

ANALYTICAL REPORT

PREPARED FOR

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JOB DESCRIPTION

RED-HILL
PFAS: Halawa Wells P1

JOB NUMBER

380-226500-1

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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



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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
Action Limit Summary	11
Surrogate Summary	12
Isotope Dilution Summary	13
QC Sample Results	15
QC Association Summary	32
Lab Chronicle	34
Certification Summary	35
Method Summary	36
Sample Summary	37
Chain of Custody	38
Receipt Checklists	39



Definitions/Glossary

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

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: 380-226500-1

Job ID: 380-226500-1

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Job Narrative 380-226500-1

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 7/22/2026 9:50 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.3°C.

PFAS

EPA 537.1 and EPA 533 are two distinct methods for the analysis of PFAS in drinking water. The analyses are conducted on differing instrumentation, with calibrations, extraction solvents and sample preservatives being dissimilar among the two methods. Therefore it is probable and not unexpected to see the methods having slight variations in analytical results: Halawa Wells P1 (331-023-WL065) (380-226500-1). (XWB4)

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

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Detection Summary

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

Client Sample ID: HALAWA WELLS P1 (331-023-WL065)

Lab Sample ID: 380-226500-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	2.7		2.0	ng/L	1		533	Total/NA
Perfluorohexanoic acid (PFHxA)	3.0		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.7		2.0	ng/L	1		533	Total/NA
Perfluoropentanoic acid (PFPeA)	4.2		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.6		2.0	ng/L	1		EPA 537.1 V2	Total/NA
Perfluorohexanoic acid (PFHxA)	3.1		2.0	ng/L	1		EPA 537.1 V2	Total/NA
Perfluorooctanoic acid (PFOA)	2.0		2.0	ng/L	1		EPA 537.1 V2	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.9		2.0	ng/L	1		EPA 537.1 V2	Total/NA

Client Sample ID: FB: HALAWA WELLS P1 (331-023-WL065)

Lab Sample ID: 380-226500-2

No Detections.

This Detection Summary does not include radiochemical test results.

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Client Sample Results

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

Client Sample ID: HALAWA WELLS P1 (331-023-WL065)

Lab Sample ID: 380-226500-1

Date Collected: 07/20/26 10:12

Matrix: Drinking Water

Date Received: 07/22/26 09:50

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		07/23/26 19:20	07/24/26 13:33	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 13:33	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 13:33	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 13:33	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 13:33	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 13:33	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 13:33	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 13:33	1
Perfluorohexanesulfonic acid (PFHxS)	2.7		2.0	ng/L		07/23/26 19:20	07/24/26 13:33	1
Perfluorohexanoic acid (PFHxA)	3.0		2.0	ng/L		07/23/26 19:20	07/24/26 13:33	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 13:33	1
Perfluorooctanesulfonic acid (PFOS)	2.7		2.0	ng/L		07/23/26 19:20	07/24/26 13:33	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 13:33	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 13:33	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 13:33	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 13:33	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 13:33	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 13:33	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 13:33	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 13:33	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 13:33	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 13:33	1
Perfluoropentanoic acid (PFPeA)	4.2		2.0	ng/L		07/23/26 19:20	07/24/26 13:33	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 13:33	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 13:33	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	94		50 - 200	07/23/26 19:20	07/24/26 13:33	1
13C6 PFDA	95		50 - 200	07/23/26 19:20	07/24/26 13:33	1
13C5 PFHxA	99		50 - 200	07/23/26 19:20	07/24/26 13:33	1
13C4 PFHpA	104		50 - 200	07/23/26 19:20	07/24/26 13:33	1
13C8 PFOA	104		50 - 200	07/23/26 19:20	07/24/26 13:33	1
13C9 PFNA	106		50 - 200	07/23/26 19:20	07/24/26 13:33	1
13C7 PFUnA	92		50 - 200	07/23/26 19:20	07/24/26 13:33	1
13C2 PFDoA	91		50 - 200	07/23/26 19:20	07/24/26 13:33	1
13C4 PFBA	116		50 - 200	07/23/26 19:20	07/24/26 13:33	1
13C5 PFPeA	103		50 - 200	07/23/26 19:20	07/24/26 13:33	1
13C3 PFBS	109		50 - 200	07/23/26 19:20	07/24/26 13:33	1
13C3 PFHxS	116		50 - 200	07/23/26 19:20	07/24/26 13:33	1

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Client Sample Results

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

Client Sample ID: HALAWA WELLS P1 (331-023-WL065)

Lab Sample ID: 380-226500-1

Date Collected: 07/20/26 10:12

Matrix: Drinking Water

Date Received: 07/22/26 09:50

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	111		50 - 200	07/23/26 19:20	07/24/26 13:33	1
13C2-4:2-FTS	116		50 - 200	07/23/26 19:20	07/24/26 13:33	1
13C2-6:2-FTS	107		50 - 200	07/23/26 19:20	07/24/26 13:33	1
13C2-8:2-FTS	90		50 - 200	07/23/26 19:20	07/24/26 13:33	1

Method: EPA 537.1 V2 - EPA 537.1 Ver. 2.0 March 2020

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 12:55	1
Perfluorooctanesulfonic acid (PFOS)	2.6		2.0	ng/L		07/23/26 01:49	07/24/26 12:55	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 12:55	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 12:55	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 12:55	1
Perfluorohexanoic acid (PFHxA)	3.1		2.0	ng/L		07/23/26 01:49	07/24/26 12:55	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 12:55	1
Perfluorooctanoic acid (PFOA)	2.0		2.0	ng/L		07/23/26 01:49	07/24/26 12:55	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 12:55	1
Perfluorohexanesulfonic acid (PFHxS)	2.9		2.0	ng/L		07/23/26 01:49	07/24/26 12:55	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 12:55	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 12:55	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 12:55	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 12:55	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 12:55	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 12:55	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 12:55	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 12:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	110		70 - 130	07/23/26 01:49	07/24/26 12:55	1
13C2 PFHxA	113		70 - 130	07/23/26 01:49	07/24/26 12:55	1
13C2 PFDA	109		70 - 130	07/23/26 01:49	07/24/26 12:55	1
13C3-GenX	107		70 - 130	07/23/26 01:49	07/24/26 12:55	1

Client Sample ID: FB: HALAWA WELLS P1 (331-023-WL065)

Lab Sample ID: 380-226500-2

Date Collected: 07/20/26 10:12

Matrix: Water

Date Received: 07/22/26 09:50

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		07/23/26 19:20	07/24/26 09:44	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 09:44	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 09:44	1

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Client Sample Results

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

Client Sample ID: FB: HALAWA WELLS P1 (331-023-WL065)

Lab Sample ID: 380-226500-2

Date Collected: 07/20/26 10:12

Matrix: Water

Date Received: 07/22/26 09:50

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 09:44	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 09:44	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 09:44	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 09:44	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 09:44	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 09:44	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 09:44	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 09:44	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 09:44	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 09:44	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 09:44	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 09:44	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 09:44	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 09:44	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 09:44	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 09:44	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 09:44	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 09:44	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 09:44	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 09:44	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 09:44	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		07/23/26 19:20	07/24/26 09:44	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	89		50 - 200	07/23/26 19:20	07/24/26 09:44	1
13C6 PFDA	92		50 - 200	07/23/26 19:20	07/24/26 09:44	1
13C5 PFHxA	99		50 - 200	07/23/26 19:20	07/24/26 09:44	1
13C4 PFHpA	101		50 - 200	07/23/26 19:20	07/24/26 09:44	1
13C8 PFOA	101		50 - 200	07/23/26 19:20	07/24/26 09:44	1
13C9 PFNA	104		50 - 200	07/23/26 19:20	07/24/26 09:44	1
13C7 PFUnA	91		50 - 200	07/23/26 19:20	07/24/26 09:44	1
13C2 PFDoA	89		50 - 200	07/23/26 19:20	07/24/26 09:44	1
13C4 PFBA	109		50 - 200	07/23/26 19:20	07/24/26 09:44	1
13C5 PFPeA	108		50 - 200	07/23/26 19:20	07/24/26 09:44	1
13C3 PFBS	98		50 - 200	07/23/26 19:20	07/24/26 09:44	1
13C3 PFHxS	113		50 - 200	07/23/26 19:20	07/24/26 09:44	1
13C8 PFOS	112		50 - 200	07/23/26 19:20	07/24/26 09:44	1
13C2-4:2-FTS	110		50 - 200	07/23/26 19:20	07/24/26 09:44	1
13C2-6:2-FTS	102		50 - 200	07/23/26 19:20	07/24/26 09:44	1
13C2-8:2-FTS	92		50 - 200	07/23/26 19:20	07/24/26 09:44	1

Eurofins Pomona

Client Sample Results

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

Client Sample ID: FB: HALAWA WELLS P1 (331-023-WL065)

Lab Sample ID: 380-226500-2

Date Collected: 07/20/26 10:12

Matrix: Water

Date Received: 07/22/26 09:50

Method: EPA 537.1 V2 - EPA 537.1 Ver. 2.0 March 2020

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 13:04	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 13:04	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 13:04	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 13:04	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 13:04	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 13:04	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 13:04	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 13:04	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 13:04	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 13:04	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 13:04	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 13:04	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 13:04	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 13:04	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 13:04	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 13:04	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 13:04	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/23/26 01:49	07/24/26 13:04	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	101		70 - 130			07/23/26 01:49	07/24/26 13:04	1
13C2 PFHxA	107		70 - 130			07/23/26 01:49	07/24/26 13:04	1
13C2 PFDA	105		70 - 130			07/23/26 01:49	07/24/26 13:04	1
13C3-GenX	96		70 - 130			07/23/26 01:49	07/24/26 13:04	1

Action Limit Summary

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

Client Sample ID: HALAWA WELLS P1 (331-023-WL065)

Lab Sample ID: 380-226500-1

Compliance Check

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

Analyte	Result	Qualifier	Unit	EPAMCL Limit	RL	Method	Prep Type
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		ng/L	10	2.0	533	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.7		ng/L	10	2.0	533	Total/NA
Perfluorononanoic acid (PFNA)	<2.0		ng/L	10	2.0	533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.7		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	EPA 537.1 V2	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.6		ng/L	4	2.0	EPA 537.1 V2	Total/NA
Perfluorooctanoic acid (PFOA)	2.0		ng/L	4	2.0	EPA 537.1 V2	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.9		ng/L	10	2.0	EPA 537.1 V2	Total/NA
Perfluorononanoic acid (PFNA)	<2.0		ng/L	10	2.0	EPA 537.1 V2	Total/NA

Client Sample ID: FB: HALAWA WELLS P1 (331-023-WL065)

Lab Sample ID: 380-226500-2

Compliance Check

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

Analyte	Result	Qualifier	Unit	EPAMCL Limit	RL	Method	Prep Type
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		ng/L	10	2.0	533	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	<2.0		ng/L	10	2.0	533	Total/NA
Perfluorononanoic acid (PFNA)	<2.0		ng/L	10	2.0	533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	<2.0		ng/L	4	2.0	533	Total/NA
Perfluorooctanoic acid (PFOA)	<2.0		ng/L	4	2.0	533	Total/NA
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		ng/L	10	2.0	EPA 537.1 V2	Total/NA
Perfluorooctanesulfonic acid (PFOS)	<2.0		ng/L	4	2.0	EPA 537.1 V2	Total/NA
Perfluorooctanoic acid (PFOA)	<2.0		ng/L	4	2.0	EPA 537.1 V2	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	<2.0		ng/L	10	2.0	EPA 537.1 V2	Total/NA
Perfluorononanoic acid (PFNA)	<2.0		ng/L	10	2.0	EPA 537.1 V2	Total/NA

Surrogate Summary

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

Method: EPA 537.1 V2 - EPA 537.1 Ver. 2.0 March 2020

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)
380-226500-1	HALAWA WELLS P1 (331-023-V	110	113	109	107
Surrogate Legend					
d5NEFOS = d5-NEtFOSAA					
PFHxA = 13C2 PFHxA					
PFDA = 13C2 PFDA					
GenX = 13C3-GenX					

Method: EPA 537.1 V2 - EPA 537.1 Ver. 2.0 March 2020

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)
380-226296-B-1-A MS	Matrix Spike	106	117	111	109
380-226296-C-1-A MSD	Matrix Spike Duplicate	106	110	107	108
380-226500-2	FB: HALAWA WELLS P1 (331-023-WL065)	101	107	105	96
LCS 380-241831/21-A	Lab Control Sample	101	107	107	100
MBL 380-241831/19-A	Method Blank	100	103	107	95
MRL 380-241831/20-A	Lab Control Sample	101	106	107	98
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: 380-226500-1
SDG: PFAS: Halawa Wells P1

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

Matrix: Drinking Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HFPODA (50-200)	C6PFDA (50-200)	13C5PHA (50-200)	C4PFHA (50-200)	C8PFOA (50-200)	C9PFNA (50-200)	13C7PUA (50-200)	PFDaA (50-200)
380-226500-1	HALAWA WELLS P1 (331-023-V	94	95	99	104	104	106	92	91

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)
380-226500-1	HALAWA WELLS P1 (331-023-V	116	103	109	116	111	116	107	90

Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HFPODA (50-200)	C6PFDA (50-200)	13C5PHA (50-200)	C4PFHA (50-200)	C8PFOA (50-200)	C9PFNA (50-200)	13C7PUA (50-200)	PFDaA (50-200)
380-226179-B-1-A MS	Matrix Spike	108	104	104	106	109	114	104	99
380-226179-C-1-B MSD	Matrix Spike Duplicate	116	111	106	113	109	116	109	106
380-226301-B-1-A MS	Matrix Spike	91	91	97	96	95	98	94	94
380-226301-C-1-A MSD	Matrix Spike Duplicate	102	102	100	108	106	110	105	102
380-226500-2	FB: HALAWA WELLS P1 (331-023-WL065)	89	92	99	101	101	104	91	89
LCS 380-242020/22-A	Lab Control Sample	104	96	100	103	104	103	99	99
LCS 380-242021/22-A	Lab Control Sample	94	96	104	106	105	112	97	96
MBL 380-242020/20-A	Method Blank	96	101	103	113	113	110	101	100
MBL 380-242021/20-A	Method Blank	98	101	104	107	107	109	98	92
MRL 380-242020/21-A	Lab Control Sample	92	94	98	99	106	106	98	97
MRL 380-242021/21-A	Lab Control Sample	94	99	104	106	110	110	100	95

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (50-200)	PFPeA (50-200)	C3PFBS (50-200)	C3PFHS (50-200)	C8PFOS (50-200)	42FTS (50-200)	62FTS (50-200)	82FTS (50-200)
380-226179-B-1-A MS	Matrix Spike	111	116	108	113	110	105	101	94
380-226179-C-1-B MSD	Matrix Spike Duplicate	115	118	114	112	113	108	104	100
380-226301-B-1-A MS	Matrix Spike	108	109	112	113	113	112	103	95
380-226301-C-1-A MSD	Matrix Spike Duplicate	114	115	112	116	111	109	105	87

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Isotope Dilution Summary

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

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	PFBA (50-200)	PFPeA (50-200)	C3PFBS (50-200)	C3PFHS (50-200)	C8PFOS (50-200)	42FTS (50-200)	62FTS (50-200)	82FTS (50-200)
380-226500-2	FB: HALAWA WELLS P1 (331-0	109	108	98	113	112	110	102	92
LCS 380-242020/22-A	Lab Control Sample	104	102	105	107	106	100	97	93
LCS 380-242021/22-A	Lab Control Sample	111	108	109	116	113	104	101	90
MBL 380-242020/20-A	Method Blank	115	116	107	118	117	109	105	96
MBL 380-242021/20-A	Method Blank	117	114	109	120	117	108	105	94
MRL 380-242020/21-A	Lab Control Sample	108	106	106	115	113	106	107	100
MRL 380-242021/21-A	Lab Control Sample	113	108	106	113	115	108	100	92

Surrogate Legend

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

QC Sample Results

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

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

Lab Sample ID: MBL 380-242020/20-A

Matrix: Water

Analysis Batch: 242156

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 242020

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<0.29		2.0	ng/L		07/23/26 19:20	07/24/26 07:11	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.29		2.0	ng/L		07/23/26 19:20	07/24/26 07:11	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.59		2.0	ng/L		07/23/26 19:20	07/24/26 07:11	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<0.98		2.0	ng/L		07/23/26 19:20	07/24/26 07:11	1
Perfluorobutanesulfonic acid (PFBS)	<0.36		2.0	ng/L		07/23/26 19:20	07/24/26 07:11	1
Perfluorodecanoic acid (PFDA)	<0.30		2.0	ng/L		07/23/26 19:20	07/24/26 07:11	1
Perfluorododecanoic acid (PFDoA)	<0.53		2.0	ng/L		07/23/26 19:20	07/24/26 07:11	1
Perfluoroheptanoic acid (PFHpA)	<0.38		2.0	ng/L		07/23/26 19:20	07/24/26 07:11	1
Perfluorohexanesulfonic acid (PFHxS)	<0.31		2.0	ng/L		07/23/26 19:20	07/24/26 07:11	1
Perfluorohexanoic acid (PFHxA)	<0.45		2.0	ng/L		07/23/26 19:20	07/24/26 07:11	1
Perfluorononanoic acid (PFNA)	<0.39		2.0	ng/L		07/23/26 19:20	07/24/26 07:11	1
Perfluorooctanesulfonic acid (PFOS)	<0.42		2.0	ng/L		07/23/26 19:20	07/24/26 07:11	1
Perfluorooctanoic acid (PFOA)	<0.37		2.0	ng/L		07/23/26 19:20	07/24/26 07:11	1
Perfluoroundecanoic acid (PFUnA)	<0.41		2.0	ng/L		07/23/26 19:20	07/24/26 07:11	1
Perfluorobutanoic acid (PFBA)	<0.68		2.0	ng/L		07/23/26 19:20	07/24/26 07:11	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.37		2.0	ng/L		07/23/26 19:20	07/24/26 07:11	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.36		2.0	ng/L		07/23/26 19:20	07/24/26 07:11	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.47		2.0	ng/L		07/23/26 19:20	07/24/26 07:11	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.46		2.0	ng/L		07/23/26 19:20	07/24/26 07:11	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<0.24		2.0	ng/L		07/23/26 19:20	07/24/26 07:11	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.45		2.0	ng/L		07/23/26 19:20	07/24/26 07:11	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		07/23/26 19:20	07/24/26 07:11	1
Perfluoropentanoic acid (PFPeA)	<0.37		2.0	ng/L		07/23/26 19:20	07/24/26 07:11	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.35		2.0	ng/L		07/23/26 19:20	07/24/26 07:11	1
Perfluoropentanesulfonic acid (PFPeS)	<0.38		2.0	ng/L		07/23/26 19:20	07/24/26 07:11	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	96		50 - 200	07/23/26 19:20	07/24/26 07:11	1
13C6 PFDA	101		50 - 200	07/23/26 19:20	07/24/26 07:11	1
13C5 PFHxA	103		50 - 200	07/23/26 19:20	07/24/26 07:11	1
13C4 PFHpA	113		50 - 200	07/23/26 19:20	07/24/26 07:11	1
13C8 PFOA	113		50 - 200	07/23/26 19:20	07/24/26 07:11	1
13C9 PFNA	110		50 - 200	07/23/26 19:20	07/24/26 07:11	1
13C7 PFUnA	101		50 - 200	07/23/26 19:20	07/24/26 07:11	1
13C2 PFDoA	100		50 - 200	07/23/26 19:20	07/24/26 07:11	1
13C4 PFBA	115		50 - 200	07/23/26 19:20	07/24/26 07:11	1
13C5 PFPeA	116		50 - 200	07/23/26 19:20	07/24/26 07:11	1
13C3 PFBS	107		50 - 200	07/23/26 19:20	07/24/26 07:11	1
13C3 PFHxS	118		50 - 200	07/23/26 19:20	07/24/26 07:11	1

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QC Sample Results

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

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

Lab Sample ID: MBL 380-242020/20-A

Matrix: Water

Analysis Batch: 242156

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 242020

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	117		50 - 200	07/23/26 19:20	07/24/26 07:11	1
13C2-4:2-FTS	109		50 - 200	07/23/26 19:20	07/24/26 07:11	1
13C2-6:2-FTS	105		50 - 200	07/23/26 19:20	07/24/26 07:11	1
13C2-8:2-FTS	96		50 - 200	07/23/26 19:20	07/24/26 07:11	1

Lab Sample ID: LCS 380-242020/22-A

Matrix: Water

Analysis Batch: 242156

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 242020

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	118	90.9		ng/L		77	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	118	93.9		ng/L		79	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	118	109		ng/L		92	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	118	104		ng/L		88	70 - 130
Perfluorobutanesulfonic acid (PFBS)	118	105		ng/L		89	70 - 130
Perfluorodecanoic acid (PFDA)	118	118		ng/L		100	70 - 130
Perfluorododecanoic acid (PFDaA)	118	110		ng/L		93	70 - 130
Perfluoroheptanoic acid (PFHpA)	118	107		ng/L		90	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	118	103		ng/L		87	70 - 130
Perfluorohexanoic acid (PFHxA)	118	110		ng/L		93	70 - 130
Perfluorononanoic acid (PFNA)	118	109		ng/L		92	70 - 130
Perfluorooctanesulfonic acid (PFOS)	118	104		ng/L		88	70 - 130
Perfluorooctanoic acid (PFOA)	118	107		ng/L		91	70 - 130
Perfluoroundecanoic acid (PFUnA)	118	107		ng/L		90	70 - 130
Perfluorobutanoic acid (PFBA)	118	109		ng/L		92	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	118	106		ng/L		89	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	118	105		ng/L		89	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	118	117		ng/L		99	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	118	98.3		ng/L		83	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	118	114		ng/L		97	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	118	104		ng/L		88	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	118	113		ng/L		95	70 - 130
Perfluoropentanoic acid (PFPeA)	118	107		ng/L		90	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	118	106		ng/L		89	70 - 130

Eurofins Pomona

QC Sample Results

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

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

Lab Sample ID: LCS 380-242020/22-A

Matrix: Water

Analysis Batch: 242156

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 242020

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanesulfonic acid (PFPeS)	118	105		ng/L		89	70 - 130
Isotope Dilution							
	LCS	LCS					
	%Recovery	Qualifier	Limits				
13C3 HFPO-DA	104		50 - 200				
13C6 PFDA	96		50 - 200				
13C5 PFHxA	100		50 - 200				
13C4 PFHpA	103		50 - 200				
13C8 PFOA	104		50 - 200				
13C9 PFNA	103		50 - 200				
13C7 PFUnA	99		50 - 200				
13C2 PFDoA	99		50 - 200				
13C4 PFBA	104		50 - 200				
13C5 PFPeA	102		50 - 200				
13C3 PFBS	105		50 - 200				
13C3 PFHxS	107		50 - 200				
13C8 PFOS	106		50 - 200				
13C2-4:2-FTS	100		50 - 200				
13C2-6:2-FTS	97		50 - 200				
13C2-8:2-FTS	93		50 - 200				

Lab Sample ID: MRL 380-242020/21-A

Matrix: Water

Analysis Batch: 242156

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 242020

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.97	1.77	J	ng/L		90	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	1.97	1.75	J	ng/L		89	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.97	2.05	J	ng/L		104	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	1.97	1.98	J	ng/L		100	50 - 150
Perfluorobutanesulfonic acid (PFBS)	1.97	1.89	J	ng/L		96	50 - 150
Perfluorodecanoic acid (PFDA)	1.97	2.24	J	ng/L		114	50 - 150
Perfluorododecanoic acid (PFDoA)	1.97	2.09	J	ng/L		106	50 - 150
Perfluoroheptanoic acid (PFHpA)	1.97	2.09	J	ng/L		106	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	1.97	1.91	J	ng/L		97	50 - 150
Perfluorohexanoic acid (PFHxA)	1.97	2.04	J	ng/L		104	50 - 150
Perfluorononanoic acid (PFNA)	1.97	1.97	J	ng/L		100	50 - 150
Perfluorooctanesulfonic acid (PFOS)	1.97	2.06	J	ng/L		105	50 - 150
Perfluorooctanoic acid (PFOA)	1.97	2.03	J	ng/L		103	50 - 150
Perfluoroundecanoic acid (PFUnA)	1.97	2.01	J	ng/L		102	50 - 150
Perfluorobutanoic acid (PFBA)	1.97	2.23	J	ng/L		113	50 - 150

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QC Sample Results

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

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

Lab Sample ID: MRL 380-242020/21-A

Matrix: Water

Analysis Batch: 242156

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 242020

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	1.97	1.89	J	ng/L		96	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	1.97	2.16	J	ng/L		110	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	1.97	2.06	J	ng/L		105	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	1.97	1.93	J	ng/L		98	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	1.97	1.99	J	ng/L		101	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	1.97	1.99	J	ng/L		101	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	1.97	1.93	J	ng/L		98	50 - 150
Perfluoropentanoic acid (PFPeA)	1.97	2.20	J	ng/L		112	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	1.97	1.95	J	ng/L		99	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	1.97	1.85	J	ng/L		94	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	MRL Limits
13C3 HFPO-DA	92		50 - 200
13C6 PFDA	94		50 - 200
13C5 PFHxA	98		50 - 200
13C4 PFHpA	99		50 - 200
13C8 PFOA	106		50 - 200
13C9 PFNA	106		50 - 200
13C7 PFUnA	98		50 - 200
13C2 PFDoA	97		50 - 200
13C4 PFBA	108		50 - 200
13C5 PFPeA	106		50 - 200
13C3 PFBS	106		50 - 200
13C3 PFHxS	115		50 - 200
13C8 PFOS	113		50 - 200
13C2-4:2-FTS	106		50 - 200
13C2-6:2-FTS	107		50 - 200
13C2-8:2-FTS	100		50 - 200

Lab Sample ID: 380-226179-B-1-A MS

Matrix: Water

Analysis Batch: 242156

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 242020

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		118	91.0		ng/L		77	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		118	92.7		ng/L		78	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		118	106		ng/L		90	70 - 130

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QC Sample Results

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

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

Lab Sample ID: 380-226179-B-1-A MS

Matrix: Water

Analysis Batch: 242156

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 242020

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide	<2.0		118	110		ng/L		93	70 - 130
Dimer Acid (HFPO-DA/GenX)									
Perfluorobutanesulfonic acid (PFBS)	3.8		118	112		ng/L		91	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		118	112		ng/L		94	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		118	110		ng/L		94	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		118	110		ng/L		93	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	5.5		118	108		ng/L		87	70 - 130
Perfluorohexanoic acid (PFHxA)	2.9		118	113		ng/L		93	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		118	104		ng/L		88	70 - 130
Perfluorooctanesulfonic acid (PFOS)	3.3		118	108		ng/L		89	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		118	106		ng/L		88	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		118	106		ng/L		90	70 - 130
Perfluorobutanoic acid (PFBA)	<2.0		118	105		ng/L		88	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		118	106		ng/L		89	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		118	105		ng/L		89	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		118	108		ng/L		91	70 - 130
Nonafluoro-3,6-dioxahexanoic acid (NFDHA)	<2.0		118	95.8		ng/L		81	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		118	119		ng/L		101	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		118	107		ng/L		90	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		118	114		ng/L		96	70 - 130
Perfluoropentanoic acid (PFPeA)	2.9		118	110		ng/L		91	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		118	106		ng/L		90	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<2.0		118	105		ng/L		88	70 - 130

Isotope Dilution	MS %Recovery	MS Qualifier	MS Limits
13C3 HFPO-DA	108		50 - 200
13C6 PFDA	104		50 - 200
13C5 PFHxA	104		50 - 200
13C4 PFHpA	106		50 - 200
13C8 PFOA	109		50 - 200
13C9 PFNA	114		50 - 200
13C7 PFUnA	104		50 - 200
13C2 PFDoA	99		50 - 200
13C4 PFBA	111		50 - 200
13C5 PFPeA	116		50 - 200
13C3 PFBS	108		50 - 200
13C3 PFHxS	113		50 - 200
13C8 PFOS	110		50 - 200

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QC Sample Results

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

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

Lab Sample ID: 380-226179-B-1-A MS

Matrix: Water

Analysis Batch: 242156

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 242020

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
13C2-4:2-FTS	105		50 - 200
13C2-6:2-FTS	101		50 - 200
13C2-8:2-FTS	94		50 - 200

Lab Sample ID: 380-226179-C-1-B MSD

Matrix: Water

Analysis Batch: 242156

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 242020

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		118	91.3		ng/L		77	70 - 130	0	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<2.0		118	92.5		ng/L		78	70 - 130	0	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		118	109		ng/L		92	70 - 130	2	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		118	107		ng/L		90	70 - 130	3	30
Perfluorobutanesulfonic acid (PFBS)	3.8		118	109		ng/L		89	70 - 130	2	30
Perfluorodecanoic acid (PFDA)	<2.0		118	116		ng/L		98	70 - 130	4	30
Perfluorododecanoic acid (PFDaA)	<2.0		118	111		ng/L		94	70 - 130	1	30
Perfluoroheptanoic acid (PFHpA)	<2.0		118	108		ng/L		90	70 - 130	2	30
Perfluorohexanesulfonic acid (PFHxS)	5.5		118	113		ng/L		91	70 - 130	5	30
Perfluorohexanoic acid (PFHxA)	2.9		118	114		ng/L		94	70 - 130	1	30
Perfluorononanoic acid (PFNA)	<2.0		118	107		ng/L		90	70 - 130	3	30
Perfluorooctanesulfonic acid (PFOS)	3.3		118	110		ng/L		90	70 - 130	1	30
Perfluorooctanoic acid (PFOA)	<2.0		118	115		ng/L		96	70 - 130	8	30
Perfluoroundecanoic acid (PFUnA)	<2.0		118	106		ng/L		90	70 - 130	0	30
Perfluorobutanoic acid (PFBA)	<2.0		118	106		ng/L		88	70 - 130	0	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		118	104		ng/L		88	70 - 130	1	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		118	114		ng/L		97	70 - 130	8	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		118	109		ng/L		93	70 - 130	2	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		118	113		ng/L		95	70 - 130	16	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEA)	<2.0		118	126		ng/L		107	70 - 130	6	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		118	113		ng/L		95	70 - 130	5	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		118	122		ng/L		103	70 - 130	7	30
Perfluoropentanoic acid (PFPeA)	2.9		118	114		ng/L		94	70 - 130	4	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		118	109		ng/L		93	70 - 130	3	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0		118	114		ng/L		95	70 - 130	8	30

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QC Sample Results

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

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

Isotope Dilution	MSD MSD		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	116		50 - 200
13C6 PFDA	111		50 - 200
13C5 PFHxA	106		50 - 200
13C4 PFHpA	113		50 - 200
13C8 PFOA	109		50 - 200
13C9 PFNA	116		50 - 200
13C7 PFUnA	109		50 - 200
13C2 PFDoA	106		50 - 200
13C4 PFBA	115		50 - 200
13C5 PFPeA	118		50 - 200
13C3 PFBS	114		50 - 200
13C3 PFHxS	112		50 - 200
13C8 PFOS	113		50 - 200
13C2-4:2-FTS	108		50 - 200
13C2-6:2-FTS	104		50 - 200
13C2-8:2-FTS	100		50 - 200

Lab Sample ID: MBL 380-242021/20-A

Matrix: Water

Analysis Batch: 242192

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 242021

Analyte	MBL MBL		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<0.29		2.0	ng/L		07/23/26 19:20	07/24/26 11:39	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.29		2.0	ng/L		07/23/26 19:20	07/24/26 11:39	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.59		2.0	ng/L		07/23/26 19:20	07/24/26 11:39	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<0.98		2.0	ng/L		07/23/26 19:20	07/24/26 11:39	1
Perfluorobutanesulfonic acid (PFBS)	<0.36		2.0	ng/L		07/23/26 19:20	07/24/26 11:39	1
Perfluorodecanoic acid (PFDA)	<0.30		2.0	ng/L		07/23/26 19:20	07/24/26 11:39	1
Perfluorododecanoic acid (PFDoA)	<0.53		2.0	ng/L		07/23/26 19:20	07/24/26 11:39	1
Perfluoroheptanoic acid (PFHpA)	<0.38		2.0	ng/L		07/23/26 19:20	07/24/26 11:39	1
Perfluorohexanesulfonic acid (PFHxS)	<0.31		2.0	ng/L		07/23/26 19:20	07/24/26 11:39	1
Perfluorohexanoic acid (PFHxA)	<0.45		2.0	ng/L		07/23/26 19:20	07/24/26 11:39	1
Perfluorononanoic acid (PFNA)	<0.39		2.0	ng/L		07/23/26 19:20	07/24/26 11:39	1
Perfluorooctanesulfonic acid (PFOS)	<0.42		2.0	ng/L		07/23/26 19:20	07/24/26 11:39	1
Perfluorooctanoic acid (PFOA)	<0.37		2.0	ng/L		07/23/26 19:20	07/24/26 11:39	1
Perfluoroundecanoic acid (PFUnA)	<0.41		2.0	ng/L		07/23/26 19:20	07/24/26 11:39	1
Perfluorobutanoic acid (PFBA)	<0.68		2.0	ng/L		07/23/26 19:20	07/24/26 11:39	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.37		2.0	ng/L		07/23/26 19:20	07/24/26 11:39	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.36		2.0	ng/L		07/23/26 19:20	07/24/26 11:39	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.47		2.0	ng/L		07/23/26 19:20	07/24/26 11:39	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.46		2.0	ng/L		07/23/26 19:20	07/24/26 11:39	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.24		2.0	ng/L		07/23/26 19:20	07/24/26 11:39	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.45		2.0	ng/L		07/23/26 19:20	07/24/26 11:39	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		07/23/26 19:20	07/24/26 11:39	1

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QC Sample Results

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

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

Lab Sample ID: MBL 380-242021/20-A

Matrix: Water

Analysis Batch: 242192

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 242021

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid (PFPeA)	<0.37		2.0	ng/L		07/23/26 19:20	07/24/26 11:39	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.35		2.0	ng/L		07/23/26 19:20	07/24/26 11:39	1
Perfluoropentanesulfonic acid (PFPeS)	<0.38		2.0	ng/L		07/23/26 19:20	07/24/26 11:39	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	98		50 - 200	07/23/26 19:20	07/24/26 11:39	1
13C6 PFDA	101		50 - 200	07/23/26 19:20	07/24/26 11:39	1
13C5 PFHxA	104		50 - 200	07/23/26 19:20	07/24/26 11:39	1
13C4 PFHpA	107		50 - 200	07/23/26 19:20	07/24/26 11:39	1
13C8 PFOA	107		50 - 200	07/23/26 19:20	07/24/26 11:39	1
13C9 PFNA	109		50 - 200	07/23/26 19:20	07/24/26 11:39	1
13C7 PFUnA	98		50 - 200	07/23/26 19:20	07/24/26 11:39	1
13C2 PFDoA	92		50 - 200	07/23/26 19:20	07/24/26 11:39	1
13C4 PFBA	117		50 - 200	07/23/26 19:20	07/24/26 11:39	1
13C5 PFPeA	114		50 - 200	07/23/26 19:20	07/24/26 11:39	1
13C3 PFBS	109		50 - 200	07/23/26 19:20	07/24/26 11:39	1
13C3 PFHxS	120		50 - 200	07/23/26 19:20	07/24/26 11:39	1
13C8 PFOS	117		50 - 200	07/23/26 19:20	07/24/26 11:39	1
13C2-4:2-FTS	108		50 - 200	07/23/26 19:20	07/24/26 11:39	1
13C2-6:2-FTS	105		50 - 200	07/23/26 19:20	07/24/26 11:39	1
13C2-8:2-FTS	94		50 - 200	07/23/26 19:20	07/24/26 11:39	1

Lab Sample ID: LCS 380-242021/22-A

Matrix: Water

Analysis Batch: 242192

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 242021

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	59.1	44.3		ng/L		75	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	59.1	47.7		ng/L		81	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	59.1	54.8		ng/L		93	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	59.1	55.8		ng/L		94	70 - 130
Perfluorobutanesulfonic acid (PFBS)	59.1	52.2		ng/L		88	70 - 130
Perfluorodecanoic acid (PFDA)	59.1	61.1		ng/L		103	70 - 130
Perfluorododecanoic acid (PFDoA)	59.1	56.0		ng/L		95	70 - 130
Perfluoroheptanoic acid (PFHpA)	59.1	55.3		ng/L		94	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	59.1	51.2		ng/L		87	70 - 130
Perfluorohexanoic acid (PFHxA)	59.1	55.2		ng/L		93	70 - 130
Perfluorononanoic acid (PFNA)	59.1	52.5		ng/L		89	70 - 130
Perfluorooctanesulfonic acid (PFOS)	59.1	53.1		ng/L		90	70 - 130
Perfluorooctanoic acid (PFOA)	59.1	53.2		ng/L		90	70 - 130

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QC Sample Results

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

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

Lab Sample ID: LCS 380-242021/22-A

Matrix: Water

Analysis Batch: 242192

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 242021

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	59.1	53.7		ng/L		91	70 - 130
Perfluorobutanoic acid (PFBA)	59.1	54.3		ng/L		92	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	59.1	56.3		ng/L		95	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	59.1	56.9		ng/L		96	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	59.1	55.4		ng/L		94	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	59.1	47.9		ng/L		81	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	59.1	56.6		ng/L		96	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	59.1	54.6		ng/L		93	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	59.1	53.6		ng/L		91	70 - 130
Perfluoropentanoic acid (PFPeA)	59.1	55.1		ng/L		93	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	59.1	54.2		ng/L		92	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	59.1	51.7		ng/L		88	70 - 130

Isotope Dilution	LCS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	94		50 - 200
13C6 PFDA	96		50 - 200
13C5 PFHxA	104		50 - 200
13C4 PFHpA	106		50 - 200
13C8 PFOA	105		50 - 200
13C9 PFNA	112		50 - 200
13C7 PFUnA	97		50 - 200
13C2 PFDoA	96		50 - 200
13C4 PFBA	111		50 - 200
13C5 PFPeA	108		50 - 200
13C3 PFBS	109		50 - 200
13C3 PFHxS	116		50 - 200
13C8 PFOS	113		50 - 200
13C2-4:2-FTS	104		50 - 200
13C2-6:2-FTS	101		50 - 200
13C2-8:2-FTS	90		50 - 200

Lab Sample ID: MRL 380-242021/21-A

Matrix: Water

Analysis Batch: 242192

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 242021

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.97	1.75	J	ng/L		89	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	1.97	1.74	J	ng/L		88	50 - 150

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QC Sample Results

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

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

Lab Sample ID: MRL 380-242021/21-A

Matrix: Water

Analysis Batch: 242192

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 242021

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.97	2.13	J	ng/L		108	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	1.97	2.13	J	ng/L		108	50 - 150
Perfluorobutanesulfonic acid (PFBS)	1.97	2.02	J	ng/L		102	50 - 150
Perfluorodecanoic acid (PFDA)	1.97	2.34	J	ng/L		119	50 - 150
Perfluorododecanoic acid (PFDoA)	1.97	2.16	J	ng/L		110	50 - 150
Perfluoroheptanoic acid (PFHpA)	1.97	2.32	J	ng/L		117	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	1.97	2.01	J	ng/L		102	50 - 150
Perfluorohexanoic acid (PFHxA)	1.97	2.12	J	ng/L		108	50 - 150
Perfluorononanoic acid (PFNA)	1.97	2.13	J	ng/L		108	50 - 150
Perfluorooctanesulfonic acid (PFOS)	1.97	2.04	J	ng/L		103	50 - 150
Perfluorooctanoic acid (PFOA)	1.97	2.18	J	ng/L		111	50 - 150
Perfluoroundecanoic acid (PFUnA)	1.97	2.10	J	ng/L		106	50 - 150
Perfluorobutanoic acid (PFBA)	1.97	2.32	J	ng/L		118	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	1.97	2.15	J	ng/L		109	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	1.97	2.28	J	ng/L		115	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	1.97	2.13	J	ng/L		108	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	1.97	1.94	J	ng/L		98	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	1.97	2.06	J	ng/L		105	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	1.97	2.08	J	ng/L		105	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	1.97	1.97	J	ng/L		100	50 - 150
Perfluoropentanoic acid (PFPeA)	1.97	2.23	J	ng/L		113	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	1.97	2.00	J	ng/L		102	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	1.97	1.95	J	ng/L		99	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	Limits
13C3 HFPO-DA	94		50 - 200
13C6 PFDA	99		50 - 200
13C5 PFHxA	104		50 - 200
13C4 PFHpA	106		50 - 200
13C8 PFOA	110		50 - 200
13C9 PFNA	110		50 - 200
13C7 PFUnA	100		50 - 200
13C2 PFDoA	95		50 - 200
13C4 PFBA	113		50 - 200
13C5 PFPeA	108		50 - 200
13C3 PFBS	106		50 - 200
13C3 PFHxS	113		50 - 200

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QC Sample Results

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

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

Lab Sample ID: MRL 380-242021/21-A

Matrix: Water

Analysis Batch: 242192

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 242021

Isotope Dilution	MRL %Recovery	MRL Qualifier	Limits
13C8 PFOS	115		50 - 200
13C2-4:2-FTS	108		50 - 200
13C2-6:2-FTS	100		50 - 200
13C2-8:2-FTS	92		50 - 200

Lab Sample ID: 380-226301-B-1-A MS

Matrix: Water

Analysis Batch: 242192

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 242021

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		58.9	44.2		ng/L		75	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<2.0		58.9	46.5		ng/L		79	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		58.9	54.7		ng/L		93	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		58.9	57.2		ng/L		97	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		58.9	51.6		ng/L		88	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		58.9	61.1		ng/L		104	70 - 130
Perfluorododecanoic acid (PFDaA)	<2.0		58.9	55.6		ng/L		94	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		58.9	55.1		ng/L		93	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		58.9	52.2		ng/L		89	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		58.9	53.8		ng/L		91	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		58.9	53.8		ng/L		91	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		58.9	51.8		ng/L		88	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		58.9	54.6		ng/L		93	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		58.9	53.3		ng/L		90	70 - 130
Perfluorobutanoic acid (PFBA)	<2.0		58.9	52.1		ng/L		88	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		58.9	54.3		ng/L		92	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		58.9	56.9		ng/L		97	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		58.9	56.8		ng/L		96	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		58.9	49.7		ng/L		84	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		58.9	64.4		ng/L		109	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		58.9	54.5		ng/L		92	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		58.9	55.5		ng/L		94	70 - 130
Perfluoropentanoic acid (PFPeA)	<2.0		58.9	54.1		ng/L		92	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		58.9	54.3		ng/L		92	70 - 130

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QC Sample Results

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

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

Lab Sample ID: 380-226301-B-1-A MS

Matrix: Water

Analysis Batch: 242192

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 242021

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanesulfonic acid (PFPeS)	<2.0		58.9	55.6		ng/L		94	70 - 130
	MS %Recovery	MS Qualifier	Limits						
13C3 HFPO-DA	91		50 - 200						
13C6 PFDA	91		50 - 200						
13C5 PFHxA	97		50 - 200						
13C4 PFHpA	96		50 - 200						
13C8 PFOA	95		50 - 200						
13C9 PFNA	98		50 - 200						
13C7 PFUnA	94		50 - 200						
13C2 PFDoA	94		50 - 200						
13C4 PFBA	108		50 - 200						
13C5 PFPeA	109		50 - 200						
13C3 PFBS	112		50 - 200						
13C3 PFHxS	113		50 - 200						
13C8 PFOS	113		50 - 200						
13C2-4:2-FTS	112		50 - 200						
13C2-6:2-FTS	103		50 - 200						
13C2-8:2-FTS	95		50 - 200						

Lab Sample ID: 380-226301-C-1-A MSD

Matrix: Water

Analysis Batch: 242192

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 242021

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		58.9	47.4		ng/L		80	70 - 130	7	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<2.0		58.9	46.8		ng/L		79	70 - 130	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		58.9	55.2		ng/L		94	70 - 130	1	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		58.9	57.0		ng/L		97	70 - 130	0	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		58.9	49.8		ng/L		84	70 - 130	4	30
Perfluorodecanoic acid (PFDA)	<2.0		58.9	57.3		ng/L		97	70 - 130	6	30
Perfluorododecanoic acid (PFDoA)	<2.0		58.9	56.2		ng/L		95	70 - 130	1	30
Perfluoroheptanoic acid (PFHpA)	<2.0		58.9	55.1		ng/L		93	70 - 130	0	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		58.9	51.1		ng/L		87	70 - 130	2	30
Perfluorohexanoic acid (PFHxA)	<2.0		58.9	58.2		ng/L		99	70 - 130	8	30
Perfluorononanoic acid (PFNA)	<2.0		58.9	55.2		ng/L		94	70 - 130	3	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		58.9	54.1		ng/L		92	70 - 130	4	30
Perfluorooctanoic acid (PFOA)	<2.0		58.9	55.6		ng/L		94	70 - 130	2	30
Perfluoroundecanoic acid (PFUnA)	<2.0		58.9	52.1		ng/L		88	70 - 130	2	30
Perfluorobutanoic acid (PFBA)	<2.0		58.9	52.5		ng/L		89	70 - 130	1	30

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QC Sample Results

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

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

Lab Sample ID: 380-226301-C-1-A MSD

Matrix: Water

Analysis Batch: 242192

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 242021

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		58.9	58.0		ng/L		98	70 - 130	7	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		58.9	55.7		ng/L		95	70 - 130	2	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		58.9	55.6		ng/L		94	70 - 130	2	30
Nonafluoro-3,6-dioxahexanoic acid (NFDHA)	<2.0		58.9	55.7		ng/L		95	70 - 130	11	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFESA)	<2.0		58.9	61.5		ng/L		104	70 - 130	5	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		58.9	56.4		ng/L		96	70 - 130	3	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		58.9	56.2		ng/L		95	70 - 130	1	30
Perfluoropentanoic acid (PFPeA)	<2.0		58.9	54.4		ng/L		92	70 - 130	0	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		58.9	55.8		ng/L		95	70 - 130	3	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0		58.9	51.3		ng/L		87	70 - 130	8	30

Isotope Dilution	MSD %Recovery	MSD Qualifier	Limits
13C3 HFPO-DA	102		50 - 200
13C6 PFDA	102		50 - 200
13C5 PFHxA	100		50 - 200
13C4 PFHpA	108		50 - 200
13C8 PFOA	106		50 - 200
13C9 PFNA	110		50 - 200
13C7 PFUnA	105		50 - 200
13C2 PFDoA	102		50 - 200
13C4 PFBA	114		50 - 200
13C5 PFPeA	115		50 - 200
13C3 PFBS	112		50 - 200
13C3 PFHxS	116		50 - 200
13C8 PFOS	111		50 - 200
13C2-4:2-FTS	109		50 - 200
13C2-6:2-FTS	105		50 - 200
13C2-8:2-FTS	87		50 - 200

Method: EPA 537.1 V2 - EPA 537.1 Ver. 2.0 March 2020

Lab Sample ID: MBL 380-241831/19-A

Matrix: Water

Analysis Batch: 242203

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 241831

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<0.98		2.0	ng/L		07/23/26 01:49	07/24/26 11:11	1
Perfluorooctanesulfonic acid (PFOS)	<0.42		2.0	ng/L		07/23/26 01:49	07/24/26 11:11	1
Perfluoroundecanoic acid (PFUnA)	<0.41		2.0	ng/L		07/23/26 01:49	07/24/26 11:11	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.57		2.0	ng/L		07/23/26 01:49	07/24/26 11:11	1

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QC Sample Results

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

Method: EPA 537.1 V2 - EPA 537.1 Ver. 2.0 March 2020 (Continued)

Lab Sample ID: MBL 380-241831/19-A

Matrix: Water

Analysis Batch: 242203

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 241831

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.41		2.0	ng/L		07/23/26 01:49	07/24/26 11:11	1
Perfluorohexanoic acid (PFHxA)	<0.45		2.0	ng/L		07/23/26 01:49	07/24/26 11:11	1
Perfluorododecanoic acid (PFDoA)	<0.53		2.0	ng/L		07/23/26 01:49	07/24/26 11:11	1
Perfluorooctanoic acid (PFOA)	<0.37		2.0	ng/L		07/23/26 01:49	07/24/26 11:11	1
Perfluorodecanoic acid (PFDA)	<0.30		2.0	ng/L		07/23/26 01:49	07/24/26 11:11	1
Perfluorohexanesulfonic acid (PFHxS)	<0.31		2.0	ng/L		07/23/26 01:49	07/24/26 11:11	1
Perfluorobutanesulfonic acid (PFBS)	<0.36		2.0	ng/L		07/23/26 01:49	07/24/26 11:11	1
Perfluoroheptanoic acid (PFHpA)	<0.38		2.0	ng/L		07/23/26 01:49	07/24/26 11:11	1
Perfluorononanoic acid (PFNA)	<0.39		2.0	ng/L		07/23/26 01:49	07/24/26 11:11	1
Perfluorotetradecanoic acid (PFTA)	<0.53		2.0	ng/L		07/23/26 01:49	07/24/26 11:11	1
Perfluorotridecanoic acid (PFTrDA)	<0.35		2.0	ng/L		07/23/26 01:49	07/24/26 11:11	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.29		2.0	ng/L		07/23/26 01:49	07/24/26 11:11	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUS)	<0.29		2.0	ng/L		07/23/26 01:49	07/24/26 11:11	1
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	<0.59		2.0	ng/L		07/23/26 01:49	07/24/26 11:11	1

Surrogate	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	100		70 - 130	07/23/26 01:49	07/24/26 11:11	1
13C2 PFHxA	103		70 - 130	07/23/26 01:49	07/24/26 11:11	1
13C2 PFDA	107		70 - 130	07/23/26 01:49	07/24/26 11:11	1
13C3-GenX	95		70 - 130	07/23/26 01:49	07/24/26 11:11	1

Lab Sample ID: LCS 380-241831/21-A

Matrix: Water

Analysis Batch: 242203

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 241831

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	24.6	23.0		ng/L		94	70 - 130
Perfluorooctanesulfonic acid (PFOS)	24.6	26.0		ng/L		106	70 - 130
Perfluoroundecanoic acid (PFUnA)	24.6	25.5		ng/L		104	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	24.6	24.0		ng/L		98	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	24.6	23.9		ng/L		97	70 - 130
Perfluorohexanoic acid (PFHxA)	24.6	25.1		ng/L		102	70 - 130
Perfluorododecanoic acid (PFDoA)	24.6	25.9		ng/L		105	70 - 130
Perfluorooctanoic acid (PFOA)	24.6	25.1		ng/L		102	70 - 130
Perfluorodecanoic acid (PFDA)	24.6	25.9		ng/L		105	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	24.6	26.3		ng/L		107	70 - 130
Perfluorobutanesulfonic acid (PFBS)	24.6	26.5		ng/L		108	70 - 130
Perfluoroheptanoic acid (PFHpA)	24.6	24.2		ng/L		99	70 - 130
Perfluorononanoic acid (PFNA)	24.6	26.2		ng/L		107	70 - 130

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QC Sample Results

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

Method: EPA 537.1 V2 - EPA 537.1 Ver. 2.0 March 2020 (Continued)

Lab Sample ID: LCS 380-241831/21-A

Matrix: Water

Analysis Batch: 242203

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 241831

		Spike	LCS	LCS	%Rec			
Analyte		Added	Result	Qualifier	Unit	D	%Rec	Limits
Perfluorotetradecanoic acid (PFTA)		24.6	22.6		ng/L		92	70 - 130
Perfluorotridecanoic acid (PFTrDA)		24.6	27.1		ng/L		110	70 - 130
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid(9Cl-PF3ONS)		24.6	26.0		ng/L		106	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)		24.6	25.1		ng/L		102	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)		24.6	23.4		ng/L		95	70 - 130
Surrogate	LCS	LCS						
	%Recovery	Qualifier	Limits					
d5-NETfOSAA	101		70 - 130					
13C2 PFHxA	107		70 - 130					
13C2 PFDA	107		70 - 130					
13C3-GenX	100		70 - 130					

Lab Sample ID: MRL 380-241831/20-A

Matrix: Water

Analysis Batch: 242203

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 241831

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	1.96	1.78	J	ng/L		91	50 - 150
Perfluorooctanesulfonic acid (PFOS)	1.96	1.96	J	ng/L		100	50 - 150
Perfluoroundecanoic acid (PFUnA)	1.96	2.00	J	ng/L		102	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	1.96	1.81	J	ng/L		92	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	1.96	1.83	J	ng/L		93	50 - 150
Perfluorohexanoic acid (PFHxA)	1.96	2.05	J	ng/L		104	50 - 150
Perfluorododecanoic acid (PFDoA)	1.96	2.02	J	ng/L		103	50 - 150
Perfluorooctanoic acid (PFOA)	1.96	2.02	J	ng/L		103	50 - 150
Perfluorodecanoic acid (PFDA)	1.96	2.05	J	ng/L		104	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	1.96	2.03	J	ng/L		104	50 - 150
Perfluorobutanesulfonic acid (PFBS)	1.96	2.04	J	ng/L		104	50 - 150
Perfluoroheptanoic acid (PFHpA)	1.96	2.02	J	ng/L		103	50 - 150
Perfluorononanoic acid (PFNA)	1.96	2.12	J	ng/L		108	50 - 150
Perfluorotetradecanoic acid (PFTA)	1.96	1.59	J	ng/L		81	50 - 150
Perfluorotridecanoic acid (PFTrDA)	1.96	2.10	J	ng/L		107	50 - 150
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid(9Cl-PF3ONS)	1.96	1.92	J	ng/L		98	50 - 150

Eurofins Pomona

QC Sample Results

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

Method: EPA 537.1 V2 - EPA 537.1 Ver. 2.0 March 2020 (Continued)

Lab Sample ID: MRL 380-241831/20-A

Matrix: Water

Analysis Batch: 242203

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 241831

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.96	1.84	J	ng/L		94	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.96	1.84	J	ng/L		94	50 - 150
Surrogate	MRL %Recovery	MRL Qualifier	Limits				
d5-NEtFOSAA	101		70 - 130				
13C2 PFHxA	106		70 - 130				
13C2 PFDA	107		70 - 130				
13C3-GenX	98		70 - 130				

Lab Sample ID: 380-226296-B-1-A MS

Matrix: Water

Analysis Batch: 242203

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 241831

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		49.3	52.0		ng/L		105	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		49.3	52.6		ng/L		107	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		49.3	53.8		ng/L		109	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		49.3	50.2		ng/L		102	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		49.3	51.3		ng/L		104	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		49.3	53.8		ng/L		109	70 - 130
Perfluorododecanoic acid (PFDaA)	<2.0		49.3	53.5		ng/L		108	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		49.3	53.3		ng/L		108	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		49.3	54.8		ng/L		111	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		49.3	53.3		ng/L		108	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		49.3	52.1		ng/L		106	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		49.3	54.7		ng/L		111	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		49.3	54.7		ng/L		111	70 - 130
Perfluorotetradecanoic acid (PFTA)	<2.0		49.3	45.9		ng/L		93	70 - 130
Perfluorotridecanoic acid (PFTrDA)	<2.0		49.3	58.0		ng/L		118	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		49.3	52.5		ng/L		107	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		49.3	51.0		ng/L		103	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		49.3	51.9		ng/L		105	70 - 130

Eurofins Pomona

QC Sample Results

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

Method: EPA 537.1 V2 - EPA 537.1 Ver. 2.0 March 2020 (Continued)

Lab Sample ID: 380-226296-B-1-A MS

Matrix: Water

Analysis Batch: 242203

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 241831

Surrogate	MS %Recovery	MS Qualifier	Limits
d5-NEtFOSAA	106		70 - 130
13C2 PFHxA	117		70 - 130
13C2 PFDA	111		70 - 130
13C3-GenX	109		70 - 130

Lab Sample ID: 380-226296-C-1-A MSD

Matrix: Water

Analysis Batch: 242203

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 241831

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Hexafluoropropylene Oxide	<2.0		49.4	49.5		ng/L		100	70 - 130	5	30
Dimer Acid (HFPO-DA/GenX)											
Perfluorooctanesulfonic acid (PFOS)	<2.0		49.4	51.9		ng/L		105	70 - 130	1	30
Perfluoroundecanoic acid (PFUnA)	<2.0		49.4	52.4		ng/L		106	70 - 130	3	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		49.4	50.7		ng/L		103	70 - 130	1	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		49.4	50.6		ng/L		102	70 - 130	2	30
Perfluorohexanoic acid (PFHxA)	<2.0		49.4	49.8		ng/L		101	70 - 130	8	30
Perfluorododecanoic acid (PFDoA)	<2.0		49.4	50.1		ng/L		101	70 - 130	7	30
Perfluorooctanoic acid (PFOA)	<2.0		49.4	50.9		ng/L		103	70 - 130	4	30
Perfluorodecanoic acid (PFDA)	<2.0		49.4	51.2		ng/L		104	70 - 130	7	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		49.4	52.7		ng/L		107	70 - 130	1	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		49.4	53.1		ng/L		107	70 - 130	2	30
Perfluoroheptanoic acid (PFHpA)	<2.0		49.4	50.9		ng/L		103	70 - 130	7	30
Perfluorononanoic acid (PFNA)	<2.0		49.4	52.9		ng/L		107	70 - 130	3	30
Perfluorotetradecanoic acid (PFTA)	<2.0		49.4	43.2		ng/L		87	70 - 130	6	30
Perfluorotridecanoic acid (PFTrDA)	<2.0		49.4	54.0		ng/L		109	70 - 130	7	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		49.4	51.1		ng/L		103	70 - 130	3	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		49.4	50.9		ng/L		103	70 - 130	0	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		49.4	48.6		ng/L		98	70 - 130	7	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
d5-NEtFOSAA	106		70 - 130
13C2 PFHxA	110		70 - 130
13C2 PFDA	107		70 - 130
13C3-GenX	108		70 - 130

Eurofins Pomona

QC Association Summary

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

LCMS

Prep Batch: 241831

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-226500-1	HALAWA WELLS P1 (331-023-WL065)	Total/NA	Drinking Water	537.1 DW	
380-226500-2	FB: HALAWA WELLS P1 (331-023-WL065)	Total/NA	Water	537.1 DW	
MBL 380-241831/19-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-241831/21-A	Lab Control Sample	Total/NA	Water	537.1 DW	
MRL 380-241831/20-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-226296-B-1-A MS	Matrix Spike	Total/NA	Water	537.1 DW	
380-226296-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1 DW	

Prep Batch: 242020

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-226500-2	FB: HALAWA WELLS P1 (331-023-WL065)	Total/NA	Water	533	
MBL 380-242020/20-A	Method Blank	Total/NA	Water	533	
LCS 380-242020/22-A	Lab Control Sample	Total/NA	Water	533	
MRL 380-242020/21-A	Lab Control Sample	Total/NA	Water	533	
380-226179-B-1-A MS	Matrix Spike	Total/NA	Water	533	
380-226179-C-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	533	

Prep Batch: 242021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-226500-1	HALAWA WELLS P1 (331-023-WL065)	Total/NA	Drinking Water	533	
MBL 380-242021/20-A	Method Blank	Total/NA	Water	533	
LCS 380-242021/22-A	Lab Control Sample	Total/NA	Water	533	
MRL 380-242021/21-A	Lab Control Sample	Total/NA	Water	533	
380-226301-B-1-A MS	Matrix Spike	Total/NA	Water	533	
380-226301-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	

Analysis Batch: 242156

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-226500-2	FB: HALAWA WELLS P1 (331-023-WL065)	Total/NA	Water	533	242020
MBL 380-242020/20-A	Method Blank	Total/NA	Water	533	242020
LCS 380-242020/22-A	Lab Control Sample	Total/NA	Water	533	242020
MRL 380-242020/21-A	Lab Control Sample	Total/NA	Water	533	242020
380-226179-B-1-A MS	Matrix Spike	Total/NA	Water	533	242020
380-226179-C-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	533	242020

Analysis Batch: 242192

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-226500-1	HALAWA WELLS P1 (331-023-WL065)	Total/NA	Drinking Water	533	242021
MBL 380-242021/20-A	Method Blank	Total/NA	Water	533	242021
LCS 380-242021/22-A	Lab Control Sample	Total/NA	Water	533	242021
MRL 380-242021/21-A	Lab Control Sample	Total/NA	Water	533	242021
380-226301-B-1-A MS	Matrix Spike	Total/NA	Water	533	242021
380-226301-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	242021

Analysis Batch: 242203

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-226500-1	HALAWA WELLS P1 (331-023-WL065)	Total/NA	Drinking Water	EPA 537.1 V2	241831
380-226500-2	FB: HALAWA WELLS P1 (331-023-WL065)	Total/NA	Water	EPA 537.1 V2	241831
MBL 380-241831/19-A	Method Blank	Total/NA	Water	EPA 537.1 V2	241831
LCS 380-241831/21-A	Lab Control Sample	Total/NA	Water	EPA 537.1 V2	241831
MRL 380-241831/20-A	Lab Control Sample	Total/NA	Water	EPA 537.1 V2	241831

Eurofins Pomona

QC Association Summary

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

LCMS (Continued)

Analysis Batch: 242203 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-226296-B-1-A MS	Matrix Spike	Total/NA	Water	EPA 537.1 V2	241831
380-226296-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 537.1 V2	241831

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Lab Chronicle

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

Client Sample ID: HALAWA WELLS P1 (331-023-WL065)

Lab Sample ID: 380-226500-1

Date Collected: 07/20/26 10:12

Matrix: Drinking Water

Date Received: 07/22/26 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			242021	E2HD	EA POM	07/23/26 19:20
Total/NA	Analysis	533		1	242192	Y5FM	EA POM	07/24/26 13:33
Total/NA	Prep	537.1 DW			241831	G9MN	EA POM	07/23/26 01:49
Total/NA	Analysis	EPA 537.1 V2		1	242203	Y5FM	EA POM	07/24/26 12:55

Client Sample ID: FB: HALAWA WELLS P1 (331-023-WL065)

Lab Sample ID: 380-226500-2

Date Collected: 07/20/26 10:12

Matrix: Water

Date Received: 07/22/26 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			242020	E2HD	EA POM	07/23/26 19:20
Total/NA	Analysis	533		1	242156	SZ9R	EA POM	07/24/26 09:44
Total/NA	Prep	537.1 DW			241831	G9MN	EA POM	07/23/26 01:49
Total/NA	Analysis	EPA 537.1 V2		1	242203	Y5FM	EA POM	07/24/26 13:04

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: 380-226500-1
SDG: PFAS: Halawa Wells P1

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 *

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



Method Summary

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

Job ID: 380-226500-1
SDG: PFAS: Halawa Wells P1

Method	Method Description	Protocol	Laboratory
533	Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water	EPA	EA POM
EPA 537.1 V2	EPA 537.1 Ver. 2.0 March 2020	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: 380-226500-1
SDG: PFAS: Halawa Wells P1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Sample Origin
380-226500-1	HALAWA WELLS P1 (331-023-WL065)	Drinking Water	07/20/26 10:12	07/22/26 09:50	Hawaii
380-226500-2	FB: HALAWA WELLS P1 (331-023-WL065)	Water	07/20/26 10:12	07/22/26 09:50	Hawaii

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Environment Te tling
America

Ver 01/16/2019 7/29/2026

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-226500-1
SDG Number: PFAS: Halawa Wells P1

Login Number: 226500

List Number: 1

Creator: Del Rosario, Michael

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	
CIO4 headspace requirement met (>50% for CA, >30% for other states).	True	
Samples do not require splitting or compositing.	True	
Container provided by EEA	True	