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ANALYTICAL REPORT

PREPARED FOR

Attn: Mr. Erwin Kawata
City & County of Honolulu
630 South Beretania Street
Public Service Bldg. Room 310
Honolulu, Hawaii 96843

Generated 9/30/2025 11:53:06 AM

JOB DESCRIPTION

RED-HILL
PFAS: Halawa Shaft Viewing Pool

JOB NUMBER

380-173550-1

Eurofins Eaton Analytical Pomona

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Eaton Analytical, LLC Project Manager.

Compliance Statement

1. Laboratory is accredited in accordance with TNI 2016 Standards and ISO/IEC 17025:2017.
2. Laboratory certifies that the test results meet all TNI 2016 and ISO/IEC 17025:2017 requirements unless noted under the individual analysis
3. Test results relate only to the sample(s) tested.
4. This report shall not be reproduced except in full, without the written approval of the laboratory.
5. Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below. (DW, Water matrices)

Authorization



Authorized for release by
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Definitions/Glossary

Client: City & County of Honolulu
Project/Site: RED-HILL

Job ID: 380-173550-1
SDG: PFAS: Halawa Shaft Viewing Pool

Qualifiers

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: City & County of Honolulu
Project: RED-HILL

Job ID: 380-173550-1

Job ID: 380-173550-1

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Job Narrative 380-173550-1

The analytical test results presented in this report meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page, unless otherwise noted. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable. Regulated compliance samples (e.g. SDWA, NPDES) must comply with associated agency requirements/permits.

- Matrix-specific batch QC (e.g., MS, MSD, SD) may not be reported when insufficient sample volume is available or when site-specific QC samples are not submitted. In such cases, a Laboratory Control Sample Duplicate (LCSD) may be analyzed to provide precision data for the batch.
- For samples analyzed using surrogate and/or isotope dilution analytes, any recoveries falling outside of established acceptance criteria are re-prepared and/or re-analyzed to confirm results, unless the deviation is due to sample dilution or otherwise explained in the case narrative.

Receipt

The samples were received on 9/25/2025 10:05 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.9°C.

PFAS

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



Detection Summary

Client: City & County of Honolulu
Project/Site: RED-HILL

Job ID: 380-173550-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-173550-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	3.4		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.2		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.4		2.0	ng/L	1		537.1	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.8		2.0	ng/L	1		537.1	Total/NA

Client Sample ID: HALAWA SHAFT VIEWING POOL BLANK

Lab Sample ID: 380-173550-2

No Detections.

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: City & County of Honolulu
Project/Site: RED-HILL

Job ID: 380-173550-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-173550-1

Date Collected: 09/23/25 09:40

Matrix: Water

Date Received: 09/25/25 10:05

Method: EPA 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:32	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:32	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:32	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:32	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:32	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:32	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:32	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:32	1
Perfluorohexanesulfonic acid (PFHxS)	3.4		2.0	ng/L		09/26/25 17:23	09/27/25 18:32	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:32	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:32	1
Perfluorooctanesulfonic acid (PFOS)	3.2		2.0	ng/L		09/26/25 17:23	09/27/25 18:32	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:32	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:32	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:32	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:32	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:32	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:32	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:32	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:32	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:32	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:32	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:32	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:32	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:32	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	84		50 - 200	09/26/25 17:23	09/27/25 18:32	1
13C6 PFDA	96		50 - 200	09/26/25 17:23	09/27/25 18:32	1
13C5 PFHxA	91		50 - 200	09/26/25 17:23	09/27/25 18:32	1
13C4 PFHpA	92		50 - 200	09/26/25 17:23	09/27/25 18:32	1
13C8 PFOA	98		50 - 200	09/26/25 17:23	09/27/25 18:32	1
13C9 PFNA	99		50 - 200	09/26/25 17:23	09/27/25 18:32	1
13C7 PFUnA	99		50 - 200	09/26/25 17:23	09/27/25 18:32	1
13C2 PFDoA	103		50 - 200	09/26/25 17:23	09/27/25 18:32	1
13C4 PFBA	96		50 - 200	09/26/25 17:23	09/27/25 18:32	1
13C5 PFPeA	106		50 - 200	09/26/25 17:23	09/27/25 18:32	1
13C3 PFBS	107		50 - 200	09/26/25 17:23	09/27/25 18:32	1
13C3 PFHxS	110		50 - 200	09/26/25 17:23	09/27/25 18:32	1

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Client Sample Results

Client: City & County of Honolulu
Project/Site: RED-HILL

Job ID: 380-173550-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-173550-1

Date Collected: 09/23/25 09:40

Matrix: Water

Date Received: 09/25/25 10:05

Method: EPA 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	111		50 - 200	09/26/25 17:23	09/27/25 18:32	1
13C2-4:2-FTS	125		50 - 200	09/26/25 17:23	09/27/25 18:32	1
13C2-6:2-FTS	120		50 - 200	09/26/25 17:23	09/27/25 18:32	1
13C2-8:2-FTS	110		50 - 200	09/26/25 17:23	09/27/25 18:32	1

Method: EPA 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		09/28/25 09:43	09/29/25 12:47	1
Perfluorooctanesulfonic acid (PFOS)	3.4		2.0	ng/L		09/28/25 09:43	09/29/25 12:47	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		09/28/25 09:43	09/29/25 12:47	1
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	<2.0		2.0	ng/L		09/28/25 09:43	09/29/25 12:47	1
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	<2.0		2.0	ng/L		09/28/25 09:43	09/29/25 12:47	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		09/28/25 09:43	09/29/25 12:47	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		09/28/25 09:43	09/29/25 12:47	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		09/28/25 09:43	09/29/25 12:47	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		09/28/25 09:43	09/29/25 12:47	1
Perfluorohexanesulfonic acid (PFHxS)	3.8		2.0	ng/L		09/28/25 09:43	09/29/25 12:47	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		09/28/25 09:43	09/29/25 12:47	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		09/28/25 09:43	09/29/25 12:47	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		09/28/25 09:43	09/29/25 12:47	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		09/28/25 09:43	09/29/25 12:47	1
Perfluorotridecanoic acid (PFTTrDA)	<2.0		2.0	ng/L		09/28/25 09:43	09/29/25 12:47	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<2.0		2.0	ng/L		09/28/25 09:43	09/29/25 12:47	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		09/28/25 09:43	09/29/25 12:47	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		09/28/25 09:43	09/29/25 12:47	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac		
d5-NEtFOSAA	110		70 - 130	09/28/25 09:43	09/29/25 12:47	1		
13C2 PFHxA	112		70 - 130	09/28/25 09:43	09/29/25 12:47	1		
13C2 PFDA	107		70 - 130	09/28/25 09:43	09/29/25 12:47	1		
13C3-GenX	102		70 - 130	09/28/25 09:43	09/29/25 12:47	1		

Client Sample ID: HALAWA SHAFT VIEWING POOL BLANK

Lab Sample ID: 380-173550-2

Date Collected: 09/23/25 09:40

Matrix: Water

Date Received: 09/25/25 10:05

Method: EPA 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:41	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:41	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:41	1

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Client Sample Results

Client: City & County of Honolulu
Project/Site: RED-HILL

Job ID: 380-173550-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: HALAWA SHAFT VIEWING POOL BLANK

Lab Sample ID: 380-173550-2

Date Collected: 09/23/25 09:40

Matrix: Water

Date Received: 09/25/25 10:05

Method: EPA 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:41	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:41	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:41	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:41	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:41	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:41	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:41	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:41	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:41	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:41	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:41	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:41	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:41	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:41	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:41	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:41	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:41	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:41	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:41	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:41	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:41	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		09/26/25 17:23	09/27/25 18:41	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	101		50 - 200			09/26/25 17:23	09/27/25 18:41	1
13C6 PFDA	114		50 - 200			09/26/25 17:23	09/27/25 18:41	1
13C5 PFHxA	110		50 - 200			09/26/25 17:23	09/27/25 18:41	1
13C4 PFHpA	110		50 - 200			09/26/25 17:23	09/27/25 18:41	1
13C8 PFOA	114		50 - 200			09/26/25 17:23	09/27/25 18:41	1
13C9 PFNA	113		50 - 200			09/26/25 17:23	09/27/25 18:41	1
13C7 PFUnA	112		50 - 200			09/26/25 17:23	09/27/25 18:41	1
13C2 PFDoA	111		50 - 200			09/26/25 17:23	09/27/25 18:41	1
13C4 PFBA	114		50 - 200			09/26/25 17:23	09/27/25 18:41	1
13C5 PFPeA	117		50 - 200			09/26/25 17:23	09/27/25 18:41	1
13C3 PFBS	107		50 - 200			09/26/25 17:23	09/27/25 18:41	1
13C3 PFHxS	106		50 - 200			09/26/25 17:23	09/27/25 18:41	1
13C8 PFOS	112		50 - 200			09/26/25 17:23	09/27/25 18:41	1
13C2-4:2-FTS	123		50 - 200			09/26/25 17:23	09/27/25 18:41	1
13C2-6:2-FTS	111		50 - 200			09/26/25 17:23	09/27/25 18:41	1
13C2-8:2-FTS	109		50 - 200			09/26/25 17:23	09/27/25 18:41	1

Client Sample Results

Client: City & County of Honolulu
Project/Site: RED-HILL

Job ID: 380-173550-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: HALAWA SHAFT VIEWING POOL BLANK

Lab Sample ID: 380-173550-2

Date Collected: 09/23/25 09:40

Matrix: Water

Date Received: 09/25/25 10:05

Method: EPA 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		09/29/25 04:49	09/29/25 19:03	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		09/29/25 04:49	09/29/25 19:03	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		09/29/25 04:49	09/29/25 19:03	1
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	<2.0		2.0	ng/L		09/29/25 04:49	09/29/25 19:03	1
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	<2.0		2.0	ng/L		09/29/25 04:49	09/29/25 19:03	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		09/29/25 04:49	09/29/25 19:03	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		09/29/25 04:49	09/29/25 19:03	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		09/29/25 04:49	09/29/25 19:03	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		09/29/25 04:49	09/29/25 19:03	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		09/29/25 04:49	09/29/25 19:03	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		09/29/25 04:49	09/29/25 19:03	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		09/29/25 04:49	09/29/25 19:03	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		09/29/25 04:49	09/29/25 19:03	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		09/29/25 04:49	09/29/25 19:03	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		09/29/25 04:49	09/29/25 19:03	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<2.0		2.0	ng/L		09/29/25 04:49	09/29/25 19:03	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		09/29/25 04:49	09/29/25 19:03	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		09/29/25 04:49	09/29/25 19:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	96		70 - 130	09/29/25 04:49	09/29/25 19:03	1
13C2 PFHxA	94		70 - 130	09/29/25 04:49	09/29/25 19:03	1
13C2 PFDA	105		70 - 130	09/29/25 04:49	09/29/25 19:03	1
13C3-GenX	81		70 - 130	09/29/25 04:49	09/29/25 19:03	1

Action Limit Summary

Client: City & County of Honolulu
Project/Site: RED-HILL

Job ID: 380-173550-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-173550-1

Compliance Check

The results obtained from the analytical testing of this data set were checked against compliance limits received from the client. Any results at or above the compliance limits have been highlighted for your convenience.

Analyte	Result	Qualifier	Unit	EPAMCL		RL	Method	Prep Type
				Limit				
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		ng/L	10		2.0	533	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.4		ng/L	10		2.0	533	Total/NA
Perfluorononanoic acid (PFNA)	<2.0		ng/L	10		2.0	533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.2		ng/L	4		2.0	533	Total/NA
Perfluorooctanoic acid (PFOA)	<2.0		ng/L	4		2.0	533	Total/NA
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		ng/L	10		2.0	537.1	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.4		ng/L	4		2.0	537.1	Total/NA
Perfluorooctanoic acid (PFOA)	<2.0		ng/L	4		2.0	537.1	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.8		ng/L	10		2.0	537.1	Total/NA
Perfluorononanoic acid (PFNA)	<2.0		ng/L	10		2.0	537.1	Total/NA

Client Sample ID: HALAWA SHAFT VIEWING POOL BLANK

Lab Sample ID: 380-173550-2

Compliance Check

The results obtained from the analytical testing of this data set were checked against compliance limits received from the client. Any results at or above the compliance limits have been highlighted for your convenience.

Analyte	Result	Qualifier	Unit	EPAMCL		RL	Method	Prep Type
				Limit				
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		ng/L	10		2.0	533	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	<2.0		ng/L	10		2.0	533	Total/NA
Perfluorononanoic acid (PFNA)	<2.0		ng/L	10		2.0	533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	<2.0		ng/L	4		2.0	533	Total/NA
Perfluorooctanoic acid (PFOA)	<2.0		ng/L	4		2.0	533	Total/NA
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		ng/L	10		2.0	537.1	Total/NA
Perfluorooctanesulfonic acid (PFOS)	<2.0		ng/L	4		2.0	537.1	Total/NA
Perfluorooctanoic acid (PFOA)	<2.0		ng/L	4		2.0	537.1	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	<2.0		ng/L	10		2.0	537.1	Total/NA
Perfluorononanoic acid (PFNA)	<2.0		ng/L	10		2.0	537.1	Total/NA

Surrogate Summary

Client: City & County of Honolulu
 Project/Site: RED-HILL

Job ID: 380-173550-1
 SDG: PFAS: Halawa Shaft Viewing Pool

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		d5NEFOS (70-130)	PFHxA (70-130)	PFDA (70-130)	GenX (70-130)
380-173550-1	HALAWA SHAFT VIEWING POOL	110	112	107	102
380-173550-1 MS	HALAWA SHAFT VIEWING POOL	107	113	107	107
380-173550-1 MSD	HALAWA SHAFT VIEWING POOL	105	109	108	102
380-173550-2	HALAWA SHAFT VIEWING POOL BLANK	96	94	105	81
380-173552-A-1-A MS	Matrix Spike	98	103	105	92
380-173552-A-1-B MSD	Matrix Spike Duplicate	102	104	106	94
LCS 380-176651/24-A	Lab Control Sample	99	104	108	97
LCS 380-176779/22-A	Lab Control Sample	106	109	115	103
MBL 380-176651/22-A	Method Blank	126	126	123	119
MBL 380-176779/20-A	Method Blank	99	104	108	89
MRL 380-176651/23-A	Lab Control Sample	112	116	111	107
MRL 380-176779/21-A	Lab Control Sample	103	105	105	98

Surrogate Legend

- d5NEFOS = d5-NEtFOSAA
- PFHxA = 13C2 PFHxA
- PFDA = 13C2 PFDA
- GenX = 13C3-GenX

Isotope Dilution Summary

Client: City & County of Honolulu
Project/Site: RED-HILL

Job ID: 380-173550-1
SDG: PFAS: Halawa Shaft Viewing Pool

Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	HFPODA (50-200)	C6PFDA (50-200)	13C5PHA (50-200)	C4PFHA (50-200)	C8PFOA (50-200)	C9PFNA (50-200)	13C7PUA (50-200)	PFD _o A (50-200)
110-2190-C-1-A MS	Matrix Spike	107	112	103	104	111	112	113	112
110-2190-D-1-A MSD	Matrix Spike Duplicate	116	114	108	110	115	116	112	113
380-173550-1	HALAWA SHAFT VIEWING POOL	84	96	91	92	98	99	99	103
380-173550-2	HALAWA SHAFT VIEWING POOL BLANK	101	114	110	110	114	113	112	111
LCS 380-176585/22-A	Lab Control Sample	103	108	106	104	108	107	110	112
MBL 380-176585/20-A	Method Blank	94	109	101	102	105	107	111	108
MRL 380-176585/21-A	Lab Control Sample	91	107	98	99	106	105	109	107

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (50-200)	PFPeA (50-200)	C3PFBS (50-200)	C3PFHS (50-200)	C8PFOS (50-200)	42FTS (50-200)	62FTS (50-200)	82FTS (50-200)
110-2190-C-1-A MS	Matrix Spike	108	115	106	105	106	104	99	97
110-2190-D-1-A MSD	Matrix Spike Duplicate	114	120	111	108	113	107	103	99
380-173550-1	HALAWA SHAFT VIEWING POOL	96	106	107	110	111	125	120	110
380-173550-2	HALAWA SHAFT VIEWING POOL BLANK	114	117	107	106	112	123	111	109
LCS 380-176585/22-A	Lab Control Sample	106	108	108	108	109	108	104	98
MBL 380-176585/20-A	Method Blank	103	105	108	111	113	114	105	101
MRL 380-176585/21-A	Lab Control Sample	100	103	113	109	111	110	104	101

Surrogate Legend

- HFPODA = 13C3 HFPO-DA
- C6PFDA = 13C6 PFDA
- 13C5PHA = 13C5 PFHxA
- C4PFHA = 13C4 PFHpA
- C8PFOA = 13C8 PFOA
- C9PFNA = 13C9 PFNA
- 13C7PUA = 13C7 PFUnA
- PFD_oA = 13C2 PFD_oA
- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- C3PFBS = 13C3 PFBS
- C3PFHS = 13C3 PFHxS
- C8PFOS = 13C8 PFOS
- 42FTS = 13C2-4:2-FTS
- 62FTS = 13C2-6:2-FTS
- 82FTS = 13C2-8:2-FTS

QC Sample Results

Client: City & County of Honolulu
Project/Site: RED-HILL

Job ID: 380-173550-1
SDG: PFAS: Halawa Shaft Viewing Pool

Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water

Lab Sample ID: MBL 380-176585/20-A
Matrix: Water
Analysis Batch: 176640

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 176585

Analyte	MBL	MBL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		09/26/25 17:23	09/27/25 14:52	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		09/26/25 17:23	09/27/25 14:52	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		09/26/25 17:23	09/27/25 14:52	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		09/26/25 17:23	09/27/25 14:52	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		09/26/25 17:23	09/27/25 14:52	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		09/26/25 17:23	09/27/25 14:52	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		09/26/25 17:23	09/27/25 14:52	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		09/26/25 17:23	09/27/25 14:52	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		09/26/25 17:23	09/27/25 14:52	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		09/26/25 17:23	09/27/25 14:52	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		09/26/25 17:23	09/27/25 14:52	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		09/26/25 17:23	09/27/25 14:52	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		09/26/25 17:23	09/27/25 14:52	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		09/26/25 17:23	09/27/25 14:52	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		09/26/25 17:23	09/27/25 14:52	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		09/26/25 17:23	09/27/25 14:52	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		09/26/25 17:23	09/27/25 14:52	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		09/26/25 17:23	09/27/25 14:52	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		09/26/25 17:23	09/27/25 14:52	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0	ng/L		09/26/25 17:23	09/27/25 14:52	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		09/26/25 17:23	09/27/25 14:52	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		09/26/25 17:23	09/27/25 14:52	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		09/26/25 17:23	09/27/25 14:52	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		09/26/25 17:23	09/27/25 14:52	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		09/26/25 17:23	09/27/25 14:52	1

Isotope Dilution	MBL	MBL	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 HFPO-DA	94		50 - 200	09/26/25 17:23	09/27/25 14:52	1
13C6 PFDA	109		50 - 200	09/26/25 17:23	09/27/25 14:52	1
13C5 PFHxA	101		50 - 200	09/26/25 17:23	09/27/25 14:52	1
13C4 PFHpA	102		50 - 200	09/26/25 17:23	09/27/25 14:52	1
13C8 PFOA	105		50 - 200	09/26/25 17:23	09/27/25 14:52	1
13C9 PFNA	107		50 - 200	09/26/25 17:23	09/27/25 14:52	1
13C7 PFUnA	111		50 - 200	09/26/25 17:23	09/27/25 14:52	1
13C2 PFDoA	108		50 - 200	09/26/25 17:23	09/27/25 14:52	1
13C4 PFBA	103		50 - 200	09/26/25 17:23	09/27/25 14:52	1
13C5 PFPeA	105		50 - 200	09/26/25 17:23	09/27/25 14:52	1
13C3 PFBS	108		50 - 200	09/26/25 17:23	09/27/25 14:52	1
13C3 PFHxS	111		50 - 200	09/26/25 17:23	09/27/25 14:52	1

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QC Sample Results

Client: City & County of Honolulu
Project/Site: RED-HILL

Job ID: 380-173550-1
SDG: PFAS: Halawa Shaft Viewing Pool

Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Lab Sample ID: MBL 380-176585/20-A
Matrix: Water
Analysis Batch: 176640

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 176585

<i>Isotope Dilution</i>	<i>MBL</i>	<i>MBL</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
	<i>%Recovery</i>	<i>Qualifier</i>				
13C8 PFOS	113		50 - 200	09/26/25 17:23	09/27/25 14:52	1
13C2-4:2-FTS	114		50 - 200	09/26/25 17:23	09/27/25 14:52	1
13C2-6:2-FTS	105		50 - 200	09/26/25 17:23	09/27/25 14:52	1
13C2-8:2-FTS	101		50 - 200	09/26/25 17:23	09/27/25 14:52	1

Lab Sample ID: LCS 380-176585/22-A
Matrix: Water
Analysis Batch: 176640

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 176585

<i>Analyte</i>	<i>Spike</i>	<i>LCS</i>	<i>LCS</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec</i>
	<i>Added</i>	<i>Result</i>	<i>Qualifier</i>				<i>Limits</i>
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	60.4	62.5		ng/L		104	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.4	61.3		ng/L		102	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.4	62.1		ng/L		103	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.4	63.1		ng/L		104	70 - 130
Perfluorobutanesulfonic acid (PFBS)	60.4	62.7		ng/L		104	70 - 130
Perfluorodecanoic acid (PFDA)	60.4	61.7		ng/L		102	70 - 130
Perfluorododecanoic acid (PFDoA)	60.4	60.6		ng/L		100	70 - 130
Perfluoroheptanoic acid (PFHpA)	60.4	60.3		ng/L		100	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	60.4	62.3		ng/L		103	70 - 130
Perfluorohexanoic acid (PFHxA)	60.4	62.8		ng/L		104	70 - 130
Perfluorononanoic acid (PFNA)	60.4	61.9		ng/L		103	70 - 130
Perfluorooctanesulfonic acid (PFOS)	60.4	62.7		ng/L		104	70 - 130
Perfluorooctanoic acid (PFOA)	60.4	62.0		ng/L		103	70 - 130
Perfluoroundecanoic acid (PFUnA)	60.4	61.3		ng/L		102	70 - 130
Perfluorobutanoic acid (PFBA)	60.4	64.0		ng/L		106	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.4	63.2		ng/L		105	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.4	63.8		ng/L		106	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.4	61.3		ng/L		102	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.4	61.7		ng/L		102	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	60.4	61.2		ng/L		101	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.4	62.9		ng/L		104	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.4	60.8		ng/L		101	70 - 130
Perfluoropentanoic acid (PFPeA)	60.4	59.2		ng/L		98	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	60.4	63.7		ng/L		106	70 - 130

QC Sample Results

Client: City & County of Honolulu
Project/Site: RED-HILL

Job ID: 380-173550-1
SDG: PFAS: Halawa Shaft Viewing Pool

Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Lab Sample ID: LCS 380-176585/22-A
Matrix: Water
Analysis Batch: 176640

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 176585

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanesulfonic acid (PFPeS)	60.4	63.9		ng/L		106	70 - 130
LCS LCS							
Isotope Dilution	%Recovery	Qualifier	Limits				
13C3 HFPO-DA	103		50 - 200				
13C6 PFDA	108		50 - 200				
13C5 PFHxA	106		50 - 200				
13C4 PFHpA	104		50 - 200				
13C8 PFOA	108		50 - 200				
13C9 PFNA	107		50 - 200				
13C7 PFUnA	110		50 - 200				
13C2 PFDoA	112		50 - 200				
13C4 PFBA	106		50 - 200				
13C5 PFPeA	108		50 - 200				
13C3 PFBS	108		50 - 200				
13C3 PFHxS	108		50 - 200				
13C8 PFOS	109		50 - 200				
13C2-4:2-FTS	108		50 - 200				
13C2-6:2-FTS	104		50 - 200				
13C2-8:2-FTS	98		50 - 200				

Lab Sample ID: MRL 380-176585/21-A
Matrix: Water
Analysis Batch: 176640

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 176585

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.01	1.90	J	ng/L		94	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.01	1.88	J	ng/L		94	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.01	1.91	J	ng/L		95	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.01	2.19	J	ng/L		109	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.01	1.91	J	ng/L		95	50 - 150
Perfluorodecanoic acid (PFDA)	2.01	1.94	J	ng/L		97	50 - 150
Perfluorododecanoic acid (PFDoA)	2.01	1.95	J	ng/L		97	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.01	1.93	J	ng/L		96	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.01	2.00	J	ng/L		99	50 - 150
Perfluorohexanoic acid (PFHxA)	2.01	2.00	J	ng/L		100	50 - 150
Perfluorononanoic acid (PFNA)	2.01	1.89	J	ng/L		94	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.01	2.03	J	ng/L		101	50 - 150
Perfluorooctanoic acid (PFOA)	2.01	2.00	J	ng/L		100	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.01	1.95	J	ng/L		97	50 - 150
Perfluorobutanoic acid (PFBA)	2.01	2.12	J	ng/L		105	50 - 150

Eurofins Eaton Analytical Pomona

QC Sample Results

Client: City & County of Honolulu
Project/Site: RED-HILL

Job ID: 380-173550-1
SDG: PFAS: Halawa Shaft Viewing Pool

Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Lab Sample ID: MRL 380-176585/21-A
Matrix: Water
Analysis Batch: 176640

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 176585

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.01	2.01	J	ng/L		100	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.01	2.03	J	ng/L		101	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.01	2.19	J	ng/L		109	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.01	2.09	J	ng/L		104	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.01	1.83	J	ng/L		91	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.01	2.02	J	ng/L		100	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.01	1.78	J	ng/L		89	50 - 150
Perfluoropentanoic acid (PFPeA)	2.01	2.01	J	ng/L		100	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.01	2.05	J	ng/L		102	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.01	1.91	J	ng/L		95	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	MRL Limits
13C3 HFPO-DA	91		50 - 200
13C6 PFDA	107		50 - 200
13C5 PFHxA	98		50 - 200
13C4 PFHpA	99		50 - 200
13C8 PFOA	106		50 - 200
13C9 PFNA	105		50 - 200
13C7 PFUnA	109		50 - 200
13C2 PFDoA	107		50 - 200
13C4 PFBA	100		50 - 200
13C5 PFPeA	103		50 - 200
13C3 PFBS	113		50 - 200
13C3 PFHxS	109		50 - 200
13C8 PFOS	111		50 - 200
13C2-4:2-FTS	110		50 - 200
13C2-6:2-FTS	104		50 - 200
13C2-8:2-FTS	101		50 - 200

Lab Sample ID: 110-2190-C-1-A MS
Matrix: Water
Analysis Batch: 176640

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 176585

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		121	122		ng/L		100	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		121	118		ng/L		97	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		121	121		ng/L		100	70 - 130

QC Sample Results

Client: City & County of Honolulu
Project/Site: RED-HILL

Job ID: 380-173550-1
SDG: PFAS: Halawa Shaft Viewing Pool

Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Lab Sample ID: 110-2190-C-1-A MS

Client Sample ID: Matrix Spike

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 176640

Prep Batch: 176585

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
Hexafluoropropylene Oxide	<2.0		121	121		ng/L		100	70 - 130
Dimer Acid (HFPO-DA/GenX)									
Perfluorobutanesulfonic acid (PFBS)	<2.0		121	122		ng/L		101	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		121	116		ng/L		96	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		121	116		ng/L		96	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		121	118		ng/L		97	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		121	122		ng/L		100	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		121	123		ng/L		102	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		121	116		ng/L		96	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		121	118		ng/L		98	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		121	116		ng/L		96	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		121	118		ng/L		98	70 - 130
Perfluorobutanoic acid (PFBA)	<2.0		121	118		ng/L		97	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		121	116		ng/L		96	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		121	121		ng/L		100	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		121	118		ng/L		97	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		121	122		ng/L		101	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		121	121		ng/L		100	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		121	122		ng/L		101	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		121	118		ng/L		98	70 - 130
Perfluoropentanoic acid (PFPeA)	<2.0		121	115		ng/L		95	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		121	119		ng/L		99	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<2.0		121	121		ng/L		100	70 - 130

Isotope Dilution	MS MS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	107		50 - 200
13C6 PFDA	112		50 - 200
13C5 PFHxA	103		50 - 200
13C4 PFHpA	104		50 - 200
13C8 PFOA	111		50 - 200
13C9 PFNA	112		50 - 200
13C7 PFUnA	113		50 - 200
13C2 PFDoA	112		50 - 200
13C4 PFBA	108		50 - 200
13C5 PFPeA	115		50 - 200
13C3 PFBS	106		50 - 200
13C3 PFHxS	105		50 - 200
13C8 PFOS	106		50 - 200

QC Sample Results

Client: City & County of Honolulu
Project/Site: RED-HILL

Job ID: 380-173550-1
SDG: PFAS: Halawa Shaft Viewing Pool

Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Lab Sample ID: 110-2190-C-1-A MS

Matrix: Water

Analysis Batch: 176640

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 176585

Isotope Dilution	MS MS		Limits
	%Recovery	Qualifier	
13C2-4:2-FTS	104		50 - 200
13C2-6:2-FTS	99		50 - 200
13C2-8:2-FTS	97		50 - 200

Lab Sample ID: 110-2190-D-1-A MSD

Matrix: Water

Analysis Batch: 176640

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 176585

Analyte	Sample	Sample	Spike	MSD MSD		Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier		Result	Qualifier				Limits		Limit
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		121	116		ng/L		96	70 - 130	4	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		121	111		ng/L		92	70 - 130	6	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		121	118		ng/L		97	70 - 130	3	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		121	118		ng/L		98	70 - 130	2	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		121	120		ng/L		99	70 - 130	2	30
Perfluorodecanoic acid (PFDA)	<2.0		121	117		ng/L		97	70 - 130	1	30
Perfluorododecanoic acid (PFDoA)	<2.0		121	118		ng/L		98	70 - 130	2	30
Perfluoroheptanoic acid (PFHpA)	<2.0		121	112		ng/L		93	70 - 130	5	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		121	121		ng/L		100	70 - 130	0	30
Perfluorohexanoic acid (PFHxA)	<2.0		121	124		ng/L		102	70 - 130	0	30
Perfluorononanoic acid (PFNA)	<2.0		121	116		ng/L		96	70 - 130	0	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		121	118		ng/L		98	70 - 130	0	30
Perfluorooctanoic acid (PFOA)	<2.0		121	115		ng/L		95	70 - 130	1	30
Perfluoroundecanoic acid (PFUnA)	<2.0		121	116		ng/L		96	70 - 130	2	30
Perfluorobutanoic acid (PFBA)	<2.0		121	119		ng/L		99	70 - 130	1	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		121	121		ng/L		100	70 - 130	4	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		121	116		ng/L		96	70 - 130	4	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		121	117		ng/L		97	70 - 130	0	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		121	126		ng/L		104	70 - 130	3	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		121	118		ng/L		97	70 - 130	3	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		121	118		ng/L		97	70 - 130	4	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		121	121		ng/L		100	70 - 130	2	30
Perfluoropentanoic acid (PFPeA)	<2.0		121	114		ng/L		94	70 - 130	1	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		121	117		ng/L		97	70 - 130	2	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0		121	124		ng/L		103	70 - 130	3	30

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QC Sample Results

Client: City & County of Honolulu
Project/Site: RED-HILL

Job ID: 380-173550-1
SDG: PFAS: Halawa Shaft Viewing Pool

Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Isotope Dilution	MSD MSD		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	116		50 - 200
13C6 PFDA	114		50 - 200
13C5 PFHxA	108		50 - 200
13C4 PFHpA	110		50 - 200
13C8 PFOA	115		50 - 200
13C9 PFNA	116		50 - 200
13C7 PFUnA	112		50 - 200
13C2 PFDoA	113		50 - 200
13C4 PFBA	114		50 - 200
13C5 PFPeA	120		50 - 200
13C3 PFBS	111		50 - 200
13C3 PFHxS	108		50 - 200
13C8 PFOS	113		50 - 200
13C2-4:2-FTS	107		50 - 200
13C2-6:2-FTS	103		50 - 200
13C2-8:2-FTS	99		50 - 200

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Lab Sample ID: MBL 380-176651/22-A
Matrix: Water
Analysis Batch: 176796

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 176651

Analyte	MBL MBL		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		09/28/25 09:43	09/29/25 12:16	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		09/28/25 09:43	09/29/25 12:16	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		09/28/25 09:43	09/29/25 12:16	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.58		2.0	ng/L		09/28/25 09:43	09/29/25 12:16	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.42		2.0	ng/L		09/28/25 09:43	09/29/25 12:16	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		09/28/25 09:43	09/29/25 12:16	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		09/28/25 09:43	09/29/25 12:16	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		09/28/25 09:43	09/29/25 12:16	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		09/28/25 09:43	09/29/25 12:16	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		09/28/25 09:43	09/29/25 12:16	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		09/28/25 09:43	09/29/25 12:16	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		09/28/25 09:43	09/29/25 12:16	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		09/28/25 09:43	09/29/25 12:16	1
Perfluorotetradecanoic acid (PFTA)	<0.54		2.0	ng/L		09/28/25 09:43	09/29/25 12:16	1
Perfluorotridecanoic acid (PFTTrDA)	<0.36		2.0	ng/L		09/28/25 09:43	09/29/25 12:16	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		09/28/25 09:43	09/29/25 12:16	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		09/28/25 09:43	09/29/25 12:16	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		09/28/25 09:43	09/29/25 12:16	1
Surrogate	MBL MBL		Limits			Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier						
d5-NEtFOSAA	126		70 - 130			09/28/25 09:43	09/29/25 12:16	1
13C2 PFHxA	126		70 - 130			09/28/25 09:43	09/29/25 12:16	1
13C2 PFDA	123		70 - 130			09/28/25 09:43	09/29/25 12:16	1

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QC Sample Results

Client: City & County of Honolulu
Project/Site: RED-HILL

Job ID: 380-173550-1
SDG: PFAS: Halawa Shaft Viewing Pool

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: MBL 380-176651/22-A
Matrix: Water
Analysis Batch: 176796

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 176651

Surrogate	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3-GenX	119		70 - 130	09/28/25 09:43	09/29/25 12:16	1

Lab Sample ID: LCS 380-176651/24-A
Matrix: Water
Analysis Batch: 176796

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 176651

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide	50.3	42.9		ng/L		85	70 - 130
Dimer Acid (HFPO-DA/GenX)							
Perfluorooctanesulfonic acid (PFOS)	50.3	49.3		ng/L		98	70 - 130
Perfluoroundecanoic acid (PFUnA)	50.3	48.3		ng/L		96	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	50.3	46.3		ng/L		92	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	50.3	45.4		ng/L		90	70 - 130
Perfluorohexanoic acid (PFHxA)	50.3	45.3		ng/L		90	70 - 130
Perfluorododecanoic acid (PFDoA)	50.3	48.0		ng/L		95	70 - 130
Perfluorooctanoic acid (PFOA)	50.3	48.5		ng/L		96	70 - 130
Perfluorodecanoic acid (PFDA)	50.3	49.5		ng/L		98	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	50.3	51.0		ng/L		101	70 - 130
Perfluorobutanesulfonic acid (PFBS)	50.3	50.2		ng/L		100	70 - 130
Perfluoroheptanoic acid (PFHpA)	50.3	48.3		ng/L		96	70 - 130
Perfluorononanoic acid (PFNA)	50.3	49.1		ng/L		98	70 - 130
Perfluorotetradecanoic acid (PFTA)	50.3	46.2		ng/L		92	70 - 130
Perfluorotridecanoic acid (PFTrDA)	50.3	48.4		ng/L		96	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	50.3	49.7		ng/L		99	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	50.3	48.9		ng/L		97	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	50.3	45.6		ng/L		91	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
d5-NEtFOSAA	99		70 - 130
13C2 PFHxA	104		70 - 130
13C2 PFDA	108		70 - 130
13C3-GenX	97		70 - 130

QC Sample Results

Client: City & County of Honolulu
Project/Site: RED-HILL

Job ID: 380-173550-1
SDG: PFAS: Halawa Shaft Viewing Pool

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: MRL 380-176651/23-A
Matrix: Water
Analysis Batch: 176796

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 176651

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	2.22	J	ng/L		111	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	2.31	J	ng/L		115	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.24	J	ng/L		112	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	2.24	J	ng/L		112	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.31	J	ng/L		115	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.22	J	ng/L		111	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.26	J	ng/L		113	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.26	J	ng/L		113	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.32	J	ng/L		116	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	2.51	J	ng/L		125	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	2.33	J	ng/L		116	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.36	J	ng/L		118	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.42	J	ng/L		121	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.00	2.20	J	ng/L		110	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.00	2.29	J	ng/L		114	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	2.34	J	ng/L		117	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	2.15	J	ng/L		107	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	2.26	J	ng/L		113	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	Limits
d5-NEtFOSAA	112		70 - 130
13C2 PFHxA	116		70 - 130
13C2 PFDA	111		70 - 130
13C3-GenX	107		70 - 130

Lab Sample ID: 380-173550-1 MS
Matrix: Water
Analysis Batch: 176796

Client Sample ID: HALAWA SHAFT VIEWING POOL
Prep Type: Total/NA
Prep Batch: 176651

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		50.2	47.7		ng/L		95	70 - 130
Perfluorooctanesulfonic acid (PFOS)	3.4		50.2	51.6		ng/L		96	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		50.2	48.5		ng/L		97	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		50.2	47.6		ng/L		95	70 - 130

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QC Sample Results

Client: City & County of Honolulu
Project/Site: RED-HILL

Job ID: 380-173550-1
SDG: PFAS: Halawa Shaft Viewing Pool

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: MBL 380-176779/20-A
Matrix: Water
Analysis Batch: 176894

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 176779

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		09/29/25 04:49	09/29/25 17:44	1

Surrogate	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	99		70 - 130	09/29/25 04:49	09/29/25 17:44	1
13C2 PFHxA	104		70 - 130	09/29/25 04:49	09/29/25 17:44	1
13C2 PFDA	108		70 - 130	09/29/25 04:49	09/29/25 17:44	1
13C3-GenX	89		70 - 130	09/29/25 04:49	09/29/25 17:44	1

Lab Sample ID: LCS 380-176779/22-A
Matrix: Water
Analysis Batch: 176894

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 176779

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	50.3	46.8		ng/L		93	70 - 130
Perfluorooctanesulfonic acid (PFOS)	50.3	49.1		ng/L		98	70 - 130
Perfluoroundecanoic acid (PFUnA)	50.3	49.0		ng/L		97	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	50.3	46.6		ng/L		93	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	50.3	46.3		ng/L		92	70 - 130
Perfluorohexanoic acid (PFHxA)	50.3	45.9		ng/L		91	70 - 130
Perfluorododecanoic acid (PFDoA)	50.3	48.4		ng/L		96	70 - 130
Perfluorooctanoic acid (PFOA)	50.3	49.3		ng/L		98	70 - 130
Perfluorodecanoic acid (PFDA)	50.3	49.7		ng/L		99	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	50.3	48.1		ng/L		96	70 - 130
Perfluorobutanesulfonic acid (PFBS)	50.3	47.8		ng/L		95	70 - 130
Perfluoroheptanoic acid (PFHpA)	50.3	49.2		ng/L		98	70 - 130
Perfluorononanoic acid (PFNA)	50.3	50.0		ng/L		99	70 - 130
Perfluorotetradecanoic acid (PFTA)	50.3	44.5		ng/L		89	70 - 130
Perfluorotridecanoic acid (PFTrDA)	50.3	49.5		ng/L		98	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	50.3	48.8		ng/L		97	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	50.3	47.7		ng/L		95	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	50.3	47.3		ng/L		94	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
d5-NEtFOSAA	106		70 - 130
13C2 PFHxA	109		70 - 130
13C2 PFDA	115		70 - 130

QC Sample Results

Client: City & County of Honolulu
Project/Site: RED-HILL

Job ID: 380-173550-1
SDG: PFAS: Halawa Shaft Viewing Pool

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: LCS 380-176779/22-A
Matrix: Water
Analysis Batch: 176894

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 176779

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
13C3-GenX	103		70 - 130

Lab Sample ID: MRL 380-176779/21-A
Matrix: Water
Analysis Batch: 176894

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 176779

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec
							Limits
Hexafluoropropylene Oxide	2.01	2.05	J	ng/L		102	50 - 150
Dimer Acid (HFPO-DA/GenX)							
Perfluorooctanesulfonic acid (PFOS)	2.01	2.32	J	ng/L		115	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.01	2.34	J	ng/L		116	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.01	2.14	J	ng/L		106	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.01	2.26	J	ng/L		112	50 - 150
Perfluorohexanoic acid (PFHxA)	2.01	2.19	J	ng/L		109	50 - 150
Perfluorododecanoic acid (PFDoA)	2.01	2.32	J	ng/L		115	50 - 150
Perfluorooctanoic acid (PFOA)	2.01	2.38	J	ng/L		119	50 - 150
Perfluorodecanoic acid (PFDA)	2.01	2.25	J	ng/L		112	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.01	2.27	J	ng/L		113	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.01	2.25	J	ng/L		112	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.01	2.20	J	ng/L		109	50 - 150
Perfluorononanoic acid (PFNA)	2.01	2.35	J	ng/L		117	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.01	2.13	J	ng/L		106	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.01	2.41	J	ng/L		120	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	2.01	2.18	J	ng/L		108	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.01	2.19	J	ng/L		109	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.01	2.15	J	ng/L		107	50 - 150

Surrogate	MRL MRL		Limits
	%Recovery	Qualifier	
d5-NEtFOSAA	103		70 - 130
13C2 PFHxA	105		70 - 130
13C2 PFDA	105		70 - 130
13C3-GenX	98		70 - 130

QC Sample Results

Client: City & County of Honolulu
Project/Site: RED-HILL

Job ID: 380-173550-1
SDG: PFAS: Halawa Shaft Viewing Pool

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: 380-173552-A-1-B MSD

Matrix: Water

Analysis Batch: 176894

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 176779

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
N-ethylperfluorooctanesulfonamide doacetic acid (NEtFOSAA)	<2.0		25.2	23.6		ng/L		94	70 - 130	3	30
Perfluorohexanoic acid (PFHxA)	<2.0		25.2	24.7		ng/L		96	70 - 130	2	30
Perfluorododecanoic acid (PFDoA)	<2.0		25.2	25.2		ng/L		100	70 - 130	3	30
Perfluorooctanoic acid (PFOA)	<2.0		25.2	25.3		ng/L		101	70 - 130	2	30
Perfluorodecanoic acid (PFDA)	<2.0		25.2	25.7		ng/L		102	70 - 130	5	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		25.2	26.4		ng/L		102	70 - 130	0	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		25.2	25.9		ng/L		101	70 - 130	3	30
Perfluoroheptanoic acid (PFHpA)	<2.0		25.2	25.2		ng/L		100	70 - 130	4	30
Perfluorononanoic acid (PFNA)	<2.0		25.2	25.8		ng/L		103	70 - 130	4	30
Perfluorotetradecanoic acid (PFTA)	<2.0		25.2	24.2		ng/L		96	70 - 130	3	30
Perfluorotridecanoic acid (PFTrDA)	<2.0		25.2	25.8		ng/L		102	70 - 130	2	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		25.2	25.4		ng/L		101	70 - 130	1	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		25.2	24.4		ng/L		97	70 - 130	4	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		25.2	23.4		ng/L		93	70 - 130	3	30
Surrogate		MSD	MSD								
	%Recovery	Qualifier	Limits								
d5-NEtFOSAA	102		70 - 130								
13C2 PFHxA	104		70 - 130								
13C2 PFDA	106		70 - 130								
13C3-GenX	94		70 - 130								

QC Association Summary

Client: City & County of Honolulu
 Project/Site: RED-HILL

Job ID: 380-173550-1
 SDG: PFAS: Halawa Shaft Viewing Pool

LCMS

Prep Batch: 176585

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-173550-1	HALAWA SHAFT VIEWING POOL	Total/NA	Water	533	
380-173550-2	HALAWA SHAFT VIEWING POOL BLANK	Total/NA	Water	533	
MBL 380-176585/20-A	Method Blank	Total/NA	Water	533	
LCS 380-176585/22-A	Lab Control Sample	Total/NA	Water	533	
MRL 380-176585/21-A	Lab Control Sample	Total/NA	Water	533	
110-2190-C-1-A MS	Matrix Spike	Total/NA	Water	533	
110-2190-D-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	

Analysis Batch: 176640

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-173550-1	HALAWA SHAFT VIEWING POOL	Total/NA	Water	533	176585
380-173550-2	HALAWA SHAFT VIEWING POOL BLANK	Total/NA	Water	533	176585
MBL 380-176585/20-A	Method Blank	Total/NA	Water	533	176585
LCS 380-176585/22-A	Lab Control Sample	Total/NA	Water	533	176585
MRL 380-176585/21-A	Lab Control Sample	Total/NA	Water	533	176585
110-2190-C-1-A MS	Matrix Spike	Total/NA	Water	533	176585
110-2190-D-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	176585

Prep Batch: 176651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-173550-1	HALAWA SHAFT VIEWING POOL	Total/NA	Water	537.1 DW	
MBL 380-176651/22-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-176651/24-A	Lab Control Sample	Total/NA	Water	537.1 DW	
MRL 380-176651/23-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-173550-1 MS	HALAWA SHAFT VIEWING POOL	Total/NA	Water	537.1 DW	
380-173550-1 MSD	HALAWA SHAFT VIEWING POOL	Total/NA	Water	537.1 DW	

Prep Batch: 176779

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-173550-2	HALAWA SHAFT VIEWING POOL BLANK	Total/NA	Water	537.1 DW	
MBL 380-176779/20-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-176779/22-A	Lab Control Sample	Total/NA	Water	537.1 DW	
MRL 380-176779/21-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-173552-A-1-A MS	Matrix Spike	Total/NA	Water	537.1 DW	
380-173552-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	537.1 DW	

Analysis Batch: 176796

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-173550-1	HALAWA SHAFT VIEWING POOL	Total/NA	Water	537.1	176651
MBL 380-176651/22-A	Method Blank	Total/NA	Water	537.1	176651
LCS 380-176651/24-A	Lab Control Sample	Total/NA	Water	537.1	176651
MRL 380-176651/23-A	Lab Control Sample	Total/NA	Water	537.1	176651
380-173550-1 MS	HALAWA SHAFT VIEWING POOL	Total/NA	Water	537.1	176651
380-173550-1 MSD	HALAWA SHAFT VIEWING POOL	Total/NA	Water	537.1	176651

Analysis Batch: 176894

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-173550-2	HALAWA SHAFT VIEWING POOL BLANK	Total/NA	Water	537.1	176779
MBL 380-176779/20-A	Method Blank	Total/NA	Water	537.1	176779
LCS 380-176779/22-A	Lab Control Sample	Total/NA	Water	537.1	176779
MRL 380-176779/21-A	Lab Control Sample	Total/NA	Water	537.1	176779

QC Association Summary

Client: City & County of Honolulu
Project/Site: RED-HILL

Job ID: 380-173550-1
SDG: PFAS: Halawa Shaft Viewing Pool

LCMS (Continued)

Analysis Batch: 176894 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-173552-A-1-A MS	Matrix Spike	Total/NA	Water	537.1	176779
380-173552-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	537.1	176779

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Lab Chronicle

Client: City & County of Honolulu
 Project/Site: RED-HILL

Job ID: 380-173550-1
 SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-173550-1

Date Collected: 09/23/25 09:40

Matrix: Water

Date Received: 09/25/25 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			176585	N8NE	EA POM	09/26/25 17:23
Total/NA	Analysis	533		1	176640	M7ML	EA POM	09/27/25 18:32
Total/NA	Prep	537.1 DW			176651	E9PK	EA POM	09/28/25 09:43
Total/NA	Analysis	537.1		1	176796	M7ML	EA POM	09/29/25 12:47

Client Sample ID: HALAWA SHAFT VIEWING POOL BLANK

Lab Sample ID: 380-173550-2

Date Collected: 09/23/25 09:40

Matrix: Water

Date Received: 09/25/25 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			176585	N8NE	EA POM	09/26/25 17:23
Total/NA	Analysis	533		1	176640	M7ML	EA POM	09/27/25 18:41
Total/NA	Prep	537.1 DW			176779	G9MN	EA POM	09/29/25 04:49
Total/NA	Analysis	537.1		1	176894	SZ9R	EA POM	09/29/25 19:03

Laboratory References:

EA POM = Eurofins Eaton Analytical Pomona, 941 Corporate Center Drive, Pomona, CA 91768-2642, TEL (626)386-1100

Accreditation/Certification Summary

Client: City & County of Honolulu
Project/Site: RED-HILL

Job ID: 380-173550-1
SDG: PFAS: Halawa Shaft Viewing Pool

Laboratory: Eurofins Eaton Analytical Pomona

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Hawaii	State	CA00006	01-31-26

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Method Summary

Client: City & County of Honolulu
Project/Site: RED-HILL

Job ID: 380-173550-1
SDG: PFAS: Halawa Shaft Viewing Pool

Method	Method Description	Protocol	Laboratory
533	Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water	EPA	EA POM
537.1	Perfluorinated Alkyl Acids (LC/MS)	EPA	EA POM
533	Extraction of Perfluorinated and Polyfluorinated Alkyl Acids	EPA	EA POM
537.1 DW	Extraction of Perfluorinated Alkyl Acids	EPA	EA POM

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EA POM = Eurofins Eaton Analytical Pomona, 941 Corporate Center Drive, Pomona, CA 91768-2642, TEL (626)386-1100



Sample Summary

Client: City & County of Honolulu
Project/Site: RED-HILL

Job ID: 380-173550-1
SDG: PFAS: Halawa Shaft Viewing Pool

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Sample Origin
380-173550-1	HALAWA SHAFT VIEWING POOL	Water	09/23/25 09:40	09/25/25 10:05	Hawaii
380-173550-2	HALAWA SHAFT VIEWING POOL BLANK	Water	09/23/25 09:40	09/25/25 10:05	Hawaii

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Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-173550-1

SDG Number: PFAS: Halawa Shaft Viewing Pool

Login Number: 173550

List Number: 1

Creator: Tran, Kristine

List Source: Eurofins Eaton Analytical Pomona

Question	Answer	Comment
The coolers custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
Samples were received on ice.	True	
Cooler(s) Temperature is acceptable.	True	
Cooler(s) Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and is legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
CIO4 headspace requirement met (>50% for CA, >30% for other states).	N/A	
Samples do not require splitting or compositing.	True	
Container provided by EEA	True	

