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ANALYTICAL REPORT

PREPARED FOR

Attn: Mr. Erwin Kawata
City & County of Honolulu
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JOB DESCRIPTION

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

JOB NUMBER

380-216869-1

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Job Notes

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

Compliance Statement

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

Authorization



Authorized for release by
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Definitions/Glossary

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

Job ID: 380-216869-1
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: 380-216869-1

Job ID: 380-216869-1

Eurofins Pomona

Job Narrative 380-216869-1

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 5/29/2026 10:03 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 4.6°C.

PFAS

Method EPA 537.1 V2: Surrogate recovery is elevated (200 - 211%) in sample HALAWA SHAFT VIEWING POOL (380-216869-1), suggesting a possible double spike. PFAS results by 537.1 for HALAWA SHAFT VIEWING POOL (380-216869-1) collected on 05/26/26 are not acceptable for compliance reporting due to elevated surrogate recoveries not meeting the method limits. The sample is collected weekly thus follow up sample was collected on 06/02/26 under job # 380-217764-1. Analysis by EPA 537.1 is currently in progress. (XWB4)

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

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Detection Summary

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

Job ID: 380-216869-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: HALAWA SHAFT VIEWING POOL
PWSID Number: HI0000331

Lab Sample ID: 380-216869-1

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)	3.3		2.0	ng/L	1		533	Total/NA

Client Sample ID: FB: HALAWA SHAFT VIEWING POOL
PWSID Number: HI0000331

Lab Sample ID: 380-216869-2

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: 380-216869-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-216869-1

Date Collected: 05/26/26 09:15

Matrix: Drinking Water

Date Received: 05/29/26 10:03

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		05/30/26 14:54	06/01/26 18:10	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:10	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:10	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:10	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:10	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:10	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:10	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:10	1
Perfluorohexanesulfonic acid (PFHxS)	3.3		2.0	ng/L		05/30/26 14:54	06/01/26 18:10	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:10	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:10	1
Perfluorooctanesulfonic acid (PFOS)	3.3		2.0	ng/L		05/30/26 14:54	06/01/26 18:10	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:10	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:10	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:10	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:10	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:10	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:10	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:10	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:10	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:10	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:10	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:10	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:10	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:10	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	100		50 - 200	05/30/26 14:54	06/01/26 18:10	1
13C6 PFDA	103		50 - 200	05/30/26 14:54	06/01/26 18:10	1
13C5 PFHxA	104		50 - 200	05/30/26 14:54	06/01/26 18:10	1
13C4 PFHpA	102		50 - 200	05/30/26 14:54	06/01/26 18:10	1
13C8 PFOA	105		50 - 200	05/30/26 14:54	06/01/26 18:10	1
13C9 PFNA	104		50 - 200	05/30/26 14:54	06/01/26 18:10	1
13C7 PFUnA	112		50 - 200	05/30/26 14:54	06/01/26 18:10	1
13C2 PFDoA	111		50 - 200	05/30/26 14:54	06/01/26 18:10	1
13C4 PFBA	108		50 - 200	05/30/26 14:54	06/01/26 18:10	1
13C5 PFPeA	117		50 - 200	05/30/26 14:54	06/01/26 18:10	1
13C3 PFBS	104		50 - 200	05/30/26 14:54	06/01/26 18:10	1
13C3 PFHxS	110		50 - 200	05/30/26 14:54	06/01/26 18:10	1

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Client Sample Results

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

Job ID: 380-216869-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-216869-1

Date Collected: 05/26/26 09:15

Matrix: Drinking Water

Date Received: 05/29/26 10:03

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	106		50 - 200	05/30/26 14:54	06/01/26 18:10	1
13C2-4:2-FTS	132		50 - 200	05/30/26 14:54	06/01/26 18:10	1
13C2-6:2-FTS	126		50 - 200	05/30/26 14:54	06/01/26 18:10	1
13C2-8:2-FTS	122		50 - 200	05/30/26 14:54	06/01/26 18:10	1

Client Sample ID: FB: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-216869-2

Date Collected: 05/26/26 09:15

Matrix: Drinking Water

Date Received: 05/29/26 10:03

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-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:19	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:19	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:19	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:19	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:19	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:19	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:19	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:19	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:19	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:19	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:19	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:19	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:19	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:19	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:19	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:19	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:19	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:19	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:19	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:19	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:19	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:19	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:19	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:19	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		05/30/26 14:54	06/01/26 18:19	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	97		50 - 200	05/30/26 14:54	06/01/26 18:19	1
13C6 PFDA	108		50 - 200	05/30/26 14:54	06/01/26 18:19	1
13C5 PFHxA	107		50 - 200	05/30/26 14:54	06/01/26 18:19	1

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Client Sample Results

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

Job ID: 380-216869-1
 SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: FB: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-216869-2

Date Collected: 05/26/26 09:15

Matrix: Drinking Water

Date Received: 05/29/26 10:03

PWSID Number: HI0000331

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

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFHpA	104		50 - 200	05/30/26 14:54	06/01/26 18:19	1
13C8 PFOA	107		50 - 200	05/30/26 14:54	06/01/26 18:19	1
13C9 PFNA	106		50 - 200	05/30/26 14:54	06/01/26 18:19	1
13C7 PFUnA	113		50 - 200	05/30/26 14:54	06/01/26 18:19	1
13C2 PFDoA	111		50 - 200	05/30/26 14:54	06/01/26 18:19	1
13C4 PFBA	108		50 - 200	05/30/26 14:54	06/01/26 18:19	1
13C5 PFPeA	111		50 - 200	05/30/26 14:54	06/01/26 18:19	1
13C3 PFBS	97		50 - 200	05/30/26 14:54	06/01/26 18:19	1
13C3 PFHxS	107		50 - 200	05/30/26 14:54	06/01/26 18:19	1
13C8 PFOS	108		50 - 200	05/30/26 14:54	06/01/26 18:19	1
13C2-4:2-FTS	119		50 - 200	05/30/26 14:54	06/01/26 18:19	1
13C2-6:2-FTS	121		50 - 200	05/30/26 14:54	06/01/26 18:19	1
13C2-8:2-FTS	123		50 - 200	05/30/26 14:54	06/01/26 18:19	1



Action Limit Summary

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

Job ID: 380-216869-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-216869-1

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)	3.3		ng/L	10	2.0	533	Total/NA
Perfluorononanoic acid (PFNA)	<2.0		ng/L	10	2.0	533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.3		ng/L	4	2.0	533	Total/NA
Perfluorooctanoic acid (PFOA)	<2.0		ng/L	4	2.0	533	Total/NA

Client Sample ID: FB: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-216869-2

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

Surrogate Summary

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

Job ID: 380-216869-1
 SDG: PFAS: Halawa Shaft Viewing Pool

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

Matrix: Drinking Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		d5NEFOS (70-130)	PFHxA (70-130)	PFDA (70-130)	GenX (70-130)
380-216869-1	HALAWA SHAFT VIEWING POOL	201 S1+	211 S1+	210 S1+	203 S1+
380-216869-2	FB: HALAWA SHAFT VIEWING POOL	105	113	107	107

Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		d5NEFOS (70-130)	PFHxA (70-130)	PFDA (70-130)	GenX (70-130)
380-216853-B-1-A MS	Matrix Spike	111	123	119	116
380-216853-C-1-A MSD	Matrix Spike Duplicate	106	114	110	110
LCS 380-230775/21-A	Lab Control Sample	101	110	105	99
MBL 380-230775/19-A	Method Blank	109	113	113	110
MRL 380-230775/20-A	Lab Control Sample	107	111	110	105

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: 380-216869-1
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)
380-216869-1	HALAWA SHAFT VIEWING POC	100	103	104	102	105	104	112	111
380-216869-2	FB: HALAWA SHAFT VIEWING POOL	97	108	107	104	107	106	113	111

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)
380-216869-1	HALAWA SHAFT VIEWING POC	108	117	104	110	106	132	126	122
380-216869-2	FB: HALAWA SHAFT VIEWING POOL	108	111	97	107	108	119	121	123

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)
380-215538-B-1-A MS	Matrix Spike	102	111	108	111	103	105	124	115
380-215538-C-1-A MSD	Matrix Spike Duplicate	104	109	107	108	100	105	115	112
LCS 380-230570/22-A	Lab Control Sample	105	107	107	104	106	103	116	109
MBL 380-230570/20-A	Method Blank	100	107	105	99	109	110	116	110
MRL 380-230570/21-A	Lab Control Sample	103	104	105	104	105	103	116	104

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)
380-215538-B-1-A MS	Matrix Spike	105	111	101	100	106	109	115	108
380-215538-C-1-A MSD	Matrix Spike Duplicate	106	102	103	107	107	114	112	118
LCS 380-230570/22-A	Lab Control Sample	105	113	103	104	108	112	114	109
MBL 380-230570/20-A	Method Blank	102	106	101	107	107	106	110	105
MRL 380-230570/21-A	Lab Control Sample	107	110	102	108	107	110	110	108

Surrogate Legend

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

Isotope Dilution Summary

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

Job ID: 380-216869-1
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
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- 7
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- 16
- 17

QC Sample Results

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

Job ID: 380-216869-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: MBL 380-230570/20-A
Matrix: Water
Analysis Batch: 230769

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 230570

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		05/30/26 14:54	06/01/26 14:43	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		05/30/26 14:54	06/01/26 14:43	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		05/30/26 14:54	06/01/26 14:43	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		05/30/26 14:54	06/01/26 14:43	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		05/30/26 14:54	06/01/26 14:43	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		05/30/26 14:54	06/01/26 14:43	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		05/30/26 14:54	06/01/26 14:43	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		05/30/26 14:54	06/01/26 14:43	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		05/30/26 14:54	06/01/26 14:43	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		05/30/26 14:54	06/01/26 14:43	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		05/30/26 14:54	06/01/26 14:43	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		05/30/26 14:54	06/01/26 14:43	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		05/30/26 14:54	06/01/26 14:43	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		05/30/26 14:54	06/01/26 14:43	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		05/30/26 14:54	06/01/26 14:43	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		05/30/26 14:54	06/01/26 14:43	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		05/30/26 14:54	06/01/26 14:43	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		05/30/26 14:54	06/01/26 14:43	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		05/30/26 14:54	06/01/26 14:43	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<0.25		2.0	ng/L		05/30/26 14:54	06/01/26 14:43	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		05/30/26 14:54	06/01/26 14:43	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		05/30/26 14:54	06/01/26 14:43	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		05/30/26 14:54	06/01/26 14:43	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		05/30/26 14:54	06/01/26 14:43	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		05/30/26 14:54	06/01/26 14:43	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	100		50 - 200	05/30/26 14:54	06/01/26 14:43	1
13C6 PFDA	107		50 - 200	05/30/26 14:54	06/01/26 14:43	1
13C5 PFHxA	105		50 - 200	05/30/26 14:54	06/01/26 14:43	1
13C4 PFHpA	99		50 - 200	05/30/26 14:54	06/01/26 14:43	1
13C8 PFOA	109		50 - 200	05/30/26 14:54	06/01/26 14:43	1
13C9 PFNA	110		50 - 200	05/30/26 14:54	06/01/26 14:43	1
13C7 PFUnA	116		50 - 200	05/30/26 14:54	06/01/26 14:43	1
13C2 PFDoA	110		50 - 200	05/30/26 14:54	06/01/26 14:43	1
13C4 PFBA	102		50 - 200	05/30/26 14:54	06/01/26 14:43	1
13C5 PFPeA	106		50 - 200	05/30/26 14:54	06/01/26 14:43	1
13C3 PFBS	101		50 - 200	05/30/26 14:54	06/01/26 14:43	1
13C3 PFHxS	107		50 - 200	05/30/26 14:54	06/01/26 14:43	1

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QC Sample Results

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

Job ID: 380-216869-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: MBL 380-230570/20-A
Matrix: Water
Analysis Batch: 230769

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 230570

<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	107		50 - 200	05/30/26 14:54	06/01/26 14:43	1
13C2-4:2-FTS	106		50 - 200	05/30/26 14:54	06/01/26 14:43	1
13C2-6:2-FTS	110		50 - 200	05/30/26 14:54	06/01/26 14:43	1
13C2-8:2-FTS	105		50 - 200	05/30/26 14:54	06/01/26 14:43	1

Lab Sample ID: LCS 380-230570/22-A
Matrix: Water
Analysis Batch: 230769

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 230570

<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	57.7		ng/L		96	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.2	58.2		ng/L		97	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.2	59.7		ng/L		99	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.2	57.8		ng/L		96	70 - 130
Perfluorobutanesulfonic acid (PFBS)	60.2	57.7		ng/L		96	70 - 130
Perfluorodecanoic acid (PFDA)	60.2	57.4		ng/L		95	70 - 130
Perfluorododecanoic acid (PFDoA)	60.2	58.4		ng/L		97	70 - 130
Perfluoroheptanoic acid (PFHpA)	60.2	57.4		ng/L		95	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	60.2	57.9		ng/L		96	70 - 130
Perfluorohexanoic acid (PFHxA)	60.2	54.5		ng/L		91	70 - 130
Perfluorononanoic acid (PFNA)	60.2	57.4		ng/L		95	70 - 130
Perfluorooctanesulfonic acid (PFOS)	60.2	57.5		ng/L		96	70 - 130
Perfluorooctanoic acid (PFOA)	60.2	55.7		ng/L		92	70 - 130
Perfluoroundecanoic acid (PFUnA)	60.2	57.7		ng/L		96	70 - 130
Perfluorobutanoic acid (PFBA)	60.2	57.3		ng/L		95	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.2	61.2		ng/L		102	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.2	59.0		ng/L		98	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.2	58.2		ng/L		97	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.2	57.9		ng/L		96	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	60.2	59.4		ng/L		99	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.2	54.5		ng/L		91	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.2	55.2		ng/L		92	70 - 130
Perfluoropentanoic acid (PFPeA)	60.2	53.9		ng/L		90	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	60.2	57.6		ng/L		96	70 - 130

QC Sample Results

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

Job ID: 380-216869-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: LCS 380-230570/22-A
Matrix: Water
Analysis Batch: 230769

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 230570

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanesulfonic acid (PFPeS)	60.2	57.7		ng/L		96	70 - 130
LCS LCS							
Isotope Dilution	%Recovery	Qualifier	Limits				
13C3 HFPO-DA	105		50 - 200				
13C6 PFDA	107		50 - 200				
13C5 PFHxA	107		50 - 200				
13C4 PFHpA	104		50 - 200				
13C8 PFOA	106		50 - 200				
13C9 PFNA	103		50 - 200				
13C7 PFUnA	116		50 - 200				
13C2 PFDoA	109		50 - 200				
13C4 PFBA	105		50 - 200				
13C5 PFPeA	113		50 - 200				
13C3 PFBS	103		50 - 200				
13C3 PFHxS	104		50 - 200				
13C8 PFOS	108		50 - 200				
13C2-4:2-FTS	112		50 - 200				
13C2-6:2-FTS	114		50 - 200				
13C2-8:2-FTS	109		50 - 200				

Lab Sample ID: MRL 380-230570/21-A
Matrix: Water
Analysis Batch: 230769

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 230570

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.01	1.99	J	ng/L		99	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.01	1.98	J	ng/L		99	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.01	2.08	J	ng/L		104	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.01	1.91	J	ng/L		95	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.01	2.01	J	ng/L		100	50 - 150
Perfluorodecanoic acid (PFDA)	2.01	2.11	J	ng/L		105	50 - 150
Perfluorododecanoic acid (PFDoA)	2.01	2.01	J	ng/L		100	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.01	2.00	J	ng/L		100	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.01	2.08	J	ng/L		104	50 - 150
Perfluorohexanoic acid (PFHxA)	2.01	2.09	J	ng/L		104	50 - 150
Perfluorononanoic acid (PFNA)	2.01	2.12	J	ng/L		106	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.01	2.11	J	ng/L		105	50 - 150
Perfluorooctanoic acid (PFOA)	2.01	2.06	J	ng/L		102	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.01	1.92	J	ng/L		95	50 - 150
Perfluorobutanoic acid (PFBA)	2.01	1.93	J	ng/L		96	50 - 150

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QC Sample Results

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

Job ID: 380-216869-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: MRL 380-230570/21-A
Matrix: Water
Analysis Batch: 230769

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 230570

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.01	2.13	J	ng/L		106	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.01	2.13	J	ng/L		106	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.01	2.09	J	ng/L		104	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.01	2.15	J	ng/L		107	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.01	2.03	J	ng/L		101	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.01	1.99	J	ng/L		99	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.01	1.89	J	ng/L		94	50 - 150
Perfluoropentanoic acid (PFPeA)	2.01	2.02	J	ng/L		101	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.01	2.08	J	ng/L		103	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.01	2.04	J	ng/L		102	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	MRL Limits
13C3 HFPO-DA	103		50 - 200
13C6 PFDA	104		50 - 200
13C5 PFHxA	105		50 - 200
13C4 PFHpA	104		50 - 200
13C8 PFOA	105		50 - 200
13C9 PFNA	103		50 - 200
13C7 PFUnA	116		50 - 200
13C2 PFDoA	104		50 - 200
13C4 PFBA	107		50 - 200
13C5 PFPeA	110		50 - 200
13C3 PFBS	102		50 - 200
13C3 PFHxS	108		50 - 200
13C8 PFOS	107		50 - 200
13C2-4:2-FTS	110		50 - 200
13C2-6:2-FTS	110		50 - 200
13C2-8:2-FTS	108		50 - 200

Lab Sample ID: 380-215538-B-1-A MS
Matrix: Water
Analysis Batch: 230769

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 230570

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		120	115		ng/L		96	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		120	111		ng/L		92	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		120	110		ng/L		91	70 - 130

QC Sample Results

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

Job ID: 380-216869-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: 380-215538-B-1-A MS
Matrix: Water
Analysis Batch: 230769

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 230570

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide	<2.0		120	116		ng/L		97	70 - 130
Dimer Acid (HFPO-DA/GenX)									
Perfluorobutanesulfonic acid (PFBS)	<2.0		120	110		ng/L		92	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		120	111		ng/L		92	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		120	110		ng/L		92	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		120	108		ng/L		90	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		120	115		ng/L		95	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		120	114		ng/L		95	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		120	118		ng/L		98	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		120	111		ng/L		93	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		120	112		ng/L		94	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		120	108		ng/L		90	70 - 130
Perfluorobutanoic acid (PFBA)	<2.0		120	111		ng/L		92	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		120	119		ng/L		99	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		120	110		ng/L		92	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		120	112		ng/L		93	70 - 130
Nonafluoro-3,6-dioxahheptanoic acid (NFDHA)	<2.0		120	108		ng/L		90	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		120	110		ng/L		91	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		120	113		ng/L		94	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		120	112		ng/L		93	70 - 130
Perfluoropentanoic acid (PFPeA)	<2.0		120	113		ng/L		94	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		120	112		ng/L		93	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<2.0		120	116		ng/L		96	70 - 130

<i>Isotope Dilution</i>	<i>MS %Recovery</i>	<i>MS Qualifier</i>	<i>MS Limits</i>
13C3 HFPO-DA	102		50 - 200
13C6 PFDA	111		50 - 200
13C5 PFHxA	108		50 - 200
13C4 PFHpA	111		50 - 200
13C8 PFOA	103		50 - 200
13C9 PFNA	105		50 - 200
13C7 PFUnA	124		50 - 200
13C2 PFDoA	115		50 - 200
13C4 PFBA	105		50 - 200
13C5 PFPeA	111		50 - 200
13C3 PFBS	101		50 - 200
13C3 PFHxS	100		50 - 200
13C8 PFOS	106		50 - 200

QC Sample Results

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

Job ID: 380-216869-1
SDG: PFAS: Halawa Shaft Viewing Pool

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

Lab Sample ID: 380-215538-B-1-A MS
Matrix: Water
Analysis Batch: 230769

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 230570

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
13C2-4:2-FTS	109		50 - 200
13C2-6:2-FTS	115		50 - 200
13C2-8:2-FTS	108		50 - 200

Lab Sample ID: 380-215538-C-1-A MSD
Matrix: Water
Analysis Batch: 230769

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 230570

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		120	116		ng/L		97	70 - 130	1	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		120	116		ng/L		96	70 - 130	5	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		120	116		ng/L		97	70 - 130	6	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		120	116		ng/L		96	70 - 130	0	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		120	117		ng/L		97	70 - 130	6	30
Perfluorodecanoic acid (PFDA)	<2.0		120	109		ng/L		90	70 - 130	2	30
Perfluorododecanoic acid (PFDoA)	<2.0		120	112		ng/L		93	70 - 130	2	30
Perfluoroheptanoic acid (PFHpA)	<2.0		120	109		ng/L		91	70 - 130	1	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		120	113		ng/L		94	70 - 130	2	30
Perfluorohexanoic acid (PFHxA)	<2.0		120	115		ng/L		95	70 - 130	1	30
Perfluorononanoic acid (PFNA)	<2.0		120	114		ng/L		94	70 - 130	3	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		120	115		ng/L		96	70 - 130	3	30
Perfluorooctanoic acid (PFOA)	<2.0		120	117		ng/L		98	70 - 130	4	30
Perfluoroundecanoic acid (PFUnA)	<2.0		120	116		ng/L		97	70 - 130	8	30
Perfluorobutanoic acid (PFBA)	<2.0		120	114		ng/L		95	70 - 130	3	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		120	110		ng/L		91	70 - 130	8	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		120	113		ng/L		94	70 - 130	3	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		120	123		ng/L		102	70 - 130	9	30
Nonfluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		120	111		ng/L		92	70 - 130	3	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		120	111		ng/L		92	70 - 130	1	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		120	118		ng/L		98	70 - 130	4	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		120	119		ng/L		99	70 - 130	6	30
Perfluoropentanoic acid (PFPeA)	<2.0		120	117		ng/L		98	70 - 130	4	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		120	114		ng/L		95	70 - 130	2	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0		120	113		ng/L		94	70 - 130	3	30

Eurofins Pomona

QC Sample Results

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

Job ID: 380-216869-1
 SDG: PFAS: Halawa Shaft Viewing Pool

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

<i>Isotope Dilution</i>	<i>MSD MSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C3 HFPO-DA	104		50 - 200
13C6 PFDA	109		50 - 200
13C5 PFHxA	107		50 - 200
13C4 PFHpA	108		50 - 200
13C8 PFOA	100		50 - 200
13C9 PFNA	105		50 - 200
13C7 PFUnA	115		50 - 200
13C2 PFDoA	112		50 - 200
13C4 PFBA	106		50 - 200
13C5 PFPeA	102		50 - 200
13C3 PFBS	103		50 - 200
13C3 PFHxS	107		50 - 200
13C8 PFOS	107		50 - 200
13C2-4:2-FTS	114		50 - 200
13C2-6:2-FTS	112		50 - 200
13C2-8:2-FTS	118		50 - 200

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QC Association Summary

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

Job ID: 380-216869-1
 SDG: PFAS: Halawa Shaft Viewing Pool

LCMS

Prep Batch: 230570

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-216869-1	HALAWA SHAFT VIEWING POOL	Total/NA	Drinking Water	533	
380-216869-2	FB: HALAWA SHAFT VIEWING POOL	Total/NA	Drinking Water	533	
MBL 380-230570/20-A	Method Blank	Total/NA	Water	533	
LCS 380-230570/22-A	Lab Control Sample	Total/NA	Water	533	
MRL 380-230570/21-A	Lab Control Sample	Total/NA	Water	533	
380-215538-B-1-A MS	Matrix Spike	Total/NA	Water	533	
380-215538-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	

Analysis Batch: 230769

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-216869-1	HALAWA SHAFT VIEWING POOL	Total/NA	Drinking Water	533	230570
380-216869-2	FB: HALAWA SHAFT VIEWING POOL	Total/NA	Drinking Water	533	230570
MBL 380-230570/20-A	Method Blank	Total/NA	Water	533	230570
LCS 380-230570/22-A	Lab Control Sample	Total/NA	Water	533	230570
MRL 380-230570/21-A	Lab Control Sample	Total/NA	Water	533	230570
380-215538-B-1-A MS	Matrix Spike	Total/NA	Water	533	230570
380-215538-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	230570

Lab Chronicle

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

Job ID: 380-216869-1
SDG: PFAS: Halawa Shaft Viewing Pool

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-216869-1

Date Collected: 05/26/26 09:15

Matrix: Drinking Water

Date Received: 05/29/26 10:03

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			230570	N8NE	EA POM	05/30/26 14:54
Total/NA	Analysis	533		1	230769	M7ML	EA POM	06/01/26 18:10

Client Sample ID: FB: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-216869-2

Date Collected: 05/26/26 09:15

Matrix: Drinking Water

Date Received: 05/29/26 10:03

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			230570	N8NE	EA POM	05/30/26 14:54
Total/NA	Analysis	533		1	230769	M7ML	EA POM	06/01/26 18:19

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: 380-216869-1
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 *

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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: 380-216869-1
SDG: PFAS: Halawa Shaft Viewing Pool

Method	Method Description	Protocol	Laboratory
533	Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water	EPA	EA POM
533	Extraction of Perfluorinated and Polyfluorinated 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: 380-216869-1
SDG: PFAS: Halawa Shaft Viewing Pool

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-216869-1	HALAWA SHAFT VIEWING POOL	Drinking Water	05/26/26 09:15	05/29/26 10:03	HI0000331
380-216869-2	FB: HALAWA SHAFT VIEWING POOL	Drinking Water	05/26/26 09:15	05/29/26 10:03	HI0000331

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Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-216869-1
SDG Number: PFAS: Halawa Shaft Viewing Pool

Login Number: 216869

List Number: 1

Creator: Avila, Ivan

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	

