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ANALYTICAL REPORT

PREPARED FOR

Attn: Mr. Erwin Kawata
City & County of Honolulu
630 South Beretania Street
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Honolulu, Hawaii 96843

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JOB DESCRIPTION

RED-HILL
RUSH Weekly Red Hill

JOB NUMBER

380-66846-1

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 meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Eaton Analytical, LLC Project Manager.

Compliance Statement

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

Authorization



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Authorized for release by
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Table of Contents

Cover Page	1
Table of Contents	3
Definitions/Glossary	4
Case Narrative	5
Detection Summary	6
Client Sample Results	7
Action Limit Summary	18
Surrogate Summary	19
Isotope Dilution Summary	21
QC Sample Results	23
QC Association Summary	55
Lab Chronicle	57
Certification Summary	58
Method Summary	61
Sample Summary	62
Chain of Custody	63
Receipt Checklists	65

Definitions/Glossary

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

Job ID: 380-66846-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
^3+	Reporting Limit Check Standard is outside acceptance limits, high biased
F1	MS and/or MSD recovery exceeds control limits.
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
F1	MS and/or MSD recovery exceeds control limits.
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.
α	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: 380-66846-1

Job ID: 380-66846-1

Laboratory: Eurofins Eaton Analytical Pomona

Narrative

**Job Narrative
380-66846-1**

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

Receipt

The samples were received on 10/12/2023 10:33 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 0.4°C, 0.7°C and 3.9°C

GC/MS Semi VOA

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

PFAS

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



Detection Summary

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

Job ID: 380-66846-1

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2
PWSID Number: HI0000331

Lab Sample ID: 380-66846-1

No Detections.

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

Lab Sample ID: 380-66846-2

No Detections.

Client Sample ID: FB AIEA WELLS PUMPS 1&2 (260) P2
PWSID Number: HI0000331

Lab Sample ID: 380-66846-5

No Detections.

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

Lab Sample ID: 380-66846-6

No Detections.

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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: 380-66846-1

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2

Lab Sample ID: 380-66846-1

Date Collected: 10/10/23 10:15

Matrix: Drinking Water

Date Received: 10/12/23 10:33

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
2,4'-DDD	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
2,4'-DDE	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
2,4'-DDT	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
2,4-Dinitrotoluene	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
2,6-Dinitrotoluene	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
2-Methylnaphthalene	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
4,4'-DDD	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
4,4'-DDE	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
4,4'-DDT	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
Acenaphthene	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
Acenaphthylene	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
Acetochlor	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
Alachlor	<0.050		0.050	ug/L		10/13/23 19:54	10/15/23 16:57	1
alpha-BHC	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
alpha-Chlordane	<0.050		0.050	ug/L		10/13/23 19:54	10/15/23 16:57	1
Anthracene	<0.020		0.020	ug/L		10/13/23 19:54	10/15/23 16:57	1
Atrazine	<0.050		0.050	ug/L		10/13/23 19:54	10/15/23 16:57	1
Benz(a)anthracene	<0.050		0.050	ug/L		10/13/23 19:54	10/15/23 16:57	1
Benzo[a]pyrene	<0.020	*+ *1	0.020	ug/L		10/13/23 19:54	10/15/23 16:57	1
Benzo[b]fluoranthene	<0.020	*+ *1	0.020	ug/L		10/13/23 19:54	10/15/23 16:57	1
Benzo[g,h,i]perylene	<0.050		0.050	ug/L		10/13/23 19:54	10/15/23 16:57	1
Benzo[k]fluoranthene	<0.020	*+ *1	0.020	ug/L		10/13/23 19:54	10/15/23 16:57	1
beta-BHC	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
Bis(2-ethylhexyl) phthalate	<0.60		0.60	ug/L		10/13/23 19:54	10/15/23 16:57	1
Bromacil	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
Butachlor	<0.050		0.050	ug/L		10/13/23 19:54	10/15/23 16:57	1
Butylbenzylphthalate	<0.50		0.50	ug/L		10/13/23 19:54	10/15/23 16:57	1
Chlorobenzilate	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
Chloroneb	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
Chlorothalonil (Draconil, Bravo)	<0.10	^3+	0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
Chlorpyrifos	<0.050		0.050	ug/L		10/13/23 19:54	10/15/23 16:57	1
Chrysene	<0.020		0.020	ug/L		10/13/23 19:54	10/15/23 16:57	1
delta-BHC	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
Di(2-ethylhexyl)adipate	<0.60		0.60	ug/L		10/13/23 19:54	10/15/23 16:57	1
Dibenz(a,h)anthracene	<0.050	*+	0.050	ug/L		10/13/23 19:54	10/15/23 16:57	1
Diclorvos (DDVP)	<0.050		0.050	ug/L		10/13/23 19:54	10/15/23 16:57	1
Dieldrin	<0.20		0.20	ug/L		10/13/23 19:54	10/15/23 16:57	1
Diethylphthalate	<0.50		0.50	ug/L		10/13/23 19:54	10/15/23 16:57	1
Dimethylphthalate	<0.50		0.50	ug/L		10/13/23 19:54	10/15/23 16:57	1
Di-n-butyl phthalate	<1.0		1.0	ug/L		10/13/23 19:54	10/15/23 16:57	1
Di-n-octyl phthalate	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
Endosulfan I (Alpha)	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
Endosulfan II (Beta)	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
Endosulfan sulfate	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
Endrin	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
Endrin aldehyde	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
EPTC	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
Fluoranthene	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1

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Client Sample Results

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

Job ID: 380-66846-1

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2

Lab Sample ID: 380-66846-1

Date Collected: 10/10/23 10:15

Matrix: Drinking Water

Date Received: 10/12/23 10:33

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	<0.050		0.050	ug/L		10/13/23 19:54	10/15/23 16:57	1
gamma-Chlordane	<0.050		0.050	ug/L		10/13/23 19:54	10/15/23 16:57	1
Heptachlor	<0.040		0.040	ug/L		10/13/23 19:54	10/15/23 16:57	1
Heptachlor epoxide (isomer B)	<0.050		0.050	ug/L		10/13/23 19:54	10/15/23 16:57	1
Hexachlorobenzene	<0.050		0.050	ug/L		10/13/23 19:54	10/15/23 16:57	1
Hexachlorocyclopentadiene	<0.050		0.050	ug/L		10/13/23 19:54	10/15/23 16:57	1
Indeno[1,2,3-cd]pyrene	<0.050	*+	0.050	ug/L		10/13/23 19:54	10/15/23 16:57	1
Isophorone	<0.50		0.50	ug/L		10/13/23 19:54	10/15/23 16:57	1
Lindane	<0.040		0.040	ug/L		10/13/23 19:54	10/15/23 16:57	1
Malathion	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
Methoxychlor	<0.10	*+	0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
Metolachlor	<0.050		0.050	ug/L		10/13/23 19:54	10/15/23 16:57	1
Molinate	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
Naphthalene	<0.30		0.30	ug/L		10/13/23 19:54	10/15/23 16:57	1
Parathion	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
Pendimethalin (Penoxaline)	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
Phenanthrene	<0.040		0.040	ug/L		10/13/23 19:54	10/15/23 16:57	1
Propachlor	<0.050		0.050	ug/L		10/13/23 19:54	10/15/23 16:57	1
Pyrene	<0.050		0.050	ug/L		10/13/23 19:54	10/15/23 16:57	1
Simazine	<0.050		0.050	ug/L		10/13/23 19:54	10/15/23 16:57	1
Terbacil	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
Terbutylazine	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1
Thiobencarb	<0.20		0.20	ug/L		10/13/23 19:54	10/15/23 16:57	1
Total Permethrin (mixed isomers)	<0.20		0.20	ug/L		10/13/23 19:54	10/15/23 16:57	1
trans-Nonachlor	<0.050		0.050	ug/L		10/13/23 19:54	10/15/23 16:57	1
Trifluralin	<0.10		0.10	ug/L		10/13/23 19:54	10/15/23 16:57	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L			N/A	10/13/23 19:54	10/15/23 16:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	108		70 - 130	10/13/23 19:54	10/15/23 16:57	1
Perylene-d12	98		70 - 130	10/13/23 19:54	10/15/23 16:57	1
Triphenylphosphate	114		70 - 130	10/13/23 19:54	10/15/23 16:57	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 14:24	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 14:24	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 14:24	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 14:24	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 14:24	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 14:24	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 14:24	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 14:24	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 14:24	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 14:24	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-66846-1

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2

Lab Sample ID: 380-66846-1

Date Collected: 10/10/23 10:15

Matrix: Drinking Water

Date Received: 10/12/23 10:33

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		10/28/23 11:47	11/01/23 14:24	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 14:24	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 14:24	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 14:24	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 14:24	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 14:24	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 14:24	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 14:24	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 14:24	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 14:24	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 14:24	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 14:24	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 14:24	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 14:24	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 14:24	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	105		50 - 200			10/28/23 11:47	11/01/23 14:24	1
13C6 PFDA	105		50 - 200			10/28/23 11:47	11/01/23 14:24	1
13C5 PFHxA	98		50 - 200			10/28/23 11:47	11/01/23 14:24	1
13C4 PFHpA	101		50 - 200			10/28/23 11:47	11/01/23 14:24	1
13C8 PFOA	102		50 - 200			10/28/23 11:47	11/01/23 14:24	1
13C9 PFNA	103		50 - 200			10/28/23 11:47	11/01/23 14:24	1
13C7 PFUnA	98		50 - 200			10/28/23 11:47	11/01/23 14:24	1
13C2 PFDoA	97		50 - 200			10/28/23 11:47	11/01/23 14:24	1
13C4 PFBA	97		50 - 200			10/28/23 11:47	11/01/23 14:24	1
13C5 PFPeA	98		50 - 200			10/28/23 11:47	11/01/23 14:24	1
13C3 PFBS	98		50 - 200			10/28/23 11:47	11/01/23 14:24	1
13C3 PFHxS	97		50 - 200			10/28/23 11:47	11/01/23 14:24	1
13C8 PFOS	100		50 - 200			10/28/23 11:47	11/01/23 14:24	1
13C2-4:2-FTS	103		50 - 200			10/28/23 11:47	11/01/23 14:24	1
13C2-6:2-FTS	107		50 - 200			10/28/23 11:47	11/01/23 14:24	1
13C2-8:2-FTS	111		50 - 200			10/28/23 11:47	11/01/23 14:24	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 05:17	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 05:17	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 05:17	1
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 05:17	1
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 05:17	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-66846-1

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2

Lab Sample ID: 380-66846-1

Date Collected: 10/10/23 10:15

Matrix: Drinking Water

Date Received: 10/12/23 10:33

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		10/18/23 08:22	10/21/23 05:17	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 05:17	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 05:17	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 05:17	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 05:17	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 05:17	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 05:17	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 05:17	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 05:17	1
Perfluorotridecanoic acid (PFTTrDA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 05:17	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 05:17	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 05:17	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 05:17	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	101		70 - 130			10/18/23 08:22	10/21/23 05:17	1
13C2 PFHxA	107		70 - 130			10/18/23 08:22	10/21/23 05:17	1
13C2 PFDA	104		70 - 130			10/18/23 08:22	10/21/23 05:17	1
13C3-GenX	100		70 - 130			10/18/23 08:22	10/21/23 05:17	1

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-66846-2

Date Collected: 10/10/23 10:45

Matrix: Drinking Water

Date Received: 10/12/23 10:33

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
2,4'-DDD	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
2,4'-DDE	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
2,4'-DDT	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
2,4-Dinitrotoluene	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
2,6-Dinitrotoluene	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
2-Methylnaphthalene	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
4,4'-DDD	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
4,4'-DDE	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
4,4'-DDT	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
Acenaphthene	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
Acenaphthylene	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
Acetochlor	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
Alachlor	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 17:17	1
alpha-BHC	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
alpha-Chlordane	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 17:17	1
Anthracene	<0.020		0.020	ug/L		10/13/23 19:54	10/15/23 17:17	1
Atrazine	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 17:17	1
Benz(a)anthracene	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 17:17	1
Benzo[a]pyrene	<0.020	*+ *1	0.020	ug/L		10/13/23 19:54	10/15/23 17:17	1
Benzo[b]fluoranthene	<0.020	*+ *1	0.020	ug/L		10/13/23 19:54	10/15/23 17:17	1
Benzo[g,h,i]perylene	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 17:17	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-66846-1

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-66846-2

Date Collected: 10/10/23 10:45

Matrix: Drinking Water

Date Received: 10/12/23 10:33

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	<0.020	*+ *1	0.020	ug/L		10/13/23 19:54	10/15/23 17:17	1
beta-BHC	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
Bis(2-ethylhexyl) phthalate	<0.59		0.59	ug/L		10/13/23 19:54	10/15/23 17:17	1
Bromacil	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
Butachlor	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 17:17	1
Butylbenzylphthalate	<0.49		0.49	ug/L		10/13/23 19:54	10/15/23 17:17	1
Chlorobenzilate	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
Chloroneb	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
Chlorothalonil (Draconil, Bravo)	<0.099	^3+	0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
Chlorpyrifos	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 17:17	1
Chrysene	<0.020		0.020	ug/L		10/13/23 19:54	10/15/23 17:17	1
delta-BHC	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
Di(2-ethylhexyl)adipate	<0.59		0.59	ug/L		10/13/23 19:54	10/15/23 17:17	1
Dibenz(a,h)an hracene	<0.049	*+	0.049	ug/L		10/13/23 19:54	10/15/23 17:17	1
Diclorvos (DDVP)	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 17:17	1
Dieldrin	<0.20		0.20	ug/L		10/13/23 19:54	10/15/23 17:17	1
Diethylphthalate	<0.49		0.49	ug/L		10/13/23 19:54	10/15/23 17:17	1
Dimethylphalate	<0.49		0.49	ug/L		10/13/23 19:54	10/15/23 17:17	1
Di-n-butyl phthalate	<0.99		0.99	ug/L		10/13/23 19:54	10/15/23 17:17	1
Di-n-octyl phthalate	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
Endosulfan I (Alpha)	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
Endosulfan II (Beta)	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
Endosulfan sulfate	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
Endrin	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
Endrin aldehyde	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
EPTC	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
Fluoranthene	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
Fluorene	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 17:17	1
gamma-Chlordane	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 17:17	1
Heptachlor	<0.039		0.039	ug/L		10/13/23 19:54	10/15/23 17:17	1
Heptachlor epoxide (isomer B)	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 17:17	1
Hexachlorobenzene	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 17:17	1
Hexachlorocyclopentadiene	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 17:17	1
Indeno[1,2,3-cd]pyrene	<0.049	*+	0.049	ug/L		10/13/23 19:54	10/15/23 17:17	1
Isophorone	<0.49		0.49	ug/L		10/13/23 19:54	10/15/23 17:17	1
Lindane	<0.039		0.039	ug/L		10/13/23 19:54	10/15/23 17:17	1
Malathion	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
Methoxychlor	<0.099	*+	0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
Metolachlor	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 17:17	1
Molinate	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
Naphthalene	<0.30		0.30	ug/L		10/13/23 19:54	10/15/23 17:17	1
Parathion	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
Pendimethalin (Penoxaline)	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
Phenanthrene	<0.039		0.039	ug/L		10/13/23 19:54	10/15/23 17:17	1
Propachlor	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 17:17	1
Pyrene	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 17:17	1
Simazine	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 17:17	1
Terbacil	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1
Terbutylazine	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-66846-1

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-66846-2

Date Collected: 10/10/23 10:45

Matrix: Drinking Water

Date Received: 10/12/23 10:33

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Thiobencarb	<0.20		0.20	ug/L		10/13/23 19:54	10/15/23 17:17	1
Total Permethrin (mixed isomers)	<0.20		0.20	ug/L		10/13/23 19:54	10/15/23 17:17	1
trans-Nonachlor	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 17:17	1
Trifluralin	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 17:17	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L			N/A	10/13/23 19:54	10/15/23 17:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	113		70 - 130	10/13/23 19:54	10/15/23 17:17	1
Perylene-d12	121		70 - 130	10/13/23 19:54	10/15/23 17:17	1
Triphenylphosphate	100		70 - 130	10/13/23 19:54	10/15/23 17:17	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 13:27	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 13:27	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 13:27	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 13:27	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 13:27	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 13:27	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 13:27	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 13:27	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 13:27	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 13:27	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 13:27	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 13:27	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 13:27	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 13:27	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 13:27	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 13:27	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 13:27	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 13:27	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 13:27	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 13:27	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 13:27	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 13:27	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 13:27	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 13:27	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		10/28/23 11:47	11/01/23 13:27	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-66846-1

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-66846-2

Date Collected: 10/10/23 10:45

Matrix: Drinking Water

Date Received: 10/12/23 10:33

PWSID Number: HI0000331

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	89		50 - 200	10/28/23 11:47	11/01/23 13:27	1
13C6 PFDA	98		50 - 200	10/28/23 11:47	11/01/23 13:27	1
13C5 PFHxA	95		50 - 200	10/28/23 11:47	11/01/23 13:27	1
13C4 PFHpA	96		50 - 200	10/28/23 11:47	11/01/23 13:27	1
13C8 PFOA	97		50 - 200	10/28/23 11:47	11/01/23 13:27	1
13C9 PFNA	100		50 - 200	10/28/23 11:47	11/01/23 13:27	1
13C7 PFUnA	94		50 - 200	10/28/23 11:47	11/01/23 13:27	1
13C2 PFDoA	95		50 - 200	10/28/23 11:47	11/01/23 13:27	1
13C4 PFBA	93		50 - 200	10/28/23 11:47	11/01/23 13:27	1
13C5 PFPeA	94		50 - 200	10/28/23 11:47	11/01/23 13:27	1
13C3 PFBS	91		50 - 200	10/28/23 11:47	11/01/23 13:27	1
13C3 PFHxS	91		50 - 200	10/28/23 11:47	11/01/23 13:27	1
13C8 PFOS	95		50 - 200	10/28/23 11:47	11/01/23 13:27	1
13C2-4:2-FTS	102		50 - 200	10/28/23 11:47	11/01/23 13:27	1
13C2-6:2-FTS	102		50 - 200	10/28/23 11:47	11/01/23 13:27	1
13C2-8:2-FTS	104		50 - 200	10/28/23 11:47	11/01/23 13:27	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:04	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:04	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:04	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:04	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:04	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:04	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:04	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:04	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:04	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:04	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:04	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:04	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:04	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:04	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:04	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:04	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:04	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	94		70 - 130	10/18/23 08:22	10/21/23 08:04	1
13C2 PFHxA	104		70 - 130	10/18/23 08:22	10/21/23 08:04	1
13C2 PFDA	102		70 - 130	10/18/23 08:22	10/21/23 08:04	1
13C3-GenX	96		70 - 130	10/18/23 08:22	10/21/23 08:04	1

Client Sample Results

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

Job ID: 380-66846-1

Client Sample ID: FB AIEA WELLS PUMPS 1&2 (260) P2

Lab Sample ID: 380-66846-5

Date Collected: 10/10/23 10:15

Matrix: Water

Date Received: 10/12/23 10:33

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:41	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:41	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:41	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:41	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:41	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:41	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:41	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:41	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:41	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:41	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:41	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:41	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:41	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:41	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:41	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:41	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:41	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:41	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:41	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:41	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:41	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:41	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:41	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:41	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:41	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	85		50 - 200	10/29/23 12:52	11/02/23 01:41	1
13C6 PFDA	98		50 - 200	10/29/23 12:52	11/02/23 01:41	1
13C5 PFHxA	97		50 - 200	10/29/23 12:52	11/02/23 01:41	1
13C4 PFHpA	99		50 - 200	10/29/23 12:52	11/02/23 01:41	1
13C8 PFOA	100		50 - 200	10/29/23 12:52	11/02/23 01:41	1
13C9 PFNA	106		50 - 200	10/29/23 12:52	11/02/23 01:41	1
13C7 PFUnA	94		50 - 200	10/29/23 12:52	11/02/23 01:41	1
13C2 PFDoA	96		50 - 200	10/29/23 12:52	11/02/23 01:41	1
13C4 PFBA	104		50 - 200	10/29/23 12:52	11/02/23 01:41	1
13C5 PFPeA	104		50 - 200	10/29/23 12:52	11/02/23 01:41	1
13C3 PFBS	96		50 - 200	10/29/23 12:52	11/02/23 01:41	1
13C3 PFHxS	98		50 - 200	10/29/23 12:52	11/02/23 01:41	1
13C8 PFOS	94		50 - 200	10/29/23 12:52	11/02/23 01:41	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-66846-1

Client Sample ID: FB AIEA WELLS PUMPS 1&2 (260) P2

Lab Sample ID: 380-66846-5

Date Collected: 10/10/23 10:15

Matrix: Water

Date Received: 10/12/23 10:33

PWSID Number: HI0000331

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2-4:2-FTS	101		50 - 200	10/29/23 12:52	11/02/23 01:41	1
13C2-6:2-FTS	122		50 - 200	10/29/23 12:52	11/02/23 01:41	1
13C2-8:2-FTS	106		50 - 200	10/29/23 12:52	11/02/23 01:41	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:14	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:14	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:14	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:14	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:14	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:14	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:14	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:14	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:14	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:14	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:14	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:14	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:14	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:14	1
Perfluorotridecanoic acid (PFTTrDA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:14	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:14	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:14	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	91		70 - 130	10/18/23 08:22	10/21/23 08:14	1
13C2 PFHxA	93		70 - 130	10/18/23 08:22	10/21/23 08:14	1
13C2 PFDA	100		70 - 130	10/18/23 08:22	10/21/23 08:14	1
13C3-GenX	86		70 - 130	10/18/23 08:22	10/21/23 08:14	1

Client Sample ID: FB AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-66846-6

Date Collected: 10/10/23 10:45

Matrix: Water

Date Received: 10/12/23 10:33

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:51	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:51	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:51	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:51	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:51	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:51	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-66846-1

Client Sample ID: FB AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-66846-6

Date Collected: 10/10/23 10:45

Matrix: Water

Date Received: 10/12/23 10:33

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
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:51	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:51	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:51	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:51	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:51	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:51	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:51	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:51	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:51	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:51	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:51	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:51	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:51	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:51	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:51	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:51	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:51	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:51	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 01:51	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	80		50 - 200			10/29/23 12:52	11/02/23 01:51	1
13C6 PFDA	100		50 - 200			10/29/23 12:52	11/02/23 01:51	1
13C5 PFHxA	93		50 - 200			10/29/23 12:52	11/02/23 01:51	1
13C4 PFHpA	96		50 - 200			10/29/23 12:52	11/02/23 01:51	1
13C8 PFOA	108		50 - 200			10/29/23 12:52	11/02/23 01:51	1
13C9 PFNA	111		50 - 200			10/29/23 12:52	11/02/23 01:51	1
13C7 PFUnA	97		50 - 200			10/29/23 12:52	11/02/23 01:51	1
13C2 PFDoA	97		50 - 200			10/29/23 12:52	11/02/23 01:51	1
13C4 PFBA	107		50 - 200			10/29/23 12:52	11/02/23 01:51	1
13C5 PFPeA	108		50 - 200			10/29/23 12:52	11/02/23 01:51	1
13C3 PFBS	97		50 - 200			10/29/23 12:52	11/02/23 01:51	1
13C3 PFHxS	95		50 - 200			10/29/23 12:52	11/02/23 01:51	1
13C8 PFOS	97		50 - 200			10/29/23 12:52	11/02/23 01:51	1
13C2-4:2-FTS	108		50 - 200			10/29/23 12:52	11/02/23 01:51	1
13C2-6:2-FTS	116		50 - 200			10/29/23 12:52	11/02/23 01:51	1
13C2-8:2-FTS	111		50 - 200			10/29/23 12:52	11/02/23 01:51	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:24	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:24	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:24	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-66846-1

Client Sample ID: FB AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-66846-6

Date Collected: 10/10/23 10:45

Matrix: Water

Date Received: 10/12/23 10:33

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:24	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:24	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:24	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:24	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:24	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:24	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:24	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:24	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:24	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:24	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:24	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:24	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:24	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:24	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:24	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	88		70 - 130			10/18/23 08:22	10/21/23 08:24	1
13C2 PFHxA	102		70 - 130			10/18/23 08:22	10/21/23 08:24	1
13C2 PFDA	105		70 - 130			10/18/23 08:22	10/21/23 08:24	1
13C3-GenX	95		70 - 130			10/18/23 08:22	10/21/23 08:24	1

Action Limit Summary

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

Job ID: 380-66846-1

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2

Lab Sample ID: 380-66846-1

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	<0.050		ug/L	2	0.050	525.2	Total/NA
Atrazine	<0.050		ug/L	3	0.050	525.2	Total/NA
Benzo[a]pyrene	<0.020	*+ *1	ug/L	0.2	0.020	525.2	Total/NA
Bis(2-ethylhexyl) phthalate	<0.60		ug/L	6	0.60	525.2	Total/NA
Di(2-ethylhexyl)adipate	<0.60		ug/L	400	0.60	525.2	Total/NA
Endrin	<0.10		ug/L	2	0.10	525.2	Total/NA
Heptachlor	<0.040		ug/L	0.4	0.040	525.2	Total/NA
Heptachlor epoxide (isomer B)	<0.050		ug/L	0.2	0.050	525.2	Total/NA
Hexachlorobenzene	<0.050		ug/L	1	0.050	525.2	Total/NA
Hexachlorocyclopentadiene	<0.050		ug/L	50	0.050	525.2	Total/NA
Lindane	<0.040		ug/L	0.2	0.040	525.2	Total/NA
Methoxychlor	<0.10	*+	ug/L	40	0.10	525.2	Total/NA
Simazine	<0.050		ug/L	4	0.050	525.2	Total/NA

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-66846-2

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	<0.020	*+ *1	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		ug/L	400	0.59	525.2	Total/NA
Endrin	<0.099		ug/L	2	0.099	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	<0.099	*+	ug/L	40	0.099	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: 380-66846-1

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)
380-66846-1	AIEA WELLS PUMPS 1&2 (260) P2	108	98	114
380-66846-2	AIEA GULCH WELLS PUMP 2	113	121	100

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)
380-66107-BY-1-A MS	Matrix Spike	102	92	128
380-66250-BX-1-A DU	Duplicate	106	103	87
LCS 380-59411/23-A	Lab Control Sample	99	96	89
LCSD 380-59411/24-A	Lab Control Sample Dup	101	118	84
MB 380-59411/21-A	Method Blank	103	109	83
MRL 380-59411/22-A	Lab Control Sample	102	98	106

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)
380-66846-1	AIEA WELLS PUMPS 1&2 (260) P2	101	107	104	100
380-66846-1 MS	AIEA WELLS PUMPS 1&2 (260) P2	88	101	104	94
380-66846-1 MSD	AIEA WELLS PUMPS 1&2 (260) P2	98	115	109	103
380-66846-2	AIEA GULCH WELLS PUMP 2	94	104	102	96

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)
380-66846-5	FB AIEA WELLS PUMPS 1&2 (260)	91	93	100	86

Surrogate Summary

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

Job ID: 380-66846-1

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

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)
380-66846-6	FB AIEA GULCH WELLS PUMP 2	88	102	105	95
LCS 380-59976/25-A	Lab Control Sample	97	110	109	102
LCSD 380-59976/26-A	Lab Control Sample Dup	96	101	101	94
MBL 380-59976/23-A	Method Blank	89	107	98	92
MRL 380-59976/24-A	Lab Control Sample	88	96	98	85

Surrogate Legend

d5NEFOS = d5-NEtFOSAA

PFHxA = 13C2 PFHxA

PFDA = 13C2 PFDA

GenX = 13C3-GenX

Isotope Dilution Summary

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

Job ID: 380-66846-1

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)
380-66846-1	AIEA WELLS PUMPS 1&2 (260) P2	105	105	98	101	102	103	98	97
380-66846-2	AIEA GULCH WELLS PUMP 2	89	98	95	96	97	100	94	95

		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)
380-66846-1	AIEA WELLS PUMPS 1&2 (260) P2	97	98	98	97	100	103	107	111
380-66846-2	AIEA GULCH WELLS PUMP 2	93	94	91	91	95	102	102	104

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)
380-66590-B-1-A MS	Matrix Spike	98	99	82	82	90	97	95	97
380-66590-C-1-A MSD	Matrix Spike Duplicate	103	103	85	86	97	97	99	100
380-66846-5	FB AIEA WELLS PUMPS 1&2 (260) P2	85	98	97	99	100	106	94	96
380-66846-6	FB AIEA GULCH WELLS PUMP 2	80	100	93	96	108	111	97	97
380-66857-O-1-A MS	Matrix Spike	70	90	79	82	88	95	90	87
380-66857-P-1-A MSD	Matrix Spike Duplicate	82	92	89	91	94	99	89	89
LCS 380-61463/23-A	Lab Control Sample	94	97	93	92	95	96	94	97
LCS 380-61498/21-A	Lab Control Sample	88	97	97	98	96	103	94	94
LCSD 380-61463/24-A	Lab Control Sample Dup	103	107	102	99	101	100	100	99
LCSD 380-61498/22-A	Lab Control Sample Dup	89	97	96	96	101	108	99	97
MBL 380-61463/21-A	Method Blank	87	98	94	96	97	96	97	95
MBL 380-61498/19-A	Method Blank	78	96	96	96	102	107	91	91
MRL 380-61463/22-A	Lab Control Sample	92	100	97	96	97	99	97	97
MRL 380-61498/20-A	Lab Control Sample	82	100	94	105	104	110	96	97

Isotope Dilution Summary

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

Job ID: 380-66846-1

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

Matrix: Water

Prep Type: Total/NA

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)
380-66590-B-1-A MS	Matrix Spike	94	155	89	96	101	112	122	123
380-66590-C-1-A MSD	Matrix Spike Duplicate	96	148	90	97	100	116	114	123
380-66846-5	FB AIEA WELLS PUMPS 1&2 (260) P2	104	104	96	98	94	101	122	106
380-66846-6	FB AIEA GULCH WELLS PUMP 2	107	108	97	95	97	108	116	111
380-66857-O-1-A MS	Matrix Spike	89	94	94	100	96	97	109	110
380-66857-P-1-A MSD	Matrix Spike Duplicate	101	113	100	101	100	102	106	106
LCS 380-61463/23-A	Lab Control Sample	93	95	91	92	97	97	98	105
LCS 380-61498/21-A	Lab Control Sample	98	105	101	100	99	106	111	108
LCSD 380-61463/24-A	Lab Control Sample Dup	96	100	96	97	101	102	106	107
LCSD 380-61498/22-A	Lab Control Sample Dup	103	103	97	98	96	97	106	110
MBL 380-61463/21-A	Method Blank	98	98	96	95	94	100	107	111
MBL 380-61498/19-A	Method Blank	105	110	97	102	100	107	126	122
MRL 380-61463/22-A	Lab Control Sample	89	88	94	96	97	99	99	110
MRL 380-61498/20-A	Lab Control Sample	107	111	101	104	103	110	127	111

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: 380-66846-1

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

Lab Sample ID: MB 380-59411/21-A

Matrix: Water

Analysis Batch: 59458

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 59411

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
1-Methylnaphthalene	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
2,4'-DDD	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
2,4'-DDE	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
2,4'-DDT	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
2,4-Dinitrotoluene	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
2,6-Dinitrotoluene	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
2-Methylnaphthalene	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
4,4'-DDD	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
4,4'-DDE	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
4,4'-DDT	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
Acenaphthene	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
Acenaphthylene	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
Acetochlor	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
Alachlor	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 11:55	1
alpha-BHC	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
alpha-Chlordane	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 11:55	1
Anthracene	<0.020		0.020	ug/L		10/13/23 19:54	10/15/23 11:55	1
Atrazine	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 11:55	1
Benz(a)anthracene	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 11:55	1
Benzo[a]pyrene	<0.020		0.020	ug/L		10/13/23 19:54	10/15/23 11:55	1
Benzo[b]fluoranthene	<0.020		0.020	ug/L		10/13/23 19:54	10/15/23 11:55	1
Benzo[g,h,i]perylene	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 11:55	1
Benzo[k]fluoranthene	<0.020		0.020	ug/L		10/13/23 19:54	10/15/23 11:55	1
beta-BHC	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
Bis(2-ethylhexyl) phthalate	<0.59		0.59	ug/L		10/13/23 19:54	10/15/23 11:55	1
Bromacil	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
Butachlor	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 11:55	1
Butylbenzylphthalate	<0.49		0.49	ug/L		10/13/23 19:54	10/15/23 11:55	1
Chlorobenzilate	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
Chloroneb	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
Chlorothalonil (Draconil, Bravo)	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
Chlorpyrifos	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 11:55	1
Chrysene	<0.020		0.020	ug/L		10/13/23 19:54	10/15/23 11:55	1
delta-BHC	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
Di(2-ethylhexyl)adipate	<0.59		0.59	ug/L		10/13/23 19:54	10/15/23 11:55	1
Dibenz(a,h)anthracene	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 11:55	1
Diclorvos (DDVP)	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 11:55	1
Dieldrin	<0.20		0.20	ug/L		10/13/23 19:54	10/15/23 11:55	1
Diethylphthalate	<0.49		0.49	ug/L		10/13/23 19:54	10/15/23 11:55	1
Dimethylphthalate	<0.49		0.49	ug/L		10/13/23 19:54	10/15/23 11:55	1
Di-n-butyl phthalate	<0.99		0.99	ug/L		10/13/23 19:54	10/15/23 11:55	1
Di-n-octyl phthalate	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
Endosulfan I (Alpha)	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
Endosulfan II (Beta)	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
Endosulfan sulfate	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
Endrin	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
Endrin aldehyde	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
EPTC	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1

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QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: MB 380-59411/21-A

Matrix: Water

Analysis Batch: 59458

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 59411

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Fluoranthene	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
Fluorene	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 11:55	1
gamma-Chlordane	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 11:55	1
Heptachlor	<0.040		0.040	ug/L		10/13/23 19:54	10/15/23 11:55	1
Heptachlor epoxide (isomer B)	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 11:55	1
Hexachlorobenzene	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 11:55	1
Hexachlorocyclopentadiene	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 11:55	1
Indeno[1,2,3-cd]pyrene	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 11:55	1
Isophorone	<0.49		0.49	ug/L		10/13/23 19:54	10/15/23 11:55	1
Lindane	<0.040		0.040	ug/L		10/13/23 19:54	10/15/23 11:55	1
Malathion	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
Methoxychlor	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
Metolachlor	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 11:55	1
Molinate	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
Naphthalene	<0.30		0.30	ug/L		10/13/23 19:54	10/15/23 11:55	1
Parathion	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
Pendimethalin (Penoxaline)	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
Phenanthrene	<0.040		0.040	ug/L		10/13/23 19:54	10/15/23 11:55	1
Propachlor	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 11:55	1
Pyrene	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 11:55	1
Simazine	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 11:55	1
Terbacil	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
Terbutylazine	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1
Thiobencarb	<0.20		0.20	ug/L		10/13/23 19:54	10/15/23 11:55	1
Total Permethrin (mixed isomers)	<0.20		0.20	ug/L		10/13/23 19:54	10/15/23 11:55	1
trans-Nonachlor	<0.049		0.049	ug/L		10/13/23 19:54	10/15/23 11:55	1
Trifluralin	<0.099		0.099	ug/L		10/13/23 19:54	10/15/23 11:55	1

Tentatively Identified Compound	MB	MB	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
	Est. Result	Qualifier							
Tetradecanoic acid	1.40	T J N	ug/L		5.78	544-63-8	10/13/23 19:54	10/15/23 11:55	1
Octadecanoic acid	0.584	T J N	ug/L		6.46	57-11-4	10/13/23 19:54	10/15/23 11:55	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2-Nitro-m-xylene	103		70 - 130	10/13/23 19:54	10/15/23 11:55	1
Perylene-d12	109		70 - 130	10/13/23 19:54	10/15/23 11:55	1
Triphenylphosphate	83		70 - 130	10/13/23 19:54	10/15/23 11:55	1

Lab Sample ID: LCS 380-59411/23-A

Matrix: Water

Analysis Batch: 59458

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 59411

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1-Methylnaphthalene	1.97	2.03		ug/L		103	70 - 130
2,4'-DDD	1.97	1.61		ug/L		81	70 - 130
2,4'-DDE	1.97	1.80		ug/L		91	70 - 130
2,4'-DDT	1.97	1.92		ug/L		97	70 - 130
2,4-Dinitrotoluene	1.97	1.86		ug/L		94	70 - 130
2,6-Dinitrotoluene	1.97	1.82		ug/L		92	70 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: LCS 380-59411/23-A

Matrix: Water

Analysis Batch: 59458

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 59411

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
2-Methylnaphthalene	1.97	2.10		ug/L		107	70 - 130
4,4'-DDD	1.97	2.12		ug/L		107	70 - 130
4,4'-DDE	1.97	1.61		ug/L		82	70 - 130
4,4'-DDT	1.97	1.87		ug/L		95	70 - 130
Acenaphthene	1.97	2.00		ug/L		101	70 - 130
Acenaphthylene	1.97	2.09		ug/L		106	70 - 130
Acetochlor	1.97	2.16		ug/L		109	70 - 130
Alachlor	1.97	2.12		ug/L		107	70 - 130
alpha-BHC	1.97	2.21		ug/L		112	70 - 130
alpha-Chlordane	1.97	1.66		ug/L		84	70 - 130
Anthracene	1.97	2.08		ug/L		105	70 - 130
Atrazine	1.97	2.40		ug/L		122	70 - 130
Benz(a)anthracene	1.97	1.65		ug/L		83	70 - 130
Benzo[a]pyrene	1.97	2.22		ug/L		113	70 - 130
Benzo[b]fluoranthene	1.97	2.17		ug/L		110	70 - 130
Benzo[g,h,i]perylene	1.97	2.34		ug/L		118	70 - 130
Benzo[k]fluoranthene	1.97	2.20		ug/L		112	70 - 130
beta-BHC	1.97	2.33		ug/L		118	70 - 130
Bis(2-ethylhexyl) phthalate	1.97	2.49		ug/L		126	70 - 130
Bromacil	1.97	1.74		ug/L		88	70 - 130
Butachlor	1.97	2.01		ug/L		102	70 - 130
Butylbenzylphthalate	1.97	2.09		ug/L		106	70 - 130
Chlorobenzilate	1.97	2.07		ug/L		105	70 - 130
Chloroneb	1.97	2.14		ug/L		108	70 - 130
Chlorothalonil (Draconil, Bravo)	1.97	1.81		ug/L		92	70 - 130
Chlorpyrifos	1.97	1.95		ug/L		99	70 - 130
Chrysene	1.97	2.09		ug/L		106	70 - 130
delta-BHC	1.97	1.69		ug/L		86	70 - 130
Di(2-ethylhexyl)adipate	1.97	2.13		ug/L		108	70 - 130
Dibenz(a,h)anthracene	1.97	2.53		ug/L		128	70 - 130
Diclorvos (DDVP)	1.97	2.20		ug/L		112	70 - 130
Dieldrin	1.97	1.72		ug/L		87	70 - 130
Diethylphthalate	1.97	2.21		ug/L		112	70 - 130
Dimethylphthalate	1.97	2.13		ug/L		108	70 - 130
Di-n-butyl phthalate	3.94	3.67		ug/L		93	70 - 130
Di-n-octyl phthalate	1.97	1.75		ug/L		89	70 - 130
Endosulfan I (Alpha)	1.97	1.68		ug/L		85	70 - 130
Endosulfan II (Beta)	1.97	1.97		ug/L		100	70 - 130
Endosulfan sulfate	1.97	1.93		ug/L		98	70 - 130
Endrin	1.97	1.93		ug/L		98	70 - 130
Endrin aldehyde	1.97	1.57		ug/L		80	70 - 130
EPTC	1.97	2.21		ug/L		112	70 - 130
Fluoranthene	1.97	2.04		ug/L		103	70 - 130
Fluorene	1.97	2.17		ug/L		110	70 - 130
gamma-Chlordane	1.97	2.02		ug/L		102	70 - 130
Heptachlor	1.97	1.87		ug/L		95	70 - 130
Heptachlor epoxide (isomer B)	1.97	1.99		ug/L		101	70 - 130
Hexachlorobenzene	1.97	2.07		ug/L		105	70 - 130
Hexachlorocyclopentadiene	1.97	2.08		ug/L		105	70 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: LCS 380-59411/23-A

Matrix: Water

Analysis Batch: 59458

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 59411

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Indeno[1,2,3-cd]pyrene	1.97	2.68	*+	ug/L		136	70 - 130
Isophorone	1.97	2.17		ug/L		110	70 - 130
Lindane	1.97	2.40		ug/L		122	70 - 130
Malathion	1.97	1.80		ug/L		91	70 - 130
Methoxychlor	1.97	2.98	*+	ug/L		151	70 - 130
Metolachlor	1.97	1.95		ug/L		99	70 - 130
Molinate	1.97	2.25		ug/L		114	70 - 130
Naphthalene	1.97	1.94		ug/L		98	70 - 130
Parathion	1.97	2.06		ug/L		104	70 - 130
Pendimethalin (Penoxaline)	1.97	1.81		ug/L		92	70 - 130
Phenanthrene	1.97	2.07		ug/L		105	70 - 130
Propachlor	1.97	2.34		ug/L		119	70 - 130
Pyrene	1.97	1.78		ug/L		90	70 - 130
Simazine	1.97	2.41		ug/L		122	70 - 130
Terbacil	1.97	2.19		ug/L		111	70 - 130
Terbutylazine	1.97	2.28		ug/L		115	70 - 130
Thiobencarb	1.97	2.08		ug/L		105	70 - 130
trans-Nonachlor	1.97	1.64		ug/L		83	70 - 130
Trifluralin	1.97	2.01		ug/L		102	70 - 130

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
2-Nitro-m-xylene	99		70 - 130
Perylene-d12	96		70 - 130
Triphenylphosphate	89		70 - 130

Lab Sample ID: LCSD 380-59411/24-A

Matrix: Water

Analysis Batch: 59458

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 59411

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	
								RPD	Limit
1-Methylnaphthalene	1.97	2.05		ug/L		104	70 - 130	1	20
2,4'-DDD	1.97	1.80		ug/L		91	70 - 130	11	20
2,4'-DDE	1.97	1.99		ug/L		101	70 - 130	10	20
2,4'-DDT	1.97	2.02		ug/L		102	70 - 130	5	20
2,4-Dinitrotoluene	1.97	1.84		ug/L		93	70 - 130	1	20
2,6-Dinitrotoluene	1.97	1.78		ug/L		90	70 - 130	2	20
2-Methylnaphthalene	1.97	2.16		ug/L		109	70 - 130	3	20
4,4'-DDD	1.97	1.81		ug/L		92	70 - 130	16	20
4,4'-DDE	1.97	1.71		ug/L		87	70 - 130	6	20
4,4'-DDT	1.97	1.76		ug/L		89	70 - 130	6	20
Acenaphthene	1.97	2.00		ug/L		101	70 - 130	0	20
Acenaphthylene	1.97	2.05		ug/L		104	70 - 130	2	20
Acetochlor	1.97	2.18		ug/L		110	70 - 130	1	20
Alachlor	1.97	1.96		ug/L		99	70 - 130	8	20
alpha-BHC	1.97	2.25		ug/L		114	70 - 130	2	20
alpha-Chlordane	1.97	1.72		ug/L		87	70 - 130	3	20
Anthracene	1.97	2.04		ug/L		103	70 - 130	2	20
Atrazine	1.97	2.49		ug/L		126	70 - 130	4	20

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: LCSD 380-59411/24-A

Matrix: Water

Analysis Batch: 59458

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 59411

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
Benz(a)anthracene	1.97	1.70		ug/L		86	70 - 130	3	20	
Benzo[a]pyrene	1.97	2.82	*+ *1	ug/L		143	70 - 130	24	20	
Benzo[b]fluoranthene	1.97	2.75	*+ *1	ug/L		139	70 - 130	23	20	
Benzo[g,h,i]perylene	1.97	2.40		ug/L		122	70 - 130	3	20	
Benzo[k]fluoranthene	1.97	2.85	*+ *1	ug/L		145	70 - 130	26	20	
beta-BHC	1.97	2.34		ug/L		119	70 - 130	1	20	
Bis(2-ethylhexyl) phthalate	1.97	2.13		ug/L		108	70 - 130	16	20	
Bromacil	1.97	2.04		ug/L		103	70 - 130	16	20	
Butachlor	1.97	2.19		ug/L		111	70 - 130	9	20	
Butylbenzylphthalate	1.97	1.84		ug/L		93	70 - 130	13	20	
Chlorobenzilate	1.97	2.17		ug/L		110	70 - 130	5	20	
Chloroneb	1.97	2.14		ug/L		109	70 - 130	0	20	
Chlorothalonil (Draconil, Bravo)	1.97	2.16		ug/L		109	70 - 130	17	20	
Chlorpyrifos	1.97	2.09		ug/L		106	70 - 130	7	20	
Chrysene	1.97	2.12		ug/L		107	70 - 130	1	20	
delta-BHC	1.97	2.04		ug/L		103	70 - 130	19	20	
Di(2-ethylhexyl)adipate	1.97	1.90		ug/L		97	70 - 130	11	20	
Dibenz(a,h)anthracene	1.97	2.63	*+	ug/L		133	70 - 130	4	20	
Diclorvos (DDVP)	1.97	2.25		ug/L		114	70 - 130	2	20	
Dieldrin	1.97	2.05		ug/L		104	70 - 130	18	20	
Diethylphthalate	1.97	2.24		ug/L		113	70 - 130	1	20	
Dimethylphthalate	1.97	2.14		ug/L		108	70 - 130	0	20	
Di-n-butyl phthalate	3.94	4.23		ug/L		107	70 - 130	14	20	
Di-n-octyl phthalate	1.97	1.75		ug/L		89	70 - 130	0	20	
Endosulfan I (Alpha)	1.97	1.70		ug/L		86	70 - 130	1	20	
Endosulfan II (Beta)	1.97	1.75		ug/L		89	70 - 130	12	20	
Endosulfan sulfate	1.97	1.76		ug/L		89	70 - 130	9	20	
Endrin	1.97	2.17		ug/L		110	70 - 130	12	20	
Endrin aldehyde	1.97	1.46		ug/L		74	70 - 130	8	20	
EPTC	1.97	2.23		ug/L		113	70 - 130	1	20	
Fluoranthene	1.97	2.14		ug/L		108	70 - 130	5	20	
Fluorene	1.97	2.18		ug/L		111	70 - 130	1	20	
gamma-Chlordane	1.97	2.12		ug/L		108	70 - 130	5	20	
Heptachlor	1.97	2.11		ug/L		107	70 - 130	12	20	
Heptachlor epoxide (isomer B)	1.97	1.96		ug/L		99	70 - 130	1	20	
Hexachlorobenzene	1.97	2.08		ug/L		106	70 - 130	0	20	
Hexachlorocyclopentadiene	1.97	2.07		ug/L		105	70 - 130	1	20	
Indeno[1,2,3-cd]pyrene	1.97	2.76	*+	ug/L		140	70 - 130	3	20	
Isophorone	1.97	2.23		ug/L		113	70 - 130	3	20	
Lindane	1.97	2.42		ug/L		123	70 - 130	1	20	
Malathion	1.97	2.02		ug/L		102	70 - 130	12	20	
Methoxychlor	1.97	2.48		ug/L		125	70 - 130	19	20	
Metolachlor	1.97	2.10		ug/L		106	70 - 130	7	20	
Molinate	1.97	2.23		ug/L		113	70 - 130	1	20	
Naphthalene	1.97	1.98		ug/L		101	70 - 130	2	20	
Parathion	1.97	2.01		ug/L		102	70 - 130	2	20	
Pendimethalin (Penoxaline)	1.97	1.86		ug/L		94	70 - 130	3	20	
Phenanthrene	1.97	2.01		ug/L		102	70 - 130	3	20	
Propachlor	1.97	2.36		ug/L		120	70 - 130	1	20	

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: LCSD 380-59411/24-A

Matrix: Water

Analysis Batch: 59458

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 59411

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Pyrene	1.97	1.90		ug/L		96	70 - 130	6	20	
Simazine	1.97	2.49		ug/L		126	70 - 130	3	20	
Terbacil	1.97	2.22		ug/L		112	70 - 130	1	20	
Terbutylazine	1.97	2.36		ug/L		120	70 - 130	4	20	
Thiobencarb	1.97	2.09		ug/L		106	70 - 130	1	20	
trans-Nonachlor	1.97	1.72		ug/L		87	70 - 130	5	20	
Trifluralin	1.97	2.03		ug/L		103	70 - 130	1	20	

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
2-Nitro-m-xylene	101		70 - 130
Perylene-d12	118		70 - 130
Triphenylphosphate	84		70 - 130

Lab Sample ID: MRL 380-59411/22-A

Matrix: Water

Analysis Batch: 59458

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 59411

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec	
							Limits	RPD
1-Methylnaphthalene	0.0987	0.114		ug/L		116	50 - 150	
2,4'-DDD	0.0987	0.129		ug/L		131	50 - 150	
2,4'-DDE	0.0987	0.0867	J	ug/L		88	50 - 150	
2,4'-DDT	0.0987	0.0905	J	ug/L		92	50 - 150	
2,4-Dinitrotoluene	0.0987	0.100		ug/L		102	50 - 150	
2,6-Dinitrotoluene	0.0987	0.104		ug/L		105	50 - 150	
2-Methylnaphthalene	0.0987	0.112		ug/L		113	50 - 150	
4,4'-DDD	0.0987	0.0977	J	ug/L		99	50 - 150	
4,4'-DDE	0.0987	0.0768	J	ug/L		78	50 - 150	
4,4'-DDT	0.0987	0.104		ug/L		106	50 - 150	
Acenaphthene	0.0987	0.100		ug/L		101	50 - 150	
Acenaphthylene	0.0987	0.0956	J	ug/L		97	50 - 150	
Acetochlor	0.0493	0.0472	J	ug/L		96	50 - 150	
Alachlor	0.0493	0.0514		ug/L		104	50 - 150	
alpha-BHC	0.0987	0.109		ug/L		110	50 - 150	
alpha-Chlordane	0.0247	<0.029		ug/L		82	50 - 150	
Anthracene	0.0197	0.0211		ug/L		107	50 - 150	
Atrazine	0.0493	0.0542		ug/L		110	50 - 150	
Benz(a)anthracene	0.0493	0.0413	J	ug/L		84	50 - 150	
Benzo[a]pyrene	0.0197	0.0204		ug/L		104	50 - 150	
Benzo[b]fluoranthene	0.0197	0.0185	J	ug/L		94	50 - 150	
Benzo[g,h,i]perylene	0.0493	0.0642		ug/L		130	50 - 150	
Benzo[k]fluoranthene	0.0197	0.0174	J	ug/L		88	50 - 150	
beta-BHC	0.0987	0.105		ug/L		107	50 - 150	
Bis(2-ethylhexyl) phthalate	0.592	0.661		ug/L		112	50 - 150	
Bromacil	0.0987	0.135		ug/L		137	50 - 150	
Butachlor	0.0493	0.0477	J	ug/L		97	50 - 150	
Butylbenzylphthalate	0.148	0.158	J	ug/L		107	50 - 150	
Chlorobenzilate	0.0987	0.107		ug/L		108	50 - 150	
Chloroneb	0.0987	0.101		ug/L		102	50 - 150	

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: MRL 380-59411/22-A

Matrix: Water

Analysis Batch: 59458

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 59411

Analyte	Spike	MRL	MRL	Unit	D	%Rec	%Rec Limits
	Added	Result	Qualifier				
Chlorothalonil (Draconil, Bravo)	0.0987	0.170	^3+	ug/L		173	50 - 150
Chlorpyrifos	0.0493	0.0577		ug/L		117	50 - 150
Chrysene	0.0197	0.0223		ug/L		113	50 - 150
delta-BHC	0.0987	0.112		ug/L		113	50 - 150
Di(2-ethylhexyl)adipate	0.296	0.386	J	ug/L		130	50 - 150
Dibenz(a,h)an hracene	0.0493	0.0455	J	ug/L		92	50 - 150
Diclorvos (DDVP)	0.0493	0.0690		ug/L		140	50 - 150
Dieldrin	0.0987	0.0936	J	ug/L		95	50 - 150
Diethylphthalate	0.148	0.181	J	ug/L		122	50 - 150
Dimethylph halate	0.296	0.297	J	ug/L		100	50 - 150
Di-n-butyl phthalate	0.296	0.390	J	ug/L		132	49 - 243
Di-n-octyl phthalate	0.0987	0.0924	J	ug/L		94	50 - 150
Endosulfan I (Alpha)	0.0987	0.0864	J	ug/L		88	50 - 150
Endosulfan II (Beta)	0.0987	0.115		ug/L		117	50 - 150
Endosulfan sulfate	0.0987	0.106		ug/L		108	50 - 150
Endrin	0.0987	0.0929	J	ug/L		94	50 - 150
Endrin aldehyde	0.0987	0.0833	J	ug/L		84	50 - 150
EPTC	0.0987	0.134		ug/L		135	50 - 150
Fluoranthene	0.0493	0.0450	J	ug/L		91	50 - 150
Fluorene	0.0493	0.0507		ug/L		103	50 - 150
gamma-Chlordane	0.0247	0.0229	J	ug/L		93	50 - 150
Heptachlor	0.0395	0.0452		ug/L		114	50 - 150
Heptachlor epoxide (isomer B)	0.0493	0.0534		ug/L		108	50 - 150
Hexachlorobenzene	0.0493	0.0479	J	ug/L		97	50 - 150
Hexachlorocyclopentadiene	0.0493	0.0671		ug/L		136	50 - 150
Indeno[1,2,3-cd]pyrene	0.0493	0.0421	J	ug/L		85	50 - 150
Isophorone	0.0987	0.116	J	ug/L		117	50 - 150
Lindane	0.0395	0.0424		ug/L		107	50 - 150
Malathion	0.0987	0.113		ug/L		114	50 - 150
Methoxychlor	0.0987	0.0986	J	ug/L		100	50 - 150
Metolachlor	0.0493	0.0535		ug/L		109	50 - 150
Molinate	0.0987	0.138		ug/L		140	50 - 150
Naphthalene	0.0987	0.112	J	ug/L		113	50 - 150
Parathion	0.0987	0.0885	J	ug/L		90	50 - 150
Pendimethalin (Penoxaline)	0.0987	0.0897	J	ug/L		91	50 - 150
Phenanthrene	0.0197	0.0231	J	ug/L		117	50 - 150
Propachlor	0.0493	0.0558		ug/L		113	50 - 150
Pyrene	0.0493	0.0444	J	ug/L		90	50 - 150
Simazine	0.0493	0.0564		ug/L		114	50 - 150
Terbacil	0.0987	0.0986	J	ug/L		100	50 - 150
Terbutylazine	0.0987	0.116		ug/L		118	50 - 150
Thiobencarb	0.0987	0.119	J	ug/L		120	50 - 150
trans-Nonachlor	0.0247	<0.026		ug/L		76	50 - 150
Trifluralin	0.0987	0.101		ug/L		102	50 - 150

Surrogate	MRL MRL		Limits
	%Recovery	Qualifier	
2-Nitro-m-xylene	102		70 - 130
Perylene-d12	98		70 - 130

QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: MRL 380-59411/22-A

Matrix: Water

Analysis Batch: 59458

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 59411

Surrogate	MRL %Recovery	MRL Qualifier	Limits
Triphenylphosphate	106		70 - 130

Lab Sample ID: 380-66107-BY-1-A MS

Matrix: Water

Analysis Batch: 59458

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 59411

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
1-Methylnaphthalene	<0.097		1.95	2.04		ug/L		104	70 - 130
2,4'-DDD	<0.097		1.95	1.93		ug/L		99	70 - 130
2,4'-DDE	<0.097		1.95	1.87		ug/L		96	70 - 130
2,4'-DDT	<0.097		1.95	2.45		ug/L		125	70 - 130
2,4-Dinitrotoluene	<0.097		1.95	1.95		ug/L		100	70 - 130
2,6-Dinitrotoluene	<0.097		1.95	1.87		ug/L		96	70 - 130
2-Methylnaphthalene	<0.097		1.95	2.14		ug/L		110	70 - 130
4,4'-DDD	<0.097	F1	1.95	2.65	F1	ug/L		136	70 - 130
4,4'-DDE	<0.097		1.95	1.86		ug/L		96	70 - 130
4,4'-DDT	<0.097	F1	1.95	2.60	F1	ug/L		133	70 - 130
Acenaphthene	<0.097		1.95	1.97		ug/L		101	70 - 130
Acenaphthylene	<0.097		1.95	2.10		ug/L		108	70 - 130
Acetochlor	<0.097		1.95	2.19		ug/L		112	70 - 130
Alachlor	<0.049		1.95	2.09		ug/L		107	70 - 130
alpha-BHC	<0.097		1.95	2.15		ug/L		110	70 - 130
alpha-Chlordane	<0.049		1.95	1.89		ug/L		97	70 - 130
Anthracene	<0.019		1.95	2.13		ug/L		109	70 - 130
Atrazine	<0.049		1.95	2.24		ug/L		115	70 - 130
Benz(a)anthracene	<0.049		1.95	2.44		ug/L		125	70 - 130
Benzo[a]pyrene	<0.019	** *1	1.95	2.14		ug/L		109	70 - 130
Benzo[b]fluoranthene	<0.019	** *1	1.95	2.17		ug/L		111	70 - 130
Benzo[g,h,i]perylene	<0.049		1.95	1.49		ug/L		76	70 - 130
Benzo[k]fluoranthene	<0.019	** *1	1.95	2.19		ug/L		112	70 - 130
beta-BHC	<0.097		1.95	2.35		ug/L		120	70 - 130
Bis(2-ethylhexyl) phthalate	<0.58		1.95	2.00		ug/L		102	70 - 130
Bromacil	<0.097		1.95	2.33		ug/L		119	70 - 130
Butachlor	<0.049		1.95	2.22		ug/L		114	70 - 130
Butylbenzylphthalate	<0.49		1.95	2.54		ug/L		130	70 - 130
Chlorobenzilate	<0.097		1.95	2.46		ug/L		126	70 - 130
Chloroneb	<0.097		1.95	2.20		ug/L		113	70 - 130
Chlorothalonil (Draconil, Bravo)	<0.097	^3+	1.95	2.37		ug/L		122	70 - 130
Chlorpyrifos	<0.049		1.95	2.20		ug/L		113	70 - 130
Chrysene	<0.019		1.95	2.13		ug/L		109	70 - 130
delta-BHC	<0.097		1.95	2.04		ug/L		105	70 - 130
Di(2-ethylhexyl)adipate	<0.58	F1	1.95	2.57	F1	ug/L		132	70 - 130
Dibenz(a,h)anthracene	<0.049	**	1.95	1.91		ug/L		98	70 - 130
Diclorvos (DDVP)	<0.049		1.95	2.29		ug/L		117	70 - 130
Dieldrin	<0.19		1.95	1.96		ug/L		101	70 - 130
Diethylphthalate	<0.49		1.95	2.25		ug/L		115	70 - 130
Dimethylphthalate	<0.49		1.95	2.14		ug/L		109	70 - 130
Di-n-butyl phthalate	<0.97		3.90	4.68		ug/L		120	70 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: 380-66107-BY-1-A MS

Client Sample ID: Matrix Spike

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 59458

Prep Batch: 59411

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier	Added	Result	Qualifier				
Di-n-octyl phthalate	<0.097		1.95	1.55		ug/L		80	70 - 130
Endosulfan I (Alpha)	<0.097		1.95	1.88		ug/L		96	70 - 130
Endosulfan II (Beta)	<0.097		1.95	2.43		ug/L		125	70 - 130
Endosulfan sulfate	<0.097	F1	1.95	2.58	F1	ug/L		132	70 - 130
Endrin	<0.097		1.95	2.37		ug/L		121	70 - 130
Endrin aldehyde	<0.097	F1	1.95	1.28	F1	ug/L		66	70 - 130
EPTC	<0.097		1.95	2.22		ug/L		114	70 - 130
Fluoranthene	<0.097		1.95	2.08		ug/L		106	70 - 130
Fluorene	<0.049		1.95	2.18		ug/L		112	70 - 130
gamma-Chlordane	<0.049		1.95	1.89		ug/L		97	70 - 130
Heptachlor	<0.039		1.95	2.22		ug/L		114	70 - 130
Heptachlor epoxide (isomer B)	<0.049		1.95	1.91		ug/L		98	70 - 130
Hexachlorobenzene	<0.049		1.95	2.06		ug/L		106	70 - 130
Hexachlorocyclopentadiene	<0.049		1.95	2.05		ug/L		105	70 - 130
Indeno[1,2,3-cd]pyrene	<0.049	*+	1.95	1.96		ug/L		100	70 - 130
Isophorone	<0.49		1.95	2.24		ug/L		115	70 - 130
Lindane	<0.039		1.95	2.06		ug/L		105	70 - 130
Malathion	<0.097		1.95	2.18		ug/L		112	70 - 130
Methoxychlor	<0.097	*+	1.95	2.47		ug/L		127	70 - 130
Metolachlor	<0.049		1.95	2.27		ug/L		116	70 - 130
Molinate	<0.097		1.95	2.35		ug/L		120	70 - 130
Naphthalene	<0.29		1.95	1.94		ug/L		99	70 - 130
Parathion	<0.097		1.95	2.18		ug/L		112	70 - 130
Pendimethalin (Penoxaline)	<0.097		1.95	1.96		ug/L		100	70 - 130
Phenanthrene	<0.039		1.95	2.07		ug/L		106	70 - 130
Propachlor	<0.049		1.95	2.37		ug/L		122	70 - 130
Pyrene	<0.049		1.95	2.10		ug/L		108	70 - 130
Simazine	<0.049		1.95	2.28		ug/L		117	70 - 130
Terbacil	<0.097		1.95	2.31		ug/L		119	70 - 130
Terbutylazine	<0.097		1.95	2.27		ug/L		116	70 - 130
Thiobencarb	<0.19		1.95	2.23		ug/L		114	70 - 130
trans-Nonachlor	<0.049		1.95	1.85		ug/L		95	70 - 130
Trifluralin	<0.097		1.95	2.07		ug/L		106	70 - 130

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
2-Nitro-m-xylene	102		70 - 130
Perylene-d12	92		70 - 130
Triphenylphosphate	128		70 - 130

Lab Sample ID: 380-66250-BX-1-A DU

Client Sample ID: Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 59458

Prep Batch: 59411

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD
	Result	Qualifier	Result	Qualifier				
1-Methylnaphthalene	<0.097		<0.098		ug/L		NC	20
2,4'-DDD	<0.097		<0.098		ug/L		NC	20
2,4'-DDE	<0.097		<0.098		ug/L		NC	20
2,4'-DDT	<0.097		<0.098		ug/L		NC	20

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QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: 380-66250-BX-1-A DU

Matrix: Water

Analysis Batch: 59458

Client Sample ID: Duplicate

Prep Type: Total/NA

Prep Batch: 59411

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
2,4-Dinitrotoluene	<0.097		<0.098		ug/L		NC	20
2,6-Dinitrotoluene	<0.097		<0.098		ug/L		NC	20
2-Methylnaphthalene	<0.097		<0.098		ug/L		NC	20
4,4'-DDD	<0.097		<0.098		ug/L		NC	20
4,4'-DDE	<0.097		<0.098		ug/L		NC	20
4,4'-DDT	<0.097		<0.098		ug/L		NC	20
Acenaphthene	<0.097		<0.098		ug/L		NC	20
Acenaphthylene	<0.097		<0.098		ug/L		NC	20
Acetochlor	<0.097		<0.098		ug/L		NC	20
Alachlor	<0.049		<0.049		ug/L		NC	20
alpha-BHC	<0.097		<0.098		ug/L		NC	20
alpha-Chlordane	<0.049		<0.049		ug/L		NC	20
Anthracene	<0.019		<0.020		ug/L		NC	20
Atrazine	<0.049		<0.049		ug/L		NC	20
Benz(a)anthracene	<0.049		<0.049		ug/L		NC	20
Benzo[a]pyrene	<0.019	*+ *1	<0.020	*+ *1	ug/L		NC	20
Benzo[b]fluoranthene	<0.019	*+ *1	<0.020	*+ *1	ug/L		NC	20
Benzo[g,h,i]perylene	<0.049		<0.049		ug/L		NC	20
Benzo[k]fluoranthene	<0.019	*+ *1	<0.020	*+ *1	ug/L		NC	20
beta-BHC	<0.097		<0.098		ug/L		NC	20
Bis(2-ethylhexyl) phthalate	<0.58		<0.59		ug/L		NC	20
Bromacil	<0.097		<0.098		ug/L		NC	20
Butachlor	<0.049		<0.049		ug/L		NC	20
Butylbenzylphthalate	<0.49		<0.49		ug/L		NC	20
Chlorobenzilate	<0.097		<0.098		ug/L		NC	20
Chloroneb	<0.097		<0.098		ug/L		NC	20
Chlorothalonil (Draconil, Bravo)	<0.097	^3+	<0.098		ug/L		NC	20
Chlorpyrifos	<0.049		<0.049		ug/L		NC	20
Chrysene	<0.019		<0.020		ug/L		NC	20
delta-BHC	<0.097		<0.098		ug/L		NC	20
Di(2-ethylhexyl)adipate	<0.58		<0.59		ug/L		NC	20
Dibenz(a,h)anthracene	<0.049	*+	<0.049	*+	ug/L		NC	20
Diclorvos (DDVP)	<0.049		<0.049		ug/L		NC	20
Dieldrin	<0.19		<0.20		ug/L		NC	20
Diethylphthalate	<0.49		<0.49		ug/L		NC	20
Dimethylphthalate	<0.49		<0.49		ug/L		NC	20
Di-n-butyl phthalate	<0.97		<0.98		ug/L		NC	20
Di-n-octyl phthalate	<0.097		<0.098		ug/L		NC	20
Endosulfan I (Alpha)	<0.097		<0.098		ug/L		NC	20
Endosulfan II (Beta)	<0.097		<0.098		ug/L		NC	20
Endosulfan sulfate	<0.097		<0.098		ug/L		NC	20
Endrin	<0.097		<0.098		ug/L		NC	20
Endrin aldehyde	<0.097		<0.098		ug/L		NC	20
EPTC	<0.097		<0.098		ug/L		NC	20
Fluoranthene	<0.097		<0.098		ug/L		NC	20
Fluorene	<0.049		<0.049		ug/L		NC	20
gamma-Chlordane	<0.049		<0.049		ug/L		NC	20
Heptachlor	<0.039		<0.039		ug/L		NC	20
Heptachlor epoxide (isomer B)	<0.049		<0.049		ug/L		NC	20

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QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: 380-66250-BX-1-A DU

Matrix: Water

Analysis Batch: 59458

Client Sample ID: Duplicate

Prep Type: Total/NA

Prep Batch: 59411

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Hexachlorobenzene	<0.049		<0.049		ug/L		NC	20
Hexachlorocyclopentadiene	<0.049		<0.049		ug/L		NC	20
Indeno[1,2,3-cd]pyrene	<0.049	*+	<0.049	*+	ug/L		NC	20
Isophorone	<0.49		<0.49		ug/L		NC	20
Lindane	<0.039		<0.039		ug/L		NC	20
Malathion	<0.097		<0.098		ug/L		NC	20
Methoxychlor	<0.097	*+	<0.098	*+	ug/L		NC	20
Metolachlor	<0.049		<0.049		ug/L		NC	20
Molinate	<0.097		<0.098		ug/L		NC	20
Naphthalene	<0.29		<0.29		ug/L		NC	20
Parathion	<0.097		<0.098		ug/L		NC	20
Pendimethalin (Penoxaline)	<0.097		<0.098		ug/L		NC	20
Phenanthrene	<0.039		<0.039		ug/L		NC	20
Propachlor	<0.049		<0.049		ug/L		NC	20
Pyrene	<0.049		<0.049		ug/L		NC	20
Simazine	<0.049		<0.049		ug/L		NC	20
Terbacil	<0.097		<0.098		ug/L		NC	20
Terbutylazine	<0.097		<0.098		ug/L		NC	20
Thiobencarb	<0.19		<0.20		ug/L		NC	20
Total Permethrin (mixed isomers)	<0.19		<0.20		ug/L		NC	20
trans-Nonachlor	<0.049		<0.049		ug/L		NC	20
Trifluralin	<0.097		<0.098		ug/L		NC	20

Surrogate	DU	DU	Limits
	%Recovery	Qualifier	
2-Nitro-m-xylene	106		70 - 130
Perylene-d12	103		70 - 130
Triphenylphosphate	87		70 - 130

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

Lab Sample ID: MBL 380-61463/21-A

Matrix: Water

Analysis Batch: 61932

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 61463

Analyte	MBL	MBL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		10/28/23 11:47	11/01/23 10:35	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		10/28/23 11:47	11/01/23 10:35	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		10/28/23 11:47	11/01/23 10:35	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		10/28/23 11:47	11/01/23 10:35	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		10/28/23 11:47	11/01/23 10:35	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		10/28/23 11:47	11/01/23 10:35	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		10/28/23 11:47	11/01/23 10:35	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		10/28/23 11:47	11/01/23 10:35	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		10/28/23 11:47	11/01/23 10:35	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		10/28/23 11:47	11/01/23 10:35	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		10/28/23 11:47	11/01/23 10:35	1

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QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: MBL 380-61463/21-A
Matrix: Water
Analysis Batch: 61932

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 61463

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		10/28/23 11:47	11/01/23 10:35	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		10/28/23 11:47	11/01/23 10:35	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		10/28/23 11:47	11/01/23 10:35	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		10/28/23 11:47	11/01/23 10:35	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		10/28/23 11:47	11/01/23 10:35	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		10/28/23 11:47	11/01/23 10:35	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		10/28/23 11:47	11/01/23 10:35	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		10/28/23 11:47	11/01/23 10:35	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0	ng/L		10/28/23 11:47	11/01/23 10:35	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		10/28/23 11:47	11/01/23 10:35	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		10/28/23 11:47	11/01/23 10:35	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		10/28/23 11:47	11/01/23 10:35	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		10/28/23 11:47	11/01/23 10:35	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		10/28/23 11:47	11/01/23 10:35	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	87		50 - 200	10/28/23 11:47	11/01/23 10:35	1
13C6 PFDA	98		50 - 200	10/28/23 11:47	11/01/23 10:35	1
13C5 PFHxA	94		50 - 200	10/28/23 11:47	11/01/23 10:35	1
13C4 PFHpA	96		50 - 200	10/28/23 11:47	11/01/23 10:35	1
13C8 PFOA	97		50 - 200	10/28/23 11:47	11/01/23 10:35	1
13C9 PFNA	96		50 - 200	10/28/23 11:47	11/01/23 10:35	1
13C7 PFUnA	97		50 - 200	10/28/23 11:47	11/01/23 10:35	1
13C2 PFDoA	95		50 - 200	10/28/23 11:47	11/01/23 10:35	1
13C4 PFBA	98		50 - 200	10/28/23 11:47	11/01/23 10:35	1
13C5 PFPeA	98		50 - 200	10/28/23 11:47	11/01/23 10:35	1
13C3 PFBS	96		50 - 200	10/28/23 11:47	11/01/23 10:35	1
13C3 PFHxS	95		50 - 200	10/28/23 11:47	11/01/23 10:35	1
13C8 PFOS	94		50 - 200	10/28/23 11:47	11/01/23 10:35	1
13C2-4:2-FTS	100		50 - 200	10/28/23 11:47	11/01/23 10:35	1
13C2-6:2-FTS	107		50 - 200	10/28/23 11:47	11/01/23 10:35	1
13C2-8:2-FTS	111		50 - 200	10/28/23 11:47	11/01/23 10:35	1

Lab Sample ID: LCS 380-61463/23-A
Matrix: Water
Analysis Batch: 61932

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 61463

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	60.1	58.9		ng/L		98	70 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: LCS 380-61463/23-A

Matrix: Water

Analysis Batch: 61932

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 61463

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid(9Cl-PF3ONS)	60.1	62.4		ng/L		104	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.1	71.5		ng/L		119	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.1	54.5		ng/L		91	70 - 130
Perfluorobutanesulfonic acid (PFBS)	60.1	65.0		ng/L		108	70 - 130
Perfluorodecanoic acid (PFDA)	60.1	62.3		ng/L		104	70 - 130
Perfluorododecanoic acid (PFDoA)	60.1	70.1		ng/L		117	70 - 130
Perfluoroheptanoic acid (PFHpA)	60.1	66.8		ng/L		111	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	60.1	63.2		ng/L		105	70 - 130
Perfluorohexanoic acid (PFHxA)	60.1	61.4		ng/L		102	70 - 130
Perfluorononanoic acid (PFNA)	60.1	63.9		ng/L		106	70 - 130
Perfluorooctanesulfonic acid (PFOS)	60.1	63.1		ng/L		105	70 - 130
Perfluorooctanoic acid (PFOA)	60.1	65.9		ng/L		110	70 - 130
Perfluoroundecanoic acid (PFUnA)	60.1	67.7		ng/L		113	70 - 130
Perfluorobutanoic acid (PFBA)	60.1	71.5		ng/L		119	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.1	66.2		ng/L		110	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.1	61.3		ng/L		102	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.1	59.1		ng/L		98	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.1	59.7		ng/L		99	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	60.1	59.2		ng/L		98	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.1	69.9		ng/L		116	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.1	60.6		ng/L		101	70 - 130
Perfluoropentanoic acid (PFPeA)	60.1	67.3		ng/L		112	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	60.1	58.7		ng/L		98	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	60.1	61.2		ng/L		102	70 - 130

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	94		50 - 200
13C6 PFDA	97		50 - 200
13C5 PFHxA	93		50 - 200
13C4 PFHpA	92		50 - 200
13C8 PFOA	95		50 - 200
13C9 PFNA	96		50 - 200
13C7 PFUnA	94		50 - 200
13C2 PFDoA	97		50 - 200
13C4 PFBA	93		50 - 200

QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: LCS 380-61463/23-A

Matrix: Water

Analysis Batch: 61932

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 61463

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C5 PFPeA	95		50 - 200
13C3 PFBS	91		50 - 200
13C3 PFHxS	92		50 - 200
13C8 PFOS	97		50 - 200
13C2-4:2-FTS	97		50 - 200
13C2-6:2-FTS	98		50 - 200
13C2-8:2-FTS	105		50 - 200

Lab Sample ID: LCSD 380-61463/24-A

Matrix: Water

Analysis Batch: 61932

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 61463

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD
									Limit
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	60.2	58.3		ng/L		97	70 - 130	1	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.2	61.0		ng/L		101	70 - 130	2	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.2	68.7		ng/L		114	70 - 130	4	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.2	55.0		ng/L		91	70 - 130	1	30
Perfluorobutanesulfonic acid (PFBS)	60.2	64.0		ng/L		106	70 - 130	2	30
Perfluorodecanoic acid (PFDA)	60.2	57.7		ng/L		96	70 - 130	8	30
Perfluorododecanoic acid (PFDoA)	60.2	69.7		ng/L		116	70 - 130	1	30
Perfluoroheptanoic acid (PFHpA)	60.2	64.7		ng/L		107	70 - 130	3	30
Perfluorohexanesulfonic acid (PFHxS)	60.2	61.7		ng/L		102	70 - 130	2	30
Perfluorohexanoic acid (PFHxA)	60.2	61.3		ng/L		102	70 - 130	0	30
Perfluorononanoic acid (PFNA)	60.2	62.7		ng/L		104	70 - 130	2	30
Perfluorooctanesulfonic acid (PFOS)	60.2	60.6		ng/L		101	70 - 130	4	30
Perfluorooctanoic acid (PFOA)	60.2	64.2		ng/L		107	70 - 130	3	30
Perfluoroundecanoic acid (PFUnA)	60.2	66.6		ng/L		111	70 - 130	2	30
Perfluorobutanoic acid (PFBA)	60.2	68.9		ng/L		114	70 - 130	4	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.2	67.3		ng/L		112	70 - 130	2	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.2	62.8		ng/L		104	70 - 130	2	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.2	58.9		ng/L		98	70 - 130	0	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.2	65.0		ng/L		108	70 - 130	8	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	60.2	58.7		ng/L		97	70 - 130	1	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.2	68.0		ng/L		113	70 - 130	3	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.2	58.5		ng/L		97	70 - 130	4	30

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QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: LCSD 380-61463/24-A

Matrix: Water

Analysis Batch: 61932

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 61463

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit	
										LCSD
Perfluoropentanoic acid (PFPeA)	60.2	65.3		ng/L		108	70 - 130	3	30	
Perfluoroheptanesulfonic acid (PFHpS)	60.2	57.2		ng/L		95	70 - 130	3	30	
Perfluoropentanesulfonic acid (PFPeS)	60.2	61.5		ng/L		102	70 - 130	1	30	
Isotope Dilution	%Recovery	LCSD	LCSD Qualifier	Limits						
13C3 HFPO-DA	103			50 - 200						
13C6 PFDA	107			50 - 200						
13C5 PFHxA	102			50 - 200						
13C4 PFHpA	99			50 - 200						
13C8 PFOA	101			50 - 200						
13C9 PFNA	100			50 - 200						
13C7 PFUnA	100			50 - 200						
13C2 PFDoA	99			50 - 200						
13C4 PFBA	96			50 - 200						
13C5 PFPeA	100			50 - 200						
13C3 PFBS	96			50 - 200						
13C3 PFHxS	97			50 - 200						
13C8 PFOS	101			50 - 200						
13C2-4:2-FTS	102			50 - 200						
13C2-6:2-FTS	106			50 - 200						
13C2-8:2-FTS	107			50 - 200						

Lab Sample ID: MRL 380-61463/22-A

Matrix: Water

Analysis Batch: 61932

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 61463

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	2.01	2.18	J	ng/L		108	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.01	2.34	J	ng/L		117	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.01	1.99	J	ng/L		99	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.01	2.18	J	ng/L		109	50 - 150
Perfluorodecanoic acid (PFDA)	2.01	2.03	J	ng/L		101	50 - 150
Perfluorododecanoic acid (PFDoA)	2.01	2.40	J	ng/L		119	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.01	2.33	J	ng/L		116	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.01	2.03	J	ng/L		101	50 - 150
Perfluorohexanoic acid (PFHxA)	2.01	2.00	J	ng/L		100	50 - 150
Perfluorononanoic acid (PFNA)	2.01	2.17	J	ng/L		108	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.01	2.27	J	ng/L		113	50 - 150
Perfluorooctanoic acid (PFOA)	2.01	2.39	J	ng/L		119	50 - 150

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QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: MRL 380-61463/22-A
Matrix: Water
Analysis Batch: 61932

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 61463

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	2.01	2.26	J	ng/L		113	50 - 150
Perfluorobutanoic acid (PFBA)	2.01	2.66	J	ng/L		132	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.01	2.18	J	ng/L		109	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.01	2.28	J	ng/L		114	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.01	2.70	J	ng/L		134	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.01	2.06	J	ng/L		103	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.01	1.82	J	ng/L		91	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.01	2.44	J	ng/L		122	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.01	2.12	J	ng/L		106	50 - 150
Perfluoropentanoic acid (PFPeA)	2.01	2.43	J	ng/L		121	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.01	1.96	J	ng/L		98	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.01	2.02	J	ng/L		101	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	Limits
13C3 HFPO-DA	92		50 - 200
13C6 PFDA	100		50 - 200
13C5 PFHxA	97		50 - 200
13C4 PFHpA	96		50 - 200
13C8 PFOA	97		50 - 200
13C9 PFNA	99		50 - 200
13C7 PFUnA	97		50 - 200
13C2 PFDoA	97		50 - 200
13C4 PFBA	89		50 - 200
13C5 PFPeA	88		50 - 200
13C3 PFBS	94		50 - 200
13C3 PFHxS	96		50 - 200
13C8 PFOS	97		50 - 200
13C2-4:2-FTS	99		50 - 200
13C2-6:2-FTS	99		50 - 200
13C2-8:2-FTS	110		50 - 200

Lab Sample ID: 380-66590-B-1-A MS
Matrix: Water
Analysis Batch: 61932

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 61463

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.4	58.5		ng/L		97	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.4	63.1		ng/L		104	70 - 130

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QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: 380-66590-B-1-A MS

Client Sample ID: Matrix Spike

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 61932

Prep Batch: 61463

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.4	75.4		ng/L		125	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		60.4	53.7		ng/L		89	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		60.4	65.4		ng/L		107	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		60.4	61.1		ng/L		101	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		60.4	72.2		ng/L		120	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		60.4	68.8		ng/L		114	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.4	63.3		ng/L		105	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		60.4	66.1		ng/L		108	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		60.4	60.2		ng/L		100	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		60.4	63.3		ng/L		104	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		60.4	70.4		ng/L		115	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		60.4	68.2		ng/L		113	70 - 130
Perfluorobutanoic acid (PFBA)	<2.0		60.4	72.5		ng/L		117	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.4	64.5		ng/L		107	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.4	69.9		ng/L		116	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.4	58.8		ng/L		97	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.4	60.6		ng/L		100	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		60.4	61.3		ng/L		102	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0	F1	60.4	92.7	F1	ng/L		154	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.4	70.5		ng/L		117	70 - 130
Perfluoropentanoic acid (PFPeA)	<2.0		60.4	61.9		ng/L		101	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.4	57.4		ng/L		95	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.4	64.4		ng/L		107	70 - 130

Isotope Dilution	MS	MS	Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	98		50 - 200
13C6 PFDA	99		50 - 200
13C5 PFHxA	82		50 - 200
13C4 PFHpA	82		50 - 200
13C8 PFOA	90		50 - 200
13C9 PFNA	97		50 - 200
13C7 PFUnA	95		50 - 200
13C2 PFDoA	97		50 - 200
13C4 PFBA	94		50 - 200
13C5 PFPeA	155		50 - 200
13C3 PFBS	89		50 - 200
13C3 PFHxS	96		50 - 200

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QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: 380-66590-B-1-A MS

Matrix: Water

Analysis Batch: 61932

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 61463

Isotope Dilution	MS MS		Limits
	%Recovery	Qualifier	
13C8 PFOS	101		50 - 200
13C2-4:2-FTS	112		50 - 200
13C2-6:2-FTS	122		50 - 200
13C2-8:2-FTS	123		50 - 200

Lab Sample ID: 380-66590-C-1-A MSD

Matrix: Water

Analysis Batch: 61932

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 61463

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier		Result	Qualifier				Limits		Limit
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.4	59.5		ng/L		99	70 - 130	2	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.4	63.7		ng/L		106	70 - 130	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.4	74.7		ng/L		124	70 - 130	1	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		60.4	56.0		ng/L		93	70 - 130	4	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		60.4	67.0		ng/L		110	70 - 130	2	30
Perfluorodecanoic acid (PFDA)	<2.0		60.4	61.6		ng/L		102	70 - 130	1	30
Perfluorododecanoic acid (PFDoA)	<2.0		60.4	70.9		ng/L		118	70 - 130	2	30
Perfluoroheptanoic acid (PFHpA)	<2.0		60.4	70.5		ng/L		117	70 - 130	2	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.4	63.6		ng/L		105	70 - 130	0	30
Perfluorohexanoic acid (PFHxA)	<2.0		60.4	66.6		ng/L		109	70 - 130	1	30
Perfluorononanoic acid (PFNA)	<2.0		60.4	65.1		ng/L		108	70 - 130	8	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		60.4	65.0		ng/L		106	70 - 130	3	30
Perfluorooctanoic acid (PFOA)	<2.0		60.4	67.9		ng/L		111	70 - 130	4	30
Perfluoroundecanoic acid (PFUnA)	<2.0		60.4	67.7		ng/L		112	70 - 130	1	30
Perfluorobutanoic acid (PFBA)	<2.0		60.4	71.4		ng/L		116	70 - 130	2	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.4	64.3		ng/L		107	70 - 130	0	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.4	63.5		ng/L		105	70 - 130	10	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.4	66.1		ng/L		110	70 - 130	12	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.4	67.6		ng/L		112	70 - 130	11	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		60.4	65.0		ng/L		108	70 - 130	6	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0	F1	60.4	88.7	F1	ng/L		147	70 - 130	4	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.4	69.8		ng/L		116	70 - 130	1	30
Perfluoropentanoic acid (PFPeA)	<2.0		60.4	62.1		ng/L		102	70 - 130	0	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.4	58.6		ng/L		97	70 - 130	2	30

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QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: 380-66590-C-1-A MSD
Matrix: Water
Analysis Batch: 61932

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 61463

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.4	64.8		ng/L		107	70 - 130	1	30
MSD MSD											
Isotope Dilution	%Recovery	Qualifier	Limits								
13C3 HFPO-DA	103		50 - 200								
13C6 PFDA	103		50 - 200								
13C5 PFHxA	85		50 - 200								
13C4 PFHpA	86		50 - 200								
13C8 PFOA	97		50 - 200								
13C9 PFNA	97		50 - 200								
13C7 PFUnA	99		50 - 200								
13C2 PFDoA	100		50 - 200								
13C4 PFBA	96		50 - 200								
13C5 PFPeA	148		50 - 200								
13C3 PFBS	90		50 - 200								
13C3 PFHxS	97		50 - 200								
13C8 PFOS	100		50 - 200								
13C2-4:2-FTS	116		50 - 200								
13C2-6:2-FTS	114		50 - 200								
13C2-8:2-FTS	123		50 - 200								

Lab Sample ID: MBL 380-61498/19-A
Matrix: Water
Analysis Batch: 62073

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 61498

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1

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QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: MBL 380-61498/19-A
Matrix: Water
Analysis Batch: 62073

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 61498

Analyte	MBL	MBL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1

Isotope Dilution	MBL	MBL	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 HFPO-DA	78		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C6 PFDA	96		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C5 PFHxA	96		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C4 PFHpA	96		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C8 PFOA	102		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C9 PFNA	107		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C7 PFUnA	91		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C2 PFDoA	91		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C4 PFBA	105		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C5 PFPeA	110		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C3 PFBS	97		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C3 PFHxS	102		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C8 PFOS	100		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C2-4:2-FTS	107		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C2-6:2-FTS	126		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C2-8:2-FTS	122		50 - 200	10/29/23 12:52	11/01/23 23:23	1

Lab Sample ID: LCS 380-61498/21-A
Matrix: Water
Analysis Batch: 62073

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 61498

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	60.1	50.4		ng/L		84	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.1	57.9		ng/L		96	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.1	61.8		ng/L		103	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.1	54.5		ng/L		91	70 - 130
Perfluorobutanesulfonic acid (PFBS)	60.1	56.4		ng/L		94	70 - 130
Perfluorodecanoic acid (PFDA)	60.1	53.8		ng/L		89	70 - 130
Perfluorododecanoic acid (PFDoA)	60.1	62.9		ng/L		105	70 - 130

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QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: LCS 380-61498/21-A

Matrix: Water

Analysis Batch: 62073

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 61498

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroheptanoic acid (PFHpA)	60.1	59.4		ng/L		99	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	60.1	56.7		ng/L		94	70 - 130
Perfluorohexanoic acid (PFHxA)	60.1	55.9		ng/L		93	70 - 130
Perfluorononanoic acid (PFNA)	60.1	56.7		ng/L		94	70 - 130
Perfluorooctanesulfonic acid (PFOS)	60.1	60.6		ng/L		101	70 - 130
Perfluorooctanoic acid (PFOA)	60.1	57.2		ng/L		95	70 - 130
Perfluoroundecanoic acid (PFUnA)	60.1	59.8		ng/L		100	70 - 130
Perfluorobutanoic acid (PFBA)	60.1	65.7		ng/L		109	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.1	56.2		ng/L		94	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.1	59.1		ng/L		98	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.1	52.1		ng/L		87	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.1	51.9		ng/L		86	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	60.1	49.3		ng/L		82	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.1	62.4		ng/L		104	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.1	53.3		ng/L		89	70 - 130
Perfluoropentanoic acid (PFPeA)	60.1	53.7		ng/L		89	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	60.1	55.9		ng/L		93	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	60.1	54.5		ng/L		91	70 - 130

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	88		50 - 200
13C6 PFDA	97		50 - 200
13C5 PFHxA	97		50 - 200
13C4 PFHpA	98		50 - 200
13C8 PFOA	96		50 - 200
13C9 PFNA	103		50 - 200
13C7 PFUnA	94		50 - 200
13C2 PFDoA	94		50 - 200
13C4 PFBA	98		50 - 200
13C5 PFPeA	105		50 - 200
13C3 PFBS	101		50 - 200
13C3 PFHxS	100		50 - 200
13C8 PFOS	99		50 - 200
13C2-4:2-FTS	106		50 - 200
13C2-6:2-FTS	111		50 - 200
13C2-8:2-FTS	108		50 - 200

QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: LCSD 380-61498/22-A

Matrix: Water

Analysis Batch: 62073

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 61498

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD
									Limit
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	60.2	56.3		ng/L		94	70 - 130	11	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.2	62.5		ng/L		104	70 - 130	8	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.2	66.1		ng/L		110	70 - 130	7	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.2	55.9		ng/L		93	70 - 130	2	30
Perfluorobutanesulfonic acid (PFBS)	60.2	59.0		ng/L		98	70 - 130	4	30
Perfluorodecanoic acid (PFDA)	60.2	59.7		ng/L		99	70 - 130	10	30
Perfluorododecanoic acid (PFDoA)	60.2	67.1		ng/L		111	70 - 130	7	30
Perfluoroheptanoic acid (PFHpA)	60.2	64.4		ng/L		107	70 - 130	8	30
Perfluorohexanesulfonic acid (PFHxS)	60.2	59.9		ng/L		99	70 - 130	5	30
Perfluorohexanoic acid (PFHxA)	60.2	58.9		ng/L		98	70 - 130	5	30
Perfluorononanoic acid (PFNA)	60.2	58.2		ng/L		97	70 - 130	2	30
Perfluorooctanesulfonic acid (PFOS)	60.2	63.4		ng/L		105	70 - 130	4	30
Perfluorooctanoic acid (PFOA)	60.2	62.4		ng/L		104	70 - 130	9	30
Perfluoroundecanoic acid (PFUnA)	60.2	64.1		ng/L		106	70 - 130	7	30
Perfluorobutanoic acid (PFBA)	60.2	66.9		ng/L		111	70 - 130	2	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.2	62.1		ng/L		103	70 - 130	10	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.2	63.9		ng/L		106	70 - 130	8	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.2	55.5		ng/L		92	70 - 130	6	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.2	54.8		ng/L		91	70 - 130	5	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	60.2	50.2		ng/L		83	70 - 130	2	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.2	62.9		ng/L		104	70 - 130	1	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.2	60.7		ng/L		101	70 - 130	13	30
Perfluoropentanoic acid (PFPeA)	60.2	59.9		ng/L		99	70 - 130	11	30
Perfluoroheptanesulfonic acid (PFHpS)	60.2	58.0		ng/L		96	70 - 130	4	30
Perfluoropentanesulfonic acid (PFPeS)	60.2	57.6		ng/L		96	70 - 130	6	30

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	89		50 - 200
13C6 PFDA	97		50 - 200
13C5 PFHxA	96		50 - 200
13C4 PFHpA	96		50 - 200
13C8 PFOA	101		50 - 200
13C9 PFNA	108		50 - 200

QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: LCSD 380-61498/22-A

Matrix: Water

Analysis Batch: 62073

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 61498

Isotope Dilution	LCSD LCSD		Limits
	%Recovery	Qualifier	
13C7 PFUnA	99		50 - 200
13C2 PFDoA	97		50 - 200
13C4 PFBA	103		50 - 200
13C5 PFPeA	103		50 - 200
13C3 PFBS	97		50 - 200
13C3 PFHxS	98		50 - 200
13C8 PFOS	96		50 - 200
13C2-4:2-FTS	97		50 - 200
13C2-6:2-FTS	106		50 - 200
13C2-8:2-FTS	110		50 - 200

Lab Sample ID: MRL 380-61498/20-A

Matrix: Water

Analysis Batch: 62073

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 61498

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec
							Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	1.45	J	ng/L		73	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	1.82	J	ng/L		91	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	1.90	J	ng/L		95	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.65	J	ng/L		82	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	1.73	J	ng/L		86	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	1.69	J	ng/L		84	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	1.92	J	ng/L		96	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	1.93	J	ng/L		96	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	1.71	J	ng/L		86	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.05	J	ng/L		102	50 - 150
Perfluorononanoic acid (PFNA)	2.00	1.76	J	ng/L		88	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	1.89	J	ng/L		94	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	1.95	J	ng/L		97	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	1.98	J	ng/L		99	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	2.10	J	ng/L		105	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	1.87	J	ng/L		93	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	1.80	J	ng/L		90	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	1.79	J	ng/L		89	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	1.86	J	ng/L		93	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.00	1.50	J	ng/L		75	50 - 150

QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: MRL 380-61498/20-A

Matrix: Water

Analysis Batch: 62073

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 61498

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	1.86	J	ng/L		93	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	1.66	J	ng/L		83	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	1.88	J	ng/L		94	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.00	1.74	J	ng/L		87	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.00	1.71	J	ng/L		85	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	Limits
13C3 HFPO-DA	82		50 - 200
13C6 PFDA	100		50 - 200
13C5 PFHxA	94		50 - 200
13C4 PFHpA	105		50 - 200
13C8 PFOA	104		50 - 200
13C9 PFNA	110		50 - 200
13C7 PFUnA	96		50 - 200
13C2 PFDoA	97		50 - 200
13C4 PFBA	107		50 - 200
13C5 PFPeA	111		50 - 200
13C3 PFBS	101		50 - 200
13C3 PFHxS	104		50 - 200
13C8 PFOS	103		50 - 200
13C2-4:2-FTS	110		50 - 200
13C2-6:2-FTS	127		50 - 200
13C2-8:2-FTS	111		50 - 200

Lab Sample ID: 380-66857-O-1-A MS

Matrix: Water

Analysis Batch: 62073

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 61498

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.1	54.8		ng/L		91	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<2.0		60.1	61.1		ng/L		102	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.1	62.4		ng/L		104	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		60.1	54.5		ng/L		91	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		60.1	62.2		ng/L		103	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		60.1	57.0		ng/L		95	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		60.1	67.6		ng/L		112	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		60.1	63.1		ng/L		104	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.1	59.6		ng/L		97	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		60.1	61.8		ng/L		101	70 - 130

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QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: 380-66857-O-1-A MS

Client Sample ID: Matrix Spike

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 62073

Prep Batch: 61498

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
Perfluorononanoic acid (PFNA)	<2.0		60.1	55.9		ng/L		93	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		60.1	64.8		ng/L		105	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		60.1	62.0		ng/L		102	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		60.1	63.4		ng/L		105	70 - 130
Perfluorobutanoic acid (PFBA)	2.4		60.1	69.3		ng/L		111	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.1	61.7		ng/L		103	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.1	64.2		ng/L		107	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.1	58.6		ng/L		98	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.1	56.9		ng/L		95	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		60.1	52.8		ng/L		88	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		60.1	61.8		ng/L		103	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.1	53.2		ng/L		89	70 - 130
Perfluoropentanoic acid (PFPeA)	<2.0		60.1	60.1		ng/L		98	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.1	57.8		ng/L		96	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.1	57.6		ng/L		96	70 - 130

Isotope Dilution	MS MS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	70		50 - 200
13C6 PFDA	90		50 - 200
13C5 PFHxA	79		50 - 200
13C4 PFHpA	82		50 - 200
13C8 PFOA	88		50 - 200
13C9 PFNA	95		50 - 200
13C7 PFUnA	90		50 - 200
13C2 PFDaA	87		50 - 200
13C4 PFBA	89		50 - 200
13C5 PFPeA	94		50 - 200
13C3 PFBS	94		50 - 200
13C3 PFHxS	100		50 - 200
13C8 PFOS	96		50 - 200
13C2-4:2-FTS	97		50 - 200
13C2-6:2-FTS	109		50 - 200
13C2-8:2-FTS	110		50 - 200



QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: 380-66857-P-1-A MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 62073

Prep Batch: 61498

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.1	51.9		ng/L		86	70 - 130	5	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.1	58.1		ng/L		97	70 - 130	5	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.1	61.5		ng/L		102	70 - 130	1	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		60.1	54.3		ng/L		90	70 - 130	0	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		60.1	58.0		ng/L		96	70 - 130	7	30
Perfluorodecanoic acid (PFDA)	<2.0		60.1	57.1		ng/L		95	70 - 130	0	30
Perfluorododecanoic acid (PFDoA)	<2.0		60.1	67.2		ng/L		112	70 - 130	1	30
Perfluoroheptanoic acid (PFHpA)	<2.0		60.1	62.3		ng/L		103	70 - 130	1	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.1	58.2		ng/L		95	70 - 130	2	30
Perfluorohexanoic acid (PFHxA)	<2.0		60.1	60.0		ng/L		98	70 - 130	3	30
Perfluorononanoic acid (PFNA)	<2.0		60.1	56.5		ng/L		94	70 - 130	1	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		60.1	62.4		ng/L		101	70 - 130	4	30
Perfluorooctanoic acid (PFOA)	<2.0		60.1	63.7		ng/L		105	70 - 130	3	30
Perfluoroundecanoic acid (PFUnA)	<2.0		60.1	66.2		ng/L		110	70 - 130	4	30
Perfluorobutanoic acid (PFBA)	2.4		60.1	70.3		ng/L		113	70 - 130	1	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.1	61.1		ng/L		102	70 - 130	1	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.1	60.7		ng/L		101	70 - 130	6	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.1	59.2		ng/L		98	70 - 130	1	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.1	57.8		ng/L		96	70 - 130	2	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		60.1	51.2		ng/L		85	70 - 130	3	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		60.1	63.7		ng/L		106	70 - 130	3	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.1	54.1		ng/L		90	70 - 130	2	30
Perfluoropentanoic acid (PFPeA)	<2.0		60.1	57.9		ng/L		95	70 - 130	4	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.1	56.2		ng/L		93	70 - 130	3	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.1	55.9		ng/L		93	70 - 130	3	30

Isotope Dilution	MSD	MSD	Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	82		50 - 200
13C6 PFDA	92		50 - 200
13C5 PFHxA	89		50 - 200
13C4 PFHpA	91		50 - 200
13C8 PFOA	94		50 - 200
13C9 PFNA	99		50 - 200

QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: 380-66857-P-1-A MSD

Matrix: Water

Analysis Batch: 62073

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 61498

Isotope Dilution	MSD MSD		Limits
	%Recovery	Qualifier	
13C7 PFUnA	89		50 - 200
13C2 PFDoA	89		50 - 200
13C4 PFBA	101		50 - 200
13C5 PFPeA	113		50 - 200
13C3 PFBS	100		50 - 200
13C3 PFHxS	101		50 - 200
13C8 PFOS	100		50 - 200
13C2-4:2-FTS	102		50 - 200
13C2-6:2-FTS	106		50 - 200
13C2-8:2-FTS	106		50 - 200

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

Lab Sample ID: MBL 380-59976/23-A

Matrix: Water

Analysis Batch: 60298

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 59976

Analyte	MBL MBL		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.58		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.42		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
Perfluorotetradecanoic acid (PFTA)	<0.54		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
Perfluorotridecanoic acid (PFTrDA)	<0.36		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<0.30		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1

Surrogate	MBL MBL		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
d5-NEtFOSAA	89		70 - 130	10/18/23 08:22	10/21/23 04:36	1
13C2 PFHxA	107		70 - 130	10/18/23 08:22	10/21/23 04:36	1
13C2 PFDA	98		70 - 130	10/18/23 08:22	10/21/23 04:36	1
13C3-GenX	92		70 - 130	10/18/23 08:22	10/21/23 04:36	1

Euofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: LCS 380-59976/25-A

Matrix: Water

Analysis Batch: 60298

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 59976

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	25.1	27.0		ng/L		108	70 - 130
Perfluorooctanesulfonic acid (PFOS)	23.2	25.6		ng/L		110	70 - 130
Perfluoroundecanoic acid (PFUnA)	25.1	26.2		ng/L		105	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	25.1	25.2		ng/L		100	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	25.1	24.6		ng/L		98	70 - 130
Perfluorohexanoic acid (PFHxA)	25.1	27.5		ng/L		110	70 - 130
Perfluorododecanoic acid (PFDoA)	25.1	24.9		ng/L		99	70 - 130
Perfluorooctanoic acid (PFOA)	25.1	27.7		ng/L		110	70 - 130
Perfluorodecanoic acid (PFDA)	25.1	27.3		ng/L		109	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	22.9	25.7		ng/L		112	70 - 130
Perfluorobutanesulfonic acid (PFBS)	22.2	23.7		ng/L		107	70 - 130
Perfluoroheptanoic acid (PFHpA)	25.1	26.4		ng/L		105	70 - 130
Perfluorononanoic acid (PFNA)	25.1	28.0		ng/L		112	70 - 130
Perfluorotetradecanoic acid (PFTA)	25.1	25.9		ng/L		103	70 - 130
Perfluorotridecanoic acid (PFTrDA)	25.1	24.7		ng/L		99	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	23.5	25.4		ng/L		108	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	23.7	24.0		ng/L		101	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	23.7	24.6		ng/L		104	70 - 130

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
d5-NEtFOSAA	97		70 - 130
13C2 PFHxA	110		70 - 130
13C2 PFDA	109		70 - 130
13C3-GenX	102		70 - 130

Lab Sample ID: LCSD 380-59976/26-A

Matrix: Water

Analysis Batch: 60298

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 59976

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	
								RPD	Limit
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	25.1	22.8		ng/L		91	70 - 130	17	30
Perfluorooctanesulfonic acid (PFOS)	23.2	25.1		ng/L		108	70 - 130	2	30
Perfluoroundecanoic acid (PFUnA)	25.1	25.6		ng/L		102	70 - 130	2	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	25.1	24.3		ng/L		97	70 - 130	4	30

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QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: LCSD 380-59976/26-A

Matrix: Water

Analysis Batch: 60298

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 59976

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	25.1	24.1		ng/L		96	70 - 130	2	30	
Perfluorohexanoic acid (PFHxA)	25.1	25.1		ng/L		100	70 - 130	9	30	
Perfluorododecanoic acid (PFDoA)	25.1	23.9		ng/L		95	70 - 130	4	30	
Perfluorooctanoic acid (PFOA)	25.1	26.5		ng/L		106	70 - 130	4	30	
Perfluorodecanoic acid (PFDA)	25.1	25.8		ng/L		103	70 - 130	6	30	
Perfluorohexanesulfonic acid (PFHxS)	22.9	25.1		ng/L		110	70 - 130	2	30	
Perfluorobutanesulfonic acid (PFBS)	22.2	23.9		ng/L		108	70 - 130	1	30	
Perfluoroheptanoic acid (PFHpA)	25.1	24.2		ng/L		97	70 - 130	9	30	
Perfluorononanoic acid (PFNA)	25.1	26.1		ng/L		104	70 - 130	7	30	
Perfluorotetradecanoic acid (PFTA)	25.1	24.2		ng/L		97	70 - 130	7	30	
Perfluorotridecanoic acid (PFTrDA)	25.1	23.6		ng/L		94	70 - 130	5	30	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	23.4	24.3		ng/L		104	70 - 130	4	30	
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	23.7	23.7		ng/L		100	70 - 130	1	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	23.7	22.7		ng/L		96	70 - 130	8	30	

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
d5-NEtFOSAA	96		70 - 130
13C2 PFHxA	101		70 - 130
13C2 PFDA	101		70 - 130
13C3-GenX	94		70 - 130

Lab Sample ID: MRL 380-59976/24-A

Matrix: Water

Analysis Batch: 60298

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 59976

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.59	J	ng/L		80	50 - 150			
Perfluorooctanesulfonic acid (PFOS)	1.85	1.99	J	ng/L		108	50 - 150			
Perfluoroundecanoic acid (PFUnA)	2.00	1.83	J	ng/L		91	50 - 150			
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	2.00	1.79	J	ng/L		89	50 - 150			
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	2.00	1.69	J	ng/L		84	50 - 150			
Perfluorohexanoic acid (PFHxA)	2.00	1.79	J	ng/L		89	50 - 150			
Perfluorododecanoic acid (PFDoA)	2.00	1.77	J	ng/L		88	50 - 150			
Perfluorooctanoic acid (PFOA)	2.00	1.93	J	ng/L		96	50 - 150			
Perfluorodecanoic acid (PFDA)	2.00	1.89	J	ng/L		95	50 - 150			

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QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: MRL 380-59976/24-A

Matrix: Water

Analysis Batch: 60298

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 59976

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanesulfonic acid (PFHxS)	1.83	1.88	J	ng/L		103	50 - 150
Perfluorobutanesulfonic acid (PFBS)	1.77	1.66	J	ng/L		94	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	1.83	J	ng/L		91	50 - 150
Perfluorononanoic acid (PFNA)	2.00	1.89	J	ng/L		95	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.00	1.89	J	ng/L		94	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.00	1.75	J	ng/L		88	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	1.87	1.85	J	ng/L		99	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	1.66	J	ng/L		88	50 - 150
Surrogate		MRL %Recovery	MRL Qualifier				Limits
d5-NEtFOSAA		88					70 - 130
13C2 PFHxA		96					70 - 130
13C2 PFDA		98					70 - 130
13C3-GenX		85					70 - 130

Lab Sample ID: 380-66846-1 MS

Matrix: Drinking Water

Analysis Batch: 60298

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2

Prep Type: Total/NA

Prep Batch: 59976

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	23.8		ng/L		95	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		23.2	25.8		ng/L		111	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		25.1	26.1		ng/L		104	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.1	23.8		ng/L		95	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		25.1	22.3		ng/L		89	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		25.1	25.6		ng/L		100	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		25.1	25.3		ng/L		101	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		25.1	24.5		ng/L		96	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		25.1	26.0		ng/L		104	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		22.9	25.8		ng/L		110	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		22.2	24.1		ng/L		107	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		25.1	24.7		ng/L		98	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		25.1	26.6		ng/L		106	70 - 130
Perfluorotetradecanoic acid (PFTA)	<2.0		25.1	24.1		ng/L		96	70 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: 380-66846-1 MS

Matrix: Drinking Water

Analysis Batch: 60298

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2

Prep Type: Total/NA

Prep Batch: 59976

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier					
Perfluorotridecanoic acid (PFTTrDA)	<2.0		25.1	25.0		ng/L		99		70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		23.5	26.2		ng/L		111		70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		23.7	24.8		ng/L		105		70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		23.7	21.6		ng/L		91		70 - 130
Surrogate		MS		MS						
		%Recovery		Qualifier						Limits
d5-NEtFOSAA		88								70 - 130
13C2 PFHxA		101								70 - 130
13C2 PFDA		104								70 - 130
13C3-GenX		94								70 - 130

Lab Sample ID: 380-66846-1 MSD

Matrix: Drinking Water

Analysis Batch: 60298

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2

Prep Type: Total/NA

Prep Batch: 59976

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	Limits	RPD	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier								
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		25.1	26.8		ng/L		107		70 - 130	12		30
Perfluorooctanesulfonic acid (PFOS)	<2.0		23.2	24.9		ng/L		107		70 - 130	4		30
Perfluoroundecanoic acid (PFUnA)	<2.0		25.1	26.7		ng/L		106		70 - 130	2		30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.1	24.6		ng/L		98		70 - 130	4		30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		25.1	24.3		ng/L		97		70 - 130	9		30
Perfluorohexanoic acid (PFHxA)	<2.0		25.1	26.9		ng/L		105		70 - 130	5		30
Perfluorododecanoic acid (PFDoA)	<2.0		25.1	25.0		ng/L		100		70 - 130	1		30
Perfluorooctanoic acid (PFOA)	<2.0		25.1	26.5		ng/L		103		70 - 130	8		30
Perfluorodecanoic acid (PFDA)	<2.0		25.1	27.2		ng/L		108		70 - 130	4		30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		22.9	24.9		ng/L		105		70 - 130	4		30
Perfluorobutanesulfonic acid (PFBS)	<2.0		22.2	23.4		ng/L		104		70 - 130	3		30
Perfluoroheptanoic acid (PFHpA)	<2.0		25.1	26.7		ng/L		106		70 - 130	8		30
Perfluorononanoic acid (PFNA)	<2.0		25.1	27.7		ng/L		110		70 - 130	4		30
Perfluorotetradecanoic acid (PFTA)	<2.0		25.1	23.2		ng/L		92		70 - 130	4		30
Perfluorotridecanoic acid (PFTTrDA)	<2.0		25.1	25.1		ng/L		100		70 - 130	0		30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		23.5	25.7		ng/L		109		70 - 130	2		30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		23.7	24.0		ng/L		101		70 - 130	4		30

Euromins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-66846-1

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

Lab Sample ID: 380-66846-1 MSD

Matrix: Drinking Water

Analysis Batch: 60298

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2

Prep Type: Total/NA

Prep Batch: 59976

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		23.7	25.4		ng/L		107	70 - 130	16	30
Surrogate	%Recovery	MSD Qualifier	MSD	Limits							
d5-NEtFOSAA	98			70 - 130							
13C2 PFHxA	115			70 - 130							
13C2 PFDA	109			70 - 130							
13C3-GenX	103			70 - 130							

QC Association Summary

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

Job ID: 380-66846-1

GC/MS Semi VOA

Prep Batch: 59411

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-66846-1	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	525.2	
380-66846-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	525.2	
MB 380-59411/21-A	Method Blank	Total/NA	Water	525.2	
LCS 380-59411/23-A	Lab Control Sample	Total/NA	Water	525.2	
LCSD 380-59411/24-A	Lab Control Sample Dup	Total/NA	Water	525.2	
MRL 380-59411/22-A	Lab Control Sample	Total/NA	Water	525.2	
380-66107-BY-1-A MS	Matrix Spike	Total/NA	Water	525.2	
380-66250-BX-1-A DU	Duplicate	Total/NA	Water	525.2	

Analysis Batch: 59458

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-66846-1	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	525.2	59411
380-66846-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	525.2	59411
MB 380-59411/21-A	Method Blank	Total/NA	Water	525.2	59411
LCS 380-59411/23-A	Lab Control Sample	Total/NA	Water	525.2	59411
LCSD 380-59411/24-A	Lab Control Sample Dup	Total/NA	Water	525.2	59411
MRL 380-59411/22-A	Lab Control Sample	Total/NA	Water	525.2	59411
380-66107-BY-1-A MS	Matrix Spike	Total/NA	Water	525.2	59411
380-66250-BX-1-A DU	Duplicate	Total/NA	Water	525.2	59411

LCMS

Prep Batch: 59976

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-66846-1	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	537.1 DW	
380-66846-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	537.1 DW	
380-66846-5	FB AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	537.1 DW	
380-66846-6	FB AIEA GULCH WELLS PUMP 2	Total/NA	Water	537.1 DW	
MBL 380-59976/23-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-59976/25-A	Lab Control Sample	Total/NA	Water	537.1 DW	
LCSD 380-59976/26-A	Lab Control Sample Dup	Total/NA	Water	537.1 DW	
MRL 380-59976/24-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-66846-1 MS	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	537.1 DW	
380-66846-1 MSD	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	537.1 DW	

Analysis Batch: 60298

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-66846-1	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	537.1	59976
380-66846-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	537.1	59976
380-66846-5	FB AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	537.1	59976
380-66846-6	FB AIEA GULCH WELLS PUMP 2	Total/NA	Water	537.1	59976
MBL 380-59976/23-A	Method Blank	Total/NA	Water	537.1	59976
LCS 380-59976/25-A	Lab Control Sample	Total/NA	Water	537.1	59976
LCSD 380-59976/26-A	Lab Control Sample Dup	Total/NA	Water	537.1	59976
MRL 380-59976/24-A	Lab Control Sample	Total/NA	Water	537.1	59976
380-66846-1 MS	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	537.1	59976
380-66846-1 MSD	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	537.1	59976

Prep Batch: 61463

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-66846-1	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	533	

QC Association Summary

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

Job ID: 380-66846-1

LCMS (Continued)

Prep Batch: 61463 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-66846-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	533	
MBL 380-61463/21-A	Method Blank	Total/NA	Water	533	
LCS 380-61463/23-A	Lab Control Sample	Total/NA	Water	533	
LCSD 380-61463/24-A	Lab Control Sample Dup	Total/NA	Water	533	
MRL 380-61463/22-A	Lab Control Sample	Total/NA	Water	533	
380-66590-B-1-A MS	Matrix Spike	Total/NA	Water	533	
380-66590-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	

Prep Batch: 61498

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-66846-5	FB AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	533	
380-66846-6	FB AIEA GULCH WELLS PUMP 2	Total/NA	Water	533	
MBL 380-61498/19-A	Method Blank	Total/NA	Water	533	
LCS 380-61498/21-A	Lab Control Sample	Total/NA	Water	533	
LCSD 380-61498/22-A	Lab Control Sample Dup	Total/NA	Water	533	
MRL 380-61498/20-A	Lab Control Sample	Total/NA	Water	533	
380-66857-O-1-A MS	Matrix Spike	Total/NA	Water	533	
380-66857-P-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	

Analysis Batch: 61932

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-66846-1	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	533	61463
380-66846-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	533	61463
MBL 380-61463/21-A	Method Blank	Total/NA	Water	533	61463
LCS 380-61463/23-A	Lab Control Sample	Total/NA	Water	533	61463
LCSD 380-61463/24-A	Lab Control Sample Dup	Total/NA	Water	533	61463
MRL 380-61463/22-A	Lab Control Sample	Total/NA	Water	533	61463
380-66590-B-1-A MS	Matrix Spike	Total/NA	Water	533	61463
380-66590-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	61463

Analysis Batch: 62073

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-66846-5	FB AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	533	61498
380-66846-6	FB AIEA GULCH WELLS PUMP 2	Total/NA	Water	533	61498
MBL 380-61498/19-A	Method Blank	Total/NA	Water	533	61498
LCS 380-61498/21-A	Lab Control Sample	Total/NA	Water	533	61498
LCSD 380-61498/22-A	Lab Control Sample Dup	Total/NA	Water	533	61498
MRL 380-61498/20-A	Lab Control Sample	Total/NA	Water	533	61498
380-66857-O-1-A MS	Matrix Spike	Total/NA	Water	533	61498
380-66857-P-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	61498

Lab Chronicle

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

Job ID: 380-66846-1

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2

Lab Sample ID: 380-66846-1

Date Collected: 10/10/23 10:15

Matrix: Drinking Water

Date Received: 10/12/23 10:33

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			59411	N8NE	EA POM	10/13/23 19:54
Total/NA	Analysis	525.2		1	59458	Q8LA	EA POM	10/15/23 16:57
Total/NA	Prep	533			61463	T2EP	EA POM	10/28/23 11:47
Total/NA	Analysis	533		1	61932	SZ9R	EA POM	11/01/23 14:24
Total/NA	Prep	537.1 DW			59976	U7RS	EA POM	10/18/23 08:22
Total/NA	Analysis	537.1		1	60298	R6YA	EA POM	10/21/23 05:17

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-66846-2

Date Collected: 10/10/23 10:45

Matrix: Drinking Water

Date Received: 10/12/23 10:33

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			59411	N8NE	EA POM	10/13/23 19:54
Total/NA	Analysis	525.2		1	59458	Q8LA	EA POM	10/15/23 17:17
Total/NA	Prep	533			61463	T2EP	EA POM	10/28/23 11:47
Total/NA	Analysis	533		1	61932	SZ9R	EA POM	11/01/23 13:27
Total/NA	Prep	537.1 DW			59976	U7RS	EA POM	10/18/23 08:22
Total/NA	Analysis	537.1		1	60298	R6YA	EA POM	10/21/23 08:04

Client Sample ID: FB AIEA WELLS PUMPS 1&2 (260) P2

Lab Sample ID: 380-66846-5

Date Collected: 10/10/23 10:15

Matrix: Water

Date Received: 10/12/23 10:33

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			61498	T2EP	EA POM	10/29/23 12:52
Total/NA	Analysis	533		1	62073	R6YA	EA POM	11/02/23 01:41
Total/NA	Prep	537.1 DW			59976	U7RS	EA POM	10/18/23 08:22
Total/NA	Analysis	537.1		1	60298	R6YA	EA POM	10/21/23 08:14

Client Sample ID: FB AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-66846-6

Date Collected: 10/10/23 10:45

Matrix: Water

Date Received: 10/12/23 10:33

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			61498	T2EP	EA POM	10/29/23 12:52
Total/NA	Analysis	533		1	62073	R6YA	EA POM	11/02/23 01:51
Total/NA	Prep	537.1 DW			59976	U7RS	EA POM	10/18/23 08:22
Total/NA	Analysis	537.1		1	60298	R6YA	EA POM	10/21/23 08:24

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: 380-66846-1

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: 380-66846-1

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-Chloroeicosafiuoro-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-Chloroeicosafiuoro-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: 380-66846-1

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
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: 380-66846-1

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: 380-66846-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-66846-1	AIEA WELLS PUMPS 1&2 (260) P2	Drinking Water	10/10/23 10:15	10/12/23 10:33	HI0000331
380-66846-2	AIEA GULCH WELLS PUMP 2	Drinking Water	10/10/23 10:45	10/12/23 10:33	HI0000331
380-66846-5	FB AIEA WELLS PUMPS 1&2 (260) P2	Water	10/10/23 10:15	10/12/23 10:33	HI0000331
380-66846-6	FB AIEA GULCH WELLS PUMP 2	Water	10/10/23 10:45	10/12/23 10:33	HI0000331

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- 15
- 16
- 17

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

Chain of Custody Record



Client Information Client Contact: Dr. Ron Fenstermacher Phone: 808-748-5841 Email: RFENSTERMACHER@hbws.org		Lab PM Arada, Rachelle E-Mail Rachelle.Arada@eurofins.com		Carmer Tracking No(s) State of Origin		COC No Page 1 of 1 Job #	
Company City and County of Honolulu Address: 630 South Beretania St. Chemistry Lab City Honolulu State/Zip Hawaii 96843 Phone: 808-748-5841 Email RFENSTERMACHER@hbws.org		PWSID Due Date Requested TAT Requested (days) Compliance Project Δ Yes Δ No PO # C20525101 exp 05312023 WO # Project # 38001111 SSONW#		Analysis Requested SUBCONTRACT - 625 PAH Physis LL (EAL) + TICS SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL) SUBCONTRACT - 8015 Diesel LL (EAL) and Motor Oil 525 2 PREC - (MOD) 525 plus Plus TICs SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)		Preservation Codes M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - PH 4-5 Y - Trizine Z - other (specify) Other:	
Project Name RED HILL/HBWS Sites Event Desc. RUSH Weekly Red Hill Site Hawaii		Form MS/MSD (Yes or No) <input checked="" type="checkbox"/> R <input checked="" type="checkbox"/> RA Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> R <input checked="" type="checkbox"/> RA		Total Number of Containers Special Instructions/Note:			
Sample Identification Sample Date 10/10/23 1015 10/10/23 1045 10/10/23 1015 10/10/23 1045		Sample Time 10/10/23 1015 10/10/23 1045 10/10/23 1015 10/10/23 1045		Sample Type (C=Comp, G=grab) G G G G		Matrix (W=water, S=solid, O=water/soil, BT=Tissue A=Air) Water Water Water Water	
Possible Hazard Identification <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 Deliverable Requested I, II, III, IV, Other (specify)		Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements Method of Shipment FedEx <input checked="" type="checkbox"/> 7737 1009 7939 <input checked="" type="checkbox"/> 7737 1009 7946		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		380-66846 COC	
Empty Kit Relinquished by Relinquished by Relinquished by		Date 10/11/23 1200 Date/Time 10/11/23 1200 Date/Time 10/11/23 1200		Received by Received by Received by		Company HBWS Company Company Company	
Cooler Temperature(s) °C and Other Remarks 10/11/23 1200		Date/Time 10/11/23 1200		Date/Time 10/11/23 1200		Date/Time 10/11/23 1200	



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

Chain of Custody Record



Client Information		Lab P/M: Arada, Rachelle		Camera Tracking No(s)		COC No									
Client Contact: Dr. Ron Fenstermacher		E-Mail: Rachelle.Arada@eurofins.com		State of Origin		Page 1 of 1									
City and County of Honolulu		PWSID		Job #											
Address: 630 South Beretania St Chemistry Lab		Due Date Requested		Analysis Requested Total Number of Containers: <input type="checkbox"/>											
City: Honolulu		TAT Requested (days): Standard													
State Zip: Hawaii 96843		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No													
Phone: 808-748-5841		PO #: C20525101 exp 05312023													
Email: RFENSTEMACHER@hbws.org		WO #:													
Project Name: RED HILL/HBWS Sites Event Desc. RUSH Weekly Red Hill		Project #: 38001111		537 1_DW_PREC - 537 1 Full List											
Site: Hawaii		SSOW#:		Perform MS/MSD (Yes or No)											
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (Water, Soil, Sediment, Other)		Preservation Code (AT=Ascorbic Acid)		Field Filtered Sample (Yes or No)		533 - All Analytes	
		10/10/23		1015		G		W		N		<input checked="" type="checkbox"/>		Y	
AIEA WELLS PUMPS 1 & 2 (260) P2		10/10/23		1045		G		W		N		<input checked="" type="checkbox"/>		3 3	
AIEA GULCH WELLS PUMP 2		10/10/23		1015		G		W		N		<input checked="" type="checkbox"/>		3 3	
FB AIEA WELLS PUMPS 1 & 2 (260) P2		10/10/23		1015		G		W		N		<input checked="" type="checkbox"/>		1 1	
FB AIEA GULCH WELLS PUMP 2		10/10/23		1045		G		W		N		<input checked="" type="checkbox"/>		1 1	
Possible Hazard Identification		<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		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
Deliverable Requested I, II, III, IV, Other (specify)		Date		Date/Time		Company		Received by		Date/Time		Company		Special Instructions/QC Requirements	
Empty Kit Relinquished by		10/11/23		1200		HBWS		G RETNER		10/23		EGAP		Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For <input type="checkbox"/> Months	
Relinquished by		Date/Time		Date/Time		Company		Received by		Date/Time		Company		Method of Shipment: <input type="checkbox"/> FedEx <input type="checkbox"/> UPS <input type="checkbox"/> Other	
Relinquished by		Date/Time		Date/Time		Company		Received by		Date/Time		Company		Special Instructions/QC Requirements	
Relinquished by		Date/Time		Date/Time		Company		Received by		Date/Time		Company		Cooler Temperature(s) °C and Other Remarks	
Relinquished by		Date/Time		Date/Time		Company		Received by		Date/Time		Company		1751A 1621-FROZEN(1) 0.5' 0.1' 0.7-2.0' 0.1' 0.4-1.0' 0.1'-3.9'	



Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-66846-1

Login Number: 66846

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	

