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# ANALYTICAL REPORT

## PREPARED FOR

Attn: Mr. Erwin Kawata  
City & County of Honolulu  
630 South Beretania Street  
Public Service Bldg. Room 310  
Honolulu, Hawaii 96843

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## JOB DESCRIPTION

RED-HILL  
PFAS: Halawa Shaft Viewing Pool  
RUSH Weekly Red Hill

## JOB NUMBER

380-176168-1

# Eurofins Eaton Analytical 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 Eaton Analytical, LLC Project Manager.

## Compliance Statement

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

## Authorization



Authorized for release by  
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# Definitions/Glossary

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

Job ID: 380-176168-1  
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: 380-176168-1

**Job ID: 380-176168-1**

**Eurofins Eaton Analytical Pomona**

## **Job Narrative 380-176168-1**

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 10/9/2025 10:20 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 2.9°C.

### **PFAS**

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

# Detection Summary

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

Job ID: 380-176168-1  
SDG: PFAS: Halawa Shaft Viewing Pool

**Client Sample ID: Halawa Shaft Viewing Pool**  
**PWSID Number: HI0000331**

**Lab Sample ID: 380-176168-1**

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	3.2		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.1		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.4		2.0	ng/L	1		537.1	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.5		2.0	ng/L	1		537.1	Total/NA

**Client Sample ID: Halawa Shaft Viewing Pool Blank**  
**PWSID Number: HI0000331**

**Lab Sample ID: 380-176168-2**

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: 380-176168-1  
SDG: PFAS: Halawa Shaft Viewing Pool

**Client Sample ID: Halawa Shaft Viewing Pool**

**Lab Sample ID: 380-176168-1**

Date Collected: 10/07/25 09:45

Matrix: Drinking Water

Date Received: 10/09/25 10:20

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:01	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:01	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:01	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:01	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:01	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:01	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:01	1
<b>Perfluorohexanesulfonic acid (PFHxS)</b>	<b>3.2</b>		2.0	ng/L		10/13/25 16:00	10/14/25 14:01	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:01	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:01	1
<b>Perfluorooctanesulfonic acid (PFOS)</b>	<b>3.1</b>		2.0	ng/L		10/13/25 16:00	10/14/25 14:01	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:01	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:01	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:01	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:01	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:01	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:01	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:01	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:01	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:01	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:01	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:01	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:01	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:01	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	106		50 - 200	10/13/25 16:00	10/14/25 14:01	1
13C6 PFDA	114		50 - 200	10/13/25 16:00	10/14/25 14:01	1
13C5 PFHxA	113		50 - 200	10/13/25 16:00	10/14/25 14:01	1
13C4 PFHpA	115		50 - 200	10/13/25 16:00	10/14/25 14:01	1
13C8 PFOA	117		50 - 200	10/13/25 16:00	10/14/25 14:01	1
13C9 PFNA	118		50 - 200	10/13/25 16:00	10/14/25 14:01	1
13C7 PFUnA	114		50 - 200	10/13/25 16:00	10/14/25 14:01	1
13C2 PFDoA	115		50 - 200	10/13/25 16:00	10/14/25 14:01	1
13C4 PFBA	114		50 - 200	10/13/25 16:00	10/14/25 14:01	1
13C5 PFPeA	113		50 - 200	10/13/25 16:00	10/14/25 14:01	1
13C3 PFBS	116		50 - 200	10/13/25 16:00	10/14/25 14:01	1
13C3 PFHxS	118		50 - 200	10/13/25 16:00	10/14/25 14:01	1

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# Client Sample Results

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

Job ID: 380-176168-1  
SDG: PFAS: Halawa Shaft Viewing Pool

**Client Sample ID: Halawa Shaft Viewing Pool**

**Lab Sample ID: 380-176168-1**

Date Collected: 10/07/25 09:45

Matrix: Drinking Water

Date Received: 10/09/25 10:20

PWSID Number: HI0000331

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	122		50 - 200	10/13/25 16:00	10/14/25 14:01	1
13C2-4:2-FTS	138		50 - 200	10/13/25 16:00	10/14/25 14:01	1
13C2-6:2-FTS	135		50 - 200	10/13/25 16:00	10/14/25 14:01	1
13C2-8:2-FTS	139		50 - 200	10/13/25 16:00	10/14/25 14:01	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		10/19/25 07:41	10/20/25 10:43	1
<b>Perfluorooctanesulfonic acid (PFOS)</b>	<b>3.4</b>		2.0	ng/L		10/19/25 07:41	10/20/25 10:43	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		10/19/25 07:41	10/20/25 10:43	1
N-methylperfluorooctanesulfonamideacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		10/19/25 07:41	10/20/25 10:43	1
N-ethylperfluorooctanesulfonamideacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		10/19/25 07:41	10/20/25 10:43	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		10/19/25 07:41	10/20/25 10:43	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		10/19/25 07:41	10/20/25 10:43	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		10/19/25 07:41	10/20/25 10:43	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		10/19/25 07:41	10/20/25 10:43	1
<b>Perfluorohexanesulfonic acid (PFHxS)</b>	<b>3.5</b>		2.0	ng/L		10/19/25 07:41	10/20/25 10:43	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		10/19/25 07:41	10/20/25 10:43	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		10/19/25 07:41	10/20/25 10:43	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		10/19/25 07:41	10/20/25 10:43	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		10/19/25 07:41	10/20/25 10:43	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		10/19/25 07:41	10/20/25 10:43	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		10/19/25 07:41	10/20/25 10:43	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		10/19/25 07:41	10/20/25 10:43	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		10/19/25 07:41	10/20/25 10:43	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac		
d5-NEtFOSAA	104		70 - 130	10/19/25 07:41	10/20/25 10:43	1		
13C2 PFHxA	100		70 - 130	10/19/25 07:41	10/20/25 10:43	1		
13C2 PFDA	102		70 - 130	10/19/25 07:41	10/20/25 10:43	1		
13C3-GenX	102		70 - 130	10/19/25 07:41	10/20/25 10:43	1		

**Client Sample ID: Halawa Shaft Viewing Pool Blank**

**Lab Sample ID: 380-176168-2**

Date Collected: 10/07/25 09:45

Matrix: Water

Date Received: 10/09/25 10:20

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:11	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:11	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:11	1

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# Client Sample Results

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

Job ID: 380-176168-1  
SDG: PFAS: Halawa Shaft Viewing Pool

**Client Sample ID: Halawa Shaft Viewing Pool Blank**

**Lab Sample ID: 380-176168-2**

Date Collected: 10/07/25 09:45

Matrix: Water

Date Received: 10/09/25 10:20

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:11	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:11	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:11	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:11	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:11	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:11	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:11	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:11	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:11	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:11	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:11	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:11	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:11	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:11	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:11	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:11	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:11	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:11	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:11	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:11	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:11	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		10/13/25 16:00	10/14/25 14:11	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	123		50 - 200	10/13/25 16:00	10/14/25 14:11	1
13C6 PFDA	119		50 - 200	10/13/25 16:00	10/14/25 14:11	1
13C5 PFHxA	137		50 - 200	10/13/25 16:00	10/14/25 14:11	1
13C4 PFHpA	137		50 - 200	10/13/25 16:00	10/14/25 14:11	1
13C8 PFOA	132		50 - 200	10/13/25 16:00	10/14/25 14:11	1
13C9 PFNA	130		50 - 200	10/13/25 16:00	10/14/25 14:11	1
13C7 PFUnA	117		50 - 200	10/13/25 16:00	10/14/25 14:11	1
13C2 PFDoA	118		50 - 200	10/13/25 16:00	10/14/25 14:11	1
13C4 PFBA	131		50 - 200	10/13/25 16:00	10/14/25 14:11	1
13C5 PFPeA	133		50 - 200	10/13/25 16:00	10/14/25 14:11	1
13C3 PFBS	136		50 - 200	10/13/25 16:00	10/14/25 14:11	1
13C3 PFHxS	134		50 - 200	10/13/25 16:00	10/14/25 14:11	1
13C8 PFOS	128		50 - 200	10/13/25 16:00	10/14/25 14:11	1
13C2-4:2-FTS	163		50 - 200	10/13/25 16:00	10/14/25 14:11	1
13C2-6:2-FTS	147		50 - 200	10/13/25 16:00	10/14/25 14:11	1
13C2-8:2-FTS	138		50 - 200	10/13/25 16:00	10/14/25 14:11	1

# Client Sample Results

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

Job ID: 380-176168-1  
SDG: PFAS: Halawa Shaft Viewing Pool

**Client Sample ID: Halawa Shaft Viewing Pool Blank**

**Lab Sample ID: 380-176168-2**

Date Collected: 10/07/25 09:45

Matrix: Water

Date Received: 10/09/25 10:20

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		10/13/25 03:34	10/14/25 02:32	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		10/13/25 03:34	10/14/25 02:32	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		10/13/25 03:34	10/14/25 02:32	1
N-methylperfluorooctanesulfonamideacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		10/13/25 03:34	10/14/25 02:32	1
N-ethylperfluorooctanesulfonamideacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		10/13/25 03:34	10/14/25 02:32	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		10/13/25 03:34	10/14/25 02:32	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		10/13/25 03:34	10/14/25 02:32	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		10/13/25 03:34	10/14/25 02:32	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		10/13/25 03:34	10/14/25 02:32	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		10/13/25 03:34	10/14/25 02:32	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		10/13/25 03:34	10/14/25 02:32	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		10/13/25 03:34	10/14/25 02:32	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		10/13/25 03:34	10/14/25 02:32	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		10/13/25 03:34	10/14/25 02:32	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		10/13/25 03:34	10/14/25 02:32	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		10/13/25 03:34	10/14/25 02:32	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		10/13/25 03:34	10/14/25 02:32	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		10/13/25 03:34	10/14/25 02:32	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
d5-NEtFOSAA	94		70 - 130			10/13/25 03:34	10/14/25 02:32	1
13C2 PFHxA	97		70 - 130			10/13/25 03:34	10/14/25 02:32	1
13C2 PFDA	112		70 - 130			10/13/25 03:34	10/14/25 02:32	1
13C3-GenX	88		70 - 130			10/13/25 03:34	10/14/25 02:32	1

# Action Limit Summary

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

Job ID: 380-176168-1  
SDG: PFAS: Halawa Shaft Viewing Pool

**Client Sample ID: Halawa Shaft Viewing Pool**

**Lab Sample ID: 380-176168-1**

**PWSID Number: HI0000331**

## Compliance Check

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

Analyte	Result	Qualifier	Unit	EPAMCL	RL	Method	Prep Type
				Limit			
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		ng/L	10	2.0	533	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.2		ng/L	10	2.0	533	Total/NA
Perfluorononanoic acid (PFNA)	<2.0		ng/L	10	2.0	533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.1		ng/L	4	2.0	533	Total/NA
Perfluorooctanoic acid (PFOA)	<2.0		ng/L	4	2.0	533	Total/NA
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		ng/L	10	2.0	537.1	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.4		ng/L	4	2.0	537.1	Total/NA
Perfluorooctanoic acid (PFOA)	<2.0		ng/L	4	2.0	537.1	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.5		ng/L	10	2.0	537.1	Total/NA
Perfluorononanoic acid (PFNA)	<2.0		ng/L	10	2.0	537.1	Total/NA

**Client Sample ID: Halawa Shaft Viewing Pool Blank**

**Lab Sample ID: 380-176168-2**

**PWSID Number: HI0000331**

## Compliance Check

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

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

# Surrogate Summary

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

Job ID: 380-176168-1  
SDG: PFAS: Halawa Shaft Viewing Pool

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

Matrix: Drinking Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		d5NEFOS (70-130)	PFHxA (70-130)	PFDA (70-130)	GenX (70-130)
380-176168-1	Halawa Shaft Viewing Pool	104	100	102	102

**Surrogate Legend**  
d5NEFOS = d5-NEtFOSAA  
PFHxA = 13C2 PFHxA  
PFDA = 13C2 PFDA  
GenX = 13C3-GenX

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		d5NEFOS (70-130)	PFHxA (70-130)	PFDA (70-130)	GenX (70-130)
380-176167-B-1-A MS	Matrix Spike	114	113	124	118
380-176167-C-1-A MSD	Matrix Spike Duplicate	99	100	111	107
380-176168-2	Halawa Shaft Viewing Pool	94	97	112	88
	Blank				
380-177308-C-1-A MS	Matrix Spike	99	105	102	106
380-177308-D-1-A MSD	Matrix Spike Duplicate	99	107	106	104
LCS 380-179293/30-A	Lab Control Sample	103	101	110	100
LCS 380-180693/23-A	Lab Control Sample	101	103	103	104
MBL 380-179293/28-A	Method Blank	90	88	100	84
MBL 380-180693/21-A	Method Blank	102	105	104	101
MRL 380-179293/29-A	Lab Control Sample	91	96	103	82
MRL 380-180693/22-A	Lab Control Sample	103	102	107	101

**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: 380-176168-1  
SDG: PFAS: Halawa Shaft Viewing Pool

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

Matrix: Drinking Water

Prep Type: Total/NA

### Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HFPODA (50-200)	C6PFDA (50-200)	13C5PHA (50-200)	C4PFHA (50-200)	C8PFOA (50-200)	C9PFNA (50-200)	13C7PUA (50-200)	PFDoA (50-200)
380-176168-1	Halawa Shaft Viewing Pool	106	114	113	115	117	118	114	115

### 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)
380-176168-1	Halawa Shaft Viewing Pool	114	113	116	118	122	138	135	139

#### Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

### Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HFPODA (50-200)	C6PFDA (50-200)	13C5PHA (50-200)	C4PFHA (50-200)	C8PFOA (50-200)	C9PFNA (50-200)	13C7PUA (50-200)	PFDoA (50-200)
380-176119-E-1-B MS	Matrix Spike	99	106	106	110	113	113	109	108
380-176119-F-1-B MSD	Matrix Spike Duplicate	102	110	112	112	116	116	113	110
380-176168-2	Halawa Shaft Viewing Pool	123	119	137	137	132	130	117	118
	Blank								
LCS 380-179433/22-A	Lab Control Sample	97	105	107	107	109	109	107	106
MBL 380-179433/20-A	Method Blank	115	117	133	129	129	129	114	113
MRL 380-179433/21-A	Lab Control Sample	94	108	106	104	109	109	108	106

### 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)
380-176119-E-1-B MS	Matrix Spike	109	109	107	109	109	133	126	134
380-176119-F-1-B MSD	Matrix Spike Duplicate	109	110	110	109	115	138	133	136
380-176168-2	Halawa Shaft Viewing Pool	131	133	136	134	128	163	147	138
	Blank								
LCS 380-179433/22-A	Lab Control Sample	106	105	105	106	108	126	118	125
MBL 380-179433/20-A	Method Blank	128	128	127	125	121	166	143	141
MRL 380-179433/21-A	Lab Control Sample	105	105	104	105	109	126	118	128

#### Surrogate Legend

- HFPODA = 13C3 HFPO-DA
- C6PFDA = 13C6 PFDA

# Isotope Dilution Summary

Client: City & County of Honolulu

Project/Site: RED-HILL

Job ID: 380-176168-1

SDG: PFAS: Halawa Shaft Viewing Pool

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

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

# QC Sample Results

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

Job ID: 380-176168-1  
SDG: PFAS: Halawa Shaft Viewing Pool

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

**Lab Sample ID: MBL 380-179433/20-A**  
**Matrix: Water**  
**Analysis Batch: 179614**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 179433**

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		10/13/25 16:00	10/14/25 11:13	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		10/13/25 16:00	10/14/25 11:13	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		10/13/25 16:00	10/14/25 11:13	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		10/13/25 16:00	10/14/25 11:13	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		10/13/25 16:00	10/14/25 11:13	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		10/13/25 16:00	10/14/25 11:13	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		10/13/25 16:00	10/14/25 11:13	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		10/13/25 16:00	10/14/25 11:13	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		10/13/25 16:00	10/14/25 11:13	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		10/13/25 16:00	10/14/25 11:13	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		10/13/25 16:00	10/14/25 11:13	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		10/13/25 16:00	10/14/25 11:13	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		10/13/25 16:00	10/14/25 11:13	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		10/13/25 16:00	10/14/25 11:13	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		10/13/25 16:00	10/14/25 11:13	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		10/13/25 16:00	10/14/25 11:13	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		10/13/25 16:00	10/14/25 11:13	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		10/13/25 16:00	10/14/25 11:13	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		10/13/25 16:00	10/14/25 11:13	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<0.25		2.0	ng/L		10/13/25 16:00	10/14/25 11:13	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		10/13/25 16:00	10/14/25 11:13	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		10/13/25 16:00	10/14/25 11:13	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		10/13/25 16:00	10/14/25 11:13	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		10/13/25 16:00	10/14/25 11:13	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		10/13/25 16:00	10/14/25 11:13	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	115		50 - 200	10/13/25 16:00	10/14/25 11:13	1
13C6 PFDA	117		50 - 200	10/13/25 16:00	10/14/25 11:13	1
13C5 PFHxA	133		50 - 200	10/13/25 16:00	10/14/25 11:13	1
13C4 PFHpA	129		50 - 200	10/13/25 16:00	10/14/25 11:13	1
13C8 PFOA	129		50 - 200	10/13/25 16:00	10/14/25 11:13	1
13C9 PFNA	129		50 - 200	10/13/25 16:00	10/14/25 11:13	1
13C7 PFUnA	114		50 - 200	10/13/25 16:00	10/14/25 11:13	1
13C2 PFDoA	113		50 - 200	10/13/25 16:00	10/14/25 11:13	1
13C4 PFBA	128		50 - 200	10/13/25 16:00	10/14/25 11:13	1
13C5 PFPeA	128		50 - 200	10/13/25 16:00	10/14/25 11:13	1
13C3 PFBS	127		50 - 200	10/13/25 16:00	10/14/25 11:13	1
13C3 PFHxS	125		50 - 200	10/13/25 16:00	10/14/25 11:13	1

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# QC Sample Results

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

Job ID: 380-176168-1  
SDG: PFAS: Halawa Shaft Viewing Pool

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

**Lab Sample ID: MBL 380-179433/20-A**  
**Matrix: Water**  
**Analysis Batch: 179614**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 179433**

<i>Isotope Dilution</i>	<i>MBL %Recovery</i>	<i>MBL Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C8 PFOS	121		50 - 200	10/13/25 16:00	10/14/25 11:13	1
13C2-4:2-FTS	166		50 - 200	10/13/25 16:00	10/14/25 11:13	1
13C2-6:2-FTS	143		50 - 200	10/13/25 16:00	10/14/25 11:13	1
13C2-8:2-FTS	141		50 - 200	10/13/25 16:00	10/14/25 11:13	1

**Lab Sample ID: LCS 380-179433/22-A**  
**Matrix: Water**  
**Analysis Batch: 179614**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 179433**

<i>Analyte</i>	<i>Spike Added</i>	<i>LCS Result</i>	<i>LCS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	60.2	54.7		ng/L		91	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.2	59.2		ng/L		98	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.2	58.5		ng/L		97	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.2	59.1		ng/L		98	70 - 130
Perfluorobutanesulfonic acid (PFBS)	60.2	57.9		ng/L		96	70 - 130
Perfluorodecanoic acid (PFDA)	60.2	61.4		ng/L		102	70 - 130
Perfluorododecanoic acid (PFDoA)	60.2	60.3		ng/L		100	70 - 130
Perfluoroheptanoic acid (PFHpA)	60.2	59.1		ng/L		98	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	60.2	58.5		ng/L		97	70 - 130
Perfluorohexanoic acid (PFHxA)	60.2	55.8		ng/L		93	70 - 130
Perfluorononanoic acid (PFNA)	60.2	61.1		ng/L		101	70 - 130
Perfluorooctanesulfonic acid (PFOS)	60.2	59.2		ng/L		98	70 - 130
Perfluorooctanoic acid (PFOA)	60.2	60.7		ng/L		101	70 - 130
Perfluoroundecanoic acid (PFUnA)	60.2	60.7		ng/L		101	70 - 130
Perfluorobutanoic acid (PFBA)	60.2	60.9		ng/L		101	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.2	63.1		ng/L		105	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.2	62.7		ng/L		104	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.2	63.0		ng/L		105	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.2	57.1		ng/L		95	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	60.2	58.2		ng/L		97	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.2	59.8		ng/L		99	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.2	59.6		ng/L		99	70 - 130
Perfluoropentanoic acid (PFPeA)	60.2	60.7		ng/L		101	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	60.2	59.2		ng/L		98	70 - 130

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# QC Sample Results

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

Job ID: 380-176168-1  
SDG: PFAS: Halawa Shaft Viewing Pool

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

**Lab Sample ID: LCS 380-179433/22-A**  
**Matrix: Water**  
**Analysis Batch: 179614**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 179433**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanesulfonic acid (PFPeS)	60.2	60.9		ng/L		101	70 - 130
<b>LCS LCS</b>							
<b>Isotope Dilution</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
13C3 HFPO-DA	97		50 - 200				
13C6 PFDA	105		50 - 200				
13C5 PFHxA	107		50 - 200				
13C4 PFHpA	107		50 - 200				
13C8 PFOA	109		50 - 200				
13C9 PFNA	109		50 - 200				
13C7 PFUnA	107		50 - 200				
13C2 PFDoA	106		50 - 200				
13C4 PFBA	106		50 - 200				
13C5 PFPeA	105		50 - 200				
13C3 PFBS	105		50 - 200				
13C3 PFHxS	106		50 - 200				
13C8 PFOS	108		50 - 200				
13C2-4:2-FTS	126		50 - 200				
13C2-6:2-FTS	118		50 - 200				
13C2-8:2-FTS	125		50 - 200				

**Lab Sample ID: MRL 380-179433/21-A**  
**Matrix: Water**  
**Analysis Batch: 179614**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 179433**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.01	1.91	J	ng/L		95	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.01	2.14	J	ng/L		107	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.01	2.11	J	ng/L		105	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.01	2.09	J	ng/L		104	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.01	2.09	J	ng/L		104	50 - 150
Perfluorodecanoic acid (PFDA)	2.01	2.14	J	ng/L		106	50 - 150
Perfluorododecanoic acid (PFDoA)	2.01	2.14	J	ng/L		107	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.01	2.14	J	ng/L		106	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.01	2.06	J	ng/L		103	50 - 150
Perfluorohexanoic acid (PFHxA)	2.01	1.96	J	ng/L		98	50 - 150
Perfluorononanoic acid (PFNA)	2.01	2.18	J	ng/L		109	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.01	2.30	J	ng/L		115	50 - 150
Perfluorooctanoic acid (PFOA)	2.01	2.15	J	ng/L		107	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.01	2.14	J	ng/L		107	50 - 150
Perfluorobutanoic acid (PFBA)	2.01	2.20	J	ng/L		109	50 - 150

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-176168-1  
SDG: PFAS: Halawa Shaft Viewing Pool

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

**Lab Sample ID: MRL 380-179433/21-A**  
**Matrix: Water**  
**Analysis Batch: 179614**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 179433**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.01	2.29	J	ng/L		114	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.01	2.22	J	ng/L		110	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.01	2.36	J	ng/L		118	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.01	2.10	J	ng/L		105	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.01	2.05	J	ng/L		102	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.01	2.10	J	ng/L		105	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.01	2.02	J	ng/L		101	50 - 150
Perfluoropentanoic acid (PFPeA)	2.01	2.15	J	ng/L		107	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.01	2.04	J	ng/L		102	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.01	2.24	J	ng/L		111	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	MRL Limits
13C3 HFPO-DA	94		50 - 200
13C6 PFDA	108		50 - 200
13C5 PFHxA	106		50 - 200
13C4 PFHpA	104		50 - 200
13C8 PFOA	109		50 - 200
13C9 PFNA	109		50 - 200
13C7 PFUnA	108		50 - 200
13C2 PFDoA	106		50 - 200
13C4 PFBA	105		50 - 200
13C5 PFPeA	105		50 - 200
13C3 PFBS	104		50 - 200
13C3 PFHxS	105		50 - 200
13C8 PFOS	109		50 - 200
13C2-4:2-FTS	126		50 - 200
13C2-6:2-FTS	118		50 - 200
13C2-8:2-FTS	128		50 - 200

**Lab Sample ID: 380-176119-E-1-B MS**  
**Matrix: Water**  
**Analysis Batch: 179614**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 179433**

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	53.9		ng/L		90	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.2	59.6		ng/L		99	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.2	57.9		ng/L		96	70 - 130

# QC Sample Results

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

Job ID: 380-176168-1  
SDG: PFAS: Halawa Shaft Viewing Pool

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

**Lab Sample ID: 380-176119-E-1-B MS**  
**Matrix: Water**  
**Analysis Batch: 179614**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 179433**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide	<2.0		60.2	60.3		ng/L		100	70 - 130
Dimer Acid (HFPO-DA/GenX)									
Perfluorobutanesulfonic acid (PFBS)	<2.0		60.2	60.5		ng/L		100	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		60.2	62.9		ng/L		104	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		60.2	60.1		ng/L		100	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		60.2	59.6		ng/L		99	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.2	59.7		ng/L		98	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		60.2	58.4		ng/L		96	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		60.2	59.5		ng/L		99	70 - 130
Perfluorooctanesulfonic acid (PFOS)	2.1		60.2	61.9		ng/L		99	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		60.2	59.3		ng/L		98	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		60.2	61.0		ng/L		101	70 - 130
Perfluorobutanoic acid (PFBA)	<2.0		60.2	61.0		ng/L		101	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.2	60.2		ng/L		100	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.2	61.9		ng/L		103	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.2	62.0		ng/L		103	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.2	59.8		ng/L		99	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		60.2	57.6		ng/L		96	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		60.2	59.9		ng/L		99	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.2	60.4		ng/L		100	70 - 130
Perfluoropentanoic acid (PFPeA)	<2.0		60.2	60.3		ng/L		99	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.2	58.5		ng/L		97	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.2	60.5		ng/L		100	70 - 130

Isotope Dilution	MS MS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	99		50 - 200
13C6 PFDA	106		50 - 200
13C5 PFHxA	106		50 - 200
13C4 PFHpA	110		50 - 200
13C8 PFOA	113		50 - 200
13C9 PFNA	113		50 - 200
13C7 PFUnA	109		50 - 200
13C2 PFDoA	108		50 - 200
13C4 PFBA	109		50 - 200
13C5 PFPeA	109		50 - 200
13C3 PFBS	107		50 - 200
13C3 PFHxS	109		50 - 200
13C8 PFOS	109		50 - 200

# QC Sample Results

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

Job ID: 380-176168-1  
SDG: PFAS: Halawa Shaft Viewing Pool

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

**Lab Sample ID: 380-176119-E-1-B MS**  
**Matrix: Water**  
**Analysis Batch: 179614**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 179433**

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
13C2-4:2-FTS	133		50 - 200
13C2-6:2-FTS	126		50 - 200
13C2-8:2-FTS	134		50 - 200

**Lab Sample ID: 380-176119-F-1-B MSD**  
**Matrix: Water**  
**Analysis Batch: 179614**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 179433**

<b>Analyte</b>	<b>Sample Result</b>	<b>Sample Qualifier</b>	<b>Spike Added</b>	<b>MSD Result</b>	<b>MSD Qualifier</b>	<b>Unit</b>	<b>D</b>	<b>%Rec</b>	<b>%Rec Limits</b>	<b>RPD</b>	<b>RPD Limit</b>
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.5	51.4		ng/L		85	70 - 130	5	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.5	57.1		ng/L		94	70 - 130	4	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.5	58.6		ng/L		97	70 - 130	1	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		60.5	59.8		ng/L		99	70 - 130	1	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		60.5	59.2		ng/L		97	70 - 130	2	30
Perfluorodecanoic acid (PFDA)	<2.0		60.5	61.0		ng/L		101	70 - 130	3	30
Perfluorododecanoic acid (PFDoA)	<2.0		60.5	60.3		ng/L		100	70 - 130	0	30
Perfluoroheptanoic acid (PFHpA)	<2.0		60.5	58.3		ng/L		96	70 - 130	2	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.5	59.7		ng/L		98	70 - 130	0	30
Perfluorohexanoic acid (PFHxA)	<2.0		60.5	54.7		ng/L		89	70 - 130	7	30
Perfluorononanoic acid (PFNA)	<2.0		60.5	60.3		ng/L		100	70 - 130	1	30
Perfluorooctanesulfonic acid (PFOS)	2.1		60.5	60.1		ng/L		96	70 - 130	3	30
Perfluorooctanoic acid (PFOA)	<2.0		60.5	59.9		ng/L		99	70 - 130	1	30
Perfluoroundecanoic acid (PFUnA)	<2.0		60.5	59.1		ng/L		98	70 - 130	3	30
Perfluorobutanoic acid (PFBA)	<2.0		60.5	60.3		ng/L		100	70 - 130	1	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.5	62.4		ng/L		103	70 - 130	4	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.5	61.2		ng/L		101	70 - 130	1	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.5	62.3		ng/L		103	70 - 130	0	30
Nonfluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.5	56.2		ng/L		93	70 - 130	6	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		60.5	56.8		ng/L		94	70 - 130	1	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		60.5	59.2		ng/L		98	70 - 130	1	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.5	57.0		ng/L		94	70 - 130	6	30
Perfluoropentanoic acid (PFPeA)	<2.0		60.5	60.4		ng/L		99	70 - 130	0	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.5	57.8		ng/L		96	70 - 130	1	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.5	61.7		ng/L		102	70 - 130	2	30

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-176168-1  
SDG: PFAS: Halawa Shaft Viewing Pool

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

<i>Isotope Dilution</i>	<i>MSD</i>	<i>MSD</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C3 HFPO-DA	102		50 - 200
13C6 PFDA	110		50 - 200
13C5 PFHxA	112		50 - 200
13C4 PFHpA	112		50 - 200
13C8 PFOA	116		50 - 200
13C9 PFNA	116		50 - 200
13C7 PFUnA	113		50 - 200
13C2 PFDoA	110		50 - 200
13C4 PFBA	109		50 - 200
13C5 PFPeA	110		50 - 200
13C3 PFBS	110		50 - 200
13C3 PFHxS	109		50 - 200
13C8 PFOS	115		50 - 200
13C2-4:2-FTS	138		50 - 200
13C2-6:2-FTS	133		50 - 200
13C2-8:2-FTS	136		50 - 200

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

**Lab Sample ID: MBL 380-179293/28-A**  
**Matrix: Water**  
**Analysis Batch: 179426**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 179293**

<i>Analyte</i>	<i>MBL</i>	<i>MBL</i>	<i>RL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
	<i>Result</i>	<i>Qualifier</i>						
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		10/13/25 03:34	10/14/25 00:46	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		10/13/25 03:34	10/14/25 00:46	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		10/13/25 03:34	10/14/25 00:46	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.58		2.0	ng/L		10/13/25 03:34	10/14/25 00:46	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.42		2.0	ng/L		10/13/25 03:34	10/14/25 00:46	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		10/13/25 03:34	10/14/25 00:46	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		10/13/25 03:34	10/14/25 00:46	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		10/13/25 03:34	10/14/25 00:46	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		10/13/25 03:34	10/14/25 00:46	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		10/13/25 03:34	10/14/25 00:46	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		10/13/25 03:34	10/14/25 00:46	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		10/13/25 03:34	10/14/25 00:46	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		10/13/25 03:34	10/14/25 00:46	1
Perfluorotetradecanoic acid (PFTA)	<0.54		2.0	ng/L		10/13/25 03:34	10/14/25 00:46	1
Perfluorotridecanoic acid (PFTrDA)	<0.36		2.0	ng/L		10/13/25 03:34	10/14/25 00:46	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		10/13/25 03:34	10/14/25 00:46	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		10/13/25 03:34	10/14/25 00:46	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		10/13/25 03:34	10/14/25 00:46	1
<i>Surrogate</i>	<i>MBL</i>	<i>MBL</i>	<i>Limits</i>			<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
	<i>%Recovery</i>	<i>Qualifier</i>						
d5-NEtFOSAA	90		70 - 130			10/13/25 03:34	10/14/25 00:46	1
13C2 PFHxA	88		70 - 130			10/13/25 03:34	10/14/25 00:46	1
13C2 PFDA	100		70 - 130			10/13/25 03:34	10/14/25 00:46	1

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-176168-1  
SDG: PFAS: Halawa Shaft Viewing Pool

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

**Lab Sample ID: MBL 380-179293/28-A**  
**Matrix: Water**  
**Analysis Batch: 179426**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 179293**

<i>Surrogate</i>	<i>MBL</i>	<i>MBL</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C3-GenX	84	Qualifier	70 - 130	10/13/25 03:34	10/14/25 00:46	1

**Lab Sample ID: LCS 380-179293/30-A**  
**Matrix: Water**  
**Analysis Batch: 179426**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 179293**

<i>Analyte</i>	<i>Spike</i>	<i>LCS</i>	<i>LCS</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec</i>	<i>Limits</i>
	<i>Added</i>	<i>Result</i>	<i>Qualifier</i>					
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	25.2	22.1		ng/L		88		70 - 130
Perfluorooctanesulfonic acid (PFOS)	25.2	25.3		ng/L		100		70 - 130
Perfluoroundecanoic acid (PFUnA)	25.2	25.5		ng/L		101		70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	25.2	25.3		ng/L		101		70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	25.2	24.0		ng/L		95		70 - 130
Perfluorohexanoic acid (PFHxA)	25.2	23.4		ng/L		93		70 - 130
Perfluorododecanoic acid (PFDoA)	25.2	24.4		ng/L		97		70 - 130
Perfluorooctanoic acid (PFOA)	25.2	25.1		ng/L		100		70 - 130
Perfluorodecanoic acid (PFDA)	25.2	25.4		ng/L		101		70 - 130
Perfluorohexanesulfonic acid (PFHxS)	25.2	26.0		ng/L		103		70 - 130
Perfluorobutanesulfonic acid (PFBS)	25.2	25.1		ng/L		100		70 - 130
Perfluoroheptanoic acid (PFHpA)	25.2	23.6		ng/L		94		70 - 130
Perfluorononanoic acid (PFNA)	25.2	25.4		ng/L		101		70 - 130
Perfluorotetradecanoic acid (PFTA)	25.2	20.2		ng/L		80		70 - 130
Perfluorotridecanoic acid (PFTrDA)	25.2	25.3		ng/L		101		70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	25.2	23.7		ng/L		94		70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	25.2	22.2		ng/L		88		70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	25.2	23.5		ng/L		93		70 - 130

<i>Surrogate</i>	<i>LCS</i>	<i>LCS</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
d5-NEtFOSAA	103		70 - 130
13C2 PFHxA	101		70 - 130
13C2 PFDA	110		70 - 130
13C3-GenX	100		70 - 130

# QC Sample Results

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

Job ID: 380-176168-1  
 SDG: PFAS: Halawa Shaft Viewing Pool

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

**Lab Sample ID: MRL 380-179293/29-A**  
**Matrix: Water**  
**Analysis Batch: 179426**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 179293**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.01	1.72	J	ng/L		85	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.01	2.09	J	ng/L		104	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.01	2.06	J	ng/L		103	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.01	1.85	J	ng/L		92	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.01	1.76	J	ng/L		87	50 - 150
Perfluorohexanoic acid (PFHxA)	2.01	1.88	J	ng/L		93	50 - 150
Perfluorododecanoic acid (PFDoA)	2.01	2.05	J	ng/L		102	50 - 150
Perfluorooctanoic acid (PFOA)	2.01	1.99	J	ng/L		99	50 - 150
Perfluorodecanoic acid (PFDA)	2.01	2.10	J	ng/L		104	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.01	2.14	J	ng/L		106	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.01	2.14	J	ng/L		107	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.01	1.94	J	ng/L		96	50 - 150
Perfluorononanoic acid (PFNA)	2.01	2.02	J	ng/L		100	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.01	1.89	J	ng/L		94	50 - 150
Perfluorotridecanoic acid (PFTTrDA)	2.01	2.03	J	ng/L		101	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	2.01	1.94	J	ng/L		96	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.01	1.80	J	ng/L		90	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.01	1.76	J	ng/L		87	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	Limits
d5-NEtFOSAA	91		70 - 130
13C2 PFHxA	96		70 - 130
13C2 PFDA	103		70 - 130
13C3-GenX	82		70 - 130

**Lab Sample ID: 380-176167-B-1-A MS**  
**Matrix: Water**  
**Analysis Batch: 179426**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 179293**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		25.0	23.1		ng/L		92	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		25.0	27.2		ng/L		102	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		25.0	26.4		ng/L		106	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.0	25.1		ng/L		101	70 - 130

Eurofins Eaton Analytical Pomona





# QC Sample Results

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

Job ID: 380-176168-1  
SDG: PFAS: Halawa Shaft Viewing Pool

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

**Lab Sample ID: MBL 380-180693/21-A**  
**Matrix: Water**  
**Analysis Batch: 180817**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 180693**

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		10/19/25 07:41	10/20/25 09:07	1

  

Surrogate	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	102		70 - 130	10/19/25 07:41	10/20/25 09:07	1
13C2 PFHxA	105		70 - 130	10/19/25 07:41	10/20/25 09:07	1
13C2 PFDA	104		70 - 130	10/19/25 07:41	10/20/25 09:07	1
13C3-GenX	101		70 - 130	10/19/25 07:41	10/20/25 09:07	1

**Lab Sample ID: LCS 380-180693/23-A**  
**Matrix: Water**  
**Analysis Batch: 180817**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 180693**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	50.3	47.4		ng/L		94	70 - 130
Perfluorooctanesulfonic acid (PFOS)	50.3	50.1		ng/L		100	70 - 130
Perfluoroundecanoic acid (PFUnA)	50.3	50.0		ng/L		99	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	50.3	50.5		ng/L		100	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	50.3	48.2		ng/L		96	70 - 130
Perfluorohexanoic acid (PFHxA)	50.3	49.9		ng/L		99	70 - 130
Perfluorododecanoic acid (PFDoA)	50.3	50.4		ng/L		100	70 - 130
Perfluorooctanoic acid (PFOA)	50.3	50.3		ng/L		100	70 - 130
Perfluorodecanoic acid (PFDA)	50.3	50.6		ng/L		101	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	50.3	48.7		ng/L		97	70 - 130
Perfluorobutanesulfonic acid (PFBS)	50.3	48.4		ng/L		96	70 - 130
Perfluoroheptanoic acid (PFHpA)	50.3	49.1		ng/L		98	70 - 130
Perfluorononanoic acid (PFNA)	50.3	50.7		ng/L		101	70 - 130
Perfluorotetradecanoic acid (PFTA)	50.3	42.2		ng/L		84	70 - 130
Perfluorotridecanoic acid (PFTTrDA)	50.3	54.0		ng/L		107	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	50.3	50.1		ng/L		100	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	50.3	51.1		ng/L		102	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	50.3	48.1		ng/L		96	70 - 130

  

Surrogate	LCS %Recovery	LCS Qualifier	Limits
d5-NEtFOSAA	101		70 - 130
13C2 PFHxA	103		70 - 130
13C2 PFDA	103		70 - 130

# QC Sample Results

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

Job ID: 380-176168-1  
SDG: PFAS: Halawa Shaft Viewing Pool

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

**Lab Sample ID: LCS 380-180693/23-A**  
**Matrix: Water**  
**Analysis Batch: 180817**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 180693**

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
13C3-GenX	104		70 - 130

**Lab Sample ID: MRL 380-180693/22-A**  
**Matrix: Water**  
**Analysis Batch: 180817**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 180693**

Analyte	Spike Added	MRL MRL		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.85	J	ng/L		92	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	2.16	J	ng/L		108	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.15	J	ng/L		107	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	1.94	J	ng/L		97	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.06	J	ng/L		103	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.13	J	ng/L		106	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.15	J	ng/L		107	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.15	J	ng/L		107	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.21	J	ng/L		110	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	2.10	J	ng/L		105	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	2.01	J	ng/L		100	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.09	J	ng/L		104	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.14	J	ng/L		107	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.00	1.80	J	ng/L		90	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.00	2.22	J	ng/L		111	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	2.00	2.21	J	ng/L		110	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	2.11	J	ng/L		105	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	1.93	J	ng/L		96	50 - 150

Surrogate	MRL MRL		Limits
	%Recovery	Qualifier	
d5-NEtFOSAA	103		70 - 130
13C2 PFHxA	102		70 - 130
13C2 PFDA	107		70 - 130
13C3-GenX	101		70 - 130



# QC Sample Results

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

Job ID: 380-176168-1  
SDG: PFAS: Halawa Shaft Viewing Pool

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

**Lab Sample ID: 380-177308-D-1-A MSD**  
**Matrix: Water**  
**Analysis Batch: 180817**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 180693**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	<2.0		50.2	47.2		ng/L		94	70 - 130	1	30
Perfluorohexanoic acid (PFHxA)	<2.0		50.2	50.5		ng/L		101	70 - 130	5	30
Perfluorododecanoic acid (PFDoA)	<2.0		50.2	50.7		ng/L		101	70 - 130	5	30
Perfluorooctanoic acid (PFOA)	<2.0		50.2	51.3		ng/L		102	70 - 130	2	30
Perfluorodecanoic acid (PFDA)	<2.0		50.2	50.6		ng/L		101	70 - 130	4	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		50.2	52.3		ng/L		104	70 - 130	1	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		50.2	51.2		ng/L		102	70 - 130	0	30
Perfluoroheptanoic acid (PFHpA)	<2.0		50.2	50.0		ng/L		100	70 - 130	0	30
Perfluorononanoic acid (PFNA)	<2.0		50.2	52.2		ng/L		104	70 - 130	4	30
Perfluorotetradecanoic acid (PFTA)	<2.0		50.2	42.1		ng/L		84	70 - 130	5	30
Perfluorotridecanoic acid (PFTrDA)	<2.0		50.2	54.7		ng/L		109	70 - 130	2	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<2.0		50.2	50.9		ng/L		101	70 - 130	3	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		50.2	53.3		ng/L		106	70 - 130	2	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		50.2	50.4		ng/L		100	70 - 130	1	30
<b>Surrogate</b>		<b>MSD</b>	<b>MSD</b>								
	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>								
d5-NEtFOSAA	99		70 - 130								
13C2 PFHxA	107		70 - 130								
13C2 PFDA	106		70 - 130								
13C3-GenX	104		70 - 130								

# QC Association Summary

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

Job ID: 380-176168-1  
SDG: PFAS: Halawa Shaft Viewing Pool

## LCMS

### Prep Batch: 179293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-176168-2	Halawa Shaft Viewing Pool Blank	Total/NA	Water	537.1 DW	
MBL 380-179293/28-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-179293/30-A	Lab Control Sample	Total/NA	Water	537.1 DW	
MRL 380-179293/29-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-176167-B-1-A MS	Matrix Spike	Total/NA	Water	537.1 DW	
380-176167-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1 DW	

### Analysis Batch: 179426

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-176168-2	Halawa Shaft Viewing Pool Blank	Total/NA	Water	537.1	179293
MBL 380-179293/28-A	Method Blank	Total/NA	Water	537.1	179293
LCS 380-179293/30-A	Lab Control Sample	Total/NA	Water	537.1	179293
MRL 380-179293/29-A	Lab Control Sample	Total/NA	Water	537.1	179293
380-176167-B-1-A MS	Matrix Spike	Total/NA	Water	537.1	179293
380-176167-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1	179293

### Prep Batch: 179433

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-176168-1	Halawa Shaft Viewing Pool	Total/NA	Drinking Water	533	
380-176168-2	Halawa Shaft Viewing Pool Blank	Total/NA	Water	533	
MBL 380-179433/20-A	Method Blank	Total/NA	Water	533	
LCS 380-179433/22-A	Lab Control Sample	Total/NA	Water	533	
MRL 380-179433/21-A	Lab Control Sample	Total/NA	Water	533	
380-176119-E-1-B MS	Matrix Spike	Total/NA	Water	533	
380-176119-F-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	533	

### Analysis Batch: 179614

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-176168-1	Halawa Shaft Viewing Pool	Total/NA	Drinking Water	533	179433
380-176168-2	Halawa Shaft Viewing Pool Blank	Total/NA	Water	533	179433
MBL 380-179433/20-A	Method Blank	Total/NA	Water	533	179433
LCS 380-179433/22-A	Lab Control Sample	Total/NA	Water	533	179433
MRL 380-179433/21-A	Lab Control Sample	Total/NA	Water	533	179433
380-176119-E-1-B MS	Matrix Spike	Total/NA	Water	533	179433
380-176119-F-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	533	179433

### Prep Batch: 180693

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-176168-1	Halawa Shaft Viewing Pool	Total/NA	Drinking Water	537.1 DW	
MBL 380-180693/21-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-180693/23-A	Lab Control Sample	Total/NA	Water	537.1 DW	
MRL 380-180693/22-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-177308-C-1-A MS	Matrix Spike	Total/NA	Water	537.1 DW	
380-177308-D-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1 DW	

### Analysis Batch: 180817

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-176168-1	Halawa Shaft Viewing Pool	Total/NA	Drinking Water	537.1	180693
MBL 380-180693/21-A	Method Blank	Total/NA	Water	537.1	180693
LCS 380-180693/23-A	Lab Control Sample	Total/NA	Water	537.1	180693
MRL 380-180693/22-A	Lab Control Sample	Total/NA	Water	537.1	180693

Eurofins Eaton Analytical Pomona

# QC Association Summary

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

Job ID: 380-176168-1  
SDG: PFAS: Halawa Shaft Viewing Pool

## LCMS (Continued)

### Analysis Batch: 180817 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-177308-C-1-A MS	Matrix Spike	Total/NA	Water	537.1	180693
380-177308-D-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1	180693

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# Lab Chronicle

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

Job ID: 380-176168-1  
 SDG: PFAS: Halawa Shaft Viewing Pool

## Client Sample ID: Halawa Shaft Viewing Pool

## Lab Sample ID: 380-176168-1

Date Collected: 10/07/25 09:45

Matrix: Drinking Water

Date Received: 10/09/25 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			179433	E2HD	EA POM	10/13/25 16:00
Total/NA	Analysis	533		1	179614	SZ9R	EA POM	10/14/25 14:01
Total/NA	Prep	537.1 DW			180693	E9PK	EA POM	10/19/25 07:41
Total/NA	Analysis	537.1		1	180817	SZ9R	EA POM	10/20/25 10:43

## Client Sample ID: Halawa Shaft Viewing Pool Blank

## Lab Sample ID: 380-176168-2

Date Collected: 10/07/25 09:45

Matrix: Water

Date Received: 10/09/25 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			179433	E2HD	EA POM	10/13/25 16:00
Total/NA	Analysis	533		1	179614	SZ9R	EA POM	10/14/25 14:11
Total/NA	Prep	537.1 DW			179293	G9MN	EA POM	10/13/25 03:34
Total/NA	Analysis	537.1		1	179426	M7ML	EA POM	10/14/25 02:32

**Laboratory References:**

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

# Accreditation/Certification Summary

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

Job ID: 380-176168-1  
SDG: PFAS: Halawa Shaft Viewing Pool

## Laboratory: Eurofins Eaton Analytical Pomona

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

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

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# Method Summary

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

Job ID: 380-176168-1  
SDG: PFAS: Halawa Shaft Viewing Pool

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

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

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



# Sample Summary

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

Job ID: 380-176168-1  
SDG: PFAS: Halawa Shaft Viewing Pool

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-176168-1	Halawa Shaft Viewing Pool	Drinking Water	10/07/25 09:45	10/09/25 10:20	HI0000331
380-176168-2	Halawa Shaft Viewing Pool Blank	Water	10/07/25 09:45	10/09/25 10:20	HI0000331

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# Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-176168-1

SDG Number: PFAS: Halawa Shaft Viewing Pool

**Login Number: 176168**

**List Number: 1**

**Creator: Segura, Ryan**

**List Source: Eurofins Eaton Analytical 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").	True	
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	