

ANALYTICAL REPORT

PREPARED FOR

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

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JOB DESCRIPTION

RED-HILL
PFAS: Halawa Shaft Viewing Pool

JOB NUMBER

380-162541-1

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
Maria Lopez, Project Manager
Maria.Lopez@et.eurofinsus.com
(626)386-1100

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Definitions/Glossary

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

Job ID: 380-162541-1
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: 380-162541-1

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Job Narrative 380-162541-1

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 7/24/2025 6:33 PM. 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 0.9°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: 380-162541-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: Halawa Shaft Viewing Pool

Lab Sample ID: 380-162541-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	3.2		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)	3.7		2.0	ng/L	1		537.1	Total/NA

Client Sample ID: Halawa Shaft Viewing Pool Blank

Lab Sample ID: 380-162541-2

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: 380-162541-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: Halawa Shaft Viewing Pool

Lab Sample ID: 380-162541-1

Date Collected: 07/22/25 09:39

Matrix: Water

Date Received: 07/24/25 18:33

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		07/25/25 17:05	07/26/25 13:58	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 13:58	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 13:58	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 13:58	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 13:58	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 13:58	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 13:58	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 13:58	1
Perfluorohexanesulfonic acid (PFHxS)	3.2		2.0	ng/L		07/25/25 17:05	07/26/25 13:58	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 13:58	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 13:58	1
Perfluorooctanesulfonic acid (PFOS)	3.2		2.0	ng/L		07/25/25 17:05	07/26/25 13:58	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 13:58	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 13:58	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 13:58	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 13:58	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 13:58	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 13:58	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 13:58	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 13:58	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 13:58	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 13:58	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 13:58	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 13:58	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 13:58	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	77		50 - 200			07/25/25 17:05	07/26/25 13:58	1
13C6 PFDA	91		50 - 200			07/25/25 17:05	07/26/25 13:58	1
13C5 PFHxA	86		50 - 200			07/25/25 17:05	07/26/25 13:58	1
13C4 PFHpA	91		50 - 200			07/25/25 17:05	07/26/25 13:58	1
13C8 PFOA	89		50 - 200			07/25/25 17:05	07/26/25 13:58	1
13C9 PFNA	87		50 - 200			07/25/25 17:05	07/26/25 13:58	1
13C7 PFUnA	90		50 - 200			07/25/25 17:05	07/26/25 13:58	1
13C2 PFDoA	93		50 - 200			07/25/25 17:05	07/26/25 13:58	1
13C4 PFBA	88		50 - 200			07/25/25 17:05	07/26/25 13:58	1
13C5 PFPeA	85		50 - 200			07/25/25 17:05	07/26/25 13:58	1
13C3 PFBS	111		50 - 200			07/25/25 17:05	07/26/25 13:58	1
13C3 PFHxS	113		50 - 200			07/25/25 17:05	07/26/25 13:58	1

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Client Sample Results

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

Job ID: 380-162541-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: Halawa Shaft Viewing Pool

Lab Sample ID: 380-162541-1

Date Collected: 07/22/25 09:39

Matrix: Water

Date Received: 07/24/25 18:33

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	106		50 - 200	07/25/25 17:05	07/26/25 13:58	1
13C2-4:2-FTS	150		50 - 200	07/25/25 17:05	07/26/25 13:58	1
13C2-6:2-FTS	130		50 - 200	07/25/25 17:05	07/26/25 13:58	1
13C2-8:2-FTS	123		50 - 200	07/25/25 17:05	07/26/25 13:58	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		07/25/25 10:32	07/26/25 13:39	1
Perfluorooctanesulfonic acid (PFOS)	3.5		2.0	ng/L		07/25/25 10:32	07/26/25 13:39	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:39	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:39	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:39	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:39	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:39	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:39	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:39	1
Perfluorohexanesulfonic acid (PFHxS)	3.7		2.0	ng/L		07/25/25 10:32	07/26/25 13:39	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:39	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:39	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:39	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:39	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:39	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:39	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:39	1
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:39	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	112		70 - 130			07/25/25 10:32	07/26/25 13:39	1
13C2 PFHxA	117		70 - 130			07/25/25 10:32	07/26/25 13:39	1
13C2 PFDA	118		70 - 130			07/25/25 10:32	07/26/25 13:39	1
13C3-GenX	117		70 - 130			07/25/25 10:32	07/26/25 13:39	1

Client Sample ID: Halawa Shaft Viewing Pool Blank

Lab Sample ID: 380-162541-2

Date Collected: 07/22/25 09:39

Matrix: Water

Date Received: 07/24/25 18:33

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		07/25/25 17:05	07/26/25 14:09	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 14:09	1
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 14:09	1

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Client Sample Results

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

Job ID: 380-162541-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: Halawa Shaft Viewing Pool Blank

Lab Sample ID: 380-162541-2

Date Collected: 07/22/25 09:39

Matrix: Water

Date Received: 07/24/25 18:33

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		07/25/25 17:05	07/26/25 14:09	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 14:09	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 14:09	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 14:09	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 14:09	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 14:09	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 14:09	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 14:09	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 14:09	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 14:09	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 14:09	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 14:09	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 14:09	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 14:09	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 14:09	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 14:09	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 14:09	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 14:09	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 14:09	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 14:09	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 14:09	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		07/25/25 17:05	07/26/25 14:09	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	97		50 - 200			07/25/25 17:05	07/26/25 14:09	1
13C6 PFDA	101		50 - 200			07/25/25 17:05	07/26/25 14:09	1
13C5 PFHxA	106		50 - 200			07/25/25 17:05	07/26/25 14:09	1
13C4 PFHpA	107		50 - 200			07/25/25 17:05	07/26/25 14:09	1
13C8 PFOA	107		50 - 200			07/25/25 17:05	07/26/25 14:09	1
13C9 PFNA	103		50 - 200			07/25/25 17:05	07/26/25 14:09	1
13C7 PFUnA	102		50 - 200			07/25/25 17:05	07/26/25 14:09	1
13C2 PFDoA	97		50 - 200			07/25/25 17:05	07/26/25 14:09	1
13C4 PFBA	107		50 - 200			07/25/25 17:05	07/26/25 14:09	1
13C5 PFPeA	98		50 - 200			07/25/25 17:05	07/26/25 14:09	1
13C3 PFBS	120		50 - 200			07/25/25 17:05	07/26/25 14:09	1
13C3 PFHxS	111		50 - 200			07/25/25 17:05	07/26/25 14:09	1
13C8 PFOS	107		50 - 200			07/25/25 17:05	07/26/25 14:09	1
13C2-4:2-FTS	140		50 - 200			07/25/25 17:05	07/26/25 14:09	1
13C2-6:2-FTS	142		50 - 200			07/25/25 17:05	07/26/25 14:09	1
13C2-8:2-FTS	124		50 - 200			07/25/25 17:05	07/26/25 14:09	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-162541-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: Halawa Shaft Viewing Pool Blank

Lab Sample ID: 380-162541-2

Date Collected: 07/22/25 09:39

Matrix: Water

Date Received: 07/24/25 18:33

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		07/25/25 10:32	07/26/25 13:49	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:49	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:49	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:49	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:49	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:49	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:49	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:49	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:49	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:49	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:49	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:49	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:49	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:49	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:49	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:49	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:49	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/25/25 10:32	07/26/25 13:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	100		70 - 130	07/25/25 10:32	07/26/25 13:49	1
13C2 PFHxA	108		70 - 130	07/25/25 10:32	07/26/25 13:49	1
13C2 PFDA	114		70 - 130	07/25/25 10:32	07/26/25 13:49	1
13C3-GenX	106		70 - 130	07/25/25 10:32	07/26/25 13:49	1

Action Limit Summary

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

Job ID: 380-162541-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: Halawa Shaft Viewing Pool

Lab Sample ID: 380-162541-1

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)	3.2		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)	3.7		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: 380-162541-2

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: 380-162541-1
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)
380-162527-A-1-B MS	Matrix Spike	103	108	112	104
380-162527-A-1-C MSD	Matrix Spike Duplicate	106	109	118	108
380-162541-1	Halawa Shaft Viewing Pool	112	117	118	117
380-162541-2	Halawa Shaft Viewing Pool	100	108	114	106
	Blank				
LCS 380-165060/24-A	Lab Control Sample	104	110	123	104
MBL 380-165060/22-A	Method Blank	106	100	115	96
MRL 380-165060/23-A	Lab Control Sample	97	106	121	96
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: 380-162541-1
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)
380-162446-B-1-A MS	Matrix Spike	105	107	109	110	108	108	108	105
380-162446-C-1-A MSD	Matrix Spike Duplicate	102	105	108	107	108	107	106	100
380-162541-1	Halawa Shaft Viewing Pool	77	91	86	91	89	87	90	93
380-162541-2	Halawa Shaft Viewing Pool	97	101	106	107	107	103	102	97
	Blank								
LCS 380-165148/22-A	Lab Control Sample	103	110	109	108	108	104	107	105
MBL 380-165148/20-A	Method Blank	92	102	104	103	103	104	102	100
MRL 380-165148/21-A	Lab Control Sample	93	104	109	104	103	101	103	101
		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)
380-162446-B-1-A MS	Matrix Spike	106	106	110	110	109	144	127	121
380-162446-C-1-A MSD	Matrix Spike Duplicate	106	109	117	112	108	137	126	116
380-162541-1	Halawa Shaft Viewing Pool	88	85	111	113	106	150	130	123
380-162541-2	Halawa Shaft Viewing Pool	107	98	120	111	107	140	142	124
	Blank								
LCS 380-165148/22-A	Lab Control Sample	102	108	112	109	105	126	122	115
MBL 380-165148/20-A	Method Blank	103	100	111	109	108	135	126	121
MRL 380-165148/21-A	Lab Control Sample	102	102	118	110	108	136	128	114
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: 380-162541-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: MBL 380-165148/20-A

Matrix: Water

Analysis Batch: 165194

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 165148

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	<0.30		2.0	ng/L		07/25/25 17:05	07/26/25 09:51	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9CI-PF3ONS)	<0.30		2.0	ng/L		07/25/25 17:05	07/26/25 09:51	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		07/25/25 17:05	07/26/25 09:51	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		07/25/25 17:05	07/26/25 09:51	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		07/25/25 17:05	07/26/25 09:51	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		07/25/25 17:05	07/26/25 09:51	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		07/25/25 17:05	07/26/25 09:51	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		07/25/25 17:05	07/26/25 09:51	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		07/25/25 17:05	07/26/25 09:51	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		07/25/25 17:05	07/26/25 09:51	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		07/25/25 17:05	07/26/25 09:51	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		07/25/25 17:05	07/26/25 09:51	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		07/25/25 17:05	07/26/25 09:51	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		07/25/25 17:05	07/26/25 09:51	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		07/25/25 17:05	07/26/25 09:51	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		07/25/25 17:05	07/26/25 09:51	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		07/25/25 17:05	07/26/25 09:51	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		07/25/25 17:05	07/26/25 09:51	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		07/25/25 17:05	07/26/25 09:51	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0	ng/L		07/25/25 17:05	07/26/25 09:51	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		07/25/25 17:05	07/26/25 09:51	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		07/25/25 17:05	07/26/25 09:51	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		07/25/25 17:05	07/26/25 09:51	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		07/25/25 17:05	07/26/25 09:51	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		07/25/25 17:05	07/26/25 09:51	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	92		50 - 200	07/25/25 17:05	07/26/25 09:51	1
13C6 PFDA	102		50 - 200	07/25/25 17:05	07/26/25 09:51	1
13C5 PFHxA	104		50 - 200	07/25/25 17:05	07/26/25 09:51	1
13C4 PFHpA	103		50 - 200	07/25/25 17:05	07/26/25 09:51	1
13C8 PFOA	103		50 - 200	07/25/25 17:05	07/26/25 09:51	1
13C9 PFNA	104		50 - 200	07/25/25 17:05	07/26/25 09:51	1
13C7 PFUnA	102		50 - 200	07/25/25 17:05	07/26/25 09:51	1
13C2 PFDoA	100		50 - 200	07/25/25 17:05	07/26/25 09:51	1
13C4 PFBA	103		50 - 200	07/25/25 17:05	07/26/25 09:51	1
13C5 PFPeA	100		50 - 200	07/25/25 17:05	07/26/25 09:51	1
13C3 PFBS	111		50 - 200	07/25/25 17:05	07/26/25 09:51	1
13C3 PFHxS	109		50 - 200	07/25/25 17:05	07/26/25 09:51	1

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-162541-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: MBL 380-165148/20-A

Matrix: Water

Analysis Batch: 165194

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 165148

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	108		50 - 200	07/25/25 17:05	07/26/25 09:51	1
13C2-4:2-FTS	135		50 - 200	07/25/25 17:05	07/26/25 09:51	1
13C2-6:2-FTS	126		50 - 200	07/25/25 17:05	07/26/25 09:51	1
13C2-8:2-FTS	121		50 - 200	07/25/25 17:05	07/26/25 09:51	1

Lab Sample ID: LCS 380-165148/22-A

Matrix: Water

Analysis Batch: 165194

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 165148

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	120	111		ng/L		92	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	120	118		ng/L		98	70 - 130
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	120	117		ng/L		97	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	120	121		ng/L		101	70 - 130
Perfluorobutanesulfonic acid (PFBS)	120	118		ng/L		98	70 - 130
Perfluorodecanoic acid (PFDA)	120	118		ng/L		98	70 - 130
Perfluorododecanoic acid (PFDoA)	120	114		ng/L		95	70 - 130
Perfluoroheptanoic acid (PFHpA)	120	115		ng/L		96	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	120	116		ng/L		96	70 - 130
Perfluorohexanoic acid (PFHxA)	120	116		ng/L		96	70 - 130
Perfluorononanoic acid (PFNA)	120	119		ng/L		99	70 - 130
Perfluorooctanesulfonic acid (PFOS)	120	118		ng/L		98	70 - 130
Perfluorooctanoic acid (PFOA)	120	118		ng/L		98	70 - 130
Perfluoroundecanoic acid (PFUnA)	120	113		ng/L		94	70 - 130
Perfluorobutanoic acid (PFBA)	120	122		ng/L		101	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	120	116		ng/L		96	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	121		ng/L		100	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	120	123		ng/L		102	70 - 130
Nonfluoro-3,6-dioxahexanoic acid (NFDHA)	120	107		ng/L		89	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	120	113		ng/L		93	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	120	118		ng/L		98	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	120	120		ng/L		100	70 - 130
Perfluoropentanoic acid (PFPeA)	120	111		ng/L		92	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	120	118		ng/L		98	70 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-162541-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: LCS 380-165148/22-A

Matrix: Water

Analysis Batch: 165194

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 165148

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanesulfonic acid (PFPeS)	120	113		ng/L		94	70 - 130
	LCS	LCS					
Isotope Dilution	%Recovery	Qualifier	Limits				
13C3 HFPO-DA	103		50 - 200				
13C6 PFDA	110		50 - 200				
13C5 PFHxA	109		50 - 200				
13C4 PFHpA	108		50 - 200				
13C8 PFOA	108		50 - 200				
13C9 PFNA	104		50 - 200				
13C7 PFUnA	107		50 - 200				
13C2 PFDoA	105		50 - 200				
13C4 PFBA	102		50 - 200				
13C5 PFPeA	108		50 - 200				
13C3 PFBS	112		50 - 200				
13C3 PFHxS	109		50 - 200				
13C8 PFOS	105		50 - 200				
13C2-4:2-FTS	126		50 - 200				
13C2-6:2-FTS	122		50 - 200				
13C2-8:2-FTS	115		50 - 200				

Lab Sample ID: MRL 380-165148/21-A

Matrix: Water

Analysis Batch: 165194

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 165148

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	1.98	J	ng/L		99	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	1.94	J	ng/L		97	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	2.02	J	ng/L		101	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	2.03	J	ng/L		101	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	1.90	J	ng/L		95	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.07	J	ng/L		103	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.09	J	ng/L		104	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.05	J	ng/L		102	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	2.01	J	ng/L		100	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	1.95	J	ng/L		97	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.15	J	ng/L		107	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	2.17	J	ng/L		108	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.12	J	ng/L		106	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.02	J	ng/L		101	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	2.18	J	ng/L		109	50 - 150

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-162541-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: MRL 380-165148/21-A

Matrix: Water

Analysis Batch: 165194

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 165148

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	2.29	J	ng/L		114	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	2.24	J	ng/L		112	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	2.04	J	ng/L		102	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	1.79	J	ng/L		89	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEA)	2.00	1.99	J	ng/L		99	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	1.98	J	ng/L		99	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	1.91	J	ng/L		96	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	1.94	J	ng/L		97	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.00	2.06	J	ng/L		103	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.00	2.02	J	ng/L		101	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	Limits
13C3 HFPO-DA	93		50 - 200
13C6 PFDA	104		50 - 200
13C5 PFHxA	109		50 - 200
13C4 PFHpA	104		50 - 200
13C8 PFOA	103		50 - 200
13C9 PFNA	101		50 - 200
13C7 PFUnA	103		50 - 200
13C2 PFDoA	101		50 - 200
13C4 PFBA	102		50 - 200
13C5 PFPeA	102		50 - 200
13C3 PFBS	118		50 - 200
13C3 PFHxS	110		50 - 200
13C8 PFOS	108		50 - 200
13C2-4:2-FTS	136		50 - 200
13C2-6:2-FTS	128		50 - 200
13C2-8:2-FTS	114		50 - 200

Lab Sample ID: 380-162446-B-1-A MS

Matrix: Water

Analysis Batch: 165194

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 165148

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		60.4	57.9		ng/L		96	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.4	58.9		ng/L		98	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.4	61.4		ng/L		102	70 - 130

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QC Sample Results

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

Job ID: 380-162541-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: 380-162446-B-1-A MS

Matrix: Water

Analysis Batch: 165194

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 165148

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide	<2.0		60.4	62.8		ng/L		104	70 - 130
Dimer Acid (HFPO-DA/GenX)									
Perfluorobutanesulfonic acid (PFBS)	2.0		60.4	61.0		ng/L		98	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		60.4	63.7		ng/L		106	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		60.4	59.3		ng/L		98	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		60.4	59.9		ng/L		98	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.4	60.5		ng/L		99	70 - 130
Perfluorohexanoic acid (PFHxA)	2.6		60.4	66.0		ng/L		105	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		60.4	62.1		ng/L		103	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		60.4	60.4		ng/L		100	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		60.4	61.6		ng/L		101	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		60.4	61.9		ng/L		103	70 - 130
Perfluorobutanoic acid (PFBA)	<2.0		60.4	62.4		ng/L		102	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.4	60.4		ng/L		100	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.4	58.4		ng/L		97	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.4	61.7		ng/L		102	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.4	62.0		ng/L		103	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEA)	<2.0		60.4	62.1		ng/L		103	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		60.4	62.1		ng/L		103	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.4	63.1		ng/L		105	70 - 130
Perfluoropentanoic acid (PFPeA)	2.0		60.4	62.7		ng/L		101	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.4	59.6		ng/L		99	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.4	61.6		ng/L		100	70 - 130

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
13C3 HFPO-DA	105		50 - 200
13C6 PFDA	107		50 - 200
13C5 PFHxA	109		50 - 200
13C4 PFHpA	110		50 - 200
13C8 PFOA	108		50 - 200
13C9 PFNA	108		50 - 200
13C7 PFUnA	108		50 - 200
13C2 PFDoA	105		50 - 200
13C4 PFBA	106		50 - 200
13C5 PFPeA	106		50 - 200
13C3 PFBS	110		50 - 200
13C3 PFHxS	110		50 - 200
13C8 PFOS	109		50 - 200

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QC Sample Results

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

Job ID: 380-162541-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: 380-162446-B-1-A MS

Matrix: Water

Analysis Batch: 165194

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 165148

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
13C2-4:2-FTS	144		50 - 200
13C2-6:2-FTS	127		50 - 200
13C2-8:2-FTS	121		50 - 200

Lab Sample ID: 380-162446-C-1-A MSD

Matrix: Water

Analysis Batch: 165194

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 165148

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.2	59.0		ng/L		98	70 - 130	2	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<2.0		60.2	60.5		ng/L		100	70 - 130	3	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.2	61.4		ng/L		102	70 - 130	0	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		60.2	60.5		ng/L		100	70 - 130	4	30
Perfluorobutanesulfonic acid (PFBS)	2.0		60.2	58.0		ng/L		93	70 - 130	5	30
Perfluorodecanoic acid (PFDA)	<2.0		60.2	60.4		ng/L		100	70 - 130	5	30
Perfluorododecanoic acid (PFDoA)	<2.0		60.2	63.6		ng/L		106	70 - 130	7	30
Perfluoroheptanoic acid (PFHpA)	<2.0		60.2	59.5		ng/L		98	70 - 130	1	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.2	59.7		ng/L		98	70 - 130	1	30
Perfluorohexanoic acid (PFHxA)	2.6		60.2	62.0		ng/L		99	70 - 130	6	30
Perfluorononanoic acid (PFNA)	<2.0		60.2	61.1		ng/L		102	70 - 130	2	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		60.2	59.7		ng/L		99	70 - 130	1	30
Perfluorooctanoic acid (PFOA)	<2.0		60.2	59.2		ng/L		97	70 - 130	4	30
Perfluoroundecanoic acid (PFUnA)	<2.0		60.2	59.1		ng/L		98	70 - 130	5	30
Perfluorobutanoic acid (PFBA)	<2.0		60.2	62.6		ng/L		103	70 - 130	0	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.2	61.2		ng/L		102	70 - 130	1	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.2	64.6		ng/L		107	70 - 130	10	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.2	62.8		ng/L		104	70 - 130	2	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.2	60.6		ng/L		101	70 - 130	2	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEA)	<2.0		60.2	56.9		ng/L		94	70 - 130	9	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		60.2	61.4		ng/L		102	70 - 130	1	30
Perfluoro-4-methoxybutanoic acid (PFMPA)	<2.0		60.2	62.4		ng/L		104	70 - 130	1	30
Perfluoropentanoic acid (PFPeA)	2.0		60.2	61.7		ng/L		99	70 - 130	2	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.2	58.9		ng/L		98	70 - 130	1	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.2	60.4		ng/L		98	70 - 130	2	30

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QC Sample Results

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

Job ID: 380-162541-1
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	102		50 - 200
13C6 PFDA	105		50 - 200
13C5 PFHxA	108		50 - 200
13C4 PFHpA	107		50 - 200
13C8 PFOA	108		50 - 200
13C9 PFNA	107		50 - 200
13C7 PFUnA	106		50 - 200
13C2 PFDoA	100		50 - 200
13C4 PFBA	106		50 - 200
13C5 PFPeA	109		50 - 200
13C3 PFBS	117		50 - 200
13C3 PFHxS	112		50 - 200
13C8 PFOS	108		50 - 200
13C2-4:2-FTS	137		50 - 200
13C2-6:2-FTS	126		50 - 200
13C2-8:2-FTS	116		50 - 200

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

Lab Sample ID: MBL 380-165060/22-A
Matrix: Water
Analysis Batch: 165199

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 165060

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		07/25/25 10:32	07/26/25 10:31	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		07/25/25 10:32	07/26/25 10:31	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		07/25/25 10:32	07/26/25 10:31	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.58		2.0	ng/L		07/25/25 10:32	07/26/25 10:31	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.42		2.0	ng/L		07/25/25 10:32	07/26/25 10:31	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		07/25/25 10:32	07/26/25 10:31	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		07/25/25 10:32	07/26/25 10:31	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		07/25/25 10:32	07/26/25 10:31	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		07/25/25 10:32	07/26/25 10:31	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		07/25/25 10:32	07/26/25 10:31	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		07/25/25 10:32	07/26/25 10:31	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		07/25/25 10:32	07/26/25 10:31	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		07/25/25 10:32	07/26/25 10:31	1
Perfluorotetradecanoic acid (PFTA)	<0.54		2.0	ng/L		07/25/25 10:32	07/26/25 10:31	1
Perfluorotridecanoic acid (PFTrDA)	<0.36		2.0	ng/L		07/25/25 10:32	07/26/25 10:31	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<0.30		2.0	ng/L		07/25/25 10:32	07/26/25 10:31	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		07/25/25 10:32	07/26/25 10:31	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		07/25/25 10:32	07/26/25 10:31	1
Surrogate	MBL MBL		Limits			Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier						
d5-NEtFOSAA	106		70 - 130			07/25/25 10:32	07/26/25 10:31	1
13C2 PFHxA	100		70 - 130			07/25/25 10:32	07/26/25 10:31	1
13C2 PFDA	115		70 - 130			07/25/25 10:32	07/26/25 10:31	1

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QC Sample Results

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

Job ID: 380-162541-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: MBL 380-165060/22-A

Matrix: Water

Analysis Batch: 165199

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 165060

Surrogate	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3-GenX	96		70 - 130	07/25/25 10:32	07/26/25 10:31	1

Lab Sample ID: LCS 380-165060/24-A

Matrix: Water

Analysis Batch: 165199

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 165060

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide	25.1	22.9		ng/L		92	70 - 130
Dimer Acid (HFPO-DA/GenX)							
Perfluorooctanesulfonic acid (PFOS)	25.1	26.6		ng/L		106	70 - 130
Perfluoroundecanoic acid (PFUnA)	25.1	26.5		ng/L		106	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	25.1	24.4		ng/L		97	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	25.1	23.0		ng/L		92	70 - 130
Perfluorohexanoic acid (PFHxA)	25.1	24.4		ng/L		97	70 - 130
Perfluorododecanoic acid (PFDoA)	25.1	26.4		ng/L		105	70 - 130
Perfluorooctanoic acid (PFOA)	25.1	26.3		ng/L		105	70 - 130
Perfluorodecanoic acid (PFDA)	25.1	26.8		ng/L		107	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	25.1	27.5		ng/L		110	70 - 130
Perfluorobutanesulfonic acid (PFBS)	25.1	25.4		ng/L		101	70 - 130
Perfluoroheptanoic acid (PFHpA)	25.1	24.9		ng/L		100	70 - 130
Perfluorononanoic acid (PFNA)	25.1	25.2		ng/L		101	70 - 130
Perfluorotetradecanoic acid (PFTA)	25.1	25.6		ng/L		102	70 - 130
Perfluorotridecanoic acid (PFTrDA)	25.1	28.2		ng/L		112	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	25.1	25.1		ng/L		100	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	25.1	25.4		ng/L		101	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	25.1	24.3		ng/L		97	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
d5-NEtFOSAA	104		70 - 130
13C2 PFHxA	110		70 - 130
13C2 PFDA	123		70 - 130
13C3-GenX	104		70 - 130

QC Sample Results

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

Job ID: 380-162541-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: MRL 380-165060/23-A

Matrix: Water

Analysis Batch: 165199

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 165060

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide	2.00	1.82	J	ng/L		91	50 - 150
Dimer Acid (HFPO-DA/GenX)							
Perfluorooctanesulfonic acid (PFOS)	2.00	2.26	J	ng/L		113	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.31	J	ng/L		115	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	2.07	J	ng/L		103	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	1.92	J	ng/L		96	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.07	J	ng/L		104	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.33	J	ng/L		117	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.25	J	ng/L		113	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.27	J	ng/L		114	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	2.38	J	ng/L		119	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	2.22	J	ng/L		111	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.07	J	ng/L		103	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.18	J	ng/L		109	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.00	2.19	J	ng/L		110	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.00	2.50	J	ng/L		125	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	2.13	J	ng/L		106	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	2.22	J	ng/L		111	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	1.99	J	ng/L		100	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	Limits
d5-NEtFOSAA	97		70 - 130
13C2 PFHxA	106		70 - 130
13C2 PFDA	121		70 - 130
13C3-GenX	96		70 - 130

Lab Sample ID: 380-162527-A-1-B MS

Matrix: Water

Analysis Batch: 165199

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 165060

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide	<2.0		25.1	23.6		ng/L		94	70 - 130
Dimer Acid (HFPO-DA/GenX)									
Perfluorooctanesulfonic acid (PFOS)	<2.0		25.1	26.9		ng/L		107	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		25.1	25.1		ng/L		100	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.1	25.1		ng/L		100	70 - 130

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QC Sample Results

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

Job ID: 380-162541-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: 380-162527-A-1-B MS

Matrix: Water

Analysis Batch: 165199

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 165060

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec		
	Result	Qualifier	Added	Result	Qualifier			Limits	Limits		
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	<2.0		25.1	24.2		ng/L		96	70 - 130		
Perfluorohexanoic acid (PFHxA)	<2.0		25.1	25.3		ng/L		101	70 - 130		
Perfluorododecanoic acid (PFDoA)	<2.0		25.1	25.6		ng/L		102	70 - 130		
Perfluorooctanoic acid (PFOA)	<2.0		25.1	26.1		ng/L		104	70 - 130		
Perfluorodecanoic acid (PFDA)	<2.0		25.1	25.7		ng/L		102	70 - 130		
Perfluorohexanesulfonic acid (PFHxS)	<2.0		25.1	26.9		ng/L		107	70 - 130		
Perfluorobutanesulfonic acid (PFBS)	<2.0		25.1	25.9		ng/L		103	70 - 130		
Perfluoroheptanoic acid (PFHpA)	<2.0		25.1	25.0		ng/L		100	70 - 130		
Perfluorononanoic acid (PFNA)	<2.0		25.1	25.4		ng/L		101	70 - 130		
Perfluorotetradecanoic acid (PFTA)	<2.0		25.1	23.9		ng/L		95	70 - 130		
Perfluorotridecanoic acid (PFTrDA)	<2.0		25.1	27.2		ng/L		108	70 - 130		
9-Chlorohexadecafluoro-3-oxan onane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		25.1	23.6		ng/L		94	70 - 130		
11-Chloroeicosafluoro-3-oxaund ecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		25.1	23.9		ng/L		95	70 - 130		
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		25.1	25.5		ng/L		101	70 - 130		

Lab Sample ID: 380-162527-A-1-C MSD

Matrix: Water

Analysis Batch: 165199

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 165060

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		25.2	24.2		ng/L		96	70 - 130	3	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		25.2	28.1		ng/L		112	70 - 130	4	30
Perfluoroundecanoic acid (PFUnA)	<2.0		25.2	26.7		ng/L		106	70 - 130	6	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.2	26.0		ng/L		103	70 - 130	3	30
N-ethylperfluorooctanesulfonamidoacetic acid (NETFOSAA)	<2.0		25.2	25.2		ng/L		100	70 - 130	4	30
Perfluorohexanoic acid (PFHxA)	<2.0		25.2	26.3		ng/L		105	70 - 130	4	30
Perfluorododecanoic acid (PFDoA)	<2.0		25.2	26.4		ng/L		105	70 - 130	3	30
Perfluorooctanoic acid (PFOA)	<2.0		25.2	27.4		ng/L		109	70 - 130	5	30
Perfluorodecanoic acid (PFDA)	<2.0		25.2	27.5		ng/L		109	70 - 130	7	30

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-162541-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: 380-162527-A-1-C MSD

Matrix: Water

Analysis Batch: 165199

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 165060

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorohexanesulfonic acid (PFHxS)	<2.0		25.2	28.7		ng/L		114	70 - 130	6	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		25.2	27.0		ng/L		107	70 - 130	4	30
Perfluoroheptanoic acid (PFHpA)	<2.0		25.2	25.6		ng/L		102	70 - 130	2	30
Perfluorononanoic acid (PFNA)	<2.0		25.2	25.7		ng/L		102	70 - 130	1	30
Perfluorotetradecanoic acid (PFTA)	<2.0		25.2	24.5		ng/L		97	70 - 130	2	30
Perfluorotridecanoic acid (PFTrDA)	<2.0		25.2	27.9		ng/L		111	70 - 130	3	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		25.2	25.3		ng/L		101	70 - 130	7	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		25.2	25.6		ng/L		102	70 - 130	7	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		25.2	26.0		ng/L		103	70 - 130	2	30
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
d5-NEtFOSAA	106		70 - 130								
13C2 PFHxA	109		70 - 130								
13C2 PFDA	118		70 - 130								
13C3-GenX	108		70 - 130								

QC Association Summary

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

Job ID: 380-162541-1
SDG: PFAS: Halawa Shaft Viewing Pool

LCMS

Prep Batch: 165060

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-162541-1	Halawa Shaft Viewing Pool	Total/NA	Water	537.1 DW	
380-162541-2	Halawa Shaft Viewing Pool Blank	Total/NA	Water	537.1 DW	
MBL 380-165060/22-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-165060/24-A	Lab Control Sample	Total/NA	Water	537.1 DW	
MRL 380-165060/23-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-162527-A-1-B MS	Matrix Spike	Total/NA	Water	537.1 DW	
380-162527-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	537.1 DW	

Prep Batch: 165148

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-162541-1	Halawa Shaft Viewing Pool	Total/NA	Water	533	
380-162541-2	Halawa Shaft Viewing Pool Blank	Total/NA	Water	533	
MBL 380-165148/20-A	Method Blank	Total/NA	Water	533	
LCS 380-165148/22-A	Lab Control Sample	Total/NA	Water	533	
MRL 380-165148/21-A	Lab Control Sample	Total/NA	Water	533	
380-162446-B-1-A MS	Matrix Spike	Total/NA	Water	533	
380-162446-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	

Analysis Batch: 165194

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-162541-1	Halawa Shaft Viewing Pool	Total/NA	Water	533	165148
380-162541-2	Halawa Shaft Viewing Pool Blank	Total/NA	Water	533	165148
MBL 380-165148/20-A	Method Blank	Total/NA	Water	533	165148
LCS 380-165148/22-A	Lab Control Sample	Total/NA	Water	533	165148
MRL 380-165148/21-A	Lab Control Sample	Total/NA	Water	533	165148
380-162446-B-1-A MS	Matrix Spike	Total/NA	Water	533	165148
380-162446-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	165148

Analysis Batch: 165199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-162541-1	Halawa Shaft Viewing Pool	Total/NA	Water	537.1	165060
380-162541-2	Halawa Shaft Viewing Pool Blank	Total/NA	Water	537.1	165060
MBL 380-165060/22-A	Method Blank	Total/NA	Water	537.1	165060
LCS 380-165060/24-A	Lab Control Sample	Total/NA	Water	537.1	165060
MRL 380-165060/23-A	Lab Control Sample	Total/NA	Water	537.1	165060
380-162527-A-1-B MS	Matrix Spike	Total/NA	Water	537.1	165060
380-162527-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	537.1	165060

Lab Chronicle

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

Job ID: 380-162541-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: Halawa Shaft Viewing Pool

Lab Sample ID: 380-162541-1

Date Collected: 07/22/25 09:39

Matrix: Water

Date Received: 07/24/25 18:33

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			165148	N8NE	EA POM	07/25/25 17:05
Total/NA	Analysis	533		1	165194	Y5FM	EA POM	07/26/25 13:58
Total/NA	Prep	537.1 DW			165060	E9PK	EA POM	07/25/25 10:32
Total/NA	Analysis	537.1		1	165199	Y5FM	EA POM	07/26/25 13:39

Client Sample ID: Halawa Shaft Viewing Pool Blank

Lab Sample ID: 380-162541-2

Date Collected: 07/22/25 09:39

Matrix: Water

Date Received: 07/24/25 18:33

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			165148	N8NE	EA POM	07/25/25 17:05
Total/NA	Analysis	533		1	165194	Y5FM	EA POM	07/26/25 14:09
Total/NA	Prep	537.1 DW			165060	E9PK	EA POM	07/25/25 10:32
Total/NA	Analysis	537.1		1	165199	Y5FM	EA POM	07/26/25 13:49

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: 380-162541-1
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
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- 16
- 17

Method Summary

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

Job ID: 380-162541-1
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: 380-162541-1
SDG: PFAS: Halawa Shaft Viewing Pool

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
380-162541-1	Halawa Shaft Viewing Pool	Water	07/22/25 09:39	07/24/25 18:33
380-162541-2	Halawa Shaft Viewing Pool Blank	Water	07/22/25 09:39	07/24/25 18:33

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

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-162541-1

SDG Number: PFAS: Halawa Shaft Viewing Pool

Login Number: 162541

List Number: 1

Creator: Hernandez, Orlando

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	