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ANALYTICAL REPORT

PREPARED FOR

Attn: Mr. Erwin Kawata
City & County of Honolulu
630 South Beretania Street
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Honolulu, Hawaii 96843

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JOB DESCRIPTION

RED-HILL
Weekly PFAS

JOB NUMBER

380-121331-1

Eurofins Eaton Analytical Pomona

Job Notes

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

The test results in this report relate only to the samples as received by the laboratory and meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Eaton Analytical, LLC Project Manager.

Compliance Statement

1. Laboratory is accredited in accordance with TNI 2016 Standards and ISO/IEC 17025:2017.
2. Laboratory certifies that the test results meet all TNI 2016 and ISO/IEC 17025:2017 requirements unless noted under the individual analysis
3. Test results relate only to the sample(s) tested.
4. This report shall not be reproduced except in full, without the written approval of the laboratory.
5. Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below. (DW, Water matrices)

Authorization



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Definitions/Glossary

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

Job ID: 380-121331-1
SDG: Weekly PFAS

Qualifiers

LCMS

Qualifier	Qualifier Description
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

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

Job ID: 380-121331-1

Job ID: 380-121331-1

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Job Narrative 380-121331-1

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 11/8/2024 10:10 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 2.0°C and 2.4°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: 380-121331-1
SDG: Weekly PFAS

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-121331-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	3.5		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.4		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.8		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: 380-121331-2

No Detections.

This Detection Summary does not include radiochemical test results.

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Client Sample Results

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

Job ID: 380-121331-1
SDG: Weekly PFAS

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-121331-1

Date Collected: 11/06/24 10:30

Matrix: Water

Date Received: 11/08/24 10:10

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		11/12/24 07:10	11/13/24 00:56	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		11/12/24 07:10	11/13/24 00:56	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		11/12/24 07:10	11/13/24 00:56	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		11/12/24 07:10	11/13/24 00:56	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		11/12/24 07:10	11/13/24 00:56	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		11/12/24 07:10	11/13/24 00:56	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		11/12/24 07:10	11/13/24 00:56	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		11/12/24 07:10	11/13/24 00:56	1
Perfluorohexanesulfonic acid (PFHxS)	3.5		2.0	ng/L		11/12/24 07:10	11/13/24 00:56	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		11/12/24 07:10	11/13/24 00:56	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		11/12/24 07:10	11/13/24 00:56	1
Perfluorooctanesulfonic acid (PFOS)	3.4		2.0	ng/L		11/12/24 07:10	11/13/24 00:56	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		11/12/24 07:10	11/13/24 00:56	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		11/12/24 07:10	11/13/24 00:56	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		11/12/24 07:10	11/13/24 00:56	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		11/12/24 07:10	11/13/24 00:56	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		11/12/24 07:10	11/13/24 00:56	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		11/12/24 07:10	11/13/24 00:56	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		11/12/24 07:10	11/13/24 00:56	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		11/12/24 07:10	11/13/24 00:56	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		11/12/24 07:10	11/13/24 00:56	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		11/12/24 07:10	11/13/24 00:56	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		11/12/24 07:10	11/13/24 00:56	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		11/12/24 07:10	11/13/24 00:56	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		11/12/24 07:10	11/13/24 00:56	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	89		50 - 200	11/12/24 07:10	11/13/24 00:56	1
13C6 PFDA	77		50 - 200	11/12/24 07:10	11/13/24 00:56	1
13C5 PFHxA	92		50 - 200	11/12/24 07:10	11/13/24 00:56	1
13C4 PFHpA	94		50 - 200	11/12/24 07:10	11/13/24 00:56	1
13C8 PFOA	85		50 - 200	11/12/24 07:10	11/13/24 00:56	1
13C9 PFNA	80		50 - 200	11/12/24 07:10	11/13/24 00:56	1
13C7 PFUnA	81		50 - 200	11/12/24 07:10	11/13/24 00:56	1
13C2 PFDoA	84		50 - 200	11/12/24 07:10	11/13/24 00:56	1
13C4 PFBA	99		50 - 200	11/12/24 07:10	11/13/24 00:56	1
13C5 PFPeA	106		50 - 200	11/12/24 07:10	11/13/24 00:56	1
13C3 PFBS	107		50 - 200	11/12/24 07:10	11/13/24 00:56	1
13C3 PFHxS	109		50 - 200	11/12/24 07:10	11/13/24 00:56	1

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Client Sample Results

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

Job ID: 380-121331-1
SDG: Weekly PFAS

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-121331-1

Date Collected: 11/06/24 10:30

Matrix: Water

Date Received: 11/08/24 10:10

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	111		50 - 200	11/12/24 07:10	11/13/24 00:56	1
13C2-4:2-FTS	115		50 - 200	11/12/24 07:10	11/13/24 00:56	1
13C2-6:2-FTS	110		50 - 200	11/12/24 07:10	11/13/24 00:56	1
13C2-8:2-FTS	110		50 - 200	11/12/24 07:10	11/13/24 00:56	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		11/10/24 16:00	11/11/24 16:39	1
Perfluorooctanesulfonic acid (PFOS)	3.8		2.0	ng/L		11/10/24 16:00	11/11/24 16:39	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 16:39	1
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 16:39	1
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 16:39	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 16:39	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 16:39	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 16:39	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 16:39	1
Perfluorohexanesulfonic acid (PFHxS)	4.1		2.0	ng/L		11/10/24 16:00	11/11/24 16:39	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 16:39	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 16:39	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 16:39	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 16:39	1
Perfluorotridecanoic acid (PFTTrDA)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 16:39	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 16:39	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 16:39	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 16:39	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	109		70 - 130			11/10/24 16:00	11/11/24 16:39	1
13C2 PFHxA	111		70 - 130			11/10/24 16:00	11/11/24 16:39	1
13C2 PFDA	108		70 - 130			11/10/24 16:00	11/11/24 16:39	1
13C3-GenX	107		70 - 130			11/10/24 16:00	11/11/24 16:39	1

Client Sample ID: FB: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-121331-2

Date Collected: 11/06/24 10:30

Matrix: Water

Date Received: 11/08/24 10:10

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		11/08/24 16:19	11/10/24 21:21	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		11/08/24 16:19	11/10/24 21:21	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		11/08/24 16:19	11/10/24 21:21	1

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Client Sample Results

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

Job ID: 380-121331-1
SDG: Weekly PFAS

Client Sample ID: FB: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-121331-2

Date Collected: 11/06/24 10:30

Matrix: Water

Date Received: 11/08/24 10:10

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		11/08/24 16:19	11/10/24 21:21	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		11/08/24 16:19	11/10/24 21:21	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		11/08/24 16:19	11/10/24 21:21	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		11/08/24 16:19	11/10/24 21:21	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		11/08/24 16:19	11/10/24 21:21	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		11/08/24 16:19	11/10/24 21:21	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		11/08/24 16:19	11/10/24 21:21	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		11/08/24 16:19	11/10/24 21:21	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		11/08/24 16:19	11/10/24 21:21	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		11/08/24 16:19	11/10/24 21:21	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		11/08/24 16:19	11/10/24 21:21	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		11/08/24 16:19	11/10/24 21:21	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		11/08/24 16:19	11/10/24 21:21	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		11/08/24 16:19	11/10/24 21:21	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		11/08/24 16:19	11/10/24 21:21	1
Nonafluoro-3,6-dioxahexanoic acid (NFDHA)	<2.0		2.0	ng/L		11/08/24 16:19	11/10/24 21:21	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L		11/08/24 16:19	11/10/24 21:21	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		11/08/24 16:19	11/10/24 21:21	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		11/08/24 16:19	11/10/24 21:21	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		11/08/24 16:19	11/10/24 21:21	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		11/08/24 16:19	11/10/24 21:21	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		11/08/24 16:19	11/10/24 21:21	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	85		50 - 200	11/08/24 16:19	11/10/24 21:21	1
13C6 PFDA	100		50 - 200	11/08/24 16:19	11/10/24 21:21	1
13C5 PFHxA	94		50 - 200	11/08/24 16:19	11/10/24 21:21	1
13C4 PFHpA	104		50 - 200	11/08/24 16:19	11/10/24 21:21	1
13C8 PFOA	100		50 - 200	11/08/24 16:19	11/10/24 21:21	1
13C9 PFNA	95		50 - 200	11/08/24 16:19	11/10/24 21:21	1
13C7 PFUnA	101		50 - 200	11/08/24 16:19	11/10/24 21:21	1
13C2 PFDoA	105		50 - 200	11/08/24 16:19	11/10/24 21:21	1
13C4 PFBA	97		50 - 200	11/08/24 16:19	11/10/24 21:21	1
13C5 PFPeA	95		50 - 200	11/08/24 16:19	11/10/24 21:21	1
13C3 PFBS	111		50 - 200	11/08/24 16:19	11/10/24 21:21	1
13C3 PFHxS	120		50 - 200	11/08/24 16:19	11/10/24 21:21	1
13C8 PFOS	111		50 - 200	11/08/24 16:19	11/10/24 21:21	1
13C2-4:2-FTS	110		50 - 200	11/08/24 16:19	11/10/24 21:21	1
13C2-6:2-FTS	106		50 - 200	11/08/24 16:19	11/10/24 21:21	1
13C2-8:2-FTS	103		50 - 200	11/08/24 16:19	11/10/24 21:21	1

Client Sample Results

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

Job ID: 380-121331-1
SDG: Weekly PFAS

Client Sample ID: FB: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-121331-2

Date Collected: 11/06/24 10:30

Matrix: Water

Date Received: 11/08/24 10:10

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		11/10/24 16:00	11/11/24 20:06	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 20:06	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 20:06	1
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 20:06	1
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 20:06	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 20:06	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 20:06	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 20:06	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 20:06	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 20:06	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 20:06	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 20:06	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 20:06	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 20:06	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 20:06	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 20:06	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 20:06	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		11/10/24 16:00	11/11/24 20:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	110		70 - 130	11/10/24 16:00	11/11/24 20:06	1
13C2 PFHxA	112		70 - 130	11/10/24 16:00	11/11/24 20:06	1
13C2 PFDA	112		70 - 130	11/10/24 16:00	11/11/24 20:06	1
13C3-GenX	109		70 - 130	11/10/24 16:00	11/11/24 20:06	1

Action Limit Summary

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

Job ID: 380-121331-1
SDG: Weekly PFAS

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-121331-1

Compliance Check

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

Analyte	Result	Qualifier	Unit	EPAMCL		RL	Method	Prep Type
				Limit				
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		ng/L	10		2.0	533	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.5		ng/L	10		2.0	533	Total/NA
Perfluorononanoic acid (PFNA)	<2.0		ng/L	10		2.0	533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.4		ng/L	4		2.0	533	Total/NA
Perfluorooctanoic acid (PFOA)	<2.0		ng/L	4		2.0	533	Total/NA
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		ng/L	10		2.0	537.1	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.8		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: 380-121331-2

Compliance Check

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

Analyte	Result	Qualifier	Unit	EPAMCL		RL	Method	Prep Type
				Limit				
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		ng/L	10		2.0	533	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	<2.0		ng/L	10		2.0	533	Total/NA
Perfluorononanoic acid (PFNA)	<2.0		ng/L	10		2.0	533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	<2.0		ng/L	4		2.0	533	Total/NA
Perfluorooctanoic acid (PFOA)	<2.0		ng/L	4		2.0	533	Total/NA
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		ng/L	10		2.0	537.1	Total/NA
Perfluorooctanesulfonic acid (PFOS)	<2.0		ng/L	4		2.0	537.1	Total/NA
Perfluorooctanoic acid (PFOA)	<2.0		ng/L	4		2.0	537.1	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	<2.0		ng/L	10		2.0	537.1	Total/NA
Perfluorononanoic acid (PFNA)	<2.0		ng/L	10		2.0	537.1	Total/NA

Surrogate Summary

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

Job ID: 380-121331-1
 SDG: Weekly PFAS

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		d5NEFOS (70-130)	PFHxA (70-130)	PFDA (70-130)	GenX (70-130)
380-121331-1	HALAWA SHAFT VIEWING POOL	109	111	108	107
380-121331-1 MS	HALAWA SHAFT VIEWING POOL	102	106	104	108
380-121331-1 MSD	HALAWA SHAFT VIEWING POOL	97	108	108	103
380-121331-2	FB: HALAWA SHAFT VIEWING POOL	110	112	112	109
LCS 380-118199/22-A	Lab Control Sample	102	106	101	104
MBL 380-118199/20-A	Method Blank	110	112	108	107
MRL 380-118199/21-A	Lab Control Sample	109	107	108	107

Surrogate Legend

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



Isotope Dilution Summary

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

Job ID: 380-121331-1
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)
380-121296-B-1-A MSD	Matrix Spike Duplicate	138	95	140	143	129	110	113	143
380-121296-C-1-A MS	Matrix Spike	77	53	79	79	71	59	62	74
380-121331-1	HALAWA SHAFT VIEWING POOL	89	77	92	94	85	80	81	84
380-121331-2	FB: HALAWA SHAFT VIEWING POOL	85	100	94	104	100	95	101	105
380-121447-E-1-A MS	Matrix Spike	101	81	106	108	93	88	84	89
380-121447-F-1-A MSD	Matrix Spike Duplicate	104	81	102	102	97	87	87	91
LCS 380-118122/24-A	Lab Control Sample	104	115	113	116	113	112	120	118
LCS 380-118470/22-A	Lab Control Sample	94	114	112	115	111	111	116	117
MBL 380-118122/22-A	Method Blank	93	111	107	111	111	110	108	112
MBL 380-118470/20-A	Method Blank	89	109	108	113	109	107	108	107
MRL 380-118122/23-A	Lab Control Sample	93	110	94	105	108	104	113	111
MRL 380-118470/21-A	Lab Control Sample	101	106	110	109	110	105	106	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)
380-121296-B-1-A MSD	Matrix Spike Duplicate	163	164	229 *5+	238 *5+	233 *5+	221 *5+	200	190
380-121296-C-1-A MS	Matrix Spike	82	85	111	119	110	106	99	98
380-121331-1	HALAWA SHAFT VIEWING POOL	99	106	107	109	111	115	110	110
380-121331-2	FB: HALAWA SHAFT VIEWING POOL	97	95	111	120	111	110	106	103
380-121447-E-1-A MS	Matrix Spike	111	147	107	114	115	122	133	116
380-121447-F-1-A MSD	Matrix Spike Duplicate	110	141	106	112	112	123	131	119
LCS 380-118122/24-A	Lab Control Sample	113	120	119	119	114	111	105	101
LCS 380-118470/22-A	Lab Control Sample	111	109	108	111	112	110	106	110
MBL 380-118122/22-A	Method Blank	111	113	115	120	115	118	107	107
MBL 380-118470/20-A	Method Blank	110	113	105	109	110	123	112	109
MRL 380-118122/23-A	Lab Control Sample	103	110	118	122	115	113	103	102
MRL 380-118470/21-A	Lab Control Sample	115	115	110	110	109	116	119	104

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

QC Sample Results

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

Job ID: 380-121331-1
SDG: Weekly PFAS

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

Lab Sample ID: MBL 380-118122/22-A
Matrix: Water
Analysis Batch: 118209

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 118122

Analyte	MBL	MBL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		11/08/24 16:19	11/10/24 17:25	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		11/08/24 16:19	11/10/24 17:25	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		11/08/24 16:19	11/10/24 17:25	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		11/08/24 16:19	11/10/24 17:25	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		11/08/24 16:19	11/10/24 17:25	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		11/08/24 16:19	11/10/24 17:25	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		11/08/24 16:19	11/10/24 17:25	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		11/08/24 16:19	11/10/24 17:25	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		11/08/24 16:19	11/10/24 17:25	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		11/08/24 16:19	11/10/24 17:25	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		11/08/24 16:19	11/10/24 17:25	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		11/08/24 16:19	11/10/24 17:25	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		11/08/24 16:19	11/10/24 17:25	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		11/08/24 16:19	11/10/24 17:25	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		11/08/24 16:19	11/10/24 17:25	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		11/08/24 16:19	11/10/24 17:25	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		11/08/24 16:19	11/10/24 17:25	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		11/08/24 16:19	11/10/24 17:25	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		11/08/24 16:19	11/10/24 17:25	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0	ng/L		11/08/24 16:19	11/10/24 17:25	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		11/08/24 16:19	11/10/24 17:25	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		11/08/24 16:19	11/10/24 17:25	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		11/08/24 16:19	11/10/24 17:25	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		11/08/24 16:19	11/10/24 17:25	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		11/08/24 16:19	11/10/24 17:25	1

Isotope Dilution	MBL	MBL	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 HFPO-DA	93		50 - 200	11/08/24 16:19	11/10/24 17:25	1
13C6 PFDA	111		50 - 200	11/08/24 16:19	11/10/24 17:25	1
13C5 PFHxA	107		50 - 200	11/08/24 16:19	11/10/24 17:25	1
13C4 PFHpA	111		50 - 200	11/08/24 16:19	11/10/24 17:25	1
13C8 PFOA	111		50 - 200	11/08/24 16:19	11/10/24 17:25	1
13C9 PFNA	110		50 - 200	11/08/24 16:19	11/10/24 17:25	1
13C7 PFUnA	108		50 - 200	11/08/24 16:19	11/10/24 17:25	1
13C2 PFDoA	112		50 - 200	11/08/24 16:19	11/10/24 17:25	1
13C4 PFBA	111		50 - 200	11/08/24 16:19	11/10/24 17:25	1
13C5 PFPeA	113		50 - 200	11/08/24 16:19	11/10/24 17:25	1
13C3 PFBS	115		50 - 200	11/08/24 16:19	11/10/24 17:25	1
13C3 PFHxS	120		50 - 200	11/08/24 16:19	11/10/24 17:25	1

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QC Sample Results

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

Job ID: 380-121331-1
SDG: Weekly PFAS

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

Lab Sample ID: MBL 380-118122/22-A
Matrix: Water
Analysis Batch: 118209

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 118122

Isotope Dilution	MBL MBL		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C8 PFOS	115		50 - 200	11/08/24 16:19	11/10/24 17:25	1
13C2-4:2-FTS	118		50 - 200	11/08/24 16:19	11/10/24 17:25	1
13C2-6:2-FTS	107		50 - 200	11/08/24 16:19	11/10/24 17:25	1
13C2-8:2-FTS	107		50 - 200	11/08/24 16:19	11/10/24 17:25	1

Lab Sample ID: LCS 380-118122/24-A
Matrix: Water
Analysis Batch: 118209

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 118122

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	110		ng/L		91	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	120	103		ng/L		86	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	120	107		ng/L		89	70 - 130
Perfluorobutanesulfonic acid (PFBS)	120	101		ng/L		84	70 - 130
Perfluorodecanoic acid (PFDA)	120	107		ng/L		89	70 - 130
Perfluorododecanoic acid (PFDoA)	120	108		ng/L		90	70 - 130
Perfluoroheptanoic acid (PFHpA)	120	106		ng/L		88	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	120	104		ng/L		87	70 - 130
Perfluorohexanoic acid (PFHxA)	120	113		ng/L		94	70 - 130
Perfluorononanoic acid (PFNA)	120	108		ng/L		90	70 - 130
Perfluorooctanesulfonic acid (PFOS)	120	106		ng/L		88	70 - 130
Perfluorooctanoic acid (PFOA)	120	107		ng/L		89	70 - 130
Perfluoroundecanoic acid (PFUnA)	120	108		ng/L		90	70 - 130
Perfluorobutanoic acid (PFBA)	120	105		ng/L		87	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	120	106		ng/L		88	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	103		ng/L		86	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	120	104		ng/L		86	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	120	115		ng/L		95	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	120	111		ng/L		93	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	120	104		ng/L		86	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	120	101		ng/L		84	70 - 130
Perfluoropentanoic acid (PFPeA)	120	103		ng/L		86	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	120	108		ng/L		90	70 - 130

QC Sample Results

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

Job ID: 380-121331-1
SDG: Weekly PFAS

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

Lab Sample ID: LCS 380-118122/24-A

Matrix: Water

Analysis Batch: 118209

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 118122

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanesulfonic acid (PFPeS)	120	107		ng/L		89	70 - 130
LCS LCS							
Isotope Dilution	%Recovery	Qualifier	Limits				
13C3 HFPO-DA	104		50 - 200				
13C6 PFDA	115		50 - 200				
13C5 PFHxA	113		50 - 200				
13C4 PFHpA	116		50 - 200				
13C8 PFOA	113		50 - 200				
13C9 PFNA	112		50 - 200				
13C7 PFUnA	120		50 - 200				
13C2 PFDoA	118		50 - 200				
13C4 PFBA	113		50 - 200				
13C5 PFPeA	120		50 - 200				
13C3 PFBS	119		50 - 200				
13C3 PFHxS	119		50 - 200				
13C8 PFOS	114		50 - 200				
13C2-4:2-FTS	111		50 - 200				
13C2-6:2-FTS	105		50 - 200				
13C2-8:2-FTS	101		50 - 200				

Lab Sample ID: MRL 380-118122/23-A

Matrix: Water

Analysis Batch: 118209

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 118122

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	2.05	J	ng/L		102	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	2.01	J	ng/L		100	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	1.97	J	ng/L		98	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.97	J	ng/L		98	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	1.93	J	ng/L		97	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.04	J	ng/L		102	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.02	J	ng/L		101	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.11	J	ng/L		105	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	1.91	J	ng/L		96	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.01	J	ng/L		100	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.13	J	ng/L		106	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	2.13	J	ng/L		107	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.17	J	ng/L		109	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.08	J	ng/L		104	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	2.11	J	ng/L		105	50 - 150

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QC Sample Results

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

Job ID: 380-121331-1
SDG: Weekly PFAS

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

Lab Sample ID: MRL 380-118122/23-A
Matrix: Water
Analysis Batch: 118209

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 118122

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	2.18	J	ng/L		109	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	2.09	J	ng/L		104	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	2.29	J	ng/L		115	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	2.24	J	ng/L		112	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.00	2.08	J	ng/L		104	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	1.93	J	ng/L		97	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	1.86	J	ng/L		93	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	1.98	J	ng/L		99	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.00	1.97	J	ng/L		99	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.00	1.90	J	ng/L		95	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	MRL Limits
13C3 HFPO-DA	93		50 - 200
13C6 PFDA	110		50 - 200
13C5 PFHxA	94		50 - 200
13C4 PFHpA	105		50 - 200
13C8 PFOA	108		50 - 200
13C9 PFNA	104		50 - 200
13C7 PFUnA	113		50 - 200
13C2 PFDoA	111		50 - 200
13C4 PFBA	103		50 - 200
13C5 PFPeA	110		50 - 200
13C3 PFBS	118		50 - 200
13C3 PFHxS	122		50 - 200
13C8 PFOS	115		50 - 200
13C2-4:2-FTS	113		50 - 200
13C2-6:2-FTS	103		50 - 200
13C2-8:2-FTS	102		50 - 200

Lab Sample ID: 380-121296-B-1-A MSD
Matrix: Water
Analysis Batch: 118209

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 118122

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	F2 F1	60.0	30.0	F2 *5+ F1	ng/L		50	70 - 130	66	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0	F2 F1	60.0	27.9	F2 *5+ F1	ng/L		47	70 - 130	68	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0	F2 F1	60.0	28.9	F2 F1	ng/L		48	70 - 130	62	30

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QC Sample Results

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

Job ID: 380-121331-1
SDG: Weekly PFAS

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

Lab Sample ID: 380-121296-B-1-A MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 118209

Prep Batch: 118122

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		
Hexafluoropropylene Oxide	<2.0	F2 F1	60.0	28.8	F2 F1	ng/L		48	70 - 130	66	30
Dimer Acid (HFPO-DA/GenX)											
Perfluorobutanesulfonic acid (PFBS)	<2.0	F2 F1	60.0	28.4	F2 *5+ F1	ng/L		47	70 - 130	69	30
Perfluorodecanoic acid (PFDA)	<2.0	F2 F1	60.0	29.2	F2 F1	ng/L		49	70 - 130	68	30
Perfluorododecanoic acid (PFDoA)	<2.0	F2 F1	60.0	29.1	F2 F1	ng/L		48	70 - 130	68	30
Perfluoroheptanoic acid (PFHpA)	<2.0	F2 F1	60.0	28.3	F2 F1	ng/L		47	70 - 130	68	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0	F2 F1	60.0	29.4	F2 *5+ F1	ng/L		49	70 - 130	62	30
Perfluorohexanoic acid (PFHxA)	<2.0	F2 F1	60.0	30.2	F2 F1	ng/L		50	70 - 130	66	30
Perfluorononanoic acid (PFNA)	<2.0	F2 F1	60.0	29.0	F2 F1	ng/L		48	70 - 130	68	30
Perfluorooctanesulfonic acid (PFOS)	<2.0	F2 F1	60.0	27.8	F2 *5+ F1	ng/L		46	70 - 130	70	30
Perfluorooctanoic acid (PFOA)	<2.0	F2 F1	60.0	29.6	F2 F1	ng/L		49	70 - 130	62	30
Perfluoroundecanoic acid (PFUnA)	<2.0	F2 F1	60.0	30.0	F2 F1	ng/L		50	70 - 130	67	30
Perfluorobutanoic acid (PFBA)	<2.0	F2 F1	60.0	29.0	F2 F1	ng/L		48	70 - 130	71	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0	F2 F1	60.0	29.7	F2 F1	ng/L		49	70 - 130	71	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0	F2 F1	60.0	27.9	F2 *5+ F1	ng/L		47	70 - 130	75	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0	F2 F1	60.0	30.3	F2 F1	ng/L		50	70 - 130	66	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0	F2 F1	60.0	32.8	F2 F1	ng/L		55	70 - 130	53	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0	F2 F1	60.0	30.5	F2 *5+ F1	ng/L		51	70 - 130	67	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0	F2 F1	60.0	28.2	F2 F1	ng/L		47	70 - 130	68	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0	F2 F1	60.0	27.2	F2 F1	ng/L		45	70 - 130	69	30
Perfluoropentanoic acid (PFPeA)	<2.0	F2 F1	60.0	28.9	F2 F1	ng/L		48	70 - 130	67	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0	F2 F1	60.0	28.6	F2 *5+ F1	ng/L		48	70 - 130	69	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0	F2 F1	60.0	27.7	F2 *5+ F1	ng/L		46	70 - 130	65	30

Isotope Dilution	MSD	MSD	Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	138		50 - 200
13C6 PFDA	95		50 - 200
13C5 PFHxA	140		50 - 200
13C4 PFHpA	143		50 - 200
13C8 PFOA	129		50 - 200
13C9 PFNA	110		50 - 200
13C7 PFUnA	113		50 - 200
13C2 PFDoA	143		50 - 200
13C4 PFBA	163		50 - 200
13C5 PFPeA	164		50 - 200
13C3 PFBS	229	*5+	50 - 200
13C3 PFHxS	238	*5+	50 - 200
13C8 PFOS	233	*5+	50 - 200

QC Sample Results

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

Job ID: 380-121331-1
SDG: Weekly PFAS

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

Lab Sample ID: 380-121296-B-1-A MSD

Matrix: Water

Analysis Batch: 118209

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 118122

Isotope Dilution	MSD MSD		Limits
	%Recovery	Qualifier	
13C2-4:2-FTS	221	*5+	50 - 200
13C2-6:2-FTS	200		50 - 200
13C2-8:2-FTS	190		50 - 200

Lab Sample ID: 380-121296-C-1-A MS

Matrix: Water

Analysis Batch: 118209

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 118122

Analyte	Sample	Sample	Spike	MS MS		Unit	D	%Rec	%Rec	Limits
	Result	Qualifier		Added	Result					
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0	F2 F1	60.0	59.6		ng/L		99	70 - 130	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0	F2 F1	60.0	56.5		ng/L		94	70 - 130	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0	F2 F1	60.0	54.8		ng/L		91	70 - 130	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0	F2 F1	60.0	57.1		ng/L		95	70 - 130	
Perfluorobutanesulfonic acid (PFBS)	<2.0	F2 F1	60.0	58.2		ng/L		97	70 - 130	
Perfluorodecanoic acid (PFDA)	<2.0	F2 F1	60.0	59.6		ng/L		99	70 - 130	
Perfluorododecanoic acid (PFDoA)	<2.0	F2 F1	60.0	59.3		ng/L		99	70 - 130	
Perfluoroheptanoic acid (PFHpA)	<2.0	F2 F1	60.0	57.4		ng/L		96	70 - 130	
Perfluorohexanesulfonic acid (PFHxS)	<2.0	F2 F1	60.0	56.1		ng/L		94	70 - 130	
Perfluorohexanoic acid (PFHxA)	<2.0	F2 F1	60.0	60.3		ng/L		100	70 - 130	
Perfluorononanoic acid (PFNA)	<2.0	F2 F1	60.0	58.7		ng/L		98	70 - 130	
Perfluorooctanesulfonic acid (PFOS)	<2.0	F2 F1	60.0	57.8		ng/L		96	70 - 130	
Perfluorooctanoic acid (PFOA)	<2.0	F2 F1	60.0	56.3		ng/L		94	70 - 130	
Perfluoroundecanoic acid (PFUnA)	<2.0	F2 F1	60.0	60.5		ng/L		101	70 - 130	
Perfluorobutanoic acid (PFBA)	<2.0	F2 F1	60.0	60.9		ng/L		102	70 - 130	
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0	F2 F1	60.0	62.1		ng/L		104	70 - 130	
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0	F2 F1	60.0	61.2		ng/L		102	70 - 130	
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0	F2 F1	60.0	60.2		ng/L		100	70 - 130	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0	F2 F1	60.0	56.7		ng/L		94	70 - 130	
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0	F2 F1	60.0	61.1		ng/L		102	70 - 130	
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0	F2 F1	60.0	57.5		ng/L		96	70 - 130	
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0	F2 F1	60.0	56.0		ng/L		93	70 - 130	
Perfluoropentanoic acid (PFPeA)	<2.0	F2 F1	60.0	58.0		ng/L		97	70 - 130	
Perfluoroheptanesulfonic acid (PFHpS)	<2.0	F2 F1	60.0	58.7		ng/L		98	70 - 130	
Perfluoropentanesulfonic acid (PFPeS)	<2.0	F2 F1	60.0	54.6		ng/L		91	70 - 130	

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QC Sample Results

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

Job ID: 380-121331-1
SDG: Weekly PFAS

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

Isotope Dilution	MS MS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	77		50 - 200
13C6 PFDA	53		50 - 200
13C5 PFHxA	79		50 - 200
13C4 PFHpA	79		50 - 200
13C8 PFOA	71		50 - 200
13C9 PFNA	59		50 - 200
13C7 PFUnA	62		50 - 200
13C2 PFDoA	74		50 - 200
13C4 PFBA	82		50 - 200
13C5 PFPeA	85		50 - 200
13C3 PFBS	111		50 - 200
13C3 PFHxS	119		50 - 200
13C8 PFOS	110		50 - 200
13C2-4:2-FTS	106		50 - 200
13C2-6:2-FTS	99		50 - 200
13C2-8:2-FTS	98		50 - 200

Lab Sample ID: MBL 380-118470/20-A

Matrix: Water

Analysis Batch: 118563

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 118470

Analyte	MBL MBL		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		11/12/24 07:10	11/12/24 21:48	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		11/12/24 07:10	11/12/24 21:48	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		11/12/24 07:10	11/12/24 21:48	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		11/12/24 07:10	11/12/24 21:48	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		11/12/24 07:10	11/12/24 21:48	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		11/12/24 07:10	11/12/24 21:48	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		11/12/24 07:10	11/12/24 21:48	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		11/12/24 07:10	11/12/24 21:48	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		11/12/24 07:10	11/12/24 21:48	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		11/12/24 07:10	11/12/24 21:48	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		11/12/24 07:10	11/12/24 21:48	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		11/12/24 07:10	11/12/24 21:48	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		11/12/24 07:10	11/12/24 21:48	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		11/12/24 07:10	11/12/24 21:48	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		11/12/24 07:10	11/12/24 21:48	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		11/12/24 07:10	11/12/24 21:48	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		11/12/24 07:10	11/12/24 21:48	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		11/12/24 07:10	11/12/24 21:48	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		11/12/24 07:10	11/12/24 21:48	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0	ng/L		11/12/24 07:10	11/12/24 21:48	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		11/12/24 07:10	11/12/24 21:48	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		11/12/24 07:10	11/12/24 21:48	1

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QC Sample Results

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

Job ID: 380-121331-1
SDG: Weekly PFAS

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

Lab Sample ID: MBL 380-118470/20-A
Matrix: Water
Analysis Batch: 118563

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 118470

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		11/12/24 07:10	11/12/24 21:48	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		11/12/24 07:10	11/12/24 21:48	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		11/12/24 07:10	11/12/24 21:48	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	89		50 - 200	11/12/24 07:10	11/12/24 21:48	1
13C6 PFDA	109		50 - 200	11/12/24 07:10	11/12/24 21:48	1
13C5 PFHxA	108		50 - 200	11/12/24 07:10	11/12/24 21:48	1
13C4 PFHpA	113		50 - 200	11/12/24 07:10	11/12/24 21:48	1
13C8 PFOA	109		50 - 200	11/12/24 07:10	11/12/24 21:48	1
13C9 PFNA	107		50 - 200	11/12/24 07:10	11/12/24 21:48	1
13C7 PFUnA	108		50 - 200	11/12/24 07:10	11/12/24 21:48	1
13C2 PFDoA	107		50 - 200	11/12/24 07:10	11/12/24 21:48	1
13C4 PFBA	110		50 - 200	11/12/24 07:10	11/12/24 21:48	1
13C5 PFPeA	113		50 - 200	11/12/24 07:10	11/12/24 21:48	1
13C3 PFBS	105		50 - 200	11/12/24 07:10	11/12/24 21:48	1
13C3 PFHxS	109		50 - 200	11/12/24 07:10	11/12/24 21:48	1
13C8 PFOS	110		50 - 200	11/12/24 07:10	11/12/24 21:48	1
13C2-4:2-FTS	123		50 - 200	11/12/24 07:10	11/12/24 21:48	1
13C2-6:2-FTS	112		50 - 200	11/12/24 07:10	11/12/24 21:48	1
13C2-8:2-FTS	109		50 - 200	11/12/24 07:10	11/12/24 21:48	1

Lab Sample ID: LCS 380-118470/22-A
Matrix: Water
Analysis Batch: 118563

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 118470

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	60.2	59.4		ng/L		99	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.2	59.2		ng/L		98	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.2	60.7		ng/L		101	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.2	59.4		ng/L		99	70 - 130
Perfluorobutanesulfonic acid (PFBS)	60.2	59.4		ng/L		99	70 - 130
Perfluorodecanoic acid (PFDA)	60.2	60.8		ng/L		101	70 - 130
Perfluorododecanoic acid (PFDoA)	60.2	60.9		ng/L		101	70 - 130
Perfluoroheptanoic acid (PFHpA)	60.2	61.0		ng/L		101	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	60.2	60.8		ng/L		101	70 - 130
Perfluorohexanoic acid (PFHxA)	60.2	59.8		ng/L		99	70 - 130
Perfluorononanoic acid (PFNA)	60.2	61.9		ng/L		103	70 - 130
Perfluorooctanesulfonic acid (PFOS)	60.2	59.8		ng/L		99	70 - 130
Perfluorooctanoic acid (PFOA)	60.2	61.0		ng/L		101	70 - 130

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QC Sample Results

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

Job ID: 380-121331-1
SDG: Weekly PFAS

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

Lab Sample ID: LCS 380-118470/22-A
Matrix: Water
Analysis Batch: 118563

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 118470

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	60.2	60.8		ng/L		101	70 - 130
Perfluorobutanoic acid (PFBA)	60.2	59.4		ng/L		99	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.2	60.7		ng/L		101	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.2	62.7		ng/L		104	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.2	64.1		ng/L		106	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.2	58.8		ng/L		98	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	60.2	61.8		ng/L		103	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.2	58.8		ng/L		98	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.2	61.8		ng/L		103	70 - 130
Perfluoropentanoic acid (PFPeA)	60.2	62.1		ng/L		103	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	60.2	59.1		ng/L		98	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	60.2	59.4		ng/L		99	70 - 130

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	94		50 - 200
13C6 PFDA	114		50 - 200
13C5 PFHxA	112		50 - 200
13C4 PFHpA	115		50 - 200
13C8 PFOA	111		50 - 200
13C9 PFNA	111		50 - 200
13C7 PFUnA	116		50 - 200
13C2 PFDoA	117		50 - 200
13C4 PFBA	111		50 - 200
13C5 PFPeA	109		50 - 200
13C3 PFBS	108		50 - 200
13C3 PFHxS	111		50 - 200
13C8 PFOS	112		50 - 200
13C2-4:2-FTS	110		50 - 200
13C2-6:2-FTS	106		50 - 200
13C2-8:2-FTS	110		50 - 200

Lab Sample ID: MRL 380-118470/21-A
Matrix: Water
Analysis Batch: 118563

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 118470

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.01	2.04	J	ng/L		101	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.01	1.98	J	ng/L		98	50 - 150

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-121331-1
SDG: Weekly PFAS

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

Lab Sample ID: MRL 380-118470/21-A

Matrix: Water

Analysis Batch: 118563

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 118470

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.01	2.17	J	ng/L		108	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.01	1.92	J	ng/L		96	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.01	1.99	J	ng/L		99	50 - 150
Perfluorodecanoic acid (PFDA)	2.01	2.22	J	ng/L		110	50 - 150
Perfluorododecanoic acid (PFDoA)	2.01	2.01	J	ng/L		100	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.01	2.16	J	ng/L		108	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.01	2.10	J	ng/L		104	50 - 150
Perfluorohexanoic acid (PFHxA)	2.01	2.14	J	ng/L		107	50 - 150
Perfluorononanoic acid (PFNA)	2.01	2.24	J	ng/L		111	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.01	2.22	J	ng/L		110	50 - 150
Perfluorooctanoic acid (PFOA)	2.01	2.21	J	ng/L		110	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.01	2.16	J	ng/L		107	50 - 150
Perfluorobutanoic acid (PFBA)	2.01	2.03	J	ng/L		101	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.01	2.31	J	ng/L		115	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.01	2.28	J	ng/L		113	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.01	2.31	J	ng/L		115	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.01	2.31	J	ng/L		115	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.01	2.01	J	ng/L		100	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.01	2.01	J	ng/L		100	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.01	2.09	J	ng/L		104	50 - 150
Perfluoropentanoic acid (PFPeA)	2.01	2.16	J	ng/L		107	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.01	1.96	J	ng/L		98	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.01	2.02	J	ng/L		101	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	Limits
13C3 HFPO-DA	101		50 - 200
13C6 PFDA	106		50 - 200
13C5 PFHxA	110		50 - 200
13C4 PFHpA	109		50 - 200
13C8 PFOA	110		50 - 200
13C9 PFNA	105		50 - 200
13C7 PFUnA	106		50 - 200
13C2 PFDoA	109		50 - 200
13C4 PFBA	115		50 - 200
13C5 PFPeA	115		50 - 200
13C3 PFBS	110		50 - 200
13C3 PFHxS	110		50 - 200

QC Sample Results

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

Job ID: 380-121331-1
SDG: Weekly PFAS

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

Lab Sample ID: MRL 380-118470/21-A

Matrix: Water

Analysis Batch: 118563

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 118470

Isotope Dilution	MRL		Limits
	%Recovery	Qualifier	
13C8 PFOS	109		50 - 200
13C2-4:2-FTS	116		50 - 200
13C2-6:2-FTS	119		50 - 200
13C2-8:2-FTS	104		50 - 200

Lab Sample ID: 380-121447-E-1-A MS

Matrix: Water

Analysis Batch: 118563

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 118470

Analyte	Sample	Sample	Spike	MS		Unit	D	%Rec	%Rec	Limits
	Result	Qualifier		Result	Qualifier					
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.2	57.9		ng/L		96	70 - 130	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.2	58.8		ng/L		98	70 - 130	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.2	55.7		ng/L		93	70 - 130	
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	59.6		ng/L		98	70 - 130	
Perfluorodecanoic acid (PFDA)	<2.0		60.2	58.2		ng/L		97	70 - 130	
Perfluorododecanoic acid (PFDoA)	<2.0		60.2	61.3		ng/L		102	70 - 130	
Perfluoroheptanoic acid (PFHpA)	<2.0		60.2	59.8		ng/L		99	70 - 130	
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.2	58.7		ng/L		97	70 - 130	
Perfluorohexanoic acid (PFHxA)	<2.0		60.2	62.6		ng/L		103	70 - 130	
Perfluorononanoic acid (PFNA)	<2.0		60.2	58.4		ng/L		97	70 - 130	
Perfluorooctanesulfonic acid (PFOS)	<2.0		60.2	59.8		ng/L		98	70 - 130	
Perfluorooctanoic acid (PFOA)	<2.0		60.2	60.5		ng/L		99	70 - 130	
Perfluoroundecanoic acid (PFUnA)	<2.0		60.2	59.8		ng/L		99	70 - 130	
Perfluorobutanoic acid (PFBA)	<2.0		60.2	59.9		ng/L		97	70 - 130	
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.2	63.5		ng/L		105	70 - 130	
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.2	58.7		ng/L		97	70 - 130	
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.2	60.7		ng/L		101	70 - 130	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.2	62.2		ng/L		103	70 - 130	
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		60.2	63.4		ng/L		105	70 - 130	
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		60.2	68.8		ng/L		114	70 - 130	
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.2	59.7		ng/L		99	70 - 130	
Perfluoropentanoic acid (PFPeA)	<2.0		60.2	60.7		ng/L		100	70 - 130	
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.2	58.1		ng/L		96	70 - 130	

QC Sample Results

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

Job ID: 380-121331-1
SDG: Weekly PFAS

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

Lab Sample ID: 380-121447-E-1-A MS

Client Sample ID: Matrix Spike

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 118563

Prep Batch: 118470

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits	
	Result	Qualifier	Added	Result	Qualifier					
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.2	59.5		ng/L		99	70 - 130	
MS MS										
Isotope Dilution	%Recovery	Qualifier	Limits							
13C3 HFPO-DA	101		50 - 200							
13C6 PFDA	81		50 - 200							
13C5 PFHxA	106		50 - 200							
13C4 PFHpA	108		50 - 200							
13C8 PFOA	93		50 - 200							
13C9 PFNA	88		50 - 200							
13C7 PFUnA	84		50 - 200							
13C2 PFDoA	89		50 - 200							
13C4 PFBA	111		50 - 200							
13C5 PFPeA	147		50 - 200							
13C3 PFBS	107		50 - 200							
13C3 PFHxS	114		50 - 200							
13C8 PFOS	115		50 - 200							
13C2-4:2-FTS	122		50 - 200							
13C2-6:2-FTS	133		50 - 200							
13C2-8:2-FTS	116		50 - 200							

Lab Sample ID: 380-121447-F-1-A MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 118563

Prep Batch: 118470

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
	Result	Qualifier	Added	Result	Qualifier						
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.4	60.4		ng/L		100	70 - 130	4	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.4	58.3		ng/L		97	70 - 130	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.4	59.0		ng/L		98	70 - 130	6	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		60.4	58.3		ng/L		97	70 - 130	4	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		60.4	58.9		ng/L		97	70 - 130	1	30
Perfluorodecanoic acid (PFDA)	<2.0		60.4	60.9		ng/L		101	70 - 130	4	30
Perfluorododecanoic acid (PFDoA)	<2.0		60.4	60.2		ng/L		100	70 - 130	2	30
Perfluoroheptanoic acid (PFHpA)	<2.0		60.4	63.3		ng/L		105	70 - 130	6	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.4	58.6		ng/L		97	70 - 130	0	30
Perfluorohexanoic acid (PFHxA)	<2.0		60.4	61.7		ng/L		101	70 - 130	1	30
Perfluorononanoic acid (PFNA)	<2.0		60.4	58.9		ng/L		98	70 - 130	1	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		60.4	59.0		ng/L		97	70 - 130	1	30
Perfluorooctanoic acid (PFOA)	<2.0		60.4	58.2		ng/L		95	70 - 130	4	30
Perfluoroundecanoic acid (PFUnA)	<2.0		60.4	59.0		ng/L		98	70 - 130	1	30
Perfluorobutanoic acid (PFBA)	<2.0		60.4	58.8		ng/L		95	70 - 130	2	30

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-121331-1
SDG: Weekly PFAS

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

Lab Sample ID: 380-121447-F-1-A MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 118563

Prep Batch: 118470

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.4	62.1		ng/L		103	70 - 130	2	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.4	54.5		ng/L		90	70 - 130	7	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.4	62.1		ng/L		103	70 - 130	2	30
Nonafluoro-3,6-dioxahexanoic acid (NFDHA)	<2.0		60.4	63.0		ng/L		104	70 - 130	1	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		60.4	63.6		ng/L		105	70 - 130	0	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		60.4	68.2		ng/L		113	70 - 130	1	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.4	59.4		ng/L		98	70 - 130	0	30
Perfluoropentanoic acid (PFPeA)	<2.0		60.4	61.8		ng/L		101	70 - 130	2	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.4	57.9		ng/L		96	70 - 130	0	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.4	55.3		ng/L		92	70 - 130	7	30

Isotope Dilution	MSD	MSD	Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	104		50 - 200
13C6 PFDA	81		50 - 200
13C5 PFHxA	102		50 - 200
13C4 PFHpA	102		50 - 200
13C8 PFOA	97		50 - 200
13C9 PFNA	87		50 - 200
13C7 PFUnA	87		50 - 200
13C2 PFDoA	91		50 - 200
13C4 PFBA	110		50 - 200
13C5 PFPeA	141		50 - 200
13C3 PFBS	106		50 - 200
13C3 PFHxS	112		50 - 200
13C8 PFOS	112		50 - 200
13C2-4:2-FTS	123		50 - 200
13C2-6:2-FTS	131		50 - 200
13C2-8:2-FTS	119		50 - 200

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

Lab Sample ID: MBL 380-118199/20-A

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 118296

Prep Batch: 118199

Analyte	MBL	MBL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		11/10/24 16:00	11/11/24 16:09	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		11/10/24 16:00	11/11/24 16:09	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		11/10/24 16:00	11/11/24 16:09	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.58		2.0	ng/L		11/10/24 16:00	11/11/24 16:09	1

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-121331-1
SDG: Weekly PFAS

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

Lab Sample ID: MBL 380-118199/20-A

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 118296

Prep Batch: 118199

Analyte	MBL	MBL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.42		2.0	ng/L		11/10/24 16:00	11/11/24 16:09	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		11/10/24 16:00	11/11/24 16:09	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		11/10/24 16:00	11/11/24 16:09	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		11/10/24 16:00	11/11/24 16:09	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		11/10/24 16:00	11/11/24 16:09	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		11/10/24 16:00	11/11/24 16:09	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		11/10/24 16:00	11/11/24 16:09	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		11/10/24 16:00	11/11/24 16:09	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		11/10/24 16:00	11/11/24 16:09	1
Perfluorotetradecanoic acid (PFTA)	<0.54		2.0	ng/L		11/10/24 16:00	11/11/24 16:09	1
Perfluorotridecanoic acid (PFTTrDA)	<0.36		2.0	ng/L		11/10/24 16:00	11/11/24 16:09	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<0.30		2.0	ng/L		11/10/24 16:00	11/11/24 16:09	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		11/10/24 16:00	11/11/24 16:09	1
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		11/10/24 16:00	11/11/24 16:09	1

Surrogate	MBL	MBL	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
d5-NEtFOSAA	110		70 - 130	11/10/24 16:00	11/11/24 16:09	1
13C2 PFHxA	112		70 - 130	11/10/24 16:00	11/11/24 16:09	1
13C2 PFDA	108		70 - 130	11/10/24 16:00	11/11/24 16:09	1
13C3-GenX	107		70 - 130	11/10/24 16:00	11/11/24 16:09	1

Lab Sample ID: LCS 380-118199/22-A

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 118296

Prep Batch: 118199

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonic acid (PFOS)	50.0	55.6		ng/L		111	70 - 130
Perfluoroundecanoic acid (PFUnA)	50.0	53.0		ng/L		106	70 - 130
N-methylperfluorooctanesulfonamideacetic acid (NMeFOSAA)	50.0	54.9		ng/L		110	70 - 130
N-ethylperfluorooctanesulfonamideacetic acid (NEtFOSAA)	50.0	55.4		ng/L		111	70 - 130
Perfluorohexanoic acid (PFHxA)	50.0	54.6		ng/L		109	70 - 130
Perfluorododecanoic acid (PFDoA)	50.0	52.2		ng/L		104	70 - 130
Perfluorooctanoic acid (PFOA)	50.0	53.9		ng/L		108	70 - 130
Perfluorodecanoic acid (PFDA)	50.0	54.7		ng/L		109	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	50.0	56.1		ng/L		112	70 - 130
Perfluorobutanesulfonic acid (PFBS)	50.0	53.0		ng/L		106	70 - 130
Perfluoroheptanoic acid (PFHpA)	50.0	56.3		ng/L		113	70 - 130
Perfluorononanoic acid (PFNA)	50.0	53.1		ng/L		106	70 - 130

QC Sample Results

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

Job ID: 380-121331-1
SDG: Weekly PFAS

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

Lab Sample ID: LCS 380-118199/22-A

Matrix: Water

Analysis Batch: 118296

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 118199

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorotetradecanoic acid (PFTA)	50.0	47.6		ng/L		95	70 - 130
Perfluorotridecanoic acid (PFTrDA)	50.0	53.6		ng/L		107	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	50.0	53.4		ng/L		107	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	50.0	54.4		ng/L		109	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	50.0	54.8		ng/L		110	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
d5-NEtFOSAA	102		70 - 130
13C2 PFHxA	106		70 - 130
13C2 PFDA	101		70 - 130
13C3-GenX	104		70 - 130

Lab Sample ID: MRL 380-118199/21-A

Matrix: Water

Analysis Batch: 118296

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 118199

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	2.07	J	ng/L		103	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	2.18	J	ng/L		109	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.26	J	ng/L		113	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	2.23	J	ng/L		111	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.39	J	ng/L		119	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.42	J	ng/L		121	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.14	J	ng/L		107	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.30	J	ng/L		115	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.37	J	ng/L		118	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	2.25	J	ng/L		112	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	2.11	J	ng/L		105	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.39	J	ng/L		119	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.33	J	ng/L		116	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.00	2.10	J	ng/L		105	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.00	2.25	J	ng/L		112	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	2.15	J	ng/L		107	50 - 150

QC Sample Results

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

Job ID: 380-121331-1
SDG: Weekly PFAS

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

Lab Sample ID: MRL 380-118199/21-A

Matrix: Water

Analysis Batch: 118296

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 118199

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	2.05	J	ng/L		102	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	2.28	J	ng/L		114	50 - 150
Surrogate	MRL %Recovery	MRL Qualifier	Limits				
d5-NEtFOSAA	109		70 - 130				
13C2 PFHxA	107		70 - 130				
13C2 PFDA	108		70 - 130				
13C3-GenX	107		70 - 130				

Lab Sample ID: 380-121331-1 MS

Matrix: Water

Analysis Batch: 118296

Client Sample ID: HALAWA SHAFT VIEWING POOL

Prep Type: Total/NA

Prep Batch: 118199

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		25.1	26.5		ng/L		106	70 - 130
Perfluorooctanesulfonic acid (PFOS)	3.8		25.1	31.8		ng/L		112	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		25.1	28.1		ng/L		112	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.1	27.3		ng/L		109	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		25.1	28.8		ng/L		115	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		25.1	28.8		ng/L		109	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		25.1	26.9		ng/L		107	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		25.1	29.4		ng/L		112	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		25.1	28.2		ng/L		113	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	4.1		25.1	31.9		ng/L		111	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		25.1	29.2		ng/L		115	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		25.1	29.3		ng/L		114	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		25.1	28.1		ng/L		112	70 - 130
Perfluorotetradecanoic acid (PFTA)	<2.0		25.1	27.9		ng/L		111	70 - 130
Perfluorotridecanoic acid (PFTrDA)	<2.0		25.1	28.6		ng/L		114	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		25.1	27.6		ng/L		110	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		25.1	26.9		ng/L		107	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		25.1	28.1		ng/L		112	70 - 130

QC Sample Results

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

Job ID: 380-121331-1
SDG: Weekly PFAS

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

Lab Sample ID: 380-121331-1 MS

Matrix: Water

Analysis Batch: 118296

Client Sample ID: HALAWA SHAFT VIEWING POOL

Prep Type: Total/NA

Prep Batch: 118199

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
d5-NEtFOSAA	102		70 - 130
13C2 PFHxA	106		70 - 130
13C2 PFDA	104		70 - 130
13C3-GenX	108		70 - 130

Lab Sample ID: 380-121331-1 MSD

Matrix: Water

Analysis Batch: 118296

Client Sample ID: HALAWA SHAFT VIEWING POOL

Prep Type: Total/NA

Prep Batch: 118199

Analyte	Sample	Sample	Spike	MSD		Unit	D	%Rec	%Rec		RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD		
Hexafluoropropylene Oxide	<2.0		25.1	26.6		ng/L		106	70 - 130	0	30	
Dimer Acid (HFPO-DA/GenX)												
Perfluorooctanesulfonic acid (PFOS)	3.8		25.1	32.4		ng/L		114	70 - 130	2	30	
Perfluoroundecanoic acid (PFUnA)	<2.0		25.1	27.4		ng/L		109	70 - 130	2	30	
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.1	26.6		ng/L		106	70 - 130	3	30	
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		25.1	27.0		ng/L		108	70 - 130	6	30	
Perfluorohexanoic acid (PFHxA)	<2.0		25.1	29.6		ng/L		112	70 - 130	3	30	
Perfluorododecanoic acid (PFDoA)	<2.0		25.1	26.5		ng/L		105	70 - 130	2	30	
Perfluorooctanoic acid (PFOA)	<2.0		25.1	29.2		ng/L		111	70 - 130	1	30	
Perfluorodecanoic acid (PFDA)	<2.0		25.1	29.3		ng/L		117	70 - 130	4	30	
Perfluorohexanesulfonic acid (PFHxS)	4.1		25.1	33.0		ng/L		115	70 - 130	3	30	
Perfluorobutanesulfonic acid (PFBS)	<2.0		25.1	29.7		ng/L		116	70 - 130	2	30	
Perfluoroheptanoic acid (PFHpA)	<2.0		25.1	30.2		ng/L		118	70 - 130	3	30	
Perfluorononanoic acid (PFNA)	<2.0		25.1	28.4		ng/L		113	70 - 130	1	30	
Perfluorotetradecanoic acid (PFTA)	<2.0		25.1	27.5		ng/L		110	70 - 130	1	30	
Perfluorotridecanoic acid (PFTrDA)	<2.0		25.1	28.0		ng/L		111	70 - 130	2	30	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		25.1	28.4		ng/L		113	70 - 130	3	30	
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		25.1	29.0		ng/L		116	70 - 130	8	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		25.1	28.1		ng/L		112	70 - 130	0	30	

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
d5-NEtFOSAA	97		70 - 130
13C2 PFHxA	108		70 - 130
13C2 PFDA	108		70 - 130
13C3-GenX	103		70 - 130

QC Association Summary

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

Job ID: 380-121331-1
 SDG: Weekly PFAS

LCMS

Prep Batch: 118122

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-121331-2	FB: HALAWA SHAFT VIEWING POOL	Total/NA	Water	533	
MBL 380-118122/22-A	Method Blank	Total/NA	Water	533	
LCS 380-118122/24-A	Lab Control Sample	Total/NA	Water	533	
MRL 380-118122/23-A	Lab Control Sample	Total/NA	Water	533	
380-121296-B-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	
380-121296-C-1-A MS	Matrix Spike	Total/NA	Water	533	

Prep Batch: 118199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-121331-1	HALAWA SHAFT VIEWING POOL	Total/NA	Water	537.1 DW	
380-121331-2	FB: HALAWA SHAFT VIEWING POOL	Total/NA	Water	537.1 DW	
MBL 380-118199/20-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-118199/22-A	Lab Control Sample	Total/NA	Water	537.1 DW	
MRL 380-118199/21-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-121331-1 MS	HALAWA SHAFT VIEWING POOL	Total/NA	Water	537.1 DW	
380-121331-1 MSD	HALAWA SHAFT VIEWING POOL	Total/NA	Water	537.1 DW	

Analysis Batch: 118209

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-121331-2	FB: HALAWA SHAFT VIEWING POOL	Total/NA	Water	533	118122
MBL 380-118122/22-A	Method Blank	Total/NA	Water	533	118122
LCS 380-118122/24-A	Lab Control Sample	Total/NA	Water	533	118122
MRL 380-118122/23-A	Lab Control Sample	Total/NA	Water	533	118122
380-121296-B-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	118122
380-121296-C-1-A MS	Matrix Spike	Total/NA	Water	533	118122

Analysis Batch: 118296

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-121331-1	HALAWA SHAFT VIEWING POOL	Total/NA	Water	537.1	118199
380-121331-2	FB: HALAWA SHAFT VIEWING POOL	Total/NA	Water	537.1	118199
MBL 380-118199/20-A	Method Blank	Total/NA	Water	537.1	118199
LCS 380-118199/22-A	Lab Control Sample	Total/NA	Water	537.1	118199
MRL 380-118199/21-A	Lab Control Sample	Total/NA	Water	537.1	118199
380-121331-1 MS	HALAWA SHAFT VIEWING POOL	Total/NA	Water	537.1	118199
380-121331-1 MSD	HALAWA SHAFT VIEWING POOL	Total/NA	Water	537.1	118199

Prep Batch: 118470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-121331-1	HALAWA SHAFT VIEWING POOL	Total/NA	Water	533	
MBL 380-118470/20-A	Method Blank	Total/NA	Water	533	
LCS 380-118470/22-A	Lab Control Sample	Total/NA	Water	533	
MRL 380-118470/21-A	Lab Control Sample	Total/NA	Water	533	
380-121447-E-1-A MS	Matrix Spike	Total/NA	Water	533	
380-121447-F-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	

Analysis Batch: 118563

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-121331-1	HALAWA SHAFT VIEWING POOL	Total/NA	Water	533	118470
MBL 380-118470/20-A	Method Blank	Total/NA	Water	533	118470
LCS 380-118470/22-A	Lab Control Sample	Total/NA	Water	533	118470
MRL 380-118470/21-A	Lab Control Sample	Total/NA	Water	533	118470

QC Association Summary

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

Job ID: 380-121331-1
SDG: Weekly PFAS

LCMS (Continued)

Analysis Batch: 118563 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-121447-E-1-A MS	Matrix Spike	Total/NA	Water	533	118470
380-121447-F-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	118470

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Lab Chronicle

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

Job ID: 380-121331-1
 SDG: Weekly PFAS

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-121331-1

Date Collected: 11/06/24 10:30

Matrix: Water

Date Received: 11/08/24 10:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			118470	XTD8	EA POM	11/12/24 07:10
Total/NA	Analysis	533		1	118563	SZ9R	EA POM	11/13/24 00:56
Total/NA	Prep	537.1 DW			118199	N8NE	EA POM	11/10/24 16:00
Total/NA	Analysis	537.1		1	118296	M7ML	EA POM	11/11/24 16:39

Client Sample ID: FB: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-121331-2

Date Collected: 11/06/24 10:30

Matrix: Water

Date Received: 11/08/24 10:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			118122	E9PK	EA POM	11/08/24 16:19
Total/NA	Analysis	533		1	118209	SZ9R	EA POM	11/10/24 21:21
Total/NA	Prep	537.1 DW			118199	N8NE	EA POM	11/10/24 16:00
Total/NA	Analysis	537.1		1	118296	M7ML	EA POM	11/11/24 20:06

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: 380-121331-1
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

- 1
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Method Summary

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

Job ID: 380-121331-1
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: 380-121331-1
SDG: Weekly PFAS

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
380-121331-1	HALAWA SHAFT VIEWING POOL	Water	11/06/24 10:30	11/08/24 10:10
380-121331-2	FB: HALAWA SHAFT VIEWING POOL	Water	11/06/24 10:30	11/08/24 10:10

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Chain of Custody Record

Client Information	Lab PM Arada, Rachelle	Carrier Tracking No(s): 380-28005-2757 1	COC No: 380-28005-2757 1
Client Contact: Dr Ron Fenstemacher	Phone: 808-748-5840	State of Origin: HI	Pages: Page 1 of 1
Company: City & County of Honolulu	PWSID:	Job #:	
Address: 630 South Beretania Street Chemistry Lab	Due Date Requested:	Analysis Requested	
City: Honolulu	TAT Requested (days):		
State Zip: HI, 96843	Compliance Project: Δ Yes Δ No	Total Number of Containers	
Phone: 808-748-5091 (Tel)	PO #: C20525101 exp 06312023		
Email: RFENSTEMACHER@hbws.org	WO #:		
Project Name: RED-HILL/HBWS Sites Event Desc: RUSH Weekly Red Hill	Project #: 38001111	Preservation Codes: R - NaThioSO4 RA - NaThio/HCl Q - Na2S03 QA - Na2S03/HCl Y - Trizmp I - NH4	
Site: Hawaii	SSOW#:	Other: 380-121331 COC	
Sample Identification	Sample Date	Sample Time	Sample Matrix (W=water, S=soil, O=sewage, B=air)
Halawa Shaft Viewing Pool	11/6/24	1030	Water
FB Halawa Shaft Viewing Pool	11/6/24	1030	Water

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological

Deliverable Requested 1, II, III, IV, Other (specify)

Empty Kit Relinquished by
 Relinquished by _____ Date: _____
 Relinquished by _____ Date: _____
 Relinquished by _____ Date: _____

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements:

Method of Shipment: 798 206 410/431
 Date/Time: 11/18/24 10:10
 Company: [Signature] Company

Received by:
 Date/Time: _____ Company: _____
 Date/Time: _____ Company: _____
 Date/Time: _____ Company: _____

Cooler Temperature(s) °C and Other Remarks:
 6.8/8.2/2.6/2.2/2.0
 3.1/4.0/2.0

Ver 04/02/2024

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-121331-1

SDG Number: Weekly PFAS

Login Number: 121331

List Number: 1

Creator: Edrosa, Rey

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").	True	
CIO4 headspace requirement met (>50% for CA, >30% for other states).	N/A	
Samples do not require splitting or compositing.	True	
Container provided by EEA	True	

