# Per- and Polyfluoroalkyl Substances (PFAS) Data Summary No. 2

## Red Hill Bulk Fuel Storage Facility
## Joint Base Pearl Harbor-Hickam, Oahu, Hawaii



## 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 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 event. There have been no documented releases in Area B.

## FIELD ACTIVITIES

The second quarterly groundwater sampling and testing event took place from January through April 2025. Groundwater samples were collected from 40 monitoring wells (*Figure 1*). These samples are called the **Quarter 2 (Q2)** samples.

Shallow and deep groundwater occur beneath the site. Shallow groundwater is located approximately 30–60 feet deep and is not used for drinking water. Deep groundwater at the site is located approximately 100–600 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 to the deep groundwater. Of the 40 groundwater monitoring wells sampled, 31 are in deep groundwater and 9 are in shallow groundwater.

The groundwater samples were tested by an accredited analytical laboratory utilizing the EPA Method 1633 for PFAS, which is the standard method used to test for PFAS in groundwater (*ASD 2024*).

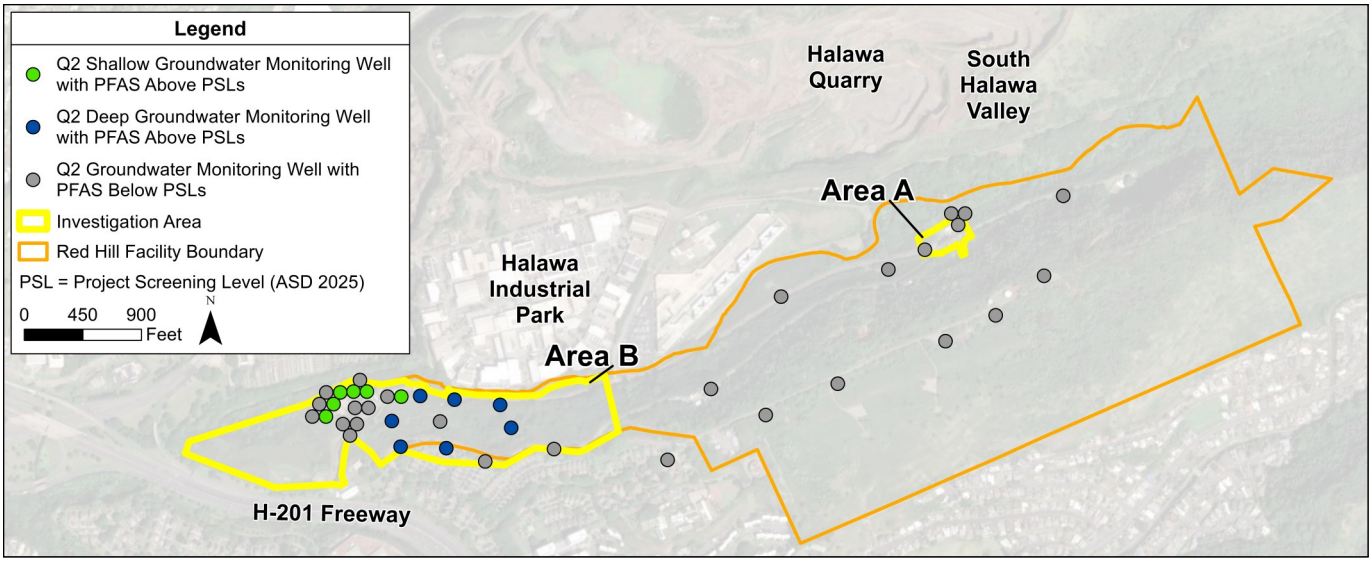


*Figure 1: Groundwater Sampling Locations and Results*

**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.**

For the Q2 groundwater sampling event, the method tested for 40 different PFAS. At the time of the Q2 sampling event, project-specific screening levels had been established for 9 of the 40 types of PFAS analyzed for.

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

## RESULTS

Q2 results were as follows:

*Area A:*

- None of the samples collected from groundwater monitoring wells in Area A had concentrations of some PFAS above the project screening levels *(Figure 1)*.

*Area B:*

- Samples from 7 of the 20 deep groundwater monitoring wells in Area B had concentrations of some PFAS above the project screening levels (*Figure 1*).
- Six shallow groundwater monitoring wells in Area B had concentrations of some PFAS above the project screening levels.
- **Perfluorooctanoic acid (PFOA)** and **perfluorooctanesulfonic acid (PFOS)** were the two most frequently detected PFAS at concentrations above the project 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 project 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 | Project Screening Level (ppt) | Minimum–Maximum Concentrations (ppt) |
|---|---|---|
| **Deep Groundwater** | | |
| Perfluorooctanoic acid (PFOA) | 4 | Not Detected–7.5 |
| Perfluorooctanesulfonic acid (PFOS) | 4 | Not Detected–15 |
| **Shallow Groundwater** | | |
| Perfluorooctanoic acid (PFOA) | 4 | Not Detected–27 |
| Perfluorooctanesulfonic acid (PFOS) | 4 | 0.072–73 |
| Perfluorohexanesulfonic acid (PFHxS) | 10 | 0.072–58 |
| Perfluorobutanoic acid (PFBA) | 1,800 | Not Detected–2,100 |
| Perfluorohexanoic acid (PFHxA) | 990 | 0.068–4,900 |
| Perfluorononanoic acid (PFNA) | 5.9 | Not Detected–8.2 |

Notes:
Units are in parts per trillion (ppt).
Q2 project screening levels are consistent with *ASD 2025*. Project 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

Contact:
Public Affairs Officer
Naval Facilities Engineering Systems Command, Hawaii

Address:
COMMANDING OFFICER
NAVFAC HAWAII
ATTN: PUBLIC AFFAIRS OFFICER CODE 09PAO
400 MARSHALL ROAD
JBPHH HI 96860-3139

Phone: 808-471-7300
Fax: 808-474-5479
Email: NFHI_PAO_DL@us.navy.mil

**Summary of the PFAS Remedial Investigation's Second Quarter Groundwater Monitoring**
**Groundwater Results Round II - RI PFAS Release, RHBFSF, JBPHH Oahu HI**

| | | | | Location | | OWDFMW01 | | OWDFMW02A | | OWDFMW03A | | OWDFMW03B | | OWDFMW04A | | OWDFMW05A | | OWDFMW05B | | OWDFMW05B | | OWDFMW06A | | OWDFMW06A | | OWDFMW06B | | OWDFMW07A | | OWDFMW07B | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | COC ID | | JV104 | | JV105 | | JV120 | | JV116 | | JV121 | | JV122 | | JV131 | | JV132 | | JV126 | | JV127 | | JV128 | | JV129 | | JV130 | |
| | | | | Matrix | | WG | | WG | | WG | | WG | | WG | | WG | | WG | | WG | | WG | | WG | | WG | | WG | | WG | |
| | | | | Sample Type | | N | | N | | N | | N | | N | | N | | N | | FD | | N | | FD | | N | | N | | N | |
| | | | | Sample Date | | 1/23/2025 | | 1/23/2025 | | 1/28/2025 | | 1/28/2025 | | 1/29/2025 | | 1/29/2025 | | 2/27/2025 | | 2/27/2025 | | 2/28/2025 | | 2/28/2025 | | 2/27/2025 | | 2/26/2025 | | 2/27/2025 | |
| 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 | **4.8** | | **1.6** | | **5.4** | | **1600** | | **10** | | **73** | | **2100** | | **2100** | | **3.1** | | **3** | | **40** | | **0.22** | J | **37** | |
| Perfluoropentanoic acid | PFPeA | 2706-90-3 | — | **3.9** | | **1.3** | | **18** | | **5700** | | **17** | | **210** | | **3700** | | **4100** | | **5.8** | | **5.8** | | **65** | | **0.3** | J | **49** | |
| Perfluorohexanoic acid | PFHxA | 307-24-4 | 990 | **2.2** | | **0.42** | | **11** | | **4900** | | **12** | | **140** | | **4100** | | **4800** | | **5.4** | | **5.1** | | **34** | | **0.33** | J | **31** | |
| Perfluoroheptanoic acid | PFHpA | 375-85-9 | — | **2.8** | | **0.29** | J | **5.2** | | **930** | | **13** | | **39** | | **790** | | **850** | | **1.4** | | **1.4** | | **25** | | **0.082** | J | **25** | |
| Perfluorooctanoic acid | PFOA | 335-67-1 | 4 | **1.4** | | **0.15** | J | **0.28** | J | **27** | | **7.5** | | **2.1** | | **17** | | **18** | | **0.36** | J | **0.33** | J | **17** | | 0.29 | U | **25** | |
| Perfluorononanoic acid | PFNA | 375-95-1 | 5.9 | **0.27** | J | 0.18 | U | **0.098** | J | **1.6** | | **2.6** | | **0.62** | | **1.3** | | **1.2** | | 0.19 | U | **0.096** | J | **6.2** | | 0.2 | U | **8.2** | |
| Perfluorodecanoic acid | PFDA | 335-76-2 | 0.52 | 0.19 | U | 0.18 | U | 0.2 | U | 0.18 | U | **0.2** | J | **0.13** | J | 0.17 | U | 0.17 | U | 0.19 | U | 0.19 | U | **0.2** | J | 0.2 | U | **0.34** | J |
| Perfluoroundecanoic acid | PFUnA | 2058-94-8 | — | 0.29 | U | 0.27 | U | 0.29 | U | 0.27 | U | 0.27 | U | 0.27 | U | 0.26 | U | 0.26 | U | 0.28 | U | 0.28 | U | 0.26 | U | 0.29 | U | **0.41** | |
| Perfluorododecanoic acid | PFDoA | 307-55-1 | — | 0.19 | U | 0.18 | U | 0.2 | U | 0.18 | U | 0.18 | U | 0.18 | U | 0.17 | U | 0.17 | U | 0.19 | U | 0.19 | U | 0.18 | U | 0.2 | U | 0.18 | U |
| Perfluorotridecanoic acid | PFTrDA | 72629-94-8 | — | 0.29 | U | 0.27 | U | 0.29 | U | 0.27 | U | 0.27 | U | 0.27 | U | 0.26 | U | 0.26 | U | 0.28 | U | 0.28 | U | 0.26 | U | 0.29 | U | 0.27 | U |
| Perfluorotetradecanoic acid | PFTeDA | 376-06-7 | — | 0.29 | U | 0.27 | U | 0.29 | U | 0.27 | U | 0.27 | U | 0.27 | U | 0.26 | U | 0.26 | U | 0.28 | U | 0.28 | U | 0.26 | U | 0.29 | U | 0.27 | U |
| Perfluorobutanesulfonic acid | PFBS | 375-73-5 | 600 | **0.33** | J | **0.044** | J | **0.17** | J | **17** | | **2.7** | | **1.1** | | **10** | | **10** | | **0.37** | J | **0.37** | | **14** | | 0.2 | U | **17** | |
| Perfluoropentanesulfonic acid | PFPeS | 2706-91-4 | — | **0.072** | J | 0.18 | U | 0.2 | U | **8** | | **0.31** | J | **0.4** | | **3.4** | | **3.6** | | **0.26** | J | **0.27** | J | **1.3** | | 0.2 | U | **1.2** | |
| Perfluorohexanesulfonic acid | PFHxS | 355-46-4 | 10 | **0.62** | | **0.13** | J | **0.3** | J | **58** | | **3.1** | | **3.2** | | **39** | | **27** | | **1.8** | | **1.8** | | **17** | | 0.2 | U | **17** | |
| Perfluoroheptanesulfonic acid | PFHpS | 375-92-8 | — | 0.19 | U | 0.18 | U | 0.2 | U | **2** | | **0.13** | J | **0.087** | J | **0.75** | | **0.76** | | 0.19 | U | 0.19 | U | **0.53** | | 0.2 | U | **0.35** | J |
| Perfluorooctanesulfonic acid | PFOS | 1763-23-1 | 4 | **0.56** | | **0.18** | J | **0.34** | J+ | **73** | | **7.2** | | **2.9** | | **19** | | **20** | | **1.6** | | **1.7** | | **36** | | **0.068** | J | **19** | |
| Perfluorononanesulfonic acid | PFNS | 68259-12-1 | — | 0.19 | U | 0.18 | U | 0.2 | U | 0.18 | U | 0.18 | U | 0.18 | U | 0.17 | U | 0.17 | U | 0.19 | U | 0.19 | U | 0.18 | U | 0.2 | U | 0.18 | U |
| Perfluorodecanesulfonic acid | PFDS | 335-77-3 | — | 0.29 | U | 0.27 | U | 0.29 | U | 0.27 | U | 0.27 | U | 0.27 | U | 0.26 | U | 0.26 | U | 0.28 | U | 0.28 | U | 0.26 | U | 0.29 | U | 0.27 | U |
| Perfluorododecanesulfonic acid | PFDoS | 79780-39-5 | — | 0.19 | U | 0.18 | U | 0.2 | U | 0.18 | U | 0.18 | U | 0.18 | U | 0.17 | U | 0.17 | U | 0.19 | U | 0.19 | U | 0.18 | U | 0.2 | U | 0.18 | U |
| 1H,1H, 2H, 2H-Perfluorohexane sulfonic acid | 4:2 FTS | 757124-72-4 | — | 0.77 | U | 0.72 | U | 0.78 | U | **3.4** | | 0.72 | U | 0.73 | U | **44** | | **32** | | 0.75 | U | 0.74 | U | 0.7 | U | 0.78 | U | 0.71 | U |
| 1H,1H, 2H, 2H-Perfluorooctane sulfonic acid | 6:2 FTS | 27619-97-2 | — | 0.77 | U | 0.72 | U | **0.5** | J | **9000** | | 0.72 | U | **200** | | **40000** | | **47000** | | **22** | | **20** | | **0.61** | J | **0.48** | J | **0.45** | J |
| 1H,1H, 2H, 2H-Perfluorodecane sulfonic acid | 8:2 FTS | 39108-34-4 | — | 0.77 | U | 0.72 | U | 0.78 | U | **0.12** | J | 0.72 | U | 0.73 | U | **0.2** | J | **0.18** | J | 0.75 | U | 0.74 | U | 0.7 | U | 0.78 | U | 0.71 | U |
| N-methyl perfluorooctanesulfonamide | NMeFOSA | 31506-32-8 | — | 0.77 | U | 0.72 | U | 0.78 | U | 0.73 | U | 0.72 | U | 0.73 | U | 0.69 | U | 0.69 | U | 0.75 | U | 0.74 | U | 0.7 | U | 0.78 | U | 0.71 | U |
| N-ethyl perfluorooctanesulfonamide | NEtFOSA | 4151-50-2 | — | 0.77 | U | 0.72 | U | 0.78 | U | 0.73 | U | 0.72 | U | 0.73 | U | 0.69 | U | 0.69 | U | 0.75 | U | 0.74 | U | 0.7 | U | 0.78 | U | 0.71 | U |
| Perfluorooctanesulfonamide | PFOSA | 754-91-6 | — | 0.19 | U | 0.18 | U | 0.2 | U | 0.18 | U | 0.18 | U | 0.18 | U | 0.17 | U | 0.17 | U | 0.19 | U | 0.19 | U | 0.18 | U | 0.2 | U | 0.18 | U |
| N-methyl perfluorooctanesulfonamidoacetic acid | NMeFOSAA | 2355-31-9 | — | 0.19 | U | 0.18 | U | 0.2 | U | 0.18 | U | 0.18 | U | 0.18 | U | 0.17 | U | 0.17 | U | 0.19 | U | 0.19 | U | 0.18 | U | 0.2 | U | 0.18 | U |
| N-ethyl perfluorooctanesulfonamidoacetic acid | NEtFOSAA | 2991-50-6 | — | 0.19 | U | 0.18 | U | 0.2 | U | 0.18 | U | 0.18 | U | 0.18 | U | 0.17 | U | 0.17 | U | 0.19 | U | 0.19 | U | 0.18 | U | 0.2 | U | 0.18 | U |
| N-methyl perfluorooctanesulfonamidoethanol | NMeFOSE | 24448-09-7 | — | 1.2 | U | 1.1 | U | 1.2 | U | 1.1 | U | 1.1 | U | 1.1 | U | 1 | U | 1 | U | 1.1 | U | 1.1 | U | 1.1 | U | 1.2 | U | 1.1 | U |
| N-ethyl perfluorooctanesulfonamidoethanol | NEtFOSE | 1691-99-2 | — | 1.2 | U | 1.1 | U | 1.2 | U | 1.1 | U | 1.1 | U | 1.1 | U | 1 | U | 1 | U | 1.1 | U | 1.1 | U | 1.1 | U | 1.2 | U | 1.1 | U |
| Hexafluoropropylene oxide dimer acid | HFPO-DA | 13252-13-6 | 1.5 | 0.39 | U | 0.36 | U | 0.39 | U | 0.37 | U | 0.36 | U | 0.37 | U | 0.35 | U | 0.35 | U | 0.38 | U | 0.37 | U | 0.35 | U | 0.39 | U | 0.36 | U |
| 4,8-Dioxa-3H-perfluorononanoic acid | ADONA | 919005-14-4 | — | 0.39 | U | 0.36 | U | 0.39 | U | 0.37 | U | 0.36 | U | 0.37 | U | 0.35 | U | 0.35 | U | 0.38 | U | 0.37 | U | 0.35 | U | 0.39 | U | 0.36 | U |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | 9Cl-PF3ONS | 756426-58-1 | — | 0.39 | U | 0.36 | U | 0.39 | U | 0.37 | U | 0.36 | U | 0.37 | U | 0.35 | U | 0.35 | U | 0.38 | U | 0.37 | U | 0.35 | U | 0.39 | U | 0.36 | U |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | 11Cl-PF3OUdS | 763051-92-9 | — | 0.39 | U | 0.36 | U | 0.39 | U | 0.37 | U | 0.36 | U | 0.37 | U | 0.35 | U | 0.35 | U | 0.38 | U | 0.37 | U | 0.35 | U | 0.39 | U | 0.36 | U |
| 3-Perfluoropropyl propanoic acid | 3:3FTCA | 356-02-5 | — | 0.77 | U | 0.72 | U | 0.78 | U | 0.73 | U | 0.72 | U | **0.73** | J | 0.69 | UJ | 0.69 | UJ | **0.57** | J | 0.74 | U | 0.7 | U | 0.78 | U | 0.71 | U |
| 2H,2H,3H,3H-Perfluorooctanoic acid | 5:3FTCA | 914637-49-3 | — | 0.77 | U | 0.72 | U | 0.78 | U | **2.2** | | 0.72 | U | **2** | | **3.4** | J+ | **5** | J+ | **0.54** | J | **0.43** | J | 0.7 | U | 0.78 | U | 0.71 | U |
| 3-Perfluoroheptyl propanoic acid | 7:3FTCA | 812-70-4 | — | 0.77 | U | 0.72 | U | 0.78 | U | 0.73 | U | 0.72 | U | 0.73 | U | 0.69 | UJ | 0.69 | UJ | 0.75 | U | 0.74 | U | 0.7 | U | 0.78 | U | 0.71 | U |
| Perfluoro(2-ethoxyethane)sulfonic acid | PFEESA | 113507-82-7 | — | 0.39 | U | 0.36 | U | 0.39 | U | 0.37 | U | 0.36 | U | 0.37 | U | 0.35 | UJ | 0.35 | UJ | 0.38 | U | 0.37 | U | 0.35 | U | 0.39 | U | 0.36 | U |
| Perfluoro-4-methoxybutanoic acid | PFMBA | 863090-89-5 | — | 0.39 | U | 0.36 | U | 0.39 | U | 0.37 | U | 0.36 | U | 0.37 | U | 0.35 | UJ | 0.35 | UJ | 0.38 | U | 0.37 | U | 0.35 | U | 0.39 | U | 0.36 | U |
| Perfluoro-3-methoxypropanoic acid | PFMPA | 377-73-1 | — | 0.39 | U | 0.36 | U | 0.39 | U | 0.37 | U | 0.36 | U | 0.37 | U | 0.35 | UJ | 0.35 | UJ | 0.38 | U | 0.37 | U | 0.35 | U | 0.39 | U | 0.36 | U |
| Nonafluoro-3,6-dioxaheptanoic acid | NFDHA | 151772-58-6 | — | 0.39 | U | 0.36 | U | 0.39 | U | 0.37 | U | 0.36 | U | 0.37 | U | 0.35 | UJ | 0.35 | UJ | 0.38 | U | 0.37 | U | 0.35 | U | 0.39 | U | 0.36 | U |

**Summary of the PFAS Remedial Investigation's Second Quarter Groundwater Monitoring (cont'd)**
**Groundwater Results Round II - RI PFAS Release, RHBFSF, JBPHH Oahu HI**

| | | | | Location | | OWDFMW07C | | OWDFMW08A | | OWDFMW08B | | RHMW01R | | RHMW02 | | RHMW03 | | RHMW04 | | RHMW05 | | RHMW06 | | RHMW07 | | RHMW08 | | RHMW08 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | COC ID | | JV133 | | JV125 | | JV117 | | JV089 | | JV090 | | JV095 | | JV110 | | JV106 | | JV102 | | JV115 | | JV091 | | JV092 | |
| | | | | Matrix | | WG | | WG | | WG | | WG | | WG | | WG | | WG | | WG | | WG | | WG | | WG | | WG | |
| | | | | Sample Type | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | | N | | FD | |
| | | | | Sample Date | | 2/28/2025 | | 1/29/2025 | | 1/28/2025 | | 1/20/2025 | | 1/20/2025 | | 1/21/2025 | | 1/24/2025 | | 1/24/2025 | | 1/23/2025 | | 1/28/2025 | | 1/20/2025 | | 1/20/2025 | |
| 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 |
| Perfluorobutanoic acid | PFBA | 375-22-4 | 1800 | **4.8** | | 0.75 | U | **24** | | 0.76 | U | **30** | | **1.6** | | 0.77 | U | 0.78 | U | 0.78 | U | **0.45** | J+ | **5.8** | | **5.9** | |
| Perfluoropentanoic acid | PFPeA | 2706-90-3 | — | **3.2** | | **0.37** | J | **44** | | 0.38 | U | 0.36 | U | **3.5** | | 0.39 | U | 0.39 | U | **0.24** | J | **0.1** | J | **9.7** | | **10** | |
| Perfluorohexanoic acid | PFHxA | 307-24-4 | 990 | **1.5** | | **0.21** | J | **30** | | 0.19 | U | 0.18 | U | **3.5** | | 0.19 | U | 0.19 | U | **0.12** | J | **0.068** | J | **4.1** | | **4.3** | |
| Perfluoroheptanoic acid | PFHpA | 375-85-9 | — | **0.71** | | **0.26** | J | **20** | | 0.19 | U | **0.17** | J | **2.4** | | 0.19 | U | 0.19 | U | **0.27** | J | **0.053** | J | **3.7** | | **4** | |
| Perfluorooctanoic acid | PFOA | 335-67-1 | 4 | **2.3** | | **0.21** | J | **20** | | 0.28 | U | **0.23** | J | **0.92** | | 0.29 | U | 0.29 | U | 0.29 | U | 0.27 | U | **1.6** | | **1.6** | | | |
| Perfluorononanoic acid | PFNA | 375-95-1 | 5.9 | **0.75** | | **0.093** | J | **3.4** | | 0.19 | U | 0.18 | U | **0.19** | J | 0.19 | U | 0.19 | U | 0.2 | U | 0.18 | U | **0.19** | J | **0.18** | J | | |
| Perfluorodecanoic acid | PFDA | 335-76-2 | 0.52 | 0.19 | U | 0.19 | U | **0.14** | J | 0.19 | U | 0.18 | U | **0.15** | J | 0.19 | U | 0.19 | U | 0.2 | U | 0.18 | U | **0.18** | J | **0.16** | J | | |
| Perfluoroundecanoic acid | PFUnA | 2058-94-8 | — | 0.28 | U | 0.28 | U | 0.28 | U | 0.28 | U | 0.27 | U | 0.28 | U | 0.29 | U | 0.29 | U | 0.29 | U | 0.27 | U | 0.27 | U | 0.27 | U | | |
| Perfluorododecanoic acid | PFDoA | 307-55-1 | — | 0.19 | U | 0.19 | U | 0.19 | U | 0.19 | U | 0.18 | U | 0.19 | U | 0.19 | U | 0.19 | U | 0.2 | U | 0.18 | U | 0.18 | U | 0.18 | U | | |
| Perfluorotridecanoic acid | PFTrDA | 72629-94-8 | — | 0.28 | U | 0.28 | U | 0.28 | U | 0.28 | U | 0.27 | U | 0.28 | U | 0.29 | U | 0.29 | U | 0.29 | U | 0.27 | U | 0.27 | U | 0.27 | U | | |
| Perfluorotetradecanoic acid | PFTeDA | 376-06-7 | — | 0.28 | U | 0.28 | U | 0.28 | U | 0.28 | U | 0.27 | U | 0.28 | U | 0.29 | U | 0.29 | U | 0.29 | U | 0.27 | U | 0.27 | U | 0.27 | U | | |
| Perfluorobutanesulfonic acid | PFBS | 375-73-5 | 600 | **1.7** | | **0.17** | J | **13** | | 0.19 | U | 0.18 | U | 0.19 | U | 0.19 | U | 0.19 | U | **0.055** | J | 0.2 | U | **0.047** | J | **0.16** | J | **0.13** | J |
| Perfluoropentanesulfonic acid | PFPeS | 2706-91-4 | — | **0.67** | | **0.089** | J | **0.86** | | 0.19 | U | 0.18 | U | 0.19 | U | 0.19 | U | 0.19 | U | 0.19 | U | 0.2 | U | 0.18 | U | 0.18 | U | 0.18 | U |
| Perfluorohexanesulfonic acid | PFHxS | 355-46-4 | 10 | **8.5** | | **0.73** | | **13** | | 0.19 | U | 0.18 | U | 0.19 | U | 0.19 | U | 0.19 | U | **0.076** | J | 0.2 | U | **0.072** | J | **0.098** | J | **0.088** | J |
| Perfluoroheptanesulfonic acid | PFHpS | 375-92-8 | — | **0.12** | J | 0.19 | U | **0.3** | J | 0.19 | U | 0.18 | U | 0.19 | U | 0.19 | U | 0.19 | U | 0.19 | U | 0.2 | U | 0.18 | U | 0.18 | U | 0.18 | U |
| Perfluorooctanesulfonic acid | PFOS | 1763-23-1 | 4 | **4.3** | | **0.5** | | **19** | | 0.19 | U | 0.18 | U | 0.19 | U | 0.19 | U | **0.091** | J | **0.063** | J | **0.072** | J+ | 0.18 | U | 0.18 | U | | |
| Perfluorononanesulfonic acid | PFNS | 68259-12-1 | — | 0.19 | U | 0.19 | U | 0.19 | U | 0.19 | U | 0.18 | U | 0.19 | U | 0.19 | U | 0.19 | U | 0.2 | U | 0.18 | U | 0.18 | U | 0.18 | U | | |
| Perfluorodecanesulfonic acid | PFDS | 335-77-3 | — | 0.28 | U | 0.28 | U | 0.28 | U | 0.28 | U | 0.27 | U | 0.28 | U | 0.29 | U | 0.29 | U | 0.29 | U | 0.27 | U | 0.27 | U | 0.27 | U | | |
| Perfluorododecanesulfonic acid | PFDoS | 79780-39-5 | — | 0.19 | U | 0.19 | U | 0.19 | U | 0.19 | U | 0.18 | U | 0.19 | U | 0.19 | U | 0.19 | U | 0.2 | U | 0.18 | U | 0.18 | U | 0.18 | U | | |
| 1H,1H, 2H, 2H-Perfluorohexane sulfonic acid | 4:2 FTS | 757124-72-4 | — | 0.76 | U | 0.75 | U | 0.75 | U | 0.76 | U | 0.71 | U | 0.75 | U | 0.77 | U | 0.78 | U | 0.78 | U | 0.71 | U | 0.73 | U | 0.73 | U | | |
| 1H,1H, 2H, 2H-Perfluorooctane sulfonic acid | 6:2 FTS | 27619-97-2 | — | **0.57** | J | 0.75 | U | 0.75 | U | 0.76 | U | **8.7** | | **30** | | 0.77 | U | 0.78 | U | 0.78 | U | 0.71 | U | **0.89** | J | **0.84** | J | | |
| 1H,1H, 2H, 2H-Perfluorodecane sulfonic acid | 8:2 FTS | 39108-34-4 | — | 0.76 | U | 0.75 | U | 0.75 | U | 0.76 | U | 0.71 | U | 0.75 | U | 0.77 | U | 0.78 | U | 0.78 | U | 0.71 | U | 0.73 | U | 0.73 | U | | |
| N-methyl perfluorooctanesulfonamide | NMeFOSA | 31506-32-8 | — | 0.76 | U | 0.75 | U | 0.75 | U | 0.76 | U | 0.71 | U | 0.75 | U | 0.77 | U | 0.78 | U | 0.78 | U | 0.71 | U | 0.73 | U | 0.73 | U | | |
| N-ethyl perfluorooctanesulfonamide | NEtFOSA | 4151-50-2 | — | 0.76 | U | 0.75 | U | 0.75 | U | 0.76 | U | 0.71 | U | 0.75 | U | 0.77 | U | 0.78 | U | 0.78 | U | 0.71 | U | 0.73 | U | 0.73 | U | | |
| Perfluorooctanesulfonamide | PFOSA | 754-91-6 | — | 0.19 | U | 0.19 | U | 0.19 | U | 0.19 | U | 0.18 | U | 0.19 | U | 0.19 | U | 0.19 | U | 0.2 | U | 0.18 | U | 0.18 | U | 0.18 | U | | |
| N-methyl perfluorooctanesulfonamidoacetic acid | NMeFOSAA | 2355-31-9 | — | 0.19 | U | 0.19 | U | 0.19 | U | 0.19 | U | 0.18 | U | 0.19 | U | 0.19 | U | 0.19 | U | 0.2 | U | 0.18 | U | 0.18 | U | 0.18 | U | | |
| N-ethyl perfluorooctanesulfonamidoacetic acid | NEtFOSAA | 2991-50-6 | — | 0.19 | U | 0.19 | U | 0.19 | U | 0.19 | U | 0.18 | U | 0.19 | U | 0.19 | U | 0.19 | U | 0.2 | U | 0.18 | U | 0.18 | U | 0.18 | U | | |
| N-methyl perfluorooctanesulfonamidoethanol | NMeFOSE | 24448-09-7 | — | 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 | 1.1 | U | 1.1 | U | 1.1 | U | | |
| N-ethyl perfluorooctanesulfonamidoethanol | NEtFOSE | 1691-99-2 | — | 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 | 1.1 | U | 1.1 | U | 1.1 | U | | |
| Hexafluoropropylene oxide dimer acid | HFPO-DA | 13252-13-6 | 1.5 | 0.38 | U | 0.38 | U | 0.38 | U | 0.38 | U | 0.36 | U | 0.38 | U | 0.39 | U | 0.39 | U | 0.39 | U | 0.36 | U | 0.37 | U | 0.36 | U | | |
| 4,8-Dioxa-3H-perfluorononanoic acid | ADONA | 919005-14-4 | — | 0.38 | U | 0.38 | U | 0.38 | U | 0.38 | U | 0.36 | U | 0.38 | U | 0.39 | U | 0.39 | U | 0.39 | U | 0.36 | U | 0.37 | U | 0.36 | U | | |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | 9Cl-PF3ONS | 756426-58-1 | — | 0.38 | U | 0.38 | U | 0.38 | U | 0.38 | U | 0.36 | U | 0.38 | U | 0.39 | U | 0.39 | U | 0.39 | U | 0.36 | U | 0.37 | U | 0.36 | U | | |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | 11Cl-PF3OUdS | 763051-92-9 | — | 0.38 | U | 0.38 | U | 0.38 | U | 0.38 | U | 0.36 | U | 0.38 | U | 0.39 | U | 0.39 | U | 0.39 | U | 0.36 | U | 0.37 | U | 0.36 | U | | |
| 3-Perfluoropropyl propanoic acid | 3:3FTCA | 356-02-5 | — | 0.76 | U | 0.75 | U | 0.75 | U | 0.76 | U | 0.71 | U | 0.75 | U | 0.77 | U | 0.78 | U | 0.78 | U | 0.71 | U | 0.73 | U | 0.73 | U | | |
| 2H,2H,3H,3H-Perfluorooctanoic acid | 5:3FTCA | 914637-49-3 | — | 0.76 | U | 0.75 | U | 0.75 | U | 0.76 | U | 0.71 | U | 0.75 | U | 0.77 | U | 0.78 | U | 0.78 | U | 0.71 | U | 0.73 | U | 0.73 | U | | |
| 3-Perfluoroheptyl propanoic acid | 7:3FTCA | 812-70-4 | — | 0.76 | U | 0.75 | U | 0.75 | U | 0.76 | U | 0.71 | U | 0.75 | U | 0.77 | U | 0.78 | U | 0.78 | U | 0.71 | U | 0.73 | U | 0.73 | U | | |
| Perfluoro(2-ethoxyethane)sulfonic acid | PFEESA | 113507-82-7 | — | 0.38 | U | 0.38 | U | 0.38 | U | 0.38 | U | 0.36 | U | 0.38 | U | 0.39 | U | 0.39 | U | 0.39 | U | 0.36 | U | 0.37 | U | 0.36 | U | | |
| Perfluoro-4-methoxybutanoic acid | PFMBA | 863090-89-5 | — | 0.38 | U | 0.38 | U | 0.38 | U | 0.38 | U | 0.36 | U | 0.38 | U | 0.39 | U | 0.39 | U | 0.39 | U | 0.36 | U | 0.37 | U | 0.36 | U | | |
| Perfluoro-3-methoxypropanoic acid | PFMPA | 377-73-1 | — | 0.38 | U | 0.38 | U | 0.38 | U | 0.38 | U | 0.36 | U | 0.38 | U | 0.39 | U | 0.39 | U | 0.39 | U | 0.36 | U | 0.37 | U | 0.36 | U | | |
| Nonafluoro-3,6-dioxaheptanoic acid | NFDHA | 151772-58-6 | — | 0.38 | U | 0.38 | U | 0.38 | U | 0.38 | U | 0.36 | U | 0.38 | U | 0.39 | U | 0.39 | U | 0.39 | U | 0.36 | U | 0.37 | U | 0.36 | U | | |

**Summary of the PFAS Remedial Investigation's Second Quarter Groundwater Monitoring (cont'd)**
**Groundwater Results Round II - RI PFAS Release, RHBFSF, JBPHH Oahu HI**

| | | | | Location | RHMW17 | | RHMW17D | | RHMW17S | | RHMW18 | | RHMW18 | | RHMW20 | | RHMW21 | | RHMW2254-01 | | RHP01 | | RHP02 | | RHP03 | | RHP04A | | RHP04B | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | COC ID | JV109 | | JV111 | | JV112 | | JV113 | | JV114 | | JV124 | | JV093 | | JV094 | | JV096 | | JV097 | | JV098 | | JV099 | | JV118 | |
| | | | | Matrix | WG | | WG | | WG | | WG | | WG | | WG | | WG | | WG | | WG | | WG | | WG | | WG | | WG | |
| | | | | Sample Type | N | | N | | N | | N | | FD | | N | | N | | N | | N | | N | | N | | N | | N | |
| | | | | Sample Date | 1/24/2025 | | 1/24/2025 | | 1/24/2025 | | 1/27/2025 | | 1/27/2025 | | 1/29/2025 | | 1/20/2025 | | 1/21/2025 | | 1/22/2025 | | 1/22/2025 | | 1/22/2025 | | 1/23/2025 | | 1/28/2025 | |
| 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 | 0.74 | U | 0.73 | U | **1.3** | J | 0.79 | U | 0.77 | U | 0.66 | U | **0.91** | J | **0.35** | J | **15** | | **14** | | **7.8** | | **1.8** | | **0.61** | J+ |
| Perfluoropentanoic acid | PFPeA | 2706-90-3 | — | **0.98** | | 0.37 | U | 0.37 | U | **0.58** | J | **0.6** | J | **0.13** | J | **4.1** | | **0.97** | | **9.4** | | **9.9** | | **6.1** | | **1** | | **0.48** | J |
| Perfluorohexanoic acid | PFHxA | 307-24-4 | 990 | **0.53** | | **0.35** | J | **0.18** | J | **0.2** | J | **0.19** | J | **0.081** | J | **1.2** | | **0.74** | | **4.6** | | **4.9** | | **3.3** | | **0.59** | | **0.34** | J |
| Perfluoroheptanoic acid | PFHpA | 375-85-9 | — | **0.46** | | **0.084** | J | **0.065** | J | **0.13** | J | **0.084** | J | **0.084** | J | **0.2** | J | **0.42** | | **3.8** | | **4.2** | | **2.9** | | **0.57** | | **0.076** | J |
| Perfluorooctanoic acid | PFOA | 335-67-1 | 4 | **0.25** | J | **0.19** | J | **0.16** | J | 0.3 | U | 0.29 | U | 0.25 | U | 0.28 | U | **0.77** | | **5.9** | | **6.9** | | **3.6** | | **1.4** | | 0.28 | U |
| Perfluorononanoic acid | PFNA | 375-95-1 | 5.9 | 0.18 | U | 0.18 | U | **0.096** | J | 0.2 | U | 0.19 | U | 0.16 | U | 0.19 | U | **0.093** | J | **1.3** | | **2** | | **0.56** | | **0.94** | | 0.19 | U |
| Perfluorodecanoic acid | PFDA | 335-76-2 | 0.52 | 0.18 | U | 0.18 | U | **0.11** | J | 0.2 | U | 0.19 | U | 0.16 | U | 0.19 | U | 0.19 | U | **0.36** | J | **0.44** | | 0.2 | U | 0.18 | U | 0.19 | U |
| Perfluoroundecanoic acid | PFUnA | 2058-94-8 | — | 0.28 | U | 0.27 | U | 0.28 | U | 0.3 | U | 0.29 | U | 0.25 | U | 0.28 | U | 0.28 | U | 0.3 | U | 0.29 | U | 0.29 | U | 0.27 | U | 0.28 | U |
| Perfluorododecanoic acid | PFDoA | 307-55-1 | — | 0.18 | U | 0.18 | U | 0.18 | U | 0.2 | U | 0.19 | U | 0.16 | U | 0.19 | U | 0.19 | U | 0.2 | U | 0.19 | U | 0.2 | U | 0.18 | U | 0.19 | U |
| Perfluorotridecanoic acid | PFTrDA | 72629-94-8 | — | 0.28 | U | 0.27 | U | 0.28 | U | 0.3 | U | 0.29 | U | 0.25 | U | 0.28 | U | 0.28 | U | 0.3 | U | 0.29 | U | 0.29 | U | 0.27 | U | 0.28 | U |
| Perfluorotetradecanoic acid | PFTeDA | 376-06-7 | — | 0.28 | U | 0.27 | U | 0.28 | U | 0.3 | U | 0.29 | U | 0.25 | U | 0.28 | U | 0.28 | U | 0.3 | U | 0.29 | U | 0.29 | U | 0.27 | U | 0.28 | U |
| Perfluorobutanesulfonic acid | PFBS | 375-73-5 | 600 | **0.088** | J | **0.049** | J | **0.24** | J | **0.036** | | **0.041** | J | 0.16 | U | 0.19 | U | **0.7** | | **1.9** | | **4.1** | | **2.6** | | **0.91** | | 0.19 | U |
| Perfluoropentanesulfonic acid | PFPeS | 2706-91-4 | — | 0.18 | U | 0.18 | U | 0.18 | U | 0.2 | U | 0.19 | U | 0.16 | U | 0.19 | U | **0.064** | J | **0.47** | | **0.44** | | **0.44** | | **0.46** | | 0.19 | U |
| Perfluorohexanesulfonic acid | PFHxS | 355-46-4 | 10 | 0.18 | U | **0.083** | J | **0.079** | J | 0.2 | U | 0.19 | U | 0.16 | U | 0.19 | U | **0.6** | | **5.5** | | **5** | J- | **5.1** | | **4.6** | | **0.042** | J |
| Perfluoroheptanesulfonic acid | PFHpS | 375-92-8 | — | 0.18 | U | 0.18 | U | 0.18 | U | 0.2 | U | 0.19 | U | 0.16 | U | 0.19 | U | 0.19 | U | **0.26** | J | **0.2** | J | **0.16** | J | **0.076** | J | 0.19 | U |
| Perfluorooctanesulfonic acid | PFOS | 1763-23-1 | 4 | **0.1** | J | **0.19** | J | **0.25** | J | **0.096** | J | **0.091** | J | **0.092** | J+ | 0.19 | U | **0.77** | | **15** | | **14** | | **6.1** | | **2.2** | | **0.17** | J+ |
| Perfluorononanesulfonic acid | PFNS | 68259-12-1 | — | 0.18 | U | 0.18 | U | 0.18 | U | 0.2 | U | 0.19 | U | 0.16 | U | 0.19 | U | 0.19 | U | 0.2 | U | 0.19 | U | 0.2 | U | 0.18 | U | 0.19 | U |
| Perfluorodecanesulfonic acid | PFDS | 335-77-3 | — | 0.28 | U | 0.27 | U | 0.28 | U | 0.3 | U | 0.29 | U | 0.25 | U | 0.28 | U | 0.28 | U | 0.3 | U | 0.29 | U | 0.29 | U | 0.27 | U | 0.28 | U |
| Perfluorododecanesulfonic acid | PFDoS | 79780-39-5 | — | 0.18 | U | 0.18 | U | 0.18 | U | 0.2 | U | 0.19 | U | 0.16 | U | 0.19 | U | 0.19 | U | 0.2 | U | 0.19 | U | 0.2 | U | 0.18 | U | 0.19 | U |
| 1H,1H, 2H, 2H-Perfluorohexane sulfonic acid | 4:2 FTS | 757124-72-4 | — | 0.74 | U | 0.73 | U | 0.74 | U | 0.79 | U | 0.77 | U | 0.66 | U | 0.76 | U | 0.75 | U | 0.79 | U | 0.77 | U | 0.78 | U | 0.72 | U | 0.75 | U |
| 1H,1H, 2H, 2H-Perfluorooctane sulfonic acid | 6:2 FTS | 27619-97-2 | — | 0.74 | U | **3.6** | | **0.84** | J | **0.62** | J | **0.62** | J | 0.66 | U | **2.1** | | 0.75 | U | **2.2** | | 0.77 | U | 0.78 | U | 0.72 | U | **3.4** | |
| 1H,1H, 2H, 2H-Perfluorodecane sulfonic acid | 8:2 FTS | 39108-34-4 | — | 0.74 | U | 0.73 | U | 0.74 | U | 0.79 | U | 0.77 | U | 0.66 | U | 0.76 | U | 0.75 | U | 0.79 | U | 0.77 | U | 0.78 | U | 0.72 | U | 0.75 | U |
| N-methyl perfluorooctanesulfonamide | NMeFOSA | 31506-32-8 | — | 0.74 | U | 0.73 | U | 0.74 | U | 0.79 | U | 0.77 | U | 0.66 | U | 0.76 | U | 0.75 | U | 0.79 | U | 0.77 | U | 0.78 | U | 0.72 | U | 0.75 | U |
| N-ethyl perfluorooctanesulfonamide | NEtFOSA | 4151-50-2 | — | 0.74 | U | 0.73 | U | 0.74 | U | 0.79 | U | 0.77 | U | 0.66 | U | 0.76 | U | 0.75 | U | 0.79 | U | 0.77 | U | 0.78 | U | 0.72 | U | 0.75 | U |
| Perfluorooctanesulfonamide | PFOSA | 754-91-6 | — | 0.18 | U | 0.18 | U | 0.18 | U | 0.2 | U | 0.19 | U | 0.16 | U | 0.19 | U | 0.19 | U | 0.2 | U | 0.19 | U | 0.2 | U | 0.18 | U | 0.19 | U |
| N-methyl perfluorooctanesulfonamidoacetic acid | NMeFOSAA | 2355-31-9 | — | 0.18 | U | 0.18 | U | 0.18 | U | 0.2 | U | 0.19 | U | 0.16 | U | 0.19 | U | 0.19 | U | 0.2 | U | 0.19 | U | 0.2 | U | 0.18 | U | 0.19 | U |
| N-ethyl perfluorooctanesulfonamidoacetic acid | NEtFOSAA | 2991-50-6 | — | 0.18 | U | 0.18 | U | 0.18 | U | 0.2 | U | 0.19 | U | 0.16 | U | 0.19 | U | 0.19 | U | 0.2 | U | 0.19 | U | 0.2 | U | 0.18 | U | 0.19 | U |
| N-methyl perfluorooctanesulfonamidoethanol | NMeFOSE | 24448-09-7 | — | 1.1 | U | 1.1 | U | 1.1 | U | 1.2 | U | 1.2 | U | 0.99 | U | 1.1 | U | 1.1 | U | 1.2 | U | 1.2 | U | 1.2 | U | 1.1 | U | 1.1 | U |
| N-ethyl perfluorooctanesulfonamidoethanol | NEtFOSE | 1691-99-2 | — | 1.1 | U | 1.1 | U | 1.1 | U | 1.2 | U | 1.2 | U | 0.99 | U | 1.1 | U | 1.1 | U | 1.2 | U | 1.2 | U | 1.2 | U | 1.1 | U | 1.1 | U |
| Hexafluoropropylene oxide dimer acid | HFPO-DA | 13252-13-6 | 1.5 | 0.37 | U | 0.37 | U | 0.37 | U | 0.4 | U | 0.38 | U | 0.33 | U | 0.38 | U | 0.38 | U | 0.4 | U | 0.39 | U | 0.39 | U | 0.36 | U | 0.37 | U |
| 4,8-Dioxa-3H-perfluorononanoic acid | ADONA | 919005-14-4 | — | 0.37 | U | 0.37 | U | 0.37 | U | 0.4 | U | 0.38 | U | 0.33 | U | 0.38 | U | 0.38 | U | 0.4 | U | 0.39 | U | 0.39 | U | 0.36 | U | 0.37 | U |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | 9Cl-PF3ONS | 756426-58-1 | — | 0.37 | U | 0.37 | U | 0.37 | U | 0.4 | U | 0.38 | U | 0.33 | U | 0.38 | U | 0.38 | U | 0.4 | U | 0.39 | U | 0.39 | U | 0.36 | U | 0.37 | U |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | 11Cl-PF3OUdS | 763051-92-9 | — | 0.37 | U | 0.37 | U | 0.37 | U | 0.4 | U | 0.38 | U | 0.33 | U | 0.38 | U | 0.38 | U | 0.4 | U | 0.39 | U | 0.39 | U | 0.36 | U | 0.37 | U |
| 3-Perfluoropropyl propanoic acid | 3:3FTCA | 356-02-5 | — | 0.74 | U | 0.73 | U | 0.74 | U | 0.79 | U | 0.77 | U | 0.66 | U | 0.76 | U | 0.75 | U | 0.79 | U | 0.77 | U | 0.78 | U | 0.72 | U | 0.75 | U |
| 2H,2H,3H,3H-Perfluorooctanoic acid | 5:3FTCA | 914637-49-3 | — | 0.74 | U | 0.73 | U | 0.74 | U | 0.79 | U | 0.77 | U | 0.66 | U | 0.76 | U | 0.75 | U | 0.79 | U | 0.77 | U | 0.78 | U | 0.72 | U | 0.75 | U |
| 3-Perfluoroheptyl propanoic acid | 7:3FTCA | 812-70-4 | — | 0.74 | U | 0.73 | U | 0.74 | U | 0.79 | U | 0.77 | U | 0.66 | U | 0.76 | U | 0.75 | U | 0.79 | U | 0.77 | U | 0.78 | U | 0.72 | U | 0.75 | U |
| Perfluoro(2-ethoxyethane)sulfonic acid | PFEESA | 113507-82-7 | — | 0.37 | U | 0.37 | U | 0.37 | U | 0.4 | U | 0.38 | U | 0.33 | U | 0.38 | U | 0.38 | U | 0.4 | U | 0.39 | U | 0.39 | U | 0.36 | U | 0.37 | U |
| Perfluoro-4-methoxybutanoic acid | PFMBA | 863090-89-5 | — | 0.37 | U | 0.37 | U | 0.37 | U | 0.4 | U | 0.38 | U | 0.33 | U | 0.38 | U | 0.38 | U | 0.4 | U | 0.39 | U | 0.39 | U | 0.36 | U | 0.37 | U |
| Perfluoro-3-methoxypropanoic acid | PFMPA | 377-73-1 | — | 0.37 | U | **5.3** | | 0.37 | U | 0.4 | U | 0.38 | U | 0.33 | U | 0.38 | U | 0.38 | U | 0.4 | U | 0.39 | U | 0.39 | U | 0.36 | U | 0.37 | U |
| Nonafluoro-3,6-dioxaheptanoic acid | NFDHA | 151772-58-6 | — | 0.37 | U | 0.37 | U | 0.37 | U | 0.4 | U | 0.38 | U | 0.33 | U | 0.38 | U | 0.38 | U | 0.4 | U | 0.39 | U | 0.39 | U | 0.36 | U | 0.37 | U |

**Summary of the PFAS Remedial Investigation's Second Quarter Groundwater Monitoring (cont'd)**
**Groundwater Results Round II - RI PFAS Release, RHBFSF, JBPHH Oahu HI**

| | | | Location | RHP04C | | RHP05 | | RHP06 | | RHP07 | | RHP07 | | RHP08 | | RHP08B | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | COC ID | JV119 | | JV103 | | JV100 | | JV107 | | JV108 | | JV101 | | JV123 | |
| | | | Matrix | WG | | WG | | WG | | WG | | WG | | WG | | WG | |
| | | | Sample Type | N | | N | | N | | N | | FD | | N | | N | |
| | | | Sample Date | 1/28/2025 | | 1/23/2025 | | 1/23/2025 | | 1/24/2025 | | 1/24/2025 | | 1/23/2025 | | 1/29/2025 | |
| Per- and polyfluoroalkyl substances (PFAS) | Abbr. | Cas No. | PSL [a] | Result | Q | Result | Q | Result | Q | Result | Q | Result | Q | Result | Q | Result | Q |
| Perfluorobutanoic acid | PFBA | 375-22-4 | 1800 | **0.64** | J+ | **3** | | **5.5** | | **11** | | **11** | | **1.2** | J | 0.73 | U |
| Perfluoropentanoic acid | PFPeA | 2706-90-3 | — | **0.77** | | **3.3** | | **6.9** | | **5.5** | | **5.4** | | **1.3** | | **0.39** | J |
| Perfluorohexanoic acid | PFHxA | 307-24-4 | 990 | **0.26** | J | **2.8** | | **4.6** | | **2.9** | | **2.7** | | **1.1** | | 0.18 | U |
| Perfluoroheptanoic acid | PFHpA | 375-85-9 | — | **0.076** | J | **2.1** | | **3.8** | | **2.3** | | **2.3** | | **0.74** | | 0.18 | U |
| Perfluorooctanoic acid | PFOA | 335-67-1 | 4 | 0.28 | U | **3.9** | | **4.4** | | **3.3** | | **3.6** | | **1.6** | | 0.28 | U |
| Perfluorononanoic acid | PFNA | 375-95-1 | 5.9 | 0.19 | U | **1.1** | | **0.64** | | **0.8** | | **0.79** | | 0.2 | U | 0.18 | U |
| Perfluorodecanoic acid | PFDA | 335-76-2 | 0.52 | 0.19 | U | **0.18** | J | 0.2 | U | **0.13** | J | **0.14** | J | 0.2 | U | 0.18 | U |
| Perfluoroundecanoic acid | PFUnA | 2058-94-8 | — | 0.28 | U | 0.27 | U | 0.3 | U | 0.3 | U | 0.29 | U | 0.3 | U | 0.28 | U |
| Perfluorododecanoic acid | PFDoA | 307-55-1 | — | 0.19 | U | 0.18 | U | 0.2 | U | 0.2 | U | 0.19 | U | 0.2 | U | 0.18 | U |
| Perfluorotridecanoic acid | PFTrDA | 72629-94-8 | — | 0.28 | U | 0.27 | U | 0.3 | U | 0.3 | U | 0.29 | U | 0.3 | U | 0.28 | U |
| Perfluorotetradecanoic acid | PFTeDA | 376-06-7 | — | 0.28 | U | 0.27 | U | 0.3 | U | 0.3 | U | 0.29 | U | 0.3 | U | 0.28 | U |
| Perfluorobutanesulfonic acid | PFBS | 375-73-5 | 600 | 0.19 | U | **1.2** | | **2** | | **1.5** | | **1.6** | | **1.3** | | 0.18 | U |
| Perfluoropentanesulfonic acid | PFPeS | 2706-91-4 | — | **0.16** | J | **0.46** | | **0.37** | J | **0.49** | | **0.43** | | **0.19** | J | 0.18 | U |
| Perfluorohexanesulfonic acid | PFHxS | 355-46-4 | 10 | **0.18** | J | **5.3** | | **3.6** | | **5.4** | | **4.9** | | **2.2** | | 0.18 | U |
| Perfluoroheptanesulfonic acid | PFHpS | 375-92-8 | — | 0.19 | U | **0.13** | J | **0.11** | J | **0.25** | J | **0.22** | J | **0.068** | J | 0.18 | U |
| Perfluorooctanesulfonic acid | PFOS | 1763-23-1 | 4 | **0.23** | J+ | **4.5** | | **5.3** | | **14** | | **12** | | **1.9** | | **0.1** | J |
| Perfluorononanesulfonic acid | PFNS | 68259-12-1 | — | 0.19 | U | 0.18 | U | 0.2 | U | 0.2 | U | 0.19 | U | 0.2 | U | 0.18 | U |
| Perfluorodecanesulfonic acid | PFDS | 335-77-3 | — | 0.28 | U | 0.27 | U | 0.3 | U | 0.3 | U | 0.29 | U | 0.3 | U | 0.28 | U |
| Perfluorododecanesulfonic acid | PFDoS | 79780-39-5 | — | 0.19 | U | 0.18 | U | 0.2 | U | 0.2 | U | 0.19 | U | 0.2 | U | 0.18 | U |
| 1H,1H, 2H, 2H-Perfluorohexane sulfonic acid | 4:2 FTS | 757124-72-4 | — | 0.74 | U | 0.71 | U | 0.79 | U | 0.79 | U | 0.78 | U | 0.79 | U | 0.73 | U |
| 1H,1H, 2H, 2H-Perfluorooctane sulfonic acid | 6:2 FTS | 27619-97-2 | — | 0.74 | U | **11** | J- | **0.36** | J | 0.79 | U | 0.78 | U | 0.79 | U | 0.73 | U |
| 1H,1H, 2H, 2H-Perfluorodecane sulfonic acid | 8:2 FTS | 39108-34-4 | — | 0.74 | U | 0.71 | U | 0.79 | U | 0.79 | U | 0.78 | U | 0.79 | U | 0.73 | U |
| N-methyl perfluorooctanesulfonamide | NMeFOSA | 31506-32-8 | — | 0.74 | U | 0.71 | U | 0.79 | U | 0.79 | U | 0.78 | U | 0.79 | U | 0.73 | U |
| N-ethyl perfluorooctanesulfonamide | NEtFOSA | 4151-50-2 | — | 0.74 | U | 0.71 | U | 0.79 | U | 0.79 | U | 0.78 | U | 0.79 | U | 0.73 | U |
| Perfluorooctanesulfonamide | PFOSA | 754-91-6 | — | 0.19 | U | 0.18 | U | 0.2 | U | 0.2 | U | 0.19 | U | 0.2 | U | 0.18 | U |
| N-methyl perfluorooctanesulfonamidoacetic acid | NMeFOSAA | 2355-31-9 | — | 0.19 | U | 0.18 | U | 0.2 | U | 0.2 | U | 0.19 | U | 0.2 | U | 0.18 | U |
| N-ethyl perfluorooctanesulfonamidoacetic acid | NEtFOSAA | 2991-50-6 | — | 0.19 | U | 0.18 | U | 0.2 | U | 0.2 | U | 0.19 | U | 0.2 | U | 0.18 | U |
| N-methyl perfluorooctanesulfonamidoethanol | NMeFOSE | 24448-09-7 | — | 1.1 | U | 1.1 | U | 1.2 | U | 1.2 | U | 1.2 | U | 1.2 | U | 1.1 | U |
| N-ethyl perfluorooctanesulfonamidoethanol | NEtFOSE | 1691-99-2 | — | 1.1 | U | 1.1 | U | 1.2 | U | 1.2 | U | 1.2 | U | 1.2 | U | 1.1 | U |
| Hexafluoropropylene oxide dimer acid | HFPO-DA | 13252-13-6 | 1.5 | 0.37 | U | 0.36 | U | 0.39 | U | 0.4 | U | 0.39 | U | 0.39 | U | 0.37 | U |
| 4,8-Dioxa-3H-perfluorononanoic acid | ADONA | 919005-14-4 | — | 0.37 | U | 0.36 | U | 0.39 | U | 0.4 | U | 0.39 | U | 0.39 | U | 0.37 | U |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | 9Cl-PF3ONS | 756426-58-1 | — | 0.37 | U | 0.36 | U | 0.39 | U | 0.4 | U | 0.39 | U | 0.39 | U | 0.37 | U |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | 11Cl-PF3OUdS | 763051-92-9 | — | 0.37 | U | 0.36 | U | 0.39 | U | 0.4 | U | 0.39 | U | 0.39 | U | 0.37 | U |
| 3-Perfluoropropyl propanoic acid | 3:3FTCA | 356-02-5 | — | 0.74 | U | 0.71 | U | 0.79 | U | 0.79 | U | 0.78 | U | 0.79 | U | 0.73 | U |
| 2H,2H,3H,3H-Perfluorooctanoic acid | 5:3FTCA | 914637-49-3 | — | 0.74 | U | 0.71 | U | 0.79 | U | 0.79 | U | 0.78 | U | 0.79 | U | 0.73 | U |
| 3-Perfluoroheptyl propanoic acid | 7:3FTCA | 812-70-4 | — | 0.74 | U | 0.71 | U | 0.79 | U | 0.79 | U | 0.78 | U | 0.79 | U | 0.73 | U |
| Perfluoro(2-ethoxyethane)sulfonic acid | PFEESA | 113507-82-7 | — | 0.37 | U | 0.36 | U | 0.39 | U | 0.4 | U | 0.39 | U | 0.39 | U | 0.37 | U |
| Perfluoro-4-methoxybutanoic acid | PFMBA | 863090-89-5 | — | 0.37 | U | 0.36 | U | 0.39 | U | 0.4 | U | 0.39 | U | 0.39 | U | 0.37 | U |
| Perfluoro-3-methoxypropanoic acid | PFMPA | 377-73-1 | — | 0.37 | U | 0.36 | U | 0.39 | U | 0.4 | U | 0.39 | U | 0.39 | U | 0.37 | U |
| Nonafluoro-3,6-dioxaheptanoic acid | NFDHA | 151772-58-6 | — | 0.37 | U | 0.36 | U | 0.39 | U | 0.4 | U | 0.39 | U | 0.39 | U | 0.37 | U |

Notes:

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

| | |
|---|---|
| [a] | PSLs consistent with Assistant Secretary of Defense Memorandum (DoD 2025). |
| — | not applicable |
| **Bold and shaded** | analyte was detected above the PSLs |
| **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 | fieild 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 |
| OWDF | former oily waste disposal facility |
| PSL | project screening level |
| ppt | parts per trillion |
| 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 2025 — *Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program*. Memorandum : Office of the Assistant Secretary of Defense January 21, 2025.

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