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 10/14/2024 9:26:14 AM

JOB DESCRIPTION

RED-HILL
Weekly PFAS

JOB NUMBER

380-117065-1

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

See page two for job notes and contact information.

Eurofins Eaton Analytical Pomona

Job Notes

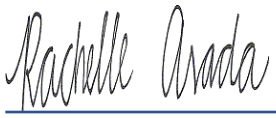
This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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



Generated
10/14/2024 9:26:14 AM

Authorized for release by
Rachelle Arada, Project Manager
Rachelle.Arada@et.eurofinsus.com
(626)386-1106

Table of Contents

Definitions/Glossary

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

Job ID: 380-117065-1
SDG: Weekly PFAS

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

Job ID: 380-117065-1 — Eurofins Eaton Analytical Pomona

Job Narrative
380-117065-1

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 10/10/2024 10:30 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 2.3°C and 2.8°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: 380-117065-1
SDG: Weekly PFAS

Client Sample ID: Halawa Shaft Viewing Pool — Lab Sample ID: 380-117065-1

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)	3.6		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: FB: Halawa Shaft Viewing Pool — Lab Sample ID: 380-117065-2

No Detections.

This Detection Summary does not include radiochemical test results.

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

Job ID: 380-117065-1
SDG: Weekly PFAS

Client Sample ID: Halawa Shaft Viewing Pool

Date Collected: 10/08/24 10:30
Date Received: 10/10/24 10:30

Lab Sample ID: 380-117065-1

Matrix: Water

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		10/11/24 14:29	10/12/24 21:52	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 21:52	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 21:52	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 21:52	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 21:52	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 21:52	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 21:52	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 21:52	1
Perfluorohexanesulfonic acid (PFHxS)	**3.5**		2.0		ng/L		10/11/24 14:29	10/12/24 21:52	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 21:52	1
Perfluorononanoic acid (PFNA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 21:52	1
Perfluorooctanesulfonic acid (PFOS)	**3.6**		2.0		ng/L		10/11/24 14:29	10/12/24 21:52	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 21:52	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 21:52	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 21:52	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 21:52	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 21:52	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 21:52	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 21:52	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 21:52	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 21:52	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 21:52	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 21:52	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 21:52	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 21:52	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*82*		*50 - 200*	*10/11/24 14:29*	*10/12/24 21:52*	*1*
13C6 PFDA	*52*		*50 - 200*	*10/11/24 14:29*	*10/12/24 21:52*	*1*
13C5 PFHxA	*87*		*50 - 200*	*10/11/24 14:29*	*10/12/24 21:52*	*1*
13C4 PFHpA	*84*		*50 - 200*	*10/11/24 14:29*	*10/12/24 21:52*	*1*
13C8 PFOA	*76*		*50 - 200*	*10/11/24 14:29*	*10/12/24 21:52*	*1*
13C9 PFNA	*61*		*50 - 200*	*10/11/24 14:29*	*10/12/24 21:52*	*1*
13C7 PFUnA	*51*		*50 - 200*	*10/11/24 14:29*	*10/12/24 21:52*	*1*
13C2 PFDoA	*64*		*50 - 200*	*10/11/24 14:29*	*10/12/24 21:52*	*1*
13C4 PFBA	*100*		*50 - 200*	*10/11/24 14:29*	*10/12/24 21:52*	*1*
13C5 PFPeA	*95*		*50 - 200*	*10/11/24 14:29*	*10/12/24 21:52*	*1*
13C3 PFBS	*97*		*50 - 200*	*10/11/24 14:29*	*10/12/24 21:52*	*1*
13C3 PFHxS	*101*		*50 - 200*	*10/11/24 14:29*	*10/12/24 21:52*	*1*

Client Sample ID: Halawa Shaft Viewing Pool

Lab Sample ID: 380-117065-1
Matrix: Water
Date Collected: 10/08/24 10:30
Date Received: 10/10/24 10:30

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	100		50 - 200	10/11/24 14:29	10/12/24 21:52	1
13C2-4:2-FTS	108		50 - 200	10/11/24 14:29	10/12/24 21:52	1
13C2-6:2-FTS	100		50 - 200	10/11/24 14:29	10/12/24 21:52	1
13C2-8:2-FTS	111		50 - 200	10/11/24 14:29	10/12/24 21:52	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		10/11/24 10:24	10/13/24 04:21	1
Perfluorooctanesulfonic acid (PFOS)	**3.5**		2.0		ng/L		10/11/24 10:24	10/13/24 04:21	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 04:21	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 04:21	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 04:21	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 04:21	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 04:21	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 04:21	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 04:21	1
Perfluorohexanesulfonic acid (PFHxS)	**3.7**		2.0		ng/L		10/11/24 10:24	10/13/24 04:21	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 04:21	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 04:21	1
Perfluorononanoic acid (PFNA)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 04:21	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 04:21	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 04:21	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 04:21	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 04:21	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 04:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	116		70 - 130	10/11/24 10:24	10/13/24 04:21	1
13C2 PFHxA	113		70 - 130	10/11/24 10:24	10/13/24 04:21	1
13C2 PFDA	115		70 - 130	10/11/24 10:24	10/13/24 04:21	1
13C3-GenX	102		70 - 130	10/11/24 10:24	10/13/24 04:21	1

Client Sample ID: FB: Halawa Shaft Viewing Pool

Lab Sample ID: 380-117065-2
Matrix: Water
Date Collected: 10/08/24 10:30
Date Received: 10/10/24 10:30

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		10/11/24 14:29	10/12/24 22:02	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 22:02	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 22:02	1

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

Job ID: 380-117065-1
SDG: Weekly PFAS

Client Sample ID: FB: Halawa Shaft Viewing Pool
Date Collected: 10/08/24 10:30
Date Received: 10/10/24 10:30

Lab Sample ID: 380-117065-2
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		10/11/24 14:29	10/12/24 22:02	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 22:02	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 22:02	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 22:02	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 22:02	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 22:02	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 22:02	1
Perfluorononanoic acid (PFNA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 22:02	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 22:02	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 22:02	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 22:02	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 22:02	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 22:02	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 22:02	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 22:02	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 22:02	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 22:02	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 22:02	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 22:02	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 22:02	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 22:02	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0		ng/L		10/11/24 14:29	10/12/24 22:02	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*75*		*50 - 200*	*10/11/24 14:29*	*10/12/24 22:02*	*1*
13C6 PFDA	*100*		*50 - 200*	*10/11/24 14:29*	*10/12/24 22:02*	*1*
13C5 PFHxA	*86*		*50 - 200*	*10/11/24 14:29*	*10/12/24 22:02*	*1*
13C4 PFHpA	*91*		*50 - 200*	*10/11/24 14:29*	*10/12/24 22:02*	*1*
13C8 PFOA	*92*		*50 - 200*	*10/11/24 14:29*	*10/12/24 22:02*	*1*
13C9 PFNA	*94*		*50 - 200*	*10/11/24 14:29*	*10/12/24 22:02*	*1*
13C7 PFUnA	*99*		*50 - 200*	*10/11/24 14:29*	*10/12/24 22:02*	*1*
13C2 PFDoA	*103*		*50 - 200*	*10/11/24 14:29*	*10/12/24 22:02*	*1*
13C4 PFBA	*90*		*50 - 200*	*10/11/24 14:29*	*10/12/24 22:02*	*1*
13C5 PFPeA	*92*		*50 - 200*	*10/11/24 14:29*	*10/12/24 22:02*	*1*
13C3 PFBS	*96*		*50 - 200*	*10/11/24 14:29*	*10/12/24 22:02*	*1*
13C3 PFHxS	*102*		*50 - 200*	*10/11/24 14:29*	*10/12/24 22:02*	*1*
13C8 PFOS	*98*		*50 - 200*	*10/11/24 14:29*	*10/12/24 22:02*	*1*
13C2-4:2-FTS	*108*		*50 - 200*	*10/11/24 14:29*	*10/12/24 22:02*	*1*
13C2-6:2-FTS	*101*		*50 - 200*	*10/11/24 14:29*	*10/12/24 22:02*	*1*
13C2-8:2-FTS	*104*		*50 - 200*	*10/11/24 14:29*	*10/12/24 22:02*	*1*

Client Sample ID: FB: Halawa Shaft Viewing Pool

Date Collected: 10/08/24 10:30
Date Received: 10/10/24 10:30

Lab Sample ID: 380-117065-2

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		10/11/24 10:24	10/13/24 06:28	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 06:28	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 06:28	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 06:28	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 06:28	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 06:28	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 06:28	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 06:28	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 06:28	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 06:28	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 06:28	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 06:28	1
Perfluorononanoic acid (PFNA)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 06:28	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 06:28	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 06:28	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 06:28	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 06:28	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0		ng/L		10/11/24 10:24	10/13/24 06:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
d5-NEtFOSAA	*119*		*70 - 130*	*10/11/24 10:24*	*10/13/24 06:28*	*1*
13C2 PFHxA	*112*		*70 - 130*	*10/11/24 10:24*	*10/13/24 06:28*	*1*
13C2 PFDA	*119*		*70 - 130*	*10/11/24 10:24*	*10/13/24 06:28*	*1*
13C3-GenX	*103*		*70 - 130*	*10/11/24 10:24*	*10/13/24 06:28*	*1*

Action Limit Summary

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

Job ID: 380-117065-1
SDG: Weekly PFAS

Client Sample ID: Halawa Shaft Viewing Pool — Lab Sample ID: 380-117065-1

Compliance Check

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

Analyte	Result	Qualifier	Unit	EPAMCL Limit	RL	Method	Prep Type
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		ng/L	10	2.0	533	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.5		ng/L	10	2.0	533	Total/NA
Perfluorononanoic acid (PFNA)	<2.0		ng/L	10	2.0	533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.6		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: FB: Halawa Shaft Viewing Pool — Lab Sample ID: 380-117065-2

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: 380-117065-1
SDG: Weekly PFAS

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)
380-117065-1	Halawa Shaft Viewing Pool	116	113	115	102
380-117065-1 LMS	Halawa Shaft Viewing Pool	112	110	113	102
380-117065-1 LMSD	Halawa Shaft Viewing Pool	119	114	120	111
380-117065-2	FB: Halawa Shaft Viewing Pool	119	112	119	103
LCS 380-112963/22-A	Lab Control Sample	109	105	112	94
MBL 380-112963/20-A	Method Blank	121	107	120	98
MRL 380-112963/21-A	Lab Control Sample	107	102	116	94

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: 380-117065-1
SDG: Weekly PFAS

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)
380-117065-1	Halawa Shaft Viewing Pool	82	52	87	84	76	61	51	64
380-117065-2	FB: Halawa Shaft Viewing Pool	75	100	86	91	92	94	99	103
380-117154-B-1-A MS	Matrix Spike	87	103	92	91	93	95	101	104
380-117154-C-1-A MSD	Matrix Spike Duplicate	64	80	72	73	74	72	88	92
LCS 380-113025/22-A	Lab Control Sample	76	98	90	89	93	96	101	101
MBL 380-113025/20-A	Method Blank	75	103	94	100	101	103	107	103
MRL 380-113025/21-A	Lab Control Sample	81	107	95	99	100	100	108	109

		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)
380-117065-1	Halawa Shaft Viewing Pool	100	95	97	101	100	108	100	111
380-117065-2	FB: Halawa Shaft Viewing Pool	90	92	96	102	98	108	101	104
380-117154-B-1-A MS	Matrix Spike	104	101	100	106	107	115	114	116
380-117154-C-1-A MSD	Matrix Spike Duplicate	82	82	102	103	106	114	117	117
LCS 380-113025/22-A	Lab Control Sample	94	96	103	105	106	111	109	119
MBL 380-113025/20-A	Method Blank	100	104	102	104	105	121	117	117
MRL 380-113025/21-A	Lab Control Sample	104	107	107	111	105	119	117	120

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

Lab Sample ID: MBL 380-113025/20-A
Matrix: Water
Analysis Batch: 113224

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 113025

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		10/11/24 14:29	10/12/24 18:15	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0		ng/L		10/11/24 14:29	10/12/24 18:15	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0		ng/L		10/11/24 14:29	10/12/24 18:15	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0		ng/L		10/11/24 14:29	10/12/24 18:15	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0		ng/L		10/11/24 14:29	10/12/24 18:15	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0		ng/L		10/11/24 14:29	10/12/24 18:15	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0		ng/L		10/11/24 14:29	10/12/24 18:15	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0		ng/L		10/11/24 14:29	10/12/24 18:15	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0		ng/L		10/11/24 14:29	10/12/24 18:15	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0		ng/L		10/11/24 14:29	10/12/24 18:15	1
Perfluorononanoic acid (PFNA)	<0.40		2.0		ng/L		10/11/24 14:29	10/12/24 18:15	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0		ng/L		10/11/24 14:29	10/12/24 18:15	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0		ng/L		10/11/24 14:29	10/12/24 18:15	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0		ng/L		10/11/24 14:29	10/12/24 18:15	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0		ng/L		10/11/24 14:29	10/12/24 18:15	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0		ng/L		10/11/24 14:29	10/12/24 18:15	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0		ng/L		10/11/24 14:29	10/12/24 18:15	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0		ng/L		10/11/24 14:29	10/12/24 18:15	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0		ng/L		10/11/24 14:29	10/12/24 18:15	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0		ng/L		10/11/24 14:29	10/12/24 18:15	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0		ng/L		10/11/24 14:29	10/12/24 18:15	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0		ng/L		10/11/24 14:29	10/12/24 18:15	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0		ng/L		10/11/24 14:29	10/12/24 18:15	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.35		2.0		ng/L		10/11/24 14:29	10/12/24 18:15	1
Perfluoropentanesulfonic acid (PFPeS)	<0.38		2.0		ng/L		10/11/24 14:29	10/12/24 18:15	1

Isotope Dilution	*MBL %Recovery*	*MBL Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*75*		*50 - 200*	*10/11/24 14:29*	*10/12/24 18:15*	*1*
13C6 PFDA	*103*		*50 - 200*	*10/11/24 14:29*	*10/12/24 18:15*	*1*
13C5 PFHxA	*94*		*50 - 200*	*10/11/24 14:29*	*10/12/24 18:15*	*1*
13C4 PFHpA	*100*		*50 - 200*	*10/11/24 14:29*	*10/12/24 18:15*	*1*
13C8 PFOA	*101*		*50 - 200*	*10/11/24 14:29*	*10/12/24 18:15*	*1*
13C9 PFNA	*103*		*50 - 200*	*10/11/24 14:29*	*10/12/24 18:15*	*1*
13C7 PFUnA	*107*		*50 - 200*	*10/11/24 14:29*	*10/12/24 18:15*	*1*
13C2 PFDoA	*103*		*50 - 200*	*10/11/24 14:29*	*10/12/24 18:15*	*1*
13C4 PFBA	*100*		*50 - 200*	*10/11/24 14:29*	*10/12/24 18:15*	*1*
13C5 PFPeA	*104*		*50 - 200*	*10/11/24 14:29*	*10/12/24 18:15*	*1*
13C3 PFBS	*102*		*50 - 200*	*10/11/24 14:29*	*10/12/24 18:15*	*1*
13C3 PFHxS	*104*		*50 - 200*	*10/11/24 14:29*	*10/12/24 18:15*	*1*

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

Lab Sample ID: MBL 380-113025/20-A
Matrix: Water
Analysis Batch: 113224

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 113025

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	105		50 - 200	10/11/24 14:29	10/12/24 18:15	1
13C2-4:2-FTS	121		50 - 200	10/11/24 14:29	10/12/24 18:15	1
13C2-6:2-FTS	117		50 - 200	10/11/24 14:29	10/12/24 18:15	1
13C2-8:2-FTS	117		50 - 200	10/11/24 14:29	10/12/24 18:15	1

Lab Sample ID: LCS 380-113025/22-A
Matrix: Water
Analysis Batch: 113224

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 113025

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	120	116		ng/L		97	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	116		ng/L		97	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	120	117		ng/L		98	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	120	127		ng/L		106	70 - 130
Perfluorobutanesulfonic acid (PFBS)	120	120		ng/L		100	70 - 130
Perfluorodecanoic acid (PFDA)	120	116		ng/L		97	70 - 130
Perfluorododecanoic acid (PFDoA)	120	118		ng/L		98	70 - 130
Perfluoroheptanoic acid (PFHpA)	120	117		ng/L		98	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	120	114		ng/L		95	70 - 130
Perfluorohexanoic acid (PFHxA)	120	117		ng/L		98	70 - 130
Perfluorononanoic acid (PFNA)	120	113		ng/L		95	70 - 130
Perfluorooctanesulfonic acid (PFOS)	120	117		ng/L		98	70 - 130
Perfluorooctanoic acid (PFOA)	120	122		ng/L		102	70 - 130
Perfluoroundecanoic acid (PFUnA)	120	115		ng/L		96	70 - 130
Perfluorobutanoic acid (PFBA)	120	115		ng/L		96	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	120	119		ng/L		99	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	114		ng/L		96	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	120	116		ng/L		97	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	120	99.2		ng/L		83	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	120	114		ng/L		96	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	120	117		ng/L		98	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	120	112		ng/L		94	70 - 130
Perfluoropentanoic acid (PFPeA)	120	116		ng/L		97	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	120	117		ng/L		98	70 - 130

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

Lab Sample ID: LCS 380-113025/22-A
Matrix: Water
Analysis Batch: 113224

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 113025

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Perfluoropentanesulfonic acid (PFPeS)			120	117		ng/L		98	70 - 130		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C3 HFPO-DA	*76*		*50 - 200*
13C6 PFDA	*98*		*50 - 200*
13C5 PFHxA	*90*		*50 - 200*
13C4 PFHpA	*89*		*50 - 200*
13C8 PFOA	*93*		*50 - 200*
13C9 PFNA	*96*		*50 - 200*
13C7 PFUnA	*101*		*50 - 200*
13C2 PFDoA	*101*		*50 - 200*
13C4 PFBA	*94*		*50 - 200*
13C5 PFPeA	*96*		*50 - 200*
13C3 PFBS	*103*		*50 - 200*
13C3 PFHxS	*105*		*50 - 200*
13C8 PFOS	*106*		*50 - 200*
13C2-4:2-FTS	*111*		*50 - 200*
13C2-6:2-FTS	*109*		*50 - 200*
13C2-8:2-FTS	*119*		*50 - 200*

Lab Sample ID: MRL 380-113025/21-A
Matrix: Water
Analysis Batch: 113224

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 113025

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)			2.00	2.13	J	ng/L		107	50 - 150		
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)			2.00	2.20	J	ng/L		110	50 - 150		
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			2.00	1.97	J	ng/L		99	50 - 150		
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)			2.00	2.10	J	ng/L		105	50 - 150		
Perfluorobutanesulfonic acid (PFBS)			2.00	1.93	J	ng/L		97	50 - 150		
Perfluorodecanoic acid (PFDA)			2.00	2.03	J	ng/L		102	50 - 150		
Perfluorododecanoic acid (PFDoA)			2.00	2.07	J	ng/L		104	50 - 150		
Perfluoroheptanoic acid (PFHpA)			2.00	2.17	J	ng/L		109	50 - 150		
Perfluorohexanesulfonic acid (PFHxS)			2.00	2.07	J	ng/L		104	50 - 150		
Perfluorohexanoic acid (PFHxA)			2.00	2.14	J	ng/L		107	50 - 150		
Perfluorononanoic acid (PFNA)			2.00	2.12	J	ng/L		106	50 - 150		
Perfluorooctanesulfonic acid (PFOS)			2.00	2.18	J	ng/L		109	50 - 150		
Perfluorooctanoic acid (PFOA)			2.00	2.20	J	ng/L		110	50 - 150		
Perfluoroundecanoic acid (PFUnA)			2.00	2.12	J	ng/L		106	50 - 150		
Perfluorobutanoic acid (PFBA)			2.00	2.11	J	ng/L		106	50 - 150		

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

Lab Sample ID: MRL 380-113025/21-A
Matrix: Water
Analysis Batch: 113224

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 113025

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	2.16	J	ng/L		108	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	2.10	J	ng/L		105	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	2.07	J	ng/L		104	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	1.94	J	ng/L		97	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	2.00	2.01	J	ng/L		101	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	2.13	J	ng/L		107	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	1.96	J	ng/L		98	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	2.00	J	ng/L		100	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.00	2.02	J	ng/L		101	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.00	1.89	J	ng/L		95	50 - 150

Isotope Dilution	*MRL %Recovery*	*MRL Qualifier*	*Limits*
13C3 HFPO-DA	*81*		*50 - 200*
13C6 PFDA	*107*		*50 - 200*
13C5 PFHxA	*95*		*50 - 200*
13C4 PFHpA	*99*		*50 - 200*
13C8 PFOA	*100*		*50 - 200*
13C9 PFNA	*100*		*50 - 200*
13C7 PFUnA	*108*		*50 - 200*
13C2 PFDoA	*109*		*50 - 200*
13C4 PFBA	*104*		*50 - 200*
13C5 PFPeA	*107*		*50 - 200*
13C3 PFBS	*107*		*50 - 200*
13C3 PFHxS	*111*		*50 - 200*
13C8 PFOS	*105*		*50 - 200*
13C2-4:2-FTS	*119*		*50 - 200*
13C2-6:2-FTS	*117*		*50 - 200*
13C2-8:2-FTS	*120*		*50 - 200*

Lab Sample ID: 380-117154-B-1-A MS
Matrix: Water
Analysis Batch: 113224

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 113025

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		60.2	58.4		ng/L		97	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.2	59.6		ng/L		99	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.2	58.7		ng/L		97	70 - 130

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

Lab Sample ID: 380-117154-B-1-A MS
Matrix: Water
Analysis Batch: 113224

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 113025

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		60.2	60.8		ng/L		101	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		60.2	61.4		ng/L		102	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		60.2	59.5		ng/L		99	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		60.2	61.4		ng/L		102	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		60.2	62.3		ng/L		103	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.2	60.0		ng/L		100	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		60.2	61.8		ng/L		103	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		60.2	59.0		ng/L		98	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		60.2	60.9		ng/L		101	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		60.2	62.5		ng/L		104	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		60.2	62.3		ng/L		103	70 - 130
Perfluorobutanoic acid (PFBA)	<2.0		60.2	58.6		ng/L		97	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.2	66.1		ng/L		110	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.2	63.2		ng/L		105	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.2	63.8		ng/L		106	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.2	51.2		ng/L		85	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		60.2	63.7		ng/L		106	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		60.2	60.7		ng/L		101	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.2	59.6		ng/L		99	70 - 130
Perfluoropentanoic acid (PFPeA)	<2.0		60.2	60.9		ng/L		101	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.2	61.6		ng/L		102	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.2	59.9		ng/L		99	70 - 130

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
13C3 HFPO-DA	*87*		*50 - 200*
13C6 PFDA	*103*		*50 - 200*
13C5 PFHxA	*92*		*50 - 200*
13C4 PFHpA	*91*		*50 - 200*
13C8 PFOA	*93*		*50 - 200*
13C9 PFNA	*95*		*50 - 200*
13C7 PFUnA	*101*		*50 - 200*
13C2 PFDoA	*104*		*50 - 200*
13C4 PFBA	*104*		*50 - 200*
13C5 PFPeA	*101*		*50 - 200*
13C3 PFBS	*100*		*50 - 200*
13C3 PFHxS	*106*		*50 - 200*
13C8 PFOS	*107*		*50 - 200*

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

Lab Sample ID: 380-117154-B-1-A MS
Matrix: Water
Analysis Batch: 113224

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 113025

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
13C2-4:2-FTS	115		50 - 200
13C2-6:2-FTS	114		50 - 200
13C2-8:2-FTS	116		50 - 200

Lab Sample ID: 380-117154-C-1-A MSD
Matrix: Water
Analysis Batch: 113224

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 113025

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		60.1	61.3		ng/L		102	70 - 130	5	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.1	60.2		ng/L		100	70 - 130	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.1	57.0		ng/L		95	70 - 130	3	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		60.1	64.9		ng/L		108	70 - 130	7	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		60.1	62.5		ng/L		104	70 - 130	2	30
Perfluorodecanoic acid (PFDA)	<2.0		60.1	62.4		ng/L		104	70 - 130	5	30
Perfluorododecanoic acid (PFDoA)	<2.0		60.1	62.9		ng/L		105	70 - 130	2	30
Perfluoroheptanoic acid (PFHpA)	<2.0		60.1	62.6		ng/L		104	70 - 130	1	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.1	61.8		ng/L		103	70 - 130	3	30
Perfluorohexanoic acid (PFHxA)	<2.0		60.1	63.5		ng/L		106	70 - 130	3	30
Perfluorononanoic acid (PFNA)	<2.0		60.1	60.5		ng/L		101	70 - 130	3	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		60.1	60.6		ng/L		101	70 - 130	1	30
Perfluorooctanoic acid (PFOA)	<2.0		60.1	62.9		ng/L		105	70 - 130	1	30
Perfluoroundecanoic acid (PFUnA)	<2.0		60.1	61.0		ng/L		102	70 - 130	2	30
Perfluorobutanoic acid (PFBA)	<2.0		60.1	60.8		ng/L		101	70 - 130	4	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.1	63.7		ng/L		106	70 - 130	4	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.1	62.5		ng/L		104	70 - 130	1	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.1	62.4		ng/L		104	70 - 130	2	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.1	57.1		ng/L		95	70 - 130	11	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		60.1	62.9		ng/L		105	70 - 130	1	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		60.1	61.5		ng/L		102	70 - 130	1	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.1	59.3		ng/L		99	70 - 130	1	30
Perfluoropentanoic acid (PFPeA)	<2.0		60.1	60.7		ng/L		101	70 - 130	0	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.1	60.9		ng/L		101	70 - 130	1	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.1	60.2		ng/L		100	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	64		50 - 200
13C6 PFDA	80		50 - 200
13C5 PFHxA	72		50 - 200
13C4 PFHpA	73		50 - 200
13C8 PFOA	74		50 - 200
13C9 PFNA	72		50 - 200
13C7 PFUnA	88		50 - 200
13C2 PFDoA	92		50 - 200
13C4 PFBA	82		50 - 200
13C5 PFPeA	82		50 - 200
13C3 PFBS	102		50 - 200
13C3 PFHxS	103		50 - 200
13C8 PFOS	106		50 - 200
13C2-4:2-FTS	114		50 - 200
13C2-6:2-FTS	117		50 - 200
13C2-8:2-FTS	117		50 - 200

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

Lab Sample ID: MBL 380-112963/20-A
Matrix: Water
Analysis Batch: 113226

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 112963

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		10/11/24 10:24	10/13/24 03:50	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0		ng/L		10/11/24 10:24	10/13/24 03:50	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0		ng/L		10/11/24 10:24	10/13/24 03:50	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.58		2.0		ng/L		10/11/24 10:24	10/13/24 03:50	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.42		2.0		ng/L		10/11/24 10:24	10/13/24 03:50	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0		ng/L		10/11/24 10:24	10/13/24 03:50	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0		ng/L		10/11/24 10:24	10/13/24 03:50	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0		ng/L		10/11/24 10:24	10/13/24 03:50	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0		ng/L		10/11/24 10:24	10/13/24 03:50	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0		ng/L		10/11/24 10:24	10/13/24 03:50	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0		ng/L		10/11/24 10:24	10/13/24 03:50	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0		ng/L		10/11/24 10:24	10/13/24 03:50	1
Perfluorononanoic acid (PFNA)	<0.40		2.0		ng/L		10/11/24 10:24	10/13/24 03:50	1
Perfluorotetradecanoic acid (PFTA)	<0.54		2.0		ng/L		10/11/24 10:24	10/13/24 03:50	1
Perfluorotridecanoic acid (PFTrDA)	<0.36		2.0		ng/L		10/11/24 10:24	10/13/24 03:50	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0		ng/L		10/11/24 10:24	10/13/24 03:50	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0		ng/L		10/11/24 10:24	10/13/24 03:50	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0		ng/L		10/11/24 10:24	10/13/24 03:50	1

Surrogate	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	121		70 - 130	10/11/24 10:24	10/13/24 03:50	1
13C2 PFHxA	107		70 - 130	10/11/24 10:24	10/13/24 03:50	1
13C2 PFDA	120		70 - 130	10/11/24 10:24	10/13/24 03:50	1

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

Lab Sample ID: MBL 380-112963/20-A
Matrix: Water
Analysis Batch: 113226

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 112963

Surrogate	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3-GenX	98		70 - 130	10/11/24 10:24	10/13/24 03:50	1

Lab Sample ID: LCS 380-112963/22-A
Matrix: Water
Analysis Batch: 113226

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 112963

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	25.0	21.3		ng/L		85	70 - 130
Perfluorooctanesulfonic acid (PFOS)	25.0	25.4		ng/L		102	70 - 130
Perfluoroundecanoic acid (PFUnA)	25.0	26.9		ng/L		108	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	25.0	24.4		ng/L		98	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	25.0	23.9		ng/L		96	70 - 130
Perfluorohexanoic acid (PFHxA)	25.0	22.7		ng/L		91	70 - 130
Perfluorododecanoic acid (PFDoA)	25.0	27.5		ng/L		110	70 - 130
Perfluorooctanoic acid (PFOA)	25.0	25.2		ng/L		101	70 - 130
Perfluorodecanoic acid (PFDA)	25.0	26.5		ng/L		106	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	25.0	26.5		ng/L		106	70 - 130
Perfluorobutanesulfonic acid (PFBS)	25.0	23.1		ng/L		92	70 - 130
Perfluoroheptanoic acid (PFHpA)	25.0	24.7		ng/L		99	70 - 130
Perfluorononanoic acid (PFNA)	25.0	25.6		ng/L		103	70 - 130
Perfluorotetradecanoic acid (PFTA)	25.0	27.2		ng/L		109	70 - 130
Perfluorotridecanoic acid (PFTrDA)	25.0	24.8		ng/L		99	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	25.0	25.8		ng/L		103	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	25.0	27.2		ng/L		109	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	25.0	23.9		ng/L		96	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
d5-NEtFOSAA	109		70 - 130
13C2 PFHxA	105		70 - 130
13C2 PFDA	112		70 - 130
13C3-GenX	94		70 - 130

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

Lab Sample ID: MRL 380-112963/21-A
Matrix: Water
Analysis Batch: 113226

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 112963

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.01	1.89	J	ng/L		94	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.01	2.21	J	ng/L		110	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.01	2.25	J	ng/L		112	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.01	2.19	J	ng/L		109	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.01	2.02	J	ng/L		101	50 - 150
Perfluorohexanoic acid (PFHxA)	2.01	2.01	J	ng/L		100	50 - 150
Perfluorododecanoic acid (PFDoA)	2.01	2.38	J	ng/L		119	50 - 150
Perfluorooctanoic acid (PFOA)	2.01	2.22	J	ng/L		111	50 - 150
Perfluorodecanoic acid (PFDA)	2.01	2.29	J	ng/L		114	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.01	2.24	J	ng/L		112	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.01	1.80	J	ng/L		90	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.01	2.24	J	ng/L		112	50 - 150
Perfluorononanoic acid (PFNA)	2.01	2.20	J	ng/L		109	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.01	2.41	J	ng/L		120	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.01	2.12	J	ng/L		106	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.01	2.15	J	ng/L		107	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.01	2.18	J	ng/L		109	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.01	2.09	J	ng/L		104	50 - 150

Surrogate	*MRL %Recovery*	*MRL Qualifier*	*Limits*
d5-NEtFOSAA	*107*		*70 - 130*
13C2 PFHxA	*102*		*70 - 130*
13C2 PFDA	*116*		*70 - 130*
13C3-GenX	*94*		*70 - 130*

Lab Sample ID: 380-117065-1 LMS
Matrix: Water
Analysis Batch: 113226

Client Sample ID: Halawa Shaft Viewing Pool
Prep Type: Total/NA
Prep Batch: 112963

Analyte	Sample Result	Sample Qualifier	Spike Added	LMS Result	LMS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.01	1.94	J	ng/L		97	50 - 150
Perfluorooctanesulfonic acid (PFOS)	3.5		2.01	5.71		ng/L		109	50 - 150
Perfluoroundecanoic acid (PFUnA)	<2.0		2.01	2.41		ng/L		120	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.01	2.09		ng/L		104	50 - 150

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

Lab Sample ID: 380-117065-1 LMS
Matrix: Water
Analysis Batch: 113226

Client Sample ID: Halawa Shaft Viewing Pool
Prep Type: Total/NA
Prep Batch: 112963

Analyte	Sample Result	Sample Qualifier	Spike Added	LMS Result	LMS Qualifier	Unit	D	%Rec	%Rec Limits
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.01	2.05		ng/L		102	50 - 150
Perfluorohexanoic acid (PFHxA)	<2.0		2.01	3.45		ng/L		103	50 - 150
Perfluorododecanoic acid (PFDoA)	<2.0		2.01	2.42		ng/L		120	50 - 150
Perfluorooctanoic acid (PFOA)	<2.0		2.01	3.33		ng/L		111	50 - 150
Perfluorodecanoic acid (PFDA)	<2.0		2.01	2.28		ng/L		114	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	3.7		2.01	5.80		ng/L		106	50 - 150
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.01	2.57		ng/L		105	50 - 150
Perfluoroheptanoic acid (PFHpA)	<2.0		2.01	2.91		ng/L		114	50 - 150
Perfluorononanoic acid (PFNA)	<2.0		2.01	2.42		ng/L		120	50 - 150
Perfluorotetradecanoic acid (PFTA)	<2.0		2.01	2.42		ng/L		121	50 - 150
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.01	2.17		ng/L		108	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.01	2.07		ng/L		103	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.01	2.28		ng/L		113	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.01	2.24		ng/L		111	50 - 150

Surrogate	*LMS %Recovery*	*LMS Qualifier*	*Limits*
d5-NEtFOSAA	*112*		*70 - 130*
13C2 PFHxA	*110*		*70 - 130*
13C2 PFDA	*113*		*70 - 130*
13C3-GenX	*102*		*70 - 130*

Lab Sample ID: 380-117065-1 LMSD
Matrix: Water
Analysis Batch: 113226

Client Sample ID: Halawa Shaft Viewing Pool
Prep Type: Total/NA
Prep Batch: 112963

Analyte	Sample Result	Sample Qualifier	Spike Added	LMSD Result	LMSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.01	2.00		ng/L		100	50 - 150	3	50
Perfluorooctanesulfonic acid (PFOS)	3.5		2.01	5.47		ng/L		97	50 - 150	4	50
Perfluoroundecanoic acid (PFUnA)	<2.0		2.01	2.25		ng/L		112	50 - 150	7	50
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.01	2.19		ng/L		109	50 - 150	5	50
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.01	2.14		ng/L		106	50 - 150	4	50
Perfluorohexanoic acid (PFHxA)	<2.0		2.01	3.41		ng/L		100	50 - 150	1	50
Perfluorododecanoic acid (PFDoA)	<2.0		2.01	2.40		ng/L		119	50 - 150	1	50
Perfluorooctanoic acid (PFOA)	<2.0		2.01	3.18		ng/L		103	50 - 150	5	50
Perfluorodecanoic acid (PFDA)	<2.0		2.01	2.17		ng/L		108	50 - 150	5	50

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

Lab Sample ID: 380-117065-1 LMSD
Matrix: Water
Analysis Batch: 113226

Client Sample ID: Halawa Shaft Viewing Pool
Prep Type: Total/NA
Prep Batch: 112963

Analyte	Sample Result	Sample Qualifier	Spike Added	LMSD Result	LMSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorohexanesulfonic acid (PFHxS)	3.7		2.01	5.71		ng/L		101	50 - 150	2	50
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.01	2.52		ng/L		103	50 - 150	2	50
Perfluoroheptanoic acid (PFHpA)	<2.0		2.01	2.83		ng/L		109	50 - 150	3	50
Perfluorononanoic acid (PFNA)	<2.0		2.01	2.39		ng/L		119	50 - 150	1	50
Perfluorotetradecanoic acid (PFTA)	<2.0		2.01	2.36		ng/L		117	50 - 150	3	50
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.01	2.10		ng/L		105	50 - 150	3	50
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.01	2.11		ng/L		105	50 - 150	2	50
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.01	2.07		ng/L		103	50 - 150	9	50
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.01	2.23		ng/L		111	50 - 150	0	50

Surrogate	*LMSD %Recovery*	*LMSD Qualifier*	*Limits*
d5-NEtFOSAA	*119*		*70 - 130*
13C2 PFHxA	*114*		*70 - 130*
13C2 PFDA	*120*		*70 - 130*
13C3-GenX	*111*		*70 - 130*

QC Association Summary

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

Job ID: 380-117065-1
SDG: Weekly PFAS

LCMS

Prep Batch: 112963

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-117065-1	Halawa Shaft Viewing Pool	Total/NA	Water	537.1 DW	
380-117065-2	FB: Halawa Shaft Viewing Pool	Total/NA	Water	537.1 DW	
MBL 380-112963/20-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-112963/22-A	Lab Control Sample	Total/NA	Water	537.1 DW	
MRL 380-112963/21-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-117065-1 LMS	Halawa Shaft Viewing Pool	Total/NA	Water	537.1 DW	
380-117065-1 LMSD	Halawa Shaft Viewing Pool	Total/NA	Water	537.1 DW	

Prep Batch: 113025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-117065-1	Halawa Shaft Viewing Pool	Total/NA	Water	533	
380-117065-2	FB: Halawa Shaft Viewing Pool	Total/NA	Water	533	
MBL 380-113025/20-A	Method Blank	Total/NA	Water	533	
LCS 380-113025/22-A	Lab Control Sample	Total/NA	Water	533	
MRL 380-113025/21-A	Lab Control Sample	Total/NA	Water	533	
380-117154-B-1-A MS	Matrix Spike	Total/NA	Water	533	
380-117154-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	

Analysis Batch: 113224

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-117065-1	Halawa Shaft Viewing Pool	Total/NA	Water	533	113025
380-117065-2	FB: Halawa Shaft Viewing Pool	Total/NA	Water	533	113025
MBL 380-113025/20-A	Method Blank	Total/NA	Water	533	113025
LCS 380-113025/22-A	Lab Control Sample	Total/NA	Water	533	113025
MRL 380-113025/21-A	Lab Control Sample	Total/NA	Water	533	113025
380-117154-B-1-A MS	Matrix Spike	Total/NA	Water	533	113025
380-117154-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	113025

Analysis Batch: 113226

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-117065-1	Halawa Shaft Viewing Pool	Total/NA	Water	537.1	112963
380-117065-2	FB: Halawa Shaft Viewing Pool	Total/NA	Water	537.1	112963
MBL 380-112963/20-A	Method Blank	Total/NA	Water	537.1	112963
LCS 380-112963/22-A	Lab Control Sample	Total/NA	Water	537.1	112963
MRL 380-112963/21-A	Lab Control Sample	Total/NA	Water	537.1	112963
380-117065-1 LMS	Halawa Shaft Viewing Pool	Total/NA	Water	537.1	112963
380-117065-1 LMSD	Halawa Shaft Viewing Pool	Total/NA	Water	537.1	112963

Lab Chronicle

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

Job ID: 380-117065-1
SDG: Weekly PFAS

Client Sample ID: Halawa Shaft Viewing Pool

Lab Sample ID: 380-117065-1

Date Collected: 10/08/24 10:30
Date Received: 10/10/24 10:30

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			113025	N8NE	EA POM	10/11/24 14:29
Total/NA	Analysis	533		1	113224	M7ML	EA POM	10/12/24 21:52
Total/NA	Prep	537.1 DW			112963	G9MN	EA POM	10/11/24 10:24
Total/NA	Analysis	537.1		1	113226	M7ML	EA POM	10/13/24 04:21

Client Sample ID: FB: Halawa Shaft Viewing Pool

Lab Sample ID: 380-117065-2

Date Collected: 10/08/24 10:30
Date Received: 10/10/24 10:30

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			113025	N8NE	EA POM	10/11/24 14:29
Total/NA	Analysis	533		1	113224	M7ML	EA POM	10/12/24 22:02
Total/NA	Prep	537.1 DW			112963	G9MN	EA POM	10/11/24 10:24
Total/NA	Analysis	537.1		1	113226	M7ML	EA POM	10/13/24 06:28

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: 380-117065-1
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: 380-117065-1
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: 380-117065-1
SDG: Weekly PFAS

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
380-117065-1	Halawa Shaft Viewing Pool	Water	10/08/24 10:30	10/10/24 10:30
380-117065-2	FB: Halawa Shaft Viewing Pool	Water	10/08/24 10:30	10/10/24 10:30

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: Ryan Greer	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: HI	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

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	625.2_PREC - (MOD) 625plus Plus TICs	537 1_DW_PREC - 537 1 Full List	533 - All Analytes	380 117065 COC	Total Number of containers	Special Instructions/Note.
			Preservation Code:				R	RA	Q	QA	Y	I			
Halawa Shaft Viewing Pool	10/8/24	1030	G	Water							3	3			
FB Halawa Shaft Viewing Pool	10/8/24	1030	G	Water							1	1			

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

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.
① 7791 3553 1632

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: FEDEX ② 7791 3553 1643

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
[redacted]	10/9/24 1300	HBWS	A.PETINET	10/10/2024 10:30	EEAP
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:
751A ① 2.8°-0.0°=2.8' ② 2.3°-0.0°=2.3° GEL-FROZEN

Ver: 04/02/2024

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-117065-1
SDG Number: Weekly PFAS

Login Number: 117065
List Number: 1
Creator: Gerfen, Chris

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	
ClO4 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	