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ANALYTICAL REPORT

PREPARED FOR

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City & County of Honolulu
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Generated 8/6/2024 11:13:12 AM

JOB DESCRIPTION

RED-HILL
PFAS
RUSH Weekly Red Hill

JOB NUMBER

380-106526-1

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: 380-106526-1
SDG: PFAS

Qualifiers

LCMS

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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: 380-106526-1

Job ID: 380-106526-1

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Job Narrative 380-106526-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The samples were received on 7/31/2024 9:52 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 3.4°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: 380-106526-1
SDG: PFAS

Client Sample ID: MOANALUA WELLS (331-223-TP202)
PWSID Number: HI0000331

Lab Sample ID: 380-106526-1

No Detections.

Client Sample ID: AIEA GULCH WELLS PUMP 2 (331-202-TP072)
PWSID Number: HI0000331

Lab Sample ID: 380-106526-2

No Detections.

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)
PWSID Number: HI0000331

Lab Sample ID: 380-106526-3

No Detections.

Client Sample ID: HALAWA WELLS UNITS 1 & 2 (331-206-TP065)
PWSID Number: HI0000331

Lab Sample ID: 380-106526-4

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	2.5		2.0	ng/L	1		533	Total/NA
Perfluorohexanoic acid (PFHxA)	2.2		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.2		2.0	ng/L	1		533	Total/NA
Perfluorooctanoic acid (PFOA)	2.0		2.0	ng/L	1		533	Total/NA
Perfluoropentanoic acid (PFPeA)	2.8		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.5		2.0	ng/L	1		537.1	Total/NA
Perfluorohexanoic acid (PFHxA)	2.2		2.0	ng/L	1		537.1	Total/NA
Perfluorooctanoic acid (PFOA)	2.1		2.0	ng/L	1		537.1	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.8		2.0	ng/L	1		537.1	Total/NA

Client Sample ID: FB: MOANALUA WELLS (331-223-TP202)

Lab Sample ID: 380-106526-5

No Detections.

Client Sample ID: FB: AIEA GULCH WELLS PUMP 2 (331-202-TP072)

Lab Sample ID: 380-106526-6

No Detections.

Client Sample ID: FB: AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)

Lab Sample ID: 380-106526-7

No Detections.

Client Sample ID: FB: HALAWA WELLS UNITS 1 & 2 (331-206-TP065)

Lab Sample ID: 380-106526-8

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: 380-106526-1
SDG: PFAS

Client Sample ID: MOANALUA WELLS (331-223-TP202)

Lab Sample ID: 380-106526-1

Date Collected: 07/29/24 09:55

Matrix: Drinking Water

Date Received: 07/31/24 09:52

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:08	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:08	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:08	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:08	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:08	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:08	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:08	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:08	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:08	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:08	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:08	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:08	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:08	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:08	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:08	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:08	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:08	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:08	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:08	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:08	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:08	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:08	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:08	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:08	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:08	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	84		50 - 200	08/01/24 12:36	08/02/24 15:08	1
13C6 PFDA	79		50 - 200	08/01/24 12:36	08/02/24 15:08	1
13C5 PFHxA	88		50 - 200	08/01/24 12:36	08/02/24 15:08	1
13C4 PFHpA	91		50 - 200	08/01/24 12:36	08/02/24 15:08	1
13C8 PFOA	84		50 - 200	08/01/24 12:36	08/02/24 15:08	1
13C9 PFNA	82		50 - 200	08/01/24 12:36	08/02/24 15:08	1
13C7 PFUnA	80		50 - 200	08/01/24 12:36	08/02/24 15:08	1
13C2 PFDoA	84		50 - 200	08/01/24 12:36	08/02/24 15:08	1
13C4 PFBA	98		50 - 200	08/01/24 12:36	08/02/24 15:08	1
13C5 PFPeA	99		50 - 200	08/01/24 12:36	08/02/24 15:08	1
13C3 PFBS	110		50 - 200	08/01/24 12:36	08/02/24 15:08	1
13C3 PFHxS	109		50 - 200	08/01/24 12:36	08/02/24 15:08	1
13C8 PFOS	106		50 - 200	08/01/24 12:36	08/02/24 15:08	1

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Client Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

Client Sample ID: MOANALUA WELLS (331-223-TP202)

Lab Sample ID: 380-106526-1

Date Collected: 07/29/24 09:55

Matrix: Drinking Water

Date Received: 07/31/24 09:52

PWSID Number: HI0000331

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2-4:2-FTS	125		50 - 200	08/01/24 12:36	08/02/24 15:08	1
13C2-6:2-FTS	131		50 - 200	08/01/24 12:36	08/02/24 15:08	1
13C2-8:2-FTS	107		50 - 200	08/01/24 12:36	08/02/24 15:08	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		08/01/24 08:54	08/01/24 19:38	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:38	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:38	1
N-methylperfluorooctanesulfonamideacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:38	1
N-ethylperfluorooctanesulfonamideacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:38	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:38	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:38	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:38	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:38	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:38	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:38	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:38	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:38	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:38	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:38	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:38	1
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:38	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:38	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	118		70 - 130			08/01/24 08:54	08/01/24 19:38	1
13C2 PFHxA	107		70 - 130			08/01/24 08:54	08/01/24 19:38	1
13C2 PFDA	106		70 - 130			08/01/24 08:54	08/01/24 19:38	1
13C3-GenX	104		70 - 130			08/01/24 08:54	08/01/24 19:38	1

Client Sample ID: AIEA GULCH WELLS PUMP 2 (331-202-TP072)

Lab Sample ID: 380-106526-2

Date Collected: 07/29/24 10:51

Matrix: Drinking Water

Date Received: 07/31/24 09:52

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:17	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:17	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:17	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:17	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:17	1

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Client Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

**Client Sample ID: AIEA GULCH WELLS PUMP 2
(331-202-TP072)**

Lab Sample ID: 380-106526-2

Date Collected: 07/29/24 10:51

Matrix: Drinking Water

Date Received: 07/31/24 09:52

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:17	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:17	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:17	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:17	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:17	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:17	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:17	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:17	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:17	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:17	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:17	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:17	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:17	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:17	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:17	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:17	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:17	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:17	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:17	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:17	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	85		50 - 200	08/01/24 12:36	08/02/24 15:17	1
13C6 PFDA	87		50 - 200	08/01/24 12:36	08/02/24 15:17	1
13C5 PFHxA	89		50 - 200	08/01/24 12:36	08/02/24 15:17	1
13C4 PFHpA	90		50 - 200	08/01/24 12:36	08/02/24 15:17	1
13C8 PFOA	88		50 - 200	08/01/24 12:36	08/02/24 15:17	1
13C9 PFNA	89		50 - 200	08/01/24 12:36	08/02/24 15:17	1
13C7 PFUnA	87		50 - 200	08/01/24 12:36	08/02/24 15:17	1
13C2 PFDoA	86		50 - 200	08/01/24 12:36	08/02/24 15:17	1
13C4 PFBA	99		50 - 200	08/01/24 12:36	08/02/24 15:17	1
13C5 PFPeA	98		50 - 200	08/01/24 12:36	08/02/24 15:17	1
13C3 PFBS	118		50 - 200	08/01/24 12:36	08/02/24 15:17	1
13C3 PFHxS	113		50 - 200	08/01/24 12:36	08/02/24 15:17	1
13C8 PFOS	111		50 - 200	08/01/24 12:36	08/02/24 15:17	1
13C2-4:2-FTS	138		50 - 200	08/01/24 12:36	08/02/24 15:17	1
13C2-6:2-FTS	132		50 - 200	08/01/24 12:36	08/02/24 15:17	1
13C2-8:2-FTS	112		50 - 200	08/01/24 12:36	08/02/24 15:17	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		08/01/24 08:54	08/01/24 19:48	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

**Client Sample ID: AIEA GULCH WELLS PUMP 2
(331-202-TP072)**

Lab Sample ID: 380-106526-2

Date Collected: 07/29/24 10:51

Matrix: Drinking Water

Date Received: 07/31/24 09:52

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:48	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:48	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:48	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:48	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:48	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:48	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:48	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:48	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:48	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:48	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:48	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:48	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:48	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:48	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:48	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:48	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:48	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	114		70 - 130			08/01/24 08:54	08/01/24 19:48	1
13C2 PFHxA	102		70 - 130			08/01/24 08:54	08/01/24 19:48	1
13C2 PFDA	98		70 - 130			08/01/24 08:54	08/01/24 19:48	1
13C3-GenX	93		70 - 130			08/01/24 08:54	08/01/24 19:48	1

**Client Sample ID: AIEA WELLS PUMPS 1&2 (260)
(331-203-TP400)**

Lab Sample ID: 380-106526-3

Date Collected: 07/29/24 11:14

Matrix: Drinking Water

Date Received: 07/31/24 09:52

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/01/24 12:42	08/02/24 16:44	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/01/24 12:42	08/02/24 16:44	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/01/24 12:42	08/02/24 16:44	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		08/01/24 12:42	08/02/24 16:44	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/01/24 12:42	08/02/24 16:44	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/01/24 12:42	08/02/24 16:44	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/01/24 12:42	08/02/24 16:44	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/01/24 12:42	08/02/24 16:44	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/01/24 12:42	08/02/24 16:44	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/01/24 12:42	08/02/24 16:44	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/01/24 12:42	08/02/24 16:44	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

Client Sample ID: AIEA WELLS PUMPS 1&2 (260)
(331-203-TP400)

Lab Sample ID: 380-106526-3

Date Collected: 07/29/24 11:14

Matrix: Drinking Water

Date Received: 07/31/24 09:52

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/01/24 12:42	08/02/24 16:44	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/01/24 12:42	08/02/24 16:44	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/01/24 12:42	08/02/24 16:44	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		08/01/24 12:42	08/02/24 16:44	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		08/01/24 12:42	08/02/24 16:44	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		08/01/24 12:42	08/02/24 16:44	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		08/01/24 12:42	08/02/24 16:44	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		08/01/24 12:42	08/02/24 16:44	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		08/01/24 12:42	08/02/24 16:44	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		08/01/24 12:42	08/02/24 16:44	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		08/01/24 12:42	08/02/24 16:44	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		08/01/24 12:42	08/02/24 16:44	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		08/01/24 12:42	08/02/24 16:44	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		08/01/24 12:42	08/02/24 16:44	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	79		50 - 200			08/01/24 12:42	08/02/24 16:44	1
13C6 PFDA	86		50 - 200			08/01/24 12:42	08/02/24 16:44	1
13C5 PFHxA	79		50 - 200			08/01/24 12:42	08/02/24 16:44	1
13C4 PFHpA	83		50 - 200			08/01/24 12:42	08/02/24 16:44	1
13C8 PFOA	80		50 - 200			08/01/24 12:42	08/02/24 16:44	1
13C9 PFNA	82		50 - 200			08/01/24 12:42	08/02/24 16:44	1
13C7 PFUnA	87		50 - 200			08/01/24 12:42	08/02/24 16:44	1
13C2 PFDoA	96		50 - 200			08/01/24 12:42	08/02/24 16:44	1
13C4 PFBA	96		50 - 200			08/01/24 12:42	08/02/24 16:44	1
13C5 PFPeA	96		50 - 200			08/01/24 12:42	08/02/24 16:44	1
13C3 PFBS	95		50 - 200			08/01/24 12:42	08/02/24 16:44	1
13C3 PFHxS	103		50 - 200			08/01/24 12:42	08/02/24 16:44	1
13C8 PFOS	104		50 - 200			08/01/24 12:42	08/02/24 16:44	1
13C2-4:2-FTS	114		50 - 200			08/01/24 12:42	08/02/24 16:44	1
13C2-6:2-FTS	112		50 - 200			08/01/24 12:42	08/02/24 16:44	1
13C2-8:2-FTS	105		50 - 200			08/01/24 12:42	08/02/24 16:44	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		08/01/24 08:54	08/01/24 19:59	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:59	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:59	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:59	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:59	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

Client Sample ID: AIEA WELLS PUMPS 1&2 (260)
(331-203-TP400)

Lab Sample ID: 380-106526-3

Date Collected: 07/29/24 11:14

Matrix: Drinking Water

Date Received: 07/31/24 09:52

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:59	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:59	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:59	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:59	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:59	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:59	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:59	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:59	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:59	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:59	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:59	1
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:59	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 19:59	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	113		70 - 130			08/01/24 08:54	08/01/24 19:59	1
13C2 PFHxA	101		70 - 130			08/01/24 08:54	08/01/24 19:59	1
13C2 PFDA	99		70 - 130			08/01/24 08:54	08/01/24 19:59	1
13C3-GenX	95		70 - 130			08/01/24 08:54	08/01/24 19:59	1

Client Sample ID: HALAWA WELLS UNITS 1 & 2
(331-206-TP065)

Lab Sample ID: 380-106526-4

Date Collected: 07/29/24 10:27

Matrix: Drinking Water

Date Received: 07/31/24 09:52

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:27	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:27	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:27	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:27	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:27	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:27	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:27	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:27	1
Perfluorohexanesulfonic acid (PFHxS)	2.5		2.0	ng/L		08/01/24 12:36	08/02/24 15:27	1
Perfluorohexanoic acid (PFHxA)	2.2		2.0	ng/L		08/01/24 12:36	08/02/24 15:27	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:27	1
Perfluorooctanesulfonic acid (PFOS)	2.2		2.0	ng/L		08/01/24 12:36	08/02/24 15:27	1
Perfluorooctanoic acid (PFOA)	2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:27	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:27	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:27	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

**Client Sample ID: HALAWA WELLS UNITS 1 & 2
(331-206-TP065)**

Lab Sample ID: 380-106526-4

Date Collected: 07/29/24 10:27

Matrix: Drinking Water

Date Received: 07/31/24 09:52

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:27	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:27	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:27	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:27	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:27	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:27	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:27	1
Perfluoropentanoic acid (PFPeA)	2.8		2.0	ng/L		08/01/24 12:36	08/02/24 15:27	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:27	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:27	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	99		50 - 200	08/01/24 12:36	08/02/24 15:27	1
13C6 PFDA	96		50 - 200	08/01/24 12:36	08/02/24 15:27	1
13C5 PFHxA	96		50 - 200	08/01/24 12:36	08/02/24 15:27	1
13C4 PFHpA	103		50 - 200	08/01/24 12:36	08/02/24 15:27	1
13C8 PFOA	96		50 - 200	08/01/24 12:36	08/02/24 15:27	1
13C9 PFNA	101		50 - 200	08/01/24 12:36	08/02/24 15:27	1
13C7 PFUnA	91		50 - 200	08/01/24 12:36	08/02/24 15:27	1
13C2 PFDoA	90		50 - 200	08/01/24 12:36	08/02/24 15:27	1
13C4 PFBA	101		50 - 200	08/01/24 12:36	08/02/24 15:27	1
13C5 PFPeA	106		50 - 200	08/01/24 12:36	08/02/24 15:27	1
13C3 PFBS	118		50 - 200	08/01/24 12:36	08/02/24 15:27	1
13C3 PFHxS	112		50 - 200	08/01/24 12:36	08/02/24 15:27	1
13C8 PFOS	107		50 - 200	08/01/24 12:36	08/02/24 15:27	1
13C2-4:2-FTS	140		50 - 200	08/01/24 12:36	08/02/24 15:27	1
13C2-6:2-FTS	126		50 - 200	08/01/24 12:36	08/02/24 15:27	1
13C2-8:2-FTS	107		50 - 200	08/01/24 12:36	08/02/24 15:27	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		08/01/24 15:22	08/02/24 20:04	1
Perfluorooctanesulfonic acid (PFOS)	2.5		2.0	ng/L		08/01/24 15:22	08/02/24 20:04	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:04	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:04	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:04	1
Perfluorohexanoic acid (PFHxA)	2.2		2.0	ng/L		08/01/24 15:22	08/02/24 20:04	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:04	1
Perfluorooctanoic acid (PFOA)	2.1		2.0	ng/L		08/01/24 15:22	08/02/24 20:04	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

**Client Sample ID: HALAWA WELLS UNITS 1 & 2
(331-206-TP065)**

Lab Sample ID: 380-106526-4

Date Collected: 07/29/24 10:27
Date Received: 07/31/24 09:52

Matrix: Drinking Water
PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:04	1
Perfluorohexanesulfonic acid (PFHxS)	2.8		2.0	ng/L		08/01/24 15:22	08/02/24 20:04	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:04	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:04	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:04	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:04	1
Perfluorotridecanoic acid (PFTTrDA)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:04	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:04	1
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:04	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:04	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	104		70 - 130			08/01/24 15:22	08/02/24 20:04	1
13C2 PFHxA	95		70 - 130			08/01/24 15:22	08/02/24 20:04	1
13C2 PFDA	104		70 - 130			08/01/24 15:22	08/02/24 20:04	1
13C3-GenX	93		70 - 130			08/01/24 15:22	08/02/24 20:04	1

Client Sample ID: FB: MOANALUA WELLS (331-223-TP202)

Lab Sample ID: 380-106526-5

Date Collected: 07/29/24 09:55
Date Received: 07/31/24 09:52

Matrix: Water

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		08/01/24 12:36	08/02/24 15:36	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:36	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:36	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:36	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:36	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:36	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:36	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:36	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:36	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:36	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:36	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:36	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:36	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:36	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:36	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:36	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:36	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

Client Sample ID: FB: MOANALUA WELLS (331-223-TP202)

Lab Sample ID: 380-106526-5

Date Collected: 07/29/24 09:55

Matrix: Water

Date Received: 07/31/24 09:52

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:36	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:36	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:36	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:36	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:36	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:36	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:36	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	110		50 - 200	08/01/24 12:36	08/02/24 15:36	1
13C6 PFDA	107		50 - 200	08/01/24 12:36	08/02/24 15:36	1
13C5 PFHxA	108		50 - 200	08/01/24 12:36	08/02/24 15:36	1
13C4 PFHpA	115		50 - 200	08/01/24 12:36	08/02/24 15:36	1
13C8 PFOA	108		50 - 200	08/01/24 12:36	08/02/24 15:36	1
13C9 PFNA	113		50 - 200	08/01/24 12:36	08/02/24 15:36	1
13C7 PFUnA	98		50 - 200	08/01/24 12:36	08/02/24 15:36	1
13C2 PFDoA	101		50 - 200	08/01/24 12:36	08/02/24 15:36	1
13C4 PFBA	112		50 - 200	08/01/24 12:36	08/02/24 15:36	1
13C5 PFPeA	105		50 - 200	08/01/24 12:36	08/02/24 15:36	1
13C3 PFBS	115		50 - 200	08/01/24 12:36	08/02/24 15:36	1
13C3 PFHxS	114		50 - 200	08/01/24 12:36	08/02/24 15:36	1
13C8 PFOS	110		50 - 200	08/01/24 12:36	08/02/24 15:36	1
13C2-4:2-FTS	133		50 - 200	08/01/24 12:36	08/02/24 15:36	1
13C2-6:2-FTS	118		50 - 200	08/01/24 12:36	08/02/24 15:36	1
13C2-8:2-FTS	107		50 - 200	08/01/24 12:36	08/02/24 15:36	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		08/01/24 08:54	08/01/24 20:10	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:10	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:10	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:10	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:10	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:10	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:10	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:10	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:10	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:10	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:10	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:10	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:10	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:10	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:10	1

Client Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

Client Sample ID: FB: MOANALUA WELLS (331-223-TP202)

Lab Sample ID: 380-106526-5

Date Collected: 07/29/24 09:55

Matrix: Water

Date Received: 07/31/24 09:52

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:10	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:10	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:10	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	113		70 - 130			08/01/24 08:54	08/01/24 20:10	1
13C2 PFHxA	99		70 - 130			08/01/24 08:54	08/01/24 20:10	1
13C2 PFDA	100		70 - 130			08/01/24 08:54	08/01/24 20:10	1
13C3-GenX	96		70 - 130			08/01/24 08:54	08/01/24 20:10	1

Client Sample ID: FB: AIEA GULCH WELLS PUMP 2 (331-202-TP072)

Lab Sample ID: 380-106526-6

Date Collected: 07/29/24 10:51

Matrix: Water

Date Received: 07/31/24 09:52

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		08/01/24 12:36	08/02/24 15:46	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:46	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:46	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:46	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:46	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:46	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:46	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:46	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:46	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:46	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:46	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:46	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:46	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:46	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:46	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:46	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:46	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:46	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:46	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:46	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:46	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:46	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

**Client Sample ID: FB: AIEA GULCH WELLS PUMP 2
(331-202-TP072)**

Lab Sample ID: 380-106526-6

Date Collected: 07/29/24 10:51

Matrix: Water

Date Received: 07/31/24 09:52

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:46	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:46	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:46	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	102		50 - 200			08/01/24 12:36	08/02/24 15:46	1
13C6 PFDA	103		50 - 200			08/01/24 12:36	08/02/24 15:46	1
13C5 PFHxA	105		50 - 200			08/01/24 12:36	08/02/24 15:46	1
13C4 PFHpA	112		50 - 200			08/01/24 12:36	08/02/24 15:46	1
13C8 PFOA	106		50 - 200			08/01/24 12:36	08/02/24 15:46	1
13C9 PFNA	111		50 - 200			08/01/24 12:36	08/02/24 15:46	1
13C7 PFUnA	99		50 - 200			08/01/24 12:36	08/02/24 15:46	1
13C2 PFDoA	101		50 - 200			08/01/24 12:36	08/02/24 15:46	1
13C4 PFBA	107		50 - 200			08/01/24 12:36	08/02/24 15:46	1
13C5 PFPeA	104		50 - 200			08/01/24 12:36	08/02/24 15:46	1
13C3 PFBS	121		50 - 200			08/01/24 12:36	08/02/24 15:46	1
13C3 PFHxS	117		50 - 200			08/01/24 12:36	08/02/24 15:46	1
13C8 PFOS	110		50 - 200			08/01/24 12:36	08/02/24 15:46	1
13C2-4:2-FTS	141		50 - 200			08/01/24 12:36	08/02/24 15:46	1
13C2-6:2-FTS	131		50 - 200			08/01/24 12:36	08/02/24 15:46	1
13C2-8:2-FTS	112		50 - 200			08/01/24 12:36	08/02/24 15:46	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		08/01/24 08:54	08/01/24 20:20	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:20	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:20	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:20	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:20	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:20	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:20	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:20	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:20	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:20	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:20	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:20	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:20	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:20	1
Perfluorotridecanoic acid (PFTTrDA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:20	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:20	1
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:20	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:20	1

Client Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

**Client Sample ID: FB: AIEA GULCH WELLS PUMP 2
(331-202-TP072)**

Lab Sample ID: 380-106526-6

Date Collected: 07/29/24 10:51

Matrix: Water

Date Received: 07/31/24 09:52

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	114		70 - 130	08/01/24 08:54	08/01/24 20:20	1
13C2 PFHxA	100		70 - 130	08/01/24 08:54	08/01/24 20:20	1
13C2 PFDA	101		70 - 130	08/01/24 08:54	08/01/24 20:20	1
13C3-GenX	96		70 - 130	08/01/24 08:54	08/01/24 20:20	1

**Client Sample ID: FB: AIEA WELLS PUMPS 1&2 (260)
(331-203-TP400)**

Lab Sample ID: 380-106526-7

Date Collected: 07/29/24 11:14

Matrix: Water

Date Received: 07/31/24 09:52

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		08/02/24 06:48	08/02/24 20:19	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/02/24 06:48	08/02/24 20:19	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/02/24 06:48	08/02/24 20:19	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		08/02/24 06:48	08/02/24 20:19	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/02/24 06:48	08/02/24 20:19	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/02/24 06:48	08/02/24 20:19	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/02/24 06:48	08/02/24 20:19	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/02/24 06:48	08/02/24 20:19	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/02/24 06:48	08/02/24 20:19	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/02/24 06:48	08/02/24 20:19	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/02/24 06:48	08/02/24 20:19	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/02/24 06:48	08/02/24 20:19	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/02/24 06:48	08/02/24 20:19	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/02/24 06:48	08/02/24 20:19	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		08/02/24 06:48	08/02/24 20:19	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		08/02/24 06:48	08/02/24 20:19	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		08/02/24 06:48	08/02/24 20:19	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		08/02/24 06:48	08/02/24 20:19	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		08/02/24 06:48	08/02/24 20:19	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		08/02/24 06:48	08/02/24 20:19	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		08/02/24 06:48	08/02/24 20:19	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		08/02/24 06:48	08/02/24 20:19	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		08/02/24 06:48	08/02/24 20:19	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		08/02/24 06:48	08/02/24 20:19	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		08/02/24 06:48	08/02/24 20:19	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac		
13C3 HFPO-DA	88		50 - 200	08/02/24 06:48	08/02/24 20:19	1		

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

**Client Sample ID: FB: AIEA WELLS PUMPS 1&2 (260)
(331-203-TP400)**

Lab Sample ID: 380-106526-7

Date Collected: 07/29/24 11:14

Matrix: Water

Date Received: 07/31/24 09:52

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C6 PFDA	110		50 - 200	08/02/24 06:48	08/02/24 20:19	1
13C5 PFHxA	91		50 - 200	08/02/24 06:48	08/02/24 20:19	1
13C4 PFHpA	98		50 - 200	08/02/24 06:48	08/02/24 20:19	1
13C8 PFOA	103		50 - 200	08/02/24 06:48	08/02/24 20:19	1
13C9 PFNA	108		50 - 200	08/02/24 06:48	08/02/24 20:19	1
13C7 PFUnA	109		50 - 200	08/02/24 06:48	08/02/24 20:19	1
13C2 PFDoA	115		50 - 200	08/02/24 06:48	08/02/24 20:19	1
13C4 PFBA	104		50 - 200	08/02/24 06:48	08/02/24 20:19	1
13C5 PFPeA	101		50 - 200	08/02/24 06:48	08/02/24 20:19	1
13C3 PFBS	99		50 - 200	08/02/24 06:48	08/02/24 20:19	1
13C3 PFHxS	109		50 - 200	08/02/24 06:48	08/02/24 20:19	1
13C8 PFOS	108		50 - 200	08/02/24 06:48	08/02/24 20:19	1
13C2-4:2-FTS	118		50 - 200	08/02/24 06:48	08/02/24 20:19	1
13C2-6:2-FTS	121		50 - 200	08/02/24 06:48	08/02/24 20:19	1
13C2-8:2-FTS	116		50 - 200	08/02/24 06:48	08/02/24 20:19	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		08/01/24 08:54	08/01/24 20:31	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:31	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:31	1
N-methylperfluorooctanesulfonamideacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:31	1
N-ethylperfluorooctanesulfonamideacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:31	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:31	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:31	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:31	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:31	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:31	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:31	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:31	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:31	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:31	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:31	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:31	1
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:31	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/01/24 08:54	08/01/24 20:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	112		70 - 130	08/01/24 08:54	08/01/24 20:31	1
13C2 PFHxA	100		70 - 130	08/01/24 08:54	08/01/24 20:31	1
13C2 PFDA	101		70 - 130	08/01/24 08:54	08/01/24 20:31	1
13C3-GenX	96		70 - 130	08/01/24 08:54	08/01/24 20:31	1

Client Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

**Client Sample ID: FB: HALAWA WELLS UNITS 1 & 2
(331-206-TP065)**

Lab Sample ID: 380-106526-8

Date Collected: 07/29/24 10:57

Matrix: Water

Date Received: 07/31/24 09:52

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		08/01/24 12:36	08/02/24 15:55	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:55	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:55	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:55	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:55	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:55	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:55	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:55	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:55	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:55	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:55	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:55	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:55	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:55	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:55	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:55	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:55	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:55	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:55	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:55	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:55	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:55	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:55	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:55	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		08/01/24 12:36	08/02/24 15:55	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C3 HFPO-DA	98		50 - 200			08/01/24 12:36	08/02/24 15:55	1
13C6 PFDA	101		50 - 200			08/01/24 12:36	08/02/24 15:55	1
13C5 PFHxA	103		50 - 200			08/01/24 12:36	08/02/24 15:55	1
13C4 PFHpA	108		50 - 200			08/01/24 12:36	08/02/24 15:55	1
13C8 PFOA	103		50 - 200			08/01/24 12:36	08/02/24 15:55	1
13C9 PFNA	108		50 - 200			08/01/24 12:36	08/02/24 15:55	1
13C7 PFUnA	96		50 - 200			08/01/24 12:36	08/02/24 15:55	1
13C2 PFDoA	100		50 - 200			08/01/24 12:36	08/02/24 15:55	1
13C4 PFBA	105		50 - 200			08/01/24 12:36	08/02/24 15:55	1
13C5 PFPeA	100		50 - 200			08/01/24 12:36	08/02/24 15:55	1
13C3 PFBS	117		50 - 200			08/01/24 12:36	08/02/24 15:55	1
13C3 PFHxS	114		50 - 200			08/01/24 12:36	08/02/24 15:55	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

**Client Sample ID: FB: HALAWA WELLS UNITS 1 & 2
(331-206-TP065)**

Lab Sample ID: 380-106526-8

Date Collected: 07/29/24 10:57

Matrix: Water

Date Received: 07/31/24 09:52

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	107		50 - 200	08/01/24 12:36	08/02/24 15:55	1
13C2-4:2-FTS	130		50 - 200	08/01/24 12:36	08/02/24 15:55	1
13C2-6:2-FTS	121		50 - 200	08/01/24 12:36	08/02/24 15:55	1
13C2-8:2-FTS	108		50 - 200	08/01/24 12:36	08/02/24 15:55	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		08/01/24 15:22	08/02/24 20:13	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:13	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:13	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:13	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:13	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:13	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:13	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:13	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:13	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:13	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:13	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:13	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:13	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:13	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:13	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:13	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:13	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/01/24 15:22	08/02/24 20:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	101		70 - 130	08/01/24 15:22	08/02/24 20:13	1
13C2 PFHxA	94		70 - 130	08/01/24 15:22	08/02/24 20:13	1
13C2 PFDA	102		70 - 130	08/01/24 15:22	08/02/24 20:13	1
13C3-GenX	88		70 - 130	08/01/24 15:22	08/02/24 20:13	1

Action Limit Summary

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

Job ID: 380-106526-1
SDG: PFAS

Client Sample ID: MOANALUA WELLS (331-223-TP202)

Lab Sample ID: 380-106526-1

PWSID Number: HI0000331

Compliance Check

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

Analyte	Result	Qualifier	Unit	EPAMCL	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

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-106526-2

(331-202-TP072)

PWSID Number: HI0000331

Compliance Check

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

Analyte	Result	Qualifier	Unit	EPAMCL	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

Client Sample ID: AIEA WELLS PUMPS 1&2 (260)

Lab Sample ID: 380-106526-3

(331-203-TP400)

PWSID Number: HI0000331

Compliance Check

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

Analyte	Result	Qualifier	Unit	EPAMCL	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

Eurofins Eaton Analytical Pomona

Action Limit Summary

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

Job ID: 380-106526-1
SDG: PFAS

Client Sample ID: AIEA WELLS PUMPS 1&2 (260)
(331-203-TP400) (Continued)
PWSID Number: HI0000331

Lab Sample ID: 380-106526-3

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			
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

Client Sample ID: HALAWA WELLS UNITS 1 & 2
(331-206-TP065)
PWSID Number: HI0000331

Lab Sample ID: 380-106526-4

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)	2.5		ng/L	10	2.0	533	Total/NA
Perfluorononanoic acid (PFNA)	<2.0		ng/L	10	2.0	533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.2		ng/L	4	2.0	533	Total/NA
Perfluorooctanoic acid (PFOA)	2.0		ng/L	4	2.0	533	Total/NA
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		ng/L	10	2.0	537.1	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.5		ng/L	4	2.0	537.1	Total/NA
Perfluorooctanoic acid (PFOA)	2.1		ng/L	4	2.0	537.1	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.8		ng/L	10	2.0	537.1	Total/NA
Perfluorononanoic acid (PFNA)	<2.0		ng/L	10	2.0	537.1	Total/NA

Client Sample ID: FB: MOANALUA WELLS (331-223-TP202)

Lab Sample ID: 380-106526-5

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

Action Limit Summary

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

Job ID: 380-106526-1
SDG: PFAS

Client Sample ID: FB: MOANALUA WELLS (331-223-TP202)
(Continued)

Lab Sample ID: 380-106526-5

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	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

Client Sample ID: FB: AIEA GULCH WELLS PUMP 2
(331-202-TP072)

Lab Sample ID: 380-106526-6

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

Client Sample ID: FB: AIEA WELLS PUMPS 1&2 (260)
(331-203-TP400)

Lab Sample ID: 380-106526-7

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

Eurofins Eaton Analytical Pomona

Action Limit Summary

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

Job ID: 380-106526-1
 SDG: PFAS

**Client Sample ID: FB: AIEA WELLS PUMPS 1&2 (260)
 (331-203-TP400) (Continued)**

Lab Sample ID: 380-106526-7

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
Perfluorononanoic acid (PFNA)	<2.0		ng/L	10	2.0	537.1	Total/NA

**Client Sample ID: FB: HALAWA WELLS UNITS 1 & 2
 (331-206-TP065)**

Lab Sample ID: 380-106526-8

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: 380-106526-1
 SDG: PFAS

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

Matrix: Drinking 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)
380-106526-1	MOANALUA WELLS (331-223-T	118	107	106	104
380-106526-2	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	114	102	98	93
380-106526-3	AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	113	101	99	95
380-106526-4	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	104	95	104	93

Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		d5NEFOS (70-130)	PFHxA (70-130)	PFDA (70-130)	GenX (70-130)
380-106365-B-1-A MS	Matrix Spike	101	102	106	105
380-106365-B-1-B MSD	Matrix Spike Duplicate	99	89	98	93
380-106417-B-2-A MS	Matrix Spike	112	99	102	94
380-106417-C-2-A MSD	Matrix Spike Duplicate	109	102	105	95
380-106526-5	FB: MOANALUA WELLS (331-223-TP202)	113	99	100	96
380-106526-6	FB: AIEA GULCH WELLS PUMF 2 (331-202-TP072)	114	100	101	96
380-106526-7	FB: AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	112	100	101	96
380-106526-8	FB: HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	101	94	102	88
LCS 380-101732/24-A	Lab Control Sample	108	104	104	102
LCS 380-101812/22-A	Lab Control Sample	94	96	100	90
MBL 380-101732/22-A	Method Blank	119	114	113	109
MBL 380-101812/20-A	Method Blank	96	97	103	91
MRL 380-101732/23-A	Lab Control Sample	114	106	104	100
MRL 380-101812/21-A	Lab Control Sample	101	95	105	89

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: 380-106526-1
SDG: PFAS

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

Matrix: Drinking Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		HFPODA (50-200)	C6PFDA (50-200)	13C5PHA (50-200)	C4PFHA (50-200)	C8PFOA (50-200)	C9PFNA (50-200)	13C7PUA (50-200)	PFDaA (50-200)
380-106526-1	MOANALUA WELLS (331-223-T	84	79	88	91	84	82	80	84
380-106526-2	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	85	87	89	90	88	89	87	86
380-106526-3	AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	79	86	79	83	80	82	87	96
380-106526-4	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	99	96	96	103	96	101	91	90

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA (50-200)	PFPeA (50-200)	C3PFBS (50-200)	C3PFHS (50-200)	C8PFOS (50-200)	42FTS (50-200)	62FTS (50-200)	82FTS (50-200)
380-106526-1	MOANALUA WELLS (331-223-T	98	99	110	109	106	125	131	107
380-106526-2	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	99	98	118	113	111	138	132	112
380-106526-3	AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	96	96	95	103	104	114	112	105
380-106526-4	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	101	106	118	112	107	140	126	107

Surrogate Legend

- HFPODA = 13C3 HFPO-DA
- C6PFDA = 13C6 PFDA
- 13C5PHA = 13C5 PFHxA
- C4PFHA = 13C4 PFHpA
- C8PFOA = 13C8 PFOA
- C9PFNA = 13C9 PFNA
- 13C7PUA = 13C7 PFUnA
- PFDaA = 13C2 PFDaA
- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- C3PFBS = 13C3 PFBS
- C3PFHS = 13C3 PFHxS
- C8PFOS = 13C8 PFOS
- 42FTS = 13C2-4:2-FTS
- 62FTS = 13C2-6:2-FTS
- 82FTS = 13C2-8:2-FTS

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		HFPODA (50-200)	C6PFDA (50-200)	13C5PHA (50-200)	C4PFHA (50-200)	C8PFOA (50-200)	C9PFNA (50-200)	13C7PUA (50-200)	PFDaA (50-200)
380-106355-B-1-A MS	Matrix Spike	90	91	81	91	91	99	86	88
380-106355-C-1-A MSD	Matrix Spike Duplicate	97	96	83	93	97	99	90	91
380-106466-B-1-A MS	Matrix Spike	86	92	87	91	90	90	93	104
380-106466-C-1-A MSD	Matrix Spike Duplicate	87	97	89	93	93	95	98	101
380-106526-5	FB: MOANALUA WELLS (331-223-TP202)	110	107	108	115	108	113	98	101
380-106526-6	FB: AIEA GULCH WELLS PUMF 2 (331-202-TP072)	102	103	105	112	106	111	99	101
380-106526-7	FB: AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	88	110	91	98	103	108	109	115

Isotope Dilution Summary

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

Job ID: 380-106526-1
 SDG: PFAS

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

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HFPODA (50-200)	C6PFDA (50-200)	13C5PHA (50-200)	C4PFHA (50-200)	C8PFOA (50-200)	C9PFNA (50-200)	13C7PUA (50-200)	PFDaA (50-200)
380-106526-8	FB: HALAWA WELLS UNITS 1 & 2 (331-202-TP072)	98	101	103	108	103	108	96	100
380-106663-B-1-A MS	Matrix Spike	92	115	95	100	107	113	116	122
380-106663-C-1-A MSD	Matrix Spike Duplicate	82	98	80	85	89	94	101	110
LCS 380-101773/22-A	Lab Control Sample	83	101	84	92	95	98	103	109
LCS 380-101782/22-A	Lab Control Sample	109	104	98	102	103	111	101	105
LCS 380-101924/22-A	Lab Control Sample	88	108	90	96	103	107	111	119
MBL 380-101773/20-A	Method Blank	87	101	89	97	99	98	103	106
MBL 380-101782/20-A	Method Blank	96	102	101	115	104	109	98	103
MBL 380-101924/20-A	Method Blank	80	96	82	87	89	96	97	103
MRL 380-101773/21-A	Lab Control Sample	90	106	92	100	103	104	105	110
MRL 380-101924/21-A	Lab Control Sample	78	96	80	88	90	93	98	105

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)
380-106355-B-1-A MS	Matrix Spike	105	318 *5+	94	99	101	159	157	124
380-106355-C-1-A MSD	Matrix Spike Duplicate	117	343 *5+	95	101	103	169	162	129
380-106466-B-1-A MS	Matrix Spike	98	104	98	106	103	117	116	110
380-106466-C-1-A MSD	Matrix Spike Duplicate	103	108	99	105	103	115	111	109
380-106526-5	FB: MOANALUA WELLS (331-223-TP202)	112	105	115	114	110	133	118	107
380-106526-6	FB: AIEA GULCH WELLS PUMPS 1 & 2 (331-202-TP072)	107	104	121	117	110	141	131	112
380-106526-7	FB: AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	104	101	99	109	108	118	121	116
380-106526-8	FB: HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	105	100	117	114	107	130	121	108
380-106663-B-1-A MS	Matrix Spike	103	99	103	111	112	120	128	116
380-106663-C-1-A MSD	Matrix Spike Duplicate	99	95	98	106	105	103	109	107
LCS 380-101773/22-A	Lab Control Sample	98	96	96	100	101	102	106	103
LCS 380-101782/22-A	Lab Control Sample	104	102	115	111	108	120	120	110
LCS 380-101924/22-A	Lab Control Sample	101	103	103	109	108	112	111	117
MBL 380-101773/20-A	Method Blank	101	100	93	100	96	101	108	98
MBL 380-101782/20-A	Method Blank	107	106	117	118	110	128	125	110
MBL 380-101924/20-A	Method Blank	92	89	90	98	97	104	102	105
MRL 380-101773/21-A	Lab Control Sample	108	105	98	105	104	114	114	100
MRL 380-101924/21-A	Lab Control Sample	97	93	98	109	107	116	116	112

Surrogate Legend

- HFPODA = 13C3 HFPO-DA
- C6PFDA = 13C6 PFDA
- 13C5PHA = 13C5 PFHxA
- C4PFHA = 13C4 PFHpA
- C8PFOA = 13C8 PFOA
- C9PFNA = 13C9 PFNA
- 13C7PUA = 13C7 PFUnA
- PFDaA = 13C2 PFDaA
- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- C3PFBS = 13C3 PFBS
- C3PFHS = 13C3 PFHxS
- C8PFOS = 13C8 PFOS

Isotope Dilution Summary

Client: City & County of Honolulu

Project/Site: RED-HILL

42FTS = 13C2-4:2-FTS

62FTS = 13C2-6:2-FTS

82FTS = 13C2-8:2-FTS

Job ID: 380-106526-1

SDG: PFAS

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QC Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

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

Lab Sample ID: MBL 380-101773/20-A
Matrix: Water
Analysis Batch: 101952

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 101773

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		08/01/24 12:42	08/02/24 12:06	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		08/01/24 12:42	08/02/24 12:06	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		08/01/24 12:42	08/02/24 12:06	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		08/01/24 12:42	08/02/24 12:06	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		08/01/24 12:42	08/02/24 12:06	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		08/01/24 12:42	08/02/24 12:06	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		08/01/24 12:42	08/02/24 12:06	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		08/01/24 12:42	08/02/24 12:06	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		08/01/24 12:42	08/02/24 12:06	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		08/01/24 12:42	08/02/24 12:06	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		08/01/24 12:42	08/02/24 12:06	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		08/01/24 12:42	08/02/24 12:06	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		08/01/24 12:42	08/02/24 12:06	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		08/01/24 12:42	08/02/24 12:06	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		08/01/24 12:42	08/02/24 12:06	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		08/01/24 12:42	08/02/24 12:06	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		08/01/24 12:42	08/02/24 12:06	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		08/01/24 12:42	08/02/24 12:06	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		08/01/24 12:42	08/02/24 12:06	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<0.25		2.0	ng/L		08/01/24 12:42	08/02/24 12:06	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		08/01/24 12:42	08/02/24 12:06	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		08/01/24 12:42	08/02/24 12:06	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		08/01/24 12:42	08/02/24 12:06	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		08/01/24 12:42	08/02/24 12:06	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		08/01/24 12:42	08/02/24 12:06	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	87		50 - 200	08/01/24 12:42	08/02/24 12:06	1
13C6 PFDA	101		50 - 200	08/01/24 12:42	08/02/24 12:06	1
13C5 PFHxA	89		50 - 200	08/01/24 12:42	08/02/24 12:06	1
13C4 PFHpA	97		50 - 200	08/01/24 12:42	08/02/24 12:06	1
13C8 PFOA	99		50 - 200	08/01/24 12:42	08/02/24 12:06	1
13C9 PFNA	98		50 - 200	08/01/24 12:42	08/02/24 12:06	1
13C7 PFUnA	103		50 - 200	08/01/24 12:42	08/02/24 12:06	1
13C2 PFDoA	106		50 - 200	08/01/24 12:42	08/02/24 12:06	1
13C4 PFBA	101		50 - 200	08/01/24 12:42	08/02/24 12:06	1
13C5 PFPeA	100		50 - 200	08/01/24 12:42	08/02/24 12:06	1
13C3 PFBS	93		50 - 200	08/01/24 12:42	08/02/24 12:06	1
13C3 PFHxS	100		50 - 200	08/01/24 12:42	08/02/24 12:06	1

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

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

Lab Sample ID: MBL 380-101773/20-A
Matrix: Water
Analysis Batch: 101952

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 101773

<i>Isotope Dilution</i>	<i>MBL %Recovery</i>	<i>MBL Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C8 PFOS	96		50 - 200	08/01/24 12:42	08/02/24 12:06	1
13C2-4:2-FTS	101		50 - 200	08/01/24 12:42	08/02/24 12:06	1
13C2-6:2-FTS	108		50 - 200	08/01/24 12:42	08/02/24 12:06	1
13C2-8:2-FTS	98		50 - 200	08/01/24 12:42	08/02/24 12:06	1

Lab Sample ID: LCS 380-101773/22-A
Matrix: Water
Analysis Batch: 101952

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 101773

<i>Analyte</i>	<i>Spike Added</i>	<i>LCS Result</i>	<i>LCS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	120	128		ng/L		106	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	120	124		ng/L		103	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	120	115		ng/L		95	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	120	115		ng/L		96	70 - 130
Perfluorobutanesulfonic acid (PFBS)	120	127		ng/L		105	70 - 130
Perfluorodecanoic acid (PFDA)	120	122		ng/L		101	70 - 130
Perfluorododecanoic acid (PFDoA)	120	124		ng/L		103	70 - 130
Perfluoroheptanoic acid (PFHpA)	120	118		ng/L		98	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	120	121		ng/L		100	70 - 130
Perfluorohexanoic acid (PFHxA)	120	126		ng/L		105	70 - 130
Perfluorononanoic acid (PFNA)	120	120		ng/L		100	70 - 130
Perfluorooctanesulfonic acid (PFOS)	120	129		ng/L		107	70 - 130
Perfluorooctanoic acid (PFOA)	120	124		ng/L		103	70 - 130
Perfluoroundecanoic acid (PFUnA)	120	130		ng/L		108	70 - 130
Perfluorobutanoic acid (PFBA)	120	118		ng/L		98	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	120	125		ng/L		104	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	117		ng/L		97	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	120	119		ng/L		99	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	120	124		ng/L		103	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	120	118		ng/L		98	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	120	116		ng/L		96	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	120	114		ng/L		94	70 - 130
Perfluoropentanoic acid (PFPeA)	120	118		ng/L		98	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	120	118		ng/L		98	70 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

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

Lab Sample ID: LCS 380-101773/22-A
Matrix: Water
Analysis Batch: 101952

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 101773

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Perfluoropentanesulfonic acid (PFPeS)	120	117		ng/L		97	70 - 130	
LCS LCS								
Isotope Dilution	%Recovery	Qualifier						Limits
13C3 HFPO-DA	83							50 - 200
13C6 PFDA	101							50 - 200
13C5 PFHxA	84							50 - 200
13C4 PFHpA	92							50 - 200
13C8 PFOA	95							50 - 200
13C9 PFNA	98							50 - 200
13C7 PFUnA	103							50 - 200
13C2 PFDoA	109							50 - 200
13C4 PFBA	98							50 - 200
13C5 PFPeA	96							50 - 200
13C3 PFBS	96							50 - 200
13C3 PFHxS	100							50 - 200
13C8 PFOS	101							50 - 200
13C2-4:2-FTS	102							50 - 200
13C2-6:2-FTS	106							50 - 200
13C2-8:2-FTS	103							50 - 200

Lab Sample ID: MRL 380-101773/21-A
Matrix: Water
Analysis Batch: 101952

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 101773

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	2.22	J	ng/L		111	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	2.00	2.21	J	ng/L		111	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	2.12	J	ng/L		106	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	2.13	J	ng/L		106	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	2.28	J	ng/L		114	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.25	J	ng/L		112	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.50	J	ng/L		125	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.15	J	ng/L		107	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	2.13	J	ng/L		106	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.41	J	ng/L		120	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.23	J	ng/L		112	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	2.28	J	ng/L		114	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.22	J	ng/L		111	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.36	J	ng/L		118	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	2.14	J	ng/L		107	50 - 150

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

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

Lab Sample ID: MRL 380-101773/21-A
Matrix: Water
Analysis Batch: 101952

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 101773

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	2.41	J	ng/L		120	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	2.20	J	ng/L		110	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	2.33	J	ng/L		116	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	2.25	J	ng/L		112	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.00	2.26	J	ng/L		113	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	2.19	J	ng/L		109	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	2.15	J	ng/L		107	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	2.27	J	ng/L		113	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.00	2.21	J	ng/L		110	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.00	2.05	J	ng/L		102	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	MRL Limits
13C3 HFPO-DA	90		50 - 200
13C6 PFDA	106		50 - 200
13C5 PFHxA	92		50 - 200
13C4 PFHpA	100		50 - 200
13C8 PFOA	103		50 - 200
13C9 PFNA	104		50 - 200
13C7 PFUnA	105		50 - 200
13C2 PFDoA	110		50 - 200
13C4 PFBA	108		50 - 200
13C5 PFPeA	105		50 - 200
13C3 PFBS	98		50 - 200
13C3 PFHxS	105		50 - 200
13C8 PFOS	104		50 - 200
13C2-4:2-FTS	114		50 - 200
13C2-6:2-FTS	114		50 - 200
13C2-8:2-FTS	100		50 - 200

Lab Sample ID: 380-106466-B-1-A MS
Matrix: Water
Analysis Batch: 101952

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 101773

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.1	64.8		ng/L		108	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.1	62.3		ng/L		104	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.1	56.9		ng/L		95	70 - 130

QC Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

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

Lab Sample ID: 380-106466-B-1-A MS
Matrix: Water
Analysis Batch: 101952

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 101773

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide	<2.0		60.1	58.7		ng/L		98	70 - 130
Dimer Acid (HFPO-DA/GenX)									
Perfluorobutanesulfonic acid (PFBS)	<2.0		60.1	64.0		ng/L		106	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		60.1	61.4		ng/L		102	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		60.1	62.6		ng/L		104	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		60.1	60.2		ng/L		100	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.1	60.1		ng/L		100	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		60.1	64.7		ng/L		108	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		60.1	61.2		ng/L		102	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		60.1	64.7		ng/L		108	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		60.1	63.0		ng/L		105	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		60.1	66.6		ng/L		111	70 - 130
Perfluorobutanoic acid (PFBA)	<2.0		60.1	64.0		ng/L		106	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.1	62.8		ng/L		104	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.1	63.7		ng/L		106	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.1	63.9		ng/L		106	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.1	58.3		ng/L		97	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		60.1	59.6		ng/L		99	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		60.1	64.0		ng/L		106	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.1	59.1		ng/L		98	70 - 130
Perfluoropentanoic acid (PFPeA)	<2.0		60.1	61.1		ng/L		102	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.1	64.2		ng/L		107	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.1	57.8		ng/L		96	70 - 130

Isotope Dilution	MS MS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	86		50 - 200
13C6 PFDA	92		50 - 200
13C5 PFHxA	87		50 - 200
13C4 PFHpA	91		50 - 200
13C8 PFOA	90		50 - 200
13C9 PFNA	90		50 - 200
13C7 PFUnA	93		50 - 200
13C2 PFDoA	104		50 - 200
13C4 PFBA	98		50 - 200
13C5 PFPeA	104		50 - 200
13C3 PFBS	98		50 - 200
13C3 PFHxS	106		50 - 200
13C8 PFOS	103		50 - 200

QC Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

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

Lab Sample ID: 380-106466-B-1-A MS
Matrix: Water
Analysis Batch: 101952

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 101773

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
13C2-4:2-FTS	117		50 - 200
13C2-6:2-FTS	116		50 - 200
13C2-8:2-FTS	110		50 - 200

Lab Sample ID: 380-106466-C-1-A MSD
Matrix: Water
Analysis Batch: 101952

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 101773

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.2	64.9		ng/L		108	70 - 130	0	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.2	62.0		ng/L		103	70 - 130	0	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.2	58.7		ng/L		97	70 - 130	3	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		60.2	58.8		ng/L		98	70 - 130	0	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		60.2	62.3		ng/L		103	70 - 130	3	30
Perfluorodecanoic acid (PFDA)	<2.0		60.2	61.0		ng/L		101	70 - 130	1	30
Perfluorododecanoic acid (PFDoA)	<2.0		60.2	63.1		ng/L		105	70 - 130	1	30
Perfluoroheptanoic acid (PFHpA)	<2.0		60.2	60.3		ng/L		100	70 - 130	0	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.2	61.0		ng/L		101	70 - 130	1	30
Perfluorohexanoic acid (PFHxA)	<2.0		60.2	65.8		ng/L		109	70 - 130	2	30
Perfluorononanoic acid (PFNA)	<2.0		60.2	61.6		ng/L		102	70 - 130	1	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		60.2	66.0		ng/L		110	70 - 130	2	30
Perfluorooctanoic acid (PFOA)	<2.0		60.2	62.8		ng/L		104	70 - 130	0	30
Perfluoroundecanoic acid (PFUnA)	<2.0		60.2	65.2		ng/L		108	70 - 130	2	30
Perfluorobutanoic acid (PFBA)	<2.0		60.2	60.2		ng/L		100	70 - 130	6	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.2	63.7		ng/L		106	70 - 130	1	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.2	62.5		ng/L		104	70 - 130	2	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.2	64.7		ng/L		107	70 - 130	1	30
Nonfluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.2	62.9		ng/L		104	70 - 130	8	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		60.2	58.4		ng/L		97	70 - 130	2	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		60.2	63.5		ng/L		105	70 - 130	1	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.2	59.9		ng/L		99	70 - 130	1	30
Perfluoropentanoic acid (PFPeA)	<2.0		60.2	61.2		ng/L		102	70 - 130	0	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.2	64.1		ng/L		106	70 - 130	0	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.2	59.9		ng/L		99	70 - 130	4	30

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

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

Isotope Dilution	MSD MSD		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	87		50 - 200
13C6 PFDA	97		50 - 200
13C5 PFHxA	89		50 - 200
13C4 PFHpA	93		50 - 200
13C8 PFOA	93		50 - 200
13C9 PFNA	95		50 - 200
13C7 PFUnA	98		50 - 200
13C2 PFDoA	101		50 - 200
13C4 PFBA	103		50 - 200
13C5 PFPeA	108		50 - 200
13C3 PFBS	99		50 - 200
13C3 PFHxS	105		50 - 200
13C8 PFOS	103		50 - 200
13C2-4:2-FTS	115		50 - 200
13C2-6:2-FTS	111		50 - 200
13C2-8:2-FTS	109		50 - 200

Lab Sample ID: MBL 380-101782/20-A
Matrix: Water
Analysis Batch: 101951

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 101782

Analyte	MBL MBL		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		08/01/24 12:36	08/02/24 12:06	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		08/01/24 12:36	08/02/24 12:06	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		08/01/24 12:36	08/02/24 12:06	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		08/01/24 12:36	08/02/24 12:06	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		08/01/24 12:36	08/02/24 12:06	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		08/01/24 12:36	08/02/24 12:06	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		08/01/24 12:36	08/02/24 12:06	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		08/01/24 12:36	08/02/24 12:06	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		08/01/24 12:36	08/02/24 12:06	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		08/01/24 12:36	08/02/24 12:06	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		08/01/24 12:36	08/02/24 12:06	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		08/01/24 12:36	08/02/24 12:06	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		08/01/24 12:36	08/02/24 12:06	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		08/01/24 12:36	08/02/24 12:06	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		08/01/24 12:36	08/02/24 12:06	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		08/01/24 12:36	08/02/24 12:06	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		08/01/24 12:36	08/02/24 12:06	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		08/01/24 12:36	08/02/24 12:06	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		08/01/24 12:36	08/02/24 12:06	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0	ng/L		08/01/24 12:36	08/02/24 12:06	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		08/01/24 12:36	08/02/24 12:06	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		08/01/24 12:36	08/02/24 12:06	1

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QC Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

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

Lab Sample ID: MBL 380-101782/20-A
Matrix: Water
Analysis Batch: 101951

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 101782

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		08/01/24 12:36	08/02/24 12:06	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		08/01/24 12:36	08/02/24 12:06	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		08/01/24 12:36	08/02/24 12:06	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	96		50 - 200	08/01/24 12:36	08/02/24 12:06	1
13C6 PFDA	102		50 - 200	08/01/24 12:36	08/02/24 12:06	1
13C5 PFHxA	101		50 - 200	08/01/24 12:36	08/02/24 12:06	1
13C4 PFHpA	115		50 - 200	08/01/24 12:36	08/02/24 12:06	1
13C8 PFOA	104		50 - 200	08/01/24 12:36	08/02/24 12:06	1
13C9 PFNA	109		50 - 200	08/01/24 12:36	08/02/24 12:06	1
13C7 PFUnA	98		50 - 200	08/01/24 12:36	08/02/24 12:06	1
13C2 PFDoA	103		50 - 200	08/01/24 12:36	08/02/24 12:06	1
13C4 PFBA	107		50 - 200	08/01/24 12:36	08/02/24 12:06	1
13C5 PFPeA	106		50 - 200	08/01/24 12:36	08/02/24 12:06	1
13C3 PFBS	117		50 - 200	08/01/24 12:36	08/02/24 12:06	1
13C3 PFHxS	118		50 - 200	08/01/24 12:36	08/02/24 12:06	1
13C8 PFOS	110		50 - 200	08/01/24 12:36	08/02/24 12:06	1
13C2-4:2-FTS	128		50 - 200	08/01/24 12:36	08/02/24 12:06	1
13C2-6:2-FTS	125		50 - 200	08/01/24 12:36	08/02/24 12:06	1
13C2-8:2-FTS	110		50 - 200	08/01/24 12:36	08/02/24 12:06	1

Lab Sample ID: LCS 380-101782/22-A
Matrix: Water
Analysis Batch: 101951

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 101782

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	120	103		ng/L		86	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	107		ng/L		89	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	120	111		ng/L		92	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	120	102		ng/L		85	70 - 130
Perfluorobutanesulfonic acid (PFBS)	120	108		ng/L		89	70 - 130
Perfluorodecanoic acid (PFDA)	120	108		ng/L		90	70 - 130
Perfluorododecanoic acid (PFDoA)	120	105		ng/L		87	70 - 130
Perfluoroheptanoic acid (PFHpA)	120	119		ng/L		99	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	120	111		ng/L		93	70 - 130
Perfluorohexanoic acid (PFHxA)	120	118		ng/L		98	70 - 130
Perfluorononanoic acid (PFNA)	120	103		ng/L		85	70 - 130
Perfluorooctanesulfonic acid (PFOS)	120	110		ng/L		91	70 - 130
Perfluorooctanoic acid (PFOA)	120	114		ng/L		95	70 - 130

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QC Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

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

Lab Sample ID: LCS 380-101782/22-A
Matrix: Water
Analysis Batch: 101951

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 101782

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	120	112		ng/L		93	70 - 130
Perfluorobutanoic acid (PFBA)	120	110		ng/L		92	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	120	107		ng/L		89	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	111		ng/L		92	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	120	110		ng/L		92	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	120	117		ng/L		97	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	120	99.5		ng/L		83	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	120	109		ng/L		90	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	120	114		ng/L		95	70 - 130
Perfluoropentanoic acid (PFPeA)	120	112		ng/L		93	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	120	109		ng/L		91	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	120	106		ng/L		88	70 - 130

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	109		50 - 200
13C6 PFDA	104		50 - 200
13C5 PFHxA	98		50 - 200
13C4 PFHpA	102		50 - 200
13C8 PFOA	103		50 - 200
13C9 PFNA	111		50 - 200
13C7 PFUnA	101		50 - 200
13C2 PFDoA	105		50 - 200
13C4 PFBA	104		50 - 200
13C5 PFPeA	102		50 - 200
13C3 PFBS	115		50 - 200
13C3 PFHxS	111		50 - 200
13C8 PFOS	108		50 - 200
13C2-4:2-FTS	120		50 - 200
13C2-6:2-FTS	120		50 - 200
13C2-8:2-FTS	110		50 - 200

Lab Sample ID: 380-106355-B-1-A MS
Matrix: Water
Analysis Batch: 101951

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 101782

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		120	102		ng/L		84	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		120	103		ng/L		86	70 - 130

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QC Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

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

Lab Sample ID: 380-106355-B-1-A MS
Matrix: Water
Analysis Batch: 101951

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 101782

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		120	110		ng/L		92	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		120	108		ng/L		89	70 - 130
Perfluorobutanesulfonic acid (PFBS)	9.6		120	114		ng/L		86	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		120	115		ng/L		95	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		120	112		ng/L		93	70 - 130
Perfluoroheptanoic acid (PFHpA)	4.3		120	115		ng/L		92	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	5.6		120	118		ng/L		93	70 - 130
Perfluorohexanoic acid (PFHxA)	19		120	141		ng/L		101	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		120	112		ng/L		92	70 - 130
Perfluorooctanesulfonic acid (PFOS)	8.9		120	121		ng/L		93	70 - 130
Perfluorooctanoic acid (PFOA)	9.6		120	129		ng/L		99	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		120	120		ng/L		99	70 - 130
Perfluorobutanoic acid (PFBA)	5.2	F1	120	92.6		ng/L		73	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		120	106		ng/L		88	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		120	114		ng/L		95	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	4.1		120	113		ng/L		91	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		120	111		ng/L		92	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		120	108		ng/L		90	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0	F1	120	229	E F1	ng/L		190	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0	*5+	120	136	*5+	ng/L		113	70 - 130
Perfluoropentanoic acid (PFPeA)	17	*5+	120	132	*5+	ng/L		96	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		120	110		ng/L		92	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<2.0		120	111		ng/L		91	70 - 130

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
13C3 HFPO-DA	90		50 - 200
13C6 PFDA	91		50 - 200
13C5 PFHxA	81		50 - 200
13C4 PFHpA	91		50 - 200
13C8 PFOA	91		50 - 200
13C9 PFNA	99		50 - 200
13C7 PFUnA	86		50 - 200
13C2 PFDoA	88		50 - 200
13C4 PFBA	105		50 - 200
13C5 PFPeA	318	*5+	50 - 200
13C3 PFBS	94		50 - 200
13C3 PFHxS	99		50 - 200

QC Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

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

Lab Sample ID: 380-106355-B-1-A MS
Matrix: Water
Analysis Batch: 101951

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 101782

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
13C8 PFOS	101		50 - 200
13C2-4:2-FTS	159		50 - 200
13C2-6:2-FTS	157		50 - 200
13C2-8:2-FTS	124		50 - 200

Lab Sample ID: 380-106355-C-1-A MSD
Matrix: Water
Analysis Batch: 101951

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 101782

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		121	109		ng/L		90	70 - 130	7	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		121	108		ng/L		90	70 - 130	5	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		121	114		ng/L		94	70 - 130	3	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		121	98.8		ng/L		82	70 - 130	9	30
Perfluorobutanesulfonic acid (PFBS)	9.6		121	114		ng/L		87	70 - 130	1	30
Perfluorodecanoic acid (PFDA)	<2.0		121	113		ng/L		93	70 - 130	2	30
Perfluorododecanoic acid (PFDoA)	<2.0		121	113		ng/L		94	70 - 130	1	30
Perfluoroheptanoic acid (PFHpA)	4.3		121	118		ng/L		94	70 - 130	3	30
Perfluorohexanesulfonic acid (PFHxS)	5.6		121	121		ng/L		96	70 - 130	3	30
Perfluorohexanoic acid (PFHxA)	19		121	141		ng/L		101	70 - 130	0	30
Perfluorononanoic acid (PFNA)	<2.0		121	113		ng/L		93	70 - 130	1	30
Perfluorooctanesulfonic acid (PFOS)	8.9		121	123		ng/L		94	70 - 130	2	30
Perfluorooctanoic acid (PFOA)	9.6		121	127		ng/L		97	70 - 130	2	30
Perfluoroundecanoic acid (PFUnA)	<2.0		121	119		ng/L		99	70 - 130	0	30
Perfluorobutanoic acid (PFBA)	5.2	F1	121	87.0	F1	ng/L		68	70 - 130	6	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		121	113		ng/L		93	70 - 130	6	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		121	114		ng/L		95	70 - 130	0	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	4.1		121	114		ng/L		91	70 - 130	1	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		121	99.7		ng/L		82	70 - 130	10	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		121	111		ng/L		91	70 - 130	3	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0	F1	121	232	E F1	ng/L		192	70 - 130	1	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0	*5+	121	132	*5+	ng/L		109	70 - 130	3	30
Perfluoropentanoic acid (PFPeA)	17	*5+	121	123	*5+	ng/L		88	70 - 130	7	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		121	113		ng/L		94	70 - 130	3	30

QC Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

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

Lab Sample ID: 380-106355-C-1-A MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 101951

Prep Batch: 101782

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoropentanesulfonic acid (PFPeS)	<2.0		121	111		ng/L		92	70 - 130	1	30
MSD MSD											
Isotope Dilution	%Recovery	Qualifier	Limits								
13C3 HFPO-DA	97		50 - 200								
13C6 PFDA	96		50 - 200								
13C5 PFHxA	83		50 - 200								
13C4 PFHpA	93		50 - 200								
13C8 PFOA	97		50 - 200								
13C9 PFNA	99		50 - 200								
13C7 PFUnA	90		50 - 200								
13C2 PFDoA	91		50 - 200								
13C4 PFBA	117		50 - 200								
13C5 PFPeA	343	*5+	50 - 200								
13C3 PFBS	95		50 - 200								
13C3 PFHxS	101		50 - 200								
13C8 PFOS	103		50 - 200								
13C2-4:2-FTS	169		50 - 200								
13C2-6:2-FTS	162		50 - 200								
13C2-8:2-FTS	129		50 - 200								

Lab Sample ID: MBL 380-101924/20-A

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 102023

Prep Batch: 101924

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		08/02/24 06:48	08/02/24 17:27	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		08/02/24 06:48	08/02/24 17:27	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		08/02/24 06:48	08/02/24 17:27	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		08/02/24 06:48	08/02/24 17:27	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		08/02/24 06:48	08/02/24 17:27	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		08/02/24 06:48	08/02/24 17:27	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		08/02/24 06:48	08/02/24 17:27	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		08/02/24 06:48	08/02/24 17:27	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		08/02/24 06:48	08/02/24 17:27	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		08/02/24 06:48	08/02/24 17:27	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		08/02/24 06:48	08/02/24 17:27	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		08/02/24 06:48	08/02/24 17:27	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		08/02/24 06:48	08/02/24 17:27	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		08/02/24 06:48	08/02/24 17:27	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		08/02/24 06:48	08/02/24 17:27	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		08/02/24 06:48	08/02/24 17:27	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		08/02/24 06:48	08/02/24 17:27	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		08/02/24 06:48	08/02/24 17:27	1

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QC Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

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

Lab Sample ID: MBL 380-101924/20-A
Matrix: Water
Analysis Batch: 102023

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 101924

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		08/02/24 06:48	08/02/24 17:27	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0	ng/L		08/02/24 06:48	08/02/24 17:27	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		08/02/24 06:48	08/02/24 17:27	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		08/02/24 06:48	08/02/24 17:27	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		08/02/24 06:48	08/02/24 17:27	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		08/02/24 06:48	08/02/24 17:27	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		08/02/24 06:48	08/02/24 17:27	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	80		50 - 200	08/02/24 06:48	08/02/24 17:27	1
13C6 PFDA	96		50 - 200	08/02/24 06:48	08/02/24 17:27	1
13C5 PFHxA	82		50 - 200	08/02/24 06:48	08/02/24 17:27	1
13C4 PFHpA	87		50 - 200	08/02/24 06:48	08/02/24 17:27	1
13C8 PFOA	89		50 - 200	08/02/24 06:48	08/02/24 17:27	1
13C9 PFNA	96		50 - 200	08/02/24 06:48	08/02/24 17:27	1
13C7 PFUnA	97		50 - 200	08/02/24 06:48	08/02/24 17:27	1
13C2 PFDoA	103		50 - 200	08/02/24 06:48	08/02/24 17:27	1
13C4 PFBA	92		50 - 200	08/02/24 06:48	08/02/24 17:27	1
13C5 PFPeA	89		50 - 200	08/02/24 06:48	08/02/24 17:27	1
13C3 PFBS	90		50 - 200	08/02/24 06:48	08/02/24 17:27	1
13C3 PFHxS	98		50 - 200	08/02/24 06:48	08/02/24 17:27	1
13C8 PFOS	97		50 - 200	08/02/24 06:48	08/02/24 17:27	1
13C2-4:2-FTS	104		50 - 200	08/02/24 06:48	08/02/24 17:27	1
13C2-6:2-FTS	102		50 - 200	08/02/24 06:48	08/02/24 17:27	1
13C2-8:2-FTS	105		50 - 200	08/02/24 06:48	08/02/24 17:27	1

Lab Sample ID: LCS 380-101924/22-A
Matrix: Water
Analysis Batch: 102023

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 101924

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	120	120		ng/L		99	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	113		ng/L		94	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	120	106		ng/L		88	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	120	107		ng/L		88	70 - 130
Perfluorobutanesulfonic acid (PFBS)	120	114		ng/L		95	70 - 130
Perfluorodecanoic acid (PFDA)	120	113		ng/L		94	70 - 130
Perfluorododecanoic acid (PFDoA)	120	111		ng/L		92	70 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

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

Lab Sample ID: LCS 380-101924/22-A
Matrix: Water
Analysis Batch: 102023

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 101924

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroheptanoic acid (PFHpA)	120	111		ng/L		92	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	120	108		ng/L		89	70 - 130
Perfluorohexanoic acid (PFHxA)	120	113		ng/L		94	70 - 130
Perfluorononanoic acid (PFNA)	120	109		ng/L		90	70 - 130
Perfluorooctanesulfonic acid (PFOS)	120	117		ng/L		97	70 - 130
Perfluorooctanoic acid (PFOA)	120	112		ng/L		93	70 - 130
Perfluoroundecanoic acid (PFUnA)	120	115		ng/L		96	70 - 130
Perfluorobutanoic acid (PFBA)	120	115		ng/L		95	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	120	107		ng/L		89	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	110		ng/L		91	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	120	116		ng/L		96	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	120	112		ng/L		93	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	120	112		ng/L		93	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	120	115		ng/L		96	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	120	110		ng/L		91	70 - 130
Perfluoropentanoic acid (PFPeA)	120	112		ng/L		93	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	120	113		ng/L		94	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	120	106		ng/L		88	70 - 130

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C3 HFPO-DA	88		50 - 200
13C6 PFDA	108		50 - 200
13C5 PFHxA	90		50 - 200
13C4 PFHpA	96		50 - 200
13C8 PFOA	103		50 - 200
13C9 PFNA	107		50 - 200
13C7 PFUnA	111		50 - 200
13C2 PFDoA	119		50 - 200
13C4 PFBA	101		50 - 200
13C5 PFPeA	103		50 - 200
13C3 PFBS	103		50 - 200
13C3 PFHxS	109		50 - 200
13C8 PFOS	108		50 - 200
13C2-4:2-FTS	112		50 - 200
13C2-6:2-FTS	111		50 - 200
13C2-8:2-FTS	117		50 - 200

QC Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

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

Lab Sample ID: MRL 380-101924/21-A
Matrix: Water
Analysis Batch: 102023

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 101924

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.01	2.10	J	ng/L		104	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.01	2.02	J	ng/L		101	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.01	1.91	J	ng/L		95	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.01	1.98	J	ng/L		99	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.01	2.14	J	ng/L		107	50 - 150
Perfluorodecanoic acid (PFDA)	2.01	2.00	J	ng/L		99	50 - 150
Perfluorododecanoic acid (PFDoA)	2.01	2.09	J	ng/L		104	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.01	2.09	J	ng/L		104	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.01	1.96	J	ng/L		98	50 - 150
Perfluorohexanoic acid (PFHxA)	2.01	2.11	J	ng/L		105	50 - 150
Perfluorononanoic acid (PFNA)	2.01	1.99	J	ng/L		99	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.01	2.12	J	ng/L		105	50 - 150
Perfluorooctanoic acid (PFOA)	2.01	2.04	J	ng/L		102	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.01	2.07	J	ng/L		103	50 - 150
Perfluorobutanoic acid (PFBA)	2.01	1.97	J	ng/L		98	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.01	2.12	J	ng/L		106	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.01	2.05	J	ng/L		102	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.01	2.17	J	ng/L		108	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.01	1.99	J	ng/L		99	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	2.01	2.10	J	ng/L		105	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.01	2.04	J	ng/L		101	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.01	1.94	J	ng/L		97	50 - 150
Perfluoropentanoic acid (PFPeA)	2.01	2.17	J	ng/L		108	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.01	2.02	J	ng/L		101	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.01	1.89	J	ng/L		94	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	MRL Limits
13C3 HFPO-DA	78		50 - 200
13C6 PFDA	96		50 - 200
13C5 PFHxA	80		50 - 200
13C4 PFHpA	88		50 - 200
13C8 PFOA	90		50 - 200
13C9 PFNA	93		50 - 200

QC Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

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

Lab Sample ID: MRL 380-101924/21-A
Matrix: Water
Analysis Batch: 102023

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 101924

<i>Isotope Dilution</i>	<i>MRL %Recovery</i>	<i>MRL Qualifier</i>	<i>Limits</i>
13C7 PFUnA	98		50 - 200
13C2 PFDoA	105		50 - 200
13C4 PFBA	97		50 - 200
13C5 PFPeA	93		50 - 200
13C3 PFBS	98		50 - 200
13C3 PFHxS	109		50 - 200
13C8 PFOS	107		50 - 200
13C2-4:2-FTS	116		50 - 200
13C2-6:2-FTS	116		50 - 200
13C2-8:2-FTS	112		50 - 200

Lab Sample ID: 380-106663-B-1-A MS
Matrix: Water
Analysis Batch: 102023

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 101924

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MS Result</i>	<i>MS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		120	116		ng/L		96	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		120	111		ng/L		92	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		120	104		ng/L		86	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		120	104		ng/L		87	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		120	110		ng/L		91	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		120	112		ng/L		93	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		120	115		ng/L		95	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		120	110		ng/L		91	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		120	108		ng/L		90	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		120	113		ng/L		94	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		120	107		ng/L		89	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		120	115		ng/L		96	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		120	112		ng/L		93	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		120	117		ng/L		97	70 - 130
Perfluorobutanoic acid (PFBA)	<2.0		120	109		ng/L		90	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		120	116		ng/L		96	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		120	110		ng/L		91	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		120	108		ng/L		89	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		120	104		ng/L		86	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		120	109		ng/L		91	70 - 130

QC Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

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

Lab Sample ID: 380-106663-B-1-A MS
Matrix: Water
Analysis Batch: 102023

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 101924

Analyte	Sample Result	Sample Qualifier	Spike Added	MS	MS	Unit	D	%Rec	%Rec Limits	
				Result	Qualifier					
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		120	107		ng/L		88	70 - 130	
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		120	105		ng/L		87	70 - 130	
Perfluoropentanoic acid (PFPeA)	<2.0		120	110		ng/L		91	70 - 130	
Perfluoroheptanesulfonic acid (PFHpS)	2.0		120	111		ng/L		92	70 - 130	
Perfluoropentanesulfonic acid (PFPeS)	<2.0		120	106		ng/L		88	70 - 130	
Isotope Dilution	%Recovery	MS	MS	Limits						
		Qualifier	Qualifier							
13C3 HFPO-DA	92			50 - 200						
13C6 PFDA	115			50 - 200						
13C5 PFHxA	95			50 - 200						
13C4 PFHpA	100			50 - 200						
13C8 PFOA	107			50 - 200						
13C9 PFNA	113			50 - 200						
13C7 PFUnA	116			50 - 200						
13C2 PFDoA	122			50 - 200						
13C4 PFBA	103			50 - 200						
13C5 PFPeA	99			50 - 200						
13C3 PFBS	103			50 - 200						
13C3 PFHxS	111			50 - 200						
13C8 PFOS	112			50 - 200						
13C2-4:2-FTS	120			50 - 200						
13C2-6:2-FTS	128			50 - 200						
13C2-8:2-FTS	116			50 - 200						

Lab Sample ID: 380-106663-C-1-A MSD
Matrix: Water
Analysis Batch: 102023

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 101924

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD	MSD	Unit	D	%Rec	%Rec Limits	RPD	RPD
				Result	Qualifier						Limit
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		120	123		ng/L		102	70 - 130	6	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<2.0		120	115		ng/L		96	70 - 130	3	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		120	106		ng/L		88	70 - 130	2	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		120	107		ng/L		89	70 - 130	3	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		120	119		ng/L		99	70 - 130	8	30
Perfluorodecanoic acid (PFDA)	<2.0		120	115		ng/L		96	70 - 130	3	30
Perfluorododecanoic acid (PFDoA)	<2.0		120	115		ng/L		95	70 - 130	0	30
Perfluoroheptanoic acid (PFHpA)	<2.0		120	113		ng/L		94	70 - 130	3	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		120	111		ng/L		92	70 - 130	2	30
Perfluorohexanoic acid (PFHxA)	<2.0		120	120		ng/L		100	70 - 130	6	30

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QC Sample Results

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

Job ID: 380-106526-1
 SDG: PFAS

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

Lab Sample ID: 380-106663-C-1-A MSD
Matrix: Water
Analysis Batch: 102023

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 101924

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorononanoic acid (PFNA)	<2.0		120	112		ng/L		93	70 - 130	5	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		120	121		ng/L		100	70 - 130	5	30
Perfluorooctanoic acid (PFOA)	<2.0		120	115		ng/L		95	70 - 130	2	30
Perfluoroundecanoic acid (PFUnA)	<2.0		120	118		ng/L		98	70 - 130	1	30
Perfluorobutanoic acid (PFBA)	<2.0		120	110		ng/L		92	70 - 130	2	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		120	116		ng/L		96	70 - 130	0	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		120	113		ng/L		93	70 - 130	2	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	108		ng/L		90	70 - 130	4	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		120	113		ng/L		94	70 - 130	3	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		120	110		ng/L		92	70 - 130	4	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		120	107		ng/L		89	70 - 130	2	30
Perfluoropentanoic acid (PFPeA)	<2.0		120	111		ng/L		92	70 - 130	1	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		120	117		ng/L		97	70 - 130	5	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0		120	107		ng/L		89	70 - 130	1	30

Isotope Dilution	MSD %Recovery	MSD Qualifier	Limits
13C3 HFPO-DA	82		50 - 200
13C6 PFDA	98		50 - 200
13C5 PFHxA	80		50 - 200
13C4 PFHpA	85		50 - 200
13C8 PFOA	89		50 - 200
13C9 PFNA	94		50 - 200
13C7 PFUnA	101		50 - 200
13C2 PFDoA	110		50 - 200
13C4 PFBA	99		50 - 200
13C5 PFPeA	95		50 - 200
13C3 PFBS	98		50 - 200
13C3 PFHxS	106		50 - 200
13C8 PFOS	105		50 - 200
13C2-4:2-FTS	103		50 - 200
13C2-6:2-FTS	109		50 - 200
13C2-8:2-FTS	107		50 - 200

QC Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

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

Lab Sample ID: MBL 380-101732/22-A
Matrix: Water
Analysis Batch: 101819

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 101732

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		08/01/24 08:54	08/01/24 16:14	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		08/01/24 08:54	08/01/24 16:14	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		08/01/24 08:54	08/01/24 16:14	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.58		2.0	ng/L		08/01/24 08:54	08/01/24 16:14	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.42		2.0	ng/L		08/01/24 08:54	08/01/24 16:14	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		08/01/24 08:54	08/01/24 16:14	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		08/01/24 08:54	08/01/24 16:14	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		08/01/24 08:54	08/01/24 16:14	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		08/01/24 08:54	08/01/24 16:14	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		08/01/24 08:54	08/01/24 16:14	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		08/01/24 08:54	08/01/24 16:14	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		08/01/24 08:54	08/01/24 16:14	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		08/01/24 08:54	08/01/24 16:14	1
Perfluorotetradecanoic acid (PFTA)	<0.54		2.0	ng/L		08/01/24 08:54	08/01/24 16:14	1
Perfluorotridecanoic acid (PFTrDA)	<0.36		2.0	ng/L		08/01/24 08:54	08/01/24 16:14	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<0.30		2.0	ng/L		08/01/24 08:54	08/01/24 16:14	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		08/01/24 08:54	08/01/24 16:14	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		08/01/24 08:54	08/01/24 16:14	1
Surrogate	%Recovery	MBL Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	119		70 - 130			08/01/24 08:54	08/01/24 16:14	1
13C2 PFHxA	114		70 - 130			08/01/24 08:54	08/01/24 16:14	1
13C2 PFDA	113		70 - 130			08/01/24 08:54	08/01/24 16:14	1
13C3-GenX	109		70 - 130			08/01/24 08:54	08/01/24 16:14	1

Lab Sample ID: LCS 380-101732/24-A
Matrix: Water
Analysis Batch: 101819

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 101732

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	50.0	47.7		ng/L		95	70 - 130
Perfluorooctanesulfonic acid (PFOS)	50.0	51.4		ng/L		103	70 - 130
Perfluoroundecanoic acid (PFUnA)	50.0	51.0		ng/L		102	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	50.0	52.1		ng/L		104	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	50.0	51.8		ng/L		104	70 - 130
Perfluorohexanoic acid (PFHxA)	50.0	50.1		ng/L		100	70 - 130
Perfluorododecanoic acid (PFDoA)	50.0	49.0		ng/L		98	70 - 130
Perfluorooctanoic acid (PFOA)	50.0	50.7		ng/L		101	70 - 130
Perfluorodecanoic acid (PFDA)	50.0	49.6		ng/L		99	70 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

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

Lab Sample ID: LCS 380-101732/24-A
Matrix: Water
Analysis Batch: 101819

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 101732

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanesulfonic acid (PFHxS)	50.0	54.4		ng/L		109	70 - 130
Perfluorobutanesulfonic acid (PFBS)	50.0	47.3		ng/L		95	70 - 130
Perfluoroheptanoic acid (PFHpA)	50.0	52.5		ng/L		105	70 - 130
Perfluorononanoic acid (PFNA)	50.0	53.0		ng/L		106	70 - 130
Perfluorotetradecanoic acid (PFTA)	50.0	49.3		ng/L		99	70 - 130
Perfluorotridecanoic acid (PFTTrDA)	50.0	50.1		ng/L		100	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	50.0	46.7		ng/L		93	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	50.0	48.5		ng/L		97	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	50.0	47.9		ng/L		96	70 - 130

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

Lab Sample ID: MRL 380-101732/23-A
Matrix: Water
Analysis Batch: 101819

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 101732

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	2.17	J	ng/L		108	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	2.25	J	ng/L		112	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.26	J	ng/L		113	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	2.34	J	ng/L		117	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.47	J	ng/L		123	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.25	J	ng/L		112	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.17	J	ng/L		108	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.24	J	ng/L		112	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.23	J	ng/L		111	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	2.37	J	ng/L		118	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	2.11	J	ng/L		105	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.29	J	ng/L		114	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.32	J	ng/L		116	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.00	2.40	J	ng/L		120	50 - 150

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

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

Lab Sample ID: MRL 380-101732/23-A
Matrix: Water
Analysis Batch: 101819

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 101732

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits	
Perfluorotridecanoic acid (PFTTrDA)	2.00	2.19	J	ng/L		109	50 - 150	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	2.01	J	ng/L		100	50 - 150	
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	2.00	J	ng/L		100	50 - 150	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	2.04	J	ng/L		102	50 - 150	
Surrogate								
	%Recovery	MRL	MRL					Limits
d5-NEtFOSAA	114							70 - 130
13C2 PFHxA	106							70 - 130
13C2 PFDA	104							70 - 130
13C3-GenX	100							70 - 130

Lab Sample ID: 380-106417-B-2-A MS
Matrix: Water
Analysis Batch: 101819

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 101732

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		50.2	46.4		ng/L		92	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		50.2	51.0		ng/L		100	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		50.2	49.8		ng/L		99	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		50.2	53.6		ng/L		107	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		50.2	54.5		ng/L		108	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		50.2	49.7		ng/L		99	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		50.2	49.1		ng/L		98	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		50.2	51.3		ng/L		102	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		50.2	49.5		ng/L		99	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		50.2	53.0		ng/L		106	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		50.2	47.2		ng/L		94	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		50.2	50.2		ng/L		100	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		50.2	51.7		ng/L		103	70 - 130
Perfluorotetradecanoic acid (PFTA)	<2.0		50.2	51.8		ng/L		103	70 - 130
Perfluorotridecanoic acid (PFTTrDA)	<2.0		50.2	50.3		ng/L		100	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		50.2	47.9		ng/L		95	70 - 130
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		50.2	50.5		ng/L		101	70 - 130

QC Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

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

Lab Sample ID: 380-106417-B-2-A MS
Matrix: Water
Analysis Batch: 101819

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 101732

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		50.2	46.7		ng/L		93	70 - 130
MS MS									
Surrogate	%Recovery	Qualifier	Limits						
d5-NEtFOSAA	112		70 - 130						
13C2 PFHxA	99		70 - 130						
13C2 PFDA	102		70 - 130						
13C3-GenX	94		70 - 130						

Lab Sample ID: 380-106417-C-2-A MSD
Matrix: Water
Analysis Batch: 101819

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 101732

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	44.8		ng/L		89	70 - 130	4	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		50.2	50.3		ng/L		99	70 - 130	1	30
Perfluoroundecanoic acid (PFUnA)	<2.0		50.2	49.7		ng/L		99	70 - 130	0	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		50.2	51.1		ng/L		102	70 - 130	5	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		50.2	52.6		ng/L		105	70 - 130	4	30
Perfluorohexanoic acid (PFHxA)	<2.0		50.2	46.6		ng/L		93	70 - 130	6	30
Perfluorododecanoic acid (PFDoA)	<2.0		50.2	47.7		ng/L		95	70 - 130	3	30
Perfluorooctanoic acid (PFOA)	<2.0		50.2	49.7		ng/L		99	70 - 130	3	30
Perfluorodecanoic acid (PFDA)	<2.0		50.2	49.6		ng/L		99	70 - 130	0	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		50.2	50.5		ng/L		101	70 - 130	5	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		50.2	44.1		ng/L		88	70 - 130	7	30
Perfluoroheptanoic acid (PFHpA)	<2.0		50.2	49.0		ng/L		98	70 - 130	2	30
Perfluorononanoic acid (PFNA)	<2.0		50.2	51.6		ng/L		103	70 - 130	0	30
Perfluorotetradecanoic acid (PFTA)	<2.0		50.2	51.4		ng/L		102	70 - 130	1	30
Perfluorotridecanoic acid (PFTTrDA)	<2.0		50.2	49.3		ng/L		98	70 - 130	2	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		50.2	46.7		ng/L		93	70 - 130	3	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		50.2	49.6		ng/L		99	70 - 130	2	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		50.2	45.1		ng/L		90	70 - 130	3	30
MSD MSD											
Surrogate	%Recovery	Qualifier	Limits								
d5-NEtFOSAA	109		70 - 130								
13C2 PFHxA	102		70 - 130								
13C2 PFDA	105		70 - 130								

QC Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

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

Lab Sample ID: 380-106417-C-2-A MSD
Matrix: Water
Analysis Batch: 101819

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 101732

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
13C3-GenX	95		70 - 130

Lab Sample ID: MBL 380-101812/20-A
Matrix: Water
Analysis Batch: 101978

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 101812

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		08/01/24 15:22	08/02/24 17:21	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		08/01/24 15:22	08/02/24 17:21	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		08/01/24 15:22	08/02/24 17:21	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.58		2.0	ng/L		08/01/24 15:22	08/02/24 17:21	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.42		2.0	ng/L		08/01/24 15:22	08/02/24 17:21	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		08/01/24 15:22	08/02/24 17:21	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		08/01/24 15:22	08/02/24 17:21	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		08/01/24 15:22	08/02/24 17:21	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		08/01/24 15:22	08/02/24 17:21	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		08/01/24 15:22	08/02/24 17:21	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		08/01/24 15:22	08/02/24 17:21	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		08/01/24 15:22	08/02/24 17:21	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		08/01/24 15:22	08/02/24 17:21	1
Perfluorotetradecanoic acid (PFTA)	<0.54		2.0	ng/L		08/01/24 15:22	08/02/24 17:21	1
Perfluorotridecanoic acid (PFTrDA)	<0.36		2.0	ng/L		08/01/24 15:22	08/02/24 17:21	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<0.30		2.0	ng/L		08/01/24 15:22	08/02/24 17:21	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		08/01/24 15:22	08/02/24 17:21	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		08/01/24 15:22	08/02/24 17:21	1

Surrogate	MBL MBL		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
d5-NEtFOSAA	96		70 - 130	08/01/24 15:22	08/02/24 17:21	1
13C2 PFHxA	97		70 - 130	08/01/24 15:22	08/02/24 17:21	1
13C2 PFDA	103		70 - 130	08/01/24 15:22	08/02/24 17:21	1
13C3-GenX	91		70 - 130	08/01/24 15:22	08/02/24 17:21	1

Lab Sample ID: LCS 380-101812/22-A
Matrix: Water
Analysis Batch: 101978

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 101812

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	50.0	46.8		ng/L		94	70 - 130
Perfluorooctanesulfonic acid (PFOS)	50.0	54.2		ng/L		108	70 - 130
Perfluoroundecanoic acid (PFUnA)	50.0	52.5		ng/L		105	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	50.0	50.6		ng/L		101	70 - 130

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QC Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

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

Lab Sample ID: LCS 380-101812/22-A
Matrix: Water
Analysis Batch: 101978

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 101812

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	50.0	49.0		ng/L		98	70 - 130
Perfluorohexanoic acid (PFHxA)	50.0	47.3		ng/L		95	70 - 130
Perfluorododecanoic acid (PFDoA)	50.0	49.0		ng/L		98	70 - 130
Perfluorooctanoic acid (PFOA)	50.0	50.3		ng/L		101	70 - 130
Perfluorodecanoic acid (PFDA)	50.0	49.0		ng/L		98	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	50.0	55.5		ng/L		111	70 - 130
Perfluorobutanesulfonic acid (PFBS)	50.0	51.9		ng/L		104	70 - 130
Perfluoroheptanoic acid (PFHpA)	50.0	50.2		ng/L		100	70 - 130
Perfluorononanoic acid (PFNA)	50.0	51.3		ng/L		103	70 - 130
Perfluorotetradecanoic acid (PFTA)	50.0	48.4		ng/L		97	70 - 130
Perfluorotridecanoic acid (PFTTrDA)	50.0	47.8		ng/L		96	70 - 130
9-Chlorohexadecafluoro-3-oxan onane-1-sulfonic acid(9Cl-PF3ONS)	50.0	53.3		ng/L		107	70 - 130
11-Chloroeicosfluoro-3-oxaund ecane-1-sulfonic acid (11Cl-PF3OUdS)	50.0	52.0		ng/L		104	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	50.0	48.9		ng/L		98	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
d5-NEtFOSAA	94		70 - 130
13C2 PFHxA	96		70 - 130
13C2 PFDA	100		70 - 130
13C3-GenX	90		70 - 130

Lab Sample ID: MRL 380-101812/21-A
Matrix: Water
Analysis Batch: 101978

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 101812

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	2.08	J	ng/L		104	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	2.43	J	ng/L		121	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.39	J	ng/L		119	50 - 150
N-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	2.00	2.39	J	ng/L		119	50 - 150
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	2.00	2.42	J	ng/L		121	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.19	J	ng/L		109	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.30	J	ng/L		115	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.39	J	ng/L		119	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.34	J	ng/L		117	50 - 150

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QC Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

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

Lab Sample ID: MRL 380-101812/21-A
Matrix: Water
Analysis Batch: 101978

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 101812

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanesulfonic acid (PFHxS)	2.00	2.51	J	ng/L		125	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	2.34	J	ng/L		117	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.33	J	ng/L		116	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.38	J	ng/L		119	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.00	2.29	J	ng/L		114	50 - 150
Perfluorotridecanoic acid (PFTDA)	2.00	2.27	J	ng/L		113	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	2.45	J	ng/L		122	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	2.24	J	ng/L		112	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	2.31	J	ng/L		115	50 - 150
	MRL	MRL					
Surrogate	%Recovery	Qualifier					Limits
d5-NEtFOSAA	101						70 - 130
13C2 PFHxA	95						70 - 130
13C2 PFDA	105						70 - 130
13C3-GenX	89						70 - 130

Lab Sample ID: 380-106365-B-1-A MS
Matrix: Water
Analysis Batch: 101978

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 101812

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		25.2	24.6		ng/L		98	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		25.2	28.2		ng/L		112	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		25.2	28.0		ng/L		111	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.2	26.5		ng/L		105	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		25.2	25.3		ng/L		101	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		25.2	25.0		ng/L		99	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		25.2	25.5		ng/L		101	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		25.2	27.7		ng/L		107	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		25.2	26.9		ng/L		107	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		25.2	28.8		ng/L		113	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		25.2	26.8		ng/L		107	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		25.2	26.6		ng/L		106	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		25.2	27.4		ng/L		109	70 - 130
Perfluorotetradecanoic acid (PFTA)	<2.0		25.2	26.8		ng/L		107	70 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-106526-1
SDG: PFAS

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

Lab Sample ID: 380-106365-B-1-A MS
Matrix: Water
Analysis Batch: 101978

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 101812

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorotridecanoic acid (PFTrDA)	<2.0		25.2	26.1		ng/L		104	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		25.2	26.9		ng/L		107	70 - 130
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		25.2	25.8		ng/L		103	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		25.2	26.8		ng/L		107	70 - 130
Surrogate		MS %Recovery	MS Qualifier		Limits				
d5-NEtFOSAA		101			70 - 130				
13C2 PFHxA		102			70 - 130				
13C2 PFDA		106			70 - 130				
13C3-GenX		105			70 - 130				

Lab Sample ID: 380-106365-B-1-B MSD
Matrix: Water
Analysis Batch: 101978

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 101812

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		25.2	25.0		ng/L		99	70 - 130	1	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		25.2	27.6		ng/L		110	70 - 130	2	30
Perfluoroundecanoic acid (PFUnA)	<2.0		25.2	26.1		ng/L		104	70 - 130	7	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.2	26.9		ng/L		107	70 - 130	1	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		25.2	26.3		ng/L		105	70 - 130	4	30
Perfluorohexanoic acid (PFHxA)	<2.0		25.2	24.2		ng/L		96	70 - 130	3	30
Perfluorododecanoic acid (PFDoA)	<2.0		25.2	24.7		ng/L		98	70 - 130	3	30
Perfluorooctanoic acid (PFOA)	<2.0		25.2	26.4		ng/L		102	70 - 130	5	30
Perfluorodecanoic acid (PFDA)	<2.0		25.2	25.5		ng/L		101	70 - 130	5	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		25.2	27.8		ng/L		109	70 - 130	4	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		25.2	26.4		ng/L		105	70 - 130	2	30
Perfluoroheptanoic acid (PFHpA)	<2.0		25.2	24.3		ng/L		97	70 - 130	9	30
Perfluorononanoic acid (PFNA)	<2.0		25.2	26.2		ng/L		104	70 - 130	5	30
Perfluorotetradecanoic acid (PFTA)	<2.0		25.2	25.0		ng/L		100	70 - 130	7	30
Perfluorotridecanoic acid (PFTrDA)	<2.0		25.2	24.5		ng/L		98	70 - 130	6	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		25.2	26.8		ng/L		107	70 - 130	0	30
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		25.2	25.9		ng/L		103	70 - 130	0	30

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-106526-1
 SDG: PFAS

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

Lab Sample ID: 380-106365-B-1-B MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 101978

Prep Batch: 101812

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		25.2	25.2		ng/L		100	70 - 130	6	30
Surrogate	%Recovery	MSD Qualifier	MSD Limits								
d5-NEtFOSAA	99		70 - 130								
13C2 PFHxA	89		70 - 130								
13C2 PFDA	98		70 - 130								
13C3-GenX	93		70 - 130								

QC Association Summary

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

Job ID: 380-106526-1
SDG: PFAS

LCMS

Prep Batch: 101732

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-106526-1	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	537.1 DW	
380-106526-2	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	537.1 DW	
380-106526-3	AIEA WELLS PUMPS 1&2 (260) (331-203-TP40C	Total/NA	Drinking Water	537.1 DW	
380-106526-5	FB: MOANALUA WELLS (331-223-TP202)	Total/NA	Water	537.1 DW	
380-106526-6	FB: AIEA GULCH WELLS PUMP 2 (331-202-TPC	Total/NA	Water	537.1 DW	
380-106526-7	FB: AIEA WELLS PUMPS 1&2 (260) (331-203-TF	Total/NA	Water	537.1 DW	
MBL 380-101732/22-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-101732/24-A	Lab Control Sample	Total/NA	Water	537.1 DW	
MRL 380-101732/23-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-106417-B-2-A MS	Matrix Spike	Total/NA	Water	537.1 DW	
380-106417-C-2-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1 DW	

Prep Batch: 101773

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-106526-3	AIEA WELLS PUMPS 1&2 (260) (331-203-TP40C	Total/NA	Drinking Water	533	
MBL 380-101773/20-A	Method Blank	Total/NA	Water	533	
LCS 380-101773/22-A	Lab Control Sample	Total/NA	Water	533	
MRL 380-101773/21-A	Lab Control Sample	Total/NA	Water	533	
380-106466-B-1-A MS	Matrix Spike	Total/NA	Water	533	
380-106466-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	

Prep Batch: 101782

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-106526-1	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	533	
380-106526-2	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	533	
380-106526-4	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	Total/NA	Drinking Water	533	
380-106526-5	FB: MOANALUA WELLS (331-223-TP202)	Total/NA	Water	533	
380-106526-6	FB: AIEA GULCH WELLS PUMP 2 (331-202-TPC	Total/NA	Water	533	
380-106526-8	FB: HALAWA WELLS UNITS 1 & 2 (331-206-TPC	Total/NA	Water	533	
MBL 380-101782/20-A	Method Blank	Total/NA	Water	533	
LCS 380-101782/22-A	Lab Control Sample	Total/NA	Water	533	
380-106355-B-1-A MS	Matrix Spike	Total/NA	Water	533	
380-106355-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	

Prep Batch: 101812

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-106526-4	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	Total/NA	Drinking Water	537.1 DW	
380-106526-8	FB: HALAWA WELLS UNITS 1 & 2 (331-206-TPC	Total/NA	Water	537.1 DW	
MBL 380-101812/20-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-101812/22-A	Lab Control Sample	Total/NA	Water	537.1 DW	
MRL 380-101812/21-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-106365-B-1-A MS	Matrix Spike	Total/NA	Water	537.1 DW	
380-106365-B-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	537.1 DW	

Analysis Batch: 101819

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-106526-1	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	537.1	101732
380-106526-2	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	537.1	101732
380-106526-3	AIEA WELLS PUMPS 1&2 (260) (331-203-TP40C	Total/NA	Drinking Water	537.1	101732
380-106526-5	FB: MOANALUA WELLS (331-223-TP202)	Total/NA	Water	537.1	101732
380-106526-6	FB: AIEA GULCH WELLS PUMP 2 (331-202-TPC	Total/NA	Water	537.1	101732

QC Association Summary

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

Job ID: 380-106526-1
SDG: PFAS

LCMS (Continued)

Analysis Batch: 101819 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-106526-7	FB: AIEA WELLS PUMPS 1&2 (260) (331-203-TF	Total/NA	Water	537.1	101732
MBL 380-101732/22-A	Method Blank	Total/NA	Water	537.1	101732
LCS 380-101732/24-A	Lab Control Sample	Total/NA	Water	537.1	101732
MRL 380-101732/23-A	Lab Control Sample	Total/NA	Water	537.1	101732
380-106417-B-2-A MS	Matrix Spike	Total/NA	Water	537.1	101732
380-106417-C-2-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1	101732

Prep Batch: 101924

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-106526-7	FB: AIEA WELLS PUMPS 1&2 (260) (331-203-TF	Total/NA	Water	533	
MBL 380-101924/20-A	Method Blank	Total/NA	Water	533	
LCS 380-101924/22-A	Lab Control Sample	Total/NA	Water	533	
MRL 380-101924/21-A	Lab Control Sample	Total/NA	Water	533	
380-106663-B-1-A MS	Matrix Spike	Total/NA	Water	533	
380-106663-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	

Analysis Batch: 101951

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-106526-1	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	533	101782
380-106526-2	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	533	101782
380-106526-4	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	Total/NA	Drinking Water	533	101782
380-106526-5	FB: MOANALUA WELLS (331-223-TP202)	Total/NA	Water	533	101782
380-106526-6	FB: AIEA GULCH WELLS PUMP 2 (331-202-TPC	Total/NA	Water	533	101782
380-106526-8	FB: HALAWA WELLS UNITS 1 & 2 (331-206-TPC	Total/NA	Water	533	101782
MBL 380-101782/20-A	Method Blank	Total/NA	Water	533	101782
LCS 380-101782/22-A	Lab Control Sample	Total/NA	Water	533	101782
380-106355-B-1-A MS	Matrix Spike	Total/NA	Water	533	101782
380-106355-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	101782

Analysis Batch: 101952

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-106526-3	AIEA WELLS PUMPS 1&2 (260) (331-203-TP40C	Total/NA	Drinking Water	533	101773
MBL 380-101773/20-A	Method Blank	Total/NA	Water	533	101773
LCS 380-101773/22-A	Lab Control Sample	Total/NA	Water	533	101773
MRL 380-101773/21-A	Lab Control Sample	Total/NA	Water	533	101773
380-106466-B-1-A MS	Matrix Spike	Total/NA	Water	533	101773
380-106466-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	101773

Analysis Batch: 101978

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-106526-4	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	Total/NA	Drinking Water	537.1	101812
380-106526-8	FB: HALAWA WELLS UNITS 1 & 2 (331-206-TPC	Total/NA	Water	537.1	101812
MBL 380-101812/20-A	Method Blank	Total/NA	Water	537.1	101812
LCS 380-101812/22-A	Lab Control Sample	Total/NA	Water	537.1	101812
MRL 380-101812/21-A	Lab Control Sample	Total/NA	Water	537.1	101812
380-106365-B-1-A MS	Matrix Spike	Total/NA	Water	537.1	101812
380-106365-B-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	537.1	101812

Analysis Batch: 102023

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-106526-7	FB: AIEA WELLS PUMPS 1&2 (260) (331-203-TF	Total/NA	Water	533	101924

Eurofins Eaton Analytical Pomona

QC Association Summary

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

Job ID: 380-106526-1
SDG: PFAS

LCMS (Continued)

Analysis Batch: 102023 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MBL 380-101924/20-A	Method Blank	Total/NA	Water	533	101924
LCS 380-101924/22-A	Lab Control Sample	Total/NA	Water	533	101924
MRL 380-101924/21-A	Lab Control Sample	Total/NA	Water	533	101924
380-106663-B-1-A MS	Matrix Spike	Total/NA	Water	533	101924
380-106663-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	101924

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Lab Chronicle

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

Job ID: 380-106526-1
SDG: PFAS

Client Sample ID: MOANALUA WELLS (331-223-TP202)

Lab Sample ID: 380-106526-1

Date Collected: 07/29/24 09:55

Matrix: Drinking Water

Date Received: 07/31/24 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			101782	G9MN	EA POM	08/01/24 12:36
Total/NA	Analysis	533		1	101951	Y5FM	EA POM	08/02/24 15:08
Total/NA	Prep	537.1 DW			101732	A5GB	EA POM	08/01/24 08:54
Total/NA	Analysis	537.1		1	101819	Y5FM	EA POM	08/01/24 19:38

Client Sample ID: AIEA GULCH WELLS PUMP 2 (331-202-TP072)

Lab Sample ID: 380-106526-2

Date Collected: 07/29/24 10:51

Matrix: Drinking Water

Date Received: 07/31/24 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			101782	G9MN	EA POM	08/01/24 12:36
Total/NA	Analysis	533		1	101951	Y5FM	EA POM	08/02/24 15:17
Total/NA	Prep	537.1 DW			101732	A5GB	EA POM	08/01/24 08:54
Total/NA	Analysis	537.1		1	101819	Y5FM	EA POM	08/01/24 19:48

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)

Lab Sample ID: 380-106526-3

Date Collected: 07/29/24 11:14

Matrix: Drinking Water

Date Received: 07/31/24 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			101773	N8NE	EA POM	08/01/24 12:42
Total/NA	Analysis	533		1	101952	Y5FM	EA POM	08/02/24 16:44
Total/NA	Prep	537.1 DW			101732	A5GB	EA POM	08/01/24 08:54
Total/NA	Analysis	537.1		1	101819	Y5FM	EA POM	08/01/24 19:59

Client Sample ID: HALAWA WELLS UNITS 1 & 2 (331-206-TP065)

Lab Sample ID: 380-106526-4

Date Collected: 07/29/24 10:27

Matrix: Drinking Water

Date Received: 07/31/24 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			101782	G9MN	EA POM	08/01/24 12:36
Total/NA	Analysis	533		1	101951	Y5FM	EA POM	08/02/24 15:27
Total/NA	Prep	537.1 DW			101812	N8NE	EA POM	08/01/24 15:22
Total/NA	Analysis	537.1		1	101978	Y5FM	EA POM	08/02/24 20:04

Client Sample ID: FB: MOANALUA WELLS (331-223-TP202)

Lab Sample ID: 380-106526-5

Date Collected: 07/29/24 09:55

Matrix: Water

Date Received: 07/31/24 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			101782	G9MN	EA POM	08/01/24 12:36
Total/NA	Analysis	533		1	101951	Y5FM	EA POM	08/02/24 15:36

Lab Chronicle

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

Job ID: 380-106526-1
SDG: PFAS

Client Sample ID: FB: MOANALUA WELLS (331-223-TP202)

Lab Sample ID: 380-106526-5

Date Collected: 07/29/24 09:55

Matrix: Water

Date Received: 07/31/24 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	537.1 DW			101732	A5GB	EA POM	08/01/24 08:54
Total/NA	Analysis	537.1		1	101819	Y5FM	EA POM	08/01/24 20:10

Client Sample ID: FB: AIEA GULCH WELLS PUMP 2 (331-202-TP072)

Lab Sample ID: 380-106526-6

Date Collected: 07/29/24 10:51

Matrix: Water

Date Received: 07/31/24 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			101782	G9MN	EA POM	08/01/24 12:36
Total/NA	Analysis	533		1	101951	Y5FM	EA POM	08/02/24 15:46
Total/NA	Prep	537.1 DW			101732	A5GB	EA POM	08/01/24 08:54
Total/NA	Analysis	537.1		1	101819	Y5FM	EA POM	08/01/24 20:20

Client Sample ID: FB: AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)

Lab Sample ID: 380-106526-7

Date Collected: 07/29/24 11:14

Matrix: Water

Date Received: 07/31/24 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			101924	XTD8	EA POM	08/02/24 06:48
Total/NA	Analysis	533		1	102023	Y5FM	EA POM	08/02/24 20:19
Total/NA	Prep	537.1 DW			101732	A5GB	EA POM	08/01/24 08:54
Total/NA	Analysis	537.1		1	101819	Y5FM	EA POM	08/01/24 20:31

Client Sample ID: FB: HALAWA WELLS UNITS 1 & 2 (331-206-TP065)

Lab Sample ID: 380-106526-8

Date Collected: 07/29/24 10:57

Matrix: Water

Date Received: 07/31/24 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			101782	G9MN	EA POM	08/01/24 12:36
Total/NA	Analysis	533		1	101951	Y5FM	EA POM	08/02/24 15:55
Total/NA	Prep	537.1 DW			101812	N8NE	EA POM	08/01/24 15:22
Total/NA	Analysis	537.1		1	101978	Y5FM	EA POM	08/02/24 20:13

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: 380-106526-1
SDG: 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

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Method Summary

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

Job ID: 380-106526-1
SDG: 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: 380-106526-1
 SDG: PFAS

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-106526-1	MOANALUA WELLS (331-223-TP202)	Drinking Water	07/29/24 09:55	07/31/24 09:52	HI0000331
380-106526-2	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Drinking Water	07/29/24 10:51	07/31/24 09:52	HI0000331
380-106526-3	AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	Drinking Water	07/29/24 11:14	07/31/24 09:52	HI0000331
380-106526-4	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	Drinking Water	07/29/24 10:27	07/31/24 09:52	HI0000331
380-106526-5	FB: MOANALUA WELLS (331-223-TP202)	Water	07/29/24 09:55	07/31/24 09:52	
380-106526-6	FB: AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Water	07/29/24 10:51	07/31/24 09:52	
380-106526-7	FB: AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	Water	07/29/24 11:14	07/31/24 09:52	
380-106526-8	FB: HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	Water	07/29/24 10:57	07/31/24 09:52	

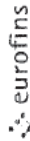
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Mohrovia, CA (Suite 100)
 750 Royal Oaks Drive Suite 100
 Monrovia CA 91016
 Phone (626) 386 1100



CR

Copy Record



Client Information Client Contact: Dr. Ron Fenstermacher Phone: +1 808 748 5840 Email: rachel@eurofins.com		Lab PM: Arada Rachelle E-Mail: Rachelle.Arada@let.eurofins.com		Carrier Tracking No(s): 380-27941 2757 2 State of Origin: Page 2 of 2 Job #:	
City & County of Honolulu Address: 630 South Beretania Street, Chemistry Lab City: Honolulu State Zip: HI 96843 Phone: 808-748-5091 (tel) Email: rfenstermacher@hbws.org		PWSID Due Date Requested TAT Requested (days) Compliance Project: Δ No PO #: C20525101 exp 05312023 WO #:		Analysis Requested Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> SUBCONTRACT 625 PAH Physis LL (EAL) + TICs 80158_GRO_LL (MOD) GRO 80158_DRO_LL_CS HNL Ranges C10-C24/C24 C36/C8 C18 526 Z. PREC (MOD) 525plus PLUS TICs 537 Z. DW. PREC 537 1 Full List 533 All Analytes	
Project Name: RED-HILL/HBWS sites Event Desc. RUSH Weekly Red Hill Site:		Project #: 38001111 SSOV#:		Total Number of Containers: <input checked="" type="checkbox"/>	
Sample Identification MOANALUA WELLS AIEA GULCH WELLS PUMP2 AIEA WELLS PUMPS 1&2 (260) P2 HALAWA WELLS UNITS 1&2 P1		Sample Date 29 Jul-2024 29-Jul-2024 29-Jul-2024 29 Jul-2024		Sample Time 0955 1051 1114 1027	
Sample Type (C=comp, G=grab) G G G G		Matrix (W=water, S=solid, O=on-site) Water Water Water Water		Preservation Codes A HCL B NaOH C Zn Acetate D Nitric Acid E NaHSO4 F MeOH G Amchlor H Ascorbic Acid I Ice J DI Water K EDTA L EDA Other	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested I II III IV Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Special Instructions/Note chlorinated chlorinated	
Empty Kit Relinquished by:		Date:		Method of Shipment: FED EX 7776 9704 6799	
Relinquished by:		Date/Time: 07/31/2024 09:52		Company: ECAF	
Relinquished by:		Date/Time:		Company:	
Relinquished by:		Date/Time:		Company:	
Custody Seals Intact: Δ Yes Δ No		Cooler Temperature(s) °C and Other Remarks (757A 3.5°-0.1°-3.4° AEL-PROLEN)		Ver 01 16 2019	



Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-106526-1

SDG Number: PFAS

Login Number: 106526

List Source: Eurofins Eaton Analytical Pomona

List Number: 1

Creator: Gerfen, Chris

Question	Answer	Comment
The coolers custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
Samples were received on ice.	True	
Cooler(s) Temperature is acceptable.	True	
Cooler(s) Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and is legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
CIO4 headspace requirement met (>50% for CA, >30% for other states).	N/A	
Samples do not require splitting or compositing.	True	
Container provided by EEA	True	

