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ANALYTICAL REPORT

PREPARED FOR

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City & County of Honolulu
630 South Beretania Street
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Honolulu, Hawaii 96843

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JOB DESCRIPTION

RED-HILL
PFAS: Moanalua Wells

JOB NUMBER

380-190175-1

Eurofins Pomona

Job Notes

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

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



Authorized for release by
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Definitions/Glossary

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

Qualifiers

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

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

Job ID: 380-190175-1

Job ID: 380-190175-1

Eurofins Pomona

Job Narrative 380-190175-1

The analytical test results presented in this report meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page, unless otherwise noted. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable. Regulated compliance samples (e.g. SDWA, NPDES) must comply with associated agency requirements/permits.

- Matrix-specific batch QC (e.g., MS, MSD, SD) may not be reported when insufficient sample volume is available or when site-specific QC samples are not submitted. In such cases, a Laboratory Control Sample Duplicate (LCSD) may be analyzed to provide precision data for the batch.
- For samples analyzed using surrogate and/or isotope dilution analytes, any recoveries falling outside of established acceptance criteria are re-prepared and/or re-analyzed to confirm results, unless the deviation is due to sample dilution or otherwise explained in the case narrative.

Receipt

The samples were received on 12/31/2025 9:57 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.3°C and 1.9°C.

PFAS

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

Detection Summary

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

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

Lab Sample ID: 380-190175-1

No Detections.

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

Lab Sample ID: 380-190175-2

No Detections.

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This Detection Summary does not include radiochemical test results.

Client Sample Results

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

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

Lab Sample ID: 380-190175-1

Date Collected: 12/29/25 09:52

Matrix: Drinking Water

Date Received: 12/31/25 09:57

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		01/02/26 17:53	01/03/26 17:13	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		01/02/26 17:53	01/03/26 17:13	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		01/02/26 17:53	01/03/26 17:13	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		01/02/26 17:53	01/03/26 17:13	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		01/02/26 17:53	01/03/26 17:13	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		01/02/26 17:53	01/03/26 17:13	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		01/02/26 17:53	01/03/26 17:13	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		01/02/26 17:53	01/03/26 17:13	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		01/02/26 17:53	01/03/26 17:13	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		01/02/26 17:53	01/03/26 17:13	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		01/02/26 17:53	01/03/26 17:13	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		01/02/26 17:53	01/03/26 17:13	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		01/02/26 17:53	01/03/26 17:13	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		01/02/26 17:53	01/03/26 17:13	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		01/02/26 17:53	01/03/26 17:13	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		01/02/26 17:53	01/03/26 17:13	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		01/02/26 17:53	01/03/26 17:13	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		01/02/26 17:53	01/03/26 17:13	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		01/02/26 17:53	01/03/26 17:13	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L		01/02/26 17:53	01/03/26 17:13	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		01/02/26 17:53	01/03/26 17:13	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		01/02/26 17:53	01/03/26 17:13	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		01/02/26 17:53	01/03/26 17:13	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		01/02/26 17:53	01/03/26 17:13	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		01/02/26 17:53	01/03/26 17:13	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	87		50 - 200	01/02/26 17:53	01/03/26 17:13	1
13C6 PFDA	99		50 - 200	01/02/26 17:53	01/03/26 17:13	1
13C5 PFHxA	99		50 - 200	01/02/26 17:53	01/03/26 17:13	1
13C4 PFHpA	95		50 - 200	01/02/26 17:53	01/03/26 17:13	1
13C8 PFOA	99		50 - 200	01/02/26 17:53	01/03/26 17:13	1
13C9 PFNA	100		50 - 200	01/02/26 17:53	01/03/26 17:13	1
13C7 PFUnA	100		50 - 200	01/02/26 17:53	01/03/26 17:13	1
13C2 PFDoA	97		50 - 200	01/02/26 17:53	01/03/26 17:13	1
13C4 PFBA	102		50 - 200	01/02/26 17:53	01/03/26 17:13	1
13C5 PFPeA	105		50 - 200	01/02/26 17:53	01/03/26 17:13	1
13C3 PFBS	97		50 - 200	01/02/26 17:53	01/03/26 17:13	1
13C3 PFHxS	98		50 - 200	01/02/26 17:53	01/03/26 17:13	1
13C8 PFOS	100		50 - 200	01/02/26 17:53	01/03/26 17:13	1

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Client Sample Results

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

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

Lab Sample ID: 380-190175-1

Date Collected: 12/29/25 09:52

Matrix: Drinking Water

Date Received: 12/31/25 09:57

PWSID Number: HI0000331

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2-4:2-FTS	126		50 - 200	01/02/26 17:53	01/03/26 17:13	1
13C2-6:2-FTS	116		50 - 200	01/02/26 17:53	01/03/26 17:13	1
13C2-8:2-FTS	110		50 - 200	01/02/26 17:53	01/03/26 17:13	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:06	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:06	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:06	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:06	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:06	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:06	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:06	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:06	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:06	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:06	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:06	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:06	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:06	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:06	1
Perfluorotridecanoic acid (PFTTrDA)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:06	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:06	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:06	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	114		70 - 130	01/02/26 02:20	01/02/26 19:06	1
13C2 PFHxA	121		70 - 130	01/02/26 02:20	01/02/26 19:06	1
13C2 PFDA	117		70 - 130	01/02/26 02:20	01/02/26 19:06	1
13C3-GenX	113		70 - 130	01/02/26 02:20	01/02/26 19:06	1

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

Lab Sample ID: 380-190175-2

Date Collected: 12/29/25 09:52

Matrix: Water

Date Received: 12/31/25 09:57

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		01/02/26 06:37	01/02/26 22:57	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		01/02/26 06:37	01/02/26 22:57	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		01/02/26 06:37	01/02/26 22:57	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		01/02/26 06:37	01/02/26 22:57	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		01/02/26 06:37	01/02/26 22:57	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		01/02/26 06:37	01/02/26 22:57	1

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Client Sample Results

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

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

Lab Sample ID: 380-190175-2

Date Collected: 12/29/25 09:52

Matrix: Water

Date Received: 12/31/25 09:57

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		01/02/26 06:37	01/02/26 22:57	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		01/02/26 06:37	01/02/26 22:57	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		01/02/26 06:37	01/02/26 22:57	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		01/02/26 06:37	01/02/26 22:57	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		01/02/26 06:37	01/02/26 22:57	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		01/02/26 06:37	01/02/26 22:57	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		01/02/26 06:37	01/02/26 22:57	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		01/02/26 06:37	01/02/26 22:57	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		01/02/26 06:37	01/02/26 22:57	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		01/02/26 06:37	01/02/26 22:57	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		01/02/26 06:37	01/02/26 22:57	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		01/02/26 06:37	01/02/26 22:57	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		01/02/26 06:37	01/02/26 22:57	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L		01/02/26 06:37	01/02/26 22:57	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		01/02/26 06:37	01/02/26 22:57	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		01/02/26 06:37	01/02/26 22:57	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		01/02/26 06:37	01/02/26 22:57	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		01/02/26 06:37	01/02/26 22:57	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		01/02/26 06:37	01/02/26 22:57	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	84		50 - 200	01/02/26 06:37	01/02/26 22:57	1
13C6 PFDA	103		50 - 200	01/02/26 06:37	01/02/26 22:57	1
13C5 PFHxA	105		50 - 200	01/02/26 06:37	01/02/26 22:57	1
13C4 PFHpA	100		50 - 200	01/02/26 06:37	01/02/26 22:57	1
13C8 PFOA	107		50 - 200	01/02/26 06:37	01/02/26 22:57	1
13C9 PFNA	107		50 - 200	01/02/26 06:37	01/02/26 22:57	1
13C7 PFUnA	105		50 - 200	01/02/26 06:37	01/02/26 22:57	1
13C2 PFDoA	103		50 - 200	01/02/26 06:37	01/02/26 22:57	1
13C4 PFBA	107		50 - 200	01/02/26 06:37	01/02/26 22:57	1
13C5 PFPeA	112		50 - 200	01/02/26 06:37	01/02/26 22:57	1
13C3 PFBS	99		50 - 200	01/02/26 06:37	01/02/26 22:57	1
13C3 PFHxS	108		50 - 200	01/02/26 06:37	01/02/26 22:57	1
13C8 PFOS	106		50 - 200	01/02/26 06:37	01/02/26 22:57	1
13C2-4:2-FTS	121		50 - 200	01/02/26 06:37	01/02/26 22:57	1
13C2-6:2-FTS	123		50 - 200	01/02/26 06:37	01/02/26 22:57	1
13C2-8:2-FTS	118		50 - 200	01/02/26 06:37	01/02/26 22:57	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:15	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:15	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:15	1

Eurofins Pomona

Client Sample Results

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

Job ID: 380-190175-1
 SDG: PFAS: Moanalua Wells

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

Lab Sample ID: 380-190175-2

Date Collected: 12/29/25 09:52

Matrix: Water

Date Received: 12/31/25 09:57

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:15	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:15	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:15	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:15	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:15	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:15	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:15	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:15	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:15	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:15	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:15	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:15	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:15	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:15	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		01/02/26 02:20	01/02/26 19:15	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	101		70 - 130			01/02/26 02:20	01/02/26 19:15	1
13C2 PFHxA	107		70 - 130			01/02/26 02:20	01/02/26 19:15	1
13C2 PFDA	105		70 - 130			01/02/26 02:20	01/02/26 19:15	1
13C3-GenX	99		70 - 130			01/02/26 02:20	01/02/26 19:15	1

Action Limit Summary

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

Job ID: 380-190175-1
 SDG: PFAS: Moanalua Wells

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

Lab Sample ID: 380-190175-1

PWSID Number: HI0000331

Compliance Check

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

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

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

Lab Sample ID: 380-190175-2

PWSID Number: HI0000331

Compliance Check

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

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

Surrogate Summary

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

Job ID: 380-190175-1
 SDG: PFAS: Moanalua Wells

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

Matrix: Drinking Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		d5NEFOS (70-130)	PFHxA (70-130)	PFDA (70-130)	GenX (70-130)
380-190175-1	MOANALUA WELLS (331-223-TP202)	114	121	117	113

Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		d5NEFOS (70-130)	PFHxA (70-130)	PFDA (70-130)	GenX (70-130)
380-190078-B-1-A MS	Matrix Spike	106	118	109	109
380-190078-C-1-A MSD	Matrix Spike Duplicate	113	114	108	109
380-190175-2	FB MOANALUA WELLS (331-223-TP202)	101	107	105	99
LCS 380-195448/22-A	Lab Control Sample	102	105	107	95
MBL 380-195448/20-A	Method Blank	106	110	111	104
MRL 380-195448/21-A	Lab Control Sample	110	119	109	109

Surrogate Legend

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

Isotope Dilution Summary

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

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)
380-190175-1	MOANALUA WELLS (331-223-TP20)	87	99	99	95	99	100	100	97

		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)
380-190175-1	MOANALUA WELLS (331-223-TP20)	102	105	97	98	100	126	116	110

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 PFDaA
- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- C3PFBS = 13C3 PFBS
- C3PFHS = 13C3 PFHxS
- C8PFOS = 13C8 PFOS
- 42FTS = 13C2-4:2-FTS
- 62FTS = 13C2-6:2-FTS
- 82FTS = 13C2-8:2-FTS

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

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	HFPODA (50-200)	C6PFDA (50-200)	13C5PHA (50-200)	C4PFHA (50-200)	C8PFOA (50-200)	C9PFNA (50-200)	13C7PUA (50-200)	PFDoA (50-200)
380-189915-B-1-A MS	Matrix Spike	95	104	106	103	106	107	105	104
380-189915-B-1-B MSD	Matrix Spike Duplicate	91	101	99	96	103	100	98	100
380-190175-2	FB MOANALUA WELLS (331-223-TP202)	84	103	105	100	107	107	105	103
380-190182-E-1-A MS	Matrix Spike	97	107	105	97	103	107	108	103
380-190182-F-1-A MSD	Matrix Spike Duplicate	94	100	97	95	96	101	103	100
LCS 380-195460/24-A	Lab Control Sample	100	104	102	100	102	101	108	101
LCS 380-195601/22-A	Lab Control Sample	94	107	107	102	103	105	104	105
MBL 380-195460/22-A	Method Blank	87	98	102	105	104	101	104	100
MBL 380-195601/20-A	Method Blank	89	103	104	101	105	106	100	102
MRL 380-195460/23-A	Lab Control Sample	87	99	94	99	102	101	99	98
MRL 380-195601/21-A	Lab Control Sample	89	100	106	101	100	106	101	103

		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)
380-189915-B-1-A MS	Matrix Spike	101	102	100	103	103	111	109	107
380-189915-B-1-B MSD	Matrix Spike Duplicate	103	103	99	101	102	112	114	105
380-190175-2	FB MOANALUA WELLS (331-223-TP202)	107	112	99	108	106	121	123	118
380-190182-E-1-A MS	Matrix Spike	99	101	101	102	105	116	107	105

Eurofins Pomona

Isotope Dilution Summary

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

Job ID: 380-190175-1
 SDG: PFAS: Moanalua Wells

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA (50-200)	PFPeA (50-200)	C3PFBS (50-200)	C3PFHS (50-200)	C8PFOS (50-200)	42FTS (50-200)	62FTS (50-200)	82FTS (50-200)
380-190182-F-1-A MSD	Matrix Spike Duplicate	103	103	103	105	102	118	111	105
LCS 380-195460/24-A	Lab Control Sample	104	104	103	104	101	113	113	105
LCS 380-195601/22-A	Lab Control Sample	99	99	103	100	102	109	106	105
MBL 380-195460/22-A	Method Blank	102	107	105	102	102	116	112	106
MBL 380-195601/20-A	Method Blank	103	105	95	107	105	120	114	107
MRL 380-195460/23-A	Lab Control Sample	101	105	98	102	101	117	109	106
MRL 380-195601/21-A	Lab Control Sample	104	103	100	101	104	112	112	108

Surrogate Legend

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

QC Sample Results

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

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

Lab Sample ID: MBL 380-195460/22-A
Matrix: Water
Analysis Batch: 195607

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 195460

Analyte	MBL	MBL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		01/02/26 06:37	01/02/26 20:15	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		01/02/26 06:37	01/02/26 20:15	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		01/02/26 06:37	01/02/26 20:15	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		01/02/26 06:37	01/02/26 20:15	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		01/02/26 06:37	01/02/26 20:15	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		01/02/26 06:37	01/02/26 20:15	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		01/02/26 06:37	01/02/26 20:15	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		01/02/26 06:37	01/02/26 20:15	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		01/02/26 06:37	01/02/26 20:15	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		01/02/26 06:37	01/02/26 20:15	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		01/02/26 06:37	01/02/26 20:15	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		01/02/26 06:37	01/02/26 20:15	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		01/02/26 06:37	01/02/26 20:15	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		01/02/26 06:37	01/02/26 20:15	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		01/02/26 06:37	01/02/26 20:15	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		01/02/26 06:37	01/02/26 20:15	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		01/02/26 06:37	01/02/26 20:15	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		01/02/26 06:37	01/02/26 20:15	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		01/02/26 06:37	01/02/26 20:15	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0	ng/L		01/02/26 06:37	01/02/26 20:15	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		01/02/26 06:37	01/02/26 20:15	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		01/02/26 06:37	01/02/26 20:15	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		01/02/26 06:37	01/02/26 20:15	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		01/02/26 06:37	01/02/26 20:15	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		01/02/26 06:37	01/02/26 20:15	1

Isotope Dilution	MBL	MBL	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 HFPO-DA	87		50 - 200	01/02/26 06:37	01/02/26 20:15	1
13C6 PFDA	98		50 - 200	01/02/26 06:37	01/02/26 20:15	1
13C5 PFHxA	102		50 - 200	01/02/26 06:37	01/02/26 20:15	1
13C4 PFHpA	105		50 - 200	01/02/26 06:37	01/02/26 20:15	1
13C8 PFOA	104		50 - 200	01/02/26 06:37	01/02/26 20:15	1
13C9 PFNA	101		50 - 200	01/02/26 06:37	01/02/26 20:15	1
13C7 PFUnA	104		50 - 200	01/02/26 06:37	01/02/26 20:15	1
13C2 PFDoA	100		50 - 200	01/02/26 06:37	01/02/26 20:15	1
13C4 PFBA	102		50 - 200	01/02/26 06:37	01/02/26 20:15	1
13C5 PFPeA	107		50 - 200	01/02/26 06:37	01/02/26 20:15	1
13C3 PFBS	105		50 - 200	01/02/26 06:37	01/02/26 20:15	1
13C3 PFHxS	102		50 - 200	01/02/26 06:37	01/02/26 20:15	1

Eurofins Pomona

QC Sample Results

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

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

Lab Sample ID: MBL 380-195460/22-A
Matrix: Water
Analysis Batch: 195607

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 195460

<i>Isotope Dilution</i>	<i>MBL</i>	<i>MBL</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
	<i>%Recovery</i>	<i>Qualifier</i>				
13C8 PFOS	102		50 - 200	01/02/26 06:37	01/02/26 20:15	1
13C2-4:2-FTS	116		50 - 200	01/02/26 06:37	01/02/26 20:15	1
13C2-6:2-FTS	112		50 - 200	01/02/26 06:37	01/02/26 20:15	1
13C2-8:2-FTS	106		50 - 200	01/02/26 06:37	01/02/26 20:15	1

Lab Sample ID: LCS 380-195460/24-A
Matrix: Water
Analysis Batch: 195607

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 195460

<i>Analyte</i>	<i>Spike</i>	<i>LCS</i>	<i>LCS</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec</i>
	<i>Added</i>	<i>Result</i>	<i>Qualifier</i>				<i>Limits</i>
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	120	101		ng/L		84	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	108		ng/L		90	70 - 130
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	120	113		ng/L		94	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	120	110		ng/L		92	70 - 130
Perfluorobutanesulfonic acid (PFBS)	120	116		ng/L		96	70 - 130
Perfluorodecanoic acid (PFDA)	120	114		ng/L		95	70 - 130
Perfluorododecanoic acid (PFDoA)	120	119		ng/L		99	70 - 130
Perfluoroheptanoic acid (PFHpA)	120	114		ng/L		95	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	120	113		ng/L		94	70 - 130
Perfluorohexanoic acid (PFHxA)	120	115		ng/L		96	70 - 130
Perfluorononanoic acid (PFNA)	120	117		ng/L		97	70 - 130
Perfluorooctanesulfonic acid (PFOS)	120	114		ng/L		95	70 - 130
Perfluorooctanoic acid (PFOA)	120	115		ng/L		96	70 - 130
Perfluoroundecanoic acid (PFUnA)	120	114		ng/L		95	70 - 130
Perfluorobutanoic acid (PFBA)	120	113		ng/L		94	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	120	118		ng/L		98	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	110		ng/L		91	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	120	115		ng/L		96	70 - 130
Nonafluoro-3,6-dioxiheptanoic acid (NFDHA)	120	123		ng/L		103	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	120	121		ng/L		101	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	120	117		ng/L		98	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	120	97.1		ng/L		81	70 - 130
Perfluoropentanoic acid (PFPeA)	120	118		ng/L		98	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	120	121		ng/L		100	70 - 130

QC Sample Results

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

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

Lab Sample ID: LCS 380-195460/24-A
Matrix: Water
Analysis Batch: 195607

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 195460

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanesulfonic acid (PFPeS)	120	114		ng/L		95	70 - 130
LCS LCS							
Isotope Dilution	%Recovery	Qualifier	Limits				
13C3 HFPO-DA	100		50 - 200				
13C6 PFDA	104		50 - 200				
13C5 PFHxA	102		50 - 200				
13C4 PFHpA	100		50 - 200				
13C8 PFOA	102		50 - 200				
13C9 PFNA	101		50 - 200				
13C7 PFUnA	108		50 - 200				
13C2 PFDoA	101		50 - 200				
13C4 PFBA	104		50 - 200				
13C5 PFPeA	104		50 - 200				
13C3 PFBS	103		50 - 200				
13C3 PFHxS	104		50 - 200				
13C8 PFOS	101		50 - 200				
13C2-4:2-FTS	113		50 - 200				
13C2-6:2-FTS	113		50 - 200				
13C2-8:2-FTS	105		50 - 200				

Lab Sample ID: MRL 380-195460/23-A
Matrix: Water
Analysis Batch: 195607

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 195460

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	1.87	J	ng/L		93	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	2.12	J	ng/L		106	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	1.99	J	ng/L		99	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	2.11	J	ng/L		105	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	2.28	J	ng/L		114	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.08	J	ng/L		104	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.19	J	ng/L		109	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.13	J	ng/L		106	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	2.16	J	ng/L		108	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.27	J	ng/L		113	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.10	J	ng/L		105	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	2.03	J	ng/L		102	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.09	J	ng/L		104	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.17	J	ng/L		108	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	2.25	J	ng/L		112	50 - 150

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QC Sample Results

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

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

Lab Sample ID: MRL 380-195460/23-A
Matrix: Water
Analysis Batch: 195607

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 195460

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	2.26	J	ng/L		113	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	2.23	J	ng/L		111	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	2.20	J	ng/L		110	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	2.21	J	ng/L		110	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.00	2.47	J	ng/L		123	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	2.08	J	ng/L		104	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	1.76	J	ng/L		88	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	2.26	J	ng/L		113	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.00	2.08	J	ng/L		104	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.00	1.92	J	ng/L		96	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	MRL Limits
13C3 HFPO-DA	87		50 - 200
13C6 PFDA	99		50 - 200
13C5 PFHxA	94		50 - 200
13C4 PFHpA	99		50 - 200
13C8 PFOA	102		50 - 200
13C9 PFNA	101		50 - 200
13C7 PFUnA	99		50 - 200
13C2 PFDoA	98		50 - 200
13C4 PFBA	101		50 - 200
13C5 PFPeA	105		50 - 200
13C3 PFBS	98		50 - 200
13C3 PFHxS	102		50 - 200
13C8 PFOS	101		50 - 200
13C2-4:2-FTS	117		50 - 200
13C2-6:2-FTS	109		50 - 200
13C2-8:2-FTS	106		50 - 200

Lab Sample ID: 380-190182-E-1-A MS
Matrix: Water
Analysis Batch: 195607

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 195460

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		121	97.3		ng/L		81	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		121	102		ng/L		85	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		121	111		ng/L		92	70 - 130

QC Sample Results

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

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

Lab Sample ID: 380-190182-E-1-A MS

Client Sample ID: Matrix Spike

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 195607

Prep Batch: 195460

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
Hexafluoropropylene Oxide	<2.0		121	110		ng/L		91	70 - 130
Dimer Acid (HFPO-DA/GenX)									
Perfluorobutanesulfonic acid (PFBS)	<2.0		121	118		ng/L		98	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		121	113		ng/L		93	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		121	112		ng/L		93	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		121	112		ng/L		93	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		121	114		ng/L		94	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		121	110		ng/L		91	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		121	109		ng/L		91	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		121	110		ng/L		91	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		121	114		ng/L		94	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		121	114		ng/L		94	70 - 130
Perfluorobutanoic acid (PFBA)	<2.0		121	111		ng/L		92	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		121	112		ng/L		93	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		121	108		ng/L		89	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		121	121		ng/L		100	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		121	96.7		ng/L		80	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		121	120		ng/L		99	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		121	109		ng/L		90	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		121	89.6		ng/L		74	70 - 130
Perfluoropentanoic acid (PFPeA)	<2.0		121	113		ng/L		93	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		121	115		ng/L		95	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<2.0		121	113		ng/L		94	70 - 130

Isotope Dilution	MS MS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	97		50 - 200
13C6 PFDA	107		50 - 200
13C5 PFHxA	105		50 - 200
13C4 PFHpA	97		50 - 200
13C8 PFOA	103		50 - 200
13C9 PFNA	107		50 - 200
13C7 PFUnA	108		50 - 200
13C2 PFDoA	103		50 - 200
13C4 PFBA	99		50 - 200
13C5 PFPeA	101		50 - 200
13C3 PFBS	101		50 - 200
13C3 PFHxS	102		50 - 200
13C8 PFOS	105		50 - 200

QC Sample Results

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

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

Lab Sample ID: 380-190182-E-1-A MS

Matrix: Water

Analysis Batch: 195607

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 195460

<i>Isotope Dilution</i>	<i>MS</i>	<i>MS</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C2-4:2-FTS	116		50 - 200
13C2-6:2-FTS	107		50 - 200
13C2-8:2-FTS	105		50 - 200

Lab Sample ID: 380-190182-F-1-A MSD

Matrix: Water

Analysis Batch: 195607

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 195460

<i>Analyte</i>	<i>Sample</i>	<i>Sample</i>	<i>Spike</i>	<i>MSD</i>	<i>MSD</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec</i>	<i>RPD</i>	<i>RPD</i>
	<i>Result</i>	<i>Qualifier</i>	<i>Added</i>	<i>Result</i>	<i>Qualifier</i>			<i>Limits</i>	<i>Limits</i>	<i>Limit</i>	<i>Limit</i>
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		121	99.3		ng/L		82	70 - 130	2	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		121	106		ng/L		88	70 - 130	4	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		121	108		ng/L		90	70 - 130	2	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		121	112		ng/L		93	70 - 130	2	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		121	113		ng/L		94	70 - 130	4	30
Perfluorodecanoic acid (PFDA)	<2.0		121	113		ng/L		94	70 - 130	0	30
Perfluorododecanoic acid (PFDoA)	<2.0		121	110		ng/L		92	70 - 130	2	30
Perfluoroheptanoic acid (PFHpA)	<2.0		121	110		ng/L		91	70 - 130	2	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		121	107		ng/L		88	70 - 130	6	30
Perfluorohexanoic acid (PFHxA)	<2.0		121	112		ng/L		92	70 - 130	1	30
Perfluorononanoic acid (PFNA)	<2.0		121	111		ng/L		92	70 - 130	1	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		121	111		ng/L		92	70 - 130	1	30
Perfluorooctanoic acid (PFOA)	<2.0		121	115		ng/L		95	70 - 130	1	30
Perfluoroundecanoic acid (PFUnA)	<2.0		121	113		ng/L		94	70 - 130	1	30
Perfluorobutanoic acid (PFBA)	<2.0		121	109		ng/L		91	70 - 130	2	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		121	115		ng/L		95	70 - 130	2	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		121	107		ng/L		89	70 - 130	1	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		121	112		ng/L		93	70 - 130	8	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		121	106		ng/L		88	70 - 130	9	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		121	120		ng/L		100	70 - 130	0	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		121	110		ng/L		91	70 - 130	2	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		121	97.5		ng/L		81	70 - 130	9	30
Perfluoropentanoic acid (PFPeA)	<2.0		121	112		ng/L		93	70 - 130	0	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		121	114		ng/L		95	70 - 130	0	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0		121	108		ng/L		89	70 - 130	5	30

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QC Sample Results

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

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

Isotope Dilution	MSD MSD		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	94		50 - 200
13C6 PFDA	100		50 - 200
13C5 PFHxA	97		50 - 200
13C4 PFHpA	95		50 - 200
13C8 PFOA	96		50 - 200
13C9 PFNA	101		50 - 200
13C7 PFUnA	103		50 - 200
13C2 PFDoA	100		50 - 200
13C4 PFBA	103		50 - 200
13C5 PFPeA	103		50 - 200
13C3 PFBS	103		50 - 200
13C3 PFHxS	105		50 - 200
13C8 PFOS	102		50 - 200
13C2-4:2-FTS	118		50 - 200
13C2-6:2-FTS	111		50 - 200
13C2-8:2-FTS	105		50 - 200

Lab Sample ID: MBL 380-195601/20-A

Matrix: Water

Analysis Batch: 195630

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 195601

Analyte	MBL	MBL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		01/02/26 17:53	01/03/26 13:24	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		01/02/26 17:53	01/03/26 13:24	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		01/02/26 17:53	01/03/26 13:24	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		01/02/26 17:53	01/03/26 13:24	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		01/02/26 17:53	01/03/26 13:24	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		01/02/26 17:53	01/03/26 13:24	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		01/02/26 17:53	01/03/26 13:24	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		01/02/26 17:53	01/03/26 13:24	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		01/02/26 17:53	01/03/26 13:24	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		01/02/26 17:53	01/03/26 13:24	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		01/02/26 17:53	01/03/26 13:24	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		01/02/26 17:53	01/03/26 13:24	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		01/02/26 17:53	01/03/26 13:24	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		01/02/26 17:53	01/03/26 13:24	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		01/02/26 17:53	01/03/26 13:24	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		01/02/26 17:53	01/03/26 13:24	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		01/02/26 17:53	01/03/26 13:24	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		01/02/26 17:53	01/03/26 13:24	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		01/02/26 17:53	01/03/26 13:24	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0	ng/L		01/02/26 17:53	01/03/26 13:24	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		01/02/26 17:53	01/03/26 13:24	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		01/02/26 17:53	01/03/26 13:24	1

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QC Sample Results

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

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

Lab Sample ID: MBL 380-195601/20-A

Matrix: Water

Analysis Batch: 195630

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 195601

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		01/02/26 17:53	01/03/26 13:24	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		01/02/26 17:53	01/03/26 13:24	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		01/02/26 17:53	01/03/26 13:24	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	89		50 - 200	01/02/26 17:53	01/03/26 13:24	1
13C6 PFDA	103		50 - 200	01/02/26 17:53	01/03/26 13:24	1
13C5 PFHxA	104		50 - 200	01/02/26 17:53	01/03/26 13:24	1
13C4 PFHpA	101		50 - 200	01/02/26 17:53	01/03/26 13:24	1
13C8 PFOA	105		50 - 200	01/02/26 17:53	01/03/26 13:24	1
13C9 PFNA	106		50 - 200	01/02/26 17:53	01/03/26 13:24	1
13C7 PFUnA	100		50 - 200	01/02/26 17:53	01/03/26 13:24	1
13C2 PFDoA	102		50 - 200	01/02/26 17:53	01/03/26 13:24	1
13C4 PFBA	103		50 - 200	01/02/26 17:53	01/03/26 13:24	1
13C5 PFPeA	105		50 - 200	01/02/26 17:53	01/03/26 13:24	1
13C3 PFBS	95		50 - 200	01/02/26 17:53	01/03/26 13:24	1
13C3 PFHxS	107		50 - 200	01/02/26 17:53	01/03/26 13:24	1
13C8 PFOS	105		50 - 200	01/02/26 17:53	01/03/26 13:24	1
13C2-4:2-FTS	120		50 - 200	01/02/26 17:53	01/03/26 13:24	1
13C2-6:2-FTS	114		50 - 200	01/02/26 17:53	01/03/26 13:24	1
13C2-8:2-FTS	107		50 - 200	01/02/26 17:53	01/03/26 13:24	1

Lab Sample ID: LCS 380-195601/22-A

Matrix: Water

Analysis Batch: 195630

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 195601

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	120	101		ng/L		84	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	107		ng/L		89	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	120	112		ng/L		93	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	120	114		ng/L		95	70 - 130
Perfluorobutanesulfonic acid (PFBS)	120	111		ng/L		92	70 - 130
Perfluorodecanoic acid (PFDA)	120	109		ng/L		90	70 - 130
Perfluorododecanoic acid (PFDoA)	120	110		ng/L		91	70 - 130
Perfluoroheptanoic acid (PFHpA)	120	106		ng/L		88	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	120	108		ng/L		90	70 - 130
Perfluorohexanoic acid (PFHxA)	120	111		ng/L		92	70 - 130
Perfluorononanoic acid (PFNA)	120	110		ng/L		91	70 - 130
Perfluorooctanesulfonic acid (PFOS)	120	110		ng/L		92	70 - 130
Perfluorooctanoic acid (PFOA)	120	114		ng/L		94	70 - 130

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QC Sample Results

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

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

Lab Sample ID: LCS 380-195601/22-A
Matrix: Water
Analysis Batch: 195630

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 195601

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	120	112		ng/L		93	70 - 130
Perfluorobutanoic acid (PFBA)	120	114		ng/L		95	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	120	113		ng/L		94	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	110		ng/L		91	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	120	117		ng/L		97	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	120	114		ng/L		95	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	120	115		ng/L		96	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	120	116		ng/L		96	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	120	97.1		ng/L		81	70 - 130
Perfluoropentanoic acid (PFPeA)	120	119		ng/L		99	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	120	115		ng/L		95	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	120	110		ng/L		91	70 - 130

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	94		50 - 200
13C6 PFDA	107		50 - 200
13C5 PFHxA	107		50 - 200
13C4 PFHpA	102		50 - 200
13C8 PFOA	103		50 - 200
13C9 PFNA	105		50 - 200
13C7 PFUnA	104		50 - 200
13C2 PFDoA	105		50 - 200
13C4 PFBA	99		50 - 200
13C5 PFPeA	99		50 - 200
13C3 PFBS	103		50 - 200
13C3 PFHxS	100		50 - 200
13C8 PFOS	102		50 - 200
13C2-4:2-FTS	109		50 - 200
13C2-6:2-FTS	106		50 - 200
13C2-8:2-FTS	105		50 - 200

Lab Sample ID: MRL 380-195601/21-A
Matrix: Water
Analysis Batch: 195630

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 195601

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.01	1.87	J	ng/L		93	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.01	2.01	J	ng/L		100	50 - 150

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QC Sample Results

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

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

Lab Sample ID: MRL 380-195601/21-A

Matrix: Water

Analysis Batch: 195630

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 195601

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.01	1.87	J	ng/L		93	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.01	2.05	J	ng/L		102	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.01	2.01	J	ng/L		100	50 - 150
Perfluorodecanoic acid (PFDA)	2.01	2.09	J	ng/L		104	50 - 150
Perfluorododecanoic acid (PFDoA)	2.01	2.06	J	ng/L		102	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.01	2.02	J	ng/L		100	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.01	1.95	J	ng/L		97	50 - 150
Perfluorohexanoic acid (PFHxA)	2.01	1.92	J	ng/L		95	50 - 150
Perfluorononanoic acid (PFNA)	2.01	1.97	J	ng/L		98	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.01	1.95	J	ng/L		97	50 - 150
Perfluorooctanoic acid (PFOA)	2.01	2.08	J	ng/L		104	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.01	2.05	J	ng/L		102	50 - 150
Perfluorobutanoic acid (PFBA)	2.01	2.06	J	ng/L		103	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.01	2.10	J	ng/L		104	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.01	2.17	J	ng/L		108	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.01	2.08	J	ng/L		104	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.01	2.07	J	ng/L		103	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.01	2.28	J	ng/L		113	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.01	1.90	J	ng/L		95	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.01	1.61	J	ng/L		80	50 - 150
Perfluoropentanoic acid (PFPeA)	2.01	2.14	J	ng/L		106	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.01	1.96	J	ng/L		98	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.01	1.93	J	ng/L		96	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	Limits
13C3 HFPO-DA	89		50 - 200
13C6 PFDA	100		50 - 200
13C5 PFHxA	106		50 - 200
13C4 PFHpA	101		50 - 200
13C8 PFOA	100		50 - 200
13C9 PFNA	106		50 - 200
13C7 PFUnA	101		50 - 200
13C2 PFDoA	103		50 - 200
13C4 PFBA	104		50 - 200
13C5 PFPeA	103		50 - 200
13C3 PFBS	100		50 - 200
13C3 PFHxS	101		50 - 200

QC Sample Results

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

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

Lab Sample ID: MRL 380-195601/21-A

Matrix: Water

Analysis Batch: 195630

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 195601

Isotope Dilution	MRL		Limits
	%Recovery	Qualifier	
13C8 PFOS	104		50 - 200
13C2-4:2-FTS	112		50 - 200
13C2-6:2-FTS	112		50 - 200
13C2-8:2-FTS	108		50 - 200

Lab Sample ID: 380-189915-B-1-A MS

Matrix: Water

Analysis Batch: 195630

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 195601

Analyte	Sample	Sample	Spike	MS		Unit	D	%Rec	%Rec	Limits
	Result	Qualifier		Result	Qualifier					
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.2	56.0		ng/L		93	70 - 130	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.2	56.8		ng/L		94	70 - 130	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.2	60.0		ng/L		100	70 - 130	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		60.2	57.7		ng/L		96	70 - 130	
Perfluorobutanesulfonic acid (PFBS)	<2.0		60.2	61.9		ng/L		102	70 - 130	
Perfluorodecanoic acid (PFDA)	<2.0		60.2	59.1		ng/L		98	70 - 130	
Perfluorododecanoic acid (PFDoA)	<2.0		60.2	58.9		ng/L		98	70 - 130	
Perfluoroheptanoic acid (PFHpA)	<2.0		60.2	56.8		ng/L		94	70 - 130	
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.2	56.9		ng/L		93	70 - 130	
Perfluorohexanoic acid (PFHxA)	<2.0		60.2	57.3		ng/L		94	70 - 130	
Perfluorononanoic acid (PFNA)	<2.0		60.2	56.8		ng/L		94	70 - 130	
Perfluorooctanesulfonic acid (PFOS)	<2.0		60.2	57.7		ng/L		93	70 - 130	
Perfluorooctanoic acid (PFOA)	<2.0		60.2	59.0		ng/L		98	70 - 130	
Perfluoroundecanoic acid (PFUnA)	<2.0		60.2	57.9		ng/L		96	70 - 130	
Perfluorobutanoic acid (PFBA)	<2.0		60.2	59.2		ng/L		98	70 - 130	
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.2	57.6		ng/L		96	70 - 130	
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.2	61.4		ng/L		102	70 - 130	
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.2	61.5		ng/L		102	70 - 130	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.2	53.7		ng/L		89	70 - 130	
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		60.2	67.1		ng/L		111	70 - 130	
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		60.2	59.9		ng/L		99	70 - 130	
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.2	48.1		ng/L		80	70 - 130	
Perfluoropentanoic acid (PFPeA)	<2.0		60.2	59.3		ng/L		97	70 - 130	
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.2	60.6		ng/L		101	70 - 130	

QC Sample Results

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

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

Lab Sample ID: 380-189915-B-1-A MS
Matrix: Water
Analysis Batch: 195630

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 195601

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits	
	Result	Qualifier	Added	Result	Qualifier					
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.2	58.4		ng/L		97	70 - 130	
MS MS										
Isotope Dilution	%Recovery	Qualifier	Limits							
13C3 HFPO-DA	95		50 - 200							
13C6 PFDA	104		50 - 200							
13C5 PFHxA	106		50 - 200							
13C4 PFHpA	103		50 - 200							
13C8 PFOA	106		50 - 200							
13C9 PFNA	107		50 - 200							
13C7 PFUnA	105		50 - 200							
13C2 PFDoA	104		50 - 200							
13C4 PFBA	101		50 - 200							
13C5 PFPeA	102		50 - 200							
13C3 PFBS	100		50 - 200							
13C3 PFHxS	103		50 - 200							
13C8 PFOS	103		50 - 200							
13C2-4:2-FTS	111		50 - 200							
13C2-6:2-FTS	109		50 - 200							
13C2-8:2-FTS	107		50 - 200							

Lab Sample ID: 380-189915-B-1-B MSD
Matrix: Water
Analysis Batch: 195630

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 195601

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
	Result	Qualifier	Added	Result	Qualifier						
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.2	55.0		ng/L		91	70 - 130	2	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.2	57.3		ng/L		95	70 - 130	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.2	58.0		ng/L		96	70 - 130	3	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		60.2	58.7		ng/L		97	70 - 130	2	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		60.2	60.2		ng/L		99	70 - 130	3	30
Perfluorodecanoic acid (PFDA)	<2.0		60.2	57.9		ng/L		96	70 - 130	2	30
Perfluorododecanoic acid (PFDoA)	<2.0		60.2	58.6		ng/L		97	70 - 130	1	30
Perfluoroheptanoic acid (PFHpA)	<2.0		60.2	58.6		ng/L		97	70 - 130	3	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.2	59.3		ng/L		97	70 - 130	4	30
Perfluorohexanoic acid (PFHxA)	<2.0		60.2	58.0		ng/L		95	70 - 130	1	30
Perfluorononanoic acid (PFNA)	<2.0		60.2	59.3		ng/L		98	70 - 130	4	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		60.2	57.9		ng/L		93	70 - 130	0	30
Perfluorooctanoic acid (PFOA)	<2.0		60.2	57.4		ng/L		95	70 - 130	3	30
Perfluoroundecanoic acid (PFUnA)	<2.0		60.2	59.5		ng/L		99	70 - 130	3	30
Perfluorobutanoic acid (PFBA)	<2.0		60.2	58.3		ng/L		97	70 - 130	2	30

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QC Sample Results

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

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

Lab Sample ID: 380-189915-B-1-B MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 195630

Prep Batch: 195601

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.2	60.4		ng/L		100	70 - 130	5	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.2	61.6		ng/L		102	70 - 130	0	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.2	58.9		ng/L		98	70 - 130	4	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.2	60.7		ng/L		101	70 - 130	12	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		60.2	68.2		ng/L		113	70 - 130	2	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		60.2	56.0		ng/L		93	70 - 130	7	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.2	47.8		ng/L		79	70 - 130	0	30
Perfluoropentanoic acid (PFPeA)	<2.0		60.2	55.8		ng/L		91	70 - 130	6	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.2	60.2		ng/L		100	70 - 130	1	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.2	58.0		ng/L		96	70 - 130	1	30

Isotope Dilution	MSD	MSD	Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	91		50 - 200
13C6 PFDA	101		50 - 200
13C5 PFHxA	99		50 - 200
13C4 PFHpA	96		50 - 200
13C8 PFOA	103		50 - 200
13C9 PFNA	100		50 - 200
13C7 PFUnA	98		50 - 200
13C2 PFDoA	100		50 - 200
13C4 PFBA	103		50 - 200
13C5 PFPeA	103		50 - 200
13C3 PFBS	99		50 - 200
13C3 PFHxS	101		50 - 200
13C8 PFOS	102		50 - 200
13C2-4:2-FTS	112		50 - 200
13C2-6:2-FTS	114		50 - 200
13C2-8:2-FTS	105		50 - 200

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

Lab Sample ID: MBL 380-195448/20-A

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 195551

Prep Batch: 195448

Analyte	MBL	MBL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		01/02/26 02:20	01/02/26 16:04	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		01/02/26 02:20	01/02/26 16:04	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		01/02/26 02:20	01/02/26 16:04	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.58		2.0	ng/L		01/02/26 02:20	01/02/26 16:04	1

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QC Sample Results

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

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

Lab Sample ID: MBL 380-195448/20-A

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 195551

Prep Batch: 195448

Analyte	MBL	MBL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.42		2.0	ng/L		01/02/26 02:20	01/02/26 16:04	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		01/02/26 02:20	01/02/26 16:04	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		01/02/26 02:20	01/02/26 16:04	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		01/02/26 02:20	01/02/26 16:04	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		01/02/26 02:20	01/02/26 16:04	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		01/02/26 02:20	01/02/26 16:04	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		01/02/26 02:20	01/02/26 16:04	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		01/02/26 02:20	01/02/26 16:04	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		01/02/26 02:20	01/02/26 16:04	1
Perfluorotetradecanoic acid (PFTA)	<0.54		2.0	ng/L		01/02/26 02:20	01/02/26 16:04	1
Perfluorotridecanoic acid (PFTrDA)	<0.36		2.0	ng/L		01/02/26 02:20	01/02/26 16:04	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<0.30		2.0	ng/L		01/02/26 02:20	01/02/26 16:04	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		01/02/26 02:20	01/02/26 16:04	1
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		01/02/26 02:20	01/02/26 16:04	1

Surrogate	MBL	MBL	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
d5-NEtFOSAA	106		70 - 130	01/02/26 02:20	01/02/26 16:04	1
13C2 PFHxA	110		70 - 130	01/02/26 02:20	01/02/26 16:04	1
13C2 PFDA	111		70 - 130	01/02/26 02:20	01/02/26 16:04	1
13C3-GenX	104		70 - 130	01/02/26 02:20	01/02/26 16:04	1

Lab Sample ID: LCS 380-195448/22-A

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 195551

Prep Batch: 195448

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonic acid (PFOS)	25.1	27.0		ng/L		108	70 - 130
Perfluoroundecanoic acid (PFUnA)	25.1	26.0		ng/L		104	70 - 130
N-methylperfluorooctanesulfonamideacetic acid (NMeFOSAA)	25.1	24.4		ng/L		97	70 - 130
N-ethylperfluorooctanesulfonamideacetic acid (NEtFOSAA)	25.1	23.9		ng/L		95	70 - 130
Perfluorohexanoic acid (PFHxA)	25.1	24.7		ng/L		99	70 - 130
Perfluorododecanoic acid (PFDoA)	25.1	25.9		ng/L		103	70 - 130
Perfluorooctanoic acid (PFOA)	25.1	24.8		ng/L		99	70 - 130
Perfluorodecanoic acid (PFDA)	25.1	24.4		ng/L		97	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	25.1	28.2		ng/L		113	70 - 130
Perfluorobutanesulfonic acid (PFBS)	25.1	28.6		ng/L		114	70 - 130
Perfluoroheptanoic acid (PFHpA)	25.1	24.8		ng/L		99	70 - 130
Perfluorononanoic acid (PFNA)	25.1	25.4		ng/L		102	70 - 130

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QC Sample Results

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

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

Lab Sample ID: LCS 380-195448/22-A

Matrix: Water

Analysis Batch: 195551

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 195448

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorotetradecanoic acid (PFTA)	25.1	22.5		ng/L		90	70 - 130
Perfluorotridecanoic acid (PFTrDA)	25.1	26.3		ng/L		105	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	25.1	26.4		ng/L		105	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	25.1	24.4		ng/L		97	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	25.1	22.9		ng/L		92	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
d5-NEtFOSAA	102		70 - 130
13C2 PFHxA	105		70 - 130
13C2 PFDA	107		70 - 130
13C3-GenX	95		70 - 130

Lab Sample ID: MRL 380-195448/21-A

Matrix: Water

Analysis Batch: 195551

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 195448

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.01	2.04	J	ng/L		102	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.01	2.22	J	ng/L		110	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.01	2.25	J	ng/L		112	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.01	2.07	J	ng/L		103	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.01	2.11	J	ng/L		105	50 - 150
Perfluorohexanoic acid (PFHxA)	2.01	2.01	J	ng/L		100	50 - 150
Perfluorododecanoic acid (PFDoA)	2.01	2.16	J	ng/L		107	50 - 150
Perfluorooctanoic acid (PFOA)	2.01	2.14	J	ng/L		107	50 - 150
Perfluorodecanoic acid (PFDA)	2.01	2.05	J	ng/L		102	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.01	2.18	J	ng/L		109	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.01	2.19	J	ng/L		109	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.01	2.25	J	ng/L		112	50 - 150
Perfluorononanoic acid (PFNA)	2.01	2.18	J	ng/L		108	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.01	1.51	J	ng/L		75	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.01	2.11	J	ng/L		105	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.01	2.06	J	ng/L		102	50 - 150

QC Sample Results

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

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

Lab Sample ID: MRL 380-195448/21-A

Matrix: Water

Analysis Batch: 195551

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 195448

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.01	1.78	J	ng/L		88	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.01	2.11	J	ng/L		105	50 - 150
Surrogate	MRL %Recovery	MRL Qualifier	Limits				
d5-NEtFOSAA	110		70 - 130				
13C2 PFHxA	119		70 - 130				
13C2 PFDA	109		70 - 130				
13C3-GenX	109		70 - 130				

Lab Sample ID: 380-190078-B-1-A MS

Matrix: Water

Analysis Batch: 195551

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 195448

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		25.1	24.6		ng/L		98	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		25.1	26.6		ng/L		106	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		25.1	26.0		ng/L		104	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.1	24.5		ng/L		97	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		25.1	25.6		ng/L		102	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		25.1	27.0		ng/L		108	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		25.1	26.9		ng/L		107	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		25.1	25.8		ng/L		103	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		25.1	25.2		ng/L		101	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		25.1	26.4		ng/L		105	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		25.1	27.4		ng/L		109	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		25.1	26.4		ng/L		105	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		25.1	26.6		ng/L		106	70 - 130
Perfluorotetradecanoic acid (PFTA)	<2.0		25.1	22.2		ng/L		88	70 - 130
Perfluorotridecanoic acid (PFTrDA)	<2.0		25.1	26.9		ng/L		107	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		25.1	25.7		ng/L		102	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		25.1	23.3		ng/L		93	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		25.1	26.0		ng/L		104	70 - 130

QC Sample Results

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

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

Lab Sample ID: 380-190078-B-1-A MS

Matrix: Water

Analysis Batch: 195551

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 195448

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
d5-NEtFOSAA	106		70 - 130
13C2 PFHxA	118		70 - 130
13C2 PFDA	109		70 - 130
13C3-GenX	109		70 - 130

Lab Sample ID: 380-190078-C-1-A MSD

Matrix: Water

Analysis Batch: 195551

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 195448

Analyte	Sample	Sample	Spike	MSD MSD		Unit	D	%Rec	%Rec		RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD		
Hexafluoropropylene Oxide	<2.0		25.1	24.7		ng/L		98	70 - 130	0	30	
Dimer Acid (HFPO-DA/GenX)												
Perfluorooctanesulfonic acid (PFOS)	<2.0		25.1	27.3		ng/L		109	70 - 130	3	30	
Perfluoroundecanoic acid (PFUnA)	<2.0		25.1	26.9		ng/L		107	70 - 130	4	30	
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.1	26.3		ng/L		105	70 - 130	7	30	
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		25.1	27.9		ng/L		111	70 - 130	9	30	
Perfluorohexanoic acid (PFHxA)	<2.0		25.1	26.9		ng/L		107	70 - 130	0	30	
Perfluorododecanoic acid (PFDoA)	<2.0		25.1	27.2		ng/L		108	70 - 130	1	30	
Perfluorooctanoic acid (PFOA)	<2.0		25.1	27.1		ng/L		108	70 - 130	5	30	
Perfluorodecanoic acid (PFDA)	<2.0		25.1	25.9		ng/L		103	70 - 130	3	30	
Perfluorohexanesulfonic acid (PFHxS)	<2.0		25.1	28.4		ng/L		113	70 - 130	7	30	
Perfluorobutanesulfonic acid (PFBS)	<2.0		25.1	29.1		ng/L		116	70 - 130	6	30	
Perfluoroheptanoic acid (PFHpA)	<2.0		25.1	27.2		ng/L		109	70 - 130	3	30	
Perfluorononanoic acid (PFNA)	<2.0		25.1	27.2		ng/L		108	70 - 130	2	30	
Perfluorotetradecanoic acid (PFTA)	<2.0		25.1	23.4		ng/L		93	70 - 130	5	30	
Perfluorotridecanoic acid (PFTrDA)	<2.0		25.1	27.7		ng/L		110	70 - 130	3	30	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		25.1	26.7		ng/L		106	70 - 130	4	30	
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		25.1	23.9		ng/L		95	70 - 130	3	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		25.1	26.4		ng/L		105	70 - 130	1	30	

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
d5-NEtFOSAA	113		70 - 130
13C2 PFHxA	114		70 - 130
13C2 PFDA	108		70 - 130
13C3-GenX	109		70 - 130

QC Association Summary

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

Job ID: 380-190175-1
 SDG: PFAS: Moanalua Wells

LCMS

Prep Batch: 195448

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-190175-1	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	537.1 DW	
380-190175-2	FB MOANALUA WELLS (331-223-TP202)	Total/NA	Water	537.1 DW	
MBL 380-195448/20-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-195448/22-A	Lab Control Sample	Total/NA	Water	537.1 DW	
MRL 380-195448/21-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-190078-B-1-A MS	Matrix Spike	Total/NA	Water	537.1 DW	
380-190078-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1 DW	

Prep Batch: 195460

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-190175-2	FB MOANALUA WELLS (331-223-TP202)	Total/NA	Water	533	
MBL 380-195460/22-A	Method Blank	Total/NA	Water	533	
LCS 380-195460/24-A	Lab Control Sample	Total/NA	Water	533	
MRL 380-195460/23-A	Lab Control Sample	Total/NA	Water	533	
380-190182-E-1-A MS	Matrix Spike	Total/NA	Water	533	
380-190182-F-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	

Analysis Batch: 195551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-190175-1	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	537.1	195448
380-190175-2	FB MOANALUA WELLS (331-223-TP202)	Total/NA	Water	537.1	195448
MBL 380-195448/20-A	Method Blank	Total/NA	Water	537.1	195448
LCS 380-195448/22-A	Lab Control Sample	Total/NA	Water	537.1	195448
MRL 380-195448/21-A	Lab Control Sample	Total/NA	Water	537.1	195448
380-190078-B-1-A MS	Matrix Spike	Total/NA	Water	537.1	195448
380-190078-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1	195448

Prep Batch: 195601

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-190175-1	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	533	
MBL 380-195601/20-A	Method Blank	Total/NA	Water	533	
LCS 380-195601/22-A	Lab Control Sample	Total/NA	Water	533	
MRL 380-195601/21-A	Lab Control Sample	Total/NA	Water	533	
380-189915-B-1-A MS	Matrix Spike	Total/NA	Water	533	
380-189915-B-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	533	

Analysis Batch: 195607

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-190175-2	FB MOANALUA WELLS (331-223-TP202)	Total/NA	Water	533	195460
MBL 380-195460/22-A	Method Blank	Total/NA	Water	533	195460
LCS 380-195460/24-A	Lab Control Sample	Total/NA	Water	533	195460
MRL 380-195460/23-A	Lab Control Sample	Total/NA	Water	533	195460
380-190182-E-1-A MS	Matrix Spike	Total/NA	Water	533	195460
380-190182-F-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	195460

Analysis Batch: 195630

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-190175-1	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	533	195601
MBL 380-195601/20-A	Method Blank	Total/NA	Water	533	195601
LCS 380-195601/22-A	Lab Control Sample	Total/NA	Water	533	195601
MRL 380-195601/21-A	Lab Control Sample	Total/NA	Water	533	195601

QC Association Summary

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

LCMS (Continued)

Analysis Batch: 195630 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-189915-B-1-A MS	Matrix Spike	Total/NA	Water	533	195601
380-189915-B-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	533	195601

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Lab Chronicle

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

Job ID: 380-190175-1
 SDG: PFAS: Moanalua Wells

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

Lab Sample ID: 380-190175-1

Date Collected: 12/29/25 09:52

Matrix: Drinking Water

Date Received: 12/31/25 09:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			195601	N8NE	EA POM	01/02/26 17:53
Total/NA	Analysis	533		1	195630	SZ9R	EA POM	01/03/26 17:13
Total/NA	Prep	537.1 DW			195448	G9MN	EA POM	01/02/26 02:20
Total/NA	Analysis	537.1		1	195551	SZ9R	EA POM	01/02/26 19:06

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

Lab Sample ID: 380-190175-2

Date Collected: 12/29/25 09:52

Matrix: Water

Date Received: 12/31/25 09:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			195460	E9PK	EA POM	01/02/26 06:37
Total/NA	Analysis	533		1	195607	SZ9R	EA POM	01/02/26 22:57
Total/NA	Prep	537.1 DW			195448	G9MN	EA POM	01/02/26 02:20
Total/NA	Analysis	537.1		1	195551	SZ9R	EA POM	01/02/26 19:15

Laboratory References:

EA POM = Eurofins Pomona, 941 Corporate Center Drive, Pomona, CA 91768-2642, TEL (626)386-1100

Accreditation/Certification Summary

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

Laboratory: Eurofins Pomona

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Hawaii	State	CA00006	01-31-26

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Method Summary

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

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

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EA POM = Eurofins Pomona, 941 Corporate Center Drive, Pomona, CA 91768-2642, TEL (626)386-1100



Sample Summary

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

Job ID: 380-190175-1
SDG: PFAS: Moanalua Wells

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-190175-1	MOANALUA WELLS (331-223-TP202)	Drinking Water	12/29/25 09:52	12/31/25 09:57	HI0000331
380-190175-2	FB MOANALUA WELLS (331-223-TP202)	Water	12/29/25 09:52	12/31/25 09:57	HI0000331

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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



Environment Testing
 America

Client Information Client Contact: Kirk Iwamoto Phone: +1 808 748 5840 Company: City & County of Honolulu		Lab PM: Lopez, Maria E-Mail: Maria.Lopez@eurofins.com Carrier Tracking No(s): State of Origin:		COC No.: Page: Page 1 of 1 Job #:	
Address: 630 South Beretania Street, Chemistry Lab City: Honolulu State: HI, 96843 Phone: 808-748-5840 (tel) Email: kiwamoto@hbws.org		Due Date Requested: TAT Requested (days): Compliance Project: <input type="checkbox"/> No <input type="checkbox"/> Yes PO #: C20525101 exp 05312023 WO #:		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Project Name: RED-HILL/HBWS sites Event Desc: RUSH Weekly Red Hill Site:		Matrix (Pre-Filter, On-Filter, Post-Filter, A-AU) Sample Type (C=Comp, G=grab) G Preservation Code: G Sample Date: 29-Dec-2025 Sample Time: 0952 Matrix: Water		Analysis Requested 80168_DRO_LL_C8 - HNL Ranges: C10-C24/C24-C36/C8-C18 825.2_PREC - (MOD) 825plus PLUS TICs 637.1_DW_PREC - 637.1 Full List 633 - All Analytes	
Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No SUBCONTRACT - 825 PAH Physia LL (EAL) + TICs 80168_GRO_LL - (MOD) GRO 80168_DRO_LL_C8 - HNL Ranges: C10-C24/C24-C36/C8-C18 825.2_PREC - (MOD) 825plus PLUS TICs 637.1_DW_PREC - 637.1 Full List 633 - All Analytes		Total Number of Containers chlorinated		Special Instructions/Note: chlorinated	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Special Instructions/QC Requirements:	
Empty Kit Relinquished by: _____ Date: _____ Relinquished by: _____ Date: _____ Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Method of Shipment: _____ Date/Time: _____ Received by: _____ Date/Time: _____ Received by: _____ Date/Time: _____ Cooler Temperature(s) °C and Other Remarks: (63A) 1.3 + 0.0.1.3 yel - 10.700		Company: _____ Company: _____ Company: _____	



ORIGIN ID-HIKA (808) 748-5840
BWS CHEMLAB
HONOLULU BOARD OF WATER SUPPLY
630 S. BERETANIA ST
CHEMICAL LABORATORY
HONOLULU HI 96843
UNITED STATES US

SHIP DATE: 30DEC25
ACTWGT 57.00 LB
CAD 258050552JINET4535
BILL RECIPIENT

TO EUROFINS RECEIVING DEPARTMENT
EUROFINS DRINKING WATER TESTING
941 CORPORATE CENTER DR

58HJ6I077E/59F2

POMONA CA 91768 REF: (626) 386-1100

INV# PO DEPT.



4 of 7 WED - 31 DEC 12:00P
MPS# 8875 2222 1370 PRIORITY OVERNIGHT
0263
Mist# 8875 2222 1348 0201
WM ONTA 91768
CA-US ONT



(631A) 19+00 19 961- frozen
Mist# Mark Urrutia 12/31/25 957

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Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-190175-1
SDG Number: PFAS: Moanalua Wells

Login Number: 190175

List Number: 1

Creator: Tran, Kristine

List Source: Eurofins Pomona

Question	Answer	Comment
The coolers custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
Samples were received on ice.	True	
Cooler(s) Temperature is acceptable.	True	
Cooler(s) Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and is legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
ClO4 headspace requirement met (>50% for CA, >30% for other states).	N/A	
Samples do not require splitting or compositing.	True	
Container provided by EEA	True	

