

ANALYTICAL REPORT

PREPARED FOR

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JOB DESCRIPTION

RED-HILL [PFAS]
533, 537.1

JOB NUMBER

380-87238-1

Eurofins Eaton Analytical Pomona

Job Notes

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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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Table of Contents

Cover Page	1
Table of Contents	3
Definitions/Glossary	4
Case Narrative	5
Detection Summary	6
Client Sample Results	7
Surrogate Summary	19
Isotope Dilution Summary	20
QC Sample Results	22
QC Association Summary	46
Lab Chronicle	48
Certification Summary	50
Method Summary	51
Sample Summary	52
Chain of Custody	53
Receipt Checklists	54

Definitions/Glossary

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

Job ID: 380-87238-1
SDG: 533, 537.1

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
E	Result exceeded calibration range.
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 [PFAS]

Job ID: 380-87238-1

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Job Narrative 380-87238-1

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 are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample 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 3/14/2024 10:04 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.2°C, 1.8°C and 2.0°C.

PFAS

Method 537.1 DW: The following samples were extracted in Prep Batch 81867, but due to an analyst error, the eluate was not collected. These samples are Field Blanks and there are no backups for re-extraction. FB: MOANALUA WELLS (380-87238-5), FB: AIEA GULCH WELLS PUMP2 (380-87238-6), FB: AIEA WELLS PUMPS 1&2 (260) P2 (380-87238-7) and FB: HALAWA WELLS UNITS 1&2 P1 (380-87238-8). Analysis cancelled due to this QC failure, sample results ND with the exception of HALAWA WELLS UNITS 1&2 P1 (380-87238-4) thus valid for reporting. HALAWA WELLS UNITS 1&2 P1 (380-87238-4) data excluded due to this QC issue.

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 [PFAS]

Job ID: 380-87238-1
SDG: 533, 537.1

Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-87238-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.0		2.0	ng/L	1		533	Total/NA

Client Sample ID: AIEA GULCH WELLS PUMP2

Lab Sample ID: 380-87238-2

No Detections.

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2

Lab Sample ID: 380-87238-3

No Detections.

Client Sample ID: HALAWA WELLS UNITS 1&2 P1

Lab Sample ID: 380-87238-4

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	2.5		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.4		2.0	ng/L	1		533	Total/NA
Perfluoropentanoic acid (PFPeA)	2.3		2.0	ng/L	1		533	Total/NA

Client Sample ID: FB: MOANALUA WELLS

Lab Sample ID: 380-87238-5

No Detections.

Client Sample ID: FB: AIEA GULCH WELLS PUMP2

Lab Sample ID: 380-87238-6

No Detections.

Client Sample ID: FB: AIEA WELLS PUMPS 1&2 (260) P2

Lab Sample ID: 380-87238-7

No Detections.

Client Sample ID: FB: HALAWA WELLS UNITS 1&2 P1

Lab Sample ID: 380-87238-8

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 [PFAS]

Job ID: 380-87238-1
 SDG: 533, 537.1

Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-87238-1

Date Collected: 03/11/24 09:59

Matrix: Water

Date Received: 03/14/24 10:04

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		03/27/24 10:40	03/28/24 09:57	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		03/27/24 10:40	03/28/24 09:57	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		03/27/24 10:40	03/28/24 09:57	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		03/27/24 10:40	03/28/24 09:57	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		03/27/24 10:40	03/28/24 09:57	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		03/27/24 10:40	03/28/24 09:57	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		03/27/24 10:40	03/28/24 09:57	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		03/27/24 10:40	03/28/24 09:57	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		03/27/24 10:40	03/28/24 09:57	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		03/27/24 10:40	03/28/24 09:57	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		03/27/24 10:40	03/28/24 09:57	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		03/27/24 10:40	03/28/24 09:57	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		03/27/24 10:40	03/28/24 09:57	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		03/27/24 10:40	03/28/24 09:57	1
Perfluorobutanoic acid (PFBA)	2.0		2.0	ng/L		03/27/24 10:40	03/28/24 09:57	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		03/27/24 10:40	03/28/24 09:57	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		03/27/24 10:40	03/28/24 09:57	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		03/27/24 10:40	03/28/24 09:57	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		03/27/24 10:40	03/28/24 09:57	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		03/27/24 10:40	03/28/24 09:57	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		03/27/24 10:40	03/28/24 09:57	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		03/27/24 10:40	03/28/24 09:57	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		03/27/24 10:40	03/28/24 09:57	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		03/27/24 10:40	03/28/24 09:57	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		03/27/24 10:40	03/28/24 09:57	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	101		50 - 200	03/27/24 10:40	03/28/24 09:57	1
13C6 PFDA	91		50 - 200	03/27/24 10:40	03/28/24 09:57	1
13C5 PFHxA	103		50 - 200	03/27/24 10:40	03/28/24 09:57	1
13C4 PFHpA	105		50 - 200	03/27/24 10:40	03/28/24 09:57	1
13C8 PFOA	102		50 - 200	03/27/24 10:40	03/28/24 09:57	1
13C9 PFNA	95		50 - 200	03/27/24 10:40	03/28/24 09:57	1
13C7 PFUnA	92		50 - 200	03/27/24 10:40	03/28/24 09:57	1
13C2 PFDoA	94		50 - 200	03/27/24 10:40	03/28/24 09:57	1
13C4 PFBA	95		50 - 200	03/27/24 10:40	03/28/24 09:57	1
13C5 PFPeA	101		50 - 200	03/27/24 10:40	03/28/24 09:57	1
13C3 PFBS	100		50 - 200	03/27/24 10:40	03/28/24 09:57	1
13C3 PFHxS	103		50 - 200	03/27/24 10:40	03/28/24 09:57	1
13C8 PFOS	95		50 - 200	03/27/24 10:40	03/28/24 09:57	1

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Client Sample Results

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

Job ID: 380-87238-1
SDG: 533, 537.1

Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-87238-1

Date Collected: 03/11/24 09:59

Matrix: Water

Date Received: 03/14/24 10:04

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	114		50 - 200	03/27/24 10:40	03/28/24 09:57	1
13C2-6:2-FTS	111		50 - 200	03/27/24 10:40	03/28/24 09:57	1
13C2-8:2-FTS	96		50 - 200	03/27/24 10:40	03/28/24 09:57	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		03/19/24 14:30	03/21/24 01:42	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:42	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:42	1
N-methylperfluorooctanesulfonamideacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:42	1
N-ethylperfluorooctanesulfonamideacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:42	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:42	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:42	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:42	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:42	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:42	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:42	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:42	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:42	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:42	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:42	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:42	1
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:42	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:42	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac		
d5-NEtFOSAA	114		70 - 130	03/19/24 14:30	03/21/24 01:42	1		
13C2 PFHxA	121		70 - 130	03/19/24 14:30	03/21/24 01:42	1		
13C2 PFDA	120		70 - 130	03/19/24 14:30	03/21/24 01:42	1		
13C3-GenX	110		70 - 130	03/19/24 14:30	03/21/24 01:42	1		

Client Sample ID: AIEA GULCH WELLS PUMP2

Lab Sample ID: 380-87238-2

Date Collected: 03/11/24 11:04

Matrix: Water

Date Received: 03/14/24 10:04

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		03/25/24 14:30	03/26/24 15:46	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:46	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:46	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:46	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:46	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:46	1

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Client Sample Results

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

Job ID: 380-87238-1
SDG: 533, 537.1

Client Sample ID: AIEA GULCH WELLS PUMP2

Lab Sample ID: 380-87238-2

Date Collected: 03/11/24 11:04

Matrix: Water

Date Received: 03/14/24 10:04

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:46	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:46	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:46	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:46	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:46	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:46	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:46	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:46	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:46	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:46	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:46	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:46	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:46	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:46	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:46	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:46	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:46	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:46	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:46	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	71		50 - 200	03/25/24 14:30	03/26/24 15:46	1
13C6 PFDA	53		50 - 200	03/25/24 14:30	03/26/24 15:46	1
13C5 PFHxA	77		50 - 200	03/25/24 14:30	03/26/24 15:46	1
13C4 PFHpA	76		50 - 200	03/25/24 14:30	03/26/24 15:46	1
13C8 PFOA	70		50 - 200	03/25/24 14:30	03/26/24 15:46	1
13C9 PFNA	53		50 - 200	03/25/24 14:30	03/26/24 15:46	1
13C7 PFUnA	59		50 - 200	03/25/24 14:30	03/26/24 15:46	1
13C2 PFDoA	66		50 - 200	03/25/24 14:30	03/26/24 15:46	1
13C4 PFBA	82		50 - 200	03/25/24 14:30	03/26/24 15:46	1
13C5 PFPeA	81		50 - 200	03/25/24 14:30	03/26/24 15:46	1
13C3 PFBS	107		50 - 200	03/25/24 14:30	03/26/24 15:46	1
13C3 PFHxS	111		50 - 200	03/25/24 14:30	03/26/24 15:46	1
13C8 PFOS	109		50 - 200	03/25/24 14:30	03/26/24 15:46	1
13C2-4:2-FTS	131		50 - 200	03/25/24 14:30	03/26/24 15:46	1
13C2-6:2-FTS	126		50 - 200	03/25/24 14:30	03/26/24 15:46	1
13C2-8:2-FTS	106		50 - 200	03/25/24 14:30	03/26/24 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		03/19/24 14:30	03/21/24 01:54	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:54	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:54	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-87238-1
SDG: 533, 537.1

Client Sample ID: AIEA GULCH WELLS PUMP2

Lab Sample ID: 380-87238-2

Date Collected: 03/11/24 11:04

Matrix: Water

Date Received: 03/14/24 10:04

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:54	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:54	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:54	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:54	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:54	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:54	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:54	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:54	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:54	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:54	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:54	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:54	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:54	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:54	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 01:54	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	111		70 - 130			03/19/24 14:30	03/21/24 01:54	1
13C2 PFHxA	116		70 - 130			03/19/24 14:30	03/21/24 01:54	1
13C2 PFDA	110		70 - 130			03/19/24 14:30	03/21/24 01:54	1
13C3-GenX	108		70 - 130			03/19/24 14:30	03/21/24 01:54	1

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2

Lab Sample ID: 380-87238-3

Date Collected: 03/11/24 11:28

Matrix: Water

Date Received: 03/14/24 10:04

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		03/25/24 14:30	03/26/24 15:55	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:55	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:55	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:55	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:55	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:55	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:55	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:55	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:55	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:55	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:55	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:55	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:55	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:55	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:55	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-87238-1
SDG: 533, 537.1

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2

Lab Sample ID: 380-87238-3

Date Collected: 03/11/24 11:28

Matrix: Water

Date Received: 03/14/24 10:04

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		03/25/24 14:30	03/26/24 15:55	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:55	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:55	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:55	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:55	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:55	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:55	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:55	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:55	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 15:55	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	91		50 - 200	03/25/24 14:30	03/26/24 15:55	1
13C6 PFDA	90		50 - 200	03/25/24 14:30	03/26/24 15:55	1
13C5 PFHxA	95		50 - 200	03/25/24 14:30	03/26/24 15:55	1
13C4 PFHpA	101		50 - 200	03/25/24 14:30	03/26/24 15:55	1
13C8 PFOA	96		50 - 200	03/25/24 14:30	03/26/24 15:55	1
13C9 PFNA	93		50 - 200	03/25/24 14:30	03/26/24 15:55	1
13C7 PFUnA	88		50 - 200	03/25/24 14:30	03/26/24 15:55	1
13C2 PFDoA	93		50 - 200	03/25/24 14:30	03/26/24 15:55	1
13C4 PFBA	103		50 - 200	03/25/24 14:30	03/26/24 15:55	1
13C5 PFPeA	106		50 - 200	03/25/24 14:30	03/26/24 15:55	1
13C3 PFBS	108		50 - 200	03/25/24 14:30	03/26/24 15:55	1
13C3 PFHxS	111		50 - 200	03/25/24 14:30	03/26/24 15:55	1
13C8 PFOS	104		50 - 200	03/25/24 14:30	03/26/24 15:55	1
13C2-4:2-FTS	133		50 - 200	03/25/24 14:30	03/26/24 15:55	1
13C2-6:2-FTS	122		50 - 200	03/25/24 14:30	03/26/24 15:55	1
13C2-8:2-FTS	105		50 - 200	03/25/24 14:30	03/26/24 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		03/19/24 14:30	03/21/24 02:03	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 02:03	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 02:03	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 02:03	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 02:03	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 02:03	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 02:03	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 02:03	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 02:03	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 02:03	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-87238-1
SDG: 533, 537.1

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2

Lab Sample ID: 380-87238-3

Date Collected: 03/11/24 11:28

Matrix: Water

Date Received: 03/14/24 10:04

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 02:03	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 02:03	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 02:03	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 02:03	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 02:03	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 02:03	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 02:03	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		03/19/24 14:30	03/21/24 02:03	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEFOSAA	109		70 - 130			03/19/24 14:30	03/21/24 02:03	1
13C2 PFHxA	120		70 - 130			03/19/24 14:30	03/21/24 02:03	1
13C2 PFDA	112		70 - 130			03/19/24 14:30	03/21/24 02:03	1
13C3-GenX	109		70 - 130			03/19/24 14:30	03/21/24 02:03	1

Client Sample ID: HALAWA WELLS UNITS 1&2 P1

Lab Sample ID: 380-87238-4

Date Collected: 03/11/24 10:37

Matrix: Water

Date Received: 03/14/24 10:04

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		03/25/24 14:30	03/26/24 16:05	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:05	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:05	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:05	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:05	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:05	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:05	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:05	1
Perfluorohexanesulfonic acid (PFHxS)	2.5		2.0	ng/L		03/25/24 14:30	03/26/24 16:05	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:05	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:05	1
Perfluorooctanesulfonic acid (PFOS)	2.4		2.0	ng/L		03/25/24 14:30	03/26/24 16:05	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:05	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:05	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:05	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:05	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:05	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:05	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:05	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-87238-1
SDG: 533, 537.1

Client Sample ID: HALAWA WELLS UNITS 1&2 P1

Lab Sample ID: 380-87238-4

Date Collected: 03/11/24 10:37

Matrix: Water

Date Received: 03/14/24 10:04

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:05	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:05	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:05	1
Perfluoropentanoic acid (PFPeA)	2.3		2.0	ng/L		03/25/24 14:30	03/26/24 16:05	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:05	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:05	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	96		50 - 200			03/25/24 14:30	03/26/24 16:05	1
13C6 PFDA	96		50 - 200			03/25/24 14:30	03/26/24 16:05	1
13C5 PFHxA	95		50 - 200			03/25/24 14:30	03/26/24 16:05	1
13C4 PFHpA	97		50 - 200			03/25/24 14:30	03/26/24 16:05	1
13C8 PFOA	107		50 - 200			03/25/24 14:30	03/26/24 16:05	1
13C9 PFNA	98		50 - 200			03/25/24 14:30	03/26/24 16:05	1
13C7 PFUnA	98		50 - 200			03/25/24 14:30	03/26/24 16:05	1
13C2 PFDoA	98		50 - 200			03/25/24 14:30	03/26/24 16:05	1
13C4 PFBA	105		50 - 200			03/25/24 14:30	03/26/24 16:05	1
13C5 PFPeA	107		50 - 200			03/25/24 14:30	03/26/24 16:05	1
13C3 PFBS	102		50 - 200			03/25/24 14:30	03/26/24 16:05	1
13C3 PFHxS	106		50 - 200			03/25/24 14:30	03/26/24 16:05	1
13C8 PFOS	104		50 - 200			03/25/24 14:30	03/26/24 16:05	1
13C2-4:2-FTS	135		50 - 200			03/25/24 14:30	03/26/24 16:05	1
13C2-6:2-FTS	145		50 - 200			03/25/24 14:30	03/26/24 16:05	1
13C2-8:2-FTS	106		50 - 200			03/25/24 14:30	03/26/24 16:05	1

Client Sample ID: FB: MOANALUA WELLS

Lab Sample ID: 380-87238-5

Date Collected: 03/11/24 09:59

Matrix: Water

Date Received: 03/14/24 10:04

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:14	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:14	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:14	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:14	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:14	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:14	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:14	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:14	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:14	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:14	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:14	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:14	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:14	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-87238-1
 SDG: 533, 537.1

Client Sample ID: FB: MOANALUA WELLS

Lab Sample ID: 380-87238-5

Date Collected: 03/11/24 09:59

Matrix: Water

Date Received: 03/14/24 10:04

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:14	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:14	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:14	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:14	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:14	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:14	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:14	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:14	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:14	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:14	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:14	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		03/25/24 14:30	03/26/24 16:14	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	80		50 - 200	03/25/24 14:30	03/26/24 16:14	1
13C6 PFDA	98		50 - 200	03/25/24 14:30	03/26/24 16:14	1
13C5 PFHxA	100		50 - 200	03/25/24 14:30	03/26/24 16:14	1
13C4 PFHpA	107		50 - 200	03/25/24 14:30	03/26/24 16:14	1
13C8 PFOA	102		50 - 200	03/25/24 14:30	03/26/24 16:14	1
13C9 PFNA	97		50 - 200	03/25/24 14:30	03/26/24 16:14	1
13C7 PFUnA	97		50 - 200	03/25/24 14:30	03/26/24 16:14	1
13C2 PFDoA	95		50 - 200	03/25/24 14:30	03/26/24 16:14	1
13C4 PFBA	104		50 - 200	03/25/24 14:30	03/26/24 16:14	1
13C5 PFPeA	107		50 - 200	03/25/24 14:30	03/26/24 16:14	1
13C3 PFBS	104		50 - 200	03/25/24 14:30	03/26/24 16:14	1
13C3 PFHxS	111		50 - 200	03/25/24 14:30	03/26/24 16:14	1
13C8 PFOS	104		50 - 200	03/25/24 14:30	03/26/24 16:14	1
13C2-4:2-FTS	127		50 - 200	03/25/24 14:30	03/26/24 16:14	1
13C2-6:2-FTS	117		50 - 200	03/25/24 14:30	03/26/24 16:14	1
13C2-8:2-FTS	110		50 - 200	03/25/24 14:30	03/26/24 16:14	1

Client Sample ID: FB: AIEA GULCH WELLS PUMP2

Lab Sample ID: 380-87238-6

Date Collected: 03/11/24 11:04

Matrix: Water

Date Received: 03/14/24 10:04

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		03/23/24 10:30	03/25/24 11:53	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 11:53	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 11:53	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 11:53	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-87238-1
SDG: 533, 537.1

Client Sample ID: FB: AIEA GULCH WELLS PUMP2

Lab Sample ID: 380-87238-6

Date Collected: 03/11/24 11:04

Matrix: Water

Date Received: 03/14/24 10:04

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 11:53	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 11:53	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 11:53	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 11:53	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 11:53	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 11:53	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 11:53	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 11:53	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 11:53	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 11:53	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 11:53	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 11:53	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 11:53	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 11:53	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 11:53	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 11:53	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 11:53	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 11:53	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 11:53	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 11:53	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 11:53	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	75		50 - 200	03/23/24 10:30	03/25/24 11:53	1
13C6 PFDA	87		50 - 200	03/23/24 10:30	03/25/24 11:53	1
13C5 PFHxA	81		50 - 200	03/23/24 10:30	03/25/24 11:53	1
13C4 PFHpA	92		50 - 200	03/23/24 10:30	03/25/24 11:53	1
13C8 PFOA	87		50 - 200	03/23/24 10:30	03/25/24 11:53	1
13C9 PFNA	89		50 - 200	03/23/24 10:30	03/25/24 11:53	1
13C7 PFUnA	86		50 - 200	03/23/24 10:30	03/25/24 11:53	1
13C2 PFDoA	87		50 - 200	03/23/24 10:30	03/25/24 11:53	1
13C4 PFBA	87		50 - 200	03/23/24 10:30	03/25/24 11:53	1
13C5 PFPeA	93		50 - 200	03/23/24 10:30	03/25/24 11:53	1
13C3 PFBS	98		50 - 200	03/23/24 10:30	03/25/24 11:53	1
13C3 PFHxS	100		50 - 200	03/23/24 10:30	03/25/24 11:53	1
13C8 PFOS	94		50 - 200	03/23/24 10:30	03/25/24 11:53	1
13C2-4:2-FTS	123		50 - 200	03/23/24 10:30	03/25/24 11:53	1
13C2-6:2-FTS	103		50 - 200	03/23/24 10:30	03/25/24 11:53	1
13C2-8:2-FTS	91		50 - 200	03/23/24 10:30	03/25/24 11:53	1

Client Sample Results

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

Job ID: 380-87238-1
SDG: 533, 537.1

Client Sample ID: FB: AIEA WELLS PUMPS 1&2 (260) P2

Lab Sample ID: 380-87238-7

Date Collected: 03/11/24 11:28

Matrix: Water

Date Received: 03/14/24 10:04

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:03	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:03	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:03	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:03	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:03	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:03	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:03	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:03	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:03	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:03	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:03	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:03	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:03	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:03	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:03	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:03	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:03	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:03	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:03	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:03	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:03	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:03	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:03	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:03	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:03	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	75		50 - 200	03/23/24 10:30	03/25/24 12:03	1
13C6 PFDA	87		50 - 200	03/23/24 10:30	03/25/24 12:03	1
13C5 PFHxA	83		50 - 200	03/23/24 10:30	03/25/24 12:03	1
13C4 PFHpA	90		50 - 200	03/23/24 10:30	03/25/24 12:03	1
13C8 PFOA	87		50 - 200	03/23/24 10:30	03/25/24 12:03	1
13C9 PFNA	91		50 - 200	03/23/24 10:30	03/25/24 12:03	1
13C7 PFUnA	85		50 - 200	03/23/24 10:30	03/25/24 12:03	1
13C2 PFDoA	86		50 - 200	03/23/24 10:30	03/25/24 12:03	1
13C4 PFBA	87		50 - 200	03/23/24 10:30	03/25/24 12:03	1
13C5 PFPeA	85		50 - 200	03/23/24 10:30	03/25/24 12:03	1
13C3 PFBS	92		50 - 200	03/23/24 10:30	03/25/24 12:03	1
13C3 PFHxS	97		50 - 200	03/23/24 10:30	03/25/24 12:03	1
13C8 PFOS	92		50 - 200	03/23/24 10:30	03/25/24 12:03	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-87238-1
SDG: 533, 537.1

Client Sample ID: FB: AIEA WELLS PUMPS 1&2 (260) P2

Lab Sample ID: 380-87238-7

Date Collected: 03/11/24 11:28

Matrix: Water

Date Received: 03/14/24 10:04

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	117		50 - 200	03/23/24 10:30	03/25/24 12:03	1
13C2-6:2-FTS	103		50 - 200	03/23/24 10:30	03/25/24 12:03	1
13C2-8:2-FTS	93		50 - 200	03/23/24 10:30	03/25/24 12:03	1

Client Sample ID: FB: HALAWA WELLS UNITS 1&2 P1

Lab Sample ID: 380-87238-8

Date Collected: 03/11/24 10:37

Matrix: Water

Date Received: 03/14/24 10:04

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:13	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:13	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:13	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:13	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:13	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:13	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:13	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:13	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:13	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:13	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:13	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:13	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:13	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:13	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:13	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:13	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:13	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:13	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:13	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:13	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:13	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:13	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:13	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:13	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		03/23/24 10:30	03/25/24 12:13	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	86		50 - 200	03/23/24 10:30	03/25/24 12:13	1
13C6 PFDA	102		50 - 200	03/23/24 10:30	03/25/24 12:13	1
13C5 PFHxA	97		50 - 200	03/23/24 10:30	03/25/24 12:13	1
13C4 PFHpA	107		50 - 200	03/23/24 10:30	03/25/24 12:13	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-87238-1
 SDG: 533, 537.1

Client Sample ID: FB: HALAWA WELLS UNITS 1&2 P1

Lab Sample ID: 380-87238-8

Date Collected: 03/11/24 10:37

Matrix: Water

Date Received: 03/14/24 10:04

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

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C8 PFOA	101		50 - 200	03/23/24 10:30	03/25/24 12:13	1
13C9 PFNA	104		50 - 200	03/23/24 10:30	03/25/24 12:13	1
13C7 PFUnA	98		50 - 200	03/23/24 10:30	03/25/24 12:13	1
13C2 PFDoA	99		50 - 200	03/23/24 10:30	03/25/24 12:13	1
13C4 PFBA	101		50 - 200	03/23/24 10:30	03/25/24 12:13	1
13C5 PFPeA	100		50 - 200	03/23/24 10:30	03/25/24 12:13	1
13C3 PFBS	107		50 - 200	03/23/24 10:30	03/25/24 12:13	1
13C3 PFHxS	115		50 - 200	03/23/24 10:30	03/25/24 12:13	1
13C8 PFOS	106		50 - 200	03/23/24 10:30	03/25/24 12:13	1
13C2-4:2-FTS	136		50 - 200	03/23/24 10:30	03/25/24 12:13	1
13C2-6:2-FTS	113		50 - 200	03/23/24 10:30	03/25/24 12:13	1
13C2-8:2-FTS	110		50 - 200	03/23/24 10:30	03/25/24 12:13	1

Surrogate Summary

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

Job ID: 380-87238-1
SDG: 533, 537.1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	d5NEFOS	PFHxA	PFDA	GenX
		(70-130)	(70-130)	(70-130)	(70-130)
380-87238-1	MOANALUA WELLS	114	121	120	110
380-87238-2	AIEA GULCH WELLS PUMP2	111	116	110	108
380-87238-3	AIEA WELLS PUMPS 1&2 (260) P2	109	120	112	109
380-87243-B-1-B MS	Matrix Spike	100	118	107	106
380-87243-B-1-C MSD	Matrix Spike Duplicate	104	119	109	115
LCS 380-82218/23-A	Lab Control Sample	107	106	104	103
MBL 380-82218/21-A	Method Blank	99	104	102	95
MRL 380-82218/22-A	Lab Control Sample	99	98	97	88

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 [PFAS]

Job ID: 380-87238-1
 SDG: 533, 537.1

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)
380-87238-1	MOANALUA WELLS	101	91	103	105	102	95	92	94
380-87238-2	AIEA GULCH WELLS PUMP2	71	53	77	76	70	53	59	66
380-87238-3	AIEA WELLS PUMPS 1&2 (260) P2	91	90	95	101	96	93	88	93
380-87238-4	HALAWA WELLS UNITS 1&2 P1	96	96	95	97	107	98	98	98
380-87238-5	FB: MOANALUA WELLS	80	98	100	107	102	97	97	95
380-87238-6	FB: AIEA GULCH WELLS PUMP2	75	87	81	92	87	89	86	87
380-87238-7	FB: AIEA WELLS PUMPS 1&2 (260) P2	75	87	83	90	87	91	85	86
380-87238-8	FB: HALAWA WELLS UNITS 1&2 P1	86	102	97	107	101	104	98	99
380-87243-C-1-B MS	Matrix Spike	55	32 *5-	58	59	47 *5-	37 *5-	33 *5-	35 *5-
380-87243-C-1-C MSD	Matrix Spike Duplicate	54	32 *5-	57	55	46 *5-	37 *5-	29 *5-	32 *5-
380-87604-B-3-A MS	Matrix Spike	127	116	112	116	116	112	111	107
380-87604-C-3-A MSD	Matrix Spike Duplicate	113	111	107	107	109	106	108	108
380-88189-E-1-B MS	Matrix Spike	95	83	83	87	78	81	83	87
380-88189-F-1-B MSD	Matrix Spike Duplicate	91	86	84	90	87	83	81	87
LCS 380-82906/23-A	Lab Control Sample	81	87	82	91	83	87	85	84
LCS 380-83114/21-A	Lab Control Sample	141	138	143	150	142	139	136	136
LCS 380-83389/23-A	Lab Control Sample	96	90	90	95	91	89	87	82
MBL 380-82906/21-A	Method Blank	59	72	70	76	75	70	74	81
MBL 380-83114/19-A	Method Blank	98	99	104	114	108	100	95	98
MBL 380-83389/21-A	Method Blank	90	93	99	104	96	89	92	89
MRL 380-82906/22-A	Lab Control Sample	65	78	75	85	80	80	78	83
MRL 380-83114/20-A	Lab Control Sample	108	104	111	115	114	102	105	106
MRL 380-83389/22-A	Lab Control Sample	87	89	91	98	95	91	89	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)
380-87238-1	MOANALUA WELLS	95	101	100	103	95	114	111	96
380-87238-2	AIEA GULCH WELLS PUMP2	82	81	107	111	109	131	126	106
380-87238-3	AIEA WELLS PUMPS 1&2 (260) P2	103	106	108	111	104	133	122	105
380-87238-4	HALAWA WELLS UNITS 1&2 P1	105	107	102	106	104	135	145	106
380-87238-5	FB: MOANALUA WELLS	104	107	104	111	104	127	117	110
380-87238-6	FB: AIEA GULCH WELLS PUMP2	87	93	98	100	94	123	103	91
380-87238-7	FB: AIEA WELLS PUMPS 1&2 (260) P2	87	85	92	97	92	117	103	93
380-87238-8	FB: HALAWA WELLS UNITS 1&2 P1	101	100	107	115	106	136	113	110
380-87243-C-1-B MS	Matrix Spike	47 *5-	57	96	99	93	120	100	99
380-87243-C-1-C MSD	Matrix Spike Duplicate	46 *5-	57	95	99	94	119	102	97
380-87604-B-3-A MS	Matrix Spike	117	125	131	124	120	158	151	131
380-87604-C-3-A MSD	Matrix Spike Duplicate	107	115	117	115	112	146	140	122
380-88189-E-1-B MS	Matrix Spike	89	94	108	109	102	118	117	102
380-88189-F-1-B MSD	Matrix Spike Duplicate	90	94	106	108	101	112	120	97
LCS 380-82906/23-A	Lab Control Sample	86	88	93	98	91	114	101	94
LCS 380-83114/21-A	Lab Control Sample	143	151	143	147	140	161	158	137

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Isotope Dilution Summary

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

Job ID: 380-87238-1
 SDG: 533, 537.1

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

Matrix: Water

Prep Type: Total/NA

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)
LCS 380-83389/23-A	Lab Control Sample	94	99	107	106	102	116	116	101
MBL 380-82906/21-A	Method Blank	76	72	96	97	92	112	101	96
MBL 380-83114/19-A	Method Blank	107	107	112	115	110	138	130	109
MBL 380-83389/21-A	Method Blank	100	101	109	110	104	120	122	101
MRL 380-82906/22-A	Lab Control Sample	82	80	98	102	91	112	100	91
MRL 380-83114/20-A	Lab Control Sample	115	113	111	120	115	137	136	111
MRL 380-83389/22-A	Lab Control Sample	92	94	105	108	103	118	113	98

Surrogate Legend

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

QC Sample Results

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

Job ID: 380-87238-1
 SDG: 533, 537.1

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

Lab Sample ID: MBL 380-82906/21-A
Matrix: Water
Analysis Batch: 83075

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 82906

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		03/23/24 10:30	03/25/24 10:54	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		03/23/24 10:30	03/25/24 10:54	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		03/23/24 10:30	03/25/24 10:54	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		03/23/24 10:30	03/25/24 10:54	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		03/23/24 10:30	03/25/24 10:54	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		03/23/24 10:30	03/25/24 10:54	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		03/23/24 10:30	03/25/24 10:54	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		03/23/24 10:30	03/25/24 10:54	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		03/23/24 10:30	03/25/24 10:54	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		03/23/24 10:30	03/25/24 10:54	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		03/23/24 10:30	03/25/24 10:54	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		03/23/24 10:30	03/25/24 10:54	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		03/23/24 10:30	03/25/24 10:54	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		03/23/24 10:30	03/25/24 10:54	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		03/23/24 10:30	03/25/24 10:54	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		03/23/24 10:30	03/25/24 10:54	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		03/23/24 10:30	03/25/24 10:54	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		03/23/24 10:30	03/25/24 10:54	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		03/23/24 10:30	03/25/24 10:54	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<0.25		2.0	ng/L		03/23/24 10:30	03/25/24 10:54	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		03/23/24 10:30	03/25/24 10:54	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		03/23/24 10:30	03/25/24 10:54	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		03/23/24 10:30	03/25/24 10:54	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		03/23/24 10:30	03/25/24 10:54	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		03/23/24 10:30	03/25/24 10:54	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	59		50 - 200	03/23/24 10:30	03/25/24 10:54	1
13C6 PFDA	72		50 - 200	03/23/24 10:30	03/25/24 10:54	1
13C5 PFHxA	70		50 - 200	03/23/24 10:30	03/25/24 10:54	1
13C4 PFHpA	76		50 - 200	03/23/24 10:30	03/25/24 10:54	1
13C8 PFOA	75		50 - 200	03/23/24 10:30	03/25/24 10:54	1
13C9 PFNA	70		50 - 200	03/23/24 10:30	03/25/24 10:54	1
13C7 PFUnA	74		50 - 200	03/23/24 10:30	03/25/24 10:54	1
13C2 PFDoA	81		50 - 200	03/23/24 10:30	03/25/24 10:54	1
13C4 PFBA	76		50 - 200	03/23/24 10:30	03/25/24 10:54	1
13C5 PFPeA	72		50 - 200	03/23/24 10:30	03/25/24 10:54	1
13C3 PFBS	96		50 - 200	03/23/24 10:30	03/25/24 10:54	1
13C3 PFHxS	97		50 - 200	03/23/24 10:30	03/25/24 10:54	1

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QC Sample Results

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

Job ID: 380-87238-1
 SDG: 533, 537.1

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

Lab Sample ID: MBL 380-82906/21-A
Matrix: Water
Analysis Batch: 83075

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 82906

<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	92		50 - 200	03/23/24 10:30	03/25/24 10:54	1
13C2-4:2-FTS	112		50 - 200	03/23/24 10:30	03/25/24 10:54	1
13C2-6:2-FTS	101		50 - 200	03/23/24 10:30	03/25/24 10:54	1
13C2-8:2-FTS	96		50 - 200	03/23/24 10:30	03/25/24 10:54	1

Lab Sample ID: LCS 380-82906/23-A
Matrix: Water
Analysis Batch: 83075

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 82906

<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	110		ng/L		92	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	120		ng/L		100	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	120	106		ng/L		88	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	120	116		ng/L		96	70 - 130
Perfluorobutanesulfonic acid (PFBS)	120	123		ng/L		102	70 - 130
Perfluorodecanoic acid (PFDA)	120	118		ng/L		98	70 - 130
Perfluorododecanoic acid (PFDoA)	120	120		ng/L		100	70 - 130
Perfluoroheptanoic acid (PFHpA)	120	117		ng/L		97	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	120	121		ng/L		100	70 - 130
Perfluorohexanoic acid (PFHxA)	120	120		ng/L		100	70 - 130
Perfluorononanoic acid (PFNA)	120	125		ng/L		104	70 - 130
Perfluorooctanesulfonic acid (PFOS)	120	121		ng/L		100	70 - 130
Perfluorooctanoic acid (PFOA)	120	126		ng/L		105	70 - 130
Perfluoroundecanoic acid (PFUnA)	120	117		ng/L		97	70 - 130
Perfluorobutanoic acid (PFBA)	120	118		ng/L		99	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	120	121		ng/L		101	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	117		ng/L		98	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	120	122		ng/L		102	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	120	133		ng/L		111	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	120	110		ng/L		91	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	120	116		ng/L		97	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	120	110		ng/L		92	70 - 130
Perfluoropentanoic acid (PFPeA)	120	120		ng/L		100	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	120	123		ng/L		103	70 - 130

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QC Sample Results

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

Job ID: 380-87238-1
SDG: 533, 537.1

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

Lab Sample ID: LCS 380-82906/23-A
Matrix: Water
Analysis Batch: 83075

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 82906

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanesulfonic acid (PFPeS)	120	113		ng/L		94	70 - 130
LCS LCS							
Isotope Dilution	%Recovery	Qualifier	Limits				
13C3 HFPO-DA	81		50 - 200				
13C6 PFDA	87		50 - 200				
13C5 PFHxA	82		50 - 200				
13C4 PFHpA	91		50 - 200				
13C8 PFOA	83		50 - 200				
13C9 PFNA	87		50 - 200				
13C7 PFUnA	85		50 - 200				
13C2 PFDoA	84		50 - 200				
13C4 PFBA	86		50 - 200				
13C5 PFPeA	88		50 - 200				
13C3 PFBS	93		50 - 200				
13C3 PFHxS	98		50 - 200				
13C8 PFOS	91		50 - 200				
13C2-4:2-FTS	114		50 - 200				
13C2-6:2-FTS	101		50 - 200				
13C2-8:2-FTS	94		50 - 200				

Lab Sample ID: MRL 380-82906/22-A
Matrix: Water
Analysis Batch: 83075

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 82906

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	1.87	J	ng/L		93	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	1.99	J	ng/L		100	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	1.80	J	ng/L		90	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	2.14	J	ng/L		107	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	2.14	J	ng/L		107	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.15	J	ng/L		107	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.08	J	ng/L		104	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.07	J	ng/L		103	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	2.02	J	ng/L		101	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.20	J	ng/L		110	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.11	J	ng/L		106	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	2.23	J	ng/L		112	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.19	J	ng/L		109	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.12	J	ng/L		106	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	2.09	J	ng/L		104	50 - 150

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-87238-1
 SDG: 533, 537.1

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

Lab Sample ID: MRL 380-82906/22-A
Matrix: Water
Analysis Batch: 83075

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 82906

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	2.36	J	ng/L		118	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	2.37	J	ng/L		119	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	2.38	J	ng/L		119	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	2.05	J	ng/L		102	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.00	1.98	J	ng/L		99	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	2.14	J	ng/L		107	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	1.89	J	ng/L		94	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	2.14	J	ng/L		107	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.00	2.22	J	ng/L		111	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.00	1.87	J	ng/L		93	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	MRL Limits
13C3 HFPO-DA	65		50 - 200
13C6 PFDA	78		50 - 200
13C5 PFHxA	75		50 - 200
13C4 PFHpA	85		50 - 200
13C8 PFOA	80		50 - 200
13C9 PFNA	80		50 - 200
13C7 PFUnA	78		50 - 200
13C2 PFDoA	83		50 - 200
13C4 PFBA	82		50 - 200
13C5 PFPeA	80		50 - 200
13C3 PFBS	98		50 - 200
13C3 PFHxS	102		50 - 200
13C8 PFOS	91		50 - 200
13C2-4:2-FTS	112		50 - 200
13C2-6:2-FTS	100		50 - 200
13C2-8:2-FTS	91		50 - 200

Lab Sample ID: 380-87243-C-1-B MS
Matrix: Water
Analysis Batch: 83075

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 82906

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.4	51.6		ng/L		86	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.4	54.2		ng/L		90	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.4	47.1		ng/L		78	70 - 130

QC Sample Results

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

Job ID: 380-87238-1
 SDG: 533, 537.1

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

Lab Sample ID: 380-87243-C-1-B MS
Matrix: Water
Analysis Batch: 83075

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 82906

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide	<2.0		60.4	56.7		ng/L		94	70 - 130
Dimer Acid (HFPO-DA/GenX)									
Perfluorobutanesulfonic acid (PFBS)	<2.0		60.4	59.1		ng/L		96	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0	*5-	60.4	56.8	*5-	ng/L		94	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0	*5-	60.4	56.9	*5-	ng/L		94	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		60.4	58.1		ng/L		95	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.4	57.5		ng/L		94	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		60.4	57.9		ng/L		94	70 - 130
Perfluorononanoic acid (PFNA)	<2.0	*5-	60.4	57.7	*5-	ng/L		96	70 - 130
Perfluorooctanesulfonic acid (PFOS)	2.5		60.4	58.4		ng/L		93	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0	*5-	60.4	61.0	*5-	ng/L		99	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0	*5-	60.4	59.6	*5-	ng/L		99	70 - 130
Perfluorobutanoic acid (PFBA)	<2.0	*5-	60.4	58.7	*5-	ng/L		97	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.4	56.4		ng/L		93	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.4	60.8		ng/L		101	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.4	59.7		ng/L		99	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.4	54.9		ng/L		91	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		60.4	55.4		ng/L		92	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0	*5-	60.4	59.7	*5-	ng/L		99	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.4	52.1		ng/L		86	70 - 130
Perfluoropentanoic acid (PFPeA)	<2.0		60.4	56.2		ng/L		90	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.4	57.0		ng/L		94	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.4	55.5		ng/L		92	70 - 130

Isotope Dilution	MS MS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	55		50 - 200
13C6 PFDA	32	*5-	50 - 200
13C5 PFHxA	58		50 - 200
13C4 PFHpA	59		50 - 200
13C8 PFOA	47	*5-	50 - 200
13C9 PFNA	37	*5-	50 - 200
13C7 PFUnA	33	*5-	50 - 200
13C2 PFDoA	35	*5-	50 - 200
13C4 PFBA	47	*5-	50 - 200
13C5 PFPeA	57		50 - 200
13C3 PFBS	96		50 - 200
13C3 PFHxS	99		50 - 200
13C8 PFOS	93		50 - 200

QC Sample Results

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

Job ID: 380-87238-1
SDG: 533, 537.1

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

Lab Sample ID: 380-87243-C-1-B MS
Matrix: Water
Analysis Batch: 83075

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 82906

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
13C2-4:2-FTS	120		50 - 200
13C2-6:2-FTS	100		50 - 200
13C2-8:2-FTS	99		50 - 200

Lab Sample ID: 380-87243-C-1-C MSD
Matrix: Water
Analysis Batch: 83075

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 82906

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.2	52.3		ng/L		87	70 - 130	1	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.2	57.1		ng/L		95	70 - 130	5	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.2	52.1		ng/L		86	70 - 130	10	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		60.2	60.0		ng/L		100	70 - 130	6	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		60.2	61.8		ng/L		101	70 - 130	5	30
Perfluorodecanoic acid (PFDA)	<2.0	*5-	60.2	58.3	*5-	ng/L		97	70 - 130	3	30
Perfluorododecanoic acid (PFDoA)	<2.0	*5-	60.2	59.0	*5-	ng/L		98	70 - 130	4	30
Perfluoroheptanoic acid (PFHpA)	<2.0		60.2	62.3		ng/L		102	70 - 130	7	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.2	59.6		ng/L		97	70 - 130	4	30
Perfluorohexanoic acid (PFHxA)	<2.0		60.2	62.8		ng/L		102	70 - 130	8	30
Perfluorononanoic acid (PFNA)	<2.0	*5-	60.2	62.1	*5-	ng/L		103	70 - 130	7	30
Perfluorooctanesulfonic acid (PFOS)	2.5		60.2	60.5		ng/L		96	70 - 130	3	30
Perfluorooctanoic acid (PFOA)	<2.0	*5-	60.2	63.3	*5-	ng/L		103	70 - 130	4	30
Perfluoroundecanoic acid (PFUnA)	<2.0	*5-	60.2	62.6	*5-	ng/L		104	70 - 130	5	30
Perfluorobutanoic acid (PFBA)	<2.0	*5-	60.2	61.6	*5-	ng/L		102	70 - 130	5	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.2	60.3		ng/L		100	70 - 130	7	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.2	62.9		ng/L		104	70 - 130	3	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.2	62.8		ng/L		104	70 - 130	5	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.2	54.5		ng/L		91	70 - 130	1	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		60.2	57.7		ng/L		96	70 - 130	4	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0	*5-	60.2	65.6	*5-	ng/L		109	70 - 130	9	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.2	58.7		ng/L		97	70 - 130	12	30
Perfluoropentanoic acid (PFPeA)	<2.0		60.2	62.6		ng/L		101	70 - 130	11	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.2	60.9		ng/L		101	70 - 130	7	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.2	57.5		ng/L		95	70 - 130	3	30

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QC Sample Results

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

Job ID: 380-87238-1
 SDG: 533, 537.1

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

Isotope Dilution	MSD MSD		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	54		50 - 200
13C6 PFDA	32	*5-	50 - 200
13C5 PFHxA	57		50 - 200
13C4 PFHpA	55		50 - 200
13C8 PFOA	46	*5-	50 - 200
13C9 PFNA	37	*5-	50 - 200
13C7 PFUnA	29	*5-	50 - 200
13C2 PFDoA	32	*5-	50 - 200
13C4 PFBA	46	*5-	50 - 200
13C5 PFPeA	57		50 - 200
13C3 PFBS	95		50 - 200
13C3 PFHxS	99		50 - 200
13C8 PFOS	94		50 - 200
13C2-4:2-FTS	119		50 - 200
13C2-6:2-FTS	102		50 - 200
13C2-8:2-FTS	97		50 - 200

Lab Sample ID: MBL 380-83114/19-A
Matrix: Water
Analysis Batch: 83279

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 83114

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		03/25/24 14:30	03/26/24 14:48	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		03/25/24 14:30	03/26/24 14:48	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		03/25/24 14:30	03/26/24 14:48	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		03/25/24 14:30	03/26/24 14:48	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		03/25/24 14:30	03/26/24 14:48	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		03/25/24 14:30	03/26/24 14:48	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		03/25/24 14:30	03/26/24 14:48	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		03/25/24 14:30	03/26/24 14:48	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		03/25/24 14:30	03/26/24 14:48	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		03/25/24 14:30	03/26/24 14:48	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		03/25/24 14:30	03/26/24 14:48	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		03/25/24 14:30	03/26/24 14:48	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		03/25/24 14:30	03/26/24 14:48	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		03/25/24 14:30	03/26/24 14:48	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		03/25/24 14:30	03/26/24 14:48	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		03/25/24 14:30	03/26/24 14:48	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		03/25/24 14:30	03/26/24 14:48	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		03/25/24 14:30	03/26/24 14:48	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		03/25/24 14:30	03/26/24 14:48	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<0.25		2.0	ng/L		03/25/24 14:30	03/26/24 14:48	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		03/25/24 14:30	03/26/24 14:48	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		03/25/24 14:30	03/26/24 14:48	1

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QC Sample Results

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

Job ID: 380-87238-1
 SDG: 533, 537.1

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

Lab Sample ID: MBL 380-83114/19-A
Matrix: Water
Analysis Batch: 83279

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 83114

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		03/25/24 14:30	03/26/24 14:48	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		03/25/24 14:30	03/26/24 14:48	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		03/25/24 14:30	03/26/24 14:48	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	98		50 - 200	03/25/24 14:30	03/26/24 14:48	1
13C6 PFDA	99		50 - 200	03/25/24 14:30	03/26/24 14:48	1
13C5 PFHxA	104		50 - 200	03/25/24 14:30	03/26/24 14:48	1
13C4 PFHpA	114		50 - 200	03/25/24 14:30	03/26/24 14:48	1
13C8 PFOA	108		50 - 200	03/25/24 14:30	03/26/24 14:48	1
13C9 PFNA	100		50 - 200	03/25/24 14:30	03/26/24 14:48	1
13C7 PFUnA	95		50 - 200	03/25/24 14:30	03/26/24 14:48	1
13C2 PFDoA	98		50 - 200	03/25/24 14:30	03/26/24 14:48	1
13C4 PFBA	107		50 - 200	03/25/24 14:30	03/26/24 14:48	1
13C5 PFPeA	107		50 - 200	03/25/24 14:30	03/26/24 14:48	1
13C3 PFBS	112		50 - 200	03/25/24 14:30	03/26/24 14:48	1
13C3 PFHxS	115		50 - 200	03/25/24 14:30	03/26/24 14:48	1
13C8 PFOS	110		50 - 200	03/25/24 14:30	03/26/24 14:48	1
13C2-4:2-FTS	138		50 - 200	03/25/24 14:30	03/26/24 14:48	1
13C2-6:2-FTS	130		50 - 200	03/25/24 14:30	03/26/24 14:48	1
13C2-8:2-FTS	109		50 - 200	03/25/24 14:30	03/26/24 14:48	1

Lab Sample ID: LCS 380-83114/21-A
Matrix: Water
Analysis Batch: 83279

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 83114

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	60.1	57.5		ng/L		96	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.1	58.6		ng/L		97	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.1	62.1		ng/L		103	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.1	52.7		ng/L		88	70 - 130
Perfluorobutanesulfonic acid (PFBS)	60.1	65.2		ng/L		109	70 - 130
Perfluorodecanoic acid (PFDA)	60.1	62.1		ng/L		103	70 - 130
Perfluorododecanoic acid (PFDoA)	60.1	61.7		ng/L		103	70 - 130
Perfluoroheptanoic acid (PFHpA)	60.1	62.8		ng/L		104	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	60.1	62.0		ng/L		103	70 - 130
Perfluorohexanoic acid (PFHxA)	60.1	62.0		ng/L		103	70 - 130
Perfluorononanoic acid (PFNA)	60.1	65.8		ng/L		109	70 - 130
Perfluorooctanesulfonic acid (PFOS)	60.1	63.5		ng/L		106	70 - 130
Perfluorooctanoic acid (PFOA)	60.1	63.5		ng/L		106	70 - 130

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QC Sample Results

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

Job ID: 380-87238-1
SDG: 533, 537.1

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

Lab Sample ID: LCS 380-83114/21-A
Matrix: Water
Analysis Batch: 83279

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 83114

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	60.1	63.8		ng/L		106	70 - 130
Perfluorobutanoic acid (PFBA)	60.1	63.9		ng/L		106	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.1	64.3		ng/L		107	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.1	67.2		ng/L		112	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.1	65.1		ng/L		108	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.1	68.1		ng/L		113	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	60.1	59.4		ng/L		99	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.1	65.0		ng/L		108	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.1	59.4		ng/L		99	70 - 130
Perfluoropentanoic acid (PFPeA)	60.1	62.4		ng/L		104	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	60.1	66.7		ng/L		111	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	60.1	59.1		ng/L		98	70 - 130

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	141		50 - 200
13C6 PFDA	138		50 - 200
13C5 PFHxA	143		50 - 200
13C4 PFHpA	150		50 - 200
13C8 PFOA	142		50 - 200
13C9 PFNA	139		50 - 200
13C7 PFUnA	136		50 - 200
13C2 PFDoA	136		50 - 200
13C4 PFBA	143		50 - 200
13C5 PFPeA	151		50 - 200
13C3 PFBS	143		50 - 200
13C3 PFHxS	147		50 - 200
13C8 PFOS	140		50 - 200
13C2-4:2-FTS	161		50 - 200
13C2-6:2-FTS	158		50 - 200
13C2-8:2-FTS	137		50 - 200

Lab Sample ID: MRL 380-83114/20-A
Matrix: Water
Analysis Batch: 83279

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 83114

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.01	1.88	J	ng/L		94	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.01	1.72	J	ng/L		85	50 - 150

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QC Sample Results

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

Job ID: 380-87238-1
 SDG: 533, 537.1

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

Lab Sample ID: MRL 380-83114/20-A
Matrix: Water
Analysis Batch: 83279

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 83114

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.01	2.01	J	ng/L		100	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.01	1.82	J	ng/L		91	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.01	2.12	J	ng/L		106	50 - 150
Perfluorodecanoic acid (PFDA)	2.01	2.10	J	ng/L		104	50 - 150
Perfluorododecanoic acid (PFDoA)	2.01	2.11	J	ng/L		105	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.01	2.16	J	ng/L		107	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.01	2.06	J	ng/L		102	50 - 150
Perfluorohexanoic acid (PFHxA)	2.01	1.93	J	ng/L		96	50 - 150
Perfluorononanoic acid (PFNA)	2.01	2.27	J	ng/L		113	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.01	2.02	J	ng/L		101	50 - 150
Perfluorooctanoic acid (PFOA)	2.01	2.35	J	ng/L		117	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.01	2.07	J	ng/L		103	50 - 150
Perfluorobutanoic acid (PFBA)	2.01	1.96	J	ng/L		97	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.01	2.24	J	ng/L		111	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.01	2.29	J	ng/L		114	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.01	2.01	J	ng/L		100	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.01	2.11	J	ng/L		105	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.01	1.90	J	ng/L		95	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.01	1.99	J	ng/L		99	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.01	1.91	J	ng/L		95	50 - 150
Perfluoropentanoic acid (PFPeA)	2.01	2.24	J	ng/L		111	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.01	2.06	J	ng/L		102	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.01	1.98	J	ng/L		99	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	MRL Limits
13C3 HFPO-DA	108		50 - 200
13C6 PFDA	104		50 - 200
13C5 PFHxA	111		50 - 200
13C4 PFHpA	115		50 - 200
13C8 PFOA	114		50 - 200
13C9 PFNA	102		50 - 200
13C7 PFUnA	105		50 - 200
13C2 PFDoA	106		50 - 200
13C4 PFBA	115		50 - 200
13C5 PFPeA	113		50 - 200
13C3 PFBS	111		50 - 200
13C3 PFHxS	120		50 - 200

QC Sample Results

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

Job ID: 380-87238-1
 SDG: 533, 537.1

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

Lab Sample ID: MRL 380-83114/20-A
Matrix: Water
Analysis Batch: 83279

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 83114

<i>Isotope Dilution</i>	<i>MRL %Recovery</i>	<i>MRL Qualifier</i>	<i>Limits</i>
13C8 PFOS	115		50 - 200
13C2-4:2-FTS	137		50 - 200
13C2-6:2-FTS	136		50 - 200
13C2-8:2-FTS	111		50 - 200

Lab Sample ID: 380-87604-B-3-A MS
Matrix: Water
Analysis Batch: 83279

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 83114

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		121	111		ng/L		91	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		121	116		ng/L		96	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		121	112		ng/L		93	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		121	100		ng/L		83	70 - 130
Perfluorobutanesulfonic acid (PFBS)	4.1		121	119		ng/L		95	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		121	119		ng/L		97	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		121	123		ng/L		102	70 - 130
Perfluoroheptanoic acid (PFHpA)	11		121	124		ng/L		93	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	35		121	151		ng/L		96	70 - 130
Perfluorohexanoic acid (PFHxA)	18		121	136		ng/L		98	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		121	121		ng/L		99	70 - 130
Perfluorooctanesulfonic acid (PFOS)	110		121	222	E	ng/L		94	70 - 130
Perfluorooctanoic acid (PFOA)	9.9		121	130		ng/L		99	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		121	124		ng/L		103	70 - 130
Perfluorobutanoic acid (PFBA)	7.4		121	125		ng/L		97	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	13		121	126		ng/L		94	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		121	124		ng/L		102	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	44		121	162		ng/L		98	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		121	126		ng/L		104	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		121	101		ng/L		84	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		121	121		ng/L		100	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		121	127		ng/L		105	70 - 130
Perfluoropentanoic acid (PFPeA)	18		121	128		ng/L		91	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		121	123		ng/L		100	70 - 130

QC Sample Results

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

Job ID: 380-87238-1
SDG: 533, 537.1

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

Lab Sample ID: 380-87604-B-3-A MS
Matrix: Water
Analysis Batch: 83279

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 83114

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanesulfonic acid (PFPeS)	3.4		121	125		ng/L		101	70 - 130
MS MS									
Isotope Dilution	%Recovery	Qualifier	Limits						
13C3 HFPO-DA	127		50 - 200						
13C6 PFDA	116		50 - 200						
13C5 PFHxA	112		50 - 200						
13C4 PFHpA	116		50 - 200						
13C8 PFOA	116		50 - 200						
13C9 PFNA	112		50 - 200						
13C7 PFUnA	111		50 - 200						
13C2 PFDoA	107		50 - 200						
13C4 PFBA	117		50 - 200						
13C5 PFPeA	125		50 - 200						
13C3 PFBS	131		50 - 200						
13C3 PFHxS	124		50 - 200						
13C8 PFOS	120		50 - 200						
13C2-4:2-FTS	158		50 - 200						
13C2-6:2-FTS	151		50 - 200						
13C2-8:2-FTS	131		50 - 200						

Lab Sample ID: 380-87604-C-3-A MSD
Matrix: Water
Analysis Batch: 83279

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 83114

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	111		ng/L		92	70 - 130	0	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		121	117		ng/L		97	70 - 130	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		121	119		ng/L		99	70 - 130	6	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		121	116		ng/L		96	70 - 130	15	30
Perfluorobutanesulfonic acid (PFBS)	4.1		121	127		ng/L		102	70 - 130	7	30
Perfluorodecanoic acid (PFDA)	<2.0		121	117		ng/L		97	70 - 130	1	30
Perfluorododecanoic acid (PFDoA)	<2.0		121	120		ng/L		100	70 - 130	2	30
Perfluoroheptanoic acid (PFHpA)	11		121	130		ng/L		98	70 - 130	5	30
Perfluorohexanesulfonic acid (PFHxS)	35		121	157		ng/L		101	70 - 130	4	30
Perfluorohexanoic acid (PFHxA)	18		121	139		ng/L		100	70 - 130	2	30
Perfluorononanoic acid (PFNA)	<2.0		121	127		ng/L		104	70 - 130	5	30
Perfluorooctanesulfonic acid (PFOS)	110		121	228	E	ng/L		99	70 - 130	2	30
Perfluorooctanoic acid (PFOA)	9.9		121	130		ng/L		99	70 - 130	0	30
Perfluoroundecanoic acid (PFUnA)	<2.0		121	120		ng/L		99	70 - 130	4	30
Perfluorobutanoic acid (PFBA)	7.4		121	134		ng/L		105	70 - 130	7	30

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QC Sample Results

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

Job ID: 380-87238-1
 SDG: 533, 537.1

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

Lab Sample ID: 380-87604-C-3-A MSD
Matrix: Water
Analysis Batch: 83279

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 83114

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	13		121	132		ng/L		99	70 - 130	4	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		121	127		ng/L		105	70 - 130	3	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	44		121	163		ng/L		99	70 - 130	1	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		121	146		ng/L		121	70 - 130	15	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		121	112		ng/L		92	70 - 130	10	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		121	130		ng/L		108	70 - 130	7	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		121	129		ng/L		107	70 - 130	1	30
Perfluoropentanoic acid (PFPeA)	18		121	132		ng/L		94	70 - 130	3	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		121	126		ng/L		103	70 - 130	3	30
Perfluoropentanesulfonic acid (PFPeS)	3.4		121	127		ng/L		103	70 - 130	2	30

Isotope Dilution	MSD %Recovery	MSD Qualifier	MSD Limits
13C3 HFPO-DA	113		50 - 200
13C6 PFDA	111		50 - 200
13C5 PFHxA	107		50 - 200
13C4 PFHpA	107		50 - 200
13C8 PFOA	109		50 - 200
13C9 PFNA	106		50 - 200
13C7 PFUnA	108		50 - 200
13C2 PFDoA	108		50 - 200
13C4 PFBA	107		50 - 200
13C5 PFPeA	115		50 - 200
13C3 PFBS	117		50 - 200
13C3 PFHxS	115		50 - 200
13C8 PFOS	112		50 - 200
13C2-4:2-FTS	146		50 - 200
13C2-6:2-FTS	140		50 - 200
13C2-8:2-FTS	122		50 - 200

Lab Sample ID: MBL 380-83389/21-A
Matrix: Water
Analysis Batch: 83532

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 83389

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		03/27/24 10:40	03/28/24 08:12	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		03/27/24 10:40	03/28/24 08:12	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		03/27/24 10:40	03/28/24 08:12	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		03/27/24 10:40	03/28/24 08:12	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		03/27/24 10:40	03/28/24 08:12	1

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QC Sample Results

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

Job ID: 380-87238-1
 SDG: 533, 537.1

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

Lab Sample ID: MBL 380-83389/21-A
Matrix: Water
Analysis Batch: 83532

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 83389

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		03/27/24 10:40	03/28/24 08:12	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		03/27/24 10:40	03/28/24 08:12	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		03/27/24 10:40	03/28/24 08:12	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		03/27/24 10:40	03/28/24 08:12	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		03/27/24 10:40	03/28/24 08:12	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		03/27/24 10:40	03/28/24 08:12	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		03/27/24 10:40	03/28/24 08:12	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		03/27/24 10:40	03/28/24 08:12	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		03/27/24 10:40	03/28/24 08:12	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		03/27/24 10:40	03/28/24 08:12	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		03/27/24 10:40	03/28/24 08:12	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		03/27/24 10:40	03/28/24 08:12	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		03/27/24 10:40	03/28/24 08:12	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		03/27/24 10:40	03/28/24 08:12	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0	ng/L		03/27/24 10:40	03/28/24 08:12	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		03/27/24 10:40	03/28/24 08:12	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		03/27/24 10:40	03/28/24 08:12	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		03/27/24 10:40	03/28/24 08:12	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		03/27/24 10:40	03/28/24 08:12	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		03/27/24 10:40	03/28/24 08:12	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	90		50 - 200	03/27/24 10:40	03/28/24 08:12	1
13C6 PFDA	93		50 - 200	03/27/24 10:40	03/28/24 08:12	1
13C5 PFHxA	99		50 - 200	03/27/24 10:40	03/28/24 08:12	1
13C4 PFHpA	104		50 - 200	03/27/24 10:40	03/28/24 08:12	1
13C8 PFOA	96		50 - 200	03/27/24 10:40	03/28/24 08:12	1
13C9 PFNA	89		50 - 200	03/27/24 10:40	03/28/24 08:12	1
13C7 PFUnA	92		50 - 200	03/27/24 10:40	03/28/24 08:12	1
13C2 PFDoA	89		50 - 200	03/27/24 10:40	03/28/24 08:12	1
13C4 PFBA	100		50 - 200	03/27/24 10:40	03/28/24 08:12	1
13C5 PFPeA	101		50 - 200	03/27/24 10:40	03/28/24 08:12	1
13C3 PFBS	109		50 - 200	03/27/24 10:40	03/28/24 08:12	1
13C3 PFHxS	110		50 - 200	03/27/24 10:40	03/28/24 08:12	1
13C8 PFOS	104		50 - 200	03/27/24 10:40	03/28/24 08:12	1
13C2-4:2-FTS	120		50 - 200	03/27/24 10:40	03/28/24 08:12	1
13C2-6:2-FTS	122		50 - 200	03/27/24 10:40	03/28/24 08:12	1
13C2-8:2-FTS	101		50 - 200	03/27/24 10:40	03/28/24 08:12	1

QC Sample Results

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

Job ID: 380-87238-1
 SDG: 533, 537.1

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

Lab Sample ID: LCS 380-83389/23-A
Matrix: Water
Analysis Batch: 83532

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 83389

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	120	105		ng/L		87	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	106		ng/L		88	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	120	102		ng/L		85	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	120	103		ng/L		86	70 - 130
Perfluorobutanesulfonic acid (PFBS)	120	110		ng/L		91	70 - 130
Perfluorodecanoic acid (PFDA)	120	102		ng/L		85	70 - 130
Perfluorododecanoic acid (PFDoA)	120	118		ng/L		99	70 - 130
Perfluoroheptanoic acid (PFHpA)	120	106		ng/L		88	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	120	108		ng/L		90	70 - 130
Perfluorohexanoic acid (PFHxA)	120	108		ng/L		90	70 - 130
Perfluorononanoic acid (PFNA)	120	110		ng/L		91	70 - 130
Perfluorooctanesulfonic acid (PFOS)	120	109		ng/L		90	70 - 130
Perfluorooctanoic acid (PFOA)	120	110		ng/L		92	70 - 130
Perfluoroundecanoic acid (PFUnA)	120	116		ng/L		97	70 - 130
Perfluorobutanoic acid (PFBA)	120	111		ng/L		92	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	120	109		ng/L		91	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	112		ng/L		94	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	120	111		ng/L		92	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	120	114		ng/L		95	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	120	97.9		ng/L		82	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	120	111		ng/L		93	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	120	105		ng/L		88	70 - 130
Perfluoropentanoic acid (PFPeA)	120	106		ng/L		89	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	120	111		ng/L		93	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	120	107		ng/L		89	70 - 130

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	96		50 - 200
13C6 PFDA	90		50 - 200
13C5 PFHxA	90		50 - 200
13C4 PFHpA	95		50 - 200
13C8 PFOA	91		50 - 200
13C9 PFNA	89		50 - 200

QC Sample Results

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

Job ID: 380-87238-1
SDG: 533, 537.1

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

Lab Sample ID: LCS 380-83389/23-A
Matrix: Water
Analysis Batch: 83532

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 83389

Isotope Dilution	LCS		Limits
	%Recovery	Qualifier	
13C7 PFUnA	87		50 - 200
13C2 PFDoA	82		50 - 200
13C4 PFBA	94		50 - 200
13C5 PFPeA	99		50 - 200
13C3 PFBS	107		50 - 200
13C3 PFHxS	106		50 - 200
13C8 PFOS	102		50 - 200
13C2-4:2-FTS	116		50 - 200
13C2-6:2-FTS	116		50 - 200
13C2-8:2-FTS	101		50 - 200

Lab Sample ID: MRL 380-83389/22-A
Matrix: Water
Analysis Batch: 83532

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 83389

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec
							Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	2.12	J	ng/L		106	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	1.88	J	ng/L		94	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	2.00	J	ng/L		100	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.96	J	ng/L		98	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	2.18	J	ng/L		109	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.18	J	ng/L		109	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.05	J	ng/L		102	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.16	J	ng/L		108	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	2.15	J	ng/L		107	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.16	J	ng/L		108	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.16	J	ng/L		108	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	2.20	J	ng/L		110	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.32	J	ng/L		116	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.23	J	ng/L		111	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	2.29	J	ng/L		114	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	2.14	J	ng/L		107	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	2.10	J	ng/L		105	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	2.19	J	ng/L		109	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	2.14	J	ng/L		107	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.00	1.95	J	ng/L		97	50 - 150

QC Sample Results

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

Job ID: 380-87238-1
 SDG: 533, 537.1

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

Lab Sample ID: MRL 380-83389/22-A
Matrix: Water
Analysis Batch: 83532

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 83389

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	2.12	J	ng/L		106	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	1.95	J	ng/L		97	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	2.38	J	ng/L		119	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.00	2.19	J	ng/L		109	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.00	1.97	J	ng/L		98	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	MRL Limits
13C3 HFPO-DA	87		50 - 200
13C6 PFDA	89		50 - 200
13C5 PFHxA	91		50 - 200
13C4 PFHpA	98		50 - 200
13C8 PFOA	95		50 - 200
13C9 PFNA	91		50 - 200
13C7 PFUnA	89		50 - 200
13C2 PFDoA	90		50 - 200
13C4 PFBA	92		50 - 200
13C5 PFPeA	94		50 - 200
13C3 PFBS	105		50 - 200
13C3 PFHxS	108		50 - 200
13C8 PFOS	103		50 - 200
13C2-4:2-FTS	118		50 - 200
13C2-6:2-FTS	113		50 - 200
13C2-8:2-FTS	98		50 - 200

Lab Sample ID: 380-88189-E-1-B MS
Matrix: Water
Analysis Batch: 83532

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 83389

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	107		ng/L		89	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		120	108		ng/L		89	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		120	103		ng/L		85	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		120	101		ng/L		84	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		120	112		ng/L		91	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		120	111		ng/L		92	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		120	117		ng/L		97	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		120	108		ng/L		89	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	2.4		120	111		ng/L		90	70 - 130
Perfluorohexanoic acid (PFHxA)	2.0		120	115		ng/L		94	70 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-87238-1
 SDG: 533, 537.1

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

Lab Sample ID: 380-88189-E-1-B MS
Matrix: Water
Analysis Batch: 83532

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 83389

Analyte	Sample Result	Sample Qualifier	Spike Added	MS		Unit	D	%Rec	%Rec Limits
				Result	Qualifier				
Perfluorononanoic acid (PFNA)	<2.0		120	109		ng/L		91	70 - 130
Perfluorooctanesulfonic acid (PFOS)	2.6		120	115		ng/L		93	70 - 130
Perfluorooctanoic acid (PFOA)	2.0		120	121		ng/L		99	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		120	120		ng/L		99	70 - 130
Perfluorobutanoic acid (PFBA)	<2.0		120	110		ng/L		91	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		120	110		ng/L		91	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		120	113		ng/L		94	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		120	109		ng/L		91	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		120	121		ng/L		100	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		120	98.3		ng/L		82	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		120	116		ng/L		96	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		120	113		ng/L		94	70 - 130
Perfluoropentanoic acid (PFPeA)	2.1		120	111		ng/L		91	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		120	115		ng/L		96	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<2.0		120	110		ng/L		91	70 - 130

Isotope Dilution	MS MS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	95		50 - 200
13C6 PFDA	83		50 - 200
13C5 PFHxA	83		50 - 200
13C4 PFHpA	87		50 - 200
13C8 PFOA	78		50 - 200
13C9 PFNA	81		50 - 200
13C7 PFUnA	83		50 - 200
13C2 PFDoA	87		50 - 200
13C4 PFBA	89		50 - 200
13C5 PFPeA	94		50 - 200
13C3 PFBS	108		50 - 200
13C3 PFHxS	109		50 - 200
13C8 PFOS	102		50 - 200
13C2-4:2-FTS	118		50 - 200
13C2-6:2-FTS	117		50 - 200
13C2-8:2-FTS	102		50 - 200

QC Sample Results

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

Job ID: 380-87238-1
 SDG: 533, 537.1

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

Lab Sample ID: 380-88189-F-1-B MSD
Matrix: Water
Analysis Batch: 83532

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 83389

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		121	108		ng/L		89	70 - 130	1	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		121	105		ng/L		87	70 - 130	3	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		121	106		ng/L		88	70 - 130	3	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		121	103		ng/L		85	70 - 130	2	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		121	115		ng/L		94	70 - 130	3	30
Perfluorodecanoic acid (PFDA)	<2.0		121	110		ng/L		91	70 - 130	0	30
Perfluorododecanoic acid (PFDoA)	<2.0		121	116		ng/L		96	70 - 130	1	30
Perfluoroheptanoic acid (PFHpA)	<2.0		121	109		ng/L		89	70 - 130	1	30
Perfluorohexanesulfonic acid (PFHxS)	2.4		121	111		ng/L		90	70 - 130	0	30
Perfluorohexanoic acid (PFHxA)	2.0		121	117		ng/L		96	70 - 130	2	30
Perfluorononanoic acid (PFNA)	<2.0		121	117		ng/L		97	70 - 130	6	30
Perfluorooctanesulfonic acid (PFOS)	2.6		121	112		ng/L		91	70 - 130	2	30
Perfluorooctanoic acid (PFOA)	2.0		121	112		ng/L		91	70 - 130	7	30
Perfluoroundecanoic acid (PFUnA)	<2.0		121	121		ng/L		101	70 - 130	2	30
Perfluorobutanoic acid (PFBA)	<2.0		121	112		ng/L		92	70 - 130	2	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		121	112		ng/L		93	70 - 130	3	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		121	118		ng/L		98	70 - 130	4	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		121	108		ng/L		89	70 - 130	2	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		121	125		ng/L		103	70 - 130	3	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		121	99.3		ng/L		82	70 - 130	1	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		121	113		ng/L		94	70 - 130	2	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		121	111		ng/L		92	70 - 130	2	30
Perfluoropentanoic acid (PFPeA)	2.1		121	110		ng/L		89	70 - 130	1	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		121	114		ng/L		95	70 - 130	1	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0		121	106		ng/L		88	70 - 130	4	30

Isotope Dilution	MSD	MSD	Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	91		50 - 200
13C6 PFDA	86		50 - 200
13C5 PFHxA	84		50 - 200
13C4 PFHpA	90		50 - 200
13C8 PFOA	87		50 - 200
13C9 PFNA	83		50 - 200

QC Sample Results

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

Job ID: 380-87238-1
 SDG: 533, 537.1

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

Lab Sample ID: 380-88189-F-1-B MSD
Matrix: Water
Analysis Batch: 83532

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 83389

Isotope Dilution	MSD MSD		Limits
	%Recovery	Qualifier	
13C7 PFUnA	81		50 - 200
13C2 PFDoA	87		50 - 200
13C4 PFBA	90		50 - 200
13C5 PFPeA	94		50 - 200
13C3 PFBS	106		50 - 200
13C3 PFHxS	108		50 - 200
13C8 PFOS	101		50 - 200
13C2-4:2-FTS	112		50 - 200
13C2-6:2-FTS	120		50 - 200
13C2-8:2-FTS	97		50 - 200

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

Lab Sample ID: MBL 380-82218/21-A
Matrix: Water
Analysis Batch: 82458

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 82218

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		03/19/24 14:30	03/20/24 23:04	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		03/19/24 14:30	03/20/24 23:04	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		03/19/24 14:30	03/20/24 23:04	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.58		2.0	ng/L		03/19/24 14:30	03/20/24 23:04	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.42		2.0	ng/L		03/19/24 14:30	03/20/24 23:04	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		03/19/24 14:30	03/20/24 23:04	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		03/19/24 14:30	03/20/24 23:04	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		03/19/24 14:30	03/20/24 23:04	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		03/19/24 14:30	03/20/24 23:04	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		03/19/24 14:30	03/20/24 23:04	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		03/19/24 14:30	03/20/24 23:04	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		03/19/24 14:30	03/20/24 23:04	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		03/19/24 14:30	03/20/24 23:04	1
Perfluorotetradecanoic acid (PFTA)	<0.54		2.0	ng/L		03/19/24 14:30	03/20/24 23:04	1
Perfluorotridecanoic acid (PFTrDA)	<0.36		2.0	ng/L		03/19/24 14:30	03/20/24 23:04	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		03/19/24 14:30	03/20/24 23:04	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		03/19/24 14:30	03/20/24 23:04	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		03/19/24 14:30	03/20/24 23:04	1
Surrogate	MBL MBL		Limits			Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier						
d5-NEtFOSAA	99		70 - 130			03/19/24 14:30	03/20/24 23:04	1
13C2 PFHxA	104		70 - 130			03/19/24 14:30	03/20/24 23:04	1
13C2 PFDA	102		70 - 130			03/19/24 14:30	03/20/24 23:04	1
13C3-GenX	95		70 - 130			03/19/24 14:30	03/20/24 23:04	1

QC Sample Results

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

Job ID: 380-87238-1
 SDG: 533, 537.1

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

Lab Sample ID: LCS 380-82218/23-A
Matrix: Water
Analysis Batch: 82458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 82218

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	25.1	22.5		ng/L		89	70 - 130
Perfluorooctanesulfonic acid (PFOS)	25.1	25.8		ng/L		103	70 - 130
Perfluoroundecanoic acid (PFUnA)	25.1	24.0		ng/L		96	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	25.1	25.3		ng/L		101	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	25.1	25.0		ng/L		100	70 - 130
Perfluorohexanoic acid (PFHxA)	25.1	24.7		ng/L		99	70 - 130
Perfluorododecanoic acid (PFDoA)	25.1	24.1		ng/L		96	70 - 130
Perfluorooctanoic acid (PFOA)	25.1	25.4		ng/L		101	70 - 130
Perfluorodecanoic acid (PFDA)	25.1	24.9		ng/L		99	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	25.1	27.0		ng/L		108	70 - 130
Perfluorobutanesulfonic acid (PFBS)	25.1	23.6		ng/L		94	70 - 130
Perfluoroheptanoic acid (PFHpA)	25.1	27.6		ng/L		110	70 - 130
Perfluorononanoic acid (PFNA)	25.1	25.5		ng/L		102	70 - 130
Perfluorotetradecanoic acid (PFTA)	25.1	24.3		ng/L		97	70 - 130
Perfluorotridecanoic acid (PFTrDA)	25.1	24.9		ng/L		99	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	25.1	25.7		ng/L		102	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	25.1	24.4		ng/L		97	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	25.1	27.4		ng/L		109	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
d5-NEtFOSAA	107		70 - 130
13C2 PFHxA	106		70 - 130
13C2 PFDA	104		70 - 130
13C3-GenX	103		70 - 130

Lab Sample ID: MRL 380-82218/22-A
Matrix: Water
Analysis Batch: 82458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 82218

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.01	1.87	J	ng/L		93	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.01	2.11	J	ng/L		105	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.01	2.04	J	ng/L		102	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.01	2.03	J	ng/L		101	50 - 150

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QC Sample Results

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

Job ID: 380-87238-1
 SDG: 533, 537.1

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

Lab Sample ID: MRL 380-82218/22-A
Matrix: Water
Analysis Batch: 82458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 82218

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.01	2.03	J	ng/L		101	50 - 150
Perfluorohexanoic acid (PFHxA)	2.01	1.99	J	ng/L		99	50 - 150
Perfluorododecanoic acid (PFDoA)	2.01	1.99	J	ng/L		99	50 - 150
Perfluorooctanoic acid (PFOA)	2.01	2.09	J	ng/L		104	50 - 150
Perfluorodecanoic acid (PFDA)	2.01	2.11	J	ng/L		105	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.01	2.26	J	ng/L		113	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.01	1.98	J	ng/L		99	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.01	2.19	J	ng/L		109	50 - 150
Perfluorononanoic acid (PFNA)	2.01	2.17	J	ng/L		108	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.01	2.02	J	ng/L		101	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.01	2.09	J	ng/L		104	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.01	2.09	J	ng/L		104	50 - 150
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.01	1.99	J	ng/L		99	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.01	2.11	J	ng/L		105	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	MRL Limits
d5-NEtFOSAA	99		70 - 130
13C2 PFHxA	98		70 - 130
13C2 PFDA	97		70 - 130
13C3-GenX	88		70 - 130

Lab Sample ID: 380-87243-B-1-B MS
Matrix: Water
Analysis Batch: 82458

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 82218

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	51.1		ng/L		102	70 - 130
Perfluorooctanesulfonic acid (PFOS)	2.5		50.2	57.3		ng/L		109	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		50.2	51.3		ng/L		102	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		50.2	53.7		ng/L		107	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		50.2	50.4		ng/L		100	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		50.2	53.5		ng/L		104	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		50.2	52.9		ng/L		105	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		50.2	54.9		ng/L		107	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		50.2	52.1		ng/L		104	70 - 130

QC Association Summary

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

Job ID: 380-87238-1
 SDG: 533, 537.1

LCMS

Prep Batch: 82218

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-87238-1	MOANALUA WELLS	Total/NA	Water	537.1 DW	
380-87238-2	AIEA GULCH WELLS PUMP2	Total/NA	Water	537.1 DW	
380-87238-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	537.1 DW	
MBL 380-82218/21-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-82218/23-A	Lab Control Sample	Total/NA	Water	537.1 DW	
MRL 380-82218/22-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-87243-B-1-B MS	Matrix Spike	Total/NA	Water	537.1 DW	
380-87243-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	537.1 DW	

Analysis Batch: 82458

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-87238-1	MOANALUA WELLS	Total/NA	Water	537.1	82218
380-87238-2	AIEA GULCH WELLS PUMP2	Total/NA	Water	537.1	82218
380-87238-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	537.1	82218
MBL 380-82218/21-A	Method Blank	Total/NA	Water	537.1	82218
LCS 380-82218/23-A	Lab Control Sample	Total/NA	Water	537.1	82218
MRL 380-82218/22-A	Lab Control Sample	Total/NA	Water	537.1	82218
380-87243-B-1-B MS	Matrix Spike	Total/NA	Water	537.1	82218
380-87243-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	537.1	82218

Prep Batch: 82906

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-87238-6	FB: AIEA GULCH WELLS PUMP2	Total/NA	Water	533	
380-87238-7	FB: AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	533	
380-87238-8	FB: HALAWA WELLS UNITS 1&2 P1	Total/NA	Water	533	
MBL 380-82906/21-A	Method Blank	Total/NA	Water	533	
LCS 380-82906/23-A	Lab Control Sample	Total/NA	Water	533	
MRL 380-82906/22-A	Lab Control Sample	Total/NA	Water	533	
380-87243-C-1-B MS	Matrix Spike	Total/NA	Water	533	
380-87243-C-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	533	

Analysis Batch: 83075

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-87238-6	FB: AIEA GULCH WELLS PUMP2	Total/NA	Water	533	82906
380-87238-7	FB: AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	533	82906
380-87238-8	FB: HALAWA WELLS UNITS 1&2 P1	Total/NA	Water	533	82906
MBL 380-82906/21-A	Method Blank	Total/NA	Water	533	82906
LCS 380-82906/23-A	Lab Control Sample	Total/NA	Water	533	82906
MRL 380-82906/22-A	Lab Control Sample	Total/NA	Water	533	82906
380-87243-C-1-B MS	Matrix Spike	Total/NA	Water	533	82906
380-87243-C-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	533	82906

Prep Batch: 83114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-87238-2	AIEA GULCH WELLS PUMP2	Total/NA	Water	533	
380-87238-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	533	
380-87238-4	HALAWA WELLS UNITS 1&2 P1	Total/NA	Water	533	
380-87238-5	FB: MOANALUA WELLS	Total/NA	Water	533	
MBL 380-83114/19-A	Method Blank	Total/NA	Water	533	
LCS 380-83114/21-A	Lab Control Sample	Total/NA	Water	533	
MRL 380-83114/20-A	Lab Control Sample	Total/NA	Water	533	

QC Association Summary

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

Job ID: 380-87238-1
SDG: 533, 537.1

LCMS (Continued)

Prep Batch: 83114 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-87604-B-3-A MS	Matrix Spike	Total/NA	Water	533	
380-87604-C-3-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	

Analysis Batch: 83279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-87238-2	AIEA GULCH WELLS PUMP2	Total/NA	Water	533	83114
380-87238-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	533	83114
380-87238-4	HALAWA WELLS UNITS 1&2 P1	Total/NA	Water	533	83114
380-87238-5	FB: MOANALUA WELLS	Total/NA	Water	533	83114
MBL 380-83114/19-A	Method Blank	Total/NA	Water	533	83114
LCS 380-83114/21-A	Lab Control Sample	Total/NA	Water	533	83114
MRL 380-83114/20-A	Lab Control Sample	Total/NA	Water	533	83114
380-87604-B-3-A MS	Matrix Spike	Total/NA	Water	533	83114
380-87604-C-3-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	83114

Prep Batch: 83389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-87238-1	MOANALUA WELLS	Total/NA	Water	533	
MBL 380-83389/21-A	Method Blank	Total/NA	Water	533	
LCS 380-83389/23-A	Lab Control Sample	Total/NA	Water	533	
MRL 380-83389/22-A	Lab Control Sample	Total/NA	Water	533	
380-88189-E-1-B MS	Matrix Spike	Total/NA	Water	533	
380-88189-F-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	533	

Analysis Batch: 83532

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-87238-1	MOANALUA WELLS	Total/NA	Water	533	83389
MBL 380-83389/21-A	Method Blank	Total/NA	Water	533	83389
LCS 380-83389/23-A	Lab Control Sample	Total/NA	Water	533	83389
MRL 380-83389/22-A	Lab Control Sample	Total/NA	Water	533	83389
380-88189-E-1-B MS	Matrix Spike	Total/NA	Water	533	83389
380-88189-F-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	533	83389

Lab Chronicle

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

Job ID: 380-87238-1
 SDG: 533, 537.1

Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-87238-1

Date Collected: 03/11/24 09:59

Matrix: Water

Date Received: 03/14/24 10:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			83389	A5GB	EA POM	03/27/24 10:40
Total/NA	Analysis	533		1	83532	SZ9R	EA POM	03/28/24 09:57
Total/NA	Prep	537.1 DW			82218	SL5Q	EA POM	03/19/24 14:30
Total/NA	Analysis	537.1		1	82458	R6YA	EA POM	03/21/24 01:42

Client Sample ID: AIEA GULCH WELLS PUMP2

Lab Sample ID: 380-87238-2

Date Collected: 03/11/24 11:04

Matrix: Water

Date Received: 03/14/24 10:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			83114	N8NE	EA POM	03/25/24 14:30
Total/NA	Analysis	533		1	83279	SZ9R	EA POM	03/26/24 15:46
Total/NA	Prep	537.1 DW			82218	SL5Q	EA POM	03/19/24 14:30
Total/NA	Analysis	537.1		1	82458	R6YA	EA POM	03/21/24 01:54

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2

Lab Sample ID: 380-87238-3

Date Collected: 03/11/24 11:28

Matrix: Water

Date Received: 03/14/24 10:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			83114	N8NE	EA POM	03/25/24 14:30
Total/NA	Analysis	533		1	83279	SZ9R	EA POM	03/26/24 15:55
Total/NA	Prep	537.1 DW			82218	SL5Q	EA POM	03/19/24 14:30
Total/NA	Analysis	537.1		1	82458	R6YA	EA POM	03/21/24 02:03

Client Sample ID: HALAWA WELLS UNITS 1&2 P1

Lab Sample ID: 380-87238-4

Date Collected: 03/11/24 10:37

Matrix: Water

Date Received: 03/14/24 10:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			83114	N8NE	EA POM	03/25/24 14:30
Total/NA	Analysis	533		1	83279	SZ9R	EA POM	03/26/24 16:05

Client Sample ID: FB: MOANALUA WELLS

Lab Sample ID: 380-87238-5

Date Collected: 03/11/24 09:59

Matrix: Water

Date Received: 03/14/24 10:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			83114	N8NE	EA POM	03/25/24 14:30
Total/NA	Analysis	533		1	83279	SZ9R	EA POM	03/26/24 16:14

Lab Chronicle

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

Job ID: 380-87238-1
 SDG: 533, 537.1

Client Sample ID: FB: AIEA GULCH WELLS PUMP2

Lab Sample ID: 380-87238-6

Date Collected: 03/11/24 11:04

Matrix: Water

Date Received: 03/14/24 10:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			82906	SL5Q	EA POM	03/23/24 10:30
Total/NA	Analysis	533		1	83075	R6YA	EA POM	03/25/24 11:53

Client Sample ID: FB: AIEA WELLS PUMPS 1&2 (260) P2

Lab Sample ID: 380-87238-7

Date Collected: 03/11/24 11:28

Matrix: Water

Date Received: 03/14/24 10:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			82906	SL5Q	EA POM	03/23/24 10:30
Total/NA	Analysis	533		1	83075	R6YA	EA POM	03/25/24 12:03

Client Sample ID: FB: HALAWA WELLS UNITS 1&2 P1

Lab Sample ID: 380-87238-8

Date Collected: 03/11/24 10:37

Matrix: Water

Date Received: 03/14/24 10:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			82906	SL5Q	EA POM	03/23/24 10:30
Total/NA	Analysis	533		1	83075	R6YA	EA POM	03/25/24 12:13

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 [PFAS]

Job ID: 380-87238-1
 SDG: 533, 537.1

Laboratory: Eurofins Eaton Analytical Pomona

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Hawaii	State	CA00006	02-12-24 *

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
533	533	Water	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)
533	533	Water	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)
533	533	Water	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)
533	533	Water	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)
533	533	Water	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
533	533	Water	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)
533	533	Water	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)
533	533	Water	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)
533	533	Water	Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)
533	533	Water	Perfluoro-3-methoxypropanoic acid (PFMPA)
533	533	Water	Perfluoro-4-methoxybutanoic acid (PFMBA)
533	533	Water	Perfluorobutanoic acid (PFBA)
533	533	Water	Perfluoroheptanesulfonic acid (PFHpS)
533	533	Water	Perfluoropentanesulfonic acid (PFPeS)
533	533	Water	Perfluoropentanoic acid (PFPeA)
537.1	537.1 DW	Water	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)
537.1	537.1 DW	Water	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
537.1	537.1 DW	Water	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)
537.1	537.1 DW	Water	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

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

Job ID: 380-87238-1
SDG: 533, 537.1

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 [PFAS]

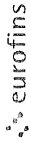
Job ID: 380-87238-1
SDG: 533, 537.1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
380-87238-1	MOANALUA WELLS	Water	03/11/24 09:59	03/14/24 10:04
380-87238-2	AIEA GULCH WELLS PUMP2	Water	03/11/24 11:04	03/14/24 10:04
380-87238-3	AIEA WELLS PUMPS 1&2 (260) P2	Water	03/11/24 11:28	03/14/24 10:04
380-87238-4	HALAWA WELLS UNITS 1&2 P1	Water	03/11/24 10:37	03/14/24 10:04
380-87238-5	FB: MOANALUA WELLS	Water	03/11/24 09:59	03/14/24 10:04
380-87238-6	FB: AIEA GULCH WELLS PUMP2	Water	03/11/24 11:04	03/14/24 10:04
380-87238-7	FB: AIEA WELLS PUMPS 1&2 (260) P2	Water	03/11/24 11:28	03/14/24 10:04
380-87238-8	FB: HALAWA WELLS UNITS 1&2 P1	Water	03/11/24 10:37	03/14/24 10:04

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

Chain of Custody Record



Client Information Client Contact: Dr. Ron Fenstermacher Phone: 808-748-5840 E-Mail: rachelle.arada@et.euronisus.com State of Origin:		Carrier Tracking No(s): 380-27941-2757 2 Page 1 of 1 Job #	
Company: 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 Project Name: RED-HILL/HBWS sites Event Desc. RUSH Weekly Red Hill Site:		Lab #/W: Arada, Rachelle PWSID:	
Due Date Requested: TAT Requested (days): Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No PO #: C20525101 exp 05312023 WO #:		Analysis Requested 533 - All Analytes 525 2.PREC - (MOD) 525plus PLUS TICs 517 1.DW.PREC - 537 1 Full List 8015B_DR0_LL_CS - HNL Ranges C10-C24/C24-C36/C8-C18 8015B_GRO_LL - (MOD) GRO SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs	
Sample Date: 11-Mar-2024 Sample Time: 0959 Sample Type (C=comp, G=grab): G Preservation Code:		Field Filtered Sample (Yes or No): Perform MS/MSD (Yes or No): 533 - All Analytes: Y N 525 2.PREC - (MOD) 525plus PLUS TICs: 3 3 517 1.DW.PREC - 537 1 Full List: 3 3 8015B_DR0_LL_CS - HNL Ranges C10-C24/C24-C36/C8-C18: 3 3 8015B_GRO_LL - (MOD) GRO: 3 3 SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs: 3 3	
Sample Identification: MOANALUA WELLS AIEA GULCH WELLS PUMP2 AIEA WELLS PUMPS 1&2 (260)P2 HALAWA WELLS UNITS 1&2 P1 FB MOANALUA WELLS FB AIEA GULCH WELLS PUMP2 FB AIEA WELLS PUMPS 1&2 (260) FB HALAWA WELLS UNITS 1&2		Matrix (W=water, S=solid, O=soil, T=tissue, A=air): Water Water Water Water Water Water Water Water Water	
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)			
Empty Kit Relinquished by: bailey Relinquished by: bailey Relinquished by:		Date: 12 March 2024 1400 Date/Time: 10:04 Date/Time:	
Custody Seals Intact. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Custody Seal No:	



Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-87238-1

SDG Number: 533, 537.1

Login Number: 87238

List Number: 1

Creator: Elyas, Matthew

List Source: Eurofins Eaton Analytical Pomona

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