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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

Generated 12/12/2024 10:48:14 AM

JOB DESCRIPTION

RED-HILL
Weekly PFAS

JOB NUMBER

380-125045-1

Eurofins Eaton Analytical Pomona
941 Corporate Center Drive
Pomona CA 91768-2642

See page two for job notes and contact information.

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Eurofins Eaton Analytical Pomona

Job Notes

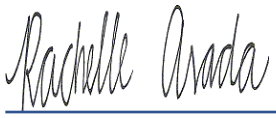
This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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



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Authorized for release by
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Table of Contents

Definitions/Glossary

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

Job ID: 380-125045-1
SDG: Weekly PFAS

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

Job Narrative
380-125045-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 12/5/2024 10:01 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 1.8°C.

PFAS
Method 533: The following QC issues in preparation batch 380-122704 and analytical batch 380-122816 were observed: All IDA recoveries had zero percent recovery for sample HALAWA SHAFT VIEWING POOL (380-125045-1). Insufficient volume for re-extraction / re-analysis. Extracts were re-analyzed for confirmation. No volume available for re-extraction. Results not acceptable per method. Results are estimated concentrations. Data excluded due to this QC failure.

Method 533: The following QC issues in preparation batch 380-122704 and analytical batch 380-122816 were observed: All IDA recoveries had zero percent recovery for FB sample FB: Halawa Shaft Viewing Pool (380-125045-2). Insufficient volume for re-extraction / re-analysis. Extracts were re-analyzed for confirmation. No volume available for re-extraction. Results not acceptable per method. Results are estimated concentrations. Data excluded due to this QC failure.

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: 380-125045-1
SDG: Weekly PFAS

Client Sample ID: HALAWA SHAFT VIEWING POOL — Lab Sample ID: 380-125045-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	3.7		2.0		ng/L	1		537.1	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	4.1		2.0		ng/L	1		537.1	Total/NA

Client Sample ID: FB: Halawa Shaft Viewing Pool — Lab Sample ID: 380-125045-2

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-125045-1
Date Collected: 12/03/24 09:30
Matrix: Water
Date Received: 12/05/24 10:01

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		12/07/24 15:15	12/08/24 19:55	1
Perfluorooctanesulfonic acid (PFOS)	**3.7**		2.0		ng/L		12/07/24 15:15	12/08/24 19:55	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 19:55	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 19:55	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 19:55	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 19:55	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 19:55	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 19:55	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 19:55	1
Perfluorohexanesulfonic acid (PFHxS)	**4.1**		2.0		ng/L		12/07/24 15:15	12/08/24 19:55	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 19:55	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 19:55	1
Perfluorononanoic acid (PFNA)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 19:55	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 19:55	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 19:55	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 19:55	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 19:55	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 19:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
d5-NEtFOSAA	*112*		*70 - 130*	*12/07/24 15:15*	*12/08/24 19:55*	*1*
13C2 PFHxA	*117*		*70 - 130*	*12/07/24 15:15*	*12/08/24 19:55*	*1*
13C2 PFDA	*105*		*70 - 130*	*12/07/24 15:15*	*12/08/24 19:55*	*1*
13C3-GenX	*109*		*70 - 130*	*12/07/24 15:15*	*12/08/24 19:55*	*1*

Client Sample ID: FB: Halawa Shaft Viewing Pool

Lab Sample ID: 380-125045-2
Date Collected: 12/03/24 09:30
Matrix: Water
Date Received: 12/05/24 10:01

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		12/07/24 15:15	12/08/24 20:06	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 20:06	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 20:06	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 20:06	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 20:06	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 20:06	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 20:06	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 20:06	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 20:06	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 20:06	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 20:06	1

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

Job ID: 380-125045-1
SDG: Weekly PFAS

Client Sample ID: FB: Halawa Shaft Viewing Pool
Date Collected: 12/03/24 09:30
Date Received: 12/05/24 10:01

Lab Sample ID: 380-125045-2
Matrix: Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 20:06	1
Perfluorononanoic acid (PFNA)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 20:06	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 20:06	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 20:06	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 20:06	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 20:06	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0		ng/L		12/07/24 15:15	12/08/24 20:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
d5-NEtFOSAA	*108*		*70 - 130*	*12/07/24 15:15*	*12/08/24 20:06*	*1*
13C2 PFHxA	*115*		*70 - 130*	*12/07/24 15:15*	*12/08/24 20:06*	*1*
13C2 PFDA	*111*		*70 - 130*	*12/07/24 15:15*	*12/08/24 20:06*	*1*
13C3-GenX	*109*		*70 - 130*	*12/07/24 15:15*	*12/08/24 20:06*	*1*

Action Limit Summary

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

Job ID: 380-125045-1
SDG: Weekly PFAS

Client Sample ID: HALAWA SHAFT VIEWING POOL — Lab Sample ID: 380-125045-1

Compliance Check

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

Analyte	Result	Qualifier	Unit	EPAMCL Limit	RL	Method	Prep Type
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		ng/L	10	2.0	537.1	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.7		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)	4.1		ng/L	10	2.0	537.1	Total/NA
Perfluorononanoic acid (PFNA)	<2.0		ng/L	10	2.0	537.1	Total/NA

Client Sample ID: FB: Halawa Shaft Viewing Pool — Lab Sample ID: 380-125045-2

Compliance Check

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

Analyte	Result	Qualifier	Unit	EPAMCL Limit	RL	Method	Prep Type
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		ng/L	10	2.0	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: 380-125045-1
SDG: Weekly PFAS

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

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	d5NEFOS (70-130)	PFHxA (70-130)	PFDA (70-130)	GenX (70-130)
380-125045-1	HALAWA SHAFT VIEWING PO(	112	117	105	109
380-125045-2	FB: Halawa Shaft Viewing Pool	108	115	111	109
380-125237-C-1-A MS	Matrix Spike	111	106	99	100
380-125237-C-1-B MSD	Matrix Spike Duplicate	106	119	107	105
LCS 380-122590/22-A	Lab Control Sample	109	114	106	106
MBL 380-122590/20-A	Method Blank	106	112	110	104
MRL 380-122590/21-A	Lab Control Sample	108	109	102	98

Surrogate Legend

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

Isotope Dilution Summary

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

Job ID: 380-125045-1
SDG: Weekly PFAS

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

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		HFPODA	C6PFDA	13C5PHA	C4PFHA	C8PFOA	C9PFNA	13C7PUA	PFDoA
Lab Sample ID	Client Sample ID	(50-200)	(50-200)	(50-200)	(50-200)	(50-200)	(50-200)	(50-200)	(50-200)
380-125045-1	HALAWA SHAFT VIEWING POOL	0.4 *5-	1 *5-	0.4 *5-	0.5 *5-	0.7 *5-	0.9 *5-	2 *5-	2 *5-
380-125045-1 MS	HALAWA SHAFT VIEWING POOL	99	112	103	111	109	114	98	85
380-125045-1 MSD	HALAWA SHAFT VIEWING POOL	87	91	95	97	88	88	100	109
380-125045-2	FB: Halawa Shaft Viewing Pool	0.3 *5-	1 *5-	0.3 *5-	0.5 *5-	0.6 *5-	0.9 *5-	2 *5-	2 *5-
LCS 380-122704/18-A	Lab Control Sample	94	119	104	112	115	119	122	128
MBL 380-122704/16-A	Method Blank	95	122	116	119	116	119	128	129
MRL 380-122704/17-A	Lab Control Sample	91	119	106	112	115	117	122	128

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA	PFPeA	C3PFBS	C3PFHS	C8PFOS	42FTS	62FTS	82FTS
Lab Sample ID	Client Sample ID	(50-200)	(50-200)	(50-200)	(50-200)	(50-200)	(50-200)	(50-200)	(50-200)
380-125045-1	HALAWA SHAFT VIEWING POOL	1 *5-	0.5 *5-	0.3 *5-	0.5 *5-	0.9 *5-	0.3 *5-	0.4 *5-	1 *5-
380-125045-1 MS	HALAWA SHAFT VIEWING POOL	110	109	108	112	110	144	127	124
380-125045-1 MSD	HALAWA SHAFT VIEWING POOL	105	107	109	113	118	143	136	138
380-125045-2	FB: Halawa Shaft Viewing Pool	1 *5-	0.4 *5-	0.3 *5-	0.3 *5-	0.8 *5-	0.2 *5-	0.3 *5-	1 *5-
LCS 380-122704/18-A	Lab Control Sample	117	119	106	108	115	131	130	124
MBL 380-122704/16-A	Method Blank	116	124	106	113	114	147	134	133
MRL 380-122704/17-A	Lab Control Sample	118	120	106	113	118	147	129	133

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: 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Lab Sample ID: MBL 380-122590/20-A
Matrix: Water
Analysis Batch: 122613

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 122590

Analyte	MBL Result	MBL Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0		ng/L		12/07/24 15:15	12/08/24 17:45	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0		ng/L		12/07/24 15:15	12/08/24 17:45	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0		ng/L		12/07/24 15:15	12/08/24 17:45	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.58		2.0		ng/L		12/07/24 15:15	12/08/24 17:45	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.42		2.0		ng/L		12/07/24 15:15	12/08/24 17:45	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0		ng/L		12/07/24 15:15	12/08/24 17:45	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0		ng/L		12/07/24 15:15	12/08/24 17:45	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0		ng/L		12/07/24 15:15	12/08/24 17:45	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0		ng/L		12/07/24 15:15	12/08/24 17:45	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0		ng/L		12/07/24 15:15	12/08/24 17:45	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0		ng/L		12/07/24 15:15	12/08/24 17:45	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0		ng/L		12/07/24 15:15	12/08/24 17:45	1
Perfluorononanoic acid (PFNA)	<0.40		2.0		ng/L		12/07/24 15:15	12/08/24 17:45	1
Perfluorotetradecanoic acid (PFTA)	<0.54		2.0		ng/L		12/07/24 15:15	12/08/24 17:45	1
Perfluorotridecanoic acid (PFTrDA)	<0.36		2.0		ng/L		12/07/24 15:15	12/08/24 17:45	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0		ng/L		12/07/24 15:15	12/08/24 17:45	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0		ng/L		12/07/24 15:15	12/08/24 17:45	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0		ng/L		12/07/24 15:15	12/08/24 17:45	1

Surrogate	*MBL %Recovery*	*MBL Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
d5-NEtFOSAA	*106*		*70 - 130*	*12/07/24 15:15*	*12/08/24 17:45*	*1*
13C2 PFHxA	*112*		*70 - 130*	*12/07/24 15:15*	*12/08/24 17:45*	*1*
13C2 PFDA	*110*		*70 - 130*	*12/07/24 15:15*	*12/08/24 17:45*	*1*
13C3-GenX	*104*		*70 - 130*	*12/07/24 15:15*	*12/08/24 17:45*	*1*

Lab Sample ID: LCS 380-122590/22-A
Matrix: Water
Analysis Batch: 122613

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 122590

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)			50.2	49.2		ng/L		98	70 - 130		
Perfluorooctanesulfonic acid (PFOS)			50.2	54.2		ng/L		108	70 - 130		
Perfluoroundecanoic acid (PFUnA)			50.2	52.9		ng/L		105	70 - 130		
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			50.2	52.9		ng/L		105	70 - 130		
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			50.2	54.1		ng/L		108	70 - 130		
Perfluorohexanoic acid (PFHxA)			50.2	55.4		ng/L		110	70 - 130		
Perfluorododecanoic acid (PFDoA)			50.2	51.1		ng/L		102	70 - 130		
Perfluorooctanoic acid (PFOA)			50.2	55.3		ng/L		110	70 - 130		
Perfluorodecanoic acid (PFDA)			50.2	51.0		ng/L		101	70 - 130		

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

Lab Sample ID: LCS 380-122590/22-A
Matrix: Water
Analysis Batch: 122613

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 122590

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanesulfonic acid (PFHxS)	50.2	55.5		ng/L		111	70 - 130
Perfluorobutanesulfonic acid (PFBS)	50.2	56.5		ng/L		112	70 - 130
Perfluoroheptanoic acid (PFHpA)	50.2	55.0		ng/L		110	70 - 130
Perfluorononanoic acid (PFNA)	50.2	52.0		ng/L		104	70 - 130
Perfluorotetradecanoic acid (PFTA)	50.2	48.4		ng/L		96	70 - 130
Perfluorotridecanoic acid (PFTrDA)	50.2	48.6		ng/L		97	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	50.2	56.1		ng/L		112	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	50.2	51.8		ng/L		103	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	50.2	49.5		ng/L		99	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
d5-NEtFOSAA	*109*		*70 - 130*
13C2 PFHxA	*114*		*70 - 130*
13C2 PFDA	*106*		*70 - 130*
13C3-GenX	*106*		*70 - 130*

Lab Sample ID: MRL 380-122590/21-A
Matrix: Water
Analysis Batch: 122613

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 122590

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.01	2.05	J	ng/L		102	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.01	2.31	J	ng/L		115	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.01	2.16	J	ng/L		107	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.01	2.16	J	ng/L		108	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.01	2.40	J	ng/L		120	50 - 150
Perfluorohexanoic acid (PFHxA)	2.01	2.20	J	ng/L		109	50 - 150
Perfluorododecanoic acid (PFDoA)	2.01	2.01	J	ng/L		100	50 - 150
Perfluorooctanoic acid (PFOA)	2.01	2.23	J	ng/L		111	50 - 150
Perfluorodecanoic acid (PFDA)	2.01	2.13	J	ng/L		106	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.01	2.31	J	ng/L		115	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.01	2.50	J	ng/L		125	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.01	2.14	J	ng/L		107	50 - 150
Perfluorononanoic acid (PFNA)	2.01	2.20	J	ng/L		110	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.01	2.16	J	ng/L		107	50 - 150

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

Lab Sample ID: MRL 380-122590/21-A
Matrix: Water
Analysis Batch: 122613

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 122590

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Perfluorotridecanoic acid (PFTrDA)			2.01	2.02	J	ng/L		100	50 - 150		
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)			2.01	2.29	J	ng/L		114	50 - 150		
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)			2.01	2.20	J	ng/L		110	50 - 150		
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			2.01	2.01	J	ng/L		100	50 - 150		

Surrogate	*MRL %Recovery*	*MRL Qualifier*	*Limits*
d5-NEtFOSAA	*108*		*70 - 130*
13C2 PFHxA	*109*		*70 - 130*
13C2 PFDA	*102*		*70 - 130*
13C3-GenX	*98*		*70 - 130*

Lab Sample ID: 380-125237-C-1-A MS
Matrix: Water
Analysis Batch: 122613

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 122590

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		25.2	23.4		ng/L		93	70 - 130		
Perfluorooctanesulfonic acid (PFOS)	<2.0		25.2	27.3		ng/L		108	70 - 130		
Perfluoroundecanoic acid (PFUnA)	<2.0		25.2	24.4		ng/L		97	70 - 130		
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.2	25.7		ng/L		102	70 - 130		
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		25.2	25.6		ng/L		102	70 - 130		
Perfluorohexanoic acid (PFHxA)	<2.0		25.2	26.4		ng/L		105	70 - 130		
Perfluorododecanoic acid (PFDoA)	<2.0		25.2	23.9		ng/L		95	70 - 130		
Perfluorooctanoic acid (PFOA)	<2.0		25.2	26.6		ng/L		106	70 - 130		
Perfluorodecanoic acid (PFDA)	<2.0		25.2	25.2		ng/L		100	70 - 130		
Perfluorohexanesulfonic acid (PFHxS)	<2.0		25.2	28.1		ng/L		112	70 - 130		
Perfluorobutanesulfonic acid (PFBS)	<2.0		25.2	28.9		ng/L		115	70 - 130		
Perfluoroheptanoic acid (PFHpA)	<2.0		25.2	26.2		ng/L		104	70 - 130		
Perfluorononanoic acid (PFNA)	<2.0		25.2	25.8		ng/L		102	70 - 130		
Perfluorotetradecanoic acid (PFTA)	<2.0		25.2	23.8		ng/L		95	70 - 130		
Perfluorotridecanoic acid (PFTrDA)	<2.0		25.2	23.1		ng/L		92	70 - 130		
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		25.2	28.0		ng/L		112	70 - 130		
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		25.2	27.5		ng/L		110	70 - 130		

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

Lab Sample ID: 380-125237-C-1-A MS
Matrix: Water
Analysis Batch: 122613

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 122590

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		25.2	24.8		ng/L		99	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
d5-NEtFOSAA	*111*		*70 - 130*
13C2 PFHxA	*106*		*70 - 130*
13C2 PFDA	*99*		*70 - 130*
13C3-GenX	*100*		*70 - 130*

Lab Sample ID: 380-125237-C-1-B MSD
Matrix: Water
Analysis Batch: 122613

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 122590

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		25.1	24.5		ng/L		97	70 - 130	4	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		25.1	27.7		ng/L		111	70 - 130	2	30
Perfluoroundecanoic acid (PFUnA)	<2.0		25.1	26.9		ng/L		107	70 - 130	10	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.1	25.8		ng/L		103	70 - 130	1	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		25.1	25.9		ng/L		103	70 - 130	1	30
Perfluorohexanoic acid (PFHxA)	<2.0		25.1	28.2		ng/L		112	70 - 130	7	30
Perfluorododecanoic acid (PFDoA)	<2.0		25.1	25.3		ng/L		101	70 - 130	5	30
Perfluorooctanoic acid (PFOA)	<2.0		25.1	27.7		ng/L		110	70 - 130	4	30
Perfluorodecanoic acid (PFDA)	<2.0		25.1	26.6		ng/L		106	70 - 130	5	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		25.1	29.2		ng/L		116	70 - 130	4	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		25.1	29.6		ng/L		118	70 - 130	2	30
Perfluoroheptanoic acid (PFHpA)	<2.0		25.1	28.2		ng/L		113	70 - 130	8	30
Perfluorononanoic acid (PFNA)	<2.0		25.1	27.9		ng/L		111	70 - 130	8	30
Perfluorotetradecanoic acid (PFTA)	<2.0		25.1	24.9		ng/L		99	70 - 130	4	30
Perfluorotridecanoic acid (PFTrDA)	<2.0		25.1	24.4		ng/L		97	70 - 130	5	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		25.1	29.6		ng/L		118	70 - 130	5	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		25.1	27.7		ng/L		110	70 - 130	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		25.1	25.2		ng/L		101	70 - 130	2	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
d5-NEtFOSAA	*106*		*70 - 130*
13C2 PFHxA	*119*		*70 - 130*
13C2 PFDA	*107*		*70 - 130*

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

Lab Sample ID: 380-125237-C-1-B MSD
Matrix: Water
Analysis Batch: 122613

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 122590

Surrogate	MSD %Recovery	MSD Qualifier	Limits
13C3-GenX	105		70 - 130

QC Association Summary

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

Job ID: 380-125045-1
SDG: Weekly PFAS

LCMS

Prep Batch: 122590

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-125045-1	HALAWA SHAFT VIEWING POOL	Total/NA	Water	537.1 DW	
380-125045-2	FB: Halawa Shaft Viewing Pool	Total/NA	Water	537.1 DW	
MBL 380-122590/20-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-122590/22-A	Lab Control Sample	Total/NA	Water	537.1 DW	
MRL 380-122590/21-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-125237-C-1-A MS	Matrix Spike	Total/NA	Water	537.1 DW	
380-125237-C-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	537.1 DW	

Analysis Batch: 122613

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-125045-1	HALAWA SHAFT VIEWING POOL	Total/NA	Water	537.1	122590
380-125045-2	FB: Halawa Shaft Viewing Pool	Total/NA	Water	537.1	122590
MBL 380-122590/20-A	Method Blank	Total/NA	Water	537.1	122590
LCS 380-122590/22-A	Lab Control Sample	Total/NA	Water	537.1	122590
MRL 380-122590/21-A	Lab Control Sample	Total/NA	Water	537.1	122590
380-125237-C-1-A MS	Matrix Spike	Total/NA	Water	537.1	122590
380-125237-C-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	537.1	122590

Lab Chronicle

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

Job ID: 380-125045-1
SDG: Weekly PFAS

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-125045-1
Matrix: Water
Date Collected: 12/03/24 09:30
Date Received: 12/05/24 10:01

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	537.1 DW			122590	N8NE	EA POM	12/07/24 15:15
Total/NA	Analysis	537.1		1	122613	SZ9R	EA POM	12/08/24 19:55

Client Sample ID: FB: Halawa Shaft Viewing Pool

Lab Sample ID: 380-125045-2
Matrix: Water
Date Collected: 12/03/24 09:30
Date Received: 12/05/24 10:01

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	537.1 DW			122590	N8NE	EA POM	12/07/24 15:15
Total/NA	Analysis	537.1		1	122613	SZ9R	EA POM	12/08/24 20:06

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: 380-125045-1
SDG: Weekly PFAS

Laboratory: Eurofins Eaton Analytical Pomona

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

Authority	Program	Identification Number	Expiration Date
Hawaii	State	CA00006	01-31-25

Method Summary

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

Job ID: 380-125045-1
SDG: Weekly PFAS

Method	Method Description	Protocol	Laboratory
537.1	Perfluorinated Alkyl Acids (LC/MS)	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: 380-125045-1
SDG: Weekly PFAS

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
380-125045-1	HALAWA SHAFT VIEWING POOL	Water	12/03/24 09:30	12/05/24 10:01
380-125045-2	FB: Halawa Shaft Viewing Pool	Water	12/03/24 09:30	12/05/24 10:01

Eurofins Eaton Analytical Pomona
941 Corporate Center Drive
Pomona CA 91768-2642
Phone (626) 386-1100

Chain of Custody Record

eurofins | Environment Testing

Client Information	Sampler: EJ	Lab PM: Arada Rachelle	Carrier Tracking No:	COC No: 380-28005-2757.1
Client Contact: Dr Ron Fenstemacher	Phone: 808-748-5840	E-Mail: Rachelle.Arada@et.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: City & County of Honolulu	PWSID:			Job #:
Address: 630 South Beretania Street Chemistry Lab	Due Date Requested:			
City: Honolulu	TAT Requested (days):			
State, Zip: HI 96843	Compliance Project: Δ Yes Δ No			
Phone: 808-748-5091(Tel)	PO #: C20525101 exp 05312023			
Email: RFENSTEMACHER@hbws.org	WO #:			
Project Name: RED-HILL/HBWS Sites Event Desc: RUSH Weekly Red Hill	Project #: 38001111			
Site: Hawaii	SSOW#:			

Analysis Requested

Preservation Codes:
R - Na2S2O3
RA - Na2S2O3/HC
Q - Na2SO3
QA - Na2SO3/HC
Y - Trizma
I - NH4 Acetate
Other:

380-125045 COC

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water S=solid, O=wasteoil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	625.1, 625.1_SIM	8015B_GRO_LL - (MOD) GRO	8015B_DRO_LL_CS HNL Ranges C10-C24/C24-C36/C8-C18	625.2_PREC (MOD) 525plus Plus TICs	537.1_DW_PREC - 537.1 Full List	533 All Analytes	Total Number of containers	Special Instructions/Note:
			Preservation Code:				R	RA	Q	QA	Y	I		
Halawa Shaft Viewing Pool	12/3/24	0930	G	Water							3	3		
FB Halawa Shaft Viewing Pool	12/3/24	0930		Water							1	1		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date	Time:	Method of Shipment: FEDEX 7704 9213 5910
Relinquished by: [redacted]	Date/Time: 12/4/24 1200	Company	Received by:	Date/Time: 12/05/24 10:01	Company: EEAP
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.	Cooler Temp (°C and Other Remarks): (751A) 1.8°-0.0°=1.8° GEL-FROZEN

Ver: 04/02/2024

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-125045-1
SDG Number: Weekly PFAS

Login Number: 125045
List Number: 1
Creator: Edrosa, Rey

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").	N/A	
ClO4 headspace requirement met (>50% for CA, >30% for other states).	N/A	
Samples do not require splitting or compositing.	True	
Container provided by EEA	True	