



Per- and Polyfluoroalkyl Substances (PFAS) Data Summary No. 1 Red Hill Bulk Fuel Storage Facility Joint Base Pearl Harbor-Hickam, Oahu, Hawaii

PFAS Data Summary No. 1

July 2025

INTRODUCTION

The Navy has initiated a **Remedial Investigation (RI)** at the Red Hill Bulk Fuel Storage Facility (referred to as the Facility) as a result of the 2022 **Aqueous Film-Forming Foam (AFFF)** accidental release. To expedite data collection activities, the Navy is conducting initial quarterly groundwater sampling ahead of the fully developed RI sampling work plan being prepared in coordination with the **State of Hawaii Department of Health (DOH)** and **U.S. Environmental Protection Agency (EPA)**.

REMEDIAL INVESTIGATION

The RI focuses on two areas (Area A and Area B) within the Facility (*Figure 1*). Area A includes the area surrounding Building 313 near the November 2022 AFFF accidental release area. Area B includes the western portion of the Facility where **per- and polyfluoroalkyl substances (PFAS)** were detected in groundwater monitoring wells during a September 2023

baseline groundwater sampling. There have been no documented releases in Area B.

FIELD ACTIVITIES

The first quarterly groundwater sampling and testing event took place from September through November 2024. Groundwater samples were collected from 34 monitoring wells (*Figure 1*). These samples are called the **Quarter 1 (Q1)** samples.

Shallow and deep groundwater occur beneath the site. Shallow groundwater is located about 30–40 feet deep and is not used for drinking water. Deep groundwater at the site is located approximately 150–600 feet deep and comprises the aquifer, which can serve as a source of drinking water. Below the shallow groundwater is a layer of soil and rock that limits the downward flow of the shallow groundwater, segregating it from the deep groundwater. Of the 34 groundwater monitoring wells sampled, 30 are in deep groundwater and 4 are in shallow groundwater.

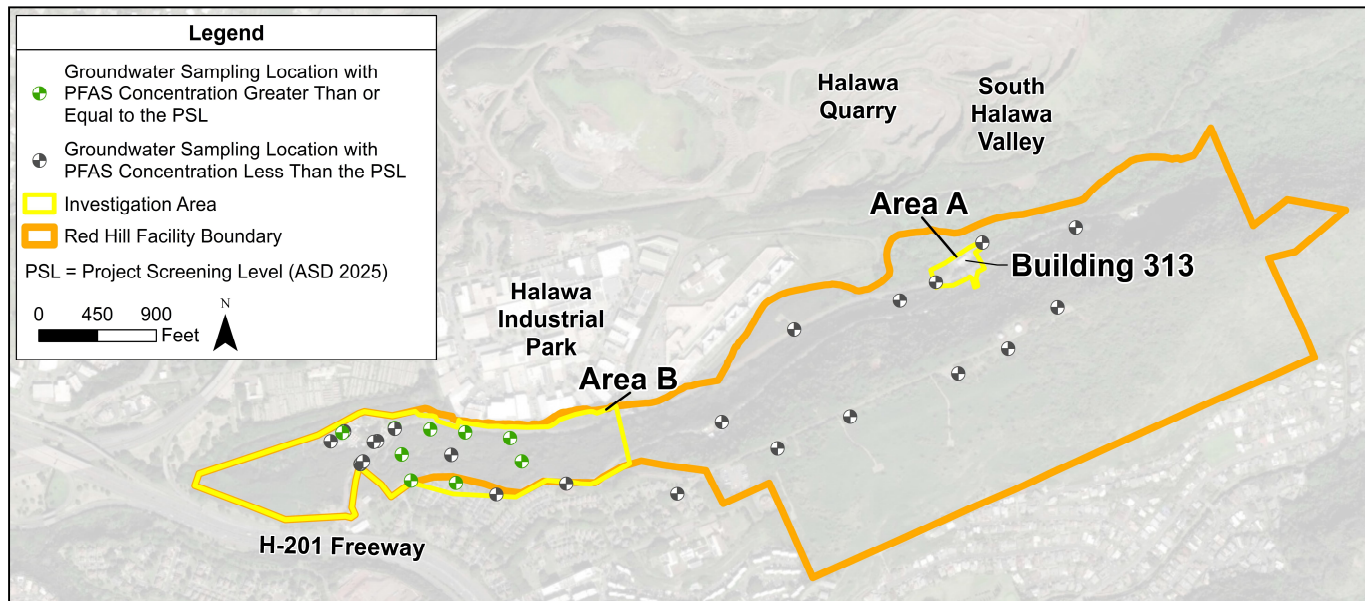


Figure 1: Groundwater Sampling Locations and Results

PFAS are a family of thousands of different chemicals which have been widely used in many household and industrial products since the 1950s. The Navy and Department of Defense have developed proactive policies to address past releases of PFAS, including perfluorooctanoic acid (PFOA) and per-fluorooctanesulfonic acid (PFOS), at installations nationwide.

The groundwater samples were tested by an EPA-certified analytical laboratory utilizing the EPA Method 1633 for PFAS (ASD 2024), which is the standard method used to test for PFAS in groundwater. For the Q1 groundwater sampling event, the method tested for 40 different PFAS. At the time of the Q1 sampling event, project-specific screening levels had been established for 9 of the 40 types of PFAS.

If PFAS are detected at concentrations above the associated screening level, that means additional investigation is likely needed. These screening levels may change over time as more information is learned about these compounds (ASD 2025).

RESULTS

Q1 results were as follows:

- Samples from seven deep groundwater monitoring wells in Area B had PFAS concentrations above the screening levels.
- Samples from two shallow groundwater monitoring wells in Area B had PFAS concentrations above the screening levels.
- At least one PFAS was detected in each of the 34 groundwater monitoring wells sampled.
- None of the samples from groundwater monitoring wells outside of Area B had PFAS detected above the screening levels (Figure 1).
- Perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) were the two most frequently detected PFAS at concentrations above the screening levels.
- The highest concentrations of PFAS were observed in the shallow groundwater wells located in the western portion of the Facility within Area B.
- The sample collected from the Red Hill Shaft water pumping station did not have any PFAS concentrations above the screening levels.

Table 1 presents the range of concentrations for the PFAS detected above project screening levels in one or more groundwater monitoring wells.

Table 1: Summary of Laboratory Analyses of PFAS

PFAS	Minimum–Maximum Concentrations (ppt)	Project Screening Levels (ppt)
Deep Groundwater		
Perfluorooctanoic acid (PFOA)	Not Detected–8.1	4
Perfluorooctanesulfonic acid (PFOS)	Not Detected–19	4
Shallow Groundwater		
Perfluorooctanoic acid (PFOA)	0.16–29	4
Perfluorooctanesulfonic acid (PFOS)	0.12–69	4
Perfluorohexanesulfonic acid (PFHxS)	0.2–62	10
Perfluorobutanoic acid (PFBA)	Not Detected–2,000	1,800
Perfluorohexanoic acid (PFHxA)	0.15–4,900	990

Notes:

Units are in parts per trillion (ppt).

Q1 screening levels are consistent with ASD 2025. Screening levels may change over time as more information becomes available.

REFERENCES

- Assistant Secretary of Defense (ASD). 2024. *Establishing a Consistent Methodology for the Analysis of Per- and Polyfluoroalkyl Substances in Matrices Other than Drinking Water*. Washington, DC: Assistant Secretary of Defense. May 1.
- ASD. 2025. *Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program*. Washington, DC: Office of the Assistant Secretary of Defense for Energy, Installations, and Environment. January 17.

HEALTH INFORMATION

Federal agencies such as the Agency for Toxic Substances and Disease Registry (ATSDR) and the EPA continue to conduct and support research into the health effects associated with PFAS exposure. More information about health effects can be found online at:

ATSDR: <https://www.atsdr.cdc.gov/pfas/index.html>

EPA: <https://www.epa.gov/pfas>

Final PFAS National Primary Drinking Water Regulation: <https://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas>

FOR MORE INFORMATION/COMMENTS

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Summary of the PFAS Remedial Investigation's First Quarter Groundwater Monitoring, October 2024

Monitoring Well Location ID				OWDFMW01		OWDFMW01		OWDFMW02A		OWDFMW03A		OWDFMW03B		OWDFMW03B		OWDFMW04A		OWDFMW05A		OWDFMW08A		OWDFMW08B		RHMW01R		RHMW01R		RHMW02		RHMW03		RHMW04		RHMW05		RHMW05		RHMW06		RHMW07		RHMW08		RHMW17			
Sample Type				N		N		N		N		N		FD		N		N		N		N		N		FD		N		N		N		N		FD		N		N		N					
Sample Date				10/11/2024		10/29/2024		10/29/2024		10/16/2024		10/15/2024		10/15/2024		10/11/2024		10/15/2024		10/16/2024		10/18/2024		10/21/2024		9/26/2024		9/26/2024		10/15/2024		10/23/2024		10/23/2024		10/23/2024		10/10/2024		10/18/2024		10/1/2024		10/14/2024			
Per- and polyfluoroalkyl substances (PFAS)	Abbr.	Cas No.	PSL ^a	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q				
Perfluorobutanoic acid	PFBA	375-22-4	1800	3.7		3.8		6.6		8.4		1900		2000		11		44		3.9		26		0.38	J	0.7	U	0.71	U	2.5		0.77	U	0.28	J	0.77	U	0.77	U	0.47	J	6		1.2	J		
Perfluoropentanoic acid	PFPeA	2706-90-3	—	4.6		4.2		6.7		18		4800	J+	5800	J+	19		120		3.1		43		0.37	U	0.35	U	4.1		7.4		0.38	U	0.37	U	0.38	U	0.23	J	0.18	J	10		2.4			
Perfluorohexanoic acid	PFHxA	307-24-4	990	2.1		2		2		8.4		4100		4900		12		81		0.81		27		0.16	J	0.17	U	0.72	J	5.8		0.19	U	0.19	U	0.19	U	0.11	J	0.083	J	4.5		1.9			
Perfluoroheptanoic acid	PFHpA	375-85-9	—	2.5		2.4		1.3		3.9		1200		1400		14		24		0.59		20		0.051	J	0.17	U	0.71		3.5		0.19	U	0.19	U	0.19	U	0.23	J	0.092	J	4.2		1.6			
Perfluorooctanoic acid	PFOA	335-67-1	4	1.3		1.4		0.41		0.28	J	23		29		8.1		1.2		0.34	J	18		0.28	U	0.26	U	0.21	J	0.77		0.29	U	0.28	U	0.29	U	0.23	J	0.26	U	1.7		0.88			
Perfluorononanoic acid	PFNA	375-95-1	5.9	0.41		0.41		0.2	U	0.18	J	1.5		1.6		2.9		0.44		0.099	J	2.9		0.18	U	0.17	U	0.09		0.34		0.19	U	0.19	U	0.19	U	0.19	U	0.17	U	0.14	J	0.14	J		
Perfluorodecanoic acid	PFDA	335-76-2	0.52	0.18	U	0.19	U	0.2	U	0.18	U	0.19	U	0.18	U	0.26	J	0.18	U	0.18	U	0.18	J	0.18	U	0.17	U	0.18	U	0.36	J	0.19	U	0.19	U	0.19	U	0.19	U	0.17	U	0.14	J	0.18	U		
Perfluoroundecanoic acid	PFUnA	2058-94-8	—	0.27	U	0.28	U	0.3	U	0.27	U	0.28	U	0.27	U	0.3	U	0.27	U	0.27	U	0.27	U	0.28	U	0.26	U	0.27	U	0.26	J	0.29	U	0.28	U	0.29	U	0.29	U	0.29	U	0.26	U	0.3	U	0.28	U
Perfluorododecanoic acid	PFDoA	307-55-1	—	0.18	U	0.19	U	0.2	U	0.18	U	0.19	U	0.18	U	0.2	U	0.18	U	0.18	U	0.18	U	0.18	U	0.17	U	0.18	U	0.16	J	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.17	U	0.2	U	0.18	U
Perfluorotridecanoic acid	PFTrDA	72629-94-8	—	0.27	U	0.28	U	0.3	U	0.27	U	0.28	U	0.27	U	0.3	U	0.27	U	0.27	U	0.27	U	0.28	U	0.26	U	0.27	U	0.28	U	0.29	U	0.28	U	0.29	U	0.29	U	0.29	U	0.26	U	0.3	U	0.28	U
Perfluorotetradecanoic acid	PFTeDA	376-06-7	—	0.27	U	0.28	U	0.3	U	0.27	U	0.28	U	0.27	U	0.3	U	0.27	U	0.27	U	0.27	U	0.28	U	0.26	U	0.27	U	0.28	U	0.29	U	0.28	U	0.29	U	0.29	U	0.29	U	0.26	U	0.3	U	0.28	U
Perfluorobutanesulfonic acid	PFBS	375-73-5	600	0.29	J	0.34	J	0.067	J	0.13	J	8		18		2.7		0.67		0.21	J	12		0.18	U	0.17	U	0.18	U	0.49	J	0.19	U	0.19	U	0.19	U	0.19	U	0.04	J	0.098	J	0.081	J		
Perfluoropentanesulfonic acid	PFPeS	2706-91-4	—	0.18	U	0.19	U	0.2	U	0.18	U	9.6		8.9		0.39	J	0.25	J	0.083	J	0.8		0.18	U	0.17	U	0.18	U	0.18	U	0.19	U	0.19	U	0.19	U	0.19	U	0.17	U	0.2	U	0.18	U		
Perfluorohexanesulfonic acid	PFHxS	355-46-4	10	0.69		0.6		0.16	J	0.28	J	62		58		3.8		2		0.8		12		0.18	U	0.17	U	0.18	U	0.18	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.084	J	0.13	J	0.55	
Perfluoroheptanesulfonic acid	PFHpS	375-92-8	—	0.18	U	0.19	U	0.2	U	0.18	U	1.9		2		0.13	J	0.047	J	0.18	U	0.29	J	0.18	U	0.17	U	0.18	U	0.18	U	0.19	U	0.19	U	0.19	U	0.19	U	0.17	U	0.2	U	0.18	U		
Perfluorooctanesulfonic acid	PFOS	1763-23-1	4	0.95		0.71		0.22	J	0.29	J	69		67		7.3		1.7		0.47		17		0.059	J	0.17	U	0.18	U	0.34	J+	0.17	J	0.07	J	0.097	J	0.19	U	0.16	J	0.16	J	0.53			
Perfluoronanesulfonic acid	PFNS	68259-12-1	—	0.18	U	0.19	U	0.2	U	0.18	U	0.19	U	0.18	U	0.2	U	0.18	U	0.18	U	0.18	U	0.18	U	0.17	U	0.18	U	0.18	U	0.19	U	0.19	U	0.19	U	0.19	U	0.17	U	0.2	U	0.18	U		
Perfluorodecanesulfonic acid	PFDS	335-77-3	—	0.27	U	0.28	U	0.3	U	0.27	U	0.28	U	0.27	U	0.3	U	0.27	U	0.27	U	0.27	U	0.28	U	0.26	U	0.27	U	0.28	U	0.29	U	0.28	U	0.29	U	0.29	U	0.26	U	0.3	U	0.28	U		
Perfluorododecanesulfonic acid	PFDoS	79780-39-5	—	0.18	U	0.19	U	0.2	U	0.18	U	0.19	U	0.18	U	0.2	U	0.18	U	0.18	U	0.18	U	0.18	U	0.17	U	0.18	U	0.18	U	0.19	U	0.19	U	0.19	U	0.19	U	0.17	U	0.2	U	0.18	U		
1H,1H, 2H, 2H-Perfluorohexane sulfonic acid	4:2 FTS	757124-72-4	—	0.73	U	0.76	U	0.8	U	0.71	U	3.9		3.9		0.79	U	0.72	U	0.71	U	0.71	U	0.74	U	0.7	U	0.71	U	0.74	U	0.77	U	0.74	U	0.77	U	0.77	U	0.69	U	0.79	U	0.74	U		
1H,1H, 2H, 2H-Perfluorooctane sulfonic acid	6:2 FTS	27619-97-2	—	0.73	U	0.76	U	1.6	J	1.2	J	7100	J-	7800	J-	0.79	U	110		0.82	J	0.71	U	1.1	J	0.94	J	17		54		0.77	U	0.74	U	0.77	U	0.77	U	0.69	U	0.54	J	0.66	J		
1H,1H, 2H, 2H-Perfluorodecane sulfonic acid	8:2 FTS	39108-34-4	—	0.73	U	0.76	U	0.8	U	0.71	U	0.096	J	0.093	J	0.79	U	0.72	U	0.71	U	0.71	U	0.74	U	0.7	U	0.71	U	0.74	U	0.77	U	0.74	U	0.77	U	0.77	U	0.69	U	0.79	U	0.74	U		
N-methyl perfluorooctanesulfonamide	NMeFOSA	31506-32-8	—	0.73	U	0.76	U	0.8	U	0.71	U	0.74	U	0.71	U	0.79	U	0.72	U	0.71	U	0.71	U	0.74	U	0.7	U	0.71	U	0.74	U	0.77	U	0.74	U	0.77	U	0.77	U	0.69	U	0.79	U	0.74	U		
N-ethyl perfluorooctanesulfonamide	NEtFOSA	4151-50-2	—	0.73	U	0.76	U	0.8	U	0.71	U	0.74	U	0.71	U	0.79	U	0.72	U	0.71	U	0.71	U	0.74	U	0.7	U	0.38	J	0.74	U	0.77	U	0.74	U	0.77	U	0.77	U	0.69	U	0.79	U	0.74	U		
Perfluorooctanesulfonamide	PFOSA	754-91-6	—	0.18	U	0.19	U	0.2	U	0.18	U	0.19	U	0.18	U	0.2	U	0.18	U	0.18	U	0.18	U	0.18	U	0.17	U	0.18	U	0.18	U	0.19	U	0.19	U	0.19	U	0.19	U	0.17	U	0.2	U	0.18	U		
N-methyl perfluorooctanesulfonamidoacetic acid	NMeFOSAA	2355-31-9	—	0.18	U	0.19	U	0.2	U	0.18	U	0.19	U	0.18	U	0.2	U	0.18	U	0.18	U	0.18																									

Summary of the PFAS Remedial Investigation's First Quarter Groundwater Monitoring, October 2024

Monitoring Well Location ID				RHMW17D		RHMW17S		RHMW18		RHMW20		RHMW21		RHMW21		RHMW2254-01		RHP01		RHP02		RHP03		RHP04A		RHP04B		RHP04C		RHP05	
Sample Type				N		N		N		N		N		FD		N		N		N		N		N		N		N		N	
Sample Date				10/21/2024		10/28/2024		11/7/2024		10/16/2024		10/21/2024		10/21/2024		10/8/2024		10/3/2024		10/3/2024		10/9/2024		10/9/2024		10/15/2024		10/15/2024		10/25/2024	
Per- and polyfluoroalkyl substances (PFAS)	Abbr.	Cas No.	PSL ^a	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Perfluorobutanoic acid	PFBA	375-22-4	1800	0.7	U	7.8		0.5	J	0.31	J	0.84	J	0.81	J	0.73	U	14		14		7.3		1.7		0.78	U	0.8	U	2	
Perfluoropentanoic acid	PFPeA	2706-90-3	—	0.35	U	0.38	U	1.5		0.23	J	3.8		3.8		0.73	J	9.2		11		7		1.5		0.37	J	1.6		3.6	
Perfluorohexanoic acid	PFHxA	307-24-4	990	0.15	J	1		0.53		0.14	J	1.1		1.2		0.67		4.4		5.5		3.7		1.2		0.29	J	0.54		3.1	
Perfluoroheptanoic acid	PFHpA	375-85-9	—	0.054	J	0.52		0.15	J	0.092	J	0.22	J	0.23	J	0.42		4		4.4		3.1		0.79		0.12	J	0.093	J	2	
Perfluorooctanoic acid	PFOA	335-67-1	4	0.16	J	0.68		0.28	U	0.16	J	0.27	U	0.27	U	0.68		6.2		6.8		3.7		1.3		0.29	U	0.15		4.5	
Perfluorononanoic acid	PFNA	375-95-1	5.9	0.17	U	0.23	J	0.19	U	0.19	U	0.18	U	0.18	U	0.18	U	1.1		1.7		0.54		0.56		0.2	U	0.2	U	1.1	
Perfluorodecanoic acid	PFDA	335-76-2	0.52	0.17	U	0.1	J	0.19	U	0.19	U	0.18	U	0.18	U	0.18	U	0.34	J	0.42		0.18	U	0.2	U	0.2	U	0.2	U	0.2	U
Perfluoroundecanoic acid	PFUnA	2058-94-8	—	0.26	U	0.29	U	0.28	U	0.29	U	0.27	U	0.27	U	0.28	U	0.28	U	0.28	U	0.27	U	0.3	U	0.29	U	0.3	U	0.3	U
Perfluorododecanoic acid	PFDoA	307-55-1	—	0.17	U	0.19	U	0.19	U	0.19	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.2	U	0.2	U	0.2	U	0.2	U
Perfluorotridecanoic acid	PFTriDA	72629-94-8	—	0.26	U	0.29	U	0.28	U	0.29	U	0.27	U	0.27	U	0.28	U	0.28	U	0.28	U	0.27	U	0.3	U	0.29	U	0.3	U	0.3	U
Perfluorotetradecanoic acid	PFTeDA	376-06-7	—	0.26	U	0.29	U	0.28	U	0.29	U	0.27	U	0.27	U	0.28	U	0.28	U	0.28	U	0.27	U	0.3	U	0.29	U	0.3	U	0.3	U
Perfluorobutanesulfonic acid	PFBS	375-73-5	600	0.068	J	0.38	J	0.047	J	0.19	U	0.18	U	0.18	U	0.6		1.9		3.7		2.5		0.76		0.2	U	0.2	U	1.1	
Perfluoropentanesulfonic acid	PFPeS	2706-91-4	—	0.17	U	0.19	U	0.19	U	0.19	U	0.18	U	0.18	U	0.071	J	0.45		0.46		0.47		0.49		0.2	U	0.2	U	0.4	J
Perfluorohexanesulfonic acid	PFHxS	355-46-4	10	0.2	J	0.35	J	0.19	U	0.19	U	0.18	U	0.057	J	0.63		5.5		5.4		5		4.6		0.2	U	0.19	J	4.8	
Perfluoroheptanesulfonic acid	PFHpS	375-92-8	—	0.17	U	0.19	U	0.19	U	0.19	U	0.18	U	0.18	U	0.18	U	0.23	J	0.22	J	0.16	J	0.07	J	0.2	U	0.2	U	0.11	J
Perfluorooctanesulfonic acid	PFOS	1763-23-1	4	0.12	J	0.65	J+	0.075	J	0.4		0.13	J	0.27	J	0.73	J+	14		15		5.6		1.7		0.14	J	0.28	J	4.6	
Perfluoronanesulfonic acid	PFNS	68259-12-1	—	0.17	U	0.19	U	0.19	U	0.19	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.2	U	0.2	U	0.2	U	0.2	U
Perfluorodecanesulfonic acid	PFDS	335-77-3	—	0.26	U	0.29	U	0.28	U	0.29	U	0.27	U	0.27	U	0.28	U	0.28	U	0.28	U	0.27	U	0.3	U	0.29	U	0.3	U	0.3	U
Perfluorododecanesulfonic acid	PFDoS	79780-39-5	—	0.17	U	0.19	U	0.19	U	0.19	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.2	U	0.2	U	0.2	U	0.2	U
1H,1H, 2H, 2H-Perfluorohexane sulfonic acid	4:2 FTS	757124-72-4	—	0.7	U	0.76	U	0.75	U	0.78	U	0.72	U	0.73	U	0.73	U	0.74	U	0.74	U	0.71	U	0.79	U	0.78	U	0.8	U	0.8	U
1H,1H, 2H, 2H-Perfluorooctane sulfonic acid	6:2 FTS	27619-97-2	—	0.7	U	9.4		3.7		0.78	U	4.6		4.8		0.73	U	0.32	J	0.74	U	0.71	U	0.79	U	5		0.82	J	45	
1H,1H, 2H, 2H-Perfluorodecane sulfonic acid	8:2 FTS	39108-34-4	—	0.7	U	0.76	U	0.75	U	0.78	U	0.72	U	0.73	U	0.73	U	0.74	U	0.26	J	0.71	U	0.79	U	0.1	J	0.8	U	0.8	U
N-methyl perfluorooctanesulfonamide	NMeFOSA	31506-32-8	—	0.7	U	0.76	U	0.75	U	0.78	U	0.72	U	0.73	U	0.73	U	0.74	U	0.74	U	0.71	U	0.79	U	0.78	U	0.8	U	0.8	U
N-ethyl perfluorooctanesulfonamide	NEtFOSA	4151-50-2	—	0.7	U	0.76	U	0.75	U	0.78	U	0.72	U	0.73	U	0.73	U	0.74	U	0.74	U	0.71	U	0.79	U	0.78	U	0.8	U	0.8	U
Perfluorooctanesulfonamide	PFOSA	754-91-6	—	0.17	U	0.19	U	0.19	U	0.19	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.2	U	0.2	U	0.2	U	0.2	U
N-methyl perfluorooctanesulfonamidoacetic acid	NMeFOSAA	2355-31-9	—	0.17	U	0.19	U	0.19	U	0.19	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.2	U	0.2	U	0.2	U	0.2	U
N-ethyl perfluorooctanesulfonamidoacetic acid	NEtFOSAA	2991-50-6	—	0.17	U	0.19	U	0.19	U	0.19	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.2	U	0.2	U	0.2	U	0.2	U
N-methyl perfluorooctanesulfonamidoethanol	NMeFOSE	24448-09-7	—	1	U	1.1	U	1.1	U	1.2	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.2	U	1.2	U	1.2	U	1.2	U
N-ethyl perfluorooctanesulfonamidoethanol	NEtFOSE	1691-99-2	—	1	U	1.1	U	1.1	U	1.2	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.2	U	1.2	U	1.2	U	1.2	U
Hexafluoropropylene oxide dimer acid	HFPO-DA	13252-13-6	1.5	0.35	U	0.38	U	0.38	U	0.39	U	0.36	U	0.36	U	0.37	U	0.37	U	0.37	U	0.36	U	0.39	U	0.39	U	0.4	U	0.4	U
4,8-Dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4	—	0.35	U	0.38	U	0.38	U	0.39	U	0.36	U	0.36	U	0.37	U	0.37	U	0.37	U	0.36	U	0.39	U	0.39	U	0.4	U	0.4	U
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9Cl-PF3ONS	756426-58-1	—	0.35	U	0.38	U	0.38	U	0.39	U	0.36	U	0.36	U	0.37	U	0.37	U	0.37	U	0.36	U	0.39	U	0.39	U	0.4	U	0.4	U
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	763051-92-9	—	0.35	U	0.38	U	0.38	U	0.39	U	0.36	U	0.36	U	0.37	U	0.37	U	0.37	U	0.36	U	0.39	U	0.39	U	0.4	U	0.4	U
3-Perfluoropropyl propanoic acid	3:3FTCA	356-02-5	—	0.7	U	0.76	U	0.75	U	0.78	U	0.72	U	0.73	U	0.73	U	0.74	U	0.74	U	0.71	U	0.79	U	0.78	U	0.8	U	0.8	U
2H,2H,3H,3H-Perfluorooctanoic acid	5:3FTCA	914637-49-3	—	0.7	U	0.76	U	0.75	U	0.78	U	0.72	U	0.73	U	0.73	U	0.74	U	0.74	U	0.71	U	0.79	U	0.78	U	0.8	U	0.8	U
3-Perfluoroheptyl propanoic acid	7:3FTCA	812-70-4	—	0.7	U	0.76	U	0.75	U	0.78	U	0.72	U	0.73	U	0.73	U	0.74	U	0.74	U	0.71	U	0.79	U	0.78	U	0.8	U	0.8	U
Perfluoro(2-ethoxyethane)sulfonic acid	PFEESA	113507-82-7	—	0.35	U	0.38	U	0.38	U	0.39	U	0.36	U	0.36	U	0.37	U	0.37	U	0.37	U	0.36	U	0.39	U	0.39	U	0.4	U	0.4	U
Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5	—	0.35	U	0.38	U	0.38	U	0.39	U	0.36	U	0.36	U	0.37	U	0.37	U	0.37	U	0.36	U	0.39	U	0.39	U	0.4	U	0.4	U
Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1	—	0.35	U	0.38	U	0.38	U	0.39	U	0.36	U	0.36	U	0.37	U	0.37	U	0.37	U	0.36	U	0.39	U	0.39	U	0.4	U	0.4	U
Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6	—	0.35	U	0.38	U	0.38	U	0.39	U	0.36	U	0.36	U	0.37	U	0.37	U	0.37	U	0.36	U	0.39	U	0.39	U	0.4	U	0.4	U

Summary of the PFAS Remedial Investigation's First Quarter Groundwater Monitoring, October 2024

Monitoring Well Location ID				RHP06		RHP06		RHP07		RHP08		RHP08B	
Sample Type				N		FD		N		N		N	
Sample Date				10/10/2024		10/10/2024		10/23/2024		10/29/2024		10/16/2024	
Per- and polyfluoroalkyl substances (PFAS)	Abbr.	Cas No.	PSL ^a	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Perfluorobutanoic acid	PFBA	375-22-4	1800	4.8		3.6		9.2		1.1	J	0.95	J
Perfluoropentanoic acid	PFPeA	2706-90-3	—	5.1		5		5.8		0.87		0.99	
Perfluorohexanoic acid	PFHxA	307-24-4	990	3.7		3.7		2.6		0.78	J	0.11	J
Perfluoroheptanoic acid	PFHpA	375-85-9	—	2.6		2.6		2.5		0.65		0.044	J
Perfluorooctanoic acid	PFOA	335-67-1	4	3.5		3.2		4.9		1.2		0.28	U
Perfluorononanoic acid	PFNA	375-95-1	5.9	0.55		0.47		1.1		0.2	U	0.19	U
Perfluorodecanoic acid	PFDA	335-76-2	0.52	0.2	U	0.2	U	0.21	J	0.2	U	0.14	J
Perfluoroundecanoic acid	PFUnA	2058-94-8	—	0.3	U	0.3	U	0.28	U	0.29	U	0.28	U
Perfluorododecanoic acid	PFDoA	307-55-1	—	0.2	U	0.2	U	0.19	U	0.2	U	0.19	U
Perfluorotridecanoic acid	PFTriDA	72629-94-8	—	0.3	U	0.3	U	0.28	U	0.29	U	0.28	U
Perfluorotetradecanoic acid	PFTeDA	376-06-7	—	0.3	U	0.3	U	0.28	U	0.29	U	0.28	U
Perfluorobutanesulfonic acid	PFBS	375-73-5	600	1.7		1.6		1.4		1.1		0.19	U
Perfluoropentanesulfonic acid	PFPeS	2706-91-4	—	0.38	J	0.4		0.44		0.16	J	0.19	U
Perfluorohexanesulfonic acid	PFHxS	355-46-4	10	3.5		3.3		5.1		1.7		0.19	U
Perfluoroheptanesulfonic acid	PFHpS	375-92-8	—	0.11	J	0.11	J	0.28	J	0.067	J	0.19	U
Perfluorooctanesulfonic acid	PFOS	1763-23-1	4	5		4.3		19		1.8		0.12	J
Perfluoronananesulfonic acid	PFNS	68259-12-1	—	0.2	U	0.2	U	0.19	U	0.2	U	0.19	U
Perfluorodecanesulfonic acid	PFDS	335-77-3	—	0.3	U	0.3	U	0.28	U	0.29	U	0.28	U
Perfluorododecanesulfonic acid	PFDoS	79780-39-5	—	0.2	U	0.2	U	0.19	U	0.2	U	0.19	U
1H,1H, 2H, 2H-Perfluorohexane sulfonic acid	4:2 FTS	757124-72-4	—	0.81	U	0.81	U	0.74	U	0.78	U	0.76	U
1H,1H, 2H, 2H-Perfluorooctane sulfonic acid	6:2 FTS	27619-97-2	—	30		32		4.2		0.78	U	0.76	U
1H,1H, 2H, 2H-Perfluorodecane sulfonic acid	8:2 FTS	39108-34-4	—	0.81	U	0.81	U	0.74	U	0.78	U	0.76	U
N-methyl perfluorooctanesulfonamide	NMeFOSA	31506-32-8	—	0.81	U	0.81	U	0.74	U	0.78	U	0.76	U
N-ethyl perfluorooctanesulfonamide	NEtFOSA	4151-50-2	—	0.81	U	0.81	U	0.74	U	0.78	U	0.76	U
Perfluorooctanesulfonamide	PFOSA	754-91-6	—	0.2	U	0.2	U	0.19	U	0.2	U	0.1	J
N-methyl perfluorooctanesulfonamidoacetic acid	NMeFOSAA	2355-31-9	—	0.2	U	0.2	U	0.19	U	0.2	U	0.19	U
N-ethyl perfluorooctanesulfonamidoacetic acid	NEtFOSAA	2991-50-6	—	0.2	U	0.2	U	0.19	U	0.2	U	0.19	U
N-methyl perfluorooctanesulfonamidoethanol	NMeFOSE	24448-09-7	—	1.2	U	1.2	U	1.1	U	1.2	U	1.1	U
N-ethyl perfluorooctanesulfonamidoethanol	NEtFOSE	1691-99-2	—	1.2	U	1.2	U	1.1	U	1.2	U	1.1	U
Hexafluoropropylene oxide dimer acid	HFPO-DA	13252-13-6	1.5	0.4	U	0.4	U	0.37	U	0.39	U	0.38	U
4,8-Dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4	—	0.4	U	0.4	U	0.37	U	0.39	U	0.38	U
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9Cl-PF3ONS	756426-58-1	—	0.4	U	0.4	U	0.37	U	0.39	U	0.38	U
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	763051-92-9	—	0.4	U	0.4	U	0.37	U	0.39	U	0.38	U
3-Perfluoropropyl propanoic acid	3:3FTCA	356-02-5	—	0.81	U	0.81	U	0.74	U	0.78	U	0.76	U
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3-Perfluoroheptyl propanoic acid	7:3FTCA	812-70-4	—	0.81	U	0.81	U	0.74	U	0.78	U	0.76	U
Perfluoro(2-ethoxyethane)sulfonic acid	PFEESA	113507-82-7	—	0.4	U	0.4	U	0.37	U	0.39	U	0.38	U
Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5	—	0.4	U	0.4	U	0.37	U	0.39	U	0.38	U
Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1	—	0.4	U	0.4	U	0.37	U	0.39	U	0.38	U
Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6	—	0.4	U	0.4	U	0.37	U	0.39	U	0.38	U

Notes:

Units are in parts per trillion (ppt). Analysis conducted using EPA Method 1633 (EPA 2024).

^a PSLs are consistent with DoD memorandum (DoD 2025a and DoD 2025b).

— not applicable

Bold and shaded analyte was detected above the PSL

Bold analyte was detected

Grey analyte is reported as a non detect

abbr. abbreviated chemical name

Cas No. chemical abstracts service registry number

COC chain of custody

EPA Environmental Protection Agency, United States

FD field duplicate sample

ID identification

J the reported result was an estimated value with an unknown bias

J- the result was an estimated quantity, but the result may be biased low

J+ the result was an estimated quantity, but the result may be biased high

LOD limit of detection

N primary sample

ng/L nanogram per liter

OWDF former oily waste disposal facility

PSL project screening level

Q data qualifier

RSL regional screening level

U the analyte was not detected and was reported as less than the LOD

WG groundwater

References:

DoD 2025a *Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program*. Memorandum : Office of the Assistant Secretary of Defense January 21, 2025.

DoD 2025b *PFAS 101 Regional Screening Levels Used in DoD Cleanups*. <https://www.acq.osd.mil/eie/eer/ecc/pfas/pfas101/rsi.html>.

EPA 2024 *Regional Screening Levels for Chemical Contaminants at Superfund Sites*. EPA Office of Superfund. November 2024. <https://www.epa.gov/risk/regional-screening-levels-rsls>.

EPA 2024 *EPA Method 1633: Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS*. EPA , United States, January 2024.