

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17

ANALYTICAL REPORT

PREPARED FOR

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City & County of Honolulu
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Honolulu, Hawaii 96843

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JOB DESCRIPTION

RED-HILL
PFAS: Halawa Shaft Viewing Pool

JOB NUMBER

380-220444-1

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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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	14
QC Association Summary	31
Lab Chronicle	33
Certification Summary	34
Method Summary	35
Sample Summary	36
Chain of Custody	37
Receipt Checklists	38

Definitions/Glossary

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

Job ID: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

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: 380-220444-1

Job ID: 380-220444-1

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Job Narrative 380-220444-1

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 6/18/2026 9:43 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 2.2°C.

PFAS

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: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-220444-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	3.3		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.0		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.3		2.0	ng/L	1		EPA 537.1 V2	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.6		2.0	ng/L	1		EPA 537.1 V2	Total/NA

Client Sample ID: FB HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-220444-2

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: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-220444-1

Date Collected: 06/16/26 09:30

Matrix: Water

Date Received: 06/18/26 09:43

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		06/22/26 07:47	06/23/26 02:31	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		06/22/26 07:47	06/23/26 02:31	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		06/22/26 07:47	06/23/26 02:31	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		06/22/26 07:47	06/23/26 02:31	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		06/22/26 07:47	06/23/26 02:31	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		06/22/26 07:47	06/23/26 02:31	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		06/22/26 07:47	06/23/26 02:31	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		06/22/26 07:47	06/23/26 02:31	1
Perfluorohexanesulfonic acid (PFHxS)	3.3		2.0	ng/L		06/22/26 07:47	06/23/26 02:31	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		06/22/26 07:47	06/23/26 02:31	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		06/22/26 07:47	06/23/26 02:31	1
Perfluorooctanesulfonic acid (PFOS)	3.0		2.0	ng/L		06/22/26 07:47	06/23/26 02:31	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		06/22/26 07:47	06/23/26 02:31	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		06/22/26 07:47	06/23/26 02:31	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		06/22/26 07:47	06/23/26 02:31	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		06/22/26 07:47	06/23/26 02:31	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		06/22/26 07:47	06/23/26 02:31	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		06/22/26 07:47	06/23/26 02:31	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		06/22/26 07:47	06/23/26 02:31	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		06/22/26 07:47	06/23/26 02:31	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		06/22/26 07:47	06/23/26 02:31	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		06/22/26 07:47	06/23/26 02:31	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		06/22/26 07:47	06/23/26 02:31	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		06/22/26 07:47	06/23/26 02:31	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		06/22/26 07:47	06/23/26 02:31	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	81		50 - 200	06/22/26 07:47	06/23/26 02:31	1
13C6 PFDA	72		50 - 200	06/22/26 07:47	06/23/26 02:31	1
13C5 PFHxA	83		50 - 200	06/22/26 07:47	06/23/26 02:31	1
13C4 PFHpA	87		50 - 200	06/22/26 07:47	06/23/26 02:31	1
13C8 PFOA	87		50 - 200	06/22/26 07:47	06/23/26 02:31	1
13C9 PFNA	84		50 - 200	06/22/26 07:47	06/23/26 02:31	1
13C7 PFUnA	77		50 - 200	06/22/26 07:47	06/23/26 02:31	1
13C2 PFDoA	81		50 - 200	06/22/26 07:47	06/23/26 02:31	1
13C4 PFBA	95		50 - 200	06/22/26 07:47	06/23/26 02:31	1
13C5 PFPeA	89		50 - 200	06/22/26 07:47	06/23/26 02:31	1
13C3 PFBS	106		50 - 200	06/22/26 07:47	06/23/26 02:31	1
13C3 PFHxS	112		50 - 200	06/22/26 07:47	06/23/26 02:31	1

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Client Sample Results

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

Job ID: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-220444-1

Date Collected: 06/16/26 09:30

Matrix: Water

Date Received: 06/18/26 09:43

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	114		50 - 200	06/22/26 07:47	06/23/26 02:31	1
13C2-4:2-FTS	123		50 - 200	06/22/26 07:47	06/23/26 02:31	1
13C2-6:2-FTS	104		50 - 200	06/22/26 07:47	06/23/26 02:31	1
13C2-8:2-FTS	96		50 - 200	06/22/26 07:47	06/23/26 02:31	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		06/19/26 17:12	06/20/26 16:47	1
Perfluorooctanesulfonic acid (PFOS)	3.3		2.0	ng/L		06/19/26 17:12	06/20/26 16:47	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:47	1
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:47	1
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:47	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:47	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:47	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:47	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:47	1
Perfluorohexanesulfonic acid (PFHxS)	3.6		2.0	ng/L		06/19/26 17:12	06/20/26 16:47	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:47	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:47	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:47	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:47	1
Perfluorotridecanoic acid (PFTTrDA)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:47	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:47	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:47	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:47	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac		
d5-NEtFOSAA	100		70 - 130	06/19/26 17:12	06/20/26 16:47	1		
13C2 PFHxA	105		70 - 130	06/19/26 17:12	06/20/26 16:47	1		
13C2 PFDA	103		70 - 130	06/19/26 17:12	06/20/26 16:47	1		
13C3-GenX	96		70 - 130	06/19/26 17:12	06/20/26 16:47	1		

Client Sample ID: FB HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-220444-2

Date Collected: 06/16/26 09:30

Matrix: Water

Date Received: 06/18/26 09:43

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		06/19/26 15:53	06/20/26 20:22	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		06/19/26 15:53	06/20/26 20:22	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		06/19/26 15:53	06/20/26 20:22	1

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Client Sample Results

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

Job ID: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: FB HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-220444-2

Date Collected: 06/16/26 09:30

Matrix: Water

Date Received: 06/18/26 09:43

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		06/19/26 15:53	06/20/26 20:22	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		06/19/26 15:53	06/20/26 20:22	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		06/19/26 15:53	06/20/26 20:22	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		06/19/26 15:53	06/20/26 20:22	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		06/19/26 15:53	06/20/26 20:22	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		06/19/26 15:53	06/20/26 20:22	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		06/19/26 15:53	06/20/26 20:22	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		06/19/26 15:53	06/20/26 20:22	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		06/19/26 15:53	06/20/26 20:22	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		06/19/26 15:53	06/20/26 20:22	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		06/19/26 15:53	06/20/26 20:22	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		06/19/26 15:53	06/20/26 20:22	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		06/19/26 15:53	06/20/26 20:22	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		06/19/26 15:53	06/20/26 20:22	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		06/19/26 15:53	06/20/26 20:22	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		06/19/26 15:53	06/20/26 20:22	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L		06/19/26 15:53	06/20/26 20:22	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		06/19/26 15:53	06/20/26 20:22	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		06/19/26 15:53	06/20/26 20:22	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		06/19/26 15:53	06/20/26 20:22	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		06/19/26 15:53	06/20/26 20:22	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		06/19/26 15:53	06/20/26 20:22	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	73		50 - 200	06/19/26 15:53	06/20/26 20:22	1
13C6 PFDA	82		50 - 200	06/19/26 15:53	06/20/26 20:22	1
13C5 PFHxA	77		50 - 200	06/19/26 15:53	06/20/26 20:22	1
13C4 PFHpA	86		50 - 200	06/19/26 15:53	06/20/26 20:22	1
13C8 PFOA	85		50 - 200	06/19/26 15:53	06/20/26 20:22	1
13C9 PFNA	93		50 - 200	06/19/26 15:53	06/20/26 20:22	1
13C7 PFUnA	92		50 - 200	06/19/26 15:53	06/20/26 20:22	1
13C2 PFDoA	92		50 - 200	06/19/26 15:53	06/20/26 20:22	1
13C4 PFBA	85		50 - 200	06/19/26 15:53	06/20/26 20:22	1
13C5 PFPeA	80		50 - 200	06/19/26 15:53	06/20/26 20:22	1
13C3 PFBS	98		50 - 200	06/19/26 15:53	06/20/26 20:22	1
13C3 PFHxS	102		50 - 200	06/19/26 15:53	06/20/26 20:22	1
13C8 PFOS	105		50 - 200	06/19/26 15:53	06/20/26 20:22	1
13C2-4:2-FTS	94		50 - 200	06/19/26 15:53	06/20/26 20:22	1
13C2-6:2-FTS	112		50 - 200	06/19/26 15:53	06/20/26 20:22	1
13C2-8:2-FTS	126		50 - 200	06/19/26 15:53	06/20/26 20:22	1

Client Sample Results

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

Job ID: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: FB HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-220444-2

Date Collected: 06/16/26 09:30

Matrix: Water

Date Received: 06/18/26 09:43

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		06/19/26 17:12	06/20/26 16:57	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:57	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:57	1
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:57	1
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:57	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:57	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:57	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:57	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:57	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:57	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:57	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:57	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:57	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:57	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:57	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:57	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:57	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		06/19/26 17:12	06/20/26 16:57	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	104		70 - 130			06/19/26 17:12	06/20/26 16:57	1
13C2 PFHxA	103		70 - 130			06/19/26 17:12	06/20/26 16:57	1
13C2 PFDA	100		70 - 130			06/19/26 17:12	06/20/26 16:57	1
13C3-GenX	95		70 - 130			06/19/26 17:12	06/20/26 16:57	1

Action Limit Summary

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

Job ID: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-220444-1

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		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)	3.3		ng/L	10		2.0	533	Total/NA
Perfluorononanoic acid (PFNA)	<2.0		ng/L	10		2.0	533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.0		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)	3.3		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)	3.6		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 SHAFT VIEWING POOL

Lab Sample ID: 380-220444-2

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		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	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: 380-220444-1
 SDG: PFAS: Halawa Shaft Viewing Pool

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)
380-220371-B-1-A MSD	Matrix Spike Duplicate	98	106	105	103
380-220371-C-1-A MS	Matrix Spike	94	99	101	91
380-220444-1	HALAWA SHAFT VIEWING POOL	100	105	103	96
380-220444-2	FB HALAWA SHAFT VIEWING POOL	104	103	100	95
LCS 380-235114/22-A	Lab Control Sample	97	88	100	90
MBL 380-235114/20-A	Method Blank	95	103	99	89
MRL 380-235114/21-A	Lab Control Sample	90	106	102	90

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: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

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)
380-220250-B-1-A MS	Matrix Spike	87	72	90	90	88	88	76	80
380-220250-C-1-A MSD	Matrix Spike Duplicate	85	82	89	90	91	95	87	85
380-220444-1	HALAWA SHAFT VIEWING POOL	81	72	83	87	87	84	77	81
380-220444-2	FB HALAWA SHAFT VIEWING POOL	73	82	77	86	85	93	92	92
380-220780-A-1-B MS	Matrix Spike	82	87	90	84	93	93	92	92
380-220780-A-1-C MSD	Matrix Spike Duplicate	88	85	88	88	94	98	91	90
LCS 380-235066/22-A	Lab Control Sample	85	89	85	90	93	99	100	95
LCS 380-235378/22-A	Lab Control Sample	108	103	108	109	113	110	110	110
MBL 380-235066/20-A	Method Blank	79	87	83	90	92	98	93	94
MBL 380-235378/20-A	Method Blank	89	96	91	100	105	100	94	98
MRL 380-235066/21-A	Lab Control Sample	68	75	75	75	81	87	81	80
MRL 380-235378/21-A	Lab Control Sample	95	97	102	102	106	107	100	99

		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)
380-220250-B-1-A MS	Matrix Spike	101	116	99	105	110	115	119	124
380-220250-C-1-A MSD	Matrix Spike Duplicate	101	120	95	100	107	107	114	119
380-220444-1	HALAWA SHAFT VIEWING POOL	95	89	106	112	114	123	104	96
380-220444-2	FB HALAWA SHAFT VIEWING POOL	85	80	98	102	105	94	112	126
380-220780-A-1-B MS	Matrix Spike	91	89	104	108	108	104	98	97
380-220780-A-1-C MSD	Matrix Spike Duplicate	93	89	108	113	114	108	104	101
LCS 380-235066/22-A	Lab Control Sample	90	84	100	103	107	88	101	120
LCS 380-235378/22-A	Lab Control Sample	107	103	107	111	112	106	101	93
MBL 380-235066/20-A	Method Blank	91	83	102	103	109	94	109	121
MBL 380-235378/20-A	Method Blank	100	102	105	111	114	105	102	98
MRL 380-235066/21-A	Lab Control Sample	80	77	98	100	105	96	111	116
MRL 380-235378/21-A	Lab Control Sample	105	104	104	106	112	106	100	95

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: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: MBL 380-235066/20-A
Matrix: Water
Analysis Batch: 235181

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 235066

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		06/19/26 15:53	06/20/26 16:31	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		06/19/26 15:53	06/20/26 16:31	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		06/19/26 15:53	06/20/26 16:31	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		06/19/26 15:53	06/20/26 16:31	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		06/19/26 15:53	06/20/26 16:31	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		06/19/26 15:53	06/20/26 16:31	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		06/19/26 15:53	06/20/26 16:31	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		06/19/26 15:53	06/20/26 16:31	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		06/19/26 15:53	06/20/26 16:31	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		06/19/26 15:53	06/20/26 16:31	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		06/19/26 15:53	06/20/26 16:31	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		06/19/26 15:53	06/20/26 16:31	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		06/19/26 15:53	06/20/26 16:31	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		06/19/26 15:53	06/20/26 16:31	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		06/19/26 15:53	06/20/26 16:31	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		06/19/26 15:53	06/20/26 16:31	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		06/19/26 15:53	06/20/26 16:31	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		06/19/26 15:53	06/20/26 16:31	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		06/19/26 15:53	06/20/26 16:31	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0	ng/L		06/19/26 15:53	06/20/26 16:31	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		06/19/26 15:53	06/20/26 16:31	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		06/19/26 15:53	06/20/26 16:31	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		06/19/26 15:53	06/20/26 16:31	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		06/19/26 15:53	06/20/26 16:31	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		06/19/26 15:53	06/20/26 16:31	1

Isotope Dilution	MBL	MBL	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 HFPO-DA	79		50 - 200	06/19/26 15:53	06/20/26 16:31	1
13C6 PFDA	87		50 - 200	06/19/26 15:53	06/20/26 16:31	1
13C5 PFHxA	83		50 - 200	06/19/26 15:53	06/20/26 16:31	1
13C4 PFHpA	90		50 - 200	06/19/26 15:53	06/20/26 16:31	1
13C8 PFOA	92		50 - 200	06/19/26 15:53	06/20/26 16:31	1
13C9 PFNA	98		50 - 200	06/19/26 15:53	06/20/26 16:31	1
13C7 PFUnA	93		50 - 200	06/19/26 15:53	06/20/26 16:31	1
13C2 PFDoA	94		50 - 200	06/19/26 15:53	06/20/26 16:31	1
13C4 PFBA	91		50 - 200	06/19/26 15:53	06/20/26 16:31	1
13C5 PFPeA	83		50 - 200	06/19/26 15:53	06/20/26 16:31	1
13C3 PFBS	102		50 - 200	06/19/26 15:53	06/20/26 16:31	1
13C3 PFHxS	103		50 - 200	06/19/26 15:53	06/20/26 16:31	1

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QC Sample Results

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

Job ID: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: MBL 380-235066/20-A
Matrix: Water
Analysis Batch: 235181

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 235066

Isotope Dilution	MBL MBL		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C8 PFOS	109		50 - 200	06/19/26 15:53	06/20/26 16:31	1
13C2-4:2-FTS	94		50 - 200	06/19/26 15:53	06/20/26 16:31	1
13C2-6:2-FTS	109		50 - 200	06/19/26 15:53	06/20/26 16:31	1
13C2-8:2-FTS	121		50 - 200	06/19/26 15:53	06/20/26 16:31	1

Lab Sample ID: LCS 380-235066/22-A
Matrix: Water
Analysis Batch: 235181

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 235066

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	108		ng/L		89	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	120	106		ng/L		88	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	120	110		ng/L		92	70 - 130
Perfluorobutanesulfonic acid (PFBS)	120	111		ng/L		92	70 - 130
Perfluorodecanoic acid (PFDA)	120	119		ng/L		99	70 - 130
Perfluorododecanoic acid (PFDoA)	120	113		ng/L		94	70 - 130
Perfluoroheptanoic acid (PFHpA)	120	111		ng/L		92	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	120	112		ng/L		93	70 - 130
Perfluorohexanoic acid (PFHxA)	120	111		ng/L		92	70 - 130
Perfluorononanoic acid (PFNA)	120	113		ng/L		94	70 - 130
Perfluorooctanesulfonic acid (PFOS)	120	110		ng/L		91	70 - 130
Perfluorooctanoic acid (PFOA)	120	110		ng/L		91	70 - 130
Perfluoroundecanoic acid (PFUnA)	120	107		ng/L		89	70 - 130
Perfluorobutanoic acid (PFBA)	120	114		ng/L		94	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	120	109		ng/L		90	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	113		ng/L		94	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	120	112		ng/L		93	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	120	95.3		ng/L		79	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	120	113		ng/L		94	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	120	115		ng/L		95	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	120	111		ng/L		93	70 - 130
Perfluoropentanoic acid (PFPeA)	120	115		ng/L		96	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	120	108		ng/L		90	70 - 130

QC Sample Results

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

Job ID: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: LCS 380-235066/22-A
Matrix: Water
Analysis Batch: 235181

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 235066

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanesulfonic acid (PFPeS)	120	110		ng/L		91	70 - 130
LCS LCS							
Isotope Dilution	%Recovery	Qualifier	Limits				
13C3 HFPO-DA	85		50 - 200				
13C6 PFDA	89		50 - 200				
13C5 PFHxA	85		50 - 200				
13C4 PFHpA	90		50 - 200				
13C8 PFOA	93		50 - 200				
13C9 PFNA	99		50 - 200				
13C7 PFUnA	100		50 - 200				
13C2 PFDoA	95		50 - 200				
13C4 PFBA	90		50 - 200				
13C5 PFPeA	84		50 - 200				
13C3 PFBS	100		50 - 200				
13C3 PFHxS	103		50 - 200				
13C8 PFOS	107		50 - 200				
13C2-4:2-FTS	88		50 - 200				
13C2-6:2-FTS	101		50 - 200				
13C2-8:2-FTS	120		50 - 200				

Lab Sample ID: MRL 380-235066/21-A
Matrix: Water
Analysis Batch: 235181

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 235066

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	1.89	J	ng/L		94	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	1.90	J	ng/L		95	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	1.86	J	ng/L		93	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.97	J	ng/L		98	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	2.02	J	ng/L		101	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.29	J	ng/L		114	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.09	J	ng/L		105	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.14	J	ng/L		107	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	2.01	J	ng/L		100	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.07	J	ng/L		103	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.09	J	ng/L		104	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	2.01	J	ng/L		101	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.05	J	ng/L		102	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.02	J	ng/L		101	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	2.21	J	ng/L		110	50 - 150

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QC Sample Results

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

Job ID: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: MRL 380-235066/21-A
Matrix: Water
Analysis Batch: 235181

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 235066

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	1.95	J	ng/L		98	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	2.10	J	ng/L		105	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	2.16	J	ng/L		108	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	1.89	J	ng/L		94	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.00	2.03	J	ng/L		101	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	2.13	J	ng/L		106	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	1.94	J	ng/L		97	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	1.98	J	ng/L		99	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.00	1.98	J	ng/L		99	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.00	1.99	J	ng/L		99	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	MRL Limits
13C3 HFPO-DA	68		50 - 200
13C6 PFDA	75		50 - 200
13C5 PFHxA	75		50 - 200
13C4 PFHpA	75		50 - 200
13C8 PFOA	81		50 - 200
13C9 PFNA	87		50 - 200
13C7 PFUnA	81		50 - 200
13C2 PFDoA	80		50 - 200
13C4 PFBA	80		50 - 200
13C5 PFPeA	77		50 - 200
13C3 PFBS	98		50 - 200
13C3 PFHxS	100		50 - 200
13C8 PFOS	105		50 - 200
13C2-4:2-FTS	96		50 - 200
13C2-6:2-FTS	111		50 - 200
13C2-8:2-FTS	116		50 - 200

Lab Sample ID: 380-220250-B-1-A MS
Matrix: Water
Analysis Batch: 235181

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 235066

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.2	55.0		ng/L		91	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.2	55.6		ng/L		92	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.2	57.7		ng/L		96	70 - 130

QC Sample Results

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

Job ID: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: 380-220250-B-1-A MS

Client Sample ID: Matrix Spike

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 235181

Prep Batch: 235066

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
Hexafluoropropylene Oxide	<2.0		60.2	59.9		ng/L		99	70 - 130
Dimer Acid (HFPO-DA/GenX)									
Perfluorobutanesulfonic acid (PFBS)	9.5		60.2	70.9		ng/L		102	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		60.2	61.8		ng/L		103	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		60.2	58.2		ng/L		97	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		60.2	58.8		ng/L		96	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	6.8		60.2	65.0		ng/L		97	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		60.2	60.5		ng/L		98	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		60.2	60.1		ng/L		98	70 - 130
Perfluorooctanesulfonic acid (PFOS)	8.1		60.2	64.7		ng/L		94	70 - 130
Perfluorooctanoic acid (PFOA)	4.8		60.2	65.7		ng/L		101	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		60.2	57.1		ng/L		95	70 - 130
Perfluorobutanoic acid (PFBA)	5.2		60.2	64.9		ng/L		99	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.2	58.0		ng/L		96	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.2	57.6		ng/L		96	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.2	60.4		ng/L		100	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.2	54.4		ng/L		90	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		60.2	60.7		ng/L		101	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		60.2	57.1		ng/L		95	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.2	61.6		ng/L		102	70 - 130
Perfluoropentanoic acid (PFPeA)	<2.0		60.2	64.8		ng/L		104	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.2	57.9		ng/L		96	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.2	58.4		ng/L		95	70 - 130

Isotope Dilution	MS MS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	87		50 - 200
13C6 PFDA	72		50 - 200
13C5 PFHxA	90		50 - 200
13C4 PFHpA	90		50 - 200
13C8 PFOA	88		50 - 200
13C9 PFNA	88		50 - 200
13C7 PFUnA	76		50 - 200
13C2 PFDoA	80		50 - 200
13C4 PFBA	101		50 - 200
13C5 PFPeA	116		50 - 200
13C3 PFBS	99		50 - 200
13C3 PFHxS	105		50 - 200
13C8 PFOS	110		50 - 200

QC Sample Results

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

Job ID: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: 380-220250-B-1-A MS

Matrix: Water

Analysis Batch: 235181

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 235066

Isotope Dilution	MS MS		Limits
	%Recovery	Qualifier	
13C2-4:2-FTS	115		50 - 200
13C2-6:2-FTS	119		50 - 200
13C2-8:2-FTS	124		50 - 200

Lab Sample ID: 380-220250-C-1-A MSD

Matrix: Water

Analysis Batch: 235181

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 235066

Analyte	Sample	Sample	Spike	MSD MSD		Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier		Result	Qualifier				Limits		Limit
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.4	52.8		ng/L		88	70 - 130	4	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.4	53.6		ng/L		89	70 - 130	4	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.4	59.3		ng/L		98	70 - 130	3	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		60.4	59.8		ng/L		99	70 - 130	0	30
Perfluorobutanesulfonic acid (PFBS)	9.5		60.4	69.8		ng/L		100	70 - 130	2	30
Perfluorodecanoic acid (PFDA)	<2.0		60.4	62.9		ng/L		104	70 - 130	2	30
Perfluorododecanoic acid (PFDoA)	<2.0		60.4	60.2		ng/L		100	70 - 130	3	30
Perfluoroheptanoic acid (PFHpA)	<2.0		60.4	58.8		ng/L		96	70 - 130	0	30
Perfluorohexanesulfonic acid (PFHxS)	6.8		60.4	64.1		ng/L		95	70 - 130	1	30
Perfluorohexanoic acid (PFHxA)	<2.0		60.4	60.3		ng/L		97	70 - 130	0	30
Perfluorononanoic acid (PFNA)	<2.0		60.4	59.6		ng/L		97	70 - 130	1	30
Perfluorooctanesulfonic acid (PFOS)	8.1		60.4	63.2		ng/L		91	70 - 130	2	30
Perfluorooctanoic acid (PFOA)	4.8		60.4	64.0		ng/L		98	70 - 130	3	30
Perfluoroundecanoic acid (PFUnA)	<2.0		60.4	57.6		ng/L		95	70 - 130	1	30
Perfluorobutanoic acid (PFBA)	5.2		60.4	65.2		ng/L		99	70 - 130	0	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.4	57.4		ng/L		95	70 - 130	1	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.4	59.6		ng/L		99	70 - 130	3	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.4	58.8		ng/L		97	70 - 130	3	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.4	51.4		ng/L		85	70 - 130	6	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		60.4	60.6		ng/L		100	70 - 130	0	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		60.4	53.2		ng/L		88	70 - 130	7	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.4	56.1		ng/L		93	70 - 130	9	30
Perfluoropentanoic acid (PFPeA)	<2.0		60.4	59.3		ng/L		95	70 - 130	9	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.4	56.3		ng/L		93	70 - 130	3	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.4	57.6		ng/L		94	70 - 130	1	30

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QC Sample Results

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

Job ID: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Isotope Dilution	MSD MSD		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	85		50 - 200
13C6 PFDA	82		50 - 200
13C5 PFHxA	89		50 - 200
13C4 PFHpA	90		50 - 200
13C8 PFOA	91		50 - 200
13C9 PFNA	95		50 - 200
13C7 PFUnA	87		50 - 200
13C2 PFDoA	85		50 - 200
13C4 PFBA	101		50 - 200
13C5 PFPeA	120		50 - 200
13C3 PFBS	95		50 - 200
13C3 PFHxS	100		50 - 200
13C8 PFOS	107		50 - 200
13C2-4:2-FTS	107		50 - 200
13C2-6:2-FTS	114		50 - 200
13C2-8:2-FTS	119		50 - 200

Lab Sample ID: MBL 380-235378/20-A
Matrix: Water
Analysis Batch: 235514

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 235378

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		06/22/26 07:47	06/22/26 22:55	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		06/22/26 07:47	06/22/26 22:55	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		06/22/26 07:47	06/22/26 22:55	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		06/22/26 07:47	06/22/26 22:55	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		06/22/26 07:47	06/22/26 22:55	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		06/22/26 07:47	06/22/26 22:55	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		06/22/26 07:47	06/22/26 22:55	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		06/22/26 07:47	06/22/26 22:55	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		06/22/26 07:47	06/22/26 22:55	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		06/22/26 07:47	06/22/26 22:55	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		06/22/26 07:47	06/22/26 22:55	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		06/22/26 07:47	06/22/26 22:55	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		06/22/26 07:47	06/22/26 22:55	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		06/22/26 07:47	06/22/26 22:55	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		06/22/26 07:47	06/22/26 22:55	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		06/22/26 07:47	06/22/26 22:55	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		06/22/26 07:47	06/22/26 22:55	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	0.609	J	2.0	ng/L		06/22/26 07:47	06/22/26 22:55	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		06/22/26 07:47	06/22/26 22:55	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0	ng/L		06/22/26 07:47	06/22/26 22:55	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		06/22/26 07:47	06/22/26 22:55	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		06/22/26 07:47	06/22/26 22:55	1

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QC Sample Results

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

Job ID: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: MBL 380-235378/20-A
Matrix: Water
Analysis Batch: 235514

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 235378

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		06/22/26 07:47	06/22/26 22:55	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		06/22/26 07:47	06/22/26 22:55	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		06/22/26 07:47	06/22/26 22:55	1
Isotope Dilution	%Recovery	MBL Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	89		50 - 200			06/22/26 07:47	06/22/26 22:55	1
13C6 PFDA	96		50 - 200			06/22/26 07:47	06/22/26 22:55	1
13C5 PFHxA	91		50 - 200			06/22/26 07:47	06/22/26 22:55	1
13C4 PFHpA	100		50 - 200			06/22/26 07:47	06/22/26 22:55	1
13C8 PFOA	105		50 - 200			06/22/26 07:47	06/22/26 22:55	1
13C9 PFNA	100		50 - 200			06/22/26 07:47	06/22/26 22:55	1
13C7 PFUnA	94		50 - 200			06/22/26 07:47	06/22/26 22:55	1
13C2 PFDoA	98		50 - 200			06/22/26 07:47	06/22/26 22:55	1
13C4 PFBA	100		50 - 200			06/22/26 07:47	06/22/26 22:55	1
13C5 PFPeA	102		50 - 200			06/22/26 07:47	06/22/26 22:55	1
13C3 PFBS	105		50 - 200			06/22/26 07:47	06/22/26 22:55	1
13C3 PFHxS	111		50 - 200			06/22/26 07:47	06/22/26 22:55	1
13C8 PFOS	114		50 - 200			06/22/26 07:47	06/22/26 22:55	1
13C2-4:2-FTS	105		50 - 200			06/22/26 07:47	06/22/26 22:55	1
13C2-6:2-FTS	102		50 - 200			06/22/26 07:47	06/22/26 22:55	1
13C2-8:2-FTS	98		50 - 200			06/22/26 07:47	06/22/26 22:55	1

Lab Sample ID: LCS 380-235378/22-A
Matrix: Water
Analysis Batch: 235514

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 235378

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	60.2	53.5		ng/L		89	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	60.2	53.3		ng/L		89	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.2	55.1		ng/L		91	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.2	58.3		ng/L		97	70 - 130
Perfluorobutanesulfonic acid (PFBS)	60.2	56.2		ng/L		93	70 - 130
Perfluorodecanoic acid (PFDA)	60.2	60.4		ng/L		100	70 - 130
Perfluorododecanoic acid (PFDoA)	60.2	54.0		ng/L		90	70 - 130
Perfluoroheptanoic acid (PFHpA)	60.2	59.0		ng/L		98	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	60.2	57.1		ng/L		95	70 - 130
Perfluorohexanoic acid (PFHxA)	60.2	58.0		ng/L		96	70 - 130
Perfluorononanoic acid (PFNA)	60.2	57.0		ng/L		95	70 - 130
Perfluorooctanesulfonic acid (PFOS)	60.2	53.6		ng/L		89	70 - 130
Perfluorooctanoic acid (PFOA)	60.2	56.5		ng/L		94	70 - 130

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QC Sample Results

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

Job ID: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: LCS 380-235378/22-A
Matrix: Water
Analysis Batch: 235514

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 235378

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	60.2	55.0		ng/L		91	70 - 130
Perfluorobutanoic acid (PFBA)	60.2	56.5		ng/L		94	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.2	59.5		ng/L		99	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.2	57.9		ng/L		96	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.2	58.0		ng/L		96	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.2	53.9		ng/L		89	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	60.2	57.8		ng/L		96	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.2	59.8		ng/L		99	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.2	60.1		ng/L		100	70 - 130
Perfluoropentanoic acid (PFPeA)	60.2	55.8		ng/L		93	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	60.2	56.0		ng/L		93	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	60.2	51.5		ng/L		85	70 - 130

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	108		50 - 200
13C6 PFDA	103		50 - 200
13C5 PFHxA	108		50 - 200
13C4 PFHpA	109		50 - 200
13C8 PFOA	113		50 - 200
13C9 PFNA	110		50 - 200
13C7 PFUnA	110		50 - 200
13C2 PFDoA	110		50 - 200
13C4 PFBA	107		50 - 200
13C5 PFPeA	103		50 - 200
13C3 PFBS	107		50 - 200
13C3 PFHxS	111		50 - 200
13C8 PFOS	112		50 - 200
13C2-4:2-FTS	106		50 - 200
13C2-6:2-FTS	101		50 - 200
13C2-8:2-FTS	93		50 - 200

Lab Sample ID: MRL 380-235378/21-A
Matrix: Water
Analysis Batch: 235514

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 235378

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.01	1.74	J	ng/L		87	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.01	1.66	J	ng/L		83	50 - 150

QC Sample Results

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

Job ID: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: MRL 380-235378/21-A

Matrix: Water

Analysis Batch: 235514

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 235378

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	2.11	J	ng/L		105	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.01	1.96	J	ng/L		98	50 - 150
Perfluorodecanoic acid (PFDA)	2.01	2.14	J	ng/L		107	50 - 150
Perfluorododecanoic acid (PFDoA)	2.01	1.90	J	ng/L		95	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.01	1.94	J	ng/L		96	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.01	1.92	J	ng/L		96	50 - 150
Perfluorohexanoic acid (PFHxA)	2.01	1.78	J	ng/L		89	50 - 150
Perfluorononanoic acid (PFNA)	2.01	1.81	J	ng/L		90	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.01	1.78	J	ng/L		89	50 - 150
Perfluorooctanoic acid (PFOA)	2.01	1.94	J	ng/L		97	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.01	1.76	J	ng/L		88	50 - 150
Perfluorobutanoic acid (PFBA)	2.01	2.07	J	ng/L		103	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.01	1.78	J	ng/L		89	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.01	1.99	J	ng/L		99	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.01	2.64	J	ng/L		131	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.01	1.74	J	ng/L		87	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.01	1.97	J	ng/L		98	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.01	1.91	J	ng/L		95	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.01	1.88	J	ng/L		94	50 - 150
Perfluoropentanoic acid (PFPeA)	2.01	2.06	J	ng/L		102	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.01	1.92	J	ng/L		96	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.01	1.89	J	ng/L		94	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	Limits
13C3 HFPO-DA	95		50 - 200
13C6 PFDA	97		50 - 200
13C5 PFHxA	102		50 - 200
13C4 PFHpA	102		50 - 200
13C8 PFOA	106		50 - 200
13C9 PFNA	107		50 - 200
13C7 PFUnA	100		50 - 200
13C2 PFDoA	99		50 - 200
13C4 PFBA	105		50 - 200
13C5 PFPeA	104		50 - 200
13C3 PFBS	104		50 - 200
13C3 PFHxS	106		50 - 200

QC Sample Results

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

Job ID: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: MRL 380-235378/21-A

Matrix: Water

Analysis Batch: 235514

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 235378

<i>Isotope Dilution</i>	<i>MRL %Recovery</i>	<i>MRL Qualifier</i>	<i>Limits</i>
13C8 PFOS	112		50 - 200
13C2-4:2-FTS	106		50 - 200
13C2-6:2-FTS	100		50 - 200
13C2-8:2-FTS	95		50 - 200

Lab Sample ID: 380-220780-A-1-B MS

Matrix: Water

Analysis Batch: 235514

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 235378

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MS Result</i>	<i>MS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.2	54.3		ng/L		90	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.2	54.4		ng/L		90	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.2	60.7		ng/L		101	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		60.2	62.1		ng/L		103	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		60.2	59.9		ng/L		99	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0	*5-	60.2	63.9		ng/L		106	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0	*5-	60.2	55.1		ng/L		92	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		60.2	64.0		ng/L		106	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.2	59.3		ng/L		98	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		60.2	60.0		ng/L		100	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		60.2	58.8		ng/L		98	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		60.2	56.6		ng/L		94	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		60.2	59.6		ng/L		99	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0	*5-	60.2	53.6		ng/L		89	70 - 130
Perfluorobutanoic acid (PFBA)	<2.0		60.2	59.6		ng/L		99	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.2	58.2		ng/L		97	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.2	58.7		ng/L		97	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.2	60.0		ng/L		100	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.2	49.3		ng/L		82	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		60.2	59.4		ng/L		99	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		60.2	57.6		ng/L		96	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.2	54.3		ng/L		90	70 - 130
Perfluoropentanoic acid (PFPeA)	<2.0		60.2	59.6		ng/L		99	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.2	58.4		ng/L		97	70 - 130

QC Sample Results

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

Job ID: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: 380-220780-A-1-B MS
Matrix: Water
Analysis Batch: 235514

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 235378

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.2	54.2		ng/L		90	70 - 130
MS MS									
Isotope Dilution	%Recovery	Qualifier	Limits						
13C3 HFPO-DA	82		50 - 200						
13C6 PFDA	87		50 - 200						
13C5 PFHxA	90		50 - 200						
13C4 PFHpA	84		50 - 200						
13C8 PFOA	93		50 - 200						
13C9 PFNA	93		50 - 200						
13C7 PFUnA	92		50 - 200						
13C2 PFDoA	92		50 - 200						
13C4 PFBA	91		50 - 200						
13C5 PFPeA	89		50 - 200						
13C3 PFBS	104		50 - 200						
13C3 PFHxS	108		50 - 200						
13C8 PFOS	108		50 - 200						
13C2-4:2-FTS	104		50 - 200						
13C2-6:2-FTS	98		50 - 200						
13C2-8:2-FTS	97		50 - 200						

Lab Sample ID: 380-220780-A-1-C MSD
Matrix: Water
Analysis Batch: 235514

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 235378

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	52.1		ng/L		87	70 - 130	4	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.2	53.4		ng/L		89	70 - 130	2	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.2	55.6		ng/L		92	70 - 130	9	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		60.2	57.7		ng/L		96	70 - 130	7	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		60.2	58.0		ng/L		96	70 - 130	3	30
Perfluorodecanoic acid (PFDA)	<2.0	*5-	60.2	62.8		ng/L		104	70 - 130	2	30
Perfluorododecanoic acid (PFDoA)	<2.0	*5-	60.2	57.1		ng/L		95	70 - 130	3	30
Perfluoroheptanoic acid (PFHpA)	<2.0		60.2	58.3		ng/L		97	70 - 130	9	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.2	56.3		ng/L		93	70 - 130	5	30
Perfluorohexanoic acid (PFHxA)	<2.0		60.2	58.9		ng/L		98	70 - 130	2	30
Perfluorononanoic acid (PFNA)	<2.0		60.2	52.6		ng/L		87	70 - 130	11	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		60.2	54.0		ng/L		90	70 - 130	5	30
Perfluorooctanoic acid (PFOA)	<2.0		60.2	56.4		ng/L		94	70 - 130	5	30
Perfluoroundecanoic acid (PFUnA)	<2.0	*5-	60.2	56.2		ng/L		93	70 - 130	5	30
Perfluorobutanoic acid (PFBA)	<2.0		60.2	56.2		ng/L		93	70 - 130	6	30

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QC Sample Results

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

Job ID: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: 380-220780-A-1-C MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 235514

Prep Batch: 235378

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	58.2		ng/L		97	70 - 130	0	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.2	54.0		ng/L		90	70 - 130	8	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.2	59.9		ng/L		99	70 - 130	0	30
Nonafluoro-3,6-dioxahexanoic acid (NFDHA)	<2.0		60.2	48.0		ng/L		80	70 - 130	3	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		60.2	58.1		ng/L		97	70 - 130	2	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		60.2	56.3		ng/L		93	70 - 130	2	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.2	57.9		ng/L		96	70 - 130	6	30
Perfluoropentanoic acid (PFPeA)	<2.0		60.2	56.9		ng/L		95	70 - 130	4	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.2	56.3		ng/L		93	70 - 130	4	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.2	52.2		ng/L		87	70 - 130	4	30

Isotope Dilution	MSD	MSD	Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	88		50 - 200
13C6 PFDA	85		50 - 200
13C5 PFHxA	88		50 - 200
13C4 PFHpA	88		50 - 200
13C8 PFOA	94		50 - 200
13C9 PFNA	98		50 - 200
13C7 PFUnA	91		50 - 200
13C2 PFDoA	90		50 - 200
13C4 PFBA	93		50 - 200
13C5 PFPeA	89		50 - 200
13C3 PFBS	108		50 - 200
13C3 PFHxS	113		50 - 200
13C8 PFOS	114		50 - 200
13C2-4:2-FTS	108		50 - 200
13C2-6:2-FTS	104		50 - 200
13C2-8:2-FTS	101		50 - 200

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

Lab Sample ID: MBL 380-235114/20-A

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 235169

Prep Batch: 235114

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		06/19/26 17:12	06/20/26 15:11	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		06/19/26 17:12	06/20/26 15:11	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		06/19/26 17:12	06/20/26 15:11	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.58		2.0	ng/L		06/19/26 17:12	06/20/26 15:11	1

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QC Sample Results

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

Job ID: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: MBL 380-235114/20-A

Matrix: Water

Analysis Batch: 235169

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 235114

Analyte	MBL	MBL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.42		2.0	ng/L		06/19/26 17:12	06/20/26 15:11	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		06/19/26 17:12	06/20/26 15:11	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		06/19/26 17:12	06/20/26 15:11	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		06/19/26 17:12	06/20/26 15:11	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		06/19/26 17:12	06/20/26 15:11	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		06/19/26 17:12	06/20/26 15:11	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		06/19/26 17:12	06/20/26 15:11	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		06/19/26 17:12	06/20/26 15:11	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		06/19/26 17:12	06/20/26 15:11	1
Perfluorotetradecanoic acid (PFTA)	<0.54		2.0	ng/L		06/19/26 17:12	06/20/26 15:11	1
Perfluorotridecanoic acid (PFTTrDA)	<0.36		2.0	ng/L		06/19/26 17:12	06/20/26 15:11	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<0.30		2.0	ng/L		06/19/26 17:12	06/20/26 15:11	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		06/19/26 17:12	06/20/26 15:11	1
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		06/19/26 17:12	06/20/26 15:11	1

Surrogate	MBL	MBL	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
d5-NEtFOSAA	95		70 - 130	06/19/26 17:12	06/20/26 15:11	1
13C2 PFHxA	103		70 - 130	06/19/26 17:12	06/20/26 15:11	1
13C2 PFDA	99		70 - 130	06/19/26 17:12	06/20/26 15:11	1
13C3-GenX	89		70 - 130	06/19/26 17:12	06/20/26 15:11	1

Lab Sample ID: LCS 380-235114/22-A

Matrix: Water

Analysis Batch: 235169

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 235114

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonic acid (PFOS)	25.1	25.0		ng/L		100	70 - 130
Perfluoroundecanoic acid (PFUnA)	25.1	24.9		ng/L		99	70 - 130
N-methylperfluorooctanesulfonamideacetic acid (NMeFOSAA)	25.1	25.4		ng/L		101	70 - 130
N-ethylperfluorooctanesulfonamideacetic acid (NEtFOSAA)	25.1	26.1		ng/L		104	70 - 130
Perfluorohexanoic acid (PFHxA)	25.1	26.1		ng/L		104	70 - 130
Perfluorododecanoic acid (PFDoA)	25.1	24.4		ng/L		97	70 - 130
Perfluorooctanoic acid (PFOA)	25.1	25.3		ng/L		101	70 - 130
Perfluorodecanoic acid (PFDA)	25.1	25.4		ng/L		101	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	25.1	25.1		ng/L		100	70 - 130
Perfluorobutanesulfonic acid (PFBS)	25.1	25.9		ng/L		103	70 - 130
Perfluoroheptanoic acid (PFHpA)	25.1	25.6		ng/L		102	70 - 130
Perfluorononanoic acid (PFNA)	25.1	25.4		ng/L		101	70 - 130

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QC Sample Results

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

Job ID: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: LCS 380-235114/22-A

Matrix: Water

Analysis Batch: 235169

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 235114

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorotetradecanoic acid (PFTA)	25.1	21.1		ng/L		84	70 - 130
Perfluorotridecanoic acid (PFTrDA)	25.1	24.8		ng/L		99	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	25.1	26.1		ng/L		104	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	25.1	24.9		ng/L		99	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	25.1	25.4		ng/L		101	70 - 130
LCS LCS							
Surrogate	%Recovery	Qualifier	Limits				
d5-NEtFOSAA	97		70 - 130				
13C2 PFHxA	88		70 - 130				
13C2 PFDA	100		70 - 130				
13C3-GenX	90		70 - 130				

Lab Sample ID: MRL 380-235114/21-A

Matrix: Water

Analysis Batch: 235169

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 235114

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.01	1.76	J	ng/L		87	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.01	1.99	J	ng/L		99	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.01	2.06	J	ng/L		103	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.01	1.89	J	ng/L		94	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.01	2.08	J	ng/L		104	50 - 150
Perfluorohexanoic acid (PFHxA)	2.01	2.09	J	ng/L		104	50 - 150
Perfluorododecanoic acid (PFDoA)	2.01	1.96	J	ng/L		97	50 - 150
Perfluorooctanoic acid (PFOA)	2.01	2.02	J	ng/L		101	50 - 150
Perfluorodecanoic acid (PFDA)	2.01	2.07	J	ng/L		103	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.01	2.09	J	ng/L		104	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.01	1.98	J	ng/L		99	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.01	2.11	J	ng/L		105	50 - 150
Perfluorononanoic acid (PFNA)	2.01	2.16	J	ng/L		108	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.01	1.76	J	ng/L		88	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.01	2.01	J	ng/L		100	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.01	2.09	J	ng/L		104	50 - 150

QC Sample Results

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

Job ID: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: MRL 380-235114/21-A

Matrix: Water

Analysis Batch: 235169

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 235114

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.01	1.99	J	ng/L		99	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.01	1.93	J	ng/L		96	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	MRL Limits
d5-NEtFOSAA	90		70 - 130
13C2 PFHxA	106		70 - 130
13C2 PFDA	102		70 - 130
13C3-GenX	90		70 - 130

Lab Sample ID: 380-220371-B-1-A MSD

Matrix: Water

Analysis Batch: 235169

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 235114

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		25.1	26.5		ng/L		106	70 - 130	7	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		25.1	27.1		ng/L		106	70 - 130	0	30
Perfluoroundecanoic acid (PFUnA)	<2.0		25.1	25.9		ng/L		103	70 - 130	3	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.1	26.3		ng/L		105	70 - 130	5	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		25.1	26.8		ng/L		107	70 - 130	6	30
Perfluorohexanoic acid (PFHxA)	<2.0		25.1	28.5		ng/L		114	70 - 130	6	30
Perfluorododecanoic acid (PFDoA)	<2.0		25.1	26.3		ng/L		105	70 - 130	7	30
Perfluorooctanoic acid (PFOA)	<2.0		25.1	28.4		ng/L		110	70 - 130	8	30
Perfluorodecanoic acid (PFDA)	<2.0		25.1	27.5		ng/L		109	70 - 130	5	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		25.1	27.7		ng/L		110	70 - 130	2	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		25.1	27.8		ng/L		111	70 - 130	1	30
Perfluoroheptanoic acid (PFHpA)	<2.0		25.1	27.1		ng/L		108	70 - 130	3	30
Perfluorononanoic acid (PFNA)	<2.0		25.1	28.1		ng/L		112	70 - 130	8	30
Perfluorotetradecanoic acid (PFTA)	<2.0		25.1	23.7		ng/L		94	70 - 130	2	30
Perfluorotridecanoic acid (PFTrDA)	<2.0		25.1	26.5		ng/L		106	70 - 130	7	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		25.1	27.5		ng/L		109	70 - 130	1	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		25.1	27.8		ng/L		111	70 - 130	5	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		25.1	28.0		ng/L		112	70 - 130	7	30

QC Sample Results

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

Job ID: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: 380-220371-B-1-A MSD

Matrix: Water

Analysis Batch: 235169

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 235114

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
d5-NEtFOSAA	98		70 - 130
13C2 PFHxA	106		70 - 130
13C2 PFDA	105		70 - 130
13C3-GenX	103		70 - 130

Lab Sample ID: 380-220371-C-1-A MS

Matrix: Water

Analysis Batch: 235169

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 235114

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
Hexafluoropropylene Oxide	<2.0		25.2	24.6		ng/L		98	70 - 130
Dimer Acid (HFPO-DA/GenX)									
Perfluorooctanesulfonic acid (PFOS)	<2.0		25.2	27.2		ng/L		106	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		25.2	25.1		ng/L		100	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.2	25.0		ng/L		99	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		25.2	25.2		ng/L		100	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		25.2	26.9		ng/L		107	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		25.2	24.5		ng/L		98	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		25.2	26.3		ng/L		101	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		25.2	26.2		ng/L		104	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		25.2	27.1		ng/L		108	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		25.2	27.6		ng/L		110	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		25.2	26.2		ng/L		104	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		25.2	25.9		ng/L		103	70 - 130
Perfluorotetradecanoic acid (PFTA)	<2.0		25.2	23.3		ng/L		92	70 - 130
Perfluorotridecanoic acid (PFTrDA)	<2.0		25.2	24.7		ng/L		98	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		25.2	27.3		ng/L		108	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		25.2	26.4		ng/L		105	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		25.2	26.1		ng/L		104	70 - 130

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
d5-NEtFOSAA	94		70 - 130
13C2 PFHxA	99		70 - 130
13C2 PFDA	101		70 - 130
13C3-GenX	91		70 - 130

QC Association Summary

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

Job ID: 380-220444-1
 SDG: PFAS: Halawa Shaft Viewing Pool

LCMS

Prep Batch: 235066

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-220444-2	FB HALAWA SHAFT VIEWING POOL	Total/NA	Water	533	
MBL 380-235066/20-A	Method Blank	Total/NA	Water	533	
LCS 380-235066/22-A	Lab Control Sample	Total/NA	Water	533	
MRL 380-235066/21-A	Lab Control Sample	Total/NA	Water	533	
380-220250-B-1-A MS	Matrix Spike	Total/NA	Water	533	
380-220250-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	

Prep Batch: 235114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-220444-1	HALAWA SHAFT VIEWING POOL	Total/NA	Water	537.1 DW	
380-220444-2	FB HALAWA SHAFT VIEWING POOL	Total/NA	Water	537.1 DW	
MBL 380-235114/20-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-235114/22-A	Lab Control Sample	Total/NA	Water	537.1 DW	
MRL 380-235114/21-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-220371-B-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1 DW	
380-220371-C-1-A MS	Matrix Spike	Total/NA	Water	537.1 DW	

Analysis Batch: 235169

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-220444-1	HALAWA SHAFT VIEWING POOL	Total/NA	Water	EPA 537.1 V2	235114
380-220444-2	FB HALAWA SHAFT VIEWING POOL	Total/NA	Water	EPA 537.1 V2	235114
MBL 380-235114/20-A	Method Blank	Total/NA	Water	EPA 537.1 V2	235114
LCS 380-235114/22-A	Lab Control Sample	Total/NA	Water	EPA 537.1 V2	235114
MRL 380-235114/21-A	Lab Control Sample	Total/NA	Water	EPA 537.1 V2	235114
380-220371-B-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 537.1 V2	235114
380-220371-C-1-A MS	Matrix Spike	Total/NA	Water	EPA 537.1 V2	235114

Analysis Batch: 235181

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-220444-2	FB HALAWA SHAFT VIEWING POOL	Total/NA	Water	533	235066
MBL 380-235066/20-A	Method Blank	Total/NA	Water	533	235066
LCS 380-235066/22-A	Lab Control Sample	Total/NA	Water	533	235066
MRL 380-235066/21-A	Lab Control Sample	Total/NA	Water	533	235066
380-220250-B-1-A MS	Matrix Spike	Total/NA	Water	533	235066
380-220250-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	235066

Prep Batch: 235378

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-220444-1	HALAWA SHAFT VIEWING POOL	Total/NA	Water	533	
MBL 380-235378/20-A	Method Blank	Total/NA	Water	533	
LCS 380-235378/22-A	Lab Control Sample	Total/NA	Water	533	
MRL 380-235378/21-A	Lab Control Sample	Total/NA	Water	533	
380-220780-A-1-B MS	Matrix Spike	Total/NA	Water	533	
380-220780-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	533	

Analysis Batch: 235514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-220444-1	HALAWA SHAFT VIEWING POOL	Total/NA	Water	533	235378
MBL 380-235378/20-A	Method Blank	Total/NA	Water	533	235378
LCS 380-235378/22-A	Lab Control Sample	Total/NA	Water	533	235378
MRL 380-235378/21-A	Lab Control Sample	Total/NA	Water	533	235378

QC Association Summary

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

Job ID: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

LCMS (Continued)

Analysis Batch: 235514 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-220780-A-1-B MS	Matrix Spike	Total/NA	Water	533	235378
380-220780-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	533	235378

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Lab Chronicle

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

Job ID: 380-220444-1
 SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-220444-1

Date Collected: 06/16/26 09:30

Matrix: Water

Date Received: 06/18/26 09:43

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			235378	XTD8	EA POM	06/22/26 07:47
Total/NA	Analysis	533		1	235514	M7ML	EA POM	06/23/26 02:31
Total/NA	Prep	537.1 DW			235114	E2HD	EA POM	06/19/26 17:12
Total/NA	Analysis	EPA 537.1 V2		1	235169	M7ML	EA POM	06/20/26 16:47

Client Sample ID: FB HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-220444-2

Date Collected: 06/16/26 09:30

Matrix: Water

Date Received: 06/18/26 09:43

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			235066	N8NE	EA POM	06/19/26 15:53
Total/NA	Analysis	533		1	235181	M7ML	EA POM	06/20/26 20:22
Total/NA	Prep	537.1 DW			235114	E2HD	EA POM	06/19/26 17:12
Total/NA	Analysis	EPA 537.1 V2		1	235169	M7ML	EA POM	06/20/26 16:57

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: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

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 *

- 1
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* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

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

Job ID: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

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: 380-220444-1
SDG: PFAS: Halawa Shaft Viewing Pool

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Sample Origin
380-220444-1	HALAWA SHAFT VIEWING POOL	Water	06/16/26 09:30	06/18/26 09:43	Hawaii
380-220444-2	FB HALAWA SHAFT VIEWING POOL	Water	06/16/26 09:30	06/18/26 09:43	Hawaii

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- 14
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- 17

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-220444-1
SDG Number: PFAS: Halawa Shaft Viewing Pool

Login Number: 220444

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).	N/A	
Samples do not require splitting or compositing.	True	
Container provided by EEA	True	

