

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

ANALYTICAL REPORT

PREPARED FOR

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JOB DESCRIPTION

RED-HILL [PFAS]

JOB NUMBER

380-89615-1

Eurofins Eaton Analytical Pomona

Job Notes

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

Compliance Statement

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

Authorization



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Table of Contents

Cover Page	1
Table of Contents	3
Definitions/Glossary	4
Case Narrative	5
Detection Summary	6
Client Sample Results	7
Surrogate Summary	22
Isotope Dilution Summary	23
QC Sample Results	25
QC Association Summary	53
Lab Chronicle	56
Certification Summary	58
Method Summary	60
Sample Summary	61
Chain of Custody	62
Receipt Checklists	68

Definitions/Glossary

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

Job ID: 380-89615-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

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

Job ID: 380-89615-1

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Job Narrative 380-89615-1

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 4/3/2024 10:10 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.3°C, 2.5°C and 2.7°C.

PFAS

Method 533: The low-level laboratory control sample (LLCS) for preparation batch 810-94863 and analytical batch 810-95003 recovered outside 533 control limits for the following analytes: 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) (151%). Limit 50-150%. There was no volume left to re-extract 380-89615-5, 380-89615-6, 380-89615-7, or 380-89615-8. This analyte was not detected in the sample.

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: 380-89615-1

Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-89615-1

No Detections.

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-89615-2

No Detections.

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

Lab Sample ID: 380-89615-3

No Detections.

Client Sample ID: HALAWA WELLS UNITS 1 & 2 P1

Lab Sample ID: 380-89615-4

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	2.6		2.0	ng/L	1		533	Total/NA
Perfluorohexanoic acid (PFHxA)	2.0		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.2		2.0	ng/L	1		533	Total/NA
Perfluorooctanoic acid (PFOA)	2.2		2.0	ng/L	1		533	Total/NA
Perfluoropentanoic acid (PFPeA)	2.4		2.0	ng/L	1		533	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.5		2.0	ng/L	1		537.1	Total/NA
Perfluorohexanoic acid (PFHxA)	2.0		2.0	ng/L	1		537.1	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.4		2.0	ng/L	1		537.1	Total/NA
Perfluorooctanoic acid (PFOA)	2.3		2.0	ng/L	1		537.1	Total/NA

Client Sample ID: FB MOANALUA WELLS

Lab Sample ID: 380-89615-5

No Detections.

Client Sample ID: FB AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-89615-6

No Detections.

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

Lab Sample ID: 380-89615-7

No Detections.

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

Lab Sample ID: 380-89615-8

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: 380-89615-1

Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-89615-1

Date Collected: 04/01/24 09:48

Matrix: Water

Date Received: 04/03/24 10:10

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:36	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:36	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:36	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:36	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:36	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:36	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:36	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:36	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:36	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:36	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:36	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:36	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:36	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:36	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:36	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:36	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:36	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:36	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:36	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:36	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:36	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:36	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:36	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:36	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	90		50 - 200	04/15/24 10:53	04/16/24 21:36	1
13C6 PFDA	91		50 - 200	04/15/24 10:53	04/16/24 21:36	1
13C5 PFHxA	92		50 - 200	04/15/24 10:53	04/16/24 21:36	1
13C4 PFHpA	92		50 - 200	04/15/24 10:53	04/16/24 21:36	1
13C8 PFOA	94		50 - 200	04/15/24 10:53	04/16/24 21:36	1
13C9 PFNA	96		50 - 200	04/15/24 10:53	04/16/24 21:36	1
13C7 PFUnA	86		50 - 200	04/15/24 10:53	04/16/24 21:36	1
13C2 PFDoA	83		50 - 200	04/15/24 10:53	04/16/24 21:36	1
13C4 PFBA	96		50 - 200	04/15/24 10:53	04/16/24 21:36	1
13C5 PFPeA	99		50 - 200	04/15/24 10:53	04/16/24 21:36	1
13C3 PFBS	94		50 - 200	04/15/24 10:53	04/16/24 21:36	1
13C3 PFHxS	94		50 - 200	04/15/24 10:53	04/16/24 21:36	1
13C8 PFOS	93		50 - 200	04/15/24 10:53	04/16/24 21:36	1

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Client Sample Results

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

Job ID: 380-89615-1

Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-89615-1

Date Collected: 04/01/24 09:48

Matrix: Water

Date Received: 04/03/24 10:10

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	85		50 - 200	04/15/24 10:53	04/16/24 21:36	1
13C2-6:2-FTS	85		50 - 200	04/15/24 10:53	04/16/24 21:36	1
13C2-8:2-FTS	88		50 - 200	04/15/24 10:53	04/16/24 21:36	1

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

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		04/08/24 06:21	04/09/24 04:00	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:00	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:00	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:00	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:00	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:00	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:00	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:00	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:00	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:00	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:00	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:00	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:00	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:00	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:00	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:00	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:00	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:00	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C2 PFHxA	97		70 - 130			04/08/24 06:21	04/09/24 04:00	1
13C2 PFDA	94		70 - 130			04/08/24 06:21	04/09/24 04:00	1
d5-NEtFOSAA	94		70 - 130			04/08/24 06:21	04/09/24 04:00	1
13C3 HFPO-DA	93		70 - 130			04/08/24 06:21	04/09/24 04:00	1

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-89615-2

Date Collected: 04/01/24 10:41

Matrix: Drinking Water

Date Received: 04/03/24 10:10

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:50	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:50	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:50	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:50	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:50	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:50	1

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Client Sample Results

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

Job ID: 380-89615-1

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-89615-2

Date Collected: 04/01/24 10:41

Matrix: Drinking Water

Date Received: 04/03/24 10:10

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:50	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:50	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:50	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:50	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:50	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:50	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:50	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:50	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:50	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:50	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:50	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:50	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:50	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:50	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:50	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:50	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:50	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:50	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 21:50	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	89		50 - 200	04/15/24 10:53	04/16/24 21:50	1
13C6 PFDA	93		50 - 200	04/15/24 10:53	04/16/24 21:50	1
13C5 PFHxA	92		50 - 200	04/15/24 10:53	04/16/24 21:50	1
13C4 PFHpA	92		50 - 200	04/15/24 10:53	04/16/24 21:50	1
13C8 PFOA	91		50 - 200	04/15/24 10:53	04/16/24 21:50	1
13C9 PFNA	95		50 - 200	04/15/24 10:53	04/16/24 21:50	1
13C7 PFUnA	87		50 - 200	04/15/24 10:53	04/16/24 21:50	1
13C2 PFDoA	82		50 - 200	04/15/24 10:53	04/16/24 21:50	1
13C4 PFBA	97		50 - 200	04/15/24 10:53	04/16/24 21:50	1
13C5 PFPeA	100		50 - 200	04/15/24 10:53	04/16/24 21:50	1
13C3 PFBS	95		50 - 200	04/15/24 10:53	04/16/24 21:50	1
13C3 PFHxS	94		50 - 200	04/15/24 10:53	04/16/24 21:50	1
13C8 PFOS	96		50 - 200	04/15/24 10:53	04/16/24 21:50	1
13C2-4:2-FTS	85		50 - 200	04/15/24 10:53	04/16/24 21:50	1
13C2-6:2-FTS	85		50 - 200	04/15/24 10:53	04/16/24 21:50	1
13C2-8:2-FTS	93		50 - 200	04/15/24 10:53	04/16/24 21:50	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:11	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:11	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-89615-1

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-89615-2

Date Collected: 04/01/24 10:41

Matrix: Drinking Water

Date Received: 04/03/24 10:10

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:11	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:11	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:11	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:11	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:11	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:11	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:11	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:11	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:11	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:11	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:11	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:11	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:11	1
Perfluorotridecanoic acid (PFTTrDA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:11	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:11	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:11	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C2 PFHxA	94		70 - 130			04/08/24 06:21	04/09/24 04:11	1
13C2 PFDA	94		70 - 130			04/08/24 06:21	04/09/24 04:11	1
d5-NEtFOSAA	93		70 - 130			04/08/24 06:21	04/09/24 04:11	1
13C3 HFPO-DA	91		70 - 130			04/08/24 06:21	04/09/24 04:11	1

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

Lab Sample ID: 380-89615-3

Date Collected: 04/01/24 11:10

Matrix: Drinking Water

Date Received: 04/03/24 10:10

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:03	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:03	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:03	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:03	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:03	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:03	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:03	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:03	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:03	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:03	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:03	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:03	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:03	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:03	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:03	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: 380-89615-3

Date Collected: 04/01/24 11:10

Matrix: Drinking Water

Date Received: 04/03/24 10:10

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:03	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:03	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:03	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:03	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:03	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:03	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:03	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:03	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:03	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:03	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	89		50 - 200	04/15/24 10:53	04/16/24 22:03	1
13C6 PFDA	89		50 - 200	04/15/24 10:53	04/16/24 22:03	1
13C5 PFHxA	91		50 - 200	04/15/24 10:53	04/16/24 22:03	1
13C4 PFHpA	92		50 - 200	04/15/24 10:53	04/16/24 22:03	1
13C8 PFOA	91		50 - 200	04/15/24 10:53	04/16/24 22:03	1
13C9 PFNA	96		50 - 200	04/15/24 10:53	04/16/24 22:03	1
13C7 PFUnA	87		50 - 200	04/15/24 10:53	04/16/24 22:03	1
13C2 PFDoA	83		50 - 200	04/15/24 10:53	04/16/24 22:03	1
13C4 PFBA	93		50 - 200	04/15/24 10:53	04/16/24 22:03	1
13C5 PFPeA	96		50 - 200	04/15/24 10:53	04/16/24 22:03	1
13C3 PFBS	94		50 - 200	04/15/24 10:53	04/16/24 22:03	1
13C3 PFHxS	92		50 - 200	04/15/24 10:53	04/16/24 22:03	1
13C8 PFOS	93		50 - 200	04/15/24 10:53	04/16/24 22:03	1
13C2-4:2-FTS	83		50 - 200	04/15/24 10:53	04/16/24 22:03	1
13C2-6:2-FTS	83		50 - 200	04/15/24 10:53	04/16/24 22:03	1
13C2-8:2-FTS	87		50 - 200	04/15/24 10:53	04/16/24 22:03	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:21	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:21	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:21	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:21	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:21	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:21	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:21	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:21	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:21	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:21	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: 380-89615-3

Date Collected: 04/01/24 11:10

Matrix: Drinking Water

Date Received: 04/03/24 10:10

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:21	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:21	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:21	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:21	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:21	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:21	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:21	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:21	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C2 PFHxA	102		70 - 130			04/08/24 06:21	04/09/24 04:21	1
13C2 PFDA	101		70 - 130			04/08/24 06:21	04/09/24 04:21	1
d5-NEtFOSAA	93		70 - 130			04/08/24 06:21	04/09/24 04:21	1
13C3 HFPO-DA	95		70 - 130			04/08/24 06:21	04/09/24 04:21	1

Client Sample ID: HALAWA WELLS UNITS 1 & 2 P1

Lab Sample ID: 380-89615-4

Date Collected: 04/01/24 10:13

Matrix: Drinking Water

Date Received: 04/03/24 10:10

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:17	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:17	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:17	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:17	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:17	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:17	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:17	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:17	1
Perfluorohexanesulfonic acid (PFHxS)	2.6		2.0	ng/L		04/15/24 10:53	04/16/24 22:17	1
Perfluorohexanoic acid (PFHxA)	2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:17	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:17	1
Perfluorooctanesulfonic acid (PFOS)	2.2		2.0	ng/L		04/15/24 10:53	04/16/24 22:17	1
Perfluorooctanoic acid (PFOA)	2.2		2.0	ng/L		04/15/24 10:53	04/16/24 22:17	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:17	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:17	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:17	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:17	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:17	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:17	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-89615-1

Client Sample ID: HALAWA WELLS UNITS 1 & 2 P1

Lab Sample ID: 380-89615-4

Date Collected: 04/01/24 10:13

Matrix: Drinking Water

Date Received: 04/03/24 10:10

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:17	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:17	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:17	1
Perfluoropentanoic acid (PFPeA)	2.4		2.0	ng/L		04/15/24 10:53	04/16/24 22:17	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:17	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		04/15/24 10:53	04/16/24 22:17	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	97		50 - 200			04/15/24 10:53	04/16/24 22:17	1
13C6 PFDA	98		50 - 200			04/15/24 10:53	04/16/24 22:17	1
13C5 PFHxA	98		50 - 200			04/15/24 10:53	04/16/24 22:17	1
13C4 PFHpA	97		50 - 200			04/15/24 10:53	04/16/24 22:17	1
13C8 PFOA	100		50 - 200			04/15/24 10:53	04/16/24 22:17	1
13C9 PFNA	100		50 - 200			04/15/24 10:53	04/16/24 22:17	1
13C7 PFUnA	96		50 - 200			04/15/24 10:53	04/16/24 22:17	1
13C2 PFDoA	90		50 - 200			04/15/24 10:53	04/16/24 22:17	1
13C4 PFBA	97		50 - 200			04/15/24 10:53	04/16/24 22:17	1
13C5 PFPeA	103		50 - 200			04/15/24 10:53	04/16/24 22:17	1
13C3 PFBS	94		50 - 200			04/15/24 10:53	04/16/24 22:17	1
13C3 PFHxS	95		50 - 200			04/15/24 10:53	04/16/24 22:17	1
13C8 PFOS	94		50 - 200			04/15/24 10:53	04/16/24 22:17	1
13C2-4:2-FTS	87		50 - 200			04/15/24 10:53	04/16/24 22:17	1
13C2-6:2-FTS	84		50 - 200			04/15/24 10:53	04/16/24 22:17	1
13C2-8:2-FTS	87		50 - 200			04/15/24 10:53	04/16/24 22:17	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:32	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:32	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:32	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:32	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:32	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:32	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:32	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:32	1
Perfluorohexanesulfonic acid (PFHxS)	2.5		2.0	ng/L		04/08/24 06:21	04/09/24 04:32	1
Perfluorohexanoic acid (PFHxA)	2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:32	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:32	1
Perfluorooctanesulfonic acid (PFOS)	2.4		2.0	ng/L		04/08/24 06:21	04/09/24 04:32	1
Perfluorooctanoic acid (PFOA)	2.3		2.0	ng/L		04/08/24 06:21	04/09/24 04:32	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:32	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:32	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-89615-1

Client Sample ID: HALAWA WELLS UNITS 1 & 2 P1

Lab Sample ID: 380-89615-4

Date Collected: 04/01/24 10:13

Matrix: Drinking Water

Date Received: 04/03/24 10:10

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:32	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:32	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		04/08/24 06:21	04/09/24 04:32	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C2 PFHxA	100		70 - 130			04/08/24 06:21	04/09/24 04:32	1
13C2 PFDA	98		70 - 130			04/08/24 06:21	04/09/24 04:32	1
d5-NEtFOSAA	93		70 - 130			04/08/24 06:21	04/09/24 04:32	1
13C3 HFPO-DA	96		70 - 130			04/08/24 06:21	04/09/24 04:32	1

Client Sample ID: FB MOANALUA WELLS

Lab Sample ID: 380-89615-5

Date Collected: 04/01/24 09:48

Matrix: Water

Date Received: 04/03/24 10:10

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:26	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:26	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:26	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:26	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:26	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:26	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:26	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:26	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:26	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:26	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:26	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:26	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:26	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:26	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:26	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:26	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:26	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0	+	2.0	ng/L		04/09/24 09:36	04/10/24 20:26	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:26	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:26	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:26	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:26	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:26	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:26	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-89615-1

Client Sample ID: FB MOANALUA WELLS

Lab Sample ID: 380-89615-5

Date Collected: 04/01/24 09:48

Matrix: Water

Date Received: 04/03/24 10:10

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:26	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	81		50 - 200			04/09/24 09:36	04/10/24 20:26	1
13C6 PFDA	68		50 - 200			04/09/24 09:36	04/10/24 20:26	1
13C5 PFHxA	84		50 - 200			04/09/24 09:36	04/10/24 20:26	1
13C4 PFHpA	82		50 - 200			04/09/24 09:36	04/10/24 20:26	1
13C8 PFOA	80		50 - 200			04/09/24 09:36	04/10/24 20:26	1
13C9 PFNA	72		50 - 200			04/09/24 09:36	04/10/24 20:26	1
13C7 PFUnA	70		50 - 200			04/09/24 09:36	04/10/24 20:26	1
13C2 PFDoA	68		50 - 200			04/09/24 09:36	04/10/24 20:26	1
13C4 PFBA	80		50 - 200			04/09/24 09:36	04/10/24 20:26	1
13C5 PFPeA	90		50 - 200			04/09/24 09:36	04/10/24 20:26	1
13C3 PFBS	90		50 - 200			04/09/24 09:36	04/10/24 20:26	1
13C3 PFHxS	88		50 - 200			04/09/24 09:36	04/10/24 20:26	1
13C8 PFOS	78		50 - 200			04/09/24 09:36	04/10/24 20:26	1
13C2-4:2-FTS	81		50 - 200			04/09/24 09:36	04/10/24 20:26	1
13C2-6:2-FTS	77		50 - 200			04/09/24 09:36	04/10/24 20:26	1
13C2-8:2-FTS	75		50 - 200			04/09/24 09:36	04/10/24 20:26	1

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

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		04/15/24 07:38	04/16/24 08:10	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:10	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:10	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:10	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:10	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:10	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:10	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:10	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:10	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:10	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:10	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:10	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:10	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:10	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:10	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:10	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:10	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:10	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C2 PFHxA	94		70 - 130			04/15/24 07:38	04/16/24 08:10	1
13C2 PFDA	92		70 - 130			04/15/24 07:38	04/16/24 08:10	1
d5-NEtFOSAA	94		70 - 130			04/15/24 07:38	04/16/24 08:10	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-89615-1

Client Sample ID: FB MOANALUA WELLS

Lab Sample ID: 380-89615-5

Date Collected: 04/01/24 09:48

Matrix: Water

Date Received: 04/03/24 10:10

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
¹³ C3 HFPO-DA	92		70 - 130	04/15/24 07:38	04/16/24 08:10	1

Client Sample ID: FB AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-89615-6

Date Collected: 04/01/24 10:41

Matrix: Water

Date Received: 04/03/24 10:10

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:40	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:40	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:40	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:40	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:40	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:40	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:40	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:40	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:40	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:40	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:40	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:40	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:40	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:40	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:40	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:40	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:40	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0	+	2.0	ng/L		04/09/24 09:36	04/10/24 20:40	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:40	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:40	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:40	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:40	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:40	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:40	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:40	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac		
¹³ C3 HFPO-DA	79		50 - 200	04/09/24 09:36	04/10/24 20:40	1		
¹³ C6 PFDA	67		50 - 200	04/09/24 09:36	04/10/24 20:40	1		
¹³ C5 PFHxA	82		50 - 200	04/09/24 09:36	04/10/24 20:40	1		
¹³ C4 PFHpA	80		50 - 200	04/09/24 09:36	04/10/24 20:40	1		
¹³ C8 PFOA	78		50 - 200	04/09/24 09:36	04/10/24 20:40	1		

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-89615-1

Client Sample ID: FB AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-89615-6

Date Collected: 04/01/24 10:41

Matrix: Water

Date Received: 04/03/24 10:10

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C9 PFNA	71		50 - 200	04/09/24 09:36	04/10/24 20:40	1
13C7 PFUnA	70		50 - 200	04/09/24 09:36	04/10/24 20:40	1
13C2 PFDoA	72		50 - 200	04/09/24 09:36	04/10/24 20:40	1
13C4 PFBA	80		50 - 200	04/09/24 09:36	04/10/24 20:40	1
13C5 PFPeA	89		50 - 200	04/09/24 09:36	04/10/24 20:40	1
13C3 PFBS	90		50 - 200	04/09/24 09:36	04/10/24 20:40	1
13C3 PFHxS	87		50 - 200	04/09/24 09:36	04/10/24 20:40	1
13C8 PFOS	78		50 - 200	04/09/24 09:36	04/10/24 20:40	1
13C2-4:2-FTS	81		50 - 200	04/09/24 09:36	04/10/24 20:40	1
13C2-6:2-FTS	77		50 - 200	04/09/24 09:36	04/10/24 20:40	1
13C2-8:2-FTS	73		50 - 200	04/09/24 09:36	04/10/24 20:40	1

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

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		04/15/24 07:38	04/16/24 08:20	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:20	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:20	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:20	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:20	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:20	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:20	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:20	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:20	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:20	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:20	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:20	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:20	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:20	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:20	1
Perfluorotridecanoic acid (PFTTrDA)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:20	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:20	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	<2.0		2.0	ng/L		04/15/24 07:38	04/16/24 08:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	89		70 - 130	04/15/24 07:38	04/16/24 08:20	1
13C2 PFDA	94		70 - 130	04/15/24 07:38	04/16/24 08:20	1
d5-NEtFOSAA	91		70 - 130	04/15/24 07:38	04/16/24 08:20	1
13C3 HFPO-DA	86		70 - 130	04/15/24 07:38	04/16/24 08:20	1

Client Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: 380-89615-7

Date Collected: 04/01/24 11:10

Matrix: Water

Date Received: 04/03/24 10:10

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:54	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:54	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:54	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:54	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:54	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:54	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:54	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:54	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:54	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:54	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:54	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:54	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:54	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:54	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:54	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:54	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:54	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0	*	2.0	ng/L		04/09/24 09:36	04/10/24 20:54	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:54	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:54	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:54	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:54	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:54	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:54	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 20:54	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	79		50 - 200	04/09/24 09:36	04/10/24 20:54	1
13C6 PFDA	69		50 - 200	04/09/24 09:36	04/10/24 20:54	1
13C5 PFHxA	82		50 - 200	04/09/24 09:36	04/10/24 20:54	1
13C4 PFHpA	82		50 - 200	04/09/24 09:36	04/10/24 20:54	1
13C8 PFOA	78		50 - 200	04/09/24 09:36	04/10/24 20:54	1
13C9 PFNA	70		50 - 200	04/09/24 09:36	04/10/24 20:54	1
13C7 PFUnA	73		50 - 200	04/09/24 09:36	04/10/24 20:54	1
13C2 PFDoA	74		50 - 200	04/09/24 09:36	04/10/24 20:54	1
13C4 PFBA	79		50 - 200	04/09/24 09:36	04/10/24 20:54	1
13C5 PFPeA	88		50 - 200	04/09/24 09:36	04/10/24 20:54	1
13C3 PFBS	88		50 - 200	04/09/24 09:36	04/10/24 20:54	1
13C3 PFHxS	88		50 - 200	04/09/24 09:36	04/10/24 20:54	1
13C8 PFOS	78		50 - 200	04/09/24 09:36	04/10/24 20:54	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: 380-89615-7

Date Collected: 04/01/24 11:10

Matrix: Water

Date Received: 04/03/24 10:10

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	80		50 - 200	04/09/24 09:36	04/10/24 20:54	1
13C2-6:2-FTS	79		50 - 200	04/09/24 09:36	04/10/24 20:54	1
13C2-8:2-FTS	75		50 - 200	04/09/24 09:36	04/10/24 20:54	1

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

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		04/15/24 07:45	04/15/24 23:42	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		04/15/24 07:45	04/15/24 23:42	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		04/15/24 07:45	04/15/24 23:42	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		04/15/24 07:45	04/15/24 23:42	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		04/15/24 07:45	04/15/24 23:42	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		04/15/24 07:45	04/15/24 23:42	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		04/15/24 07:45	04/15/24 23:42	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		04/15/24 07:45	04/15/24 23:42	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		04/15/24 07:45	04/15/24 23:42	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		04/15/24 07:45	04/15/24 23:42	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		04/15/24 07:45	04/15/24 23:42	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		04/15/24 07:45	04/15/24 23:42	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		04/15/24 07:45	04/15/24 23:42	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		04/15/24 07:45	04/15/24 23:42	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		04/15/24 07:45	04/15/24 23:42	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		04/15/24 07:45	04/15/24 23:42	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	<2.0		2.0	ng/L		04/15/24 07:45	04/15/24 23:42	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	<2.0		2.0	ng/L		04/15/24 07:45	04/15/24 23:42	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C2 PFHxA	85		70 - 130			04/15/24 07:45	04/15/24 23:42	1
13C2 PFDA	90		70 - 130			04/15/24 07:45	04/15/24 23:42	1
d5-NEtFOSAA	94		70 - 130			04/15/24 07:45	04/15/24 23:42	1
13C3 HFPO-DA	84		70 - 130			04/15/24 07:45	04/15/24 23:42	1

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

Lab Sample ID: 380-89615-8

Date Collected: 04/01/24 10:13

Matrix: Water

Date Received: 04/03/24 10:10

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 21:07	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 21:07	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 21:07	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 21:07	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 21:07	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 21:07	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: 380-89615-8

Date Collected: 04/01/24 10:13

Matrix: Water

Date Received: 04/03/24 10:10

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 21:07	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 21:07	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 21:07	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 21:07	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 21:07	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 21:07	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 21:07	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 21:07	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 21:07	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 21:07	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 21:07	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0	+	2.0	ng/L		04/09/24 09:36	04/10/24 21:07	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 21:07	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 21:07	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 21:07	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 21:07	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 21:07	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 21:07	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		04/09/24 09:36	04/10/24 21:07	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	80		50 - 200	04/09/24 09:36	04/10/24 21:07	1
13C6 PFDA	67		50 - 200	04/09/24 09:36	04/10/24 21:07	1
13C5 PFHxA	82		50 - 200	04/09/24 09:36	04/10/24 21:07	1
13C4 PFHpA	82		50 - 200	04/09/24 09:36	04/10/24 21:07	1
13C8 PFOA	78		50 - 200	04/09/24 09:36	04/10/24 21:07	1
13C9 PFNA	72		50 - 200	04/09/24 09:36	04/10/24 21:07	1
13C7 PFUnA	71		50 - 200	04/09/24 09:36	04/10/24 21:07	1
13C2 PFDoA	72		50 - 200	04/09/24 09:36	04/10/24 21:07	1
13C4 PFBA	79		50 - 200	04/09/24 09:36	04/10/24 21:07	1
13C5 PFPeA	89		50 - 200	04/09/24 09:36	04/10/24 21:07	1
13C3 PFBS	89		50 - 200	04/09/24 09:36	04/10/24 21:07	1
13C3 PFHxS	88		50 - 200	04/09/24 09:36	04/10/24 21:07	1
13C8 PFOS	78		50 - 200	04/09/24 09:36	04/10/24 21:07	1
13C2-4:2-FTS	81		50 - 200	04/09/24 09:36	04/10/24 21:07	1
13C2-6:2-FTS	76		50 - 200	04/09/24 09:36	04/10/24 21:07	1
13C2-8:2-FTS	74		50 - 200	04/09/24 09:36	04/10/24 21:07	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		04/10/24 09:08	04/12/24 08:13	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		04/10/24 09:08	04/12/24 08:13	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: 380-89615-8

Date Collected: 04/01/24 10:13

Matrix: Water

Date Received: 04/03/24 10:10

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		04/10/24 09:08	04/12/24 08:13	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		04/10/24 09:08	04/12/24 08:13	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		04/10/24 09:08	04/12/24 08:13	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		04/10/24 09:08	04/12/24 08:13	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		04/10/24 09:08	04/12/24 08:13	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		04/10/24 09:08	04/12/24 08:13	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		04/10/24 09:08	04/12/24 08:13	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		04/10/24 09:08	04/12/24 08:13	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		04/10/24 09:08	04/12/24 08:13	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		04/10/24 09:08	04/12/24 08:13	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		04/10/24 09:08	04/12/24 08:13	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		04/10/24 09:08	04/12/24 08:13	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		04/10/24 09:08	04/12/24 08:13	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		04/10/24 09:08	04/12/24 08:13	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		04/10/24 09:08	04/12/24 08:13	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		04/10/24 09:08	04/12/24 08:13	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C2 PFHxA	109		70 - 130			04/10/24 09:08	04/12/24 08:13	1
13C2 PFDA	104		70 - 130			04/10/24 09:08	04/12/24 08:13	1
d5-NEtFOSAA	110		70 - 130			04/10/24 09:08	04/12/24 08:13	1
13C3 HFPO-DA	103		70 - 130			04/10/24 09:08	04/12/24 08:13	1

Surrogate Summary

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

Job ID: 380-89615-1

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

Matrix: Drinking Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		PFHxA (70-130)	PFDA (70-130)	d5NEFOS (70-130)	HFPODA (70-130)
380-89615-2	AIEA GULCH WELLS PUMP 2	94	94	93	91
380-89615-3	AIEA WELLS PUMPS 1&2 (260) P2	102	101	93	95
380-89615-4	HALAWA WELLS UNITS 1 & 2 P1	100	98	93	96

Surrogate Legend

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA
d5NEFOS = d5-NEtFOSAA
HFPODA = 13C3 HFPO-DA

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		PFHxA (70-130)	PFDA (70-130)	d5NEFOS (70-130)	HFPODA (70-130)
380-89420-B-1-A MS	Matrix Spike	98	96	90	94
380-89615-1	MOANALUA WELLS	97	94	94	93
380-89615-5	FB MOANALUA WELLS	94	92	94	92
380-89615-6	FB AIEA GULCH WELLS PUMP 2	89	94	91	86
380-89615-7	FB AIEA WELLS PUMPS 1&2 (260) P2	85	90	94	84
380-89615-8	FB HALAWA WELLS UNITS 1 & 2 P1	109	104	110	103
380-89837-A-1-A MS	Matrix Spike	94	99	97	91
380-89837-A-1-B MSD	Matrix Spike Duplicate	95	95	96	90
810-99371-B-5-A DU	Duplicate	96	108	97	96
810-99896-B-1-A MS	Matrix Spike	93	91	90	92
810-99913-B-1-A DU	Duplicate	84	84	98	81
810-100339-Z-1-A LMS	Matrix Spike	83	98	82	91
810-100358-B-1-A DU	Duplicate	98	99	89	93
LCS 810-94738/3-A	Lab Control Sample	102	100	91	96
LCS 810-95009/3-A	Lab Control Sample	105	104	111	101
LCS 810-95460/7-A	Lab Control Sample	101	99	93	102
LLCS 810-94738/2-A	Lab Control Sample	100	103	100	98
LLCS 810-95009/2-A	Lab Control Sample	96	102	110	94
LLCS 810-95453/2-A	Lab Control Sample	90	92	101	88
LLCS 810-95460/6-A	Lab Control Sample	93	94	95	88
MBL 810-94738/1-A	Method Blank	96	96	96	93
MBL 810-95009/1-A	Method Blank	99	108	108	100
MBL 810-95453/1-A	Method Blank	89	90	91	83
MBL 810-95460/5-A	Method Blank	94	98	102	92

Surrogate Legend

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA
d5NEFOS = d5-NEtFOSAA
HFPODA = 13C3 HFPO-DA

Isotope Dilution Summary

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

Job ID: 380-89615-1

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)	PFDoA (50-200)
380-89615-2	AIEA GULCH WELLS PUMP 2	89	93	92	92	91	95	87	82
380-89615-3	AIEA WELLS PUMPS 1&2 (260) P2	89	89	91	92	91	96	87	83
380-89615-4	HALAWA WELLS UNITS 1 & 2 P1	97	98	98	97	100	100	96	90

		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)
380-89615-2	AIEA GULCH WELLS PUMP 2	97	100	95	94	96	85	85	93
380-89615-3	AIEA WELLS PUMPS 1&2 (260) P2	93	96	94	92	93	83	83	87
380-89615-4	HALAWA WELLS UNITS 1 & 2 P1	97	103	94	95	94	87	84	87

Surrogate Legend

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

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

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)
380-89615-1	MOANALUA WELLS	90	91	92	92	94	96	86	83
380-89615-5	FB MOANALUA WELLS	81	68	84	82	80	72	70	68
380-89615-6	FB AIEA GULCH WELLS PUMP 2	79	67	82	80	78	71	70	72
380-89615-7	FB AIEA WELLS PUMPS 1&2 (260) P2	79	69	82	82	78	70	73	74
380-89615-8	FB HALAWA WELLS UNITS 1 & 2 P1	80	67	82	82	78	72	71	72
810-99568-B-2-A LMS	Matrix Spike	67	28 *5-	79	76	65	45 *5-	27 *5-	31 *5-
810-99571-B-1-A DU	Duplicate	65	42 *5-	76	73	67	52	46 *5-	54
810-100514-B-9-A DU	Duplicate	87	80	92	92	87	87	74	69
810-100519-E-2-A LMS	Matrix Spike	88	92	92	88	92	96	87	83
LCS 810-94863/3-A	Lab Control Sample	72	63	80	78	76	68	65	68
LLCS 810-94863/2-A	Lab Control Sample	74	71	82	82	80	74	73	71

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Isotope Dilution Summary

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

Job ID: 380-89615-1

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)
LLCS 810-95496/2-A	Lab Control Sample	90	91	91	92	94	95	90	82
MBL 810-94863/1-A	Method Blank	75	73	84	82	80	74	77	79
MBL 810-95496/1-A	Method Blank	84	93	85	88	91	97	88	82

		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)
380-89615-1	MOANALUA WELLS	96	99	94	94	93	85	85	88
380-89615-5	FB MOANALUA WELLS	80	90	90	88	78	81	77	75
380-89615-6	FB AIEA GULCH WELLS PUMP 2	80	89	90	87	78	81	77	73
380-89615-7	FB AIEA WELLS PUMPS 1&2 (260) P2	79	88	88	88	78	80	79	75
380-89615-8	FB HALAWA WELLS UNITS 1 & 2 P1	79	89	89	88	78	81	76	74
810-99568-B-2-A LMS	Matrix Spike	77	81	90	89	80	88	80	77
810-99571-B-1-A DU	Duplicate	77	84	91	87	79	85	79	75
810-100514-B-9-A DU	Duplicate	95	98	94	92	82	172	119	94
810-100519-E-2-A LMS	Matrix Spike	92	95	93	93	93	81	84	85
LCS 810-94863/3-A	Lab Control Sample	78	81	83	86	79	83	79	75
LLCS 810-94863/2-A	Lab Control Sample	81	89	91	86	79	82	79	76
LLCS 810-95496/2-A	Lab Control Sample	94	96	91	93	93	82	83	86
MBL 810-94863/1-A	Method Blank	81	86	89	88	81	83	80	79
MBL 810-95496/1-A	Method Blank	91	94	88	93	93	79	81	88

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: 380-89615-1

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

Lab Sample ID: MBL 810-94863/1-A
Matrix: Water
Analysis Batch: 95003

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 94863

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<0.51		2.0	ng/L		04/09/24 09:36	04/10/24 11:36	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.45		2.0	ng/L		04/09/24 09:36	04/10/24 11:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.40		2.0	ng/L		04/09/24 09:36	04/10/24 11:36	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<0.53		2.0	ng/L		04/09/24 09:36	04/10/24 11:36	1
Perfluorobutanesulfonic acid (PFBS)	<0.42		2.0	ng/L		04/09/24 09:36	04/10/24 11:36	1
Perfluorodecanoic acid (PFDA)	<0.36		2.0	ng/L		04/09/24 09:36	04/10/24 11:36	1
Perfluorododecanoic acid (PFDoA)	<0.35		2.0	ng/L		04/09/24 09:36	04/10/24 11:36	1
Perfluoroheptanoic acid (PFHpA)	<0.40		2.0	ng/L		04/09/24 09:36	04/10/24 11:36	1
Perfluorohexanesulfonic acid (PFHxS)	<0.39		2.0	ng/L		04/09/24 09:36	04/10/24 11:36	1
Perfluorohexanoic acid (PFHxA)	<0.42		2.0	ng/L		04/09/24 09:36	04/10/24 11:36	1
Perfluorononanoic acid (PFNA)	<0.38		2.0	ng/L		04/09/24 09:36	04/10/24 11:36	1
Perfluorooctanesulfonic acid (PFOS)	<0.39		2.0	ng/L		04/09/24 09:36	04/10/24 11:36	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		04/09/24 09:36	04/10/24 11:36	1
Perfluoroundecanoic acid (PFUnA)	<0.38		2.0	ng/L		04/09/24 09:36	04/10/24 11:36	1
Perfluorobutanoic acid (PFBA)	<0.52		2.0	ng/L		04/09/24 09:36	04/10/24 11:36	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.57		2.0	ng/L		04/09/24 09:36	04/10/24 11:36	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.56		2.0	ng/L		04/09/24 09:36	04/10/24 11:36	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.68		2.0	ng/L		04/09/24 09:36	04/10/24 11:36	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.93		2.0	ng/L		04/09/24 09:36	04/10/24 11:36	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<0.45		2.0	ng/L		04/09/24 09:36	04/10/24 11:36	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.32		2.0	ng/L		04/09/24 09:36	04/10/24 11:36	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.35		2.0	ng/L		04/09/24 09:36	04/10/24 11:36	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		04/09/24 09:36	04/10/24 11:36	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.44		2.0	ng/L		04/09/24 09:36	04/10/24 11:36	1
Perfluoropentanesulfonic acid (PFPeS)	<0.37		2.0	ng/L		04/09/24 09:36	04/10/24 11:36	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	75		50 - 200	04/09/24 09:36	04/10/24 11:36	1
13C6 PFDA	73		50 - 200	04/09/24 09:36	04/10/24 11:36	1
13C5 PFHxA	84		50 - 200	04/09/24 09:36	04/10/24 11:36	1
13C4 PFHpA	82		50 - 200	04/09/24 09:36	04/10/24 11:36	1
13C8 PFOA	80		50 - 200	04/09/24 09:36	04/10/24 11:36	1
13C9 PFNA	74		50 - 200	04/09/24 09:36	04/10/24 11:36	1
13C7 PFUnA	77		50 - 200	04/09/24 09:36	04/10/24 11:36	1
13C2 PFDoA	79		50 - 200	04/09/24 09:36	04/10/24 11:36	1
13C4 PFBA	81		50 - 200	04/09/24 09:36	04/10/24 11:36	1
13C5 PFPeA	86		50 - 200	04/09/24 09:36	04/10/24 11:36	1
13C3 PFBS	89		50 - 200	04/09/24 09:36	04/10/24 11:36	1
13C3 PFHxS	88		50 - 200	04/09/24 09:36	04/10/24 11:36	1

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QC Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: MBL 810-94863/1-A
Matrix: Water
Analysis Batch: 95003

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 94863

Isotope Dilution	MBL MBL		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C8 PFOS	81		50 - 200	04/09/24 09:36	04/10/24 11:36	1
13C2-4:2-FTS	83		50 - 200	04/09/24 09:36	04/10/24 11:36	1
13C2-6:2-FTS	80		50 - 200	04/09/24 09:36	04/10/24 11:36	1
13C2-8:2-FTS	79		50 - 200	04/09/24 09:36	04/10/24 11:36	1

Lab Sample ID: LCS 810-94863/3-A
Matrix: Water
Analysis Batch: 95003

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 94863

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	189	199		ng/L		106	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	187	183		ng/L		98	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	189	186		ng/L		98	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	200	195		ng/L		97	70 - 130
Perfluorobutanesulfonic acid (PFBS)	178	178		ng/L		100	70 - 130
Perfluorodecanoic acid (PFDA)	200	199		ng/L		100	70 - 130
Perfluorododecanoic acid (PFDoA)	200	197		ng/L		99	70 - 130
Perfluoroheptanoic acid (PFHpA)	200	199		ng/L		99	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	183	180		ng/L		98	70 - 130
Perfluorohexanoic acid (PFHxA)	200	198		ng/L		99	70 - 130
Perfluorononanoic acid (PFNA)	200	201		ng/L		100	70 - 130
Perfluorooctanesulfonic acid (PFOS)	186	186		ng/L		100	70 - 130
Perfluorooctanoic acid (PFOA)	200	199		ng/L		99	70 - 130
Perfluoroundecanoic acid (PFUnA)	200	197		ng/L		99	70 - 130
Perfluorobutanoic acid (PFBA)	200	199		ng/L		100	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	192	198		ng/L		103	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	188	191		ng/L		102	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	190	198		ng/L		104	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	200	153		ng/L		76	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	178	175		ng/L		98	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	200	198		ng/L		99	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	200	199		ng/L		100	70 - 130
Perfluoropentanoic acid (PFPeA)	200	194		ng/L		97	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	191	196		ng/L		103	70 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: LCS 810-94863/3-A
Matrix: Water
Analysis Batch: 95003

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 94863

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanesulfonic acid (PFPeS)	188	189		ng/L		100	70 - 130
LCS LCS							
Isotope Dilution	%Recovery	Qualifier	Limits				
13C3 HFPO-DA	72		50 - 200				
13C6 PFDA	63		50 - 200				
13C5 PFHxA	80		50 - 200				
13C4 PFHpA	78		50 - 200				
13C8 PFOA	76		50 - 200				
13C9 PFNA	68		50 - 200				
13C7 PFUnA	65		50 - 200				
13C2 PFDoA	68		50 - 200				
13C4 PFBA	78		50 - 200				
13C5 PFPeA	81		50 - 200				
13C3 PFBS	83		50 - 200				
13C3 PFHxS	86		50 - 200				
13C8 PFOS	79		50 - 200				
13C2-4:2-FTS	83		50 - 200				
13C2-6:2-FTS	79		50 - 200				
13C2-8:2-FTS	75		50 - 200				

Lab Sample ID: LLCS 810-94863/2-A
Matrix: Water
Analysis Batch: 95003

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 94863

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.89	2.06		ng/L		109	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	1.87	1.88	J	ng/L		100	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.89	1.88	J	ng/L		99	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	2.00		ng/L		100	50 - 150
Perfluorobutanesulfonic acid (PFBS)	1.78	1.76	J	ng/L		99	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.03		ng/L		101	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.05		ng/L		103	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.05		ng/L		102	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	1.83	1.84	J	ng/L		101	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.08		ng/L		104	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.14		ng/L		107	50 - 150
Perfluorooctanesulfonic acid (PFOS)	1.86	1.98	J	ng/L		106	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.08		ng/L		104	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.01		ng/L		101	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	2.04		ng/L		102	50 - 150

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: LLCS 810-94863/2-A
Matrix: Water
Analysis Batch: 95003

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 94863

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	1.92	2.10		ng/L		109	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	1.88	2.09		ng/L		111	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	1.90	2.87	*+	ng/L		151	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	1.69	J	ng/L		85	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	1.78	1.71	J	ng/L		96	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	2.04		ng/L		102	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	2.00		ng/L		100	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	2.03		ng/L		102	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	1.91	2.02		ng/L		106	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	1.88	1.84	J	ng/L		98	50 - 150

Isotope Dilution	LLCS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	74		50 - 200
13C6 PFDA	71		50 - 200
13C5 PFHxA	82		50 - 200
13C4 PFHpA	82		50 - 200
13C8 PFOA	80		50 - 200
13C9 PFNA	74		50 - 200
13C7 PFUnA	73		50 - 200
13C2 PFDoA	71		50 - 200
13C4 PFBA	81		50 - 200
13C5 PFPeA	89		50 - 200
13C3 PFBS	91		50 - 200
13C3 PFHxS	86		50 - 200
13C8 PFOS	79		50 - 200
13C2-4:2-FTS	82		50 - 200
13C2-6:2-FTS	79		50 - 200
13C2-8:2-FTS	76		50 - 200

Lab Sample ID: 810-99568-B-2-A LMS
Matrix: Water
Analysis Batch: 95003

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 94863

Analyte	Sample Result	Sample Qualifier	Spike Added	LMS Result	LMS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		1.83	1.86	J	ng/L		101	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		1.82	1.79	J	ng/L		99	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		1.84	1.83	J	ng/L		99	50 - 150

QC Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: 810-99568-B-2-A LMS
Matrix: Water
Analysis Batch: 95003

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 94863

Analyte	Sample Result	Sample Qualifier	Spike Added	LMS Result	LMS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide	<2.0		1.94	2.08		ng/L		107	50 - 150
Dimer Acid (HFPO-DA/GenX)									
Perfluorobutanesulfonic acid (PFBS)	<2.0		1.73	1.92	J	ng/L		111	50 - 150
Perfluorodecanoic acid (PFDA)	<2.0		1.94	2.06		ng/L		106	50 - 150
Perfluorododecanoic acid (PFDoA)	<2.0		1.94	2.06		ng/L		106	50 - 150
Perfluoroheptanoic acid (PFHpA)	<2.0		1.94	1.97	J	ng/L		102	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	<2.0		1.77	1.99	J	ng/L		112	50 - 150
Perfluorohexanoic acid (PFHxA)	<2.0		1.94	2.02		ng/L		104	50 - 150
Perfluorononanoic acid (PFNA)	<2.0		1.94	2.03		ng/L		104	50 - 150
Perfluorooctanesulfonic acid (PFOS)	<2.0		1.80	3.03		ng/L		94	50 - 150
Perfluorooctanoic acid (PFOA)	<2.0		1.94	2.25		ng/L		116	50 - 150
Perfluoroundecanoic acid (PFUnA)	<2.0		1.94	2.01		ng/L		103	50 - 150
Perfluorobutanoic acid (PFBA)	<2.0		1.94	2.07		ng/L		107	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		1.87	2.09		ng/L		112	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		1.82	2.01		ng/L		110	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0	*+	1.85	2.14		ng/L		116	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		1.94	1.74	J	ng/L		90	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		1.73	1.67	J	ng/L		96	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		1.94	1.91	J	ng/L		98	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		1.94	1.88	J	ng/L		97	50 - 150
Perfluoropentanoic acid (PFPeA)	<2.0		1.94	1.96	J	ng/L		101	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		1.85	1.92	J	ng/L		103	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	<2.0		1.83	1.85	J	ng/L		101	50 - 150

Isotope Dilution	LMS LMS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	67		50 - 200
13C6 PFDA	28	*5-	50 - 200
13C5 PFHxA	79		50 - 200
13C4 PFHpA	76		50 - 200
13C8 PFOA	65		50 - 200
13C9 PFNA	45	*5-	50 - 200
13C7 PFUnA	27	*5-	50 - 200
13C2 PFDoA	31	*5-	50 - 200
13C4 PFBA	77		50 - 200
13C5 PFPeA	81		50 - 200
13C3 PFBS	90		50 - 200
13C3 PFHxS	89		50 - 200
13C8 PFOS	80		50 - 200

QC Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: 810-99568-B-2-A LMS
Matrix: Water
Analysis Batch: 95003

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 94863

<i>Isotope Dilution</i>	<i>LMS %Recovery</i>	<i>LMS Qualifier</i>	<i>Limits</i>
13C2-4:2-FTS	88		50 - 200
13C2-6:2-FTS	80		50 - 200
13C2-8:2-FTS	77		50 - 200

Lab Sample ID: 810-99571-B-1-A DU
Matrix: Water
Analysis Batch: 95003

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 94863

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
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		<2.0		ng/L		NC	30
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 (PFEESA)	<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

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QC Sample Results

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

Job ID: 380-89615-1

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

Isotope Dilution	DU DU		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	65		50 - 200
13C6 PFDA	42	*5-	50 - 200
13C5 PFHxA	76		50 - 200
13C4 PFHpA	73		50 - 200
13C8 PFOA	67		50 - 200
13C9 PFNA	52		50 - 200
13C7 PFUnA	46	*5-	50 - 200
13C2 PFDoA	54		50 - 200
13C4 PFBA	77		50 - 200
13C5 PFPeA	84		50 - 200
13C3 PFBS	91		50 - 200
13C3 PFHxS	87		50 - 200
13C8 PFOS	79		50 - 200
13C2-4:2-FTS	85		50 - 200
13C2-6:2-FTS	79		50 - 200
13C2-8:2-FTS	75		50 - 200

Lab Sample ID: MBL 810-95496/1-A
Matrix: Water
Analysis Batch: 95597

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 95496

Analyte	MBL MBL		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<0.51		2.0	ng/L		04/15/24 10:53	04/16/24 17:45	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.45		2.0	ng/L		04/15/24 10:53	04/16/24 17:45	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.40		2.0	ng/L		04/15/24 10:53	04/16/24 17:45	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<0.53		2.0	ng/L		04/15/24 10:53	04/16/24 17:45	1
Perfluorobutanesulfonic acid (PFBS)	<0.42		2.0	ng/L		04/15/24 10:53	04/16/24 17:45	1
Perfluorodecanoic acid (PFDA)	<0.36		2.0	ng/L		04/15/24 10:53	04/16/24 17:45	1
Perfluorododecanoic acid (PFDoA)	<0.35		2.0	ng/L		04/15/24 10:53	04/16/24 17:45	1
Perfluoroheptanoic acid (PFHpA)	<0.40		2.0	ng/L		04/15/24 10:53	04/16/24 17:45	1
Perfluorohexanesulfonic acid (PFHxS)	<0.39		2.0	ng/L		04/15/24 10:53	04/16/24 17:45	1
Perfluorohexanoic acid (PFHxA)	<0.42		2.0	ng/L		04/15/24 10:53	04/16/24 17:45	1
Perfluorononanoic acid (PFNA)	<0.38		2.0	ng/L		04/15/24 10:53	04/16/24 17:45	1
Perfluorooctanesulfonic acid (PFOS)	<0.39		2.0	ng/L		04/15/24 10:53	04/16/24 17:45	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		04/15/24 10:53	04/16/24 17:45	1
Perfluoroundecanoic acid (PFUnA)	<0.38		2.0	ng/L		04/15/24 10:53	04/16/24 17:45	1
Perfluorobutanoic acid (PFBA)	<0.52		2.0	ng/L		04/15/24 10:53	04/16/24 17:45	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.57		2.0	ng/L		04/15/24 10:53	04/16/24 17:45	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.56		2.0	ng/L		04/15/24 10:53	04/16/24 17:45	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.68		2.0	ng/L		04/15/24 10:53	04/16/24 17:45	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.93		2.0	ng/L		04/15/24 10:53	04/16/24 17:45	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.45		2.0	ng/L		04/15/24 10:53	04/16/24 17:45	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.32		2.0	ng/L		04/15/24 10:53	04/16/24 17:45	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.35		2.0	ng/L		04/15/24 10:53	04/16/24 17:45	1

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QC Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: MBL 810-95496/1-A
Matrix: Water
Analysis Batch: 95597

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 95496

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		04/15/24 10:53	04/16/24 17:45	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.44		2.0	ng/L		04/15/24 10:53	04/16/24 17:45	1
Perfluoropentanesulfonic acid (PFPeS)	<0.37		2.0	ng/L		04/15/24 10:53	04/16/24 17:45	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	84		50 - 200	04/15/24 10:53	04/16/24 17:45	1
13C6 PFDA	93		50 - 200	04/15/24 10:53	04/16/24 17:45	1
13C5 PFHxA	85		50 - 200	04/15/24 10:53	04/16/24 17:45	1
13C4 PFHpA	88		50 - 200	04/15/24 10:53	04/16/24 17:45	1
13C8 PFOA	91		50 - 200	04/15/24 10:53	04/16/24 17:45	1
13C9 PFNA	97		50 - 200	04/15/24 10:53	04/16/24 17:45	1
13C7 PFUnA	88		50 - 200	04/15/24 10:53	04/16/24 17:45	1
13C2 PFDoA	82		50 - 200	04/15/24 10:53	04/16/24 17:45	1
13C4 PFBA	91		50 - 200	04/15/24 10:53	04/16/24 17:45	1
13C5 PFPeA	94		50 - 200	04/15/24 10:53	04/16/24 17:45	1
13C3 PFBS	88		50 - 200	04/15/24 10:53	04/16/24 17:45	1
13C3 PFHxS	93		50 - 200	04/15/24 10:53	04/16/24 17:45	1
13C8 PFOS	93		50 - 200	04/15/24 10:53	04/16/24 17:45	1
13C2-4:2-FTS	79		50 - 200	04/15/24 10:53	04/16/24 17:45	1
13C2-6:2-FTS	81		50 - 200	04/15/24 10:53	04/16/24 17:45	1
13C2-8:2-FTS	88		50 - 200	04/15/24 10:53	04/16/24 17:45	1

Lab Sample ID: LLCS 810-95496/2-A
Matrix: Water
Analysis Batch: 95597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 95496

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.89	1.77	J	ng/L		94	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	1.87	1.80	J	ng/L		96	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.89	1.93	J	ng/L		102	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	2.03		ng/L		101	50 - 150
Perfluorobutanesulfonic acid (PFBS)	1.78	1.70	J	ng/L		96	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.16		ng/L		108	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.00		ng/L		100	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	1.99	J	ng/L		99	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	1.83	1.85	J	ng/L		101	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.11		ng/L		105	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.03		ng/L		102	50 - 150
Perfluorooctanesulfonic acid (PFOS)	1.86	1.91	J	ng/L		103	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.12		ng/L		106	50 - 150

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QC Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: LLCS 810-95496/2-A
Matrix: Water
Analysis Batch: 95597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 95496

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	2.00	1.97	J	ng/L		99	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	1.97	J	ng/L		98	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	1.92	2.19		ng/L		114	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	1.88	2.19		ng/L		117	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	1.90	2.01		ng/L		106	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	2.13		ng/L		107	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	1.78	1.97	J	ng/L		110	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	2.08		ng/L		104	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	2.05		ng/L		103	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	2.17		ng/L		109	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	1.91	1.75	J	ng/L		92	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	1.88	1.82	J	ng/L		97	50 - 150

Isotope Dilution	LLCS LLCS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	90		50 - 200
13C6 PFDA	91		50 - 200
13C5 PFHxA	91		50 - 200
13C4 PFHpA	92		50 - 200
13C8 PFOA	94		50 - 200
13C9 PFNA	95		50 - 200
13C7 PFUnA	90		50 - 200
13C2 PFDoA	82		50 - 200
13C4 PFBA	94		50 - 200
13C5 PFPeA	96		50 - 200
13C3 PFBS	91		50 - 200
13C3 PFHxS	93		50 - 200
13C8 PFOS	93		50 - 200
13C2-4:2-FTS	82		50 - 200
13C2-6:2-FTS	83		50 - 200
13C2-8:2-FTS	86		50 - 200

Lab Sample ID: 810-100519-E-2-A LMS
Matrix: Water
Analysis Batch: 95597

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 95496

Analyte	Sample Result	Sample Qualifier	Spike Added	LMS Result	LMS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		1.79	1.69	J	ng/L		94	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		1.77	1.71	J	ng/L		97	50 - 150

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: 810-100519-E-2-A LMS
Matrix: Water
Analysis Batch: 95597

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 95496

Analyte	Sample Result	Sample Qualifier	Spike Added	LMS Result	LMS Qualifier	Unit	D	%Rec	%Rec Limits
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		1.79	1.83	J	ng/L		102	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		1.90	1.96	J	ng/L		103	50 - 150
Perfluorobutanesulfonic acid (PFBS)	<2.0		1.68	1.65	J	ng/L		98	50 - 150
Perfluorodecanoic acid (PFDA)	<2.0		1.90	1.94	J	ng/L		102	50 - 150
Perfluorododecanoic acid (PFDoA)	<2.0		1.90	1.99	J	ng/L		105	50 - 150
Perfluoroheptanoic acid (PFHpA)	<2.0		1.90	1.89	J	ng/L		100	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	<2.0		1.73	1.64	J	ng/L		95	50 - 150
Perfluorohexanoic acid (PFHxA)	<2.0		1.90	1.96	J	ng/L		103	50 - 150
Perfluorononanoic acid (PFNA)	<2.0		1.90	1.93	J	ng/L		102	50 - 150
Perfluorooctanesulfonic acid (PFOS)	<2.0		1.76	1.81	J	ng/L		103	50 - 150
Perfluorooctanoic acid (PFOA)	<2.0		1.90	1.98	J	ng/L		105	50 - 150
Perfluoroundecanoic acid (PFUnA)	<2.0		1.90	1.94	J	ng/L		103	50 - 150
Perfluorobutanoic acid (PFBA)	<2.0		1.90	1.88	J	ng/L		99	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		1.82	2.16		ng/L		119	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		1.78	1.98	J	ng/L		111	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		1.81	1.93	J	ng/L		107	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		1.90	1.87	J	ng/L		99	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		1.69	1.74	J	ng/L		103	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		1.90	2.03		ng/L		107	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		1.90	1.87	J	ng/L		99	50 - 150
Perfluoropentanoic acid (PFPeA)	<2.0		1.90	1.90	J	ng/L		100	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		1.81	1.74	J	ng/L		96	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	<2.0		1.78	1.69	J	ng/L		95	50 - 150

Isotope Dilution	LMS %Recovery	LMS Qualifier	Limits
13C3 HFPO-DA	88		50 - 200
13C6 PFDA	92		50 - 200
13C5 PFHxA	92		50 - 200
13C4 PFHpA	88		50 - 200
13C8 PFOA	92		50 - 200
13C9 PFNA	96		50 - 200
13C7 PFUnA	87		50 - 200
13C2 PFDoA	83		50 - 200
13C4 PFBA	92		50 - 200
13C5 PFPeA	95		50 - 200
13C3 PFBS	93		50 - 200
13C3 PFHxS	93		50 - 200

QC Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: 810-100519-E-2-A LMS
Matrix: Water
Analysis Batch: 95597

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 95496

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C8 PFOS	93		50 - 200
13C2-4:2-FTS	81		50 - 200
13C2-6:2-FTS	84		50 - 200
13C2-8:2-FTS	85		50 - 200

Lab Sample ID: 810-100514-B-9-A DU
Matrix: Water
Analysis Batch: 95597

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 95496

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
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		<2.0		ng/L		NC	30
Perfluorobutanesulfonic acid (PFBS)	11		11.5		ng/L		5	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)	4.4		4.41		ng/L		0.2	30
Perfluorohexanesulfonic acid (PFHxS)	13		13.7		ng/L		4	30
Perfluorohexanoic acid (PFHxA)	14		14.2		ng/L		2	30
Perfluorononanoic acid (PFNA)	<2.0		<2.0		ng/L		NC	30
Perfluorooctanesulfonic acid (PFOS)	12		13.1		ng/L		10	30
Perfluorooctanoic acid (PFOA)	9.6		9.45		ng/L		2	30
Perfluoroundecanoic acid (PFUnA)	<2.0		<2.0		ng/L		NC	30
Perfluorobutanoic acid (PFBA)	11		11.8		ng/L		4	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 (PFEESA)	<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)	13		13.5		ng/L		3	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		<2.0		ng/L		NC	30

QC Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: 810-100514-B-9-A DU
Matrix: Water
Analysis Batch: 95597

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 95496

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Perfluoropentanesulfonic acid (PFPeS)	2.1		2.19		ng/L		3	30
DU DU								
Isotope Dilution	%Recovery	Qualifier	Limits					
13C3 HFPO-DA	87		50 - 200					
13C6 PFDA	80		50 - 200					
13C5 PFHxA	92		50 - 200					
13C4 PFHpA	92		50 - 200					
13C8 PFOA	87		50 - 200					
13C9 PFNA	87		50 - 200					
13C7 PFUnA	74		50 - 200					
13C2 PFDoA	69		50 - 200					
13C4 PFBA	95		50 - 200					
13C5 PFPeA	98		50 - 200					
13C3 PFBS	94		50 - 200					
13C3 PFHxS	92		50 - 200					
13C8 PFOS	82		50 - 200					
13C2-4:2-FTS	172		50 - 200					
13C2-6:2-FTS	119		50 - 200					
13C2-8:2-FTS	94		50 - 200					

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

Lab Sample ID: MBL 810-94738/1-A
Matrix: Water
Analysis Batch: 94785

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 94738

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<0.64		2.0	ng/L		04/08/24 06:21	04/09/24 00:39	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.64		2.0	ng/L		04/08/24 06:21	04/09/24 00:39	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.49		2.0	ng/L		04/08/24 06:21	04/09/24 00:39	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<0.62		2.0	ng/L		04/08/24 06:21	04/09/24 00:39	1
Perfluorobutanesulfonic acid (PFBS)	<0.71		2.0	ng/L		04/08/24 06:21	04/09/24 00:39	1
Perfluorodecanoic acid (PFDA)	<0.60		2.0	ng/L		04/08/24 06:21	04/09/24 00:39	1
Perfluorododecanoic acid (PFDoA)	<0.63		2.0	ng/L		04/08/24 06:21	04/09/24 00:39	1
Perfluoroheptanoic acid (PFHpA)	<0.52		2.0	ng/L		04/08/24 06:21	04/09/24 00:39	1
Perfluorohexanesulfonic acid (PFHxS)	<0.44		2.0	ng/L		04/08/24 06:21	04/09/24 00:39	1
Perfluorohexanoic acid (PFHxA)	<0.63		2.0	ng/L		04/08/24 06:21	04/09/24 00:39	1
Perfluorononanoic acid (PFNA)	<0.48		2.0	ng/L		04/08/24 06:21	04/09/24 00:39	1
Perfluorooctanesulfonic acid (PFOS)	<0.53		2.0	ng/L		04/08/24 06:21	04/09/24 00:39	1
Perfluorooctanoic acid (PFOA)	<0.50		2.0	ng/L		04/08/24 06:21	04/09/24 00:39	1
Perfluoroundecanoic acid (PFUnA)	<0.63		2.0	ng/L		04/08/24 06:21	04/09/24 00:39	1
Perfluorotetradecanoic acid (PFTA)	<0.65		2.0	ng/L		04/08/24 06:21	04/09/24 00:39	1
Perfluorotridecanoic acid (PFTrDA)	<0.60		2.0	ng/L		04/08/24 06:21	04/09/24 00:39	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	<0.51		2.0	ng/L		04/08/24 06:21	04/09/24 00:39	1

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: MBL 810-94738/1-A
Matrix: Water
Analysis Batch: 94785

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 94738

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.62		2.0	ng/L		04/08/24 06:21	04/09/24 00:39	1

Surrogate	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	96		70 - 130	04/08/24 06:21	04/09/24 00:39	1
13C2 PFDA	96		70 - 130	04/08/24 06:21	04/09/24 00:39	1
d5-NEtFOSAA	96		70 - 130	04/08/24 06:21	04/09/24 00:39	1
13C3 HFPO-DA	93		70 - 130	04/08/24 06:21	04/09/24 00:39	1

Lab Sample ID: LCS 810-94738/3-A
Matrix: Water
Analysis Batch: 94785

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 94738

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	100	89.7		ng/L		90	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	100	90.4		ng/L		90	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	100	97.6		ng/L		98	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	100	94.4		ng/L		94	70 - 130
Perfluorobutanesulfonic acid (PFBS)	100	90.1		ng/L		90	70 - 130
Perfluorodecanoic acid (PFDA)	100	100		ng/L		100	70 - 130
Perfluorododecanoic acid (PFDoA)	100	88.3		ng/L		88	70 - 130
Perfluoroheptanoic acid (PFHpA)	100	98.4		ng/L		98	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	100	94.3		ng/L		94	70 - 130
Perfluorohexanoic acid (PFHxA)	100	97.5		ng/L		98	70 - 130
Perfluorononanoic acid (PFNA)	100	96.1		ng/L		96	70 - 130
Perfluorooctanesulfonic acid (PFOS)	100	88.9		ng/L		89	70 - 130
Perfluorooctanoic acid (PFOA)	100	96.9		ng/L		97	70 - 130
Perfluoroundecanoic acid (PFUnA)	100	96.0		ng/L		96	70 - 130
Perfluorotetradecanoic acid (PFTA)	100	100		ng/L		100	70 - 130
Perfluorotridecanoic acid (PFTTrDA)	100	90.0		ng/L		90	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	100	89.3		ng/L		89	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	100	90.8		ng/L		91	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
13C2 PFHxA	102		70 - 130
13C2 PFDA	100		70 - 130
d5-NEtFOSAA	91		70 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: LCS 810-94738/3-A
Matrix: Water
Analysis Batch: 94785

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 94738

Surrogate	LCS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	96		70 - 130

Lab Sample ID: LLCS 810-94738/2-A
Matrix: Water
Analysis Batch: 94785

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 94738

Analyte	Spike Added	LLCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	1.68	J	ng/L		84	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	1.74	J	ng/L		87	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	1.90	J	ng/L		95	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	1.87	J	ng/L		94	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.04		ng/L		102	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	1.81	J	ng/L		90	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.09		ng/L		104	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	1.83	J	ng/L		91	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.17		ng/L		108	50 - 150
Perfluorononanoic acid (PFNA)	2.00	1.99	J	ng/L		99	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	1.88	J	ng/L		94	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	1.98	J	ng/L		99	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	1.84	J	ng/L		92	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.00	1.95	J	ng/L		97	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.00	1.77	J	ng/L		88	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.01		ng/L		101	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	1.78	J	ng/L		89	50 - 150

Surrogate	LLCS		Limits
	%Recovery	Qualifier	
13C2 PFHxA	100		70 - 130
13C2 PFDA	103		70 - 130
d5-NEtFOSAA	100		70 - 130
13C3 HFPO-DA	98		70 - 130

QC Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: 810-99371-B-5-A DU
Matrix: Water
Analysis Batch: 94785

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 94738

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		<2.0		ng/L		NC	30
Perfluorobutanesulfonic acid (PFBS)	92		93.4		ng/L		1	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)	10		9.85		ng/L		5	30
Perfluorohexanesulfonic acid (PFHxS)	3.1		3.36		ng/L		7	30
Perfluorohexanoic acid (PFHxA)	24		23.1		ng/L		2	30
Perfluorononanoic acid (PFNA)	2.0		<2.0		ng/L		NC	30
Perfluorooctanesulfonic acid (PFOS)	20		18.9		ng/L		3	30
Perfluorooctanoic acid (PFOA)	27		26.4		ng/L		0.5	30
Perfluoroundecanoic acid (PFUnA)	<2.0		<2.0		ng/L		NC	30
Perfluorotetradecanoic acid (PFTA)	<2.0		<2.0		ng/L		NC	30
Perfluorotridecanoic acid (PFTTrDA)	<2.0		<2.0		ng/L		NC	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		<2.0		ng/L		NC	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		<2.0		ng/L		NC	30

Surrogate	DU %Recovery	DU Qualifier	Limits
13C2 PFHxA	96		70 - 130
13C2 PFDA	108		70 - 130
d5-NEtFOSAA	97		70 - 130
13C3 HFPO-DA	96		70 - 130

Lab Sample ID: MBL 810-95009/1-A
Matrix: Water
Analysis Batch: 95172

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 95009

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<0.64		2.0	ng/L		04/10/24 09:08	04/12/24 03:27	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.64		2.0	ng/L		04/10/24 09:08	04/12/24 03:27	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.49		2.0	ng/L		04/10/24 09:08	04/12/24 03:27	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<0.62		2.0	ng/L		04/10/24 09:08	04/12/24 03:27	1
Perfluorobutanesulfonic acid (PFBS)	<0.71		2.0	ng/L		04/10/24 09:08	04/12/24 03:27	1
Perfluorodecanoic acid (PFDA)	<0.60		2.0	ng/L		04/10/24 09:08	04/12/24 03:27	1
Perfluorododecanoic acid (PFDoA)	<0.63		2.0	ng/L		04/10/24 09:08	04/12/24 03:27	1
Perfluoroheptanoic acid (PFHpA)	<0.52		2.0	ng/L		04/10/24 09:08	04/12/24 03:27	1
Perfluorohexanesulfonic acid (PFHxS)	<0.44		2.0	ng/L		04/10/24 09:08	04/12/24 03:27	1
Perfluorohexanoic acid (PFHxA)	<0.63		2.0	ng/L		04/10/24 09:08	04/12/24 03:27	1
Perfluorononanoic acid (PFNA)	<0.48		2.0	ng/L		04/10/24 09:08	04/12/24 03:27	1

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: MBL 810-95009/1-A
Matrix: Water
Analysis Batch: 95172

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 95009

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	<0.53		2.0	ng/L		04/10/24 09:08	04/12/24 03:27	1
Perfluorooctanoic acid (PFOA)	<0.50		2.0	ng/L		04/10/24 09:08	04/12/24 03:27	1
Perfluoroundecanoic acid (PFUnA)	<0.63		2.0	ng/L		04/10/24 09:08	04/12/24 03:27	1
Perfluorotetradecanoic acid (PFTA)	<0.65		2.0	ng/L		04/10/24 09:08	04/12/24 03:27	1
Perfluorotridecanoic acid (PFTTrDA)	<0.60		2.0	ng/L		04/10/24 09:08	04/12/24 03:27	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.51		2.0	ng/L		04/10/24 09:08	04/12/24 03:27	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.62		2.0	ng/L		04/10/24 09:08	04/12/24 03:27	1

Surrogate	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	99		70 - 130	04/10/24 09:08	04/12/24 03:27	1
13C2 PFDA	108		70 - 130	04/10/24 09:08	04/12/24 03:27	1
d5-NEtFOSAA	108		70 - 130	04/10/24 09:08	04/12/24 03:27	1
13C3 HFPO-DA	100		70 - 130	04/10/24 09:08	04/12/24 03:27	1

Lab Sample ID: LCS 810-95009/3-A
Matrix: Water
Analysis Batch: 95172

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 95009

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	100	93.1		ng/L		93	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	100	93.2		ng/L		93	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	100	92.8		ng/L		93	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	100	93.9		ng/L		94	70 - 130
Perfluorobutanesulfonic acid (PFBS)	100	96.6		ng/L		97	70 - 130
Perfluorodecanoic acid (PFDA)	100	99.5		ng/L		99	70 - 130
Perfluorododecanoic acid (PFDoA)	100	91.9		ng/L		92	70 - 130
Perfluoroheptanoic acid (PFHpA)	100	102		ng/L		102	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	100	98.2		ng/L		98	70 - 130
Perfluorohexanoic acid (PFHxA)	100	97.2		ng/L		97	70 - 130
Perfluorononanoic acid (PFNA)	100	95.8		ng/L		96	70 - 130
Perfluorooctanesulfonic acid (PFOS)	100	93.4		ng/L		93	70 - 130
Perfluorooctanoic acid (PFOA)	100	97.1		ng/L		97	70 - 130
Perfluoroundecanoic acid (PFUnA)	100	97.8		ng/L		98	70 - 130
Perfluorotetradecanoic acid (PFTA)	100	98.8		ng/L		99	70 - 130
Perfluorotridecanoic acid (PFTTrDA)	100	94.0		ng/L		94	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	100	105		ng/L		105	70 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: LCS 810-95009/3-A
Matrix: Water
Analysis Batch: 95172

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 95009

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	100	95.3		ng/L		95	70 - 130
Surrogate							
	%Recovery	LCS	LCS Qualifier	Limits			
13C2 PFHxA	105			70 - 130			
13C2 PFDA	104			70 - 130			
d5-NEtFOSAA	111			70 - 130			
13C3 HFPO-DA	101			70 - 130			

Lab Sample ID: LLCS 810-95009/2-A
Matrix: Water
Analysis Batch: 95172

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 95009

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	2.12		ng/L		106	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	2.14		ng/L		107	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	2.36		ng/L		118	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.96	J	ng/L		98	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	2.06		ng/L		103	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.18		ng/L		109	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.19		ng/L		110	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.44		ng/L		122	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	2.39		ng/L		119	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.28		ng/L		114	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.27		ng/L		114	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	2.25		ng/L		113	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.28		ng/L		114	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.22		ng/L		111	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.00	2.33		ng/L		116	50 - 150
Perfluorotridecanoic acid (PFTTrDA)	2.00	2.19		ng/L		109	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.48		ng/L		124	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	2.14		ng/L		107	50 - 150
Surrogate							
	%Recovery	LLCS	LLCS Qualifier	Limits			
13C2 PFHxA	96			70 - 130			
13C2 PFDA	102			70 - 130			
d5-NEtFOSAA	110			70 - 130			

QC Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: LLCS 810-95009/2-A
Matrix: Water
Analysis Batch: 95172

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 95009

Surrogate	LLCS LLCS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	94		70 - 130

Lab Sample ID: 380-89837-A-1-A MS
Matrix: Water
Analysis Batch: 95172

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 95009

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS		Unit	D	%Rec	%Rec Limits
				Result	Qualifier				
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		95.2	92.6		ng/L		97	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		95.2	96.4		ng/L		101	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		95.2	91.9		ng/L		96	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		95.2	82.9		ng/L		87	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		95.2	92.1		ng/L		95	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		95.2	92.8		ng/L		97	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		95.2	87.5		ng/L		92	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		95.2	90.1		ng/L		93	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		95.2	99.3		ng/L		103	70 - 130
Perfluorohexanoic acid (PFHxA)	2.0		95.2	88.3		ng/L		91	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		95.2	91.6		ng/L		96	70 - 130
Perfluorooctanesulfonic acid (PFOS)	2.2		95.2	93.4		ng/L		96	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		95.2	95.8		ng/L		99	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		95.2	88.3		ng/L		93	70 - 130
Perfluorotetradecanoic acid (PFTA)	<2.0		95.2	93.6		ng/L		98	70 - 130
Perfluorotridecanoic acid (PFTTrDA)	<2.0		95.2	89.5		ng/L		94	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		95.2	90.5		ng/L		95	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		95.2	90.7		ng/L		95	70 - 130

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
13C2 PFHxA	94		70 - 130
13C2 PFDA	99		70 - 130
d5-NEtFOSAA	97		70 - 130
13C3 HFPO-DA	91		70 - 130

QC Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: 380-89837-A-1-B MSD

Matrix: Water

Analysis Batch: 95172

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 95009

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		96.7	96.6		ng/L		100	70 - 130	4	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		96.7	97.8		ng/L		101	70 - 130	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		96.7	91.2		ng/L		94	70 - 130	1	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		96.7	88.0		ng/L		91	70 - 130	6	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		96.7	97.1		ng/L		99	70 - 130	5	30
Perfluorodecanoic acid (PFDA)	<2.0		96.7	92.4		ng/L		96	70 - 130	0	30
Perfluorododecanoic acid (PFDoA)	<2.0		96.7	88.5		ng/L		92	70 - 130	1	30
Perfluoroheptanoic acid (PFHpA)	<2.0		96.7	97.9		ng/L		100	70 - 130	8	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		96.7	106		ng/L		109	70 - 130	7	30
Perfluorohexanoic acid (PFHxA)	2.0		96.7	91.3		ng/L		92	70 - 130	3	30
Perfluorononanoic acid (PFNA)	<2.0		96.7	90.7		ng/L		94	70 - 130	1	30
Perfluorooctanesulfonic acid (PFOS)	2.2		96.7	98.8		ng/L		100	70 - 130	6	30
Perfluorooctanoic acid (PFOA)	<2.0		96.7	96.5		ng/L		98	70 - 130	1	30
Perfluoroundecanoic acid (PFUnA)	<2.0		96.7	92.2		ng/L		95	70 - 130	4	30
Perfluorotetradecanoic acid (PFTA)	<2.0		96.7	96.4		ng/L		100	70 - 130	3	30
Perfluorotridecanoic acid (PFTTrDA)	<2.0		96.7	89.3		ng/L		92	70 - 130	0	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		96.7	98.6		ng/L		102	70 - 130	9	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		96.7	92.9		ng/L		96	70 - 130	2	30

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
13C2 PFHxA	95		70 - 130
13C2 PFDA	95		70 - 130
d5-NEtFOSAA	96		70 - 130
13C3 HFPO-DA	90		70 - 130

Lab Sample ID: MBL 810-95453/1-A

Matrix: Water

Analysis Batch: 95530

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 95453

Analyte	MBL	MBL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.64		2.0	ng/L		04/15/24 05:47	04/15/24 17:09	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.64		2.0	ng/L		04/15/24 05:47	04/15/24 17:09	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.49		2.0	ng/L		04/15/24 05:47	04/15/24 17:09	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<0.62		2.0	ng/L		04/15/24 05:47	04/15/24 17:09	1

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QC Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: MBL 810-95453/1-A
Matrix: Water
Analysis Batch: 95530

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 95453

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	<0.71		2.0	ng/L		04/15/24 05:47	04/15/24 17:09	1
Perfluorodecanoic acid (PFDA)	<0.60		2.0	ng/L		04/15/24 05:47	04/15/24 17:09	1
Perfluorododecanoic acid (PFDoA)	<0.63		2.0	ng/L		04/15/24 05:47	04/15/24 17:09	1
Perfluoroheptanoic acid (PFHpA)	<0.52		2.0	ng/L		04/15/24 05:47	04/15/24 17:09	1
Perfluorohexanesulfonic acid (PFHxS)	<0.44		2.0	ng/L		04/15/24 05:47	04/15/24 17:09	1
Perfluorohexanoic acid (PFHxA)	<0.63		2.0	ng/L		04/15/24 05:47	04/15/24 17:09	1
Perfluorononanoic acid (PFNA)	<0.48		2.0	ng/L		04/15/24 05:47	04/15/24 17:09	1
Perfluorooctanesulfonic acid (PFOS)	<0.53		2.0	ng/L		04/15/24 05:47	04/15/24 17:09	1
Perfluorooctanoic acid (PFOA)	<0.50		2.0	ng/L		04/15/24 05:47	04/15/24 17:09	1
Perfluoroundecanoic acid (PFUnA)	<0.63		2.0	ng/L		04/15/24 05:47	04/15/24 17:09	1
Perfluorotetradecanoic acid (PFTA)	<0.65		2.0	ng/L		04/15/24 05:47	04/15/24 17:09	1
Perfluorotridecanoic acid (PFTrDA)	<0.60		2.0	ng/L		04/15/24 05:47	04/15/24 17:09	1
N-ethylperfluorooctanesulfonamidoacetic acid (NETFOSAA)	<0.51		2.0	ng/L		04/15/24 05:47	04/15/24 17:09	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.62		2.0	ng/L		04/15/24 05:47	04/15/24 17:09	1

Surrogate	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	89		70 - 130	04/15/24 05:47	04/15/24 17:09	1
13C2 PFDA	90		70 - 130	04/15/24 05:47	04/15/24 17:09	1
d5-NEFOSAA	91		70 - 130	04/15/24 05:47	04/15/24 17:09	1
13C3 HFPO-DA	83		70 - 130	04/15/24 05:47	04/15/24 17:09	1

Lab Sample ID: LLCS 810-95453/2-A
Matrix: Water
Analysis Batch: 95530

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 95453

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	1.43	J	ng/L		72	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	1.46	J	ng/L		73	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	1.46	J	ng/L		73	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.40	J	ng/L		70	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	1.52	J	ng/L		76	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	1.48	J	ng/L		74	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	1.40	J	ng/L		70	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	1.65	J	ng/L		82	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	1.62	J	ng/L		81	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	1.61	J	ng/L		80	50 - 150
Perfluorononanoic acid (PFNA)	2.00	1.58	J	ng/L		79	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	1.59	J	ng/L		80	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	1.47	J	ng/L		73	50 - 150

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QC Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: LLCS 810-95453/2-A
Matrix: Water
Analysis Batch: 95530

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 95453

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	2.00	1.44	J	ng/L		72	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.00	1.37	J	ng/L		69	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.00	1.42	J	ng/L		71	50 - 150
N-ethylperfluorooctanesulfonamide doacetic acid (NEtFOSAA)	2.00	1.62	J	ng/L		81	50 - 150
N-methylperfluorooctanesulfonamide doacetic acid (NMeFOSAA)	2.00	1.46	J	ng/L		73	50 - 150

Surrogate	LLCS %Recovery	LLCS Qualifier	Limits
13C2 PFHxA	90		70 - 130
13C2 PFDA	92		70 - 130
d5-NEtFOSAA	101		70 - 130
13C3 HFPO-DA	88		70 - 130

Lab Sample ID: 810-99896-B-1-A MS
Matrix: Water
Analysis Batch: 95530

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 95453

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		95.8	83.8		ng/L		87	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<2.0		95.8	85.4		ng/L		89	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		95.8	84.5		ng/L		88	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		95.8	81.2		ng/L		85	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		95.8	90.0		ng/L		94	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		95.8	81.4		ng/L		85	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		95.8	73.4		ng/L		77	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		95.8	88.2		ng/L		92	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		95.8	92.1		ng/L		96	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		95.8	86.0		ng/L		90	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		95.8	82.6		ng/L		86	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		95.8	85.2		ng/L		89	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		95.8	87.4		ng/L		91	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		95.8	81.4		ng/L		85	70 - 130
Perfluorotetradecanoic acid (PFTA)	<2.0		95.8	73.9		ng/L		77	70 - 130
Perfluorotridecanoic acid (PFTrDA)	<2.0		95.8	74.7		ng/L		78	70 - 130
N-ethylperfluorooctanesulfonamide doacetic acid (NEtFOSAA)	<2.0		95.8	80.0		ng/L		84	70 - 130

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QC Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: 810-99896-B-1-A MS
Matrix: Water
Analysis Batch: 95530

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 95453

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	<2.0		95.8	81.3		ng/L		85	70 - 130
MS MS									
Surrogate	%Recovery	Qualifier	Limits						
13C2 PFHxA	93		70 - 130						
13C2 PFDA	91		70 - 130						
d5-NEtFOSAA	90		70 - 130						
13C3 HFPO-DA	92		70 - 130						

Lab Sample ID: 810-99913-B-1-A DU
Matrix: Water
Analysis Batch: 95530

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 95453

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit	
11-Chloroheptacosafuoro-3-oxadecane-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	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		<2.0		ng/L		NC	30	
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	
Perfluorotetradecanoic acid (PFTA)	<2.0		<2.0		ng/L		NC	30	
Perfluorotridecanoic acid (PFTTrDA)	<2.0		<2.0		ng/L		NC	30	
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	<2.0		<2.0		ng/L		NC	30	
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	<2.0		<2.0		ng/L		NC	30	
DU DU									
Surrogate	%Recovery	Qualifier	Limits						
13C2 PFHxA	84		70 - 130						
13C2 PFDA	84		70 - 130						
d5-NEtFOSAA	98		70 - 130						

QC Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: 810-99913-B-1-A DU
Matrix: Water
Analysis Batch: 95530

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 95453

Surrogate	DU DU		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	81		70 - 130

Lab Sample ID: MBL 810-95460/5-A
Matrix: Water
Analysis Batch: 95540

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 95460

Analyte	MBL MBL		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<0.64		2.0	ng/L		04/15/24 07:38	04/16/24 00:56	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.64		2.0	ng/L		04/15/24 07:38	04/16/24 00:56	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.49		2.0	ng/L		04/15/24 07:38	04/16/24 00:56	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<0.62		2.0	ng/L		04/15/24 07:38	04/16/24 00:56	1
Perfluorobutanesulfonic acid (PFBS)	<0.71		2.0	ng/L		04/15/24 07:38	04/16/24 00:56	1
Perfluorodecanoic acid (PFDA)	<0.60		2.0	ng/L		04/15/24 07:38	04/16/24 00:56	1
Perfluorododecanoic acid (PFDoA)	<0.63		2.0	ng/L		04/15/24 07:38	04/16/24 00:56	1
Perfluoroheptanoic acid (PFHpA)	<0.52		2.0	ng/L		04/15/24 07:38	04/16/24 00:56	1
Perfluorohexanesulfonic acid (PFHxS)	<0.44		2.0	ng/L		04/15/24 07:38	04/16/24 00:56	1
Perfluorohexanoic acid (PFHxA)	<0.63		2.0	ng/L		04/15/24 07:38	04/16/24 00:56	1
Perfluorononanoic acid (PFNA)	<0.48		2.0	ng/L		04/15/24 07:38	04/16/24 00:56	1
Perfluorooctanesulfonic acid (PFOS)	<0.53		2.0	ng/L		04/15/24 07:38	04/16/24 00:56	1
Perfluorooctanoic acid (PFOA)	<0.50		2.0	ng/L		04/15/24 07:38	04/16/24 00:56	1
Perfluoroundecanoic acid (PFUnA)	<0.63		2.0	ng/L		04/15/24 07:38	04/16/24 00:56	1
Perfluorotetradecanoic acid (PFTA)	<0.65		2.0	ng/L		04/15/24 07:38	04/16/24 00:56	1
Perfluorotridecanoic acid (PFTrDA)	<0.60		2.0	ng/L		04/15/24 07:38	04/16/24 00:56	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	<0.51		2.0	ng/L		04/15/24 07:38	04/16/24 00:56	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	<0.62		2.0	ng/L		04/15/24 07:38	04/16/24 00:56	1

Surrogate	MBL MBL		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C2 PFHxA	94		70 - 130	04/15/24 07:38	04/16/24 00:56	1
13C2 PFDA	98		70 - 130	04/15/24 07:38	04/16/24 00:56	1
d5-NEtFOSAA	102		70 - 130	04/15/24 07:38	04/16/24 00:56	1
13C3 HFPO-DA	92		70 - 130	04/15/24 07:38	04/16/24 00:56	1

Lab Sample ID: LCS 810-95460/7-A
Matrix: Water
Analysis Batch: 95540

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 95460

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
9-Chlorohexadecafluoro-3-oxan onane-1-sulfonic acid(9Cl-PF3ONS)	100	86.0		ng/L		86	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	100	89.8		ng/L		90	70 - 130

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QC Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: LCS 810-95460/7-A

Matrix: Water

Analysis Batch: 95540

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 95460

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	100	87.3		ng/L		87	70 - 130
Perfluorobutanesulfonic acid (PFBS)	100	93.0		ng/L		93	70 - 130
Perfluorodecanoic acid (PFDA)	100	90.9		ng/L		91	70 - 130
Perfluorododecanoic acid (PFDoA)	100	84.8		ng/L		85	70 - 130
Perfluoroheptanoic acid (PFHpA)	100	90.9		ng/L		91	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	100	94.2		ng/L		94	70 - 130
Perfluorohexanoic acid (PFHxA)	100	91.5		ng/L		91	70 - 130
Perfluorononanoic acid (PFNA)	100	88.9		ng/L		89	70 - 130
Perfluorooctanesulfonic acid (PFOS)	100	86.0		ng/L		86	70 - 130
Perfluorooctanoic acid (PFOA)	100	87.8		ng/L		88	70 - 130
Perfluoroundecanoic acid (PFUnA)	100	85.6		ng/L		86	70 - 130
Perfluorotetradecanoic acid (PFTA)	100	84.4		ng/L		84	70 - 130
Perfluorotridecanoic acid (PFTTrDA)	100	78.3		ng/L		78	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	100	80.8		ng/L		81	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	100	84.1		ng/L		84	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
13C2 PFHxA	101		70 - 130
13C2 PFDA	99		70 - 130
d5-NEtFOSAA	93		70 - 130
13C3 HFPO-DA	102		70 - 130

Lab Sample ID: LLCS 810-95460/6-A

Matrix: Water

Analysis Batch: 95540

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 95460

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	1.38	J	ng/L		69	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	1.34	J	ng/L		67	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	1.50	J	ng/L		75	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.43	J	ng/L		72	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	1.58	J	ng/L		79	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	1.48	J	ng/L		74	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	1.47	J	ng/L		74	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	1.61	J	ng/L		80	50 - 150

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: LLCS 810-95460/6-A
Matrix: Water
Analysis Batch: 95540

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 95460

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanesulfonic acid (PFHxS)	2.00	1.54	J	ng/L		77	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	1.61	J	ng/L		80	50 - 150
Perfluorononanoic acid (PFNA)	2.00	1.54	J	ng/L		77	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	1.51	J	ng/L		76	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	1.53	J	ng/L		77	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	1.49	J	ng/L		74	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.00	1.56	J	ng/L		78	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.00	1.41	J	ng/L		70	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	1.56	J	ng/L		78	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	1.35	J	ng/L		68	50 - 150

Surrogate	LLCS %Recovery	LLCS Qualifier	LLCS Limits
13C2 PFHxA	93		70 - 130
13C2 PFDA	94		70 - 130
d5-NEtFOSAA	95		70 - 130
13C3 HFPO-DA	88		70 - 130

Lab Sample ID: 810-100339-Z-1-A LMS
Matrix: Water
Analysis Batch: 95540

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 95460

Analyte	Sample Result	Sample Qualifier	Spike Added	LMS Result	LMS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		1.97	1.44	J	ng/L		73	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		1.97	1.50	J	ng/L		76	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		1.97	1.46	J	ng/L		74	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		1.97	1.52	J	ng/L		77	50 - 150
Perfluorobutanesulfonic acid (PFBS)	6.2		1.97	7.56		ng/L		67	50 - 150
Perfluorodecanoic acid (PFDA)	<2.0		1.97	1.62	J	ng/L		82	50 - 150
Perfluorododecanoic acid (PFDoA)	<2.0		1.97	1.31	J	ng/L		67	50 - 150
Perfluoroheptanoic acid (PFHpA)	11		1.97	12.0	4	ng/L		53	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	4.8		1.97	6.44		ng/L		84	50 - 150
Perfluorohexanoic acid (PFHxA)	8.4		1.97	9.01	4	ng/L		32	50 - 150
Perfluorononanoic acid (PFNA)	<2.0		1.97	3.09		ng/L		75	50 - 150
Perfluorooctanesulfonic acid (PFOS)	9.3		1.97	10.5	4	ng/L		59	50 - 150
Perfluorooctanoic acid (PFOA)	77		1.97	77.7	4	ng/L		22	50 - 150

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: 810-100339-Z-1-A LMS
Matrix: Water
Analysis Batch: 95540

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 95460

Analyte	Sample Result	Sample Qualifier	Spike Added	LMS Result	LMS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	<2.0		1.97	1.38	J	ng/L		70	50 - 150
Perfluorotetradecanoic acid (PFTA)	<2.0		1.97	1.58	J	ng/L		80	50 - 150
Perfluorotridecanoic acid (PFTrDA)	<2.0		1.97	1.33	J	ng/L		67	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		1.97	1.25	J	ng/L		63	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		1.97	1.39	J	ng/L		71	50 - 150
Surrogate	LMS %Recovery	LMS Qualifier	Limits						
13C2 PFHxA	83		70 - 130						
13C2 PFDA	98		70 - 130						
d5-NEtFOSAA	82		70 - 130						
13C3 HFPO-DA	91		70 - 130						

Lab Sample ID: 810-100358-B-1-A DU
Matrix: Water
Analysis Batch: 95540

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 95460

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
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		<2.0		ng/L		NC	30
Perfluorobutanesulfonic acid (PFBS)	4.0		3.84		ng/L		3	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)	2.3		2.40		ng/L		3	30
Perfluorononanoic acid (PFNA)	<2.0		<2.0		ng/L		NC	30
Perfluorooctanesulfonic acid (PFOS)	2.6		2.65		ng/L		2	30
Perfluorooctanoic acid (PFOA)	2.2		2.30		ng/L		7	30
Perfluoroundecanoic acid (PFUnA)	<2.0		<2.0		ng/L		NC	30
Perfluorotetradecanoic acid (PFTA)	<2.0		<2.0		ng/L		NC	30
Perfluorotridecanoic acid (PFTrDA)	<2.0		<2.0		ng/L		NC	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		<2.0		ng/L		NC	30

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-89615-1

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

Lab Sample ID: 810-100358-B-1-A DU
 Matrix: Water
 Analysis Batch: 95540

Client Sample ID: Duplicate
 Prep Type: Total/NA
 Prep Batch: 95460

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
N-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	<2.0		<2.0		ng/L		NC	30
Surrogate	%Recovery	DU Qualifier	DU	Limits				
13C2 PFHxA	98			70 - 130				
13C2 PFDA	99			70 - 130				
d5-NEtFOSAA	89			70 - 130				
13C3 HFPO-DA	93			70 - 130				

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- 14
- 15
- 16

QC Association Summary

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

Job ID: 380-89615-1

LCMS

Prep Batch: 94738

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-89615-1	MOANALUA WELLS	Total/NA	Water	537.1 DW	
380-89615-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	537.1 DW	
380-89615-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	537.1 DW	
380-89615-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	537.1 DW	
MBL 810-94738/1-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 810-94738/3-A	Lab Control Sample	Total/NA	Water	537.1 DW	
LLCS 810-94738/2-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-89420-B-1-A MS	Matrix Spike	Total/NA	Water	537.1 DW	
810-99371-B-5-A DU	Duplicate	Total/NA	Water	537.1 DW	

Analysis Batch: 94785

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-89615-1	MOANALUA WELLS	Total/NA	Water	537.1	94738
380-89615-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	537.1	94738
380-89615-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	537.1	94738
380-89615-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	537.1	94738
MBL 810-94738/1-A	Method Blank	Total/NA	Water	537.1	94738
LCS 810-94738/3-A	Lab Control Sample	Total/NA	Water	537.1	94738
LLCS 810-94738/2-A	Lab Control Sample	Total/NA	Water	537.1	94738
380-89420-B-1-A MS	Matrix Spike	Total/NA	Water	537.1	94738
810-99371-B-5-A DU	Duplicate	Total/NA	Water	537.1	94738

Prep Batch: 94863

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-89615-5	FB MOANALUA WELLS	Total/NA	Water	533	
380-89615-6	FB AIEA GULCH WELLS PUMP 2	Total/NA	Water	533	
380-89615-7	FB AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	533	
380-89615-8	FB HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Water	533	
MBL 810-94863/1-A	Method Blank	Total/NA	Water	533	
LCS 810-94863/3-A	Lab Control Sample	Total/NA	Water	533	
LLCS 810-94863/2-A	Lab Control Sample	Total/NA	Water	533	
810-99568-B-2-A LMS	Matrix Spike	Total/NA	Water	533	
810-99571-B-1-A DU	Duplicate	Total/NA	Water	533	

Analysis Batch: 95003

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-89615-5	FB MOANALUA WELLS	Total/NA	Water	533	94863
380-89615-6	FB AIEA GULCH WELLS PUMP 2	Total/NA	Water	533	94863
380-89615-7	FB AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	533	94863
380-89615-8	FB HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Water	533	94863
MBL 810-94863/1-A	Method Blank	Total/NA	Water	533	94863
LCS 810-94863/3-A	Lab Control Sample	Total/NA	Water	533	94863
LLCS 810-94863/2-A	Lab Control Sample	Total/NA	Water	533	94863
810-99568-B-2-A LMS	Matrix Spike	Total/NA	Water	533	94863
810-99571-B-1-A DU	Duplicate	Total/NA	Water	533	94863

Prep Batch: 95009

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-89615-8	FB HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Water	537.1 DW	
MBL 810-95009/1-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 810-95009/3-A	Lab Control Sample	Total/NA	Water	537.1 DW	

QC Association Summary

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

Job ID: 380-89615-1

LCMS (Continued)

Prep Batch: 95009 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LLCS 810-95009/2-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-89837-A-1-A MS	Matrix Spike	Total/NA	Water	537.1 DW	
380-89837-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	537.1 DW	

Analysis Batch: 95172

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-89615-8	FB HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Water	537.1	95009
MBL 810-95009/1-A	Method Blank	Total/NA	Water	537.1	95009
LCS 810-95009/3-A	Lab Control Sample	Total/NA	Water	537.1	95009
LLCS 810-95009/2-A	Lab Control Sample	Total/NA	Water	537.1	95009
380-89837-A-1-A MS	Matrix Spike	Total/NA	Water	537.1	95009
380-89837-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	537.1	95009

Prep Batch: 95453

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-89615-7	FB AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	537.1 DW	
MBL 810-95453/1-A	Method Blank	Total/NA	Water	537.1 DW	
LLCS 810-95453/2-A	Lab Control Sample	Total/NA	Water	537.1 DW	
810-99896-B-1-A MS	Matrix Spike	Total/NA	Water	537.1 DW	
810-99913-B-1-A DU	Duplicate	Total/NA	Water	537.1 DW	

Prep Batch: 95460

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-89615-5	FB MOANALUA WELLS	Total/NA	Water	537.1 DW	
380-89615-6	FB AIEA GULCH WELLS PUMP 2	Total/NA	Water	537.1 DW	
MBL 810-95460/5-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 810-95460/7-A	Lab Control Sample	Total/NA	Water	537.1 DW	
LLCS 810-95460/6-A	Lab Control Sample	Total/NA	Water	537.1 DW	
810-100339-Z-1-A LMS	Matrix Spike	Total/NA	Water	537.1 DW	
810-100358-B-1-A DU	Duplicate	Total/NA	Water	537.1 DW	

Prep Batch: 95496

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-89615-1	MOANALUA WELLS	Total/NA	Water	533	
380-89615-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	533	
380-89615-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	533	
380-89615-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	533	
MBL 810-95496/1-A	Method Blank	Total/NA	Water	533	
LLCS 810-95496/2-A	Lab Control Sample	Total/NA	Water	533	
810-100519-E-2-A LMS	Matrix Spike	Total/NA	Water	533	
810-100514-B-9-A DU	Duplicate	Total/NA	Water	533	

Analysis Batch: 95530

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-89615-7	FB AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	537.1	95453
MBL 810-95453/1-A	Method Blank	Total/NA	Water	537.1	95453
LLCS 810-95453/2-A	Lab Control Sample	Total/NA	Water	537.1	95453
810-99896-B-1-A MS	Matrix Spike	Total/NA	Water	537.1	95453
810-99913-B-1-A DU	Duplicate	Total/NA	Water	537.1	95453

QC Association Summary

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

Job ID: 380-89615-1

LCMS

Analysis Batch: 95540

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-89615-5	FB MOANALUA WELLS	Total/NA	Water	537.1	95460
380-89615-6	FB AIEA GULCH WELLS PUMP 2	Total/NA	Water	537.1	95460
MBL 810-95460/5-A	Method Blank	Total/NA	Water	537.1	95460
LCS 810-95460/7-A	Lab Control Sample	Total/NA	Water	537.1	95460
LLCS 810-95460/6-A	Lab Control Sample	Total/NA	Water	537.1	95460
810-100339-Z-1-A LMS	Matrix Spike	Total/NA	Water	537.1	95460
810-100358-B-1-A DU	Duplicate	Total/NA	Water	537.1	95460

Analysis Batch: 95597

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-89615-1	MOANALUA WELLS	Total/NA	Water	533	95496
380-89615-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	533	95496
380-89615-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	533	95496
380-89615-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	533	95496
MBL 810-95496/1-A	Method Blank	Total/NA	Water	533	95496
LLCS 810-95496/2-A	Lab Control Sample	Total/NA	Water	533	95496
810-100519-E-2-A LMS	Matrix Spike	Total/NA	Water	533	95496
810-100514-B-9-A DU	Duplicate	Total/NA	Water	533	95496

Lab Chronicle

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

Job ID: 380-89615-1

Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-89615-1

Date Collected: 04/01/24 09:48

Matrix: Water

Date Received: 04/03/24 10:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			95496	KB	EA SB	04/15/24 10:53
Total/NA	Analysis	533		1	95597	MH	EA SB	04/16/24 21:36
Total/NA	Prep	537.1 DW			94738	DB	EA SB	04/08/24 06:21
Total/NA	Analysis	537.1		1	94785	BS	EA SB	04/09/24 04:00

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-89615-2

Date Collected: 04/01/24 10:41

Matrix: Drinking Water

Date Received: 04/03/24 10:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			95496	KB	EA SB	04/15/24 10:53
Total/NA	Analysis	533		1	95597	MH	EA SB	04/16/24 21:50
Total/NA	Prep	537.1 DW			94738	DB	EA SB	04/08/24 06:21
Total/NA	Analysis	537.1		1	94785	BS	EA SB	04/09/24 04:11

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

Lab Sample ID: 380-89615-3

Date Collected: 04/01/24 11:10

Matrix: Drinking Water

Date Received: 04/03/24 10:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			95496	KB	EA SB	04/15/24 10:53
Total/NA	Analysis	533		1	95597	MH	EA SB	04/16/24 22:03
Total/NA	Prep	537.1 DW			94738	DB	EA SB	04/08/24 06:21
Total/NA	Analysis	537.1		1	94785	BS	EA SB	04/09/24 04:21

Client Sample ID: HALAWA WELLS UNITS 1 & 2 P1

Lab Sample ID: 380-89615-4

Date Collected: 04/01/24 10:13

Matrix: Drinking Water

Date Received: 04/03/24 10:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			95496	KB	EA SB	04/15/24 10:53
Total/NA	Analysis	533		1	95597	MH	EA SB	04/16/24 22:17
Total/NA	Prep	537.1 DW			94738	DB	EA SB	04/08/24 06:21
Total/NA	Analysis	537.1		1	94785	BS	EA SB	04/09/24 04:32

Client Sample ID: FB MOANALUA WELLS

Lab Sample ID: 380-89615-5

Date Collected: 04/01/24 09:48

Matrix: Water

Date Received: 04/03/24 10:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			94863	KB	EA SB	04/09/24 09:36
Total/NA	Analysis	533		1	95003	MH	EA SB	04/10/24 20:26
Total/NA	Prep	537.1 DW			95460	KM	EA SB	04/15/24 07:38
Total/NA	Analysis	537.1		1	95540	BS	EA SB	04/16/24 08:10

Lab Chronicle

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

Job ID: 380-89615-1

Client Sample ID: FB AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-89615-6

Date Collected: 04/01/24 10:41

Matrix: Water

Date Received: 04/03/24 10:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			94863	KB	EA SB	04/09/24 09:36
Total/NA	Analysis	533		1	95003	MH	EA SB	04/10/24 20:40
Total/NA	Prep	537.1 DW			95460	KM	EA SB	04/15/24 07:38
Total/NA	Analysis	537.1		1	95540	BS	EA SB	04/16/24 08:20

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

Lab Sample ID: 380-89615-7

Date Collected: 04/01/24 11:10

Matrix: Water

Date Received: 04/03/24 10:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			94863	KB	EA SB	04/09/24 09:36
Total/NA	Analysis	533		1	95003	MH	EA SB	04/10/24 20:54
Total/NA	Prep	537.1 DW			95453	DB	EA SB	04/15/24 07:45
Total/NA	Analysis	537.1		1	95530	BS	EA SB	04/15/24 23:42

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

Lab Sample ID: 380-89615-8

Date Collected: 04/01/24 10:13

Matrix: Water

Date Received: 04/03/24 10:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			94863	KB	EA SB	04/09/24 09:36
Total/NA	Analysis	533		1	95003	MH	EA SB	04/10/24 21:07
Total/NA	Prep	537.1 DW			95009	EM	EA SB	04/10/24 09:08
Total/NA	Analysis	537.1		1	95172	BS	EA SB	04/12/24 08:13

Laboratory References:

EA SB = Eurofins Eaton Analytical South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777

Accreditation/Certification Summary

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

Job ID: 380-89615-1

Laboratory: Eurofins Eaton Analytical South Bend

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	ISO/IEC 17025	5794.01	07-31-24
Alabama	State	40700	06-30-24
Alaska	State	IN00035	06-30-24
Arizona	State	AZ0432	07-26-24
Arkansas (DW)	State	EPA IN00035	06-30-24
California	State	2920	06-30-24
Colorado	State	IN00035	02-28-25
Connecticut	State	PH-0132	03-31-26
Delaware (DW)	State	IN00035	06-30-24
Florida	NELAP	E87775	06-30-24
Georgia (DW)	State	929	06-30-24
Guam	State	23-011R	07-15-24
Hawaii	State	IN035	06-30-24
Idaho (DW)	State	IN00035	12-31-24
IL Dept. of Public Health (Micro)	State	17767	07-01-24
Illinois	NELAP	200001	09-19-24
Indiana	State	C-71-01	12-31-25
Indiana (Micro)	State	M-76-07	12-31-25
Iowa	State	IA Lab #098	11-01-25
Kansas	NELAP	E-10233	10-31-24
Kentucky (DW)	State	KY90056	12-31-24
Louisiana (DW)	State	LA014	12-31-24
Maine	State	IN00035	05-01-25
Maryland	State	209	06-30-24
Massachusetts	State	M-IN035	06-30-24
MI - RadChem Recognition	State	9926	06-30-24
Michigan	State	9926	06-30-24
Minnesota	NELAP	1989807	12-31-24
Mississippi	State	IN00035	06-30-24
Missouri	State	880	09-30-24
Montana (DW)	State	CERT0026	01-01-25
Nebraska	State	NE-OS-05-04	06-30-24
Nevada	State	IN000352024-01	07-31-24
New Hampshire	NELAP	2124	11-05-24
New Jersey	NELAP	IN598	06-30-24
New Mexico	State	IN00035	06-30-24
New York	NELAP	11398	04-01-25
North Carolina (DW)	State	18700	07-31-24
North Dakota	State	R-035	06-30-24
Northern Mariana Islands (DW)	State	IN00035	06-30-24
Ohio	State	87775	06-30-24
Oklahoma	NELAP	D9508	08-31-24
Oregon	NELAP	4156	09-16-24
Pennsylvania	NELAP	68-00466	04-30-25
Puerto Rico	State	IN00035	04-01-25
Rhode Island	State	LAO00343	12-30-24
South Carolina	State	95005001	07-01-25
South Dakota (DW)	State	IN00035	06-30-24
Tennessee	State	TN02973	06-30-24
Texas	NELAP	T104704187-22-16	12-31-24

Accreditation/Certification Summary

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

Job ID: 380-89615-1

Laboratory: Eurofins Eaton Analytical South Bend (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Texas	TCEQ Water Supply	TX207	06-30-24
USEPA Reg X SDWA	US Federal Programs	IN00035	08-24-24
USEPA UCMR 5	US Federal Programs	IN00035	12-31-25
Utah	NELAP	IN00035	07-31-24
Vermont	State	VT-8775	11-15-24
Virginia	NELAP	460275	03-14-25
Washington	State	C837	01-01-25
West Virginia (DW)	State	9927 C	01-31-25
Wisconsin	State	999766900	08-31-24
Wisconsin (Micro)	State	10121	12-31-24
Wyoming	State	8TMS-L	06-30-24

Method Summary

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

Job ID: 380-89615-1

Method	Method Description	Protocol	Laboratory
533	Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water	EPA	EA SB
537.1	Perfluorinated Alkyl Acids (LC/MS)	EPA	EA SB
533	Extraction of Perfluorinated and Polyfluorinated Alkyl Acids	EPA	EA SB
537.1 DW	Extraction of Perfluorinated Alkyl Acids	EPA	EA SB

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EA SB = Eurofins Eaton Analytical South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777



Sample Summary

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

Job ID: 380-89615-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
380-89615-1	MOANALUA WELLS	Water	04/01/24 09:48	04/03/24 10:10
380-89615-2	AIEA GULCH WELLS PUMP 2	Drinking Water	04/01/24 10:41	04/03/24 10:10
380-89615-3	AIEA WELLS PUMPS 1&2 (260) P2	Drinking Water	04/01/24 11:10	04/03/24 10:10
380-89615-4	HALAWA WELLS UNITS 1 & 2 P1	Drinking Water	04/01/24 10:13	04/03/24 10:10
380-89615-5	FB MOANALUA WELLS	Water	04/01/24 09:48	04/03/24 10:10
380-89615-6	FB AIEA GULCH WELLS PUMP 2	Water	04/01/24 10:41	04/03/24 10:10
380-89615-7	FB AIEA WELLS PUMPS 1&2 (260) P2	Water	04/01/24 11:10	04/03/24 10:10
380-89615-8	FB HALAWA WELLS UNITS 1 & 2 P1	Water	04/01/24 10:13	04/03/24 10:10

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

Chain of Custody Record



Client Information		Lab PM Arada Rachelle	Carrier Tracking Note(s)	COC No 380-27941-2757 2
Client Contact: Dr Ron Fenstermacher		E-Mail Rachelle.Arada@et.eurofins.com	State of Origin	Page Page 4 of 4
Company City & County of Honolulu		PWSID	Job #	
Address 630 South Beretania Street Chemistry Lab		Analysis Requested		
City Honolulu		Total Number of Containers		
State Zip HI 96843		Preservation Codes		
Phone 808-748-5091 (tel)		A HCL M Hexane B NaOH N None C Zn Acetate O AsNaO2 D Nitric Acid P Na2O4S E NaHSO4 R Na2SO3 F MeOH S H2SO4 G Amchlor T TSP Dodecahydrate H Ascorbic Acid U Acetone I Ice V MCAA J DI Water W pH 4-5 K EDTA Y Tozma L EDA Z other (specify)		
Email rfenstermacher@hbws.org		Other		
Project Name RED-HILL/HBWS sites Event Desc. RUSH Weekly Red Hill		Special Instructions/Note:		
Site SSO#		chlorinated		
Sample Identification		chlorinated		
MOANALUA WELLS	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Soil, On-water, Soil-tissue, Air)
AIEA GULCH WELLS PUMP2	1-Apr-2024		Water	Water
AIEA WELLS PUMPS 1&2 (260)	1-Apr-2024		Water	Water
HALAWA WELLS UNITS 1&2	1-Apr-2024		Water	Water
FB MOANALUA WELLS	1-Apr-2024		Water	Water
FB AIEA GULCH WELLS PUMP2	1-Apr-2024		Water	Water
FB AIEA WELLS PUMPS 1&2 (260)	1-Apr-2024		Water	Water
FB HALAWA WELLS UNITS 1&2	1-Apr-2024		Water	Water
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological				
Deliverable Requested I II III IV Other (specify)				
Empty Kit Relinquished by				
Relinquished by				
Relinquished by				
Relinquished by				
Custody Seals Intact <input type="checkbox"/> Yes <input type="checkbox"/> No				
Custody Seal No				



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

Chain of Custody Record



Client Information		Lab PM Arada Rachelle	Carrier Tracking Note(s)	COC No 380-27941-2757 2
Client Contact: Dr Ron Fenstermacher		E-Mail Rachelle.Arada@et.eurofins.com	State of Origin	Page Page 4 of 4
Company City & County of Honolulu		PWSID	Job #	
Address 630 South Beretania Street Chemistry Lab		Analysis Requested		
City Honolulu		Total Number of Containers		
State Zip HI 96843		Preservation Codes		
Phone 808-748-5091 (tel)		A HCL M Hexane B NaOH N None C Zn Acetate O AsNaO2 D Nitric Acid P Na2O4S E NaHSO4 R Na2SO3 F MeOH S H2SO4 G Amchlor T TSP Dodecahydrate H Ascorbic Acid U Acetone I Ice V MCAA J DI Water W pH 4-5 K EDTA Y Toxma L EDA Z other (specify)		
Email rfenstermacher@hbws.org		Other		
Project Name RED-HILL/HBWS sites Event Desc. RUSH Weekly Red Hill		Special Instructions/Note:		
Site SSO#		chlorinated		
Sample Identification		chlorinated		
MOANALUA WELLS	Sample Date 1-Apr-2024	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (H=water, S=solid, O=water/sol)
AIEA GULCH WELLS PUMP2	1-Apr-2024		Water	Water
AIEA WELLS PUMPS 1&2 (260)	1-Apr-2024		Water	Water
HALAWA WELLS UNITS 1&2	1-Apr-2024		Water	Water
FB MOANALUA WELLS	1-Apr-2024		Water	Water
FB AIEA GULCH WELLS PUMP2	1-Apr-2024		Water	Water
FB AIEA WELLS PUMPS 1&2 (260)	1-Apr-2024		Water	Water
FB HALAWA WELLS UNITS 1&2	1-Apr-2024		Water	Water
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological				
Deliverable Requested I II III IV Other (specify)				
Empty Kit Relinquished by				
Relinquished by				
Relinquished by				
Relinquished by				
Custody Seals Intact <input type="checkbox"/> Yes <input type="checkbox"/> No				
Custody Seal No				



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



Chain of Custody Record

Environment Testing
 America

Client Information Client Contact: Dr. Ron Fenstermacher Company: City & County of Honolulu Address: 630 South Beretania Street, Chemistry Lab City: Honolulu State, Zip: HI, 96843 Phone: 808-748-5091 (tel) Email: rfenstermacher@hbws.org Project Name: RED-HILL/HBWS sites Event Desc: RUSH Weekly Red Hill Site:		Lab PM: Arada, Rachelle E-Mail: Rachelle.Arada@et.euronisus.com Carrier Tracking No(s): State of Origin:		COC No: 380-27941-2757.2 Page 4 of 4 Job #:	
Due Date Requested: (AT Requested (days): Compliance Project: <input type="checkbox"/> No PO #: C20525101 exp 05312023 WO #:		Analysis Requested Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> SUBCONTRACT - 625 PAH Physia LL (EAL) + TICs 80158_GRO_LL - (MOD) GRO 80158_DRD_LL_CS - HNL Ranges: C10-C24/C24-C36/C8-C18 626.2_PREC - (MOD) 626plus PLUS TICs 537.1_DM_PREC - 537.1 Full List 533 - All Analytes		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - NaHSO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Y - Trizma Z - other (specify) Other:	
Sample Identification MOANALUA WELLS AIEA GULCH WELLS PUMP2 AIEA WELLS PUMPS 1&2 (260) PZ 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		Sample Date 1-A-pr-2024 1-A-pr-2024 1-A-pr-2024 1-A-pr-2024 1-A-pr-2024 1-A-pr-2024 1-A-pr-2024 1-A-pr-2024		Sample Time 0948 1041 1110 1013 0948 1041 1110 1013	
Sample Type (C=Comp, G=grab) G G G G G G G G		Matrix (Water, Sewage, On-wash, Oil, Tissue, Air, etc) Water Water Water Water Water Water Water Water		Preservation Code: Y N 3 3 3 3 1 1 1 1	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/Note: chlorinated chlorinated		Total Number of Containers	
Empty Kit Relinquished by:		Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For <input type="checkbox"/> Months		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
Relinquished by: <i>bailey</i> Date: 02/20/2024 Relinquished by:		Received by: <i>G. RETNER</i> Date/Time: 04/03/2024 10:10 Received by:		Method of Shipment: <i>FedEx</i> Special Instructions/QC Requirements: 1) 7757 9103 7557 2) 7757 9103 7568 3) 7757 9103 7579	
Relinquished by:		Received by:		Date/Time:	
Relinquished by:		Received by:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: (FSTA) 2.6-0.1-2.5-0.2-2.8-0.1-2.7-0.3-1.4-0.1-1.3-0.5-0.2-0.1-1.6-2019	



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



Chain of Custody Record

Environment Testing
 America

Client Information
 Client Contact: Dr. Ron Fenstermacher
 Phone: 808-748-5840
 E-Mail: Rachelle.Arada@et.euronisus.com
 City & County of Honolulu
 Address: 630 South Beretania Street, Chemistry Lab
 City: Honolulu
 State, Zip: HI, 96843
 Phone: 808-748-5091 (tel)
 Email: r Fenstermacher@hbws.org
 Project Name: RED-HILL/HBWS sites Event Desc: RUSH Weekly Red Hill
 Site:

Lab PM: Arada, Rachelle
E-Mail: Rachelle.Arada@et.euronisus.com
Carrier Tracking No(s):
State of Origin:

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Sewer, On-wash, Oil)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	R	A	Q	Y	N	Special Instructions/Note:
MOANALUA WELLS	1-A-pr-2024	0948	G	Water						537.1, DM, PREC - 537.1 Full List		chlorinated
AIEA GULCH WELLS PUMP2	1-A-pr-2024	1041	G	Water						526.2, PREC - (MOD) 526.1us PLUS TICs		chlorinated
AIEA WELLS PUMPS 1&2 (260) P2	1-A-pr-2024	1110	G	Water						80158_DRD_LL_CS - HNL Ranges: C10-C24/C24-C36/C8-C18		
HALAWA WELLS UNITS 1&2 P1	1-A-pr-2024	1013	G	Water						80158_GRO_LL - (MOD) GRO		
FB MOANALUA WELLS	1-A-pr-2024	0948		Water						SUBCONTRACT - 625 PAH Physia LL (EAL) + TICs		
FB AIEA GULCH WELLS PUMP2	1-A-pr-2024	1041		Water								
FB AIEA WELLS PUMPS 1&2 (260)	1-A-pr-2024	1110		Water								
FB HALAWA WELLS UNITS 1&2	1-A-pr-2024	1013		Water								

Preservation Codes:
 M - Hexane
 N - None
 O - AsNaO2
 P - Na2O4S
 Q - Na2SO3
 R - NaHSO4
 S - H2SO4
 T - TSP Dodecahydrate
 U - Acetone
 V - MCAA
 W - pH 4.5
 Y - Trizma
 Z - other (specify)
 Other:

Special Instructions/Note:
 chlorinated
 chlorinated

Field Filtered Sample (Yes or No)
Perform MS/MSD (Yes or No)
Subcontract - 625 PAH Physia LL (EAL) + TICs
80158_GRO_LL - (MOD) GRO
80158_DRD_LL_CS - HNL Ranges: C10-C24/C24-C36/C8-C18
526.2, PREC - (MOD) 526.1us PLUS TICs
537.1, DM, PREC - 537.1 Full List
533 - All Analytes

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client
 Disposal By Lab
 Archive For _____ Months
 Special Instructions/QC Requirements:
 1) 7757 9103 7557
 2) 7757 9103 7568
 3) 7757 9103 7579

Possible Hazard Identification
 Non-Hazard
 Flammable
 Skin Irritant
 Poison B
 Unknown
 Radiological
 Deliverable Requested: I, II, III, IV, Other (specify)

Empty Kit Relinquished by:
 Relinquished by: *bailey*
 Date: 02/20/2024
 Company: HBWS
 Relinquished by: *bailey*
 Date: 02/20/2024
 Company: HBWS
 Relinquished by:
 Date:
 Company:

Method of Shipment: *FedEx*
 Date/Time: 04/03/2024 10:10
 Company: *EEAR*

Custody Seal No.:
 Yes No
 Cooler Temperature(s) °C and Other Remarks:
 (FSTA) 2.6 °C, 1.2 = 2.5 °C, 2.8 °C, 0.1 = 2.7 °C, 1.4 °C, 0.1 = 1.3 °C
 Ver: 01/16/2019



Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-89615-1

Login Number: 89615
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	

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-89615-1

Login Number: 89615
List Number: 2
Creator: Williams, Kameron

List Source: Eurofins Eaton Analytical South Bend
List Creation: 04/05/24 12:45 PM

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	Initial Temp: 1.4; Corrected Temp: 0.6
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	False	Client provided containers

