

ANALYTICAL REPORT

PREPARED FOR

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JOB DESCRIPTION

RED-HILL
PFAS: Halawa Shaft Viewing Pool

JOB NUMBER

380-160098-1

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: 380-160098-1
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: 380-160098-1

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Job Narrative 380-160098-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The samples were received on 7/11/2025 9:34 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 1.7°C.

PFAS

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

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Detection Summary

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

Job ID: 380-160098-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: Halawa Shaft Viewing Pool

Lab Sample ID: 380-160098-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	3.3		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.2		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.5		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: 380-160098-2

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: 380-160098-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: Halawa Shaft Viewing Pool

Lab Sample ID: 380-160098-1

Date Collected: 07/08/25 09:37

Matrix: Water

Date Received: 07/11/25 09:34

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:20	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:20	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:20	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:20	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:20	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:20	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:20	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:20	1
Perfluorohexanesulfonic acid (PFHxS)	3.3		2.0	ng/L		07/13/25 12:10	07/15/25 15:20	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:20	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:20	1
Perfluorooctanesulfonic acid (PFOS)	3.2		2.0	ng/L		07/13/25 12:10	07/15/25 15:20	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:20	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:20	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:20	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:20	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:20	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:20	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:20	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:20	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:20	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:20	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:20	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:20	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:20	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	85		50 - 200	07/13/25 12:10	07/15/25 15:20	1
13C6 PFDA	100		50 - 200	07/13/25 12:10	07/15/25 15:20	1
13C5 PFHxA	94		50 - 200	07/13/25 12:10	07/15/25 15:20	1
13C4 PFHpA	94		50 - 200	07/13/25 12:10	07/15/25 15:20	1
13C8 PFOA	90		50 - 200	07/13/25 12:10	07/15/25 15:20	1
13C9 PFNA	97		50 - 200	07/13/25 12:10	07/15/25 15:20	1
13C7 PFUnA	95		50 - 200	07/13/25 12:10	07/15/25 15:20	1
13C2 PFDoA	94		50 - 200	07/13/25 12:10	07/15/25 15:20	1
13C4 PFBA	97		50 - 200	07/13/25 12:10	07/15/25 15:20	1
13C5 PFPeA	94		50 - 200	07/13/25 12:10	07/15/25 15:20	1
13C3 PFBS	105		50 - 200	07/13/25 12:10	07/15/25 15:20	1
13C3 PFHxS	108		50 - 200	07/13/25 12:10	07/15/25 15:20	1

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Client Sample Results

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

Job ID: 380-160098-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: Halawa Shaft Viewing Pool

Lab Sample ID: 380-160098-1

Date Collected: 07/08/25 09:37

Matrix: Water

Date Received: 07/11/25 09:34

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	107		50 - 200	07/13/25 12:10	07/15/25 15:20	1
13C2-4:2-FTS	120		50 - 200	07/13/25 12:10	07/15/25 15:20	1
13C2-6:2-FTS	119		50 - 200	07/13/25 12:10	07/15/25 15:20	1
13C2-8:2-FTS	134		50 - 200	07/13/25 12:10	07/15/25 15:20	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		07/11/25 17:27	07/12/25 14:02	1
Perfluorooctanesulfonic acid (PFOS)	3.5		2.0	ng/L		07/11/25 17:27	07/12/25 14:02	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:02	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:02	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:02	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:02	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:02	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:02	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:02	1
Perfluorohexanesulfonic acid (PFHxS)	3.8		2.0	ng/L		07/11/25 17:27	07/12/25 14:02	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:02	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:02	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:02	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:02	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:02	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:02	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:02	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:02	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	109		70 - 130			07/11/25 17:27	07/12/25 14:02	1
13C2 PFHxA	115		70 - 130			07/11/25 17:27	07/12/25 14:02	1
13C2 PFDA	116		70 - 130			07/11/25 17:27	07/12/25 14:02	1
13C3-GenX	116		70 - 130			07/11/25 17:27	07/12/25 14:02	1

Client Sample ID: Halawa Shaft Viewing Pool Blank

Lab Sample ID: 380-160098-2

Date Collected: 07/08/25 09:37

Matrix: Water

Date Received: 07/11/25 09:34

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		07/13/25 12:10	07/15/25 15:34	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:34	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:34	1

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Client Sample Results

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

Job ID: 380-160098-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: Halawa Shaft Viewing Pool Blank

Lab Sample ID: 380-160098-2

Date Collected: 07/08/25 09:37

Matrix: Water

Date Received: 07/11/25 09:34

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		07/13/25 12:10	07/15/25 15:34	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:34	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:34	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:34	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:34	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:34	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:34	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:34	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:34	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:34	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:34	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:34	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:34	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:34	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:34	1
Nonfluoro-3,6-dioxahexanoic acid (NFDHA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:34	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:34	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:34	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:34	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:34	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:34	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		07/13/25 12:10	07/15/25 15:34	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	87		50 - 200	07/13/25 12:10	07/15/25 15:34	1
13C6 PFDA	114		50 - 200	07/13/25 12:10	07/15/25 15:34	1
13C5 PFHxA	100		50 - 200	07/13/25 12:10	07/15/25 15:34	1
13C4 PFHpA	99		50 - 200	07/13/25 12:10	07/15/25 15:34	1
13C8 PFOA	100		50 - 200	07/13/25 12:10	07/15/25 15:34	1
13C9 PFNA	113		50 - 200	07/13/25 12:10	07/15/25 15:34	1
13C7 PFUnA	113		50 - 200	07/13/25 12:10	07/15/25 15:34	1
13C2 PFDoA	110		50 - 200	07/13/25 12:10	07/15/25 15:34	1
13C4 PFBA	99		50 - 200	07/13/25 12:10	07/15/25 15:34	1
13C5 PFPeA	98		50 - 200	07/13/25 12:10	07/15/25 15:34	1
13C3 PFBS	114		50 - 200	07/13/25 12:10	07/15/25 15:34	1
13C3 PFHxS	112		50 - 200	07/13/25 12:10	07/15/25 15:34	1
13C8 PFOS	114		50 - 200	07/13/25 12:10	07/15/25 15:34	1
13C2-4:2-FTS	116		50 - 200	07/13/25 12:10	07/15/25 15:34	1
13C2-6:2-FTS	108		50 - 200	07/13/25 12:10	07/15/25 15:34	1
13C2-8:2-FTS	133		50 - 200	07/13/25 12:10	07/15/25 15:34	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-160098-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: Halawa Shaft Viewing Pool Blank

Lab Sample ID: 380-160098-2

Date Collected: 07/08/25 09:37

Matrix: Water

Date Received: 07/11/25 09:34

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		07/11/25 17:27	07/12/25 14:12	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:12	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:12	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:12	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:12	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:12	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:12	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:12	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:12	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:12	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:12	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:12	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:12	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:12	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:12	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:12	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:12	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/11/25 17:27	07/12/25 14:12	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	111		70 - 130			07/11/25 17:27	07/12/25 14:12	1
13C2 PFHxA	113		70 - 130			07/11/25 17:27	07/12/25 14:12	1
13C2 PFDA	116		70 - 130			07/11/25 17:27	07/12/25 14:12	1
13C3-GenX	111		70 - 130			07/11/25 17:27	07/12/25 14:12	1

Action Limit Summary

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

Job ID: 380-160098-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: Halawa Shaft Viewing Pool

Lab Sample ID: 380-160098-1

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 Limit	RL	Method	Prep Type
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		ng/L	10	2.0	533	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.3		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)	3.5		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: 380-160098-2

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 Limit	RL	Method	Prep Type
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: 380-160098-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	d5NEFOS (70-130)	PFHxA (70-130)	PFDA (70-130)	GenX (70-130)
380-158990-Q-1-A MS	Matrix Spike	108	113	112	113
380-158990-R-1-A MSD	Matrix Spike Duplicate	113	112	115	112
380-160098-1	Halawa Shaft Viewing Pool	109	115	116	116
380-160098-2	Halawa Shaft Viewing Pool	111	113	116	111
	Blank				
LCS 380-162373/21-A	Lab Control Sample	110	122	118	118
MBL 380-162373/19-A	Method Blank	103	115	114	108
MRL 380-162373/20-A	Lab Control Sample	102	110	115	105
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: 380-160098-1
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)	PFDaA (50-200)
380-160092-B-1-A MS	Matrix Spike	77	83	76	76	75	79	83	84
380-160092-B-1-B MSD	Matrix Spike Duplicate	59	64	61	60	59	61	65	71
380-160098-1	Halawa Shaft Viewing Pool	85	100	94	94	90	97	95	94
380-160098-2	Halawa Shaft Viewing Pool	87	114	100	99	100	113	113	110
	Blank								
LCS 380-162465/22-A	Lab Control Sample	100	116	96	96	99	108	110	111
MBL 380-162465/20-A	Method Blank	95	106	90	93	95	104	108	109
MRL 380-162465/21-A	Lab Control Sample	102	114	100	99	103	107	110	106
		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)
380-160092-B-1-A MS	Matrix Spike	80	78	105	107	106	103	105	125
380-160092-B-1-B MSD	Matrix Spike Duplicate	67	65	111	109	111	117	115	135
380-160098-1	Halawa Shaft Viewing Pool	97	94	105	108	107	120	119	134
380-160098-2	Halawa Shaft Viewing Pool	99	98	114	112	114	116	108	133
	Blank								
LCS 380-162465/22-A	Lab Control Sample	99	97	111	109	114	109	103	132
MBL 380-162465/20-A	Method Blank	98	97	116	117	117	108	101	122
MRL 380-162465/21-A	Lab Control Sample	102	101	109	110	110	109	99	128
Surrogate Legend									
HFPODA = 13C3 HFPO-DA									
C6PFDA = 13C6 PFDA									
13C5PHA = 13C5 PFHxA									
C4PFHA = 13C4 PFHpA									
C8PFOA = 13C8 PFOA									
C9PFNA = 13C9 PFNA									
13C7PUA = 13C7 PFUnA									
PFDaA = 13C2 PFDaA									
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: 380-160098-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: MBL 380-162465/20-A

Matrix: Water

Analysis Batch: 162850

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 162465

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		07/13/25 12:10	07/15/25 10:37	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		07/13/25 12:10	07/15/25 10:37	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		07/13/25 12:10	07/15/25 10:37	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		07/13/25 12:10	07/15/25 10:37	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		07/13/25 12:10	07/15/25 10:37	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		07/13/25 12:10	07/15/25 10:37	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		07/13/25 12:10	07/15/25 10:37	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		07/13/25 12:10	07/15/25 10:37	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		07/13/25 12:10	07/15/25 10:37	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		07/13/25 12:10	07/15/25 10:37	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		07/13/25 12:10	07/15/25 10:37	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		07/13/25 12:10	07/15/25 10:37	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		07/13/25 12:10	07/15/25 10:37	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		07/13/25 12:10	07/15/25 10:37	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		07/13/25 12:10	07/15/25 10:37	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		07/13/25 12:10	07/15/25 10:37	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		07/13/25 12:10	07/15/25 10:37	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		07/13/25 12:10	07/15/25 10:37	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		07/13/25 12:10	07/15/25 10:37	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<0.25		2.0	ng/L		07/13/25 12:10	07/15/25 10:37	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		07/13/25 12:10	07/15/25 10:37	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		07/13/25 12:10	07/15/25 10:37	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		07/13/25 12:10	07/15/25 10:37	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		07/13/25 12:10	07/15/25 10:37	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		07/13/25 12:10	07/15/25 10:37	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	95		50 - 200	07/13/25 12:10	07/15/25 10:37	1
13C6 PFDA	106		50 - 200	07/13/25 12:10	07/15/25 10:37	1
13C5 PFHxA	90		50 - 200	07/13/25 12:10	07/15/25 10:37	1
13C4 PFHpA	93		50 - 200	07/13/25 12:10	07/15/25 10:37	1
13C8 PFOA	95		50 - 200	07/13/25 12:10	07/15/25 10:37	1
13C9 PFNA	104		50 - 200	07/13/25 12:10	07/15/25 10:37	1
13C7 PFUnA	108		50 - 200	07/13/25 12:10	07/15/25 10:37	1
13C2 PFDoA	109		50 - 200	07/13/25 12:10	07/15/25 10:37	1
13C4 PFBA	98		50 - 200	07/13/25 12:10	07/15/25 10:37	1
13C5 PFPeA	97		50 - 200	07/13/25 12:10	07/15/25 10:37	1
13C3 PFBS	116		50 - 200	07/13/25 12:10	07/15/25 10:37	1
13C3 PFHxS	117		50 - 200	07/13/25 12:10	07/15/25 10:37	1

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-160098-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: MBL 380-162465/20-A

Matrix: Water

Analysis Batch: 162850

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 162465

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	117		50 - 200	07/13/25 12:10	07/15/25 10:37	1
13C2-4:2-FTS	108		50 - 200	07/13/25 12:10	07/15/25 10:37	1
13C2-6:2-FTS	101		50 - 200	07/13/25 12:10	07/15/25 10:37	1
13C2-8:2-FTS	122		50 - 200	07/13/25 12:10	07/15/25 10:37	1

Lab Sample ID: LCS 380-162465/22-A

Matrix: Water

Analysis Batch: 162850

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 162465

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	120	104		ng/L		86	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	120	105		ng/L		87	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	120	107		ng/L		89	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	120	108		ng/L		89	70 - 130
Perfluorobutanesulfonic acid (PFBS)	120	108		ng/L		90	70 - 130
Perfluorodecanoic acid (PFDA)	120	106		ng/L		88	70 - 130
Perfluorododecanoic acid (PFDoA)	120	109		ng/L		91	70 - 130
Perfluoroheptanoic acid (PFHpA)	120	110		ng/L		91	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	120	108		ng/L		90	70 - 130
Perfluorohexanoic acid (PFHxA)	120	111		ng/L		93	70 - 130
Perfluorononanoic acid (PFNA)	120	108		ng/L		90	70 - 130
Perfluorooctanesulfonic acid (PFOS)	120	109		ng/L		91	70 - 130
Perfluorooctanoic acid (PFOA)	120	111		ng/L		93	70 - 130
Perfluoroundecanoic acid (PFUnA)	120	109		ng/L		90	70 - 130
Perfluorobutanoic acid (PFBA)	120	111		ng/L		92	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	120	105		ng/L		87	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	110		ng/L		91	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	120	109		ng/L		91	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	120	108		ng/L		90	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	120	107		ng/L		89	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	120	99.1		ng/L		82	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	120	104		ng/L		87	70 - 130
Perfluoropentanoic acid (PFPeA)	120	108		ng/L		90	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	120	104		ng/L		86	70 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-160098-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: LCS 380-162465/22-A

Matrix: Water

Analysis Batch: 162850

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 162465

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanesulfonic acid (PFPeS)	120	110		ng/L		91	70 - 130
		LCS	LCS				
Isotope Dilution	%Recovery	Qualifier	Limits				
13C3 HFPO-DA	100		50 - 200				
13C6 PFDA	116		50 - 200				
13C5 PFHxA	96		50 - 200				
13C4 PFHpA	96		50 - 200				
13C8 PFOA	99		50 - 200				
13C9 PFNA	108		50 - 200				
13C7 PFUnA	110		50 - 200				
13C2 PFDoA	111		50 - 200				
13C4 PFBA	99		50 - 200				
13C5 PFPeA	97		50 - 200				
13C3 PFBS	111		50 - 200				
13C3 PFHxS	109		50 - 200				
13C8 PFOS	114		50 - 200				
13C2-4:2-FTS	109		50 - 200				
13C2-6:2-FTS	103		50 - 200				
13C2-8:2-FTS	132		50 - 200				

Lab Sample ID: MRL 380-162465/21-A

Matrix: Water

Analysis Batch: 162850

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 162465

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	1.87	J	ng/L		93	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	2.00	1.81	J	ng/L		90	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	1.87	J	ng/L		94	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.90	J	ng/L		95	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	1.88	J	ng/L		94	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	1.84	J	ng/L		92	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.04	J	ng/L		102	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	1.91	J	ng/L		95	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	1.83	J	ng/L		91	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	1.62	J	ng/L		81	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.04	J	ng/L		102	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	2.01	J	ng/L		100	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.16	J	ng/L		108	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	1.86	J	ng/L		93	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	2.06	J	ng/L		103	50 - 150

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-160098-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: MRL 380-162465/21-A

Matrix: Water

Analysis Batch: 162850

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 162465

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	1.92	J	ng/L		96	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	2.03	J	ng/L		101	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	2.06	J	ng/L		103	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	1.94	J	ng/L		97	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	2.00	1.86	J	ng/L		93	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	1.67	J	ng/L		84	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	1.85	J	ng/L		93	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	1.80	J	ng/L		90	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.00	1.95	J	ng/L		97	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.00	1.84	J	ng/L		92	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	Limits
13C3 HFPO-DA	102		50 - 200
13C6 PFDA	114		50 - 200
13C5 PFHxA	100		50 - 200
13C4 PFHpA	99		50 - 200
13C8 PFOA	103		50 - 200
13C9 PFNA	107		50 - 200
13C7 PFUnA	110		50 - 200
13C2 PFDoA	106		50 - 200
13C4 PFBA	102		50 - 200
13C5 PFPeA	101		50 - 200
13C3 PFBS	109		50 - 200
13C3 PFHxS	110		50 - 200
13C8 PFOS	110		50 - 200
13C2-4:2-FTS	109		50 - 200
13C2-6:2-FTS	99		50 - 200
13C2-8:2-FTS	128		50 - 200

Lab Sample ID: 380-160092-B-1-A MS

Matrix: Water

Analysis Batch: 162850

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 162465

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.4	55.0		ng/L		91	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.4	55.7		ng/L		92	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.4	54.6		ng/L		90	70 - 130

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QC Sample Results

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

Job ID: 380-160098-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: 380-160092-B-1-A MS

Matrix: Water

Analysis Batch: 162850

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 162465

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide	<2.0		60.4	57.3		ng/L		95	70 - 130
Dimer Acid (HFPO-DA/GenX)									
Perfluorobutanesulfonic acid (PFBS)	<2.0		60.4	57.2		ng/L		95	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		60.4	56.5		ng/L		94	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		60.4	56.4		ng/L		93	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		60.4	59.3		ng/L		98	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.4	57.2		ng/L		94	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		60.4	58.6		ng/L		97	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		60.4	57.9		ng/L		96	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		60.4	59.1		ng/L		98	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		60.4	55.5		ng/L		92	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		60.4	55.9		ng/L		93	70 - 130
Perfluorobutanoic acid (PFBA)	<2.0		60.4	56.5		ng/L		94	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.4	56.2		ng/L		93	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.4	59.9		ng/L		99	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.4	58.1		ng/L		96	70 - 130
Nonafluoro-3,6-dioxahexanoic acid (NFDHA)	<2.0		60.4	54.1		ng/L		90	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		60.4	56.2		ng/L		93	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		60.4	50.4		ng/L		83	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.4	54.5		ng/L		90	70 - 130
Perfluoropentanoic acid (PFPeA)	<2.0		60.4	56.0		ng/L		93	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.4	57.0		ng/L		94	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.4	55.6		ng/L		92	70 - 130

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
13C3 HFPO-DA	77		50 - 200
13C6 PFDA	83		50 - 200
13C5 PFHxA	76		50 - 200
13C4 PFHpA	76		50 - 200
13C8 PFOA	75		50 - 200
13C9 PFNA	79		50 - 200
13C7 PFUnA	83		50 - 200
13C2 PFDoA	84		50 - 200
13C4 PFBA	80		50 - 200
13C5 PFPeA	78		50 - 200
13C3 PFBS	105		50 - 200
13C3 PFHxS	107		50 - 200
13C8 PFOS	106		50 - 200

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QC Sample Results

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

Job ID: 380-160098-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: 380-160092-B-1-A MS

Matrix: Water

Analysis Batch: 162850

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 162465

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
13C2-4:2-FTS	103		50 - 200
13C2-6:2-FTS	105		50 - 200
13C2-8:2-FTS	125		50 - 200

Lab Sample ID: 380-160092-B-1-B MSD

Matrix: Water

Analysis Batch: 162850

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 162465

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.2	52.9		ng/L		88	70 - 130	4	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<2.0		60.2	54.3		ng/L		90	70 - 130	3	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.2	54.0		ng/L		90	70 - 130	1	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		60.2	56.1		ng/L		93	70 - 130	2	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		60.2	55.3		ng/L		92	70 - 130	3	30
Perfluorodecanoic acid (PFDA)	<2.0		60.2	56.3		ng/L		93	70 - 130	0	30
Perfluorododecanoic acid (PFDaA)	<2.0		60.2	56.9		ng/L		95	70 - 130	1	30
Perfluoroheptanoic acid (PFHpA)	<2.0		60.2	57.0		ng/L		95	70 - 130	4	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.2	57.4		ng/L		95	70 - 130	0	30
Perfluorohexanoic acid (PFHxA)	<2.0		60.2	59.9		ng/L		99	70 - 130	2	30
Perfluorononanoic acid (PFNA)	<2.0		60.2	56.2		ng/L		93	70 - 130	3	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		60.2	57.9		ng/L		96	70 - 130	2	30
Perfluorooctanoic acid (PFOA)	<2.0		60.2	55.7		ng/L		92	70 - 130	0	30
Perfluoroundecanoic acid (PFUnA)	<2.0		60.2	56.9		ng/L		94	70 - 130	2	30
Perfluorobutanoic acid (PFBA)	<2.0		60.2	55.8		ng/L		93	70 - 130	1	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.2	55.1		ng/L		92	70 - 130	2	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.2	59.0		ng/L		98	70 - 130	2	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.2	59.7		ng/L		99	70 - 130	3	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.2	53.7		ng/L		89	70 - 130	1	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEA)	<2.0		60.2	53.9		ng/L		90	70 - 130	4	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		60.2	49.0		ng/L		81	70 - 130	3	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.2	54.3		ng/L		90	70 - 130	0	30
Perfluoropentanoic acid (PFPeA)	<2.0		60.2	56.1		ng/L		93	70 - 130	0	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.2	55.6		ng/L		92	70 - 130	2	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.2	56.3		ng/L		93	70 - 130	1	30

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QC Sample Results

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

Job ID: 380-160098-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Isotope Dilution	MSD %Recovery	MSD Qualifier	Limits
13C3 HFPO-DA	59		50 - 200
13C6 PFDA	64		50 - 200
13C5 PFHxA	61		50 - 200
13C4 PFHpA	60		50 - 200
13C8 PFOA	59		50 - 200
13C9 PFNA	61		50 - 200
13C7 PFUnA	65		50 - 200
13C2 PFDoA	71		50 - 200
13C4 PFBA	67		50 - 200
13C5 PFPeA	65		50 - 200
13C3 PFBS	111		50 - 200
13C3 PFHxS	109		50 - 200
13C8 PFOS	111		50 - 200
13C2-4:2-FTS	117		50 - 200
13C2-6:2-FTS	115		50 - 200
13C2-8:2-FTS	135		50 - 200

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

Lab Sample ID: MBL 380-162373/19-A
Matrix: Water
Analysis Batch: 162431

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 162373

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		07/11/25 17:27	07/12/25 10:32	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		07/11/25 17:27	07/12/25 10:32	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		07/11/25 17:27	07/12/25 10:32	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.58		2.0	ng/L		07/11/25 17:27	07/12/25 10:32	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.42		2.0	ng/L		07/11/25 17:27	07/12/25 10:32	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		07/11/25 17:27	07/12/25 10:32	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		07/11/25 17:27	07/12/25 10:32	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		07/11/25 17:27	07/12/25 10:32	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		07/11/25 17:27	07/12/25 10:32	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		07/11/25 17:27	07/12/25 10:32	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		07/11/25 17:27	07/12/25 10:32	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		07/11/25 17:27	07/12/25 10:32	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		07/11/25 17:27	07/12/25 10:32	1
Perfluorotetradecanoic acid (PFTA)	<0.54		2.0	ng/L		07/11/25 17:27	07/12/25 10:32	1
Perfluorotridecanoic acid (PFTrDA)	<0.36		2.0	ng/L		07/11/25 17:27	07/12/25 10:32	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		07/11/25 17:27	07/12/25 10:32	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		07/11/25 17:27	07/12/25 10:32	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		07/11/25 17:27	07/12/25 10:32	1
Surrogate	MBL %Recovery	MBL Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	103		70 - 130			07/11/25 17:27	07/12/25 10:32	1
13C2 PFHxA	115		70 - 130			07/11/25 17:27	07/12/25 10:32	1
13C2 PFDA	114		70 - 130			07/11/25 17:27	07/12/25 10:32	1

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QC Sample Results

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

Job ID: 380-160098-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: MBL 380-162373/19-A
Matrix: Water
Analysis Batch: 162431

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 162373

Surrogate	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3-GenX	108		70 - 130	07/11/25 17:27	07/12/25 10:32	1

Lab Sample ID: LCS 380-162373/21-A
Matrix: Water
Analysis Batch: 162431

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 162373

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide	50.1	49.7		ng/L		99	70 - 130
Dimer Acid (HFPO-DA/GenX)							
Perfluorooctanesulfonic acid (PFOS)	50.1	52.8		ng/L		105	70 - 130
Perfluoroundecanoic acid (PFUnA)	50.1	51.1		ng/L		102	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	50.1	48.8		ng/L		97	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	50.1	48.0		ng/L		96	70 - 130
Perfluorohexanoic acid (PFHxA)	50.1	52.0		ng/L		104	70 - 130
Perfluorododecanoic acid (PFDoA)	50.1	51.9		ng/L		104	70 - 130
Perfluorooctanoic acid (PFOA)	50.1	52.5		ng/L		105	70 - 130
Perfluorodecanoic acid (PFDA)	50.1	51.9		ng/L		104	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	50.1	54.4		ng/L		108	70 - 130
Perfluorobutanesulfonic acid (PFBS)	50.1	52.6		ng/L		105	70 - 130
Perfluoroheptanoic acid (PFHpA)	50.1	53.5		ng/L		107	70 - 130
Perfluorononanoic acid (PFNA)	50.1	52.6		ng/L		105	70 - 130
Perfluorotetradecanoic acid (PFTA)	50.1	49.8		ng/L		99	70 - 130
Perfluorotridecanoic acid (PFTrDA)	50.1	55.0		ng/L		110	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	50.1	52.4		ng/L		105	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	50.1	51.4		ng/L		103	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	50.1	51.5		ng/L		103	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
d5-NEtFOSAA	110		70 - 130
13C2 PFHxA	122		70 - 130
13C2 PFDA	118		70 - 130
13C3-GenX	118		70 - 130

QC Sample Results

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

Job ID: 380-160098-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: MRL 380-162373/20-A

Matrix: Water

Analysis Batch: 162431

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 162373

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.01	1.83	J	ng/L		91	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.01	2.20	J	ng/L		109	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.01	2.10	J	ng/L		104	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.01	1.99	J	ng/L		99	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.01	1.91	J	ng/L		95	50 - 150
Perfluorohexanoic acid (PFHxA)	2.01	2.17	J	ng/L		108	50 - 150
Perfluorododecanoic acid (PFDoA)	2.01	2.14	J	ng/L		106	50 - 150
Perfluorooctanoic acid (PFOA)	2.01	2.30	J	ng/L		114	50 - 150
Perfluorodecanoic acid (PFDA)	2.01	2.19	J	ng/L		109	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.01	2.23	J	ng/L		111	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.01	2.27	J	ng/L		113	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.01	2.12	J	ng/L		105	50 - 150
Perfluorononanoic acid (PFNA)	2.01	2.17	J	ng/L		108	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.01	2.18	J	ng/L		108	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.01	2.27	J	ng/L		113	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.01	2.10	J	ng/L		104	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.01	2.05	J	ng/L		102	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.01	1.97	J	ng/L		98	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	Limits
d5-NEtFOSAA	102		70 - 130
13C2 PFHxA	110		70 - 130
13C2 PFDA	115		70 - 130
13C3-GenX	105		70 - 130

Lab Sample ID: 380-158990-Q-1-A MS

Matrix: Water

Analysis Batch: 162431

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 162373

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		25.1	26.0		ng/L		104	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		25.1	27.4		ng/L		106	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		25.1	25.7		ng/L		102	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.1	26.3		ng/L		105	70 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-160098-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: 380-158990-Q-1-A MS

Matrix: Water

Analysis Batch: 162431

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 162373

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits		
	Result	Qualifier	Added	Result	Qualifier							
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	<2.0		25.1	25.7		ng/L		103		70 - 130		
Perfluorohexanoic acid (PFHxA)	<2.0		25.1	27.4		ng/L		106		70 - 130		
Perfluorododecanoic acid (PFDoA)	<2.0		25.1	26.1		ng/L		104		70 - 130		
Perfluorooctanoic acid (PFOA)	<2.0		25.1	27.6		ng/L		104		70 - 130		
Perfluorodecanoic acid (PFDA)	<2.0		25.1	26.2		ng/L		105		70 - 130		
Perfluorohexanesulfonic acid (PFHxS)	<2.0		25.1	27.8		ng/L		108		70 - 130		
Perfluorobutanesulfonic acid (PFBS)	<2.0		25.1	27.4		ng/L		106		70 - 130		
Perfluoroheptanoic acid (PFHpA)	<2.0		25.1	26.4		ng/L		104		70 - 130		
Perfluorononanoic acid (PFNA)	<2.0		25.1	26.3		ng/L		105		70 - 130		
Perfluorotetradecanoic acid (PFTA)	<2.0		25.1	25.8		ng/L		103		70 - 130		
Perfluorotridecanoic acid (PFTrDA)	<2.0		25.1	27.5		ng/L		110		70 - 130		
9-Chlorohexadecafluoro-3-oxan onane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		25.1	26.8		ng/L		107		70 - 130		
11-Chloroeicosafluoro-3-oxaund ecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		25.1	26.0		ng/L		104		70 - 130		
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		25.1	26.2		ng/L		104		70 - 130		
		MS	MS									
Surrogate	%Recovery	Qualifier	Limits									
d5-NEtFOSAA	108		70 - 130									
13C2 PFHxA	113		70 - 130									
13C2 PFDA	112		70 - 130									
13C3-GenX	113		70 - 130									

Lab Sample ID: 380-158990-R-1-A MSD

Matrix: Water

Analysis Batch: 162431

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 162373

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		25.1	24.4		ng/L		97	70 - 130	6	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		25.1	26.9		ng/L		104	70 - 130	2	30
Perfluoroundecanoic acid (PFUnA)	<2.0		25.1	26.0		ng/L		104	70 - 130	1	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.1	26.0		ng/L		104	70 - 130	1	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		25.1	25.6		ng/L		102	70 - 130	1	30
Perfluorohexanoic acid (PFHxA)	<2.0		25.1	26.6		ng/L		103	70 - 130	3	30
Perfluorododecanoic acid (PFDoA)	<2.0		25.1	26.6		ng/L		106	70 - 130	2	30
Perfluorooctanoic acid (PFOA)	<2.0		25.1	27.2		ng/L		103	70 - 130	1	30
Perfluorodecanoic acid (PFDA)	<2.0		25.1	26.7		ng/L		106	70 - 130	2	30

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-160098-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: 380-158990-R-1-A MSD

Matrix: Water

Analysis Batch: 162431

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 162373

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorohexanesulfonic acid (PFHxS)	<2.0		25.1	27.0		ng/L		105	70 - 130	3	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		25.1	27.1		ng/L		105	70 - 130	1	30
Perfluoroheptanoic acid (PFHpA)	<2.0		25.1	25.8		ng/L		101	70 - 130	2	30
Perfluorononanoic acid (PFNA)	<2.0		25.1	26.7		ng/L		106	70 - 130	2	30
Perfluorotetradecanoic acid (PFTA)	<2.0		25.1	25.1		ng/L		100	70 - 130	3	30
Perfluorotridecanoic acid (PFTTrDA)	<2.0		25.1	27.9		ng/L		111	70 - 130	1	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		25.1	26.1		ng/L		104	70 - 130	3	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		25.1	25.2		ng/L		101	70 - 130	3	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		25.1	26.6		ng/L		106	70 - 130	2	30
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
d5-NEtFOSAA	113		70 - 130								
13C2 PFHxA	112		70 - 130								
13C2 PFDA	115		70 - 130								
13C3-GenX	112		70 - 130								

QC Association Summary

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

Job ID: 380-160098-1
SDG: PFAS: Halawa Shaft Viewing Pool

LCMS

Prep Batch: 162373

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-160098-1	Halawa Shaft Viewing Pool	Total/NA	Water	537.1 DW	
380-160098-2	Halawa Shaft Viewing Pool Blank	Total/NA	Water	537.1 DW	
MBL 380-162373/19-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-162373/21-A	Lab Control Sample	Total/NA	Water	537.1 DW	
MRL 380-162373/20-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-158990-Q-1-A MS	Matrix Spike	Total/NA	Water	537.1 DW	
380-158990-R-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1 DW	

Analysis Batch: 162431

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-160098-1	Halawa Shaft Viewing Pool	Total/NA	Water	537.1	162373
380-160098-2	Halawa Shaft Viewing Pool Blank	Total/NA	Water	537.1	162373
MBL 380-162373/19-A	Method Blank	Total/NA	Water	537.1	162373
LCS 380-162373/21-A	Lab Control Sample	Total/NA	Water	537.1	162373
MRL 380-162373/20-A	Lab Control Sample	Total/NA	Water	537.1	162373
380-158990-Q-1-A MS	Matrix Spike	Total/NA	Water	537.1	162373
380-158990-R-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1	162373

Prep Batch: 162465

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-160098-1	Halawa Shaft Viewing Pool	Total/NA	Water	533	
380-160098-2	Halawa Shaft Viewing Pool Blank	Total/NA	Water	533	
MBL 380-162465/20-A	Method Blank	Total/NA	Water	533	
LCS 380-162465/22-A	Lab Control Sample	Total/NA	Water	533	
MRL 380-162465/21-A	Lab Control Sample	Total/NA	Water	533	
380-160092-B-1-A MS	Matrix Spike	Total/NA	Water	533	
380-160092-B-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	533	

Analysis Batch: 162850

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-160098-1	Halawa Shaft Viewing Pool	Total/NA	Water	533	162465
380-160098-2	Halawa Shaft Viewing Pool Blank	Total/NA	Water	533	162465
MBL 380-162465/20-A	Method Blank	Total/NA	Water	533	162465
LCS 380-162465/22-A	Lab Control Sample	Total/NA	Water	533	162465
MRL 380-162465/21-A	Lab Control Sample	Total/NA	Water	533	162465
380-160092-B-1-A MS	Matrix Spike	Total/NA	Water	533	162465
380-160092-B-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	533	162465

Lab Chronicle

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

Job ID: 380-160098-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: Halawa Shaft Viewing Pool

Lab Sample ID: 380-160098-1

Date Collected: 07/08/25 09:37

Matrix: Water

Date Received: 07/11/25 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			162465	N8NE	EA POM	07/13/25 12:10
Total/NA	Analysis	533		1	162850	M7ML	EA POM	07/15/25 15:20
Total/NA	Prep	537.1 DW			162373	N8NE	EA POM	07/11/25 17:27
Total/NA	Analysis	537.1		1	162431	M7ML	EA POM	07/12/25 14:02

Client Sample ID: Halawa Shaft Viewing Pool Blank

Lab Sample ID: 380-160098-2

Date Collected: 07/08/25 09:37

Matrix: Water

Date Received: 07/11/25 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			162465	N8NE	EA POM	07/13/25 12:10
Total/NA	Analysis	533		1	162850	M7ML	EA POM	07/15/25 15:34
Total/NA	Prep	537.1 DW			162373	N8NE	EA POM	07/11/25 17:27
Total/NA	Analysis	537.1		1	162431	M7ML	EA POM	07/12/25 14:12

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: 380-160098-1
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

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17

Method Summary

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

Job ID: 380-160098-1
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: 380-160098-1
SDG: PFAS: Halawa Shaft Viewing Pool

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
380-160098-1	Halawa Shaft Viewing Pool	Water	07/08/25 09:37	07/11/25 09:34
380-160098-2	Halawa Shaft Viewing Pool Blank	Water	07/08/25 09:37	07/11/25 09:34

Monrovia, CA (Suite 100)
750 Royal Oaks Drive Suite 100
Monrovia, CA 91016
Phone (626) 386-1100

Chain of Custody Record



380-160098 COC

Client Information		Lab PM: Arada, Rachelle		Carrier Tracking No(s): 380-27941-2757.2	
Client Contact: kirk iwamoto		Phone: +1 808 748 5840		Page: Page 2 of 2	
Company: City & County of Honolulu		E-Mail: Rachelle.Arada@et.eurofins.com		Job #:	
Address: 630 South Beretania Street; Chemistry Lab		Due Date Requested:		Analysis Requested	
City: Honolulu		TAT Requested (days): RUSH		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Anion H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify) Other:	
State, Zip: HI, 96843		Compliance Project: ☐ No		Total Number of containers	
Phone: 808-748-5840 (tel)		PO #: C20525101 exp 05312023		Special Instructions/Note:	
Email: kiwamoto@hbws.org		WO #:			
Project Name: RED-HILL/HBWS sites Event Desc: RUSH Weekly Red Hill		Project #: 38001111			
Site:		SSOW#:			
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Inorganic, Semisolid, Organic/Liquid)
Halawa Shaft Viewing Pool	8-Jul-2025	0937	G	Water	
Halawa Shaft Viewing Pool Blank	8-Jul-2025	1	G	Water	
Possible Hazard Identification ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return To Client ☐ Disposal By Lab ☐ Archive For Months			
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:			
Empty Kit Relinquished by:		Date:		Method of Shipment: FED Ex 8826 5298 2309	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Company: EEAS	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Company:	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Company:	
Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No.		Cooler Temperature(s) °C and Other Remarks: 75A 17°-0.0°:1.7°	

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-160098-1

SDG Number: PFAS: Halawa Shaft Viewing Pool

Login Number: 160098

List Number: 1

Creator: Sanchez Velasquez, Gustavo

List Source: Eurofins Eaton Analytical Pomona

Question	Answer	Comment
The coolers custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
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").	True	
CIO4 headspace requirement met (>50% for CA, >30% for other states).	True	
Samples do not require splitting or compositing.	True	
Container provided by EEA	True	