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ANALYTICAL REPORT

PREPARED FOR

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JOB DESCRIPTION

RED-HILL
RUSH Weekly Red Hill

JOB NUMBER

380-53442-1

Eurofins Eaton Analytical Pomona

Job Notes

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The test results in this report relate only to the samples as received by the laboratory and will 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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Definitions/Glossary

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

Job ID: 380-53442-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
^3+	Reporting Limit Check Standard is outside acceptance limits, high biased
B	Analyte was found in the associated method blank.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA TICs

Qualifier	Qualifier Description
J	Indicates an Estimated Value for TICs
N	Presumptive evidence of material.
T	Result is a tentatively identified compound (TIC) and an estimated value.

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/Site: RED-HILL

Job ID: 380-53442-1

Job ID: 380-53442-1

Laboratory: Eurofins Eaton Analytical Pomona

Narrative

Job Narrative 380-53442-1

Comments

EPA 537.1 and EPA 533 are two distinct methods for the analysis of PFAS in drinking water. The analyses are conducted on differing instrumentation, with calibrations, extraction solvents and sample preservatives being dissimilar among the two methods. Therefore it is probable and not unexpected to see the methods having slight variations in analytical results.

No additional comments.

Receipt

The samples were received on 7/6/2023 9:50 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 5 coolers at receipt time were 1.3° C, 1.6° C, 2.1° C, 2.6° C and 3.5° C.

Receipt Exceptions

Ice formation in one of the received 537.1 containers from site AIEA GULCH WELLS PUMP2. There was extra volume available that used for analysis.

GC/MS Semi VOA

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

LCMS

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

Organic Prep

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

Detection Summary

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

Job ID: 380-53442-1

Client Sample ID: AIEA GULCH WELLS PUMP 2
PWSID Number: HI0000331

Lab Sample ID: 380-53442-1

No Detections.

Client Sample ID: AIEA WELLS PUMP 2 (260)
PWSID Number: HI0000331

Lab Sample ID: 380-53442-2

No Detections.

Client Sample ID: KAAMILO WELLS

Lab Sample ID: 380-53442-3

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	2.5		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.5		2.0	ng/L	1		533	Total/NA
Perfluorooctanoic acid (PFOA)	2.1		2.0	ng/L	1		533	Total/NA
Perfluoropentanoic acid (PFPeA)	2.0		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.6		2.0	ng/L	1		537.1	Total/NA
Perfluorohexanoic acid (PFHxA)	2.1		2.0	ng/L	1		537.1	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.7		2.0	ng/L	1		537.1	Total/NA

Client Sample ID: FB: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-53442-7

No Detections.

Client Sample ID: FB: AIEA WELLS PUMP 2 (260)

Lab Sample ID: 380-53442-8

No Detections.

Client Sample ID: FB: KAAMILO WELLS

Lab Sample ID: 380-53442-9

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: 380-53442-1

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-53442-1

Date Collected: 07/03/23 08:45

Matrix: Drinking Water

Date Received: 07/06/23 09:50

PWSID Number: HI0000331

Method: EPA 525.2 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
2,4'-DDD	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
2,4'-DDE	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
2,4'-DDT	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
2,4-Dinitrotoluene	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
2,6-Dinitrotoluene	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
2-Methylnaphthalene	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
4,4'-DDD	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
4,4'-DDE	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
4,4'-DDT	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
Acenaphthene	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
Acenaphthylene	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
Acetochlor	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
Alachlor	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 19:57	1
alpha-BHC	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
alpha-Chlordane	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 19:57	1
Anthracene	<0.020		0.020	ug/L		07/06/23 17:54	07/07/23 19:57	1
Atrazine	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 19:57	1
Benz(a)anthracene	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 19:57	1
Benzo[a]pyrene	<0.020		0.020	ug/L		07/06/23 17:54	07/07/23 19:57	1
Benzo[b]fluoranthene	<0.020		0.020	ug/L		07/06/23 17:54	07/07/23 19:57	1
Benzo[g,h,i]perylene	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 19:57	1
Benzo[k]fluoranthene	<0.020		0.020	ug/L		07/06/23 17:54	07/07/23 19:57	1
beta-BHC	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
Bis(2-ethylhexyl) phthalate	<0.59		0.59	ug/L		07/06/23 17:54	07/07/23 19:57	1
Bromacil	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
Butachlor	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 19:57	1
Butylbenzylphthalate	<0.49		0.49	ug/L		07/06/23 17:54	07/07/23 19:57	1
Chlorobenzilate	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
Chloroneb	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
Chlorothalonil (Draconil, Bravo)	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
Chlorpyrifos	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 19:57	1
Chrysene	<0.020		0.020	ug/L		07/06/23 17:54	07/07/23 19:57	1
delta-BHC	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
Di(2-ethylhexyl)adipate	<0.59	B ^3+	0.59	ug/L		07/06/23 17:54	07/07/23 19:57	1
Dibenz(a,h)anthracene	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 19:57	1
Diclorvos (DDVP)	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 19:57	1
Dieldrin	<0.20		0.20	ug/L		07/06/23 17:54	07/07/23 19:57	1
Diethylphthalate	<0.49		0.49	ug/L		07/06/23 17:54	07/07/23 19:57	1
Dimethylphthalate	<0.49		0.49	ug/L		07/06/23 17:54	07/07/23 19:57	1
Di-n-butyl phthalate	<0.98		0.98	ug/L		07/06/23 17:54	07/07/23 19:57	1
Di-n-octyl phthalate	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
Endosulfan I (Alpha)	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
Endosulfan II (Beta)	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
Endosulfan sulfate	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
Endrin	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
Endrin aldehyde	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
EPTC	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
Fluoranthene	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1

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Client Sample Results

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

Job ID: 380-53442-1

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-53442-1

Date Collected: 07/03/23 08:45

Matrix: Drinking Water

Date Received: 07/06/23 09:50

PWSID Number: HI0000331

Method: EPA 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 19:57	1
gamma-Chlordane	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 19:57	1
Heptachlor	<0.039		0.039	ug/L		07/06/23 17:54	07/07/23 19:57	1
Heptachlor epoxide (isomer B)	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 19:57	1
Hexachlorobenzene	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 19:57	1
Hexachlorocyclopentadiene	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 19:57	1
Indeno[1,2,3-cd]pyrene	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 19:57	1
Isophorone	<0.49		0.49	ug/L		07/06/23 17:54	07/07/23 19:57	1
Lindane	<0.039		0.039	ug/L		07/06/23 17:54	07/07/23 19:57	1
Malathion	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
Methoxychlor	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
Metolachlor	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 19:57	1
Molinate	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
Naphthalene	<0.29		0.29	ug/L		07/06/23 17:54	07/07/23 19:57	1
Parathion	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
Pendimethalin (Penoxaline)	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
Phenanthrene	<0.039		0.039	ug/L		07/06/23 17:54	07/07/23 19:57	1
Propachlor	<0.049	^3+	0.049	ug/L		07/06/23 17:54	07/07/23 19:57	1
Pyrene	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 19:57	1
Simazine	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 19:57	1
Terbacil	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
Terbuthylazine	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1
Thiobencarb	<0.20		0.20	ug/L		07/06/23 17:54	07/07/23 19:57	1
Total Permethrin (mixed isomers)	<0.20		0.20	ug/L		07/06/23 17:54	07/07/23 19:57	1
trans-Nonachlor	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 19:57	1
Trifluralin	<0.098		0.098	ug/L		07/06/23 17:54	07/07/23 19:57	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L			N/A	07/06/23 17:54	07/07/23 19:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	93		70 - 130	07/06/23 17:54	07/07/23 19:57	1
Perylene-d12	89		70 - 130	07/06/23 17:54	07/07/23 19:57	1
Triphenylphosphate	114		70 - 130	07/06/23 17:54	07/07/23 19:57	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafiuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:00	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:00	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:00	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:00	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:00	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:00	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:00	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:00	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:00	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:00	1

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Client Sample Results

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

Job ID: 380-53442-1

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-53442-1

Date Collected: 07/03/23 08:45

Matrix: Drinking Water

Date Received: 07/06/23 09:50

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
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:00	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:00	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:00	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:00	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:00	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:00	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:00	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:00	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:00	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:00	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:00	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:00	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:00	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:00	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:00	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	79		50 - 200			07/24/23 11:20	07/27/23 21:00	1
13C6 PFDA	90		50 - 200			07/24/23 11:20	07/27/23 21:00	1
13C5 PFHxA	92		50 - 200			07/24/23 11:20	07/27/23 21:00	1
13C4 PFHpA	89		50 - 200			07/24/23 11:20	07/27/23 21:00	1
13C8 PFOA	94		50 - 200			07/24/23 11:20	07/27/23 21:00	1
13C9 PFNA	93		50 - 200			07/24/23 11:20	07/27/23 21:00	1
13C7 PFUnA	94		50 - 200			07/24/23 11:20	07/27/23 21:00	1
13C2 PFDoA	99		50 - 200			07/24/23 11:20	07/27/23 21:00	1
13C4 PFBA	92		50 - 200			07/24/23 11:20	07/27/23 21:00	1
13C5 PFPeA	88		50 - 200			07/24/23 11:20	07/27/23 21:00	1
13C3 PFBS	99		50 - 200			07/24/23 11:20	07/27/23 21:00	1
13C3 PFHxS	74		50 - 200			07/24/23 11:20	07/27/23 21:00	1
13C8 PFOS	94		50 - 200			07/24/23 11:20	07/27/23 21:00	1
13C2-4:2-FTS	105		50 - 200			07/24/23 11:20	07/27/23 21:00	1
13C2-6:2-FTS	100		50 - 200			07/24/23 11:20	07/27/23 21:00	1
13C2-8:2-FTS	92		50 - 200			07/24/23 11:20	07/27/23 21:00	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		07/07/23 12:36	07/10/23 16:18	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		07/07/23 12:36	07/10/23 16:18	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/07/23 12:36	07/10/23 16:18	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		07/07/23 12:36	07/10/23 16:18	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		07/07/23 12:36	07/10/23 16:18	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-53442-1

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-53442-1

Date Collected: 07/03/23 08:45

Matrix: Drinking Water

Date Received: 07/06/23 09:50

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		07/07/23 12:36	07/10/23 16:18	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/07/23 12:36	07/10/23 16:18	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		07/07/23 12:36	07/10/23 16:18	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/07/23 12:36	07/10/23 16:18	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		07/07/23 12:36	07/10/23 16:18	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/07/23 12:36	07/10/23 16:18	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/07/23 12:36	07/10/23 16:18	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/07/23 12:36	07/10/23 16:18	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		07/07/23 12:36	07/10/23 16:18	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		07/07/23 12:36	07/10/23 16:18	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		07/07/23 12:36	07/10/23 16:18	1
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		07/07/23 12:36	07/10/23 16:18	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/07/23 12:36	07/10/23 16:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	106		70 - 130	07/07/23 12:36	07/10/23 16:18	1
13C2 PFHxA	119		70 - 130	07/07/23 12:36	07/10/23 16:18	1
13C2 PFDA	105		70 - 130	07/07/23 12:36	07/10/23 16:18	1
13C3-GenX	104		70 - 130	07/07/23 12:36	07/10/23 16:18	1

Client Sample ID: AIEA WELLS PUMP 2 (260)

Lab Sample ID: 380-53442-2

Date Collected: 07/03/23 09:20

Matrix: Drinking Water

Date Received: 07/06/23 09:50

PWSID Number: HI0000331

Method: EPA 525.2 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
2,4'-DDD	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
2,4'-DDE	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
2,4'-DDT	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
2,4-Dinitrotoluene	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
2,6-Dinitrotoluene	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
2-Methylnaphthalene	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
4,4'-DDD	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
4,4'-DDE	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
4,4'-DDT	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
Acenaphthene	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
Acenaphthylene	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
Acetochlor	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
Alachlor	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 20:17	1
alpha-BHC	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
alpha-Chlordane	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 20:17	1
Anthracene	<0.019		0.019	ug/L		07/06/23 17:54	07/07/23 20:17	1
Atrazine	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 20:17	1
Benz(a)anthracene	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 20:17	1
Benzo[a]pyrene	<0.019		0.019	ug/L		07/06/23 17:54	07/07/23 20:17	1
Benzo[b]fluoranthene	<0.019		0.019	ug/L		07/06/23 17:54	07/07/23 20:17	1
Benzo[g,h,i]perylene	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 20:17	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-53442-1

Client Sample ID: AIEA WELLS PUMP 2 (260)

Lab Sample ID: 380-53442-2

Date Collected: 07/03/23 09:20

Matrix: Drinking Water

Date Received: 07/06/23 09:50

PWSID Number: HI0000331

Method: EPA 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[k]fluoranthene	<0.019		0.019	ug/L		07/06/23 17:54	07/07/23 20:17	1
beta-BHC	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
Bis(2-ethylhexyl) phthalate	<0.58		0.58	ug/L		07/06/23 17:54	07/07/23 20:17	1
Bromacil	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
Butachlor	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 20:17	1
Butylbenzylphthalate	<0.49		0.49	ug/L		07/06/23 17:54	07/07/23 20:17	1
Chlorobenzilate	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
Chloroneb	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
Chlorothalonil (Draconil, Bravo)	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
Chlorpyrifos	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 20:17	1
Chrysene	<0.019		0.019	ug/L		07/06/23 17:54	07/07/23 20:17	1
delta-BHC	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
Di(2-ethylhexyl)adipate	<0.58	B ^3+	0.58	ug/L		07/06/23 17:54	07/07/23 20:17	1
Dibenz(a,h)anthracene	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 20:17	1
Diclorvos (DDVP)	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 20:17	1
Dieldrin	<0.19		0.19	ug/L		07/06/23 17:54	07/07/23 20:17	1
Diethylphthalate	<0.49		0.49	ug/L		07/06/23 17:54	07/07/23 20:17	1
Dimethylphthalate	<0.49		0.49	ug/L		07/06/23 17:54	07/07/23 20:17	1
Di-n-butyl phthalate	<0.97		0.97	ug/L		07/06/23 17:54	07/07/23 20:17	1
Di-n-octyl phthalate	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
Endosulfan I (Alpha)	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
Endosulfan II (Beta)	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
Endosulfan sulfate	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
Endrin	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
Endrin aldehyde	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
EPTC	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
Fluoranthene	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
Fluorene	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 20:17	1
gamma-Chlordane	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 20:17	1
Heptachlor	<0.039		0.039	ug/L		07/06/23 17:54	07/07/23 20:17	1
Heptachlor epoxide (isomer B)	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 20:17	1
Hexachlorobenzene	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 20:17	1
Hexachlorocyclopentadiene	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 20:17	1
Indeno[1,2,3-cd]pyrene	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 20:17	1
Isophorone	<0.49		0.49	ug/L		07/06/23 17:54	07/07/23 20:17	1
Lindane	<0.039		0.039	ug/L		07/06/23 17:54	07/07/23 20:17	1
Malathion	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
Methoxychlor	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
Metolachlor	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 20:17	1
Molinate	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
Naphthalene	<0.29		0.29	ug/L		07/06/23 17:54	07/07/23 20:17	1
Parathion	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
Pendimethalin (Penoxaline)	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
Phenanthrene	<0.039		0.039	ug/L		07/06/23 17:54	07/07/23 20:17	1
Propachlor	<0.049	^3+	0.049	ug/L		07/06/23 17:54	07/07/23 20:17	1
Pyrene	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 20:17	1
Simazine	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 20:17	1
Terbacil	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1
Terbutylazine	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-53442-1

Client Sample ID: AIEA WELLS PUMP 2 (260)

Lab Sample ID: 380-53442-2

Date Collected: 07/03/23 09:20

Matrix: Drinking Water

Date Received: 07/06/23 09:50

PWSID Number: HI0000331

Method: EPA 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Thiobencarb	<0.19		0.19	ug/L		07/06/23 17:54	07/07/23 20:17	1
Total Permethrin (mixed isomers)	<0.19		0.19	ug/L		07/06/23 17:54	07/07/23 20:17	1
trans-Nonachlor	<0.049		0.049	ug/L		07/06/23 17:54	07/07/23 20:17	1
Trifluralin	<0.097		0.097	ug/L		07/06/23 17:54	07/07/23 20:17	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L			N/A	07/06/23 17:54	07/07/23 20:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	94		70 - 130	07/06/23 17:54	07/07/23 20:17	1
Perylene-d12	91		70 - 130	07/06/23 17:54	07/07/23 20:17	1
Triphenylphosphate	116		70 - 130	07/06/23 17:54	07/07/23 20:17	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:38	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:38	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:38	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:38	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:38	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:38	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:38	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:38	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:38	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:38	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:38	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:38	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:38	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:38	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:38	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:38	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:38	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:38	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:38	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:38	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:38	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:38	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:38	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:38	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:38	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-53442-1

Client Sample ID: AIEA WELLS PUMP 2 (260)

Lab Sample ID: 380-53442-2

Date Collected: 07/03/23 09:20

Matrix: Drinking Water

Date Received: 07/06/23 09:50

PWSID Number: HI0000331

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	76		50 - 200	07/24/23 11:20	07/27/23 21:38	1
13C6 PFDA	89		50 - 200	07/24/23 11:20	07/27/23 21:38	1
13C5 PFHxA	86		50 - 200	07/24/23 11:20	07/27/23 21:38	1
13C4 PFHpA	86		50 - 200	07/24/23 11:20	07/27/23 21:38	1
13C8 PFOA	91		50 - 200	07/24/23 11:20	07/27/23 21:38	1
13C9 PFNA	92		50 - 200	07/24/23 11:20	07/27/23 21:38	1
13C7 PFUnA	91		50 - 200	07/24/23 11:20	07/27/23 21:38	1
13C2 PFDoA	93		50 - 200	07/24/23 11:20	07/27/23 21:38	1
13C4 PFBA	91		50 - 200	07/24/23 11:20	07/27/23 21:38	1
13C5 PFPeA	90		50 - 200	07/24/23 11:20	07/27/23 21:38	1
13C3 PFBS	98		50 - 200	07/24/23 11:20	07/27/23 21:38	1
13C3 PFHxS	73		50 - 200	07/24/23 11:20	07/27/23 21:38	1
13C8 PFOS	95		50 - 200	07/24/23 11:20	07/27/23 21:38	1
13C2-4:2-FTS	105		50 - 200	07/24/23 11:20	07/27/23 21:38	1
13C2-6:2-FTS	99		50 - 200	07/24/23 11:20	07/27/23 21:38	1
13C2-8:2-FTS	96		50 - 200	07/24/23 11:20	07/27/23 21:38	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		07/14/23 05:48	07/15/23 11:23	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:23	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:23	1
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:23	1
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:23	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:23	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:23	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:23	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:23	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:23	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:23	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:23	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:23	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:23	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:23	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:23	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:23	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	101		70 - 130	07/14/23 05:48	07/15/23 11:23	1
13C2 PFHxA	102		70 - 130	07/14/23 05:48	07/15/23 11:23	1
13C2 PFDA	107		70 - 130	07/14/23 05:48	07/15/23 11:23	1
13C3-GenX	103		70 - 130	07/14/23 05:48	07/15/23 11:23	1

Client Sample Results

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

Job ID: 380-53442-1

Client Sample ID: KAAMILO WELLS

Lab Sample ID: 380-53442-3

Date Collected: 07/03/23 09:45

Matrix: Water

Date Received: 07/06/23 09:50

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:48	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:48	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:48	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:48	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:48	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:48	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:48	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:48	1
Perfluorohexanesulfonic acid (PFHxS)	2.5		2.0	ng/L		07/24/23 11:20	07/27/23 21:48	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:48	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:48	1
Perfluorooctanesulfonic acid (PFOS)	2.5		2.0	ng/L		07/24/23 11:20	07/27/23 21:48	1
Perfluorooctanoic acid (PFOA)	2.1		2.0	ng/L		07/24/23 11:20	07/27/23 21:48	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:48	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:48	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:48	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:48	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:48	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:48	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:48	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:48	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:48	1
Perfluoropentanoic acid (PFPeA)	2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:48	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:48	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:48	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	68		50 - 200			07/24/23 11:20	07/27/23 21:48	1
13C6 PFDA	87		50 - 200			07/24/23 11:20	07/27/23 21:48	1
13C5 PFHxA	84		50 - 200			07/24/23 11:20	07/27/23 21:48	1
13C4 PFHpA	82		50 - 200			07/24/23 11:20	07/27/23 21:48	1
13C8 PFOA	87		50 - 200			07/24/23 11:20	07/27/23 21:48	1
13C9 PFNA	91		50 - 200			07/24/23 11:20	07/27/23 21:48	1
13C7 PFUnA	92		50 - 200			07/24/23 11:20	07/27/23 21:48	1
13C2 PFDoA	97		50 - 200			07/24/23 11:20	07/27/23 21:48	1
13C4 PFBA	84		50 - 200			07/24/23 11:20	07/27/23 21:48	1
13C5 PFPeA	83		50 - 200			07/24/23 11:20	07/27/23 21:48	1
13C3 PFBS	95		50 - 200			07/24/23 11:20	07/27/23 21:48	1
13C3 PFHxS	76		50 - 200			07/24/23 11:20	07/27/23 21:48	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-53442-1

Client Sample ID: KAAMILO WELLS

Lab Sample ID: 380-53442-3

Date Collected: 07/03/23 09:45

Matrix: Water

Date Received: 07/06/23 09:50

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	94		50 - 200	07/24/23 11:20	07/27/23 21:48	1
13C2-4:2-FTS	106		50 - 200	07/24/23 11:20	07/27/23 21:48	1
13C2-6:2-FTS	100		50 - 200	07/24/23 11:20	07/27/23 21:48	1
13C2-8:2-FTS	95		50 - 200	07/24/23 11:20	07/27/23 21:48	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		07/14/23 05:48	07/15/23 11:32	1
Perfluorooctanesulfonic acid (PFOS)	2.6		2.0	ng/L		07/14/23 05:48	07/15/23 11:32	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:32	1
N-methylperfluorooctanesulfonamideacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:32	1
N-ethylperfluorooctanesulfonamideacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:32	1
Perfluorohexanoic acid (PFHxA)	2.1		2.0	ng/L		07/14/23 05:48	07/15/23 11:32	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:32	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:32	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:32	1
Perfluorohexanesulfonic acid (PFHxS)	2.7		2.0	ng/L		07/14/23 05:48	07/15/23 11:32	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:32	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:32	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:32	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:32	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:32	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:32	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:32	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:32	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac		
d5-NEtFOSAA	96		70 - 130	07/14/23 05:48	07/15/23 11:32	1		
13C2 PFHxA	109		70 - 130	07/14/23 05:48	07/15/23 11:32	1		
13C2 PFDA	110		70 - 130	07/14/23 05:48	07/15/23 11:32	1		
13C3-GenX	103		70 - 130	07/14/23 05:48	07/15/23 11:32	1		

Client Sample ID: FB: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-53442-7

Date Collected: 07/03/23 08:45

Matrix: Water

Date Received: 07/06/23 09:50

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:57	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:57	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:57	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-53442-1

Client Sample ID: FB: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-53442-7

Date Collected: 07/03/23 08:45

Matrix: Water

Date Received: 07/06/23 09:50

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:57	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:57	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:57	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:57	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:57	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:57	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:57	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:57	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:57	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:57	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:57	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:57	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:57	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:57	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:57	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:57	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:57	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:57	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:57	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:57	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:57	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 21:57	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	62		50 - 200	07/24/23 11:20	07/27/23 21:57	1
13C6 PFDA	84		50 - 200	07/24/23 11:20	07/27/23 21:57	1
13C5 PFHxA	75		50 - 200	07/24/23 11:20	07/27/23 21:57	1
13C4 PFHpA	75		50 - 200	07/24/23 11:20	07/27/23 21:57	1
13C8 PFOA	81		50 - 200	07/24/23 11:20	07/27/23 21:57	1
13C9 PFNA	85		50 - 200	07/24/23 11:20	07/27/23 21:57	1
13C7 PFUnA	87		50 - 200	07/24/23 11:20	07/27/23 21:57	1
13C2 PFDoA	93		50 - 200	07/24/23 11:20	07/27/23 21:57	1
13C4 PFBA	76		50 - 200	07/24/23 11:20	07/27/23 21:57	1
13C5 PFPeA	80		50 - 200	07/24/23 11:20	07/27/23 21:57	1
13C3 PFBS	97		50 - 200	07/24/23 11:20	07/27/23 21:57	1
13C3 PFHxS	78		50 - 200	07/24/23 11:20	07/27/23 21:57	1
13C8 PFOS	97		50 - 200	07/24/23 11:20	07/27/23 21:57	1
13C2-4:2-FTS	104		50 - 200	07/24/23 11:20	07/27/23 21:57	1
13C2-6:2-FTS	101		50 - 200	07/24/23 11:20	07/27/23 21:57	1
13C2-8:2-FTS	96		50 - 200	07/24/23 11:20	07/27/23 21:57	1

Client Sample Results

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

Job ID: 380-53442-1

Client Sample ID: FB: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-53442-7

Date Collected: 07/03/23 08:45

Matrix: Water

Date Received: 07/06/23 09:50

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		07/14/23 05:48	07/15/23 11:42	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:42	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:42	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:42	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:42	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:42	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:42	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:42	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:42	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:42	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:42	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:42	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:42	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:42	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:42	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:42	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:42	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:42	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	97		70 - 130			07/14/23 05:48	07/15/23 11:42	1
13C2 PFHxA	95		70 - 130			07/14/23 05:48	07/15/23 11:42	1
13C2 PFDA	109		70 - 130			07/14/23 05:48	07/15/23 11:42	1
13C3-GenX	102		70 - 130			07/14/23 05:48	07/15/23 11:42	1

Client Sample ID: FB: AIEA WELLS PUMP 2 (260)

Lab Sample ID: 380-53442-8

Date Collected: 07/03/23 09:20

Matrix: Water

Date Received: 07/06/23 09:50

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:07	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:07	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:07	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:07	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:07	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:07	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:07	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:07	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:07	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:07	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:07	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:07	1

Euromins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-53442-1

Client Sample ID: FB: AIEA WELLS PUMP 2 (260)

Lab Sample ID: 380-53442-8

Date Collected: 07/03/23 09:20

Matrix: Water

Date Received: 07/06/23 09:50

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:07	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:07	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:07	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:07	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:07	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:07	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:07	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:07	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:07	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:07	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:07	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:07	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:07	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	67		50 - 200	07/24/23 11:20	07/27/23 22:07	1
13C6 PFDA	85		50 - 200	07/24/23 11:20	07/27/23 22:07	1
13C5 PFHxA	79		50 - 200	07/24/23 11:20	07/27/23 22:07	1
13C4 PFHpA	78		50 - 200	07/24/23 11:20	07/27/23 22:07	1
13C8 PFOA	85		50 - 200	07/24/23 11:20	07/27/23 22:07	1
13C9 PFNA	87		50 - 200	07/24/23 11:20	07/27/23 22:07	1
13C7 PFUnA	89		50 - 200	07/24/23 11:20	07/27/23 22:07	1
13C2 PFDoA	93		50 - 200	07/24/23 11:20	07/27/23 22:07	1
13C4 PFBA	80		50 - 200	07/24/23 11:20	07/27/23 22:07	1
13C5 PFPeA	81		50 - 200	07/24/23 11:20	07/27/23 22:07	1
13C3 PFBS	92		50 - 200	07/24/23 11:20	07/27/23 22:07	1
13C3 PFHxS	73		50 - 200	07/24/23 11:20	07/27/23 22:07	1
13C8 PFOS	93		50 - 200	07/24/23 11:20	07/27/23 22:07	1
13C2-4:2-FTS	100		50 - 200	07/24/23 11:20	07/27/23 22:07	1
13C2-6:2-FTS	98		50 - 200	07/24/23 11:20	07/27/23 22:07	1
13C2-8:2-FTS	92		50 - 200	07/24/23 11:20	07/27/23 22:07	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		07/14/23 05:48	07/15/23 11:52	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:52	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:52	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:52	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:52	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:52	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:52	1

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Client Sample Results

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

Job ID: 380-53442-1

Client Sample ID: FB: AIEA WELLS PUMP 2 (260)

Lab Sample ID: 380-53442-8

Date Collected: 07/03/23 09:20

Matrix: Water

Date Received: 07/06/23 09:50

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:52	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:52	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:52	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:52	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:52	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:52	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:52	1
Perfluorotridecanoic acid (PFTTrDA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:52	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:52	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:52	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 11:52	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	97		70 - 130			07/14/23 05:48	07/15/23 11:52	1
13C2 PFHxA	108		70 - 130			07/14/23 05:48	07/15/23 11:52	1
13C2 PFDA	106		70 - 130			07/14/23 05:48	07/15/23 11:52	1
13C3-GenX	104		70 - 130			07/14/23 05:48	07/15/23 11:52	1

Client Sample ID: FB: KAAMILO WELLS

Lab Sample ID: 380-53442-9

Date Collected: 07/03/23 09:45

Matrix: Water

Date Received: 07/06/23 09:50

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:16	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:16	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:16	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:16	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:16	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:16	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:16	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:16	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:16	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:16	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:16	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:16	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:16	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:16	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:16	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:16	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:16	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:16	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-53442-1

Client Sample ID: FB: KAAMILO WELLS

Lab Sample ID: 380-53442-9

Date Collected: 07/03/23 09:45

Matrix: Water

Date Received: 07/06/23 09:50

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:16	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:16	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:16	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:16	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:16	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:16	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		07/24/23 11:20	07/27/23 22:16	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	61		50 - 200			07/24/23 11:20	07/27/23 22:16	1
13C6 PFDA	84		50 - 200			07/24/23 11:20	07/27/23 22:16	1
13C5 PFHxA	72		50 - 200			07/24/23 11:20	07/27/23 22:16	1
13C4 PFHpA	71		50 - 200			07/24/23 11:20	07/27/23 22:16	1
13C8 PFOA	79		50 - 200			07/24/23 11:20	07/27/23 22:16	1
13C9 PFNA	85		50 - 200			07/24/23 11:20	07/27/23 22:16	1
13C7 PFUnA	88		50 - 200			07/24/23 11:20	07/27/23 22:16	1
13C2 PFDoA	92		50 - 200			07/24/23 11:20	07/27/23 22:16	1
13C4 PFBA	71		50 - 200			07/24/23 11:20	07/27/23 22:16	1
13C5 PFPeA	70		50 - 200			07/24/23 11:20	07/27/23 22:16	1
13C3 PFBS	95		50 - 200			07/24/23 11:20	07/27/23 22:16	1
13C3 PFHxS	66		50 - 200			07/24/23 11:20	07/27/23 22:16	1
13C8 PFOS	91		50 - 200			07/24/23 11:20	07/27/23 22:16	1
13C2-4:2-FTS	107		50 - 200			07/24/23 11:20	07/27/23 22:16	1
13C2-6:2-FTS	96		50 - 200			07/24/23 11:20	07/27/23 22:16	1
13C2-8:2-FTS	91		50 - 200			07/24/23 11:20	07/27/23 22:16	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		07/14/23 05:48	07/15/23 12:12	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 12:12	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 12:12	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 12:12	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 12:12	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 12:12	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 12:12	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 12:12	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 12:12	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 12:12	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 12:12	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 12:12	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 12:12	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 12:12	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 12:12	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-53442-1

Client Sample ID: FB: KAAMILO WELLS

Lab Sample ID: 380-53442-9

Date Collected: 07/03/23 09:45

Matrix: Water

Date Received: 07/06/23 09:50

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 12:12	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 12:12	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/14/23 05:48	07/15/23 12:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	90		70 - 130	07/14/23 05:48	07/15/23 12:12	1
13C2 PFHxA	101		70 - 130	07/14/23 05:48	07/15/23 12:12	1
13C2 PFDA	102		70 - 130	07/14/23 05:48	07/15/23 12:12	1
13C3-GenX	98		70 - 130	07/14/23 05:48	07/15/23 12:12	1

Action Limit Summary

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

Job ID: 380-53442-1

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-53442-1

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				
Alachlor	<0.049		ug/L	2		0.049	525.2	Total/NA
Atrazine	<0.049		ug/L	3		0.049	525.2	Total/NA
Benzo[a]pyrene	<0.020		ug/L	0.2		0.020	525.2	Total/NA
Bis(2-ethylhexyl) phthalate	<0.59		ug/L	6		0.59	525.2	Total/NA
Di(2-ethylhexyl)adipate	<0.59	B ^3+	ug/L	400		0.59	525.2	Total/NA
Endrin	<0.098		ug/L	2		0.098	525.2	Total/NA
Heptachlor	<0.039		ug/L	0.4		0.039	525.2	Total/NA
Heptachlor epoxide (isomer B)	<0.049		ug/L	0.2		0.049	525.2	Total/NA
Hexachlorobenzene	<0.049		ug/L	1		0.049	525.2	Total/NA
Hexachlorocyclopentadiene	<0.049		ug/L	50		0.049	525.2	Total/NA
Lindane	<0.039		ug/L	0.2		0.039	525.2	Total/NA
Methoxychlor	<0.098		ug/L	40		0.098	525.2	Total/NA
Simazine	<0.049		ug/L	4		0.049	525.2	Total/NA

Client Sample ID: AIEA WELLS PUMP 2 (260)

Lab Sample ID: 380-53442-2

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				
Alachlor	<0.049		ug/L	2		0.049	525.2	Total/NA
Atrazine	<0.049		ug/L	3		0.049	525.2	Total/NA
Benzo[a]pyrene	<0.019		ug/L	0.2		0.019	525.2	Total/NA
Bis(2-ethylhexyl) phthalate	<0.58		ug/L	6		0.58	525.2	Total/NA
Di(2-ethylhexyl)adipate	<0.58	B ^3+	ug/L	400		0.58	525.2	Total/NA
Endrin	<0.097		ug/L	2		0.097	525.2	Total/NA
Heptachlor	<0.039		ug/L	0.4		0.039	525.2	Total/NA
Heptachlor epoxide (isomer B)	<0.049		ug/L	0.2		0.049	525.2	Total/NA
Hexachlorobenzene	<0.049		ug/L	1		0.049	525.2	Total/NA
Hexachlorocyclopentadiene	<0.049		ug/L	50		0.049	525.2	Total/NA
Lindane	<0.039		ug/L	0.2		0.039	525.2	Total/NA
Methoxychlor	<0.097		ug/L	40		0.097	525.2	Total/NA
Simazine	<0.049		ug/L	4		0.049	525.2	Total/NA

Surrogate Summary

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

Job ID: 380-53442-1

Method: 525.2 - Semivolatile Organic Compounds (GC/MS)

Matrix: Drinking Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		2NMX (70-130)	PRY (70-130)	TPP (70-130)
380-53442-1	AIEA GULCH WELLS PUMP 2	93	89	114
380-53442-2	AIEA WELLS PUMP 2 (260)	94	91	116

Surrogate Legend
 2NMX = 2-Nitro-m-xylene
 PRY = Perylene-d12
 TPP = Triphenylphosphate

Method: 525.2 - Semivolatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		2NMX (70-130)	PRY (70-130)	TPP (70-130)
380-53264-E-1-A DU	Duplicate	93	89	120
380-53121-DD-1-A MS	Matrix Spike	94	91	116
LCS 380-46433/17-A	Lab Control Sample	95	90	116
LCS 380-46433/18-A	Lab Control Sample Dup	95	91	119
MB 380-46433/15-A	Method Blank	94	86	119
MRL 380-46433/16-A	Lab Control Sample	95	88	113

Surrogate Legend
 2NMX = 2-Nitro-m-xylene
 PRY = Perylene-d12
 TPP = Triphenylphosphate

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)
380-53442-1	AIEA GULCH WELLS PUMP 2	106	119	105	104
380-53442-1 MS	AIEA GULCH WELLS PUMP 2	102	113	111	107
380-53442-1 MSD	AIEA GULCH WELLS PUMP 2	105	115	111	108
380-53442-2	AIEA WELLS PUMP 2 (260)	101	102	107	103

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)
380-53442-3	KAAMILO WELLS	96	109	110	103
380-53442-7	FB: AIEA GULCH WELLS PUMF 2	97	95	109	102
380-53442-8	FB: AIEA WELLS PUMP 2 (260)	97	108	106	104

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Surrogate Summary

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

Job ID: 380-53442-1

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

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)
380-53442-9	FB: KAAMILO WELLS	90	101	102	98
380-53540-B-1-A MS	Matrix Spike	91	108	107	107
380-53540-C-1-A MSD	Matrix Spike Duplicate	94	108	107	108
LCS 380-46583/8-A	Lab Control Sample	96	113	109	108
LCS 380-47330/23-A	Lab Control Sample	95	99	105	102
LCSD 380-46583/9-A	Lab Control Sample Dup	98	118	110	109
LCSD 380-47330/24-A	Lab Control Sample Dup	93	106	105	106
MBL 380-46583/6-A	Method Blank	102	113	115	100
MBL 380-47330/21-A	Method Blank	94	98	108	97
MRL 380-46583/7-A	Lab Control Sample	102	114	110	105
MRL 380-47330/22-A	Lab Control Sample	89	103	98	101

Surrogate Legend

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

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

Isotope Dilution Summary

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

Job ID: 380-53442-1

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)
380-53442-1	AIEA GULCH WELLS PUMP 2	79	90	92	89	94	93	94	99
380-53442-1 MS	AIEA GULCH WELLS PUMP 2	90	92	95	93	96	94	96	96
380-53442-1 MSD	AIEA GULCH WELLS PUMP 2	93	97	96	97	95	99	100	99
380-53442-2	AIEA WELLS PUMP 2 (260)	76	89	86	86	91	92	91	93

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)
380-53442-1	AIEA GULCH WELLS PUMP 2	92	88	99	74	94	105	100	92
380-53442-1 MS	AIEA GULCH WELLS PUMP 2	93	93	95	88	93	101	101	92
380-53442-1 MSD	AIEA GULCH WELLS PUMP 2	97	102	98	84	97	104	104	94
380-53442-2	AIEA WELLS PUMP 2 (260)	91	90	98	73	95	105	99	96

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)
380-53442-3	KAAMILO WELLS	68	87	84	82	87	91	92	97
380-53442-7	FB: AIEA GULCH WELLS PUMF 2	62	84	75	75	81	85	87	93
380-53442-8	FB: AIEA WELLS PUMP 2 (260)	67	85	79	78	85	87	89	93
380-53442-9	FB: KAAMILO WELLS	61	84	72	71	79	85	88	92
LCS 380-48511/23-A	Lab Control Sample	71	83	78	77	78	82	88	91
LCSD 380-48511/24-A	Lab Control Sample Dup	63	79	70	71	72	75	87	90
MBL 380-48511/21-A	Method Blank	62	89	76	77	82	86	88	95
MRL 380-48511/22-A	Lab Control Sample	66	91	81	82	83	90	92	93

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)
380-53442-3	KAAMILO WELLS	84	83	95	76	94	106	100	95

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Isotope Dilution Summary

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

Job ID: 380-53442-1

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

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA (50-200)	PFPeA (50-200)	C3PFBS (50-200)	C3PFHS (50-200)	C8PFOS (50-200)	42FTS (50-200)	62FTS (50-200)	82FTS (50-200)
380-53442-7	FB: AIEA GULCH WELLS PUMF	76	80	97	78	97	104	101	96
380-53442-8	FB: AIEA WELLS PUMP 2 (260)	80	81	92	73	93	100	98	92
380-53442-9	FB: KAAMILO WELLS	71	70	95	66	91	107	96	91
LCS 380-48511/23-A	Lab Control Sample	79	82	92	77	91	100	100	92
LCSD 380-48511/24-A	Lab Control Sample Dup	72	70	93	80	91	102	100	92
MBL 380-48511/21-A	Method Blank	74	76	99	71	97	112	110	104
MRL 380-48511/22-A	Lab Control Sample	81	81	96	73	95	111	106	99

Surrogate Legend

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

QC Sample Results

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

Job ID: 380-53442-1

Method: 525.2 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 380-46433/15-A
Matrix: Water
Analysis Batch: 46579

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 46433

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
2,4'-DDD	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
2,4'-DDE	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
2,4'-DDT	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
2,4-Dinitrotoluene	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
2,6-Dinitrotoluene	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
2-Methylnaphthalene	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
4,4'-DDD	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
4,4'-DDE	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
4,4'-DDT	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
Acenaphthene	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
Acenaphthylene	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
Acetochlor	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
Alachlor	<0.049		0.049	ug/L		07/06/23 14:32	07/07/23 14:37	1
alpha-BHC	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
alpha-Chlordane	<0.049		0.049	ug/L		07/06/23 14:32	07/07/23 14:37	1
Anthracene	<0.020		0.020	ug/L		07/06/23 14:32	07/07/23 14:37	1
Atrazine	<0.049		0.049	ug/L		07/06/23 14:32	07/07/23 14:37	1
Benz(a)anthracene	<0.049		0.049	ug/L		07/06/23 14:32	07/07/23 14:37	1
Benzo[a]pyrene	<0.020		0.020	ug/L		07/06/23 14:32	07/07/23 14:37	1
Benzo[b]fluoranthene	<0.020		0.020	ug/L		07/06/23 14:32	07/07/23 14:37	1
Benzo[g,h,i]perylene	<0.049		0.049	ug/L		07/06/23 14:32	07/07/23 14:37	1
Benzo[k]fluoranthene	<0.020		0.020	ug/L		07/06/23 14:32	07/07/23 14:37	1
beta-BHC	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
Bis(2-ethylhexyl) phthalate	<0.59		0.59	ug/L		07/06/23 14:32	07/07/23 14:37	1
Bromacil	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
Butachlor	<0.049		0.049	ug/L		07/06/23 14:32	07/07/23 14:37	1
Butylbenzylphthalate	<0.49		0.49	ug/L		07/06/23 14:32	07/07/23 14:37	1
Chlorobenzilate	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
Chloroneb	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
Chlorothalonil (Draconil, Bravo)	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
Chlorpyrifos	<0.049		0.049	ug/L		07/06/23 14:32	07/07/23 14:37	1
Chrysene	<0.020		0.020	ug/L		07/06/23 14:32	07/07/23 14:37	1
delta-BHC	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
Di(2-ethylhexyl)adipate	2.85	B	0.59	ug/L		07/06/23 14:32	07/07/23 14:37	1
Dibenz(a,h)anthracene	<0.049		0.049	ug/L		07/06/23 14:32	07/07/23 14:37	1
Diclorvos (DDVP)	<0.049		0.049	ug/L		07/06/23 14:32	07/07/23 14:37	1
Dieldrin	<0.20		0.20	ug/L		07/06/23 14:32	07/07/23 14:37	1
Diethylphthalate	<0.49		0.49	ug/L		07/06/23 14:32	07/07/23 14:37	1
Dimethylphthalate	<0.49		0.49	ug/L		07/06/23 14:32	07/07/23 14:37	1
Di-n-butyl phthalate	<0.99		0.99	ug/L		07/06/23 14:32	07/07/23 14:37	1
Di-n-octyl phthalate	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
Endosulfan I (Alpha)	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
Endosulfan II (Beta)	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
Endosulfan sulfate	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
Endrin	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
Endrin aldehyde	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
EPTC	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1

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QC Sample Results

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

Job ID: 380-53442-1

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 380-46433/15-A
Matrix: Water
Analysis Batch: 46579

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 46433

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
Fluorene	<0.049		0.049	ug/L		07/06/23 14:32	07/07/23 14:37	1
gamma-Chlordane	<0.049		0.049	ug/L		07/06/23 14:32	07/07/23 14:37	1
Heptachlor	<0.039		0.039	ug/L		07/06/23 14:32	07/07/23 14:37	1
Heptachlor epoxide (isomer B)	<0.049		0.049	ug/L		07/06/23 14:32	07/07/23 14:37	1
Hexachlorobenzene	<0.049		0.049	ug/L		07/06/23 14:32	07/07/23 14:37	1
Hexachlorocyclopentadiene	<0.049		0.049	ug/L		07/06/23 14:32	07/07/23 14:37	1
Indeno[1,2,3-cd]pyrene	<0.049		0.049	ug/L		07/06/23 14:32	07/07/23 14:37	1
Isophorone	<0.49		0.49	ug/L		07/06/23 14:32	07/07/23 14:37	1
Lindane	<0.039		0.039	ug/L		07/06/23 14:32	07/07/23 14:37	1
Malathion	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
Methoxychlor	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
Metolachlor	<0.049		0.049	ug/L		07/06/23 14:32	07/07/23 14:37	1
Molinate	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
Naphthalene	<0.30		0.30	ug/L		07/06/23 14:32	07/07/23 14:37	1
Parathion	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
Pendimethalin (Penoxaline)	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
Phenanthrene	<0.039		0.039	ug/L		07/06/23 14:32	07/07/23 14:37	1
Propachlor	<0.049		0.049	ug/L		07/06/23 14:32	07/07/23 14:37	1
Pyrene	<0.049		0.049	ug/L		07/06/23 14:32	07/07/23 14:37	1
Simazine	<0.049		0.049	ug/L		07/06/23 14:32	07/07/23 14:37	1
Terbacil	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
Terbutylazine	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1
Thiobencarb	<0.20		0.20	ug/L		07/06/23 14:32	07/07/23 14:37	1
Total Permethrin (mixed isomers)	<0.20		0.20	ug/L		07/06/23 14:32	07/07/23 14:37	1
trans-Nonachlor	<0.049		0.049	ug/L		07/06/23 14:32	07/07/23 14:37	1
Trifluralin	<0.099		0.099	ug/L		07/06/23 14:32	07/07/23 14:37	1

Tentatively Identified Compound	MB Est. Result	MB Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Decane	1.81	T J N	ug/L		2.32	124-18-5	07/06/23 14:32	07/07/23 14:37	1
Unknown	0.681	T J	ug/L		2.50	N/A	07/06/23 14:32	07/07/23 14:37	1
n-Hexadecanoic acid	1.75	T J N	ug/L		5.70	57-10-3	07/06/23 14:32	07/07/23 14:37	1
Oleic Acid	2.80	T J N	ug/L		6.31	112-80-1	07/06/23 14:32	07/07/23 14:37	1
Octadecanoic acid	1.35	T J N	ug/L		6.37	57-11-4	07/06/23 14:32	07/07/23 14:37	1
Hexadecanamide	0.615	T J N	ug/L		6.51	629-54-9	07/06/23 14:32	07/07/23 14:37	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	94		70 - 130	07/06/23 14:32	07/07/23 14:37	1
Perylene-d12	86		70 - 130	07/06/23 14:32	07/07/23 14:37	1
Triphenylphosphate	119		70 - 130	07/06/23 14:32	07/07/23 14:37	1

Lab Sample ID: LCS 380-46433/17-A
Matrix: Water
Analysis Batch: 46579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 46433

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	1.97	2.05		ug/L		104	70 - 130
2,4'-DDD	1.97	2.09		ug/L		106	70 - 130

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QC Sample Results

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

Job ID: 380-53442-1

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 380-46433/17-A
Matrix: Water
Analysis Batch: 46579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 46433

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDE	1.97	2.07		ug/L		105	70 - 130
2,4'-DDT	1.97	2.27		ug/L		115	70 - 130
2,4-Dinitrotoluene	1.97	2.10		ug/L		106	70 - 130
2,6-Dinitrotoluene	1.97	2.05		ug/L		104	70 - 130
2-Methylnaphthalene	1.97	2.07		ug/L		105	70 - 130
4,4'-DDD	1.97	2.24		ug/L		113	70 - 130
4,4'-DDE	1.97	2.28		ug/L		116	70 - 130
4,4'-DDT	1.97	2.20		ug/L		112	70 - 130
Acenaphthene	1.97	1.98		ug/L		101	70 - 130
Acenaphthylene	1.97	1.98		ug/L		101	70 - 130
Acetochlor	1.97	1.81		ug/L		92	70 - 130
Alachlor	1.97	2.02		ug/L		103	70 - 130
alpha-BHC	1.97	2.05		ug/L		104	70 - 130
alpha-Chlordane	1.97	2.35		ug/L		119	70 - 130
Anthracene	1.97	2.04		ug/L		103	70 - 130
Atrazine	1.97	2.40		ug/L		122	70 - 130
Benz(a)anthracene	1.97	2.28		ug/L		116	70 - 130
Benzo[a]pyrene	1.97	2.10		ug/L		106	70 - 130
Benzo[b]fluoranthene	1.97	2.24		ug/L		114	70 - 130
Benzo[g,h,i]perylene	1.97	1.62		ug/L		82	70 - 130
Benzo[k]fluoranthene	1.97	2.36		ug/L		120	70 - 130
beta-BHC	1.97	2.06		ug/L		105	70 - 130
Bis(2-ethylhexyl) phthalate	1.97	1.85		ug/L		94	70 - 130
Bromacil	1.97	2.03		ug/L		103	70 - 130
Butachlor	1.97	2.22		ug/L		113	70 - 130
Butylbenzylphthalate	1.97	2.26		ug/L		115	70 - 130
Chlorobenzilate	1.97	1.91		ug/L		97	70 - 130
Chloroneb	1.97	2.16		ug/L		110	70 - 130
Chlorothalonil (Draconil, Bravo)	1.97	1.94		ug/L		99	70 - 130
Chlorpyrifos	1.97	2.16		ug/L		110	70 - 130
Chrysene	1.97	2.11		ug/L		107	70 - 130
delta-BHC	1.97	1.83		ug/L		93	70 - 130
Di(2-ethylhexyl)adipate	1.97	2.13		ug/L		108	70 - 130
Dibenz(a,h)anthracene	1.97	1.91		ug/L		97	70 - 130
Diclorvos (DDVP)	1.97	1.71		ug/L		87	70 - 130
Dieldrin	1.97	1.99		ug/L		101	70 - 130
Diethylphthalate	1.97	2.15		ug/L		109	70 - 130
Dimethylphthalate	1.97	2.16		ug/L		109	70 - 130
Di-n-butyl phthalate	3.94	4.08		ug/L		104	70 - 130
Di-n-octyl phthalate	1.97	1.63		ug/L		83	70 - 130
Endosulfan I (Alpha)	1.97	1.83		ug/L		93	70 - 130
Endosulfan II (Beta)	1.97	2.02		ug/L		103	70 - 130
Endosulfan sulfate	1.97	2.23		ug/L		113	70 - 130
Endrin	1.97	2.02		ug/L		103	70 - 130
Endrin aldehyde	1.97	2.11		ug/L		107	70 - 130
EPTC	1.97	2.18		ug/L		111	70 - 130
Fluoranthene	1.97	2.20		ug/L		112	70 - 130
Fluorene	1.97	2.17		ug/L		110	70 - 130
gamma-Chlordane	1.97	2.34		ug/L		119	70 - 130

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QC Sample Results

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

Job ID: 380-53442-1

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 380-46433/17-A
Matrix: Water
Analysis Batch: 46579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 46433

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Heptachlor	1.97	2.12		ug/L		108	70 - 130
Heptachlor epoxide (isomer B)	1.97	2.36		ug/L		120	70 - 130
Hexachlorobenzene	1.97	2.30		ug/L		117	70 - 130
Hexachlorocyclopentadiene	1.97	2.22		ug/L		113	70 - 130
Indeno[1,2,3-cd]pyrene	1.97	1.91		ug/L		97	70 - 130
Isophorone	1.97	1.88		ug/L		96	70 - 130
Lindane	1.97	2.00		ug/L		102	70 - 130
Malathion	1.97	1.98		ug/L		101	70 - 130
Methoxychlor	1.97	2.25		ug/L		114	70 - 130
Metolachlor	1.97	2.08		ug/L		106	70 - 130
Molinate	1.97	2.21		ug/L		112	70 - 130
Naphthalene	1.97	2.01		ug/L		102	70 - 130
Parathion	1.97	2.23		ug/L		113	70 - 130
Pendimethalin (Penoxaline)	1.97	2.09		ug/L		106	70 - 130
Phenanthrene	1.97	1.98		ug/L		101	70 - 130
Propachlor	1.97	2.02		ug/L		102	70 - 130
Pyrene	1.97	2.22		ug/L		113	70 - 130
Simazine	1.97	2.36		ug/L		120	70 - 130
Terbacil	1.97	2.31		ug/L		117	70 - 130
Terbutylazine	1.97	2.42		ug/L		123	70 - 130
Thiobencarb	1.97	2.01		ug/L		102	70 - 130
trans-Nonachlor	1.97	2.53		ug/L		128	70 - 130
Trifluralin	1.97	2.05		ug/L		104	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Nitro-m-xylene	95		70 - 130
Perylene-d12	90		70 - 130
Triphenylphosphate	116		70 - 130

Lab Sample ID: LCSD 380-46433/18-A
Matrix: Water
Analysis Batch: 46579

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 46433

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1-Methylnaphthalene	1.97	2.00		ug/L		102	70 - 130	2	20
2,4'-DDD	1.97	2.11		ug/L		107	70 - 130	1	20
2,4'-DDE	1.97	2.03		ug/L		103	70 - 130	2	20
2,4'-DDT	1.97	2.29		ug/L		116	70 - 130	1	20
2,4-Dinitrotoluene	1.97	2.05		ug/L		104	70 - 130	2	20
2,6-Dinitrotoluene	1.97	2.03		ug/L		103	70 - 130	1	20
2-Methylnaphthalene	1.97	2.01		ug/L		102	70 - 130	3	20
4,4'-DDD	1.97	2.24		ug/L		114	70 - 130	0	20
4,4'-DDE	1.97	2.30		ug/L		117	70 - 130	1	20
4,4'-DDT	1.97	2.24		ug/L		114	70 - 130	2	20
Acenaphthene	1.97	1.91		ug/L		97	70 - 130	4	20
Acenaphthylene	1.97	1.89		ug/L		96	70 - 130	5	20
Acetochlor	1.97	1.82		ug/L		93	70 - 130	1	20
Alachlor	1.97	2.01		ug/L		102	70 - 130	0	20

QC Sample Results

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

Job ID: 380-53442-1

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 380-46433/18-A
Matrix: Water
Analysis Batch: 46579

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 46433

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
alpha-BHC	1.97	1.96		ug/L		100	70 - 130	5	20	
alpha-Chlordane	1.97	2.32		ug/L		118	70 - 130	1	20	
Anthracene	1.97	1.99		ug/L		101	70 - 130	2	20	
Atrazine	1.97	2.36		ug/L		120	70 - 130	2	20	
Benz(a)anthracene	1.97	2.29		ug/L		116	70 - 130	0	20	
Benzo[a]pyrene	1.97	2.20		ug/L		112	70 - 130	5	20	
Benzo[b]fluoranthene	1.97	2.24		ug/L		114	70 - 130	0	20	
Benzo[g,h,i]perylene	1.97	1.76		ug/L		90	70 - 130	8	20	
Benzo[k]fluoranthene	1.97	2.32		ug/L		118	70 - 130	2	20	
beta-BHC	1.97	2.01		ug/L		102	70 - 130	2	20	
Bis(2-ethylhexyl) phthalate	1.97	1.89		ug/L		96	70 - 130	2	20	
Bromacil	1.97	2.12		ug/L		108	70 - 130	4	20	
Butachlor	1.97	2.36		ug/L		120	70 - 130	6	20	
Butylbenzylphthalate	1.97	2.40		ug/L		122	70 - 130	6	20	
Chlorobenzilate	1.97	2.01		ug/L		102	70 - 130	5	20	
Chloroneb	1.97	2.08		ug/L		106	70 - 130	4	20	
Chlorothalonil (Draconil, Bravo)	1.97	1.92		ug/L		97	70 - 130	1	20	
Chlorpyrifos	1.97	2.20		ug/L		112	70 - 130	2	20	
Chrysene	1.97	2.12		ug/L		108	70 - 130	1	20	
delta-BHC	1.97	1.77		ug/L		90	70 - 130	3	20	
Di(2-ethylhexyl)adipate	1.97	2.16		ug/L		110	70 - 130	2	20	
Dibenz(a,h)anthracene	1.97	2.17		ug/L		110	70 - 130	12	20	
Diclorvos (DDVP)	1.97	1.70		ug/L		86	70 - 130	1	20	
Dieldrin	1.97	2.01		ug/L		102	70 - 130	1	20	
Diethylphthalate	1.97	2.12		ug/L		108	70 - 130	1	20	
Dimethylphthalate	1.97	2.12		ug/L		108	70 - 130	2	20	
Di-n-butyl phthalate	3.93	4.20		ug/L		107	70 - 130	3	20	
Di-n-octyl phthalate	1.97	1.63		ug/L		83	70 - 130	0	20	
Endosulfan I (Alpha)	1.97	1.88		ug/L		95	70 - 130	3	20	
Endosulfan II (Beta)	1.97	1.96		ug/L		100	70 - 130	3	20	
Endosulfan sulfate	1.97	2.25		ug/L		115	70 - 130	1	20	
Endrin	1.97	2.14		ug/L		109	70 - 130	6	20	
Endrin aldehyde	1.97	2.12		ug/L		108	70 - 130	0	20	
EPTC	1.97	2.13		ug/L		108	70 - 130	2	20	
Fluoranthene	1.97	2.16		ug/L		110	70 - 130	2	20	
Fluorene	1.97	2.07		ug/L		105	70 - 130	5	20	
gamma-Chlordane	1.97	2.41		ug/L		123	70 - 130	3	20	
Heptachlor	1.97	2.05		ug/L		104	70 - 130	4	20	
Heptachlor epoxide (isomer B)	1.97	2.34		ug/L		119	70 - 130	1	20	
Hexachlorobenzene	1.97	2.16		ug/L		110	70 - 130	6	20	
Hexachlorocyclopentadiene	1.97	2.07		ug/L		105	70 - 130	7	20	
Indeno[1,2,3-cd]pyrene	1.97	2.16		ug/L		110	70 - 130	12	20	
Isophorone	1.97	1.89		ug/L		96	70 - 130	0	20	
Lindane	1.97	1.97		ug/L		100	70 - 130	2	20	
Malathion	1.97	2.05		ug/L		104	70 - 130	3	20	
Methoxychlor	1.97	2.35		ug/L		120	70 - 130	4	20	
Metolachlor	1.97	2.24		ug/L		114	70 - 130	7	20	
Molinate	1.97	2.13		ug/L		109	70 - 130	3	20	
Naphthalene	1.97	1.97		ug/L		100	70 - 130	2	20	

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-53442-1

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 380-46433/18-A
Matrix: Water
Analysis Batch: 46579

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 46433

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Parathion	1.97	2.34		ug/L		119	70 - 130	5	20
Pendimethalin (Penoxaline)	1.97	2.09		ug/L		106	70 - 130	0	20
Phenanthrene	1.97	1.97		ug/L		100	70 - 130	0	20
Propachlor	1.97	1.99		ug/L		101	70 - 130	2	20
Pyrene	1.97	2.23		ug/L		113	70 - 130	0	20
Simazine	1.97	2.40		ug/L		122	70 - 130	2	20
Terbacil	1.97	2.41		ug/L		123	70 - 130	4	20
Terbutylazine	1.97	2.38		ug/L		121	70 - 130	2	20
Thiobencarb	1.97	2.03		ug/L		103	70 - 130	1	20
trans-Nonachlor	1.97	2.56		ug/L		130	70 - 130	1	20
Trifluralin	1.97	1.91		ug/L		97	70 - 130	7	20

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
2-Nitro-m-xylene	95		70 - 130
Perylene-d12	91		70 - 130
Triphenylphosphate	119		70 - 130

Lab Sample ID: MRL 380-46433/16-A
Matrix: Water
Analysis Batch: 46579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 46433

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	0.0984	0.113		ug/L		115	50 - 150
2,4'-DDD	0.0984	0.125		ug/L		127	50 - 150
2,4'-DDE	0.0984	0.106		ug/L		107	50 - 150
2,4'-DDT	0.0984	0.101		ug/L		103	50 - 150
2,4-Dinitrotoluene	0.0984	0.0756	J	ug/L		77	50 - 150
2,6-Dinitrotoluene	0.0984	0.0814	J	ug/L		83	50 - 150
2-Methylnaphthalene	0.0984	0.109		ug/L		111	50 - 150
4,4'-DDD	0.0984	0.102		ug/L		104	50 - 150
4,4'-DDE	0.0984	0.0930	J	ug/L		94	50 - 150
4,4'-DDT	0.0984	0.137		ug/L		140	50 - 150
Acenaphthene	0.0984	0.104		ug/L		106	50 - 150
Acenaphthylene	0.0984	0.0915	J	ug/L		93	50 - 150
Acetochlor	0.0492	0.0427	J	ug/L		87	50 - 150
Alachlor	0.0492	0.0534		ug/L		109	50 - 150
alpha-BHC	0.0984	0.105		ug/L		107	50 - 150
alpha-Chlordane	0.0246	<0.029		ug/L		112	50 - 150
Anthracene	0.0197	0.0195	J	ug/L		99	50 - 150
Atrazine	0.0492	0.0580		ug/L		118	50 - 150
Benz(a)anthracene	0.0492	0.0487	J	ug/L		99	50 - 150
Benzo[a]pyrene	0.0197	0.0196	J	ug/L		100	50 - 150
Benzo[b]fluoranthene	0.0197	0.0220		ug/L		112	50 - 150
Benzo[g,h,i]perylene	0.0492	0.0607		ug/L		123	50 - 150
Benzo[k]fluoranthene	0.0197	0.0210		ug/L		107	50 - 150
beta-BHC	0.0984	0.100		ug/L		102	50 - 150
Bis(2-ethylhexyl) phthalate	0.591	0.734		ug/L		124	50 - 150
Bromacil	0.0984	0.130		ug/L		132	50 - 150

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QC Sample Results

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

Job ID: 380-53442-1

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MRL 380-46433/16-A
Matrix: Water
Analysis Batch: 46579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 46433

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Butachlor	0.0492	0.0599		ug/L		122	50 - 150
Butylbenzylphthalate	0.148	0.171	J	ug/L		116	50 - 150
Chlorobenzilate	0.0984	0.114		ug/L		116	50 - 150
Chloroneb	0.0984	0.118		ug/L		120	50 - 150
Chlorothalonil (Draconil, Bravo)	0.0984	0.118		ug/L		120	50 - 150
Chlorpyrifos	0.0492	0.0532		ug/L		108	50 - 150
Chrysene	0.0197	0.0236		ug/L		120	50 - 150
delta-BHC	0.0984	0.0989		ug/L		101	50 - 150
Di(2-ethylhexyl)adipate	0.295	0.445	J ^3+	ug/L		151	50 - 150
Dibenz(a,h)anthracene	0.0492	0.0669		ug/L		136	50 - 150
Diclorvos (DDVP)	0.0492	0.0483	J	ug/L		98	50 - 150
Dieldrin	0.0984	0.105	J	ug/L		107	50 - 150
Diethylphthalate	0.148	0.179	J	ug/L		121	50 - 150
Dimethylphthalate	0.295	0.305	J	ug/L		103	50 - 150
Di-n-butyl phthalate	0.295	0.373	J	ug/L		126	49 - 243
Di-n-octyl phthalate	0.0984	0.115		ug/L		117	50 - 150
Endosulfan I (Alpha)	0.0984	0.0974	J	ug/L		99	50 - 150
Endosulfan II (Beta)	0.0984	0.137		ug/L		139	50 - 150
Endosulfan sulfate	0.0984	0.101		ug/L		103	50 - 150
Endrin	0.0984	0.109		ug/L		110	50 - 150
Endrin aldehyde	0.0984	<0.083		ug/L		84	50 - 150
EPTC	0.0984	0.103		ug/L		105	50 - 150
Fluoranthene	0.0492	0.0563	J	ug/L		114	50 - 150
Fluorene	0.0492	0.0513		ug/L		104	50 - 150
gamma-Chlordane	0.0246	0.0276	J	ug/L		112	50 - 150
Heptachlor	0.0394	0.0414		ug/L		105	50 - 150
Heptachlor epoxide (isomer B)	0.0492	0.0527		ug/L		107	50 - 150
Hexachlorobenzene	0.0492	0.0532		ug/L		108	50 - 150
Hexachlorocyclopentadiene	0.0492	0.0440	J	ug/L		89	50 - 150
Indeno[1,2,3-cd]pyrene	0.0492	0.0649		ug/L		132	50 - 150
Isophorone	0.0984	0.103	J	ug/L		105	50 - 150
Lindane	0.0394	0.0429		ug/L		109	50 - 150
Malathion	0.0984	0.122		ug/L		124	50 - 150
Methoxychlor	0.0984	0.127		ug/L		129	50 - 150
Metolachlor	0.0492	0.0579		ug/L		118	50 - 150
Molinate	0.0984	0.107		ug/L		108	50 - 150
Naphthalene	0.0984	0.110	J	ug/L		112	50 - 150
Parathion	0.0984	0.137		ug/L		140	50 - 150
Pendimethalin (Penoxaline)	0.0984	0.131		ug/L		133	50 - 150
Phenanthrene	0.0197	0.0241	J	ug/L		123	50 - 150
Propachlor	0.0492	0.0776	^3+	ug/L		158	50 - 150
Pyrene	0.0492	0.0550		ug/L		112	50 - 150
Simazine	0.0492	0.0571		ug/L		116	50 - 150
Terbacil	0.0984	0.0937	J	ug/L		95	50 - 150
Terbutylazine	0.0984	0.111		ug/L		113	50 - 150
Thiobencarb	0.0984	0.112	J	ug/L		114	50 - 150
trans-Nonachlor	0.0246	0.0291	J	ug/L		118	50 - 150
Trifluralin	0.0984	0.122		ug/L		124	50 - 150

QC Sample Results

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

Job ID: 380-53442-1

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MRL 380-46433/16-A
Matrix: Water
Analysis Batch: 46579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 46433

Surrogate	MRL %Recovery	MRL Qualifier	Limits
2-Nitro-m-xylene	95		70 - 130
Perylene-d12	88		70 - 130
Triphenylphosphate	113		70 - 130

Lab Sample ID: 380-53121-DD-1-A MS
Matrix: Water
Analysis Batch: 46579

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 46433

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	<0.097		1.95	2.02		ug/L		104	70 - 130
2,4'-DDD	<0.097		1.95	2.04		ug/L		105	70 - 130
2,4'-DDE	<0.097		1.95	2.01		ug/L		103	70 - 130
2,4'-DDT	<0.097		1.95	2.23		ug/L		114	70 - 130
2,4-Dinitrotoluene	<0.097		1.95	2.21		ug/L		114	70 - 130
2,6-Dinitrotoluene	<0.097		1.95	2.16		ug/L		111	70 - 130
2-Methylnaphthalene	<0.097		1.95	2.03		ug/L		104	70 - 130
4,4'-DDD	<0.097		1.95	2.23		ug/L		115	70 - 130
4,4'-DDE	<0.097		1.95	2.23		ug/L		114	70 - 130
4,4'-DDT	<0.097		1.95	2.15		ug/L		110	70 - 130
Acenaphthene	<0.097		1.95	1.92		ug/L		98	70 - 130
Acenaphthylene	<0.097		1.95	1.97		ug/L		101	70 - 130
Acetochlor	<0.097		1.95	1.79		ug/L		92	70 - 130
Alachlor	<0.049		1.95	2.01		ug/L		103	70 - 130
alpha-BHC	<0.097		1.95	1.97		ug/L		101	70 - 130
alpha-Chlordane	<0.049		1.95	2.29		ug/L		118	70 - 130
Anthracene	<0.019		1.95	1.87		ug/L		96	70 - 130
Atrazine	<0.049		1.95	2.38		ug/L		122	70 - 130
Benz(a)anthracene	<0.049		1.95	2.21		ug/L		113	70 - 130
Benzo[a]pyrene	<0.019		1.95	2.05		ug/L		105	70 - 130
Benzo[b]fluoranthene	<0.019		1.95	2.21		ug/L		114	70 - 130
Benzo[g,h,i]perylene	<0.049		1.95	1.67		ug/L		86	70 - 130
Benzo[k]fluoranthene	<0.019		1.95	2.29		ug/L		118	70 - 130
beta-BHC	<0.097		1.95	2.03		ug/L		104	70 - 130
Bis(2-ethylhexyl) phthalate	<0.58		1.95	1.88		ug/L		96	70 - 130
Bromacil	<0.097		1.95	2.17		ug/L		111	70 - 130
Butachlor	<0.049		1.95	2.22		ug/L		114	70 - 130
Butylbenzylphthalate	<0.49		1.95	2.26		ug/L		116	70 - 130
Chlorobenzilate	<0.097		1.95	1.94		ug/L		100	70 - 130
Chloroneb	<0.097		1.95	2.07		ug/L		106	70 - 130
Chlorothalonil (Draconil, Bravo)	<0.097		1.95	1.95		ug/L		100	70 - 130
Chlorpyrifos	<0.049		1.95	2.15		ug/L		110	70 - 130
Chrysene	<0.019		1.95	2.15		ug/L		110	70 - 130
delta-BHC	<0.097		1.95	1.80		ug/L		92	70 - 130
Di(2-ethylhexyl)adipate	<0.58	B ^3+	1.95	2.08		ug/L		103	70 - 130
Dibenz(a,h)anthracene	<0.049		1.95	1.97		ug/L		101	70 - 130
Diclorvos (DDVP)	<0.049		1.95	1.69		ug/L		86	70 - 130
Dieldrin	<0.19		1.95	1.94		ug/L		100	70 - 130
Diethylphthalate	<0.49		1.95	2.04		ug/L		105	70 - 130

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QC Sample Results

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

Job ID: 380-53442-1

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 380-53264-E-1-A DU
Matrix: Water
Analysis Batch: 46579

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 46433

Analyte	Sample	Sample Qualifier	DU	DU	Unit	D	RPD	Limit
	Result		Result	Qualifier				
2,4'-DDE	<0.10		<0.099		ug/L		NC	20
2,4'-DDT	<0.10		<0.099		ug/L		NC	20
2,4-Dinitrotoluene	<0.10		<0.099		ug/L		NC	20
2,6-Dinitrotoluene	<0.10		<0.099		ug/L		NC	20
2-Methylnaphthalene	<0.10		<0.099		ug/L		NC	20
4,4'-DDD	<0.10		<0.099		ug/L		NC	20
4,4'-DDE	<0.10		<0.099		ug/L		NC	20
4,4'-DDT	<0.10		<0.099		ug/L		NC	20
Acenaphthene	<0.10		<0.099		ug/L		NC	20
Acenaphthylene	<0.10		<0.099		ug/L		NC	20
Acetochlor	<0.10		<0.099		ug/L		NC	20
Alachlor	<0.050		<0.050		ug/L		NC	20
alpha-BHC	<0.10		<0.099		ug/L		NC	20
alpha-Chlordane	<0.050		<0.050		ug/L		NC	20
Anthracene	<0.020		<0.020		ug/L		NC	20
Atrazine	<0.050		<0.050		ug/L		NC	20
Benz(a)anthracene	<0.050		<0.050		ug/L		NC	20
Benzo[a]pyrene	<0.020		<0.020		ug/L		NC	20
Benzo[b]fluoranthene	<0.020		<0.020		ug/L		NC	20
Benzo[g,h,i]perylene	<0.050		<0.050		ug/L		NC	20
Benzo[k]fluoranthene	<0.020		<0.020		ug/L		NC	20
beta-BHC	<0.10		<0.099		ug/L		NC	20
Bis(2-ethylhexyl) phthalate	<0.60		<0.59		ug/L		NC	20
Bromacil	<0.10		<0.099		ug/L		NC	20
Butachlor	<0.050		<0.050		ug/L		NC	20
Butylbenzylphthalate	<0.50		<0.50		ug/L		NC	20
Chlorobenzilate	<0.10		<0.099		ug/L		NC	20
Chloroneb	<0.10		<0.099		ug/L		NC	20
Chlorothalonil (Draconil, Bravo)	<0.10		<0.099		ug/L		NC	20
Chlorpyrifos	<0.050		<0.050		ug/L		NC	20
Chrysene	<0.020		<0.020		ug/L		NC	20
delta-BHC	<0.10		<0.099		ug/L		NC	20
Di(2-ethylhexyl)adipate	<0.60	B ^3+	<0.59	B	ug/L		NC	20
Dibenz(a,h)anthracene	<0.050		<0.050		ug/L		NC	20
Diclorvos (DDVP)	<0.050		<0.050		ug/L		NC	20
Dieldrin	<0.20		<0.20		ug/L		NC	20
Diethylphthalate	<0.50		<0.50		ug/L		NC	20
Dimethylphthalate	<0.50		<0.50		ug/L		NC	20
Di-n-butyl phthalate	<1.0		<0.99		ug/L		NC	20
Di-n-octyl phthalate	<0.10		<0.099		ug/L		NC	20
Endosulfan I (Alpha)	<0.10		<0.099		ug/L		NC	20
Endosulfan II (Beta)	<0.10		<0.099		ug/L		NC	20
Endosulfan sulfate	<0.10		<0.099		ug/L		NC	20
Endrin	<0.10		<0.099		ug/L		NC	20
Endrin aldehyde	<0.10		<0.099		ug/L		NC	20
EPTC	<0.10		<0.099		ug/L		NC	20
Fluoranthene	<0.10		<0.099		ug/L		NC	20
Fluorene	<0.050		<0.050		ug/L		NC	20
gamma-Chlordane	<0.050		<0.050		ug/L		NC	20

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QC Sample Results

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

Job ID: 380-53442-1

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 380-53264-E-1-A DU
Matrix: Water
Analysis Batch: 46579

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 46433

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Heptachlor	<0.040		<0.040		ug/L		NC	20
Heptachlor epoxide (isomer B)	<0.050		<0.050		ug/L		NC	20
Hexachlorobenzene	<0.050		<0.050		ug/L		NC	20
Hexachlorocyclopentadiene	<0.050		<0.050		ug/L		NC	20
Indeno[1,2,3-cd]pyrene	<0.050		<0.050		ug/L		NC	20
Isophorone	<0.50		<0.50		ug/L		NC	20
Lindane	<0.040		<0.040		ug/L		NC	20
Malathion	<0.10		<0.099		ug/L		NC	20
Methoxychlor	<0.10		<0.099		ug/L		NC	20
Metolachlor	<0.050		<0.050		ug/L		NC	20
Molinate	<0.10		<0.099		ug/L		NC	20
Naphthalene	<0.30		<0.30		ug/L		NC	20
Parathion	<0.10		<0.099		ug/L		NC	20
Pendimethalin (Penoxaline)	<0.10		<0.099		ug/L		NC	20
Phenanthrene	<0.040		<0.040		ug/L		NC	20
Propachlor	<0.050	^3+	<0.050		ug/L		NC	20
Pyrene	<0.050		<0.050		ug/L		NC	20
Simazine	<0.050		<0.050		ug/L		NC	20
Terbacil	<0.10		<0.099		ug/L		NC	20
Terbutylazine	<0.10		<0.099		ug/L		NC	20
Thiobencarb	<0.20		<0.20		ug/L		NC	20
Total Permethrin (mixed isomers)	<0.20		<0.20		ug/L		NC	20
trans-Nonachlor	<0.050		<0.050		ug/L		NC	20
Trifluralin	<0.10		<0.099		ug/L		NC	20
		DU	DU					
Surrogate	%Recovery	Qualifier	Limits					
2-Nitro-m-xylene	93		70 - 130					
Perylene-d12	89		70 - 130					
Triphenylphosphate	120		70 - 130					

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

Lab Sample ID: MBL 380-48511/21-A
Matrix: Water
Analysis Batch: 49131

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 48511

Analyte	MBL	MBL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		07/24/23 11:20	07/27/23 20:20	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		07/24/23 11:20	07/27/23 20:20	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		07/24/23 11:20	07/27/23 20:20	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		07/24/23 11:20	07/27/23 20:20	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		07/24/23 11:20	07/27/23 20:20	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		07/24/23 11:20	07/27/23 20:20	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		07/24/23 11:20	07/27/23 20:20	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		07/24/23 11:20	07/27/23 20:20	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		07/24/23 11:20	07/27/23 20:20	1

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QC Sample Results

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

Job ID: 380-53442-1

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

Lab Sample ID: MBL 380-48511/21-A
Matrix: Water
Analysis Batch: 49131

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 48511

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		07/24/23 11:20	07/27/23 20:20	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		07/24/23 11:20	07/27/23 20:20	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		07/24/23 11:20	07/27/23 20:20	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		07/24/23 11:20	07/27/23 20:20	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		07/24/23 11:20	07/27/23 20:20	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		07/24/23 11:20	07/27/23 20:20	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		07/24/23 11:20	07/27/23 20:20	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		07/24/23 11:20	07/27/23 20:20	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		07/24/23 11:20	07/27/23 20:20	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		07/24/23 11:20	07/27/23 20:20	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<0.25		2.0	ng/L		07/24/23 11:20	07/27/23 20:20	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		07/24/23 11:20	07/27/23 20:20	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		07/24/23 11:20	07/27/23 20:20	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		07/24/23 11:20	07/27/23 20:20	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		07/24/23 11:20	07/27/23 20:20	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		07/24/23 11:20	07/27/23 20:20	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	62		50 - 200	07/24/23 11:20	07/27/23 20:20	1
13C6 PFDA	89		50 - 200	07/24/23 11:20	07/27/23 20:20	1
13C5 PFHxA	76		50 - 200	07/24/23 11:20	07/27/23 20:20	1
13C4 PFHpA	77		50 - 200	07/24/23 11:20	07/27/23 20:20	1
13C8 PFOA	82		50 - 200	07/24/23 11:20	07/27/23 20:20	1
13C9 PFNA	86		50 - 200	07/24/23 11:20	07/27/23 20:20	1
13C7 PFUnA	88		50 - 200	07/24/23 11:20	07/27/23 20:20	1
13C2 PFDoA	95		50 - 200	07/24/23 11:20	07/27/23 20:20	1
13C4 PFBA	74		50 - 200	07/24/23 11:20	07/27/23 20:20	1
13C5 PFPeA	76		50 - 200	07/24/23 11:20	07/27/23 20:20	1
13C3 PFBS	99		50 - 200	07/24/23 11:20	07/27/23 20:20	1
13C3 PFHxS	71		50 - 200	07/24/23 11:20	07/27/23 20:20	1
13C8 PFOS	97		50 - 200	07/24/23 11:20	07/27/23 20:20	1
13C2-4:2-FTS	112		50 - 200	07/24/23 11:20	07/27/23 20:20	1
13C2-6:2-FTS	110		50 - 200	07/24/23 11:20	07/27/23 20:20	1
13C2-8:2-FTS	104		50 - 200	07/24/23 11:20	07/27/23 20:20	1

Lab Sample ID: LCS 380-48511/23-A
Matrix: Water
Analysis Batch: 49131

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 48511

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	120	116		ng/L		96	70 - 130

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QC Sample Results

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

Job ID: 380-53442-1

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

Lab Sample ID: LCS 380-48511/23-A
Matrix: Water
Analysis Batch: 49131

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 48511

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	111		ng/L		92	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	120	105		ng/L		87	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	120	126		ng/L		105	70 - 130
Perfluorobutanesulfonic acid (PFBS)	120	114		ng/L		94	70 - 130
Perfluorodecanoic acid (PFDA)	120	119		ng/L		99	70 - 130
Perfluorododecanoic acid (PFDoA)	120	115		ng/L		95	70 - 130
Perfluoroheptanoic acid (PFHpA)	120	120		ng/L		100	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	120	122		ng/L		101	70 - 130
Perfluorohexanoic acid (PFHxA)	120	113		ng/L		93	70 - 130
Perfluorononanoic acid (PFNA)	120	119		ng/L		99	70 - 130
Perfluorooctanesulfonic acid (PFOS)	120	115		ng/L		95	70 - 130
Perfluorooctanoic acid (PFOA)	120	120		ng/L		100	70 - 130
Perfluoroundecanoic acid (PFUnA)	120	119		ng/L		99	70 - 130
Perfluorobutanoic acid (PFBA)	120	117		ng/L		97	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	120	115		ng/L		95	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	119		ng/L		98	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	120	117		ng/L		97	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	120	116		ng/L		96	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	120	114		ng/L		94	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	120	107		ng/L		89	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	120	112		ng/L		93	70 - 130
Perfluoropentanoic acid (PFPeA)	120	112		ng/L		93	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	120	116		ng/L		97	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	120	137		ng/L		113	70 - 130

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	71		50 - 200
13C6 PFDA	83		50 - 200
13C5 PFHxA	78		50 - 200
13C4 PFHpA	77		50 - 200
13C8 PFOA	78		50 - 200
13C9 PFNA	82		50 - 200
13C7 PFUnA	88		50 - 200
13C2 PFDoA	91		50 - 200
13C4 PFBA	79		50 - 200

QC Sample Results

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

Job ID: 380-53442-1

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

Lab Sample ID: LCS 380-48511/23-A
Matrix: Water
Analysis Batch: 49131

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 48511

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C5 PFPeA	82		50 - 200
13C3 PFBS	92		50 - 200
13C3 PFHxS	77		50 - 200
13C8 PFOS	91		50 - 200
13C2-4:2-FTS	100		50 - 200
13C2-6:2-FTS	100		50 - 200
13C2-8:2-FTS	92		50 - 200

Lab Sample ID: LCSD 380-48511/24-A
Matrix: Water
Analysis Batch: 49131

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 48511

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	120	109		ng/L		90	70 - 130	6	30	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	108		ng/L		90	70 - 130	3	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	120	92.9		ng/L		77	70 - 130	12	30	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	120	121		ng/L		100	70 - 130	5	30	
Perfluorobutanesulfonic acid (PFBS)	120	108		ng/L		90	70 - 130	5	30	
Perfluorodecanoic acid (PFDA)	120	111		ng/L		92	70 - 130	8	30	
Perfluorododecanoic acid (PFDoA)	120	107		ng/L		89	70 - 130	7	30	
Perfluoroheptanoic acid (PFHpA)	120	111		ng/L		92	70 - 130	8	30	
Perfluorohexanesulfonic acid (PFHxS)	120	110		ng/L		91	70 - 130	11	30	
Perfluorohexanoic acid (PFHxA)	120	110		ng/L		91	70 - 130	2	30	
Perfluorononanoic acid (PFNA)	120	111		ng/L		92	70 - 130	8	30	
Perfluorooctanesulfonic acid (PFOS)	120	108		ng/L		90	70 - 130	6	30	
Perfluorooctanoic acid (PFOA)	120	111		ng/L		92	70 - 130	8	30	
Perfluoroundecanoic acid (PFUnA)	120	110		ng/L		92	70 - 130	7	30	
Perfluorobutanoic acid (PFBA)	120	107		ng/L		89	70 - 130	8	30	
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	120	111		ng/L		92	70 - 130	4	30	
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	105		ng/L		87	70 - 130	12	30	
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	120	107		ng/L		89	70 - 130	9	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	120	105		ng/L		88	70 - 130	9	30	
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	120	109		ng/L		91	70 - 130	4	30	
Perfluoro-3-methoxypropanoic acid (PFMPA)	120	99.2		ng/L		82	70 - 130	8	30	
Perfluoro-4-methoxybutanoic acid (PFMBA)	120	102		ng/L		85	70 - 130	9	30	

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QC Sample Results

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

Job ID: 380-53442-1

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

Lab Sample ID: LCSD 380-48511/24-A
Matrix: Water
Analysis Batch: 49131

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 48511

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoropentanoic acid (PFPeA)	120	112		ng/L		93	70 - 130	0	30
Perfluoroheptanesulfonic acid (PFHpS)	120	108		ng/L		90	70 - 130	7	30
Perfluoropentanesulfonic acid (PFPeS)	120	121		ng/L		101	70 - 130	12	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
13C3 HFPO-DA	63		50 - 200
13C6 PFDA	79		50 - 200
13C5 PFHxA	70		50 - 200
13C4 PFHpA	71		50 - 200
13C8 PFOA	72		50 - 200
13C9 PFNA	75		50 - 200
13C7 PFUnA	87		50 - 200
13C2 PFDoA	90		50 - 200
13C4 PFBA	72		50 - 200
13C5 PFPeA	70		50 - 200
13C3 PFBS	93		50 - 200
13C3 PFHxS	80		50 - 200
13C8 PFOS	91		50 - 200
13C2-4:2-FTS	102		50 - 200
13C2-6:2-FTS	100		50 - 200
13C2-8:2-FTS	92		50 - 200

Lab Sample ID: MRL 380-48511/22-A
Matrix: Water
Analysis Batch: 49131

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 48511

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.01	1.93	J	ng/L		96	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.01	1.94	J	ng/L		97	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.01	1.74	J	ng/L		87	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.01	2.34	J	ng/L		116	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.01	2.03	J	ng/L		101	50 - 150
Perfluorodecanoic acid (PFDA)	2.01	2.11	J	ng/L		105	50 - 150
Perfluorododecanoic acid (PFDoA)	2.01	2.08	J	ng/L		103	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.01	2.07	J	ng/L		103	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.01	2.11	J	ng/L		105	50 - 150
Perfluorohexanoic acid (PFHxA)	2.01	2.12	J	ng/L		106	50 - 150
Perfluorononanoic acid (PFNA)	2.01	2.05	J	ng/L		102	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.01	1.99	J	ng/L		99	50 - 150
Perfluorooctanoic acid (PFOA)	2.01	2.16	J	ng/L		108	50 - 150

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-53442-1

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

Lab Sample ID: MRL 380-48511/22-A
Matrix: Water
Analysis Batch: 49131

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 48511

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	2.01	2.07	J	ng/L		103	50 - 150
Perfluorobutanoic acid (PFBA)	2.01	2.09	J	ng/L		104	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.01	2.10	J	ng/L		104	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.01	2.18	J	ng/L		108	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.01	2.28	J	ng/L		114	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.01	1.76	J	ng/L		88	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	2.01	2.07	J	ng/L		103	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.01	1.81	J	ng/L		90	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.01	2.07	J	ng/L		103	50 - 150
Perfluoropentanoic acid (PFPeA)	2.01	2.05	J	ng/L		102	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.01	1.94	J	ng/L		97	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.01	2.58	J	ng/L		128	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	Limits
13C3 HFPO-DA	66		50 - 200
13C6 PFDA	91		50 - 200
13C5 PFHxA	81		50 - 200
13C4 PFHpA	82		50 - 200
13C8 PFOA	83		50 - 200
13C9 PFNA	90		50 - 200
13C7 PFUnA	92		50 - 200
13C2 PFDoA	93		50 - 200
13C4 PFBA	81		50 - 200
13C5 PFPeA	81		50 - 200
13C3 PFBS	96		50 - 200
13C3 PFHxS	73		50 - 200
13C8 PFOS	95		50 - 200
13C2-4:2-FTS	111		50 - 200
13C2-6:2-FTS	106		50 - 200
13C2-8:2-FTS	99		50 - 200

Lab Sample ID: 380-53442-1 MS
Matrix: Drinking Water
Analysis Batch: 49131

Client Sample ID: AIEA GULCH WELLS PUMP 2
Prep Type: Total/NA
Prep Batch: 48511

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-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

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-53442-1

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

Lab Sample ID: 380-53442-1 MS
Matrix: Drinking Water
Analysis Batch: 49131

Client Sample ID: AIEA GULCH WELLS PUMP 2
Prep Type: Total/NA
Prep Batch: 48511

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		120	111		ng/L		92	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		120	126		ng/L		105	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		120	112		ng/L		93	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		120	118		ng/L		98	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		120	113		ng/L		94	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		120	120		ng/L		100	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		120	117		ng/L		97	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		120	116		ng/L		97	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		120	118		ng/L		98	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		120	116		ng/L		96	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		120	113		ng/L		94	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		120	116		ng/L		96	70 - 130
Perfluorobutanoic acid (PFBA)	<2.0		120	114		ng/L		95	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		120	120		ng/L		99	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		120	118		ng/L		98	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		120	116		ng/L		97	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		120	106		ng/L		88	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		120	110		ng/L		92	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		120	111		ng/L		93	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		120	118		ng/L		98	70 - 130
Perfluoropentanoic acid (PFPeA)	<2.0		120	116		ng/L		96	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		120	115		ng/L		96	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<2.0		120	116		ng/L		96	70 - 130

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
13C3 HFPO-DA	90		50 - 200
13C6 PFDA	92		50 - 200
13C5 PFHxA	95		50 - 200
13C4 PFHpA	93		50 - 200
13C8 PFOA	96		50 - 200
13C9 PFNA	94		50 - 200
13C7 PFUnA	96		50 - 200
13C2 PFDoA	96		50 - 200
13C4 PFBA	93		50 - 200
13C5 PFPeA	93		50 - 200
13C3 PFBS	95		50 - 200
13C3 PFHxS	88		50 - 200

QC Sample Results

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

Job ID: 380-53442-1

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

Lab Sample ID: 380-53442-1 MS
Matrix: Drinking Water
Analysis Batch: 49131

Client Sample ID: AIEA GULCH WELLS PUMP 2
Prep Type: Total/NA
Prep Batch: 48511

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
13C8 PFOS	93		50 - 200
13C2-4:2-FTS	101		50 - 200
13C2-6:2-FTS	101		50 - 200
13C2-8:2-FTS	92		50 - 200

Lab Sample ID: 380-53442-1 MSD
Matrix: Drinking Water
Analysis Batch: 49131

Client Sample ID: AIEA GULCH WELLS PUMP 2
Prep Type: Total/NA
Prep Batch: 48511

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		120	114		ng/L		94	70 - 130	1	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		120	113		ng/L		94	70 - 130	2	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		120	108		ng/L		90	70 - 130	3	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		120	120		ng/L		100	70 - 130	5	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		120	109		ng/L		91	70 - 130	2	30
Perfluorodecanoic acid (PFDA)	<2.0		120	114		ng/L		94	70 - 130	4	30
Perfluorododecanoic acid (PFDoA)	<2.0		120	115		ng/L		95	70 - 130	1	30
Perfluoroheptanoic acid (PFHpA)	<2.0		120	116		ng/L		96	70 - 130	3	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		120	119		ng/L		99	70 - 130	2	30
Perfluorohexanoic acid (PFHxA)	<2.0		120	122		ng/L		101	70 - 130	4	30
Perfluorononanoic acid (PFNA)	<2.0		120	112		ng/L		93	70 - 130	5	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		120	113		ng/L		93	70 - 130	3	30
Perfluorooctanoic acid (PFOA)	<2.0		120	120		ng/L		100	70 - 130	6	30
Perfluoroundecanoic acid (PFUnA)	<2.0		120	119		ng/L		99	70 - 130	3	30
Perfluorobutanoic acid (PFBA)	<2.0		120	116		ng/L		96	70 - 130	1	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		120	121		ng/L		101	70 - 130	1	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		120	116		ng/L		96	70 - 130	2	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		120	109		ng/L		91	70 - 130	7	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		120	116		ng/L		96	70 - 130	9	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		120	112		ng/L		93	70 - 130	2	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		120	110		ng/L		91	70 - 130	1	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		120	115		ng/L		96	70 - 130	2	30
Perfluoropentanoic acid (PFPeA)	<2.0		120	114		ng/L		94	70 - 130	1	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		120	113		ng/L		94	70 - 130	2	30

QC Sample Results

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

Job ID: 380-53442-1

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

Lab Sample ID: 380-53442-1 MSD
Matrix: Drinking Water
Analysis Batch: 49131

Client Sample ID: AIEA GULCH WELLS PUMP 2
Prep Type: Total/NA
Prep Batch: 48511

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoropentanesulfonic acid (PFPeS)	<2.0		120	129		ng/L		107	70 - 130	11	30
MSD MSD											
Isotope Dilution	%Recovery	Qualifier	Limits								
13C3 HFPO-DA	93		50 - 200								
13C6 PFDA	97		50 - 200								
13C5 PFHxA	96		50 - 200								
13C4 PFHpA	97		50 - 200								
13C8 PFOA	95		50 - 200								
13C9 PFNA	99		50 - 200								
13C7 PFUnA	100		50 - 200								
13C2 PFDoA	99		50 - 200								
13C4 PFBA	97		50 - 200								
13C5 PFPeA	102		50 - 200								
13C3 PFBS	98		50 - 200								
13C3 PFHxS	84		50 - 200								
13C8 PFOS	97		50 - 200								
13C2-4:2-FTS	104		50 - 200								
13C2-6:2-FTS	104		50 - 200								
13C2-8:2-FTS	94		50 - 200								

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

Lab Sample ID: MBL 380-46583/6-A
Matrix: Water
Analysis Batch: 46663

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 46583

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		07/07/23 12:36	07/10/23 15:38	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		07/07/23 12:36	07/10/23 15:38	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		07/07/23 12:36	07/10/23 15:38	1
N-methylperfluorooctanesulfonamide acid (NMeFOSAA)	<0.58		2.0	ng/L		07/07/23 12:36	07/10/23 15:38	1
N-ethylperfluorooctanesulfonamide acid (NEtFOSAA)	<0.42		2.0	ng/L		07/07/23 12:36	07/10/23 15:38	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		07/07/23 12:36	07/10/23 15:38	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		07/07/23 12:36	07/10/23 15:38	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		07/07/23 12:36	07/10/23 15:38	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		07/07/23 12:36	07/10/23 15:38	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		07/07/23 12:36	07/10/23 15:38	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		07/07/23 12:36	07/10/23 15:38	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		07/07/23 12:36	07/10/23 15:38	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		07/07/23 12:36	07/10/23 15:38	1
Perfluorotetradecanoic acid (PFTA)	<0.54		2.0	ng/L		07/07/23 12:36	07/10/23 15:38	1
Perfluorotridecanoic acid (PFTrDA)	<0.36		2.0	ng/L		07/07/23 12:36	07/10/23 15:38	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		07/07/23 12:36	07/10/23 15:38	1
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		07/07/23 12:36	07/10/23 15:38	1

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-53442-1

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

Lab Sample ID: MBL 380-46583/6-A
Matrix: Water
Analysis Batch: 46663

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 46583

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		07/07/23 12:36	07/10/23 15:38	1

Surrogate	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	102		70 - 130	07/07/23 12:36	07/10/23 15:38	1
13C2 PFHxA	113		70 - 130	07/07/23 12:36	07/10/23 15:38	1
13C2 PFDA	115		70 - 130	07/07/23 12:36	07/10/23 15:38	1
13C3-GenX	100		70 - 130	07/07/23 12:36	07/10/23 15:38	1

Lab Sample ID: LCS 380-46583/8-A
Matrix: Water
Analysis Batch: 46663

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 46583

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	25.0	24.4		ng/L		97	70 - 130
Perfluorooctanesulfonic acid (PFOS)	23.2	25.4		ng/L		110	70 - 130
Perfluoroundecanoic acid (PFUnA)	25.0	24.1		ng/L		97	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	25.0	23.7		ng/L		95	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	25.0	23.7		ng/L		95	70 - 130
Perfluorohexanoic acid (PFHxA)	25.0	27.1		ng/L		108	70 - 130
Perfluorododecanoic acid (PFDoA)	25.0	23.6		ng/L		95	70 - 130
Perfluorooctanoic acid (PFOA)	25.0	27.2		ng/L		109	70 - 130
Perfluorodecanoic acid (PFDA)	25.0	26.0		ng/L		104	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	22.8	24.3		ng/L		107	70 - 130
Perfluorobutanesulfonic acid (PFBS)	22.1	22.9		ng/L		104	70 - 130
Perfluoroheptanoic acid (PFHpA)	25.0	27.2		ng/L		109	70 - 130
Perfluorononanoic acid (PFNA)	25.0	27.2		ng/L		109	70 - 130
Perfluorotetradecanoic acid (PFTA)	25.0	25.2		ng/L		101	70 - 130
Perfluorotridecanoic acid (PFTTrDA)	25.0	23.5		ng/L		94	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	23.4	24.4		ng/L		104	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	23.6	23.2		ng/L		98	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	23.6	26.3		ng/L		111	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
d5-NEtFOSAA	96		70 - 130
13C2 PFHxA	113		70 - 130
13C2 PFDA	109		70 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-53442-1

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

Lab Sample ID: LCS 380-46583/8-A
Matrix: Water
Analysis Batch: 46663

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 46583

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C3-GenX	108		70 - 130

Lab Sample ID: LCSD 380-46583/9-A
Matrix: Water
Analysis Batch: 46663

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 46583

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	25.0	26.2		ng/L		105	70 - 130	7	30
Perfluorooctanesulfonic acid (PFOS)	23.2	23.7		ng/L		103	70 - 130	7	30
Perfluoroundecanoic acid (PFUnA)	25.0	24.8		ng/L		99	70 - 130	3	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	25.0	23.8		ng/L		95	70 - 130	0	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	25.0	23.7		ng/L		95	70 - 130	0	30
Perfluorohexanoic acid (PFHxA)	25.0	27.4		ng/L		110	70 - 130	1	30
Perfluorododecanoic acid (PFDoA)	25.0	25.0		ng/L		100	70 - 130	6	30
Perfluorooctanoic acid (PFOA)	25.0	26.7		ng/L		107	70 - 130	2	30
Perfluorodecanoic acid (PFDA)	25.0	26.3		ng/L		105	70 - 130	1	30
Perfluorohexanesulfonic acid (PFHxS)	22.8	23.9		ng/L		105	70 - 130	2	30
Perfluorobutanesulfonic acid (PFBS)	22.1	21.9		ng/L		99	70 - 130	5	30
Perfluoroheptanoic acid (PFHpA)	25.0	26.3		ng/L		105	70 - 130	3	30
Perfluorononanoic acid (PFNA)	25.0	26.8		ng/L		107	70 - 130	2	30
Perfluorotetradecanoic acid (PFTA)	25.0	25.9		ng/L		104	70 - 130	3	30
Perfluorotridecanoic acid (PFTrDA)	25.0	25.4		ng/L		101	70 - 130	8	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	23.4	23.5		ng/L		101	70 - 130	3	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	23.6	23.5		ng/L		100	70 - 130	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	23.6	25.9		ng/L		110	70 - 130	2	30

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
d5-NEtFOSAA	98		70 - 130
13C2 PFHxA	118		70 - 130
13C2 PFDA	110		70 - 130
13C3-GenX	109		70 - 130

QC Sample Results

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

Job ID: 380-53442-1

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

Lab Sample ID: MRL 380-46583/7-A
Matrix: Water
Analysis Batch: 46663

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 46583

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	2.09	J	ng/L		104	50 - 150
Perfluorooctanesulfonic acid (PFOS)	1.86	2.36	J	ng/L		127	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.32	J	ng/L		116	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	2.61	J	ng/L		130	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.67	J	ng/L		133	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.67	J	ng/L		133	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.21	J	ng/L		110	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.75	J	ng/L		137	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.37	J	ng/L		118	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	1.83	2.23	J	ng/L		122	50 - 150
Perfluorobutanesulfonic acid (PFBS)	1.77	2.07	J	ng/L		117	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.74	J	ng/L		137	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.80	J	ng/L		140	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.00	2.51	J	ng/L		125	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.00	2.21	J	ng/L		110	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	1.87	2.26	J	ng/L		121	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.89	2.17	J	ng/L		115	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.89	2.34	J	ng/L		124	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	MRL Limits
d5-NEtFOSAA	102		70 - 130
13C2 PFHxA	114		70 - 130
13C2 PFDA	110		70 - 130
13C3-GenX	105		70 - 130

Lab Sample ID: 380-53442-1 MS
Matrix: Drinking Water
Analysis Batch: 46663

Client Sample ID: AIEA GULCH WELLS PUMP 2
Prep Type: Total/NA
Prep Batch: 46583

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	24.3		ng/L		97	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		23.2	24.9		ng/L		108	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		25.0	25.4		ng/L		102	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.0	24.8		ng/L		99	70 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-53442-1

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

Lab Sample ID: MBL 380-47330/21-A
Matrix: Water
Analysis Batch: 47450

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 47330

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		07/14/23 05:48	07/15/23 09:26	1

Surrogate	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	94		70 - 130	07/14/23 05:48	07/15/23 09:26	1
13C2 PFHxA	98		70 - 130	07/14/23 05:48	07/15/23 09:26	1
13C2 PFDA	108		70 - 130	07/14/23 05:48	07/15/23 09:26	1
13C3-GenX	97		70 - 130	07/14/23 05:48	07/15/23 09:26	1

Lab Sample ID: LCS 380-47330/23-A
Matrix: Water
Analysis Batch: 47450

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 47330

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	25.0	23.9		ng/L		96	70 - 130
Perfluorooctanesulfonic acid (PFOS)	23.2	22.9		ng/L		99	70 - 130
Perfluoroundecanoic acid (PFUnA)	25.0	24.6		ng/L		98	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	25.0	23.1		ng/L		93	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	25.0	22.9		ng/L		91	70 - 130
Perfluorohexanoic acid (PFHxA)	25.0	24.0		ng/L		96	70 - 130
Perfluorododecanoic acid (PFDoA)	25.0	24.5		ng/L		98	70 - 130
Perfluorooctanoic acid (PFOA)	25.0	25.9		ng/L		103	70 - 130
Perfluorodecanoic acid (PFDA)	25.0	25.8		ng/L		103	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	22.8	23.0		ng/L		101	70 - 130
Perfluorobutanesulfonic acid (PFBS)	22.1	17.8		ng/L		80	70 - 130
Perfluoroheptanoic acid (PFHpA)	25.0	26.9		ng/L		108	70 - 130
Perfluorononanoic acid (PFNA)	25.0	26.0		ng/L		104	70 - 130
Perfluorotetradecanoic acid (PFTA)	25.0	23.0		ng/L		92	70 - 130
Perfluorotridecanoic acid (PFTTrDA)	25.0	24.4		ng/L		98	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	23.4	23.3		ng/L		100	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	23.6	22.3		ng/L		94	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	23.6	24.6		ng/L		104	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
d5-NEtFOSAA	95		70 - 130
13C2 PFHxA	99		70 - 130
13C2 PFDA	105		70 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-53442-1

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

Lab Sample ID: LCS 380-47330/23-A
Matrix: Water
Analysis Batch: 47450

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 47330

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
13C3-GenX	102		70 - 130

Lab Sample ID: LCSD 380-47330/24-A
Matrix: Water
Analysis Batch: 47450

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 47330

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	25.0	26.4		ng/L		106	70 - 130	10	30	
Perfluorooctanesulfonic acid (PFOS)	23.2	22.6		ng/L		98	70 - 130	1	30	
Perfluoroundecanoic acid (PFUnA)	25.0	23.9		ng/L		96	70 - 130	3	30	
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	25.0	23.5		ng/L		94	70 - 130	2	30	
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	25.0	23.7		ng/L		95	70 - 130	4	30	
Perfluorohexanoic acid (PFHxA)	25.0	25.2		ng/L		101	70 - 130	5	30	
Perfluorododecanoic acid (PFDoA)	25.0	24.0		ng/L		96	70 - 130	2	30	
Perfluorooctanoic acid (PFOA)	25.0	25.1		ng/L		100	70 - 130	3	30	
Perfluorodecanoic acid (PFDA)	25.0	26.0		ng/L		104	70 - 130	1	30	
Perfluorohexanesulfonic acid (PFHxS)	22.8	23.2		ng/L		102	70 - 130	1	30	
Perfluorobutanesulfonic acid (PFBS)	22.1	21.1		ng/L		96	70 - 130	17	30	
Perfluoroheptanoic acid (PFHpA)	25.0	25.7		ng/L		103	70 - 130	4	30	
Perfluorononanoic acid (PFNA)	25.0	25.9		ng/L		104	70 - 130	0	30	
Perfluorotetradecanoic acid (PFTA)	25.0	23.8		ng/L		95	70 - 130	3	30	
Perfluorotridecanoic acid (PFTrDA)	25.0	23.7		ng/L		95	70 - 130	3	30	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	23.4	23.5		ng/L		101	70 - 130	1	30	
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	23.6	22.2		ng/L		94	70 - 130	0	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	23.6	24.6		ng/L		104	70 - 130	0	30	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
d5-NEtFOSAA	93		70 - 130
13C2 PFHxA	106		70 - 130
13C2 PFDA	105		70 - 130
13C3-GenX	106		70 - 130

QC Sample Results

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

Job ID: 380-53442-1

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

Lab Sample ID: MRL 380-47330/22-A
Matrix: Water
Analysis Batch: 47450

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 47330

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	2.06	J	ng/L		103	50 - 150
Perfluorooctanesulfonic acid (PFOS)	1.86	1.89	J	ng/L		102	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	1.97	J	ng/L		98	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	1.84	J	ng/L		92	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	1.81	J	ng/L		90	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.12	J	ng/L		106	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	1.86	J	ng/L		93	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.27	J	ng/L		113	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.00	J	ng/L		100	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	1.83	2.03	J	ng/L		111	50 - 150
Perfluorobutanesulfonic acid (PFBS)	1.77	1.84	J	ng/L		104	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.31	J	ng/L		115	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.18	J	ng/L		109	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.00	1.88	J	ng/L		94	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.00	1.90	J	ng/L		95	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	1.87	1.91	J	ng/L		102	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.89	1.80	J	ng/L		95	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.89	2.00	J	ng/L		106	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	MRL Limits
d5-NEtFOSAA	89		70 - 130
13C2 PFHxA	103		70 - 130
13C2 PFDA	98		70 - 130
13C3-GenX	101		70 - 130

Lab Sample ID: 380-53540-B-1-A MS
Matrix: Water
Analysis Batch: 47450

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 47330

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		25.1	24.4		ng/L		97	70 - 130
Perfluorooctanesulfonic acid (PFOS)	13		23.2	35.5		ng/L		99	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		25.1	25.2		ng/L		101	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.1	24.9		ng/L		99	70 - 130

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QC Sample Results

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

Job ID: 380-53442-1

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

Lab Sample ID: 380-53540-B-1-A MS
Matrix: Water
Analysis Batch: 47450

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 47330

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		25.1	24.6		ng/L		98	70 - 130
Perfluorohexanoic acid (PFHxA)	3.2		25.1	29.7		ng/L		106	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		25.1	25.2		ng/L		101	70 - 130
Perfluorooctanoic acid (PFOA)	3.4		25.1	28.5		ng/L		100	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		25.1	26.5		ng/L		106	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	7.0		22.9	30.8		ng/L		104	70 - 130
Perfluorobutanesulfonic acid (PFBS)	5.5		22.2	26.5		ng/L		95	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		25.1	27.3		ng/L		101	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		25.1	26.9		ng/L		105	70 - 130
Perfluorotetradecanoic acid (PFTA)	<2.0		25.1	23.9		ng/L		95	70 - 130
Perfluorotridecanoic acid (PFTrDA)	<2.0		25.1	25.9		ng/L		103	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		23.4	23.8		ng/L		102	70 - 130
11-Chloroeicosasfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		23.7	23.2		ng/L		98	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		23.7	24.8		ng/L		105	70 - 130
MS MS									
Surrogate	%Recovery	Qualifier	Limits						
d5-NEtFOSAA	91		70 - 130						
13C2 PFHxA	108		70 - 130						
13C2 PFDA	107		70 - 130						
13C3-GenX	107		70 - 130						

Lab Sample ID: 380-53540-C-1-A MSD
Matrix: Water
Analysis Batch: 47450

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 47330

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		25.1	25.8		ng/L		103	70 - 130	6	30
Perfluorooctanesulfonic acid (PFOS)	13		23.2	35.4		ng/L		99	70 - 130	0	30
Perfluoroundecanoic acid (PFUnA)	<2.0		25.1	24.8		ng/L		99	70 - 130	2	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.1	23.4		ng/L		93	70 - 130	6	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		25.1	23.2		ng/L		93	70 - 130	6	30
Perfluorohexanoic acid (PFHxA)	3.2		25.1	28.6		ng/L		101	70 - 130	4	30
Perfluorododecanoic acid (PFDoA)	<2.0		25.1	24.4		ng/L		98	70 - 130	3	30
Perfluorooctanoic acid (PFOA)	3.4		25.1	29.2		ng/L		103	70 - 130	2	30
Perfluorodecanoic acid (PFDA)	<2.0		25.1	25.6		ng/L		102	70 - 130	3	30

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QC Association Summary

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

Job ID: 380-53442-1

GC/MS Semi VOA

Prep Batch: 46433

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-53442-1	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	525.2	
380-53442-2	AIEA WELLS PUMP 2 (260)	Total/NA	Drinking Water	525.2	
MB 380-46433/15-A	Method Blank	Total/NA	Water	525.2	
LCS 380-46433/17-A	Lab Control Sample	Total/NA	Water	525.2	
LCSD 380-46433/18-A	Lab Control Sample Dup	Total/NA	Water	525.2	
MRL 380-46433/16-A	Lab Control Sample	Total/NA	Water	525.2	
380-53121-DD-1-A MS	Matrix Spike	Total/NA	Water	525.2	
380-53264-E-1-A DU	Duplicate	Total/NA	Water	525.2	

Analysis Batch: 46579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-53442-1	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	525.2	46433
380-53442-2	AIEA WELLS PUMP 2 (260)	Total/NA	Drinking Water	525.2	46433
MB 380-46433/15-A	Method Blank	Total/NA	Water	525.2	46433
LCS 380-46433/17-A	Lab Control Sample	Total/NA	Water	525.2	46433
LCSD 380-46433/18-A	Lab Control Sample Dup	Total/NA	Water	525.2	46433
MRL 380-46433/16-A	Lab Control Sample	Total/NA	Water	525.2	46433
380-53121-DD-1-A MS	Matrix Spike	Total/NA	Water	525.2	46433
380-53264-E-1-A DU	Duplicate	Total/NA	Water	525.2	46433

LCMS

Prep Batch: 46583

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-53442-1	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	537.1 DW	
MBL 380-46583/6-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-46583/8-A	Lab Control Sample	Total/NA	Water	537.1 DW	
LCSD 380-46583/9-A	Lab Control Sample Dup	Total/NA	Water	537.1 DW	
MRL 380-46583/7-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-53442-1 MS	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	537.1 DW	
380-53442-1 MSD	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	537.1 DW	

Analysis Batch: 46663

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-53442-1	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	537.1	46583
MBL 380-46583/6-A	Method Blank	Total/NA	Water	537.1	46583
LCS 380-46583/8-A	Lab Control Sample	Total/NA	Water	537.1	46583
LCSD 380-46583/9-A	Lab Control Sample Dup	Total/NA	Water	537.1	46583
MRL 380-46583/7-A	Lab Control Sample	Total/NA	Water	537.1	46583
380-53442-1 MS	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	537.1	46583
380-53442-1 MSD	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	537.1	46583

Prep Batch: 47330

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-53442-2	AIEA WELLS PUMP 2 (260)	Total/NA	Drinking Water	537.1 DW	
380-53442-3	KAAMILO WELLS	Total/NA	Water	537.1 DW	
380-53442-7	FB: AIEA GULCH WELLS PUMP 2	Total/NA	Water	537.1 DW	
380-53442-8	FB: AIEA WELLS PUMP 2 (260)	Total/NA	Water	537.1 DW	
380-53442-9	FB: KAAMILO WELLS	Total/NA	Water	537.1 DW	
MBL 380-47330/21-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-47330/23-A	Lab Control Sample	Total/NA	Water	537.1 DW	

QC Association Summary

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

Job ID: 380-53442-1

LCMS (Continued)

Prep Batch: 47330 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 380-47330/24-A	Lab Control Sample Dup	Total/NA	Water	537.1 DW	
MRL 380-47330/22-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-53540-B-1-A MS	Matrix Spike	Total/NA	Water	537.1 DW	
380-53540-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1 DW	

Analysis Batch: 47450

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-53442-2	AIEA WELLS PUMP 2 (260)	Total/NA	Drinking Water	537.1	47330
380-53442-3	KAAMILO WELLS	Total/NA	Water	537.1	47330
380-53442-7	FB: AIEA GULCH WELLS PUMP 2	Total/NA	Water	537.1	47330
380-53442-8	FB: AIEA WELLS PUMP 2 (260)	Total/NA	Water	537.1	47330
380-53442-9	FB: KAAMILO WELLS	Total/NA	Water	537.1	47330
MBL 380-47330/21-A	Method Blank	Total/NA	Water	537.1	47330
LCS 380-47330/23-A	Lab Control Sample	Total/NA	Water	537.1	47330
LCSD 380-47330/24-A	Lab Control Sample Dup	Total/NA	Water	537.1	47330
MRL 380-47330/22-A	Lab Control Sample	Total/NA	Water	537.1	47330
380-53540-B-1-A MS	Matrix Spike	Total/NA	Water	537.1	47330
380-53540-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1	47330

Prep Batch: 48511

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-53442-1	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	533	
380-53442-2	AIEA WELLS PUMP 2 (260)	Total/NA	Drinking Water	533	
380-53442-3	KAAMILO WELLS	Total/NA	Water	533	
380-53442-7	FB: AIEA GULCH WELLS PUMP 2	Total/NA	Water	533	
380-53442-8	FB: AIEA WELLS PUMP 2 (260)	Total/NA	Water	533	
380-53442-9	FB: KAAMILO WELLS	Total/NA	Water	533	
MBL 380-48511/21-A	Method Blank	Total/NA	Water	533	
LCS 380-48511/23-A	Lab Control Sample	Total/NA	Water	533	
LCSD 380-48511/24-A	Lab Control Sample Dup	Total/NA	Water	533	
MRL 380-48511/22-A	Lab Control Sample	Total/NA	Water	533	
380-53442-1 MS	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	533	
380-53442-1 MSD	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	533	

Analysis Batch: 49131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-53442-1	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	533	48511
380-53442-2	AIEA WELLS PUMP 2 (260)	Total/NA	Drinking Water	533	48511
380-53442-3	KAAMILO WELLS	Total/NA	Water	533	48511
380-53442-7	FB: AIEA GULCH WELLS PUMP 2	Total/NA	Water	533	48511
380-53442-8	FB: AIEA WELLS PUMP 2 (260)	Total/NA	Water	533	48511
380-53442-9	FB: KAAMILO WELLS	Total/NA	Water	533	48511
MBL 380-48511/21-A	Method Blank	Total/NA	Water	533	48511
LCS 380-48511/23-A	Lab Control Sample	Total/NA	Water	533	48511
LCSD 380-48511/24-A	Lab Control Sample Dup	Total/NA	Water	533	48511
MRL 380-48511/22-A	Lab Control Sample	Total/NA	Water	533	48511
380-53442-1 MS	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	533	48511
380-53442-1 MSD	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	533	48511

Lab Chronicle

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

Job ID: 380-53442-1

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-53442-1

Date Collected: 07/03/23 08:45

Matrix: Drinking Water

Date Received: 07/06/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			46433	N8NE	EA POM	07/06/23 17:54
Total/NA	Analysis	525.2		1	46579	Q8LA	EA POM	07/07/23 19:57
Total/NA	Prep	533			48511	AUY6	EA POM	07/24/23 11:20
Total/NA	Analysis	533		1	49131	UKDT	EA POM	07/27/23 21:00
Total/NA	Prep	537.1 DW			46583	US1B	EA POM	07/07/23 12:36
Total/NA	Analysis	537.1		1	46663	UKYM	EA POM	07/10/23 16:18

Client Sample ID: AIEA WELLS PUMP 2 (260)

Lab Sample ID: 380-53442-2

Date Collected: 07/03/23 09:20

Matrix: Drinking Water

Date Received: 07/06/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			46433	N8NE	EA POM	07/06/23 17:54
Total/NA	Analysis	525.2		1	46579	Q8LA	EA POM	07/07/23 20:17
Total/NA	Prep	533			48511	AUY6	EA POM	07/24/23 11:20
Total/NA	Analysis	533		1	49131	UKDT	EA POM	07/27/23 21:38
Total/NA	Prep	537.1 DW			47330	U7RS	EA POM	07/14/23 05:48
Total/NA	Analysis	537.1		1	47450	Y7BM	EA POM	07/15/23 11:23

Client Sample ID: KAAMILO WELLS

Lab Sample ID: 380-53442-3

Date Collected: 07/03/23 09:45

Matrix: Water

Date Received: 07/06/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			48511	AUY6	EA POM	07/24/23 11:20
Total/NA	Analysis	533		1	49131	UKDT	EA POM	07/27/23 21:48
Total/NA	Prep	537.1 DW			47330	U7RS	EA POM	07/14/23 05:48
Total/NA	Analysis	537.1		1	47450	Y7BM	EA POM	07/15/23 11:32

Client Sample ID: FB: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-53442-7

Date Collected: 07/03/23 08:45

Matrix: Water

Date Received: 07/06/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			48511	AUY6	EA POM	07/24/23 11:20
Total/NA	Analysis	533		1	49131	UKDT	EA POM	07/27/23 21:57
Total/NA	Prep	537.1 DW			47330	U7RS	EA POM	07/14/23 05:48
Total/NA	Analysis	537.1		1	47450	Y7BM	EA POM	07/15/23 11:42

Client Sample ID: FB: AIEA WELLS PUMP 2 (260)

Lab Sample ID: 380-53442-8

Date Collected: 07/03/23 09:20

Matrix: Water

Date Received: 07/06/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			48511	AUY6	EA POM	07/24/23 11:20
Total/NA	Analysis	533		1	49131	UKDT	EA POM	07/27/23 22:07

Eurofins Eaton Analytical Pomona

Lab Chronicle

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

Job ID: 380-53442-1

Client Sample ID: FB: AIEA WELLS PUMP 2 (260)

Lab Sample ID: 380-53442-8

Date Collected: 07/03/23 09:20

Matrix: Water

Date Received: 07/06/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	537.1 DW			47330	U7RS	EA POM	07/14/23 05:48
Total/NA	Analysis	537.1		1	47450	Y7BM	EA POM	07/15/23 11:52

Client Sample ID: FB: KAAMILO WELLS

Lab Sample ID: 380-53442-9

Date Collected: 07/03/23 09:45

Matrix: Water

Date Received: 07/06/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			48511	AUY6	EA POM	07/24/23 11:20
Total/NA	Analysis	533		1	49131	UKDT	EA POM	07/27/23 22:16
Total/NA	Prep	537.1 DW			47330	U7RS	EA POM	07/14/23 05:48
Total/NA	Analysis	537.1		1	47450	Y7BM	EA POM	07/15/23 12:12

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: 380-53442-1

Laboratory: Eurofins Eaton Analytical Pomona

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Hawaii	State	CA00006	01-31-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
525.2	525.2	Drinking Water	1-Methylnaphthalene
525.2	525.2	Drinking Water	2,4'-DDD
525.2	525.2	Drinking Water	2,4'-DDE
525.2	525.2	Drinking Water	2,4'-DDT
525.2	525.2	Drinking Water	2,4-Dinitrotoluene
525.2	525.2	Drinking Water	2,6-Dinitrotoluene
525.2	525.2	Drinking Water	2-Methylnaphthalene
525.2	525.2	Drinking Water	4,4'-DDD
525.2	525.2	Drinking Water	4,4'-DDE
525.2	525.2	Drinking Water	4,4'-DDT
525.2	525.2	Drinking Water	Acenaphthene
525.2	525.2	Drinking Water	Acenaphthylene
525.2	525.2	Drinking Water	Acetochlor
525.2	525.2	Drinking Water	alpha-BHC
525.2	525.2	Drinking Water	alpha-Chlordane
525.2	525.2	Drinking Water	Anthracene
525.2	525.2	Drinking Water	Benz(a)anthracene
525.2	525.2	Drinking Water	Benzo[b]fluoranthene
525.2	525.2	Drinking Water	Benzo[g,h,i]perylene
525.2	525.2	Drinking Water	Benzo[k]fluoranthene
525.2	525.2	Drinking Water	beta-BHC
525.2	525.2	Drinking Water	Bromacil
525.2	525.2	Drinking Water	Butylbenzylphthalate
525.2	525.2	Drinking Water	Chlorobenzilate
525.2	525.2	Drinking Water	Chloroneb
525.2	525.2	Drinking Water	Chlorothalonil (Draconil, Bravo)
525.2	525.2	Drinking Water	Chlorpyrifos
525.2	525.2	Drinking Water	Chrysene
525.2	525.2	Drinking Water	delta-BHC
525.2	525.2	Drinking Water	Dibenz(a,h)anthracene
525.2	525.2	Drinking Water	Diclorvos (DDVP)
525.2	525.2	Drinking Water	Diethylphthalate
525.2	525.2	Drinking Water	Dimethylphthalate
525.2	525.2	Drinking Water	Di-n-butyl phthalate
525.2	525.2	Drinking Water	Di-n-octyl phthalate
525.2	525.2	Drinking Water	Endosulfan I (Alpha)
525.2	525.2	Drinking Water	Endosulfan II (Beta)
525.2	525.2	Drinking Water	Endosulfan sulfate
525.2	525.2	Drinking Water	Endrin aldehyde
525.2	525.2	Drinking Water	EPTC
525.2	525.2	Drinking Water	Fluoranthene
525.2	525.2	Drinking Water	Fluorene
525.2	525.2	Drinking Water	gamma-Chlordane
525.2	525.2	Drinking Water	Indeno[1,2,3-cd]pyrene
525.2	525.2	Drinking Water	Isophorone

Accreditation/Certification Summary

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

Job ID: 380-53442-1

Laboratory: Eurofins Eaton Analytical Pomona (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
525.2	525.2	Drinking Water	Malathion
525.2	525.2	Drinking Water	Molinate
525.2	525.2	Drinking Water	Naphthalene
525.2	525.2	Drinking Water	Parathion
525.2	525.2	Drinking Water	Pendimethalin (Penoxaline)
525.2	525.2	Drinking Water	Phenanthrene
525.2	525.2	Drinking Water	Pyrene
525.2	525.2	Drinking Water	Terbacil
525.2	525.2	Drinking Water	Terbutylazine
525.2	525.2	Drinking Water	Thiobencarb
525.2	525.2	Drinking Water	Total Permethrin (mixed isomers)
525.2	525.2	Drinking Water	trans-Nonachlor
525.2	525.2	Drinking Water	Trifluralin
533	533	Drinking Water	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)
533	533	Drinking Water	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)
533	533	Drinking Water	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)
533	533	Drinking Water	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)
533	533	Drinking Water	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
533	533	Drinking Water	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)
533	533	Drinking Water	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)
533	533	Drinking Water	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)
533	533	Drinking Water	Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)
533	533	Drinking Water	Perfluoro-3-methoxypropanoic acid (PFMPA)
533	533	Drinking Water	Perfluoro-4-methoxybutanoic acid (PFMBA)
533	533	Drinking Water	Perfluorobutanoic acid (PFBA)
533	533	Drinking Water	Perfluoroheptanesulfonic acid (PFHpS)
533	533	Drinking Water	Perfluoropentanesulfonic acid (PFPeS)
533	533	Drinking Water	Perfluoropentanoic acid (PFPeA)
533	533	Water	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)
533	533	Water	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)
533	533	Water	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)
533	533	Water	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)
533	533	Water	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
533	533	Water	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)

Accreditation/Certification Summary

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

Job ID: 380-53442-1

Laboratory: Eurofins Eaton Analytical Pomona (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
<u>Analysis Method</u>	<u>Prep Method</u>	<u>Matrix</u>	<u>Analyte</u>
533	533	Water	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)
533	533	Water	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)
533	533	Water	Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)
533	533	Water	Perfluoro-3-methoxypropanoic acid (PFMPA)
533	533	Water	Perfluoro-4-methoxybutanoic acid (PFMBA)
533	533	Water	Perfluorobutanoic acid (PFBA)
533	533	Water	Perfluoroheptanesulfonic acid (PFHpS)
533	533	Water	Perfluoropentanesulfonic acid (PFPeS)
533	533	Water	Perfluoropentanoic acid (PFPeA)
537.1	537.1 DW	Drinking Water	11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)
537.1	537.1 DW	Drinking Water	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
537.1	537.1 DW	Drinking Water	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)
537.1	537.1 DW	Drinking Water	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)
537.1	537.1 DW	Water	11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)
537.1	537.1 DW	Water	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
537.1	537.1 DW	Water	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)
537.1	537.1 DW	Water	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)

Method Summary

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

Job ID: 380-53442-1

Method	Method Description	Protocol	Laboratory
525.2	Semivolatile Organic Compounds (GC/MS)	EPA	EA POM
533	Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water	EPA	EA POM
537.1	Perfluorinated Alkyl Acids (LC/MS)	EPA	EA POM
525.2	Extraction of Semivolatile Compounds	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: 380-53442-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-53442-1	AIEA GULCH WELLS PUMP 2	Drinking Water	07/03/23 08:45	07/06/23 09:50	HI0000331
380-53442-2	AIEA WELLS PUMP 2 (260)	Drinking Water	07/03/23 09:20	07/06/23 09:50	HI0000331
380-53442-3	KAAMILO WELLS	Water	07/03/23 09:45	07/06/23 09:50	
380-53442-7	FB: AIEA GULCH WELLS PUMP 2	Water	07/03/23 08:45	07/06/23 09:50	
380-53442-8	FB: AIEA WELLS PUMP 2 (260)	Water	07/03/23 09:20	07/06/23 09:50	
380-53442-9	FB: KAAMILO WELLS	Water	07/03/23 09:45	07/06/23 09:50	

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Monrovia, CA (Suite 100)

750 Royal Oaks Drive Suite 100
 Monrovia, CA 91016
 Phone (626) 386-1100

Chain of Custody Record

Client Information		Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:									
Client Contact: Dr. Ron Fenstermacher		Phone: 808-748-5840	Arada, Rachelle	State of Origin:	380-27941-2757.2									
Company: City & County of Honolulu		PWSID:	E-Mail: Rachelle.Arada@et.euronisus.com	Page 1 of 2	Page 2 of 2									
Address: 630 South Beretania Street; Chemistry Lab		Analysis Requested			Job #:									
City: Honolulu		Due Date Requested:	Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No)	SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	SUBCONTRACT - 8915 Diesel LL (EAL) and Motor Oil	525.2_PREC - (MOD) 525plus PLUS TICs	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	537.1_DW_PREC - 537.1 Full List	533 - All Analytes	Total Number of containers	Preservation Codes:		
State, Zip: HI, 96843		TAT Requested (days):										A - HCL	M - Hexane	
Phone: 808-748-5091 (tel)		Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No										B - NaOH	N - None	
Email: rfenstermacher@hbws.org		PO #: C20525101 exp 05312023										C - Zn Acetate	O - AsNaO2	
Project Name: RED-HILL/HBWS sites Event Desc: RUSH Weekly Red Hill		WO #:										D - Nitric Acid	P - Na2O4S	
Site:		Project #: 38001111	E - NaHSO4	Q - Na2SO3										
SSOW#:		Project #: 38001111	F - MeOH	R - Na2S2O3										
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)	R	R	RA	RA	Y	N	Special Instructions/Note:
				Preservation Code:										
AIEA GULCH WELLS PUMP2		7/3/2023	0845	G	Water			2	4	2	2			#1- 7726 4746 4472
AIEA WELLS PUMP 2 (260)		7/3/2023	0920	G	Water			2	4	2	2			(752A) 2.8° - 0.2° = 2.6°
FB AIEA GULCH WELLS PUMP2		7/3/2023	0845		Water					2				#2- 7726 4746 5582
FB AIEA WELLS PUMP 2 (260)		7/3/2023	0920		Water					2				(752A) 3.7° - 0.2° = 3.5°
														#3- 7726 4746 5126
														(752A) 1.8° - 0.2° = 1.6°
														#4- 7726 4746 6464
														(752A) 1.5° - 0.2° = 1.3°
														#5- 7726 4746 6670
														(752A) 2.3° - 0.2° = 2.1°
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)								
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months								
Deliverable Requested: I, II, III, IV, Other (specify)						Special Instructions/QC Requirements:								
Empty Kit Relinquished by:			Date:	Time:	Method of Shipment: FED Ex 5 COOLERS ↑									
Relinquished by: [Redacted]			Date/Time: 7/3/2023 1220	Company: HBWS	Received by: G. REITNER			Date/Time: 07/06/2023 09:50	Company: EEAP					
Relinquished by: [Redacted]			Date/Time:	Company:	Received by:			Date/Time:	Company:					
Relinquished by:			Date/Time:	Company:	Received by:			Date/Time:	Company:					
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: (752A) - 0.2° CORRECTION ↑ ^{EEC} FROZEN										



Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-53442-1

Login Number: 53442
List Number: 1
Creator: Elyas, Matthew

List Source: Eurofins Eaton Analytical Pomona

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and 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	
Samples do not require splitting or compositing.	True	
Container provided by EEA	True	