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# ANALYTICAL REPORT

## PREPARED FOR

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## JOB DESCRIPTION

RED-HILL [PFAS]  
533, 537.1

## JOB NUMBER

380-88924-1

# 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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# Definitions/Glossary

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

Job ID: 380-88924-1  
SDG: 533, 537.1

## Qualifiers

### LCMS

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

## Glossary

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

# Case Narrative

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

Job ID: 380-88924-1

**Job ID: 380-88924-1**

**Eurofins Eaton Analytical Pomona**

## Job Narrative 380-88924-1

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 3/28/2024 10:44 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.6°C and 1.3°C.

### Receipt Exceptions

Ice formation exists in one of the 533 samples from site AIEA GULCH WELLS PUMP 2 (380-88924-2), in two of the 533 samples from site AIEA WELLS PUMPS 1&2 (260) P2 (380-88924-3), and in one of the 533 samples from site HALAWA WELLS UNITS 1&2 P1 (380-88924-4).

### PFAS

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

# Detection Summary

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

Job ID: 380-88924-1  
SDG: 533, 537.1

## Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-88924-1

No Detections.

## Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-88924-2

No Detections.

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

Lab Sample ID: 380-88924-3

No Detections.

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

Lab Sample ID: 380-88924-4

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	2.7		2.0	ng/L	1		533	Total/NA
Perfluorohexanoic acid (PFHxA)	2.1		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.3		2.0	ng/L	1		533	Total/NA
Perfluoropentanoic acid (PFPeA)	2.2		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.1		2.0	ng/L	1		537.1	Total/NA
Perfluorohexanoic acid (PFHxA)	2.1		2.0	ng/L	1		537.1	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.4		2.0	ng/L	1		537.1	Total/NA

## Client Sample ID: FB MOANALUA WELLS

Lab Sample ID: 380-88924-5

No Detections.

## Client Sample ID: FB AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-88924-6

No Detections.

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

Lab Sample ID: 380-88924-7

No Detections.

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

Lab Sample ID: 380-88924-8

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: 380-88924-1  
SDG: 533, 537.1

**Client Sample ID: MOANALUA WELLS**

**Lab Sample ID: 380-88924-1**

Date Collected: 03/25/24 09:38

Matrix: Drinking Water

Date Received: 03/28/24 10:44

**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		04/01/24 04:35	04/02/24 11:37	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 11:37	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 11:37	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 11:37	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 11:37	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 11:37	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 11:37	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 11:37	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 11:37	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 11:37	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 11:37	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 11:37	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 11:37	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 11:37	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 11:37	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 11:37	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 11:37	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 11:37	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 11:37	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 11:37	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 11:37	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 11:37	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 11:37	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 11:37	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 11:37	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	56		50 - 200	04/01/24 04:35	04/02/24 11:37	1
13C6 PFDA	52		50 - 200	04/01/24 04:35	04/02/24 11:37	1
13C5 PFHxA	66		50 - 200	04/01/24 04:35	04/02/24 11:37	1
13C4 PFHpA	67		50 - 200	04/01/24 04:35	04/02/24 11:37	1
13C8 PFOA	63		50 - 200	04/01/24 04:35	04/02/24 11:37	1
13C9 PFNA	55		50 - 200	04/01/24 04:35	04/02/24 11:37	1
13C7 PFUnA	56		50 - 200	04/01/24 04:35	04/02/24 11:37	1
13C2 PFDoA	60		50 - 200	04/01/24 04:35	04/02/24 11:37	1
13C4 PFBA	75		50 - 200	04/01/24 04:35	04/02/24 11:37	1
13C5 PFPeA	72		50 - 200	04/01/24 04:35	04/02/24 11:37	1
13C3 PFBS	87		50 - 200	04/01/24 04:35	04/02/24 11:37	1
13C3 PFHxS	91		50 - 200	04/01/24 04:35	04/02/24 11:37	1
13C8 PFOS	92		50 - 200	04/01/24 04:35	04/02/24 11:37	1

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# Client Sample Results

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

Job ID: 380-88924-1  
SDG: 533, 537.1

**Client Sample ID: MOANALUA WELLS**

**Lab Sample ID: 380-88924-1**

Date Collected: 03/25/24 09:38

Matrix: Drinking Water

Date Received: 03/28/24 10:44

**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	115		50 - 200	04/01/24 04:35	04/02/24 11:37	1
13C2-6:2-FTS	106		50 - 200	04/01/24 04:35	04/02/24 11:37	1
13C2-8:2-FTS	91		50 - 200	04/01/24 04:35	04/02/24 11:37	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		03/29/24 15:43	04/02/24 06:56	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 06:56	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 06:56	1
N-methylperfluorooctanesulfonamideacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 06:56	1
N-ethylperfluorooctanesulfonamideacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 06:56	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 06:56	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 06:56	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 06:56	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 06:56	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 06:56	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 06:56	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 06:56	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 06:56	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 06:56	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 06:56	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 06:56	1
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 06:56	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 06:56	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
d5-NEtFOSAA	109		70 - 130			03/29/24 15:43	04/02/24 06:56	1
13C2 PFHxA	112		70 - 130			03/29/24 15:43	04/02/24 06:56	1
13C2 PFDA	108		70 - 130			03/29/24 15:43	04/02/24 06:56	1
13C3-GenX	101		70 - 130			03/29/24 15:43	04/02/24 06:56	1

**Client Sample ID: AIEA GULCH WELLS PUMP 2**

**Lab Sample ID: 380-88924-2**

Date Collected: 03/25/24 10:35

Matrix: Drinking Water

Date Received: 03/28/24 10:44

**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		04/03/24 13:45	04/04/24 12:05	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:05	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:05	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:05	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:05	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:05	1

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# Client Sample Results

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

Job ID: 380-88924-1  
SDG: 533, 537.1

**Client Sample ID: AIEA GULCH WELLS PUMP 2**

**Lab Sample ID: 380-88924-2**

Date Collected: 03/25/24 10:35

Matrix: Drinking Water

Date Received: 03/28/24 10:44

**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		04/03/24 13:45	04/04/24 12:05	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:05	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:05	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:05	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:05	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:05	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:05	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:05	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:05	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:05	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:05	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:05	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:05	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:05	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:05	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:05	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:05	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:05	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:05	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	71		50 - 200	04/03/24 13:45	04/04/24 12:05	1
13C6 PFDA	84		50 - 200	04/03/24 13:45	04/04/24 12:05	1
13C5 PFHxA	85		50 - 200	04/03/24 13:45	04/04/24 12:05	1
13C4 PFHpA	90		50 - 200	04/03/24 13:45	04/04/24 12:05	1
13C8 PFOA	90		50 - 200	04/03/24 13:45	04/04/24 12:05	1
13C9 PFNA	89		50 - 200	04/03/24 13:45	04/04/24 12:05	1
13C7 PFUnA	85		50 - 200	04/03/24 13:45	04/04/24 12:05	1
13C2 PFDoA	82		50 - 200	04/03/24 13:45	04/04/24 12:05	1
13C4 PFBA	87		50 - 200	04/03/24 13:45	04/04/24 12:05	1
13C5 PFPeA	90		50 - 200	04/03/24 13:45	04/04/24 12:05	1
13C3 PFBS	85		50 - 200	04/03/24 13:45	04/04/24 12:05	1
13C3 PFHxS	89		50 - 200	04/03/24 13:45	04/04/24 12:05	1
13C8 PFOS	92		50 - 200	04/03/24 13:45	04/04/24 12:05	1
13C2-4:2-FTS	110		50 - 200	04/03/24 13:45	04/04/24 12:05	1
13C2-6:2-FTS	107		50 - 200	04/03/24 13:45	04/04/24 12:05	1
13C2-8:2-FTS	81		50 - 200	04/03/24 13:45	04/04/24 12:05	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		03/29/24 12:10	04/02/24 03:27	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:27	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:27	1

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# Client Sample Results

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

Job ID: 380-88924-1  
SDG: 533, 537.1

**Client Sample ID: AIEA GULCH WELLS PUMP 2**

**Lab Sample ID: 380-88924-2**

Date Collected: 03/25/24 10:35

Matrix: Drinking Water

Date Received: 03/28/24 10:44

**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		03/29/24 12:10	04/02/24 03:27	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:27	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:27	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:27	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:27	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:27	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:27	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:27	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:27	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:27	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:27	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:27	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:27	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:27	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:27	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
d5-NEtFOSAA	101		70 - 130			03/29/24 12:10	04/02/24 03:27	1
13C2 PFHxA	106		70 - 130			03/29/24 12:10	04/02/24 03:27	1
13C2 PFDA	104		70 - 130			03/29/24 12:10	04/02/24 03:27	1
13C3-GenX	98		70 - 130			03/29/24 12:10	04/02/24 03:27	1

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

**Lab Sample ID: 380-88924-3**

Date Collected: 03/25/24 11:02

Matrix: Drinking Water

Date Received: 03/28/24 10:44

**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		04/03/24 13:45	04/04/24 12:24	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:24	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:24	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:24	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:24	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:24	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:24	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:24	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:24	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:24	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:24	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:24	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:24	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:24	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:24	1

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# Client Sample Results

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

Job ID: 380-88924-1  
SDG: 533, 537.1

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

**Lab Sample ID: 380-88924-3**

**Date Collected: 03/25/24 11:02**

**Matrix: Drinking Water**

**Date Received: 03/28/24 10:44**

**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		04/03/24 13:45	04/04/24 12:24	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:24	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:24	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:24	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:24	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:24	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:24	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:24	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:24	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		04/03/24 13:45	04/04/24 12:24	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	63		50 - 200	04/03/24 13:45	04/04/24 12:24	1
13C6 PFDA	63		50 - 200	04/03/24 13:45	04/04/24 12:24	1
13C5 PFHxA	71		50 - 200	04/03/24 13:45	04/04/24 12:24	1
13C4 PFHpA	75		50 - 200	04/03/24 13:45	04/04/24 12:24	1
13C8 PFOA	68		50 - 200	04/03/24 13:45	04/04/24 12:24	1
13C9 PFNA	67		50 - 200	04/03/24 13:45	04/04/24 12:24	1
13C7 PFUnA	68		50 - 200	04/03/24 13:45	04/04/24 12:24	1
13C2 PFDoA	64		50 - 200	04/03/24 13:45	04/04/24 12:24	1
13C4 PFBA	80		50 - 200	04/03/24 13:45	04/04/24 12:24	1
13C5 PFPeA	80		50 - 200	04/03/24 13:45	04/04/24 12:24	1
13C3 PFBS	94		50 - 200	04/03/24 13:45	04/04/24 12:24	1
13C3 PFHxS	95		50 - 200	04/03/24 13:45	04/04/24 12:24	1
13C8 PFOS	92		50 - 200	04/03/24 13:45	04/04/24 12:24	1
13C2-4:2-FTS	123		50 - 200	04/03/24 13:45	04/04/24 12:24	1
13C2-6:2-FTS	115		50 - 200	04/03/24 13:45	04/04/24 12:24	1
13C2-8:2-FTS	88		50 - 200	04/03/24 13:45	04/04/24 12:24	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		03/29/24 12:10	04/02/24 03:36	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:36	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:36	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:36	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:36	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:36	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:36	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:36	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:36	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:36	1

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# Client Sample Results

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

Job ID: 380-88924-1  
SDG: 533, 537.1

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

**Lab Sample ID: 380-88924-3**

Date Collected: 03/25/24 11:02

Matrix: Drinking Water

Date Received: 03/28/24 10:44

**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		03/29/24 12:10	04/02/24 03:36	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:36	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:36	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:36	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:36	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:36	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		03/29/24 12:10	04/02/24 03:36	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEFOSAA	107		70 - 130			03/29/24 12:10	04/02/24 03:36	1
13C2 PFHxA	109		70 - 130			03/29/24 12:10	04/02/24 03:36	1
13C2 PFDA	111		70 - 130			03/29/24 12:10	04/02/24 03:36	1
13C3-GenX	103		70 - 130			03/29/24 12:10	04/02/24 03:36	1

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

**Lab Sample ID: 380-88924-4**

Date Collected: 03/25/24 10:07

Matrix: Drinking Water

Date Received: 03/28/24 10:44

**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		04/01/24 04:35	04/02/24 12:06	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:06	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:06	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:06	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:06	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:06	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:06	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:06	1
<b>Perfluorohexanesulfonic acid (PFHxS)</b>	<b>2.7</b>		2.0	ng/L		04/01/24 04:35	04/02/24 12:06	1
<b>Perfluorohexanoic acid (PFHxA)</b>	<b>2.1</b>		2.0	ng/L		04/01/24 04:35	04/02/24 12:06	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:06	1
<b>Perfluorooctanesulfonic acid (PFOS)</b>	<b>2.3</b>		2.0	ng/L		04/01/24 04:35	04/02/24 12:06	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:06	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:06	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:06	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:06	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:06	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:06	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:06	1

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-88924-1  
SDG: 533, 537.1

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

**Lab Sample ID: 380-88924-4**

Date Collected: 03/25/24 10:07

Matrix: Drinking Water

Date Received: 03/28/24 10:44

**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		04/01/24 04:35	04/02/24 12:06	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:06	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:06	1
<b>Perfluoropentanoic acid (PFPeA)</b>	<b>2.2</b>		2.0	ng/L		04/01/24 04:35	04/02/24 12:06	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:06	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:06	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	59		50 - 200			04/01/24 04:35	04/02/24 12:06	1
13C6 PFDA	50		50 - 200			04/01/24 04:35	04/02/24 12:06	1
13C5 PFHxA	69		50 - 200			04/01/24 04:35	04/02/24 12:06	1
13C4 PFHpA	67		50 - 200			04/01/24 04:35	04/02/24 12:06	1
13C8 PFOA	61		50 - 200			04/01/24 04:35	04/02/24 12:06	1
13C9 PFNA	53		50 - 200			04/01/24 04:35	04/02/24 12:06	1
13C7 PFUnA	56		50 - 200			04/01/24 04:35	04/02/24 12:06	1
13C2 PFDoA	60		50 - 200			04/01/24 04:35	04/02/24 12:06	1
13C4 PFBA	78		50 - 200			04/01/24 04:35	04/02/24 12:06	1
13C5 PFPeA	83		50 - 200			04/01/24 04:35	04/02/24 12:06	1
13C3 PFBS	86		50 - 200			04/01/24 04:35	04/02/24 12:06	1
13C3 PFHxS	92		50 - 200			04/01/24 04:35	04/02/24 12:06	1
13C8 PFOS	90		50 - 200			04/01/24 04:35	04/02/24 12:06	1
13C2-4:2-FTS	125		50 - 200			04/01/24 04:35	04/02/24 12:06	1
13C2-6:2-FTS	111		50 - 200			04/01/24 04:35	04/02/24 12:06	1
13C2-8:2-FTS	83		50 - 200			04/01/24 04:35	04/02/24 12:06	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		03/29/24 15:43	04/02/24 07:25	1
<b>Perfluorooctanesulfonic acid (PFOS)</b>	<b>2.1</b>		2.0	ng/L		03/29/24 15:43	04/02/24 07:25	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:25	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:25	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:25	1
<b>Perfluorohexanoic acid (PFHxA)</b>	<b>2.1</b>		2.0	ng/L		03/29/24 15:43	04/02/24 07:25	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:25	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:25	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:25	1
<b>Perfluorohexanesulfonic acid (PFHxS)</b>	<b>2.4</b>		2.0	ng/L		03/29/24 15:43	04/02/24 07:25	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:25	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:25	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:25	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:25	1
Perfluorotridecanoic acid (PFTTrDA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:25	1

# Client Sample Results

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

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

**Lab Sample ID: 380-88924-4**

Date Collected: 03/25/24 10:07

Matrix: Drinking Water

Date Received: 03/28/24 10:44

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:25	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:25	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:25	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	111		70 - 130			03/29/24 15:43	04/02/24 07:25	1
13C2 PFHxA	115		70 - 130			03/29/24 15:43	04/02/24 07:25	1
13C2 PFDA	115		70 - 130			03/29/24 15:43	04/02/24 07:25	1
13C3-GenX	102		70 - 130			03/29/24 15:43	04/02/24 07:25	1

**Client Sample ID: FB MOANALUA WELLS**

**Lab Sample ID: 380-88924-5**

Date Collected: 03/25/24 09:38

Matrix: Water

Date Received: 03/28/24 10:44

**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		04/01/24 04:35	04/02/24 12:16	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:16	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:16	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:16	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:16	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:16	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:16	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:16	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:16	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:16	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:16	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:16	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:16	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:16	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:16	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:16	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:16	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:16	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:16	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:16	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:16	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:16	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:16	1

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-88924-1  
SDG: 533, 537.1

**Client Sample ID: FB MOANALUA WELLS**

**Lab Sample ID: 380-88924-5**

Date Collected: 03/25/24 09:38

Matrix: Water

Date Received: 03/28/24 10:44

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:16	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:16	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	66		50 - 200			04/01/24 04:35	04/02/24 12:16	1
13C6 PFDA	81		50 - 200			04/01/24 04:35	04/02/24 12:16	1
13C5 PFHxA	85		50 - 200			04/01/24 04:35	04/02/24 12:16	1
13C4 PFHpA	89		50 - 200			04/01/24 04:35	04/02/24 12:16	1
13C8 PFOA	87		50 - 200			04/01/24 04:35	04/02/24 12:16	1
13C9 PFNA	85		50 - 200			04/01/24 04:35	04/02/24 12:16	1
13C7 PFUnA	81		50 - 200			04/01/24 04:35	04/02/24 12:16	1
13C2 PFDoA	81		50 - 200			04/01/24 04:35	04/02/24 12:16	1
13C4 PFBA	87		50 - 200			04/01/24 04:35	04/02/24 12:16	1
13C5 PFPeA	84		50 - 200			04/01/24 04:35	04/02/24 12:16	1
13C3 PFBS	87		50 - 200			04/01/24 04:35	04/02/24 12:16	1
13C3 PFHxS	91		50 - 200			04/01/24 04:35	04/02/24 12:16	1
13C8 PFOS	89		50 - 200			04/01/24 04:35	04/02/24 12:16	1
13C2-4:2-FTS	103		50 - 200			04/01/24 04:35	04/02/24 12:16	1
13C2-6:2-FTS	110		50 - 200			04/01/24 04:35	04/02/24 12:16	1
13C2-8:2-FTS	86		50 - 200			04/01/24 04:35	04/02/24 12:16	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		03/29/24 15:43	04/02/24 07:34	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:34	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:34	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:34	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:34	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:34	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:34	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:34	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:34	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:34	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:34	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:34	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:34	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:34	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:34	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:34	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:34	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:34	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	110		70 - 130			03/29/24 15:43	04/02/24 07:34	1
13C2 PFHxA	114		70 - 130			03/29/24 15:43	04/02/24 07:34	1

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# Client Sample Results

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

Job ID: 380-88924-1  
SDG: 533, 537.1

## Client Sample ID: FB MOANALUA WELLS

Lab Sample ID: 380-88924-5

Date Collected: 03/25/24 09:38

Matrix: Water

Date Received: 03/28/24 10:44

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDA	115		70 - 130	03/29/24 15:43	04/02/24 07:34	1
13C3-GenX	109		70 - 130	03/29/24 15:43	04/02/24 07:34	1

## Client Sample ID: FB AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-88924-6

Date Collected: 03/25/24 10:35

Matrix: Water

Date Received: 03/28/24 10:44

### 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		04/01/24 04:35	04/02/24 12:25	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:25	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:25	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:25	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:25	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:25	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:25	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:25	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:25	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:25	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:25	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:25	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:25	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:25	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:25	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:25	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:25	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:25	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:25	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:25	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:25	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:25	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:25	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:25	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:25	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	67		50 - 200	04/01/24 04:35	04/02/24 12:25	1
13C6 PFDA	83		50 - 200	04/01/24 04:35	04/02/24 12:25	1
13C5 PFHxA	83		50 - 200	04/01/24 04:35	04/02/24 12:25	1
13C4 PFHpA	90		50 - 200	04/01/24 04:35	04/02/24 12:25	1

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# Client Sample Results

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

**Client Sample ID: FB AIEA GULCH WELLS PUMP 2**

**Lab Sample ID: 380-88924-6**

Date Collected: 03/25/24 10:35

Matrix: Water

Date Received: 03/28/24 10:44

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	90		50 - 200	04/01/24 04:35	04/02/24 12:25	1
13C9 PFNA	90		50 - 200	04/01/24 04:35	04/02/24 12:25	1
13C7 PFUnA	84		50 - 200	04/01/24 04:35	04/02/24 12:25	1
13C2 PFDoA	88		50 - 200	04/01/24 04:35	04/02/24 12:25	1
13C4 PFBA	88		50 - 200	04/01/24 04:35	04/02/24 12:25	1
13C5 PFPeA	93		50 - 200	04/01/24 04:35	04/02/24 12:25	1
13C3 PFBS	84		50 - 200	04/01/24 04:35	04/02/24 12:25	1
13C3 PFHxS	91		50 - 200	04/01/24 04:35	04/02/24 12:25	1
13C8 PFOS	90		50 - 200	04/01/24 04:35	04/02/24 12:25	1
13C2-4:2-FTS	105		50 - 200	04/01/24 04:35	04/02/24 12:25	1
13C2-6:2-FTS	103		50 - 200	04/01/24 04:35	04/02/24 12:25	1
13C2-8:2-FTS	87		50 - 200	04/01/24 04:35	04/02/24 12:25	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		03/29/24 15:43	04/02/24 07:44	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:44	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:44	1
N-methylperfluorooctanesulfonamide cetic acid (NMeFOSAA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:44	1
N-ethylperfluorooctanesulfonamide cetic acid (NEtFOSAA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:44	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:44	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:44	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:44	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:44	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:44	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:44	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:44	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:44	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:44	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:44	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:44	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:44	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	105		70 - 130	03/29/24 15:43	04/02/24 07:44	1
13C2 PFHxA	117		70 - 130	03/29/24 15:43	04/02/24 07:44	1
13C2 PFDA	114		70 - 130	03/29/24 15:43	04/02/24 07:44	1
13C3-GenX	110		70 - 130	03/29/24 15:43	04/02/24 07:44	1

# Client Sample Results

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

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

**Lab Sample ID: 380-88924-7**

**Date Collected: 03/25/24 11:02**

**Matrix: Water**

**Date Received: 03/28/24 10:44**

**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		04/01/24 04:35	04/02/24 12:35	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:35	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:35	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:35	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:35	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:35	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:35	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:35	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:35	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:35	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:35	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:35	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:35	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:35	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:35	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:35	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:35	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:35	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:35	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:35	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:35	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:35	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:35	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:35	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:35	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	63		50 - 200	04/01/24 04:35	04/02/24 12:35	1
13C6 PFDA	81		50 - 200	04/01/24 04:35	04/02/24 12:35	1
13C5 PFHxA	84		50 - 200	04/01/24 04:35	04/02/24 12:35	1
13C4 PFHpA	91		50 - 200	04/01/24 04:35	04/02/24 12:35	1
13C8 PFOA	91		50 - 200	04/01/24 04:35	04/02/24 12:35	1
13C9 PFNA	83		50 - 200	04/01/24 04:35	04/02/24 12:35	1
13C7 PFUnA	82		50 - 200	04/01/24 04:35	04/02/24 12:35	1
13C2 PFDoA	81		50 - 200	04/01/24 04:35	04/02/24 12:35	1
13C4 PFBA	87		50 - 200	04/01/24 04:35	04/02/24 12:35	1
13C5 PFPeA	91		50 - 200	04/01/24 04:35	04/02/24 12:35	1
13C3 PFBS	82		50 - 200	04/01/24 04:35	04/02/24 12:35	1
13C3 PFHxS	92		50 - 200	04/01/24 04:35	04/02/24 12:35	1
13C8 PFOS	90		50 - 200	04/01/24 04:35	04/02/24 12:35	1

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# Client Sample Results

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

Job ID: 380-88924-1  
SDG: 533, 537.1

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

**Lab Sample ID: 380-88924-7**

**Date Collected: 03/25/24 11:02**

**Matrix: Water**

**Date Received: 03/28/24 10:44**

**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	110		50 - 200	04/01/24 04:35	04/02/24 12:35	1
13C2-6:2-FTS	107		50 - 200	04/01/24 04:35	04/02/24 12:35	1
13C2-8:2-FTS	83		50 - 200	04/01/24 04:35	04/02/24 12:35	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		03/29/24 15:43	04/02/24 07:54	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:54	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:54	1
N-methylperfluorooctanesulfonamideacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:54	1
N-ethylperfluorooctanesulfonamideacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:54	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:54	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:54	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:54	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:54	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:54	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:54	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:54	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:54	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:54	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:54	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:54	1
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:54	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 07:54	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
d5-NEtFOSAA	111		70 - 130			03/29/24 15:43	04/02/24 07:54	1
13C2 PFHxA	117		70 - 130			03/29/24 15:43	04/02/24 07:54	1
13C2 PFDA	111		70 - 130			03/29/24 15:43	04/02/24 07:54	1
13C3-GenX	106		70 - 130			03/29/24 15:43	04/02/24 07:54	1

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

**Lab Sample ID: 380-88924-8**

**Date Collected: 03/25/24 10:07**

**Matrix: Water**

**Date Received: 03/28/24 10:44**

**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		04/01/24 04:35	04/02/24 12:54	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:54	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:54	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:54	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:54	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:54	1

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# Client Sample Results

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

Job ID: 380-88924-1  
SDG: 533, 537.1

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

**Lab Sample ID: 380-88924-8**

Date Collected: 03/25/24 10:07

Matrix: Water

Date Received: 03/28/24 10:44

**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		04/01/24 04:35	04/02/24 12:54	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:54	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:54	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:54	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:54	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:54	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:54	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:54	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:54	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:54	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:54	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:54	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:54	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:54	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:54	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:54	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:54	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:54	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		04/01/24 04:35	04/02/24 12:54	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	63		50 - 200	04/01/24 04:35	04/02/24 12:54	1
13C6 PFDA	73		50 - 200	04/01/24 04:35	04/02/24 12:54	1
13C5 PFHxA	80		50 - 200	04/01/24 04:35	04/02/24 12:54	1
13C4 PFHpA	85		50 - 200	04/01/24 04:35	04/02/24 12:54	1
13C8 PFOA	88		50 - 200	04/01/24 04:35	04/02/24 12:54	1
13C9 PFNA	79		50 - 200	04/01/24 04:35	04/02/24 12:54	1
13C7 PFUnA	77		50 - 200	04/01/24 04:35	04/02/24 12:54	1
13C2 PFDoA	81		50 - 200	04/01/24 04:35	04/02/24 12:54	1
13C4 PFBA	86		50 - 200	04/01/24 04:35	04/02/24 12:54	1
13C5 PFPeA	87		50 - 200	04/01/24 04:35	04/02/24 12:54	1
13C3 PFBS	84		50 - 200	04/01/24 04:35	04/02/24 12:54	1
13C3 PFHxS	94		50 - 200	04/01/24 04:35	04/02/24 12:54	1
13C8 PFOS	90		50 - 200	04/01/24 04:35	04/02/24 12:54	1
13C2-4:2-FTS	108		50 - 200	04/01/24 04:35	04/02/24 12:54	1
13C2-6:2-FTS	114		50 - 200	04/01/24 04:35	04/02/24 12:54	1
13C2-8:2-FTS	80		50 - 200	04/01/24 04:35	04/02/24 12:54	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		03/29/24 15:43	04/02/24 08:03	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 08:03	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 08:03	1

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# Client Sample Results

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

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

**Lab Sample ID: 380-88924-8**

**Date Collected: 03/25/24 10:07**

**Matrix: Water**

**Date Received: 03/28/24 10:44**

**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		03/29/24 15:43	04/02/24 08:03	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 08:03	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 08:03	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 08:03	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 08:03	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 08:03	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 08:03	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 08:03	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 08:03	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 08:03	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 08:03	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 08:03	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 08:03	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 08:03	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		03/29/24 15:43	04/02/24 08:03	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
d5-NEtFOSAA	113		70 - 130			03/29/24 15:43	04/02/24 08:03	1
13C2 PFHxA	115		70 - 130			03/29/24 15:43	04/02/24 08:03	1
13C2 PFDA	117		70 - 130			03/29/24 15:43	04/02/24 08:03	1
13C3-GenX	109		70 - 130			03/29/24 15:43	04/02/24 08:03	1

# Surrogate Summary

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

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

Matrix: Drinking Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		d5NEFOS (70-130)	PFHxA (70-130)	PFDA (70-130)	GenX (70-130)
380-88924-1	MOANALUA WELLS	109	112	108	101
380-88924-1 MS	MOANALUA WELLS	106	120	116	114
380-88924-1 MSD	MOANALUA WELLS	106	115	109	110
380-88924-2	AIEA GULCH WELLS PUMP 2	101	106	104	98
380-88924-3	AIEA WELLS PUMPS 1&2 (260) P2	107	109	111	103
380-88924-4	HALAWA WELLS UNITS 1&2 P1	111	115	115	102

#### Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		d5NEFOS (70-130)	PFHxA (70-130)	PFDA (70-130)	GenX (70-130)
380-88924-5	FB MOANALUA WELLS	110	114	115	109
380-88924-6	FB AIEA GULCH WELLS PUMP 2	105	117	114	110
380-88924-7	FB AIEA WELLS PUMPS 1&2 (260) P2	111	117	111	106
380-88924-8	FB HALAWA WELLS UNITS 1&2 P1	113	115	117	109
380-88955-B-1-A MS	Matrix Spike	104	117	108	108
380-88955-C-1-A MSD	Matrix Spike Duplicate	104	112	114	113
LCS 380-83760/24-A	Lab Control Sample	107	116	120	114
LCS 380-83817/19-A	Lab Control Sample	103	114	106	115
MBL 380-83760/22-A	Method Blank	105	108	107	100
MBL 380-83817/17-A	Method Blank	113	112	110	104
MRL 380-83760/23-A	Lab Control Sample	112	116	115	110
MRL 380-83817/18-A	Lab Control Sample	107	110	112	104

#### 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: 380-88924-1  
SDG: 533, 537.1

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

Matrix: Drinking Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	HFPODA (50-200)	C6PFDA (50-200)	13C5PHA (50-200)	C4PFHA (50-200)	C8PFOA (50-200)	C9PFNA (50-200)	13C7PUA (50-200)	PFDaA (50-200)
380-88924-1	MOANALUA WELLS	56	52	66	67	63	55	56	60
380-88924-2	AIEA GULCH WELLS PUMP 2	71	84	85	90	90	89	85	82
380-88924-2 MS	AIEA GULCH WELLS PUMP 2	53	58	63	64	60	58	58	67
380-88924-3	AIEA WELLS PUMPS 1&2 (260) P2	63	63	71	75	68	67	68	64
380-88924-3 DU	AIEA WELLS PUMPS 1&2 (260) P2	74	89	88	93	95	92	81	85
380-88924-4	HALAWA WELLS UNITS 1&2 P1	59	50	69	67	61	53	56	60

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (50-200)	PFPeA (50-200)	C3PFBS (50-200)	C3PFHS (50-200)	C8PFOS (50-200)	42FTS (50-200)	62FTS (50-200)	82FTS (50-200)
380 88924 1	MOANALUA WELLS	75	72	87	91	92	115	106	91
380-88924-2	AIEA GULCH WELLS PUMP 2	87	90	85	89	92	110	107	81
380-88924-2 MS	AIEA GULCH WELLS PUMP 2	74	76	90	93	93	105	115	88
380-88924-3	AIEA WELLS PUMPS 1&2 (260) P2	80	80	94	95	92	123	115	88
380-88924-3 DU	AIEA WELLS PUMPS 1&2 (260) P2	98	99	86	91	93	118	114	87
380-88924-4	HALAWA WELLS UNITS 1&2 P1	78	83	86	92	90	125	111	83

### Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	HFPODA (50-200)	C6PFDA (50-200)	13C5PHA (50-200)	C4PFHA (50-200)	C8PFOA (50-200)	C9PFNA (50-200)	13C7PUA (50-200)	PFDaA (50-200)
380-88764-A-1-B MS	Matrix Spike	68	41 *5-	70	71	63	51	38 *5-	45 *5-
380-88764-A-1-C MSD	Matrix Spike Duplicate	64	32 *5-	66	67	61	45 *5-	29 *5-	32 *5-
380-88924-5	FB MOANALUA WELLS	66	81	85	89	87	85	81	81
380-88924-6	FB AIEA GULCH WELLS PUMP 2	67	83	83	90	90	90	84	88

# Isotope Dilution Summary

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

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

**Matrix: Water**

**Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	HFPODA (50-200)	C6PFDA (50-200)	13C5PHA (50-200)	C4PFHA (50-200)	C8PFOA (50-200)	C9PFNA (50-200)	13C7PUA (50-200)	PFDoA (50-200)
380-88924-7	FB AIEA WELLS PUMPS 1&2 (2	63	81	84	91	91	83	82	81
380-88924-8	FB HALAWA WELLS UNITS 1&2 P1	63	73	80	85	88	79	77	81
LCS 380-83918/22-A	Lab Control Sample	65	79	79	89	84	87	81	81
LCS 380-84287/16-A	Lab Control Sample	80	98	88	94	95	97	96	97
LCSD 380-84287/17-A	Lab Control Sample Dup	93	97	91	97	99	102	95	100
MBL 380-83918/20-A	Method Blank	69	86	92	96	94	92	89	93
MBL 380-84287/14-A	Method Blank	79	92	93	99	101	97	91	94
MRL 380-83918/21-A	Lab Control Sample	62	78	80	85	84	78	78	79
MRL 380-84287/15-A	Lab Control Sample	81	95	95	104	103	98	95	95

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (50-200)	PFPeA (50-200)	C3PFBS (50-200)	C3PFHS (50-200)	C8PFOS (50-200)	42FTS (50-200)	62FTS (50-200)	82FTS (50-200)
380-88764-A-1-B MS	Matrix Spike	83	150	79	88	88	117	101	84
380-88764-A-1-C MSD	Matrix Spike Duplicate	81	147	81	88	86	117	102	86
380-88924-5	FB MOANALUA WELLS	87	84	87	91	89	103	110	86
380-88924-6	FB AIEA GULCH WELLS PUMP 2	88	93	84	91	90	105	103	87
380-88924-7	FB AIEA WELLS PUMPS 1&2 (260) P2	87	91	82	92	90	110	107	83
380-88924-8	FB HALAWA WELLS UNITS 1&2 P1	86	87	84	94	90	108	114	80
LCS 380-83918/22-A	Lab Control Sample	84	85	85	91	85	101	104	82
LCS 380-84287/16-A	Lab Control Sample	99	106	97	103	102	117	118	103
LCSD 380-84287/17-A	Lab Control Sample Dup	97	105	97	98	101	109	117	100
MBL 380-83918/20-A	Method Blank	95	95	91	100	96	117	106	94
MBL 380-84287/14-A	Method Blank	102	102	101	103	103	126	121	90
MRL 380-83918/21-A	Lab Control Sample	85	84	88	93	89	117	107	91
MRL 380-84287/15-A	Lab Control Sample	105	109	100	102	107	119	123	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: 380-88924-1  
 SDG: 533, 537.1

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

**Lab Sample ID: MBL 380-83918/20-A**  
**Matrix: Water**  
**Analysis Batch: 84027**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 83918**

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		04/01/24 04:35	04/02/24 10:20	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		04/01/24 04:35	04/02/24 10:20	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		04/01/24 04:35	04/02/24 10:20	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		04/01/24 04:35	04/02/24 10:20	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		04/01/24 04:35	04/02/24 10:20	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		04/01/24 04:35	04/02/24 10:20	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		04/01/24 04:35	04/02/24 10:20	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		04/01/24 04:35	04/02/24 10:20	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		04/01/24 04:35	04/02/24 10:20	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		04/01/24 04:35	04/02/24 10:20	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		04/01/24 04:35	04/02/24 10:20	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		04/01/24 04:35	04/02/24 10:20	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		04/01/24 04:35	04/02/24 10:20	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		04/01/24 04:35	04/02/24 10:20	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		04/01/24 04:35	04/02/24 10:20	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		04/01/24 04:35	04/02/24 10:20	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		04/01/24 04:35	04/02/24 10:20	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		04/01/24 04:35	04/02/24 10:20	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		04/01/24 04:35	04/02/24 10:20	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<0.25		2.0	ng/L		04/01/24 04:35	04/02/24 10:20	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		04/01/24 04:35	04/02/24 10:20	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		04/01/24 04:35	04/02/24 10:20	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		04/01/24 04:35	04/02/24 10:20	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		04/01/24 04:35	04/02/24 10:20	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		04/01/24 04:35	04/02/24 10:20	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	69		50 - 200	04/01/24 04:35	04/02/24 10:20	1
13C6 PFDA	86		50 - 200	04/01/24 04:35	04/02/24 10:20	1
13C5 PFHxA	92		50 - 200	04/01/24 04:35	04/02/24 10:20	1
13C4 PFHpA	96		50 - 200	04/01/24 04:35	04/02/24 10:20	1
13C8 PFOA	94		50 - 200	04/01/24 04:35	04/02/24 10:20	1
13C9 PFNA	92		50 - 200	04/01/24 04:35	04/02/24 10:20	1
13C7 PFUnA	89		50 - 200	04/01/24 04:35	04/02/24 10:20	1
13C2 PFDoA	93		50 - 200	04/01/24 04:35	04/02/24 10:20	1
13C4 PFBA	95		50 - 200	04/01/24 04:35	04/02/24 10:20	1
13C5 PFPeA	95		50 - 200	04/01/24 04:35	04/02/24 10:20	1
13C3 PFBS	91		50 - 200	04/01/24 04:35	04/02/24 10:20	1
13C3 PFHxS	100		50 - 200	04/01/24 04:35	04/02/24 10:20	1

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# QC Sample Results

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

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

**Lab Sample ID: MBL 380-83918/20-A**  
**Matrix: Water**  
**Analysis Batch: 84027**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 83918**

Isotope Dilution	MBL MBL		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C8 PFOS	96		50 - 200	04/01/24 04:35	04/02/24 10:20	1
13C2-4:2-FTS	117		50 - 200	04/01/24 04:35	04/02/24 10:20	1
13C2-6:2-FTS	106		50 - 200	04/01/24 04:35	04/02/24 10:20	1
13C2-8:2-FTS	94		50 - 200	04/01/24 04:35	04/02/24 10:20	1

**Lab Sample ID: LCS 380-83918/22-A**  
**Matrix: Water**  
**Analysis Batch: 84027**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 83918**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	60.1	52.9		ng/L		88	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.1	55.7		ng/L		93	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.1	56.5		ng/L		94	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.1	57.0		ng/L		95	70 - 130
Perfluorobutanesulfonic acid (PFBS)	60.1	59.0		ng/L		98	70 - 130
Perfluorodecanoic acid (PFDA)	60.1	58.7		ng/L		98	70 - 130
Perfluorododecanoic acid (PFDoA)	60.1	58.5		ng/L		97	70 - 130
Perfluoroheptanoic acid (PFHpA)	60.1	56.8		ng/L		94	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	60.1	57.9		ng/L		96	70 - 130
Perfluorohexanoic acid (PFHxA)	60.1	62.2		ng/L		103	70 - 130
Perfluorononanoic acid (PFNA)	60.1	58.1		ng/L		97	70 - 130
Perfluorooctanesulfonic acid (PFOS)	60.1	57.0		ng/L		95	70 - 130
Perfluorooctanoic acid (PFOA)	60.1	60.6		ng/L		101	70 - 130
Perfluoroundecanoic acid (PFUnA)	60.1	60.0		ng/L		100	70 - 130
Perfluorobutanoic acid (PFBA)	60.1	59.0		ng/L		98	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.1	58.4		ng/L		97	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.1	59.9		ng/L		100	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.1	57.0		ng/L		95	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.1	52.6		ng/L		87	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	60.1	57.1		ng/L		95	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.1	59.4		ng/L		99	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.1	57.4		ng/L		96	70 - 130
Perfluoropentanoic acid (PFPeA)	60.1	61.9		ng/L		103	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	60.1	61.9		ng/L		103	70 - 130

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

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

**Lab Sample ID: LCS 380-83918/22-A**  
**Matrix: Water**  
**Analysis Batch: 84027**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 83918**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanesulfonic acid (PFPeS)	60.1	55.2		ng/L		92	70 - 130
<b>LCS LCS</b>							
<b>Isotope Dilution</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
13C3 HFPO-DA	65		50 - 200				
13C6 PFDA	79		50 - 200				
13C5 PFHxA	79		50 - 200				
13C4 PFHpA	89		50 - 200				
13C8 PFOA	84		50 - 200				
13C9 PFNA	87		50 - 200				
13C7 PFUnA	81		50 - 200				
13C2 PFDoA	81		50 - 200				
13C4 PFBA	84		50 - 200				
13C5 PFPeA	85		50 - 200				
13C3 PFBS	85		50 - 200				
13C3 PFHxS	91		50 - 200				
13C8 PFOS	85		50 - 200				
13C2-4:2-FTS	101		50 - 200				
13C2-6:2-FTS	104		50 - 200				
13C2-8:2-FTS	82		50 - 200				

**Lab Sample ID: MRL 380-83918/21-A**  
**Matrix: Water**  
**Analysis Batch: 84027**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 83918**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.01	2.00	J	ng/L		99	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.01	1.95	J	ng/L		97	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.01	1.99	J	ng/L		99	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.01	1.97	J	ng/L		98	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.01	2.23	J	ng/L		111	50 - 150
Perfluorodecanoic acid (PFDA)	2.01	2.13	J	ng/L		106	50 - 150
Perfluorododecanoic acid (PFDoA)	2.01	2.11	J	ng/L		105	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.01	2.25	J	ng/L		112	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.01	1.97	J	ng/L		98	50 - 150
Perfluorohexanoic acid (PFHxA)	2.01	2.10	J	ng/L		105	50 - 150
Perfluorononanoic acid (PFNA)	2.01	2.27	J	ng/L		113	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.01	2.14	J	ng/L		106	50 - 150
Perfluorooctanoic acid (PFOA)	2.01	2.10	J	ng/L		105	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.01	2.16	J	ng/L		108	50 - 150
Perfluorobutanoic acid (PFBA)	2.01	2.10	J	ng/L		105	50 - 150

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

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

**Lab Sample ID: MRL 380-83918/21-A**  
**Matrix: Water**  
**Analysis Batch: 84027**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 83918**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.01	2.12	J	ng/L		106	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.01	2.21	J	ng/L		110	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.01	2.36	J	ng/L		117	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.01	1.85	J	ng/L		92	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.01	2.04	J	ng/L		102	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.01	2.04	J	ng/L		101	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.01	1.90	J	ng/L		95	50 - 150
Perfluoropentanoic acid (PFPeA)	2.01	2.28	J	ng/L		113	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.01	2.19	J	ng/L		109	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.01	1.95	J	ng/L		97	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	MRL Limits
13C3 HFPO-DA	62		50 - 200
13C6 PFDA	78		50 - 200
13C5 PFHxA	80		50 - 200
13C4 PFHpA	85		50 - 200
13C8 PFOA	84		50 - 200
13C9 PFNA	78		50 - 200
13C7 PFUnA	78		50 - 200
13C2 PFDoA	79		50 - 200
13C4 PFBA	85		50 - 200
13C5 PFPeA	84		50 - 200
13C3 PFBS	88		50 - 200
13C3 PFHxS	93		50 - 200
13C8 PFOS	89		50 - 200
13C2-4:2-FTS	117		50 - 200
13C2-6:2-FTS	107		50 - 200
13C2-8:2-FTS	91		50 - 200

**Lab Sample ID: 380-88764-A-1-B MS**  
**Matrix: Water**  
**Analysis Batch: 84027**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 83918**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.2	50.2		ng/L		83	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.2	55.0		ng/L		91	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.2	57.6		ng/L		96	70 - 130

# QC Sample Results

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

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

**Lab Sample ID: 380-88764-A-1-B MS**  
**Matrix: Water**  
**Analysis Batch: 84027**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 83918**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide	<2.0		60.2	54.6		ng/L		91	70 - 130
Dimer Acid (HFPO-DA/GenX)									
Perfluorobutanesulfonic acid (PFBS)	11		60.2	74.4		ng/L		105	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0	*5-	60.2	57.5	*5-	ng/L		96	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0	*5-	60.2	58.1	*5-	ng/L		96	70 - 130
Perfluoroheptanoic acid (PFHpA)	4.4		60.2	66.1		ng/L		103	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	2.9		60.2	60.5		ng/L		96	70 - 130
Perfluorohexanoic acid (PFHxA)	26		60.2	85.7		ng/L		99	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		60.2	62.2		ng/L		103	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		60.2	57.8		ng/L		93	70 - 130
Perfluorooctanoic acid (PFOA)	6.8		60.2	69.2		ng/L		104	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0	*5-	60.2	62.1	*5-	ng/L		103	70 - 130
Perfluorobutanoic acid (PFBA)	8.2		60.2	68.6		ng/L		100	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.2	60.8		ng/L		101	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.2	62.6		ng/L		104	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.2	63.6		ng/L		103	70 - 130
Nonafluoro-3,6-dioxahheptanoic acid (NFDHA)	<2.0		60.2	46.7		ng/L		77	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		60.2	62.6		ng/L		104	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0	F1	60.2	94.2	F1	ng/L		156	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.2	61.9		ng/L		103	70 - 130
Perfluoropentanoic acid (PFPeA)	22		60.2	79.7		ng/L		96	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.2	60.4		ng/L		100	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.2	59.7		ng/L		98	70 - 130

Isotope Dilution	MS MS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	68		50 - 200
13C6 PFDA	41	*5-	50 - 200
13C5 PFHxA	70		50 - 200
13C4 PFHpA	71		50 - 200
13C8 PFOA	63		50 - 200
13C9 PFNA	51		50 - 200
13C7 PFUnA	38	*5-	50 - 200
13C2 PFDoA	45	*5-	50 - 200
13C4 PFBA	83		50 - 200
13C5 PFPeA	150		50 - 200
13C3 PFBS	79		50 - 200
13C3 PFHxS	88		50 - 200
13C8 PFOS	88		50 - 200

# QC Sample Results

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

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

**Lab Sample ID: 380-88764-A-1-B MS**  
**Matrix: Water**  
**Analysis Batch: 84027**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 83918**

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
13C2-4:2-FTS	117		50 - 200
13C2-6:2-FTS	101		50 - 200
13C2-8:2-FTS	84		50 - 200

**Lab Sample ID: 380-88764-A-1-C MSD**  
**Matrix: Water**  
**Analysis Batch: 84027**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 83918**

<b>Analyte</b>	<b>Sample Result</b>	<b>Sample Qualifier</b>	<b>Spike Added</b>	<b>MSD Result</b>	<b>MSD Qualifier</b>	<b>Unit</b>	<b>D</b>	<b>%Rec</b>	<b>%Rec Limits</b>	<b>RPD</b>	<b>RPD Limit</b>
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.1	51.9		ng/L		86	70 - 130	3	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.1	53.7		ng/L		89	70 - 130	2	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.1	57.8		ng/L		96	70 - 130	0	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		60.1	57.7		ng/L		96	70 - 130	6	30
Perfluorobutanesulfonic acid (PFBS)	11		60.1	71.1		ng/L		99	70 - 130	5	30
Perfluorodecanoic acid (PFDA)	<2.0	*5-	60.1	57.2	*5-	ng/L		95	70 - 130	1	30
Perfluorododecanoic acid (PFDoA)	<2.0	*5-	60.1	64.7	*5-	ng/L		108	70 - 130	11	30
Perfluoroheptanoic acid (PFHpA)	4.4		60.1	65.8		ng/L		102	70 - 130	1	30
Perfluorohexanesulfonic acid (PFHxS)	2.9		60.1	62.1		ng/L		98	70 - 130	3	30
Perfluorohexanoic acid (PFHxA)	26		60.1	90.9		ng/L		108	70 - 130	6	30
Perfluorononanoic acid (PFNA)	<2.0		60.1	63.8	*5-	ng/L		105	70 - 130	3	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		60.1	58.3		ng/L		94	70 - 130	1	30
Perfluorooctanoic acid (PFOA)	6.8		60.1	65.9		ng/L		98	70 - 130	5	30
Perfluoroundecanoic acid (PFUnA)	<2.0	*5-	60.1	58.0	*5-	ng/L		97	70 - 130	7	30
Perfluorobutanoic acid (PFBA)	8.2		60.1	67.1		ng/L		98	70 - 130	2	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.1	61.4		ng/L		102	70 - 130	1	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.1	62.2		ng/L		104	70 - 130	1	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.1	62.2		ng/L		101	70 - 130	2	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.1	53.1		ng/L		88	70 - 130	13	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		60.1	60.1		ng/L		100	70 - 130	4	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0	F1	60.1	93.8	F1	ng/L		156	70 - 130	0	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.1	63.9		ng/L		106	70 - 130	3	30
Perfluoropentanoic acid (PFPeA)	22		60.1	84.7		ng/L		104	70 - 130	6	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.1	61.7		ng/L		103	70 - 130	2	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.1	60.9		ng/L		100	70 - 130	2	30

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# QC Sample Results

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

Job ID: 380-88924-1  
 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	64		50 - 200
13C6 PFDA	32	*5-	50 - 200
13C5 PFHxA	66		50 - 200
13C4 PFHpA	67		50 - 200
13C8 PFOA	61		50 - 200
13C9 PFNA	45	*5-	50 - 200
13C7 PFUnA	29	*5-	50 - 200
13C2 PFDoA	32	*5-	50 - 200
13C4 PFBA	81		50 - 200
13C5 PFPeA	147		50 - 200
13C3 PFBS	81		50 - 200
13C3 PFHxS	88		50 - 200
13C8 PFOS	86		50 - 200
13C2-4:2-FTS	117		50 - 200
13C2-6:2-FTS	102		50 - 200
13C2-8:2-FTS	86		50 - 200

**Lab Sample ID: MBL 380-84287/14-A**  
**Matrix: Water**  
**Analysis Batch: 84459**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 84287**

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		04/03/24 13:45	04/04/24 10:49	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		04/03/24 13:45	04/04/24 10:49	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		04/03/24 13:45	04/04/24 10:49	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		04/03/24 13:45	04/04/24 10:49	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		04/03/24 13:45	04/04/24 10:49	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		04/03/24 13:45	04/04/24 10:49	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		04/03/24 13:45	04/04/24 10:49	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		04/03/24 13:45	04/04/24 10:49	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		04/03/24 13:45	04/04/24 10:49	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		04/03/24 13:45	04/04/24 10:49	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		04/03/24 13:45	04/04/24 10:49	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		04/03/24 13:45	04/04/24 10:49	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		04/03/24 13:45	04/04/24 10:49	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		04/03/24 13:45	04/04/24 10:49	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		04/03/24 13:45	04/04/24 10:49	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		04/03/24 13:45	04/04/24 10:49	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		04/03/24 13:45	04/04/24 10:49	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		04/03/24 13:45	04/04/24 10:49	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		04/03/24 13:45	04/04/24 10:49	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0	ng/L		04/03/24 13:45	04/04/24 10:49	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		04/03/24 13:45	04/04/24 10:49	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		04/03/24 13:45	04/04/24 10:49	1

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# QC Sample Results

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

Job ID: 380-88924-1  
SDG: 533, 537.1

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

**Lab Sample ID: MBL 380-84287/14-A**  
**Matrix: Water**  
**Analysis Batch: 84459**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 84287**

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		04/03/24 13:45	04/04/24 10:49	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		04/03/24 13:45	04/04/24 10:49	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		04/03/24 13:45	04/04/24 10:49	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	79		50 - 200	04/03/24 13:45	04/04/24 10:49	1
13C6 PFDA	92		50 - 200	04/03/24 13:45	04/04/24 10:49	1
13C5 PFHxA	93		50 - 200	04/03/24 13:45	04/04/24 10:49	1
13C4 PFHpA	99		50 - 200	04/03/24 13:45	04/04/24 10:49	1
13C8 PFOA	101		50 - 200	04/03/24 13:45	04/04/24 10:49	1
13C9 PFNA	97		50 - 200	04/03/24 13:45	04/04/24 10:49	1
13C7 PFUnA	91		50 - 200	04/03/24 13:45	04/04/24 10:49	1
13C2 PFDoA	94		50 - 200	04/03/24 13:45	04/04/24 10:49	1
13C4 PFBA	102		50 - 200	04/03/24 13:45	04/04/24 10:49	1
13C5 PFPeA	102		50 - 200	04/03/24 13:45	04/04/24 10:49	1
13C3 PFBS	101		50 - 200	04/03/24 13:45	04/04/24 10:49	1
13C3 PFHxS	103		50 - 200	04/03/24 13:45	04/04/24 10:49	1
13C8 PFOS	103		50 - 200	04/03/24 13:45	04/04/24 10:49	1
13C2-4:2-FTS	126		50 - 200	04/03/24 13:45	04/04/24 10:49	1
13C2-6:2-FTS	121		50 - 200	04/03/24 13:45	04/04/24 10:49	1
13C2-8:2-FTS	90		50 - 200	04/03/24 13:45	04/04/24 10:49	1

**Lab Sample ID: LCS 380-84287/16-A**  
**Matrix: Water**  
**Analysis Batch: 84459**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 84287**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	120	112		ng/L		93	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	115		ng/L		95	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	120	119		ng/L		98	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	120	115		ng/L		95	70 - 130
Perfluorobutanesulfonic acid (PFBS)	120	123		ng/L		102	70 - 130
Perfluorodecanoic acid (PFDA)	120	117		ng/L		97	70 - 130
Perfluorododecanoic acid (PFDoA)	120	123		ng/L		102	70 - 130
Perfluoroheptanoic acid (PFHpA)	120	121		ng/L		101	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	120	119		ng/L		99	70 - 130
Perfluorohexanoic acid (PFHxA)	120	128		ng/L		106	70 - 130
Perfluorononanoic acid (PFNA)	120	126		ng/L		105	70 - 130
Perfluorooctanesulfonic acid (PFOS)	120	125		ng/L		103	70 - 130
Perfluorooctanoic acid (PFOA)	120	120		ng/L		100	70 - 130

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# QC Sample Results

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

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

**Lab Sample ID: LCS 380-84287/16-A**  
**Matrix: Water**  
**Analysis Batch: 84459**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 84287**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	120	125		ng/L		104	70 - 130
Perfluorobutanoic acid (PFBA)	120	121		ng/L		100	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	120	124		ng/L		103	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	116		ng/L		96	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	120	124		ng/L		103	70 - 130
Nonafluoro-3,6-dioxahепtanoic acid (NFDHA)	120	118		ng/L		98	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	120	118		ng/L		98	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	120	127		ng/L		106	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	120	116		ng/L		96	70 - 130
Perfluoropentanoic acid (PFPeA)	120	121		ng/L		100	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	120	121		ng/L		100	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	120	117		ng/L		97	70 - 130

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	80		50 - 200
13C6 PFDA	98		50 - 200
13C5 PFHxA	88		50 - 200
13C4 PFHpA	94		50 - 200
13C8 PFOA	95		50 - 200
13C9 PFNA	97		50 - 200
13C7 PFUnA	96		50 - 200
13C2 PFDoA	97		50 - 200
13C4 PFBA	99		50 - 200
13C5 PFPeA	106		50 - 200
13C3 PFBS	97		50 - 200
13C3 PFHxS	103		50 - 200
13C8 PFOS	102		50 - 200
13C2-4:2-FTS	117		50 - 200
13C2-6:2-FTS	118		50 - 200
13C2-8:2-FTS	103		50 - 200

**Lab Sample ID: LCSD 380-84287/17-A**  
**Matrix: Water**  
**Analysis Batch: 84459**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 84287**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	
								RPD	Limit
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	120	110		ng/L		91	70 - 130	2	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	120	113		ng/L		94	70 - 130	2	30

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# QC Sample Results

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

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

**Lab Sample ID: LCSD 380-84287/17-A**  
**Matrix: Water**  
**Analysis Batch: 84459**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 84287**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	120	115		ng/L		96	70 - 130	3	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	120	116		ng/L		96	70 - 130	1	30
Perfluorobutanesulfonic acid (PFBS)	120	126		ng/L		105	70 - 130	3	30
Perfluorodecanoic acid (PFDA)	120	121		ng/L		101	70 - 130	4	30
Perfluorododecanoic acid (PFDoA)	120	115		ng/L		95	70 - 130	7	30
Perfluoroheptanoic acid (PFHpA)	120	122		ng/L		101	70 - 130	1	30
Perfluorohexanesulfonic acid (PFHxS)	120	122		ng/L		101	70 - 130	3	30
Perfluorohexanoic acid (PFHxA)	120	124		ng/L		103	70 - 130	3	30
Perfluorononanoic acid (PFNA)	120	120		ng/L		100	70 - 130	5	30
Perfluorooctanesulfonic acid (PFOS)	120	121		ng/L		100	70 - 130	3	30
Perfluorooctanoic acid (PFOA)	120	121		ng/L		101	70 - 130	1	30
Perfluoroundecanoic acid (PFUnA)	120	123		ng/L		102	70 - 130	1	30
Perfluorobutanoic acid (PFBA)	120	120		ng/L		99	70 - 130	1	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	120	118		ng/L		98	70 - 130	4	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	128		ng/L		106	70 - 130	10	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	120	121		ng/L		101	70 - 130	2	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	120	111		ng/L		92	70 - 130	6	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	120	115		ng/L		95	70 - 130	3	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	120	124		ng/L		103	70 - 130	3	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	120	115		ng/L		96	70 - 130	1	30
Perfluoropentanoic acid (PFPeA)	120	116		ng/L		96	70 - 130	4	30
Perfluoroheptanesulfonic acid (PFHpS)	120	120		ng/L		100	70 - 130	1	30
Perfluoropentanesulfonic acid (PFPeS)	120	117		ng/L		97	70 - 130	1	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
13C3 HFPO-DA	93		50 - 200
13C6 PFDA	97		50 - 200
13C5 PFHxA	91		50 - 200
13C4 PFHpA	97		50 - 200
13C8 PFOA	99		50 - 200
13C9 PFNA	102		50 - 200
13C7 PFUnA	95		50 - 200
13C2 PFDoA	100		50 - 200
13C4 PFBA	97		50 - 200
13C5 PFPeA	105		50 - 200
13C3 PFBS	97		50 - 200
13C3 PFHxS	98		50 - 200

# QC Sample Results

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

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

**Lab Sample ID: LCSD 380-84287/17-A**  
**Matrix: Water**  
**Analysis Batch: 84459**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 84287**

<i>Isotope Dilution</i>	<i>LCS D %Recovery</i>	<i>LCS D Qualifier</i>	<i>Limits</i>
13C8 PFOS	101		50 - 200
13C2-4:2-FTS	109		50 - 200
13C2-6:2-FTS	117		50 - 200
13C2-8:2-FTS	100		50 - 200

**Lab Sample ID: MRL 380-84287/15-A**  
**Matrix: Water**  
**Analysis Batch: 84459**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 84287**

<i>Analyte</i>	<i>Spike Added</i>	<i>MRL Result</i>	<i>MRL Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	1.77	J	ng/L		89	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	1.78	J	ng/L		89	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	1.88	J	ng/L		94	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.82	J	ng/L		91	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	2.12	J	ng/L		106	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	1.84	J	ng/L		92	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.09	J	ng/L		105	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.04	J	ng/L		102	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	2.03	J	ng/L		101	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.03	J	ng/L		102	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.13	J	ng/L		107	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	1.92	J	ng/L		96	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.01	J	ng/L		101	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.05	J	ng/L		102	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	1.90	J	ng/L		95	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	2.03	J	ng/L		102	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	2.27	J	ng/L		114	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	2.05	J	ng/L		103	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	1.75	J	ng/L		88	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	2.00	1.91	J	ng/L		96	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	1.98	J	ng/L		99	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	1.76	J	ng/L		88	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	1.98	J	ng/L		99	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.00	1.97	J	ng/L		98	50 - 150

# QC Sample Results

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

Job ID: 380-88924-1  
SDG: 533, 537.1

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

**Lab Sample ID: MRL 380-84287/15-A**  
**Matrix: Water**  
**Analysis Batch: 84459**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 84287**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanesulfonic acid (PFPeS)	2.00	1.97	J	ng/L		99	50 - 150
<b>Isotope Dilution</b>							
	<b>MRL</b>	<b>MRL</b>	<b>Qualifier</b>	<b>Limits</b>			
	<b>%Recovery</b>						
13C3 HFPO-DA	81			50 - 200			
13C6 PFDA	95			50 - 200			
13C5 PFHxA	95			50 - 200			
13C4 PFHpA	104			50 - 200			
13C8 PFOA	103			50 - 200			
13C9 PFNA	98			50 - 200			
13C7 PFUnA	95			50 - 200			
13C2 PFDoA	95			50 - 200			
13C4 PFBA	105			50 - 200			
13C5 PFPeA	109			50 - 200			
13C3 PFBS	100			50 - 200			
13C3 PFHxS	102			50 - 200			
13C8 PFOS	107			50 - 200			
13C2-4:2-FTS	119			50 - 200			
13C2-6:2-FTS	123			50 - 200			
13C2-8:2-FTS	98			50 - 200			

**Lab Sample ID: 380-88924-2 MS**  
**Matrix: Drinking Water**  
**Analysis Batch: 84459**

**Client Sample ID: AIEA GULCH WELLS PUMP 2**  
**Prep Type: Total/NA**  
**Prep Batch: 84287**

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		60.4	58.2		ng/L		96	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.4	56.6		ng/L		94	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.4	60.9		ng/L		101	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		60.4	63.9		ng/L		106	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		60.4	65.7		ng/L		109	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		60.4	63.2		ng/L		105	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		60.4	64.8		ng/L		107	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		60.4	68.5		ng/L		113	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.4	64.0		ng/L		105	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		60.4	65.0		ng/L		108	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		60.4	66.6		ng/L		110	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		60.4	63.3		ng/L		105	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		60.4	65.8		ng/L		109	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		60.4	70.5		ng/L		117	70 - 130
Perfluorobutanoic acid (PFBA)	<2.0		60.4	63.1		ng/L		105	70 - 130

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# QC Sample Results

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

Job ID: 380-88924-1  
SDG: 533, 537.1

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

**Lab Sample ID: 380-88924-2 MS**  
**Matrix: Drinking Water**  
**Analysis Batch: 84459**

**Client Sample ID: AIEA GULCH WELLS PUMP 2**  
**Prep Type: Total/NA**  
**Prep Batch: 84287**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.4	62.8		ng/L		104	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.4	66.6		ng/L		110	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.4	63.7		ng/L		105	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.4	48.5		ng/L		80	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		60.4	63.3		ng/L		105	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		60.4	61.9		ng/L		103	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.4	58.0		ng/L		96	70 - 130
Perfluoropentanoic acid (PFPeA)	<2.0		60.4	63.7		ng/L		105	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.4	64.3		ng/L		107	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.4	60.6		ng/L		100	70 - 130

Isotope Dilution	MS %Recovery	MS Qualifier	MS Limits
13C3 HFPO-DA	53		50 - 200
13C6 PFDA	58		50 - 200
13C5 PFHxA	63		50 - 200
13C4 PFHpA	64		50 - 200
13C8 PFOA	60		50 - 200
13C9 PFNA	58		50 - 200
13C7 PFUnA	58		50 - 200
13C2 PFDoA	67		50 - 200
13C4 PFBA	74		50 - 200
13C5 PFPeA	76		50 - 200
13C3 PFBS	90		50 - 200
13C3 PFHxS	93		50 - 200
13C8 PFOS	93		50 - 200
13C2-4:2-FTS	105		50 - 200
13C2-6:2-FTS	115		50 - 200
13C2-8:2-FTS	88		50 - 200

**Lab Sample ID: 380-88924-3 DU**  
**Matrix: Drinking Water**  
**Analysis Batch: 84459**

**Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2**  
**Prep Type: Total/NA**  
**Prep Batch: 84287**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		<2.0		ng/L		NC	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		<2.0		ng/L		NC	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		<2.0		ng/L		NC	30

# QC Sample Results

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

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

**Lab Sample ID: 380-88924-3 DU**  
**Matrix: Drinking Water**  
**Analysis Batch: 84459**

**Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2**  
**Prep Type: Total/NA**  
**Prep Batch: 84287**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Hexafluoropropylene Oxide	<2.0		<2.0		ng/L		NC	30
Dimer Acid (HFPO-DA/GenX)								
Perfluorobutanesulfonic acid (PFBS)	<2.0		<2.0		ng/L		NC	30
Perfluorodecanoic acid (PFDA)	<2.0		<2.0		ng/L		NC	30
Perfluorododecanoic acid (PFDoA)	<2.0		<2.0		ng/L		NC	30
Perfluoroheptanoic acid (PFHpA)	<2.0		<2.0		ng/L		NC	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		<2.0		ng/L		NC	30
Perfluorohexanoic acid (PFHxA)	<2.0		<2.0		ng/L		NC	30
Perfluorononanoic acid (PFNA)	<2.0		<2.0		ng/L		NC	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		<2.0		ng/L		NC	30
Perfluorooctanoic acid (PFOA)	<2.0		<2.0		ng/L		NC	30
Perfluoroundecanoic acid (PFUnA)	<2.0		<2.0		ng/L		NC	30
Perfluorobutanoic acid (PFBA)	<2.0		<2.0		ng/L		NC	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		<2.0		ng/L		NC	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		<2.0		ng/L		NC	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		<2.0		ng/L		NC	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		<2.0		ng/L		NC	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		<2.0		ng/L		NC	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		<2.0		ng/L		NC	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		<2.0		ng/L		NC	30
Perfluoropentanoic acid (PFPeA)	<2.0		<2.0		ng/L		NC	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		<2.0		ng/L		NC	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0		<2.0		ng/L		NC	30

Isotope Dilution	DU DU		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	74		50 - 200
13C6 PFDA	89		50 - 200
13C5 PFHxA	88		50 - 200
13C4 PFHpA	93		50 - 200
13C8 PFOA	95		50 - 200
13C9 PFNA	92		50 - 200
13C7 PFUnA	81		50 - 200
13C2 PFDoA	85		50 - 200
13C4 PFBA	98		50 - 200
13C5 PFPeA	99		50 - 200
13C3 PFBS	86		50 - 200
13C3 PFHxS	91		50 - 200
13C8 PFOS	93		50 - 200

# QC Sample Results

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

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

**Lab Sample ID: 380-88924-3 DU**  
**Matrix: Drinking Water**  
**Analysis Batch: 84459**

**Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2**  
**Prep Type: Total/NA**  
**Prep Batch: 84287**

Isotope Dilution	DU DU		Limits
	%Recovery	Qualifier	
13C2-4:2-FTS	118		50 - 200
13C2-6:2-FTS	114		50 - 200
13C2-8:2-FTS	87		50 - 200

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

**Lab Sample ID: MBL 380-83760/22-A**  
**Matrix: Water**  
**Analysis Batch: 83976**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 83760**

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		03/29/24 12:10	04/02/24 01:58	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		03/29/24 12:10	04/02/24 01:58	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		03/29/24 12:10	04/02/24 01:58	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.58		2.0	ng/L		03/29/24 12:10	04/02/24 01:58	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.42		2.0	ng/L		03/29/24 12:10	04/02/24 01:58	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		03/29/24 12:10	04/02/24 01:58	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		03/29/24 12:10	04/02/24 01:58	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		03/29/24 12:10	04/02/24 01:58	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		03/29/24 12:10	04/02/24 01:58	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		03/29/24 12:10	04/02/24 01:58	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		03/29/24 12:10	04/02/24 01:58	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		03/29/24 12:10	04/02/24 01:58	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		03/29/24 12:10	04/02/24 01:58	1
Perfluorotetradecanoic acid (PFTA)	<0.54		2.0	ng/L		03/29/24 12:10	04/02/24 01:58	1
Perfluorotridecanoic acid (PFTrDA)	<0.36		2.0	ng/L		03/29/24 12:10	04/02/24 01:58	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<0.30		2.0	ng/L		03/29/24 12:10	04/02/24 01:58	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		03/29/24 12:10	04/02/24 01:58	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		03/29/24 12:10	04/02/24 01:58	1

Surrogate	MBL MBL		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
d5-NEtFOSAA	105		70 - 130	03/29/24 12:10	04/02/24 01:58	1
13C2 PFHxA	108		70 - 130	03/29/24 12:10	04/02/24 01:58	1
13C2 PFDA	107		70 - 130	03/29/24 12:10	04/02/24 01:58	1
13C3-GenX	100		70 - 130	03/29/24 12:10	04/02/24 01:58	1

**Lab Sample ID: LCS 380-83760/24-A**  
**Matrix: Water**  
**Analysis Batch: 83976**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 83760**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonic acid (PFOS)	25.0	28.7		ng/L		115	70 - 130

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# QC Sample Results

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

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

**Lab Sample ID: LCS 380-83760/24-A**  
**Matrix: Water**  
**Analysis Batch: 83976**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 83760**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	25.0	29.1		ng/L		116	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	25.0	29.0		ng/L		116	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	25.0	26.5		ng/L		106	70 - 130
Perfluorohexanoic acid (PFHxA)	25.0	27.4		ng/L		109	70 - 130
Perfluorododecanoic acid (PFDoA)	25.0	29.3		ng/L		117	70 - 130
Perfluorooctanoic acid (PFOA)	25.0	28.8		ng/L		115	70 - 130
Perfluorodecanoic acid (PFDA)	25.0	28.8		ng/L		115	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	25.0	28.7		ng/L		115	70 - 130
Perfluorobutanesulfonic acid (PFBS)	25.0	26.8		ng/L		107	70 - 130
Perfluoroheptanoic acid (PFHpA)	25.0	30.3		ng/L		121	70 - 130
Perfluorononanoic acid (PFNA)	25.0	28.8		ng/L		115	70 - 130
Perfluorotetradecanoic acid (PFTA)	25.0	28.0		ng/L		112	70 - 130
Perfluorotridecanoic acid (PFTrDA)	25.0	28.4		ng/L		113	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	25.0	27.6		ng/L		110	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	25.0	26.7		ng/L		107	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	25.0	30.6		ng/L		122	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
d5-NEtFOSAA	107		70 - 130
13C2 PFHxA	116		70 - 130
13C2 PFDA	120		70 - 130
13C3-GenX	114		70 - 130

**Lab Sample ID: MRL 380-83760/23-A**  
**Matrix: Water**  
**Analysis Batch: 83976**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 83760**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	2.32	J	ng/L		116	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	2.58	J	ng/L		129	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.37	J	ng/L		119	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	2.67	J	ng/L		133	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.52	J	ng/L		126	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.84	J	ng/L		142	50 - 150



# QC Sample Results

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

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

**Lab Sample ID: MRL 380-83760/23-A**  
**Matrix: Water**  
**Analysis Batch: 83976**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 83760**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorododecanoic acid (PFDoA)	2.00	2.47	J	ng/L		123	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.83	J	ng/L		141	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.59	J	ng/L		129	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	2.45	J	ng/L		122	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	2.26	J	ng/L		113	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.81	J	ng/L		140	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.77	J	ng/L		139	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.00	2.39	J	ng/L		119	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.00	2.48	J	ng/L		124	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	2.27	J	ng/L		113	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	2.24	J	ng/L		112	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	2.69	J	ng/L		134	50 - 150
<b>Surrogate</b>		<b>MRL %Recovery</b>	<b>MRL Qualifier</b>				<b>Limits</b>
d5-NEtFOSAA		112					70 - 130
13C2 PFHxA		116					70 - 130
13C2 PFDA		115					70 - 130
13C3-GenX		110					70 - 130

**Lab Sample ID: 380-88955-B-1-A MS**  
**Matrix: Water**  
**Analysis Batch: 83976**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 83760**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		25.0	24.6		ng/L		99	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		25.0	27.8		ng/L		111	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		25.0	25.0		ng/L		100	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.0	26.3		ng/L		105	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		25.0	24.8		ng/L		99	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		25.0	27.3		ng/L		105	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		25.0	25.3		ng/L		101	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		25.0	28.5		ng/L		110	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		25.0	26.0		ng/L		104	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		25.0	29.1		ng/L		110	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		25.0	27.9		ng/L		109	70 - 130

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# QC Sample Results

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

Job ID: 380-88924-1  
SDG: 533, 537.1

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

**Lab Sample ID: 380-88955-B-1-A MS**  
**Matrix: Water**  
**Analysis Batch: 83976**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 83760**

Analyte	Sample	Sample Qualifier	Spike Added	MS	MS Qualifier	Unit	D	%Rec	%Rec Limits	
	Result			Result						
Perfluoroheptanoic acid (PFHpA)	<2.0		25.0	27.6		ng/L		110	70 - 130	
Perfluorononanoic acid (PFNA)	<2.0		25.0	26.8		ng/L		107	70 - 130	
Perfluorotetradecanoic acid (PFTA)	<2.0		25.0	24.6		ng/L		98	70 - 130	
Perfluorotridecanoic acid (PFTrDA)	<2.0		25.0	24.6		ng/L		98	70 - 130	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		25.0	26.2		ng/L		105	70 - 130	
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		25.0	24.4		ng/L		98	70 - 130	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		25.0	25.7		ng/L		103	70 - 130	
Surrogate	MS MS		Limits							
	%Recovery	Qualifier								
d5-NEtFOSAA	104		70 - 130							
13C2 PFHxA	117		70 - 130							
13C2 PFDA	108		70 - 130							
13C3-GenX	108		70 - 130							

**Lab Sample ID: 380-88955-C-1-A MSD**  
**Matrix: Water**  
**Analysis Batch: 83976**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 83760**

Analyte	Sample	Sample Qualifier	Spike Added	MSD	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	
	Result			Result						RPD	Limit
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		25.0	25.4		ng/L		102	70 - 130	3	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		25.0	28.1		ng/L		112	70 - 130	1	30
Perfluoroundecanoic acid (PFUnA)	<2.0		25.0	26.9		ng/L		108	70 - 130	7	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.0	27.9		ng/L		112	70 - 130	6	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		25.0	25.5		ng/L		102	70 - 130	3	30
Perfluorohexanoic acid (PFHxA)	<2.0		25.0	28.2		ng/L		109	70 - 130	3	30
Perfluorododecanoic acid (PFDoA)	<2.0		25.0	27.1		ng/L		108	70 - 130	7	30
Perfluorooctanoic acid (PFOA)	<2.0		25.0	29.1		ng/L		113	70 - 130	2	30
Perfluorodecanoic acid (PFDA)	<2.0		25.0	26.9		ng/L		108	70 - 130	4	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		25.0	27.5		ng/L		104	70 - 130	6	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		25.0	26.2		ng/L		103	70 - 130	6	30
Perfluoroheptanoic acid (PFHpA)	<2.0		25.0	28.5		ng/L		114	70 - 130	3	30
Perfluorononanoic acid (PFNA)	<2.0		25.0	29.3		ng/L		117	70 - 130	9	30
Perfluorotetradecanoic acid (PFTA)	<2.0		25.0	25.5		ng/L		102	70 - 130	4	30
Perfluorotridecanoic acid (PFTrDA)	<2.0		25.0	26.3		ng/L		105	70 - 130	7	30

# QC Sample Results

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

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

**Lab Sample ID: 380-88955-C-1-A MSD**  
**Matrix: Water**  
**Analysis Batch: 83976**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 83760**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid(9Cl-PF3ONS)	<2.0		25.0	26.1		ng/L		105	70 - 130	0	30
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		25.0	24.4		ng/L		98	70 - 130	0	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		25.0	27.4		ng/L		109	70 - 130	6	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>MSD Limits</b>								
d5-NEtFOSAA	104		70 - 130								
13C2 PFHxA	112		70 - 130								
13C2 PFDA	114		70 - 130								
13C3-GenX	113		70 - 130								

**Lab Sample ID: MBL 380-83817/17-A**  
**Matrix: Water**  
**Analysis Batch: 83978**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 83817**

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		03/29/24 15:43	04/02/24 06:25	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		03/29/24 15:43	04/02/24 06:25	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		03/29/24 15:43	04/02/24 06:25	1
N-methylperfluorooctanesulfonamideacetic acid (NMeFOSAA)	<0.58		2.0	ng/L		03/29/24 15:43	04/02/24 06:25	1
N-ethylperfluorooctanesulfonamideacetic acid (NEtFOSAA)	<0.42		2.0	ng/L		03/29/24 15:43	04/02/24 06:25	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		03/29/24 15:43	04/02/24 06:25	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		03/29/24 15:43	04/02/24 06:25	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		03/29/24 15:43	04/02/24 06:25	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		03/29/24 15:43	04/02/24 06:25	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		03/29/24 15:43	04/02/24 06:25	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		03/29/24 15:43	04/02/24 06:25	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		03/29/24 15:43	04/02/24 06:25	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		03/29/24 15:43	04/02/24 06:25	1
Perfluorotetradecanoic acid (PFTA)	<0.54		2.0	ng/L		03/29/24 15:43	04/02/24 06:25	1
Perfluorotridecanoic acid (PFTrDA)	<0.36		2.0	ng/L		03/29/24 15:43	04/02/24 06:25	1
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		03/29/24 15:43	04/02/24 06:25	1
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		03/29/24 15:43	04/02/24 06:25	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		03/29/24 15:43	04/02/24 06:25	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MBL Qualifier</b>	<b>MBL Limits</b>	<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>		
d5-NEtFOSAA	113		70 - 130	03/29/24 15:43	04/02/24 06:25	1		
13C2 PFHxA	112		70 - 130	03/29/24 15:43	04/02/24 06:25	1		
13C2 PFDA	110		70 - 130	03/29/24 15:43	04/02/24 06:25	1		
13C3-GenX	104		70 - 130	03/29/24 15:43	04/02/24 06:25	1		

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# QC Sample Results

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

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

**Lab Sample ID: LCS 380-83817/19-A**  
**Matrix: Water**  
**Analysis Batch: 83978**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 83817**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	50.0	49.7		ng/L		99	70 - 130
Perfluorooctanesulfonic acid (PFOS)	50.0	55.9		ng/L		112	70 - 130
Perfluoroundecanoic acid (PFUnA)	50.0	52.6		ng/L		105	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	50.0	54.6		ng/L		109	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	50.0	49.7		ng/L		99	70 - 130
Perfluorohexanoic acid (PFHxA)	50.0	51.3		ng/L		103	70 - 130
Perfluorododecanoic acid (PFDoA)	50.0	54.3		ng/L		109	70 - 130
Perfluorooctanoic acid (PFOA)	50.0	56.6		ng/L		113	70 - 130
Perfluorodecanoic acid (PFDA)	50.0	52.7		ng/L		105	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	50.0	56.6		ng/L		113	70 - 130
Perfluorobutanesulfonic acid (PFBS)	50.0	48.9		ng/L		98	70 - 130
Perfluoroheptanoic acid (PFHpA)	50.0	57.6		ng/L		115	70 - 130
Perfluorononanoic acid (PFNA)	50.0	52.8		ng/L		106	70 - 130
Perfluorotetradecanoic acid (PFTA)	50.0	52.6		ng/L		105	70 - 130
Perfluorotridecanoic acid (PFTrDA)	50.0	50.7		ng/L		101	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	50.0	54.0		ng/L		108	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	50.0	52.3		ng/L		105	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	50.0	56.6		ng/L		113	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
d5-NEtFOSAA	103		70 - 130
13C2 PFHxA	114		70 - 130
13C2 PFDA	106		70 - 130
13C3-GenX	115		70 - 130

**Lab Sample ID: MRL 380-83817/18-A**  
**Matrix: Water**  
**Analysis Batch: 83978**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 83817**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	2.12	J	ng/L		106	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	2.38	J	ng/L		119	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.25	J	ng/L		112	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	2.37	J	ng/L		119	50 - 150

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-88924-1  
SDG: 533, 537.1

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

**Lab Sample ID: MRL 380-83817/18-A**  
**Matrix: Water**  
**Analysis Batch: 83978**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 83817**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.19	J	ng/L		109	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.40	J	ng/L		120	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.18	J	ng/L		109	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.54	J	ng/L		127	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.35	J	ng/L		118	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	2.36	J	ng/L		118	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	2.08	J	ng/L		104	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.52	J	ng/L		126	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.48	J	ng/L		124	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.00	2.24	J	ng/L		112	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.00	2.25	J	ng/L		113	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	2.36	J	ng/L		118	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	2.06	J	ng/L		103	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	2.19	J	ng/L		109	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	MRL Limits
d5-NEtFOSAA	107		70 - 130
13C2 PFHxA	110		70 - 130
13C2 PFDA	112		70 - 130
13C3-GenX	104		70 - 130

**Lab Sample ID: 380-88924-1 MS**  
**Matrix: Drinking Water**  
**Analysis Batch: 83978**

**Client Sample ID: MOANALUA WELLS**  
**Prep Type: Total/NA**  
**Prep Batch: 83817**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		50.1	49.7		ng/L		99	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		50.1	59.4		ng/L		115	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		50.1	52.5		ng/L		105	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		50.1	54.3		ng/L		108	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		50.1	51.0		ng/L		102	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		50.1	56.8		ng/L		111	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		50.1	53.3		ng/L		106	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		50.1	56.9		ng/L		112	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		50.1	54.9		ng/L		110	70 - 130

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

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

**Lab Sample ID: 380-88924-1 MS**  
**Matrix: Drinking Water**  
**Analysis Batch: 83978**

**Client Sample ID: MOANALUA WELLS**  
**Prep Type: Total/NA**  
**Prep Batch: 83817**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanesulfonic acid (PFHxS)	<2.0		50.1	61.6		ng/L		121	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		50.1	55.0		ng/L		109	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		50.1	59.5		ng/L		117	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		50.1	55.0		ng/L		110	70 - 130
Perfluorotetradecanoic acid (PFTA)	<2.0		50.1	53.0		ng/L		106	70 - 130
Perfluorotridecanoic acid (PFTTrDA)	<2.0		50.1	53.8		ng/L		107	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		50.1	56.5		ng/L		113	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		50.1	52.1		ng/L		104	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		50.1	54.9		ng/L		110	70 - 130
<b>MS MS</b>									
Surrogate	%Recovery	Qualifier	Limits						
d5-NEtFOSAA	106		70 - 130						
13C2 PFHxA	120		70 - 130						
13C2 PFDA	116		70 - 130						
13C3-GenX	114		70 - 130						

**Lab Sample ID: 380-88924-1 MSD**  
**Matrix: Drinking Water**  
**Analysis Batch: 83978**

**Client Sample ID: MOANALUA WELLS**  
**Prep Type: Total/NA**  
**Prep Batch: 83817**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		50.0	48.9		ng/L		98	70 - 130	2	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		50.0	56.9		ng/L		111	70 - 130	4	30
Perfluoroundecanoic acid (PFUnA)	<2.0		50.0	51.6		ng/L		103	70 - 130	2	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		50.0	54.5		ng/L		109	70 - 130	0	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		50.0	51.1		ng/L		102	70 - 130	0	30
Perfluorohexanoic acid (PFHxA)	<2.0		50.0	55.2		ng/L		108	70 - 130	3	30
Perfluorododecanoic acid (PFDoA)	<2.0		50.0	53.4		ng/L		107	70 - 130	0	30
Perfluorooctanoic acid (PFOA)	<2.0		50.0	55.5		ng/L		109	70 - 130	3	30
Perfluorodecanoic acid (PFDA)	<2.0		50.0	53.0		ng/L		106	70 - 130	3	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		50.0	57.3		ng/L		112	70 - 130	7	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		50.0	54.4		ng/L		108	70 - 130	1	30
Perfluoroheptanoic acid (PFHpA)	<2.0		50.0	57.9		ng/L		114	70 - 130	3	30
Perfluorononanoic acid (PFNA)	<2.0		50.0	55.3		ng/L		111	70 - 130	1	30
Perfluorotetradecanoic acid (PFTA)	<2.0		50.0	51.4		ng/L		103	70 - 130	3	30

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

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

**Lab Sample ID: 380-88924-1 MSD**  
**Matrix: Drinking Water**  
**Analysis Batch: 83978**

**Client Sample ID: MOANALUA WELLS**  
**Prep Type: Total/NA**  
**Prep Batch: 83817**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorotridecanoic acid (PFTrDA)	<2.0		50.0	53.3		ng/L		107	70 - 130	1	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		50.0	51.3		ng/L		103	70 - 130	10	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		50.0	51.4		ng/L		103	70 - 130	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		50.0	54.2		ng/L		108	70 - 130	1	30
		<i>MSD</i>	<i>MSD</i>								
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>								
<i>d5-NEtFOSAA</i>	106		70 - 130								
<i>13C2 PFHxA</i>	115		70 - 130								
<i>13C2 PFDA</i>	109		70 - 130								
<i>13C3-GenX</i>	110		70 - 130								

# QC Association Summary

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

## LCMS

### Prep Batch: 83760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-88924-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	537.1 DW	
380-88924-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	537.1 DW	
MBL 380-83760/22-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-83760/24-A	Lab Control Sample	Total/NA	Water	537.1 DW	
MRL 380-83760/23-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-88955-B-1-A MS	Matrix Spike	Total/NA	Water	537.1 DW	
380-88955-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1 DW	

### Prep Batch: 83817

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-88924-1	MOANALUA WELLS	Total/NA	Drinking Water	537.1 DW	
380-88924-4	HALAWA WELLS UNITS 1&2 P1	Total/NA	Drinking Water	537.1 DW	
380-88924-5	FB MOANALUA WELLS	Total/NA	Water	537.1 DW	
380-88924-6	FB AIEA GULCH WELLS PUMP 2	Total/NA	Water	537.1 DW	
380-88924-7	FB AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	537.1 DW	
380-88924-8	FB HALAWA WELLS UNITS 1&2 P1	Total/NA	Water	537.1 DW	
MBL 380-83817/17-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-83817/19-A	Lab Control Sample	Total/NA	Water	537.1 DW	
MRL 380-83817/18-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-88924-1 MS	MOANALUA WELLS	Total/NA	Drinking Water	537.1 DW	
380-88924-1 MSD	MOANALUA WELLS	Total/NA	Drinking Water	537.1 DW	

### Prep Batch: 83918

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-88924-1	MOANALUA WELLS	Total/NA	Drinking Water	533	
380-88924-4	HALAWA WELLS UNITS 1&2 P1	Total/NA	Drinking Water	533	
380-88924-5	FB MOANALUA WELLS	Total/NA	Water	533	
380-88924-6	FB AIEA GULCH WELLS PUMP 2	Total/NA	Water	533	
380-88924-7	FB AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	533	
380-88924-8	FB HALAWA WELLS UNITS 1&2 P1	Total/NA	Water	533	
MBL 380-83918/20-A	Method Blank	Total/NA	Water	533	
LCS 380-83918/22-A	Lab Control Sample	Total/NA	Water	533	
MRL 380-83918/21-A	Lab Control Sample	Total/NA	Water	533	
380-88764-A-1-B MS	Matrix Spike	Total/NA	Water	533	
380-88764-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	533	

### Analysis Batch: 83976

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-88924-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	537.1	83760
380-88924-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	537.1	83760
MBL 380-83760/22-A	Method Blank	Total/NA	Water	537.1	83760
LCS 380-83760/24-A	Lab Control Sample	Total/NA	Water	537.1	83760
MRL 380-83760/23-A	Lab Control Sample	Total/NA	Water	537.1	83760
380-88955-B-1-A MS	Matrix Spike	Total/NA	Water	537.1	83760
380-88955-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1	83760

### Analysis Batch: 83978

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-88924-1	MOANALUA WELLS	Total/NA	Drinking Water	537.1	83817
380-88924-4	HALAWA WELLS UNITS 1&2 P1	Total/NA	Drinking Water	537.1	83817
380-88924-5	FB MOANALUA WELLS	Total/NA	Water	537.1	83817



# QC Association Summary

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

## LCMS (Continued)

### Analysis Batch: 83978 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-88924-6	FB AIEA GULCH WELLS PUMP 2	Total/NA	Water	537.1	83817
380-88924-7	FB AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	537.1	83817
380-88924-8	FB HALAWA WELLS UNITS 1&2 P1	Total/NA	Water	537.1	83817
MBL 380-83817/17-A	Method Blank	Total/NA	Water	537.1	83817
LCS 380-83817/19-A	Lab Control Sample	Total/NA	Water	537.1	83817
MRL 380-83817/18-A	Lab Control Sample	Total/NA	Water	537.1	83817
380-88924-1 MS	MOANALUA WELLS	Total/NA	Drinking Water	537.1	83817
380-88924-1 MSD	MOANALUA WELLS	Total/NA	Drinking Water	537.1	83817

### Analysis Batch: 84027

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-88924-1	MOANALUA WELLS	Total/NA	Drinking Water	533	83918
380-88924-4	HALAWA WELLS UNITS 1&2 P1	Total/NA	Drinking Water	533	83918
380-88924-5	FB MOANALUA WELLS	Total/NA	Water	533	83918
380-88924-6	FB AIEA GULCH WELLS PUMP 2	Total/NA	Water	533	83918
380-88924-7	FB AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	533	83918
380-88924-8	FB HALAWA WELLS UNITS 1&2 P1	Total/NA	Water	533	83918
MBL 380-83918/20-A	Method Blank	Total/NA	Water	533	83918
LCS 380-83918/22-A	Lab Control Sample	Total/NA	Water	533	83918
MRL 380-83918/21-A	Lab Control Sample	Total/NA	Water	533	83918
380-88764-A-1-B MS	Matrix Spike	Total/NA	Water	533	83918
380-88764-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	533	83918

### Prep Batch: 84287

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-88924-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	533	
380-88924-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	533	
MBL 380-84287/14-A	Method Blank	Total/NA	Water	533	
LCS 380-84287/16-A	Lab Control Sample	Total/NA	Water	533	
LCSD 380-84287/17-A	Lab Control Sample Dup	Total/NA	Water	533	
MRL 380-84287/15-A	Lab Control Sample	Total/NA	Water	533	
380-88924-2 MS	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	533	
380-88924-3 DU	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	533	

### Analysis Batch: 84459

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-88924-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	533	84287
380-88924-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	533	84287
MBL 380-84287/14-A	Method Blank	Total/NA	Water	533	84287
LCS 380-84287/16-A	Lab Control Sample	Total/NA	Water	533	84287
LCSD 380-84287/17-A	Lab Control Sample Dup	Total/NA	Water	533	84287
MRL 380-84287/15-A	Lab Control Sample	Total/NA	Water	533	84287
380-88924-2 MS	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	533	84287
380-88924-3 DU	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	533	84287

# Lab Chronicle

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

## Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-88924-1

Date Collected: 03/25/24 09:38

Matrix: Drinking Water

Date Received: 03/28/24 10:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			83918	XTD8	EA POM	04/01/24 04:35
Total/NA	Analysis	533		1	84027	SZ9R	EA POM	04/02/24 11:37
Total/NA	Prep	537.1 DW			83817	A5GB	EA POM	03/29/24 15:43
Total/NA	Analysis	537.1		1	83978	M7ML	EA POM	04/02/24 06:56

## Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-88924-2

Date Collected: 03/25/24 10:35

Matrix: Drinking Water

Date Received: 03/28/24 10:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			84287	N8NE	EA POM	04/03/24 13:45
Total/NA	Analysis	533		1	84459	SZ9R	EA POM	04/04/24 12:05
Total/NA	Prep	537.1 DW			83760	A5GB	EA POM	03/29/24 12:10
Total/NA	Analysis	537.1		1	83976	UKDT	EA POM	04/02/24 03:27

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

Lab Sample ID: 380-88924-3

Date Collected: 03/25/24 11:02

Matrix: Drinking Water

Date Received: 03/28/24 10:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			84287	N8NE	EA POM	04/03/24 13:45
Total/NA	Analysis	533		1	84459	SZ9R	EA POM	04/04/24 12:24
Total/NA	Prep	537.1 DW			83760	A5GB	EA POM	03/29/24 12:10
Total/NA	Analysis	537.1		1	83976	UKDT	EA POM	04/02/24 03:36

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

Lab Sample ID: 380-88924-4

Date Collected: 03/25/24 10:07

Matrix: Drinking Water

Date Received: 03/28/24 10:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			83918	XTD8	EA POM	04/01/24 04:35
Total/NA	Analysis	533		1	84027	SZ9R	EA POM	04/02/24 12:06
Total/NA	Prep	537.1 DW			83817	A5GB	EA POM	03/29/24 15:43
Total/NA	Analysis	537.1		1	83978	M7ML	EA POM	04/02/24 07:25

## Client Sample ID: FB MOANALUA WELLS

Lab Sample ID: 380-88924-5

Date Collected: 03/25/24 09:38

Matrix: Water

Date Received: 03/28/24 10:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			83918	XTD8	EA POM	04/01/24 04:35
Total/NA	Analysis	533		1	84027	SZ9R	EA POM	04/02/24 12:16
Total/NA	Prep	537.1 DW			83817	A5GB	EA POM	03/29/24 15:43
Total/NA	Analysis	537.1		1	83978	M7ML	EA POM	04/02/24 07:34

# Lab Chronicle

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

## Client Sample ID: FB AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-88924-6

Date Collected: 03/25/24 10:35

Matrix: Water

Date Received: 03/28/24 10:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			83918	XTD8	EA POM	04/01/24 04:35
Total/NA	Analysis	533		1	84027	SZ9R	EA POM	04/02/24 12:25
Total/NA	Prep	537.1 DW			83817	A5GB	EA POM	03/29/24 15:43
Total/NA	Analysis	537.1		1	83978	M7ML	EA POM	04/02/24 07:44

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

Lab Sample ID: 380-88924-7

Date Collected: 03/25/24 11:02

Matrix: Water

Date Received: 03/28/24 10:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			83918	XTD8	EA POM	04/01/24 04:35
Total/NA	Analysis	533		1	84027	SZ9R	EA POM	04/02/24 12:35
Total/NA	Prep	537.1 DW			83817	A5GB	EA POM	03/29/24 15:43
Total/NA	Analysis	537.1		1	83978	M7ML	EA POM	04/02/24 07:54

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

Lab Sample ID: 380-88924-8

Date Collected: 03/25/24 10:07

Matrix: Water

Date Received: 03/28/24 10:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			83918	XTD8	EA POM	04/01/24 04:35
Total/NA	Analysis	533		1	84027	SZ9R	EA POM	04/02/24 12:54
Total/NA	Prep	537.1 DW			83817	A5GB	EA POM	03/29/24 15:43
Total/NA	Analysis	537.1		1	83978	M7ML	EA POM	04/02/24 08:03

**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: 380-88924-1  
 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	Drinking Water	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)
533	533	Drinking Water	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)
533	533	Drinking Water	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)
533	533	Drinking Water	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)
533	533	Drinking Water	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
533	533	Drinking Water	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)
533	533	Drinking Water	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)
533	533	Drinking Water	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)
533	533	Drinking Water	Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)
533	533	Drinking Water	Perfluoro-3-methoxypropanoic acid (PFMPA)
533	533	Drinking Water	Perfluoro-4-methoxybutanoic acid (PFMBA)
533	533	Drinking Water	Perfluorobutanoic acid (PFBA)
533	533	Drinking Water	Perfluoroheptanesulfonic acid (PFHpS)
533	533	Drinking Water	Perfluoropentanesulfonic acid (PFPeS)
533	533	Drinking Water	Perfluoropentanoic acid (PFPeA)
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)

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

# Accreditation/Certification Summary

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

Job ID: 380-88924-1  
 SDG: 533, 537.1

## Laboratory: Eurofins Eaton Analytical Pomona (Continued)

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

Authority	Program	Identification Number	Expiration Date
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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	Perfluoropentanoic acid (PFPeA)
537.1	537.1 DW	Drinking Water	11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)
537.1	537.1 DW	Drinking Water	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
537.1	537.1 DW	Drinking Water	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)
537.1	537.1 DW	Drinking Water	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)
537.1	537.1 DW	Water	11-Chloroeicosafuoro-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: 380-88924-1  
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: 380-88924-1  
SDG: 533, 537.1


Lab Sample ID	Client Sample ID	Matrix	Collected	Received
380-88924-1	MOANALUA WELLS	Drinking Water	03/25/24 09:38	03/28/24 10:44
380-88924-2	AIEA GULCH WELLS PUMP 2	Drinking Water	03/25/24 10:35	03/28/24 10:44
380-88924-3	AIEA WELLS PUMPS 1&2 (260) P2	Drinking Water	03/25/24 11:02	03/28/24 10:44
380-88924-4	HALAWA WELLS UNITS 1&2 P1	Drinking Water	03/25/24 10:07	03/28/24 10:44
380-88924-5	FB MOANALUA WELLS	Water	03/25/24 09:38	03/28/24 10:44
380-88924-6	FB AIEA GULCH WELLS PUMP 2	Water	03/25/24 10:35	03/28/24 10:44
380-88924-7	FB AIEA WELLS PUMPS 1&2 (260) P2	Water	03/25/24 11:02	03/28/24 10:44
380-88924-8	FB HALAWA WELLS UNITS 1&2 P1	Water	03/25/24 10:07	03/28/24 10:44

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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



<b>Client Information</b> Client Contact: Dr Ron Fenstermacher Phone: 808-748-5840 City & County of Honolulu		Lab PM: Arada Rachelle E-Mail: Rachelle.Arada@tel.euronisus.com		Camer Tracking No(s): 380-27941-2757 2 State of Origin:		COC No: 380-27941-2757 2 Page 1 of 1 Job #	
Address: 630 South Beretania Street, Chemistry Lab City: Honolulu State Zip: HI, 96843 Phone: 808-748-5091 (tel) Email: rfenstermacher@hbws.org		PWSID Due Date Requested TAT Requested (days) Compliance Project: Δ No PO #: C20525101 exp 05312023 WO #:		Analysis Requested Perform MS/MSD (Yes or No) Field Filtered Sample (Yes or No) SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs 80158_GRO_LL - (MOD) GRO 80158_DRO_LL_CS HNL Ranges C10-C24/C24-C36/C8- C18 525 2.PREC. (MOD) 525plus PLUS TICs 537 1.DW.PREC. 537 1 Full List 533 - All Analytes		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)	
Project Name: RED-HILL/HBWS sites Event Desc. RUSH Weekly Red Hill Site:		Sample Date Sample Time Sample Type (C=Comp, G=grab) Preservation Code Matrix (W=water, S=solid, O=other) (BT-Tissue, A=Air)		Total Number of Containers Special Instructions/Note: chlorinated chlorinated		380-88924 COC 	
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		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		Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Method of Shipment: ① 7757 1715 5067 ② 7757 1715 5078 Date/Time: 03/28/2024 10:44 Company: EEAR Company	
Empty Kit Relinquished by: [Redacted] Relinquished by: [Redacted] Relinquished by: [Redacted]		Date: 21 March 2024 1400 Date/Time: 03/28/2024 10:44 Date/Time: [Redacted]		Date/Time: [Redacted]		Date/Time: [Redacted]	
Custody Seals Intact Δ Yes Δ No		Custody Seal No		Cooler Temperature(s) °C and Other Remarks (75A) ① 0.7 °C. ② 0.1 °C. ③ 1.4 °C. ④ 1.1 °C. ⑤ 1.3 °C. GEL-FADREN		Ver 01/16/2019	





# Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-88924-1

SDG Number: 533, 537.1

**Login Number: 88924**

**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	

