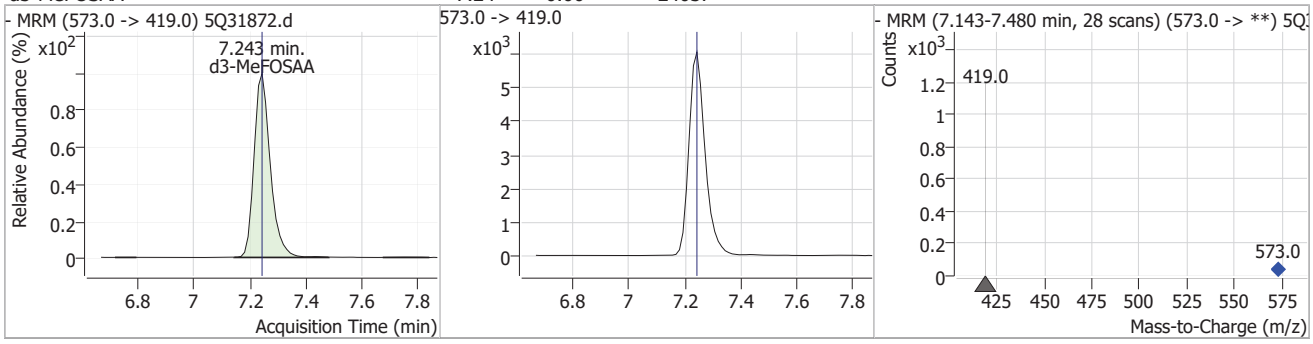
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	101.63	6.89	0.00	951993 (m)	463.0 -> 219.0	27.0	13.2	39.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	100.12	7.13	0.00	397417	533.0 -> 353.0	28.9	15.1	45.2

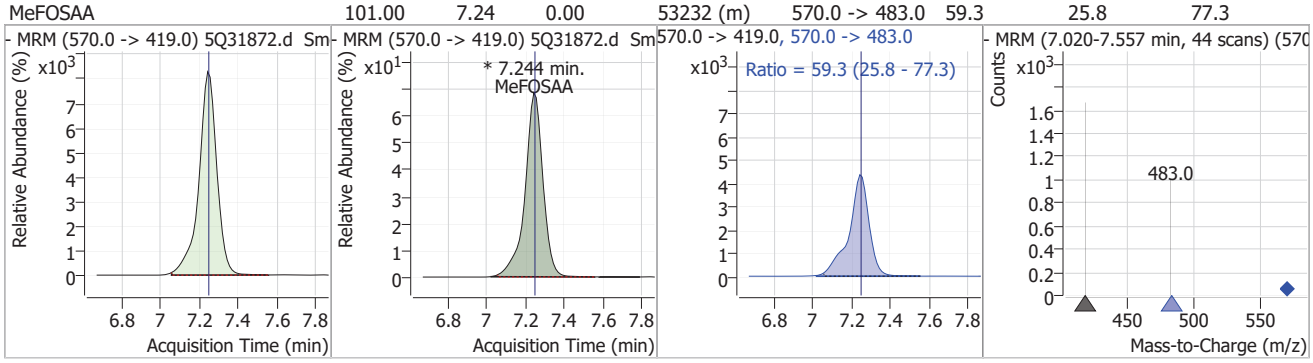


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	24037				

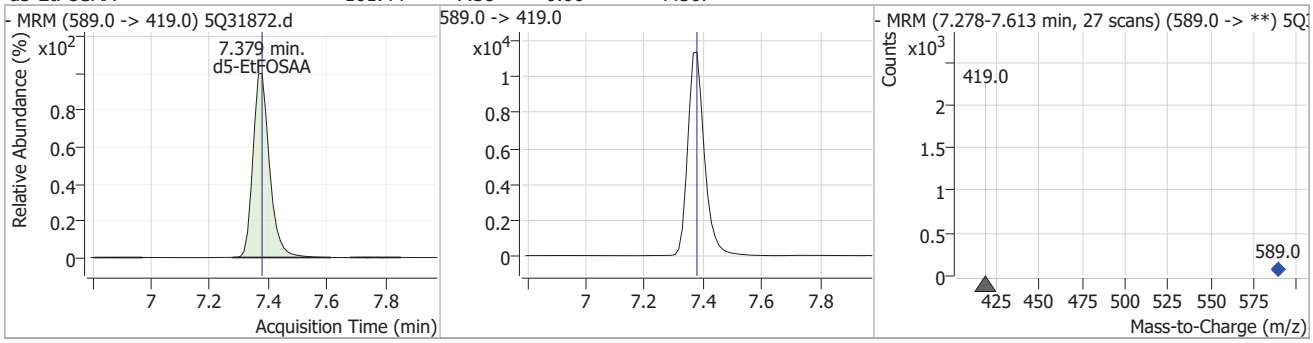


Perfluorinated Compounds by LC/MS/MS

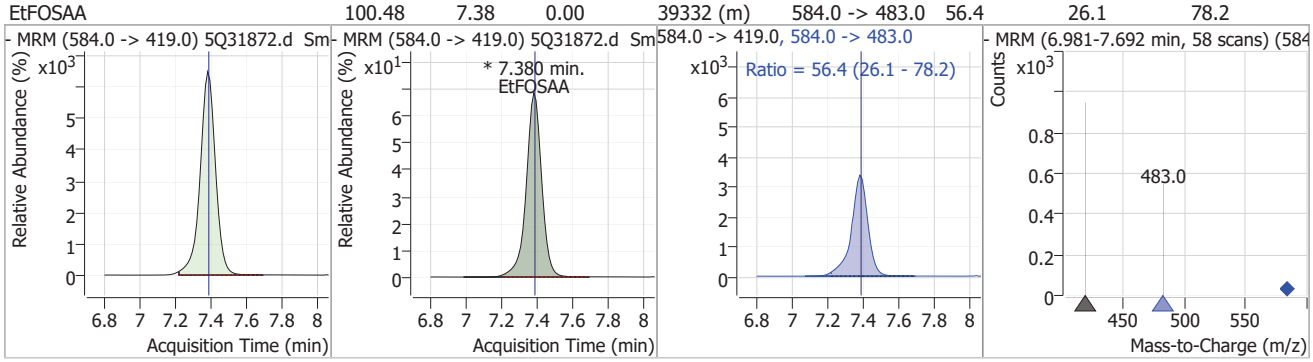
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	101.00	7.24	0.00	53232 (m)	570.0 -> 483.0	59.3	25.8	77.3



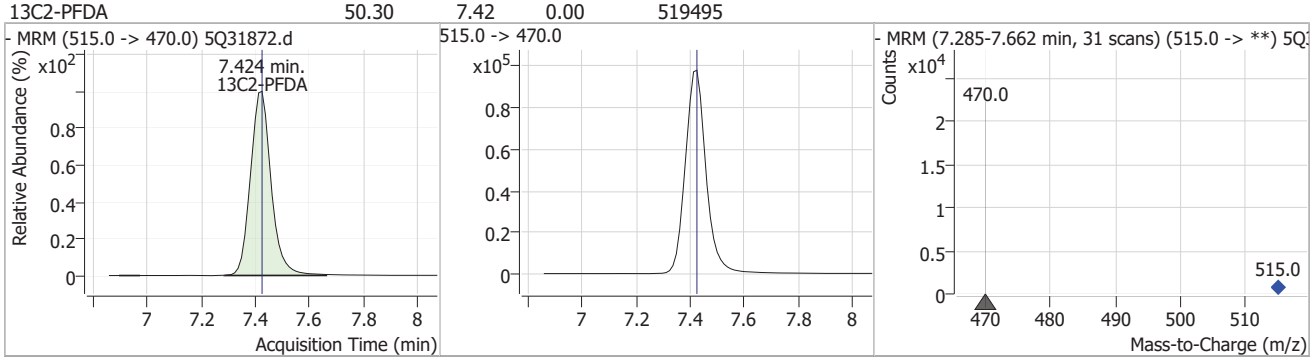
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	101.44	7.38	0.00	44507				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	100.48	7.38	0.00	39332 (m)	584.0 -> 483.0	56.4	26.1	78.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	50.30	7.42	0.00	519495				



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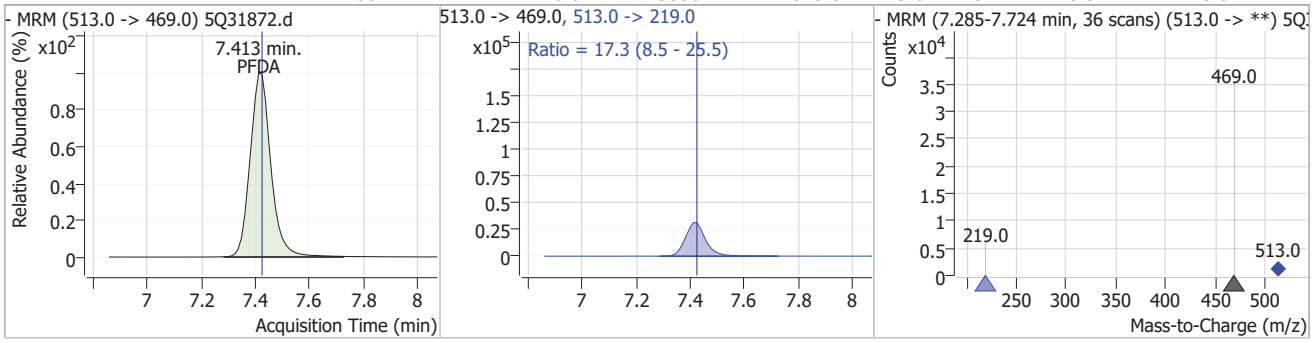
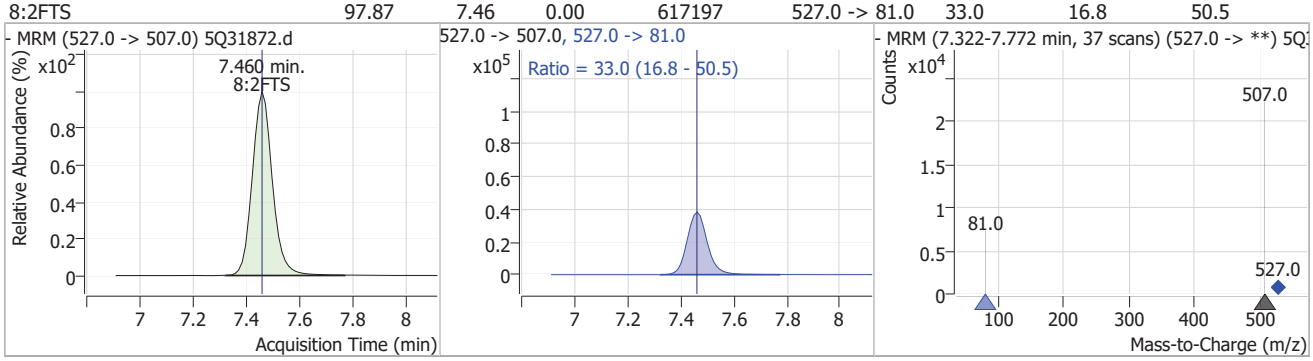
Perfluorinated Compounds by LC/MS/MS

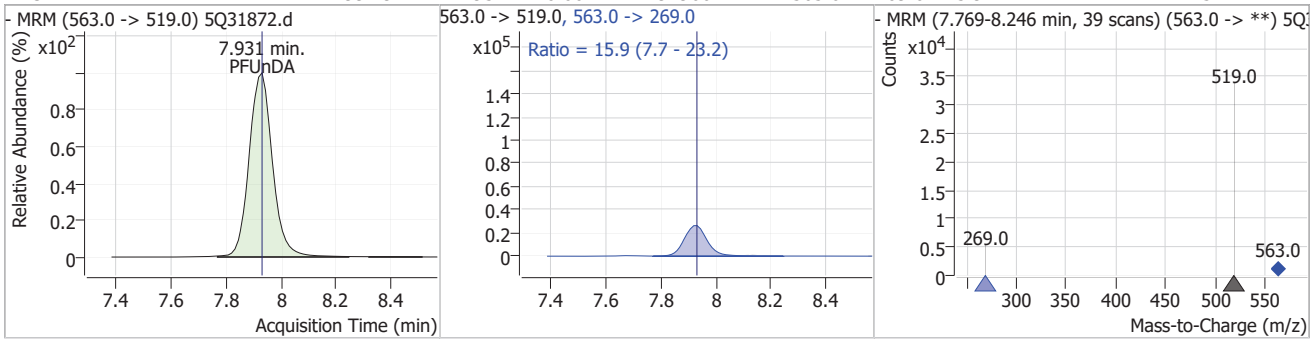
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	100.71	7.41	-0.01	953074	513.0 -> 219.0	17.3	8.5	25.5



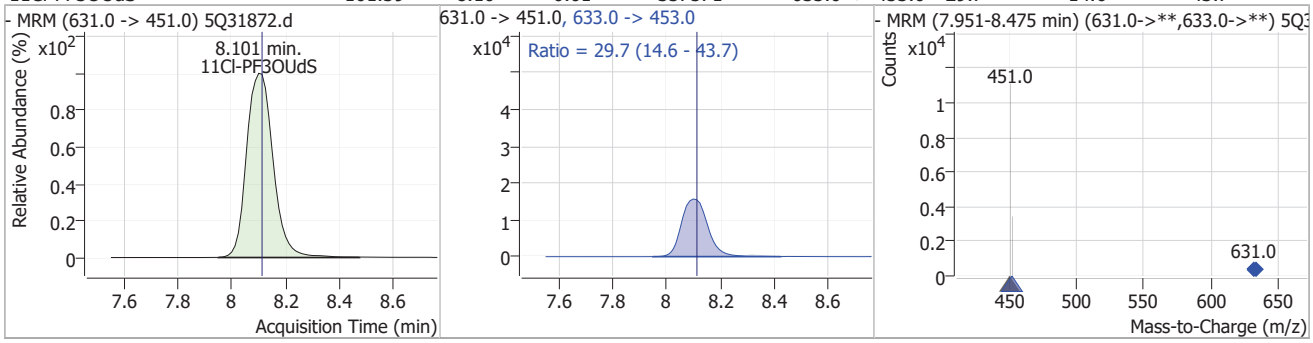
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	97.87	7.46	0.00	617197	527.0 -> 81.0	33.0	16.8	50.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	99.49	7.93	0.00	979067	563.0 -> 269.0	15.9	7.7	23.2

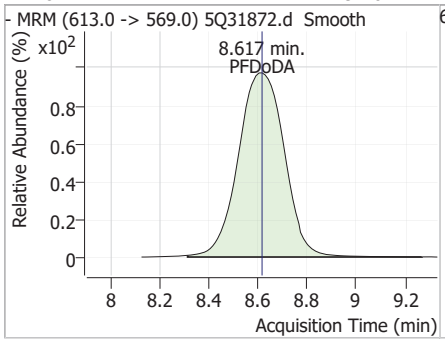


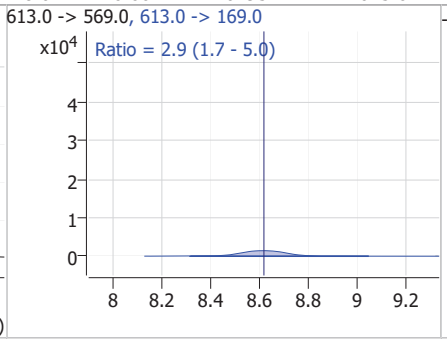
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	101.39	8.10	-0.01	357571	633.0 -> 453.0	29.7	14.6	43.7

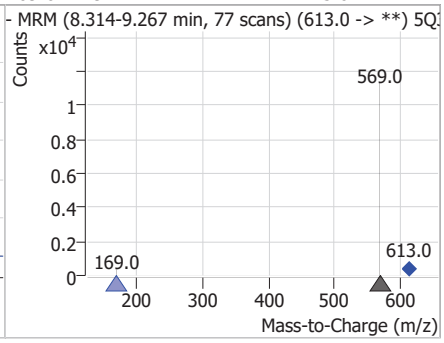


Perfluorinated Compounds by LC/MS/MS

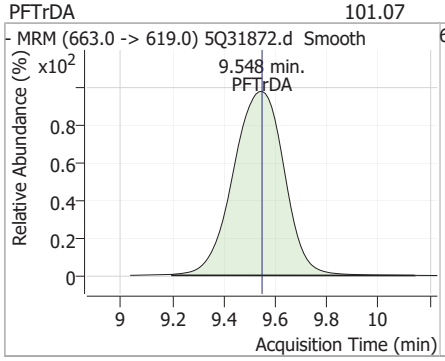
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	97.67	8.62	0.00	649577	613.0 -> 169.0	2.9	1.7	5.0

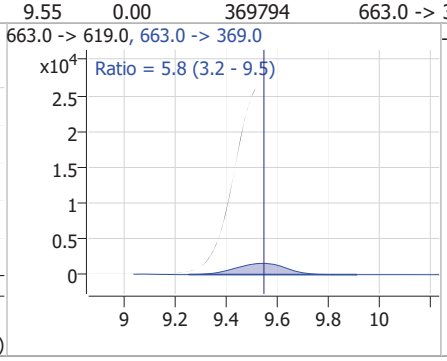


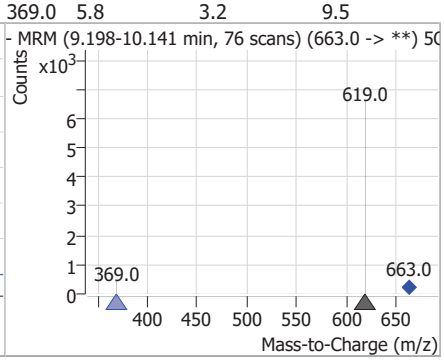




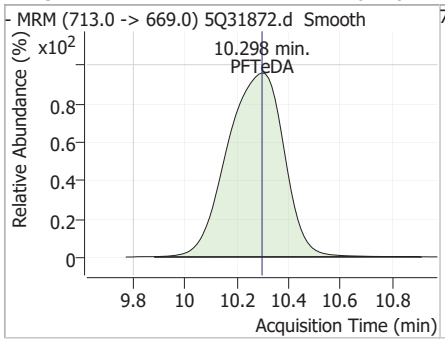
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	101.07	9.55	0.00	369794	663.0 -> 369.0	5.8	3.2	9.5

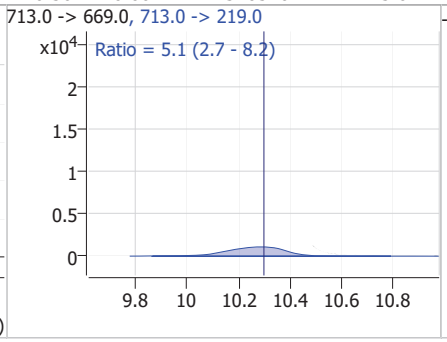


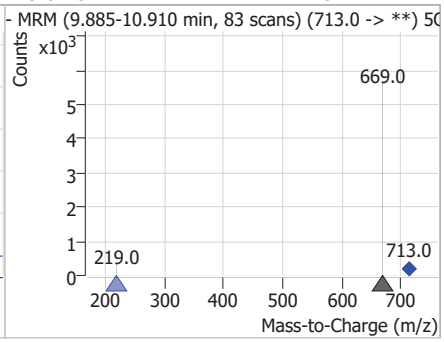




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	101.48	10.30	0.00	346516	713.0 -> 219.0	5.1	2.7	8.2







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Manual Integration Approval Summary

Sample Number: S5Q524-IC524
Lab FileID: 5Q31872.D
Injection Time: 04/18/25 15:51
Method: EPA 537.1 REV 2.0
Analyst approved: 04/21/25 09:54 (b) (6)
Supervisor approved: 04/21/25 10:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.24	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/21/25 10:51

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31873.d
Operator : (b) (6)
Acq. Method : 537_5Q.m
Acq. Date-Time : 4/18/2025 4:07:37 PM
Sample Name : icv524-20
Vial : P1-B1
DA Method File : 537_041825_S5Q524.quantmethod.xml
Batch Name : s5q524.batch.bin
Sample Information : OP8882,S5Q524,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.275	429.0 -> 409.0	134475	20.00	µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	270773	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	334087	20.00	µg/L		0.000
13C4-PFOS	6.861	503.0 -> 80.0	62771	20.00	µg/L		0.000
d3-MeFOSAA	7.243	573.0 -> 419.0	22645	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.424	515.0 -> 470.0	0		µg/L	m	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C2-PFHxA	4.764	315.0 -> 270.0	0		µg/L	m	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%			
d5-EtFOSAA	7.379	589.0 -> 419.0	0		µg/L	m	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	0		µg/L	m	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = NA%			
Target Compounds							QValue
6:2FTS	6.276	427.0 -> 407.0	148330	23.03	µg/L		99
8:2FTS	7.473	527.0 -> 507.0	112396	22.23	µg/L		97
EtFOSAA	7.380	584.0 -> 419.0	8120	22.02	µg/L	m	96
MeFOSAA	7.244	570.0 -> 419.0	10082	20.30	µg/L		90
PFBS	3.828	299.0 -> 80.0	161369	20.40	µg/L		99
PFDA	7.425	513.0 -> 469.0	182310	19.34	µg/L		97
PFDoDA	8.617	613.0 -> 569.0	133142	22.79	µg/L		99
PFHpA	5.615	363.0 -> 319.0	470342	21.48	µg/L		100
PFHxA	4.765	313.0 -> 269.0	218848	20.40	µg/L		100
PFHxS	5.636	399.0 -> 80.0	95955	18.73	µg/L	m	95
PFNA	6.887	463.0 -> 419.0	215803	23.13	µg/L		89
PFOA	6.291	413.0 -> 369.0	279811	22.23	µg/L		99
PFOS	6.862	499.0 -> 80.0	82168	21.18	µg/L	m	94
PFPeA	3.597	263.0 -> 219.0	459017	22.33	µg/L		100
PFTeDA	10.298	713.0 -> 669.0	57991	18.58	µg/L		99
PFTrDA	9.548	663.0 -> 619.0	77869	23.29	µg/L		100
PFUnDA	7.931	563.0 -> 519.0	211301	23.49	µg/L		99
ADONA	5.689	377.0 -> 251.0	548158	19.11	µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	69748	19.64	µg/L		99
11Cl-PF3OUdS	8.101	631.0 -> 451.0	65680	18.70	µg/L		97
HFPO-DA	5.022	285.0 -> 169.0	21503	21.25	µg/L		100

 # = Qualifier out of range, m = manually integrated, + = Area summed

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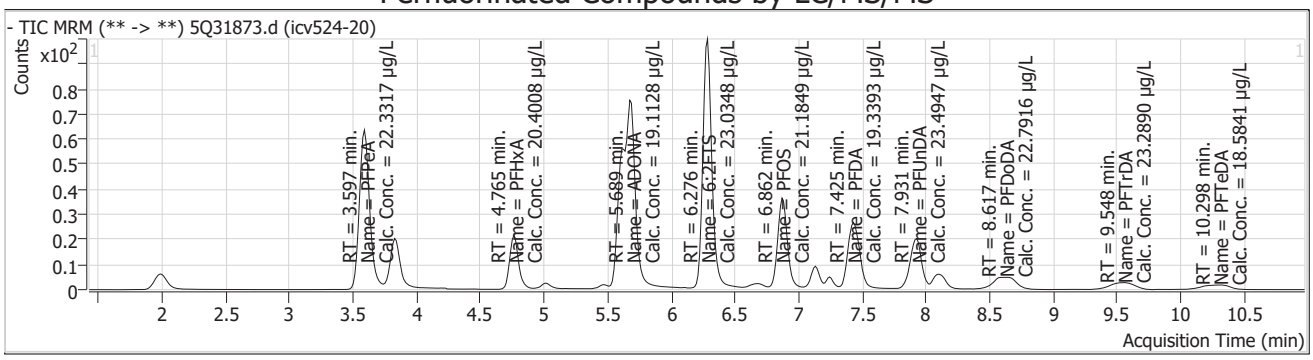
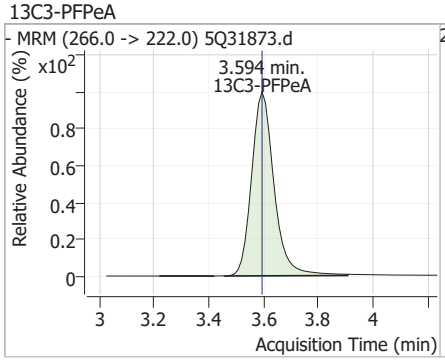
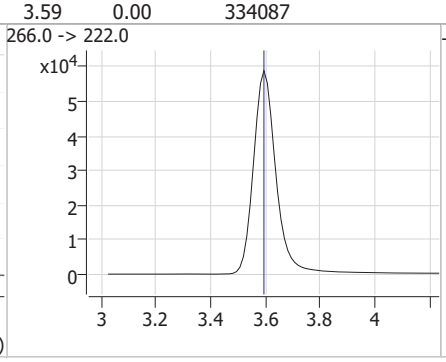
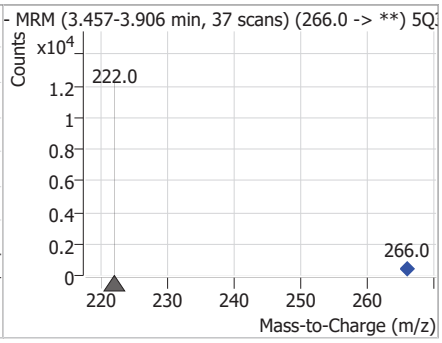
Perfluorinated Compounds by LC/MS/MS



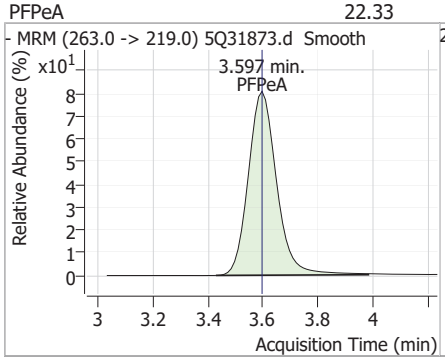
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	334087				

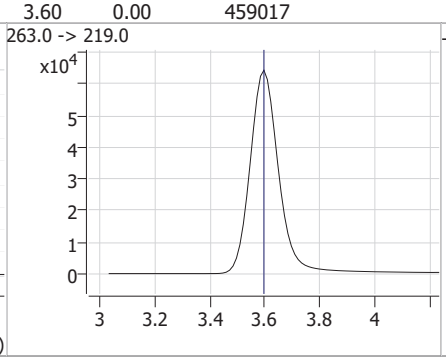


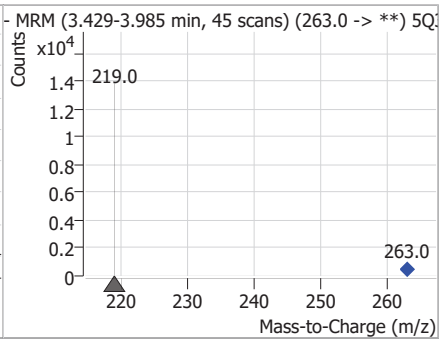




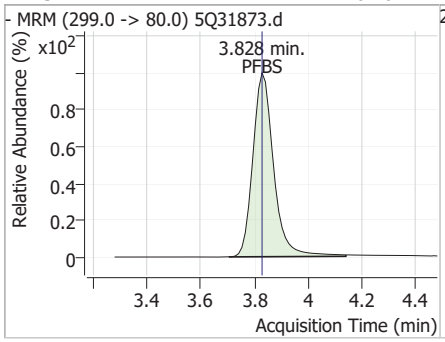
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	22.33	3.60	0.00	459017				

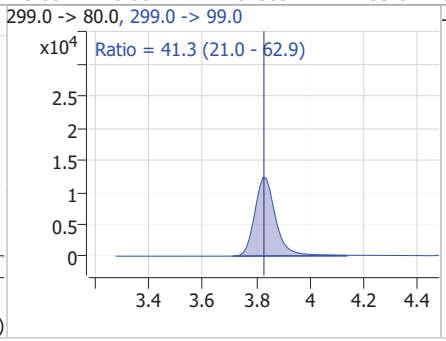


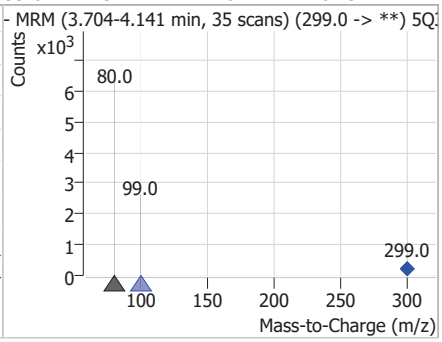




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.40	3.83	0.00	161369	299.0 -> 99.0	41.3	21.0	62.9







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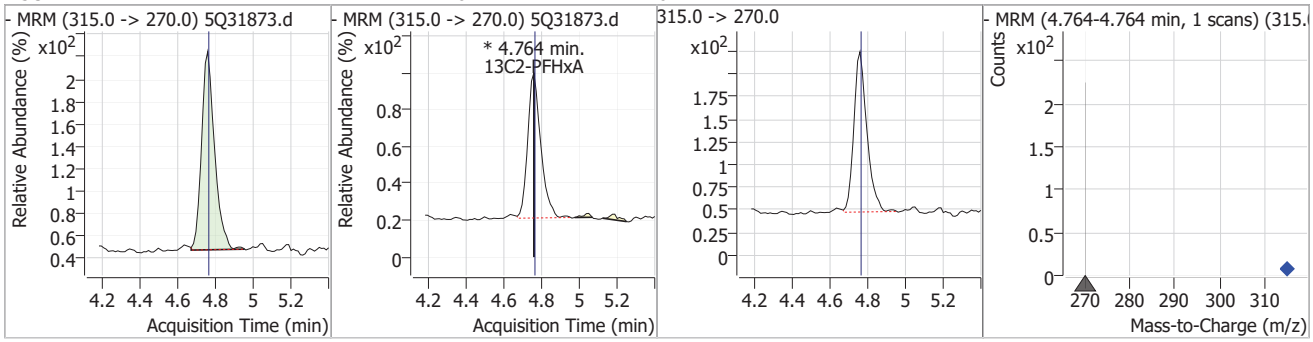
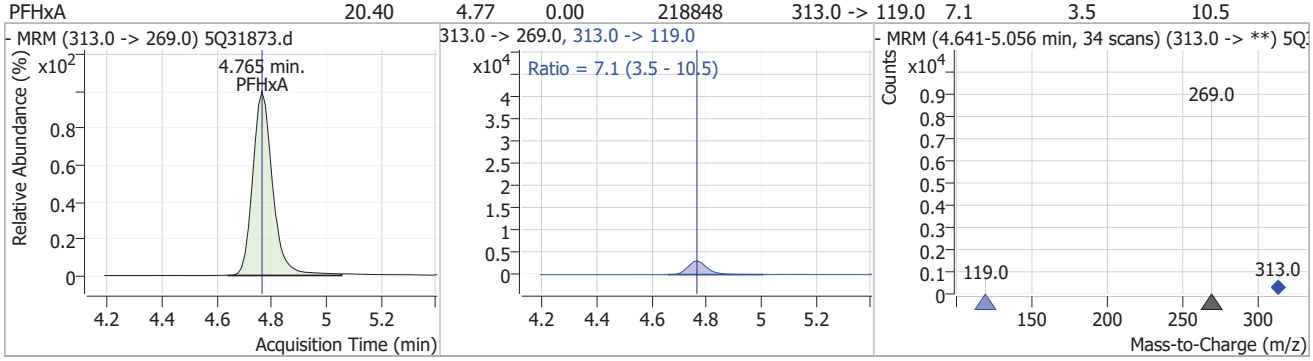
Perfluorinated Compounds by LC/MS/MS

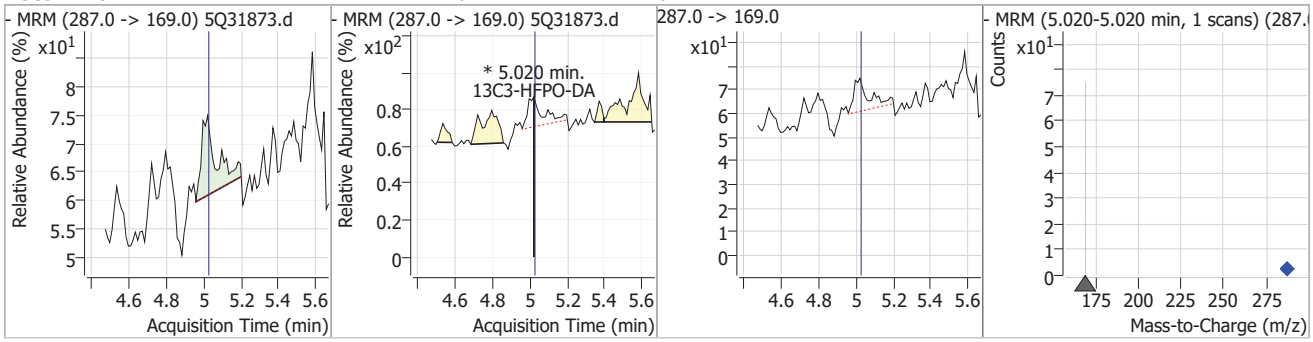
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA		0		0				



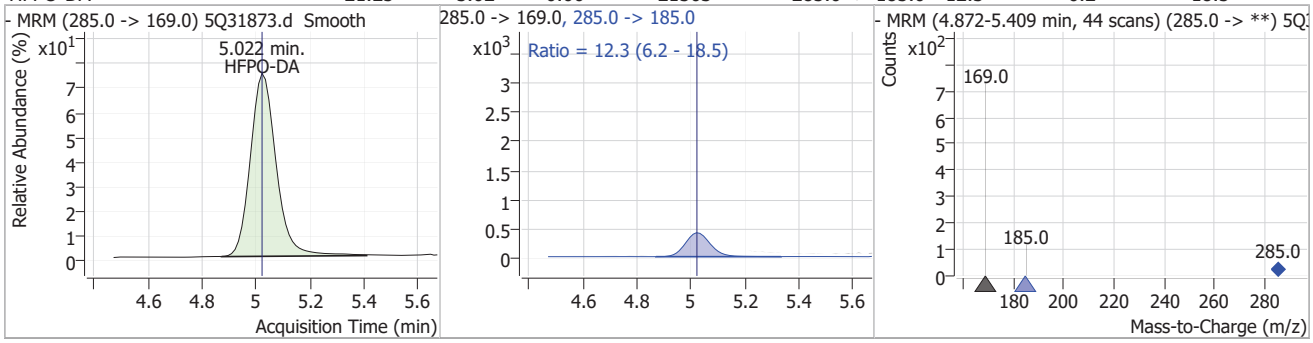
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	20.40	4.77	0.00	218848	313.0 -> 119.0	7.1	3.5	10.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA		0		0				

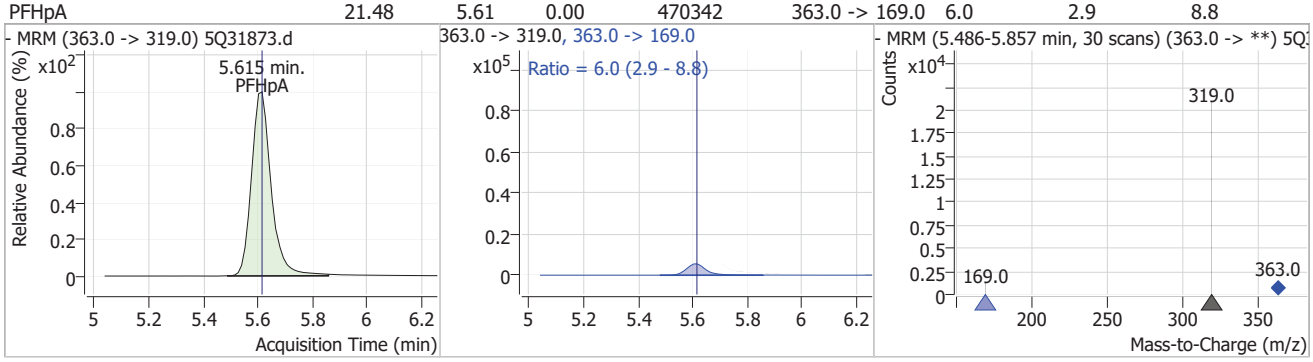


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	21.25	5.02	0.00	21503	285.0 -> 185.0	12.3	6.2	18.5

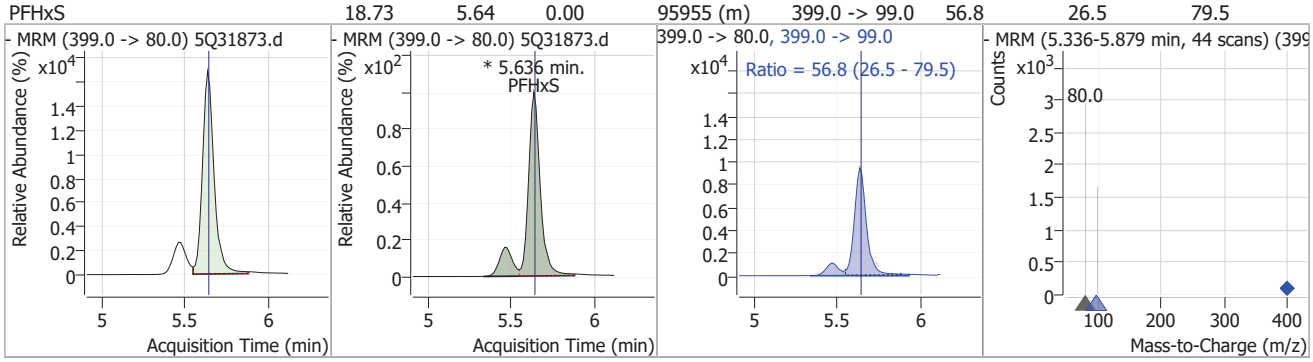


Perfluorinated Compounds by LC/MS/MS

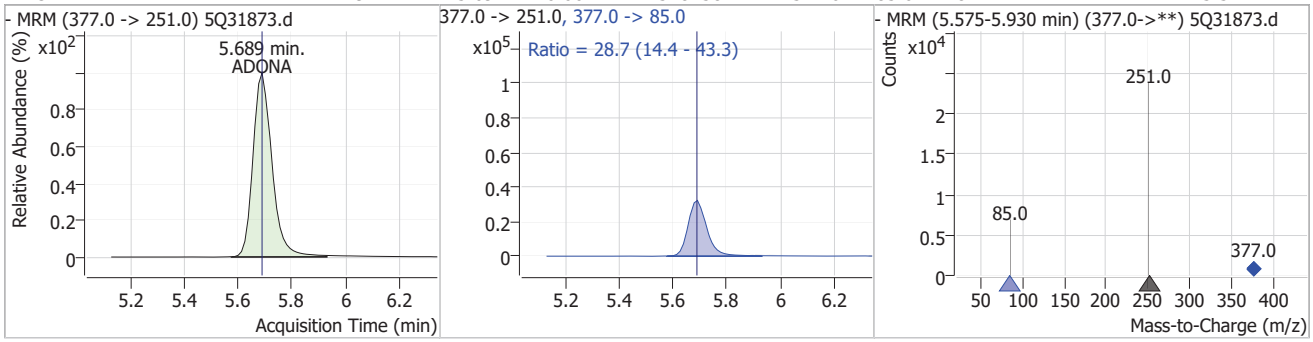
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	21.48	5.61	0.00	470342	363.0 -> 169.0	6.0	2.9	8.8



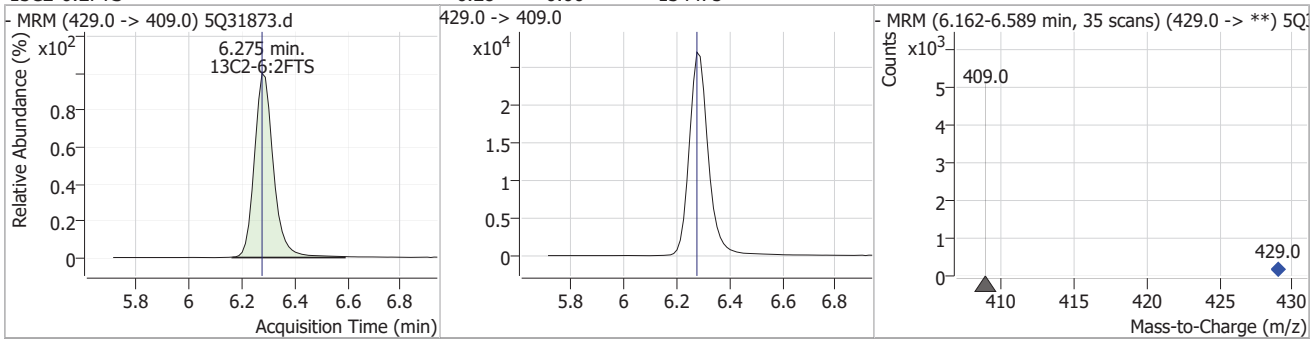
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	18.73	5.64	0.00	95955 (m)	399.0 -> 99.0	56.8	26.5	79.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.11	5.69	0.00	548158	377.0 -> 85.0	28.7	14.4	43.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	0.00	134475				



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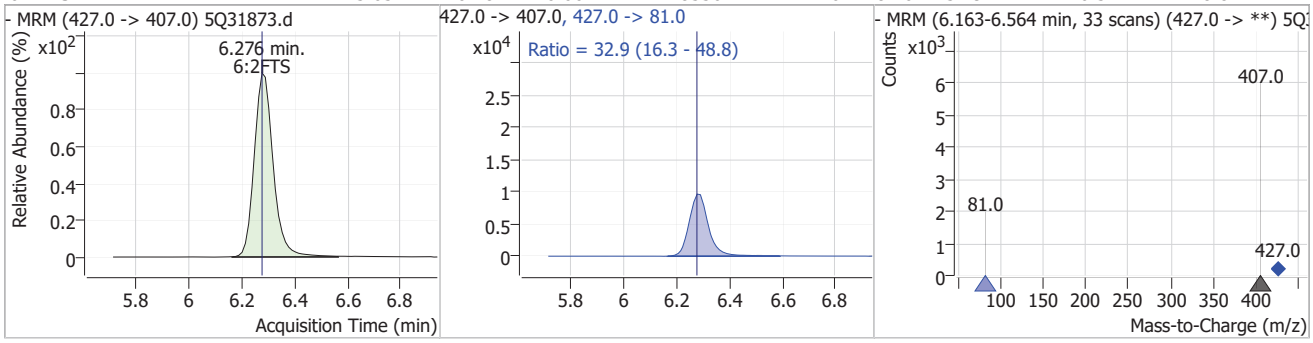
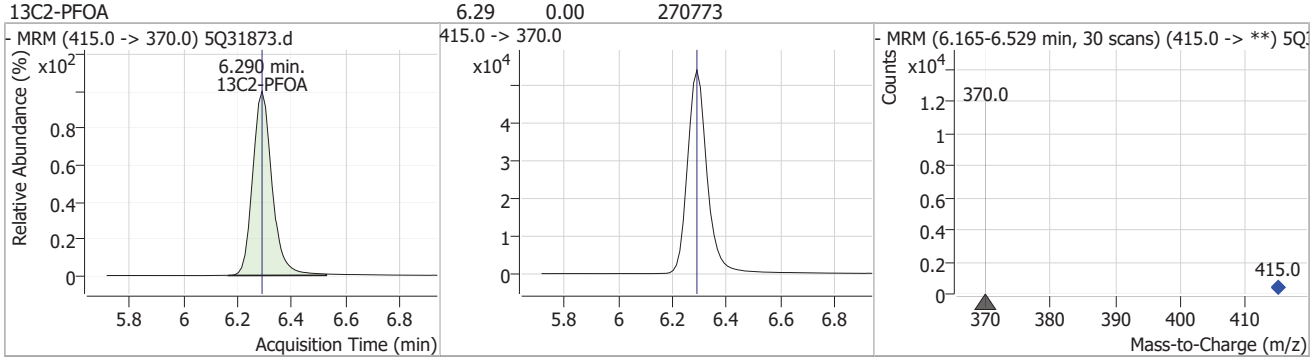
Perfluorinated Compounds by LC/MS/MS

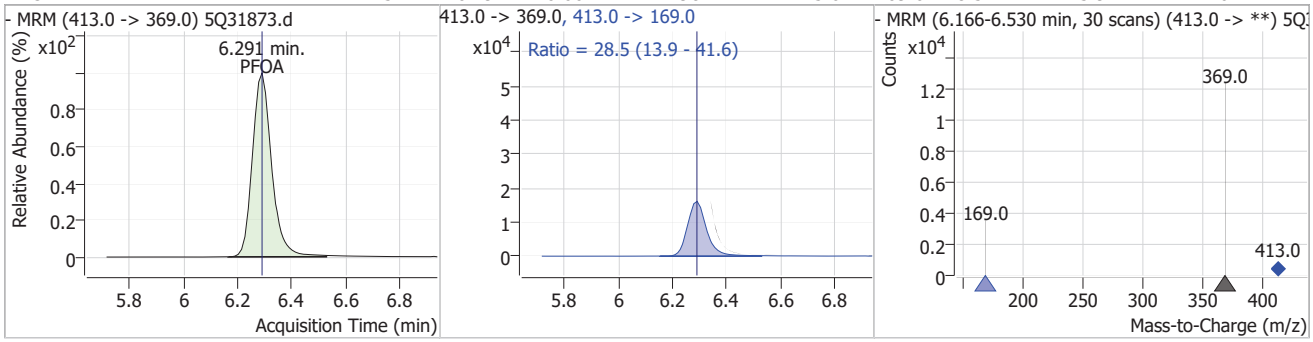
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	23.03	6.28	0.00	148330	427.0 -> 81.0	32.9	16.3	48.8



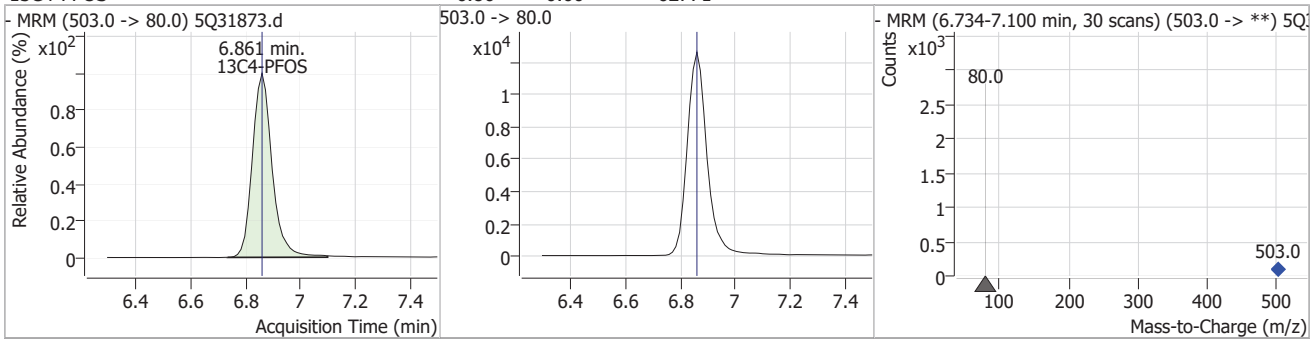
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	270773				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	22.23	6.29	0.00	279811	413.0 -> 169.0	28.5	13.9	41.6

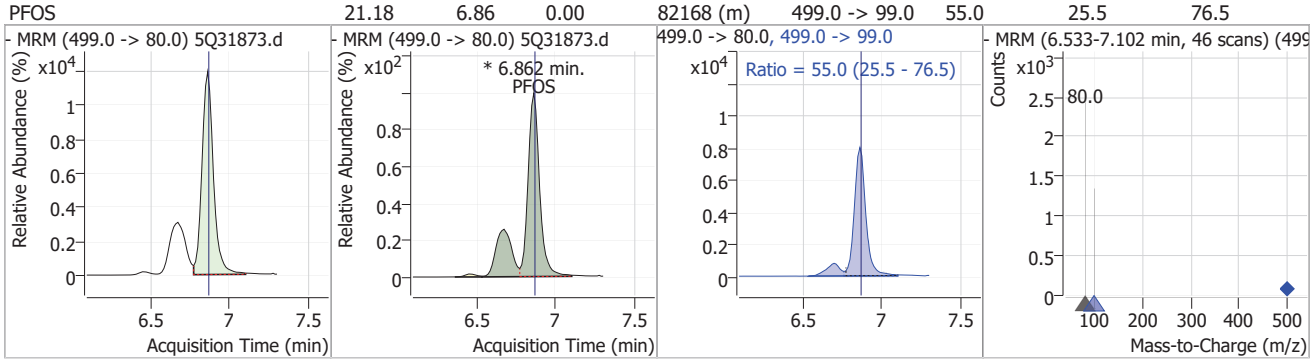


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	62771				

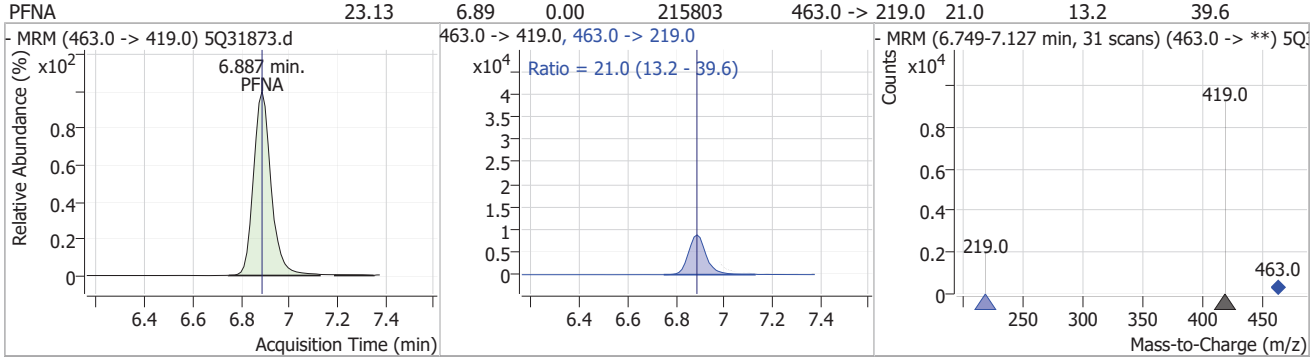


Perfluorinated Compounds by LC/MS/MS

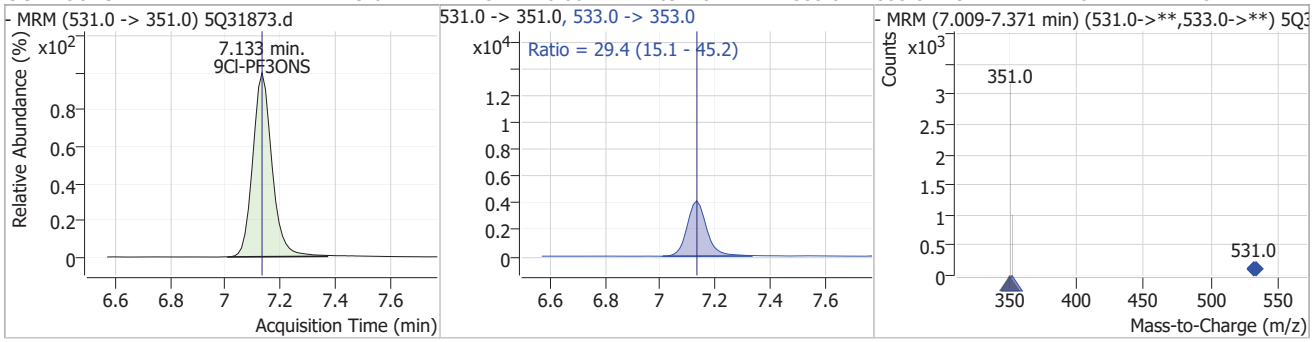
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	21.18	6.86	0.00	82168 (m)	499.0 -> 99.0	55.0	25.5	76.5



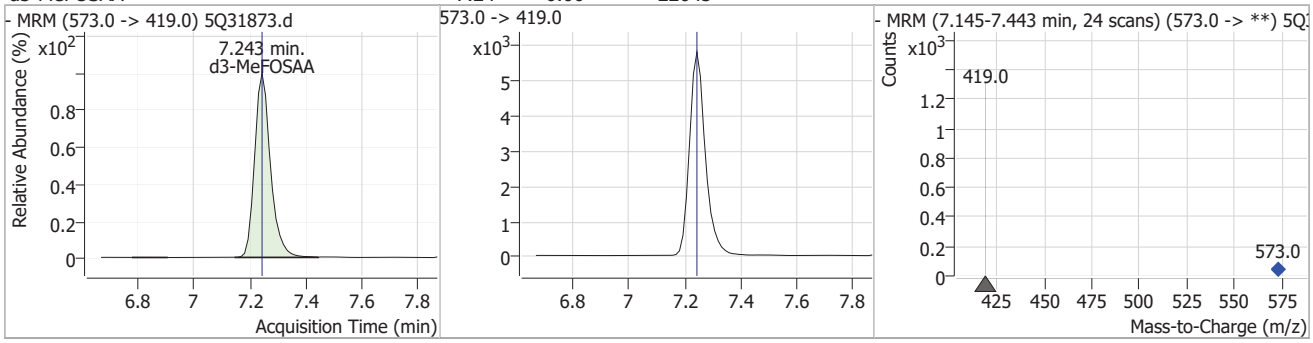
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	23.13	6.89	0.00	215803	463.0 -> 219.0	21.0	13.2	39.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	19.64	7.13	0.00	69748	533.0 -> 353.0	29.4	15.1	45.2

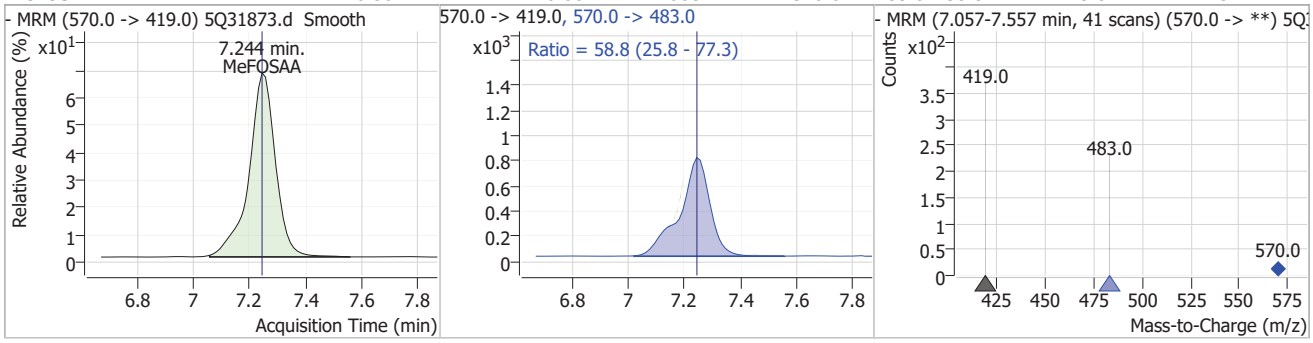


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	22645				

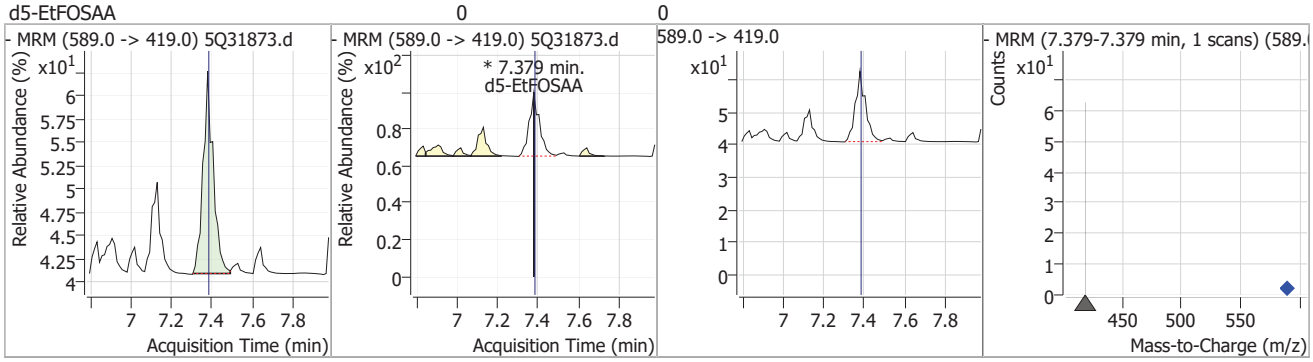


Perfluorinated Compounds by LC/MS/MS

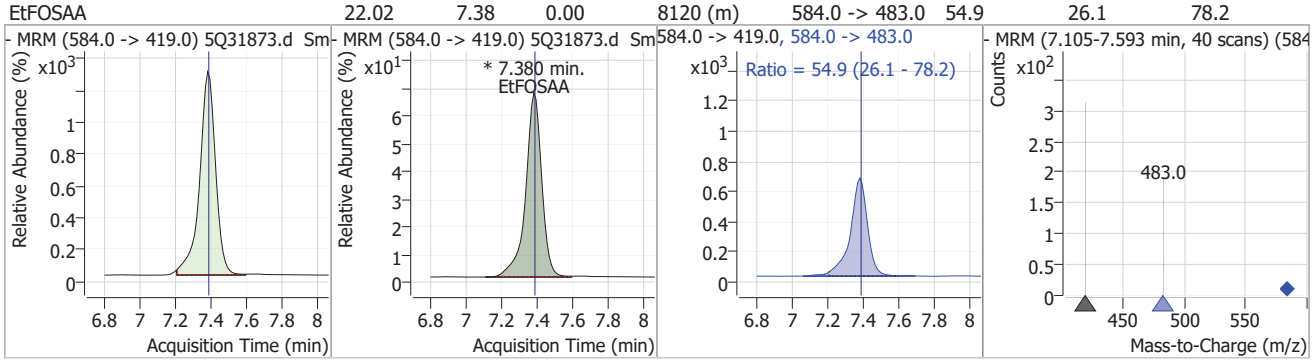
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	20.30	7.24	0.00	10082	570.0 -> 483.0	58.8	25.8	77.3



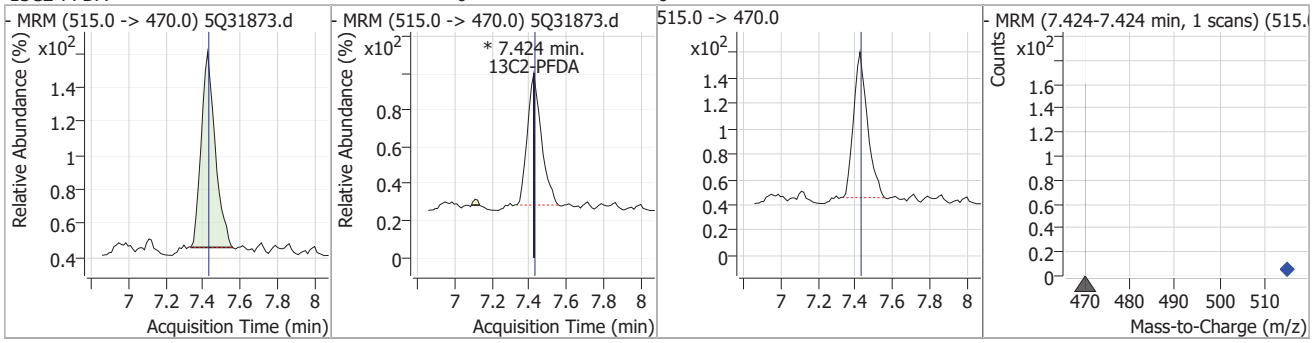
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA		0		0				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	22.02	7.38	0.00	8120 (m)	584.0 -> 483.0	54.9	26.1	78.2

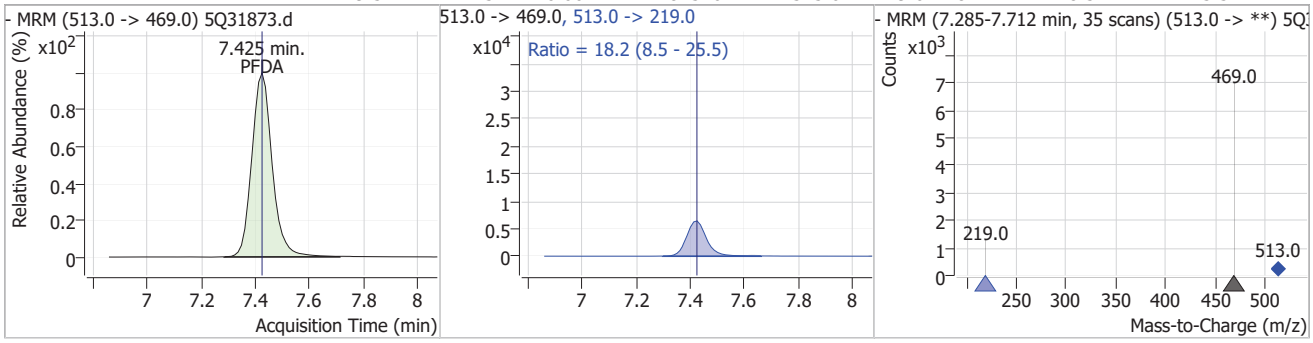


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA		0		0				

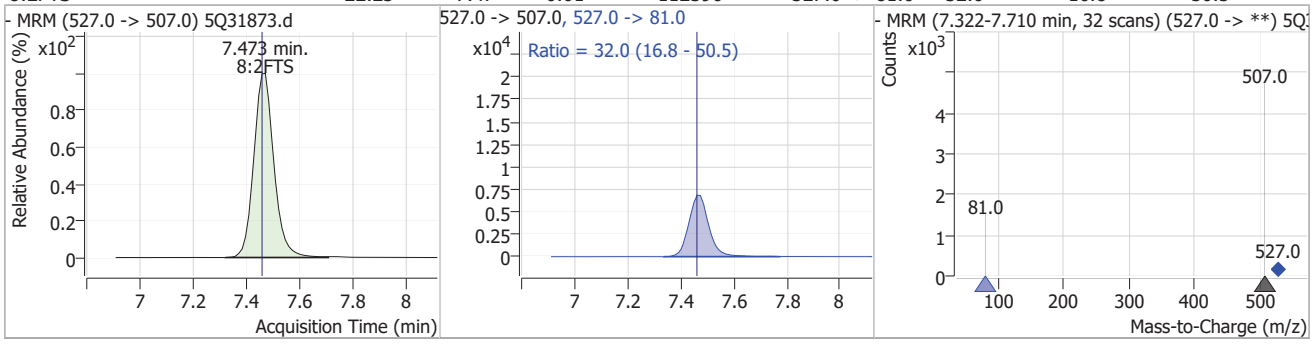


Perfluorinated Compounds by LC/MS/MS

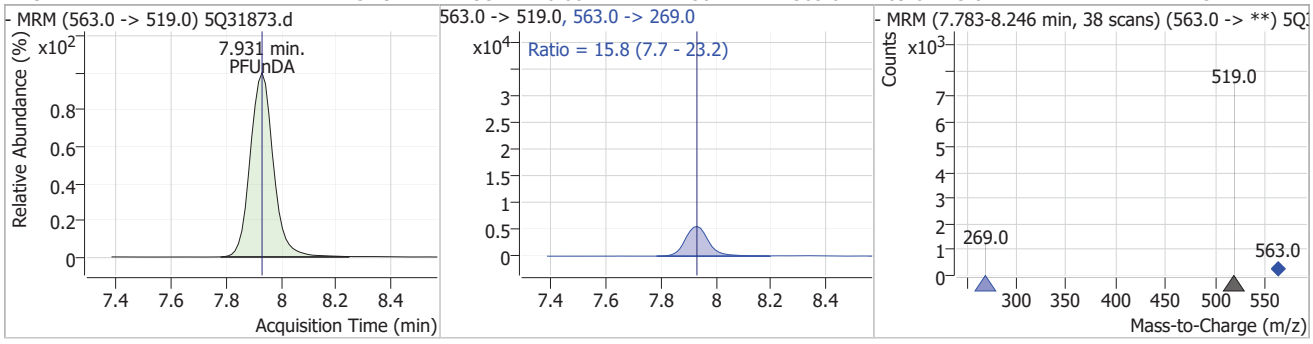
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.34	7.43	0.00	182310	513.0 -> 219.0	18.2	8.5	25.5



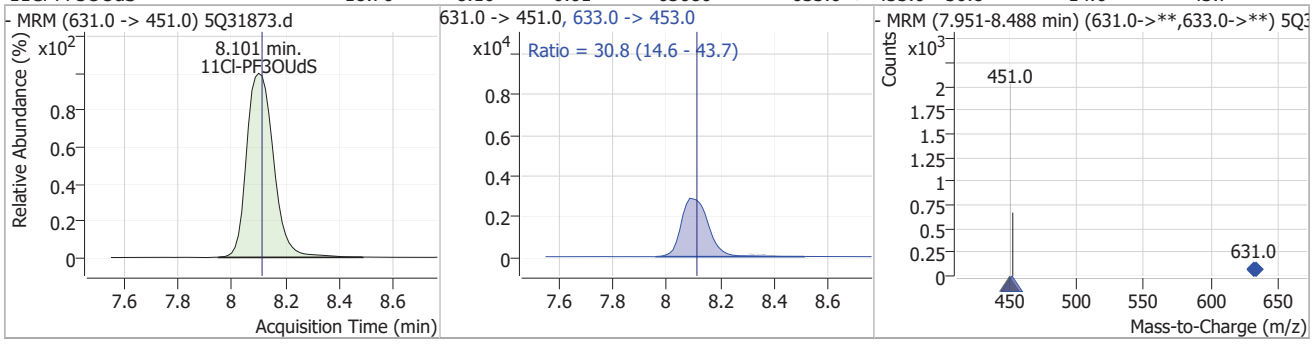
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	22.23	7.47	0.01	112396	527.0 -> 81.0	32.0	16.8	50.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	23.49	7.93	0.00	211301	563.0 -> 269.0	15.8	7.7	23.2

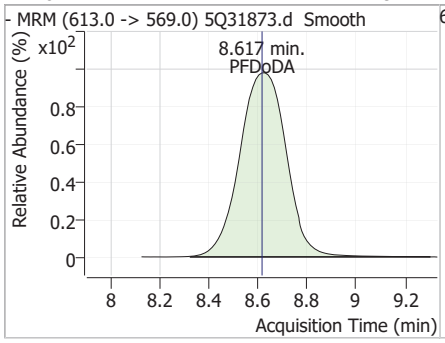


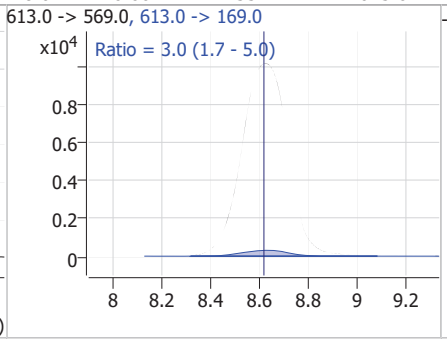
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	18.70	8.10	-0.01	65680	633.0 -> 453.0	30.8	14.6	43.7

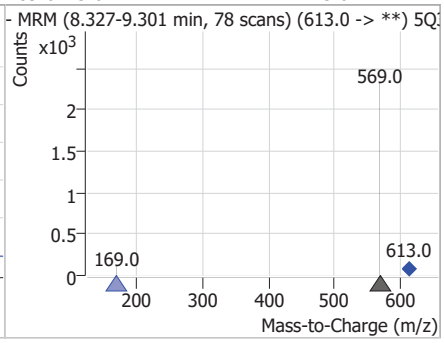


Perfluorinated Compounds by LC/MS/MS

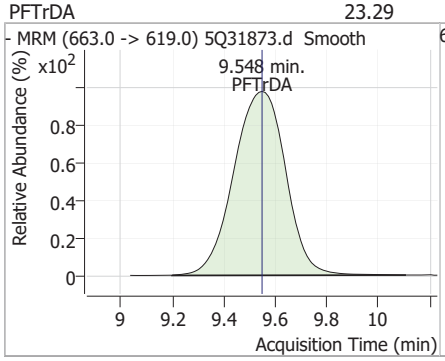
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	22.79	8.62	0.00	133142	613.0 -> 169.0	3.0	1.7	5.0

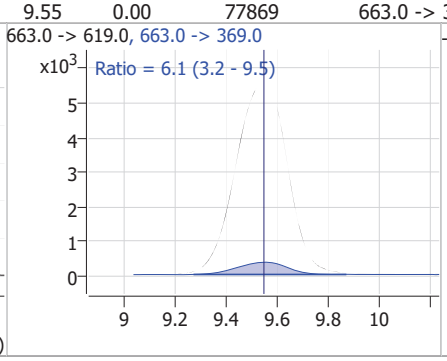


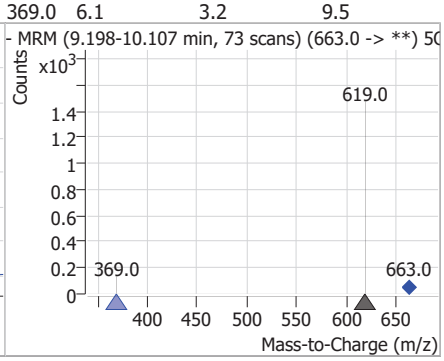




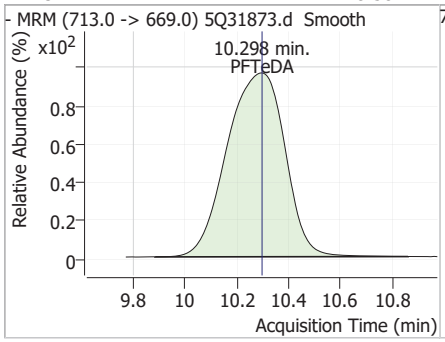
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	23.29	9.55	0.00	77869	663.0 -> 369.0	6.1	3.2	9.5

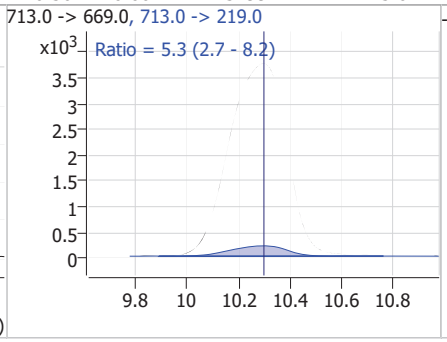


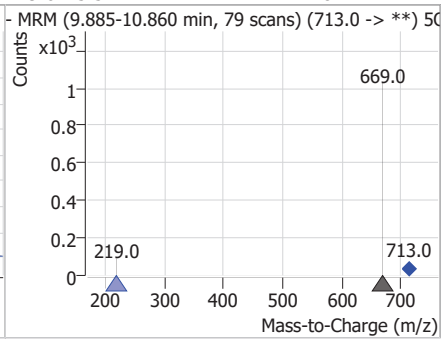




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	18.58	10.30	0.00	57991	713.0 -> 219.0	5.3	2.7	8.2







7.7.51

7

Manual Integration Approval Summary

Sample Number: S5Q524-ICV524
Lab FileID: 5Q31873.D
Injection Time: 04/18/25 16:07
Method: EPA 537.1 REV 2.0
Analyst approved: 04/21/25 09:54 (b) (6)
Supervisor approved: 04/21/25 10:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/21/25 10:51

Perfluorinated Compounds by LC/MS/MS

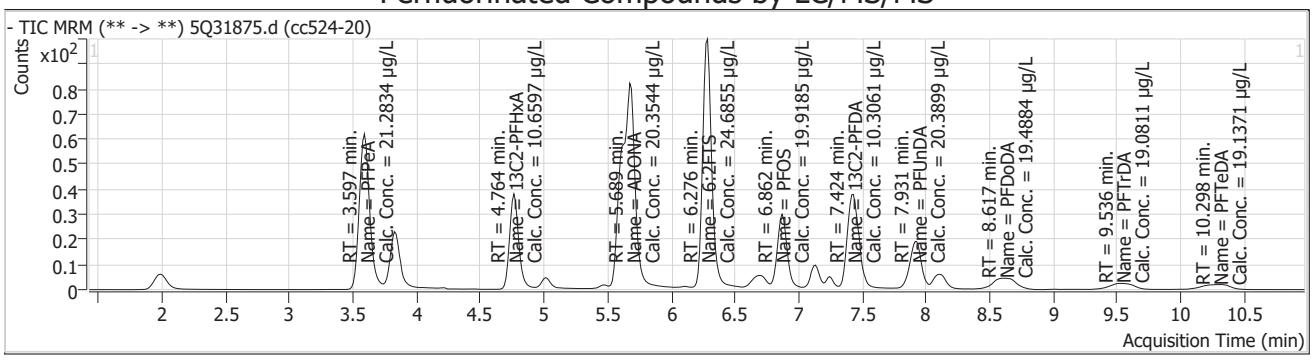
Data File : 5Q31875.d
Operator : (b) (6)
Acq. Method : 537_5Q.m
Acq. Date-Time : 4/18/2025 4:40:36 PM
Sample Name : cc524-20
Vial : P1-A7
DA Method File : 537_041825_S5Q524.quantmethod.xml
Batch Name : s5q524.batch.bin
Sample Information : OP8882,S5Q524,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.275	429.0 -> 409.0	132038	20.00	µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	264994	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	328036	20.00	µg/L		0.000
13C4-PFOS	6.861	503.0 -> 80.0	64891	20.00	µg/L		0.000
d3-MeFOSAA	7.243	573.0 -> 419.0	22525	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.424	515.0 -> 470.0	103754	10.31	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 51.5%			
13C2-PFHxA	4.764	315.0 -> 270.0	164346	10.66	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 53.3%			
d5-EtFOSAA	7.379	589.0 -> 419.0	8580	20.87	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 52.2%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	20863	19.76	µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 49.4%			
Target Compounds							QValue
6:2FTS	6.276	427.0 -> 407.0	156079	24.69	µg/L		99
8:2FTS	7.460	527.0 -> 507.0	120820	24.34	µg/L		98
EtFOSAA	7.380	584.0 -> 419.0	8338	22.73	µg/L	m	97
MeFOSAA	7.244	570.0 -> 419.0	10501	21.26	µg/L	m	92
PFBS	3.828	299.0 -> 80.0	180783	22.11	µg/L		97
PFDA	7.425	513.0 -> 469.0	191138	20.72	µg/L		100
PFDoDA	8.617	613.0 -> 569.0	117480	19.49	µg/L		100
PFHpA	5.602	363.0 -> 319.0	448448	20.93	µg/L		100
PFHxA	4.765	313.0 -> 269.0	222679	21.21	µg/L		99
PFHxS	5.636	399.0 -> 80.0	110110	20.79	µg/L	m	100
PFNA	6.887	463.0 -> 419.0	184813	20.24	µg/L	m	100
PFOA	6.291	413.0 -> 369.0	258958	21.02	µg/L		100
PFOS	6.862	499.0 -> 80.0	79865	19.92	µg/L	m	100
PFPeA	3.597	263.0 -> 219.0	429547	21.28	µg/L		100
PFTeDA	10.298	713.0 -> 669.0	61734	19.14	µg/L		100
PFTrDA	9.536	663.0 -> 619.0	65955	19.08	µg/L		100
PFUnDA	7.931	563.0 -> 519.0	189571	20.39	µg/L		99
ADONA	5.689	377.0 -> 251.0	571310	20.35	µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	74528	21.39	µg/L		98
11Cl-PF3OUdS	8.113	631.0 -> 451.0	63847	18.57	µg/L		98
HFPO-DA	5.022	285.0 -> 169.0	20961	21.17	µg/L		98

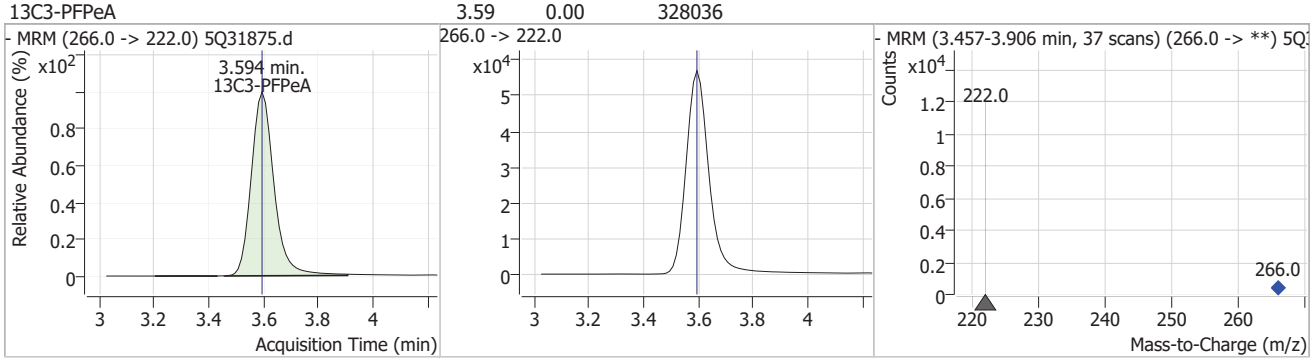
 # = Qualifier out of range, m = manually integrated, + = Area summed

7.7.52
7

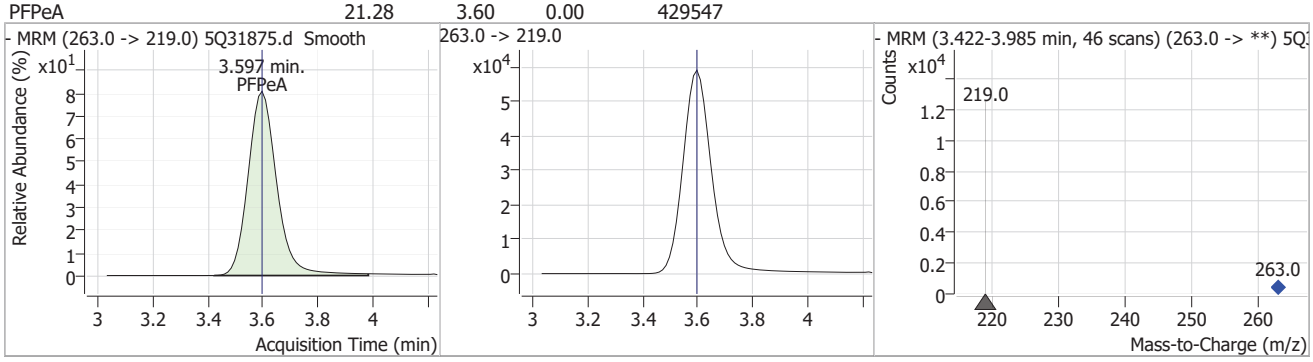
Perfluorinated Compounds by LC/MS/MS



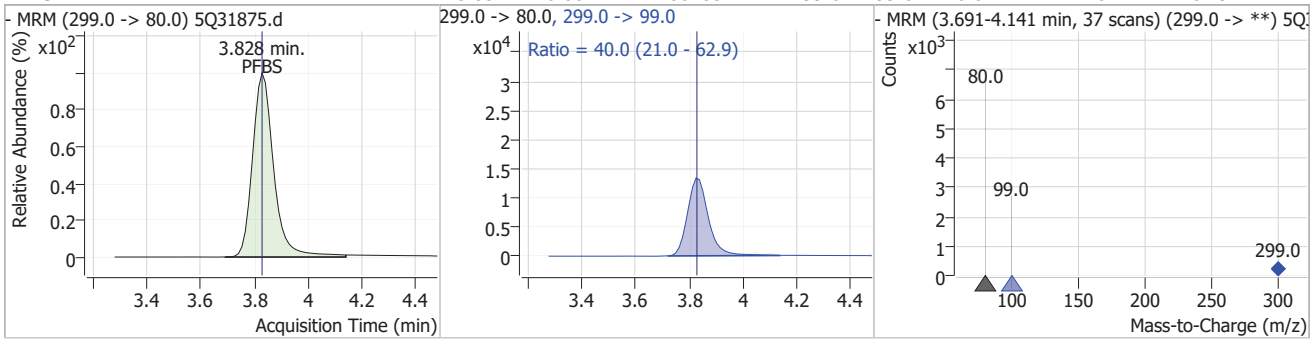
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	328036				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	21.28	3.60	0.00	429547				

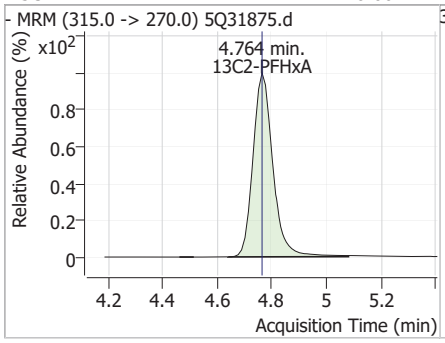


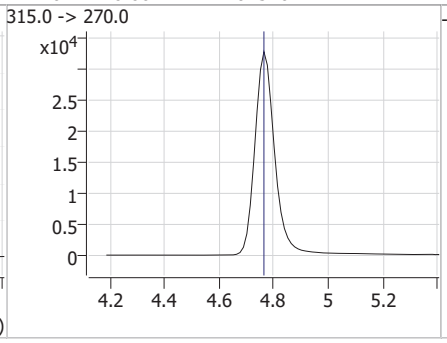
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	22.11	3.83	0.00	180783	299.0 -> 99.0	40.0	21.0	62.9

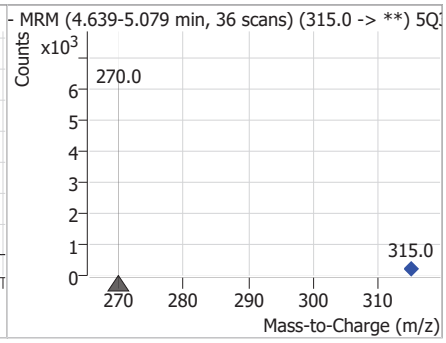


Perfluorinated Compounds by LC/MS/MS

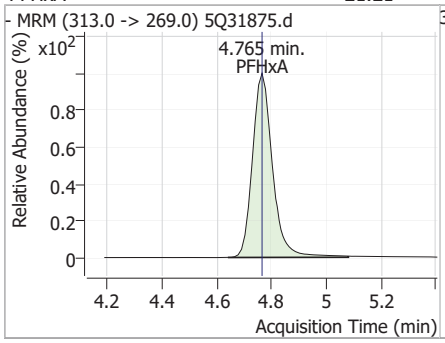
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	10.66	4.76	0.00	164346				

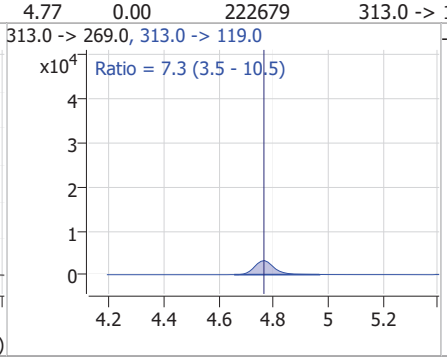


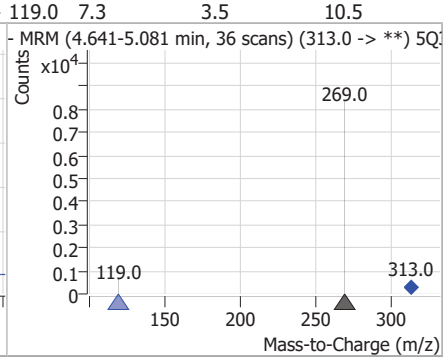




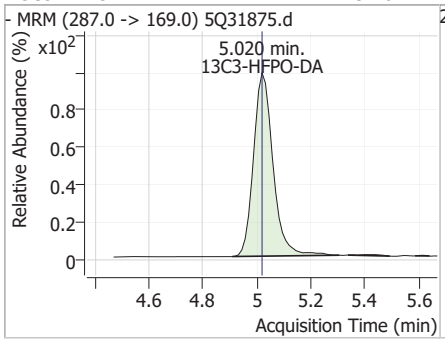
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	21.21	4.77	0.00	222679	313.0 -> 119.0	7.3	3.5	10.5

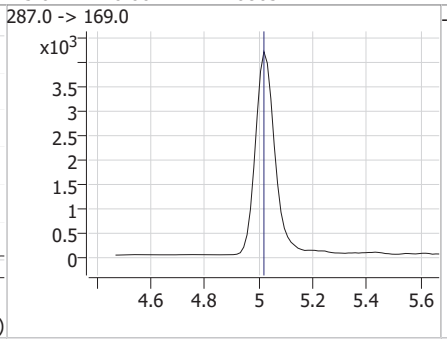


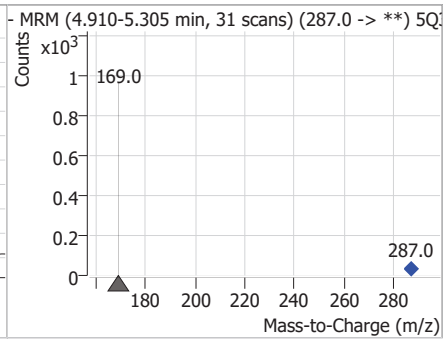




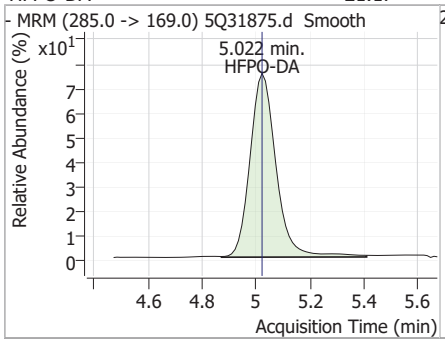
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	19.76	5.02	0.00	20863				

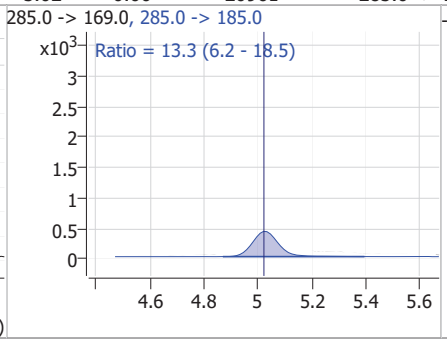


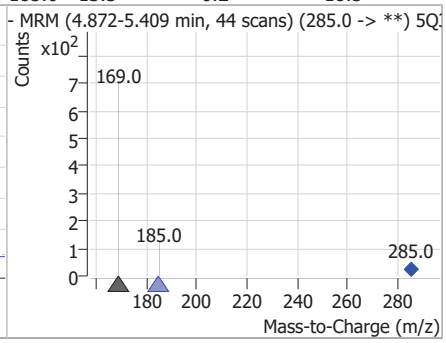




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	21.17	5.02	0.00	20961	285.0 -> 185.0	13.3	6.2	18.5

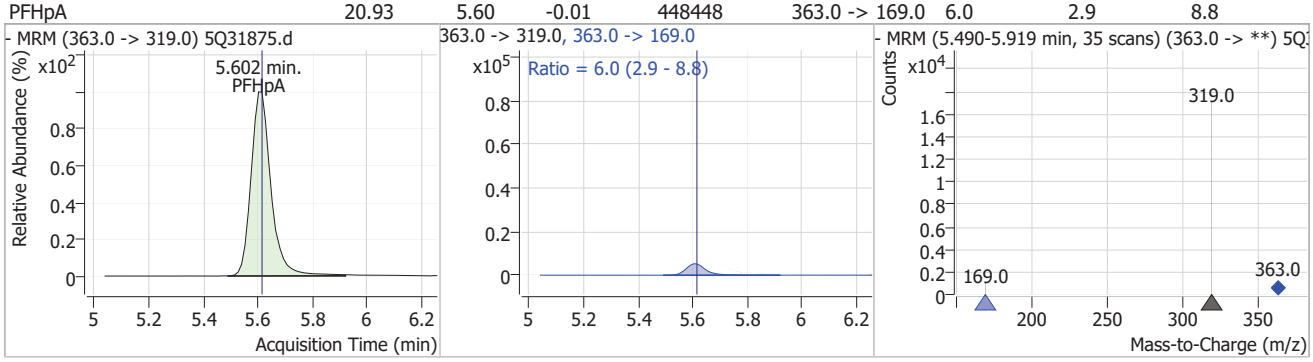




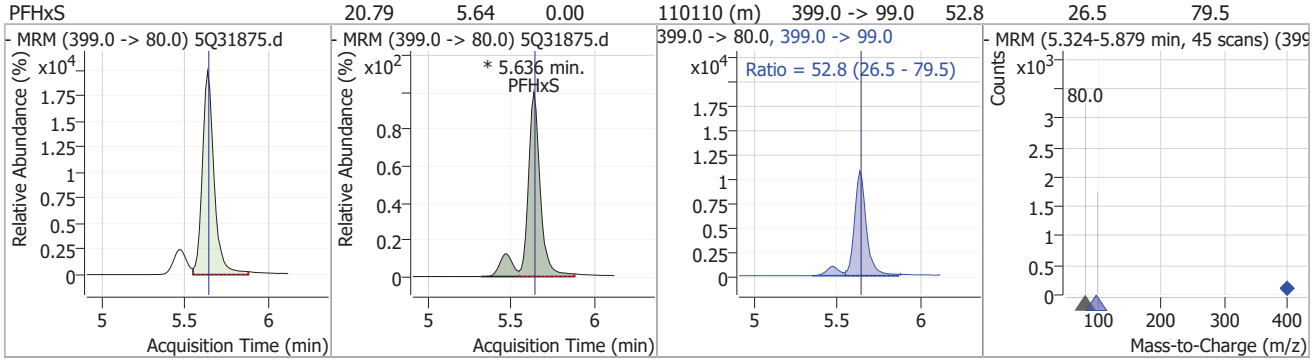


Perfluorinated Compounds by LC/MS/MS

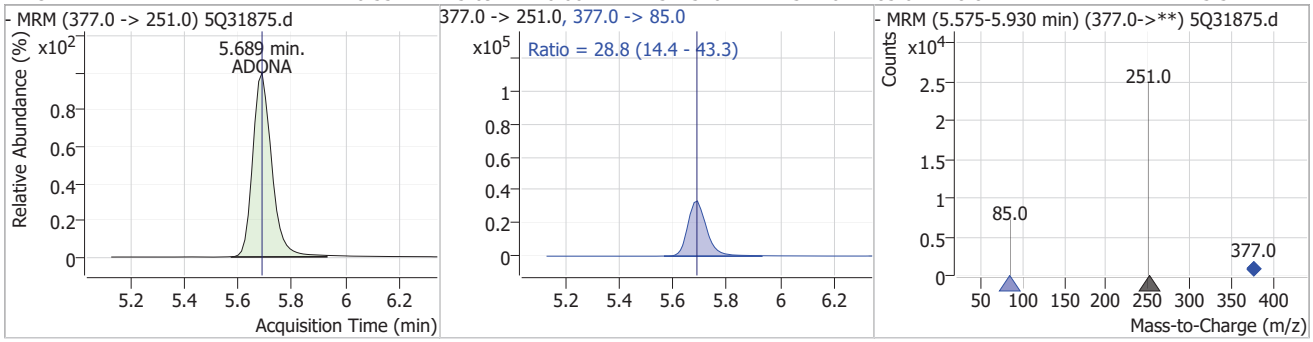
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.93	5.60	-0.01	448448	363.0 -> 169.0	6.0	2.9	8.8



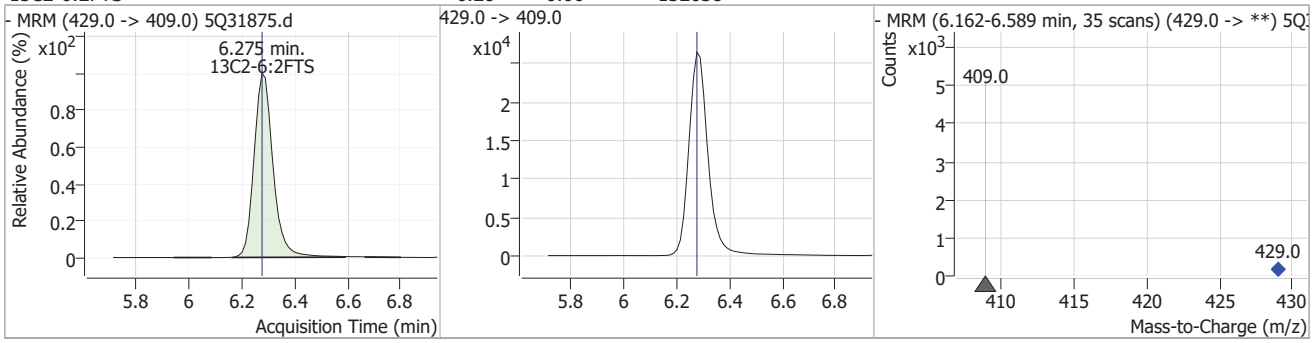
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	20.79	5.64	0.00	110110 (m)	399.0 -> 99.0	52.8	26.5	79.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.35	5.69	0.00	571310	377.0 -> 85.0	28.8	14.4	43.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	0.00	132038				



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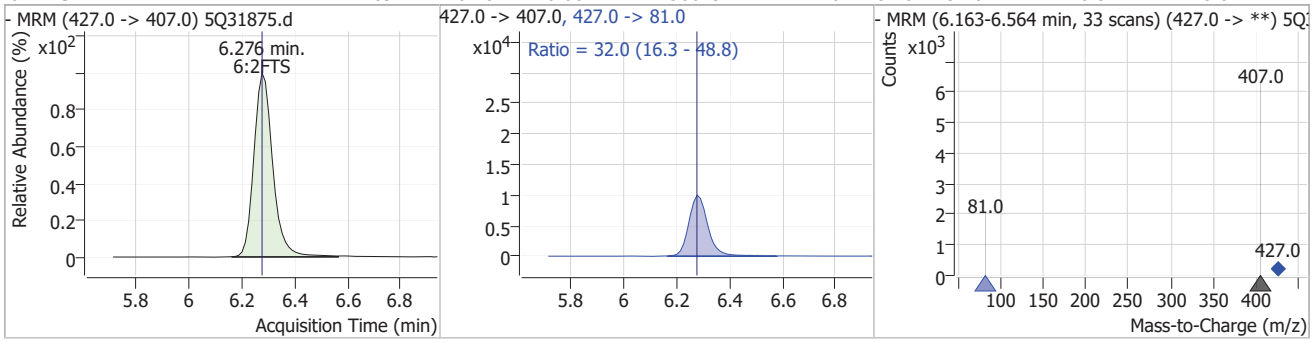
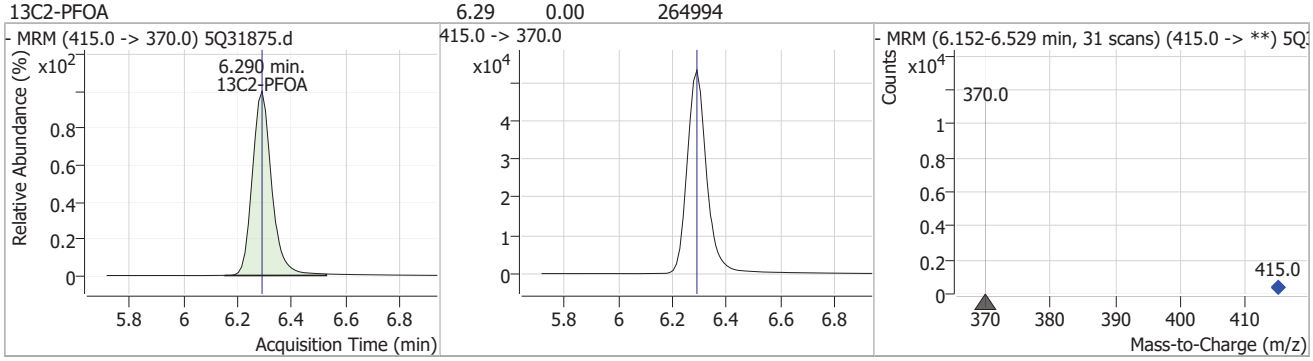
Perfluorinated Compounds by LC/MS/MS

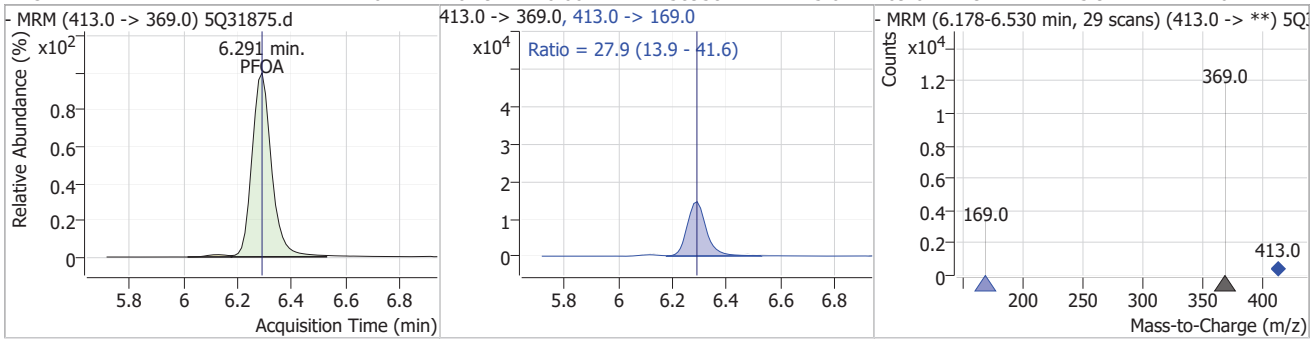
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	24.69	6.28	0.00	156079	427.0 -> 81.0	32.0	16.3	48.8



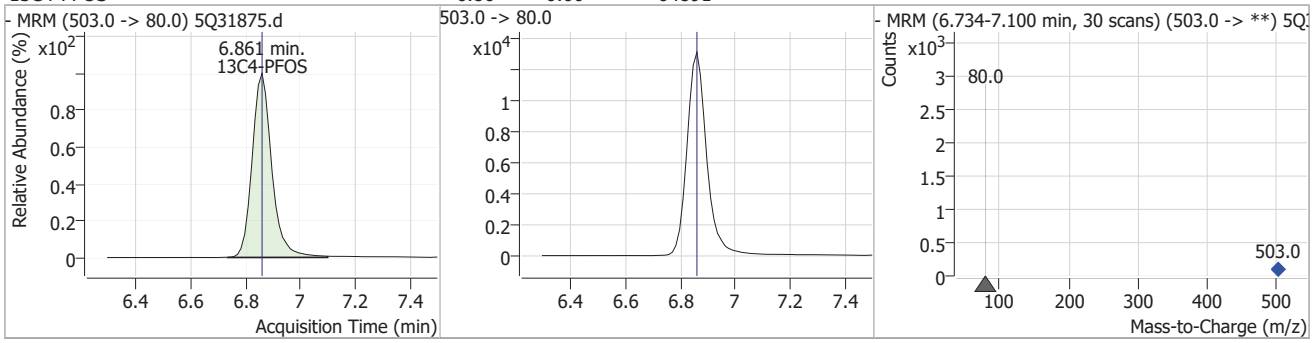
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	264994				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	21.02	6.29	0.00	258958	413.0 -> 169.0	27.9	13.9	41.6

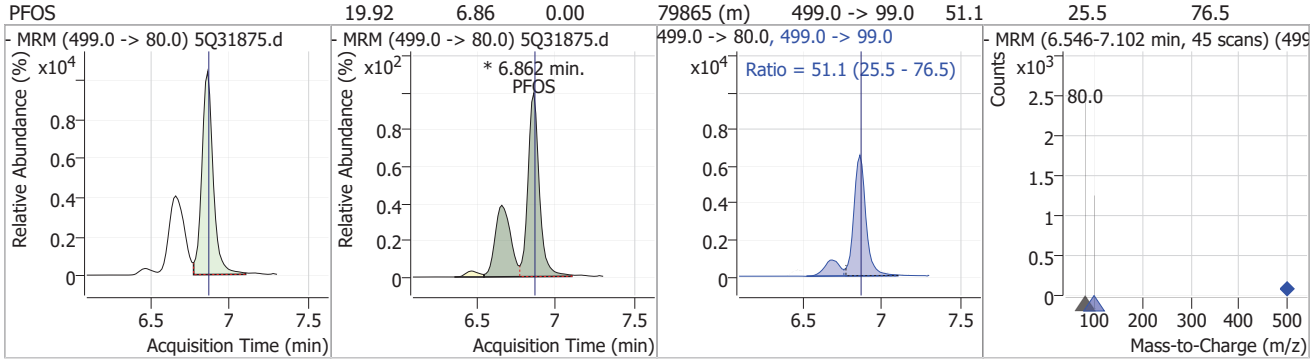


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	64891				

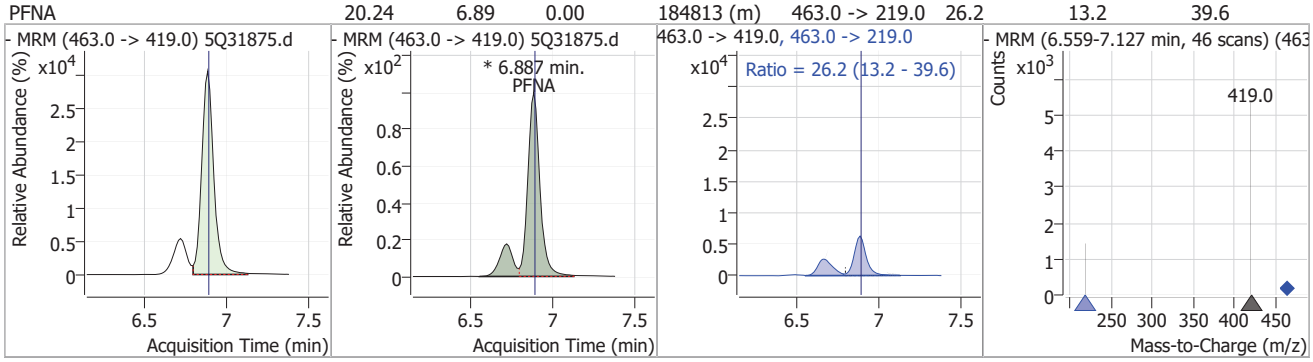


Perfluorinated Compounds by LC/MS/MS

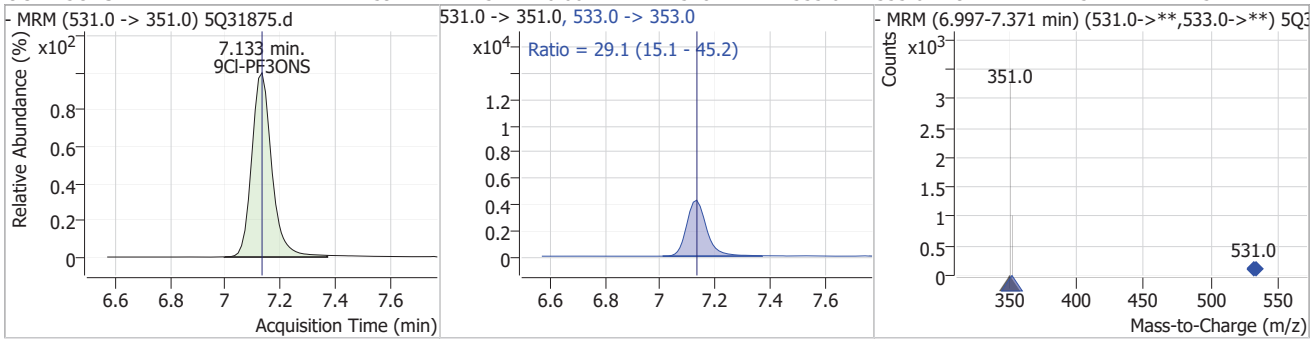
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.92	6.86	0.00	79865 (m)	499.0 -> 99.0	51.1	25.5	76.5



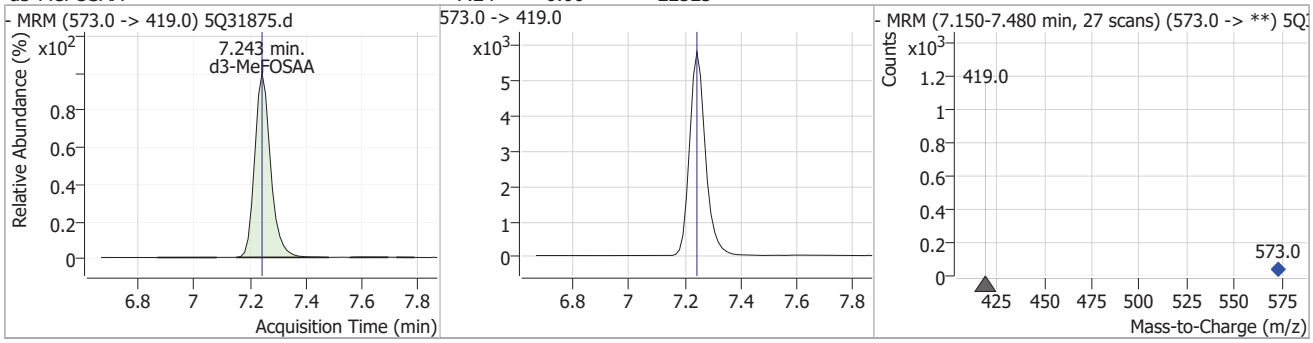
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	20.24	6.89	0.00	184813 (m)	463.0 -> 219.0	26.2	13.2	39.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	21.39	7.13	0.00	74528	533.0 -> 353.0	29.1	15.1	45.2

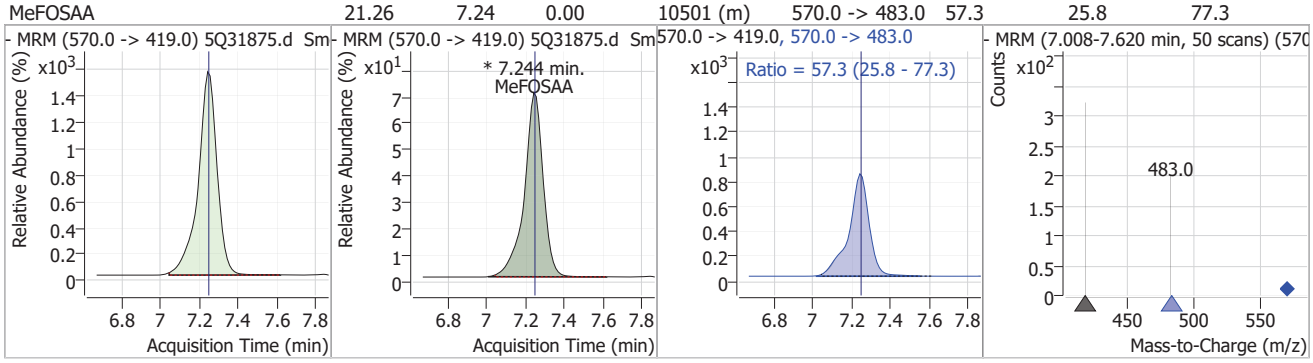


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	22525				

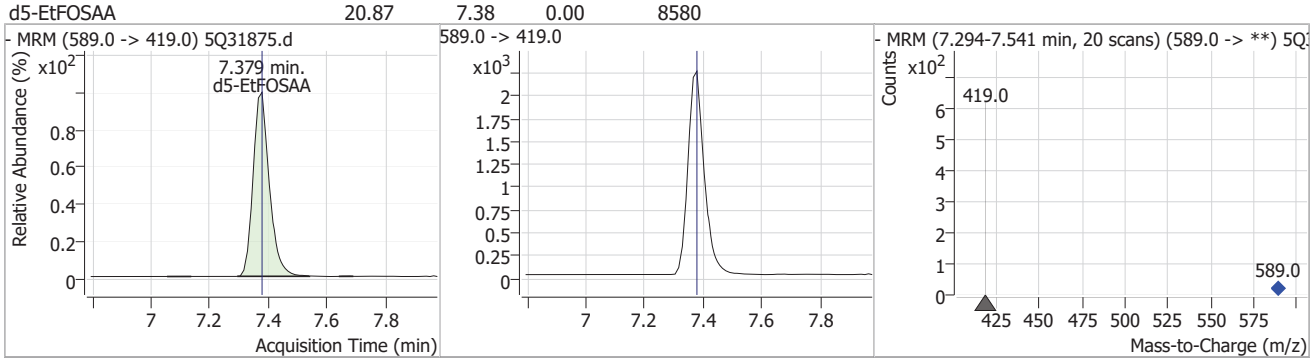


Perfluorinated Compounds by LC/MS/MS

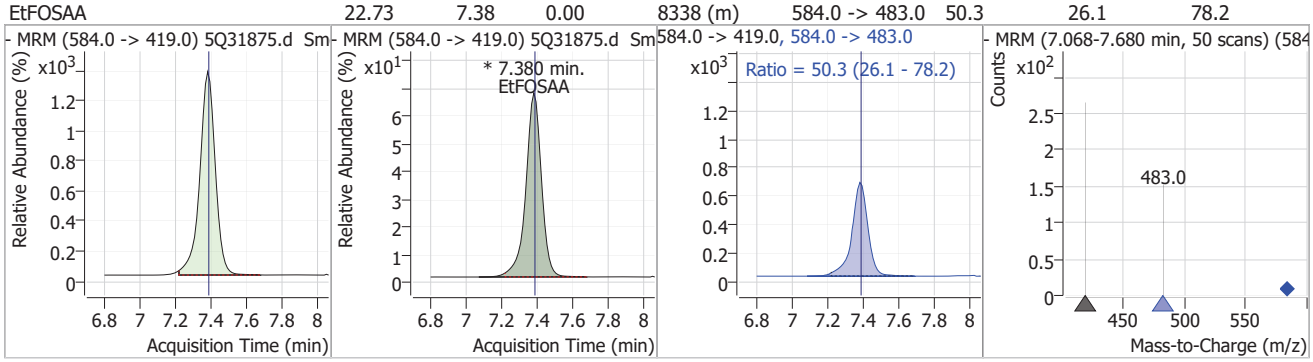
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	21.26	7.24	0.00	10501 (m)	570.0 -> 483.0	57.3	25.8	77.3



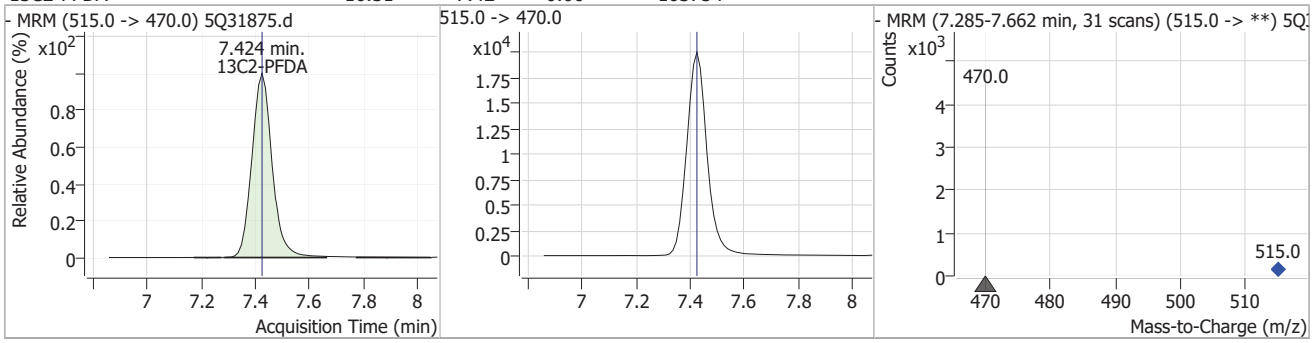
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	20.87	7.38	0.00	8580				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	22.73	7.38	0.00	8338 (m)	584.0 -> 483.0	50.3	26.1	78.2

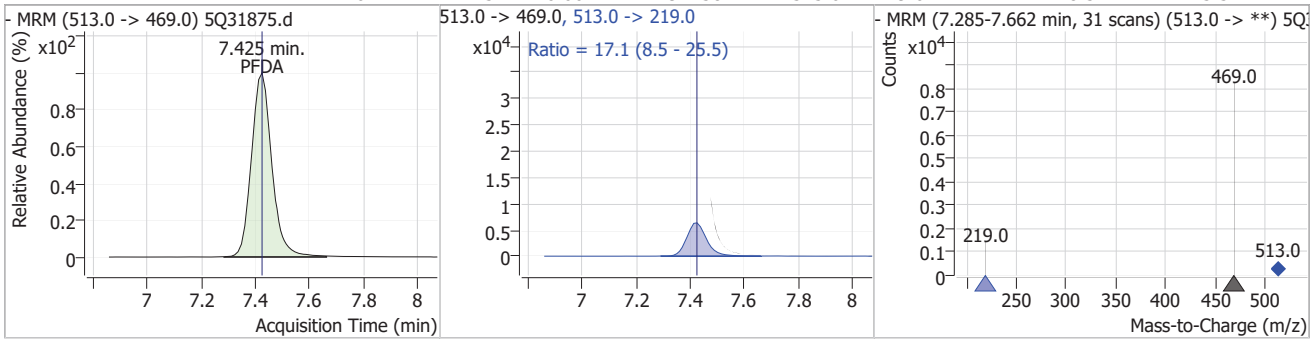


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	10.31	7.42	0.00	103754				

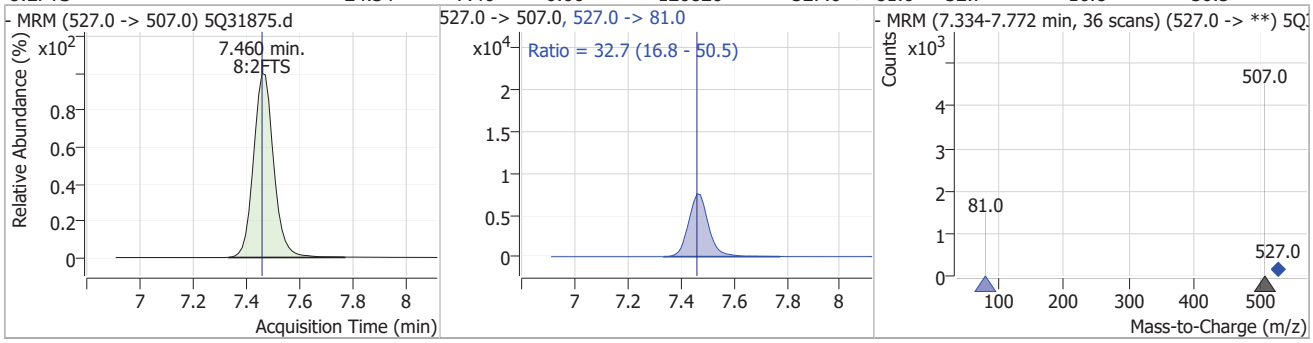


Perfluorinated Compounds by LC/MS/MS

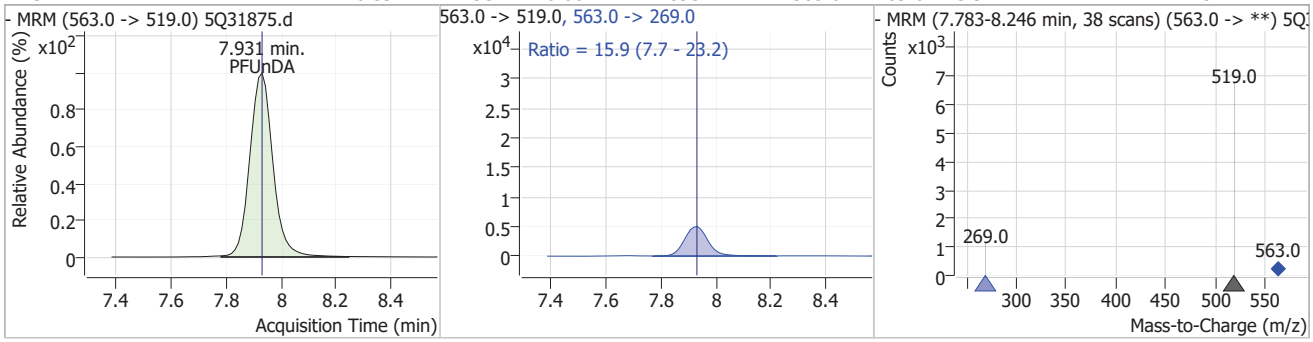
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.72	7.43	0.00	191138	513.0 -> 219.0	17.1	8.5	25.5



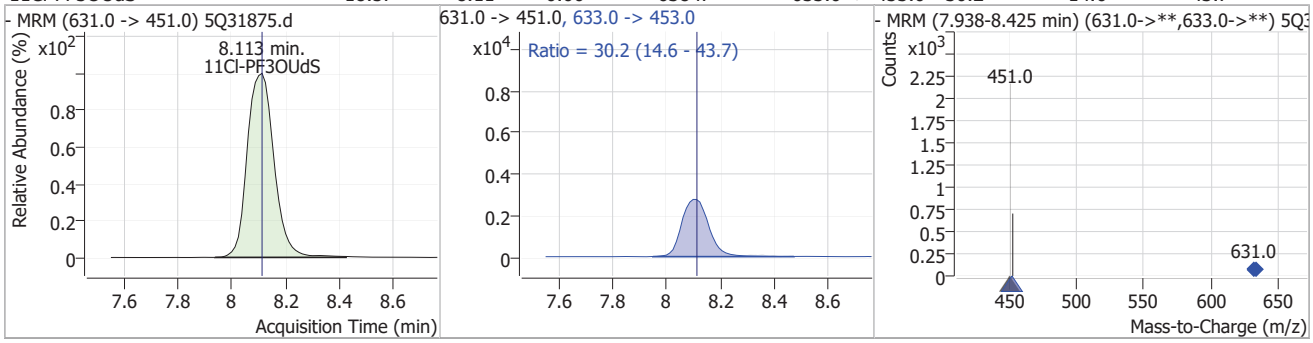
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	24.34	7.46	0.00	120820	527.0 -> 81.0	32.7	16.8	50.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	20.39	7.93	0.00	189571	563.0 -> 269.0	15.9	7.7	23.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	18.57	8.11	0.00	63847	633.0 -> 453.0	30.2	14.6	43.7



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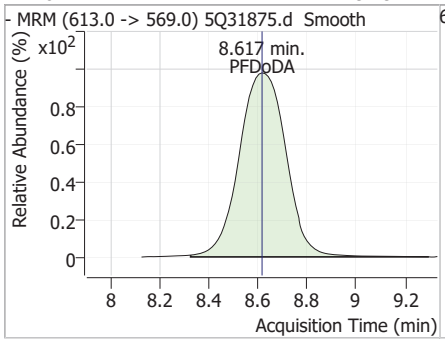
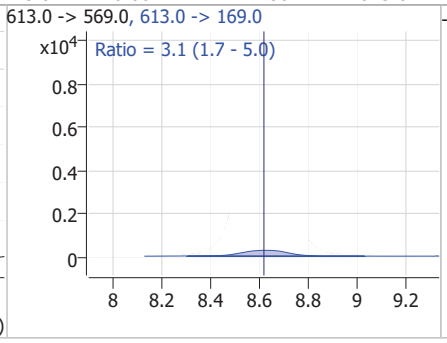
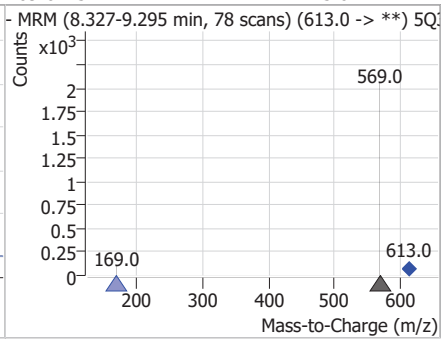
Perfluorinated Compounds by LC/MS/MS

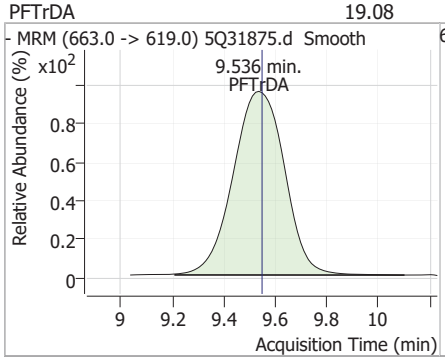
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.49	8.62	0.00	117480	613.0 -> 169.0	3.1	1.7	5.0

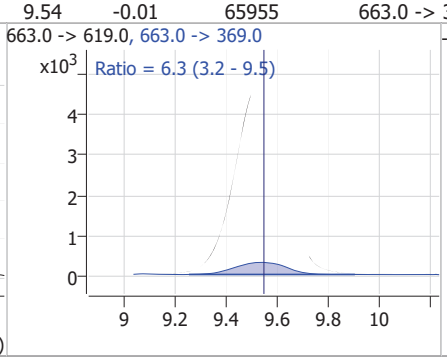


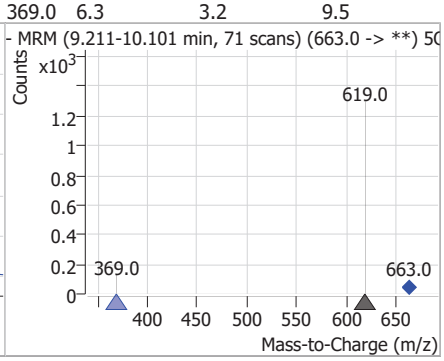




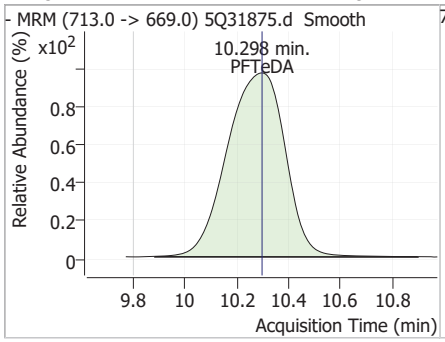
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	19.08	9.54	-0.01	65955	663.0 -> 369.0	6.3	3.2	9.5

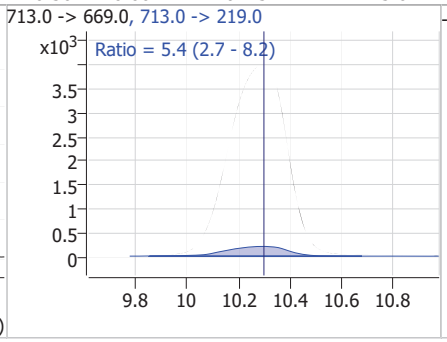


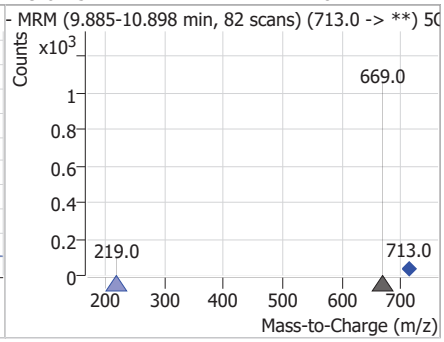




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.14	10.30	0.00	61734	713.0 -> 219.0	5.4	2.7	8.2







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Manual Integration Approval Summary

Sample Number: S5Q524-CC524
Lab FileID: 5Q31875.D
Injection Time: 04/18/25 16:40
Method: EPA 537.1 REV 2.0
Analyst approved: 04/21/25 09:54 (b) (6)
Supervisor approved: 04/21/25 10:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.24	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/21/25 10:51

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31876.d
Operator : (b) (6)
Acq. Method : 537_5Q.m
Acq. Date-Time : 4/18/2025 4:57:07 PM
Sample Name : cc524-0.5LL
Vial : P1-A2
DA Method File : 537_041825_S5Q524.quantmethod.xml
Batch Name : s5q524.batch.bin
Sample Information : OP8882,S5Q524,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Internal Standards							
13C2-6:2FTS	6.275	429.0 -> 409.0	127850	20.00	µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	278117	20.00	µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	352025	20.00	µg/L		0.000
13C4-PFOS	6.861	503.0 -> 80.0	67974	20.00	µg/L		0.000
d3-MeFOSAA	7.243	573.0 -> 419.0	24451	40.00	µg/L		0.000
System Monitoring Compounds							
13C2-PFDA	7.424	515.0 -> 470.0	2182	0.21	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 1.0%			
13C2-PFHxA	4.764	315.0 -> 270.0	3789	0.23	µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 1.2%			
d5-EtFOSAA	7.354	589.0 -> 419.0	270	0.60	µg/L		-0.025
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 1.5%			
13C3-HFPO-DA	5.020	287.0 -> 169.0	617	0.56	µg/L	m	0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 1.4%			
Target Compounds							QValue
6:2FTS	6.289	427.0 -> 407.0	3655	0.60	µg/L		96
8:2FTS	7.460	527.0 -> 507.0	2694	0.56	µg/L		89
EtFOSAA	7.380	584.0 -> 419.0	216	0.54	µg/L	m	82
MeFOSAA	7.244	570.0 -> 419.0	289	0.54	µg/L	m	94
PFBS	3.828	299.0 -> 80.0	4409	0.51	µg/L		100
PFDA	7.425	513.0 -> 469.0	4563	0.47	µg/L		96
PFDoDA	8.617	613.0 -> 569.0	2653	0.42	µg/L		98
PFHpA	5.615	363.0 -> 319.0	10174	0.45	µg/L		97
PFHxA	4.765	313.0 -> 269.0	4927	0.45	µg/L		96
PFHxS	5.636	399.0 -> 80.0	2420	0.44	µg/L	m	93
PFNA	6.887	463.0 -> 419.0	4125	0.43	µg/L	m	95
PFOA	6.291	413.0 -> 369.0	5915	0.46	µg/L		92
PFOS	6.862	499.0 -> 80.0	2080	0.50	µg/L	m	100
PFPeA	3.597	263.0 -> 219.0	10633	0.49	µg/L		100
PFTeDA	10.285	713.0 -> 669.0	1491	0.44	µg/L		99
PFTrDA	9.536	663.0 -> 619.0	1600	0.44	µg/L		98
PFUnDA	7.931	563.0 -> 519.0	4166	0.43	µg/L		96
ADONA	5.689	377.0 -> 251.0	12163	0.41	µg/L		99
9Cl-PF3ONS	7.133	531.0 -> 351.0	1689	0.48	µg/L		97
11Cl-PF3OUdS	8.113	631.0 -> 451.0	1629	0.45	µg/L		92
HFPO-DA	5.022	285.0 -> 169.0	689	0.66	µg/L	m	94

 # = Qualifier out of range, m = manually integrated, + = Area summed

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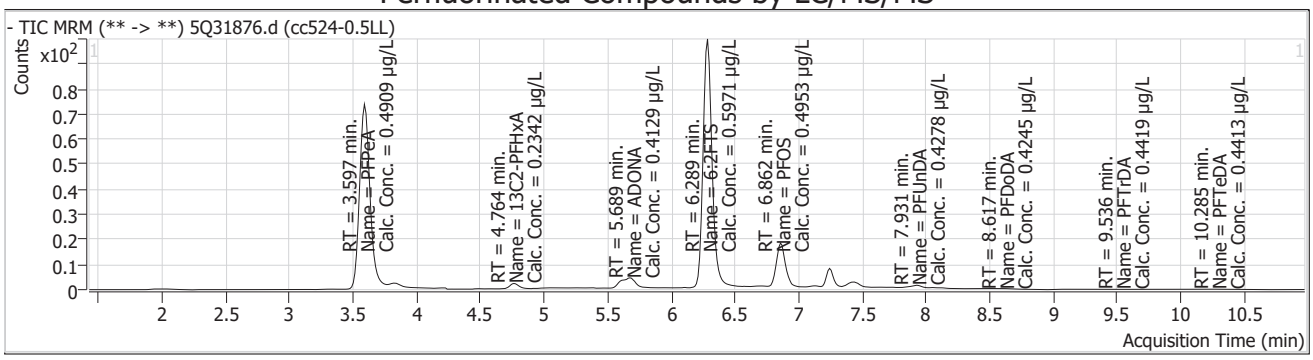
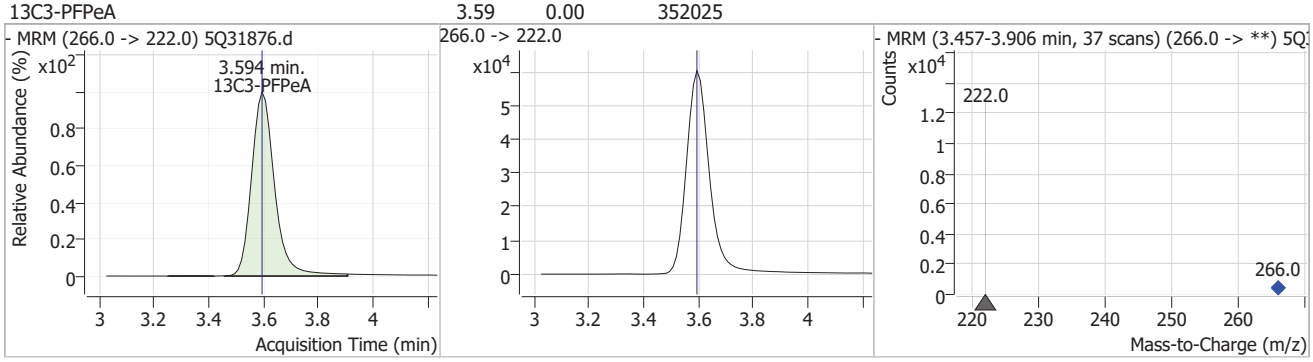
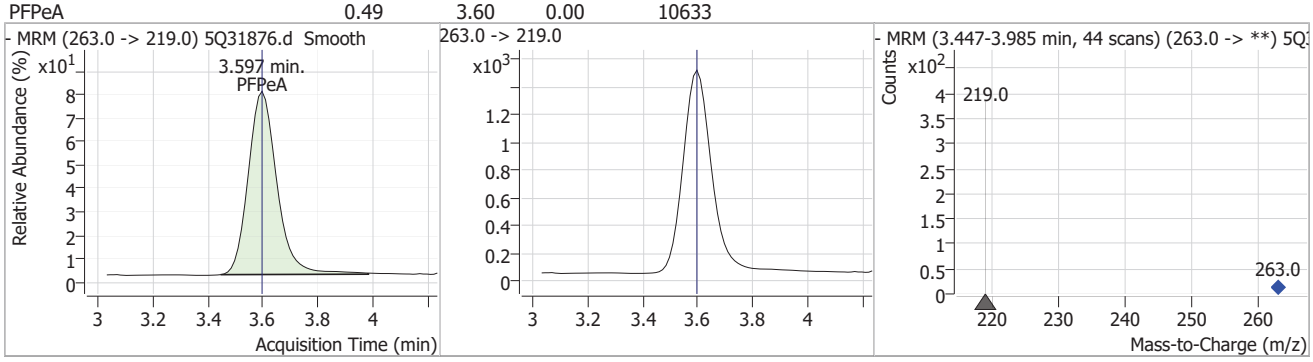
Perfluorinated Compounds by LC/MS/MS



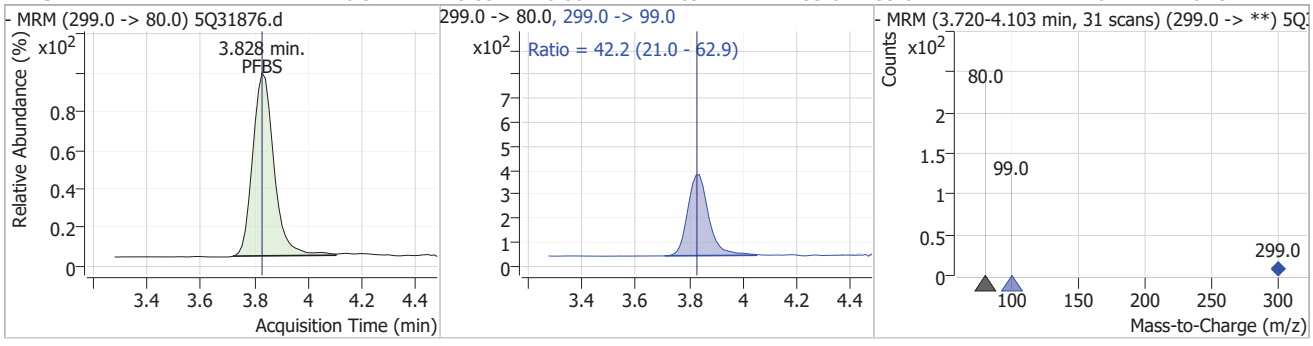
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	352025				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.49	3.60	0.00	10633				

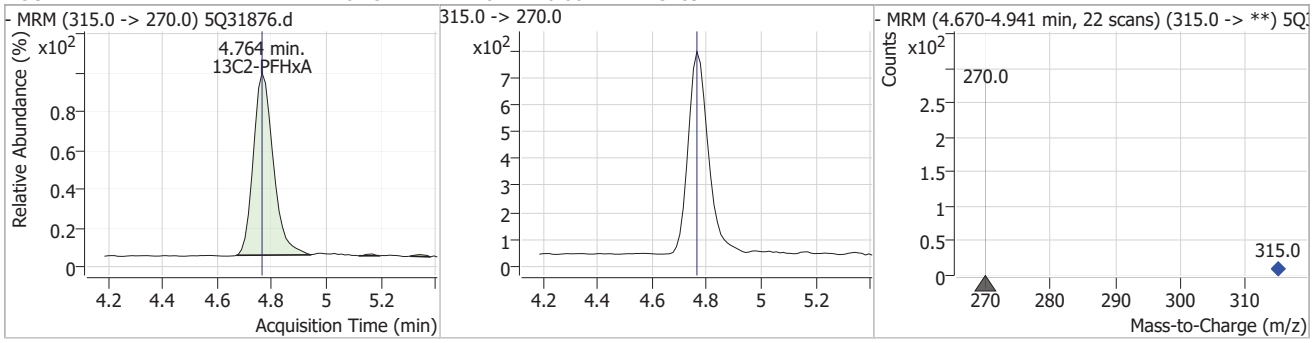


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.51	3.83	0.00	4409	299.0 -> 99.0	42.2	21.0	62.9

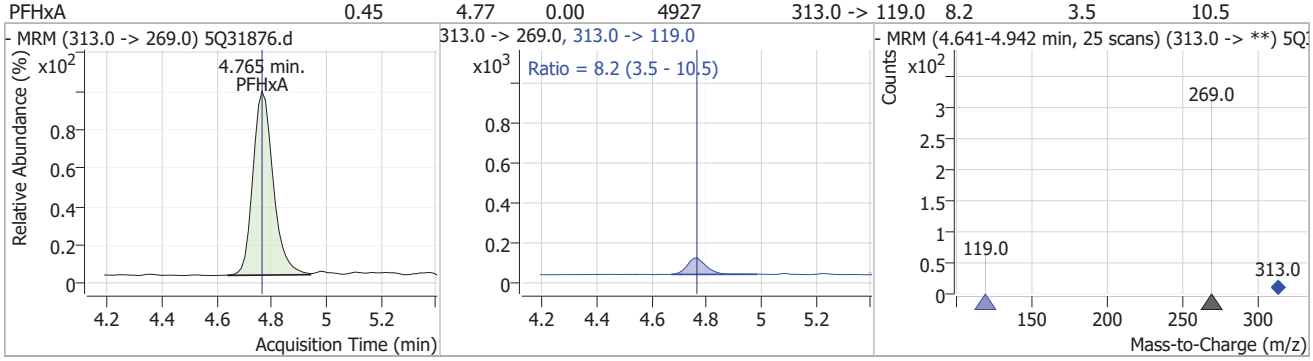


Perfluorinated Compounds by LC/MS/MS

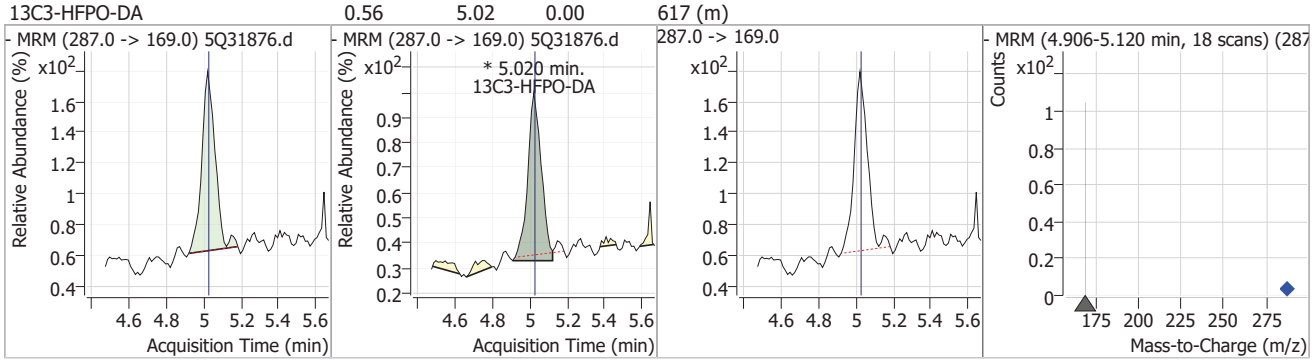
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	0.23	4.76	0.00	3789				



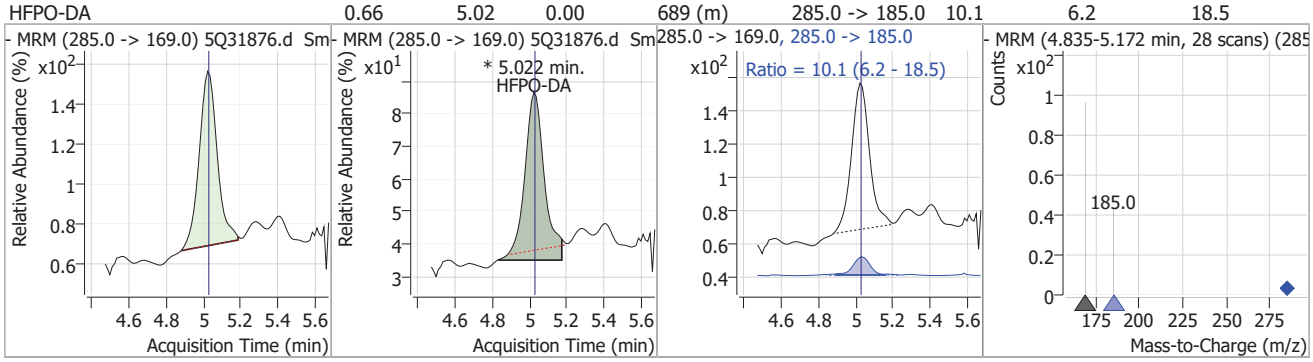
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.45	4.77	0.00	4927	313.0 -> 119.0	8.2	3.5	10.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	0.56	5.02	0.00	617 (m)				

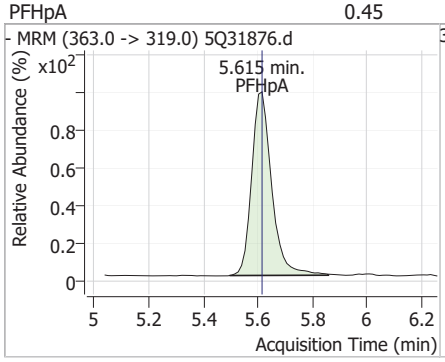


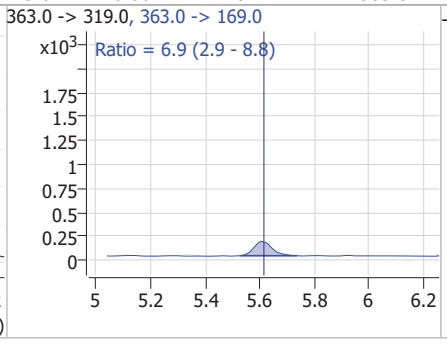
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.66	5.02	0.00	689 (m)	285.0 -> 185.0	10.1	6.2	18.5

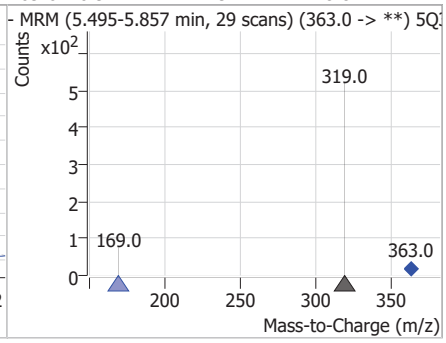


Perfluorinated Compounds by LC/MS/MS

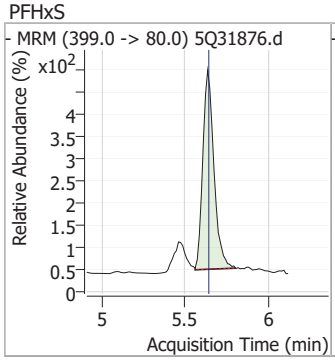
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.45	5.61	0.00	10174	363.0 -> 169.0	6.9	2.9	8.8

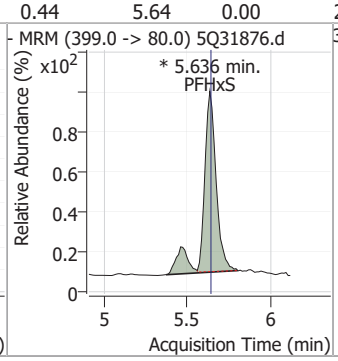


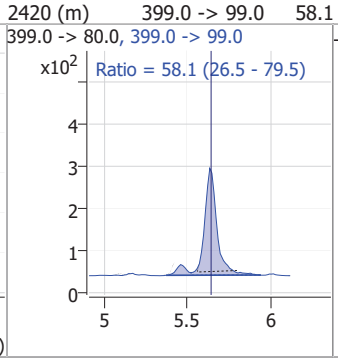


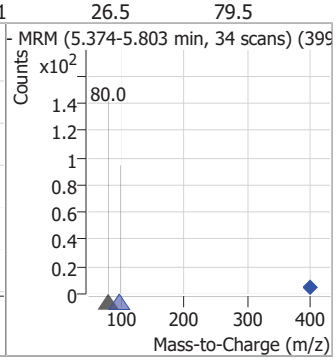


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.44	5.64	0.00	2420 (m)	399.0 -> 99.0	58.1	26.5	79.5

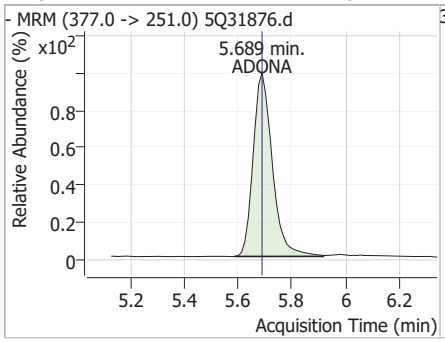


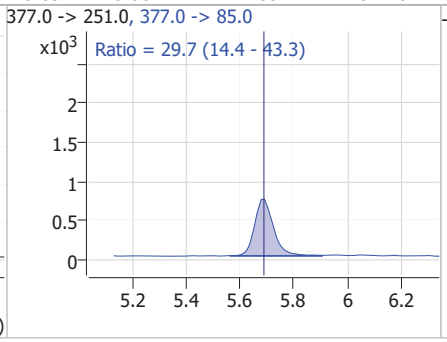


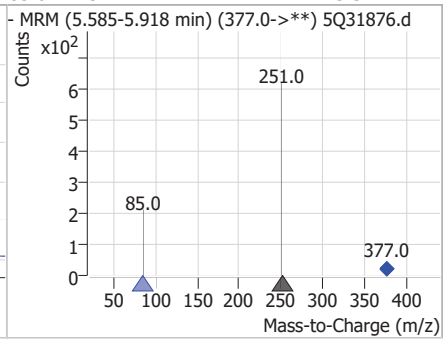




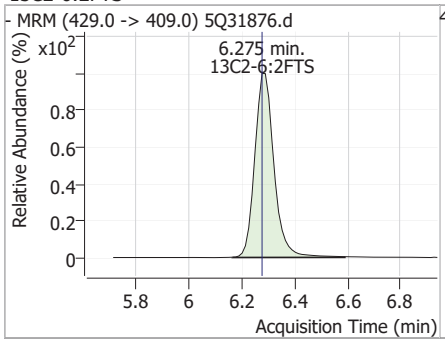
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.41	5.69	0.00	12163	377.0 -> 85.0	29.7	14.4	43.3

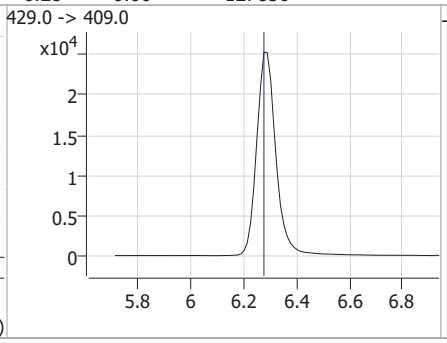


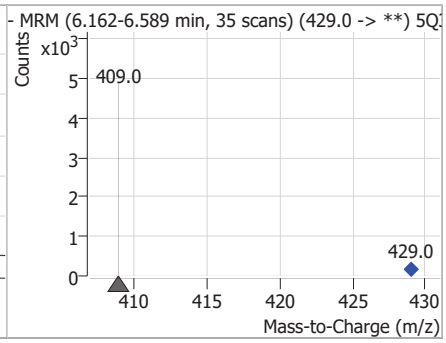




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	0.00	127850				







7.7.53

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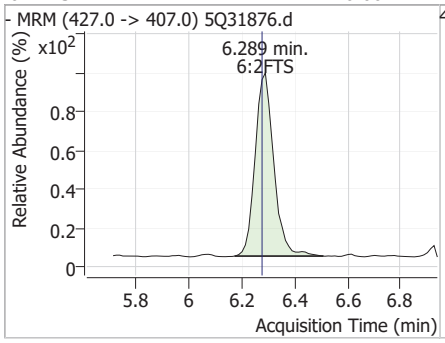
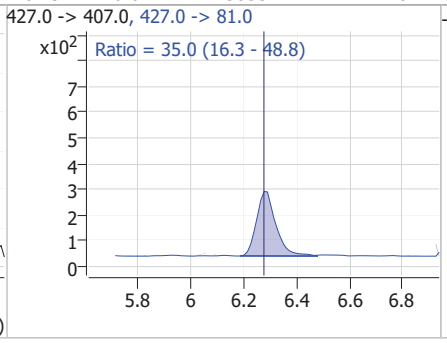
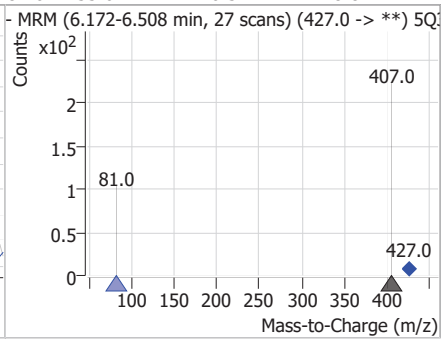
Perfluorinated Compounds by LC/MS/MS

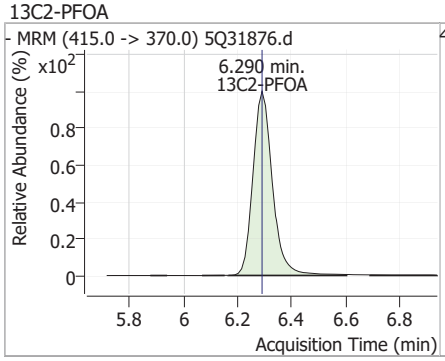
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.60	6.29	0.01	3655	427.0 -> 81.0	35.0	16.3	48.8

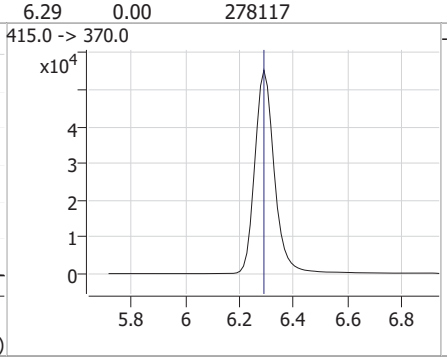


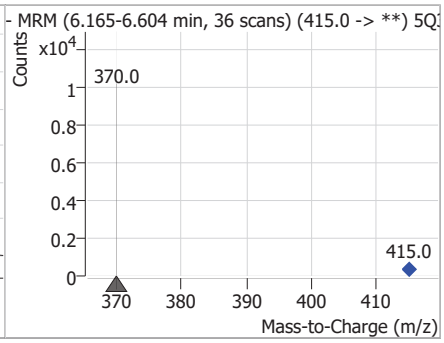




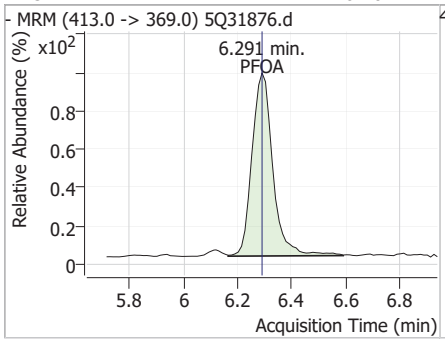
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	278117				

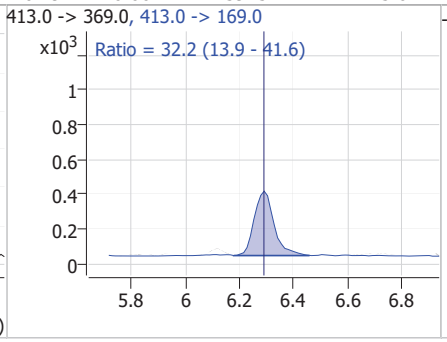


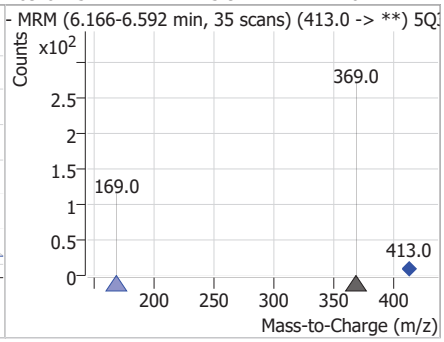




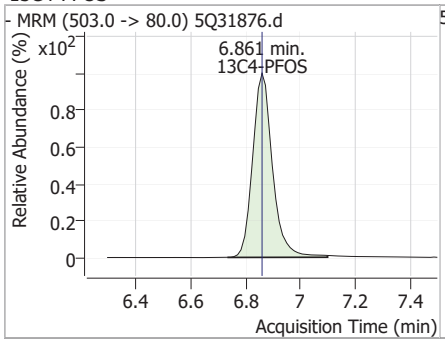
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.46	6.29	0.00	5915	413.0 -> 169.0	32.2	13.9	41.6

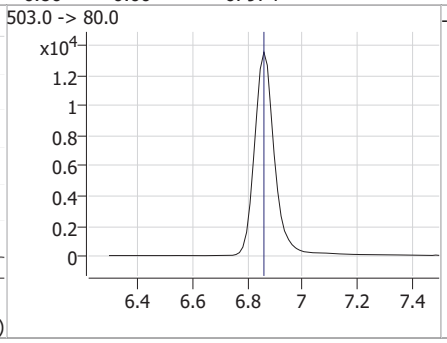


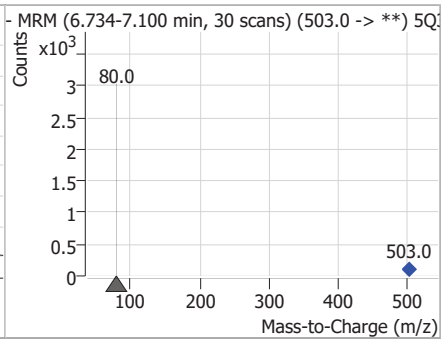




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	67974				

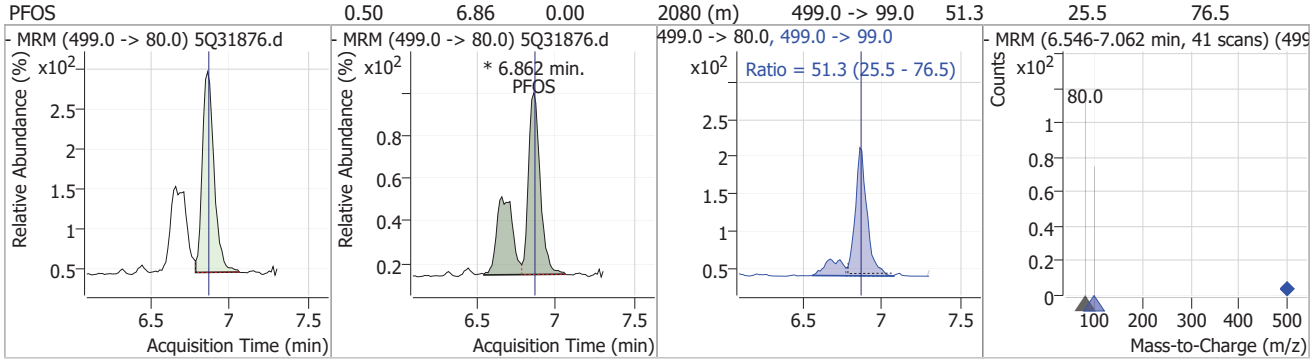




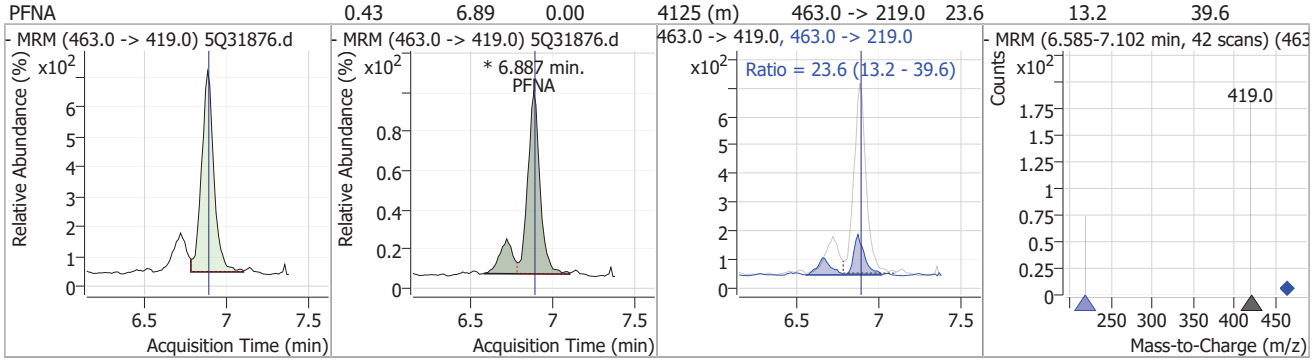


Perfluorinated Compounds by LC/MS/MS

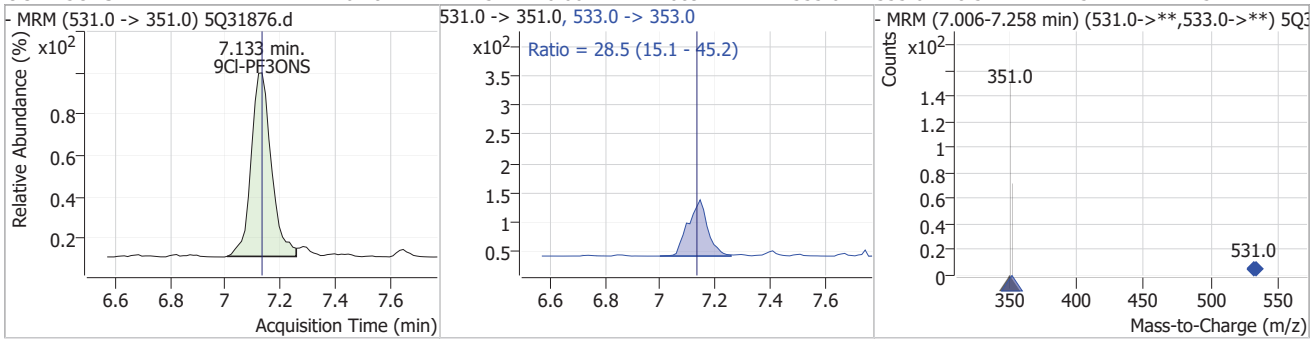
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.50	6.86	0.00	2080 (m)	499.0 -> 99.0	51.3	25.5	76.5



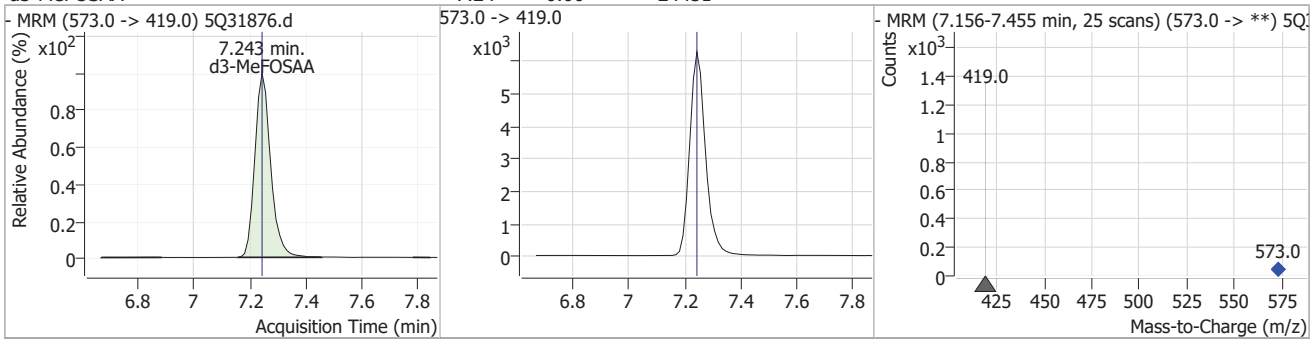
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.43	6.89	0.00	4125 (m)	463.0 -> 219.0	23.6	13.2	39.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.48	7.13	0.00	1689	533.0 -> 353.0	28.5	15.1	45.2

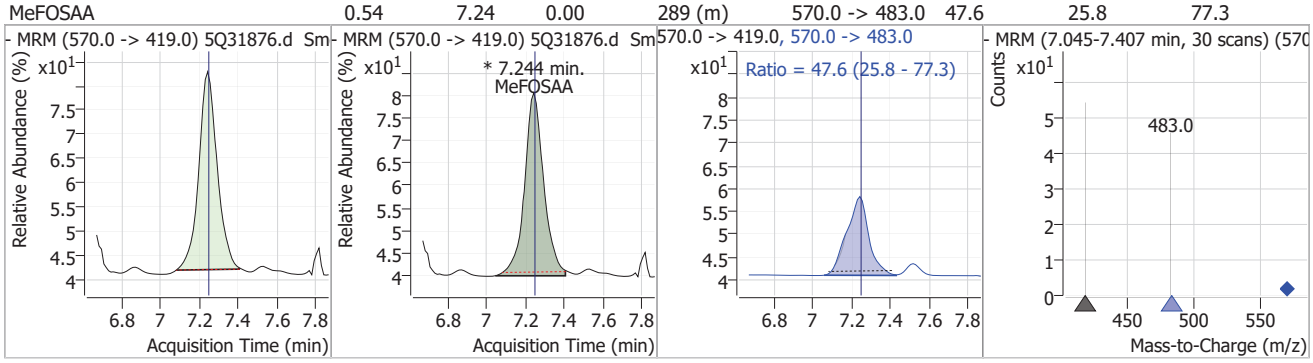


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	24451				

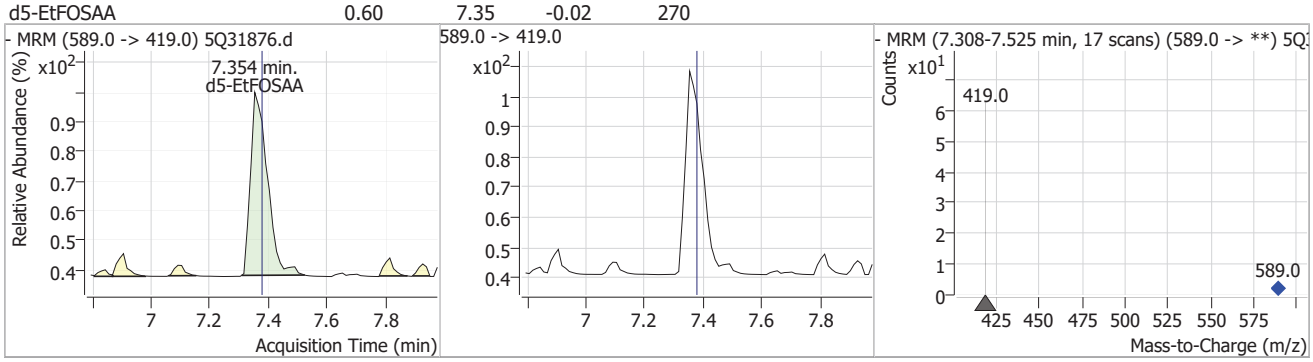


Perfluorinated Compounds by LC/MS/MS

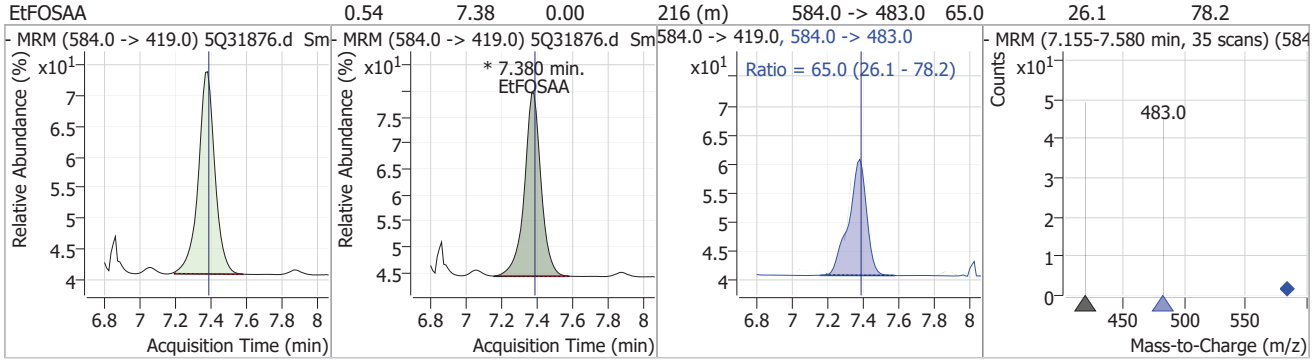
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.54	7.24	0.00	289 (m)	570.0 -> 483.0	47.6	25.8	77.3



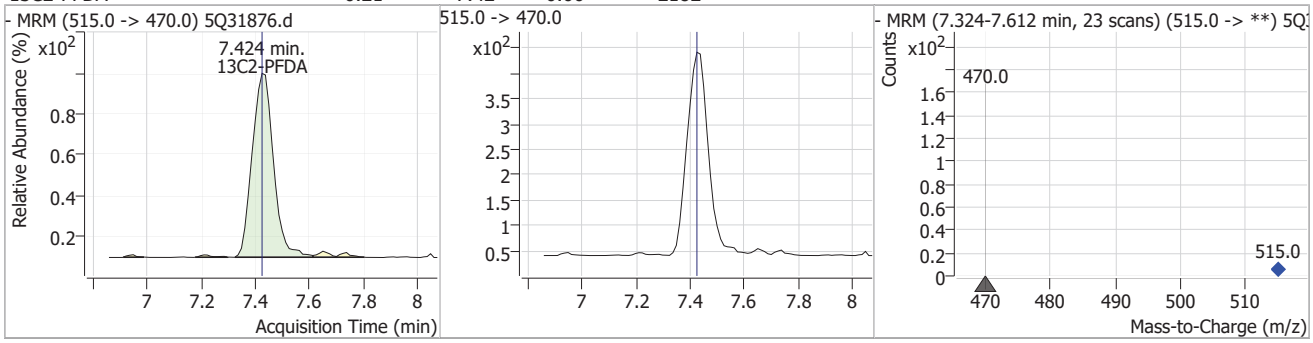
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	0.60	7.35	-0.02	270				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.54	7.38	0.00	216 (m)	584.0 -> 483.0	65.0	26.1	78.2

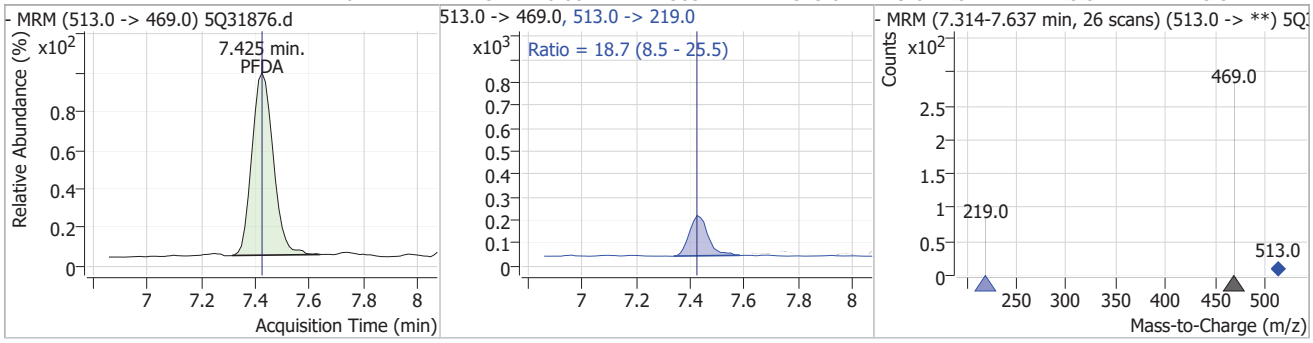


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	0.21	7.42	0.00	2182				

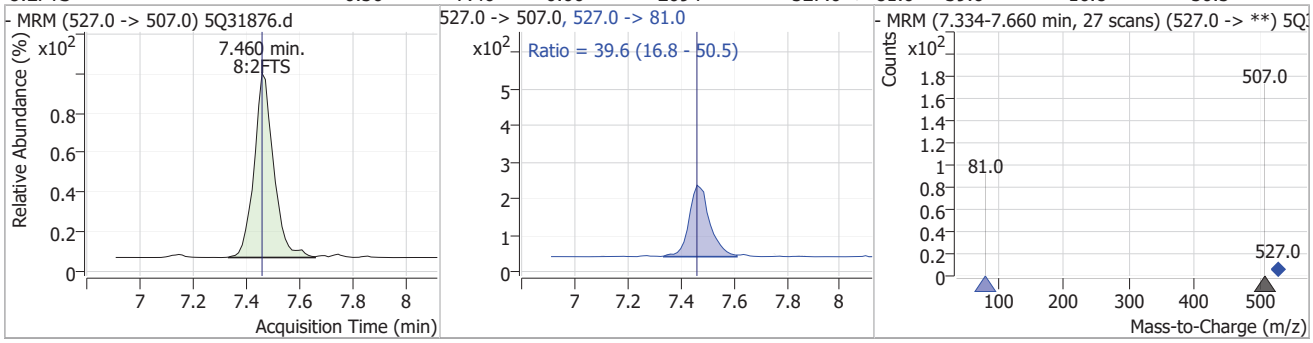


Perfluorinated Compounds by LC/MS/MS

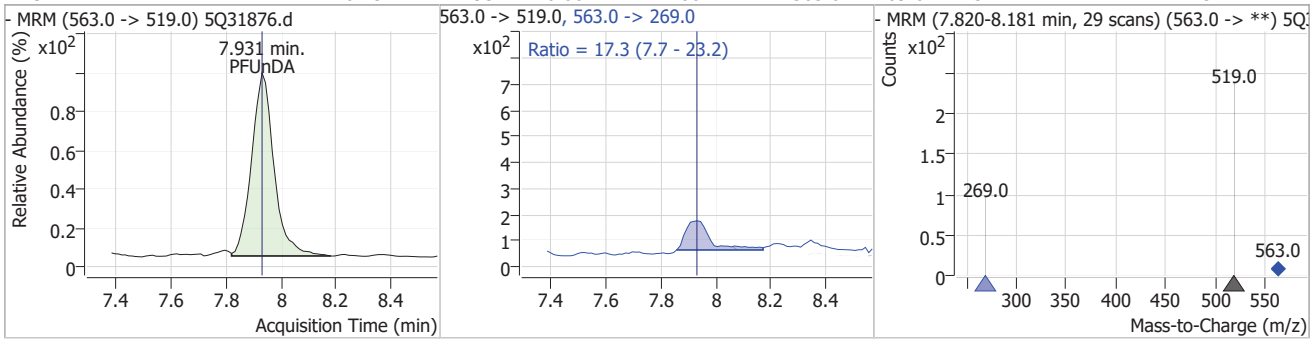
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.47	7.43	0.00	4563	513.0 -> 219.0	18.7	8.5	25.5



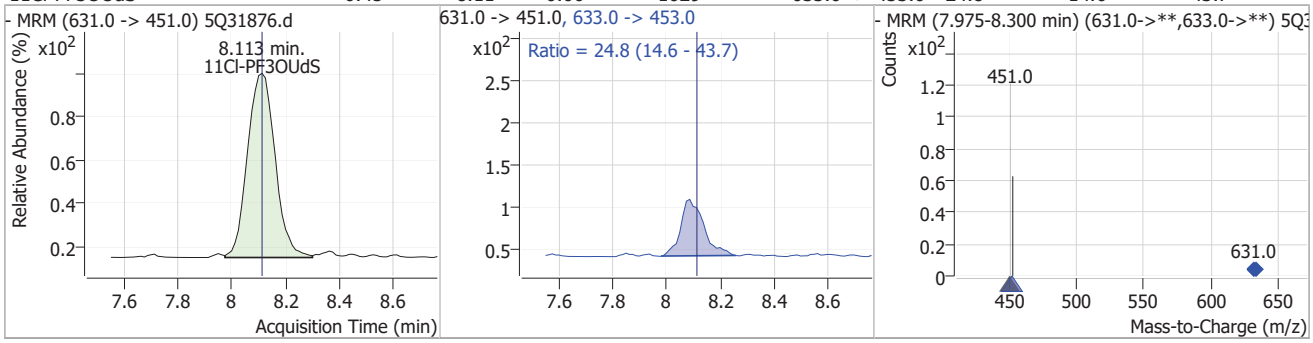
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.56	7.46	0.00	2694	527.0 -> 81.0	39.6	16.8	50.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.43	7.93	0.00	4166	563.0 -> 269.0	17.3	7.7	23.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.45	8.11	0.00	1629	633.0 -> 453.0	24.8	14.6	43.7



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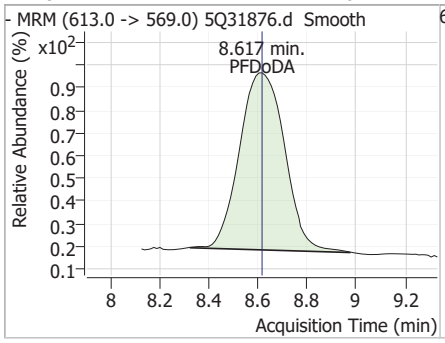
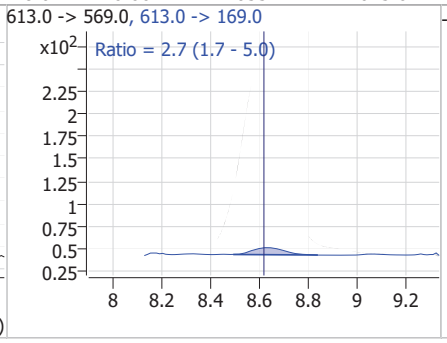
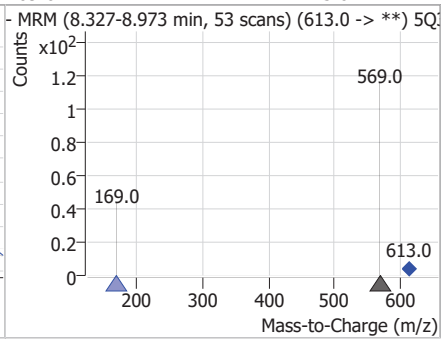
Perfluorinated Compounds by LC/MS/MS

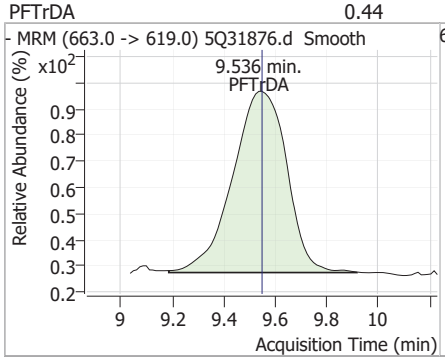
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.42	8.62	0.00	2653	613.0 -> 169.0	2.7	1.7	5.0

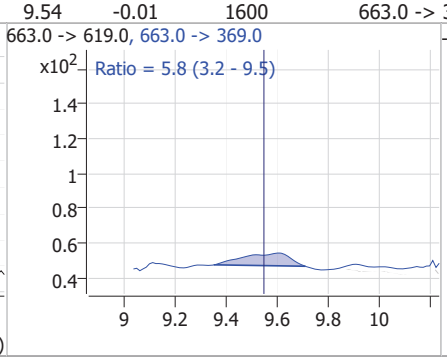


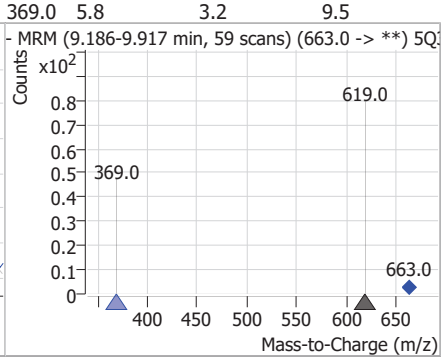




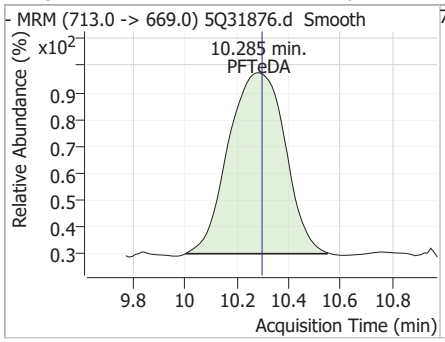
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.44	9.54	-0.01	1600	663.0 -> 369.0	5.8	3.2	9.5

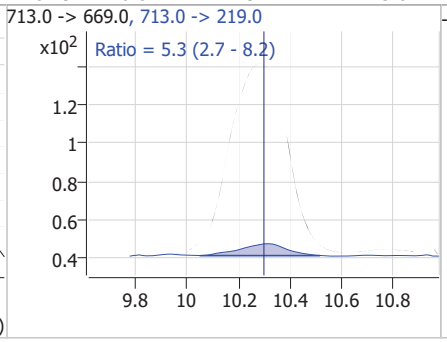


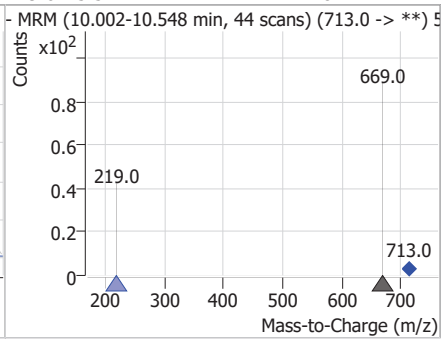




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.44	10.29	-0.01	1491	713.0 -> 219.0	5.3	2.7	8.2







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Manual Integration Approval Summary

Sample Number: S5Q524-CC524
Lab FileID: 5Q31876.D
Injection Time: 04/18/25 16:57
Method: EPA 537.1 REV 2.0
Analyst approved: 04/21/25 09:54 (b) (6)
Supervisor approved: 04/21/25 10:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C3-HFPO-DA			5.02	Poor instrument integration
HFPO-DA (GenX)	13252-13-6		5.02	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.24	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
(b) (6)
04/21/25 10:51

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q31885.d
Operator : (b) (6)
Acq. Method : 537_5Q.m
Acq. Date-Time : 4/18/2025 7:25:37 PM
Sample Name : ecc524-20
Vial : P1-A7
DA Method File : 537_041825_S5Q524.quantmethod.xml
Batch Name : s5q524.batch.bin
Sample Information : OP8882,S5Q524,250,,,1,1,water

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Internal Standards						
13C2-6:2FTS	6.275	429.0 -> 409.0	126165	20.00 µg/L		0.000
13C2-PFOA	6.290	415.0 -> 370.0	252306	20.00 µg/L		0.000
13C3-PFPeA	3.594	266.0 -> 222.0	317171	20.00 µg/L		0.000
13C4-PFOS	6.861	503.0 -> 80.0	59439	20.00 µg/L		0.000
d3-MeFOSAA	7.243	573.0 -> 419.0	21728	40.00 µg/L		0.000
System Monitoring Compounds						
13C2-PFDA	7.424	515.0 -> 470.0	99083	10.34 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 51.7%		
13C2-PFHxA	4.764	315.0 -> 270.0	158456	10.79 µg/L		0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 54.0%		
d5-EtFOSAA	7.379	589.0 -> 419.0	8396	21.17 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 52.9%		
13C3-HFPO-DA	5.020	287.0 -> 169.0	21174	21.06 µg/L		0.000
Spiked Amount: 40.00	Range: 70.0 - 130.0%			Recovery = 52.6%		
Target Compounds						QValue
6:2FTS	6.276	427.0 -> 407.0	149067	24.67 µg/L		99
8:2FTS	7.473	527.0 -> 507.0	109517	23.09 µg/L		99
EtFOSAA	7.380	584.0 -> 419.0	7861	22.22 µg/L	m	98
MeFOSAA	7.244	570.0 -> 419.0	9745	20.45 µg/L	m	93
PFBS	3.828	299.0 -> 80.0	172473	23.02 µg/L		100
PFDA	7.425	513.0 -> 469.0	175870	20.02 µg/L		100
PFDoDA	8.617	613.0 -> 569.0	109157	19.77 µg/L		99
PFHpA	5.615	363.0 -> 319.0	428335	21.00 µg/L		99
PFHxA	4.765	313.0 -> 269.0	215017	21.51 µg/L		98
PFHxS	5.636	399.0 -> 80.0	103580	21.35 µg/L	m	99
PFNA	6.887	463.0 -> 419.0	167390	19.25 µg/L	m	98
PFOA	6.291	413.0 -> 369.0	243161	20.73 µg/L		100
PFOS	6.862	499.0 -> 80.0	76168	20.74 µg/L	m	98
PFPeA	3.597	263.0 -> 219.0	415153	21.27 µg/L		100
PFTeDA	10.298	713.0 -> 669.0	57447	19.44 µg/L		100
PFTrDA	9.536	663.0 -> 619.0	62477	19.73 µg/L		99
PFUnDA	7.931	563.0 -> 519.0	180205	21.16 µg/L		100
ADONA	5.689	377.0 -> 251.0	540334	20.22 µg/L		100
9Cl-PF3ONS	7.133	531.0 -> 351.0	70234	21.18 µg/L		99
11Cl-PF3OUdS	8.113	631.0 -> 451.0	60421	18.46 µg/L		98
HFPO-DA	5.022	285.0 -> 169.0	20315	21.55 µg/L		98

 # = Qualifier out of range, m = manually integrated, + = Area summed

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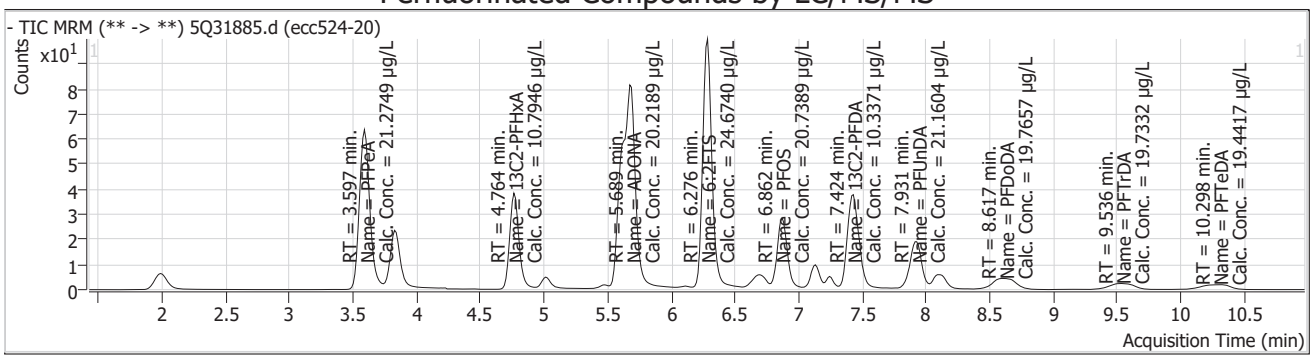
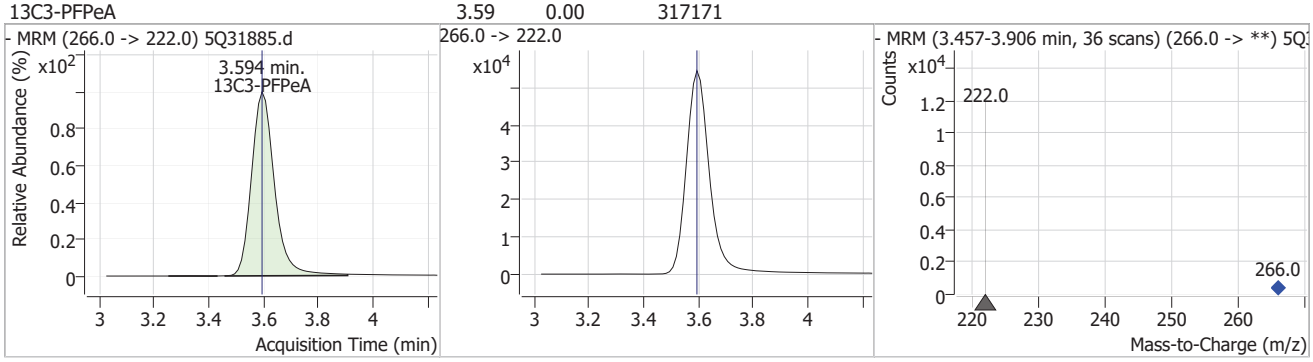
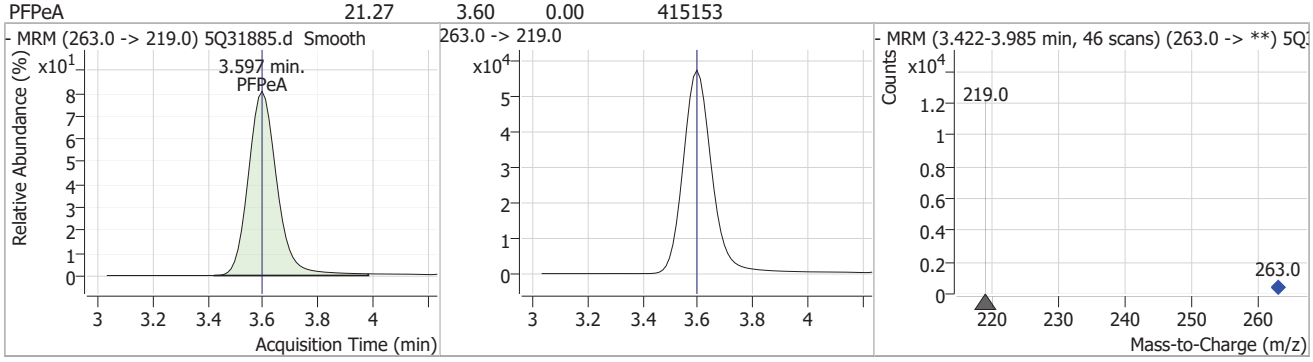
Perfluorinated Compounds by LC/MS/MS



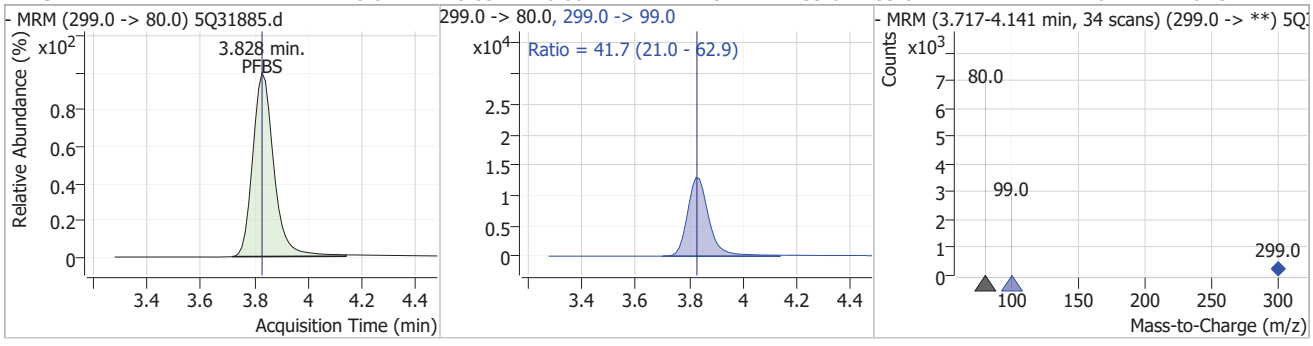
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFPeA		3.59	0.00	317171				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	21.27	3.60	0.00	415153				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	23.02	3.83	0.00	172473	299.0 -> 99.0	41.7	21.0	62.9



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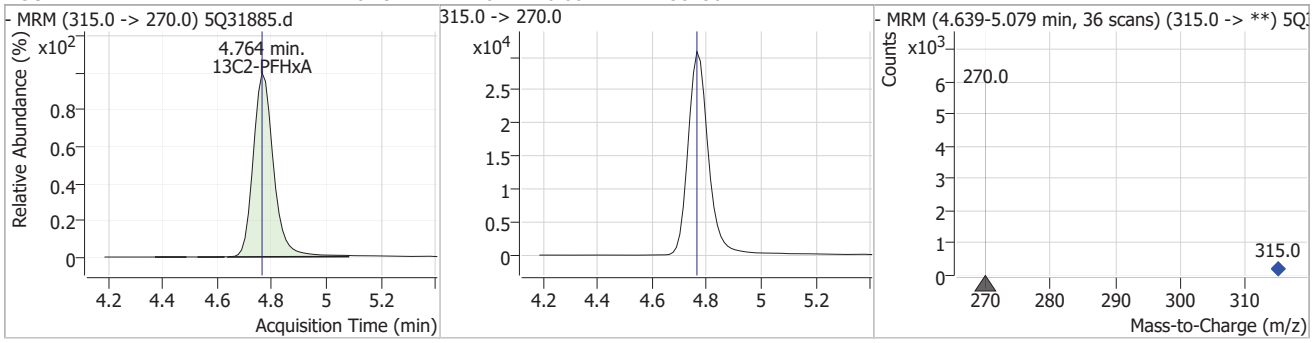
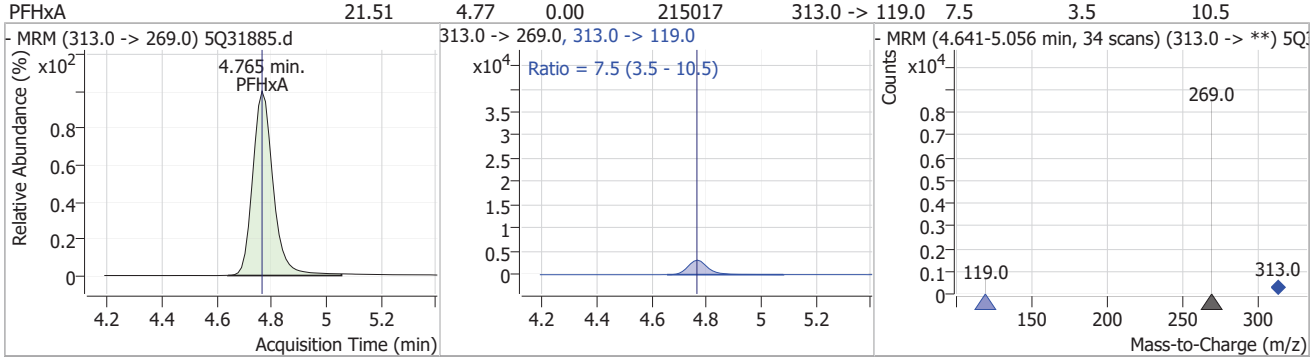
Perfluorinated Compounds by LC/MS/MS

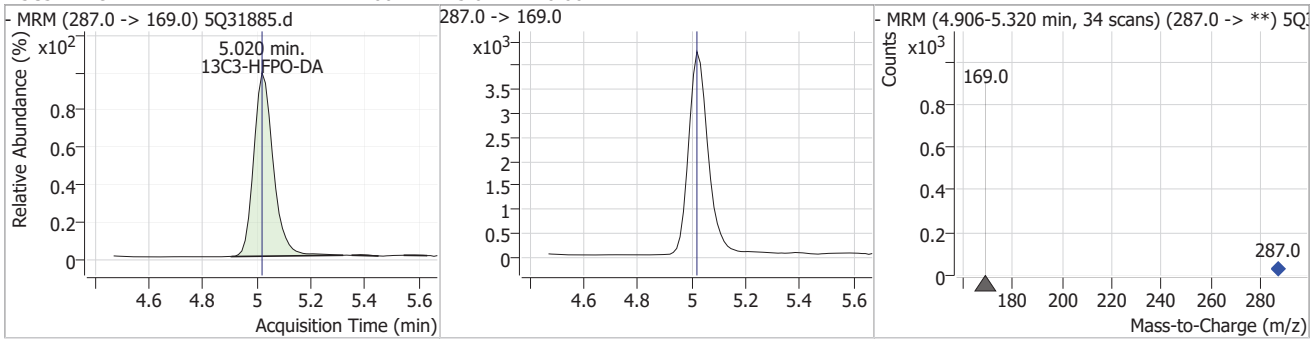
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	10.79	4.76	0.00	158456				



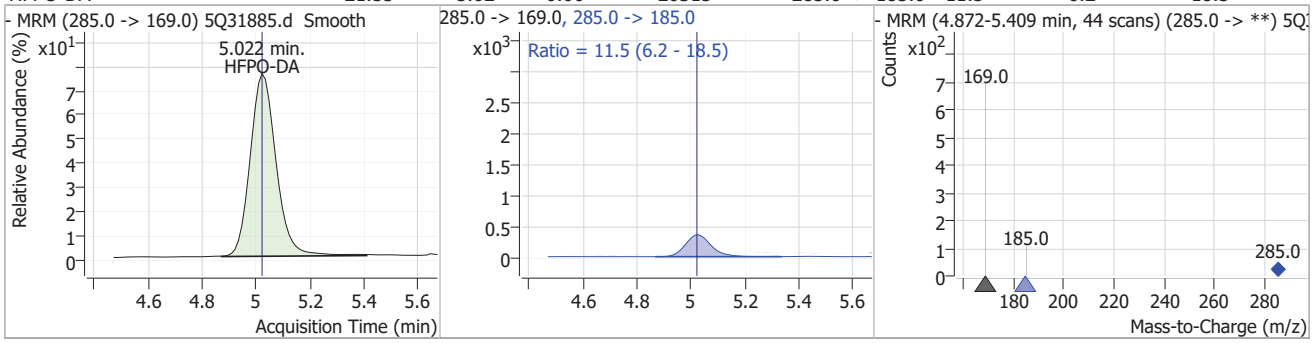
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	21.51	4.77	0.00	215017	313.0 -> 119.0	7.5	3.5	10.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	21.06	5.02	0.00	21174				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	21.55	5.02	0.00	20315	285.0 -> 185.0	11.5	6.2	18.5



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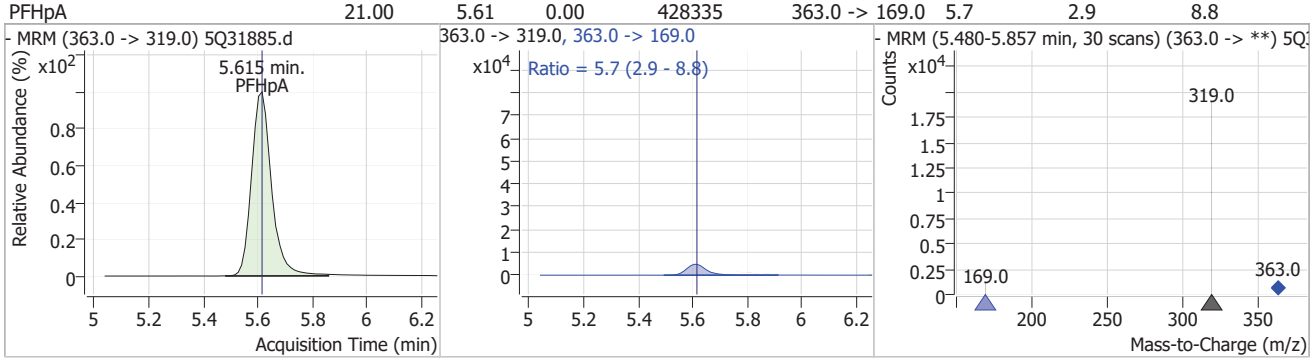
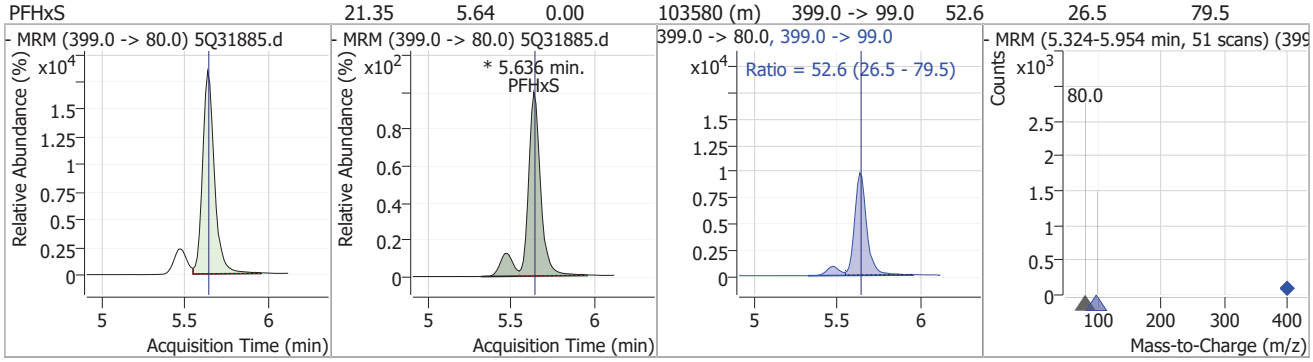
Perfluorinated Compounds by LC/MS/MS

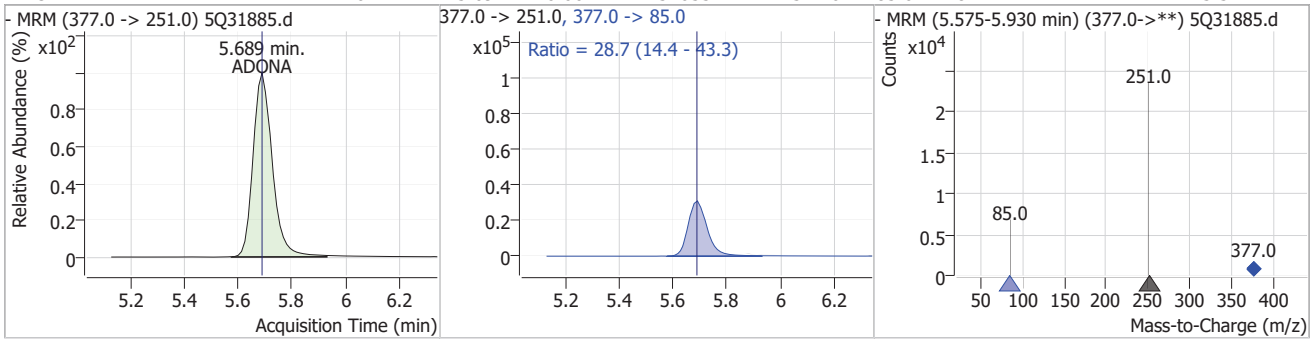
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	21.00	5.61	0.00	428335	363.0 -> 169.0	5.7	2.9	8.8



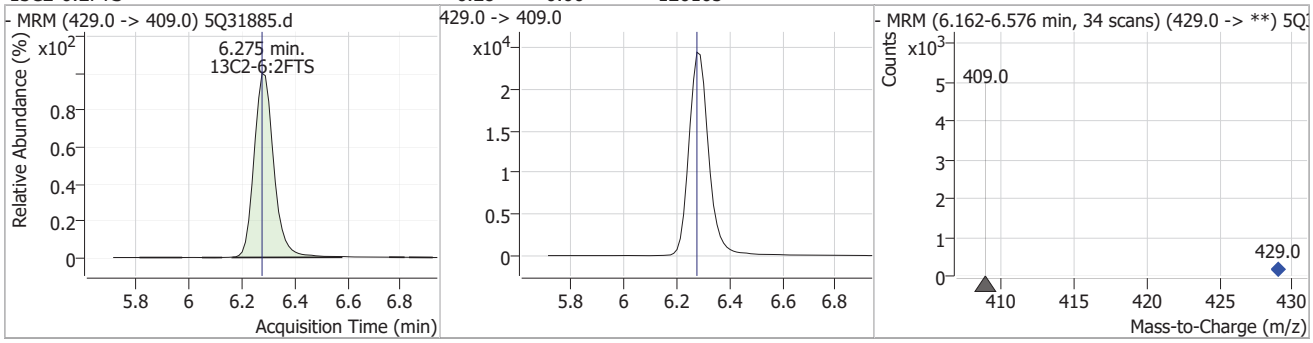
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	21.35	5.64	0.00	103580 (m)	399.0 -> 99.0	52.6	26.5	79.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.22	5.69	0.00	540334	377.0 -> 85.0	28.7	14.4	43.3

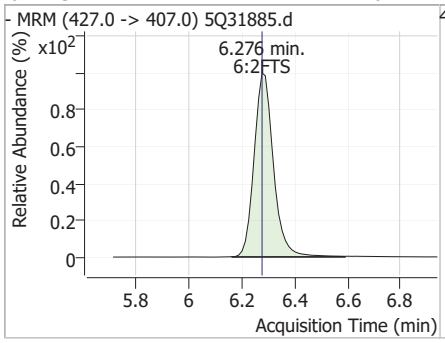


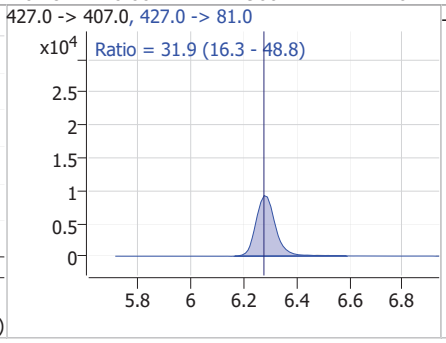
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS		6.28	0.00	126165				

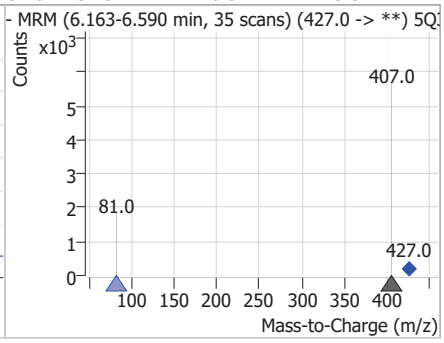


Perfluorinated Compounds by LC/MS/MS

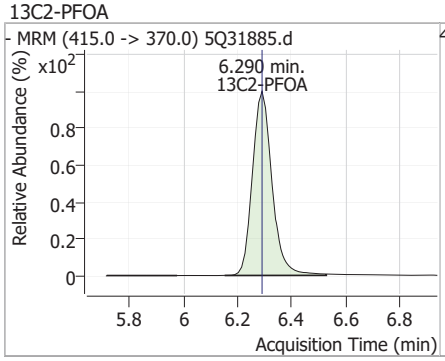
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	24.67	6.28	0.00	149067	427.0 -> 81.0	31.9	16.3	48.8

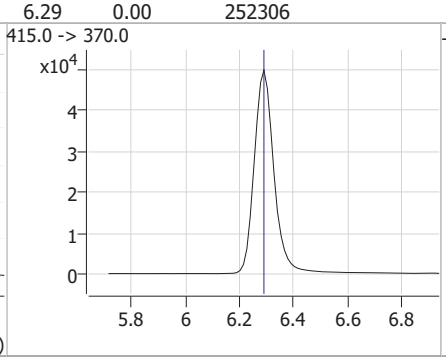


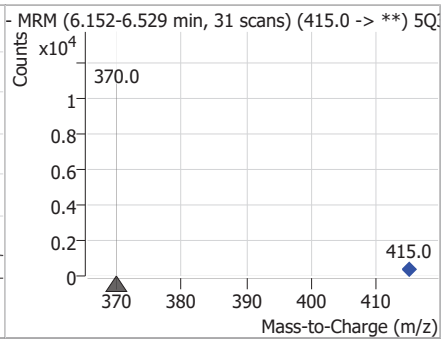




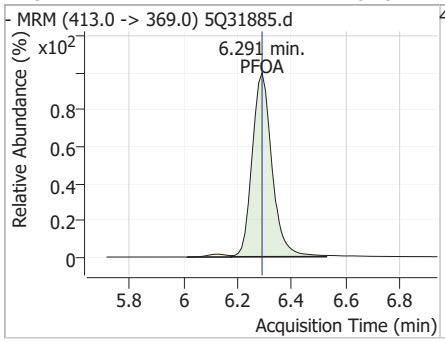
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFOA		6.29	0.00	252306				

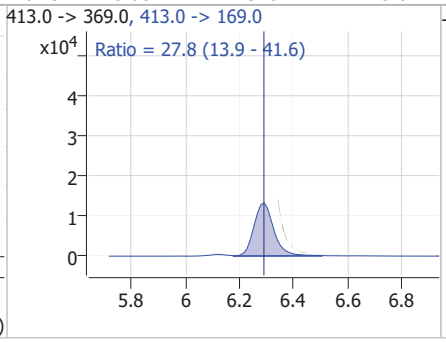


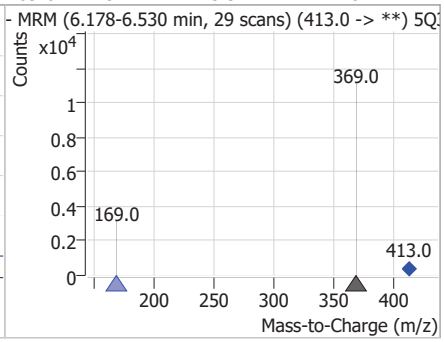




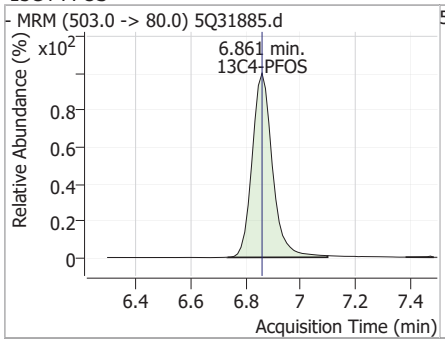
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.73	6.29	0.00	243161	413.0 -> 169.0	27.8	13.9	41.6

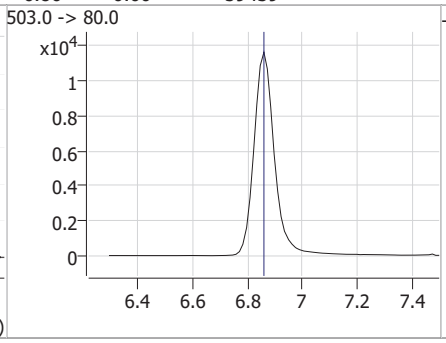


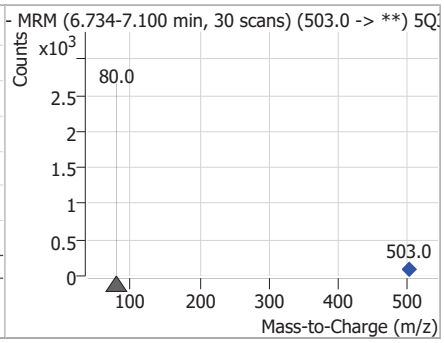




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFOS		6.86	0.00	59439				







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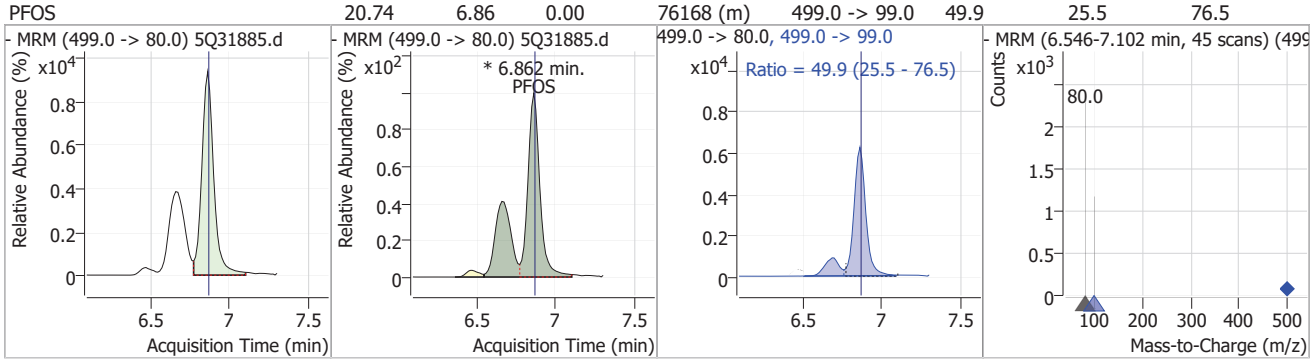
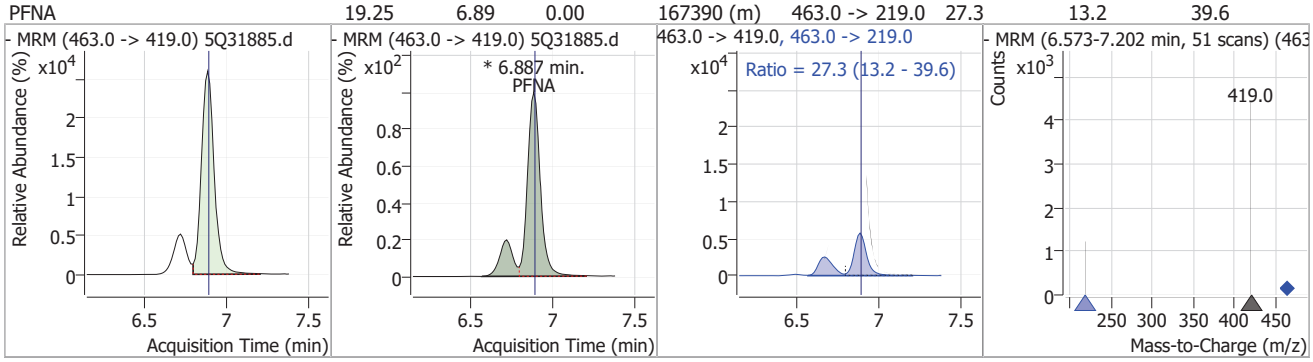
Perfluorinated Compounds by LC/MS/MS

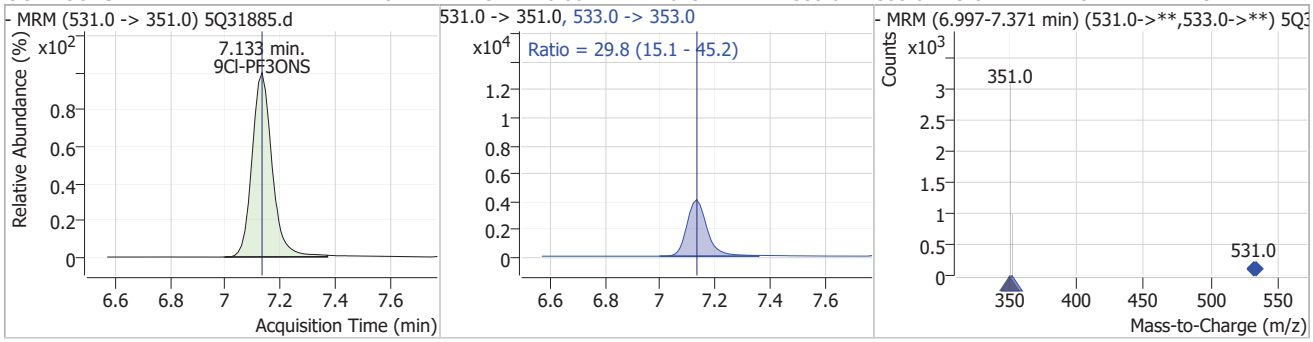
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	20.74	6.86	0.00	76168 (m)	499.0 -> 99.0	49.9	25.5	76.5



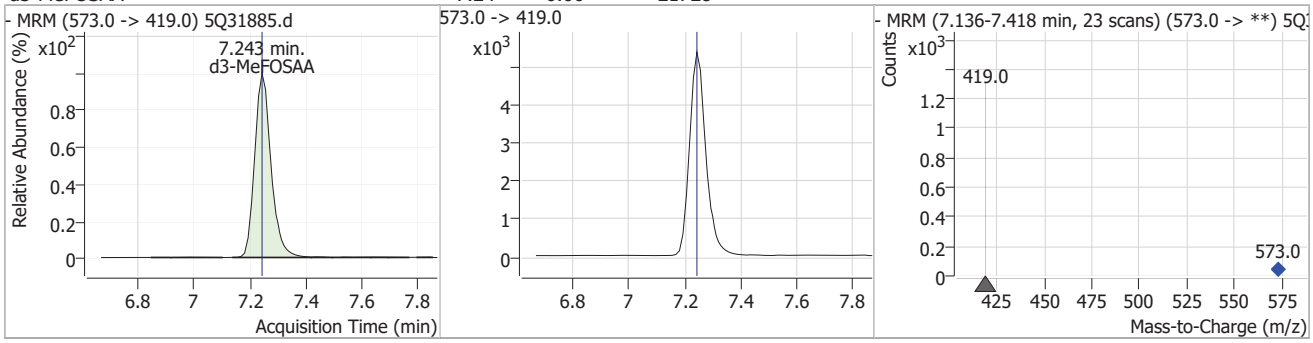
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.25	6.89	0.00	167390 (m)	463.0 -> 219.0	27.3	13.2	39.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	21.18	7.13	0.00	70234	533.0 -> 353.0	29.8	15.1	45.2

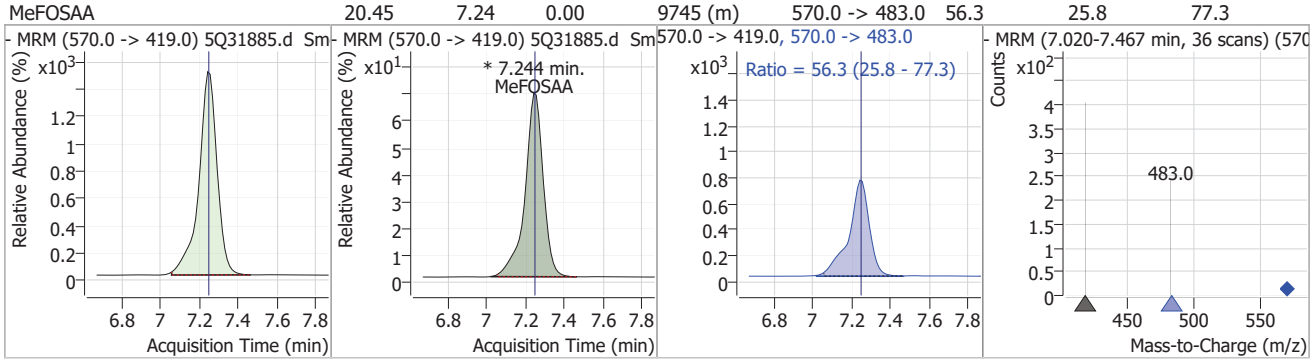


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA		7.24	0.00	21728				

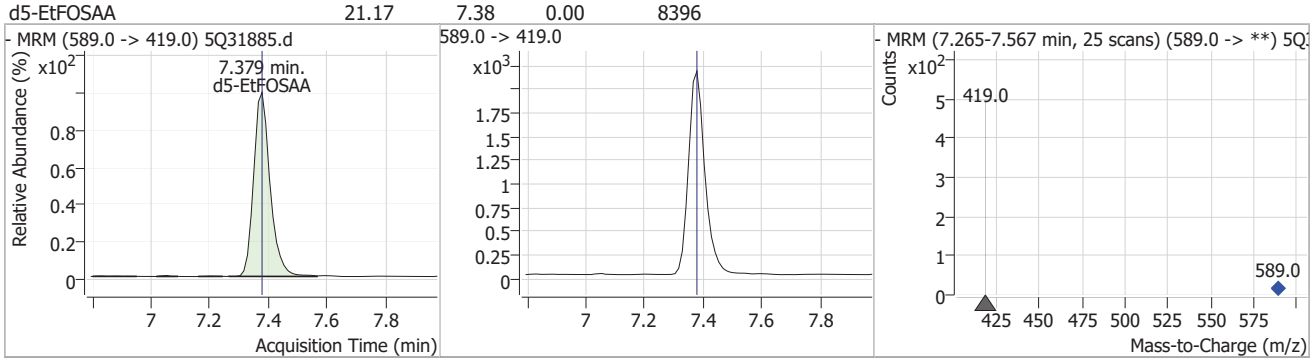


Perfluorinated Compounds by LC/MS/MS

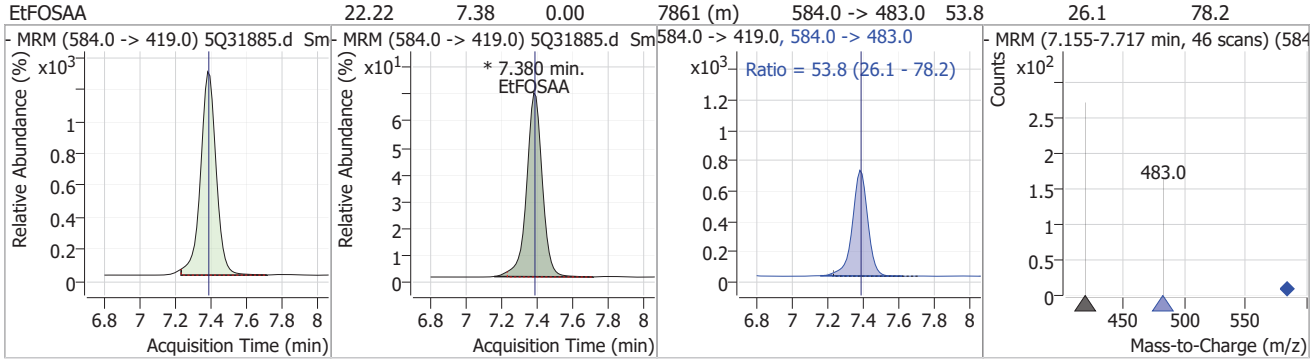
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	20.45	7.24	0.00	9745 (m)	570.0 -> 483.0	56.3	25.8	77.3



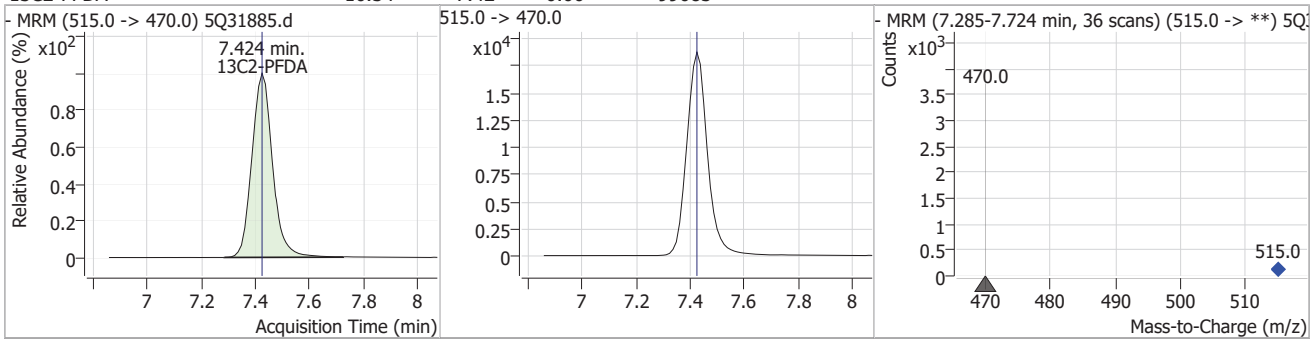
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	21.17	7.38	0.00	8396				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	22.22	7.38	0.00	7861 (m)	584.0 -> 483.0	53.8	26.1	78.2

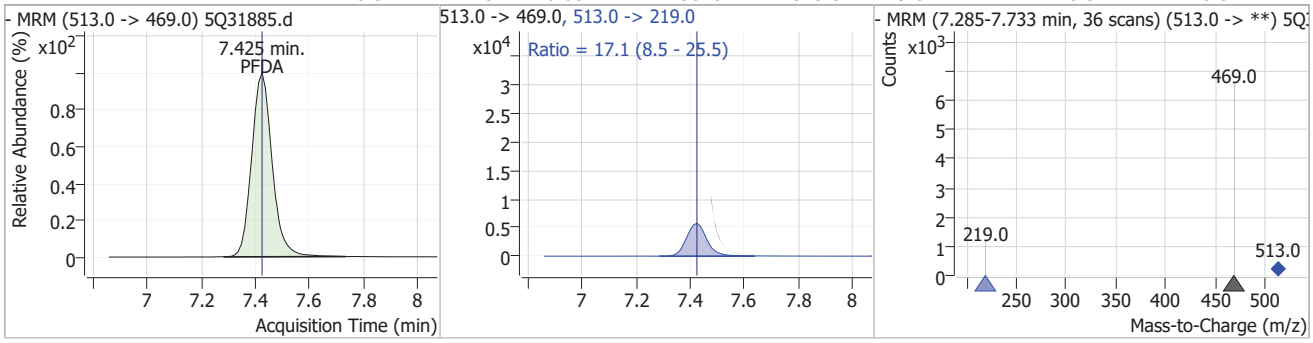


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	10.34	7.42	0.00	99083				

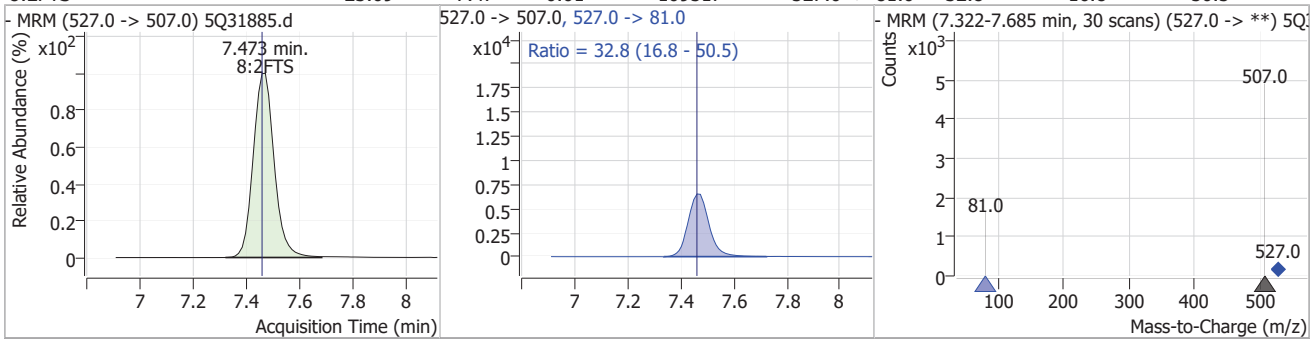


Perfluorinated Compounds by LC/MS/MS

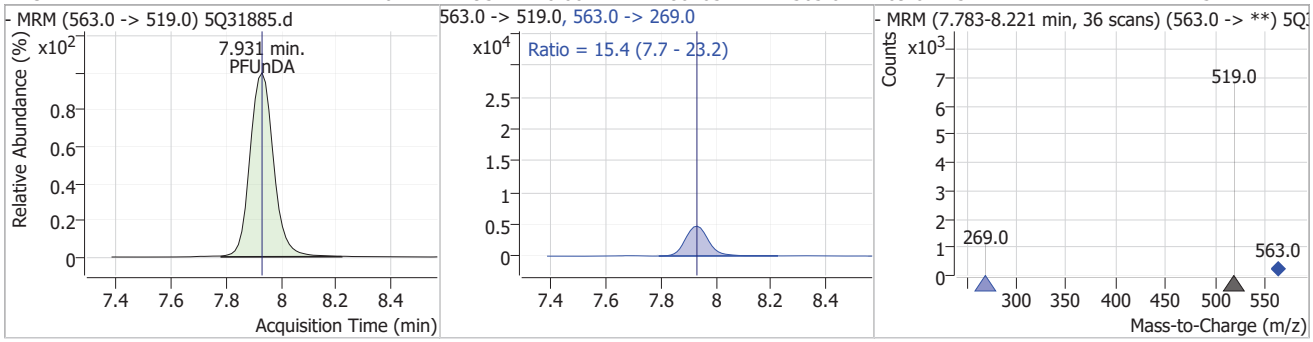
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.02	7.43	0.00	175870	513.0 -> 219.0	17.1	8.5	25.5



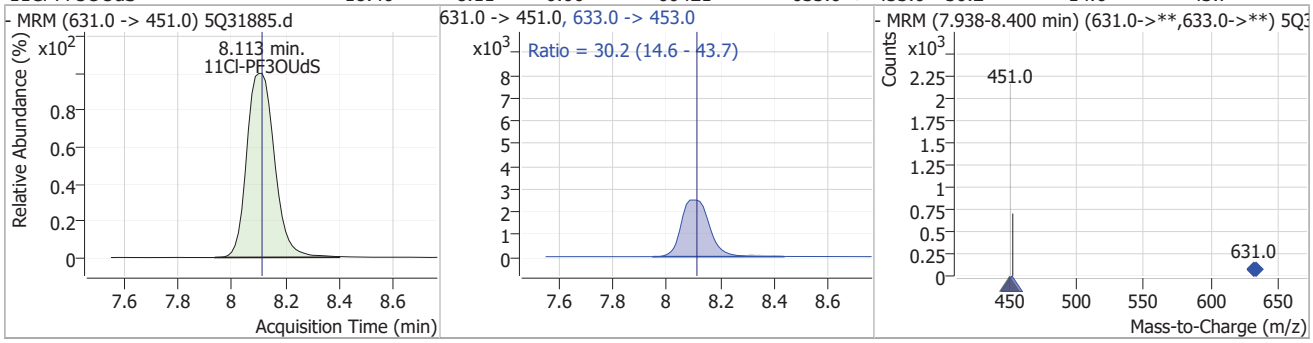
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	23.09	7.47	0.01	109517	527.0 -> 81.0	32.8	16.8	50.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	21.16	7.93	0.00	180205	563.0 -> 269.0	15.4	7.7	23.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	18.46	8.11	0.00	60421	633.0 -> 453.0	30.2	14.6	43.7



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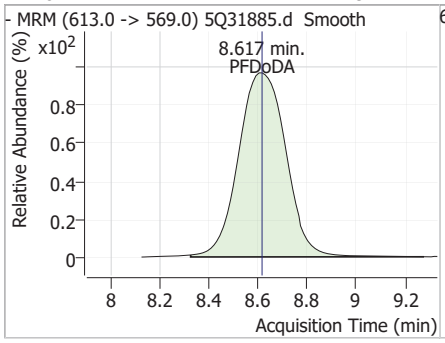
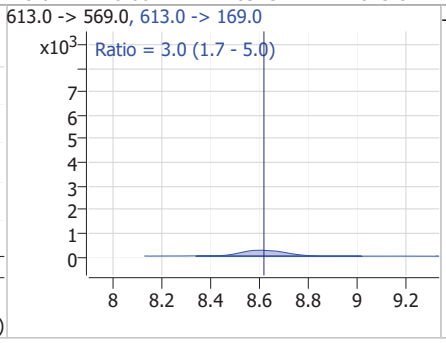
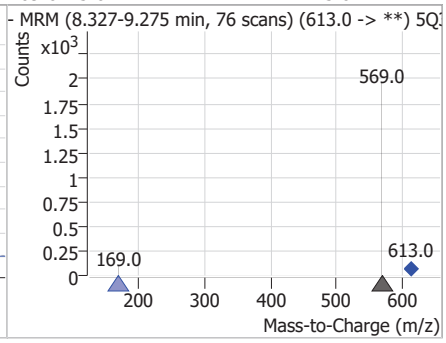
Perfluorinated Compounds by LC/MS/MS

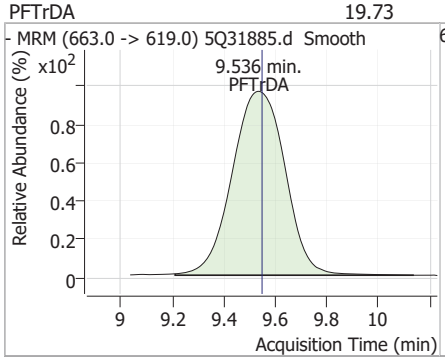
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.77	8.62	0.00	109157	613.0 -> 169.0	3.0	1.7	5.0

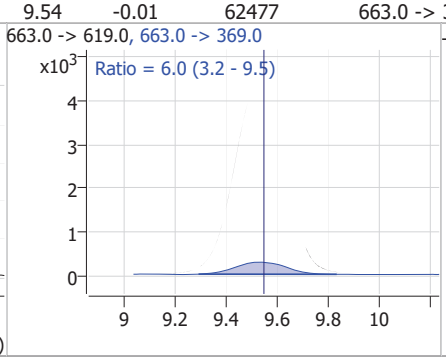


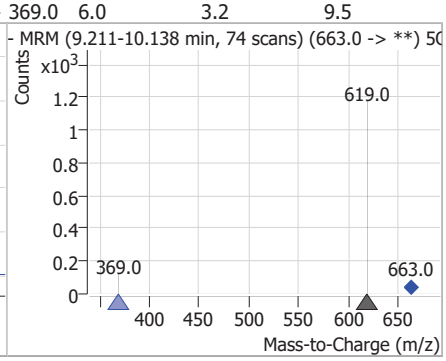




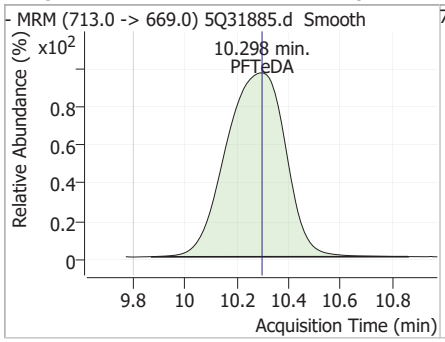
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	19.73	9.54	-0.01	62477	663.0 -> 369.0	6.0	3.2	9.5

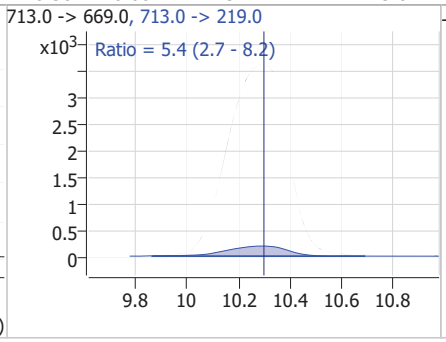


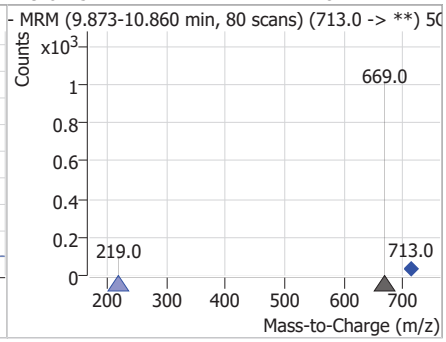




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.44	10.30	0.00	57447	713.0 -> 219.0	5.4	2.7	8.2







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Manual Integration Approval Summary

Sample Number:	S5Q524-ECC524	**Method:**	EPA 537.1 REV 2.0
Lab FileID:	5Q31885.D	**Analyst approved:**	04/21/25 09:54 (b) (6)
Injection Time:	04/18/25 19:25	**Supervisor approved:**	04/21/25 10:51 (b) (6)

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.64	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.86	Split peak
Perfluorononanoic acid	375-95-1		6.89	Split peak
MeFOSAA	2355-31-9		7.24	Split peak
EtFOSAA	2991-50-6		7.38	Split peak

[redacted]

LCMS3-3Q ANALYSIS LOG

DATE:	04/15/25
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS3-3Q

METHODS:	533m
PROC. METH:	533_041525_S3Q1492
CAL DATE:	04/15/25
ANALYST:	[redacted]
RUN BATCH:	S3Q1492

ELUENT A LOT #:	225380 W/0.1% AA 224297
ELUENT B LOT #:	224231 W/0.1% AA 224297
IC/CC STD LOT #:	LCMS 2490 / 2486
ICV STD LOT #:	12339
ISTD/ID STD LOT #:	LCMS2466-G

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Notes
1	3q101452.d	P1-C9	cond std	533.m	Sample		op8141,S3Q1492,250,,,1,1,water	-
2	3q101453.d	P1-C9	cond std	533.m	Sample		op8141,S3Q1492,250,,,1,1,water	-
3	3q101454.d	P1-C9	cond std	533.m	Sample		op8141,S3Q1492,250,,,1,1,water	-
4	3q101455.d	P1-C9	cond std	533.m	Sample		op8141,S3Q1492,250,,,1,1,water	-
5	3q101456.d	P1-C1	ccb	533.m	Sample		op8141,S3Q1492,250,,,1,1,water	-
6	3q101457.d	P1-C1	ic1492-0	533.m	Sample		op8141,S3Q1492,250,,,1,1,water	✓
7	3q101458.d	P1-C2	ic1492-0.5	533.m	Calibration	2.5/500	op8141,S3Q1492,250,,,1,1,water	✓
8	3q101459.d	P1-C3	ic1492-1	533.m	Calibration	5/500	op8141,S3Q1492,250,,,1,1,water	✓
9	3q101460.d	P1-C4	ic1492-2	533.m	Calibration	10/500	op8141,S3Q1492,250,,,1,1,water	✓
10	3q101461.d	P1-C5	ic1492-5	533.m	Calibration	25/500	op8141,S3Q1492,250,,,1,1,water	✓
11	3q101462.d	P1-C6	ic1492-10	533.m	Calibration	50/500	op8141,S3Q1492,250,,,1,1,water	✓
12	3q101463.d	P1-C7	icc1492-20	533.m	Calibration	100/500	op8141,S3Q1492,250,,,1,1,water	✓
13	3q101464.d	P1-C8	ic1492-40	533.m	Calibration	200/500	op8141,S3Q1492,250,,,1,1,water	✓
14	3q101465.d	P1-C9	ic1492-50	533.m	Calibration	250/500	op8141,S3Q1492,250,,,1,1,water	✓
15	3q101466.d	P1-C1	iblk	533.m	Sample		op8141,S3Q1492,250,,,1,1,water	✓
16	3q101467.d	P1-D1	icv1492-20	533.m	QC	5/500	op8141,S3Q1492,250,,,1,1,water	phenova✓
17	3q101468.d	P1-D2	rt	533.m	Sample		op8141,S3Q1492,250,,,1,1,water	✓
18	3q101469.d	P1-C7	cc1492-20	533.m	QC	100/500	op8141,S3Q1492,250,,,1,1,water	✓
19	3q101470.d	P1-C2	cc1492-0.5LL	533.m	QC	2.5/500	op8141,S3Q1492,250,,,1,1,water	✓
20	3q101471.d	P3-B1	op8883-mb	533.m	Sample		op8883,S3Q1492,250,,,1,1,water	rr1x
21	3q101472.d	P3-B2	op8883-bs	533.m	Sample		op8883,S3Q1492,250,,,1,1,water	rr1x
22	3q101473.d	P3-B3	fc23899-1	533.m	Sample		op8883,S3Q1492,280,,,1,1,water	rr1x
23	3q101474.d	P3-B4	op8883-ms	533.m	Sample		op8883,S3Q1492,280,,,1,1,water	rr1x
24	3q101475.d	P3-B5	fc23899-2	533.m	Sample		op8883,S3Q1492,280,,,1,1,water	redo
25	3q101476.d	P3-B6	fc23899-3	533.m	Sample		op8883,S3Q1492,280,,,1,1,water	rr1x
26	3q101477.d	P3-B7	op8883-dup	533.m	Sample		op8883,S3Q1492,280,,,1,1,water	rr1x
27	3q101478.d	P3-B8	fc23899-4	533.m	Sample		op8883,S3Q1492,280,,,1,1,water	redo
28	3q101479.d	P3-B9	fc23838-3	533.m	Sample		op8883,S3Q1492,250,,,1,1,water	redo
29	3q101480.d	P1-C7	ecc1492-20	533.m	QC	100/500	op8141,S3Q1492,250,,,1,1,water	✓
30	3q101481.d	P1-C1	ccb	533.m	Sample		op8141,S3Q1492,250,,,1,1,water	-

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LCMS3-3Q ANALYSIS LOG

DATE:	04/17/25
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS3-3Q

METHODS:	533m
PROC. METH:	533_041525_S3Q1492
CAL DATE:	04/15/25
ANALYST:	[redacted]
RUN BATCH:	S3Q1494

ELUENT A LOT #:	225380 W/0.1% AA 224297
ELUENT B LOT #:	224231 W/0.1% AA 224297
IC/CC STD LOT #:	LCMS 2490 / 2486
ICV STD LOT #:	12339
ISTD/ID STD LOT #:	LCMS2466-G

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Notes
1	3q101513.d	P1-C9	cond std	533.m	Sample		op8907,S3Q1494,250,,,1,1,water	-
2	3q101514.d	P1-C9	cond std	533.m	Sample		op8907,S3Q1494,250,,,1,1,water	-
3	3q101515.d	P1-C8	cond std	533.m	Sample		op8907,S3Q1494,250,,,1,1,water	-
4	3q101516.d	P1-C1	ccb	533.m	Sample		op8907,S3Q1494,250,,,1,1,water	-
5	3q101517.d	P1-C9	high std	533.m	Sample		op8907,S3Q1494,250,,,1,1,water	✓
6	3q101518.d	P1-C1	iblk	533.m	Sample		op8907,S3Q1494,250,,,1,1,water	✓
7	3q101519.d	P1-D2	rt	533.m	Sample		op8907,S3Q1494,250,,,1,1,water	✓
8	3q101520.d	P1-C7	cc1492-20	533.m	QC	100/500	op8907,S3Q1494,250,,,1,1,water	✓
9	3q101521.d	P1-C2	cc1492-0.5LL	533.m	QC	2.5/500	op8907,S3Q1494,250,,,1,1,water	✓
10	3q101522.d	P1-C1	ccb	533.m	Sample		op8907,S3Q1494,250,,,1,1,water	-
11	3q101523.d	P3-B5	fc23899-2	533.m	Sample		op8907,S3Q1494,280,,,1,1,water	✓
12	3q101524.d	P3-C1	op8907-bs:1	533.m	Sample		op8907,S3Q1494,250,,,1,1,water	✓
13	3q101525.d	P3-C2	op8907-mb	533.m	Sample		op8907,S3Q1494,250,,,1,1,water	✓
14	3q101526.d	P3-C3	fc23948-1	533.m	Sample		op8907,S3Q1494,285,,,1,1,water	✓
15	3q101527.d	P3-C4	op8907-ms:1	533.m	Sample		op8907,S3Q1494,285,,,1,1,water	✓
16	3q101528.d	P3-C5	fc23948-2	533.m	Sample		op8907,S3Q1494,270,,,1,1,water	✓
17	3q101529.d	P3-C6	fc23948-3	533.m	Sample		op8907,S3Q1494,285,,,1,1,water	✓
18	3q101530.d	P3-C7	op8907-dup	533.m	Sample		op8907,S3Q1494,285,,,1,1,water	✓
19	3q101531.d	P3-C8	fc23948-4	533.m	Sample		op8907,S3Q1494,285,,,1,1,water	✓
20	3q101532.d	P3-C9	fc23899-4re	533.m	Sample		op8907,S3Q1494,285,,,1,1,water	✓
21	3q101533.d	P1-C7	cc1492-20	533.m	QC	100/500	op8907,S3Q1494,250,,,1,1,water	✓
22	3q101534.d	P3-D1	fc23838-3	533.m	Sample		op8907,S3Q1494,50,,,1,1,water	✓
23	3q101535.d	P3-D2	fc23838-3	533.m	Sample		op8907,S3Q1494,250,,,1,1,water	✓
24	3q101536.d	P1-C7	ecc1492-20	533.m	QC	100/500	op8907,S3Q1494,250,,,1,1,water	✓
25	3q101537.d	P1-C1	ccb	533.m	Sample		op8907,S3Q1494,250,,,1,1,water	-

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LCMS4-4Q ANALYSIS LOG

DATE:	04/23/25
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS4-4Q

METHODS:	537.1 DW
PROC. METH:	537_042325_S4Q1106
CAL DATE:	04/23/25
ANALYST:	[redacted]
RUN BATCH:	S4Q1106

ELUENT A LOT #:	H2O 246908 w 0.1% A.A 224297
ELUENT B LOT #:	MeOH245410 w 0.1% A.A 224297
IC/CC STD LOT #:	LCMS 2516
ICV STD LOT #:	12647A
ISTD/ID STD LOT #:	LCMS 2521

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	4q74355.d	P1-A9	cond std	537.m	Sample		OP8985,S4Q1106,250,,,1.0,1,water	-
2	4q74356.d	P1-A9	cond std	537.m	Sample		OP8985,S4Q1106,250,,,1.0,1,water	-
3	4q74357.d	P1-A9	cond std	537.m	Sample		OP8985,S4Q1106,250,,,1.0,1,water	-
4	4q74358.d	P1-A9	cond std	537.m	Sample		OP8985,S4Q1106,250,,,1.0,1,water	-
5	4q74359.d	P1-A1	ic1106-0	537.m	Sample		OP8985,S4Q1106,250,,,1.0,1,water	Tune file ✓
6	4q74360.d	P1-A2	ic1106-0.5	537.m	Calibration	2.5/500	OP8985,S4Q1106,250,,,1.0,1,water	pass +/-50%✓
7	4q74361.d	P1-A3	ic1106-1	537.m	Calibration	5/500	OP8985,S4Q1106,250,,,1.0,1,water	✓
8	4q74362.d	P1-A4	ic1106-2	537.m	Calibration	10/500	OP8985,S4Q1106,250,,,1.0,1,water	✓
9	4q74363.d	P1-A5	ic1106-5	537.m	Calibration	25/500	OP8985,S4Q1106,250,,,1.0,1,water	✓
10	4q74364.d	P1-A6	ic1106-10	537.m	Calibration	50/500	OP8985,S4Q1106,250,,,1.0,1,water	✓
11	4q74365.d	P1-A7	icc1106-20	537.m	Calibration	100/500	OP8985,S4Q1106,250,,,1.0,1,water	✓
12	4q74366.d	P1-A8	ic1106-50	537.m	Calibration	250/500	OP8985,S4Q1106,250,,,1.0,1,water	✓
13	4q74367.d	P1-A9	ic1106-100	537.m	Calibration	1X	OP8985,S4Q1106,250,,,1.0,1,water	✓
14	4q74368.d	P1-B2	RT	537.m	Sample		OP8985,S4Q1106,250,,,1.0,1,water	✓
15	4q74369.d	P1-B1	icv1106-20	537.m	QC	10/500	OP8985,S4Q1106,250,,,1.0,1,water	tri, teda, pfoa targets high✓
16	4q74370.d	P1-A7	cc1106-20	537.m	QC	100/500	OP8985,S4Q1106,250,,,1.0,1,water	✓
17	4q74371.d	P1-A2	cc1106-0.5LL	537.m	QC	2.5/500	OP8985,S4Q1106,250,,,1.0,1,water	✓
18	4q74372.d	P4-A1	op8985-bs	537.m	Sample		OP8985,S4Q1106,250,,,1.0,1,water	tri, teda targets low; ,gen x target high ✓
19	4q74373.d	P4-A2	op8985-mb	537.m	Sample		OP8985,S4Q1106,250,,,1.0,1,water	✓
20	4q74374.d	P4-A3	fc23948-1A	537.m	Sample		OP8985,S4Q1106,280,,,1.0,1,water	✓
21	4q74375.d	P4-A4	fc23838-3	537.m	Sample		OP8985,S4Q1106,250,,,1.0,1,water	rr1x on 3q BS/ICV failure
22	4q74376.d	P4-A5	fc24082-1A	537.m	Sample		OP8985,S4Q1106,260,,,1.0,1,water	rr1x on 3q BS/ICV failure
23	4q74377.d	P4-A6	fc24082-2A	537.m	Sample		OP8985,S4Q1106,280,,,1.0,1,water	rr1x on 3q BS/ICV failure
24	4q74378.d	P4-A7	fc24082-3A	537.m	Sample		OP8985,S4Q1106,280,,,1.0,1,water	rr1x on 3q BS/ICV failure
25	4q74379.d	P4-A8	op8985-ms	537.m	Sample		OP8985,S4Q1106,280,,,1.0,1,water	rr1x on 3q BS/ICV failure
26	4q74380.d	P4-A9	op8985-msd	537.m	Sample		OP8985,S4Q1106,280,,,1.0,1,water	rr1x on 3q BS/ICV failure
27	4q74381.d	P4-B1	fc24082-4A	537.m	Sample		OP8985,S4Q1106,280,,,1.0,1,water	rr1x on 3q BS/ICV failure
28	4q74382.d	P1-A7	ecc1106-20	537.m	QC	100/500	OP8985,S4Q1106,250,,,1.0,1,water	✓
29	4q74383.d	P1-A1	ccb	537.m	Sample		OP8985,S4Q1106,250,,,1.0,1,water	✓
30	4q74384.d	P4-B2	fc24082-5A	537.m	Sample		OP8985,S4Q1106,280,,,1.0,1,water	rr1x on 3q
31	4q74385.d	P4-B3	op8964-bs	537.m	Sample		OP8964,S4Q1106,250,,,1.0,1,water	rr1x on 3q
32	4q74386.d	P4-B4	op8964-mb	537.m	Sample		OP8964,S4Q1106,250,,,1.0,1,water	rr1x on 3q

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LCMS4-4Q ANALYSIS LOG

33	4q74387.d	P4-B5	fc23822-1	537.m	Sample		OP8964,S4Q1106,270,,,1.0,1,water	rr1x on 3q
34	4q74388.d	P4-B6	op8964-ms1	537.m	Sample		OP8964,S4Q1106,275,,,1.0,1,water	rr1x on 3q
35	4q74389.d	P4-B7	op8964-msd1	537.m	Sample		OP8964,S4Q1106,270,,,1.0,1,water	rr1x on 3q
36	4q74390.d	P4-B8	fc23822-2	537.m	Sample		OP8964,S4Q1106,280,,,1.0,1,water	rr1x on 3q
37	4q74391.d	P4-B9	fc23822-3	537.m	Sample		OP8964,S4Q1106,280,,,1.0,1,water	rr1x on 3q
38	4q74392.d	P4-C1	fc23822-4	537.m	Sample		OP8964,S4Q1106,280,,,1.0,1,water	rr1x on 3q
39	4q74393.d	P1-A8	cc1106-50	537.m	QC	250/500	OP8985,S4Q1106,250,,,1.0,1,water	rr1x on 3q
40	4q74394.d	P1-A1	ccb	537.m	Sample		OP8985,S4Q1106,250,,,1.0,1,water	rr1x on 3q
41	4q74395.d	P4-C2	fc23824-1	537.m	Sample		OP8964,S4Q1106,275,,,1.0,1,water	rr1x on 3q
42	4q74396.d	P4-C3	op8964-ms2	537.m	Sample		OP8964,S4Q1106,275,,,1.0,1,water	rr1x on 3q
43	4q74397.d	P4-C4	op8964-msd2	537.m	Sample		OP8964,S4Q1106,275,,,1.0,1,water	rr1x on 3q
44	4q74398.d	P4-C5	fc23824-2	537.m	Sample		OP8964,S4Q1106,275,,,1.0,1,water	rr1x on 3q
45	4q74399.d	P4-C6	fc23824-3	537.m	Sample		OP8964,S4Q1106,280,,,1.0,1,water	rr1x on 3q
46	4q74400.d	P4-C7	fc23824-4	537.m	Sample		OP8964,S4Q1106,275,,,1.0,1,water	rr1x on 3q
47	4q74401.d	P4-C8	fc24027-1a	537.m	Sample		OP8964,S4Q1106,265,,,1.0,1,water	rr1x on 3q
48	4q74402.d	P4-C9	fc24027-2a	537.m	Sample		OP8964,S4Q1106,275,,,1.0,1,water	rr1x on 3q
49	4q74403.d	P4-D1	fc24027-3a	537.m	Sample		OP8964,S4Q1106,275,,,1.0,1,water	rr1x on 3q
50	4q74404.d	P4-D2	fc24027-4a	537.m	Sample		OP8964,S4Q1106,275,,,1.0,1,water	rr1x on 3q
51	4q74405.d	P1-A7	cc1106-20	537.m	QC	100/500	OP8985,S4Q1106,250,,,1.0,1,water	rr1x on 3q
52	4q74406.d	P1-A1	ccb	537.m	Sample		OP8985,S4Q1106,250,,,1.0,1,water	rr1x on 3q
53	4q74407.d	P4-D3	op9009-bs	537.m	Sample		OP9009,S4Q1106,250,,,1.0,1,water	rr1x on 3q
54	4q74408.d	P4-D4	op9009-mb	537.m	Sample		OP9009,S4Q1106,250,,,1.0,1,water	rr1x on 3q
55	4q74409.d	P4-D5	fc23859-1	537.m	Sample		OP9009,S4Q1106,280,,,1.0,1,water	rr1x on 3q
56	4q74410.d	P4-D6	op9009-ms1	537.m	Sample		OP9009,S4Q1106,280,,,1.0,1,water	rr1x on 3q
57	4q74411.d	P4-D7	op9009-msd1	537.m	Sample		OP9009,S4Q1106,280,,,1.0,1,water	rr1x on 3q
58	4q74412.d	P4-D8	fc23859-2	537.m	Sample		OP9009,S4Q1106,280,,,1.0,1,water	rr1x on 3q
59	4q74413.d	P4-D9	fc23859-3	537.m	Sample		OP9009,S4Q1106,280,,,1.0,1,water	rr1x on 3q
60	4q74414.d	P4-E1	fc23859-4	537.m	Sample		OP9009,S4Q1106,280,,,1.0,1,water	rr1x on 3q
61	4q74415.d	P1-A8	cc1106-50	537.m	QC	250/500	OP8985,S4Q1106,250,,,1.0,1,water	rr1x on 3q
62	4q74416.d	P1-A1	ccb	537.m	Sample		OP8985,S4Q1106,250,,,1.0,1,water	rr1x on 3q
63	4q74417.d	P4-E2	fc23861-1	537.m	Sample		OP9009,S4Q1106,280,,,1.0,1,water	rr1x on 3q
64	4q74418.d	P4-E3	op9009-ms2	537.m	Sample		OP9009,S4Q1106,280,,,1.0,1,water	rr1x on 3q
65	4q74419.d	P4-E4	op9009-msd2	537.m	Sample		OP9009,S4Q1106,280,,,1.0,1,water	rr1x on 3q
66	4q74420.d	P4-E5	fc23861-2	537.m	Sample		OP9009,S4Q1106,280,,,1.0,1,water	rr1x on 3q
67	4q74421.d	P4-E6	fc23861-3	537.m	Sample		OP9009,S4Q1106,280,,,1.0,1,water	rr1x on 3q
68	4q74422.d	P4-E7	fc23861-4	537.m	Sample		OP9009,S4Q1106,280,,,1.0,1,water	rr1x on 3q
69	4q74423.d	P1-A7	ecc1106-20	537.m	QC	100/500	OP8985,S4Q1106,250,,,1.0,1,water	rr1x on 3q
70	4q74424.d	P1-A1	ccb	537.m	Sample		OP8985,S4Q1106,250,,,1.0,1,water	rr1x on 3q
71	4q74425.d	P1-B3	test	537.m	Sample		OP9009,S4Q1106,280,,,1.0,1,water	rr1x on 3q

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LCMS2-2Q ANALYSIS LOG

DATE:	04/17/25
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS5-5Q

METHODS:	537 DW
PROC. METH:	537_041725_s5q523
CAL DATE:	04/17/25
ANALYST:	[redacted]
RUN BATCH:	S5Q523

ELUENT A LOT #:	H2O lot:250105 w 0.1% A.A lot:224297
ELUENT B LOT #:	MeOH:222643 w 0.1% AA:224297
IC/CC STD LOT #:	LCMS 2484
ICV STD LOT #:	12647A tpfoa:2491
ISTD/ID STD LOT #:	LCMS2492

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	5Q31816.d	P1-A8	cond std	537.m	Sample		OP8882,S5Q523,250,,,1,1,water	-
2	5Q31817.d	P1-A8	cond std	537.m	Sample		OP8882,S5Q523,250,,,1,1,water	-
3	5Q31818.d	P2-F2	bs dw test	537.m	Sample		OP8882,S5Q523,250,,,1,1,water	✓
4	5Q31819.d	P1-A1	ic523-0	537.m	Sample		OP8882,S5Q523,250,,,1,1,water	Tune File
5	5Q31820.d	P1-A2	ic523-0.5	537.m	Calibration	2.5/500	OP8882,S5Q523,250,,,1,1,water	pass +/-50%
6	5Q31821.d	P1-A3	ic523-1	537.m	Calibration	5/500	OP8882,S5Q523,250,,,1,1,water	✓
7	5Q31822.d	P1-A4	ic523-2	537.m	Calibration	10/500	OP8882,S5Q523,250,,,1,1,water	✓
8	5Q31823.d	P1-A5	ic523-5	537.m	Calibration	20/500	OP8882,S5Q523,250,,,1,1,water	✓
9	5Q31824.d	P1-A6	ic523-10	537.m	Calibration	50/500	OP8882,S5Q523,250,,,1,1,water	✓
10	5Q31825.d	P1-A7	icc523-20	537.m	Calibration	100/500	OP8882,S5Q523,250,,,1,1,water	✓
11	5Q31826.d	P1-A8	ic523-50	537.m	Calibration	250/500	OP8882,S5Q523,250,,,1,1,water	✓
12	5Q31827.d	P1-A9	ic523-100	537.m	Calibration	1x	OP8882,S5Q523,250,,,1,1,water	✓
13	5Q31828.d	P1-B1	icv523-20	537.m	QC	10/500	OP8882,S5Q523,250,,,1,1,water	par30✓
14	5Q31829.d	P1-B2	rt	537.m	Sample		OP8882,S5Q523,250,,,1,1,water	✓
15	5Q31830.d	P1-A7	cc523-20	537.m	QC	100/500	OP8882,S5Q523,250,,,1,1,water	✓
16	5Q31831.d	P1-A2	cc523-0.5LL	537.m	QC	2.5/500	OP8882,S5Q523,250,,,1,1,water	✓
17	5Q31832.d	P2-E1	op8904-bs	537.m	Sample		OP8904,S5Q523,250,,,1,1,water	rr1x tri, teda, doda targets low
18	5Q31833.d	P2-E2	op8904-mb	537.m	Sample		OP8904,S5Q523,250,,,1,1,water	rr1x bs targets low
19	5Q31834.d	P2-E3	fc23797-1are	537.m	Sample		OP8904,S5Q523,280,,,1,1,water	✓
20	5Q31835.d	P2-E4	fc23948-1a	537.m	Sample		OP8904,S5Q523,280,,,1,1,water	rr1x bs targets low, sample eis high
21	5Q31836.d	P2-E5	fc23948-2a	537.m	Sample		OP8904,S5Q523,285,,,1,1,water	rr1x bs targets low, sample eis high
22	5Q31837.d	P2-E6	fc23948-3a	537.m	Sample		OP8904,S5Q523,285,,,1,1,water	rr1x bs targets low, sample eis high
23	5Q31838.d	P2-E7	op8904-ms	537.m	Sample		OP8904,S5Q523,280,,,1,1,water	rr1x bs targets low, sample eis high
24	5Q31839.d	P2-E8	fc23948-4a	537.m	Sample		OP8904,S5Q523,280,,,1,1,water	rr1x bs targets low, sample eis high
25	5Q31840.d	P2-E9	op8904-dup	537.m	Sample		OP8904,S5Q523,280,,,1,1,water	rr1x bs targets low, sample eis high
26	5Q31841.d	P2-F1	fc23899-4are	537.m	Sample		OP8904,S5Q523,280,,,1,1,water	✓
27	5Q31842.d	P1-A7	ecc523-20	537.m	QC	100/500	OP8882,S5Q523,250,,,1,1,water	✓
28	5Q31843.d	P1-A1	ccb	537.m	Sample		OP8882,S5Q523,250,,,1,1,water	-

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LCMS2-2Q ANALYSIS LOG

DATE:	04/18/25
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS5-5Q

METHODS:	537 DW
PROC. METH:	537_041825_s5q524
CAL DATE:	04/18/25
ANALYST:	[redacted]L
RUN BATCH:	S5Q524

ELUENT A LOT #:	H2O lot:250105 w 0.1% A.A lot:224297
ELUENT B LOT #:	MeOH:222643 w 0.1% AA:224297
IC/CC STD LOT #:	LCMS 2484
ICV STD LOT #:	12647A tpfoa:2491
ISTD/ID STD LOT #:	LCMS2492

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	5Q31859.d	P1-A8	cond std	537.m	Sample		OP8882,S5Q524,250,,,1,1,water	-
2	5Q31860.d	P1-A8	cond std	537.m	Sample		OP8882,S5Q524,250,,,1,1,water	-
3	5Q31861.d	P1-C1	lcms 2514	537.m	Sample		OP8882,S5Q524,250,,,1,1,water	✓
4	5Q31862.d	P1-C2	lcms 2515	537.m	Sample		OP8882,S5Q524,250,,,1,1,water	✓
5	5Q31863.d	P1-C3	lcms 2516	537.m	Sample		OP8882,S5Q524,250,,,1,1,water	✓
6	5Q31864.d	P1-A1	ic524-0	537.m	Sample		OP8882,S5Q524,250,,,1,1,water	Tune File
7	5Q31865.d	P1-A2	ic524-0.5	537_5Q.m	Calibration	2.5/500	OP8882,S5Q524,250,,,1,1,water	pass +/-50✓
8	5Q31866.d	P1-A3	ic524-1	537_5Q.m	Calibration	5/500	OP8882,S5Q524,250,,,1,1,water	etfosaa accuracy low, pass +/-50%
9	5Q31867.d	P1-A4	ic524-2	537_5Q.m	Calibration	10/500	OP8882,S5Q524,250,,,1,1,water	✓
10	5Q31868.d	P1-A5	ic524-5	537_5Q.m	Calibration	20/500	OP8882,S5Q524,250,,,1,1,water	✓
11	5Q31869.d	P1-A6	ic524-10	537_5Q.m	Calibration	50/500	OP8882,S5Q524,250,,,1,1,water	✓
12	5Q31870.d	P1-A7	icc524-20	537_5Q.m	Calibration	100/500	OP8882,S5Q524,250,,,1,1,water	✓
13	5Q31871.d	P1-A8	ic524-50	537_5Q.m	Calibration	250/500	OP8882,S5Q524,250,,,1,1,water	✓
14	5Q31872.d	P1-A9	ic524-100	537_5Q.m	Calibration	1x	OP8882,S5Q524,250,,,1,1,water	etfosaa target dropped ✓
15	5Q31873.d	P1-B1	icv524-20	537_5Q.m	QC	10/500	OP8882,S5Q524,250,,,1,1,water	par30✓
16	5Q31874.d	P1-B2	rt	537_5Q.m	Sample		OP8882,S5Q524,250,,,1,1,water	✓
17	5Q31875.d	P1-A7	cc524-20	537_5Q.m	QC	100/500	OP8882,S5Q524,250,,,1,1,water	✓
18	5Q31876.d	P1-A2	cc524-0.5LL	537_5Q.m	QC	2.5/500	OP8882,S5Q524,250,,,1,1,water	pass +/-50✓
19	5Q31877.d	P2-E1	op8904-bs	537_5Q.m	Sample		OP8904,S5Q524,250,,,1,1,water	tri, teda targets low, eis high ✓
20	5Q31878.d	P2-E2	op8904-mb	537_5Q.m	Sample		OP8904,S5Q524,250,,,1,1,water	eis high ✓
21	5Q31879.d	P2-E4	fc23948-1a	537_5Q.m	Sample		OP8904,S5Q524,280,,,1,1,water	redo
22	5Q31880.d	P2-E5	fc23948-2a	537_5Q.m	Sample		OP8904,S5Q524,285,,,1,1,water	redo
23	5Q31881.d	P2-E6	fc23948-3a	537_5Q.m	Sample		OP8904,S5Q524,285,,,1,1,water	✓
24	5Q31882.d	P2-E7	op8904-ms	537_5Q.m	Sample		OP8904,S5Q524,280,,,1,1,water	✓
25	5Q31883.d	P2-E8	fc23948-4a	537_5Q.m	Sample		OP8904,S5Q524,280,,,1,1,water	✓
26	5Q31884.d	P2-E9	op8904-dup	537_5Q.m	Sample		OP8904,S5Q524,280,,,1,1,water	✓
27	5Q31885.d	P1-A7	ecc524-20	537_5Q.m	QC	100/500	OP8882,S5Q524,250,,,1,1,water	✓
28	5Q31886.d	P1-A1	ccb	537_5Q.m	Sample		OP8882,S5Q524,250,,,1,1,water	-

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Organic Standards Preparation Log

[redacted] Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2486	533 Injection STD	12442	M3 PFBA	[redacted]	1/24/29	3/6/26	50 ppm	80uL	4.0mL	1.0ppm	95% MeOH 5% H2O	3/6/25	9/6/25	[redacted]
↓	↓	10498B	MPFOS		11/2/25	11/2/25	↓	↓	↓	↓	↓	↓	↓	
↓	↓	12421	M2 PFOA		2/21/29	3/6/26	↓	↓	↓	↓	↓	↓	↓	
LCMS 2487A-E	1633 spike Cal std.	LCMS 2463	Br-LN me-Et Fosa/Fose		—	7/27/25	2/5 ppm	250NL	4mL	125 312.5 ppb	1633 mix (2688NL)	3/9/25	7/27/25	
↓	↓	12952A	PFAC MxH		11-12-29	3-9-26	1-4 ppb	↓	↓	62.5 125 250ppb	↓	↓	↓	
↓	↓	12953A	PFAC MxF		9-6-28	3-9-26	2 ppb	↓	↓	125ppb	↓	↓	↓	
↓	↓	12954A	PFAC MxG		10-2-29	3-9-26	2ppb	↓	↓	125ppb	↓	↓	↓	
↓	↓	12973C 12983A	PFAC MxJ		7-11-29	3-9-26	4-20 ppm	312NL	↓	312 1160ppb	↓	↓	↓	
LCMS 2488	PFC Id std.	12869A	PFOA DOD28		11/15/29	1/14/26	1.0ppm	400µL	4mL	100ppb	95% MeOH 5% H2O	3/11/25	7/17/25	
↓	↓	12186A	N-MeFOSA-M		8/11/28	7/17/25	50ppm	8µL	↓	↓	↓	↓	↓	
↓	↓	12920	FBSA1		1/10/29	1/14/26	↓	↓	↓	↓	↓	↓	↓	
↓	↓	12921	FHXSA-1		4/17/29	1/14/26	↓	↓	↓	↓	↓	↓	↓	
↓	↓	12274A	PF ECHS		12/5/28	8/12/25	↓	↓	↓	↓	↓	↓	↓	
LCMS 2489	533 STD	12447B	533 cal STD		01/17/29	3/14/26 ~~03/14~~ JL	2ppm	200uL	4mL	100ppb	80% MeOH 20% H2O	3.14.25	9.14.25	JL 3/14/25
LCMS 2490	533 STD	12447B	533 cal STD		01/17/29	03/14/26	2ppm	200uL	4mL	100ppb	80% MeOH 20% H2O	3.14.25	9.14.25	
LCMS 2491	T-PFOA STD (RT)	12422	T-PFOA		2/21/29	3/14/26	50ppm	8uL	4mL	100ppb	95% MeOH 5% H2O	3.14.25	9.14.25	

* based on date opened as specified in each [redacted] SOP.

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(b) (4) (b) (6)

(b) (4)

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Organic Standards Preparation Log

[redacted] Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMD 2463A-J	1633 spike Cal. std.	2453B	Br-LN me-Et FOSA/FOSE	[redacted] (b) (4)	—	7/2/25	2/5 ppm	250NL	4mL	125 312.5 ppb	1633 mix	1/24/25	7/2/25	[redacted] (b) (6)
2464A-J		12880B 12909AB	PFAC MxH		4.2.29	1/7/26 1/26/26	1-4 ppm			62.5 125 250 ppb	(2688NL)			
		12866B 12910A-B	PFAC MxF		9.6.28	1/7/26 1/26/26	2 ppb			125ppb				
		12843C 12882A-B	PFAC MxG		10.2.29	1/7/26 1/26/26	2ppb			125ppb				
		12917C 12934A-C	PFAC MxJ		7.11.29	1/21/26 1/26/26	4-20 ppm	312NL		312 1160ppb				
LCMP 2465	Br-LN fur spike me,Et FOSA me,Et FOSE	12546A	br-N MeFOSA		8.23.27	1/3/26	50ppm	200NL	5mL	2ppm	1633 mix (3600NL)	01/27/25	7/27/25	
		12547B	br-N EtFOSA		10.7.27	1/3/26		200NL		2ppm				
		12935B	br-N MeFOSE		4.19.29	1/27/26		500NL		5ppm				
		12936B	br-N EtFOSE		4.19.29	1/27/26		500NL		5ppm				
LCMS 2466A-J	PFC IO Surr	12879 A-J	MPFAC-24ES		05/02/29	~~01/02/25~~ 02/02/26	1.0ppm	1.2mL	~2.5mL	0.5ppm	95% MeOH 5% H_2O	02/24/25	08/02/25	[redacted] (b) (6) 02/02/25
		12645B	M3HFPO-DA		06/10/27	10/17/25	50ppm	24µL						
		12646A	d-N-MeFOSA-M		06/19/29	09/16/25								

COUT on next page [redacted] (b) (6) 02/04/25

* based on date opened as specified in each [redacted] (b) (4) SOP.

ORLD-QAC-0017-6-03-FORM-lcms std prep log.xls 030819

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1.	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	4185	11ClPF3OUdS			0.017			
2.	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)		9ClPF3ONS1023	0.043	2.15	0.017			
	Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA1223	0.042	2.12	0.017			
4.	Perfluoro(2-methyl-3-oxahexanoic) acid (HFPO-DA)	99666	121923	0.04	2.00	0.017	50.2	2.00	0.04
5.	Perfluoro-3,6-dioxaheptanoic acid (NFDHA)	4448	36OPFHpA0323	0.04	2.00	0.017	50.0	2.00	0.04
	Perfluoro-n-butanoic acid (PFBA)	64459	030720	0.02	1.00	0.004	100.2	2.00	0.04
7.	Perfluorobutanesulfonic acid (PFBS)	99194	100523	0.04	2.00	0.017	50.2	2.01	0.04
8.	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	67398	090823	0.040	2.00	0.0			
	Perfluorodecanoic acid (PFDA)	99195	100523	0.04	2.00	0.0			
10.	Perfluorododecanoic acid (PFDoA)	99196	052423	0.04	2.00	0.0			
11.	Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	65587	090723	0.040	2.00	0.0			
	Perfluoro-1-heptanesulfonic acid (PFHpS)	3672	LPFHpS0923	0.042	2.10	0.0			
	Perfluoroheptanoic acid (PFHpA)	99197	110923	0.04	2.00	0.0			
14.	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	65271	063023	0.04	2.00	0.0			
15.	Perfluoro-1-hexanesulfonic acid (br-PFHxS)*	99198							
	Perfluorohexanoic acid (PFHxA)	99199							
17.	Perfluoro-4-oxapentanoic acid (PF4OPaA; PFMPA)	65439							
	Perfluoro-5-oxahexanoic acid (PF5OHxA; PFMBA)	65440							
	Perfluorononanoic acid (PFNA)	99200							
20.	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	65272							
	Heptadecafluorooctanesulfonic acid (br-PFOS)*	99201							
	Perfluorooctanoic acid (br-PFOA)*	64458							
	Perfluoro-n-pentanoic acid (PFPeA)	99543							
	Perfluoro-1-pentanesulfonic acid (PFPeS)								

Perfluoro-1-hexanesulfonic acid (linear)*	[illegible]								
Perfluoro-1-hexanesulfonic acid (branched isomer)*	[illegible]								
Heptadecafluorooctanesulfonic acid (linear)*	99201								
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201								
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201								
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201								

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rec'd: 05/07/24

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CERTIFICATE OF ANALYSIS

DOCUMENTATION

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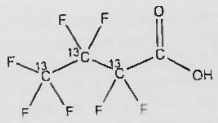
PRODUCT CODE:	M3PFBA	**LOT NUMBER:**	M3PFBA0124
COMPOUND:	Perfluoro-n-(2,3,4-$^{13}C_3$)butanoic acid		
		CAS #:	Not available

STRUCTURE:



MOLECULAR FORMULA:	$^{13}C_3{}^{2}CHF_7O_2$	**MOLECULAR WEIGHT:**	217.02
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C
LAST TESTED: (mm/dd/yyyy)	01/24/2024		
EXPIRY DATE: (mm/dd/yyyy)	01/24/2029		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~0.2% of perfluoro-n-($^{13}C_3$)propanoic acid, and also contains ~1.0% of perfluoro-n-($^{13}C_4$)butanoic acid (MPFBA) due to the naturally occurring isotopic abundance of ^{13}C in the unlabelled carbon atom.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) **Date:** 01/25/2024 (mm dd/yyyy)

B.G. Smith, General Manager

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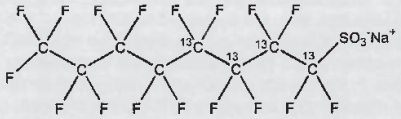
(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFOS	**LOT NUMBER:**	MPFOS1020
COMPOUND:	Sodium perfluoro-1-[1,2,3,4-$^{13}C_4$]octanesulfonate		
STRUCTURE:		**CAS #:**	960315-53-1



MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_4F_{17}SO_3Na$	**MOLECULAR WEIGHT:**	526.08
CONCENTRATION:	50.0 ± 2.5 µg/mL (Na salt) 47.9 ± 2.4 µg/mL (MPFOS acid) 47.8 ± 2.4 µg/mL (MPFOS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2,3,4\text{-}^{13}C_4$)
LAST TESTED: (mm/dd/yyyy)	11/02/2020		
EXPIRY DATE: (mm/dd/yyyy)	11/02/2025		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~0.4% sodium perfluoro-1-[1,2,3-$^{13}C_3$]heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified B (b) (6) er **Date:** 11/03/2020 (mm/dd/yyyy)

(b) (4)

Form#:27, Issued 2004-11
Revision#:8, Revised 2020-09-10

MPFOS1020 (1 of 4)
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recd: 04/25/24

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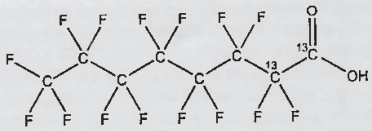
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M2PFOA
COMPOUND: Perfluoro-n-(1,2-$^{13}C_2$)octanoic acid

LOT NUMBER: M2PFOA0224

CAS #: 864071-08-9

STRUCTURE:



MOLECULAR FORMULA: $^{13}C_2{}^{12}C_6HF_{15}O_2$
CONCENTRATION: 50.0 ± 2.5 µg/mL

MOLECULAR WEIGHT: 416.05
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
ISOTOPIC PURITY: ≥99% ^{13}C

LAST TESTED: (mm/dd/yyyy) 02/21/2024
EXPIRY DATE: (mm/dd/yyyy) 02/21/2029
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) **Date:** 03/06/2024 (mm/dd/yyyy)

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rec'd: 11/26/24

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

MPFAC-24ES

Mass-Labelled PFAS
Extraction Standard Solution

PRODUCT CODE:	MPFAC-24ES
LOT NUMBER:	MPFAC24ES0424
SOLVENT(S):	Methanol/Isopropanol (2%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	04/30/2024
LAST TESTED: (mm/dd/yyyy)	05/02/2024
EXPIRY DATE: (mm/dd/yyyy)	05/02/2029
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

MPFAC-24ES is a solution/mixture of mass-labelled (^{13}C) perfluoroalkylcarboxylic acids (C_4-C_{12} and C_{14}), mass-labelled (^{13}C) perfluoroalkanesulfonates (C_4, C_6, and C_8), mass-labelled (^{13}C) telomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (^{2}H) perfluorooctanesulfonamidoacetic acids, and perfluoro-1-($^{13}C_8$)octanesulfonamide. The components and their concentrations are given in Table A.

The individual ^{13}C-labelled perfluoroalkylcarboxylic acids, ^{13}C-labelled perfluoroalkanesulfonates, ^{13}C-labelled telomer sulfonates, and perfluoro-1-($^{13}C_8$)octanesulfonamide all have chemical purities of >98% and isotopic purities of ≥99%. The individual ^{2}H-labelled perfluorooctanesulfonamidoacetic acids all have chemical purities of >98% and isotopic purities of ≥98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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(b) (4)

Table A: **MPFAC-24ES; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))**

Compound	Acronym	Concentration (ng/mL)	Peak Assignment in Figure 1
Perfluoro-n-($^{13}C_4$)butanoic acid	MPFBA	1000	A
Perfluoro-n-($^{13}C_5$)pentanoic acid	M5PFPeA	1000	B
Perfluoro-n-(1,2,3,4,6-$^{13}C_5$)hexanoic acid	M5PFHxA	1000	E
Perfluoro-n-(1,2,3,4-$^{13}C_4$)heptanoic acid	M4PFHpA	1000	F
Perfluoro-n-($^{13}C_8$)octanoic acid	M8PFOA	1000	I
Perfluoro-n-($^{13}C_9$)nonanoic acid	M9PFNA	1000	J
Perfluoro-n-(1,2,3,4,5,6-$^{13}C_6$)decanoic acid	M6PFDA	1000	M
Perfluoro-n-(1,2,3,4,5,6,7-$^{13}C_7$)undecanoic acid	M7PFUdA	1000	Q
Perfluoro-n-(1,2-$^{13}C_2$)dodecanoic acid	MPFDoA	1000	R
Perfluoro-n-(1,2-$^{13}C_2$)tetradecanoic acid	M2PFTeDA	1000	S
Perfluoro-1-($^{13}C_8$)octanesulfonamide	M8FOSA	1000	P
N-Methyl-d_3-perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000	N
N-Ethyl-d_5-perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000	O

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-(2,3,4-$^{13}C_3$)butanesulfonate	M3PFBS	1000	932	C
Sodium perfluoro-1-(1,2,3-$^{13}C_3$)hexanesulfonate	M3PFHxS	1000	948	G
Sodium perfluoro-1-($^{13}C_8$)octanesulfonate	M8PFOS	1000	959	K
Sodium 1H,1H,2H,2H-perfluoro-1-(1,2-$^{13}C_2$)hexanesulfonate	M2-4:2FTS	1000	938	D
Sodium 1H,1H,2H,2H-perfluoro-1-(1,2-$^{13}C_2$)octanesulfonate	M2-6:2FTS	1000	951	H
Sodium 1H,1H,2H,2H-perfluoro-1-(1,2-$^{13}C_2$)decanesulfonate	M2-8:2FTS	1000	960	L

* Concentrations have been rounded to three significant figures.

Certified By: (b) (6) ager **Date:** 05/15/2024 (mm/dd/yyyy)

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recd: 07/27/24

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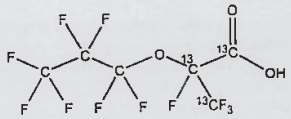
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M3HFPO-DA
LOT NUMBER:	M3HFPODA0624
COMPOUND:	$^{13}C_3$-Hexafluoropropylene oxide dimer acid
IUPAC NAME:	2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)($^{13}C_3$)propanoic acid
STRUCTURE:	
CAS #:	Not available



MOLECULAR FORMULA:	$^{13}C_3{}^{12}C_3HF_{11}O_3$
MOLECULAR WEIGHT:	333.03
CONCENTRATION:	50.0 ± 2.5 µg/mL
SOLVENT(S):	Methanol
CHEMICAL PURITY:	>98%
ISOTOPIC PURITY:	≥99% ^{13}C
LAST TESTED: (mm/dd/yyyy)	06/10/2024
EXPIRY DATE: (mm/dd/yyyy)	06/10/2027
RECOMMENDED STORAGE:	Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- This product is commercially known as $^{13}C_3$-GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6)

Date: 06/11/2024 (mm/dd/yyyy)

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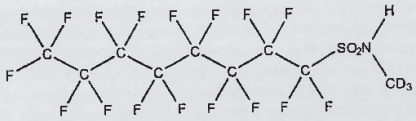
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	d-N-MeFOSA-M	**LOT NUMBER:**	dNMeFOSA0624M
COMPOUND:	N-Methyl-d_3-perfluoro-1-octanesulfonamide		
STRUCTURE:		**CAS #:**	936109-37-4



MOLECULAR FORMULA:	$C_8D_3HF_{17}NO_2S$	**MOLECULAR WEIGHT:**	516.19
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥98% ^2H (D)
LAST TESTED: (mm/dd/yyyy)	06/19/2024		
EXPIRY DATE: (mm/dd/yyyy)	06/19/2029		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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	Description			Vendor	Exp. Date	Exp ate			Vol.	Conc	
2513	LIST 40 FV List STD		28 comp	[redacted]							95 5
		2467	LI 40 ADD ON #1								
		2507	LIST ADD ON #2								
		12	STD								
LC S 2514	537.1 spike	A	DO conf				.0ppm		5mL	200ppb	4% H2
LC	537.1 DW SUR		M3HFDO DA		9/03/2		50ppm		5mL	2 ppm	96% 4% H2
			Etfosce		03/02/2	9/16/25					
		170			1/18/28	5/30/25					
		11700	MPFH A		1/18/27						
LC 2516	DW STD	129	P 28 comp		1/03/30	126			.0mL	100ppb	96 4%
		2515	537. DW SURR				1.0/2.0 ppm	200mL			
LCMS 2517	PFC spike (MDLONLY)	LCMS 2501	PFC ID			07 7/25	400ppb		L	40ppb	95% MEOH 5% H2O
2518	53 W spk (MDLONLY)	LCMS 251	53 DW pk			10/18/25	200pp			20ppb	96% MEOH % H2O
LC S 2519	533 std/spk (MDLONLY)	LCMS 2490	533 std/spk			09/14/25				10ppb	80% MEOH 20% H2O

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LCMS 2520 J	1633 spike Cal. std	LCMS 2505 9956	Br-LN me-Et Fosa Fos MxH	[redacted] (b) (4)		1 26	2/5 ppm 1-4 pm	250uL	4mL	125 312.5 ppb 62.5 125 250ppb	1633 mix (2688uL)		10/7/25
		S1 2982 B12947A	Mx PFAC MxG										
			PFAC MxJ				4-2 ppm	312N		312 160ppb			
MS 252	>37.1 Dw ISTD		M3P EP		7.	5 25			L	P	96% MeOH 1.H2O	4/22/25	1 2
			M2			25							
		345	C3 Mefosca		2227	9 8 25				2			
			MP			2 5							
					2								
LC 15 25	PFC	1	A P foa DOD 28 comp						L	400ppb	95% MeOH 5% H2O	1/24/25	
		1	10-Mefosca M		8 11 28								7 25
						14.26							
			FHxS1		M								
		2274A	PF		28								

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Reviewed by:	Pedro L. Hentas	010325 DATE

Perfluorohexanoic acid (PFHxA)	99199	
Perfluoroheptanoic acid (PFHpA)	99197	
Perfluorooctanoic acid (br-PFOA)*	1608	br
Perfluorononanoic acid (PFNA)	99200	
Perfluorodecanoic acid (PFDA)	991	
Perfluoroundecanoic acid (PFUnDA)		
Perfluorododecanoic acid (PFDoA)		
Perfluorotridecanoic acid (PFTrDA)		
Perfluorotetradecanoic acid (PFTeDA)		
Perfluoro-1-octanesulfonamide (FOSA)	3677	
N-Methylperfluorooctanesulfonamidoacetic acid (br-NMeFOSAA)*	4162	brf
N-Ethylperfluorooctanesulfonamidoacetic acid (br-NEtFOSAA)*	65806	
Perfluorobutanesulfonic acid (PFBS)	99194	
Perfluoro-1-pentanesulfonic acid (PFPeS)	99544	
Perfluorohexanesulfonic acid (br-PFHxS)*	99198	
Perfluoro-1-heptanesulfonic acid (PFHpS)	3872	
Heptadecafluorooctanesulfonic acid (br-PFOS)*	99201	

Perfluorooctanoic acid (linear)*	99202	
Perfluorooctanoic acid (branched isomer)*	99202	
Perfluorohexanesulfonic acid (linear)*	99198	
Perfluorohexanesulfonic acid (branched isomer)*	99198	
Heptadecafluorooctanesulfonic acid (linear)*	99201	
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	
N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4162	brf
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brf
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brf
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brf
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*		
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	65806	
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	65806	
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	65806	

*Concentrations for branched and linear chromatographic

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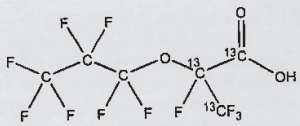
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M3HFPO-DA
LOT NUMBER: M3HFPODA0824
COMPOUND: $^{13}C_3$-Hexafluoropropylene oxide dimer acid
IUPAC NAME: 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)($^{13}C_3$)propanoic acid

STRUCTURE:
CAS #: 3030247-97-0



MOLECULAR FORMULA:	$^{13}C_3{}^{12}C_3HF_{11}O_3$	**MOLECULAR WEIGHT:**	333.03
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C
LAST TESTED: (mm/dd/yyyy)	09/03/2024		
EXPIRY DATE: (mm/dd/yyyy)	09/03/2028		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- This product is commercially known as $^{13}C_3$-GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) ger **Date:** 09/05/2024 (mm/dd/yyyy)

(b) (4)

Form#:27, Issued 2004-11-10
Revision#:10, Revised 2024-07-02

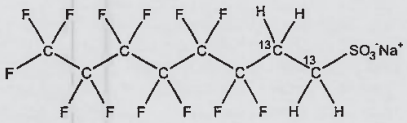
7.9.2 7

11762 rec'd:04/20/23

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M2-6:2FTS	**LOT NUMBER:**	M262FTS1122
COMPOUND:	Sodium 1H,1H,2H,2H-perfluoro-(1,2-$^{13}C_2$)octanesulfonate		
STRUCTURE:		**CAS #:**	2708218-89-5



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_6H_4F_{13}SO_3Na$	**MOLECULAR WEIGHT:**	452.13
CONCENTRATION:	50.0 ± 2.5 µg/mL (Na salt) 47.6 ± 2.4 µg/mL (M2-6:2FTS acid) 47.5 ± 2.4 µg/mL (M2-6:2FTS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	11/24/2022		
EXPIRY DATE: (mm/dd/yyyy)	11/24/2027		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The native 6:2FTS contains 4.22% of ^{34}S (due to natural isotopic abundance) therefore both native 6:2FTS and M2-6:2FTS will produce signals in the m/z 429 to m/z 409 channel during SRM analysis. We recommend using the m/z 429 to m/z 81 transition to monitor for M2-6:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) ager **Date:** 12/13/2022 (mm/dd/yyyy)

(b) (4)

12441
rec'd: 05/01/24

(b) (4)

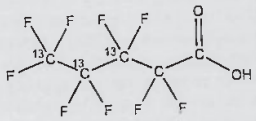
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M3PFPeA
COMPOUND: Perfluoro-n-(3,4,5-$^{13}C_3$)pentanoic acid

LOT NUMBER: M3PFPeA0723

CAS #: Not available

STRUCTURE:



MOLECULAR FORMULA: $^{13}C_3{}^{12}C_2HF_9O_2$
CONCENTRATION: 50.0 ± 2.5 µg/mL

MOLECULAR WEIGHT: 267.02
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/24/2023
EXPIRY DATE: (mm/dd/yyyy) 07/24/2028
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

ISOTOPIC PURITY: ≥99% ^{13}C ($3,4,5$-$^{13}C_3$)

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~0.9% of perfluoro-n-($^{13}C_3$)butanoic acid (M3PFBA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) ger **Date:** 01/05/2024 (mm/dd/yyyy)

(b) (4)

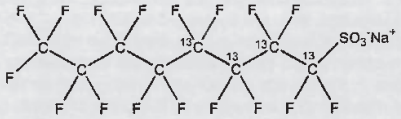
7.9.2 7

10498AB

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFOS	**LOT NUMBER:**	MPFOS1020
COMPOUND:	Sodium perfluoro-1-[1,2,3,4-$^{13}C_4$]octanesulfonate		
STRUCTURE:		**CAS #:**	960315-53-1



MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_4F_{17}SO_3Na$	**MOLECULAR WEIGHT:**	526.08
CONCENTRATION:	50.0 ± 2.5 µg/mL (Na salt) 47.9 ± 2.4 µg/mL (MPFOS acid) 47.8 ± 2.4 µg/mL (MPFOS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2,3,4\text{-}^{13}C_4$)
LAST TESTED: (mm/dd/yyyy)	11/02/2020		
EXPIRY DATE: (mm/dd/yyyy)	11/02/2025		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~0.4% sodium perfluoro-1-[1,2,3-$^{13}C_3$]heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified B (b) (6) ger **Date:** 11/03/2020 (mm/dd/yyyy)

(b) (4)

12421
recd: 04/25/24

(b) (4)

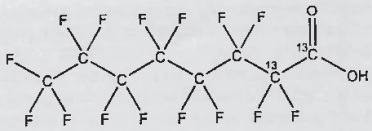
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M2PFOA
COMPOUND: Perfluoro-n-(1,2-$^{13}C_2$)octanoic acid

LOT NUMBER: M2PFOA0224

CAS #: 864071-08-9

STRUCTURE:



MOLECULAR FORMULA: $^{13}C_2{}^{12}C_6HF_{15}O_2$
CONCENTRATION: 50.0 ± 2.5 µg/mL

MOLECULAR WEIGHT: 416.05
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
ISOTOPIC PURITY: ≥99% ^{13}C

LAST TESTED: (mm/dd/yyyy) 02/21/2024
EXPIRY DATE: (mm/dd/yyyy) 02/21/2029
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) er **Date:** 03/06/2024 (mm/dd/yyyy)

(b) (4)

Form#:27, Issued 2004-11-
Revision#:9, Revised 2020-12-23

2PFOA0224 (1 of 4)
rev0

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7

12647A-B
recd:07/27/24

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PFAC30PAR

Native Per- and Polyfluoroalkyl Substance
Precision and Recovery Standard Solution

PRODUCT CODE:	PFAC30PAR
LOT NUMBER:	PFAC301123
SOLVENT(S):	Methanol/Isopropanol (6%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	11/20/2023
LAST TESTED: (mm/dd/yyyy)	11/22/2023
EXPIRY DATE: (mm/dd/yyyy)	11/30/2026
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

PFAC30PAR is a solution/mixture of native linear perfluoroalkylcarboxylic acids (C_4-C_{14}), perfluoroalkanesulfonates (C_4, C_5, C_7, C_9, and C_{10} linear; C_6 and C_8 linear and branched), fluorotelomer sulfonates (4:2, 6:2, and 8:2), linear and branched perfluorooctanesulfonamidoacetic acids, perfluoroalkanesulfonamides (C_4, C_6, and C_8), sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-PF3OUdS), and hexafluoropropylene oxide dimer acid (GenX, HFPO-DA). The components and their concentrations are given in Table A.

The individual components all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Table B: Isomeric Components and Percent Composition of N-MeFOSAA
Table C: Isomeric Components and Percent Composition of N-EtFOSAA
Table D: Isomeric Components and Percent Composition of PFHxSK
Table E: Isomeric Components and Percent Composition of PFOSK
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

(b) (4)

Table A: **PFAC30PAR; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (6%)/water (<1%))**

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
Perfluoro-n-butanoic acid	PFBA	1000		1
Perfluoro-n-pentanoic acid	PFPeA	1000		2
Perfluoro-n-hexanoic acid	PFHxA	1000		5
Perfluoro-n-heptanoic acid	PFHpA	1000		9
Perfluoro-n-octanoic acid	PFOA	1000		14
Perfluoro-n-nonanoic acid	PFNA	1000		18
Perfluoro-n-decanoic acid	PFDA	1000		22
Perfluoro-n-undecanoic acid	PFUdA	1000		29
Perfluoro-n-dodecanoic acid	PFDoA	1000		32
Perfluoro-n-tridecanoic acid	PFTrDA	1000		33
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		34
Perfluoro-1-butanesulfonamide	FBSA	1000		8
Perfluoro-1-hexanesulfonamide	FHxSA	1000		16
Perfluoro-1-octanesulfonamide	FOSA	1000		28
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)propanoic acid	HFPO-DA	1000		7
N-Methylperfluorooctanesulfonamidoacetic acid [a]	N-MeFOSAA: linear isomer	1000	760	25
	N-MeFOSAA: ∑ branched isomers		240	23
N-Ethylperfluorooctanesulfonamidoacetic acid [b]	N-EtFOSAA: linear isomer	1000	775	27
	N-EtFOSAA: ∑ branched isomers		225	26

Compound	Acronym	Concentration* (ng/mL)			Peak Assignment in Figure 1
		as the salt		as the acid	
Potassium perfluoro-1-butanesulfonate	L-PFBS	1000		887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000		941	6
Potassium perfluorohexanesulfonate [c]	PFHxSK: linear isomer	1000	811	741	12
	PFHxSK: ∑ branched isomers		189	173	10
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000		953	15
Potassium perfluorooctanesulfonate [d]	PFOSK: linear isomer	1000	788	732	19
	PFOSK: ∑ branched isomers		211	196	17
Sodium perfluoro-1-nonanesulfonate	L-PFNS	1000		962	24
Sodium perfluoro-1-decanesulfonate	L-PFDS	1000		965	30
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	1000		937	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	1000		951	13
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	1000		960	20
Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	1000		945	11
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	1000		933	21
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	1000		943	31

* Concentrations have been rounded to three significant figures.

[a] See Table B for percent composition of linear and branched N-MeFOSAA isomers.
[b] See Table C for percent composition of linear and branched N-EtFOSAA isomers.
[c] See Table D for percent composition of linear and branched PFHxSK isomers.
[d] See Table E for percent composition of linear and branched PFOSK isomers.

Certified By: (b) (6) **Date:** 11/28/2023 (mm/dd/yyyy)

Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

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rev0

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(b) (4) 128 of 951

FC23948

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(b) (4)

Organic Standards Preparation Log

(b) (6)

[redacted] Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date
LCMS 2481	PFC Id Std.	12869A	P-FOA DOD 28	[redacted]	11/15/29	1/14/26	1.0ppm	400µL	4mL	100pbs	95% MeOH 5% H2O	2/27/25	7/17/25
↓	↓	12186A	N-MeFOSA M		8/11/28	7/17/25	50 ppm	8µL	↓	↓	↓	↓	↓
		12920	FBSA-1		1/10/29	1/14/26	↓	↓					
		12921	FHxSA-1		4/17/29	1/14/26							
↓	↓	12274A	PFECHS		12/5/28	8/12/25	↓	↓	↓	↓	↓	↓	↓
LCMS 2482	537.1 DW spike	12709B	P-FOA DOD 28 (comp)		8/2/29	12/18/25	1.0ppm	1.0mL	5mL	200ppb	96% MeOH 4% H2O	2/27/25	8/27/2
LCMS 2483	537.1 DW SURR	12645B	M3HFOA DA		6.10.29	10/17/25	50ppm	200uL	5mL	2.0ppm	96% MeOH 4% H2O	2/27/25	5/30/25
↓	↓	10843	d5-N-EtFOSAA		3/2/26	9/16/25	↓	↓		↓	↓	↓	↓
		11701	HFPDA		01/18/28	5/30/25		100uL		1.0ppm			
↓	↓	11700	MPFHxA		9/8/27	5/30/25	↓	↓		↓	↓	↓	↓
LCMS 2484	537.1 DW STD	12709B	P-FOA-DOD 28 (comp)		8/2/29	12/18/25	1.0ppm	400uL	4.0mL	100 ppb	96% MeOH 4% H2O	2/27/25	↓
↓	↓	LCMS 2483	DW537.1 SURR		—	5/30/25	1.0/2.0 PPm	200uL	↓	50/100 ppb	↓	↓	5/30/25
LCMS 2485	1633 EL EIS	12979A	1633 EIS		09/26/28	03/03/26	250-5000ppb	—	1.2mL	250-5000ppb	1633 Mix	03/03/25	05/01/25
↓	↓	11869	M2PF-HXDA		12/30/27	05/01/25	50ppm	6uL	↓	↓	↓	↓	↓
↓	↓	12473	13C3-PFPrA		08/21/25	06/05/25	50ppm	6uL	↓	↓	↓	↓	↓
					CONT. ON NEXT PAGE					[redacted]	3/6/25		

* based on date opened as specified in each SGS - Orlando SOP.

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(b) (4)

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Organic Standards Preparation Log

(b) (4)	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date
~~LCMS 2492~~	~~S37.1 DW ISTD~~	[redacted]				[redacted]	08/14/25						
LCMS 2492	S37.1 DW ISTD	12441	M3PFPEA	(b) (4)	7.24.28	5.16.25	50ppm	80uL	4.0mL	1.0ppm	96% MeOH 4% H2O	3/14/25	5.16.25
		11762	M2i 6:2 FTS		11.24.27	5.16.25		80uL		1.0 ppm			
		11345	d3-N-MeFOSAA		2.22.27	9.18.25		160uL		2.0ppm			
		10498B	M8PFOS		11.2.25	11.2.25		80uL		1.0ppm			
		12421	M4PFOA		2.21.29	3.6.26		80uL		1.0ppm			
LCMS 2493	Br-LN Forspike Me,Et FOSA Me,Et FOSE	12546A	br-N MeFOSA		8.23.27	11.2.26	50ppm	200 NL	5mL	2ppm	1633 mix 3000 NL	3.16.25	9.16.25 NLF
		12547B	br-N EtFOSA		10.7.27	11.2.26		200 NL		2ppm			
		12935A 12935B	br-N NeFOSE		4.19.29	1.2.26 1.2.26		500NL		5ppm			
		12936 A-B	br-N EtFOSE		4.19.29	1.2.26		500NL		5ppm			
LCMS 2494A-E	1633 spike Cal std.	LCMS 2493	Br-LN Me-Et FOSA-FOSE		—	9.16.25	2/5 ppm	250NL	4mL	125 312.5 ppb	1633 MIX	3.16.25	9.16.25
		12952B	PFAC MXH		11.12.29	3.16.26	1-4 ppm			62.5 125 250ppb	2688NL		
		12953B	PFAC MXF		9.6.28	3.16.26	2ppb			125ppb			
		12954B	PFAC MXG		10.2.29	3.16.26	2ppb			125ppb			
		12983A	PFAC MXJ		7.11.29	3.9.26	4-20 ppm	312NL		312 1160ppb			
						Continue next page							

(b) (6) 3/16/25

* based on date opened as specified in each SGS - Orlando SOP.

(b) (4)

(b) (6)

(b) (4)

Compound	Number	(%)	Factor	Initial Vol. (mL)
3. Perfluoroheptanoic acid (PFHpA)	99197			
4. Perfluorohexanoic acid (PFHxA)				
5. Perfluorobutanoic acid (br-PFBA)*	99202			
6. Perfluoro-n-hexanoic acid (br-PFNA)*				
10. Perfluorododecanoic acid (PFDoA)				
1. Perfluorotridecanoic acid (PFTrDA)				
Perfluorotetradecanoic acid (PFTA)				
Perfluorooctanesulfonamide (br-FOSA)				
N-Methylperfluorooctanesulfonamidoacetic acid (br-NMeFOSAA)*	4102	mNMeFOSAAC104	98	
N-Ethylperfluorooctanesulfonamidoacetic acid (br-NEtFOSAA)*	60806	D52324	98.5	0.02
Perfluorobutanesulfonic acid (PFBS)	99194	D61824	99	0.02
6. Perfluoro-1-pentanesulfonic acid (PFPeS)	99544	D61824	99	0.02
7. Perfluorohexanesulfonic acid (br-PFHxS)*	99198	D30923	99	0.02
8. Perfluoroheptanesulfonic acid (PFHpS)	60942	101722	98	0.02
19. Hexadecafluorooctanesulfonic acid (br-PFOS)*	99201	110923	99	0.02
20. Perfluoro-1-nonanesulfonic acid (PFNS)	3967	LPFNS0124	98	0.021
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)				
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	65272	120423	99	0.02
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	67308	D11724	98	0.02
2-(hexafluoropropoxy)-2,3,3,3-tetrafluoropropanoic acid (HFPO-DA)	99868	121923	98	0.02
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	4165	11CPF3OUdSN421	98	0.021
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	4164	9CPF3ONS0324	98	0.021
Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA02(		
Perfluorooctanoic acid (linear)*	99202	D20824	0.02	2.50
Perfluorooctanoic acid (branched)*	99202	D20824	0.02	2.50
Perfluorotetradecanesulfonic acid (linear)*				
Perfluorotetradecanesulfonic acid (branched)*				
Hexadecafluorooctanesulfonic acid (linear)*	99201			
Hexadecafluorooctanesulfonic acid (branched)*	99201			
Hexadecafluorooctanesulfonic acid (branched)*	99201			
Hexadecafluorooctanesulfonic acid (branched)*	99201			
N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*				
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*				
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	656			
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	6580			
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	65			
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	65806			
Perfluoro-n-nonanoic acid (linear)*				
Perfluoro-n-nonanoic acid (branched)*				
Perfluoro-n-nonanoic acid (branched)*				
Perfluoro-n-nonanoic acid (branched)*				

Compound	Number	(%)	Factor	Initial Vol. (mL)
Perfluorooctanesulfonic acid (linear)*	99202	D20824	0.02	2.50
Perfluorooctanesulfonic acid (branched)*	99202	D20824	0.02	2.50

Compound	Number	(%)	Factor	Initial Vol. (mL)
3. Perfluoroheptanoic acid (PFHpA)	99197			
4. Perfluorohexanoic acid (PFHxA)				
5. Perfluorobutanoic acid (br-PFBA)*	99202			
6. Perfluoro-n-hexanoic acid (br-PFNA)*				
10. Perfluorododecanoic acid (PFDoA)				
1. Perfluorotridecanoic acid (PFTrDA)				
Perfluorotetradecanoic acid (PFTA)				
Perfluorooctanesulfonamide (br-FOSA)				
N-Methylperfluorooctanesulfonamidoacetic acid (br-NMeFOSAA)*	4102	mNMeFOSAAC104	98	
N-Ethylperfluorooctanesulfonamidoacetic acid (br-NEtFOSAA)*	60806	D52324	98.5	0.02
Perfluorobutanesulfonic acid (PFBS)	99194	D61824	99	0.02
6. Perfluoro-1-pentanesulfonic acid (PFPeS)	99544	D61824	99	0.02
7. Perfluorohexanesulfonic acid (br-PFHxS)*	99198	D30923	99	0.02
8. Perfluoroheptanesulfonic acid (PFHpS)	60942	101722	98	0.02
19. Hexadecafluorooctanesulfonic acid (br-PFOS)*	99201	110923	99	0.02
20. Perfluoro-1-nonanesulfonic acid (PFNS)	3967	LPFNS0124	98	0.021
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)				
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	65272	120423	99	0.02
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	67308	D11724	98	0.02
2-(hexafluoropropoxy)-2,3,3,3-tetrafluoropropanoic acid (HFPO-DA)	99868	121923	98	0.02
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	4165	11CPF3OUdSN421	98	0.021
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	4164	9CPF3ONS0324	98	0.021
Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA02(		
Perfluorooctanoic acid (linear)*	99202	D20824	0.02	2.50
Perfluorooctanoic acid (branched)*	99202	D20824	0.02	2.50
Perfluorotetradecanesulfonic acid (linear)*				
Perfluorotetradecanesulfonic acid (branched)*				
Hexadecafluorooctanesulfonic acid (linear)*	99201			
Hexadecafluorooctanesulfonic acid (branched)*	99201			
Hexadecafluorooctanesulfonic acid (branched)*	99201			
Hexadecafluorooctanesulfonic acid (branched)*	99201			
N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*				
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*				
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	656			
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	6580			
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	65			
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	65806			
Perfluoro-n-nonanoic acid (linear)*				
Perfluoro-n-nonanoic acid (branched)*				
Perfluoro-n-nonanoic acid (branched)*				
Perfluoro-n-nonanoic acid (branched)*				

*Concentrations for branched and linear isomers are based on LCMS chromatographic analysis only.

7.9.3

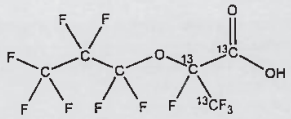
12645A-B
recd: 07/27/24

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M3HFPO-DA
COMPOUND:	$^{13}C_3$-Hexafluoropropylene oxide dimer acid
IUPAC NAME:	2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)($^{13}C_3$)propanoic acid
LOT NUMBER:	M3HFPODA0624
CAS #:	Not available

STRUCTURE:



MOLECULAR FORMULA:	$^{13}C_3{}^{12}C_3HF_{11}O_3$
CONCENTRATION:	50.0 ± 2.5 µg/mL
CHEMICAL PURITY:	>98%
LAST TESTED: (mm/dd/yyyy)	06/10/2024
EXPIRY DATE: (mm/dd/yyyy)	06/10/2027
RECOMMENDED STORAGE:	Refrigerate ampoule
MOLECULAR WEIGHT:	333.03
SOLVENT(S):	Methanol
ISOTOPIC PURITY:	≥99% ^{13}C

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- This product is commercially known as $^{13}C_3$-GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) **Date:** 06/11/2024 (mm/dd/yyyy)

(b) (4)

12441
rec'd: 05/01/24

(b) (4)

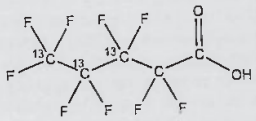
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M3PFPeA
COMPOUND: Perfluoro-n-(3,4,5-$^{13}C_3$)pentanoic acid

LOT NUMBER: M3PFPeA0723

CAS #: Not available

STRUCTURE:



MOLECULAR FORMULA: $^{13}C_3{}^{12}C_2HF_9O_2$
CONCENTRATION: 50.0 ± 2.5 µg/mL

MOLECULAR WEIGHT: 267.02
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/24/2023
EXPIRY DATE: (mm/dd/yyyy) 07/24/2028
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

ISOTOPIC PURITY: ≥99% ^{13}C ($3,4,5$-$^{13}C_3$)

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~0.9% of perfluoro-n-($^{13}C_3$)butanoic acid (M3PFBA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) ager **Date:** 01/05/2024 (mm/dd/yyyy)

(b) (4)

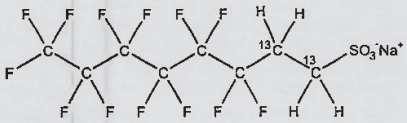
7.9.3

11762 rec'd:04/20/23

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M2-6:2FTS	**LOT NUMBER:**	M262FTS1122
COMPOUND:	Sodium 1H,1H,2H,2H-perfluoro-(1,2-$^{13}C_2$)octanesulfonate		
STRUCTURE:		**CAS #:**	2708218-89-5



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_6H_4F_{13}SO_3Na$	**MOLECULAR WEIGHT:**	452.13
CONCENTRATION:	50.0 ± 2.5 µg/mL (Na salt) 47.6 ± 2.4 µg/mL (M2-6:2FTS acid) 47.5 ± 2.4 µg/mL (M2-6:2FTS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	11/24/2022		
EXPIRY DATE: (mm/dd/yyyy)	11/24/2027		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The native 6:2FTS contains 4.22% of ^{34}S (due to natural isotopic abundance) therefore both native 6:2FTS and M2-6:2FTS will produce signals in the m/z 429 to m/z 409 channel during SRM analysis. We recommend using the m/z 429 to m/z 81 transition to monitor for M2-6:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) ager **Date:** 12/13/2022 (mm/dd/yyyy)

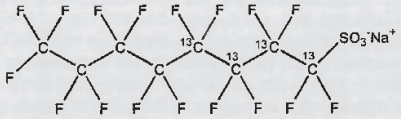
(b) (4)

10498AB

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFOS	**LOT NUMBER:**	MPFOS1020
COMPOUND:	Sodium perfluoro-1-[1,2,3,4-$^{13}C_4$]octanesulfonate		
STRUCTURE:		**CAS #:**	960315-53-1



MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_4F_{17}SO_3Na$	**MOLECULAR WEIGHT:**	526.08
CONCENTRATION:	50.0 ± 2.5 µg/mL (Na salt) 47.9 ± 2.4 µg/mL (MPFOS acid) 47.8 ± 2.4 µg/mL (MPFOS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2,3,4\text{-}^{13}C_4$)
LAST TESTED: (mm/dd/yyyy)	11/02/2020		
EXPIRY DATE: (mm/dd/yyyy)	11/02/2025		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~0.4% sodium perfluoro-1-[1,2,3-$^{13}C_3$]heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified B (b) (6) ger **Date:** 11/03/2020 (mm/dd/yyyy)

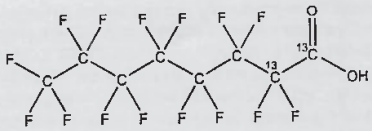
(b) (4)

12421
recd: 04/25/24

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M2PFOA	**LOT NUMBER:**	M2PFOA0224
COMPOUND:	Perfluoro-n-(1,2-$^{13}C_2$)octanoic acid		
STRUCTURE:		**CAS #:**	864071-08-9



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_6HF_{15}O_2$	**MOLECULAR WEIGHT:**	416.05
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C
LAST TESTED: (mm/dd/yyyy)	02/21/2024		
EXPIRY DATE: (mm/dd/yyyy)	02/21/2029		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) ger **Date:** 03/06/2024 (mm/dd/yyyy)

(b) (4)

12647A-B
recd:07/27/24

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PFAC30PAR

Native Per- and Polyfluoroalkyl Substance
Precision and Recovery Standard Solution

PRODUCT CODE:	PFAC30PAR
LOT NUMBER:	PFAC301123
SOLVENT(S):	Methanol/Isopropanol (6%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	11/20/2023
LAST TESTED: (mm/dd/yyyy)	11/22/2023
EXPIRY DATE: (mm/dd/yyyy)	11/30/2026
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

PFAC30PAR is a solution/mixture of native linear perfluoroalkylcarboxylic acids (C_4-C_{14}), perfluoroalkanesulfonates (C_4, C_5, C_7, C_9, and C_{10} linear; C_6 and C_8 linear and branched), fluorotelomer sulfonates (4:2, 6:2, and 8:2), linear and branched perfluorooctanesulfonamidoacetic acids, perfluoroalkanesulfonamides (C_4, C_6, and C_8), sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-PF3OUdS), and hexafluoropropylene oxide dimer acid (GenX, HFPO-DA). The components and their concentrations are given in Table A.

The individual components all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Table B: Isomeric Components and Percent Composition of N-MeFOSAA
Table C: Isomeric Components and Percent Composition of N-EtFOSAA
Table D: Isomeric Components and Percent Composition of PFHxSK
Table E: Isomeric Components and Percent Composition of PFOSK
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

(b) (4)

Table A: **PFAC30PAR; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (6%)/water (<1%))**

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
Perfluoro-n-butanoic acid	PFBA	1000		1
Perfluoro-n-pentanoic acid	PFPeA	1000		2
Perfluoro-n-hexanoic acid	PFHxA	1000		5
Perfluoro-n-heptanoic acid	PFHpA	1000		9
Perfluoro-n-octanoic acid	PFOA	1000		14
Perfluoro-n-nonanoic acid	PFNA	1000		18
Perfluoro-n-decanoic acid	PFDA	1000		22
Perfluoro-n-undecanoic acid	PFUdA	1000		29
Perfluoro-n-dodecanoic acid	PFDoA	1000		32
Perfluoro-n-tridecanoic acid	PFTrDA	1000		33
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		34
Perfluoro-1-butanesulfonamide	FBSA	1000		8
Perfluoro-1-hexanesulfonamide	FHxSA	1000		16
Perfluoro-1-octanesulfonamide	FOSA	1000		28
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)propanoic acid	HFPO-DA	1000		7
N-Methylperfluorooctanesulfonamidoacetic acid [a]	N-MeFOSAA: linear isomer	1000	760	25
	N-MeFOSAA: ∑ branched isomers		240	23
N-Ethylperfluorooctanesulfonamidoacetic acid [b]	N-EtFOSAA: linear isomer	1000	775	27
	N-EtFOSAA: ∑ branched isomers		225	26

Compound	Acronym	Concentration* (ng/mL)			Peak Assignment in Figure 1
		as the salt		as the acid	
Potassium perfluoro-1-butanesulfonate	L-PFBS	1000		887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000		941	6
Potassium perfluorohexanesulfonate [c]	PFHxSK: linear isomer	1000	811	741	12
	PFHxSK: ∑ branched isomers		189	173	10
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000		953	15
Potassium perfluorooctanesulfonate [d]	PFOSK: linear isomer	1000	788	732	19
	PFOSK: ∑ branched isomers		211	196	17
Sodium perfluoro-1-nonanesulfonate	L-PFNS	1000		962	24
Sodium perfluoro-1-decanesulfonate	L-PFDS	1000		965	30
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	1000		937	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	1000		951	13
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	1000		960	20
Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	1000		945	11
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	1000		933	21
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	1000		943	31

* Concentrations have been rounded to three significant figures.

[a] See Table B for percent composition of linear and branched N-MeFOSAA isomers.
[b] See Table C for percent composition of linear and branched N-EtFOSAA isomers.
[c] See Table D for percent composition of linear and branched PFHxSK isomers.
[d] See Table E for percent composition of linear and branched PFOSK isomers.

Certified By: (b) (6) **Date:** 11/28/2023 (mm/dd/yyyy)

Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

PFAC301123 (3 of 12) rev0

7.9.3 7

Standard Prep Log S5Q524 page 1 of 10

(b) (4)

Organic Standards Preparation Log

Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date
LCMS 2481	PFC Id Std.	12869A	P-FOA DOD 28	[redacted]	11/15/29	1/14/26	1.0ppm	400µL	4mL	100pbs	95% MeOH 5% H2O	2/27/25	7/17/25
↓	↓	12186A	N-MeFOSA M		8/11/28	7/17/25	50 ppm	8µL	↓	↓	↓	↓	↓
↓	↓	12920	FBSA-1		1/10/29	1/14/26	↓	↓	↓	↓	↓	↓	↓
↓	↓	12921	FHxSA-1		4/17/29	1/14/26	↓	↓	↓	↓	↓	↓	↓
↓	↓	12274A	PFECHS		12/5/28	8/12/25	↓	↓	↓	↓	↓	↓	↓
LCMS 2482	537.1 DW spike	12709B	P-FOA DOD 28 (comp)		8/2/29	12/18/25	1.0ppm	1.0mL	5mL	200ppb	96% MeOH 4% H2O	2/27/25	8/27/2
LCMS 2483	537.1 DW SURR	12645B	M3HFOA DA		6.10.29	10/17/25	50ppm	200uL	5mL	2.0ppm	96% MeOH 4% H2O	2/27/25	5/30/25
↓	↓	10843	d5-N-EtFOSAA		3/2/26	9/16/25	↓	↓		↓	↓	↓	↓
↓	↓	11701	HFPDA		01/18/28	5/30/25	↓	100uL		1.0ppm	↓	↓	↓
↓	↓	11700	MPFHxA		9/8/27	5/30/25	↓	↓		↓	↓	↓	↓
LCMS 2484	537.1 DW STD	12709B	P-FOA DOD 28 (comp)		8/2/29	12/18/25	1.0ppm	400uL	4.0mL	100 ppb	96% MeOH 4% H2O	2/27/25	↓
↓	↓	LCMS 2483	DW537.1 SURR		—	5/30/25	1.0/2.0 PPm	200uL	↓	50/100 ppb	↓	↓	5/30/25
LCMS 2485	1633 EL EIS	12979A	1633 EIS		09/26/28	03/03/26	250-5000ppb	—	1.2mL	250-5000ppb	1633 Mix	03/03/25	05/01/25
↓	↓	11869	M2PF-HXDA		12/30/27	05/01/25	50ppm	6uL	↓	↓	↓	↓	↓
↓	↓	12473	13C3-PFPrA		08/21/25	06/05/25	50ppm	6uL	↓	↓	↓	↓	↓
					CONT. ON NEXT PAGE							3/6/25	

(b) (6)

* based on date opened as specified in each SGS - Orlando SOP.

ORLD-QAC-0017-6-03-FORM-lcms std prep log.xls 030819

Organic Standards Preparation Log

(b) (4)	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date
~~LCMS 2492~~	~~537.1 DW ISTD~~	(b) (6)				(b) (6)	08/14/25						
LCMS 2492	537.1 DW ISTD	12441	M3PFPEA	(b) (4)	7.24.28	5.16.25	50ppm	80uL	4.0mL	1.0ppm	96% MeOH 4% H2O	3/14/25	5.16.25
		11762	M2i 6:2 FTS		11.24.27	5.16.25		80uL		1.0 ppm			
		11345	d3-N-MeFOSAA		2.22.27	9.18.25		160uL		2.0ppm			
		10498B	M8PFOS		11.2.25	11.2.25		80uL		1.0ppm			
		12421	M8PFOA		2.21.29	3.6.26		80uL		1.0ppm			
LCMS 2493	Br-LN Forspike me, Et Fosa Me, Et Fose	12546A	br-N MeFosa		8.23.27	11.2.26	50ppm	200 NL	5mL	2ppm	1633 mix 3000 NL	3.16.25	9.16.25 NLF
		12547B	br-N Et etfosa		10.7.27	11.2.26		200 NL		2ppm			
		12935A 12935B	br-N MeFose		4.19.29	1.2.26 1.2.26		500NL		5ppm			
		12936 A-B	br-N EtFose		4.19.29	1.2.26		500NL		5ppm			
LCMS 2494A-E	1633 spike Cal std.	LCMS 2493	Br-LN Me-Et Fosa-Fosc		—	9.16.25	2/5 ppm	250NL	4mL	125 312.5 ppb	1633 MIX	3.16.25	9.16.25
		12952B	PFAC MxH		11.12.29	3.16.26	1-4 ppm			62.5 125 250ppb	2688NL		
		12953B	PFAC MxF		9.6.28	3.16.26	2ppb			125ppb			
		12954B	PFAC MxG		10.2.29	3.16.26	2ppb			125ppb			
		12983A	PFAC MxJ		7.11.29	3.9.26	4-20 ppm	312NL		312 1160ppb			
						Continue next page							

(b) (6) 3/10/25

* based on date opened as specified in each SGS - Orlando SOP.

(b) (4)

(b) (6)

(b) (4)

Compound	Number	(%)	Factor	Vol. (mL)
3. Perfluoroheptanoic acid (PFHpA)	99197			
4. Perfluorohexanoic acid (PFHxA)				
5. Perfluorooctanoic acid (br-PFOA)*	99202			
6. Perfluoro-n-nonanoic acid (br-PFNA)*				
10. Perfluorodecanoic acid (PFDA)				
1. Perfluoroundecanoic acid (PFUnA)				
Perfluorotridecanoic acid (PFTrDA)				
Perfluorotetradecanoic acid (PFTeA)				
Perfluorooctanesulfonamide (br-FOSA)				
N-Methylperfluorooctanesulfonamidoacetic acid (br-NMeFOSAA)*	4162	mNMeFOSAAC124	98	
N-Ethylperfluorooctanesulfonamidoacetic acid (br-NEtFOSAA)*	63806	D52324	98.5	0.02
Perfluorobutanesulfonic acid (PFBS)	99194	D61824	99	0.02
6. Perfluoro-1-pentanesulfonic acid (PFPeS)	99544	D61824	99	0.02
7. Perfluorohexanesulfonic acid (br-PFHxS)*	99198	D30923	99	0.02
8. Perfluoroheptanesulfonic acid (PFHpS)	63942	101722	98	0.02
19. Hexadecafluorooctanesulfonic acid (br-PFOS)*	99201	110923	99	0.02
20. Perfluoro-1-nonanesulfonic acid (PFNS)	3967	LPFNS0124	98	0.021
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)				
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	65272	120423	99	0.02
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	67308	D11724	98	0.02
2-(heptafluoropropoxy)-2,3,3,3-tetrafluoropropanoic acid (HFPO-DA)	99668	121923	98	0.02
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	41165	11CPF3OUdSN421	98	0.021
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	41164	9CPF3ONS0324	98	0.021
Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA32(		
Perfluorooctanoic acid (linear)*	99202	D20824	0.02	2.50
Perfluorooctanoic acid (branched)*	99202	D20824	0.02	2.50
Perfluorotetradecanesulfonic acid (linear)*				
Perfluorotetradecanesulfonic acid (branched)*				
Hexadecafluorooctanesulfonic acid (linear)*	99201			
Hexadecafluorooctanesulfonic acid (branched)*	99201			
Hexadecafluorooctanesulfonic acid (branched)*	99201			
Hexadecafluorooctanesulfonic acid (branched)*	99201			
N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*				
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*				
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	656			
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	6580			
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	65			
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	65806			
Perfluoro-n-nonanoic acid (linear)*				
Perfluoro-n-nonanoic acid (branched)*				
Perfluoro-n-nonanoic acid (branched)*				
Perfluoro-n-nonanoic acid (branched)*				

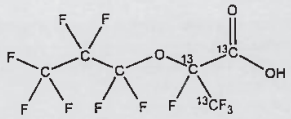
*Concentrations for branched and linear isomers are based on LCMS chromatographic analysis only.

(b) (4)

12645A-B
recd: 07/27/24

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M3HFPO-DA	**LOT NUMBER:**	M3HFPODA0624
COMPOUND:	$^{13}C_3$-Hexafluoropropylene oxide dimer acid		
IUPAC NAME:	2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)($^{13}C_3$)propanoic acid		
STRUCTURE:		**CAS #:**	Not available

MOLECULAR FORMULA:	$^{13}C_3{}^{12}C_3HF_{11}O_3$	**MOLECULAR WEIGHT:**	333.03
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C
LAST TESTED: (mm/dd/yyyy)	06/10/2024		
EXPIRY DATE: (mm/dd/yyyy)	06/10/2027		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- This product is commercially known as $^{13}C_3$-GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) **Date:** 06/11/2024 (mm/dd/yyyy)

(b) (4)

12441
rec'd: 05/01/24

(b) (4)

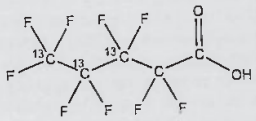
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M3PFPeA
COMPOUND: Perfluoro-n-(3,4,5-$^{13}C_3$)pentanoic acid

LOT NUMBER: M3PFPeA0723

CAS #: Not available

STRUCTURE:



MOLECULAR FORMULA: $^{13}C_3{}^{12}C_2HF_9O_2$
CONCENTRATION: 50.0 ± 2.5 µg/mL

MOLECULAR WEIGHT: 267.02
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/24/2023
EXPIRY DATE: (mm/dd/yyyy) 07/24/2028
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

ISOTOPIC PURITY: ≥99% ^{13}C ($3,4,5$-$^{13}C_3$)

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~0.9% of perfluoro-n-($^{13}C_3$)butanoic acid (M3PFBA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) ager **Date:** 01/05/2024 (mm/dd/yyyy)

(b) (4)

79.4 7

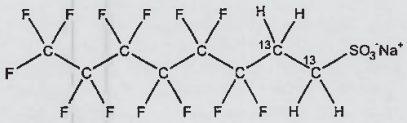
(b) (4)

11762 rec'd:04/20/23

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M2-6:2FTS	**LOT NUMBER:**	M262FTS1122
COMPOUND:	Sodium 1H,1H,2H,2H-perfluoro-(1,2-$^{13}C_2$)octanesulfonate		
STRUCTURE:		**CAS #:**	2708218-89-5



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_6H_4F_{13}SO_3Na$	**MOLECULAR WEIGHT:**	452.13
CONCENTRATION:	50.0 ± 2.5 µg/mL (Na salt) 47.6 ± 2.4 µg/mL (M2-6:2FTS acid) 47.5 ± 2.4 µg/mL (M2-6:2FTS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	11/24/2022		
EXPIRY DATE: (mm/dd/yyyy)	11/24/2027		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The native 6:2FTS contains 4.22% of ^{34}S (due to natural isotopic abundance) therefore both native 6:2FTS and M2-6:2FTS will produce signals in the m/z 429 to m/z 409 channel during SRM analysis. We recommend using the m/z 429 to m/z 81 transition to monitor for M2-6:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) ager **Date:** 12/13/2022 (mm/dd/yyyy)

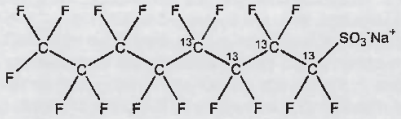
(b) (4)

10498AB

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFOS	**LOT NUMBER:**	MPFOS1020
COMPOUND:	Sodium perfluoro-1-[1,2,3,4-$^{13}C_4$]octanesulfonate		
STRUCTURE:		**CAS #:**	960315-53-1



MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_4F_{17}SO_3Na$	**MOLECULAR WEIGHT:**	526.08
CONCENTRATION:	50.0 ± 2.5 µg/mL (Na salt) 47.9 ± 2.4 µg/mL (MPFOS acid) 47.8 ± 2.4 µg/mL (MPFOS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2,3,4\text{-}^{13}C_4$)
LAST TESTED: (mm/dd/yyyy)	11/02/2020		
EXPIRY DATE: (mm/dd/yyyy)	11/02/2025		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~0.4% sodium perfluoro-1-[1,2,3-$^{13}C_3$]heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified B (b) (6) ger **Date:** 11/03/2020 (mm/dd/yyyy)

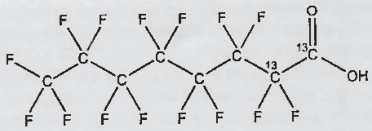
(b) (4)

12421
recd: 04/25/24

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M2PFOA	**LOT NUMBER:**	M2PFOA0224
COMPOUND:	Perfluoro-n-(1,2-$^{13}C_2$)octanoic acid		
STRUCTURE:		**CAS #:**	864071-08-9



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_6HF_{15}O_2$	**MOLECULAR WEIGHT:**	416.05
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C
LAST TESTED: (mm/dd/yyyy)	02/21/2024		
EXPIRY DATE: (mm/dd/yyyy)	02/21/2029		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: (b) (6) **Date:** 03/06/2024 (mm/dd/yyyy)

(b) (4)

Form#:27, Issued 2004-11-
Revision#:9, Revised 2020-12-23

2PFOA0224 (1 of 4)
rev0

79.4
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12647A-B
recd:07/27/24

(b) (4)

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PFAC30PAR

Native Per- and Polyfluoroalkyl Substance
Precision and Recovery Standard Solution

PRODUCT CODE:	PFAC30PAR
LOT NUMBER:	PFAC301123
SOLVENT(S):	Methanol/Isopropanol (6%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	11/20/2023
LAST TESTED: (mm/dd/yyyy)	11/22/2023
EXPIRY DATE: (mm/dd/yyyy)	11/30/2026
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

PFAC30PAR is a solution/mixture of native linear perfluoroalkylcarboxylic acids (C_4-C_{14}), perfluoroalkanesulfonates (C_4, C_5, C_7, C_9, and C_{10} linear; C_6 and C_8 linear and branched), fluorotelomer sulfonates (4:2, 6:2, and 8:2), linear and branched perfluorooctanesulfonamidoacetic acids, perfluoroalkanesulfonamides (C_4, C_6, and C_8), sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-PF3OUdS), and hexafluoropropylene oxide dimer acid (GenX, HFPO-DA). The components and their concentrations are given in Table A.

The individual components all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Table B: Isomeric Components and Percent Composition of N-MeFOSAA
Table C: Isomeric Components and Percent Composition of N-EtFOSAA
Table D: Isomeric Components and Percent Composition of PFHxSK
Table E: Isomeric Components and Percent Composition of PFOSK
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

(b) (4)

Table A: **PFAC30PAR; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (6%)/water (<1%))**

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
Perfluoro-n-butanoic acid	PFBA	1000		1
Perfluoro-n-pentanoic acid	PFPeA	1000		2
Perfluoro-n-hexanoic acid	PFHxA	1000		5
Perfluoro-n-heptanoic acid	PFHpA	1000		9
Perfluoro-n-octanoic acid	PFOA	1000		14
Perfluoro-n-nonanoic acid	PFNA	1000		18
Perfluoro-n-decanoic acid	PFDA	1000		22
Perfluoro-n-undecanoic acid	PFUdA	1000		29
Perfluoro-n-dodecanoic acid	PFDoA	1000		32
Perfluoro-n-tridecanoic acid	PFTrDA	1000		33
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		34
Perfluoro-1-butanesulfonamide	FBSA	1000		8
Perfluoro-1-hexanesulfonamide	FHxSA	1000		16
Perfluoro-1-octanesulfonamide	FOSA	1000		28
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)propanoic acid	HFPO-DA	1000		7
N-Methylperfluorooctanesulfonamidoacetic acid [a]	N-MeFOSAA: linear isomer	1000	760	25
	N-MeFOSAA: ∑ branched isomers		240	23
N-Ethylperfluorooctanesulfonamidoacetic acid [b]	N-EtFOSAA: linear isomer	1000	775	27
	N-EtFOSAA: ∑ branched isomers		225	26

Compound	Acronym	Concentration* (ng/mL)			Peak Assignment in Figure 1
		as the salt		as the acid	
Potassium perfluoro-1-butanesulfonate	L-PFBS	1000		887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000		941	6
Potassium perfluorohexanesulfonate [c]	PFHxSK: linear isomer	1000	811	741	12
	PFHxSK: ∑ branched isomers		189	173	10
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000		953	15
Potassium perfluorooctanesulfonate [d]	PFOSK: linear isomer	1000	788	732	19
	PFOSK: ∑ branched isomers		211	196	17
Sodium perfluoro-1-nonanesulfonate	L-PFNS	1000		962	24
Sodium perfluoro-1-decanesulfonate	L-PFDS	1000		965	30
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	1000		937	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	1000		951	13
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	1000		960	20
Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	1000		945	11
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	1000		933	21
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	1000		943	31

* Concentrations have been rounded to three significant figures.

[a] See Table B for percent composition of linear and branched N-MeFOSAA isomers.
[b] See Table C for percent composition of linear and branched N-EtFOSAA isomers.
[c] See Table D for percent composition of linear and branched PFHxSK isomers.
[d] See Table E for percent composition of linear and branched PFOSK isomers.

Certified By: (b) (6) **Date:** 11/28/2023 (mm/dd/yyyy)

Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

PFAC301123 (3 of 12) rev0

79.4 7

(b) (4)

SPE LIQUID SAMPLE PREP REPORT

Date/Time Started: 04/16/25 08:30 {mm/dd/yy 24:00}

Date/Time Finished: 4/17/25 8:55 {mm/dd/yy 24:00}

Batch#: OP8904 Ext. By: (b) (6) Conc. By: (b) (6) Vialed By:

Prep Method: (537.1) / 533 (circle one)

Analytical Method: (537.1) / 533 (circle one)

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Residual CHL, y/n	Surrogate Amount	Spike Amount	Final Volume (ml)	Manifold ID	Comments
OP 8904 MB		250	7.6	N/A	n	20		1	0	
OP 8904 BS		250	7.6	N/A	n	20	100		0	
(b) (6) FC23797-1ARe	2	280	7.0	N/A	n	20			0	
4ARe	—	—	—	—	—	—			—	
FC23948-1A	1	280	7.0	N/A	n	20			0	
2A	1	285							0	
3A	3	285							6	
4A	1	280	7.0	N/A	n	20		1	0	
(b) (6) FC23899-4ARe	4	280	7.0	N/A	n	20			0	
FC23948-3A MS	4	280	7.0	N/A	n	20	100	1	0	
MSD										
FC23948-4A DUP	2	280	7.0	N/A	n	20		1	0	

(b) (6) 04/16/25

(b) (6) 04/16/25

(b) (6) 04/16/25

Comments:

Surr.1 ID: LCMS2483 Conc: 1.0/2.0PPM Exp. Date: 05/30/25 Inj. By: (b) (6) Ver. By

Spk.1 ID: LCMS2482 Conc: 200 PPB Exp. Date: 08/27/25 Inj. By: (b) (6) Ver. By (b) (6)

TurboVap Temp (Therm ID): Turbo #20

Observed Temp °C: 63 Corr. Temp °C: 60

N-Evap Temp (Therm ID):

Observed Temp °C: Corr. Temp °C:

Methanol Lot #: 242643 Trizma Lot #: 0000357068 pH Paper #: 206724

Water Lot#: DI H20 Acetic Acid Lot#: CHL Paper #: 14-860

PO4 Buffer Lot#: AMN Acetate Lot#: SPE Lot #: 68 16118-02

2%MeOH:NH4OH #: Other #:

Relinquished By: (b) (6) Date: 4/17/25

Accepted By: Date: 4/17/25

(b) (6) 4/17/25

533_537 DW Extraction 100224 SI.xls

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7.10.1

7

Sample Prep Log OP8904 page 1 of 1

(b) (4) 949 of 951

FC23948

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time Started: 04/16/25 09:45 {mm/dd/yy 24:00}

Date/Time Finished: 4/17/25 8:30 {mm/dd/yy 24:00}

Prep Method: 537.1 / 533 (circle one)

Analytical Method: 537.1 / 533 (circle one)

Batch#: OP8907 Ext. By: (b) (6) Conc. By: (b) (6) Vialed By:

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Residual CHL, y/n	Surrogate Amount	Spike Amount	Final Volume (ml)	Manifold ID	Comments
OP 8907 MB	/	250	7	N/A	N	20		1	A3	
OP 8907 BS		250	7				10			
FC23948-1	3	285	6.4							
-2	2	270	6							
-3	1	285	6.4							
-4	3	285	6.4							
FC23899-4RE	2	285	6.4							
FC23838-3	1	50	7							
-3	1	250	7	N/A	N	20		1	A3	
(b) (6) 04/16/25										
FC23948-1 MS	4	285	6.4	N/A	N	20	10	1	A3	
MSD										
FC23948.3 DUP	2	285	6.4	N/A	N	20		1	A3	

Comments:

Surr.1 ID: LCMS 2497C Conc: 0.5 ppm Exp. Date: 09/23/25 Inj. By: (b) (6) Ver. By (b) (6)

Spk.1 ID: LCMS 2489 Conc: 100 ppb Exp. Date: 09/14/25 Inj. By: Ver. By

TurboVap Temp (Therm ID): Turbo #20

Observed Temp °C: 63 Corr. Temp °C: 60

N-Evap Temp (Therm ID):

Observed Temp °C: Corr. Temp °C:

Methanol Lot # 242643

Trizma Lot #

pH Paper # 206724

Water Lot# DI H_2O

Acetic Acid Lot#

CHL Paper # 012408-HH

PO4 Buffer Lot# PP 2527

AMN Acetate Lot# 1003780275

SPE Lot # 5437-0007

2%MeOH:NH4OH # PP 2530

Other #

Relinquished By: (b) (6) Date: 4/17/25

Accepted By: Date: 4/17/25

533_537 DW Extraction 100224 SI.xls

7.10.2 7

(b) (4)

SPE LIQUID SAMPLE PREP REPORT

Date/Time Started: 04/21/25 07:45 (mm/dd/yy 24:00)

Date/Time Finished: 4/22/25 8:50 (mm/dd/yy 24:00)

Prep Method: 537.1 / 533 (circle one)

Analytical Method: 537.1 / 533 (circle one)

Batch# OP8985 Ext. By (b) (6) Conc. By: (b) (6) Vialed By:

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Residual CHL y/n	Surrogate Amount	Spike Amount	Final Volume (ml)	Manifold ID	Comments
OP 8985 MB		250	7	N/A	N	20		1	A3	
OP 8985 BS		250			N		100	1		
FC 23948-1A (b) (6)	2	280			N			1		
-2A										
FC23838-3A	1	250			N			1		
FC24082-1A	2	240								
-2A	1	280								
-3A	1	280								
-4A	1	280								
-5A	1	280	7	N/A	N	20		1	A3	
FC24082-3AMS	2	280	7	N/A	N	20	100	1	A3	
-3AMSD	3	280	7	N/A	N	20	100	1	A3	
~~FC24082 DUP~~						20			A3	

(b) (6) Bot #2 (b) (6) 04/21/25

(b) (6) 04/21/25

(b) (6) 4/21/25

Comments:

Surr.1 ID: LCMS 2515 Conc: 1.0/20ppm Exp. Date: 05/30/25 Inj. By: (b) (6) Ver. By: (b) (6)

Spk.1 ID: LCMS 2514 Conc: 200 ppb Exp. Date: 10/18/25 Inj. By: Ver. By:

TurboVap Temp (Therm ID): Turbo #20

Observed Temp °C: 63 Corr. Temp °C: 60

N-Evap Temp (Therm ID):

Observed Temp °C: Corr. Temp °C:

Methanol Lot # 242643 Trizma Lot # 0000357068 pH Paper # 206724

Water Lot# DI H2O Acetic Acid Lot# CHL Paper # 021P408-11H

PO4 Buffer Lot# — AMN Acetate Lot# — SPE Lot # 6816118-02

2%MeOH:NH4OH # — Other #

Relinquished By: (b) (6) Date 4/22/25

Accepted By: Date 4/22/25

533_537 DW Extraction 100224 SI xls

Page 1 of 1

7.10.3

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(b) (4)

DATA VALIDATION REPORT

Extended Drinking Water Monitoring
NAH Shaft Treatment System Pilot Study

SDG: FC23948

(b) (4)

Prepared by

(b) (4)

Prepared for

AECOM Environmental

Report Released: 05/02/2025

Data Validators and Peer Reviewers:

(b) (6)

(b) (4)

EXECUTIVE NARRATIVE

Sample Delivery Group: FC23948
Laboratory: (b) (4)
Site: Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, Oahu, Hawaii, Extended Drinking Water Monitoring, NAH Shaft Treatment System Pilot Study
Sampling dates: 04/14/2025
Number of Samples: 4
Test Method: USEPA method 533
Analysis: Per-fluorinated Alkyl Substances (PFAS)

Quality Assurance Project Plan: Final Extended Drinking Water Monitoring Plan Joint Base Pearl Harbor-Hickam Public Water System #HI0000360 and Aliamanu Military Reservation PWS #HI0000337 O‘ahu, Hawai‘i, March 2024.

Validation Guidelines: Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537, EPA 910-R-18-001 (November 2018); National Functional Guidelines for High Resolution Superfund Methods Data Review, OLEM 9240.1-65, EPA-542-R-20-007, (November 2020).

Client Sample ID	Laboratory Sample ID	Matrix	Validation Stage
SHAFT-HW-0018384-25098-N-R02	FC23948-1	Drinking Water	S4VEM
SHAFT-FB-250414-25098-N	FC23948-2	Field blank	S4VEM
SHAFT-HW-0018393-25098-N-R02	FC23948-3	Drinking Water	S4VEM
SHAFT-HW-0018394-25098-N-R02	FC23948-4	Drinking Water	S4VEM

Table 1 provides a summary of the major and minor data quality issues identified in this data set. All data are acceptable except those results which have been qualified with “R”, rejected. Data validation qualifiers along with associated descriptions are provided in Table 2. All data qualification related to this group of samples is detailed on the attached sheets.

All data users should note two facts. First, an "R" flag means that the associated value is unusable due to significant quality control (QC) problems, the data is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on any data tables even as a last resort. Second, no analyte concentration, even if it passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data, but any value potentially contains error.

DATA ASSESSMENT

1. NARRATIVE AND COMPLETENESS REVIEW

The case narrative was reviewed, and the data package was checked for completeness. No discrepancies were noted.

2. SAMPLE DELIVERY AND CONDITION

The samples arrived at the laboratory in acceptable condition. Proper custody was documented.

3. HOLDING TIME

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detect results will be flagged as not detected at an estimated quantitation limit, "UJ", unless the holding time is grossly exceeded (by more than two times the holding time specified), in which case non-detect results are flagged "R", rejected. Qualifications were applied to the samples and analytes as shown below.

All sample analyses were within the validation guidance.

4. MASS CALIBRATION

Mass calibration range must bracket the ion masses of interest. The most recent mass calibration must be used for every acquisition in an analytical run. Mass calibration must be verified to be ±0.5 amu of the true value, by acquiring a full scan continuum mass spectrum of a PFAS.

No problems were found for this criterion.

5. CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument can produce acceptable quantitative data. An initial calibration demonstrates that the instrument can give acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is providing satisfactory daily performance. Additionally, a continuing calibration is analyzed at the end of each 12-hour analytical sequence, denoted as a "closing" calibration verification and ascertains acceptable performance at the conclusion of the analytical sequence.

A) Initial Calibration

Percent Relative Standard Deviation (%RSD) is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent RSD must be less than the maximum %RSD, in cases where linear and non-linear regressions are used, linear correlation coefficients must be greater than the minimum requirement. If the %RSD or correlation coefficient do not meet quality control criteria, detects may be qualified as "J" and professional judgement is used to qualify non-detects. Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

B) Continuing Calibration

Percent difference (%D) compares the response factor of the continuing calibration check to mean response factor (RF) from the initial calibration. The %D for all analytes and surrogates in the continuing calibration verifications (CCVs) must be <30%. A value outside of these limits indicates potential detection and quantitation errors. If the %D exceeds quality control criteria, the positive results are flagged as estimated, "J" and non-detects are flagged "UJ". Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

6. BLANKS

Quality assurance (QA) blanks (i.e. method, storage, trip, field, or rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation and analysis or field activity. Method and storage blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. Qualifications were applied to the samples and analytes as shown below.

A) Laboratory Blanks

Method blanks were analyzed with appropriate frequency. No problems were found for this criterion.

B) Equipment / Field Blanks

Sample SHAFT-FB-250414-25098-N was submitted as a field blank in association with this sample delivery group (SDG). No problems were found for this criterion.

7. ISOTOPE DILUTION ANALOGUES

All samples are fortified with isotopically labeled analogues prior to sample preparation and analyses to evaluate overall laboratory performance and efficiency of the analytical technique. The reported project samples and laboratory quality control samples had observed isotope dilution analogue recoveries within the established limits in all cases with the following exceptions.

No problems were found for this criterion.

8. COMPOUND IDENTIFICATION

Compound Identification

The project target analyte compounds are identified on the LC/MS/MS by using the analytes relative retention time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within ±0.06 RRT units of the standard compound and have ion spectra with primary and when available secondary characteristic ions present. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

Target compound identifications were reviewed for samples at the Stage 4 level. No anomalies were identified.

9. MATRIX SPIKE/MATRIX SPIKE DUPLICATE / MATRIX DUPLICATE

Matrix spike/matrix spike duplicate (MS/MSD) data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD data may be used in conjunction with other quality control criteria for additional qualification of data.

Sample SHAFT-HW-0018384-25098-N-R02 was submitted for MS evaluation in association with this SDG. Upon evaluation all accuracy indicators were acceptable or did not result in a need to qualify sample results with the following exception. The observed MS recoveries for PFDoA, PFUnA, and 11Cl-PF3OUdS were less than the lowest acceptance limit. The results reported for the impacted analytes in the parent sample have been qualified "J-" on this basis.

Sample SHAFT-HW-0018393-25098-N-R02 was submitted for matrix duplicate evaluation in association with this SDG. Upon evaluation adequate laboratory precision was demonstrated.

10. LABORATORY CONTROL SAMPLE

The Laboratory Control Sample (LCS) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. Aqueous/water, soil/sediment, wipe, and filter LCSs shall be analyzed for each analyte utilizing the same sample preparations, analytical methods, and quality assurance/quality control (QA/QC) procedures as employed for the samples. All LCS percent recoveries must fall within the control limits. Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

11. FIELD DUPLICATE

Field duplicates may be taken and analyzed as an indication of overall precision. These analyses measure both field and laboratory precision. A control limit of 30% for the Relative Percent Difference (RPD) shall be used for original and duplicate sample values greater than or equal to five times the LOQ. A control limit of two times the LOQ shall be used if either the sample or duplicate value is less than five times the LOQ. For field duplicate analyses that do not meet the technical criteria, the action was applied to only the field sample and its duplicate.

No samples were submitted as a field duplicate pair in association with this SDG.

12. DILUTIONS, RE-EXTRACTIONS & REANALYSIS

Samples may be re-analyzed for dilution, re-extraction and for other QC reasons. In such cases, the best result values are used.

No sample re-extractions, reanalyses or dilutions were provided for data review.

13. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

Overall, the laboratory data generated met the project goals and quality control criteria, with the exceptions identified in this report and as summarized in Table 1.

14. OTHER PROBLEMS

None.

Table 1 Major and Minor Findings

	Were acceptance criteria met?		
	Yes	No	
Per-fluorinated Compounds		Major	Minor
Holding Time/Sample Handling	x		
Method Blanks	x		
Equipment / Field Blanks	x		
Calibration Blanks	x		
Mass Calibration	x		
Calibration Percent Relative Standard Deviation and Percent Difference	x		
Isotope Dilution Analogues	x		
Compound Identification	x		
Matrix Spike/Matrix Spike Duplicate			x
Matrix Duplicate	x		
Laboratory Control Sample	x		
Other Quality Control Data out of Specification	x		
Field Duplicate	NA		

Major = Major data quality issue identified resulting in rejection of data.
Minor = Minor data quality issue identified resulting in the qualification of data. Data qualification should be used to inform the data users of data limitations.
NA = Not applicable

Table 2 Data Validation Qualifiers

Data Qualifier	Definition
U	The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
NJ	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

Table 3 PFAS Definitions Table

	CAS Number	Compound	Abbreviation(s)
1	151772-58-6	Nonafluoro-3,6-dioxaheptanoic acid	NFDHA, PFECA B
2	113507-82-7	Perfluoro (2-ethoxyethane) sulfonic acid	PFEESA, PES
3	377-73-1	Perfluoro-3-methoxypropanoic acid	PFMPA, PRMOPrA, PFECA F
4	375-73-5	Perfluorobutanesulfonic acid	PFBS
5	863090-89-5	Perfluoro-4-methoxybutanoic acid	PFMBA, PFMOBA, PFECA A
6	13252-13-6	Hexafluoropropylene Oxide Dimer Acid	HFPO-DA, Gen-X, HFPODA
7	375-22-4	Perfluorobutanoic acid	PFBA
8	335-67-1	Perfluorooctanoic acid	PFOA
9	2706-91-4	Perfluoropentanesulfonic acid	PFPeS
10	1763-23-1	Perfluorooctanesulfonic acid	PFOS, PFOSA
11	2706-90-3	Perfluoropentanoic acid	PFPeA
12	2058-94-8	Perfluoroundecanoic acid	PFUnA, PFUnDA
13	375-95-1	Perfluorononanoic acid	PFNA
14	307-55-1	Perfluorododecanoic acid	PFDoA, PFDoDA
15	335-76-2	Perfluorodecanoic acid	PFDA
16	375-92-8	Perfluoroheptanesulfonic Acid	PFHpS
17	307-24-4	Perfluorohexanoic acid	PFHxA
18	375-85-9	Perfluoroheptanoic acid	PFHpA
19	355-46-4	Perfluorohexanesulfonic acid	PFHxS
20	763051-92-9	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11CL-PF3Ouds, F-53 Minor
21	27619-97-2	6:2-Fluorotelomersulfonic acid	6:2 FTS
22	756426-58-1	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9Cl-PF3ONS
23	39108-34-4	8:2-Fluotelomersulfonic acid	8:2 FTS
24	919005-14-4	4,8-Dioxa-3H-perfluorononanoic acid	DONA, ADONA
25	757124-72-4	4:2-Fluorotelomersulfonic acid	4:2 FTS

[redacted]

EXECUTIVE NARRATIVE

Sample Delivery Group: FC23948
Laboratory: [redacted]
Site: Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, Oahu, Hawaii, EPA Co-Sampling, Extended Drinking Water Monitoring, NAH Shaft Treatment System Pilot Study
Sampling dates: 04/14/2025
Number of Samples: 4
Test Method: USEPA method 537.1
Analysis: Per-fluorinated Alkyl Substances (PFAS)

Quality Assurance Project Plan: Final Extended Drinking Water Monitoring Plan Joint Base Pearl Harbor-Hickam Public Water System #HI0000360 and Aliamanu Military Reservation PWS #HI0000337 O‘ahu, Hawai‘i, March 2024.

Validation Guidelines: Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537, EPA 910-R-18-001 (November 2018).

Client Sample ID	Laboratory Sample ID	Matrix	Validation Stage
SHAFT-HW-0018384-25098-N-R02	FC23948-1A	Drinking Water	S4VEM
SHAFT-FB-250414-25098-N	FC23948-2A	Field blank	S4VEM
SHAFT-HW-0018393-25098-N-R02	FC23948-3A	Drinking Water	S4VEM
SHAFT-HW-0018394-25098-N-R02	FC23948-4A	Drinking Water	S4VEM

Table 1 provides a summary of the major and minor data quality issues identified in this data set. All data are acceptable except those results which have been qualified with “R”, rejected. Data validation qualifiers along with associated descriptions are provided in Table 2. All data qualification related to this group of samples is detailed on the attached sheets.

All data users should note two facts. First, an "R" flag means that the associated value is unusable due to significant quality control (QC) problems, the data is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on any data tables even as a last resort. Second, no analyte concentration, even if it passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data, but any value potentially contains error.

DATA ASSESSMENT

1. NARRATIVE AND COMPLETENESS REVIEW

The case narrative was reviewed, and the data package was checked for completeness. No discrepancies were noted.

2. SAMPLE DELIVERY AND CONDITION

The samples arrived at the laboratory in acceptable condition. Proper custody was documented.

3. HOLDING TIME

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detect results will be flagged as not detected at an estimated quantitation limit, "UJ", unless the holding time is grossly exceeded (by more than two times the holding time specified), in which case non-detect results are flagged "R", rejected. Qualifications were applied to the samples and analytes as shown below.

All sample analyses were within the validation guidance.

4. MASS CALIBRATION

Mass calibration range must bracket the ion masses of interest. The most recent mass calibration must be used for every acquisition in an analytical run. Mass calibration must be verified to be ±0.5 amu of the true value, by acquiring a full scan continuum mass spectrum of a PFAS.

No problems were found for this criterion.

5. CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument can produce acceptable quantitative data. An initial calibration demonstrates that the instrument can give acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is providing satisfactory daily performance. Additionally, a continuing calibration is analyzed at the end of each 12-hour analytical sequence, denoted as a "closing" calibration verification and ascertains acceptable performance at the conclusion of the analytical sequence.

A) Initial Calibration

Percent Relative Standard Deviation (%RSD) is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent RSD must be less than the maximum %RSD, in cases where linear and non-linear regressions are used, linear correlation coefficients must be greater than the minimum requirement. If the %RSD or correlation coefficient do not meet quality control criteria, detects may be qualified as "J" and professional judgement is used to qualify non-detects. Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

B) Continuing Calibration

Percent difference (%D) compares the response factor of the continuing calibration check to mean response factor (RF) from the initial calibration. The %D for all analytes and surrogates in the continuing calibration verifications (CCVs) must be <30%. A value outside of these limits indicates potential detection and quantitation errors. If the %D exceeds quality control criteria, the positive results are flagged as estimated, "J" and non-detects are flagged "UJ". Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

6. BLANKS

Quality assurance (QA) blanks (i.e. method, storage, trip, field, or rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation and analysis or field activity. Method and storage blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. Qualifications were applied to the samples and analytes as shown below.

A) Laboratory Blanks

Method blanks were analyzed with appropriate frequency. No problems were found for this criterion.

B) Equipment / Field Blanks

Sample SHAFT-FB-250414-25098-N was submitted as a field blank in association with this sample delivery group (SDG). No problems were found for this criterion.

7. SURROGATES

All samples are spiked with isotopically labeled surrogate compounds prior to sample preparation and analyses to evaluate overall laboratory performance and efficiency of the analytical technique. The reported project samples and laboratory quality control samples had observed surrogate recoveries within the established limits in all cases with the following exceptions.

No problems requiring qualification of sample results were found for this criterion with the following exception. The observed recoveries for surrogates 13C2-PFHxA and 13C3-HFPO-DA were greater than the upper acceptable limit during the analysis of sample SHAFT-HW-0018384-25098-N-R02. All positive results reported for the impacted sample have been qualified "J" on this basis.

8. INTERNAL STANDARDS PERFORMANCE

Internal standard performance criteria are meant to ensure that the liquid chromatograph/tandem mass spectrometer (LC/MS/MS) sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than +/- 50% from the average peak area calculated during the initial calibration and 70-140% from the most recent continuing calibration standard. The retention time of the internal standard must not vary by more than +/-30 seconds from the associated continuing calibration standard. If area count is greater than the upper acceptance limit, non-detected results are not qualified while positive results are qualified "J," estimated. When an observed area count is less than the lower acceptance limit, results are qualified "J" or "UJ" as appropriate.

No problems were found for this criterion.

9. COMPOUND IDENTIFICATION

Compound Identification

The project target analyte compounds are identified on the LC/MS/MS by using the analytes relative retention time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within ±0.06 RRT units of the standard compound and have ion spectra with primary and when available secondary characteristic ions present. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

Target compound identifications were reviewed for samples at the Stage 4 level. No anomalies were identified.

10. MATRIX SPIKE/MATRIX SPIKE DUPLICATE / MATRIX DUPLICATE

Matrix spike/matrix spike duplicate (MS/MSD) data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD data may be used in conjunction with other quality control criteria for additional qualification of data.

Sample SHAFT-HW-0018393-25098-N-R02 was submitted for MS evaluation in association with this SDG. Upon evaluation all accuracy indicators were acceptable with the following exceptions. The observed MS recoveries for PFDoA, PFTrDA, and PFTeDA were lower than the lowest acceptable limit. The results reported for the impacted analytes in the parent sample has been qualified "UJ" on this basis.

Sample SHAFT-HW-0018394-25098-N-R02 was submitted for matrix duplicate evaluation in association with this SDG. Upon evaluation adequate laboratory precision was demonstrated.

11. LABORATORY CONTROL SAMPLE

The Laboratory Control Sample (LCS) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. Aqueous/water, soil/sediment, wipe, and filter LCSs shall be analyzed for each analyte utilizing the same sample preparations, analytical methods, and quality assurance/quality control (QA/QC) procedures as employed for the samples. All LCS percent recoveries must fall within the control limits. Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion with the following exceptions. The observed recoveries for PFDoA, PFTrDA, and PFTeDA were less than the lowest acceptance limit in the LCS associated with all samples in this SDG. The results reported for the impacted analytes in the associated samples have been qualified "UJ" on this basis.

12. FIELD DUPLICATE

Field duplicates may be taken and analyzed as an indication of overall precision. These analyses measure both field and laboratory precision. A control limit of 30% for the Relative Percent Difference (RPD) shall be used for original and duplicate sample values greater than or equal to five times the LOQ. A control limit of two times the LOQ shall be used if either the sample or duplicate value is less than five times the LOQ. For field duplicate analyses that do not meet the technical criteria, the action was applied to only the field sample and its duplicate.

No samples were submitted as a field duplicate pair in association with this SDG.

13. DILUTIONS, RE-EXTRACTIONS & REANALYSIS

Samples may be re-analyzed for dilution, re-extraction and for other QC reasons. In such cases, the best result values are used.

Samples were re-extracted and/or reanalyzed in several cases to confirm quality control results. Upon review, the laboratory reported the best and final result.

14. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

Overall, the laboratory data generated met the project goals and quality control criteria, with the exceptions identified in this report and as summarized in Table 1.

15. OTHER PROBLEMS

None.

Table 1 Major and Minor Findings

	Were acceptance criteria met?		
	Yes	No	
Per-fluorinated Compounds		Major	Minor
Holding Time/Sample Handling	x		
Method Blanks	x		
Equipment / Field Blanks	x		
Calibration Blanks	x		
Mass Calibration	x		
Calibration Percent Relative Standard Deviation and Percent Difference	x		
Surrogates			x
Internal Standards Performance	x		
Compound Identification	x		
Matrix Spike/Matrix Spike Duplicate			x
Matrix Duplicate	x		
Laboratory Control Sample			x
Other Quality Control Data out of Specification	x		
Field Duplicate	NA		

Major = Major data quality issue identified resulting in rejection of data.
Minor = Minor data quality issue identified resulting in the qualification of data. Data qualification should be used to inform the data users of data limitations.
NA = Not applicable

Table 2 Data Validation Qualifiers

Data Qualifier	Definition
U	The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
NJ	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

Table 3 PFAS Definitions Table

NO	CAS #	Target Name	Target Abbreviation
1	307-24-4	Perfluorohexanoic acid	PFHxA
2	375-85-9	Perfluoroheptanoic acid	PFHpA
3	335-67-1	Perfluorooctanoic acid	PFOA
4	375-95-1	Perfluorononanoic acid	PFNA
5	335-76-2	Perfluorodecanoic acid	PFDA
6	2058-94-8	Perfluoroundecanoic acid	PFUnDA
7	307-55-1	Perfluorododecanoic acid	PFDoA
8	72629-94-8	Perfluorotridecanoic acid	PFTrDA
9	376-06-7	Perfluorotetradecanoic acid	PFTeDA
10	375-73-5	Perfluorobutanesulfonic acid	PFBS
11	355-46-4	Perfluorohexanesulfonic acid	PFHxS
12	1763-23-1	Perfluorooctanesulfonic acid	PFOS
13	2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid	NMeFOSAA
14	2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid	NEtFOSAA
15	13252-13-6	2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptapropoxy)-propanoic acid	GenX (HFPODA)
16	919005-14-4(e)	Sodium dodcaefluoro-3H-4, 8-dioxanonanoate	DONA, ADONA, NaDONA
17	756426-58-1	Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS
18	763051-92-9	Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS

Calculation Documentation

Internal Standard Initial Calibration and Calculation Worksheet

Lab: (b) (4)
Method: 533
Instrument: GCMS3Q
Curve Date: 4/15/2025
Compound: PFPeA
Internal Standard: M5-PFPeA

Initial Calibration Model Worksheet

Compound Area Ax	ISTD Area Ais	Compound Conc Cx	ISTD Conc Cis	Y-Values Ax/Ais	X-Values Cx/Cis	X^2 $(Cx/Cis)^2$	RF (Ax*Cis)/(Ais*Cx)
6106	179781	0.5	10	0.033963545	0.05	0.0025	0.679
14013	166322	1	10	0.084252234	0.1	0.01	0.843
26850	166839	2	10	0.160933595	0.2	0.04	0.805
68867	164287	5	10	0.419187154	0.5	0.25	0.838
151266	175842	10	10	0.860238168	1	1	0.860
270642	179212	20	10	1.51017789	2	4	0.755
528721	175506	40	10	3.012552277	4	16	0.753
657220	175238	50	10	3.750442256	5	25	0.750
SUM OF EACH COLUMN :				9.8317	12.85	46.3025	6.2834

CALIBRATION MODELS:

Average Response Factor:
Cx = Ax*Cis/Ais/RF

Average RF	0.785	AVERAGE(RF)	0.7854
RSD	7.8%	STDEV(RF)/(AveRF)	7.834

Linear Regression:

y = mx + b
Cx = (((Ax/Ais)-b)/m)*Cis

Weighting	Equal	1/X	$1/X^2$	Equation
Slope (m)	0.745948654	0.76214	0.80408	SLOPE(RatioY,RatioX)
Intercept (b)	0.03079	0.00478	-0.003831	INTERCEPT(RatioY,RatioX)
CC (R)	0.99967	0.99892	0.99678	CORREL(RatioY,RatioX)
COD (R^2)	0.99934	0.99783	0.99357	POWER(R,2)

Quadratic Regression:

$y = ax^2 + bx + c$
Cx=(SQRT(b^2-(4*a*(c-(Ax/Ais))))-b)/(2*a)*Cis

Weighting	Equal	1/X	$1/X^2$	Equation
x^2 Coefficient (a)	-0.00748	-0.00691	0.00312	LINEST(RatioY,RatioX:RatioX^2,1,1)
x Coefficient (b)	0.78202	0.77925	0.74998	INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),1,2)
Intercept (c)	0.01614	0.01726	0.00625	INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),1,3)
COD (R^2)	0.99947			INDEX(LINEST(RatioY,RatioX:RatioX^2,1,1),3,1)

Sample Concentration Calculations

Sample ID	File ID	Compound Area Ax	ISTD Area Ais	ISTD Conc Cis	Ave RF On-column Conc	Linear Cal On-column Conc Equal Weighting	Linear Cal On-column Conc 1/X Weighting	Linear Cal On-column Conc $1/X^2$ Weighting	Quadratic Cal On-column Conc Equal Weighting	Quadratic Cal On-column Conc 1/X Weighting	Quadratic Cal On-column Conc $1/X^2$ Weighting	
Equations:					Ax*Cis/Ais/RF	((Ax/Ais-b)/m)*Cis			(SQRT(b^2-(4*a*(c-(Ax/Ais))))-b)/(2*a)*Cis			
ICV	3Q101467.D	243359	164253	10	18.864	19.449	19.377	18.474	19.088	19.115	19.514	19.64
CCV	3Q101533.D	337210	224937	10	19.087	19.684	19.607	18.692	19.321	19.348	19.743	19.87
MB	3Q101525.D	0	160030	10	0.000	-0.413	-0.063	0.048	-0.206	-0.221	-0.083	ND
LCS	3Q101524.D	13294	164014	10	1.032	0.674	1.001	1.056	0.831	0.819	0.997	1.07
FC23948-1	3Q101526.D	29326	152577	10	2.447	2.164	2.459	2.438	2.256	2.249	2.477	2.55

Appendix F:
Email Confirmation That DOH Did Not Collect Split Samples

Outlook

RE: NAHS Pilot Study - DOH Split Samples

From (b) (6)
Date Thu 5/15/2025 11:53 AM
To (b) (6)
Cc (b) (6)

Hi (b) (6)

I can confirm he DOH did not take any split samples during the pilot study.

Respectfully,
(b) (6)

(b) (6)
Drinking Water Team Lead, NCTF-Environmental and Remediation
Bldg 150
JBPHH HI 96860-3139
(b) (6)

NOTICE: CONTROLLED UNCLASSIFIED INFORMATION (CUI) - this transmission may include material containing personally identifiable information. Any misuse or unauthorized disclosure can result in both civil and criminal penalties. If you have received this communication in error, please notify me immediately by email and delete the original message.

From (b) (6)
Sent: Thursday, May 15, 2025 11:49 AM
To: (b) (6)
Cc: (b) (6) (b) (6)
Subject: [Non-DoD Source] NAHS Pilot Study - DOH Split Samples

Hi (b) (6)

Could you confirm that DOH was invited to oversee and given the option collect split samples, but they did not collect splits at the NAHS Pilot Study?

The highlighted section is what we're trying to confirm for the Tech Memo:

> 2.4 Pilot Study Approach
> The anticipated duration of the pilot study was 30 days. However, on day 24, the HI Department of Transportation (DOT) requested an emergency suspense to the pilot study's discharge operations in order to facilitate emergency repairs to downgrade

infrastructure below the adjacent freeway. Accordingly, the Navy suspended further operations, which prevented the remaining 6 days of the pilot study, including the final two sample events. After notification to and consultation with DOH, it was determined that sufficient samples had been collected to support conclusion of the pilot study. Over the 24-day pilot study period, 33 water samples were collected from three locations: prior to GAC treatment (raw water/influent), after the GAC vessels, and after the IX treatment (effluent). Additional quality control samples were collected, and DOH was invited to oversee sample collection activities and collect split samples for an independent check on accuracy. DOH did not collect any split samples.

Regards,

(b) (6)

Project Manager IV, US West Environment

(b) (6)

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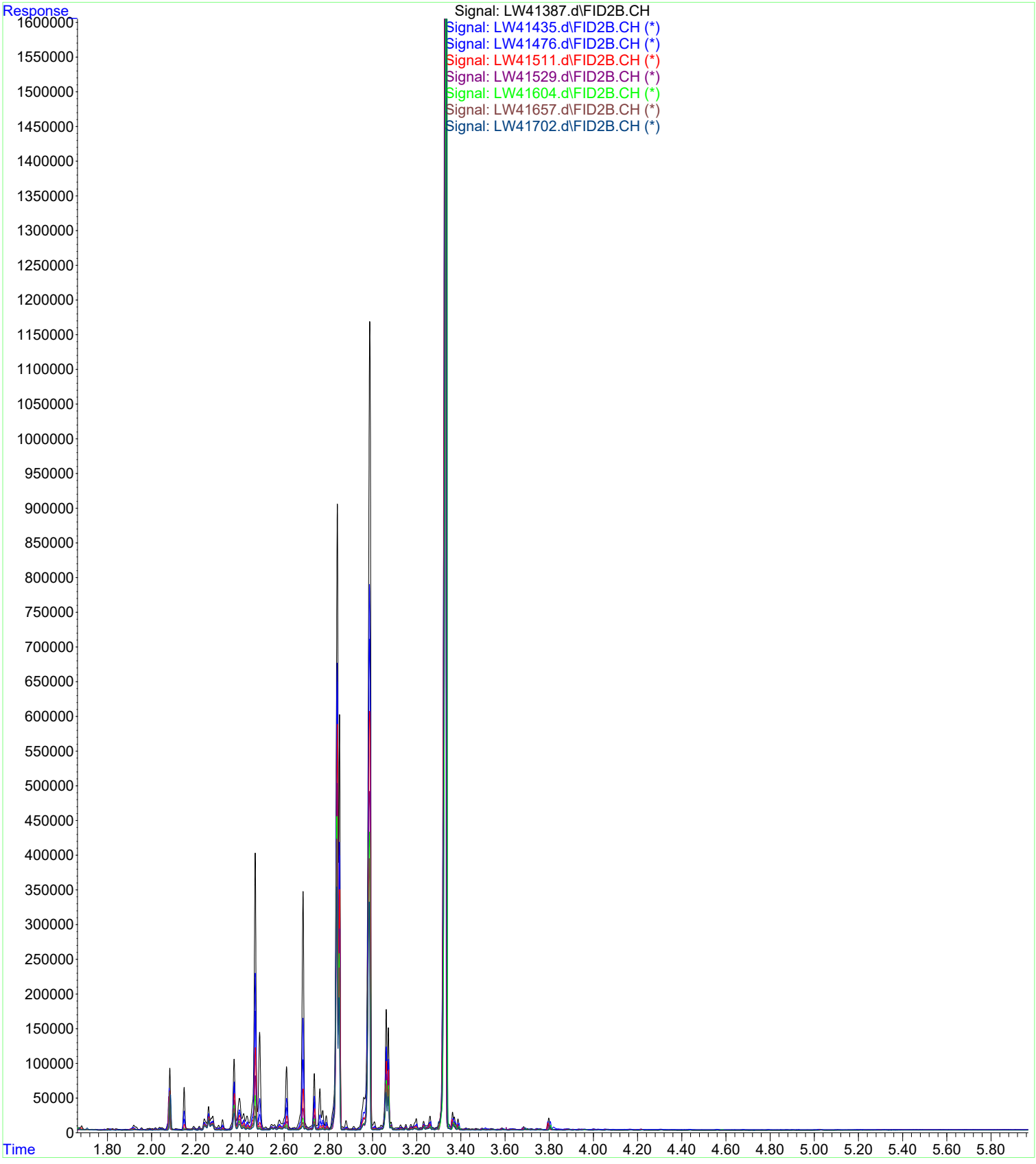
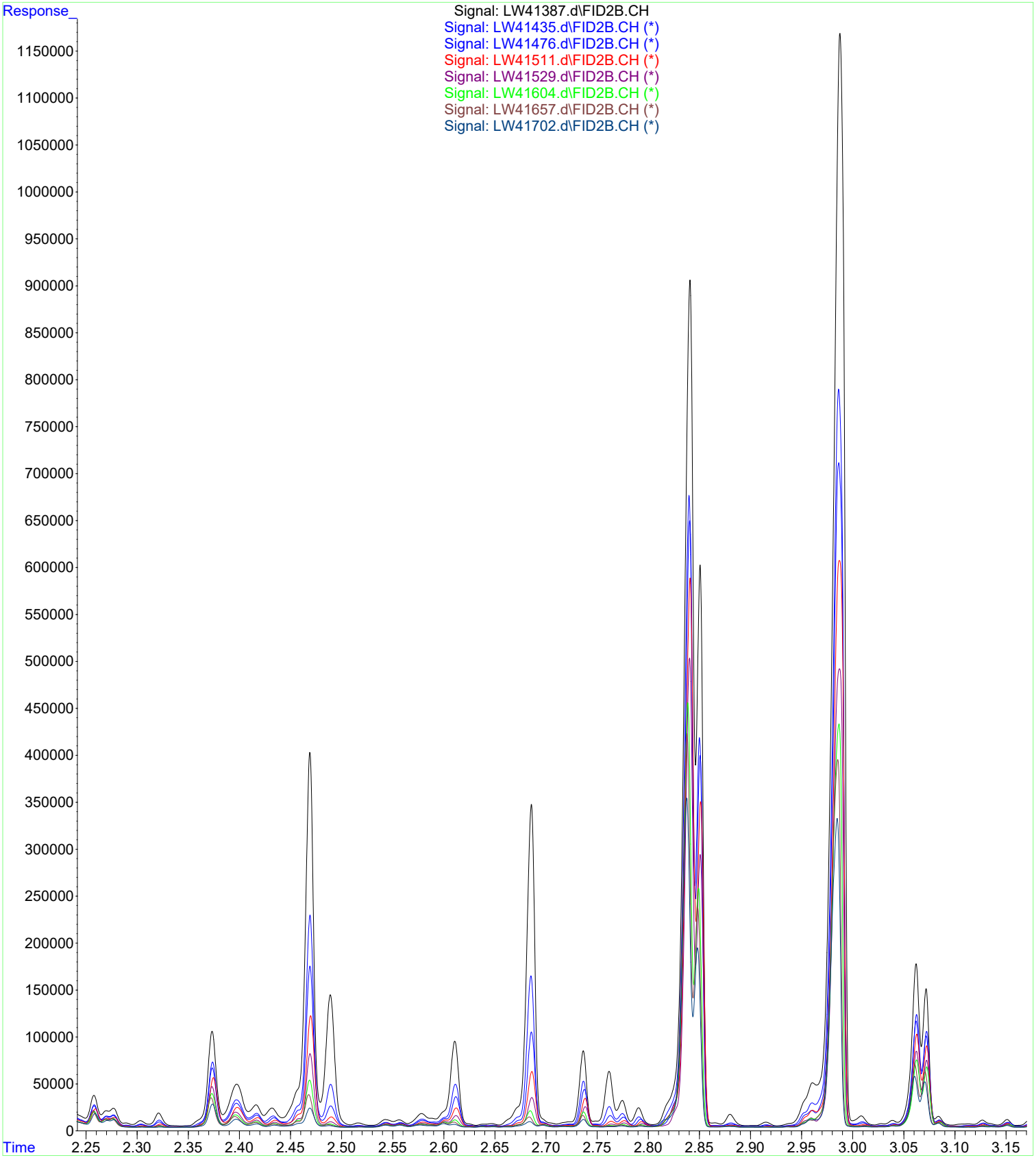
Appendix G:
Chromatographic Overlay of Post-IX TPH Results

File :C:\Users\(b) (6) \Desktop\AECOM\AECOM Screens\AECOM Shaf
... t Samples\04.08.25 - 673-3\LW41387.d
Operator : (b) (6)
Instrument : GLW
Acquired : 09 Apr 2025 22:29 pm using AcqMethod DROLVIFAST.M
Sample Name: da71673-3
Misc Info : OP27482,GLW970,58.0,,,2,1



File :C:\Users\(b) (6) \Desktop\AECOM\AECOM Screens\AECOM Shaf
... t Samples\04.08.25 - 673-3\LW41387.d
Operator : (b) (6)
Instrument : GLW
Acquired : 09 Apr 2025 22:29 pm using AcqMethod DROLVIFAST.M
Sample Name: da71673-3
Misc Info : OP27482,GLW970,58.0,,,2,1



Appendix H:
Historical Results of NAHS Monitoring

EPA NAH Split Sample Results

Date Sampled	Sample ID	Address	Analyte	**EPA Results (µg/L)**	EPA Results calculated with uncertainty (±18.82%)	EPA's MDL (µg/L)	EPA's Quantitation Limit (µg/L)
6/4/2024	004	Aiea-Halawa Shaft Pre-Chlor	TPH - DRO	**68**	55.2024	50	150
6/4/2024	004D	Aiea-Halawa Shaft Pre-Chlor Dup	TPH - DRO	**ND**	N/A	50	150

PWSS TPH Detects

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA	SHFTAIEA	SHFTAIEA	SHFTAIEA	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft	Aiea-Halawa Shaft	Aiea-Halawa Shaft	Aiea-Halawa Shaft	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:			220113-AH-WT01	220113-AH-WT03	I1-HW-0016022-22060-N	I1-HW-0016022-22060-3-N	SHAFT-HW-0017491-22235-N	SHAFT-HW-0017491-22266-N	SHAFT-HW-0017491-22266-N-ME	SHAFT-HW-0017491-22266-N-P	SHAFT-HW-0017491-22266-N-Q	SHAFT-HW-0017491-24122-N
Sample Date:			2022-01-13	2022-01-13	2022-03-01	2022-03-01	2022-08-23	2024-02-13	2024-02-13	2024-02-13	2024-02-13	2024-05-10
Sample Type:			N	N	N	FD	N	N	N	N	N	N
BAC (CFU/100ml)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: 5801092731**	**SDG: C22A012**	**SDG: DA42472**	**SDG: DA42472**	**SDG: DA48369**	**SDG: DA61982A**		**SDG: 35867999**		**SDG: 240510-2568-063**
Coliform	None	None	--	--	--	--	--	--	--	--	--	**1.00**
E. coli	None	None	--	--	--	--	--	--	--	--	--	0.00 U
BAC (CFU/ml)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: 5801092731**	**SDG: C22A012**	**SDG: DA42472**	**SDG: DA42472**	**SDG: DA48369**	**SDG: DA61982A**		**SDG: 35867999**		**SDG: DA64321**
Heterotrophic Plate Count	None	None	--	--	--	--	--	--	--	--	--	--
BAC (MPN/ml)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: 5801092731**	**SDG: C22A012**	**SDG: DA42472**	**SDG: DA42472**	**SDG: DA48369**	**SDG: DA61982A**		**SDG: 35867999**		**SDG: 240510-2568-063**
Heterotrophic Plate Count	None	None	--	--	--	--	--	--	--	--	--	**43.0**
Field Tests (mg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: 5801092731**	**SDG: C22A012**	**SDG: DA42472**	**SDG: DA42472**	**SDG: DA48369**					
Free Chlorine	None	4	--	--	--	--	--	0.0300	0.0300	0.0300	0.0300	0.0400
GENCHEM (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: 5801092731**	**SDG: C22A012**	**SDG: DA42472**	**SDG: DA42472**	**SDG: DA48369**	**SDG: DA61982A**		**SDG: 35867999**		**SDG: DA64321**
Bromate	None	10	--	--	--	--	--	--	--	--	--	--
Bromide	None	None	--	--	--	--	--	--	--	--	--	**350**
Chlorate	None	None	--	--	--	--	--	--	--	--	--	**8.80 J**
Chloride	None	None	--	--	--	--	--	--	--	--	--	**87700**
Chlorite	None	1000	--	--	--	--	--	--	--	--	--	5.00 U
Fluoride	None	4000	--	--	--	--	--	--	--	--	--	**84.0 J**
Phosphorus, Total Orthophosphate (as P)	None	None	--	--	--	--	--	--	--	--	--	**480**
Sulfate	None	None	--	--	--	--	--	--	--	--	--	**25500**

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017491-24122-N-R1	SHAFT-HW-0017491-24183-N	SHAFT-HW-0017912-22266-N	SHAFT-HW-0017912-22266-N-R1	SHAFT-HW-0017912-22266-N-R2	SHAFT-HW-0017912-22266-N-R3	SHAFT-HW-0017912-22266-N-R4	SHAFT-HW-0017912-22266-N-R5	SHAFT-HW-0017912-22266-N-R6	SHAFT-HW-0017912-22266-N-R7
Sample Date:			2024-05-30	2024-07-24	2022-09-23	2022-10-06	2022-10-13	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20
Sample Type:			N	N	N	N	N	N	N	N	N	N
BAC (CFU/100ml)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA64664**	**SDG: 240724-2568-717**	**SDG: DA49427**	**SDG: DA49866**	**SDG: DA50053**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50320**	**SDG: DA50320**
Coliform	None	None	--	**1.00**	--	--	--	--	--	--	--	--
E. coli	None	None	--	0.00 U	--	--	--	--	--	--	--	--
BAC (CFU/ml)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA64664**	**SDG: DA65891**	**SDG: DA49427**	**SDG: DA49866**	**SDG: DA50053**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50320**	**SDG: DA50320**
Heterotrophic Plate Count	None	None	--	--	--	--	--	--	--	--	--	--
BAC (MPN/ml)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA64664**	**SDG: 240724-2568-717**	**SDG: DA49427**	**SDG: DA49866**	**SDG: DA50053**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50320**	**SDG: DA50320**
Heterotrophic Plate Count	None	None	--	**80.0**	--	--	--	--	--	--	--	--
Field Tests (mg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**										
Free Chlorine	None	4	0.0200	0.0200	0.590	0.530	0.430	0.800-0.970	0.800-0.970	0.800-0.970	0.800-0.970	0.800-0.970
GENCHEM (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA64664**	**SDG: DA65891**	**SDG: DA49427**	**SDG: DA49866**	**SDG: DA50053**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50320**	**SDG: DA50320**
Bromate	None	10	25.0 U	25.0 U	--	--	--	--	--	--	--	--
Bromide	None	None	--	**420**	--	--	--	--	--	--	--	--
Chlorate	None	None	50.0 U	**30.0 J**	--	--	--	--	--	--	--	--
Chloride	None	None	--	**114000**	--	--	--	--	--	--	--	--
Chlorite	None	1000	25.0 U	25.0 U	--	--	--	--	--	--	--	--
Fluoride	None	4000	--	50.0 U	--	--	--	--	--	--	--	--
Phosphorus, Total Orthophosphate (as P)	None	None	--	**220**	--	--	--	--	--	--	--	--
Sulfate	None	None	--	**31300**	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-3-N-R8	SHAFT-HW-0017912-22266-N-R8	SHAFT-HW-0017912-22266-N-R9	SHAFT-HW-0017912-22266-N-R10	SHAFT-HW-0017912-22266-N-R11	SHAFT-HW-0017912-22266-N-R12	SHAFT-HW-0017912-22266-N-R13	SHAFT-HW-0017912-22266-N-R14	SHAFT-HW-0017912-22266-N-R15	SHAFT-HW-0017912-22266-N-R16
Sample Date:			2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-21	2022-10-21	2022-11-08
Sample Type:			FD	N	N	N	N	N	N	N	N	N
BAC (CFU/100ml)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50909**
Coliform	None	None	--	--	--	--	--	--	--	--	--	--
E. coli	None	None	--	--	--	--	--	--	--	--	--	--
BAC (CFU/ml)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50909**
Heterotrophic Plate Count	None	None	--	--	--	--	--	--	--	--	--	--
BAC (MPN/ml)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50909**
Heterotrophic Plate Count	None	None	--	--	--	--	--	--	--	--	--	--
Field Tests (mg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**										
Free Chlorine	None	4	0.800-0.970	0.800-0.970	0.800-0.970	0.800-0.970	0.800-0.970	0.800-0.970	0.800-0.970	0.0800-1.09	0.0800-1.09	0.730
GENCHEM (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50909**
Bromate	None	10	--	--	--	--	--	--	--	--	--	--
Bromide	None	None	--	--	--	--	--	--	--	--	--	--
Chlorate	None	None	--	--	--	--	--	--	--	--	--	--
Chloride	None	None	--	--	--	--	--	--	--	--	--	--
Chlorite	None	1000	--	--	--	--	--	--	--	--	--	--
Fluoride	None	4000	--	--	--	--	--	--	--	--	--	--
Phosphorus, Total Orthophosphate (as P)	None	None	--	--	--	--	--	--	--	--	--	--
Sulfate	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-N-R17	SHAFT-HW-0017912-22266-N-R18	SHAFT-HW-0017912-22266-N-R19	SHAFT-HW-0017912-22266-N-R20	SHAFT-HW-0017912-22266-N-R21	SHAFT-HW-0017912-22266-N-R22	SHAFT-HW-0017912-22266-N-5	SHAFT-HW-0017912-22266-N-R23	SHAFT-HW-0017912-22266-N-R24	SHAFT-HW-0017912-22266-N-R25
Sample Date:			2022-11-16	2022-11-29	2022-12-14	2023-01-05	2023-01-31	2023-02-15	2023-02-15	2023-03-08	2023-03-28	2023-04-18
Sample Type:			N	N	N	N	N	N	N	N	N	N
BAC (CFU/100ml)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA51167**	**SDG: DA51405**	**SDG: DA51897**	**SDG: DA52372**	**SDG: DA52995**	**SDG: DA53393**		**SDG: DA53874**	**SDG: DA54306**	**SDG: DA54814**
Coliform	None	None	--	--	--	--	--	--	--	--	--	--
E. coli	None	None	--	--	--	--	--	--	--	--	--	--
BAC (CFU/ml)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA51167**	**SDG: DA51405**	**SDG: DA51897**	**SDG: DA52372**	**SDG: DA52995**	**SDG: DA53393**		**SDG: DA53874**	**SDG: DA54306**	**SDG: DA54814**
Heterotrophic Plate Count	None	None	--	--	--	--	--	--	--	--	--	--
BAC (MPN/ml)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA51167**	**SDG: DA51405**	**SDG: DA51897**	**SDG: DA52372**	**SDG: DA52995**	**SDG: DA53393**		**SDG: DA53874**	**SDG: DA54306**	**SDG: DA54814**
Heterotrophic Plate Count	None	None	--	--	--	--	--	--	--	--	--	--
Field Tests (mg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**										
Free Chlorine	None	4	0.530	0.510	0.480	0.390	1.46	0.480	0.480	0.480	0.370	0.410
GENCHEM (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA51167**	**SDG: DA51405**	**SDG: DA51897**	**SDG: DA52372**	**SDG: DA52995**	**SDG: DA53393**		**SDG: DA53874**	**SDG: DA54306**	**SDG: DA54814**
Bromate	None	10	--	--	--	--	--	--	--	--	--	--
Bromide	None	None	--	--	--	--	--	--	--	--	--	--
Chlorate	None	None	--	--	--	--	--	--	--	--	--	--
Chloride	None	None	--	--	--	--	--	--	--	--	--	--
Chlorite	None	1000	--	--	--	--	--	--	--	--	--	--
Fluoride	None	4000	--	--	--	--	--	--	--	--	--	--
Phosphorus, Total Orthophosphate (as P)	None	None	--	--	--	--	--	--	--	--	--	--
Sulfate	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-3-N-R25	SHAFT-HW-0017912-22266-N-R26	SHAFT-HW-0017912-22266-3-N-R26	SHAFT-HW-0017912-22266-N-R27	SHAFT-HW-0017912-22266-N-R28	SHAFT-HW-0017912-22266-3-N-R28	SHAFT-HW-0017912-22266-N-R29	SHAFT-HW-0017912-22266-N-R30	SHAFT-HW-0017912-22266-N-R31	SHAFT-HW-0017912-22266-N-R32
Sample Date:			2023-04-18	2023-04-24	2023-04-24	2023-05-09	2023-05-30	2023-05-30	2023-06-20	2023-07-11	2023-08-01	2023-08-22
Sample Type:			FD	N	FD	N	N	FD	N	N	N	N
BAC (CFU/100ml)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA54814**	**SDG: 380449281**	**SDG: 380449281**	**SDG: DA55338**	**SDG: DA55797**	**SDG: DA55797**	**SDG: DA56300**	**SDG: DA56802**	**SDG: DA57381**	**SDG: DA58027**
Coliform	None	None	--	--	--	--	--	--	--	--	--	--
E. coli	None	None	--	--	--	--	--	--	--	--	--	--
BAC (CFU/ml)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA54814**	**SDG: 380449281**	**SDG: 380449281**	**SDG: DA55338**	**SDG: DA55797**	**SDG: DA55797**	**SDG: DA56300**	**SDG: DA56802**	**SDG: DA57381**	**SDG: DA58027**
Heterotrophic Plate Count	None	None	--	--	--	--	--	--	--	--	--	--
BAC (MPN/ml)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA54814**	**SDG: 380449281**	**SDG: 380449281**	**SDG: DA55338**	**SDG: DA55797**	**SDG: DA55797**	**SDG: DA56300**	**SDG: DA56802**	**SDG: DA57381**	**SDG: DA58027**
Heterotrophic Plate Count	None	None	--	--	--	--	--	--	--	--	--	--
Field Tests (mg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**										
Free Chlorine	None	4	0.410	0.360	0.360	0.350	0.560	0.560	0.500	0.680	0.140	0.470
GENCHEM (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA54814**	**SDG: 380449281**	**SDG: 380449281**	**SDG: DA55338**	**SDG: DA55797**	**SDG: DA55797**	**SDG: DA56300**	**SDG: DA56802**	**SDG: DA57381**	**SDG: DA58027**
Bromate	None	10	--	--	--	--	--	--	--	--	--	--
Bromide	None	None	--	--	--	--	--	--	--	--	--	--
Chlorate	None	None	--	--	--	--	--	--	--	--	--	--
Chloride	None	None	--	--	--	--	--	--	--	--	--	--
Chlorite	None	1000	--	--	--	--	--	--	--	--	--	--
Fluoride	None	4000	--	--	--	--	--	--	--	--	--	--
Phosphorus, Total Orthophosphate (as P)	None	None	--	--	--	--	--	--	--	--	--	--
Sulfate	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-PR-FW1	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2
Location Type:			Well	Well	Well	Well	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Pre-Chlorination Spigot	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-N-R33	SHAFT-HW-0017912-22266-N-R34	SHAFT-HW-0017912-22266-N-R35	SHAFT-HW-0017912-22266-N-R36	SHAFT-HW-0018363-24153-N	SHAFT-HW-0018384-24275-N	SHAFT-HW-0018384-25001-N	SHAFT-HW-0018384-25051-N	SHAFT-HW-0018384-25051-3-N	SHAFT-HW-0018384-25051-N-R1
Sample Date:			2023-09-12	2023-10-03	2023-10-24	2023-11-14	2024-06-04	2024-10-22	2025-01-08	2025-02-20	2025-02-20	2025-03-07
Sample Type:			N	N	N	N	N	N	N	N	FD	N
BAC (CFU/100ml)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA58496**	**SDG: DA59044**	**SDG: DA59556**	**SDG: DA60011**	**SDG: DA64740E**	**SDG: DA68257**	**SDG: DA69805**	**SDG: DA70645**	**SDG: DA70645**	**SDG: 35942699**
Coliform	None	None	--	--	--	--	--	--	--	--	--	--
E. coli	None	None	--	--	--	--	--	--	--	--	--	--
BAC (CFU/ml)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA58496**	**SDG: DA59044**	**SDG: DA59556**	**SDG: DA60011**	**SDG: DA64740E**	**SDG: 241022-OLT-20**	**SDG: DA69805**	**SDG: DA70645**	**SDG: DA70645**	**SDG: 35942699**
Heterotrophic Plate Count	None	None	--	--	--	--	--	**132**	--	--	--	--
BAC (MPN/ml)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA58496**	**SDG: DA59044**	**SDG: DA59556**	**SDG: DA60011**	**SDG: DA64740E**	**SDG: DA68257**	**SDG: DA69805**	**SDG: DA70645**	**SDG: DA70645**	**SDG: 35942699**
Heterotrophic Plate Count	None	None	--	--	--	--	--	--	--	--	--	--
Field Tests (mg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**						**SDG: DA68257**	**SDG: DA69805**	**SDG: DA70645**	**SDG: DA70645**	**SDG: 35942699**
Free Chlorine	None	4	0.480	0.640	0.680	0.540	0.0400	--	--	--	--	--
GENCHEM (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA58496**	**SDG: DA59044**	**SDG: DA59556**	**SDG: DA60011**	**SDG: DA64740E**	**SDG: DA68257**	**SDG: DA69805**	**SDG: DA70645**	**SDG: DA70645**	**SDG: 35942699**
Bromate	None	10	--	--	--	--	25.0 U	25.0 U	25.0 U	--	--	--
Bromide	None	None	--	--	--	--	--	**83.0**	**600**	--	--	--
Chlorate	None	None	--	--	--	--	25.0 U	25.0 U	25.0 U	--	--	--
Chloride	None	None	--	--	--	--	--	**149000**	**145000**	--	--	--
Chlorite	None	1000	--	--	--	--	25.0 U	25.0 U	25.0 U	--	--	--
Fluoride	None	4000	--	--	--	--	--	50.0 U	**76.0 J**	--	--	--
Phosphorus, Total Orthophosphate (as P)	None	None	--	--	--	--	--	**180**	**170**	--	--	--
Sulfate	None	None	--	--	--	--	--	**42800**	**40900**	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2
Location Type:	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap
Residence:	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:	SHAFT-HW-0018384-25051-3-N-R1	SHAFT-HW-0018384-25051-N-R2	SHAFT-HW-0018384-25051-3-N-R2	SHAFT-HW-0018384-25091-N
Sample Date:	2025-03-07	2025-04-14	2025-04-14	2025-04-16
Sample Type:	FD	N	FD	N

BAC (CFU/100ml)	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 35942699	SDG: 2504116	SDG: 2504116	SDG: DA71831B
Coliform	None	None	--	--	--	--
E. coli	None	None	--	--	--	--

BAC (CFU/ml)	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 35942699	SDG: 2504116	SDG: 2504116	SDG: DA71831B
Heterotrophic Plate Count	None	None	--	--	--	--

BAC (MPN/ml)	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 35942699	SDG: 2504116	SDG: 2504116	SDG: DA71831B
Heterotrophic Plate Count	None	None	--	--	--	--

Field Tests (mg/L)	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 35942699	SDG: 2504116	SDG: 2504116	SDG: DA71831B
Free Chlorine	None	4	--	0.00 U	0.00 U	0.0400

GENCHEM (µg/L)	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 35942699	SDG: 2504116	SDG: 2504116	SDG: DA71831B
Bromate	None	10	--	--	--	25.0 U
Bromide	None	None	--	--	--	**680**
Chlorate	None	None	--	--	--	**33.0 J**
Chloride	None	None	--	--	--	**176000**
Chlorite	None	1000	--	--	--	25.0 U
Fluoride	None	4000	--	--	--	**70.0 J**
Phosphorus, Total Orthophosphate (as P)	None	None	--	--	--	**130**
Sulfate	None	None	--	--	--	**49300**

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA	SHFTAIEA	SHFTAIEA	SHFTAIEA	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft	Aiea-Halawa Shaft	Aiea-Halawa Shaft	Aiea-Halawa Shaft	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:			220113-AH-WT01	220113-AH-WT03	I1-HW-0016022-22060-N	I1-HW-0016022-22060-3-N	SHAFT-HW-0017491-22235-N	SHAFT-HW-0017491-22266-N	SHAFT-HW-0017491-22266-N-ME	SHAFT-HW-0017491-22266-N-P	SHAFT-HW-0017491-22266-N-Q	SHAFT-HW-0017491-24122-N
Sample Date:			2022-01-13	2022-01-13	2022-03-01	2022-03-01	2022-08-23	2024-02-13	2024-02-13	2024-02-13	2024-02-13	2024-05-10
Sample Type:			N	N	N	FD	N	N	N	N	N	N
GENCHEM (Fibers/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: 5801092731**	**SDG: C22A012**	**SDG: DA42472**	**SDG: DA42472**	**SDG: DA48369**	**SDG: DA61982A**		**SDG: 35867999**		**SDG: DA64321**
Asbestos	None	None	--	--	--	--	--	--	--	--	--	--
GENCHEM (mg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: 5801092731**	**SDG: C22A012**	**SDG: DA42472**	**SDG: DA42472**	**SDG: DA48369**	**SDG: DA61982A**		**SDG: 35867999**		**SDG: DA64321**
Alkalinity, Total (as CaCO3)	None	None	--	--	--	--	--	--	--	--	--	**137**
Chloride	None	None	--	--	--	--	--	--	--	--	--	--
Cyanide	None	None	--	--	--	--	--	--	--	--	--	--
Nitrate (as N)	None	None	--	--	--	--	--	--	--	--	--	--
Nitrite (as N)	None	None	--	--	--	--	--	--	--	--	--	--
Sulfate	None	None	--	--	--	--	--	--	--	--	--	--
Surfactants	None	None	--	--	--	--	--	--	--	--	--	--
Total Organic Carbon	None	None	--	--	--	--	--	**0.210 J**	--	0.500 U	--	--
HC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: 5801092731**	**SDG: 5801093261**	**SDG: DA42472**	**SDG: DA42472**	**SDG: DA48369**	**SDG: DA61982A**	**SDG: DA61987A**	**SDG: 580-136572-2**	**SDG: DA61982Q**	**SDG: DA64321**
Petroleum Hydrocarbons (as Diesel)	None	None	97.0 U	93.0 U	--	--	50.0 U	50.0 UJ	45.0 U	65.0 U	50.0 U	--
Petroleum Hydrocarbons (as Gasoline)	None	None	31.0 U	31.0 U	--	--	50.0 U	50.0 U	--	31.0 U	--	--
Petroleum Hydrocarbons (as Motor Oil)	None	None	190 U	190 U	--	--	50.0 U	50.0 UJ	45.0 U	180 U	50.0 U	--
Petroleum Hydrocarbons, Total	None	None	ND	ND	--	--	ND	ND	ND	ND	ND	--
HERB (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: 5801092731**	**SDG: 980535**	**SDG: DA42472**	**SDG: DA42472**	**SDG: DA48369**	**SDG: DA61982A**		**SDG: 35867999**		**SDG: DA64321**
2,4-D (Dichlorophenoxyacetic acid)	None	None	--	--	--	--	--	--	--	--	--	--
Dalapon	None	None	--	--	--	--	--	--	--	--	--	--
Dinoseb	None	None	--	--	--	--	--	--	--	--	--	--
Endothal	None	None	--	--	--	--	--	--	--	--	--	--
Glyphosate	None	None	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	1	None	--	0.0200 U	--	--	--	--	--	--	--	--
Picloram	None	None	--	--	--	--	--	--	--	--	--	--
Silvex (2,4,5-TP)	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017491-24122-N-R1	SHAFT-HW-0017491-24183-N	SHAFT-HW-0017912-22266-N	SHAFT-HW-0017912-22266-N-R1	SHAFT-HW-0017912-22266-N-R2	SHAFT-HW-0017912-22266-N-R3	SHAFT-HW-0017912-22266-N-R4	SHAFT-HW-0017912-22266-N-R5	SHAFT-HW-0017912-22266-N-R6	SHAFT-HW-0017912-22266-N-R7
Sample Date:			2024-05-30	2024-07-24	2022-09-23	2022-10-06	2022-10-13	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20
Sample Type:			N	N	N	N	N	N	N	N	N	N
GENCHEM (Fibers/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA64664**	**SDG: DA65891**	**SDG: DA49427**	**SDG: DA49866**	**SDG: DA50053**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50320**	**SDG: DA50320**
Asbestos	None	None	--	--	--	--	--	--	--	--	--	--
GENCHEM (mg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA64664**	**SDG: DA65891**	**SDG: DA49427**	**SDG: DA49866**	**SDG: DA50053**	**SDG: DA50303A**	**SDG: DA50303A**	**SDG: DA50303A**	**SDG: DA50320A**	**SDG: DA50320A**
Alkalinity, Total (as CaCO3)	None	None	--	**170**	--	--	--	--	--	--	--	--
Chloride	None	None	--	--	--	--	--	**38.2**	**36.7**	**36.8**	**38.3**	**39.1**
Cyanide	None	None	--	--	--	--	--	--	--	--	--	--
Nitrate (as N)	None	None	--	--	--	--	--	**0.510**	**0.490**	**0.490**	**0.500**	**0.500**
Nitrite (as N)	None	None	--	--	--	--	--	--	--	--	--	--
Sulfate	None	None	--	--	--	--	--	**6.40**	**6.00**	**6.00**	**6.10**	**6.20**
Surfactants	None	None	--	--	--	--	--	--	--	--	--	--
Total Organic Carbon	None	None	--	--	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
HC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA64664**	**SDG: DA65891**	**SDG: DA49427A**	**SDG: DA49866**	**SDG: DA50053**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50320**	**SDG: DA50320**
Petroleum Hydrocarbons (as Diesel)	None	None	--	--	**80.2 J**	**56.4 J**	**78.3 J**	**74.9 J**	**62.6 J**	**63.4 J**	**61.6 J**	**71.7 J**
Petroleum Hydrocarbons (as Gasoline)	None	None	--	--	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Petroleum Hydrocarbons (as Motor Oil)	None	None	--	--	50.0 U	50.0 U	52.0 U	51.0 U	50.0 U	51.0 UJ	52.0 U	52.0 U
Petroleum Hydrocarbons, Total	None	None	--	--	ND	**56.4**	**78.3**	**74.9**	**62.6**	**63.4**	**61.6**	**71.7**
HERB (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA64664**	**SDG: DA65891**	**SDG: DA49427**	**SDG: DA49866**	**SDG: DA50053**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50320**	**SDG: DA50320**
2,4-D (Dichlorophenoxyacetic acid)	None	None	--	--	--	--	--	--	--	--	--	--
Dalapon	None	None	--	--	--	--	--	--	--	--	--	--
Dinoseb	None	None	--	--	--	--	--	--	--	--	--	--
Endothal	None	None	--	--	--	--	--	--	--	--	--	--
Glyphosate	None	None	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	1	None	--	--	--	--	--	--	--	--	--	--
Picloram	None	None	--	--	--	--	--	--	--	--	--	--
Silvex (2,4,5-TP)	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-3-N-R8	SHAFT-HW-0017912-22266-N-R8	SHAFT-HW-0017912-22266-N-R9	SHAFT-HW-0017912-22266-N-R10	SHAFT-HW-0017912-22266-N-R11	SHAFT-HW-0017912-22266-N-R12	SHAFT-HW-0017912-22266-N-R13	SHAFT-HW-0017912-22266-N-R14	SHAFT-HW-0017912-22266-N-R15	SHAFT-HW-0017912-22266-N-R16
Sample Date:			2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-21	2022-10-21	2022-11-08
Sample Type:			FD	N	N	N	N	N	N	N	N	N
GENCHEM (Fibers/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50909**
Asbestos	None	None	--	--	--	--	--	--	--	--	--	--
GENCHEM (mg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA50320A**	**SDG: DA50320A**	**SDG: DA50320A**	**SDG: DA50320A**	**SDG: DA50320A**	**SDG: DA50320A**	**SDG: DA50320A**	**SDG: DA50320A**	**SDG: DA50320A**	**SDG: DA50909**
Alkalinity, Total (as CaCO3)	None	None	--	--	--	--	--	--	--	--	--	--
Chloride	None	None	**38.5**	**38.8**	**38.9**	**38.4**	**38.7**	**38.5**	**38.6**	**38.5**	**38.2**	--
Cyanide	None	None	--	--	--	--	--	--	--	--	--	--
Nitrate (as N)	None	None	**0.490**	**0.500**	**0.500**	**0.490**	**0.500**	**0.500**	**0.500**	**0.490**	**0.500**	--
Nitrite (as N)	None	None	--	--	--	--	--	--	--	--	--	--
Sulfate	None	None	**6.20**	**6.20**	**6.20**	**6.20**	**6.20**	**6.10**	**6.10**	**6.10**	**6.10**	--
Surfactants	None	None	--	--	--	--	--	--	--	--	--	--
Total Organic Carbon	None	None	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
HC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50909**
Petroleum Hydrocarbons (as Diesel)	None	None	**82.2 J**	**69.3 J**	**72.9 J**	**71.4 J**	**58.1 J**	**111**	**67.9 J**	**64.3 J**	**73.2 J**	100 U
Petroleum Hydrocarbons (as Gasoline)	None	None	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Petroleum Hydrocarbons (as Motor Oil)	None	None	52.0 U	52.0 U	52.0 U	52.0 U	52.0 U	**57.1 J**	52.0 U	52.0 U	52.0 U	52.0 U
Petroleum Hydrocarbons, Total	None	None	**82.2**	**69.3**	**72.9**	**71.4**	**58.1**	**168.1**	**67.9**	**64.3**	**73.2**	ND
HERB (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50909**
2,4-D (Dichlorophenoxyacetic acid)	None	None	--	--	--	--	--	--	--	--	--	--
Dalapon	None	None	--	--	--	--	--	--	--	--	--	--
Dinoseb	None	None	--	--	--	--	--	--	--	--	--	--
Endothal	None	None	--	--	--	--	--	--	--	--	--	--
Glyphosate	None	None	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	1	None	--	--	--	--	--	--	--	--	--	--
Picloram	None	None	--	--	--	--	--	--	--	--	--	--
Silvex (2,4,5-TP)	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-N-R17	SHAFT-HW-0017912-22266-N-R18	SHAFT-HW-0017912-22266-N-R19	SHAFT-HW-0017912-22266-N-R20	SHAFT-HW-0017912-22266-N-R21	SHAFT-HW-0017912-22266-N-R22	SHAFT-HW-0017912-22266-N-5	SHAFT-HW-0017912-22266-N-R23	SHAFT-HW-0017912-22266-N-R24	SHAFT-HW-0017912-22266-N-R25
Sample Date:			2022-11-16	2022-11-29	2022-12-14	2023-01-05	2023-01-31	2023-02-15	2023-02-15	2023-03-08	2023-03-28	2023-04-18
Sample Type:			N	N	N	N	N	N	N	N	N	N
GENCHEM (Fibers/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA51167**	**SDG: DA51405**	**SDG: DA51897**	**SDG: DA52372**	**SDG: DA52995**	**SDG: DA53393**		**SDG: DA53874**	**SDG: DA54306**	**SDG: DA54814**
Asbestos	None	None	--	--	--	--	--	--	--	--	--	--
GENCHEM (mg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA51167**	**SDG: DA51405**	**SDG: DA51897**	**SDG: DA52372**	**SDG: DA52995**	**SDG: DA53393**	**SDG: DA53406**	**SDG: DA53874**	**SDG: DA54306**	**SDG: DA54814**
Alkalinity, Total (as CaCO3)	None	None	--	--	--	--	--	--	--	--	--	--
Chloride	None	None	--	--	--	--	--	--	--	--	--	**48.3**
Cyanide	None	None	--	--	--	--	--	--	--	--	--	--
Nitrate (as N)	None	None	--	--	--	--	--	--	--	--	--	**0.750**
Nitrite (as N)	None	None	--	--	--	--	--	--	--	--	--	--
Sulfate	None	None	--	--	--	--	--	--	--	--	--	**9.10**
Surfactants	None	None	--	--	--	--	--	--	**0.0760 J**	--	--	--
Total Organic Carbon	None	None	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	--	0.200 U	0.200 U	0.200 U
HC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA51167**	**SDG: DA51405**	**SDG: DA51897**	**SDG: DA52372**	**SDG: DA52995**	**SDG: DA53393**		**SDG: DA53874**	**SDG: DA54306**	**SDG: DA54814**
Petroleum Hydrocarbons (as Diesel)	None	None	50.0 U	50.0 U	52.0 U	**64.7 J**	52.0 U	52.0 U	--	52.0 U	**73.6 J**	**74.2 J**
Petroleum Hydrocarbons (as Gasoline)	None	None	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	--	50.0 U	50.0 U	50.0 U
Petroleum Hydrocarbons (as Motor Oil)	None	None	50.0 U	50.0 U	52.0 U	100 U	**73.3 J**	52.0 U	--	52.0 U	52.0 U	52.0 U
Petroleum Hydrocarbons, Total	None	None	ND	ND	ND	**64.7**	**73.3**	ND	--	ND	**73.6**	**74.2**
HERB (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA51167**	**SDG: DA51405**	**SDG: DA51897**	**SDG: DA52372**	**SDG: DA52995**	**SDG: DA53393**		**SDG: DA53874**	**SDG: DA54306**	**SDG: DA54814**
2,4-D (Dichlorophenoxyacetic acid)	None	None	--	--	--	--	--	--	--	--	--	--
Dalapon	None	None	--	--	--	--	--	--	--	--	--	--
Dinoseb	None	None	--	--	--	--	--	--	--	--	--	--
Endothal	None	None	--	--	--	--	--	--	--	--	--	--
Glyphosate	None	None	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	1	None	--	--	--	--	--	--	--	--	--	--
Picloram	None	None	--	--	--	--	--	--	--	--	--	--
Silvex (2,4,5-TP)	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-3-N-R25	SHAFT-HW-0017912-22266-N-R26	SHAFT-HW-0017912-22266-3-N-R26	SHAFT-HW-0017912-22266-N-R27	SHAFT-HW-0017912-22266-N-R28	SHAFT-HW-0017912-22266-3-N-R28	SHAFT-HW-0017912-22266-N-R29	SHAFT-HW-0017912-22266-N-R30	SHAFT-HW-0017912-22266-N-R31	SHAFT-HW-0017912-22266-N-R32
Sample Date:			2023-04-18	2023-04-24	2023-04-24	2023-05-09	2023-05-30	2023-05-30	2023-06-20	2023-07-11	2023-08-01	2023-08-22
Sample Type:			FD	N	FD	N	N	FD	N	N	N	N
GENCHEM (Fibers/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA54814**	**SDG: 380-44806-1 Asbestos EDD**	**SDG: 380-44806-1 Asbestos EDD**	**SDG: DA55338**	**SDG: DA55797**	**SDG: DA55797**	**SDG: DA56300**	**SDG: DA56802**	**SDG: DA57381**	**SDG: DA58027**
Asbestos	None	None	--	0.177 U	0.177 U	--	--	--	--	--	--	--
GENCHEM (mg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA54814**	**SDG: 380449281**	**SDG: 380449281**	**SDG: DA55338**	**SDG: DA55797**	**SDG: DA55797**	**SDG: DA56300**	**SDG: DA56802**	**SDG: DA57381**	**SDG: DA58027**
Alkalinity, Total (as CaCO3)	None	None	--	--	--	--	--	--	--	--	--	--
Chloride	None	None	**52.8**	--	--	--	**37.9 J**	--	--	**64.5**	--	**40.7**
Cyanide	None	None	--	--	--	--	--	--	--	--	--	--
Nitrate (as N)	None	None	**0.850**	--	--	--	**0.530 J**	--	--	**1.10**	--	**0.570**
Nitrite (as N)	None	None	--	--	--	--	--	--	--	--	--	--
Sulfate	None	None	**10.8**	--	--	--	**6.00**	--	--	**14.8**	--	**6.80**
Surfactants	None	None	--	--	--	--	--	--	--	--	--	--
Total Organic Carbon	None	None	--	--	--	0.200 U	0.200 U	--	0.200 U	0.200 U	0.200 U	0.200 U
HC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA54814**	**SDG: 380449281**	**SDG: 380449281**	**SDG: DA55338**	**SDG: DA55797**	**SDG: DA55797**	**SDG: DA56300**	**SDG: DA56802**	**SDG: DA57381**	**SDG: DA58027**
Petroleum Hydrocarbons (as Diesel)	None	None	--	--	--	52.0 U	52.0 U	--	**58.2 J**	**66.0 J**	50.0 U	52.0 U
Petroleum Hydrocarbons (as Gasoline)	None	None	--	--	--	50.0 U	50.0 U	--	50.0 U	50.0 U	50.0 U	50.0 U
Petroleum Hydrocarbons (as Motor Oil)	None	None	--	--	--	52.0 U	52.0 U	--	52.0 U	50.0 U	50.0 U	52.0 U
Petroleum Hydrocarbons, Total	None	None	--	--	--	ND	ND	--	**58.2**	**66**	ND	ND
HERB (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA54814**	**SDG: 380449281**	**SDG: 380449281**	**SDG: DA55338**	**SDG: DA55797**	**SDG: DA55797**	**SDG: DA56300**	**SDG: DA56802**	**SDG: DA57381**	**SDG: DA58027**
2,4-D (Dichlorophenoxyacetic acid)	None	None	--	0.0280 U	0.0280 U	--	--	--	--	--	--	--
Dalapon	None	None	--	0.120 U	0.120 U	--	--	--	--	--	--	--
Dinoseb	None	None	--	0.0240 U	0.0240 U	--	--	--	--	--	--	--
Endothal	None	None	--	--	--	--	--	--	--	--	--	--
Glyphosate	None	None	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	1	None	--	0.00500 U	0.00500 U	--	--	--	--	--	--	--
Picloram	None	None	--	0.0150 U	0.0150 U	--	--	--	--	--	--	--
Silvex (2,4,5-TP)	None	None	--	0.0220 U	0.0220 U	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-PR-FW1	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2
Location Type:			Well	Well	Well	Well	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Pre-Chlorination Spigot	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-N-R33	SHAFT-HW-0017912-22266-N-R34	SHAFT-HW-0017912-22266-N-R35	SHAFT-HW-0017912-22266-N-R36	SHAFT-HW-0018363-24153-N	SHAFT-HW-0018384-24275-N	SHAFT-HW-0018384-25001-N	SHAFT-HW-0018384-25051-N	SHAFT-HW-0018384-25051-3-N	SHAFT-HW-0018384-25051-N-R1
Sample Date:			2023-09-12	2023-10-03	2023-10-24	2023-11-14	2024-06-04	2024-10-22	2025-01-08	2025-02-20	2025-02-20	2025-03-07
Sample Type:			N	N	N	N	N	N	N	N	FD	N
GENCHEM (Fibers/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA58496**	**SDG: DA59044**	**SDG: DA59556**	**SDG: DA60011**	**SDG: DA64740E**	**SDG: DA68257**	**SDG: DA69805**	**SDG: DA70645**	**SDG: DA70645**	**SDG: 35942699**
Asbestos	None	None	--	--	--	--	--	--	--	--	--	--
GENCHEM (mg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA58496**	**SDG: DA59044**	**SDG: DA59556**	**SDG: DA60011**	**SDG: DA64740E**	**SDG: DA68257**	**SDG: DA69805**	**SDG: DA70645**	**SDG: DA70645**	**SDG: 35942699**
Alkalinity, Total (as CaCO3)	None	None	--	--	--	--	**149**	**163**	**164**	--	--	--
Chloride	None	None	--	**39.0**	--	--	--	--	--	--	--	--
Cyanide	None	None	--	--	--	--	--	--	--	0.00400 U	0.00400 U	--
Nitrate (as N)	None	None	--	**0.540**	--	--	--	--	--	**2.80**	**2.70**	--
Nitrite (as N)	None	None	--	--	--	--	--	--	--	0.0300 U	0.0300 U	--
Sulfate	None	None	--	**6.20**	--	--	--	--	--	--	--	--
Surfactants	None	None	--	--	--	--	--	--	--	--	--	--
Total Organic Carbon	None	None	0.200 U	0.200 U	0.200 U	0.200 U	**0.280 J**	**0.250 J**	--	--	--	--
HC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA58496**	**SDG: DA59044**	**SDG: DA59556**	**SDG: DA60011**	**SDG: DA64740E**	**SDG: DA68257**	**SDG: DA69805**	**SDG: DA70645**	**SDG: DA70645**	**SDG: 35942699**
Petroleum Hydrocarbons (as Diesel)	None	None	**77.5 J**	50.0 U	**73.8 J**	**59.6 J**	47.0 U	46.0 U	--	--	--	--
Petroleum Hydrocarbons (as Gasoline)	None	None	50.0 U	50.0 U	50.0 U	50.0 UJ	50.0 U	50.0 U	--	--	--	--
Petroleum Hydrocarbons (as Motor Oil)	None	None	51.0 U	50.0 U	50.0 U	51.0 U	47.0 U	46.0 U	--	--	--	--
Petroleum Hydrocarbons, Total	None	None	**77.5**	ND	**73.8**	**59.6**	ND	ND	--	--	--	--
HERB (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA58496**	**SDG: DA59044**	**SDG: DA59556**	**SDG: DA60011**	**SDG: DA64740E**	**SDG: DA68257**	**SDG: DA69805**	**SDG: DA70645**	**SDG: DA70645**	**SDG: 35942699**
2,4-D (Dichlorophenoxyacetic acid)	None	None	--	--	--	--	--	--	--	--	--	0.0960 U
Dalapon	None	None	--	--	--	--	--	--	--	--	--	--
Dinoseb	None	None	--	--	--	--	--	--	--	--	--	0.160 U
Endothal	None	None	--	--	--	--	--	--	--	3.60 U	3.60 U	--
Glyphosate	None	None	--	--	--	--	--	--	--	2.60 U	2.60 U	--
Pentachlorophenol	1	None	--	--	--	--	--	--	--	--	--	0.0140 U
Picloram	None	None	--	--	--	--	--	--	--	--	--	0.0400 U
Silvex (2,4,5-TP)	None	None	--	--	--	--	--	--	--	--	--	0.0590 U

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2
Location Type:	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap
Residence:	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:	SHAFT-HW-0018384-25051-3-N-R1	SHAFT-HW-0018384-25051-N-R2	SHAFT-HW-0018384-25051-3-N-R2	SHAFT-HW-0018384-25091-N
Sample Date:	2025-03-07	2025-04-14	2025-04-14	2025-04-16
Sample Type:	FD	N	FD	N

GENCHEM (Fibers/L)	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 35942699	SDG: 668028	SDG: 668028	SDG: DA71831B
Asbestos	None	None	--	188000 U	188000 U	--

GENCHEM (mg/L)	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 35942699	SDG: 2504116	SDG: 2504116	SDG: DA71831B
Alkalinity, Total (as CaCO3)	None	None	--	--	--	**151**
Chloride	None	None	--	--	--	--
Cyanide	None	None	--	--	--	--
Nitrate (as N)	None	None	--	--	--	--
Nitrite (as N)	None	None	--	--	--	--
Sulfate	None	None	--	--	--	--
Surfactants	None	None	--	--	--	--
Total Organic Carbon	None	None	--	--	--	--

HC (µg/L)	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 35942699	SDG: 2504116	SDG: 2504116	SDG: DA71831B
Petroleum Hydrocarbons (as Diesel)	None	None	--	--	--	--
Petroleum Hydrocarbons (as Gasoline)	None	None	--	--	--	--
Petroleum Hydrocarbons (as Motor Oil)	None	None	--	--	--	--
Petroleum Hydrocarbons, Total	None	None	--	--	--	--

HERB (µg/L)	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 35942699	SDG: 2504116	SDG: 2504116	SDG: DA71831B
2,4-D (Dichlorophenoxyacetic acid)	None	None	0.0960 U	--	--	--
Dalapon	None	None	--	--	--	--
Dinoseb	None	None	0.160 U	--	--	--
Endothal	None	None	--	--	--	--
Glyphosate	None	None	--	--	--	--
Pentachlorophenol	1	None	0.0140 U	--	--	--
Picloram	None	None	0.0400 U	--	--	--
Silvex (2,4,5-TP)	None	None	0.0590 U	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:		SHFTAIEA	SHFTAIEA	SHFTAIEA	SHFTAIEA	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR
Location Type:		Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:		Aiea-Halawa Shaft	Aiea-Halawa Shaft	Aiea-Halawa Shaft	Aiea-Halawa Shaft	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:		220113-AH-WT01	220113-AH-WT03	I1-HW-0016022-22060-N	I1-HW-0016022-22060-3-N	SHAFT-HW-0017491-22235-N	SHAFT-HW-0017491-22266-N	SHAFT-HW-0017491-22266-N-ME	SHAFT-HW-0017491-22266-N-P	SHAFT-HW-0017491-22266-N-Q	SHAFT-HW-0017491-24122-N
Sample Date:		2022-01-13	2022-01-13	2022-03-01	2022-03-01	2022-08-23	2024-02-13	2024-02-13	2024-02-13	2024-02-13	2024-05-10
Sample Type:		N	N	N	FD	N	N	N	N	N	N
METAL (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: 5801092731**	**SDG: 980535**	**SDG: DA42472**	**SDG: DA42472**	**SDG: DA48369**	**SDG: DA61982A**		**SDG: 35867999**		**SDG: DA64321**
Antimony	6	6	--	0.110 U	--	--	--	0.100 U	--	0.880 U	--	--
Arsenic	10	10	--	**0.490 J**	--	--	--	0.500 U	--	0.500 U	--	--
Barium	2000	2000	--	**13.0**	--	--	--	**9.20**	--	**8.60**	--	--
Beryllium	4	4	--	0.0910 U	--	--	--	0.150 U	--	0.0700 U	--	--
Cadmium	5	5	--	**0.0460 J**	--	--	--	0.0500 U	--	0.0500 U	--	--
Calcium	None	None	--	--	--	--	--	--	--	--	--	**17200**
Chromium	100	100	--	**1.30**	--	--	--	0.500 U	--	**1.70 J**	--	--
Copper	1300	1300	--	**0.370 J**	--	--	--	**0.800 J**	--	0.930 U	--	--
Diquat	None	None	--	--	--	--	--	--	--	--	--	--
Iron	None	None	--	--	--	--	--	--	--	--	--	10.0 U
Lead	15	15	--	0.0460 U	--	--	0.130 U	**0.140 J**	--	0.250 U	--	--
Magnesium	None	None	--	--	--	--	--	--	--	--	--	**17000**
Manganese	None	None	--	--	--	--	--	--	--	--	--	1.10 U
Mercury	2	2	--	--	--	--	--	0.0250 U	--	0.140 U	--	--
Nickel	None	None	--	--	--	--	--	--	--	--	--	--
Potassium	None	None	--	--	--	--	--	--	--	--	--	**3600**
Selenium	50	50	--	**9.70**	--	--	--	**5.10 J**	--	**5.40**	--	--
Silica	None	None	--	--	--	--	--	--	--	--	--	**67600**
Sodium	None	None	--	--	--	--	--	--	--	--	--	**89500**
Thallium	2	2	--	0.0410 U	--	--	--	0.0500 U	--	0.210 U	--	--
Uranium	None	None	--	--	--	--	--	--	--	--	--	--

METAL (pg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: 5801092731**	**SDG: C22A012**	**SDG: DA42472**	**SDG: DA42472**	**SDG: DA48369**	**SDG: DA61982A**		**SDG: 35867999**		**SDG: DA64321**
2,3,7,8-Tetrachlorodibenzo-p-dioxin	None	None	--	--	--	--	--	--	--	--	--	--

ORG_GC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: 5801092731**	**SDG: C22A012**	**SDG: DA42472**	**SDG: DA42472**	**SDG: DA48369**	**SDG: DA61982A**		**SDG: 35867999**		**SDG: DA64321**
Bromoacetic acid	None	None	--	--	--	--	--	0.700 U	--	0.290 U	--	--
Chloroacetic acid	None	None	--	--	--	--	--	0.900 U	--	0.900 U	--	--
Dalapon	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017491-24122-N-R1	SHAFT-HW-0017491-24183-N	SHAFT-HW-0017912-22266-N	SHAFT-HW-0017912-22266-N-R1	SHAFT-HW-0017912-22266-N-R2	SHAFT-HW-0017912-22266-N-R3	SHAFT-HW-0017912-22266-N-R4	SHAFT-HW-0017912-22266-N-R5	SHAFT-HW-0017912-22266-N-R6	SHAFT-HW-0017912-22266-N-R7
Sample Date:			2024-05-30	2024-07-24	2022-09-23	2022-10-06	2022-10-13	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20
Sample Type:			N	N	N	N	N	N	N	N	N	N
METAL (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA64664**	**SDG: DA65891**	**SDG: DA49427**	**SDG: DA49866**	**SDG: DA50053**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50320**	**SDG: DA50320**
Antimony	6	6	--	--	0.100 U	0.100 UJ	**0.130 J**	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Arsenic	10	10	--	--	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Barium	2000	2000	--	--	**1.80 J**	**2.00**	**2.20**	**2.30**	**2.00**	**2.10**	**2.10**	**2.10**
Beryllium	4	4	--	--	0.150 U	0.150 U	0.150 U	0.150 U	0.150 U	0.150 U	0.150 U	0.150 U
Cadmium	5	5	--	--	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Calcium	None	None	--	**19300**	--	--	--	--	--	--	--	--
Chromium	100	100	--	--	**1.60 J**	**2.00**	**1.80 J**	**2.10**	**1.90 J**	**1.90 J**	**1.90 J**	**2.00**
Copper	1300	1300	--	--	**16.8**	**21.4**	**15.5**	**10.3**	**11.2**	**8.40**	**11.2**	**8.70**
Diquat	None	None	--	--	--	--	--	--	--	--	--	--
Iron	None	None	--	**56.0**	--	--	--	--	--	--	--	--
Lead	15	15	--	--	**0.520**	**0.450 J**	**2.80**	**1.80**	**1.90**	**0.840**	**1.30**	**1.40**
Magnesium	None	None	--	**19300**	--	--	--	--	--	--	--	--
Manganese	None	None	--	**2.80 J**	--	--	--	--	--	--	--	--
Mercury	2	2	--	--	0.0250 U	0.0250 U	0.0250 U	0.0250 UJ	0.0250 UJ	0.0250 UJ	0.0250 UJ	0.0250 UJ
Nickel	None	None	--	--	--	--	--	--	--	--	--	--
Potassium	None	None	--	**3900**	--	--	--	--	--	--	--	--
Selenium	50	50	--	--	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U
Silica	None	None	--	**68700**	--	--	--	--	--	--	--	--
Sodium	None	None	--	**96000**	--	--	--	--	--	--	--	--
Thallium	2	2	--	--	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Uranium	None	None	--	--	--	--	--	--	--	--	--	--

METAL (pg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA64664**	**SDG: DA65891**	**SDG: DA49427**	**SDG: DA49866**	**SDG: DA50053**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50320**	**SDG: DA50320**
2,3,7,8-Tetrachlorodibenzo-p-dioxin	None	None	--	--	--	--	--	--	--	--	--	--

ORG_GC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA64664**	**SDG: DA65891**	**SDG: DA49427**	**SDG: DA49866**	**SDG: DA50053**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50320**	**SDG: DA50320**
Bromoacetic acid	None	None	--	--	--	--	--	--	--	--	--	--
Chloroacetic acid	None	None	--	--	--	--	--	--	--	--	--	--
Dalapon	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-3-N-R8	SHAFT-HW-0017912-22266-N-R8	SHAFT-HW-0017912-22266-N-R9	SHAFT-HW-0017912-22266-N-R10	SHAFT-HW-0017912-22266-N-R11	SHAFT-HW-0017912-22266-N-R12	SHAFT-HW-0017912-22266-N-R13	SHAFT-HW-0017912-22266-N-R14	SHAFT-HW-0017912-22266-N-R15	SHAFT-HW-0017912-22266-N-R16
Sample Date:			2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-21	2022-10-21	2022-11-08
Sample Type:			FD	N	N	N	N	N	N	N	N	N
METAL (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50909**
Antimony	6	6	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	**1.00**
Arsenic	10	10	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	**0.780 J**
Barium	2000	2000	**2.10**	**2.00**	**2.30**	**2.10**	**2.00**	**2.00**	**2.00**	**2.10**	**2.30**	**2.30**
Beryllium	4	4	0.150 U	0.150 U	0.150 U	0.150 U	0.150 U	0.150 U	0.150 U	0.150 U	0.150 U	0.150 U
Cadmium	5	5	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Calcium	None	None	--	--	--	--	--	--	--	--	--	--
Chromium	100	100	**1.90 J**	**1.90 J**	**2.00**	**2.00**	**1.90 J**	**1.90 J**	**2.00**	**2.00**	**2.00**	**2.20**
Copper	1300	1300	**7.80**	**8.70**	**8.00**	**7.60**	**7.50**	**7.60**	**7.60**	**9.80**	**10.0**	**11.8**
Diquat	None	None	--	--	--	--	--	--	--	--	--	--
Iron	None	None	--	--	--	--	--	--	--	--	--	--
Lead	15	15	**0.920**	**0.960**	**1.10**	**1.20**	**1.00**	**1.90**	**0.960**	**4.00**	**1.10**	**0.410 J**
Magnesium	None	None	--	--	--	--	--	--	--	--	--	--
Manganese	None	None	--	--	--	--	--	--	--	--	--	--
Mercury	2	2	0.0250 UJ	0.0250 UJ	0.0250 UJ	0.0250 UJ	0.0250 UJ	0.0250 U	0.0250 UJ	0.0250 UJ	0.0250 UJ	**0.130**
Nickel	None	None	--	--	--	--	--	--	--	--	--	--
Potassium	None	None	--	--	--	--	--	--	--	--	--	--
Selenium	50	50	0.300 U	0.300 U	**0.360 J**	0.300 U	0.300 U	0.300 U	0.300 U	**0.390 J**	0.300 U	**0.750**
Silica	None	None	--	--	--	--	--	--	--	--	--	--
Sodium	None	None	--	--	--	--	--	--	--	--	--	--
Thallium	2	2	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Uranium	None	None	--	--	--	--	--	--	--	--	--	--

METAL (pg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50909**
2,3,7,8-Tetrachlorodibenzo-p-dioxin	None	None	--	--	--	--	--	--	--	--	--	--

ORG_GC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50909**
Bromoacetic acid	None	None	--	--	--	--	--	--	--	--	--	--
Chloroacetic acid	None	None	--	--	--	--	--	--	--	--	--	--
Dalapon	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-N-R17	SHAFT-HW-0017912-22266-N-R18	SHAFT-HW-0017912-22266-N-R19	SHAFT-HW-0017912-22266-N-R20	SHAFT-HW-0017912-22266-N-R21	SHAFT-HW-0017912-22266-N-R22	SHAFT-HW-0017912-22266-N-5	SHAFT-HW-0017912-22266-N-R23	SHAFT-HW-0017912-22266-N-R24	SHAFT-HW-0017912-22266-N-R25
Sample Date:			2022-11-16	2022-11-29	2022-12-14	2023-01-05	2023-01-31	2023-02-15	2023-02-15	2023-03-08	2023-03-28	2023-04-18
Sample Type:			N	N	N	N	N	N	N	N	N	N
METAL (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA51167**	**SDG: DA51405**	**SDG: DA51897**	**SDG: DA52372**	**SDG: DA52995A**	**SDG: DA53393**		**SDG: DA53874NJ**	**SDG: DA54306**	**SDG: DA54814**
Antimony	6	6	**0.200 J**	0.100 U	**0.830**	0.100 U	0.100 U	0.100 U	--	0.270 U	0.100 U	0.100 U
Arsenic	10	10	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	--	0.650 U	**0.930 J**	**0.690 J**
Barium	2000	2000	**3.50**	**2.30**	**2.20**	**2.20**	**3.20**	**2.10**	--	**2.77**	**3.20**	**2.80**
Beryllium	4	4	0.150 U	0.150 U	0.150 U	0.150 U	0.150 U	0.150 U	--	0.0750 U	0.150 U	0.150 U
Cadmium	5	5	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	--	0.150 U	0.0500 U	0.0500 U
Calcium	None	None	--	--	--	--	--	--	--	--	--	--
Chromium	100	100	**2.10**	**2.20**	**2.20**	**2.30**	**2.00**	**1.60 J**	--	**1.34**	**2.10 J**	**1.50 J**
Copper	1300	1300	**11.1**	**10.1**	**19.9**	**14.4**	**35.6**	**12.0**	--	**10.3**	**9.70**	**10.2**
Diquat	None	None	--	--	--	--	--	--	--	--	--	--
Iron	None	None	--	--	--	--	--	--	--	--	--	--
Lead	15	15	**1.10**	**0.610**	**2.70**	**0.760**	**2.40**	**0.740**	--	**0.389 J**	**0.740**	**0.170 J**
Magnesium	None	None	--	--	--	--	--	--	--	--	--	--
Manganese	None	None	--	--	--	--	--	--	--	--	--	--
Mercury	2	2	0.0250 U	0.0250 U	0.0250 UJ	**0.0790 J**	0.100 U	0.0250 U	--	0.0250 U	0.0250 U	0.0250 U
Nickel	None	None	--	--	--	--	--	--	--	--	--	--
Potassium	None	None	--	--	--	--	--	--	--	--	--	--
Selenium	50	50	**0.640 J**	**0.390 J**	**0.570 J**	**0.820**	0.300 U	0.300 U	--	**1.52**	**0.620 J**	**0.390 J**
Silica	None	None	--	--	--	--	--	--	--	--	--	--
Sodium	None	None	--	--	--	--	--	--	--	--	--	--
Thallium	2	2	0.0500 U	**0.0640 J**	0.0500 U	0.0500 U	0.0500 U	0.0500 U	--	0.110 U	0.0500 U	0.0500 U
Uranium	None	None	--	--	--	--	--	--	--	--	--	--

METAL (pg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA51167**	**SDG: DA51405**	**SDG: DA51897**	**SDG: DA52372**	**SDG: DA52995**	**SDG: DA53393**		**SDG: DA53874**	**SDG: DA54306**	**SDG: DA54814**
2,3,7,8-Tetrachlorodibenzo-p-dioxin	None	None	--	--	--	--	--	--	--	--	--	--

ORG_GC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA51167**	**SDG: DA51405**	**SDG: DA51897**	**SDG: DA52372**	**SDG: DA52995**	**SDG: DA53393**		**SDG: DA53874**	**SDG: DA54306**	**SDG: DA54814**
Bromoacetic acid	None	None	--	--	--	--	--	--	--	--	--	--
Chloroacetic acid	None	None	--	--	--	--	--	--	--	--	--	--
Dalapon	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-3-N-R25	SHAFT-HW-0017912-22266-N-R26	SHAFT-HW-0017912-22266-3-N-R26	SHAFT-HW-0017912-22266-N-R27	SHAFT-HW-0017912-22266-N-R28	SHAFT-HW-0017912-22266-3-N-R28	SHAFT-HW-0017912-22266-N-R29	SHAFT-HW-0017912-22266-N-R30	SHAFT-HW-0017912-22266-N-R31	SHAFT-HW-0017912-22266-N-R32
Sample Date:			2023-04-18	2023-04-24	2023-04-24	2023-05-09	2023-05-30	2023-05-30	2023-06-20	2023-07-11	2023-08-01	2023-08-22
Sample Type:			FD	N	FD	N	N	FD	N	N	N	N
METAL (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA54814**	**SDG: DA54930**	**SDG: DA54930**	**SDG: DA55338**	**SDG: DA55797**	**SDG: DA55797**	**SDG: DA56300**	**SDG: DA56802**	**SDG: DA57381**	**SDG: DA58027**
Antimony	6	6	--	--	--	0.100 U	**0.140 J**	--	**0.120 J**	0.100 U	0.100 U	0.100 U
Arsenic	10	10	--	--	--	0.500 U	0.500 U	--	0.500 U	0.500 U	0.500 U	0.500 U
Barium	2000	2000	--	--	--	**4.10**	**2.10**	--	**2.10**	**4.20**	**2.00**	**2.40**
Beryllium	4	4	--	--	--	0.150 U	0.150 U	--	0.150 U	0.150 U	0.150 U	0.150 U
Cadmium	5	5	--	--	--	0.0500 U	0.0500 U	--	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Calcium	None	None	--	--	--	--	--	--	--	--	--	--
Chromium	100	100	--	--	--	**1.60 J**	**1.90 J**	--	**1.70 J**	**2.00**	**0.690 J**	**0.540 J**
Copper	1300	1300	--	--	--	**9.70**	**5.60**	--	**8.40**	**13.7**	**9.10**	**15.0**
Diquat	None	None	--	--	--	--	--	--	--	--	--	--
Iron	None	None	--	--	--	--	--	--	--	--	--	--
Lead	15	15	--	--	--	**0.360 J**	**0.150 J**	--	**0.920**	**1.20**	0.130 U	**0.280 J**
Magnesium	None	None	--	--	--	--	--	--	--	--	--	--
Manganese	None	None	--	--	--	--	--	--	--	--	--	--
Mercury	2	2	--	--	--	0.100 U	0.100 U	--	0.0250 U	0.0250 U	0.0250 U	0.0250 U
Nickel	None	None	--	1.00 U	1.00 U	--	--	--	--	--	--	--
Potassium	None	None	--	--	--	--	--	--	--	--	--	--
Selenium	50	50	--	--	--	**0.840**	**0.390 J**	--	0.300 U	**0.890**	**0.450 J**	**1.50**
Silica	None	None	--	--	--	--	--	--	--	--	--	--
Sodium	None	None	--	--	--	--	--	--	--	--	--	--
Thallium	2	2	--	--	--	0.0500 U	**0.0640 J**	--	**0.0580 J**	0.0500 U	0.0500 U	0.0500 U
Uranium	None	None	--	--	--	--	--	--	--	--	--	--

METAL (pg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA54814**	**SDG: 380449281**	**SDG: 380449281**	**SDG: DA55338**	**SDG: DA55797**	**SDG: DA55797**	**SDG: DA56300**	**SDG: DA56802**	**SDG: DA57381**	**SDG: DA58027**
2,3,7,8-Tetrachlorodibenzo-p-dioxin	None	None	--	--	--	--	--	--	--	--	--	--

ORG_GC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA54814**	**SDG: 380449281**	**SDG: 380449281**	**SDG: DA55338**	**SDG: DA55797**	**SDG: DA55797**	**SDG: DA56300**	**SDG: DA56802**	**SDG: DA57381**	**SDG: DA58027**
Bromoacetic acid	None	None	--	--	--	--	--	--	--	--	--	--
Chloroacetic acid	None	None	--	--	--	--	--	--	--	--	--	--
Dalapon	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-PR-FW1	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2
Location Type:			Well	Well	Well	Well	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Pre-Chlorination Spigot	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-N-R33	SHAFT-HW-0017912-22266-N-R34	SHAFT-HW-0017912-22266-N-R35	SHAFT-HW-0017912-22266-N-R36	SHAFT-HW-0018363-24153-N	SHAFT-HW-0018384-24275-N	SHAFT-HW-0018384-25001-N	SHAFT-HW-0018384-25051-N	SHAFT-HW-0018384-25051-3-N	SHAFT-HW-0018384-25051-N-R1
Sample Date:			2023-09-12	2023-10-03	2023-10-24	2023-11-14	2024-06-04	2024-10-22	2025-01-08	2025-02-20	2025-02-20	2025-03-07
Sample Type:			N	N	N	N	N	N	N	N	FD	N
METAL (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA58496**	**SDG: DA59044**	**SDG: DA59556**	**SDG: DA60011**	**SDG: DA64740E**	**SDG: DA68257**	**SDG: DA69805**	**SDG: DA70645**	**SDG: DA70645**	**SDG: 35942699**
Antimony	6	6	0.100 U	0.100 U	0.100 U	0.100 U	--	--	--	0.100 U	0.100 U	--
Arsenic	10	10	0.500 U	0.500 U	0.500 U	0.500 U	--	--	--	0.500 U	0.500 U	--
Barium	2000	2000	**2.80**	**2.00**	**2.00**	**2.20**	--	--	--	**14.4**	**14.4**	--
Beryllium	4	4	0.150 U	0.150 U	0.150 U	0.150 U	0.150 U	0.150 U	--	--	--	--
Cadmium	5	5	0.0500 U	0.0500 U	0.0500 U	0.0500 U	--	--	--	0.0500 U	0.0500 U	--
Calcium	None	None	--	--	--	--	**24100**	**25500**	**26800**	--	--	--
Chromium	100	100	**0.760 J**	**0.660 J**	**0.540 J**	**1.20 J**	--	--	--	1.30 U	1.30 U	--
Copper	1300	1300	**47.7**	**11.5**	**6.90**	**15.0**	**124**	**6.00**	--	--	--	--
Diquat	None	None	--	--	--	--	--	--	--	0.250 U	0.250 U	--
Iron	None	None	--	--	--	--	**37.0**	**140**	**770**	--	--	--
Lead	15	15	**3.30**	0.130 U	0.130 U	**3.60**	**0.330 J**	**0.580**	--	--	--	--
Magnesium	None	None	--	--	--	--	**23100**	**24500**	**24300**	--	--	--
Manganese	None	None	--	--	--	--	**1.80 J**	**1.40 J**	**8.80**	--	--	--
Mercury	2	2	0.0250 U	0.0250 U	0.0250 U	0.0250 U	0.0250 U	0.0250 U	--	--	--	--
Nickel	None	None	--	--	--	--	--	--	--	**3.00**	**3.00**	--
Potassium	None	None	--	--	--	--	**4200**	**4400**	**4300**	--	--	--
Selenium	50	50	**2.70**	**1.30**	**1.20**	**1.50**	--	--	--	**4.90**	**4.60**	--
Silica	None	None	--	--	--	--	**66700**	**67600**	**66100**	--	--	--
Sodium	None	None	--	--	--	--	**101000**	**104000**	**105000**	--	--	--
Thallium	2	2	0.0500 U	0.0500 U	0.0500 U	0.0500 U	--	--	--	0.0500 U	0.0500 U	--
Uranium	None	None	--	--	--	--	--	--	--	**0.270**	**0.450**	--
METAL (pg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA58496**	**SDG: DA59044**	**SDG: DA59556**	**SDG: DA60011**	**SDG: DA64740E**	**SDG: DA68257**	**SDG: DA69805**	**SDG: DA70645**	**SDG: DA70645**	**SDG: 35942699**
2,3,7,8-Tetrachlorodibenzo-p-dioxin	None	None	--	--	--	--	--	--	--	--	--	--
ORG_GC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA58496**	**SDG: DA59044**	**SDG: DA59556**	**SDG: DA60011**	**SDG: DA64740E**	**SDG: DA68257**	**SDG: DA69805**	**SDG: DA70645**	**SDG: DA70645**	**SDG: 35942699**
Bromoacetic acid	None	None	--	--	--	--	--	--	--	--	--	--
Chloroacetic acid	None	None	--	--	--	--	--	--	--	--	--	--
Dalapon	None	None	--	--	--	--	--	--	--	0.700 U	0.700 U	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2
Location Type:	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap
Residence:	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:	SHAFT-HW-0018384-25051-3-N-R1	SHAFT-HW-0018384-25051-N-R2	SHAFT-HW-0018384-25051-3-N-R2	SHAFT-HW-0018384-25091-N
Sample Date:	2025-03-07	2025-04-14	2025-04-14	2025-04-16
Sample Type:	FD	N	FD	N

METAL (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: 35942699**	**SDG: 2504116**	**SDG: 2504116**	**SDG: DA71831B**
Antimony	6	6	--	--	--	--
Arsenic	10	10	--	--	--	--
Barium	2000	2000	--	--	--	--
Beryllium	4	4	--	--	--	--
Cadmium	5	5	--	--	--	--
Calcium	None	None	--	--	--	**28300**
Chromium	100	100	--	--	--	--
Copper	1300	1300	--	--	--	--
Diquat	None	None	--	--	--	--
Iron	None	None	--	--	--	**14.0 J**
Lead	15	15	--	--	--	--
Magnesium	None	None	--	--	--	**28400**
Manganese	None	None	--	--	--	1.10 U
Mercury	2	2	--	--	--	--
Nickel	None	None	--	--	--	--
Potassium	None	None	--	--	--	**4500**
Selenium	50	50	--	--	--	--
Silica	None	None	--	--	--	**63500**
Sodium	None	None	--	--	--	**108000**
Thallium	2	2	--	--	--	--
Uranium	None	None	--	--	--	--

METAL (pg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: 35942699**	**SDG: 2504116**	**SDG: 2504116**	**SDG: DA71831B**
2,3,7,8-Tetrachlorodibenzo-p-dioxin	None	None	--	**3.91**	**3.97**	--

ORG_GC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: 35942699**	**SDG: 2504116**	**SDG: 2504116**	**SDG: DA71831B**
Bromoacetic acid	None	None	--	--	--	--
Chloroacetic acid	None	None	--	--	--	--
Dalapon	None	None	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA	SHFTAIEA	SHFTAIEA	SHFTAIEA	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft	Aiea-Halawa Shaft	Aiea-Halawa Shaft	Aiea-Halawa Shaft	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:			220113-AH-WT01	220113-AH-WT03	I1-HW-0016022-22060-N	I1-HW-0016022-22060-3-N	SHAFT-HW-0017491-22235-N	SHAFT-HW-0017491-22266-N	SHAFT-HW-0017491-22266-N-ME	SHAFT-HW-0017491-22266-N-P	SHAFT-HW-0017491-22266-N-Q	SHAFT-HW-0017491-24122-N
Sample Date:			2022-01-13	2022-01-13	2022-03-01	2022-03-01	2022-08-23	2024-02-13	2024-02-13	2024-02-13	2024-02-13	2024-05-10
Sample Type:			N	N	N	FD	N	N	N	N	N	N
ORG_GC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: 5801092731**	**SDG: C22A012**	**SDG: DA42472**	**SDG: DA42472**	**SDG: DA48369**	**SDG: DA61982A**		**SDG: 35867999**		**SDG: DA64321**
Dibromoacetic acid	None	None	--	--	--	--	--	0.700 U	--	0.430 U	--	--
Dichloroacetic acid	None	None	--	--	--	--	--	0.700 U	--	0.240 U	--	--
Total Haloacetic acids	60	None	--	--	--	--	--	ND	--	ND	--	--
Trichloroacetic acid	None	None	--	--	--	--	--	0.700 U	--	0.260 U	--	--
RADIOCHEMISTRY (pCi/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: 5801092731**	**SDG: C22A012**	**SDG: DA42472**	**SDG: DA42472**	**SDG: DA48369**	**SDG: DA61982A**		**SDG: 35867999**		**SDG: DA64321**
Gross Alpha	None	None	--	--	--	--	--	--	--	--	--	--
Gross Beta	None	None	--	--	--	--	--	--	--	--	--	--
Radium-226	None	None	--	--	--	--	--	--	--	--	--	--
Radium-228	None	None	--	--	--	--	--	--	--	--	--	--
SVOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: 5801092731**	**SDG: 980535**	**SDG: DA42472**	**SDG: DA42472**	**SDG: DA48369**	**SDG: DA61982A**		**SDG: 35867999**		**SDG: DA64321**
1,2,4-Trichlorobenzene	70	70	0.0920 U	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	600	600	0.0510 U	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	None	None	0.0410 U	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	75	None	0.0410 U	--	--	--	--	--	--	--	--	--
1-Methylnaphthalene	None	None	--	--	--	--	--	0.240 U	--	0.200 U	--	--
2,4,5-Trichlorophenol	None	None	0.100 U	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	None	None	0.100 U	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	None	None	0.200 U	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	None	None	0.160 U	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	None	None	1.60 U	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	None	None	0.100 U	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	None	None	0.100 U	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	None	None	0.0710 U	--	--	--	--	--	--	--	--	--
2-Chlorophenol	None	None	0.0510 U	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	None	None	--	--	--	--	--	0.240 U	--	0.210 U	--	--
2-Methylphenol (o-Cresol)	None	None	0.0510 U	--	--	--	--	--	--	--	--	--
2-Nitroaniline	None	None	0.100 U	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017491-24122-N-R1	SHAFT-HW-0017491-24183-N	SHAFT-HW-0017912-22266-N	SHAFT-HW-0017912-22266-N-R1	SHAFT-HW-0017912-22266-N-R2	SHAFT-HW-0017912-22266-N-R3	SHAFT-HW-0017912-22266-N-R4	SHAFT-HW-0017912-22266-N-R5	SHAFT-HW-0017912-22266-N-R6	SHAFT-HW-0017912-22266-N-R7
Sample Date:			2024-05-30	2024-07-24	2022-09-23	2022-10-06	2022-10-13	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20
Sample Type:			N	N	N	N	N	N	N	N	N	N
ORG_GC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA64664**	**SDG: DA65891**	**SDG: DA49427**	**SDG: DA49866**	**SDG: DA50053**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50320**	**SDG: DA50320**
Dibromoacetic acid	None	None	--	--	--	--	--	--	--	--	--	--
Dichloroacetic acid	None	None	--	--	--	--	--	--	--	--	--	--
Total Haloacetic acids	60	None	--	--	--	--	--	--	--	--	--	--
Trichloroacetic acid	None	None	--	--	--	--	--	--	--	--	--	--
RADIOCHEMISTRY (pCi/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA64664**	**SDG: DA65891**	**SDG: DA49427**	**SDG: DA49866**	**SDG: DA50053**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50320**	**SDG: DA50320**
Gross Alpha	None	None	--	--	--	--	--	--	--	--	--	--
Gross Beta	None	None	--	--	--	--	--	--	--	--	--	--
Radium-226	None	None	--	--	--	--	--	--	--	--	--	--
Radium-228	None	None	--	--	--	--	--	--	--	--	--	--
SVOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA64664**	**SDG: DA65891**	**SDG: DA49427**	**SDG: DA49866**	**SDG: DA50053**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50320**	**SDG: DA50320**
1,2,4-Trichlorobenzene	70	70	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	600	600	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	None	None	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	75	None	--	--	--	--	--	--	--	--	--	--
1-Methylnaphthalene	None	None	--	--	0.240 U	0.290 U	0.240 U	0.250 U	0.260 U	0.250 U	0.240 U	0.240 U
2,4,5-Trichlorophenol	None	None	--	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	None	None	--	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	None	None	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	None	None	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	None	None	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	None	None	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	None	None	--	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	None	None	--	--	--	--	--	--	--	--	--	--
2-Chlorophenol	None	None	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	None	None	--	--	0.240 U	0.290 U	0.240 U	0.250 U	0.260 U	0.250 U	0.240 U	0.240 U
2-Methylphenol (o-Cresol)	None	None	--	--	--	--	--	--	--	--	--	--
2-Nitroaniline	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-3-N-R8	SHAFT-HW-0017912-22266-N-R8	SHAFT-HW-0017912-22266-N-R9	SHAFT-HW-0017912-22266-N-R10	SHAFT-HW-0017912-22266-N-R11	SHAFT-HW-0017912-22266-N-R12	SHAFT-HW-0017912-22266-N-R13	SHAFT-HW-0017912-22266-N-R14	SHAFT-HW-0017912-22266-N-R15	SHAFT-HW-0017912-22266-N-R16
Sample Date:			2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-21	2022-10-21	2022-11-08
Sample Type:			FD	N	N	N	N	N	N	N	N	N
ORG_GC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50909**
Dibromoacetic acid	None	None	--	--	--	--	--	--	--	--	--	--
Dichloroacetic acid	None	None	--	--	--	--	--	--	--	--	--	--
Total Haloacetic acids	60	None	--	--	--	--	--	--	--	--	--	--
Trichloroacetic acid	None	None	--	--	--	--	--	--	--	--	--	--
RADIOCHEMISTRY (pCi/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50909**
Gross Alpha	None	None	--	--	--	--	--	--	--	--	--	--
Gross Beta	None	None	--	--	--	--	--	--	--	--	--	--
Radium-226	None	None	--	--	--	--	--	--	--	--	--	--
Radium-228	None	None	--	--	--	--	--	--	--	--	--	--
SVOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50909**
1,2,4-Trichlorobenzene	70	70	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	600	600	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	None	None	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	75	None	--	--	--	--	--	--	--	--	--	--
1-Methylnaphthalene	None	None	0.240 U	0.240 U	0.240 U	0.240 U	0.240 U	0.240 U	0.240 U	0.240 U	0.240 U	0.240 U
2,4,5-Trichlorophenol	None	None	--	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	None	None	--	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	None	None	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	None	None	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	None	None	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	None	None	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	None	None	--	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	None	None	--	--	--	--	--	--	--	--	--	--
2-Chlorophenol	None	None	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	None	None	0.240 U	0.240 U	0.240 U	0.240 U	0.240 U	0.240 U	0.240 U	0.240 U	0.240 U	0.240 U
2-Methylphenol (o-Cresol)	None	None	--	--	--	--	--	--	--	--	--	--
2-Nitroaniline	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-N-R17	SHAFT-HW-0017912-22266-N-R18	SHAFT-HW-0017912-22266-N-R19	SHAFT-HW-0017912-22266-N-R20	SHAFT-HW-0017912-22266-N-R21	SHAFT-HW-0017912-22266-N-R22	SHAFT-HW-0017912-22266-N-5	SHAFT-HW-0017912-22266-N-R23	SHAFT-HW-0017912-22266-N-R24	SHAFT-HW-0017912-22266-N-R25
Sample Date:			2022-11-16	2022-11-29	2022-12-14	2023-01-05	2023-01-31	2023-02-15	2023-02-15	2023-03-08	2023-03-28	2023-04-18
Sample Type:			N	N	N	N	N	N	N	N	N	N
ORG_GC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA51167**	**SDG: DA51405**	**SDG: DA51897**	**SDG: DA52372**	**SDG: DA52995**	**SDG: DA53393**		**SDG: DA53874**	**SDG: DA54306**	**SDG: DA54814**
Dibromoacetic acid	None	None	--	--	--	--	--	--	--	--	--	--
Dichloroacetic acid	None	None	--	--	--	--	--	--	--	--	--	--
Total Haloacetic acids	60	None	--	--	--	--	--	--	--	--	--	--
Trichloroacetic acid	None	None	--	--	--	--	--	--	--	--	--	--
RADIOCHEMISTRY (pCi/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA51167**	**SDG: DA51405**	**SDG: DA51897**	**SDG: DA52372**	**SDG: DA52995**	**SDG: DA53393**		**SDG: DA53874**	**SDG: DA54306**	**SDG: DA54814**
Gross Alpha	None	None	--	--	--	--	--	--	--	--	--	--
Gross Beta	None	None	--	--	--	--	--	--	--	--	--	--
Radium-226	None	None	--	--	--	--	--	--	--	--	--	--
Radium-228	None	None	--	--	--	--	--	--	--	--	--	--
SVOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA51167**	**SDG: DA51405**	**SDG: DA51897**	**SDG: DA52372**	**SDG: DA52995**	**SDG: DA53393**		**SDG: DA53874**	**SDG: DA54306**	**SDG: DA54814**
1,2,4-Trichlorobenzene	70	70	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	600	600	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	None	None	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	75	None	--	--	--	--	--	--	--	--	--	--
1-Methylnaphthalene	None	None	0.250 U	0.250 U	0.250 U	0.260 U	0.260 U	0.250 U	--	0.260 U	0.260 U	0.250 U
2,4,5-Trichlorophenol	None	None	--	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	None	None	--	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	None	None	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	None	None	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	None	None	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	None	None	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	None	None	--	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	None	None	--	--	--	--	--	--	--	--	--	--
2-Chlorophenol	None	None	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	None	None	0.250 U	0.250 U	0.250 U	0.260 U	0.260 U	0.250 U	--	0.260 U	0.260 U	0.250 U
2-Methylphenol (o-Cresol)	None	None	--	--	--	--	--	--	--	--	--	--
2-Nitroaniline	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-3-N-R25	SHAFT-HW-0017912-22266-N-R26	SHAFT-HW-0017912-22266-3-N-R26	SHAFT-HW-0017912-22266-N-R27	SHAFT-HW-0017912-22266-N-R28	SHAFT-HW-0017912-22266-3-N-R28	SHAFT-HW-0017912-22266-N-R29	SHAFT-HW-0017912-22266-N-R30	SHAFT-HW-0017912-22266-N-R31	SHAFT-HW-0017912-22266-N-R32
Sample Date:			2023-04-18	2023-04-24	2023-04-24	2023-05-09	2023-05-30	2023-05-30	2023-06-20	2023-07-11	2023-08-01	2023-08-22
Sample Type:			FD	N	FD	N	N	FD	N	N	N	N
ORG_GC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA54814**	**SDG: 380449281**	**SDG: 380449281**	**SDG: DA55338**	**SDG: DA55797**	**SDG: DA55797**	**SDG: DA56300**	**SDG: DA56802**	**SDG: DA57381**	**SDG: DA58027**
Dibromoacetic acid	None	None	--	--	--	--	--	--	--	--	--	--
Dichloroacetic acid	None	None	--	--	--	--	--	--	--	--	--	--
Total Haloacetic acids	60	None	--	--	--	--	--	--	--	--	--	--
Trichloroacetic acid	None	None	--	--	--	--	--	--	--	--	--	--
RADIOCHEMISTRY (pCi/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA54814**	**SDG: 380449281**	**SDG: 380449281**	**SDG: DA55338**	**SDG: DA55797**	**SDG: DA55797**	**SDG: DA56300**	**SDG: DA56802**	**SDG: DA57381**	**SDG: DA58027**
Gross Alpha	None	None	--	--	--	--	--	--	--	--	--	--
Gross Beta	None	None	--	--	--	--	--	--	--	--	--	--
Radium-226	None	None	--	--	--	--	--	--	--	--	--	--
Radium-228	None	None	--	--	--	--	--	--	--	--	--	--
SVOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA54814**	**SDG: DA54930**	**SDG: DA54930**	**SDG: DA55338**	**SDG: DA55797**	**SDG: DA55797**	**SDG: DA56300**	**SDG: DA56802**	**SDG: DA57381**	**SDG: DA58027**
1,2,4-Trichlorobenzene	70	70	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	600	600	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	None	None	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	75	None	--	--	--	--	--	--	--	--	--	--
1-Methylnaphthalene	None	None	--	--	--	0.260 U	0.250 U	--	0.250 U	0.250 U	0.260 U	0.260 U
2,4,5-Trichlorophenol	None	None	--	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	None	None	--	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	None	None	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	None	None	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	None	None	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	None	None	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	None	None	--	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	None	None	--	--	--	--	--	--	--	--	--	--
2-Chlorophenol	None	None	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	None	None	--	--	--	0.260 U	0.250 U	--	0.250 U	0.250 U	0.260 U	0.260 U
2-Methylphenol (o-Cresol)	None	None	--	--	--	--	--	--	--	--	--	--
2-Nitroaniline	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-PR-FW1	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2
Location Type:			Well	Well	Well	Well	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Pre-Chlorination Spigot	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-N-R33	SHAFT-HW-0017912-22266-N-R34	SHAFT-HW-0017912-22266-N-R35	SHAFT-HW-0017912-22266-N-R36	SHAFT-HW-0018363-24153-N	SHAFT-HW-0018384-24275-N	SHAFT-HW-0018384-25001-N	SHAFT-HW-0018384-25051-N	SHAFT-HW-0018384-25051-3-N	SHAFT-HW-0018384-25051-N-R1
Sample Date:			2023-09-12	2023-10-03	2023-10-24	2023-11-14	2024-06-04	2024-10-22	2025-01-08	2025-02-20	2025-02-20	2025-03-07
Sample Type:			N	N	N	N	N	N	N	N	FD	N
ORG_GC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA58496**	**SDG: DA59044**	**SDG: DA59556**	**SDG: DA60011**	**SDG: DA64740E**	**SDG: DA68257**	**SDG: DA69805**	**SDG: DA70645**	**SDG: DA70645**	**SDG: 35942699**
Dibromoacetic acid	None	None	--	--	--	--	--	--	--	--	--	--
Dichloroacetic acid	None	None	--	--	--	--	--	--	--	--	--	--
Total Haloacetic acids	60	None	--	--	--	--	--	--	--	--	--	--
Trichloroacetic acid	None	None	--	--	--	--	--	--	--	--	--	--
RADIOCHEMISTRY (pCi/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA58496**	**SDG: DA59044**	**SDG: DA59556**	**SDG: DA60011**	**SDG: DA64740E**	**SDG: DA68257**	**SDG: DA69805**	**SDG: DA70645**	**SDG: DA70645**	**SDG: 30762783**
Gross Alpha	None	None	--	--	--	--	--	--	--	--	--	**2.08 U**
Gross Beta	None	None	--	--	--	--	--	--	--	--	--	**2.87**
Radium-226	None	None	--	--	--	--	--	--	--	--	--	**0.453 UJ**
Radium-228	None	None	--	--	--	--	--	--	--	--	--	**0.802 U**
SVOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA58496**	**SDG: DA59044**	**SDG: DA59556**	**SDG: DA60011**	**SDG: DA64740E**	**SDG: DA68257**	**SDG: DA69805**	**SDG: DA70645**	**SDG: DA70645**	**SDG: 35942699**
1,2,4-Trichlorobenzene	70	70	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	600	600	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	None	None	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	75	None	--	--	--	--	--	--	--	--	--	--
1-Methylnaphthalene	None	None	0.260 U	0.250 U	0.260 U	0.260 U	0.250 U	0.250 U	--	--	--	--
2,4,5-Trichlorophenol	None	None	--	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	None	None	--	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	None	None	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	None	None	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	None	None	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	None	None	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	None	None	--	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	None	None	--	--	--	--	--	--	--	--	--	--
2-Chlorophenol	None	None	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	None	None	0.260 U	0.250 U	0.260 U	0.260 U	0.250 U	0.250 U	--	--	--	--
2-Methylphenol (o-Cresol)	None	None	--	--	--	--	--	--	--	--	--	--
2-Nitroaniline	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2
Location Type:	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap
Residence:	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:	SHAFT-HW-0018384-25051-3-N-R1	SHAFT-HW-0018384-25051-N-R2	SHAFT-HW-0018384-25051-3-N-R2	SHAFT-HW-0018384-25091-N
Sample Date:	2025-03-07	2025-04-14	2025-04-14	2025-04-16
Sample Type:	FD	N	FD	N

ORG_GC (µg/L)	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 35942699	SDG: 2504116	SDG: 2504116	SDG: DA71831B
Dibromoacetic acid	None	None	--	--	--	--
Dichloroacetic acid	None	None	--	--	--	--
Total Haloacetic acids	60	None	--	--	--	--
Trichloroacetic acid	None	None	--	--	--	--

RADIOCHEMISTRY (pCi/L)	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 30762783	SDG: 2504116	SDG: 2504116	SDG: DA71831B
Gross Alpha	None	None	**1.96 U**	--	--	--
Gross Beta	None	None	**2.03**	--	--	--
Radium-226	None	None	**0.831 UJ**	--	--	--
Radium-228	None	None	**0.930 U**	--	--	--

SVOC (µg/L)	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 35942699	SDG: 2504116	SDG: 2504116	SDG: DA71831B
1,2,4-Trichlorobenzene	70	70	--	--	--	--
1,2-Dichlorobenzene	600	600	--	--	--	--
1,3-Dichlorobenzene	None	None	--	--	--	--
1,4-Dichlorobenzene	75	None	--	--	--	--
1-Methylnaphthalene	None	None	--	--	--	--
2,4,5-Trichlorophenol	None	None	--	--	--	--
2,4,6-Trichlorophenol	None	None	--	--	--	--
2,4-Dichlorophenol	None	None	--	--	--	--
2,4-Dimethylphenol	None	None	--	--	--	--
2,4-Dinitrophenol	None	None	--	--	--	--
2,4-Dinitrotoluene	None	None	--	--	--	--
2,6-Dinitrotoluene	None	None	--	--	--	--
2-Chloronaphthalene	None	None	--	--	--	--
2-Chlorophenol	None	None	--	--	--	--
2-Methylnaphthalene	None	None	--	--	--	--
2-Methylphenol (o-Cresol)	None	None	--	--	--	--
2-Nitroaniline	None	None	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA	SHFTAIEA	SHFTAIEA	SHFTAIEA	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft	Aiea-Halawa Shaft	Aiea-Halawa Shaft	Aiea-Halawa Shaft	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:			220113-AH-WT01	220113-AH-WT03	I1-HW-0016022-22060-N	I1-HW-0016022-22060-3-N	SHAFT-HW-0017491-22235-N	SHAFT-HW-0017491-22266-N	SHAFT-HW-0017491-22266-N-ME	SHAFT-HW-0017491-22266-N-P	SHAFT-HW-0017491-22266-N-Q	SHAFT-HW-0017491-24122-N
Sample Date:			2022-01-13	2022-01-13	2022-03-01	2022-03-01	2022-08-23	2024-02-13	2024-02-13	2024-02-13	2024-02-13	2024-05-10
Sample Type:			N	N	N	FD	N	N	N	N	N	N
SVOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: 5801092731**	**SDG: 980535**	**SDG: DA42472**	**SDG: DA42472**	**SDG: DA48369**	**SDG: DA61982A**		**SDG: 35867999**		**SDG: DA64321**
3,3'-Dichlorobenzidine	None	None	0.260 U	--	--	--	--	--	--	--	--	--
3-Nitroaniline	None	None	0.160 U	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol	None	None	0.560 U	--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	None	None	0.0610 U	--	--	--	--	--	--	--	--	--
4-Chloro-3-methylphenol	None	None	0.130 U	--	--	--	--	--	--	--	--	--
4-Chloroaniline	None	None	0.600 U	--	--	--	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	None	None	0.0510 U	--	--	--	--	--	--	--	--	--
4-Nitroaniline	None	None	0.210 U	--	--	--	--	--	--	--	--	--
4-Nitrophenol	None	None	1.70 UJ	--	--	--	--	--	--	--	--	--
Acenaphthene	None	None	0.0510 U	--	--	--	--	--	--	--	--	--
Acenaphthylene	None	None	0.0610 U	--	--	--	--	--	--	--	--	--
Alachlor	None	None	--	--	--	--	--	--	--	--	--	--
Anthracene	None	None	0.0510 U	--	--	--	--	--	--	--	--	--
Atrazine	None	None	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	None	None	0.0510 U	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	0.2	0.2	0.0410 U	--	--	--	--	0.00950 U	--	0.0200 U	--	--
Benzo(b)fluoranthene	None	None	0.0410 U	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	None	None	0.0410 U	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	None	None	0.0510 U	--	--	--	--	--	--	--	--	--
Benzyl butyl phthalate	None	None	0.280 U	--	--	--	--	--	--	--	--	--
Bis(2-chloroethoxy)methane	None	None	0.0510 U	--	--	--	--	--	--	--	--	--
Bis(2-chloroethyl) ether (2-Chloroethyl ether)	None	None	0.0310 U	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl)phthalate	6	6	0.750 U	--	--	--	--	0.380 U	--	0.470 U	--	--
Carbazole	None	None	0.100 U	--	--	--	--	--	--	--	--	--
Chlordane	None	None	--	**0.380**	**0.820**	**0.770**	--	--	--	--	--	--
Chrysene	None	None	0.0410 U	--	--	--	--	--	--	--	--	--
Cresols, m- & p-	None	None	0.100 U	--	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	None	None	0.0710 U	--	--	--	--	--	--	--	--	--
Dibenzofuran	None	None	0.100 U	--	--	--	--	--	--	--	--	--
Dieldrin	None	None	--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	None	None	0.150 U	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	None	None	0.0610 U	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017491-24122-N-R1	SHAFT-HW-0017491-24183-N	SHAFT-HW-0017912-22266-N	SHAFT-HW-0017912-22266-N-R1	SHAFT-HW-0017912-22266-N-R2	SHAFT-HW-0017912-22266-N-R3	SHAFT-HW-0017912-22266-N-R4	SHAFT-HW-0017912-22266-N-R5	SHAFT-HW-0017912-22266-N-R6	SHAFT-HW-0017912-22266-N-R7
Sample Date:			2024-05-30	2024-07-24	2022-09-23	2022-10-06	2022-10-13	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20
Sample Type:			N	N	N	N	N	N	N	N	N	N
SVOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA64664**	**SDG: DA65891**	**SDG: DA49427**	**SDG: DA49866**	**SDG: DA50053**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50320**	**SDG: DA50320**
3,3'-Dichlorobenzidine	None	None	--	--	--	--	--	--	--	--	--	--
3-Nitroaniline	None	None	--	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol	None	None	--	--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	None	None	--	--	--	--	--	--	--	--	--	--
4-Chloro-3-methylphenol	None	None	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	None	None	--	--	--	--	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	None	None	--	--	--	--	--	--	--	--	--	--
4-Nitroaniline	None	None	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	None	None	--	--	--	--	--	--	--	--	--	--
Acenaphthene	None	None	--	--	--	--	--	0.0500 U	0.0480 U	0.0480 U	0.0500 U	0.0500 U
Acenaphthylene	None	None	--	--	--	--	--	0.0500 U	0.0480 U	0.0480 U	0.0500 U	0.0500 U
Alachlor	None	None	--	--	--	--	--	--	--	--	--	--
Anthracene	None	None	--	--	--	--	--	0.0500 U	0.0480 U	0.0480 U	0.0500 U	0.0500 U
Atrazine	None	None	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	None	None	--	--	--	--	--	0.0500 U	0.0480 U	0.0480 U	0.0500 U	0.0500 U
Benzo(a)pyrene	0.2	0.2	--	--	0.00960 U	0.0120 U	0.00970 U	0.0100 U	0.0100 U	0.0100 U	0.00960 U	0.00950 U
Benzo(b)fluoranthene	None	None	--	--	--	--	--	0.0500 U	0.0480 U	0.0480 U	0.0500 U	0.0500 U
Benzo(g,h,i)perylene	None	None	--	--	--	--	--	0.0500 U	0.0480 U	0.0480 U	0.0500 U	0.0500 U
Benzo(k)fluoranthene	None	None	--	--	--	--	--	0.0500 U	0.0480 U	0.0480 U	0.0500 U	0.0500 U
Benzyl butyl phthalate	None	None	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethoxy)methane	None	None	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethyl) ether (2-Chloroethyl ether)	None	None	--	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl)phthalate	6	6	--	--	0.380 U	0.470 U	0.390 U	0.400 U	0.410 U	0.400 U	0.380 U	0.380 U
Carbazole	None	None	--	--	--	--	--	--	--	--	--	--
Chlordane	None	None	--	--	--	--	--	--	--	--	--	--
Chrysene	None	None	--	--	--	--	--	0.0500 U	0.0480 U	0.0480 U	0.0500 U	0.0500 U
Cresols, m- & p-	None	None	--	--	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	None	None	--	--	--	--	--	0.0500 U	0.0480 U	0.0480 U	0.0500 U	0.0500 U
Dibenzofuran	None	None	--	--	--	--	--	--	--	--	--	--
Dieldrin	None	None	--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	None	None	--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-3-N-R8	SHAFT-HW-0017912-22266-N-R8	SHAFT-HW-0017912-22266-N-R9	SHAFT-HW-0017912-22266-N-R10	SHAFT-HW-0017912-22266-N-R11	SHAFT-HW-0017912-22266-N-R12	SHAFT-HW-0017912-22266-N-R13	SHAFT-HW-0017912-22266-N-R14	SHAFT-HW-0017912-22266-N-R15	SHAFT-HW-0017912-22266-N-R16
Sample Date:			2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-21	2022-10-21	2022-11-08
Sample Type:			FD	N	N	N	N	N	N	N	N	N
SVOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50909**
3,3'-Dichlorobenzidine	None	None	--	--	--	--	--	--	--	--	--	--
3-Nitroaniline	None	None	--	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol	None	None	--	--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	None	None	--	--	--	--	--	--	--	--	--	--
4-Chloro-3-methylphenol	None	None	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	None	None	--	--	--	--	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	None	None	--	--	--	--	--	--	--	--	--	--
4-Nitroaniline	None	None	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	None	None	--	--	--	--	--	--	--	--	--	--
Acenaphthene	None	None	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	--
Acenaphthylene	None	None	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	--
Alachlor	None	None	--	--	--	--	--	--	--	--	--	--
Anthracene	None	None	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	--
Atrazine	None	None	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	None	None	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	--
Benzo(a)pyrene	0.2	0.2	0.00950 U	0.00950 U	0.00950 U	0.00950 U	0.00950 U	0.00950 U	0.00950 U	0.00950 U	0.00960 U	0.00970 U
Benzo(b)fluoranthene	None	None	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	--
Benzo(g,h,i)perylene	None	None	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	--
Benzo(k)fluoranthene	None	None	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	--
Benzyl butyl phthalate	None	None	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethoxy)methane	None	None	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethyl) ether (2-Chloroethyl ether)	None	None	--	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl)phthalate	6	6	0.380 U	0.380 U	0.380 U	0.380 U	0.380 U	0.380 U	0.380 U	0.380 U	0.380 U	0.390 U
Carbazole	None	None	--	--	--	--	--	--	--	--	--	--
Chlordane	None	None	--	--	--	--	--	--	--	--	--	--
Chrysene	None	None	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	--
Cresols, m- & p-	None	None	--	--	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	None	None	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	--
Dibenzofuran	None	None	--	--	--	--	--	--	--	--	--	--
Dieldrin	None	None	--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	None	None	--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-N-R17	SHAFT-HW-0017912-22266-N-R18	SHAFT-HW-0017912-22266-N-R19	SHAFT-HW-0017912-22266-N-R20	SHAFT-HW-0017912-22266-N-R21	SHAFT-HW-0017912-22266-N-R22	SHAFT-HW-0017912-22266-N-5	SHAFT-HW-0017912-22266-N-R23	SHAFT-HW-0017912-22266-N-R24	SHAFT-HW-0017912-22266-N-R25
Sample Date:			2022-11-16	2022-11-29	2022-12-14	2023-01-05	2023-01-31	2023-02-15	2023-02-15	2023-03-08	2023-03-28	2023-04-18
Sample Type:			N	N	N	N	N	N	N	N	N	N
SVOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA51167**	**SDG: DA51405**	**SDG: DA51897**	**SDG: DA52372**	**SDG: DA52995**	**SDG: DA53393**		**SDG: DA53874**	**SDG: DA54306**	**SDG: DA54814**
3,3'-Dichlorobenzidine	None	None	--	--	--	--	--	--	--	--	--	--
3-Nitroaniline	None	None	--	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol	None	None	--	--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	None	None	--	--	--	--	--	--	--	--	--	--
4-Chloro-3-methylphenol	None	None	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	None	None	--	--	--	--	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	None	None	--	--	--	--	--	--	--	--	--	--
4-Nitroaniline	None	None	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	None	None	--	--	--	--	--	--	--	--	--	--
Acenaphthene	None	None	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	None	None	--	--	--	--	--	--	--	--	--	--
Alachlor	None	None	--	--	--	--	--	--	--	--	--	0.100 U
Anthracene	None	None	--	--	--	--	--	--	--	--	--	--
Atrazine	None	None	--	--	--	--	--	--	--	--	--	0.0500 U
Benzo(a)anthracene	None	None	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	0.2	0.2	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	--	0.0100 U	0.0100 U	0.0100 U
Benzo(b)fluoranthene	None	None	--	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	None	None	--	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	None	None	--	--	--	--	--	--	--	--	--	--
Benzyl butyl phthalate	None	None	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethoxy)methane	None	None	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethyl) ether (2-Chloroethyl ether)	None	None	--	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl)phthalate	6	6	0.400 U	0.400 U	0.400 U	0.410 U	0.420 U	0.400 U	--	0.420 U	0.410 U	0.400 U
Carbazole	None	None	--	--	--	--	--	--	--	--	--	--
Chlordane	None	None	--	--	--	--	--	--	--	--	--	--
Chrysene	None	None	--	--	--	--	--	--	--	--	--	--
Cresols, m- & p-	None	None	--	--	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	None	None	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	None	None	--	--	--	--	--	--	--	--	--	--
Dieldrin	None	None	--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	None	None	--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-3-N-R25	SHAFT-HW-0017912-22266-N-R26	SHAFT-HW-0017912-22266-3-N-R26	SHAFT-HW-0017912-22266-N-R27	SHAFT-HW-0017912-22266-N-R28	SHAFT-HW-0017912-22266-3-N-R28	SHAFT-HW-0017912-22266-N-R29	SHAFT-HW-0017912-22266-N-R30	SHAFT-HW-0017912-22266-N-R31	SHAFT-HW-0017912-22266-N-R32
Sample Date:			2023-04-18	2023-04-24	2023-04-24	2023-05-09	2023-05-30	2023-05-30	2023-06-20	2023-07-11	2023-08-01	2023-08-22
Sample Type:			FD	N	FD	N	N	FD	N	N	N	N
SVOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA54814**	**SDG: DA54930**	**SDG: DA54930**	**SDG: DA55338**	**SDG: DA55797**	**SDG: DA55797**	**SDG: DA56300**	**SDG: DA56802**	**SDG: DA57381**	**SDG: DA58027**
3,3'-Dichlorobenzidine	None	None	--	--	--	--	--	--	--	--	--	--
3-Nitroaniline	None	None	--	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol	None	None	--	--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	None	None	--	--	--	--	--	--	--	--	--	--
4-Chloro-3-methylphenol	None	None	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	None	None	--	--	--	--	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	None	None	--	--	--	--	--	--	--	--	--	--
4-Nitroaniline	None	None	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	None	None	--	--	--	--	--	--	--	--	--	--
Acenaphthene	None	None	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	None	None	--	--	--	--	--	--	--	--	--	--
Alachlor	None	None	--	--	--	--	--	--	--	--	--	--
Anthracene	None	None	--	--	--	--	--	--	--	--	--	--
Atrazine	None	None	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	None	None	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	0.2	0.2	--	--	--	0.0100 U	0.0100 U	--	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Benzo(b)fluoranthene	None	None	--	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	None	None	--	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	None	None	--	--	--	--	--	--	--	--	--	--
Benzyl butyl phthalate	None	None	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethoxy)methane	None	None	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethyl) ether (2-Chloroethyl ether)	None	None	--	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl)phthalate	6	6	--	--	--	0.410 U	0.400 U	--	0.400 U	0.400 U	0.410 U	0.410 U
Carbazole	None	None	--	--	--	--	--	--	--	--	--	--
Chlordane	None	None	--	--	--	--	--	--	--	--	--	--
Chrysene	None	None	--	--	--	--	--	--	--	--	--	--
Cresols, m- & p-	None	None	--	--	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	None	None	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	None	None	--	--	--	--	--	--	--	--	--	--
Dieldrin	None	None	--	0.00600 U	0.00600 U	--	0.00600 U	0.00600 U	--	--	--	--
Diethyl phthalate	None	None	--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-PR-FW1	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2
Location Type:			Well	Well	Well	Well	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Pre-Chlorination Spigot	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-N-R33	SHAFT-HW-0017912-22266-N-R34	SHAFT-HW-0017912-22266-N-R35	SHAFT-HW-0017912-22266-N-R36	SHAFT-HW-0018363-24153-N	SHAFT-HW-0018384-24275-N	SHAFT-HW-0018384-25001-N	SHAFT-HW-0018384-25051-N	SHAFT-HW-0018384-25051-3-N	SHAFT-HW-0018384-25051-N-R1
Sample Date:			2023-09-12	2023-10-03	2023-10-24	2023-11-14	2024-06-04	2024-10-22	2025-01-08	2025-02-20	2025-02-20	2025-03-07
Sample Type:			N	N	N	N	N	N	N	N	FD	N
SVOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA58496**	**SDG: DA59044**	**SDG: DA59556**	**SDG: DA60011**	**SDG: DA64740E**	**SDG: DA68257**	**SDG: DA69805**	**SDG: DA70645**	**SDG: DA70645**	**SDG: 35942699**
3,3'-Dichlorobenzidine	None	None	--	--	--	--	--	--	--	--	--	--
3-Nitroaniline	None	None	--	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol	None	None	--	--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	None	None	--	--	--	--	--	--	--	--	--	--
4-Chloro-3-methylphenol	None	None	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	None	None	--	--	--	--	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	None	None	--	--	--	--	--	--	--	--	--	--
4-Nitroaniline	None	None	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	None	None	--	--	--	--	--	--	--	--	--	--
Acenaphthene	None	None	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	None	None	--	--	--	--	--	0.250 U	--	--	--	--
Alachlor	None	None	--	--	--	--	--	--	--	0.100 U	0.100 U	--
Anthracene	None	None	--	--	--	--	--	0.250 U	--	--	--	--
Atrazine	None	None	--	--	--	--	--	--	--	0.0510 U	0.0510 U	--
Benzo(a)anthracene	None	None	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	0.2	0.2	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	--	--	--	--
Benzo(b)fluoranthene	None	None	--	--	--	--	--	0.250 U	--	--	--	--
Benzo(g,h,i)perylene	None	None	--	--	--	--	--	0.250 U	--	--	--	--
Benzo(k)fluoranthene	None	None	--	--	--	--	--	0.250 U	--	--	--	--
Benzyl butyl phthalate	None	None	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethoxy)methane	None	None	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethyl) ether (2-Chloroethyl ether)	None	None	--	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl)phthalate	6	6	0.410 U	0.400 U	0.420 U	0.410 U	--	--	--	0.400 U	0.400 U	--
Carbazole	None	None	--	--	--	--	--	--	--	--	--	--
Chlordane	None	None	--	--	--	--	--	--	--	--	--	--
Chrysene	None	None	--	--	--	--	--	0.250 U	--	--	--	--
Cresols, m- & p-	None	None	--	--	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	None	None	--	--	--	--	--	0.250 U	--	--	--	--
Dibenzofuran	None	None	--	--	--	--	--	--	--	--	--	--
Dieldrin	None	None	--	--	--	--	--	--	--	**0.0360**	**0.0330**	--
Diethyl phthalate	None	None	--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2
Location Type:	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap
Residence:	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:	SHAFT-HW-0018384-25051-3-N-R1	SHAFT-HW-0018384-25051-N-R2	SHAFT-HW-0018384-25051-3-N-R2	SHAFT-HW-0018384-25091-N
Sample Date:	2025-03-07	2025-04-14	2025-04-14	2025-04-16
Sample Type:	FD	N	FD	N

SVOC (µg/L)	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 35942699	SDG: 2504116	SDG: 2504116	SDG: DA71831B
3,3'-Dichlorobenzidine	None	None	--	--	--	--
3-Nitroaniline	None	None	--	--	--	--
4,6-Dinitro-2-methylphenol	None	None	--	--	--	--
4-Bromophenyl phenyl ether	None	None	--	--	--	--
4-Chloro-3-methylphenol	None	None	--	--	--	--
4-Chloroaniline	None	None	--	--	--	--
4-Chlorophenyl phenyl ether	None	None	--	--	--	--
4-Nitroaniline	None	None	--	--	--	--
4-Nitrophenol	None	None	--	--	--	--
Acenaphthene	None	None	--	--	--	--
Acenaphthylene	None	None	--	--	--	--
Alachlor	None	None	--	--	--	--
Anthracene	None	None	--	--	--	--
Atrazine	None	None	--	--	--	--
Benzo(a)anthracene	None	None	--	--	--	--
Benzo(a)pyrene	0.2	0.2	--	--	--	--
Benzo(b)fluoranthene	None	None	--	--	--	--
Benzo(g,h,i)perylene	None	None	--	--	--	--
Benzo(k)fluoranthene	None	None	--	--	--	--
Benzyl butyl phthalate	None	None	--	--	--	--
Bis(2-chloroethoxy)methane	None	None	--	--	--	--
Bis(2-chloroethyl) ether (2-Chloroethyl ether)	None	None	--	--	--	--
Bis(2-ethylhexyl)phthalate	6	6	--	--	--	--
Carbazole	None	None	--	--	--	--
Chlordane	None	None	--	--	--	--
Chrysene	None	None	--	--	--	--
Cresols, m- & p-	None	None	--	--	--	--
Dibenz(a,h)anthracene	None	None	--	--	--	--
Dibenzofuran	None	None	--	--	--	--
Dieldrin	None	None	--	--	--	--
Diethyl phthalate	None	None	--	--	--	--
Dimethyl phthalate	None	None	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA	SHFTAIEA	SHFTAIEA	SHFTAIEA	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft	Aiea-Halawa Shaft	Aiea-Halawa Shaft	Aiea-Halawa Shaft	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:			220113-AH-WT01	220113-AH-WT03	I1-HW-0016022-22060-N	I1-HW-0016022-22060-3-N	SHAFT-HW-0017491-22235-N	SHAFT-HW-0017491-22266-N	SHAFT-HW-0017491-22266-N-ME	SHAFT-HW-0017491-22266-N-P	SHAFT-HW-0017491-22266-N-Q	SHAFT-HW-0017491-24122-N
Sample Date:			2022-01-13	2022-01-13	2022-03-01	2022-03-01	2022-08-23	2024-02-13	2024-02-13	2024-02-13	2024-02-13	2024-05-10
Sample Type:			N	N	N	FD	N	N	N	N	N	N
SVOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: 5801092731**	**SDG: 980535**	**SDG: DA42472**	**SDG: DA42472**	**SDG: DA48369**	**SDG: DA61982A**		**SDG: 35867999**		**SDG: DA64321**
di-n-Butyl phthalate	None	None	0.190 U	--	--	--	--	--	--	--	--	--
di-n-Octyl phthalate	None	None	0.130 U	--	--	--	--	--	--	--	--	--
Dioctyl adipate	None	None	--	--	--	--	--	--	--	--	--	--
Endrin	None	None	--	0.00500 U	0.0100 U	0.0100 U	--	--	--	--	--	--
Fluoranthene	None	None	0.0610 U	--	--	--	--	--	--	--	--	--
Fluorene	None	None	0.0510 U	--	--	--	--	--	--	--	--	--
gamma-BHC (Lindane)	None	None	--	0.00700 U	0.0100 U	0.0100 U	--	--	--	--	--	--
Heptachlor	None	None	--	0.00300 U	0.0200 U	0.0200 U	--	--	--	--	--	--
Heptachlor epoxide	None	None	--	**0.00670 J**	0.0200 U	**0.0210**	--	--	--	--	--	--
Hexachlorobenzene	1	1	0.0410 U	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	None	None	0.0610 U	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	50	50	0.140 UJ	--	--	--	--	--	--	--	--	--
Hexachloroethane	None	None	0.0510 U	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-c,d)pyrene	None	None	0.130 U	--	--	--	--	--	--	--	--	--
Isophorone	None	None	0.100 U	--	--	--	--	--	--	--	--	--
Methoxychlor	None	None	--	0.0320 U	0.0200 U	0.0200 U	--	--	--	--	--	--
Naphthalene	None	None	0.160 U	--	--	--	--	0.240 U	--	0.160 U	--	--
Nitrobenzene	None	None	0.0410 U	--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	None	None	0.0610 U	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	None	None	0.0710 U	--	--	--	--	--	--	--	--	--
PCB, Total	None	None	--	--	0.100 U	0.100 U	--	--	--	--	--	--
PCB-1016 (Aroclor 1016)	None	None	--	0.0220 U	--	--	--	--	--	--	--	--
PCB-1221 (Aroclor 1221)	None	None	--	0.0790 U	--	--	--	--	--	--	--	--
PCB-1232 (Aroclor 1232)	None	None	--	0.0850 U	--	--	--	--	--	--	--	--
PCB-1242 (Aroclor 1242)	None	None	--	0.0720 U	--	--	--	--	--	--	--	--
PCB-1248 (Aroclor 1248)	None	None	--	0.0230 U	--	--	--	--	--	--	--	--
PCB-1254 (Aroclor 1254)	None	None	--	0.0350 U	--	--	--	--	--	--	--	--
PCB-1260 (Aroclor 1260)	None	None	--	0.0330 U	--	--	--	--	--	--	--	--
Pentachlorophenol	1	None	0.520 UJ	--	--	--	--	--	--	--	--	--
Phenanthrene	None	None	0.120 U	--	--	--	--	--	--	--	--	--
Phenol	None	None	0.370 UJ	--	--	--	--	--	--	--	--	--
Pyrene	None	None	0.0410 U	--	--	--	--	--	--	--	--	--
Simazine	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017491-24122-N-R1	SHAFT-HW-0017491-24183-N	SHAFT-HW-0017912-22266-N	SHAFT-HW-0017912-22266-N-R1	SHAFT-HW-0017912-22266-N-R2	SHAFT-HW-0017912-22266-N-R3	SHAFT-HW-0017912-22266-N-R4	SHAFT-HW-0017912-22266-N-R5	SHAFT-HW-0017912-22266-N-R6	SHAFT-HW-0017912-22266-N-R7
Sample Date:			2024-05-30	2024-07-24	2022-09-23	2022-10-06	2022-10-13	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20
Sample Type:			N	N	N	N	N	N	N	N	N	N
SVOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA64664**	**SDG: DA65891**	**SDG: DA49427**	**SDG: DA49866**	**SDG: DA50053**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50320**	**SDG: DA50320**
di-n-Butyl phthalate	None	None	--	--	--	--	--	--	--	--	--	--
di-n-Octyl phthalate	None	None	--	--	--	--	--	--	--	--	--	--
Dioctyl adipate	None	None	--	--	--	--	--	--	--	--	--	--
Endrin	None	None	--	--	--	--	--	--	--	--	--	--
Fluoranthene	None	None	--	--	--	--	--	0.0500 U	0.0480 U	0.0480 U	0.0500 U	0.0500 U
Fluorene	None	None	--	--	--	--	--	0.0500 U	0.0480 U	0.0480 U	0.0500 U	0.0500 U
gamma-BHC (Lindane)	None	None	--	--	--	--	--	--	--	--	--	--
Heptachlor	None	None	--	--	--	--	--	--	--	--	--	--
Heptachlor epoxide	None	None	--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	1	1	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	None	None	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	50	50	--	--	--	--	--	--	--	--	--	--
Hexachloroethane	None	None	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-c,d)pyrene	None	None	--	--	--	--	--	0.0500 U	0.0480 U	0.0480 U	0.0500 U	0.0500 U
Isophorone	None	None	--	--	--	--	--	--	--	--	--	--
Methoxychlor	None	None	--	--	--	--	--	--	--	--	--	--
Naphthalene	None	None	--	--	0.240 U	0.290 U	0.240 U	0.250 U	0.260 U	0.250 U	0.240 U	0.240 U
Nitrobenzene	None	None	--	--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	None	None	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	None	None	--	--	--	--	--	--	--	--	--	--
PCB, Total	None	None	--	--	--	--	--	--	--	--	--	--
PCB-1016 (Aroclor 1016)	None	None	--	--	--	--	--	--	--	--	--	--
PCB-1221 (Aroclor 1221)	None	None	--	--	--	--	--	--	--	--	--	--
PCB-1232 (Aroclor 1232)	None	None	--	--	--	--	--	--	--	--	--	--
PCB-1242 (Aroclor 1242)	None	None	--	--	--	--	--	--	--	--	--	--
PCB-1248 (Aroclor 1248)	None	None	--	--	--	--	--	--	--	--	--	--
PCB-1254 (Aroclor 1254)	None	None	--	--	--	--	--	--	--	--	--	--
PCB-1260 (Aroclor 1260)	None	None	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	1	None	--	--	--	--	--	--	--	--	--	--
Phenanthrene	None	None	--	--	--	--	--	0.0500 U	0.0480 U	0.0480 U	0.0500 U	0.0500 U
Phenol	None	None	--	--	--	--	--	--	--	--	--	--
Pyrene	None	None	--	--	--	--	--	0.0500 U	0.0480 U	0.0480 U	0.0500 U	0.0500 U
Simazine	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-3-N-R8	SHAFT-HW-0017912-22266-N-R8	SHAFT-HW-0017912-22266-N-R9	SHAFT-HW-0017912-22266-N-R10	SHAFT-HW-0017912-22266-N-R11	SHAFT-HW-0017912-22266-N-R12	SHAFT-HW-0017912-22266-N-R13	SHAFT-HW-0017912-22266-N-R14	SHAFT-HW-0017912-22266-N-R15	SHAFT-HW-0017912-22266-N-R16
Sample Date:			2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-21	2022-10-21	2022-11-08
Sample Type:			FD	N	N	N	N	N	N	N	N	N
SVOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50909**
di-n-Butyl phthalate	None	None	--	--	--	--	--	--	--	--	--	--
di-n-Octyl phthalate	None	None	--	--	--	--	--	--	--	--	--	--
Dioctyl adipate	None	None	--	--	--	--	--	--	--	--	--	--
Endrin	None	None	--	--	--	--	--	--	--	--	--	--
Fluoranthene	None	None	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	--
Fluorene	None	None	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	--
gamma-BHC (Lindane)	None	None	--	--	--	--	--	--	--	--	--	--
Heptachlor	None	None	--	--	--	--	--	--	--	--	--	--
Heptachlor epoxide	None	None	--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	1	1	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	None	None	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	50	50	--	--	--	--	--	--	--	--	--	--
Hexachloroethane	None	None	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-c,d)pyrene	None	None	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	--
Isophorone	None	None	--	--	--	--	--	--	--	--	--	--
Methoxychlor	None	None	--	--	--	--	--	--	--	--	--	--
Naphthalene	None	None	0.240 U	0.240 U	0.240 U	0.240 U	0.240 U	0.240 U	0.240 U	0.240 U	0.240 U	0.240 U
Nitrobenzene	None	None	--	--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	None	None	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	None	None	--	--	--	--	--	--	--	--	--	--
PCB, Total	None	None	--	--	--	--	--	--	--	--	--	--
PCB-1016 (Aroclor 1016)	None	None	--	--	--	--	--	--	--	--	--	--
PCB-1221 (Aroclor 1221)	None	None	--	--	--	--	--	--	--	--	--	--
PCB-1232 (Aroclor 1232)	None	None	--	--	--	--	--	--	--	--	--	--
PCB-1242 (Aroclor 1242)	None	None	--	--	--	--	--	--	--	--	--	--
PCB-1248 (Aroclor 1248)	None	None	--	--	--	--	--	--	--	--	--	--
PCB-1254 (Aroclor 1254)	None	None	--	--	--	--	--	--	--	--	--	--
PCB-1260 (Aroclor 1260)	None	None	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	1	None	--	--	--	--	--	--	--	--	--	--
Phenanthrene	None	None	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	--
Phenol	None	None	--	--	--	--	--	--	--	--	--	--
Pyrene	None	None	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	--
Simazine	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-N-R17	SHAFT-HW-0017912-22266-N-R18	SHAFT-HW-0017912-22266-N-R19	SHAFT-HW-0017912-22266-N-R20	SHAFT-HW-0017912-22266-N-R21	SHAFT-HW-0017912-22266-N-R22	SHAFT-HW-0017912-22266-N-5	SHAFT-HW-0017912-22266-N-R23	SHAFT-HW-0017912-22266-N-R24	SHAFT-HW-0017912-22266-N-R25
Sample Date:			2022-11-16	2022-11-29	2022-12-14	2023-01-05	2023-01-31	2023-02-15	2023-02-15	2023-03-08	2023-03-28	2023-04-18
Sample Type:			N	N	N	N	N	N	N	N	N	N
SVOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA51167**	**SDG: DA51405**	**SDG: DA51897**	**SDG: DA52372**	**SDG: DA52995**	**SDG: DA53393**		**SDG: DA53874**	**SDG: DA54306**	**SDG: DA54814**
di-n-Butyl phthalate	None	None	--	--	--	--	--	--	--	--	--	--
di-n-Octyl phthalate	None	None	--	--	--	--	--	--	--	--	--	--
Dioctyl adipate	None	None	--	--	--	--	--	--	--	--	--	--
Endrin	None	None	--	--	--	--	--	--	--	--	--	--
Fluoranthene	None	None	--	--	--	--	--	--	--	--	--	--
Fluorene	None	None	--	--	--	--	--	--	--	--	--	--
gamma-BHC (Lindane)	None	None	--	--	--	--	--	--	--	--	--	--
Heptachlor	None	None	--	--	--	--	--	--	--	--	--	0.0300 U
Heptachlor epoxide	None	None	--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	1	1	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	None	None	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	50	50	--	--	--	--	--	--	--	--	--	--
Hexachloroethane	None	None	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-c,d)pyrene	None	None	--	--	--	--	--	--	--	--	--	--
Isophorone	None	None	--	--	--	--	--	--	--	--	--	--
Methoxychlor	None	None	--	--	--	--	--	--	--	--	--	--
Naphthalene	None	None	0.250 U	0.250 U	0.250 U	0.260 U	0.260 U	0.250 U	--	0.260 U	0.260 U	0.250 U
Nitrobenzene	None	None	--	--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	None	None	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	None	None	--	--	--	--	--	--	--	--	--	--
PCB, Total	None	None	--	--	--	--	--	--	--	--	--	--
PCB-1016 (Aroclor 1016)	None	None	--	--	--	--	--	--	--	--	--	--
PCB-1221 (Aroclor 1221)	None	None	--	--	--	--	--	--	--	--	--	--
PCB-1232 (Aroclor 1232)	None	None	--	--	--	--	--	--	--	--	--	--
PCB-1242 (Aroclor 1242)	None	None	--	--	--	--	--	--	--	--	--	--
PCB-1248 (Aroclor 1248)	None	None	--	--	--	--	--	--	--	--	--	--
PCB-1254 (Aroclor 1254)	None	None	--	--	--	--	--	--	--	--	--	--
PCB-1260 (Aroclor 1260)	None	None	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	1	None	--	--	--	--	--	--	--	--	--	--
Phenanthrene	None	None	--	--	--	--	--	--	--	--	--	--
Phenol	None	None	--	--	--	--	--	--	--	--	--	--
Pyrene	None	None	--	--	--	--	--	--	--	--	--	--
Simazine	None	None	--	--	--	--	--	--	--	--	--	0.0400 U

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-3-N-R25	SHAFT-HW-0017912-22266-N-R26	SHAFT-HW-0017912-22266-3-N-R26	SHAFT-HW-0017912-22266-N-R27	SHAFT-HW-0017912-22266-N-R28	SHAFT-HW-0017912-22266-3-N-R28	SHAFT-HW-0017912-22266-N-R29	SHAFT-HW-0017912-22266-N-R30	SHAFT-HW-0017912-22266-N-R31	SHAFT-HW-0017912-22266-N-R32
Sample Date:			2023-04-18	2023-04-24	2023-04-24	2023-05-09	2023-05-30	2023-05-30	2023-06-20	2023-07-11	2023-08-01	2023-08-22
Sample Type:			FD	N	FD	N	N	FD	N	N	N	N
SVOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA54814**	**SDG: DA54930**	**SDG: DA54930**	**SDG: DA55338**	**SDG: DA55797**	**SDG: DA55797**	**SDG: DA56300**	**SDG: DA56802**	**SDG: DA57381**	**SDG: DA58027**
di-n-Butyl phthalate	None	None	--	--	--	--	--	--	--	--	--	--
di-n-Octyl phthalate	None	None	--	--	--	--	--	--	--	--	--	--
Dioctyl adipate	None	None	--	--	--	--	--	--	--	--	--	--
Endrin	None	None	--	0.00800 U	0.00800 U	--	0.00800 U	0.00800 U	--	--	--	--
Fluoranthene	None	None	--	--	--	--	--	--	--	--	--	--
Fluorene	None	None	--	--	--	--	--	--	--	--	--	--
gamma-BHC (Lindane)	None	None	--	0.00600 U	0.00600 U	--	0.00600 U	0.00600 U	--	--	--	--
Heptachlor	None	None	--	0.0100 U	0.0100 U	--	0.0100 U	0.0100 U	--	--	--	--
Heptachlor epoxide	None	None	--	0.0100 U	0.0100 U	--	0.0100 U	0.0100 U	--	--	--	--
Hexachlorobenzene	1	1	--	0.0100 U	0.0100 U	--	0.0100 U	0.0100 U	--	--	--	--
Hexachlorobutadiene	None	None	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	50	50	--	0.0390 U	0.0390 U	--	0.0390 U	0.0390 U	--	--	--	--
Hexachloroethane	None	None	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-c,d)pyrene	None	None	--	--	--	--	--	--	--	--	--	--
Isophorone	None	None	--	--	--	--	--	--	--	--	--	--
Methoxychlor	None	None	--	0.0100 U	0.0100 U	--	0.0100 U	0.0100 U	--	--	--	--
Naphthalene	None	None	--	--	--	0.260 U	0.250 U	--	0.250 U	0.250 U	0.260 U	0.260 U
Nitrobenzene	None	None	--	--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	None	None	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	None	None	--	--	--	--	--	--	--	--	--	--
PCB, Total	None	None	--	0.0800 U	0.0800 U	--	0.0800 U	0.0800 UJ	--	--	--	--
PCB-1016 (Aroclor 1016)	None	None	--	0.0750 U	0.0750 U	--	0.0750 U	0.0750 UJ	--	--	--	--
PCB-1221 (Aroclor 1221)	None	None	--	0.0800 U	0.0800 U	--	0.0800 U	0.0800 UJ	--	--	--	--
PCB-1232 (Aroclor 1232)	None	None	--	0.0800 U	0.0800 U	--	0.0800 U	0.0800 UJ	--	--	--	--
PCB-1242 (Aroclor 1242)	None	None	--	0.0800 U	0.0800 U	--	0.0800 U	0.0800 UJ	--	--	--	--
PCB-1248 (Aroclor 1248)	None	None	--	0.0500 U	0.0500 U	--	0.0500 U	0.0500 UJ	--	--	--	--
PCB-1254 (Aroclor 1254)	None	None	--	0.0500 U	0.0500 U	--	0.0500 U	0.0500 UJ	--	--	--	--
PCB-1260 (Aroclor 1260)	None	None	--	0.0500 U	0.0500 U	--	0.0500 U	0.0500 UJ	--	--	--	--
Pentachlorophenol	1	None	--	--	--	--	--	--	--	--	--	--
Phenanthrene	None	None	--	--	--	--	--	--	--	--	--	--
Phenol	None	None	--	--	--	--	--	--	--	--	--	--
Pyrene	None	None	--	--	--	--	--	--	--	--	--	--
Simazine	None	None	--	--	--	--	--	--	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-PR-FW1	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2
Location Type:			Well	Well	Well	Well	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Pre-Chlorination Spigot	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-N-R33	SHAFT-HW-0017912-22266-N-R34	SHAFT-HW-0017912-22266-N-R35	SHAFT-HW-0017912-22266-N-R36	SHAFT-HW-0018363-24153-N	SHAFT-HW-0018384-24275-N	SHAFT-HW-0018384-25001-N	SHAFT-HW-0018384-25051-N	SHAFT-HW-0018384-25051-3-N	SHAFT-HW-0018384-25051-N-R1
Sample Date:			2023-09-12	2023-10-03	2023-10-24	2023-11-14	2024-06-04	2024-10-22	2025-01-08	2025-02-20	2025-02-20	2025-03-07
Sample Type:			N	N	N	N	N	N	N	N	FD	N
SVOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA58496**	**SDG: DA59044**	**SDG: DA59556**	**SDG: DA60011**	**SDG: DA64740E**	**SDG: DA68257**	**SDG: DA69805**	**SDG: DA70645**	**SDG: DA70645**	**SDG: 35942699**
di-n-Butyl phthalate	None	None	--	--	--	--	--	--	--	--	--	--
di-n-Octyl phthalate	None	None	--	--	--	--	--	--	--	--	--	--
Dioctyl adipate	None	None	--	--	--	--	--	--	--	0.400 U	0.400 U	--
Endrin	None	None	--	--	--	--	--	--	--	0.00760 U	0.00760 U	--
Fluoranthene	None	None	--	--	--	--	--	--	--	--	--	--
Fluorene	None	None	--	--	--	--	--	0.250 U	--	--	--	--
gamma-BHC (Lindane)	None	None	--	--	--	--	--	--	--	0.00570 U	0.00570 U	--
Heptachlor	None	None	--	--	--	--	--	--	--	0.00950 U	0.00950 U	--
Heptachlor epoxide	None	None	--	--	--	--	--	--	--	0.00950 U	0.00950 U	--
Hexachlorobenzene	1	1	--	--	--	--	--	--	--	0.00950 U	0.00950 U	--
Hexachlorobutadiene	None	None	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	50	50	--	--	--	--	--	--	--	0.0370 U	0.0370 U	--
Hexachloroethane	None	None	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-c,d)pyrene	None	None	--	--	--	--	--	0.250 U	--	--	--	--
Isophorone	None	None	--	--	--	--	--	--	--	--	--	--
Methoxychlor	None	None	--	--	--	--	--	--	--	0.00950 U	0.00950 U	--
Naphthalene	None	None	0.260 U	0.250 U	0.260 U	0.260 U	0.250 U	0.250 U	--	--	--	--
Nitrobenzene	None	None	--	--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	None	None	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	None	None	--	--	--	--	--	--	--	--	--	--
PCB, Total	None	None	--	--	--	--	--	--	--	0.0760 U	0.0760 U	--
PCB-1016 (Aroclor 1016)	None	None	--	--	--	--	--	--	--	0.0710 U	0.0710 U	--
PCB-1221 (Aroclor 1221)	None	None	--	--	--	--	--	--	--	0.0760 U	0.0760 U	--
PCB-1232 (Aroclor 1232)	None	None	--	--	--	--	--	--	--	0.0760 U	0.0760 U	--
PCB-1242 (Aroclor 1242)	None	None	--	--	--	--	--	--	--	0.0760 U	0.0760 U	--
PCB-1248 (Aroclor 1248)	None	None	--	--	--	--	--	--	--	0.0470 U	0.0470 U	--
PCB-1254 (Aroclor 1254)	None	None	--	--	--	--	--	--	--	0.0470 U	0.0470 U	--
PCB-1260 (Aroclor 1260)	None	None	--	--	--	--	--	--	--	0.0470 U	0.0470 U	--
Pentachlorophenol	1	None	--	--	--	--	--	--	--	--	--	--
Phenanthrene	None	None	--	--	--	--	--	0.250 U	--	--	--	--
Phenol	None	None	--	--	--	--	--	--	--	--	--	--
Pyrene	None	None	--	--	--	--	--	0.250 U	--	--	--	--
Simazine	None	None	--	--	--	--	--	--	--	0.0510 U	0.0510 U	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2
Location Type:	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap
Residence:	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:	SHAFT-HW-0018384-25051-3-N-R1	SHAFT-HW-0018384-25051-N-R2	SHAFT-HW-0018384-25051-3-N-R2	SHAFT-HW-0018384-25091-N
Sample Date:	2025-03-07	2025-04-14	2025-04-14	2025-04-16
Sample Type:	FD	N	FD	N

SVOC (µg/L)	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 35942699	SDG: 2504116	SDG: 2504116	SDG: DA71831B
di-n-Butyl phthalate	None	None	--	--	--	--
di-n-Octyl phthalate	None	None	--	--	--	--
Dioctyl adipate	None	None	--	--	--	--
Endrin	None	None	--	--	--	--
Fluoranthene	None	None	--	--	--	--
Fluorene	None	None	--	--	--	--
gamma-BHC (Lindane)	None	None	--	--	--	--
Heptachlor	None	None	--	--	--	--
Heptachlor epoxide	None	None	--	--	--	--
Hexachlorobenzene	1	1	--	--	--	--
Hexachlorobutadiene	None	None	--	--	--	--
Hexachlorocyclopentadiene	50	50	--	--	--	--
Hexachloroethane	None	None	--	--	--	--
Indeno(1,2,3-c,d)pyrene	None	None	--	--	--	--
Isophorone	None	None	--	--	--	--
Methoxychlor	None	None	--	--	--	--
Naphthalene	None	None	--	--	--	--
Nitrobenzene	None	None	--	--	--	--
N-Nitrosodi-n-propylamine	None	None	--	--	--	--
N-Nitrosodiphenylamine	None	None	--	--	--	--
PCB, Total	None	None	--	--	--	--
PCB-1016 (Aroclor 1016)	None	None	--	--	--	--
PCB-1221 (Aroclor 1221)	None	None	--	--	--	--
PCB-1232 (Aroclor 1232)	None	None	--	--	--	--
PCB-1242 (Aroclor 1242)	None	None	--	--	--	--
PCB-1248 (Aroclor 1248)	None	None	--	--	--	--
PCB-1254 (Aroclor 1254)	None	None	--	--	--	--
PCB-1260 (Aroclor 1260)	None	None	--	--	--	--
Pentachlorophenol	1	None	--	--	--	--
Phenanthrene	None	None	--	--	--	--
Phenol	None	None	--	--	--	--
Pyrene	None	None	--	--	--	--
Simazine	None	None	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA	SHFTAIEA	SHFTAIEA	SHFTAIEA	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft	Aiea-Halawa Shaft	Aiea-Halawa Shaft	Aiea-Halawa Shaft	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:			220113-AH-WT01	220113-AH-WT03	I1-HW-0016022-22060-N	I1-HW-0016022-22060-3-N	SHAFT-HW-0017491-22235-N	SHAFT-HW-0017491-22266-N	SHAFT-HW-0017491-22266-N-ME	SHAFT-HW-0017491-22266-N-P	SHAFT-HW-0017491-22266-N-Q	SHAFT-HW-0017491-24122-N
Sample Date:			2022-01-13	2022-01-13	2022-03-01	2022-03-01	2022-08-23	2024-02-13	2024-02-13	2024-02-13	2024-02-13	2024-05-10
Sample Type:			N	N	N	FD	N	N	N	N	N	N
SVOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: 5801092731**	**SDG: 980535**	**SDG: DA42472**	**SDG: DA42472**	**SDG: DA48369**	**SDG: DA61982A**		**SDG: 35867999**		**SDG: DA64321**
Technical Chlordane	None	None	--	--	--	--	--	--	--	--	--	--
Toxaphene	None	None	--	--	--	--	--	--	--	--	--	--
VOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: 5801092731**	**SDG: C22A012**	**SDG: DA42472**	**SDG: DA42472**	**SDG: DA48369**	**SDG: DA61982A**		**SDG: 35867999**		**SDG: DA64321**
1,1,1-Trichloroethane	200	200	0.390 U	0.119 U	--	--	--	0.250 U	--	0.290 U	--	--
1,1,2,2-Tetrachloroethane	None	None	0.520 U	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	5	5	0.240 U	0.288 U	--	--	--	0.250 U	--	0.340 U	--	--
1,1-Dichloroethane	None	None	0.220 U	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	7	7	0.280 U	0.128 U	--	--	--	0.250 U	--	0.370 U	--	--
1,2,3-Trichloropropane	None	None	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	70	70	--	0.318 U	--	--	--	0.270 U	--	0.350 U	--	--
1,2,4-Trimethylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	None	None	--	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane (EDB)	None	0.05	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	600	600	--	0.272 U	--	--	--	0.250 U	--	0.400 U	--	--
1,2-Dichloroethane	5	5	0.420 U	0.0884 U	--	--	--	0.250 U	--	0.300 U	--	--
1,2-Dichloroethene (Total)	70	None	ND	ND	--	--	--	ND	--	ND	--	--
1,2-Dichloropropane	5	5	0.180 U	0.129 U	--	--	--	0.250 U	--	0.440 U	--	--
1,3,5-Trimethylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	75	None	--	0.245 U	--	--	--	0.250 U	--	0.330 U	--	--
2-Butanone (MEK)	None	None	4.70 U	--	--	--	--	--	--	--	--	--
2-Hexanone	None	None	4.00 U	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone (MIBK)	None	None	2.50 U	--	--	--	--	--	--	--	--	--
Acetone	None	None	3.20 U	--	--	--	--	--	--	--	--	--
Benzene	5	5	0.240 U	0.0846 U	--	--	0.250 U	0.250 U	--	0.400 U	--	--
Bromodichloromethane	None	None	0.290 U	--	--	--	--	0.250 U	--	0.500 U	--	--
Bromoform	None	None	0.510 U	--	--	--	--	0.250 U	--	0.480 U	--	--
Bromomethane	None	None	0.210 U	--	--	--	--	--	--	--	--	--
Carbofuran	None	None	--	--	--	--	--	--	--	--	--	--
Carbon disulfide	None	None	0.530 U	--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	5	5	0.300 U	0.165 U	--	--	--	0.250 U	--	0.360 U	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017491-24122-N-R1	SHAFT-HW-0017491-24183-N	SHAFT-HW-0017912-22266-N	SHAFT-HW-0017912-22266-N-R1	SHAFT-HW-0017912-22266-N-R2	SHAFT-HW-0017912-22266-N-R3	SHAFT-HW-0017912-22266-N-R4	SHAFT-HW-0017912-22266-N-R5	SHAFT-HW-0017912-22266-N-R6	SHAFT-HW-0017912-22266-N-R7
Sample Date:			2024-05-30	2024-07-24	2022-09-23	2022-10-06	2022-10-13	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20
Sample Type:			N	N	N	N	N	N	N	N	N	N
SVOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA64664**	**SDG: DA65891**	**SDG: DA49427**	**SDG: DA49866**	**SDG: DA50053**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50320**	**SDG: DA50320**
Technical Chlordane	None	None	--	--	--	--	--	--	--	--	--	--
Toxaphene	None	None	--	--	--	--	--	--	--	--	--	--
VOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA64664**	**SDG: DA65891**	**SDG: DA49427**	**SDG: DA49866**	**SDG: DA50053**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50320**	**SDG: DA50320**
1,1,1-Trichloroethane	200	200	--	--	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
1,1,2,2-Tetrachloroethane	None	None	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	5	5	--	--	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
1,1-Dichloroethane	None	None	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	7	7	--	--	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
1,2,3-Trichloropropane	None	None	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	70	70	--	--	0.270 U	0.270 U	0.270 U	0.270 U	0.270 U	0.270 U	0.270 U	0.270 U
1,2,4-Trimethylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	None	None	--	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane (EDB)	None	0.05	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	600	600	--	--	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
1,2-Dichloroethane	5	5	--	--	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
1,2-Dichloroethene (Total)	70	None	--	--	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	5	5	--	--	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
1,3,5-Trimethylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	75	None	--	--	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
2-Butanone (MEK)	None	None	--	--	--	--	--	--	--	--	--	--
2-Hexanone	None	None	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone (MIBK)	None	None	--	--	--	--	--	--	--	--	--	--
Acetone	None	None	--	--	--	--	--	--	--	--	--	--
Benzene	5	5	--	--	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
Bromodichloromethane	None	None	--	--	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
Bromoform	None	None	--	--	0.250 U	0.250 U	**0.440 J**	**0.470 J**	0.250 U	0.250 U	0.250 U	0.250 U
Bromomethane	None	None	--	--	--	--	--	--	--	--	--	--
Carbofuran	None	None	--	--	--	--	--	--	--	--	--	--
Carbon disulfide	None	None	--	--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	5	5	--	--	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-3-N-R8	SHAFT-HW-0017912-22266-N-R8	SHAFT-HW-0017912-22266-N-R9	SHAFT-HW-0017912-22266-N-R10	SHAFT-HW-0017912-22266-N-R11	SHAFT-HW-0017912-22266-N-R12	SHAFT-HW-0017912-22266-N-R13	SHAFT-HW-0017912-22266-N-R14	SHAFT-HW-0017912-22266-N-R15	SHAFT-HW-0017912-22266-N-R16
Sample Date:			2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-21	2022-10-21	2022-11-08
Sample Type:			FD	N	N	N	N	N	N	N	N	N
SVOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50909**
Technical Chlordane	None	None	--	--	--	--	--	--	--	--	--	--
Toxaphene	None	None	--	--	--	--	--	--	--	--	--	--
VOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50909**
1,1,1-Trichloroethane	200	200	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
1,1,2,2-Tetrachloroethane	None	None	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	5	5	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
1,1-Dichloroethane	None	None	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	7	7	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
1,2,3-Trichloropropane	None	None	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	70	70	0.270 U	0.270 U	0.270 U	0.270 U	0.270 U	0.270 U	0.270 U	0.270 U	0.270 U	0.270 U
1,2,4-Trimethylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	None	None	--	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane (EDB)	None	0.05	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	600	600	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
1,2-Dichloroethane	5	5	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
1,2-Dichloroethene (Total)	70	None	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	5	5	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
1,3,5-Trimethylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	75	None	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
2-Butanone (MEK)	None	None	--	--	--	--	--	--	--	--	--	--
2-Hexanone	None	None	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone (MIBK)	None	None	--	--	--	--	--	--	--	--	--	--
Acetone	None	None	--	--	--	--	--	--	--	--	--	--
Benzene	5	5	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
Bromodichloromethane	None	None	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
Bromoform	None	None	**0.290 J**	**0.270 J**	**0.270 J**	**0.280 J**	**0.310 J**	**0.280 J**	**0.300 J**	**0.300 J**	**0.320 J**	**0.390 J**
Bromomethane	None	None	--	--	--	--	--	--	--	--	--	--
Carbofuran	None	None	--	--	--	--	--	--	--	--	--	--
Carbon disulfide	None	None	--	--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	5	5	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-N-R17	SHAFT-HW-0017912-22266-N-R18	SHAFT-HW-0017912-22266-N-R19	SHAFT-HW-0017912-22266-N-R20	SHAFT-HW-0017912-22266-N-R21	SHAFT-HW-0017912-22266-N-R22	SHAFT-HW-0017912-22266-N-5	SHAFT-HW-0017912-22266-N-R23	SHAFT-HW-0017912-22266-N-R24	SHAFT-HW-0017912-22266-N-R25
Sample Date:			2022-11-16	2022-11-29	2022-12-14	2023-01-05	2023-01-31	2023-02-15	2023-02-15	2023-03-08	2023-03-28	2023-04-18
Sample Type:			N	N	N	N	N	N	N	N	N	N
SVOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA51167**	**SDG: DA51405**	**SDG: DA51897**	**SDG: DA52372**	**SDG: DA52995**	**SDG: DA53393**		**SDG: DA53874**	**SDG: DA54306**	**SDG: DA54814**
Technical Chlordane	None	None	--	--	--	--	--	--	--	--	--	--
Toxaphene	None	None	--	--	--	--	--	--	--	--	--	--
VOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA51167**	**SDG: DA51405**	**SDG: DA51897**	**SDG: DA52372**	**SDG: DA52995**	**SDG: DA53393**		**SDG: DA53874**	**SDG: DA54306**	**SDG: DA54814**
1,1,1-Trichloroethane	200	200	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U
1,1,2,2-Tetrachloroethane	None	None	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	5	5	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U
1,1-Dichloroethane	None	None	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	7	7	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U
1,2,3-Trichloropropane	None	None	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	70	70	0.270 U	0.270 U	0.270 U	0.270 U	0.270 U	0.270 U	--	0.270 U	0.270 U	0.270 U
1,2,4-Trimethylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	None	None	--	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane (EDB)	None	0.05	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	600	600	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U
1,2-Dichloroethane	5	5	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U
1,2-Dichloroethene (Total)	70	None	ND	ND	ND	ND	ND	ND	--	ND	ND	ND
1,2-Dichloropropane	5	5	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U
1,3,5-Trimethylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	75	None	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U
2-Butanone (MEK)	None	None	--	--	--	--	--	--	--	--	--	--
2-Hexanone	None	None	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone (MIBK)	None	None	--	--	--	--	--	--	--	--	--	--
Acetone	None	None	--	--	--	--	--	--	--	--	--	--
Benzene	5	5	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U
Bromodichloromethane	None	None	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U
Bromoform	None	None	**0.430 J**	0.250 U	0.250 U	0.250 U	**0.580**	0.250 U	--	0.250 U	**0.510**	**0.590**
Bromomethane	None	None	--	--	--	--	--	--	--	--	--	--
Carbofuran	None	None	--	--	--	--	--	--	--	--	--	--
Carbon disulfide	None	None	--	--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	5	5	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-3-N-R25	SHAFT-HW-0017912-22266-N-R26	SHAFT-HW-0017912-22266-3-N-R26	SHAFT-HW-0017912-22266-N-R27	SHAFT-HW-0017912-22266-N-R28	SHAFT-HW-0017912-22266-3-N-R28	SHAFT-HW-0017912-22266-N-R29	SHAFT-HW-0017912-22266-N-R30	SHAFT-HW-0017912-22266-N-R31	SHAFT-HW-0017912-22266-N-R32
Sample Date:			2023-04-18	2023-04-24	2023-04-24	2023-05-09	2023-05-30	2023-05-30	2023-06-20	2023-07-11	2023-08-01	2023-08-22
Sample Type:			FD	N	FD	N	N	FD	N	N	N	N
SVOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA54814**	**SDG: DA54930**	**SDG: DA54930**	**SDG: DA55338**	**SDG: DA55797**	**SDG: DA55797**	**SDG: DA56300**	**SDG: DA56802**	**SDG: DA57381**	**SDG: DA58027**
Technical Chlordane	None	None	--	--	--	--	0.100 U	0.100 U	--	--	--	--
Toxaphene	None	None	--	0.500 U	0.500 U	--	0.500 U	0.500 U	--	--	--	--
VOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA54814**	**SDG: 380449281**	**SDG: 380449281**	**SDG: DA55338**	**SDG: DA55797**	**SDG: DA55797**	**SDG: DA56300**	**SDG: DA56802**	**SDG: DA57381**	**SDG: DA58027**
1,1,1-Trichloroethane	200	200	--	--	--	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U	0.250 U
1,1,2,2-Tetrachloroethane	None	None	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	5	5	--	--	--	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U	0.250 U
1,1-Dichloroethane	None	None	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	7	7	--	--	--	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U	0.250 U
1,2,3-Trichloropropane	None	None	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	70	70	--	--	--	0.270 U	0.270 U	--	0.270 U	0.270 U	0.270 U	0.270 U
1,2,4-Trimethylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	None	None	--	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane (EDB)	None	0.05	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	600	600	--	--	--	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U	0.250 U
1,2-Dichloroethane	5	5	--	--	--	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U	0.250 U
1,2-Dichloroethene (Total)	70	None	--	--	--	ND	ND	--	ND	ND	ND	ND
1,2-Dichloropropane	5	5	--	--	--	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U	0.250 U
1,3,5-Trimethylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	75	None	--	--	--	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U	0.250 U
2-Butanone (MEK)	None	None	--	--	--	--	--	--	--	--	--	--
2-Hexanone	None	None	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone (MIBK)	None	None	--	--	--	--	--	--	--	--	--	--
Acetone	None	None	--	--	--	--	--	--	--	--	--	--
Benzene	5	5	--	--	--	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U	0.250 U
Bromodichloromethane	None	None	--	--	--	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U	0.250 U
Bromoform	None	None	--	--	--	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U	**0.650**
Bromomethane	None	None	--	--	--	--	--	--	--	--	--	--
Carbofuran	None	None	--	--	--	--	--	--	--	--	--	--
Carbon disulfide	None	None	--	--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	5	5	--	--	--	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U	0.250 U

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-PR-FW1	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2
Location Type:			Well	Well	Well	Well	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Pre-Chlorination Spigot	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-N-R33	SHAFT-HW-0017912-22266-N-R34	SHAFT-HW-0017912-22266-N-R35	SHAFT-HW-0017912-22266-N-R36	SHAFT-HW-0018363-24153-N	SHAFT-HW-0018384-24275-N	SHAFT-HW-0018384-25001-N	SHAFT-HW-0018384-25051-N	SHAFT-HW-0018384-25051-3-N	SHAFT-HW-0018384-25051-N-R1
Sample Date:			2023-09-12	2023-10-03	2023-10-24	2023-11-14	2024-06-04	2024-10-22	2025-01-08	2025-02-20	2025-02-20	2025-03-07
Sample Type:			N	N	N	N	N	N	N	N	FD	N
SVOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA58496**	**SDG: DA59044**	**SDG: DA59556**	**SDG: DA60011**	**SDG: DA64740E**	**SDG: DA68257**	**SDG: DA69805**	**SDG: DA70645**	**SDG: DA70645**	**SDG: 35942699**
Technical Chlordane	None	None	--	--	--	--	--	--	--	**0.360**	**0.430**	--
Toxaphene	None	None	--	--	--	--	--	--	--	0.470 U	0.470 U	--
VOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA58496**	**SDG: DA59044**	**SDG: DA59556**	**SDG: DA60011**	**SDG: DA64740E**	**SDG: DA68257**	**SDG: DA69805**	**SDG: DA70645**	**SDG: DA70645**	**SDG: 35942699**
1,1,1-Trichloroethane	200	200	0.250 U	0.250 U	0.250 U	0.250 U	--	--	--	0.250 U	0.250 U	--
1,1,2,2-Tetrachloroethane	None	None	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	5	5	0.250 U	0.250 U	0.250 U	0.250 U	--	--	--	0.250 U	0.250 U	--
1,1-Dichloroethane	None	None	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	7	7	0.250 U	0.250 U	0.250 U	0.250 U	--	--	--	0.250 U	0.250 U	--
1,2,3-Trichloropropane	None	None	--	--	--	--	--	--	--	0.400 U	0.400 U	--
1,2,4-Trichlorobenzene	70	70	0.270 U	0.270 U	0.270 U	0.270 U	--	--	--	0.300 U	0.300 U	--
1,2,4-Trimethylbenzene	None	None	--	--	--	--	0.260 U	0.260 U	--	--	--	--
1,2-Dibromo-3-chloropropane	None	None	--	--	--	--	--	--	--	0.00760 U	0.00760 U	--
1,2-Dibromoethane (EDB)	None	0.05	--	--	--	--	0.00760 U	0.00770 U	--	--	--	--
1,2-Dichlorobenzene	600	600	0.250 U	0.250 U	0.250 U	0.250 U	--	--	--	0.250 U	0.250 U	--
1,2-Dichloroethane	5	5	0.250 U	0.250 U	0.250 U	0.250 U	--	--	--	0.250 U	0.250 U	--
1,2-Dichloroethene (Total)	70	None	ND	ND	ND	ND	--	--	--	ND	ND	--
1,2-Dichloropropane	5	5	0.250 U	0.250 U	0.250 U	0.250 U	--	--	--	0.250 U	0.250 U	--
1,3,5-Trimethylbenzene	None	None	--	--	--	--	0.250 U	0.250 U	--	--	--	--
1,4-Dichlorobenzene	75	None	0.250 U	0.250 U	0.250 U	0.250 U	--	--	--	0.250 U	0.250 U	--
2-Butanone (MEK)	None	None	--	--	--	--	--	--	--	--	--	--
2-Hexanone	None	None	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone (MIBK)	None	None	--	--	--	--	--	--	--	--	--	--
Acetone	None	None	--	--	--	--	--	--	--	--	--	--
Benzene	5	5	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	--	--	--
Bromodichloromethane	None	None	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	--	--	--
Bromoform	None	None	0.250 U	0.250 U	0.250 U	0.250 U	0.300 U	0.300 U	--	--	--	--
Bromomethane	None	None	--	--	--	--	--	--	--	--	--	--
Carbofuran	None	None	--	--	--	--	--	--	--	0.290 U	0.290 U	--
Carbon disulfide	None	None	--	--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	5	5	0.250 U	0.250 U	0.250 U	0.250 U	--	--	--	0.250 U	0.250 U	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2
Location Type:	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap
Residence:	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:	SHAFT-HW-0018384-25051-3-N-R1	SHAFT-HW-0018384-25051-N-R2	SHAFT-HW-0018384-25051-3-N-R2	SHAFT-HW-0018384-25091-N
Sample Date:	2025-03-07	2025-04-14	2025-04-14	2025-04-16
Sample Type:	FD	N	FD	N

SVOC (µg/L)	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 35942699	SDG: 2504116	SDG: 2504116	SDG: DA71831B
Technical Chlordane	None	None	--	--	--	--
Toxaphene	None	None	--	--	--	--

VOC (µg/L)	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 35942699	SDG: 2504116	SDG: 2504116	SDG: DA71831B
1,1,1-Trichloroethane	200	200	--	--	--	--
1,1,2,2-Tetrachloroethane	None	None	--	--	--	--
1,1,2-Trichloroethane	5	5	--	--	--	--
1,1-Dichloroethane	None	None	--	--	--	--
1,1-Dichloroethene	7	7	--	--	--	--
1,2,3-Trichloropropane	None	None	--	--	--	--
1,2,4-Trichlorobenzene	70	70	--	--	--	--
1,2,4-Trimethylbenzene	None	None	--	--	--	--
1,2-Dibromo-3-chloropropane	None	None	--	--	--	--
1,2-Dibromoethane (EDB)	None	0.05	--	--	--	--
1,2-Dichlorobenzene	600	600	--	--	--	--
1,2-Dichloroethane	5	5	--	--	--	--
1,2-Dichloroethene (Total)	70	None	--	--	--	--
1,2-Dichloropropane	5	5	--	--	--	--
1,3,5-Trimethylbenzene	None	None	--	--	--	--
1,4-Dichlorobenzene	75	None	--	--	--	--
2-Butanone (MEK)	None	None	--	--	--	--
2-Hexanone	None	None	--	--	--	--
4-Methyl-2-pentanone (MIBK)	None	None	--	--	--	--
Acetone	None	None	--	--	--	--
Benzene	5	5	--	--	--	--
Bromodichloromethane	None	None	--	--	--	--
Bromoform	None	None	--	--	--	--
Bromomethane	None	None	--	--	--	--
Carbofuran	None	None	--	--	--	--
Carbon disulfide	None	None	--	--	--	--
Carbon Tetrachloride	5	5	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA	SHFTAIEA	SHFTAIEA	SHFTAIEA	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PR
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft	Aiea-Halawa Shaft	Aiea-Halawa Shaft	Aiea-Halawa Shaft	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:			220113-AH-WT01	220113-AH-WT03	I1-HW-0016022-22060-N	I1-HW-0016022-22060-3-N	SHAFT-HW-0017491-22235-N	SHAFT-HW-0017491-22266-N	SHAFT-HW-0017491-22266-N-ME	SHAFT-HW-0017491-22266-N-P	SHAFT-HW-0017491-22266-N-Q	SHAFT-HW-0017491-24122-N
Sample Date:			2022-01-13	2022-01-13	2022-03-01	2022-03-01	2022-08-23	2024-02-13	2024-02-13	2024-02-13	2024-02-13	2024-05-10
Sample Type:			N	N	N	FD	N	N	N	N	N	N
VOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: 5801092731**	**SDG: C22A012**	**SDG: DA42472**	**SDG: DA42472**	**SDG: DA48369**	**SDG: DA61982A**		**SDG: 35867999**		**SDG: DA64321**
Chlorobenzene	100	100	0.440 U	0.146 U	--	--	--	0.250 U	--	0.310 U	--	--
Chloroethane	None	None	0.350 U	--	--	--	--	--	--	--	--	--
Chloroform	None	None	0.260 U	--	--	--	--	0.250 U	--	0.750 U	--	--
Chloromethane	None	None	0.280 U	--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	70	70	0.350 U	0.0570 U	--	--	--	0.250 U	--	0.330 U	--	--
cis-1,3-Dichloropropene	None	None	0.200 U	--	--	--	--	--	--	--	--	--
Cumene	None	None	--	--	--	--	--	--	--	--	--	--
Dibromochloromethane	None	None	0.430 U	--	--	--	--	0.250 U	--	0.470 U	--	--
Ethylbenzene	700	700	0.500 U	0.141 U	--	--	0.250 U	0.250 U	--	0.370 U	--	--
m,p-Xylene	None	None	0.530 U	0.317 U	--	--	--	0.250 U	--	0.420 U	--	--
Methyl N',N'-dimethyl-N-((methylcarbamoyl)oxy)-1-thiooxamimidate (Oxamyl)	None	None	--	--	--	--	--	--	--	--	--	--
Methylene chloride	5	5	1.40 U	2.15 U	--	--	--	0.400 U	--	0.460 U	--	--
n-Butylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
o-Xylene	None	None	0.390 U	0.157 U	--	--	--	0.250 U	--	0.390 U	--	--
sec-Butylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
Styrene	100	100	0.530 U	0.224 U	--	--	--	0.330 U	--	0.270 U	--	--
tert-Butylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene (PCE)	5	5	0.410 U	0.125 U	--	--	--	0.250 U	--	0.410 U	--	--
Toluene	1000	1000	0.390 U	0.120 U	--	--	0.250 U	0.250 U	--	0.280 U	--	--
Total Trihalomethanes	80	None	ND	--	--	--	--	ND	--	ND	--	--
trans-1,2-Dichloroethene	100	100	0.390 U	0.0958 U	--	--	--	0.250 U	--	0.330 U	--	--
trans-1,3-Dichloropropene	None	None	0.410 U	--	--	--	--	--	--	--	--	--
Trichloroethene (TCE)	5	5	0.260 U	0.0574 U	--	--	--	0.250 U	--	0.260 U	--	--
Vinyl chloride	2	2	0.220 U	0.611 U	--	--	--	0.250 U	--	0.410 U	--	--
Xylenes, Total	10000	10000	ND	ND	--	--	--	ND	--	ND	--	--

Notes:

-- indicates that the sample was Not Analyzed for the analyte
Results in green font also exceed the DOH MCL
Results in blue font also exceed the EPA MCL
Results from G1/G3 sampling, where the G3 result is greater than the G1 result, have a red border and the associated G1/G3 result in parentheses for comparison

µg/L = Micrograms per Liter

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PR	SHFTAIEA-CP-PR	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017491-24122-N-R1	SHAFT-HW-0017491-24183-N	SHAFT-HW-0017912-22266-N	SHAFT-HW-0017912-22266-N-R1	SHAFT-HW-0017912-22266-N-R2	SHAFT-HW-0017912-22266-N-R3	SHAFT-HW-0017912-22266-N-R4	SHAFT-HW-0017912-22266-N-R5	SHAFT-HW-0017912-22266-N-R6	SHAFT-HW-0017912-22266-N-R7
Sample Date:			2024-05-30	2024-07-24	2022-09-23	2022-10-06	2022-10-13	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20
Sample Type:			N	N	N	N	N	N	N	N	N	N
VOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA64664**	**SDG: DA65891**	**SDG: DA49427**	**SDG: DA49866**	**SDG: DA50053**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50303**	**SDG: DA50320**	**SDG: DA50320**
Chlorobenzene	100	100	--	--	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
Chloroethane	None	None	--	--	--	--	--	--	--	--	--	--
Chloroform	None	None	--	--	0.250 U	0.250 U	**0.650**	**1.00**	0.250 U	0.250 U	0.250 U	0.250 U
Chloromethane	None	None	--	--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	70	70	--	--	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
cis-1,3-Dichloropropene	None	None	--	--	--	--	--	--	--	--	--	--
Cumene	None	None	--	--	--	--	--	--	--	--	--	--
Dibromochloromethane	None	None	--	--	0.250 U	0.250 U	**0.310 J**	**0.380 J**	0.250 U	0.250 U	0.250 U	**0.290 J**
Ethylbenzene	700	700	--	--	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
m,p-Xylene	None	None	--	--	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
Methyl N',N'-dimethyl-N-((methylcarbamoyl)oxy)-1-thiooxamimidate (Oxamyl)	None	None	--	--	--	--	--	--	--	--	--	--
Methylene chloride	5	5	--	--	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U
n-Butylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
o-Xylene	None	None	--	--	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
sec-Butylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
Styrene	100	100	--	--	0.330 U	0.330 U	0.330 U	0.330 U	0.330 U	0.330 U	0.330 U	0.330 U
tert-Butylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene (PCE)	5	5	--	--	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
Toluene	1000	1000	--	--	0.250 U	0.250 U	0.250 U	**0.290 J**	0.250 U	0.250 U	0.250 U	0.250 U
Total Trihalomethanes	80	None	--	--	ND	ND	**1.4**	**1.85**	ND	ND	ND	**0.29**
trans-1,2-Dichloroethene	100	100	--	--	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
trans-1,3-Dichloropropene	None	None	--	--	--	--	--	--	--	--	--	--
Trichloroethene (TCE)	5	5	--	--	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
Vinyl chloride	2	2	--	--	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
Xylenes, Total	10000	10000	--	--	ND	ND	ND	ND	ND	ND	ND	ND

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-3-N-R8	SHAFT-HW-0017912-22266-N-R8	SHAFT-HW-0017912-22266-N-R9	SHAFT-HW-0017912-22266-N-R10	SHAFT-HW-0017912-22266-N-R11	SHAFT-HW-0017912-22266-N-R12	SHAFT-HW-0017912-22266-N-R13	SHAFT-HW-0017912-22266-N-R14	SHAFT-HW-0017912-22266-N-R15	SHAFT-HW-0017912-22266-N-R16
Sample Date:			2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-20	2022-10-21	2022-10-21	2022-11-08
Sample Type:			FD	N	N	N	N	N	N	N	N	N
VOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50320**	**SDG: DA50909**
Chlorobenzene	100	100	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
Chloroethane	None	None	--	--	--	--	--	--	--	--	--	--
Chloroform	None	None	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	**0.890**
Chloromethane	None	None	--	--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	70	70	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
cis-1,3-Dichloropropene	None	None	--	--	--	--	--	--	--	--	--	--
Cumene	None	None	--	--	--	--	--	--	--	--	--	--
Dibromochloromethane	None	None	**0.300 J**	**0.270 J**	**0.290 J**	**0.280 J**	**0.330 J**	**0.350 J**	**0.360 J**	**0.340 J**	**0.360 J**	**0.300 J**
Ethylbenzene	700	700	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
m,p-Xylene	None	None	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
Methyl N',N'-dimethyl-N-((methylcarbamoyl)oxy)-1-thiooxamimidate (Oxamyl)	None	None	--	--	--	--	--	--	--	--	--	--
Methylene chloride	5	5	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U
n-Butylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
o-Xylene	None	None	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
sec-Butylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
Styrene	100	100	0.330 U	0.330 U	0.330 U	0.330 U	0.330 U	0.330 U	0.330 U	0.330 U	0.330 U	0.330 U
tert-Butylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene (PCE)	5	5	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
Toluene	1000	1000	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
Total Trihalomethanes	80	None	**0.59**	**0.54**	**0.56**	**0.56**	**0.64**	**0.63**	**0.66**	**0.64**	**0.68**	**1.58**
trans-1,2-Dichloroethene	100	100	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
trans-1,3-Dichloropropene	None	None	--	--	--	--	--	--	--	--	--	--
Trichloroethene (TCE)	5	5	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
Vinyl chloride	2	2	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
Xylenes, Total	10000	10000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-N-R17	SHAFT-HW-0017912-22266-N-R18	SHAFT-HW-0017912-22266-N-R19	SHAFT-HW-0017912-22266-N-R20	SHAFT-HW-0017912-22266-N-R21	SHAFT-HW-0017912-22266-N-R22	SHAFT-HW-0017912-22266-N-5	SHAFT-HW-0017912-22266-N-R23	SHAFT-HW-0017912-22266-N-R24	SHAFT-HW-0017912-22266-N-R25
Sample Date:			2022-11-16	2022-11-29	2022-12-14	2023-01-05	2023-01-31	2023-02-15	2023-02-15	2023-03-08	2023-03-28	2023-04-18
Sample Type:			N	N	N	N	N	N	N	N	N	N
VOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA51167**	**SDG: DA51405**	**SDG: DA51897**	**SDG: DA52372**	**SDG: DA52995**	**SDG: DA53393**		**SDG: DA53874**	**SDG: DA54306**	**SDG: DA54814**
Chlorobenzene	100	100	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U
Chloroethane	None	None	--	--	--	--	--	--	--	--	--	--
Chloroform	None	None	**0.290 J**	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U
Chloromethane	None	None	--	--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	70	70	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U
cis-1,3-Dichloropropene	None	None	--	--	--	--	--	--	--	--	--	--
Cumene	None	None	--	--	--	--	--	--	--	--	--	--
Dibromochloromethane	None	None	**0.310 J**	0.250 U	0.250 U	0.250 U	**0.330 J**	0.250 U	--	0.250 U	0.250 U	0.250 U
Ethylbenzene	700	700	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U
m,p-Xylene	None	None	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U
Methyl N',N'-dimethyl-N-((methylcarbamoyl)oxy)-1-thiooxamimidate (Oxamyl)	None	None	--	--	--	--	--	--	--	--	--	--
Methylene chloride	5	5	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	--	0.400 U	0.400 U	0.400 U
n-Butylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
o-Xylene	None	None	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U
sec-Butylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
Styrene	100	100	0.330 U	0.330 U	0.330 U	0.330 U	0.330 U	0.330 U	--	0.330 U	0.330 U	0.330 U
tert-Butylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene (PCE)	5	5	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U
Toluene	1000	1000	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U
Total Trihalomethanes	80	None	**1.03**	ND	ND	ND	**0.91**	ND	--	ND	**0.51**	**0.59**
trans-1,2-Dichloroethene	100	100	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U
trans-1,3-Dichloropropene	None	None	--	--	--	--	--	--	--	--	--	--
Trichloroethene (TCE)	5	5	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U
Vinyl chloride	2	2	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U
Xylenes, Total	10000	10000	ND	ND	ND	ND	ND	ND	--	ND	ND	ND

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-3-N-R25	SHAFT-HW-0017912-22266-N-R26	SHAFT-HW-0017912-22266-3-N-R26	SHAFT-HW-0017912-22266-N-R27	SHAFT-HW-0017912-22266-N-R28	SHAFT-HW-0017912-22266-3-N-R28	SHAFT-HW-0017912-22266-N-R29	SHAFT-HW-0017912-22266-N-R30	SHAFT-HW-0017912-22266-N-R31	SHAFT-HW-0017912-22266-N-R32
Sample Date:			2023-04-18	2023-04-24	2023-04-24	2023-05-09	2023-05-30	2023-05-30	2023-06-20	2023-07-11	2023-08-01	2023-08-22
Sample Type:			FD	N	FD	N	N	FD	N	N	N	N
VOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA54814**	**SDG: 380449281**	**SDG: 380449281**	**SDG: DA55338**	**SDG: DA55797**	**SDG: DA55797**	**SDG: DA56300**	**SDG: DA56802**	**SDG: DA57381**	**SDG: DA58027**
Chlorobenzene	100	100	--	--	--	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U	0.250 U
Chloroethane	None	None	--	--	--	--	--	--	--	--	--	--
Chloroform	None	None	--	--	--	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U	0.250 U
Chloromethane	None	None	--	--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	70	70	--	--	--	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U	0.250 U
cis-1,3-Dichloropropene	None	None	--	--	--	--	--	--	--	--	--	--
Cumene	None	None	--	--	--	--	--	--	--	--	--	--
Dibromochloromethane	None	None	--	--	--	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U	**0.330 J**
Ethylbenzene	700	700	--	--	--	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U	0.250 U
m,p-Xylene	None	None	--	--	--	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U	0.250 U
Methyl N',N'-dimethyl-N-((methylcarbamoyl)oxy)-1-thiooxamimidate (Oxamyl)	None	None	--	--	--	--	--	--	--	--	--	--
Methylene chloride	5	5	--	--	--	0.400 U	0.400 U	--	0.400 U	0.400 U	0.400 U	0.400 U
n-Butylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
o-Xylene	None	None	--	--	--	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U	0.250 U
sec-Butylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
Styrene	100	100	--	--	--	0.330 U	0.330 U	--	0.330 U	0.330 U	0.330 U	0.330 U
tert-Butylbenzene	None	None	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene (PCE)	5	5	--	--	--	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U	0.250 U
Toluene	1000	1000	--	--	--	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U	0.250 U
Total Trihalomethanes	80	None	--	--	--	ND	ND	--	ND	ND	ND	**0.98**
trans-1,2-Dichloroethene	100	100	--	--	--	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U	0.250 U
trans-1,3-Dichloropropene	None	None	--	--	--	--	--	--	--	--	--	--
Trichloroethene (TCE)	5	5	--	--	--	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U	0.250 U
Vinyl chloride	2	2	--	--	--	0.250 U	0.250 U	--	0.250 U	0.250 U	0.250 U	0.250 U
Xylenes, Total	10000	10000	--	--	--	ND	ND	--	ND	ND	ND	ND

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-PR-FW1	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2
Location Type:			Well	Well	Well	Well	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap
Residence:			Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Pre-Chlorination Spigot	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:			SHAFT-HW-0017912-22266-N-R33	SHAFT-HW-0017912-22266-N-R34	SHAFT-HW-0017912-22266-N-R35	SHAFT-HW-0017912-22266-N-R36	SHAFT-HW-0018363-24153-N	SHAFT-HW-0018384-24275-N	SHAFT-HW-0018384-25001-N	SHAFT-HW-0018384-25051-N	SHAFT-HW-0018384-25051-3-N	SHAFT-HW-0018384-25051-N-R1
Sample Date:			2023-09-12	2023-10-03	2023-10-24	2023-11-14	2024-06-04	2024-10-22	2025-01-08	2025-02-20	2025-02-20	2025-03-07
Sample Type:			N	N	N	N	N	N	N	N	FD	N
VOC (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: DA58496**	**SDG: DA59044**	**SDG: DA59556**	**SDG: DA60011**	**SDG: DA64740E**	**SDG: DA68257**	**SDG: DA69805**	**SDG: DA70645**	**SDG: DA70645**	**SDG: 35942699**
Chlorobenzene	100	100	0.250 U	0.250 U	0.250 U	0.250 U	--	--	--	0.250 U	0.250 U	--
Chloroethane	None	None	--	--	--	--	--	--	--	--	--	--
Chloroform	None	None	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	--	--	--
Chloromethane	None	None	--	--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	70	70	0.250 U	0.250 U	0.250 U	0.250 U	--	--	--	0.250 U	0.250 U	--
cis-1,3-Dichloropropene	None	None	--	--	--	--	--	--	--	--	--	--
Cumene	None	None	--	--	--	--	--	0.250 U	--	--	--	--
Dibromochloromethane	None	None	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	--	--	--
Ethylbenzene	700	700	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	--	--	--
m,p-Xylene	None	None	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.400 U	--	--	--	--
Methyl N',N'-dimethyl-N-((methylcarbamoyl)oxy)-1-thiooxamimidate (Oxamyl)	None	None	--	--	--	--	--	--	--	0.250 U	0.250 U	--
Methylene chloride	5	5	0.400 U	0.400 U	0.400 U	0.400 U	--	--	--	0.400 U	0.400 U	--
n-Butylbenzene	None	None	--	--	--	--	--	0.250 U	--	--	--	--
n-Propylbenzene	None	None	--	--	--	--	--	0.250 U	--	--	--	--
o-Xylene	None	None	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	--	--	--
sec-Butylbenzene	None	None	--	--	--	--	--	0.400 U	--	--	--	--
Styrene	100	100	0.330 U	0.330 U	0.330 U	0.330 U	--	--	--	0.330 U	0.330 U	--
tert-Butylbenzene	None	None	--	--	--	--	--	0.400 U	--	--	--	--
Tetrachloroethene (PCE)	5	5	0.250 U	0.250 U	0.250 U	0.250 U	--	--	--	0.250 U	0.250 U	--
Toluene	1000	1000	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U	--	--	--	--
Total Trihalomethanes	80	None	ND	ND	ND	ND	ND	ND	--	--	--	--
trans-1,2-Dichloroethene	100	100	0.250 U	0.250 U	0.250 U	0.250 U	--	--	--	0.250 U	0.250 U	--
trans-1,3-Dichloropropene	None	None	--	--	--	--	--	--	--	--	--	--
Trichloroethene (TCE)	5	5	0.250 U	0.250 U	0.250 U	0.250 U	--	--	--	0.250 U	0.250 U	--
Vinyl chloride	2	2	0.250 U	0.250 U	0.250 U	0.250 U	--	--	--	0.250 U	0.250 U	--
Xylenes, Total	10000	10000	ND	ND	ND	ND	ND	ND	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2
Location Type:	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap
Residence:	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:	SHAFT-HW-0018384-25051-3-N-R1	SHAFT-HW-0018384-25051-N-R2	SHAFT-HW-0018384-25051-3-N-R2	SHAFT-HW-0018384-25091-N
Sample Date:	2025-03-07	2025-04-14	2025-04-14	2025-04-16
Sample Type:	FD	N	FD	N

VOC (µg/L)	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 35942699	SDG: 2504116	SDG: 2504116	SDG: DA71831B
Chlorobenzene	100	100	--	--	--	--
Chloroethane	None	None	--	--	--	--
Chloroform	None	None	--	--	--	--
Chloromethane	None	None	--	--	--	--
cis-1,2-Dichloroethene	70	70	--	--	--	--
cis-1,3-Dichloropropene	None	None	--	--	--	--
Cumene	None	None	--	--	--	--
Dibromochloromethane	None	None	--	--	--	--
Ethylbenzene	700	700	--	--	--	--
m,p-Xylene	None	None	--	--	--	--
Methyl N',N'-dimethyl-N-((methylcarbamoyl)oxy)-1-thiooxamimidate (Oxamyl)	None	None	--	--	--	--
Methylene chloride	5	5	--	--	--	--
n-Butylbenzene	None	None	--	--	--	--
n-Propylbenzene	None	None	--	--	--	--
o-Xylene	None	None	--	--	--	--
sec-Butylbenzene	None	None	--	--	--	--
Styrene	100	100	--	--	--	--
tert-Butylbenzene	None	None	--	--	--	--
Tetrachloroethene (PCE)	5	5	--	--	--	--
Toluene	1000	1000	--	--	--	--
Total Trihalomethanes	80	None	--	--	--	--
trans-1,2-Dichloroethene	100	100	--	--	--	--
trans-1,3-Dichloropropene	None	None	--	--	--	--
Trichloroethene (TCE)	5	5	--	--	--	--
Vinyl chloride	2	2	--	--	--	--
Xylenes, Total	10000	10000	--	--	--	--

Historical Results of NAHS Monitoring
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

mg/L = Milligrams per Liter

CFU/100ml = Colony Forming Units per 100 Milliliters

MPN/ml = Most Probable Number per Milliliter

Fibers/L = Fibers per Liter

CFU/ml = Colony Forming Units per Milliliter

pg/L = Picograms per Liter

pCi/L = Picocuries per Liter

Historical Results of NAHS Monitoring - PFAS
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PR	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-PR-FW1
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Faucet/Tap
Residence:			Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Pre-Chlorination Spigot
Field Sample ID:			SHAFT-HW-0017491-24183-N	SHAFT-HW-0017912-23108-N	SHAFT-HW-0017912-23108-3-N	SHAFT-HW-0017912-23108-N-R1	SHAFT-HW-0017912-23108-3-N-R1	SHAFT-HW-0017912-23108-3-N-R2	SHAFT-HW-0017912-23108-N-R2	SHAFT-HW-0017912-23108-N-R3	SHAFT-HW-0017912-23108-3-N-R3	SHAFT-HW-0018363-24153-N
Sample Date:			2024-07-24	2023-04-18	2023-04-18	2023-04-24	2023-04-24	2023-08-22	2023-08-22	2023-10-24	2023-10-24	2024-06-04
Sample Type:			N	N	FD	N	FD	FD	N	N	FD	N
Field Tests (mg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**										
Free Chlorine	None	4	0.0200	0.410	0.410	0.360	0.360	0.470	0.470	0.680	0.680	0.0400
METAL (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: FC17486**	**SDG: FC5392**	**SDG: FC5392**	**SDG: FC5521**	**SDG: FC5521**	**SDG: FC8955**	**SDG: FC8955**	**SDG: FC10731**	**SDG: FC10731**	**SDG: FC16185**
Lithium	None	None	--	--	--	9.00 U	9.00 U	--	--	--	--	--
PFAS E1633 (ng/L)	**Constituents**	**Levels**	**FC17486**	**FC5392**	**FC5392**			**FC8955**	**FC8955**	**FC10731**	**FC10731**	**FC16185**
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	None	None	--	--	--	--	--	--	--	--	--	1.70 U
2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA)	None	None	--	--	--	--	--	--	--	--	--	8.60 U
3-Perfluoroheptyl propanoic acid (7:3FTCA)	None	None	--	--	--	--	--	--	--	--	--	7.70 U
3-Perfluoropropyl propanoic acid (3:3FTCA)	None	None	--	--	--	--	--	--	--	--	--	4.40 U
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	None	None	--	--	--	--	--	--	--	--	--	1.80 U
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	None	None	--	--	--	--	--	--	--	--	--	3.20 U
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	None	None	--	--	--	--	--	--	--	--	--	3.40 U
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	None	None	--	--	--	--	--	--	--	--	--	4.00 U
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	None	None	--	--	--	--	--	--	--	--	--	1.40 U
Hexafluoropropylene oxide dimer acid (HFPO-DA)	None	None	--	--	--	--	--	--	--	--	--	0.980 U
N-Ethyl perfluorooctanesulfonamide (NEtFOSA)	None	None	--	--	--	--	--	--	--	--	--	0.980 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	None	None	--	--	--	--	--	--	--	--	--	1.30 U
N-Ethyl perfluorooctanesulfonamidoethanol (NEtFOSE)	None	None	--	--	--	--	--	--	--	--	--	7.30 U

Historical Results of NAHS Monitoring - PFAS
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2
Location Type:			Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap
Residence:			Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:			SHAFT-HW-0018384-24245-N	SHAFT-HW-0018384-24306-N	SHAFT-HW-0018384-24306-N-R1	SHAFT-HW-0018384-25001-N	SHAFT-HW-0018384-25060-N
Sample Date:			2024-09-27	2024-11-07	2024-11-27	2025-01-08	2025-03-07
Sample Type:			N	N	N	N	N
Field Tests (mg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: FC19195**	**SDG: FC20297**	**SDG: FC20884**	**SDG: FC21734**	**SDG: FC23101**
Free Chlorine	None	4	--	--	--	--	--
METAL (µg/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: FC19195**	**SDG: FC20297**	**SDG: FC20884**	**SDG: FC21734**	**SDG: FC23101**
Lithium	None	None	--	--	--	--	--
PFAS E1633 (ng/L)	**Constituents**	**Levels**	**FC19195**	**FC20297**	**FC20884**	**FC21734**	**FC23101**
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	None	None	1.80 U	--	1.70 U	1.70 U	1.60 U
2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA)	None	None	9.10 U	--	8.30 U	8.50 U	7.80 U
3-Perfluoroheptyl propanoic acid (7:3FTCA)	None	None	8.20 U	--	7.50 U	7.60 U	7.00 U
3-Perfluoropropyl propanoic acid (3:3FTCA)	None	None	4.70 U	--	4.30 U	4.40 U	4.00 U
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	None	None	1.90 U	--	1.80 U	1.80 U	1.70 U
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	None	None	3.40 U	--	3.10 U	3.10 U	2.90 U
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	None	None	3.60 U	--	3.30 U	3.40 U	3.10 U
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	None	None	4.30 U	--	3.90 U	4.00 U	3.70 U
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	None	None	1.40 U	--	1.30 U	1.30 U	1.20 U
Hexafluoropropylene oxide dimer acid (HFPO-DA)	None	None	1.00 U	--	0.950 U	0.970 U	0.890 U
N-Ethyl perfluorooctanesulfonamide (NEtFOSA)	None	None	1.00 U	--	0.950 U	1.90 U	1.80 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	None	None	1.40 U	--	1.30 U	1.30 U	1.20 U
N-Ethyl perfluorooctanesulfonamidoethanol (NEtFOSE)	None	None	7.70 U	--	7.10 U	7.20 U	6.60 U

Historical Results of NAHS Monitoring - PFAS
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PR	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-PR-FW1
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Faucet/Tap
Residence:			Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Pre-Chlorination Spigot
Field Sample ID:			SHAFT-HW-0017491-24183-N	SHAFT-HW-0017912-23108-N	SHAFT-HW-0017912-23108-3-N	SHAFT-HW-0017912-23108-N-R1	SHAFT-HW-0017912-23108-3-N-R1	SHAFT-HW-0017912-23108-3-N-R2	SHAFT-HW-0017912-23108-N-R2	SHAFT-HW-0017912-23108-N-R3	SHAFT-HW-0017912-23108-3-N-R3	SHAFT-HW-0018363-24153-N
Sample Date:			2024-07-24	2023-04-18	2023-04-18	2023-04-24	2023-04-24	2023-08-22	2023-08-22	2023-10-24	2023-10-24	2024-06-04
Sample Type:			N	N	FD	N	FD	FD	N	N	FD	N
PFAS E1633 (ng/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: FC17486**	**SDG: FC5392**	**SDG: FC5392**			**SDG: FC8955**	**SDG: FC8955**	**SDG: FC10731**	**SDG: FC10731**	**SDG: FC16185**
N-Methyl heptadecafluorooctanesulfonamide (NMeFOSA)	None	None	--	--	--	--	--	--	--	--	--	0.980 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	None	None	--	--	--	--	--	--	--	--	--	0.980 U
N-Methyl perfluorooctanesulfonamidoethanol (NMeFOSE)	None	None	--	--	--	--	--	--	--	--	--	4.30 U
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	None	None	--	--	--	--	--	--	--	--	--	1.20 U
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	None	None	--	--	--	--	--	--	--	--	--	0.760 U
Perfluoro-3-methoxypropanoic acid (PFMPA)	None	None	--	--	--	--	--	--	--	--	--	0.980 U
Perfluoro-4-methoxybutanoic acid (PFMBA)	None	None	--	--	--	--	--	--	--	--	--	1.10 U
Perfluorobutanesulfonic acid (PFBS)	None	None	--	--	--	--	--	--	--	--	--	**3.70 J**
Perfluorobutanoic acid (PFBA)	None	None	--	--	--	--	--	--	--	--	--	**2.80 J**
Perfluorodecanesulfonic acid (PFDS)	None	None	--	--	--	--	--	--	--	--	--	0.630 U
Perfluorodecanoic acid (PFDA)	None	None	--	--	--	--	--	--	--	--	--	0.490 U
Perfluorododecanesulfonic acid (PFDoS)	None	None	--	--	--	--	--	--	--	--	--	1.10 U
Perfluorododecanoic acid (PFDoA)	None	None	--	--	--	--	--	--	--	--	--	0.590 U
Perfluoroheptanesulfonic acid (PFHpS)	None	None	--	--	--	--	--	--	--	--	--	0.490 U
Perfluoroheptanoic acid (PFHpA)	None	None	--	--	--	--	--	--	--	--	--	**3.00 J**
Perfluorohexanesulfonic acid (PFHxS)	None	None	--	--	--	--	--	--	--	--	--	**5.70**
Perfluorohexanoic acid (PFHxA)	None	None	--	--	--	--	--	--	--	--	--	**5.60**
Perfluorononanesulfonic acid (PFNS)	None	None	--	--	--	--	--	--	--	--	--	0.560 U
Perfluorononanoic acid (PFNA)	None	None	--	--	--	--	--	--	--	--	--	0.600 U
Perfluorooctanesulfonamide (PFOSA)	None	None	--	--	--	--	--	--	--	--	--	0.660 U
Perfluorooctanesulfonic acid (PFOS)	None	None	--	--	--	--	--	--	--	--	--	**8.70**
Perfluorooctanoic acid (PFOA)	None	None	--	--	--	--	--	--	--	--	--	**5.90**
Perfluoropentanesulfonic acid (PFPeS)	None	None	--	--	--	--	--	--	--	--	--	1.10 U
Perfluoropentanoic acid (PFPeA)	None	None	--	--	--	--	--	--	--	--	--	**7.10 J**
Perfluorotetradecanoic acid (PFTeDA)	None	None	--	--	--	--	--	--	--	--	--	0.490 U
Perfluorotridecanoic acid (PFTrDA)	None	None	--	--	--	--	--	--	--	--	--	0.820 U
Perfluoroundecanoic acid (PFUnA)	None	None	--	--	--	--	--	--	--	--	--	0.590 U

Historical Results of NAHS Monitoring - PFAS
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2
Location Type:			Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap
Residence:			Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:			SHAFT-HW-0018384-24245-N	SHAFT-HW-0018384-24306-N	SHAFT-HW-0018384-24306-N-R1	SHAFT-HW-0018384-25001-N	SHAFT-HW-0018384-25060-N
Sample Date:			2024-09-27	2024-11-07	2024-11-27	2025-01-08	2025-03-07
Sample Type:			N	N	N	N	N
PFAS E1633 (ng/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: FC19195**	**SDG: FC20297**	**SDG: FC20884**	**SDG: FC21734**	**SDG: FC23101**
N-Methyl heptadecafluorooctanesulfonamide (NMeFOSA)	None	None	1.00 U	--	0.950 U	0.970 U	0.890 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	None	None	1.00 U	--	0.950 U	0.970 U	0.890 U
N-Methyl perfluorooctanesulfonamidoethanol (NMeFOSE)	None	None	4.60 U	--	4.20 U	4.30 U	3.90 U
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	None	None	1.30 U	--	1.10 U	1.20 U	1.10 U
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	None	None	0.810 U	--	0.740 U	0.760 U	0.700 U
Perfluoro-3-methoxypropanoic acid (PFMPA)	None	None	1.00 U	--	0.950 U	0.970 U	0.890 U
Perfluoro-4-methoxybutanoic acid (PFMBA)	None	None	1.20 U	--	1.10 U	1.10 U	1.00 U
Perfluorobutanesulfonic acid (PFBS)	None	None	**3.20 J**	--	**4.80**	**3.70 J**	**3.70**
Perfluorobutanoic acid (PFBA)	None	None	2.00 U	--	**2.70 J**	**2.40 J**	**2.40 J**
Perfluorodecanesulfonic acid (PFDS)	None	None	0.670 U	--	0.610 U	0.620 U	0.570 U
Perfluorodecanoic acid (PFDA)	None	None	0.520 U	--	0.480 U	0.490 UJ	0.450 U
Perfluorododecanesulfonic acid (PFDoS)	None	None	1.20 U	--	1.10 U	1.10 U	1.00 U
Perfluorododecanoic acid (PFDoA)	None	None	0.630 U	--	0.570 U	0.580 U	0.540 U
Perfluoroheptanesulfonic acid (PFHpS)	None	None	0.520 U	--	0.480 U	0.490 U	0.450 U
Perfluoroheptanoic acid (PFHpA)	None	None	**2.20 J**	--	**3.20 J**	**3.00 J**	**2.40 J**
Perfluorohexanesulfonic acid (PFHxS)	None	None	**4.50**	--	**7.20**	**5.70**	**4.70**
Perfluorohexanoic acid (PFHxA)	None	None	**4.30**	--	**5.60**	**5.30**	**5.20**
Perfluorononanesulfonic acid (PFNS)	None	None	0.590 U	--	0.540 U	0.550 U	0.510 U
Perfluorononanoic acid (PFNA)	None	None	0.640 U	--	0.580 U	0.590 U	0.540 U
Perfluorooctanesulfonamide (PFOSA)	None	None	0.700 U	--	0.640 U	0.650 U	0.600 U
Perfluorooctanesulfonic acid (PFOS)	None	None	**6.10**	--	**8.30**	**8.80**	**6.90**
Perfluorooctanoic acid (PFOA)	None	None	**4.80**	--	**7.00**	**6.20**	**4.90**
Perfluoropentanesulfonic acid (PFPeS)	None	None	1.20 U	--	**1.10 J**	1.10 U	1.00 U
Perfluoropentanoic acid (PFPeA)	None	None	**5.60 J**	--	**7.20 J**	**6.10 J**	**6.00 J**
Perfluorotetradecanoic acid (PFTeDA)	None	None	0.520 U	--	0.480 U	0.490 U	0.450 U
Perfluorotridecanoic acid (PFTrDA)	None	None	0.880 U	--	0.800 U	0.820 U	0.750 U
Perfluoroundecanoic acid (PFUnA)	None	None	0.630 U	--	0.570 U	0.580 U	0.540 U

Historical Results of NAHS Monitoring - PFAS
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PR	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-PR-FW1
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Faucet/Tap
Residence:			Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Pre-Chlorination Spigot
Field Sample ID:			SHAFT-HW-0017491-24183-N	SHAFT-HW-0017912-23108-N	SHAFT-HW-0017912-23108-3-N	SHAFT-HW-0017912-23108-N-R1	SHAFT-HW-0017912-23108-3-N-R1	SHAFT-HW-0017912-23108-3-N-R2	SHAFT-HW-0017912-23108-N-R2	SHAFT-HW-0017912-23108-N-R3	SHAFT-HW-0017912-23108-3-N-R3	SHAFT-HW-0018363-24153-N
Sample Date:			2024-07-24	2023-04-18	2023-04-18	2023-04-24	2023-04-24	2023-08-22	2023-08-22	2023-10-24	2023-10-24	2024-06-04
Sample Type:			N	N	FD	N	FD	FD	N	N	FD	N
PFAS E533 (ng/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: FC17486**	**SDG: FC5392**	**SDG: FC5392**			**SDG: FC8955**	**SDG: FC8955**	**SDG: FC10731**	**SDG: FC10731**	**SDG: FC16185**
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	None	None	0.680 UJ	0.600 U	0.600 U	--	--	0.700 U	0.700 U	0.600 UJ	0.600 UJ	--
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	None	None	0.600 U	0.500 U	0.500 U	--	--	0.700 U	0.600 U	0.500 U	0.500 U	--
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	None	None	0.600 U	0.500 U	0.500 U	--	--	0.700 U	0.600 U	0.500 U	0.500 U	--
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	None	None	1.10 U	1.00 U	1.00 U	--	--	1.20 U	1.20 U	1.00 U	1.00 U	--
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	None	None	0.600 U	0.500 U	0.500 U	--	--	0.700 U	0.600 U	0.500 U	0.500 U	--
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	None	None	0.600 U	0.500 U	0.500 U	--	--	0.700 U	0.600 U	0.500 U	0.500 U	--
Hexafluoropropylene oxide dimer acid (HFPO-DA)	None	None	1.00 U	0.900 U	0.900 U	--	--	1.10 U	1.00 U	0.900 U	0.900 U	--
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	None	None	0.600 U	0.500 U	0.500 U	--	--	0.700 U	0.600 U	0.500 U	0.500 U	--
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	None	None	0.600 U	0.500 U	0.500 U	--	--	0.700 U	0.600 U	0.500 U	0.500 U	--
Perfluoro-3-methoxypropanoic acid (PFMPA)	None	None	0.640 U	0.600 U	0.600 U	--	--	0.700 U	0.700 U	0.600 U	0.600 U	--
Perfluoro-4-methoxybutanoic acid (PFMBA)	None	None	0.600 U	0.500 U	0.500 U	--	--	0.700 U	0.600 U	0.500 U	0.500 U	--
Perfluorobutanesulfonic acid (PFBS)	None	None	**1.80 J**	**0.600 J**	0.500 U	--	--	0.700 U	0.600 U	0.500 U	0.500 U	--
Perfluorobutanoic acid (PFBA)	None	None	**2.00 J**	0.500 U	0.500 U	--	--	0.700 U	0.600 U	0.500 U	0.500 U	--
Perfluorodecanoic acid (PFDA)	None	None	0.640 U	0.600 U	0.600 U	--	--	0.700 U	0.700 U	0.600 U	0.600 U	--
Perfluorododecanoic acid (PFDoA)	None	None	0.600 U	0.500 U	0.500 U	--	--	0.700 U	0.600 U	0.500 UJ	0.500 U	--
Perfluoroheptanesulfonic acid (PFHpS)	None	None	0.600 U	0.500 U	0.500 U	--	--	0.700 U	0.600 U	0.500 U	0.500 U	--
Perfluoroheptanoic acid (PFHpA)	None	None	**1.90 J**	0.600 U	0.600 U	--	--	0.700 U	0.700 U	0.600 U	0.600 U	--
Perfluorohexanesulfonic acid (PFHxS)	None	None	**2.60**	**0.900 J**	**0.800 J**	--	--	0.700 U	0.600 U	0.500 U	0.500 U	--
Perfluorohexanoic acid (PFHxA)	None	None	**2.70**	0.500 U	0.500 U	--	--	0.700 U	0.600 U	0.500 U	0.500 U	--
Perfluorononanoic acid (PFNA)	None	None	0.600 U	0.500 U	0.500 U	--	--	0.700 U	0.600 U	0.500 U	0.500 U	--
Perfluorooctanesulfonic acid (PFOS)	None	None	**6.80**	**0.900 J**	**0.600 J**	--	--	0.700 U	0.600 U	0.500 U	0.500 U	--
Perfluorooctanoic acid (PFOA)	None	None	**3.50**	**0.900 J**	**0.600 J**	--	--	0.700 U	0.600 U	0.500 U	0.500 U	--
Perfluoropentanesulfonic acid (PFPeS)	None	None	0.770 U	0.700 U	0.700 U	--	--	0.800 U	0.800 U	0.700 U	0.700 U	--
Perfluoropentanoic acid (PFPeA)	None	None	**3.50 J**	**1.10 J**	**0.800 J**	--	--	0.700 U	0.700 U	0.600 U	0.600 U	--
Perfluoroundecanoic acid (PFUnA)	None	None	0.650 U	0.600 U	0.600 U	--	--	0.700 U	0.700 U	0.600 U	0.600 U	--

Historical Results of NAHS Monitoring - PFAS
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2
Location Type:			Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap
Residence:			Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:			SHAFT-HW-0018384-24245-N	SHAFT-HW-0018384-24306-N	SHAFT-HW-0018384-24306-N-R1	SHAFT-HW-0018384-25001-N	SHAFT-HW-0018384-25060-N
Sample Date:			2024-09-27	2024-11-07	2024-11-27	2025-01-08	2025-03-07
Sample Type:			N	N	N	N	N
PFAS E533 (ng/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: FC19195**	**SDG: FC20297**	**SDG: FC20884**	**SDG: FC21734**	**SDG: FC23101**
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	None	None	0.620 U	0.620 U	--	0.620 U	0.620 UJ
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	None	None	0.550 U	0.550 U	--	0.550 U	0.550 U
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	None	None	0.550 U	0.550 U	--	0.550 U	0.550 U
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	None	None	1.00 U	1.00 U	--	1.00 U	1.00 U
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	None	None	0.550 U	0.550 U	--	0.550 U	0.550 U
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	None	None	0.550 U	0.550 U	--	0.550 U	0.550 U
Hexafluoropropylene oxide dimer acid (HFPO-DA)	None	None	0.910 U	0.910 U	--	0.910 U	0.910 UJ
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	None	None	0.550 U	0.550 U	--	0.550 U	0.550 U
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	None	None	0.550 U	0.550 U	--	0.550 U	0.550 U
Perfluoro-3-methoxypropanoic acid (PFMPA)	None	None	0.580 U	0.580 U	--	0.580 U	0.580 U
Perfluoro-4-methoxybutanoic acid (PFMBA)	None	None	0.550 U	0.550 U	--	0.550 U	0.550 U
Perfluorobutanesulfonic acid (PFBS)	None	None	**4.20**	**4.10**	--	**3.70**	**3.20**
Perfluorobutanoic acid (PFBA)	None	None	**2.70 J**	**2.80 J**	--	**2.50 J**	**2.10 J**
Perfluorodecanoic acid (PFDA)	None	None	0.580 U	0.580 U	--	0.580 U	0.580 U
Perfluorododecanoic acid (PFDoA)	None	None	0.550 U	0.550 U	--	0.550 U	0.550 U
Perfluoroheptanesulfonic acid (PFHpS)	None	None	0.550 U	0.550 U	--	0.550 U	0.550 U
Perfluoroheptanoic acid (PFHpA)	None	None	**3.30**	**3.30**	--	**3.00**	**2.30**
Perfluorohexanesulfonic acid (PFHxS)	None	None	**6.10**	**6.30**	--	**6.00**	**4.50**
Perfluorohexanoic acid (PFHxA)	None	None	**5.60**	**5.80**	--	**5.40**	**4.30**
Perfluorononanoic acid (PFNA)	None	None	0.550 U	0.550 U	--	0.550 U	0.550 U
Perfluorooctanesulfonic acid (PFOS)	None	None	**11.5**	**13.9 J**	--	**10.3**	8.30 U
Perfluorooctanoic acid (PFOA)	None	None	**7.40**	**7.50**	--	**7.20**	**5.00**
Perfluoropentanesulfonic acid (PFPeS)	None	None	**0.990 J**	**0.880 J**	--	**0.900 J**	0.700 U
Perfluoropentanoic acid (PFPeA)	None	None	**7.10**	**6.90**	--	**6.20**	**5.30**
Perfluoroundecanoic acid (PFUnA)	None	None	0.590 U	0.590 U	--	0.590 U	0.590 U

Historical Results of NAHS Monitoring - PFAS
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-CP-PR	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-CP-PT	SHFTAIEA-PR-FW1
Location Type:			Well	Well	Well	Well	Well	Well	Well	Well	Well	Faucet/Tap
Residence:			Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Post-Chlorination	Aiea-Halawa Shaft Pre-Chlorination Spigot
Field Sample ID:			SHAFT-HW-0017491-24183-N	SHAFT-HW-0017912-23108-N	SHAFT-HW-0017912-23108-3-N	SHAFT-HW-0017912-23108-N-R1	SHAFT-HW-0017912-23108-3-N-R1	SHAFT-HW-0017912-23108-3-N-R2	SHAFT-HW-0017912-23108-N-R2	SHAFT-HW-0017912-23108-N-R3	SHAFT-HW-0017912-23108-3-N-R3	SHAFT-HW-0018363-24153-N
Sample Date:			2024-07-24	2023-04-18	2023-04-18	2023-04-24	2023-04-24	2023-08-22	2023-08-22	2023-10-24	2023-10-24	2024-06-04
Sample Type:			N	N	FD	N	FD	FD	N	N	FD	N
PFAS E537.1 (ng/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: FC17486**	**SDG: FC5392**	**SDG: FC5392**			**SDG: FC8955**	**SDG: FC8955**	**SDG: FC10731**	**SDG: FC10731**	**SDG: FC16185**
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	None	None	1.90 UJ	1.80 U	1.80 U	--	--	1.80 UJ	1.80 UJ	1.80 U	1.80 U	--
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	None	None	1.90 UJ	1.80 U	1.80 U	--	--	1.80 UJ	1.80 UJ	1.80 U	1.80 U	--
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	None	None	1.90 UJ	1.80 U	1.80 U	--	--	1.80 U	1.80 U	1.80 U	1.80 U	--
Hexafluoropropylene oxide dimer acid (HFPO-DA)	None	None	2.80 UJ	2.70 U	2.70 U	--	--	2.70 U	2.70 U	2.70 U	2.70 U	--
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	None	None	0.930 UJ	0.900 U	0.900 U	--	--	0.900 U	0.900 U	0.900 U	0.900 U	--
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	None	None	0.930 UJ	0.900 U	0.900 U	--	--	0.900 U	0.900 U	0.900 U	0.900 U	--
Perfluorobutanesulfonic acid (PFBS)	None	None	**1.80 J**	0.700 U	0.700 U	--	--	0.700 U	0.700 U	0.700 U	0.700 U	--
Perfluorodecanoic acid (PFDA)	None	None	0.740 UJ	0.700 U	0.700 U	--	--	0.700 U	0.700 U	0.700 U	0.700 U	--
Perfluorododecanoic acid (PFDoA)	None	None	0.740 UJ	0.700 U	0.700 U	--	--	0.700 UJ	0.700 UJ	0.700 U	0.700 U	--
Perfluoroheptanoic acid (PFHpA)	None	None	**1.50 J**	0.700 U	0.700 U	--	--	0.700 U	0.700 U	0.700 U	0.700 U	--
Perfluorohexanesulfonic acid (PFHxS)	None	None	**2.60 J**	**0.800 J**	0.700 U	--	--	0.700 U	0.700 U	0.700 U	0.700 U	--
Perfluorohexanoic acid (PFHxA)	None	None	**2.40 J**	**0.800 J**	**0.800 J**	--	--	0.700 U	0.700 U	0.700 U	0.700 U	--
Perfluorononanoic acid (PFNA)	None	None	0.740 UJ	0.700 U	0.700 U	--	--	0.700 U	0.700 U	0.700 U	0.700 U	--
Perfluorooctanesulfonic acid (PFOS)	None	None	**7.10 J**	**0.900 J**	**0.800 J**	--	--	0.700 U	0.700 U	0.700 U	0.700 U	--
Perfluorooctanoic acid (PFOA)	None	None	**3.60 J**	0.700 U	0.700 U	--	--	0.700 U	0.700 U	0.700 U	0.700 U	--
Perfluorotetradecanoic acid (PFTeDA)	None	None	0.740 UJ	0.700 U	0.700 U	--	--	0.700 UJ	0.700 UJ	0.700 U	0.700 U	--
Perfluorotridecanoic acid (PFTrDA)	None	None	0.740 UJ	0.700 U	0.700 U	--	--	0.700 UJ	0.700 UJ	0.700 U	0.700 U	--
Perfluoroundecanoic acid (PFUnA)	None	None	0.740 UJ	0.700 U	0.700 U	--	--	0.700 U	0.700 U	0.700 U	0.700 U	--

Notes:

-- indicates that the sample was Not Analyzed for the analyte
Results in green font also exceed the DOH MCL
Results in blue font also exceed the EPA MCL
Results from G1/G3 sampling, where the G3 result is greater than the G1 result, have a red border and the associated G1/G3 result in parentheses for comparison

mg/L = Milligrams per Liter

ng/L = Nanograms per Liter

µg/L = Micrograms per Liter

Historical Results of NAHS Monitoring - PFAS
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:			SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2	SHFTAIEA-PR-FW2
Location Type:			Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap	Faucet/Tap
Residence:			Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination	Aiea-Halawa Shaft Pre-Chlorination
Field Sample ID:			SHAFT-HW-0018384-24245-N	SHAFT-HW-0018384-24306-N	SHAFT-HW-0018384-24306-N-R1	SHAFT-HW-0018384-25001-N	SHAFT-HW-0018384-25060-N
Sample Date:			2024-09-27	2024-11-07	2024-11-27	2025-01-08	2025-03-07
Sample Type:			N	N	N	N	N
PFAS E537.1 (ng/L)	**DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents**	**Environmental Protection Agency Maximum Contaminant Levels**	**SDG: FC19195**	**SDG: FC20297**	**SDG: FC20884**	**SDG: FC21734**	**SDG: FC23101**
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	None	None	1.90 U	1.90 U	--	1.90 U	1.80 U
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	None	None	1.90 U	1.90 U	--	1.90 U	1.80 U
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	None	None	1.90 U	1.90 U	--	1.90 U	1.80 U
Hexafluoropropylene oxide dimer acid (HFPO-DA)	None	None	2.80 U	2.80 U	--	2.80 U	2.70 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	None	None	0.940 U	0.940 U	--	0.940 U	0.910 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	None	None	0.940 U	0.940 U	--	0.940 U	0.910 U
Perfluorobutanesulfonic acid (PFBS)	None	None	**3.80**	**4.20**	--	**3.20**	**3.80**
Perfluorodecanoic acid (PFDA)	None	None	0.750 U	0.750 U	--	0.750 U	0.730 U
Perfluorododecanoic acid (PFDoA)	None	None	0.750 UJ	0.750 U	--	0.750 U	0.730 U
Perfluoroheptanoic acid (PFHpA)	None	None	**2.80**	**3.10**	--	**2.20**	**2.70**
Perfluorohexanesulfonic acid (PFHxS)	None	None	**5.20**	**5.70**	--	**5.00**	**5.60**
Perfluorohexanoic acid (PFHxA)	None	None	**4.50**	**5.40**	--	**3.80**	**4.70**
Perfluorononanoic acid (PFNA)	None	None	0.750 U	0.750 U	--	0.750 U	**0.800 J**
Perfluorooctanesulfonic acid (PFOS)	None	None	**8.50**	**8.50**	--	**7.40**	9.50 U
Perfluorooctanoic acid (PFOA)	None	None	**6.30**	**6.80**	--	**5.70**	**6.00 J**
Perfluorotetradecanoic acid (PFTeDA)	None	None	0.750 UJ	0.750 UJ	--	0.750 U	0.730 UJ
Perfluorotridecanoic acid (PFTrDA)	None	None	0.750 UJ	0.750 U	--	0.750 U	0.730 UJ
Perfluoroundecanoic acid (PFUnA)	None	None	0.750 U	0.750 U	--	0.750 U	0.730 U

Historical Results of NAHS Monitoring - PFAS
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:	SHFTAIEA-PR-FW1
Location Type:	Faucet/Tap
Residence:	Aiea-Halawa Shaft Pre-Chlorination Spigot
Field Sample ID:	SHAFT-HW-0018363-24153-N
Sample Date:	2024-06-04
Sample Type:	N

Experimental PFAS (µg/L)	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 320-112931-1
2-(Perfluorodecyl)ethanol (10:2 FTOH)	None	None	0.260 UJ
2-(Perfluoroheptyl)ethanol (7:2 FTOH)	None	None	0.180 UJ
2-(Perfluorohexyl)ethanol (6:2 FTOH)	None	None	0.180 UJ
2-(Perfluorooctyl)ethanol (8:2 FTOH)	None	None	0.180 UJ
Tetrafluoro-3-(trifluoro-1-(trifluoromethyl)-2-((trifluorovinyl)oxy)ethoxy) propionic acid (4:2 FTOH)	None	None	0.180 UJ

Experimental PFAS (ng/L)	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 320-112934-1
1,1,2,2-Tetrafluoro-2-(1,2,2,2-tetrafluoroethoxy)ethane-1-sulfonic acid (NVHOS)	None	None	1.30 U
1,1,2,2-Tetrafluoro-2-[(1,1,1,2,3,3,4,4-octafluorobutan-2-yl)oxy]ethane-1-sulfonic acid (R-PSDCA)	None	None	1.40 U
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	None	None	0.460 U
2,2,3,3-Tetrafluoro-3-{[1,1,1,2,3,3-hexafluoro-3-(1,2,2,2-tetrafluoroethoxy)propan-2-yl]oxy} propanoic acid (Hydro-EVE Acid)	None	None	0.230 U
2H,2H-Perfluorodecanoic acid (H2PFDA)	None	None	0.320 U
2H-Perfluoro-2-decenoic acid	None	None	0.590 U
2H-Perfluoro-2-dodecenoic acid (10:2 FTUCA)	None	None	0.680 U
2H-Perfluoro-2-octenoic acid	None	None	0.540 U
2-Perfluorodecylethanoic acid (10:2 FTCA)	None	None	1.40 U
2-Perfluorohexylethanoic acid (6:2 FTCA)	None	None	0.570 U
3-(Methoxy)tetrafluoropropionic acid (MTP)	None	None	0.220 U
4-(2-Carboxy-1,1,2,2-tetrafluoroethoxy)-perfluoropentanoic acid (R-EVE)	None	None	0.300 U

Historical Results of NAHS Monitoring - PFAS
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Location ID:	SHFTAIEA-PR-FW1
Location Type:	Faucet/Tap
Residence:	Aiea-Halawa Shaft Pre-Chlorination Spigot
Field Sample ID:	SHAFT-HW-0018363-24153-N
Sample Date:	2024-06-04
Sample Type:	N

Experimental PFAS (ng/L)	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 320-112934-1
7H-Perfluoro-4-methyl-3,6-dioxaoctanesulfonic acid (Hydro-PS Acid)	None	None	0.430 U
Fluoro[perfluoro-2-(perfluoro-2-sulfoethoxy)propoxy]acetic acid (Hydrolyzed PSDA)	None	None	0.250 U
Perflouropropanoic acid (PFPrA)	None	None	**2.30 J**
Perfluoro-2-ethoxypropanoic acid (PEPA)	None	None	0.470 U
Perfluoro-2-methoxyacetic acid (PFMOAA)	None	None	0.400 U
Perfluoro-2-methoxypropanoic acid (PMPA)	None	None	0.340 U
Perfluoro-3,5,7,9,11-pentaoxadodecanoic acid (PFO5DA)	None	None	0.980 U
Perfluoro-3,5,7,9-butaoxadecanoic acid (PFO4DA)	None	None	0.400 U
Perfluoro-3,5,7-trioxaoctanoic acid (PFO3OA)	None	None	0.870 U
Perfluoro-3,5-dioxahexanoic acid (PFO2HxA)	None	None	0.540 U
Perfluoro-3,6-dioxa-4-methyl-7-octenesulfonic acid (PS Acid)	None	None	0.370 U
Perfluoro-4-(2-sulfoethoxy)pentanoic acid (R-PSDA)	None	None	0.260 U
Perfluoro-4-ethylcyclohexanesulfonic acid (PFECHSA)	None	None	0.440 U
Perfluoro-4-isopropoxybutanoic acid (PFPE-1)	None	None	0.280 U
Perfluorohexadecanoic acid	None	None	0.510 U
Perfluorooctadecanoic acid (PFODA)	None	None	0.590 U
Perfluoropropanesulfonic acid (PFPrS)	None	None	**0.440 J**
Tetrafluoro-3-(trifluoro-1-(trifluoromethyl)-2-((trifluorovinyl)oxy)ethoxy) propionic acid (EVE Acid)	None	None	0.370 U

Field Tests (mg/L)	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	
Free Chlorine	None	4	0.0400

Historical Results of NAHS Monitoring - PFAS
Multiple Events
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu, Hawaii

Notes:

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Results in blue font also exceed the EPA MCL
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mg/L = Milligrams per Liter

µg/L = Micrograms per Liter

ng/L = Nanograms per Liter

Joint Base Pearl Harbor Hickam Drinking Water Issue

Immediate Drinking Water Sampling Plan

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
28-Nov-21	29-Nov-21	30-Nov-21	1-Dec-21	2-Dec-21	3-Dec-21	4-Dec-21
(b) (4)	(b) (4)	(b) (4)		(b) (4)	(b) (4)	(b) (4)
Sample Locations:	Sample Locations:	Sample Locations:	Groundwater Sampling for May 6 and Nov 20 Events	Sample Locations: Group A	Sample Locations: Group B Halawa PS Pre-Chlorination Halawa PS Post-Chlorination	Sample Locations: Group A
	Tests: BTEX, Naphthalene, TPH-g/d/o	Tests: BTEX, Naphthalene, TPH-g/d/o		Tests: BTEX, Naphthalene, TPH-g/d/o	Tests: BTEX, Naphthalene, TPH-g/d/o	Tests: BTEX, Naphthalene, TPH-g/d/o
Results rec'd	Results rec'd	Results rec'd	Results rec'd	Results rec'd	Results rec'd	Results rec'd
5-Dec-21	6-Dec-21	7-Dec-21	8-Dec-21	9-Dec-21	10-Dec-21	11-Dec-21
(b) (4)	(b) (4)	(b) (4)	(b) (4)	Weck		Weck
Sample Locations: Group B	Sample Locations: Group A Add'l:	Sample Locations: Group B Add'l (split w/ DOH):	Sample Locations: Group A Add'l: Navy Aiea-Halawa Shaft PS Pre-Chlorination Navy Aiea-Halawa Shaft PS Post-Chlorination Navy Aiea-Halawa Shaft PS Pre-Chlorination Pump Room Navy Aiea-Halawa Shaft PS Well	Sample Locations: Group B Add'l (split w/ DOH): Navy Aiea-Halawa Shaft PS Pre-Chlorination Pump Room Navy Aiea-Halawa Shaft PS Well	Sample Locations: Group A Add'l (split w/ DOH):	Sample Locations: Group B
Tests: BTEX, Naphthalene, TPH-g/d/o	Tests: BTEX, Naphthalene, TPH-g/d/o	Tests: BTEX, Naphthalene, TPH-g/d/o	Tests: BTEX, Naphthalene, TPH-g/d/o	Tests:	Tests:	Tests:
Results rec'd	Results rec'd	Results rec'd	Results rec'd	Results expected 12 Dec 21	Results expected 13 Dec 21	Results expected 14 Dec 21
12-Dec-21	13-Dec-21	14-Dec-21	15-Dec-21	16-Dec-21	17-Dec-21	18-Dec-21
Weck						
Sample Locations:	Sample Locations:	Sample Locations:	Sample Locations:	Sample Locations:	Sample Locations:	Sample Locations:
Tests:	Tests:	Tests:	Tests:	Tests:	Tests:	Tests:
Results expected 15 Dec 21						

Joint Base Pearl Harbor Hickam Drinking Water Issue - Drinking Water Results

Data Legend

Non-bold text indicates non-detected value

Bold text indicates detected value, but below the Department of Health (DOH) Environmental Action Level (EAL), DOH Maximum Contaminant Level (MCL), and EPA MCL.

Bold text indicates detected value, but below the Department of Health (DOH) Environmental Action Level (EAL), DOH Maximum Contaminant Level (MCL), and EPA MCL.
Bold and light orange shaded text indicates exceeds the DOH Tier 1 EAL.
Bold and orange shaded text indicates exceeds the DOH MCL.
Bold and blue shaded text indicates exceeds the EPA MCL.

Black text indicates preliminary laboratory results.

Blue text indicates results are laboratory final and undergoing third-party validation.

Green text indicates results have completed third-party validation.

[1]Pumps at Aiea-Halawa Pump Station were turned off on 3 Dec 21. Samples collected after the pumps were turned off are not representative of the Aiea-Halawa well water. Pre-chlorination samples were collected at the dead end of the distribution system.

— = not analyzed or not applicable

µg/L = microgram per liter (same as parts per billion

CAS = Chemical Abstracts Service

J = estimated value

J- = estimated value, low bias

J+ = estimated value, high bia

mg/L = milligram per lite

no. = number

Q = one or more quality control outside of acceptance criteri

QC = quality contro

U = nondetect value

UQ = nondetect value with one or more quality control outside of acceptance criteri

TB = trip blank. Do not count for total sample number. Only done for quality control purpose

TPH-g = total petroleum hydrocarbons-gasoline range organic

TPH-d = total petroleum hydrocarbons-diesel range organic

TPH-o = total petroleum hydrocarbons-residual range

EPA MCLs are included for reference only; the data were collected using SW-846 methods and not appropriate for comparison to MCLs.

P = Results Pending

D =

a = sample bottle for 200.8 was not received by la

b = 220.8 and 525.2 were not requested on the COC. Sample was recollected (see ERH4096

Joint Base Pearl Harbor Hickam Drinking Water Issue

(b) (4) Laboratory Results - Non-Well Results

Analyte	Benzene	Ethylbenzene	Toluene	Xylenes	Naphthalene	TPH-g (C6-C12)	TPH-d (C9-C25) [b]	TPH-d (C9-C25) with Silica Gel Cleanup	TPH-o (C24-C40) [b]	TPH-o (C24-C40) with Silica Gel Cleanup
CAS No.	71-43-2	100-41-4	108-88-3	1330-20-7	91-20-3	PHCC6C10	PHCC10C24	PHCC10C24SGC	PHCC24C40	PHCC24C40SGC
Method	8260B	8260B	8260B	8260B	8260B	8260B	8015B_E	8015B_E	8015B_E	8015B_E
DOH Tier 1 EAL (Table D-1b)	5	30	40	20	17	300	400	—	500	—
EPA MCL	5	700	1000	10000	—	—	—	—	—	—
Unit	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L

Location (General Location / Building)	Specific Location	Field Observations	Sample ID	Sampling Date	Sampling Time	Associated Trip Blank	Type	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Navy Aiea-Halawa Shaft PS Pre-chlorination	left spigot	No visual indication of sheen, no odor, no Multirae available for PID readings	ERH2040	12/3/2021	9:45	ERH2044	Normal	0.50 UQ	0.80 U	0.80 U	0.80 UQ	2.0 UQ	80 U	290 U	72 U	290 U	72 UQ
Navy Aiea-Halawa Shaft PS Post Chlorination	right spigot	No visual indication of sheen, no odor, no Multirae available for PID readings	ERH2041	12/3/2021	10:00	ERH2044	Normal	0.50 UQ	0.80 U	0.80 U	0.80 UQ	2.0 UQ	80 U	300 U	48 J	300 U	74 UQ
1 Navy Aiea-Halawa Shaft PS Pre-Chlorination	left spigot	Sampling Point PID: 0.0 ppm	ERH2074	12/5/2021	15:31	ERH2067	Normal	0.50 U	0.80 UQ	0.80 U	0.80 UQ	2.0 UQ	80 U	920	700 Q	150 U	39 U
Navy Aiea-Halawa Shaft PS Post Chlorination	right spigot	Sampling Point PID: 0.0 ppm	ERH2075	12/5/2021	15:31	ERH2067	Normal	0.50 U	0.80 UQ	0.80 U	0.80 UQ	2.0 UQ	80 U	68 J	39 JQ	150 U	38 U
1 Navy Aiea-Halawa Shaft PS Pre-chlorination	left spigot	Ambient PID: 0.0 ppm, Sampling Point PID: 0.0 ppm, no odor detected, no visual indication of sheen	ERH2137	12/7/2021	10:10	ERH2147	Normal	0.50 UQ	0.80 UQ	0.80 UQ	0.80 UQ	2.0 UQ	80 U	730	420	320 U	81 U
Navy Aiea-Halawa Shaft PS Post Chlorination	right spigot	Ambient PID: 0.0 ppm, Sampling Point PID: 0.0 ppm, no odor detected, no visual indication of sheen	ERH2138	12/7/2021	10:15	ERH2147	Normal	0.50 U	0.80 UQ	0.80 U	0.80 UQ	2.0 UQ	80 U	290 U	23 J	290 U	72 U
Navy Aiea-Halawa Shaft PS Pre-Chlorination Pump Room	Pump Room tap	Sampling Point PID: 0.0 ppm, no odor detected, no visual indication of sheen	ERH2150	12/8/2021	11:57	ERH4001	Normal	0.50 UQ	0.80 UQ	0.80 UQ	0.80 UQ	2.0 UQ	56 J	620	440	300 U	74 U
Navy Aiea-Halawa Shaft PS Post Chlorination	right spigot	Sampling Point PID: 0.0 ppm, no odor detected, no visual indication of sheen	ERH2151	12/8/2021	11:31	ERH4001	Normal	0.50 UQ	0.80 UQ	0.80 UQ	0.80 UQ	2.0 UQ	54 J	290 U	26 J	290 U	72 U
1 Navy Aiea-Halawa Shaft PS Pre-Chlorination	left spigot	Sampling Point PID: 0.0 ppm, no odor detected, no visual indication of sheen	ERH2149	12/8/2021	11:30	ERH4001	Normal	0.50 UQ	0.80 UQ	0.80 UQ	0.80 UQ	2.0 UQ	80 U	550	380	290 U	72 U

Joint Base Pearl Harbor Hickam Drinking Water Issue
(b) (4) Laboratory Results - Drinking Water - Non-Well Results

			Location (General Location / Building)			Navy Aiea-Halawa Shaft PS Post-Chlorination		Navy Aiea-Halawa Shaft PS Post-Chlorination		Navy Aiea-Halawa Shaft PS Pre-Chlorination Pump Room		Navy Aiea-Halawa Shaft PS Post-Chlorination		Navy Aiea-Halawa Shaft PS Post-Chlorination		Navy Aiea-Halawa Shaft PS Post-Chlorination	
			Specific Location			right spigot		right spigot		Pump Room tap		right spigot		right spigot		right spigot	
			Field Observations			Sampling point PID: 0.0 ppm Chlorine odor, no visual indication of sheen		Sampling point PID: 0.0 ppm Chlorine odor, no visual indication of sheen		Ambient point PID: 0.0, Sampling Point PID: 0.0 ppm, no odor detected		Ambient point PID: 0.0, Sampling Point PID: 0.0 ppm, no odor detected		Sampling point PID: 0.0 ppm, no odor detected, no visual indication of sheen		Sampling point PID: 0.0 ppm, no odor detected, no visual indication of sheen	
			Sample ID			ERH4019		ERH4029 (Pre-Chlorination)		ERH4049		ERH4050		ERH4095		ERH4096	
			Sampling Date			12/9/2021		12/9/2021		12/9/2021		12/9/2021		12/11/2021		12/11/2021	
			Sampling Time			13:30		13:50		10:50		11:45		9:10		9:10	
			Associated Trip Blank			ERH4038		ERH4038		ERH4042		ERH4042		ERH4124 / ERH4126		ERH4124 / ERH4126	
			Type			Normal		Normal		Normal		Normal		Normal		Field Duplicate	
Test Method	**Analyte**		**DOH Tier 1 EAL (Table D1a)**	**DOH MCL**	**EPA MCL**	**Result**		**Result**		**Result**		**Result**		**Result**		**Result**	
245.1	Mercury	7487-94-7	0.025	2	2	0.05	U	0.05	U	0.05	U	100	U	0.5	U	0.5	U
8260	TPH-g	Gas	300	-	-	100	U	100	U	100	U	100	U	100	U	100	U
8015	TPH-d	Diesel	400	-	-	**95**	**J**	**86**	**J**	**94**	**J**	**95**	**J**	100	U	**82**	**J**
524.2	1,1,1,2-Tetrachloroethane	630-20-6	0.61	-	-	-		-		-		-		0.5	U	0.5	U
524.2	1,1,1-Trichloroethane	71-55-6	11	200	200	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2	1,1,2,2-Tetrachloroethane	79-34-5	0.078	-	-	-		-		-		-		0.5	U	0.5	U
524.2	1,1,2-Trichloroethane	79-00-5	5	5	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2	1,1-Dichloroethane	75-34-3	2.8	-	-	-		-		-		-		0.5	U	0.5	U
524.2	1,1-Dichloroethene	75-34-3	2.8	-	-	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2	1,1-Dichloropropene	563-58-6	-	-	-	-		-		-		-		0.5	U	0.5	U
524.2	1,2,3-Trichlorobenzene	87-61-6	-	-	-	-		-		-		-		0.5	U	0.5	U
524.2M	1,2,3-Trichloropropane	96-18-4	0.6	0.6	-	-		-		-		-		-		-	
524.2	1,2,4-Trichlorobenzene	120-82-1	70	70	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2	1,2,4-Trimethylbenzene	95-63-6	-	-	-	-		-		-		-		0.5	U	0.5	U
524.3	1,2-Dibromo-3-chloropropane	96-12-8	0.04	0.04	0.2	-		-		-		-		-		-	
524.3	1,2-Dibromoethane (EDB)	106-93-4	0.04	0.04	0.05	-		-		-		-		-		-	
524.2	1,2-Dichloroethane	107-06-2	5	-	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2	1,2-Dichloropropane	78-87-5	5	5	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2	1,3,5-Trimethylbenzene	108-67-8	-	-	-	-		-		-		-		0.5	U	0.5	U
524.2	1,3-Dichloropropane	142-28-9	-	-	-	-		-		-		-		0.5	U	0.5	U
524.2	1,3-Dichloropropene, Total	542-75-6	0.06	-	-	-		-		-		-		0.5	U	0.5	U
524.2	2,2-Dichloropropane	594-20-7	-	-	-	-		-		-		-		0.5	U	0.5	U
524.2	2-Butanone	78-93-3	5587	-	-	-		-		-		-		5	U	5	U
524.2	2-Chlorotoluene	95-49-8	-	-	-	-		-		-		-		0.5	U	0.5	U
524.2	2-Hexanone	591-78-6	-	-	-	-		-		-		-		5	U	5	U
524.2	4-Chlorotoluene	106-43-4	-	-	-	-		-		-		-		0.5	U	0.5	U
524.2	4-Methyl-2-pentanone	108-10-1	170	-	-	-		-		-		-		5	U	5	U
524.2	Benzene	71-43-2	5	5	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2	Bromobenzene	108-86-1	-	-	-	-		-		-		-		0.5	U	0.5	U
524.2	Bromochloromethane	74-97-5	-	-	-	-		-		-		-		0.5	U	0.5	U
524.2	Bromodichloromethane	75-27-4	0.14	-	80	-		-		-		-		0.5	U	0.5	U
524.2	Bromoform	75-25-2	80	80	80	-		-		-		-		**0.42**	**J**	0.5	U
524.2	Bromomethane	74-83-9	7.6	-	-	-		-		-		-		0.5	U	0.5	U
524.2	Carbon tetrachloride	56-23-5	5	5	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2	Chlorobenzene	108-90-7	25	100	100	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2	Chloroethane	75-00-3	16	-	-	-		-		-		-		0.5	U	0.5	U
524.2	Chloroform	67-66-3	28	-	80	-		-		-		-		0.5	U	0.5	U
524.2	Chloromethane	74-87-3	188	-	-	-		-		-		-		0.5	U	0.5	U
524.2	cis-1,2-Dichloroethene	156-59-2	70	70	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2	cis-1,3-Dichloropropene	10061-01-5	-	-	-	-		-		-		-		0.5	U	0.5	U
524.2	Dibromochloromethane	124-48-1	0.93	-	80	-		-		-		-		**0.3**	**J**	**0.28**	J
524.2	Dibromomethane	74-95-3	-	-	-	-		-		-		-		0.5	U	0.5	U
524.2	Dichlorodifluoromethane (Freon 12)	75-71-8	-	-	-	-		-		-		-		0.5	U	0.5	U
524.2	Di-isopropyl ether	108-20-3	-	-	-	-		-		-		-		2	U	2	U
524.2	Ethyl tert-butyl ether	637-92-3	-	-	-	-		-		-		-		2	U	2	U
524.2	Ethylbenzene	100-41-4	7.3	700	700	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2	Freon 113	76-13-1	-	-	-	-		-		-		-		5	U	5	U
524.2	Hexachlorobutadiene	87-68-3	0.2	-	-	-		-		-		-		0.5	U	0.5	U
524.2	Isopropylbenzene	98-82-8	-	-	-	-		-		-		-		0.5	U	0.5	U
524.2	m,p-Xylene	179601-23-1	-	-	-	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2	m-Dichlorobenzene	541-73-1	5	-	-	-		-		-		-		0.5	U	0.5	U
524.2	Methyl tert-butyl ether (MTBE)	1634-04-4	5	-	-	-		-		-		-		2	U	2	U
524.2	Methylene chloride	75-09-2	5	-	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2	Naphthalene	91-20-3	12	-	-	-		-		-		-		0.5	U	0.5	U
524.2	n-Butylbenzene	104-51-8	-	-	-	-		-		-		-		0.5	U	0.5	U
524.2	n-Propylbenzene	103-65-1	-	-	-	-		-		-		-		0.5	U	0.5	U
524.2	o-Dichlorobenzene	95-50-1	10	600	600	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2	o-Xylene	95-47-6	-	-	-	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2	p-Dichlorobenzene	106-46-7	5	75	75	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2	p-Isopropyltoluene	99-87-6	-	-	-	-		-		-		-		0.5	U	0.5	U
524.2	sec-Butylbenzene	135-98-8	-	-	-	-		-		-		-		0.5	U	0.5	U
524.2	Styrene	100-42-5	10	100	100	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2	Tert-amyl methyl ether	994-05-8	-	-	-	-		-		-		-		2	U	2	U
524.2	tert-Butylbenzene	98-06-6	-	-	-	-		-		-		-		0.5	U	0.5	U
524.2	Tetrachloroethene	127-18-4	5	5	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2	THMs, Total	-	-	80	80	-		-		-		-		0.5	U	0.5	U
524.2	Toluene	108-88-3	9.8	1000	1000	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2	trans-1,2-Dichloroethene	156-60-5	100	100	100	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2	trans-1,3-Dichloropropene	10061-02-6	-	-	-	-		-		-		-		0.5	U	0.5	U
524.2	Trichloroethene	79-01-6	5	5	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2	Trichlorofluoromethane	75-69-4	-	-	-	-		-		-		-		0.5	U	0.5	U
524.2	Vinyl chloride	75-01-4	2	2	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2	Xylenes, Total	1330-20-7	13	10000	10000	-		-		-		-		0.5	U	0.5	U
200.8	Antimony	7440-36-0	6	6	6	0.5	U	0.5	U	0.5	U	b		0.5	U	0.5	U
200.8	Arsenic	7440-38-2	10	10	10	**0.093**	**J**	**0.11**	**J**	**0.077**		b		0.4	U	**0.088**	**J**
200.8	Barium	7440-39-3	220	2000	2000	**3.5**	**J**	**3.5**	**J**	**3.9**		b		**2.3**	**J**	**2.4**	**J**
200.8	Beryllium	7440-41-7	0.66	4	4	0.1	U	0.1	U	0.1	U	b		0.1	U	0.1	U
200.8	Cadmium	7440-43-9	3	5	-	0.2	U	0.2	U	0.2	U	b		0.2	U	0.2	U
200.8	Copper	7440-50-8	2.9	1300	1300	**5.5**	**J**	**5.6**	**J**	**32**		b		**4.4**	**J**	**4.3**	**J**
200.8	Lead	7439-92-1	5.6	15	15	0.2	U	0.2	U	**0.14**		b		0.2	U	0.2	U
200.8	Nickel	7440-02-0	5	-	-	**0.63**	**J**	**0.58**	**J**	**1.5**		b		**0.59**	**J**	**0.58**	**J**
200.8	Selenium	7782-49-2	5	50	50	0.4	U	**0.31**	**J**	**0.27**		b		0.4	U	0.4	U
200.8	Thallium	7440-28-0	2	2	2	0.2	U	0.2	U	0.2	U	b		0.2	U	0.2	U
525.2	1-Methylnaphthalene	90-12-0	2.1	-	-	0.05	U	0.05	U	0.05	U	b		0.05	U	0.05	U
525.2	2-(2-Methoxyethoxy)ethanol	111-77-3	-	-	-	0.16	U	0.16	U	0.16	U	b		-		-	
525.2	2-Methylnaphthalene	91-57-6	4.7	-	-	0.05	U	0.05	U	0.05	U	b		0.05	U	0.05	U
525.2	Acenaphthene	83-32-9	15	-	-	0.05	U	0.05	U	0.05	U	b		0.05	U	0.05	U
525.2	Acenaphthylene	208-96-8	13	-	-	0.05	U	0.05	U	0.05	U	b		0.05	U	0.05	U
525.2	Alachlor	15972-60-8	-	-	2	0.1	U	0.1	U	0.1	U	b		0.1	U	0.1	U
525.2	alpha-Chlordane	5103-71-9	-	-	-	0.1	U	0.1	U	0.1	U	b		0.1	U	0.1	U
525.2	Anthracene	120-12-7	0.02	-	-	0.05	U	0.05	U	0.05	U	b		0.05	U	0.05	U
525.2	Atrazine	1912-24-9	3	3	3	0.1	U	0.1	U	0.1	U	b		0.1	U	0.1	U
525.2	Benzo (a) anthracene	56-55-3	0.027	-	-	0.05	U	0.05	U	0.05	U	b		0.05	U	0.05	U
525.2	Benzo (a) pyrene	50-32-8	0.06	0.2	0.2	0.05	U	0.05	U	0.05	U	b		0.05	U	0.05	U
525.2	Benzo (b) fluoranthene	205-99-2	0.22	-	-	0.05	U	0.05	U	0.05	U	b		0.05	U	0.05	U
525.2	Benzo (g,h,i) perylene	191-24-2	0.13	-	-	0.05	U	0.05	U	0.05	U	b		0.05	U	0.05	U
525.2	Benzo (k) fluoranthene	207-08-9	0.4	-	-	0.05	U	0.05	U	0.05	U	b		0.05	U	0.05	U
525.2	Bis(2-ethylhexyl)adipate	103-23-1	-	-	400	5	U	5	U	5	U	b		5	U	5	U
525.2	Bis(2-ethylhexyl)phthalate	117-81-7	3	6	6	3	U	3	U	3	U	b		3	U	3	U
525.2	Chrysene	218-01-9	1	-	-	0.05	U	0.05	U	0.05	U	b		0.05	U	0.05	U
525.2	cis-Nonachlor	5103-73-1	-	-	-	0.05	U	0.05	U	0.05	U	b		0.05	U	0.05	U
525.2	Dibenzo (a,h) anthracene	53-70-3	0.022	-	-	0.05	U	0.05	U	0.05	U	b		0.05	U	0.05	U
525.2	Endrin	72-20-8	0.0023	2	2	0.2	U	0.2	U	0.2	U	b		0.2	U	0.2	U
525.2	Fluoranthene	206-44-0	0.8	-	-	0.05	U	0.05	U	0.05	U	b		0.05	U	0.05	U
525.2	Fluorene	86-73-7	3.9	-	-	0.05	U	0.05	U	0.05	U	b		0.05	U	0.05	U
525.2	gamma-BHC (Lindane)	58-89-9	0.063	0.2	0.2	0.1	U	0.1	U	0.1	U	b		0.1	U	0.1	U
525.2	gamma-Chlordane	5103-74-2	-	-	-	0.1	U	0.1	U	0.1	U	b		0.1	U	0.1	U
525.2	Heptachlor	76-44-8	0.0036	0.4	0.4	0.1	U	0.1	U	0.1	U	b		0.1	U	0.1	U
525.2	Heptachlor epoxide	1024-57-3	0.0036	0.2	0.2	0.1	U	0.1	U	0.1	U	b		0.1	U	0.1	U
525.2	Hexachlorocyclopentadiene	77-47-4	-	-	50	1	U	1	U	1	U	b		1	U	1	U
525.2	Indeno (1,2,3-cd) pyrene	193-39-5	0.095	-	-	0.05	U	0.05	U	0.05	U	b		0.05	U	0.05	U
525.2	Methoxychlor	72-43-5	0.03	40	40	0.2	U	0.2	U	0.2	U	b		0.2	U	0.2	U
525.2	Naphthalene	91-20-3	12	-	-	0.05	U	0.05	U	0.05	U	b		0.05	U	0.05	U
525.2	Pentachlorophenol	87-86-5	1	1	1	1	U	1	U	1	U	b		1	U	1	U
525.2	Phenanthrene	85-01-8	2.3	-	-	0.05	U	0.05	U	0.05	U	b		0.05	U	0.05	U
525.2	Pyrene	129-00-0	4.6	-	-	0.05	U	0.05	U	0.05	U	b		0.05	U	0.05	U
525.2	Simazine	122-34-9	4	4	4	0.1	U	0.1	U	0.1	U	b		0.1	U	0.1	U
525.2	trans-Nonachlor	39765-80-5	-	-	-	0.05	U	0.05	U	0.05	U	b		0.05	U	0.05	U

Joint Base Pearl Harbor Hickam Drinking Water Issue

Total Organic Carbon Screening Data

Value - Detected at a measurable level (>0.5 ppm)

Trace - Detected at a measurable level, but below the Lower Reportable Level

Non-Detect - Not at a detectable level (<0.2 ppm)

Lower reportable limit = 0.5 ppm

Lower detectable limit = 0.2 ppm

LabNumber	SampleDate	SampleID	Results (PPM)
22-01964	12/8/2021	**HALAWA WELL #3	TRACE
22-01963	12/8/2021	**HALAWA WELL #2	TRACE
22-01962	12/8/2021	**HALAWA WELL #1 PRE-CHLORINATION	TRACE
22-02008	12/9/2021	DOH AIEA HALAWA SHAFT	TRACE
22-02009	12/9/2021	DOH AIEA HALAWA SHAFT	NON DETECT
22-01965	12/8/2021	**HALAWA WELL #4	NON DETECT

Appendix I:
Supporting Studies

United States Environmental Protection Agency | Office of Water Washington, D.C. | EPA 832-F-00-017 September 2000

Wastewater Technology Fact Sheet

Granular Activated Carbon Adsorption and Regeneration

DESCRIPTION

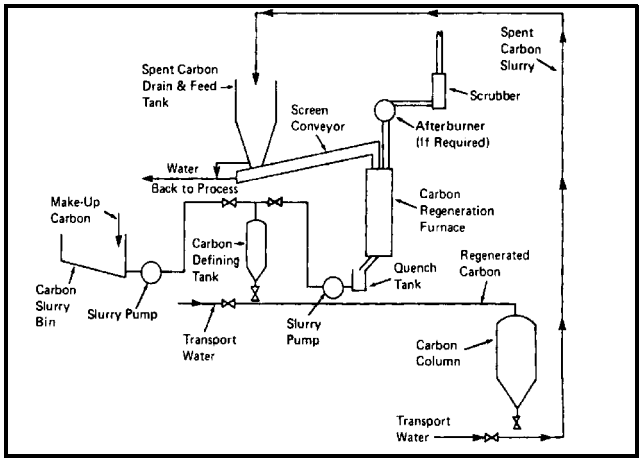
Granular activated carbon (GAC) adsorption has been used successfully for the advanced (tertiary) treatment of municipal and industrial wastewater. GAC is used to adsorb the relatively small quantities of soluble organics (See Table 1) and inorganic compounds such as nitrogen, sulfides, and heavy metals remaining in the wastewater following biological or physical-chemical treatment. Adsorption occurs when molecules adhere to the internal walls of pores in carbon particles produced by thermal activation.

TABLE 1 ORGANIC COMPOUNDS AMENABLE TO ADSORPTION BY GAC

Class	Example
Aromatic solvents	Benzene, toluene, xylene
Polynuclear aromatics	Naphthalene, biphenyl
Chlorinated aromatics	Chlorobenzene, PCBs, endrin, toxaphene, DDT
Phenolics	Phenol, cresol, resorcinol, nitrophenols, chlorophenols, alkyl phenols
Aromatic amines & high molecular weight aliphatic amines	Aniline, toluene diamine
Surfactants	Alkyl benzene sulfonates
Soluble organic dyes	Methylene blue, textiles, dyes
Fuels	Gasoline, kerosene, oil
Chlorinated solvents	Carbon tetrachloride, percholoroethylene
Aliphatic & aromatic acids	Tar acids, benzoic acids
Pesticides/herbicides	2,4-D, atrazine, simazine, aldicarb, alachlor, carbofuran

Source: U.S. EPA, 1984.

GAC systems are generally composed of carbon contactors, virgin and spent carbon storage, carbon transport systems, and carbon regeneration systems (See Figure 1). The carbon contactor consists of a lined steel column or a steel or concrete rectangular tank in which the carbon is placed to form a "filter" bed. A fixed bed downflow column contactor (See Figure 2) is often used to contact wastewater with GAC. Wastewater is applied at the top of the column, flows downward through the carbon bed, and is withdrawn at the bottom of the column. The carbon is held in place with an underdrain system at the bottom of the contactor. Provisions for backwash and surface wash of the carbon bed are required to prevent buildup of excessive headloss due to accumulation of solids and to prevent the bed surface from clogging.

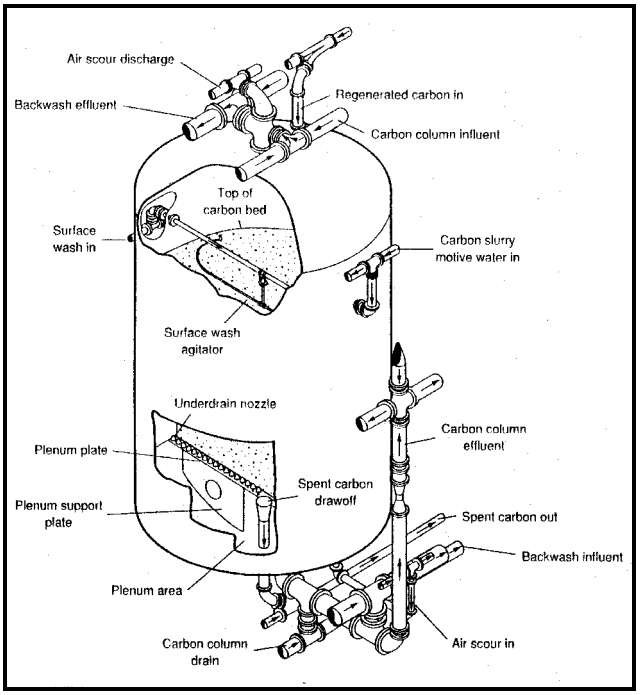


Source: WEF MOP 8, 1998.

FIGURE 1 GAC ADSORPTION SCHEMATIC

Expanded bed and moving bed carbon contactors have been developed to overcome problems associated with headloss buildup experienced with fixed bed downflow contactors. In an expanded bed system, wastewater is introduced at the bottom of the contactor and flows upward, expanding the carbon bed, much as the bed expands

during backwash of a fixed bed downflow contactor. In the moving bed system, spent carbon is replaced continuously so that the headloss does not build up. Carbon contactors may be operated under either pressure or gravity flow. The choice between pressure and gravity flow generally depends on the available pressure (head) within the wastewater treatment plant and cost.



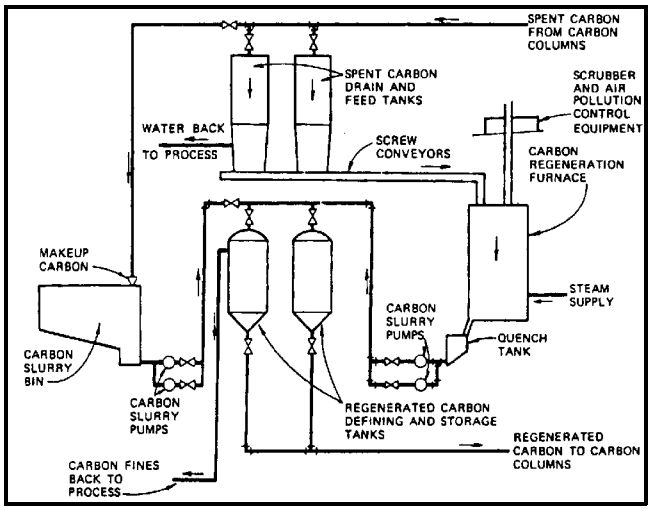
Source: Tchobanoglous and Burton, 1991.

FIGURE 2 TYPICAL DOWNFLOW CARBON CONTACTOR

All carbon contactors must be equipped with carbon removal and loading mechanisms to allow spent carbon to be removed and virgin or regenerated carbon to be added. Spent, regenerated, and virgin carbon is typically transported hydraulically by pumping as a slurry. Carbon slurries may be transported with water or compressed air, centrifugal or diaphragm pumps, or eductors.

When the carbon contactor effluent quality reaches minimum water quality standards, the spent carbon is removed from the contactor for regeneration. Small systems usually find regeneration of their spent carbon at an off-site commercial reactivation facility to be the most convenient and economical method. In this case, the spent carbon is hydraulically transported from the contactor to a waiting truck. Regenerated or virgin carbon is then hydraulically transported from a second truck or from a separate compartment in the first truck to the contactor, then to a commercial reactivation facility. Generally, systems which contain at least one million pounds of carbon find on-site regeneration to be cost effective.

Carbon regeneration is accomplished primarily by thermal means. Organic matter within the pores of the carbon is oxidized and thus removed from the carbon surface. The two most widely used regeneration methods are rotary kiln and multiple hearth furnaces. Approximately 5 to 10 percent of the carbon is destroyed in the regeneration process or lost during transport and must be replaced with virgin carbon. The capacity of the regenerated carbon is slightly less than that of virgin carbon. Repeated regeneration degrades the carbon particles until an equilibrium is eventually reached providing predictable long term system performance. See Figure 3 for a schematic of the carbon regeneration process.



Source: WEF MOP 8, 1998

FIGURE 3 REGENERATION SCHEMATIC

APPLICABILITY

Typically, GAC adsorption is utilized in wastewater treatment as a tertiary process following conventional secondary treatment or as one of several unit processes composing physical-chemical

treatment. In wastewater treatment plants utilizing biological secondary treatment, GAC adsorption is generally located after filtration and prior to disinfection. When utilized in a physical-chemical treatment process, GAC adsorption is generally located following chemical clarification and filtration and prior to disinfection. In addition, GAC adsorption systems have a relatively small footprint making them suitable for facilities with limited land availability.

The successful application of carbon adsorption for municipal wastewater treatment depends on the quality and quantity of the wastewater delivered to the adsorption system. For a carbon contactor to perform effectively, the feed water to the unit should be of uniform quality (suspended solids concentrations less than 20 mg/l) and without surges in flow. Wastewater constituents that may adversely affect carbon adsorption include suspended solids, BOD_5, and organics such as methylene blue active substances or phenol and dissolved oxygen. Environmental factors that must be considered include pH and temperature because they may impact solubility, which affects the adsorption properties of the wastewater components onto carbon (WEF MOP 8, 1998).

ADVANTAGES AND DISADVANTAGES

Before deciding whether carbon adsorption/regeneration meets the needs of a municipality, it is important to understand the advantages and disadvantages of both the adsorption and regeneration process.

Advantages (Adsorption)

- For wastewater flows which contain a significant quantity of industrial flow, GAC adsorption is a proven, reliable technology to remove dissolved organics.
- Space requirements are low.
- GAC adsorption can be easily incorporated into an existing wastewater treatment facility.

Advantages (Regeneration)

- Systems are reliable from a process standpoint.
- Reduces solid waste handling problems caused by the disposal of spent carbon.
- Saves up to 50 percent of the carbon cost.

Disadvantages (Adsorption)

- Under certain conditions, granular carbon beds may generate hydrogen sulfide from bacterial growth, creating odors and corrosion problems.
- Spent carbon, if not regenerated, may present a land disposal problem.
- Wet GAC is highly corrosive and abrasive.
- Requires pretreated wastewater with low suspended solids concentration. Variations in pH, temperature, and flow rate may also adversely affect GAC adsorption.

Disadvantages (Regeneration)

- Air emissions from the furnace contain volatiles stripped from the carbon. Carbon monoxide is formed as a result of incomplete combustion. Therefore, afterburners and scrubbers are usually needed to treat exhaust gases.
- The induced draft fan of a multiple hearth furnace may produce a noise problem.
- The process is most effective when operated on a 24-hour basis, requiring around-the-clock operator attention.
- The process is subject to more mechanical failures than other wastewater treatment processes.

DESIGN CRITERIA

Prior to the design of GAC systems, a pilot plant study should be performed to determine if the technology will meet discharge permit requirements and to quantify optimum flow rate, bed depth, and operating capacity on a particular wastewater. This information is required to determine the dimensions and number of carbon contactors required for continuous treatment.

The sizing of carbon contactors is based on contact time, hydraulic loading rate, carbon bed depth, and number of contactors. The carbon contact time typically ranges from 15 to 35 minutes depending on the application, wastewater constituents and desired effluent quality. Hydraulic loading rates of 4 to 10 gpm/sq.ft are typically used for upflow carbon columns. For downflow carbon columns, hydraulic loading rates of 3 to 5 gpm/sq.ft are used. Carbon bed depth varies typically within a range of 10 to 40 feet depending on carbon contact time (Tchobanoglous, 1991).

The number of contactors should be sufficient to ensure enough carbon contact time to maintain effluent quality while one column is off line during removal of spent carbon or maintenance. The normal practice is either to use two columns in series and rotate them as they become exhausted or to use multiple columns in parallel so that when one column becomes exhausted, the effluent quality will not be significantly affected (WEF MOP 8, 1998).

Regeneration facilities are typically sized based on carbon dosage or use rate. The dosage rate depends on the strength of the wastewater applied to the carbon and the required effluent quality. Typical dosage rates for filtered, secondary effluent range from 400 to 600 lbs/mil.gall., while typical dosage rates for coagulated, settled and filtered raw wastewater (physical-chemical) range from 600 to 1800 lbs/mil.gall.

PERFORMANCE

Niagara Falls Wastewater Treatment Plant Niagara Falls, New York

The Niagara Falls Wastewater Treatment Plant (NFWTP) has been operating as a physical-chemical activated carbon secondary treatment facility since 1985. With a design average daily flow capacity of 48 mgd, it is the largest municipal physical-chemical activated carbon wastewater treatment plant in operation in the United States. The treatment process consists of chemically assisted primary sedimentation, granular activated carbon adsorption, oxidation, and disinfection. The influent pH can be adjusted to compensate for industrial discharge. The current average daily flow is 35 mgd. Industrial flow to the plant is approximately 17 percent of the total flow.

The activated carbon system at NFWTP includes 28 carbon beds which are 17.3 feet wide by 42 feet long. Each carbon bed is approximately 8.5 feet in depth and contains 180,000 pounds of carbon. Primary effluent percolates downward by gravity through the GAC bed. Each carbon bed provides chemical adsorption of pollutants from the wastewater, physical filtration of solids, and biological degradation from the incidental anaerobic activity that occurs within.

The carbon beds at NFWTP operate in parallel. During dry weather, there are typically 17 carbon beds in operation with a primary effluent application rate of approximately 2.2 gpm/sq.ft. During wet weather, additional beds are placed in operation. All beds are operated at an application rate of approximately 3gpm/sq.ft (Roll, 1996). Backwash of the carbon beds is based on headloss.

Regeneration of the spent carbon is performed on-site in a multiple hearth furnace. Each filter bed is separately removed from service and emptied of carbon. The carbon is fed to the furnace at a rate of about 2,000 lbs/hr. The regenerated carbon is kept in storage until an empty bed becomes available. Normal operating losses, which average 5.5 percent, require the addition of virgin carbon to maintain inventory levels. At present, the four month regeneration process to regenerate all of the carbon is performed once per year.

Three storage tanks are used during on-site regeneration. The spent carbon storage tank has a capacity of 2.5 carbon beds; the regenerated carbon

storage tank can hold 1.5 beds of carbon and the virgin carbon storage tank has a capacity of 1 carbon bed. Carbon is moved about the plant in a slurry through an eductor system.

With GAC adsorption, the NFWTP has achieved very low effluent organic compound concentrations. On a daily basis, the facility receives approximately 800 pounds of influent priority pollutants which are reduced by the treatment process to 12 pounds in the effluent to the Niagara River. The effluent discharge permit issued to NFWTP by the New York State Department of Environmental Conservation includes effluent limitations for volatile compounds, acid compounds, base/neutral compounds, pesticides, metals, and cyanide.

Millard H. Robbins Reclamation Facility, Upper Occoquan Sewerage Authority, Centreville, Virginia

The Millard H. Robbins Reclamation Facility (MHRRF) provides biological, tertiary treatment to an average daily wastewater flow of 24 mgd. Industrial flow to the plant is approximately 10 percent of the total flow. The treatment process consists of primary sedimentation, conventional activated sludge with nitrification, lime addition for phosphorous removal, clarification, two-stage recarbonization, flow equalization, multimedia filtration, GAC adsorption, post filtration and disinfection. The MHRRF discharges its effluent to Bull Run which flows into the Occoquan Reservoir. This reservoir serves as raw water storage for the potable water supply to portions of northern Virginia.

The activated carbon system at MHRRF includes 32 upflow carbon columns which are 10 feet in diameter and 40 feet tall. Each column has a capacity of 1mgd and contains approximately 75,000 pounds of carbon. Flow is pumped through the columns by a pump station which also serves the multimedia filters and post filtration system. Post filtration is provided following the GAC columns to remove carbon fines from the effluent to maintain the Virginia Pollutant Discharge Elimination System (VPDES) permit requirement for turbidity of 0.5 NTU.

The carbon columns at MHRRF are operated in parallel. During average daily flow periods, approximately 24 columns are in operation with the remaining eight columns brought on line during daily peak flow periods. During wet weather, flows in excess of 32 mgd are stored in a 90 million gallon pond.

Regeneration of the spent carbon is performed on-site in a multiple hearth furnace. The regeneration process takes approximately 8 to 10 weeks to regenerate approximately one-third of the carbon in all 32 columns and is performed twice each year. Consequently, it takes approximately 18 months (three regeneration cycles) to regenerate the total quantity of carbon in the columns. Spent carbon is removed from the bottom of each column and transported to the regeneration furnace through an eductor system. The regenerated carbon is then added at the top of each column. The cost for on-site regeneration at MHRRF is approximately $0.35 per pound. Normal operating losses, which average 5 to 7 percent of the total quantity of GAC in use, require the addition of virgin carbon to maintain inventory levels. Most of the carbon attrition occurs during regeneration with approximately 10 to 12 percent of the total carbon regenerated lost during the regeneration process. Carbon is moved about the plant in a slurry through an eductor system.

GAC adsorption is utilized at MHRRF to remove non-biodegradable, soluble organics. COD is used as the surrogate indicator of non-biodegradable organics removal by the GAC columns. Currently, the Virginia Pollutant Discharge Elimination System (VPDES) discharge permit limit for COD is 10 mg/l. Following GAC regeneration, effluent COD concentrations range from 6 to 7 mg/l, which corresponds to approximately 50 percent removal of COD. As the GAC in the columns becomes exhausted, the percentage removal of COD declines to approximately 25 percent. When the effluent COD concentration has increased to 9 mg/l, GAC regeneration is initiated.

OPERATION AND MAINTENANCE

The proper operation and maintenance of GAC adsorption and regeneration systems ensures the

efficient removal of soluble organics from secondary effluent. A routine O&M schedule following manufacturer's recommendations should be developed and implemented for any GAC adsorption and regeneration system. Regular O&M includes the following:

- Backwash of carbon contactor based on headloss or flow.
- Flush carbon transport piping to prevent clogging.
- Backwash frequently after loading carbon to minimize clogging of backwash nozzles by carbon fines.
- Store an adequate supply of spent carbon to allow continuous operation of the regeneration furnace.
- Test and calibrate instrumentation and controls on a routine basis.

COSTS

The construction and operation and maintenance costs of carbon adsorption and regeneration depend on the characteristics of the wastewater to be treated, the capacity of the plant, and the plant site. Therefore, the designer is responsible for selecting a system that will meet the National Pollutant Discharge Elimination System NPDES permit requirements at the lowest cost possible. Once the optimum flow rate, bed depth, and operating capacity of GAC for a particular wastewater are determined, comparative costs for different carbon contactor configurations and the cost of on-site regeneration versus off-site regeneration can be estimated. Following a thorough engineering and economic analysis of alternatives, the final equipment configuration can be selected.

Construction costs include the carbon contactors, carbon transport system, carbon storage tanks, carbon regeneration system (if applicable), influent wastewater pumps (if applicable) and contactor backwash system. Operation and maintenance costs include the purchase of virgin carbon, on-site regeneration or purchase of regenerated carbon, electrical power to operate pumps and controls, flushing of carbon slurry piping, and replacement of parts. Currently, the cost of virgin carbon ranges from $0.70 to $1.20 per pound and the cost to purchase regenerated carbon ranges from $0.50 to $0.78 per pound.

Operational costs depend on the characteristics of the influent wastewater and the adsorption capacity of the GAC. For example, influent wastewater which contains suspended solids concentrations greater than 20 mg/l will require more frequent backwashing of the contactor to prevent clogging of the carbon bed.

REFERENCES

Other Related Fact Sheets

Other EPA Fact Sheets can be found at the following web address:
http://www.epa.gov/owmitnet/mtbfact.htm

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EPA

Engineering Bulletin
Granular Activated Carbon Treatment

Purpose

Section 121(b) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) mandates the Environmental Protection Agency (EPA) to select remedies that "utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable" and to prefer remedial actions in which treatment "permanently and significantly reduces the volume, toxicity, or mobility of hazardous substances, pollutants, and contaminants as a principal element." The Engineering Bulletins are a series of documents that summarize the latest information available on selected treatment and site remediation technologies and related issues. They provide summaries of and references for the latest information to help remedial project managers, on-scene coordinators, contractors, and other site cleanup managers understand the type of data and site characteristics needed to evaluate a technology for potential applicability to their Superfund or other hazardous waste site. Those documents that describe individual treatment technologies focus on remedial investigation scoping needs. Addenda will be issued periodically to update the original bulletins.

Abstract

Granular activated carbon (GAC) treatment is a physicochemical process that removes a wide variety of contaminants by adsorbing them from liquid and gas streams [1, p. 6-3]. This treatment is most commonly used to separate organic contaminants from water or air; however, it can be used to remove a limited number of inorganic contaminants [2, p. 5-17]. In most cases, the contaminants are collected in concentrated form on the GAC, and further treatment is required.

The contaminant (adsorbate) adsorbs to the surfaces of the microporous carbon granules until the GAC becomes exhausted. The GAC may then be either reactivated, regenerated, or discarded. The reactivation process destroys most contaminants. In some cases, spent GAC can be regenerated, typically using steam to desorb and collect concentrated contaminants for further treatment. If GAC is to be discarded, it may have to be handled as a hazardous waste.

Site-specific treatability studies are generally necessary to document the applicability and potential performance of a GAC system. This bulletin provides information on the technology applicability, technology limitations, a technology description, the types of residuals produced, site requirements, latest performance data, status of the technology, and sources for further information.

Technology Applicability

Adsorption by activated carbon has a long history of use as a treatment for municipal, industrial, and hazardous waste streams. The concepts, theory, and engineering aspects of the technology are well developed [3]. It is a proven technology with documented performance data. GAC is a relatively nonspecific adsorbent and is effective for removing many organic and some inorganic contaminants from liquid and gaseous streams [4].

The effectiveness of GAC as an adsorbent for general contaminant groups is shown in Table 1. Examples of constituents within contaminant groups are provided in "Technology Screening Guide for Treatment of CERCLA Soils and Sludges" [5]. This table is based on current available information or professional judgment when no information was available. The proven effectiveness of the technology for a particular site or waste does not ensure that it will be effective at all sites or that the treatment efficiency achieved will be acceptable at other sites. For the ratings used for this table, demonstrated effectiveness means that, at some scale, treatability was tested to show that, for that particular contaminant and matrix, the technology was effective. The ratings of potential effectiveness and no expected effectiveness are based upon expert judgement. Where potential effectiveness is indicated, the technology is believed capable of successfully treating the contaminant group in a particular matrix. When the technology is not applicable or will probably not work for a particular combination of contaminant group and matrix, a no-expected-effectiveness rating is given.

The effectiveness of GAC is related to the chemical composition and molecular structure of the contaminant. Or-

* [reference number, page number]

Table 1
Effectiveness of Granular Activated Carbon on General Contaminant Groups

	Contaminant Groups	Liquid /Gas
Organic	Halogenated volatiles	■
	Halogenated semivolatiles	■
	Nonhalogenated volatiles[a]	■
	Nonhalogenated semivolatiles	■
	PCBs	■
	Pesticides	■
	Dioxins/Furans	■
	Organic cyanides [a]	▼
	Organic corrosives [a]	■
Inorganic	Volatile metals[a]	■
	Nonvolatile metals [a]	■
	Asbestos	❑
	Radioactive materials [a]	■
	Inorganic corrosives	❑
	Inorganic cyanides [b]	■
Reactive	Oxidizers[b]	■
	Reducers	❑

■ Demonstrated Effectiveness: Successful treatability test at some scale completed

▼ Potential Effectiveness: Expert opinion that technology will work.

❑ No Expected Effectiveness: Expert opinion that technology will not work

[a] Technology is effective for some contaminants in the group; it may not be effective for others.

[b] Applications to these contaminants involve both adsorption and chemical reaction.

ganic wastes that can be treated by GAC include compounds with high molecular weights and boiling points and low solubility and polarity [6]. Organic compounds treatable by GAC are listed in Table 2. GAC has also been used to remove low concentrations of certain types of inorganics and metals; however, it is not widely used for this application [1, p. 6-13].

Almost all organic compounds can be adsorbed onto GAC to some degree [2, p. 5-17]. The process is frequently used when the chemical composition of the stream is not fully analyzed [1, p. 6-3]. Because of its wide-scale use, GAC has probably been inappropriately selected when an alternative technology may have been more effective [7]. GAC can be used in conjunction with other treatment technologies. For example, GAC can be used to remove contaminants from the offgas from air stripper and soil vapor extraction operations [7] [8, p. 73] [9].

Table 2
Organic Compounds Amenable to Adsorption by GAC [1]

Class	Example
Aromatic solvents	Benzene, toluene, xylene
Polynuclear aromatics	Naphthalene, biphenyl
Chlorinated aromatics	Chlorobenzene, PCBs, endrin, toxaphene, DDT
Phenolics	Phenol, cresol, resorcinol, nitrophenols, chlorophenols, alkyl phenols
Aromatic amines and high molecular weight aliphatic amines	Aniline, toluene diamine
Surfactants	Alkyl benzene sulfonates
Soluble organic dyes	Methylene blue, textile dyes
Fuels	Gasoline, kerosene, oil
Chlorinated solvents	Carbon tetrachloride, perchloroethylene
Aliphatic and aromatic acids	Tar acids, benzoic acids
Pesticides/herbicides	2,4-D, atrazine, simazine, aldicarb, alachlor, carbofuran

Limitations

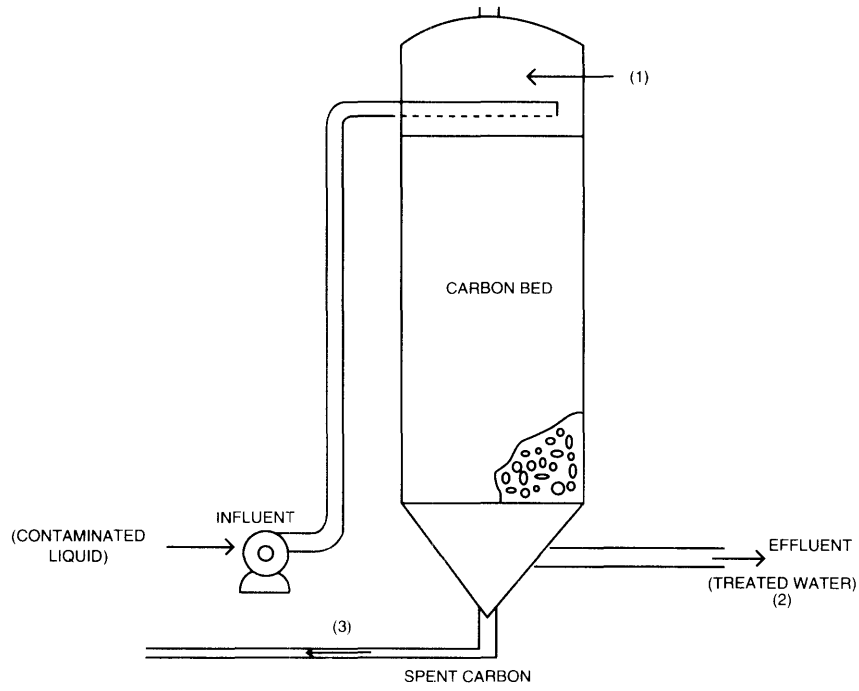
Compounds that have low molecular weight and high polarity are not recommended for GAC treatment. Streams with high suspended solids (≥ 50 mg/L) and oil and grease (≥ 10 mg/L) may cause fouling of the carbon and require frequent backwashing. In such cases, pretreatment prior to GAC, is generally required. High levels of organic matter (e.g., 1,000 mg/L) may result in rapid exhaustion of the carbon. Even lower levels of background organic matter (e.g., 10-100 mg/L) such as fulvic and humic acids may cause interferences in the adsorption of specifically targeted organic contaminants which are present in lower concentrations. In such cases, GAC may be most effectively employed as a polishing step in conjunction with other treatments.

The amount of carbon required, regeneration/reactivation frequency, and the potential need to handle the discarded GAC as a hazardous waste are among the important economic considerations. Compounds not well adsorbed often require large quantities of GAC, and this will increase the costs. In some cases the spent GAC may be a hazardous waste, which can significantly add to the cost of treatment.

Technology Description

Carbon is an excellent adsorbent because of its large surface area, which can range from 500-2000 m^2/g, and because its diverse surfaces are highly attractive to many different types of contaminants [3]. To maximize the amount of surface available

Figure 1. Schematic Diagram of Fixed-Bed GAC System



for adsorption, an activation process which increases the surface-to-volume ratio of the carbon is used to produce an extensive network of internal pores. In this process, carbonaceous materials are converted to mixtures of gas, tars, and ash. The tar is then burned off and the gases are allowed to escape to produce a series of internal micropores [1, p. 6-6]. Additional processing of the GAC may be used to render it more suitable for certain applications (e.g. impregnation for mercury or sulfur removal).

The process of adsorption takes place in three steps [3]. First the contaminant migrates to the external surface of the GAC granules. It then diffuses into the GAC pore structure. Finally, a physical or chemical bond forms between the contaminant and the internal carbon surface.

The two most common reactor configurations for GAC adsorption systems are the fixed bed and the pulsed or moving bed [3]. The fixed-bed configuration is the most widely used for adsorption from liquids, particularly for low to moderate concentrations of contaminants. GAC treatment of contaminated gas streams is done almost exclusively in fixed-bed reactors. The following technical discussion applies to both gas and liquid streams.

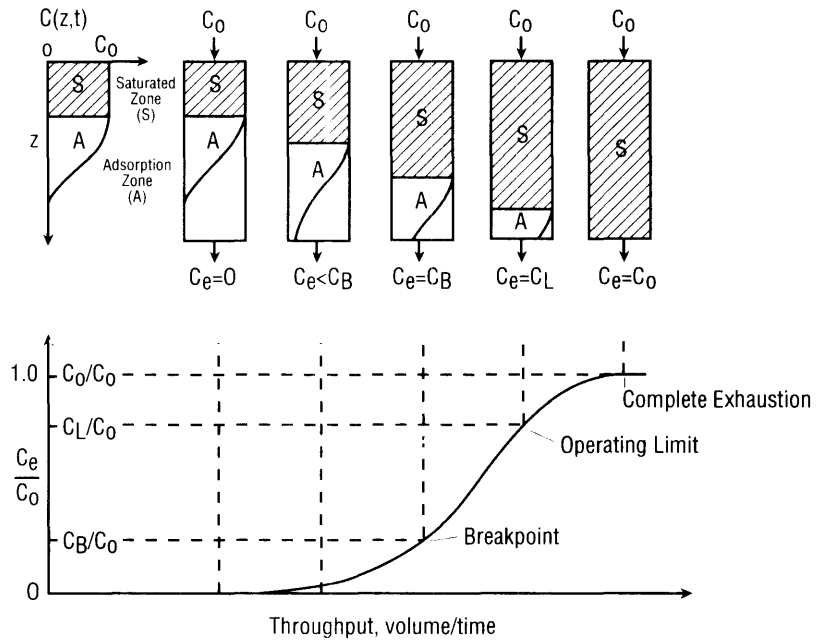
Figure 1 is a schematic diagram of a typical single-stage, fixed-bed GAC system for use on a liquid stream. The contaminant stream enters the top of the column (1). As the waste stream flows through the column, the contaminants are adsorbed. The treated stream (effluent) exits out the bottom (2). Spent carbon is reactivated, regenerated, or replaced once the effluent no longer meets the treatment objective (3). Although Figure 1 depicts a downward flow, the flow direction can be upward, depending on design considerations.

Suspended solids in a liquid stream or particulate matter in a gaseous stream accumulate in the column, causing an increase in pressure drop. When the pressure drop becomes too high, the accumulated solids must be removed, for example by backwashing. The solids removal process necessitates adsorber downtime, and may result in carbon loss and disruption of the mass transfer zone. Pretreatment for removal of solids from streams to be treated by GAC is, therefore, an important design consideration.

As a GAC system continues to operate, the mass-transfer zone moves down the column. Figure 2 shows the adsorption pattern and the corresponding effluent breakthrough curve [3]. The breakthrough curve is a plot of the ratio of effluent concentration (C_e) to influent concentration (C_o) as a function of water volume or air volume treated per unit time. When a predetermined concentration appears in the effluent (C_B), breakthrough has occurred. At this point, the effluent quality no longer meets treatment objectives. When the carbon becomes so saturated with the contaminants that they can no longer be adsorbed, the carbon is said to be spent (C_e=C_o). Alternative design arrangements may allow individual adsorbers in multi-adsorber systems to be operated beyond the breakpoint as far as complete exhaustion. This condition of operation is defined as the operating limit (C_e=C_L) of the adsorber.

The major design variables for liquid phase applications of GAC are empty bed contact time (EBCT), GAC usage rate, and system configuration. Particle size and hydraulic loading are often chosen to minimize pressure drop and reduce or eliminate backwashing. System configuration and EBCT have an impact on GAC usage rate. When the bed life is longer than 6 months and the treatment objective is stringent ($C_e/C_o < 0.05$),

Figure 2
Breakthrough Characteristics of Fixed-Bed GAC Adsorper [3]



a single adsorber or a combination of single beds operating in parallel is preferred. For a single adsorber, the EBCT is normally chosen to be large enough to minimize GAC usage rate. When less stringent objectives are required ($C_e/C_o > 0.3$), blending of effluents from partially saturated adsorbers can be used to reduce GAC usage rate. When stringent treatment objectives are required ($C_e/C_o < 0.05$) and GAC bed life is short (less than 6 months) multiple beds in series may be used to decrease GAC usage rate.

For gas-phase applications, the mass transfer zone is usually very short if the relative humidity is low enough to prevent water from filling the GAC pores. The adsorption zone (Figure 2) for gas-phase applications is small relative to bed depth, and the GAC is nearly saturated at the breakpoint. Accordingly, EBCT and system configuration have little impact on GAC usage rate and a single bed or single beds operated in parallel are commonly used.

GAC can be reactivated either onsite or offsite. The choice is usually dictated by costs which are dependent on the site and on the proximity of offsite facilities that reactivate carbon. Generally onsite reactivation is not economical unless more than 2,000 pounds per day of GAC are required to be reactivated. Even so, an offsite reactivation service may be more cost effective [10].

The basic evaluation technique for initial assessment of the feasibility of GAC treatment is the adsorption isotherm test. This test determines if a compound is amenable to GAC adsorption and can be used to estimate minimum GAC usage rates. More detailed testing such as small-scale column tests and pilot tests should be conducted if the isotherms indicate GAC can produce an effluent of acceptable quality at a reasonable carbon usage rate [10].

Process Residuals

The main process residual produced from a GAC system is the spent carbon containing the hazardous contaminants. When the carbon is regenerated, the desorbed contaminants must be treated or reclaimed. Reactivation of carbon is typically accomplished by thermal processes. Elevated temperatures are employed in the furnace and afterburners to destroy the accumulated contaminants. If the carbon cannot be economically reactivated, the carbon must be discarded and may have to be treated and disposed of as a hazardous waste. In some cases, the influent to GAC treatment must be pretreated to prevent excessive head loss. Residues from pretreatment (e.g. filtered suspended solids) must be treated or disposed. Solids collected from backwashing may need to be treated and disposed of as a hazardous waste.

Site Requirements

GAC equipment generally has small space requirements and sometimes can be incorporated in mobile units. The rapidity of startup and shutdown also makes GAC amenable to mobile treatment. Carbon beds or columns can be skid-mounted and transported by truck or rail [2, p. 5-19].

As previously stated, spent carbon from the treatment of streams containing hazardous substances is generally considered hazardous, and its transportation and handling requires that a site safety plan be developed to provide for personnel protection and special handling measures. Storage may have to be provided to hold the GAC-treated liquid until its acceptability for release has been determined. If additional treatment is required, adequate space must be provided for these systems.

Performance Data

Performance data on full-scale GAC systems have been reported by several sources including equipment vendors. Data on GAC systems at several Superfund sites and other cleanup sites are discussed in this section. The data presented for specific contaminant removal effectiveness were obtained from publications developed by the respective GAC system vendors. The quality of this information has not been determined; however, it does give an indication of the efficiency of GAC.

A GAC system was employed for leachate treatment at the Love Canal Superfund site in Niagara Falls, New York. The results of this operation are listed in Tables 3 and 4 [11].

Table 5 summarizes a number of experiences by Calgon Corporation in treating contaminated groundwater at many other non-Superfund sites. Table 5 identifies the sources of contamination along with operating parameters and results [12]. While these sites were not regulated under CERCLA, the type and concentration of contaminants are typical of those encountered at a Superfund site.

The Verona Well Field Superfund site in Battle Creek, Michigan used GAC as a pretreatment for the air stripper. This arrangement reduced the influent concentrations which allowed the air stripper to comply with the National Pollution Discharge Elimination System (NPDES) permit. The system had two parallel trains: a single unit and two units in series. Approximately one-third of the total flow was directed to the first train while the remaining flow went to the other train. Performance data for removal of total volatile organic compounds (TVOC) on selected operating days are given in Table 6 [13].

A remediation action at the U.S. Coast Guard Air Station in Traverse City, Michigan, resulted in GAC being used to treat contaminated groundwater. The groundwater was pumped from the extraction well system to the GAC system. The treated water was then discharged to the municipal sewer system. Concentrations of toluene in the monitoring wells were reduced from 10,329 parts per billion (ppb) to less than 10 ppb in approximately 100 days [14].

Technology Status

GAC is a well-proven technology. It has been used in the treatment of contaminated groundwater at a number of Superfund sites. Carbon adsorption has also been used as a polishing step following other treatment units at many sites. In 1988, the number of sites where activated carbon was listed in the Record of Decision was 28; in 1989, that number was 38.

Costs associated with GAC are dependent on waste stream flow rates, type of contaminant, concentrations, and site and timing requirements. Costs are lower with lower concentration levels of a contaminant of a given type. Costs are also lower at higher flow rates. At liquid flow rates of 100-million gallons per day (mgd), costs range from $0.10 - 1.50/1,000 gallons treated. At flow rates of 0.1 mgd, costs increase to $1.20 - 6.30/1,000 gallons treated [12].

Table 3
Love Canal Leachate Treatment System[a] (March 1979) [11]

Priority Pollutant Compounds Identified	*Carbon System Influent* µg/l	*Carbon System Effluent* µg/l
Hexachlorobutadiene	109	<20
1,2,4-trichlorobenzene	23	<20
Hexachlorobenzene	32	<20
α-BHC	184	<0.01
γ-BHC	392	0.12
β-BHC	548	<0.01
Heptachlor	573	<0.01
Phenol	4,700[b]	<5[b]
2,4-dichlorophenol	10	<5
Methylene chloride	180	<10
1,1-dichloroethylene	28	<10
Chloroform	540	<10
Carbon tetrachloride	92	<10
Trichloroethylene	240	<10
Dibromochloromethane	21	<10
1,1,2,2-tetrachloroethylene	270	<10
Chlorobenzene	1,200	<10

[a] Samples were analyzed by Recra Research, Inc., according to EPA protocol dated April 1977 (sampling and analysis procedures of screening for industrial effluents for priority pollutants).
[b] The data represent phenol analysis conducted by Calgon in June 1979, as earlier results were suspect.

Table 4
Love Canal Leachate Treatment System[a] (June 1979) [11]

Priority Pollutant Compounds Identified	*Raw Leachate* µg/l	*Carbon System Effluent* µg/l
2,4,6-trichlorophenol	85	<10
2,4-dichlorophenol	5,100	N.D.
Phenol	2,400	<10
1,2,3-trichlorobenzene	870	N.D.
Hexachlorobenzene	110	N.D.
2-chloronaphthalene	510	N.D.
1,2-dichlorobenzene	1,300	N.D.
1,3 & 1,4-dichlorobenzene	960	N.D.
Hexachlorobutadiene	1,500	N.D.
Anthracene and phenanthrene	29	N.D.
Benzene	28,000	<10
Carbon tetrachloride	61,000	<10
Chlorobenzene	50,000	12
1,2-dichloroethane	52	N.D.
1,1,1-trichloroethane	23	N.D.
1,1-dichloroethane	66	N.D.
1,1,2-trichloroethane	780	<10
1,1,2,2-tetrachloroethane	80,000	<10
Chloroform	44,000	<10
1,1-dichloroethylene	16	N.D.
1,2-trans-dichloroethylene	3,200	<10
1,2-dichloropropane	130	N.D.
Ethylbenzene	590	<10
Methylene chloride	140	46
Methyl chloride	370	N.D.
Chlorodibromomethane	29	N.D.
Tetrachloroethylene	44,000	12
Toluene	25,000	<10
Trichloroethylene	5,000	N.D.

[a] Samples were analyzed by Carborundum Corporation according to EPA protocol dated April 1977 (sampling and analysis procedures for screening of industrial effluents for priority pollutants).
N.D. = nondetectable.

Table 5
Performance Data at Selected Sites [12]

Source of Contaminants	*Typical Influent Conc. (mg/l)*	*Typical Effluent Conc. (µg/l)*	*Carbon Usage Rate (lb./1000 gal.)*	*Total Contact Time (min.)*
Truck spill				
Methylene chloride	21	<1.0	3.9	534
1,1,1-trichloroethane	25	<1.0	3.9	534
Rail car spills				
Phenol	63	<1.0	5.8	201
Orthochlorophenol	100	<1.0	5.8	201
Vinylidine chloride	2-4	<10.0	2.1	60
Ethyl acrylate	200	<1.0	13.3	52
Chloroform	0.020	<1.0	7.7	160
Chemical spills				
Chloroform	3.4	<1.0	11.6	262
Carbon tetrachloride	130-135	<1.0	11.6	262
Trichloroethylene	2-3	<1.0	11.6	262
Tetrachloroethylene	70	<1.0	11.6	262
Dichloroethyl ether	1.1	<1.0	0.45	16
Dichloroisopropyl ether	0.8	<1.0	0.45	16
Benzene	0.4	<1.0	1.9	112
DBCP	2.5	<1.0	0.7–3.0	21
1,1,1-trichloroethane	0.42	<10	1.5	53
Trichlorotrifloroethane	5.977	<10	1.5	53
Cis-1,2-dichloroethylene	.005	<1.0	0.25	121
Onsite storage tanks				
Cis-1,2-dichloroethylene	0.5	<1.0	0.8	64
Tetrachloroethylene	7.0	<1.0	0.8	64
Methylene chloride	1.5	<100	4.0	526
Chloroform	0.30-0.50	<100	1.19	26
Trichloroethylene	3-8	<1.0	1.54	36
Isopropyl alcohol	0.2	<10.0	1.54	36
Acetone	0.1	<10.0	1.54	36
1,1,1-trichloroethane	12	<5.0	1.0	52
1,2-dichloroethylene	0.5	<1.0	1.0	52
Xylene	8.0	<1.0	1.0	52
Landfill site				
TOC	20	<5000	1.15	41
Chloroform	1.4	<1.0	1.15	41
Carbon tetrachloride	1.0	<1.	1.15	41
Gasoline spills, tank leakage				
Benzene	9-11 }		<1.01	214
Toluene	5-7 }	<100 Total	<1.01	214
Xylene	6-10 }		<1.01	214
Methyl t-butyl ether	0.030-0.035	<5.0	0.62	12
Di-isopropyl ether	0.020-0.040	<1.0	0.10-0.62	12
Trichloloethylene	0.050-0.060	<1.0	0.62	12
Chemical by-products				
Di-isopropyl methyl phosphonate	1.25	<50	0.7	30
Dichloropentadiene	0.45	<10	0.7	30
Manufacturing residues				
DDT	0.004	<0.5	1.1	31
TOC	9.0		1.1	31
1,3-dichloropropene	0.01	<1.0	1.1	31
Chemical landfill				
1,1,1-trichloroethane	0.060-0.080	<1.0	<0.45	30
1,1-dichloroethylene	0.005-0.015	0.005	<0.45	30

Table 6
TVOC Removal with GAC at Verona Well Superfund Site [13]

Operating Day	Influent Feed Concentration (ppb)	Effluent Train (1) Concentration (ppb)	Effluent Train (2) Concentration (ppb)
1	18,812	NA	25
9	12,850	11	7
16	9,290	41	17
27	6,361	260	426
35	7,850	484	575
42	7,643	412	551
49	7,577	405	524
57	5,591	452	558
69	10,065	377	475
92	6,000	444	509
106	3,689	13	702
238	4,671	246	263

NA = not available

EPA Contact

Technology-specific questions regarding GAC treatment may be directed to:

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