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ANALYTICAL REPORT

PREPARED FOR

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

Generated 10/23/2024 11:19:47 AM

JOB DESCRIPTION

RED-HILL
RUSH Weekly Red Hill

JOB NUMBER

380-118196-1

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

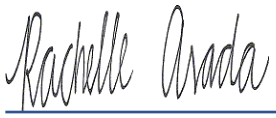
This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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



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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: 380-118196-1
SDG: RUSH Weekly Red Hill

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

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Job Narrative
380-118196-1

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 10/17/2024 10:17 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.7°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: 380-118196-1
SDG: RUSH Weekly Red Hill

Client Sample ID: Halawa Shaft Viewing Pool — Lab Sample ID: 380-118196-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	3.3		2.0		ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.3		2.0		ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.6		2.0		ng/L	1		537.1	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	4.1		2.0		ng/L	1		537.1	Total/NA

Client Sample ID: FB: Halawa Shaft Viewing Pool — Lab Sample ID: 380-118196-2

No Detections.

This Detection Summary does not include radiochemical test results.

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

Job ID: 380-118196-1
SDG: RUSH Weekly Red Hill

Client Sample ID: Halawa Shaft Viewing Pool

Date Collected: 10/15/24 11:00
Date Received: 10/17/24 10:17

Lab Sample ID: 380-118196-1

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		10/18/24 15:57	10/20/24 07:33	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:33	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:33	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:33	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:33	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:33	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:33	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:33	1
Perfluorohexanesulfonic acid (PFHxS)	**3.3**		2.0		ng/L		10/18/24 15:57	10/20/24 07:33	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:33	1
Perfluorononanoic acid (PFNA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:33	1
Perfluorooctanesulfonic acid (PFOS)	**3.3**		2.0		ng/L		10/18/24 15:57	10/20/24 07:33	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:33	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:33	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:33	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:33	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:33	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:33	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:33	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:33	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:33	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:33	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:33	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:33	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:33	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*104*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:33*	*1*
13C6 PFDA	*110*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:33*	*1*
13C5 PFHxA	*114*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:33*	*1*
13C4 PFHpA	*115*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:33*	*1*
13C8 PFOA	*115*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:33*	*1*
13C9 PFNA	*111*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:33*	*1*
13C7 PFUnA	*113*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:33*	*1*
13C2 PFDoA	*113*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:33*	*1*
13C4 PFBA	*116*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:33*	*1*
13C5 PFPeA	*123*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:33*	*1*
13C3 PFBS	*119*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:33*	*1*
13C3 PFHxS	*122*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:33*	*1*

Client Sample ID: Halawa Shaft Viewing Pool

Lab Sample ID: 380-118196-1
Date Collected: 10/15/24 11:00
Matrix: Water
Date Received: 10/17/24 10:17

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	117		50 - 200	10/18/24 15:57	10/20/24 07:33	1
13C2-4:2-FTS	153		50 - 200	10/18/24 15:57	10/20/24 07:33	1
13C2-6:2-FTS	132		50 - 200	10/18/24 15:57	10/20/24 07:33	1
13C2-8:2-FTS	123		50 - 200	10/18/24 15:57	10/20/24 07:33	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		10/20/24 08:58	10/22/24 03:37	1
Perfluorooctanesulfonic acid (PFOS)	**3.6**		2.0		ng/L		10/20/24 08:58	10/22/24 03:37	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 03:37	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 03:37	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 03:37	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 03:37	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 03:37	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 03:37	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 03:37	1
Perfluorohexanesulfonic acid (PFHxS)	**4.1**		2.0		ng/L		10/20/24 08:58	10/22/24 03:37	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 03:37	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 03:37	1
Perfluorononanoic acid (PFNA)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 03:37	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 03:37	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 03:37	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 03:37	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 03:37	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 03:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	93		70 - 130	10/20/24 08:58	10/22/24 03:37	1
13C2 PFHxA	95		70 - 130	10/20/24 08:58	10/22/24 03:37	1
13C2 PFDA	86		70 - 130	10/20/24 08:58	10/22/24 03:37	1
13C3-GenX	82		70 - 130	10/20/24 08:58	10/22/24 03:37	1

Client Sample ID: FB: Halawa Shaft Viewing Pool

Lab Sample ID: 380-118196-2
Date Collected: 10/15/24 11:00
Matrix: Water
Date Received: 10/17/24 10:17

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		10/18/24 15:57	10/20/24 07:43	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:43	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:43	1

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

Job ID: 380-118196-1
SDG: RUSH Weekly Red Hill

Client Sample ID: FB: Halawa Shaft Viewing Pool
Date Collected: 10/15/24 11:00
Date Received: 10/17/24 10:17

Lab Sample ID: 380-118196-2
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		10/18/24 15:57	10/20/24 07:43	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:43	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:43	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:43	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:43	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:43	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:43	1
Perfluorononanoic acid (PFNA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:43	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:43	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:43	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:43	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:43	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:43	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:43	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:43	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:43	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:43	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:43	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:43	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:43	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:43	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0		ng/L		10/18/24 15:57	10/20/24 07:43	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*108*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:43*	*1*
13C6 PFDA	*113*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:43*	*1*
13C5 PFHxA	*116*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:43*	*1*
13C4 PFHpA	*114*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:43*	*1*
13C8 PFOA	*116*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:43*	*1*
13C9 PFNA	*111*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:43*	*1*
13C7 PFUnA	*110*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:43*	*1*
13C2 PFDoA	*108*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:43*	*1*
13C4 PFBA	*114*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:43*	*1*
13C5 PFPeA	*115*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:43*	*1*
13C3 PFBS	*109*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:43*	*1*
13C3 PFHxS	*114*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:43*	*1*
13C8 PFOS	*111*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:43*	*1*
13C2-4:2-FTS	*121*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:43*	*1*
13C2-6:2-FTS	*122*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:43*	*1*
13C2-8:2-FTS	*112*		*50 - 200*	*10/18/24 15:57*	*10/20/24 07:43*	*1*

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

Job ID: 380-118196-1
SDG: RUSH Weekly Red Hill

Client Sample ID: FB: Halawa Shaft Viewing Pool

Date Collected: 10/15/24 11:00
Date Received: 10/17/24 10:17

Lab Sample ID: 380-118196-2

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		10/20/24 08:58	10/22/24 04:44	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 04:44	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 04:44	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 04:44	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 04:44	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 04:44	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 04:44	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 04:44	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 04:44	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 04:44	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 04:44	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 04:44	1
Perfluorononanoic acid (PFNA)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 04:44	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 04:44	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 04:44	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 04:44	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 04:44	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0		ng/L		10/20/24 08:58	10/22/24 04:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
d5-NEtFOSAA	*89*		*70 - 130*	*10/20/24 08:58*	*10/22/24 04:44*	*1*
13C2 PFHxA	*97*		*70 - 130*	*10/20/24 08:58*	*10/22/24 04:44*	*1*
13C2 PFDA	*85*		*70 - 130*	*10/20/24 08:58*	*10/22/24 04:44*	*1*
13C3-GenX	*86*		*70 - 130*	*10/20/24 08:58*	*10/22/24 04:44*	*1*

Action Limit Summary

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

Job ID: 380-118196-1
SDG: RUSH Weekly Red Hill

Client Sample ID: Halawa Shaft Viewing Pool — Lab Sample ID: 380-118196-1

Compliance Check

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

Analyte	Result	Qualifier	Unit	EPAMCL Limit	RL	Method	Prep Type
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		ng/L	10	2.0	533	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.3		ng/L	10	2.0	533	Total/NA
Perfluorononanoic acid (PFNA)	<2.0		ng/L	10	2.0	533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.3		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)	3.6		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)	4.1		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: 380-118196-2

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: 380-118196-1
SDG: RUSH Weekly Red Hill

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

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		d5NEFOS	PFHxA	PFDA	GenX
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)	(70-130)
380-118196-1	Halawa Shaft Viewing Pool	93	95	86	82
380-118196-1 MS	Halawa Shaft Viewing Pool	88	92	85	87
380-118196-1 MSD	Halawa Shaft Viewing Pool	86	95	83	83
380-118196-2	FB: Halawa Shaft Viewing Pool	89	97	85	86
LCS 380-114492/23-A	Lab Control Sample	99	99	96	90
MBL 380-114492/21-A	Method Blank	88	83	81	72
MRL 380-114492/22-A	Lab Control Sample	91	90	85	80

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: 380-118196-1
SDG: RUSH Weekly Red Hill

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)
380-118019-B-1-A MS	Matrix Spike	94	110	99	102	107	106	111	110
380-118019-C-1-A MSD	Matrix Spike Duplicate	95	110	95	102	106	102	111	113
380-118196-1	Halawa Shaft Viewing Pool	104	110	114	115	115	111	113	113
380-118196-2	FB: Halawa Shaft Viewing Pool	108	113	116	114	116	111	110	108
LCS 380-114399/22-A	Lab Control Sample	100	113	111	110	112	109	115	116
MBL 380-114399/20-A	Method Blank	91	109	104	106	111	107	110	114
MRL 380-114399/21-A	Lab Control Sample	103	117	112	118	115	115	119	116

		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)
380-118019-B-1-A MS	Matrix Spike	102	105	110	114	114	123	129	121
380-118019-C-1-A MSD	Matrix Spike Duplicate	103	104	114	117	114	131	136	126
380-118196-1	Halawa Shaft Viewing Pool	116	123	119	122	117	153	132	123
380-118196-2	FB: Halawa Shaft Viewing Pool	114	115	109	114	111	121	122	112
LCS 380-114399/22-A	Lab Control Sample	109	112	117	116	115	131	126	124
MBL 380-114399/20-A	Method Blank	109	113	119	118	119	152	140	122
MRL 380-114399/21-A	Lab Control Sample	113	112	116	116	116	132	129	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 380-114399/20-A
Matrix: Water
Analysis Batch: 114483

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 114399

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		10/18/24 15:57	10/20/24 04:18	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0		ng/L		10/18/24 15:57	10/20/24 04:18	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0		ng/L		10/18/24 15:57	10/20/24 04:18	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0		ng/L		10/18/24 15:57	10/20/24 04:18	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0		ng/L		10/18/24 15:57	10/20/24 04:18	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0		ng/L		10/18/24 15:57	10/20/24 04:18	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0		ng/L		10/18/24 15:57	10/20/24 04:18	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0		ng/L		10/18/24 15:57	10/20/24 04:18	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0		ng/L		10/18/24 15:57	10/20/24 04:18	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0		ng/L		10/18/24 15:57	10/20/24 04:18	1
Perfluorononanoic acid (PFNA)	<0.40		2.0		ng/L		10/18/24 15:57	10/20/24 04:18	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0		ng/L		10/18/24 15:57	10/20/24 04:18	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0		ng/L		10/18/24 15:57	10/20/24 04:18	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0		ng/L		10/18/24 15:57	10/20/24 04:18	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0		ng/L		10/18/24 15:57	10/20/24 04:18	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0		ng/L		10/18/24 15:57	10/20/24 04:18	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0		ng/L		10/18/24 15:57	10/20/24 04:18	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0		ng/L		10/18/24 15:57	10/20/24 04:18	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0		ng/L		10/18/24 15:57	10/20/24 04:18	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0		ng/L		10/18/24 15:57	10/20/24 04:18	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0		ng/L		10/18/24 15:57	10/20/24 04:18	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0		ng/L		10/18/24 15:57	10/20/24 04:18	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0		ng/L		10/18/24 15:57	10/20/24 04:18	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0		ng/L		10/18/24 15:57	10/20/24 04:18	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0		ng/L		10/18/24 15:57	10/20/24 04:18	1

Isotope Dilution	*MBL %Recovery*	*MBL Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*91*		*50 - 200*	*10/18/24 15:57*	*10/20/24 04:18*	*1*
13C6 PFDA	*109*		*50 - 200*	*10/18/24 15:57*	*10/20/24 04:18*	*1*
13C5 PFHxA	*104*		*50 - 200*	*10/18/24 15:57*	*10/20/24 04:18*	*1*
13C4 PFHpA	*106*		*50 - 200*	*10/18/24 15:57*	*10/20/24 04:18*	*1*
13C8 PFOA	*111*		*50 - 200*	*10/18/24 15:57*	*10/20/24 04:18*	*1*
13C9 PFNA	*107*		*50 - 200*	*10/18/24 15:57*	*10/20/24 04:18*	*1*
13C7 PFUnA	*110*		*50 - 200*	*10/18/24 15:57*	*10/20/24 04:18*	*1*
13C2 PFDoA	*114*		*50 - 200*	*10/18/24 15:57*	*10/20/24 04:18*	*1*
13C4 PFBA	*109*		*50 - 200*	*10/18/24 15:57*	*10/20/24 04:18*	*1*
13C5 PFPeA	*113*		*50 - 200*	*10/18/24 15:57*	*10/20/24 04:18*	*1*
13C3 PFBS	*119*		*50 - 200*	*10/18/24 15:57*	*10/20/24 04:18*	*1*
13C3 PFHxS	*118*		*50 - 200*	*10/18/24 15:57*	*10/20/24 04:18*	*1*

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

Lab Sample ID: MBL 380-114399/20-A
Matrix: Water
Analysis Batch: 114483

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 114399

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	119		50 - 200	10/18/24 15:57	10/20/24 04:18	1
13C2-4:2-FTS	152		50 - 200	10/18/24 15:57	10/20/24 04:18	1
13C2-6:2-FTS	140		50 - 200	10/18/24 15:57	10/20/24 04:18	1
13C2-8:2-FTS	122		50 - 200	10/18/24 15:57	10/20/24 04:18	1

Lab Sample ID: LCS 380-114399/22-A
Matrix: Water
Analysis Batch: 114483

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 114399

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	60.0	52.8		ng/L		88	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.0	54.5		ng/L		91	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.0	56.2		ng/L		94	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.0	58.2		ng/L		97	70 - 130
Perfluorobutanesulfonic acid (PFBS)	60.0	57.3		ng/L		95	70 - 130
Perfluorodecanoic acid (PFDA)	60.0	60.5		ng/L		101	70 - 130
Perfluorododecanoic acid (PFDoA)	60.0	58.0		ng/L		97	70 - 130
Perfluoroheptanoic acid (PFHpA)	60.0	58.5		ng/L		98	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	60.0	60.5		ng/L		101	70 - 130
Perfluorohexanoic acid (PFHxA)	60.0	59.0		ng/L		98	70 - 130
Perfluorononanoic acid (PFNA)	60.0	58.6		ng/L		98	70 - 130
Perfluorooctanesulfonic acid (PFOS)	60.0	58.1		ng/L		97	70 - 130
Perfluorooctanoic acid (PFOA)	60.0	56.7		ng/L		95	70 - 130
Perfluoroundecanoic acid (PFUnA)	60.0	57.8		ng/L		96	70 - 130
Perfluorobutanoic acid (PFBA)	60.0	60.0		ng/L		100	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.0	58.6		ng/L		98	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.0	60.4		ng/L		101	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.0	61.4		ng/L		102	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.0	57.5		ng/L		96	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	60.0	56.7		ng/L		95	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.0	57.3		ng/L		95	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.0	59.4		ng/L		99	70 - 130
Perfluoropentanoic acid (PFPeA)	60.0	58.4		ng/L		97	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	60.0	57.8		ng/L		96	70 - 130

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

Lab Sample ID: LCS 380-114399/22-A
Matrix: Water
Analysis Batch: 114483

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 114399

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Perfluoropentanesulfonic acid (PFPeS)			60.0	58.9		ng/L		98	70 - 130		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C3 HFPO-DA	*100*		*50 - 200*
13C6 PFDA	*113*		*50 - 200*
13C5 PFHxA	*111*		*50 - 200*
13C4 PFHpA	*110*		*50 - 200*
13C8 PFOA	*112*		*50 - 200*
13C9 PFNA	*109*		*50 - 200*
13C7 PFUnA	*115*		*50 - 200*
13C2 PFDoA	*116*		*50 - 200*
13C4 PFBA	*109*		*50 - 200*
13C5 PFPeA	*112*		*50 - 200*
13C3 PFBS	*117*		*50 - 200*
13C3 PFHxS	*116*		*50 - 200*
13C8 PFOS	*115*		*50 - 200*
13C2-4:2-FTS	*131*		*50 - 200*
13C2-6:2-FTS	*126*		*50 - 200*
13C2-8:2-FTS	*124*		*50 - 200*

Lab Sample ID: MRL 380-114399/21-A
Matrix: Water
Analysis Batch: 114483

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 114399

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)			2.00	1.71	J	ng/L		85	50 - 150		
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)			2.00	1.71	J	ng/L		86	50 - 150		
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			2.00	1.77	J	ng/L		88	50 - 150		
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)			2.00	1.87	J	ng/L		93	50 - 150		
Perfluorobutanesulfonic acid (PFBS)			2.00	1.85	J	ng/L		92	50 - 150		
Perfluorodecanoic acid (PFDA)			2.00	2.03	J	ng/L		101	50 - 150		
Perfluorododecanoic acid (PFDoA)			2.00	1.88	J	ng/L		94	50 - 150		
Perfluoroheptanoic acid (PFHpA)			2.00	1.83	J	ng/L		91	50 - 150		
Perfluorohexanesulfonic acid (PFHxS)			2.00	1.88	J	ng/L		94	50 - 150		
Perfluorohexanoic acid (PFHxA)			2.00	2.01	J	ng/L		100	50 - 150		
Perfluorononanoic acid (PFNA)			2.00	1.92	J	ng/L		96	50 - 150		
Perfluorooctanesulfonic acid (PFOS)			2.00	1.89	J	ng/L		94	50 - 150		
Perfluorooctanoic acid (PFOA)			2.00	1.96	J	ng/L		98	50 - 150		
Perfluoroundecanoic acid (PFUnA)			2.00	1.81	J	ng/L		90	50 - 150		
Perfluorobutanoic acid (PFBA)			2.00	1.98	J	ng/L		99	50 - 150		

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

Lab Sample ID: MRL 380-114399/21-A
Matrix: Water
Analysis Batch: 114483

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 114399

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	2.07	J	ng/L		103	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	2.04	J	ng/L		102	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	2.24	J	ng/L		112	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	2.06	J	ng/L		103	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	2.00	1.92	J	ng/L		96	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	1.93	J	ng/L		96	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	1.99	J	ng/L		99	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	1.94	J	ng/L		97	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.00	1.92	J	ng/L		96	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.00	1.81	J	ng/L		91	50 - 150

Isotope Dilution	*MRL %Recovery*	*MRL Qualifier*	*Limits*
13C3 HFPO-DA	*103*		*50 - 200*
13C6 PFDA	*117*		*50 - 200*
13C5 PFHxA	*112*		*50 - 200*
13C4 PFHpA	*118*		*50 - 200*
13C8 PFOA	*115*		*50 - 200*
13C9 PFNA	*115*		*50 - 200*
13C7 PFUnA	*119*		*50 - 200*
13C2 PFDoA	*116*		*50 - 200*
13C4 PFBA	*113*		*50 - 200*
13C5 PFPeA	*112*		*50 - 200*
13C3 PFBS	*116*		*50 - 200*
13C3 PFHxS	*116*		*50 - 200*
13C8 PFOS	*116*		*50 - 200*
13C2-4:2-FTS	*132*		*50 - 200*
13C2-6:2-FTS	*129*		*50 - 200*
13C2-8:2-FTS	*120*		*50 - 200*

Lab Sample ID: 380-118019-B-1-A MS
Matrix: Water
Analysis Batch: 114483

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 114399

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		120	105		ng/L		87	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		120	106		ng/L		88	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		120	108		ng/L		89	70 - 130

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

Lab Sample ID: 380-118019-B-1-A MS
Matrix: Water
Analysis Batch: 114483

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 114399

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		120	116		ng/L		97	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		120	117		ng/L		97	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		120	115		ng/L		96	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		120	109		ng/L		91	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		120	113		ng/L		94	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		120	113		ng/L		94	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		120	115		ng/L		95	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		120	114		ng/L		95	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		120	112		ng/L		93	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		120	110		ng/L		92	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		120	115		ng/L		95	70 - 130
Perfluorobutanoic acid (PFBA)	<2.0		120	117		ng/L		97	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		120	117		ng/L		97	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		120	115		ng/L		96	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		120	114		ng/L		95	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		120	121		ng/L		100	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		120	110		ng/L		92	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		120	113		ng/L		94	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		120	115		ng/L		96	70 - 130
Perfluoropentanoic acid (PFPeA)	<2.0		120	117		ng/L		97	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		120	112		ng/L		93	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<2.0		120	109		ng/L		91	70 - 130

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
13C3 HFPO-DA	*94*		*50 - 200*
13C6 PFDA	*110*		*50 - 200*
13C5 PFHxA	*99*		*50 - 200*
13C4 PFHpA	*102*		*50 - 200*
13C8 PFOA	*107*		*50 - 200*
13C9 PFNA	*106*		*50 - 200*
13C7 PFUnA	*111*		*50 - 200*
13C2 PFDoA	*110*		*50 - 200*
13C4 PFBA	*102*		*50 - 200*
13C5 PFPeA	*105*		*50 - 200*
13C3 PFBS	*110*		*50 - 200*
13C3 PFHxS	*114*		*50 - 200*
13C8 PFOS	*114*		*50 - 200*

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

Lab Sample ID: 380-118019-B-1-A MS
Matrix: Water
Analysis Batch: 114483

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 114399

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
13C2-4:2-FTS	123		50 - 200
13C2-6:2-FTS	129		50 - 200
13C2-8:2-FTS	121		50 - 200

Lab Sample ID: 380-118019-C-1-A MSD
Matrix: Water
Analysis Batch: 114483

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 114399

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		120	108		ng/L		90	70 - 130	3	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		120	106		ng/L		89	70 - 130	0	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		120	105		ng/L		87	70 - 130	2	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		120	116		ng/L		96	70 - 130	1	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		120	116		ng/L		97	70 - 130	0	30
Perfluorodecanoic acid (PFDA)	<2.0		120	115		ng/L		95	70 - 130	1	30
Perfluorododecanoic acid (PFDoA)	<2.0		120	109		ng/L		91	70 - 130	0	30
Perfluoroheptanoic acid (PFHpA)	<2.0		120	114		ng/L		95	70 - 130	1	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		120	114		ng/L		95	70 - 130	1	30
Perfluorohexanoic acid (PFHxA)	<2.0		120	120		ng/L		100	70 - 130	4	30
Perfluorononanoic acid (PFNA)	<2.0		120	118		ng/L		98	70 - 130	4	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		120	116		ng/L		97	70 - 130	4	30
Perfluorooctanoic acid (PFOA)	<2.0		120	112		ng/L		93	70 - 130	2	30
Perfluoroundecanoic acid (PFUnA)	<2.0		120	112		ng/L		93	70 - 130	2	30
Perfluorobutanoic acid (PFBA)	<2.0		120	113		ng/L		94	70 - 130	3	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		120	115		ng/L		96	70 - 130	2	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		120	115		ng/L		95	70 - 130	0	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		120	111		ng/L		92	70 - 130	3	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		120	119		ng/L		99	70 - 130	1	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		120	115		ng/L		95	70 - 130	4	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		120	113		ng/L		94	70 - 130	0	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		120	112		ng/L		93	70 - 130	3	30
Perfluoropentanoic acid (PFPeA)	<2.0		120	115		ng/L		95	70 - 130	2	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		120	116		ng/L		96	70 - 130	3	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0		120	108		ng/L		90	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	95		50 - 200
13C6 PFDA	110		50 - 200
13C5 PFHxA	95		50 - 200
13C4 PFHpA	102		50 - 200
13C8 PFOA	106		50 - 200
13C9 PFNA	102		50 - 200
13C7 PFUnA	111		50 - 200
13C2 PFDoA	113		50 - 200
13C4 PFBA	103		50 - 200
13C5 PFPeA	104		50 - 200
13C3 PFBS	114		50 - 200
13C3 PFHxS	117		50 - 200
13C8 PFOS	114		50 - 200
13C2-4:2-FTS	131		50 - 200
13C2-6:2-FTS	136		50 - 200
13C2-8:2-FTS	126		50 - 200

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

Lab Sample ID: MBL 380-114492/21-A
Matrix: Water
Analysis Batch: 114561

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 114492

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		10/20/24 08:58	10/22/24 03:08	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0		ng/L		10/20/24 08:58	10/22/24 03:08	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0		ng/L		10/20/24 08:58	10/22/24 03:08	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.58		2.0		ng/L		10/20/24 08:58	10/22/24 03:08	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.42		2.0		ng/L		10/20/24 08:58	10/22/24 03:08	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0		ng/L		10/20/24 08:58	10/22/24 03:08	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0		ng/L		10/20/24 08:58	10/22/24 03:08	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0		ng/L		10/20/24 08:58	10/22/24 03:08	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0		ng/L		10/20/24 08:58	10/22/24 03:08	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0		ng/L		10/20/24 08:58	10/22/24 03:08	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0		ng/L		10/20/24 08:58	10/22/24 03:08	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0		ng/L		10/20/24 08:58	10/22/24 03:08	1
Perfluorononanoic acid (PFNA)	<0.40		2.0		ng/L		10/20/24 08:58	10/22/24 03:08	1
Perfluorotetradecanoic acid (PFTA)	<0.54		2.0		ng/L		10/20/24 08:58	10/22/24 03:08	1
Perfluorotridecanoic acid (PFTrDA)	<0.36		2.0		ng/L		10/20/24 08:58	10/22/24 03:08	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0		ng/L		10/20/24 08:58	10/22/24 03:08	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0		ng/L		10/20/24 08:58	10/22/24 03:08	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0		ng/L		10/20/24 08:58	10/22/24 03:08	1

Surrogate	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	88		70 - 130	10/20/24 08:58	10/22/24 03:08	1
13C2 PFHxA	83		70 - 130	10/20/24 08:58	10/22/24 03:08	1
13C2 PFDA	81		70 - 130	10/20/24 08:58	10/22/24 03:08	1

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

Lab Sample ID: MBL 380-114492/21-A
Matrix: Water
Analysis Batch: 114561

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 114492

Surrogate	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3-GenX	72		70 - 130	10/20/24 08:58	10/22/24 03:08	1

Lab Sample ID: LCS 380-114492/23-A
Matrix: Water
Analysis Batch: 114561

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 114492

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	25.0	23.2		ng/L		93	70 - 130
Perfluorooctanesulfonic acid (PFOS)	25.0	26.4		ng/L		106	70 - 130
Perfluoroundecanoic acid (PFUnA)	25.0	25.4		ng/L		102	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	25.0	26.6		ng/L		106	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	25.0	26.2		ng/L		105	70 - 130
Perfluorohexanoic acid (PFHxA)	25.0	26.0		ng/L		104	70 - 130
Perfluorododecanoic acid (PFDoA)	25.0	25.2		ng/L		101	70 - 130
Perfluorooctanoic acid (PFOA)	25.0	28.0		ng/L		112	70 - 130
Perfluorodecanoic acid (PFDA)	25.0	25.4		ng/L		102	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	25.0	26.9		ng/L		108	70 - 130
Perfluorobutanesulfonic acid (PFBS)	25.0	21.4		ng/L		85	70 - 130
Perfluoroheptanoic acid (PFHpA)	25.0	26.7		ng/L		107	70 - 130
Perfluorononanoic acid (PFNA)	25.0	26.6		ng/L		107	70 - 130
Perfluorotetradecanoic acid (PFTA)	25.0	23.7		ng/L		95	70 - 130
Perfluorotridecanoic acid (PFTrDA)	25.0	24.3		ng/L		97	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	25.0	25.2		ng/L		101	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	25.0	24.7		ng/L		99	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	25.0	25.2		ng/L		101	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
d5-NEtFOSAA	99		70 - 130
13C2 PFHxA	99		70 - 130
13C2 PFDA	96		70 - 130
13C3-GenX	90		70 - 130

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

Lab Sample ID: MRL 380-114492/22-A
Matrix: Water
Analysis Batch: 114561

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 114492

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.86	J	ng/L		93	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	2.17	J	ng/L		108	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.10	J	ng/L		105	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	2.11	J	ng/L		105	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.13	J	ng/L		106	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.08	J	ng/L		104	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.02	J	ng/L		101	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.20	J	ng/L		110	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.06	J	ng/L		103	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	2.22	J	ng/L		111	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	2.08	J	ng/L		104	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.18	J	ng/L		109	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.11	J	ng/L		105	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.00	1.93	J	ng/L		97	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.00	2.04	J	ng/L		102	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	2.13	J	ng/L		106	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	2.02	J	ng/L		101	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	2.04	J	ng/L		102	50 - 150

Surrogate	*MRL %Recovery*	*MRL Qualifier*	*Limits*
d5-NEtFOSAA	*91*		*70 - 130*
13C2 PFHxA	*90*		*70 - 130*
13C2 PFDA	*85*		*70 - 130*
13C3-GenX	*80*		*70 - 130*

Lab Sample ID: 380-118196-1 MS
Matrix: Water
Analysis Batch: 114561

Client Sample ID: Halawa Shaft Viewing Pool
Prep Type: Total/NA
Prep Batch: 114492

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		50.1	46.5		ng/L		93	70 - 130
Perfluorooctanesulfonic acid (PFOS)	3.6		50.1	54.7		ng/L		102	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		50.1	47.4		ng/L		95	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		50.1	52.8		ng/L		105	70 - 130

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

Lab Sample ID: 380-118196-1 MS
Matrix: Water
Analysis Batch: 114561

Client Sample ID: Halawa Shaft Viewing Pool
Prep Type: Total/NA
Prep Batch: 114492

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		50.1	52.2		ng/L		104	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		50.1	54.0		ng/L		104	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		50.1	48.9		ng/L		98	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		50.1	52.6		ng/L		102	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		50.1	49.2		ng/L		98	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	4.1		50.1	56.0		ng/L		104	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		50.1	50.0		ng/L		99	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		50.1	49.9		ng/L		98	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		50.1	48.9		ng/L		98	70 - 130
Perfluorotetradecanoic acid (PFTA)	<2.0		50.1	42.3		ng/L		84	70 - 130
Perfluorotridecanoic acid (PFTrDA)	<2.0		50.1	46.5		ng/L		93	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		50.1	49.7		ng/L		99	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		50.1	46.4		ng/L		93	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		50.1	47.6		ng/L		95	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
d5-NEtFOSAA	*88*		*70 - 130*
13C2 PFHxA	*92*		*70 - 130*
13C2 PFDA	*85*		*70 - 130*
13C3-GenX	*87*		*70 - 130*

Lab Sample ID: 380-118196-1 MSD
Matrix: Water
Analysis Batch: 114561

Client Sample ID: Halawa Shaft Viewing Pool
Prep Type: Total/NA
Prep Batch: 114492

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		50.2	46.6		ng/L		93	70 - 130	0	30
Perfluorooctanesulfonic acid (PFOS)	3.6		50.2	55.2		ng/L		103	70 - 130	1	30
Perfluoroundecanoic acid (PFUnA)	<2.0		50.2	47.8		ng/L		95	70 - 130	1	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		50.2	50.0		ng/L		100	70 - 130	5	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		50.2	51.2		ng/L		102	70 - 130	2	30
Perfluorohexanoic acid (PFHxA)	<2.0		50.2	53.2		ng/L		102	70 - 130	2	30
Perfluorododecanoic acid (PFDoA)	<2.0		50.2	47.9		ng/L		96	70 - 130	2	30
Perfluorooctanoic acid (PFOA)	<2.0		50.2	53.0		ng/L		103	70 - 130	1	30
Perfluorodecanoic acid (PFDA)	<2.0		50.2	48.5		ng/L		97	70 - 130	1	30

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

Lab Sample ID: 380-118196-1 MSD
Matrix: Water
Analysis Batch: 114561

Client Sample ID: Halawa Shaft Viewing Pool
Prep Type: Total/NA
Prep Batch: 114492

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorohexanesulfonic acid (PFHxS)	4.1		50.2	56.8		ng/L		105	70 - 130	1	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		50.2	50.2		ng/L		99	70 - 130	0	30
Perfluoroheptanoic acid (PFHpA)	<2.0		50.2	49.5		ng/L		97	70 - 130	1	30
Perfluorononanoic acid (PFNA)	<2.0		50.2	50.7		ng/L		101	70 - 130	4	30
Perfluorotetradecanoic acid (PFTA)	<2.0		50.2	42.4		ng/L		84	70 - 130	0	30
Perfluorotridecanoic acid (PFTrDA)	<2.0		50.2	45.7		ng/L		91	70 - 130	2	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		50.2	49.1		ng/L		98	70 - 130	1	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		50.2	45.8		ng/L		91	70 - 130	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		50.2	47.9		ng/L		95	70 - 130	1	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
d5-NEtFOSAA	*86*		*70 - 130*
13C2 PFHxA	*95*		*70 - 130*
13C2 PFDA	*83*		*70 - 130*
13C3-GenX	*83*		*70 - 130*

QC Association Summary

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

Job ID: 380-118196-1
SDG: RUSH Weekly Red Hill

LCMS

Prep Batch: 114399

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-118196-1	Halawa Shaft Viewing Pool	Total/NA	Water	533	
380-118196-2	FB: Halawa Shaft Viewing Pool	Total/NA	Water	533	
MBL 380-114399/20-A	Method Blank	Total/NA	Water	533	
LCS 380-114399/22-A	Lab Control Sample	Total/NA	Water	533	
MRL 380-114399/21-A	Lab Control Sample	Total/NA	Water	533	
380-118019-B-1-A MS	Matrix Spike	Total/NA	Water	533	
380-118019-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	

Analysis Batch: 114483

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-118196-1	Halawa Shaft Viewing Pool	Total/NA	Water	533	114399
380-118196-2	FB: Halawa Shaft Viewing Pool	Total/NA	Water	533	114399
MBL 380-114399/20-A	Method Blank	Total/NA	Water	533	114399
LCS 380-114399/22-A	Lab Control Sample	Total/NA	Water	533	114399
MRL 380-114399/21-A	Lab Control Sample	Total/NA	Water	533	114399
380-118019-B-1-A MS	Matrix Spike	Total/NA	Water	533	114399
380-118019-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	114399

Prep Batch: 114492

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-118196-1	Halawa Shaft Viewing Pool	Total/NA	Water	537.1 DW	
380-118196-2	FB: Halawa Shaft Viewing Pool	Total/NA	Water	537.1 DW	
MBL 380-114492/21-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-114492/23-A	Lab Control Sample	Total/NA	Water	537.1 DW	
MRL 380-114492/22-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-118196-1 MS	Halawa Shaft Viewing Pool	Total/NA	Water	537.1 DW	
380-118196-1 MSD	Halawa Shaft Viewing Pool	Total/NA	Water	537.1 DW	

Analysis Batch: 114561

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-118196-1	Halawa Shaft Viewing Pool	Total/NA	Water	537.1	114492
380-118196-2	FB: Halawa Shaft Viewing Pool	Total/NA	Water	537.1	114492
MBL 380-114492/21-A	Method Blank	Total/NA	Water	537.1	114492
LCS 380-114492/23-A	Lab Control Sample	Total/NA	Water	537.1	114492
MRL 380-114492/22-A	Lab Control Sample	Total/NA	Water	537.1	114492
380-118196-1 MS	Halawa Shaft Viewing Pool	Total/NA	Water	537.1	114492
380-118196-1 MSD	Halawa Shaft Viewing Pool	Total/NA	Water	537.1	114492

Lab Chronicle

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

Job ID: 380-118196-1
SDG: RUSH Weekly Red Hill

Client Sample ID: Halawa Shaft Viewing Pool
Date Collected: 10/15/24 11:00
Date Received: 10/17/24 10:17

Lab Sample ID: 380-118196-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			114399	N8NE	EA POM	10/18/24 15:57
Total/NA	Analysis	533		1	114483	M7ML	EA POM	10/20/24 07:33
Total/NA	Prep	537.1 DW			114492	E9PK	EA POM	10/20/24 08:58
Total/NA	Analysis	537.1		1	114561	SZ9R	EA POM	10/22/24 03:37

Client Sample ID: FB: Halawa Shaft Viewing Pool
Date Collected: 10/15/24 11:00
Date Received: 10/17/24 10:17

Lab Sample ID: 380-118196-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			114399	N8NE	EA POM	10/18/24 15:57
Total/NA	Analysis	533		1	114483	M7ML	EA POM	10/20/24 07:43
Total/NA	Prep	537.1 DW			114492	E9PK	EA POM	10/20/24 08:58
Total/NA	Analysis	537.1		1	114561	SZ9R	EA POM	10/22/24 04:44

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: 380-118196-1
SDG: RUSH Weekly Red Hill

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: 380-118196-1
SDG: RUSH Weekly Red Hill

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: 380-118196-1
SDG: RUSH Weekly Red Hill

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
380-118196-1	Halawa Shaft Viewing Pool	Water	10/15/24 11:00	10/17/24 10:17
380-118196-2	FB: Halawa Shaft Viewing Pool	Water	10/15/24 11:00	10/17/24 10:17

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

80-118196 COC

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

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)	626.1, 625.1_SIM	8015B_GRO_LL - (MOD) GRO	8015B_DRO_LL_CS - HNL Ranges C10-C24/C24-C36/C8-C18	525.2_PREC - (MOD) 625plus Plus TICs	537 1_DW_PREC - 537 1 Full List	533 - All Analytes	Total Number of containers	Special Instructions/Note:
			Preservation Code:				R	RA	Q	QA	Y	I		
Halawa Shaft Viewing Pool	10/15/24	1100	G	Water							3	3		
FB Halawa Shaft Viewing Pool	10/15/24	1100	G	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: FED EX 7793 0565 8119
Relinquished by: [redacted]	Date/Time: 10/16/24 1300	Company: HBWS	Received by: G. PETTNER Date/Time: 10/17/2024 10:17 Company: 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: -75 3.7°-0.0°=3.7° GEL FROZEN

Ver: 04/02/2024

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-118196-1
SDG Number: RUSH Weekly Red Hill

Login Number: 118196
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	