eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

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

Generated 1/2/2025 11:58:04 AM

JOB DESCRIPTION

RED-HILL
Weekly PFAS
RUSH Weekly Red Hill

JOB NUMBER

380-127907-1

Eurofins Eaton Analytical Pomona
941 Corporate Center Drive
Pomona CA 91768-2642

See page two for job notes and contact information.

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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

Rachelle Arada

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Authorized for release by
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Table of Contents

Definitions/Glossary

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

Job ID: 380-127907-1
SDG: Weekly PFAS

Qualifiers

LCMS

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
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

Job Narrative
380-127907-1

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 12/27/2024 9:25 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.5°C and 3.3°C.

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

Detection Summary

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

Job ID: 380-127907-1
SDG: Weekly PFAS

Client Sample ID: Halawa Shaft Viewing Pool
PWSID Number: HI0000331

Lab Sample ID: 380-127907-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	3.5		2.0		ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.4		2.0		ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.3		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: FB Halawa Shaft Viewing Pool

Lab Sample ID: 380-127907-2

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Eaton Analytical Pomona

Client Sample ID: Halawa Shaft Viewing Pool

Date Collected: 12/24/24 09:38
Date Received: 12/27/24 09:25

Lab Sample ID: 380-127907-1

Matrix: Drinking Water
PWSID Number: HI0000331

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		12/30/24 06:55	12/30/24 20:50	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 20:50	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 20:50	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 20:50	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 20:50	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 20:50	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 20:50	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 20:50	1
Perfluorohexanesulfonic acid (PFHxS)	**3.5**		2.0		ng/L		12/30/24 06:55	12/30/24 20:50	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 20:50	1
Perfluorononanoic acid (PFNA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 20:50	1
Perfluorooctanesulfonic acid (PFOS)	**3.4**		2.0		ng/L		12/30/24 06:55	12/30/24 20:50	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 20:50	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 20:50	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 20:50	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 20:50	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 20:50	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 20:50	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 20:50	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 20:50	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 20:50	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 20:50	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 20:50	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 20:50	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 20:50	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*95*		*50 - 200*	*12/30/24 06:55*	*12/30/24 20:50*	*1*
13C6 PFDA	*101*		*50 - 200*	*12/30/24 06:55*	*12/30/24 20:50*	*1*
13C5 PFHxA	*104*		*50 - 200*	*12/30/24 06:55*	*12/30/24 20:50*	*1*
13C4 PFHpA	*106*		*50 - 200*	*12/30/24 06:55*	*12/30/24 20:50*	*1*
13C8 PFOA	*108*		*50 - 200*	*12/30/24 06:55*	*12/30/24 20:50*	*1*
13C9 PFNA	*107*		*50 - 200*	*12/30/24 06:55*	*12/30/24 20:50*	*1*
13C7 PFUnA	*104*		*50 - 200*	*12/30/24 06:55*	*12/30/24 20:50*	*1*
13C2 PFDoA	*96*		*50 - 200*	*12/30/24 06:55*	*12/30/24 20:50*	*1*
13C4 PFBA	*108*		*50 - 200*	*12/30/24 06:55*	*12/30/24 20:50*	*1*
13C5 PFPeA	*116*		*50 - 200*	*12/30/24 06:55*	*12/30/24 20:50*	*1*
13C3 PFBS	*109*		*50 - 200*	*12/30/24 06:55*	*12/30/24 20:50*	*1*
13C3 PFHxS	*111*		*50 - 200*	*12/30/24 06:55*	*12/30/24 20:50*	*1*

Client Sample ID: Halawa Shaft Viewing Pool

Lab Sample ID: 380-127907-1
Date Collected: 12/24/24 09:38
Matrix: Drinking Water
Date Received: 12/27/24 09:25
PWSID Number: HI0000331

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	110		50 - 200	12/30/24 06:55	12/30/24 20:50	1
13C2-4:2-FTS	125		50 - 200	12/30/24 06:55	12/30/24 20:50	1
13C2-6:2-FTS	116		50 - 200	12/30/24 06:55	12/30/24 20:50	1
13C2-8:2-FTS	106		50 - 200	12/30/24 06:55	12/30/24 20:50	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		12/30/24 06:12	12/31/24 14:49	1
Perfluorooctanesulfonic acid (PFOS)	**3.3**		2.0		ng/L		12/30/24 06:12	12/31/24 14:49	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 14:49	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 14:49	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 14:49	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 14:49	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 14:49	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 14:49	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 14:49	1
Perfluorohexanesulfonic acid (PFHxS)	**3.8**		2.0		ng/L		12/30/24 06:12	12/31/24 14:49	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 14:49	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 14:49	1
Perfluorononanoic acid (PFNA)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 14:49	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 14:49	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 14:49	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 14:49	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 14:49	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 14:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	94		70 - 130	12/30/24 06:12	12/31/24 14:49	1
13C2 PFHxA	102		70 - 130	12/30/24 06:12	12/31/24 14:49	1
13C2 PFDA	94		70 - 130	12/30/24 06:12	12/31/24 14:49	1
13C3-GenX	105		70 - 130	12/30/24 06:12	12/31/24 14:49	1

Client Sample ID: FB Halawa Shaft Viewing Pool

Lab Sample ID: 380-127907-2
Date Collected: 12/24/24 09:38
Matrix: Water
Date Received: 12/27/24 09:25

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		12/30/24 06:55	12/30/24 21:00	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 21:00	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 21:00	1

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

Job ID: 380-127907-1
SDG: Weekly PFAS

Client Sample ID: FB Halawa Shaft Viewing Pool
Date Collected: 12/24/24 09:38
Date Received: 12/27/24 09:25

Lab Sample ID: 380-127907-2
Matrix: Water

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		12/30/24 06:55	12/30/24 21:00	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 21:00	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 21:00	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 21:00	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 21:00	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 21:00	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 21:00	1
Perfluorononanoic acid (PFNA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 21:00	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 21:00	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 21:00	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 21:00	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 21:00	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 21:00	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 21:00	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 21:00	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 21:00	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 21:00	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 21:00	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 21:00	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 21:00	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 21:00	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0		ng/L		12/30/24 06:55	12/30/24 21:00	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*104*		*50 - 200*	*12/30/24 06:55*	*12/30/24 21:00*	*1*
13C6 PFDA	*108*		*50 - 200*	*12/30/24 06:55*	*12/30/24 21:00*	*1*
13C5 PFHxA	*121*		*50 - 200*	*12/30/24 06:55*	*12/30/24 21:00*	*1*
13C4 PFHpA	*116*		*50 - 200*	*12/30/24 06:55*	*12/30/24 21:00*	*1*
13C8 PFOA	*118*		*50 - 200*	*12/30/24 06:55*	*12/30/24 21:00*	*1*
13C9 PFNA	*115*		*50 - 200*	*12/30/24 06:55*	*12/30/24 21:00*	*1*
13C7 PFUnA	*114*		*50 - 200*	*12/30/24 06:55*	*12/30/24 21:00*	*1*
13C2 PFDoA	*106*		*50 - 200*	*12/30/24 06:55*	*12/30/24 21:00*	*1*
13C4 PFBA	*110*		*50 - 200*	*12/30/24 06:55*	*12/30/24 21:00*	*1*
13C5 PFPeA	*112*		*50 - 200*	*12/30/24 06:55*	*12/30/24 21:00*	*1*
13C3 PFBS	*115*		*50 - 200*	*12/30/24 06:55*	*12/30/24 21:00*	*1*
13C3 PFHxS	*114*		*50 - 200*	*12/30/24 06:55*	*12/30/24 21:00*	*1*
13C8 PFOS	*116*		*50 - 200*	*12/30/24 06:55*	*12/30/24 21:00*	*1*
13C2-4:2-FTS	*118*		*50 - 200*	*12/30/24 06:55*	*12/30/24 21:00*	*1*
13C2-6:2-FTS	*123*		*50 - 200*	*12/30/24 06:55*	*12/30/24 21:00*	*1*
13C2-8:2-FTS	*104*		*50 - 200*	*12/30/24 06:55*	*12/30/24 21:00*	*1*

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

Job ID: 380-127907-1
SDG: Weekly PFAS

Client Sample ID: FB Halawa Shaft Viewing Pool

Date Collected: 12/24/24 09:38
Date Received: 12/27/24 09:25

Lab Sample ID: 380-127907-2

Matrix: Water

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		12/30/24 06:12	12/31/24 16:26	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 16:26	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 16:26	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 16:26	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 16:26	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 16:26	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 16:26	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 16:26	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 16:26	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 16:26	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 16:26	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 16:26	1
Perfluorononanoic acid (PFNA)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 16:26	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 16:26	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 16:26	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 16:26	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 16:26	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0		ng/L		12/30/24 06:12	12/31/24 16:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
d5-NEtFOSAA	*99*		*70 - 130*	*12/30/24 06:12*	*12/31/24 16:26*	*1*
13C2 PFHxA	*109*		*70 - 130*	*12/30/24 06:12*	*12/31/24 16:26*	*1*
13C2 PFDA	*89*		*70 - 130*	*12/30/24 06:12*	*12/31/24 16:26*	*1*
13C3-GenX	*111*		*70 - 130*	*12/30/24 06:12*	*12/31/24 16:26*	*1*

Action Limit Summary

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

Job ID: 380-127907-1
SDG: Weekly PFAS

Client Sample ID: Halawa Shaft Viewing Pool — Lab Sample ID: 380-127907-1

PWSID Number: HI0000331

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)	3.5		ng/L	10	2.0	533	Total/NA
Perfluorononanoic acid (PFNA)	<2.0		ng/L	10	2.0	533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.4		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)	3.3		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: FB Halawa Shaft Viewing Pool — Lab Sample ID: 380-127907-2

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: 380-127907-1
SDG: Weekly PFAS

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

Matrix: Drinking 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)
380-127907-1	Halawa Shaft Viewing Pool	94	102	94	105
380-127907-1 MS	Halawa Shaft Viewing Pool	100	113	95	109
380-127907-1 MSD	Halawa Shaft Viewing Pool	89	106	90	107

Surrogate Legend

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

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)
380-127907-2	FB Halawa Shaft Viewing Pool	99	109	89	111
LCS 380-125748/21-A	Lab Control Sample	98	107	99	110
MBL 380-125748/19-A	Method Blank	100	117	104	117
MRL 380-125748/20-A	Lab Control Sample	96	102	95	107

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: 380-127907-1
SDG: Weekly PFAS

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

Matrix: Drinking 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)	PFDoA (50-200)
380-127907-1	Halawa Shaft Viewing Pool	95	101	104	106	108	107	104	96

		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)
380-127907-1	Halawa Shaft Viewing Pool	108	116	109	111	110	125	116	106

Surrogate Legend

HFPODA = 13C3 HFPO-DA
C6PFDA = 13C6 PFDA
13C5PHA = 13C5 PFHxA
C4PFHA = 13C4 PFHpA
C8PFOA = 13C8 PFOA
C9PFNA = 13C9 PFNA
13C7PUA = 13C7 PFUnA
PFDoA = 13C2 PFDoA
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

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)	PFDoA (50-200)
380-127907-2	FB Halawa Shaft Viewing Pool	104	108	121	116	118	115	114	106
380-127916-B-2-A MS	Matrix Spike	105	104	101	107	112	109	102	98
380-127916-C-2-A MSD	Matrix Spike Duplicate	104	104	101	103	106	106	102	93
LCS 380-125753/27-A	Lab Control Sample	121	112	118	115	118	114	114	113
MBL 380-125753/25-A	Method Blank	102	101	112	110	110	106	106	98
MRL 380-125753/26-A	Lab Control Sample	85	95	94	96	94	96	99	93

		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)
380-127907-2	FB Halawa Shaft Viewing Pool	110	112	115	114	116	118	123	104
380-127916-B-2-A MS	Matrix Spike	110	178	106	114	119	149	153	125
380-127916-C-2-A MSD	Matrix Spike Duplicate	105	166	103	108	113	146	150	119
LCS 380-125753/27-A	Lab Control Sample	114	120	116	112	115	119	122	110
MBL 380-125753/25-A	Method Blank	111	111	107	109	110	117	107	103
MRL 380-125753/26-A	Lab Control Sample	98	91	108	108	110	121	121	105

Surrogate Legend

HFPODA = 13C3 HFPO-DA
C6PFDA = 13C6 PFDA
13C5PHA = 13C5 PFHxA

Isotope Dilution Summary

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

Job ID: 380-127907-1
SDG: Weekly PFAS

C4PFHA = 13C4 PFHpA
C8PFOA = 13C8 PFOA
C9PFNA = 13C9 PFNA
13C7PUA = 13C7 PFUnA
PFDoA = 13C2 PFDoA
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

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

Lab Sample ID: MBL 380-125753/25-A
Matrix: Water
Analysis Batch: 125869

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 125753

Analyte	MBL Result	MBL Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0		ng/L		12/30/24 06:55	12/30/24 18:56	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0		ng/L		12/30/24 06:55	12/30/24 18:56	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0		ng/L		12/30/24 06:55	12/30/24 18:56	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0		ng/L		12/30/24 06:55	12/30/24 18:56	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0		ng/L		12/30/24 06:55	12/30/24 18:56	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0		ng/L		12/30/24 06:55	12/30/24 18:56	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0		ng/L		12/30/24 06:55	12/30/24 18:56	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0		ng/L		12/30/24 06:55	12/30/24 18:56	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0		ng/L		12/30/24 06:55	12/30/24 18:56	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0		ng/L		12/30/24 06:55	12/30/24 18:56	1
Perfluorononanoic acid (PFNA)	<0.40		2.0		ng/L		12/30/24 06:55	12/30/24 18:56	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0		ng/L		12/30/24 06:55	12/30/24 18:56	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0		ng/L		12/30/24 06:55	12/30/24 18:56	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0		ng/L		12/30/24 06:55	12/30/24 18:56	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0		ng/L		12/30/24 06:55	12/30/24 18:56	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0		ng/L		12/30/24 06:55	12/30/24 18:56	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0		ng/L		12/30/24 06:55	12/30/24 18:56	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0		ng/L		12/30/24 06:55	12/30/24 18:56	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0		ng/L		12/30/24 06:55	12/30/24 18:56	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0		ng/L		12/30/24 06:55	12/30/24 18:56	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0		ng/L		12/30/24 06:55	12/30/24 18:56	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0		ng/L		12/30/24 06:55	12/30/24 18:56	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0		ng/L		12/30/24 06:55	12/30/24 18:56	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0		ng/L		12/30/24 06:55	12/30/24 18:56	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0		ng/L		12/30/24 06:55	12/30/24 18:56	1

Isotope Dilution	*MBL %Recovery*	*MBL Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*102*		*50 - 200*	*12/30/24 06:55*	*12/30/24 18:56*	*1*
13C6 PFDA	*101*		*50 - 200*	*12/30/24 06:55*	*12/30/24 18:56*	*1*
13C5 PFHxA	*112*		*50 - 200*	*12/30/24 06:55*	*12/30/24 18:56*	*1*
13C4 PFHpA	*110*		*50 - 200*	*12/30/24 06:55*	*12/30/24 18:56*	*1*
13C8 PFOA	*110*		*50 - 200*	*12/30/24 06:55*	*12/30/24 18:56*	*1*
13C9 PFNA	*106*		*50 - 200*	*12/30/24 06:55*	*12/30/24 18:56*	*1*
13C7 PFUnA	*106*		*50 - 200*	*12/30/24 06:55*	*12/30/24 18:56*	*1*
13C2 PFDoA	*98*		*50 - 200*	*12/30/24 06:55*	*12/30/24 18:56*	*1*
13C4 PFBA	*111*		*50 - 200*	*12/30/24 06:55*	*12/30/24 18:56*	*1*
13C5 PFPeA	*111*		*50 - 200*	*12/30/24 06:55*	*12/30/24 18:56*	*1*
13C3 PFBS	*107*		*50 - 200*	*12/30/24 06:55*	*12/30/24 18:56*	*1*
13C3 PFHxS	*109*		*50 - 200*	*12/30/24 06:55*	*12/30/24 18:56*	*1*

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

Lab Sample ID: MBL 380-125753/25-A
Matrix: Water
Analysis Batch: 125869

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 125753

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	110		50 - 200	12/30/24 06:55	12/30/24 18:56	1
13C2-4:2-FTS	117		50 - 200	12/30/24 06:55	12/30/24 18:56	1
13C2-6:2-FTS	107		50 - 200	12/30/24 06:55	12/30/24 18:56	1
13C2-8:2-FTS	103		50 - 200	12/30/24 06:55	12/30/24 18:56	1

Lab Sample ID: LCS 380-125753/27-A
Matrix: Water
Analysis Batch: 125869

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 125753

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	120	106		ng/L		88	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	106		ng/L		88	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	120	107		ng/L		89	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	120	98.8		ng/L		82	70 - 130
Perfluorobutanesulfonic acid (PFBS)	120	106		ng/L		88	70 - 130
Perfluorodecanoic acid (PFDA)	120	108		ng/L		90	70 - 130
Perfluorododecanoic acid (PFDoA)	120	103		ng/L		85	70 - 130
Perfluoroheptanoic acid (PFHpA)	120	105		ng/L		88	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	120	108		ng/L		90	70 - 130
Perfluorohexanoic acid (PFHxA)	120	106		ng/L		88	70 - 130
Perfluorononanoic acid (PFNA)	120	108		ng/L		90	70 - 130
Perfluorooctanesulfonic acid (PFOS)	120	104		ng/L		86	70 - 130
Perfluorooctanoic acid (PFOA)	120	104		ng/L		87	70 - 130
Perfluoroundecanoic acid (PFUnA)	120	109		ng/L		90	70 - 130
Perfluorobutanoic acid (PFBA)	120	106		ng/L		88	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	120	107		ng/L		89	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	107		ng/L		89	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	120	112		ng/L		93	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	120	101		ng/L		84	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	120	101		ng/L		84	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	120	106		ng/L		88	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	120	102		ng/L		85	70 - 130
Perfluoropentanoic acid (PFPeA)	120	103		ng/L		86	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	120	106		ng/L		88	70 - 130

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

Lab Sample ID: LCS 380-125753/27-A
Matrix: Water
Analysis Batch: 125869

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 125753

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Perfluoropentanesulfonic acid (PFPeS)			120	110		ng/L		91	70 - 130		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C3 HFPO-DA	*121*		*50 - 200*
13C6 PFDA	*112*		*50 - 200*
13C5 PFHxA	*118*		*50 - 200*
13C4 PFHpA	*115*		*50 - 200*
13C8 PFOA	*118*		*50 - 200*
13C9 PFNA	*114*		*50 - 200*
13C7 PFUnA	*114*		*50 - 200*
13C2 PFDoA	*113*		*50 - 200*
13C4 PFBA	*114*		*50 - 200*
13C5 PFPeA	*120*		*50 - 200*
13C3 PFBS	*116*		*50 - 200*
13C3 PFHxS	*112*		*50 - 200*
13C8 PFOS	*115*		*50 - 200*
13C2-4:2-FTS	*119*		*50 - 200*
13C2-6:2-FTS	*122*		*50 - 200*
13C2-8:2-FTS	*110*		*50 - 200*

Lab Sample ID: MRL 380-125753/26-A
Matrix: Water
Analysis Batch: 125869

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 125753

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)			2.00	1.70	J	ng/L		85	50 - 150		
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)			2.00	1.86	J	ng/L		93	50 - 150		
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			2.00	1.70	J	ng/L		85	50 - 150		
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)			2.00	1.81	J	ng/L		90	50 - 150		
Perfluorobutanesulfonic acid (PFBS)			2.00	1.89	J	ng/L		94	50 - 150		
Perfluorodecanoic acid (PFDA)			2.00	1.85	J	ng/L		92	50 - 150		
Perfluorododecanoic acid (PFDoA)			2.00	1.85	J	ng/L		93	50 - 150		
Perfluoroheptanoic acid (PFHpA)			2.00	1.86	J	ng/L		93	50 - 150		
Perfluorohexanesulfonic acid (PFHxS)			2.00	1.92	J	ng/L		96	50 - 150		
Perfluorohexanoic acid (PFHxA)			2.00	1.76	J	ng/L		88	50 - 150		
Perfluorononanoic acid (PFNA)			2.00	1.87	J	ng/L		93	50 - 150		
Perfluorooctanesulfonic acid (PFOS)			2.00	1.90	J	ng/L		95	50 - 150		
Perfluorooctanoic acid (PFOA)			2.00	1.85	J	ng/L		93	50 - 150		
Perfluoroundecanoic acid (PFUnA)			2.00	1.74	J	ng/L		87	50 - 150		
Perfluorobutanoic acid (PFBA)			2.00	1.77	J	ng/L		88	50 - 150		

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

Lab Sample ID: MRL 380-125753/26-A
Matrix: Water
Analysis Batch: 125869

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 125753

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	1.86	J	ng/L		93	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	1.89	J	ng/L		95	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	1.81	J	ng/L		90	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	2.18	J	ng/L		109	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	2.00	1.83	J	ng/L		91	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	1.65	J	ng/L		82	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	1.86	J	ng/L		93	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	2.00	J	ng/L		100	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.00	1.79	J	ng/L		89	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	*85*		*50 - 200*
13C6 PFDA	*95*		*50 - 200*
13C5 PFHxA	*94*		*50 - 200*
13C4 PFHpA	*96*		*50 - 200*
13C8 PFOA	*94*		*50 - 200*
13C9 PFNA	*96*		*50 - 200*
13C7 PFUnA	*99*		*50 - 200*
13C2 PFDoA	*93*		*50 - 200*
13C4 PFBA	*98*		*50 - 200*
13C5 PFPeA	*91*		*50 - 200*
13C3 PFBS	*108*		*50 - 200*
13C3 PFHxS	*108*		*50 - 200*
13C8 PFOS	*110*		*50 - 200*
13C2-4:2-FTS	*121*		*50 - 200*
13C2-6:2-FTS	*121*		*50 - 200*
13C2-8:2-FTS	*105*		*50 - 200*

Lab Sample ID: 380-127916-B-2-A MS
Matrix: Water
Analysis Batch: 125869

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 125753

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)	27	*5- F1	121	101	F1	ng/L		61	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	20	*5- F1	121	104	F1	ng/L		69	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		121	109		ng/L		90	70 - 130

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

Lab Sample ID: 380-127916-B-2-A MS
Matrix: Water
Analysis Batch: 125869

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 125753

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		121	104		ng/L		87	70 - 130
Perfluorobutanesulfonic acid (PFBS)	55		121	163		ng/L		89	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0	*5-	121	112		ng/L		93	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0	*5-	121	106		ng/L		88	70 - 130
Perfluoroheptanoic acid (PFHpA)	9.2		121	119		ng/L		91	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	4.8	*5-	121	114		ng/L		90	70 - 130
Perfluorohexanoic acid (PFHxA)	7.0		121	121		ng/L		94	70 - 130
Perfluorononanoic acid (PFNA)	<2.0	*5-	121	112		ng/L		93	70 - 130
Perfluorooctanesulfonic acid (PFOS)	160	*5- F1	121	174	F1	ng/L		13	70 - 130
Perfluorooctanoic acid (PFOA)	34	*5-	121	141		ng/L		89	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0	*5-	121	112		ng/L		93	70 - 130
Perfluorobutanoic acid (PFBA)	30		121	135		ng/L		87	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0	*5-	121	108		ng/L		89	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		121	105		ng/L		87	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0	*5-	121	114		ng/L		94	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		121	110		ng/L		91	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		121	110		ng/L		91	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		121	134		ng/L		111	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	58		121	169		ng/L		92	70 - 130
Perfluoropentanoic acid (PFPeA)	12		121	117		ng/L		87	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0	*5-	121	107		ng/L		88	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<2.0	*5-	121	109		ng/L		90	70 - 130

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
13C3 HFPO-DA	*105*		*50 - 200*
13C6 PFDA	*104*		*50 - 200*
13C5 PFHxA	*101*		*50 - 200*
13C4 PFHpA	*107*		*50 - 200*
13C8 PFOA	*112*		*50 - 200*
13C9 PFNA	*109*		*50 - 200*
13C7 PFUnA	*102*		*50 - 200*
13C2 PFDoA	*98*		*50 - 200*
13C4 PFBA	*110*		*50 - 200*
13C5 PFPeA	*178*		*50 - 200*
13C3 PFBS	*106*		*50 - 200*
13C3 PFHxS	*114*		*50 - 200*
13C8 PFOS	*119*		*50 - 200*

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

Lab Sample ID: 380-127916-B-2-A MS
Matrix: Water
Analysis Batch: 125869

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 125753

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
13C2-4:2-FTS	149		50 - 200
13C2-6:2-FTS	153		50 - 200
13C2-8:2-FTS	125		50 - 200

Lab Sample ID: 380-127916-C-2-A MSD
Matrix: Water
Analysis Batch: 125869

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 125753

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)	27	*5- F1	121	101	F1	ng/L		62	70 - 130	1	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	20	*5- F1	121	103	F1	ng/L		69	70 - 130	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		121	111		ng/L		92	70 - 130	2	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		121	102		ng/L		85	70 - 130	2	30
Perfluorobutanesulfonic acid (PFBS)	55		121	155		ng/L		83	70 - 130	5	30
Perfluorodecanoic acid (PFDA)	<2.0	*5-	121	109		ng/L		91	70 - 130	2	30
Perfluorododecanoic acid (PFDoA)	<2.0	*5-	121	114		ng/L		94	70 - 130	7	30
Perfluoroheptanoic acid (PFHpA)	9.2		121	121		ng/L		93	70 - 130	2	30
Perfluorohexanesulfonic acid (PFHxS)	4.8	*5-	121	116		ng/L		92	70 - 130	2	30
Perfluorohexanoic acid (PFHxA)	7.0		121	120		ng/L		94	70 - 130	0	30
Perfluorononanoic acid (PFNA)	<2.0	*5-	121	113		ng/L		93	70 - 130	1	30
Perfluorooctanesulfonic acid (PFOS)	160	*5- F1	121	176	F1	ng/L		14	70 - 130	1	30
Perfluorooctanoic acid (PFOA)	34	*5-	121	150		ng/L		96	70 - 130	7	30
Perfluoroundecanoic acid (PFUnA)	<2.0	*5-	121	111		ng/L		92	70 - 130	1	30
Perfluorobutanoic acid (PFBA)	30		121	138		ng/L		89	70 - 130	2	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0	*5-	121	113		ng/L		93	70 - 130	4	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		121	105		ng/L		87	70 - 130	0	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0	*5-	121	107		ng/L		88	70 - 130	6	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		121	108		ng/L		89	70 - 130	2	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		121	108		ng/L		89	70 - 130	2	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		121	136		ng/L		112	70 - 130	2	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	58		121	175		ng/L		96	70 - 130	3	30
Perfluoropentanoic acid (PFPeA)	12		121	113		ng/L		84	70 - 130	3	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0	*5-	121	107		ng/L		88	70 - 130	0	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0	*5-	121	110		ng/L		91	70 - 130	1	30

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

Isotope Dilution	MSD %Recovery	MSD Qualifier	Limits
13C3 HFPO-DA	104		50 - 200
13C6 PFDA	104		50 - 200
13C5 PFHxA	101		50 - 200
13C4 PFHpA	103		50 - 200
13C8 PFOA	106		50 - 200
13C9 PFNA	106		50 - 200
13C7 PFUnA	102		50 - 200
13C2 PFDoA	93		50 - 200
13C4 PFBA	105		50 - 200
13C5 PFPeA	166		50 - 200
13C3 PFBS	103		50 - 200
13C3 PFHxS	108		50 - 200
13C8 PFOS	113		50 - 200
13C2-4:2-FTS	146		50 - 200
13C2-6:2-FTS	150		50 - 200
13C2-8:2-FTS	119		50 - 200

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

Lab Sample ID: MBL 380-125748/19-A
Matrix: Water
Analysis Batch: 125939

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 125748

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		12/30/24 06:12	12/31/24 14:16	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0		ng/L		12/30/24 06:12	12/31/24 14:16	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0		ng/L		12/30/24 06:12	12/31/24 14:16	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.58		2.0		ng/L		12/30/24 06:12	12/31/24 14:16	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.42		2.0		ng/L		12/30/24 06:12	12/31/24 14:16	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0		ng/L		12/30/24 06:12	12/31/24 14:16	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0		ng/L		12/30/24 06:12	12/31/24 14:16	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0		ng/L		12/30/24 06:12	12/31/24 14:16	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0		ng/L		12/30/24 06:12	12/31/24 14:16	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0		ng/L		12/30/24 06:12	12/31/24 14:16	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0		ng/L		12/30/24 06:12	12/31/24 14:16	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0		ng/L		12/30/24 06:12	12/31/24 14:16	1
Perfluorononanoic acid (PFNA)	<0.40		2.0		ng/L		12/30/24 06:12	12/31/24 14:16	1
Perfluorotetradecanoic acid (PFTA)	<0.54		2.0		ng/L		12/30/24 06:12	12/31/24 14:16	1
Perfluorotridecanoic acid (PFTrDA)	<0.36		2.0		ng/L		12/30/24 06:12	12/31/24 14:16	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0		ng/L		12/30/24 06:12	12/31/24 14:16	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0		ng/L		12/30/24 06:12	12/31/24 14:16	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0		ng/L		12/30/24 06:12	12/31/24 14:16	1

Surrogate	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	100		70 - 130	12/30/24 06:12	12/31/24 14:16	1
13C2 PFHxA	117		70 - 130	12/30/24 06:12	12/31/24 14:16	1
13C2 PFDA	104		70 - 130	12/30/24 06:12	12/31/24 14:16	1

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

Lab Sample ID: MBL 380-125748/19-A
Matrix: Water
Analysis Batch: 125939

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 125748

Surrogate	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3-GenX	117		70 - 130	12/30/24 06:12	12/31/24 14:16	1

Lab Sample ID: LCS 380-125748/21-A
Matrix: Water
Analysis Batch: 125939

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 125748

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	25.2	27.1		ng/L		108	70 - 130
Perfluorooctanesulfonic acid (PFOS)	25.2	25.2		ng/L		100	70 - 130
Perfluoroundecanoic acid (PFUnA)	25.2	24.4		ng/L		97	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	25.2	24.1		ng/L		96	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	25.2	24.5		ng/L		98	70 - 130
Perfluorohexanoic acid (PFHxA)	25.2	26.9		ng/L		107	70 - 130
Perfluorododecanoic acid (PFDoA)	25.2	24.4		ng/L		97	70 - 130
Perfluorooctanoic acid (PFOA)	25.2	25.5		ng/L		101	70 - 130
Perfluorodecanoic acid (PFDA)	25.2	24.0		ng/L		95	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	25.2	25.4		ng/L		101	70 - 130
Perfluorobutanesulfonic acid (PFBS)	25.2	25.2		ng/L		100	70 - 130
Perfluoroheptanoic acid (PFHpA)	25.2	26.7		ng/L		106	70 - 130
Perfluorononanoic acid (PFNA)	25.2	24.0		ng/L		96	70 - 130
Perfluorotetradecanoic acid (PFTA)	25.2	24.1		ng/L		96	70 - 130
Perfluorotridecanoic acid (PFTrDA)	25.2	25.6		ng/L		102	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	25.2	24.9		ng/L		99	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	25.2	24.7		ng/L		98	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	25.2	28.0		ng/L		111	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
d5-NEtFOSAA	98		70 - 130
13C2 PFHxA	107		70 - 130
13C2 PFDA	99		70 - 130
13C3-GenX	110		70 - 130

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

Lab Sample ID: MRL 380-125748/20-A
Matrix: Water
Analysis Batch: 125939

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 125748

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.01	2.23	J	ng/L		111	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.01	1.96	J	ng/L		98	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.01	1.97	J	ng/L		98	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.01	2.04	J	ng/L		102	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.01	2.15	J	ng/L		107	50 - 150
Perfluorohexanoic acid (PFHxA)	2.01	2.21	J	ng/L		110	50 - 150
Perfluorododecanoic acid (PFDoA)	2.01	1.98	J	ng/L		99	50 - 150
Perfluorooctanoic acid (PFOA)	2.01	2.16	J	ng/L		108	50 - 150
Perfluorodecanoic acid (PFDA)	2.01	1.97	J	ng/L		98	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.01	2.13	J	ng/L		106	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.01	2.04	J	ng/L		101	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.01	2.21	J	ng/L		110	50 - 150
Perfluorononanoic acid (PFNA)	2.01	2.09	J	ng/L		104	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.01	2.01	J	ng/L		100	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.01	2.10	J	ng/L		104	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.01	2.01	J	ng/L		100	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.01	2.00	J	ng/L		99	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.01	2.27	J	ng/L		113	50 - 150

Surrogate	*MRL %Recovery*	*MRL Qualifier*	*Limits*
d5-NEtFOSAA	*96*		*70 - 130*
13C2 PFHxA	*102*		*70 - 130*
13C2 PFDA	*95*		*70 - 130*
13C3-GenX	*107*		*70 - 130*

Lab Sample ID: 380-127907-1 MS
Matrix: Drinking Water
Analysis Batch: 125939

Client Sample ID: Halawa Shaft Viewing Pool
Prep Type: Total/NA
Prep Batch: 125748

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		25.2	28.7		ng/L		114	70 - 130
Perfluorooctanesulfonic acid (PFOS)	3.3		25.2	30.3		ng/L		107	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		25.2	25.4		ng/L		101	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.2	26.9		ng/L		107	70 - 130

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

Lab Sample ID: 380-127907-1 MS
Matrix: Drinking Water
Analysis Batch: 125939

Client Sample ID: Halawa Shaft Viewing Pool
Prep Type: Total/NA
Prep Batch: 125748

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		25.2	27.5		ng/L		109	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		25.2	30.2		ng/L		114	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		25.2	26.4		ng/L		105	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		25.2	27.6		ng/L		105	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		25.2	26.1		ng/L		104	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	3.8		25.2	31.9		ng/L		112	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		25.2	28.4		ng/L		111	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		25.2	28.5		ng/L		111	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		25.2	28.0		ng/L		111	70 - 130
Perfluorotetradecanoic acid (PFTA)	<2.0		25.2	25.8		ng/L		102	70 - 130
Perfluorotridecanoic acid (PFTrDA)	<2.0		25.2	27.5		ng/L		109	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		25.2	26.5		ng/L		105	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		25.2	27.3		ng/L		109	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		25.2	29.4		ng/L		117	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
d5-NEtFOSAA	*100*		*70 - 130*
13C2 PFHxA	*113*		*70 - 130*
13C2 PFDA	*95*		*70 - 130*
13C3-GenX	*109*		*70 - 130*

Lab Sample ID: 380-127907-1 MSD
Matrix: Drinking Water
Analysis Batch: 125939

Client Sample ID: Halawa Shaft Viewing Pool
Prep Type: Total/NA
Prep Batch: 125748

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	28.0		ng/L		111	70 - 130	2	30
Perfluorooctanesulfonic acid (PFOS)	3.3		25.2	29.1		ng/L		103	70 - 130	4	30
Perfluoroundecanoic acid (PFUnA)	<2.0		25.2	25.3		ng/L		101	70 - 130	0	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.2	25.1		ng/L		100	70 - 130	7	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		25.2	24.8		ng/L		99	70 - 130	10	30
Perfluorohexanoic acid (PFHxA)	<2.0		25.2	28.8		ng/L		109	70 - 130	5	30
Perfluorododecanoic acid (PFDoA)	<2.0		25.2	25.7		ng/L		102	70 - 130	3	30
Perfluorooctanoic acid (PFOA)	<2.0		25.2	27.4		ng/L		105	70 - 130	1	30
Perfluorodecanoic acid (PFDA)	<2.0		25.2	25.9		ng/L		103	70 - 130	1	30

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

Lab Sample ID: 380-127907-1 MSD
Matrix: Drinking Water
Analysis Batch: 125939

Client Sample ID: Halawa Shaft Viewing Pool
Prep Type: Total/NA
Prep Batch: 125748

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorohexanesulfonic acid (PFHxS)	3.8		25.2	30.3		ng/L		105	70 - 130	5	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		25.2	26.7		ng/L		104	70 - 130	6	30
Perfluoroheptanoic acid (PFHpA)	<2.0		25.2	27.8		ng/L		108	70 - 130	2	30
Perfluorononanoic acid (PFNA)	<2.0		25.2	26.5		ng/L		105	70 - 130	6	30
Perfluorotetradecanoic acid (PFTA)	<2.0		25.2	25.3		ng/L		101	70 - 130	2	30
Perfluorotridecanoic acid (PFTrDA)	<2.0		25.2	27.0		ng/L		107	70 - 130	2	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		25.2	26.3		ng/L		105	70 - 130	1	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		25.2	26.4		ng/L		105	70 - 130	3	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		25.2	28.3		ng/L		112	70 - 130	4	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
d5-NEtFOSAA	*89*		*70 - 130*
13C2 PFHxA	*106*		*70 - 130*
13C2 PFDA	*90*		*70 - 130*
13C3-GenX	*107*		*70 - 130*

QC Association Summary

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

Job ID: 380-127907-1
SDG: Weekly PFAS

LCMS

Prep Batch: 125748

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-127907-1	Halawa Shaft Viewing Pool	Total/NA	Drinking Water	537.1 DW	
380-127907-2	FB Halawa Shaft Viewing Pool	Total/NA	Water	537.1 DW	
MBL 380-125748/19-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-125748/21-A	Lab Control Sample	Total/NA	Water	537.1 DW	
MRL 380-125748/20-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-127907-1 MS	Halawa Shaft Viewing Pool	Total/NA	Drinking Water	537.1 DW	
380-127907-1 MSD	Halawa Shaft Viewing Pool	Total/NA	Drinking Water	537.1 DW	

Prep Batch: 125753

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-127907-1	Halawa Shaft Viewing Pool	Total/NA	Drinking Water	533	
380-127907-2	FB Halawa Shaft Viewing Pool	Total/NA	Water	533	
MBL 380-125753/25-A	Method Blank	Total/NA	Water	533	
LCS 380-125753/27-A	Lab Control Sample	Total/NA	Water	533	
MRL 380-125753/26-A	Lab Control Sample	Total/NA	Water	533	
380-127916-B-2-A MS	Matrix Spike	Total/NA	Water	533	
380-127916-C-2-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	

Analysis Batch: 125869

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-127907-1	Halawa Shaft Viewing Pool	Total/NA	Drinking Water	533	125753
380-127907-2	FB Halawa Shaft Viewing Pool	Total/NA	Water	533	125753
MBL 380-125753/25-A	Method Blank	Total/NA	Water	533	125753
LCS 380-125753/27-A	Lab Control Sample	Total/NA	Water	533	125753
MRL 380-125753/26-A	Lab Control Sample	Total/NA	Water	533	125753
380-127916-B-2-A MS	Matrix Spike	Total/NA	Water	533	125753
380-127916-C-2-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	125753

Analysis Batch: 125939

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-127907-1	Halawa Shaft Viewing Pool	Total/NA	Drinking Water	537.1	125748
380-127907-2	FB Halawa Shaft Viewing Pool	Total/NA	Water	537.1	125748
MBL 380-125748/19-A	Method Blank	Total/NA	Water	537.1	125748
LCS 380-125748/21-A	Lab Control Sample	Total/NA	Water	537.1	125748
MRL 380-125748/20-A	Lab Control Sample	Total/NA	Water	537.1	125748
380-127907-1 MS	Halawa Shaft Viewing Pool	Total/NA	Drinking Water	537.1	125748
380-127907-1 MSD	Halawa Shaft Viewing Pool	Total/NA	Drinking Water	537.1	125748

Lab Chronicle

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

Job ID: 380-127907-1
SDG: Weekly PFAS

Client Sample ID: Halawa Shaft Viewing Pool

Lab Sample ID: 380-127907-1

Date Collected: 12/24/24 09:38
Date Received: 12/27/24 09:25

Matrix: Drinking Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			125753	XTD8	EA POM	12/30/24 06:55
Total/NA	Analysis	533		1	125869	Y5FM	EA POM	12/30/24 20:50
Total/NA	Prep	537.1 DW			125748	G9MN	EA POM	12/30/24 06:12
Total/NA	Analysis	537.1		1	125939	M7ML	EA POM	12/31/24 14:49

Client Sample ID: FB Halawa Shaft Viewing Pool

Lab Sample ID: 380-127907-2

Date Collected: 12/24/24 09:38
Date Received: 12/27/24 09:25

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			125753	XTD8	EA POM	12/30/24 06:55
Total/NA	Analysis	533		1	125869	Y5FM	EA POM	12/30/24 21:00
Total/NA	Prep	537.1 DW			125748	G9MN	EA POM	12/30/24 06:12
Total/NA	Analysis	537.1		1	125939	M7ML	EA POM	12/31/24 16:26

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: 380-127907-1
SDG: Weekly PFAS

Laboratory: Eurofins Eaton Analytical Pomona

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

Authority	Program	Identification Number	Expiration Date
Hawaii	State	CA00006	01-31-25

Method Summary

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

Job ID: 380-127907-1
SDG: Weekly PFAS

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: 380-127907-1
SDG: Weekly PFAS

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-127907-1	Halawa Shaft Viewing Pool	Drinking Water	12/24/24 09:38	12/27/24 09:25	HI0000331
380-127907-2	FB Halawa Shaft Viewing Pool	Water	12/24/24 09:38	12/27/24 09:25	

Eurofins Eaton Analytical Pomona
941 Corporate Center Drive
Pomona, CA 91768-2642
Phone (626) 386-1100

Chain of Custody Record

eurofins | Environment Testing

Client Information	Sampler:	Lab PM: Arada Rachelle	Carrier Tracking No(s):	COC No: 380-28005-2757 1
Client Contact: Dr Ron Fenstemacher	Phone: 808-748-5840	E-Mail: Rachelle.Arada@et.eurofinsus com	State of Origin:	Page: Page 1 of 1
Company: City & County of Honolulu	PWSID:			Job #:
Address: 630 South Beretania Street Chemistry Lab	Due Date Requested			
City: Honolulu	TAT Requested (days)			
State, Zip: HI 96843	Compliance Project: Δ Yes Δ No			
Phone: 808-748-5091(Tel)	PO #: C20525101 exp 05312023			
Email: RFENSTEMACHER@hbws.org	WO #:			
Project Name: RED-HILL/HBWS Sites Event Desc: RUSH Weekly Red Hill	Project #: 38001111			
Site: Hawaii	SSOW#:			

Analysis Requested

Preservation Codes.
R - NaThioSO4
RA NaThio/HCl
Q Na2SO3
QA - Na2SO3/HCl
Y Trizma
I - NH4 Acetate

Other: 380-127907 COC

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	625.1; 625.1_SIM	8015B_GRO_LL (MOD) GRO	8015B_DRO_LL_CS HNL Ranges C10-C24/C24 C36/C8-C18	525.2_PREC (MOD) 525plus Plus TICs	537.1_DW_PREC 537.1 Full List	533 All Analytes	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	R	RA	Q	QA	Y	I	X	
Halawa Shaft Viewing Pool	12/24/24	0938	G	Water							3	3		
FB Halawa Shaft Viewing Pool	12/24/24	0938		Water							1	1		

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:	Time:	Method of Shipment: FX
Relinquished by: [redacted]	Date/Time: 12/26/24 1200	Company	Received by:	Date/Time: 12/27/24 0925	Company GA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.

Cooler Temperature(s) °C and Other Remarks: IR 630b 1.5 +0.0 = 1.5°C GA
3.3 +0.0 = 3.3°C

Ver: 04/02/2024

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-127907-1
SDG Number: Weekly PFAS

Login Number: 127907
List Number: 1
Creator: Hernandez, Orlando

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	
ClO4 headspace requirement met (>50% for CA, >30% for other states).	True	
Samples do not require splitting or compositing.	True	
Container provided by EEA	True	